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M.U.T.-III SE Function

FUNCTION

Diagnostic test mode	Function
Self Diagnostic Result	Self-diagnostic results such as 1st trip DTC, DTCs and 1st trip freeze frame data or freeze frame data can be read and erased quickly.*1 Display DTC which ECM memorizes.
Data List	Input/Output data in the ECM can be read.
Special Function	• Diagnostic Test Mode in which M.U.T.-III SE drives some actuators apart from the ECMs and also shifts some parameters in a specified range. • ECM part number can be read. • This mode enables a technician to adjust some devices faster and more accurately by following the indications on the M.U.T.-III SE unit.

*1: The following emission-related diagnostic information is cleared when the ECM memory is erased.

1. DTC (Diagnostic trouble codes)
2. 1st trip diagnostic trouble codes
3. Freeze frame data
4. 1st trip freeze frame data
5. System readiness test (SRT) codes
6. Test values

SELF DIAGNOSTIC RESULT MODE

Self Diagnostic Item

Regarding items of DTC and 1st trip DTC ,Refer to DTC Index.

How to Read DTC and 1st Trip DTC

DTCs and 1st trip DTCs related to the malfunction are displayed in "Self-diagnosis" mode with M.U.T.-III SE. Status of DTCs is displayed as follows.

- When ECM has detected a current DTC, “Active DTC” is displayed.
- When ECM memorizes a 1st trip DTC, “1t” is displayed.
- For a DTC other than the above, “Stored DTC” is displayed.

How to Erase DTC

note	If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.

Freeze Frame Data and 1st Trip Freeze Frame Data

Freeze frame data item*1	Description
Detected DTC [PXXXX]	The engine control component part/control system has a trouble code displayed as PXXXX. (DTC Index .)
ODO/TRIP METER	The ODO/TRIP at the moment a malfunction is detected is displayed.
Worm up cycle counter	

FUEL SYS-B1	• “Fuel injection system status” at the moment a malfunction is detected is displayed.
	• One of the following mode is displayed.
	  • MODE 2: Open loop due to detected system malfunction
	  • MODE 3: Open loop due to driving conditions (power enrichment, deceleration enleanment)
	  • MODE 4: Closed loop - using oxygen sensor(s) as feedback for fuel control
	  • MODE 5: Open loop - has not yet satisfied condition to go to closed loop

FUEL SYS-B2	
CAL/LD VALUE [%]	The calculated load value at the moment a malfunction is detected is displayed.
COOLANT TEMP [°C]	The engine coolant temperature at the moment a malfunction is detected is displayed.
L-FUEL TRM-B1 [%]	• “Long-term fuel trim” at the moment a malfunction is detected is displayed. • The long-term fuel trim indicates much more gradual feedback compensation to the base fuel schedule than short-term fuel trim.
L-FUEL TRM-B2 [%]	
S-FUEL TRM-B1 [%]	• “Short-term fuel trim” at the moment a malfunction is detected is displayed. • The short-term fuel trim indicates dynamic or instantaneous feedback compensation to the base fuel schedule.
S-FUEL TRM-B2 [%]	

Freeze frame data item*1	Description
ENGINE SPEED [rpm]	The engine speed at the moment a malfunction is detected is displayed.
VEHICL SPEED [km/h] or [mph]	The vehicle speed at the moment a malfunction is detected is displayed.
INT MANI PRES [kPa]	• Constant value is displayed. • These items are displayed but are not applicable to this model.
ABSOL TH·P/S [%]	The throttle valve opening angle at the moment a malfunction is detected is displayed.
INT/A TEMP SE [°C] or [°F]	The intake air temperature at the moment a malfunction is detected is displayed.
COMBUST CONDITION	• Constant value is displayed. • These items are displayed but are not applicable to this model.
FUEL RAIL PRESSURE [MPa]	The fuel rail pressure at the moment a malfunction is detected is displayed.
TARGET FUEL RAIL PRESSURE [MPa]	The target fuel rail pressure at the moment a malfunction is detected is displayed.
BATTERY VOLTAGE [V]	The battery voltage at the moment a malfunction is detected is displayed.
FUEL LEVEL [%]	The fuel level at the moment a malfunction is detected is displayed.
B/FUEL SCHDL [msec]	The base fuel schedule at the moment a malfunction is detected is displayed

*1: The items are the same as those of 1st trip freeze frame data.

