

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## 18. Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models S008636

### A: DTC P0106 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — S008636F00

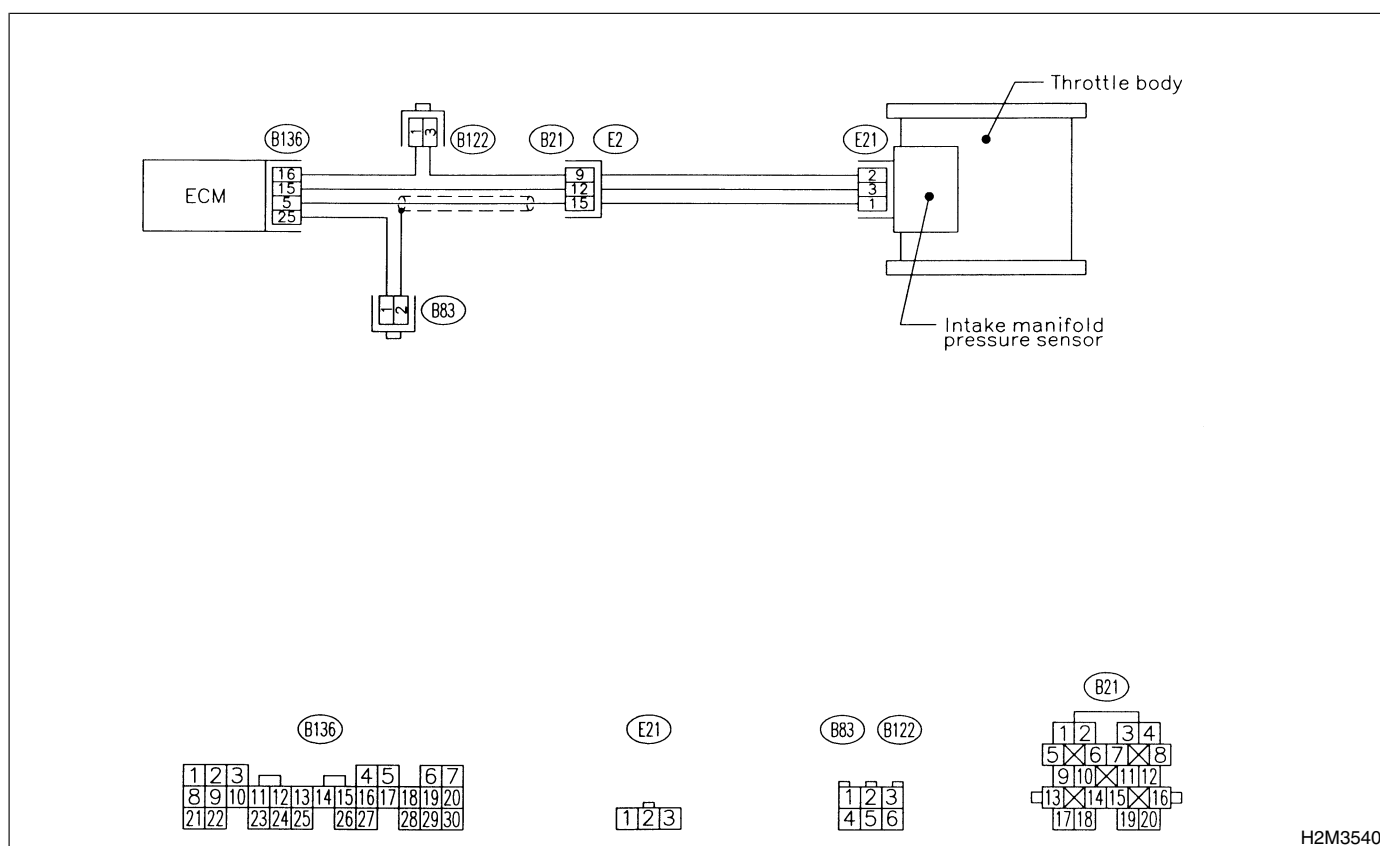
#### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

#### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

#### ● WIRING DIAGRAM:



H2M3540

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check                                                                                   | Yes                                                                                                                                                                                                                                                         | No                                                                                                                                                                                                                                                                        |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK IDLE SWITCH SIGNAL.</b><br>1) Turn ignition switch to ON.<br>2) Operate the LED operation mode for engine using Subaru Select Monitor.<br><b>NOTE:</b><br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE".<br><Ref. to EN-262 DTC P1139 — FRONT OXYGEN (A/F) SENSOR #1 HEATER CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Does the LED of {Idle Switch Signal} come on?                                           | Go to step 2.                                                                                                                                                                                                                                               | Check throttle position sensor circuit. <Ref. to EN-126 DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.><br><b>NOTE:</b><br>In this case, it is not necessary to inspect DTC P0106. |
| 2   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107 or P0108? | Inspect DTC P0107 or P0108 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br><b>NOTE:</b><br>In this case, it is not necessary to inspect DTC P0106. | Go to step 3.                                                                                                                                                                                                                                                             |
| 3   | <b>CHECK CONDITION OF INTAKE MANIFOLD PRESSURE SENSOR.</b>                                                                                                                                                                                                                                                                                                                                                                                                         | Is the intake manifold pressure sensor installation bolt tightened securely?            | Go to step 4.                                                                                                                                                                                                                                               | Tighten intake manifold pressure sensor installation bolt securely.                                                                                                                                                                                                       |
| 4   | <b>CHECK CONDITION OF THROTTLE BODY.</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | Is the throttle body installation bolt tightened securely?                              | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.>                                                                                                                                                          | Tighten throttle body installation bolt securely.                                                                                                                                                                                                                         |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

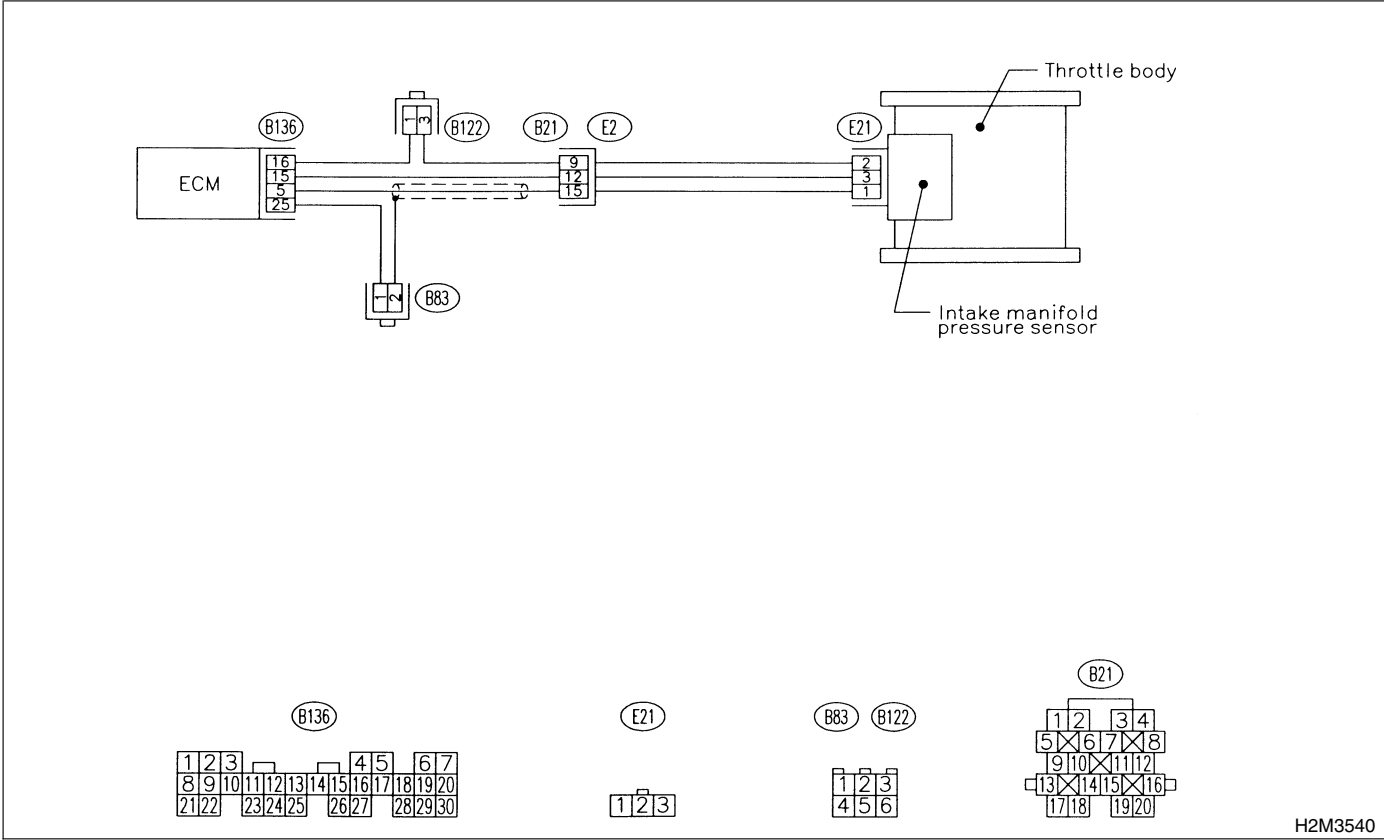
Engine

B: DTC P0107 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT LOW  
INPUT — S008636F01

- DTC DETECTING CONDITION:
  - Immediately at fault recognition

**CAUTION:**  
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● WIRING DIAGRAM:



| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Check                                                | Yes           | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------|---------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE: <ul style="list-style-type: none"><li>● Subaru Select Monitor<br/>For detailed operation procedure, refer to the “READ CURRENT DATA FOR ENGINE”.<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li><li>● OBD-II general scan tool<br/>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</li></ul> | Is the value less than 3.3 kPa (25 mmHg, 0.98 inHg)? | Go to step 3. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                               | Check                                                                                                                                                       | Yes                                                      | No                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM and pressure sensor connector. <Ref. to EN-262 DTC P1139 — FRONT OXYGEN (A/F) SENSOR #1 HEATER CIRCUIT RANGE/ PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>                                                                                                                          | Is there poor contact in ECM or pressure sensor connector?                                                                                                  | Repair poor contact in ECM or pressure sensor connector. | Even if MIL lights up, the circuit has returned to a normal condition at this time.                                             |
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                               | Is the voltage more than 4.5 V?                                                                                                                             | Go to step 5.                                            | Go to step 4.                                                                                                                   |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                               | Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?                              | Repair poor contact in ECM connector.                    | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 5 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                          | Is the voltage less than 0.7 V?                                                                                                                             | Go to step 7.                                            | Go to step 6.                                                                                                                   |
| 6   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Read data of atmospheric absolute pressure signal using Subaru Select Monitor.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                                                     | Does the value change more than 3.3 kPa (25 mmHg, 0.98 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector.                    | Go to step 7.                                                                                                                   |
| 7   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from intake manifold pressure sensor.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between intake manifold pressure sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E21) No. 3 (+) — Engine ground (-):</b> | Is the voltage more than 4.5 V?                                                                                                                             | Go to step 8.                                            | Repair open circuit in harness between ECM and intake manifold pressure sensor connector.                                       |
| 8   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM and intake manifold pressure sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 16 — (E21) No. 2:</b>                                                                   | Is the resistance less than 1 Ω?                                                                                                                            | Go to step 9.                                            | Repair open circuit in harness between ECM and intake manifold pressure sensor connector.                                       |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                  | Check                                                               | Yes                                                               | No                                                                                                 |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 9   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>Measure resistance of harness between intake manifold pressure sensor connector and engine ground.<br><b>Connector &amp; terminal (E21) No. 1 — Engine ground:</b> | Is the resistance more than 500 k $\Omega$ ?                        | Go to step 10.                                                    | Repair ground short circuit in harness between ECM and intake manifold pressure sensor connector.  |
| 10  | <b>CHECK POOR CONTACT.</b><br>Check poor contact in intake manifold pressure sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                           | Is there poor contact in intake manifold pressure sensor connector? | Repair poor contact in intake manifold pressure sensor connector. | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

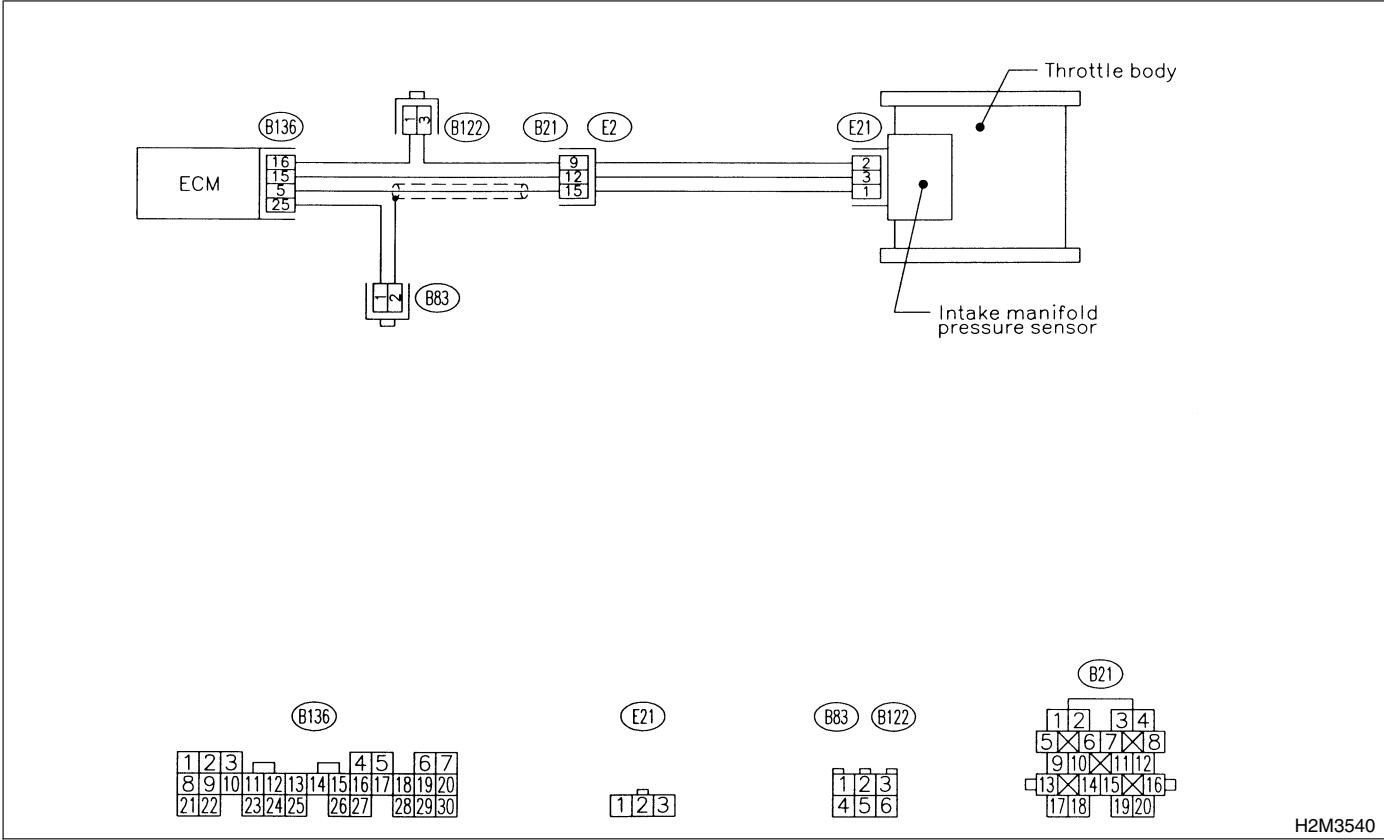
Engine

C: DTC P0108 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT HIGH  
INPUT — S008636F02

- DTC DETECTING CONDITION:
  - Immediately at fault recognition

**CAUTION:**  
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● WIRING DIAGRAM:



| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Check                                                  | Yes            | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------|---------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE: <ul style="list-style-type: none"><li>● Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li><li>● OBD-II general scan tool<br/>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</li></ul> | Is the value more than 130 kPa (975 mmHg, 38.39 inHg)? | Go to step 10. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                               | Check                                                                                                                                                       | Yes                                   | No                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                               | Is the voltage more than 4.5 V?                                                                                                                             | Go to step 4.                         | Go to step 3.                                                                                                                   |
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                               | Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?                              | Repair poor contact in ECM connector. | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 5 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                | Is the voltage less than 0.7 V?                                                                                                                             | Go to step 6.                         | Go to step 5.                                                                                                                   |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Read data of atmospheric absolute pressure signal using Subaru Select Monitor.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                                                     | Does the value change more than 3.3 kPa (25 mmHg, 0.98 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector. | Go to step 6.                                                                                                                   |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from intake manifold pressure sensor.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between intake manifold pressure sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E21) No. 3 (+) — Engine ground (-):</b> | Is the voltage more than 4.5 V?                                                                                                                             | Go to step 7.                         | Repair open circuit in harness between ECM and intake manifold pressure sensor connector.                                       |
| 7   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM and intake manifold pressure sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 5 — (E21) No. 1:</b>                                                                    | Is the resistance less than 1 $\Omega$ ?                                                                                                                    | Go to step 8.                         | Repair open circuit in harness between ECM and intake manifold pressure sensor connector.                                       |
| 8   | <b>CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM and intake manifold pressure sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 16 — (E21) No. 2:</b>                                                                                                                                              | Is the resistance less than 1 $\Omega$ ?                                                                                                                    | Go to step 9.                         | Repair open circuit in harness between ECM and intake manifold pressure sensor connector.                                       |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Check                                                               | Yes                                                                                                | No                                                                                                 |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 9   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in intake manifold pressure sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Is there poor contact in intake manifold pressure sensor connector? | Repair poor contact in intake manifold pressure sensor connector.                                  | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.> |
| 10  | <b>CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.<br>2) Disconnect connector from pressure sensor.<br>3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.<br>4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 130 kPa (975 mmHg, 38.39 inHg)?              | Repair battery short circuit in harness between ECM and intake manifold pressure sensor connector. | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## D: DTC P0111 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —

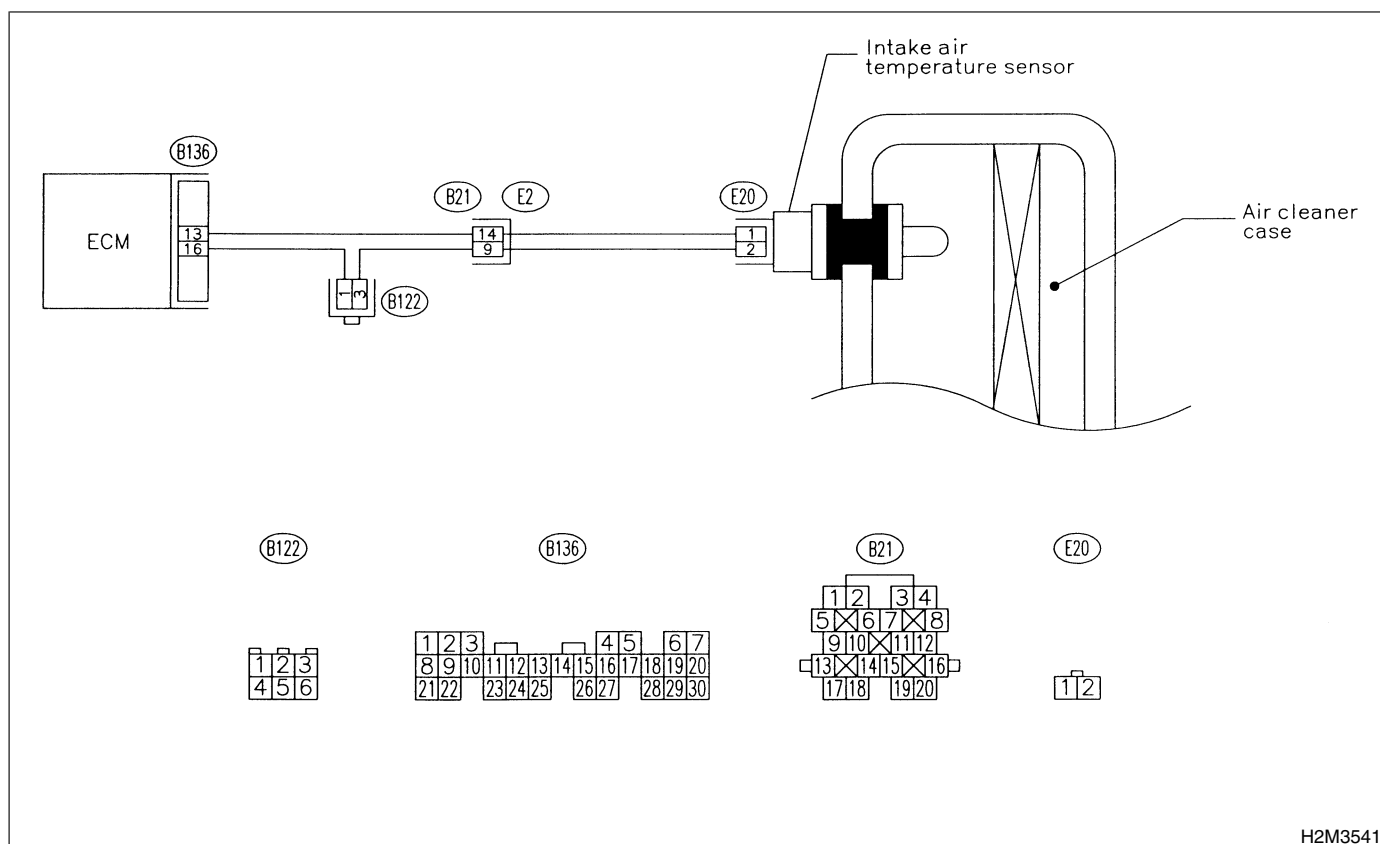
S008636B14

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3541

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                            | Check                                                                                   | Yes                                                                                                                                                                                                                                                  | No                                                                                                          |
|-----|---------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0112 or P0113? | Inspect DTC P0112 or P0113 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0111. | Replace intake air temperature sensor. <Ref. to FU-49 REMOVAL, Intake Air Temperature and Pressure Sensor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## E: DTC P0112 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT LOW INPUT

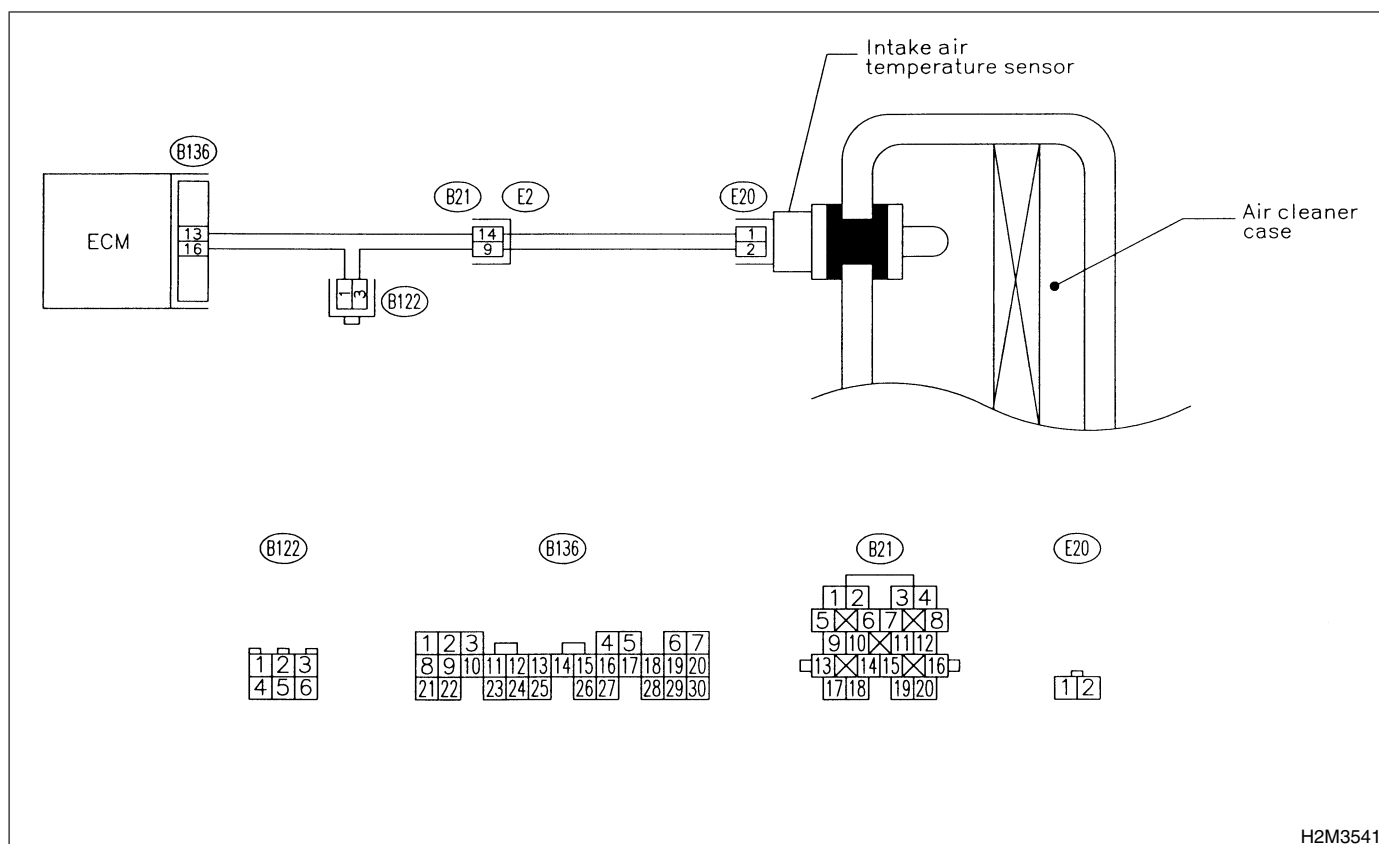
S008636B15

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3541

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Check                                    | Yes                                                                                                         | No                                                                                                                                                                                                                                                                                                     |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br>NOTE:<br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.                                                                                                                                                                    | Is the value greater than 120°C (248°F)? | Go to step 2.                                                                                               | Repair poor contact.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in intake air temperature sensor</li> <li>Poor contact in ECM</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |
| 2   | <b>CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from intake air temperature sensor.<br>3) Turn ignition switch to ON.<br>4) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br>NOTE:<br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -40°C (-40°F)?    | Replace intake air temperature sensor. <Ref. to FU-49 REMOVAL, Intake Air Temperature and Pressure Sensor.> | Repair ground short circuit in harness between intake air temperature sensor and ECM connector.                                                                                                                                                                                                        |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## F: DTC P0113 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT HIGH INPUT

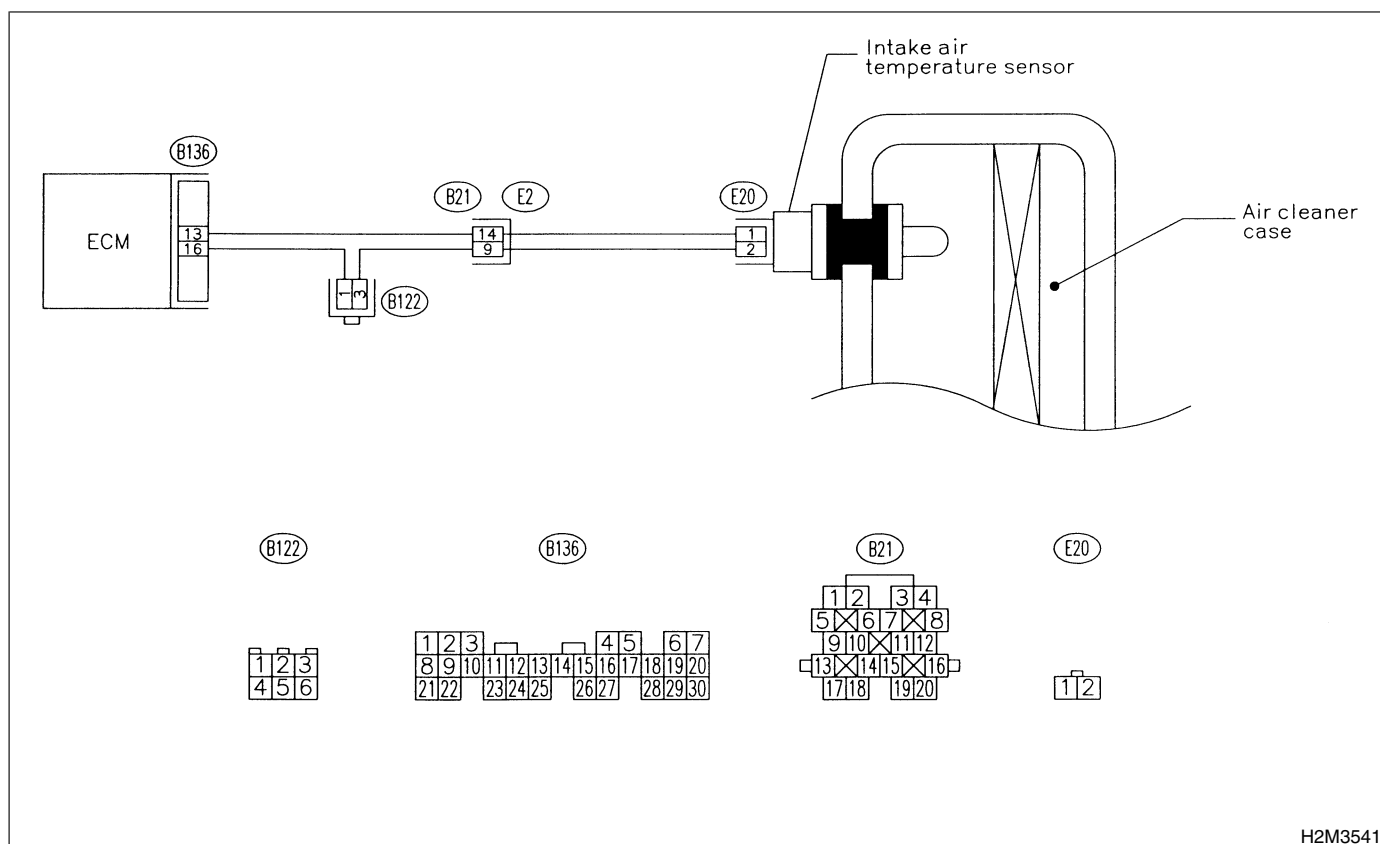
S008636B16

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                 | Yes                                                                                              | No                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Turn ignition switch to ON.<br>2) Start engine.<br>3) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -40°C (-40°F)? | Go to step 2.                                                                                    | Repair poor contact.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in intake air temperature sensor</li> <li>Poor contact in ECM</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul>                                                                                                   |
| 2   | <b>CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from intake air temperature sensor.<br>3) Measure voltage between intake air temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E20) No. 1 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                     | Is the voltage more than 10 V?        | Repair battery short circuit in harness between intake air temperature sensor and ECM connector. | Go to step 3.                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3   | <b>CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between intake air temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E20) No. 1 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                                                                                     | Is the voltage more than 10 V?        | Repair battery short circuit in harness between intake air temperature sensor and ECM connector. | Go to step 4.                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4   | <b>CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>Measure voltage between intake air temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E20) No. 1 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                                                                                                                          | Is the voltage more than 3 V?         | Go to step 5.                                                                                    | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Open circuit in harness between intake air temperature sensor and ECM connector</li> <li>Poor contact in intake air temperature sensor</li> <li>Poor contact in ECM</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                              | Check                                    | Yes                                                                                                         | No                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5   | <b>CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance of harness between intake air temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E20) No. 2 — Engine ground:</b> | Is the resistance less than 5 $\Omega$ ? | Replace intake air temperature sensor. <Ref. to FU-49 REMOVAL, Intake Air Temperature and Pressure Sensor.> | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between intake air temperature sensor and ECM connector</li> <li>● Poor contact in intake air temperature sensor</li> <li>● Poor contact in ECM</li> <li>● Poor contact in coupling connector (B21)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

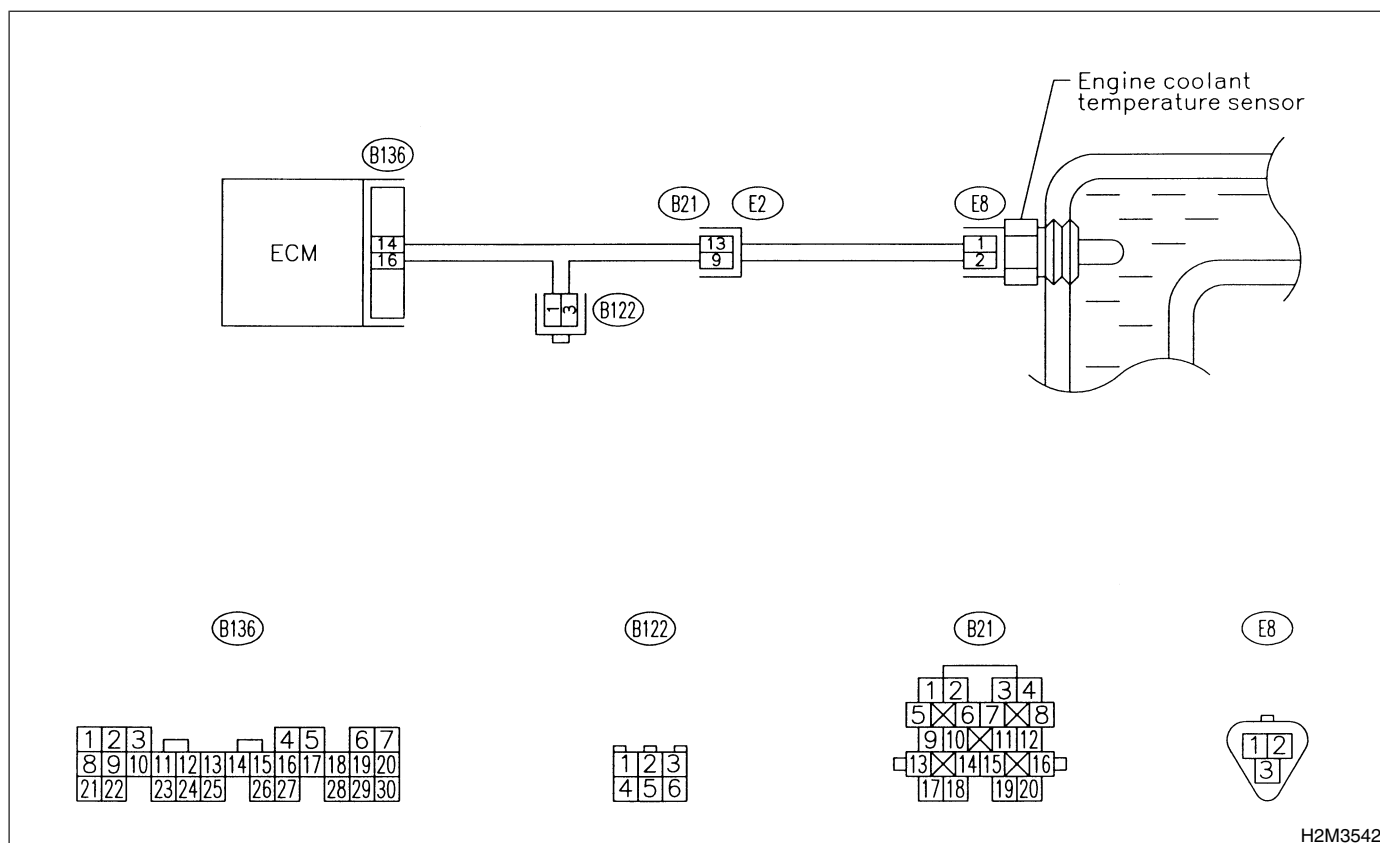
## G: DTC P0116 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT — S008636B17

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3542

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Check                                    | Yes                                                                                                    | No                                                                                                                                                                                                                                                                                                         |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.                                                                                                                                                                            | Is the value greater than 120°C (248°F)? | Go to step 2.                                                                                          | Repair poor contact.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in engine coolant temperature sensor</li> <li>Poor contact in ECM</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |
| 2   | <b>CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from engine coolant temperature sensor.<br>3) Turn ignition switch to ON.<br>4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -40°C (-40°F)?    | Replace engine coolant temperature sensor. <Ref. to FU-38 REMOVAL, Engine Coolant Temperature Sensor.> | Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.                                                                                                                                                                                                        |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## H: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

S008636B18

### • DTC DETECTING CONDITION:

- Immediately at fault recognition

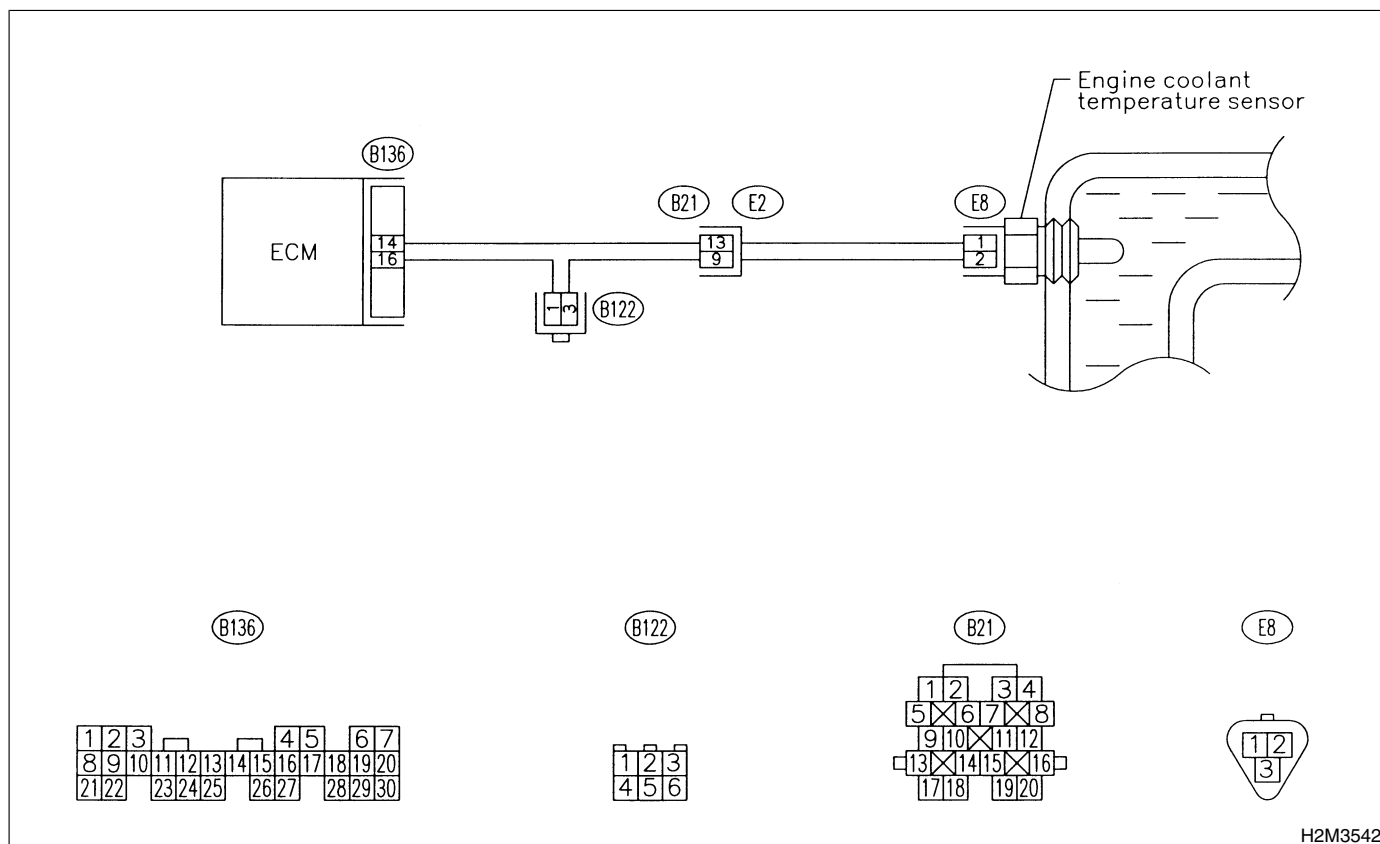
### • TROUBLE SYMPTOM:

- Hard to start
- Erroneous idling
- Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3542

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Check                                 | Yes                                                                                                  | No                                                                                                                                                                                                                                                                                                                |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -40°C (-40°F)? | Go to step 2.                                                                                        | Repair poor contact.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in engine coolant temperature sensor</li> <li>Poor contact in ECM</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |
| 2   | <b>CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from engine coolant temperature sensor.<br>3) Measure voltage between engine coolant temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E8) No. 1 (+) — Engine ground (-):</b>                                                                                                                                                                                                         | Is the voltage more than 10 V?        | Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector. | Go to step 3.                                                                                                                                                                                                                                                                                                     |
| 3   | <b>CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between engine coolant temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E8) No. 1 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                                             | Is the voltage more than 10 V?        | Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector. | Go to step 4.                                                                                                                                                                                                                                                                                                     |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                     | Check                                    | Yes                                                                                                    | No                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4   | <b>CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>Measure voltage between engine coolant temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E8) No. 1 (+) — Engine ground (-):</b>                                             | Is the voltage more than 4 V?            | Go to step 5.                                                                                          | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine coolant temperature sensor connector</li> <li>● Poor contact in engine coolant temperature sensor connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |
| 5   | <b>CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E8) No. 2 — Engine ground:</b> | Is the resistance less than 5 $\Omega$ ? | Replace engine coolant temperature sensor. <Ref. to FU-38 REMOVAL, Engine Coolant Temperature Sensor.> | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine coolant temperature sensor connector</li> <li>● Poor contact in engine coolant temperature sensor connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## I: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

S008636B19

### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

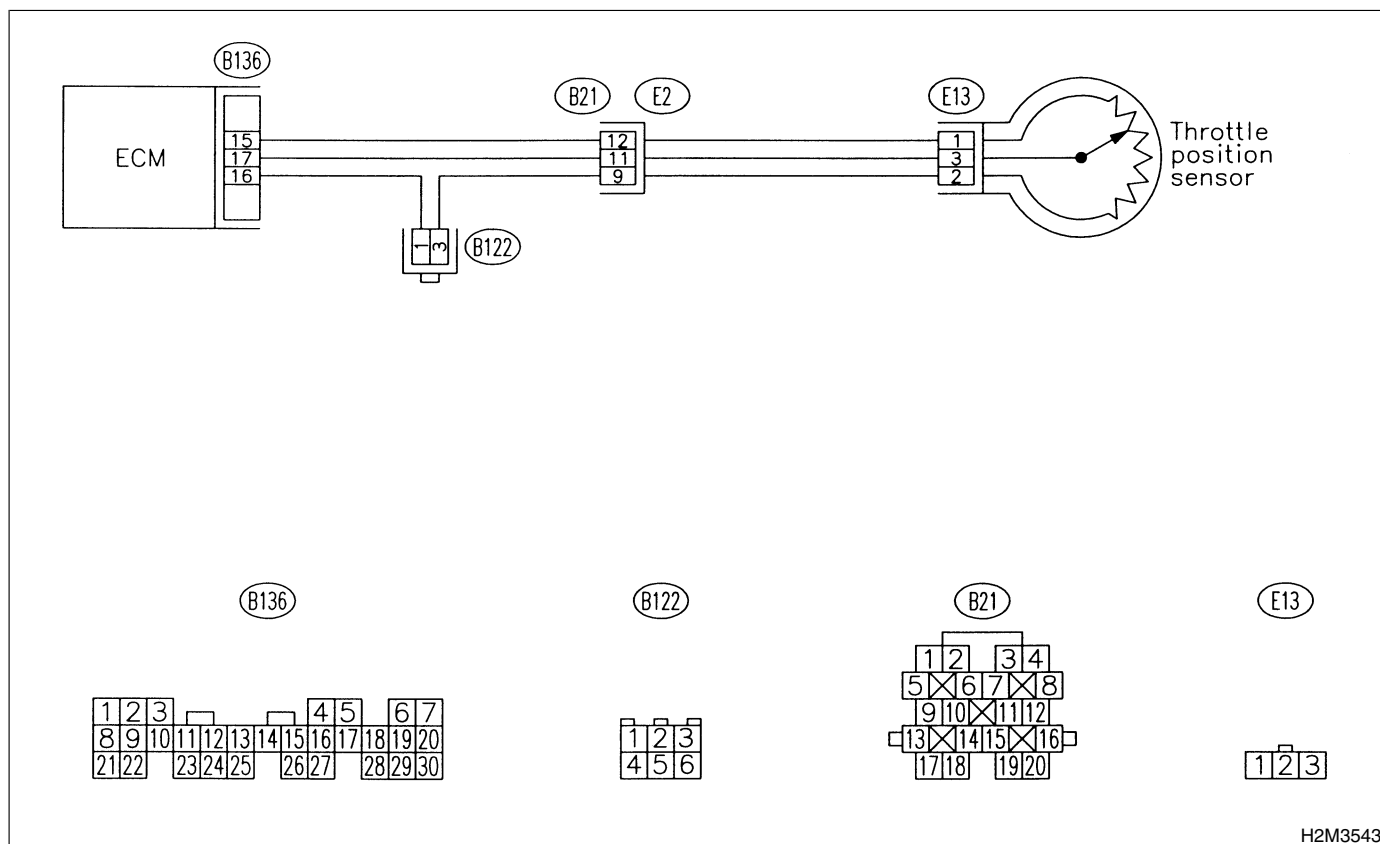
### • TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Check                                                                                                 | Yes                                                                                                                                                                                                                                                                | No                                                                                   |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108, P0122 or P0123? | Inspect DTC P0107, P0108, P0122 or P0123 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0121. | Go to step 2.                                                                        |
| 2   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 53.3 kPa (400 mmHg, 15.75 inHg)?                                               | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.>                                                                                                                                                                 | Replace throttle position sensor. <Ref. to FU-43 REMOVAL, Throttle Position Sensor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## J: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —

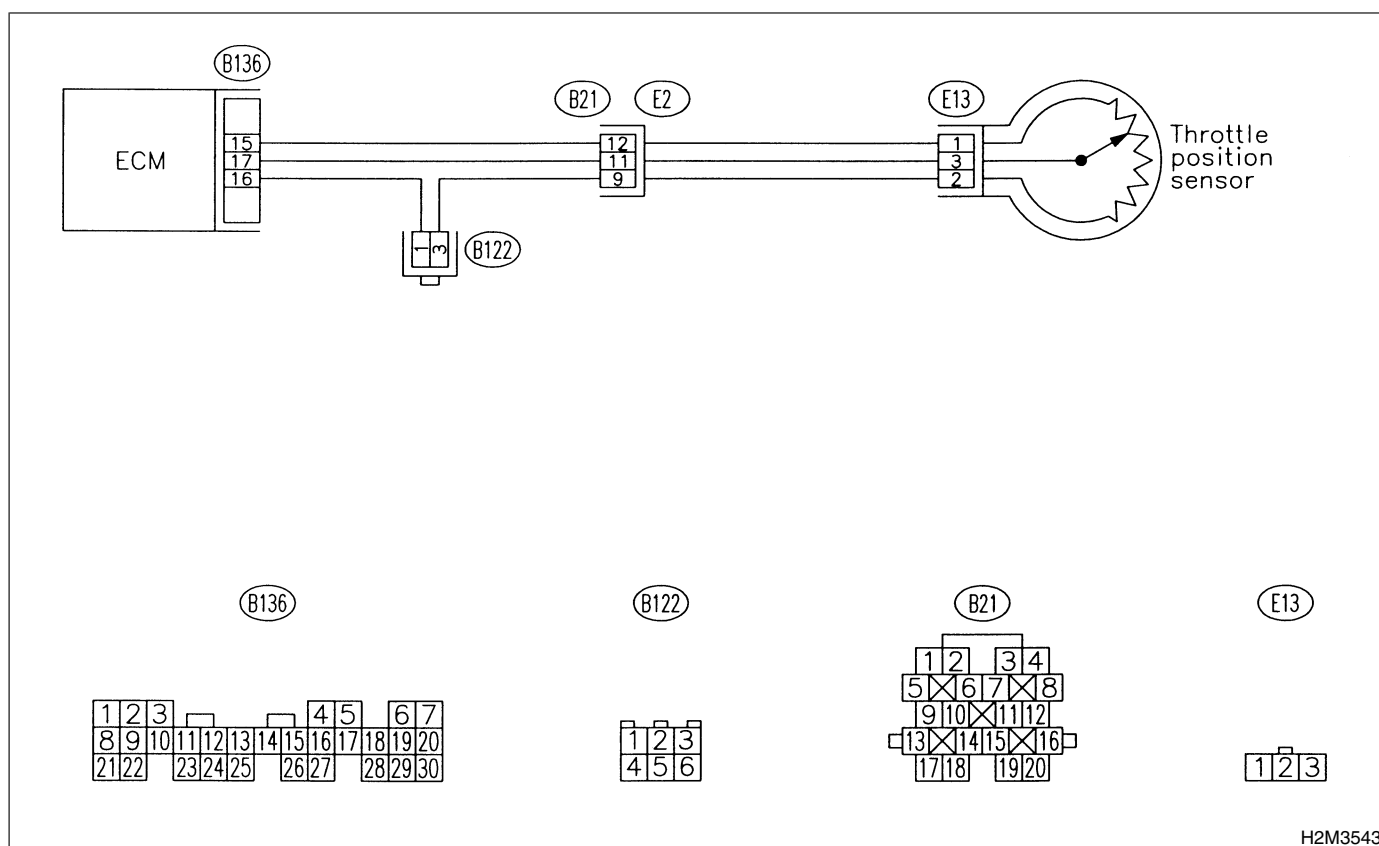
S008636B20

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3543

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Check                                                                                                                                  | Yes                                   | No                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than 0.1 V?                                                                                                          | Go to step 2.                         | Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in throttle position sensor connector</li> <li>Poor contact in ECM connector</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground while throttle valve is fully closed.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                            | Is the voltage more than 4.5 V?                                                                                                        | Go to step 4.                         | Go to step 3.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                                 | Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?         | Repair poor contact in ECM connector. | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                                                                                                                                                                                  |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 17 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                                 | Is the voltage less than 0.1 V?                                                                                                        | Go to step 6.                         | Go to step 5.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Measure voltage between ECM connector and chassis ground.                                                                                                                                                                                                                                                                                                                                                                                                                                       | Does the voltage change more than 0.1 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector. | Go to step 6.                                                                                                                                                                                                                                                                                                                                                                                                                                           |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                           | Check                                                        | Yes                                                                                        | No                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6   | <b>CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from throttle position sensor.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between throttle position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E13) No. 1 (+) — Engine ground (-):</b> | Is the voltage more than 4.5 V?                              | Go to step 7.                                                                              | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between throttle position sensor and ECM connector</li> <li>● Poor contact in throttle position sensor connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |
| 7   | <b>CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance of harness between ECM connector and throttle position sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 17 — (E13) No. 3:</b>                                                                                        | Is the resistance less than 1 $\Omega$ ?                     | Go to step 8.                                                                              | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between throttle position sensor and ECM connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in throttle position sensor connector</li> <li>● Poor contact in coupling connector (B21)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |
| 8   | <b>CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.</b><br>Measure resistance of harness between throttle position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E13) No. 3 — Engine ground:</b>                                                                                                                              | Is the resistance less than 10 $\Omega$ ?                    | Repair ground short circuit in harness between throttle position sensor and ECM connector. | Go to step 9.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 9   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in throttle position sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                           | Is there poor contact in throttle position sensor connector? | Repair poor contact in throttle position sensor connector.                                 | Replace throttle position sensor. <Ref. to FU-43 REMOVAL, Throttle Position Sensor.>                                                                                                                                                                                                                                                                                                                                                |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## K: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT —

