GROUP 54C

CONTROLLER AREA NETWORK (CAN)

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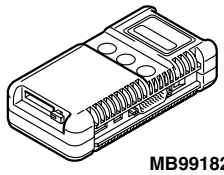
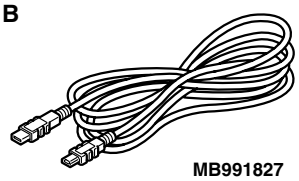
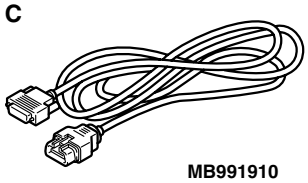
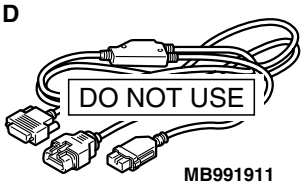
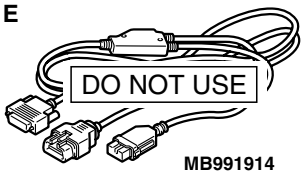
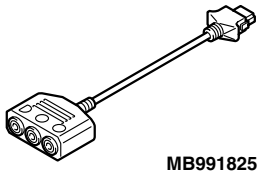
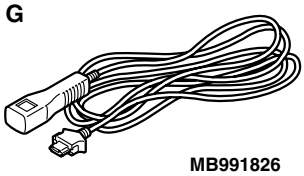
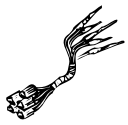
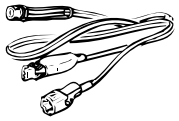
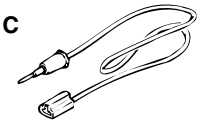
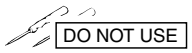
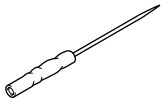
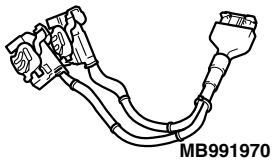
SPECIAL TOOL

M1548304200347

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  MB991824 B  MB991827 C  MB991910 D  MB991911 E  MB991914 F  MB991825 G  MB991826 MB991958	MB991958 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826 M.U.T.-III sub assembly A: Vehicle communication interface (V.C.I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (Vehicles with CAN communication system) D: M.U.T.-III main harness B (Vehicles without CAN communication system) E: M.U.T.-III main harness C (for Daimler Chrysler models only) F: M.U.T.-III measurement adapter G: M.U.T.-III trigger harness	MB991824-KIT	CAN bus diagnostics **⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  B  C  D  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
 MB992006	MB992006 Extra fine probe	General service tool	Making voltage and resistance measurement during troubleshooting
 MB991970	MB991970 ABS check harness	–	Measure the voltage and resistance at the ABS-ECU

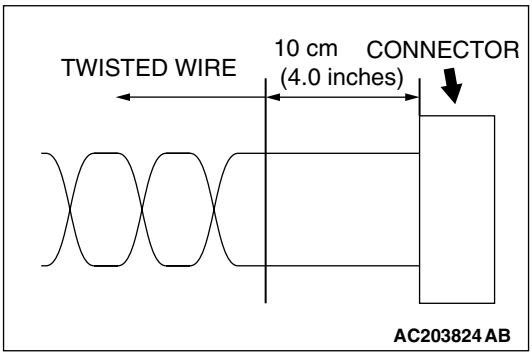
TEST EQUIPMENT

M1548304300236

TEST EQUIPMENT	NAME	USE
 AC000019	Digital multimeter	Checking CAN bus circuit (for resistance and voltage measurements)

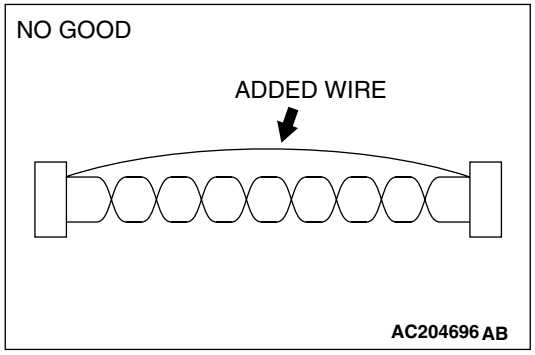
SERVICE PRECAUTIONS

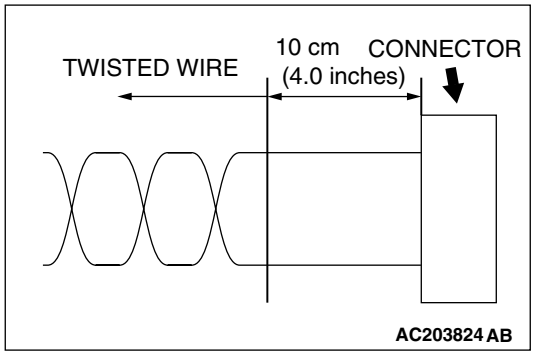
M1548302100236

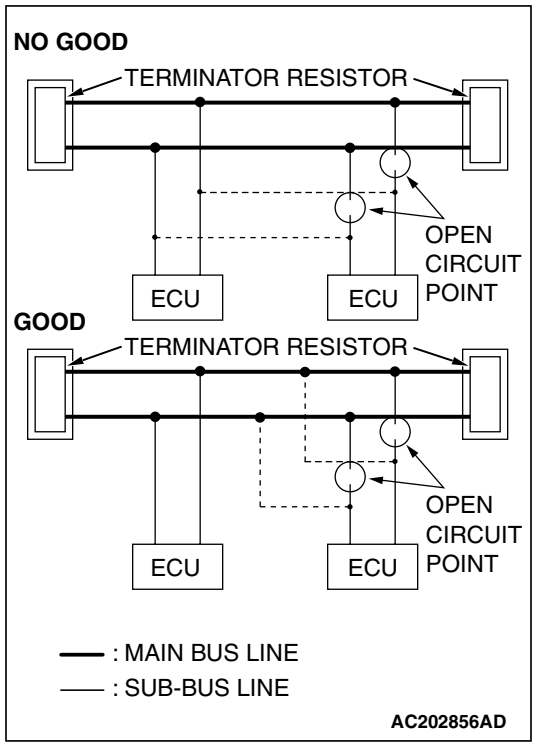
WARNINGS IN DIAGNOSIS SECTION	DETAILS REGARDING WARNINGS
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.	–
⚠ CAUTION **A digital multimeter should be used.**	**When measuring resistance value or voltage in CAN bus lines, use a digital multimeter. If not using a digital multimeter, the equipment connected through the CAN communication lines, may be damaged.**
⚠ CAUTION **Disconnect the negative battery terminal.**	**Disconnect the negative battery terminal when measuring the resistance value in the CAN bus line. If you fail to do so, a component connected through the CAN communication lines may be damaged.**
⚠ CAUTION **The test wiring harness should be used.**	**Always use the test harness when measuring the voltage or resistance value at the female connector. If you fail to do so, connectors may be damaged.**
⚠ CAUTION **The strand end of the twisted wire should be within 10 cm (4 inches) from the connector.**	 **If you repair the wire due to a defective connector or its terminal or harness wire, you should cut the wire so that the strand end of the twisted wire should be within 10 cm (4 inches) from the connector as shown. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), a communication error may be caused.**
⚠ CAUTION **Strictly observe the specified wiring harness repair procedure.**	**When you repair a CAN bus line, observe the precautions on how to repair the CAN bus line strictly (Refer to P.54C-7). If a new wire is added or a splice point is modified for the CAN_L or CAN_H line, an error in the CAN communication may be caused.**

PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

M1548301900239







Precautions on how to repair the CAN bus lines

- If the CAN_L or CAN_H line on the main bus line or sub-bus line is repaired, replace all the twisted wires between the end connectors. If the wiring harness is partially repaired, or only CAN_L or CAN_H line is repaired, noise suppression is deteriorated, causing a communication error.
- If the connector or wire on the main bus line or the sub-bus wire is replaced, the strand end of the twisted wire should be within 10 cm (4 inches) from the connector. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), noise suppression is deteriorated, causing a communication error.
- If a sub-bus line is repaired, splice a new wire directly into the main bus line. If a new wire is spliced into the sub-bus line, which is connected to another device, the CAN communication will be disabled.

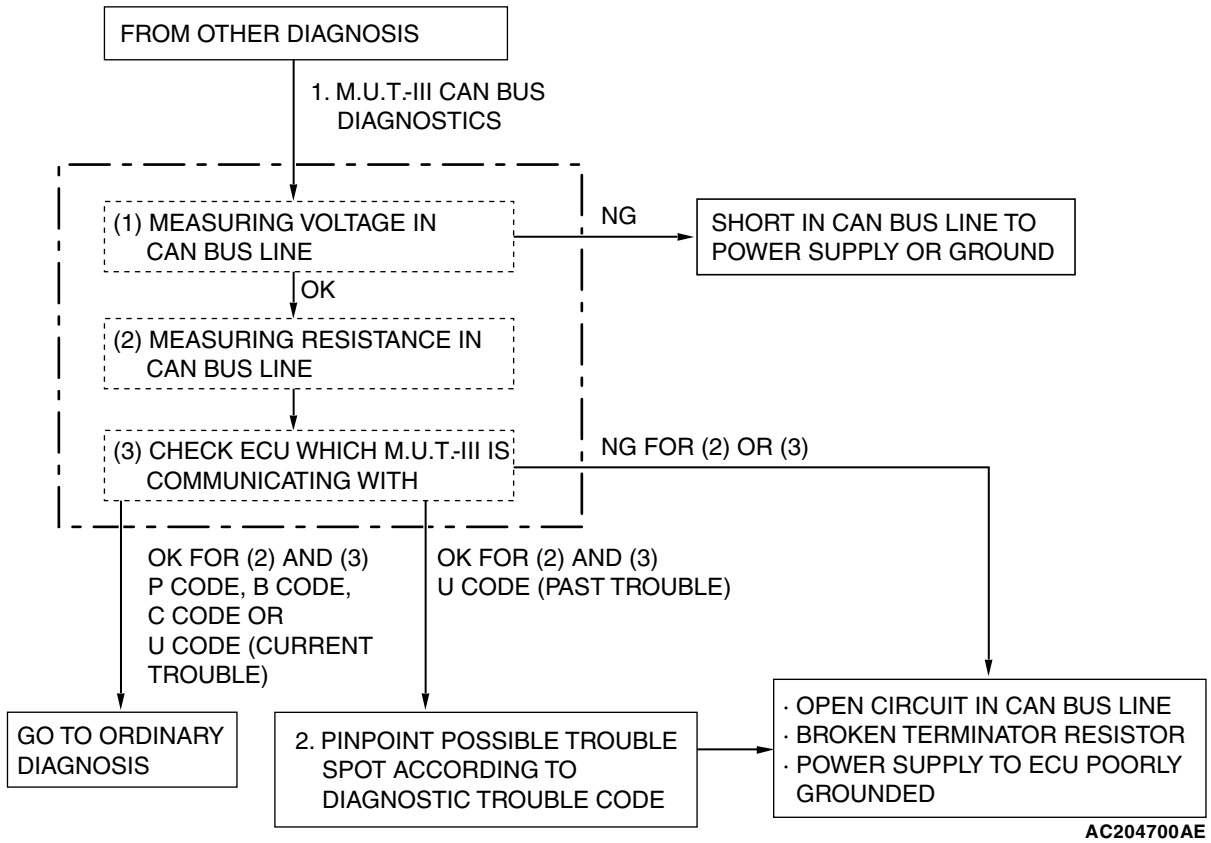
Precautions on how to repair the terminator resistor

If one-side of the terminator resistors is broken, the CAN communication will continue, although noise suppression is deteriorated. In this case, no DTC may be set. Check the system regardless of whether a DTC is set or not. If damage is found, replace the terminator resistor.

EXPLANATION ABOUT THE SCAN TOOL (M.U.T.-III) CAN BUS DIAGNOSTICS

M1548300100371

The M.U.T.-III CAN bus diagnostics carries out the three checks below automatically, and then displays the current condition of the CAN bus lines according to the check results.



1. M.U.T.-III CAN bus diagnostics

   The M.U.T.-III diagnoses CAN bus lines in accordance with the following strategy.

   (1) Measuring voltage in CAN bus line

   Diagnoses the power supply (such as wires of higher voltage than CAN communication line) and grounding (such as wires of lower voltage than CAN communication line) of CAN bus lines for short circuit by measuring the voltages between the CAN_L line or H line and body ground.

MEASURE THE VOLTAGE	NORMAL VALUE	MEASUREMENT VALUE	TROUBLE WHEN THE MEASUREMENT VALUE DOES NOT MEET THE NORMAL VALUE	NOTE
Between the CAN_L line and body ground	1.0 V or more and 4.0 V or less	Less than 1.0 V	Short to ground of the CAN_L line	If the CAN_L or H line is shorted to ground or power supply, a DTC may not be set.
		More than 4.0 V	A short to the power supply of the CAN_L line	
Between the CAN_H line and body ground	1.0 V or more and 4.0 V or less	Less than 1.0 V	Short to ground of the CAN_H line	
		More than 4.0 V	A short to the power supply of the CAN_H line	

(2) Measuring resistance in CAN bus line

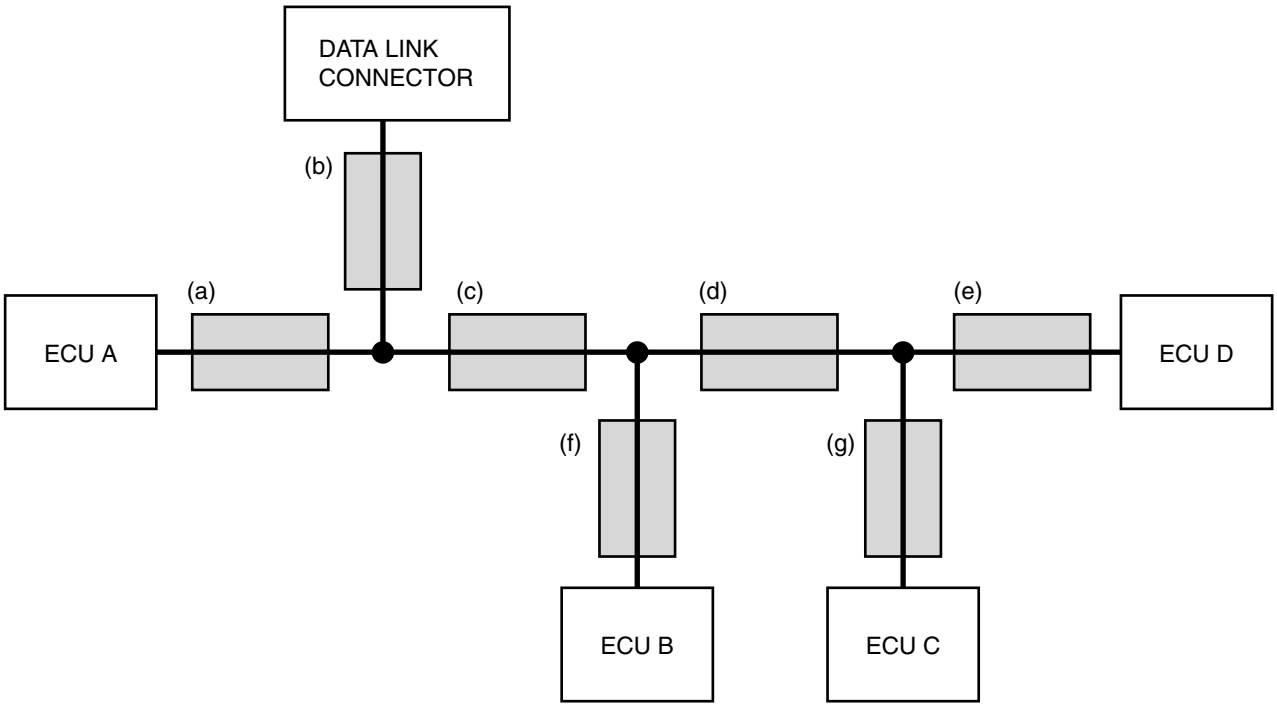
Checks the terminator resistors (incorporated in the combination meter or the powertrain control module), which are connected to each end of a CAN bus line, for breakage and a CAN bus main line for open circuit by measuring the resistance value between a CAN_L line and H line.

NORMAL VALUE	MEASUREMENT VALUE	TROUBLE WHEN THE MEASUREMENT VALUE DOES NOT MEET THE NORMAL VALUE	NOTE
60 ± 10 Ω	120 ± 20 Ω	Trouble in a CAN main bus line or terminator resistor	If only one terminator resistor is broken at either side, the CAN communication will continue although noise suppression is deteriorated. If a CAN main bus line is open circuit, the CAN communication is suspended at that open circuit point.
	No continuity	Trouble in CAN main bus line or between the data link connector and main bus line	–
	2 ohms or less	CAN bus line (between CAN_L and H lines) is shorted	If a CAN bus line is shorted, all ECUs cease communicating each other (This fail-safe function is called "Bus off").
	Other than above	Poorly engaged connector	–

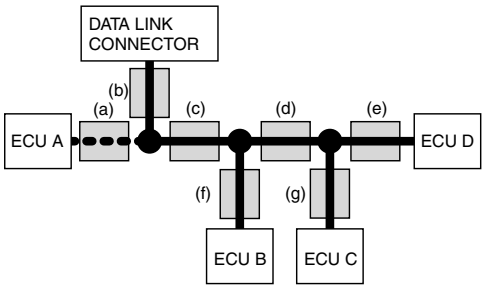
(3) Checking the communication condition of ECUs

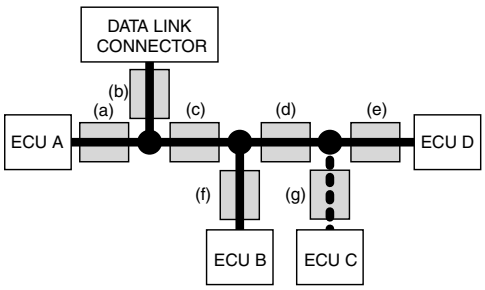
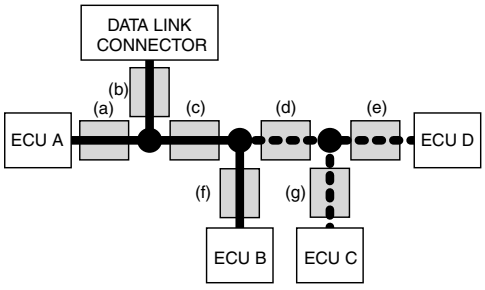
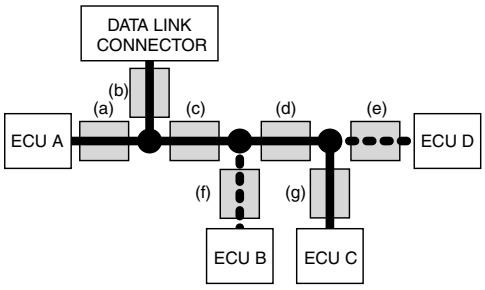
The M.U.T.-III narrows down troubles in circuit by itself. Its strategy is as follows:

REFERENCE CIRCUIT



AC204741 AC

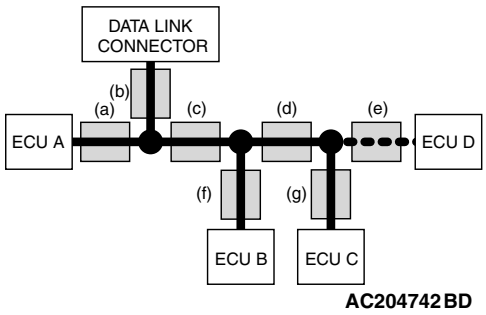
ECU WHICH CAN NOT COMMUNICATE WITH THE M.U.T.-III	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT	
ECU A	CAN bus line (a) and power supply system to ECU A	ECU A communicates with the M.U.T.-III via CAN bus lines (a) and (b). The M.U.T.-III judges that CAN bus line (b) is normal, because it can communicate with other ECUs. Possible trouble may be present in CAN bus line (a) or the power supply system to ECU A.	 AC204742 AZ

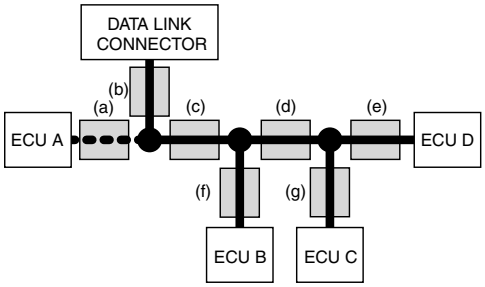
ECU WHICH CAN NOT COMMUNICATE WITH THE M.U.T.-III	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT	
ECU C	CAN bus line (g) and power supply system to ECU C	ECU C communicates with the M.U.T.-III via CAN bus lines (b), (c), (d) and (g). The M.U.T.-III judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECUs B and D. Possible trouble may be present in CAN bus line (g) or the power supply system to ECU C.	 AC204742BA
ECU C and ECU D	Trouble in CAN bus line (d)	ECUs C and D communicate with the M.U.T.-III via CAN bus lines (b), (c), (d), (e) and (g). The M.U.T.-III judges that CAN bus lines (b) and (c) are normal, because it can communicate with ECU B. Possible trouble may be present in CAN bus line (d), (e) or (g) or the power supply system to ECU D. CAN bus line (d) is shared by ECUs C and D when they communicate with the M.U.T.-III, so CAN bus line (d) is suspected as ultimate cause. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.	 AC204742BB
ECU B and ECU D	CAN bus line (e) or (f) or power supply system to ECU B or D	ECUs C and D communicate with the M.U.T.-III via CAN bus lines (b), (c), (d), (e) and (g). The M.U.T.-III judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECU C. Possible trouble may be present in CAN bus line (f) or (e) or the power supply system to ECU B or D.	 AC204742BC

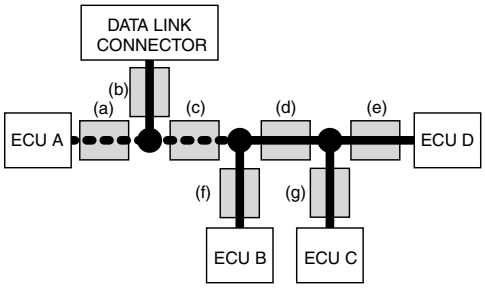
2. If DTC code related to CAN communication is set as past trouble, isolate opens as described below.

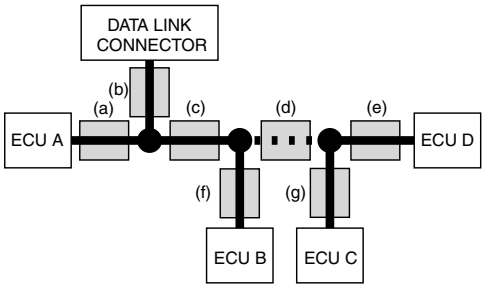
   NOTE: If you pinpoint trouble spot according to DTC code, you should use time-out DTC code. DTC code related to failure information is set when the data to be set contains an error, so CAN bus line itself is probably normal.

   NOTE: Time-out DTC codes are stored in each ECU memory individually. Therefore, it is possible that these DTC codes have not been set simultaneously. If the trouble spot cannot be found when you diagnose by judging from multiple DTC codes, check the communication lines between each ECU.

DTC CODE TO BE SET	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING TROUBLE SPOT	
Time-out DTC code associated with ECU D is stored in ECU A, ECU B and ECU C	Trouble in CAN bus line (e) and power supply system to ECU D	When time-out DTC code associated with ECU D is stored in ECU A, B and C, or time-out DTC code associated with ECUs A, B and C is stored in ECU D, or "bus off" DTC code is stored in ECU D, CAN bus line (e) is suspected. When DTC code is not stored in ECU D, the power supply to ECU D is suspected.	
Time-out DTC code associated with ECUs A, B and C is stored in ECU D			
"Bus off" DTC code is stored in ECU D			

<table>
<tr><th>DTC CODE TO BE SET</th><th>POSSIBLE TROUBLE SPOT</th><th colspan="2">LOGIC FOR DETERMINING TROUBLE SPOT</th></tr>
<tr><td>Time-out DTC code associated with ECU A is stored in ECUs B, C and D
Time-out DTC code associated with ECUs B, C and D is stored in ECU A
"Bus off" DTC code is stored in ECU A</td><td>Trouble in CAN bus line (a) and power supply system to ECU A</td><td>When time-out DTC code associated with ECU A is stored in ECUs B, C and D, or time-out DTC code associated with ECUs B, C and D is stored in ECU A, or "bus off" DTC code is stored in ECU A, CAN bus line (a) or (c) is suspected. When DTC code is not stored in ECU A, the power supply to ECU A is suspected.</td><td> 

AC204742 BE
 

AC204742 BF</td></tr>
<tr><td>Time-out DTC codes associated with ECUs C and D are stored in ECU A and ECU B
Time-out DTC codes associated with ECUs A and B are stored in ECU C and ECU D</td><td>Trouble in CAN bus line (d)</td><td>If time-out DTC codes associated with ECUs C and D are stored in ECUs A and B, or time-out codes associated with ECUs A and B are stored in ECUs C and D, CAN bus line (d) is suspected. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.</td><td> 

AC204742 BG</td></tr>
</table>

DIAGNOSTIC TROUBLE CODE DIAGNOSIS

M1548304500100

ON-BOARD DIAGNOSTICS

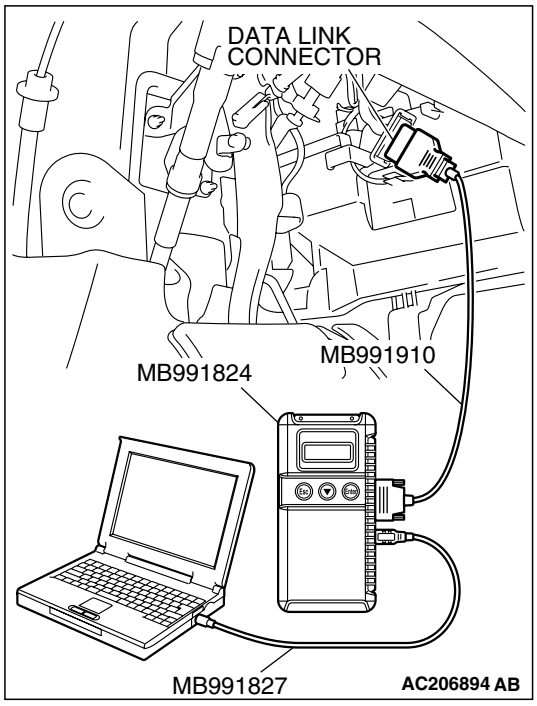
The CAN is a communication method which the ECUs use in order to communicate each other. The CAN-related diagnostic trouble codes will be stored in the following ECUs, which use the CAN communication.

- Powertrain control module
- ABS-ECU
- ETACS-ECU
- A/C-ECU
- SRS-ECU
- Combination meter
- Multi-center display (middle-grade type)

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

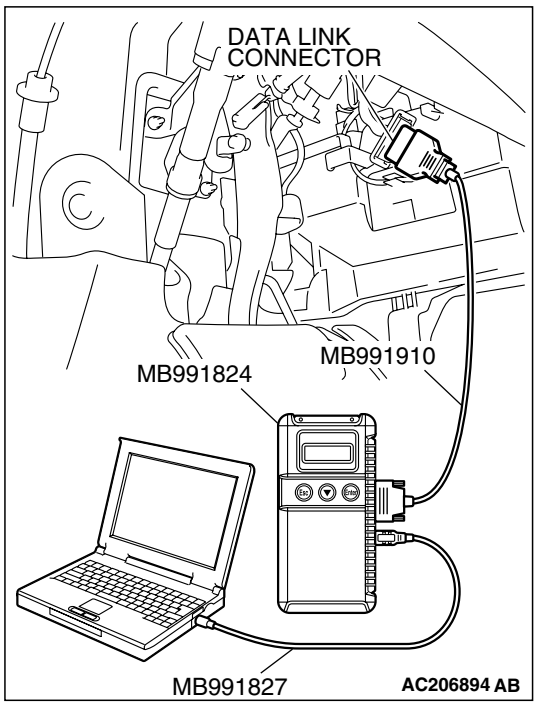
   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO DIAGNOSE THE CAN BUS LINE

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle whose CAN bus lines will be diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle whose CAN bus lines will be diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

DIAGNOSIS

CAN BUS DIAGNOSTICS TABLE

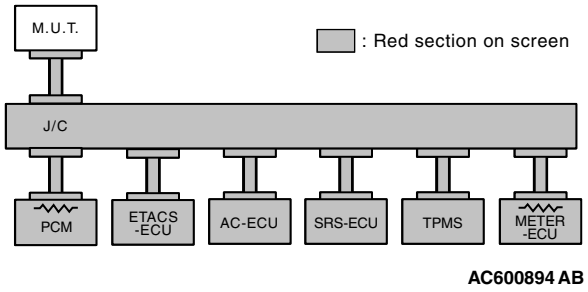
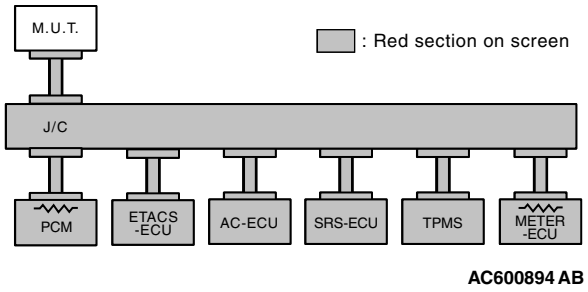
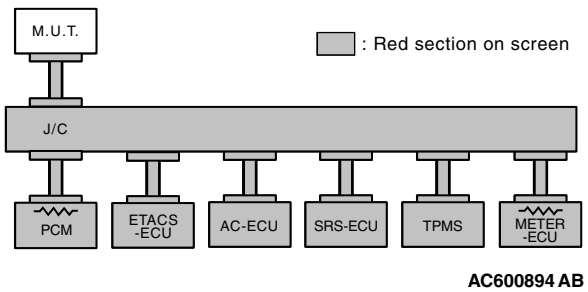
M1548300200442

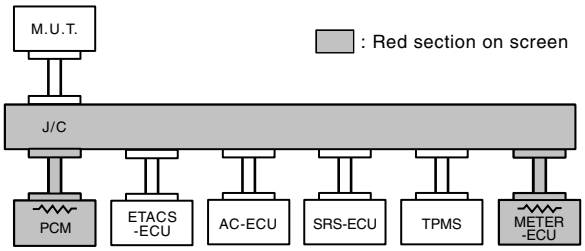
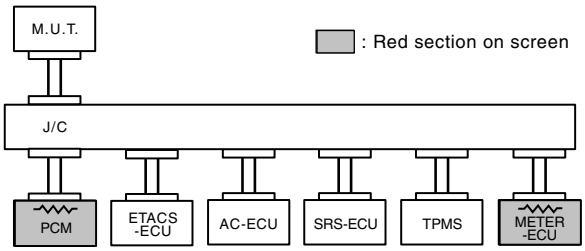
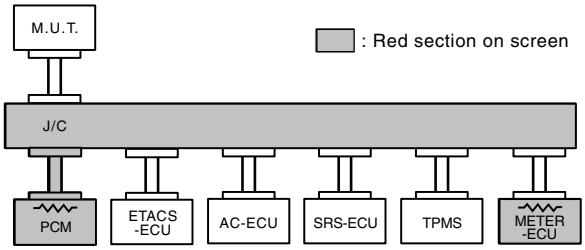
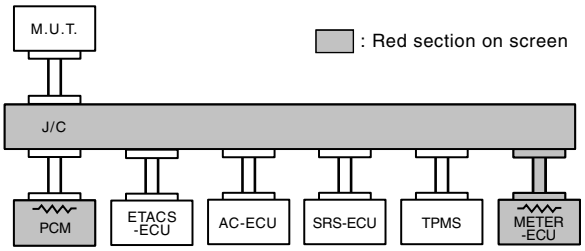
This diagnosis applies only to the CAN bus lines. If a different system is defective, proceed to the applicable diagnosis section for each system. Observe the diagnosis procedure below only when the CAN bus line is defective.

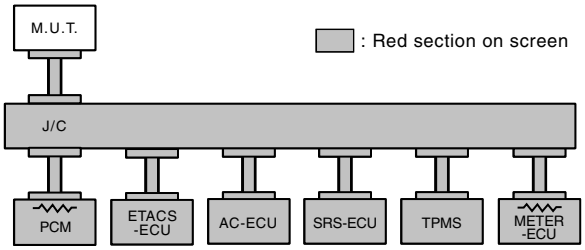
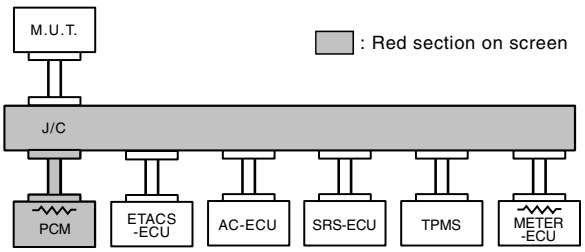
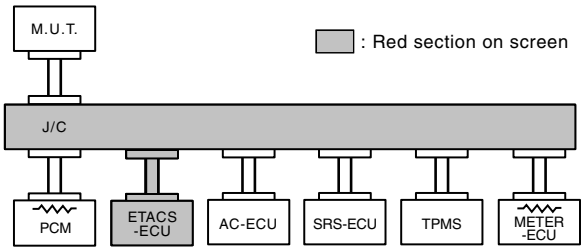
⚠ CAUTION

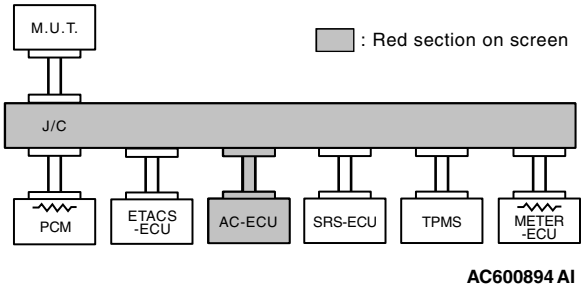
During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. After completing the repair, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

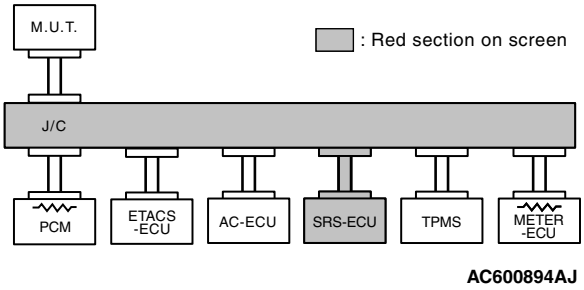
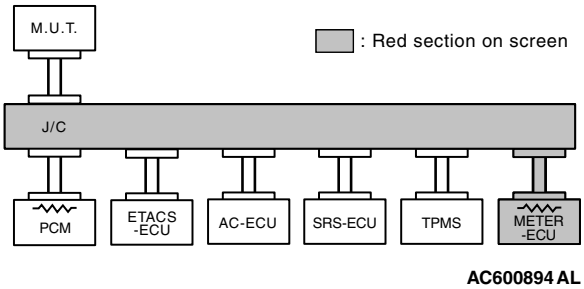
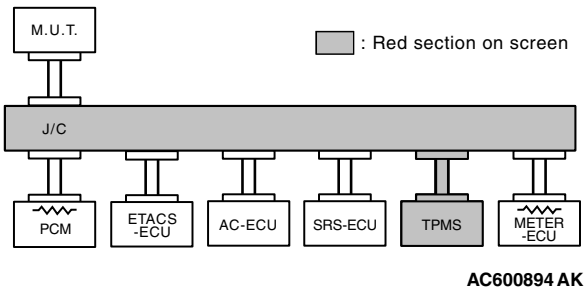
Vehicles without ABS and vehicles without multi-center display (middle-grade type)

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Short circuit to battery in red displayed area is estimated.  AC600894 AB	Diagnostic Item 1 Diagnose shorts in the power supply to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>	P.54C-34
<Comment> Grounding in red displayed area is estimated.  AC600894 AB	Diagnostic Item 4 Diagnose shorts in the ground to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>	P.54C-185
<Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated.  AC600894 AB	Diagnostic Item 7 Diagnose shorts between CAN_L and H lines <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>	P.54C-335

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Disconnection in red displayed area is estimated.  AC600894 AC	Diagnostic Item 10 Diagnose terminator resistors at both ends <Vehicles without ABS>	P.54C-426
<Comment> Malfunction of terminating resistance is estimated.  AC600894 AD	Diagnostic Item 12 Diagnose a terminator resistor at either end <Vehicles without ABS>	P.54C-465
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600894 AE		
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600894 AF		

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.  AC600894 AB	Diagnostic Item 14 Diagnose CAN bus lines thoroughly <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>	P.54C-492
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894 AG	Diagnostic Item 17 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles without ABS>	P.54C-602
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894 AH	Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.	P.54C-622

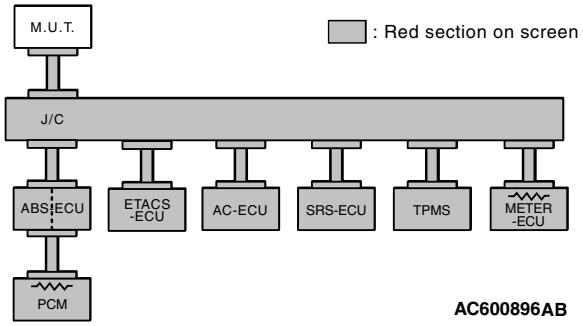
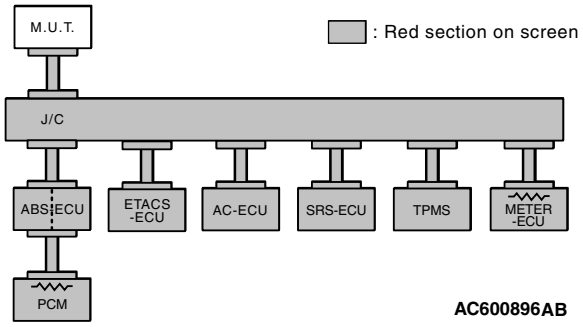
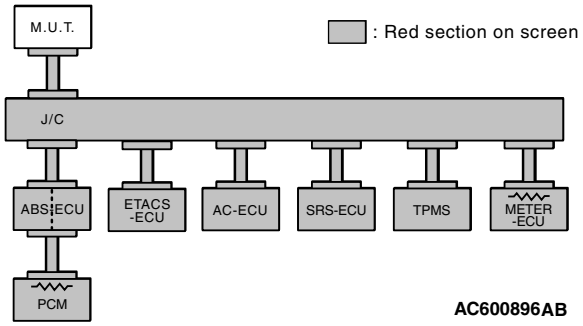
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894 AI	Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.	P.54C-633

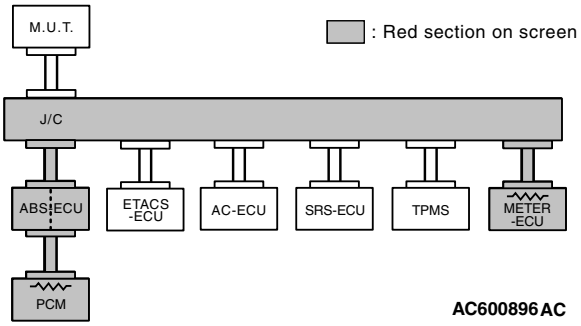
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894AJ	Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.	P.54C-640
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894 AL	Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.	P.54C-646
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600894 AK	Diagnostic Item 25 Diagnose the lines between CAN main bus line and the TPMS reciver.	P.54C-651

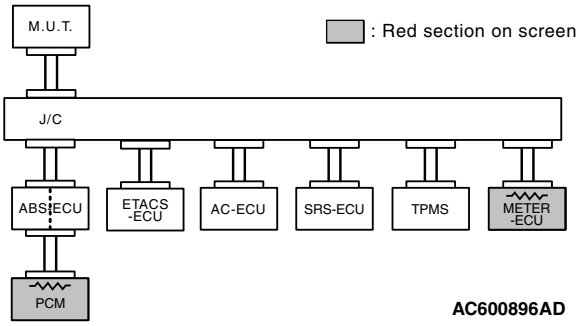
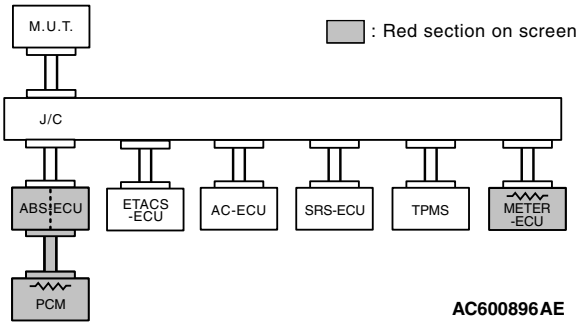
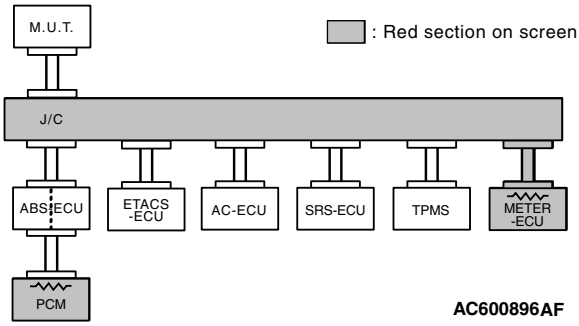
NOTE: If the screen other than above is displayed, problems are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

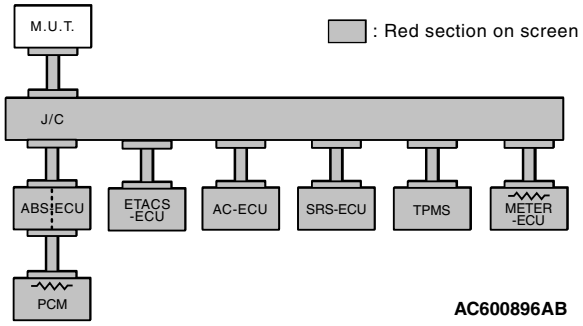
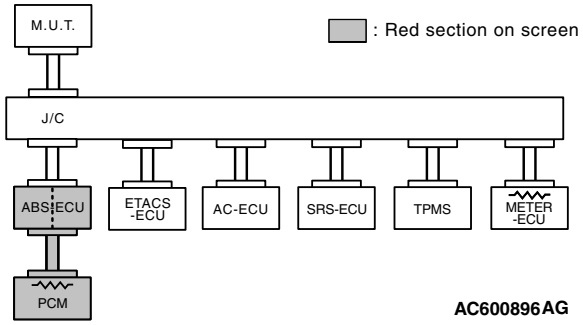
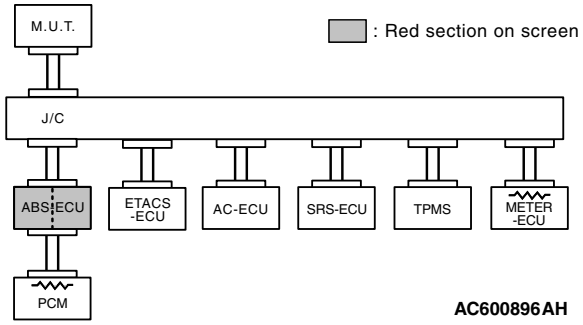
NOTE: If trouble cannot be solved after performing the diagnosis other than item 14, diagnose CAN bus line thoroughly.

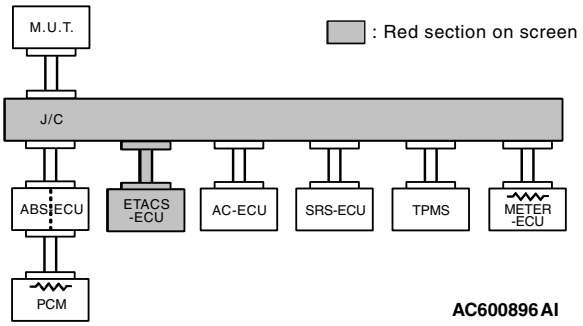
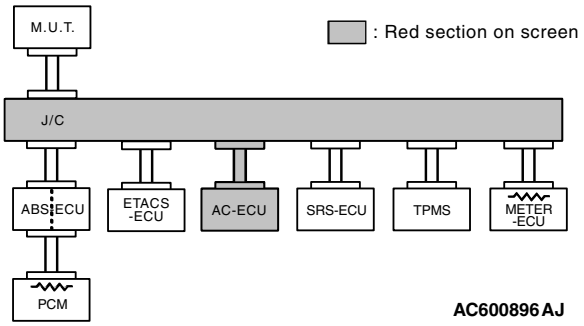
Vehicles with ABS and vehicles without multi-center display (middle-grade type)

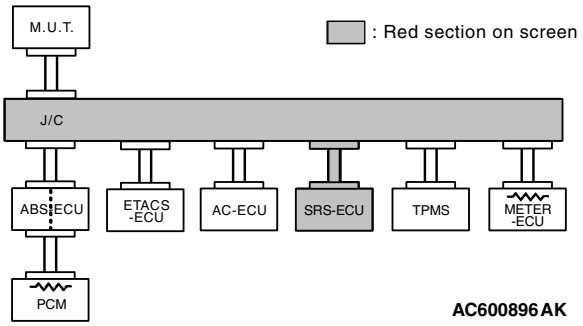
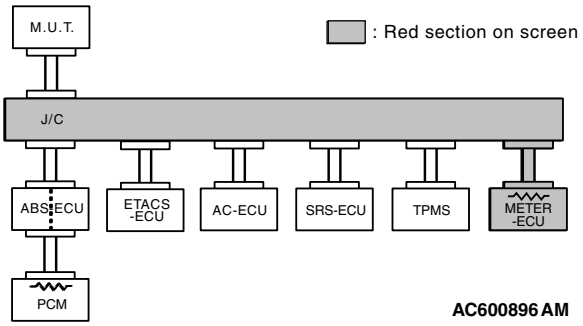
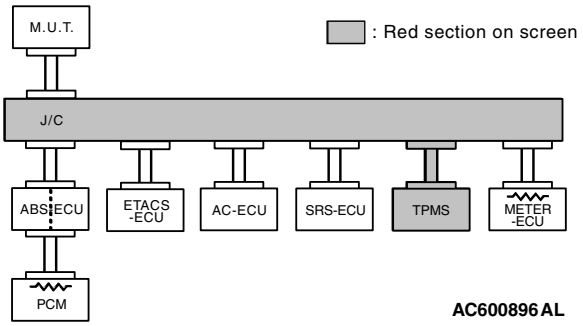
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Short circuit to battery in red displayed area is estimated. 	Diagnostic Item 2 Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>	P.54C-79
<Comment> Grounding in red displayed area is estimated. 	Diagnostic Item 5 Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>	P.54C-230
<Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated. 	Diagnostic Item 8 Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>	P.54C-362

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Disconnection in red displayed area is estimated.  	Diagnostic Item 11 Diagnose terminator resistors at both ends <Vehicles with ABS>	P.54C-443

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Malfunction of terminating resistance is estimated.  AC600896AD	Diagnostic Item 13 Diagnose a terminator resistor at either end <Vehicles with ABS>	P.54C-477
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600896AE		
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600896AF		

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.  AC600896AB	Diagnostic Item 15 Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>	P.54C-525
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600896AG	Diagnostic Item 18 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS>	P.54C-609
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600896AH	Diagnostic Item 19 Diagnose the lines between CAN main bus line and the ABS-ECU.	P.54C-615

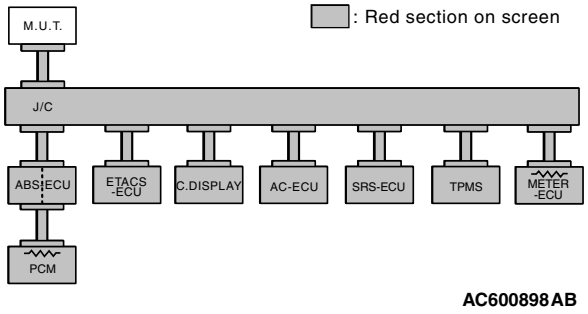
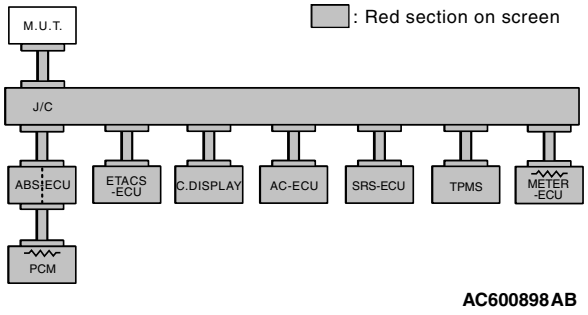
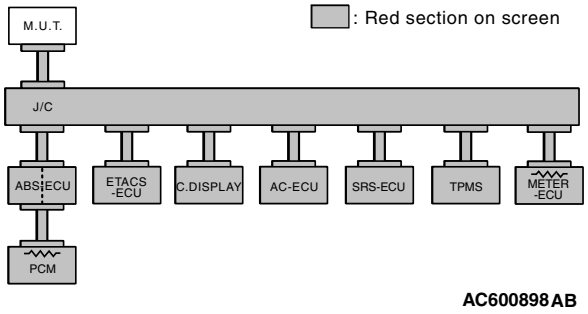
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600896 AI	Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.	P.54C-622
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600896 AJ	Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.	P.54C-633

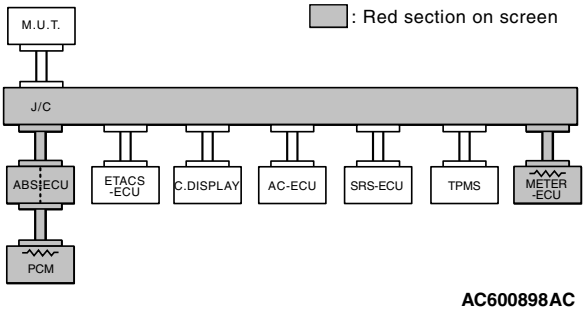
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated. 	Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.	P.54C-640
<Comment> Harness disconnection or loose connection in red displayed area is estimated. 	Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.	P.54C-646
<Comment> Harness disconnection or loose connection in red displayed area is estimated. 	Diagnostic Item 25 Diagnose the lines between CAN main bus line and the TPMS reciver.	P.54C-651

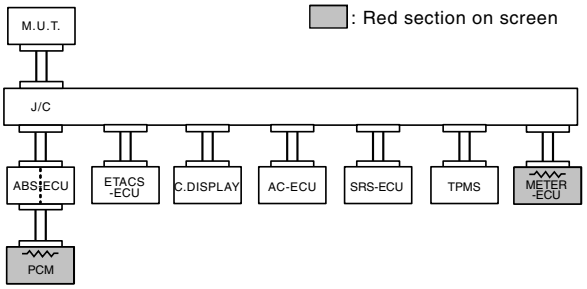
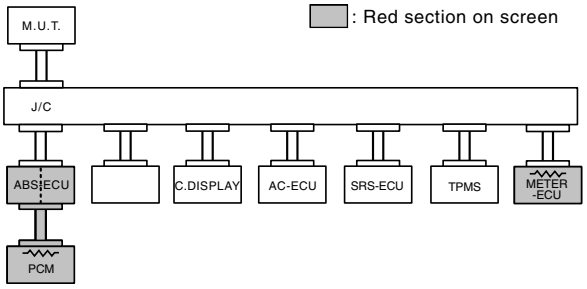
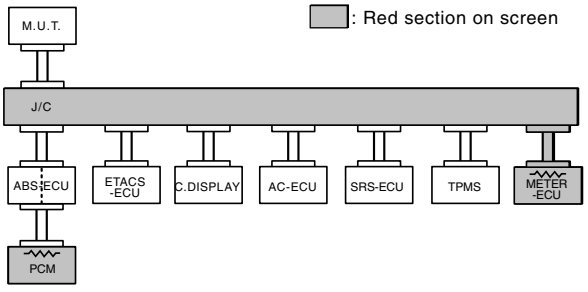
NOTE: If the screen other than above is displayed, troubles are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

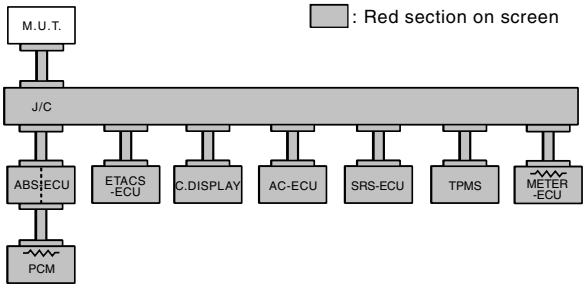
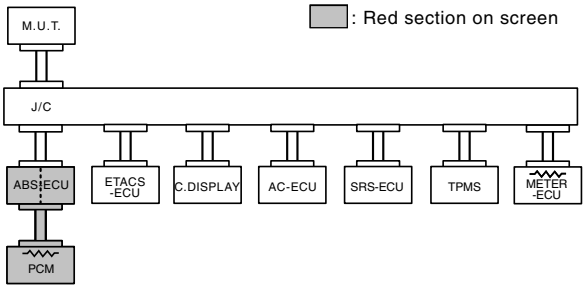
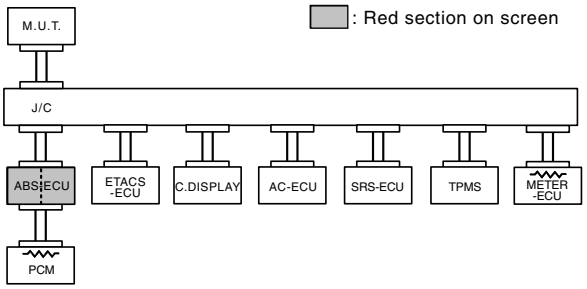
NOTE: If a trouble cannot be solved after performing the diagnosis other than item 15, diagnose CAN bus line thoroughly.

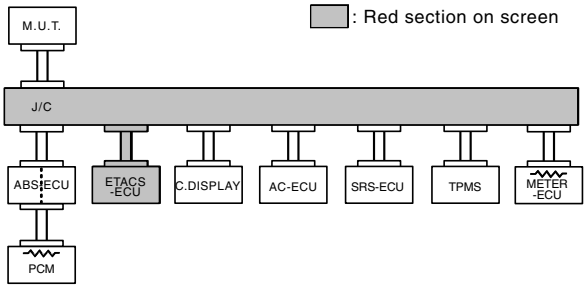
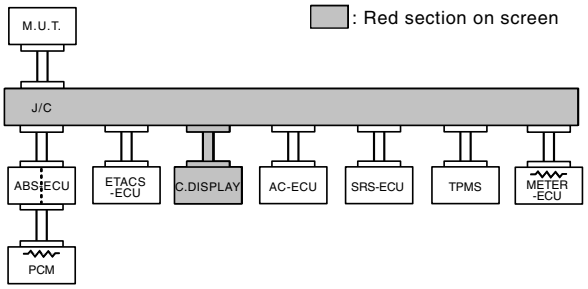
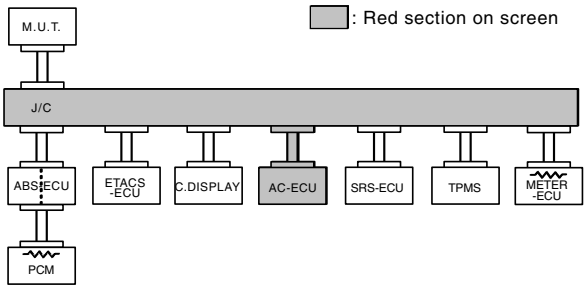
Vehicles with ABS and vehicles with multi-center display (middle-grade type)

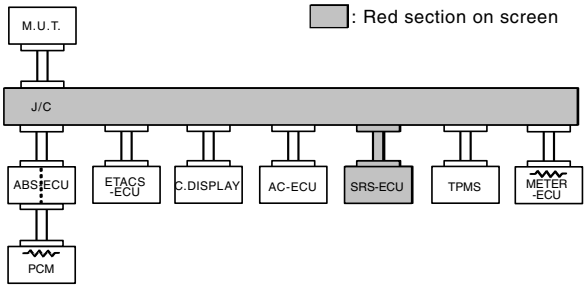
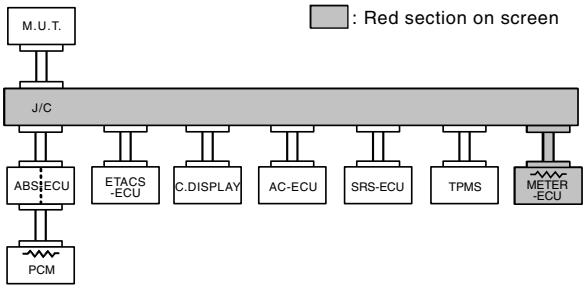
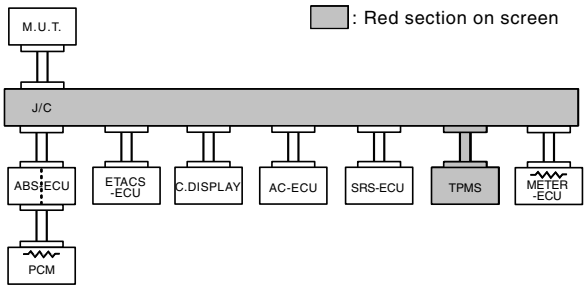
M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Short circuit to battery in red displayed area is estimated.  AC600898AB	Diagnostic Item 3 Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>	P.54C-131
<Comment> Grounding in red displayed area is estimated.  AC600898AB	Diagnostic Item 6 Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>	P.54C-282
<Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated.  AC600898AB	Diagnostic Item 9 Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>	P.54C-393

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Disconnection in red displayed area is estimated.  AC600898AC	Diagnostic Item 11 Diagnose terminator resistors at both ends <Vehicles with ABS>	P.54C-443

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Malfunction of terminating resistance is estimated.  AC600898AD	Diagnostic Item 13 Diagnose a terminator resistor at either end <Vehicles with ABS>	P.54C-477
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600898AE		
<Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.  AC600898AF		

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.  AC600898AB	Diagnostic Item 16 Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>	P.54C-562
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AG	Diagnostic Item 18 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS>	P.54C-609
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AH	Diagnostic Item 19 Diagnose the lines between CAN main bus line and the ABS-ECU.	P.54C-615

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AI	Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.	P.54C-622
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AJ	Diagnostic Item 21 Diagnose the lines between CAN main bus line and the multi-center display (middle-grade type)	P.54C-627
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AK	Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.	P.54C-633

M.U.T.-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AL	Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.	P.54C-640
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AN	Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.	P.54C-646
<Comment> Harness disconnection or loose connection in red displayed area is estimated.  AC600898AM	Diagnostic Item 25 Diagnose the lines between CAN main bus line and the TPMS reciver.	P.54C-651

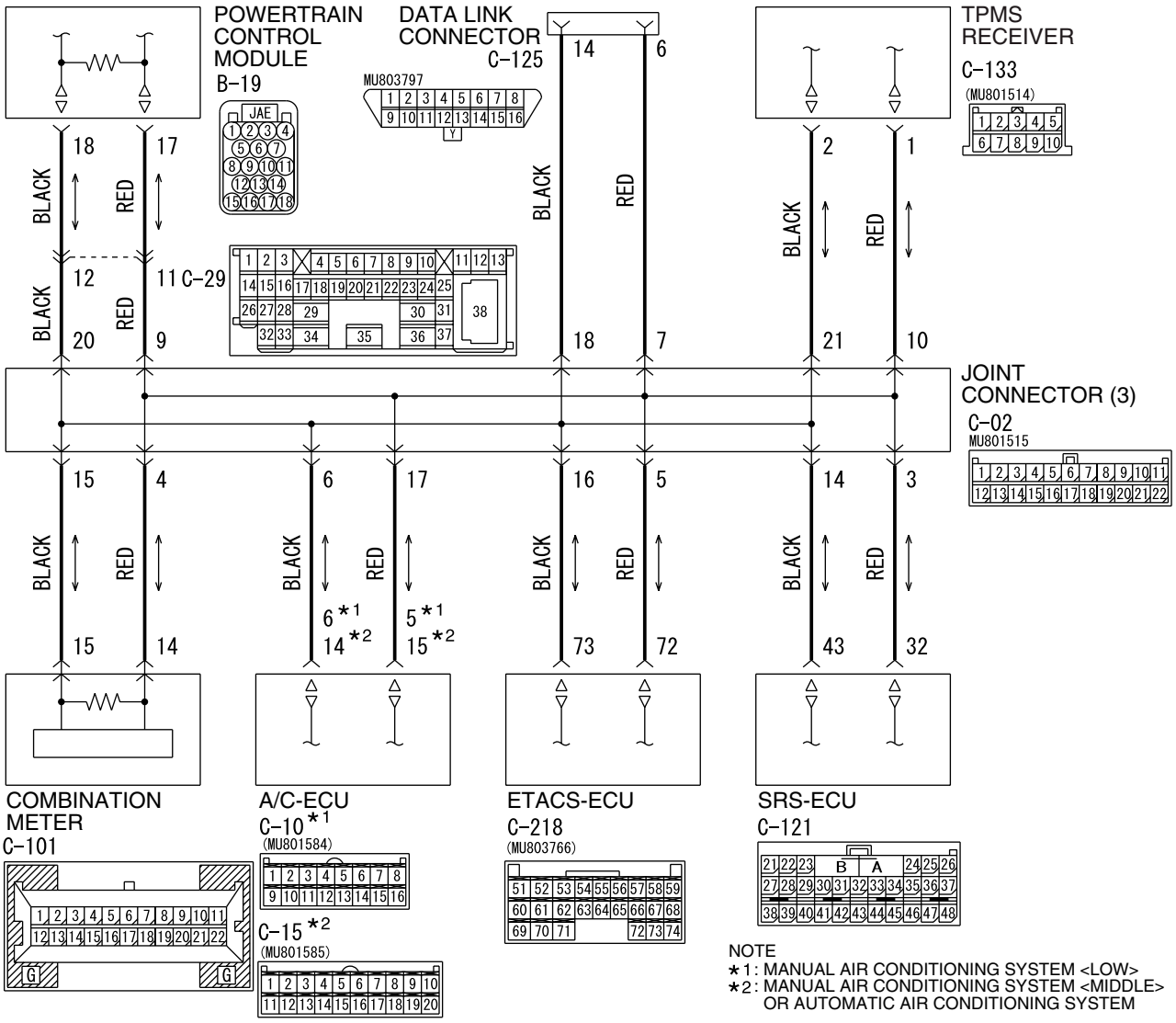
NOTE: If the screen other than above is displayed, troubles are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

NOTE: If a trouble cannot be solved after performing the diagnosis other than item 16, diagnose CAN bus line thoroughly.

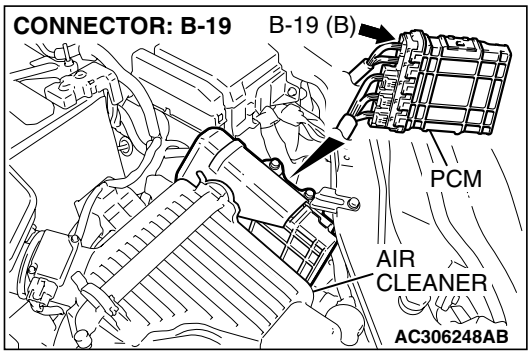
CAN BUS DIAGNOSTICS

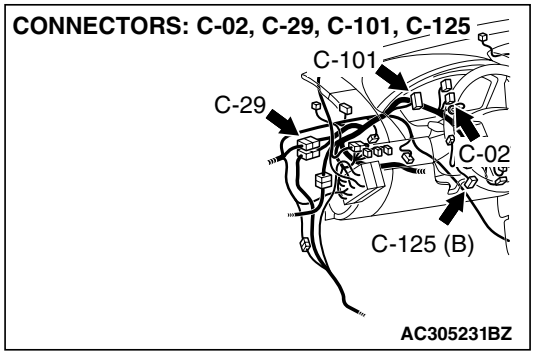
DIAGNOSTIC ITEM 1: Diagnose shorts in the power supply to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

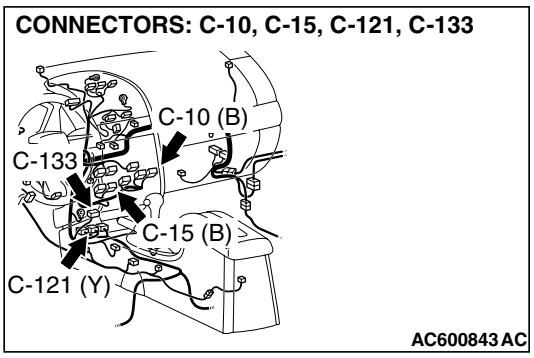
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do this, a component connected to the CAN bus line may be damaged.

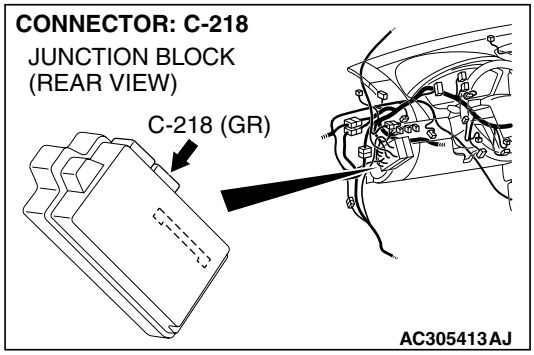


W7P54M137A









TROUBLE JUDGMENT

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

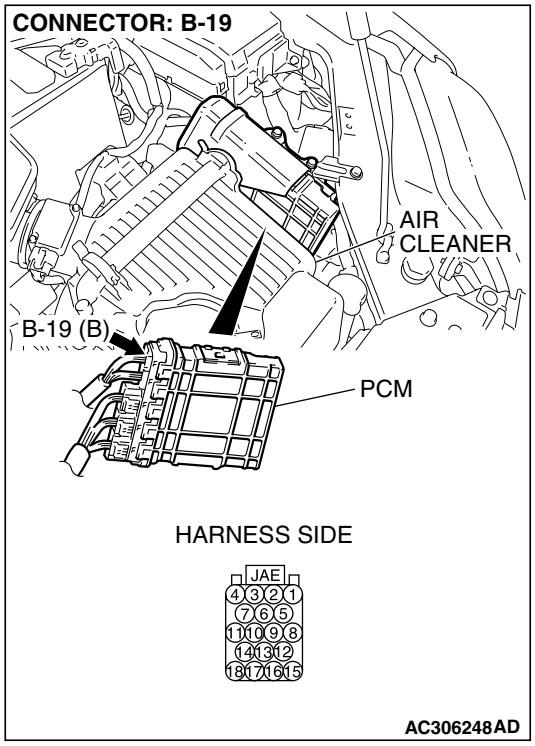
⚠ CAUTION

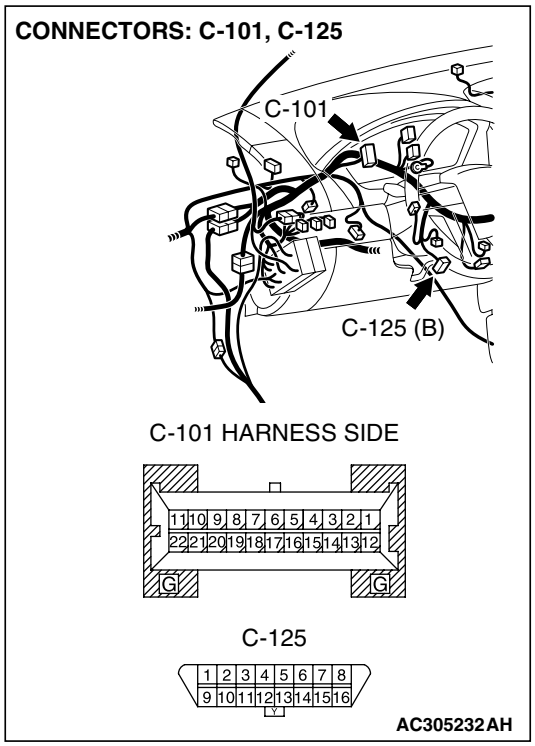
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

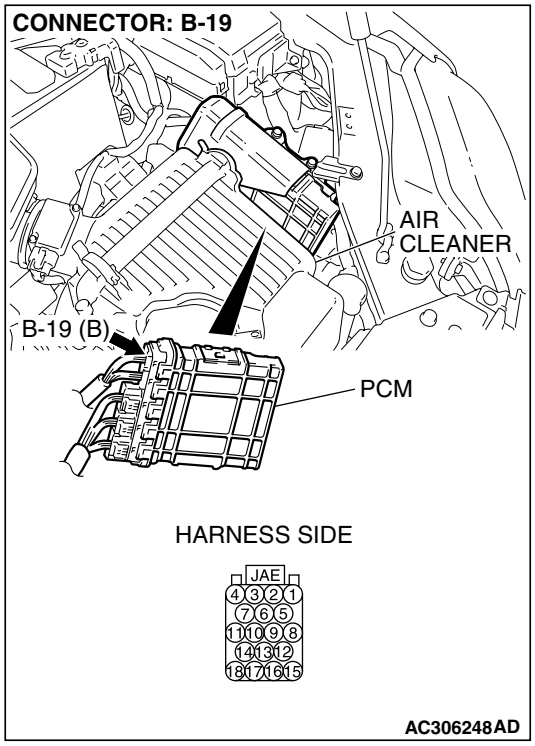




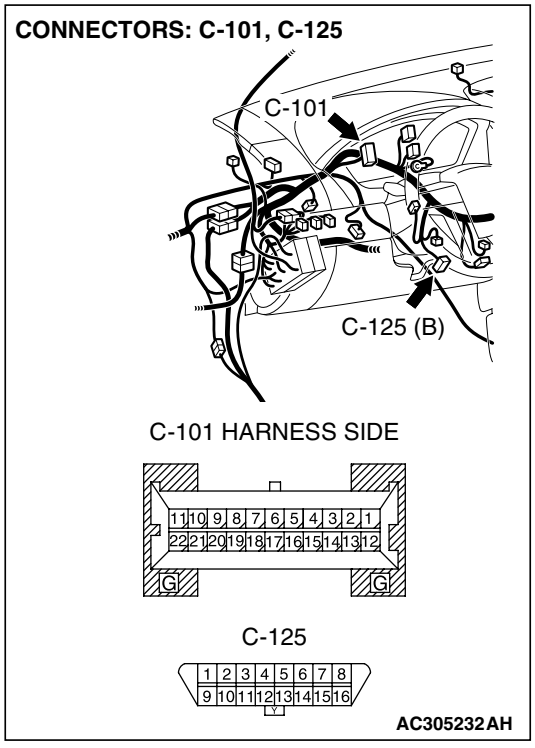
STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply.
Measure the voltage at data link connector C-125.

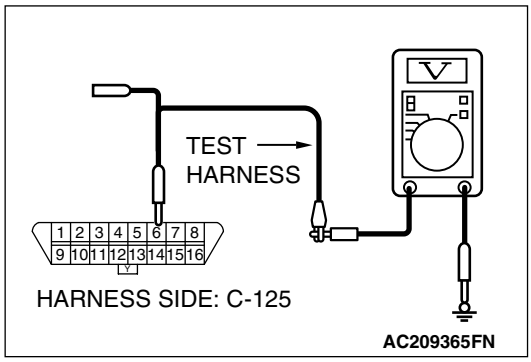
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

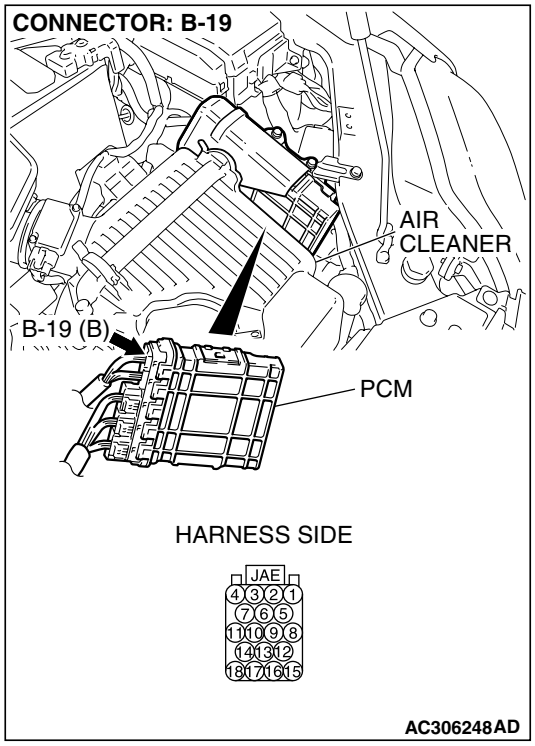
Q: Does the voltage measure 4.0 V or less?

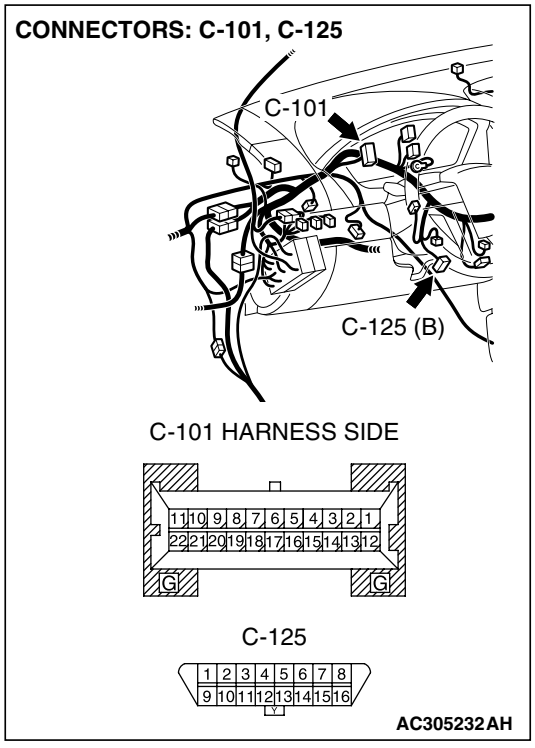
YES : If the voltage measures 4.0 V or less, go to Step 3.
NO : If the voltage measures more than 4.0 V, go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply.
Measure the voltage at data link connector C-125.

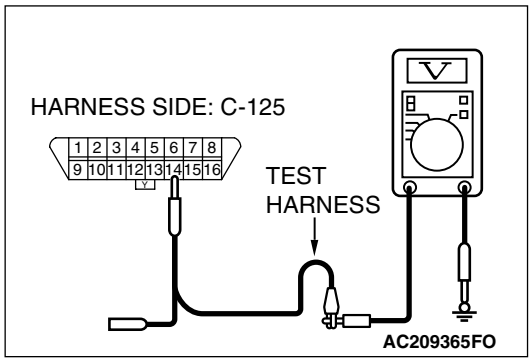
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.





(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between data link connector terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

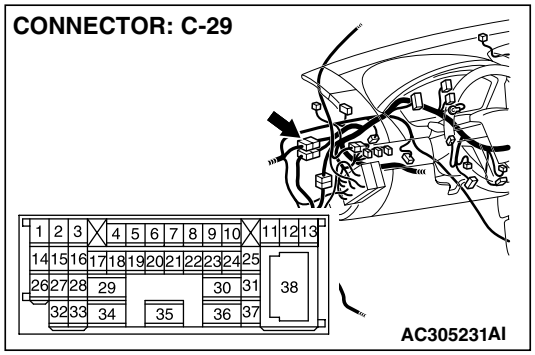
YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 4.0 V, go to Step 24.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

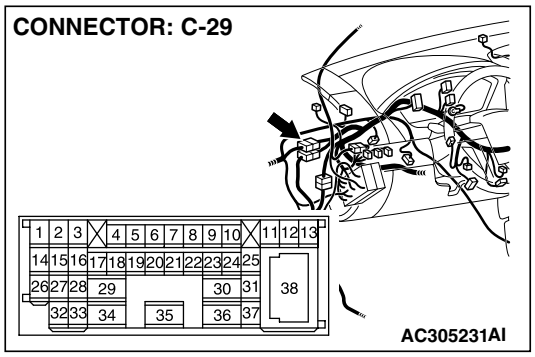
STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

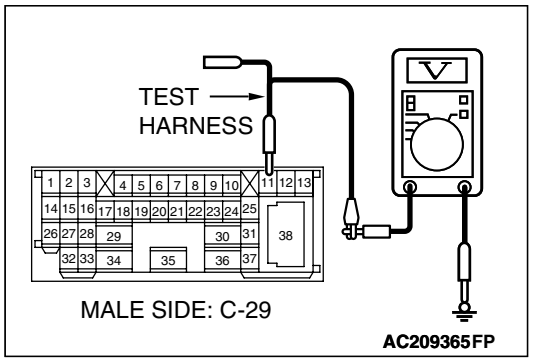
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 11 and body ground.

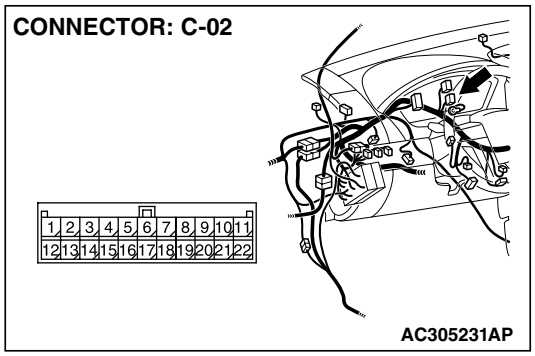
OK: 4.0 V or less

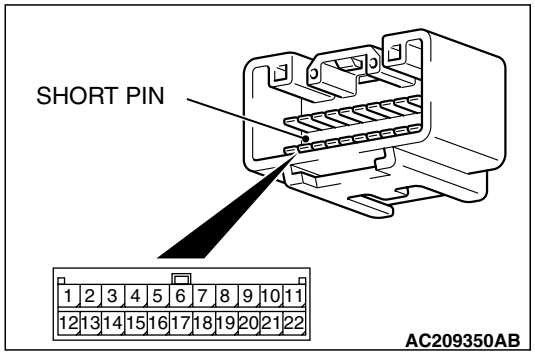
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 6.
NO : If the voltage measures more than 4.0 V, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

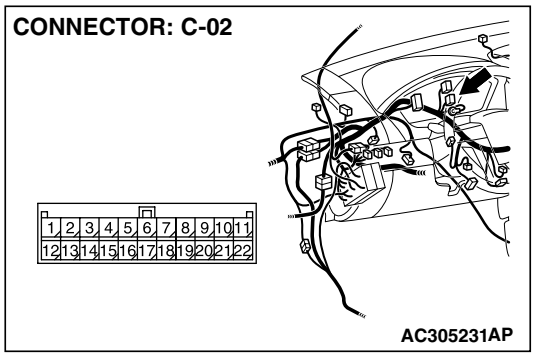
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

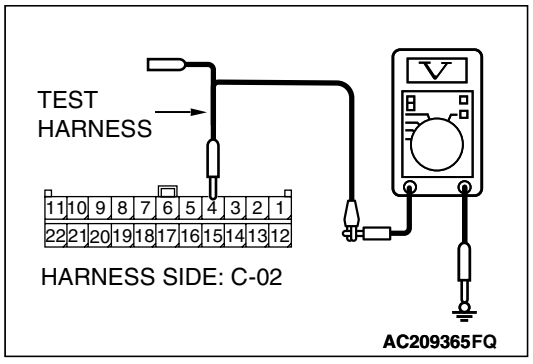
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

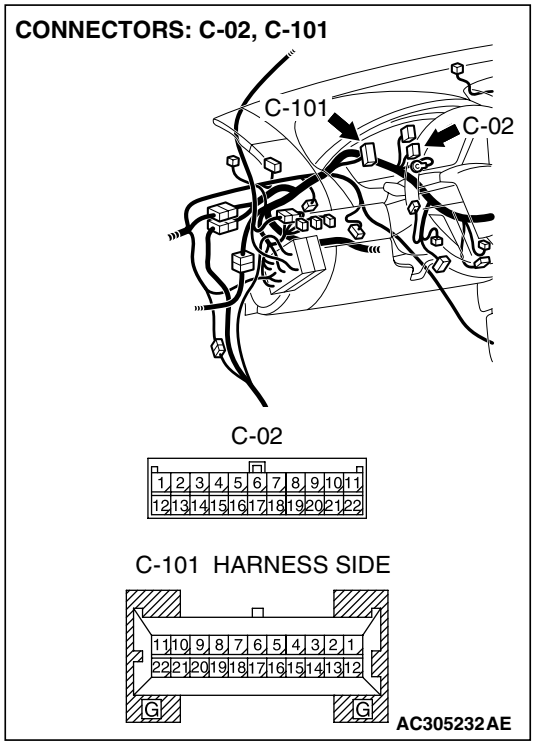
A digital multimeter should be used. For details refer to P.54C-6.

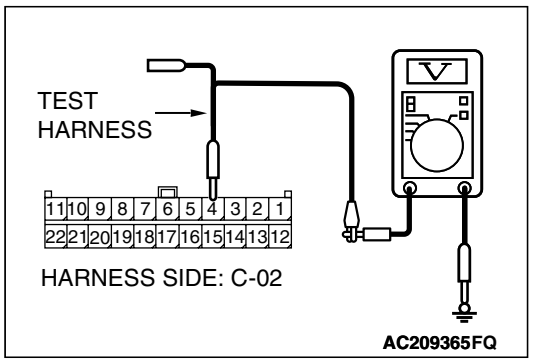
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

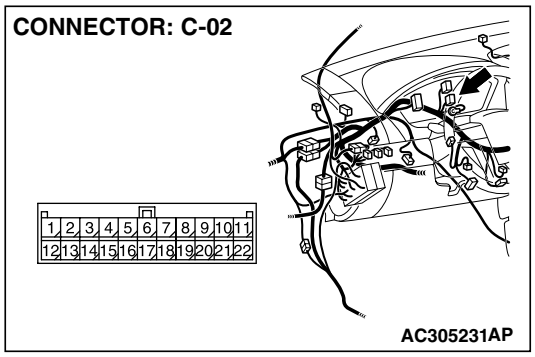
STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

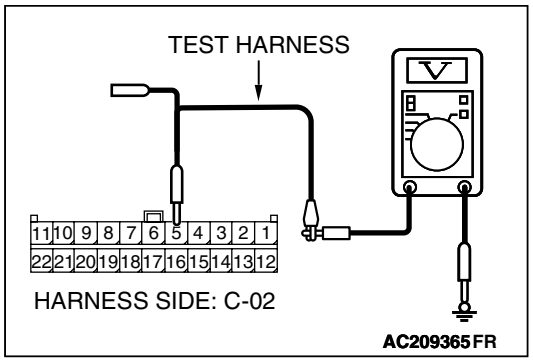
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

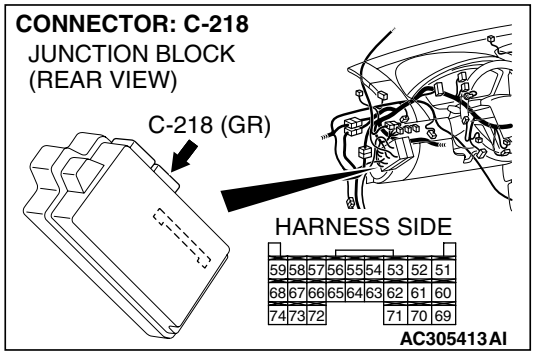
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 12.
NO : If the voltage measures more than 4.0 V, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

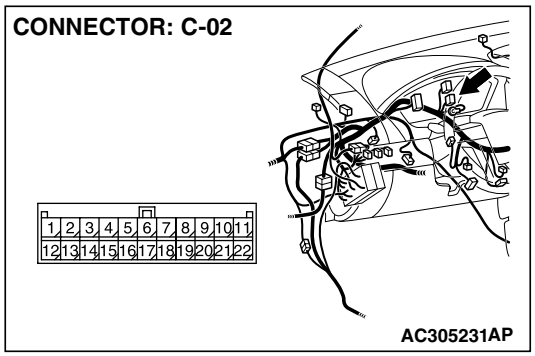
A digital multimeter should be used. For details refer to P.54C-6.

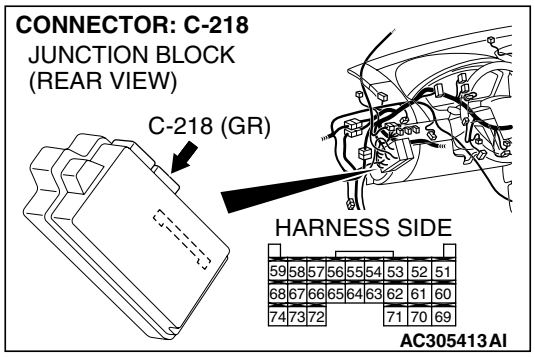
⚠ CAUTION

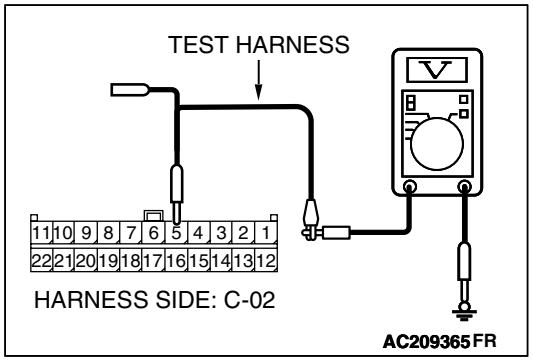
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

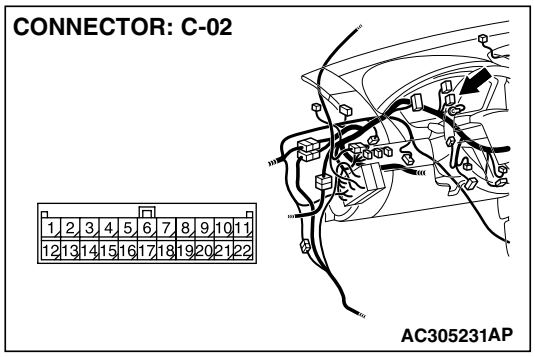
STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

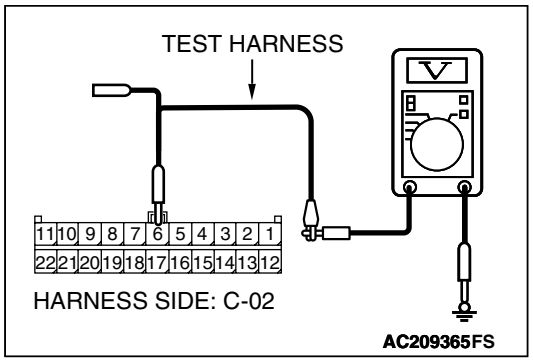
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 6 and body ground.

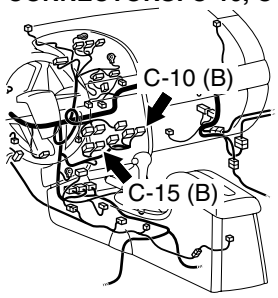
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

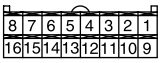
YES : If the voltage measures 4.0 V or less, go to Step 15.

NO : If the voltage measures more than 4.0 V, go to Step 13.

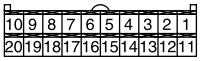
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

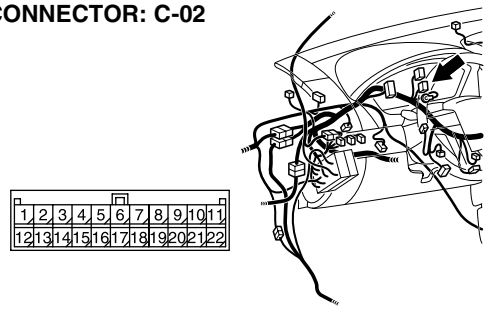
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.

CONNECTOR: C-02



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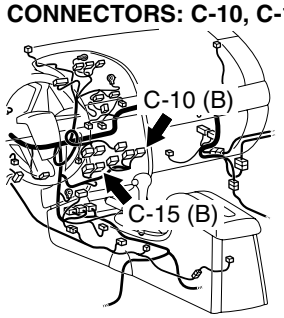
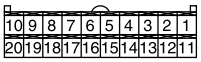
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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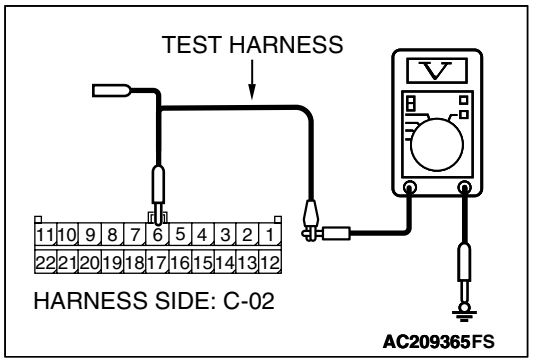


(3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

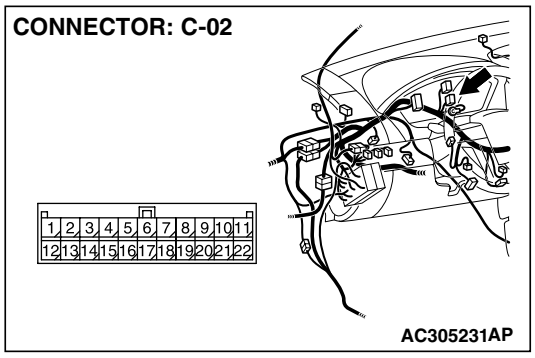
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

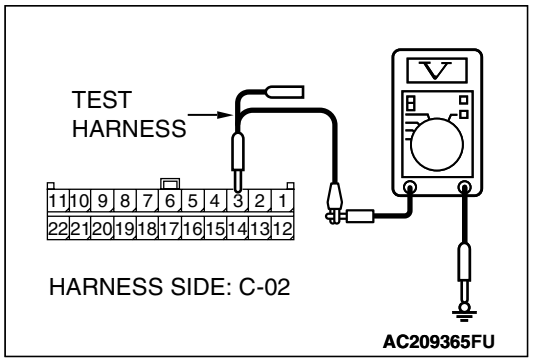
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



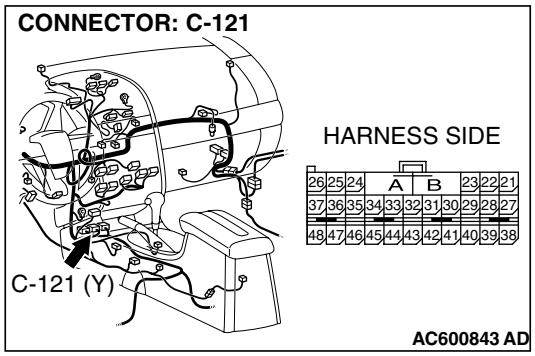
(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 18.

NO : If the voltage measures more than 4.0 V, go to Step 16.



STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

STEP 17. Check the CAN_H line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

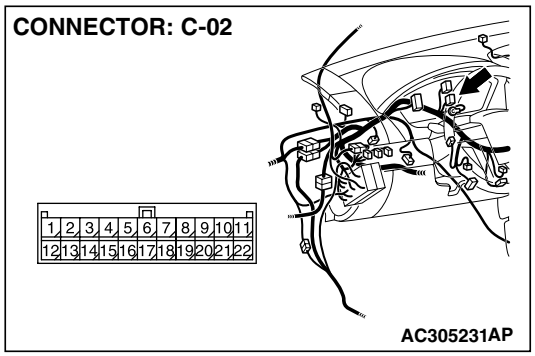
A digital multimeter should be used. For details refer to P.54C-6.

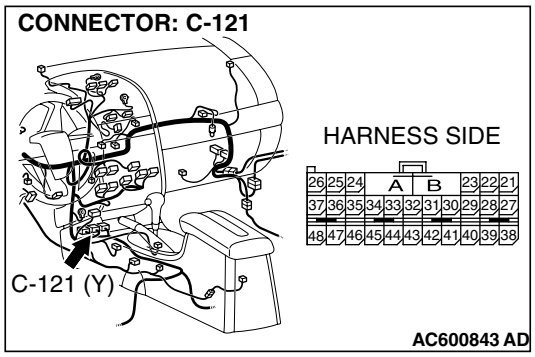
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.

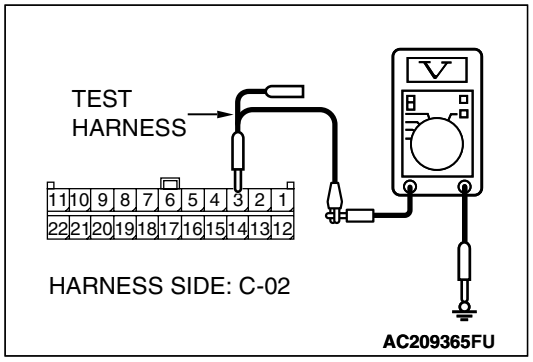
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 1.0 V or less



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

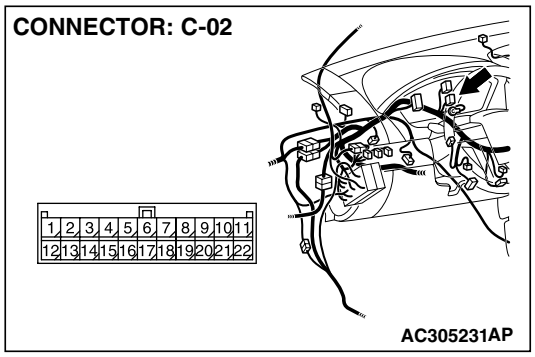
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

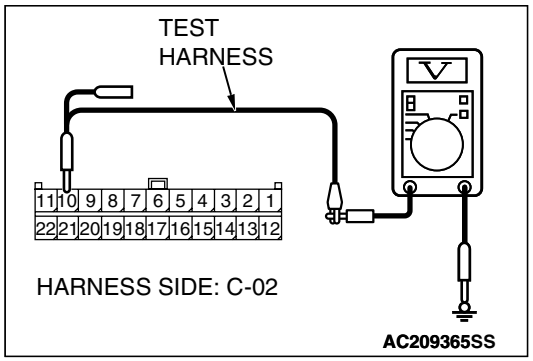
STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

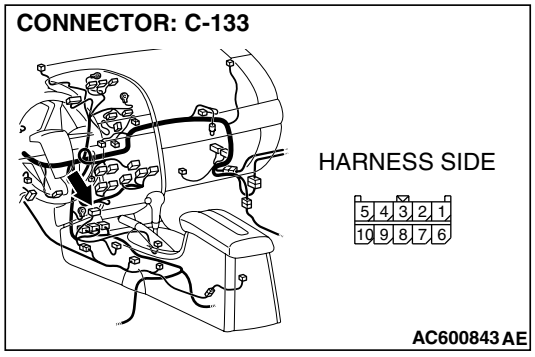


(3) Measure the voltage between joint connector (3) terminal 10 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 21.
NO : If the voltage measures more than 4.0 V, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 20.
NO : Repair the damaged parts.

STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

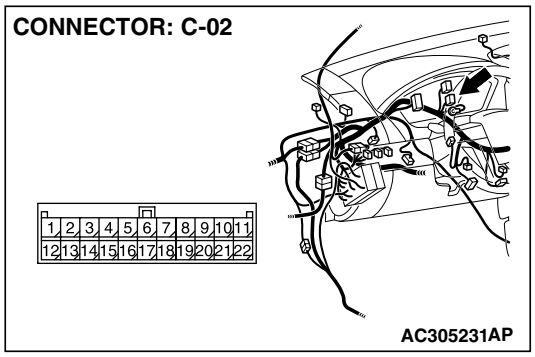
A digital multimeter should be used. For details refer to P.54C-6.

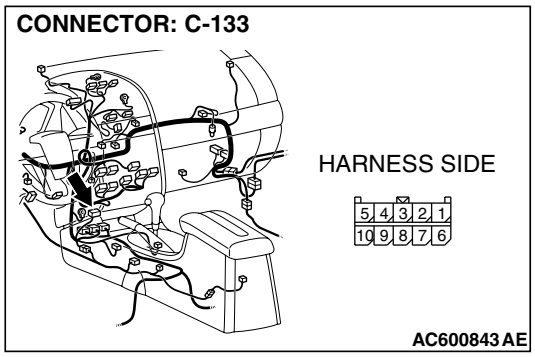
⚠ CAUTION

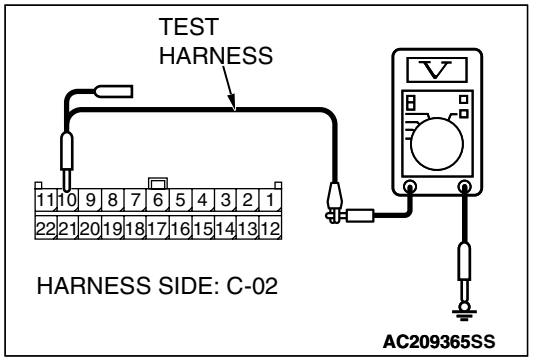
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 10 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

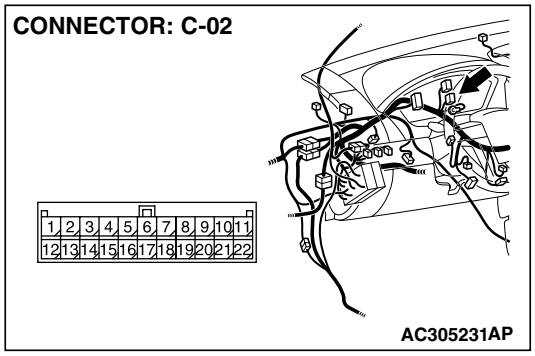
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

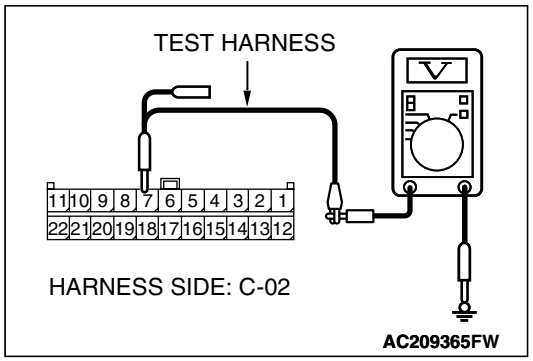
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 22.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) C-02 for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

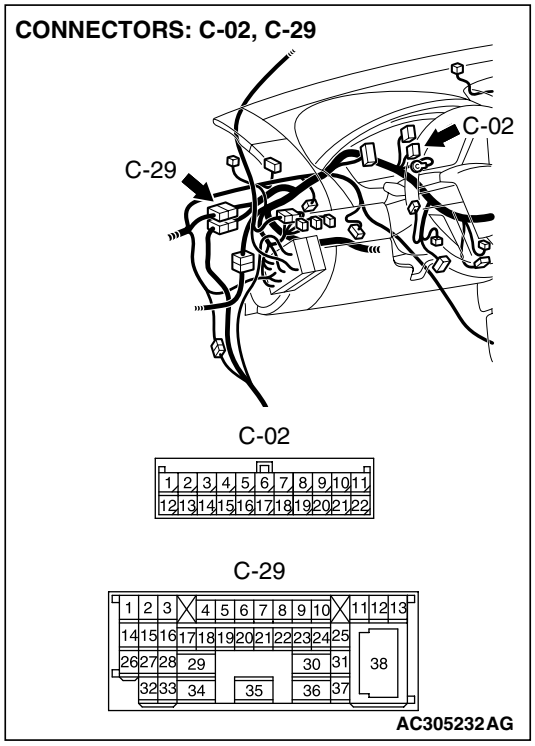
A digital multimeter should be used. For details refer to P.54C-6.

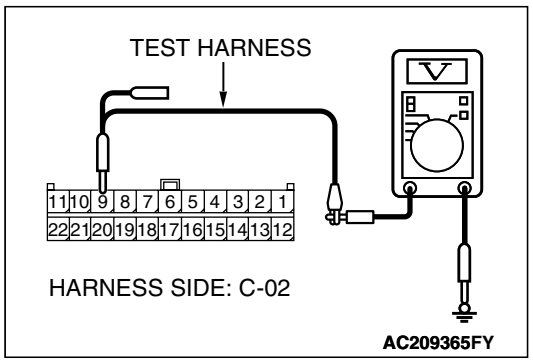
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector and joint connector (3).

STEP 23. Check the CAN_H line (communication line only) between intermediate connector and the powertrain control module connector for a short circuit. Measure the voltage at intermediate connector C-29.

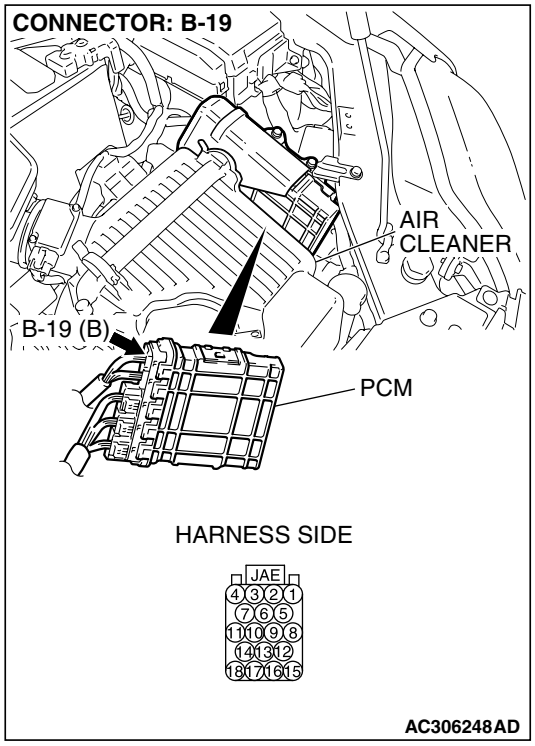
⚠ CAUTION

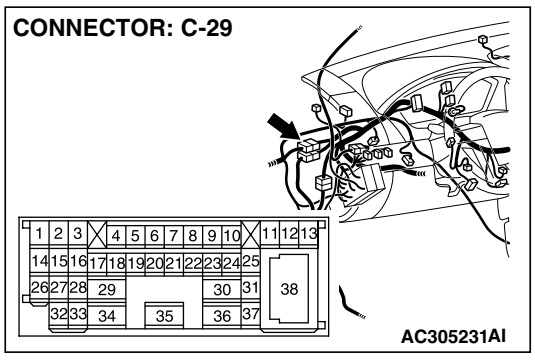
A digital multimeter should be used. For details refer to P.54C-6.

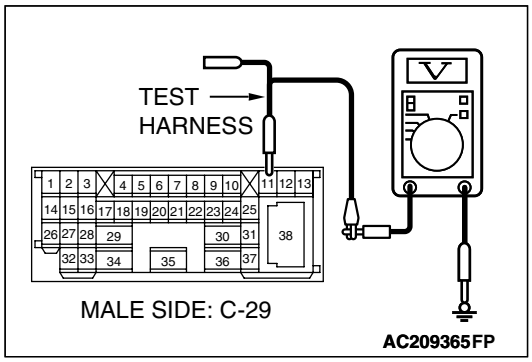
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the voltage at the wiring harness side of intermediate connector C-29.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

⚠ CAUTION

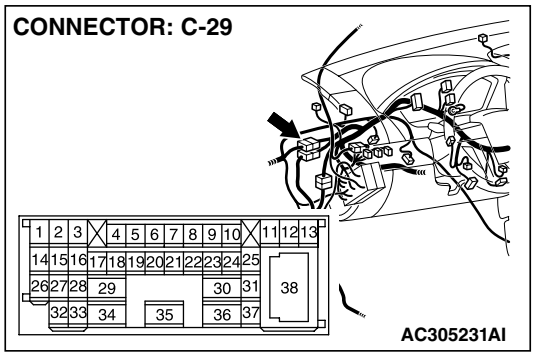
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector and the powertrain control module connector.

STEP 24. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 25.

NO : Repair the damaged parts.

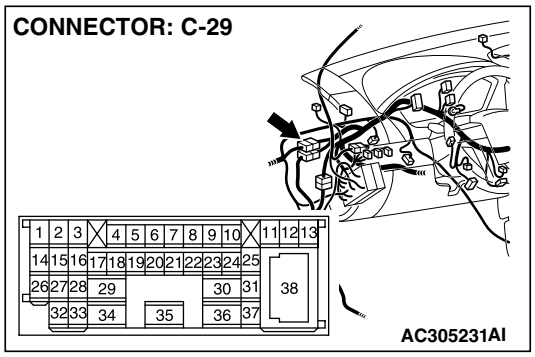
STEP 25. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

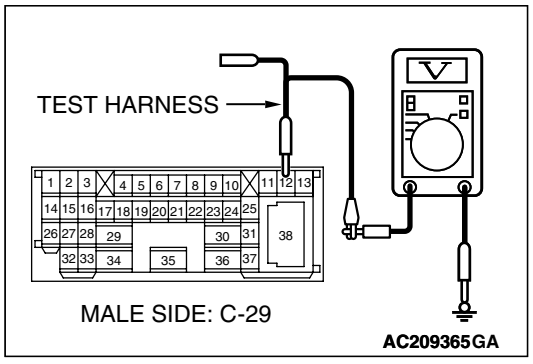
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 12 and body ground.

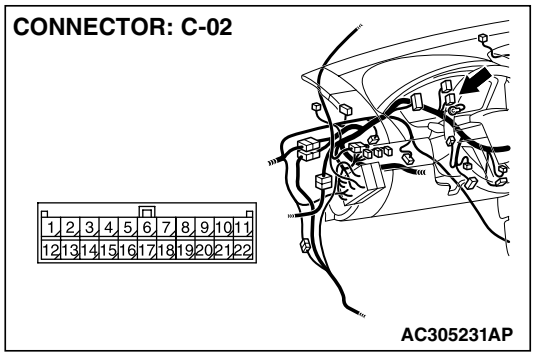
OK: 4.0 V or less

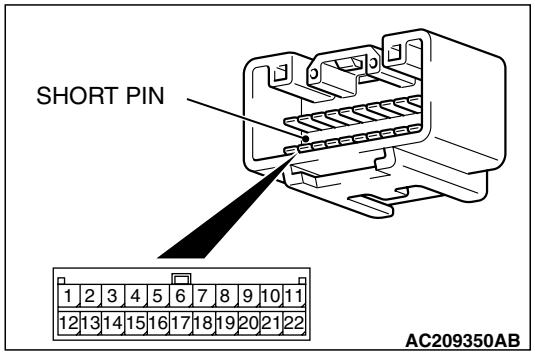
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 26.
NO : If the voltage measures more than 4.0 V, go to Step 43.

STEP 26. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

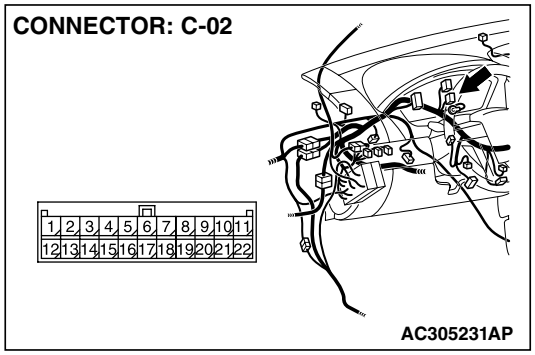
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 27.
NO : Repair the damaged parts. Replace the joint connector as necessary.

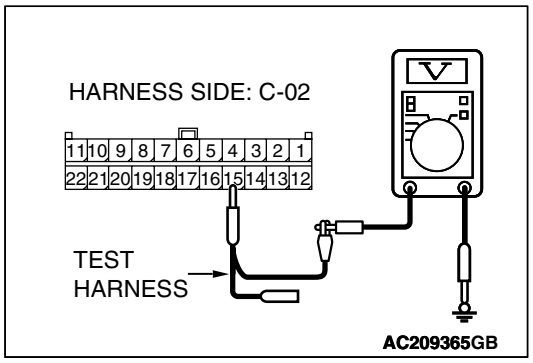
STEP 27. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 29.
NO : If the voltage measures more than 4.0 V, go to Step 28.

STEP 28. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

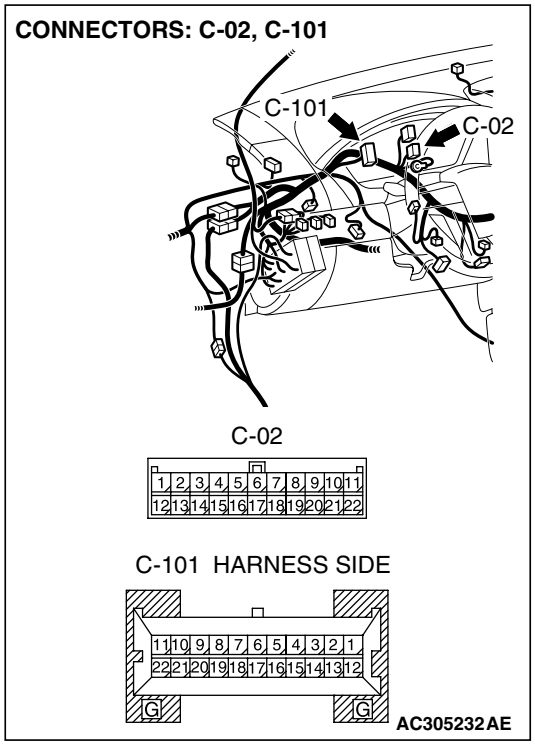
A digital multimeter should be used. For details refer to P.54C-6.

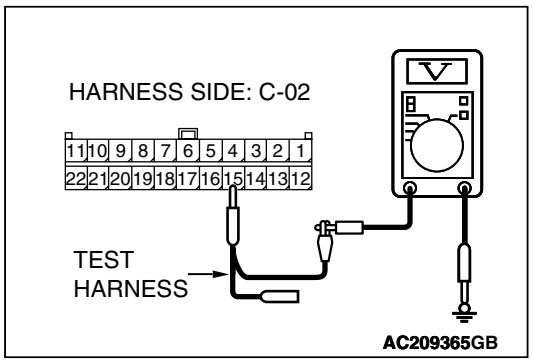
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

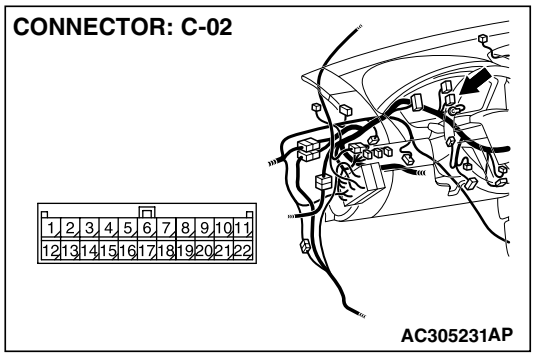
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

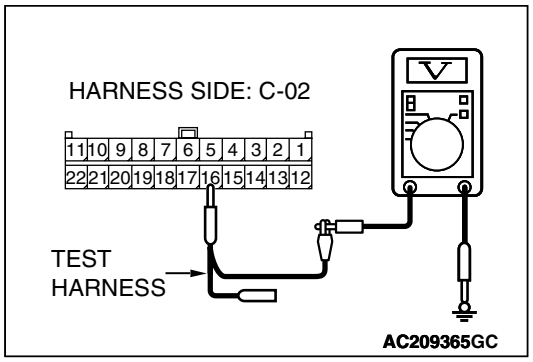
STEP 29. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

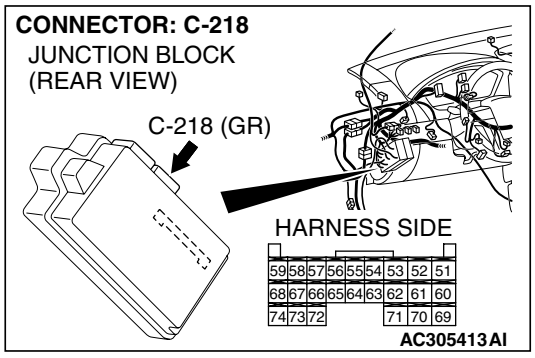


(3) Measure the voltage between joint connector (3) terminal 16 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 32.
NO : If the voltage measures more than 4.0 V, go to Step 30.

STEP 30. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?
YES : Go to Step 31.
NO : Repair the damaged parts.

STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

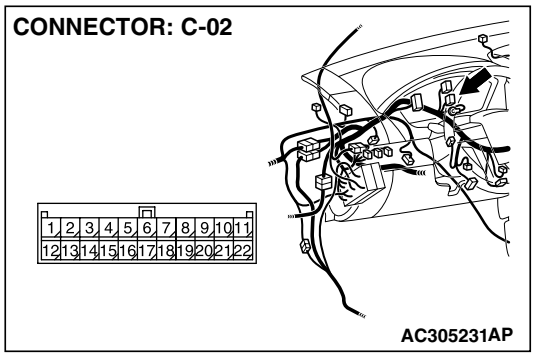
A digital multimeter should be used. For details refer to P.54C-6.

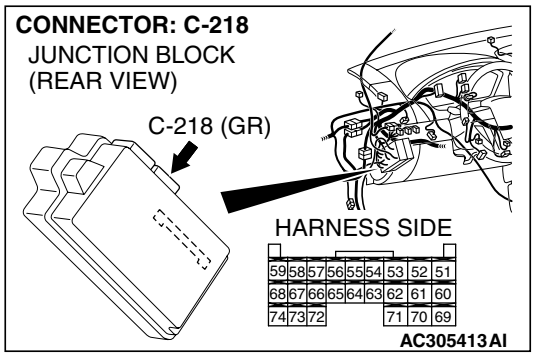
⚠ CAUTION

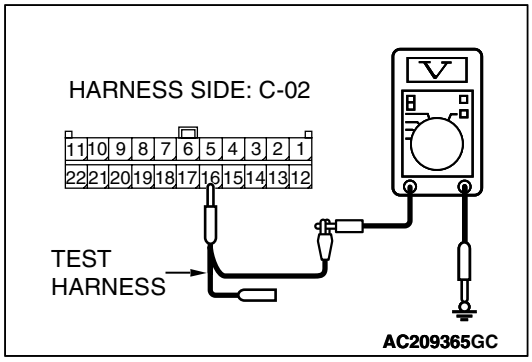
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

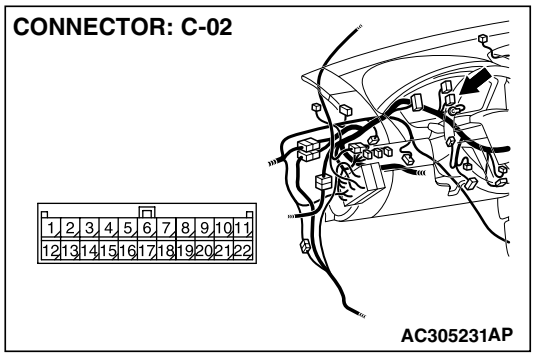
STEP 32. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

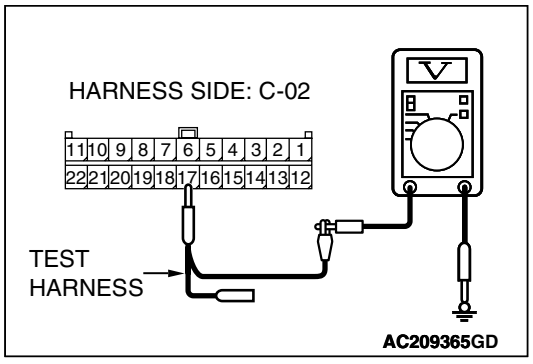
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

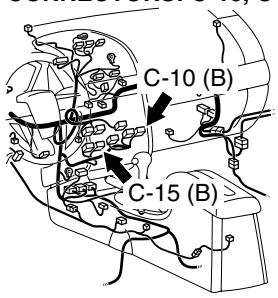
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

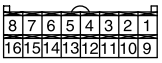
YES : If the voltage measures 4.0 V or less, go to Step 35.

NO : If the voltage measures more than 4.0 V, go to Step 33.

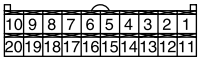
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 33. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 34.
NO : Repair the damaged parts.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

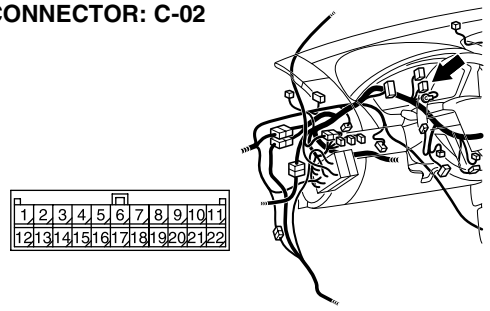
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

CONNECTOR: C-02



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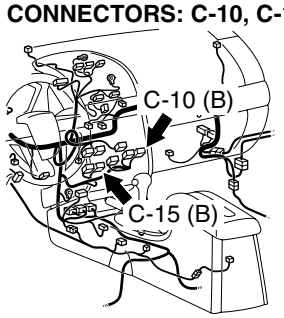
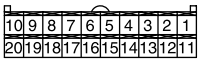
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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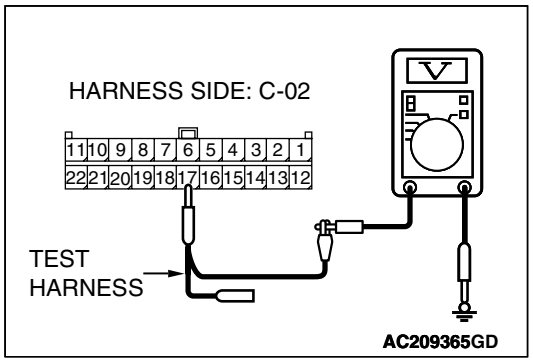


(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

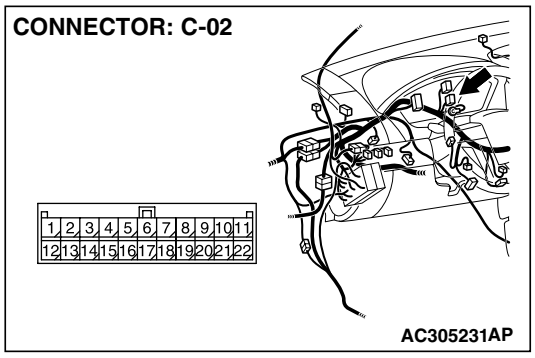
STEP 35. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

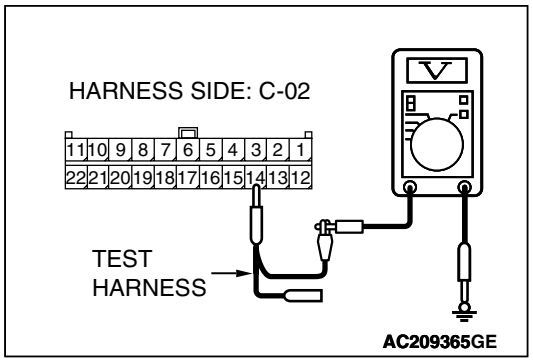
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



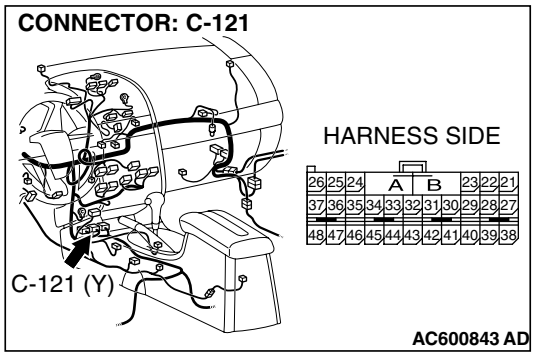
(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 38.

NO : If the voltage measures more than 4.0 V, go to Step 36.



STEP 36. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 37.

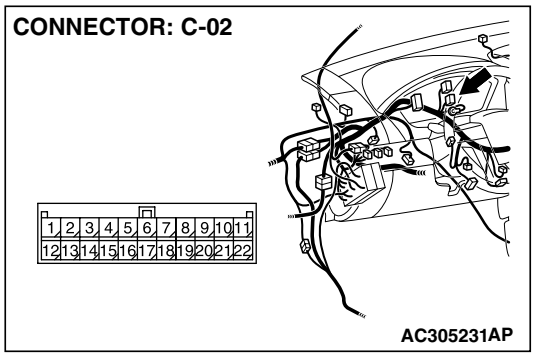
NO : Repair the damaged parts.

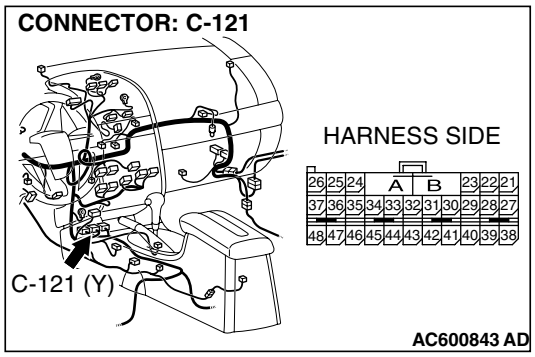
STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

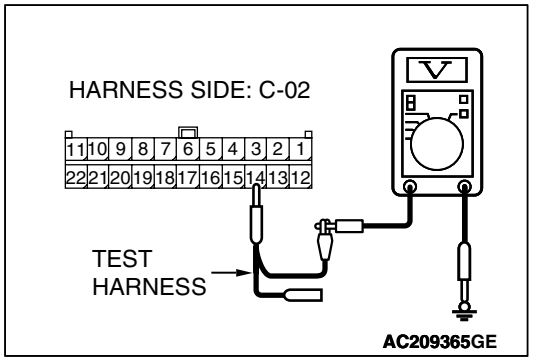
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 1.0 V or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

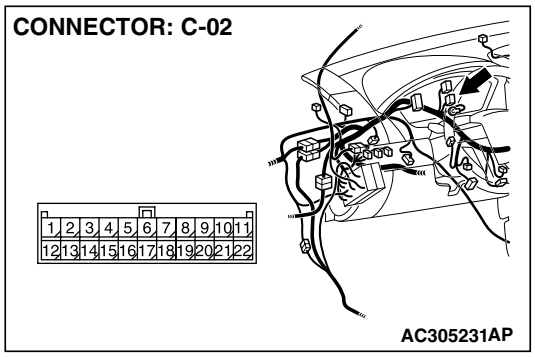
Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : joint connector (3) and the SRS-ECU connector.

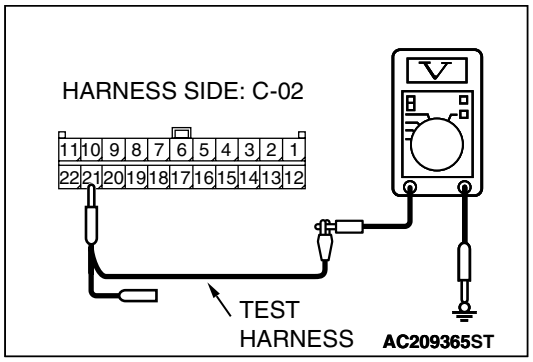
STEP 38. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

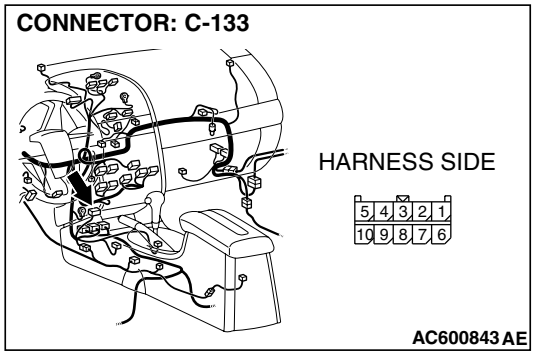


(3) Measure the voltage between joint connector (3) terminals 21 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 41.
NO : If the voltage measures more than 4.0 V, go to Step 39.

STEP 39. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 40.
NO : Repair the damaged parts.

STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

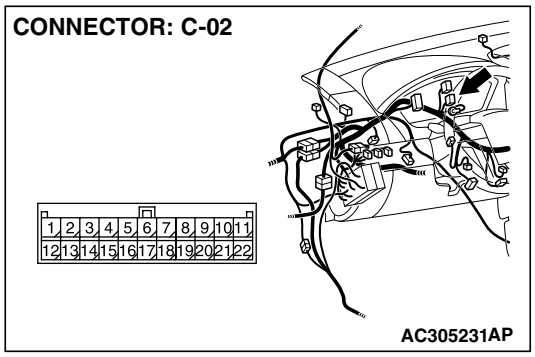
A digital multimeter should be used. For details refer to P.54C-6.

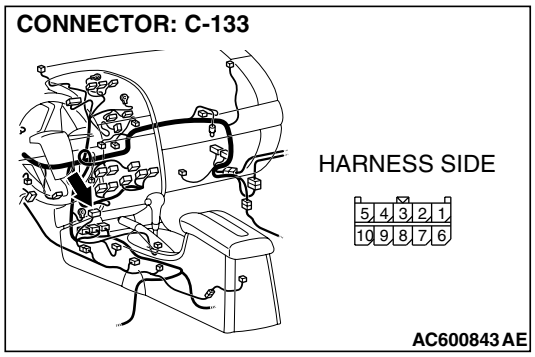
⚠ CAUTION

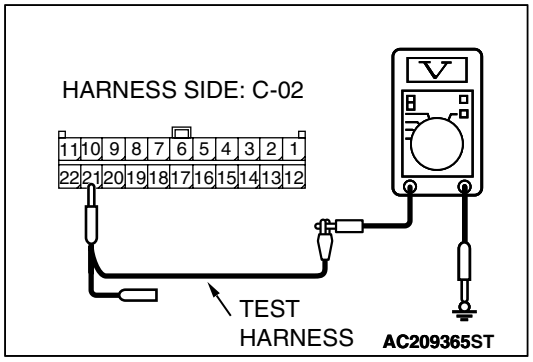
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminals 21 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

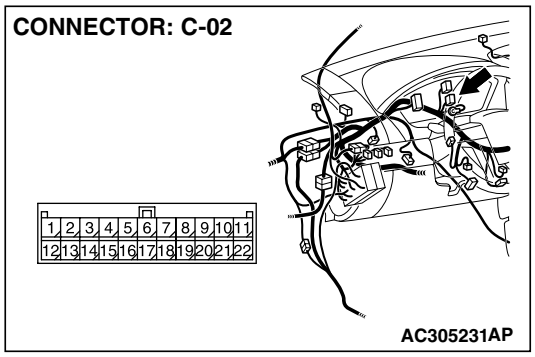
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : joint connector (3) and the TPMS reciver connector.

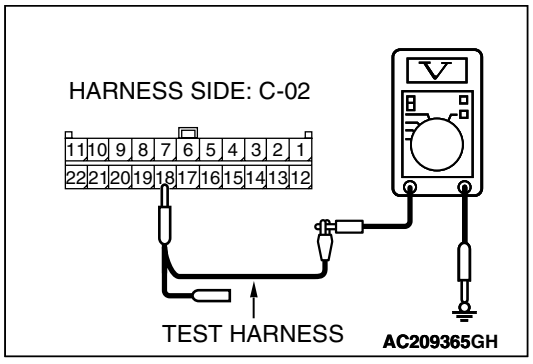
STEP 41. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 18 and body ground.
OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

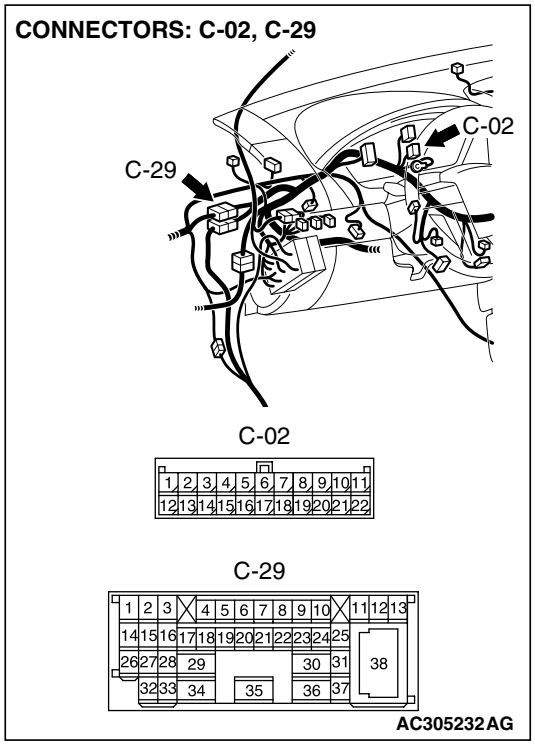
Q: Does the voltage measure 1.0 V or less?
YES : If the voltage measures 1.0 V or less, go to Step 42.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

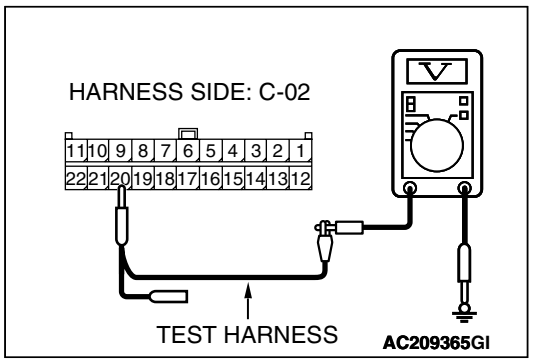
STEP 42. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 43. Check the CAN_L line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the voltage at intermediate connector C-29.

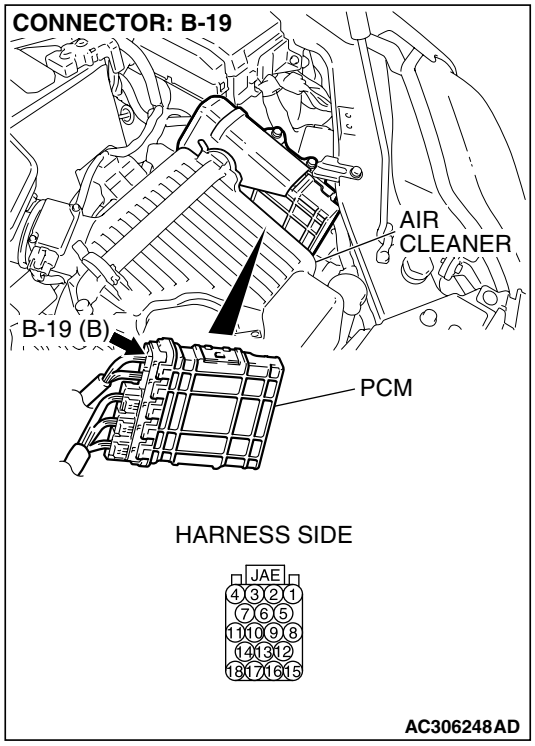
⚠ CAUTION

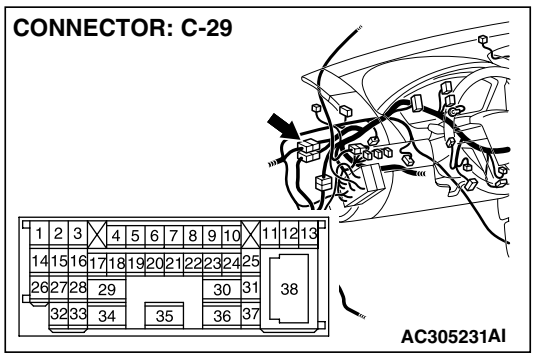
A digital multimeter should be used. For details refer to P.54C-6.

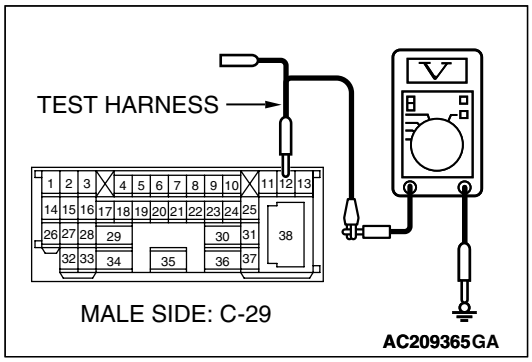
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the voltage at the wiring harness side of intermediate connector C-29.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

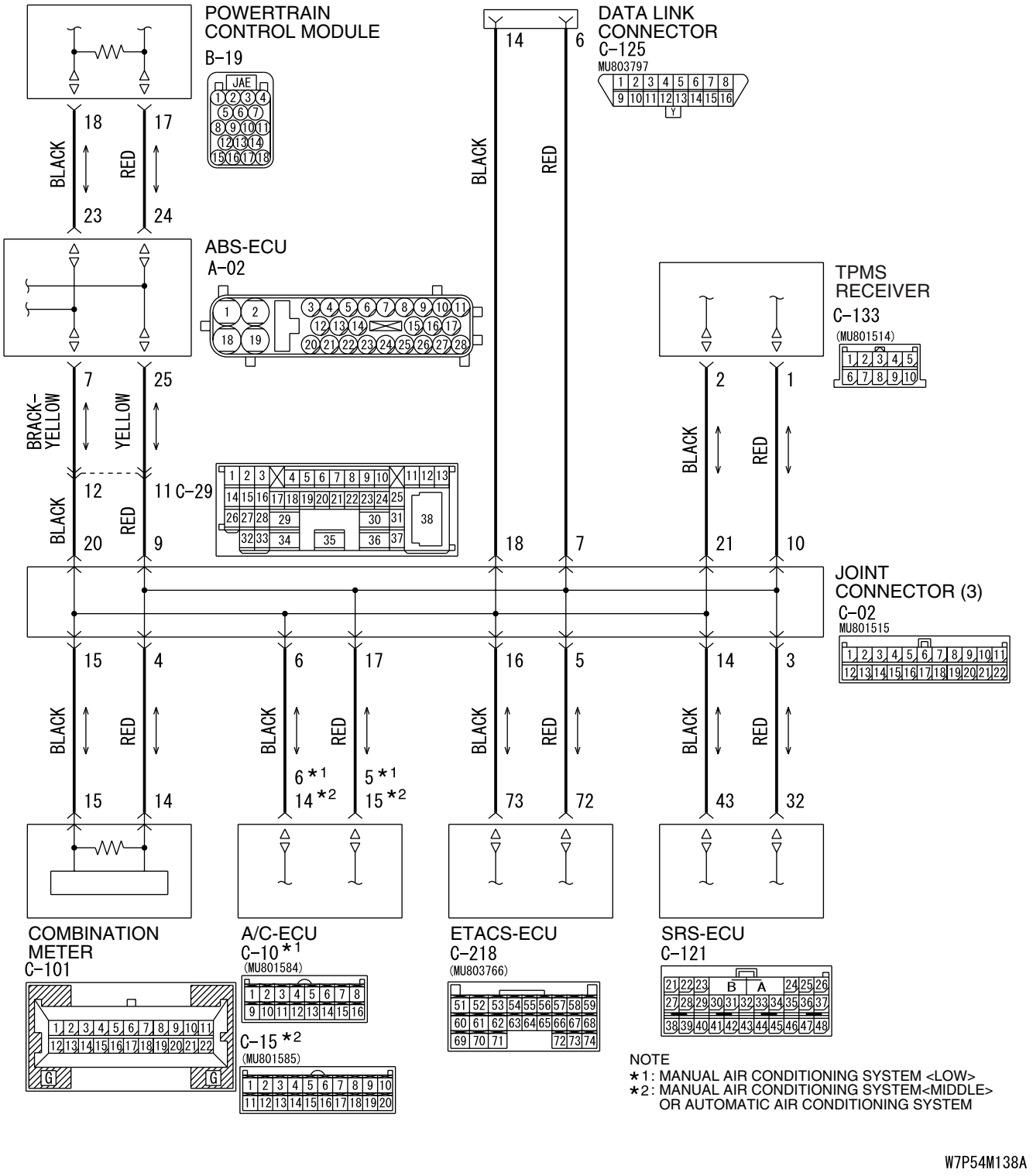
Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

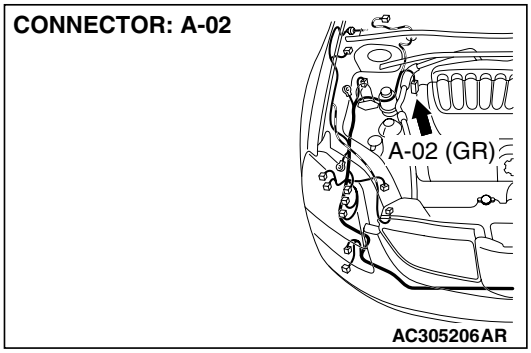
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

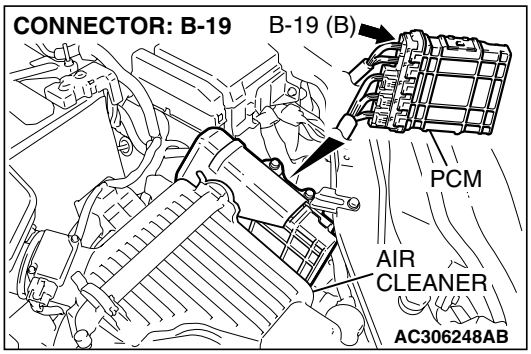
DIAGNOSTIC ITEM 2: Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

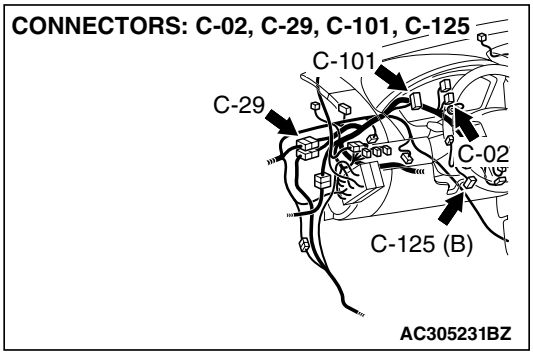
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

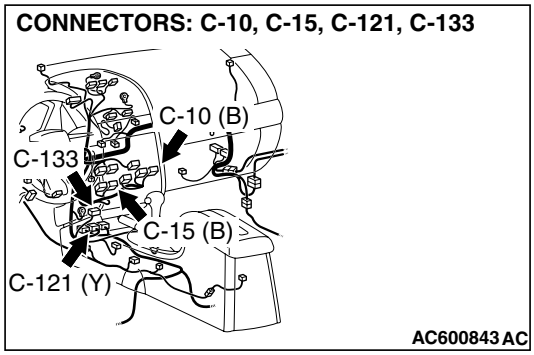

POWERTRAIN CONTROL MODULE
B-19
JAE
DATA LINK CONNECTOR
C-125
MU803797
ABS-ECU
A-02
TPMS RECEIVER
C-133
(MU801514)
JOINT CONNECTOR (3)
C-02
MU801515
BLACK
RED
BRACK-YELLOW
YELLOW
C-29
COMBINATION METER
C-101
A/C-ECU
C-10*1
(MU801584)
C-15*2
(MU801585)
ETACS-ECU
C-218
(MU803766)
SRS-ECU
C-121
NOTE
*1: MANUAL AIR CONDITIONING SYSTEM <LOW>
*2: MANUAL AIR CONDITIONING SYSTEM<MIDDLE> OR AUTOMATIC AIR CONDITIONING SYSTEM

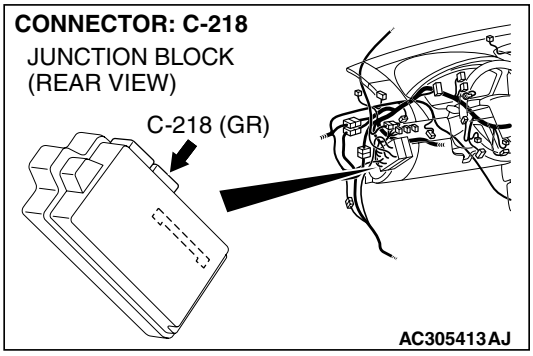
W7P54M138A











TROUBLE JUDGMENT

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The ABS-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

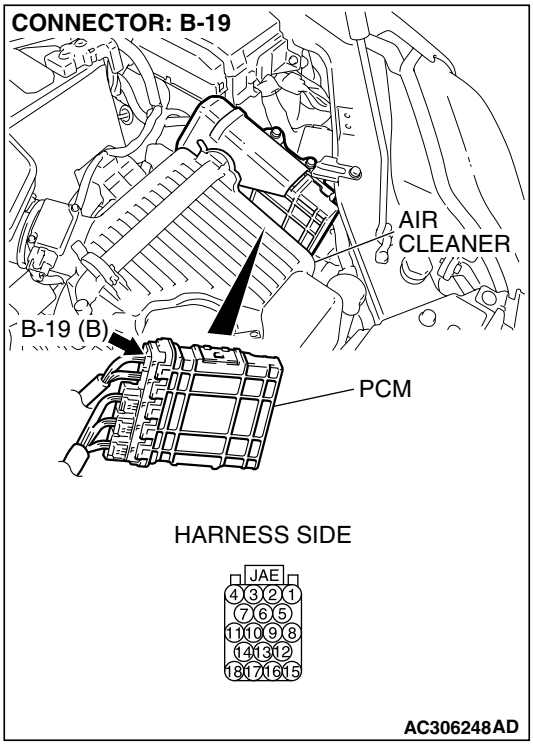
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

CONNECTOR: B-19



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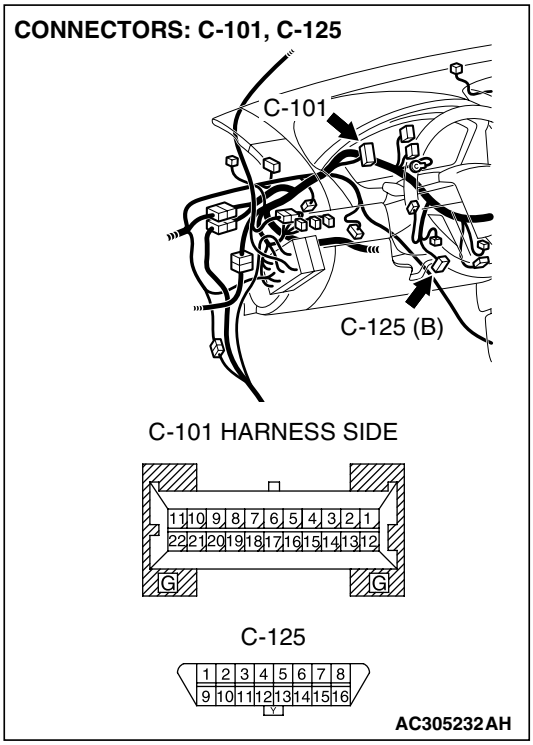
CONNECTORS: C-101, C-125



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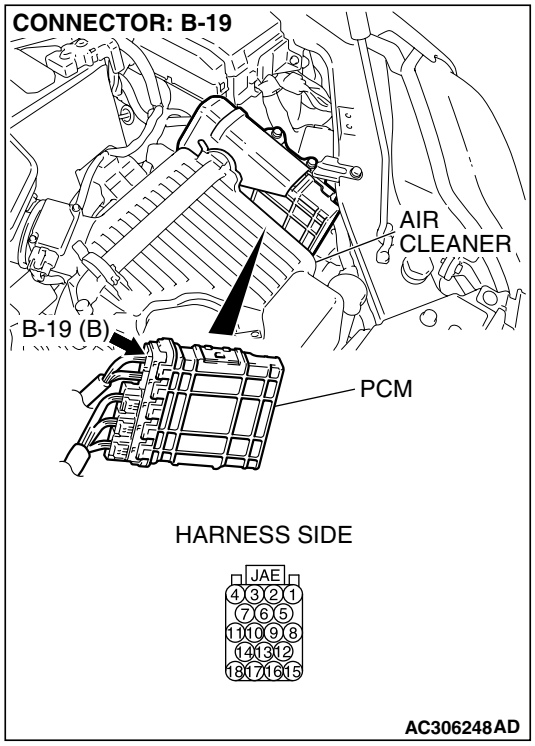
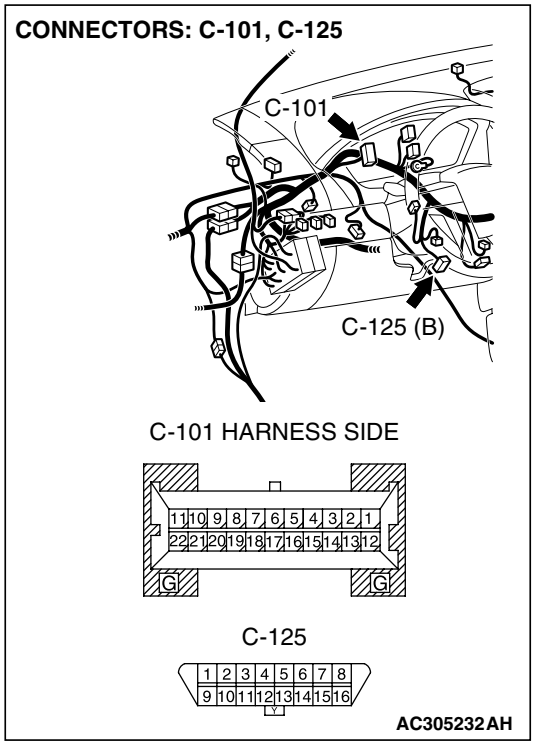
STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply.
Measure the voltage at data link connector C-125.

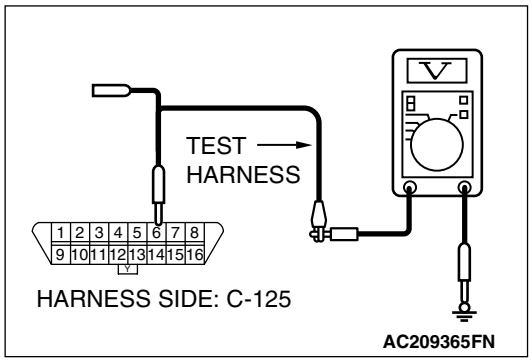
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.





(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 3.
NO : If the voltage measures more than 4.0 V, go to Step 4.

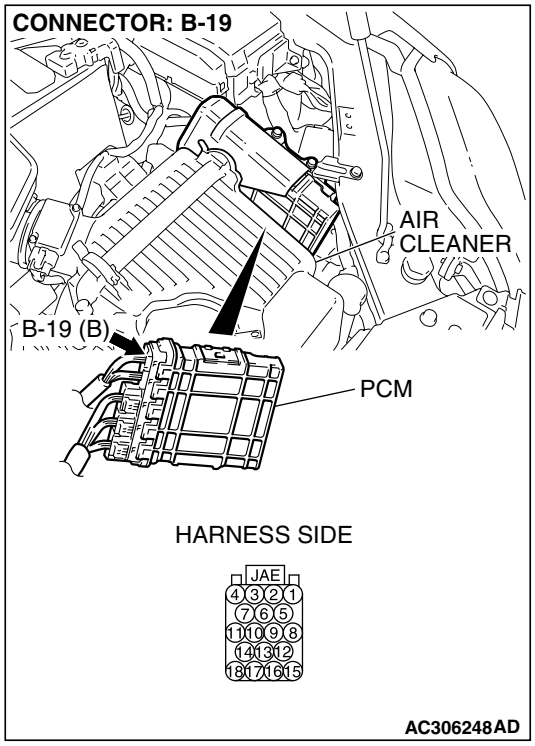
STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

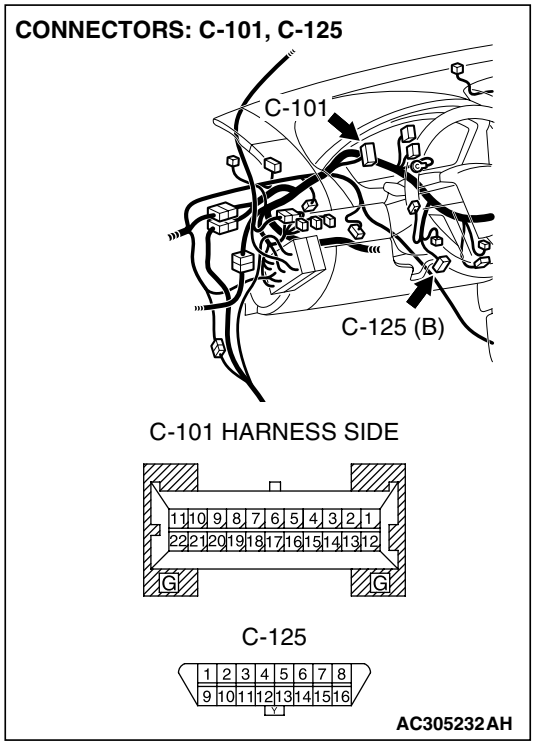
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

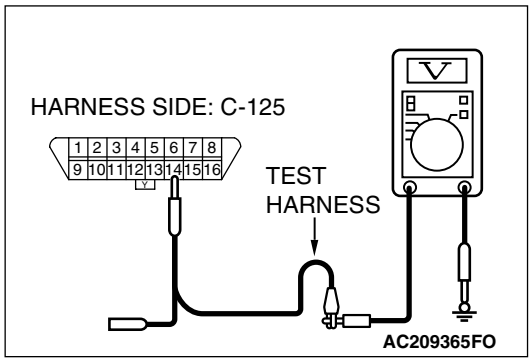
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.





(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between data link connector terminal 14 and body ground.

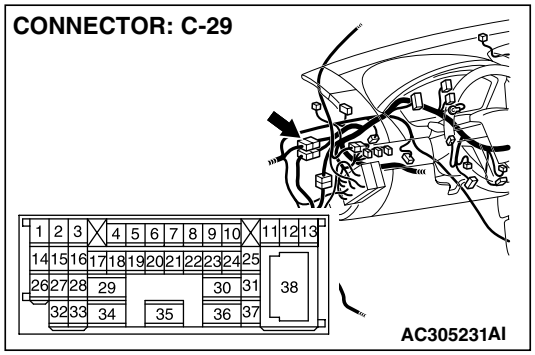
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 4.0 V, go to Step 27.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

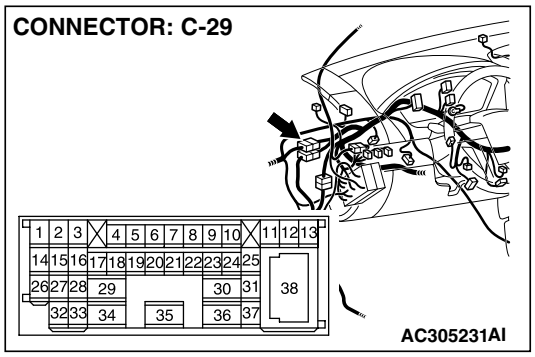
STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

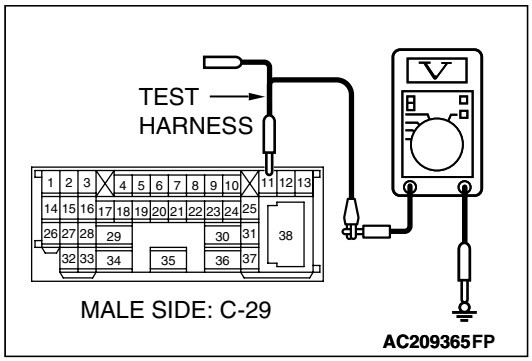
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 11 and body ground.