DATA MONITOR MODE

note	• The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to M.U.T.-III SE display items. • For reference values of the following items, Refer to Values On The Diagnosis ToolValues on the Diagnosis Tool.

Monitored Item

Monitored item	Unit	Description	Remarks
ATOM PRES SEN 2	V	The signal voltage from the manifold absolute pressure (MAP) sensor is displayed.	—
INT/V TIM(B1)	°CA	Indicates [°CA] of intake camshaft advance angle.	—
COOLANT TEMP/S	°C or °F	The engine coolant temperature (determined by the signal voltage of the engine outlet coolant temperature sensor) is displayed.	When the engine coolant temperature sensor is open or short-circuited, ECM enters fail-safe mode.The engine coolant temperature determined by the ECM is displayed.
VHCL SPEED SE	km/h or mph	The vehicle speed computed from the vehicle speed signal sent from combination meter is displayed.	—

Monitored item	Unit	Description	Remarks
BATTERY VOLT	V	The power supply voltage of ECM is displayed.	—
INT/A TEMP SE	°C or °F	The intake air temperature (determined by the signal voltage of the intake air temperature sensor) is indicated.	—
Ignition timing 1	BTDC	Indicates the ignition timing computed by ECM according to the input signals.	When the engine is stopped, a certain value is indicated.
PURG VOL C/V	%	• Indicates the control value of the EVAP canister purge volume control solenoid valve computed by the ECM according to the input signals. • The opening becomes larger as the value increases.	—
FUEL T/TMP SE	°C or °F	The fuel temperature (determined by the signal voltage of the	—

Monitored item	Unit	Description	Remarks
		fuel tank temperature sensor) is displayed.	
FUEL LEVEL SE	V	The signal voltage of the fuel level sensor is displayed.	—
EVAP SYS PRES	V	The signal voltage of EVAP control system pressure sensor is displayed.	—
CAL/LD VALUE	%	“Calculated load value” indicates the value of the current air flow divided by peak air flow.	—
HO2S2 (B1)	V	The signal voltage of the heated oxygen sensor 2 is displayed.	—
ENG OIL TEMP	°C or °F	The engine oil temperature (determined by the signal voltage of the engine oil temperature sensor) is displayed.	—
A/F ALPHA-B1	%	The mean value of the air-fuel ratio feedback correction factor per cycle is indicated.	• When the engine is stopped, a certain value is indicated. • This data also includes the data for the air-

Monitored item	Unit	Description	Remarks

			fuel ratio learning control.
			• Specification value is indicated on monitor screen under the following conditions.
			  • Reference: Select
			  • Display type: Line graph

MAP SENSOR	V	The manifold absolute pressure sensor signal voltage is displayed,	—
A/F S1 HTR (B1)	%	• Indicates the duty ratio of the Air fuel ratio (A/F) sensor 1 heater computed by ECM according to the input signals. • The current flow to the heater becomes larger as the value increases.	—

Monitored item	Unit	Description	Remarks
EXH/V TIM B1	°CA	Indicates [°CA] of exhaust camshaft advance angle.	—
EGR VALVE POSITION	deg	ECM-calculated EGR valve position is displayed.	—
FAN DUTY	%	Indicates a command value for cooling fan. The value is calculated by ECM based on input signals.	—
A/GRLL SHTTR POSITION	F/CLOSE MOVING F/OPEN UNIDTF	Indicates the status of active grille shutter. • F/CLOSE: Active grille shutter is fully closed. • MOVING: Active grille shutter is in motion. • F/OPEN: Active grille shutter is fully opened. • UNIDTF: Unable to specify the shutter position.	—