S008636B21

### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

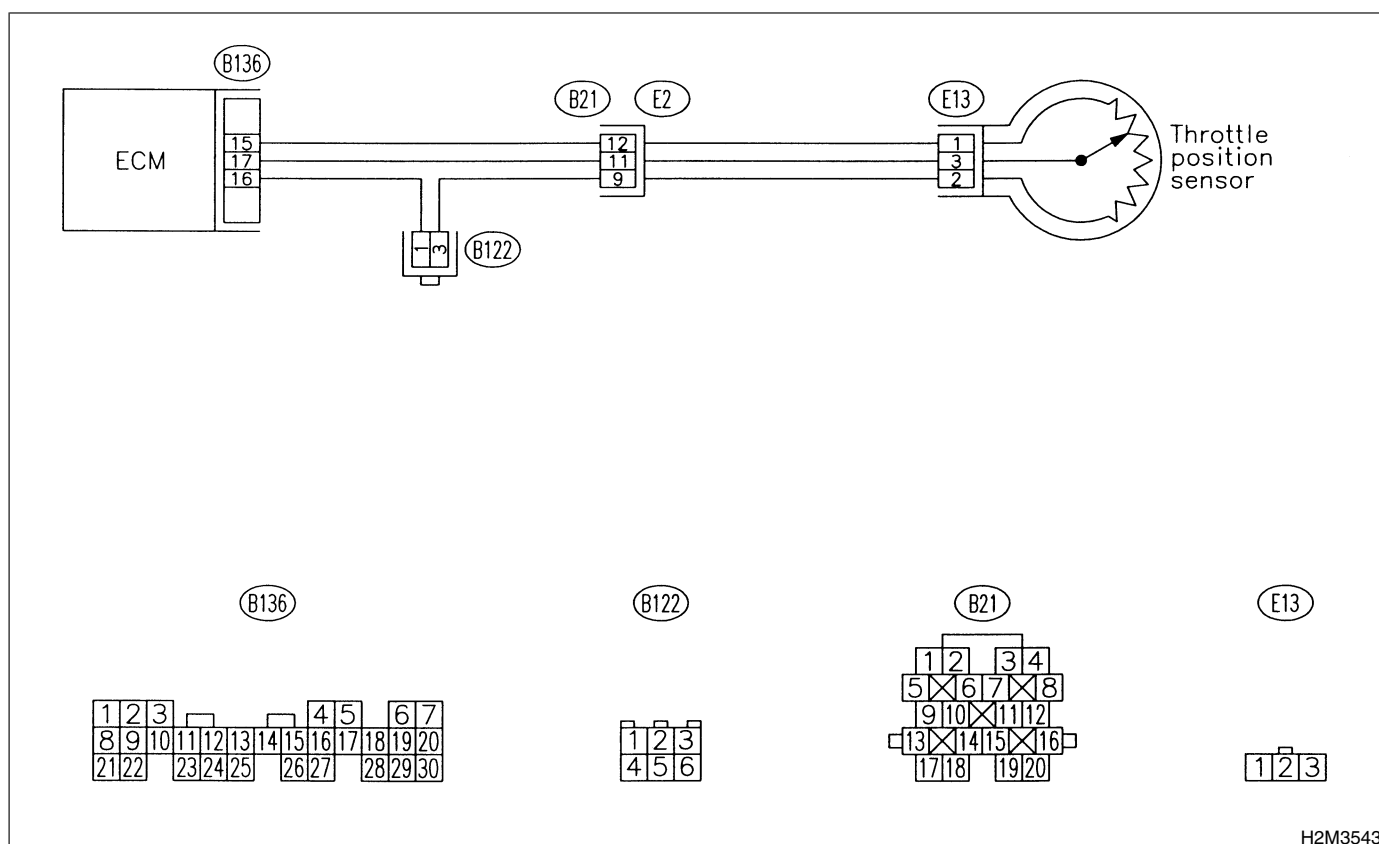
### ● TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Check                                    | Yes                                                                                                                                                                    | No                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 4.9 V?            | Go to step 2.                                                                                                                                                          | Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Poor contact in throttle position sensor connector</li> <li>Poor contact in ECM connector</li> <li>Poor contact in coupling connector (B21)</li> <li>Poor contact in joint connector (B122)</li> </ul> |
| 2   | <b>CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from throttle position sensor.<br>3) Measure resistance of harness between throttle position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E13) No. 2 — Engine ground:</b>                                                                                                                                                                                                                    | Is the resistance less than 5 $\Omega$ ? | Go to step 3.                                                                                                                                                          | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Open circuit in harness between throttle position sensor and ECM connector</li> <li>Poor contact in coupling connector (B21)</li> </ul>                                                                                                                                                                                  |
| 3   | <b>CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between throttle position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E13) No. 3 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                                                     | Is the voltage more than 4.9 V?          | Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Replace throttle position sensor.<br><Ref. to FU-43 REMOVAL, Throttle Position Sensor.>                                                                                                                                                                                                                                                                                                                                                                 |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

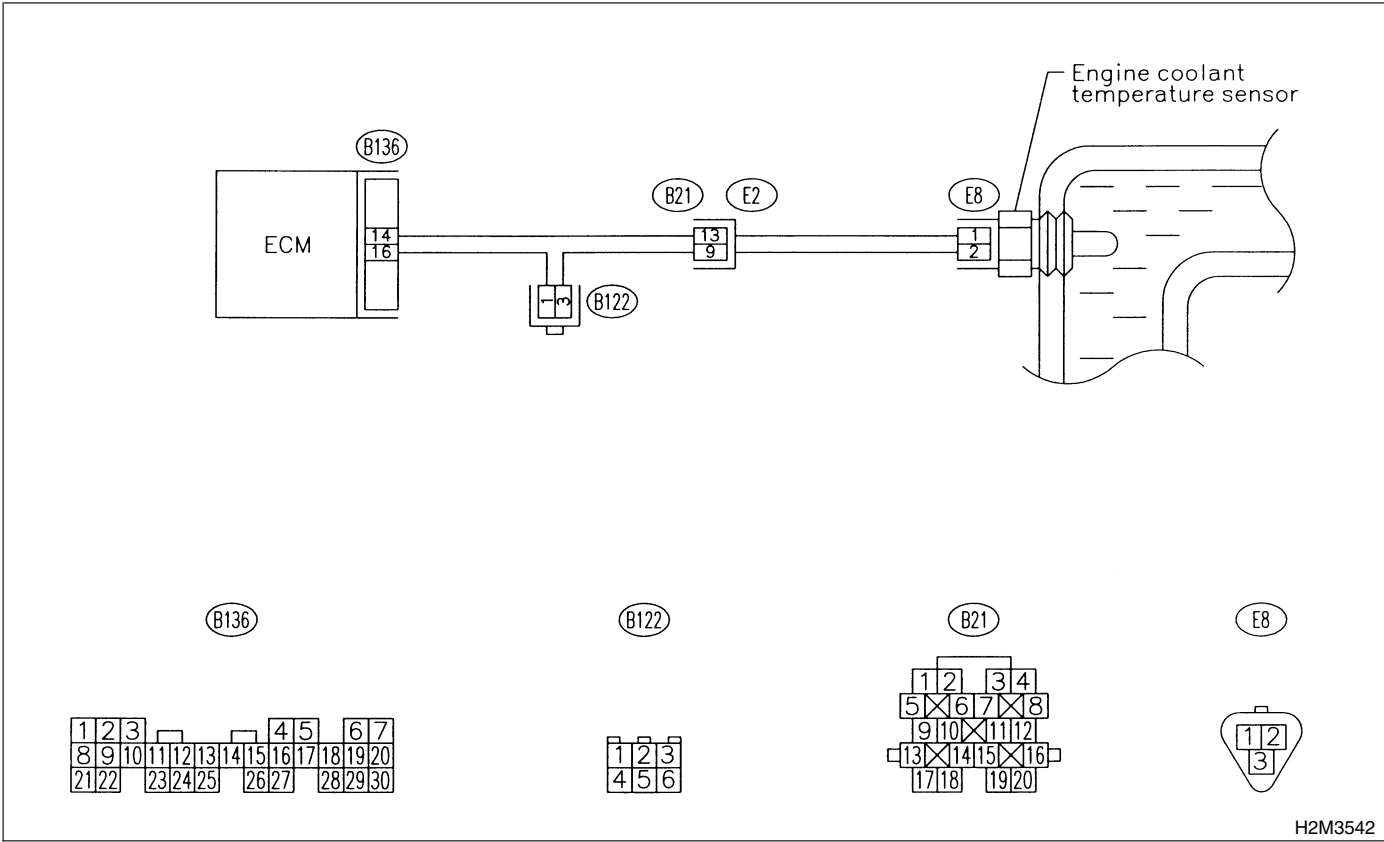
Engine

L: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED  
LOOP FUEL CONTROL — S008636B22

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine would not return to idling.

**CAUTION:**  
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



H2M3542

| No. | Step                            | Check                                                                                   | Yes                                                                                                                                                                                                                                                  | No            |
|-----|---------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117? | Inspect DTC P0116 or P0117 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0125. | Go to step 2. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

| No. | Step              | Check                          | Yes                                                                      | No                                                                                                                              |
|-----|-------------------|--------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 2   | CHECK THERMOSTAT. | Does thermostat remain opened? | Replace thermo-<br>stat. <Ref. to<br>CO-14<br>REMOVAL, Ther-<br>mostat.> | Replace engine<br>coolant tempera-<br>ture sensor. <Ref.<br>to FU-38<br>REMOVAL,<br>Engine Coolant<br>Temperature Sen-<br>sor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

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## **M: DTC P0131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —** S008636B24

### NOTE:

For the diagnostic procedure, refer to DTC P0132. <Ref. to EN-136 DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## N: DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —

S008636B25

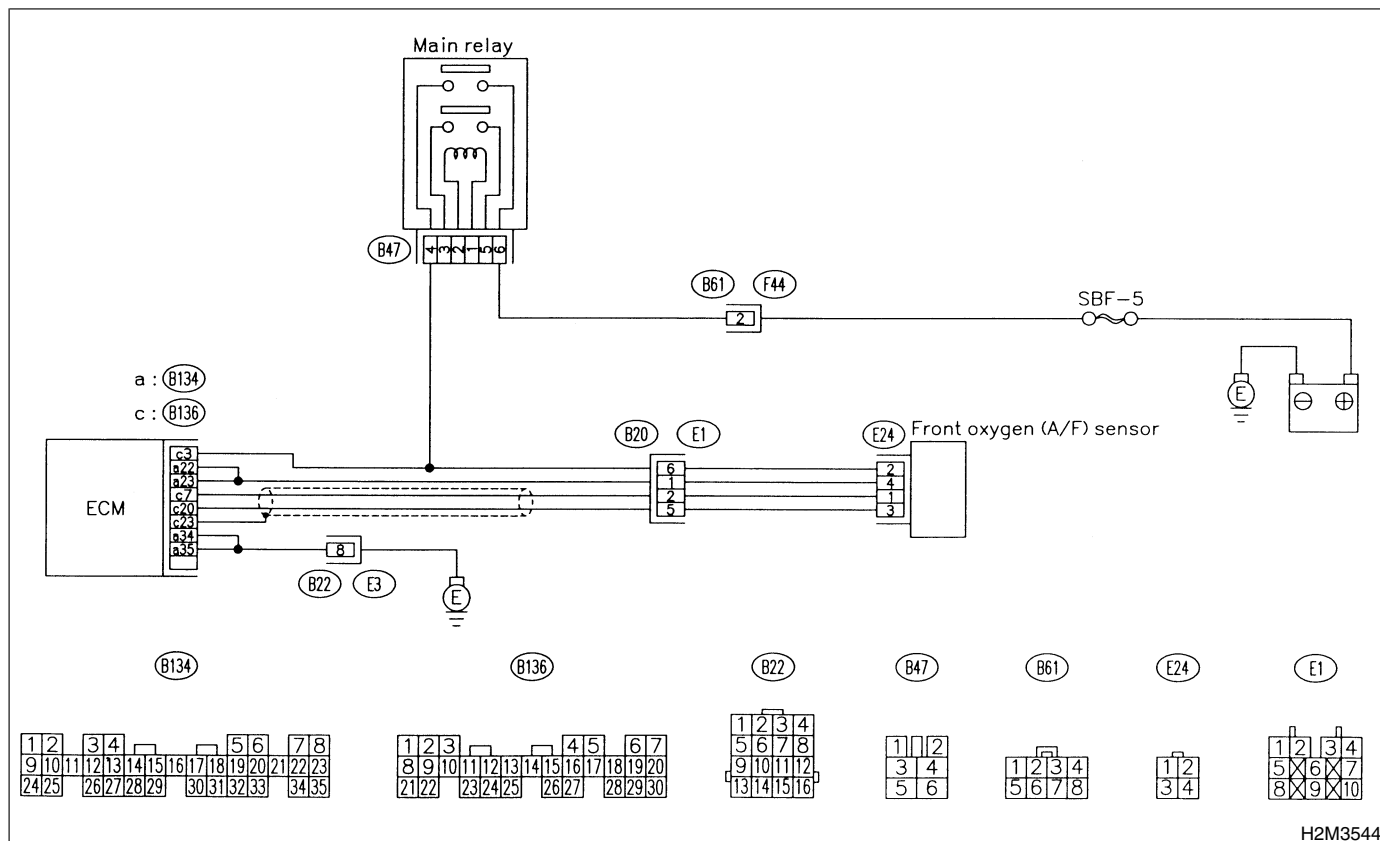
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



| No. | Step                            | Check                                                                                                        | Yes                                                                                                                                                                                                   | No            |
|-----|---------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130, P1131, P1132, P1133 or P1134? | Inspect DTC P1130, P1131, P1132, P1133 or P1134 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Check                                                                          | Yes                                                                                | No                                                                                                                                                                                     |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK FRONT (A/F) OXYGEN SENSOR DATA.</b><br>1) Start engine.<br>2) While observing the Subaru Select Monitor or OBD-II general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F).<br>If the engine is already warmed-up, operate at idle speed for at least 1 minute.<br>3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b> <ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to EN-50 OPERATION, Subaru Select Monitor.> <ul style="list-style-type: none"> <li>OBD-II general scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value equal to or more than 0.85 and equal to less than 1.15 in idling? | Go to step 3.                                                                      | Go to step 4.                                                                                                                                                                          |
| 3   | <b>CHECK REAR OXYGEN SENSOR SIGNAL.</b><br>1) Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles.<br><b>NOTE:</b><br>To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed.<br>2) Operate the LED operation mode for engine.<br><b>NOTE:</b> <ul style="list-style-type: none"> <li>Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                                                                                                                                                                                                                                | Does the LED of {Rear O2 Rich Signal} blink?                                   | Repair poor contact in front oxygen (A/F) sensor and rear oxygen sensor connector. | Check rear oxygen sensor circuit. <Ref. to EN-142 DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |
| 4   | <b>CHECK EXHAUST SYSTEM.</b><br>Check exhaust system parts.<br><b>NOTE:</b><br>Check the following items. <ul style="list-style-type: none"> <li>Loose installation of portions</li> <li>Damage (crack, hole etc.) of parts</li> <li>Looseness of front oxygen (A/F) sensor</li> <li>Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Is there a fault in exhaust system?                                            | Repair or replace faulty parts.                                                    | Replace front oxygen (A/F) sensor. <Ref. to EC-3 REMOVAL, Front Catalytic Converter.>                                                                                                  |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## O: DTC P0133 — FRONT OXYGEN (A/F) SENSOR CIRCUIT SLOW RESPONSE —

S008636B26

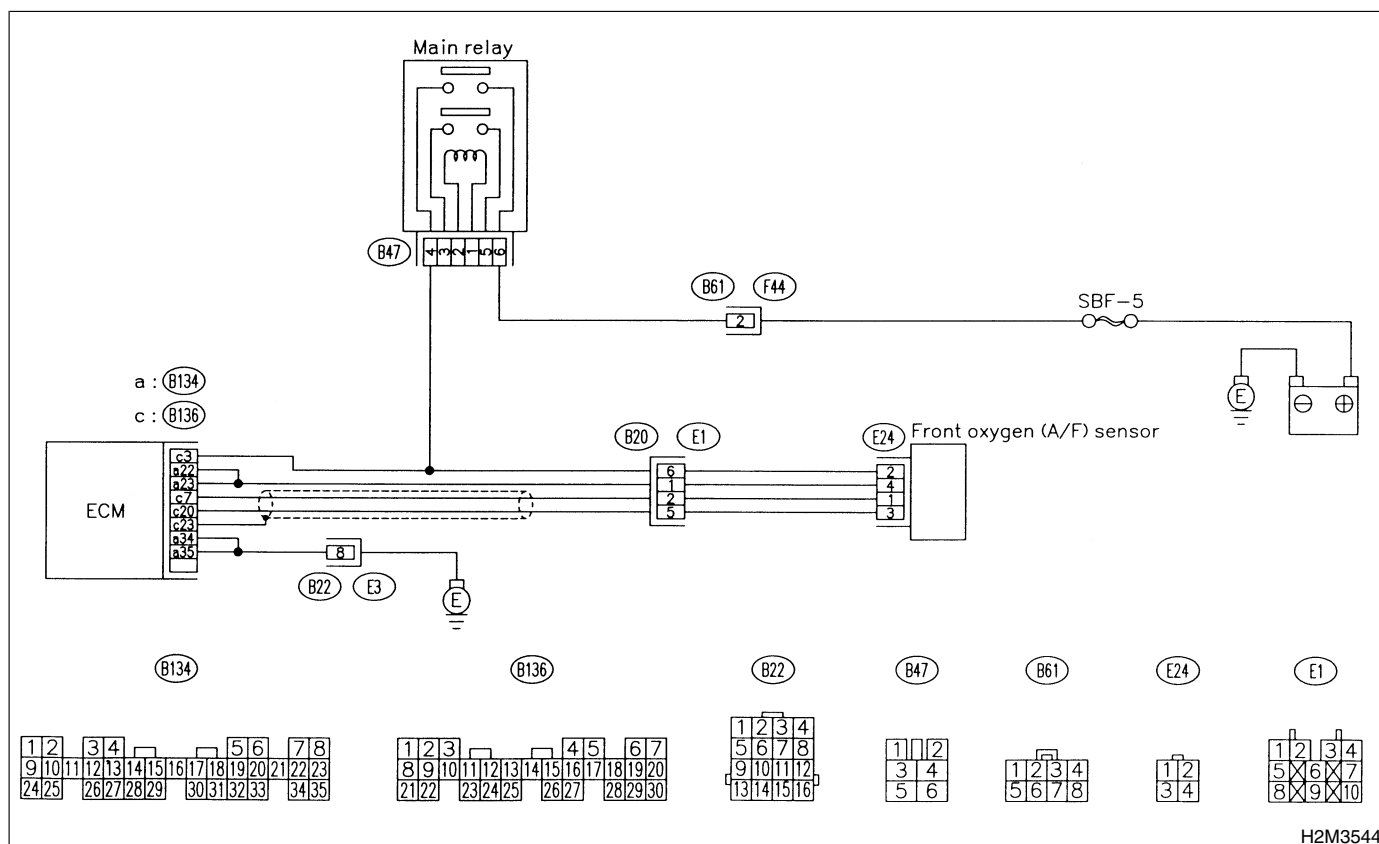
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3544

| No. | Step                            | Check                                                                                                        | Yes                                                                                                                                                                                                                                                                       | No            |
|-----|---------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130, P1131, P1132, P1133 or P1134? | Inspect DTC P1130, P1131, P1132, P1133 or P1134 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0133. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                       | Check                               | Yes                    | No                                                                                       |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------|------------------------------------------------------------------------------------------|
| 2   | <b>CHECK EXHAUST SYSTEM.</b><br>NOTE:<br>Check the following items. <ul style="list-style-type: none"> <li>● Loose installation of front portion of exhaust pipe onto cylinder heads</li> <li>● Loose connection between front exhaust pipe and front catalytic converter</li> <li>● Damage of exhaust pipe resulting in a hole</li> </ul> | Is there a fault in exhaust system? | Repair exhaust system. | Replace front oxygen (A/F) sensor.<br><Ref. to EC-3 REMOVAL, Front Catalytic Converter.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## P: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — S008636B28

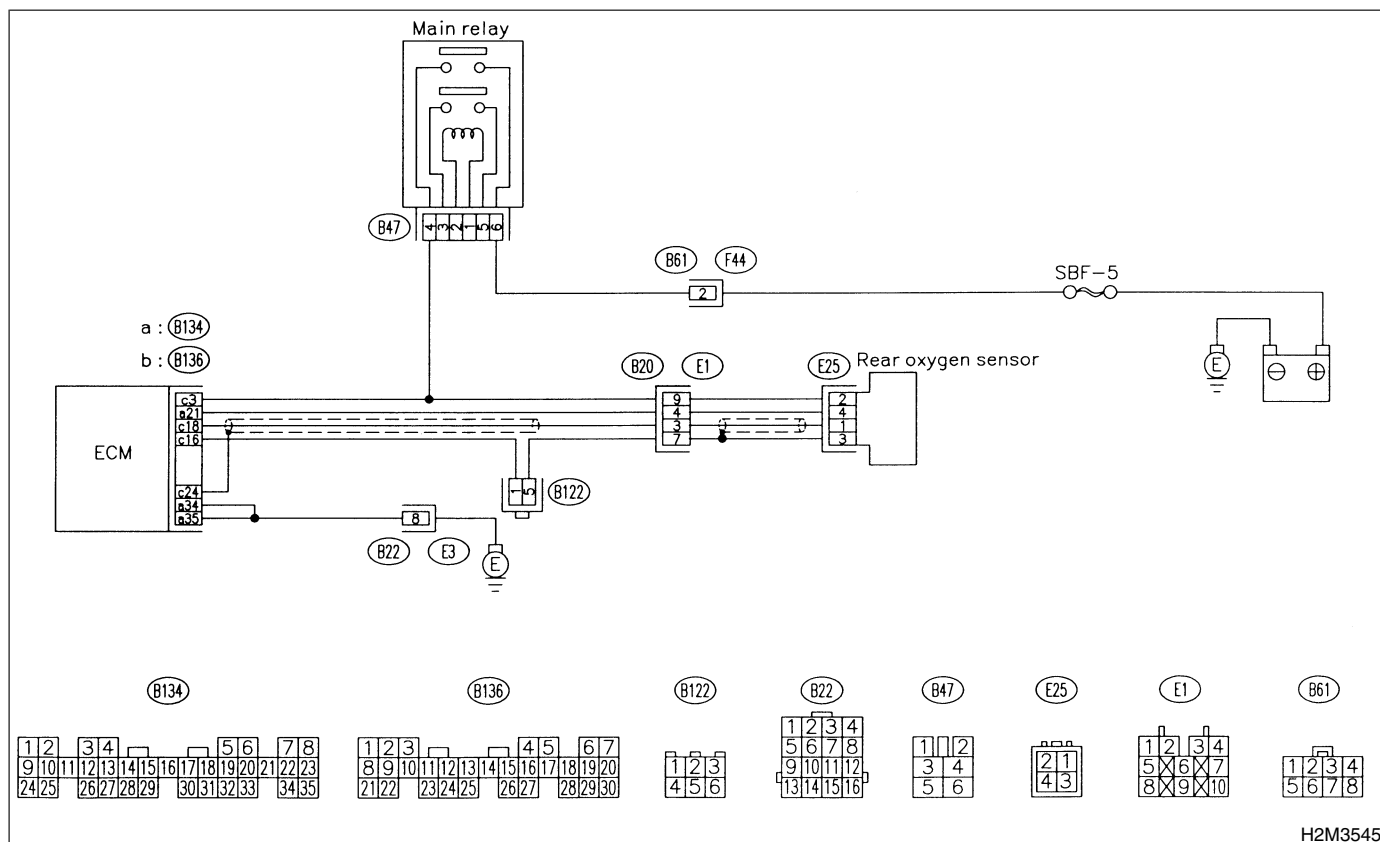
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



| No. | Step                                                                                                                                                                                                                              | Check                                                                                   | Yes                                                                                    | No            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                            | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131? | Go to step 2.                                                                          | Go to step 3. |
| 2   | <b>CHECK FAILURE CAUSE OF P1130 or P1131.</b><br>Inspect DTC P1130 or P1131 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Is the failure cause of P1130 or P1131 in the fuel system?                              | Check fuel system.<br>NOTE:<br>In this case, it is not necessary to inspect DTC P0136. | Go to step 3. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Check                                     | Yes                                                                           | No                                                                                                                                                                                                                                                                                                          |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK REAR OXYGEN SENSOR DATA.</b><br>1) Start the engine.<br>2) Warm-up the engine until engine coolant temperature is above 70°C (160°F), and keep the engine speed at 2,000 rpm to 3,000 rpm for two minutes.<br>3) Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li> <li>OBD-II general scan tool<br/>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</li> </ul> | Does the value fluctuate?                 | Go to step 7.                                                                 | Go to step 4.                                                                                                                                                                                                                                                                                               |
| 4   | <b>CHECK REAR OXYGEN SENSOR DATA.</b><br>Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II General Scan Tool.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Is the value fixed between 0.2 and 0.4 V? | Go to step 5.                                                                 | Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.>                                                                                                                                                                                                                               |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and rear oxygen sensor.<br>3) Measure resistance of harness between ECM and rear oxygen sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 16 — (E25) No. 3:</b>                                                                                                                                                                                                                                                                                                                                                                         | Is the resistance more than 3 Ω?          | Repair open circuit in harness between ECM and rear oxygen sensor connector.  | Go to step 6.                                                                                                                                                                                                                                                                                               |
| 6   | <b>CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.</b><br>1) Connect connector to ECM.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground.<br><b>Connector &amp; terminal</b><br><b>(E25) No. 4 (+) — Engine ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                         | Is the voltage more than 0.2 V?           | Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.> | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>Open circuit in harness between rear oxygen sensor and ECM connector</li> <li>Poor contact in rear oxygen sensor connector</li> <li>Poor contact in ECM connector</li> </ul> |
| 7   | <b>CHECK EXHAUST SYSTEM.</b><br>Check exhaust system parts.<br><b>NOTE:</b><br>Check the following items.<br><ul style="list-style-type: none"> <li>Loose installation of portions</li> <li>Damage (crack, hole etc.) of parts</li> <li>Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor</li> </ul>                                                                                                                                                                                                                                                                                                                                                         | Is there a fault in exhaust system?       | Repair or replace faulty parts.                                               | Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.>                                                                                                                                                                                                                               |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## Q: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

S008636B29

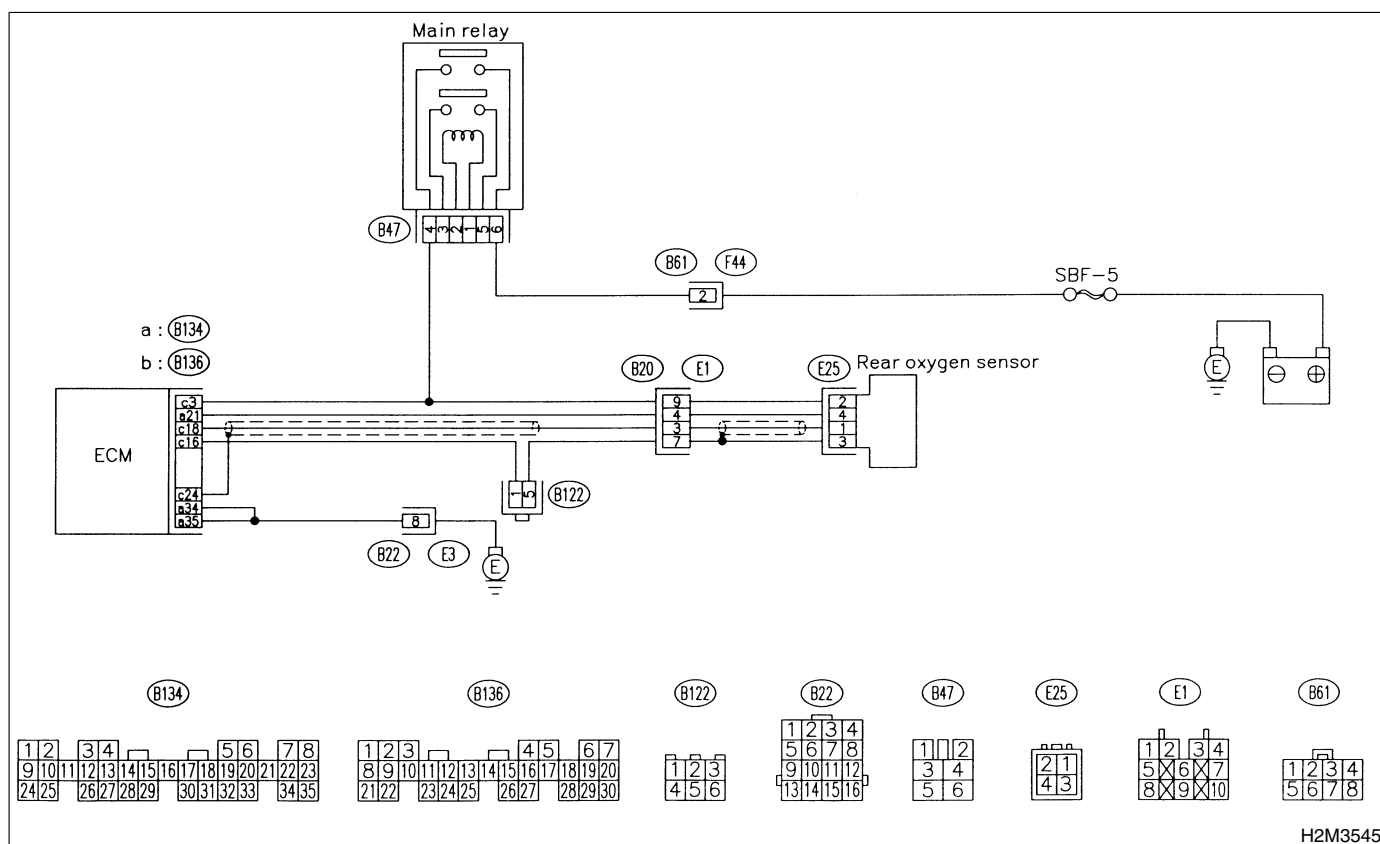
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3545

| No. | Step                            | Check                                                                          | Yes                                                                                                                                                                                                                                         | No                                                                            |
|-----|---------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136? | Inspect DTC P0136 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0139. | Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## R: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT LOW INPUT —

S008636F03

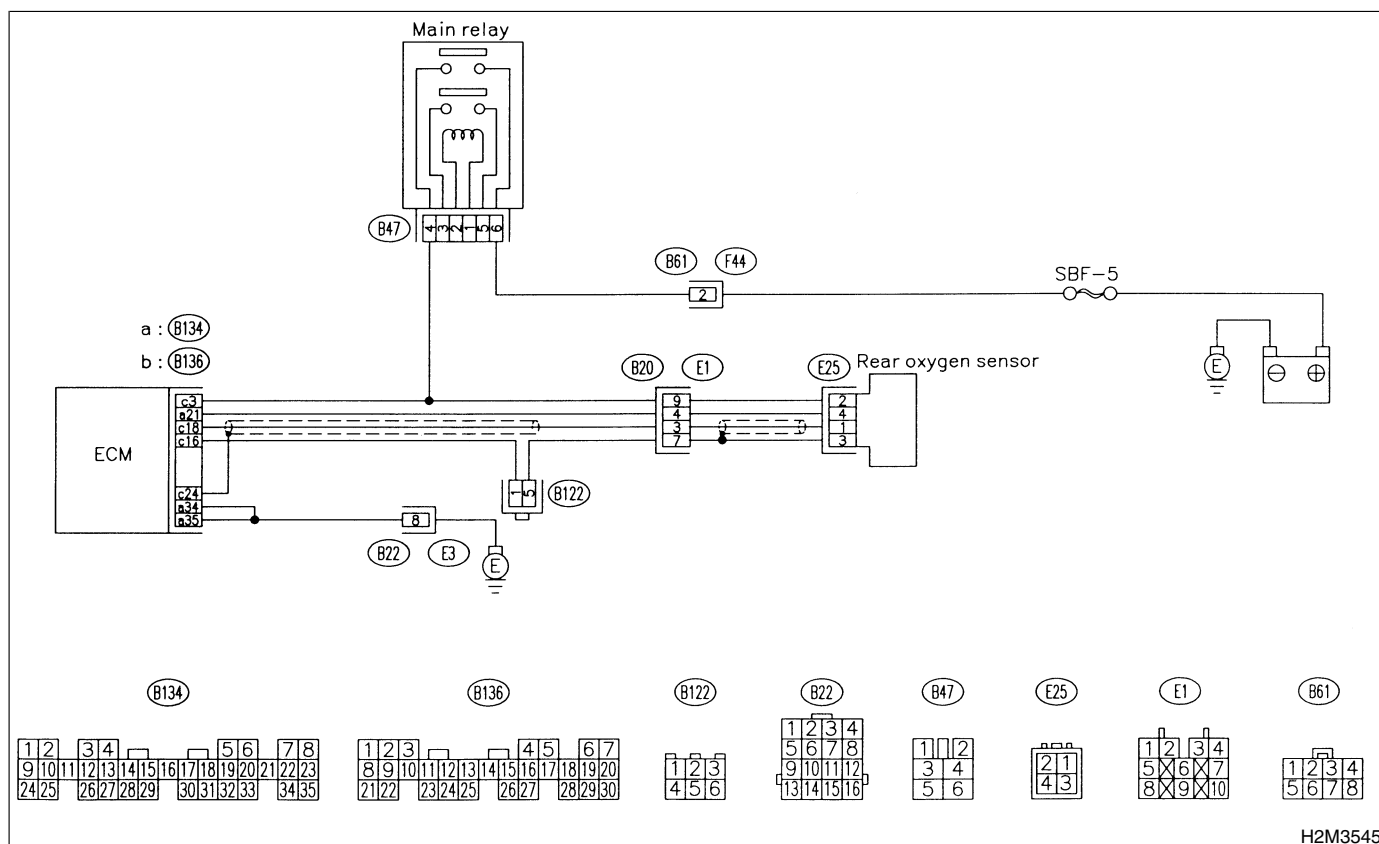
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3545

| No. | Step                                                                                                                                                                                                                                                                   | Check                                                                                                     | Yes           | No            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------|---------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                 | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time? | Go to step 2. | Go to step 3. |
| 2   | <b>CHECK GROUND CIRCUIT OF ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 35 — Chassis ground:</b> | Is the resistance less than 10 Ω?                                                                         | Go to step 4. | Go to step 3. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Check                                     | Yes                                                                                  | No                                                                                                                                                                                                                                                                                                                          |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK GROUND CIRCUIT OF ECM.</b><br>1) Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine ground terminal</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B22)</li> </ul> 2) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 34 — Chassis ground:</b> | Is the resistance less than 5 $\Omega$ ?  | Go to step 4.                                                                        | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine ground terminal</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B22)</li> </ul>                        |
| 4   | <b>CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 — Chassis ground:</b>                                                                                                                                                                                                                                                                             | Is the resistance less than 10 $\Omega$ ? | Repair ground short circuit in harness between ECM and rear oxygen sensor connector. | Go to step 5.                                                                                                                                                                                                                                                                                                               |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.</b><br>1) Disconnect connector from rear oxygen sensor.<br>2) Measure resistance of harness between ECM and rear oxygen sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 — (E25) No. 4:</b>                                                                                                                                                                                                                     | Is the resistance less than 3 $\Omega$ ?  | Go to step 6.                                                                        | Repair open circuit in harness between ECM and rear oxygen sensor connector.                                                                                                                                                                                                                                                |
| 6   | <b>CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.</b><br>1) Connect connector to ECM.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between rear oxygen sensor connector and engine ground or chassis ground.<br><b>Connector &amp; terminal</b><br><b>(E25) No. 2 (+) — Engine ground (-):</b>                                                                                                                                                                                                   | Is the voltage more than 10 V?            | Go to step 7.                                                                        | Repair power supply line.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"> <li>● Open circuit in harness between main relay and rear oxygen sensor connector</li> <li>● Poor contact in rear oxygen sensor connector</li> <li>● Poor contact in coupling connector (E1)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                      | Check                                     | Yes                                                                                                                                                                                                                                                                                                                                                                  | No                                                                            |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 7   | <b>CHECK REAR OXYGEN SENSOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between rear oxygen sensor connector terminals.<br><b>Terminals</b><br><b>No. 2 — No. 4:</b> | Is the resistance less than 30 $\Omega$ ? | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between rear oxygen sensor and ECM connector</li> <li>● Poor contact in rear oxygen sensor connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (E1)</li> </ul> | Replace rear oxygen sensor. <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.> |

**S: DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —** S008636B33

**NOTE:**

For the diagnostic procedure, refer to DTC P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## T: DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) — S008636B32

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### ● TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check                                                                                  | Yes                       | No                                                                                                                                                                                                                                                                                                       |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | CHECK EXHAUST SYSTEM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Are there holes or loose bolts on exhaust system?                                      | Repair exhaust system.    | Go to step 2.                                                                                                                                                                                                                                                                                            |
| 2   | CHECK AIR INTAKE SYSTEM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Are there holes, loose bolts or disconnection of hose on air intake system?            | Repair air intake system. | Go to step 3.                                                                                                                                                                                                                                                                                            |
| 3   | <b>CHECK FUEL PRESSURE.</b><br><b>WARNING:</b> <ul style="list-style-type: none"> <li>● Place “NO FIRE” signs near the working area.</li> <li>● Be careful not to spill fuel on the floor.</li> </ul> 1) Release fuel pressure. <ol style="list-style-type: none"> <li>(1) Disconnect connector from fuel pump relay.</li> <li>(2) Start the engine and run it until it stalls.</li> <li>(3) After the engine stalls, crank it for five more seconds.</li> <li>(4) Turn ignition switch to OFF.</li> </ol> 2) Connect connector to fuel pump relay.<br>3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge.<br>4) Install fuel filler cap.<br>5) Start the engine and idle while gear position is neutral.<br>6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold.<br><b>WARNING:</b><br><b>Before removing fuel pressure gauge, release fuel pressure.</b><br><b>NOTE:</b><br>If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. | Is fuel pressure between 284 and 314 kPa (2.9 — 3.2 kg/cm <sup>2</sup> , 41 — 46 psi)? | Go to step 4.             | Repair the following items.<br><b>Fuel pressure too high</b> <ul style="list-style-type: none"> <li>● Clogged fuel return line or bent hose</li> </ul> <b>Fuel pressure too low</b> <ul style="list-style-type: none"> <li>● Improper fuel pump discharge</li> <li>● Clogged fuel supply line</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Check                                                                                  | Yes           | No                                                                                                                                                                                                                                                                                                                                                                                 |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4   | <b>CHECK FUEL PRESSURE.</b><br>After connecting pressure regulator vacuum hose, measure fuel pressure.<br><b>WARNING:</b><br><b>Before removing fuel pressure gauge, release fuel pressure.</b><br><b>NOTE:</b> <ul style="list-style-type: none"> <li>● If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.</li> <li>● If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Is fuel pressure between 206 and 235 kPa (2.1 — 2.4 kg/cm <sup>2</sup> , 30 — 34 psi)? | Go to step 5. | Repair the following items.<br><b>Fuel pressure too high</b> <ul style="list-style-type: none"> <li>● Faulty pressure regulator</li> <li>● Clogged fuel return line or bent hose</li> </ul> <b>Fuel pressure too low</b> <ul style="list-style-type: none"> <li>● Faulty pressure regulator</li> <li>● Improper fuel pump discharge</li> <li>● Clogged fuel supply line</li> </ul> |
| 5   | <b>CHECK ENGINE COOLANT TEMPERATURE SENSOR.</b><br>1) Start the engine and warm-up completely.<br>2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b> <ul style="list-style-type: none"> <li>● Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li> <li>● OBD-II general scan tool<br/>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Is temperature greater than 60°C (140°F)?                                              | Go to step 6. | Replace engine coolant temperature sensor. <Ref. to FU-38 REMOVAL, Engine Coolant Temperature Sensor.>                                                                                                                                                                                                                                                                             |
| 6   | <b>CHECK INTAKE MANIFOLD PRESSURE SENSOR.</b><br>1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).<br>2) Place the shift lever in neutral position.<br>3) Turn A/C switch to OFF.<br>4) Turn all accessory switches to OFF.<br>5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b> <ul style="list-style-type: none"> <li>● Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li> <li>● OBD-II general scan tool<br/>For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.</li> </ul> <b>Specification:</b> <ul style="list-style-type: none"> <li>● Intake manifold absolute pressure</li> </ul> <b>Engine speed</b><br><b>Ignition ON</b><br><b>73.3 — 106.6 kPa (550 — 800 mmHg,</b><br><b>21.65 — 31.50 inHg)</b><br><b>Idling</b><br><b>24.0 — 41.3 kPa (180 — 310 mmHg,</b><br><b>7.09 — 12.20 inHg)</b> | Is the value within the specifications?                                                | Go to step 7. | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.>                                                                                                                                                                                                                                                                                 |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Check                                                                                                                                      | Yes                                                                                                                                    | No                                                                                                                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7   | <b>CHECK INTAKE AIR TEMPERATURE SENSOR.</b><br>1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F).<br>2) Place the shift lever in neutral position.<br>3) Turn A/C switch to OFF.<br>4) Turn all accessory switches to OFF.<br>5) Open front hood.<br>6) Measure ambient temperature.<br>7) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li> <li>OBD-II general scan tool<br/>For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.</li> </ul> | Is value obtained when ambient temperature is subtracted from intake air temperature greater than -10°C (14°F) and less than 50°C (122°F)? | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. | Check intake air temperature sensor. <Ref. to EN-110 DTC P0111 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |

## U: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —

S008636B34

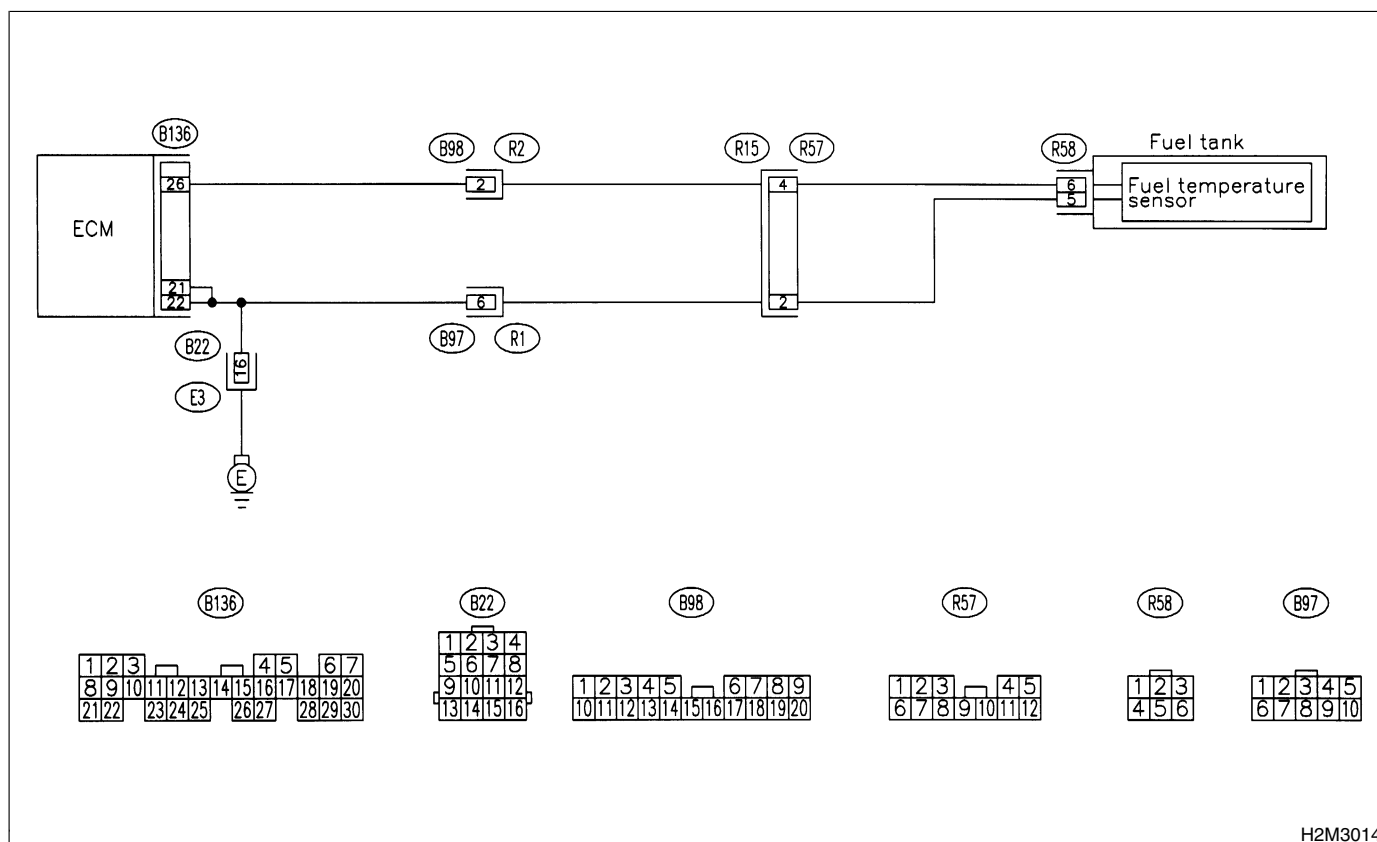
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3014

| No. | Step                            | Check                                                                                   | Yes                                                                                                                                                                                                                                                  | No                                                                                 |
|-----|---------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0182 or P0183? | Inspect DTC P0182 or P0183 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0181. | Replace fuel temperature sensor. <Ref. to EC-11 REMOVAL, Fuel Temperature Sensor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## V: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

S008636B35

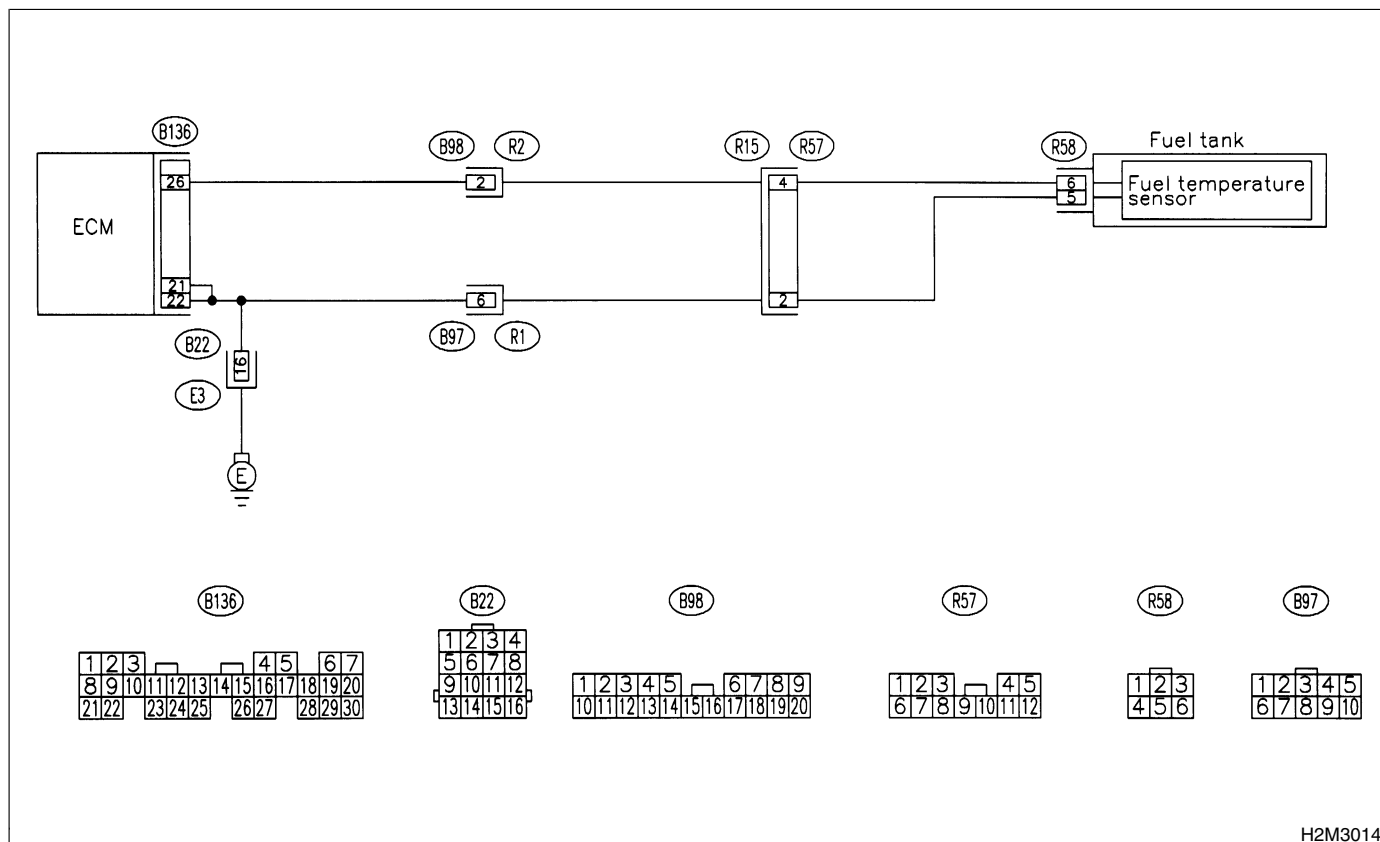
### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3014

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check                                    | Yes           | No                                                                                  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------|-------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value greater than 150°C (302°F)? | Go to step 2. | Even if MIL lights up, the circuit has returned to a normal condition at this time. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Check                                    | Yes                                                                                   | No                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 2   | <b>CHECK CURRENT DATA.</b><br>1) Turn ignition switch to OFF.<br>2) Remove access hole lid.<br>3) Disconnect connector from fuel pump.<br>4) Turn ignition switch to ON.<br>5) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>Subaru Select Monitor<br/>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br/>&lt;Ref. to EN-50 OPERATION, Subaru Select Monitor.&gt;</li> <li>OBD-II general scan tool<br/>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</li> </ul> | Is the value less than<br>−40°C (−40°F)? | Replace fuel temperature sensor.<br><Ref. to EC-11 REMOVAL, Fuel Temperature Sensor.> | Repair ground short circuit in harness between fuel pump and ECM connector. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## W: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT —