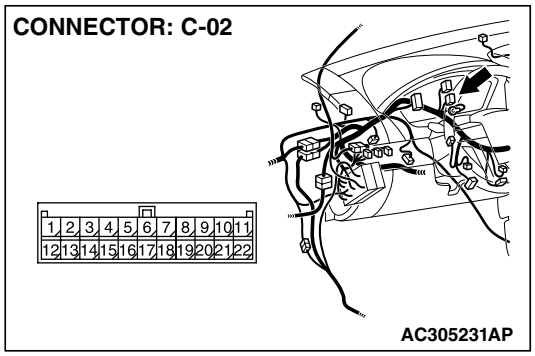
OK: 4.0 V or less

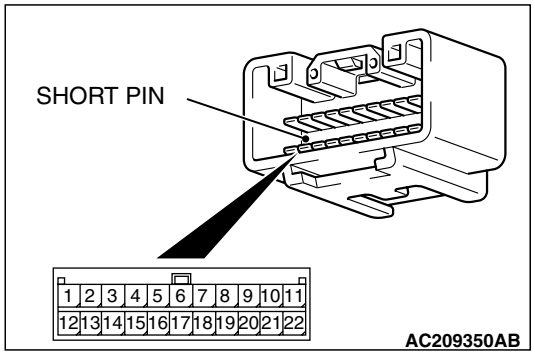
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 6.
NO : If the voltage measures more than 4.0 V, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

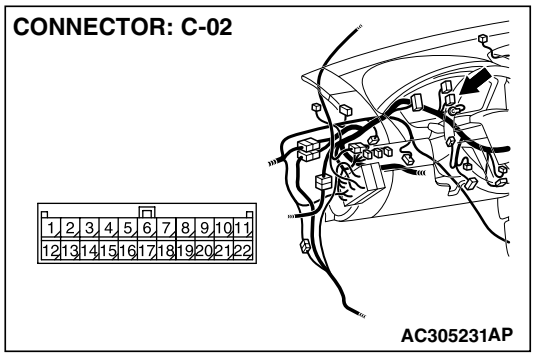
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

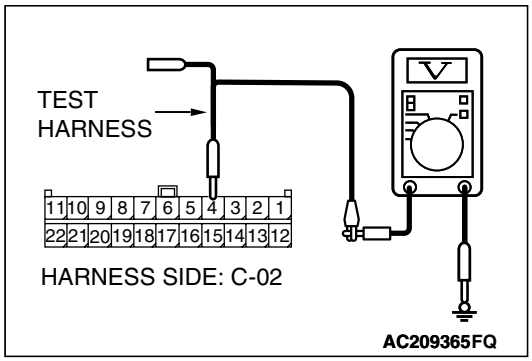
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

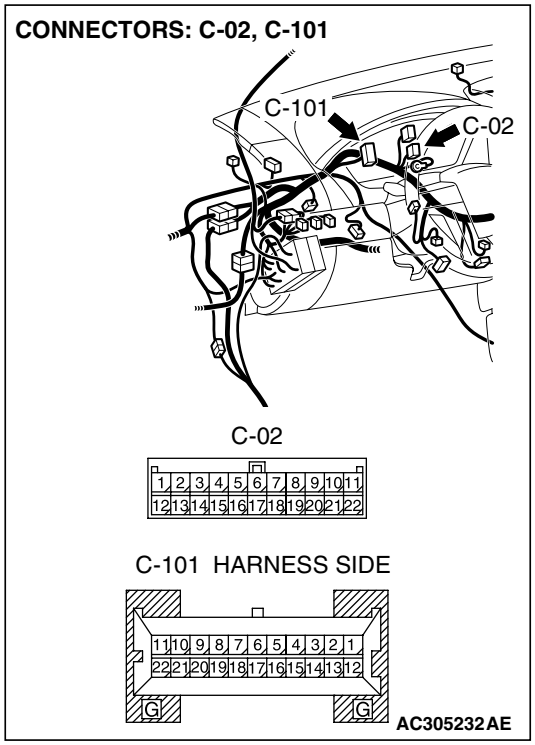
A digital multimeter should be used. For details refer to P.54C-6.

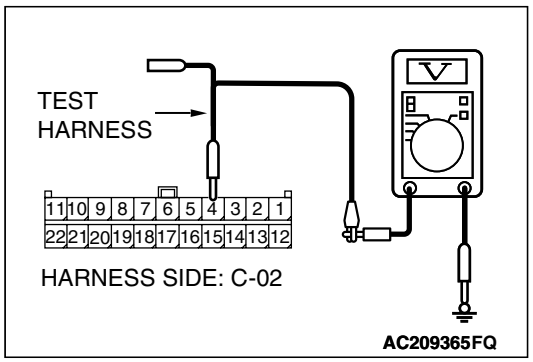
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

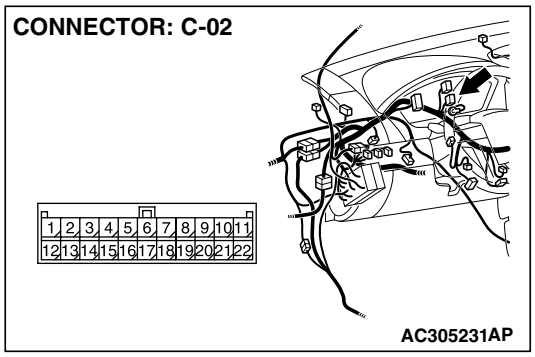
STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

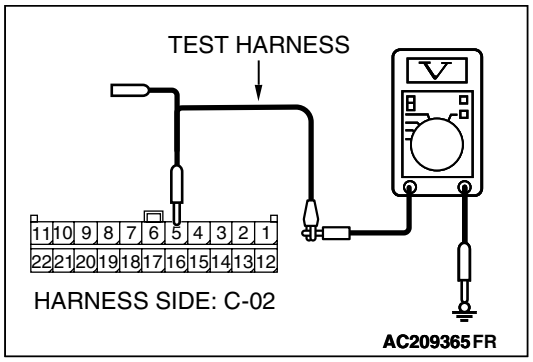
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

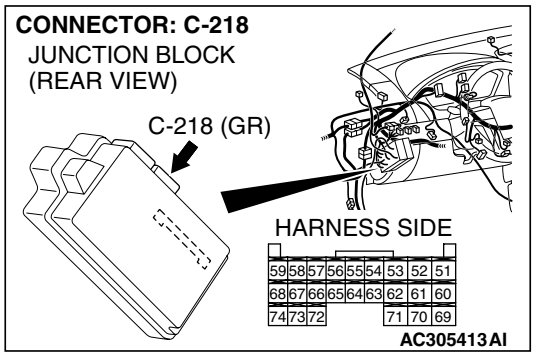
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 12.
NO : If the voltage measures more than 4.0 V, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

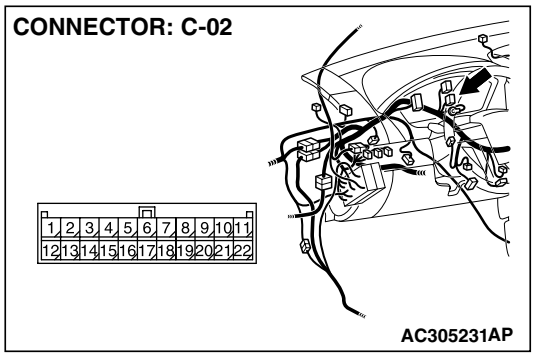
A digital multimeter should be used. For details refer to P.54C-6.

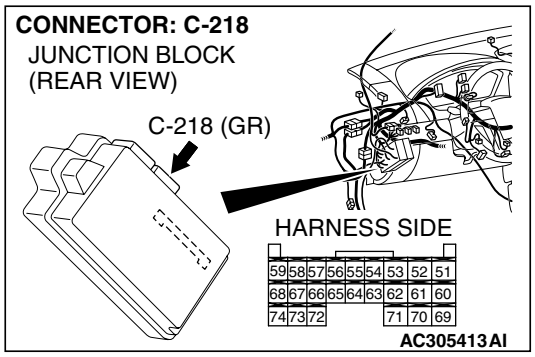
⚠ CAUTION

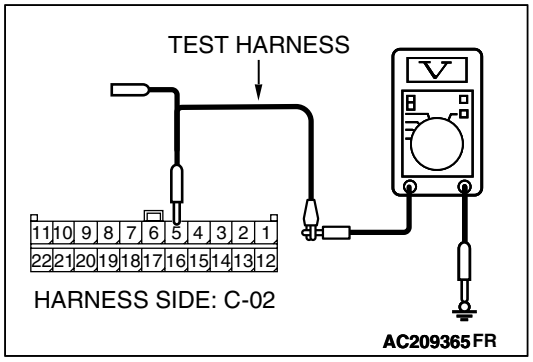
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

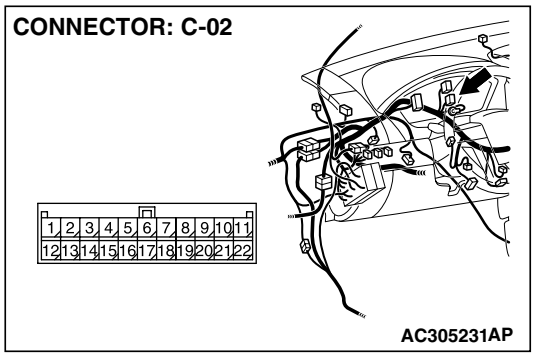
STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

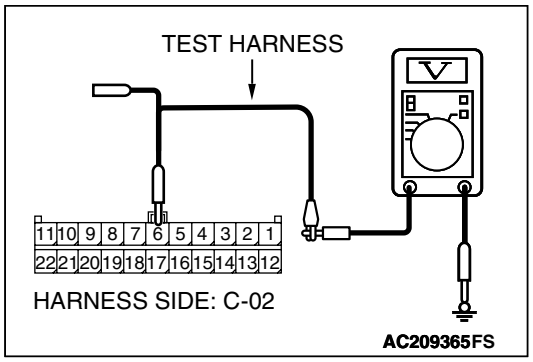
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 6 and body ground.

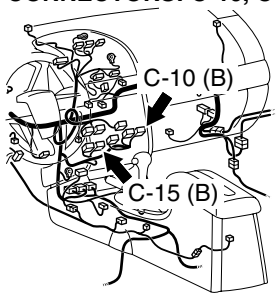
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

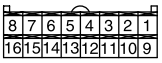
YES : If the voltage measures 4.0 V or less, go to Step 15.

NO : If the voltage measures more than 4.0 V, go to Step 13.

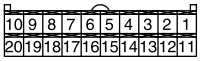
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

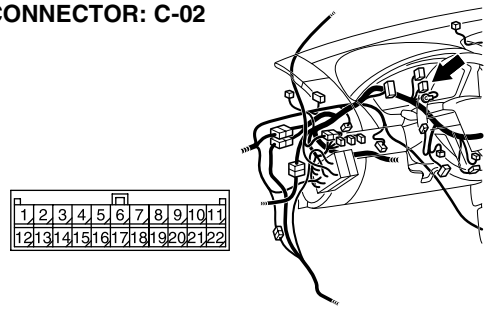
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.

CONNECTOR: C-02



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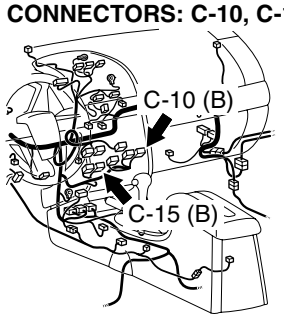
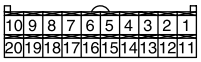
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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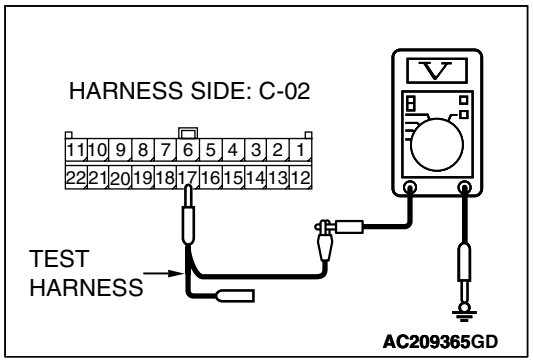


(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

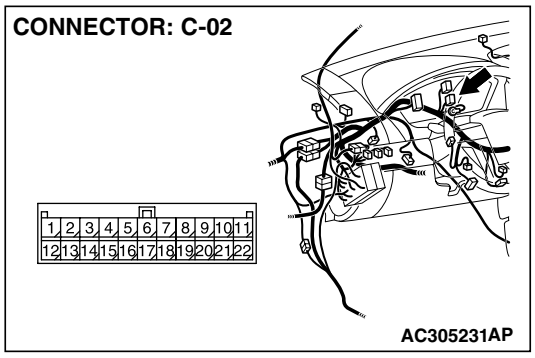
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

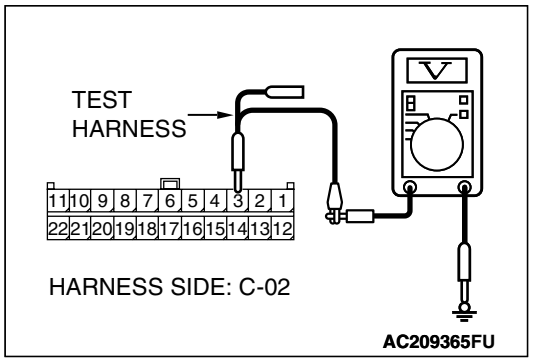
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



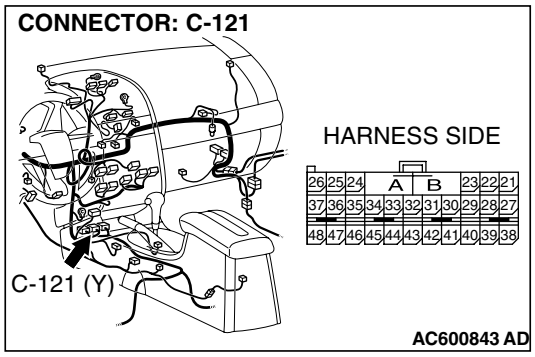
(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 18.

NO : If the voltage measures more than 4.0 V, go to Step 16.



STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.

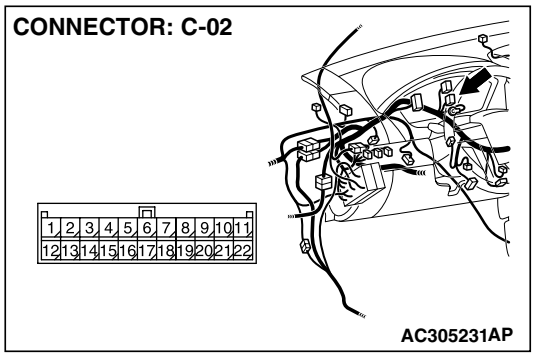
NO : Repair the damaged parts.

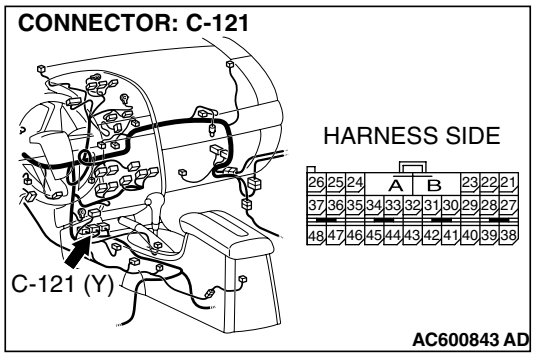
STEP 17. Check the CAN_H line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

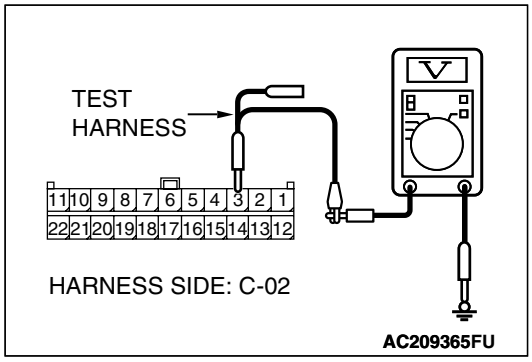
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

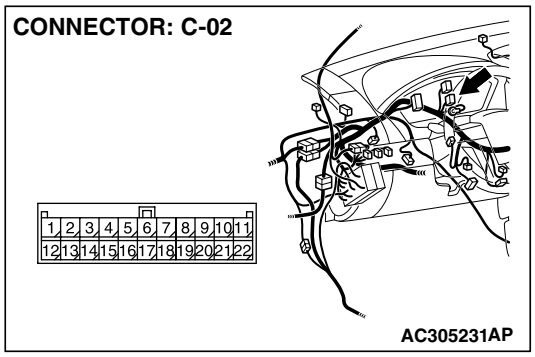
Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

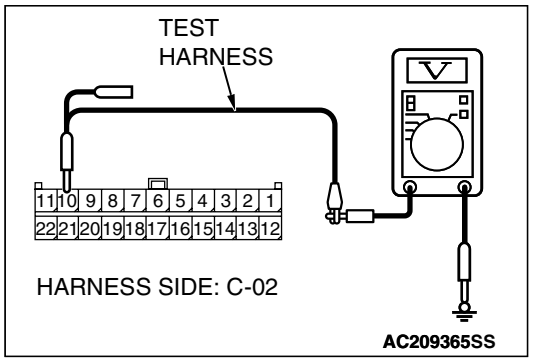
STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

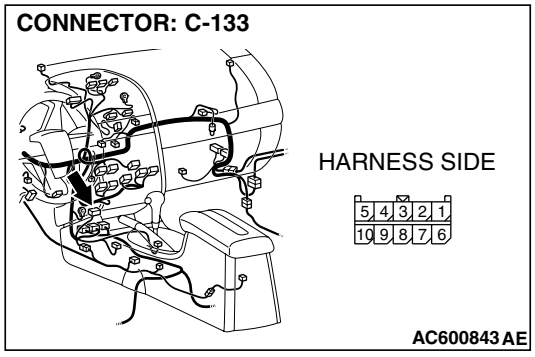


(3) Measure the voltage between joint connector (3) terminal 10 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 21.
NO : If the voltage measures more than 4.0 V, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 20.
NO : Repair the damaged parts.

STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

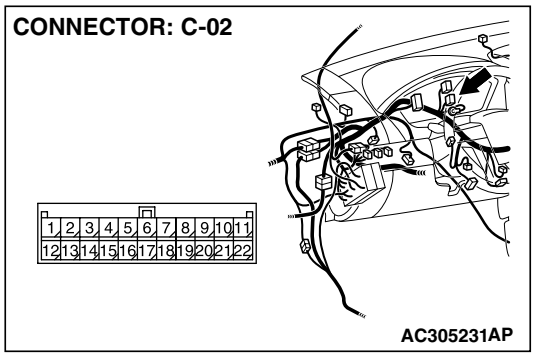
A digital multimeter should be used. For details refer to P.54C-6.

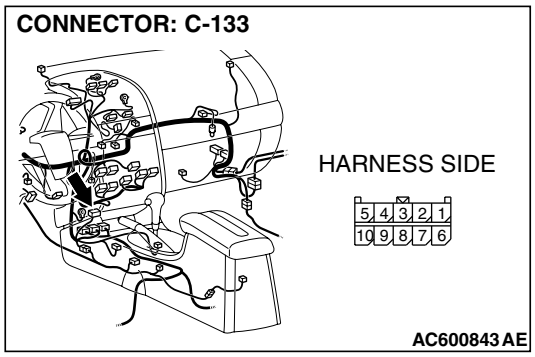
⚠ CAUTION

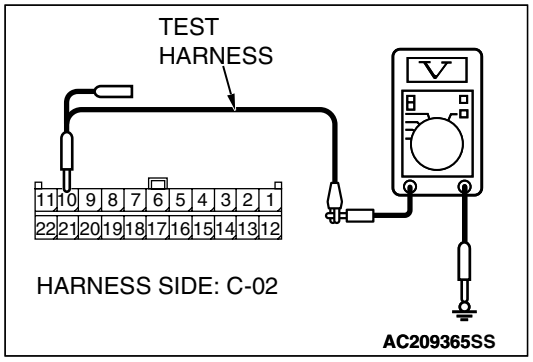
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 10 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

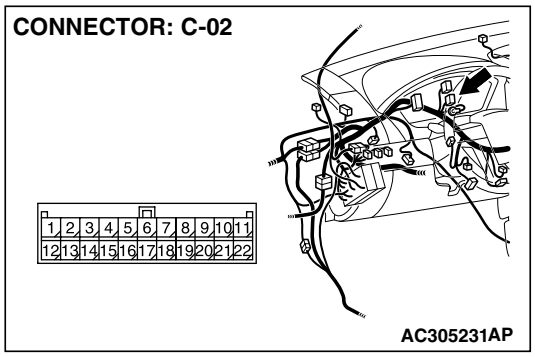
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

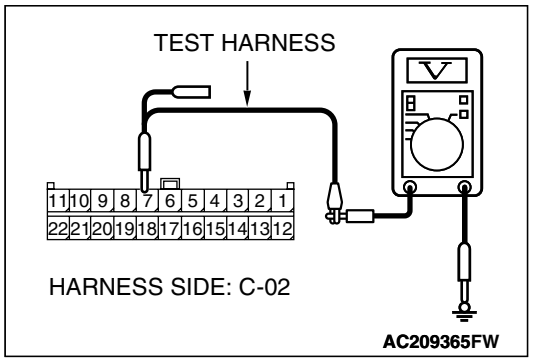
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 22.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

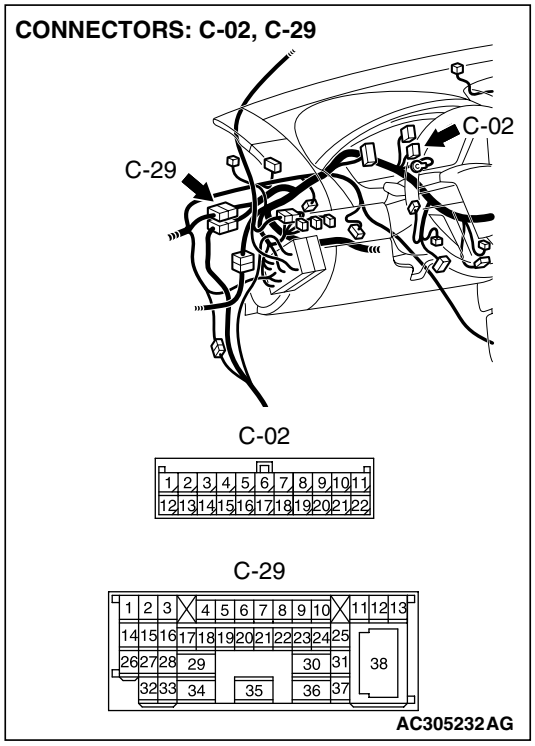
A digital multimeter should be used. For details refer to P.54C-6.

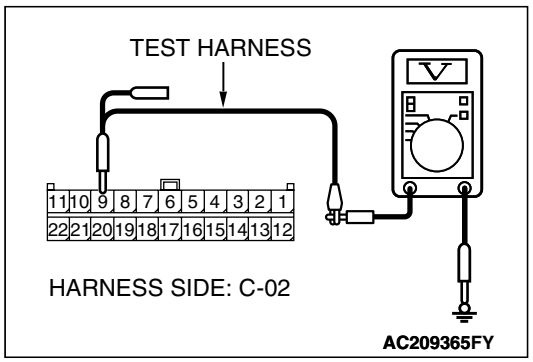
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

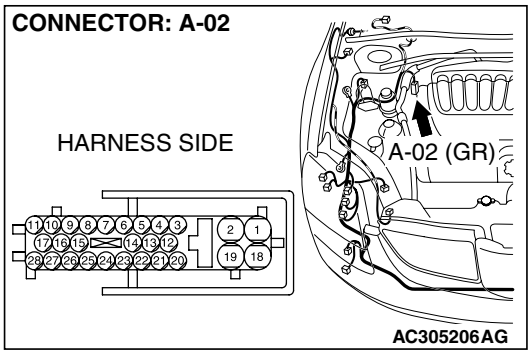
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 23. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 24.

NO : Repair the damaged parts.

STEP 24. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

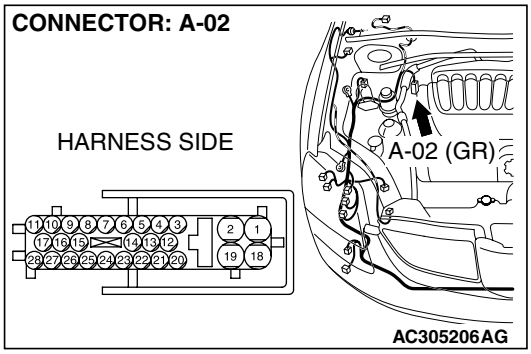
A digital multimeter should be used. For details refer to P.54C-6.

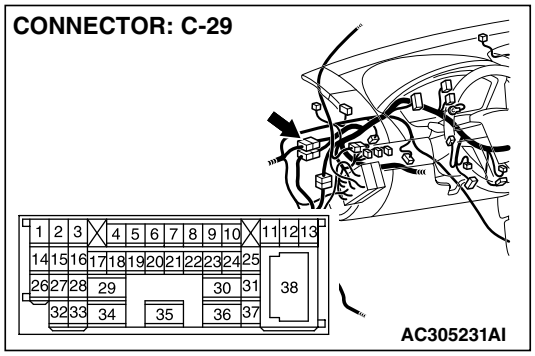
⚠ CAUTION

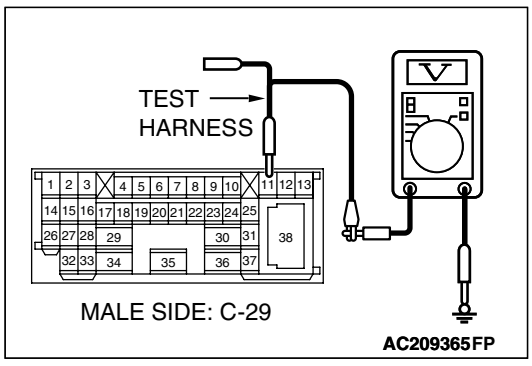
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 25.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 25. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

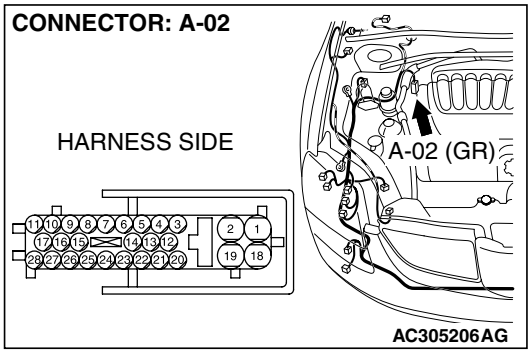
⚠ CAUTION

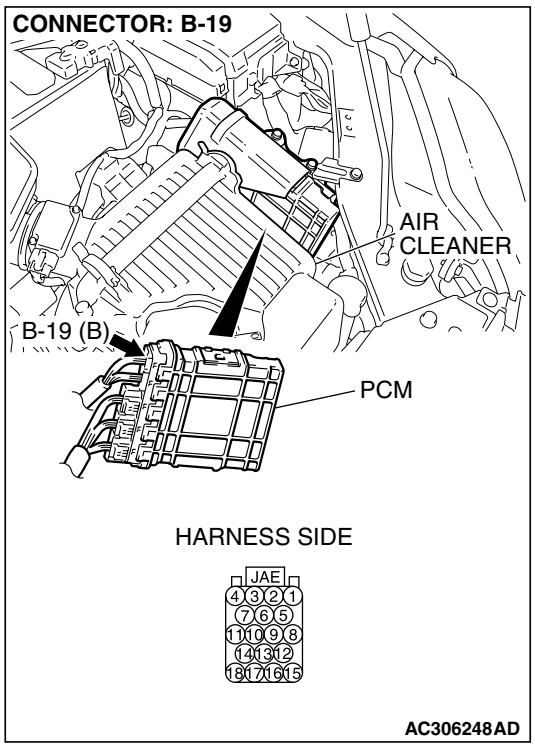
A digital multimeter should be used. For details refer to P.54C-6.

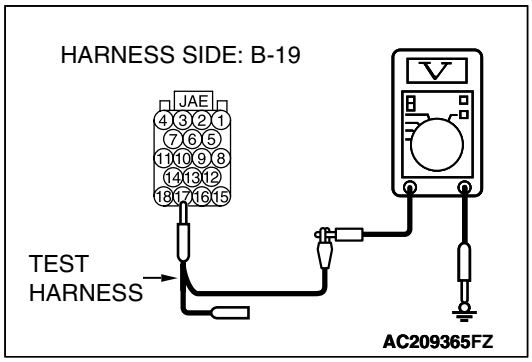
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between powertrain control module connector terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 26.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 26. Check the CAN_H line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02.

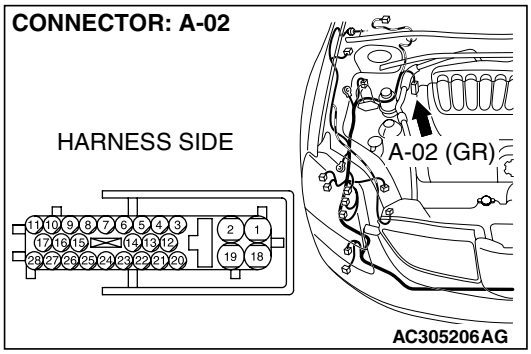
⚠ CAUTION

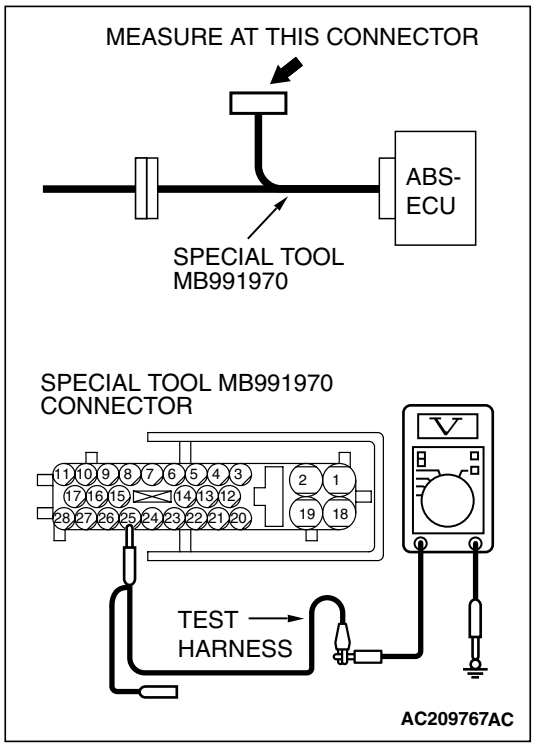
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
(3) Turn the ignition switch to the "ON" position.
(4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

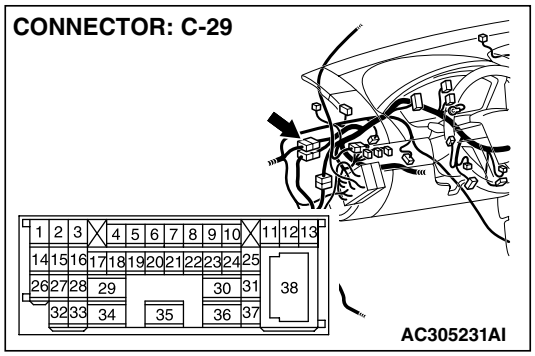
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

STEP 27. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

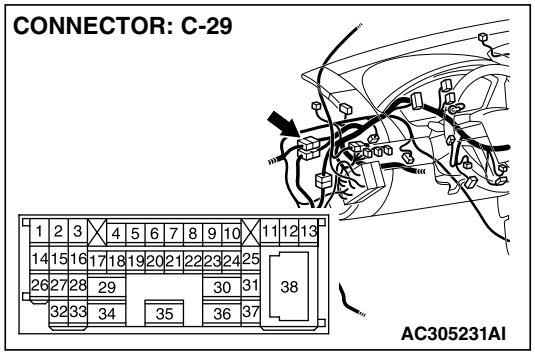
Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 28.
NO : Repair the damaged parts.

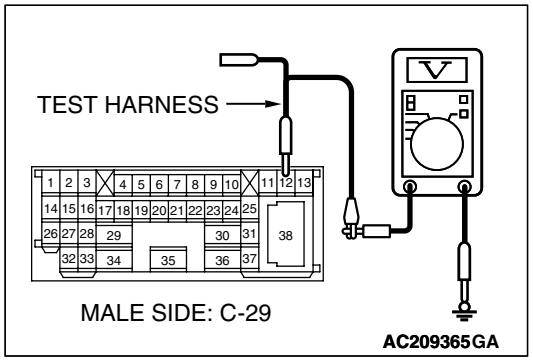
STEP 28. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 12 and body ground.

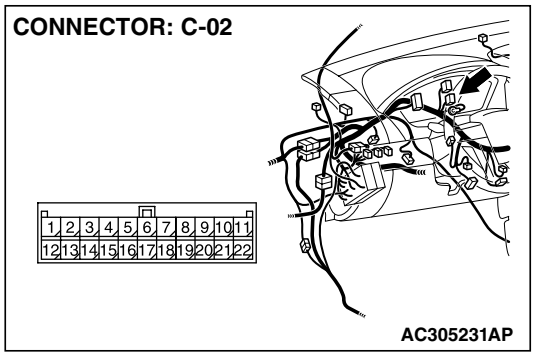
OK: 4.0 V or less

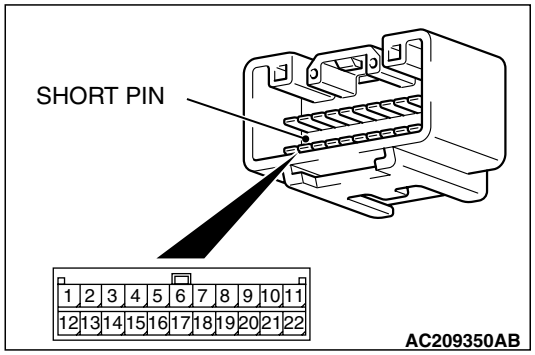
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 29.
NO : If the voltage measures more than 4.0 V, go to Step 46.

STEP 29. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 30.
NO : Repair the damaged parts. Replace the joint connector as necessary.

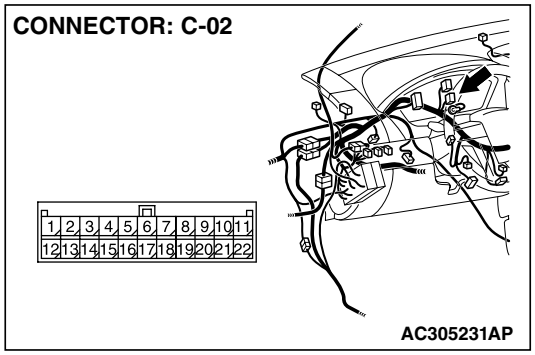
STEP 30. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

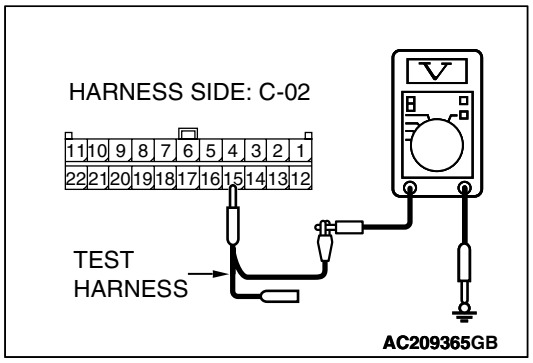
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 32.

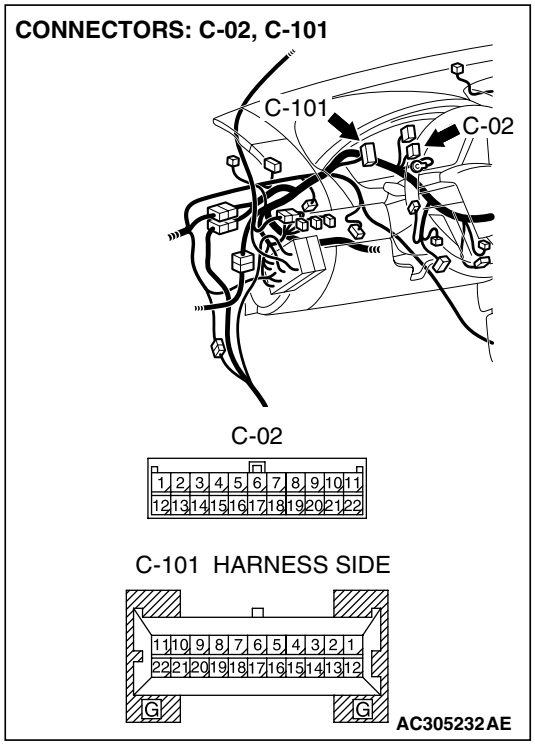
NO : If the voltage measures more than 4.0 V, go to Step 31.

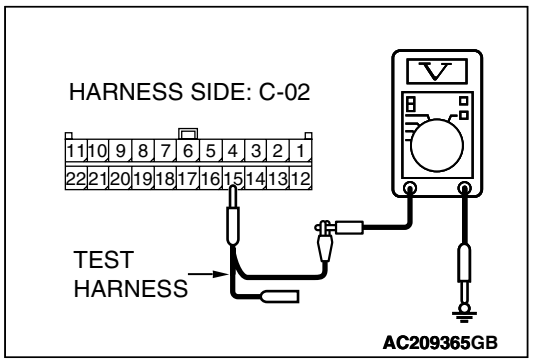
STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

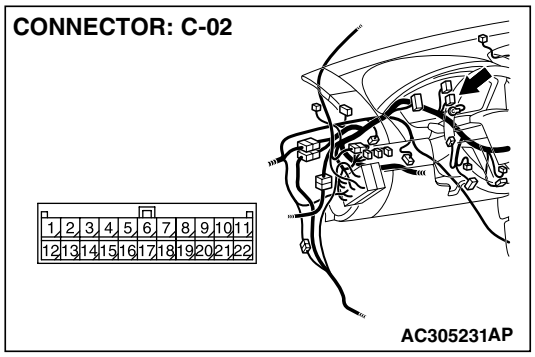
STEP 32. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

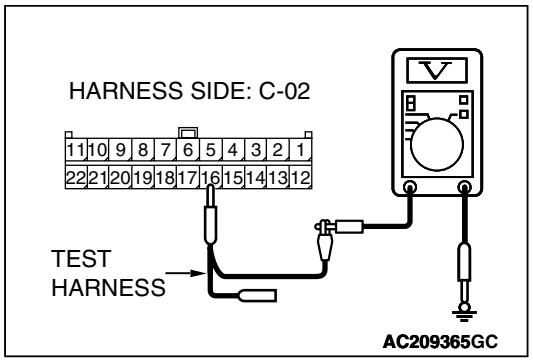
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 4.0 V or less

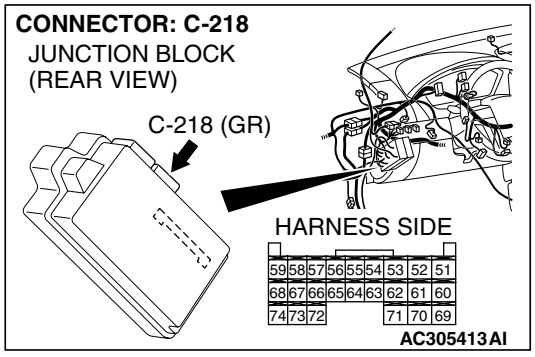
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 35.
NO : If the voltage measures more than 4.0 V, go to Step 33.

STEP 33. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 34.
NO : Repair the damaged parts.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

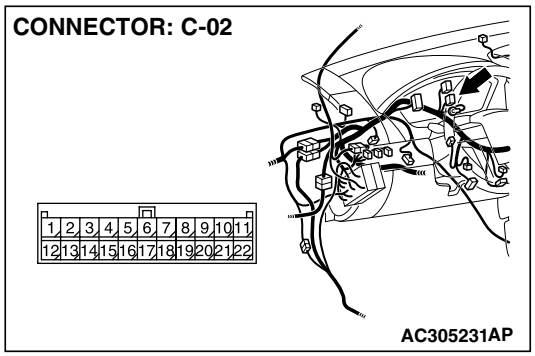
A digital multimeter should be used. For details refer to P.54C-6.

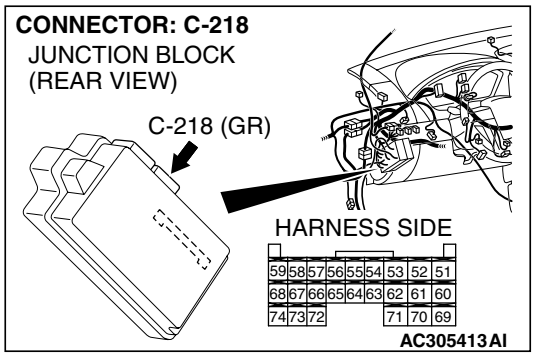
⚠ CAUTION

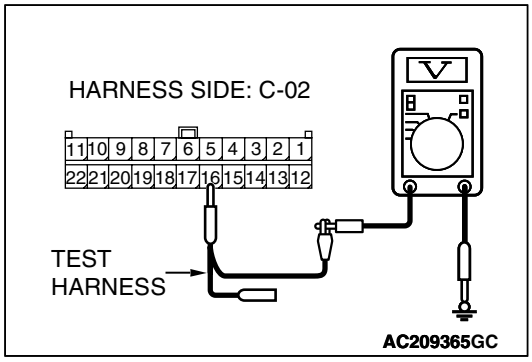
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

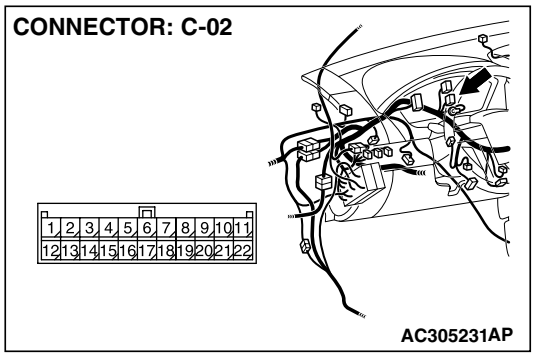
STEP 35. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

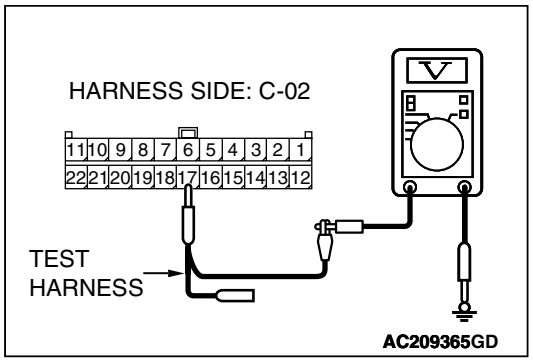
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



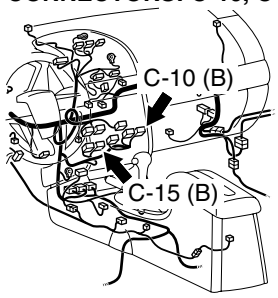
(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 4.0 V or less

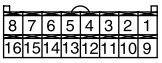
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 38.
NO : If the voltage measures more than 4.0 V, go to Step 36.

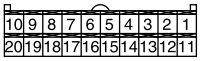
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 36. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 37.
NO : Repair the damaged parts.

STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

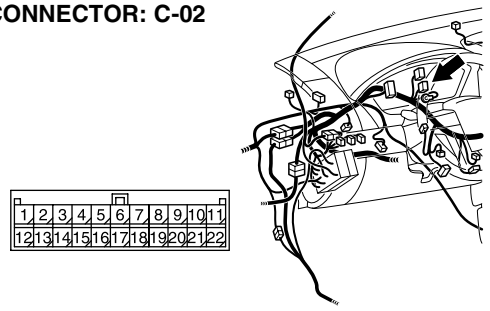
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

CONNECTOR: C-02



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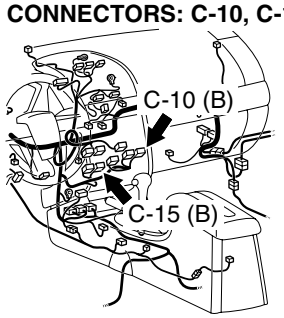
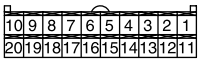
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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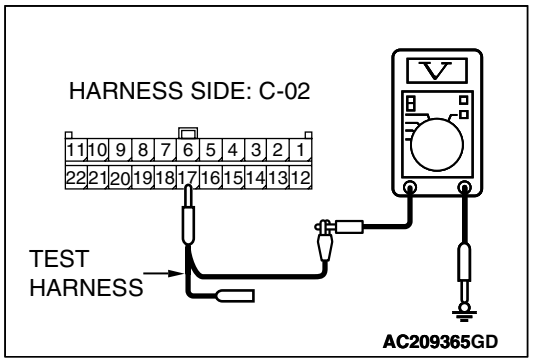


(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

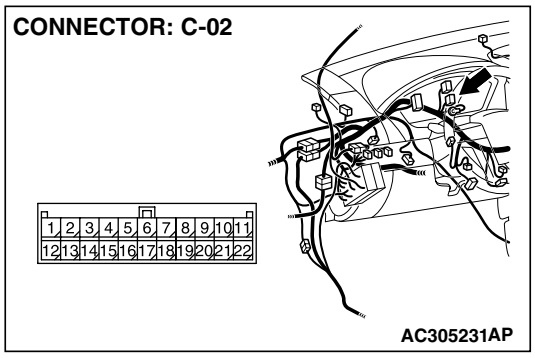
STEP 38. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

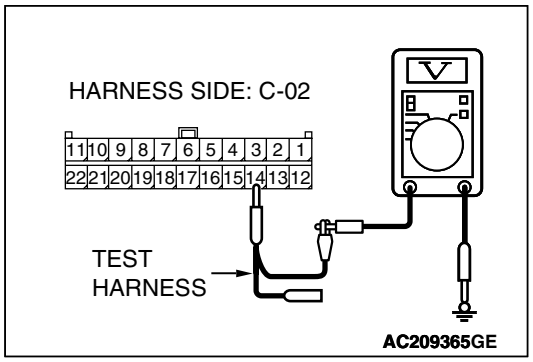
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



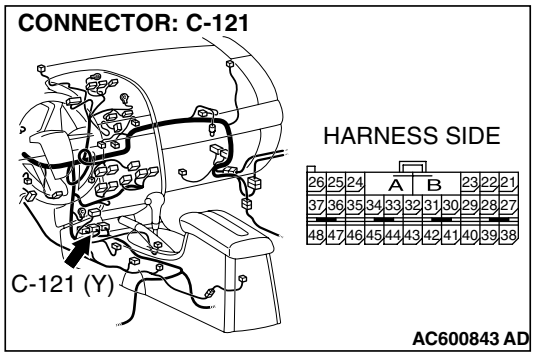
(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 41.

NO : If the voltage measures more than 4.0 V, go to Step 39.



STEP 39. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 40.

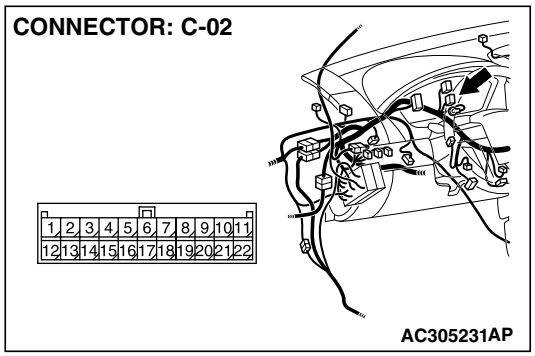
NO : Repair the damaged parts.

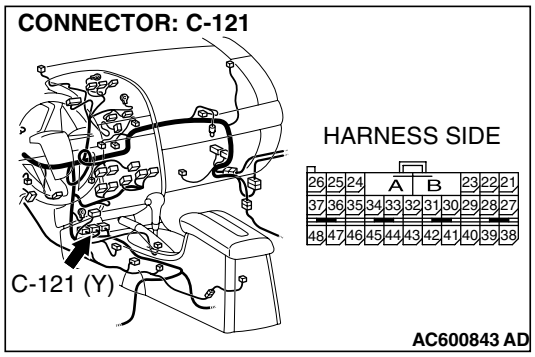
STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

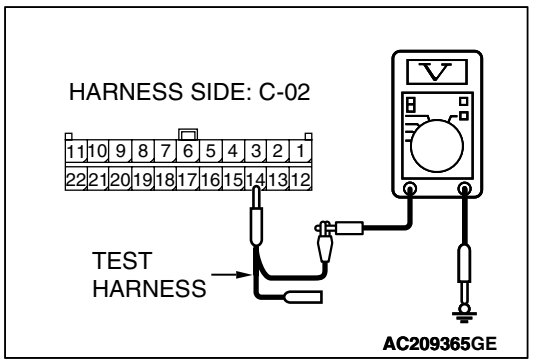
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 1.0 V or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

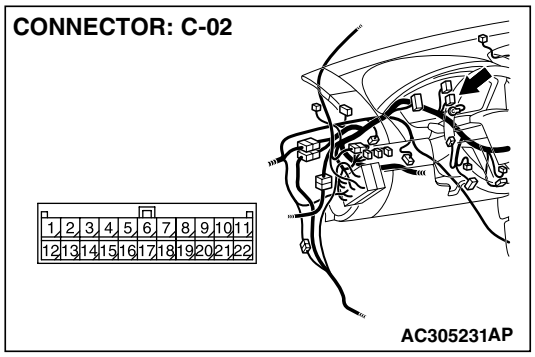
Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : joint connector (3) and the SRS-ECU connector.

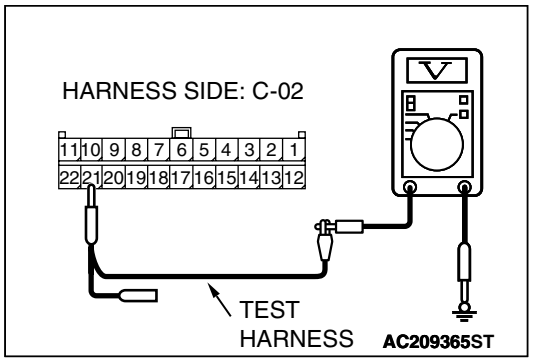
STEP 41. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

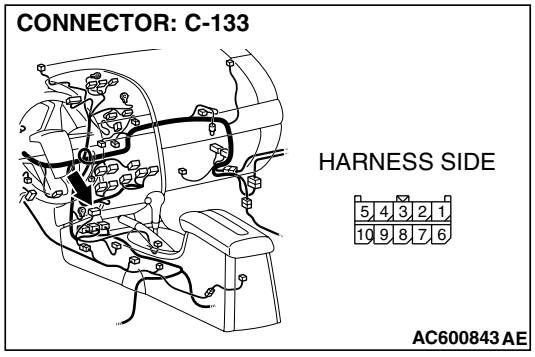


(3) Measure the voltage between joint connector (3) terminals 21 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 44.
NO : If the voltage measures more than 4.0 V, go to Step 42.

STEP 42. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



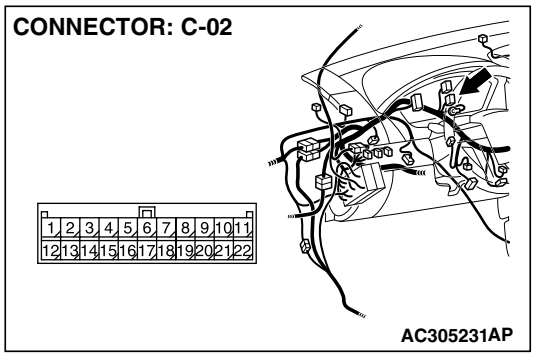
Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 43.
NO : Repair the damaged parts.

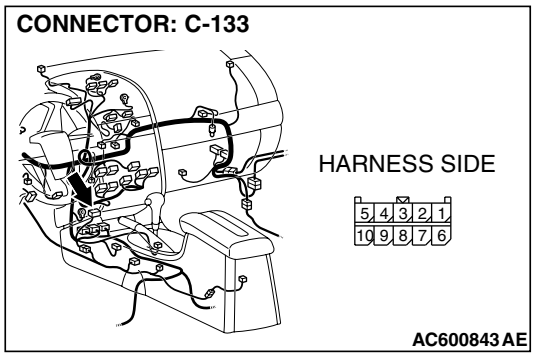
STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

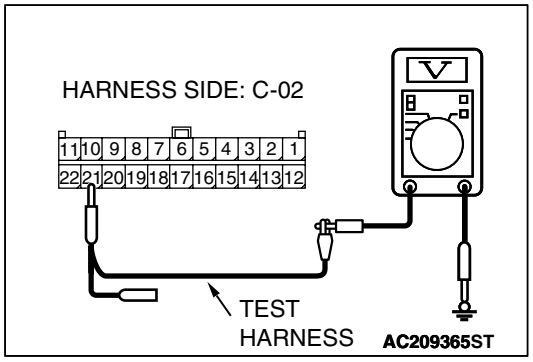
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminals 21 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : joint connector (3) and the TPMS reciver connector.

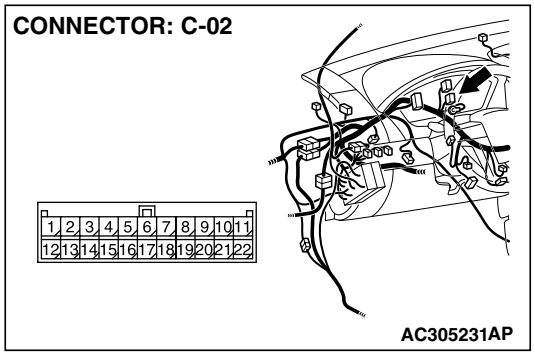
STEP 44. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

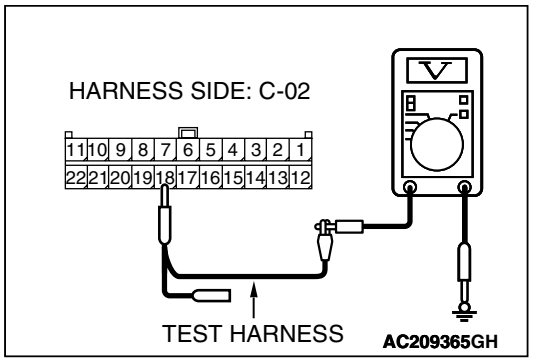
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 18 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 45.

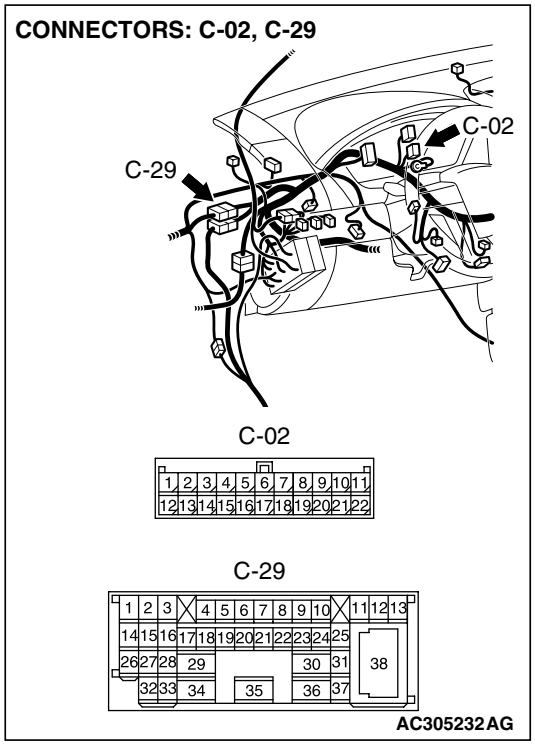
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

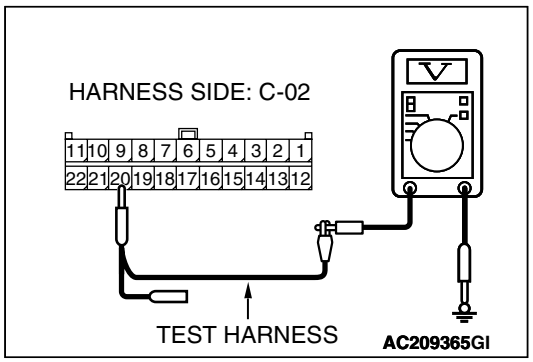
STEP 45. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





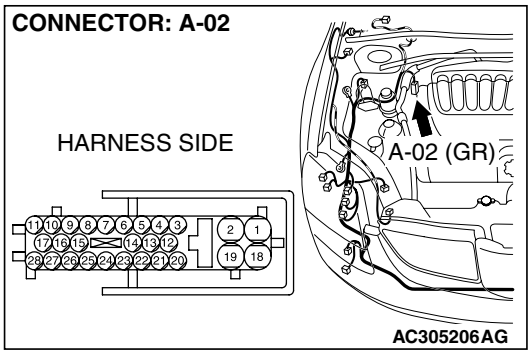
(3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 46. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 47.

NO : Repair the damaged parts.

STEP 47. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

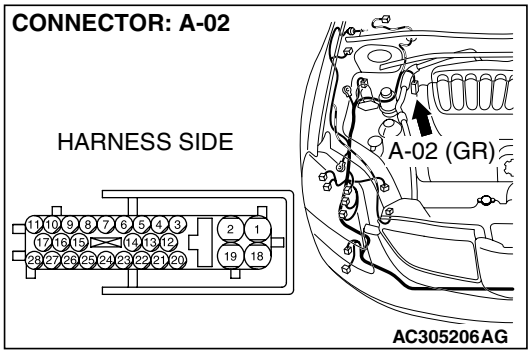
A digital multimeter should be used. For details refer to P.54C-6.

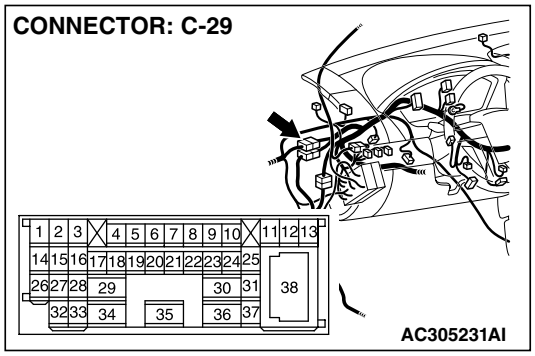
⚠ CAUTION

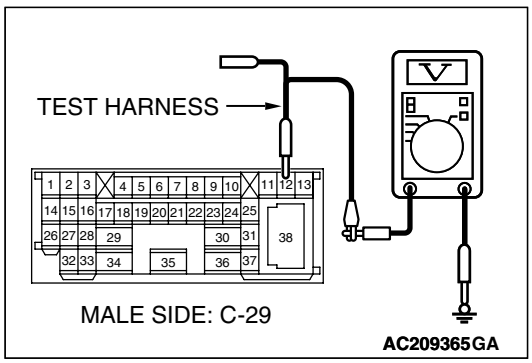
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 48.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 48. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

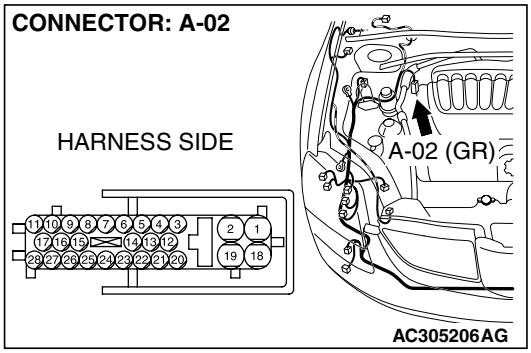
⚠ CAUTION

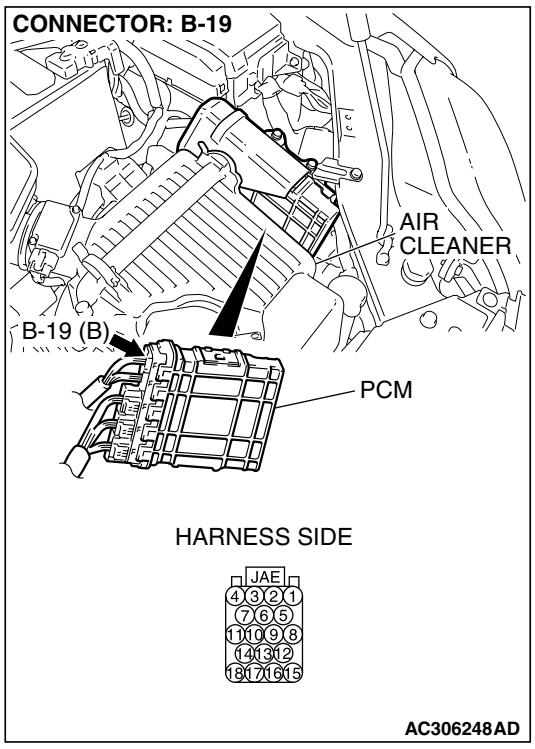
A digital multimeter should be used. For details refer to P.54C-6.

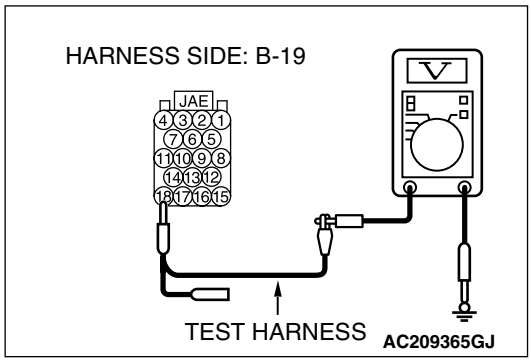
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between powertrain control module connector terminal 18 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 49.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 49. Check the CAN_L line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

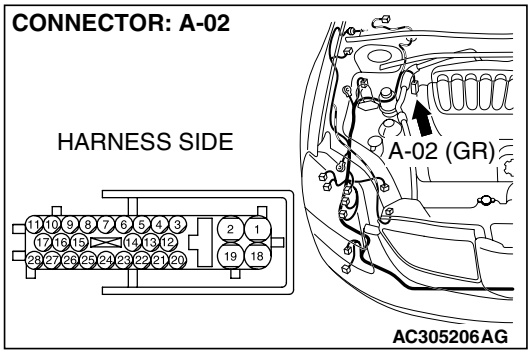
⚠ CAUTION

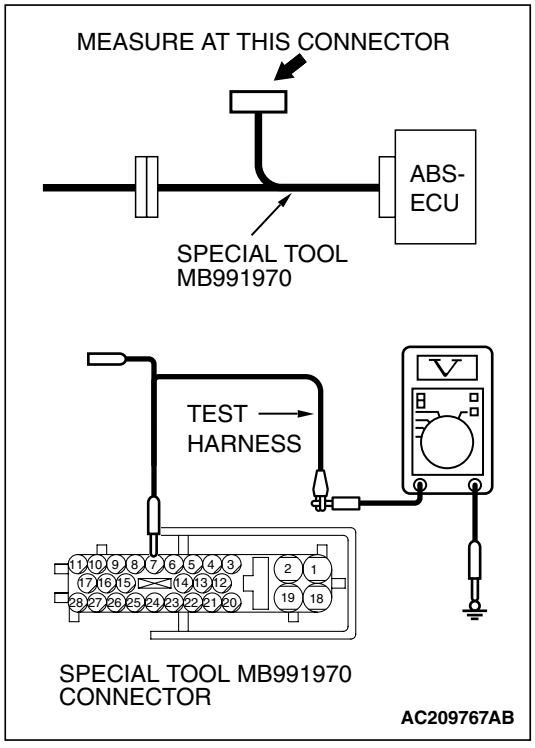
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
(3) Turn the ignition switch to the "ON" position.
(4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 17 and body ground.

OK: 4.0 V or less

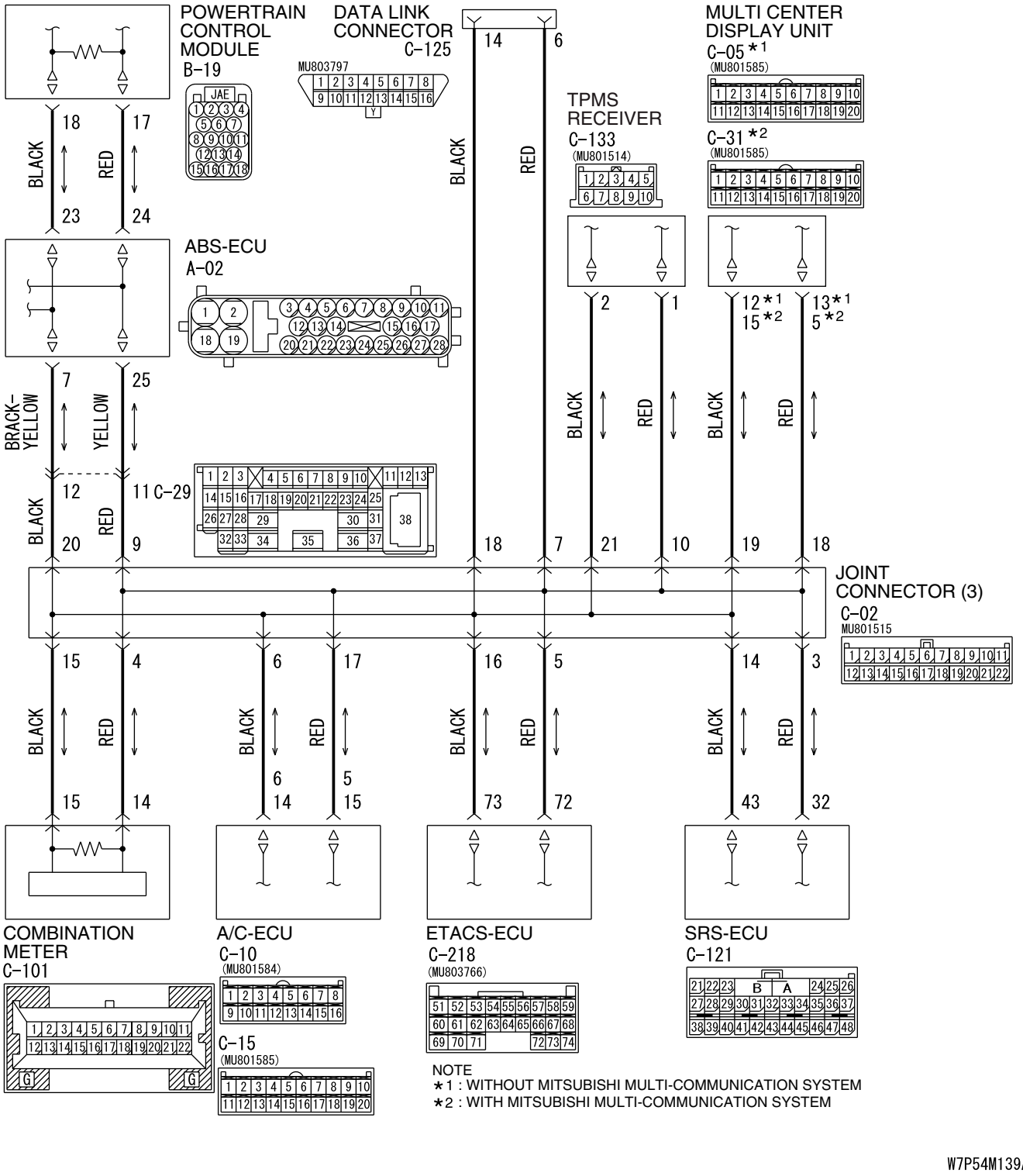
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

DIAGNOSTIC ITEM 3: Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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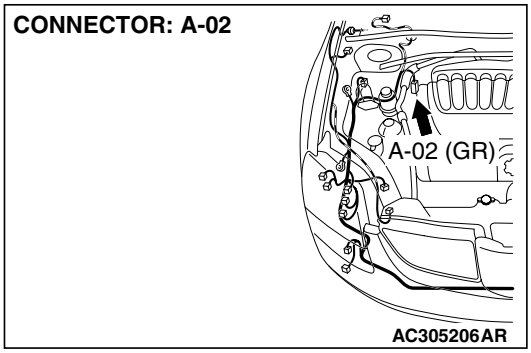
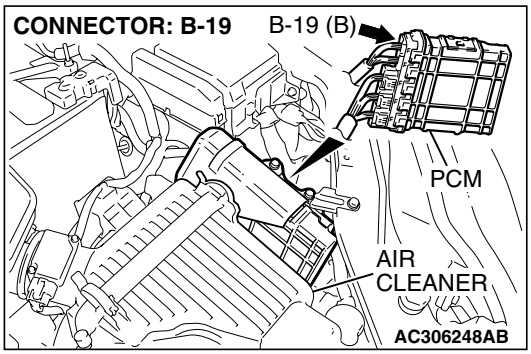
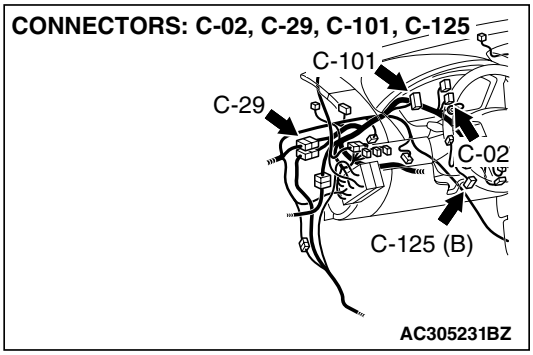
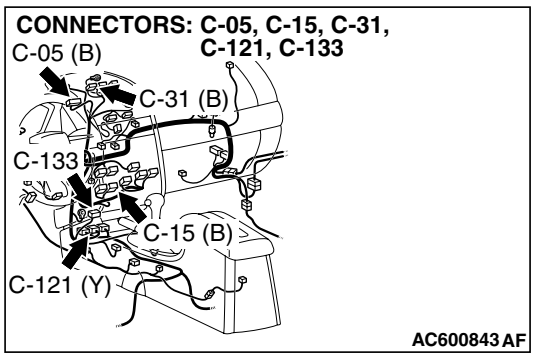
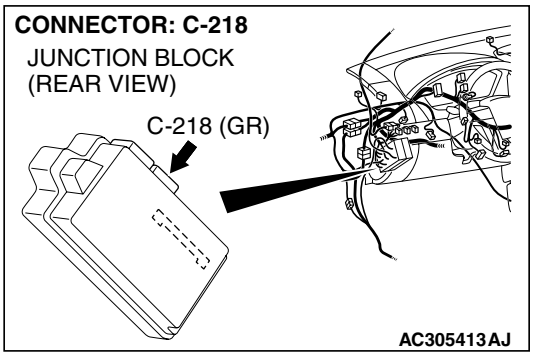










TROUBLE JUDGMENT

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

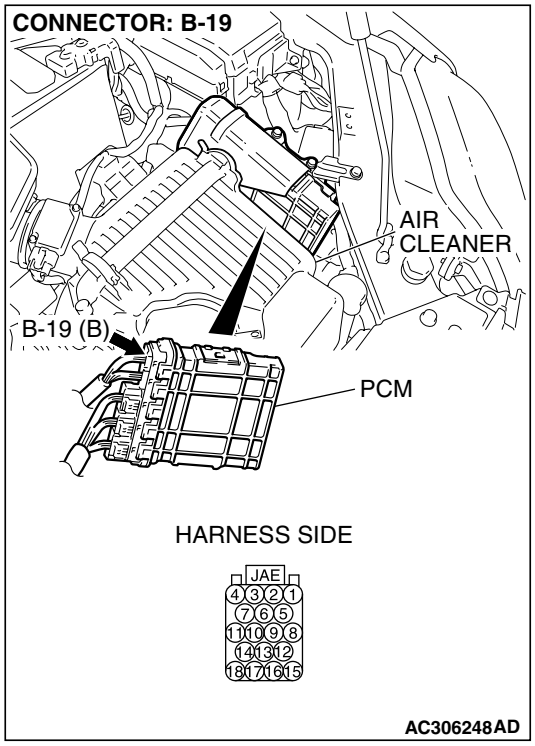
⚠ CAUTION

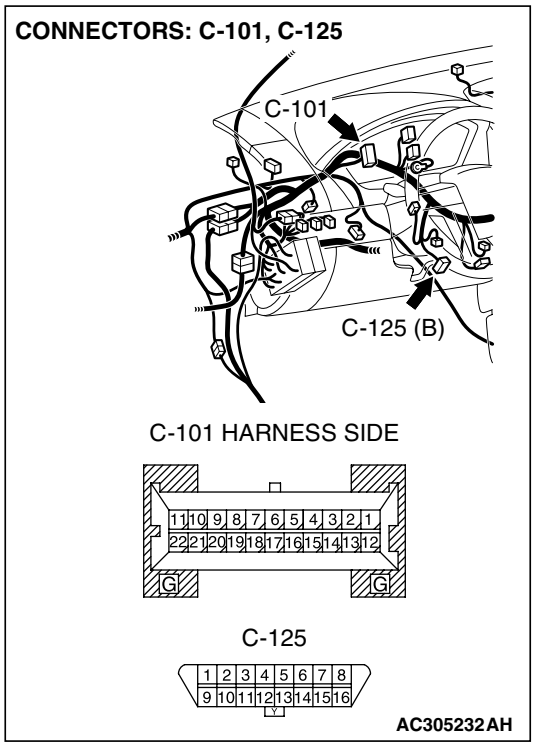
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

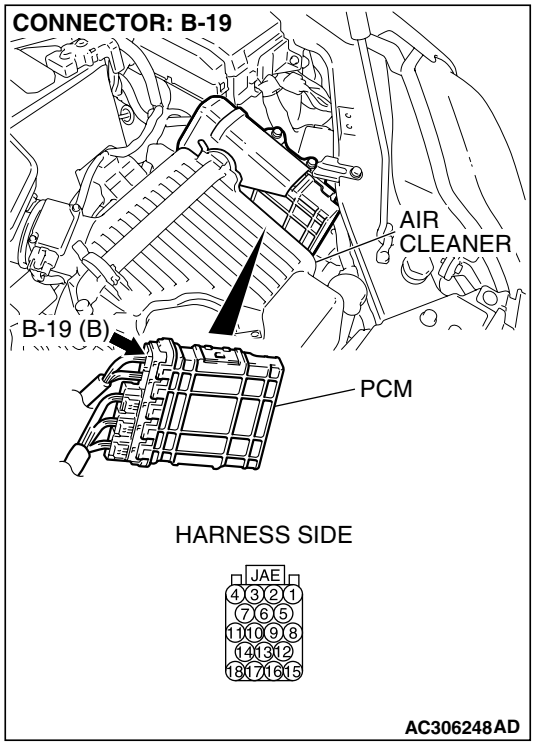


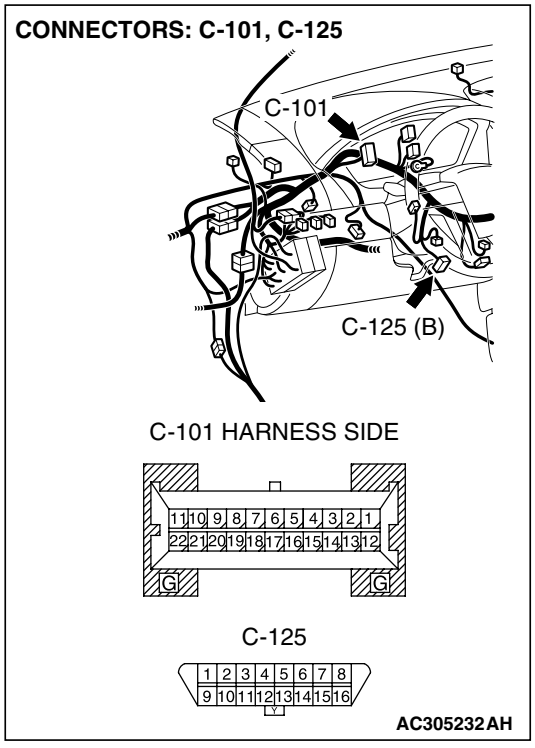


STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply.
Measure the voltage at data link connector C-125.

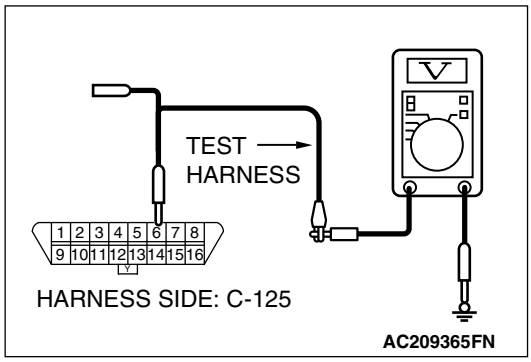
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.





(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

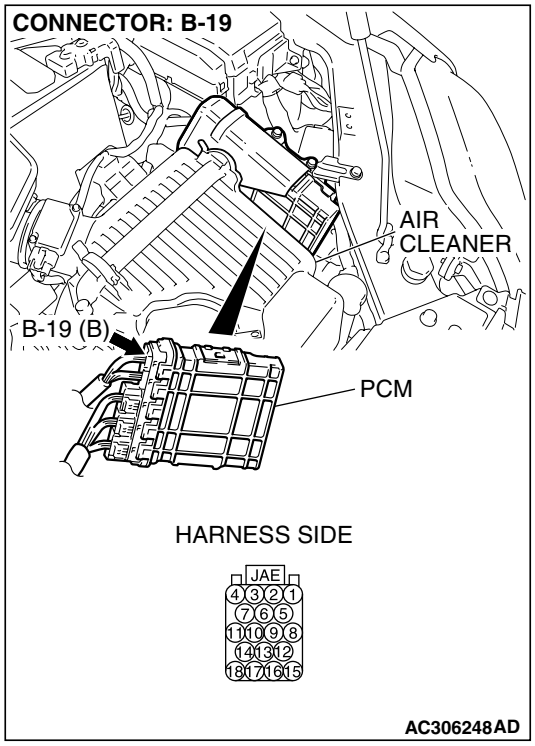
Q: Does the voltage measure 4.0 V or less?

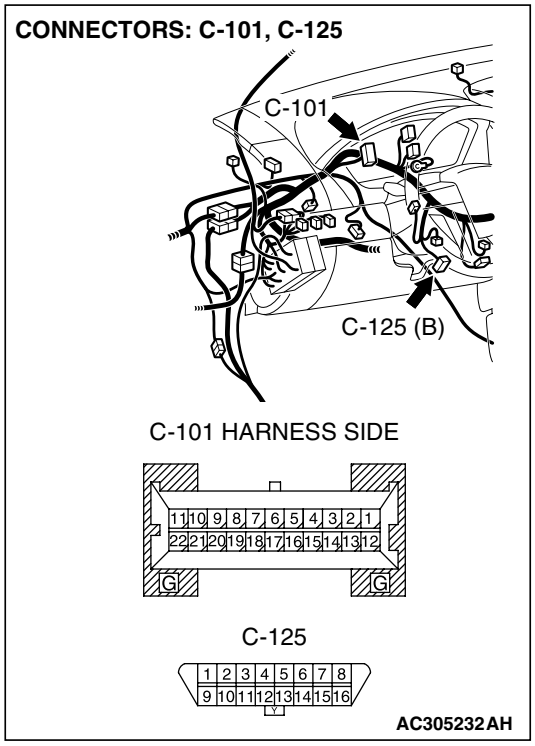
YES : If the voltage measures 4.0 V or less, go to Step 3.
NO : If the voltage measures more than 4.0 V, go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply.
Measure the voltage at data link connector C-125.

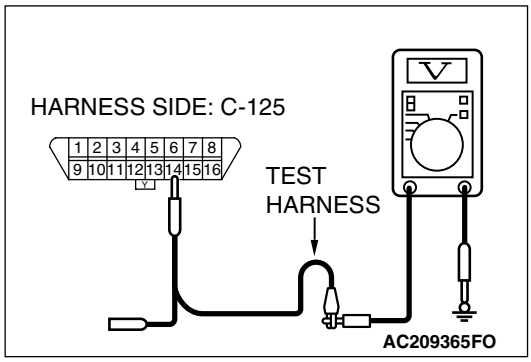
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.





(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between data link connector terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

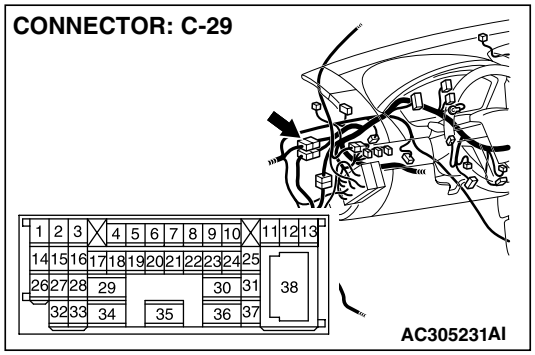
YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 4.0 V, go to Step 30.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

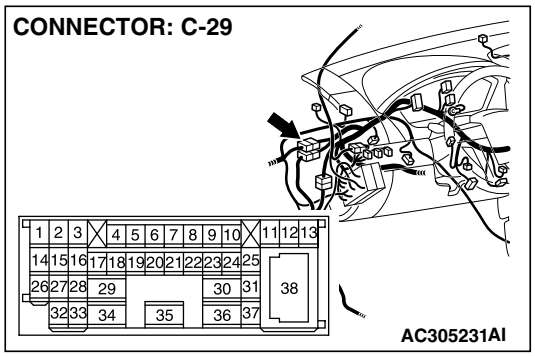
STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

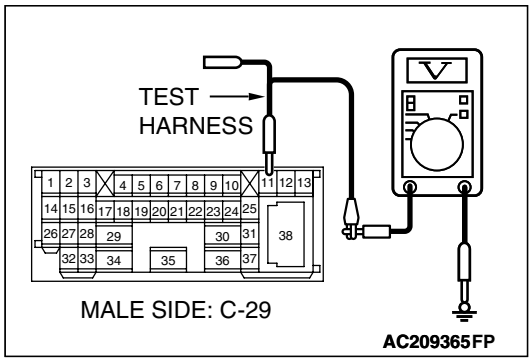
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 11 and body ground.

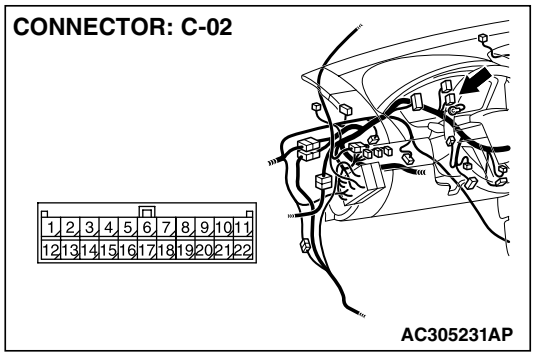
OK: 4.0 V or less

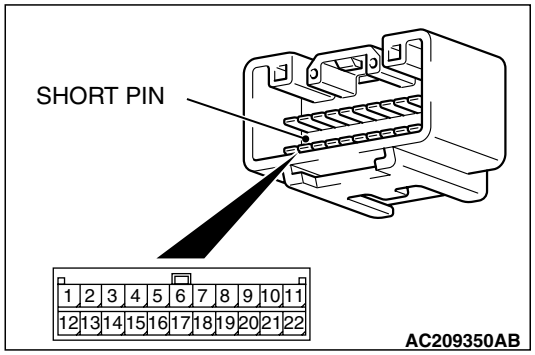
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 6.
NO : If the voltage measures more than 4.0 V, go to Step 26.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

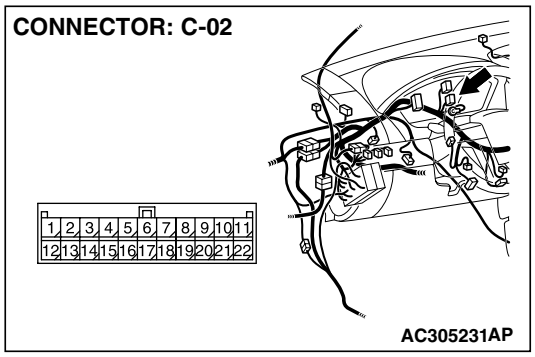
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

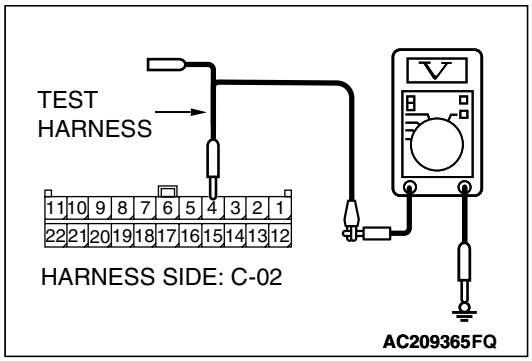
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

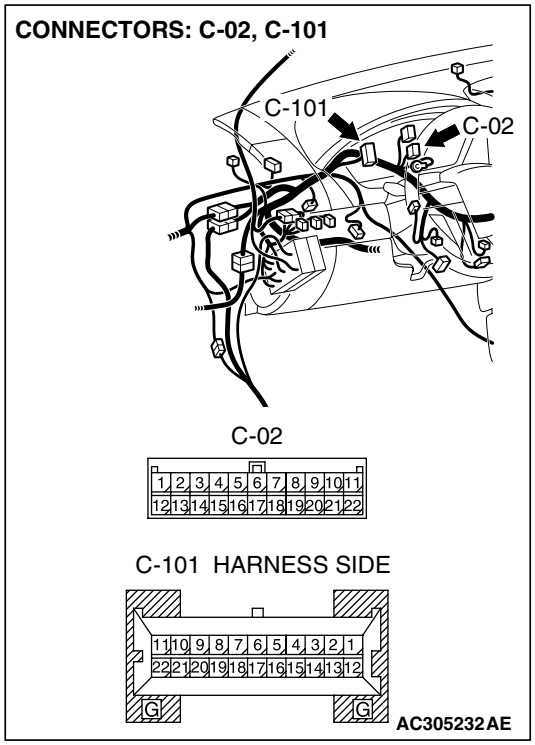
A digital multimeter should be used. For details refer to P.54C-6.

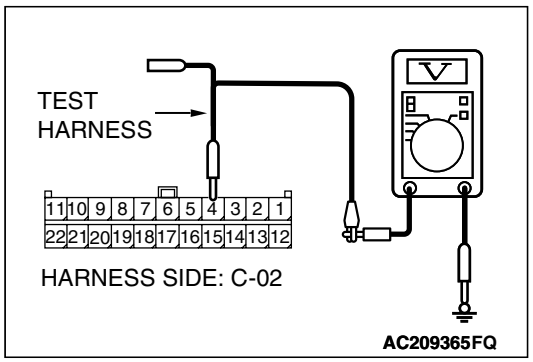
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

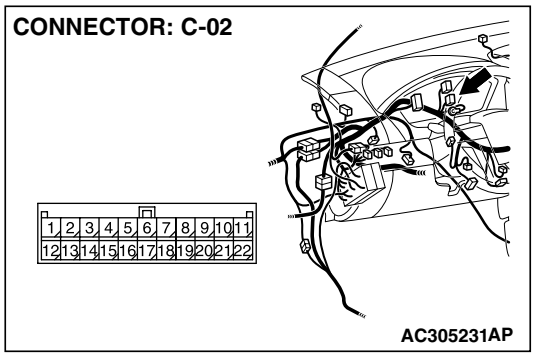
STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

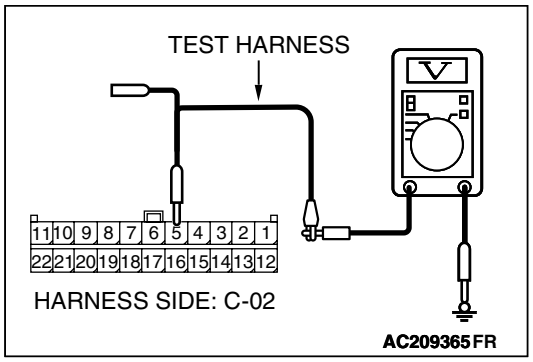
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

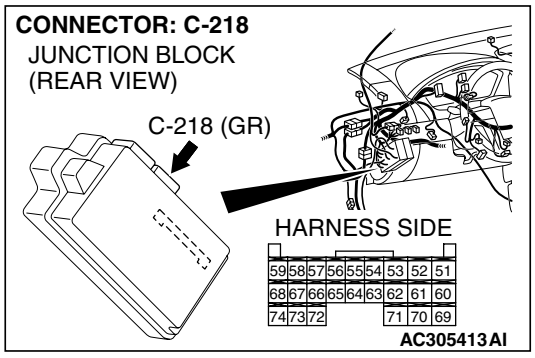
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 12.
NO : If the voltage measures more than 4.0 V, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

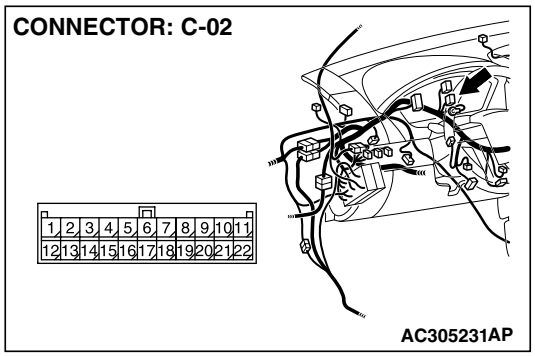
A digital multimeter should be used. For details refer to P.54C-6.

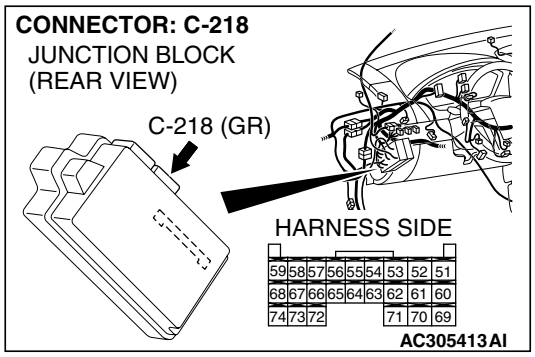
⚠ CAUTION

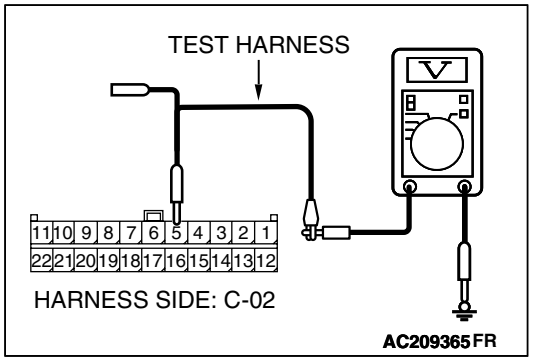
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

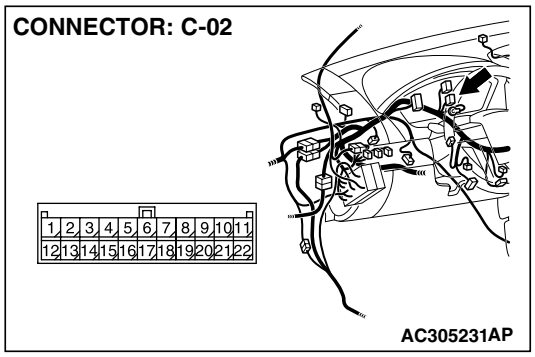
STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

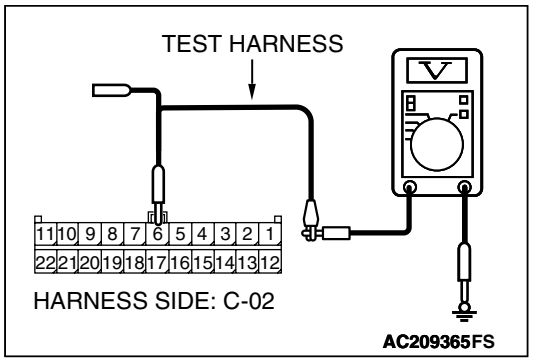
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 4.0 V or less

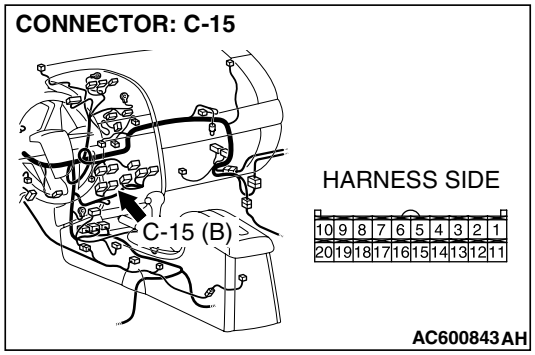
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 15.
NO : If the voltage measures more than 4.0 V, go to Step 13.

STEP 13. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

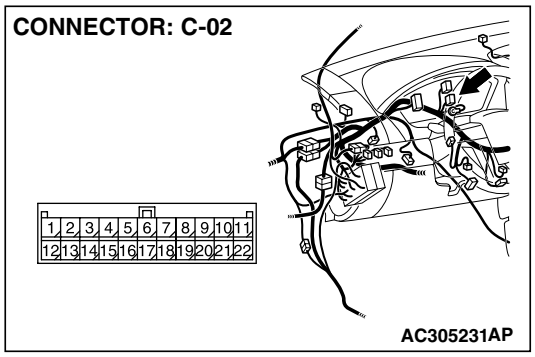
A digital multimeter should be used. For details refer to P.54C-6.

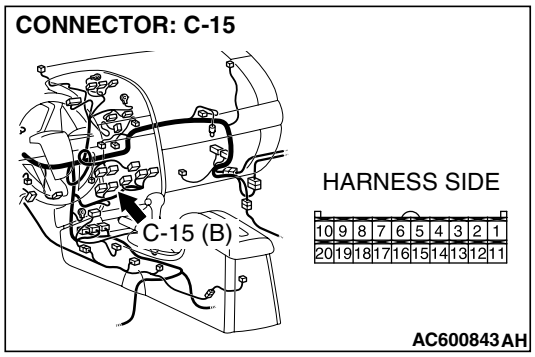
⚠ CAUTION

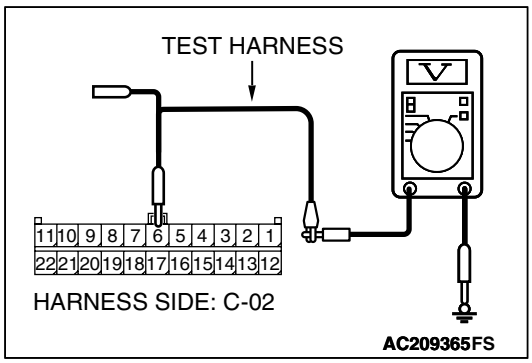
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

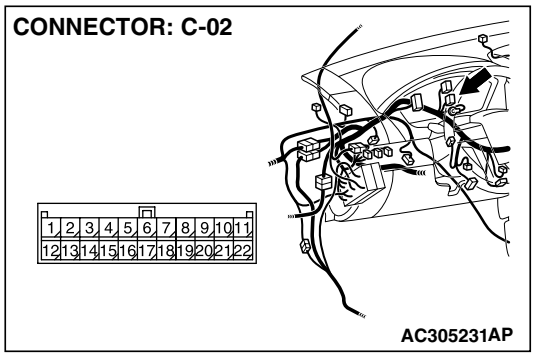
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

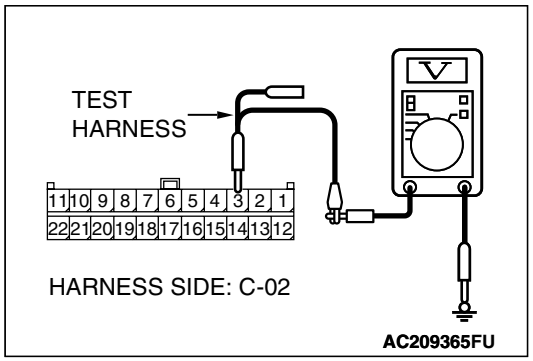
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

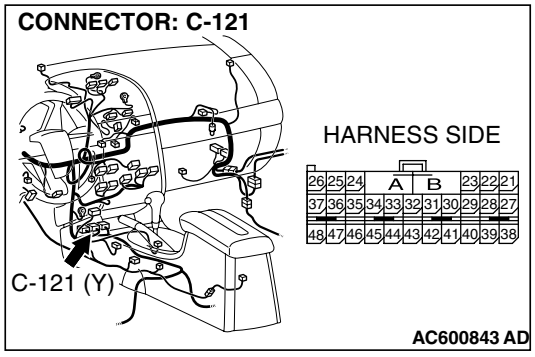
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 18.
NO : If the voltage measures more than 4.0 V, go to Step 16.

STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.
NO : Repair the damaged parts.

STEP 17. Check the CAN_H line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

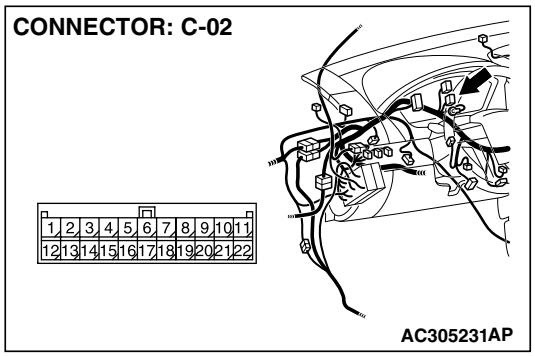
A digital multimeter should be used. For details refer to P.54C-6.

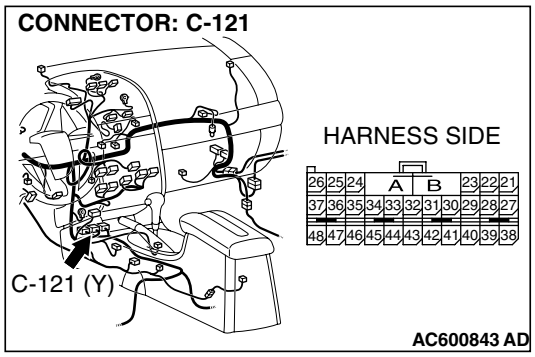
⚠ CAUTION

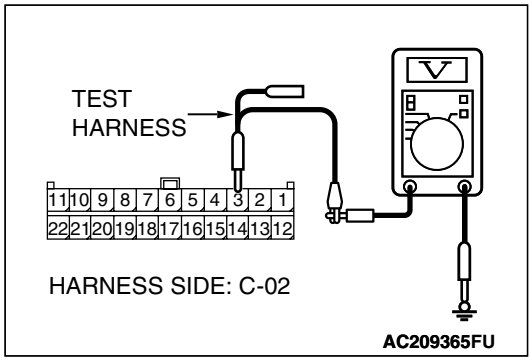
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

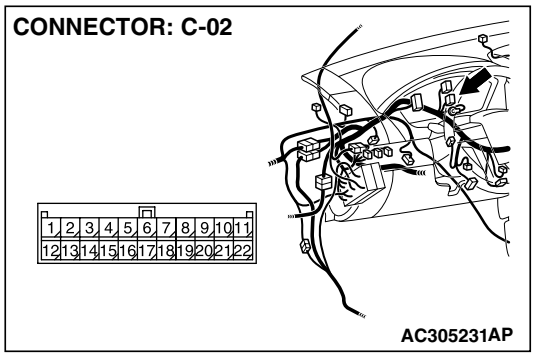
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

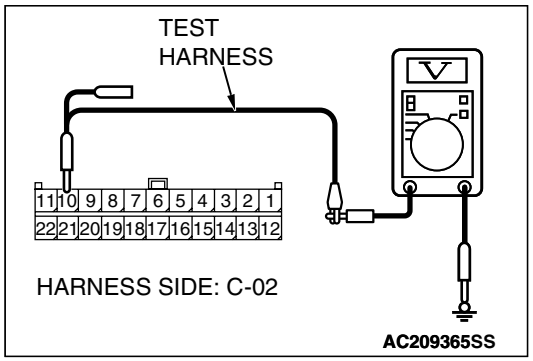
STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

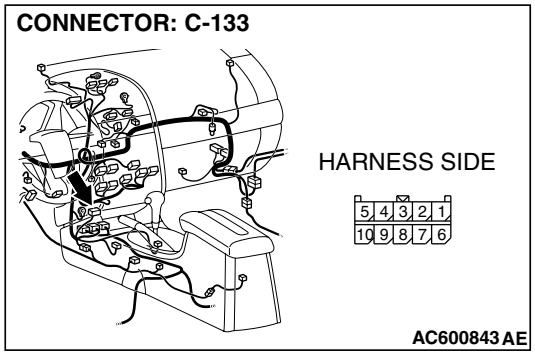


(3) Measure the voltage between joint connector (3) terminal 10 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 21.
NO : If the voltage measures more than 4.0 V, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 20.
NO : Repair the damaged parts.

STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

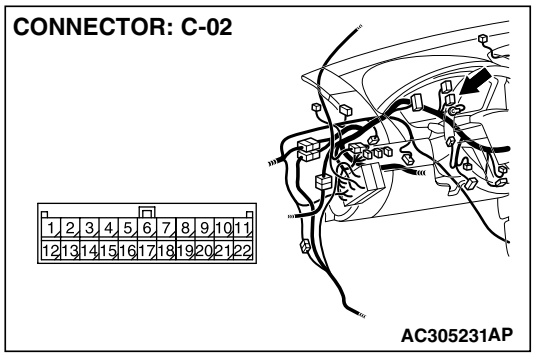
A digital multimeter should be used. For details refer to P.54C-6.

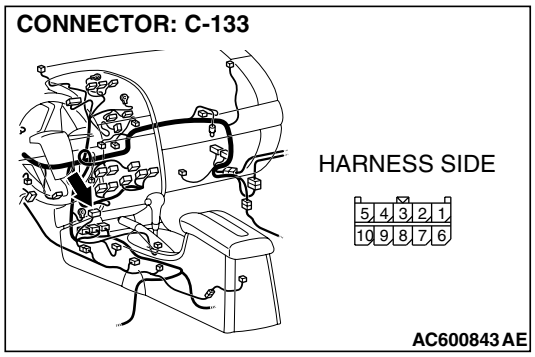
⚠ CAUTION

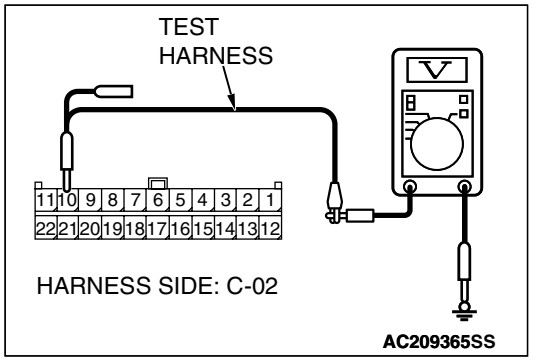
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 10 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

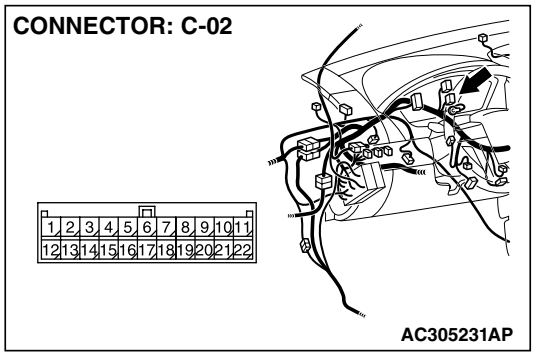
STEP 21. Check the CAN_H line (communication line including the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)) between joint connector (3) and middle-grade multi-center display connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

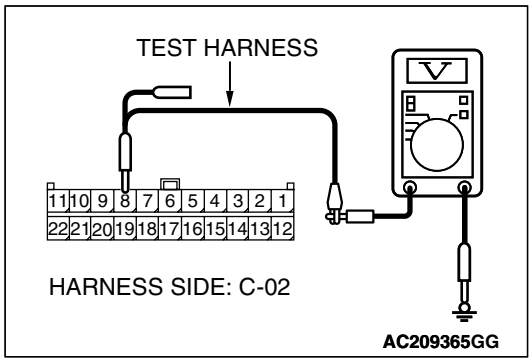
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 8 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 24.

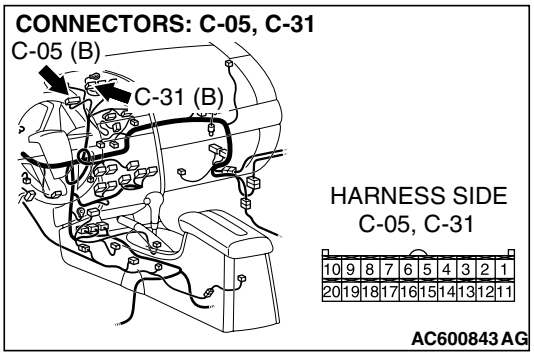
NO : If the voltage measures more than 4.0 V, go to Step 22.

STEP 22. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

CONNECTORS: C-05, C-31



Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to Step 23.
NO : Repair the damaged parts.

STEP 23. Check the CAN_H line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

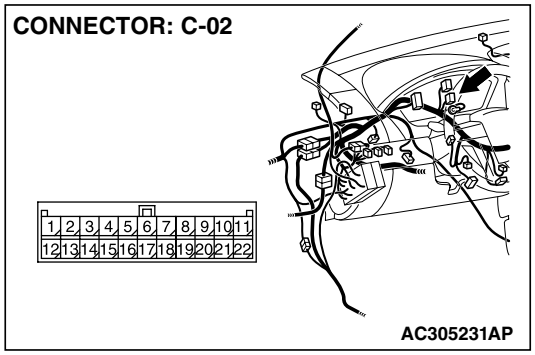
A digital multimeter should be used. For details refer to P.54C-6.

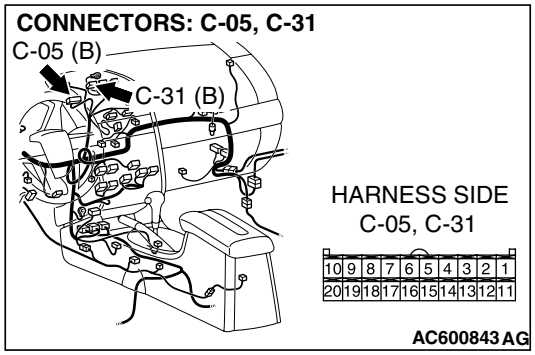
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



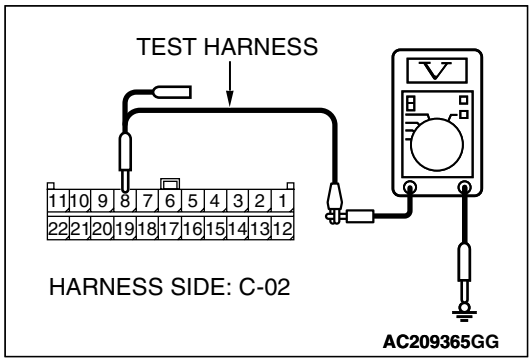


(3) Measure the voltage between joint connector (3) terminal 8 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.



Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

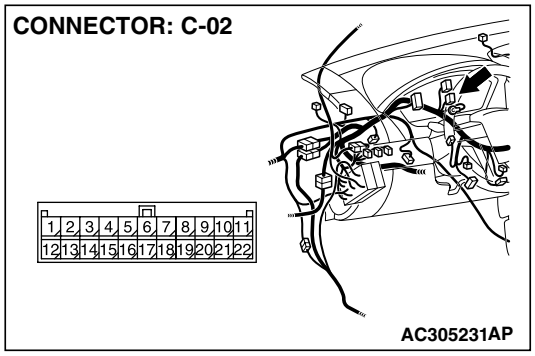
STEP 24. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

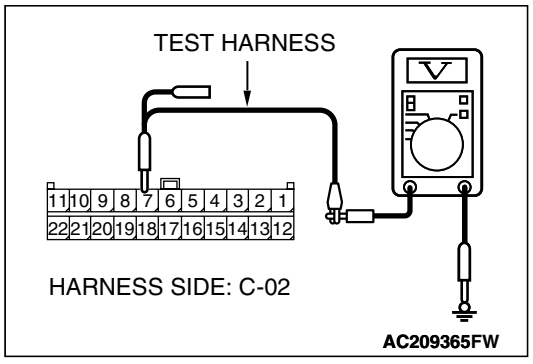
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 25.

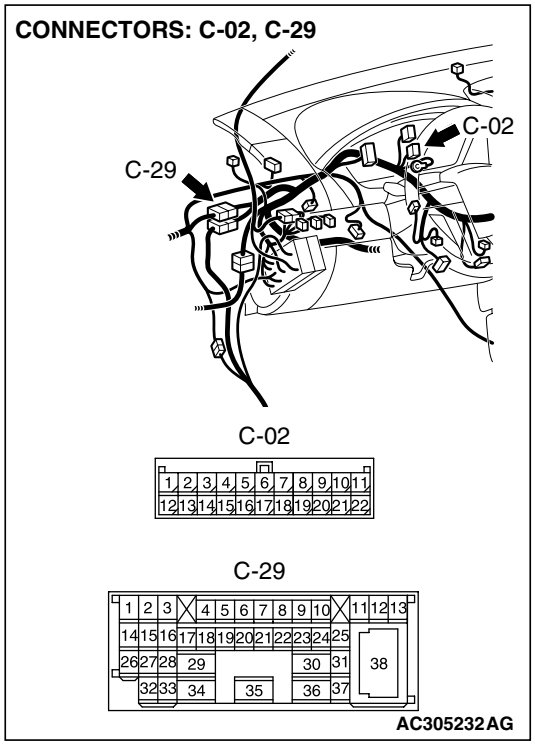
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

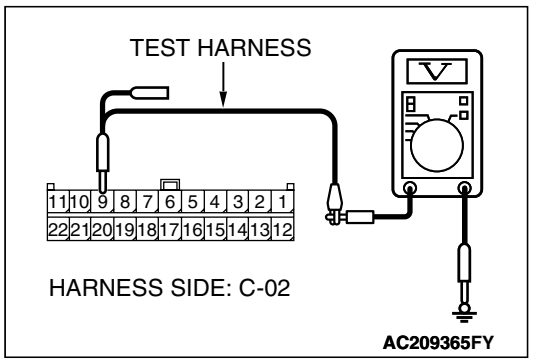
STEP 25. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





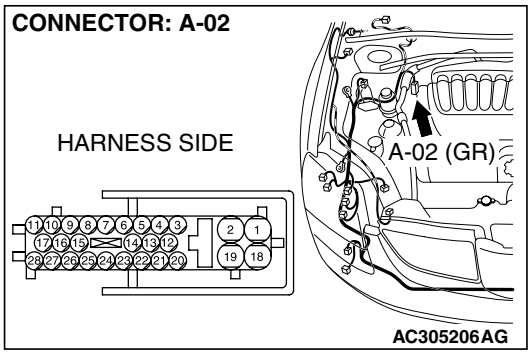
(3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 26. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts.

STEP 27. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

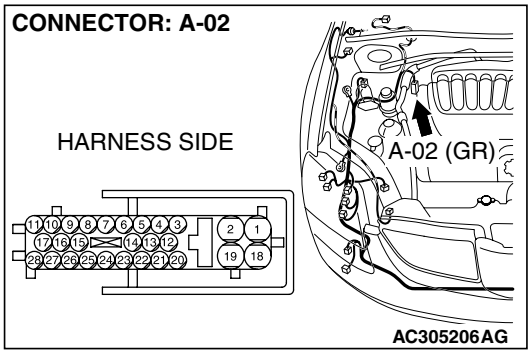
A digital multimeter should be used. For details refer to P.54C-6.

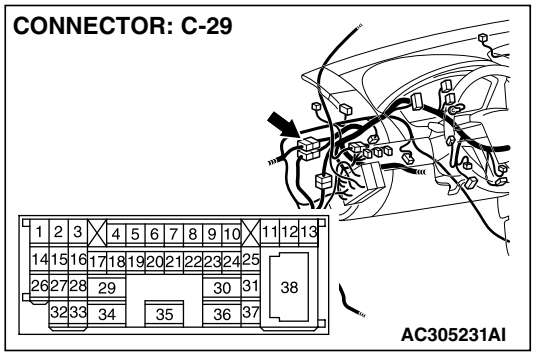
⚠ CAUTION

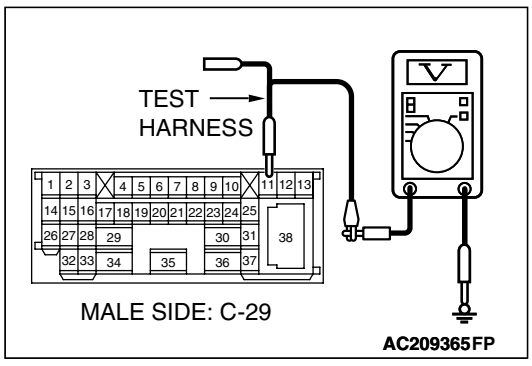
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 28.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 28. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

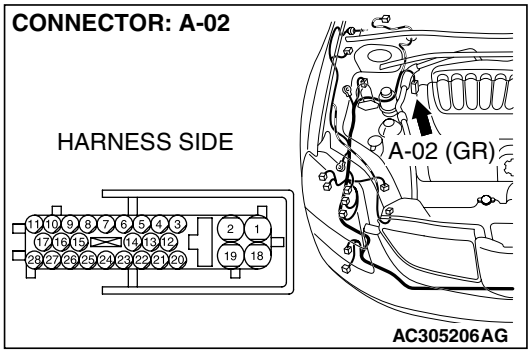
⚠ CAUTION

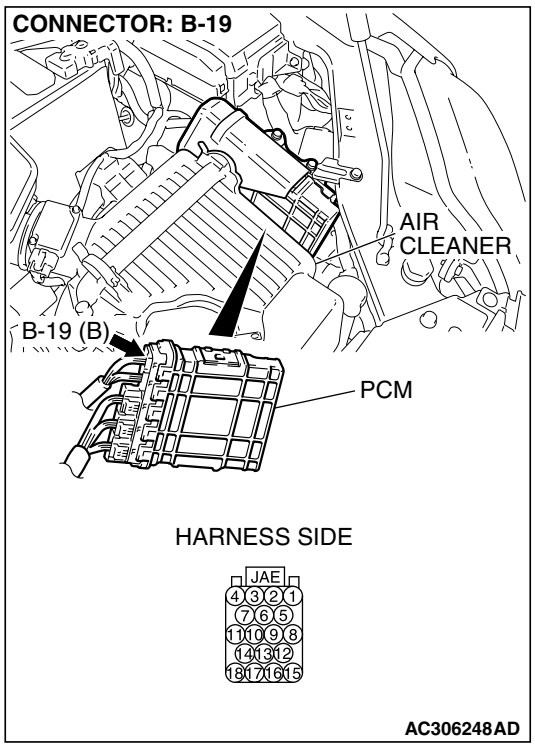
A digital multimeter should be used. For details refer to P.54C-6.

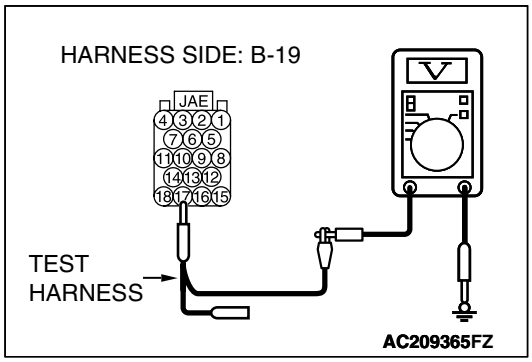
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between powertrain control module connector terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 29.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 29. Check the CAN_H line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02.

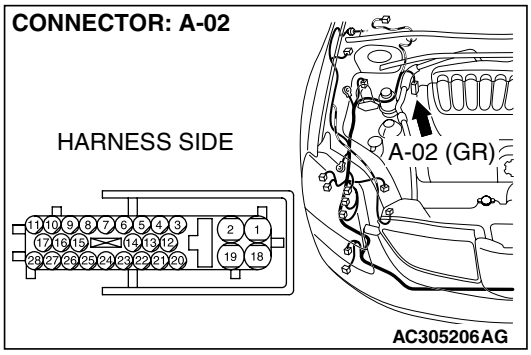
⚠ CAUTION

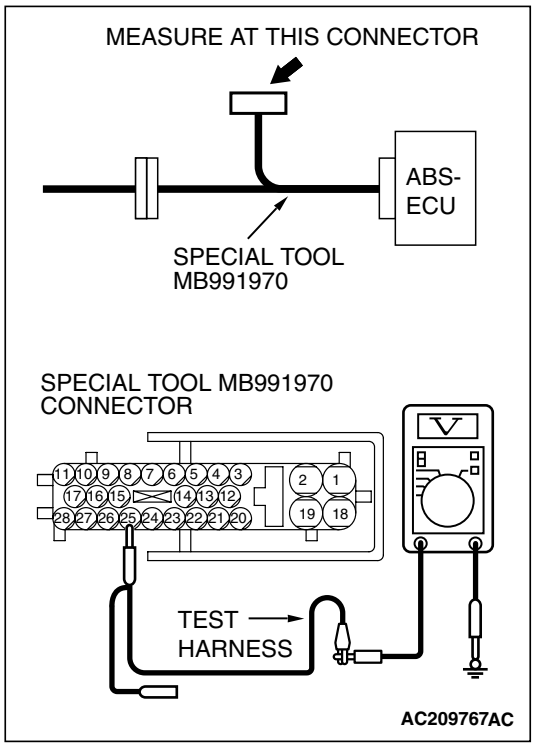
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
(3) Turn the ignition switch to the "ON" position.
(4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 4.0 V or less

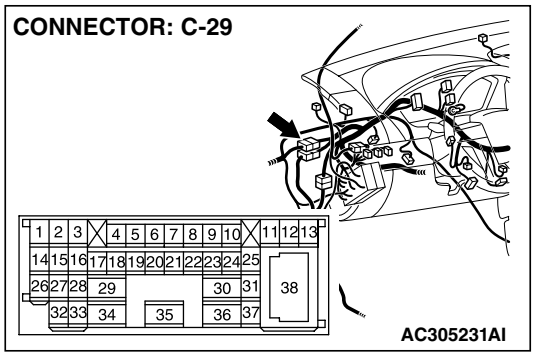
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

STEP 30. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



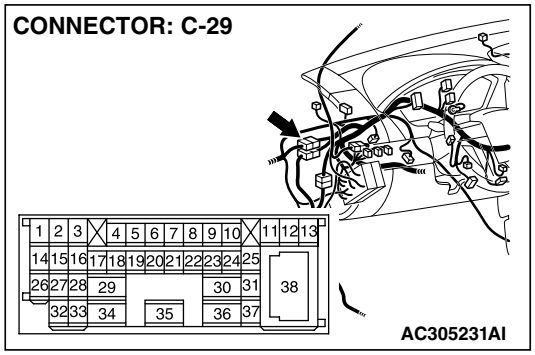
Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 31.
NO : Repair the damaged parts.

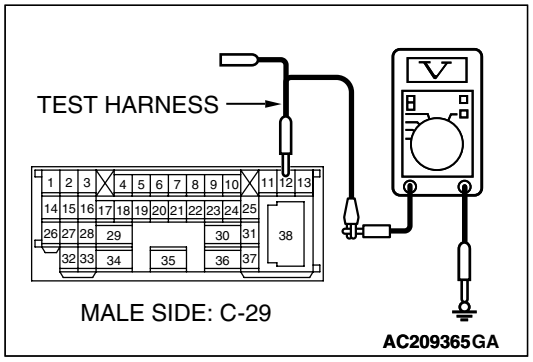
STEP 31. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between intermediate connector terminal 12 and body ground.

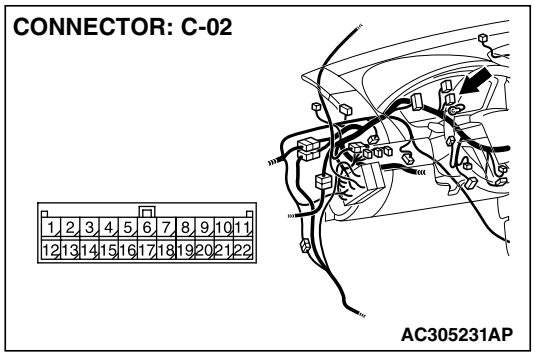
OK: 4.0 V or less

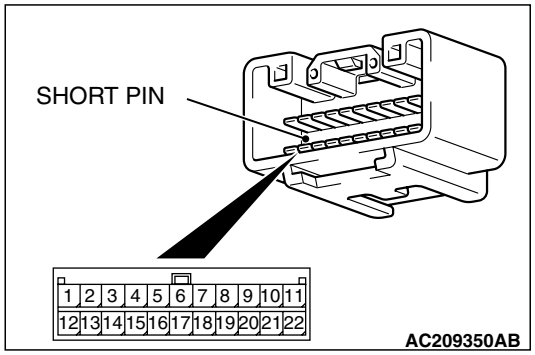
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 32.
NO : If the voltage measures more than 4.0 V, go to Step 52.

STEP 32. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

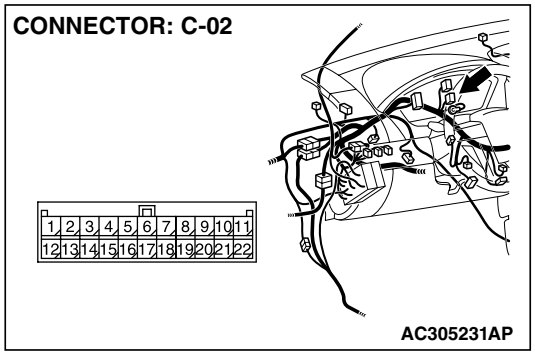
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 33.
NO : Repair the damaged parts. Replace the joint connector as necessary.

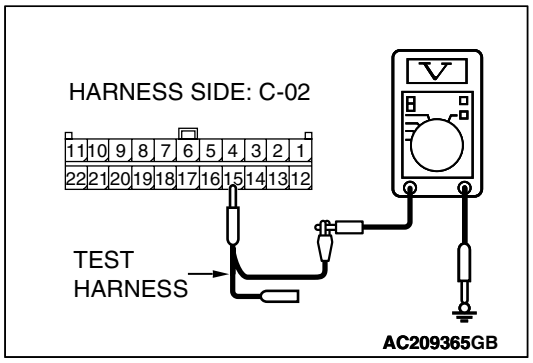
STEP 33. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 35.
NO : If the voltage measures more than 4.0 V, go to Step 34.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

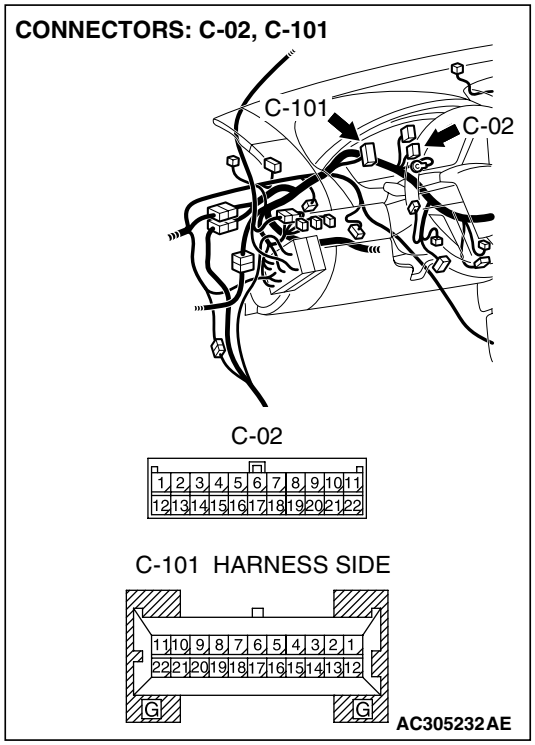
A digital multimeter should be used. For details refer to P.54C-6.

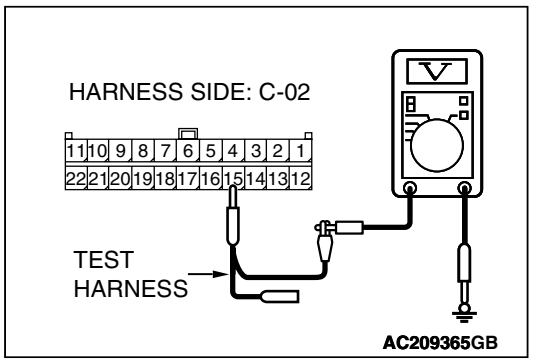
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

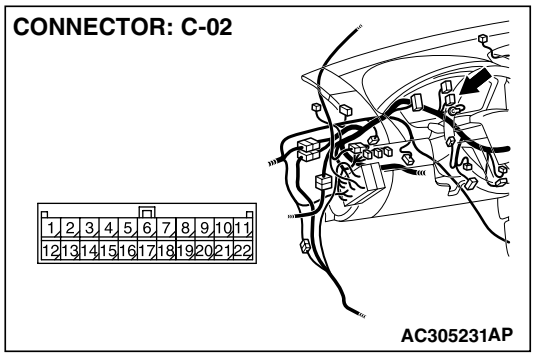
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

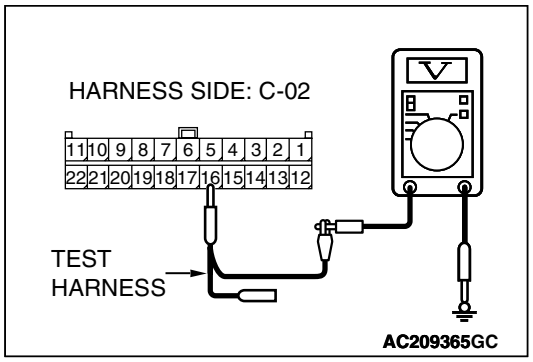
STEP 35. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

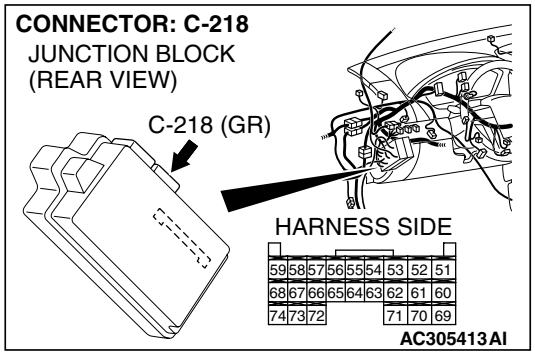


(3) Measure the voltage between joint connector (3) terminal 16 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 38.
NO : If the voltage measures more than 4.0 V, go to Step 36.

STEP 36. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?
YES : Go to Step 37.
NO : Repair the damaged parts.

STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

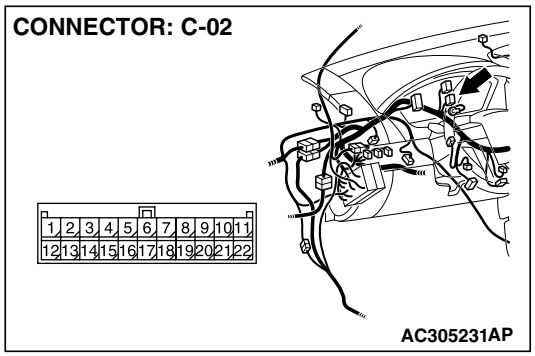
A digital multimeter should be used. For details refer to P.54C-6.

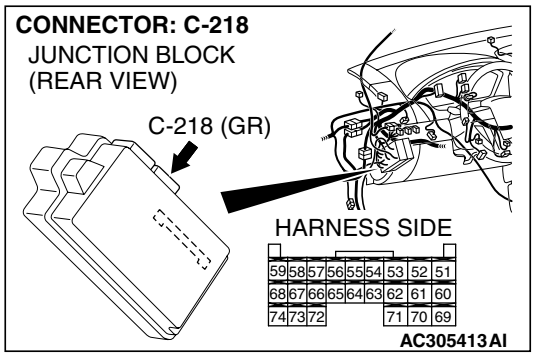
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.

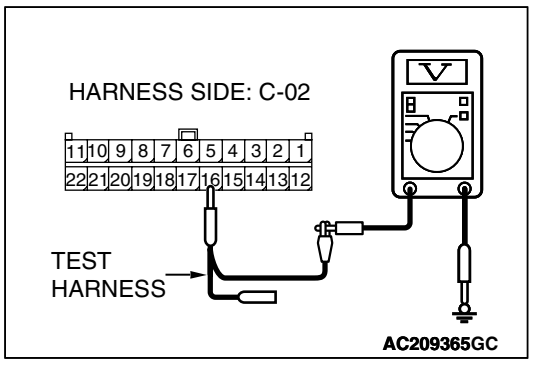
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

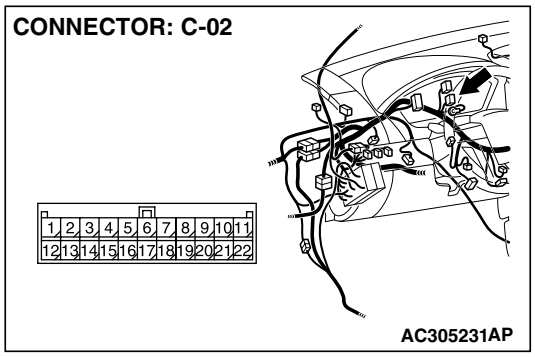
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

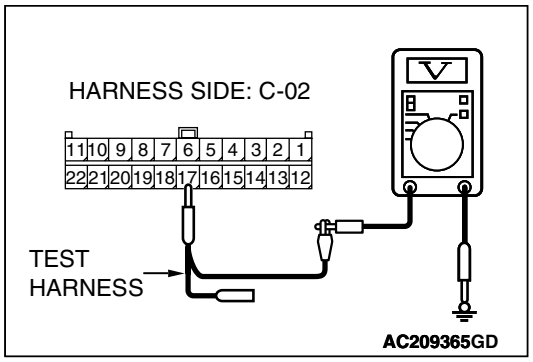
STEP 38. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

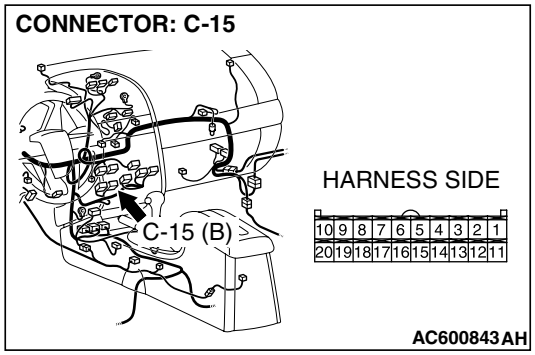


(3) Measure the voltage between joint connector (3) terminal 17 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 41.
NO : If the voltage measures more than 4.0 V, go to Step 39.

STEP 39. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is A/C-ECU connector C-15 in good condition?
YES : Go to Step 40.
NO : Repair the damaged parts.

STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

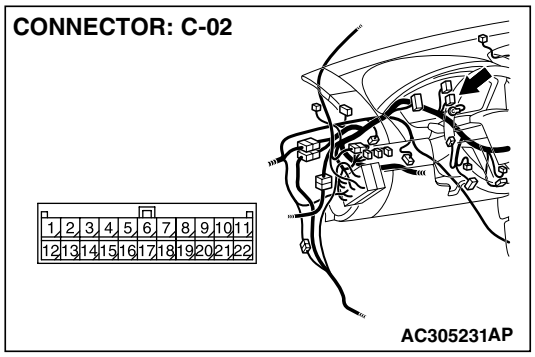
A digital multimeter should be used. For details refer to P.54C-6.

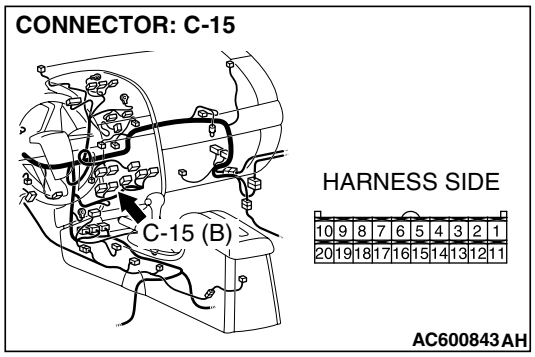
⚠ CAUTION

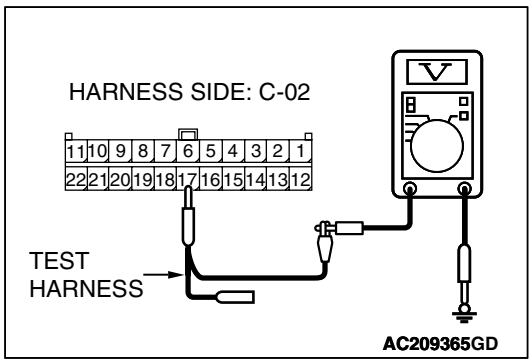
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

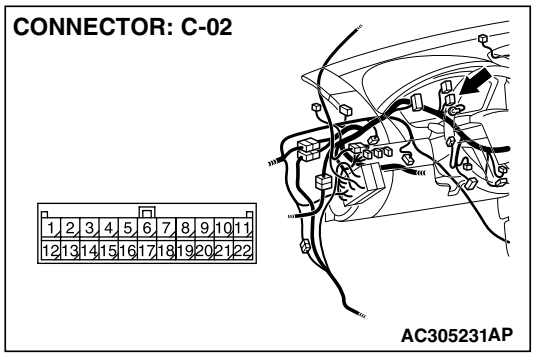
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

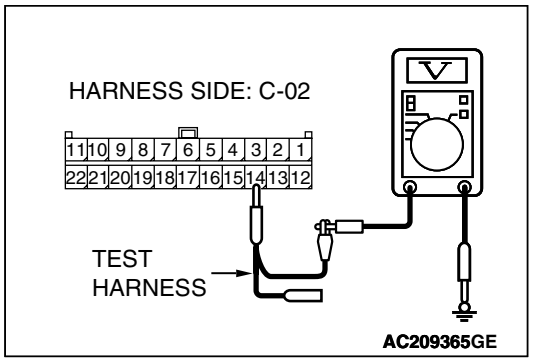
STEP 41. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

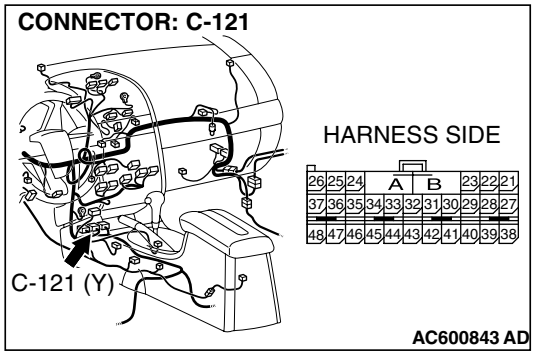


(3) Measure the voltage between joint connector (3) terminals 14 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 44.
NO : If the voltage measures more than 4.0 V, go to Step 42.

STEP 42. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



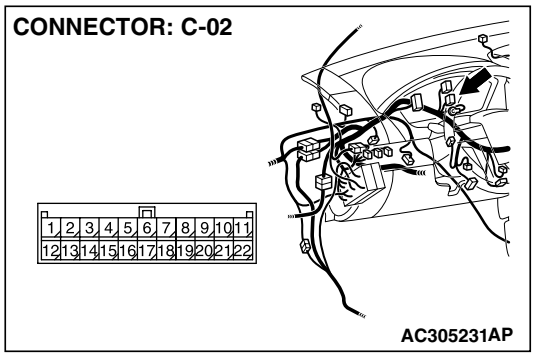
Q: Is SRS-ECU connector C-121 in good condition?
YES : Go to Step 43.
NO : Repair the damaged parts.

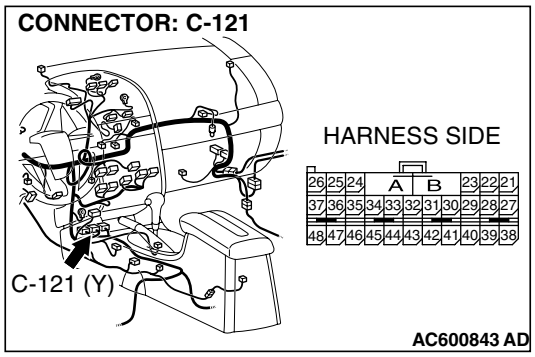
STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

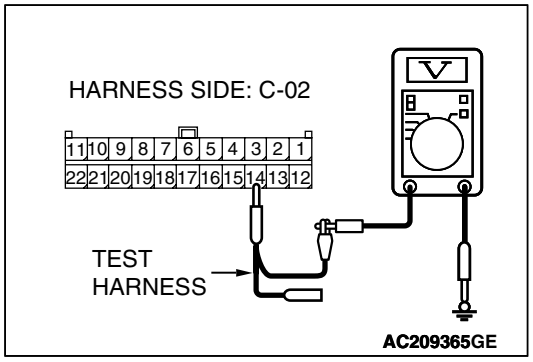
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the voltage at the male side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 1.0 V or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

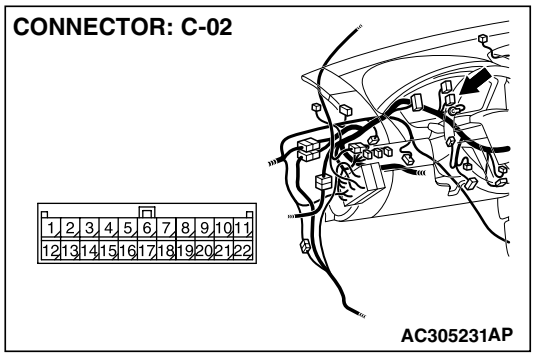
Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : joint connector (3) and the SRS-ECU connector.

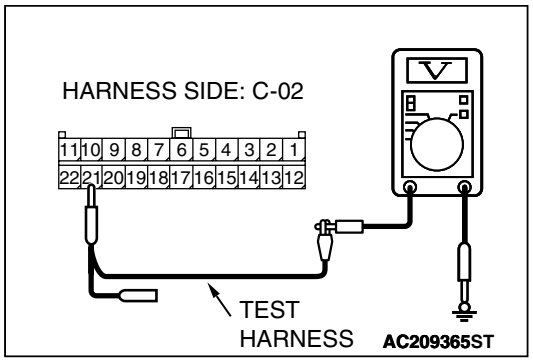
STEP 44. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.

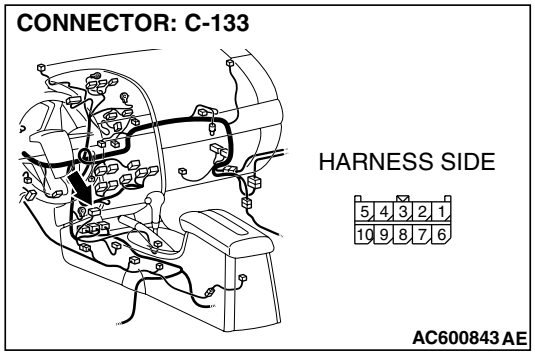


(3) Measure the voltage between joint connector (3) terminals 21 and body ground.
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?
YES : If the voltage measures 4.0 V or less, go to Step 47.
NO : If the voltage measures more than 4.0 V, go to Step 45.

STEP 45. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is TPMS reciver connector C-133 in good condition?
YES : Go to Step 46.
NO : Repair the damaged parts.

STEP 46. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

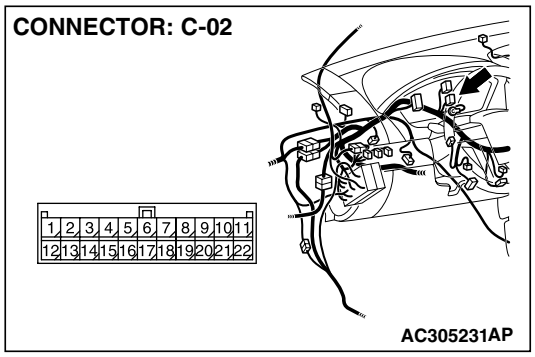
A digital multimeter should be used. For details refer to P.54C-6.

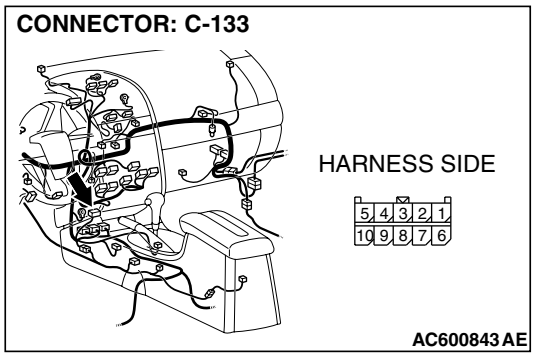
⚠ CAUTION

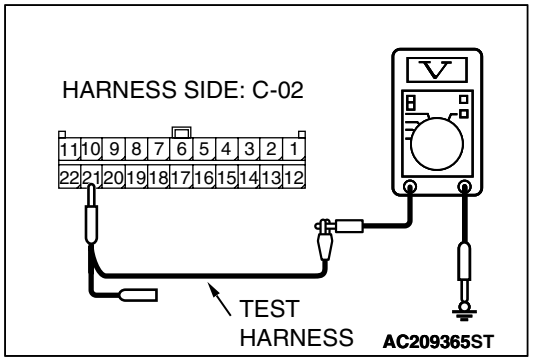
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the voltage at the male side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between joint connector (3) terminals 21 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : joint connector (3) and the TPMS reciver connector.

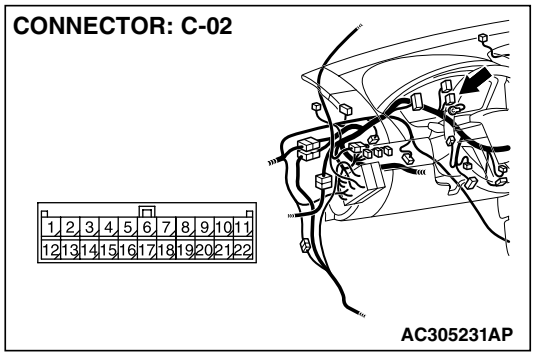
STEP 47. Check the CAN_L line (communication line including the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)) between joint connector (3) and middle-grade multi-center display connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

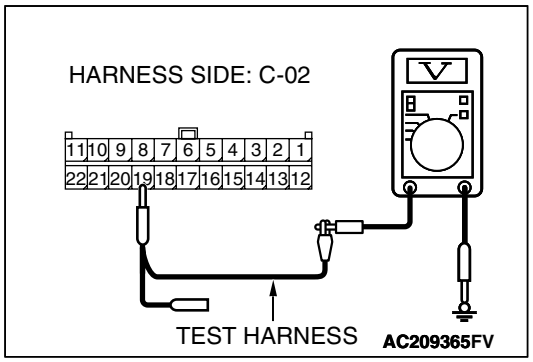
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 19 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 50.

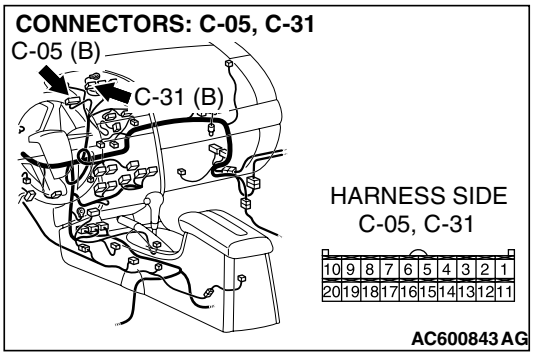
NO : If the voltage measures more than 4.0 V, go to Step 48.

STEP 48. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

CONNECTORS: C-05, C-31



Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to Step 49.
NO : Repair the damaged parts.

STEP 49. Check the CAN_L line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

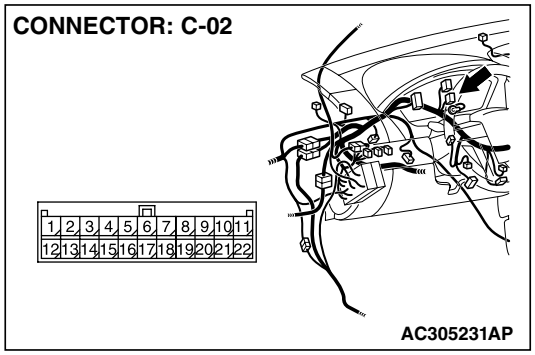
A digital multimeter should be used. For details refer to P.54C-6.

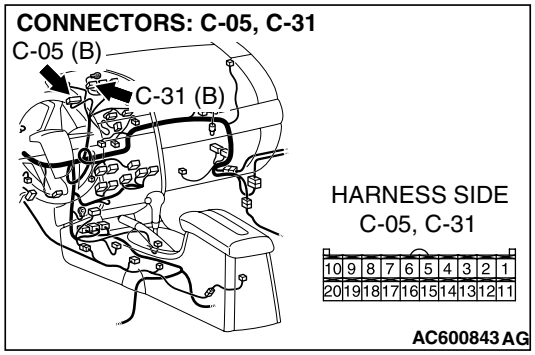
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the voltage at the wiring harness side of joint connector (3) C-02.

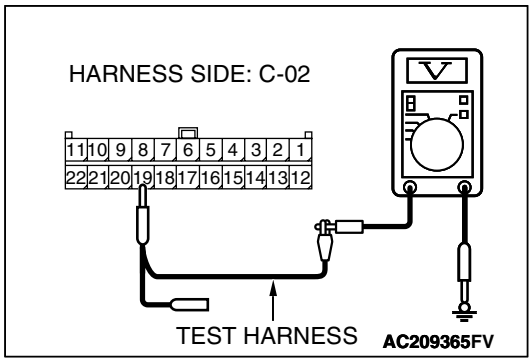
(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 19 and body ground.

OK: 1.0 V or less



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

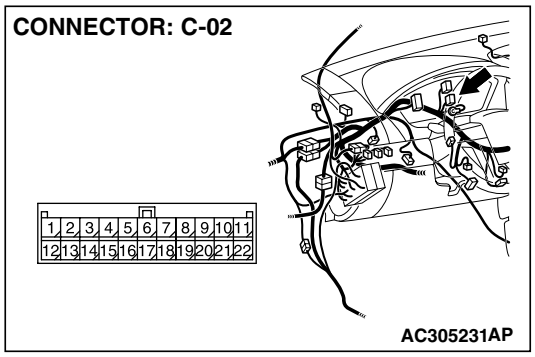
STEP 50. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

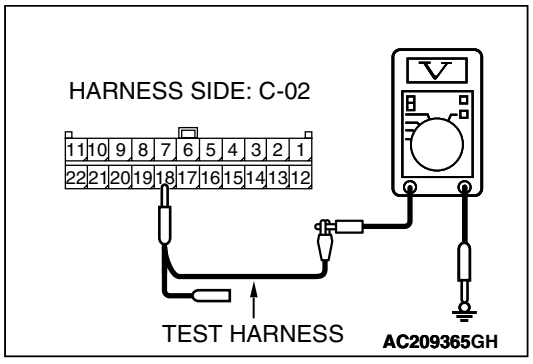
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 18 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 51.

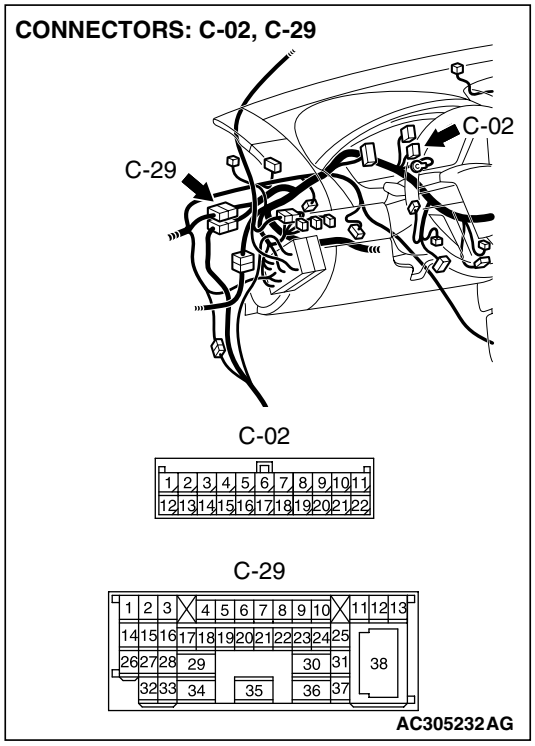
NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

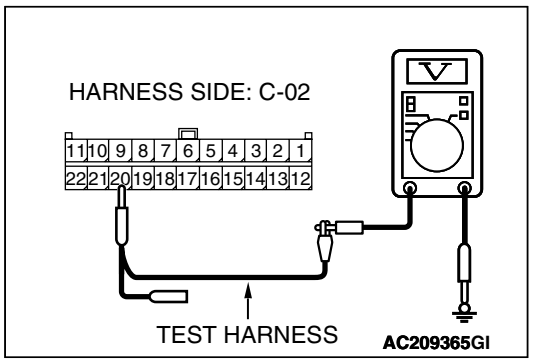
STEP 51. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "ON" position.





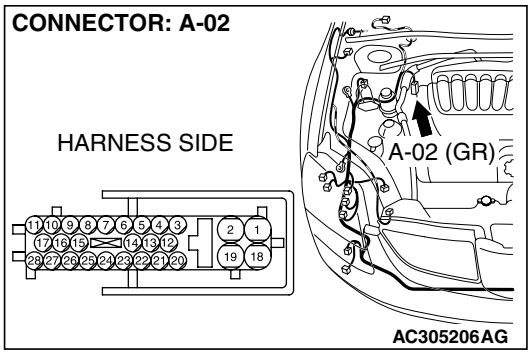
(3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 52. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 53.

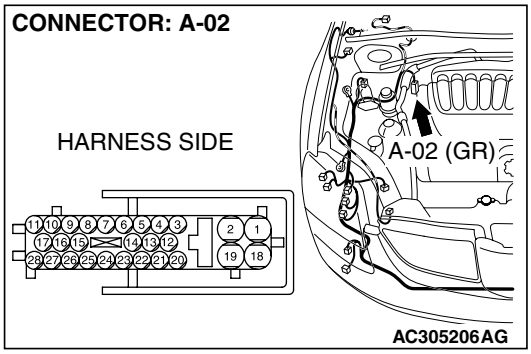
NO : Repair the damaged parts.

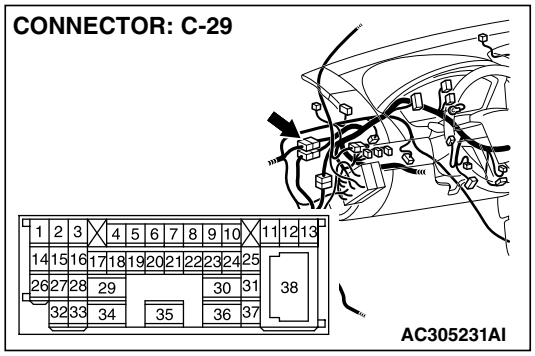
STEP 53. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for a short to the power supply. Measure the voltage at intermediate connector C-29.

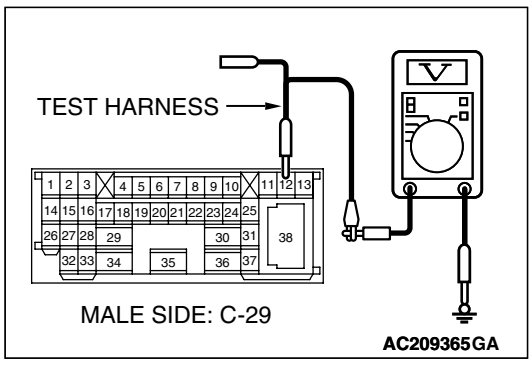
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between intermediate connector terminal 12 and body ground.
OK: 1.0 V or less

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?
YES : If the voltage measures 1.0 V or less, go to Step 54.
NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 54. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

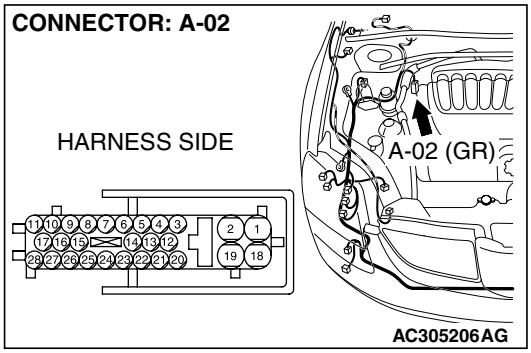
⚠ CAUTION

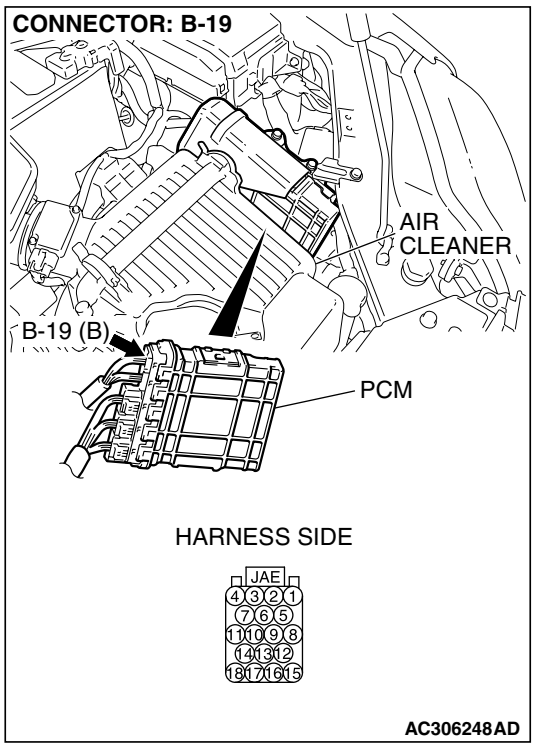
A digital multimeter should be used. For details refer to P.54C-6.