Monitored item	Unit	Description	Remarks
ENG SPEED	rpm	Indicates the engine speed computed from the signal of the crankshaft position sensor and camshaft position sensor.	Accuracy becomes poor if engine speed drops below the idle rpm.
TRVL AFTER MIL	km or mile	Distance traveled while MIL is activated.	—
B/FUEL SCHDL	ms	“Base fuel schedule”indicates the fuel injection pulse width programmed into ECM, prior to any learned on board correction.	Specification value is indicated on monitor screen under the following conditions. • Reference: Select • Display type: Line graph
MASS AIRFLOW	g/s	These items are displayed but not used.	—
FUEL PRES SEN	MPa	Indicates the fuel rail pressure computed by ECM according to the input signals.	—
ACCEL SEN 1	V	The signal voltage of the accelerator pedal position sensor 1 is displayed.	—
ACCEL SEN 2	V	The converted value of the accelerator pedal position	ACCEL SEN 2 signal is converted by ECM internally. Thus, they differs from ECM

Monitored item	Unit	Description	Remarks
		sensor signal voltage is displayed.	terminal voltage signal.
TP SEN 1-B1	V	The signal voltage of the throttle position sensor 1 B1 is displayed.	—
TP SEN 2-B1	V	The value converted from the signal voltage of the throttle position sensor 2 B1 is displayed.	TP SEN 2-B1 signal is converted by ECM internally. Thus, they differs from ECM terminal voltage signal.
I/P PULLY SPD	rpm	Indicates the engine speed computed from the input shaft revolution signal.	—
VEHICLE SPEED	km/h or mph	The vehicle speed computed from the vehicle speed signal sent from TCM is displayed.	—
TUMBLE POS SEN	V	The intake manifold runner control valve position sensor signal voltage is displayed.	—
AC PRESS SEN	V	The signal voltage from the refrigerant pressure sensor is displayed.	—
A/F SEN1 (B1)	V	The A/F signal voltage computed from the input signal of the air fuel ratio	—

Monitored item	Unit	Description	Remarks
		(A/F) sensor 1 is displayed.	
VHCL SPEED SE	km/h or mph	The vehicle speed computed from the vehicle speed signal sent from combination meter is displayed.	—
SET VHCL SPD	km/h	The preset vehicle speed is displayed.	—
A/F ADJ-B1	—	Indicates the correction of a factor stored in ECM. The factor is calculated from the difference between the target air-fuel ratio stored in ECM and the air-fuel ratio calculated from A/F sensor 1 signal.	—
H/P FUEL PUMP DEG	deg	Displays ECM-calculated fuel discharge position of the high pressure fuel pump.	—
FUEL PRES SEN V	V	The signal voltage of FRP sensor is displayed.	—
EOP SENSOR	V	The signal voltage of EOP sensor is displayed.	—
MASS AIR FLOW	g/s	The signal flow rate of the mass air flow sensor is displayed.	• When the engine is

Monitored item	Unit	Description	Remarks

SENSOR (g/s) B1			stopped, a certain value is indicated.
			• Specification value is indicated on monitor screen under the following conditions.
			  • Reference: Select
			  • Display type: Line graph

EGR VALVE POSITION SEN	V	The signal voltage of EGR valve position sensor is displayed.	—
TOTAL DISTNC-OCS RST 1	km	The Multi-way Control Valve position detected by the position sensor is displayed.	—
TOTAL DISTNC-OCS RST 2	km	Total travel distance of odd meter when Oil Control System is reset.	—
TOTAL DISTNC-OCS RST 3	km	Total travel distance of odd meter when Oil Control System is reset. (two times ago)	—
DETERIORTN VL-OCS RST 1	—	Total travel distance of odd meter when	—

Monitored item	Unit	Description	Remarks
		Oil Control System is reset. (three times ago)	
DETERIORTN VL-OCS RST 2	—	Insicates deterioration condition of the engine oil when Oil Control System is reset.	—
DETERIORTN VL-OCS RST 3	—	Insicates deterioration condition of the engine oil when Oil Control System is reset. (three times ago)	—
TOTAL DISTNC-OCS WRN 1	km	Total travel distance of odd meter when Oil Control System remaining distance is zero.	—
TOTAL DISTNC-OCS WRN 2	km	Total travel distance of odd meter when Oil Control System remaining distance is zero. (two times ago)	—
TOTAL DISTNC-OCS WRN 3	km	Total travel distance of odd meter when Oil Control System remaining distance is zero. (two times ago)	—
DETERIORTN VL-OCS WRN		Insicates deterioration	—