S008636B36

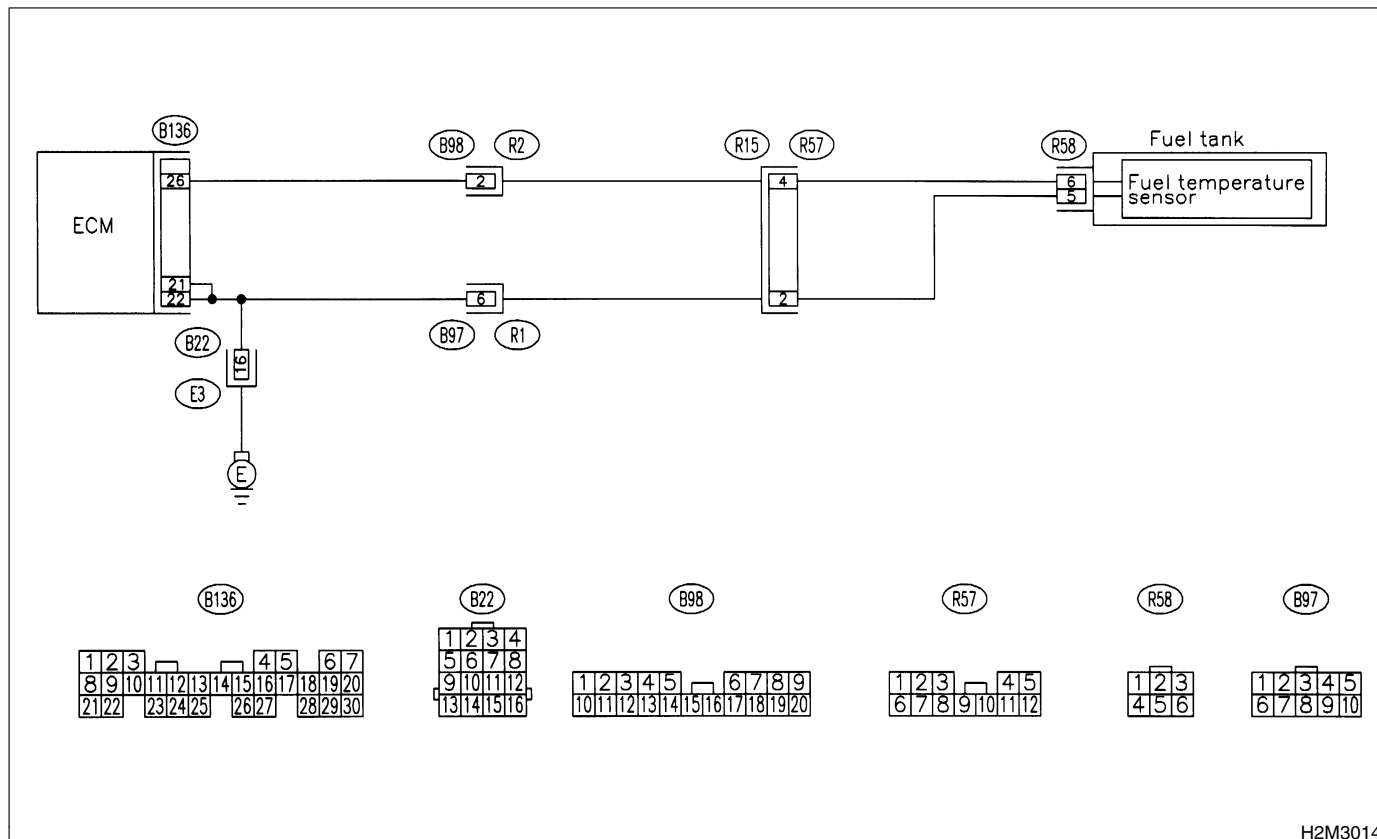
### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3014

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check                                 | Yes           | No                                                                                                                                                                                                                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -40°C (-40°F)? | Go to step 2. | Repair poor contact.<br>NOTE:<br>In this case, repair the following:<br>● Poor contact in fuel pump connector<br>● Poor contact in ECM connector<br>● Poor contact in coupling connectors (B22, B97, B98 and R57) |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                         | Check                                    | Yes                                                                                   | No                                                                                                                                                                                                                                                                                                                                                                |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Remove access hole lid.<br>3) Disconnect connector from fuel pump.<br>4) Measure voltage between fuel pump connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R58) No. 6 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and fuel pump connector.          | Go to step 3.                                                                                                                                                                                                                                                                                                                                                     |
| 3   | <b>CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between fuel pump connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R58) No. 6 (+) — Chassis ground (-):</b>                                                                           | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and fuel pump connector.          | Go to step 4.                                                                                                                                                                                                                                                                                                                                                     |
| 4   | <b>CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>Measure voltage between fuel pump connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R58) No. 6 (+) — Chassis ground (-):</b>                                                                                                                | Is the voltage more than 4 V?            | Go to step 5.                                                                         | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and fuel pump connector</li> <li>● Poor contact in fuel pump connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connectors (B98 and R57)</li> </ul>      |
| 5   | <b>CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance of harness between fuel pump connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R58) No. 5 — Chassis ground:</b>                                                                    | Is the resistance less than 5 $\Omega$ ? | Replace fuel temperature sensor.<br><Ref. to EC-11 REMOVAL, Fuel Temperature Sensor.> | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and fuel pump connector</li> <li>● Poor contact in fuel pump connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connectors (B22, B97 and R57)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

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## **X: DTC P0301 — CYLINDER 1 MISFIRE DETECTED —** S008636B37

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN-158 DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

## **Y: DTC P0302 — CYLINDER 2 MISFIRE DETECTED —** S008636B38

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN-158 DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

## **Z: DTC P0303 — CYLINDER 3 MISFIRE DETECTED —** S008636B39

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN-158 DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AA: DTC P0304 — CYLINDER 4 MISFIRE DETECTED — S008636B40

### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)

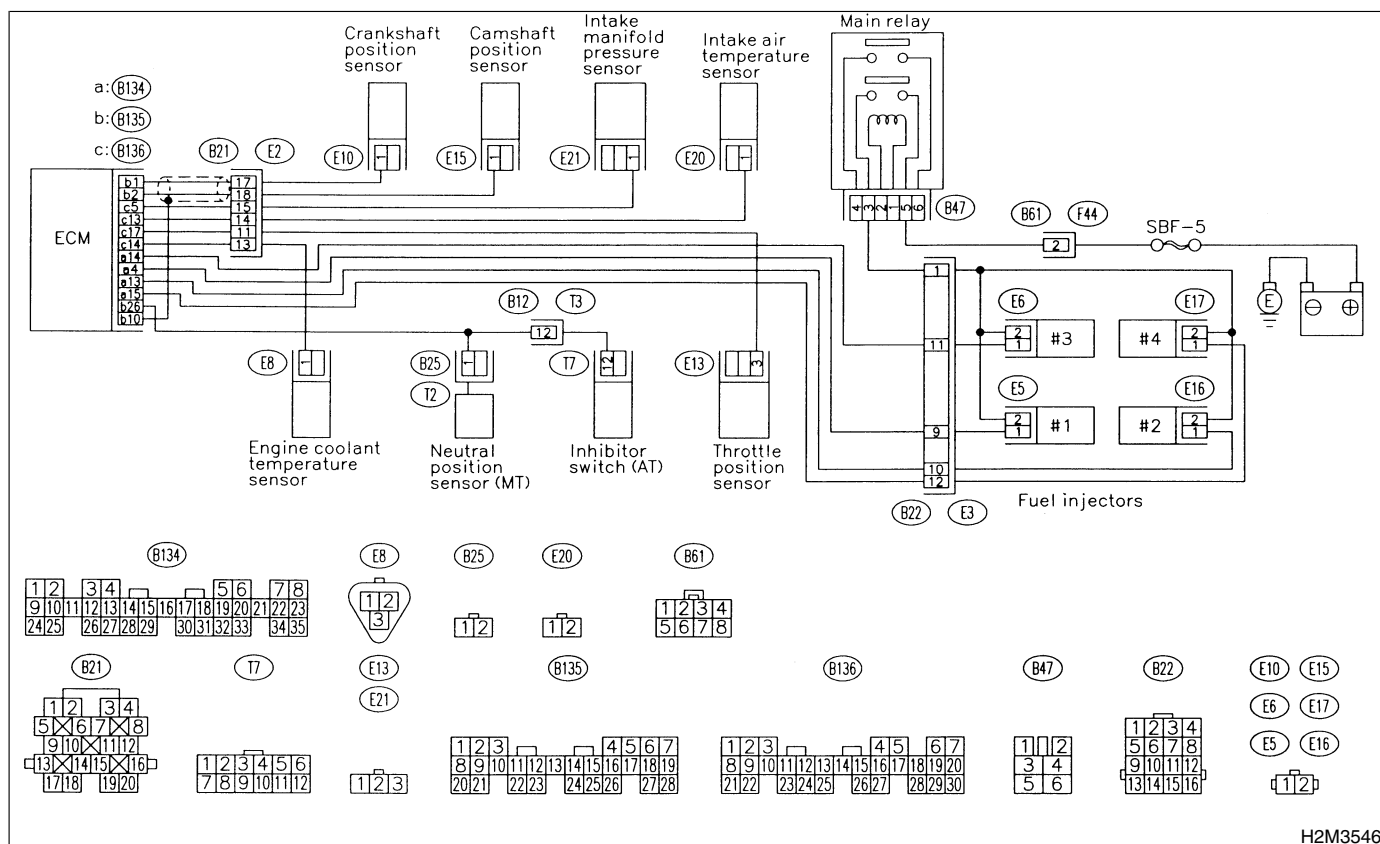
### • TROUBLE SYMPTOM:

- Engine stalls.
- Erroneous idling
- Rough driving

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3546

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                | Check                                                                                                               | Yes                                                                                                                                                                                                                                                                                                      | No                                                                                                                                                                                               |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                                                                              | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0116, P0117 or P0125? | Inspect DTC P0106, P0107, P0108, P0116, P0117 or P0125 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304. | Go to step 2.                                                                                                                                                                                    |
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM connector and chassis ground on faulty cylinders.<br><b>Connector &amp; terminal</b><br>#1 (B134) No. 4 (+) — Chassis ground (-):<br>#2 (B134) No. 13 (+) — Chassis ground (-):<br>#3 (B134) No. 14 (+) — Chassis ground (-):<br>#4 (B134) No. 15 (+) — Chassis ground (-):                                                | Is the voltage more than 10 V?                                                                                      | Go to step 7.                                                                                                                                                                                                                                                                                            | Go to step 3.                                                                                                                                                                                    |
| 3   | <b>CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from fuel injector on faulty cylinders.<br>3) Measure voltage between ECM connector and engine ground on faulty cylinders.<br><b>Connector &amp; terminal</b><br>#1 (E5) No. 1 — Engine ground:<br>#2 (E16) No. 1 — Engine ground:<br>#3 (E6) No. 1 — Engine ground:<br>#4 (E17) No. 1 — Engine ground: | Is the resistance less than 10 Ω?                                                                                   | Repair ground short circuit in harness between fuel injector and ECM connector.                                                                                                                                                                                                                          | Go to step 4.                                                                                                                                                                                    |
| 4   | <b>CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.</b><br>Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders.<br><b>Connector &amp; terminal</b><br>#1 (B134) No. 4 — (E5) No. 1:<br>#2 (B134) No. 13 — (E16) No. 1:<br>#3 (B134) No. 14 — (E6) No. 1:<br>#4 (B134) No. 15 — (E17) No. 1:                                                                                   | Is the resistance less than 1 Ω?                                                                                    | Go to step 5.                                                                                                                                                                                                                                                                                            | Repair harness and connector.<br>NOTE:<br>In this case, repair the following:<br>● Open circuit in harness between ECM and fuel injector connector<br>● Poor contact in coupling connector (B22) |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                                                        | Yes                                                                                                                                               | No                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5   | <b>CHECK FUEL INJECTOR.</b><br>Measure resistance between fuel injector terminals on faulty cylinder.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                                                                                                                                                                                                                                                             | Is the resistance between 5 and 20 $\Omega$ ?                                | Go to step 6.                                                                                                                                     | Replace faulty fuel injector. <Ref. to FU-54 REMOVAL, Fuel Injector.>                                                                                                                                                                                                                                                                                                                                             |
| 6   | <b>CHECK POWER SUPPLY LINE.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between fuel injector and engine ground on faulty cylinders.<br><b>Connector &amp; terminal</b><br><b>#1 (E5) No. 2 (+) — Engine ground (-):</b><br><b>#2 (E16) No. 2 (+) — Engine ground (-):</b><br><b>#3 (E6) No. 2 (+) — Engine ground (-):</b><br><b>#4 (E17) No. 2 (+) — Engine ground (-):</b>                                                                                                                                                  | Is the voltage more than 10 V?                                               | Repair poor contact in all connectors in fuel injector circuit.                                                                                   | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between main relay and fuel injector connector on faulty cylinders</li> <li>● Poor contact in coupling connector (B22)</li> <li>● Poor contact in main relay connector</li> <li>● Poor contact in fuel injector connector on faulty cylinders</li> </ul> |
| 7   | <b>CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from fuel injector on faulty cylinder.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM connector and chassis ground on faulty cylinders.<br><b>Connector &amp; terminal</b><br><b>#1 (B134) No. 4 (+) — Chassis ground (-):</b><br><b>#2 (B134) No. 13 (+) — Chassis ground (-):</b><br><b>#3 (B134) No. 14 (+) — Chassis ground (-):</b><br><b>#4 (B134) No. 15 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?                                               | Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 8.                                                                                                                                                                                                                                                                                                                                                                                                     |
| 8   | <b>CHECK FUEL INJECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between fuel injector terminals on faulty cylinder.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                                                                                                                                                                                                                       | Is the resistance less than 1 $\Omega$ ?                                     | Replace faulty fuel injector <Ref. to FU-54 REMOVAL, Fuel Injector.> and ECM <Ref. to FU-60 REMOVAL, Engine Control Module.>.                     | Go to step 9.                                                                                                                                                                                                                                                                                                                                                                                                     |
| 9   | <b>CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Is camshaft position sensor or crankshaft position sensor loosely installed? | Tighten camshaft position sensor or crankshaft position sensor.                                                                                   | Go to step 10.                                                                                                                                                                                                                                                                                                                                                                                                    |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                   | Check                                                          | Yes                                                                                                          | No                                                                                                                                                                                                                                                                                                                                                                                   |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10  | <b>CHECK CRANKSHAFT SPROCKET.</b><br>Remove timing belt cover.                                                                                                                                                                         | Is crankshaft sprocket rusted or does it have broken teeth?    | Replace crankshaft sprocket.<br><Ref. to ME-59 REMOVAL, Crankshaft Sprocket.>                                | Go to step 11.                                                                                                                                                                                                                                                                                                                                                                       |
| 11  | <b>CHECK INSTALLATION CONDITION OF TIMING BELT.</b><br>Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block.<br>ST 499987500 CRANKSHAFT SOCKET                              | Is timing belt dislocated from its proper position?            | Repair installation condition of timing belt. <Ref. to ME-53 REMOVAL, Timing Belt Assembly.>                 | Go to step 12.                                                                                                                                                                                                                                                                                                                                                                       |
| 12  | <b>CHECK FUEL LEVEL.</b>                                                                                                                                                                                                               | Is the fuel meter indication higher than the "Lower" level?    | Go to step 13.                                                                                               | Replenish fuel so fuel meter indication is higher than the "Lower" level. After replenishing fuel, Go to step 13.                                                                                                                                                                                                                                                                    |
| 13  | <b>CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).</b><br>1) Clear memory using Subaru Select Monitor.<br><Ref. to EN-60 OPERATION, Clear Memory Mode.><br>2) Start engine, and drive the vehicle more than 10 minutes. | Is the MIL coming on or blinking?                              | Go to step 15.                                                                                               | Go to step 14.                                                                                                                                                                                                                                                                                                                                                                       |
| 14  | <b>CHECK CAUSE OF MISFIRE DIAGNOSED.</b>                                                                                                                                                                                               | Was the cause of misfire diagnosed when the engine is running? | Finish diagnostics operation, if the engine has no abnormality.<br>NOTE:<br>Ex. Remove spark plug cord, etc. | Repair poor contact.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in ignitor connector</li> <li>● Poor contact in ignition coil connector</li> <li>● Poor contact in fuel injector connector on faulty cylinders</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B22)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                            | Check                                                                                    | Yes                                                                                                                                                                                                         | No             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 15  | <b>CHECK AIR INTAKE SYSTEM.</b>                                                                                                                                                                                                                                                                                                                                                                 | Is there a fault in air intake system?                                                   | Repair air intake system.<br>NOTE:<br>Check the following items:<br>● Are there air leaks or air suction caused by loose or dislocated nuts and bolts?<br>● Are there cracks or any disconnection of hoses? | Go to step 16. |
| 16  | <b>CHECK MISFIRE SYMPTOM.</b><br>1) Turn ignition switch to ON.<br>2) Read diagnostic trouble code (DTC).<br>● Subaru Select Monitor<br><Ref. to EN-56 OPERATION, Read Diagnostic Trouble Code.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual.<br>NOTE:<br>Perform diagnosis according to the items listed below. | Does the Subaru Select Monitor or OBD-II general scan tool indicate only one DTC?        | Go to step 21.                                                                                                                                                                                              | Go to step 17. |
| 17  | <b>CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                          | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302? | Go to step 22.                                                                                                                                                                                              | Go to step 18. |
| 18  | <b>CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                          | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304? | Go to step 23.                                                                                                                                                                                              | Go to step 19. |
| 19  | <b>CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                          | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0303? | Go to step 24.                                                                                                                                                                                              | Go to step 20. |
| 20  | <b>CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                          | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302 and P0304? | Go to step 25.                                                                                                                                                                                              | Go to step 26. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                         | Check                                    | Yes                                                                                                                                                                                                                                                                                                                                                                                                        | No                                                                                                                                                                                                                                                                                                                           |
|-----|------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21  | ONLY ONE CYLINDER            | Is there a fault in that cylinder?       | Repair or replace faulty parts.<br>NOTE:<br>Check the following items.<br><ul style="list-style-type: none"> <li>● Spark plug</li> <li>● Spark plug cord</li> <li>● Fuel injector</li> <li>● Compression ratio</li> </ul>                                                                                                                                                                                  | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |
| 22  | GROUP OF #1 AND #2 CYLINDERS | Are there faults in #1 and #2 cylinders? | Repair or replace faulty parts.<br>NOTE:<br><ul style="list-style-type: none"> <li>● Check the following items.<br/>Spark plugs<br/>Fuel injectors<br/>Ignition coil<br/>Compression ratio</li> <li>● If no abnormal is discovered, check for “D: IGNITION CONTROL SYSTEM” of #1 and #2 cylinders side. &lt;Ref. to EN-80 IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.&gt;</li> </ul> | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                         | Check                                    | Yes                                                                                                                                                                                                                                                                                                                                                                                             | No                                                                                                                                                                                                                                                                                                                           |
|-----|------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23  | GROUP OF #3 AND #4 CYLINDERS | Are there faults in #3 and #4 cylinders? | Repair or replace faulty parts.<br>NOTE:<br><ul style="list-style-type: none"> <li>Check the following items.</li> <li>Spark plugs</li> <li>Fuel injectors</li> <li>Ignition coil</li> <li>If no abnormal is discovered, check for "D: IGNITION CONTROL SYSTEM" of #3 and #4 cylinders side. &lt;Ref. to EN-80 IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.&gt;</li> </ul> | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |
| 24  | GROUP OF #1 AND #3 CYLINDERS | Are there faults in #1 and #3 cylinders? | Repair or replace faulty parts.<br>NOTE:<br>Check the following items. <ul style="list-style-type: none"> <li>Spark plugs</li> <li>Fuel injectors</li> <li>Skipping timing belt teeth</li> </ul>                                                                                                                                                                                                | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                         | Check                                    | Yes                                                                                                                                                                                                                                                                                                                          | No                                                                                                                                                                                                                                                                                                                           |
|-----|------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25  | GROUP OF #2 AND #4 CYLINDERS | Are there faults in #2 and #4 cylinders? | Repair or replace faulty parts.<br>NOTE:<br>Check the following items.<br><ul style="list-style-type: none"> <li>● Spark plugs</li> <li>● Fuel injectors</li> <li>● Compression ratio</li> <li>● Skipping timing belt teeth</li> </ul>                                                                                       | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> |
| 26  | CYLINDER AT RANDOM           | Is the engine idle rough?                | Go to DTC P0171 <Ref. to EN-147 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> and P0172. <Ref. to EN-148 DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Repair or replace faulty parts.<br>NOTE:<br>Check the following items.<br><ul style="list-style-type: none"> <li>● Spark plugs</li> <li>● Fuel injectors</li> <li>● Compression ratio</li> </ul>                                                                                                                             |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

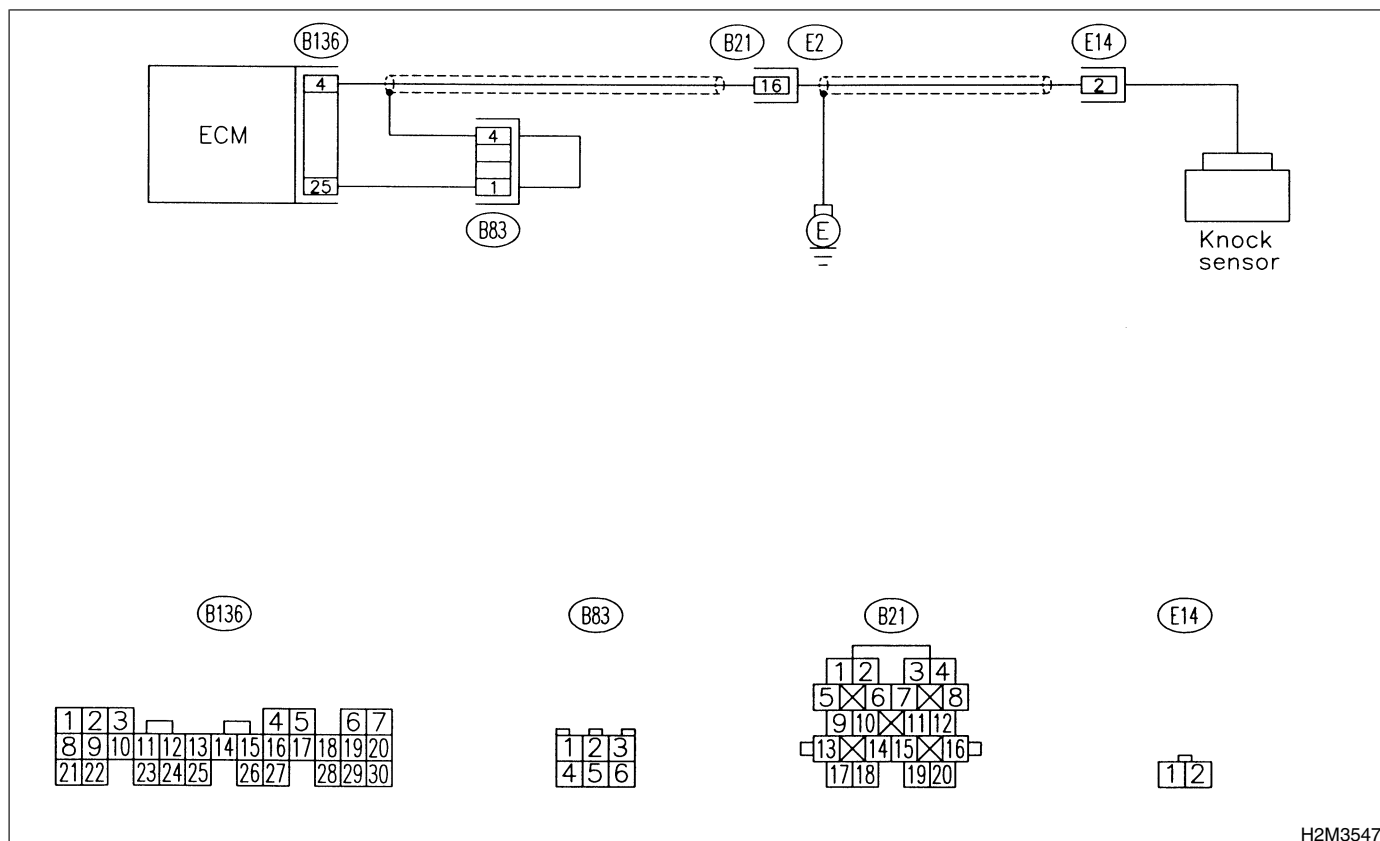
## AB: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION — S008636F04

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3547

| No. | Step                                                                                                                                                                                                                                                                                        | Check                               | Yes           | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------|---------------|
| 1   | <b>CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance between ECM harness connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 4 — Chassis ground:</b> | Is the resistance more than 700 kΩ? | Go to step 3. | Go to step 2. |
| 2   | <b>CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 4 — Chassis ground:</b>                                                                         | Is the resistance less than 400 kΩ? | Go to step 5. | Go to step 6. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                             | Check                                                     | Yes                                                                                                                                                                                                                                                                                                                                                                                                | No                                                                                                                                                                                                                                                                                                               |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK KNOCK SENSOR.</b><br>1) Disconnect connector from knock sensor.<br>2) Measure resistance between knock sensor connector terminal and engine ground.<br><i>Terminal</i><br><i>No. 2 — Engine ground:</i>                                                 | Is the resistance more than 700 k $\Omega$ ?              | Go to step 4.                                                                                                                                                                                                                                                                                                                                                                                      | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between knock sensor and ECM connector</li> <li>● Poor contact in knock sensor connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> |
| 4   | <b>CHECK CONDITION OF KNOCK SENSOR INSTALLATION.</b>                                                                                                                                                                                                             | Is the knock sensor installation bolt tightened securely? | Replace knock sensor. <Ref. to FU-41 REMOVAL, Knock Sensor.>                                                                                                                                                                                                                                                                                                                                       | Tighten knock sensor installation bolt securely.                                                                                                                                                                                                                                                                 |
| 5   | <b>CHECK KNOCK SENSOR.</b><br>1) Disconnect connector from knock sensor.<br>2) Measure resistance between knock sensor connector terminal and engine ground.<br><i>Terminal</i><br><i>No. 2 — Engine ground:</i>                                                 | Is the resistance less than 400 k $\Omega$ ?              | Replace knock sensor. <Ref. to FU-41 REMOVAL, Knock Sensor.>                                                                                                                                                                                                                                                                                                                                       | Repair ground short circuit in harness between knock sensor connector and ECM connector.<br><b>NOTE:</b><br>The harness between both connectors is shielded. Repair short circuit of harness together with shield.                                                                                               |
| 6   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Connect connectors to ECM and knock sensor.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between ECM and chassis ground.<br><i>Connector &amp; terminal</i><br><i>(B136) No. 4 (+) — Chassis ground (-):</i> | Is the voltage more than 2 V?                             | Even if MIL lights up, the circuit has returned to a normal condition at this time.<br>(However, the possibility of poor contact still remains.)<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in knock sensor connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> | Repair poor contact in ECM connector.                                                                                                                                                                                                                                                                            |

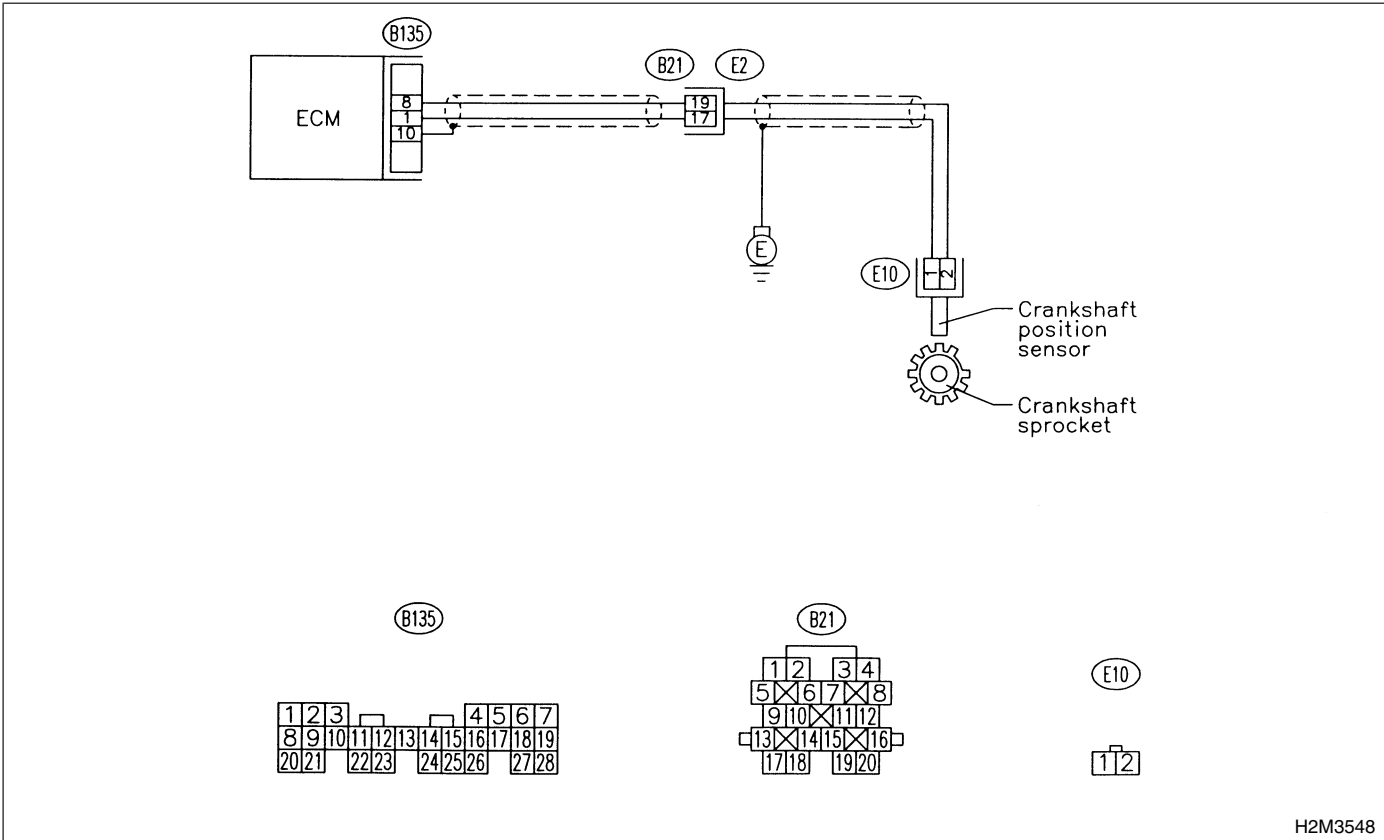
Engine

AC: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT  
MALFUNCTION — S008636B42

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

**CAUTION:**  
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



H2M3548

| No. | Step                                                                                                                                                                                                                                                                                                                                                    | Check                               | Yes                                                                                                                                                                                                                                                                                                     | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from crankshaft position sensor.<br>3) Measure resistance of harness between crankshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E10) No. 1 — Engine ground:</b> | Is the resistance more than 100 kΩ? | Repair harness and connector.<br>NOTE:<br>In this case, repair the following: <ul style="list-style-type: none"><li>● Open circuit in harness between crankshaft position sensor and ECM connector</li><li>● Poor contact in ECM connector</li><li>● Poor contact in coupling connector (B21)</li></ul> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                  | Check                                                                   | Yes                                                                                                                                                                                                                     | No                                                                                                                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between crankshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E10) No. 1 — Engine ground:</b> | Is the resistance less than 10 $\Omega$ ?                               | Repair ground short circuit in harness between crankshaft position sensor and ECM connector.<br>NOTE:<br>The harness between both connectors are shielded. Repair ground short circuit in harness together with shield. | Go to step 3.                                                                                                                                                                                                                                                                                                  |
| 3   | <b>CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between crankshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E10) No. 2 — Engine ground:</b> | Is the resistance less than 5 $\Omega$ ?                                | Go to step 4.                                                                                                                                                                                                           | Repair harness and connector.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between crankshaft position sensor and ECM connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> |
| 4   | <b>CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.</b>                                                                                                                                                                                                 | Is the crankshaft position sensor installation bolt tightened securely? | Go to step 5.                                                                                                                                                                                                           | Tighten crankshaft position sensor installation bolt securely.                                                                                                                                                                                                                                                 |
| 5   | <b>CHECK CRANKSHAFT POSITION SENSOR.</b><br>1) Remove crankshaft position sensor.<br>2) Measure resistance between connector terminals of crankshaft position sensor.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                    | Is the resistance between 1 and 4 k $\Omega$ ?                          | Repair poor contact in crankshaft position sensor connector.                                                                                                                                                            | Replace crankshaft position sensor. <Ref. to FU-39 REMOVAL, Crankshaft Position Sensor.>                                                                                                                                                                                                                       |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AD: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

S008636B43

### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

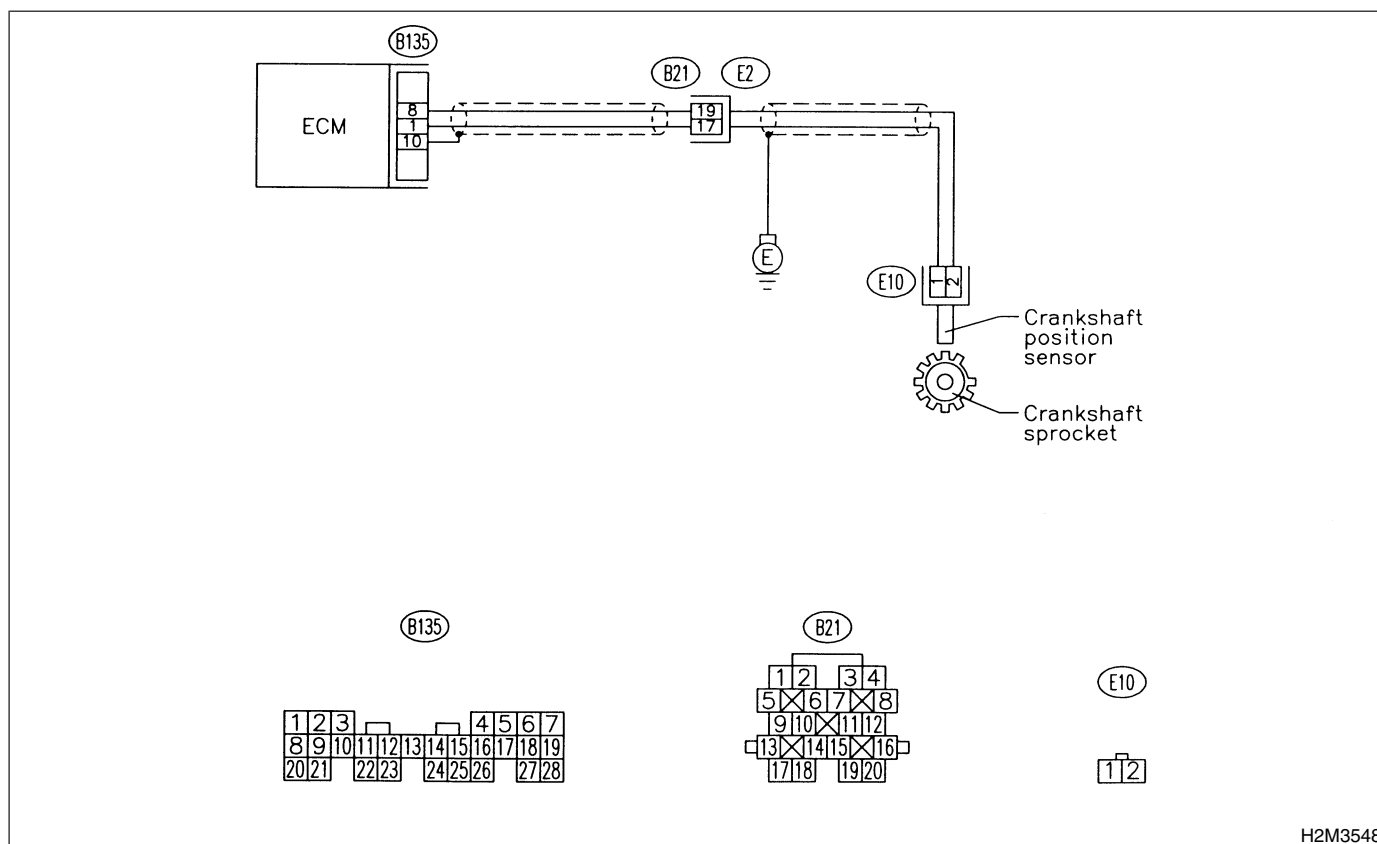
### ● TROUBLE SYMPTOM:

- Engine stalls.
- Failure of engine to start

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3548

| No. | Step                                                                                  | Check                                                                          | Yes                                                                                                                                                                     | No                                                             |
|-----|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0335? | Inspect DTC P0335 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2.                                                  |
| 2   | <b>CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.</b><br>Turn ignition switch to OFF. | Is the crankshaft position sensor installation bolt tightened securely?        | Go to step 3.                                                                                                                                                           | Tighten crankshaft position sensor installation bolt securely. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                      | Check                                               | Yes                                                                                          | No                                                                                       |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 3   | <b>CHECK CRANKSHAFT SPROCKET.</b><br>Remove front belt cover.                                                                                                                                             | Are crankshaft sprocket teeth cracked or damaged?   | Replace crankshaft sprocket. <Ref. to ME-59 REMOVAL, Crankshaft Sprocket.>                   | Go to step 4.                                                                            |
| 4   | <b>CHECK INSTALLATION CONDITION OF TIMING BELT.</b><br>Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block.<br>ST 499987500 CRANKSHAFT SOCKET | Is timing belt dislocated from its proper position? | Repair installation condition of timing belt. <Ref. to ME-53 REMOVAL, Timing Belt Assembly.> | Replace crankshaft position sensor. <Ref. to FU-39 REMOVAL, Crankshaft Position Sensor.> |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

Engine

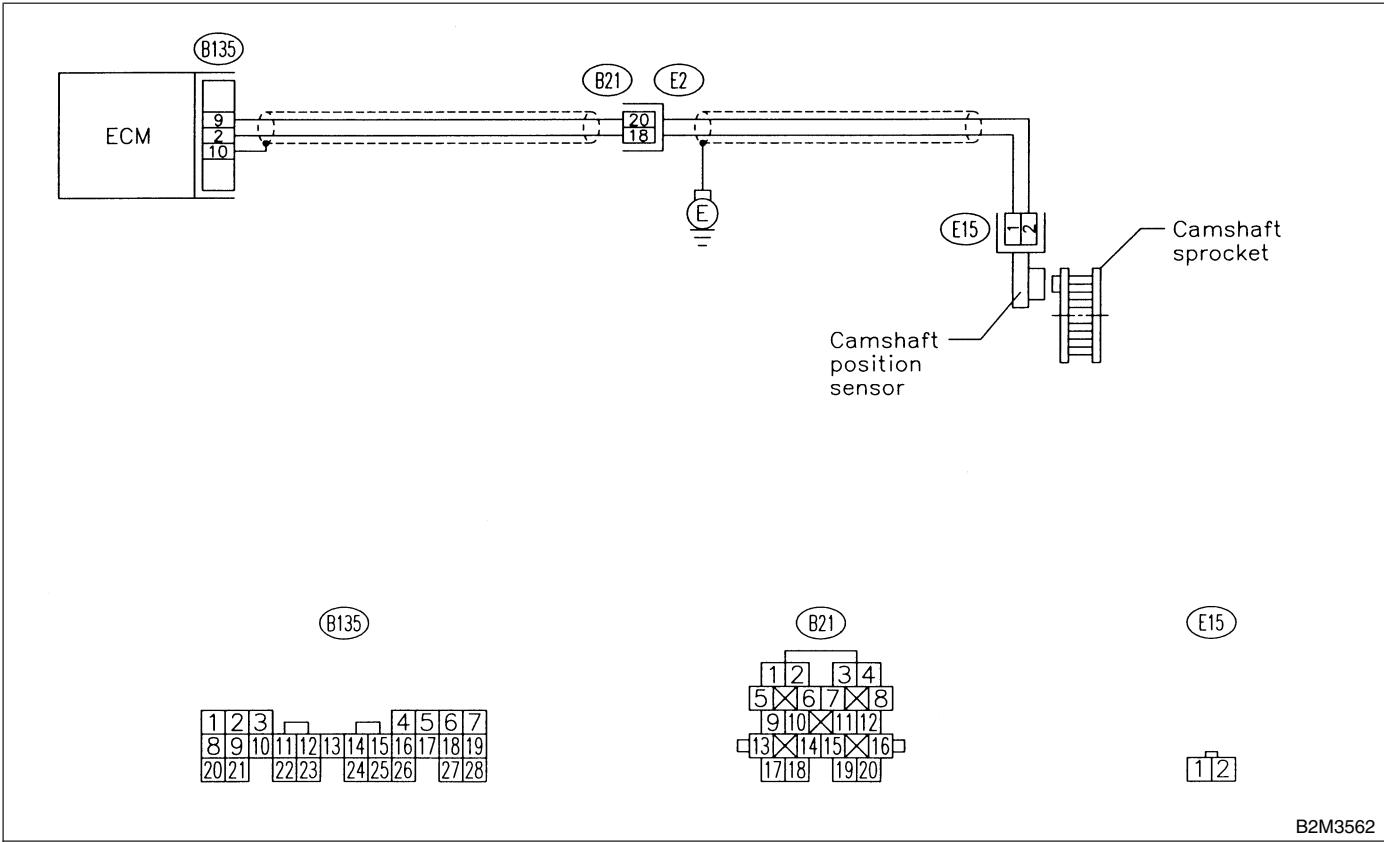
AE: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION

S008636B44

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

**CAUTION:**  
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



| No. | Step                                                                                                                                                                                                                                                                                                                                              | Check                               | Yes                                                                                                                                                                                                                                                                                                          | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from camshaft position sensor.<br>3) Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 1 — Engine ground:</b> | Is the resistance more than 100 kΩ? | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"><li>● Open circuit in harness between camshaft position sensor and ECM connector</li><li>● Poor contact in ECM connector</li><li>● Poor contact in coupling connector (B21)</li></ul> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                              | Check                                                                 | Yes                                                                                                                                                                                                                   | No                                                                                                                                                                                                                                                                                                           |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 1 — Engine ground:</b> | Is the resistance less than 10 $\Omega$ ?                             | Repair ground short circuit in harness between camshaft position sensor and ECM connector.<br>NOTE:<br>The harness between both connectors are shielded. Repair ground short circuit in harness together with shield. | Go to step 3.                                                                                                                                                                                                                                                                                                |
| 3   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 2 — Engine ground:</b> | Is the resistance less than 5 $\Omega$ ?                              | Go to step 4.                                                                                                                                                                                                         | Repair harness and connector.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between camshaft position sensor and ECM connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> |
| 4   | <b>CHECK CONDITION OF CAMSHAFT POSITION SENSOR.</b>                                                                                                                                                                                               | Is the camshaft position sensor installation bolt tightened securely? | Go to step 5.                                                                                                                                                                                                         | Tighten camshaft position sensor installation bolt securely.                                                                                                                                                                                                                                                 |
| 5   | <b>CHECK CAMSHAFT POSITION SENSOR.</b><br>1) Remove camshaft position sensor.<br>2) Measure resistance between connector terminals of camshaft position sensor.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                      | Is the resistance between 1 and 4 k $\Omega$ ?                        | Repair poor contact in camshaft position sensor connector.                                                                                                                                                            | Replace camshaft position sensor.<br><Ref. to FU-40 REMOVAL, Camshaft Position Sensor.>                                                                                                                                                                                                                      |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

Engine

AF: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT  
RANGE/PERFORMANCE PROBLEM —

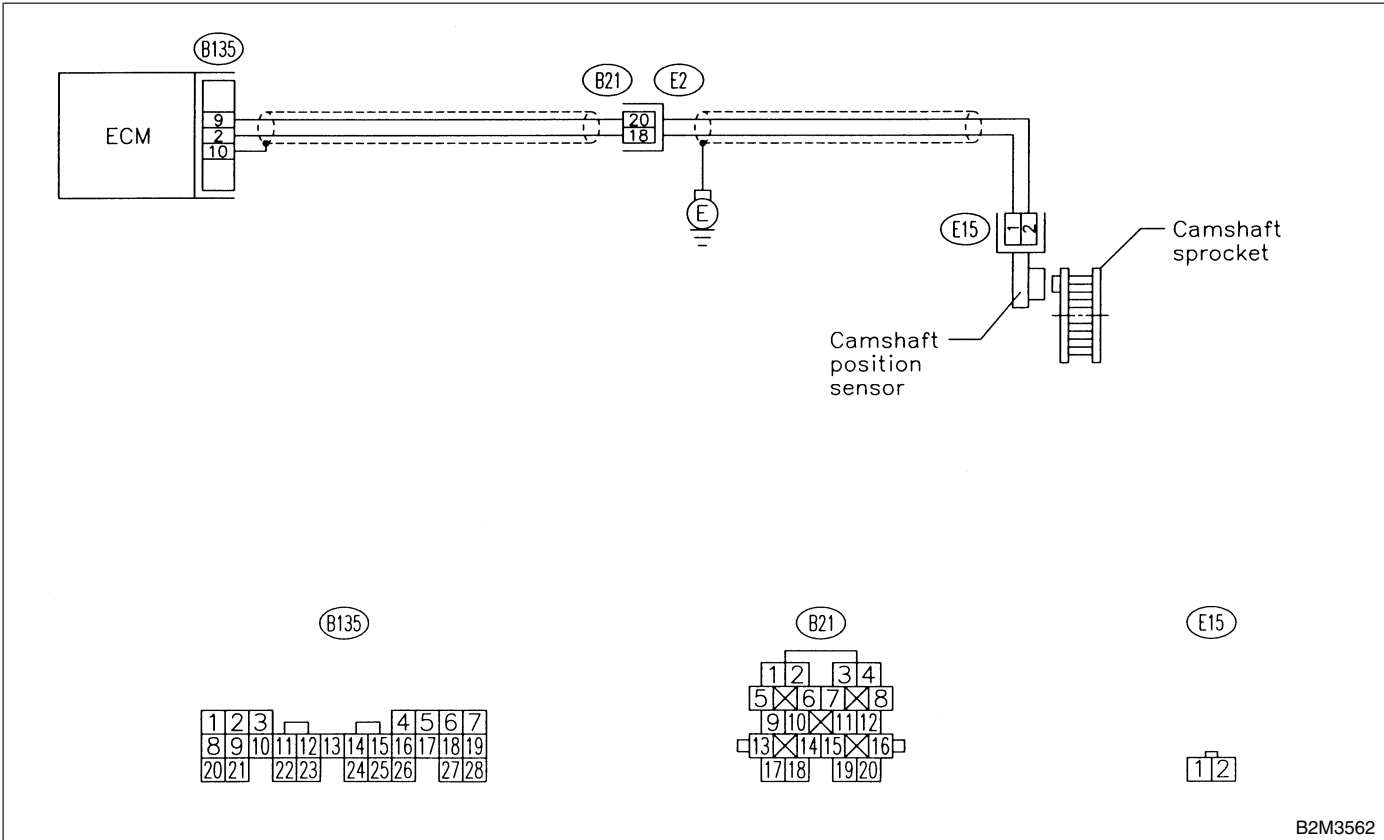
S008636B45

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



B2M3562

| No. | Step                            | Check                                                                          | Yes                                                                                                                                                                     | No            |
|-----|---------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0340? | Inspect DTC P0340 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                              | Check                                                                 | Yes                                                                                                                                                                                                                                                                                                                 | No                                                                                                                                                                                                                                                                                                                  |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from camshaft position sensor.<br>3) Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 1 — Engine ground:</b> | Is the resistance more than 100 k $\Omega$ ?                          | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between camshaft position sensor and ECM connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> | Go to step 3.                                                                                                                                                                                                                                                                                                       |
| 3   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 1 — Engine ground:</b>                                                                                                 | Is the resistance less than 10 $\Omega$ ?                             | Repair ground short circuit in harness between camshaft position sensor and ECM connector.<br><b>NOTE:</b><br>The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.                                                                                        | Go to step 4.                                                                                                                                                                                                                                                                                                       |
| 4   | <b>CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.</b><br>Measure resistance of harness between camshaft position sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E15) No. 2 — Engine ground:</b>                                                                                                 | Is the resistance less than 5 $\Omega$ ?                              | Go to step 5.                                                                                                                                                                                                                                                                                                       | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between camshaft position sensor and ECM connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B21)</li> </ul> |
| 5   | <b>CHECK CONDITION OF CAMSHAFT POSITION SENSOR.</b>                                                                                                                                                                                                                                                                                               | Is the camshaft position sensor installation bolt tightened securely? | Go to step 6.                                                                                                                                                                                                                                                                                                       | Tighten camshaft position sensor installation bolt securely.                                                                                                                                                                                                                                                        |
| 6   | <b>CHECK CAMSHAFT POSITION SENSOR.</b><br>1) Remove camshaft position sensor.<br>2) Measure resistance between connector terminals of camshaft position sensor.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                      | Is the resistance between 1 and 4 k $\Omega$ ?                        | Go to step 7.                                                                                                                                                                                                                                                                                                       | Replace camshaft position sensor.<br><Ref. to FU-40 REMOVAL, Camshaft Position Sensor.>                                                                                                                                                                                                                             |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                               | Check                                                                 | Yes                                                                                          | No                                                                                   |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 7   | <b>CHECK CONDITION OF CAMSHAFT POSITION SENSOR.</b><br>Turn ignition switch to OFF.                                                                                                                                | Is the camshaft position sensor installation bolt tightened securely? | Go to step 8.                                                                                | Tighten camshaft position sensor installation bolt securely.                         |
| 8   | <b>CHECK CAMSHAFT SPROCKET.</b><br>Remove front belt cover. <Ref. to ME-52 REMOVAL, Belt Cover.>                                                                                                                   | Are camshaft sprocket teeth cracked or damaged?                       | Replace camshaft sprocket. <Ref. to ME-58 REMOVAL, Camshaft Sprocket.>                       | Go to step 9.                                                                        |
| 9   | <b>CHECK INSTALLATION CONDITION OF TIMING BELT.</b><br>Turn camshaft using ST, and align alignment mark on camshaft sprocket with alignment mark on timing belt cover LH.<br>ST 499207100 CAMSHAFT SPROCKET WRENCH | Is timing belt dislocated from its proper position?                   | Repair installation condition of timing belt. <Ref. to ME-53 REMOVAL, Timing Belt Assembly.> | Replace camshaft position sensor. <Ref. to FU-40 REMOVAL, Camshaft Position Sensor.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AG: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD

S008636B46

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

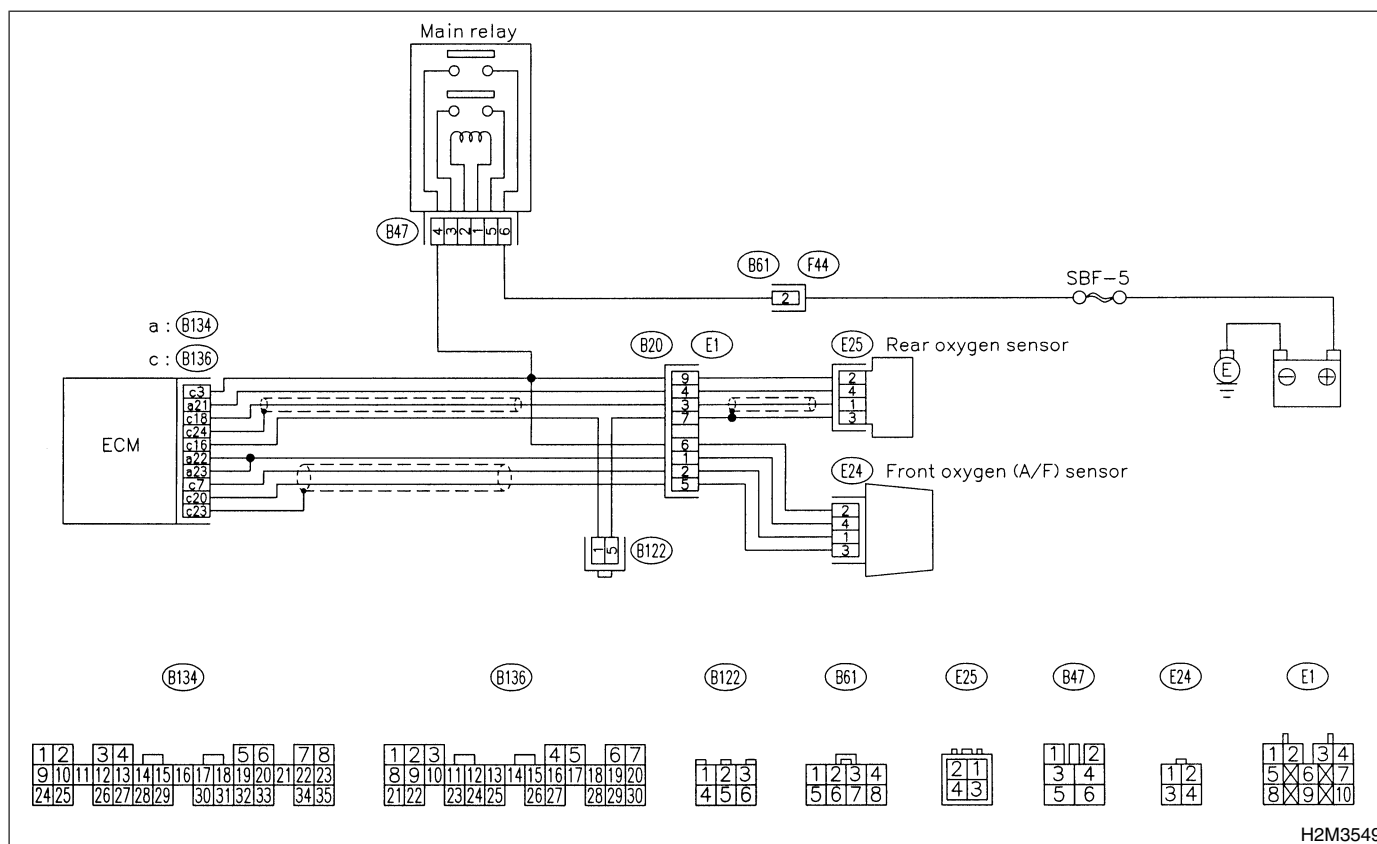
### ● TROUBLE SYMPTOM:

- Engine stalls.
- Idle mixture is out of specifications.