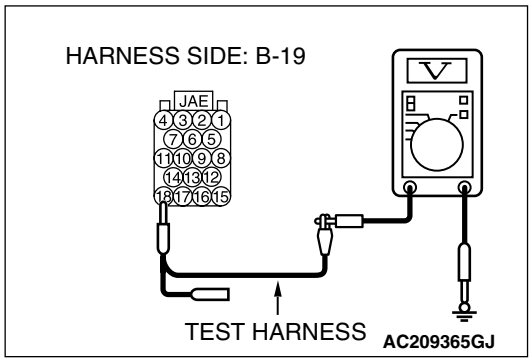
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.







(3) Measure the voltage between powertrain control module connector terminal 18 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 55.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 55. Check the CAN_L line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

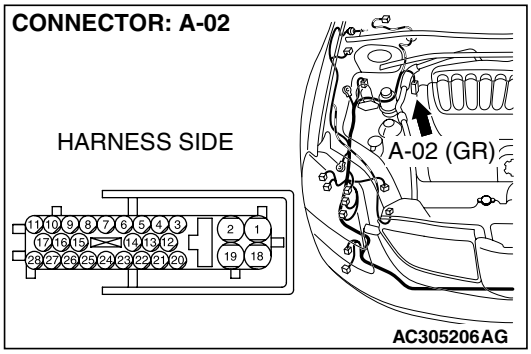
⚠ CAUTION

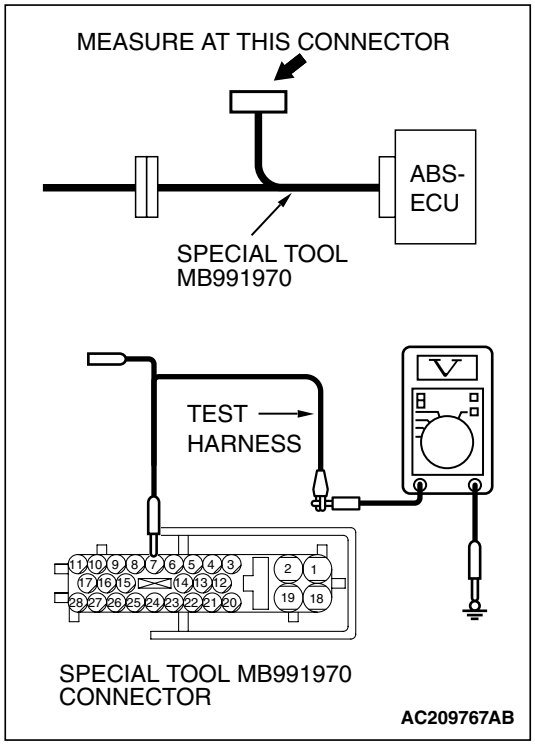
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
(3) Turn the ignition switch to the "ON" position.
(4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 4.0 V or less

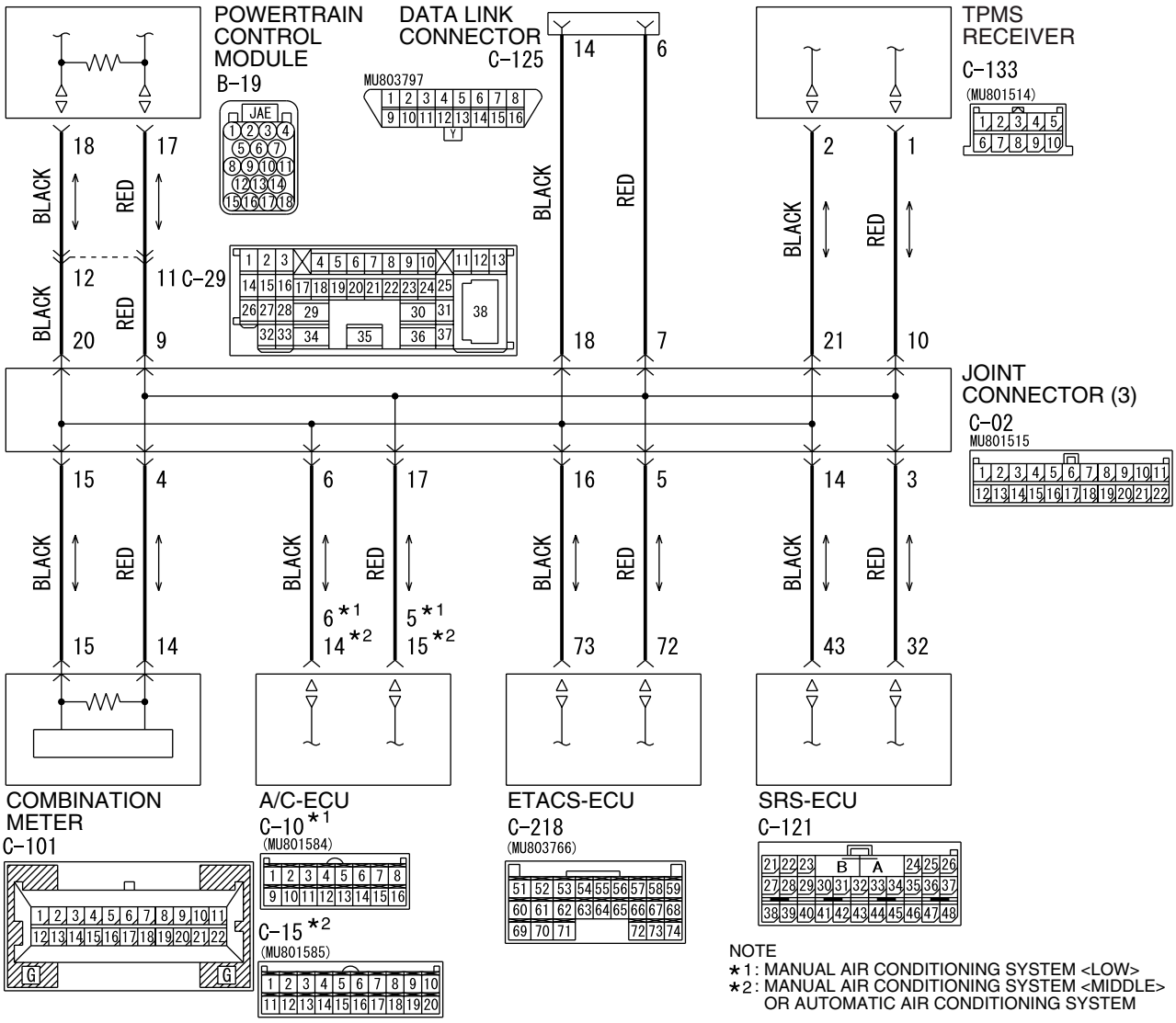
Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-562.

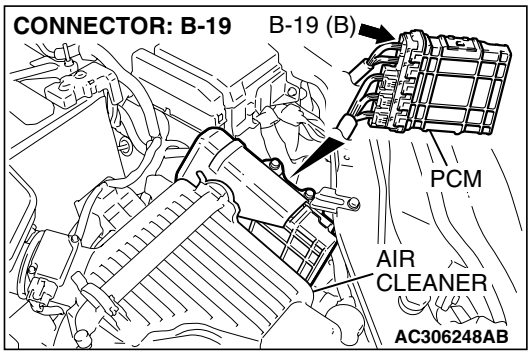
NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

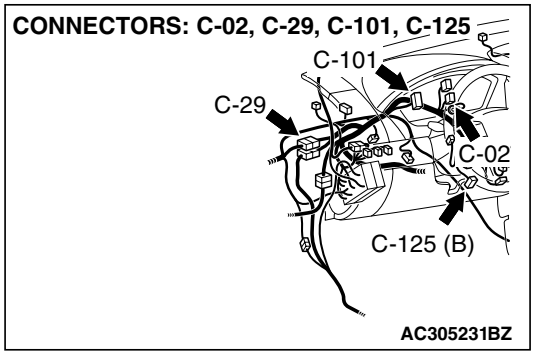
DIAGNOSTIC ITEM 4: Diagnose shorts in the ground to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

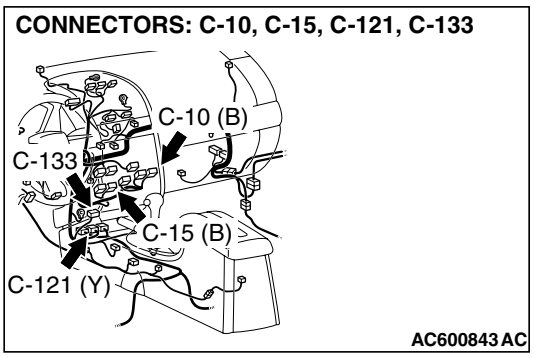
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do this, a component connected to the CAN bus line may be damaged.

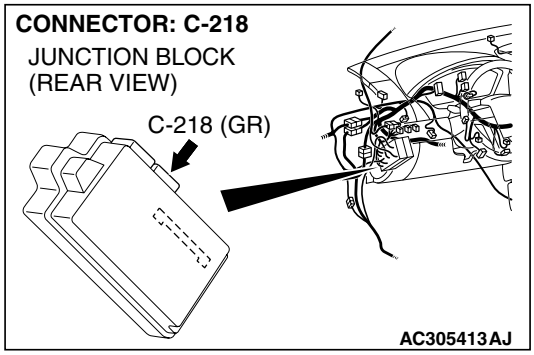


W7P54M137A









TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- the ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

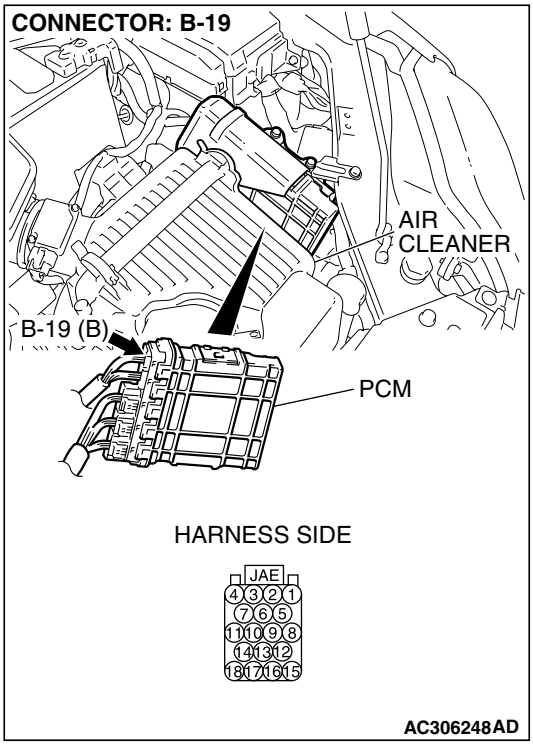
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

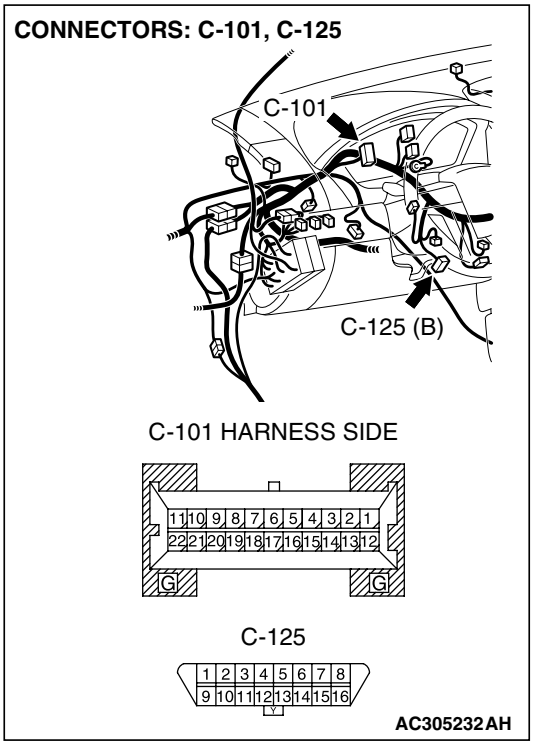
YES : Go to Step 2.

NO : Repair the damaged parts.

CONNECTOR: B-19



CONNECTORS: C-101, C-125



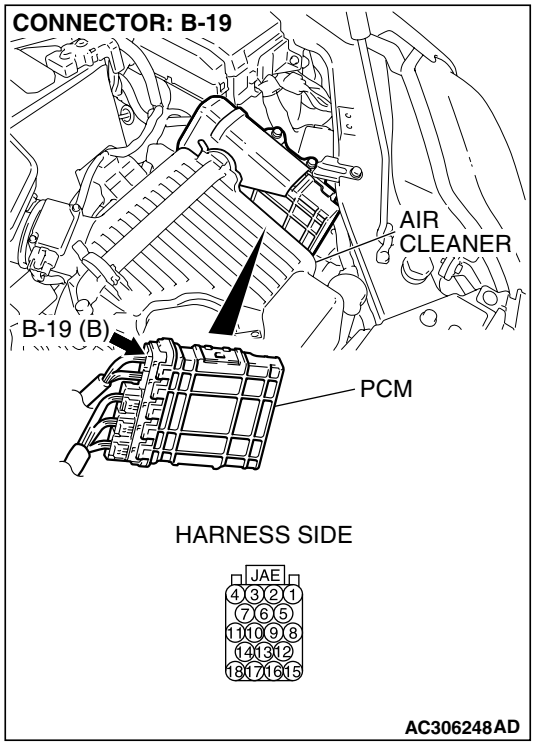
STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

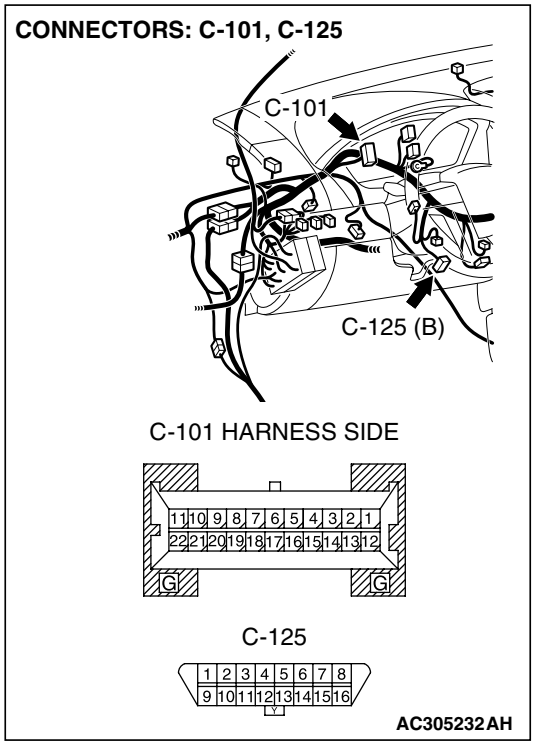
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



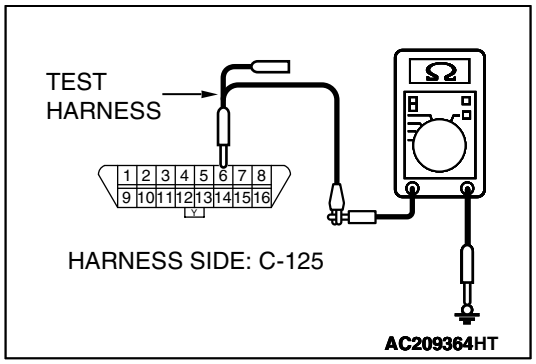


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 3 .

NO : If the resistance measures less than 1 kΩ, go to Step 4.

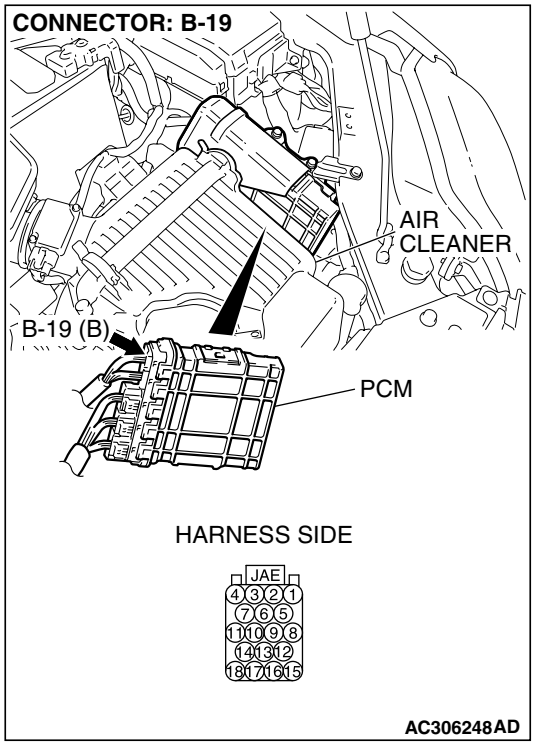
STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

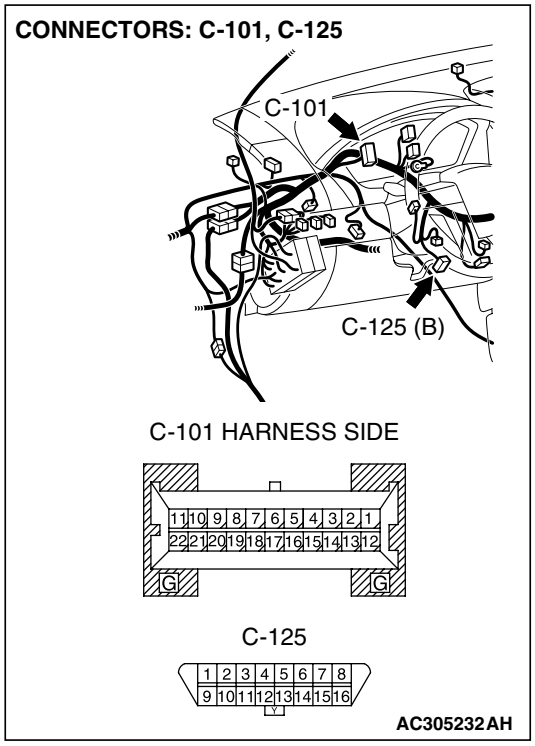
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



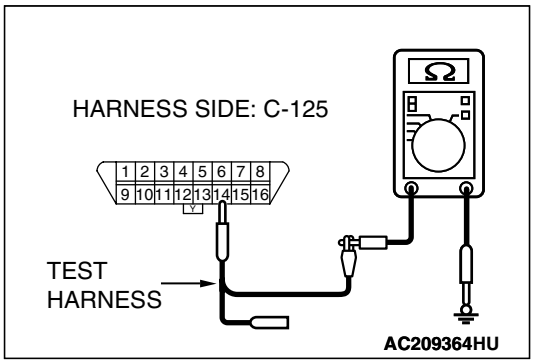


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

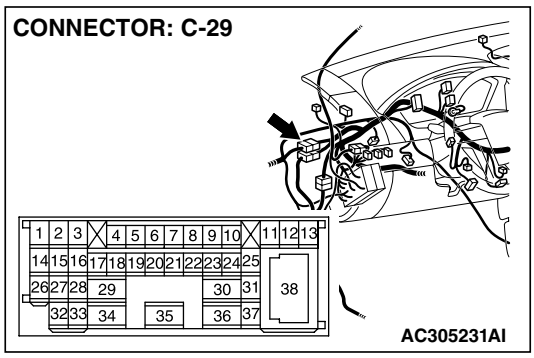
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, go to Step 24.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

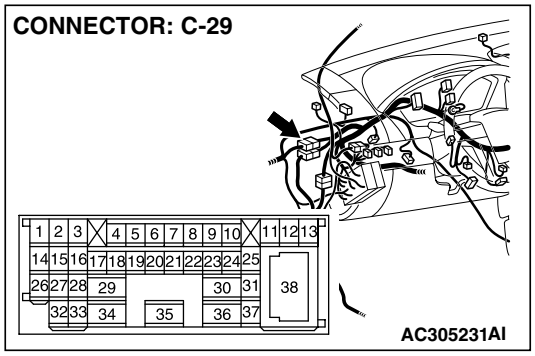
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

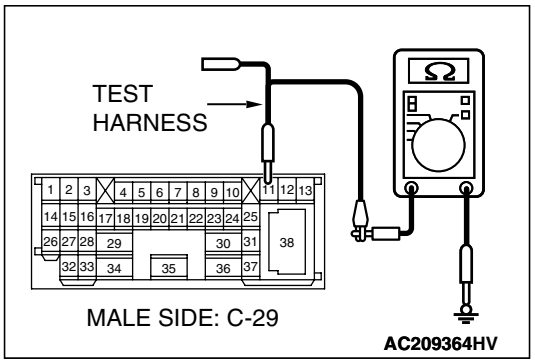
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

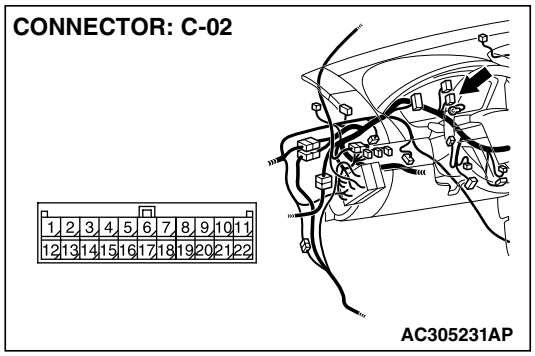
Q: Does the resistance measure 1 kΩ or more?

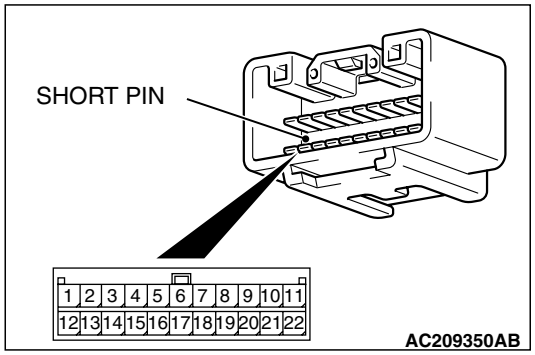
YES : If the resistance measures 1 kΩ or more, go to Step 6 .

NO : If the resistance measures less than 1 kΩ, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

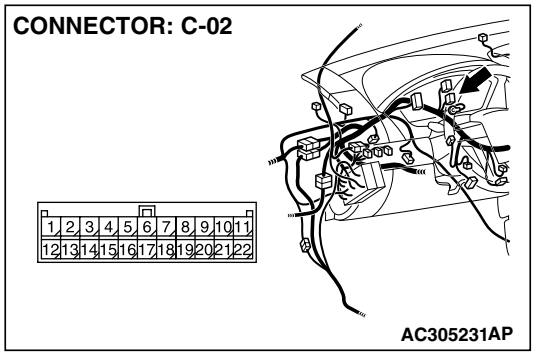
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

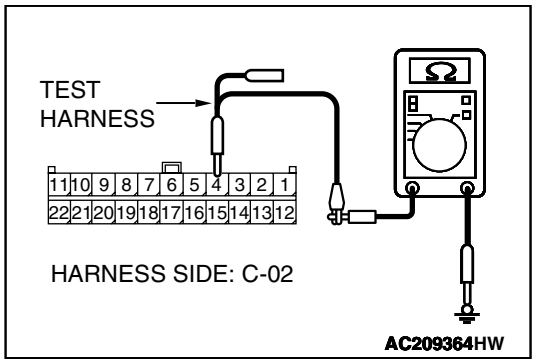
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 9 .

NO : If the resistance measures less than 1 kΩ, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

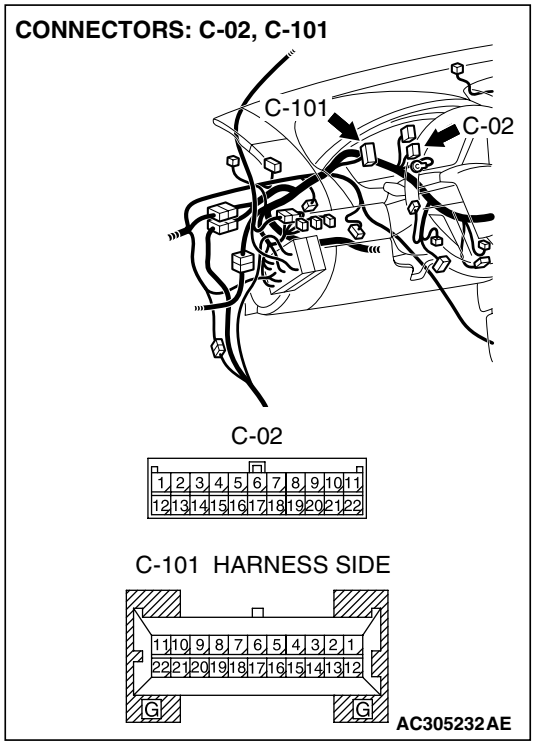
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

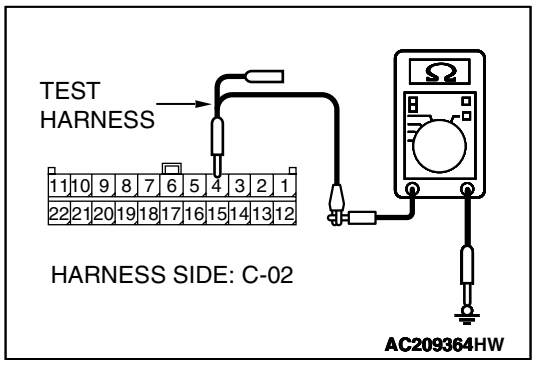
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

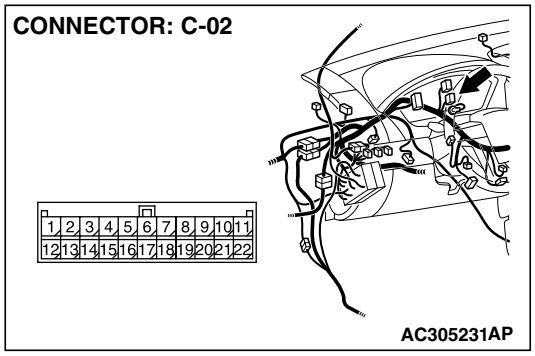
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

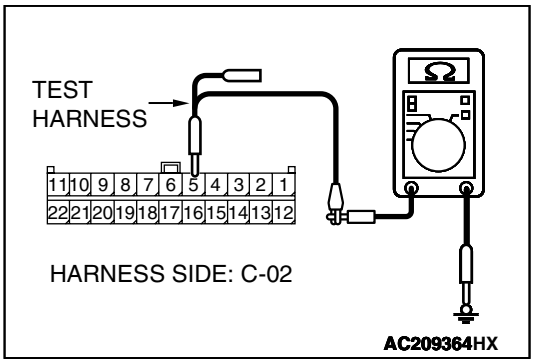
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

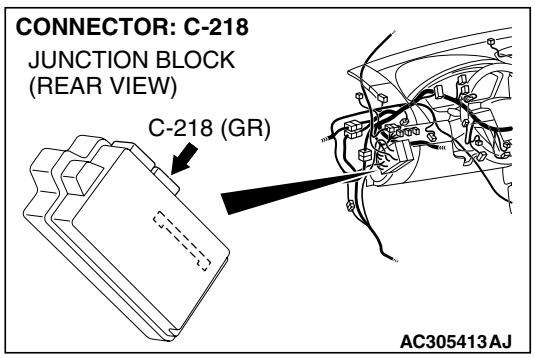
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

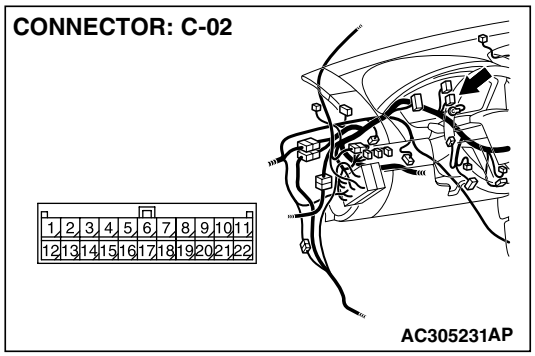
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

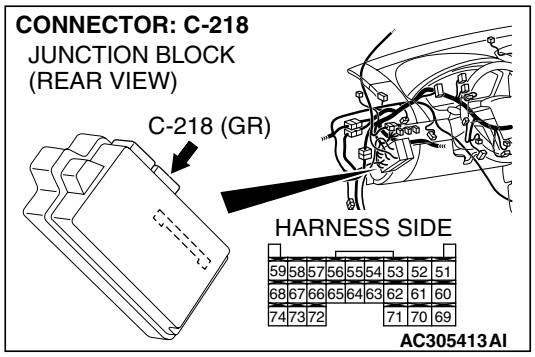
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

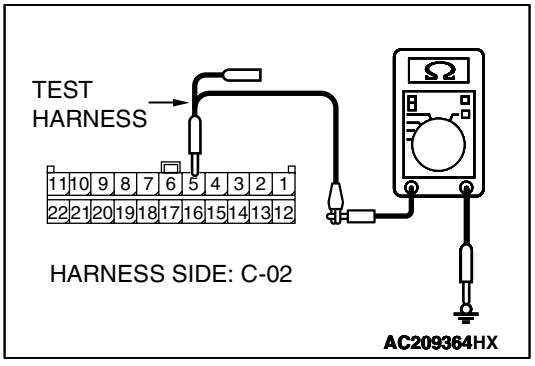
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

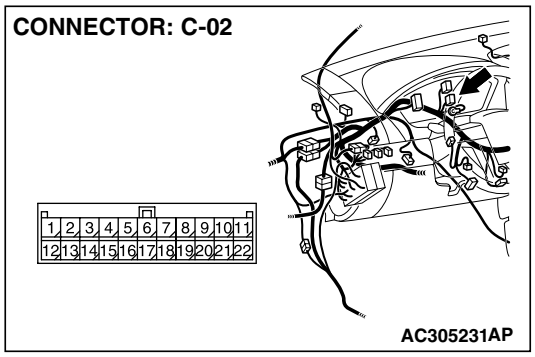
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

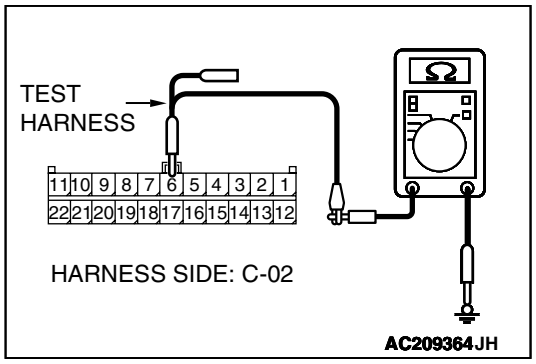
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

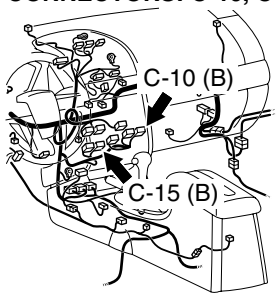
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

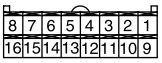
YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

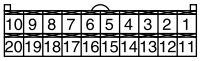
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

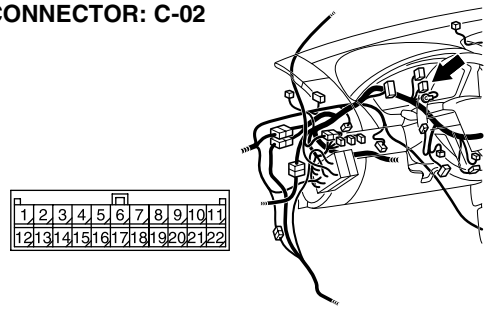
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

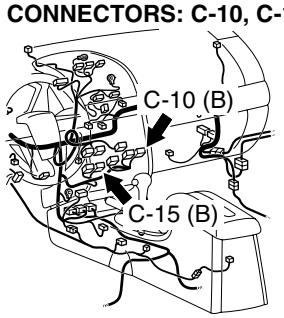
(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



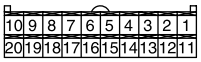
AC305231AP

CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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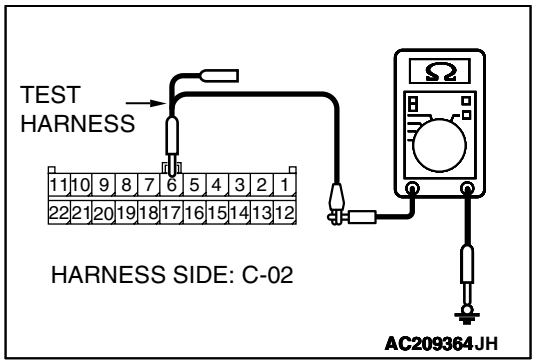


(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

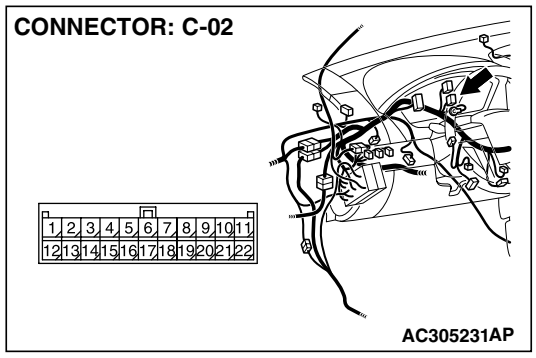
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



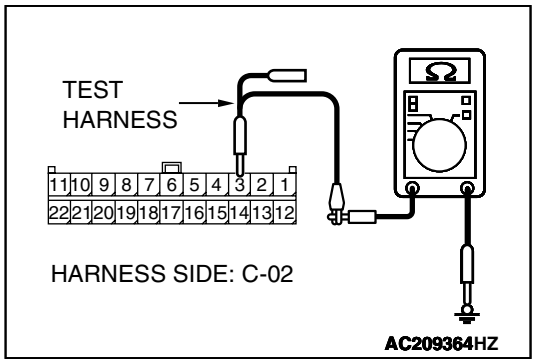
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



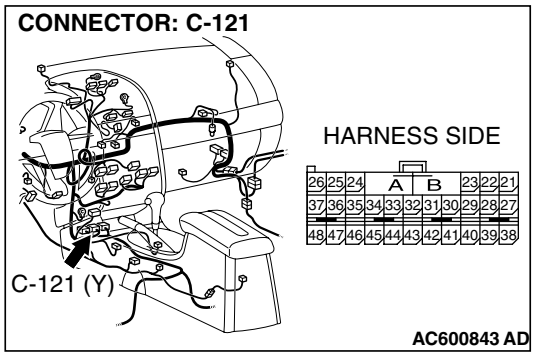
(4) Measure the resistance between joint connector (3) terminal 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 18 .

NO : If the resistance measures less than 1 kΩ, go to Step 16.



STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

STEP 17. Check the CAN_ H line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

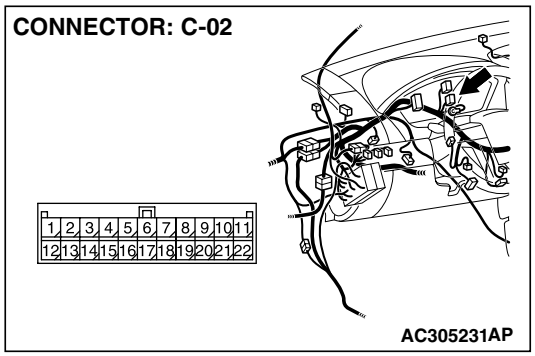
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

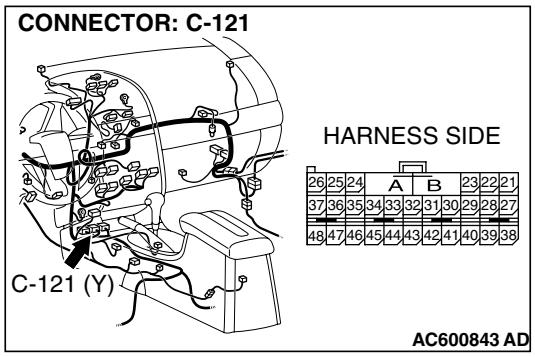
(2) Turn the ignition switch to the "LOCK" (OFF) position.

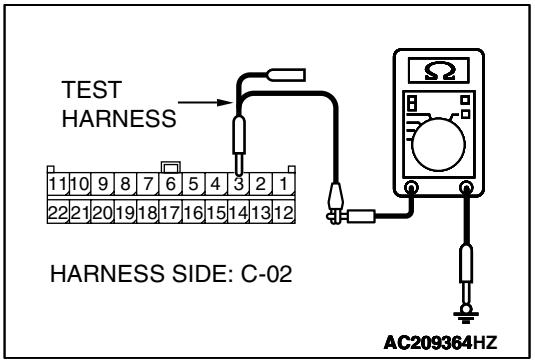
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

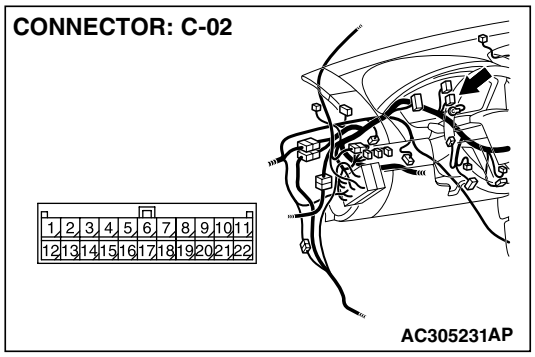
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

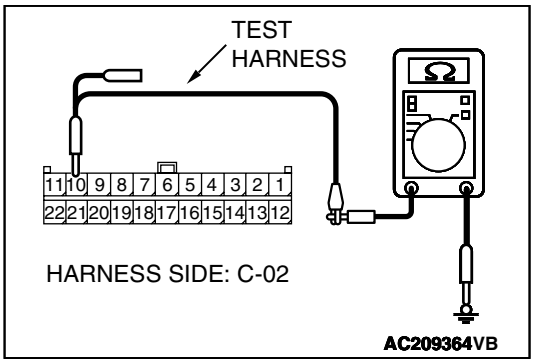
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

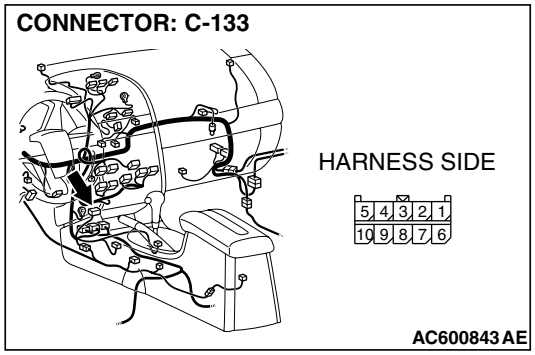
YES : If the resistance measures 1 kΩ or more, go to Step 21 .
NO : If the resistance measures less than 1 kΩ, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 20.
NO : Repair the damaged parts.



STEP 20. Check the CAN_ H line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

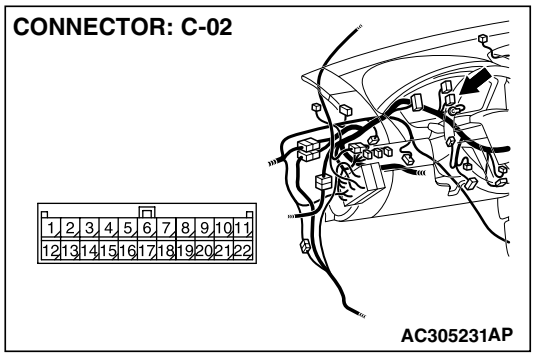
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

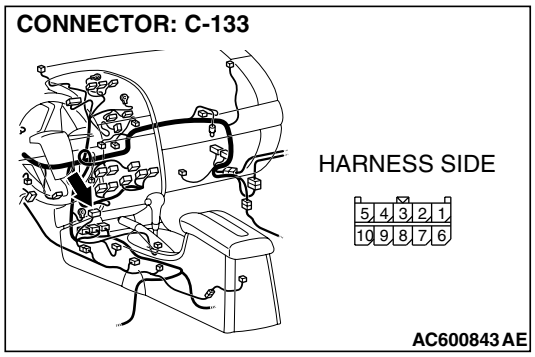
(2) Turn the ignition switch to the "LOCK" (OFF) position.

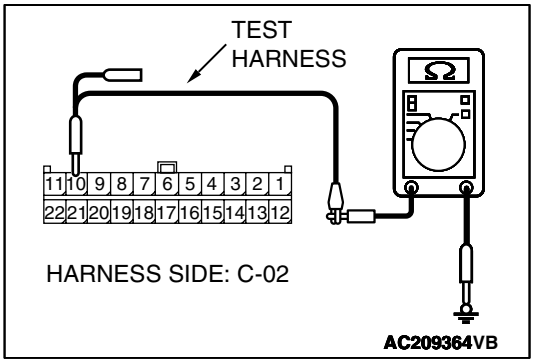
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

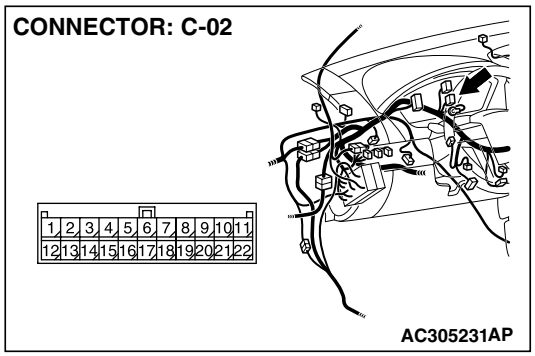
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

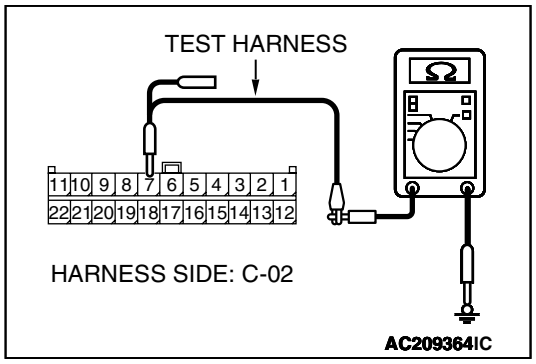
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 7 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 22 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

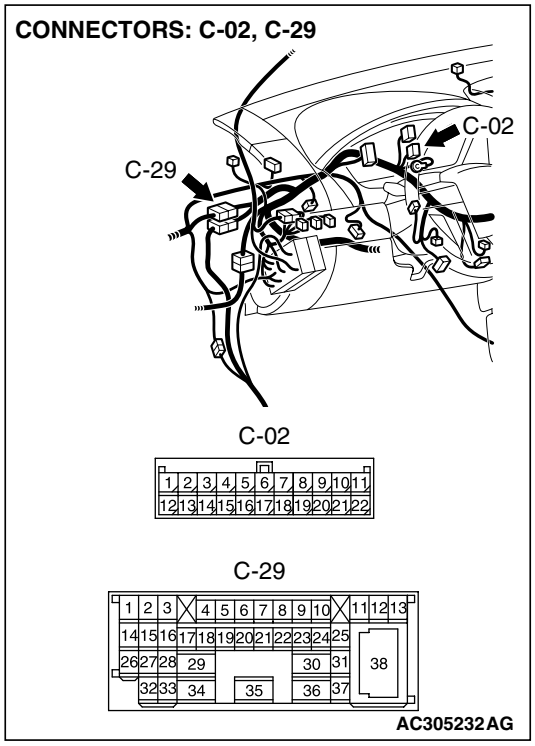
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

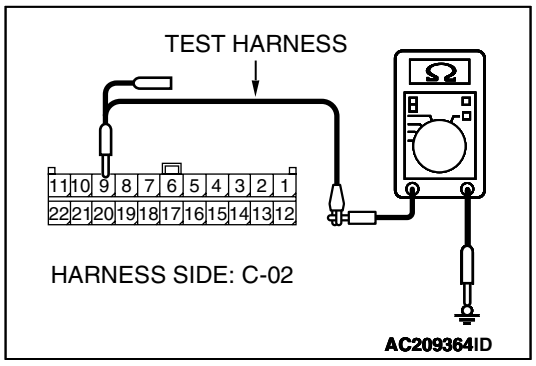
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 9 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 23. Check the CAN_H line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

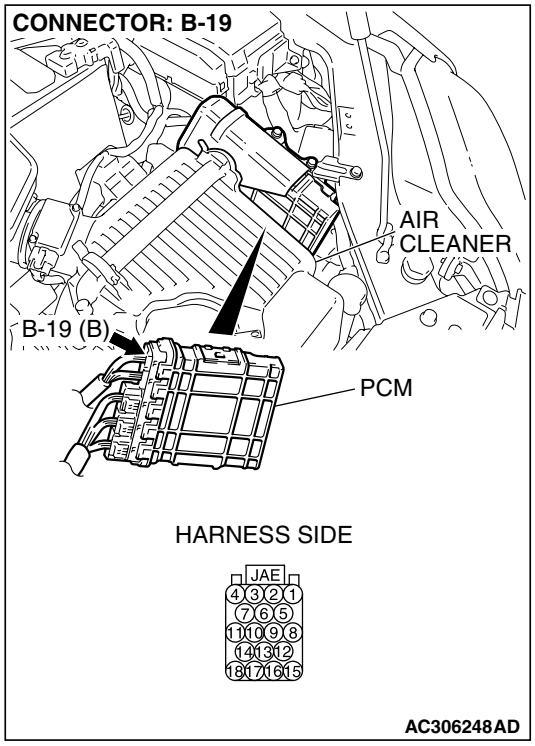
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance at the wiring male side of intermediate connector C-29.

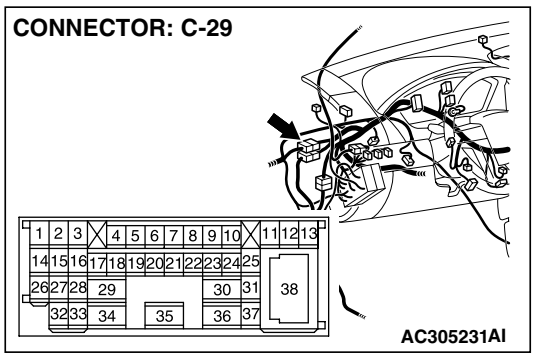
(2) Turn the ignition switch to the "LOCK" (OFF) position.

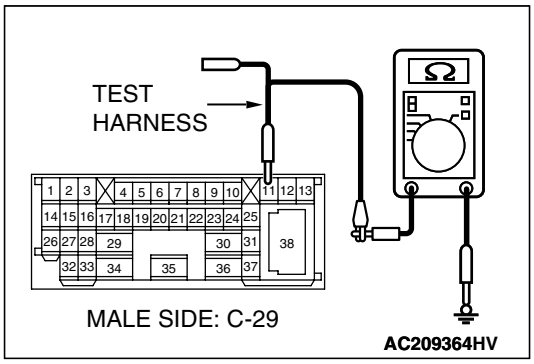
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

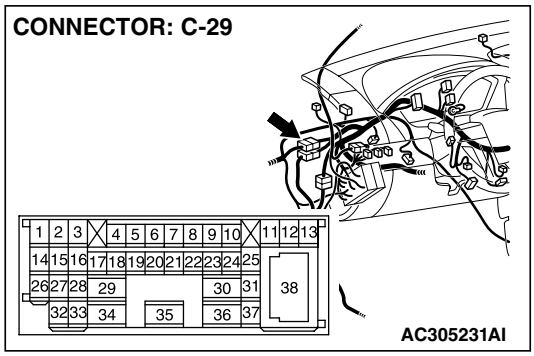
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector and the powertrain control module connector.

STEP 24. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 25.

NO : Repair the damaged parts.

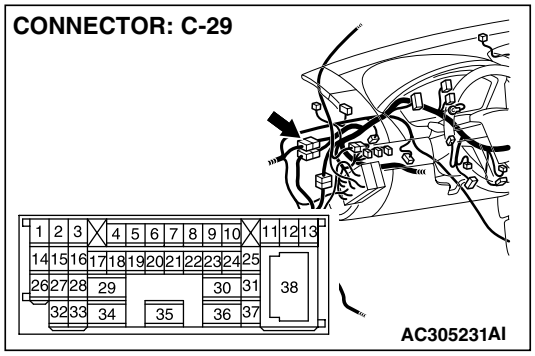
STEP 25. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



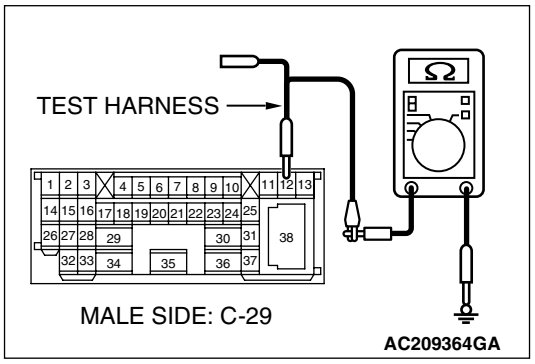
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

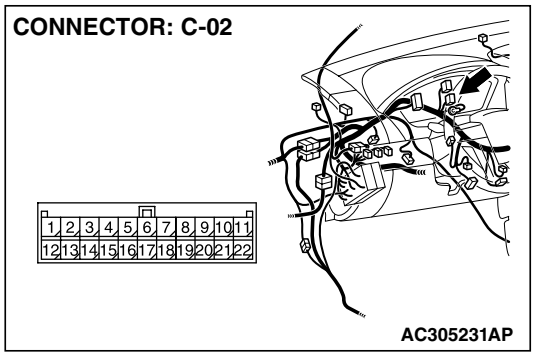
Q: Does the resistance measure 1 kΩ or more?

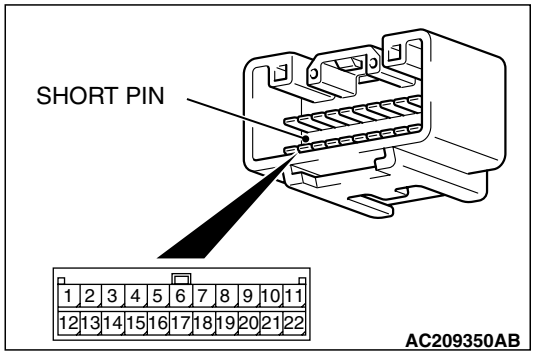
YES : If the resistance measures 1 kΩ or more, go to Step 26 .

NO : If the resistance measures less than 1 kΩ, go to Step 43 .

STEP 26. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 27.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 27. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

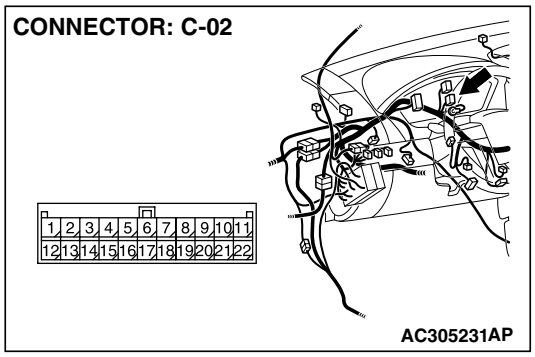
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

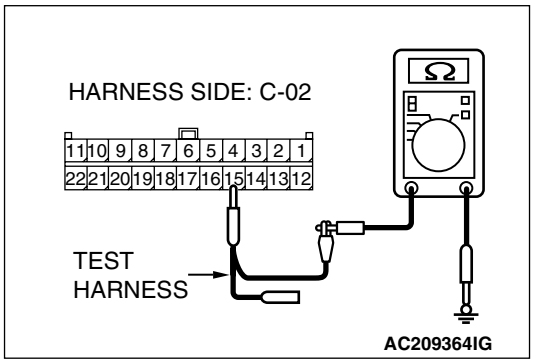
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, go to Step 28 .

STEP 28. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

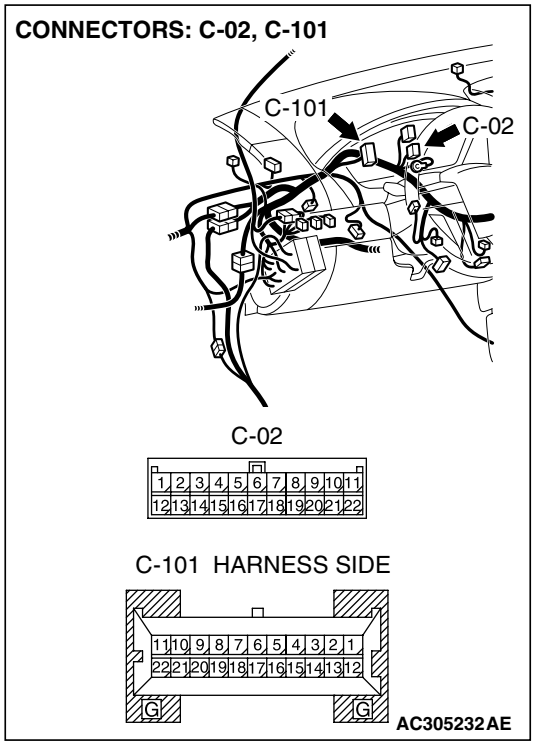
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

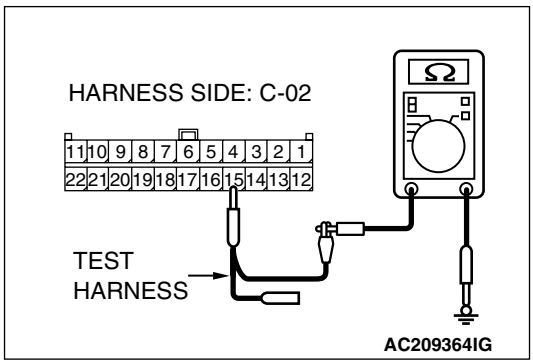
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

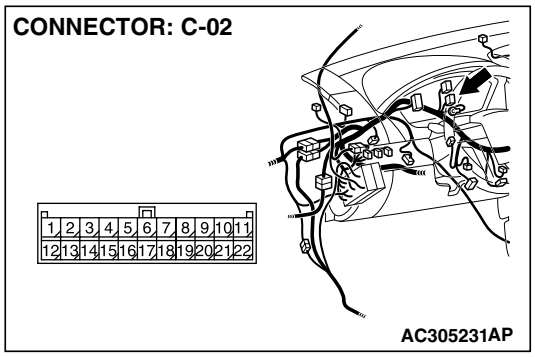
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 29. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

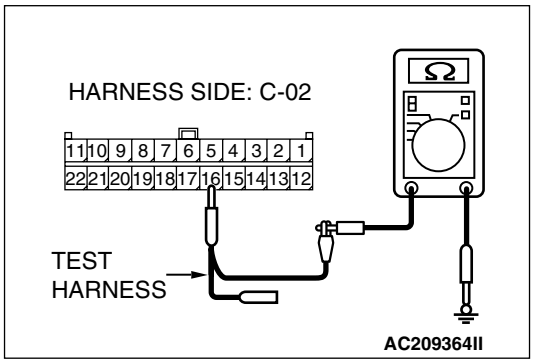
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

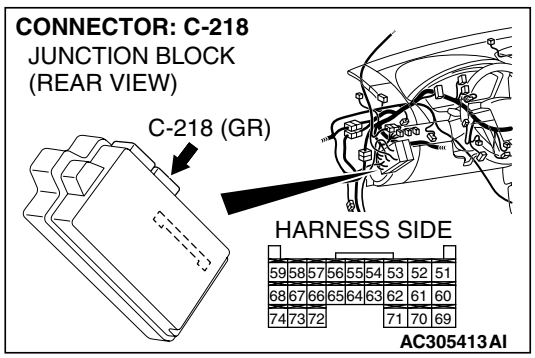
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .
NO : If the resistance measures less than 1 kΩ, go to Step 30 .

STEP 30. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 31.
NO : Repair the damaged parts.

STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

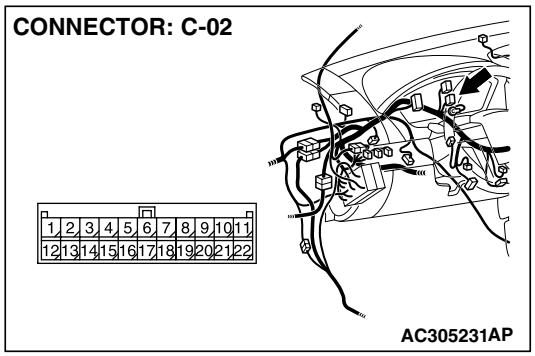
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

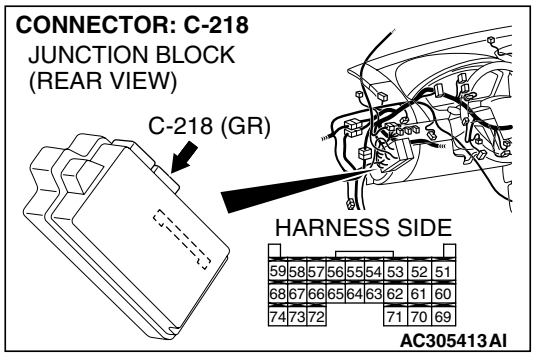
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

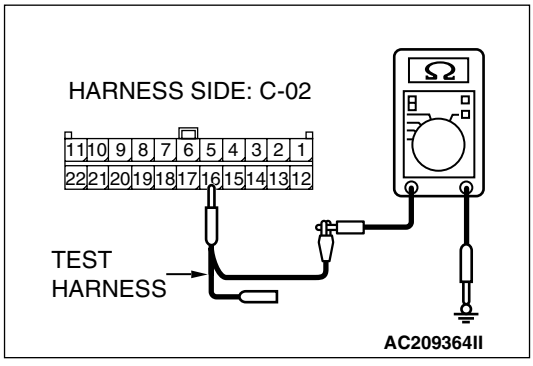
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 32. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

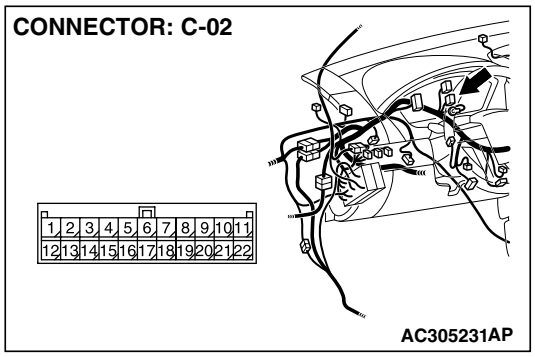
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

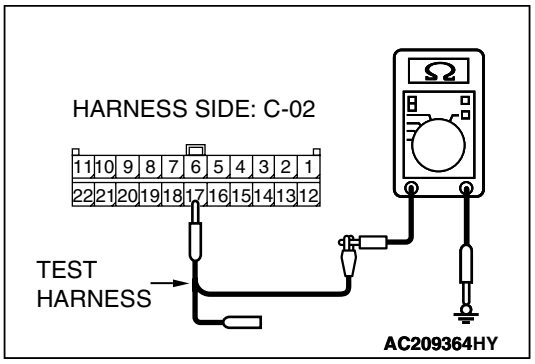
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

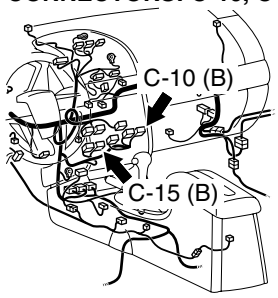
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

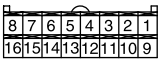
YES : If the resistance measures 1 kΩ or more, go to Step 35 .

NO : If the resistance measures less than 1 kΩ, go to Step 33 .

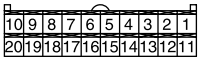
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 33. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 34.
NO : Repair the damaged parts.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

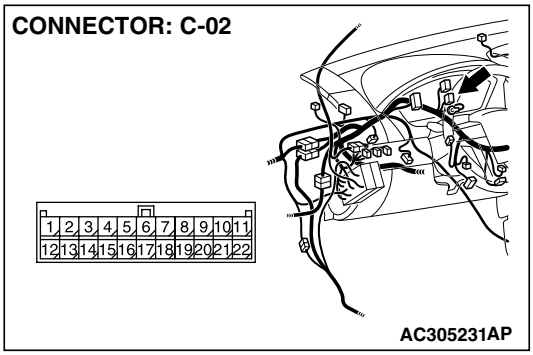
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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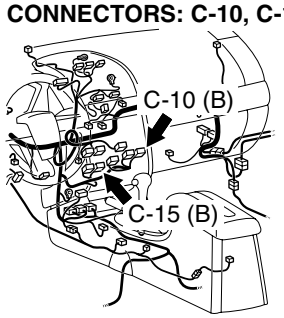
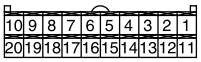
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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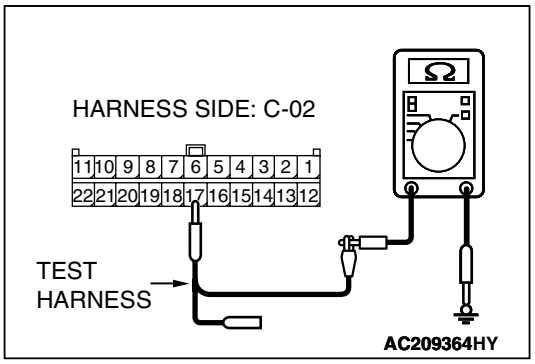


(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

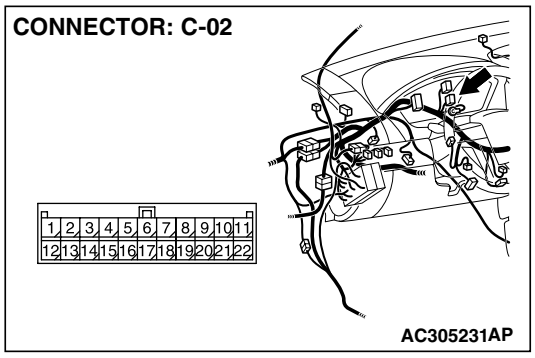
STEP 35. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



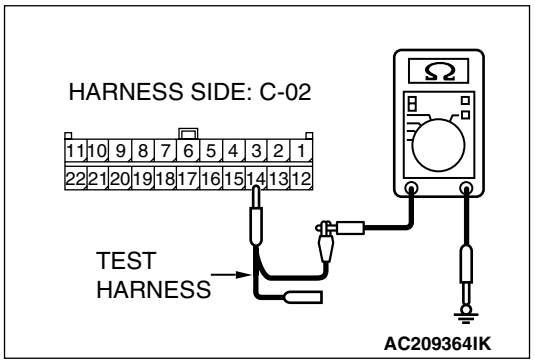
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



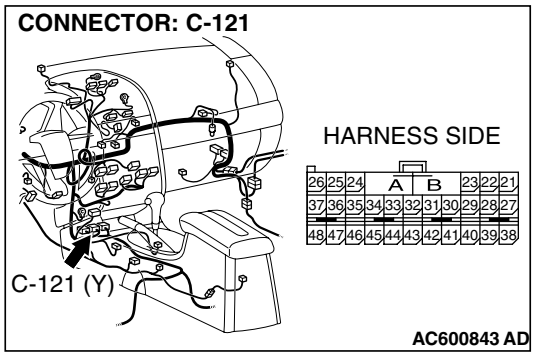
(4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 38 .

NO : If the resistance measures less than 1 kΩ, go to Step 36.



STEP 36. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 37.

NO : Repair the damaged parts.

STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

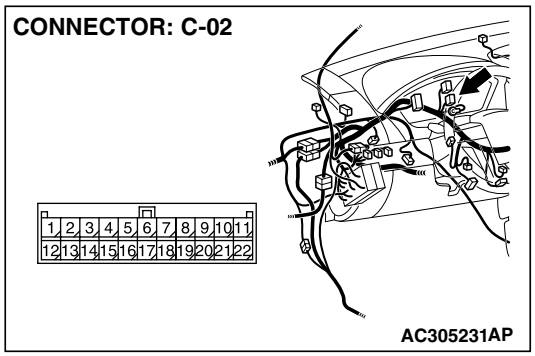
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

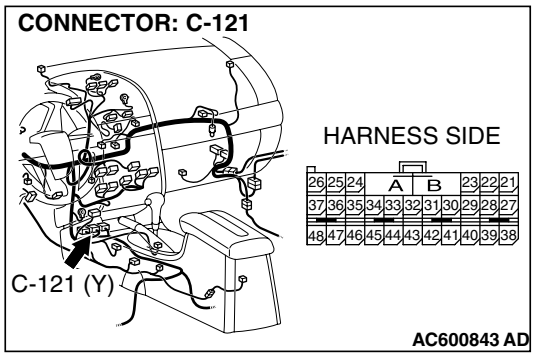
(2) Turn the ignition switch to the "LOCK" (OFF) position.

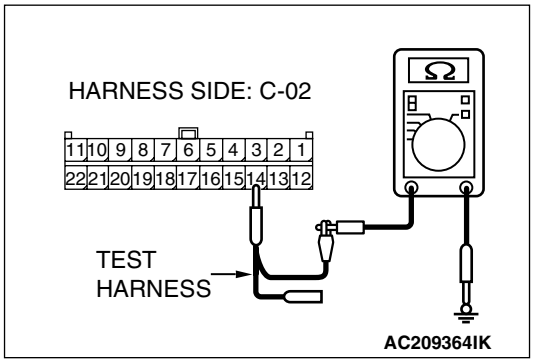
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and SRS-ECU connector.

STEP 38. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

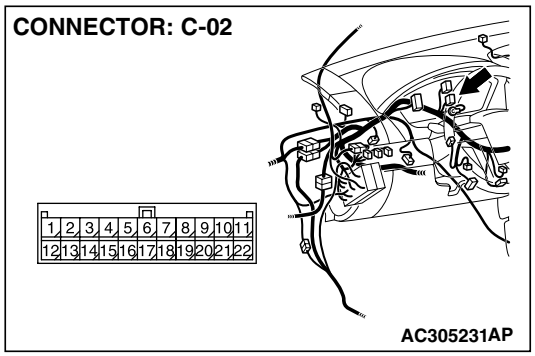
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

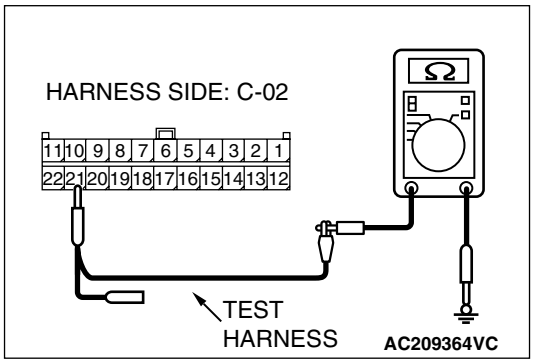
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 21 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

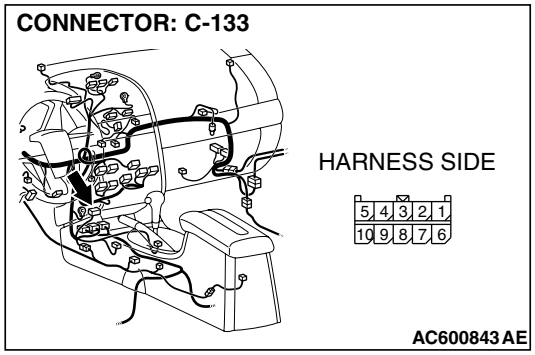
YES : If the resistance measures 1 kΩ or more, go to Step 41 .
NO : If the resistance measures less than 1 kΩ, go to Step 39.

STEP 39. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 40.
NO : Repair the damaged parts.



STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

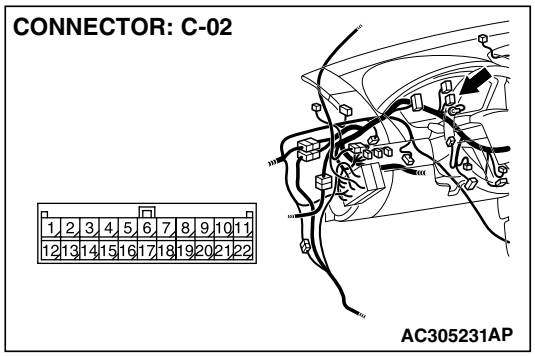
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

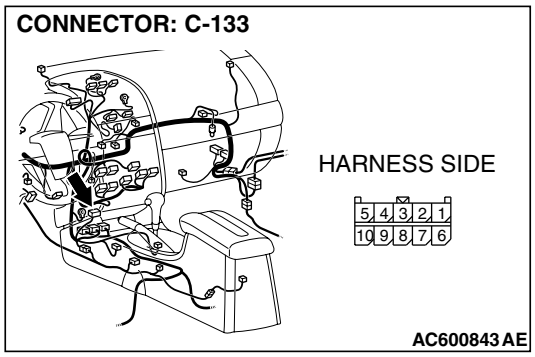
(2) Turn the ignition switch to the "LOCK" (OFF) position.

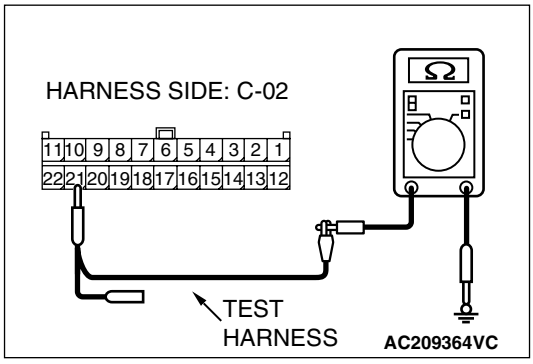
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 21 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and TPMS reciver connector.

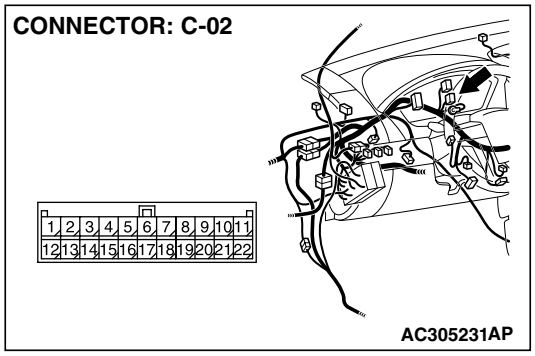
STEP 41. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



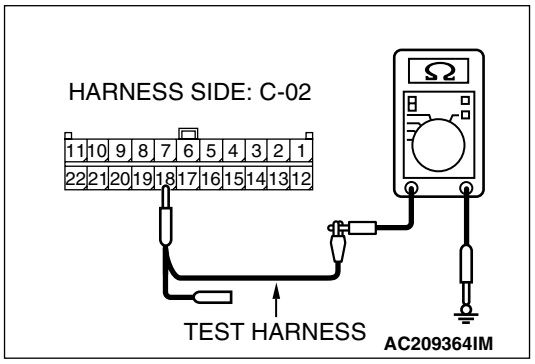
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 18 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 42 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 42. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

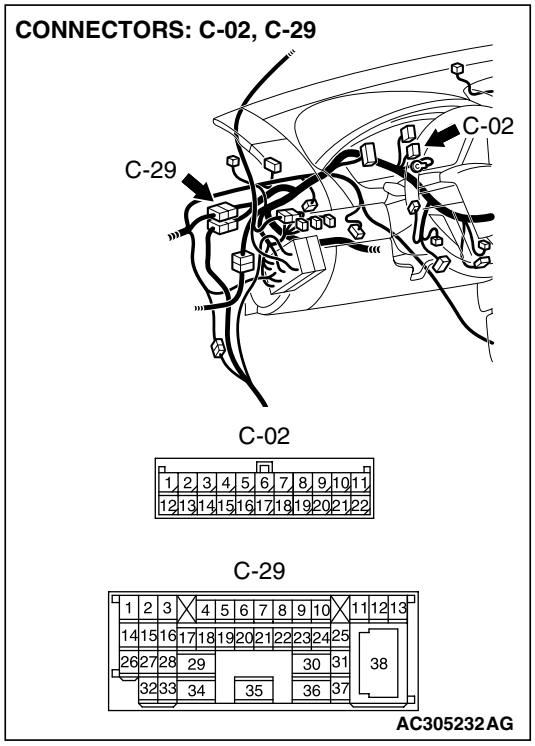
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

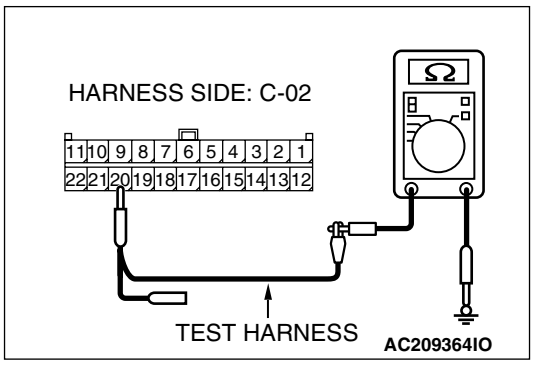
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 20 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 43. Check the CAN_L line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

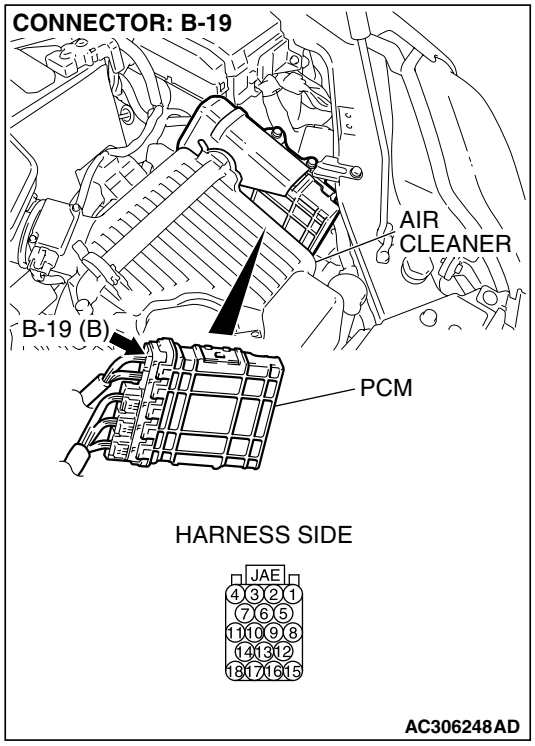
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance at the wiring harness side of intermediate connector C-29.

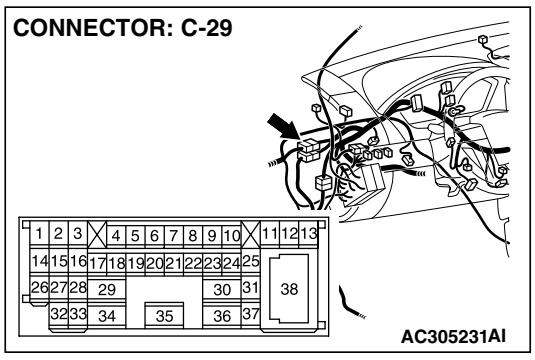
(2) Turn the ignition switch to the "LOCK" (OFF) position.

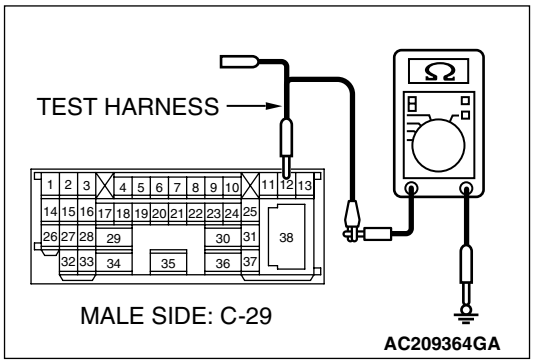
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

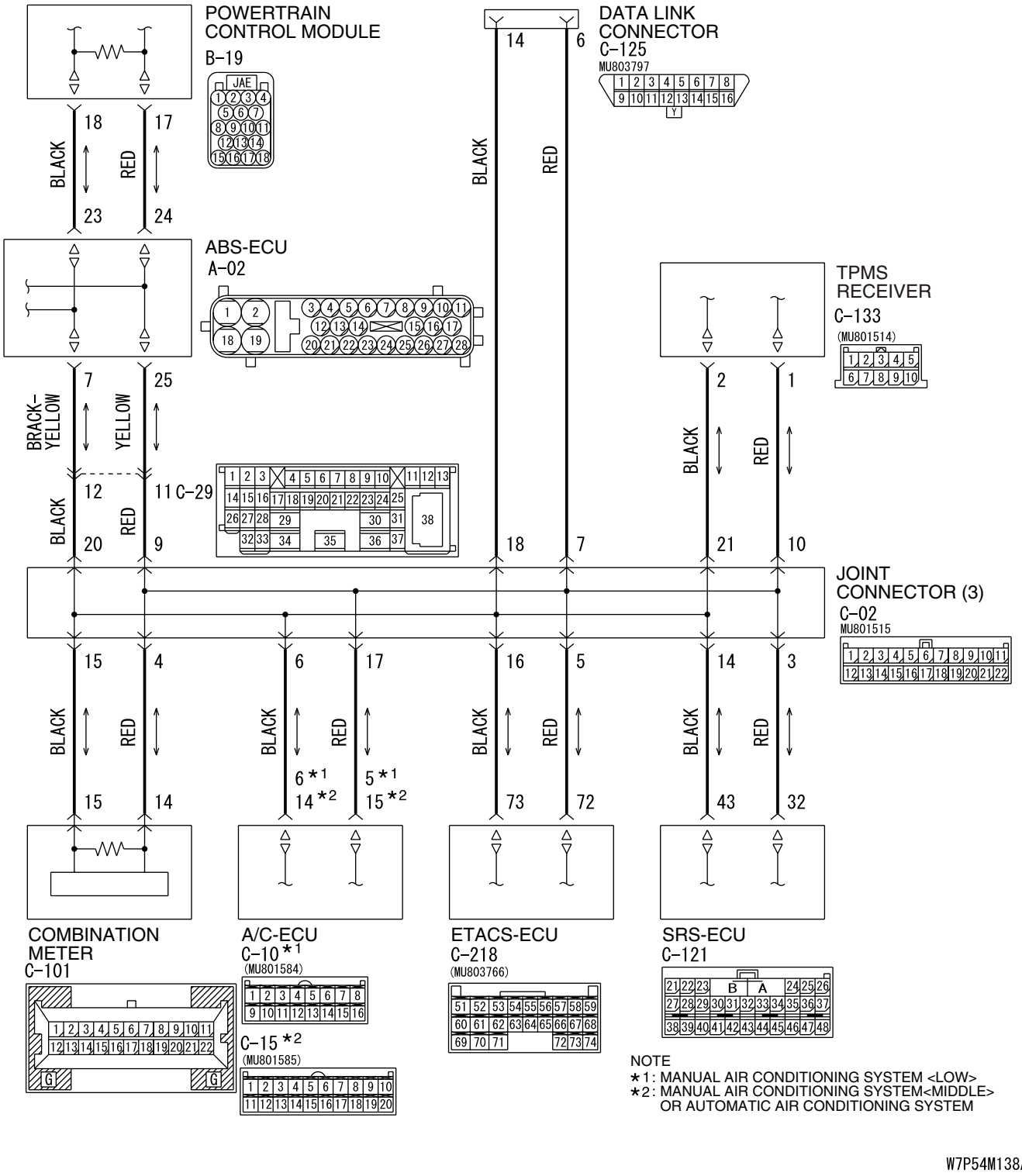
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector and the powertrain control module connector.

DIAGNOSTIC ITEM 5: Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

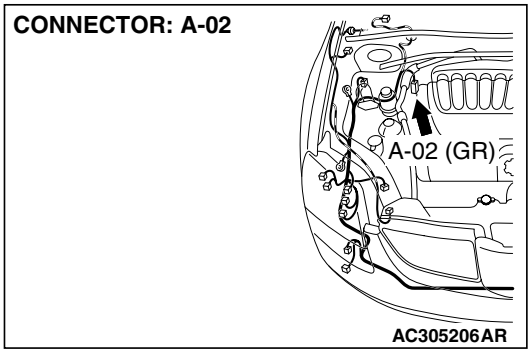
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

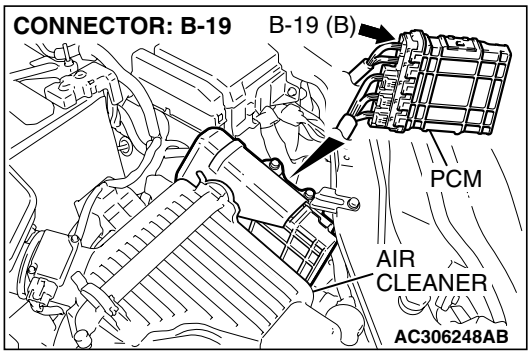


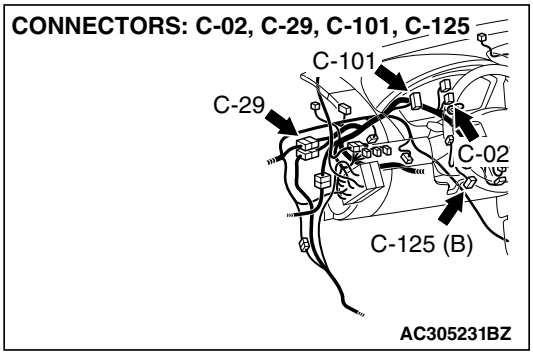
NOTE
*1: MANUAL AIR CONDITIONING SYSTEM <LOW>
*2: MANUAL AIR CONDITIONING SYSTEM<MIDDLE> OR AUTOMATIC AIR CONDITIONING SYSTEM

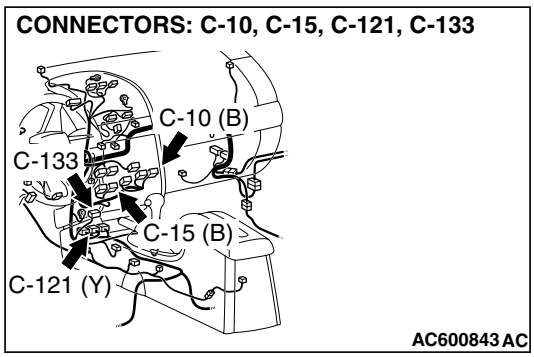
W7P54M138A

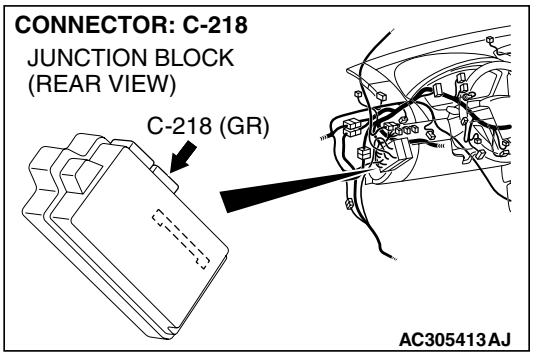
TSB Revision











TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

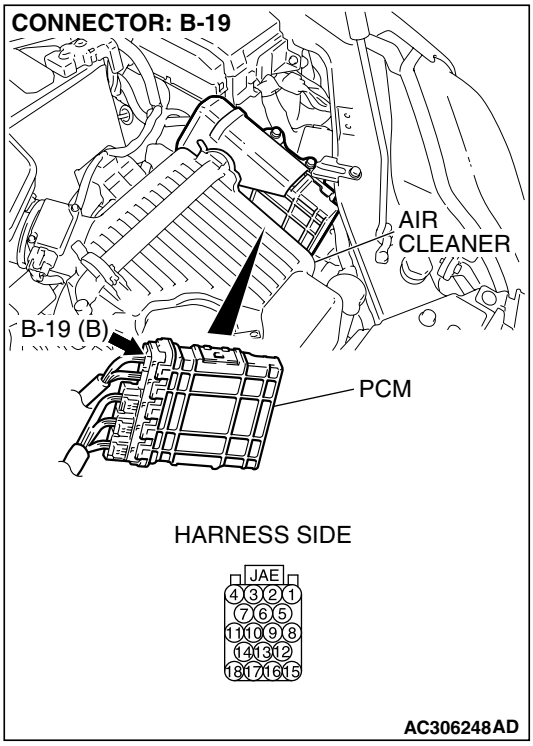
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

CONNECTOR: B-19



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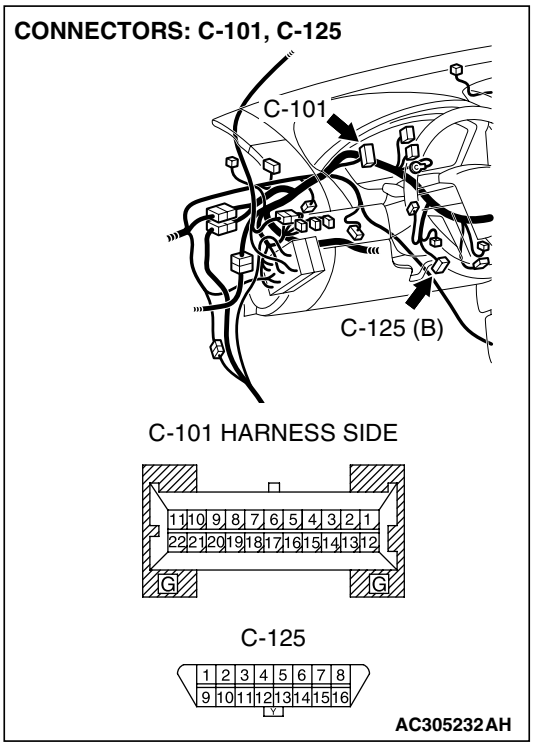
CONNECTORS: C-101, C-125



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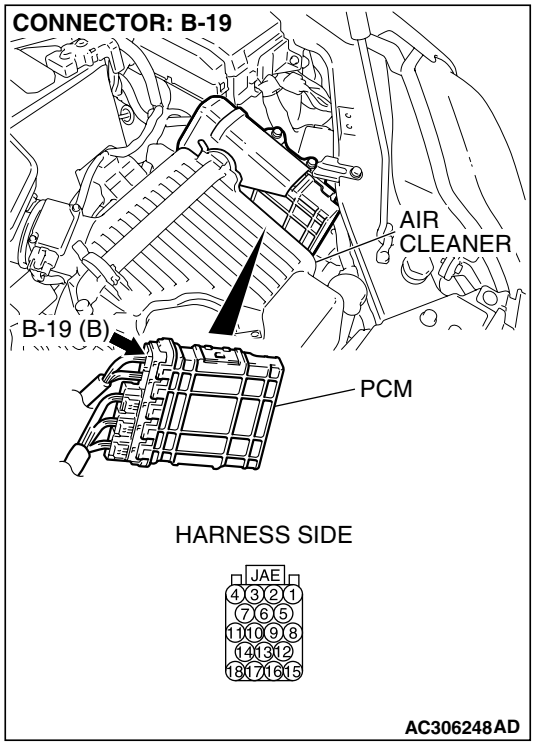
STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

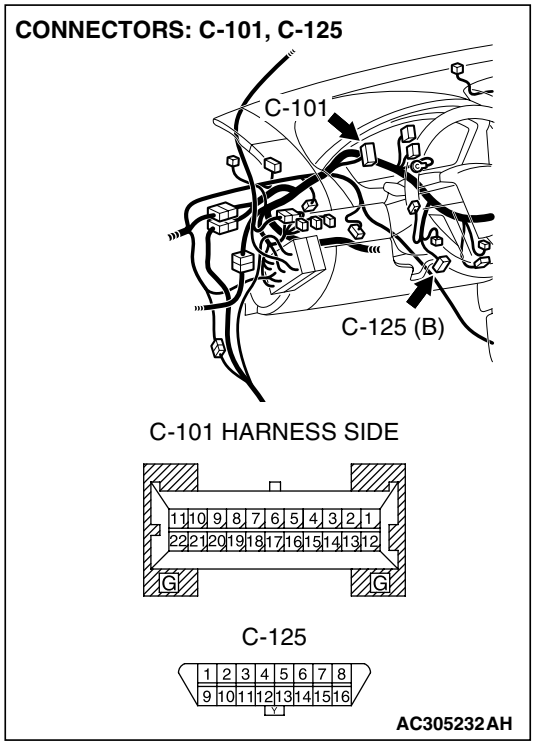
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



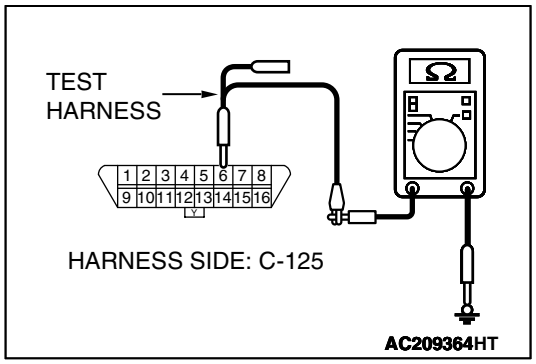


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 3 .

NO : If the resistance measures less than 1 kΩ, go to Step 4.

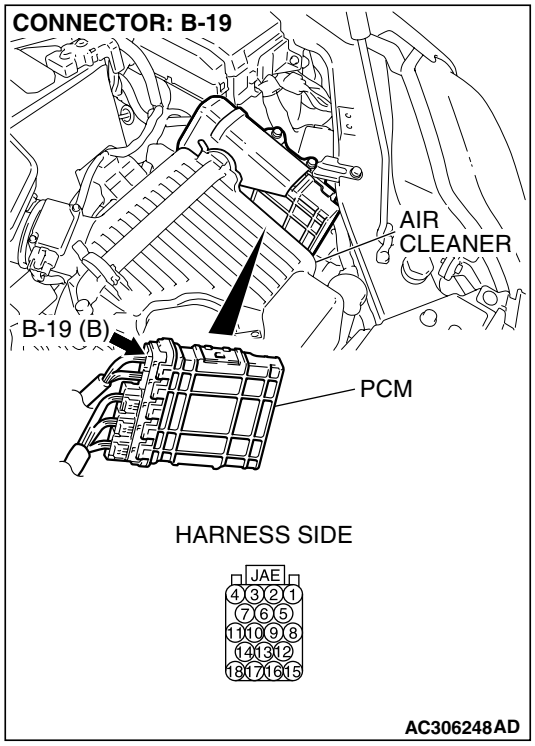
STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

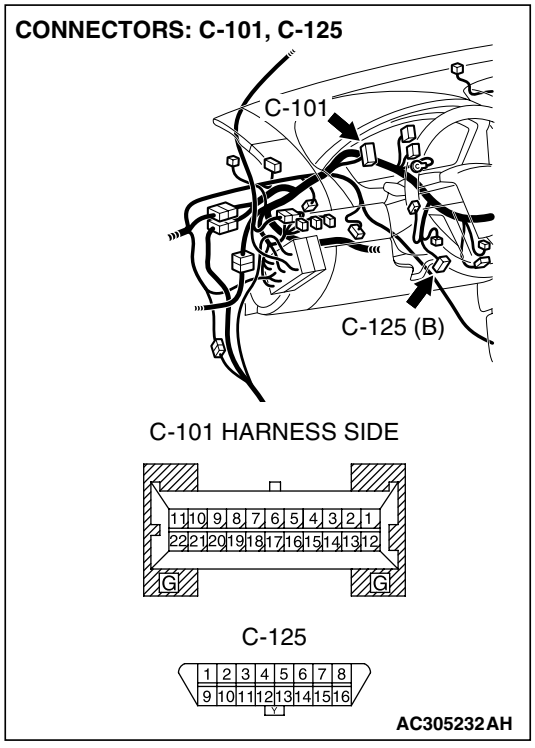
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



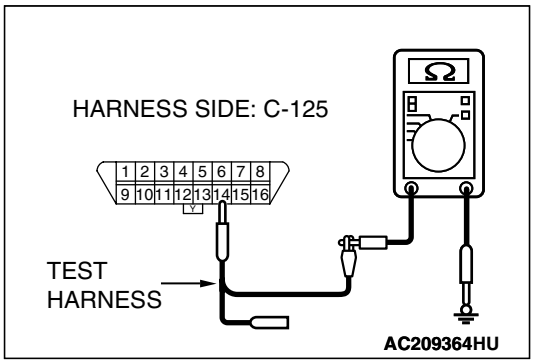


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

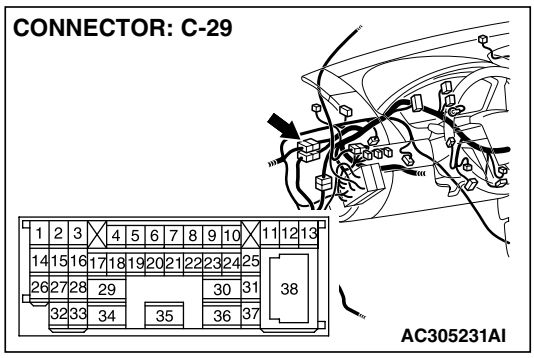
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, go to Step 27.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

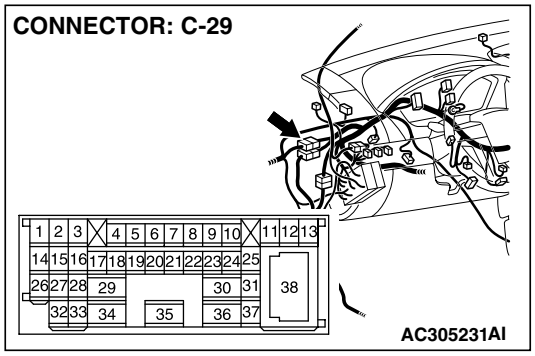
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

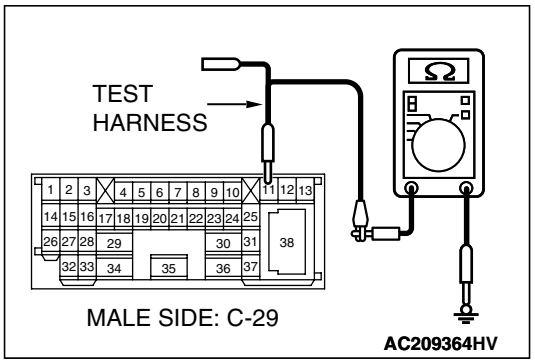
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

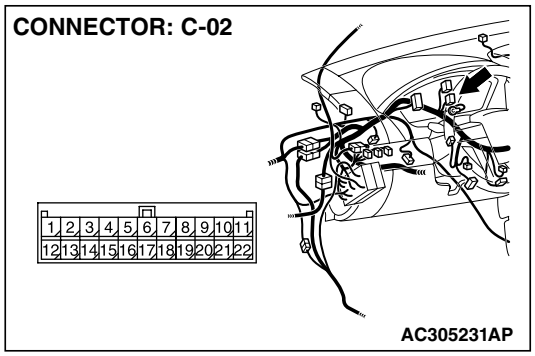
Q: Does the resistance measure 1 kΩ or more?

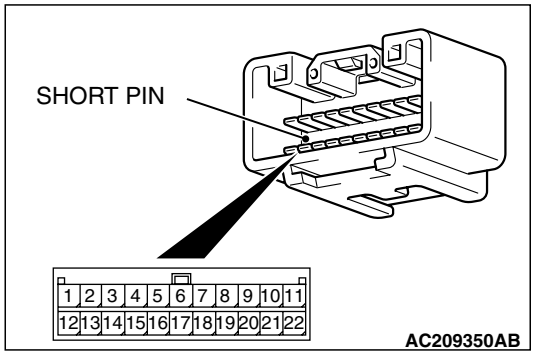
YES : If the resistance measures 1 kΩ or more, go to Step 6 .

NO : If the resistance measures less than 1 kΩ, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

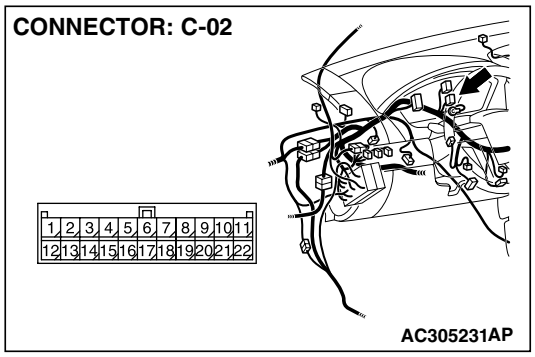
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



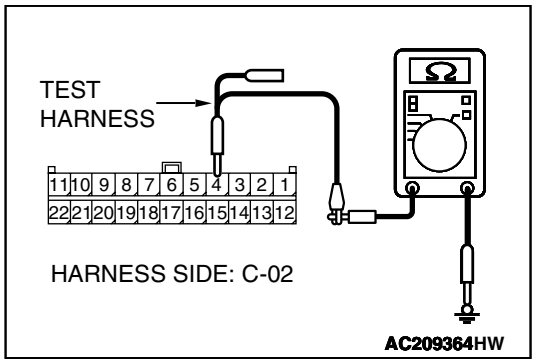
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 9 .

NO : If the resistance measures less than 1 kΩ, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

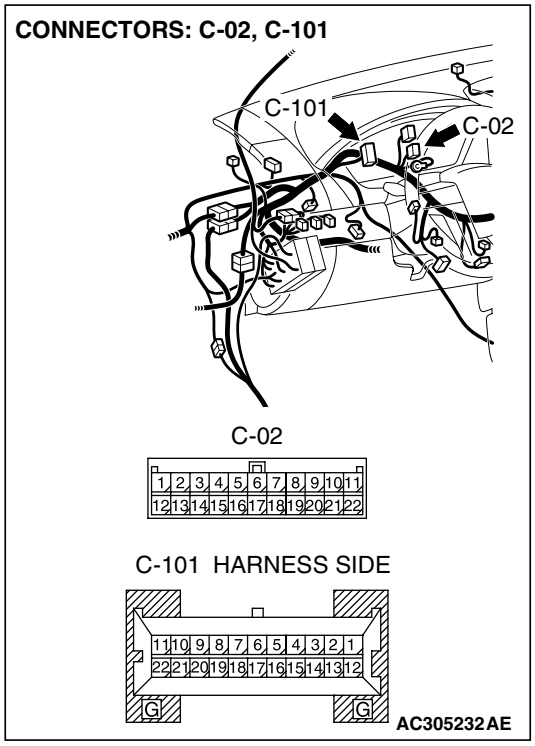
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

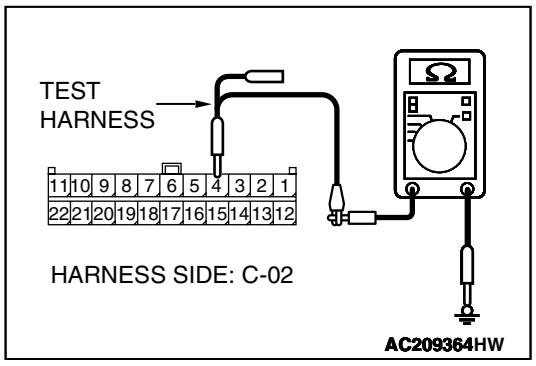
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

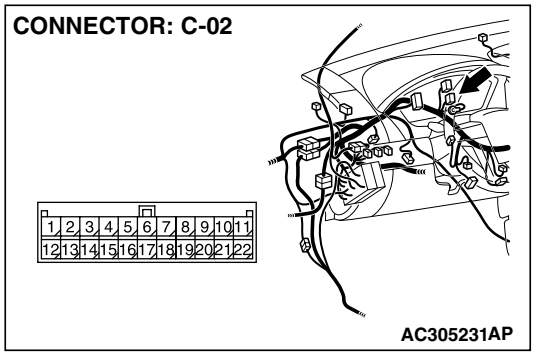
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

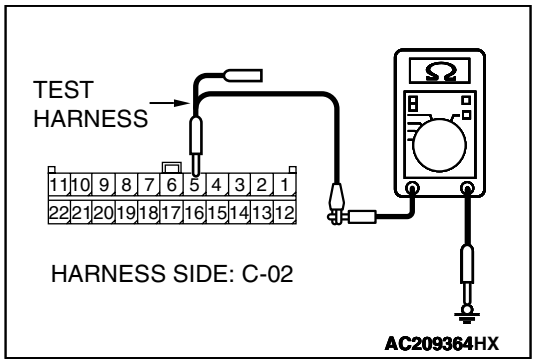
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

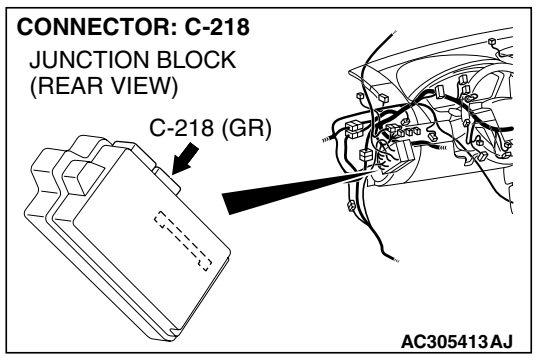
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

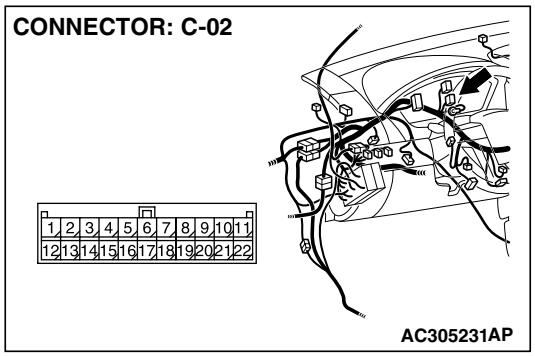
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

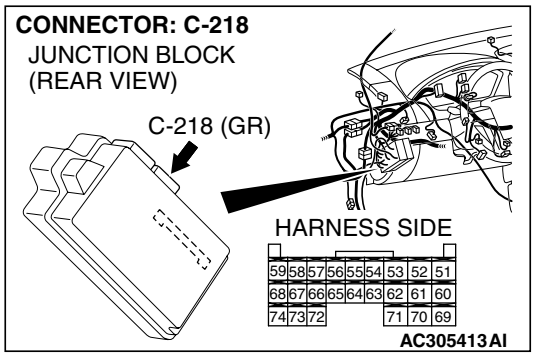
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

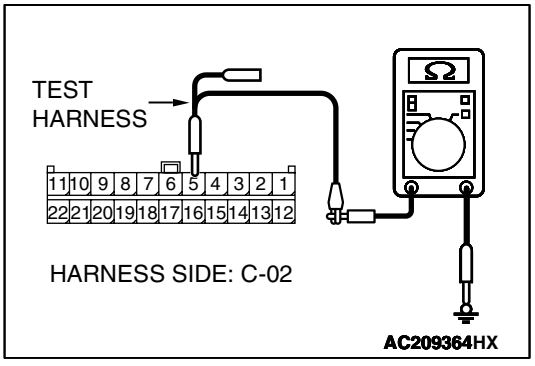
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

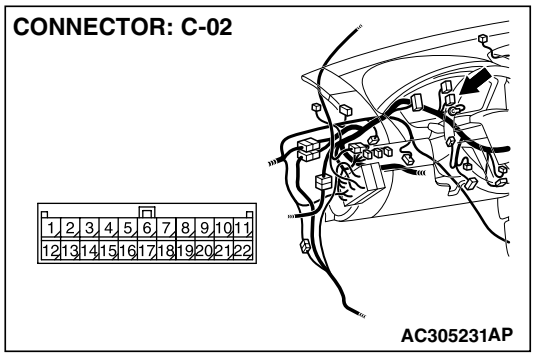
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

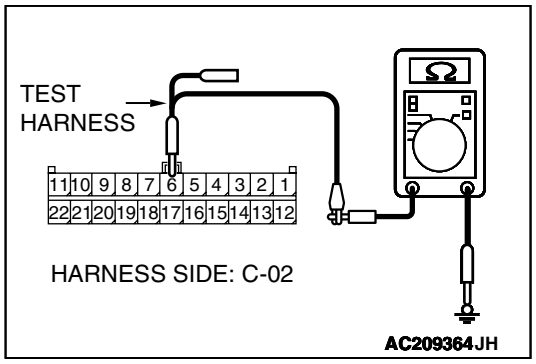
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

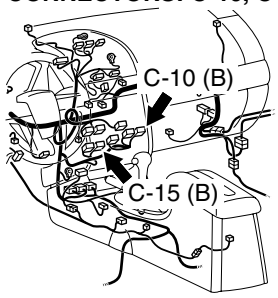
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

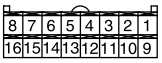
YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

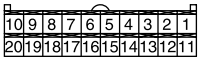
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

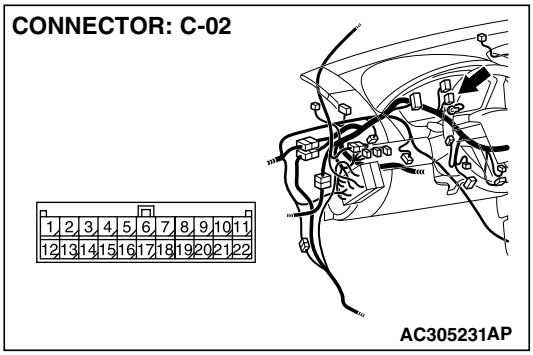
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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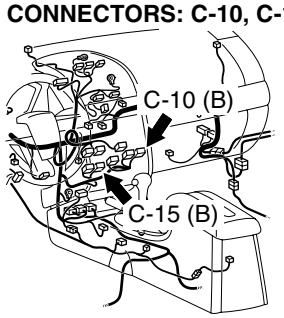
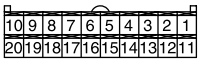
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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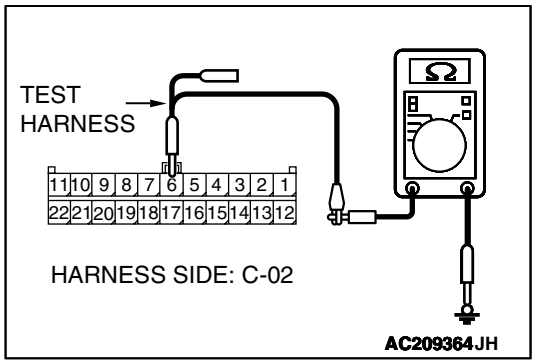


(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

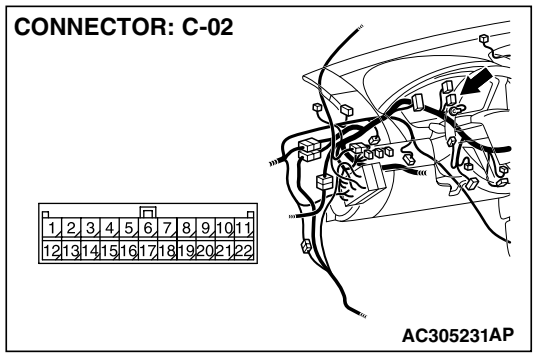
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



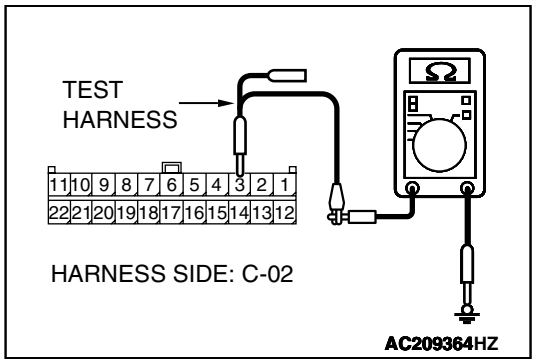
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



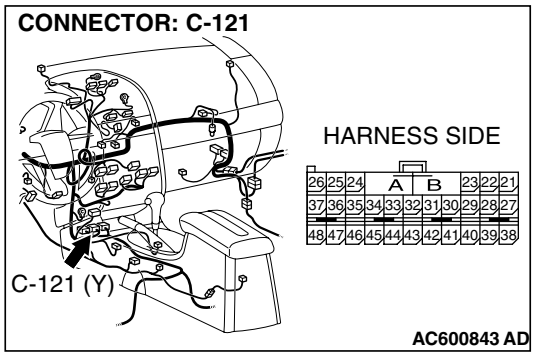
(4) Measure the resistance between joint connector (3) terminal 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 18 .

NO : If the resistance measures less than 1 kΩ, go to Step 16.



STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

STEP 17. Check the CAN_ H line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

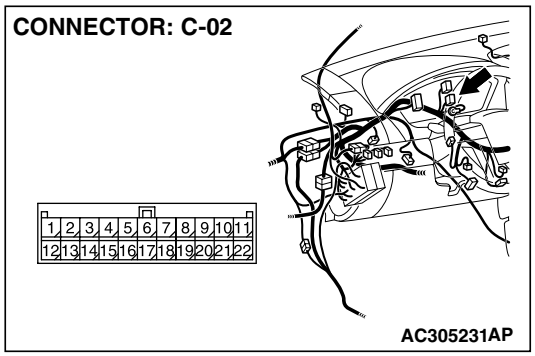
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

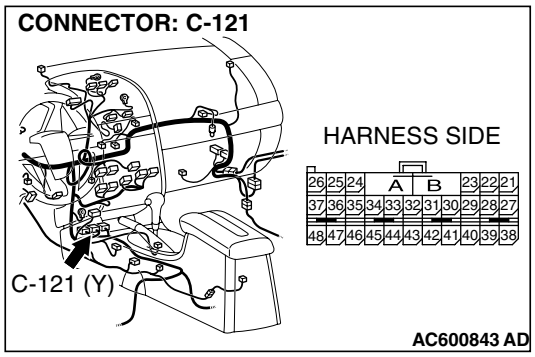
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





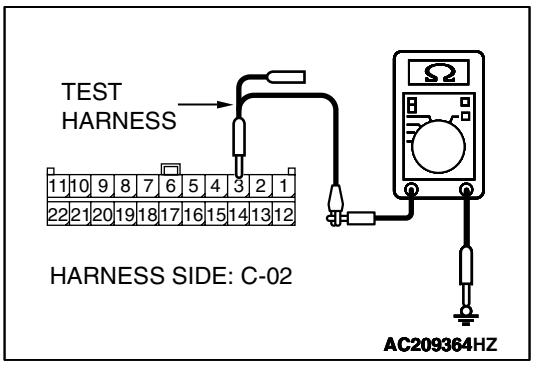
(4) Measure the resistance between intermediate connector terminal 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.



STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

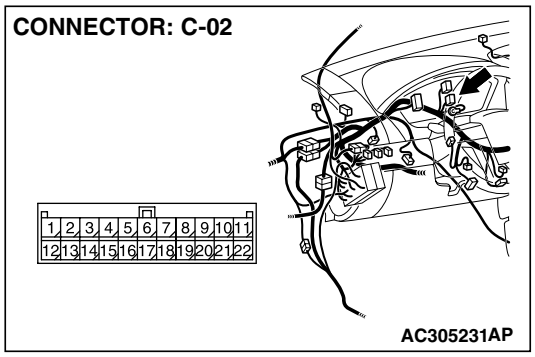
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

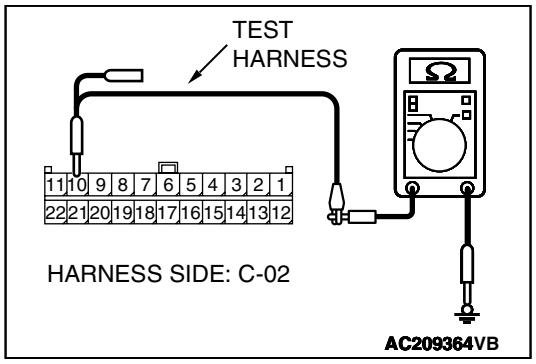
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

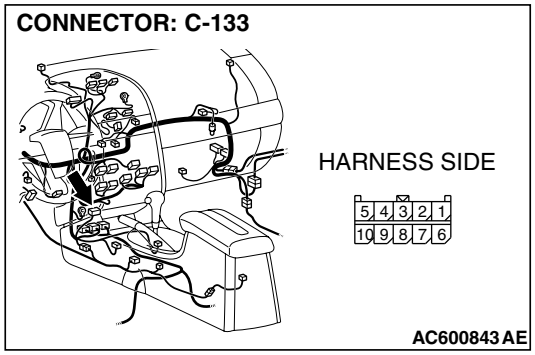
YES : If the resistance measures 1 kΩ or more, go to Step 21 .
NO : If the resistance measures less than 1 kΩ, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 20.
NO : Repair the damaged parts.



STEP 20. Check the CAN_ H line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

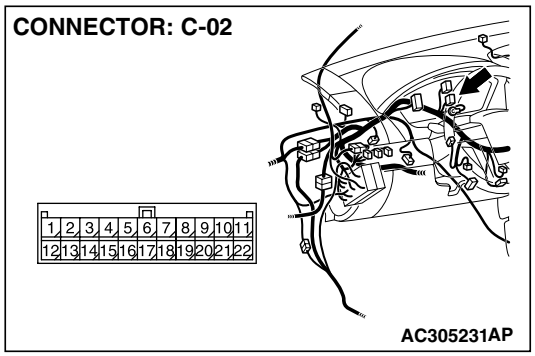
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

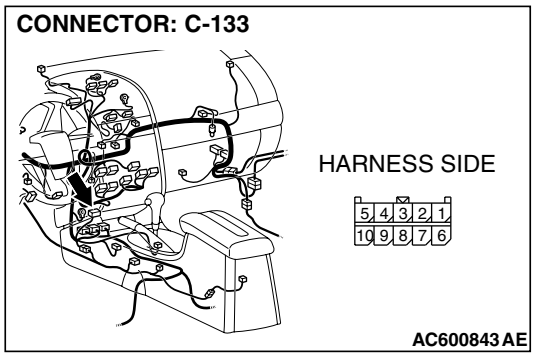
(2) Turn the ignition switch to the "LOCK" (OFF) position.

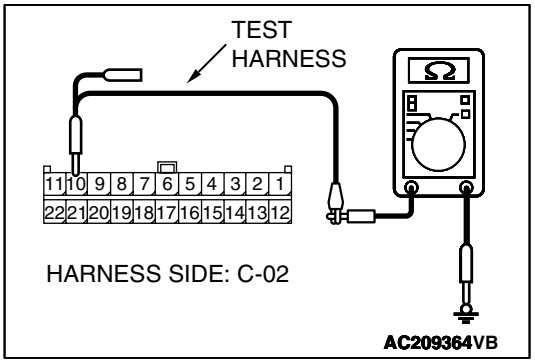
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

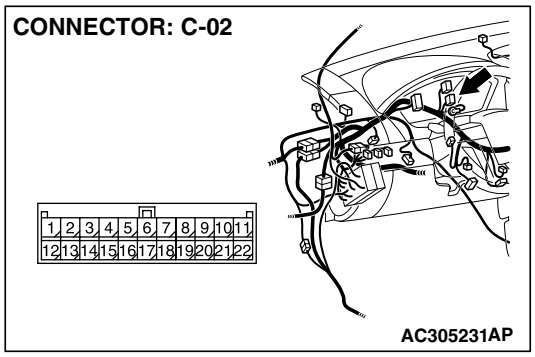
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



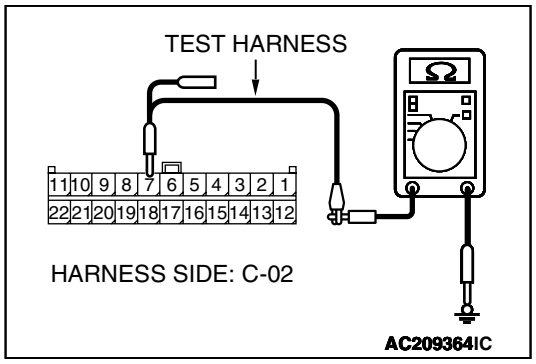
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 7 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 22 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

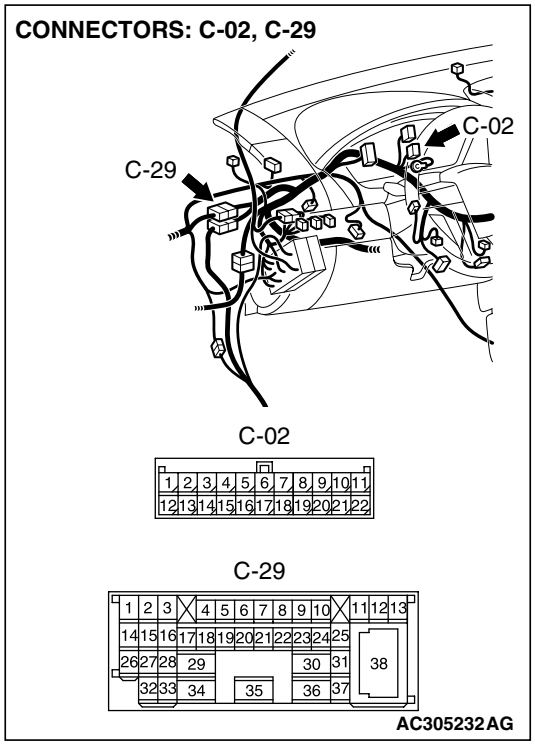
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

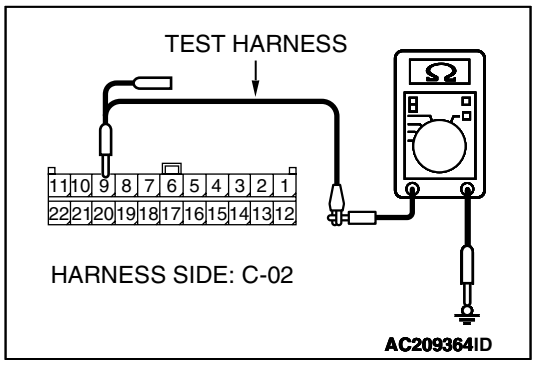
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 9 and body ground.

OK: 1 kΩ or more

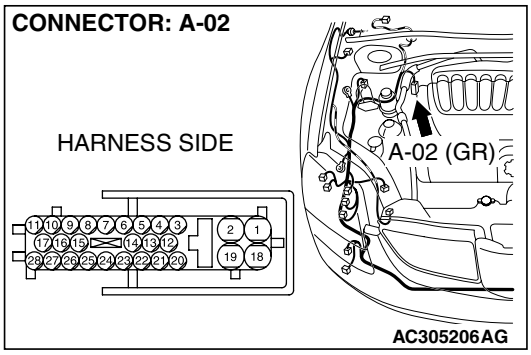
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 23. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 24.

NO : Repair the damaged parts.

STEP 24. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

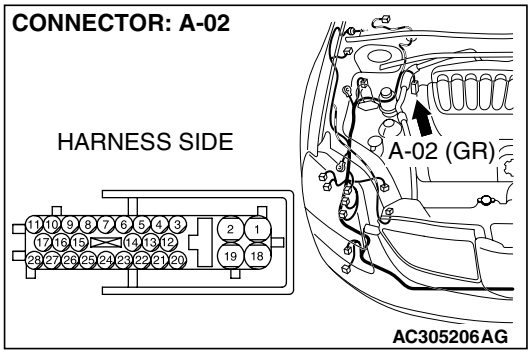
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

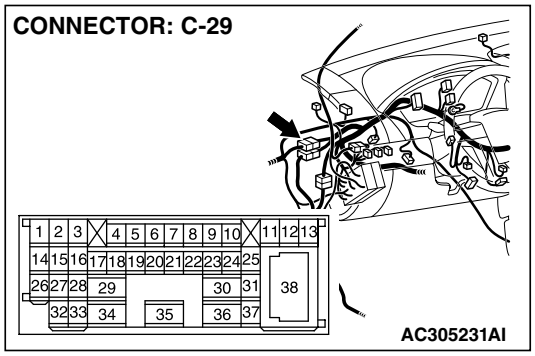
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

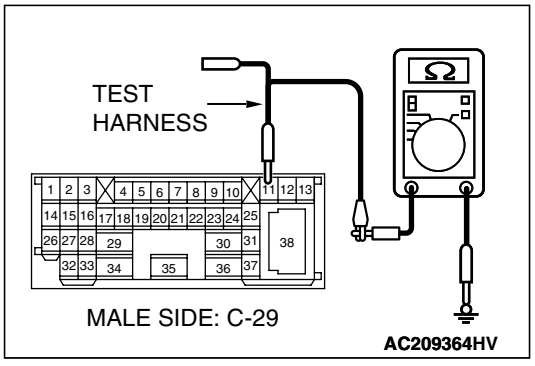
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 25 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 25. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

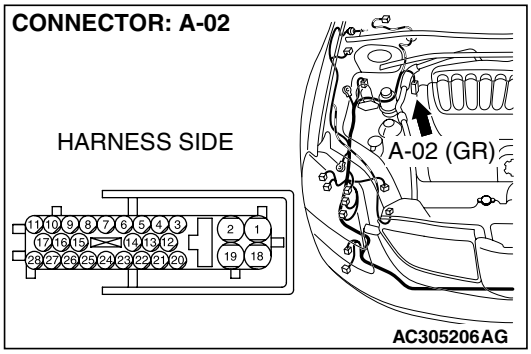
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

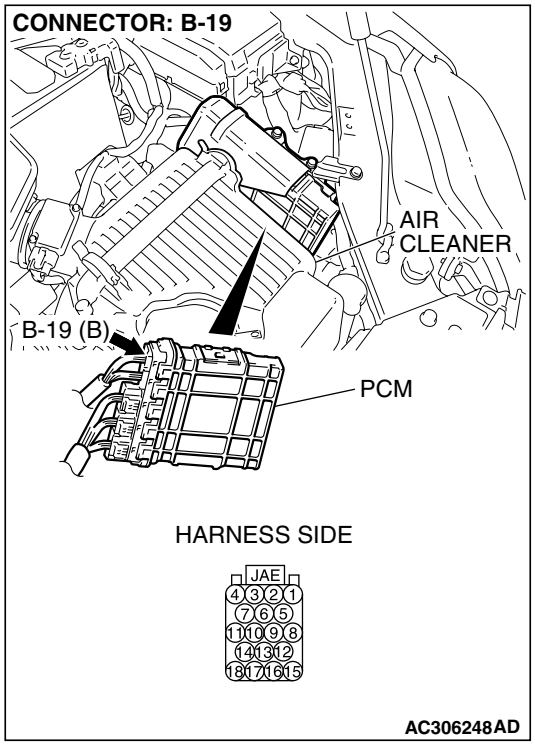
(2) Turn the ignition switch to the "LOCK" (OFF) position.

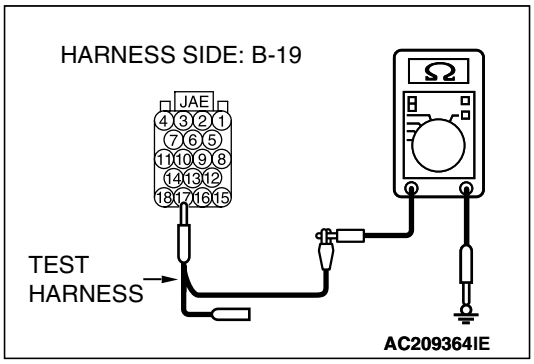
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 26 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 26. Check the CAN_H line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

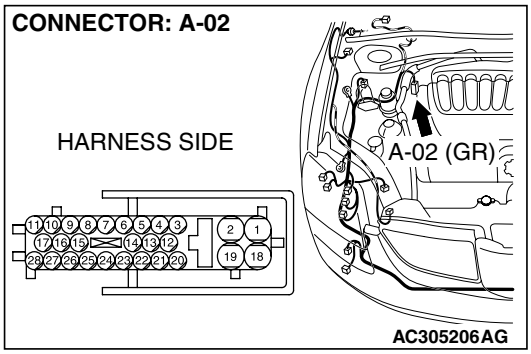
⚠ CAUTION

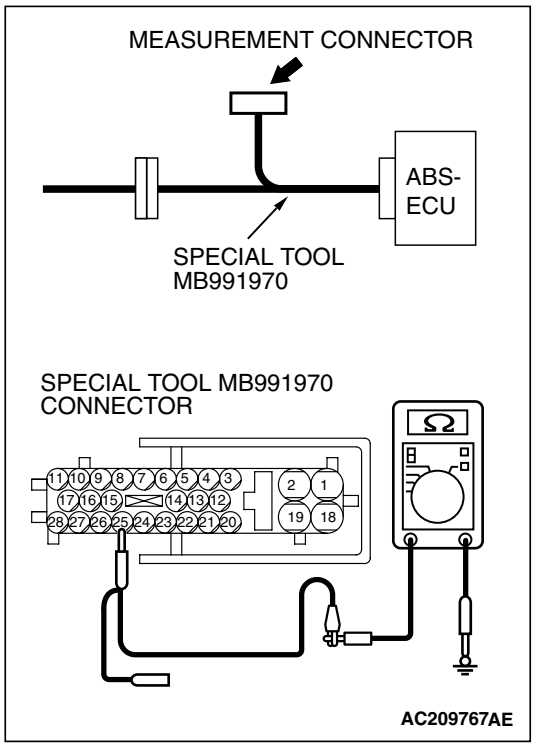
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).

(3) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(4) Disconnect the negative battery terminal.

(5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 1 kΩ or more

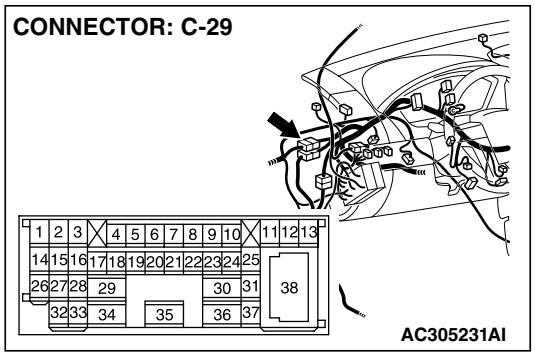
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

STEP 27. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 28.
NO : Repair the damaged parts.

STEP 28. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

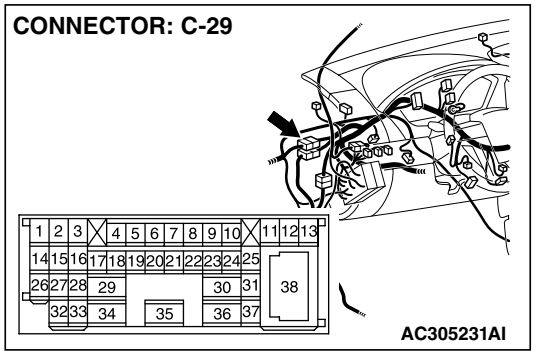
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

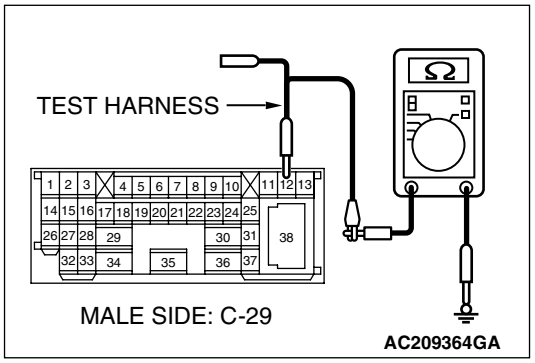
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 12 and body ground.

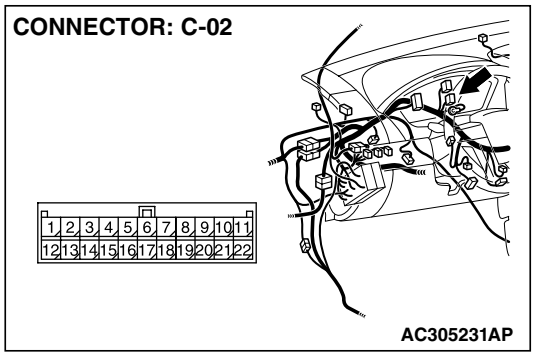
OK: 1 kΩ or more

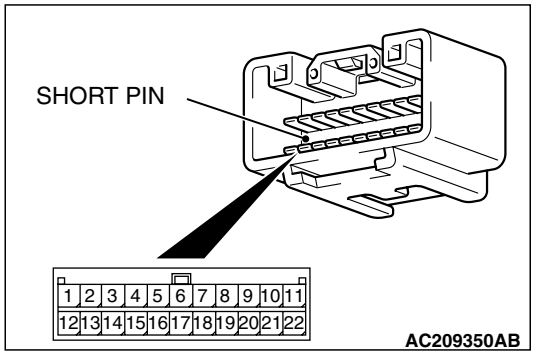
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .
NO : If the resistance measures less than 1 kΩ, go to Step 46.

STEP 29. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 30.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 30. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

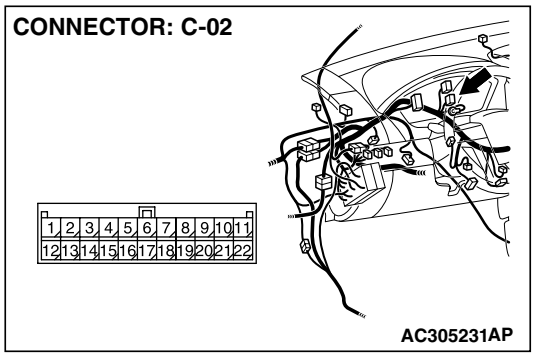
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

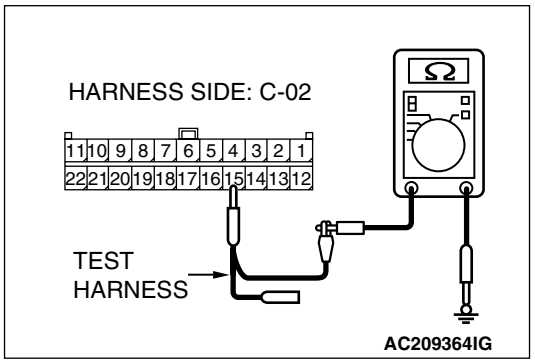
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .

NO : If the resistance measures less than 1 kΩ, go to Step 31.

STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

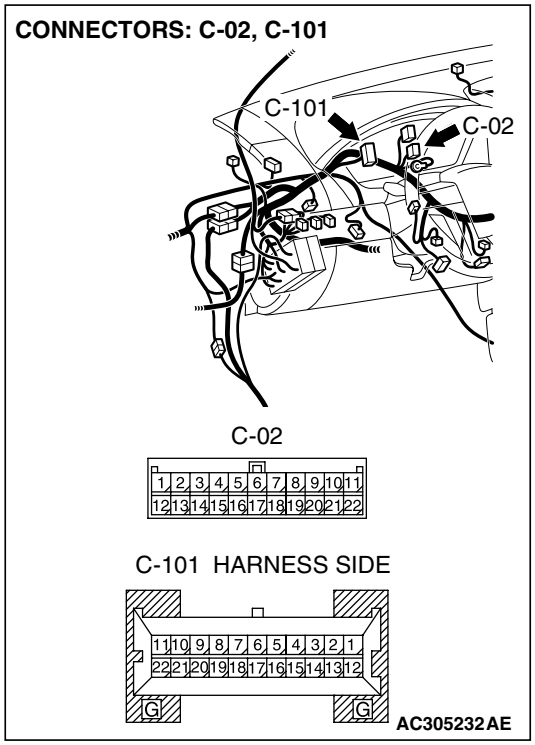
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

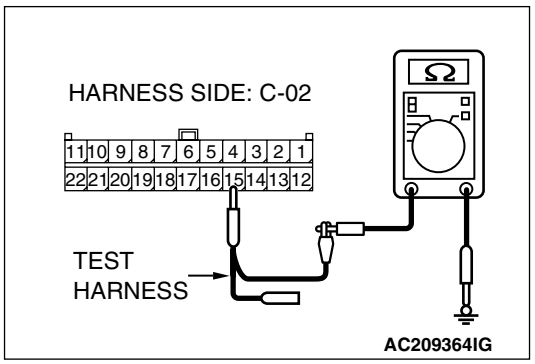
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

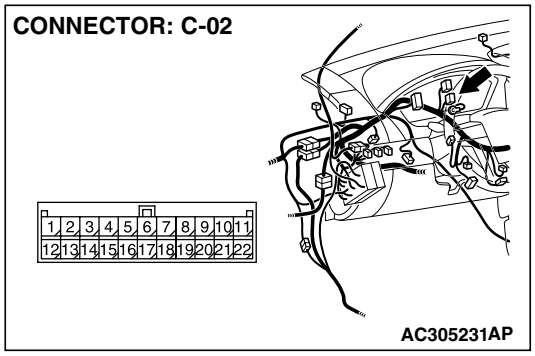
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 32. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

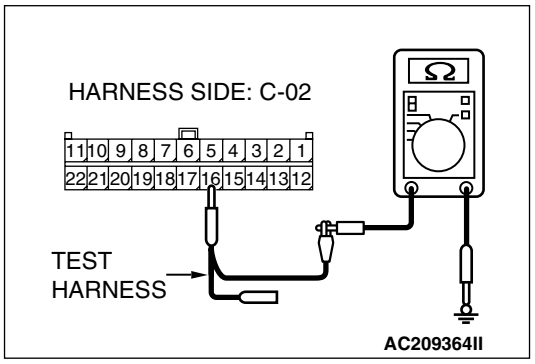
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

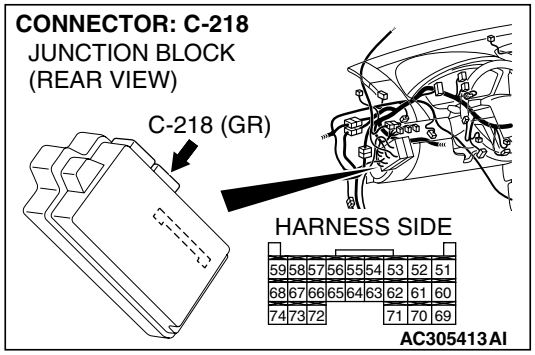
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 35 .
NO : If the resistance measures less than 1 kΩ, go to Step 33.

STEP 33. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 34.
NO : Repair the damaged parts.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

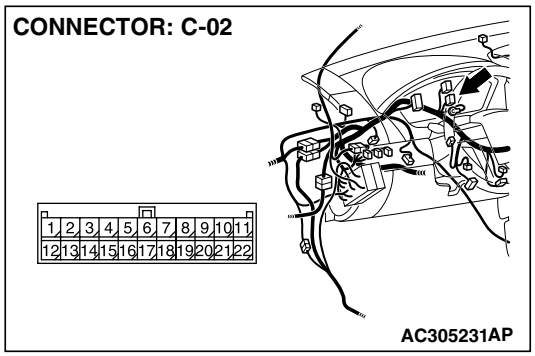
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

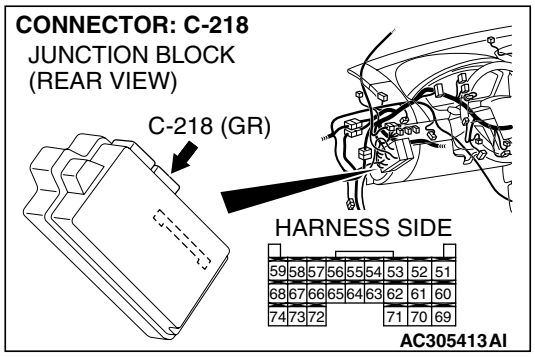
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

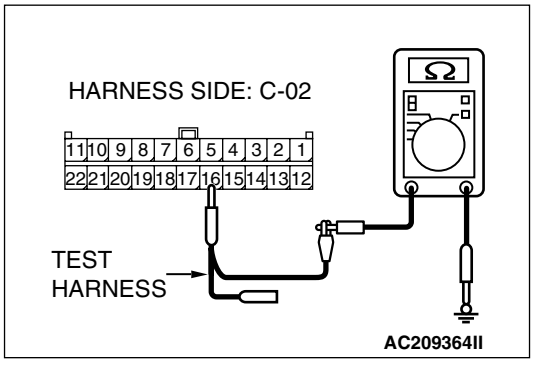
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 35. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

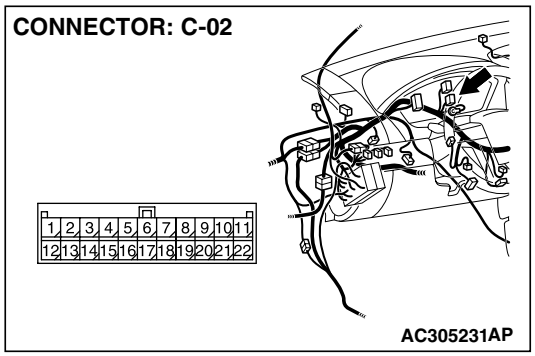
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

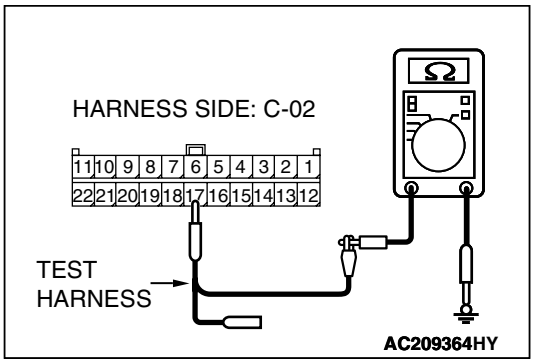
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

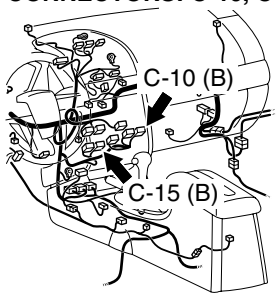
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

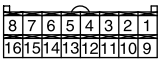
YES : If the resistance measures 1 kΩ or more, go to Step 38 .

NO : If the resistance measures less than 1 kΩ, go to Step 36.

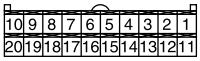
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 36. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 37.
NO : Repair the damaged parts.

STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

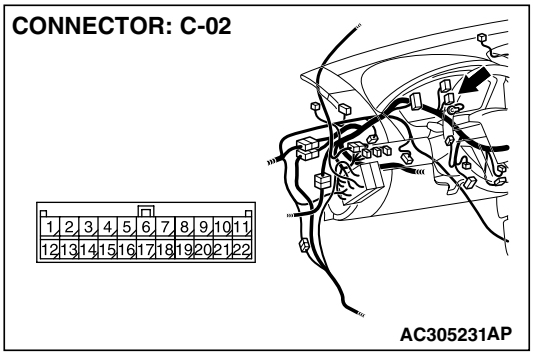
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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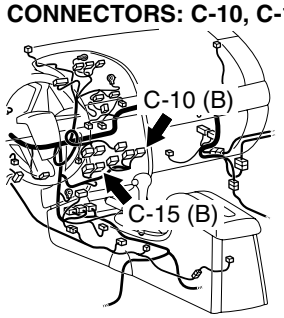
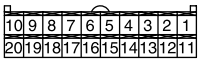
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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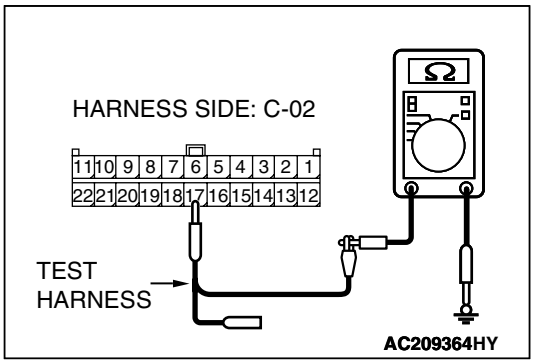


(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

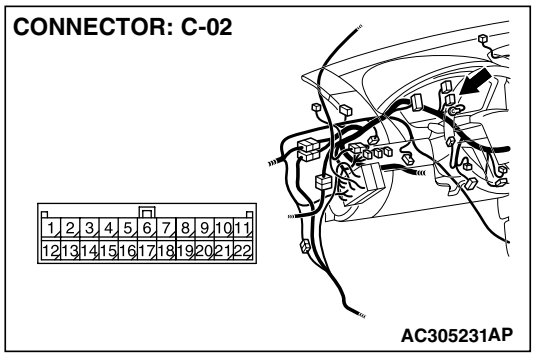
STEP 38. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



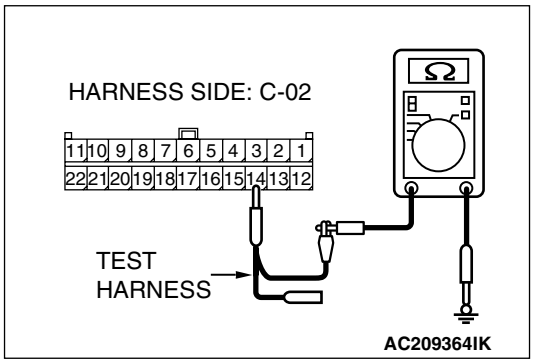
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



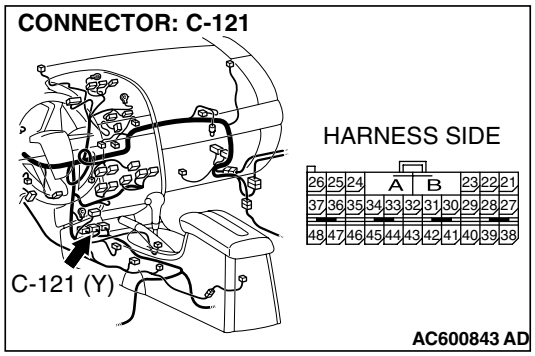
(4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 41 .

NO : If the resistance measures less than 1 kΩ, go to Step 39.



STEP 39. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 40.

NO : Repair the damaged parts.

STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

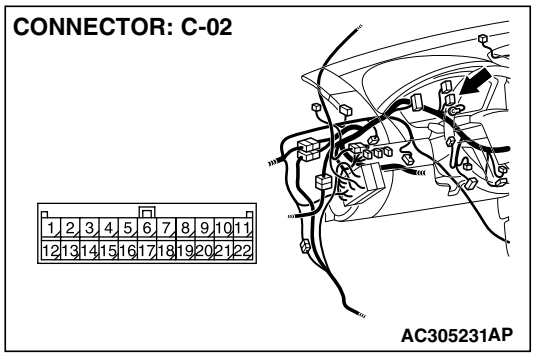
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

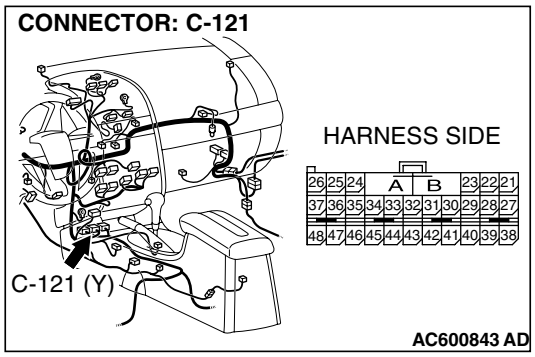
(2) Turn the ignition switch to the "LOCK" (OFF) position.

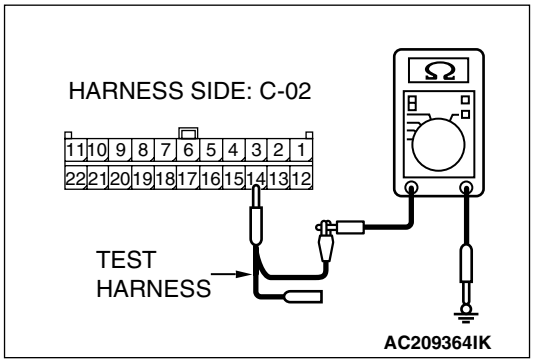
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and SRS-ECU connector.

STEP 41. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

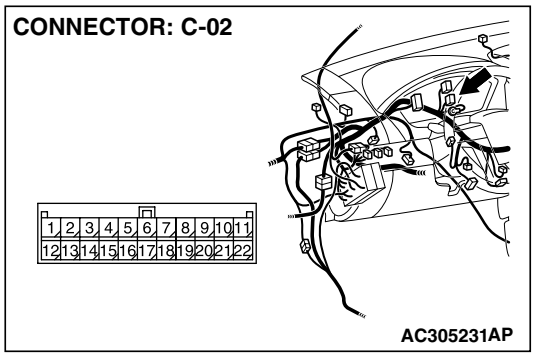
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

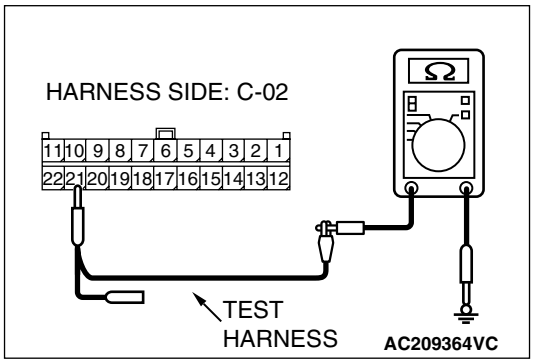


(4) Measure the resistance between joint connector (3) terminals 21 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 44 .
NO : If the resistance measures less than 1 kΩ, go to Step 42.

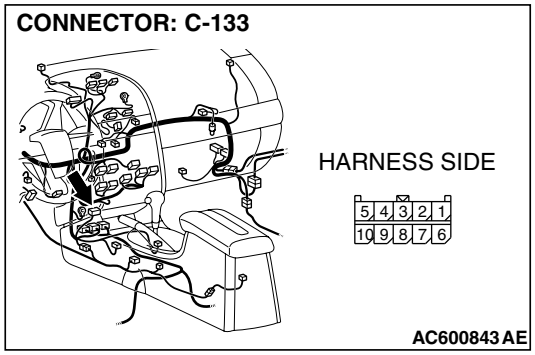


STEP 42. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 43.
NO : Repair the damaged parts.



STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

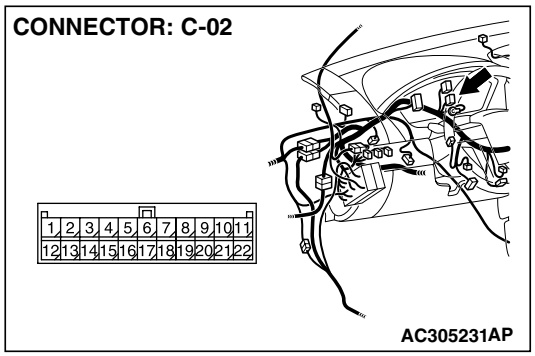
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

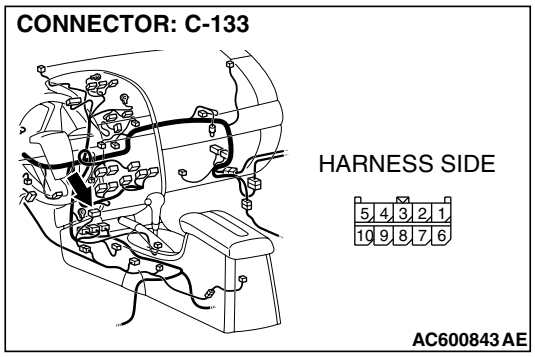
(2) Turn the ignition switch to the "LOCK" (OFF) position.

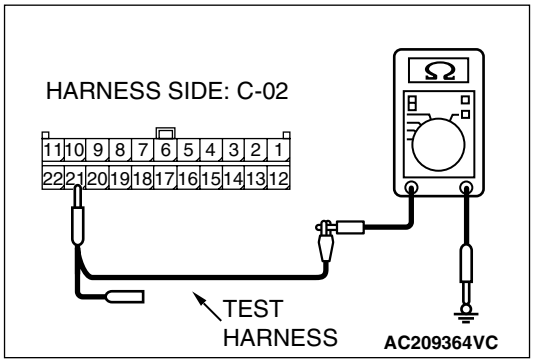
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 21 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

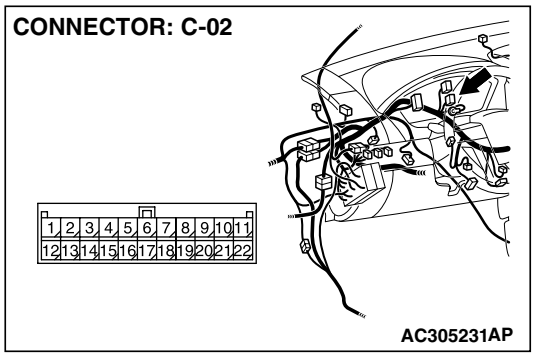
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and TPMS reciver connector.

STEP 44. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

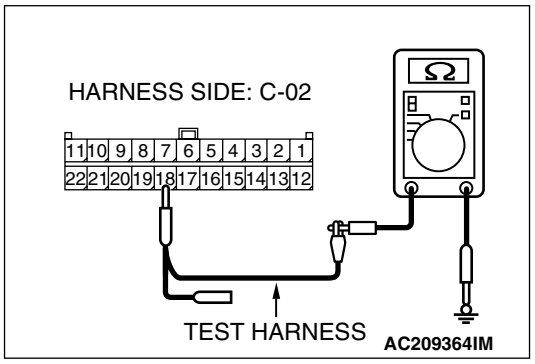
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 18 and body ground.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 45 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 45. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

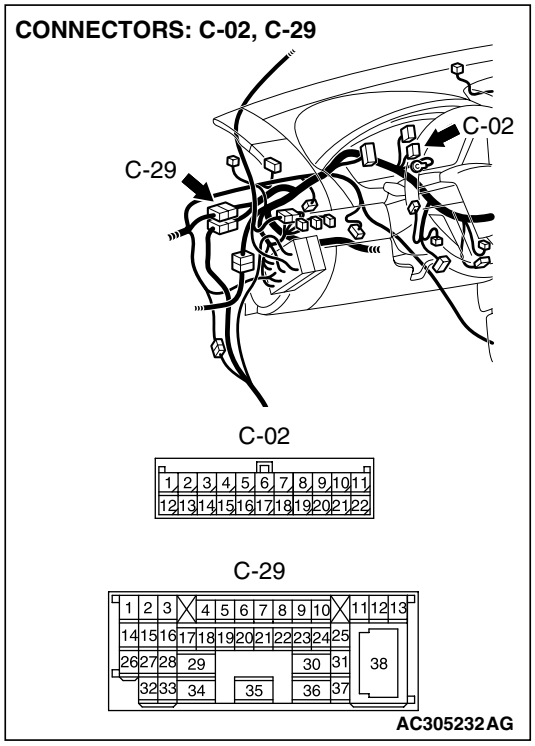
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

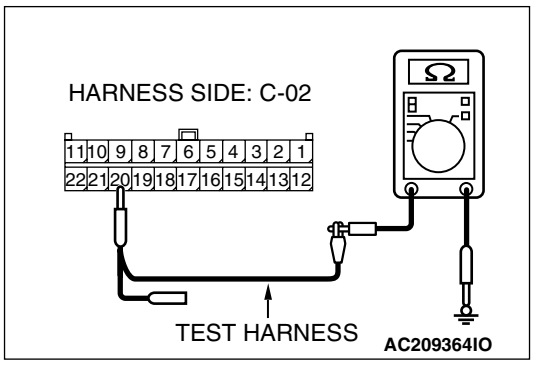
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 20 and body ground.

OK: 1 kΩ or more

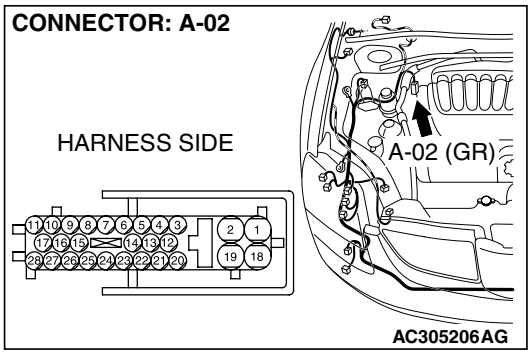
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 46. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 47.

NO : Repair the damaged parts.

STEP 47. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

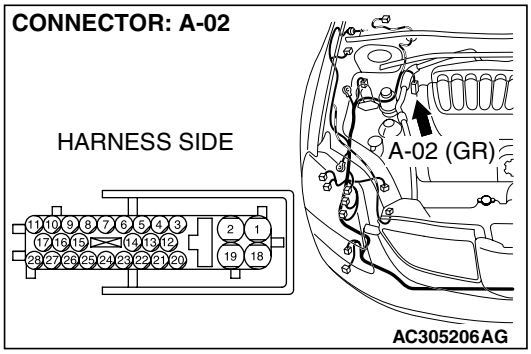
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

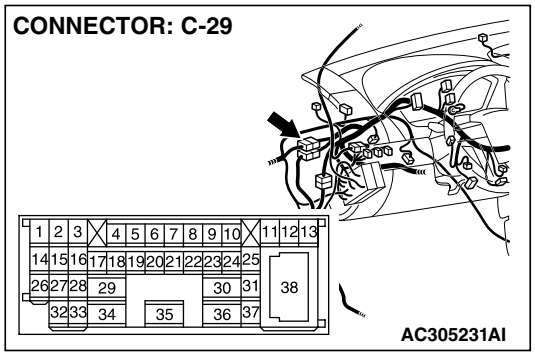
(2) Turn the ignition switch to the "LOCK" (OFF) position.

