

<b>DTC</b>	<b>P1105/32</b>	<b>Barometric Pressure Sensor Circuit Malfunction</b>
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**WIRING DIAGRAM/CIRCUIT DESCRIPTION**

An atmospheric sensor of the same construction as that of the MAP sensor is mounted in the ECU. Therefore, the wiring diagram for the atmospheric sensor is omitted here.

DTC No.	DTC Detecting condition	Trouble area
P1105/32	When the following conditions 1 and 2 are met for a certain length of time: 1. The AD conversion value of atmospheric sensor is less than 1.6 V. 2. The AD conversion value of atmospheric sensor is 4.7 V or more.	• Engine ECU

JEF00266-00000

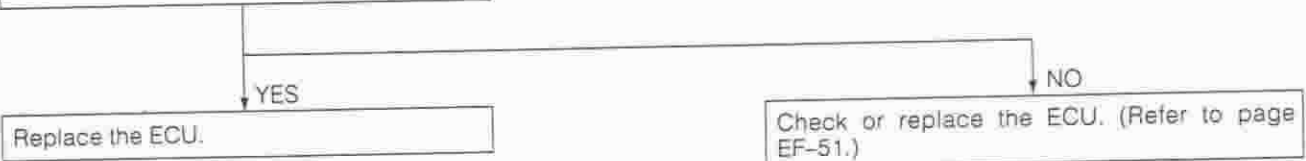
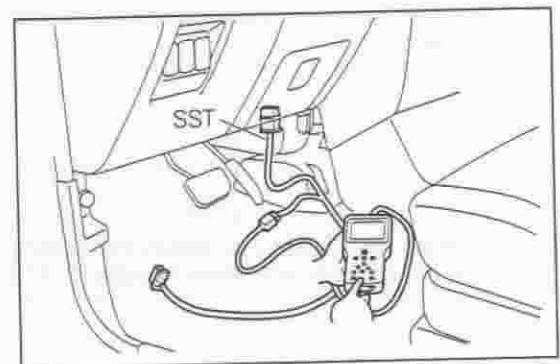
**INSPECTION PROCEDURE**

**NOTE:**

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**When using DS-21 diagnosis tester:**

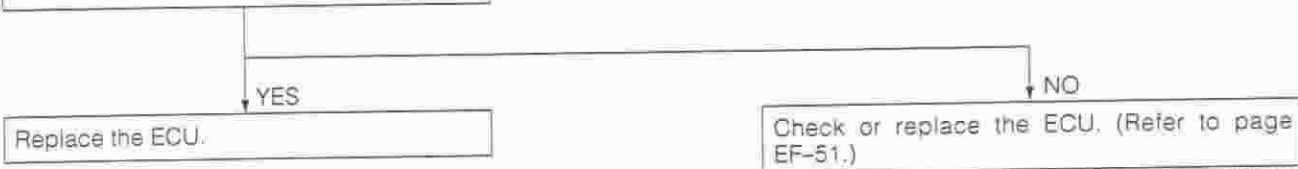
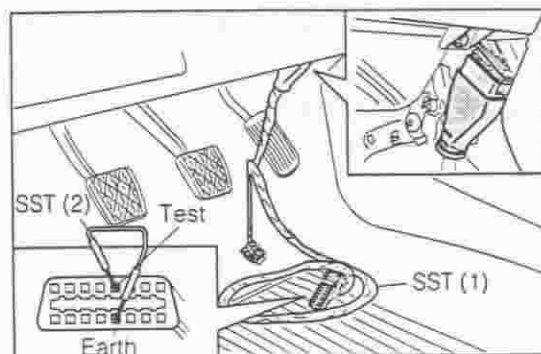
1	<p>Re-confirmation of DTC</p> <ol style="list-style-type: none"> <li>1. With the IG switch turned OFF, connect the DS-21 diagnosis tester to the DLC through the SST. SST: 09991-87404-000</li> <li>2. Turn ON the IG switch, and turn ON the main switch of the tester. Erase the DTC. (As for the operation, follow the instruction manual of the DS-21 diagnosis tester.)</li> <li>3. Turn OFF the main switch of the tester. Turn OFF the IG switch.</li> <li>4. Turn ON the IG switch. Turn ON the main switch of the tester.</li> <li>5. Check the DTC. Is P1105 indicated?</li> </ol>
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JEF00267-00173