Monitored item	Unit	Description	Remarks
1		condition of the engine oil when Oil Control System remaining distance is zero.	
DETERIORTN VL-OCS WRN 2		Insicates deterioration condition of the engine oil when Oil Control System remaining distance is zero. (two times ago)	—
DETERIORTN VL-OCS WRN 3		Insicates deterioration condition of the engine oil when Oil Control System remaining distance is zero. (three times ago)	—
CURRENT DETERIORATN VAL	—	Insicates deterioration condition of the engine oil.	—
LOAD SIGNAL	On/Off	Indicates [On/Off] condition of the electrical load signal. • ON...Rear window defogger switch is ON or lighting switch	—

Monitored item	Unit	Description	Remarks
		is in 2nd position. • OFF...Both rear window defogger switch and lighting switch are OFF.	
AIR COND SIG	On/Off	Indicates [On/Off] condition of the air conditioner switch as determined by the air conditioner signal.	—
PW/ST SIGNAL	On/Off	Indicates [On/Off] condition of the power steering system (determined by the signal voltage of the power steering pressure sensor signal).	—
P/N POSI SW	On/Off	Indicates [On/Off] condition from the reverse/neutral position signal.	—
START SIGNAL	On/Off	Indicates start signal status [On/Off] computed by the ECM according to the signals of engine speed and battery voltage.	After starting the engine, [Off] is displayed regardless of the starter signal.
CLSD THL POS	On/Off	Indicates idle position [On/Off] computed by ECM	—

Monitored item	Unit	Description	Remarks
		according to the accelerator pedal position sensor signal.	
HO2S2 MNTR(B1)	RICH/LEAN	Display of heated oxygen sensor 2 signal: • RICH: means the amount of oxygen after three way catalyst is relatively small. • LEAN: means the amount of oxygen after three way catalyst is relatively large.	When the engine is stopped, a certain value is indicated.
IGNITION SW	On/Off	Indicates [On/Off] condition from ignition switch signal.	—
HEATER FAN SW	On/Off	Indicates [On/Off] condition from the heater blower ON signal.	—
IDL A/V LEARN	YET/CMPLT	Displays the condition of Idle Air Volume Learning. • YET...Idle air volume	—

Monitored item	Unit	Description	Remarks
		learning has not been performed yet. • DONE...Idle air volume learning has already been performed successfully.	
BRAKE SW	On/Off	Indicates [On/Off] condition from the stop light switch signal.	—
COMBUSTION	—	These items are displayed but not used.	—
VIAS S/V-1	On/Off	The control condition of the VIAS control solenoid valve 1 (determined by ECM according to the input signals) is indicated. • On: VIAS control solenoid valve 1 is operating. • Off: VIAS control solenoid valve 1 is not operating.	—

Monitored item	Unit	Description	Remarks
AIR COND RLY	On/Off	The air conditioner relay control condition (determined by ECM according to the input signals) is indicated.	—
FUEL PUMP RLY	On/Off	Indicates the fuel pump relay control condition determined by ECM according to the input signals.	—
VENT CONT/V	On/Off	The control condition of the EVAP canister vent control valve (determined by ECM according to the input signals) is indicated. • ON: Closed • OFF: Open	—
HO2S2 HTR (B1)	On/Off	Indicates [On/Off] condition of heated oxygen sensor 2 heater determined by ECM according to the input signals.	—
DIST SW	On/Off	Indicates [On/Off] condition from DISTANCE switch signal.	—

Monitored item	Unit	Description	Remarks
BRAKE SW2	On/Off	Indicates [On/Off] condition of stop light switch signal.	—
BRAKE SW1	On/Off	Indicates [On/Off] condition from brake pedal position switch signal.	—
SET SW	On/Off	Indicates [On/Off] condition from SET − switch signal.	—
RESUME/ACC SW	On/Off	Indicates [On/Off] condition from RES + switch signal.	—
CANCEL SW	On/Off	Indicates [On/Off] condition from CANCEL switch signal.	—
MAIN SW	On/Off	Indicates [On/Off] condition from MAIN switch signal.	—
CRUISE LIGHT	On/Off	Indicates [On/Off] condition of CRUISE indicator determined by the ECM according to the input signals.	—
A/GRLL SHTTR CALIBRATION	INCMP/CMPLT	Indicates initial position learning status of active grille shutter. • CMPLT: The leaning is complete.	—