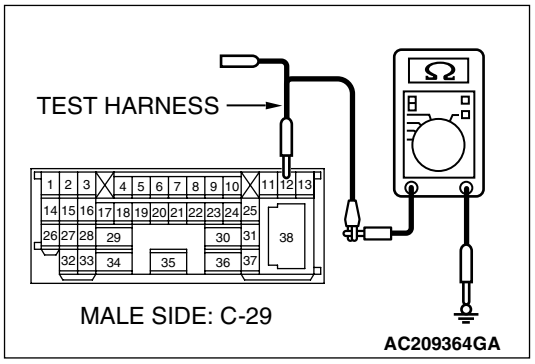
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 48 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 48. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

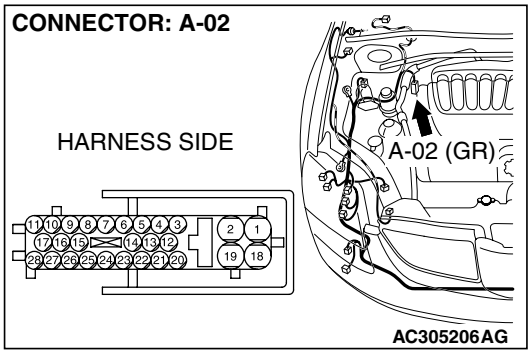
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

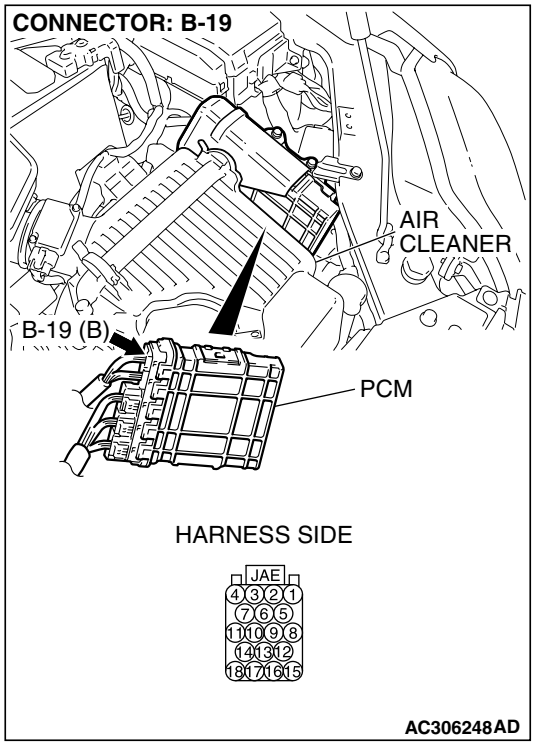
(2) Turn the ignition switch to the "LOCK" (OFF) position.

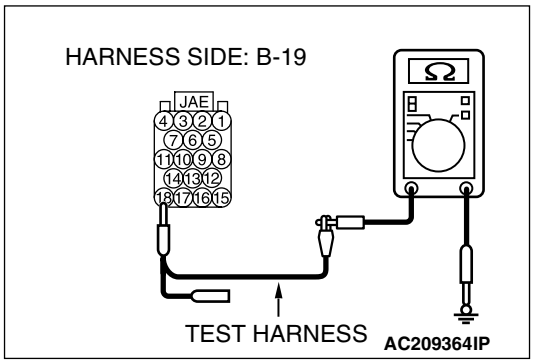
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminal 18 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 49 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 49. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

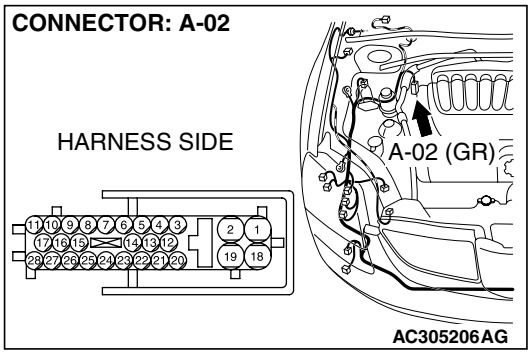
⚠ CAUTION

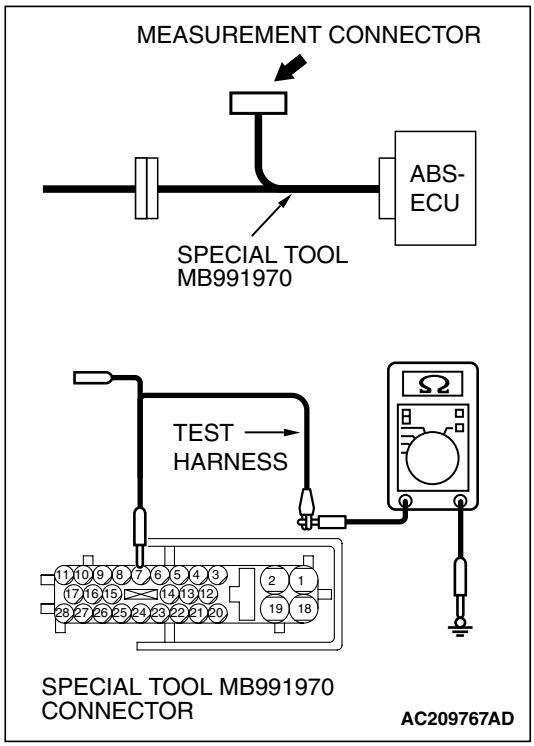
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(4) Disconnect the negative battery terminal.
(5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 1 kΩ or more

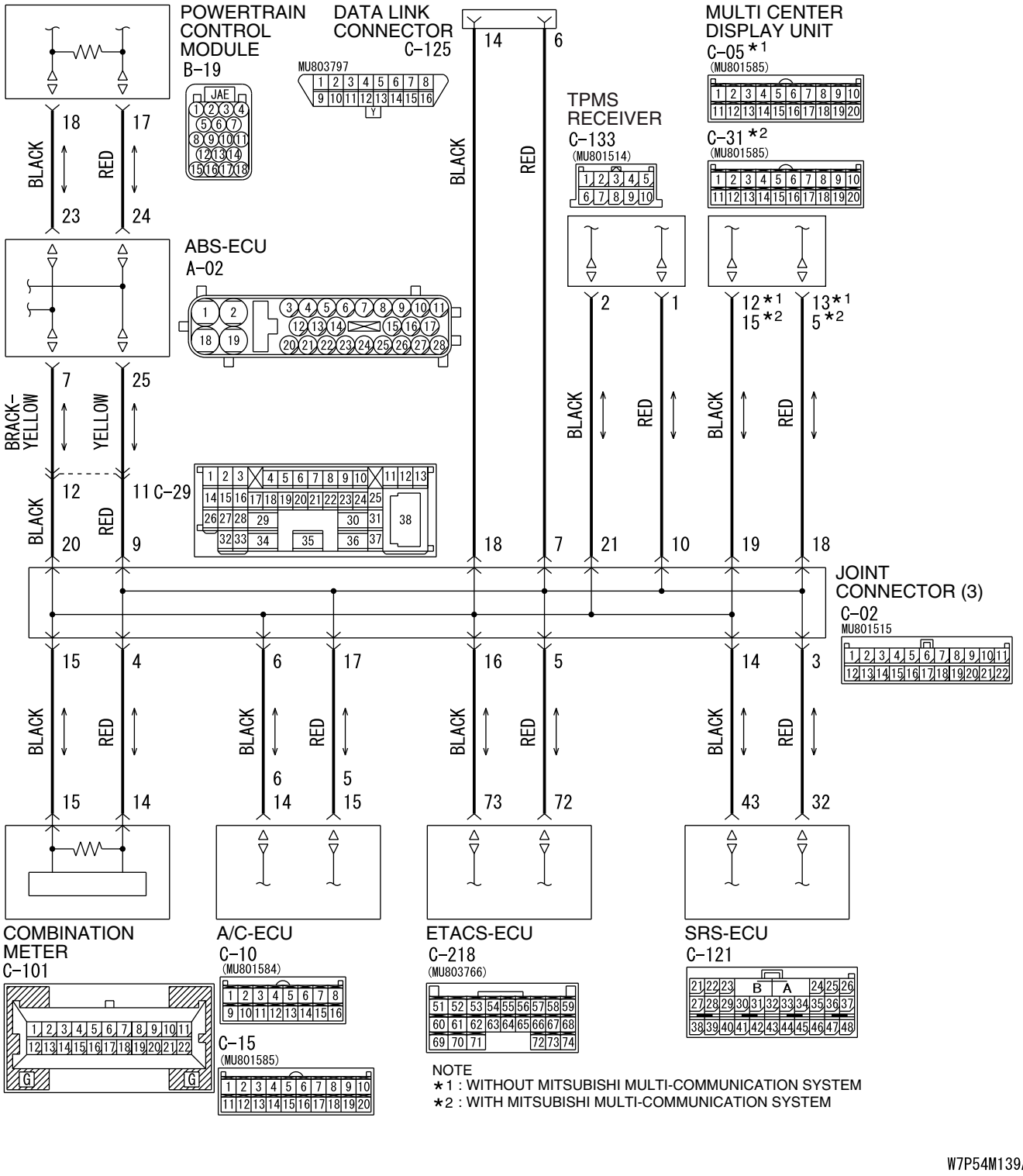
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

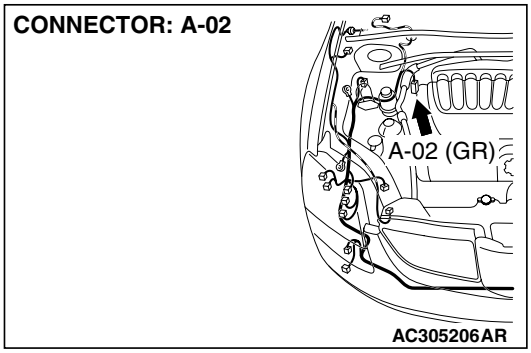
NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

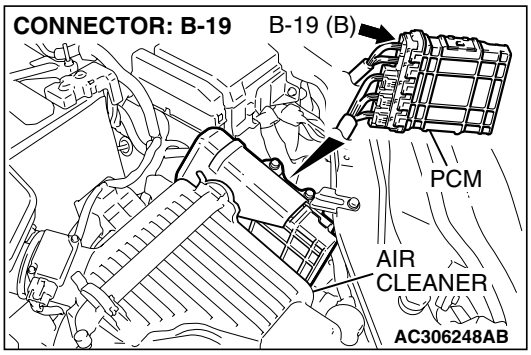
DIAGNOSTIC ITEM 6: Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

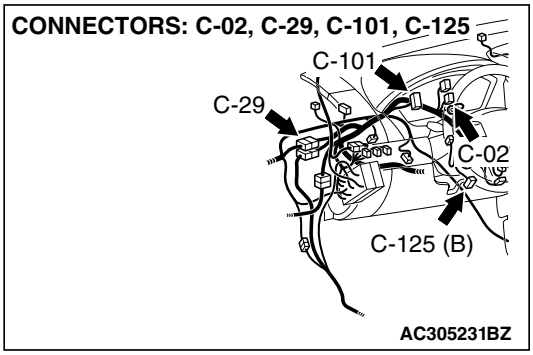
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

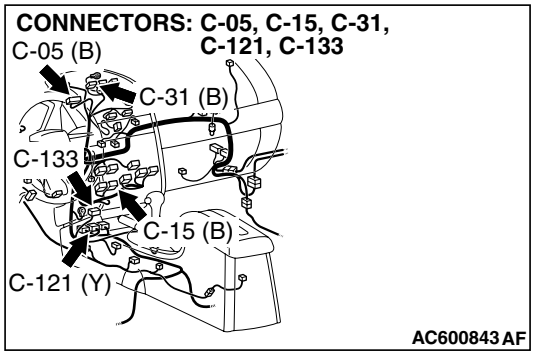

POWERTRAIN CONTROL MODULE
B-19
DATA LINK CONNECTOR
C-125
MU803797
MULTI CENTER DISPLAY UNIT
C-05*1
(MU801585)
C-31*2
(MU801585)
TPMS RECEIVER
C-133
(MU801514)
ABS-ECU
A-02
C-29
JOINT CONNECTOR (3)
C-02
MU801515
COMBINATION METER
C-101
A/C-ECU
C-10
(MU801584)
C-15
(MU801585)
ETACS-ECU
C-218
(MU803766)
SRS-ECU
C-121
BLACK
RED
BRACK-YELLOW
YELLOW
NOTE
*1 : WITHOUT MITSUBISHI MULTI-COMMUNICATION SYSTEM
*2 : WITH MITSUBISHI MULTI-COMMUNICATION SYSTEM

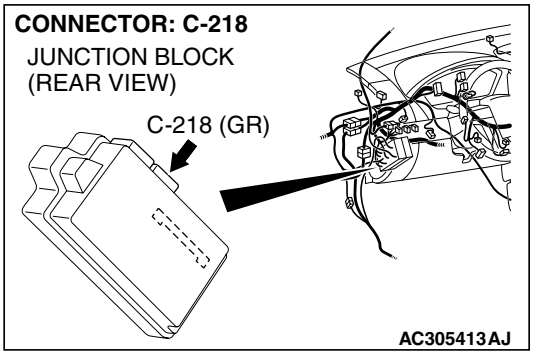
W7P54M139A











TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

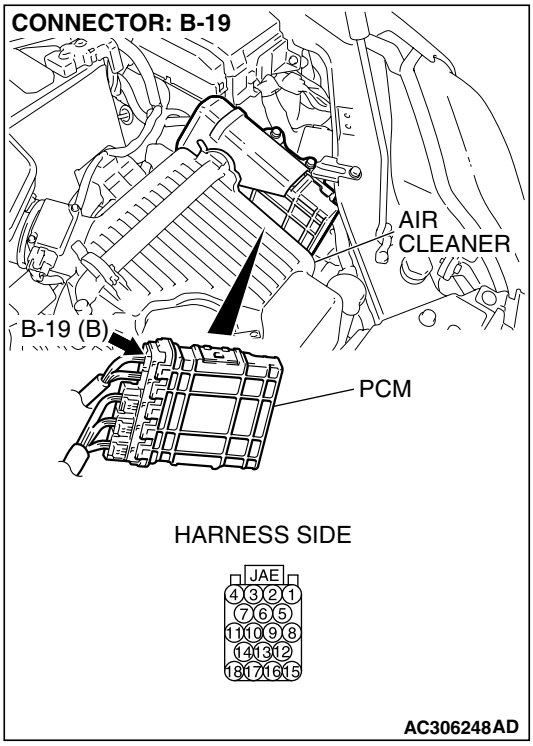
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

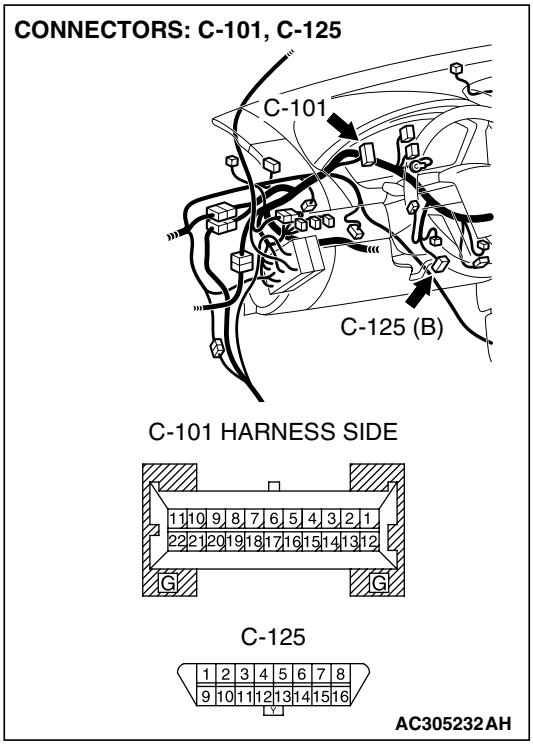
YES : Go to Step 2.

NO : Repair the damaged parts.

CONNECTOR: B-19



CONNECTORS: C-101, C-125



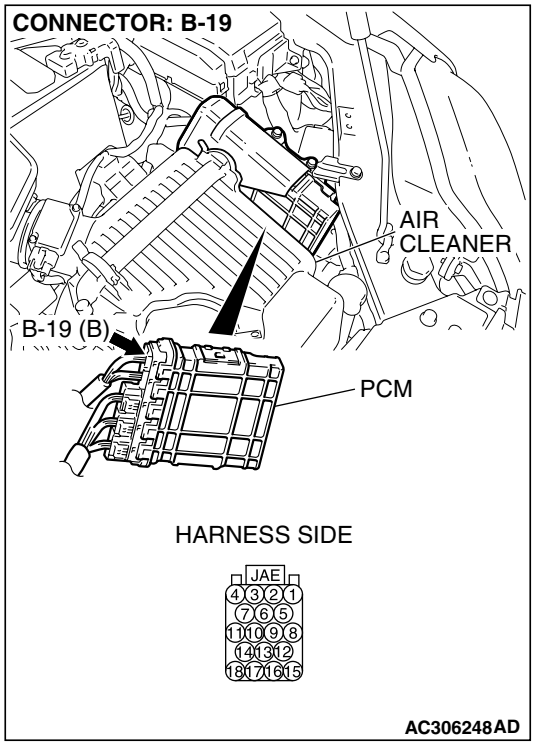
STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

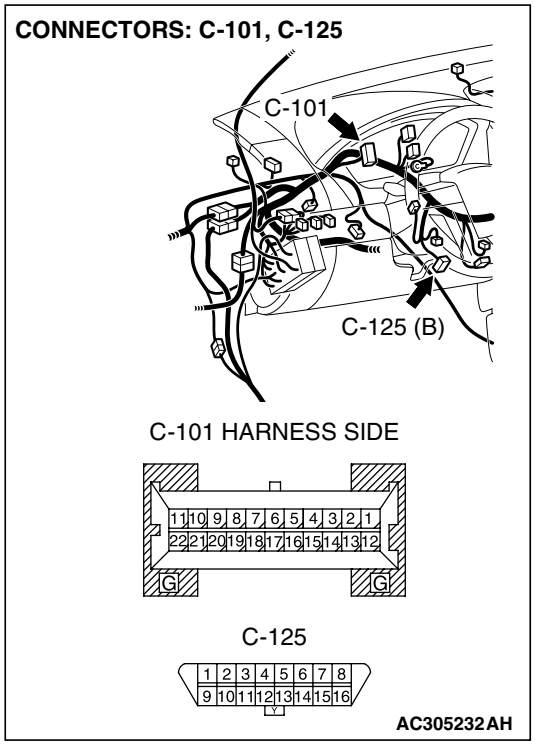
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



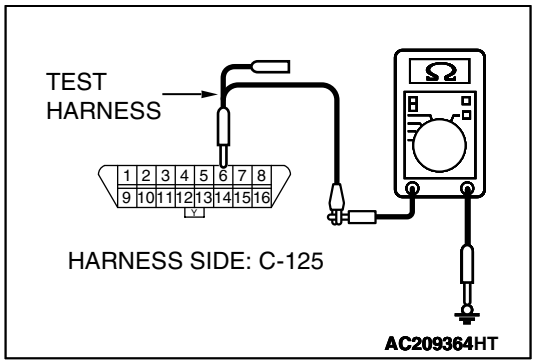


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 3 .

NO : If the resistance measures less than 1 kΩ, go to Step 4.

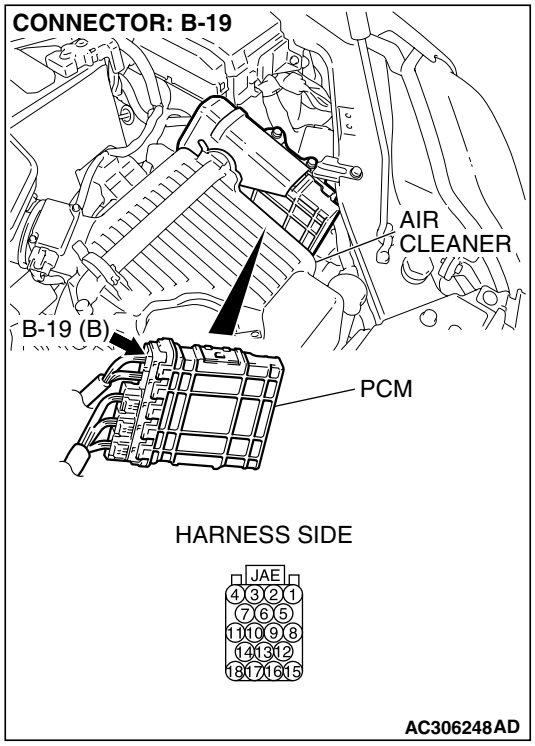
STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

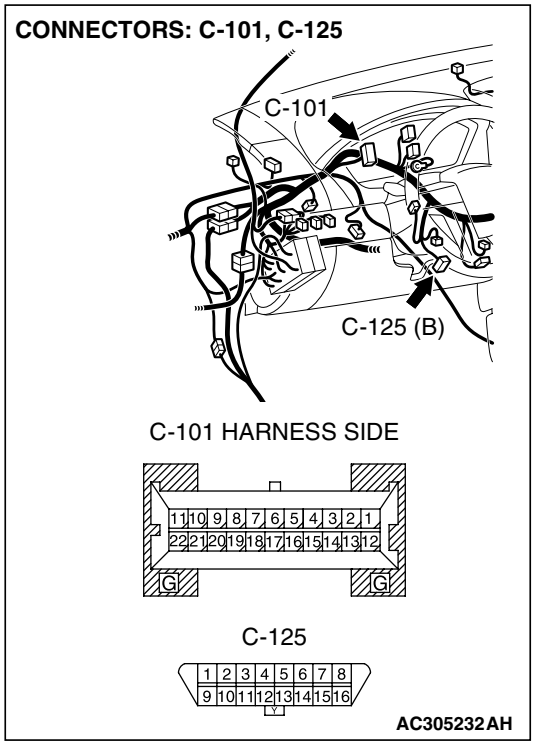
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



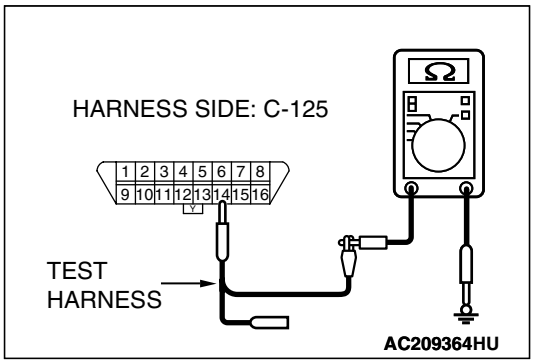


(1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

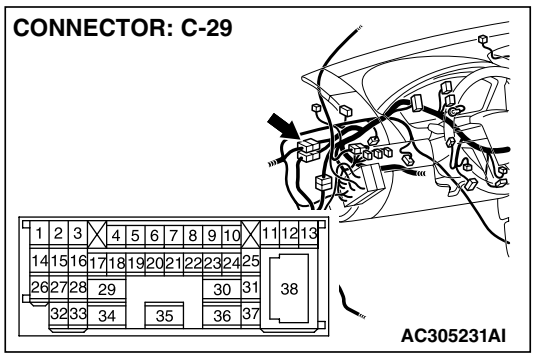
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, go to Step 30.

STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

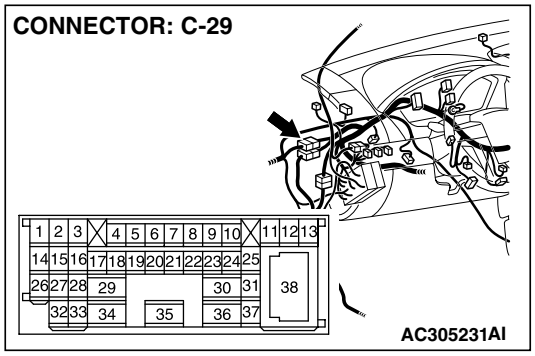
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

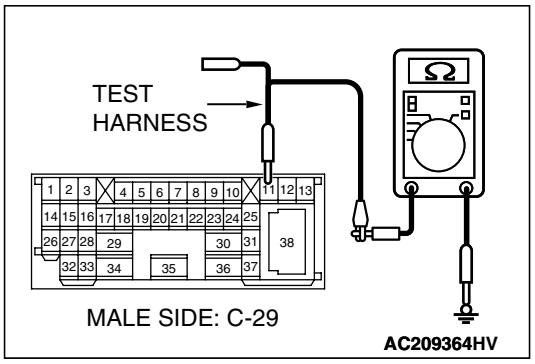
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

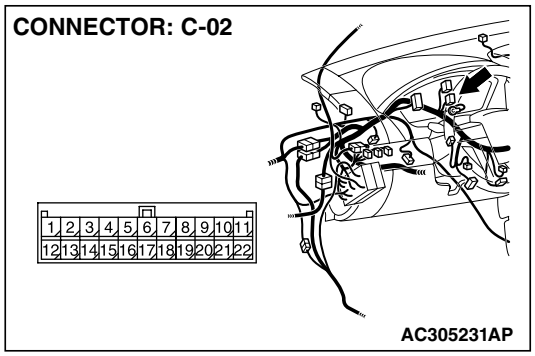
Q: Does the resistance measure 1 kΩ or more?

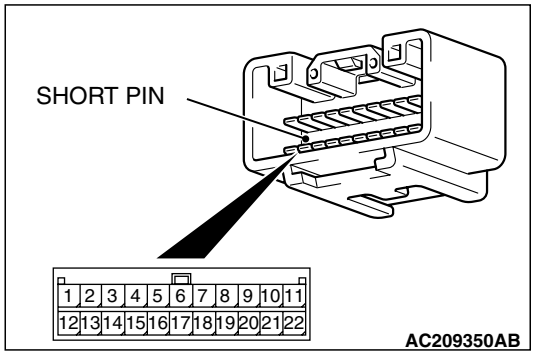
YES : If the resistance measures 1 kΩ or more, go to Step 6 .

NO : If the resistance measures less than 1 kΩ, go to Step 26.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Replace the joint connector as necessary.

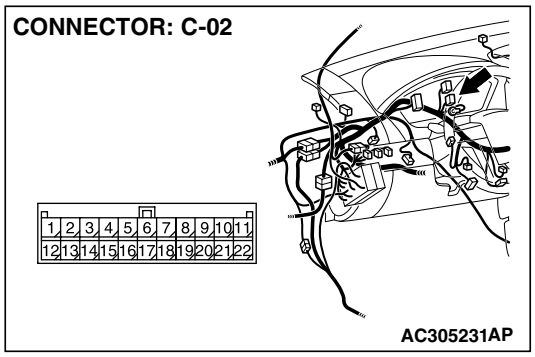
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



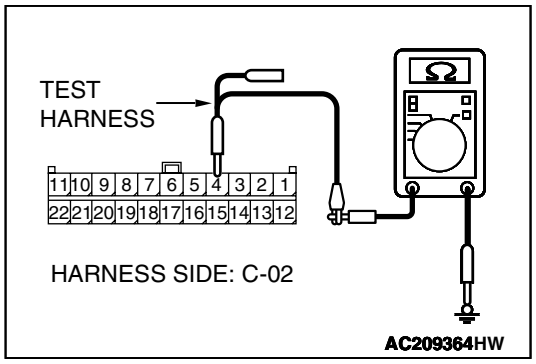
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 9 .

NO : If the resistance measures less than 1 kΩ, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

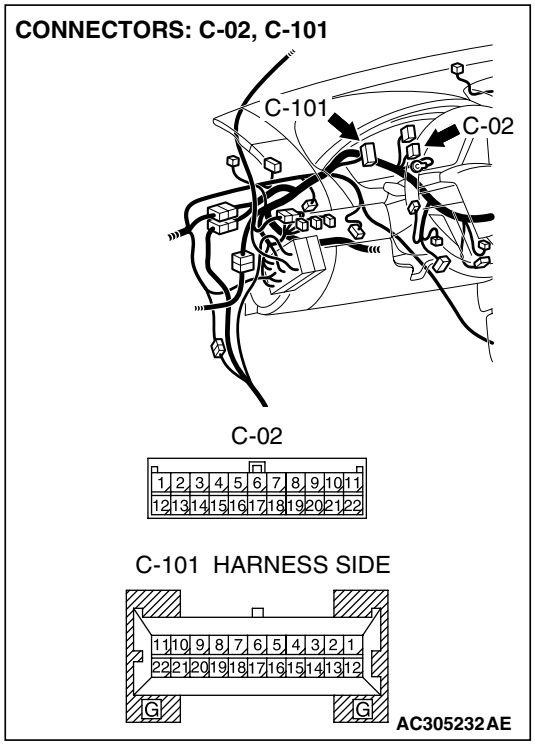
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

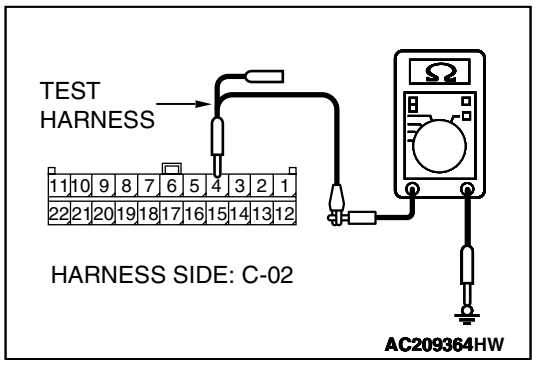
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

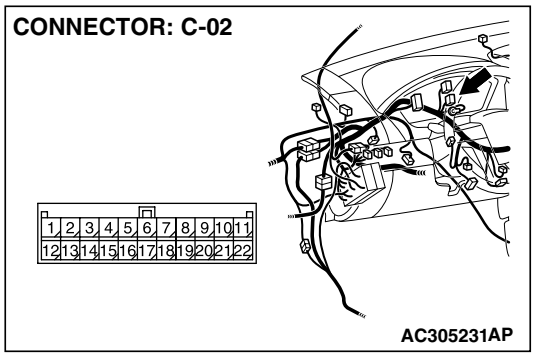
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

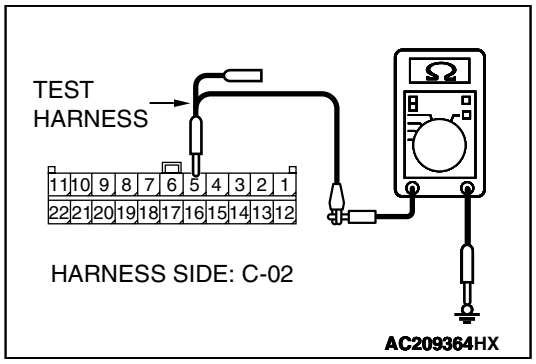
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

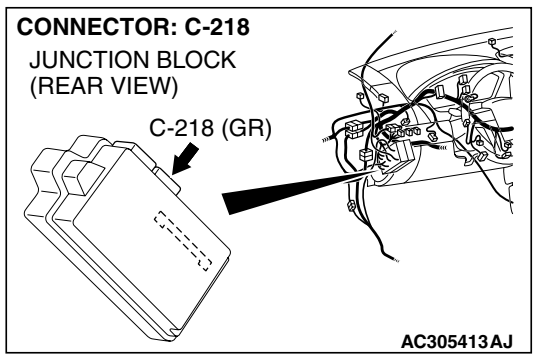
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 10.

STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

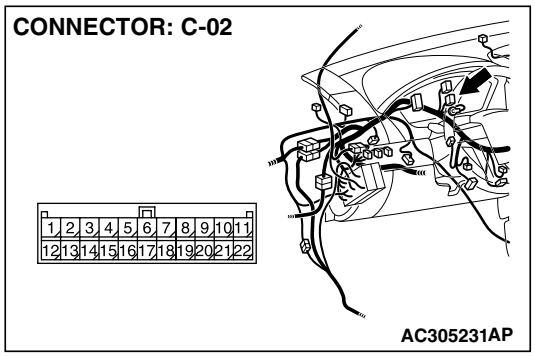
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

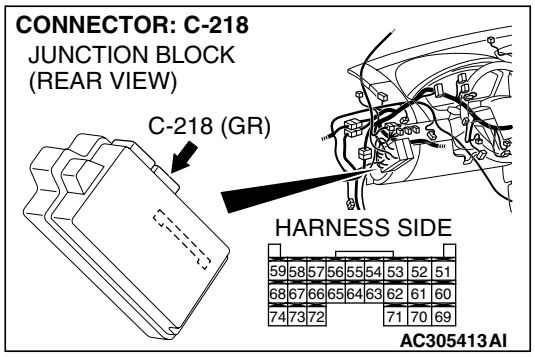
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

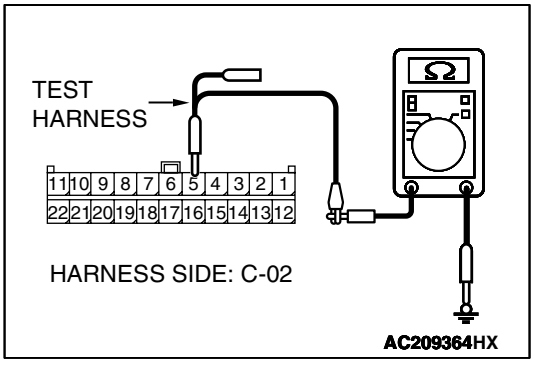
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

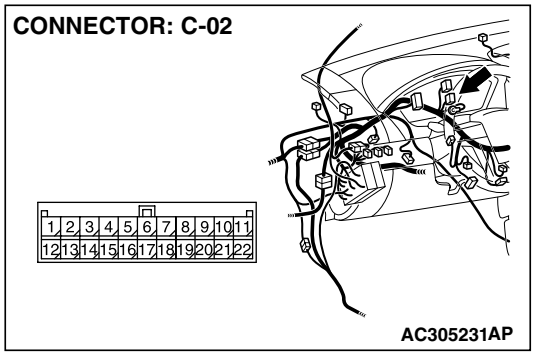
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

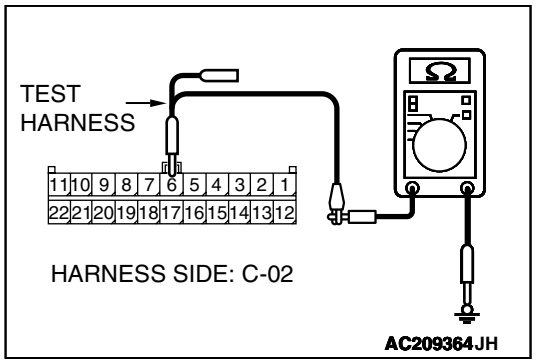
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more



Q: Does the resistance measure 1 kΩ or more?

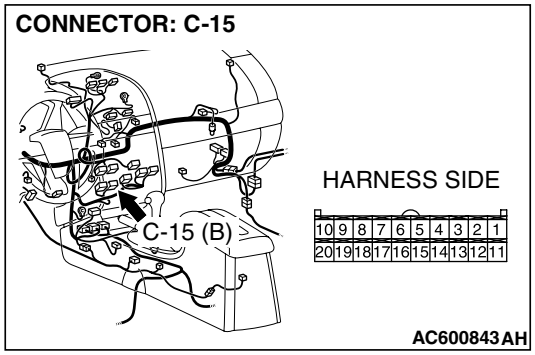
YES : If the resistance measures 1 kΩ or more, go to Step 15 .
NO : If the resistance measures less than 1 kΩ, go to Step 13.

STEP 13. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

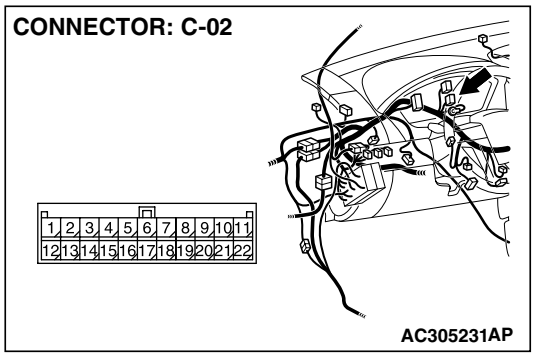
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistance at the wiring harness side of joint connector (3) C-02.

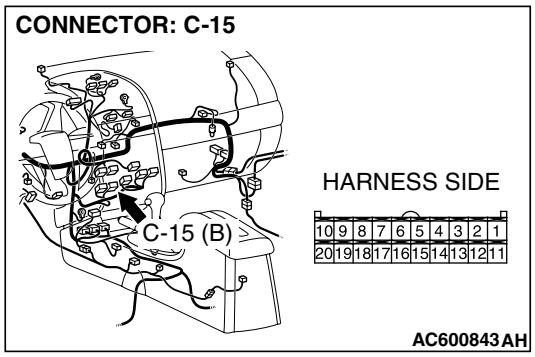
(2) Turn the ignition switch to the "LOCK" (OFF) position.

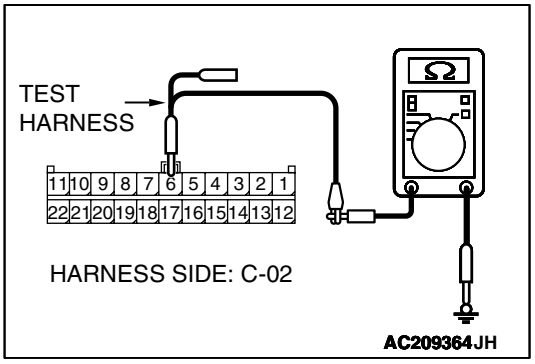
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

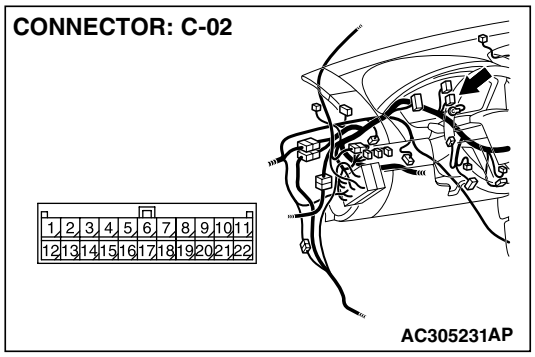
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

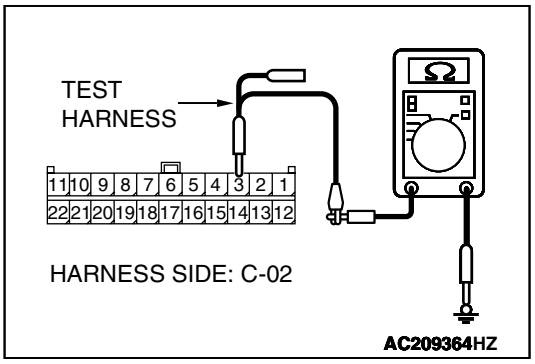
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 3 and body ground.

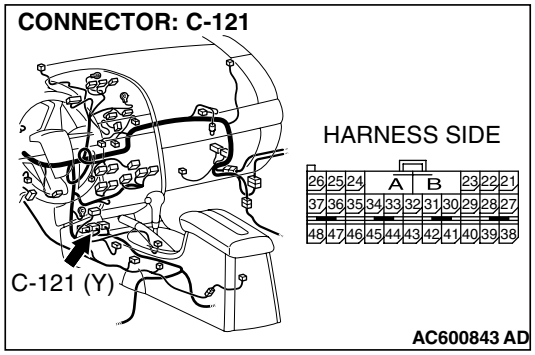
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 18 .
NO : If the resistance measures less than 1 kΩ, go to Step 16.

STEP 16. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 17.
NO : Repair the damaged parts.

STEP 17. Check the CAN_ H line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

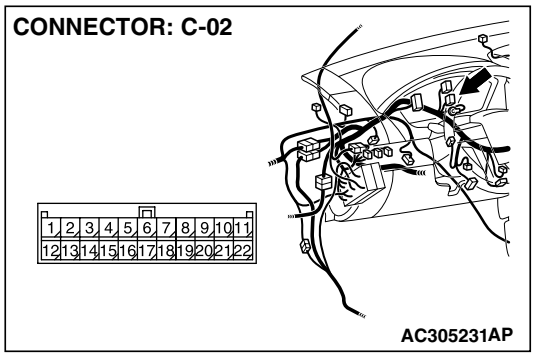
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

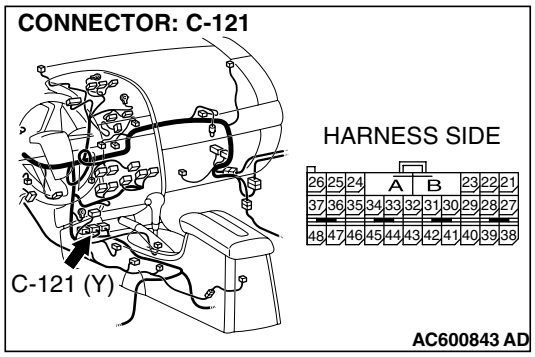
(2) Turn the ignition switch to the "LOCK" (OFF) position.

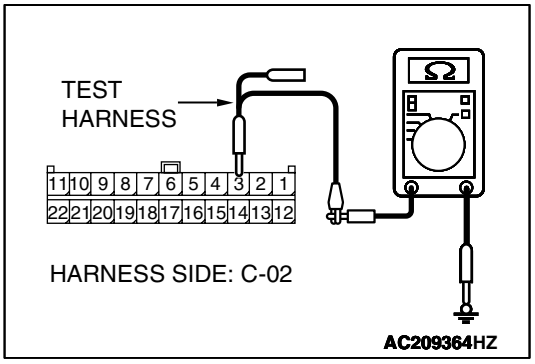
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

STEP 18. Check the CAN_H line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

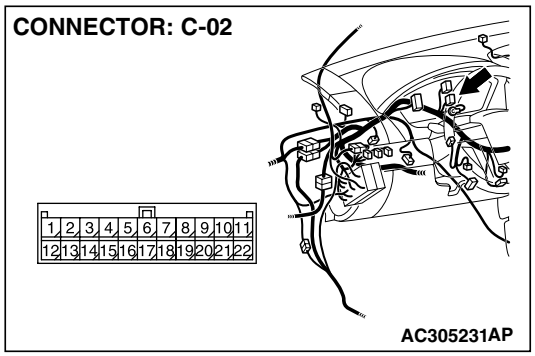
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

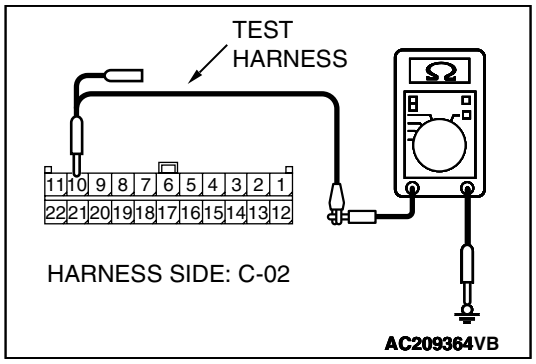
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

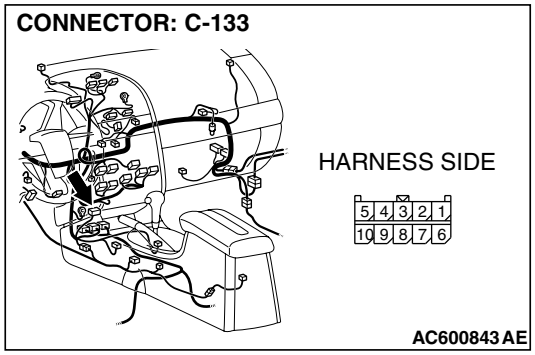
YES : If the resistance measures 1 kΩ or more, go to Step 21 .
NO : If the resistance measures less than 1 kΩ, go to Step 19.

STEP 19. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 20.
NO : Repair the damaged parts.



STEP 20. Check the CAN_ H line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

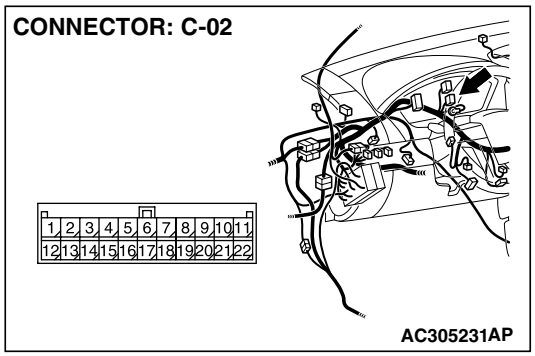
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

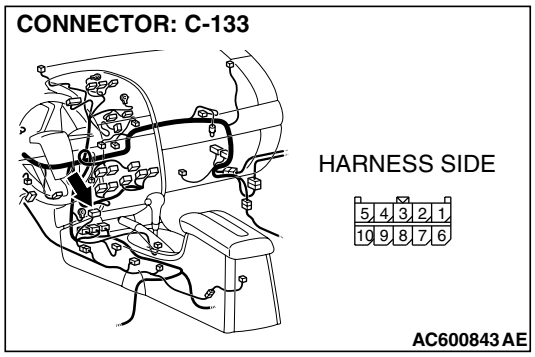
(2) Turn the ignition switch to the "LOCK" (OFF) position.

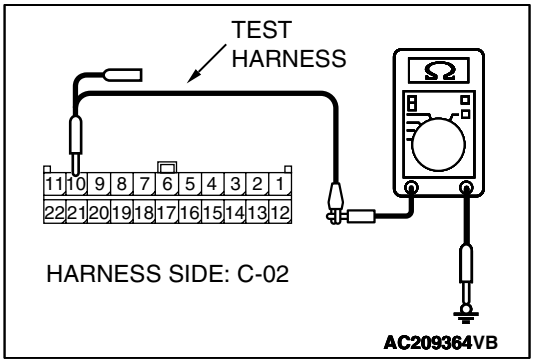
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 10 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 21. Check the CAN_H line (communication line including the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)) between joint connector (3) and middle-grade multi-center display connector for short to ground. Measure the resistance at joint connector (3) C-02.

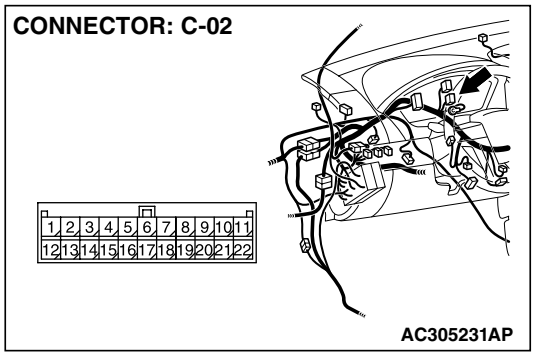
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

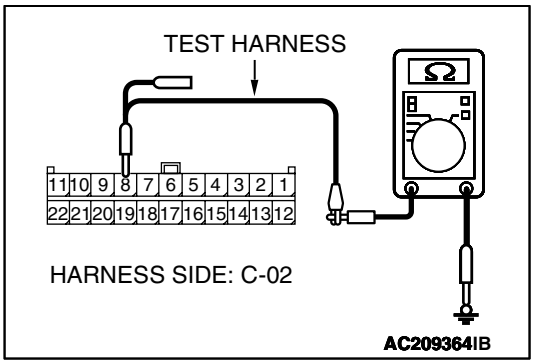
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 8 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

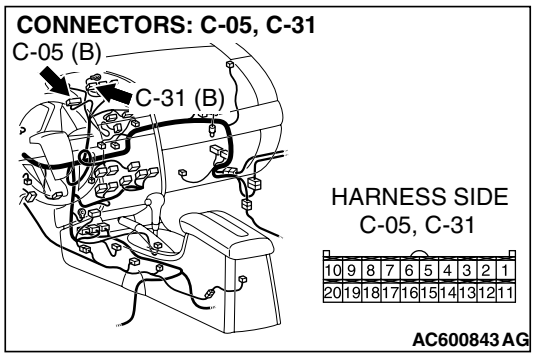
YES : If the resistance measures 1 kΩ or more, go to Step 24 .
NO : If the resistance measures less than 1 kΩ, go to Step 22 .

STEP 22. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to Step 23.
NO : Repair the damaged parts.



STEP 23. Check the CAN_H line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

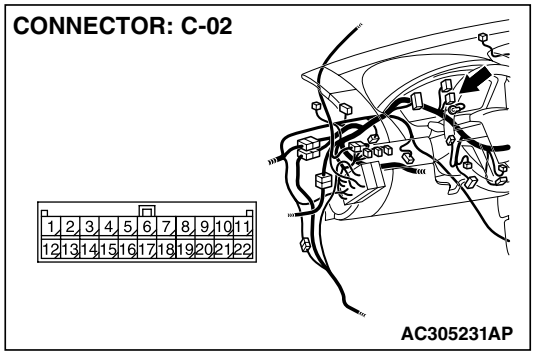
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

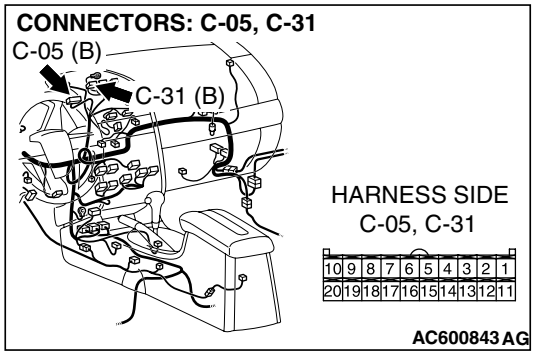
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

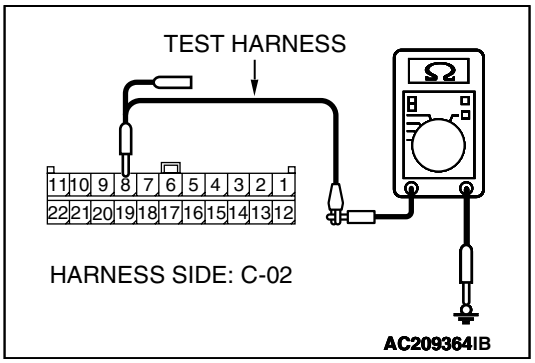
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminal 8 and body ground.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

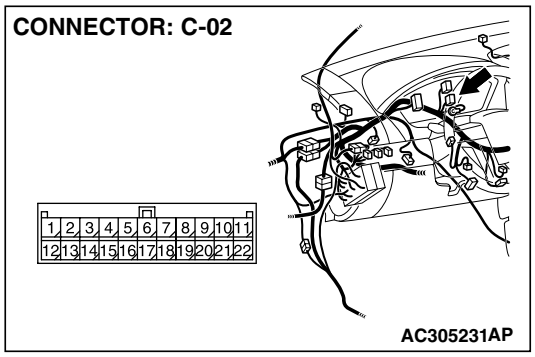
STEP 24. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



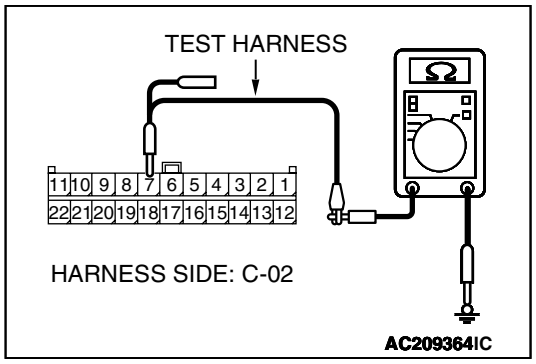
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 7 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 25 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 25. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

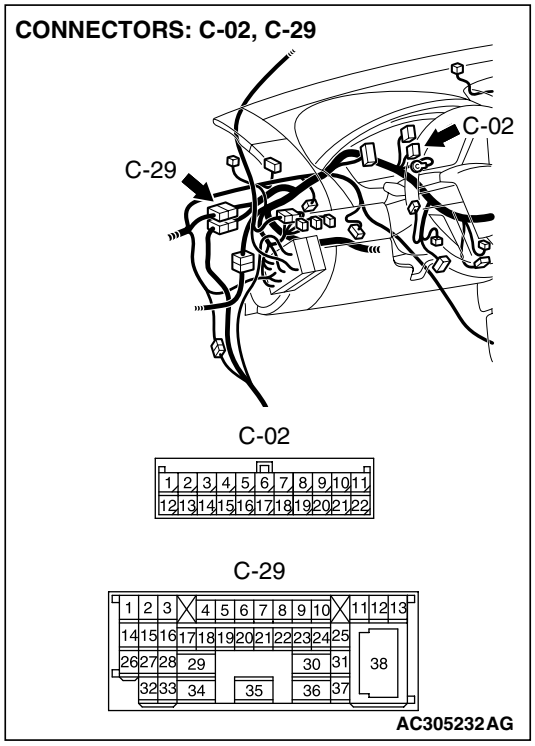
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

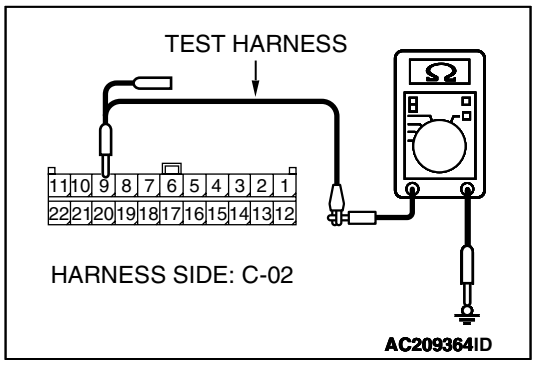
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 9 and body ground.

OK: 1 kΩ or more

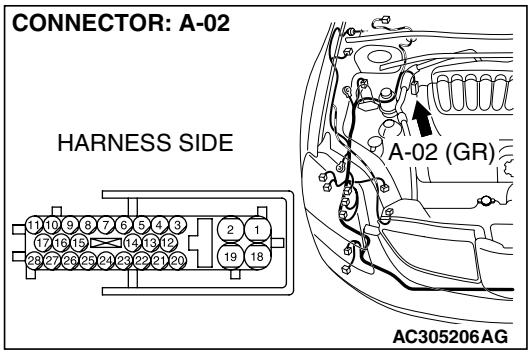
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 26. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 27.

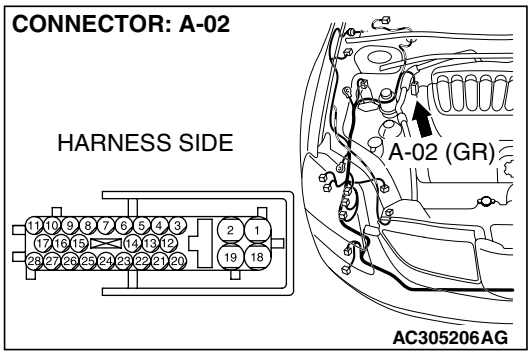
NO : Repair the damaged parts.

STEP 27. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

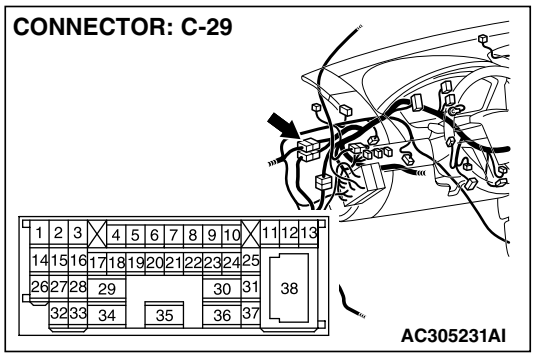
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).



(2) Turn the ignition switch to the "LOCK" (OFF) position.

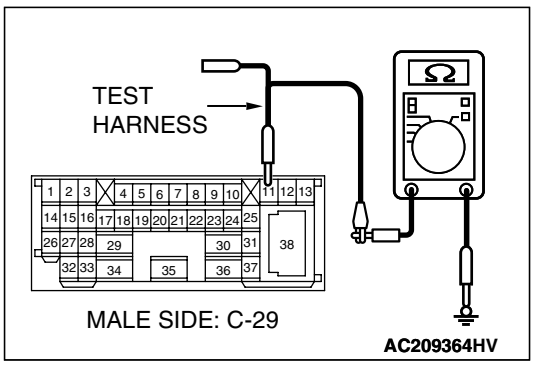
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 28 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 28. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

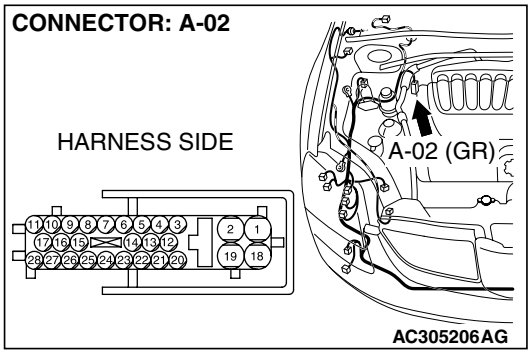
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

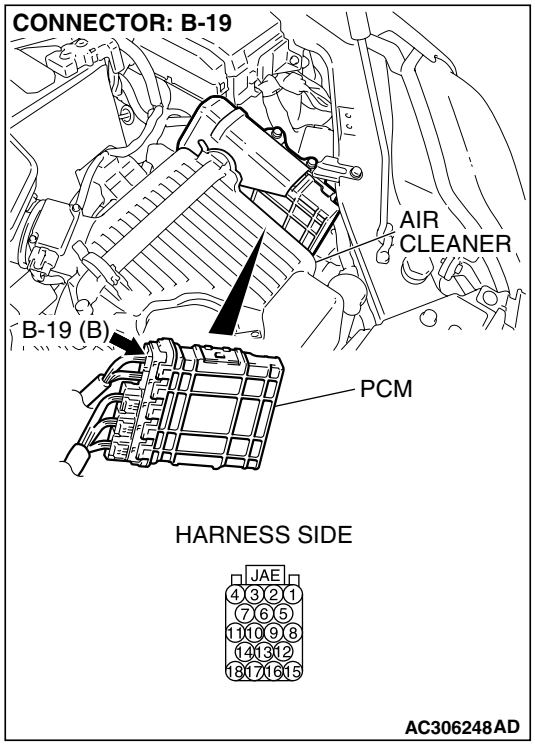
(2) Turn the ignition switch to the "LOCK" (OFF) position.

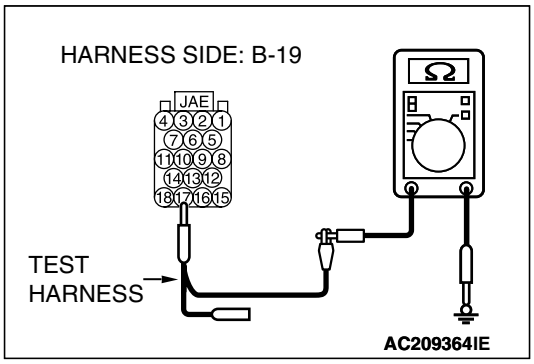
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 29. Check the CAN_H line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

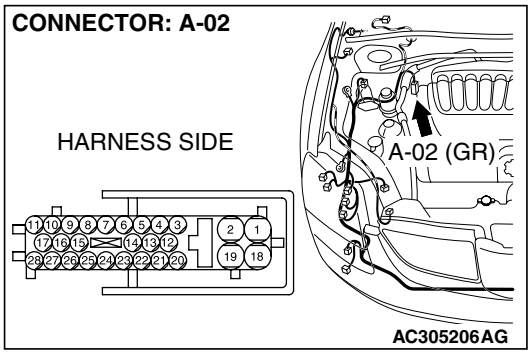
⚠ CAUTION

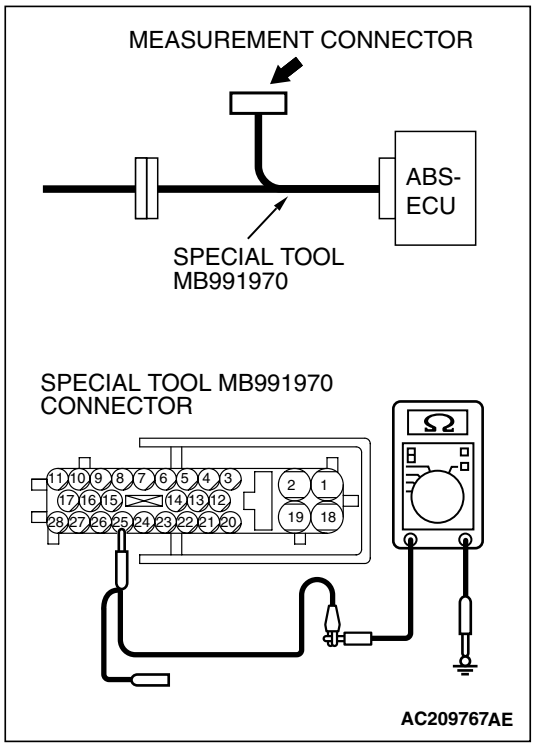
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).

(3) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(4) Disconnect the negative battery terminal.

(5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 1 kΩ or more

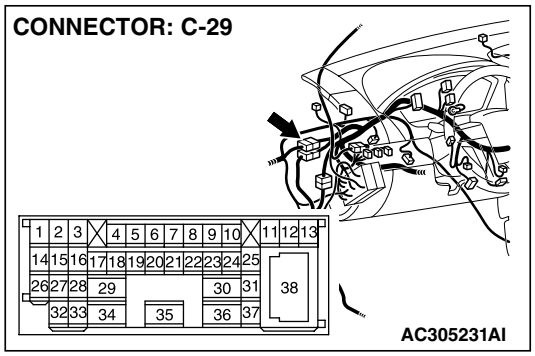
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

STEP 30. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 31.
NO : Repair the damaged parts.

STEP 31. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

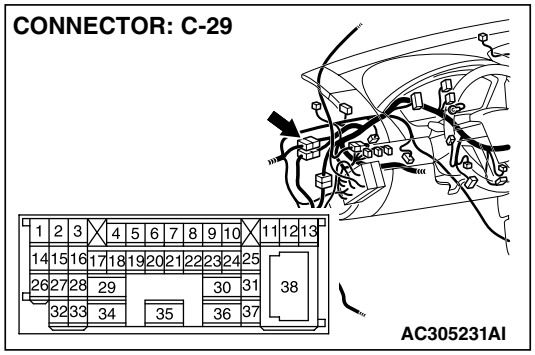
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

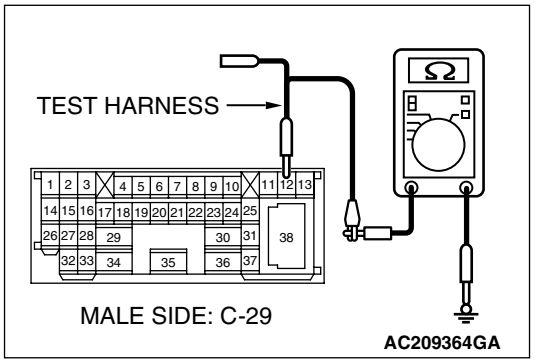
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 12 and body ground.

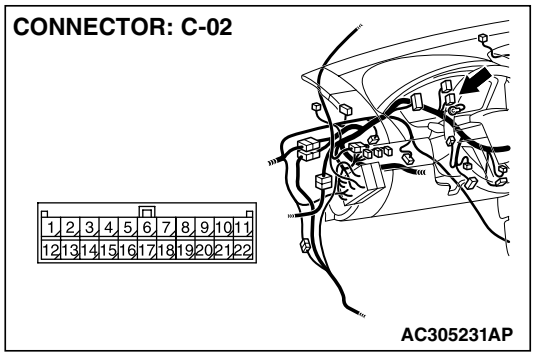
OK: 1 kΩ or more

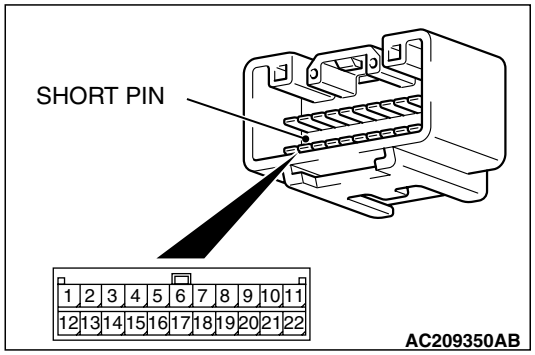
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .
NO : If the resistance measures less than 1 kΩ, go to Step 52 .

STEP 32. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 33.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 33. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

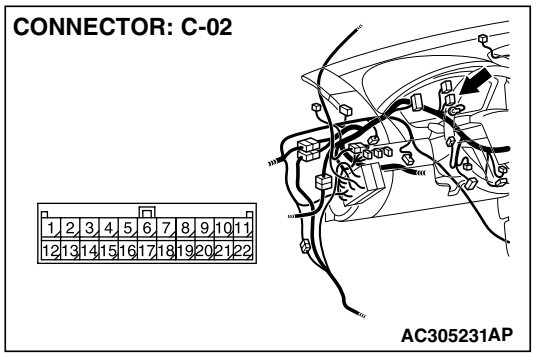
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

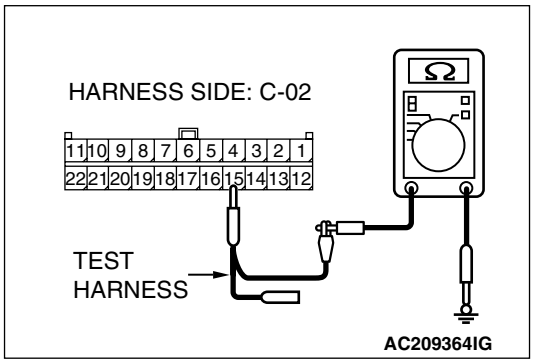
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 35 .

NO : If the resistance measures less than 1 kΩ, go to Step 34 .

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

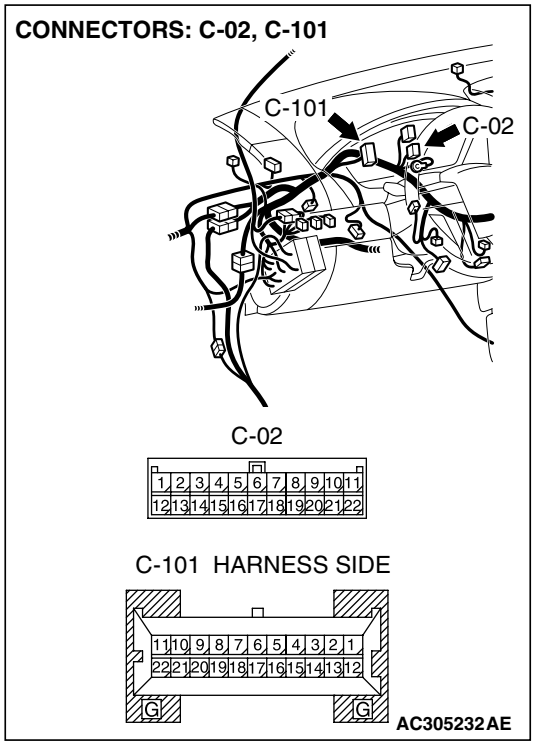
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

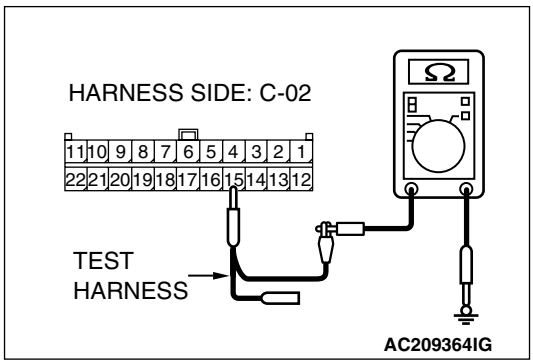
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 35. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

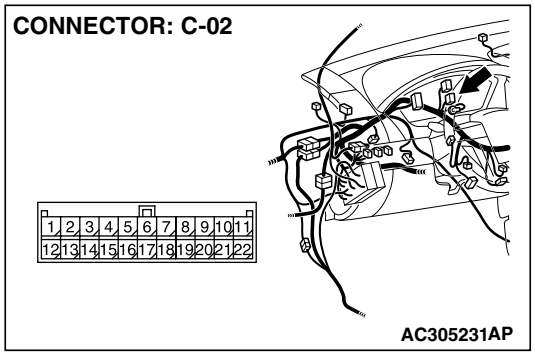
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

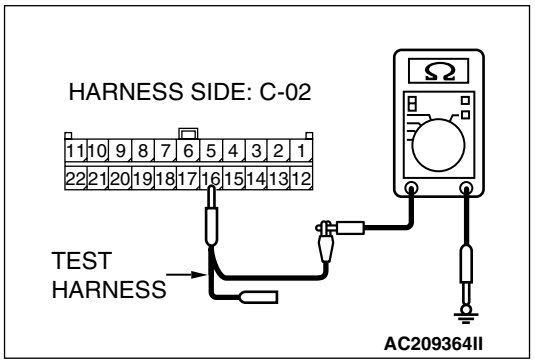
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

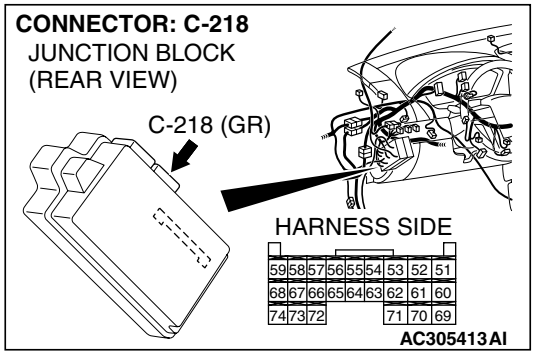
YES : If the resistance measures 1 kΩ or more, go to Step 38 .
NO : If the resistance measures less than 1 kΩ, go to Step 36 .

STEP 36. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 37.
NO : Repair the damaged parts.



STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

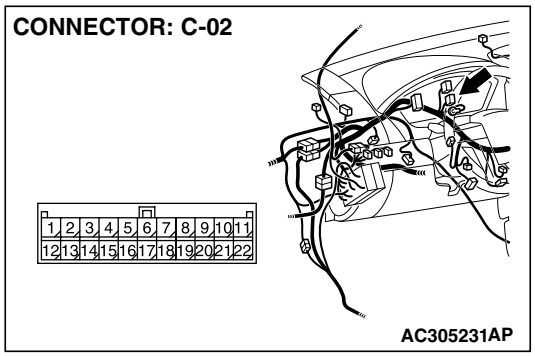
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

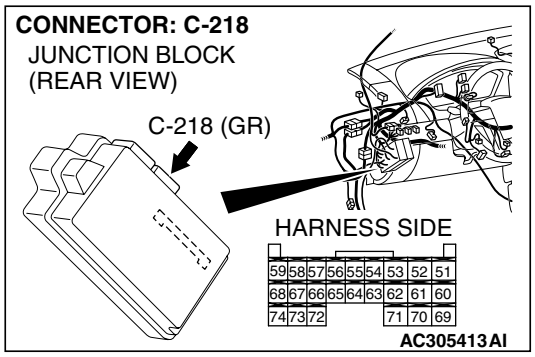
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

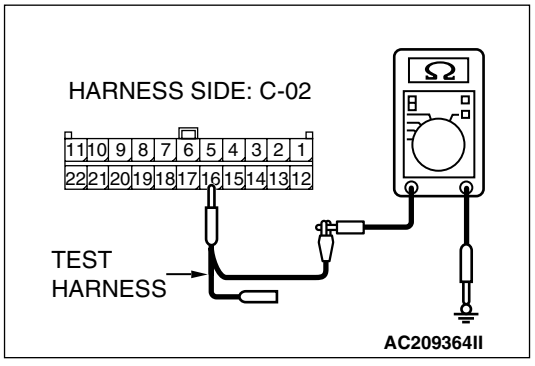
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 38. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

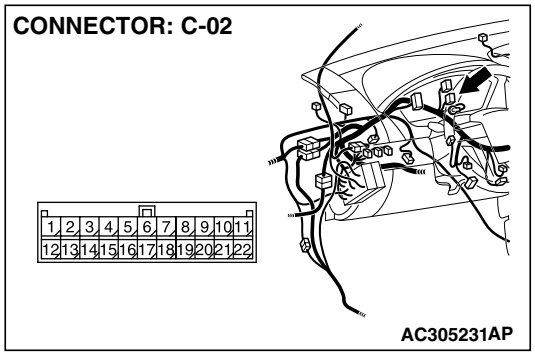
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

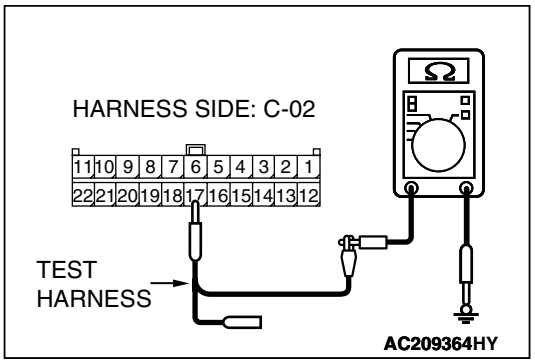
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more



Q: Does the resistance measure 1 kΩ or more?

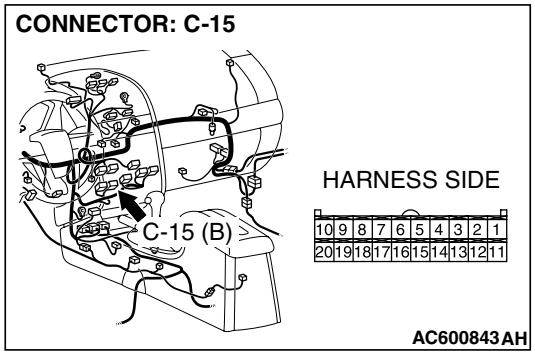
YES : If the resistance measures 1 kΩ or more, go to Step 41 .
NO : If the resistance measures less than 1 kΩ, go to Step 39 .

STEP 39. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 40.
NO : Repair the damaged parts.



STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

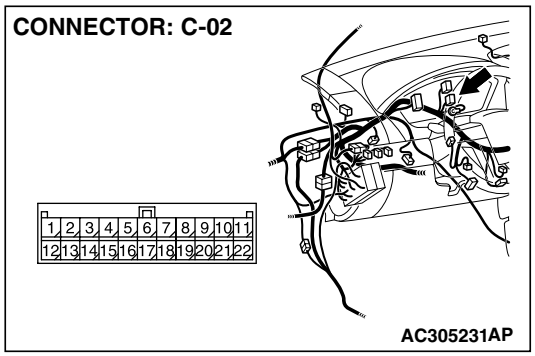
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistance at the wiring harness side of joint connector (3) C-02.

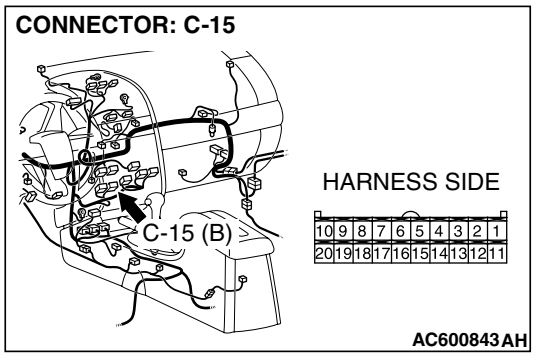
(2) Turn the ignition switch to the "LOCK" (OFF) position.

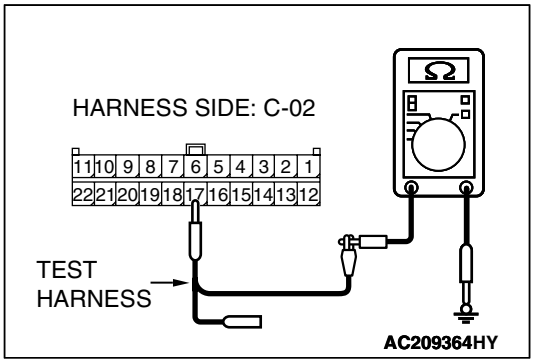
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 41. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

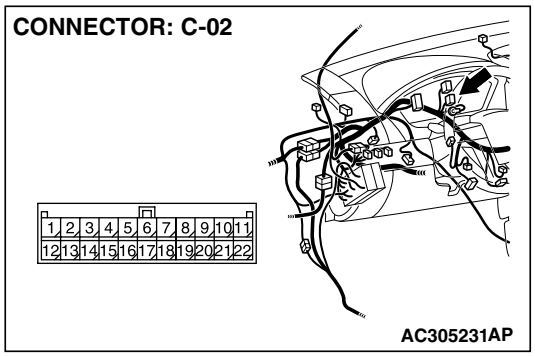
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

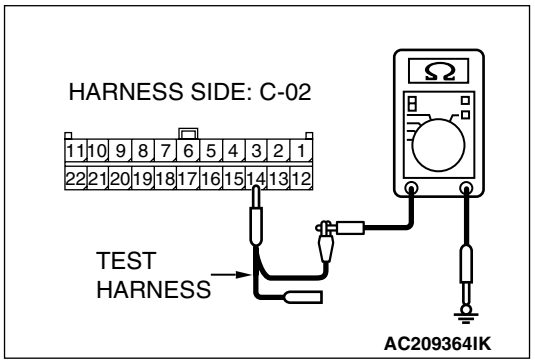
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more



Q: Does the resistance measure 1 kΩ or more?

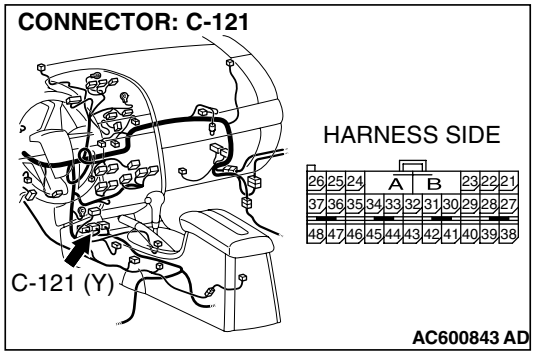
YES : If the resistance measures 1 kΩ or more, go to Step 44 .
NO : If the resistance measures less than 1 kΩ, go to Step 42.

STEP 42. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 43.
NO : Repair the damaged parts.



STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

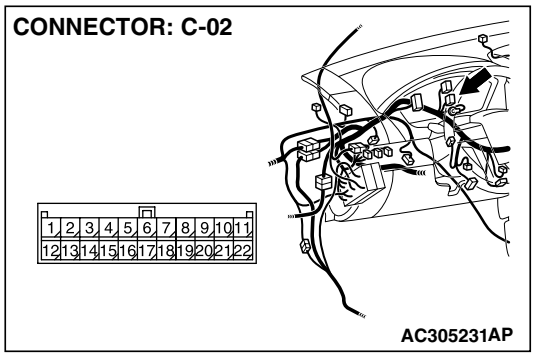
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the male side of joint connector (3) C-02.

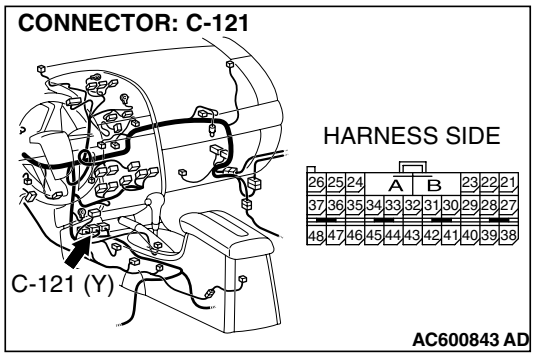
(2) Turn the ignition switch to the "LOCK" (OFF) position.

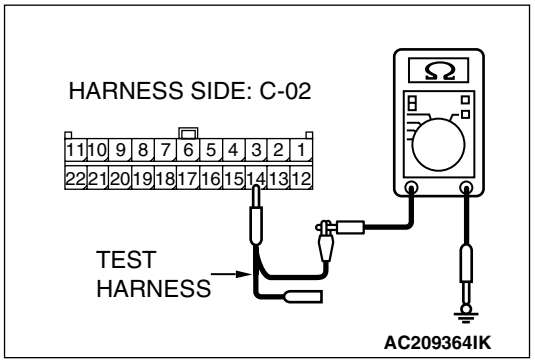
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and SRS-ECU connector.

STEP 44. Check the CAN_L line (communication line including the TPMS reciver) between joint connector (3) and the TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

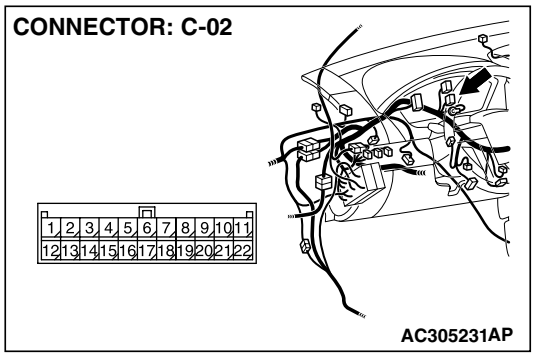
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

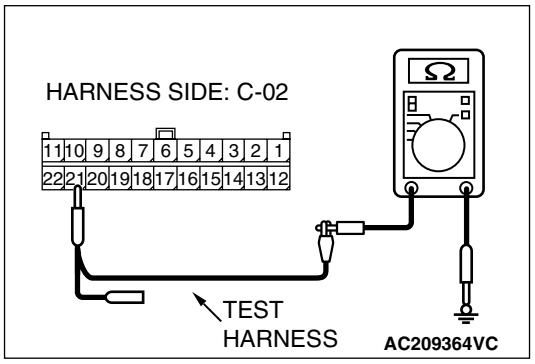
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 21 and body ground.

OK: 1 kΩ or more



Q: Does the resistance measure 1 kΩ or more?

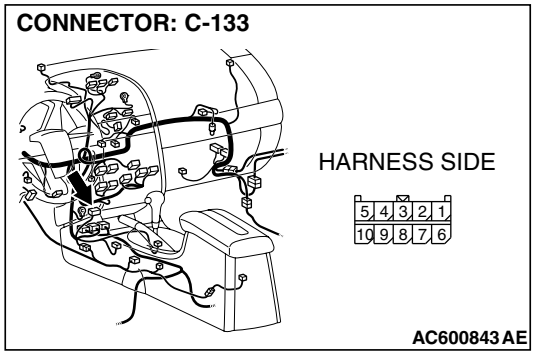
YES : If the resistance measures 1 kΩ or more, go to Step 47 .
NO : If the resistance measures less than 1 kΩ, go to Step 45.

STEP 45. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 46.
NO : Repair the damaged parts.



STEP 46. Check the CAN_L line (communication line only) between joint connector (3) and TPMS reciver connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

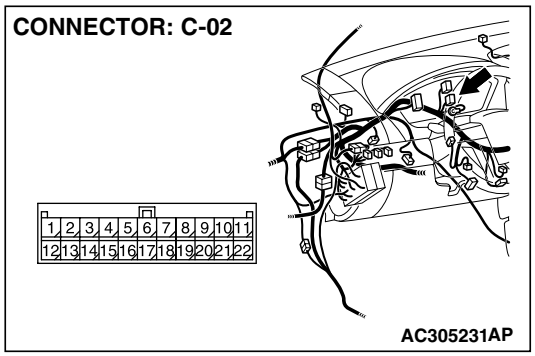
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the male side of joint connector (3) C-02.

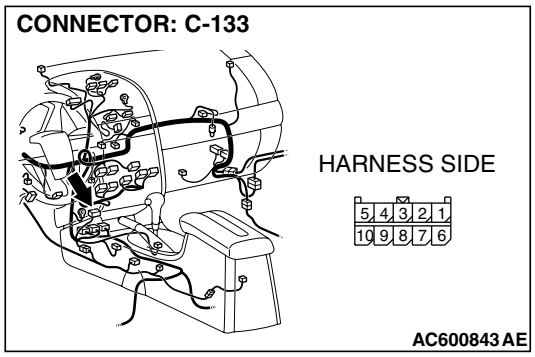
(2) Turn the ignition switch to the "LOCK" (OFF) position.

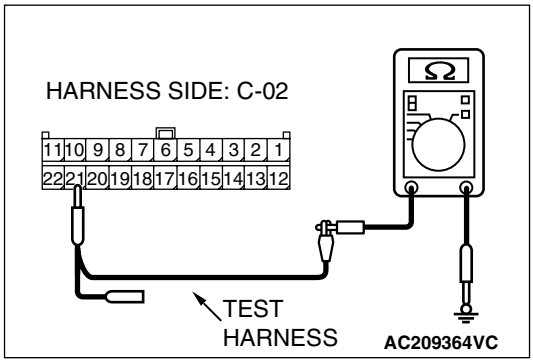
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 21 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) C-02 and TPMS reciver connector.

STEP 47. Check the CAN_L line (communication line including the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)) between joint connector (3) and middle-grade multi-center display connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

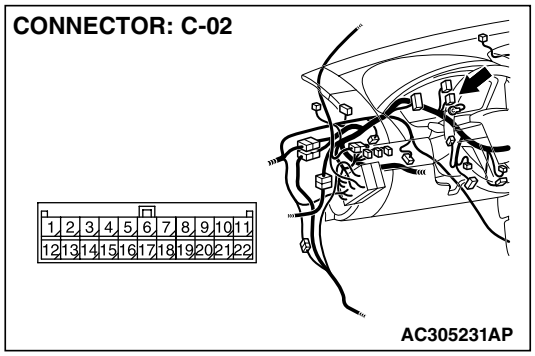
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

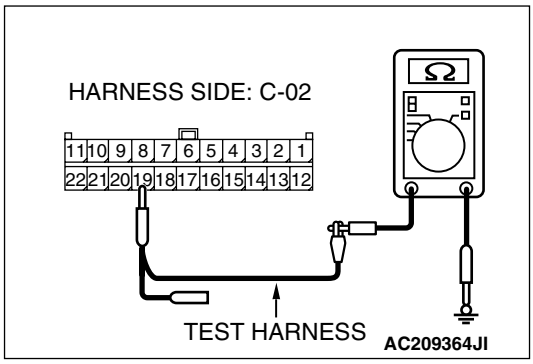
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 19 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 50 .

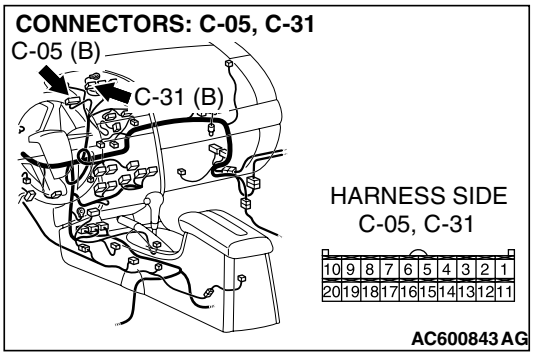
NO : If the resistance measures less than 1 kΩ, go to Step 48 .

STEP 48. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

CONNECTORS: C-05, C-31



Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to Step 49.
NO : Repair the damaged parts.

STEP 49. Check the CAN_L line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

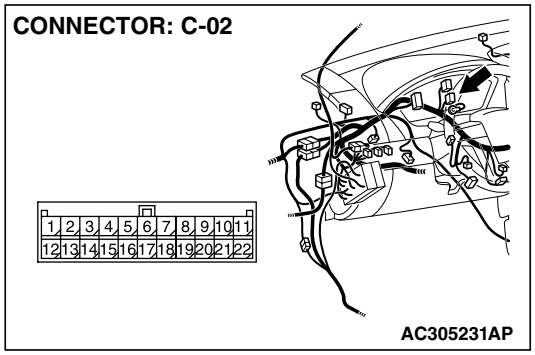
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

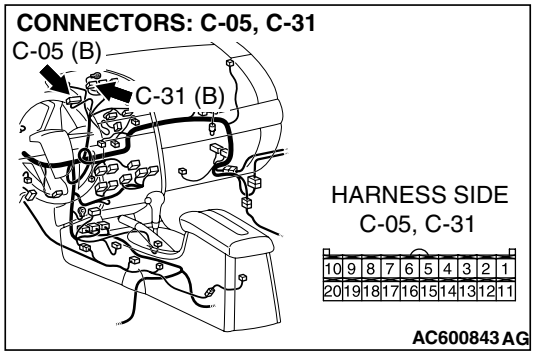
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

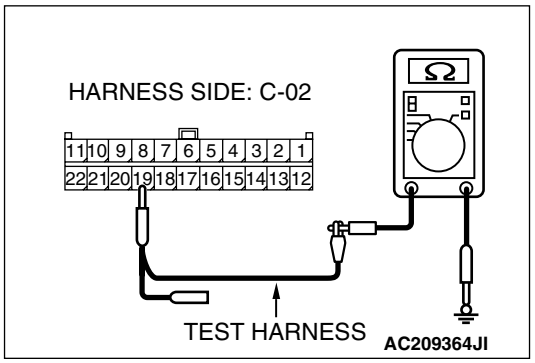
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminal 19 and body ground.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

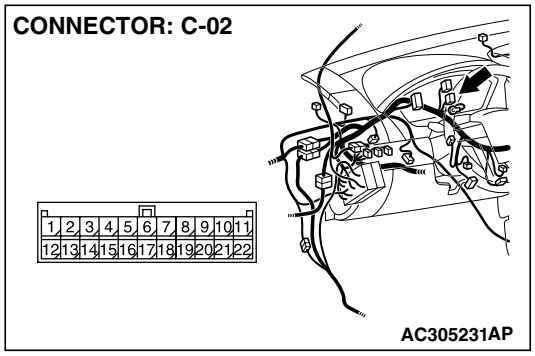
STEP 50. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



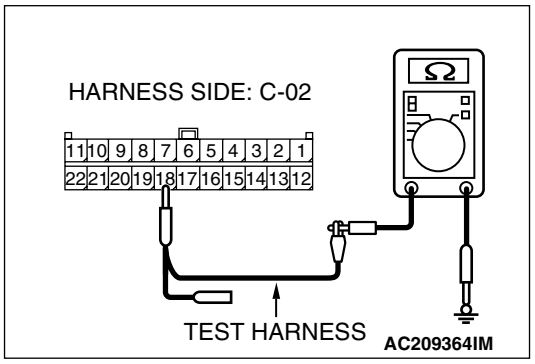
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 18 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 51 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 51. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

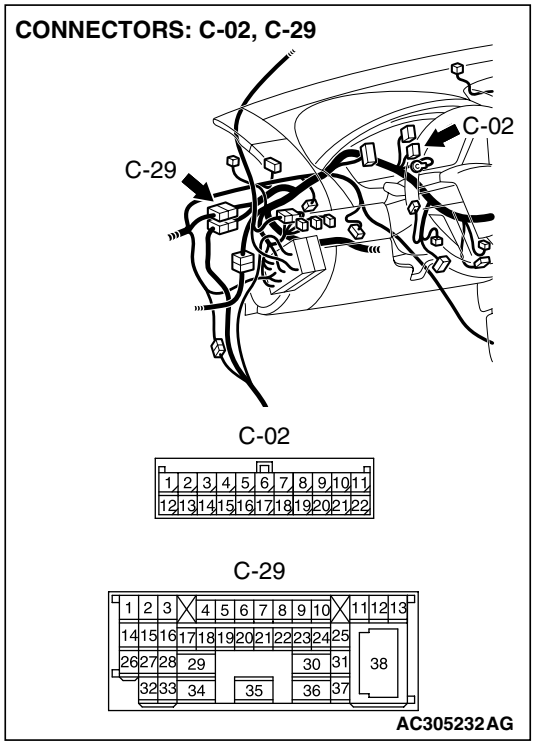
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

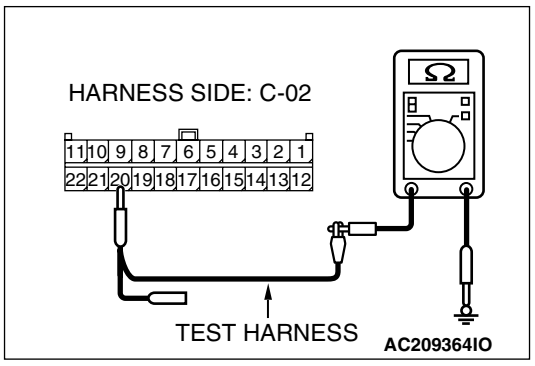
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





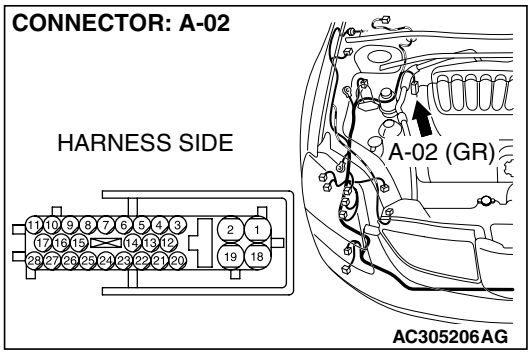
(4) Measure the resistance between joint connector (3) terminal 20 and body ground.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 52. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 53.

NO : Repair the damaged parts.

STEP 53. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

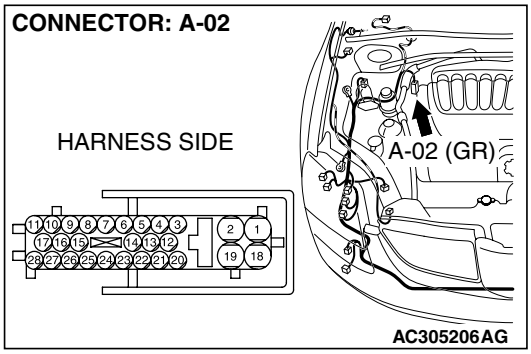
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

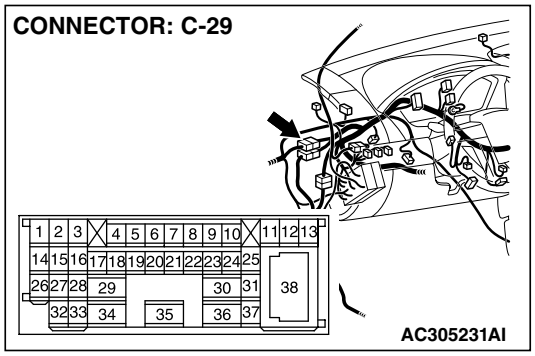
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

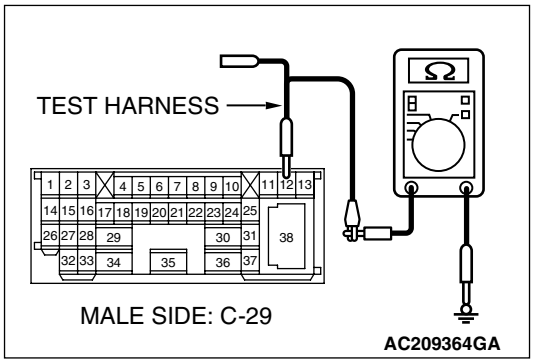
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 54 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 54. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

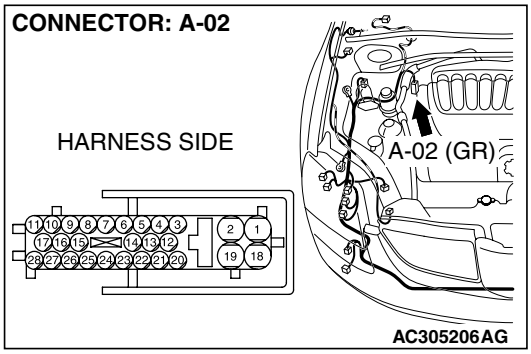
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

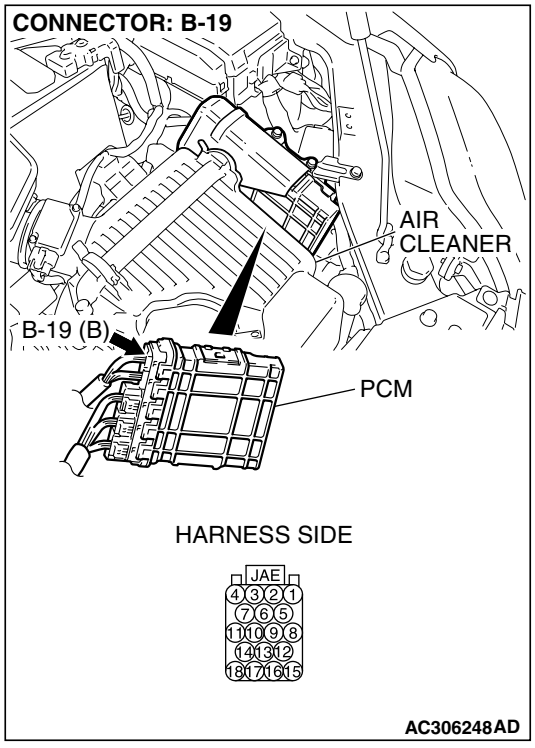
(2) Turn the ignition switch to the "LOCK" (OFF) position.

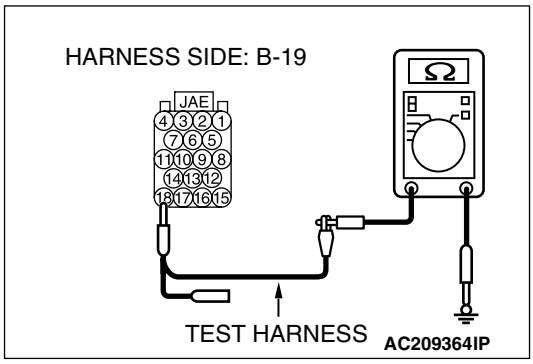
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminal 18 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 55 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 55. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

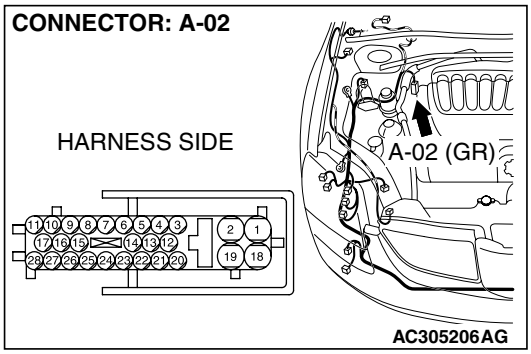
⚠ CAUTION

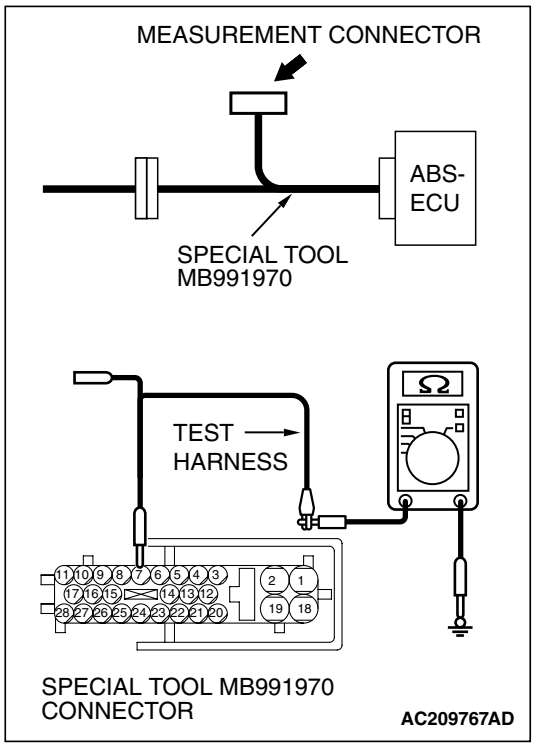
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02.





(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).

(3) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(4) Disconnect the negative battery terminal.

(5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 1 kΩ or more

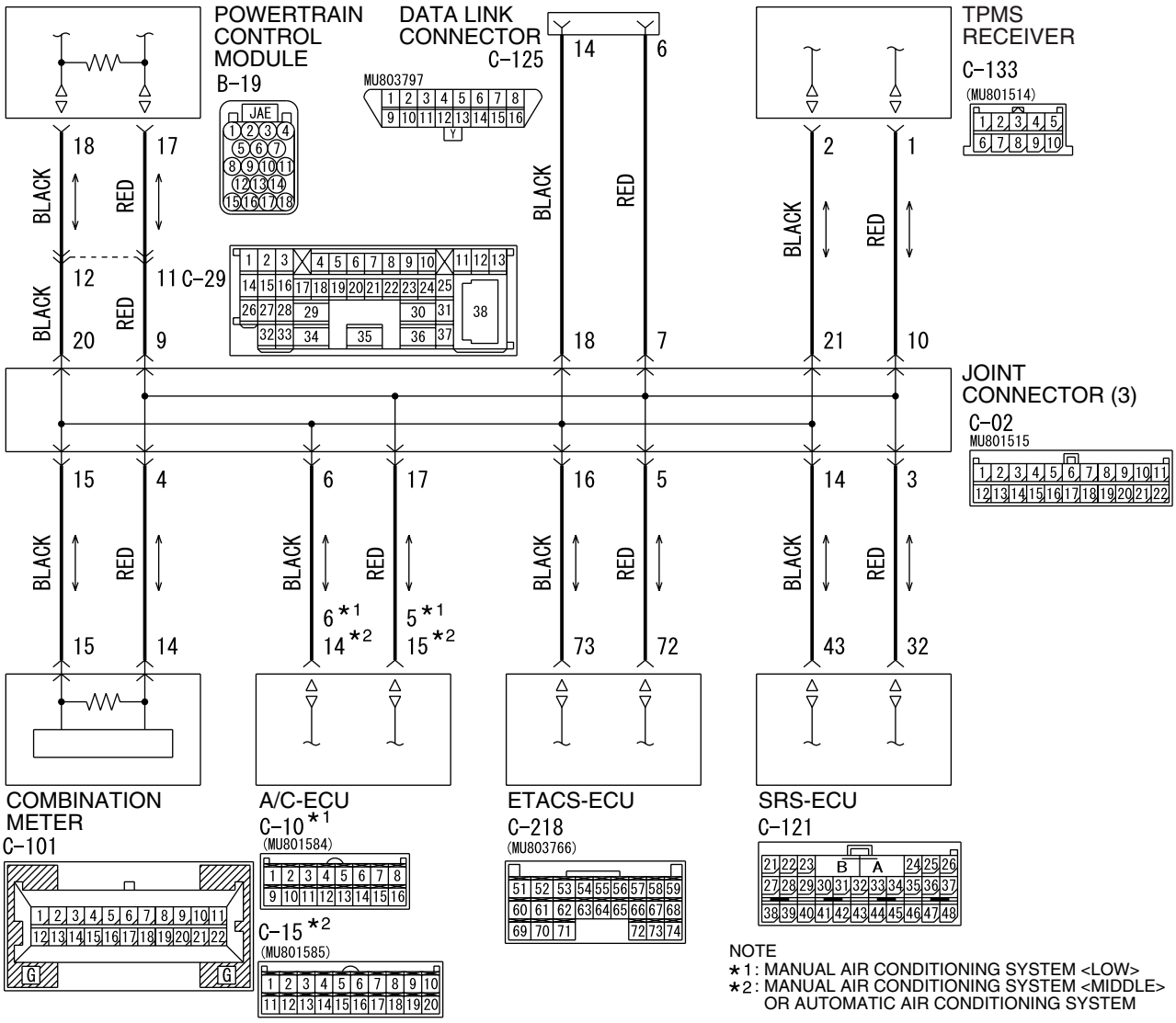
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

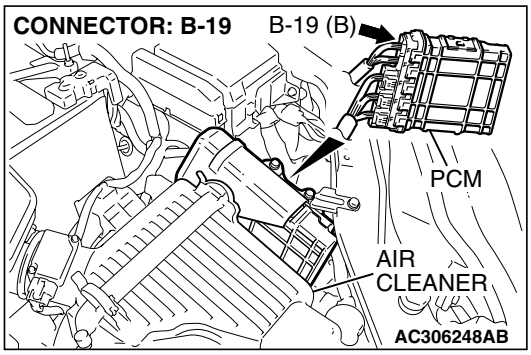
NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

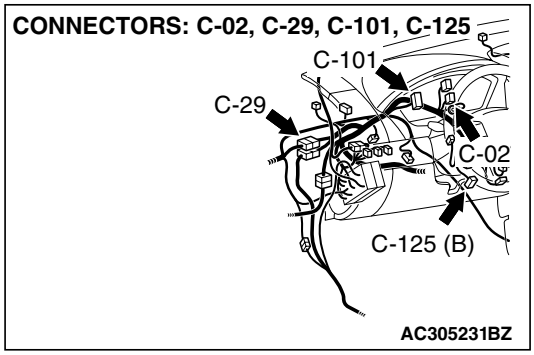
DIAGNOSTIC ITEM 7: Diagnose shorts between CAN_L and H lines <Vehicles without ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

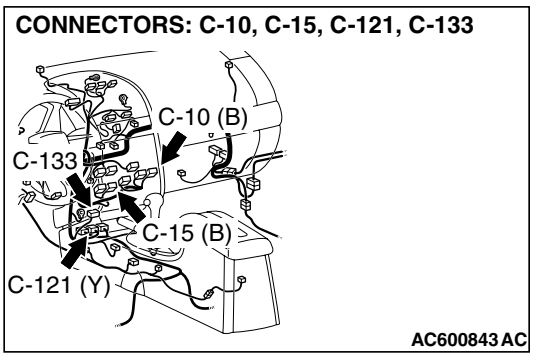
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

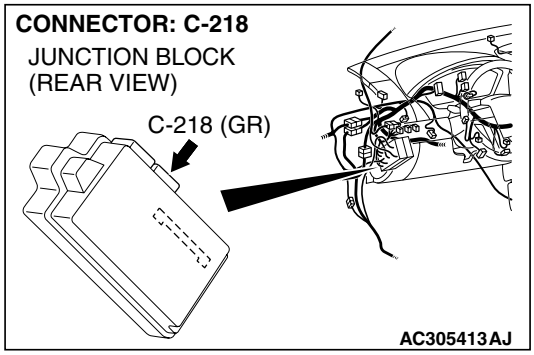


W7P54M137A









TROUBLE JUDGMENT
A short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM
The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

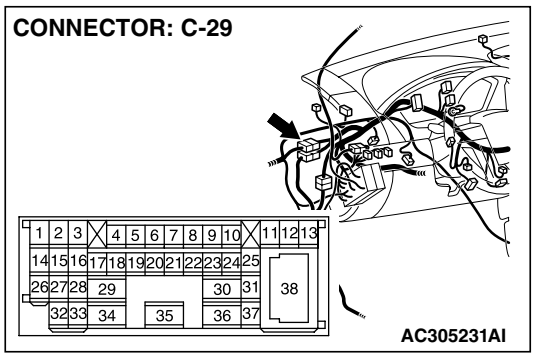
TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:
- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.
NO : Repair the damaged parts.

TSB Revision

STEP 2. Check the lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

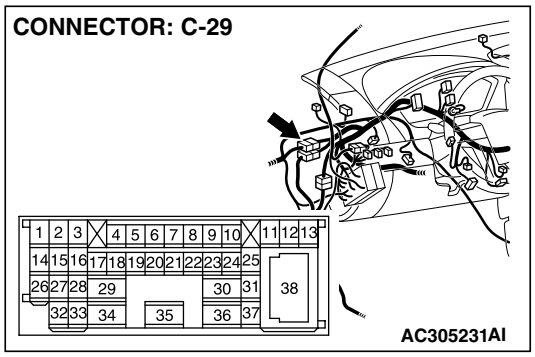
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

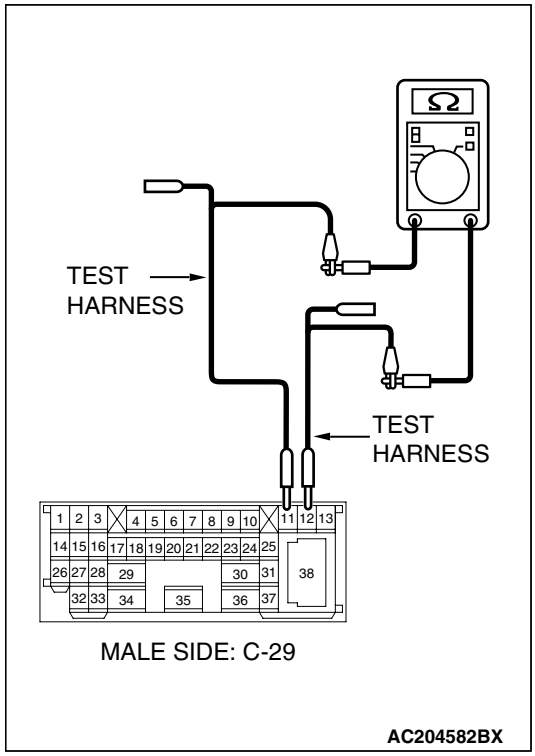
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

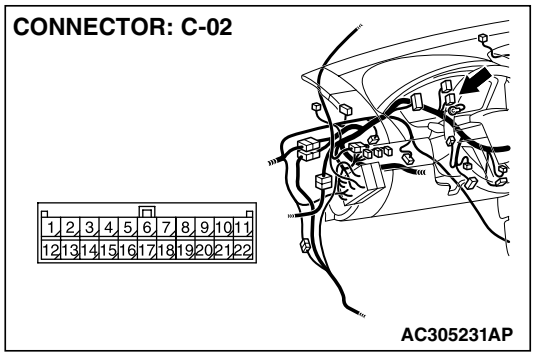
Q: Does the resistance measure 120 ± 20 Ω?

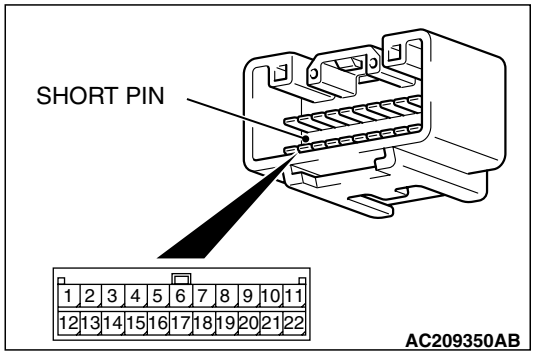
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.

NO : If the resistance does not measure 120 ± 20 Ω> Go to STEP 27 .

STEP 3. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

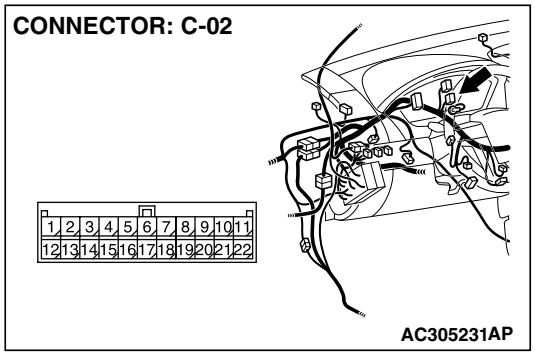
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

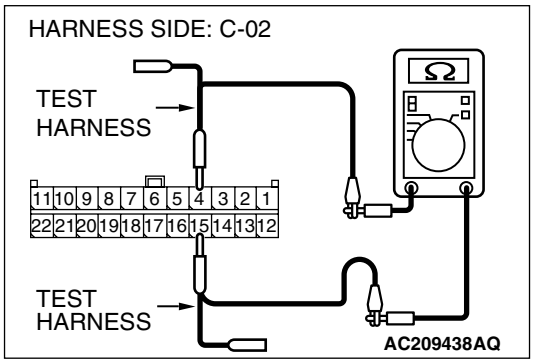
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 4 and 15.

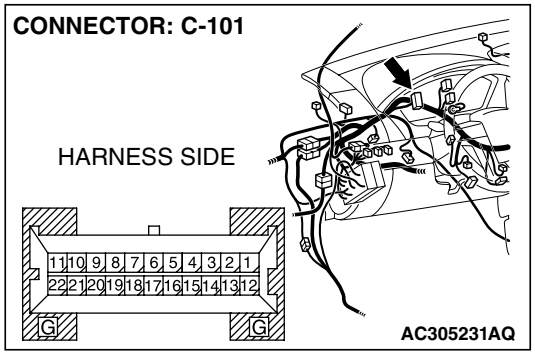
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.
NO : If the resistance does not measure 120 ± 20 Ω> Go to Step 5.

STEP 5. Check combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is combination meter connector C-101 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

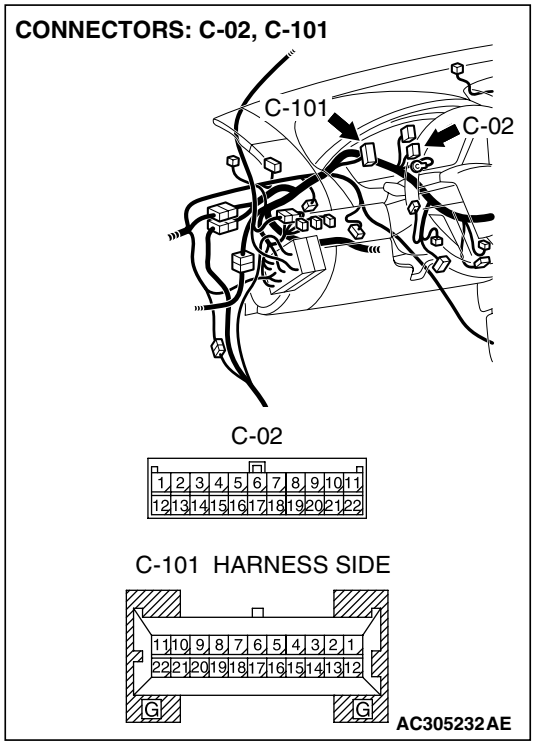
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

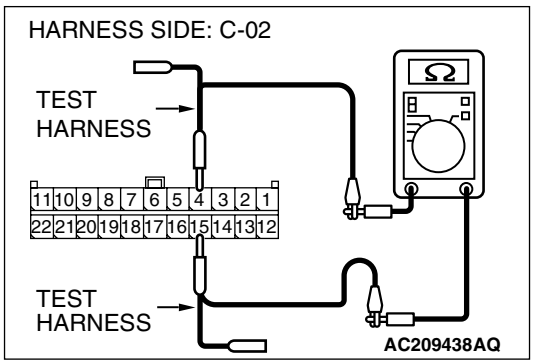
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

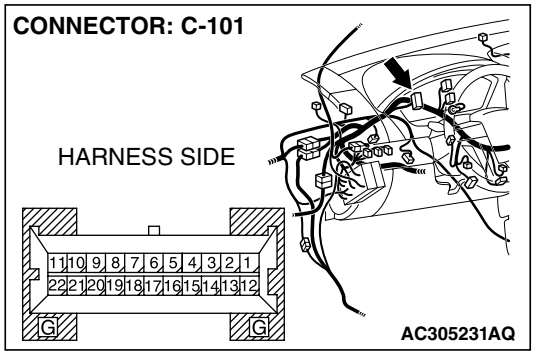
YES : If the resistance measures 1 kΩ or more, go to Step 7 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

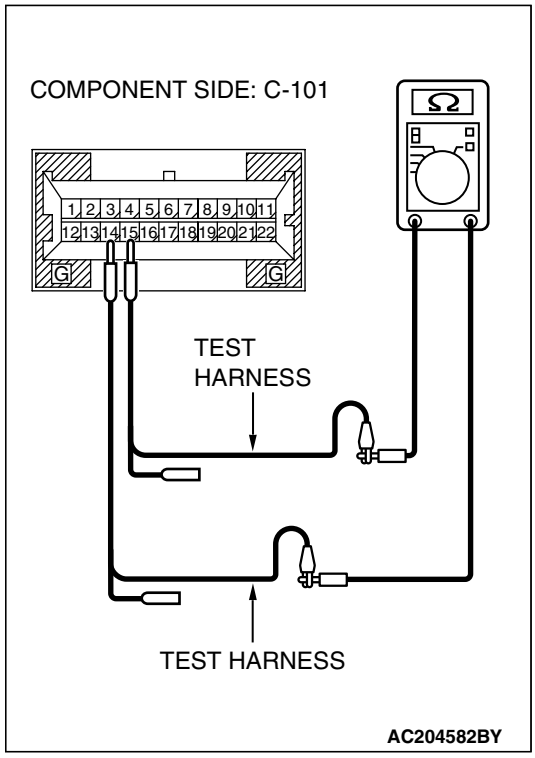
STEP 7. Check the combination meter for a short circuit. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

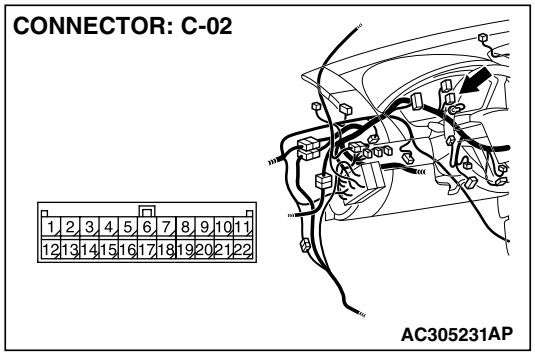
YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter.

STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

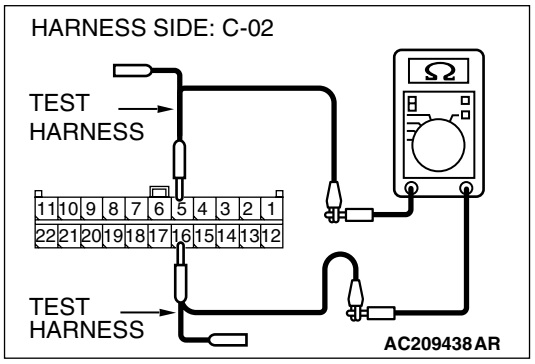
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 5 and 16.

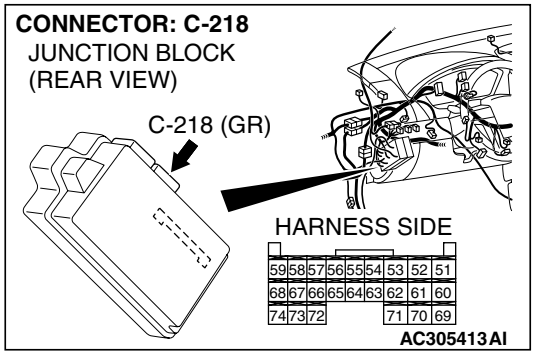
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 9.

STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 10.
NO : Repair the damaged parts.

STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

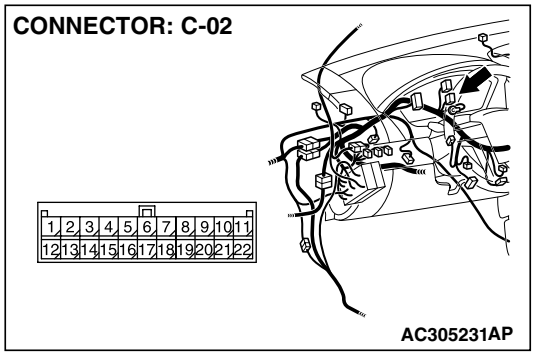
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

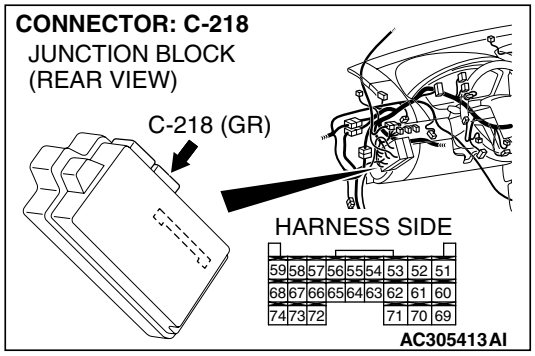
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

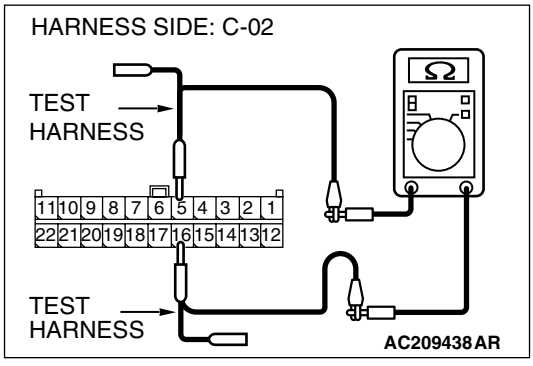
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 5 and 16.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

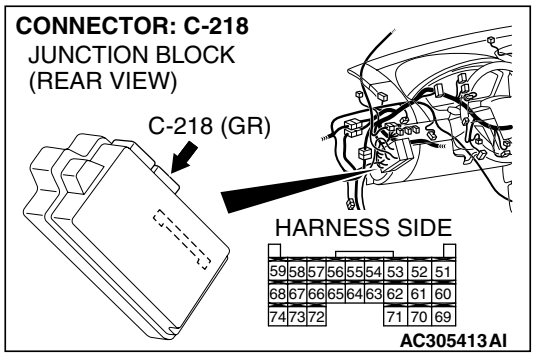
YES : If the resistance measures 1 kΩ or more, go to Step 11 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

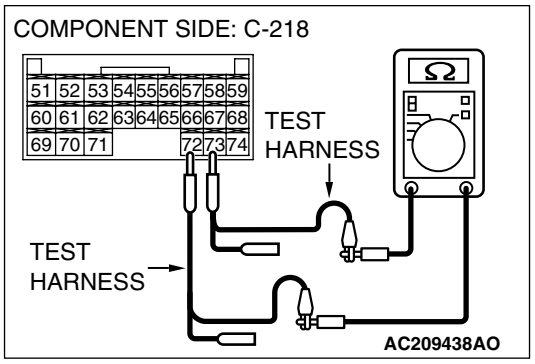
STEP 11. Check the ETACS-ECU for short circuit. Measure the resistance at ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect ETACS-ECU connector C-218, and measure the resistance at the component side of ETACS-ECU connector C-218.



(2) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the ETACS-ECU.

STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

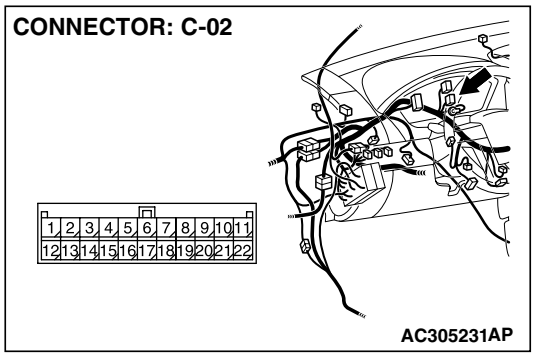
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

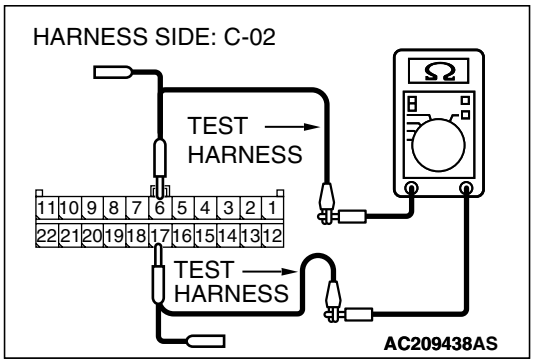
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 16 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

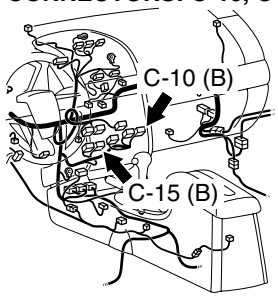
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

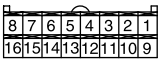
Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

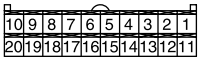
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

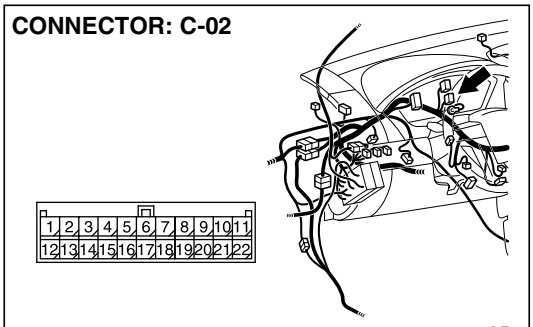
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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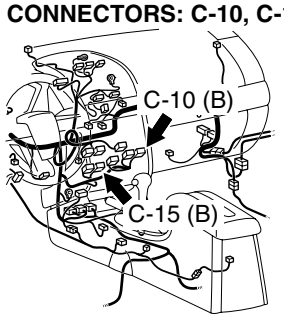
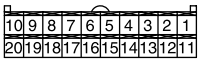
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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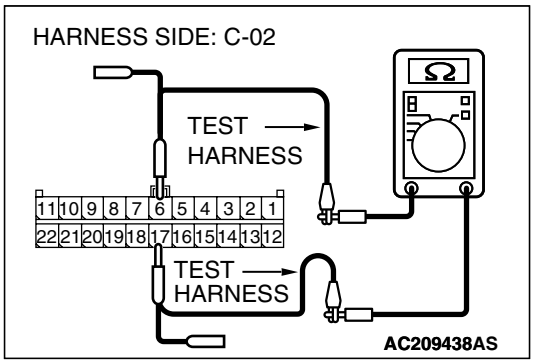


(4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

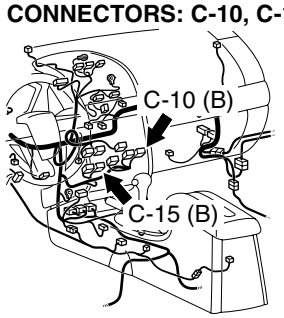
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

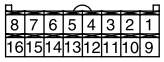
A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the component side of A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

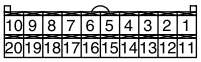
CONNECTORS: C-10, C-15



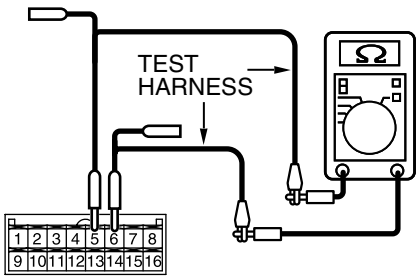
C-10 HARNESS SIDE



C-15 HARNESS SIDE



AC600891 AB



COMPONENT SIDE: C-10

AC209438AT

(2) Measure the resistance between A/C-ECU connector terminals 5 and 6 <manual air conditioning system (low)> or terminals 14 and 15 <manual air conditioning system (middle) or automatic air conditioning system>.

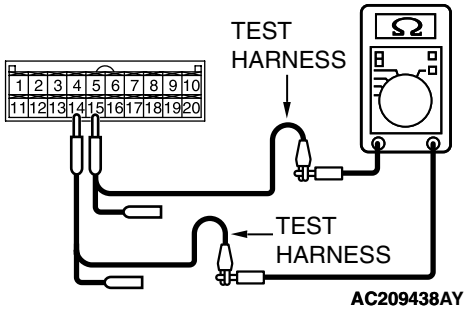
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.

COMPONENT SIDE: C-15



AC209438AY

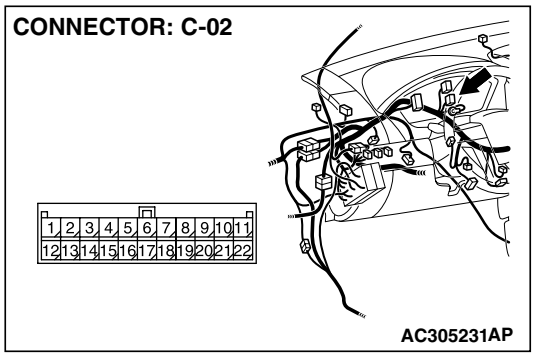
STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



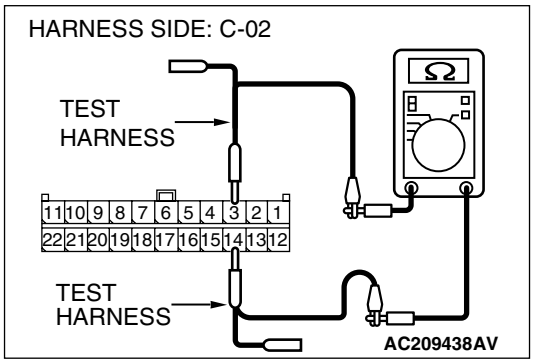
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

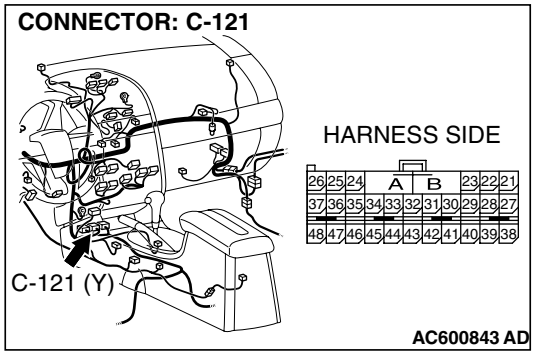
YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance measures less than 1 kΩ, go to Step 17.

STEP 17. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 18.

NO : Repair the damaged parts.

STEP 18. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

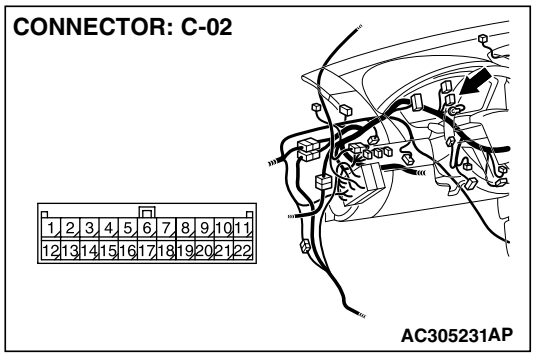
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector (3) C-02.

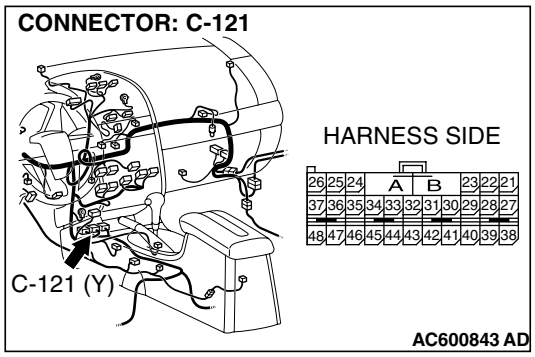
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

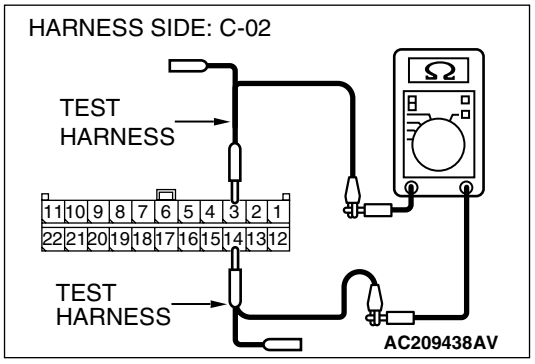
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 19 .

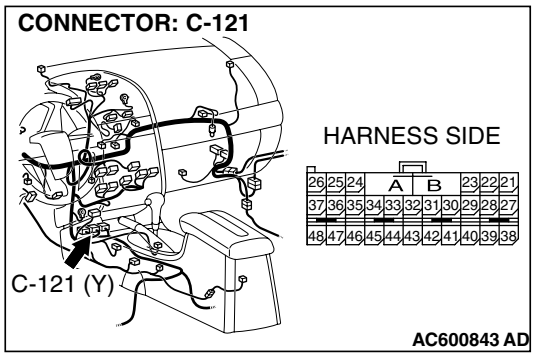
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

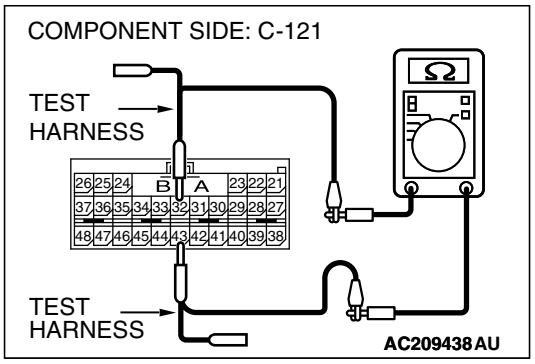
STEP 19. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.





(2) Measure the resistance between SRS-ECU connector terminals 32 and 43.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 20. Check the CAN_L and H lines (communication lines including the TPMS reciver) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

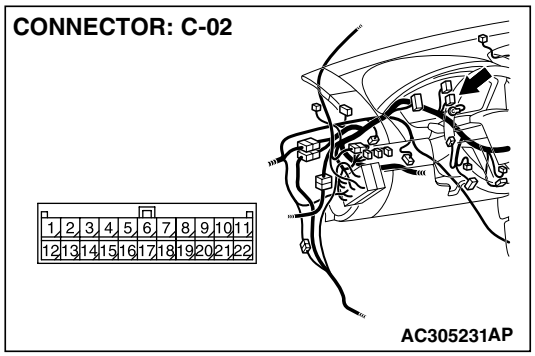
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

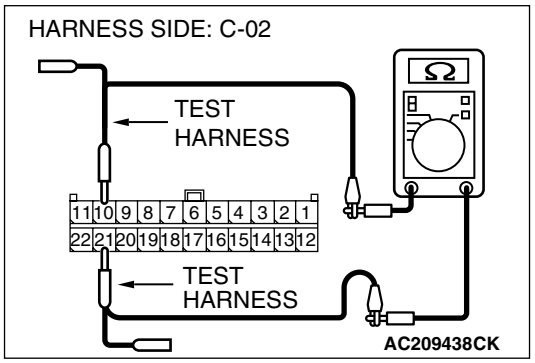


(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 24 .
NO : If the resistance measures less than 1 kΩ, go to Step 21.

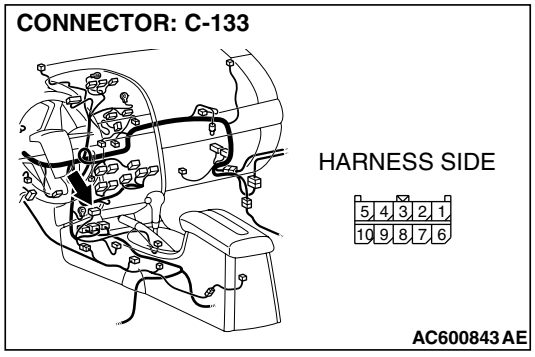


STEP 21. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 22.
NO : Repair the damaged parts.



STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

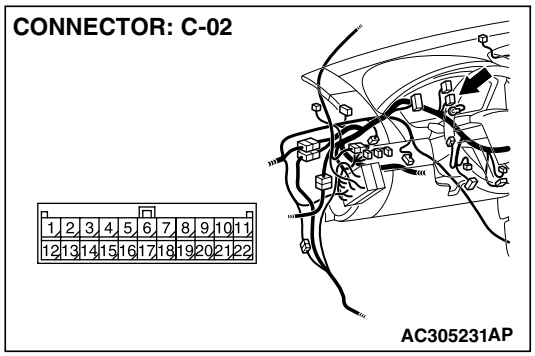
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the wiring harness side of joint connector (3) C-02.

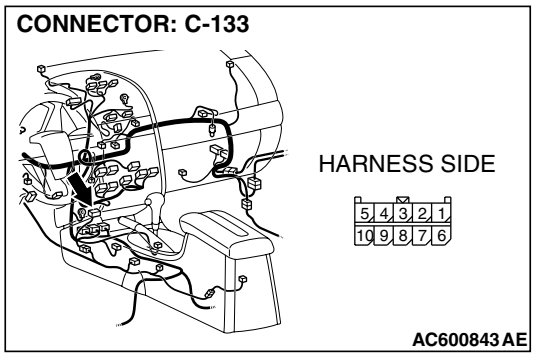
(2) Turn the ignition switch to the "LOCK" (OFF) position.

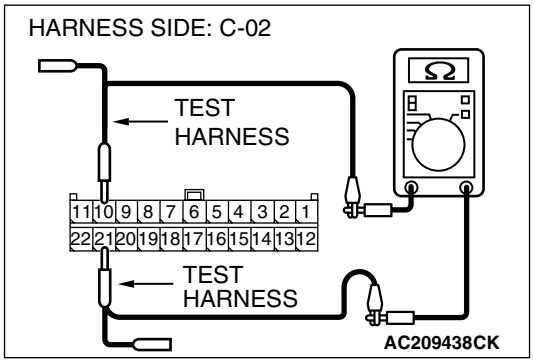
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

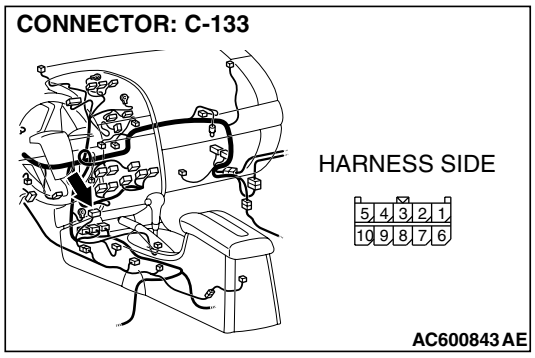
YES : If the resistance measures 1 kΩ or more, go to Step 23 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

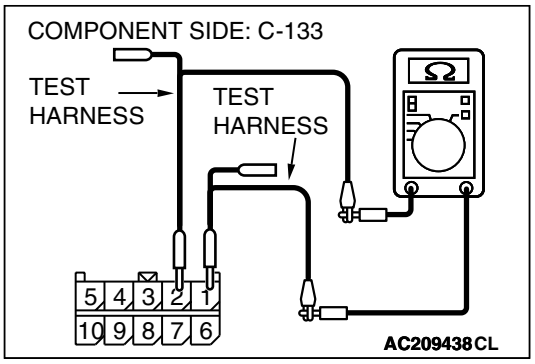
STEP 23. Check the TPMS reciver for short circuit. Measure the resistance at TPMS reciver connector C-133.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect TPMS reciver connector C-133. and measure the resistance at the component side of TPMS reciver connector C-133.



(2) Measure the resistance between TPMS reciver connector terminals 1 and 2.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

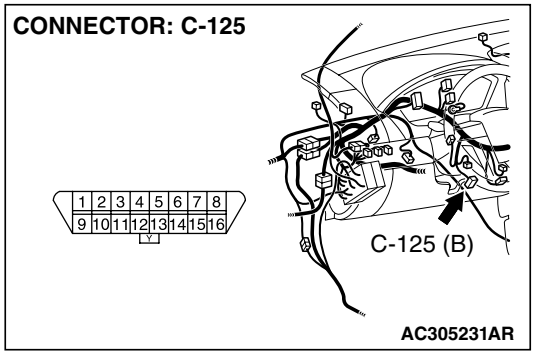
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the TPMS reciver.

STEP 24. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is data link connector C-125 in good condition?

YES : Go to STEP 25.

NO : Repair the damaged parts.

STEP 25. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

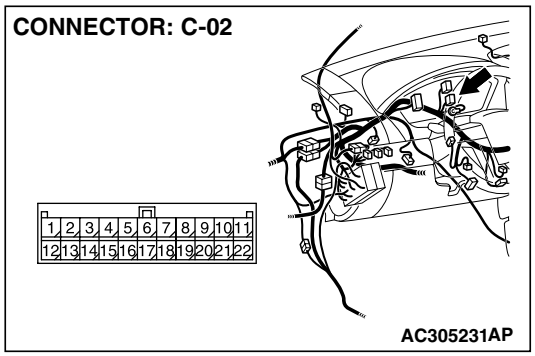
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

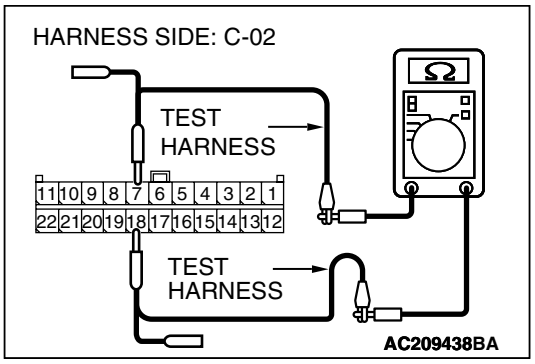
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 26 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 26. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

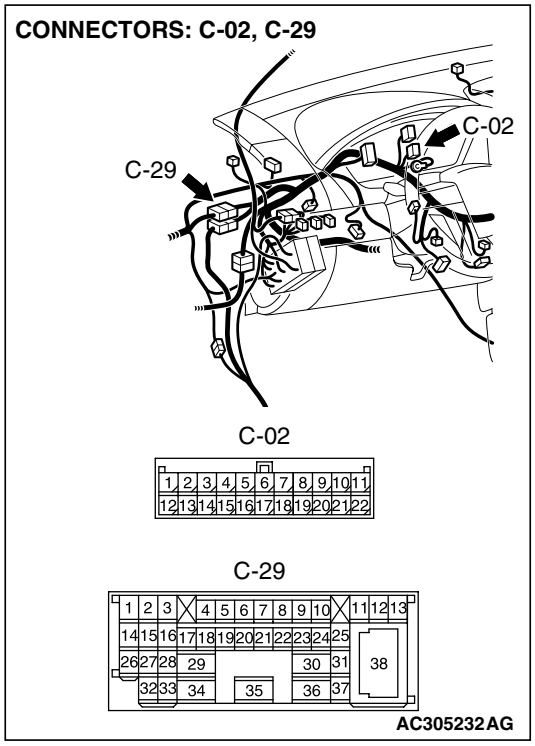
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

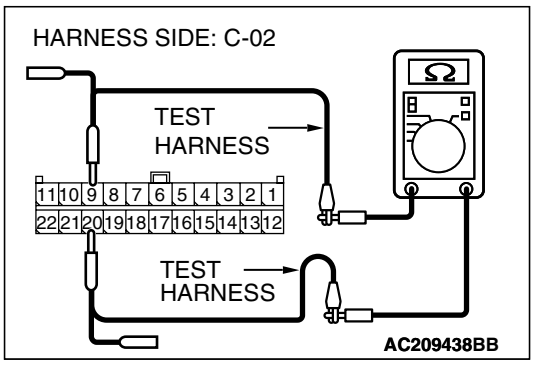
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 9 and 20.

OK: 1 kΩ or more

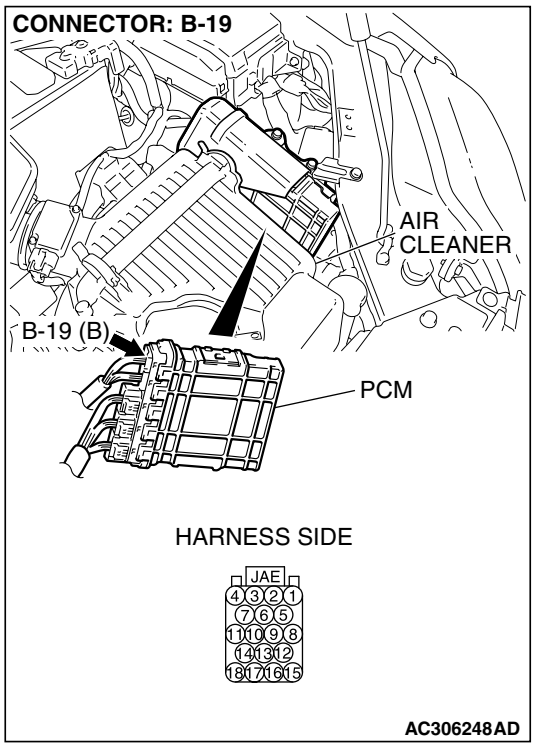
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 27. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is powertrain control module connector B-19 in good condition?

YES : Go to STEP 28.

NO : Repair the damaged parts.

STEP 28. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector for a short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

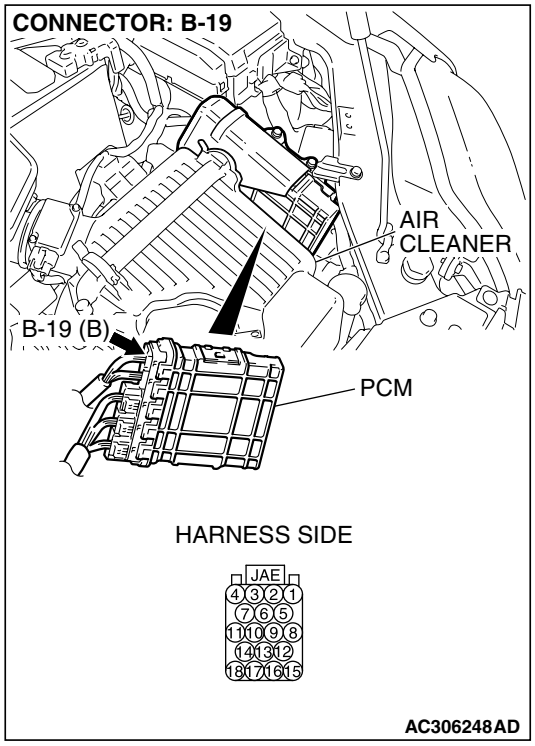
(1) Disconnect powertrain control module connector B-19 and intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side) of intermediate connector C-29.

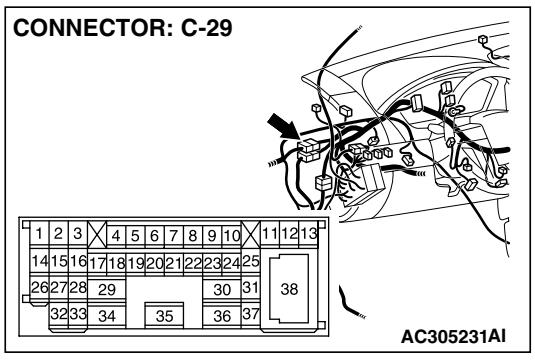
(2) Turn the ignition switch to the "LOCK" (OFF) position.

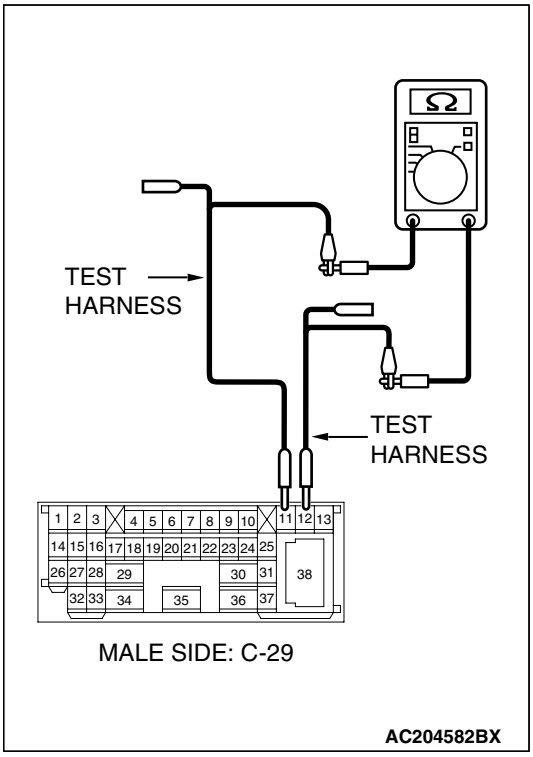
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 29 .

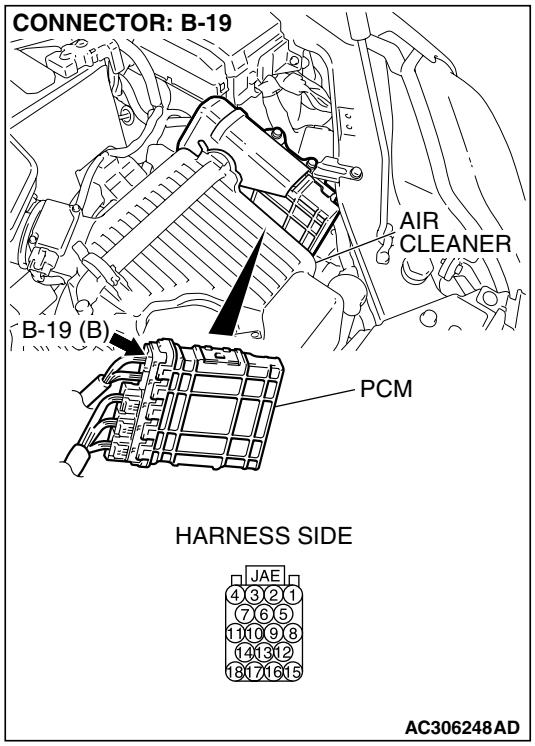
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

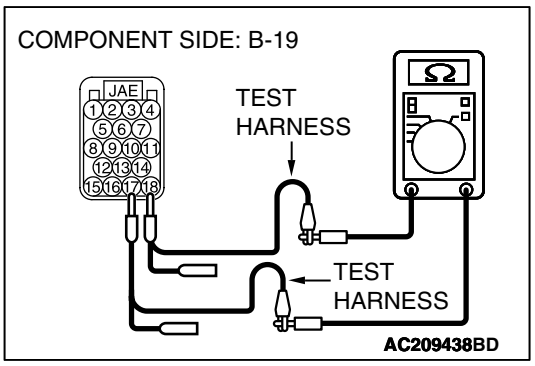
STEP 29. Check the powertrain control module for short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

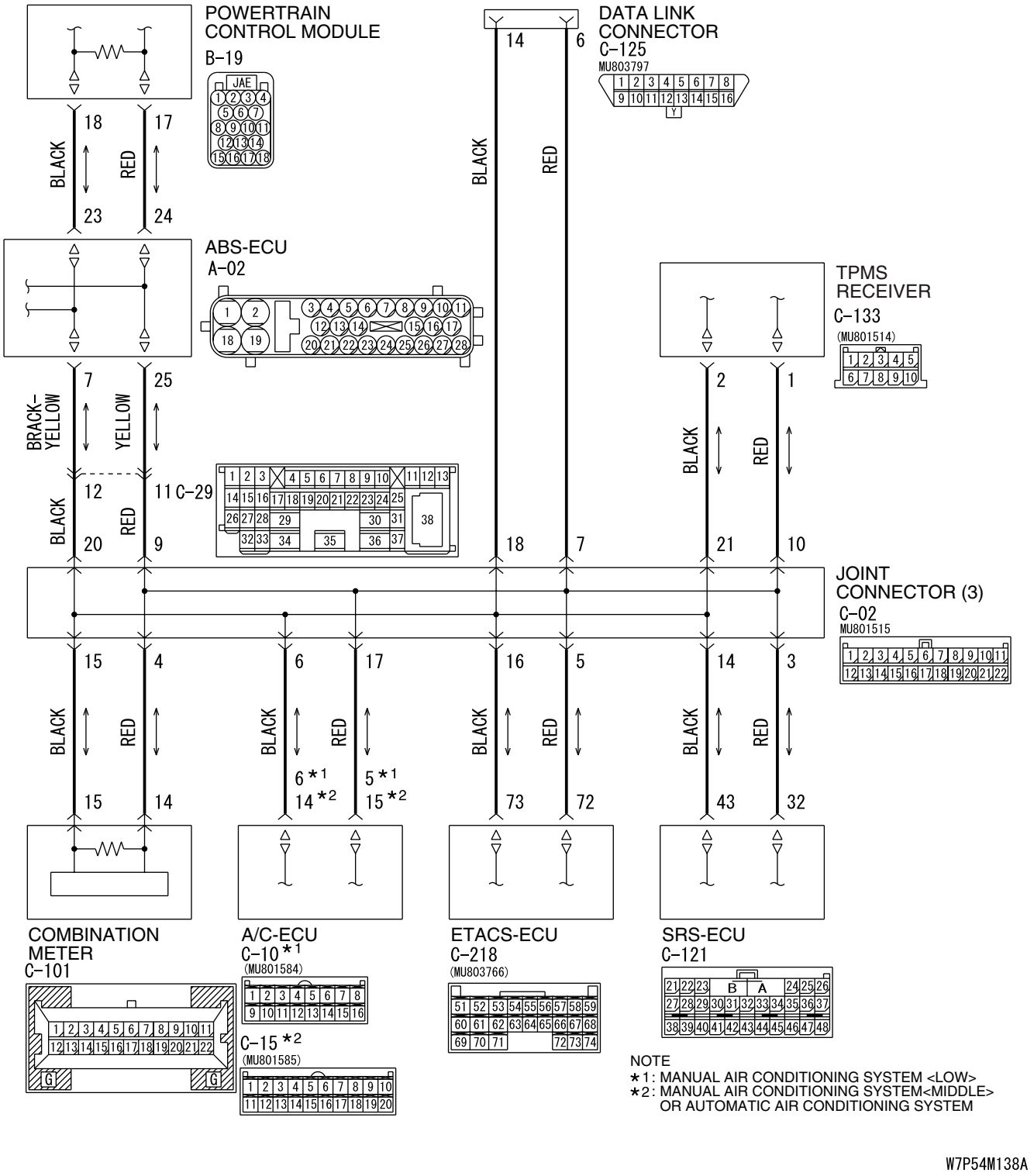
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-492.