When not using DS-21 diagnosis tester:

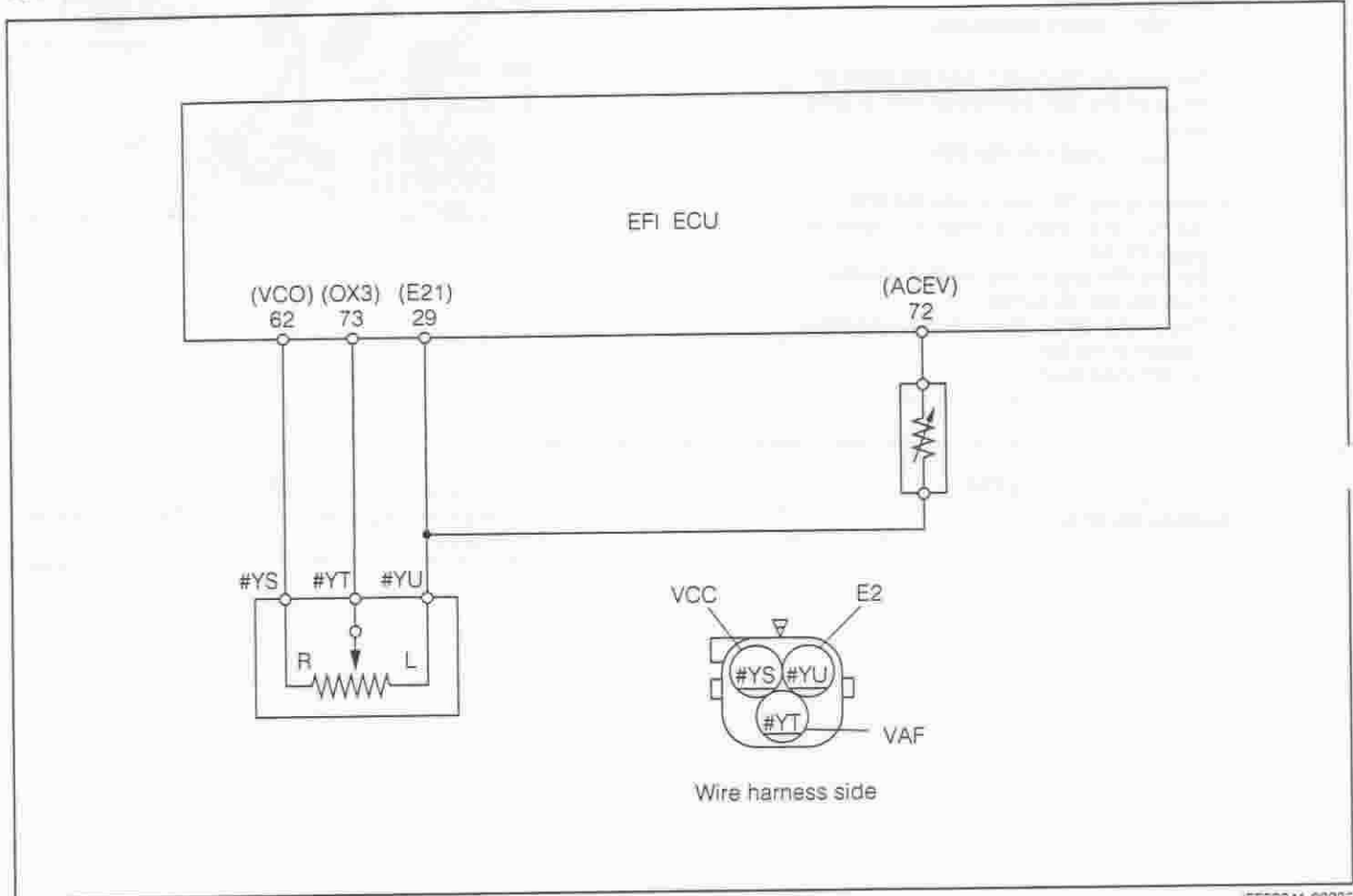
- |   |                        |
|---|------------------------|
| 1 | Re-confirmation of DTC |
|---|------------------------|
1. With the IG switch turned OFF, connect the DS-21 diagnosis tester to the DLC through the SST.  
SST: 09991-87404-000
  2. Connect the terminal T and the earth terminal of the SST connector with a jump wire.  
SST: 09991-87403-000
  3. Remove the EFI fuse. Erase the DTC.  
(As for the erasing method, refer to page EF-58.)
  4. Set the EFI fuse to the original position.
  5. Turn ON the IG switch.
  6. Check the DTC. (Read out the flashing pattern of the MIL.)  
Is "32" indicated?