Monitored item	Unit	Description	Remarks
		• INCOMP: The learning is incomplete.	
A/GRLL SHTTR CIRCUIT DIAG	OK/NG	Indicates the diagnosis result of active grille shutter circuit. • OK: Normal • NG: Malfunction detected.	—
A/GRLL SHTTR TEMP DIAG	OK/NG	Indicates the diagnosis result of active grille shutter actuator temperature status. • OK: Normal • NG: Abnormal temperature detected.	—
A/GRLL SHTTR OVER RUN	OK/NG	Indicates active grille shutter moves beyond normal moving limit. • OK: Normal • NG: Malfunction detected.	—
A/GRLL SHTTR STUCK	OK/NG	Indicates the diagnosis result of active grille shutter	—

Monitored item	Unit	Description	Remarks
		stuck or the operation range less than normal. • OK: Normal • NG: Malfunction detected.	
A/GRLL SHTTR CALIB DIAG	OK/NG	Indicates the diagnosis result of initial position learning of active grille shutter. • OK: Normal • NG: Deficiency detected.	—
HO2 S2 DIAG1 (B1)	INCMP/CMPLT	Indicates DTC P0139 self-diagnosis (delayed response) condition. • INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is complete.	—
HO2 S2 DIAG2 (B1)	INCMP/CMPLT	Indicates DTC P0139 self-diagnosis (slow response) condition.	—

Monitored item	Unit	Description	Remarks
		• INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is complete.	
EVAP LEAK DIAG	YET/CMPLT	Indicates the condition of EVAP leak diagnosis. • YET: EVAP leak diagnosis has not been performed yet. • CMPLT: EVAP leak diagnosis has been performed successfully.	—
EVAP DIAG READY	On/Off	Indicates the ready condition of EVAP leak diagnosis. • ON: Diagnosis has been ready condition. • OFF: Diagnosis has not been ready condition.	—
SYSTEM 1 DIAGNOSIS A	INCMP/CMPLT	Indicates DTC P219A self-	—

Monitored item	Unit	Description	Remarks
B1		diagnosis condition. • INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is complete.	
A/F SEN1 DIAG1 (B1)	INCMP/ CMPLT	Indicates DTC P015A or P015B self-diagnosis condition. • INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is complete.	—
A/F SEN1 DIAG2(B1)	INCMP/CMPLT	Indicates DTC P014C or P014D self-diagnosis condition. • INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is complete.	—
SYSTEM 1 DIAGNOSIS B B1	ABSNT/PRSNT	• Indicates DTC P219A self-	—

Monitored item	Unit	Description	Remarks
		diagnosis condition. • ABSNT: Self-diagnosis standby • PRSNT: Under self-diagnosis	
A/F IMBALNC DIAG-CPS STAT	ABSNT/PRSNT	Indicates DTC P219C - P219F self diagnosis condition. • ABSNT: The vehicle condition is not within the diagnosis range. • PRSNT: The vehicle condition is not within the diagnosis range.	—
A/F SEN1 DIAG3(B1)	ABSNT/PRSNT	Indicates DTC P014C, P014D, P015A or P015B self-diagnosis condition. • ABSNT: The vehicle condition is not within the	—

Monitored item	Unit	Description	Remarks
		diagnosis range. • PRSNT: The vehicle condition is within the diagnosis range.	
A/F IMBLNC DIAG-CPS CMPLT	INCMP/CMPLT	Indicates DTC P219C - P219F self diagnosis condition. • INCMP: Self-diagnosis is incomplete. • CMPLT: Self-diagnosis is incomplete.	—
Di inj pulse B1	ms	ECM-calculated injection pulse width of the direct fuel injector on the bank 1 side.	—
DI timing SOI multi inj step1	BTDC	These items are displayed but not used.	—