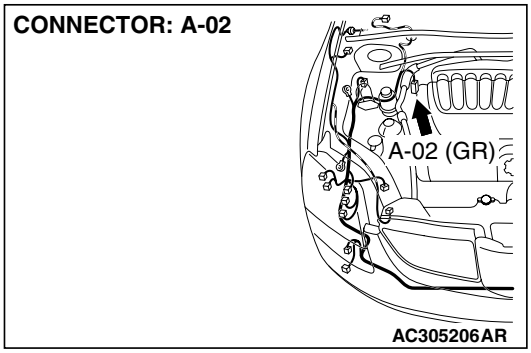
NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module.

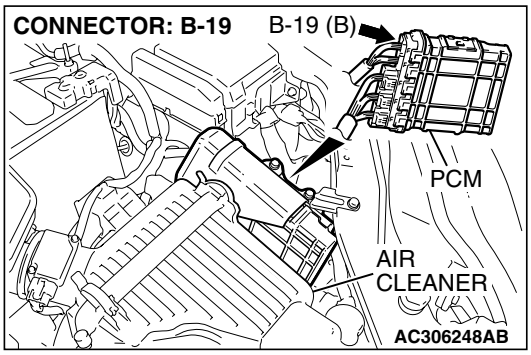
DIAGNOSTIC ITEM 8: Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

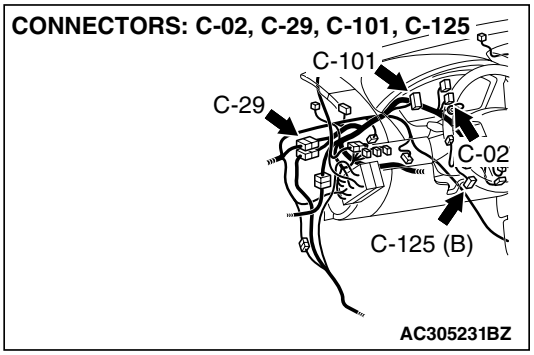
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

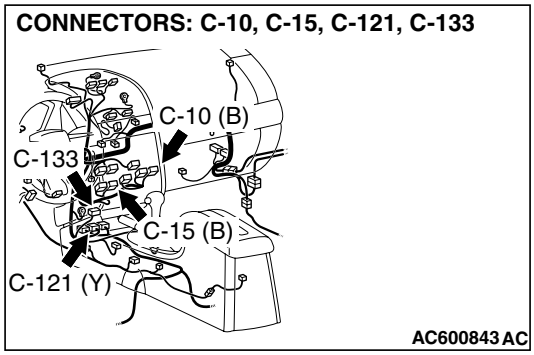

POWERTRAIN CONTROL MODULE
B-19
JAE
DATA LINK CONNECTOR
C-125
MU803797
ABS-ECU
A-02
TPMS RECEIVER
C-133
(MU801514)
JOINT CONNECTOR (3)
C-02
MU801515
BLACK
RED
BRACK-YELLOW
YELLOW
C-29
COMBINATION METER
C-101
A/C-ECU
C-10*1
(MU801584)
C-15*2
(MU801585)
ETACS-ECU
C-218
(MU803766)
SRS-ECU
C-121
NOTE
*1: MANUAL AIR CONDITIONING SYSTEM <LOW>
*2: MANUAL AIR CONDITIONING SYSTEM<MIDDLE> OR AUTOMATIC AIR CONDITIONING SYSTEM

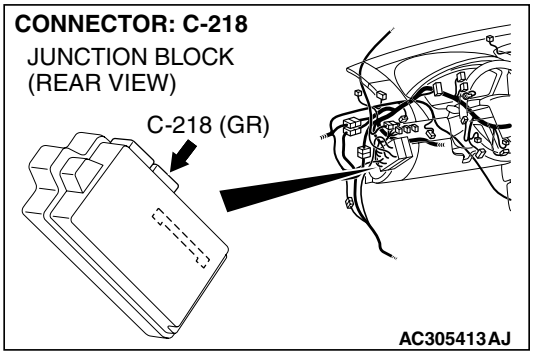
W7P54M138A











TROUBLE JUDGMENT

Short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

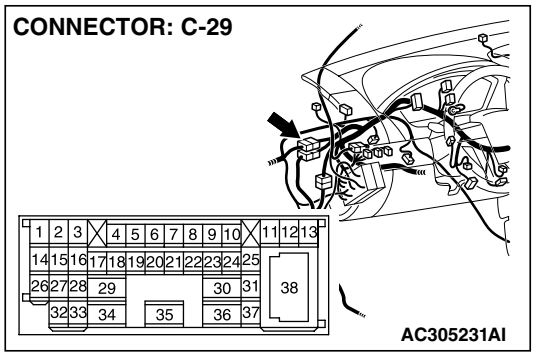
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision



STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

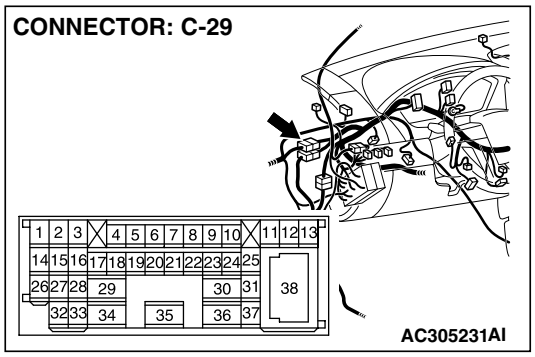
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

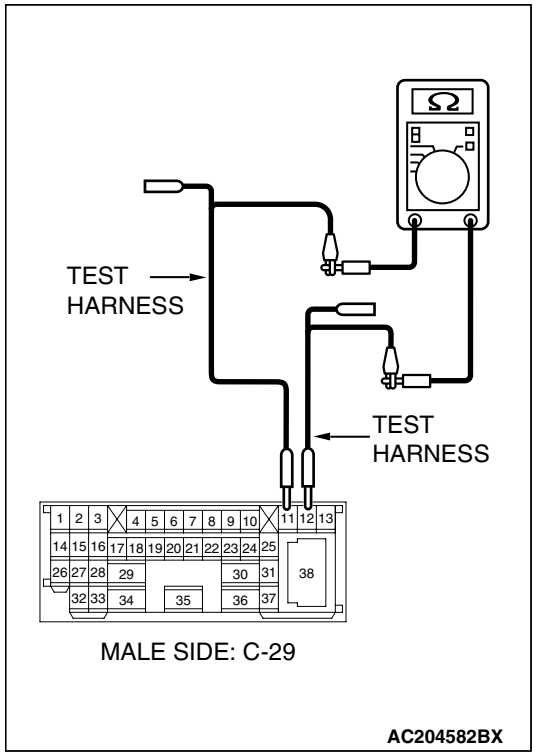
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

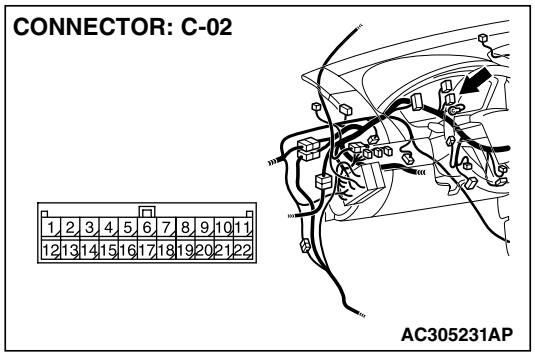
Q: Does the resistance measure 120 ± 20 Ω?

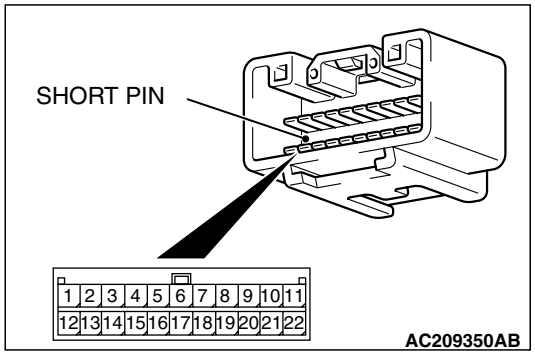
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.

NO : If the resistance does not measure 120 ± 20 Ω, go to STEP 27 .

STEP 3. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

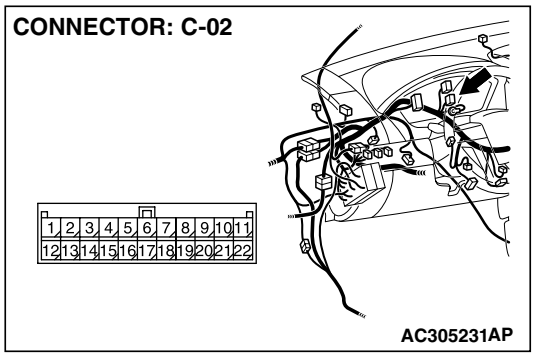
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

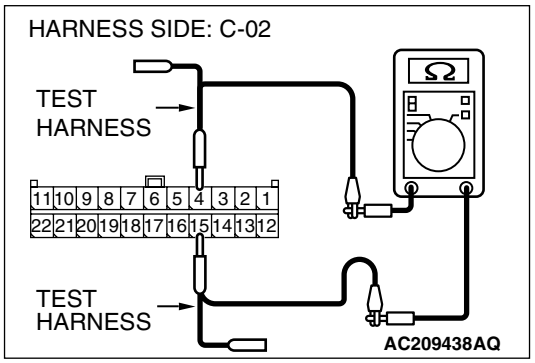
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 4 and 15.

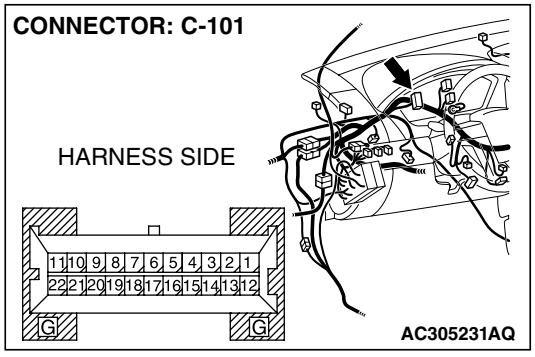
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is combination meter connector C-101 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

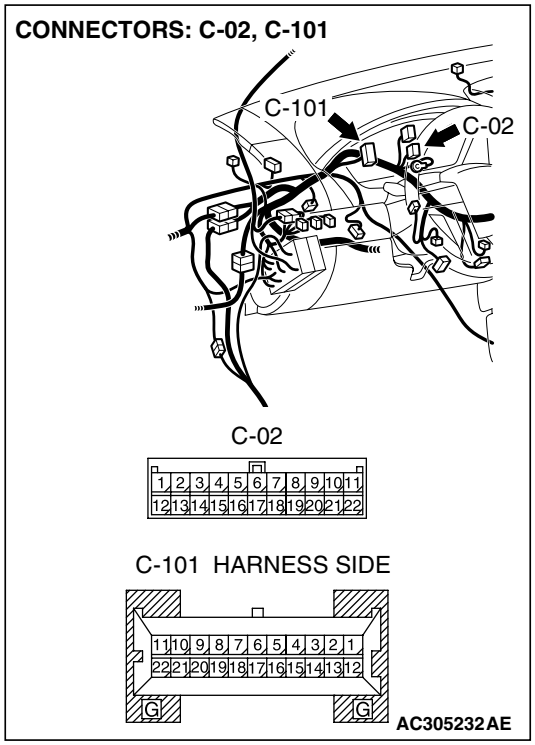
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

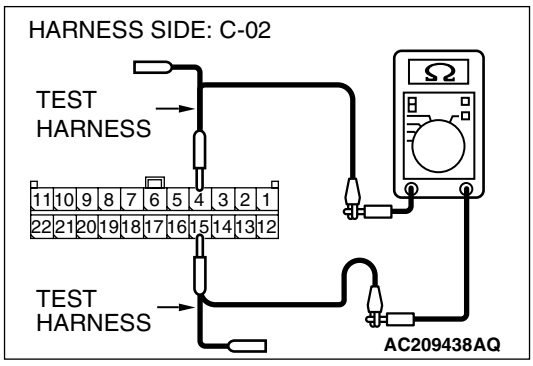
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 7 .

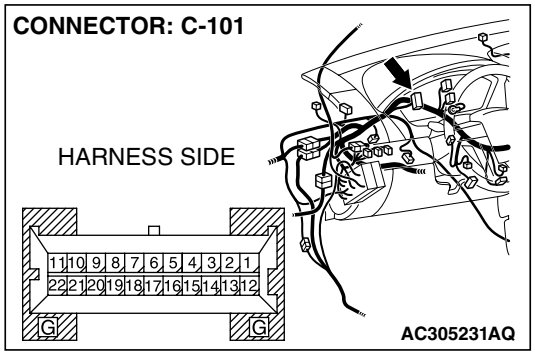
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 7. Check the combination meter for short circuit. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



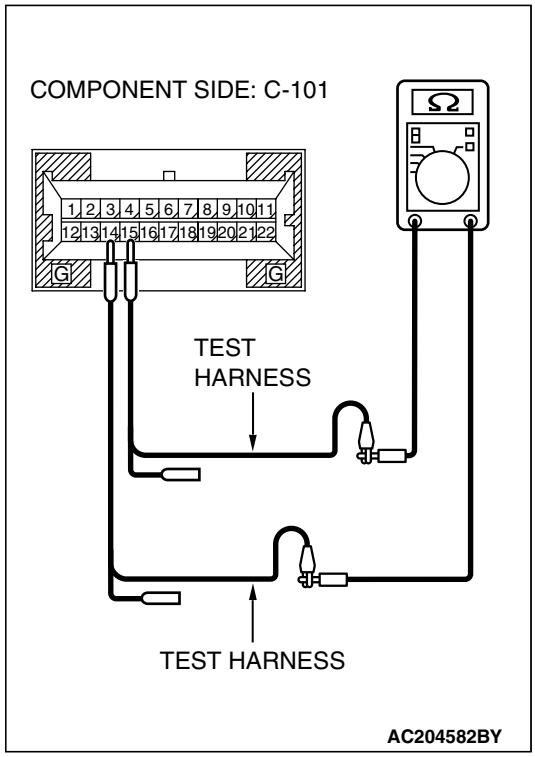
(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter.



STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

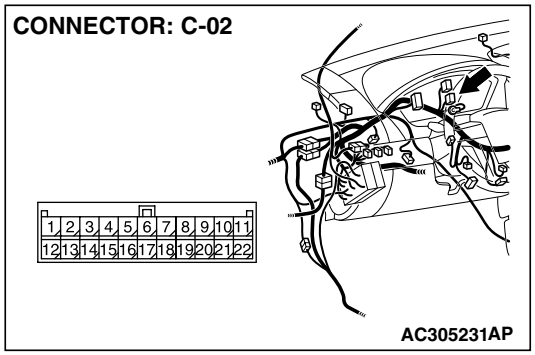
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

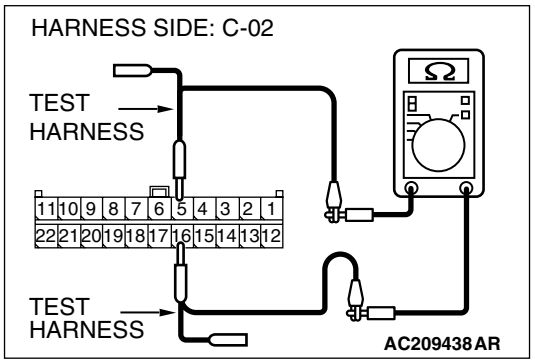
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 5 and 16.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

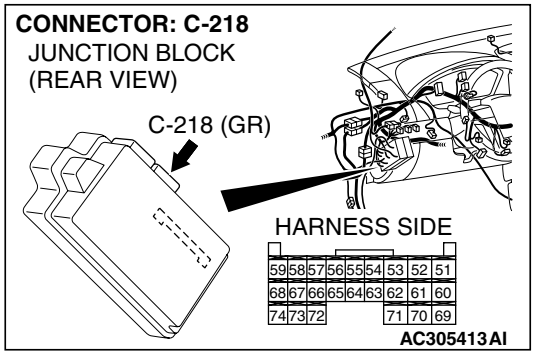
YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 9.

STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 10.
NO : Repair the damaged parts.



STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

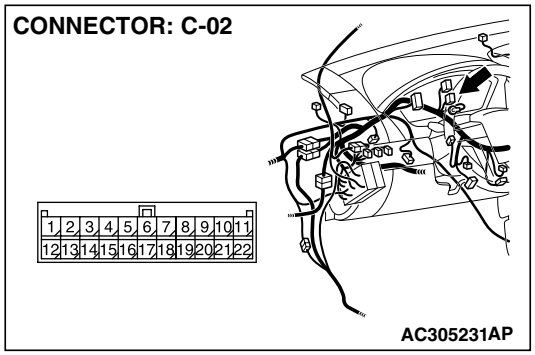
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

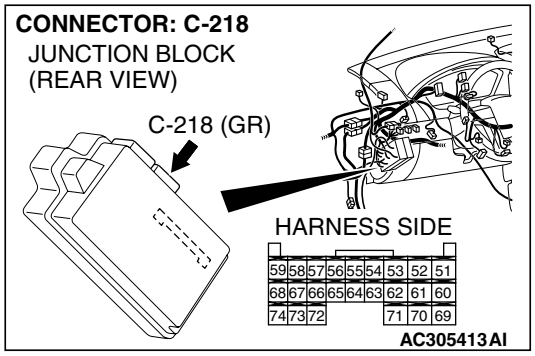
(2) Turn the ignition switch to the "LOCK" (OFF) position.

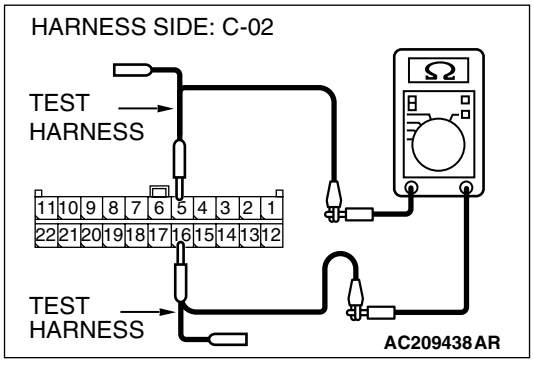
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 5 and 16.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

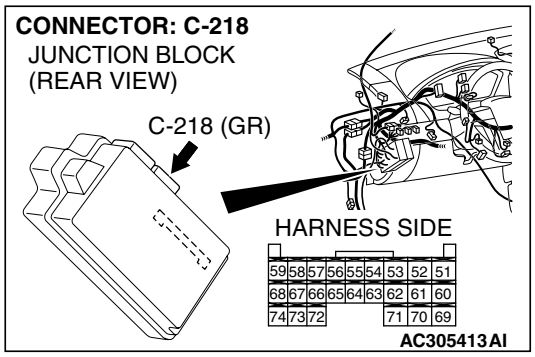
YES : If the resistance measures 1 kΩ or more, go to Step 11 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

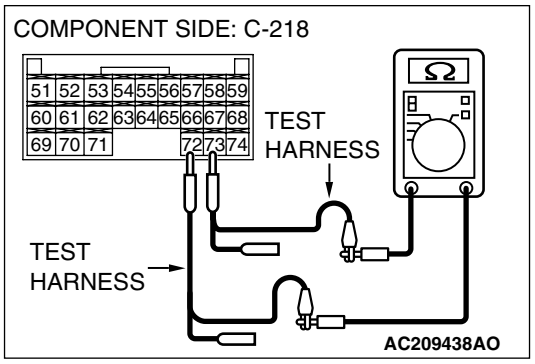
STEP 11. Check the ETACS-ECU for short circuit. Measure the resistance at ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect ETACS-ECU connector C-218, and measure the resistance at the component side of ETACS-ECU connector C-218.



(2) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, replace the ETACS-ECU.

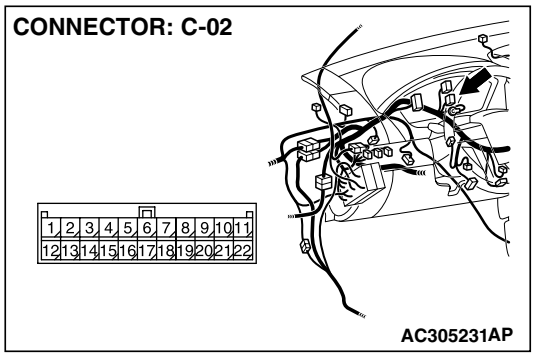
STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



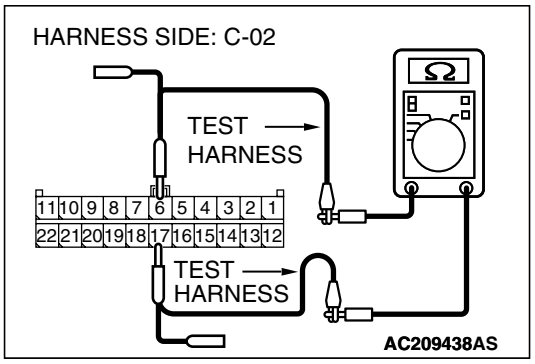
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 6 and 17.

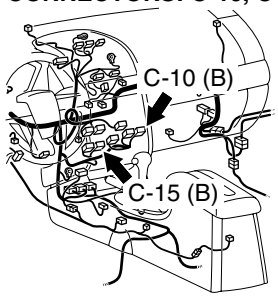
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

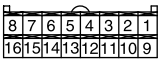
YES : If the resistance measures 1 kΩ or more, go to Step 16 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

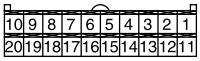
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.

STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

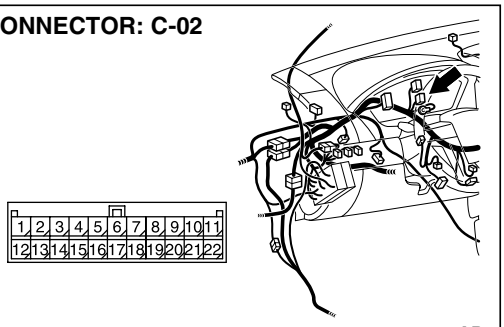
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

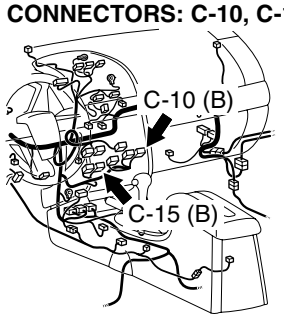
(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



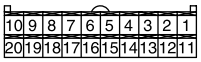
AC305231AP

CONNECTORS: C-10, C-15

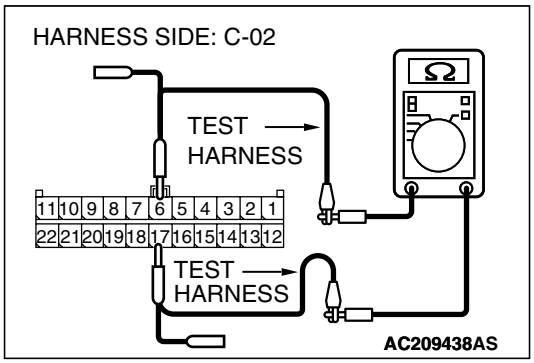


C-10 HARNESS SIDE

C-15 HARNESS SIDE



AC600891 AB



(4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

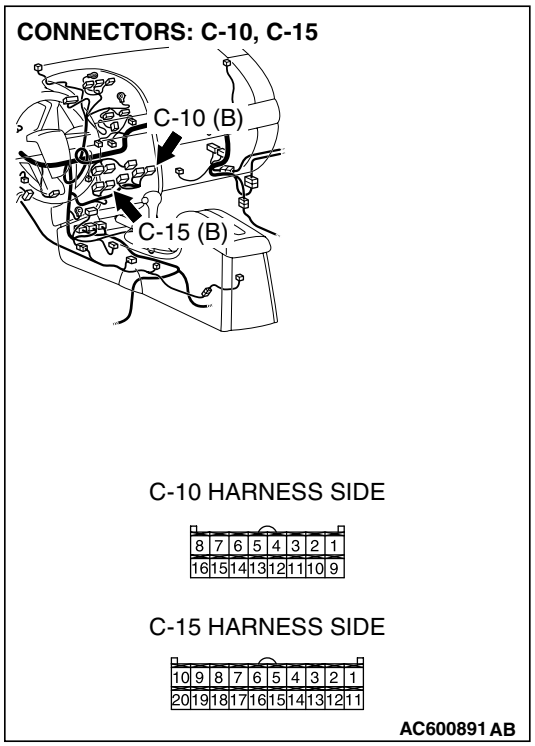
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

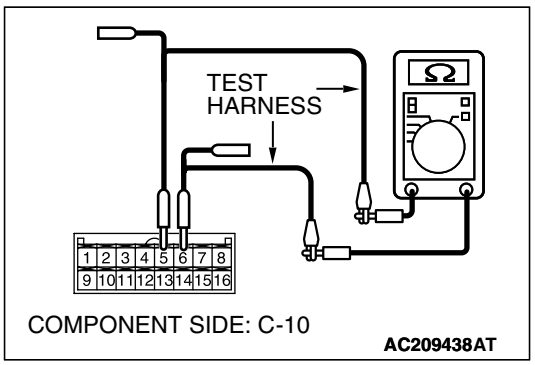
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the component side of A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.





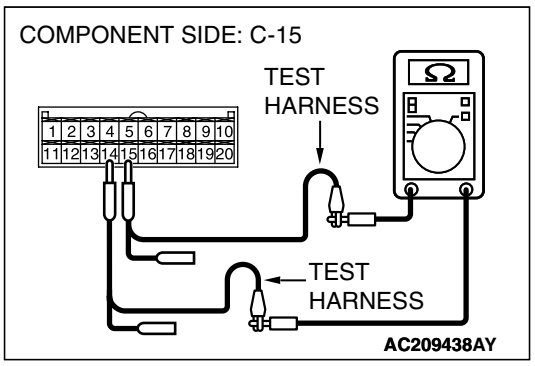
(2) Measure the resistance between A/C-ECU connector terminals 5 and 6 <manual air conditioning system (low)> or terminals 14 and 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.



STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

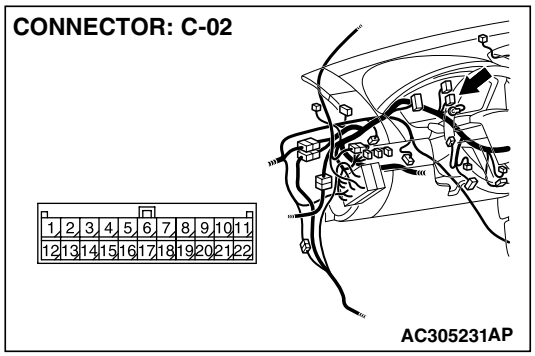
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

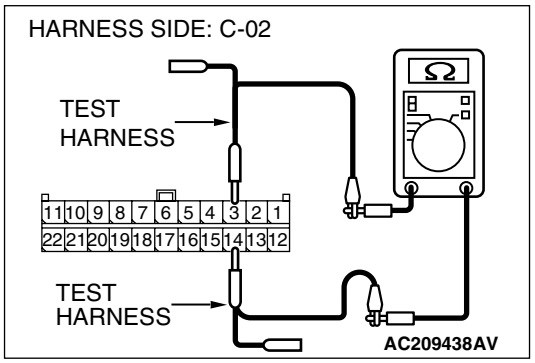
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

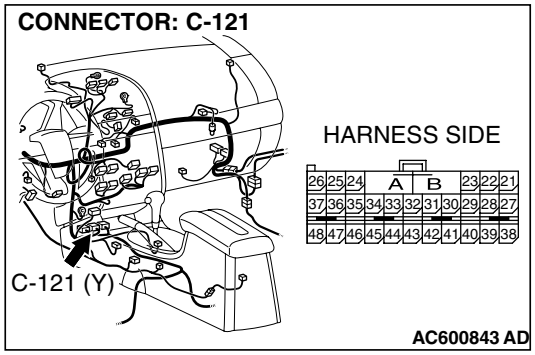
YES : If the resistance measures 1 kΩ or more, go to Step 20 .
NO : If the resistance measures less than 1 kΩ, go to Step 17.

STEP 17. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 18.
NO : Repair the damaged parts.



STEP 18. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

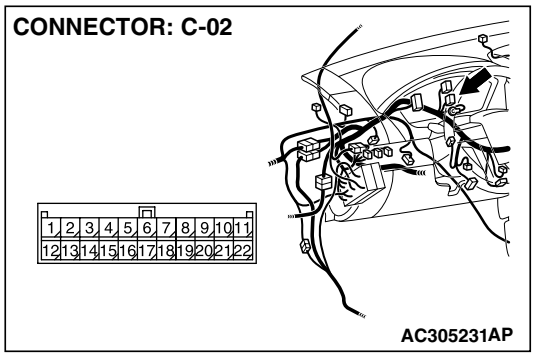
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector (3) C-02.

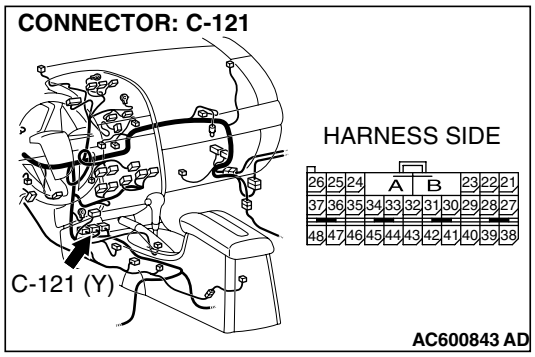
(2) Turn the ignition switch to the "LOCK" (OFF) position.

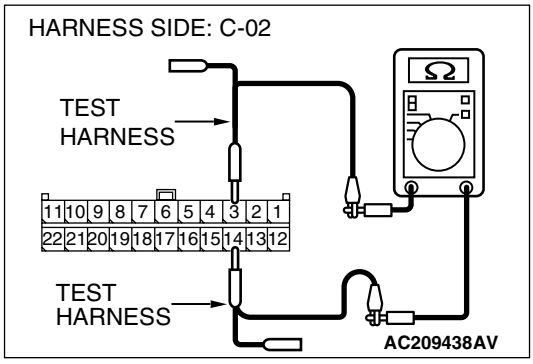
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

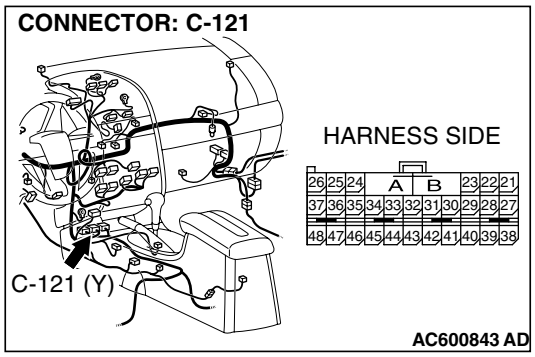
YES : If the resistance measures 1 kΩ or more, go to Step 19 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

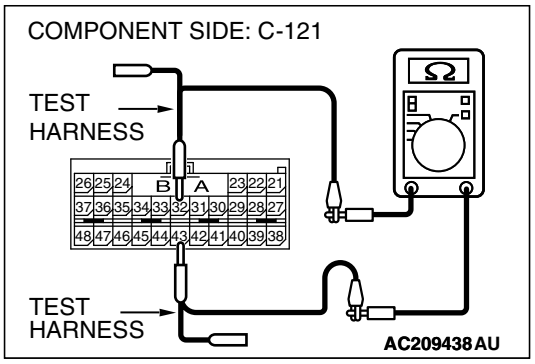
STEP 19. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.



(2) Measure the resistance between SRS-ECU connector terminals 32 and 43.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 20. Check the CAN_L and H lines (communication lines including the TPMS reciver) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

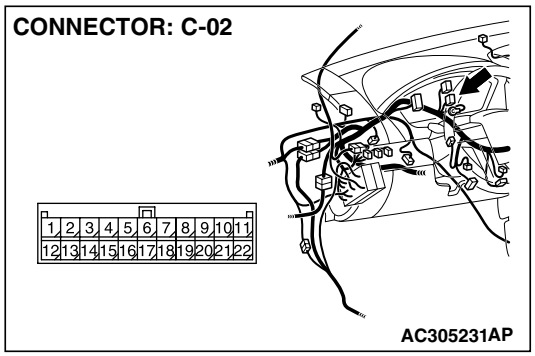
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

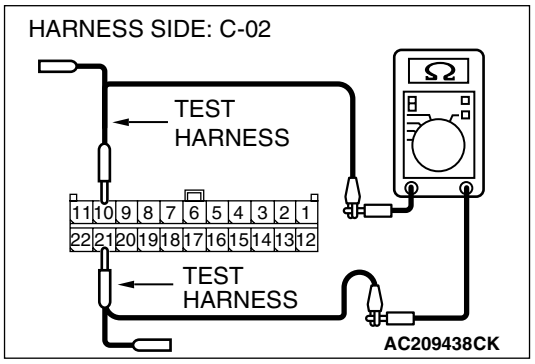


(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 24 .
NO : If the resistance measures less than 1 kΩ, go to Step 21.

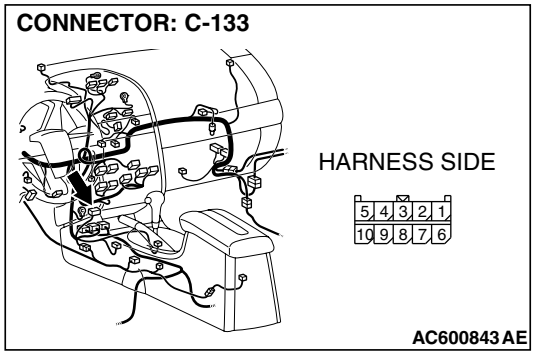


STEP 21. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 22.
NO : Repair the damaged parts.



STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

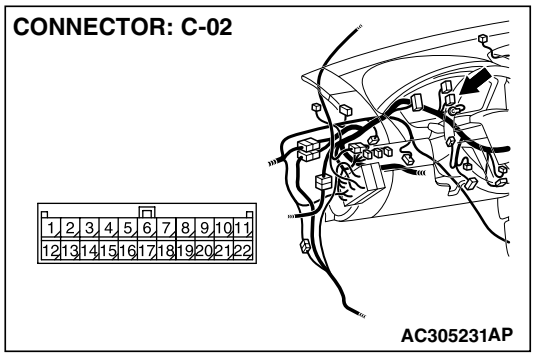
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the wiring harness side of joint connector (3) C-02.

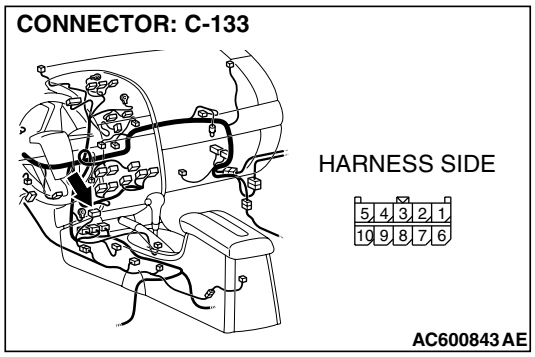
(2) Turn the ignition switch to the "LOCK" (OFF) position.

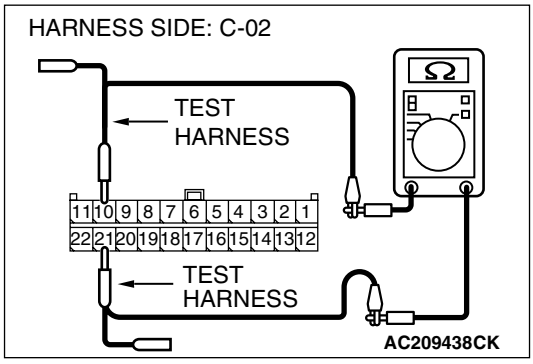
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

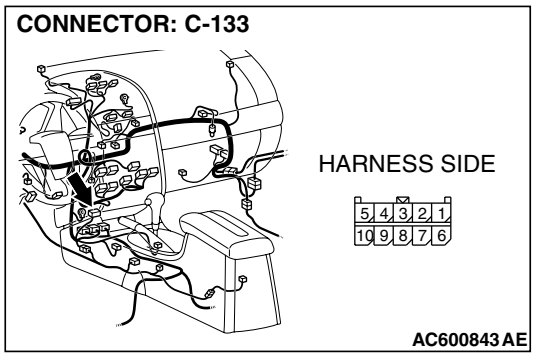
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 23 .

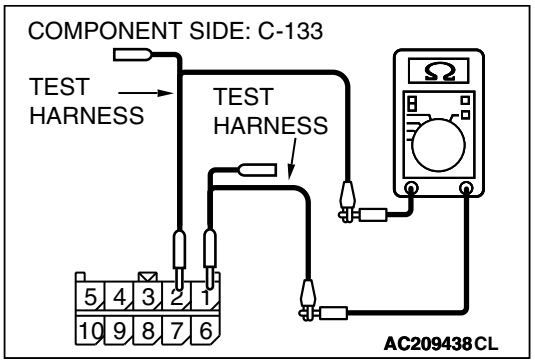
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 23. Check the TPMS reciver for short circuit.
Measure the resistance at TPMS reciver connector C-133.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect TPMS reciver connector C-133, and measure the resistance at the component side of TPMS reciver connector C-133.



(2) Measure the resistance between TPMS reciver connector terminals 1 and 2.

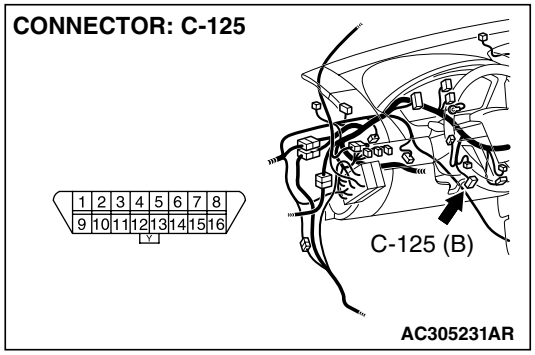
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.
NO : If the resistance measures less than 1 kΩ, replace the TPMS reciver.

STEP 24. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is data link connector C-125 in good condition?

YES : Go to STEP 25.
NO : Repair the damaged parts.

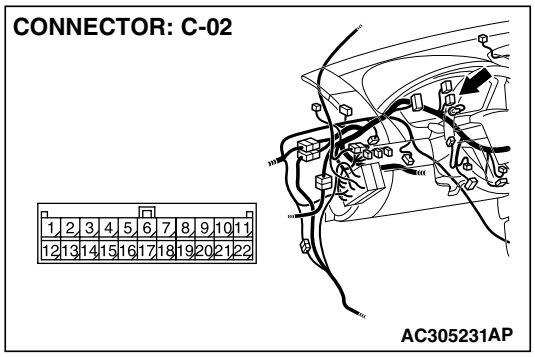
STEP 25. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



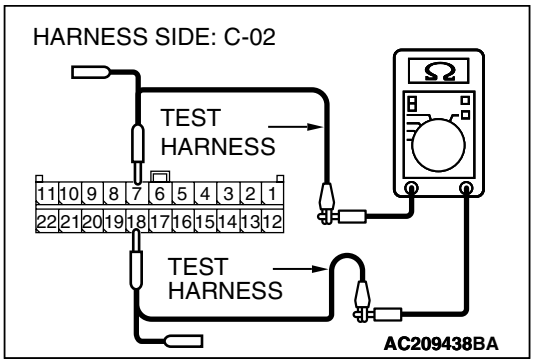
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 26 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 26. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

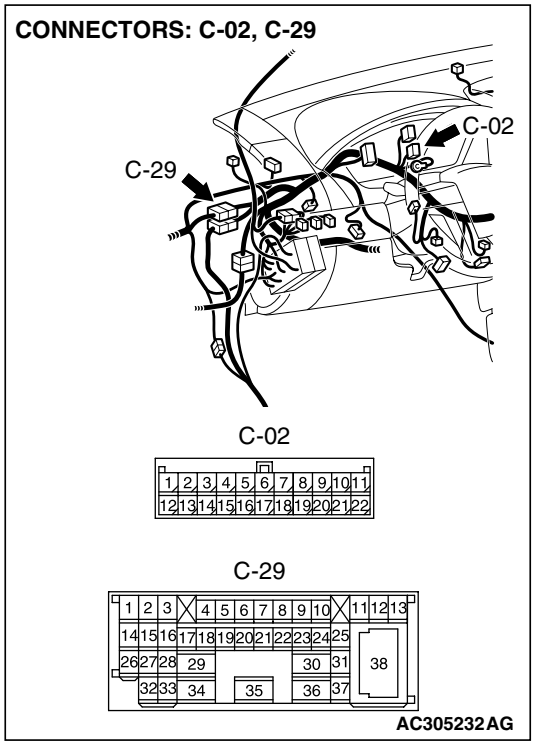
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

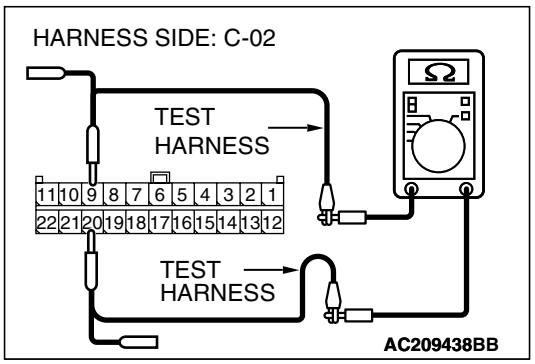
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





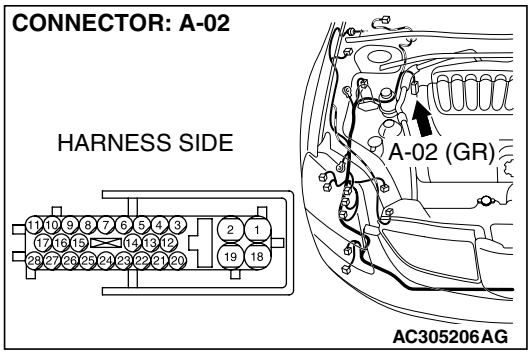
(4) Measure the resistance between joint connector (3) terminals 9 and 20.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-525.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 27. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to STEP 28.

NO : Repair the damaged parts.

STEP 28. Check the CAN_L and H lines (communication lines only) between the ABS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

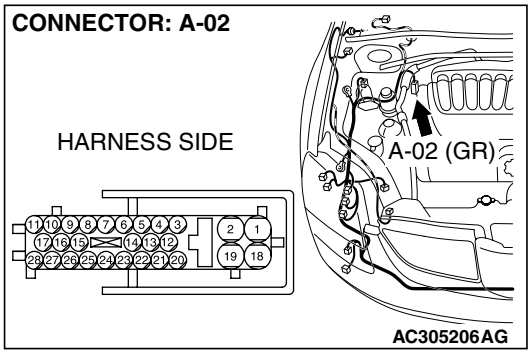
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

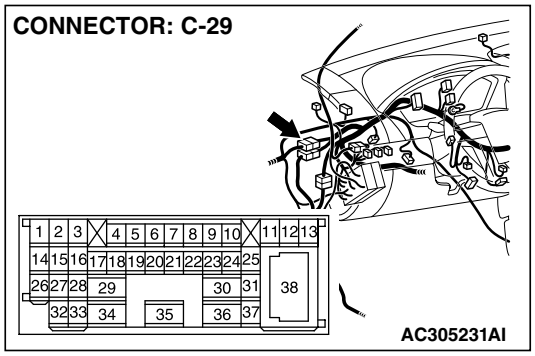
(2) Turn the ignition switch to the "LOCK" (OFF) position.

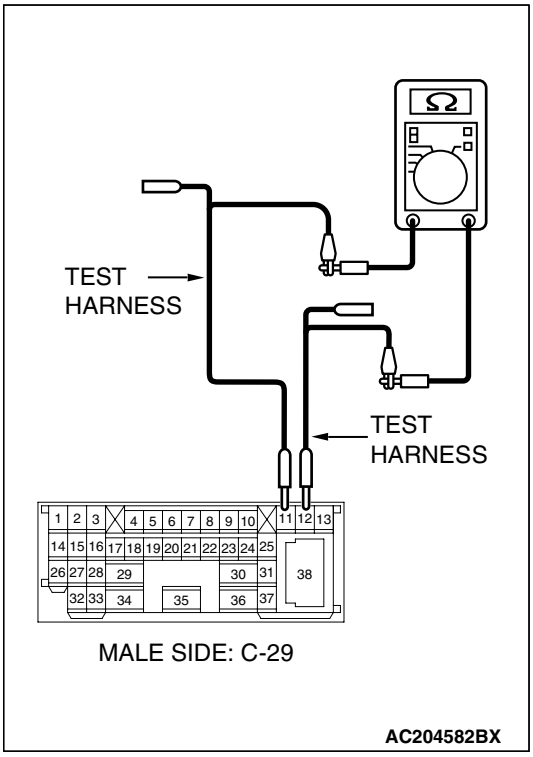
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

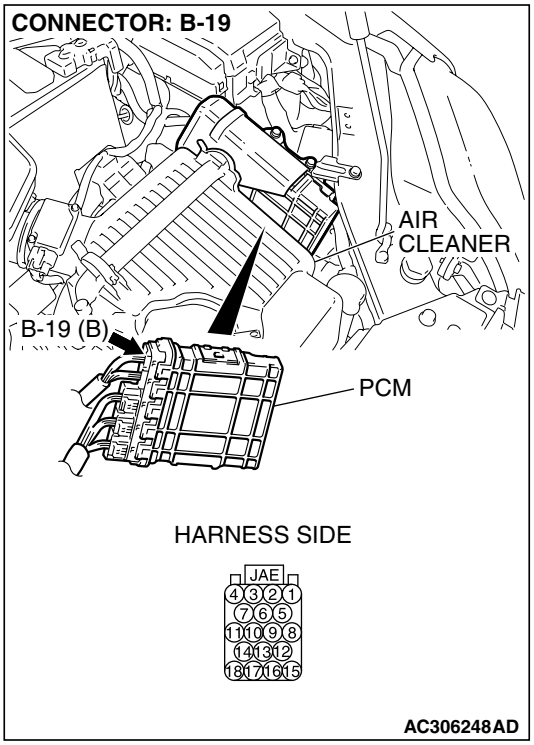
YES : If the resistance measures 1 kΩ or more, go to STEP 29 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 29. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is powertrain control module connector B-19 in good condition?

YES : Go to STEP 30.

NO : Repair the damaged parts.

STEP 30. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector and the ABS-ECU connector for a short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

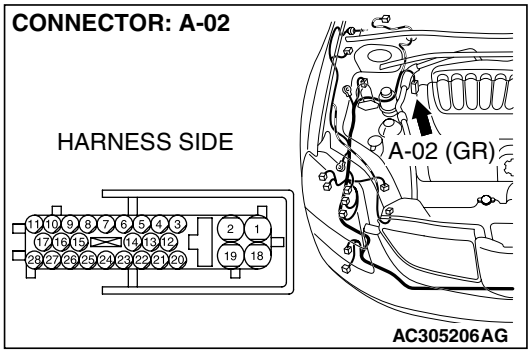
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

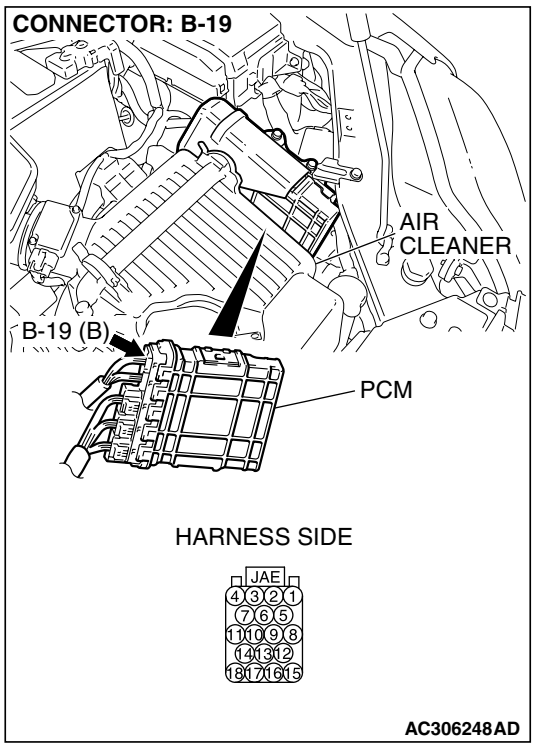
(2) Turn the ignition switch to the "LOCK" (OFF) position.

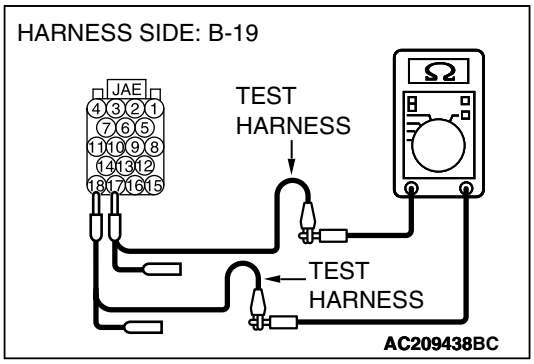
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

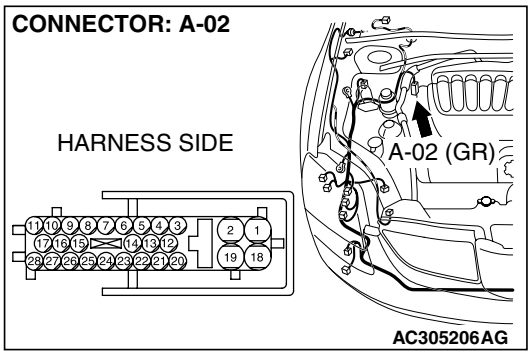
YES : If the resistance measures 1 kΩ or more, go to STEP 31 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

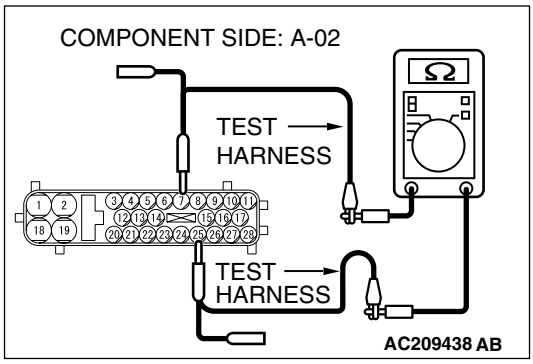
STEP 31. Check the ABS-ECU for short circuit. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.



(2) Measure the resistance between ABS-ECU connector terminals 7 and 25.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 32 .

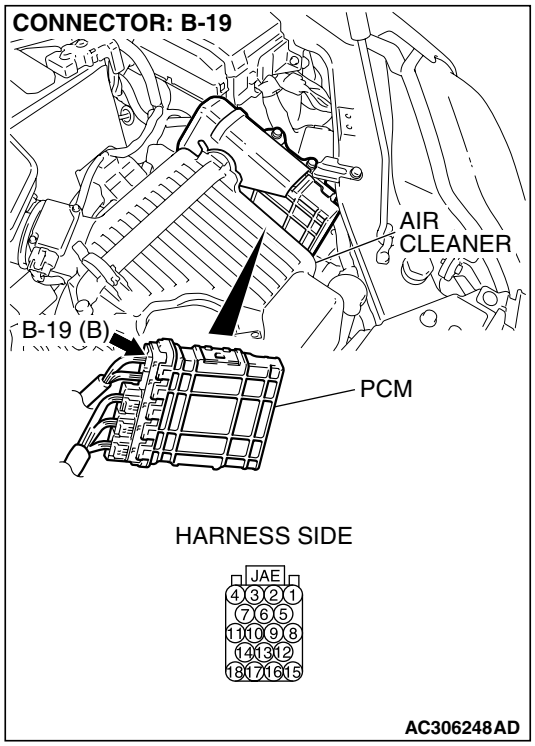
NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

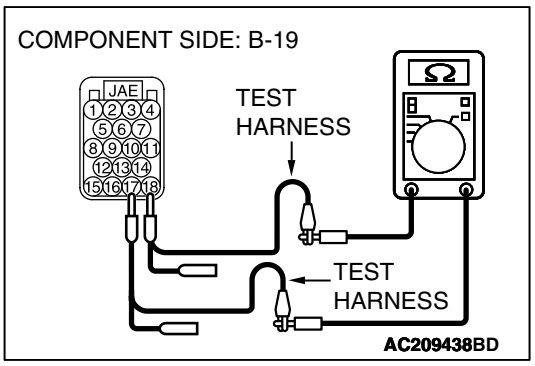
STEP 32. Check the powertrain control module for short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

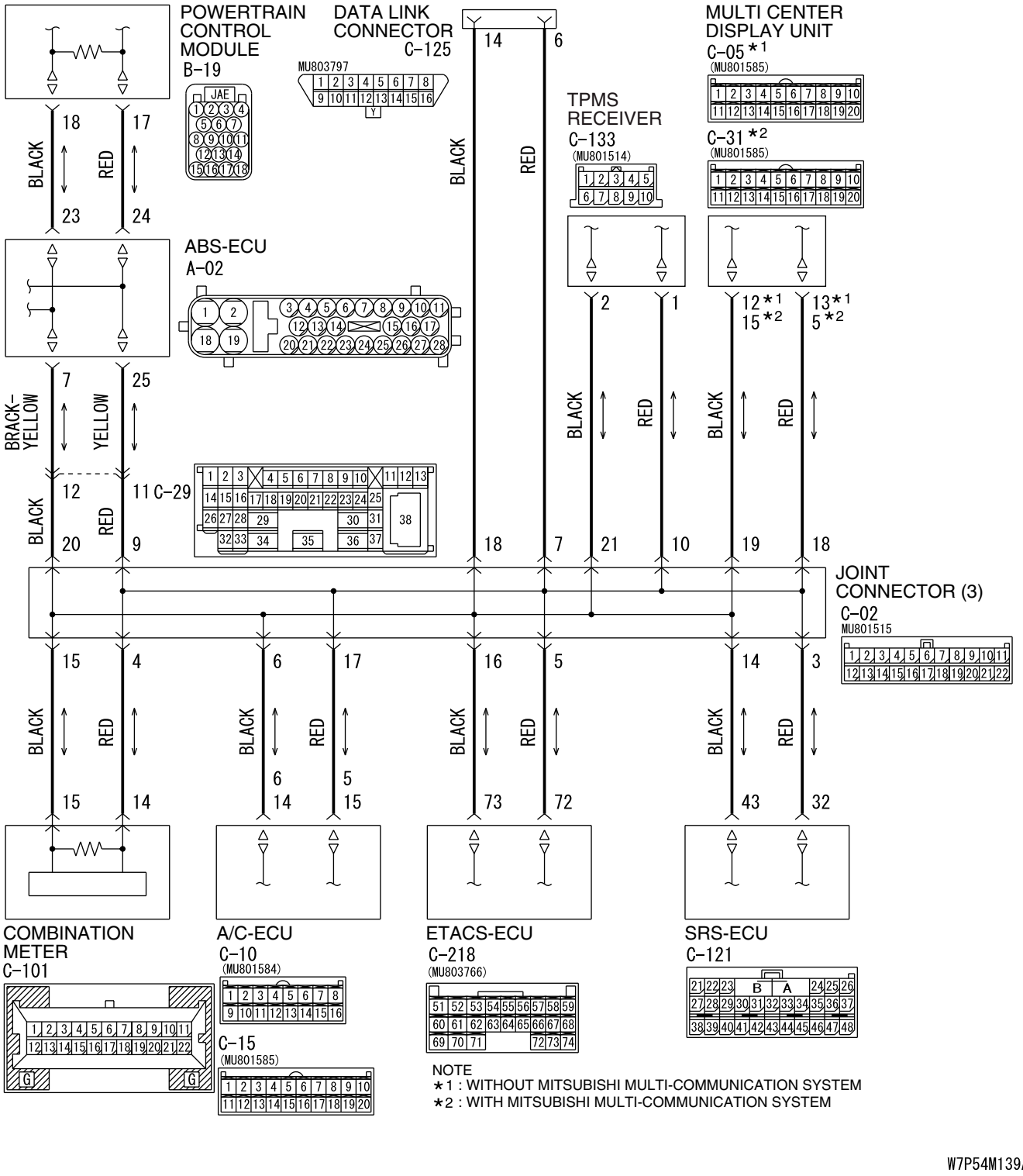
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-525.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module.

DIAGNOSTIC ITEM 9: Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles with multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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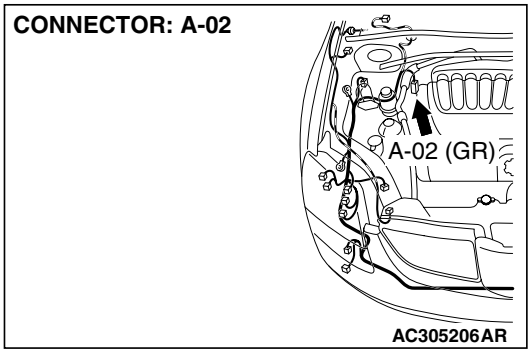
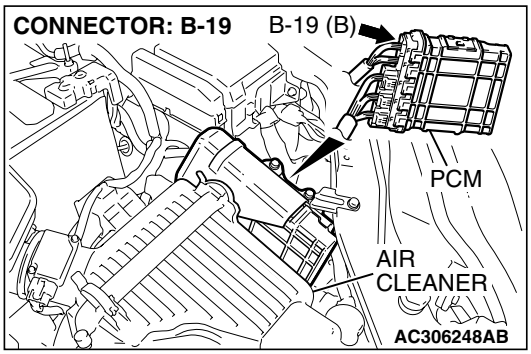
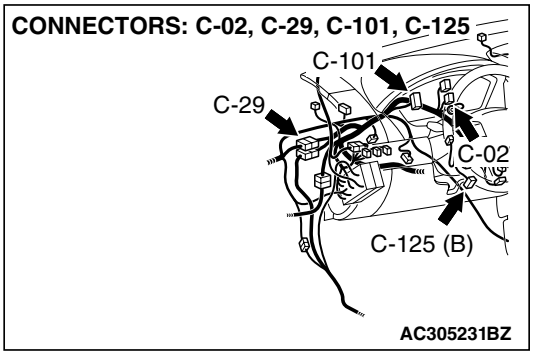
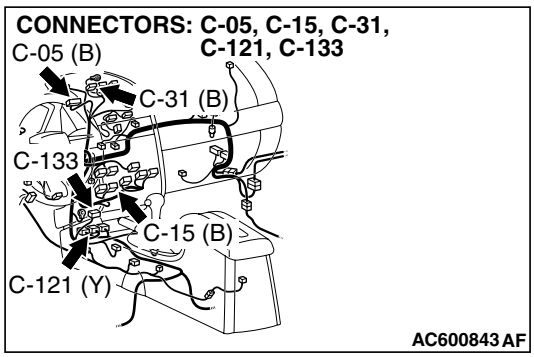
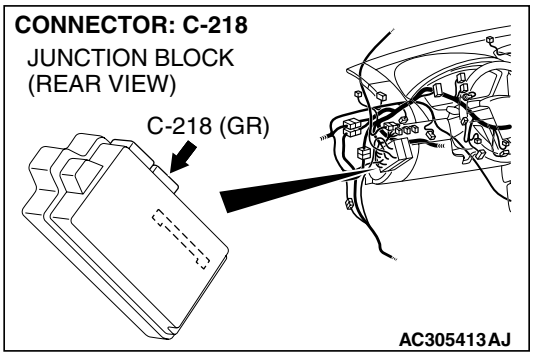
TSB Revision











TROUBLE JUDGMENT

Short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

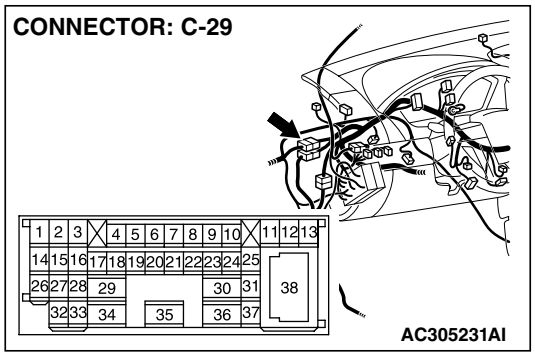
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision



STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

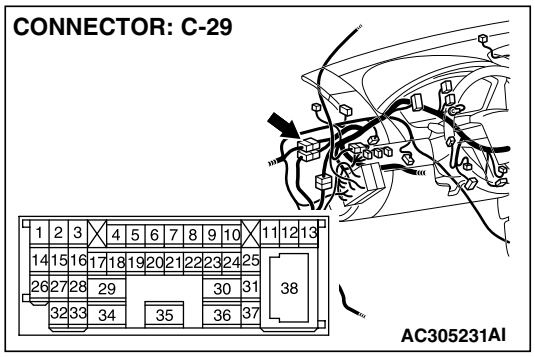
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

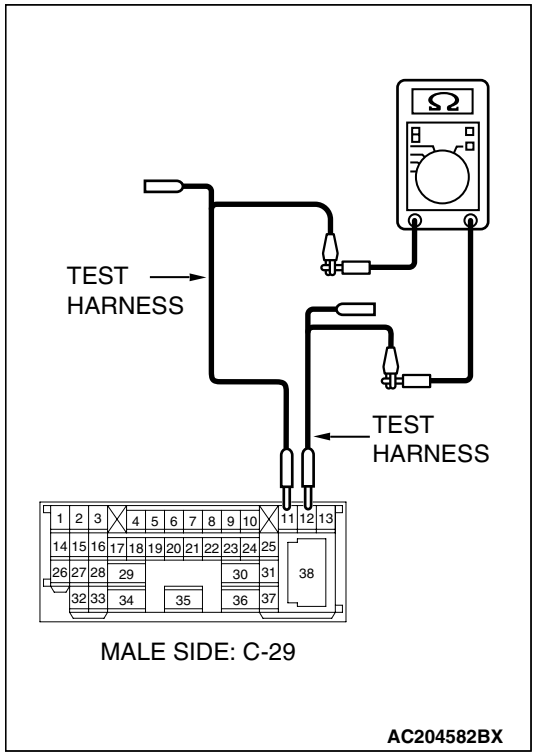
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

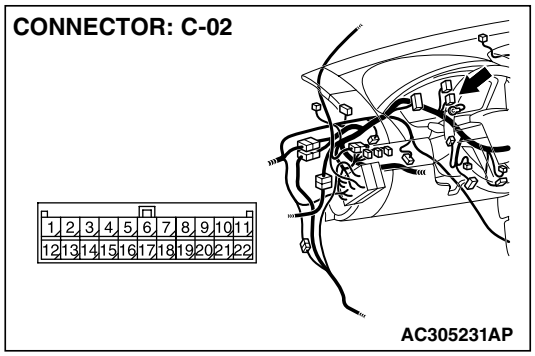
Q: Does the resistance measure 120 ± 20 Ω?

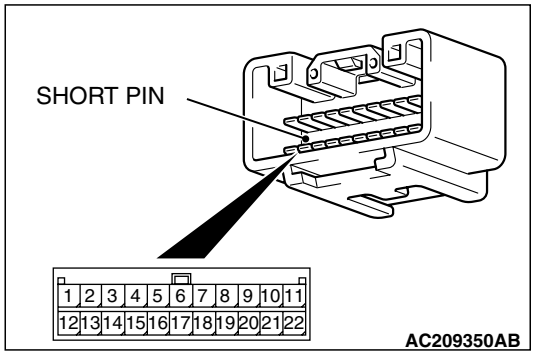
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.

NO : If the resistance does not measure 120 ± 20 Ω, go to STEP 31 .

STEP 3. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

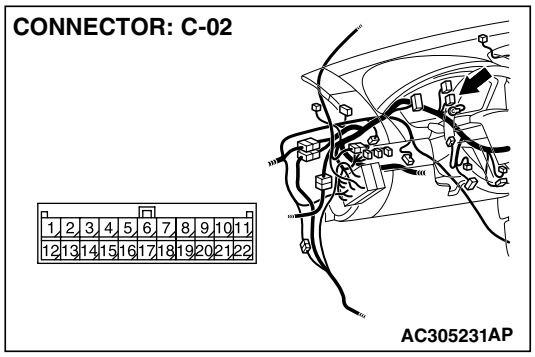
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

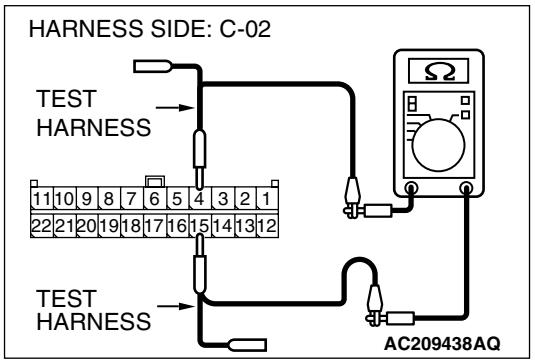
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 4 and 15.

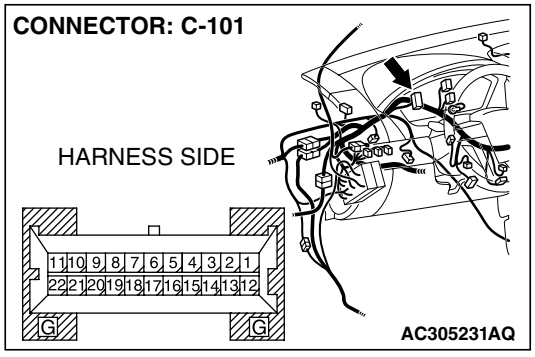
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is combination meter connector C-101 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

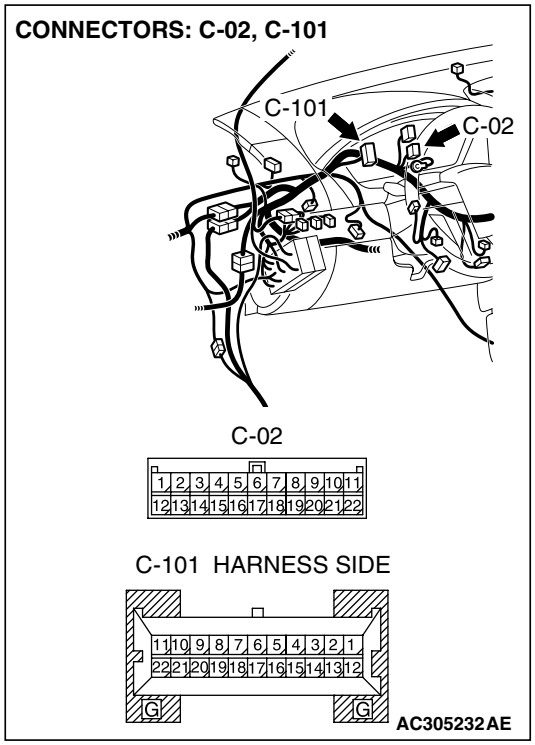
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

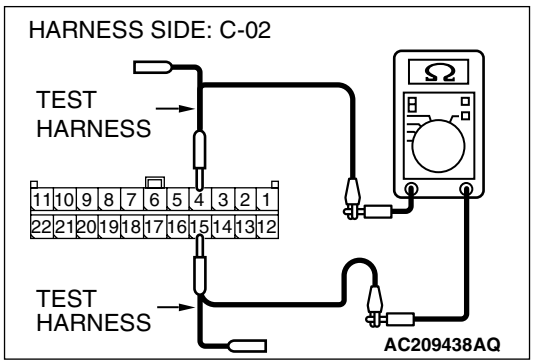
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

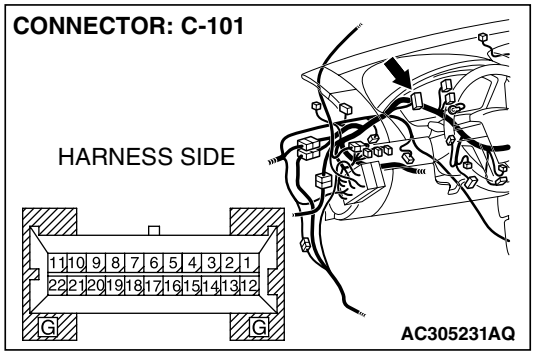
YES : If the resistance measures 1 kΩ or more, go to Step 7 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

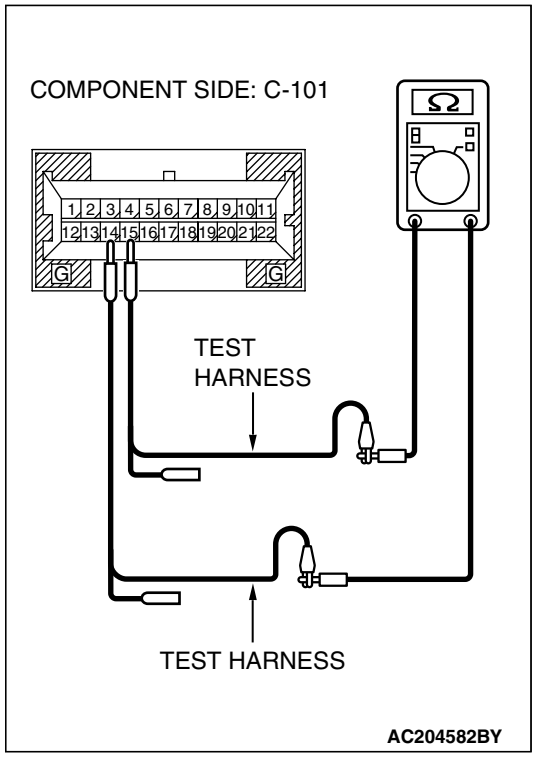
STEP 7. Check the combination meter for short circuit. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

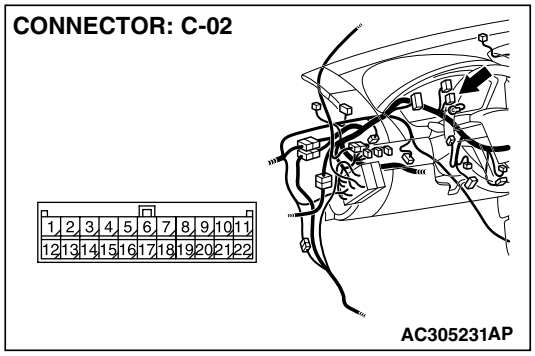
YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter.

STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

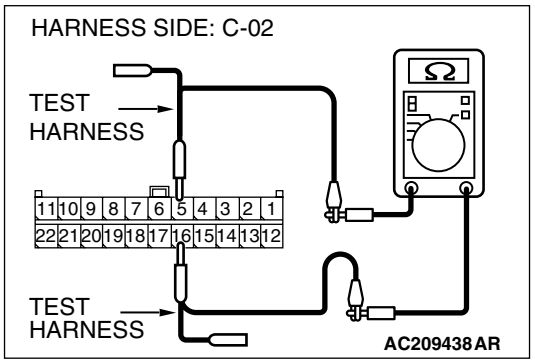
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 5 and 16.

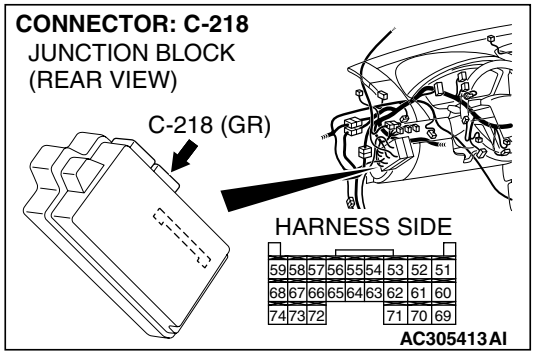
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .
NO : If the resistance measures less than 1 kΩ, go to Step 9.

STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 10.
NO : Repair the damaged parts.

STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

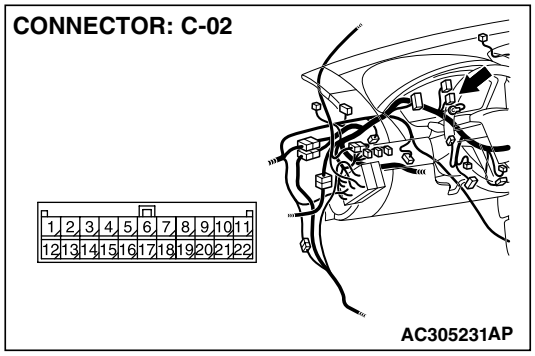
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

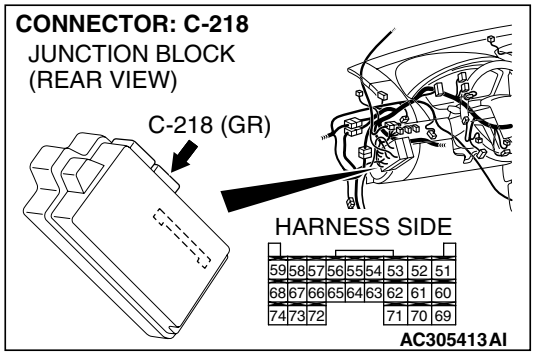
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

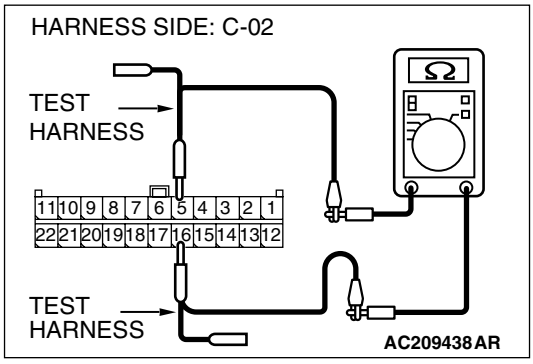
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 5 and 16.

OK: 1 kΩ or more



⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

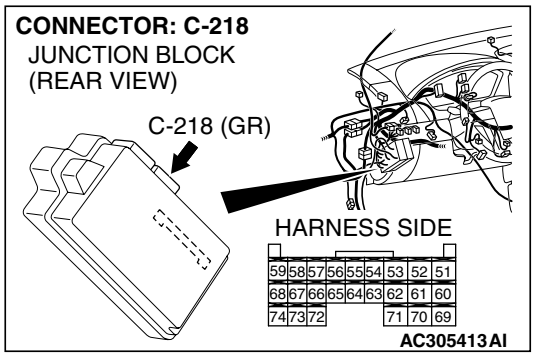
YES : If the resistance measures 1 kΩ or more, go to Step 11 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

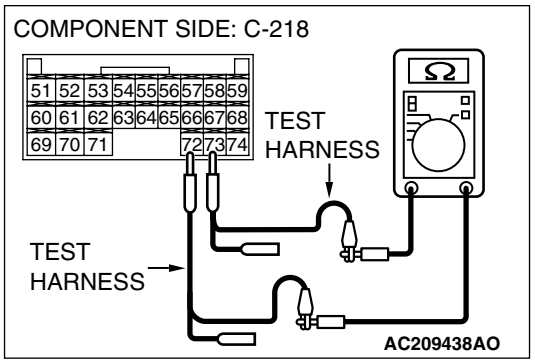
STEP 11. Check the ETACS-ECU for short circuit. Measure the resistance at ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect ETACS-ECU connector C-218, and measure the resistance at the component side of ETACS-ECU connector C-218.



(2) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, replace the ETACS-ECU.

STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

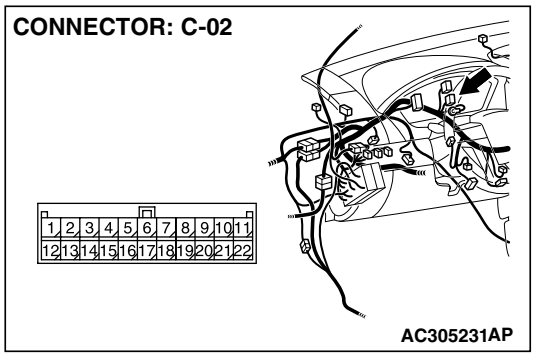
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

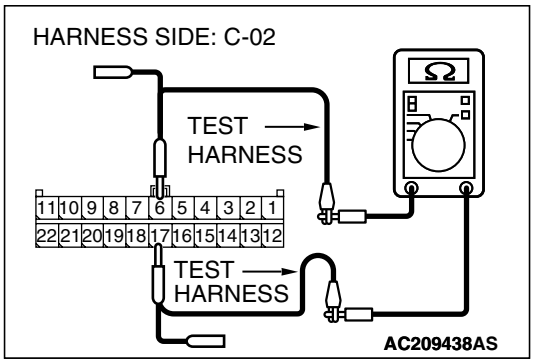


(4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 16 .
NO : If the resistance measures less than 1 kΩ, go to Step 13.

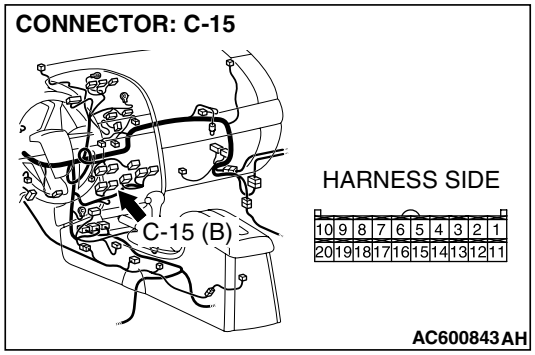


STEP 13. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 14.
NO : Repair the damaged parts.



STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

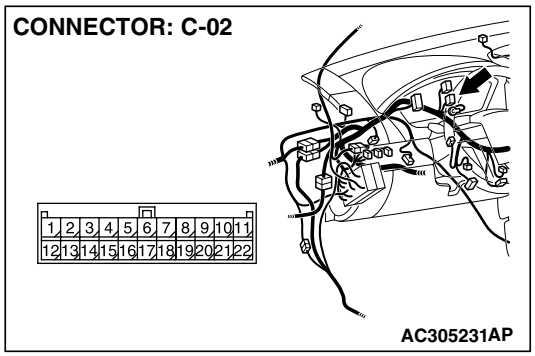
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

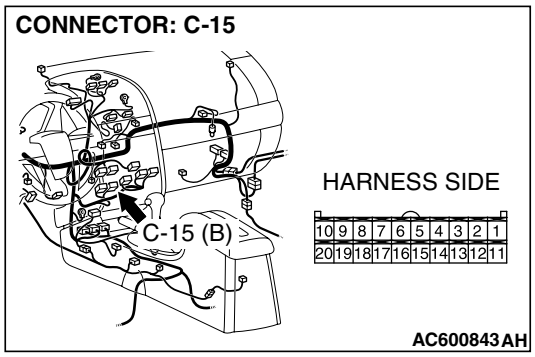
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

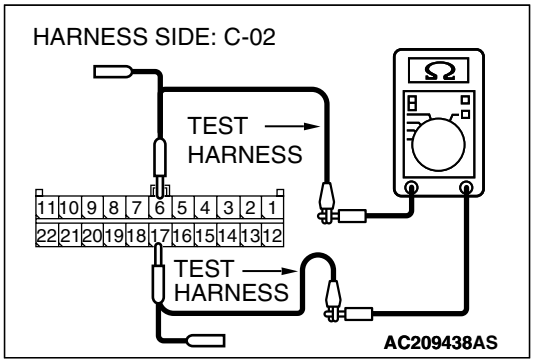
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

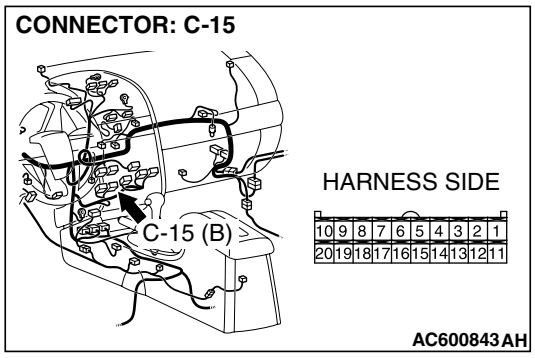
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

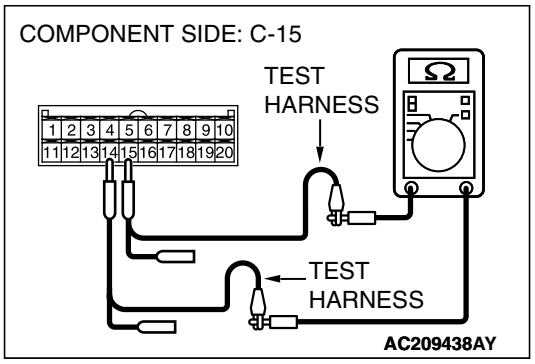
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-15.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the component side of A/C-ECU connector C-15.





(2) Measure the resistance between A/C-ECU connector terminals 14 and 15.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.

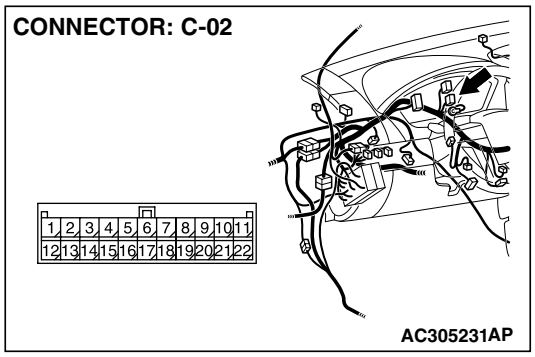
STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



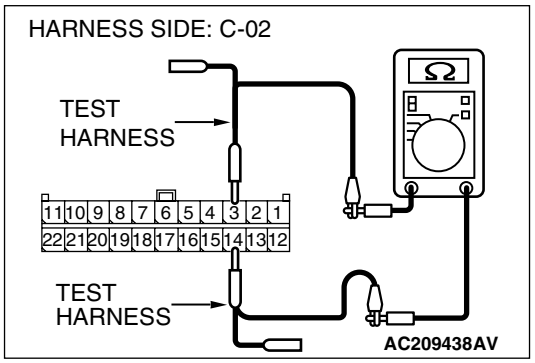
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

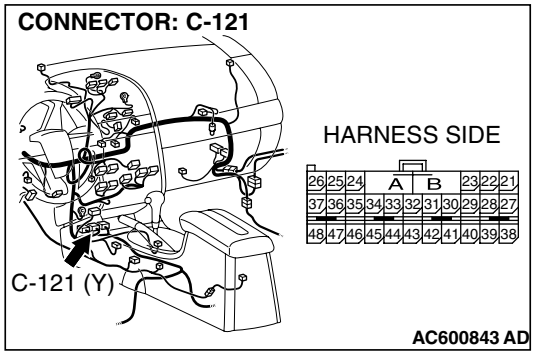
YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance measures less than 1 kΩ, go to Step 17.

STEP 17. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 18.

NO : Repair the damaged parts.

STEP 18. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

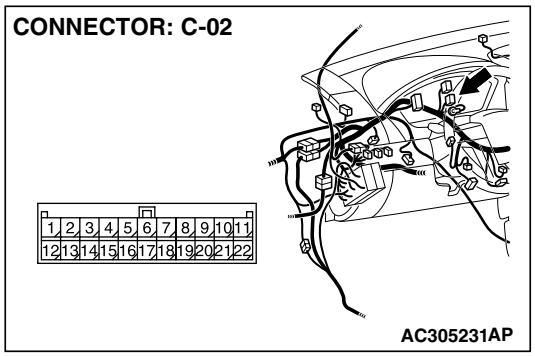
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

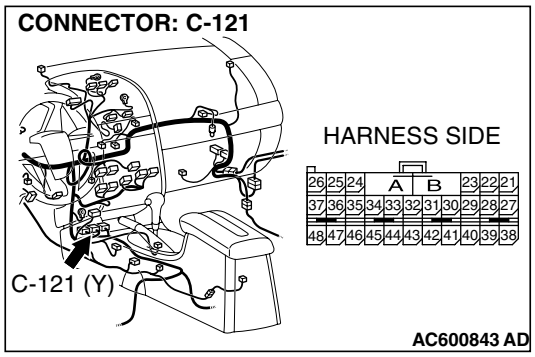
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 3 and 14.

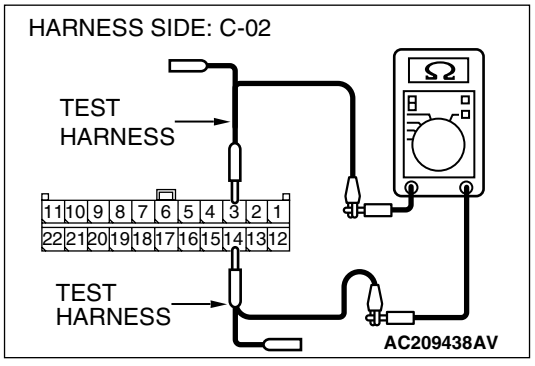
OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 19 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

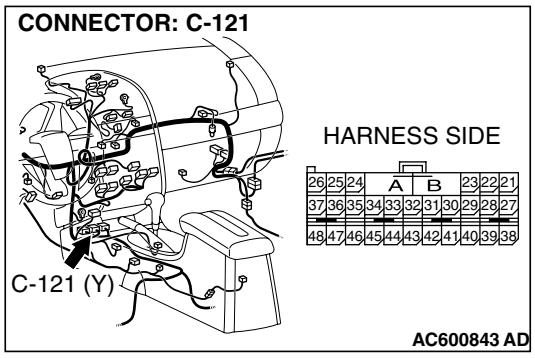


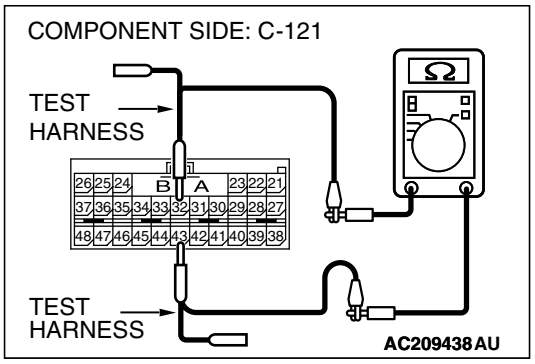
STEP 19. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.





(2) Measure the resistance between SRS-ECU connector terminals 32 and 43.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 20. Check the CAN_L and H lines (communication lines including the TPMS reciver) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

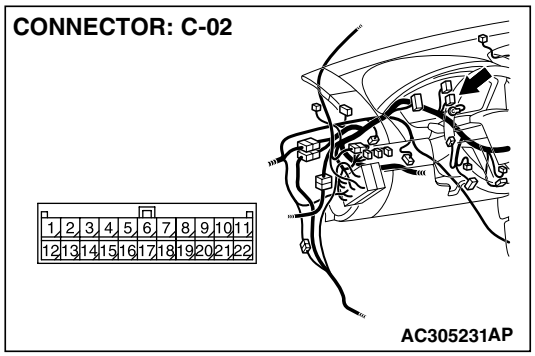
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

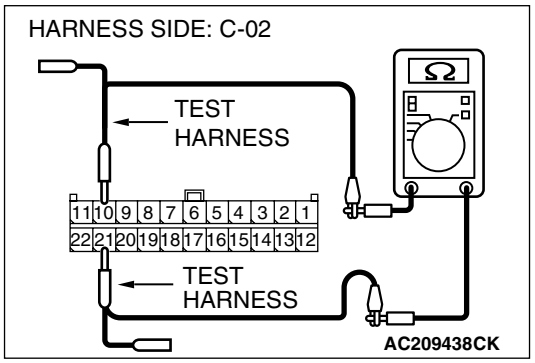


(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 24 .
NO : If the resistance measures less than 1 kΩ, go to Step 21.

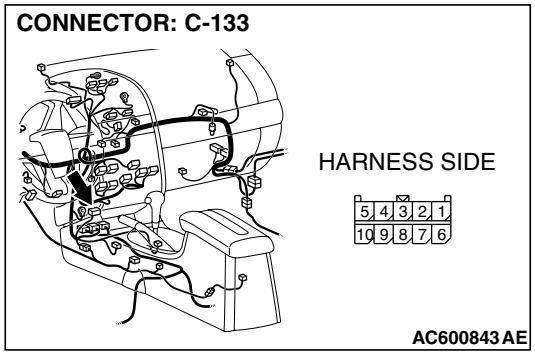


STEP 21. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 22.
NO : Repair the damaged parts.



STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the TPMS reciver for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

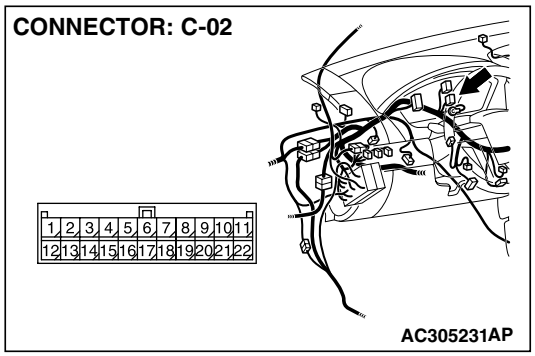
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistance at the wiring harness side of joint connector (3) C-02.

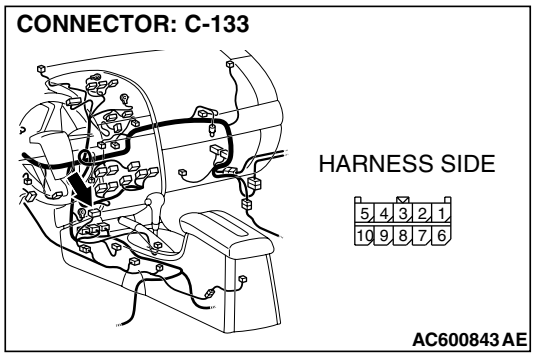
(2) Turn the ignition switch to the "LOCK" (OFF) position.

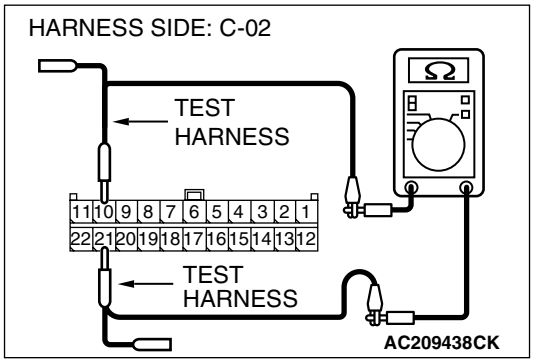
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between joint connector (3) terminals 10 and 21.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

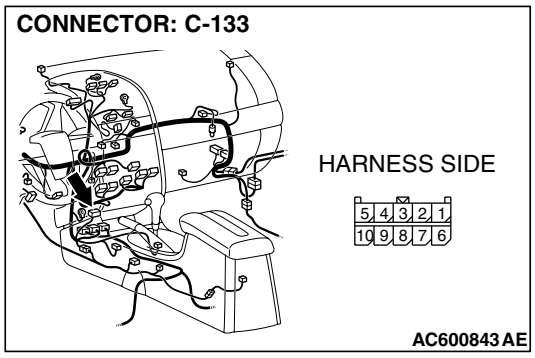
YES : If the resistance measures 1 kΩ or more, go to Step 23 .

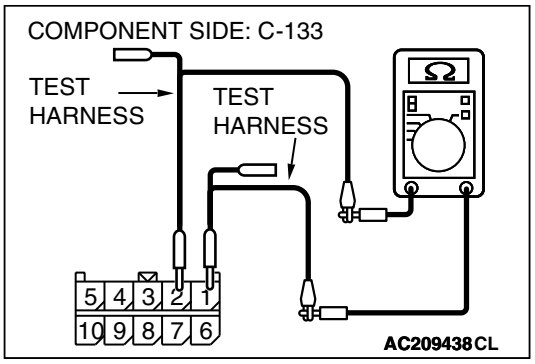
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 23. Check the TPMS reciver for short circuit.
Measure the resistance at TPMS reciver connector C-133.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect TPMS reciver connector C-133, and measure the resistance at the component side of TPMS reciver connector C-133.





(2) Measure the resistance between TPMS reciver connector terminals 1 and 2.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance measures less than 1 kΩ, replace the TPMS reciver.

STEP 24. Check the CAN_L and H lines (communication lines including the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)) between joint connector (3) and the middle-grade multi-center display for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

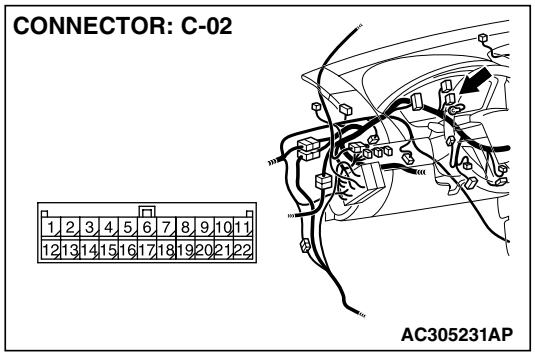
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

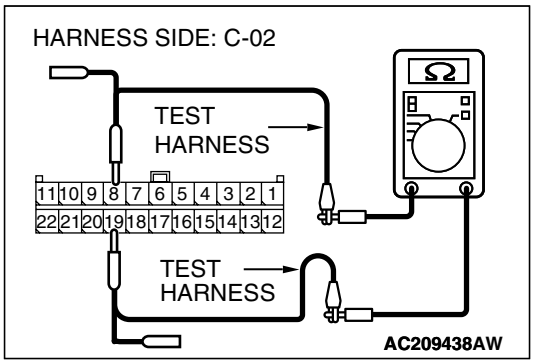
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 8 and 19.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 28 .

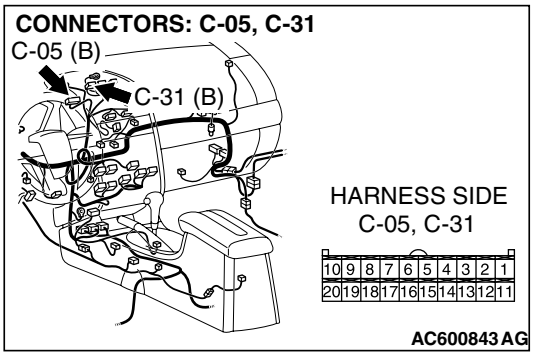
NO : If the resistance measures less than 1 kΩ, go to STEP 25.

STEP 25. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

CONNECTORS: C-05, C-31



Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

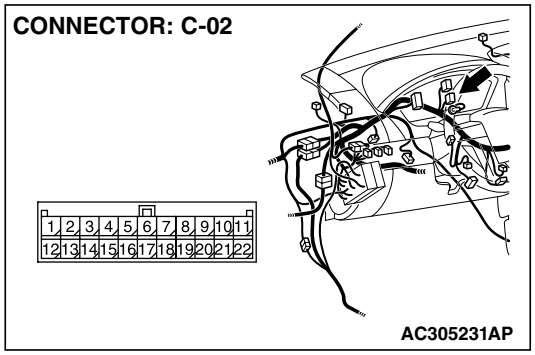
YES : Go to STEP 26.

NO : Repair the damaged parts.

STEP 26. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

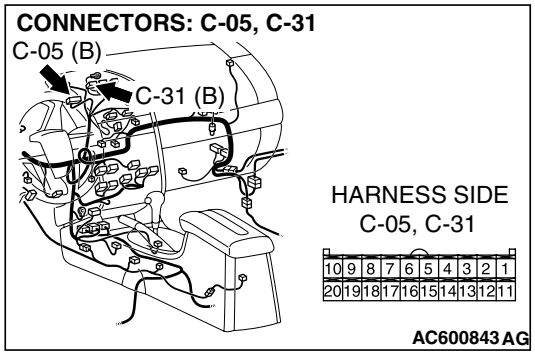
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



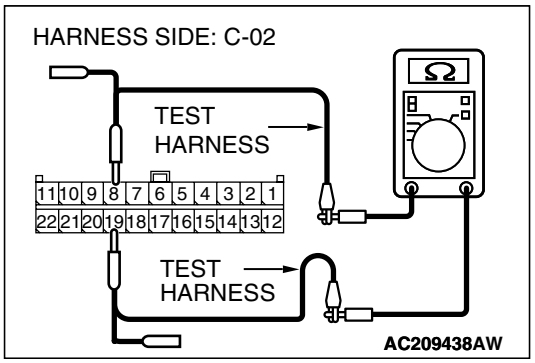
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.



(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 8 and 19.

OK: 1 kΩ or more

⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 27 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

STEP 27. Check the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) for short circuit. Measure the resistance at multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the component side of multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

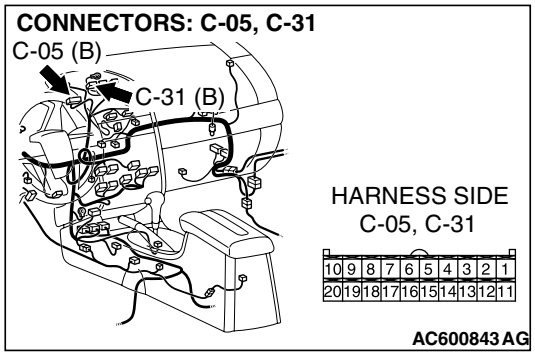
(2) Measure the resistance between the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector terminals 12 and 13 <multi-center display unit (middle-grade type)> or terminals 5 and 15 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

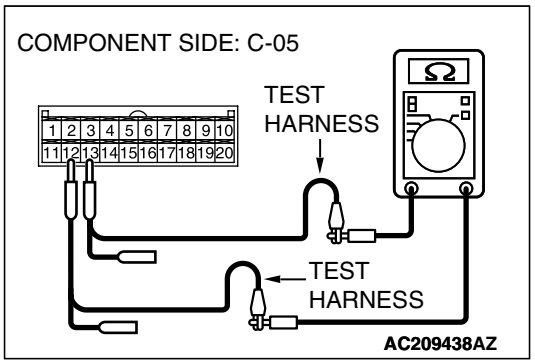
OK: 1 kΩ or more

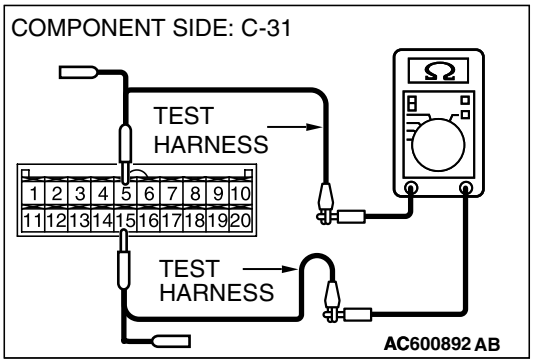
Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures lower than 1 kΩ, replace the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system).

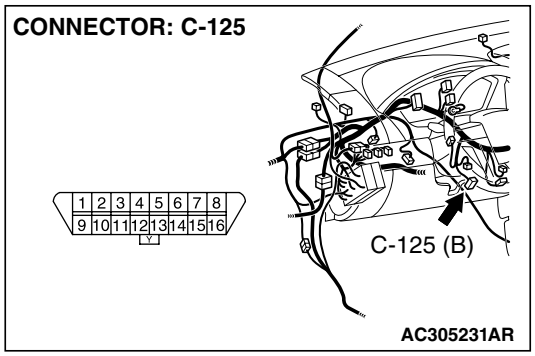






STEP 28. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



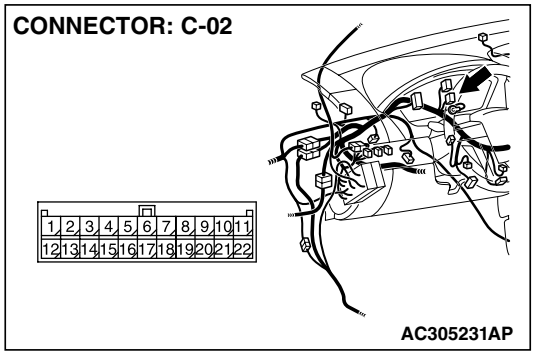
Q: Is data link connector C-125 in good condition?

YES : Go to STEP 29.
NO : Repair the damaged parts.

STEP 29. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

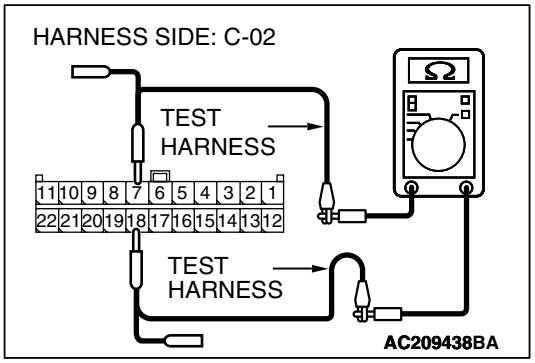
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.



(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 30 .
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 30. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

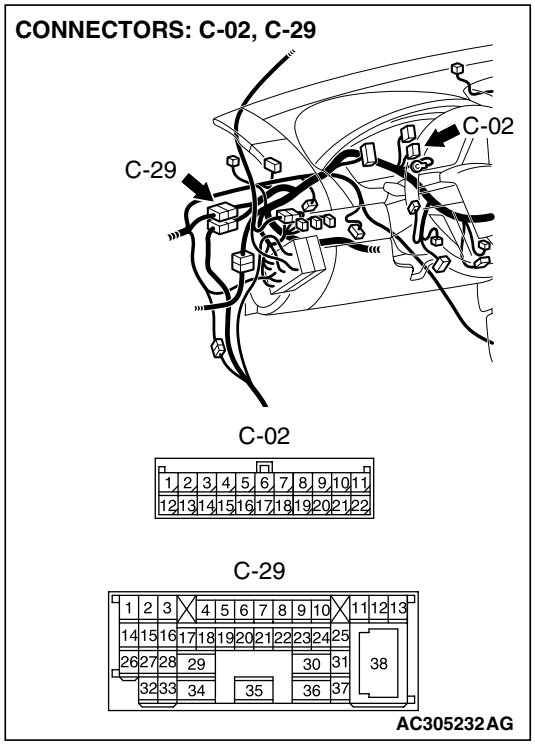
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

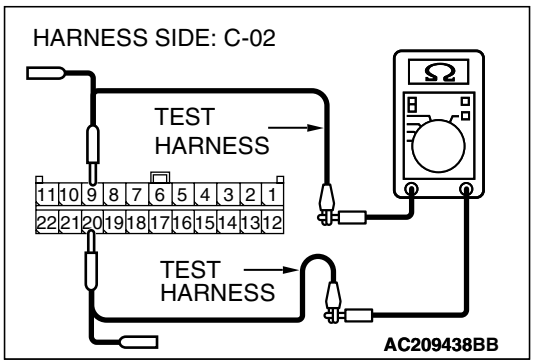
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 9 and 20.

OK: 1 kΩ or more

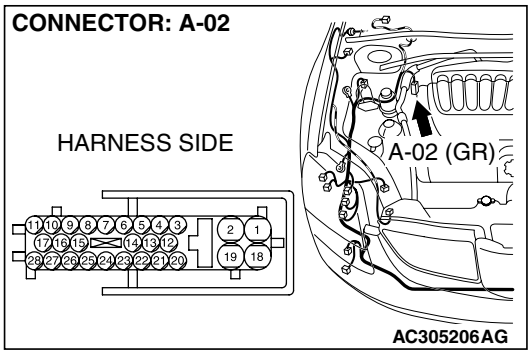
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 31. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to STEP 32.

NO : Repair the damaged parts.

STEP 32. Check the CAN_L and H lines (communication lines only) between the ABS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

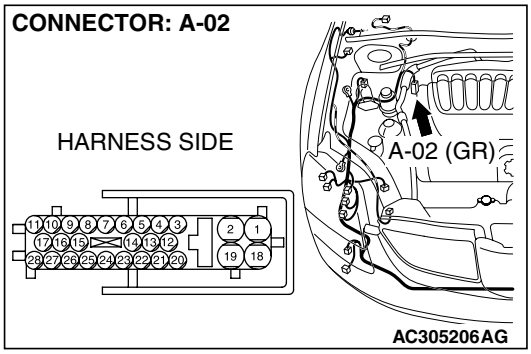
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

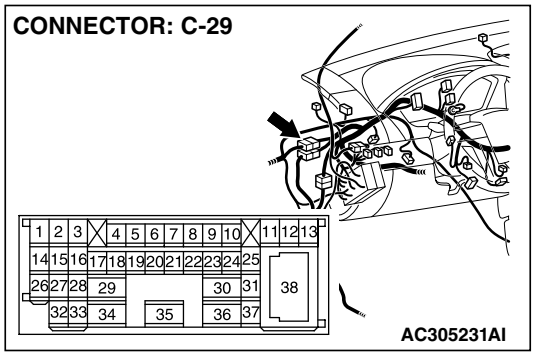
(2) Turn the ignition switch to the "LOCK" (OFF) position.

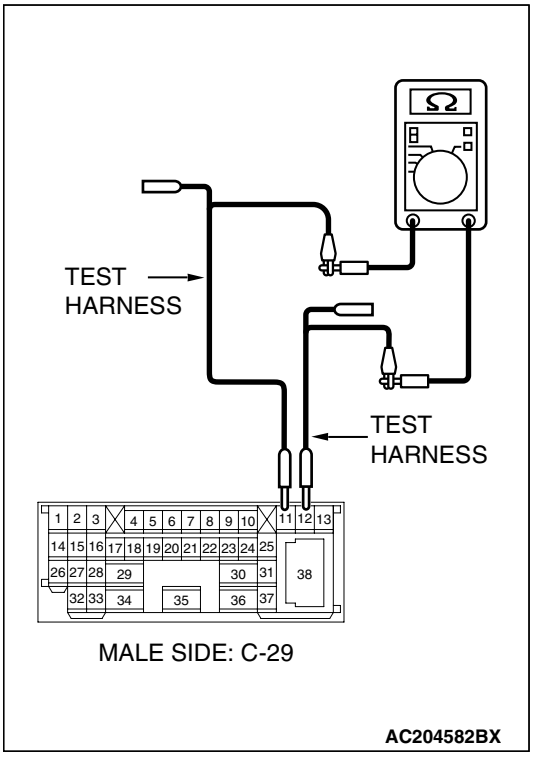
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

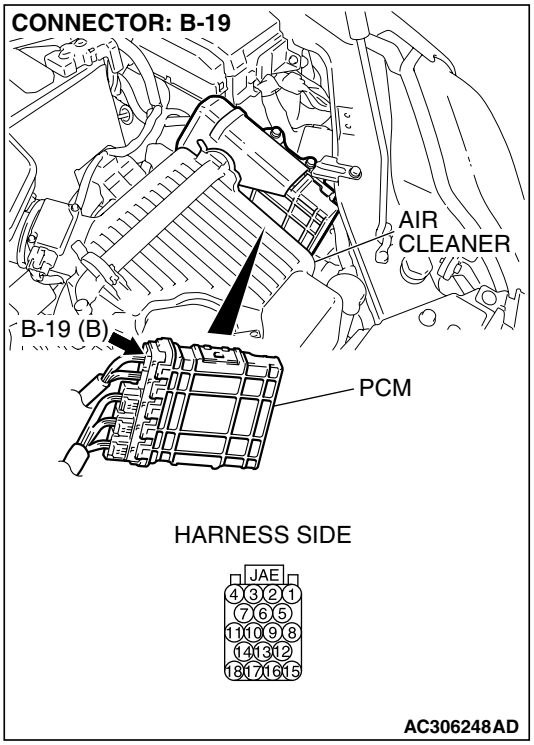
YES : If the resistance measures 1 kΩ or more, go to STEP 33 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 33. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is powertrain control module connector B-19 in good condition?

YES : Go to STEP 34.

NO : Repair the damaged parts.

STEP 34. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector and the ABS-ECU connector for a short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

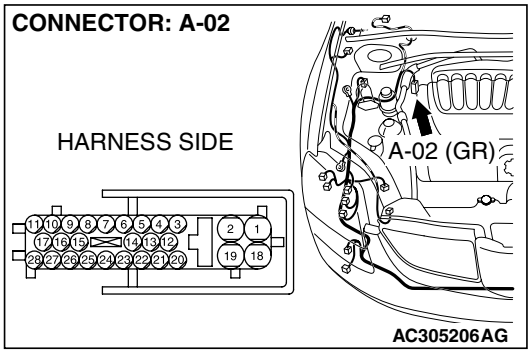
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

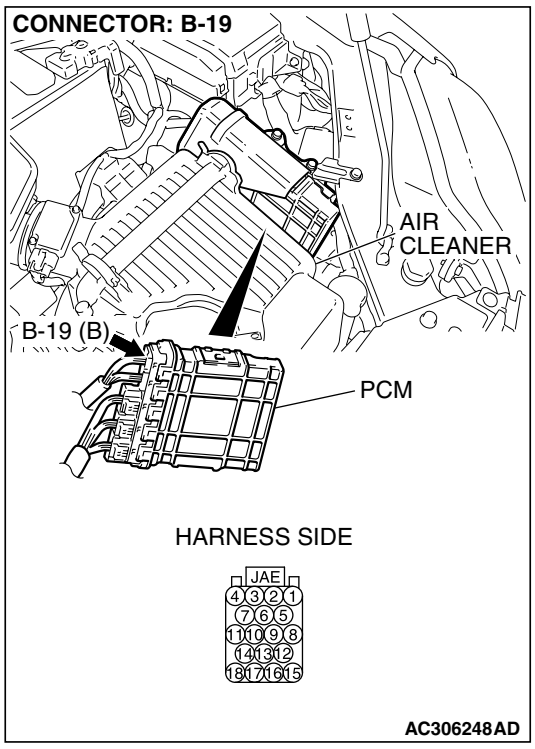
(2) Turn the ignition switch to the "LOCK" (OFF) position.

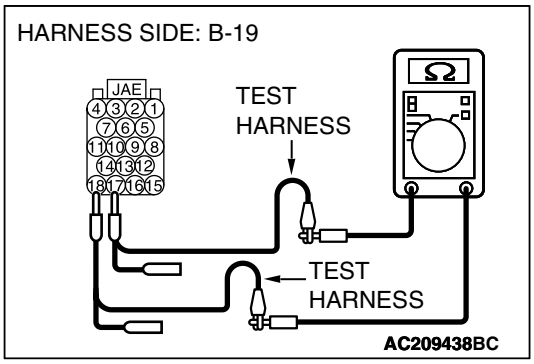
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Does the resistance measure 1 kΩ or more?

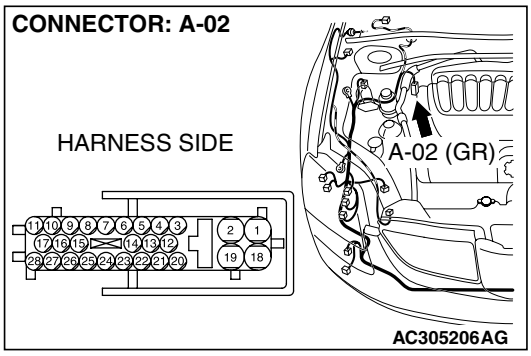
YES : If the resistance measures 1 kΩ or more, go to STEP 35 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

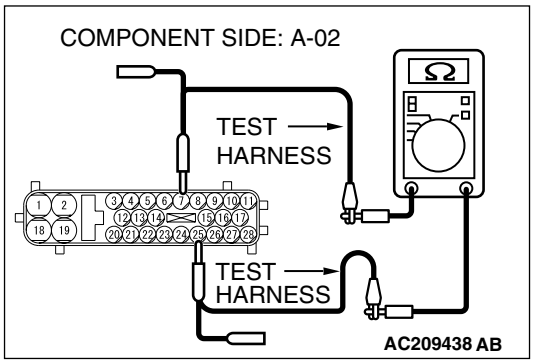
STEP 35. Check the ABS-ECU for short circuit. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.



(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.



(2) Measure the resistance between ABS-ECU connector terminals 7 and 25.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to STEP 36 .

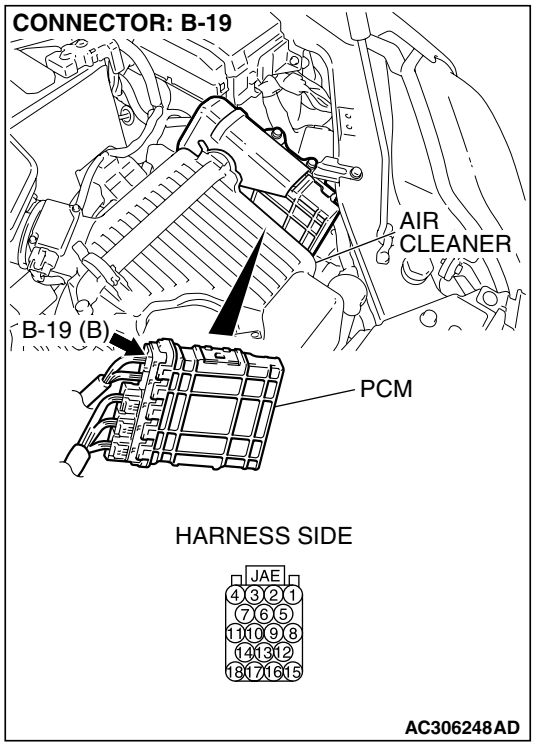
NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

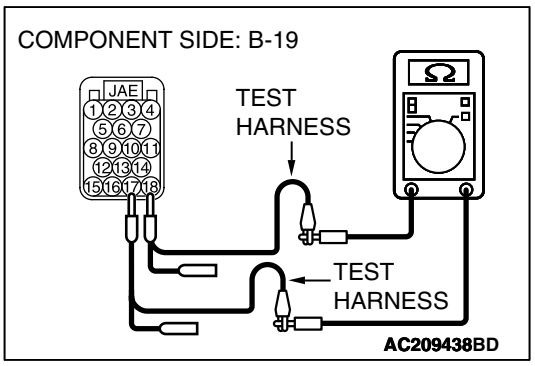
STEP 36. Check the powertrain control module for short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

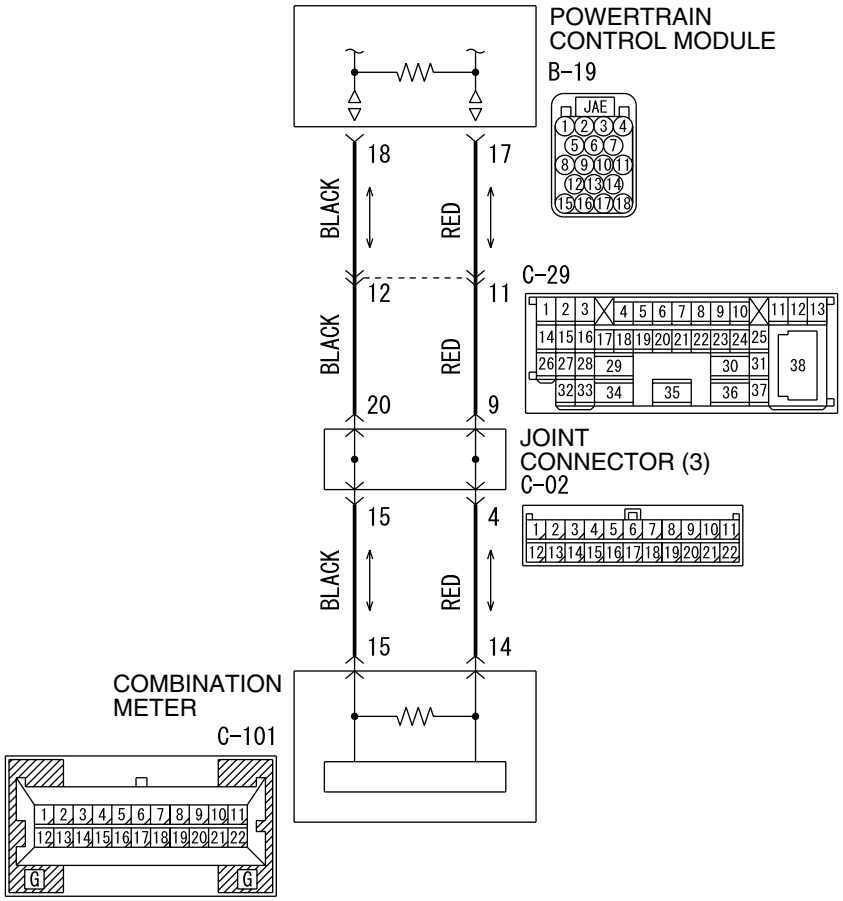
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-562.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module.

DIAGNOSTIC ITEM 10: Diagnose terminator resistors at both ends <Vehicles without ABS>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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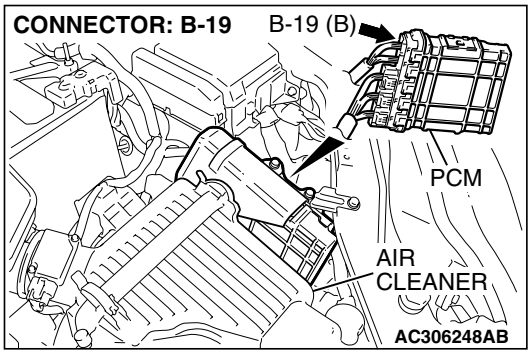
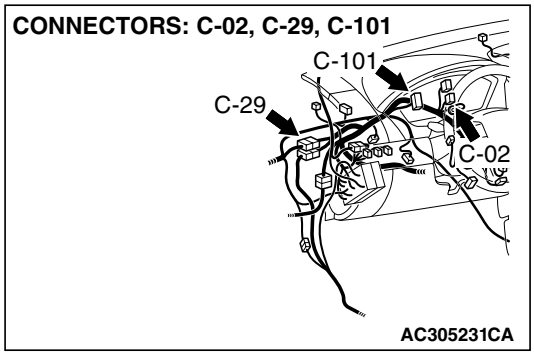




TROUBLE JUDGMENT
The terminator resistors at both ends of CAN bus lines may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is more than 2 ohms.

TSB Revision

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged (open circuit may be present on CAN_L or CAN_H line between the data link connector and CAN main bus lines, or CAN main bus lines may be open at both sides), or the combination meter and the powertrain control module may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

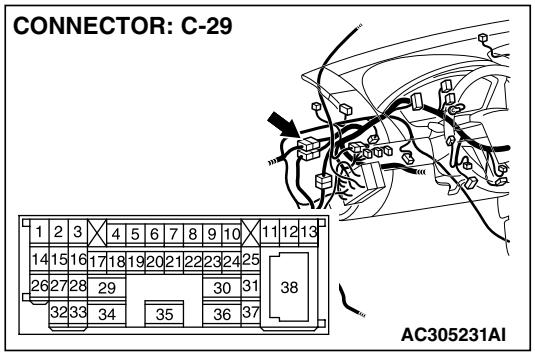
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the instrument panel wiring harness side CAN bus lines (communication line including the combination meter). Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

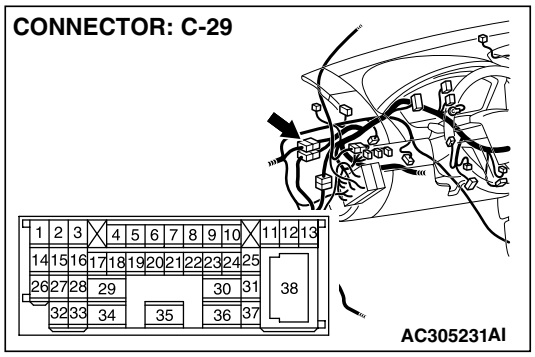
(1) Disconnect intermediate connector C-29, and measure the resistance at its female side connector (instrument panel wiring harness side).

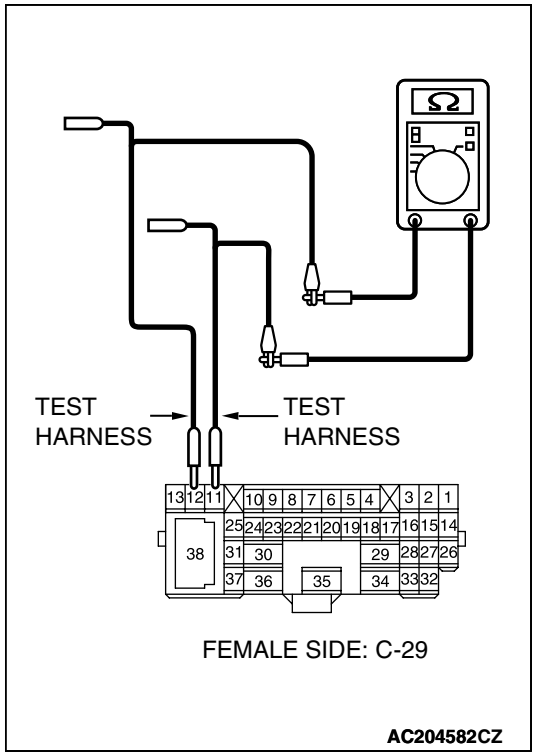
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

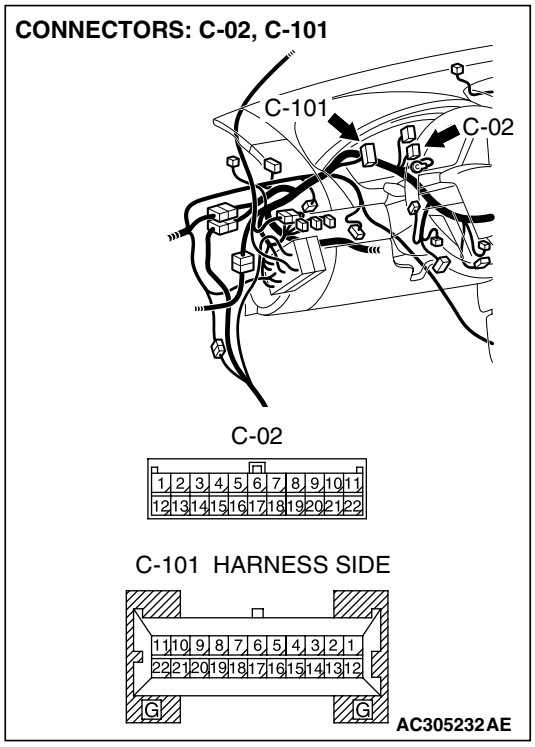
Q: Does the resistance measure 120 ± 20 Ω?

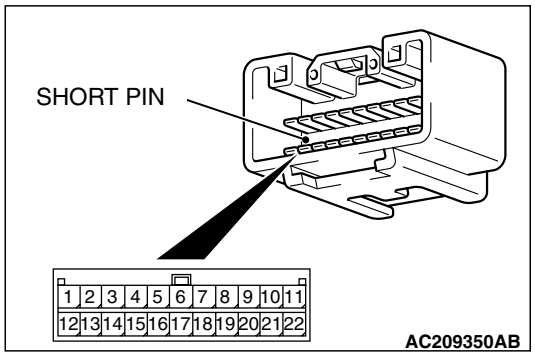
YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 3 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary. Then go to Step 2.

STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

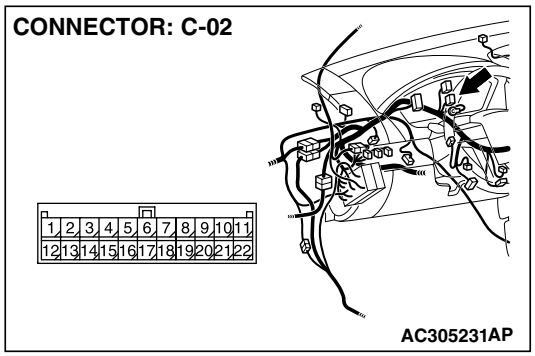
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

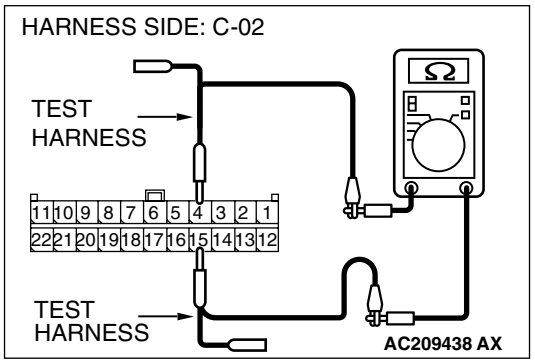
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

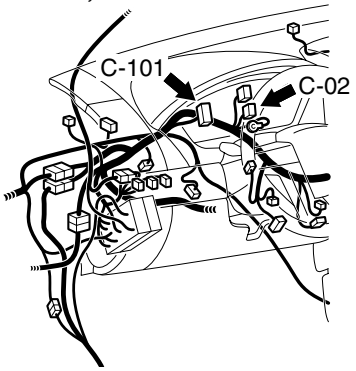
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

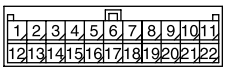
YES : If the resistance measures 120 ± 20 Ω, go to Step 7.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

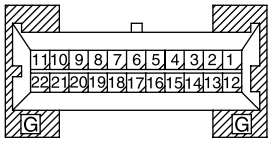
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

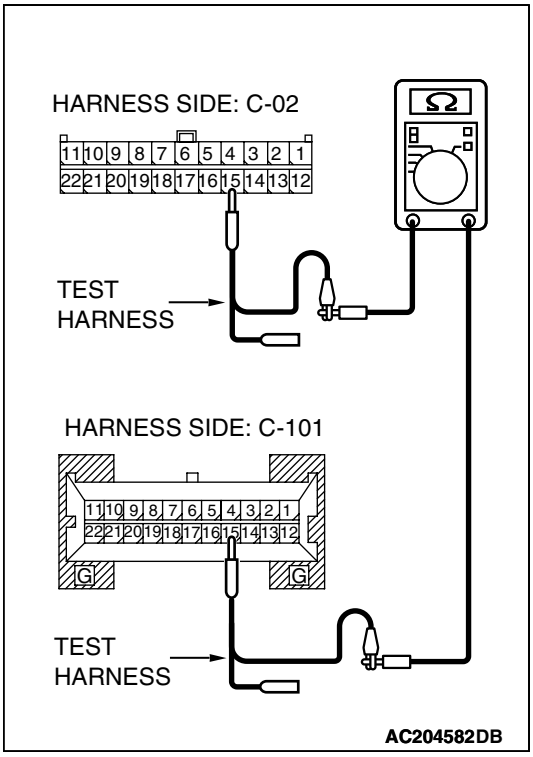
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

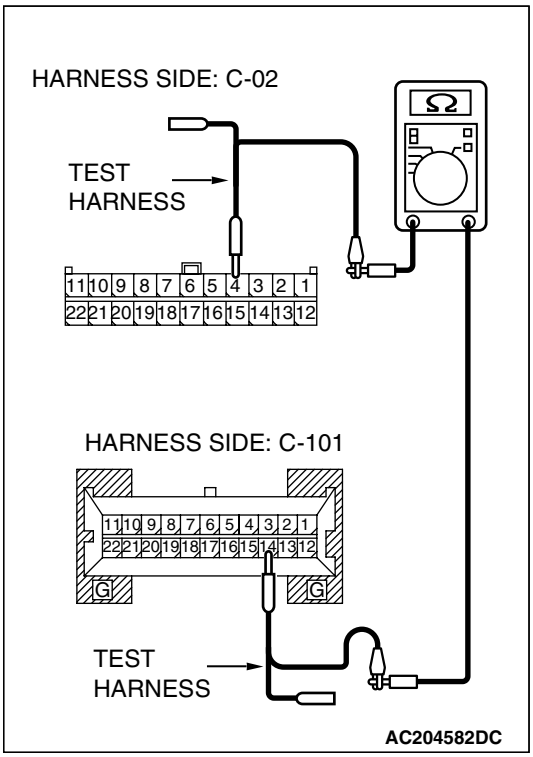
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 6.

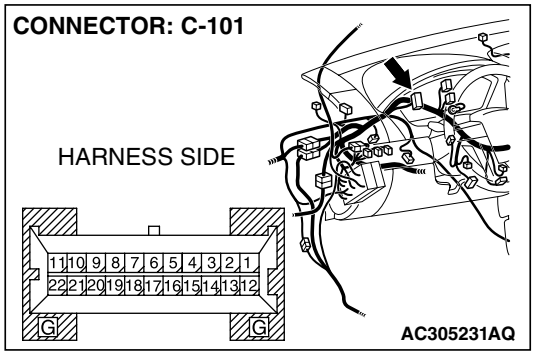
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector, and then go to Step 2.

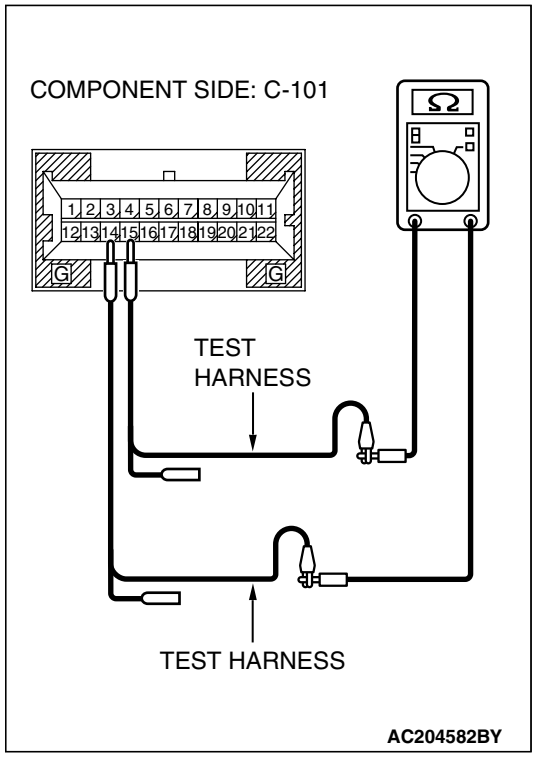
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.





(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 2.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter, and then go to Step 2.

STEP 7. Check the CAN bus lines (communication line only) between intermediate connector C-29 and joint connector (3). Measure the resistance at intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

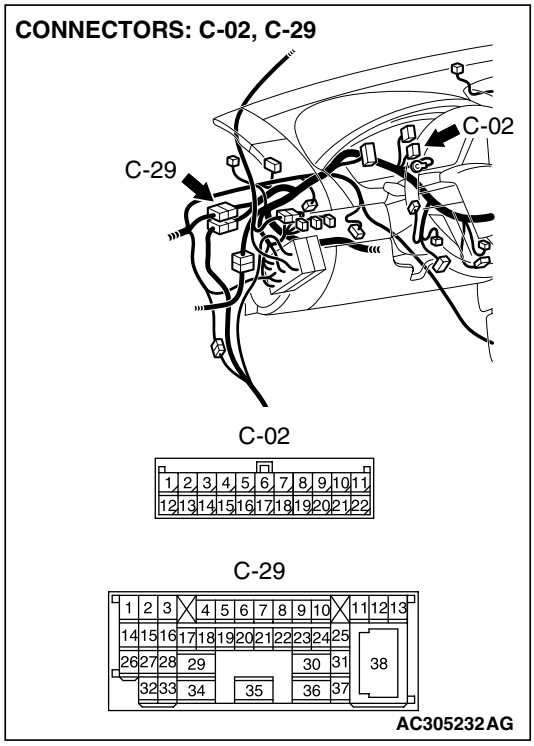
(2) Turn the ignition switch to the "LOCK" (OFF) position.

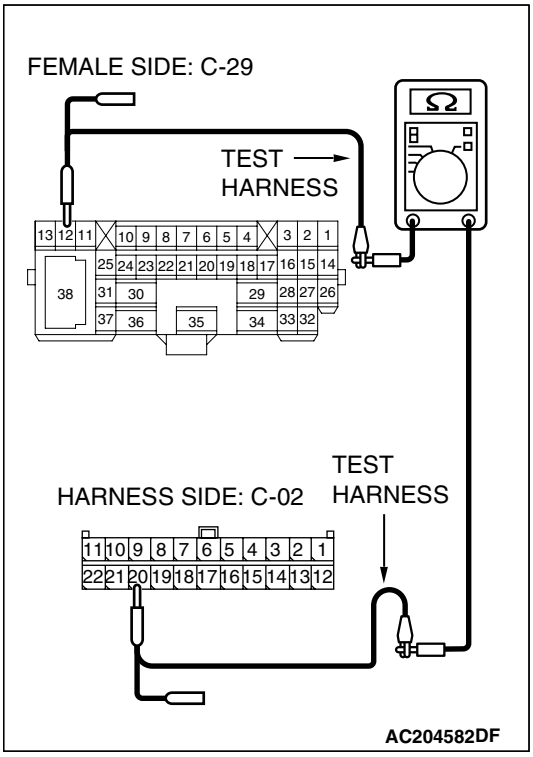
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

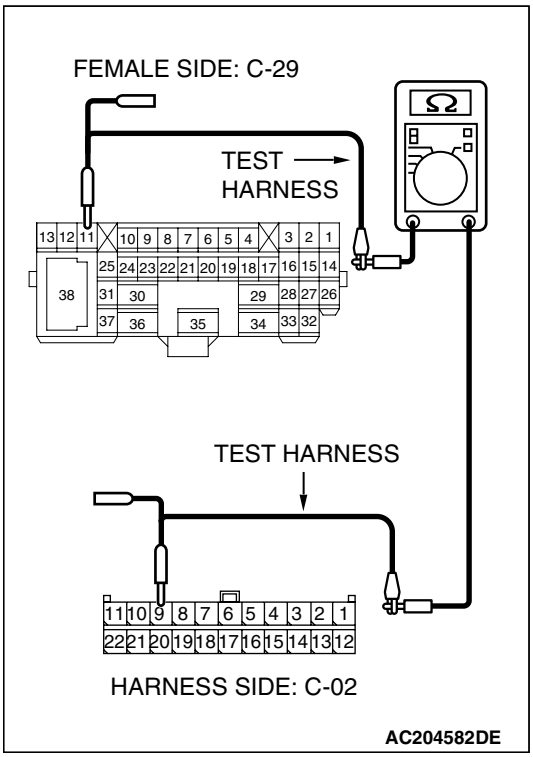
CONNECTORS: C-02, C-29





(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 2.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector, and then go to Step 2.

STEP 8. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

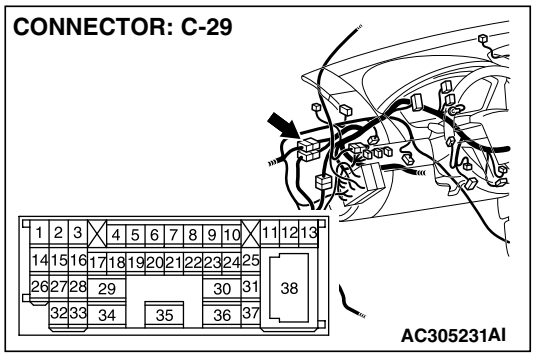
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

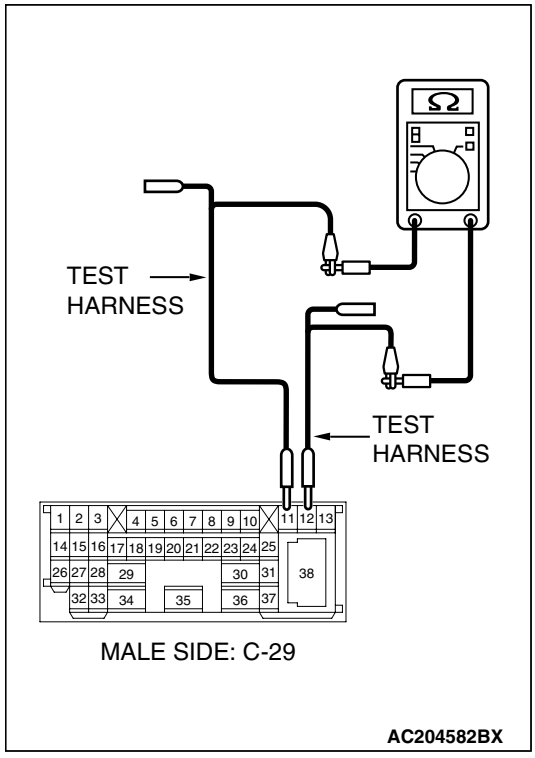
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



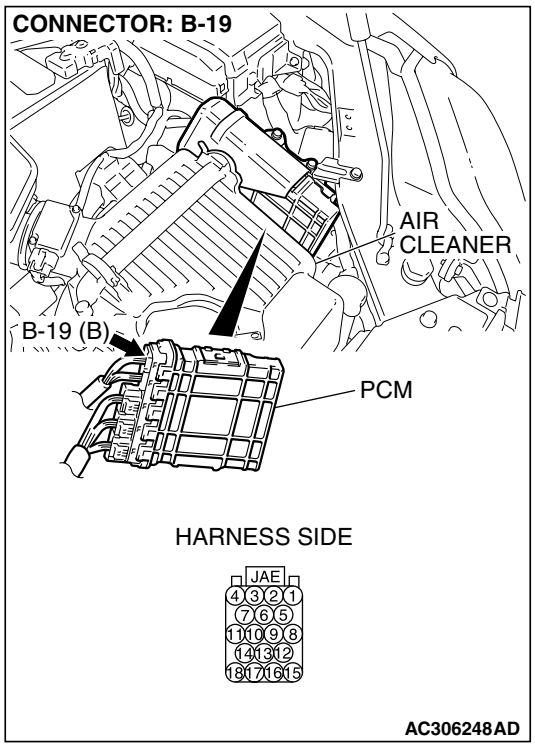


(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 12.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .



STEP 9. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is powertrain control module connector B-19 in good condition?

YES : Go to Step 10.

NO : Repair the damaged parts, and then go to Step 8.

STEP 10. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the powertrain control module. Measure the resistance at intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

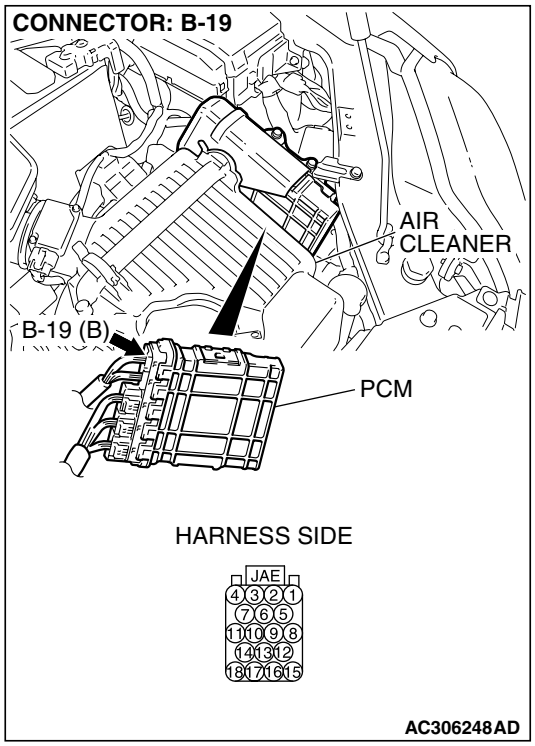
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

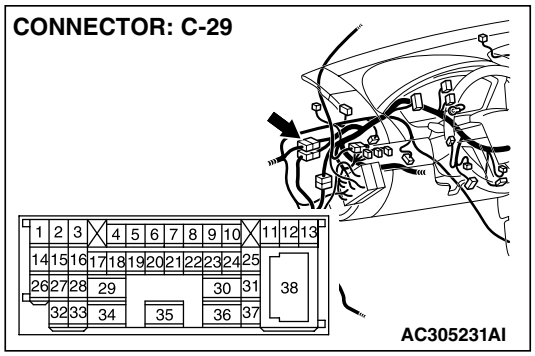
(2) Turn the ignition switch to the "LOCK" (OFF) position.

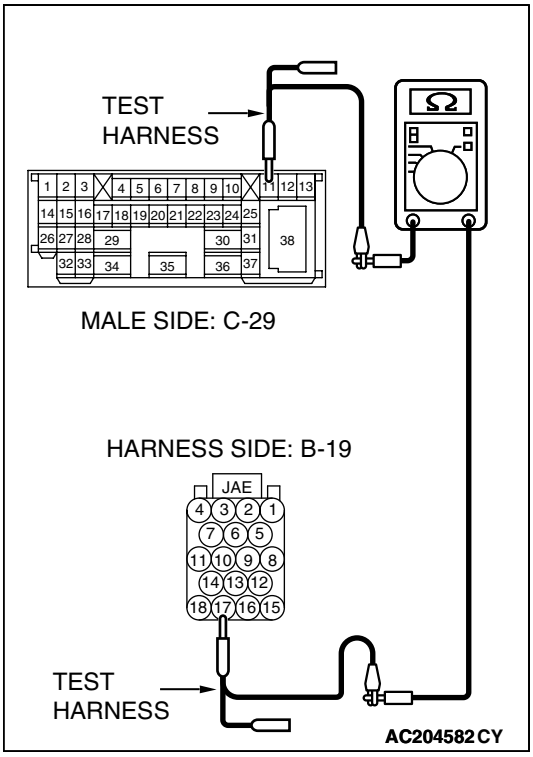
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

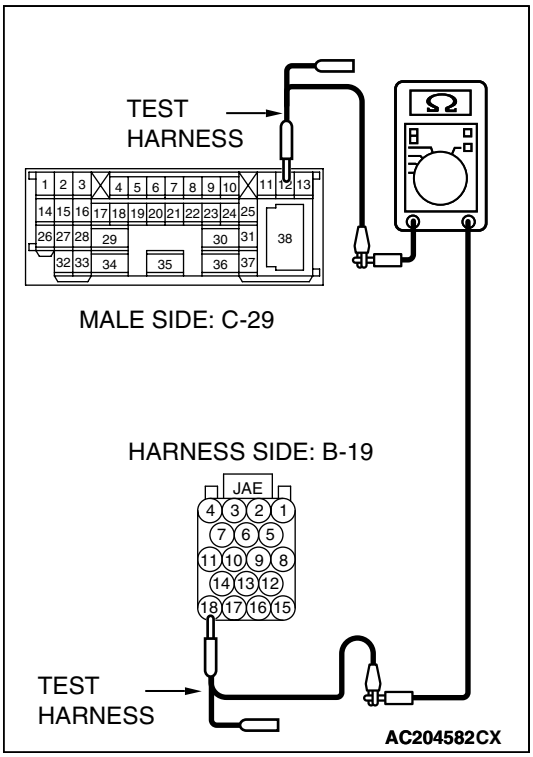






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 11.

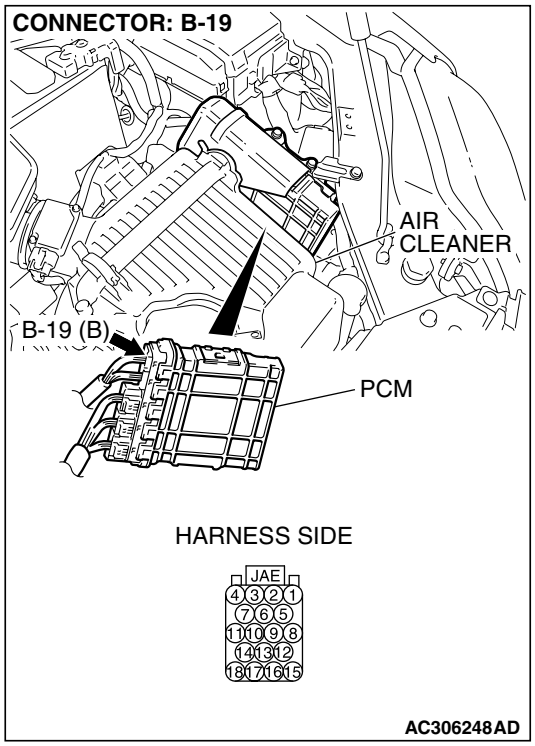
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector, and then go to Step 8.

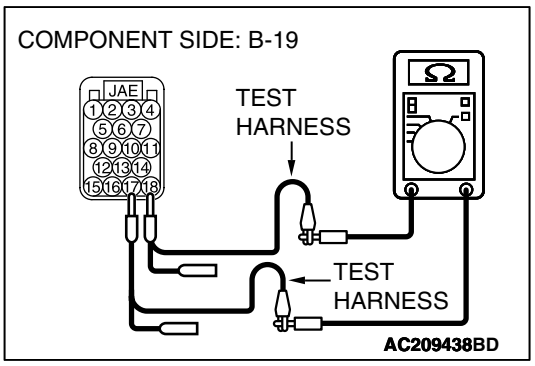
STEP 11. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module, and then go to Step 8.

STEP 12. Check the CAN bus lines (communication line only) between joint connector (3) and the data link connector. Measure the resistance at joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

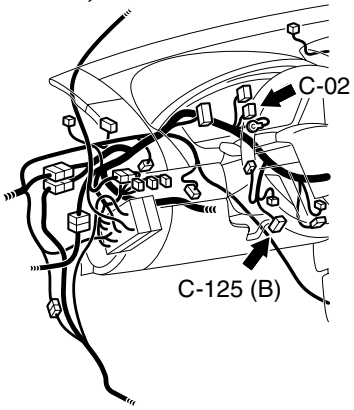
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

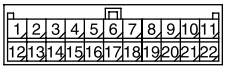
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

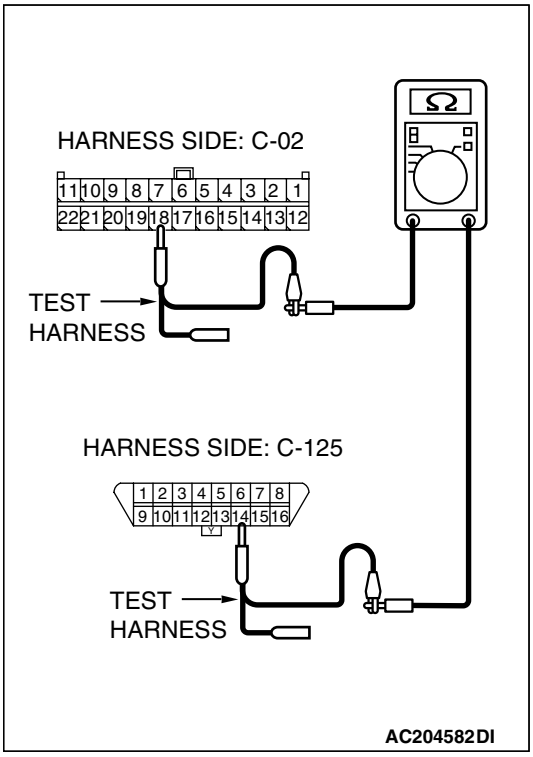


C-02



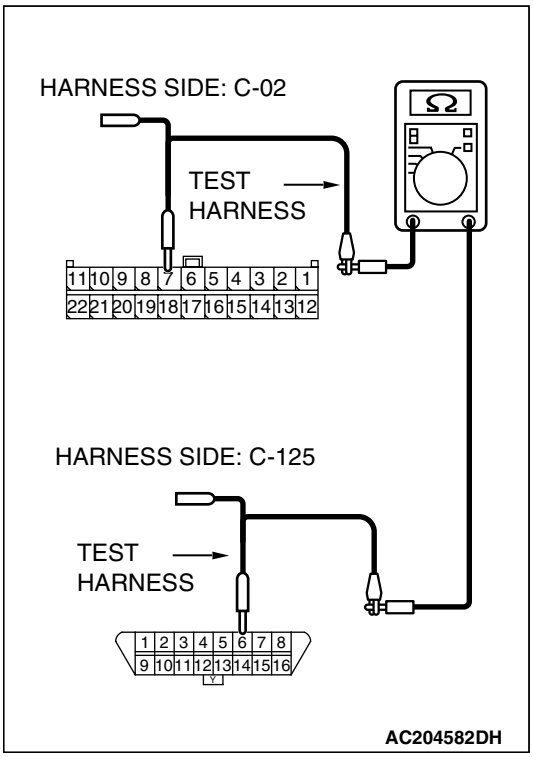
C-125

AC305232AF



(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

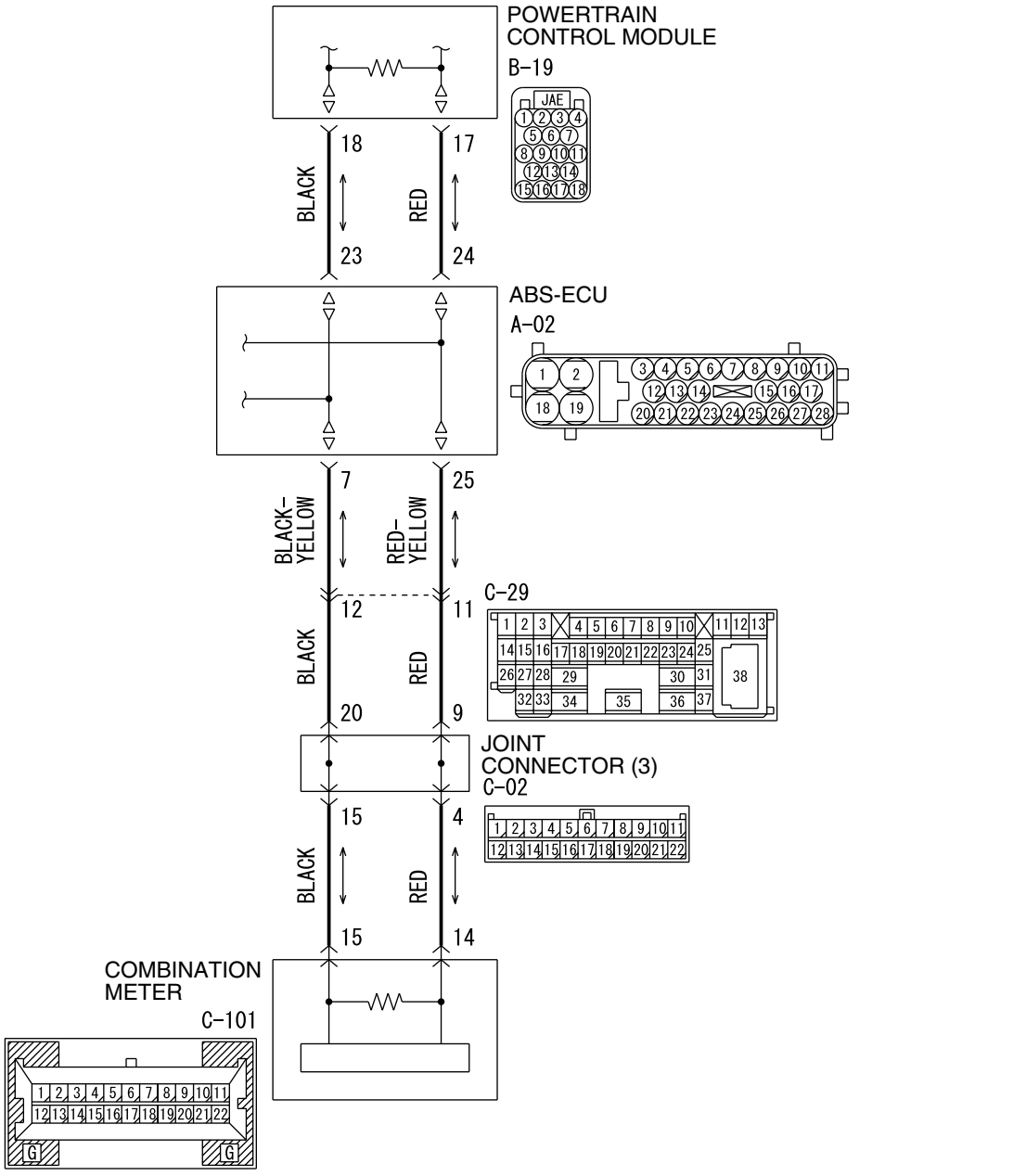
YES <all the resistances measure 2 ohms or less: When any repair done> : Retest the system.