JEF00268-00174

DTC	P1130/29	A/F Adjuster Circuit Malfunction
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## WIRING DIAGRAM



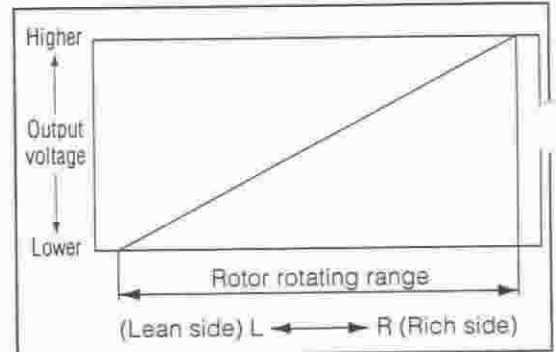
JEF00341-00235

## CIRCUIT DESCRIPTION

The variable resistor is mounted at the left side of the engine compartment at the body side.

This is a variable resistor to adjust the air-to-fuel ratio while the engine is idling (after the engine has warmed up). The idle CO value is adjusted to the specified value by rotating the rotor.

The letters "R" and "L" are embossed at the root of the connector.



JEF00342-00237

DTC No.	DTC Detecting condition	Trouble area
P1130/29	Condition (1) or (2) continues with more than a certain length of time 1. OX3 < 0.2 V 2. OX3 ≥ 4.8 V	<ul style="list-style-type: none"> <li>• Open wire or short in A/F adjuster circuit</li> <li>• A/F adjuster</li> <li>• Engine ECU</li> </ul>

## INSPECTION PROCEDURE

### NOTE:

- If DTC P1530/44 (A/C Evaporator Temp. Sensor Malfunction), P1130/29 (A/F Adjuster Circuit Malfunction) are output simultaneously, E21 (Sensor Ground) may be open.
- Read freeze frame data using DS-21 diagnosis tester or OBD II generic scan tool. Because freeze frame data records the engine condition when the malfunction is detected, when troubleshooting it is useful for determining whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

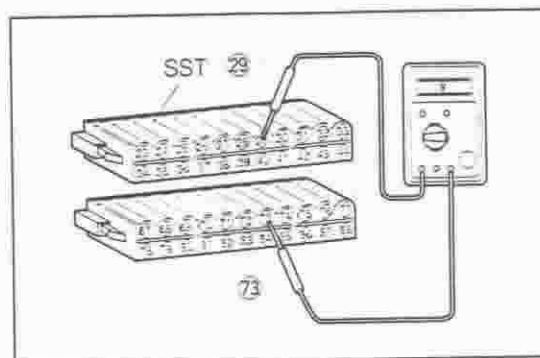
1 Check of input voltage of A/F adjuster to ECU

1) Set the SST (sub-harness).  
(Refer to page EF-8.)