WORK SUPPORT MODE

Work Item

Function name	Work Item	Condition	Usage
ECU Information	—	—	—
Actuator Test	—	—	—
Misfire count	Misfire count (real-time)	These items are displayed but not used.	—
	Misfire count (past)	These items are displayed but not used.	—
FUEL PRESSURE RELEASE	FUEL PRESSURE RELEASE	• Fuel pump will stop by touching “START” during idling. • Crank a few times after engine stops.	When releasing fuel pressure from fuel line
EVAP SYSTEM CLOSE	—	Close the EVAP canister vent control valve in order to make EVAP system close under the following conditions. • Ignition switch ON • Engine not running • Ambient temperature is above 0°C (32°F). • No vacuum and no high pressure in EVAP system • Fuel tank temp. is more than 0°C (32°F). • Within 10 minutes after starting “EVAP SYSTEM CLOSE” • When trying to execute “EVAP SYSTEM CLOSE” Under the condition except above, M.U.T.-III SE will discontinue it and display appropriate instruction.	When detecting EVAP vapor leak in the EVAP system

Function name	Work Item	Condition	Usage
		note When starting engine, M.U.T.-III SE may display “Battery voltage is low. Charge battery”, even when using a charged battery.	
Adjustment	TARGET IGN TIM ADJ*	Idle condition	When adjusting target ignition timing
	TARGET IDLE RPM ADJ*	Idle condition	When setting target idle speed
SAVING DATA FOR REPLC CPU	—	In this mode, save data that is in ECM.	When ECM is replaced.
WRITING DATA FOR REPLC CPU	—	In this mode, write data stored by “SAVE DATA FOR CPU REPLC” in work support mode to ECM.	When ECM is replaced.
IDLE AIR VOL LEARN	IDLE AIR VOL LEARN	The idle air volume that keeps the engine speed within the specified range is memorized in ECM.	When learning the idle air volume

Function name	Work Item	Condition	Usage
Learning	CLSD THL POS LEARN	Ignition switch ON and engine stopped.	When learning the throttle valve closed position
	SELF-LEARNING CONT	The coefficient of self-learning control mixture ratio returns to the original coefficient.	When clearing mixture ratio self-learning value
	A/F INITIAL LEARNING	Air fuel ratio learning frequency is low while idling, learning the air fuel ratio of the idling domain in ECM.	When learning the air fuel ratio.
	EGR CONTROL VALVE CLOSED POSITION LEARNING	Ignition switch: ON	When learning closed position of the EGR volume control valve.
Chassis No./VIN Registration	—	In this mode, VIN is registered in ECM.	When registering VIN in ECM
ELECTRIC INTAKE VALVE TIMING CONTROL LEARNING	—	Ignition switch ON and engine stopped.	After the following parts are replaced. • Electric intake valve timing control actuator • Electric intake valve timing control module • camshaft, timing chain, camshaft sprocket • piston, connecting rod, crankshaft • position sensor

Function name	Work Item	Condition	Usage
Data Recorder	Stop/Start prohibit cause data recorder	These items are displayed but not used.	—
	Stop/Start engine restart cause data recorder	These items are displayed but not used.	—
	Stop/Start engine stall cause data recorder	These items are displayed but not used.	—
MAC KEY writing	—	Ignition switch: ON	Write MAC key to ECM.

ACTIVE TEST MODE

Test Item

TEST ITEM	CONDITION	JUDGMENT	CHECK ITEM (REMEDY)
ENG COOLANT TEMP	Change the engine coolant temperature using M.U.T.-III SE.	If malfunctioning symptom disappears, see CHECK ITEM.	• Harness and connectors • Engine coolant temperature sensor • Fuel injector

TEST ITEM	CONDITION	JUDGMENT	CHECK ITEM (REMEDY)
FUEL INJECTION	Change the amount of fuel injection using M.U.T.-III SE.	If malfunctioning symptom disappears, see CHECK ITEM.	• Harness and connectors • Fuel injector • Air fuel ratio (A/F) sensor 1
IGNITION TIMING	• Timing light: Set • Retard the ignition timing using M.U.T.-III SE.	If malfunctioning symptom disappears, see CHECK ITEM.	Perform Idle Air Volume Learning.
PURG VOL CONT/V	• Engine: After warming up, run engine at 1,500 rpm. • Change the EVAP canister purge volume control solenoid valve opening percent using M.U.T.-III SE.	Engine speed changes according to the opening percent.	• Harness and connectors • EVAP canister purge volume control solenoid valve
FUEL/T TEMP SEN	Change the fuel tank temperature using M.U.T.-III SE.		
POWER BALANCE	• Engine: After warming up, idle the engine. • A/C switch OFF • Selector lever: N position • Cut off each injector signal one at a time using M.U.T.-III SE.	Engine runs rough or stops. (Works for accidental fire.)	• Harness and connectors • Compression • Direct fuel injector • Power transistor • Spark plug • Ignition coil