YES <all the resistances measure 2 ohms or less: When no repair done> : Diagnose CAN bus lines thoroughly by referring to P.54C-492.

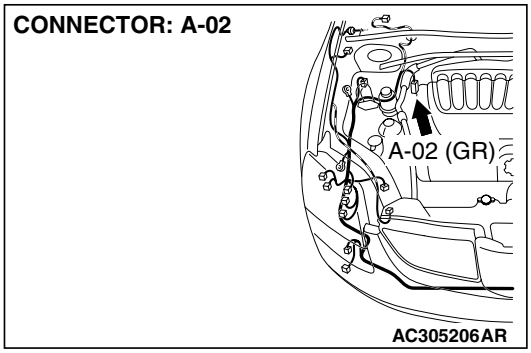
DIAGNOSTIC ITEM 11: Diagnose terminator resistors at both ends <Vehicles with ABS>

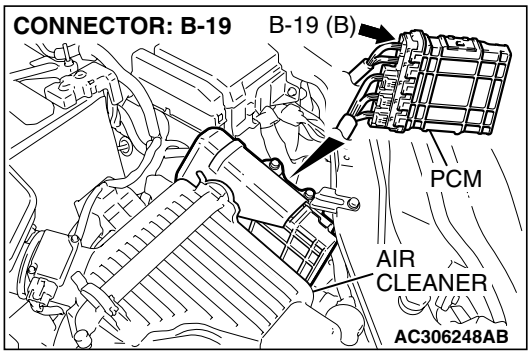
⚠ CAUTION

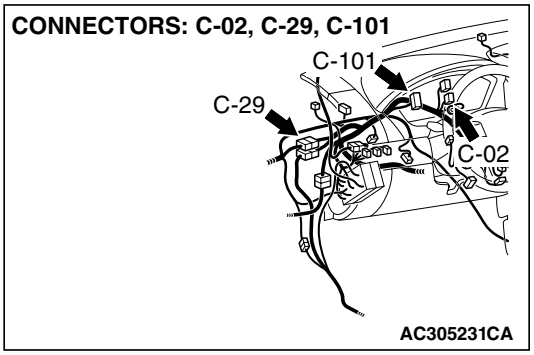
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M100A







TROUBLE JUDGMENT

The terminator resistors at both ends of CAN bus lines may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is more than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged (open circuit may be present on CAN_L or CAN_H line between the data link connector and CAN main bus lines, or CAN main bus lines may be open at both sides), or the combination meter and the powertrain control module may be defective.

TROUBLESHOOTING HINTS

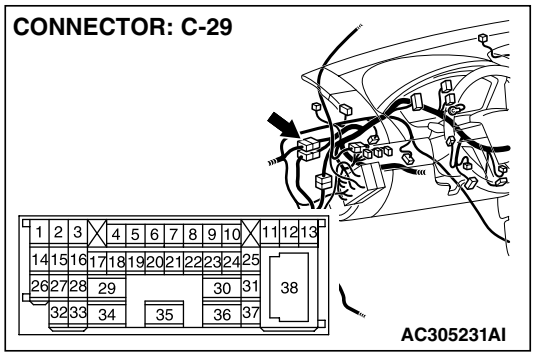
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision



STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the instrument panel wiring harness side CAN bus lines (communication line including the combination meter). Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

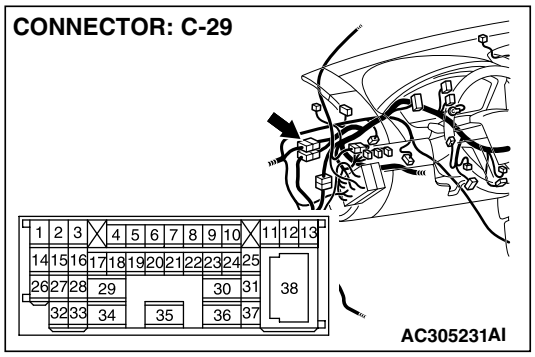
(1) Disconnect intermediate connector C-29, and measure the resistance at its female side connector (instrument panel wiring harness side).

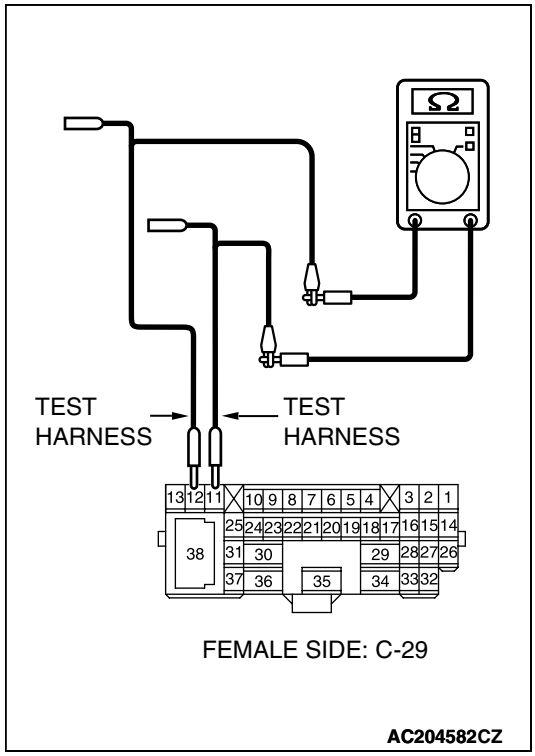
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

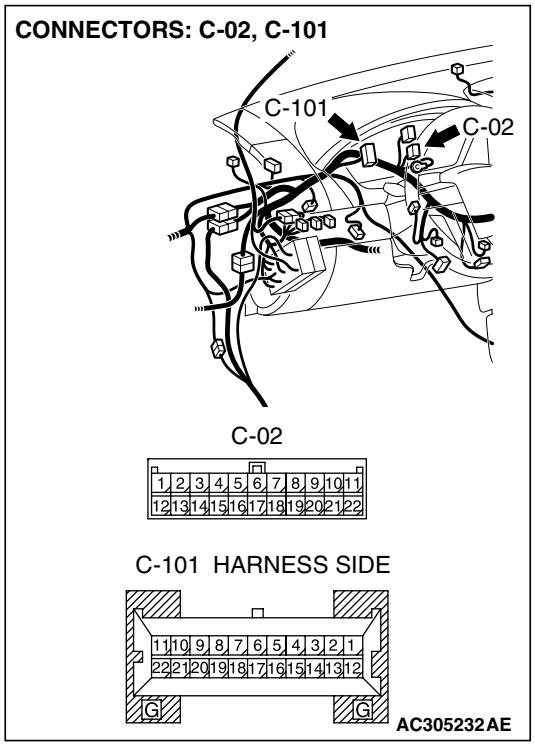
Q: Does the resistance measure 120 ± 20 Ω?

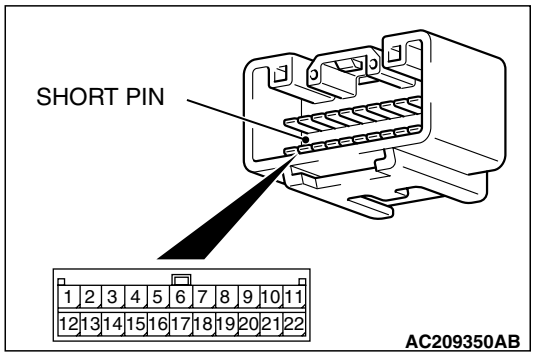
YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 3 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary. Then go to Step 2.

STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

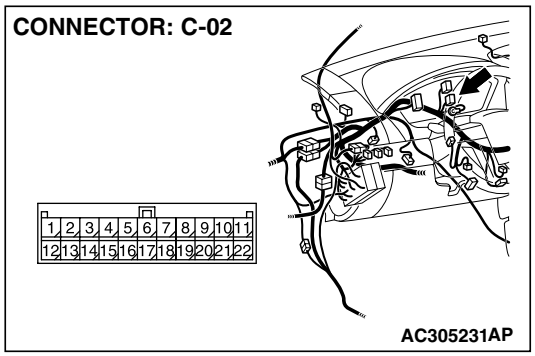
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

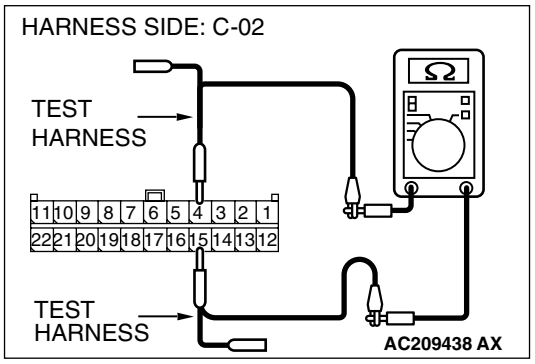
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 7.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

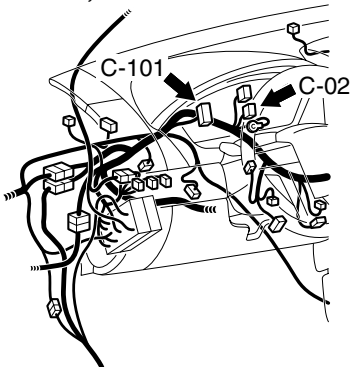
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

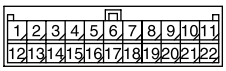
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

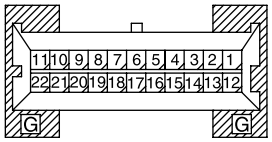
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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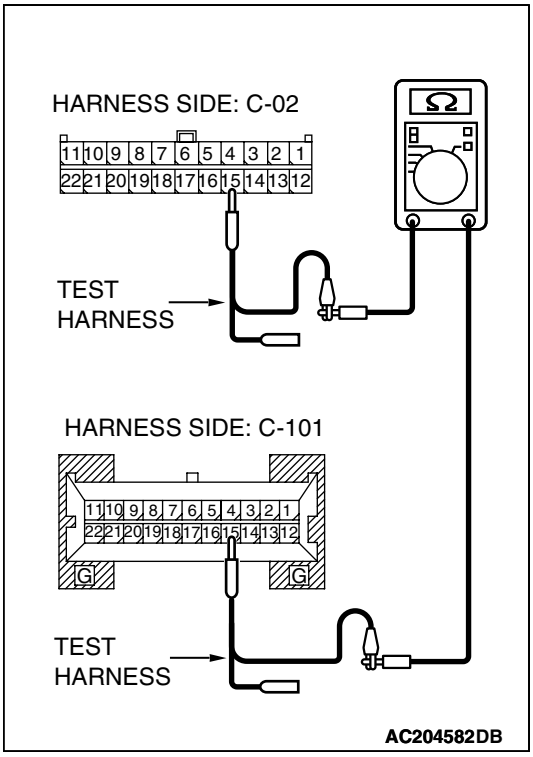
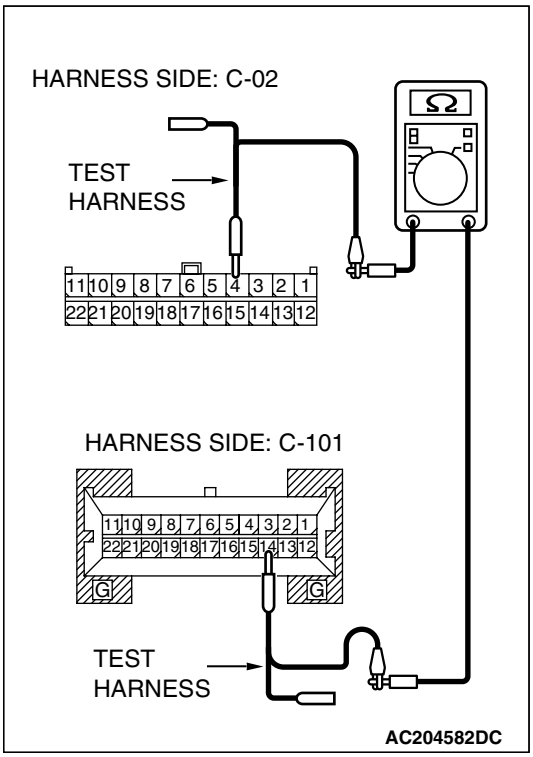


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 6.

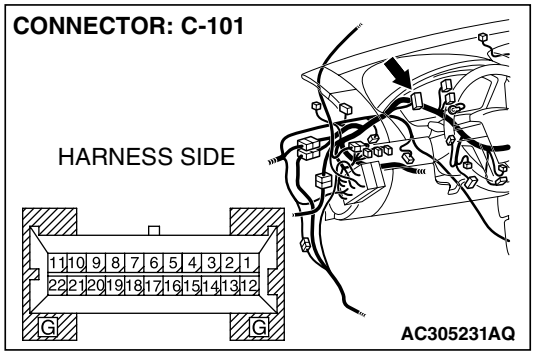
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector, and then go to Step 2.

STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



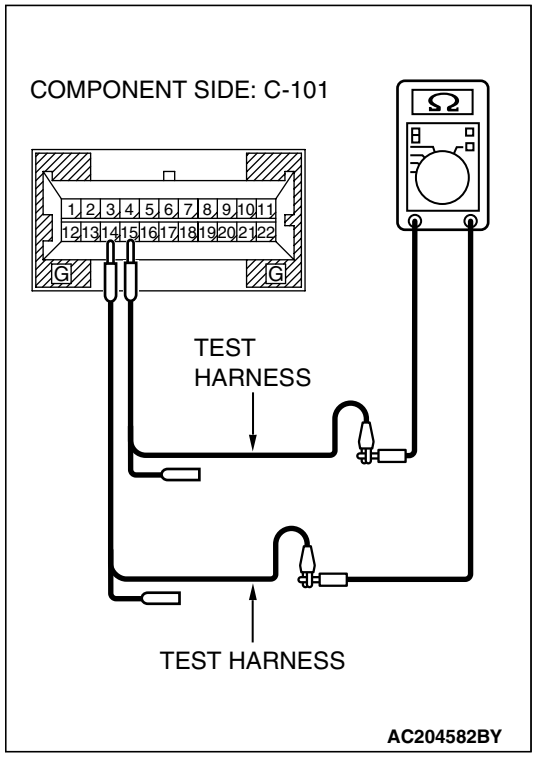
(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 2.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter, and then go to Step 2.



STEP 7. Check the CAN bus lines (communication line only) between intermediate connector C-29 and joint connector (3). Measure the resistance at intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

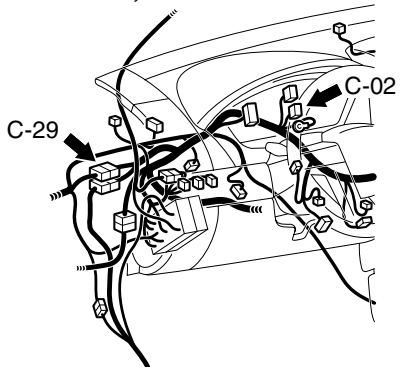
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

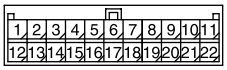
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

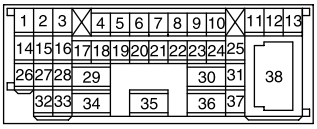
CONNECTORS: C-02, C-29



C-02



C-29



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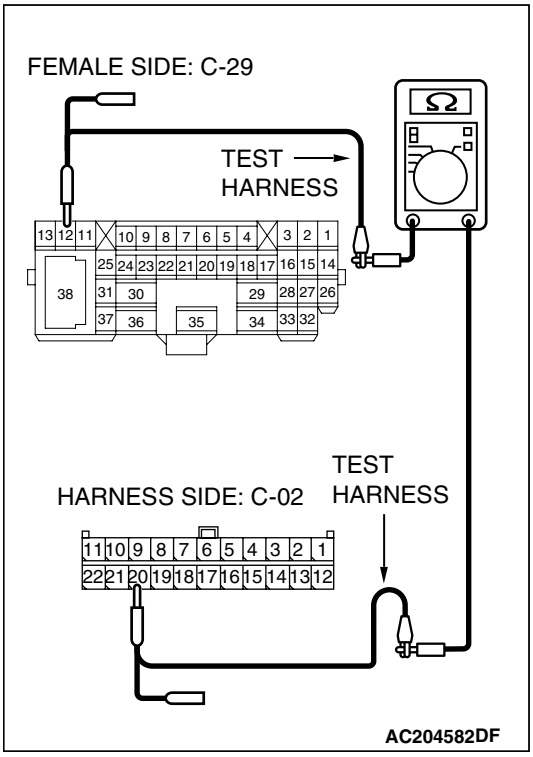
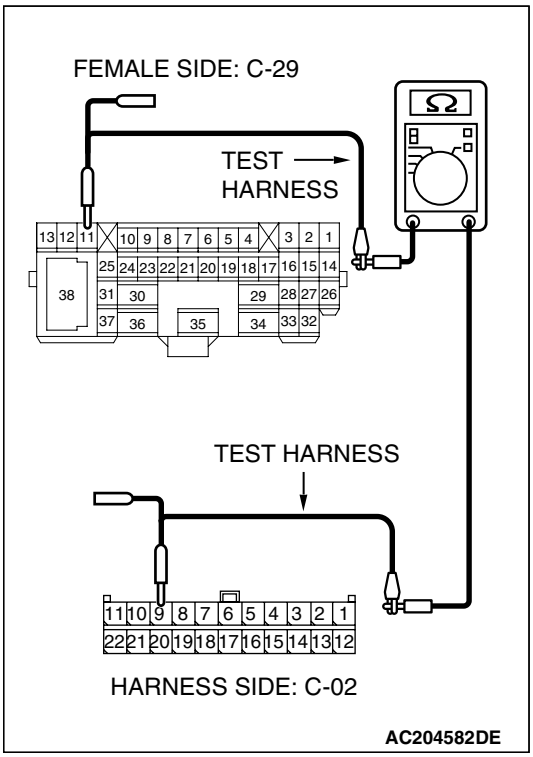


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 2.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector, and then go to Step 2.

STEP 8. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module and the ABS-ECU). Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

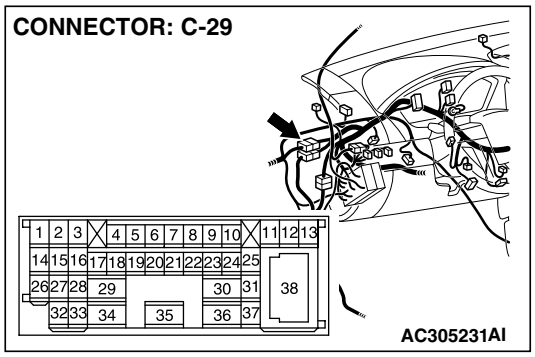
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

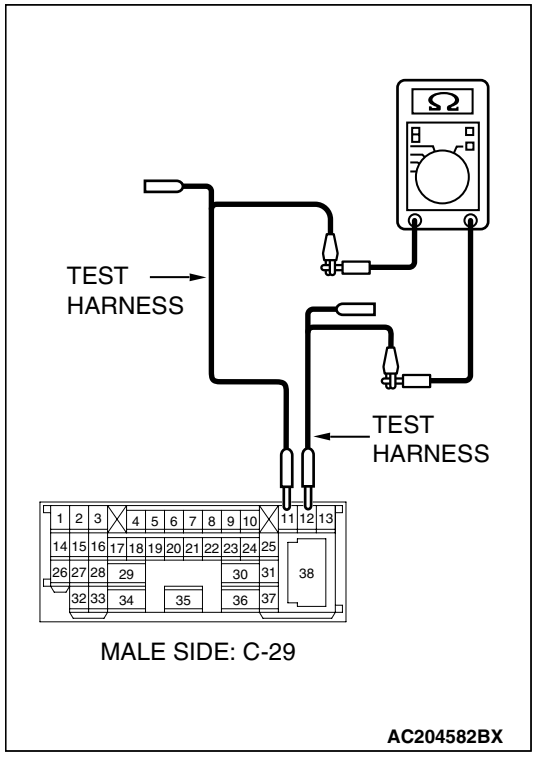
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





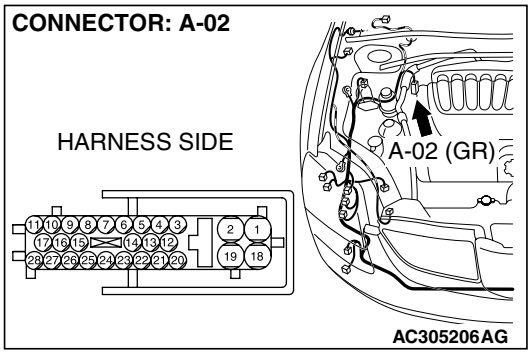
(4) Measure the resistance between intermediate connector terminals 11 and 12.

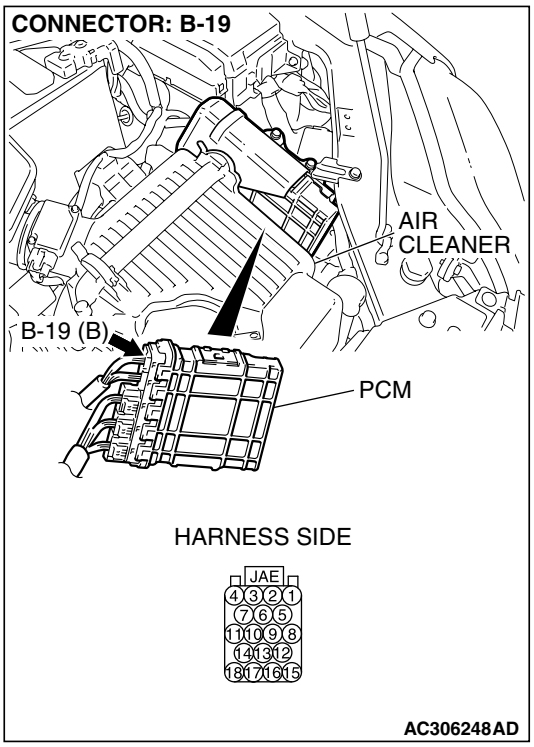
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 15.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .





STEP 9. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

YES : Go to Step 10.

NO : Repair the damaged parts. Then go to Step 8.

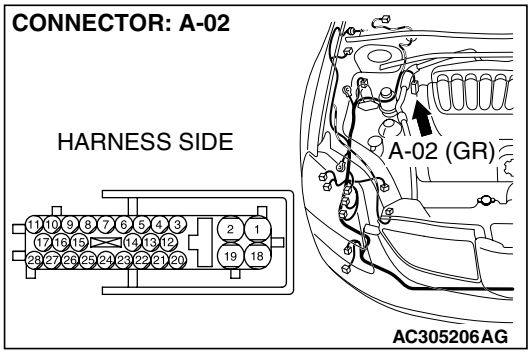
STEP 10. Check the CAN bus lines between the ABS-ECU and the powertrain control module (communication line including the powertrain control module). Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



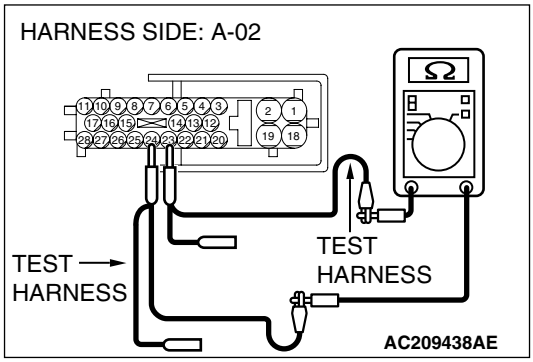
(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the wiring harness side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 23 and 24.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 13.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 11 .

STEP 11. Check the CAN bus lines (communication line only) between ABS-ECU and the powertrain control module. Measure the resistance at ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

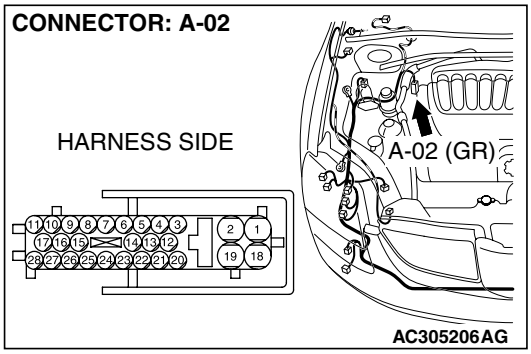
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

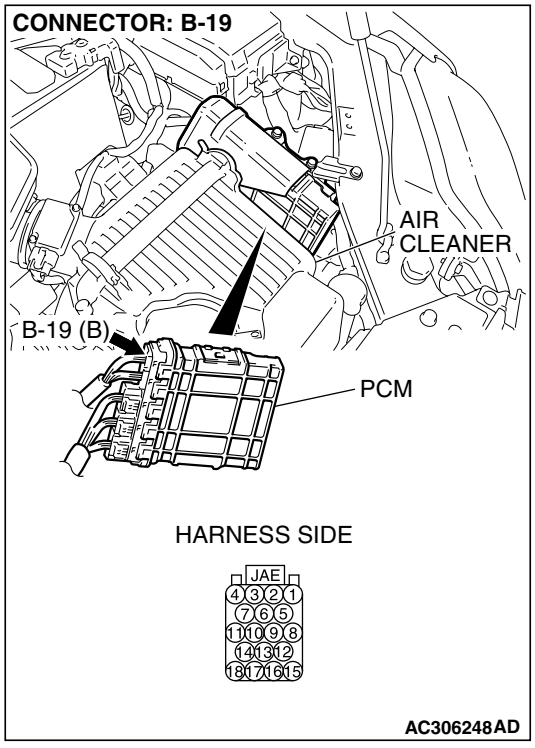
(2) Turn the ignition switch to the "LOCK" (OFF) position.

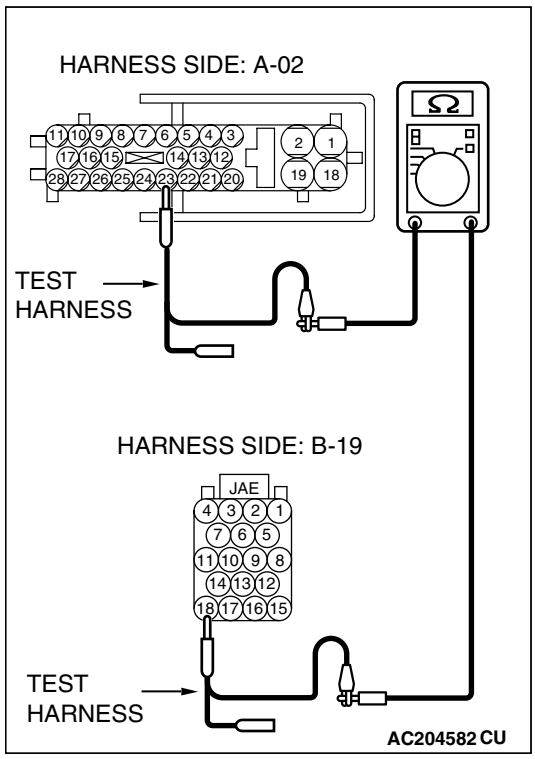
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

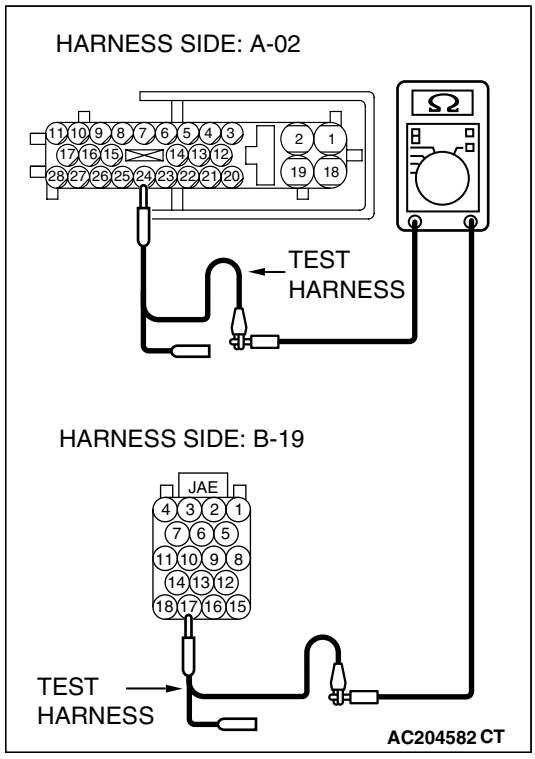






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 12.

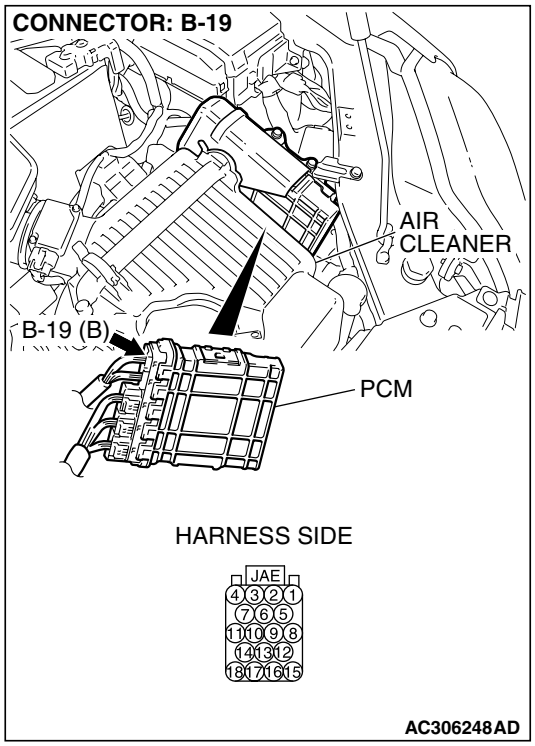
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between the ABS-ECU connector and the powertrain control module connector, and then go to Step 8.

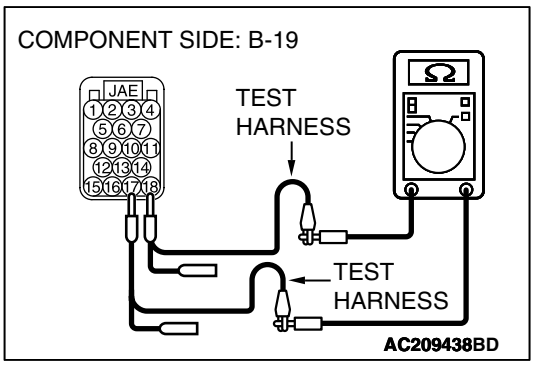
STEP 12. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module, and then go to Step 8.

STEP 13. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the ABS-ECU. Measure the resistance at intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

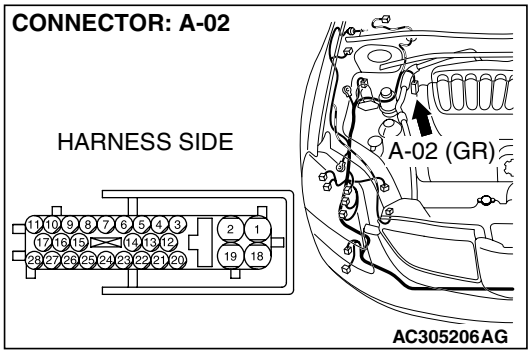
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

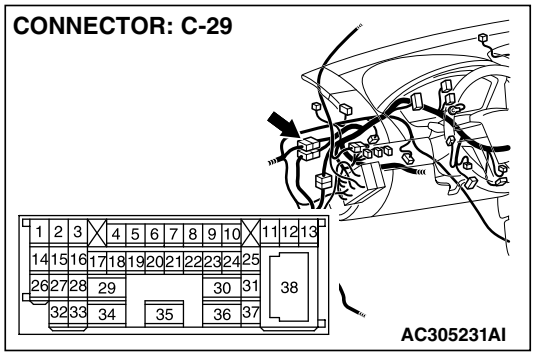
(2) Turn the ignition switch to the "LOCK" (OFF) position.

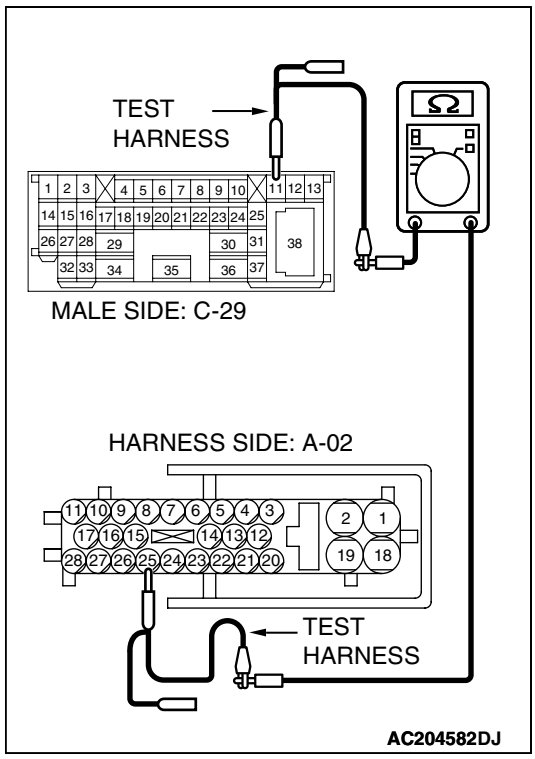
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

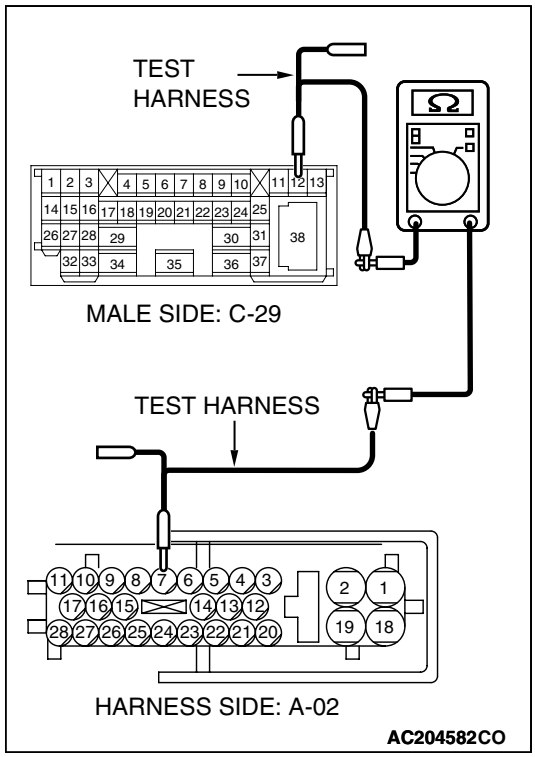






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

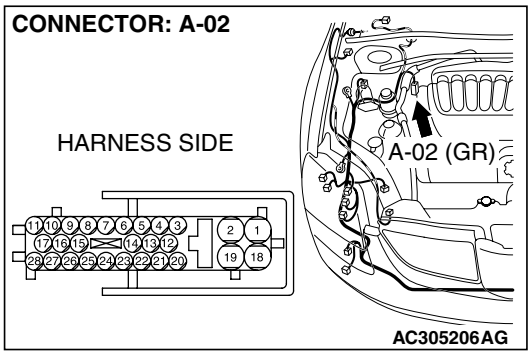
YES : If all the resistances measure 2 ohms or less, go to Step 14.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector, and then go to Step 8.

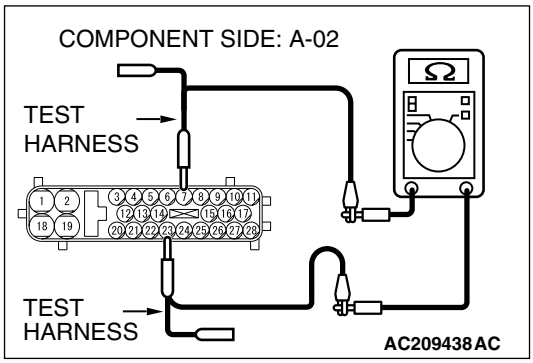
STEP 14. Check the ABS-ECU for open circuit. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

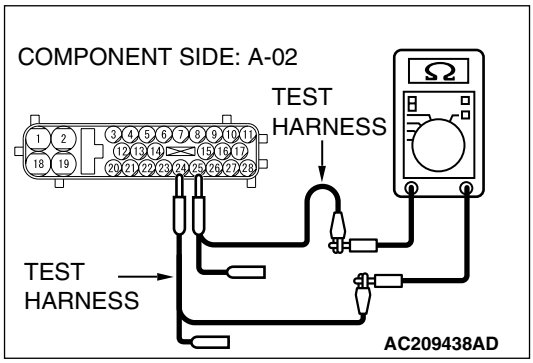


(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.



(2) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(3) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 8.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

Step 15. Check the CAN bus lines (communication line only) between joint connector (3) and the data link connector. Measure the resistance at joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

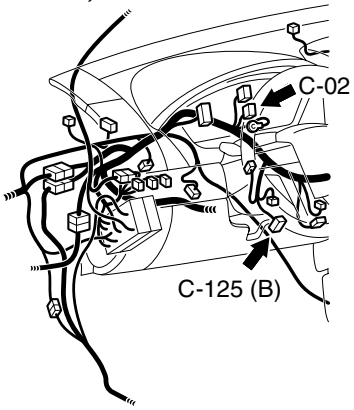
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

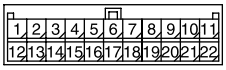
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

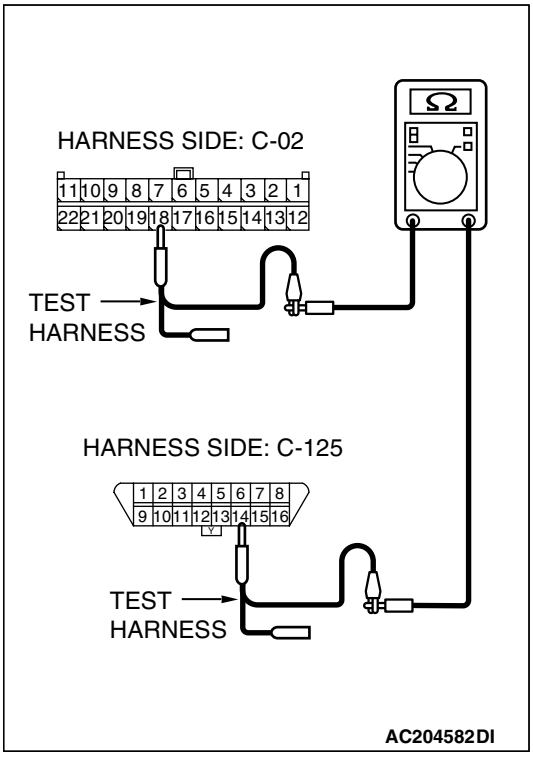


C-02



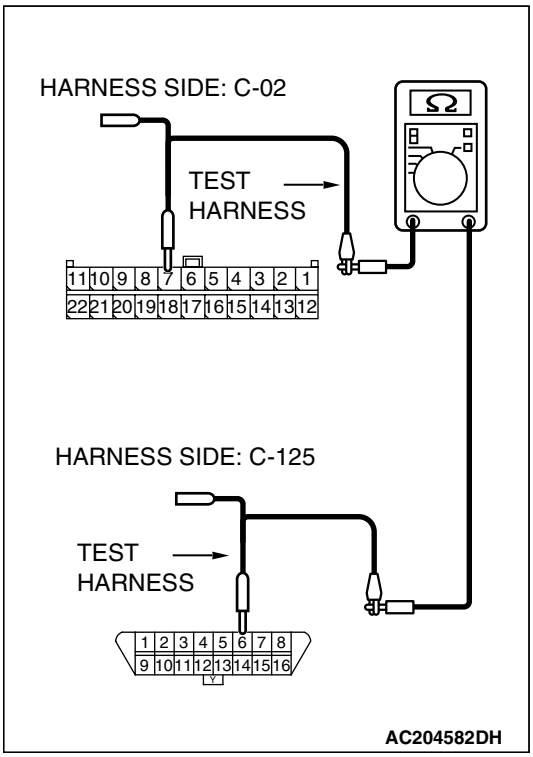
C-125

AC305232AF



(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

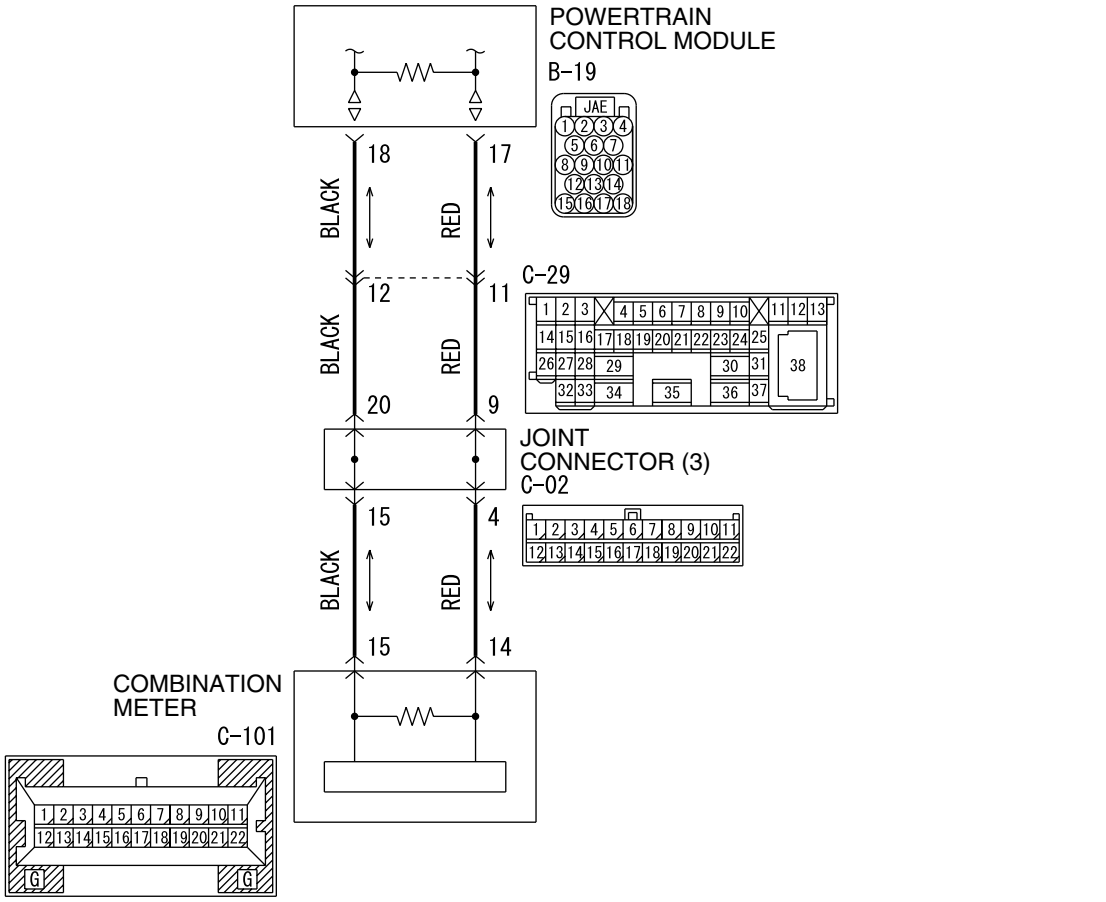
YES <all the resistances measure 2 ohms or less: When any repair done> : Retest the system.

YES <all the resistances measure 2 ohms or less: When no repair done> : Diagnose CAN bus lines thoroughly by referring to P.54C-525 <Vehicles without multi-center display (middle-grade type)> or P.54C-562 <Vehicles with multi-center display (middle-grade type)>.

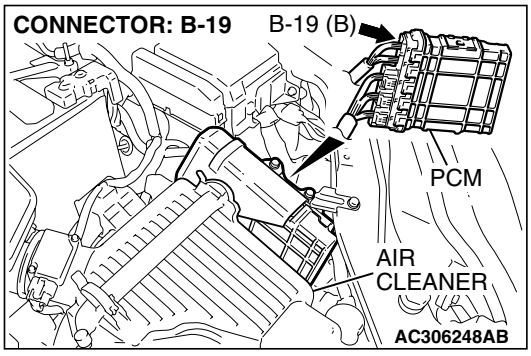
NO <If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms> : Repair the wiring harness wires between joint connector (3) and the data link connector.

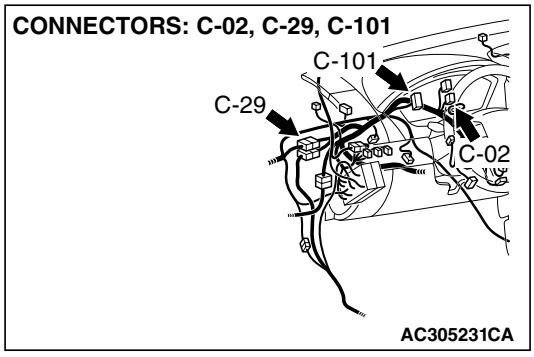
DIAGNOSTIC ITEM 12: Diagnose a terminator resistor at either end <Vehicles without ABS>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M99AA





TROUBLE JUDGMENT
A terminator resistor at either end (including the CAN bus lines) may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is 120 ± 20 Ω.

COMMENTS ON TROUBLE SYMPTOM
The CAN bus line harness wires or connectors may be damaged or the combination meter or the powertrain control module may be defective.

TSB Revision

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

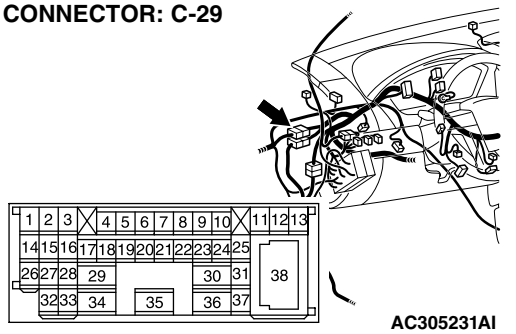
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

CONNECTOR: C-29



STEP 2. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

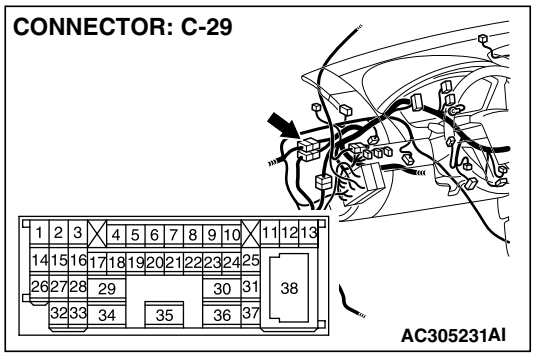
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

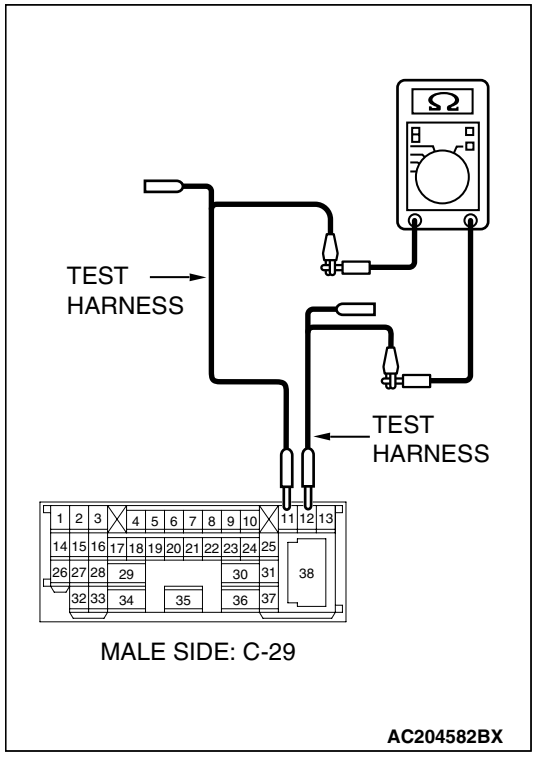
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

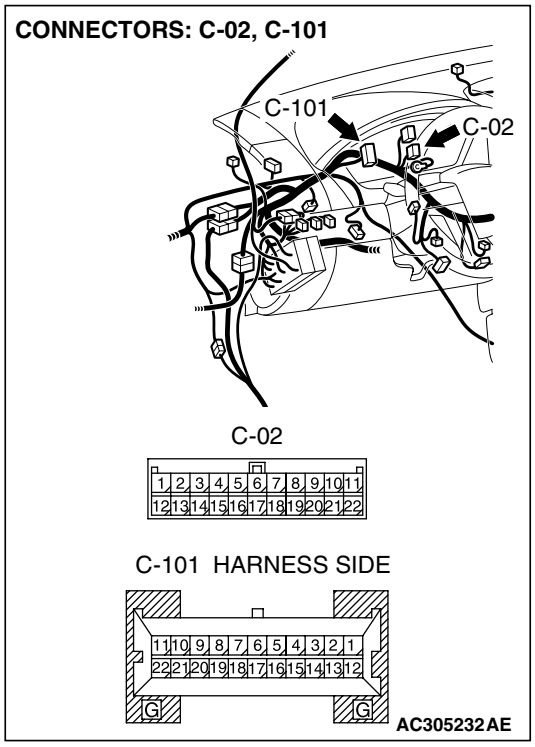
OK: 120 ± 20 Ω

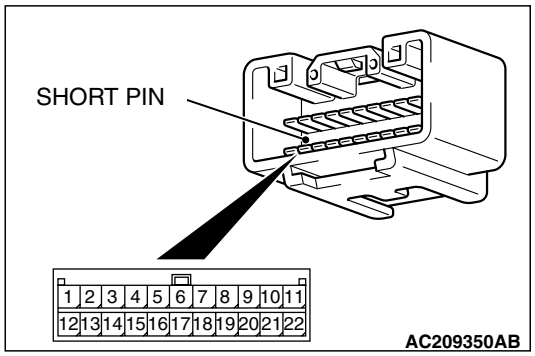
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 3.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 7 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

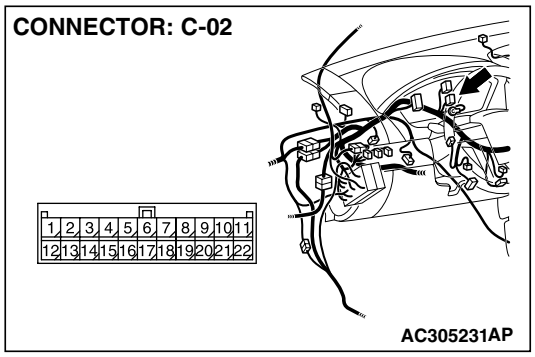
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

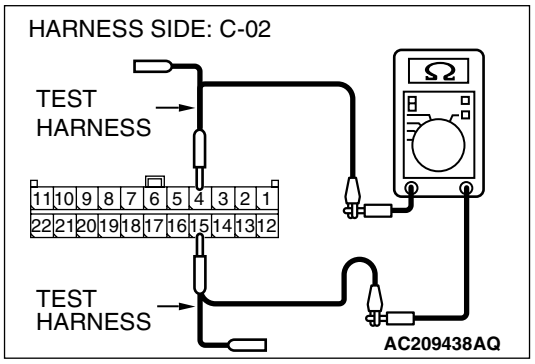
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

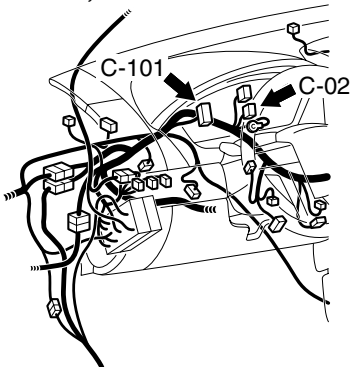
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

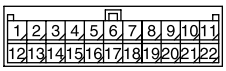
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

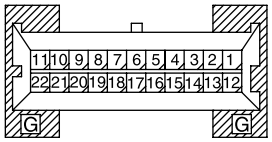
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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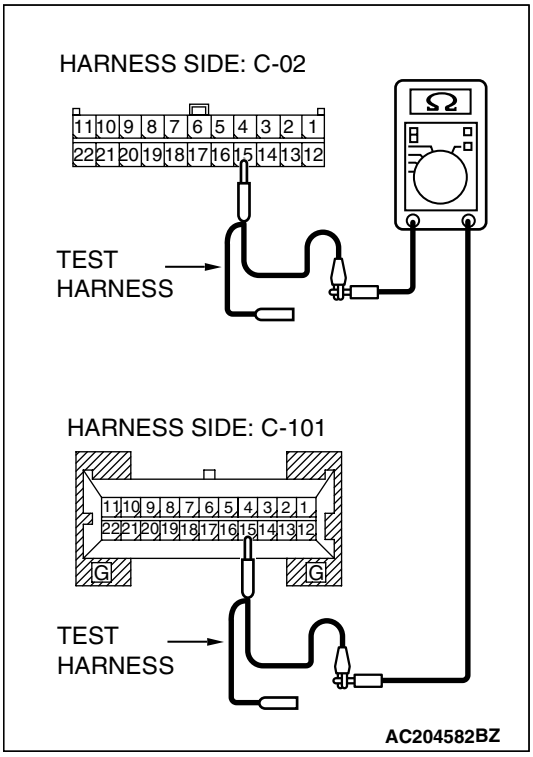
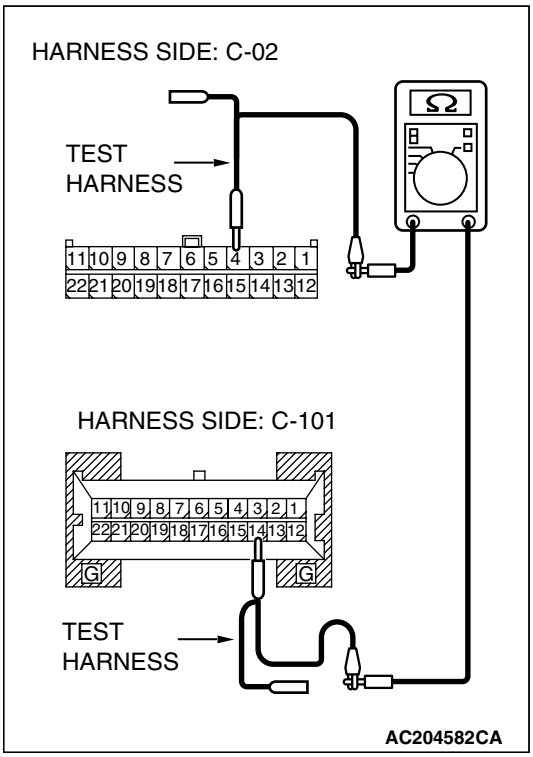


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If the resistance measures 2 ohms or less, go to Step 6.

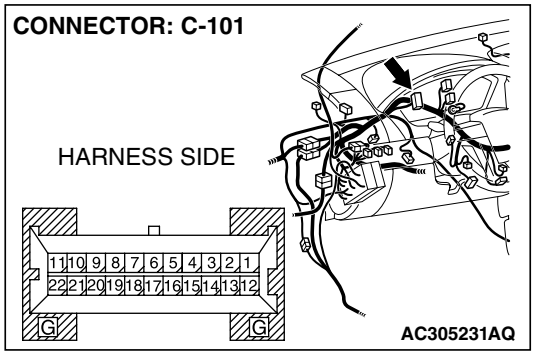
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

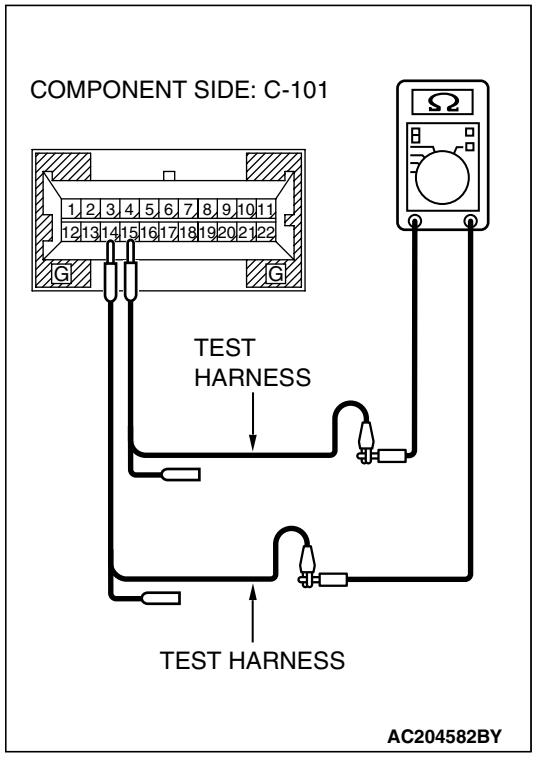
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.





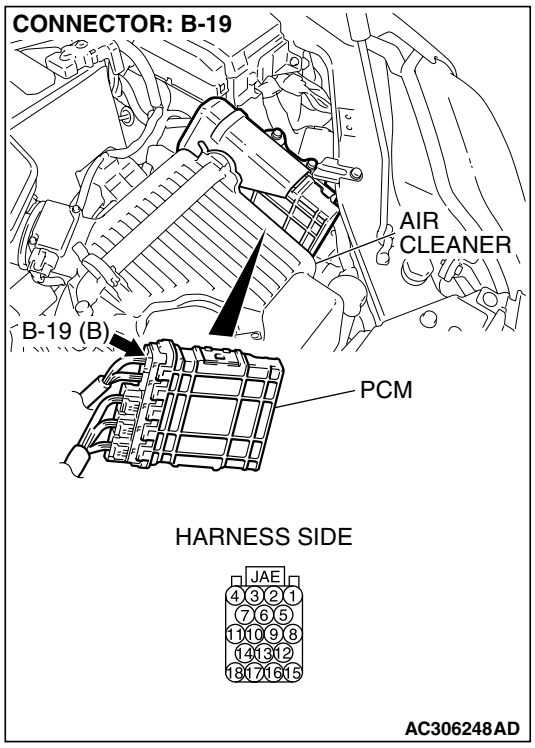
(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance does not measure 120 ± 20 , replace the combination meter.



STEP 7. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is powertrain control module connector B-19 in good condition?

YES : Go to Step 8.

NO : Repair the damaged parts.

STEP 8. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

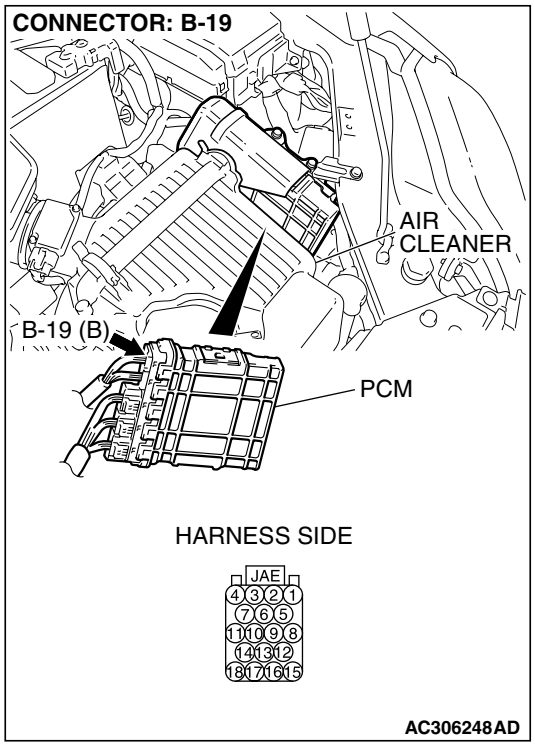
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

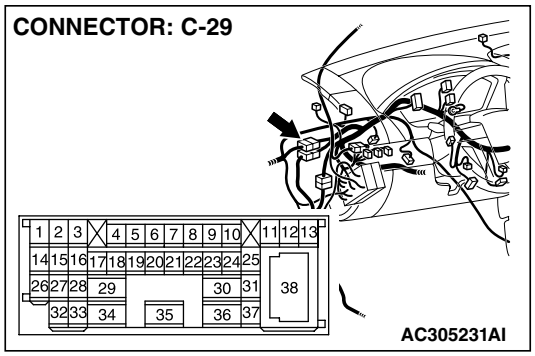
(2) Turn the ignition switch to the "LOCK" (OFF) position.

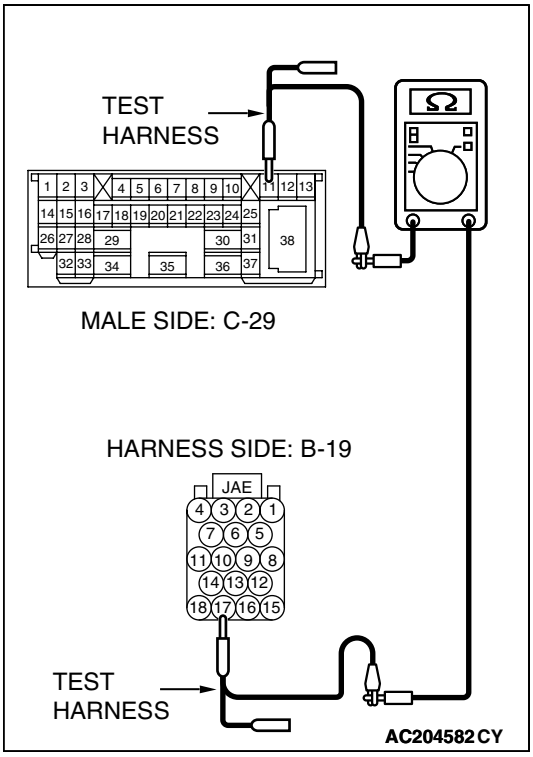
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

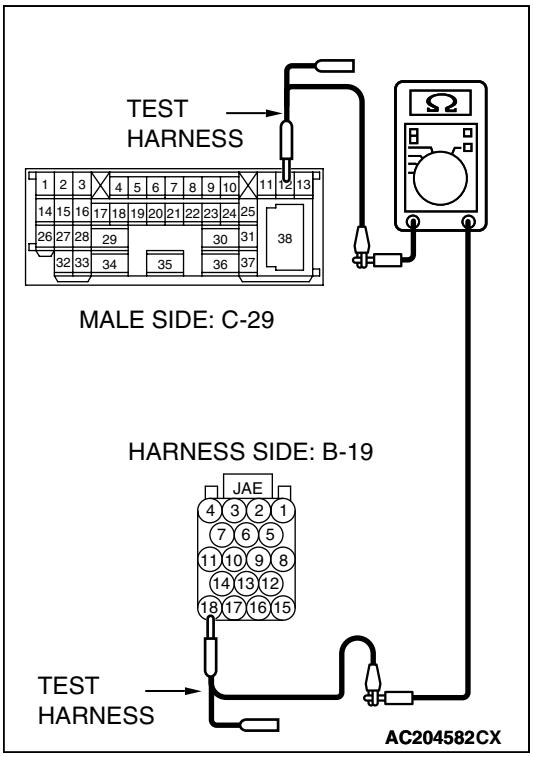






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If the resistance measures 2 ohms or less, go to Step 9.

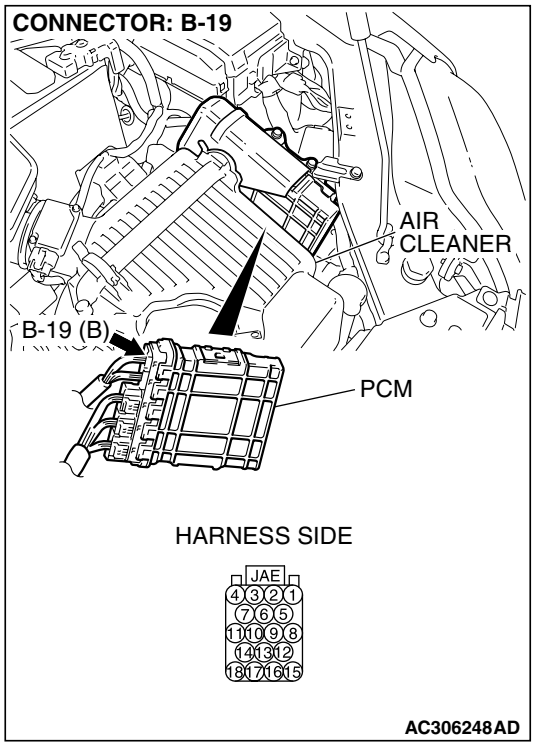
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the powertrain control module connector.

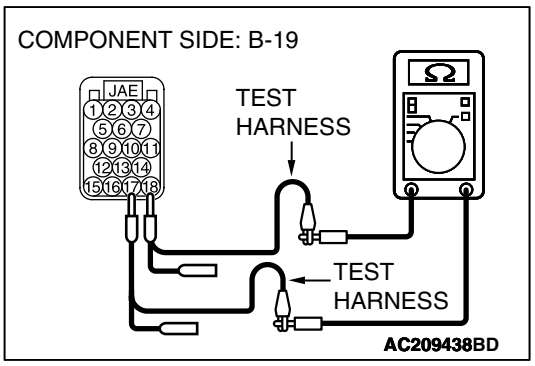
STEP 9. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

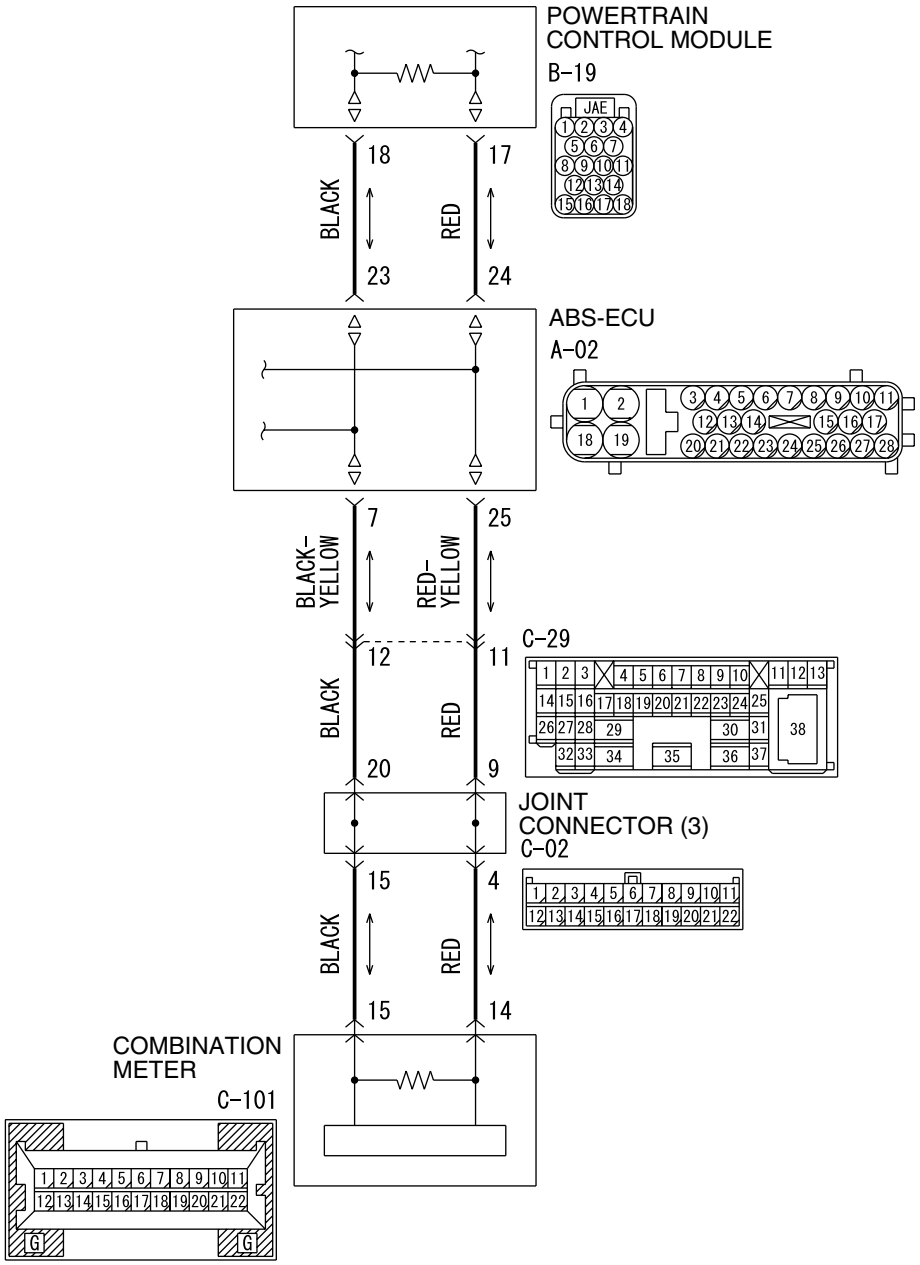
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-492.

NO : If the resistance does not measure 120 ± 20 , replace the powertrain control module.

DIAGNOSTIC ITEM 13: Diagnose a terminator resistor at either end <Vehicles with ABS>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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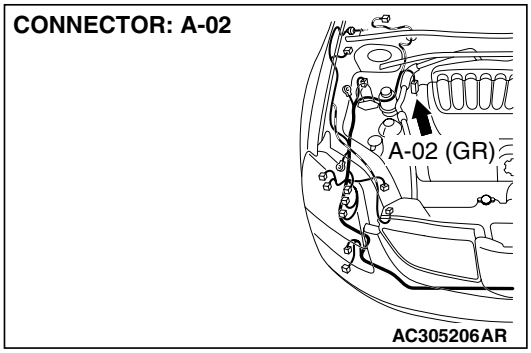
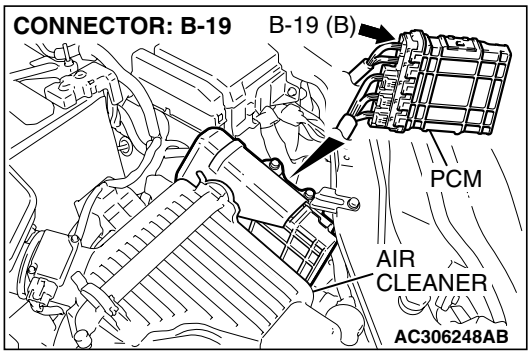
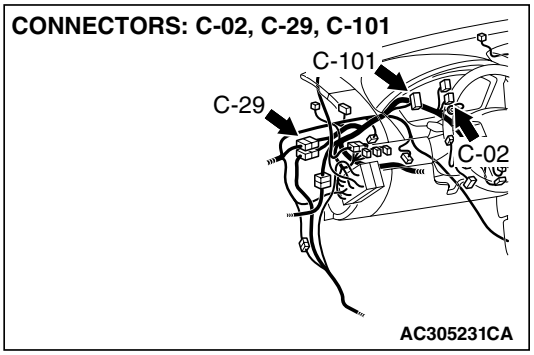






TROUBLE JUDGMENT

A terminator resistor at either end (including the CAN bus lines) may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is 120 ± 20 Ω.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged or the combination meter or the powertrain control module may be defective.

TROUBLESHOOTING HINTS

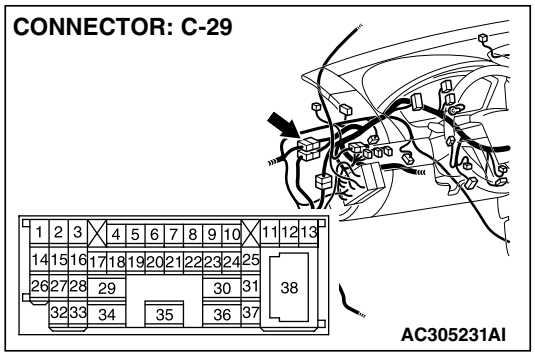
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

TSB Revision



STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

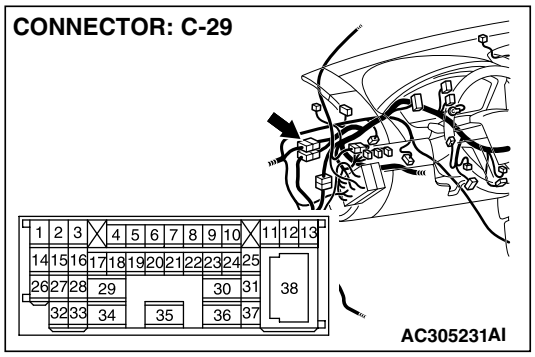
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

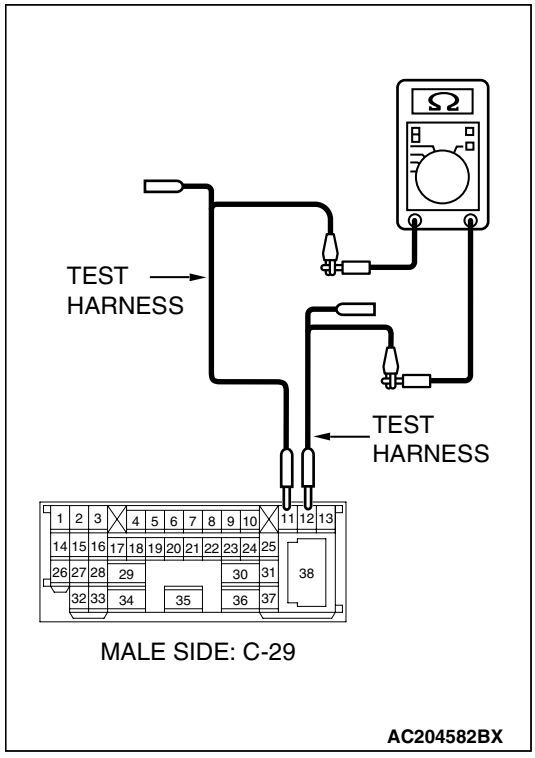
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminals 11 and 12.

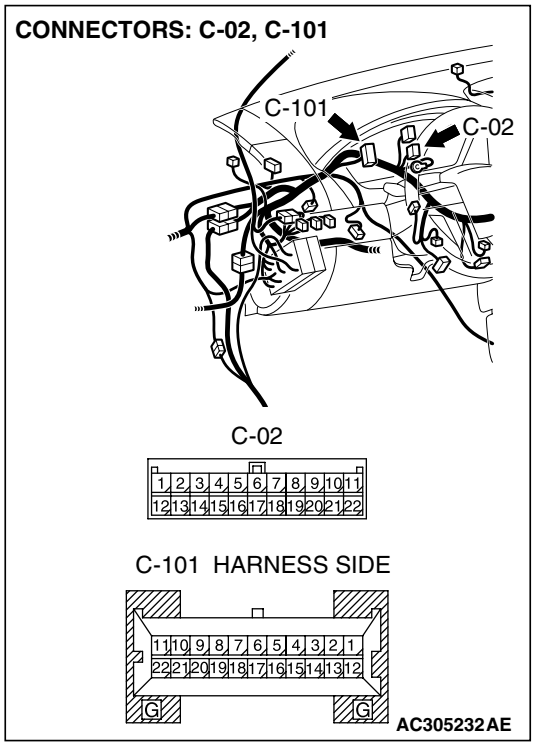
OK: 120 ± 20 Ω

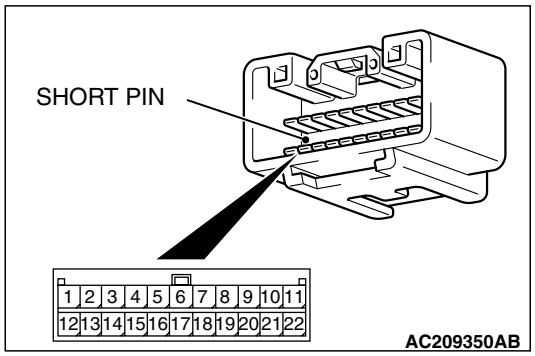
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 3.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 7 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

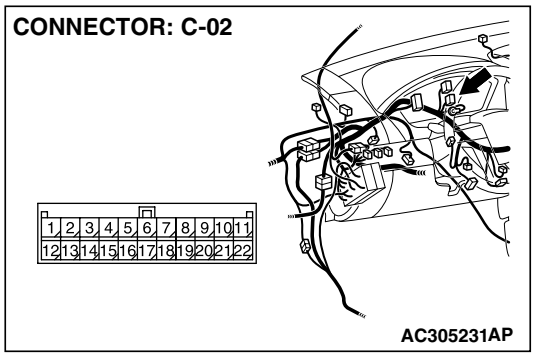
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

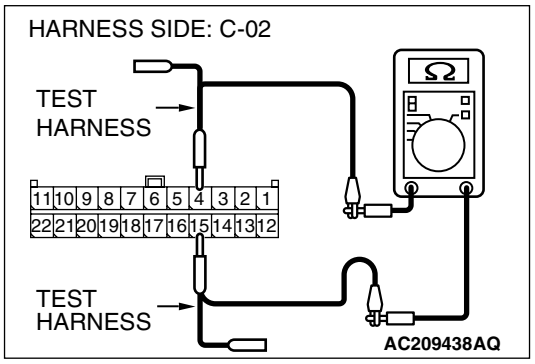
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between joint connector (3) terminals 4 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-525 <Vehicles without multi-center display (middle-grade type)> or P.54C-562 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

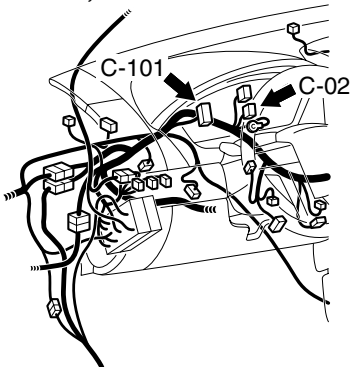
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

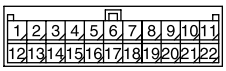
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

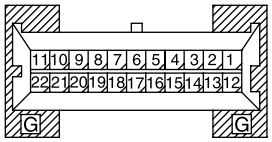
CONNECTORS: C-02, C-101



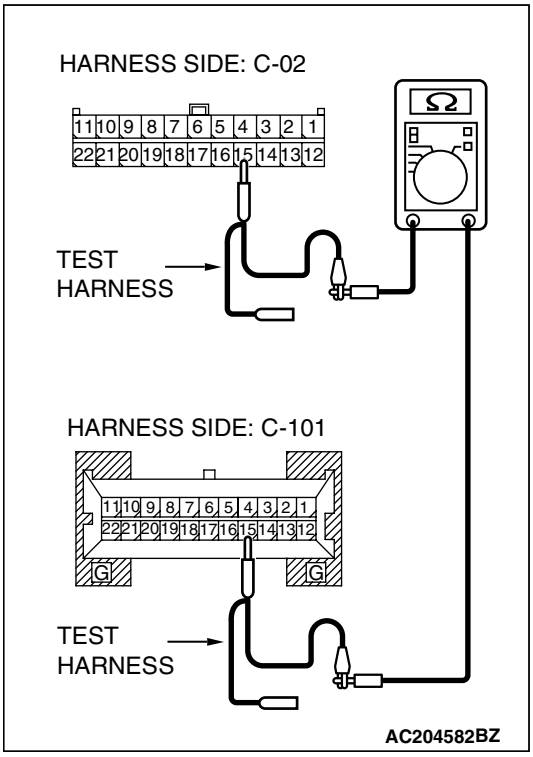
C-02



C-101 HARNESS SIDE

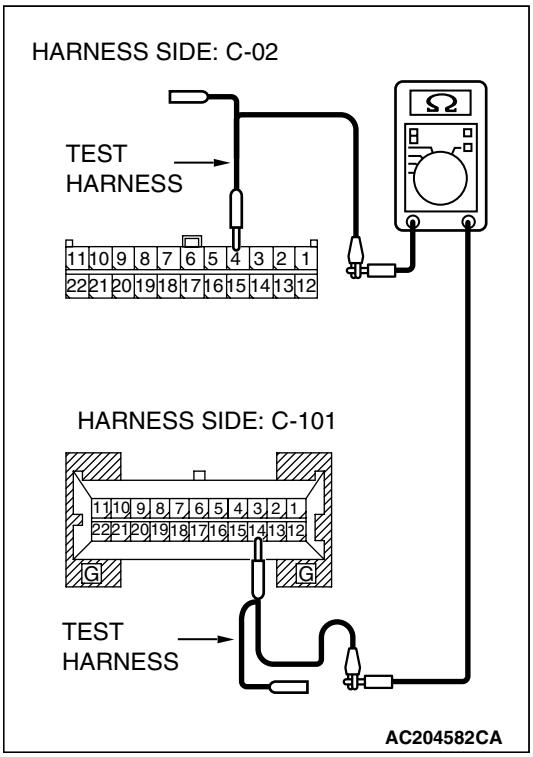


AC305232AE



(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 6.

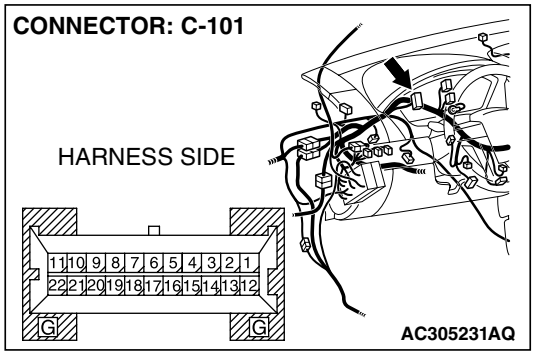
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

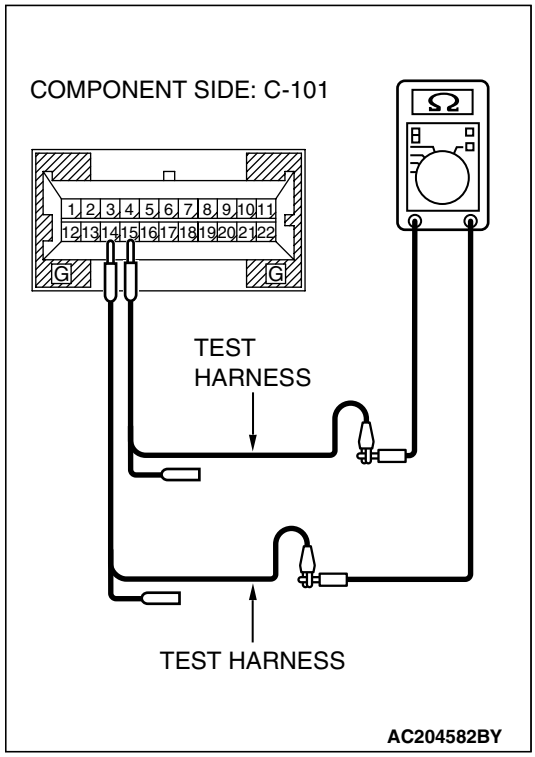
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.





(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-525 <Vehicles without multi-center display (middle-grade type)> or P.54C-562 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 , replace the combination meter.

STEP 7. Check powertrain control module connector B-19 and ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

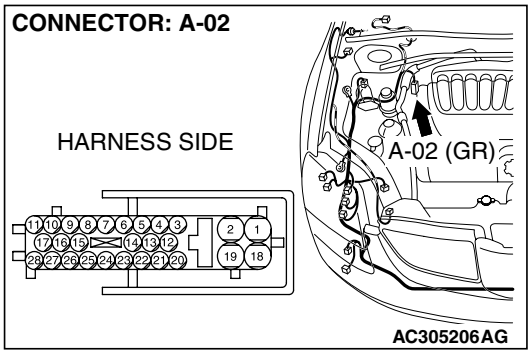
⚠ CAUTION

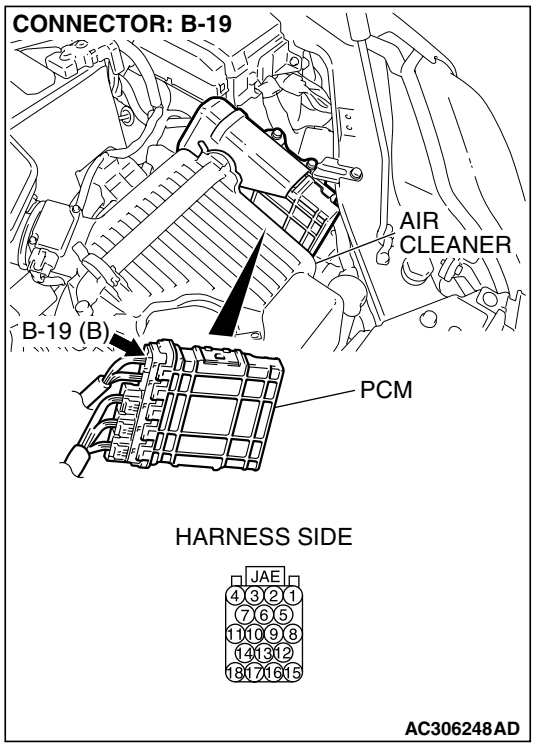
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are powertrain control module connector B-19 and ABS-ECU connector A-02 in good condition?

YES : Go to Step 8.

NO : Repair the damaged parts.





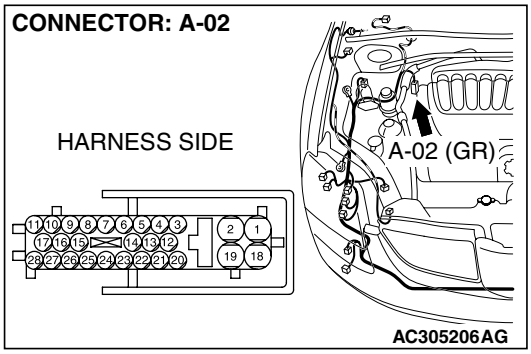
STEP 8. Check the CAN bus lines between the ABS-ECU and the powertrain control module (communication line including the powertrain control module). Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.



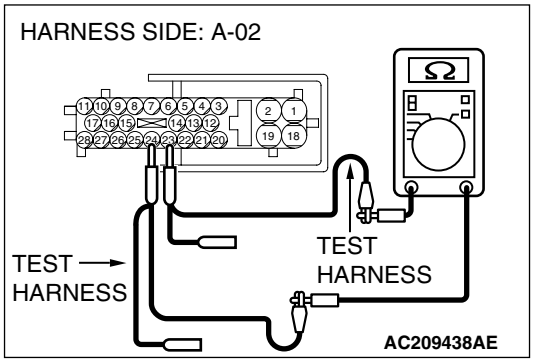
(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the wiring harness side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position. position

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 23 and 24.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-525 <Vehicles without multi-center display (middle-grade type)> or P.54C-562 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .

STEP 9. Check the CAN bus lines (communication line only) between ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

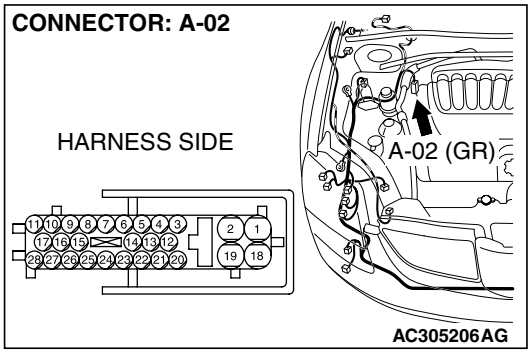
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

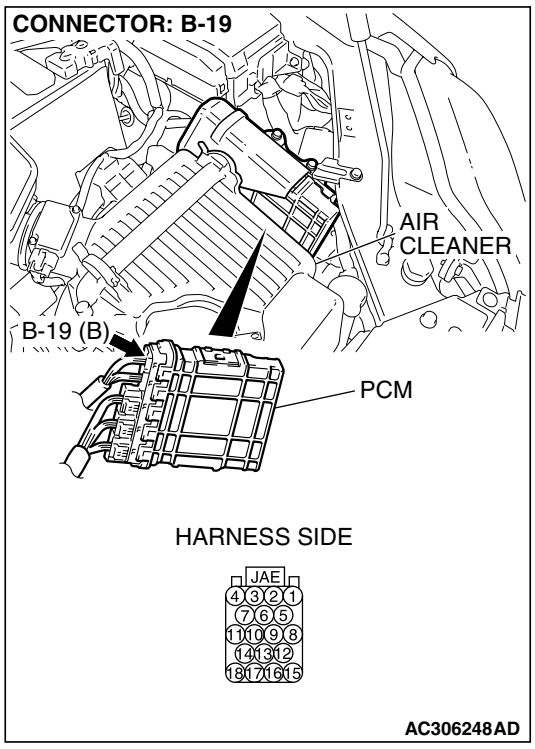
(2) Turn the ignition switch to the "LOCK" (OFF) position.

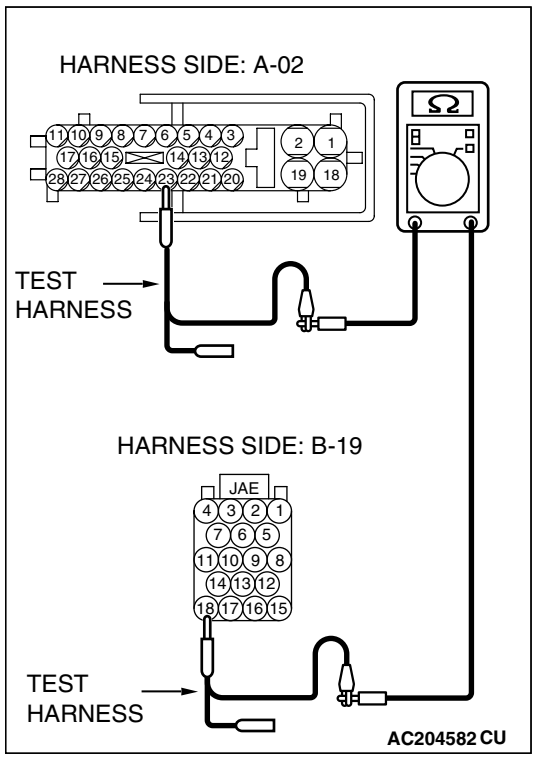
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

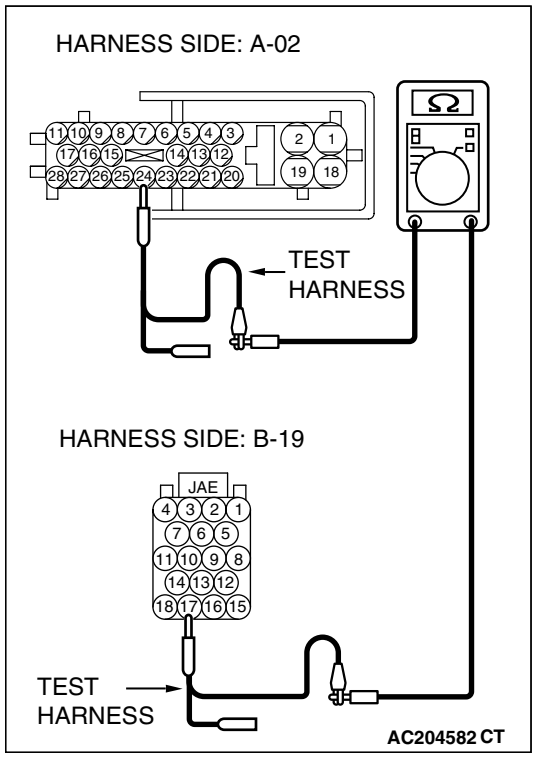






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 10.

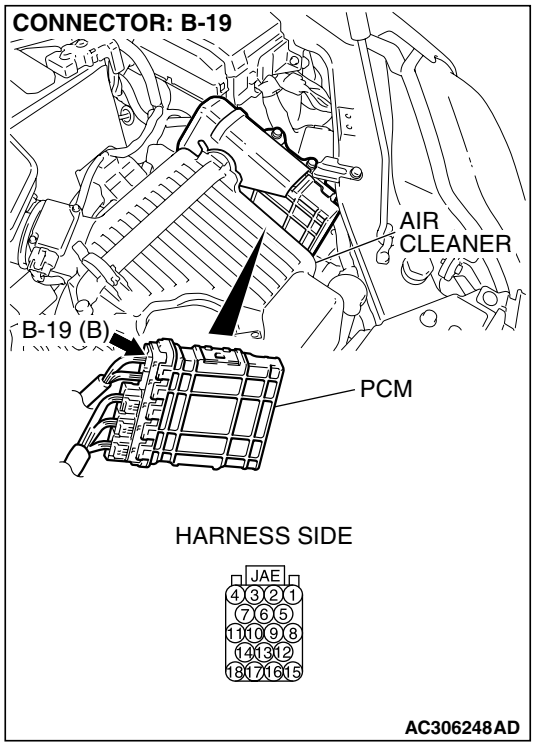
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the powertrain control module connector.

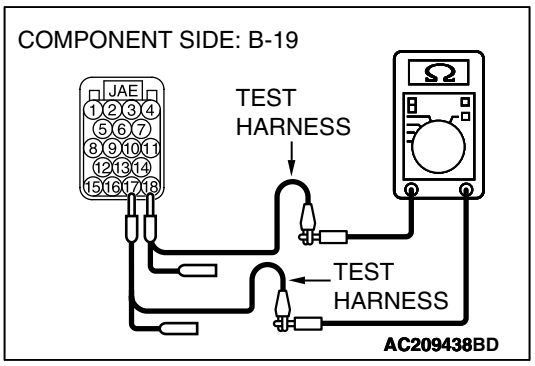
STEP 10. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 11.

NO : If the resistance does not measure 120 ± 20 , replace the powertrain control module.

STEP 11. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

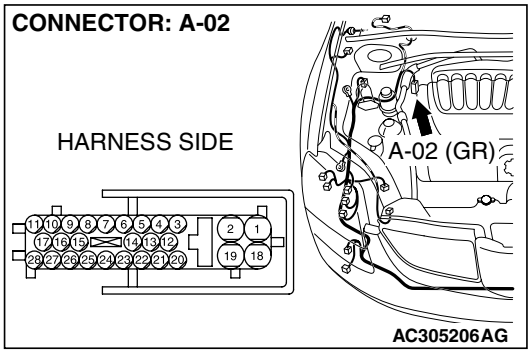
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

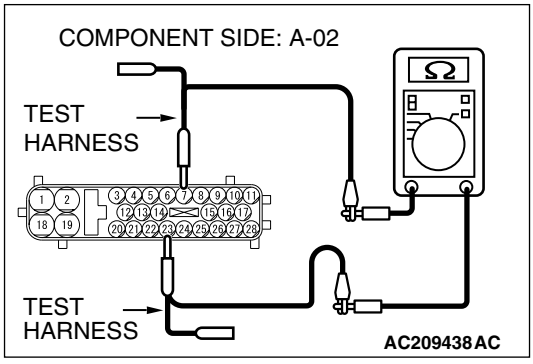
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



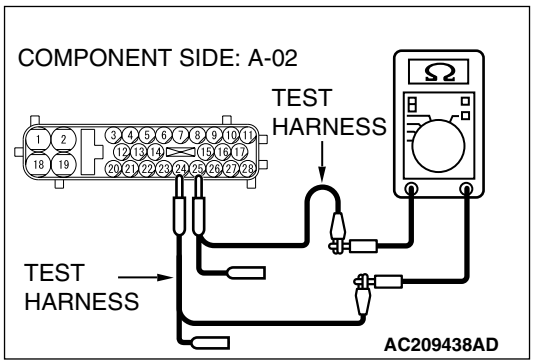
(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

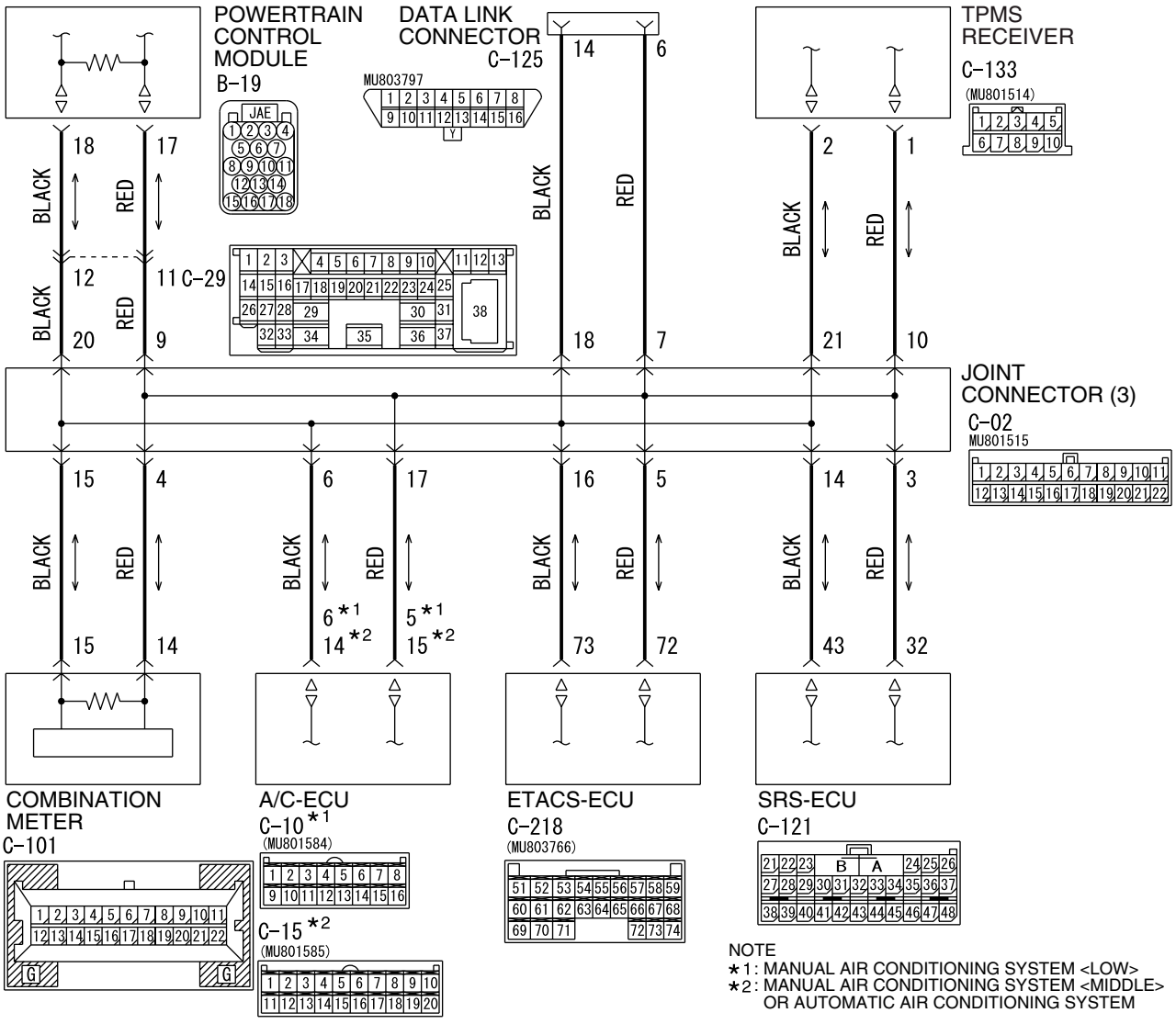
Q: Do all the resistances measure 2 ohms or less?

YES : If the voltage measures 2 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-525 <Vehicles without multi-center display (middle-grade type)> or P.54C-562 <Vehicles with multi-center display (middle-grade type)>.

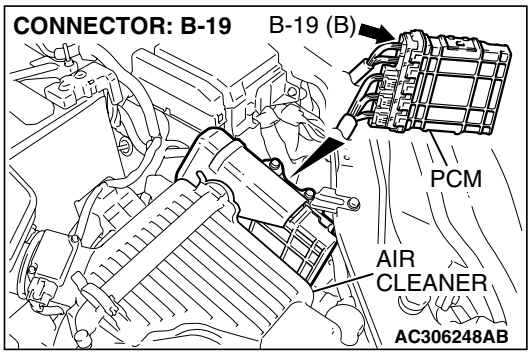
NO : Replace the ABS-ECU.

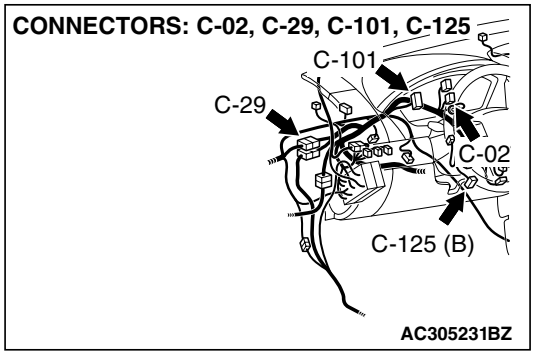
DIAGNOSTIC ITEM 14: Diagnose CAN bus lines thoroughly <Vehicles without ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

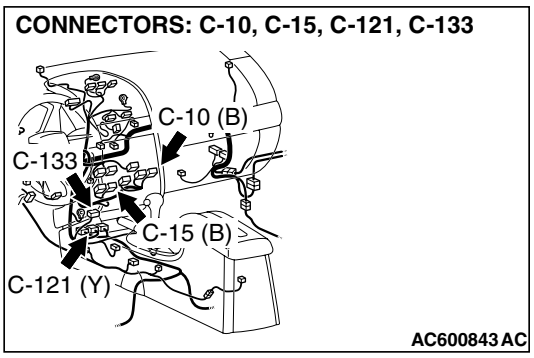
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

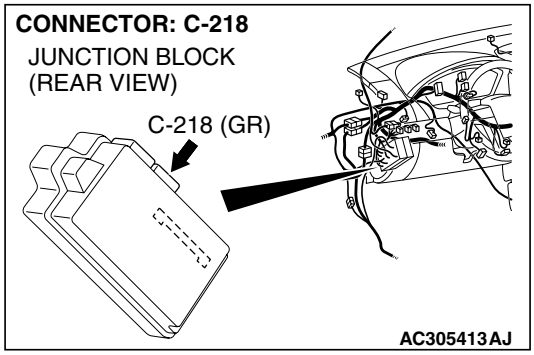


W7P54M137A









TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

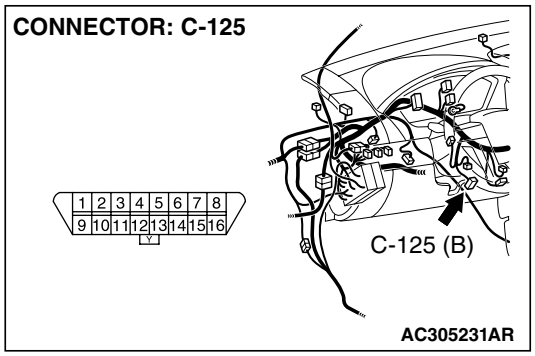
TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

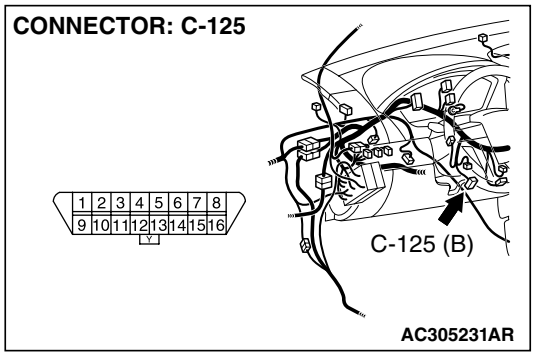
(1) Measure the resistance at the data link connector.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



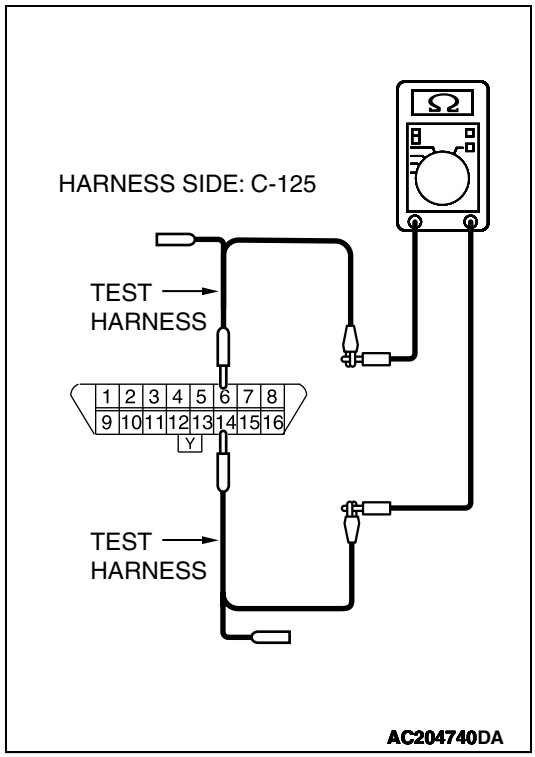
(4) Measure the resistance between data link connector terminals 6 and 14.

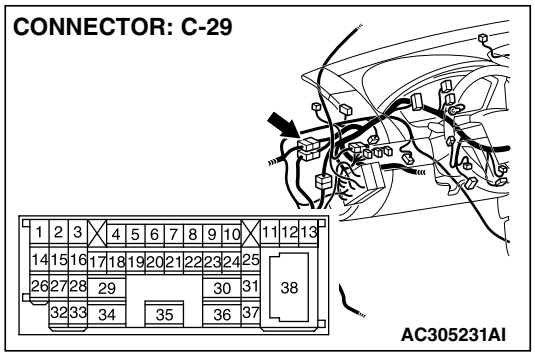
Q: How much resistance is measured?

2 ohms or less : Diagnostic Item 7: Check the CAN_L and H lines for a short circuit. Refer to P.54C-335.

No continuity : Diagnostic Item 10: Diagnose terminator resistors at both ends. Refer to P.54C-426.

More than 2 ohms but continuity exists : Go to Step 3.





STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

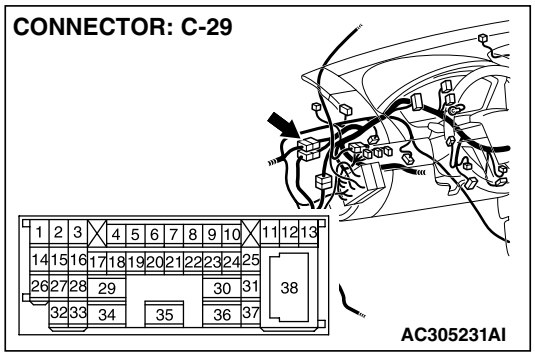
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts.

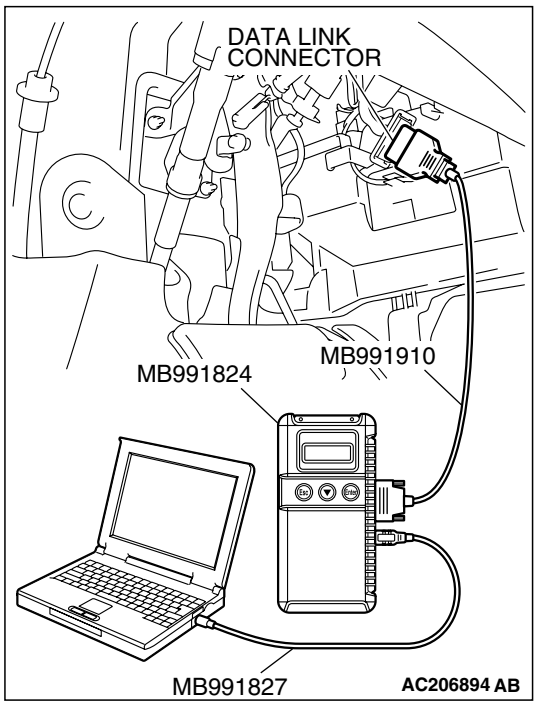
STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).



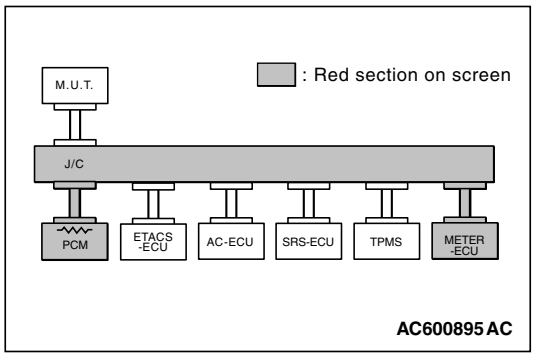
(1) Disconnect intermediate connector C-29.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(2) Connect scan tool MB991958 to the data link connector.
(3) Turn the ignition switch to the "ON" position.



(4) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

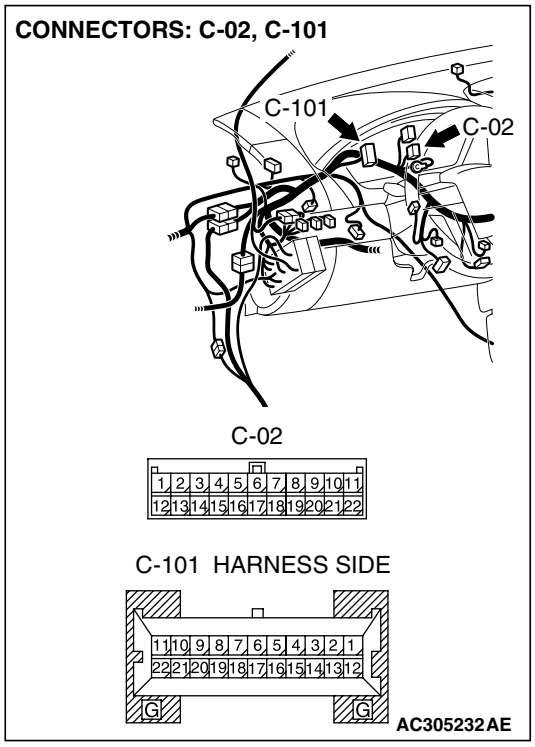
Q: Does the M.U.T.-III screen correspond to the illustration?

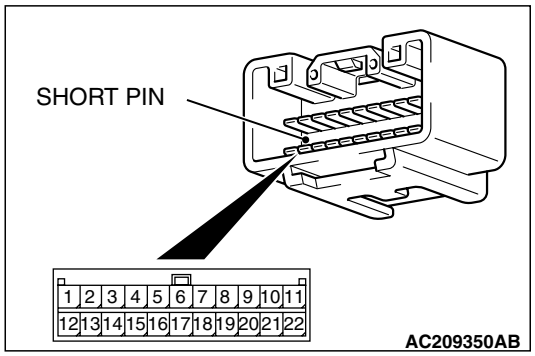
YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 21 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 5 .

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



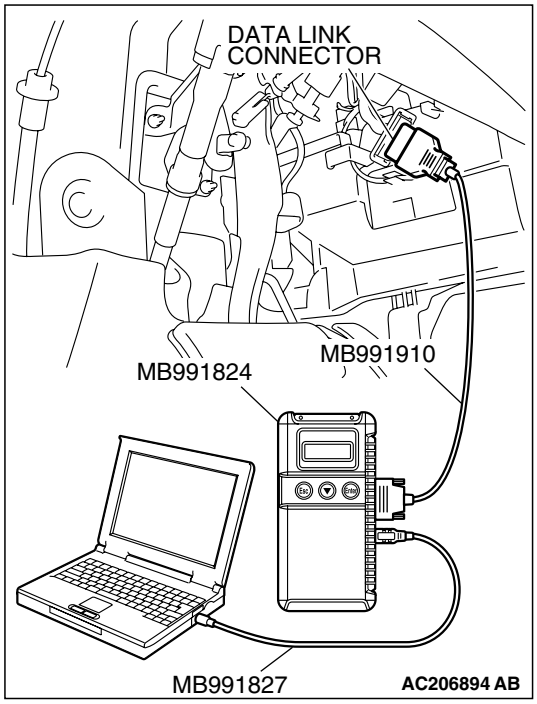


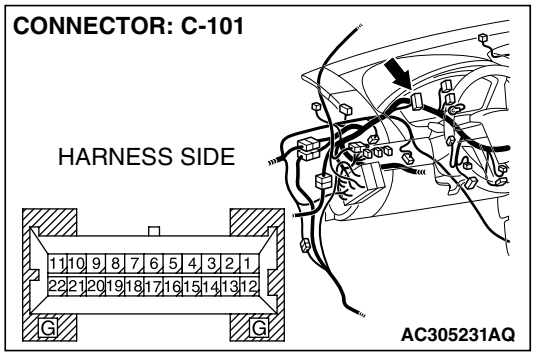
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

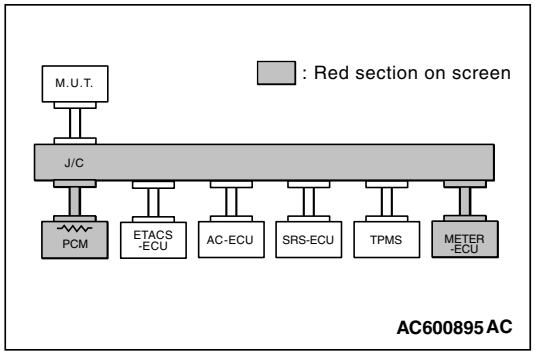
YES : Go to Step 6.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).





(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 7 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 8 .

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

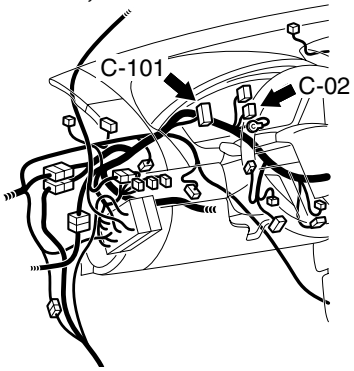
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

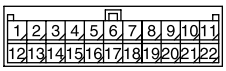
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

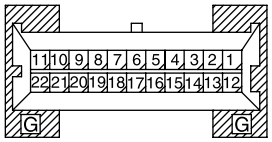
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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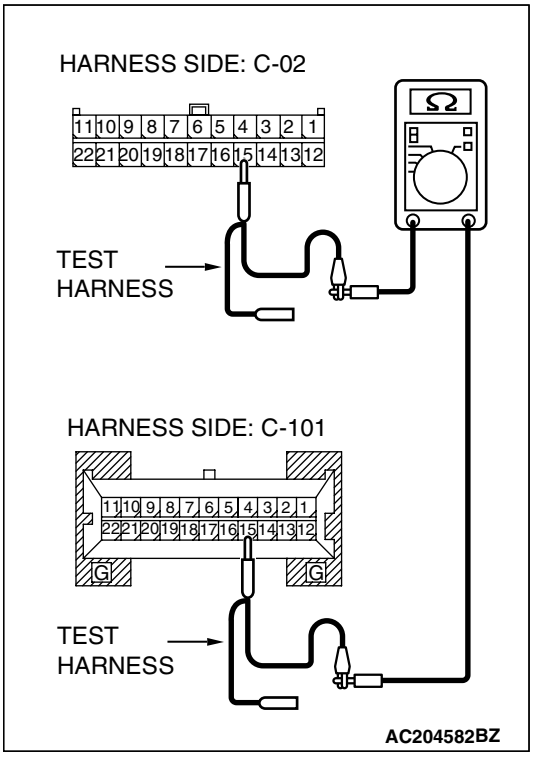
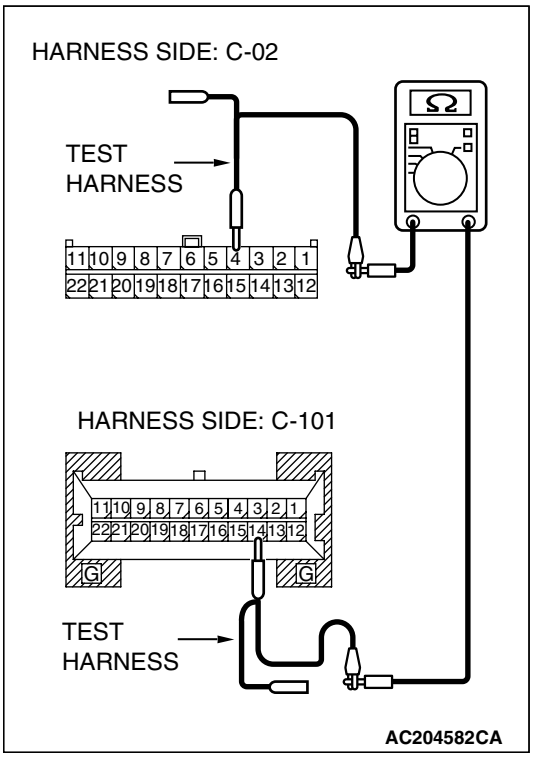


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

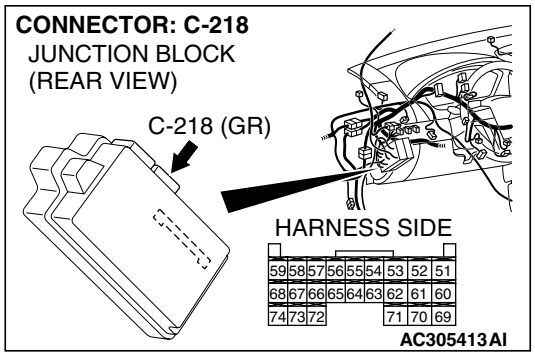
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-282.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.



STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

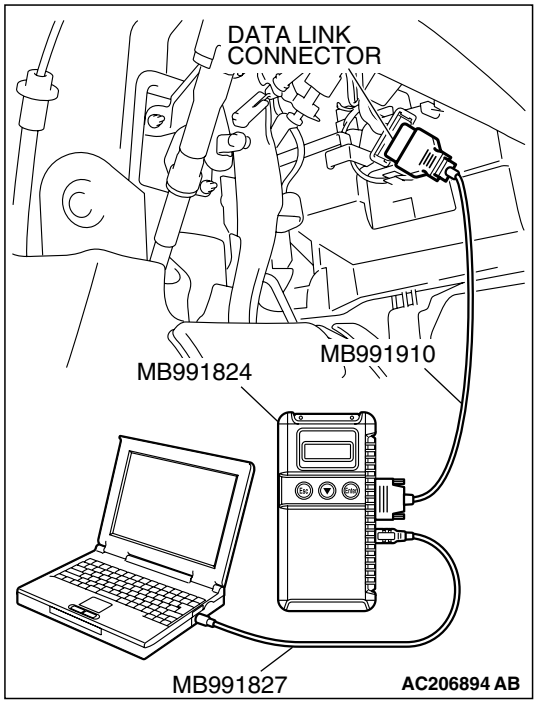
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

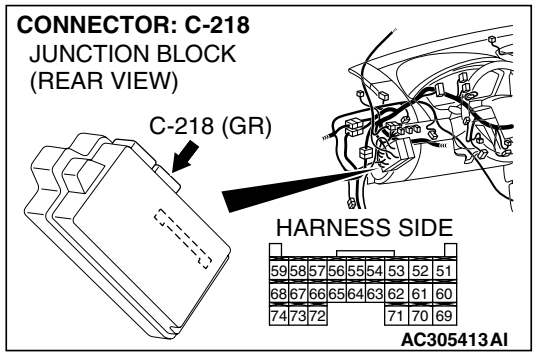
Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 9.

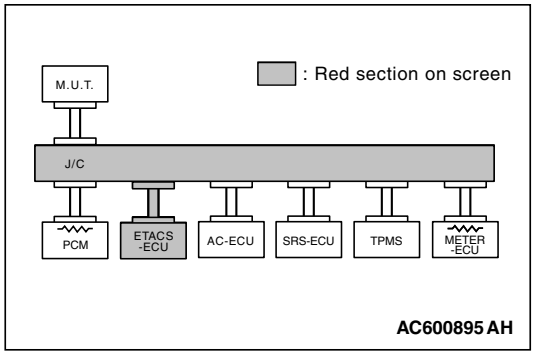
NO : Repair the damaged parts.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).





(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 10 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 11 .

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

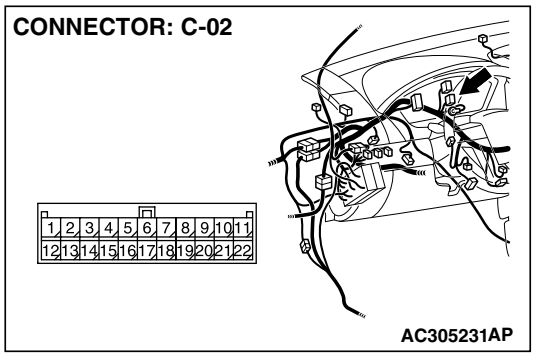
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

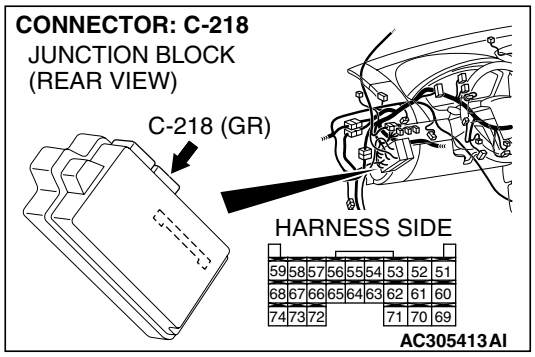
(2) Turn the ignition switch to the "LOCK" (OFF) position.

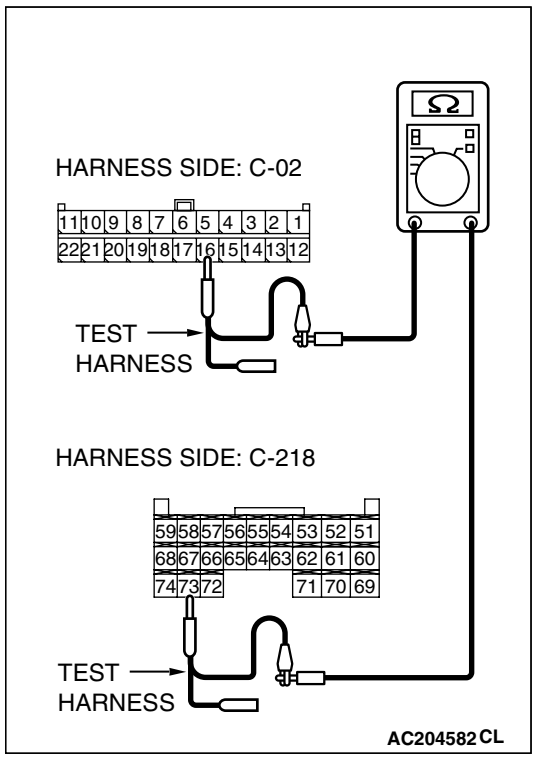
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

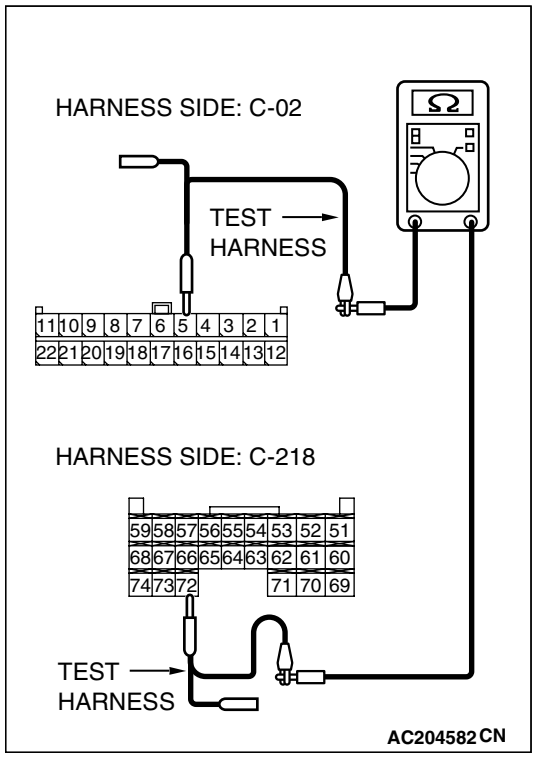






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 11. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

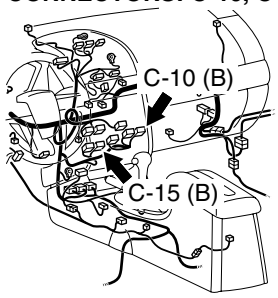
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

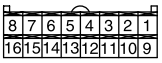
Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 12.
NO : Repair the damaged parts.

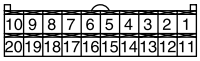
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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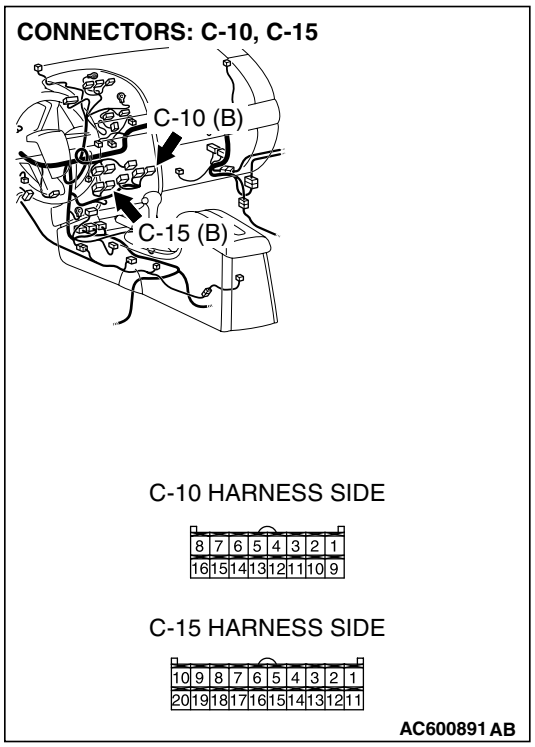
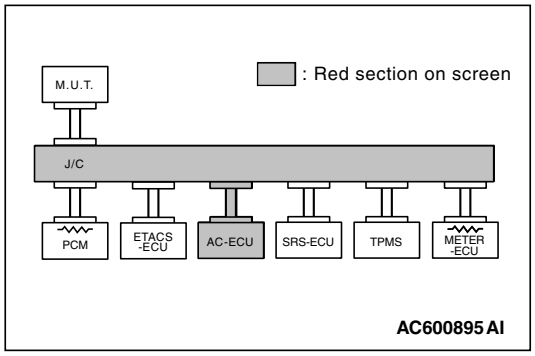
STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 13 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 14 .

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

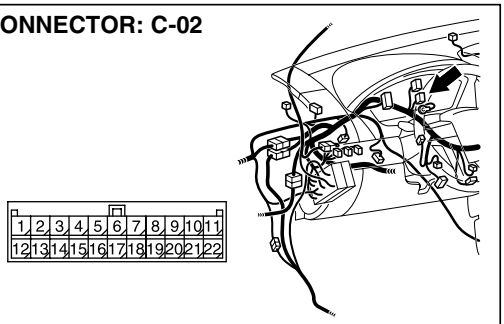
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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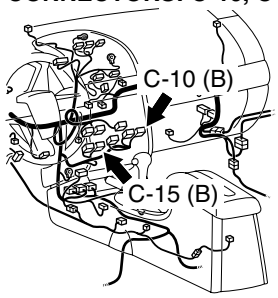
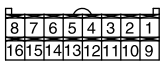
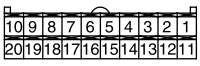
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



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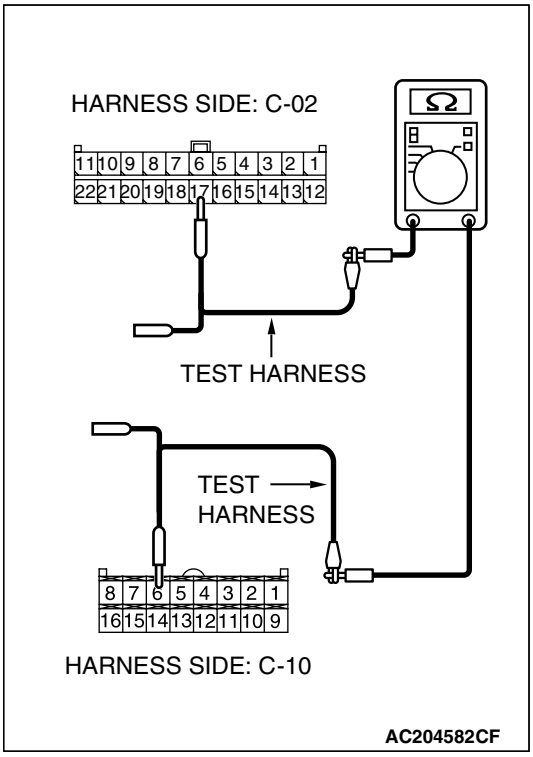
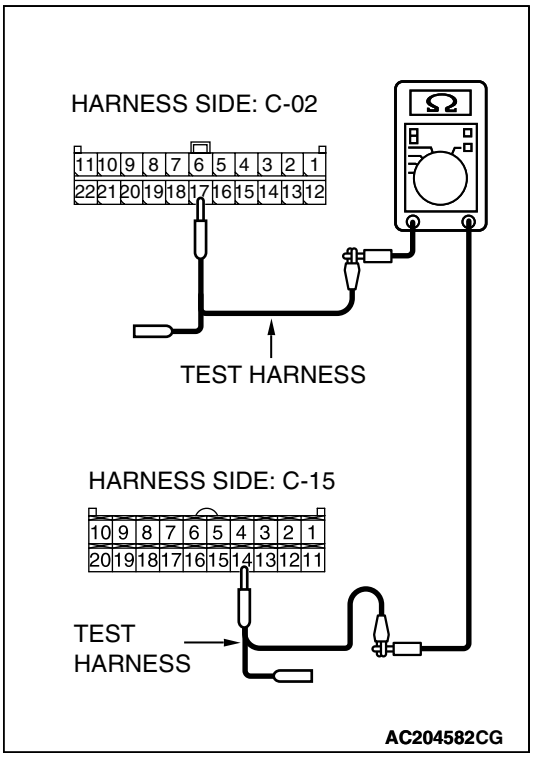
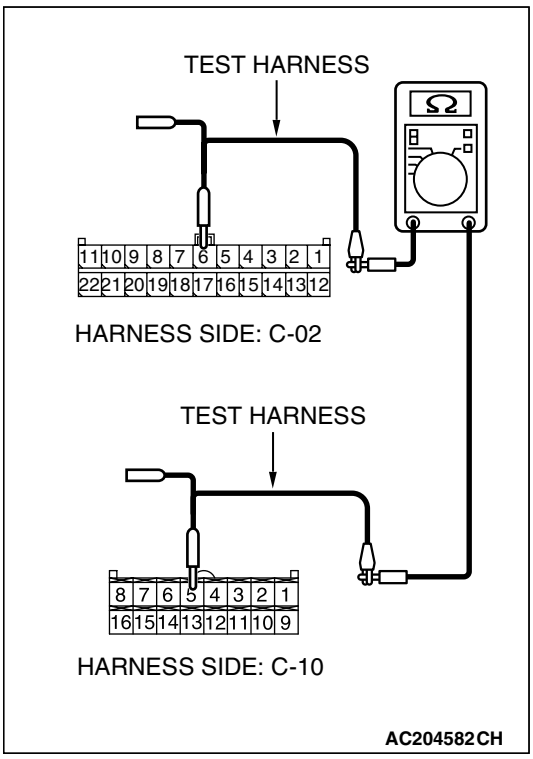
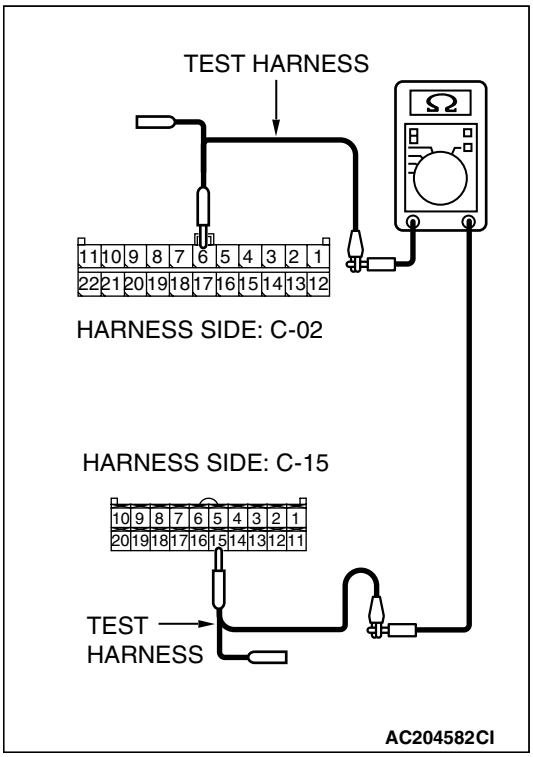


(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less







(5) Measure the resistance between joint connector (3) terminal 6 and A/C-ECU connector terminal 5 <manual air conditioning system (low)> or 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less

⚠ CAUTION

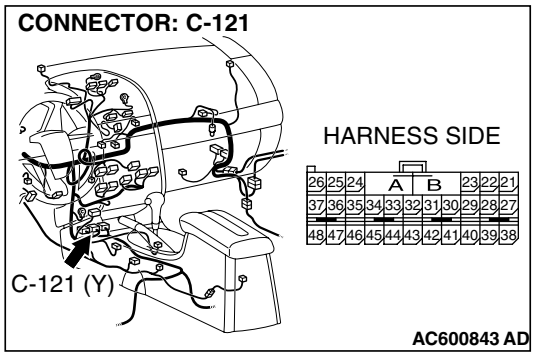
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

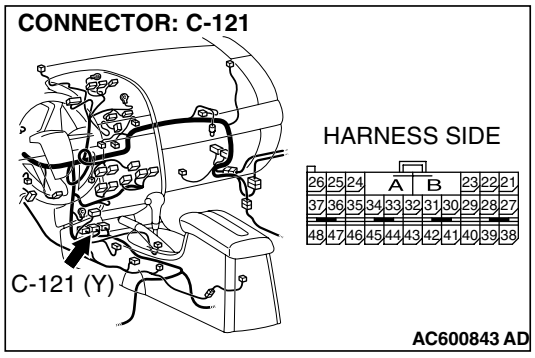


⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

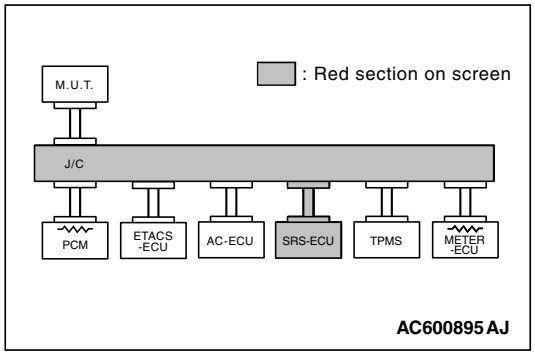
Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 15.
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).



(1) Disconnect SRS-ECU connector C-121.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the SRS-ECU connector C-121.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 16 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 17 .

STEP 16. Check the CAN bus lines between joint connector (3) and the SRS-ECU. Measure the resistance between joint connector (3) C-02 and SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

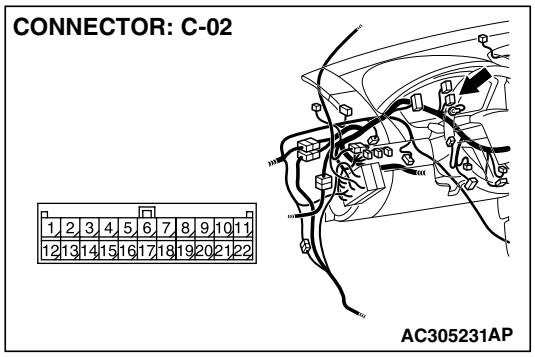
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and SRS-ECU connector C-121.

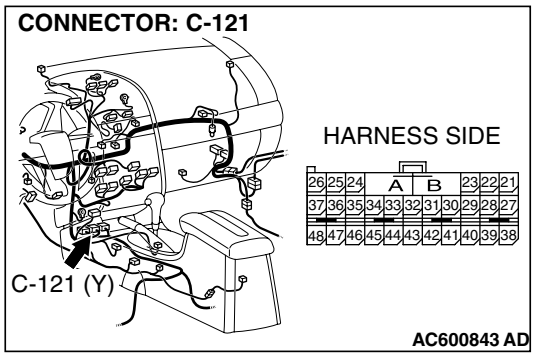
(2) Turn the ignition switch to the "LOCK" (OFF) position.

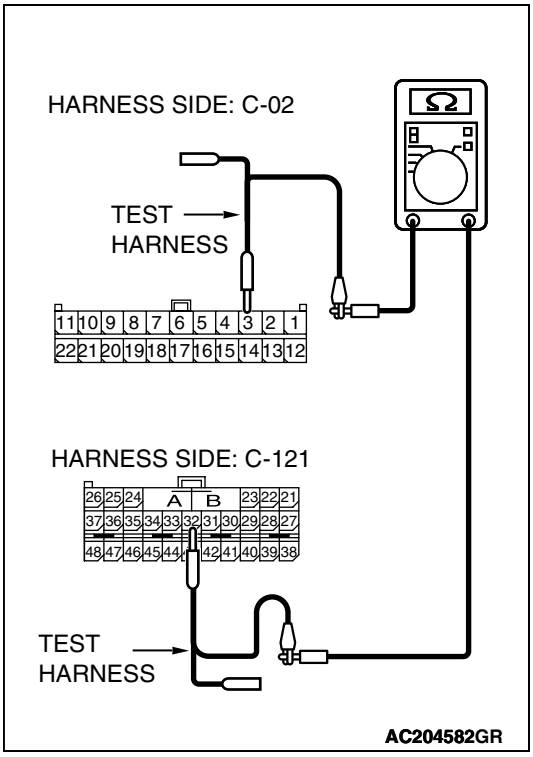
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

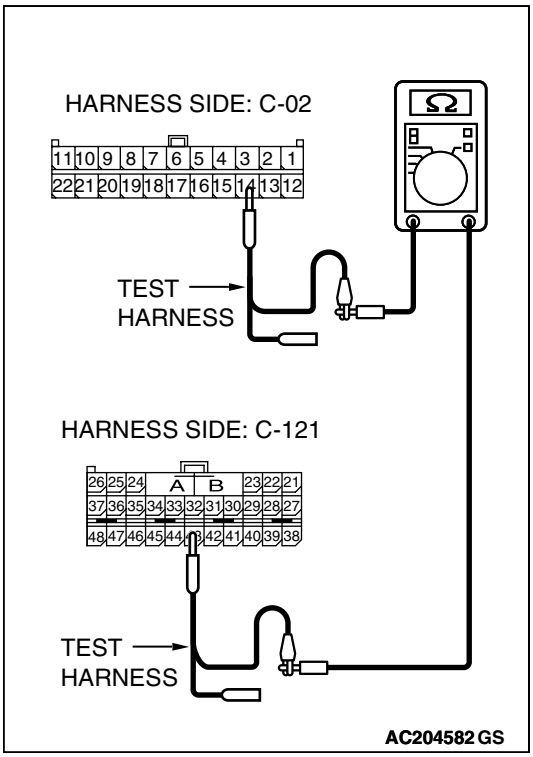






(4) Measure the resistance between joint connector (3) terminal 3 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

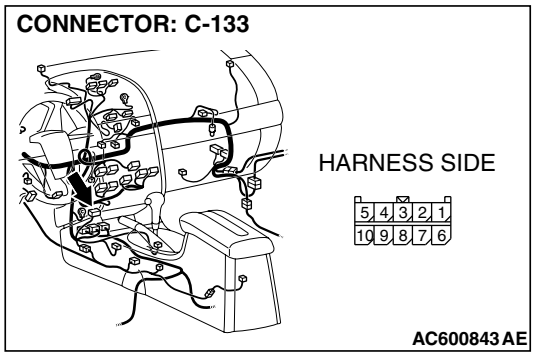
YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

STEP 17. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

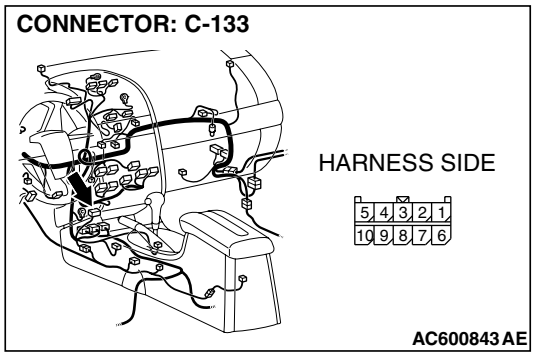


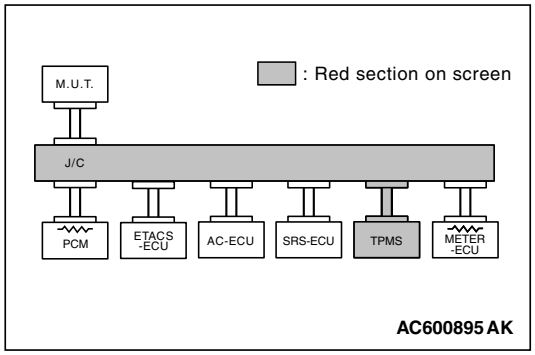
Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 18.
NO : Repair the damaged parts.

STEP 18. Using scan tool MB991958, diagnose the CAN bus line (Disconnect TPMS reciver connector C-133, and check the supplemental restraint system).

(1) Disconnect TPMS reciver connector C-133.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the TPMS reciver connector C-133.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 19 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 20 .

STEP 19. Check the CAN bus lines between joint connector (3) and the TPMS reciver. Measure the resistance between joint connector (3) C-02 and TPMS reciver connector C-133.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

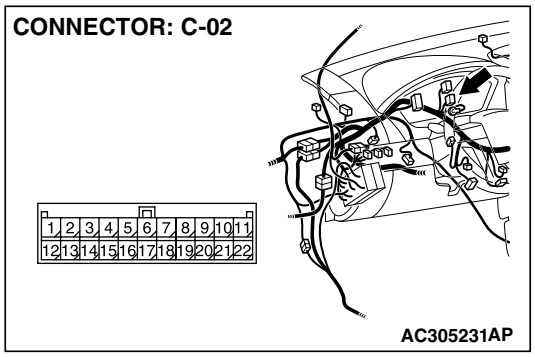
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and TPMS reciver connector C-133.

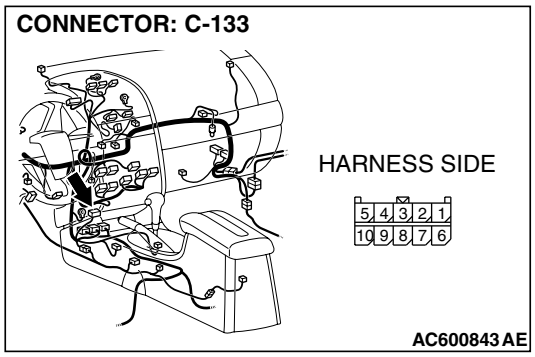
(2) Turn the ignition switch to the "LOCK" (OFF) position.

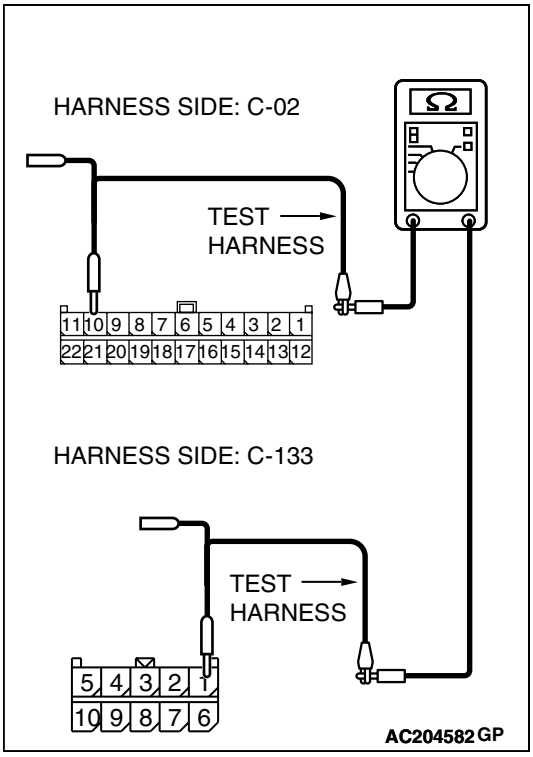
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

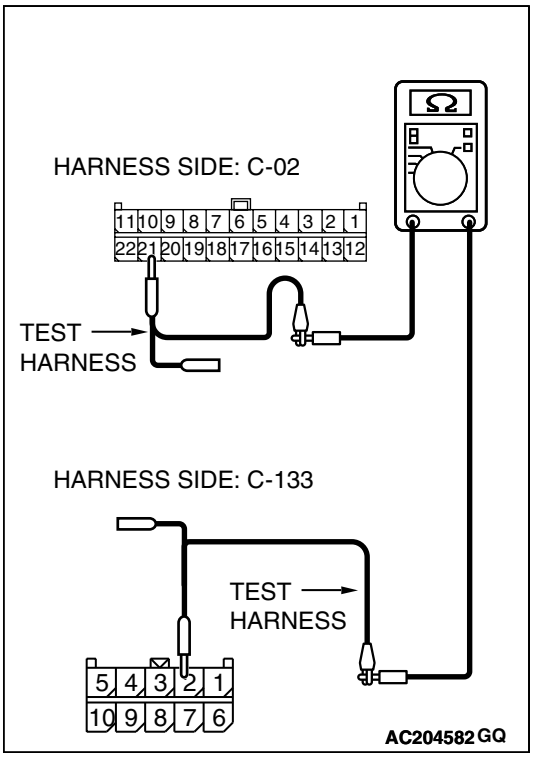






(4) Measure the resistance between joint connector (3) terminal 10 and TPMS reciver connector terminal 1.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 21 and TPMS reciver connector terminal 2.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the TPMS reciver may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 20. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

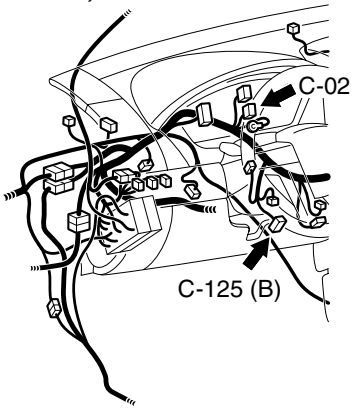
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

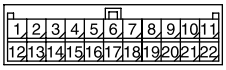
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

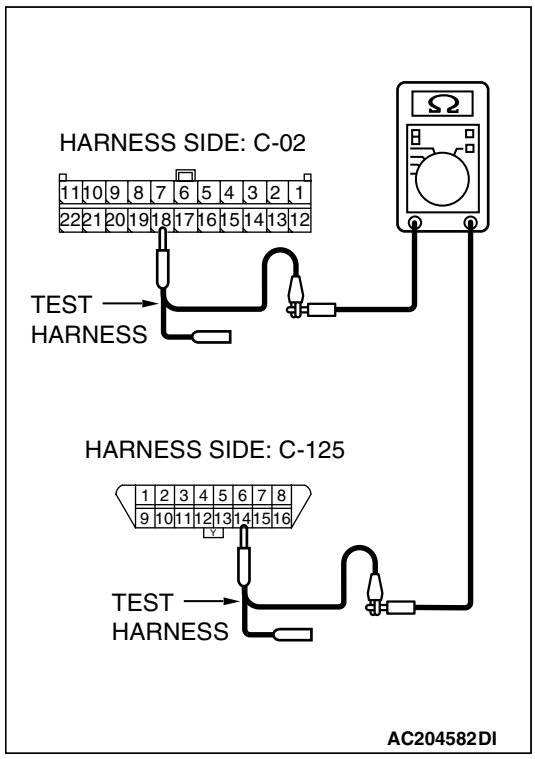


C-02



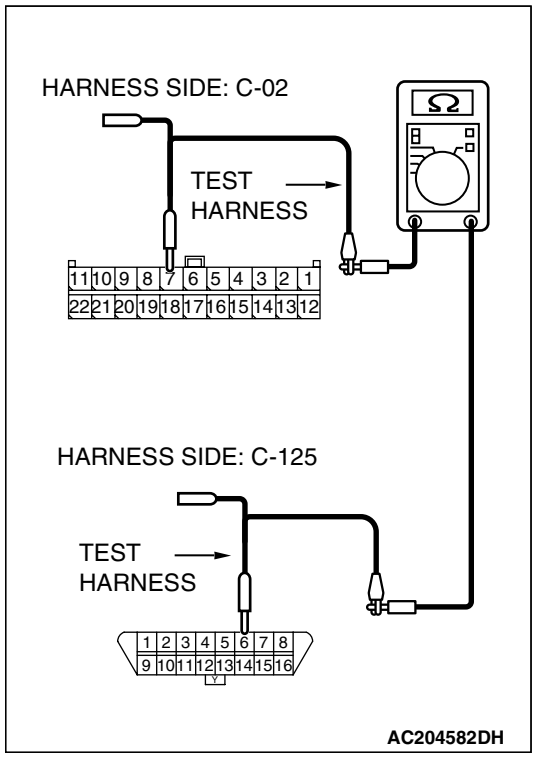
C-125

AC305232AF



(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 7: Check the CAN_L and H lines for a short circuit (Refer to P.54C-335).

NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.

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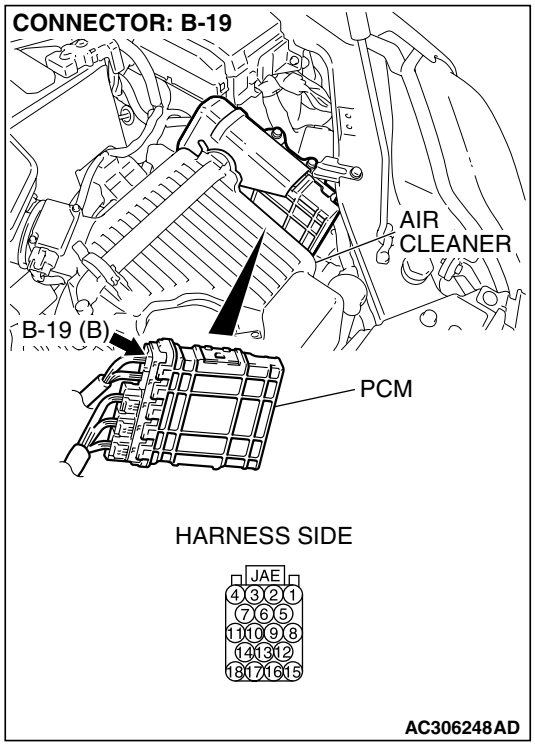


STEP 21. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

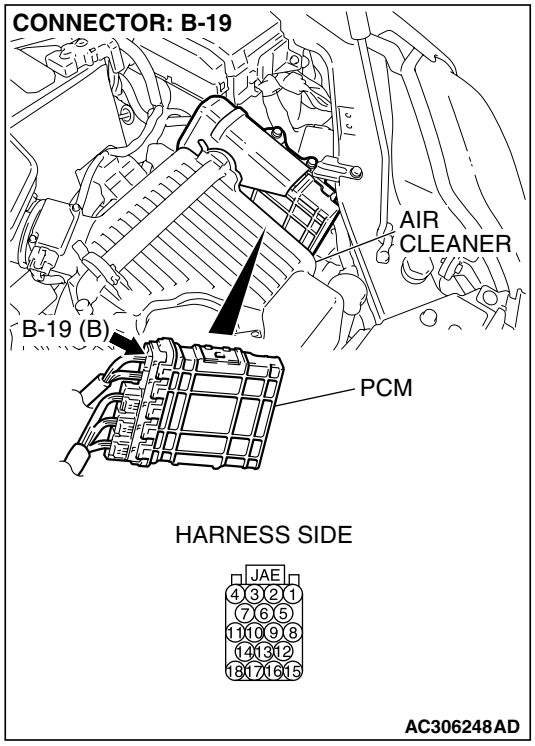
Q: Is powertrain control module connector B-19 in good condition?

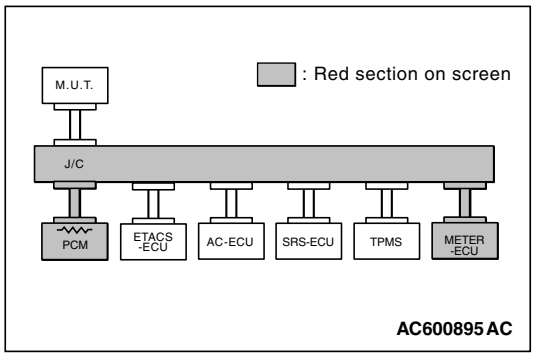
YES : Go to STEP 22.

NO : Repair the damaged parts.

STEP 22. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 23 .