2) Turn ON the IG switch.

3) Turn the rotor clockwise and counter-clockwise. Check to see if the voltage measured between the SST connectors 73 and 29 (OX3 - E21) varies.  
Specified Value: 0.2 V or more, but less than 4.8 V

Are the check results OK?



NO

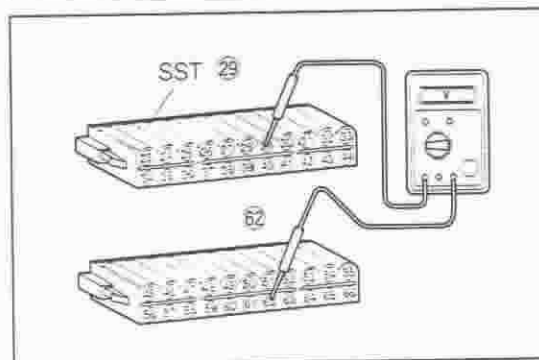
YES

2 Check of harness between EFI ECU and ignitor unit

1) Ensure that the voltage between the SST terminals 62 (VCO) and 29 (E21) is within the specified value when the ignition switch is turned to the ON position.  
Specified value: 4.5 - 5.5 V

Are the check results OK?

Check malfunction that occurs intermittently or poor contact. (Refer to page EF-51.)



JEF00343-00238

**3 Unit check of A/F adjuster**

- 1) Turn off the ignition switch.
- 2) Disconnect the connector of the A/F adjuster.
- 3) Check the resistance between the terminals below.

Specified Value:

Terminal	Resistance kΩ
#YS - #YU	5 ± 1.5 (25°C)
#YT - #YU	The resistance should increase in proportion to the turning of the rotor in a direction from L to R.

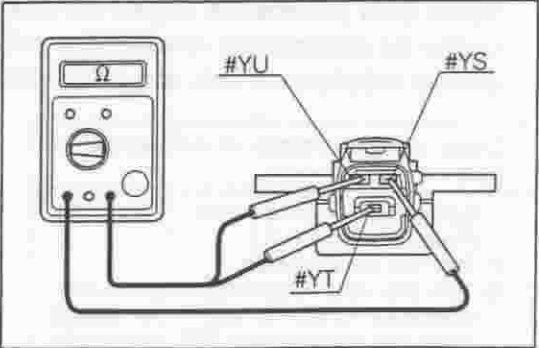
**4 Check of harness between A/F adjuster and ECU**

- 1) Turn OFF the IG switch.
- 2) Disconnect the SST terminals from the EFI ECU.
- 3) Referring to page EF-48, check the harness and connector for open wire or short, as follows:
  - Connector of A/F adjuster (#YS) at harness side - SST connector 62
  - Connector of A/F adjuster (#YT) at harness side - SST connector 73
  - Connector of A/F adjuster (#YU) at harness side - SST connector 2

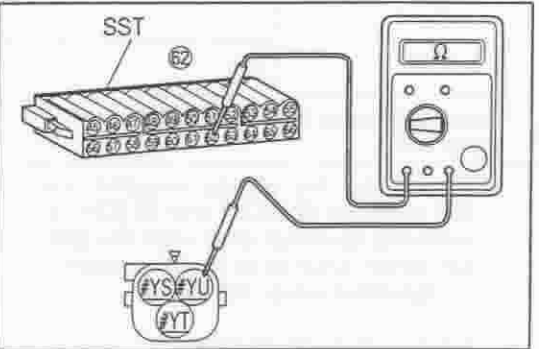
Are the check results for open wire and short OK?

Check malfunction that occurs intermittently or poor contact. (Refer to page EF-51.)

Check and replacement of ECU (Refer to page EF-51.)