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3549

| No. | Step                            | Check                                                                                                                                                                                             | Yes                                                                                                                                                                                                                                                | No            |
|-----|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0131, P0132, P0133, P0135, P0136, P0139, P0141, P0301, P0302, P0303, P0304, P1130, P1131, P1134, P1139, P1150 and P1151? | Inspect the relevant DTC using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0420. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                       | Check                                                         | Yes                                                                                                                                                                  | No                                                                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK EXHAUST SYSTEM.</b><br>Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes.<br>NOTE:<br>Check the following positions. <ul style="list-style-type: none"> <li>● Between cylinder head and front exhaust pipe</li> <li>● Between front exhaust pipe and front catalytic converter</li> <li>● Between front catalytic converter and rear catalytic converter</li> </ul> | Is there a fault in exhaust system?                           | Repair or replace exhaust system.<br><Ref. to EC-3 REMOVAL, Front Catalytic Converter.>                                                                              | Go to step 3.                                                                                                                   |
| 3   | <b>CHECK REAR CATALYTIC CONVERTER.</b><br>Separate rear catalytic converter from rear exhaust pipe.                                                                                                                                                                                                                                                                                                                                        | Is there damage at rear face of rear catalyst?                | Replace front catalytic converter <Ref. to EC-3 REMOVAL, Front Catalytic Converter.> and rear catalytic converter <Ref. to EC-6 REMOVAL, Rear Catalytic Converter.>. | Go to step 4.                                                                                                                   |
| 4   | <b>CHECK FRONT CATALYTIC CONVERTER.</b><br>Remove front catalytic converter.                                                                                                                                                                                                                                                                                                                                                               | Is there damage at rear face or front face of front catalyst? | Replace front catalytic converter. <Ref. to EC-3 REMOVAL, Front Catalytic Converter.>                                                                                | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AH: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION —

S008636B47

### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

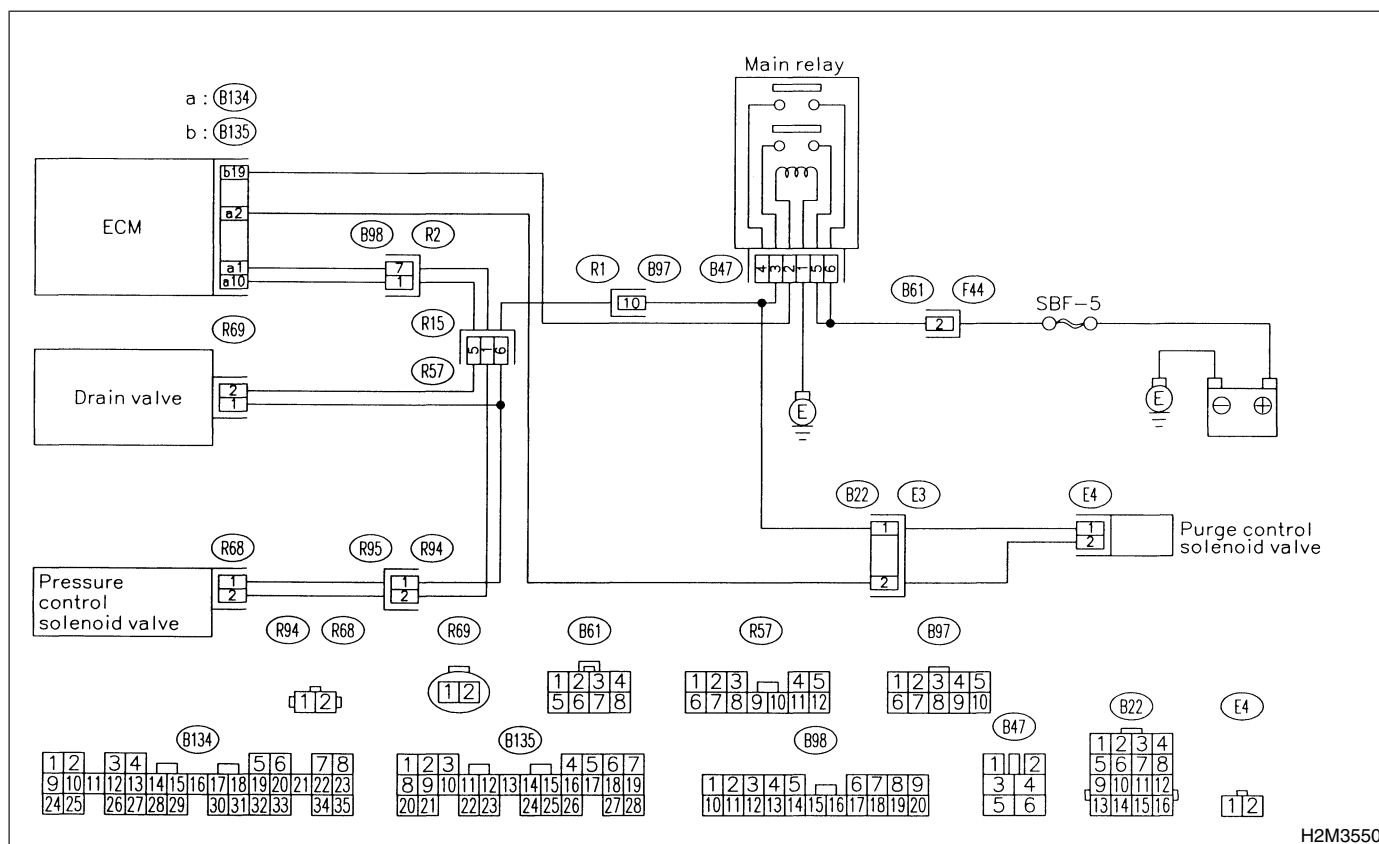
### • TROUBLE SYMPTOM:

- Gasoline smell
- There is a hole of more than 1.0 mm (0.04 in) dia. in evaporation system or fuel tank.

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



| No. | Step                            | Check                              | Yes                                                                                                                                                                            | No            |
|-----|---------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Is there any other DTC on display? | Inspect the relevant DTC using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                 | Check                                                                             | Yes                                                                                                   | No                                                                                                 |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK FUEL FILLER CAP.</b><br>1) Turn ignition switch to OFF.<br>2) Check the fuel filler cap.<br>NOTE:<br>The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.                                                                                                                   | Is the fuel filler cap tightened securely?                                        | Go to step 3.                                                                                         | Tighten fuel filler cap securely.                                                                  |
| 3   | <b>CHECK FUEL FILLER PIPE PACKING.</b>                                                                                                                                                                                                                                                                                                               | Is there any damage to the seal between fuel filler cap and fuel filler pipe?     | Repair or replace fuel filler cap and fuel filler pipe.<br><Ref. to FU-72 REMOVAL, Fuel Filler Pipe.> | Go to step 4.                                                                                      |
| 4   | <b>CHECK DRAIN VALVE.</b><br>1) Connect test mode connector.<br>2) Turn ignition switch to ON.<br>3) Operate drain valve.<br>NOTE:<br>Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.> | Does drain valve produce operating sound?                                         | Go to step 5.                                                                                         | Replace drain valve. <Ref. to EC-23 REMOVAL, Drain Valve.>                                         |
| 5   | <b>CHECK PURGE CONTROL SOLENOID VALVE.</b><br>Operate purge control solenoid valve.<br>NOTE:<br>Purge control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.>                      | Does purge control solenoid valve produce operating sound?                        | Go to step 6.                                                                                         | Replace purge control solenoid valve. <Ref. to FU-88 REMOVAL, Purge Control Solenoid Valve.>       |
| 6   | <b>CHECK PRESSURE CONTROL SOLENOID VALVE.</b><br>Operate pressure control solenoid valve.<br>NOTE:<br>Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.>             | Does pressure control solenoid valve produce operating sound?                     | Go to step 7.                                                                                         | Replace pressure control solenoid valve. <Ref. to EC-17 REMOVAL, Pressure Control Solenoid Valve.> |
| 7   | <b>CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.</b><br>Turn ignition switch to OFF.                                                                                                                                                                                                                                                               | Is there a hole of more than 1.0 mm (0.04 in) dia. on fuel line?                  | Repair or replace fuel line. <Ref. to FU-85 REMOVAL, Fuel Delivery, Return and Evaporation Lines.>    | Go to step 8.                                                                                      |
| 8   | <b>CHECK CANISTER.</b>                                                                                                                                                                                                                                                                                                                               | Is canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?  | Repair or replace canister. <Ref. to EC-7 REMOVAL, Canister.>                                         | Go to step 9.                                                                                      |
| 9   | <b>CHECK FUEL TANK.</b><br>Remove fuel tank. <Ref. to FU-66 REMOVAL, Fuel Tank.>                                                                                                                                                                                                                                                                     | Is fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it? | Repair or replace fuel tank. <Ref. to FU-69 INSTALLATION, Fuel Tank.>                                 | Go to step 10.                                                                                     |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                              | Check                                                                                                                                            | Yes                               | No                                                                                                                              |
|-----|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 10  | <b>CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.</b> | Are there holes of more than 1.0 mm (0.04 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emission control system? | Repair or replace hoses or pipes. | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

Engine

AI: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE  
CONTROL VALVE CIRCUIT LOW INPUT —

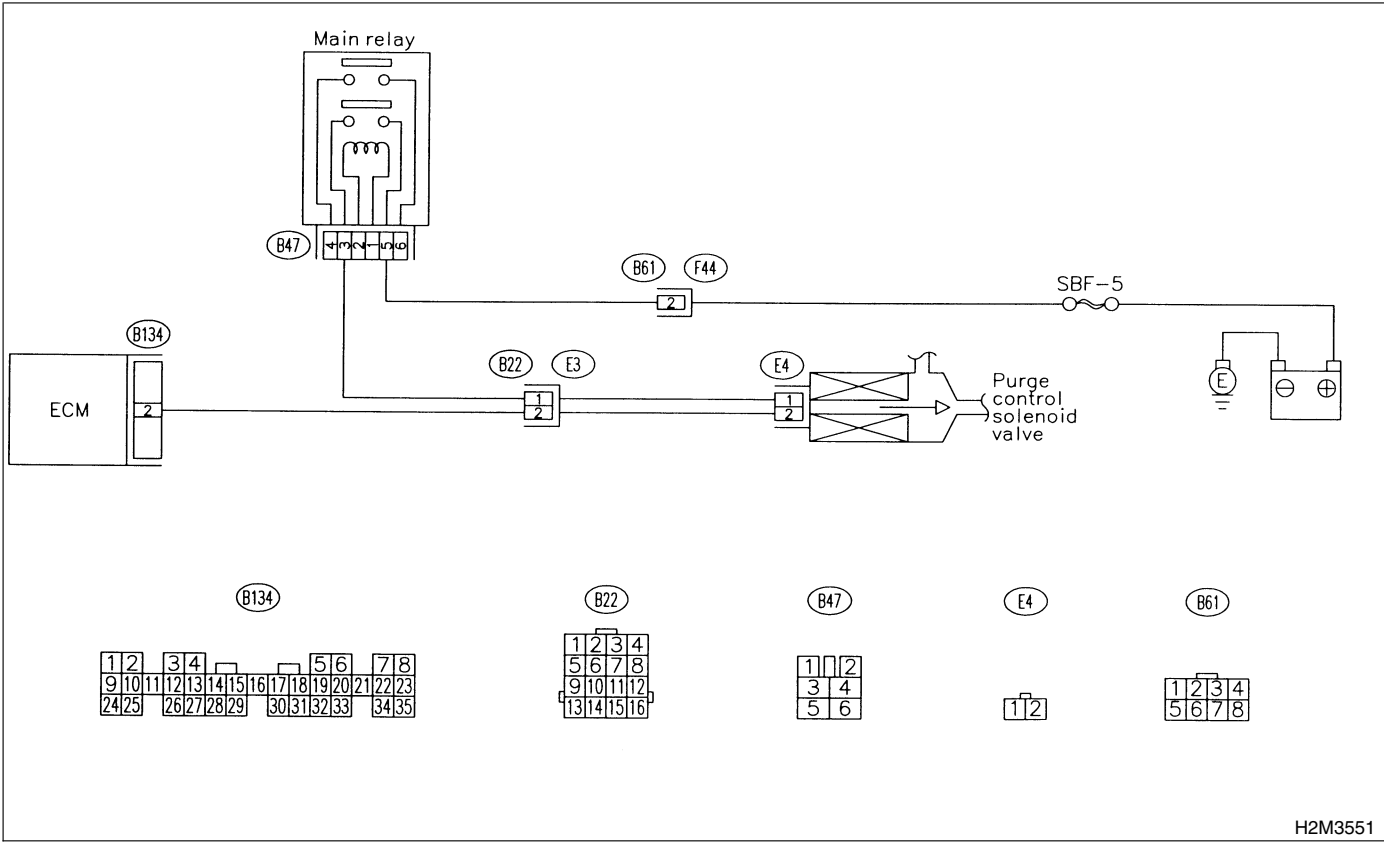
S008636B49

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Erroneous idling

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



H2M3551

| No. | Step                                                                                                                                                                                                             | Check                          | Yes                                                                                                                                                                                                                        | No            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 2 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V? | Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                  | Check                                                            | Yes                                                                                            | No                                                                                                                                                                                                                                                                                                                                      |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from purge control solenoid valve and ECM.<br>3) Measure resistance of harness between purge control solenoid valve connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E4) No. 2 — Engine ground:</b> | Is the resistance less than 10 $\Omega$ ?                        | Repair ground short circuit in harness between ECM and purge control solenoid valve connector. | Go to step 3.                                                                                                                                                                                                                                                                                                                           |
| 3   | <b>CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>Measure resistance of harness between ECM and purge control solenoid valve of harness connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 2 — (E4) No. 2:</b>                                                                                                              | Is the resistance less than 1 $\Omega$ ?                         | Go to step 4.                                                                                  | Repair open circuit in harness between ECM and purge control solenoid valve connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and purge control solenoid valve connector</li> <li>● Poor contact in coupling connector (B22)</li> </ul> |
| 4   | <b>CHECK PURGE CONTROL SOLENOID VALVE.</b><br>1) Remove purge control solenoid valve.<br>2) Measure resistance between purge control solenoid valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                           | Is the resistance between 10 and 100 $\Omega$ ?                  | Go to step 5.                                                                                  | Replace purge control solenoid valve. <Ref. to FU-88 REMOVAL, Purge Control Solenoid Valve.>                                                                                                                                                                                                                                            |
| 5   | <b>CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between purge control solenoid valve and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E4) No. 1 (+) — Engine ground (-):</b>                                                                                                           | Is the voltage more than 10 V?                                   | Go to step 6.                                                                                  | Repair open circuit in harness between main relay and purge control solenoid valve connector.                                                                                                                                                                                                                                           |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in purge control solenoid valve connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                              | Is there poor contact in purge control solenoid valve connector? | Repair poor contact in purge control solenoid valve connector.                                 | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                                                                  |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AJ: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT —

S008636B50

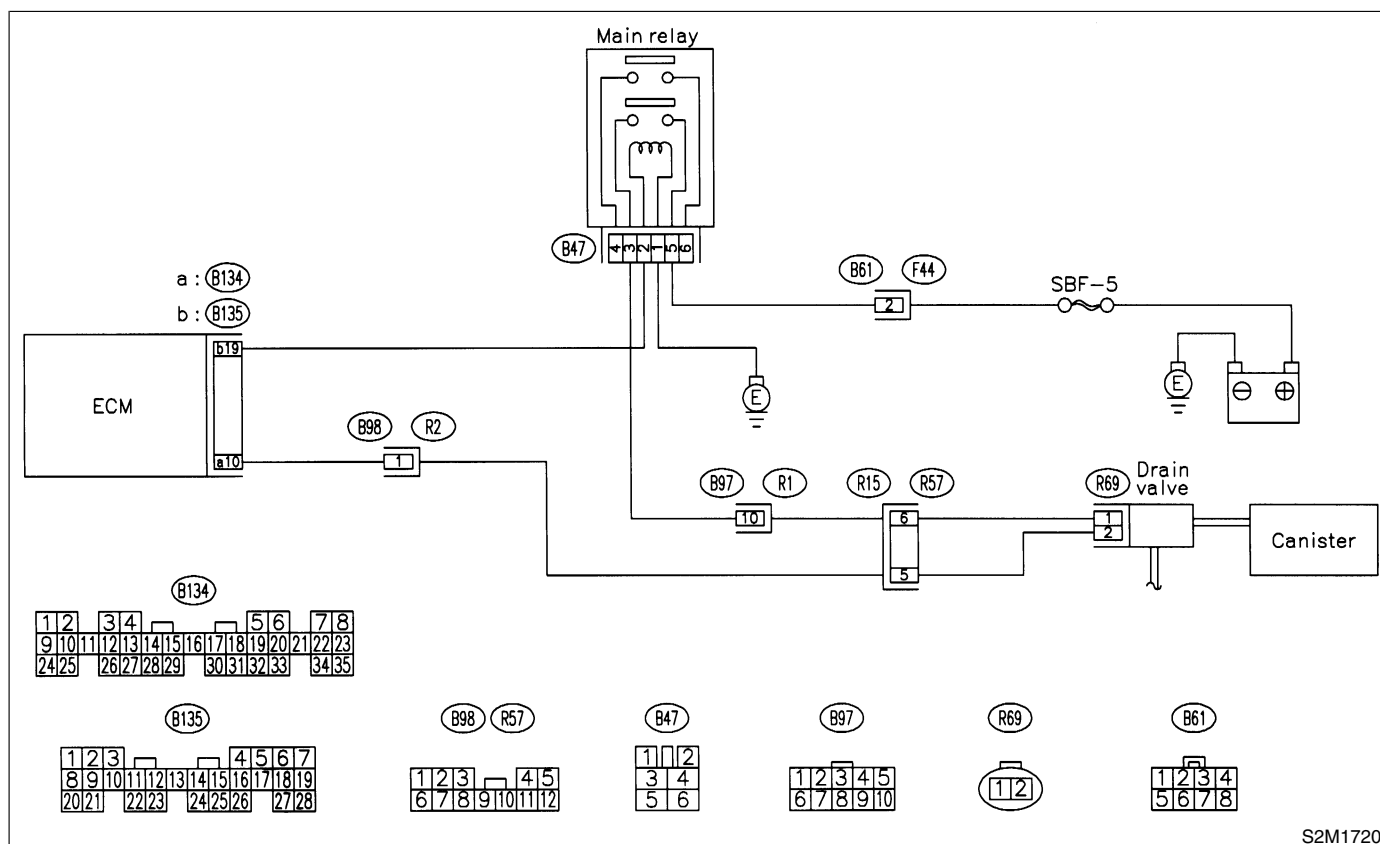
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



S2M1720

| No. | Step                                                                                                                                                                                                              | Check                          | Yes           | No            |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------|---------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 10 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V? | Go to step 2. | Go to step 3. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                  | Check                                           | Yes                                                                           | No                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                       | Is there poor contact in ECM connector?         | Repair poor contact in ECM connector.                                         | Even if MIL lights up, the circuit has returned to a normal condition at this time.<br>(However, the possibility of poor contact still remains.)<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in drain valve connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connectors (B97, B98 and R57)</li> </ul> |
| 3   | <b>CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from drain valve and ECM.<br>3) Measure resistance of harness between drain valve connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R69) No. 2 — Chassis ground:</b> | Is the resistance less than 10 $\Omega$ ?       | Repair ground short circuit in harness between ECM and drain valve connector. | Go to step 4.                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4   | <b>CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.</b><br>Measure resistance of harness between ECM and drain valve connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 10 — (R69) No. 2:</b>                                                                                                         | Is the voltage less than 1 $\Omega$ ?           | Go to step 5.                                                                 | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and drain valve connector</li> <li>● Poor contact in coupling connectors (B98 and R57)</li> </ul>                                                                                                                                          |
| 5   | <b>CHECK DRAIN VALVE.</b><br>Measure resistance between drain valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                                                           | Is the resistance between 10 and 100 $\Omega$ ? | Go to step 6.                                                                 | Replace drain valve. <Ref. to EC-23 REMOVAL, Drain Valve.>                                                                                                                                                                                                                                                                                                                                                      |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                         | Check                                           | Yes                                           | No                                                                                                                                                                                                                                                                                                                  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6   | <b>CHECK POWER SUPPLY TO DRAIN VALVE.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between drain valve and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R69) No. 1 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?                  | Go to step 7.                                 | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between main relay and drain valve</li> <li>● Poor contact in coupling connectors (B97 and R57)</li> <li>● Poor contact in main relay connector</li> </ul> |
| 7   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in drain valve connector.<br><Ref. to EN-6 CAUTION, General Description.>                                                                                                   | Is there poor contact in drain valve connector? | Repair poor contact in drain valve connector. | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                                              |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AK: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM —

S008636B51

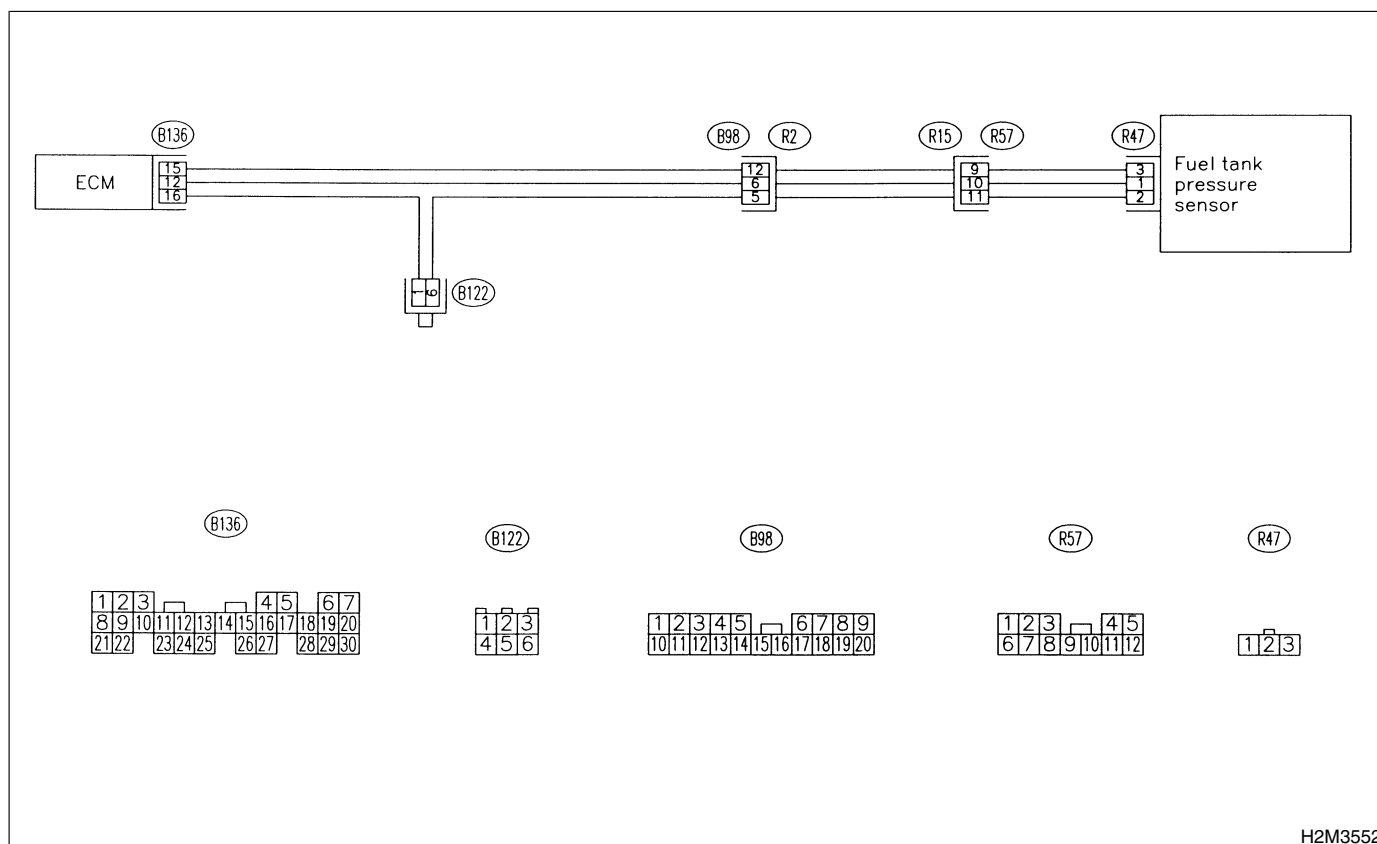
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3552

| No. | Step                                                                                       | Check                                      | Yes                                                                                                                                                                            | No                                |
|-----|--------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                     | Is there any DTC on display?               | Inspect the relevant DTC using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2.                     |
| 2   | <b>CHECK FUEL FILLER CAP.</b><br>1) Turn ignition switch to OFF.<br>2) Open the fuel flap. | Is the fuel filler cap tightened securely? | Go to step 3.                                                                                                                                                                  | Tighten fuel filler cap securely. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                  | Check                                     | Yes                                | No                                                                                        |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------|
| 3   | <b>CHECK PRESSURE/VACUUM LINE.</b><br>NOTE:<br>Check the following items. <ul style="list-style-type: none"><li>● Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank</li><li>● Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank</li></ul> | Is there a fault in pressure/vacuum line? | Repair or replace hoses and pipes. | Replace fuel tank pressure sensor.<br><Ref. to EC-15 REMOVAL, Fuel Tank Pressure Sensor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AL: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —

S008636B52

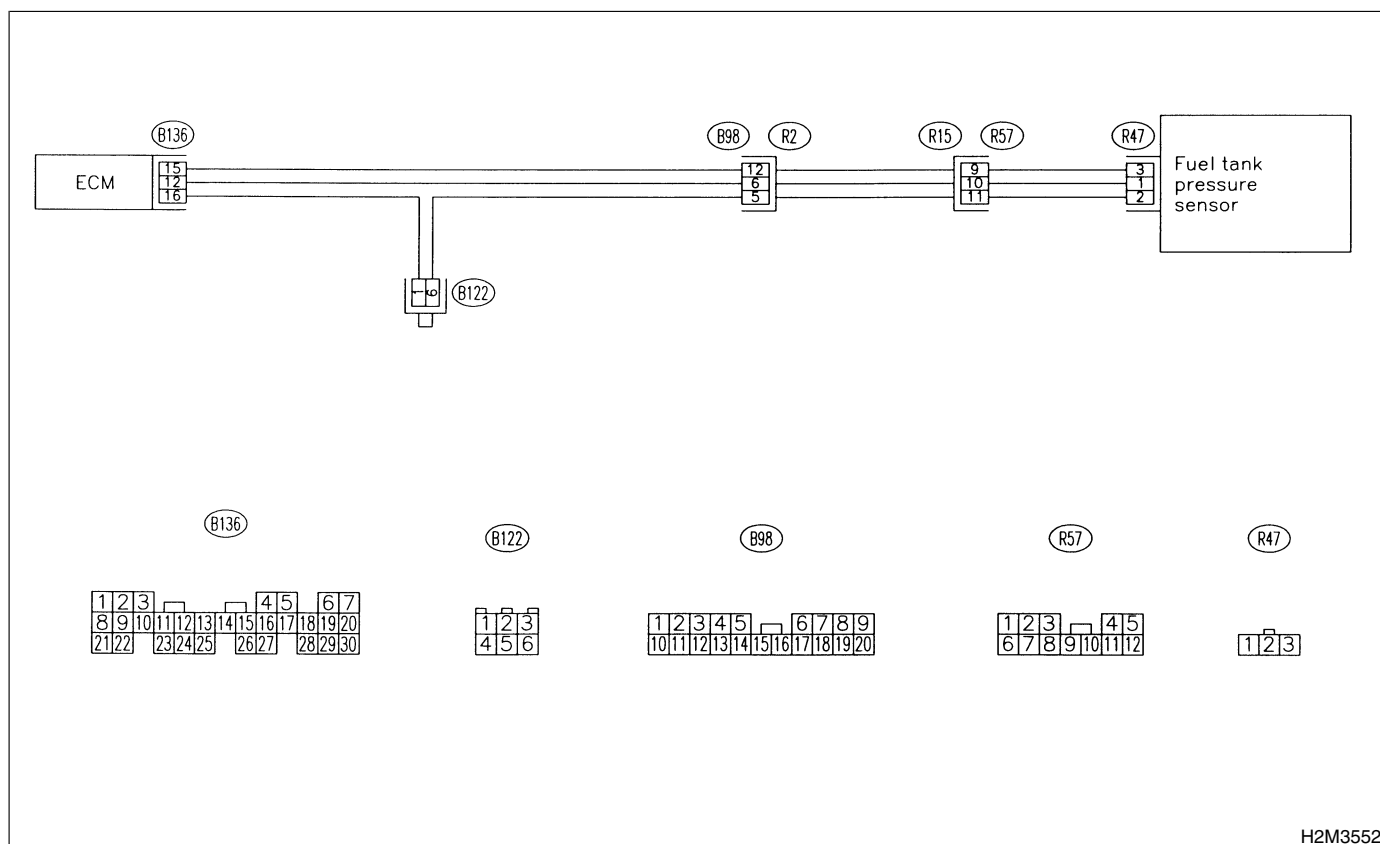
### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3552

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Check                                                      | Yes           | No                                                                                  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Turn ignition switch to OFF.<br>2) Remove fuel filler cap.<br>3) Install fuel filler cap.<br>4) Turn ignition switch to ON.<br>5) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than -2.8 kPa (-21.0 mmHg, -0.827 inHg)? | Go to step 2. | Even if MIL lights up, the circuit has returned to a normal condition at this time. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Check                                                                                                                                                             | Yes                                   | No                                                                                                                                                                                                                  |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                | Is the voltage more than 4.5 V?                                                                                                                                   | Go to step 4.                         | Go to step 3.                                                                                                                                                                                                       |
| 3   | <b>CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                | Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?                                    | Repair poor contact in ECM connector. | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                              |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 12 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                               | Is the voltage less than 0.2 V?                                                                                                                                   | Go to step 6.                         | Go to step 5.                                                                                                                                                                                                       |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Read data of fuel tank pressure sensor signal using Subaru Select Monitor.<br><b>NOTE:</b><br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                                                                                                        | Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector. | Go to step 6.                                                                                                                                                                                                       |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>1) Turn ignition switch to OFF.<br>2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).<br>3) Separate rear wiring harness and fuel tank cord.<br>4) Turn ignition switch to ON.<br>5) Measure voltage between rear wiring harness connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R15) No. 9 (+) — Chassis ground (-):</b> | Is the voltage more than 4.5 V?                                                                                                                                   | Go to step 7.                         | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between ECM and rear wiring harness connector (R15)<br>● Poor contact in coupling connector (B98) |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                  | Check                                                         | Yes                                                         | No                                                                                                                                                                                                                                                                                                                            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM and rear wiring harness connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 16 — (R15) No. 11:</b> | Is the resistance less than 1 $\Omega$ ?                      | Go to step 8.                                               | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and rear wiring harness connector (R15)</li> <li>● Poor contact in coupling connector (B98)</li> <li>● Poor contact in joint connector (B122)</li> </ul> |
| 8   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>Measure resistance of harness between rear wiring harness connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R15) No. 11 — Chassis ground:</b>                                                                | Is the resistance more than 500 k $\Omega$ ?                  | Go to step 9.                                               | Repair ground short circuit in harness between ECM and rear wiring harness connector (B98).                                                                                                                                                                                                                                   |
| 9   | <b>CHECK FUEL TANK CORD.</b><br>1) Disconnect connector from fuel tank pressure sensor.<br>2) Measure resistance of fuel tank cord.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 9 — (R47) No. 3:</b>                                                                                                           | Is the resistance less than 1 $\Omega$ ?                      | Go to step 10.                                              | Repair open circuit in fuel tank cord.                                                                                                                                                                                                                                                                                        |
| 10  | <b>CHECK FUEL TANK CORD.</b><br>Measure resistance of fuel tank cord.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 10 — (R47) No. 1:</b>                                                                                                                                                                        | Is the resistance less than 1 $\Omega$ ?                      | Go to step 11.                                              | Repair open circuit in fuel tank cord.                                                                                                                                                                                                                                                                                        |
| 11  | <b>CHECK FUEL TANK CORD.</b><br>Measure resistance of harness between fuel tank pressure sensor connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R47) No. 2 — Chassis ground:</b>                                                                                                              | Is the resistance more than 500 k $\Omega$ ?                  | Go to step 12.                                              | Repair ground short circuit in fuel tank cord.                                                                                                                                                                                                                                                                                |
| 12  | <b>CHECK POOR CONTACT.</b><br>Check poor contact in fuel tank pressure sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                 | Is there poor contact in fuel tank pressure sensor connector? | Repair poor contact in fuel tank pressure sensor connector. | Replace fuel tank pressure sensor. <Ref. to EC-15 REMOVAL, Fuel Tank Pressure Sensor.>                                                                                                                                                                                                                                        |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AM: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —

S008636B53

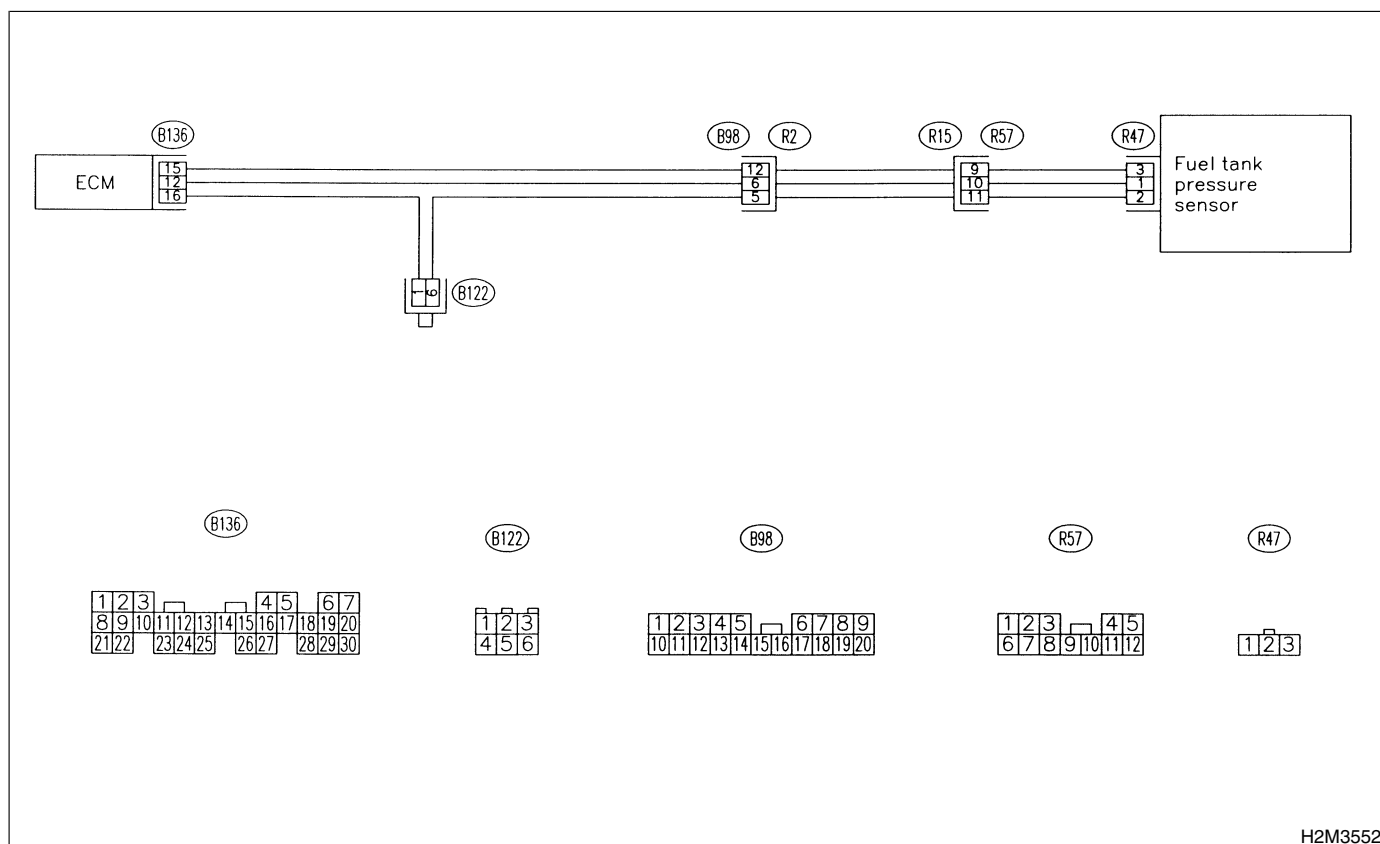
### ● DTC DETECTING CONDITION:

- Immediately at fault recognition

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3552

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check                                                   | Yes            | No            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------|---------------|
| 1   | <b>CHECK CURRENT DATA.</b><br>1) Turn ignition switch to OFF.<br>2) Remove fuel filler cap.<br>3) Install fuel filler cap.<br>4) Turn ignition switch to ON.<br>5) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)? | Go to step 12. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Check                                                                                                                                                             | Yes                                   | No                                                                                                                                                                                                           |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                | Is the voltage more than 4.5 V?                                                                                                                                   | Go to step 4.                         | Go to step 3.                                                                                                                                                                                                |
| 3   | <b>CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 15 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                | Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?                                    | Repair poor contact in ECM connector. | Replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.>                                                                                                                                              |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 12 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                               | Is the voltage less than 0.2 V?                                                                                                                                   | Go to step 6.                         | Go to step 5.                                                                                                                                                                                                |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Read data of fuel tank pressure sensor signal using Subaru Select Monitor.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                                                                                                               | Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector. | Go to step 6.                                                                                                                                                                                                |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>1) Turn ignition switch to OFF.<br>2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).<br>3) Separate rear wiring harness and fuel tank cord.<br>4) Turn ignition switch to ON.<br>5) Measure voltage between rear wiring harness connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R15) No. 9 (+) — Chassis ground (-):</b> | Is the voltage more than 4.5 V?                                                                                                                                   | Go to step 7.                         | Repair harness and connector.<br>NOTE:<br>In this case, repair the following:<br>● Open circuit in harness between ECM and rear wiring harness connector (R15)<br>● Poor contact in coupling connector (B98) |
| 7   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM and rear wiring harness connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 12 — (R15) No. 10:</b>                                                                                                                                    | Is the resistance less than 1 Ω?                                                                                                                                  | Go to step 8.                         | Repair harness and connector.<br>NOTE:<br>In this case, repair the following:<br>● Open circuit in harness between ECM and rear wiring harness connector (R15)<br>● Poor contact in coupling connector (B98) |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Check                                                         | Yes                                                                                          | No                                                                                          |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 8   | <b>CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</b><br>Measure resistance of harness between rear wiring harness connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 16 — (R15) No. 11:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Is the resistance less than 1 $\Omega$ ?                      | Go to step 9.                                                                                | Repair ground short circuit in harness between ECM and rear wiring harness connector (R15). |
| 9   | <b>CHECK FUEL TANK CORD.</b><br>1) Disconnect connector from fuel tank pressure sensor.<br>2) Measure resistance of fuel tank cord.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 11 — (R47) No. 2:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Is the resistance less than 1 $\Omega$ ?                      | Go to step 10.                                                                               | Repair open circuit in fuel tank cord.                                                      |
| 10  | <b>CHECK FUEL TANK CORD.</b><br>Measure resistance of fuel tank cord.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 10 — (R47) No. 1:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Is the resistance less than 1 $\Omega$ ?                      | Go to step 11.                                                                               | Repair open circuit in fuel tank cord.                                                      |
| 11  | <b>CHECK POOR CONTACT.</b><br>Check poor contact in fuel tank pressure sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Is there poor contact in fuel tank pressure sensor connector? | Repair poor contact in fuel tank pressure sensor connector.                                  | Replace fuel tank pressure sensor. <Ref. to EC-15 REMOVAL, Fuel Tank Pressure Sensor.>      |
| 12  | <b>CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.<br>2) Disconnect connector from fuel tank pressure sensor.<br>3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.<br>4) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool.<br><b>NOTE:</b><br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?       | Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector. | Replace fuel tank pressure sensor. <Ref. to EC-15 REMOVAL, Fuel Tank Pressure Sensor.>      |

## AN: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —

S008636B54

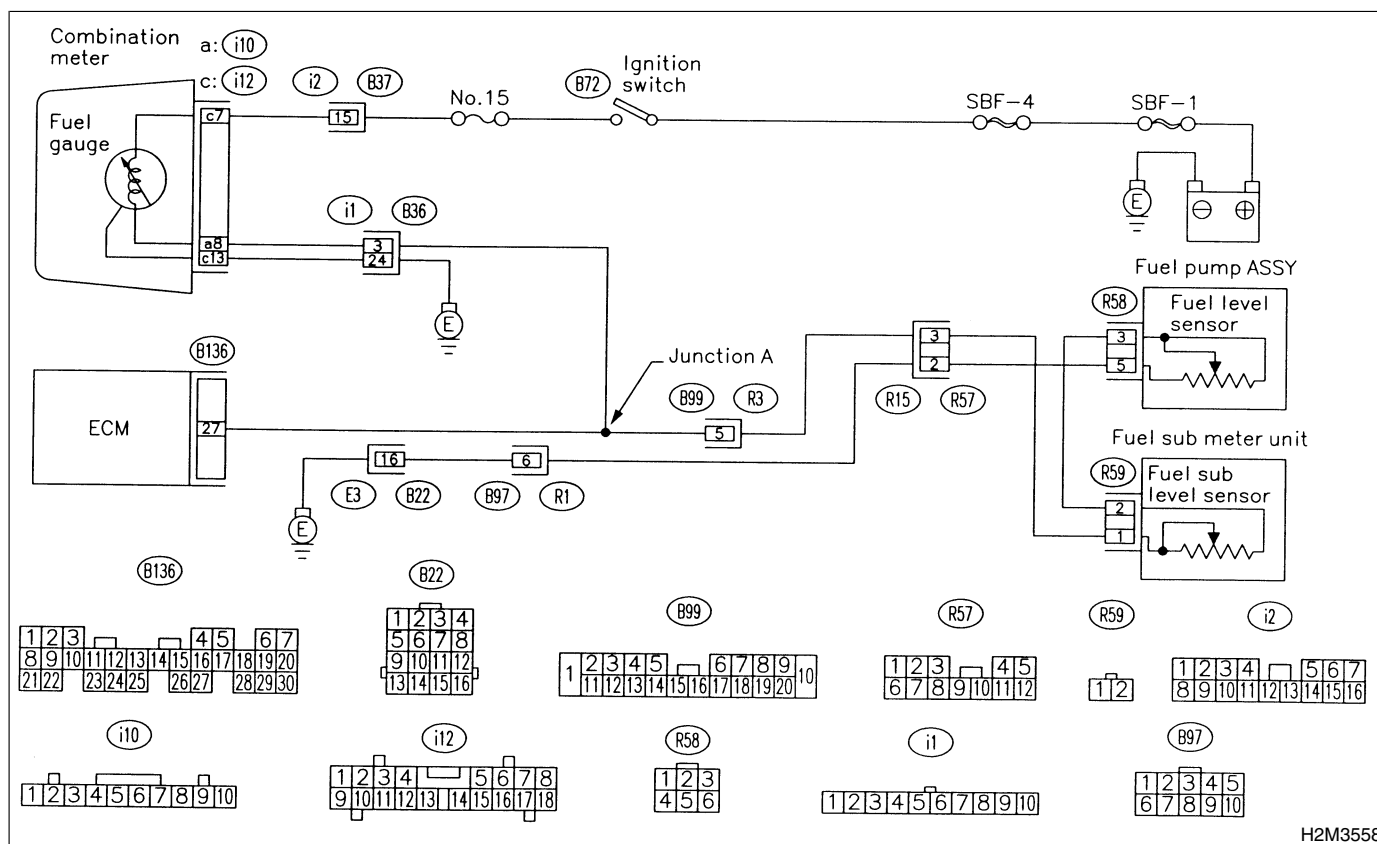
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3558

| No. | Step                            | Check                                                                                   | Yes                                                                                                                                                                                                                                                     | No                                                                                                   |
|-----|---------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0462 or P0463? | Inspect DTC P0462 or P0463 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect this trouble. | Replace fuel sending unit and fuel sub level sensor <Ref. to EC-13 REMOVAL, Sub Fuel Level Sensor.>. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AO: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT — S008636B55