NO : If the M.U.T.-III screen does not correspond to the illustration, refer to diagnostics item 7: Check the CAN_L and H lines for a short circuit (Refer to P.54C-335).

STEP 23. Check the CAN bus lines between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

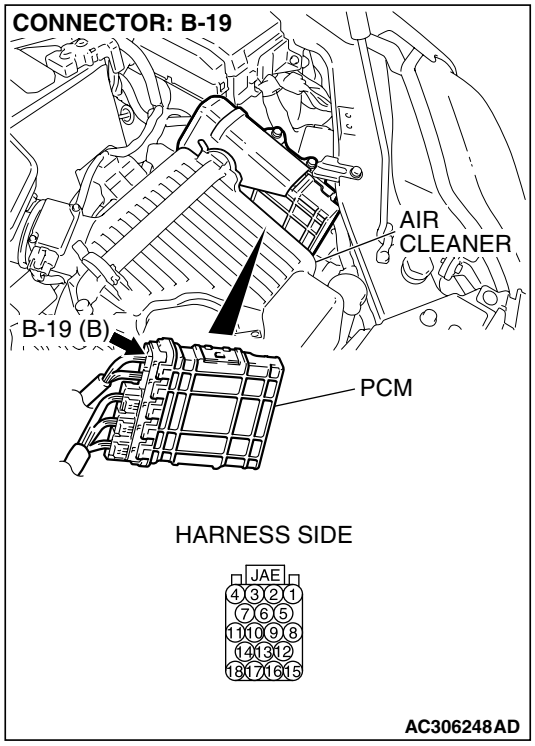
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

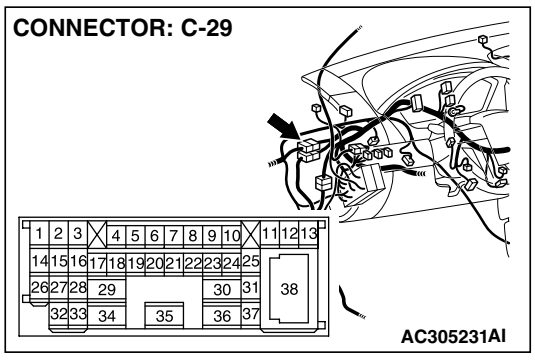
(2) Turn the ignition switch to the "LOCK" (OFF) position.

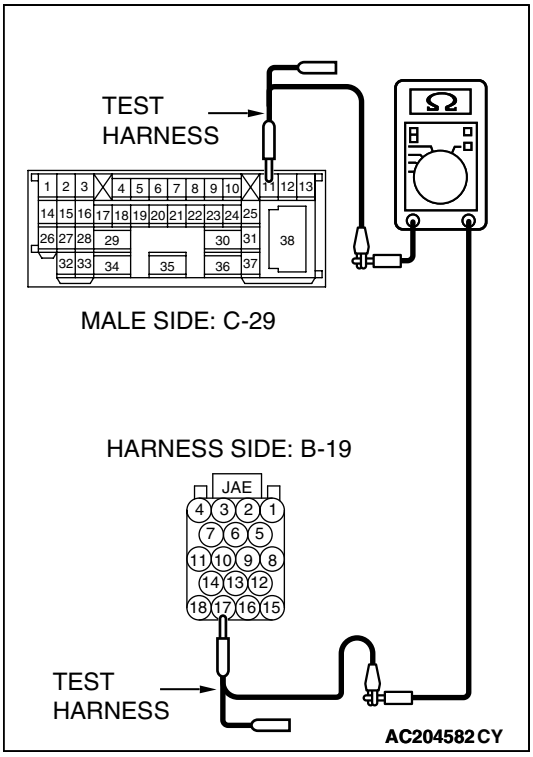
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

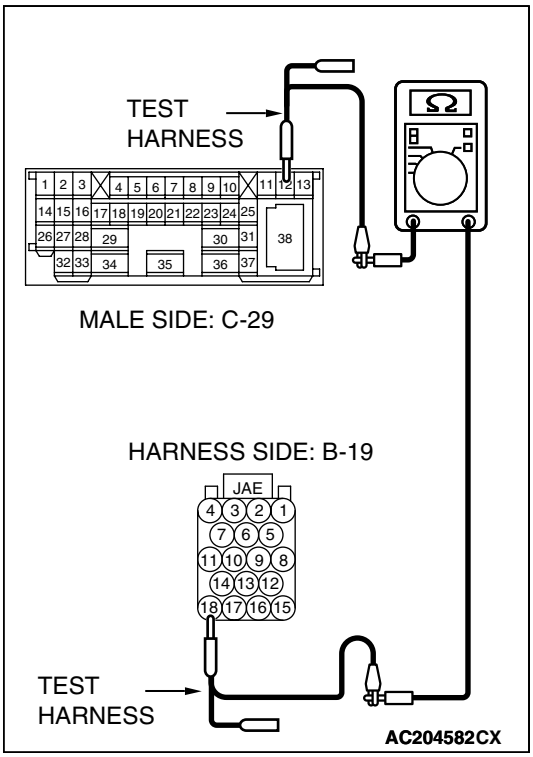






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to STEP 24.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

STEP 24. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

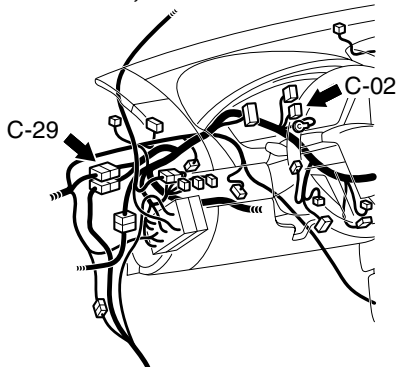
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

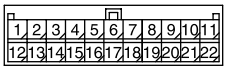
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

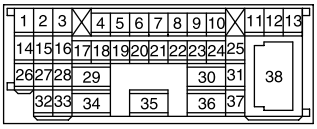
CONNECTORS: C-02, C-29



C-02



C-29



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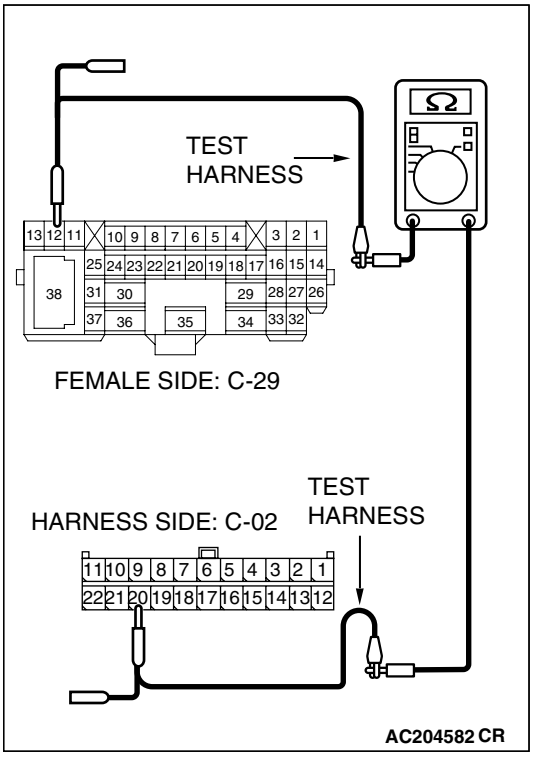
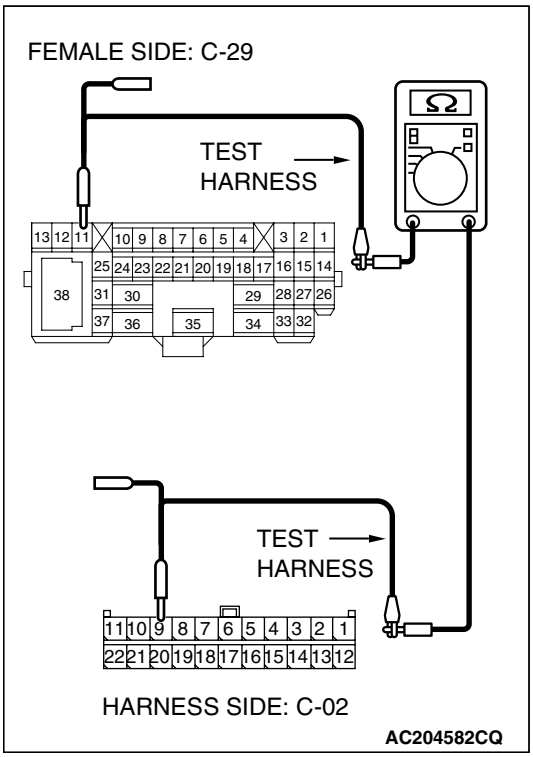


(4) Measure the resistance between joint connector (3) terminal 20 and intermediate connector terminal 12.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 9 and intermediate connector C-29 terminal 11.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

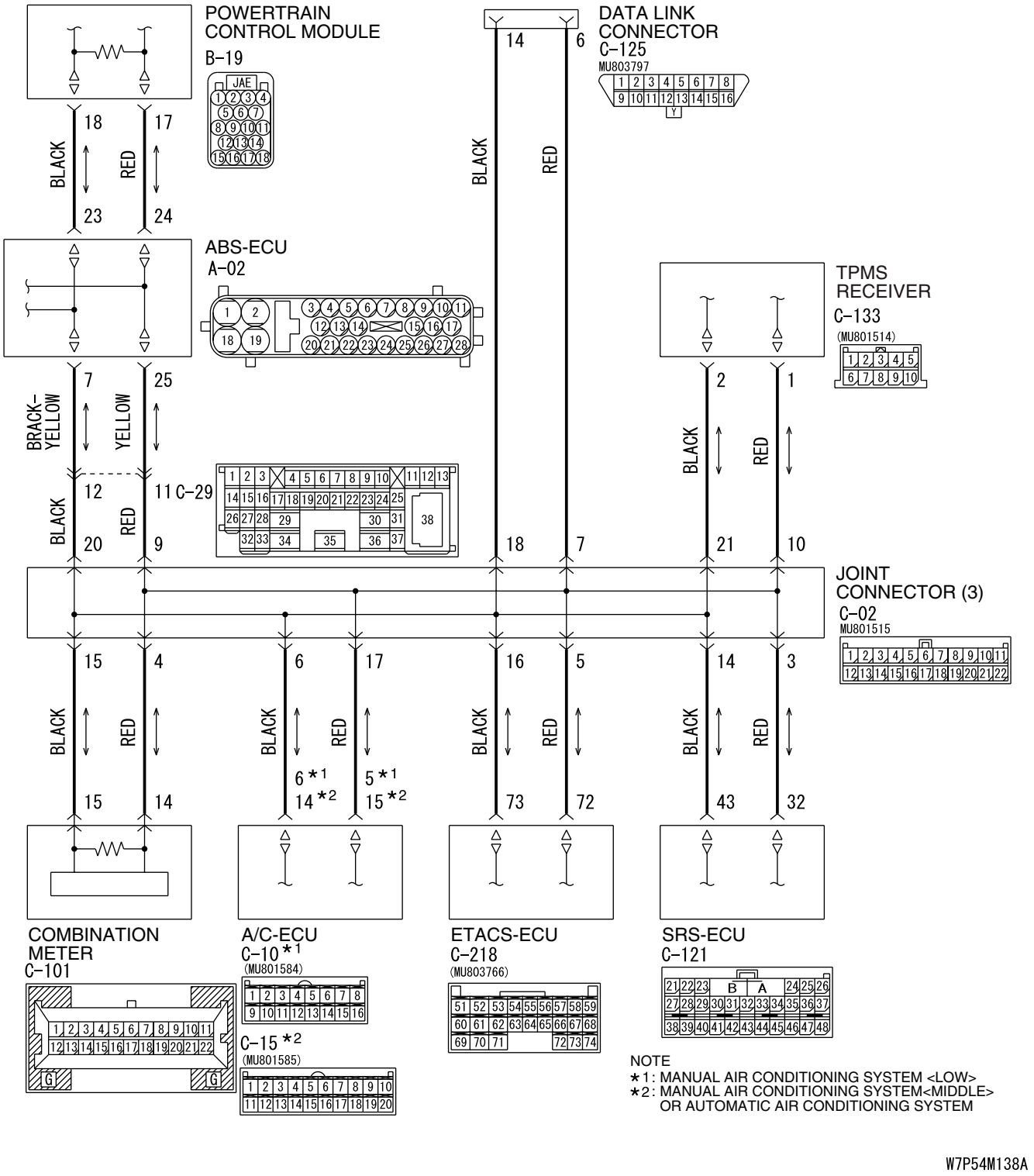
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-1003 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1254 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector.

DIAGNOSTIC ITEM 15: Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles without multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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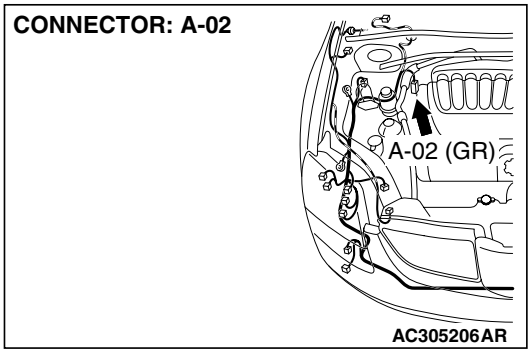

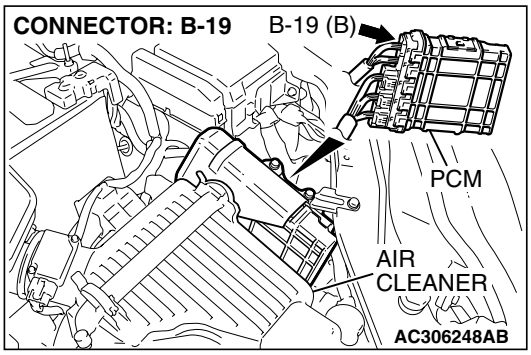

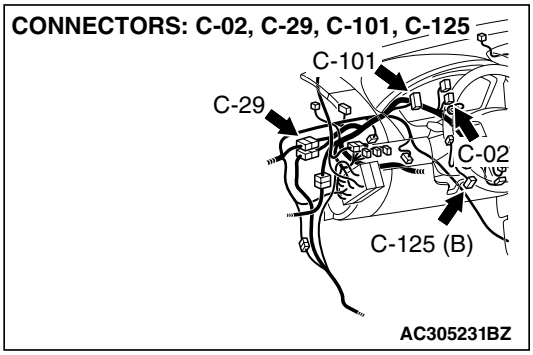

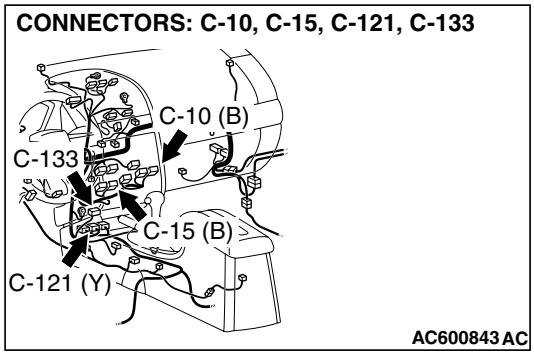

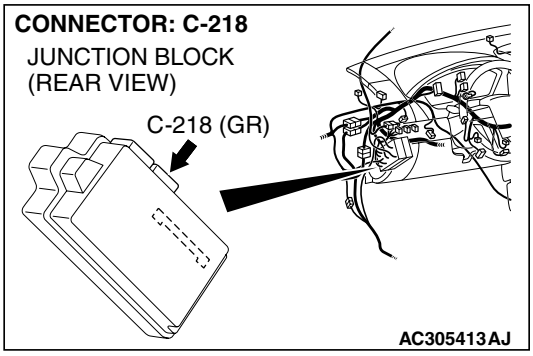

TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

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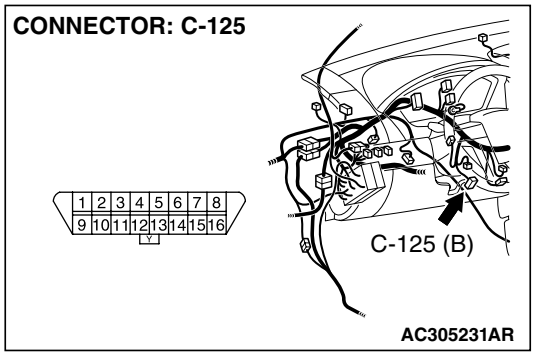
- MB991970: ABS Check Harness



STEP 1. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

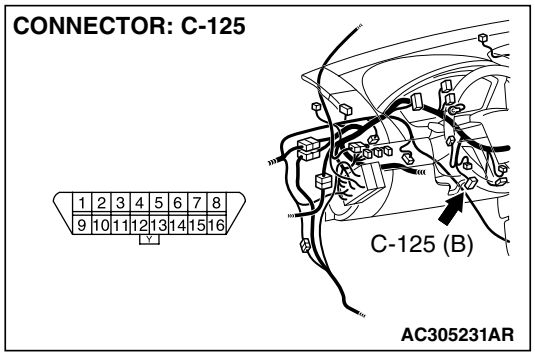
(1) Measure the resistance at the data link connector.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



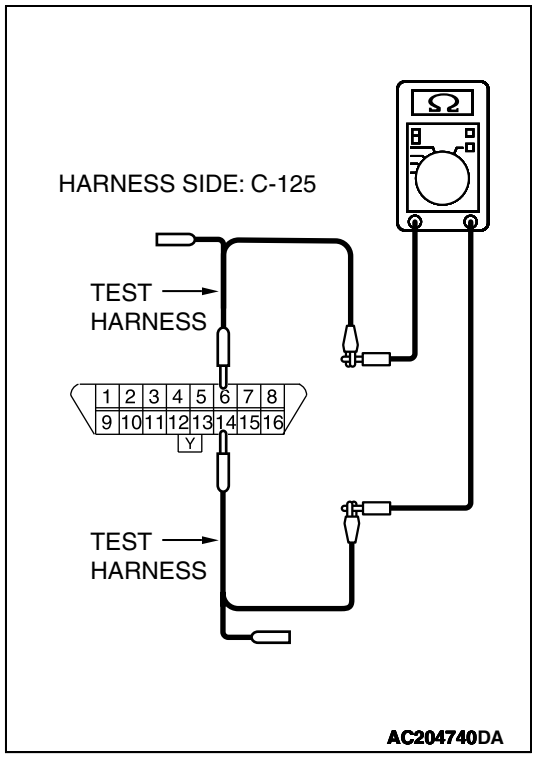
(4) Measure the resistance between data link connector terminals 6 and 14.

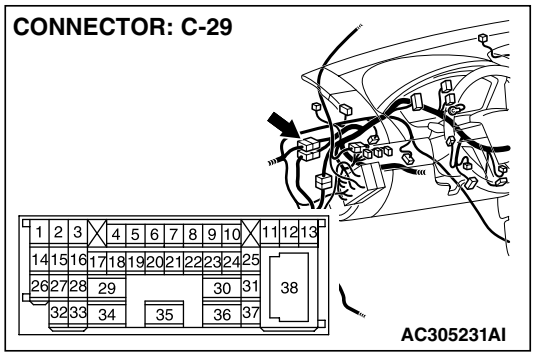
Q: How much resistance is measured?

2 ohms or less : Diagnostic Item 8: Check the CAN_L and H lines for a short circuit. Refer to P.54C-362.

No continuity : Diagnostic Item 11: Diagnose terminator resistors at both ends. Refer to P.54C-443.

More than 2 ohms but continuity exists : Go to Step 3.





STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

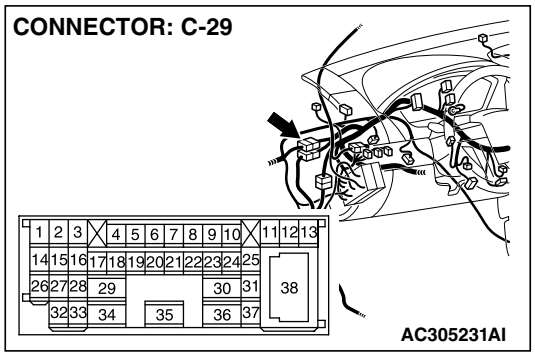
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts.

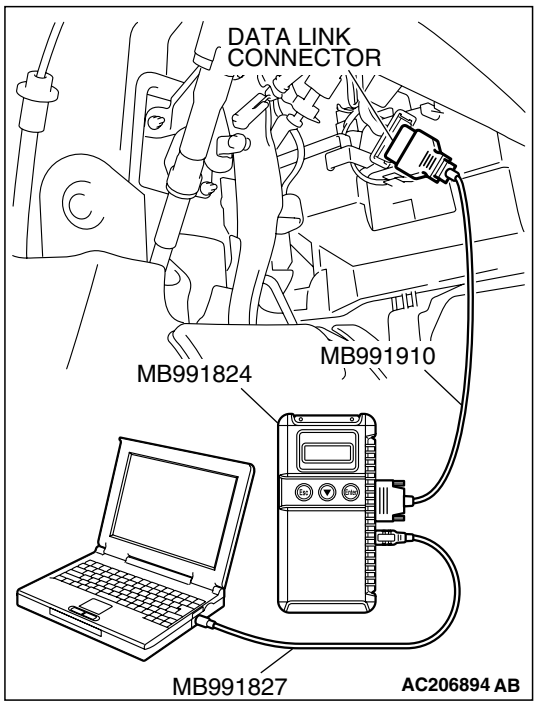
STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).



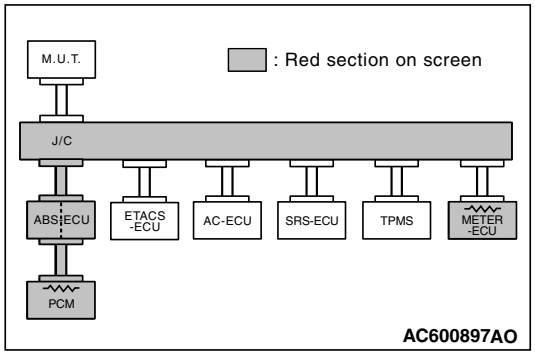
(1) Disconnect intermediate connector C-29.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(2) Connect scan tool MB991958 to the data link connector.
(3) Turn the ignition switch to the "ON" position.



(4) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

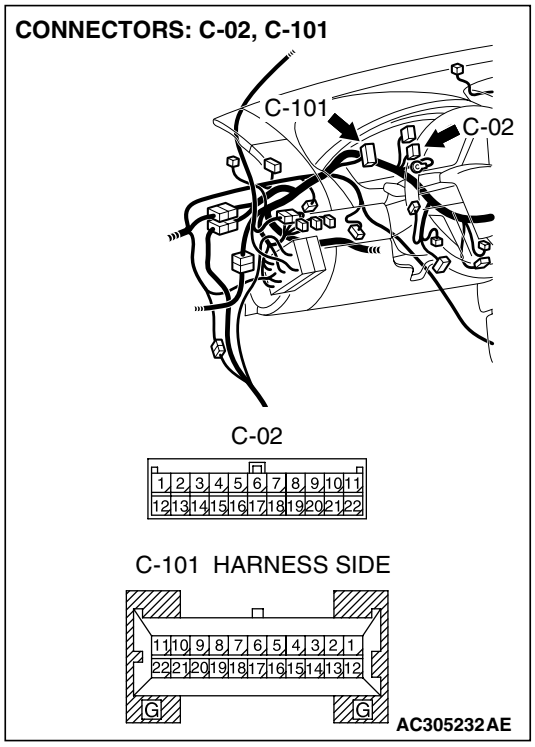
Q: Does the M.U.T.-III screen correspond to the illustration?

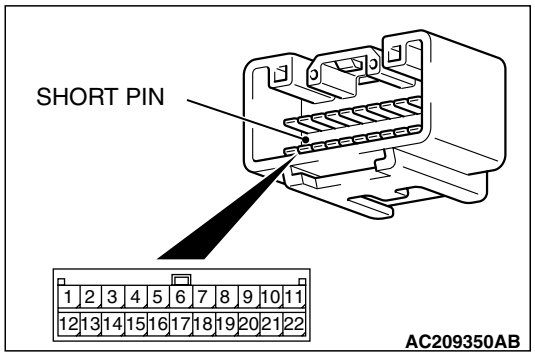
YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 21 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 5 .

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





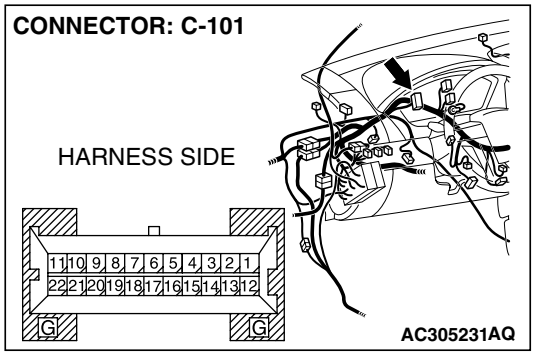
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

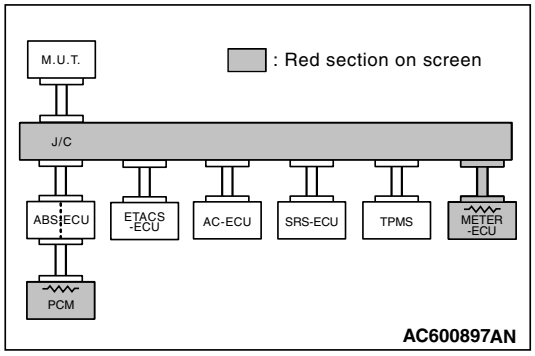
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).

(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 7.
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 8 .

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

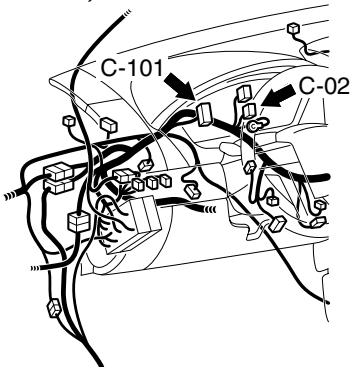
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

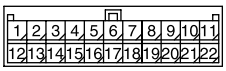
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

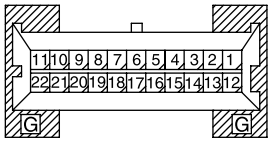
CONNECTORS: C-02, C-101



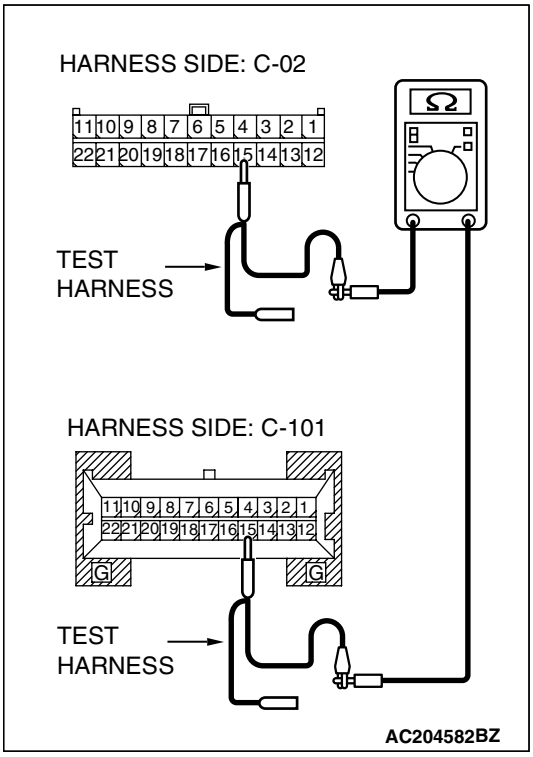
C-02



C-101 HARNESS SIDE

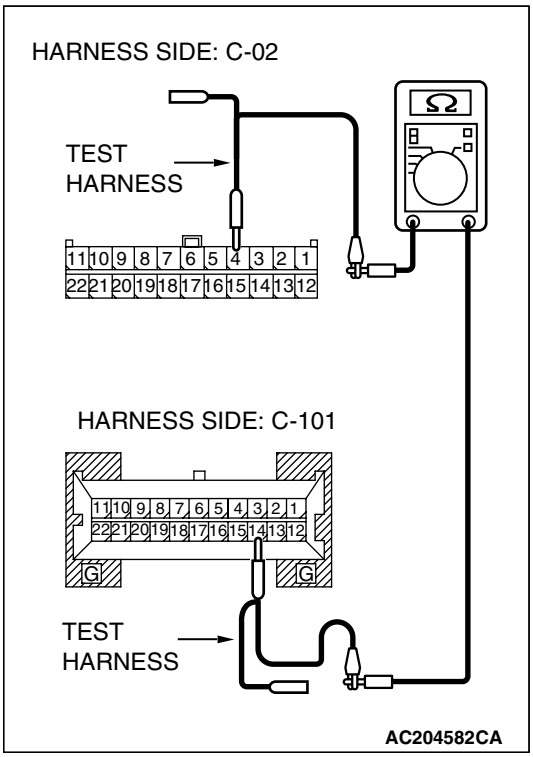


AC305232AE



(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

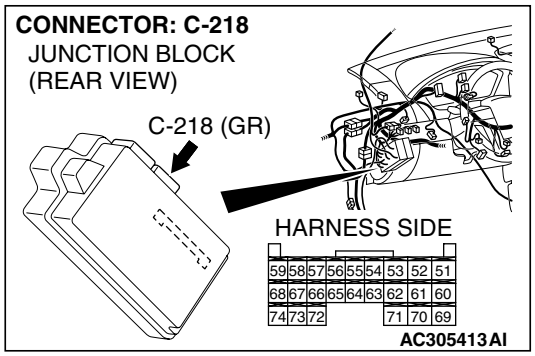
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-282.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

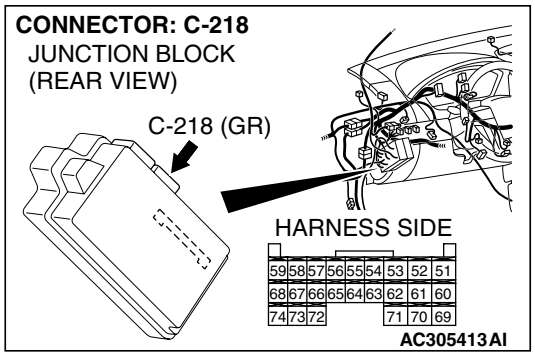
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ETACS-ECU connector C-218 in good condition?

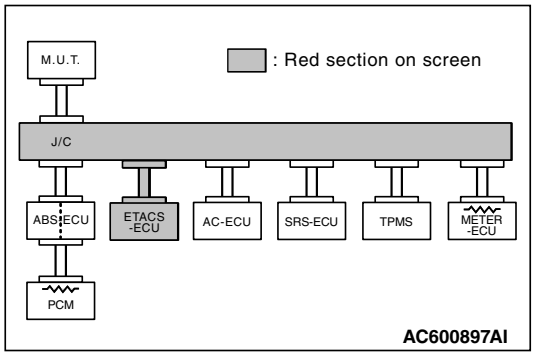
YES : Go to Step 9.

NO : Repair the damaged parts.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).



(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 10 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 11 .

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

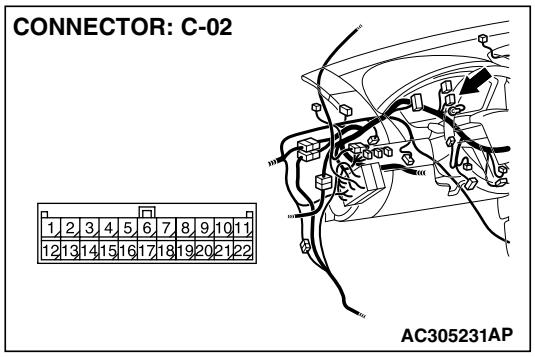
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

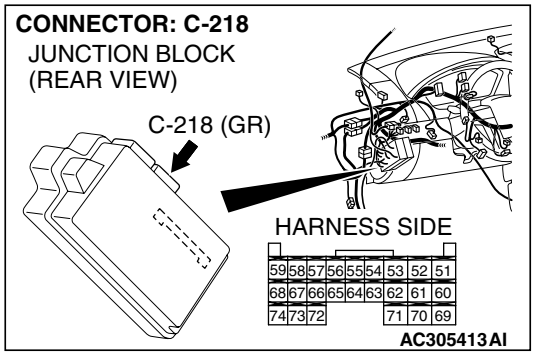
(2) Turn the ignition switch to the "LOCK" (OFF) position.

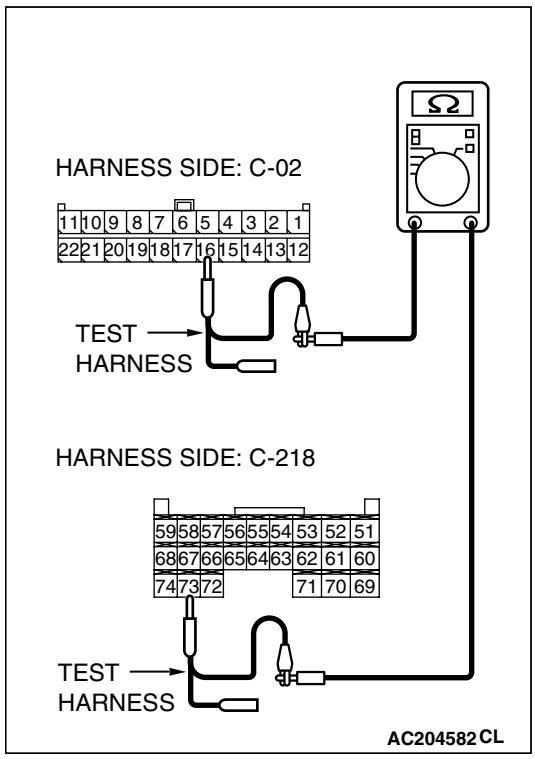
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

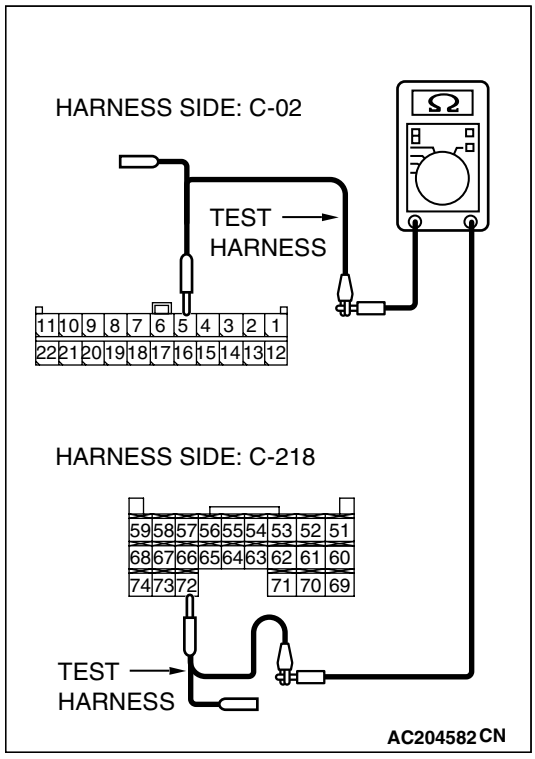






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

OK: 2 ohms or less

⚠ CAUTION

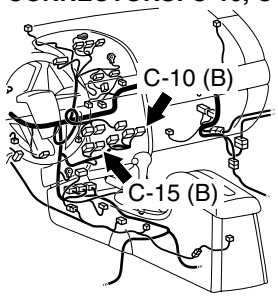
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

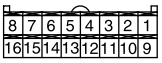
YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

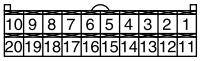
CONNECTORS: C-10, C-15



C-10 HARNESS SIDE



C-15 HARNESS SIDE



AC600891 AB

STEP 11. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

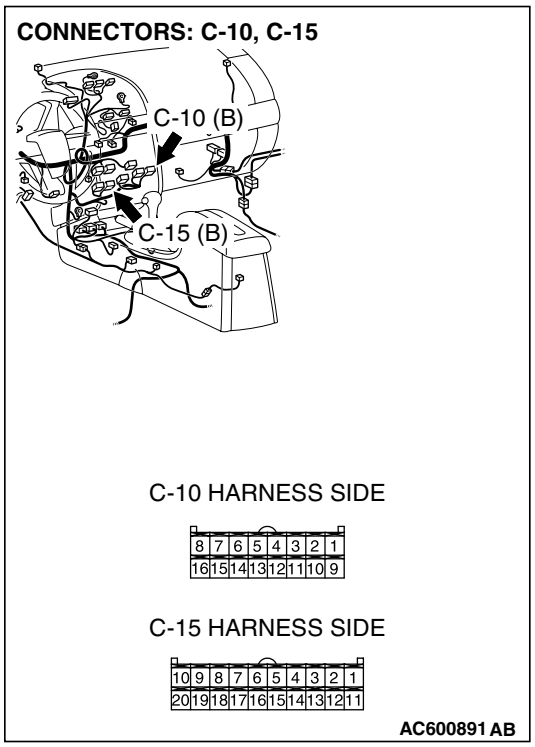
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

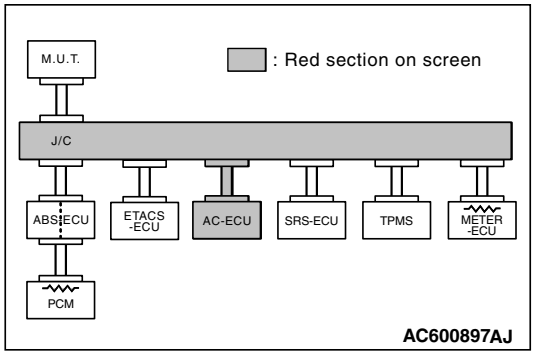
Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 13 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 14 .

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

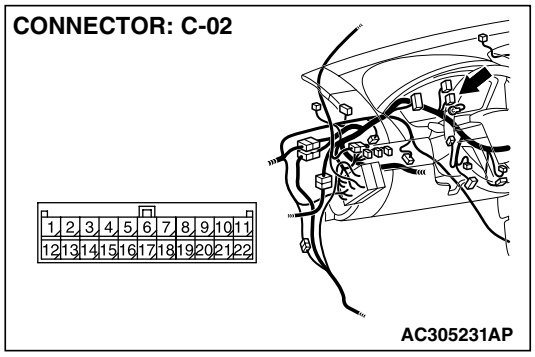
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

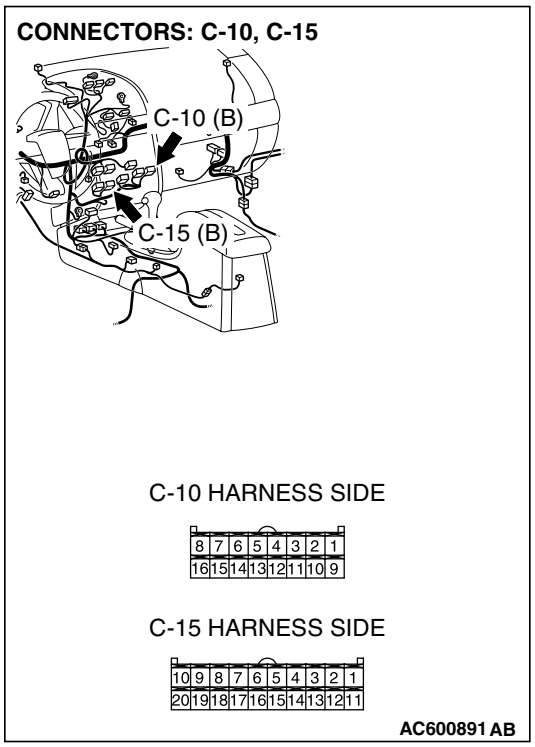
(2) Turn the ignition switch to the "LOCK" (OFF) position.

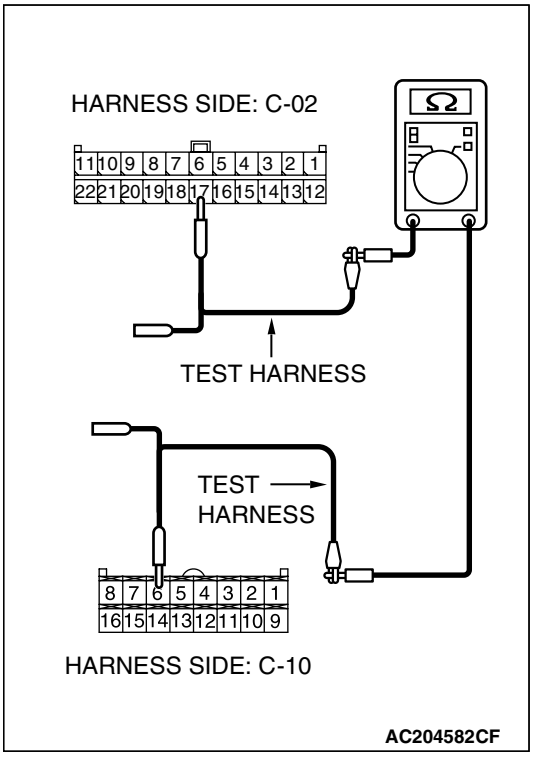
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

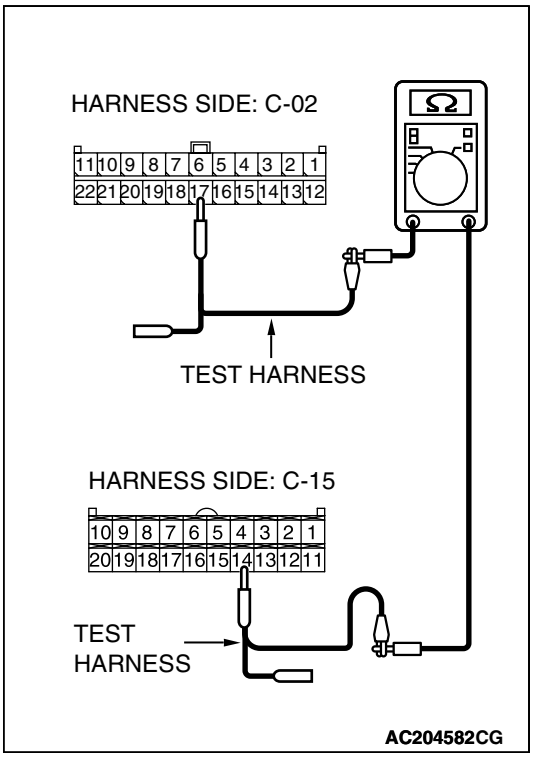


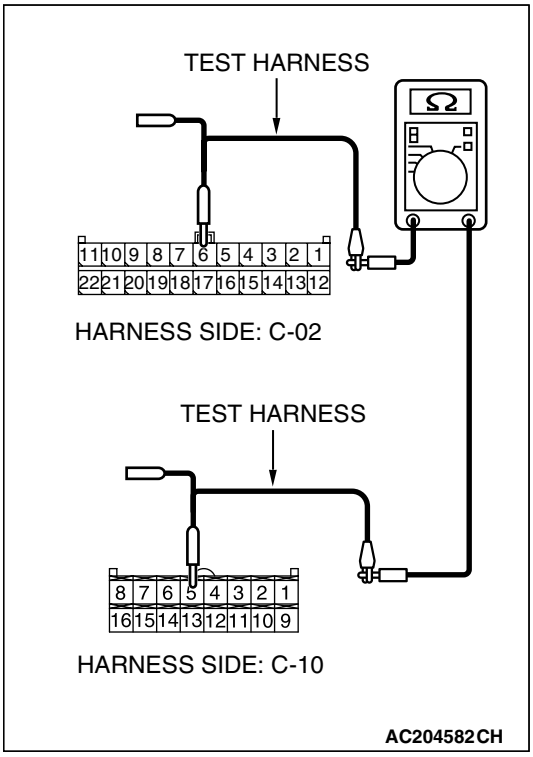


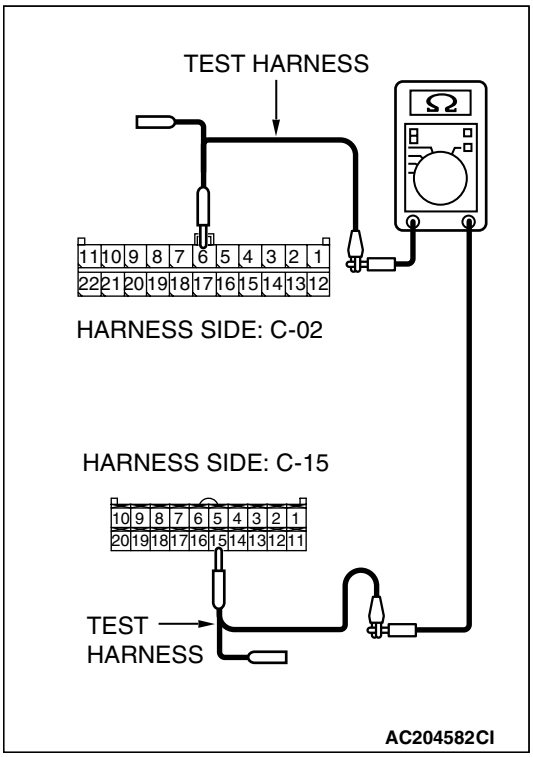


(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less







(5) Measure the resistance between joint connector (3) terminal 6 and A/C-ECU connector terminal 5 <manual air conditioning system (low)> or 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less

⚠ CAUTION

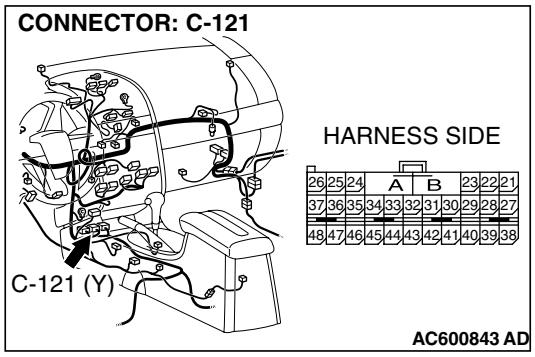
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is SRS-ECU connector C-121 in good condition?

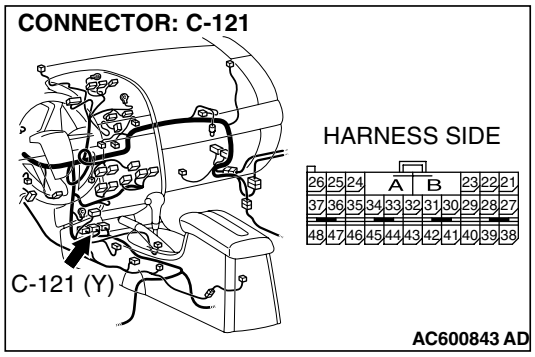
YES : Go to Step 15.

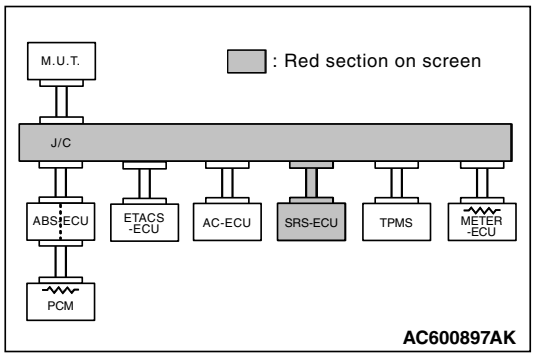
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).

(1) Disconnect SRS-ECU connector C-121.

(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

(5) Connect the SRS-ECU connector C-121.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 16 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 17 .

STEP 16. Check the CAN bus lines between joint connector (3) and the SRS-ECU. Measure the resistance between joint connector (3) C-02 and SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

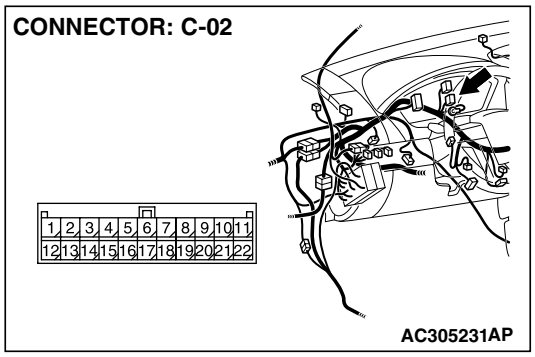
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and SRS-ECU connector C-121.

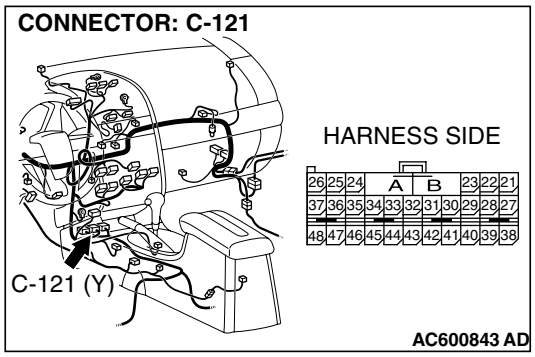
(2) Turn the ignition switch to the "LOCK" (OFF) position.

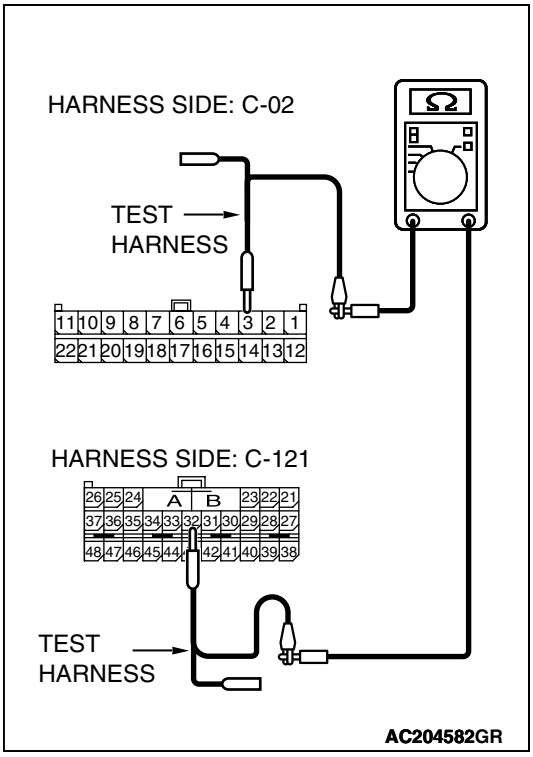
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

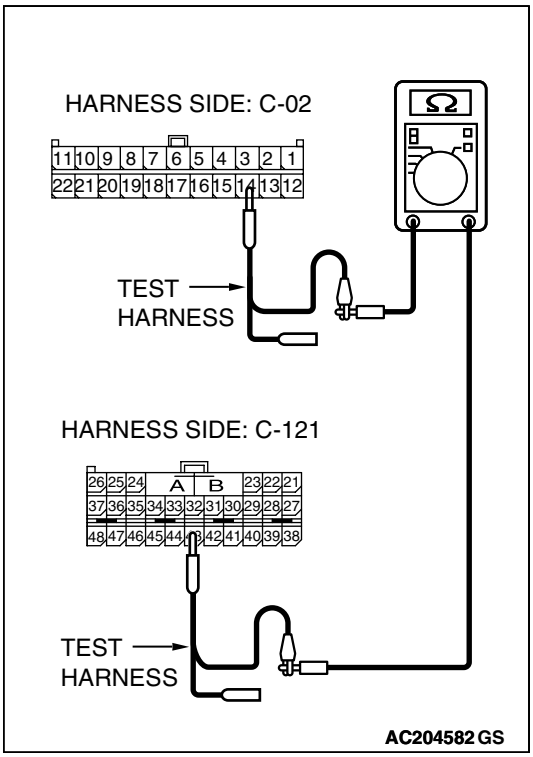






(4) Measure the resistance between joint connector (3) terminal 3 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

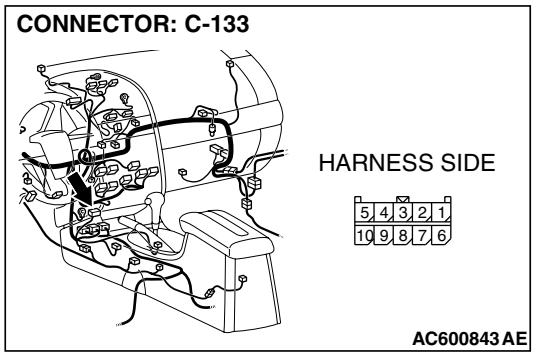
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

STEP 17. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

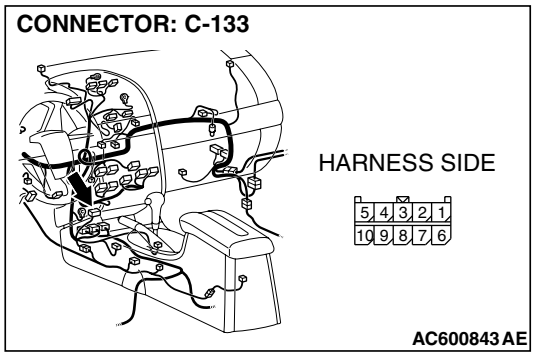


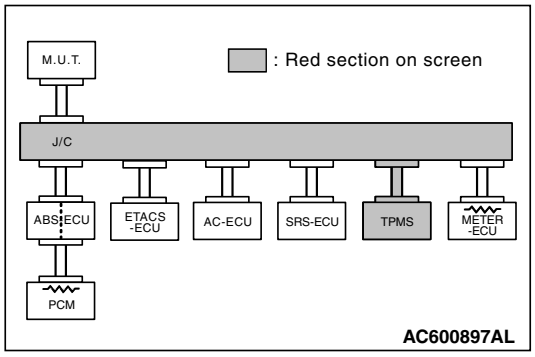
Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 18.
NO : Repair the damaged parts.

STEP 18. Using scan tool MB991958, diagnose the CAN bus line (Disconnect TPMS reciver connector C-133, and check the supplemental restraint system).

(1) Disconnect TPMS reciver connector C-133.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the TPMS reciver connector C-133.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 19 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 20 .

STEP 19. Check the CAN bus lines between joint connector (3) and the TPMS reciver. Measure the resistance between joint connector (3) C-02 and TPMS reciver connector C-133.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

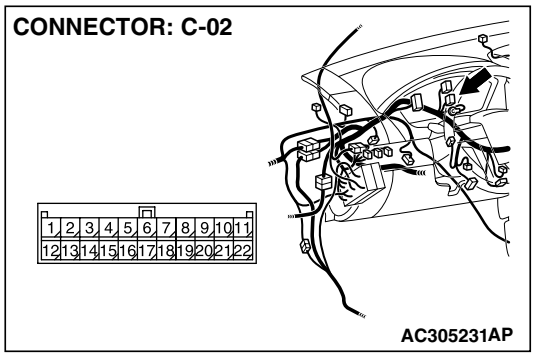
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133 and measure the resistances at the wiring harness sides of joint connector (3) C-02 and TPMS reciver connector C-133.

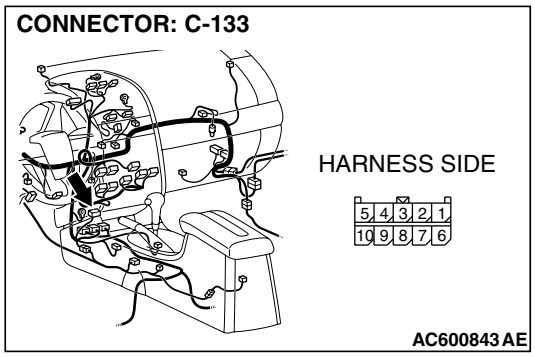
(2) Turn the ignition switch to the "LOCK" (OFF) position.

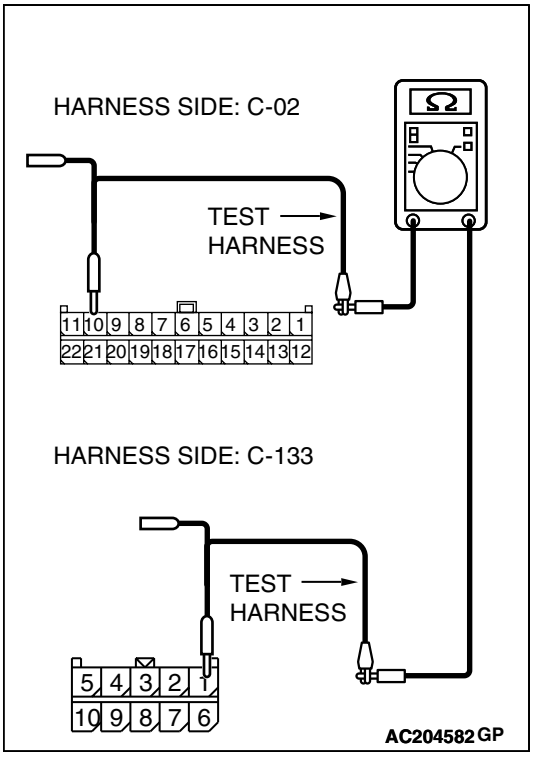
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

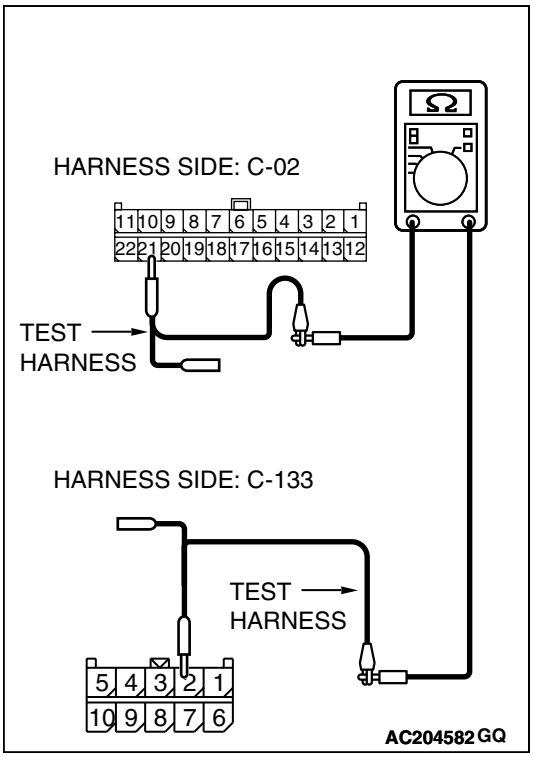






(4) Measure the resistance between joint connector (3) terminal 10 and TPMS reciver connector terminal 1.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 21 and TPMS reciver connector terminal 2.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the TPMS reciver may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 20. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

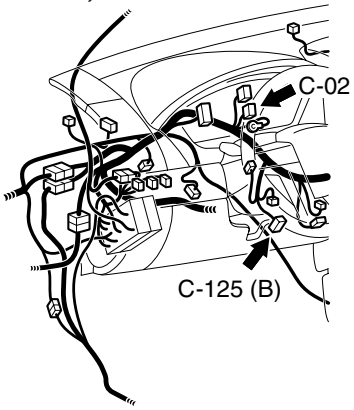
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

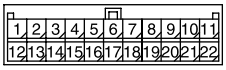
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

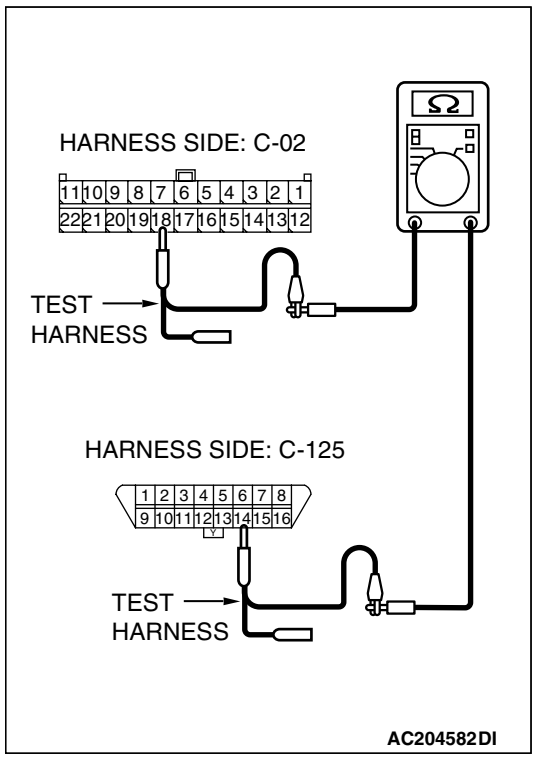


C-02



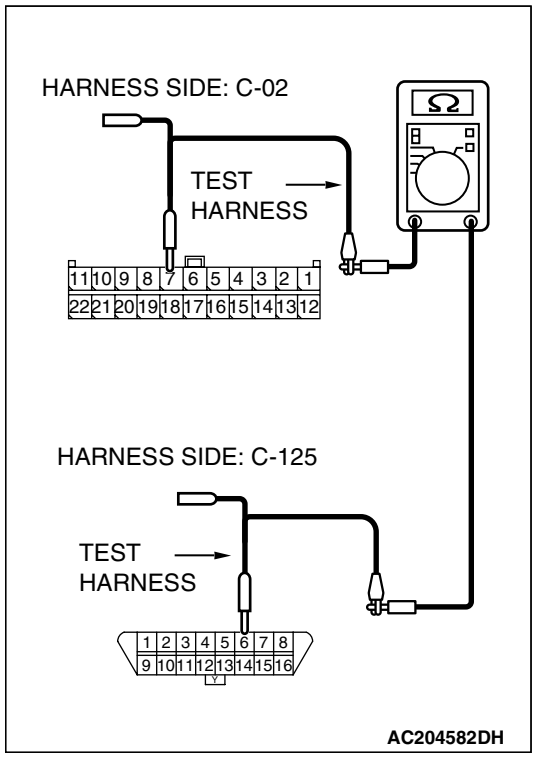
C-125

AC305232AF



(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

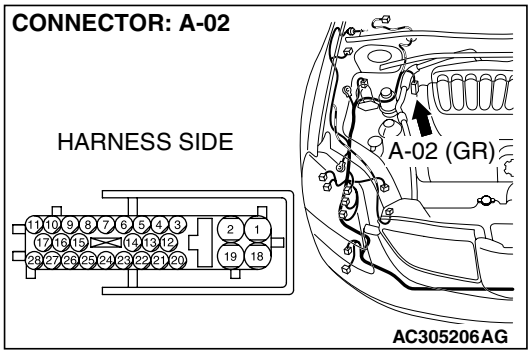
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

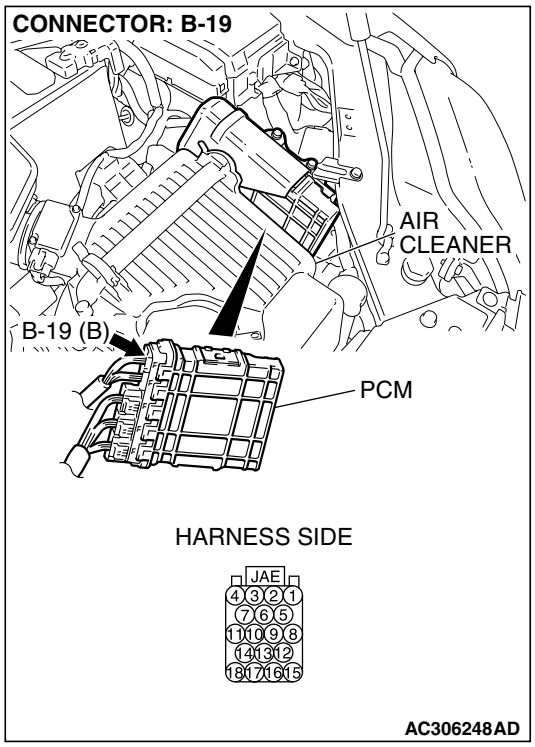
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 8: Check the CAN_L and H lines for a short circuit (Refer to P.54C-362).

NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.

TSB Revision





STEP 21. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

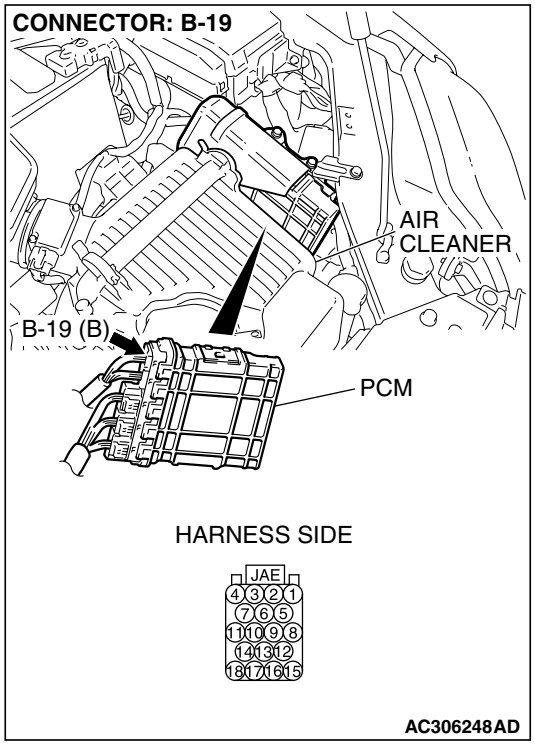
Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

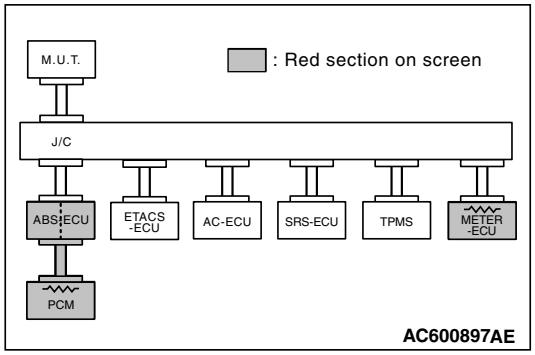
YES : Go to STEP 22.

NO : Repair the damaged parts.

STEP 22. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 23 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to STEP 25 .

STEP 23. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

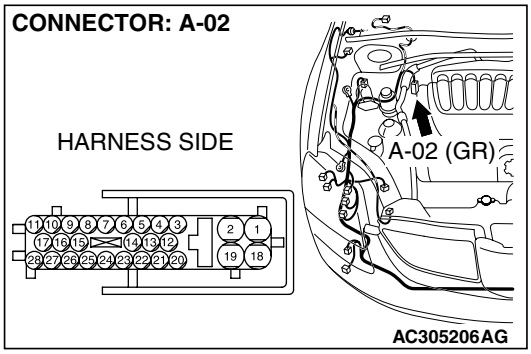
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

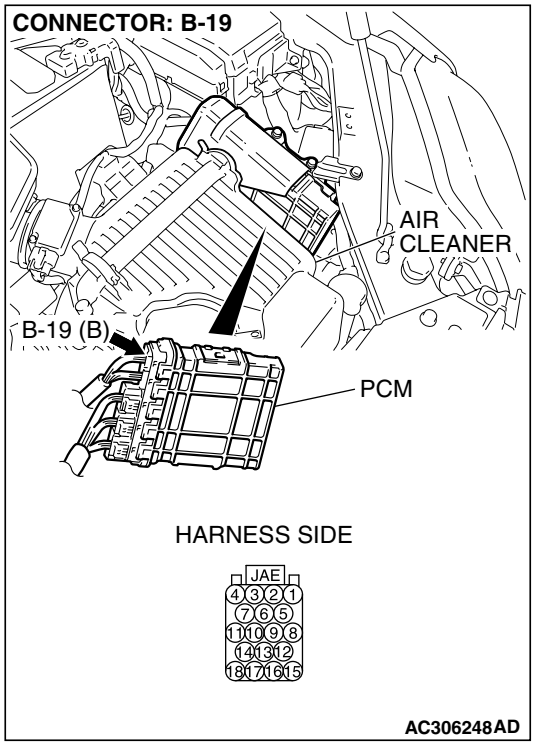
(2) Turn the ignition switch to the "LOCK" (OFF) position.

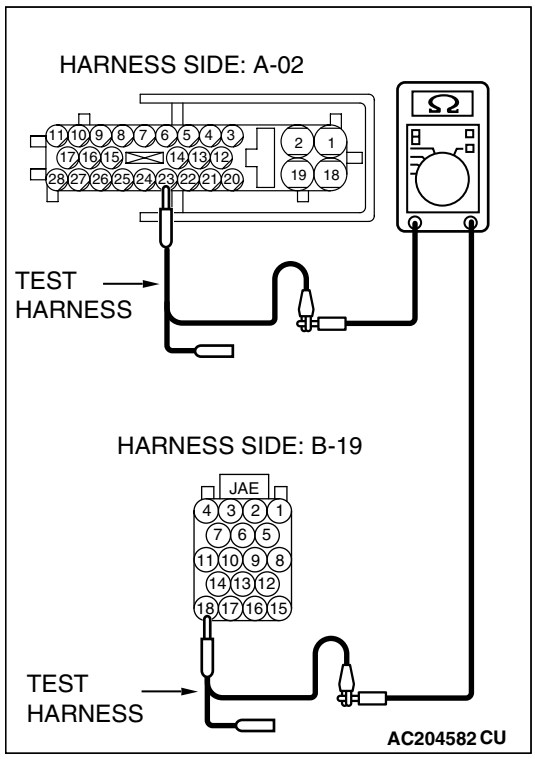
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

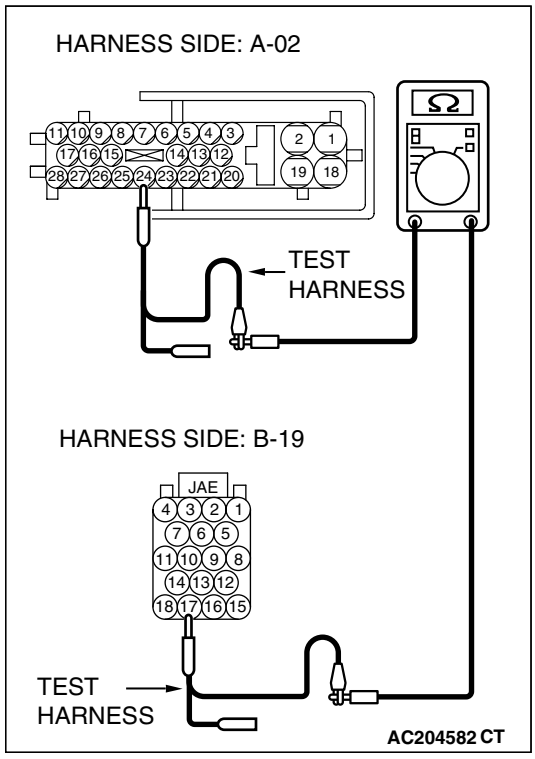






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to STEP 24.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 24. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

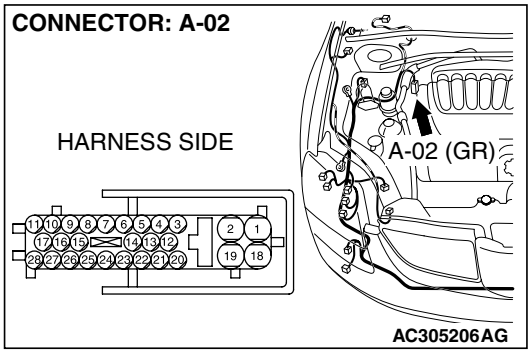
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

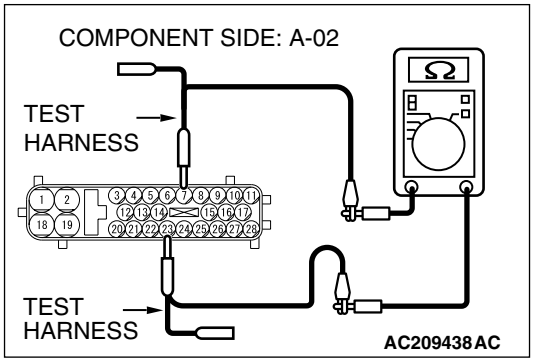
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



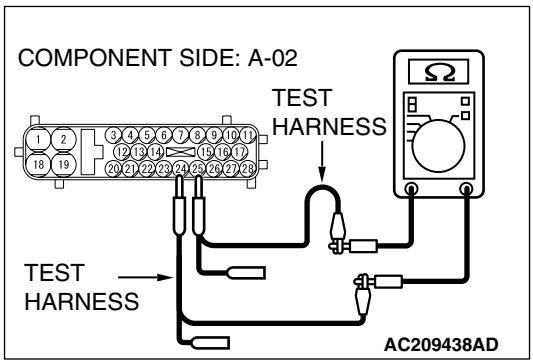
(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less



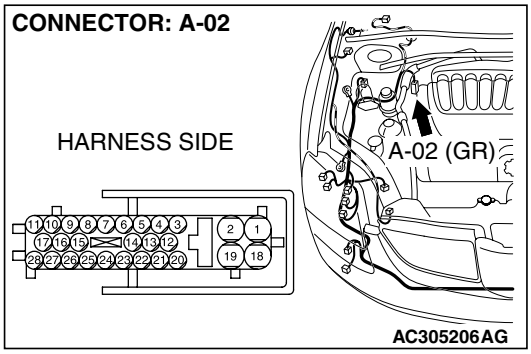
⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

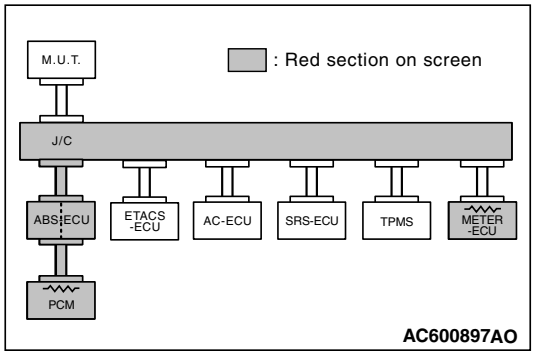
YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-1003 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1254 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

STEP 25. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ABS-ECU connector A-02, and check the ABS-ECU system).



(1) Disconnect ABS-ECU connector A-02.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Check ABS-ECU connector A-02.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 26 .

NO : If the M.U.T.-III screen does not correspond to the illustration, refer to diagnostics item 8: Check the CAN_L and H lines for a short circuit (Refer to P.54C-362).

STEP 26. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

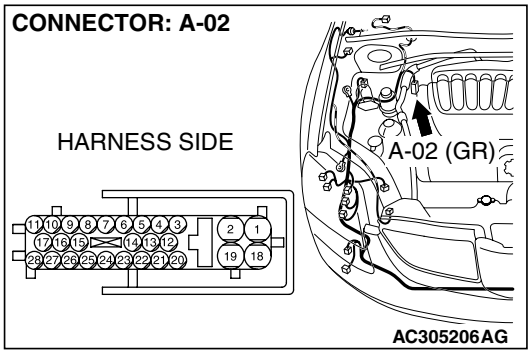
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

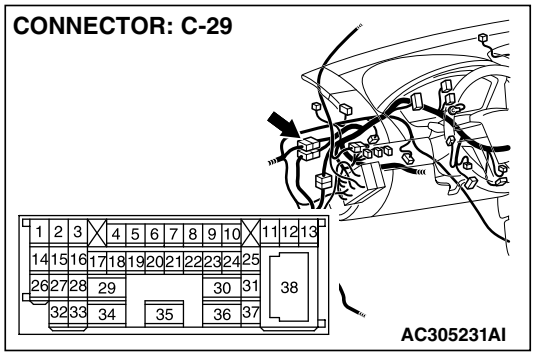
(2) Turn the ignition switch to the "LOCK" (OFF) position.

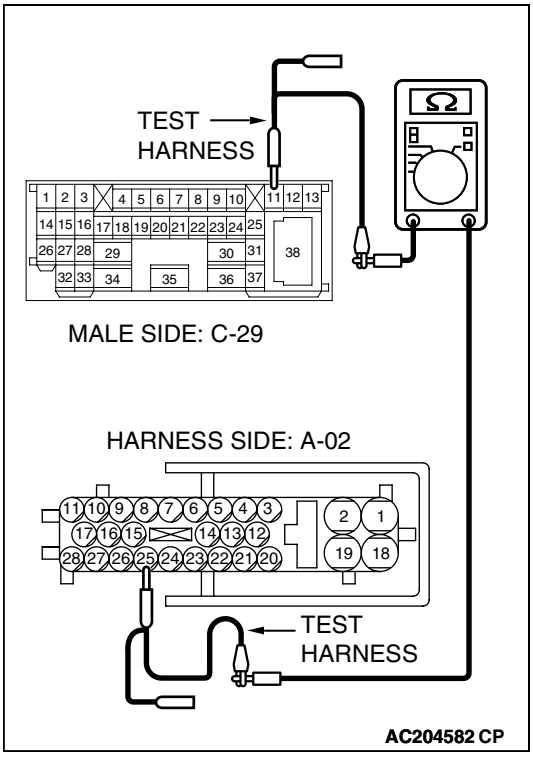
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

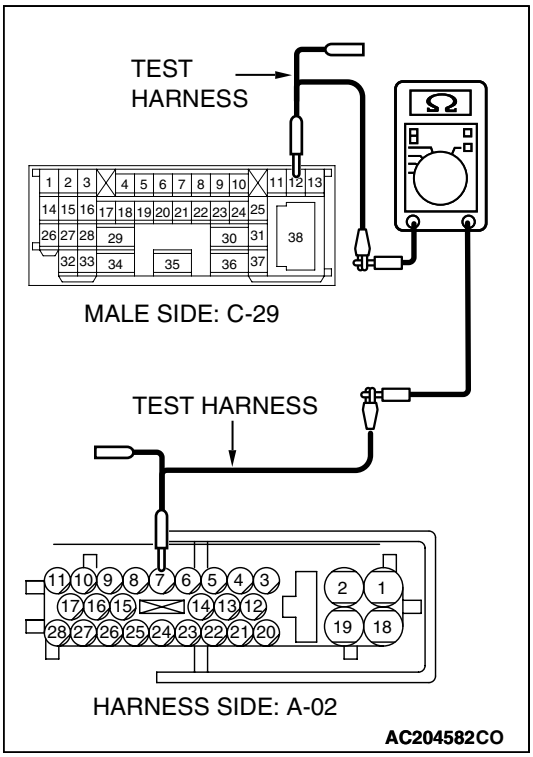






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to STEP 27.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

STEP 27. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

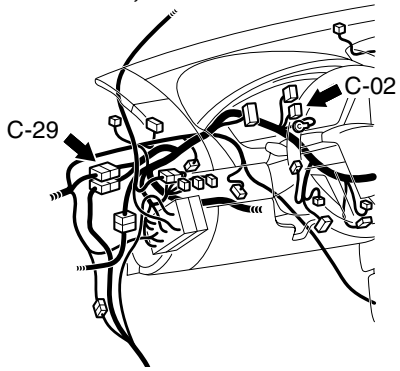
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

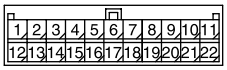
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

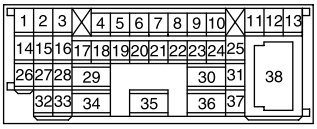
CONNECTORS: C-02, C-29



C-02



C-29



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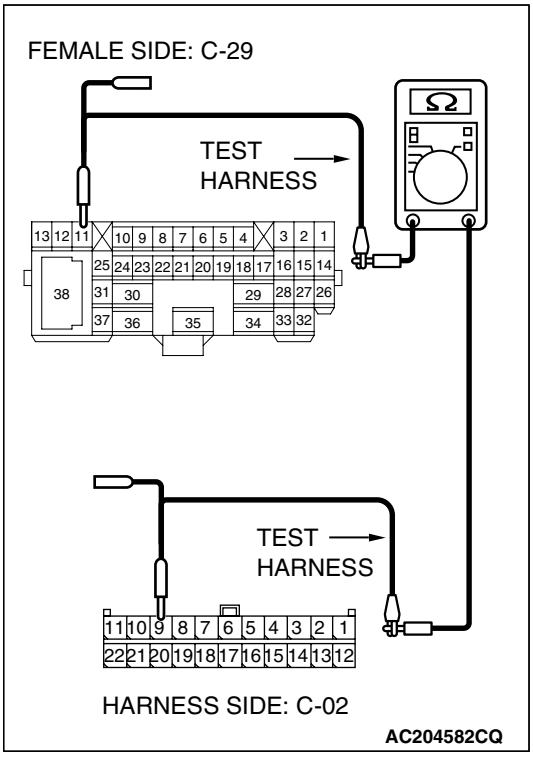
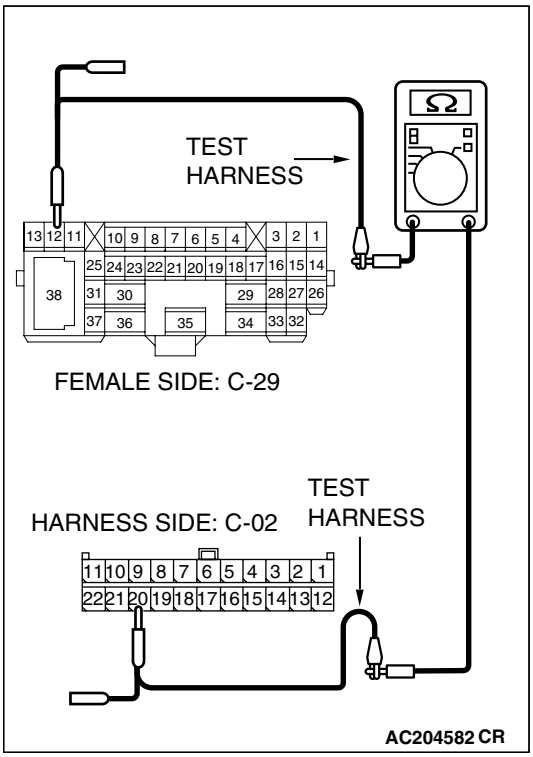


(4) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

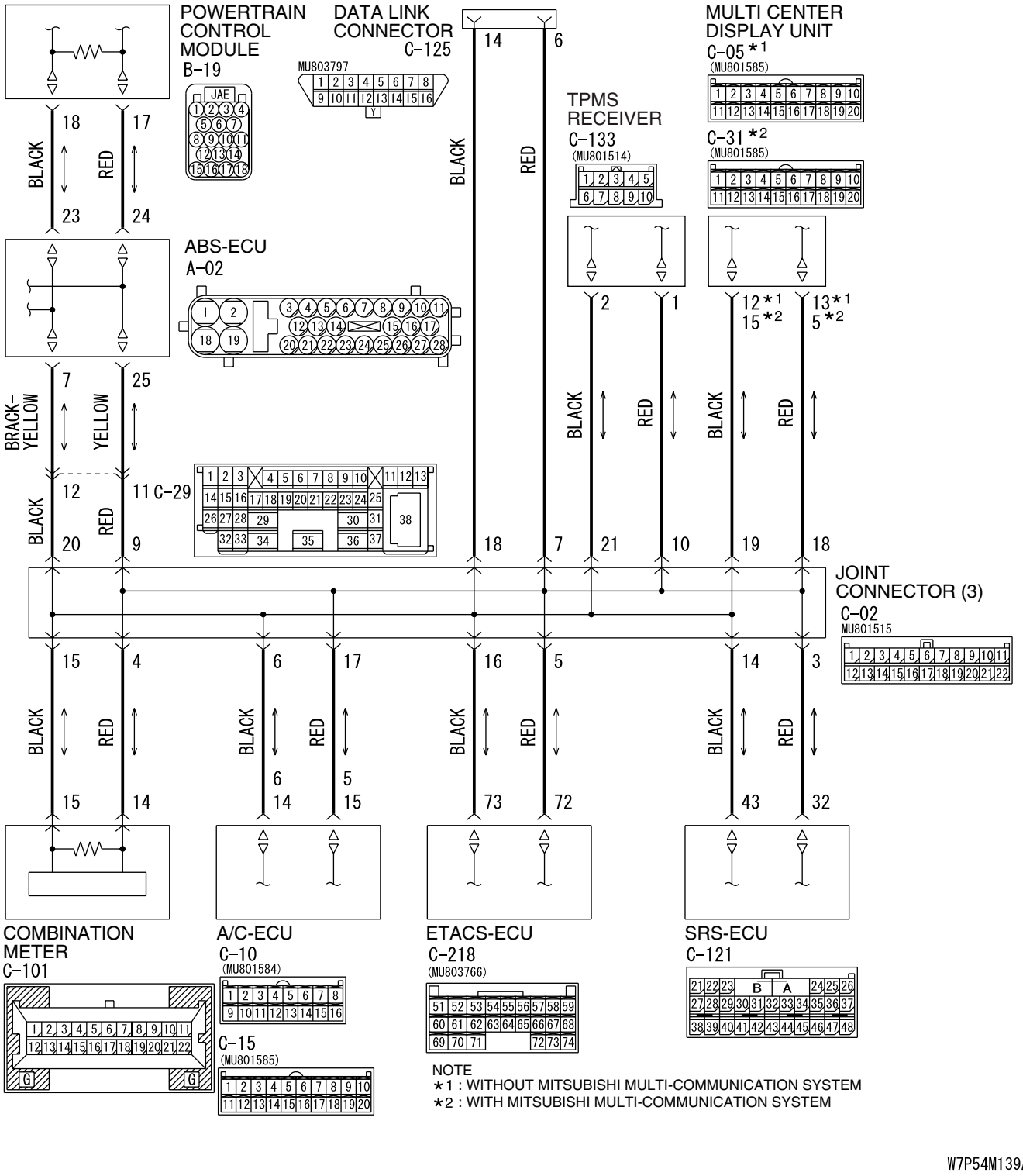
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B, ABS diagnosis P.35B-73.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

DIAGNOSTIC ITEM 16: Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles with multi-center display (middle-grade type or Vehicles With Mitsubishi Multi Communication system)>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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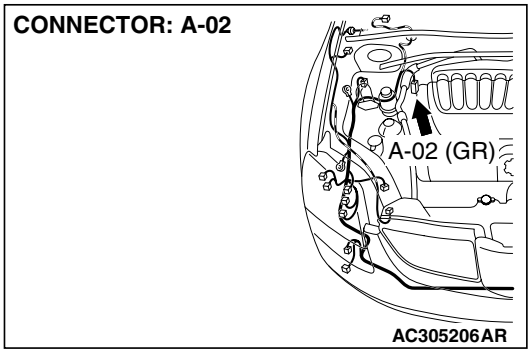
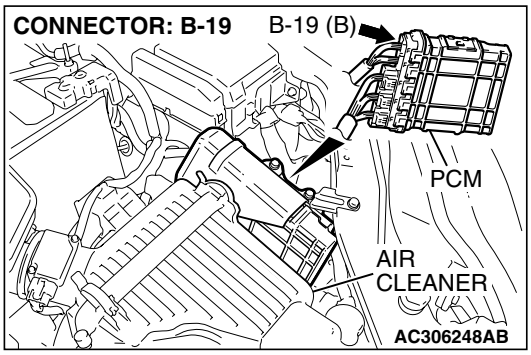
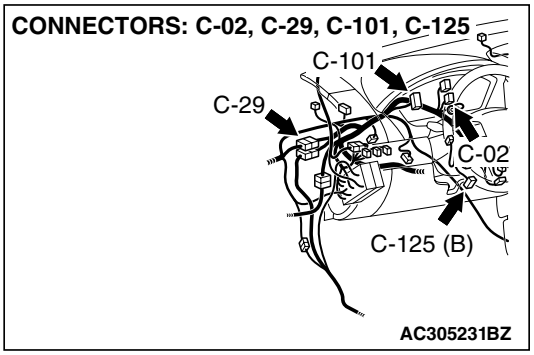
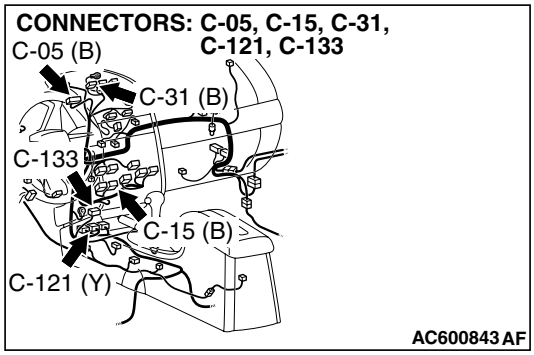
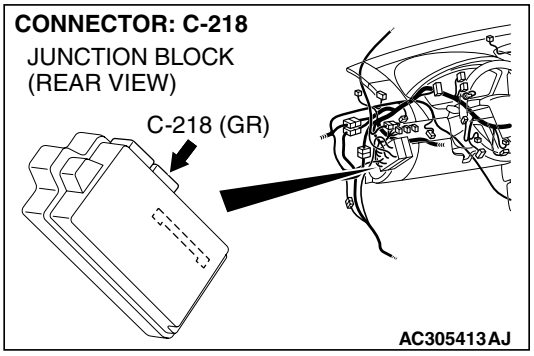
TSB Revision











TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The TPMS reciver may be defective
- The multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)

TSB Revision

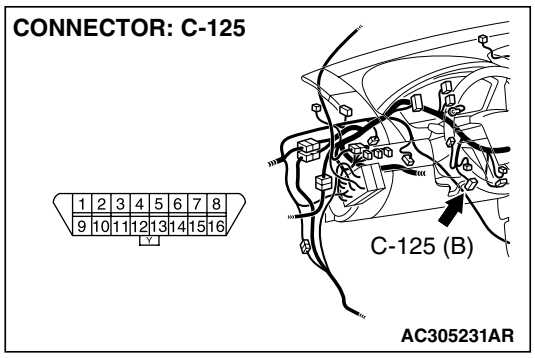
- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A
- MB991970: ABS Check Harness

STEP 1. Check data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.
NO : Repair the damaged parts.



STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

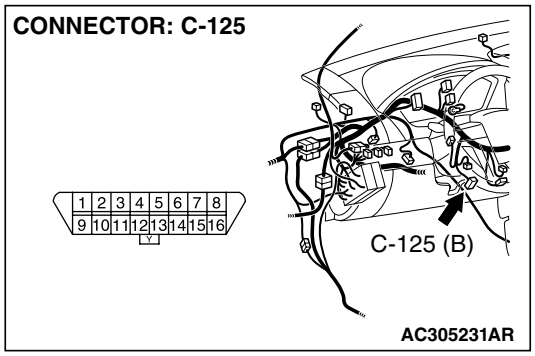
(1) Measure the resistance at the data link connector.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



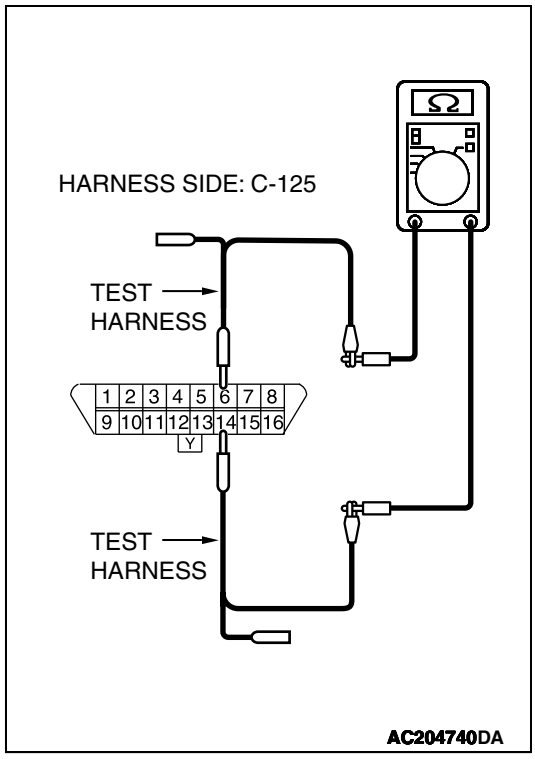
(4) Measure the resistance between data link connector terminals 6 and 14.

Q: How much resistance is measured?

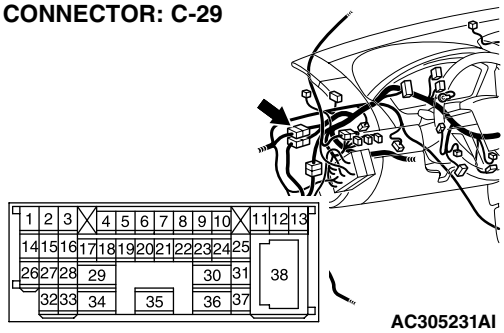
2 ohms or less : Diagnostic Item 9: Check the CAN_L and H lines for a short circuit. Refer to P.54C-393.

No continuity : Diagnostic Item 11: Diagnose terminator resistors at both ends. Refer to P.54C-443.

More than 2 ohms but continuity exists : Go to Step 3.



CONNECTOR: C-29



STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

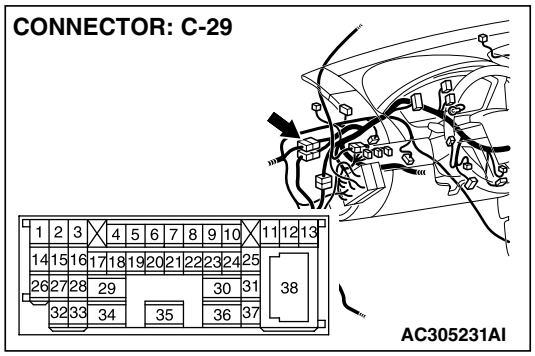
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts.

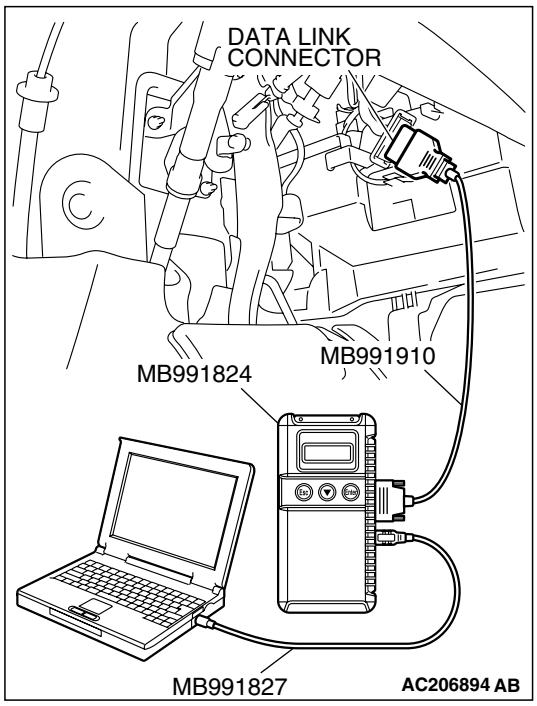
STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).



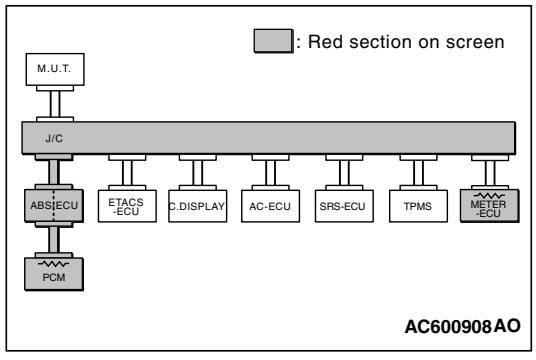
(1) Disconnect intermediate connector C-29.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(2) Connect scan tool MB991958 to the data link connector.
(3) Turn the ignition switch to the "ON" position.



(4) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

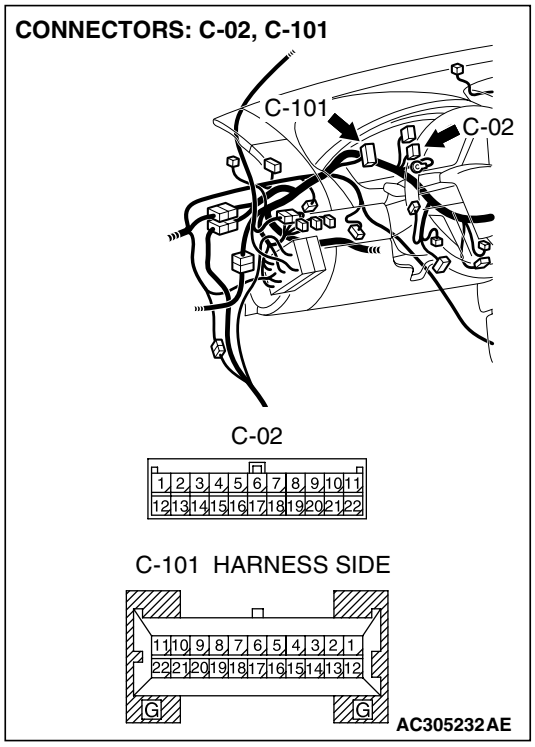
Q: Does the M.U.T.-III screen correspond to the illustration?

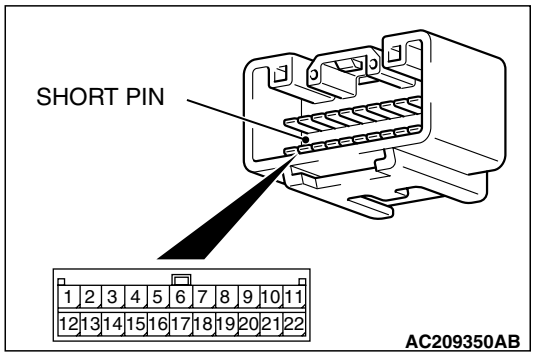
YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 24 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 5 .

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





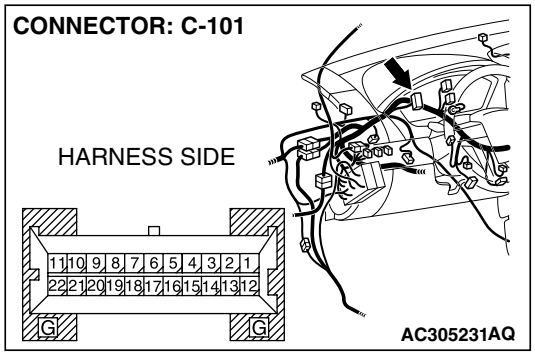
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

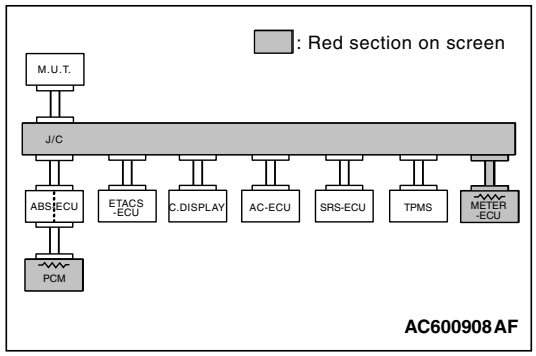
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).

(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 7 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 8 .

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

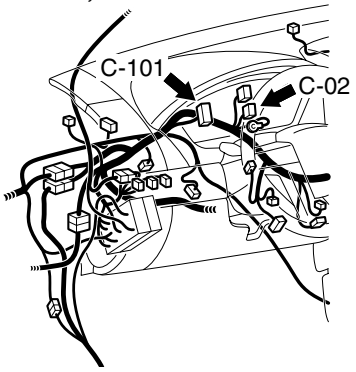
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

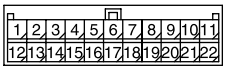
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

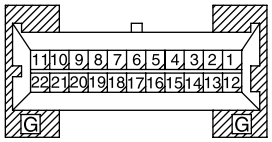
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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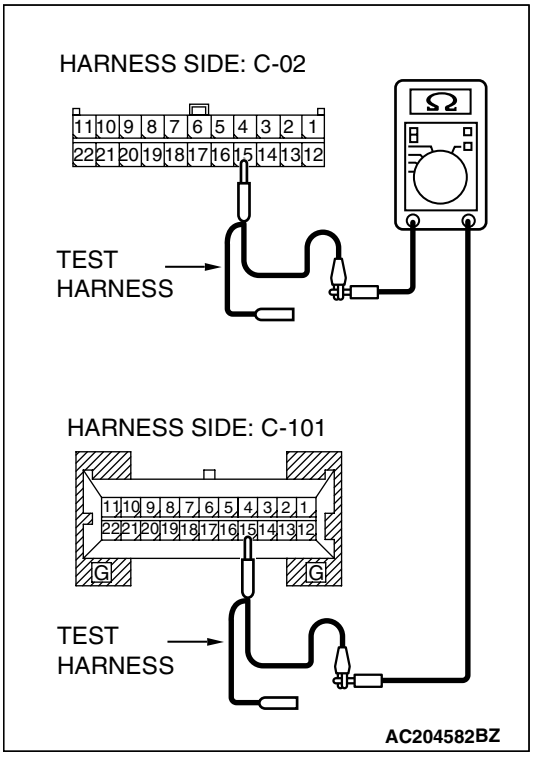
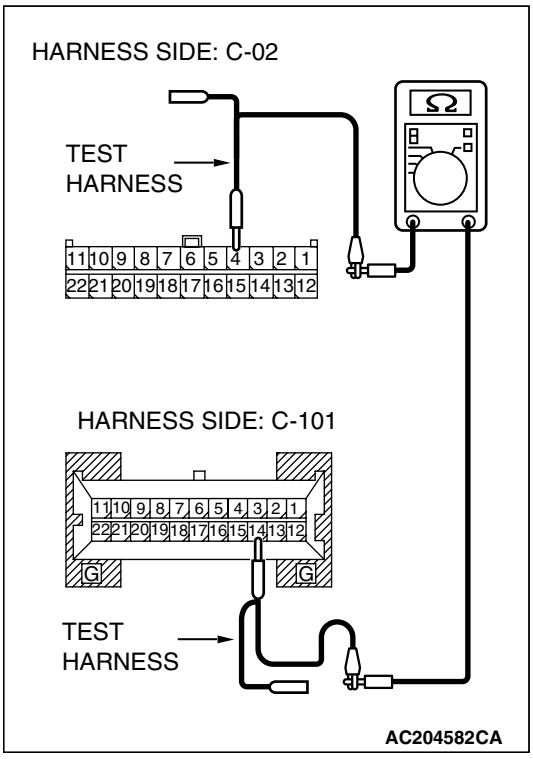


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

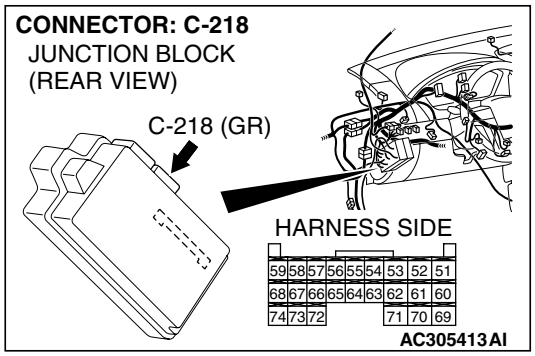
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-282.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



⚠ CAUTION

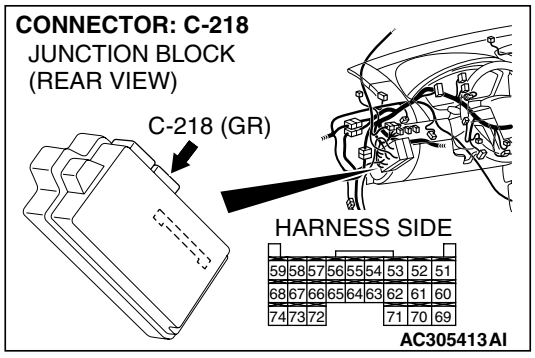
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Is ETACS-ECU connector C-218 in good condition?

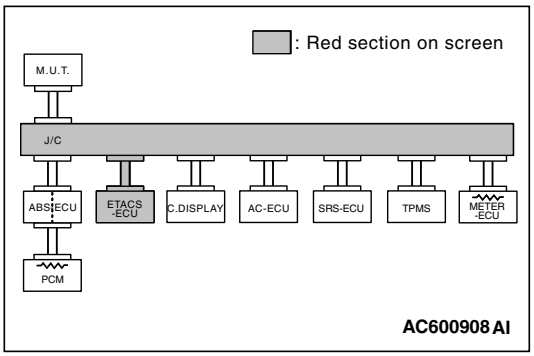
YES : Go to Step 9.

NO : Repair the damaged parts.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).



(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 10 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 11 .

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

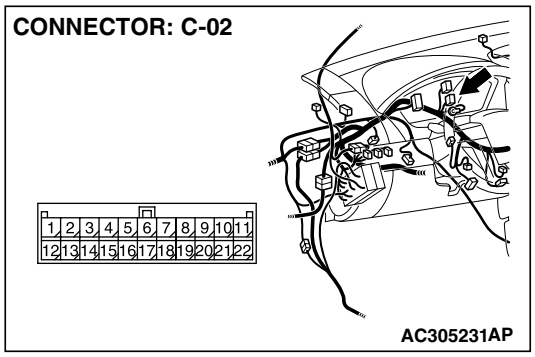
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

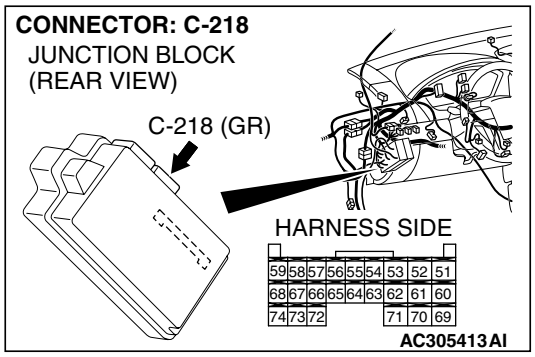
(2) Turn the ignition switch to the "LOCK" (OFF) position.

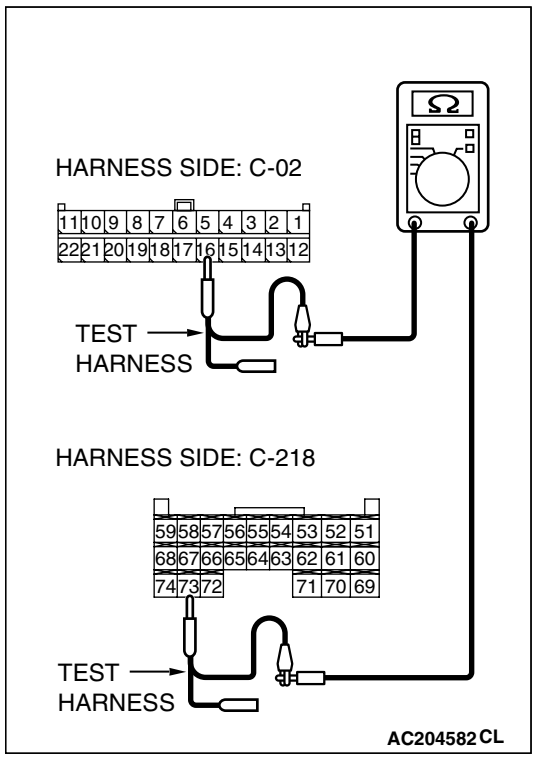
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

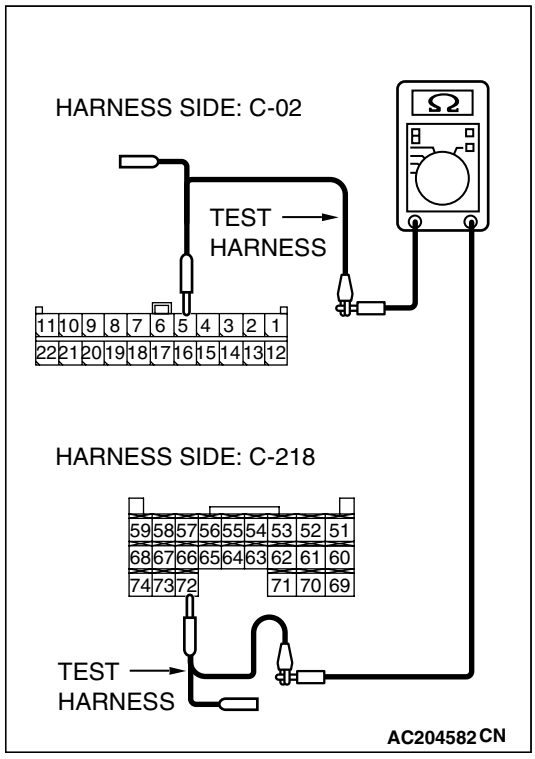






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

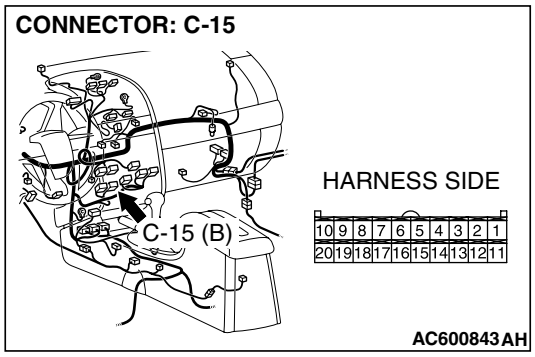
YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 11. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.



Q: Is A/C-ECU connector C-15 in good condition?

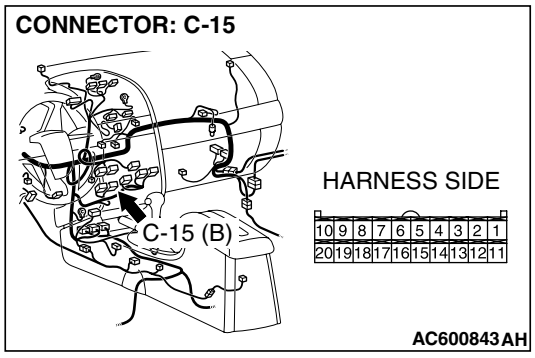
YES : Go to Step 12.

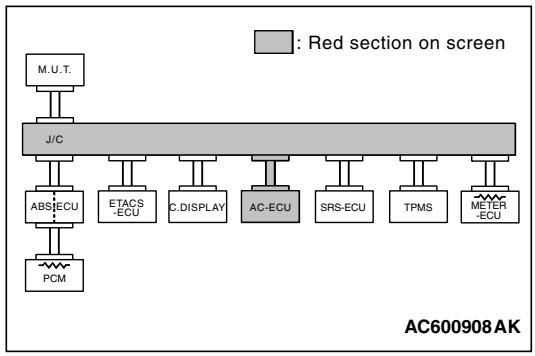
NO : Repair the damaged parts.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-15, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-15.

(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

(5) Connect A/C-ECU connector C-15.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 13 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 14 .

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-15.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

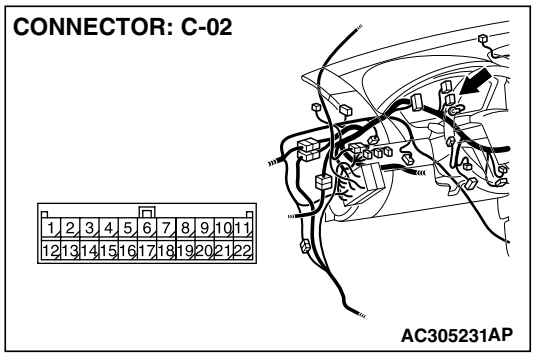
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-15.

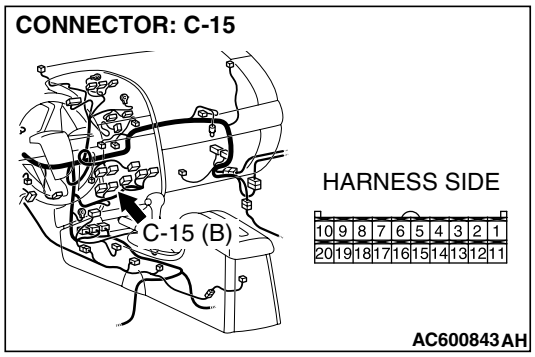
(2) Turn the ignition switch to the "LOCK" (OFF) position.

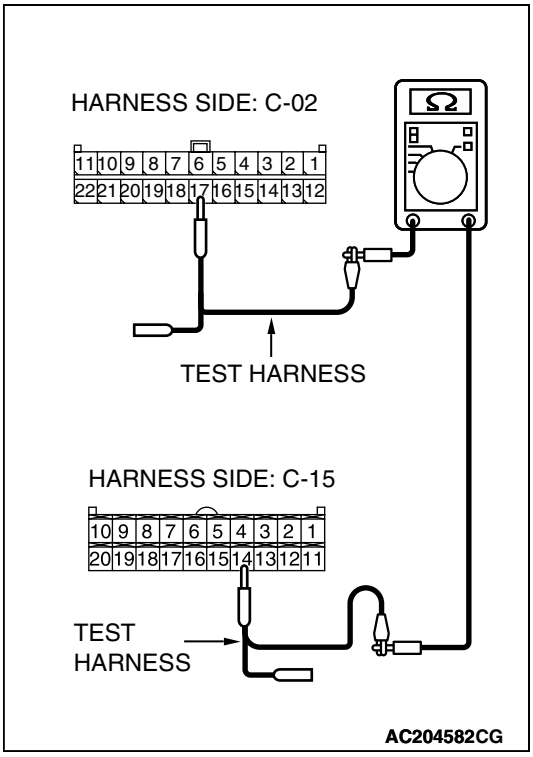
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

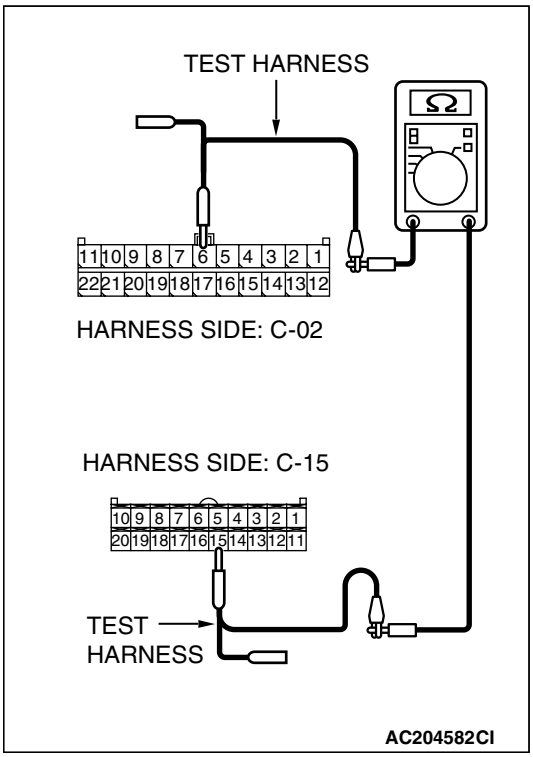






(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 6 and A/C-ECU connector terminal 15.

OK: 2 ohms or less

⚠ CAUTION

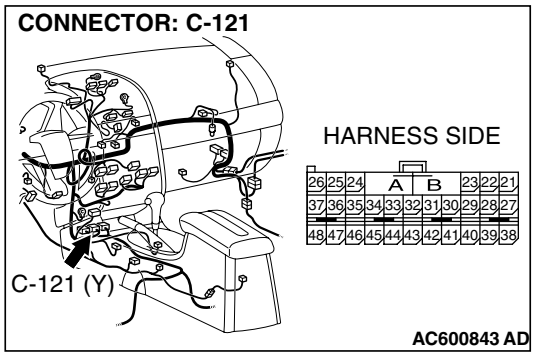
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



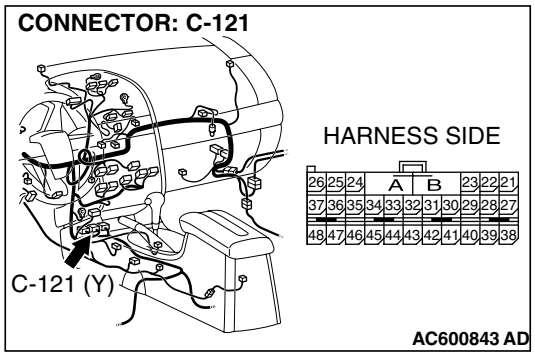
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

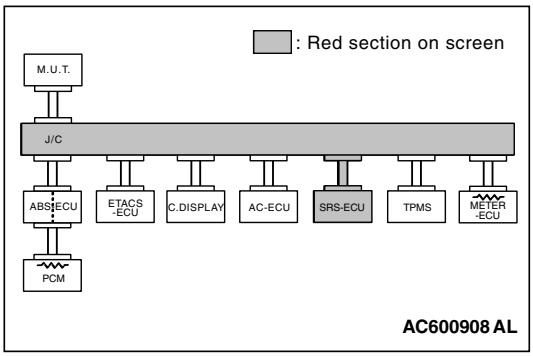
Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 15.
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).

(1) Disconnect SRS-ECU connector C-121.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the SRS-ECU connector C-121.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 16 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 17 .

STEP 16. Check the CAN bus lines between joint connector (3) and the SRS-ECU. Measure the resistance between joint connector (3) C-02 and SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

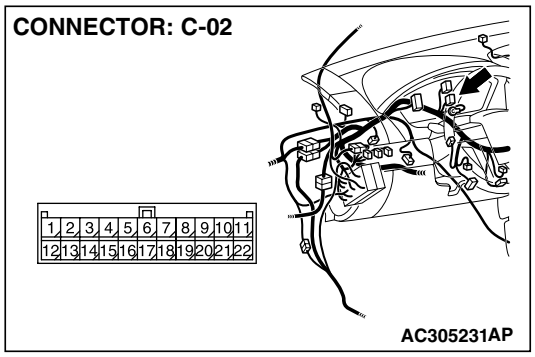
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and SRS-ECU connector C-121.

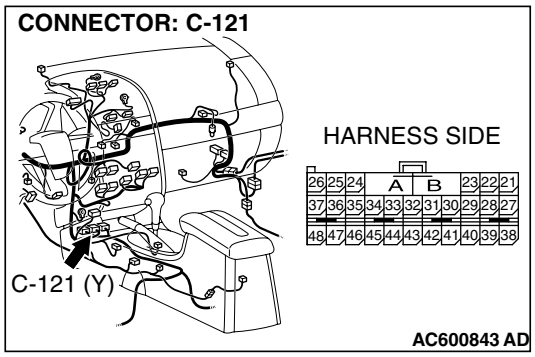
(2) Turn the ignition switch to the "LOCK" (OFF) position.

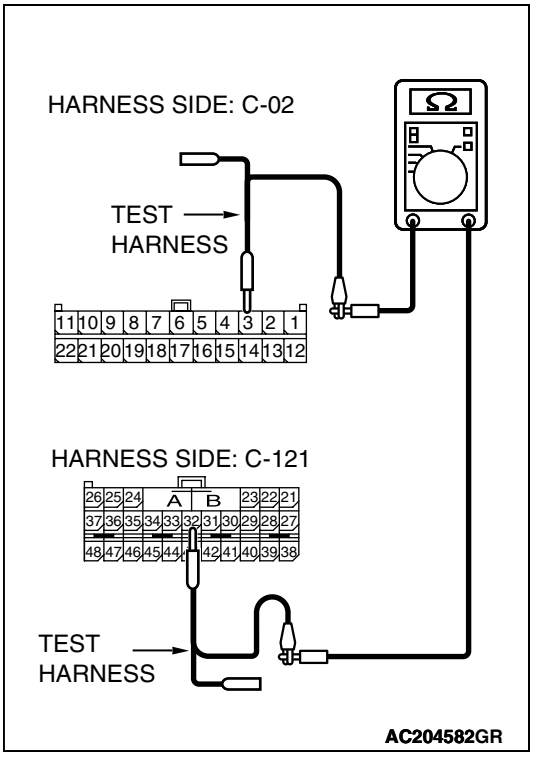
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

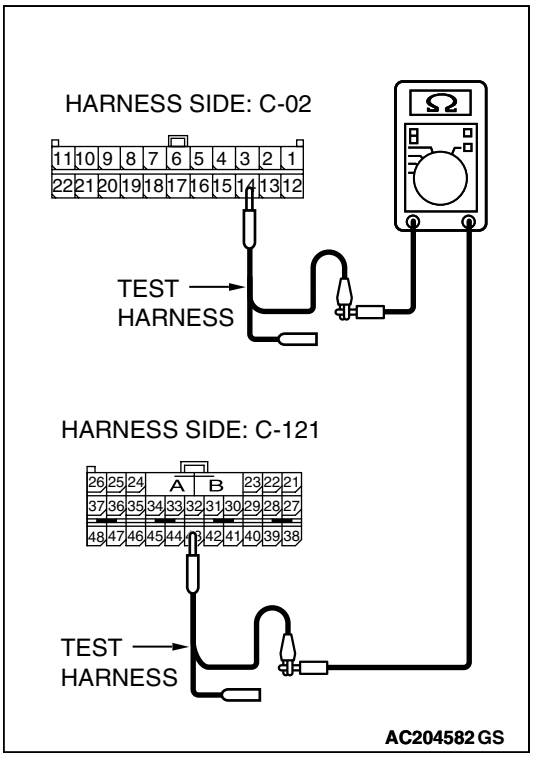






(4) Measure the resistance between joint connector (3) terminal 3 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

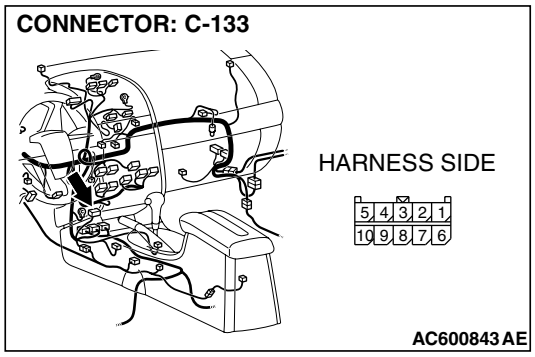
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

STEP 17. Check TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

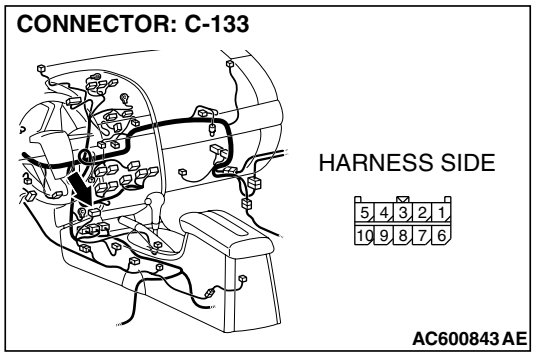


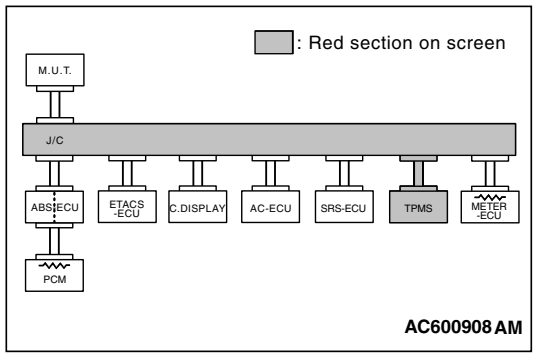
Q: Is TPMS reciver connector C-133 in good condition?

YES : Go to Step 18.
NO : Repair the damaged parts.

STEP 18. Using scan tool MB991958, diagnose the CAN bus line (Disconnect TPMS reciver connector C-133, and check the supplemental restraint system).

(1) Disconnect TPMS reciver connector C-133.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the TPMS reciver connector C-133.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to Step 19 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to Step 20 .

STEP 19. Check the CAN bus lines between joint connector (3) and the TPMS reciver. Measure the resistance between joint connector (3) C-02 and TPMS reciver connector C-133.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

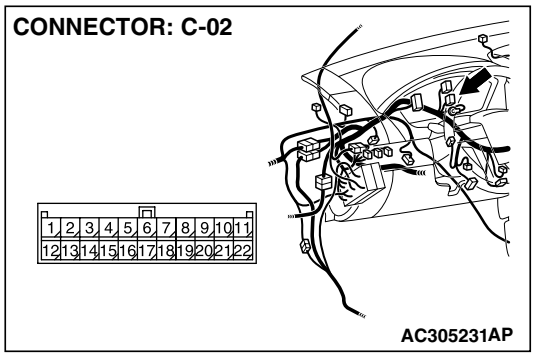
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and TPMS reciver connector C-133.

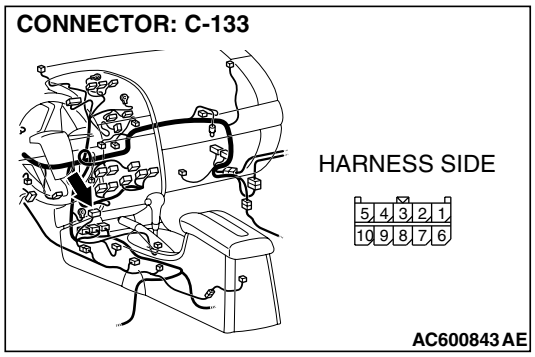
(2) Turn the ignition switch to the "LOCK" (OFF) position.

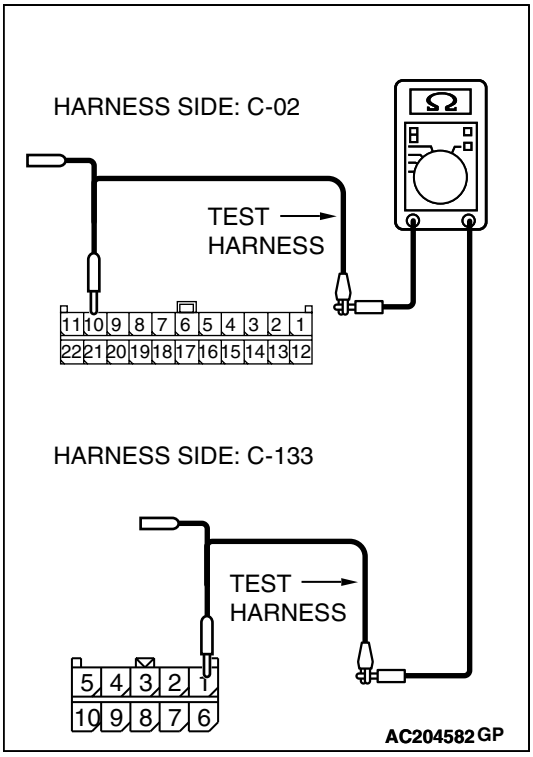
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

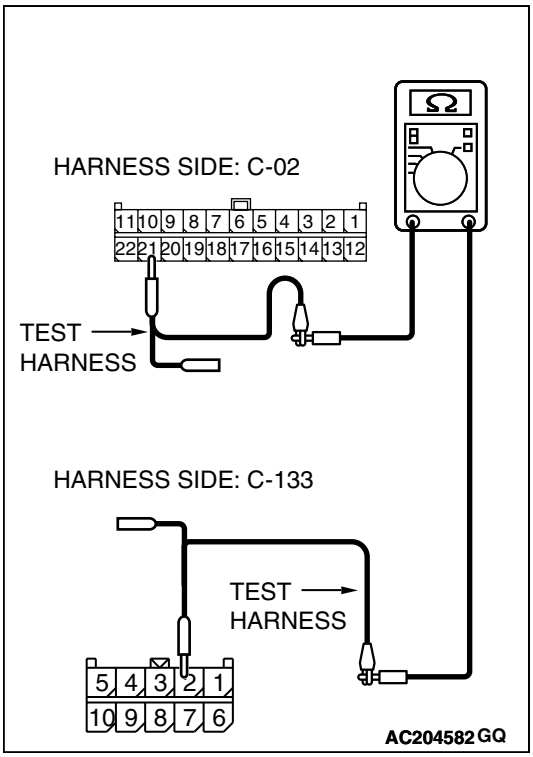






(4) Measure the resistance between joint connector (3) terminal 10 and TPMS reciver connector terminal 1.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 21 and TPMS reciver connector terminal 2.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the TPMS reciver may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-32.

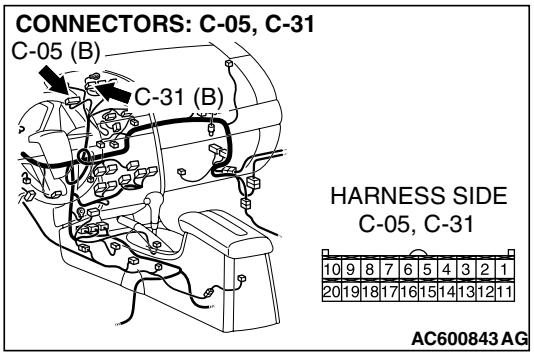
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

STEP 20. Check multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

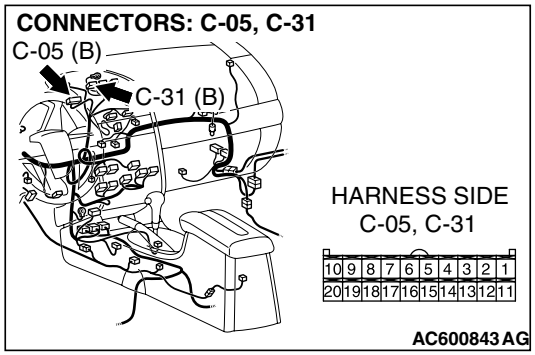
CONNECTORS: C-05, C-31



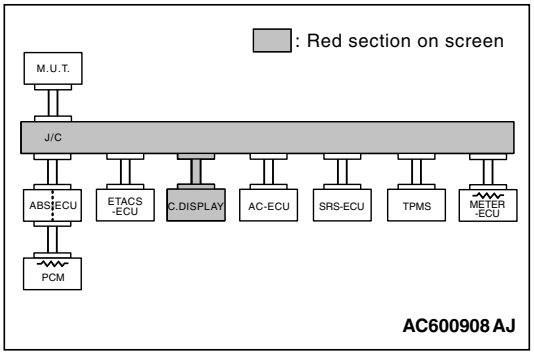
Q: Is multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to STEP 21.
NO : Repair the damaged parts.

STEP 21. Using scan tool MB991958, diagnose the CAN bus line (Disconnect multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and check the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system).



(1) Disconnect multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 22 .
NO : If the M.U.T.-III screen does not correspond to the illustration, go to STEP 23 .

STEP 22. Check the CAN bus lines between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system). Measure the resistance between joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

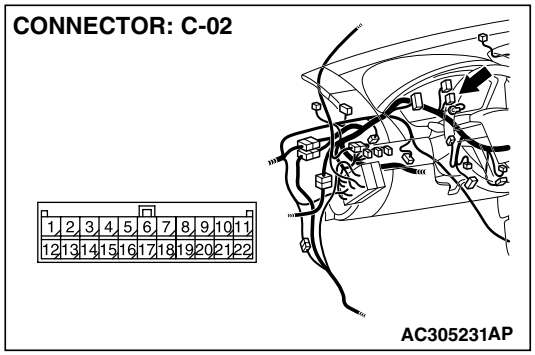
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

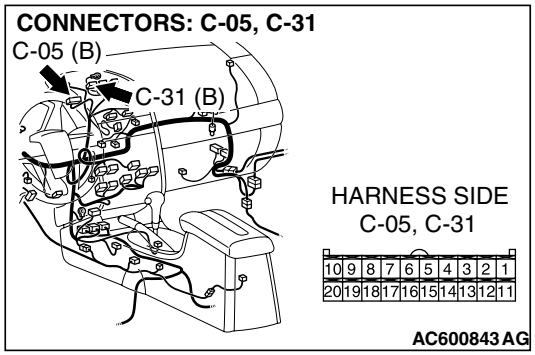
(2) Turn the ignition switch to the "LOCK" (OFF) position.

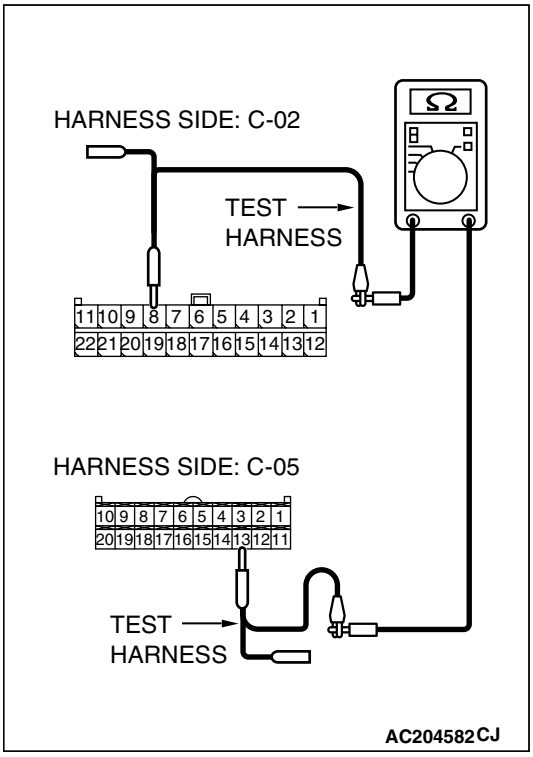
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

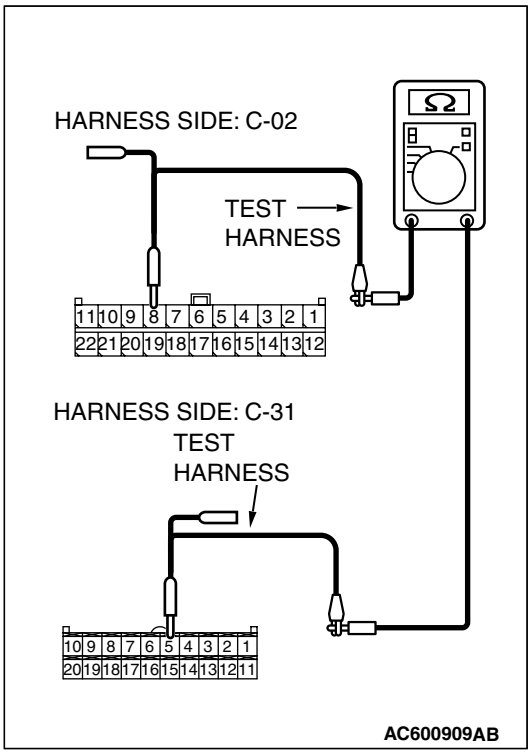


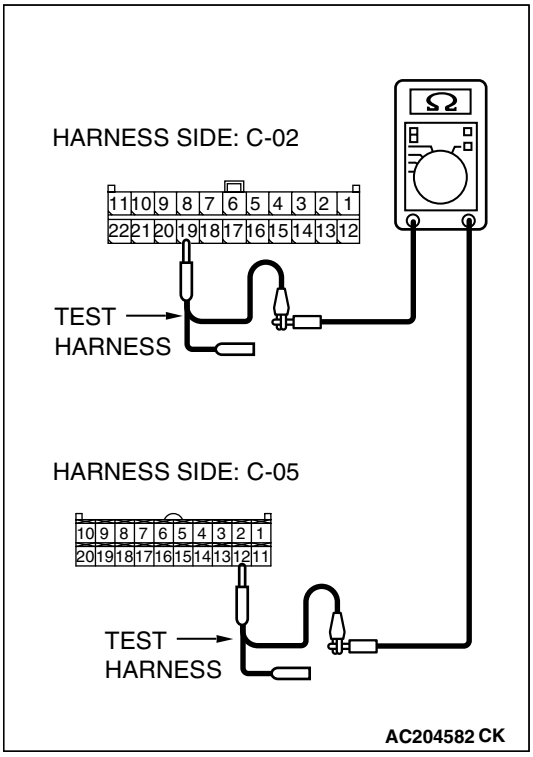


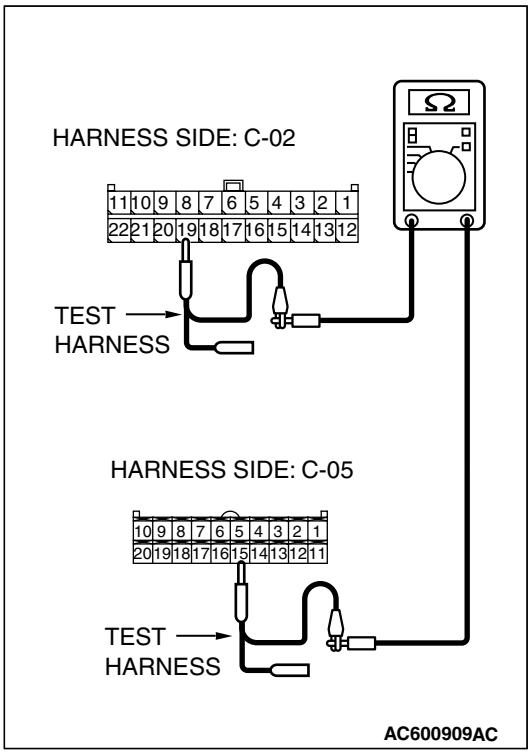


(4) Measure the resistance between joint connector (3) terminal 8 and multi-center display unit <multi-center display unit (middle-grade type)> connector terminal 13 or multi-center display unit <multi-center display unit (vehicles with mitsubishi multi communication system)> connector terminal 5.

OK: 2 ohms or less







(5) Measure the resistance between joint connector (3) terminal 19 and multi-center display unit <multi-center display unit (middle-grade type)> connector terminal 12 or multi-center display unit <multi-center display unit (vehicles with mitsubishi multi communication system)> connector terminal 15.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the multi-center display (middle-grade type or vehicles with mitsubishi multi communication system) may be suspected. Diagnose the multi-center display (middle-grade type or vehicles with mitsubishi multi communication system). Refer to GROUP 54A, Multi-center display, equipment diagnosis P.54A-282.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

STEP 23. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

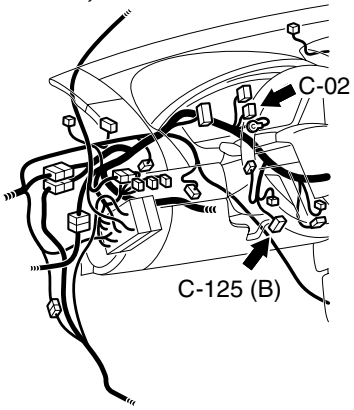
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

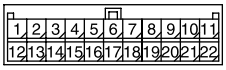
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

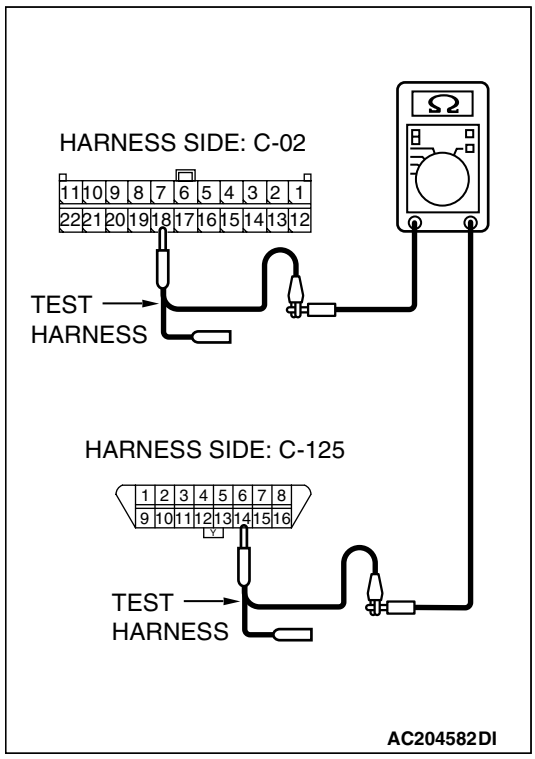


C-02



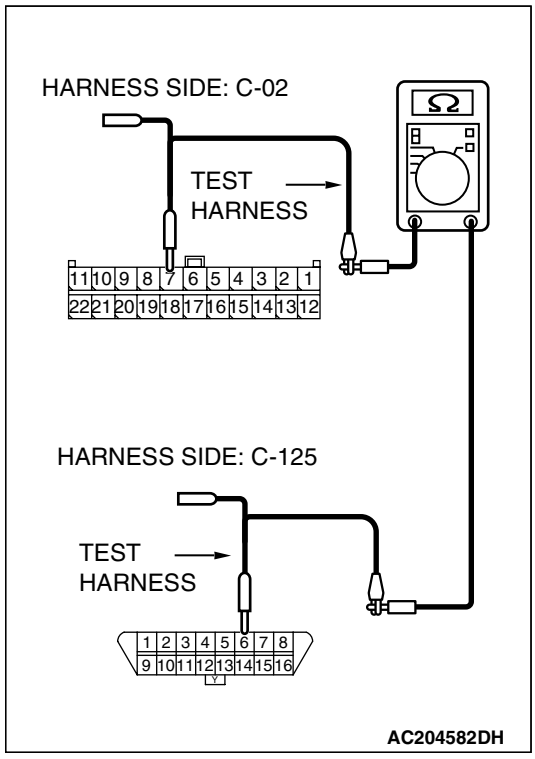
C-125

AC305232AF



(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

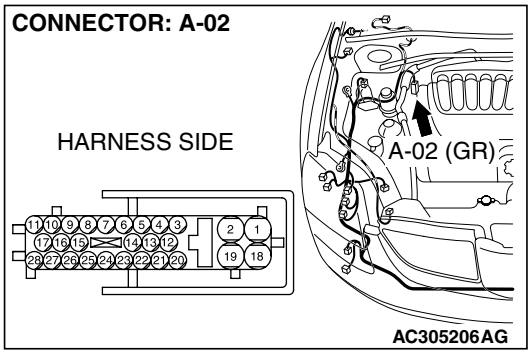
⚠ CAUTION

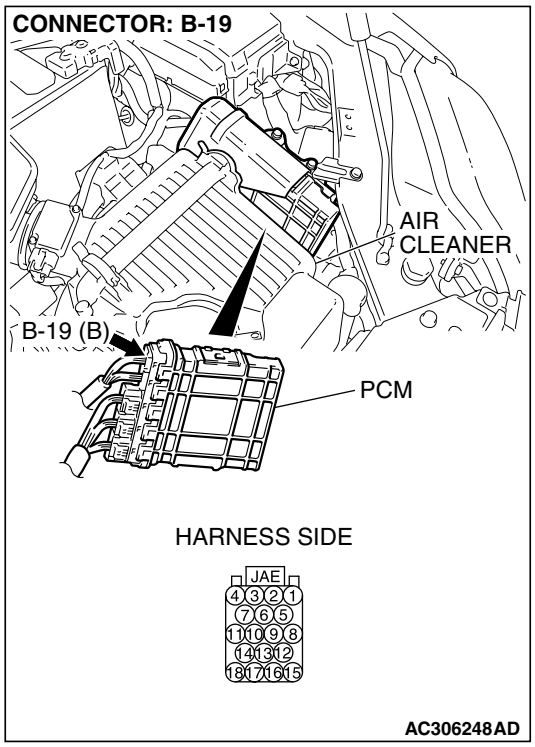
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 9: Check the CAN_L and H lines for a short circuit (Refer to P.54C-393).

NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.





STEP 24. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

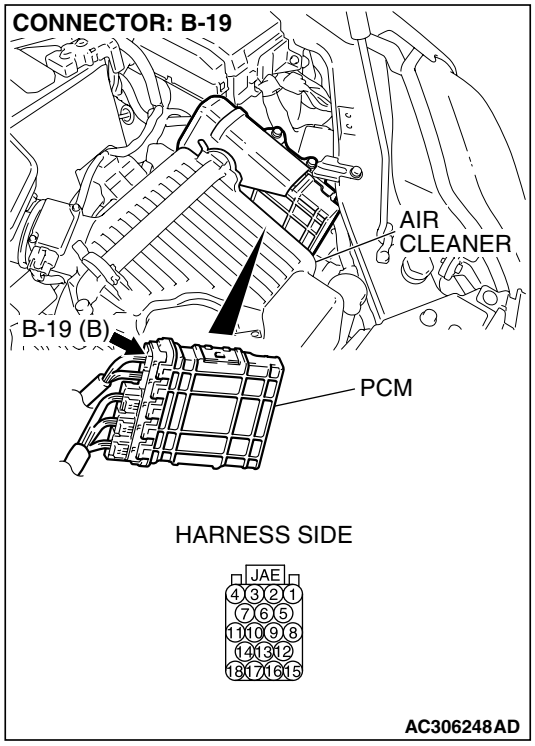
Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

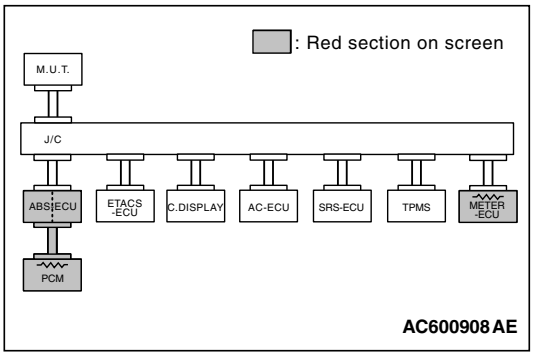
YES : Go to STEP 25.

NO : Repair the damaged parts.

STEP 25. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 26 .

NO : If the M.U.T.-III screen does not correspond to the illustration, go to STEP 28 .

STEP 26. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

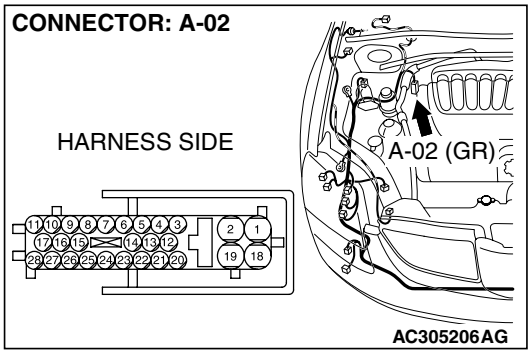
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

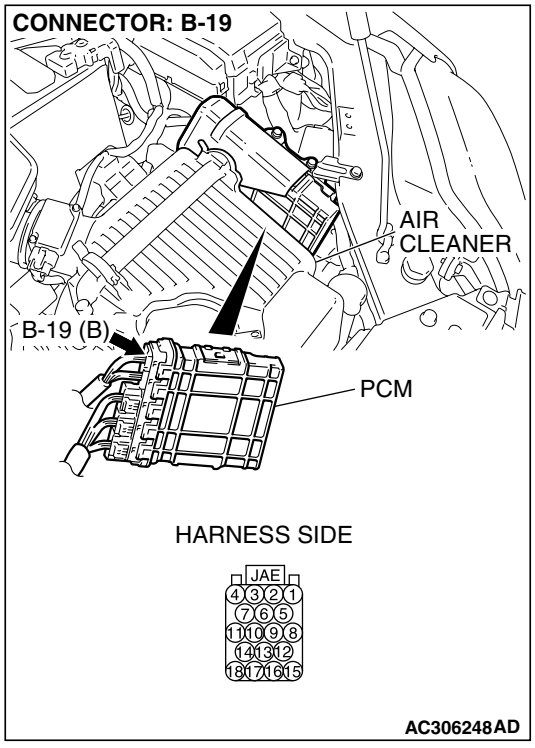
(2) Turn the ignition switch to the "LOCK" (OFF) position.

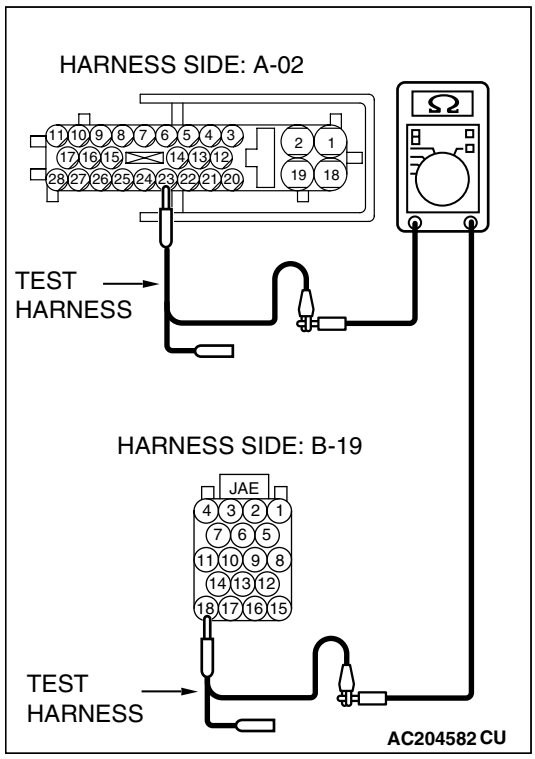
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

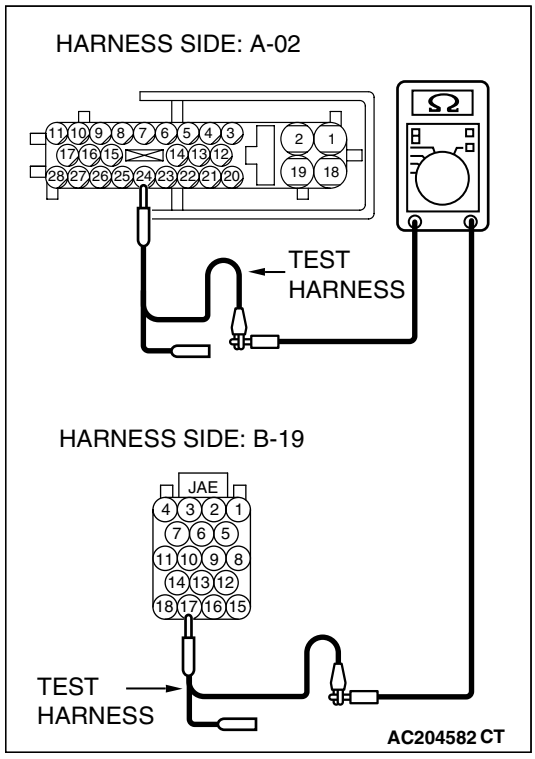






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to STEP 27.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 27. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

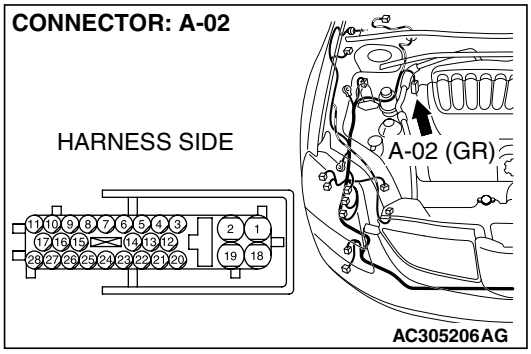
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

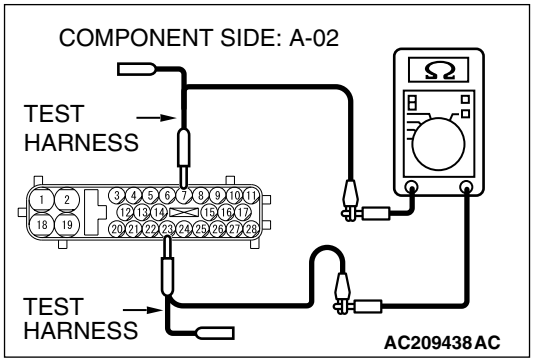
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



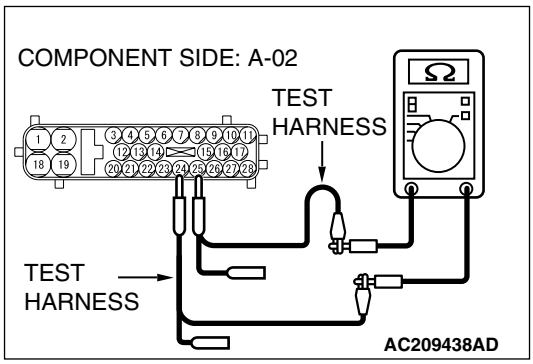
(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

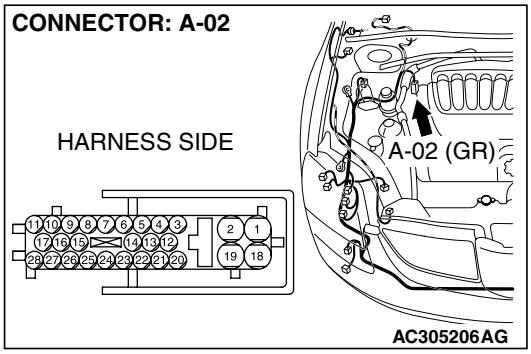
Q: Do all the resistances measure 2 ohms or less?