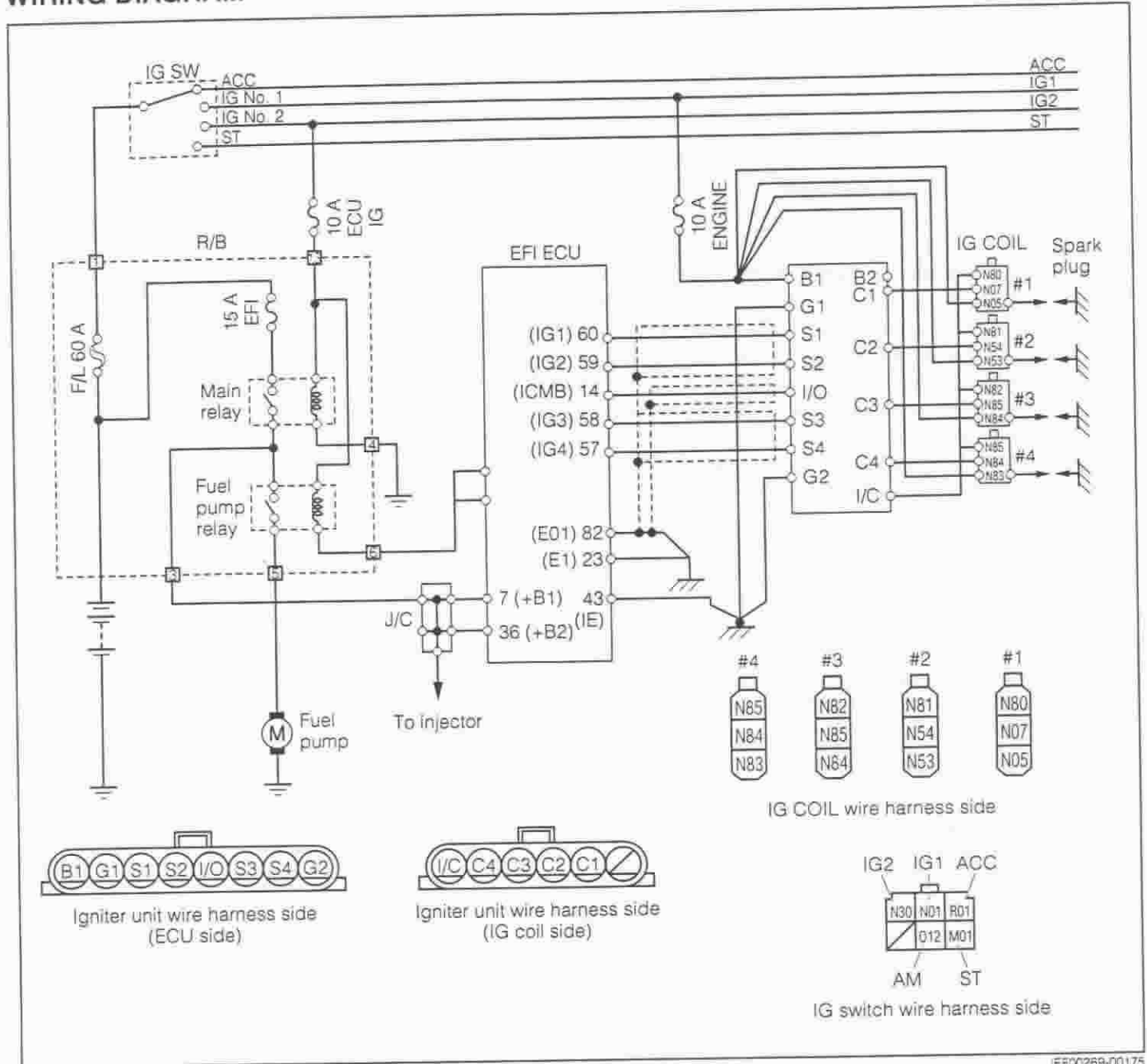
Replace the A/F adjuster.