TEST ITEM	CONDITION	JUDGMENT	CHECK ITEM (REMEDY)
INT V/T ASSIGN ANGLE	Changes intake valve timing using M.U.T.-III SE.	If malfunctioning symptom disappears, see CHECK ITEM.	• Harness and connectors • Intake valve timing control solenoid valve
EXH V/T ASSIGN ANGLE	Changes exhaust valve timing using M.U.T.-III SE.	If malfunctioning symptom disappears, see CHECK ITEM.	Fuel pump speed changes or stops.
VIAS S/V-1	• Ignition switch: ON • Turn solenoid valve “ON” and “OFF” using M.U.T.-III SE and listen to operating sound.	Solenoid valve makes the operating sound.	• Harness and connectors • Solenoid valve
VENT CONTROL/V	• Ignition switch: ON (Engine stopped) • Turn EVAP canister vent control valve ON and OFF with the M.U.T.-III SE and listen to operating sound.	EVAP canister vent control valve makes an operating sound.	• Harness and connectors • EVAP canister vent control valve
EGR CONTROL VALVE	• Ignition switch: ON • Engine stopped • Change valve target angle using M.U.T.-III SE	Valve opening angle changes according to target angle (from 0deg to 70deg)	• Harness and connectors • EGR valve
FAN DUTY CONTROL*	• Ignition switch: ON • Change duty ratio using M.U.T.-III SE.	Cooling fan speed changes.	• Harness and connectors • Cooling fan motor

TEST ITEM	CONDITION	JUDGMENT	CHECK ITEM (REMEDY)
			• IPDM E/R
ACTIVE GRILLE SHUTTER	To check the operation of the active grille shutter, follow the steps below: 1. Park the vehicle in a safe area and apply the parking brake. 2. Start the engine or bring the vehicle into READY state. 3. Press the "CALIBRTN" button. 4. Select the "OPEN" or "CLOSE" button to check the operation.	Active grille shutter fully opens or fully closes.	• Harness or connector • Active grille shutter actuator • Active grille shutter
FUEL PUMP RELAY	• Ignition switch: ON (Engine stopped) • Turn the fuel pump relay “ON” and “OFF” using M.U.T.-III SE and listen to operating sound.	Fuel pump relay makes the operating sound.	• Harness and connectors • Fuel pump relay
TUMBLE CONTROL VALVE	• Ignition switch: ON (Engine stopped) • Turn the intake manifold runner control valve “ON” and “OFF” using M.U.T.-III SE to open or close.	Touch the intake manifold runner control valve motor and check the operating vibration and sound.	• Harness and connectors • Intake manifold runner control valve • Intake manifold runner control valve motor

*: Leaving cooling fan OFF with M.U.T.-III SE while engine is running may cause the engine to overheat.

SRT STATUS Mode

- For items whose SRT codes are set, “CMPLT” is displayed on the M.U.T.-III SE screen; for items whose SRT codes are not set, “INCMP” is displayed.
- “SRT STATUS” provides the presence or absence of permanent DTCs stored in control module memory.

PERMANENT DTC STATUS Mode

How to Display Permanent DTC Status

1. Turn ignition switch OFF and wait at 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at 10 seconds.
4. Turn ignition switch ON.
5. Select “PERMANENT DTC STATUS” in “ENGINE” with M.U.T.-III SE.

note	Permanent DTCs stored in control module memory are displayed on the M.U.T.-III SE screen to show if a driving pattern required for erasing permanent DTCs is complete (CMPLT) or incomplete (INCMP).

caution	Since the “PERMANENT DTC STATUS” screen displays the previous trip information, repeat the following twice to update the information: “Ignition switch OFF”, “Wait for more than 10 seconds” and “Ignition switch ON”.

note	This mode is not used in regions that permanent DTCs are not regulated by law.