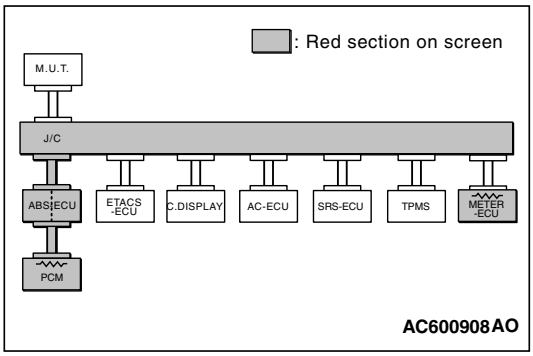
YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-1003 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1254 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

STEP 28. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ABS-ECU connector A-02, and check the ABS-ECU system).

(1) Disconnect ABS-ECU connector A-02.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the M.U.T.-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Check ABS-ECU connector A-02.

Q: Does the M.U.T.-III screen correspond to the illustration?

YES : If the M.U.T.-III screen corresponds to the illustration, go to STEP 29 .

NO : If the M.U.T.-III screen does not correspond to the illustration, refer to diagnostics item 9: Check the CAN_L and H lines for a short circuit (Refer to P.54C-393).

STEP 29. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

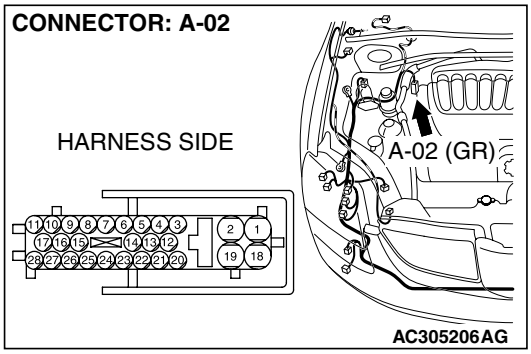
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

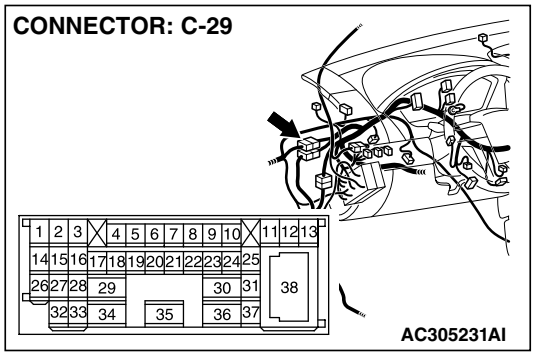
(2) Turn the ignition switch to the "LOCK" (OFF) position.

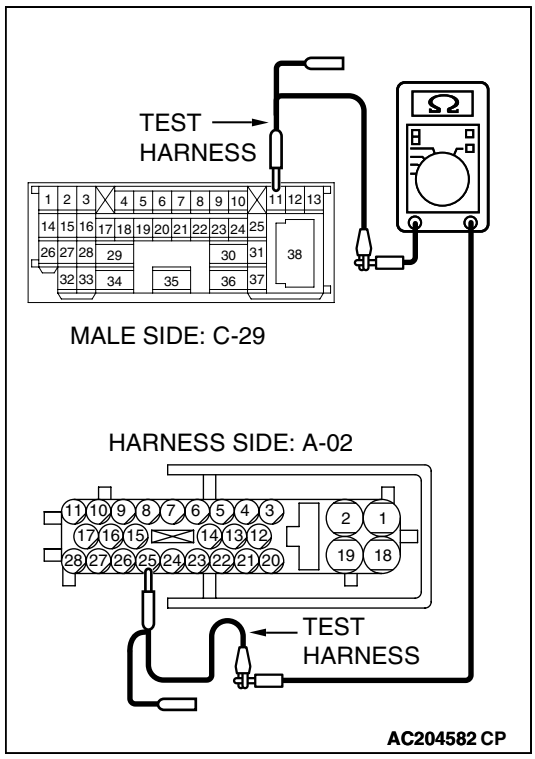
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

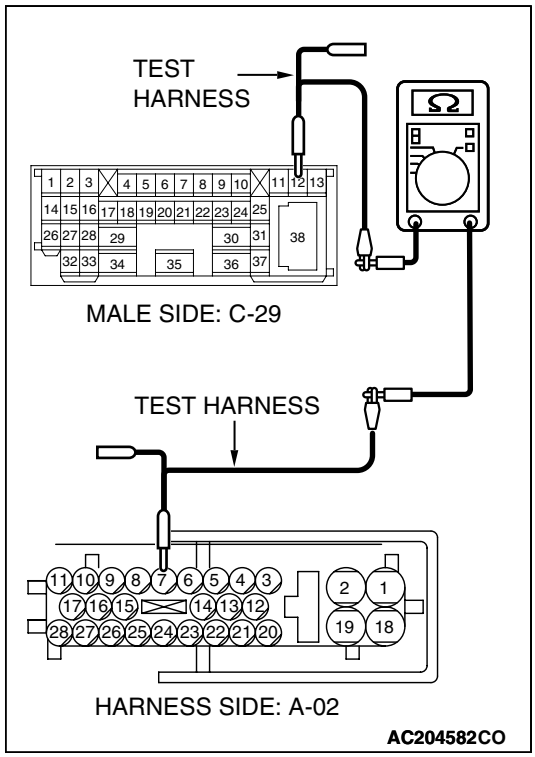






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to STEP 30.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

STEP 30. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

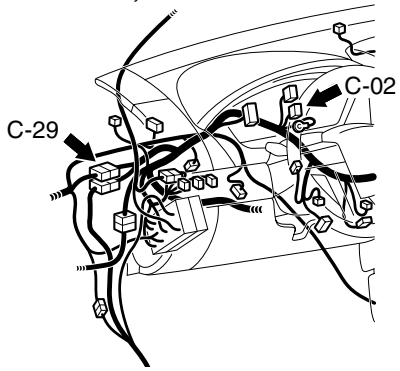
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

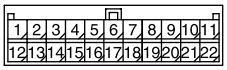
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

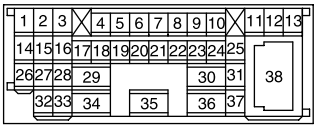
CONNECTORS: C-02, C-29



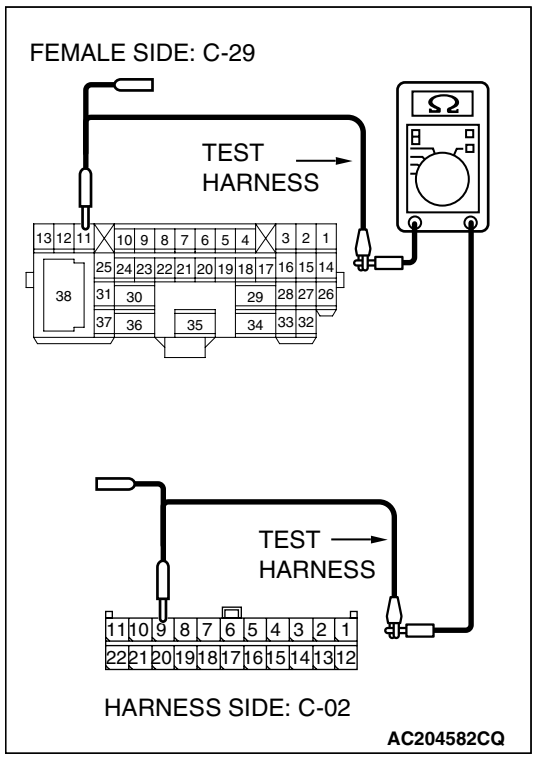
C-02



C-29

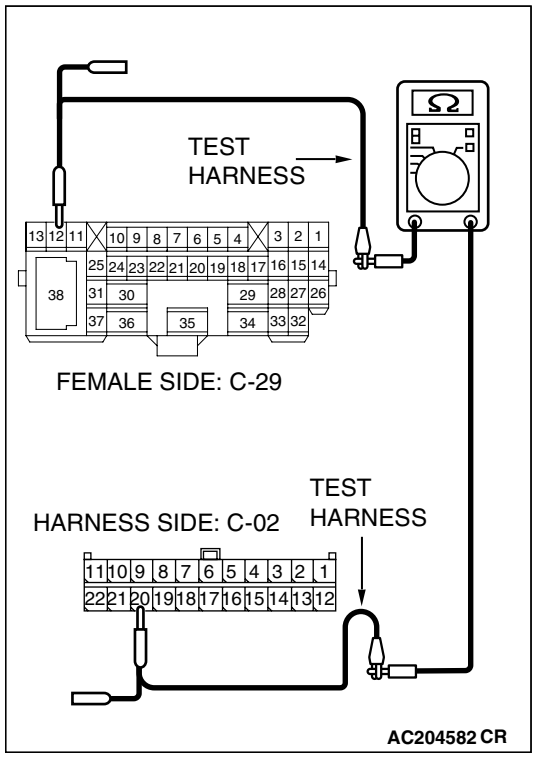


AC305232AG



(4) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

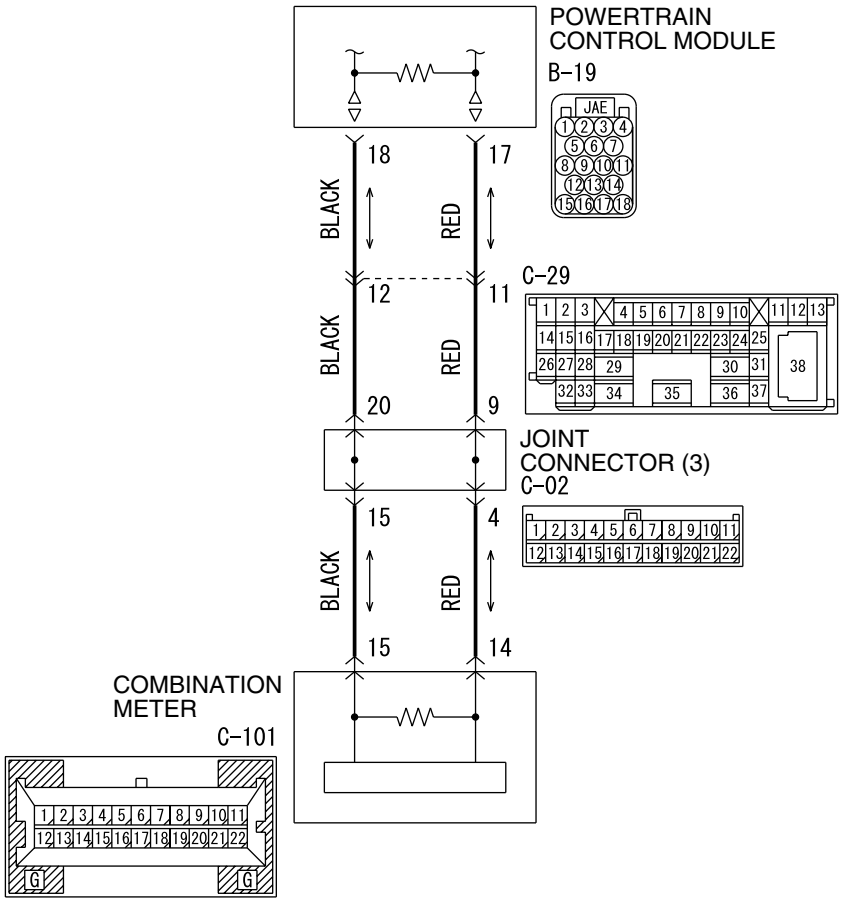
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B, ABS diagnosis P.35B-73.

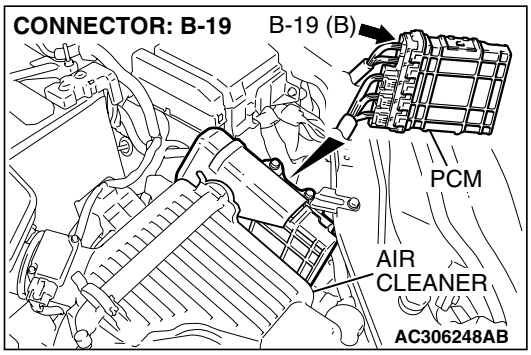
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

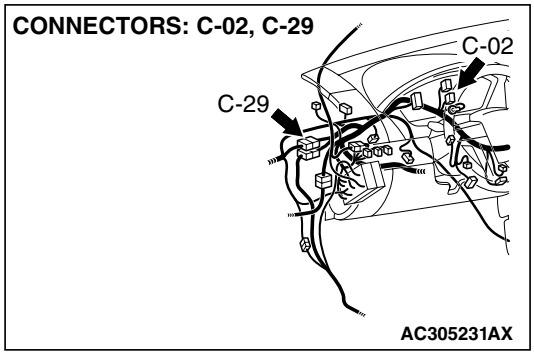
DIAGNOSTIC ITEM 17: Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles without ABS>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M99AA





TROUBLE JUDGMENT
If the M.U.T.-III cannot received signals from the powertrain control module, CAN bus line connector(s) are broken or an open circuit has occurred.

TSB Revision

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the powertrain control module may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

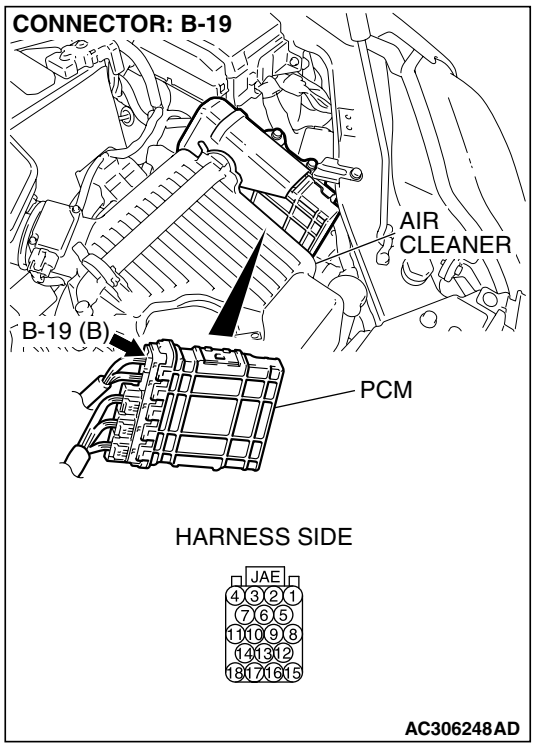
⚠ CAUTION

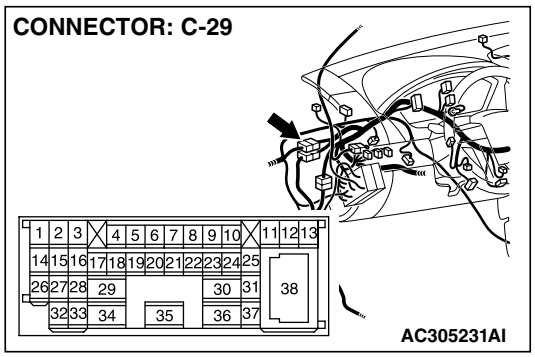
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are intermediate connector C-29 and powertrain control module connector B-19 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.





STEP 2. Check the CAN bus lines between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

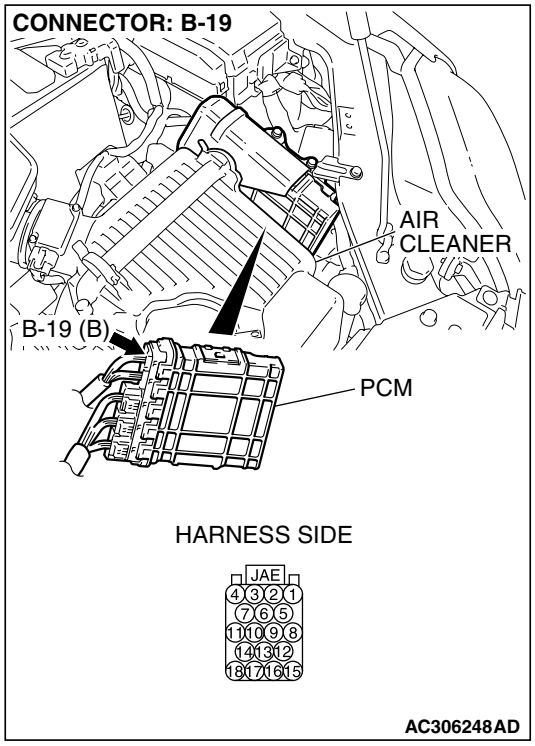
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

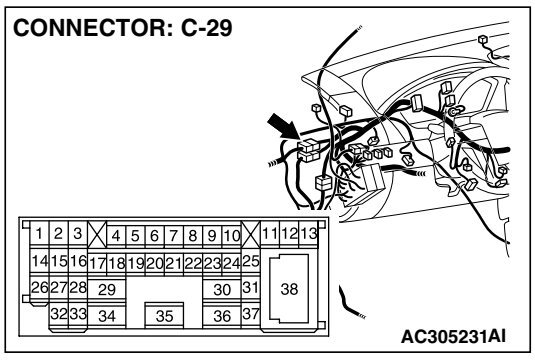
(2) Turn the ignition switch to the "LOCK" (OFF) position.

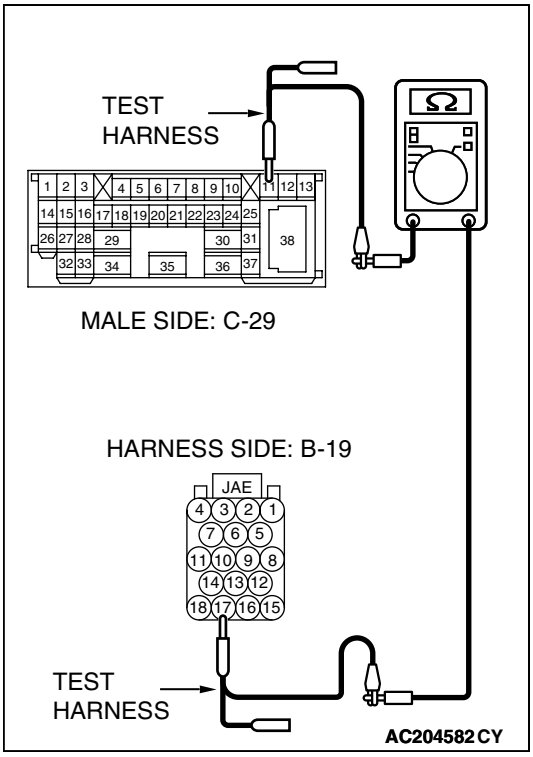
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

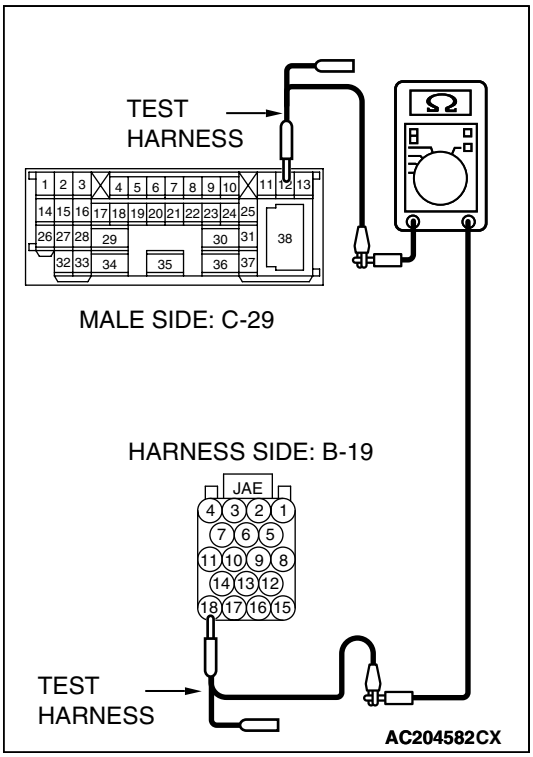






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

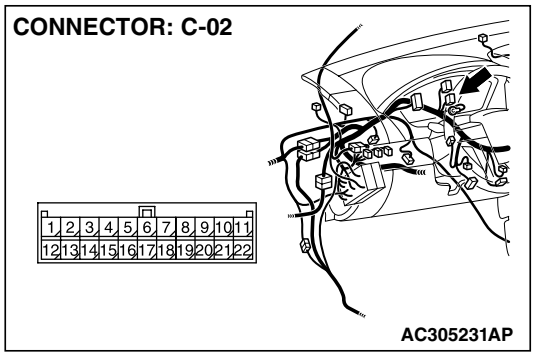
YES : If all the resistances measure 2 ohms or less, go to Step 3.

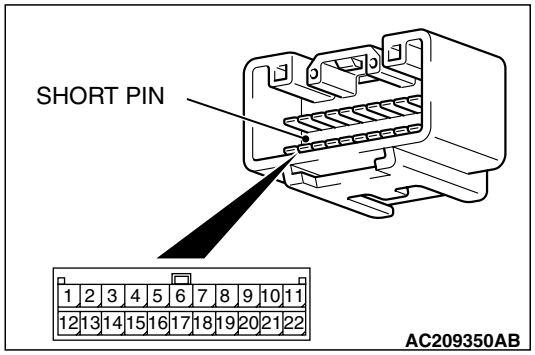
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

STEP 3. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

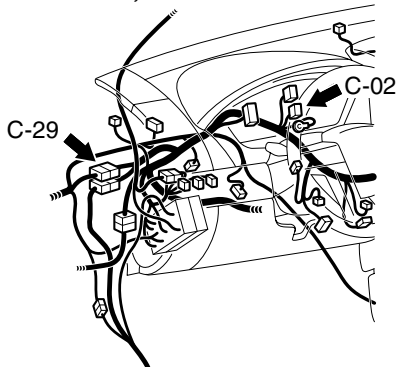
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

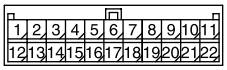
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

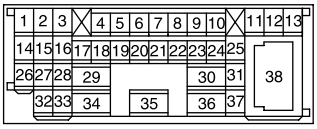
CONNECTORS: C-02, C-29



C-02



C-29



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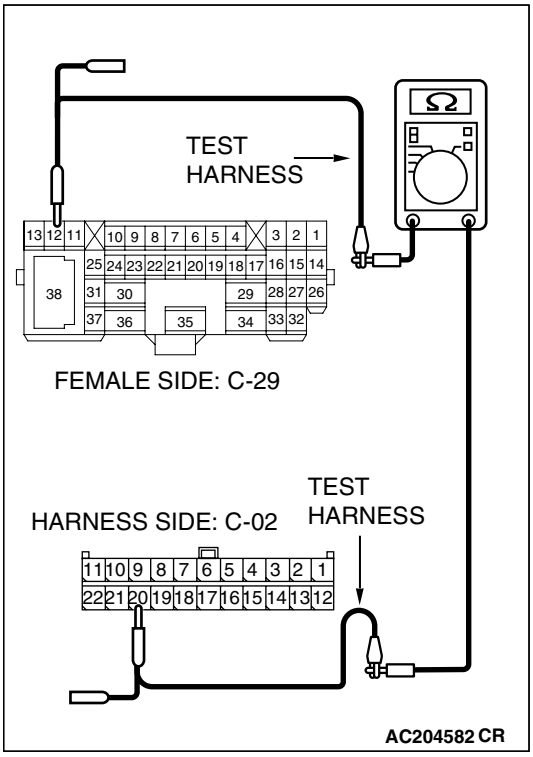
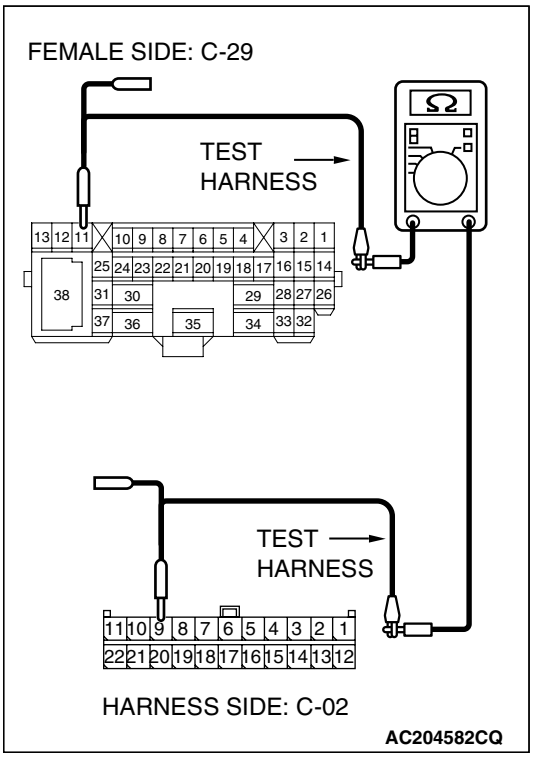


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

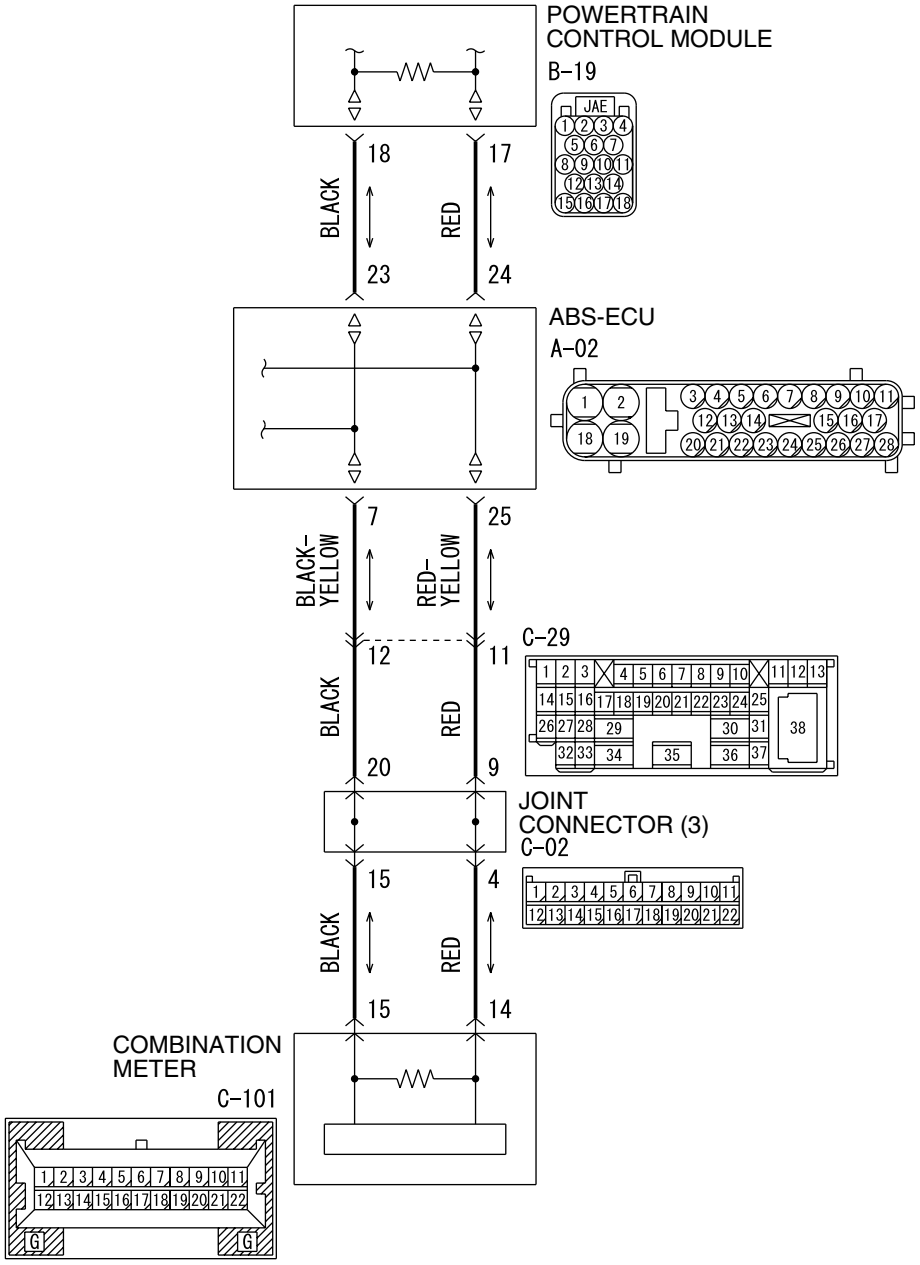
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-1003 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1254 <3.8L engine>.

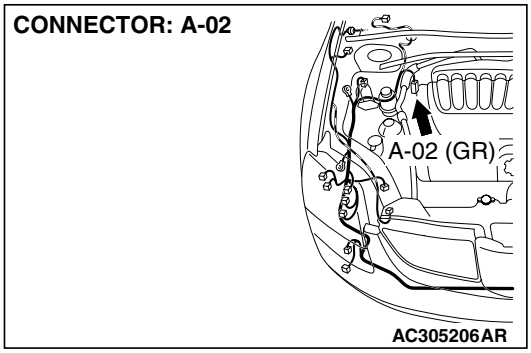
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness wires between intermediate connector C-29 and joint connector (3).

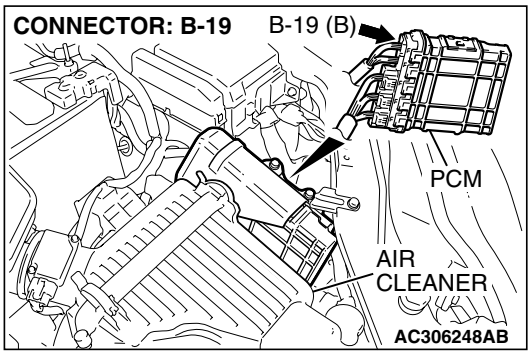
DIAGNOSTIC ITEM 18: Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS>

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M100A





TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from the powertrain control module, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the powertrain control module may be defective.

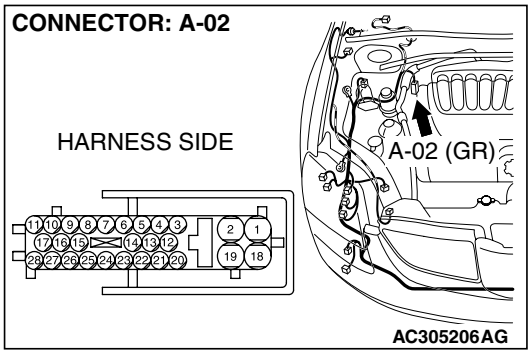
TROUBLESHOOTING HINTS

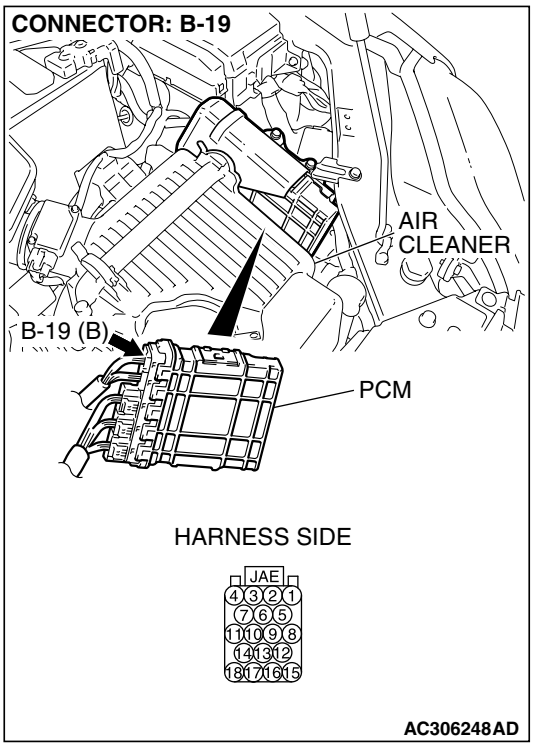
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The powertrain control module may be defective
- The ABS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness





STEP 1. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

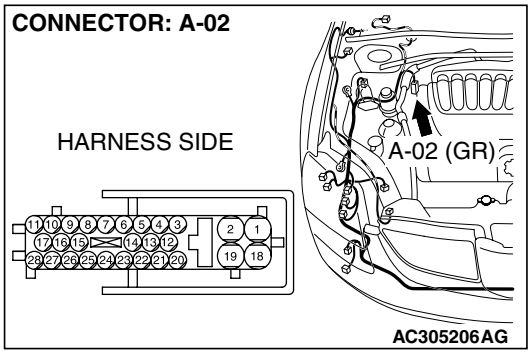
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

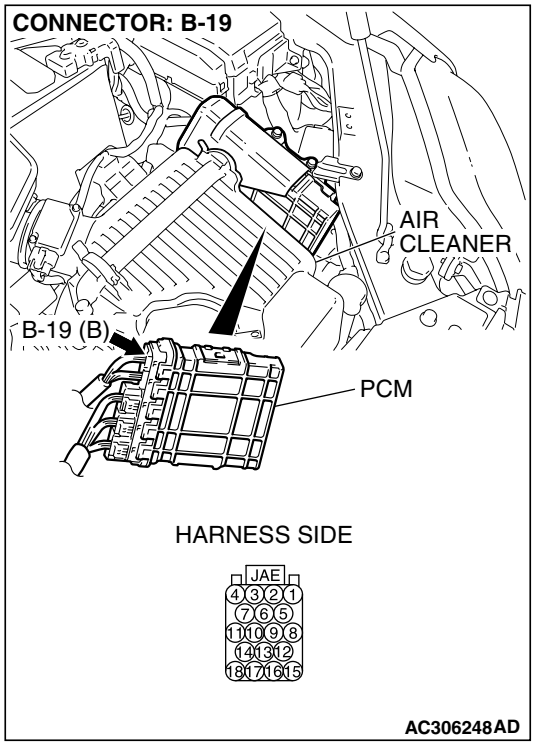
(2) Turn the ignition switch to the "LOCK" (OFF) position.

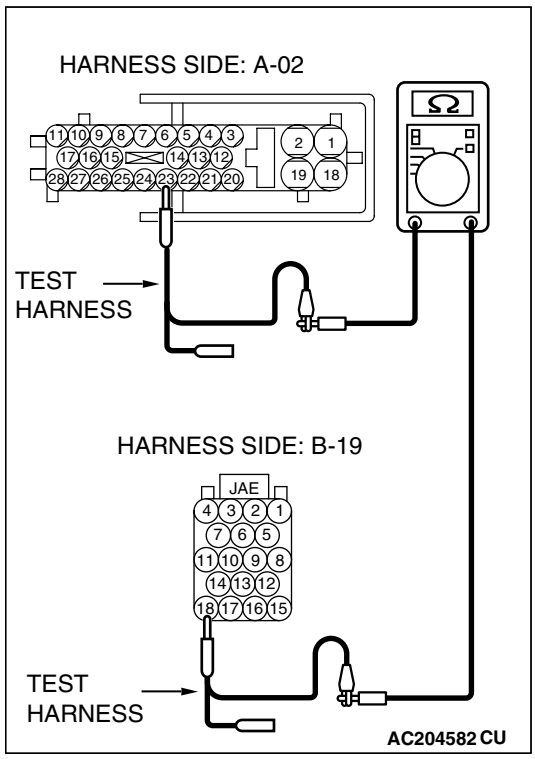
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

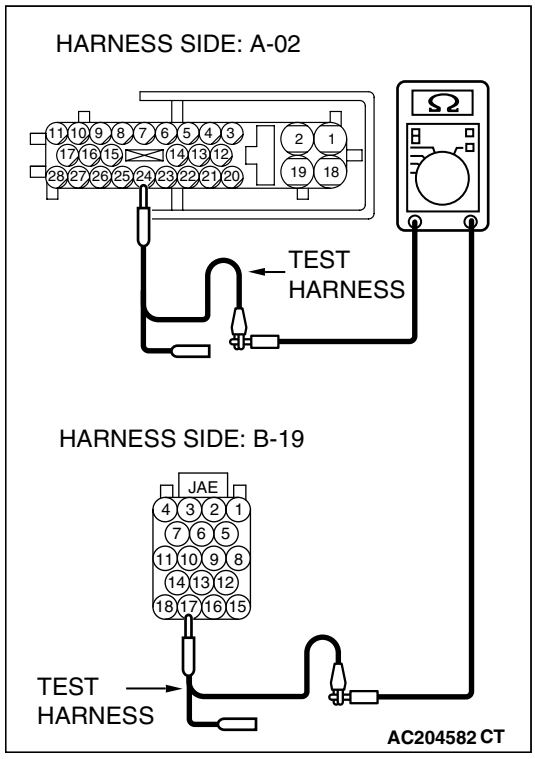






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 3. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

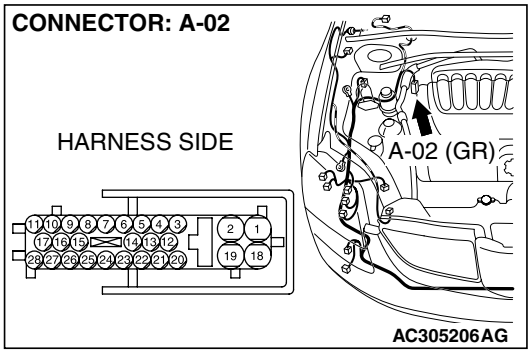
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

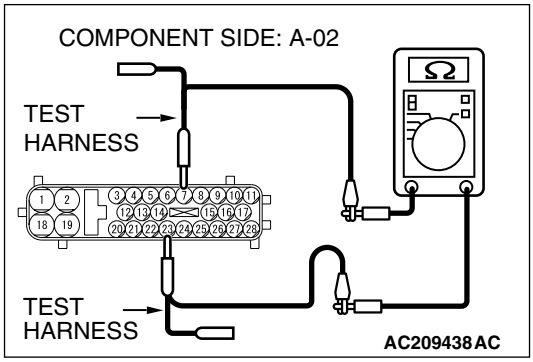
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



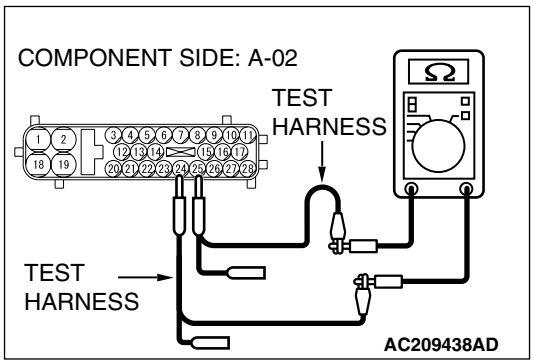
(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less



⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

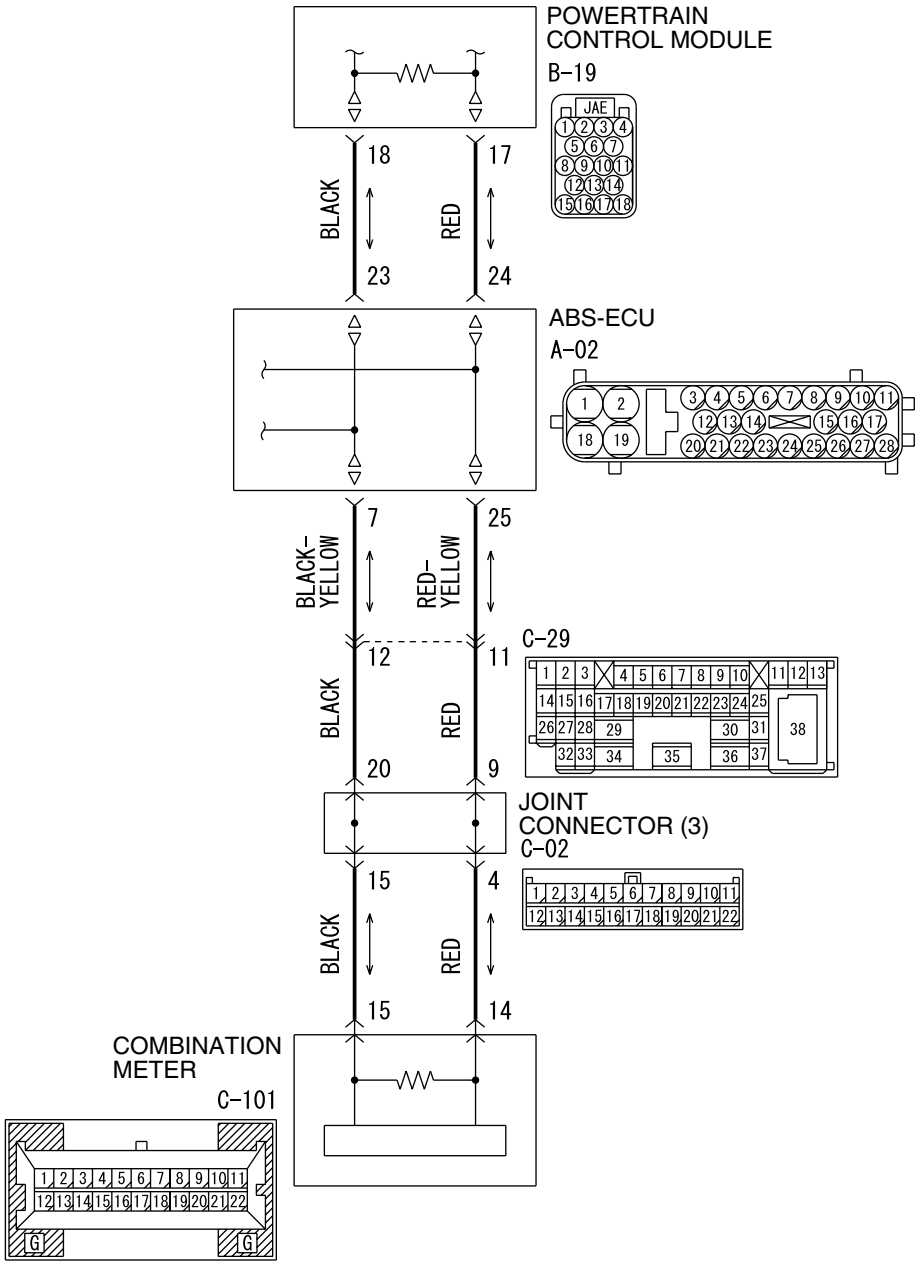
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-1003 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1254 <3.8L engine>.

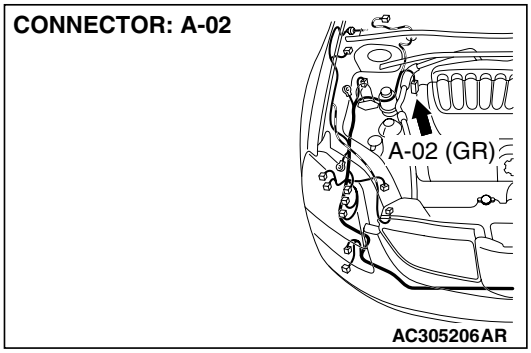
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

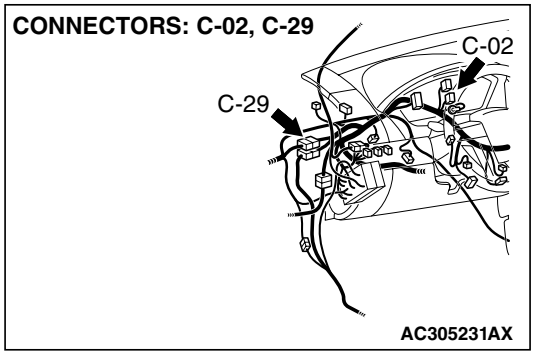
DIAGNOSTIC ITEM 19: Diagnose the lines between CAN main bus line and the ABS-ECU.

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M100A





TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from ABS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the ABS-ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The ABS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check intermediate connector C-29 and ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

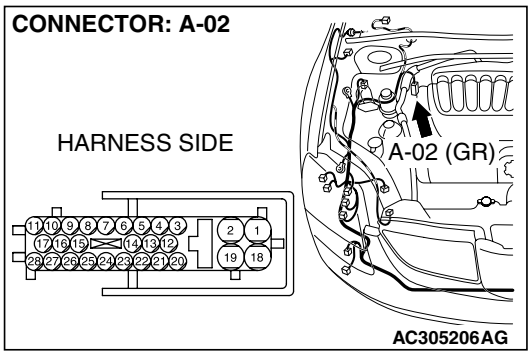
⚠ CAUTION

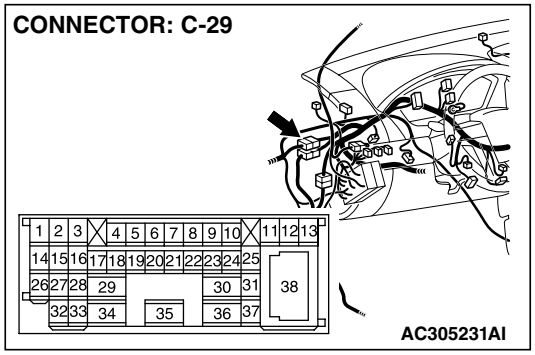
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.

Q: Are intermediate connector C-29 and ABS-ECU connector A-02 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.





STEP 2. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

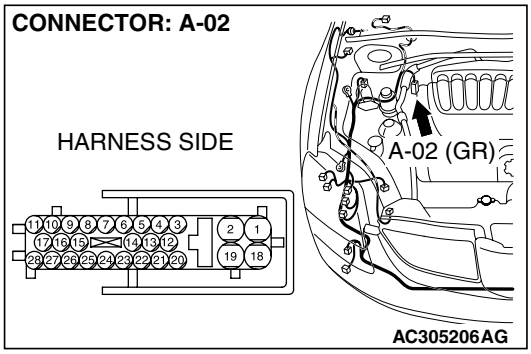
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

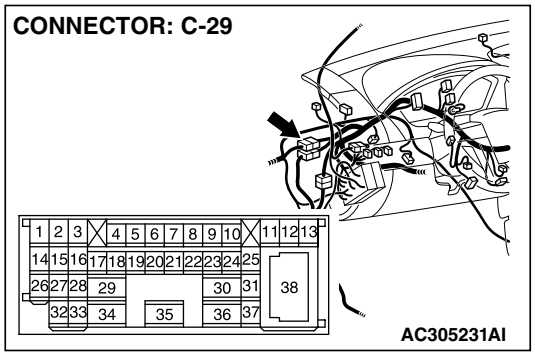
(2) Turn the ignition switch to the "LOCK" (OFF) position.

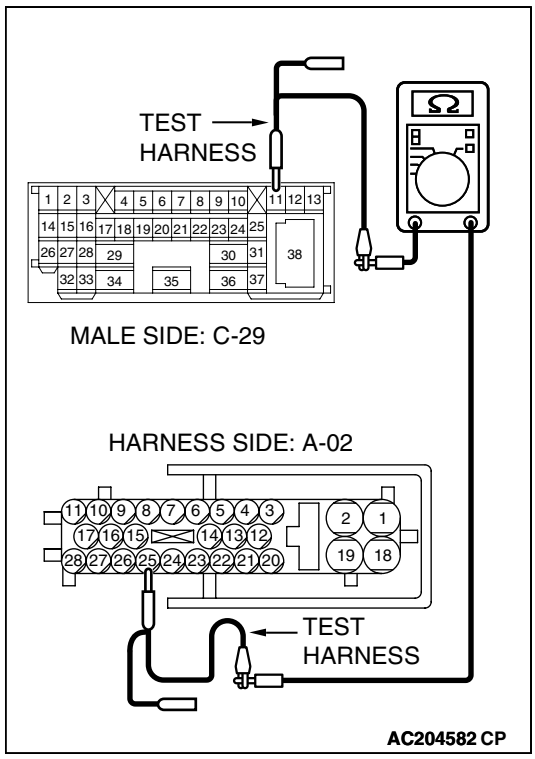
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

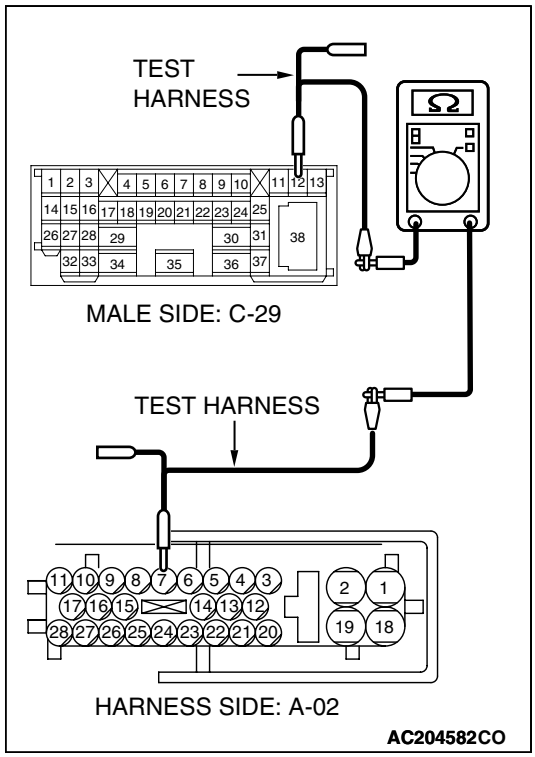






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

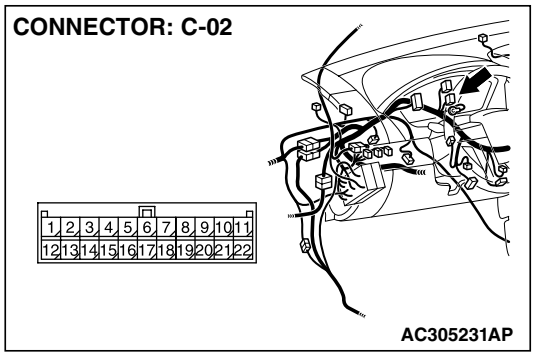
Q: Do all the resistances measure 2 ohms or less?

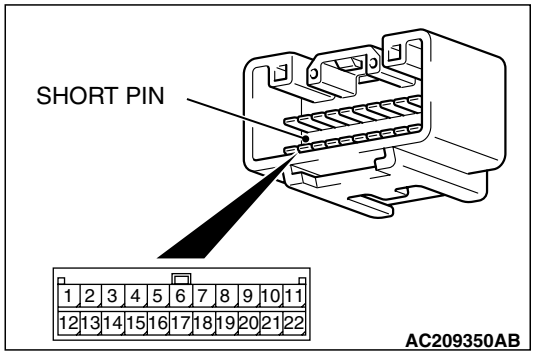
YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

STEP 3. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 4. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

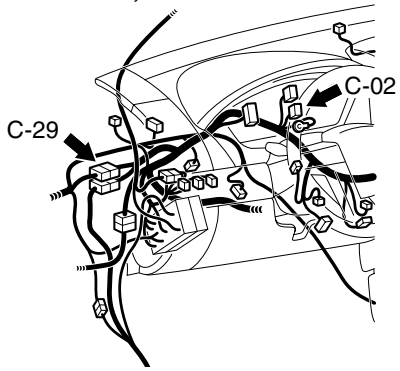
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

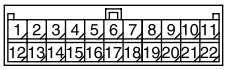
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

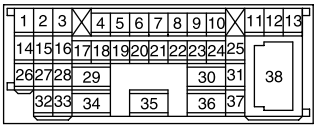
CONNECTORS: C-02, C-29



C-02



C-29



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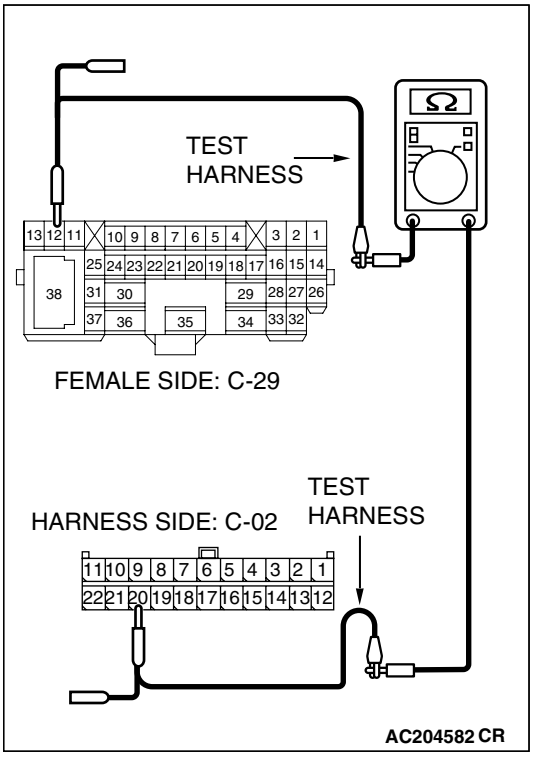
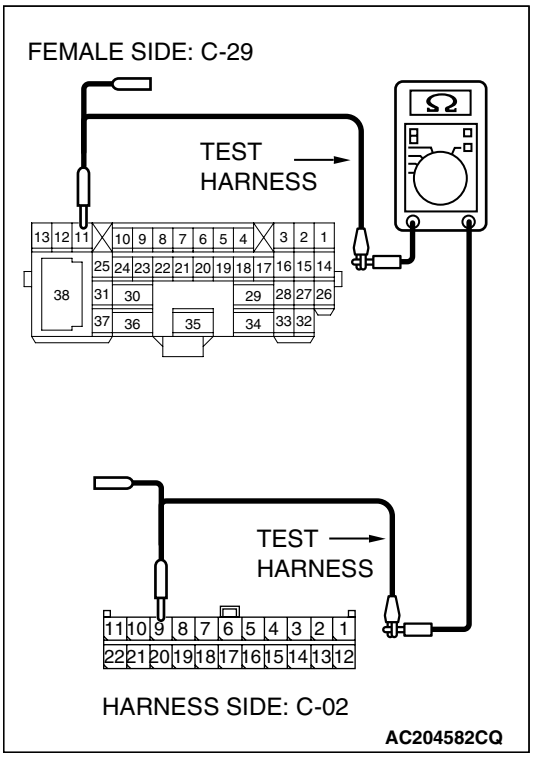


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B ABS diagnosis P.35B-75.

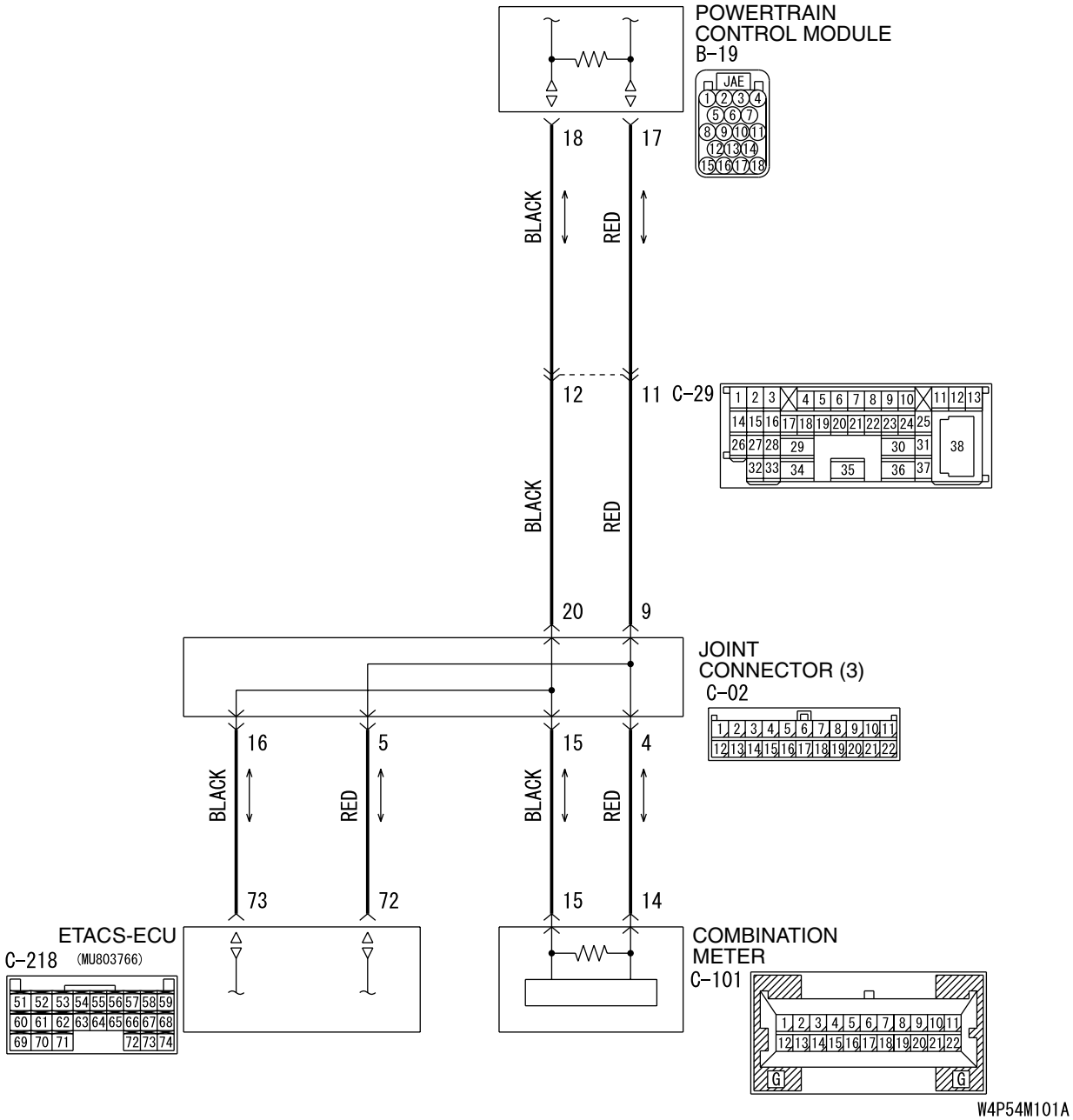
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

DIAGNOSTIC ITEM 20: Failure in the lines between CAN main bus line and the ETACS-ECU.

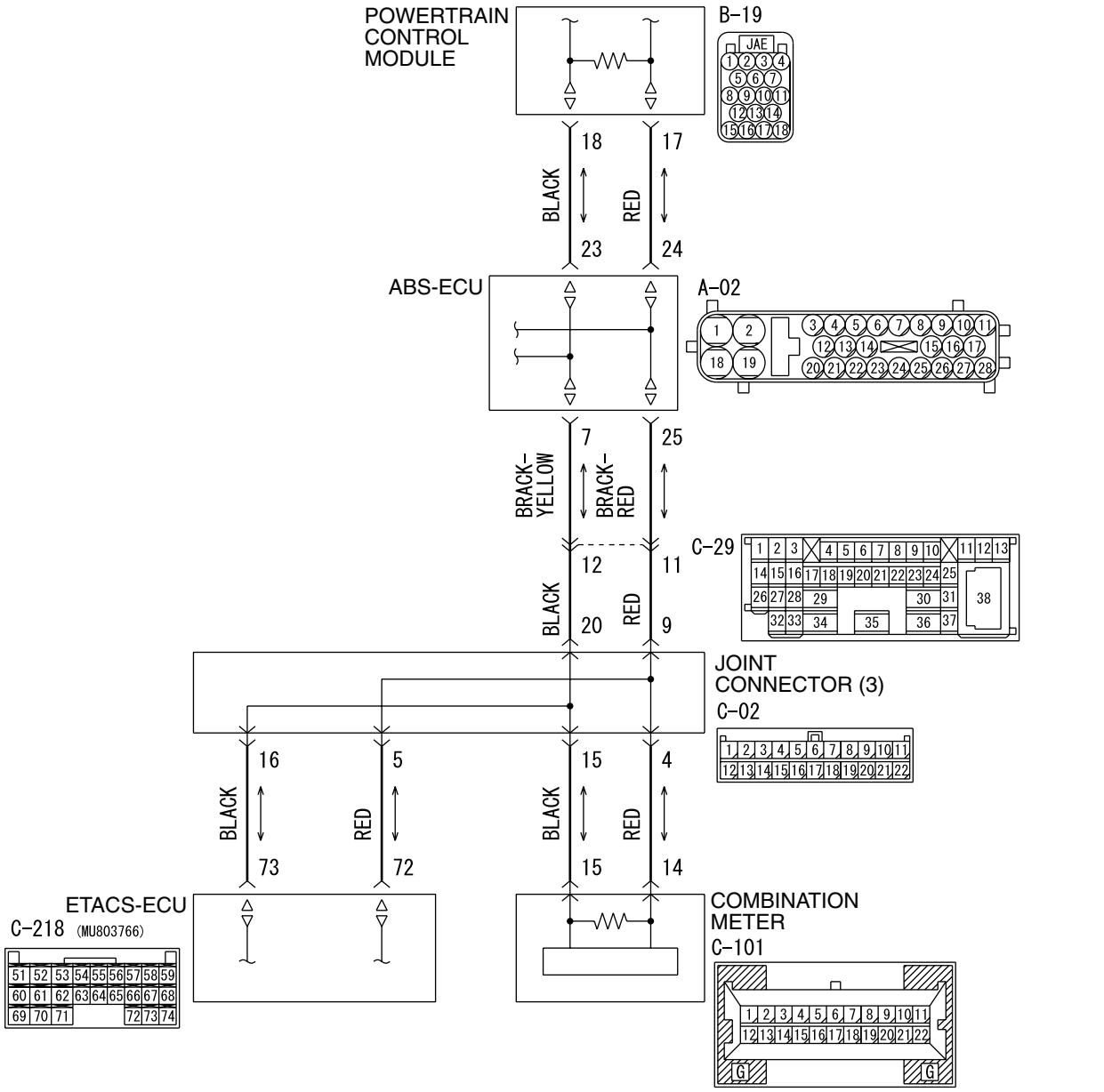
⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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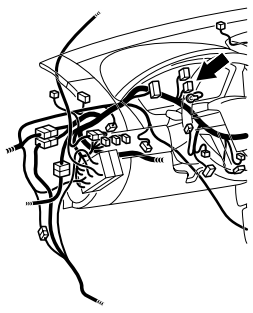
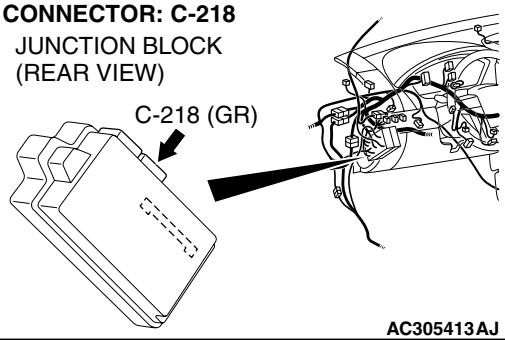
CONNECTOR: C-02



AC305231BD

CONNECTOR: C-218

JUNCTION BLOCK
(REAR VIEW)



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TSB Revision

TROUBLE JUDGMENT
If the M.U.T.-III cannot received signals from ETACS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM
The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the ETACS-ECU may be defective.

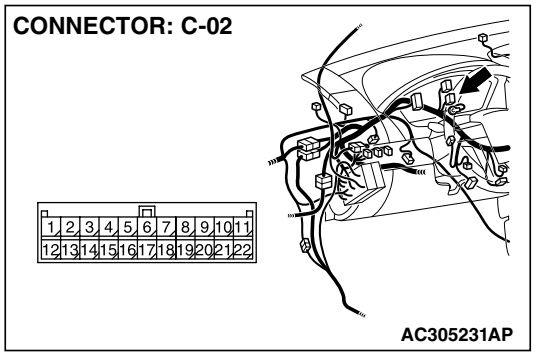
TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

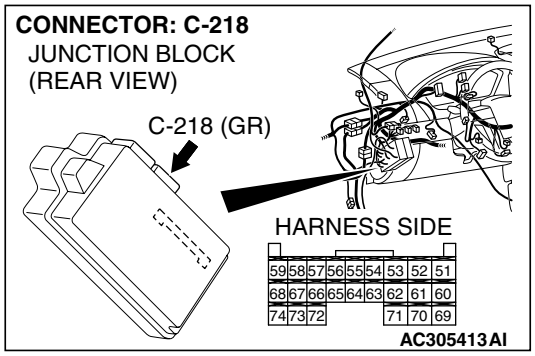
DIAGNOSIS

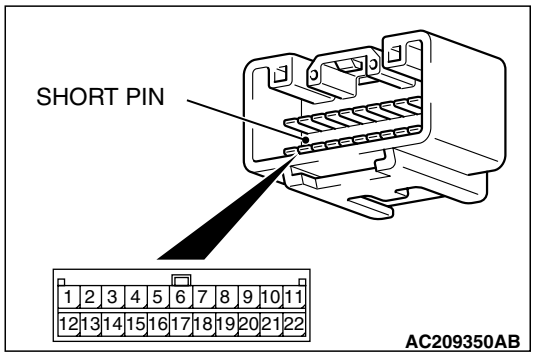
Required Special Tool:
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.







Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and ETACS-ECU connector C-218 in good condition?

YES : Go to Step 2.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

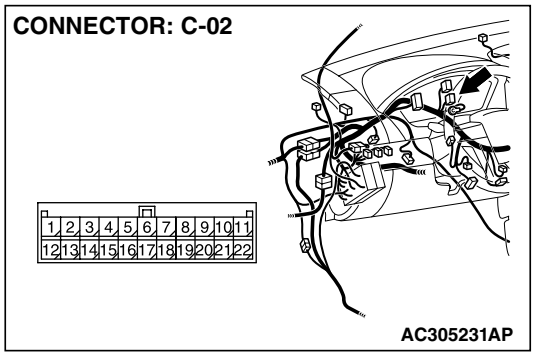
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

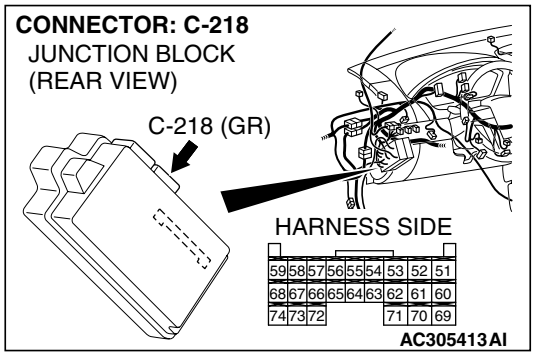
(2) Turn the ignition switch to the "LOCK" (OFF) position.

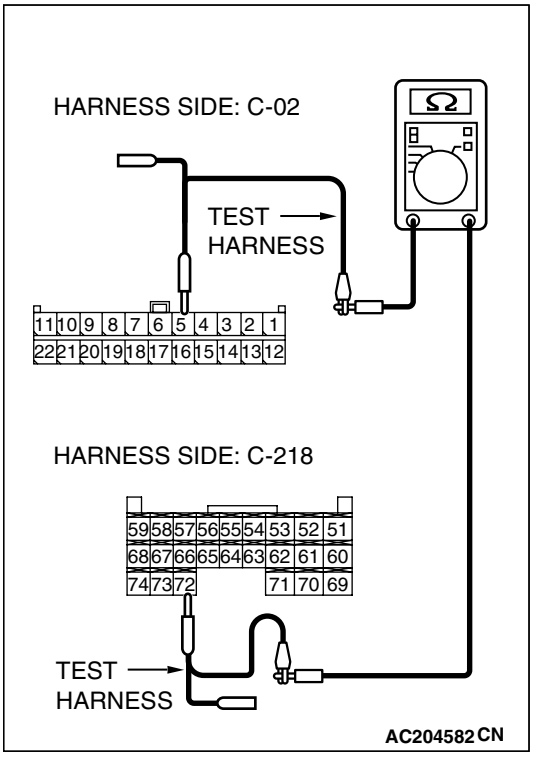
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

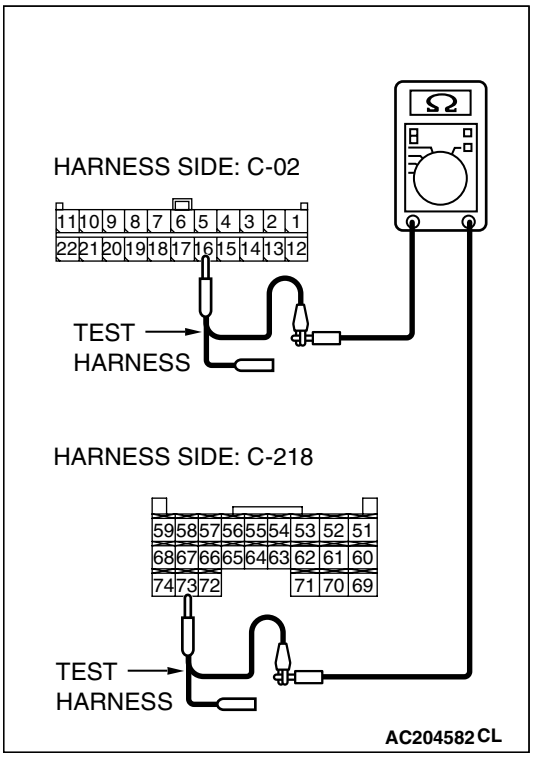






(4) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

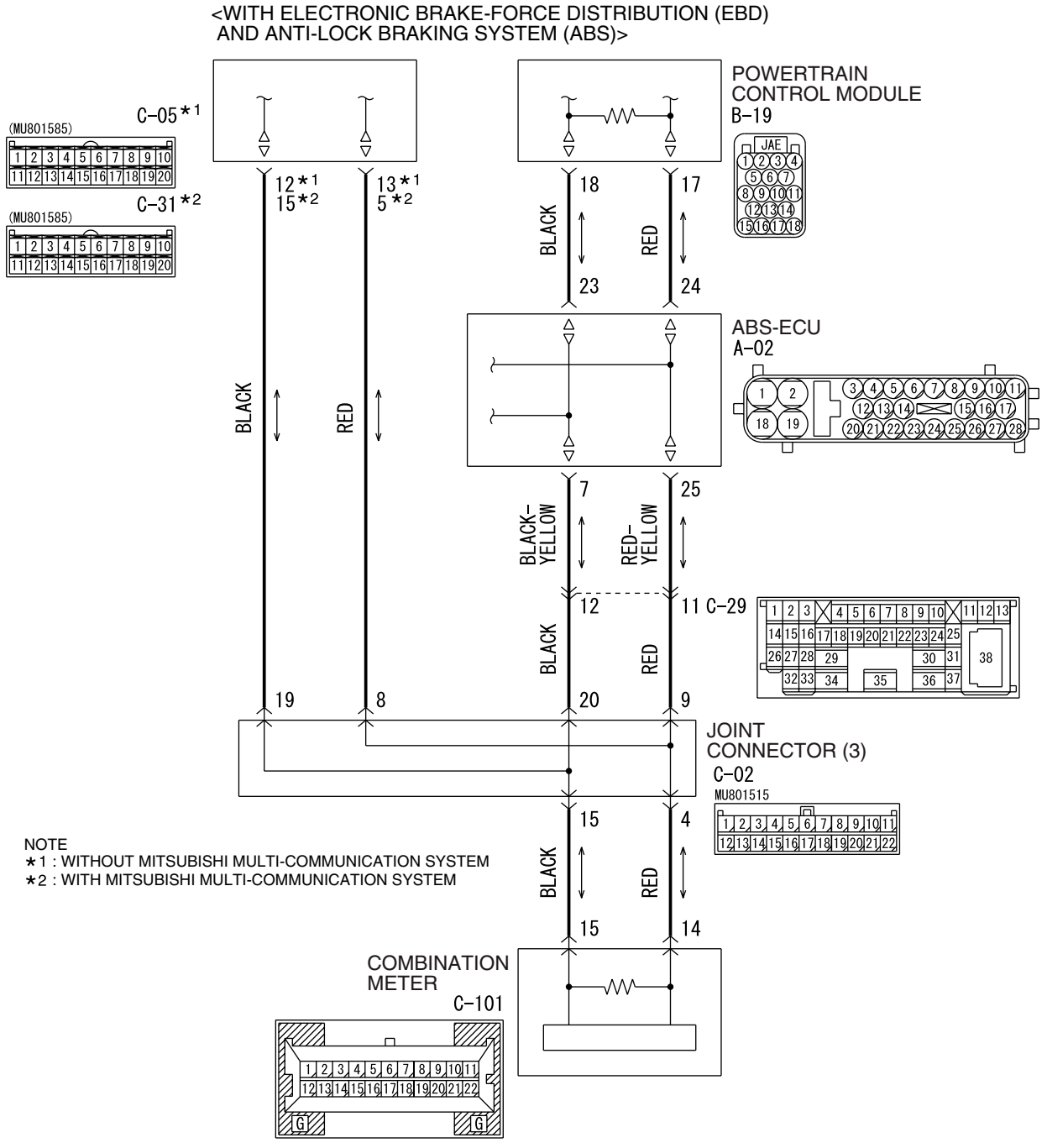
YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the SWS. Refer to GROUP 54B, Symptom procedures P.54B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

DIAGNOSTIC ITEM 21: Diagnose the lines between CAN main bus line and the multi-center display (Middle-grade type or Vehicles With Mitsubishi Multi Communication System)

⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



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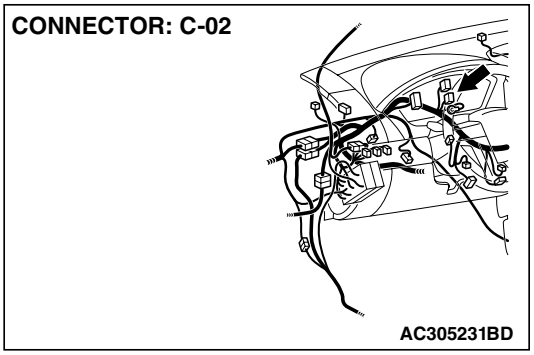
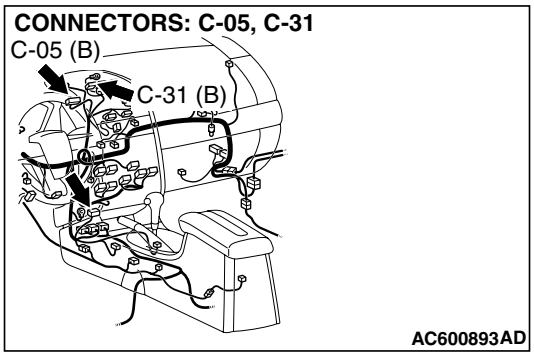
TSB Revision





TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from the multi-center display unit (middle-grade type), CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or multi-center display unit (middle-grade type) may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The multi-center display unit (middle-grade type) may be defective

DIAGNOSIS

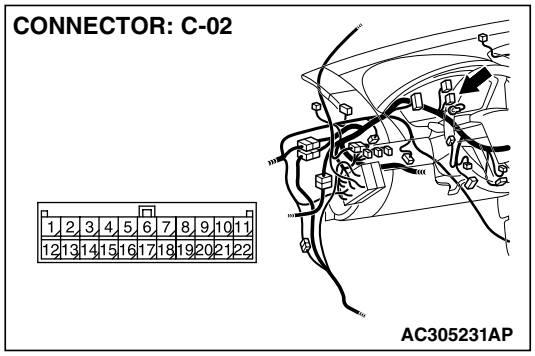
Required Special Tool:

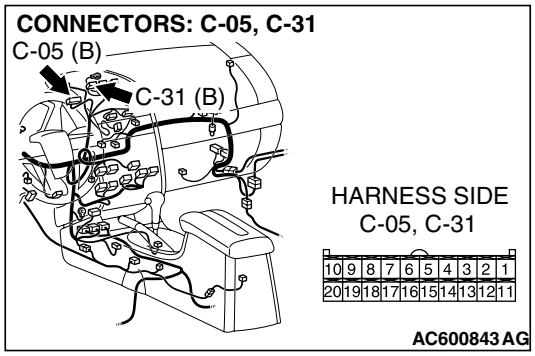
- MB991223: Harness Set

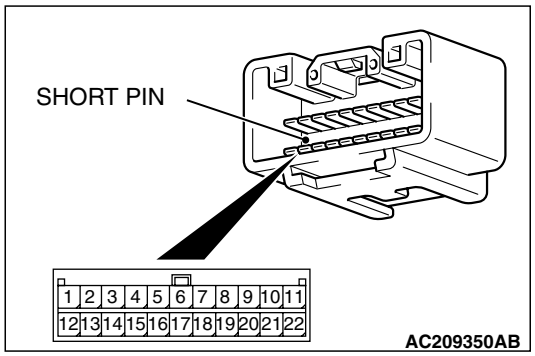
TSB Revision

STEP 1. Check joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.







Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)> in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system).
Measure the resistance between joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

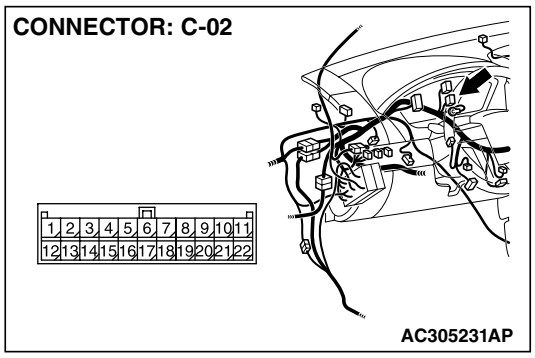
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-6.

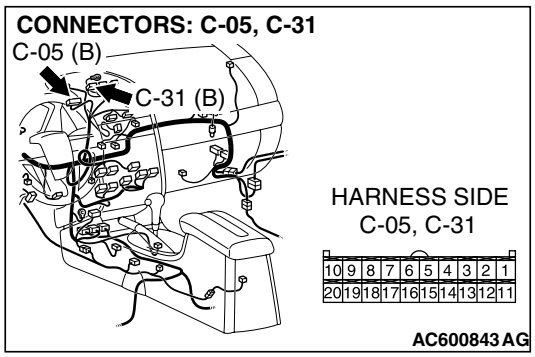
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-6.

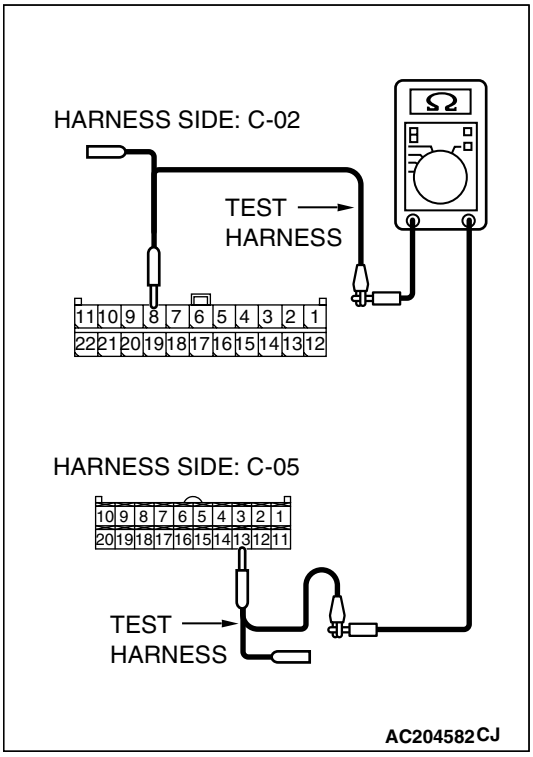
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector C-05 <multi-center display unit (middle-grade type)> or C-31 <multi-center display unit (vehicles with mitsubishi multi communication system)>, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

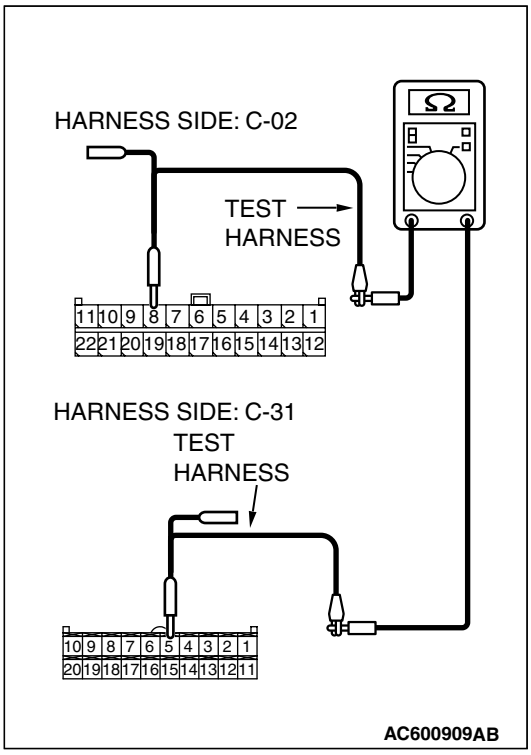


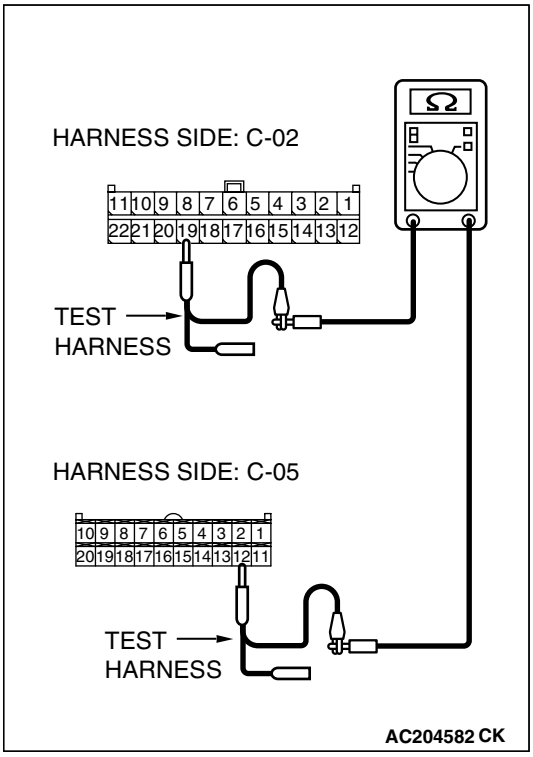


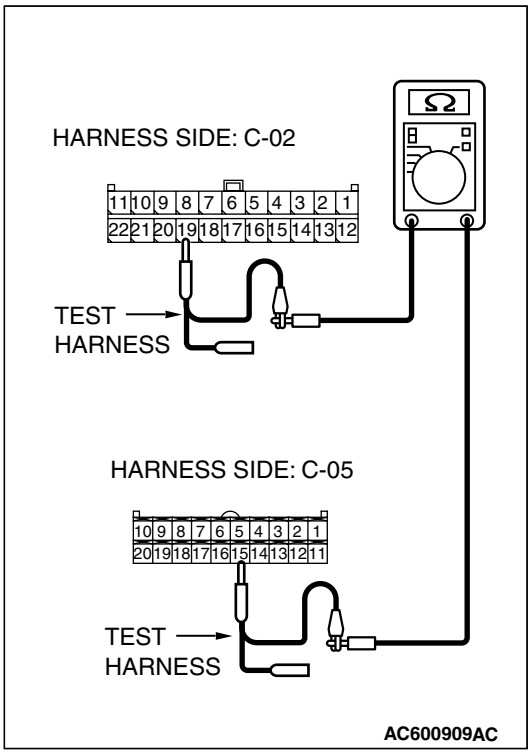


(4) Measure the resistance between joint connector (3) terminal 8 and multi-center display unit <multi-center display unit (middle-grade type)> connector terminal 13 or multi-center display unit <multi-center display unit (vehicles with mitsubishi multi communication system)> connector terminal 5.

OK: 2 ohms or less







(5) Measure the resistance between joint connector (3) terminal 19 and multi-center display unit <multi-center display unit (middle-grade type)> connector terminal 12 or multi-center display unit <multi-center display unit (vehicles with mitsubishi multi communication system)> connector terminal 15.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the multi-center display (middle-grade type or vehicles with mitsubishi multi communication system) may be suspected. Diagnose the multi-center display (middle-grade type or vehicles with mitsubishi multi communication system). Refer to GROUP 54A, P.54A-282<multi-center display unit (middle-grade type)> or P.54A-326 <multi-center display unit (vehicles with mitsubishi multi communication system)>.

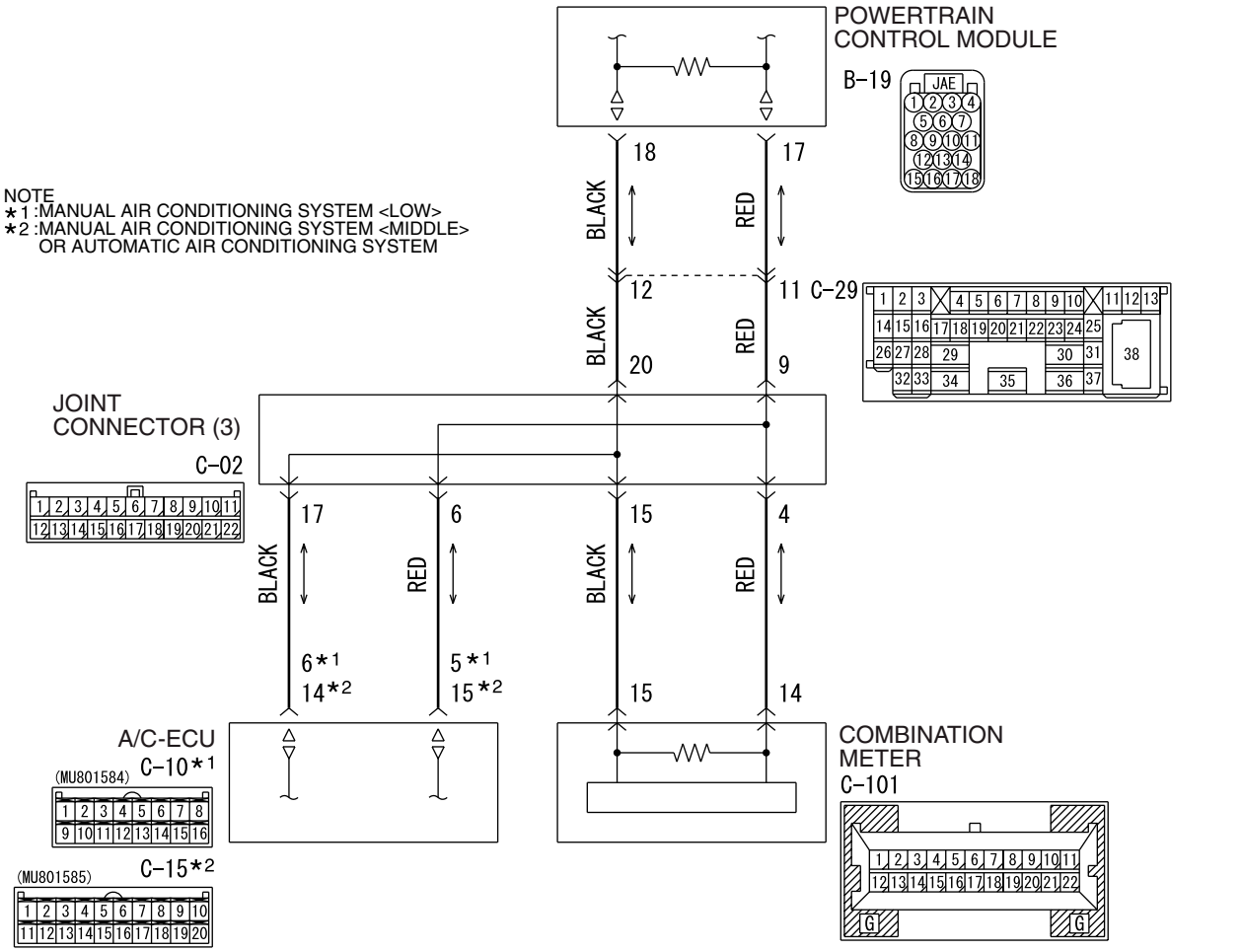
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) connector.

DIAGNOSTIC ITEM 22: Diagnose the lines between CAN main bus line and the A/C-ECU.

⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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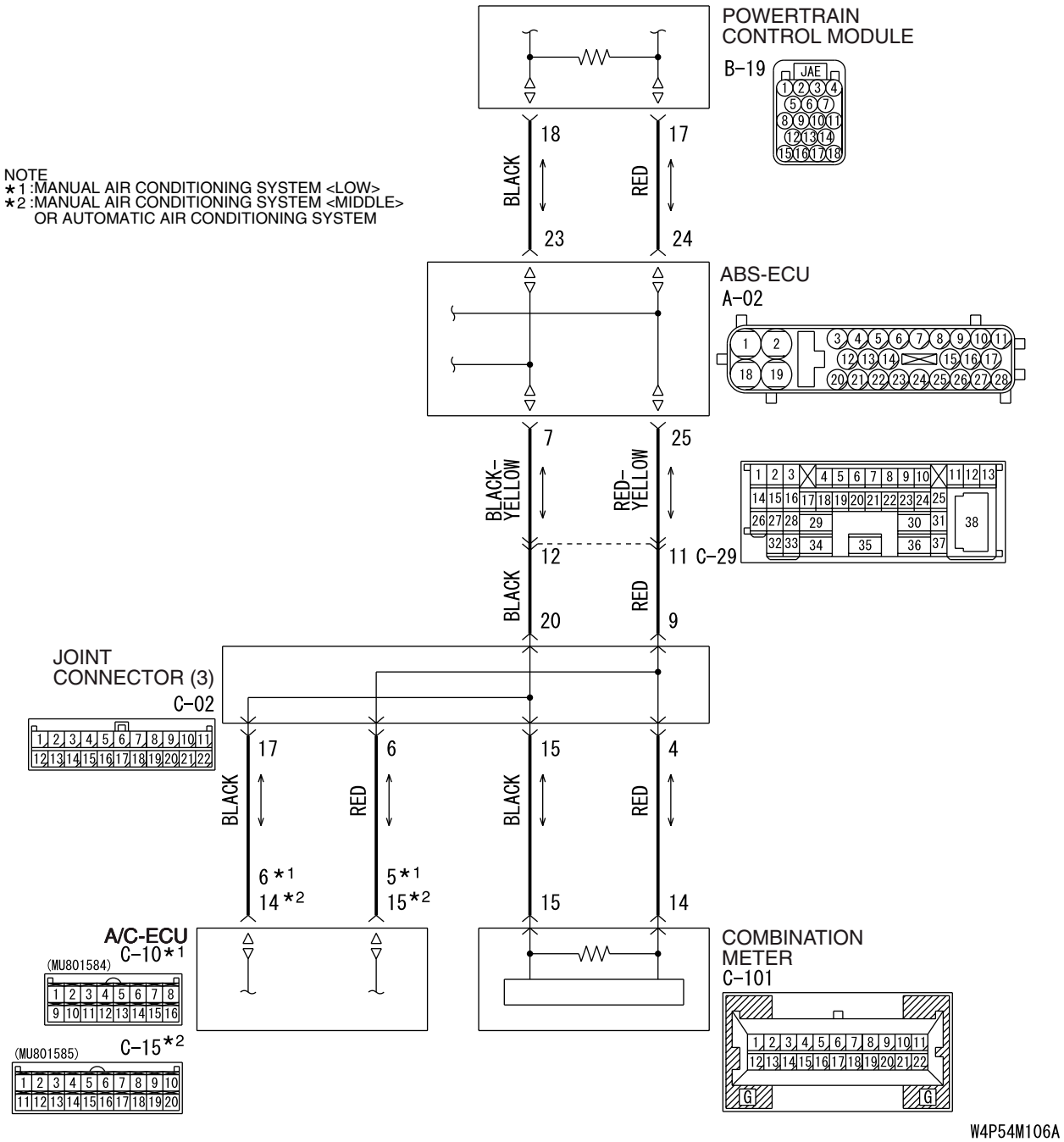
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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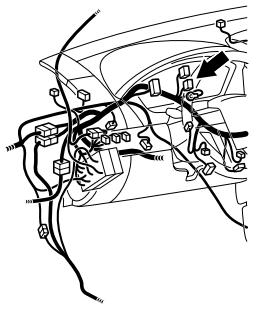
CONNECTOR: C-02



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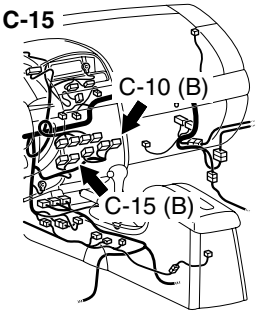
CONNECTORS: C-10, C-15



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TSB Revision

TROUBLE JUDGMENT
If the M.U.T.-III cannot received signals from the A/C-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM
The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the A/C-ECU may be defective.

TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The A/C-ECU may be defective

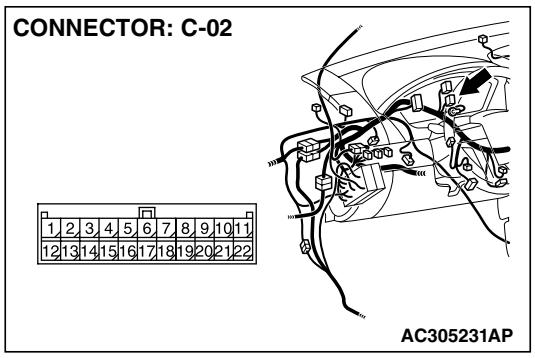
DIAGNOSIS

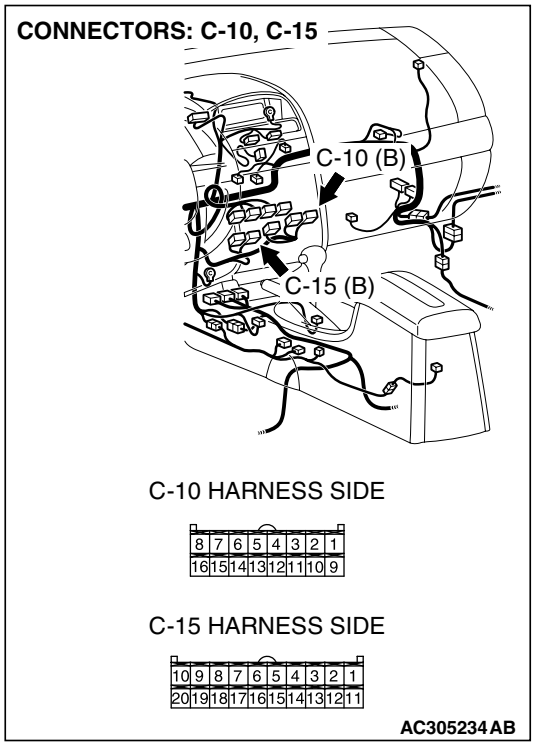
Required Special Tool:
- MB991223: Harness Set

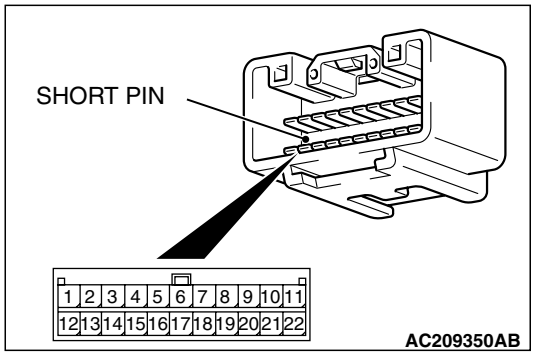
STEP 1. Check joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.







Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.

TSB Revision

STEP 2. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

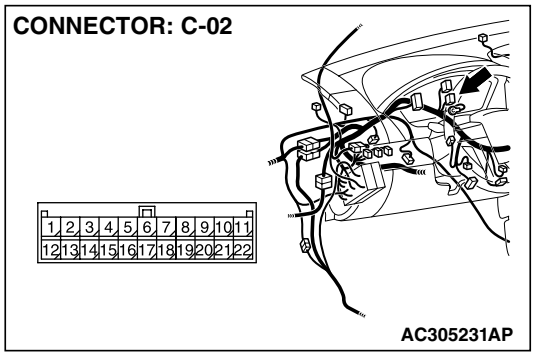
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

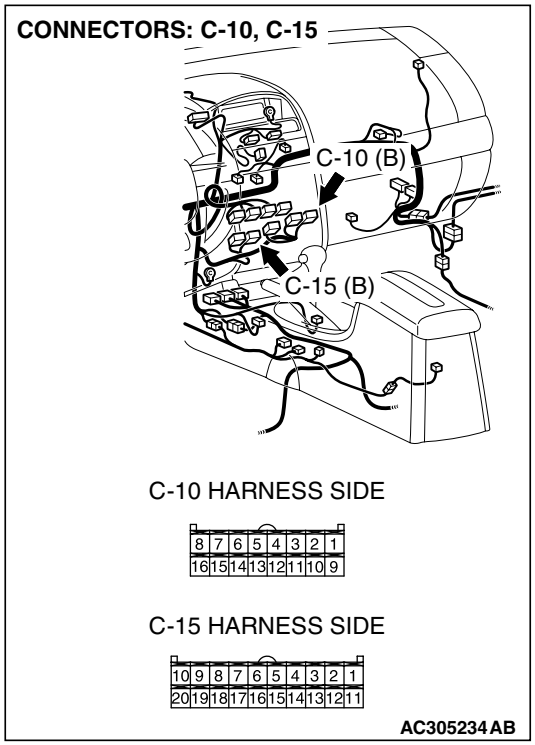
(2) Turn the ignition switch to the "LOCK" (OFF) position.

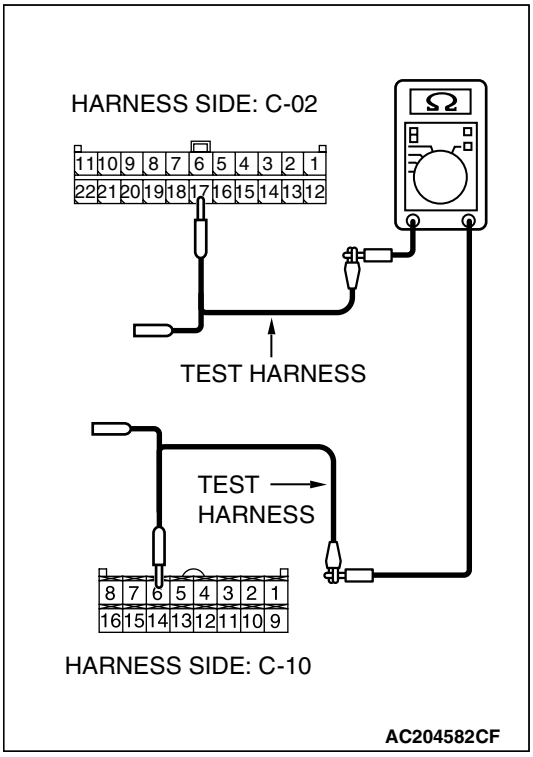
⚠ CAUTION

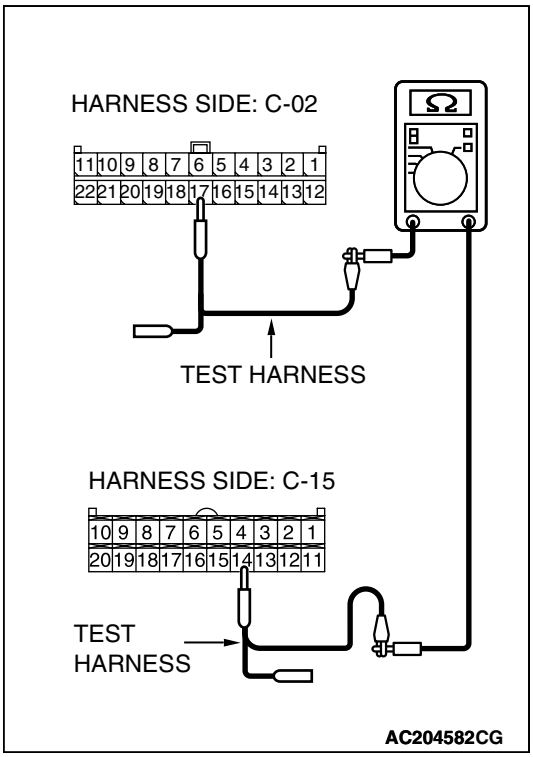
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.



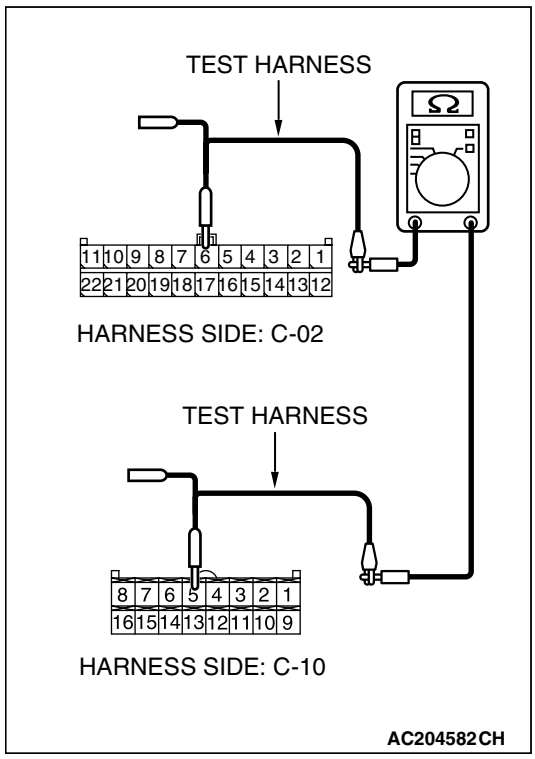


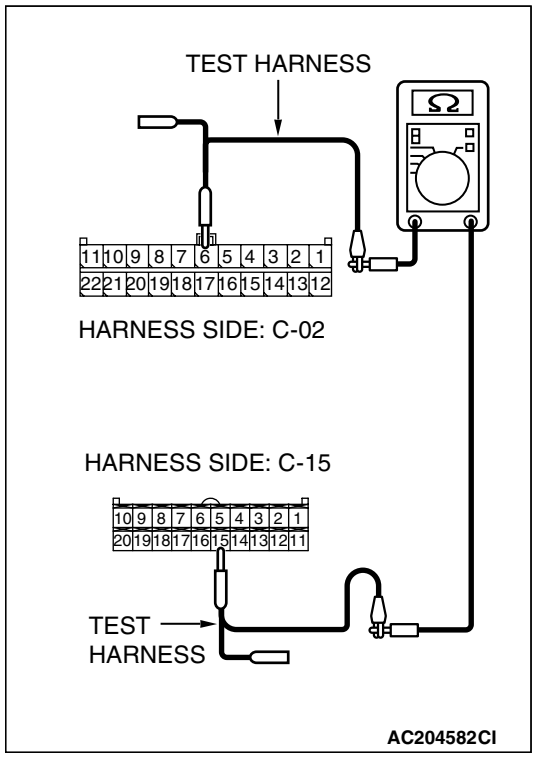




(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less





(5) Measure the resistance between joint connector (3) terminal 6 and A/C-ECU connector terminal 5 <manual air conditioning system (low)> or 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-170.

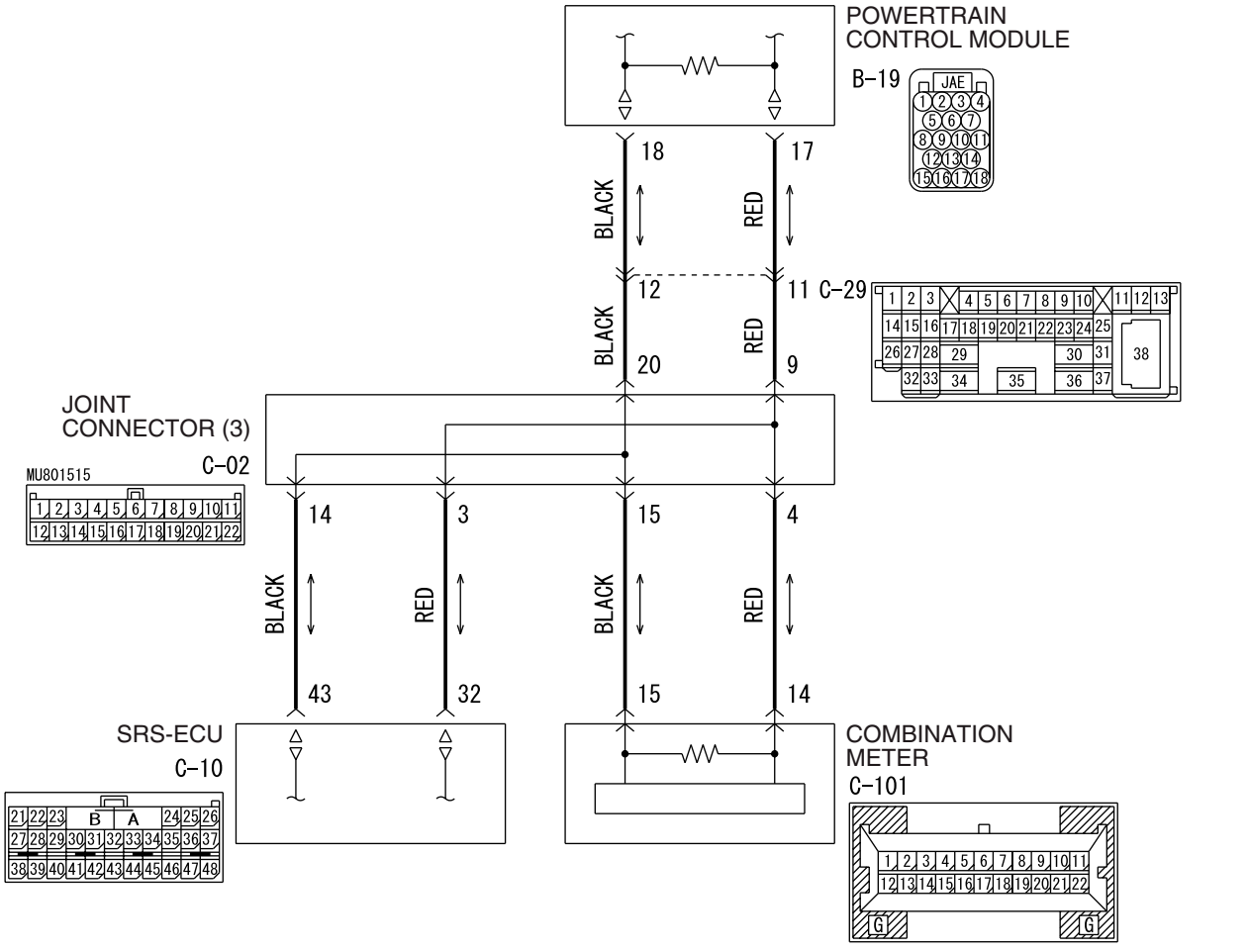
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

DIAGNOSTIC ITEM 23: Diagnose the lines between CAN main bus line and the SRS-ECU.

⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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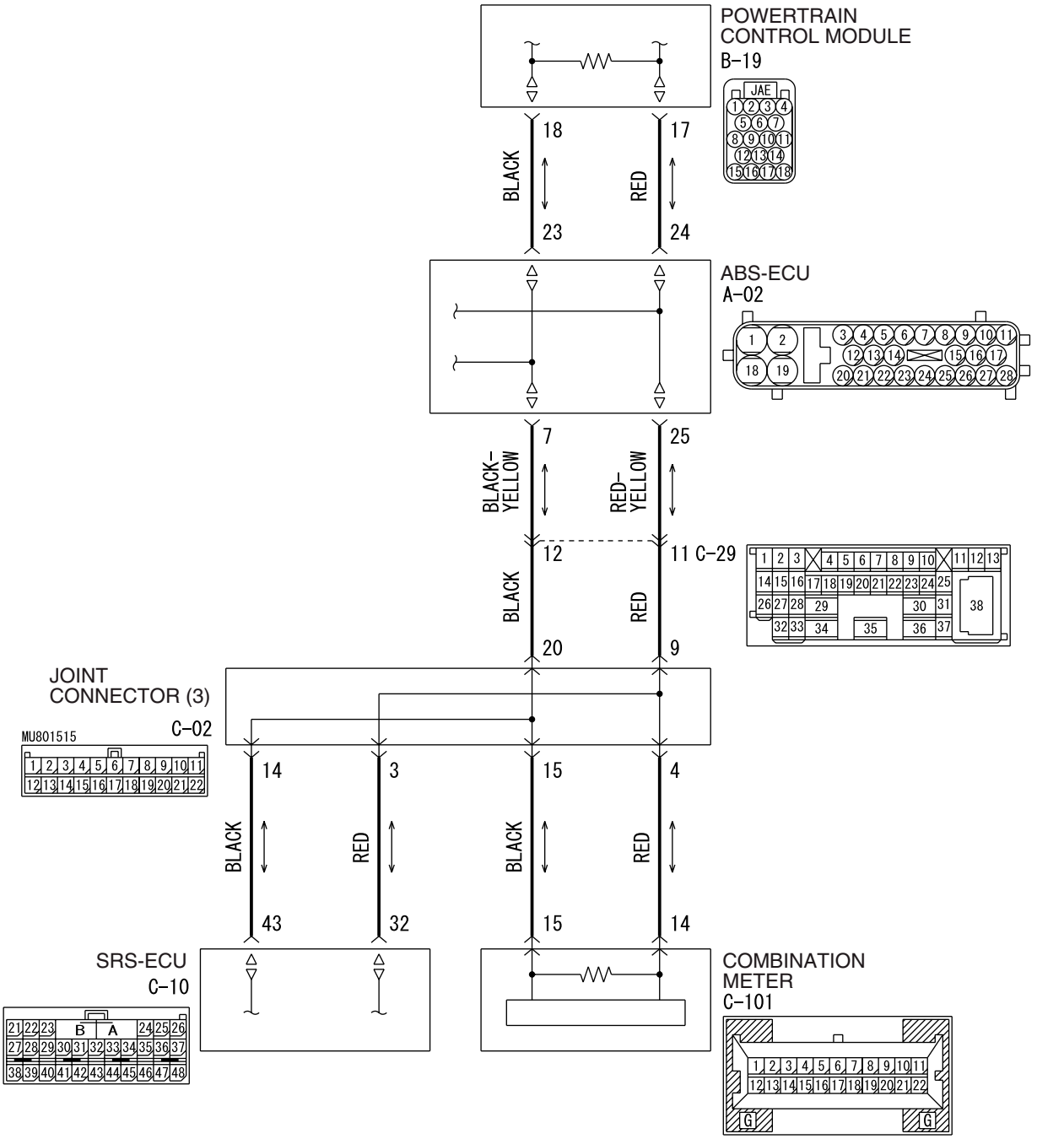
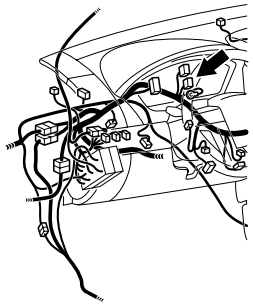
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



W7P54M143A

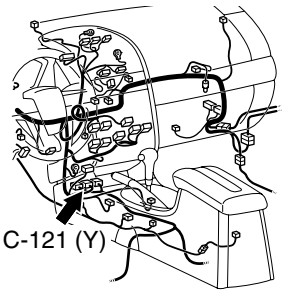
TSB Revision

CONNECTOR: C-02



AC305231BD

CONNECTOR: C-121



AC600893 AB

TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from the SRS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the SRS-ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The SRS-ECU may be defective

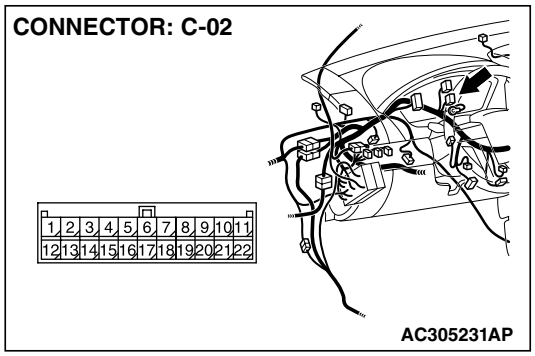
DIAGNOSIS

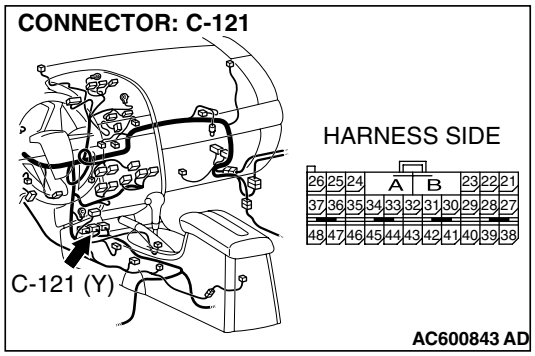
Required Special Tool:

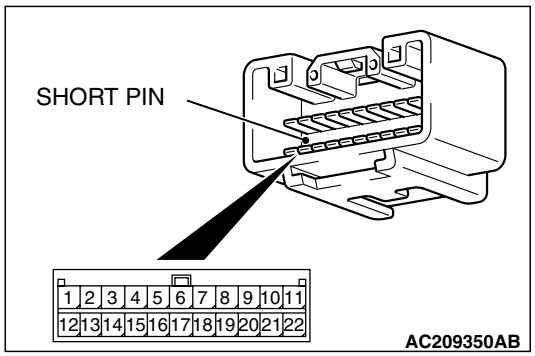
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.







Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and SRS-ECU connector C-121 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the SRS-ECU. Measure the resistance between joint connector (3) C-02 and SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

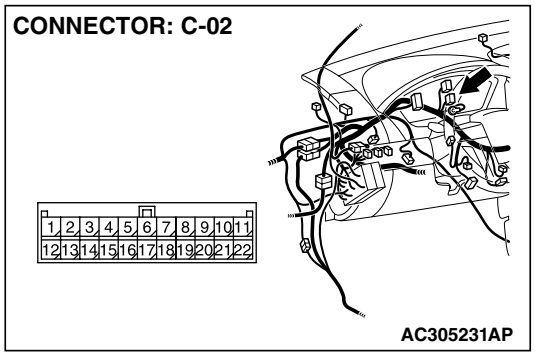
(1) Disconnect joint connector (3) C-02 and SRS-ECU connector C-121, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and SRS-ECU connector C-121.

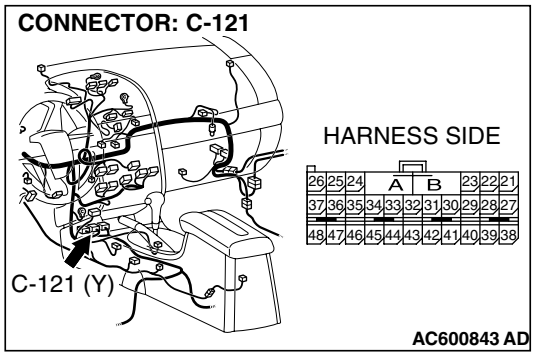
(2) Turn the ignition switch to the "LOCK" (OFF) position.

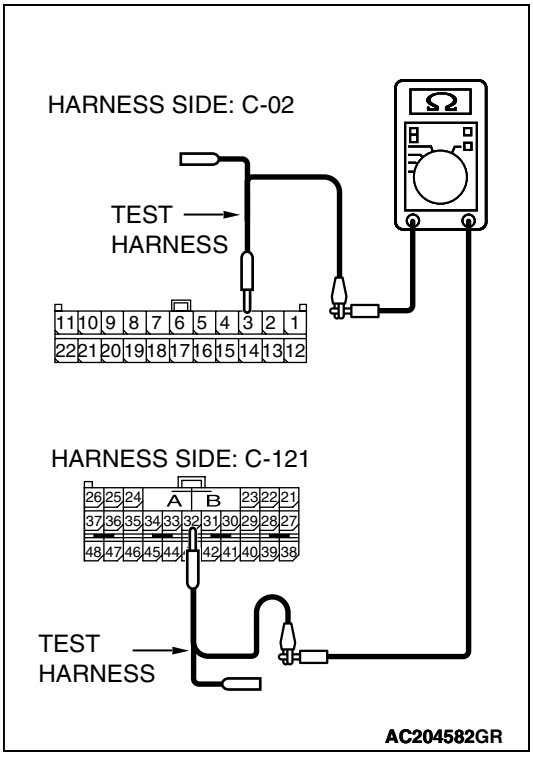
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

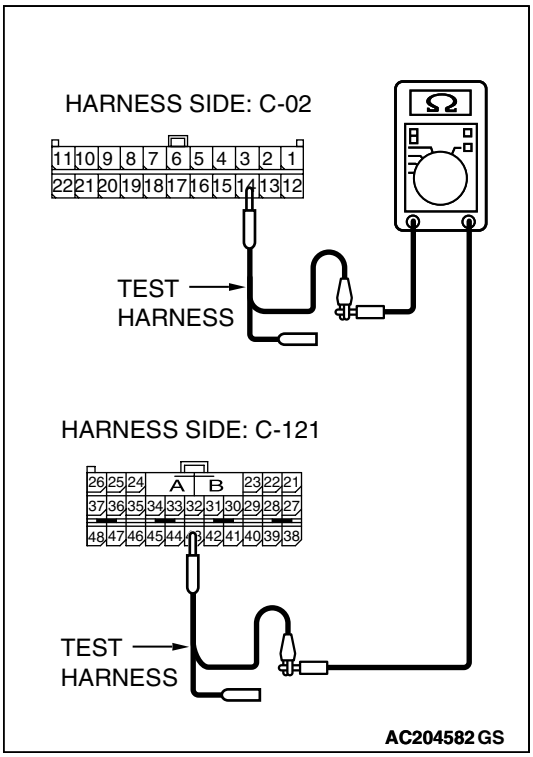






(4) Measure the resistance between joint connector (3) terminal 3 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

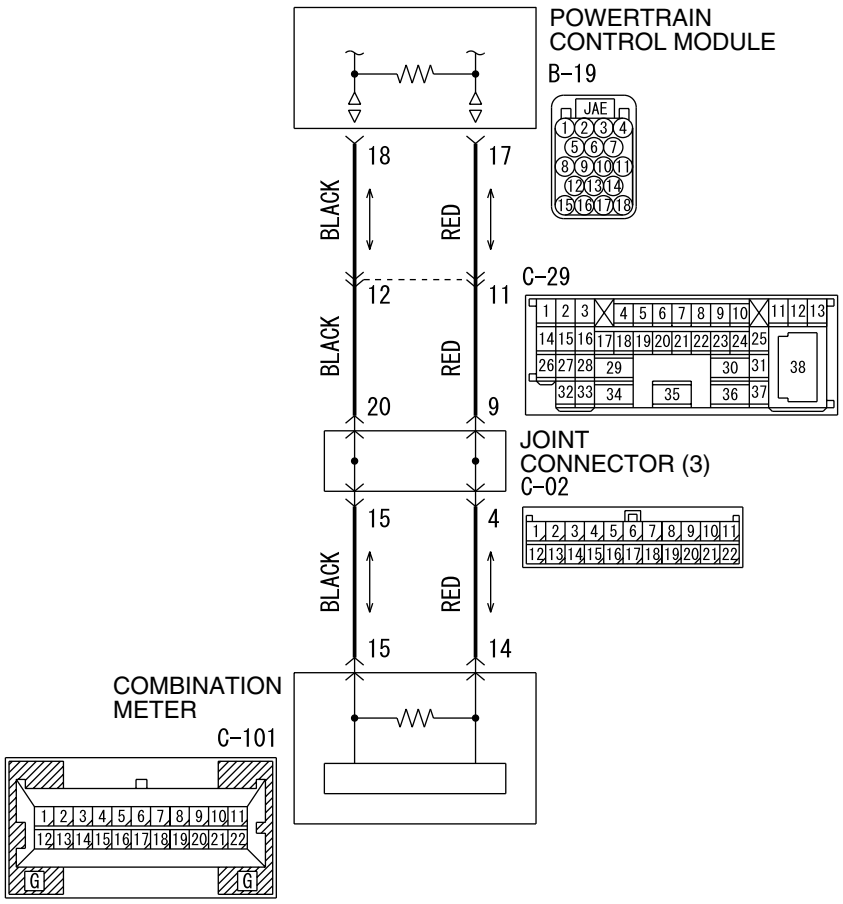
YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis P.52B-32.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the SRS-ECU connector.

DIAGNOSTIC ITEM 24: Failure in the lines between CAN main bus line and the combination meter.

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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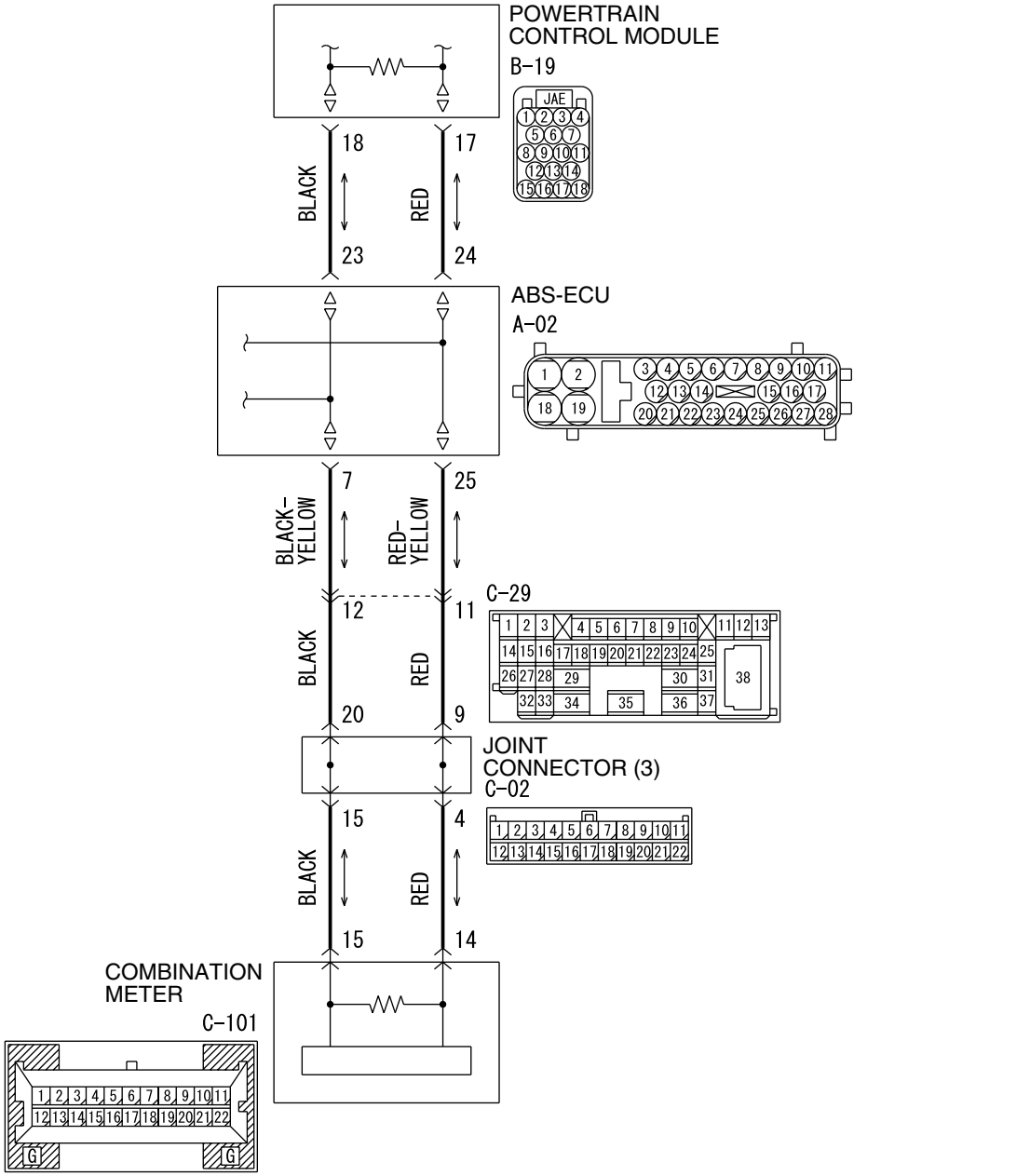
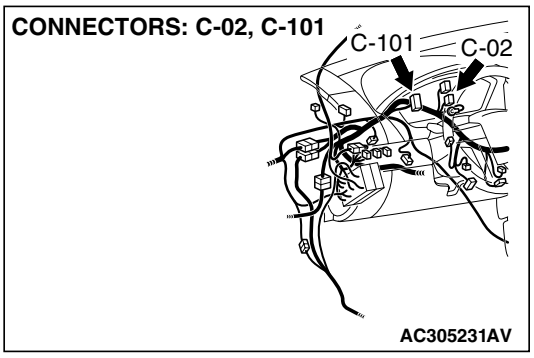
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



W4P54M110A



TSB Revision

TROUBLE JUDGMENT
If the M.U.T.-III cannot received signals from the combination meter, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM
The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the combination meter may be defective.

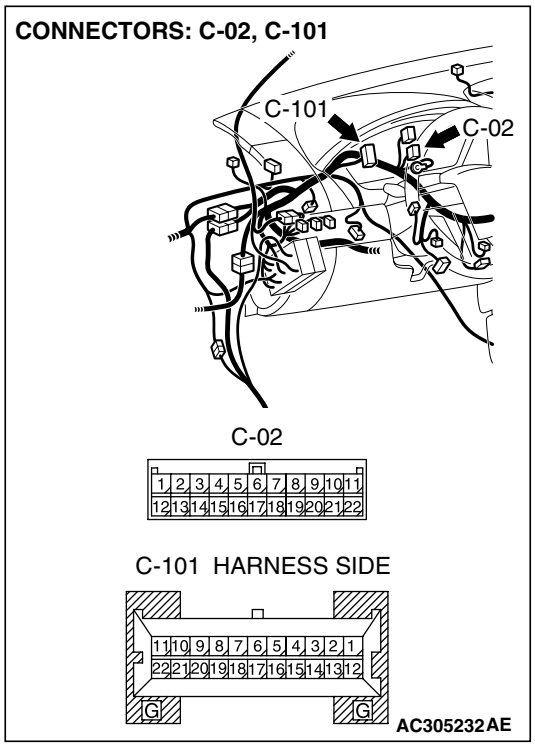
TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective

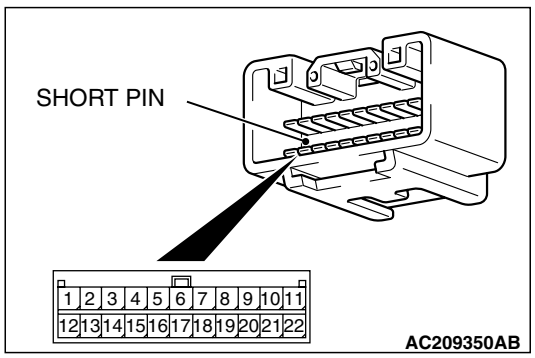
DIAGNOSIS

Required Special Tool:
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.





Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

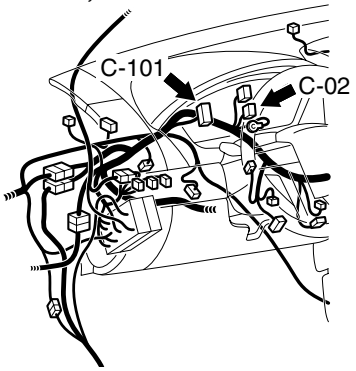
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

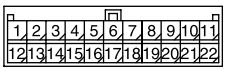
Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

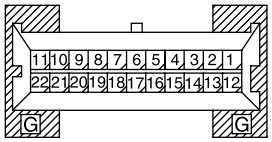
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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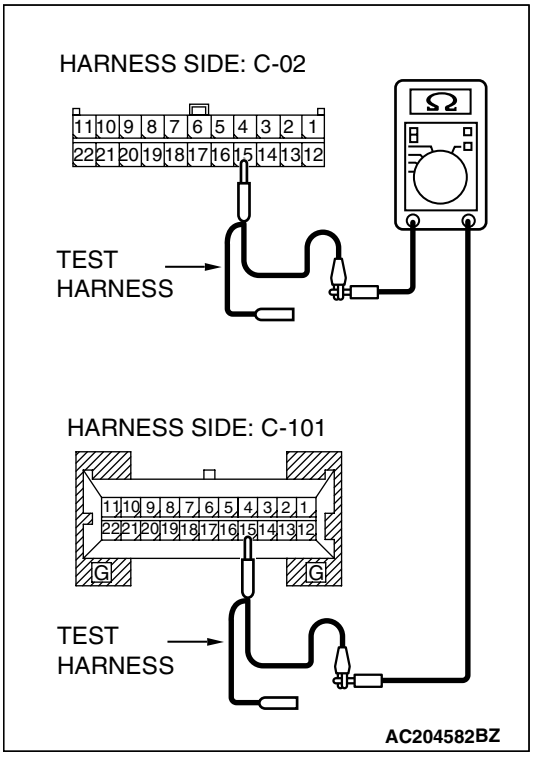
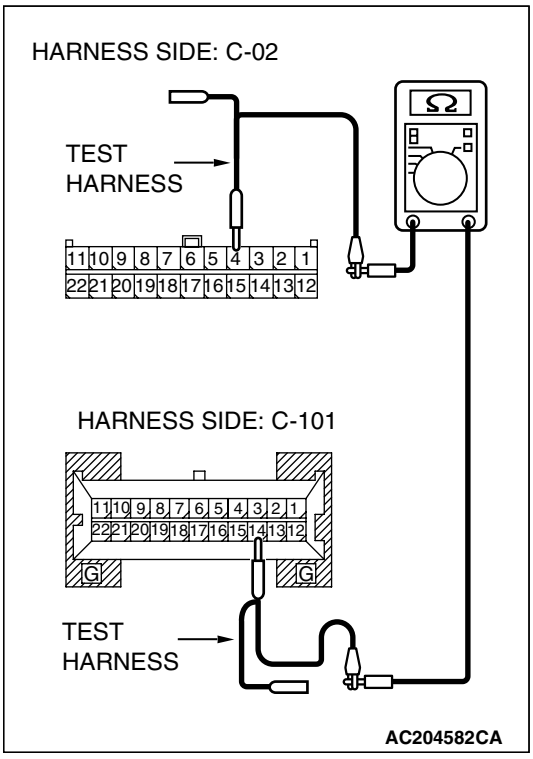


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

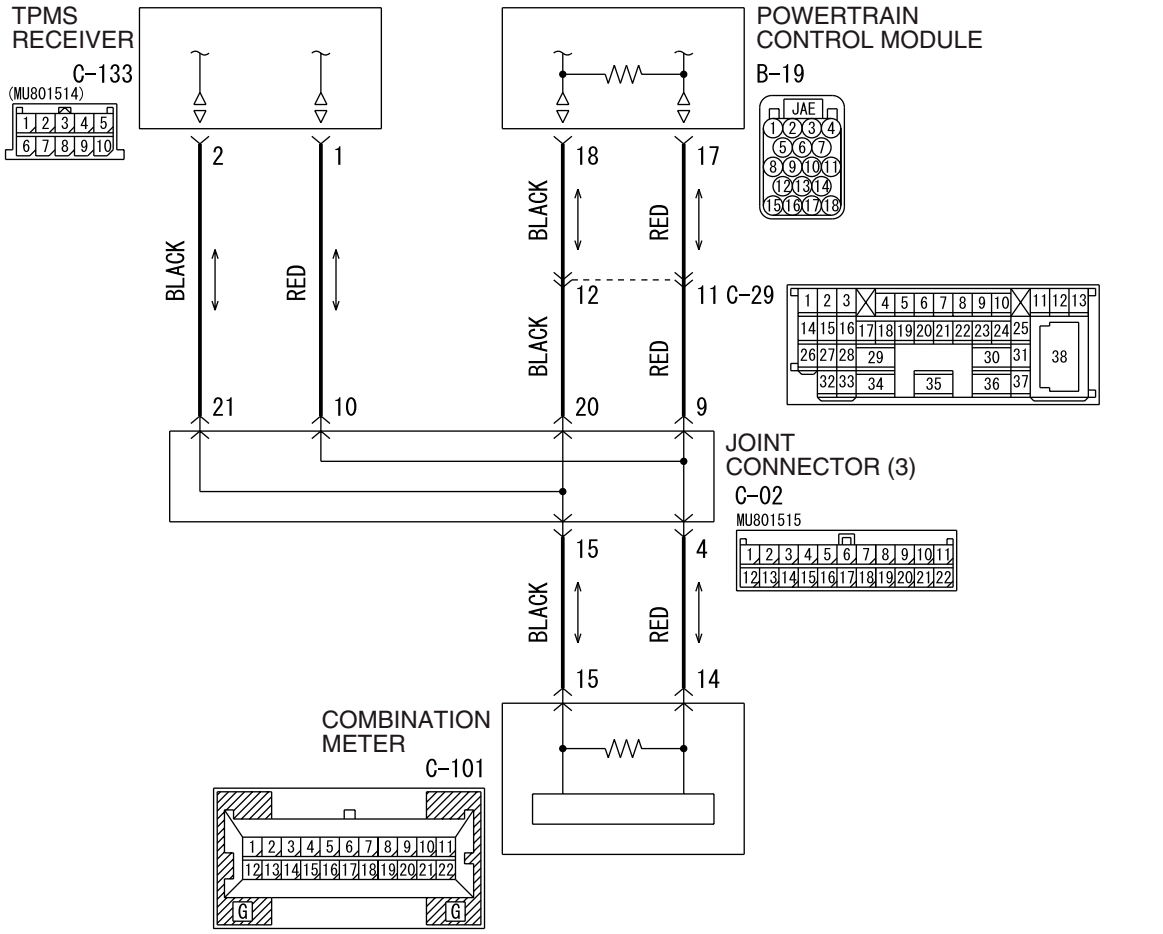
YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter. Refer to GROUP 54A, Combination meter assembly P.54A-86.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

DIAGNOSTIC ITEM 25: Failure in the lines between CAN main bus line and the TPMS reciver.

⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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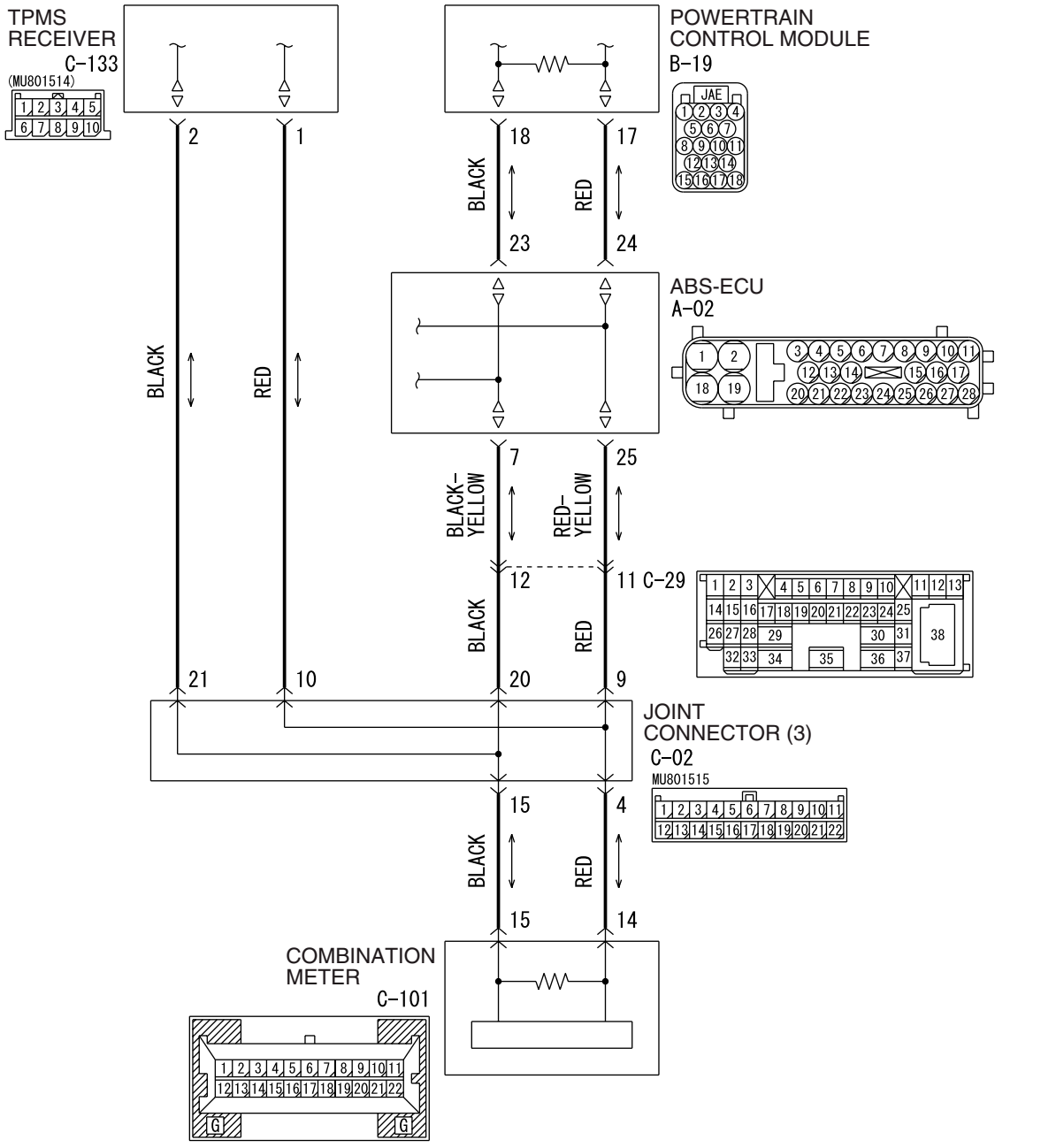
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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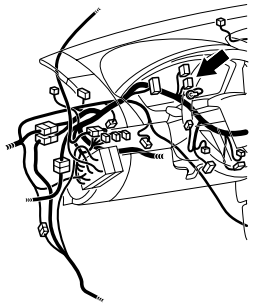
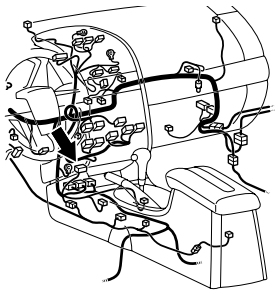
TSB Revision

CONNECTOR: C-02



AC305231BD

CONNECTOR: C-133



AC600893AC

TROUBLE JUDGMENT

If the M.U.T.-III cannot received signals from TPMS reciver, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the TPMS reciver may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The TPMS reciver may be defective

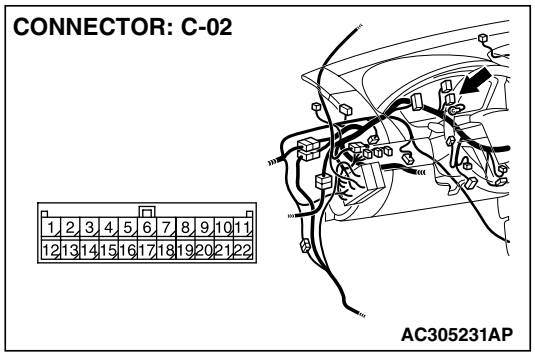
DIAGNOSIS

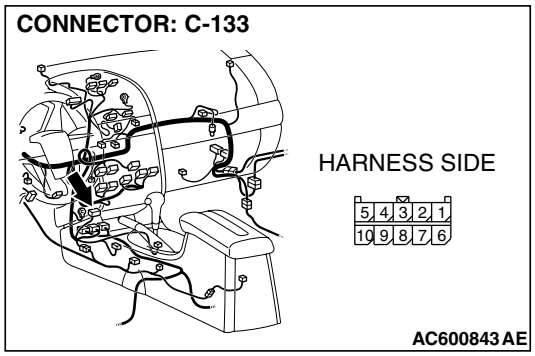
Required Special Tool:

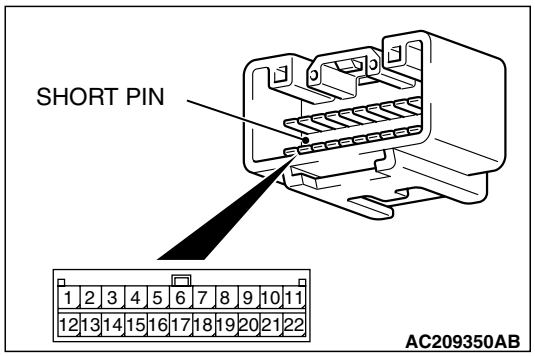
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and TPMS reciver connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-6.







Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Are joint connector (3) C-02 and TPMS reciver connector C-133 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the TPMS reciver. Measure the resistance between joint connector (3) C-02 and TPMS reciver connector C-133.

⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-6.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-6.

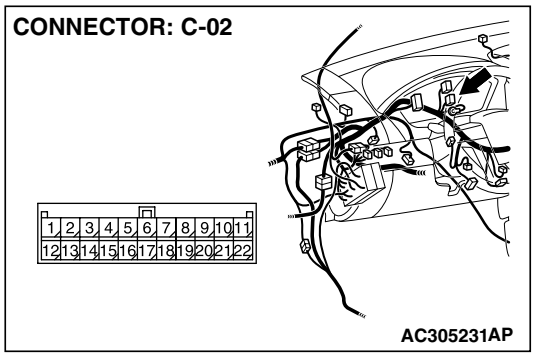
(1) Disconnect joint connector (3) C-02 and TPMS reciver connector C-133, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and TPMS reciver connector C-133.

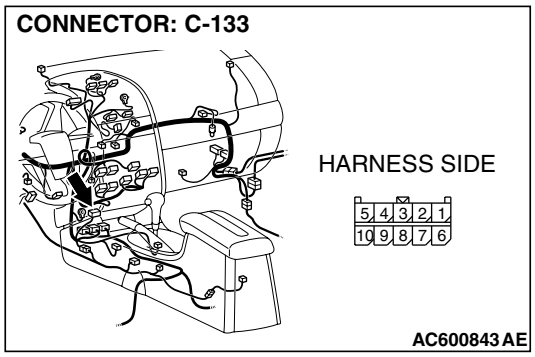
(2) Turn the ignition switch to the "LOCK" (OFF) position.

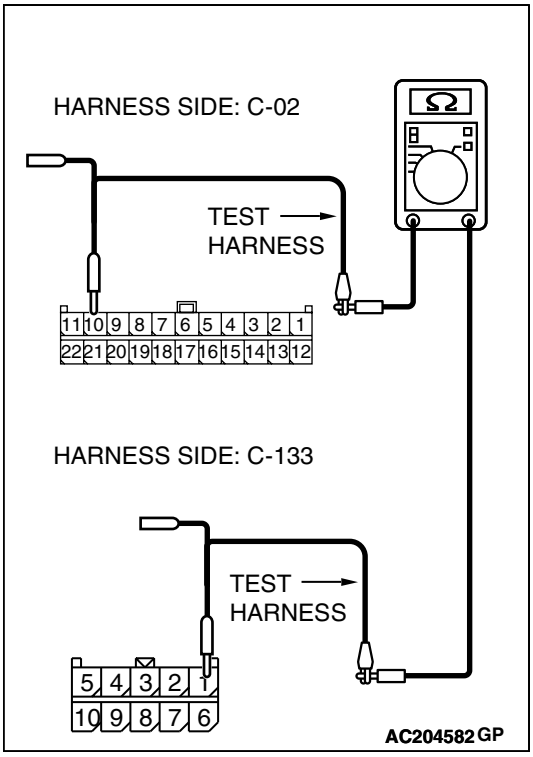
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-6.

(3) Disconnect the negative battery terminal.

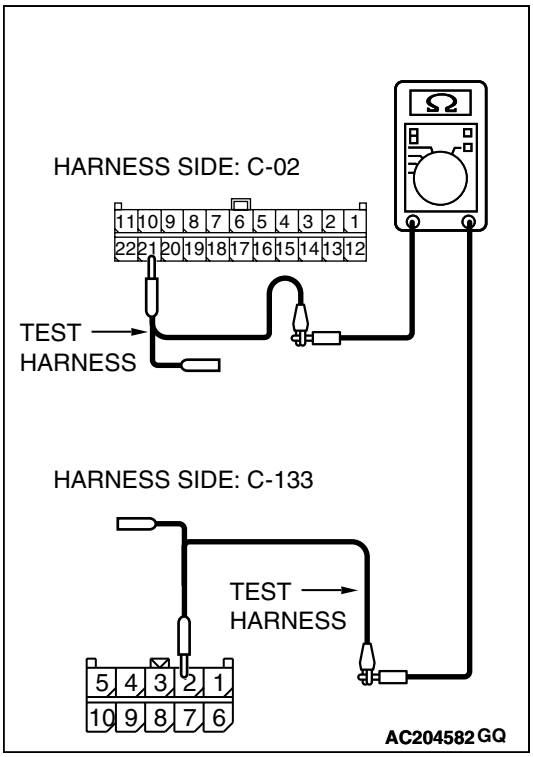






(4) Measure the resistance between joint connector (3) terminal 10 and TPMS reciver connector terminal 1.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 21 and TPMS reciver connector terminal 2.

OK: 2 ohms or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-7.

Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the TPMS reciver may be suspected. Diagnose the SWS. Refer to GROUP 54B, Symptom procedures P.54B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the TPMS reciver connector.

CAN COMMUNICATION SIGNAL TABLE

M1548300400327

SIGNAL	TRANSMITTER ECU	RECEIVER ECU						
		POWER TRAIN CONTROL MODULE	ABS-ECU	MULTI-CENTER DISPLAY UNIT (MIDDLE-GRADE TYPE or vehicles with mitsubishi multi communication system)	COMBINATION METER	A/C-ECU	ETACS-ECU	TPMS RECIVER
Engine speed signal	Power train control module	–	×	–	×	×	–	–
A/C information signal		–	–	–	–	×	–	–
Vehicle speed signal		–	–	–	×	×	–	×
Vehicle stop signal		–	–	×	×	×	×	–
Malfunction indicator lamp request signal		–	–	–	×	–	–	–
Auto-cruise control indicator lamp signal		–	–	–	×	–	–	–
Engine coolant temperature signal		–	–	–	×	×	–	–
Selector position signal		–	×	–	×	×	×	–
ABS warning light request signal	ABS-ECU	–	–	–	×	–	–	–
SRS warning light request signal	SRS-ECU	–	–	–	×	–	–	–

SIGNAL	TRANSMITTER ECU	RECEIVER ECU						
		POWER TRAIN CONTROL MODULE	ABS-ECU	MULTI-CENTER DISPLAY UNIT (MIDDLE-GRADE TYPE or vehicles with mitsubishi multi communication system)	COMBINATION METER	A/C-ECU	ETACS-ECU	TPMS RECIVER
Communication continuation request signal	Multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)	–	–	–	–	×	×	–
Ignition switch (ACC) signal		–	–	–	–	×	×	–
Adjustment request signal		–	–	–	–	×	×	–
Customize signal		–	–	–	–	×	×	–
Tone alarm sound signal		–	–	–	–	×	×	–
Communication continuation request signal	Combination meter	–	–	–	–	–	×	–
Vehicle speed signal		–	–	–	–	–	×	×
Ignition switch (IG1) signal		–	–	–	–	–	×	–
Seat belt signal		–	–	–	–	–	×	–
Fuel information signal		×	–	–	–	–	–	–
Communication continuation request signal	A/C-ECU	–	–	–	–	–	×	–
Compressor signal		×	–	–	–	–	–	–
Idle-up request signal		×	–	–	–	–	–	–
Cooling fan request signal		×	–	–	–	–	–	–

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SIGNAL	TRANSMITTER ECU	RECEIVER ECU						
		POWER TRAIN CONTROL MODULE	ABS-ECU	MULTI-CENTER DISPLAY UNIT (MIDDLE-GRADE TYPE or vehicles with mitsubishi multi communication system)	COMBINATION METER	A/C-ECU	ETACS-ECU	TPMS RECIVER
Cooling fan signal		×	–	–	–	–	–	–
Set temperature signal		–	–	×	–	–	–	–
Ambient temperature signal		–	–	×	–	–	–	–
Fan air volume signal		–	–	×	–	–	–	–
Air outlet mode signal		–	–	×	–	–	–	–
Communication standby signal	ETACS-ECU	–	–	–	×	–	–	–
Ignition switch (ACC) signal		–	–	–	–	–	–	–
Ignition switch (IG1) signal		–	–	–	×	–	–	×
High-beam indicator request signal		–	–	–	×	–	–	–
Turn-signal indicator request signal		–	–	–	×	–	–	–
Fog light indicator request signal		–	–	–	×	–	–	–
Illumination signal		–	–	–	×	–	–	–
Door "open" signals		–	–	–	×	–	–	–
Interior light shut-off signal		–	–	–	×	–	–	–
Customize signal		–	–	×	–	–	–	–
TPMS indicator start signal	TPMS RECIVER	–	–	–	×	–	–	–

CAN COMMUNICATION-RELATED DTC CODE (U CODE) TABLE

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OUTPUT ECU	CODE NO.	DIAGNOSTIC ITEM	ACTION
Power train control module	U1073	Bus Off	CAN main bus line diagnostics
	U1102	ABS-ECU time-out	
	U1108	Combination meter time-out	
	U1110	A/C-ECU time-out	
ABS-ECU	U1073	Bus Off	CAN main bus line diagnostics
ABS/TCL-ECU	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Powertrain control module time-out (related to engine) <vehicles with TCL>	
	U1101	Powertrain control module time-out (related to automatic transmission) <vehicles with TCL>	
	U1120	Failure information on powertrain control module (related to engine) <vehicles with TCL>	Diagnose CAN main bus lines and confirm input signals.
Combination meter	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Power train control module time-out (related to engine)	
	U1101	Power train control module time-out (related to A/T)	
	U1102	ABS-ECU time-out	
	U1109	ETACS-ECU time-out	
	U1120	Failure information on power train control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
Multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system)	010	Bus Off	CAN main bus line diagnostics
	011	Power train control module time-out (related to engine)	
	012	Power train control module time-out (related to A/T)	
	013	A/C-ECU time-out	
	014	Combination meter time-out	
	019	ETACS-ECU time-out	
	020	Failure information on power train control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
	021	Failure information on combination meter	
	022	Failure information on A/C-ECU	

OUTPUT ECU	CODE NO.	DIAGNOSTIC ITEM	ACTION
ETACS-ECU	010	Bus Off	CAN main bus line diagnostics
	011	Power train control module time-out (related to engine)	
	012	Power train control module time-out (related to A/T)	
	013	A/C-ECU time-out	
	014	Combination meter time-out	
	015	Multi-center display unit (middle-grade type or vehicles with mitsubishi multi communication system) time-out	
	021	Failure information on combination meter	Diagnose CAN main bus lines and confirm input signals.
A/C-ECU	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Powertrain control module time-out (related to engine)	
	U1111	Multi-center display unit (middle-grade type) time-out	
	U1120	Failure information on powertrain control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
SRS-ECU	U1073	Bus Off	CAN main bus line diagnostics
TPMS RECEIVER	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Engine CAN timeout	
	U1101	T/M CAN timeout/Not equipped	
	U1102	ASC/TCL/ABS timeout/Not equipped	
	U1103	PDC CAN timeout/Not equipped	
	U1104	SAS CAN timeout/Not equipped	
	U1105	YR/G CAN timeout/Not equipped	
	U1106	EPS CAN timeout/Not equipped	
	U1107	4WD CAN timeout/Not equipped	
	U1108	Meter CAN timeout	
	U1109	ETACS CAN timeout	
	U1110	A/C CAN timeout/Not equipped	
	U1111	Display CAN timeout/Not equipped	
	U1112	SRS-ABG CAN timeout/Not equipped	
	U1113	Display CAN timeout/Not equipped	
	U1114	TPMS CAN timeout/Not equipped	
	U1116	KOS.CAN timeout/Not equipped	
	U1117	IMMOB.CAN timeout/Not equipped	

OUTPUT ECU	CODE NO.	DIAGNOSTIC ITEM	ACTION
TPMS RECEIVER	U1120	Engine (CAN message)	Diagnose CAN main bus lines and confirm input signals.
	U1121	T/M (CAN message)	
	U1122	ASC/EPS/TCL/ABS (CAN message)	
	U1123	PDC (CAN message)	
	U1124	SAS (CAN message)	
	U1125	Yaw rate/G sensor (CAN message)	
	U1126	EPS (CAN message)	
	U1127	4WD (CAN message)	
	U1128	Meter (CAN message)	
	U1129	ETACS (CAN message)	
	U1130	A/C (CAN message)	
	U1131	Display (CAN message)	
	U1132	SRS airbag (CAN message)	
	U1133	Display (CAN message)	
	U1136	KOS (CAN message)	
	U1190	No receive fault detect signal	
	U1200	SAS parity error	
	U1201	Yaw rate sensor parity error	
	U1202	Straight G sensor parity error	
	U1203	Lateral G sensor parity error	
	U1204	SAS message counter error	
	U1205	Yaw rate/G message counter error	
	U1206	Sleep instruction flag invalid	