Repair or replace the harness or connector.

DTC	P1300/36	Ion System Malfunction
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WIRING DIAGRAM



JEF00269-00175

CIRCUIT DESCRIPTION

This system detects any misfire of the engine by using an ion current which has the same waveforms as those of the combustion pressure. When any misfire takes place, no ion current is produced. Therefore, if the input voltage at the ECU side is below a certain value, it is judged that a misfire took place. Since the detected ion current is very weak, it is amplified in the igniter unit. In addition, a vibration waveform appears in the ion current waveform when knocking takes place. Hence, knocking control is also performed by detecting vibration waveforms. This applies only to vehicles mounted with Type K3 engine with EU specifications.

DTC No.	DTC Detecting condition	Trouble area
P1300/36	No Ion current signal is inputted to the engine ECU during engine cranking or engine running.	<ul style="list-style-type: none"> <li>• Open wire or short in Ion system circuit</li> <li>• Ignitor unit</li> <li>• Ignition coil (All cylinders)</li> <li>• Spark plug (All cylinders)</li> <li>• Engine ECU</li> </ul>

JEF00270-00000

## INSPECTION PROCEDURE

### NOTE:

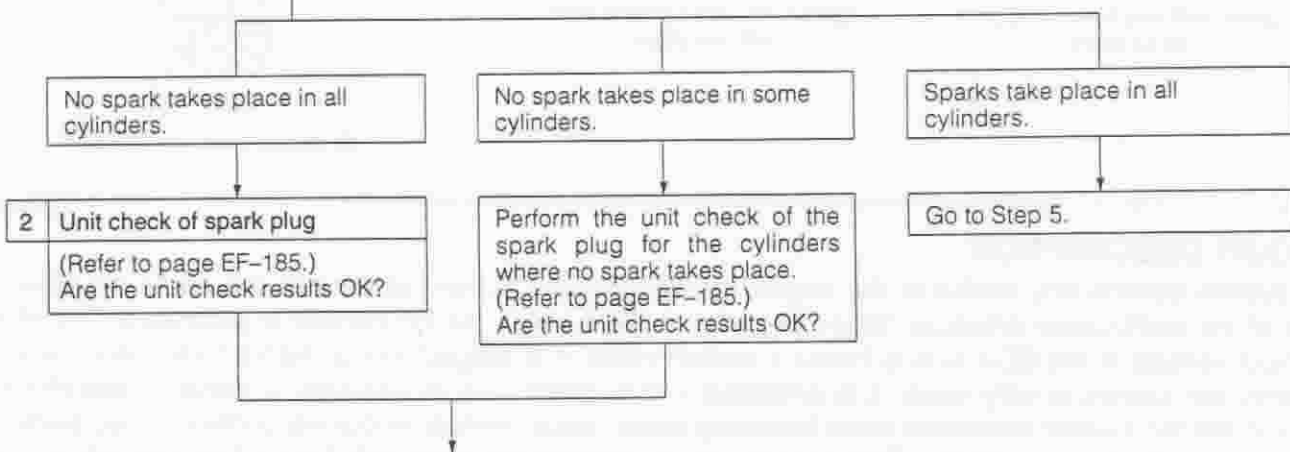
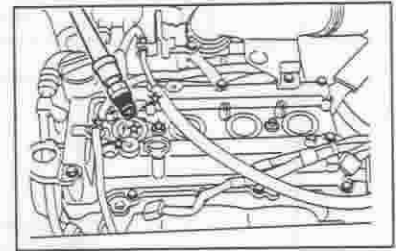
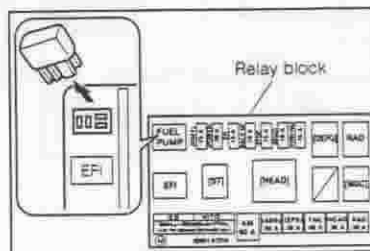
- Read the freeze frame data, using the DS-21 diagnosis tester. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.
- This diagnostic chart is based on the premise that the engine is being cranked under normal conditions. If the engine does no crank, proceed to the matrix table for troubleshooting according to malfunctioning phenomena on page EF-47.
- When P1300/36 (ion system malfunction) is outputted, both P0300/17 (random/multiple cylinder misfire detected) and P0301/17 - P0304/17 (cylinders 1 to 4 misfire detected) may be outputted simultaneously.