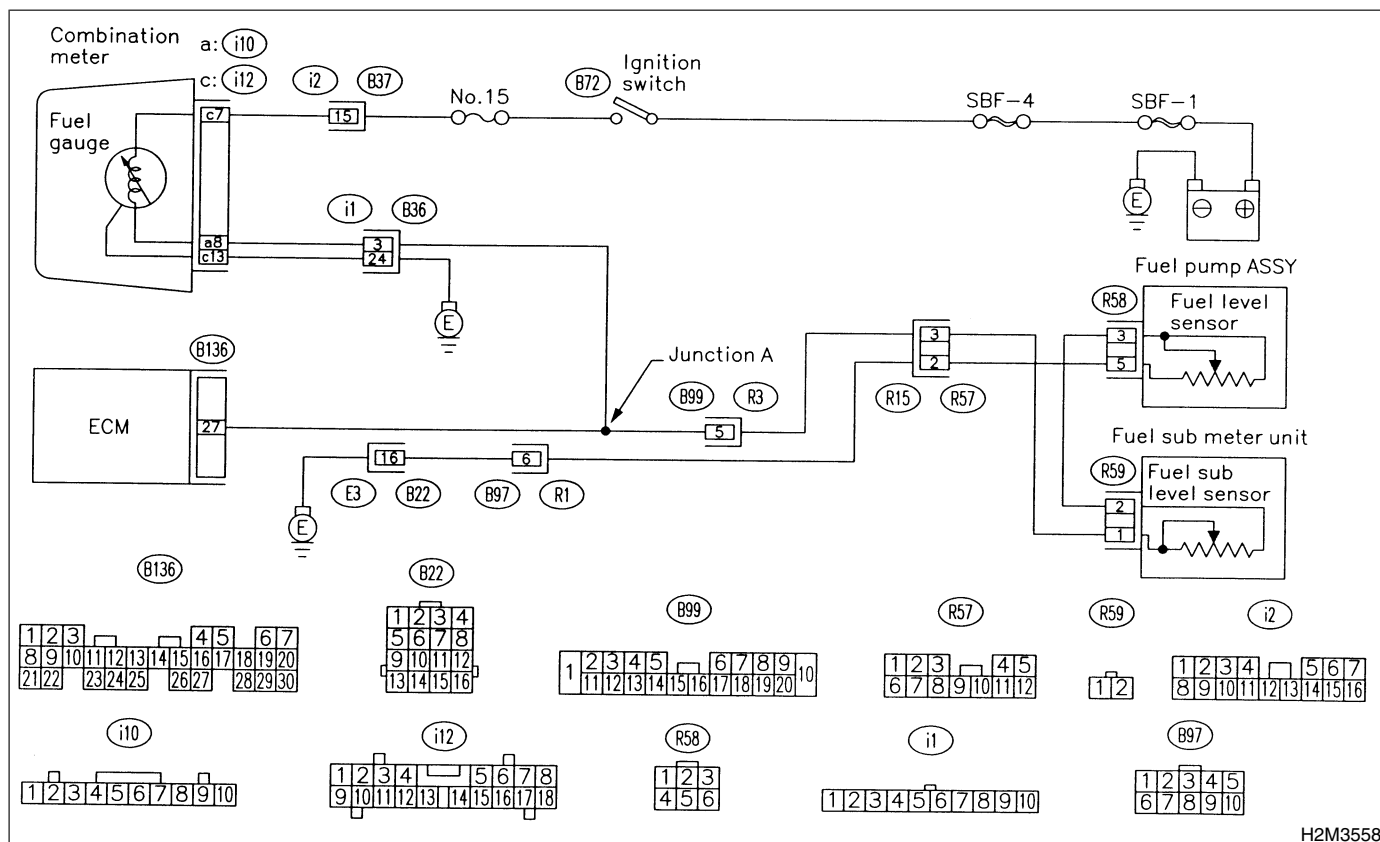
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3558

| No. | Step                                                                                                                                                                                                                                   | Check                                             | Yes           | No                                   |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------|--------------------------------------|
| 1   | <b>CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.</b>                                                                                                                                                                | Does speedometer and tachometer operate normally? | Go to step 2. | Repair or replace combination meter. |
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON. (Engine OFF)<br>2) Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 (+) — Chassis ground (-):</b> | Is the voltage less than 0.12 V?                  | Go to step 4. | Go to step 3.                        |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                           | Check                                                                                                                                 | Yes                                                                                       | No                                                                                                                                                                                                                                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)</b><br>Read data of fuel level sensor signal using Subaru Select Monitor.<br><b>NOTE:</b><br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.>                                      | Does the value change less than 0.12 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? | Repair poor contact in ECM connector.                                                     | Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Poor contact in combination meter connector<br>● Poor contact in ECM connector<br>● Poor contact in coupling connectors (B99) |
| 4   | <b>CHECK INPUT VOLTAGE OF ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15).<br>3) Turn ignition switch to ON.<br>4) Measure voltage of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 (+) — Chassis ground (-):</b> | Is the voltage less than 0.12 V?                                                                                                      | Go to step 5.                                                                             | Go to step 7.                                                                                                                                                                                                                                                                                                                             |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND COMBINATION METER.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from connector (i10) and ECM connector.<br>3) Measure resistance between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 — Chassis ground:</b>                                                            | Is the resistance more than 1 MΩ?                                                                                                     | Go to step 6.                                                                             | Repair ground short circuit in harness between ECM and combination meter connector.                                                                                                                                                                                                                                                       |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND COMBINATION METER.</b><br>Measure resistance between ECM and combination meter connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 — (i10) No. 8:</b>                                                                                                                                                           | Is the resistance less than 10 Ω?                                                                                                     | Repair or replace combination meter. <Ref. to IDI-3 REMOVAL, Combination Meter Assembly.> | Repair open circuit between ECM and combination meter connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>Poor contact in coupling connector (i1)                                                                                                                                                                        |
| 7   | <b>CHECK FUEL TANK CORD.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from fuel sub level sensor.<br>3) Measure resistance between fuel sub level sensor and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R59) No. 1 — Chassis ground:</b>                                                                                   | Is the resistance more than 1 MΩ?                                                                                                     | Go to step 8.                                                                             | Repair ground short circuit in fuel tank cord.                                                                                                                                                                                                                                                                                            |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                    | Yes                                                                         | No                                                                             |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 8   | <b>CHECK FUEL TANK CORD.</b><br>1) Disconnect connector from fuel pump assembly.<br>2) Measure resistance between fuel pump assembly and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R59) No. 2 — Chassis ground:</b>                                                                                                                                                                            | Is the resistance more than 1 MΩ?        | Go to step 9.                                                               | Repair ground short circuit in fuel tank cord.                                 |
| 9   | <b>CHECK FUEL LEVEL SENSOR.</b><br><b>WARNING:</b><br><b>During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.</b><br>1) Remove fuel pump assembly. <Ref. to FU-77 REMOVAL, Fuel Pump.><br>2) Measure resistance between fuel level sensor and terminals with its float set to the full position.<br><b>Terminals</b><br><b>No. 3 — No. 6:</b>                        | Is the resistance between 0.5 and 2.5 Ω? | Go to step 10.                                                              | Replace fuel level sensor.                                                     |
| 10  | <b>CHECK FUEL SUB LEVEL SENSOR.</b><br><b>WARNING:</b><br><b>During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.</b><br>1) Remove fuel sub level sensor. <Ref. to EC-13 REMOVAL, Sub Fuel Level Sensor.><br>2) Measure resistance between fuel sub level sensor and terminals with its float set to the full position.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b> | Is the resistance between 0.5 and 2.5 Ω? | Repair poor contact in harness between ECM and combination meter connector. | Replace fuel sub level sensor. <Ref. to EC-13 REMOVAL, Sub Fuel Level Sensor.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

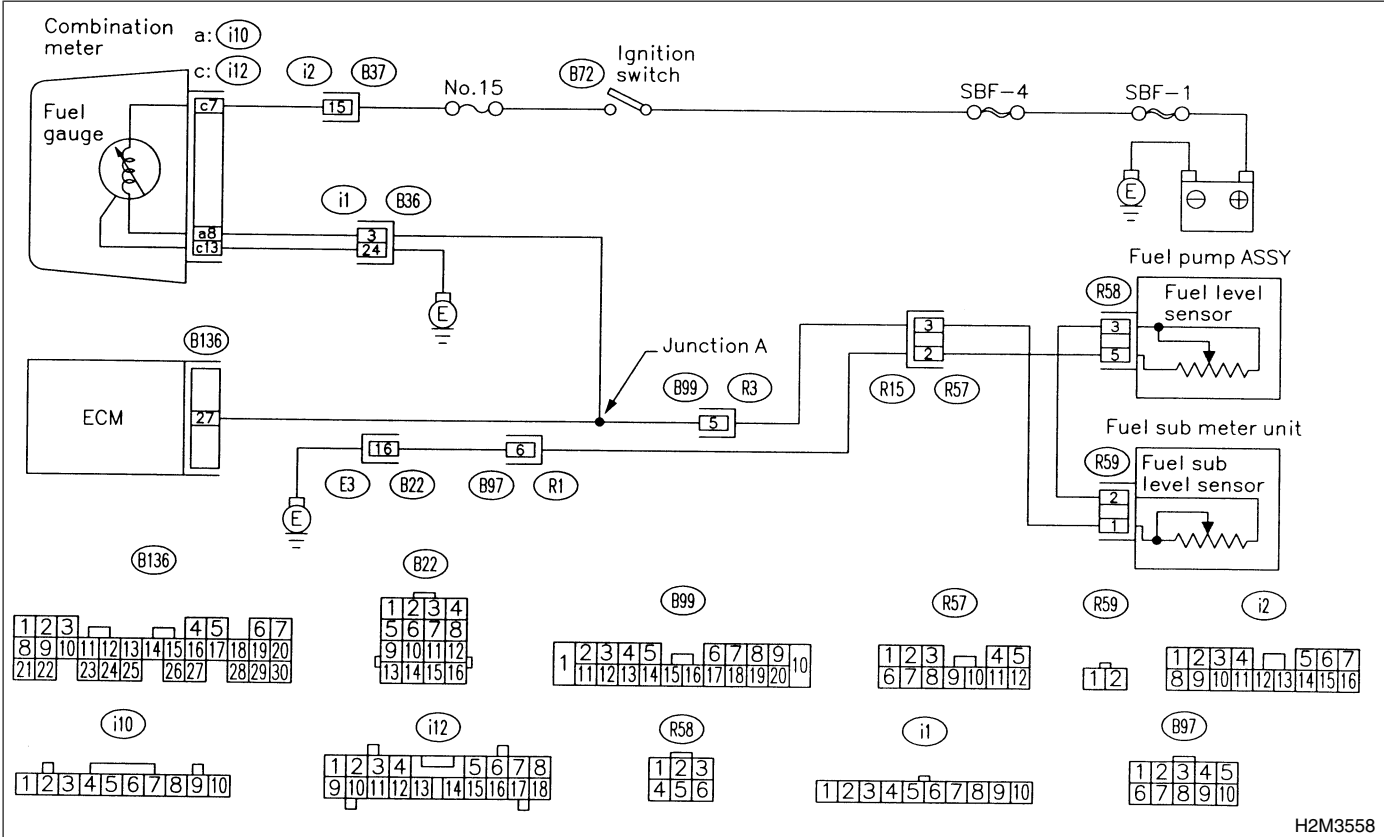
Engine

AP: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT — S008636B56

- DTC DETECTING CONDITION:
  - Two consecutive driving cycles with fault

**CAUTION:**  
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



H2M3558

| No. | Step                                                             | Check                                             | Yes           | No                                                                                        |
|-----|------------------------------------------------------------------|---------------------------------------------------|---------------|-------------------------------------------------------------------------------------------|
| 1   | CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER. | Does speedometer and tachometer operate normally? | Go to step 2. | Repair or replace combination meter. <Ref. to IDI-3 REMOVAL, Combination Meter Assembly.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                | Check                                     | Yes           | No                                                                                                                                                                                                                                                                                                                                                                 |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON. (Engine OFF)<br>2) Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 (+) — Chassis ground (-):</b>                                                                                              | Is the voltage more than 4.75 V?          | Go to step 3. | Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in fuel pump connector</li> <li>● Poor contact in coupling connector (B22, B97 and R57)</li> </ul> |
| 3   | <b>CHECK INPUT VOLTAGE OF ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect combination meter connector (i10) and ECM connector.<br>3) Turn ignition switch to ON.<br>4) Measure voltage of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 (+) — Chassis ground (-):</b> | Is the voltage more than 4.75 V?          | Go to step 4. | Repair battery short circuit between ECM and combination meter connector.                                                                                                                                                                                                                                                                                          |
| 4   | <b>CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD.</b><br>1) Turn ignition switch to OFF.<br>2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15).<br>3) Measure resistance between ECM and fuel tank cord.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 27 — (R15) No. 3:</b>                   | Is the resistance less than 5 $\Omega$ ?  | Go to step 5. | Repair open circuit between ECM and fuel tank cord.                                                                                                                                                                                                                                                                                                                |
| 5   | <b>CHECK HARNESS BETWEEN FUEL TANK CORD AND CHASSIS GROUND.</b><br>Measure resistance between fuel tank cord and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R15) No. 2 — Chassis ground:</b>                                                                                                                         | Is the resistance less than 5 $\Omega$ ?  | Go to step 6. | Repair open circuit between fuel tank cord and chassis ground.<br><b>NOTE:</b><br>In this case, repair the following:<br>Poor contact in coupling connectors (B97 and B22)                                                                                                                                                                                         |
| 6   | <b>CHECK FUEL TANK CORD.</b><br>1) Disconnect connector from fuel level sensor.<br>2) Measure resistance between fuel level sensor and coupling connector.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 2 — (R58) No. 5:</b>                                                                                                  | Is the resistance less than 10 $\Omega$ ? | Go to step 7. | Repair open circuit between coupling connector and fuel level sensor.                                                                                                                                                                                                                                                                                              |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                          | Check                                       | Yes                                                                             | No                                                                             |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 7   | <b>CHECK FUEL TANK CORD.</b><br>1) Disconnect connector from fuel sub level sensor.<br>2) Measure resistance between fuel level sensor and fuel sub level sensor.<br><b>Connector &amp; terminal</b><br><b>(R58) No. 3 — (R59) No. 2:</b>                                                                                                                                                     | Is the resistance less than 10 $\Omega$ ?   | Go to step 8.                                                                   | Repair open circuit between fuel level sensor and fuel sub level sensor.       |
| 8   | <b>CHECK FUEL TANK CORD.</b><br>Measure resistance between fuel sub level sensor and coupling connector.<br><b>Connector &amp; terminal</b><br><b>(R57) No. 3 — (R59) No. 1:</b>                                                                                                                                                                                                              | Is the resistance less than 10 $\Omega$ ?   | Go to step 9.                                                                   | Repair open circuit between coupling connector and fuel sub level sensor.      |
| 9   | <b>CHECK FUEL LEVEL SENSOR.</b><br><b>WARNING:</b><br><b>During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.</b><br>1) Remove fuel pump assembly. <Ref. to FU-77 REMOVAL, Fuel Pump.><br>2) While moving fuel level sensor float up and down, measure resistance between fuel level sensor terminals.<br><b>Terminals</b><br><b>No. 3 — No. 6:</b> | Is the resistance more than 54.5 $\Omega$ ? | Go to step 10.                                                                  | Replace fuel level sensor. <Ref. to FU-80 REMOVAL, Fuel Level Sensor.>         |
| 10  | <b>CHECK FUEL SUB LEVEL SENSOR.</b><br><b>WARNING:</b><br><b>During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.</b><br>1) Remove fuel sub level sensor. <Ref. to EC-13 REMOVAL, Sub Fuel Level Sensor.><br>2) Measure resistance between connector terminals of fuel sub level sensor.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>               | Is the resistance more than 41.5 $\Omega$ ? | Replace combination meter. <Ref. to IDI-3 REMOVAL, Combination Meter Assembly.> | Replace fuel sub level sensor. <Ref. to EC-13 REMOVAL, Sub Fuel Level Sensor.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AQ: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT — S008636B57

### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

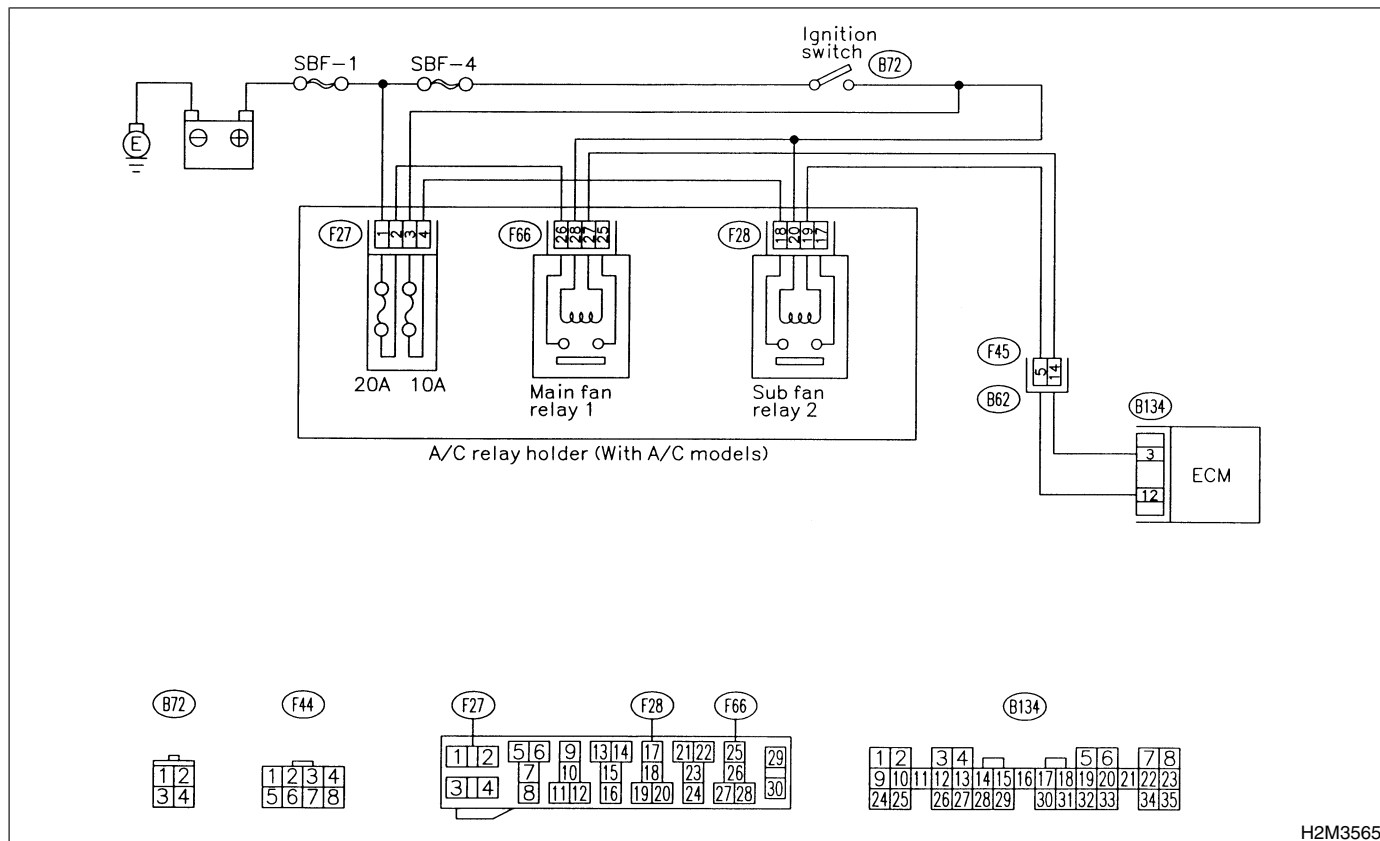
### • TROUBLE SYMPTOM:

- Radiator fan does not operate properly.
- Overheating

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3565

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Check                                                     | Yes                                                                | No                                                                                                                                                                                                       |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.<br>3) Turn ignition switch to ON.<br>4) While operating radiator fan relay operation, measure voltage between ECM terminal and ground.<br><b>NOTE:</b><br>Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.><br><b>Connector &amp; terminal</b><br><b>(B134) No. 3 (+) — Chassis ground (-):</b> | Does voltage change between 0 and 10 V?                   | Repair poor contact in ECM connector.                              | Go to step 2.                                                                                                                                                                                            |
| 2   | <b>CHECK GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM.<br>3) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 3 — Chassis ground:</b>                                                                                                                                                                                                                                                                                                                                                                  | Is the resistance less than 10 $\Omega$ ?                 | Repair ground short circuit in radiator fan relay control circuit. | Go to step 3.                                                                                                                                                                                            |
| 3   | <b>CHECK POWER SUPPLY FOR RELAY.</b><br>1) Remove main fan relay from A/C relay holder.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between fuse and relay box (F/B) connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(F66) No. 28 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                           | Is the voltage more than 10 V?                            | Go to step 4.                                                      | Repair open circuit in harness between ignition switch and fuse and relay box (F/B) connector.                                                                                                           |
| 4   | <b>CHECK MAIN FAN RELAY.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between main fan relay terminals.<br><b>Terminal</b><br><b>No. 5 — No. 6:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Is the resistance between 87 and 107 $\Omega$ ?           | Go to step 5.                                                      | Replace main fan relay.                                                                                                                                                                                  |
| 5   | <b>CHECK OPEN CIRCUIT IN MAIN FAN RELAY CONTROL CIRCUIT.</b><br>Measure resistance of harness between ECM and main fan relay connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 3 — (F66) No. 27:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Is the resistance less than 1 $\Omega$ ?                  | Go to step 6.                                                      | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between ECM and main fan relay connector<br>● Poor contact in coupling connector (F45) |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM or main fan relay connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Is there poor contact in ECM or main fan relay connector? | Repair poor contact in ECM or main fan relay connector.            | Contact with SOA service.                                                                                                                                                                                |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AR: DTC P0483 — COOLING FAN FUNCTION PROBLEM — S008636B58

### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### • TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

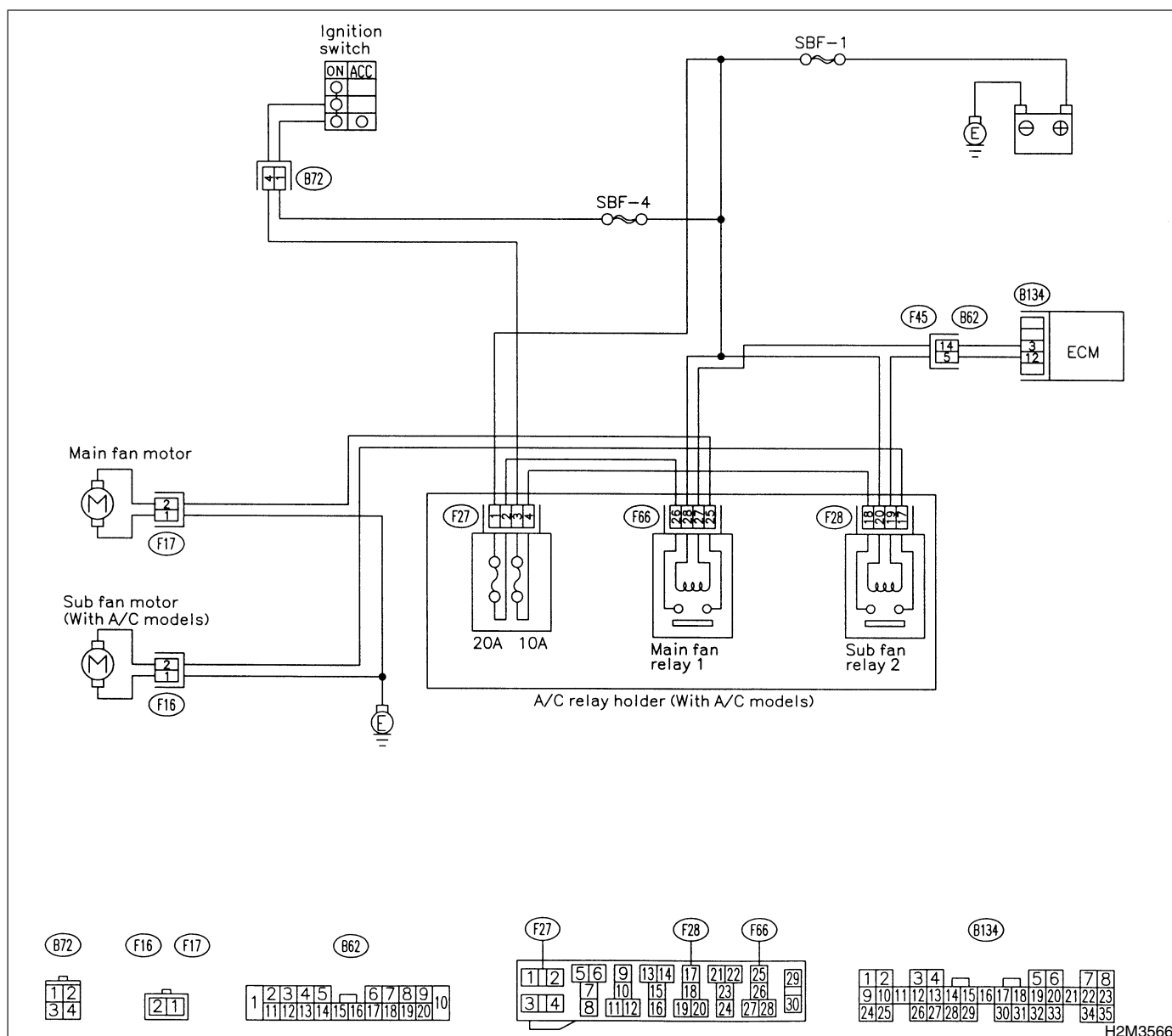
### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### NOTE:

If the vehicle, with the engine idling, is placed very close to a wall or another vehicle, preventing normal cooling function, the OBD system may detect malfunction.

### • WIRING DIAGRAM:



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                            | Check                              | Yes                                                                                                                                                                            | No                                                                                        |
|-----|---------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Is there any other DTC on display? | Inspect the relevant DTC using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Check engine cooling system. <Ref. to CO-22 INSPECTION, Radiator Main Fan and Fan Motor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

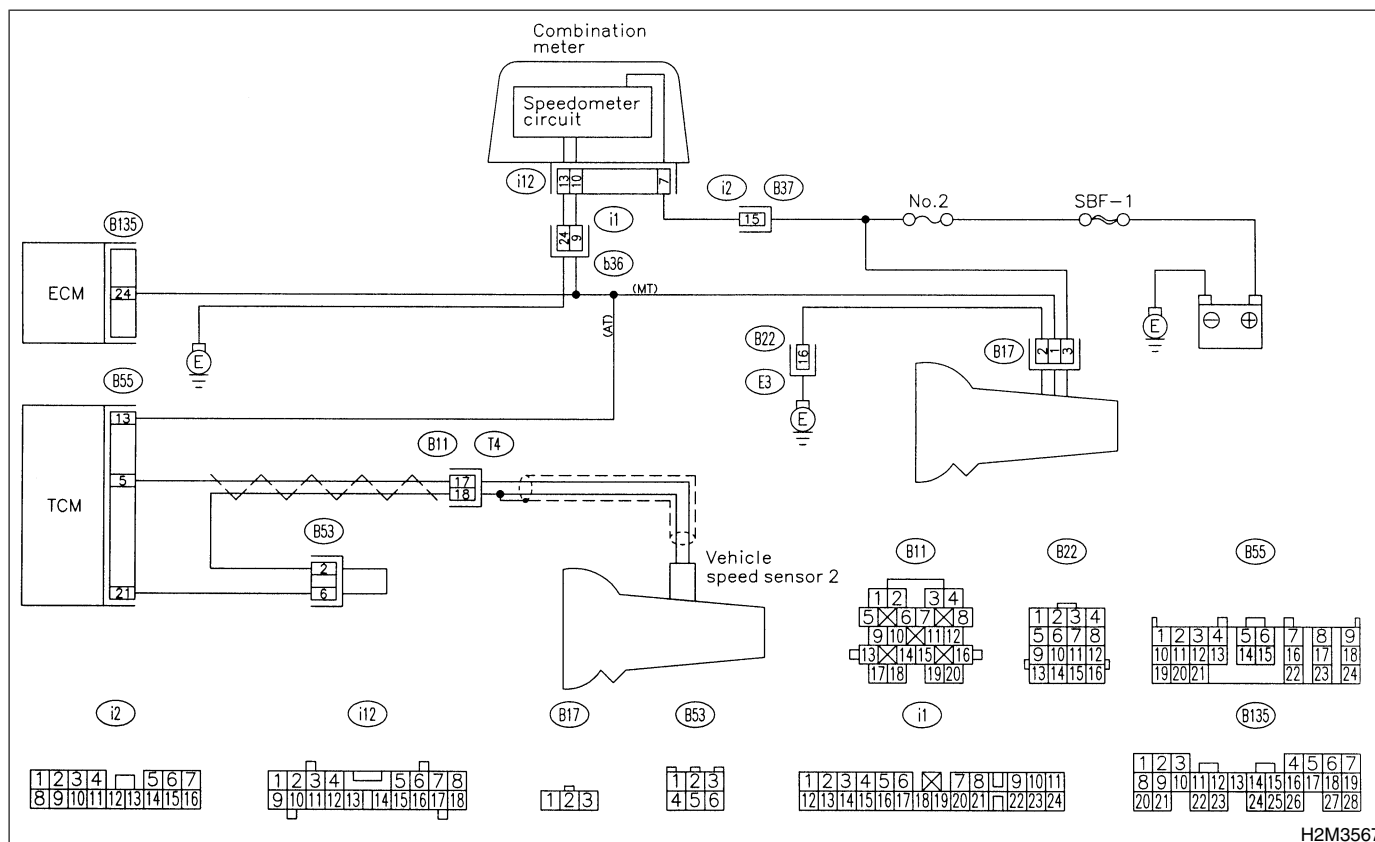
## AS: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION — S008636B59

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3567

| No. | Step                                                     | Check                                                                          | Yes                                                                                                                                                         | No                                                                                             |
|-----|----------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK TRANSMISSION TYPE.</b>                          | Is transmission type AT?                                                       | Go to step 2.                                                                                                                                               | Go to step 3.                                                                                  |
| 2   | <b>CHECK DTC P0720 ON DISPLAY.</b>                       | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720? | Check vehicle speed sensor 2 signal circuit.<br><Ref. to AT-39 TROUBLE CODE 33 — VEHICLE SPEED SENSOR 2 (FRONT) —, Diagnostic Procedure with Trouble Code.> | Go to step 3.                                                                                  |
| 3   | <b>CHECK SPEEDOMETER OPERATION IN COMBINATION METER.</b> | Does speedometer operate normally?                                             | Go to step 4.                                                                                                                                               | Check speedometer and vehicle speed sensor.<br><Ref. to IDI-4 INSPECTION, General Diagnostic.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                           | Check                                     | Yes                                   | No                                                                                                                                                                                                                                                                                                                                                                 |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4   | <b>CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from combination meter.<br>3) Measure resistance between ECM and combination meter.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 24 — (i12) No. 10:</b> | Is the resistance less than 10 $\Omega$ ? | Repair poor contact in ECM connector. | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and combination meter connector</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in combination meter connector</li> <li>● Poor contact in coupling connector (i1)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AT: DTC P0505 — IDLE CONTROL SYSTEM CIRCUIT LOW INPUT — S008636B60

### • DTC DETECTING CONDITION:

- Immediately at fault recognition

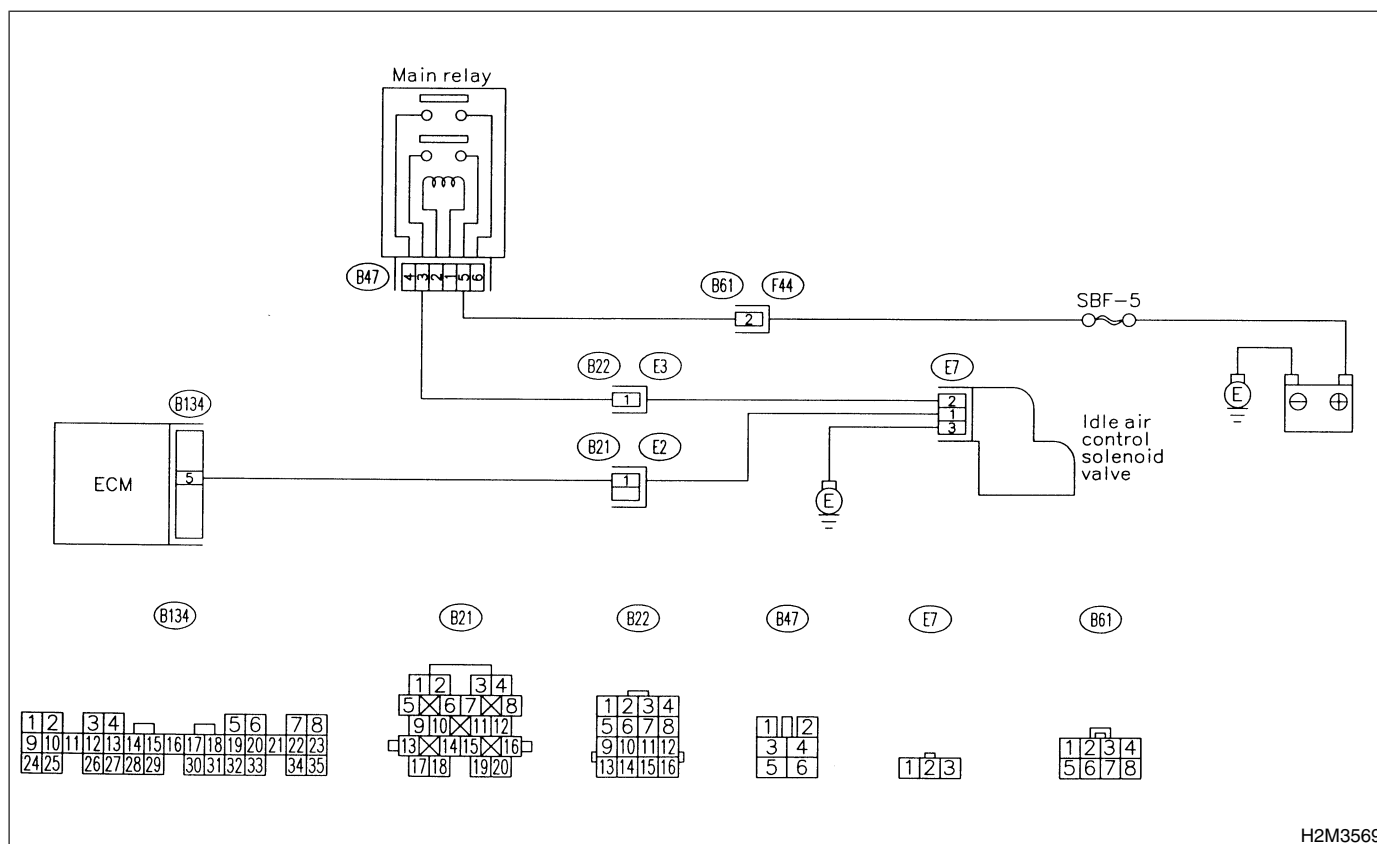
### • TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Engine breathing

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3569

| No. | Step                                                                                                                                                                                                             | Check                         | Yes                                   | No            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------|---------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 (+) — Chassis ground (-):</b> | Is the voltage more than 3 V? | Repair poor contact in ECM connector. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                  | Check                                                                        | Yes                                                                                               | No                                                                                                                                                                                                                               |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from idle air control solenoid valve.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between idle air control solenoid valve and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E7) No. 2 (+) — Engine ground (-):</b> | Is the voltage more than 10 V?                                               | Go to step 3.                                                                                     | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between idle air control solenoid valve and main relay connector<br>● Poor contact in coupling connector (B22) |
| 3   | <b>CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM and idle air control solenoid valve connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 — (E7) No. 1:</b>                                        | Is the resistance less than 1 $\Omega$ ?                                     | Go to step 4.                                                                                     | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between ECM and idle air control solenoid valve connector<br>● Poor contact in coupling connector (B21)        |
| 4   | <b>CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.</b><br>Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 — Chassis ground:</b>                                                                                                                                          | Is the resistance less than 10 $\Omega$ ?                                    | Repair ground short circuit in harness between ECM and idle air control solenoid valve connector. | Go to step 5.                                                                                                                                                                                                                    |
| 5   | <b>CHECK GROUND CIRCUIT OF IDLE AIR CONTROL SOLENOID VALVE.</b><br>Measure resistance of harness between idle air control solenoid valve connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E7) No. 3 — Engine ground:</b>                                                                                                                        | Is the resistance less than 5 $\Omega$ ?                                     | Go to step 6.                                                                                     | Repair open circuit in harness between idle air control solenoid valve connector and engine ground terminal.                                                                                                                     |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM and idle air control solenoid valve connectors. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                  | Is there poor contact in ECM and idle air control solenoid valve connectors? | Repair poor contact in ECM and idle air control solenoid valve connectors.                        | Replace idle air control solenoid valve. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.>                                                                                                                               |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AU: DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED

S008636B61

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

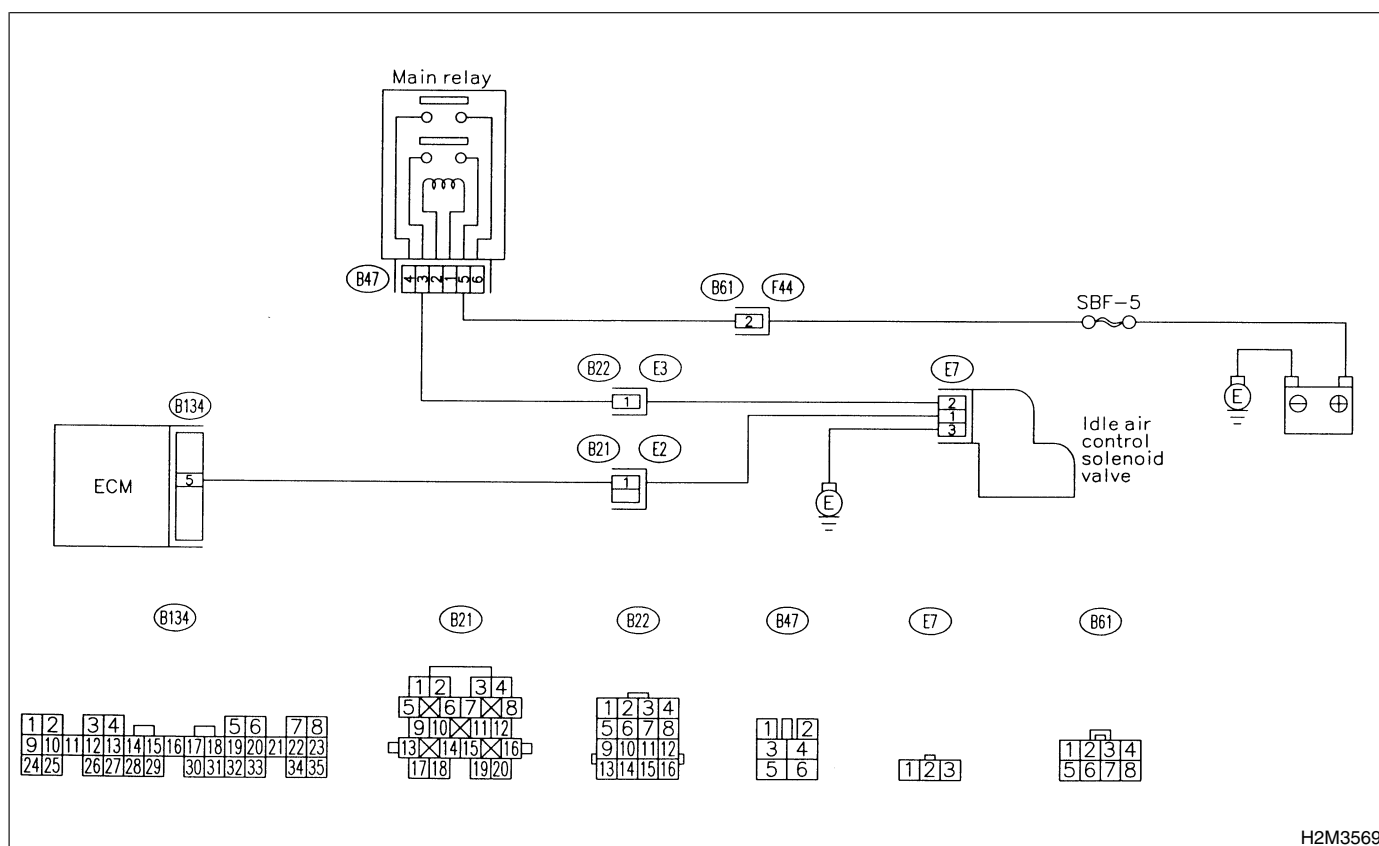
### ● TROUBLE SYMPTOM:

- Engine is difficult to start.
- Engine does not start.
- Erroneous idling
- Engine stalls.

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3569

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                                                                   | Yes                                                                                                                                                                                                                                                  | No                                                                                                                                 |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0505 or P1505? | Inspect DTC P0505 or P1505 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0506. | Go to step 2.                                                                                                                      |
| 2   | <b>CHECK IDLE AIR CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to OFF.<br>2) Remove idle air control solenoid valve from throttle body. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.><br>3) Using an air gun, force air into idle air control solenoid valve by-pass air inlet. Confirm that forced air subsequently escapes from both main air passage and assist air passage.                                                                                                                                                                                                          | Does air flow out?                                                                      | Go to step 4.                                                                                                                                                                                                                                        | Replace idle air control solenoid valve. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.><br>After replace, Go to step 3. |
| 3   | <b>CHECK IDLE AIR CONTROL SOLENOID VALVE DUTY RATIO.</b><br>1) Turn ignition switch to ON.<br>2) Start engine, and warm-up the engine.<br>3) Turn all accessory switches to OFF.<br>4) Read data of idle air control solenoid valve duty ratio using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedures, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 60%?                                                             | Go to step 4.                                                                                                                                                                                                                                        | END.                                                                                                                               |
| 4   | <b>CHECK BY-PASS AIR LINE.</b><br>1) Turn ignition switch to OFF.<br>2) Remove idle air control solenoid valve from throttle body. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.><br>3) Remove throttle body to intake manifold. <Ref. to FU-18 REMOVAL, Intake Manifold.><br>4) Using an air gun, force air into solenoid valve installation area and throttle valve interior. Confirm that forced air subsequently escapes from both these areas.                                                                                                                                                 | Does air flow out?                                                                      | Replace idle air control solenoid valve. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.>                                                                                                                                                   | Replace throttle body. <Ref. to FU-15 REMOVAL, Throttle Body.>                                                                     |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AV: DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED

S008636B62

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

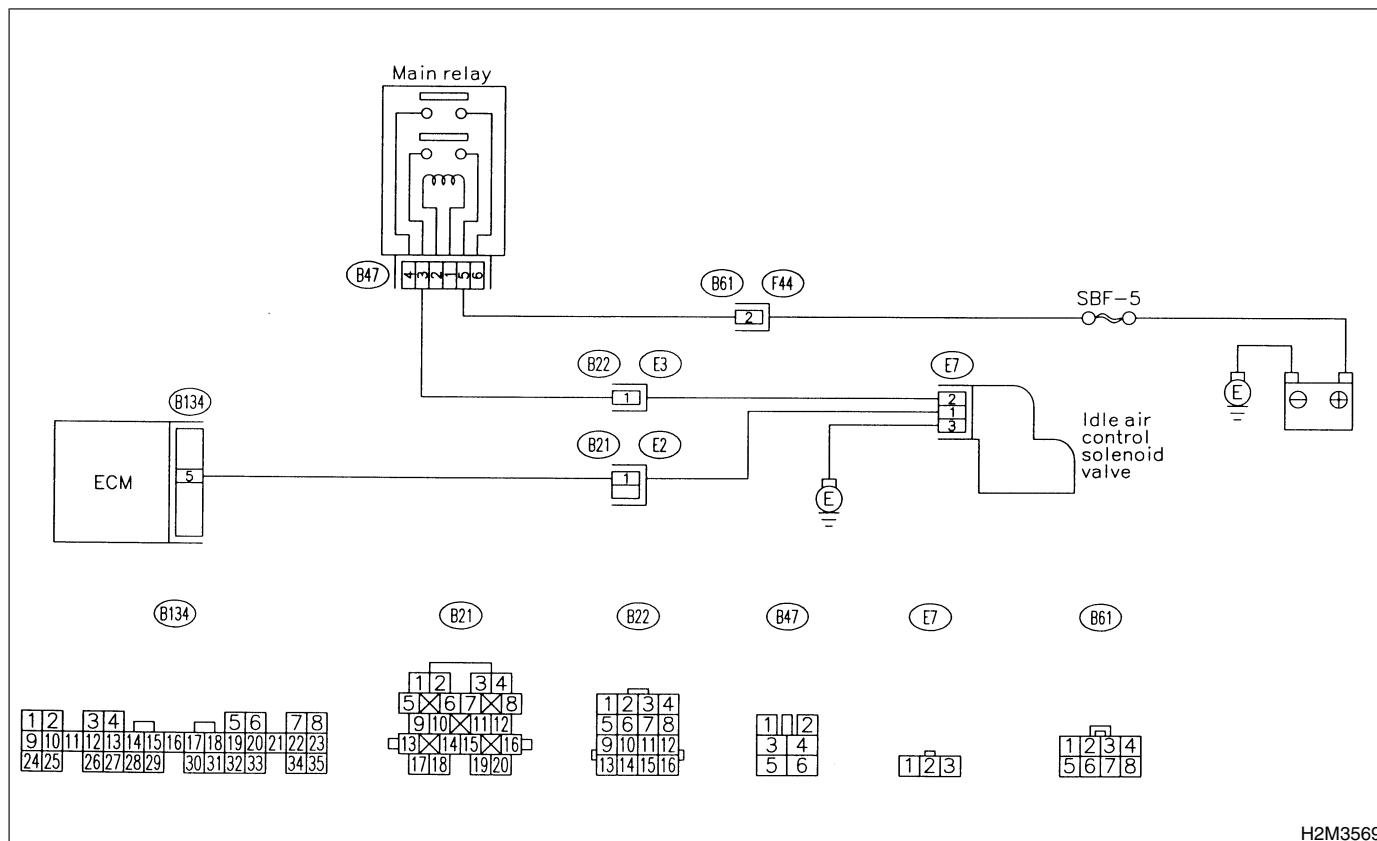
### ● TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3569

| No. | Step                            | Check                                                                                   | Yes                                                                                                                                                                                                                                                  | No            |
|-----|---------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0505 or P1505? | Inspect DTC P0505 or P1505 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P0507. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check                                         | Yes                           | No                                                                                                 |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK THROTTLE CABLE.</b>                                                                                                                                                                                                                                                                                                                                                                                                            | Does throttle cable have play for adjustment? | Go to step 3.                 | Adjust throttle cable. <Ref. to SP-6 INSPECTION, Accelerator Pedal Cable.>                         |
| 3   | <b>CHECK AIR INTAKE SYSTEM.</b><br>1) Turn ignition switch to ON.<br>2) Start engine, and idle it.<br>3) Check the following items. <ul style="list-style-type: none"> <li>● Loose installation of intake manifold, idle air control solenoid valve and throttle body</li> <li>● Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket</li> <li>● Disconnections of vacuum hoses</li> </ul> | Is there a fault in air intake system?        | Repair air suction and leaks. | Replace idle air control solenoid valve. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.> |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

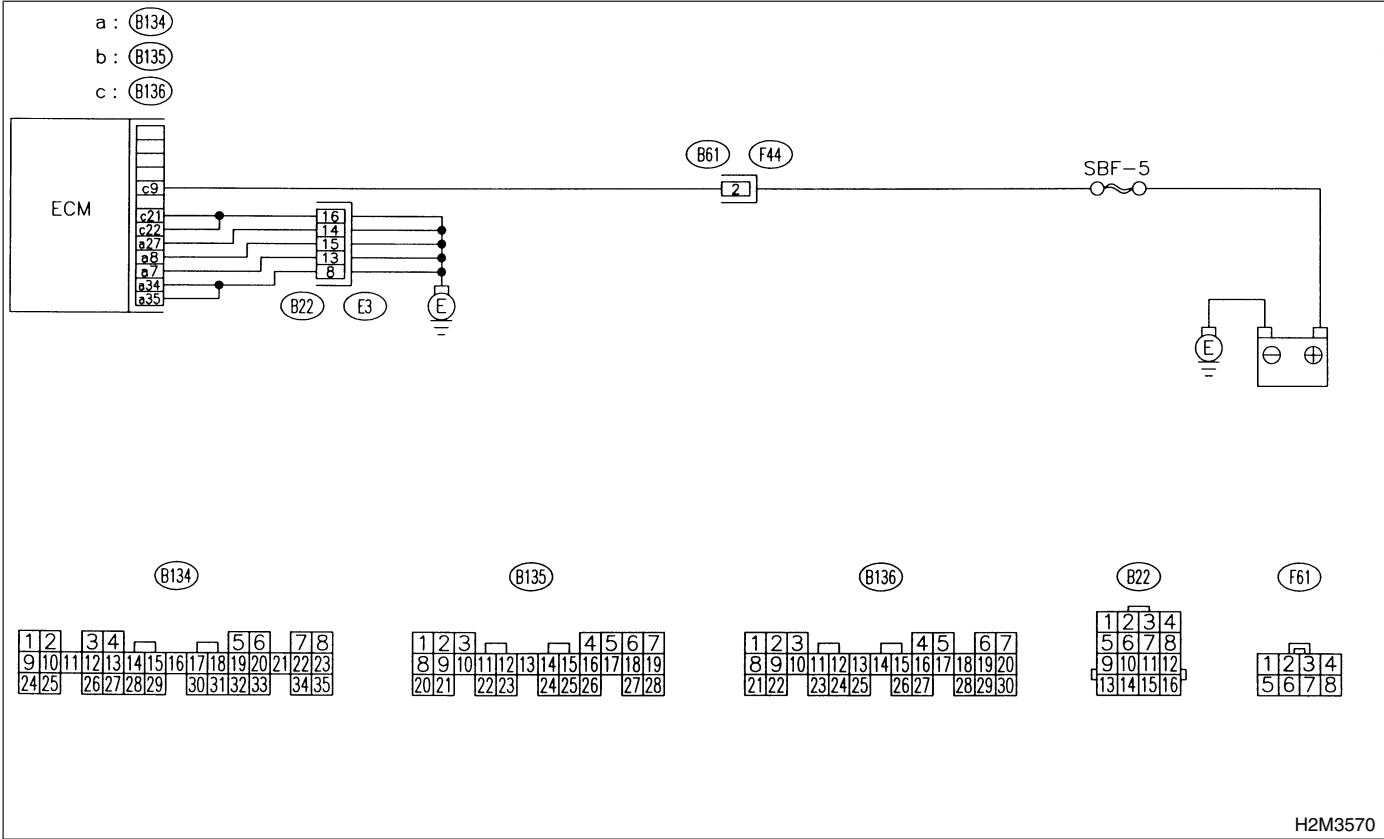
Engine

AW: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM  
ERROR — S008636B63

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine does not start.
  - Engine stalls.

**CAUTION:**  
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



| No. | Step                            | Check                                                                          | Yes                                                          | No                                        |
|-----|---------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0601? | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | It is not necessary to inspect DTC P0601. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## AX: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION — S008636B64

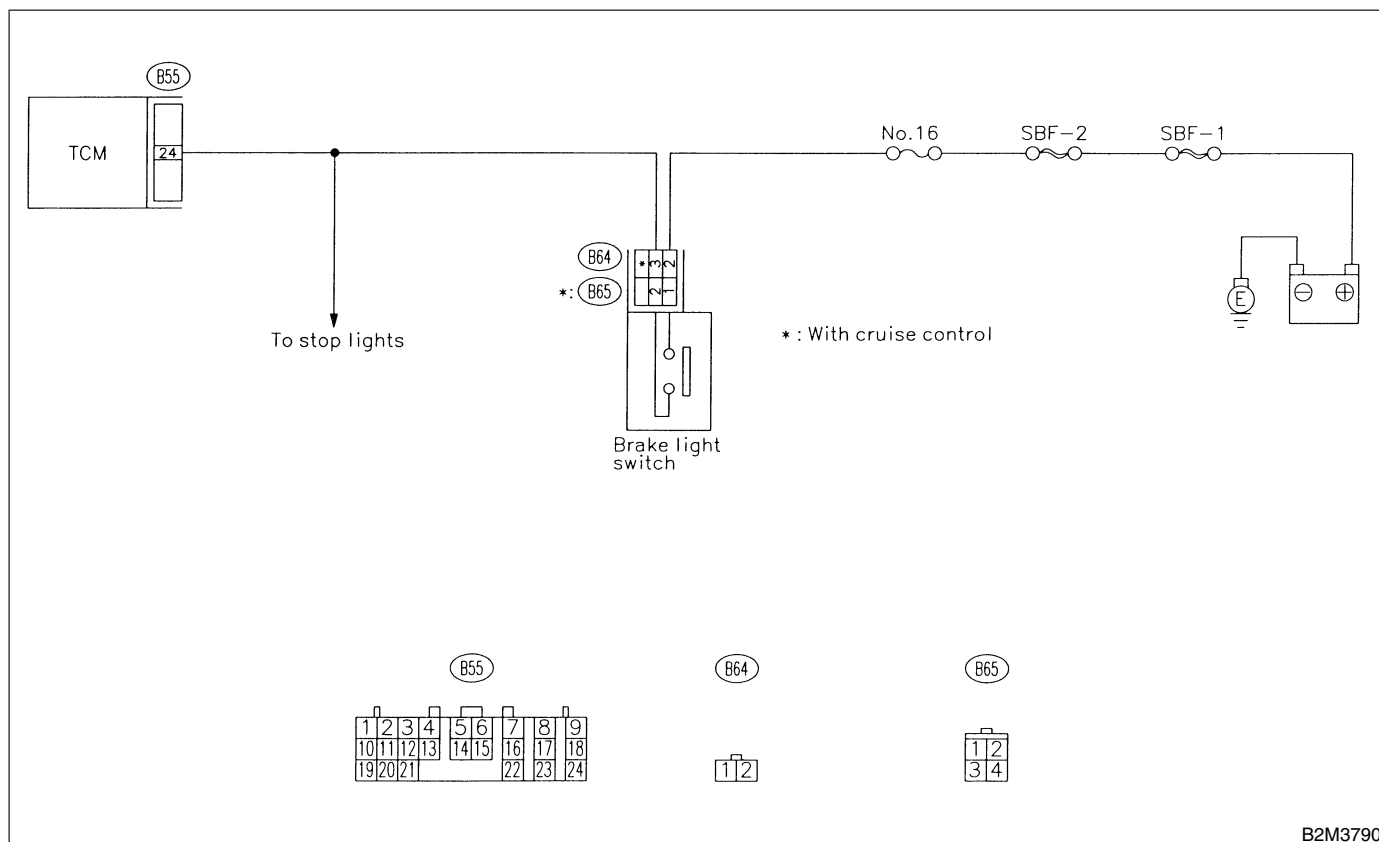
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M3790

| No. | Step                                                                                                                                                                                                                                                                                                                                     | Check                                                     | Yes           | No                                                                                                                                                                                                                                                             |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OPERATION OF BRAKE LIGHT.</b>                                                                                                                                                                                                                                                                                                   | Does brake light come on when depressing the brake pedal? | Go to step 2. | Repair or replace brake light circuit.                                                                                                                                                                                                                         |
| 2   | <b>CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.</b><br>1) Disconnect connectors from TCM and brake light switch.<br>2) Measure resistance of harness between TCM and brake light switch connector.<br><b>Connector &amp; terminal</b><br>(B55) No. 24 — (B64) No. 2:<br>(B55) No. 24 — (B65) No. 3 (With cruise control): | Is the resistance less than 1 Ω?                          | Go to step 3. | Repair or replace harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between TCM and brake light switch connector<br>● Poor contact in TCM connector<br>● Poor contact in brake light switch connector |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                 | Check                                                          | Yes                                   | No                                                                                   |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------|
| 3   | <b>CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.</b><br>Measure resistance of harness between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B55) No. 24 — Chassis ground:</b>                      | Is the resistance more than 1 MΩ?                              | Go to step 4.                         | Repair ground short circuit in harness between TCM and brake light switch connector. |
| 4   | <b>CHECK INPUT SIGNAL FOR TCM.</b><br>1) Connect connectors to TCM and brake light switch.<br>2) Measure voltage between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B55) No. 24 (+) — Chassis ground (-):</b> | Is the voltage less than 1 V when releasing the brake pedal?   | Go to step 5.                         | Adjust or replace brake light switch.<br><Ref. to BR-57 REMOVAL, Stop Light Switch.> |
| 5   | <b>CHECK INPUT SIGNAL FOR TCM.</b><br>Measure voltage between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B55) No. 24 (+) — Chassis ground (-):</b>                                                            | Is the voltage more than 10 V when depressing the brake pedal? | Go to step 6.                         | Adjust or replace brake light switch.<br><Ref. to BR-57 REMOVAL, Stop Light Switch.> |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                      | Is there poor contact in TCM connector?                        | Repair poor contact in TCM connector. | Replace TCM.<br><Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).>          |

## AY: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION — S008636F05

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

- **TROUBLE SYMPTOM:**

- Starter does not rotate when selector lever is in “P” or “N” range.
- Starter rotates when selector lever is in “R”, “D”, “3”, “2” or “1” range.
- Engine brake is not effected when selector lever is in “3” range.
- Shift characteristics are erroneous.

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check inhibitor switch circuit. <Ref. to AT-84 CHECK INHIBITOR SWITCH., Diagnostic Procedure for No-trouble Code.>

## AZ: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION — S008636B66

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

- **TROUBLE SYMPTOM:**

- No shift up to 4th speed (after engine warm-up)
- No lock-up (after engine warm-up)
- Excessive shift shock

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check ATF temperature sensor circuit. <Ref. to AT-31 TROUBLE CODE 27 — ATF TEMPERATURE SENSOR —, Diagnostic Procedure with Trouble Code.>

## BA: DTC P0715 — TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT MALFUNCTION — S008636B67

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check torque converter turbine speed sensor circuit. <Ref. to AT-44 TROUBLE CODE 36 — TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.>

## **BB: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNCTION —**

*S008636B68*

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift or excessive tight corner “braking”

### **CAUTION:**

**After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.**

### **NOTE:**

Check vehicle speed sensor 2 circuit. <Ref. to AT-39 TROUBLE CODE 33 — VEHICLE SPEED SENSOR 2 (FRONT) —, Diagnostic Procedure with Trouble Code.>

## **BC: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION —**

*S008636B69*

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No lock-up (after engine warm-up)
  - AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is “0”.

### **CAUTION:**

**After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.**

### **NOTE:**

Check engine speed input signal circuit. <Ref. to AT-29 TROUBLE CODE 11 — ENGINE SPEED SIGNAL —, Diagnostic Procedure with Trouble Code.>

## **BD: DTC P0731 — GEAR 1 INCORRECT RATIO —**

*S008636B70*

### **NOTE:**

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN-226 DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

## **BE: DTC P0732 — GEAR 2 INCORRECT RATIO —**

*S008636B71*

### **NOTE:**

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN-226 DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

## **BF: DTC P0733 — GEAR 3 INCORRECT RATIO —**

*S008636B72*

### **NOTE:**

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN-226 DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for 2200 cc Models.>

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BG: DTC P0734 — GEAR 4 INCORRECT RATIO — S008636B73

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### ● TROUBLE SYMPTOM:

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                                                                                                                                                                                                                                   | Check                                                                  | Yes                                                                                                                                                                        | No                                                                       |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                 | Is there any other DTC on display?                                     | Inspect relevant DTC using “17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models”. <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2.                                                            |
| 2   | <b>CHECK THROTTLE POSITION SENSOR CIRCUIT.</b><br>Check throttle position sensor circuit. <Ref. to AT-35 TROUBLE CODE 31 — THROTTLE POSITION SENSOR —, Diagnostic Procedure with Trouble Code.>                                        | Is there any trouble in throttle position sensor circuit?              | Repair or replace throttle position sensor circuit.                                                                                                                        | Go to step 3.                                                            |
| 3   | <b>CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.</b><br>Check vehicle speed sensor 2 circuit. <Ref. to AT-39 TROUBLE CODE 33 — VEHICLE SPEED SENSOR 2 (FRONT) —, Diagnostic Procedure with Trouble Code.>                                      | Is there any trouble in vehicle speed sensor 2 circuit?                | Repair or replace vehicle speed sensor 2 circuit.                                                                                                                          | Go to step 4.                                                            |
| 4   | <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.</b><br>Check torque converter turbine speed sensor circuit. <Ref. to AT-44 TROUBLE CODE 36 — TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.> | Is there any trouble in torque converter turbine speed sensor circuit? | Repair or replace torque converter turbine speed sensor circuit.                                                                                                           | Go to step 5.                                                            |
| 5   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                        | Is there poor contact in TCM connector?                                | Repair poor contact in TCM connector.                                                                                                                                      | Go to step 6.                                                            |
| 6   | <b>CHECK MECHANICAL TROUBLE.</b><br>Check mechanical trouble in automatic transmission.                                                                                                                                                | Is there any mechanical trouble in automatic transmission?             | Repair or replace automatic transmission. <Ref. to AT-18 REMOVAL, Automatic Transmission Assembly.>                                                                        | Replace TCM. <Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |

## BH: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION

S008636B74

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### ● TROUBLE SYMPTOM:

- No lock-up (after engine warm-up)
- No shift or excessive tight corner “braking”

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                                                                                                                                                                                                                                   | Check                                                                  | Yes                                                                                                                                                                            | No            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                 | Is there any other DTC on display?                                     | Inspect the relevant DTC using “17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models”. <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2. |
| 2   | <b>CHECK LOCK-UP DUTY SOLENOID CIRCUIT.</b><br>Check lock-up duty solenoid circuit. <Ref. to AT-70 TROUBLE CODE 77 — LOCK-UP DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>                                                 | Is there any trouble in duty solenoid B circuit?                       | Repair or replace lock-up duty solenoid circuit.                                                                                                                               | Go to step 3. |
| 3   | <b>CHECK THROTTLE POSITION SENSOR CIRCUIT.</b><br>Check throttle position sensor circuit. <Ref. to AT-35 TROUBLE CODE 31 — THROTTLE POSITION SENSOR —, Diagnostic Procedure with Trouble Code.>                                        | Is there any trouble in throttle position sensor circuit?              | Repair or replace throttle position sensor circuit.                                                                                                                            | Go to step 4. |
| 4   | <b>CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.</b><br>Check torque converter turbine speed sensor circuit. <Ref. to AT-44 TROUBLE CODE 36 — TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.> | Is there any trouble in torque converter turbine speed sensor circuit? | Repair or replace torque converter turbine speed sensor circuit.                                                                                                               | Go to step 5. |
| 5   | <b>CHECK ENGINE SPEED INPUT CIRCUIT.</b><br>Check engine speed input signal circuit. <Ref. to AT-29 TROUBLE CODE 11 — ENGINE SPEED SIGNAL —, Diagnostic Procedure with Trouble Code.>                                                  | Is there any trouble in engine speed input circuit?                    | Repair or replace engine speed input circuit.                                                                                                                                  | Go to step 6. |
| 6   | <b>CHECK INHIBITOR SWITCH CIRCUIT.</b><br>Check inhibitor switch circuit. <Ref. to AT-84 CHECK INHIBITOR SWITCH., Diagnostic Procedure for No-trouble Code.>                                                                           | Is there any trouble in inhibitor switch circuit?                      | Repair or replace inhibitor switch circuit.                                                                                                                                    | Go to step 7. |
| 7   | <b>CHECK BRAKE LIGHT SWITCH CIRCUIT.</b><br>Check brake light switch circuit. <Ref. to AT-83 CHECK BRAKE SWITCH., Diagnostic Procedure for No-trouble Code.>                                                                           | Is there any trouble in brake light switch circuit?                    | Repair or replace brake light switch circuit.                                                                                                                                  | Go to step 8. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                      | Check                                                      | Yes                                                                                                 | No                                                                       |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 8   | <b>CHECK ATF TEMPERATURE SENSOR CIRCUIT.</b><br>Check ATF temperature sensor circuit. <Ref. to AT-31 TROUBLE CODE 27 — ATF TEMPERATURE SENSOR —, Diagnostic Procedure with Trouble Code.> | Is there any trouble in ATF temperature sensor circuit?    | Repair or replace ATF temperature sensor circuit.                                                   | Go to step 9.                                                            |
| 9   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                           | Is there poor contact in TCM connector?                    | Repair poor contact in TCM connector.                                                               | Go to step 10.                                                           |
| 10  | <b>CHECK MECHANICAL TROUBLE.</b><br>Check mechanical trouble in automatic transmission.                                                                                                   | Is there any mechanical trouble in automatic transmission? | Repair or replace automatic transmission. <Ref. to AT-18 REMOVAL, Automatic Transmission Assembly.> | Replace TCM. <Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |

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**BI: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (LOCK-UP DUTY SOLENOID) ELECTRICAL —** S008636B75

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No lock-up (after engine warm-up)

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check lock-up duty solenoid circuit. <Ref. to AT-70 TROUBLE CODE 77 — LOCK-UP DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

**BJ: DTC P0748 — PRESSURE CONTROL SOLENOID (LINE PRESSURE DUTY SOLENOID) ELECTRICAL —** S008636B76

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check line pressure duty solenoid circuit. <Ref. to AT-62 TROUBLE CODE 75 — LINE PRESSURE DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

**BK: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL —**

S008636B77

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift

**CAUTION:**

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check shift solenoid 1 circuit. <Ref. to AT-51 TROUBLE CODE 71 — SHIFT SOLENOID 1 —, Diagnostic Procedure with Trouble Code.>

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

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## BL: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL —

S008636B78

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No shift

### CAUTION:

**After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.**

### NOTE:

Check shift solenoid 2 circuit. <Ref. to AT-54 TROUBLE CODE 72 — SHIFT SOLENOID 2 —, Diagnostic Procedure with Trouble Code.>

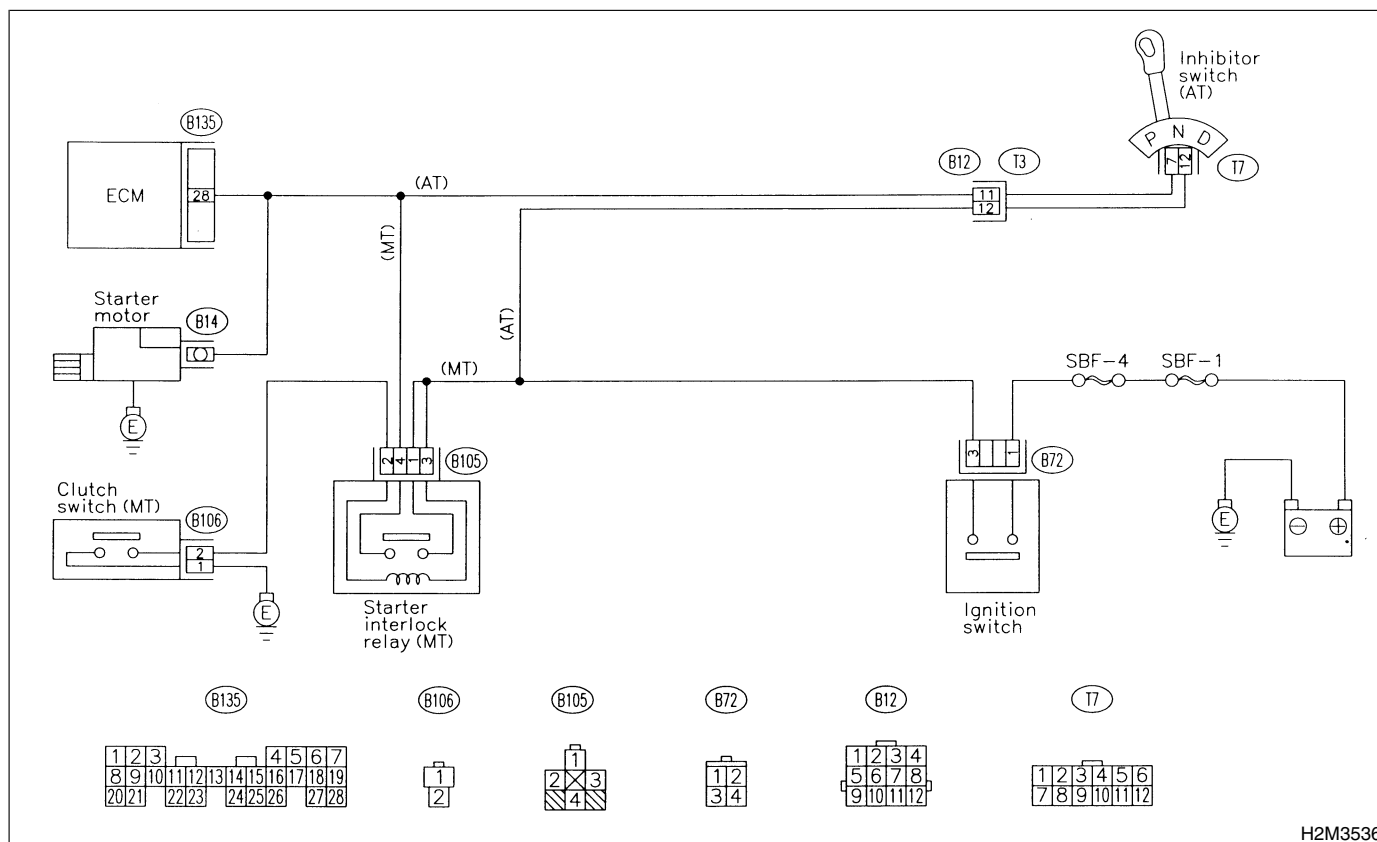
## BM: DTC P1100 — STARTER SWITCH CIRCUIT LOW INPUT — S008636B79

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3536

| No. | Step                                                                                                                                                                                                               | Check                                                    | Yes                                                                                                                                                                                                                                                                 | No                                                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OPERATION OF STARTER MOTOR.</b><br><b>NOTE:</b> <ul style="list-style-type: none"> <li>● Depress the clutch pedal. (MT)</li> <li>● Place the inhibitor switch in the "P" or "N" position. (AT)</li> </ul> | Does starter motor operate when ignition switch to "ST"? | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"> <li>● Open or ground short circuit in harness between ECM and starter motor connector.</li> <li>● Poor contact in ECM connector.</li> </ul> | Check starter motor circuit.<br><Ref. to EN-72 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BN: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [MT VEHICLES] OR NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [AT VEHICLES]—

S008636F56

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### ● TROUBLE SYMPTOM:

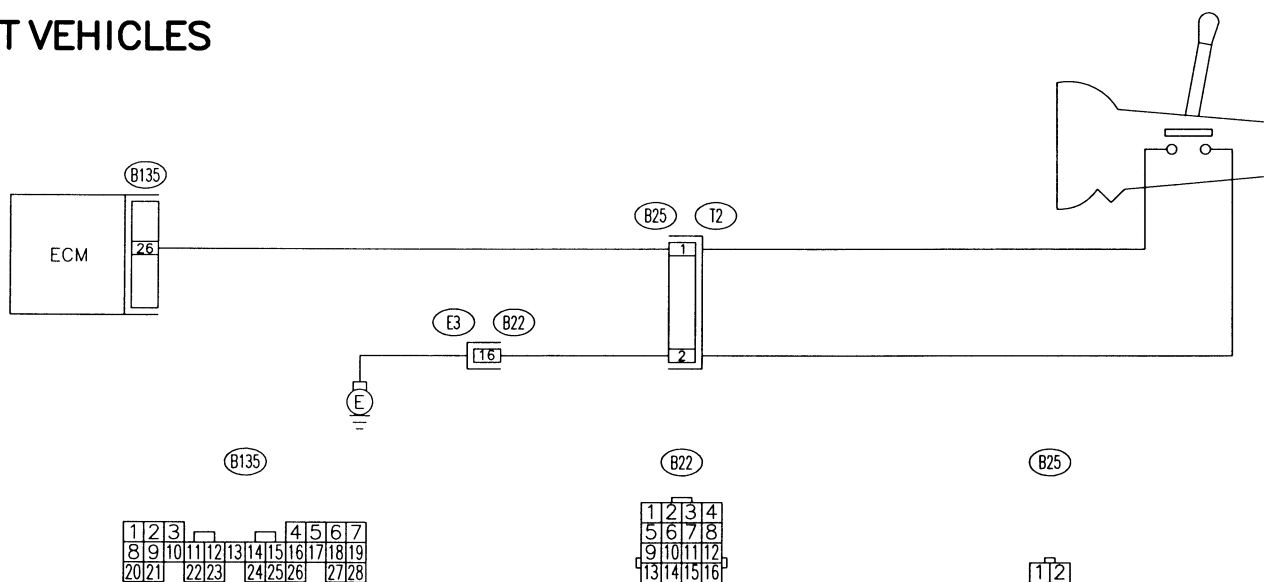
- Erroneous idling

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

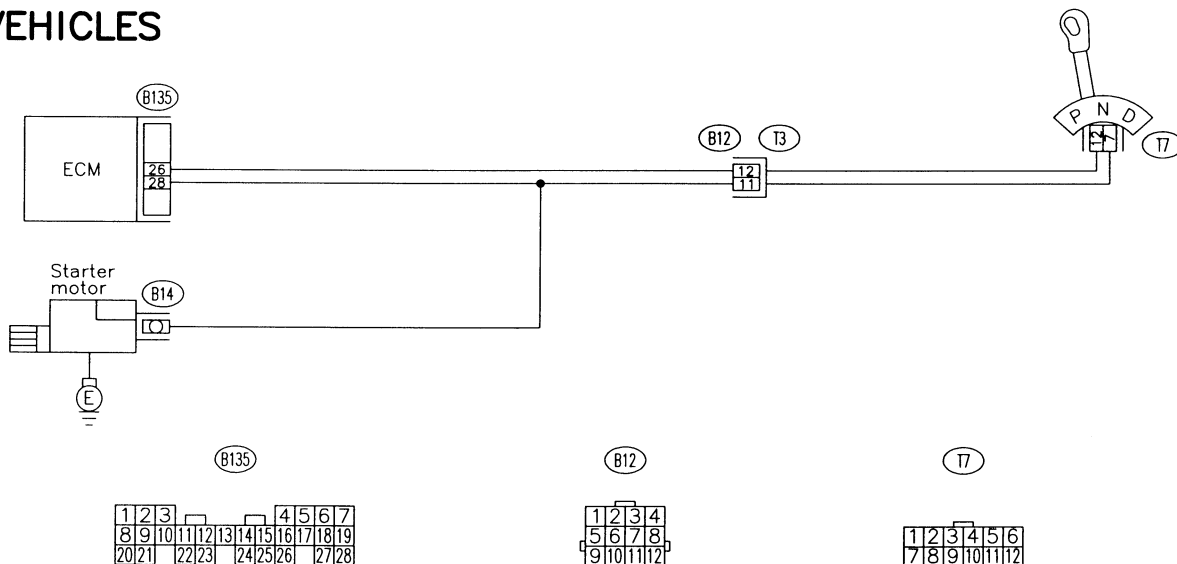
### ● WIRING DIAGRAM:

#### MT VEHICLES



H2M3572

#### AT VEHICLES



H2M3573

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                           | Check                                                                          | Yes                                                                                                                                                                     | No                                                                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK TRANSMISSION TYPE.</b>                                                                                                                                                                                                                                                | Is transmission type MT?                                                       | Go to step 2.                                                                                                                                                           | Go to step 8.                                                                                                                   |
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                | Is the voltage more than 10 V in neutral position?                             | Go to step 3.                                                                                                                                                           | Go to step 5.                                                                                                                   |
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                                                     | Is the voltage less than 1 V in other positions?                               | Go to step 4.                                                                                                                                                           | Go to step 5.                                                                                                                   |
| 4   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                | Is there poor contact in ECM connector?                                        | Repair poor contact in ECM connector.                                                                                                                                   | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 5   | <b>CHECK NEUTRAL POSITION SWITCH.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from transmission harness.<br>3) Measure resistance between transmission harness and connector terminals.<br><b>Connector &amp; terminal</b><br><b>(T2) No. 1 — No. 2:</b> | Is the resistance more than 1 MΩ in neutral position?                          | Go to step 6.                                                                                                                                                           | Repair short circuit in transmission harness or replace neutral position switch.                                                |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.</b><br>Measure resistance between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 — Chassis ground:</b>                                                                     | Is the resistance less than 10 Ω?                                              | Repair ground short circuit in harness between ECM and transmission harness connector.                                                                                  | Go to step 7.                                                                                                                   |
| 7   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in transmission harness connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                               | Is there poor contact in transmission harness connector?                       | Repair poor contact in transmission harness connector.                                                                                                                  | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 8   | <b>CHECK DTC P0705 ON DISPLAY.</b>                                                                                                                                                                                                                                             | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705? | Inspect DTC P0705 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 9.                                                                                                                   |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                     | Check                                    | Yes                                                                                 | No                                                                                                                                                                                                                                                                                                                                                                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground in selector lever "N" and "P" positions.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                  | Is the voltage less than 1 V?            | Go to step 10.                                                                      | Go to step 12.                                                                                                                                                                                                                                                                                                                                                    |
| 10  | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground in selector lever except for "N" and "P" positions.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                                            | Is the voltage between 4.5 and 5.5 V?    | Go to step 11.                                                                      | Go to step 12.                                                                                                                                                                                                                                                                                                                                                    |
| 11  | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                          | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                               | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                                                                                            |
| 12  | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                                                                                               | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and inhibitor switch connector. | Go to step 13.                                                                                                                                                                                                                                                                                                                                                    |
| 13  | <b>CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and inhibitor switch.<br>3) Measure resistance of harness between ECM and inhibitor switch connector.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 — (T7) No. 12:</b> | Is the resistance less than 1 $\Omega$ ? | Go to step 14.                                                                      | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and inhibitor switch connector</li> <li>● Poor contact in coupling connector (B12)</li> <li>● Poor contact in inhibitor switch connector</li> <li>● Poor contact in ECM connector</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                       | Check                                                                | Yes                                                                           | No                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14  | <b>CHECK INHIBITOR SWITCH GROUND LINE.</b><br>Measure resistance of harness between inhibitor switch connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(T7) No. 7 — Engine ground:</b> | Is the resistance less than 5 $\Omega$ ?                             | Go to step 15.                                                                | Repair open circuit in harness between inhibitor switch connector and starter motor ground line.<br>NOTE:<br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between inhibitor switch connector and starter motor ground line</li> <li>● Poor contact in starter motor connector</li> <li>● Poor contact in starter motor ground</li> <li>● Starter motor</li> </ul> |
| 15  | <b>CHECK INHIBITOR SWITCH.</b><br>Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" and "P" positions.<br><b>Terminals</b><br><b>No. 7 — No. 12:</b>      | Is the resistance less than 1 $\Omega$ ?                             | Go to step 16.                                                                | Replace inhibitor switch. <Ref. to AT-31 REMOVAL, Inhibitor Switch.>                                                                                                                                                                                                                                                                                                                                                         |
| 16  | <b>CHECK SELECTOR CABLE CONNECTION.</b>                                                                                                                                                                    | Is there any fault in selector cable connection to inhibitor switch? | Repair selector cable connection.<br><Ref. to CS-5 REMOVAL, AT Select Lever.> | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                                                                                                                                                              |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BO: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL 1 CIRCUIT MALFUNCTION —

S008636F07

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

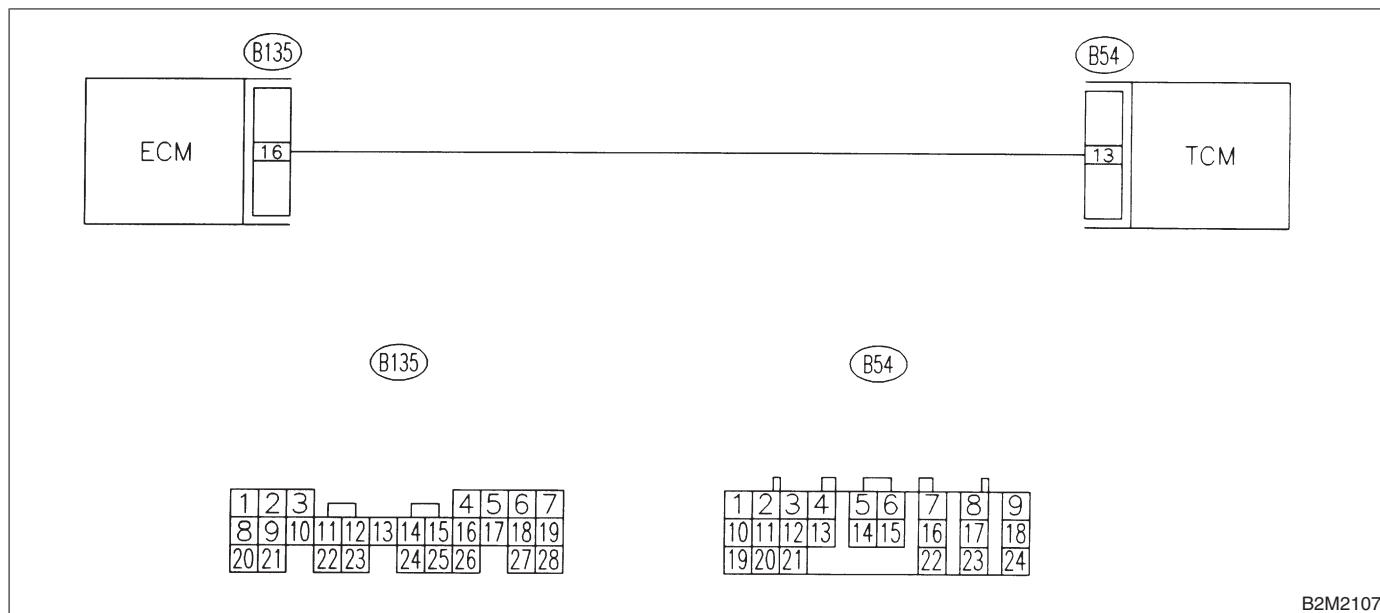
### ● TROUBLE SYMPTOM:

- Excessive shift shock

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2107

| No. | Step                                                                                                                                                                                                            | Check                                   | Yes                                                                    | No                                                           |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------|
| 1   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 16 (+) — Chassis ground (-):</b> | Is the voltage more than 4.5 V?         | Go to step 2.                                                          | Go to step 4.                                                |
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 16 (+) — Chassis ground (-):</b>                                      | Is the voltage more than 10 V?          | Repair battery short circuit in harness between ECM and TCM connector. | Go to step 3.                                                |
| 3   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                 | Is there poor contact in ECM connector? | Repair poor contact in ECM connector.                                  | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                               | Check                                     | Yes                                                                   | No                                                                       |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
| 4   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and TCM.<br>3) Measure resistance of harness between ECM and TCM connector.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 16 — (B54) No. 13:</b> | Is the resistance less than 1 $\Omega$ ?  | Go to step 5.                                                         | Repair open circuit in harness between ECM and TCM connector.            |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 16 — Chassis ground:</b>                                                                                  | Is the resistance less than 10 $\Omega$ ? | Repair ground short circuit in harness between ECM and TCM connector. | Go to step 6.                                                            |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                    | Is there poor contact in TCM connector?   | Repair poor contact in TCM connector.                                 | Replace TCM. <Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                               | Check                                     | Yes                                                                   | No                                                                       |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
| 4   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and TCM.<br>3) Measure resistance of harness between ECM and TCM connector.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 17 — (B54) No. 21:</b> | Is the resistance less than 1 $\Omega$ ?  | Go to step 5.                                                         | Repair open circuit in harness between ECM and TCM connector.            |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 17 — Chassis ground:</b>                                                                                  | Is the resistance less than 10 $\Omega$ ? | Repair ground short circuit in harness between ECM and TCM connector. | Go to step 6.                                                            |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                    | Is there poor contact in TCM connector?   | Repair poor contact in TCM connector.                                 | Replace TCM. <Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BQ: DTC P1110 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT LOW INPUT — S008636B84

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                            | Check                                                                          | Yes                                                                                                                        | No                                        |
|-----|---------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1110? | Replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.><br>NOTE:<br>Atmospheric pressure sensor is built into ECM. | It is not necessary to inspect DTC P1110. |

## BR: DTC P1111 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT HIGH INPUT — S008636B85

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                            | Check                                                                          | Yes                                                                                                                        | No                                        |
|-----|---------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1111? | Replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.><br>NOTE:<br>Atmospheric pressure sensor is built into ECM. | It is not necessary to inspect DTC P1111. |

## BS: DTC P1112 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — S008636B86

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

| No. | Step                            | Check                                                                                                        | Yes                                                                                                                                                                                                   | No                                                                                                                      |
|-----|---------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P1110 or P1111? | Inspect DTC P0106, P0107, P0108, P1110 or P1111 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.><br>NOTE:<br>Atmospheric pressure sensor is built into ECM. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BT: DTC P1115 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT HIGH INPUT —

S008636B87

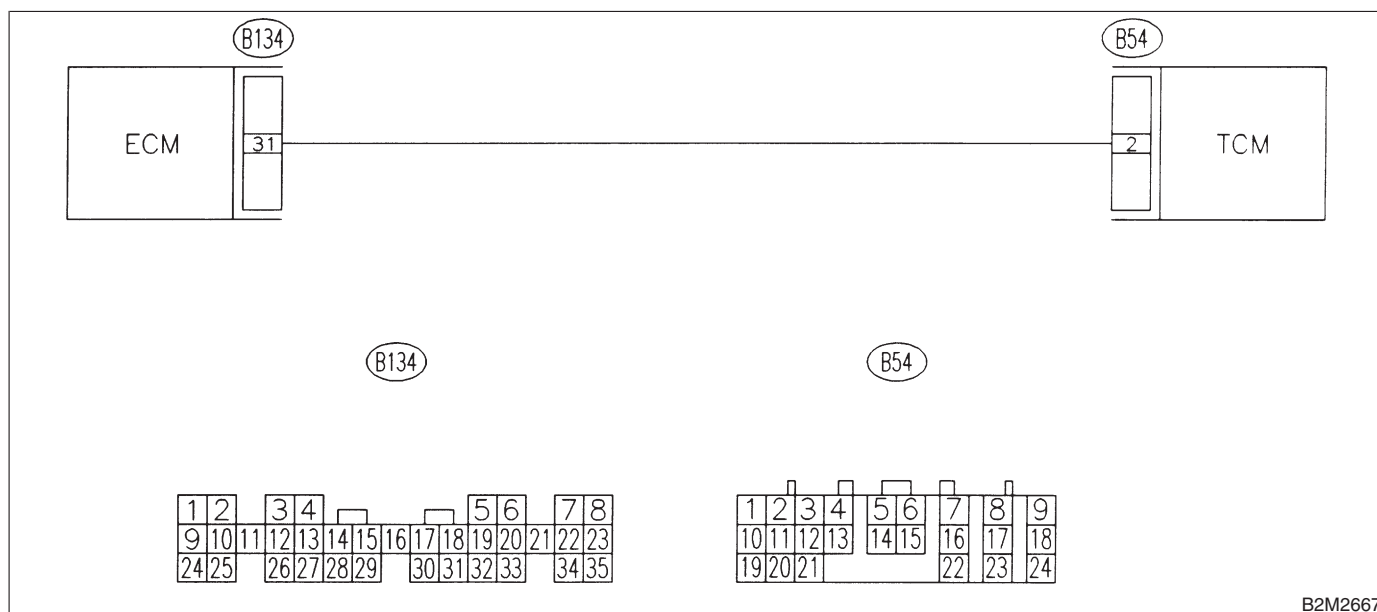
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2667

| No. | Step                                                                                                                                                                                                                                                                                                                                  | Check                                                                                                                         | Yes                                                                                                                                               | No                                                                                                                                                |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Start engine, and warm-up the engine.<br>2) Turn ignition switch to OFF.<br>3) Disconnect connector from TCM.<br>4) Turn ignition switch to ON.<br>5) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 31 (+) — Chassis ground (-):</b> | Is the voltage less than 3 V?                                                                                                 | Go to step 2.                                                                                                                                     | Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 31 (+) — Chassis ground (-):</b>                                                                                                     | Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.            |

## BU: DTC P1116 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT LOW INPUT — S008636B88

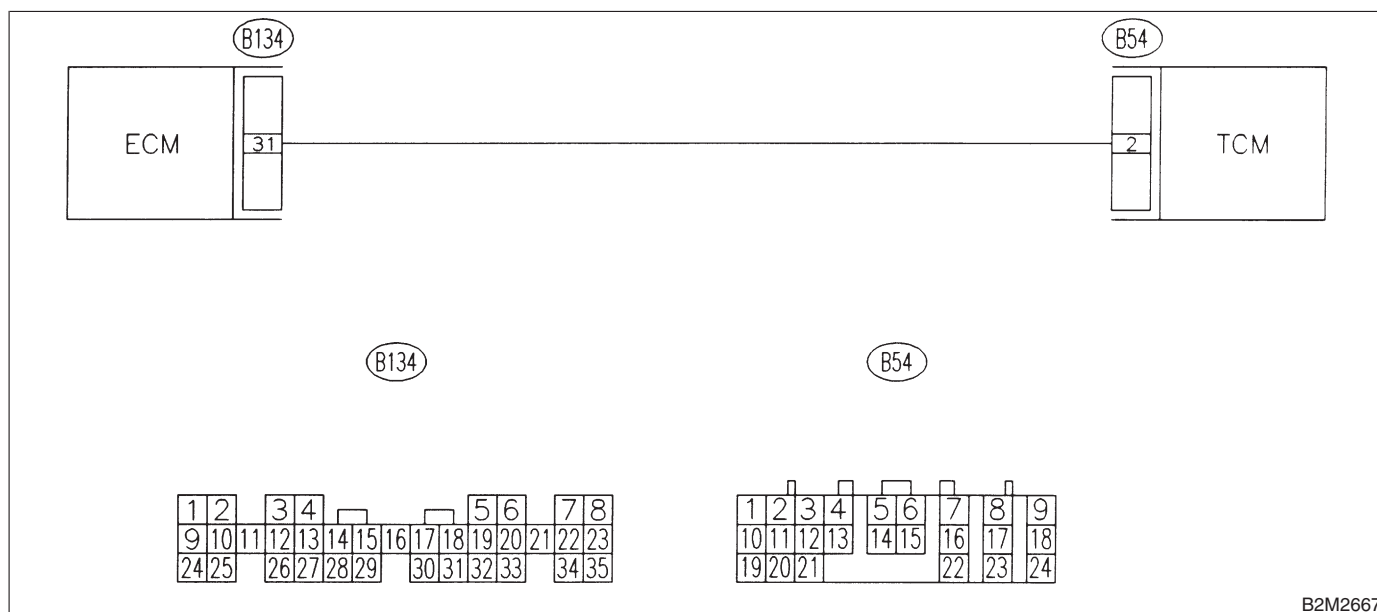
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2667

| No. | Step                                                                                                                                                                                                                                                                                             | Check                             | Yes                                                                   | No                                                            |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Start engine, and warm-up the engine.<br>2) Turn ignition switch to OFF.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 31 (+) — Chassis ground (-):</b> | Is the voltage more than 3 V?     | Repair poor contact in ECM connector.                                 | Go to step 2.                                                 |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and TCM.<br>3) Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 31 — Chassis ground:</b>            | Is the resistance less than 10 Ω? | Repair ground short circuit in harness between ECM and TCM connector. | Go to step 3.                                                 |
| 3   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure resistance of harness between ECM and TCM connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 31 — (B54) No. 2:</b>                                                                                                    | Is the resistance less than 1 Ω?  | Repair poor contact in ECM or TCM connector.                          | Repair open circuit in harness between ECM and TCM connector. |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

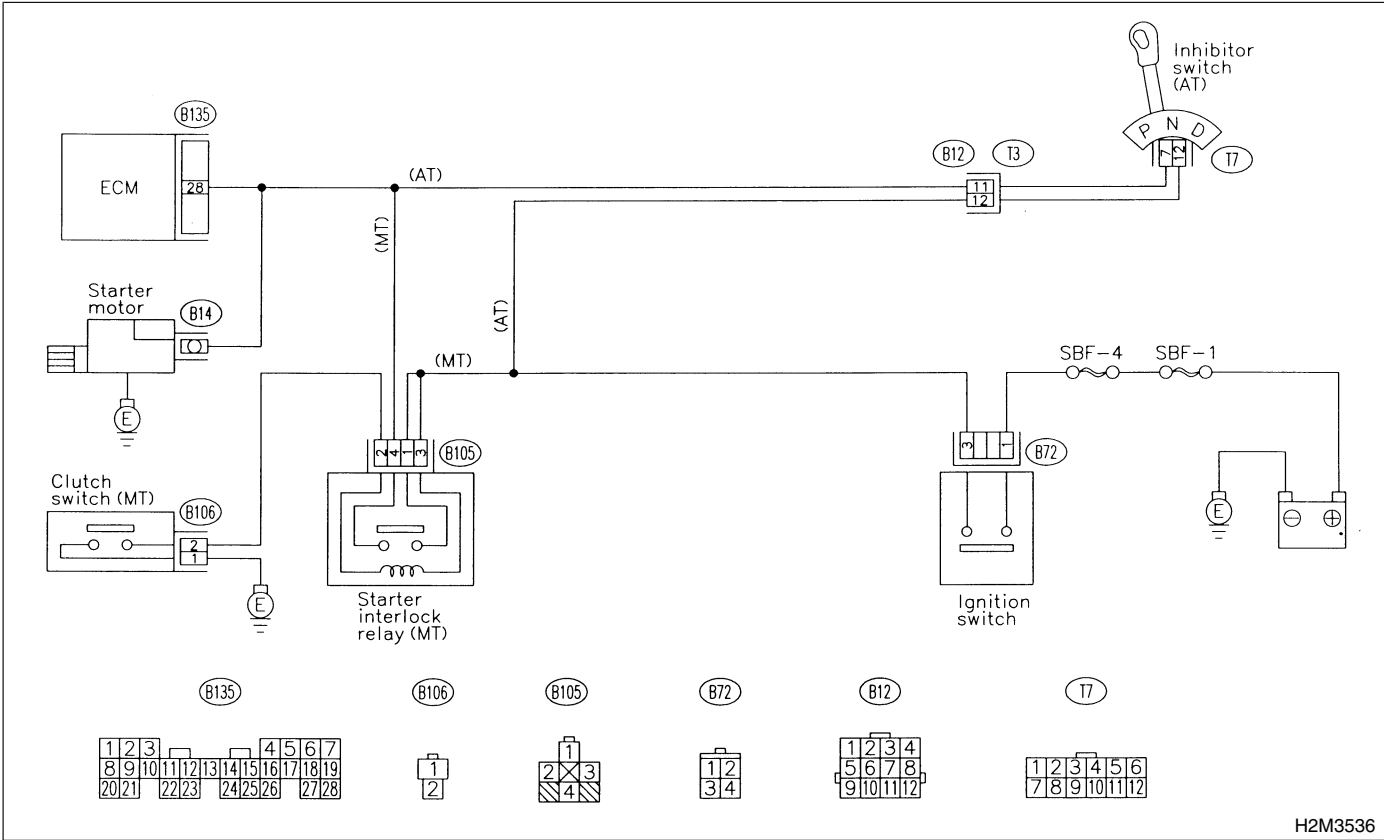
Engine

BV: DTC P1120 — STARTER SWITCH CIRCUIT HIGH INPUT — S008636B89

- DTC DETECTING CONDITION:
  - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
  - Failure of engine to start

**CAUTION:**  
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

● WIRING DIAGRAM:



H2M3536

| No. | Step                                                                                                                                                                                                                            | Check                                                    | Yes                                                                                                                               | No                                                                                                           |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OPERATION OF STARTER MOTOR.</b><br>NOTE: <ul style="list-style-type: none"><li>● On AT vehicles, place the inhibitor switch in each position.</li><li>● On MT vehicles, depress or release the clutch pedal.</li></ul> | Does starter motor operate when ignition switch to "ON"? | Repair battery short circuit in starter motor circuit. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Check starter motor circuit. <Ref. to EN-72 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BW: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT [MT VEHICLES] OR NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT [AT VEHICLES] — S008636F57

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

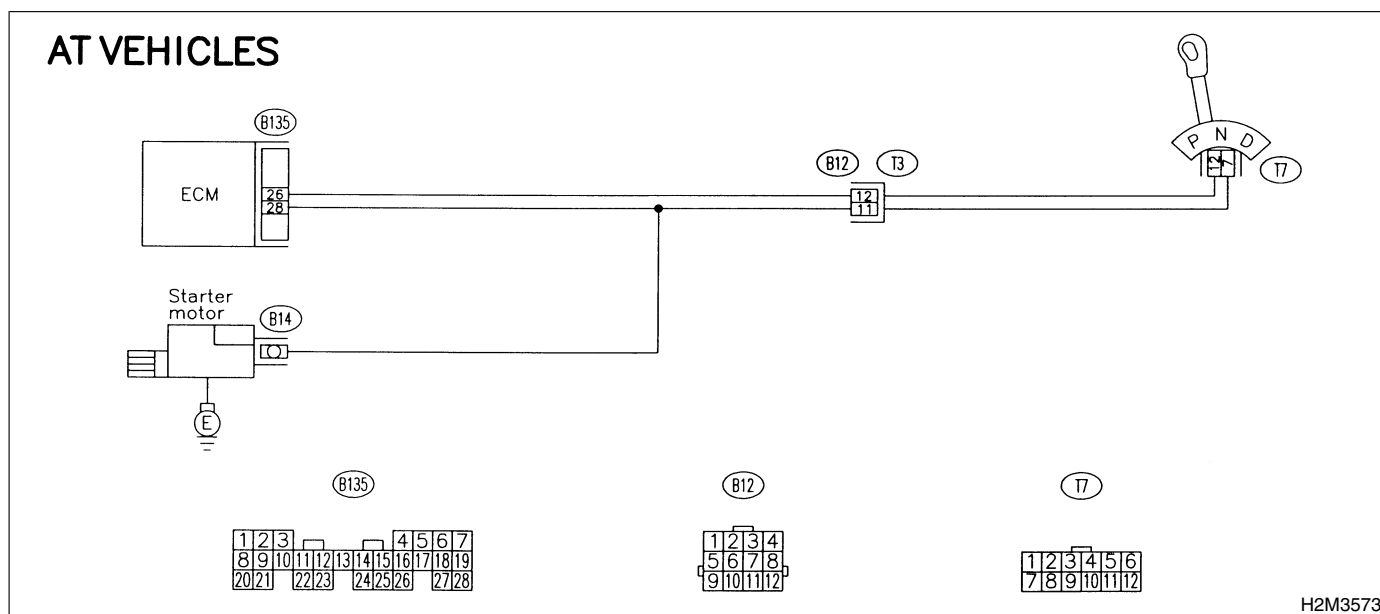
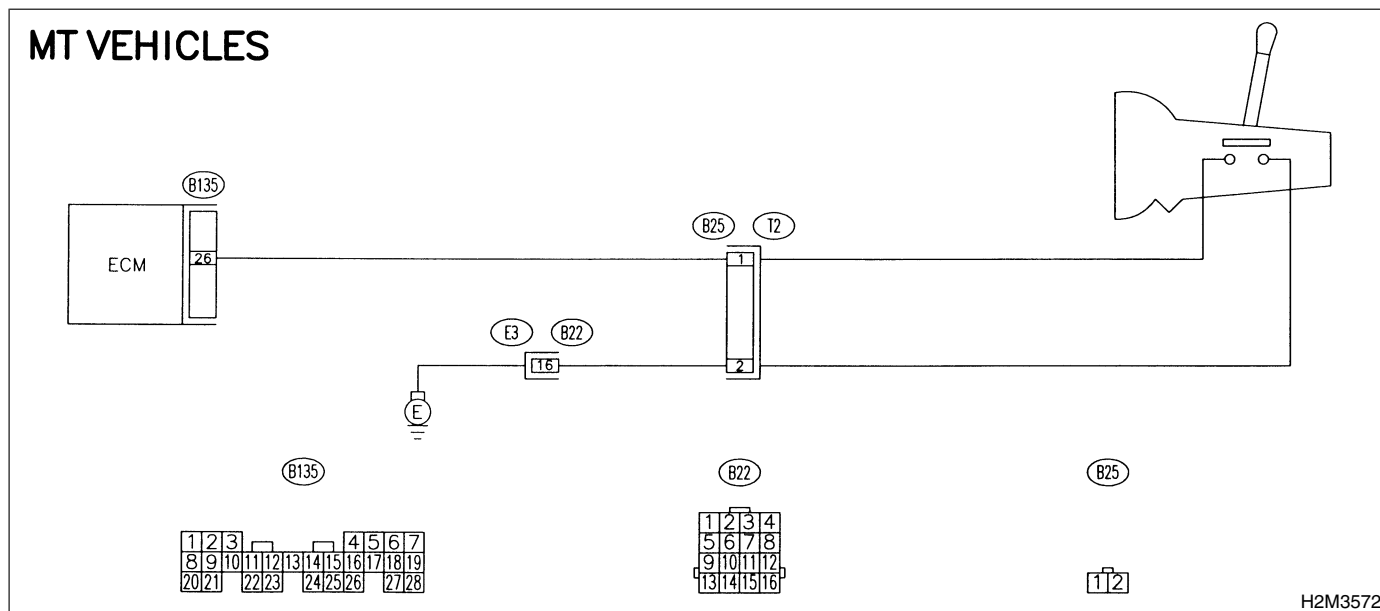
### ● TROUBLE SYMPTOM:

- Erroneous idling

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                       | Check                                                      | Yes                                   | No                                                                                                                                                                                                                                                                                           |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK TRANSMISSION TYPE.</b>                                                                                                                                                                                                                                            | Is transmission type MT?                                   | Go to step 2.                         | Go to step 9.                                                                                                                                                                                                                                                                                |
| 2   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                            | Is the voltage more than 10 V in neutral position?         | Go to step 3.                         | Go to step 5.                                                                                                                                                                                                                                                                                |
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                                                 | Is the voltage less than 1 V in other positions?           | Go to step 4.                         | Go to step 6.                                                                                                                                                                                                                                                                                |
| 4   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                            | Is there poor contact in ECM connector?                    | Repair poor contact in ECM connector. | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts.                                                                                                                                                       |
| 5   | <b>CHECK NEUTRAL POSITION SWITCH.</b><br>Measure resistance between transmission harness connector terminals.<br><b>Connector &amp; terminal</b><br><b>(T2) No. 1 — No. 2:</b>                                                                                             | Is the resistance less than 1 $\Omega$ in other positions? | Go to step 6.                         | Repair open circuit in transmission harness or replace neutral position switch.                                                                                                                                                                                                              |
| 6   | <b>CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.</b><br>1) Disconnect connector from ECM.<br>2) Measure resistance of harness between ECM and transmission harness connector.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 — (B25) No. 1:</b> | Is the resistance less than 1 $\Omega$ ?                   | Go to step 7.                         | Repair open circuit in harness between ECM and transmission harness connector.                                                                                                                                                                                                               |
| 7   | <b>CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.</b><br>Measure resistance of harness between transmission harness connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(B25) No. 2 — Engine ground:</b>                               | Is the resistance less than 5 $\Omega$ ?                   | Go to step 8.                         | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between transmission harness connector and engine grounding terminal</li> <li>● Poor contact in coupling connector (B22)</li> </ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                             | Check                                                                          | Yes                                                                                                                                                                     | No                                                                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 8   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in transmission harness connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                 | Is there poor contact in transmission harness connector?                       | Repair poor contact in transmission harness connector.                                                                                                                  | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 9   | <b>CHECK DTC P0705 ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                               | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705? | Inspect DTC P0705 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 10.                                                                                                                  |
| 10  | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 (+) — Chassis ground (-):</b>                                                                                                                                  | Is the voltage between 4.5 and 5.5 V at except "N" and "P" positions?          | Even if MIL lights up, the circuit has returned to a normal condition at this time.                                                                                     | Go to step 11.                                                                                                                  |
| 11  | <b>CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and transmission harness connector (T3).<br>3) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 26 — Chassis ground:</b> | Is the resistance less than 10 $\Omega$ ?                                      | Repair ground short circuit in harness between ECM and transmission harness connector.                                                                                  | Go to step 12.                                                                                                                  |
| 12  | <b>CHECK TRANSMISSION HARNESS CONNECTOR.</b><br>1) Disconnect connector from inhibitor switch.<br>2) Measure resistance of harness between transmission harness connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(T3) No. 12 — Engine ground:</b>                                                                           | Is the resistance less than 10 $\Omega$ ?                                      | Repair ground short circuit in harness between transmission harness and inhibitor switch connector.                                                                     | Go to step 13.                                                                                                                  |
| 13  | <b>CHECK INHIBITOR SWITCH.</b><br>Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position.<br><b>Terminals</b><br><b>No. 7 — No. 12:</b>                                                                                                                                          | Is the resistance more than 1 M $\Omega$ at except "N" and "P" positions?      | Go to step 14.                                                                                                                                                          | Replace inhibitor switch. <Ref. to AT-31 REMOVAL, Inhibitor Switch.>                                                            |
| 14  | <b>CHECK SELECTOR CABLE CONNECTION.</b>                                                                                                                                                                                                                                                                                                          | Is there any fault in selector cable connection to inhibitor switch?           | Repair selector cable connection. <Ref. to CS-5 REMOVAL, AT Select Lever.>                                                                                              | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BX: DTC P1130 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) — S008636B92

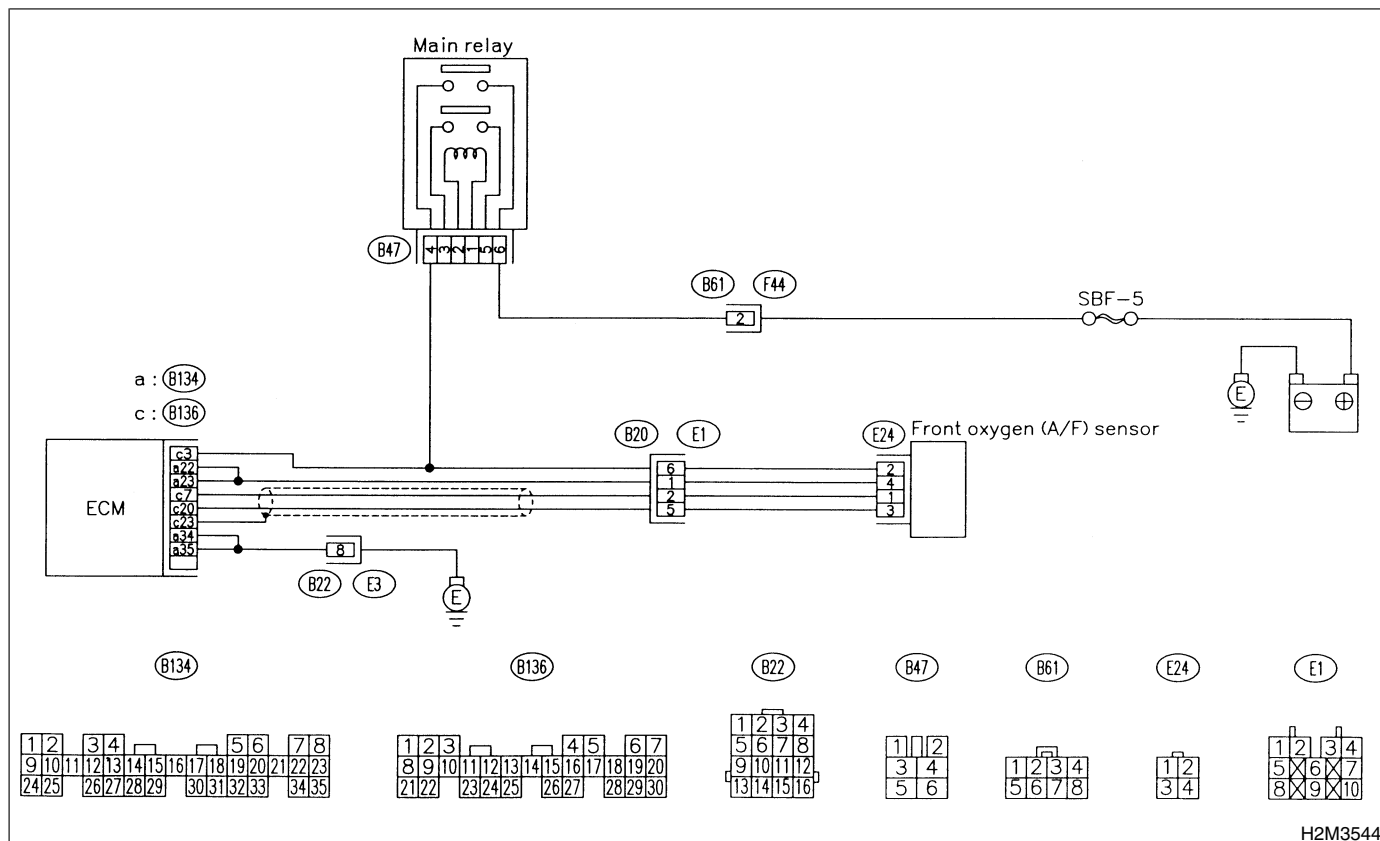
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3544

| No. | Step                                                                                                                                                                                                                                                                                                                                                         | Check                            | Yes           | No                                                                                                                                                                                                                                                                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector.<br>3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 7 — (E24) No. 1:</b> | Is the resistance less than 1 Ω? | Go to step 2. | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between ECM and front oxygen (A/F) sensor connector<br>● Poor contact in front oxygen (A/F) sensor connector<br>● Poor contact in ECM connector |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                      | Check                                                         | Yes                                                         | No                                                                                                                                                                                                                                                                                                                              |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 20 — (E24) No. 3:</b> | Is the resistance less than 1 $\Omega$ ?                      | Go to step 3.                                               | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and front oxygen (A/F) sensor connector</li> <li>● Poor contact in front oxygen (A/F) sensor connector</li> <li>● Poor contact in ECM connector</li> </ul> |
| 3   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in front oxygen (A/F) sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                     | Is there poor contact in front oxygen (A/F) sensor connector? | Repair poor contact in front oxygen (A/F) sensor connector. | Replace front oxygen (A/F) sensor.<br><Ref. to EC-3 REMOVAL, Front Catalytic Converter.>                                                                                                                                                                                                                                        |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## BY: DTC P1131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) — S008636B93

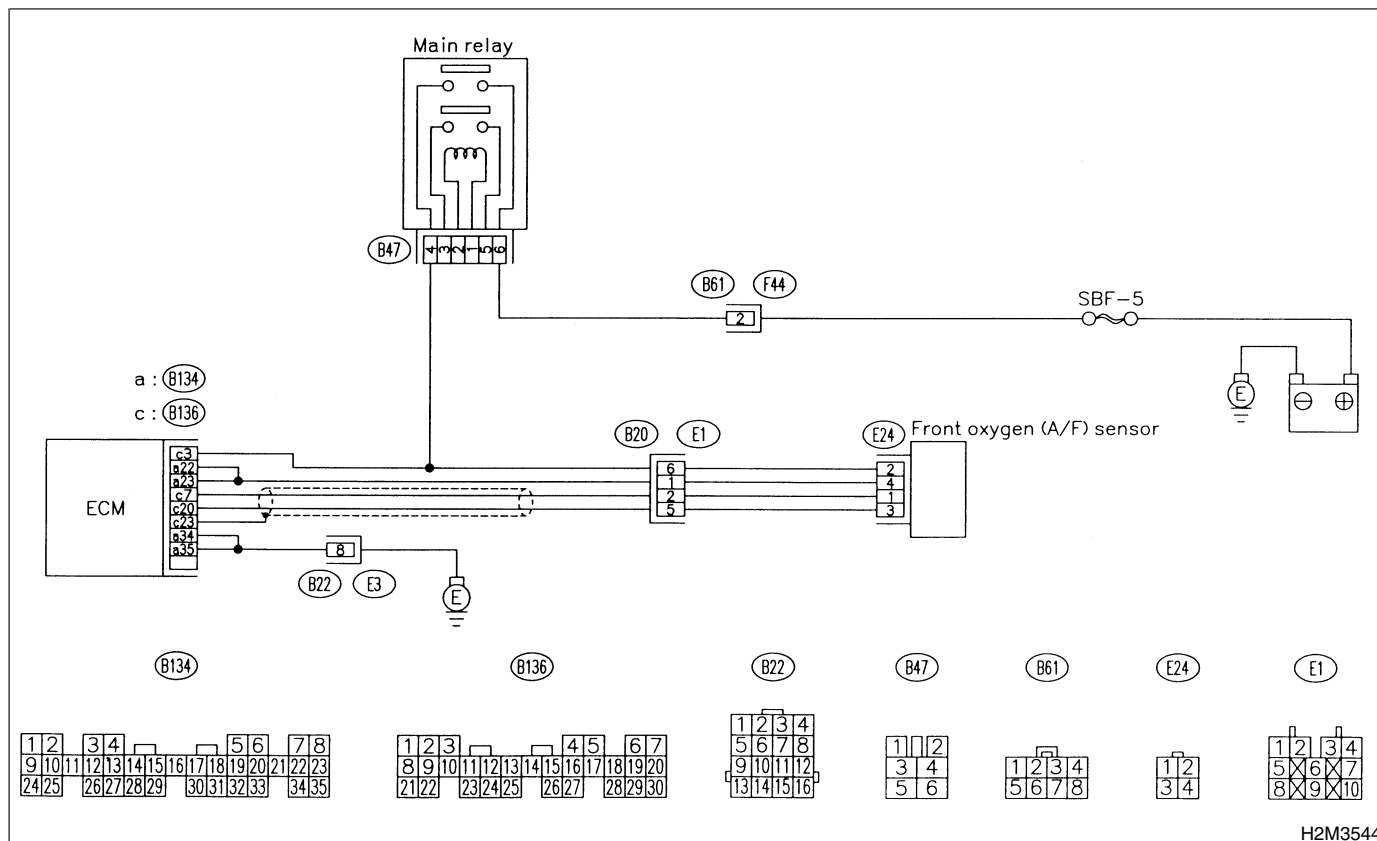
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



| No. | Step                                                                                                                                                                                                                                                                                                        | Check                             | Yes           | No                                                                                          |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|---------------------------------------------------------------------------------------------|
| 1   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM.<br>3) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 7 — Chassis ground:</b> | Is the resistance more than 10 Ω? | Go to step 2. | Repair ground short circuit in harness between ECM and front oxygen (A/F) sensor connector. |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 20 — Chassis ground:</b>                                                                           | Is the resistance more than 10 Ω? | Go to step 3. | Repair ground short circuit in harness between ECM and front oxygen (A/F) sensor connector. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                      | Check                            | Yes                                                                                                                                                                           | No                                                                                       |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 3   | <b>CHECK OUTPUT SIGNAL FOR ECM.</b><br>1) Connect connector to ECM.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 7 (+) — Chassis ground (-):</b> | Is the voltage more than 4.5 V?  | Go to step 4.                                                                                                                                                                 | Go to step 5.                                                                            |
| 4   | <b>CHECK OUTPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 7 (+) — Chassis ground (-):</b>                                                                      | Is the voltage more than 10 V?   | Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.<br>After repair, replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.> | Repair poor contact in ECM connector.                                                    |
| 5   | <b>CHECK OUTPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 20 (+) — Chassis ground (-):</b>                                                                     | Is the voltage more than 4.95 V? | Go to step 6.                                                                                                                                                                 | Replace front oxygen (A/F) sensor.<br><Ref. to EC-3 REMOVAL, Front Catalytic Converter.> |
| 6   | <b>CHECK OUTPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 20 (+) — Chassis ground (-):</b>                                                                     | Is the voltage more than 10 V?   | Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.<br>After repair, replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.> | Repair poor contact in ECM connector.                                                    |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

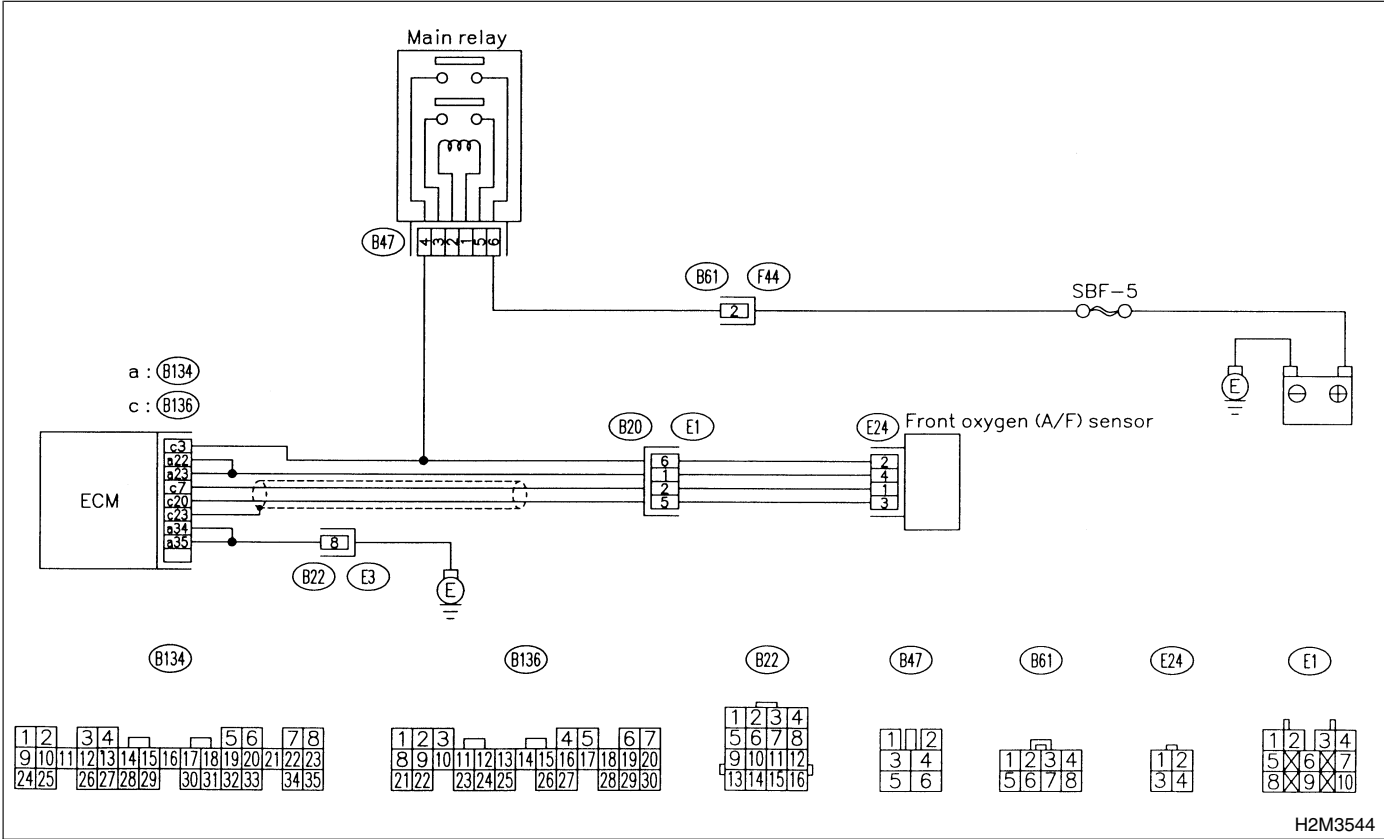
Engine

BZ: DTC P1132 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT LOW  
INPUT — S008636B94

- DTC DETECTING CONDITION:
  - Two consecutive driving cycles with fault

**CAUTION:**  
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



| No. | Step                            | Check                                                                                                     | Yes           | No            |
|-----|---------------------------------|-----------------------------------------------------------------------------------------------------------|---------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1132 and P0141 at the same time? | Go to step 2. | Go to step 5. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Check                                      | Yes                                                                                                                                                                                                                                          | No                                                                                                                                                                                                                                                                                                    |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>CHECK GROUND CIRCUIT OF ECM.</b><br>Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 35 — Chassis ground:</b>                                                                                                                                                                                                                                                                                                                                                                              | Is the resistance less than 5 $\Omega$ ?   | Go to step 6.                                                                                                                                                                                                                                | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine ground terminal</li> <li>● Poor contact in ECM connector</li> <li>Poor contact in coupling connector (B22)</li> </ul> |
| 3   | <b>CHECK GROUND CIRCUIT OF ECM.</b><br>1) Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine ground terminal</li> <li>● Poor contact in ECM connector</li> <li>● Poor contact in coupling connector (B22)</li> </ul> 2) Measure resistance of harness between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 34 — Chassis ground:</b>                                                                | Is there resistance less than 5 $\Omega$ ? | Go to step 6.                                                                                                                                                                                                                                | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and engine ground terminal</li> <li>● Poor contact in ECM connector</li> <li>Poor contact in coupling connector (B22)</li> </ul> |
| 4   | <b>CHECK POWER SUPPLY CIRCUIT OF ECM.</b><br>1) Disconnect connectors from ECM.<br>2) Turn ignition switch to ON.<br>3) Measure power supply voltage between ECM connector terminals.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 3 (+) — (B134) No. 34 (-):</b>                                                                                                                                                                                                                                                                                                 | Is the voltage more than 8 V?              | Go to step 3.                                                                                                                                                                                                                                | Repair open or ground short circuit in harness of power supply circuit.                                                                                                                                                                                                                               |
| 5   | <b>CHECK POWER SUPPLY CIRCUIT OF ECM.</b><br>Measure power supply voltage between ECM connector terminals.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 3 (+) — (B136) No. 35 (-):</b>                                                                                                                                                                                                                                                                                                                                                                            | Is the voltage more than 8 V?              | Go to step 4.                                                                                                                                                                                                                                | Repair open or ground short circuit in harness of power supply circuit.                                                                                                                                                                                                                               |
| 6   | <b>CHECK CURRENT DATA.</b><br>1) Start engine<br>2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool.<br><b>NOTE:</b><br><ul style="list-style-type: none"> <li>● Subaru Select Monitor</li> </ul> For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br><ul style="list-style-type: none"> <li>● OBD-II scan tool</li> </ul> For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 0.2 A?              | Repair poor contact in connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in front oxygen (A/F) sensor connector</li> <li>● Poor contact in ECM connector</li> </ul> | Go to step 7.                                                                                                                                                                                                                                                                                         |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                           | Check                                                                                                                          | Yes                                                                                                                                                                                                                                                                               | No                                                                                                                                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Start and idle the engine.<br>2) Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 22 (+) — Chassis ground (-):</b>                                                                                                                                     | Is the voltage less than 1.0 V?                                                                                                | Go to step 9.                                                                                                                                                                                                                                                                     | Go to step 8.                                                                                                                                                                                                                                                               |
| 8   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 22 (+) — Chassis ground (-):</b>                                                                                                                                                                         | Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair poor contact in ECM connector.                                                                                                                                                                                                                                             | Go to step 9.                                                                                                                                                                                                                                                               |
| 9   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 23 (+) — Chassis ground (-):</b>                                                                                                                                                                         | Is the voltage less than 1.0 V?                                                                                                | Go to step 11.                                                                                                                                                                                                                                                                    | Go to step 10.                                                                                                                                                                                                                                                              |
| 10  | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 23 (+) — Chassis ground (-):</b>                                                                                                                                                                         | Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair poor contact in ECM connector.                                                                                                                                                                                                                                             | Go to step 11.                                                                                                                                                                                                                                                              |
| 11  | <b>CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from front oxygen (A/F) sensor.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between front oxygen (A/F) sensor connector and engine ground.<br><b>Connector &amp; terminal</b><br><b>(E24) No. 2 (+) — Engine ground (-):</b> | Is the voltage more than 10 V?                                                                                                 | Go to step 12.                                                                                                                                                                                                                                                                    | Repair power supply line.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open circuit in harness between main relay and front oxygen (A/F) sensor connector<br>● Poor contact in front oxygen (A/F) sensor connector<br>● Poor contact in main relay connector |
| 12  | <b>CHECK FRONT OXYGEN (A/F) SENSOR.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between front oxygen (A/F) sensor connector terminals.<br><b>Terminals</b><br><b>No. 2 — No. 4:</b>                                                                                                                                                        | Is the resistance less than 10 Ω?                                                                                              | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br>● Open or ground short circuit in harness between front oxygen (A/F) sensor and ECM connector<br>● Poor contact in front oxygen (A/F) sensor connector<br>● Poor contact in ECM connector | Replace front oxygen (A/F) sensor.<br><Ref. to EC-3 REMOVAL, Front Catalytic Converter.>                                                                                                                                                                                    |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CA: DTC P1133 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT HIGH INPUT —

S008636B95

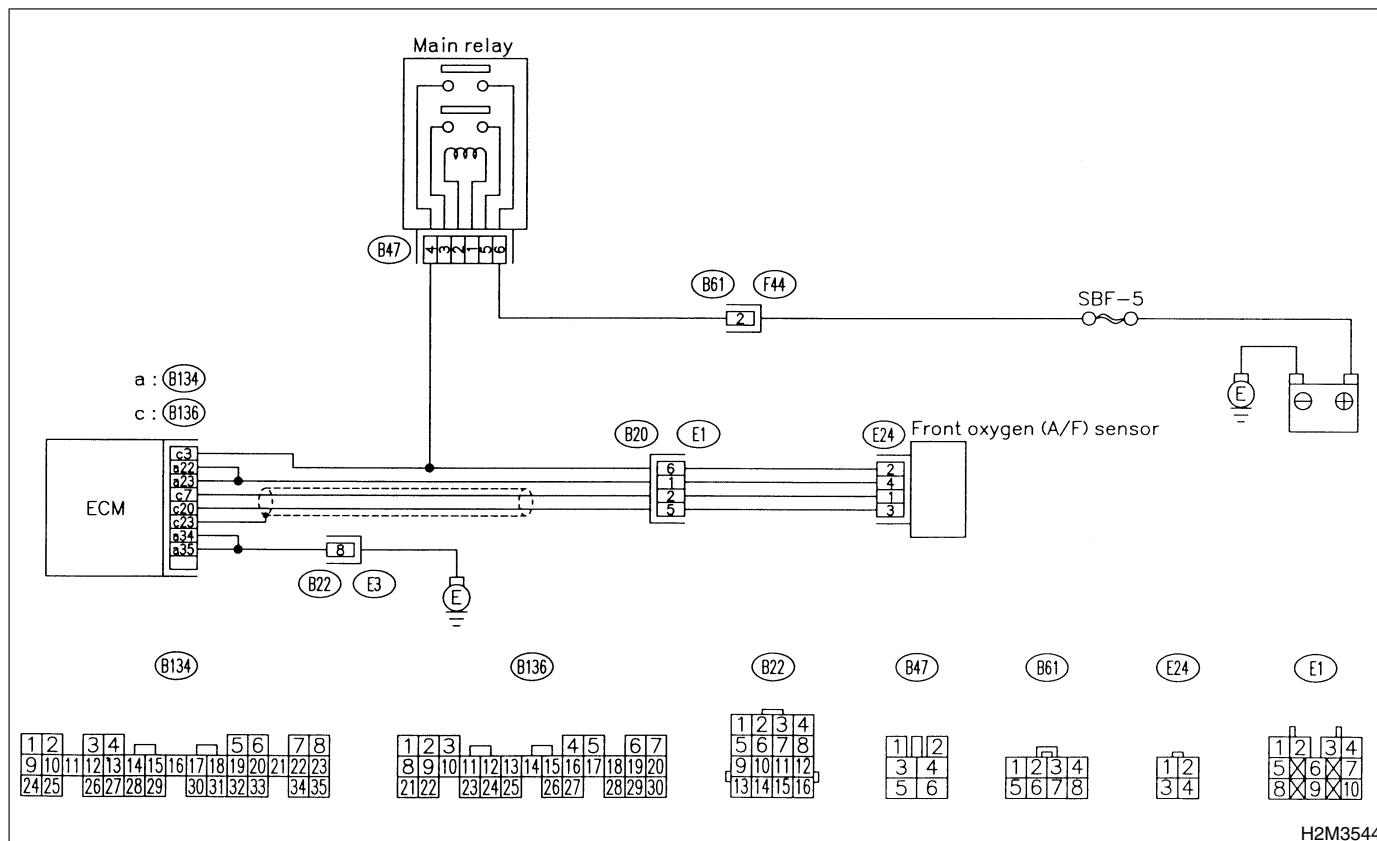
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3544

| No. | Step                                                                                                                                                                                                                        | Check                         | Yes           | No            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------|---------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 23 (+) — Chassis ground (-):</b> | Is the voltage more than 8 V? | Go to step 3. | Go to step 2. |
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 22 (+) — Chassis ground (-):</b>                                      | Is the voltage more than 8 V? | Go to step 3. | Go to step 4. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Check                                                                                                                        | Yes                                                                                          | No            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------|
| 3   | <b>CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT.</b><br>1) Turn ignition switch to OFF.<br>2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.<br>3) Turn ignition switch to ON.<br>4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool.<br><b>NOTE:</b><br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value more than 2.3 A?                                                                                                | Replace ECM.<br><Ref. to FU-60 REMOVAL, Engine Control Module.>                              | END           |
| 4   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 23 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. | Go to step 5. |
| 5   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 22 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. | END           |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CB: DTC P1134 — FRONT OXYGEN (A/F) SENSOR MICRO-COMPUTER PROBLEM —

S009636B96

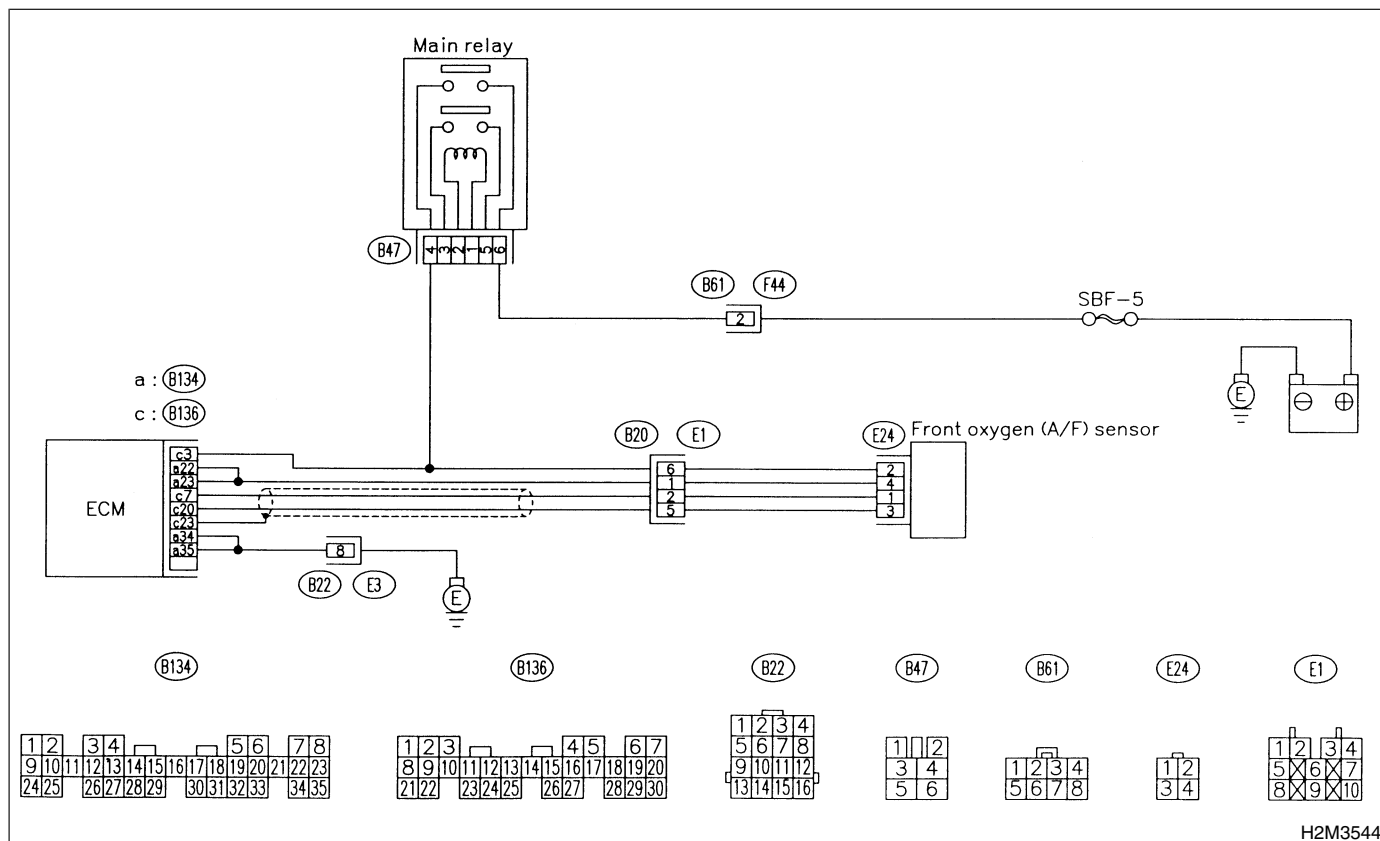
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



| No. | Step                            | Check                                                                          | Yes                                                          | No                                        |
|-----|---------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1134? | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | It is not necessary to inspect DTC P1134. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CC: DTC P1139 — FRONT OXYGEN (A/F) SENSOR #1 HEATER CIRCUIT RANGE/PERFORMANCE PROBLEM —

S008636B97

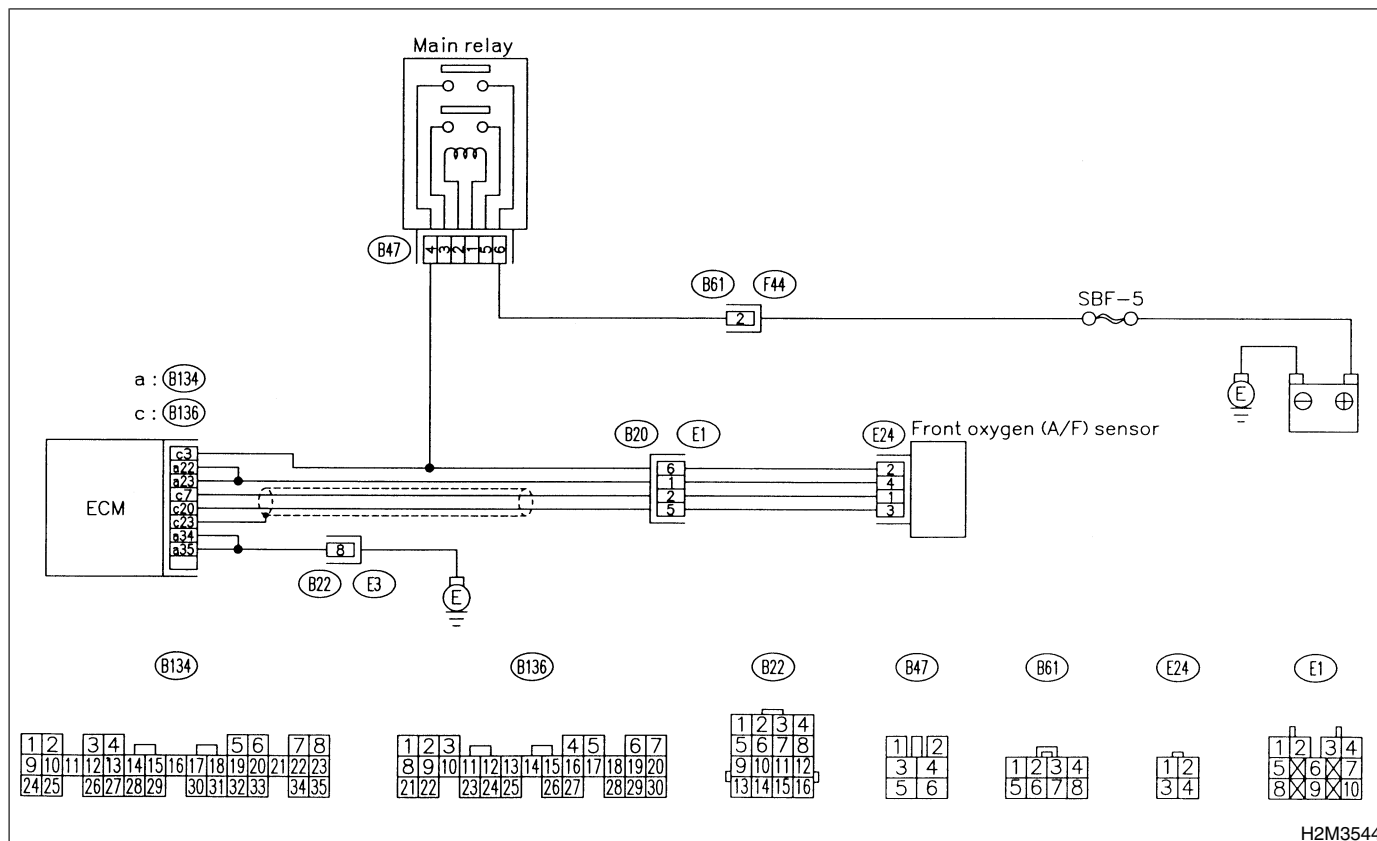
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



| No. | Step                                                                                                                                                                                                                                                                                                                                                                                            | Check                            | Yes           | No                                                                                  |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|-------------------------------------------------------------------------------------|
| 1   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>1) Start engine, and warm-up the engine.<br>2) Turn ignition switch to OFF.<br>3) Disconnect connectors from ECM and front oxygen (A/F) sensor.<br>4) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 22 — (E24) No. 4:</b> | Is the resistance less than 1 Ω? | Go to step 2. | Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                      | Check                                                                | Yes                                                                | No                                                                                    |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 2   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><i>Connector &amp; terminal</i><br><i>(B136) No. 7 — (E24) No. 1:</i>  | Is the resistance less than 1 $\Omega$ ?                             | Go to step 3.                                                      | Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.   |
| 3   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><i>Connector &amp; terminal</i><br><i>(B136) No. 20 — (E24) No. 3:</i> | Is the resistance less than 1 $\Omega$ ?                             | Go to step 4.                                                      | Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.   |
| 4   | <b>CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.</b><br>Measure resistance of harness between ECM and front oxygen (A/F) sensor connector.<br><i>Connector &amp; terminal</i><br><i>(B136) No. 3 — (E24) No. 2:</i>  | Is the resistance less than 1 $\Omega$ ?                             | Go to step 5.                                                      | Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.   |
| 5   | <b>CHECK FRONT OXYGEN (A/F) SENSOR.</b><br>Measure resistance between front oxygen (A/F) sensor connector terminals.<br><i>Terminals</i><br><i>No. 2 — No. 4:</i>                                                                         | Is the resistance less than 5 $\Omega$ ?                             | Go to step 6.                                                      | Replace front oxygen (A/F) sensor. <Ref. to EC-3 REMOVAL, Front Catalytic Converter.> |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM and front oxygen (A/F) sensor connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                             | Is there poor contact in ECM or front oxygen (A/F) sensor connector? | Repair poor contact in ECM or front oxygen (A/F) sensor connector. | Replace front oxygen (A/F) sensor. <Ref. to EC-3 REMOVAL, Front Catalytic Converter.> |



# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Check                                                                                                        | Yes                                                                                                                                                                                                                                                                       | No                                                                                  |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0122 or P0123? | Inspect DTC P0106, P0107, P0108, P0122 or P0123 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P1142. | Go to step 2.                                                                       |
| 2   | <b>CHECK CURRENT DATA.</b><br>1) Start engine.<br>2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool.<br>NOTE:<br>● Subaru Select Monitor<br>For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE".<br><Ref. to EN-50 OPERATION, Subaru Select Monitor.><br>● OBD-II general scan tool<br>For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. | Is the value less than 0 kPa (0 mmHg, 0 inHg)?                                                               | Replace intake manifold pressure sensor. <Ref. to FU-47 REMOVAL, Intake Manifold Pressure Sensor.>                                                                                                                                                                        | Replace throttle position sensor.<Ref. to FU-43 REMOVAL, Throttle Position Sensor.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CE: DTC P1151 — REAR OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT

S008636C03

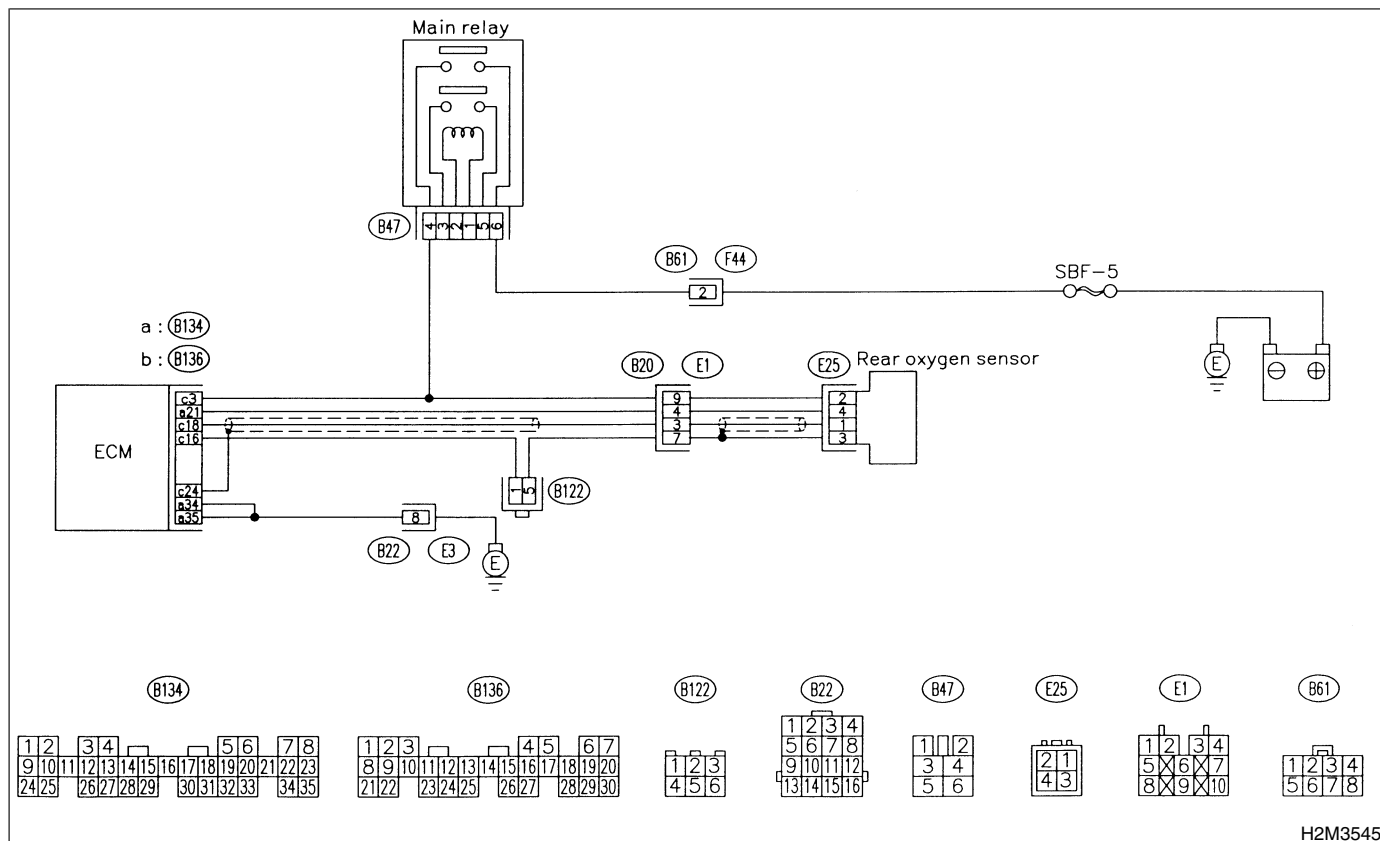
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3545

| No. | Step                                                                                                                                                                                                                                             | Check                                                                          | Yes                                                          | No            |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------|---------------|
| 1   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 (+) — Chassis ground (-):</b>                                                             | Is the voltage more than 8 V?                                                  | Go to step 2.                                                | Go to step 3. |
| 2   | <b>CHECK DTC P1151 ON DISPLAY.</b><br>1) Turn ignition switch to OFF.<br>2) Repair battery short circuit in harness between ECM and rear oxygen sensor connector.<br>3) Operate the INSPECTION MODE. <Ref. to EN-57 OPERATION, Inspection Mode.> | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1151? | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | END           |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                 | Check                                                                                                                                       | Yes                                                  | No                                                                                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------|
| 3   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 (+) — Chassis ground (-):</b> | Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?                | Repair poor contact in ECM connector.                | Go to step 4.                                                                     |
| 4   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 (+) — Chassis ground (-):</b> | Does the voltage change more than 8 V by shaking harness and connector of rear oxygen sensor while monitoring the value with voltage meter? | Repair poor contact in rear oxygen sensor connector. | Go to step 5.                                                                     |
| 5   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 21 (+) — Chassis ground (-):</b> | Does the voltage change more than 8 V by shaking coupling connector (E2) while monitoring the value with voltage meter?                     | Repair poor contact in coupling connector.           | Even if MIL lights up, the circuit has returned to normal condition at this time. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CF: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —

S008636C07

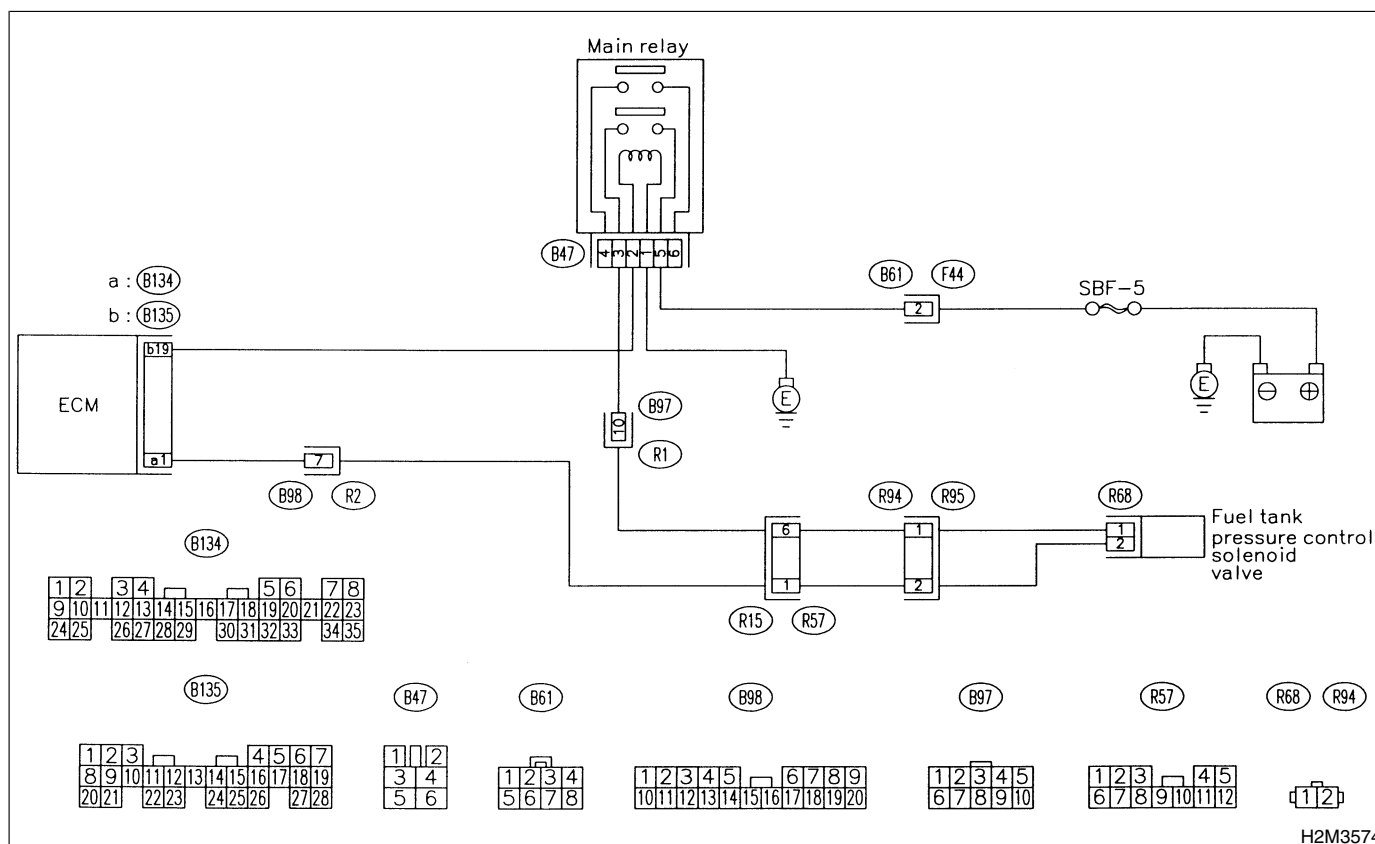
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3574

| No. | Step                                                                                                                                                                                                             | Check                                   | Yes                                   | No                                                                                                                                     |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 1 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?          | Go to step 2.                         | Go to step 3.                                                                                                                          |
| 2   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                  | Is there poor contact in ECM connector? | Repair poor contact in ECM connector. | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                            | Check                                           | Yes                                                                                                         | No                                                                                                                                                                                                                                                                                                                                                               |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.<br>3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R68) No. 2 — Chassis ground:</b> | Is the resistance less than 10 $\Omega$ ?       | Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. | Go to step 4.                                                                                                                                                                                                                                                                                                                                                    |
| 4   | <b>CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 1 — (R68) No. 2:</b>                                                                                                                                        | Is the voltage less than 1 $\Omega$ ?           | Go to step 5.                                                                                               | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector</li> <li>● Poor contact in coupling connectors (B98, R57 and R94)</li> </ul>                                                        |
| 5   | <b>CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.</b><br>Measure resistance between fuel tank pressure control solenoid valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                                                                                         | Is the resistance between 10 and 100 $\Omega$ ? | Go to step 6.                                                                                               | Replace fuel tank pressure control solenoid valve.<br><Ref. to EC-17 REMOVAL, Pressure Control Solenoid Valve.>                                                                                                                                                                                                                                                  |
| 6   | <b>CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between fuel tank pressure control solenoid valve and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(R68) No. 1 (+) — Chassis ground (-):</b>                                                                                                                        | Is the voltage more than 10 V?                  | Go to step 7.                                                                                               | Repair harness and connector.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector</li> <li>● Poor contact in coupling connectors (B97, R57 and R94)</li> <li>● Poor contact in main relay connector</li> </ul> |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

Engine

| No. | Step                                                                                                                                                  | Check                                                                         | Yes                                                                         | No                                                                                                                              |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 7   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in fuel tank pressure control solenoid valve connector. <Ref. to EN-6 CAUTION, General Description.> | Is there poor contact in fuel tank pressure control solenoid valve connector? | Repair poor contact in fuel tank pressure control solenoid valve connector. | Contact with SOA service.<br>NOTE:<br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

## Engine

S0086:36C08

- Two consecutive driving cycles with fault

**After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.**

Wiring diagram for the fuel tank pressure control solenoid valve. The diagram shows the ECM connected to the Main relay and the solenoid valve. The ECM has two output lines: line 'a' (B134) and line 'b' (B135). Line 'a' goes through a fuse (B19) to the solenoid valve. Line 'b' goes through a fuse (B134) to the solenoid valve. The Main relay has a coil and a switch. The solenoid valve is connected to the Main relay switch. The solenoid valve is also connected to a battery (E) through a fuse (B61) and a switch (F44). The solenoid valve is also connected to a battery (E) through a fuse (B61) and a switch (F44). The solenoid valve is also connected to a battery (E) through a fuse (B61) and a switch (F44).

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Check                                   | Yes           | No                                                                                                                                     |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <p><b>CHECK OUTPUT SIGNAL FROM ECM.</b></p> <p>1) Turn ignition switch to OFF.</p> <p>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.</p> <p>3) Turn ignition switch to ON.</p> <p>4) While operating fuel tank pressure control solenoid valve, measure voltage between ECM and chassis ground.</p> <p>NOTE:</p> <p>Fuel tank pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". &lt;Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.&gt;</p> <p><b>Connector &amp; terminal</b></p> <p><b>(B134) No. 1 (+) — Chassis ground (-):</b></p> | Does voltage change between 0 and 10 V? | Go to step 2. | Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                | Check                                    | Yes                                                                                                                                                                                     | No                                                           |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 1 (+) — Chassis ground (-):</b>                                                                                                                                                                    | Is the voltage more than 10 V?           | Go to step 4.                                                                                                                                                                           | Go to step 3.                                                |
| 3   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                     | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                                                   | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |
| 4   | <b>CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from fuel tank pressure control solenoid valve.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 1 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 5.                                                |
| 5   | <b>CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between fuel tank pressure control solenoid valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                       | Is the resistance less than 1 $\Omega$ ? | Replace fuel tank pressure control solenoid valve <Ref. to EC-17 REMOVAL, Pressure Control Solenoid Valve.> and ECM <Ref. to FU-60 REMOVAL, Engine Control Module.>.                    | Go to step 6.                                                |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                     | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                                                   | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CH: DTC P1422 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT —

S008636C09

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

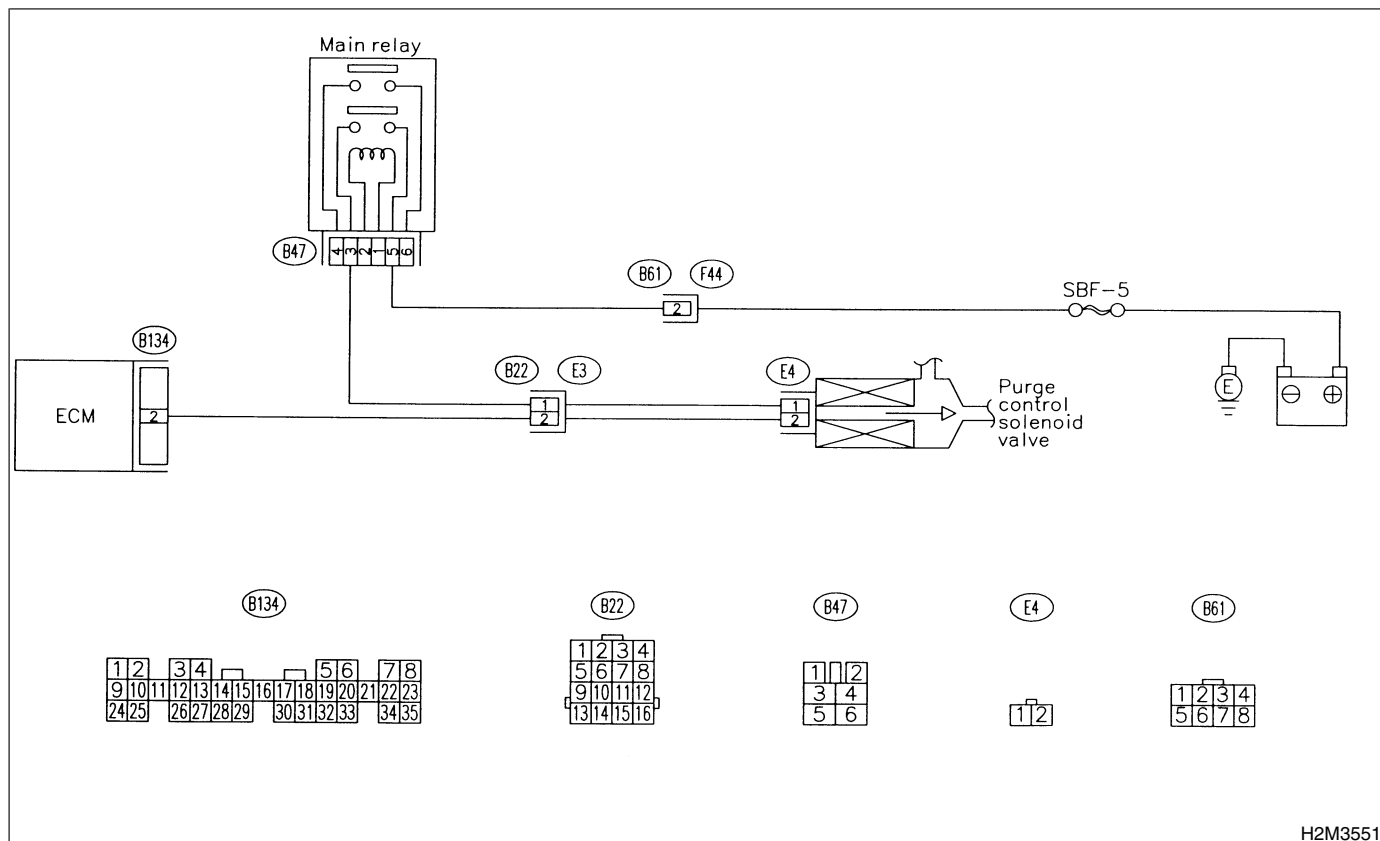
### ● TROUBLE SYMPTOM:

- Erroneous idling

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3551

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Check                                    | Yes                                                                                                                                                                        | No                                                                                                                                     |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.<br>3) Turn ignition switch to ON.<br>4) While operating purge control solenoid valve, measure voltage between ECM and chassis ground.<br><b>NOTE:</b><br>Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.><br><b>Connector &amp; terminal</b><br><b>(B134) No. 2 (+) — Chassis ground (-):</b> | Does voltage change between 0 and 10 V?  | Go to step 2.                                                                                                                                                              | Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector. |
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 2 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Is the voltage more than 10 V?           | Go to step 4.                                                                                                                                                              | Go to step 3.                                                                                                                          |
| 3   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                                      | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.>                                                                           |
| 4   | <b>CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from purge control solenoid valve.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 2 (+) — Chassis ground (-):</b>                                                                                                                                                                                                                                                                                                                             | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 5.                                                                                                                          |
| 5   | <b>CHECK PURGE CONTROL SOLENOID VALVE.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between purge control solenoid valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Is the resistance less than 1 $\Omega$ ? | Replace purge control solenoid valve <Ref. to FU-88 REMOVAL, Purge Control Solenoid Valve.> and ECM <Ref. to FU-60 REMOVAL, Engine Control Module.>.                       | Go to step 6.                                                                                                                          |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                                      | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.>                                                                           |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CI: DTC P1423 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT —

S008636C10

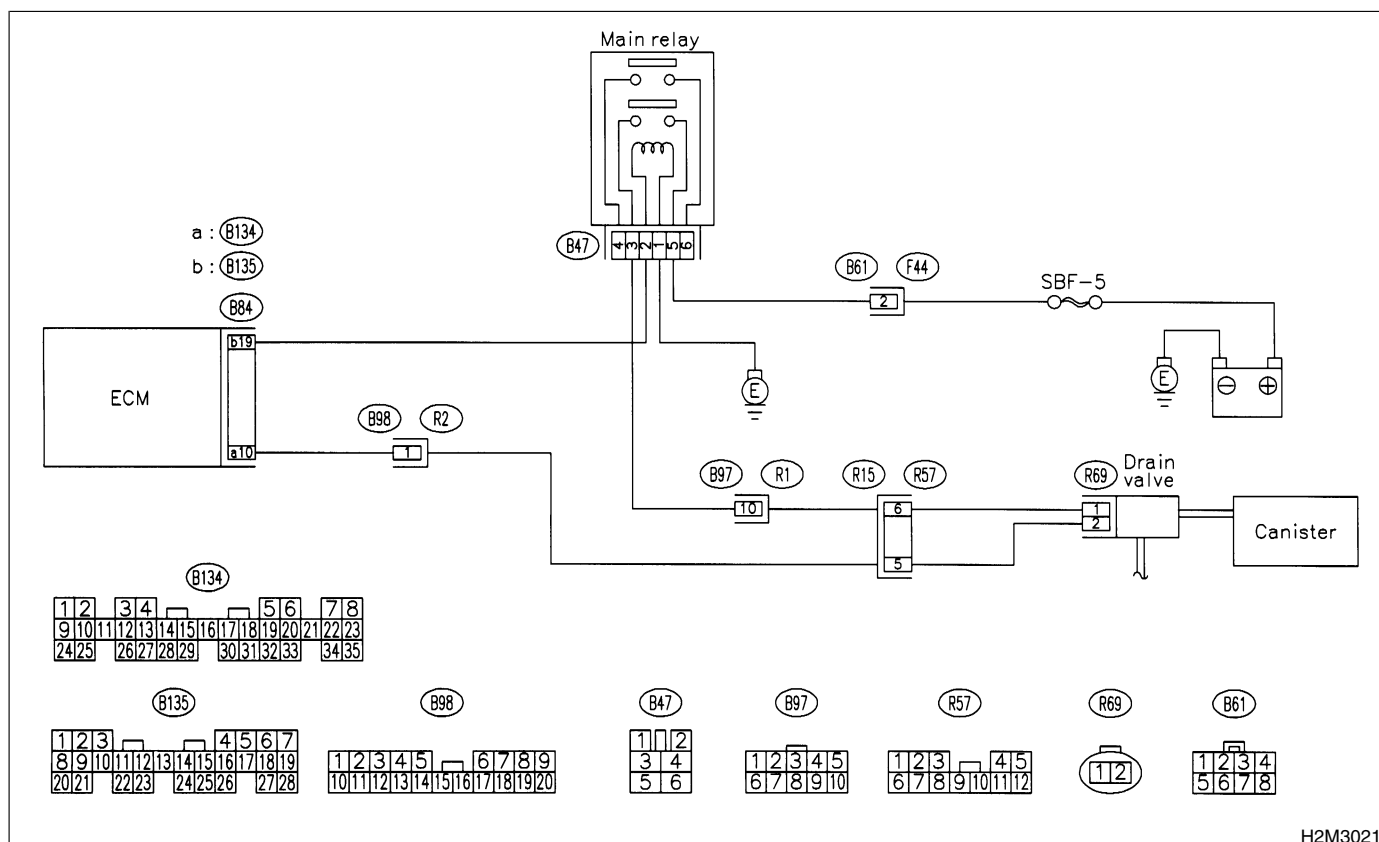
### • DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### • WIRING DIAGRAM:



H2M3021

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                   | Yes           | No                                                                                                                                     |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.<br>3) Turn ignition switch to ON.<br>4) While operating drain valve, measure voltage between ECM and chassis ground.<br><b>NOTE:</b><br>Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.><br><b>Connector &amp; terminal</b><br><b>(B134) No. 10 (+) — Chassis ground</b><br><b>(-):</b> | Does voltage change between 0 and 10 V? | Go to step 2. | Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                     | Check                                    | Yes                                                                                                                                                       | No                                                           |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 10 (+) — Chassis ground (-):</b>                                                                                                        | Is the voltage more than 10 V?           | Go to step 4.                                                                                                                                             | Go to step 3.                                                |
| 3   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                          | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                     | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |
| 4   | <b>CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from drain valve.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 10 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?           | Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 5.                                                |
| 5   | <b>CHECK DRAIN VALVE.</b><br>1) Turn ignition switch to OFF.<br>2) Measure resistance between drain valve terminals.<br><b>Terminals</b><br><b>No. 1 — No. 2:</b>                                                                                                                                                        | Is the resistance less than 1 $\Omega$ ? | Replace drain valve <Ref. to EC-23 REMOVAL, Drain Valve.> and ECM <Ref. to FU-60 REMOVAL, Engine Control Module.>.                                        | Go to step 6.                                                |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                          | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                                     | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CJ: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —

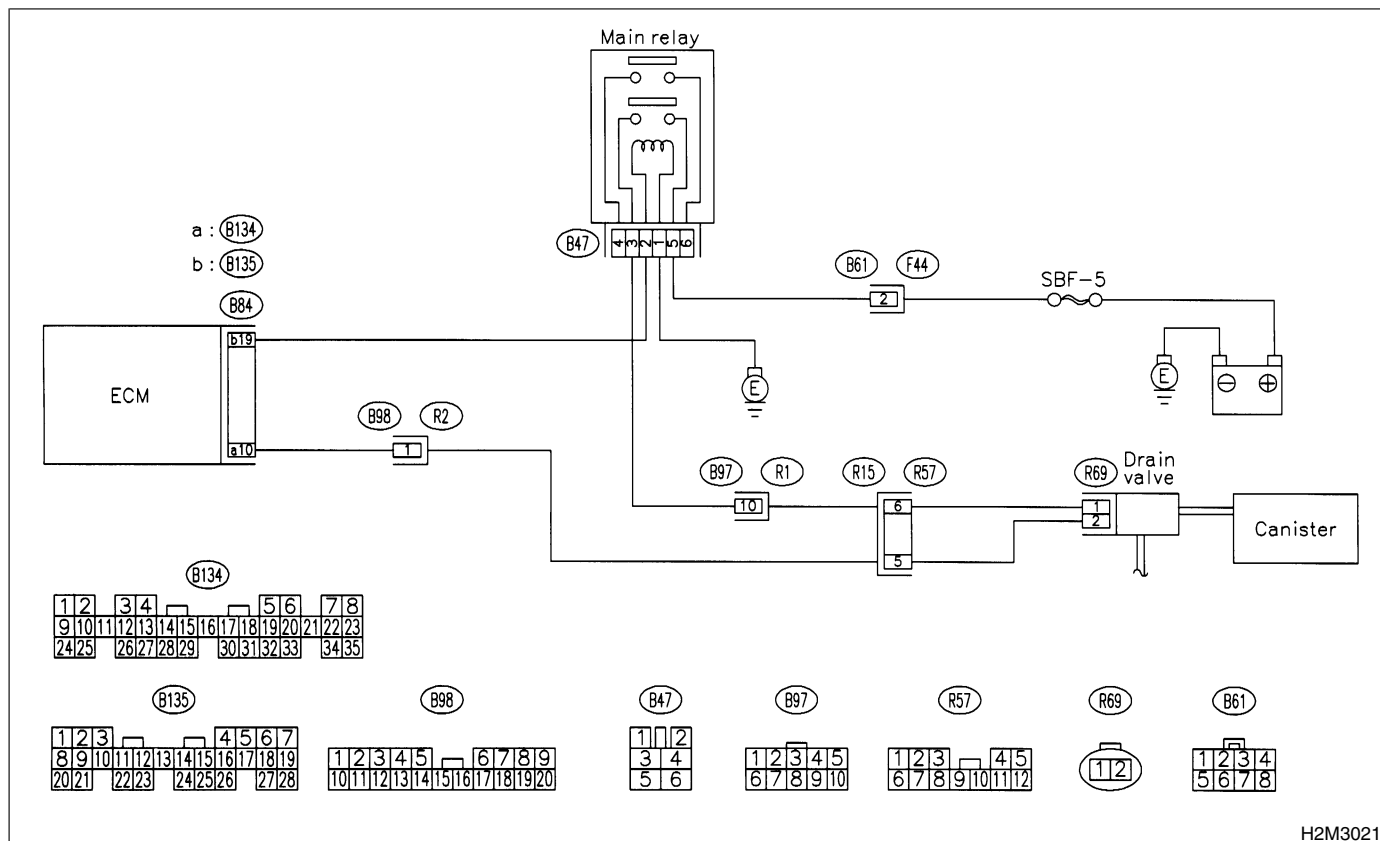
S008636C12

- **DTC DETECTING CONDITION:**
  - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
  - Improper fuel supply

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3021

| No. | Step                            | Check                              | Yes                                                                                                                                                                            | No            |
|-----|---------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | CHECK ANY OTHER DTC ON DISPLAY. | Is there any other DTC on display? | Inspect the relevant DTC using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.> | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Check                                     | Yes                                                                                                                                    | No                                                         |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 2   | <b>CHECK VENT LINE HOSES.</b><br>Check the following items. <ul style="list-style-type: none"> <li>● Clogging of vent hoses between canister and drain valve</li> <li>● Clogging of vent hose between drain valve and air filter</li> <li>● Clogging of vent hose between drain filter and junction pipe</li> <li>● Clogging of junction pipe</li> <li>● Clogging of drain filter</li> </ul>                                                                                                   | Is there a fault in vent line?            | Repair or replace the faulty part.                                                                                                     | Go to step 3.                                              |
| 3   | <b>CHECK DRAIN VALVE OPERATION.</b><br>1) Turn ignition switch to OFF.<br>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.<br>3) Turn ignition switch to ON.<br><b>NOTE:</b><br>Drain valve operating check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.> | Does drain valve produce operating sound? | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. | Replace drain valve. <Ref. to EC-23 REMOVAL, Drain Valve.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

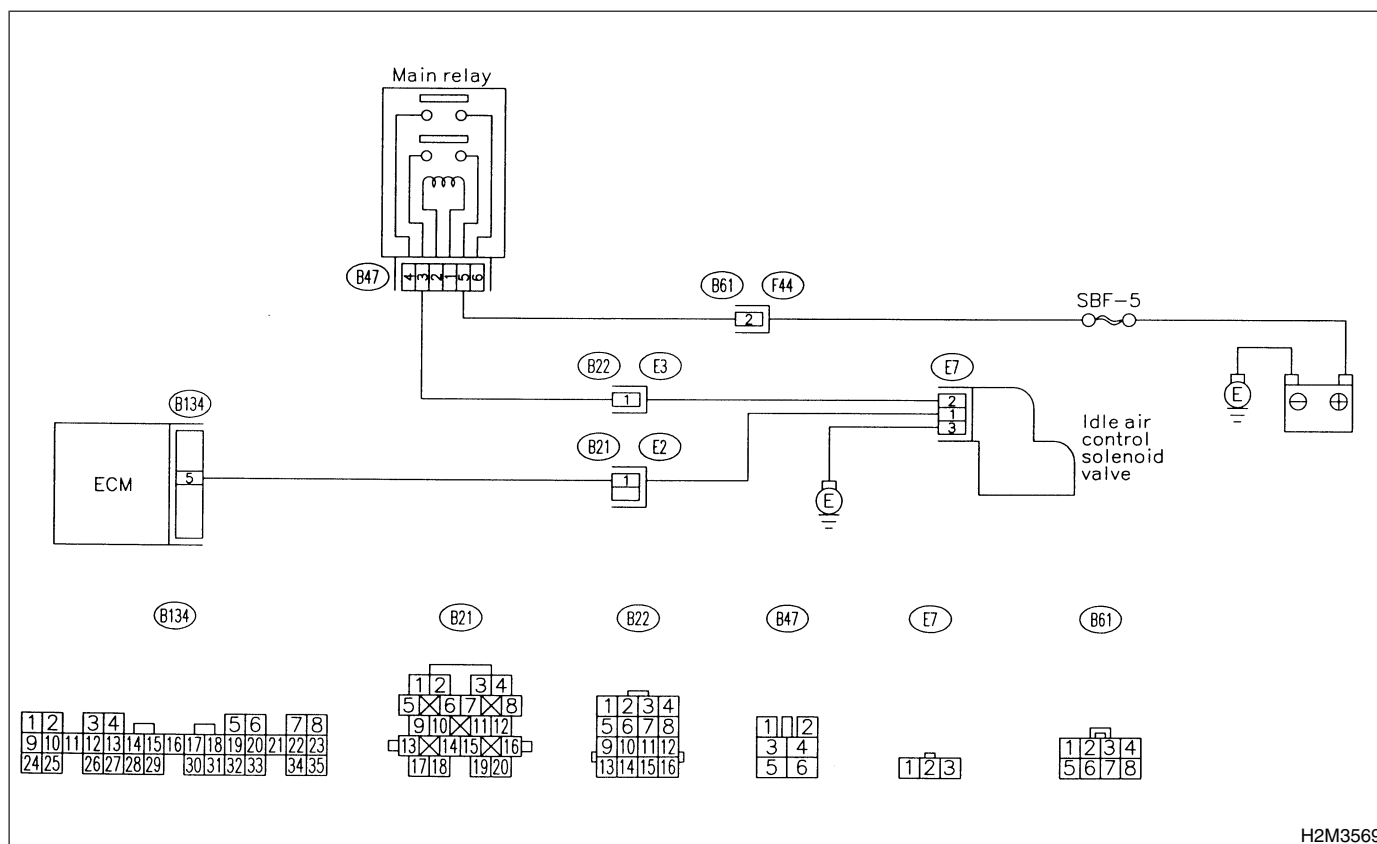
## CK: DTC P1505 — IDLE CONTROL SYSTEM CIRCUIT HIGH INPUT — S008636C15

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Engine breathing

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3569

| No. | Step                                                                                                                                                                                                             | Check                                         | Yes           | No                                                                         |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------|----------------------------------------------------------------------------|
| 1   | <b>CHECK THROTTLE CABLE.</b>                                                                                                                                                                                     | Does throttle cable have play for adjustment? | Go to step 2. | Adjust throttle cable. <Ref. to SP-6 INSPECTION, Accelerator Pedal Cable.> |
| 2   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?                | Go to step 3. | Go to step 4.                                                              |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                 | Check                                                                                                                         | Yes                                                                                                                                                                           | No                                                                                                                                                         |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from idle air control solenoid valve.<br>3) Turn ignition switch to ON.<br>4) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?                                                                                                | Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Replace idle air control solenoid valve <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.> and ECM <Ref. to FU-60 REMOVAL, Engine Control Module.>. |
| 4   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 5 (+) — Chassis ground (-):</b>                                                                                                                                          | Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter? | Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Contact with SOA service.<br>NOTE:<br>Insepection by DTM is required, because probable cause is deterioration of multiple parts.                           |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CL: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

S008636C16

### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

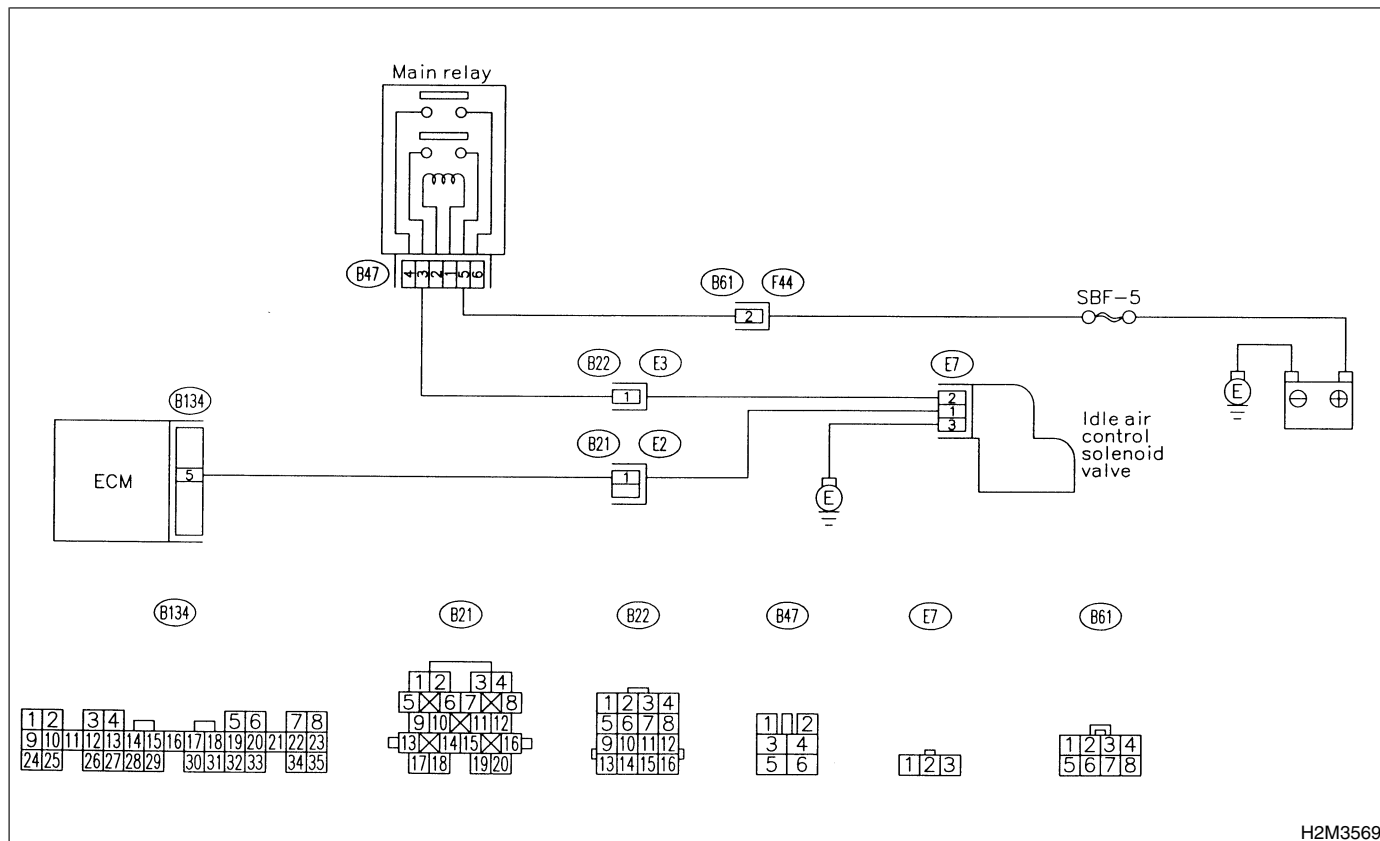
### ● TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3569

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                         | Check                                                                                                     | Yes                                                                                                                                                                                                                                                                    | No                                                                                                 |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK ANY OTHER DTC ON DISPLAY.</b>                                                                                                                                                                                                                                                                                                                                       | Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117 or P0505 or P1505? | Inspect DTC P0116 or P0117 or P0505 or P1505 using "17. List of Diagnostic Trouble Code (DTC) for 2200 cc Models". <Ref. to EN-93 LIST, List of Diagnostic Trouble Code (DTC) for 2200 cc Models.><br>NOTE:<br>In this case, it is not necessary to inspect DTC P1507. | Go to step 2.                                                                                      |
| 2   | <b>CHECK THROTTLE CABLE.</b>                                                                                                                                                                                                                                                                                                                                                 | Does throttle cable have play for adjustment?                                                             | Go to step 2.                                                                                                                                                                                                                                                          | Adjust throttle cable. <Ref. to SP-6 INSPECTION, Accelerator Pedal Cable.>                         |
| 3   | <b>CHECK AIR INTAKE SYSTEM.</b><br>1) Turn ignition switch to ON.<br>2) Start engine, and idle it.<br>3) Check the following items.<br>● Loose installation of intake manifold, idle air control solenoid valve and throttle body<br>● Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket<br>● Disconnections of vacuum hoses | Is there a fault in air intake system?                                                                    | Repair air suction and leaks.                                                                                                                                                                                                                                          | Replace idle air control solenoid valve. <Ref. to FU-51 REMOVAL, Idle Air Control Solenoid Valve.> |

DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS

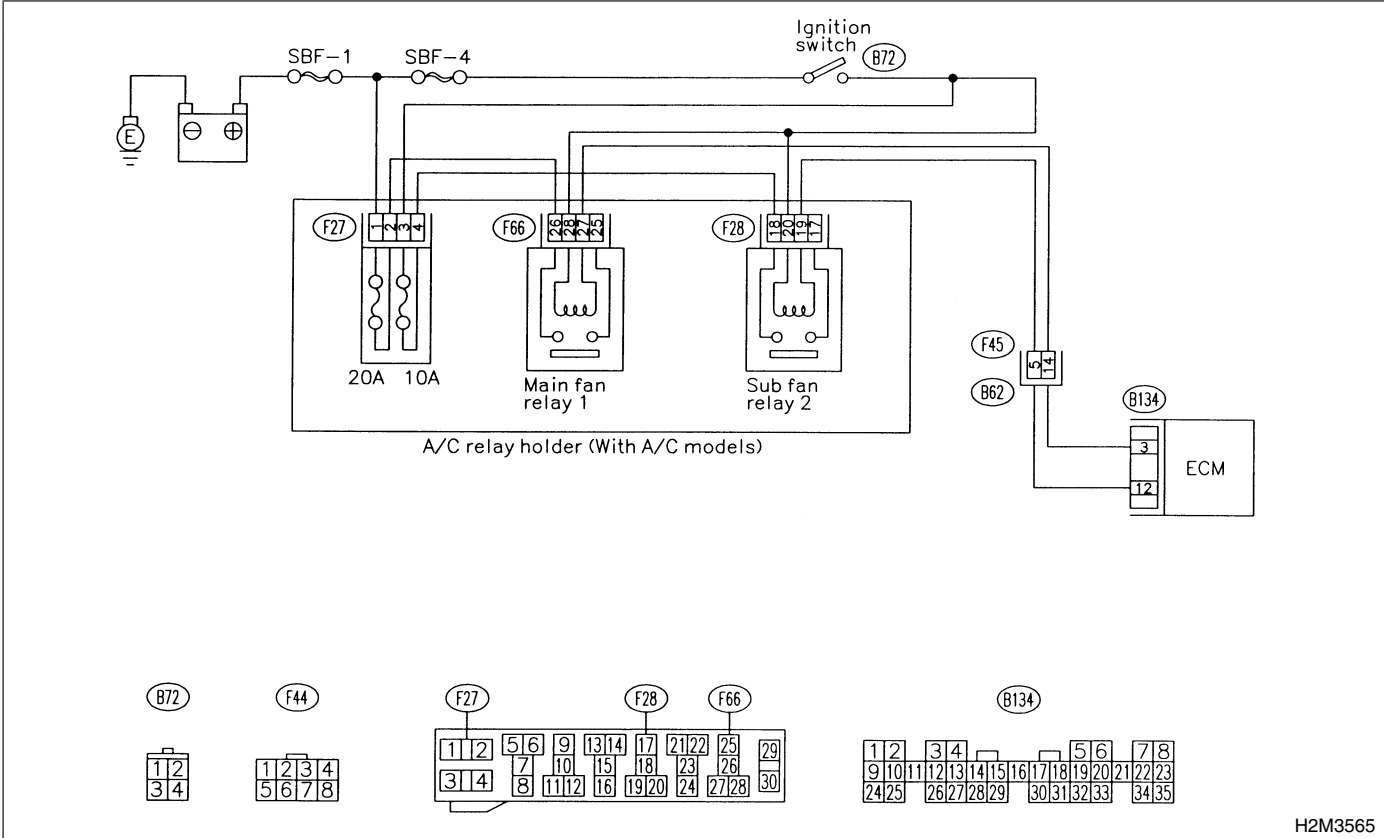
Engine

CM: DTC P1520 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT — S008636C25

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

**CAUTION:**  
After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

● **WIRING DIAGRAM:**



H2M3565

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Check                                   | Yes                                                                                                                                     | No            |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.<br>3) Turn ignition switch to ON.<br>4) While operating radiator fan relay, measure voltage between ECM and chassis ground.<br><b>NOTE:</b><br>Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to EN-61 OPERATION, Compulsory Valve Operation Check Mode.><br><b>Connector &amp; terminal</b><br><b>(B134) No. 3 (+) — Chassis ground (-):</b> | Does voltage change between 0 and 10 V? | Even if MIL lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector. | Go to step 2. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                    | Check                                    | Yes                                                                                                                                            | No                                                           |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 2   | <b>CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT.</b><br>1) Turn ignition switch to OFF.<br>2) Remove main fan relay and sub fan relay. (with A/C models)<br>3) Disconnect test mode connector.<br>4) Turn ignition switch to ON.<br>5) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B134) No. 3 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V?           | Repair battery short circuit in radiator fan relay control circuit. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 3.                                                |
| 3   | <b>CHECK MAIN FAN RELAY.</b><br>1) Turn ignition switch to OFF.<br>2) Remove main fan relay.<br>3) Measure resistance between main fan relay terminals.<br><b>Terminal</b><br><b>No. 1 — No. 3:</b>                                                                                                                                                                                     | Is the resistance less than 1 $\Omega$ ? | Replace main fan relay and ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.>                                                                | Go to step 4.                                                |
| 4   | <b>CHECK SUB FAN RELAY.</b><br>1) Remove sub fan relay.<br>2) Measure resistance between sub fan relay terminals.<br><b>Terminal</b><br><b>No. 1 — No. 3:</b>                                                                                                                                                                                                                           | Is the resistance less than 1 $\Omega$ ? | Replace sub fan relay and ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.>                                                                 | Go to step 5.                                                |
| 5   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in ECM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                         | Is there poor contact in ECM connector?  | Repair poor contact in ECM connector.                                                                                                          | Replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CN: DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION — S008636C27

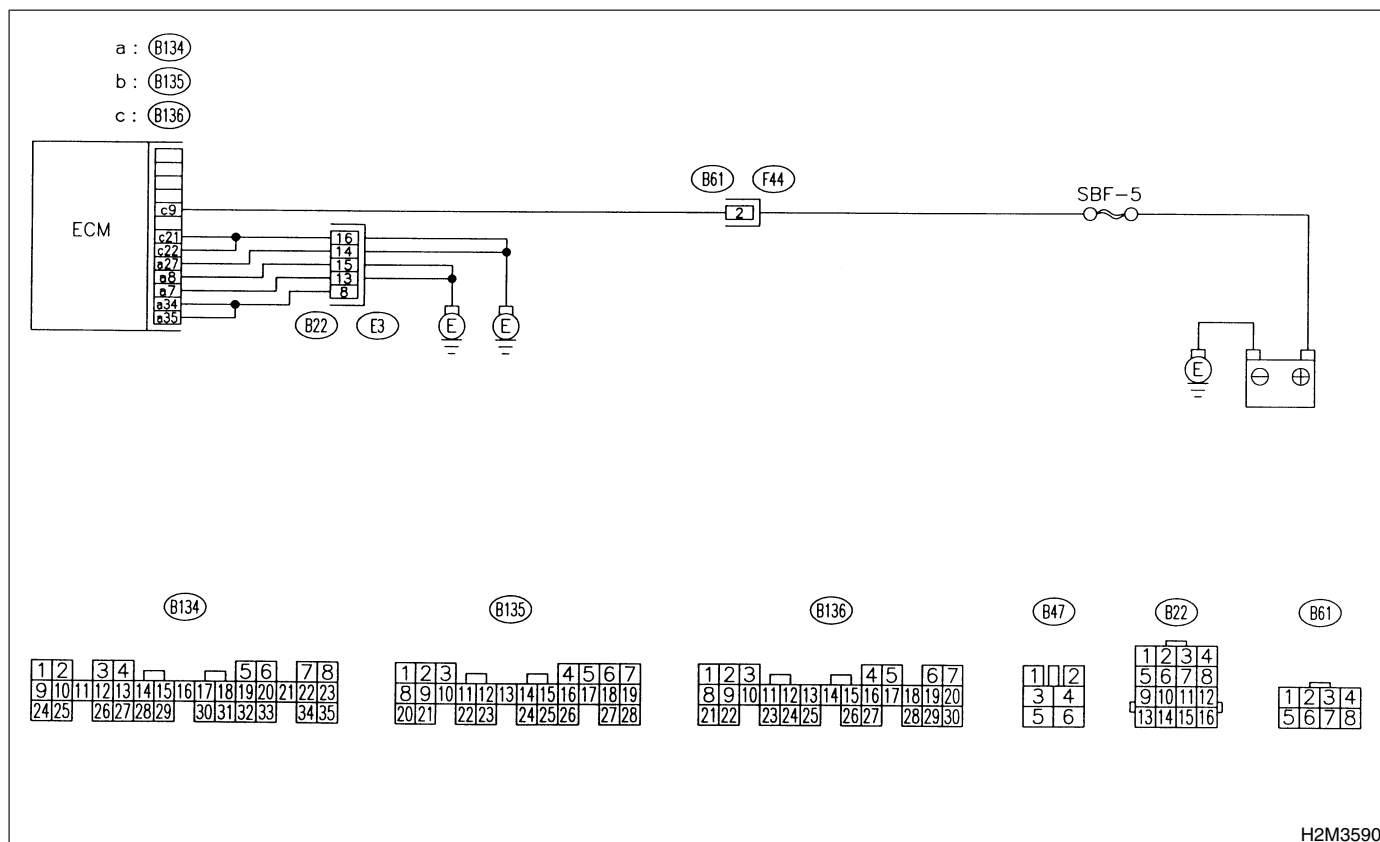
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN-60 OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3590

| No. | Step                                                                                                                                                                                                                                               | Check                             | Yes                                                                                | No            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK INPUT SIGNAL FOR ECM.</b><br>1) Turn ignition switch to OFF.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 9 (+) — Chassis ground (-):</b>                                    | Is the voltage more than 10 V?    | Repair poor contact in ECM connector.                                              | Go to step 2. |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.</b><br>1) Disconnect connector from ECM.<br>2) Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B136) No. 9 — Chassis ground:</b> | Is the resistance less than 10 Ω? | Repair ground short circuit in harness between ECM connector and battery terminal. | Go to step 3. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step              | Check          | Yes           | No                                                                                                                                                                                                                                                                                                                    |
|-----|-------------------|----------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3   | CHECK FUSE SBF-5. | Is fuse blown? | Replace fuse. | Repair harness and connector.<br>NOTE:<br>In this case, repair the following: <ul style="list-style-type: none"><li>● Open circuit in harness between ECM and battery</li><li>● Poor contact in coupling connector (F44)</li><li>● Poor contact in ECM connector</li><li>● Poor contact in battery terminal</li></ul> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

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## CO: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — S008636C28

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

- **TROUBLE SYMPTOM:**

- Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check throttle position sensor circuit. <Ref. to AT-35 TROUBLE CODE 31 — THROTTLE POSITION SENSOR —, Diagnostic Procedure with Trouble Code.>

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CP: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — S008636C29

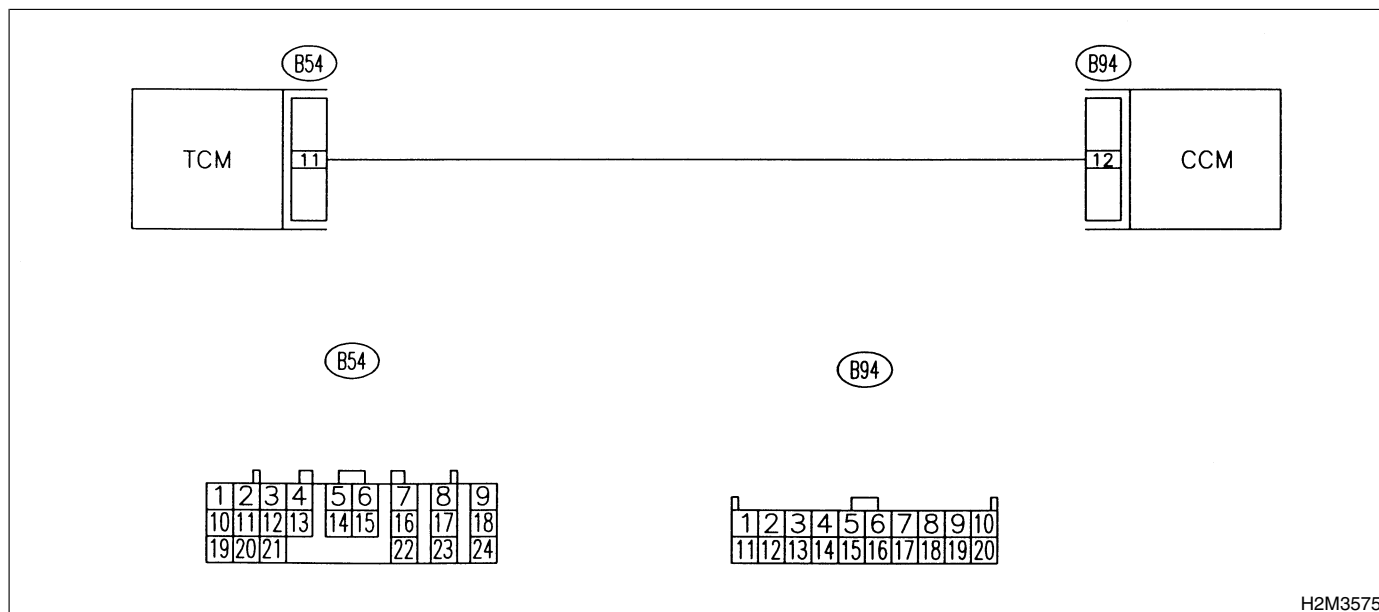
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



H2M3575

| No. | Step                                                                                                                                                                                                                                                                              | Check                             | Yes                                                            | No                                                            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|
| 1   | <b>CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connectors from TCM and CCM.<br>3) Measure resistance of harness between TCM and CCM connector.<br><b>Connector &amp; terminal</b><br><b>(B54) No. 11 — (B94) No. 12:</b> | Is the resistance less than 1 Ω?  | Go to step 2.                                                  | Repair open circuit in harness between TCM and CCM connector. |
| 2   | <b>CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.</b><br>Measure resistance of harness between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B54) No. 11 — Chassis ground:</b>                                                                                  | Is the resistance less than 10 Ω? | Repair short circuit in harness between TCM and CCM connector. | Go to step 3.                                                 |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Check                                   | Yes                                   | No                                                                                                  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------|
| 3   | <b>CHECK INPUT SIGNAL FOR TCM.</b><br>1) Connect connector to TCM and CCM.<br>2) Lift-up the vehicle or set the vehicle on free rollers.<br><b>CAUTION:</b><br><b>On AWD models, raise all wheels off ground.</b><br>3) Start the engine.<br>4) Cruise control main switch to ON.<br>5) Move selector lever to "D" and slowly increase vehicle speed to 50 km/h (31 MPH).<br>6) Cruise control set switch to ON.<br>7) Measure voltage between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B54) No. 11 (+) — Chassis ground (-):</b> | Is the resistance less than 1 V?        | Go to step 4.                         | Check cruise control set circuit.<br><Ref. to CC-13 SYMPTOM CHART, Diagnostics Chart with Symptom.> |
| 4   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                                                                                                                                                                                                                                                                                                                                                                                            | Is there poor contact in TCM connector? | Repair poor contact in TCM connector. | Replace TCM.<br><Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).>                         |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CQ: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —

S008636C30

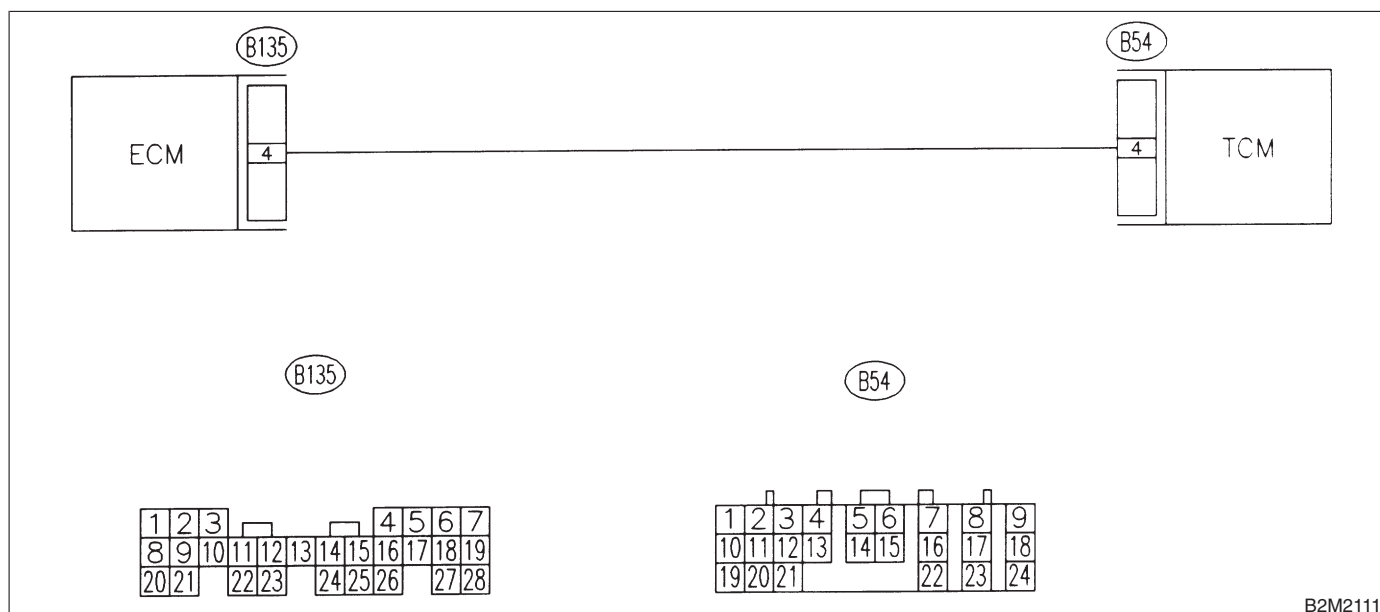
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2111

| No. | Step                                                                                                                                                                                                                                                                                | Check                             | Yes                                                                   | No                                                                                                                                                                                                                                                                 |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 (+) — Chassis ground (-):</b>                                                     | Is the voltage less than 1 V?     | Go to step 2.                                                         | Even if MIL lights up, the circuit has returned to a normal condition at this time.<br><b>NOTE:</b><br>In this case, repair the following: <ul style="list-style-type: none"><li>● Poor contact in ECM connector</li><li>● Poor contact in TCM connector</li></ul> |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to OFF.<br>2) Disconnect connector from ECM and TCM.<br>3) Measure resistance of harness between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 — Chassis ground:</b> | Is the resistance less than 10 Ω? | Repair ground short circuit in harness between ECM and TCM connector. | Go to step 3.                                                                                                                                                                                                                                                      |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                                                                            | Check                                                | Yes                                                                                                       | No                                                                          |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 3   | <b>CHECK OUTPUT SIGNAL FOR ECM.</b><br>1) Connect connector to ECM.<br>2) Turn ignition switch to ON.<br>3) Measure voltage between ECM and chassis ground.<br><i>Connector &amp; terminal</i><br><i>(B135) No. 4 (+) — Chassis ground (-):</i> | Is the voltage more than 5 V?                        | Go to step 4.                                                                                             | Repair poor contact in ECM connector.                                       |
| 4   | <b>CHECK TROUBLE CODE FOR AUTOMATIC TRANSMISSION.</b><br>Read trouble code for automatic transmission.<br><Ref. to AT-18 OPERATION, Read Diagnostic Trouble Code.>                                                                              | Does trouble code appear for automatic transmission? | Inspect trouble code for automatic transmission. <Ref. to AT-18 OPERATION, Read Diagnostic Trouble Code.> | Replace TCM.<br><Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

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## **CR: DTC P1703 — LOW CLUTCH TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —**

*S008636C31*

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check low clutch timing control solenoid valve circuit. <Ref. to AT-56 TROUBLE CODE 73 — LOW CLUTCH TIMING SOLENOID —, Diagnostic Procedure with Trouble Code.>

## **CS: DTC P1704 — 2-4 BRAKE TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —**

*S008636C32*

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check 2-4 brake timing control solenoid valve circuit. <Ref. to AT-59 TROUBLE CODE 74 — 2-4 BRAKE TIMING SOLENOID —, Diagnostic Procedure with Trouble Code.>

## **CT: DTC P1705 — 2-4 BRAKE PRESSURE CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —**

*S008636F10*

- **DTC DETECTING CONDITION:**

- Two consecutive driving cycles with fault

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

**NOTE:**

Check 2-4 brake duty solenoid circuit. <Ref. to AT-66 TROUBLE CODE 76 — 2-4 BRAKE DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CU: DTC P1722 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —

S008636C34

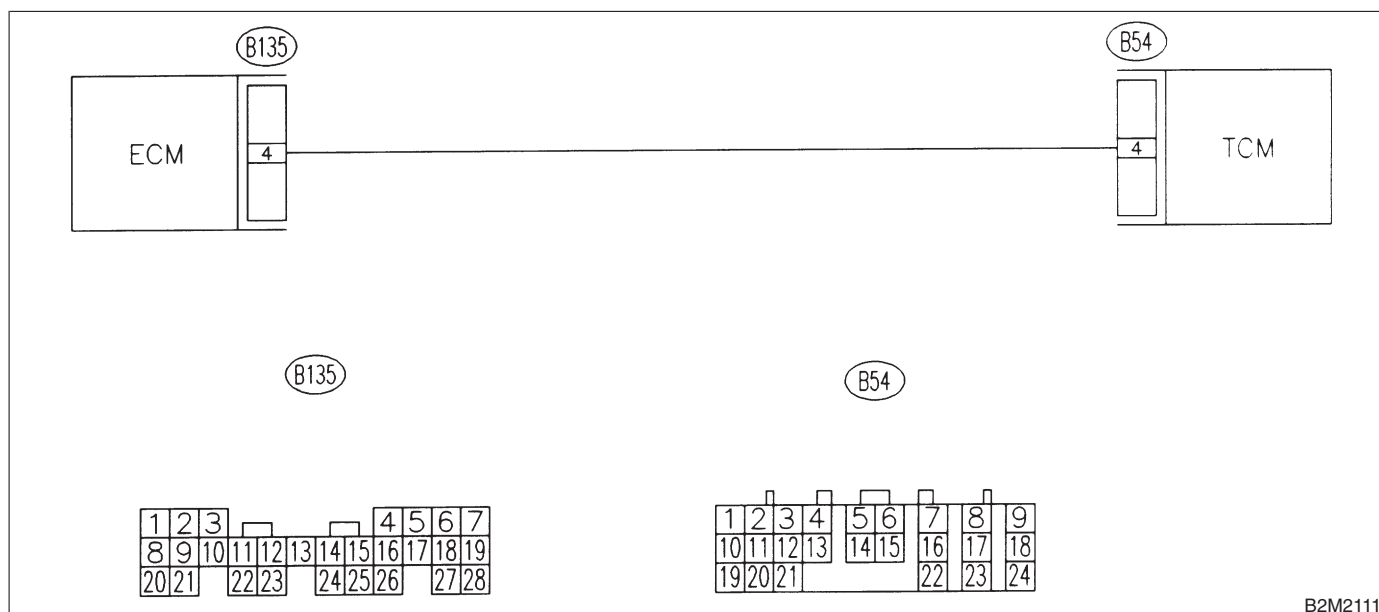
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2111

| No. | Step                                                                                                                                                                                                                            | Check                          | Yes                                                                                                                                               | No            |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>1) Turn ignition switch to ON.<br>2) Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 (+) — Chassis ground (-):</b> | Is the voltage more than 10 V? | Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU-60 REMOVAL, Engine Control Module.> | Go to step 2. |
| 2   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 (+) — Chassis ground (-):</b>                            | Is the voltage more than 4 V?  | Go to step 5.                                                                                                                                     | Go to step 3. |
| 3   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure voltage between ECM connector and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 (+) — Chassis ground (-):</b>                            | Is the voltage less than 1 V?  | Repair poor contact in ECM connector.                                                                                                             | Go to step 4. |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

| No. | Step                                                                                                                                                                                      | Check                                                                                  | Yes                                                                                                                                                                                                                                                                      | No                                                                                                                                     |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 4   | <b>CHECK OUTPUT SIGNAL FROM ECM.</b><br>Measure voltage between ECM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B135) No. 4 (+) — Chassis ground (-):</b>               | Does the voltage change from 1 V to 4 V while monitoring the value with voltage meter? | Even if MIL lights up, the circuit has returned to a normal condition at this time.<br><b>NOTE:</b><br>In this case, repair the following:<br><ul style="list-style-type: none"> <li>● Poor contact in ECM connector</li> <li>● Poor contact in TCM connector</li> </ul> | Contact with SOA service.<br><b>NOTE:</b><br>Inspection by DTM is required, because probable cause is deterioration of multiple parts. |
| 5   | <b>CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.</b><br>Measure voltage between TCM and chassis ground.<br><b>Connector &amp; terminal</b><br><b>(B54) No. 4 (+) — Chassis ground (-):</b> | Is the voltage more than 4 V?                                                          | Go to step 6.                                                                                                                                                                                                                                                            | Repair open circuit in harness between ECM and TCM connector.                                                                          |
| 6   | <b>CHECK POOR CONTACT.</b><br>Check poor contact in TCM connector. <Ref. to EN-6 CAUTION, General Description.>                                                                           | Is there poor contact in TCM connector?                                                | Repair poor contact in TCM connector.                                                                                                                                                                                                                                    | Check TCM power supply line and grounding line.                                                                                        |

# DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR 2200 CC MODELS

Engine

## CV: DTC P1742 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION —

S008636C35

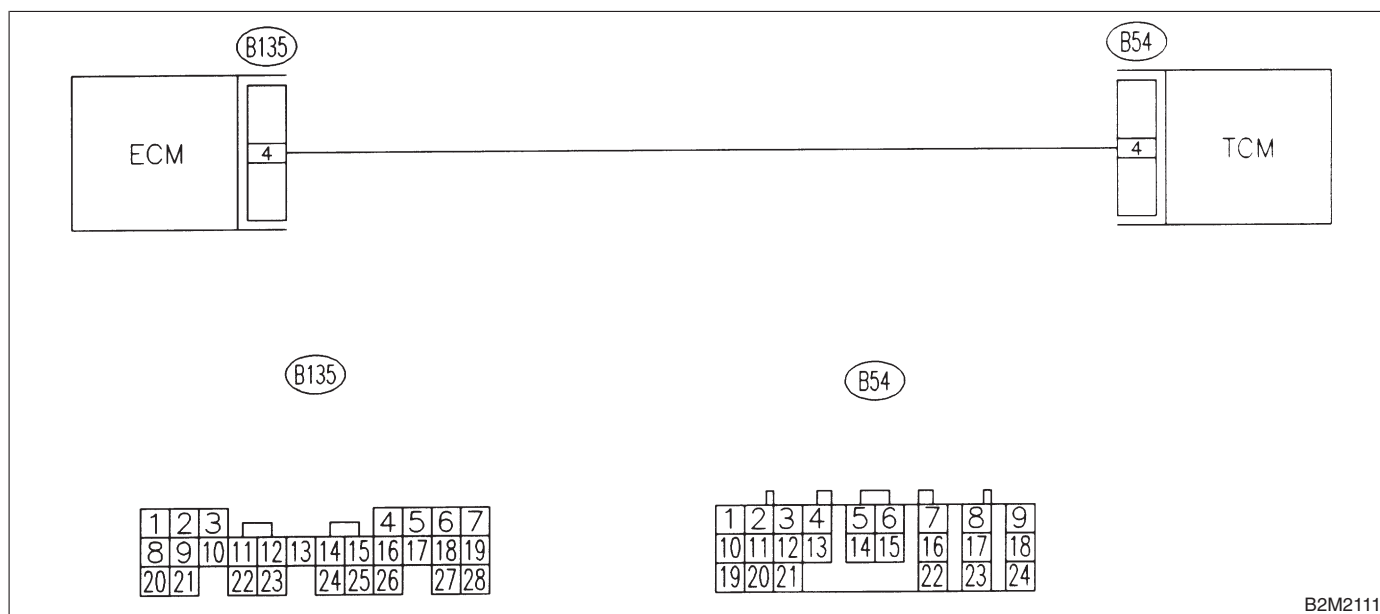
### ● DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault

### CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY MODE** <Ref. to EN-60 OPERATION, Clear Memory Mode.> and **INSPECTION MODE** <Ref. to EN-57 OPERATION, Inspection Mode.>.

### ● WIRING DIAGRAM:



B2M2111

| No. | Step                                                                                                                                            | Check                                         | Yes                                              | No                                                                          |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------|
| 1   | <b>CHECK DRIVING CONDITION.</b><br>1) Start and warm-up the engine until the radiator fan makes one complete rotation.<br>2) Drive the vehicle. | Is AT shift control functioning properly?     | Go to step 2.                                    | Replace TCM.<br><Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |
| 2   | <b>CHECK ACCESSORY.</b>                                                                                                                         | Are car phone and/or CB installed on vehicle? | Repair grounding line of car phone or CB system. | Replace TCM.<br><Ref. to AT-41 REMOVAL, Transmission Control Module (TCM).> |

**DIAGNOSTIC PROCEDURE WITH DIAGNOSTIC TROUBLE CODE (DTC) FOR  
2200 CC MODELS**

Engine

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**MEMO:**