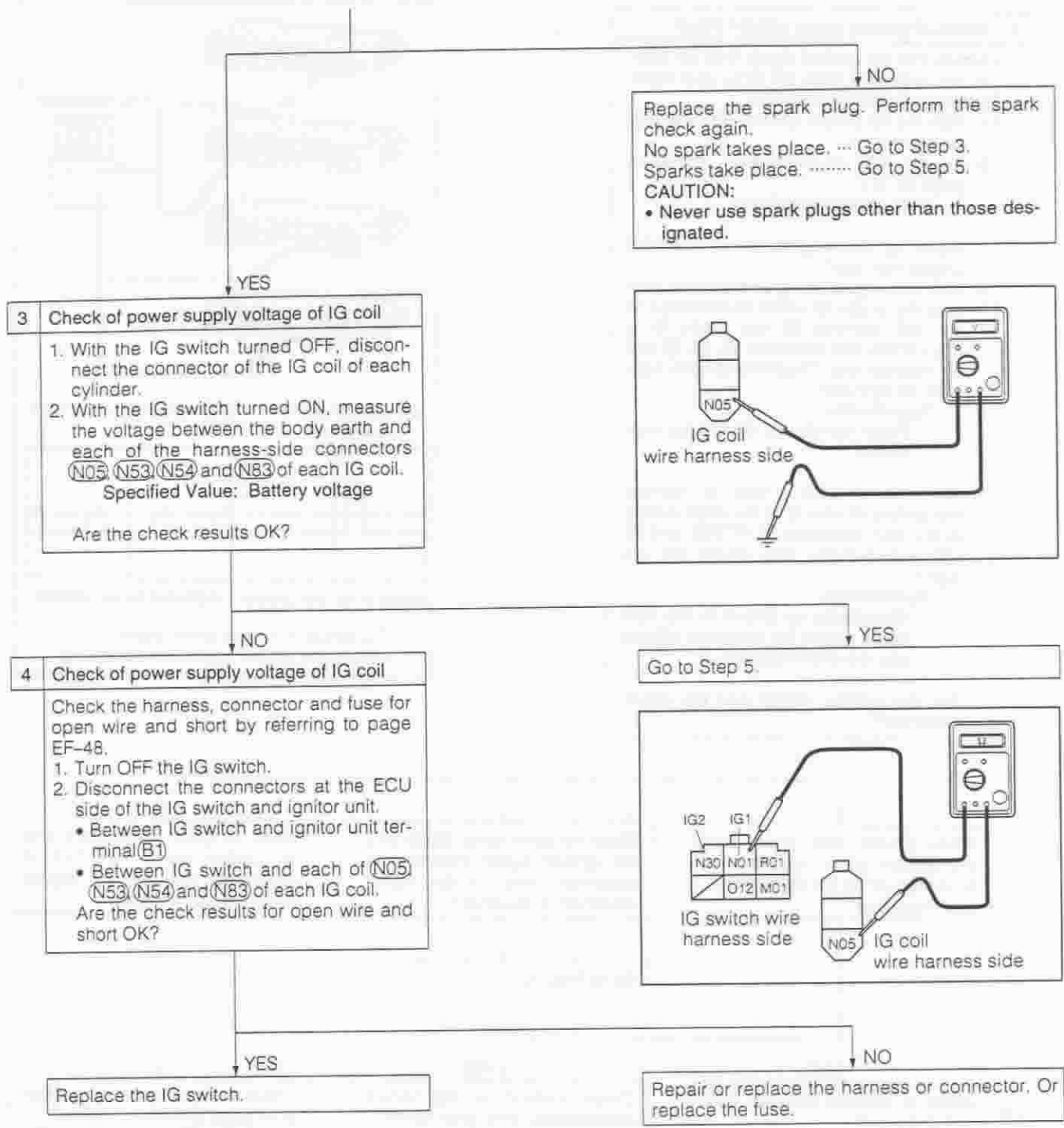
**1 Spark check**

1. Remove the fuel pump relay from the relay block
2. Remove the IG coils and spark plugs (all cylinders #1, 2, 3 and 4)
3. Install the spark plug to the IG coil, connect the IG coil connector to the IG coil.
4. Ground the spark plug.
5. Crank the engine. at this time, check to see if each spark plug sparks.

**WARNING:**

- Sparks will take place. Care must be exercised to the surrounding combustible objects.







**5 Check of ignition signal and ion signal**

Check that the ignition signal and ion signal are outputted from the ECU and inputted by using an oscilloscope.

1. With the IG switch turned OFF, perform the restoration.
2. Set the SST (sub-harness). (Refer to page EF-8.)  
SST: 09842-97203-000

3. Warm up the engine. (only when the engine can start)

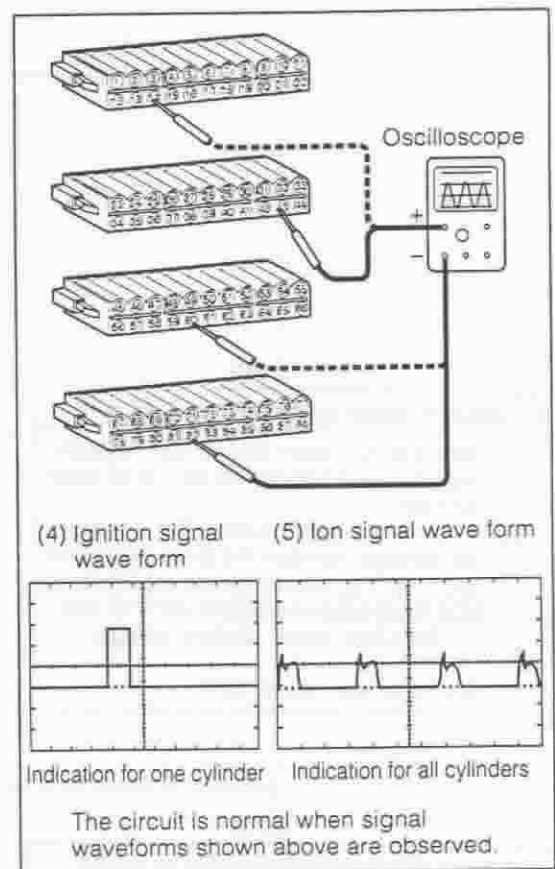
4. With the engine idling or cranking, connect the probe  $\ominus$  of the oscilloscope to the SST terminal ②; the probe  $\oplus$  to each of the SST terminals ⑥, ⑨, ⑬ and ⑰, respectively. Check the ignition signal for all cylinders.

**Specification:**  
Pulse waveforms should be confirmed.

5. As has been done in Step 4), connect the probes  $\oplus$  and  $\ominus$  of the oscilloscope to the SST terminals ⑭ (ICMB) and ④ (IE), respectively, and check the ion signal.

**Specification:**  
Waveforms as shown in the right figure should be observed without any waveform missing.

Are the ignition signal and ion signal observed?



When sparks take place and the ignition signal waveform is observed, is the ion signal waveform observed?

When no spark takes place and the ignition signal waveform is observed, and no ion signal waveform is observed:

When no spark takes place and no ignition signal waveform is observed, and no ion signal waveform is observed:

Go to Step 10.

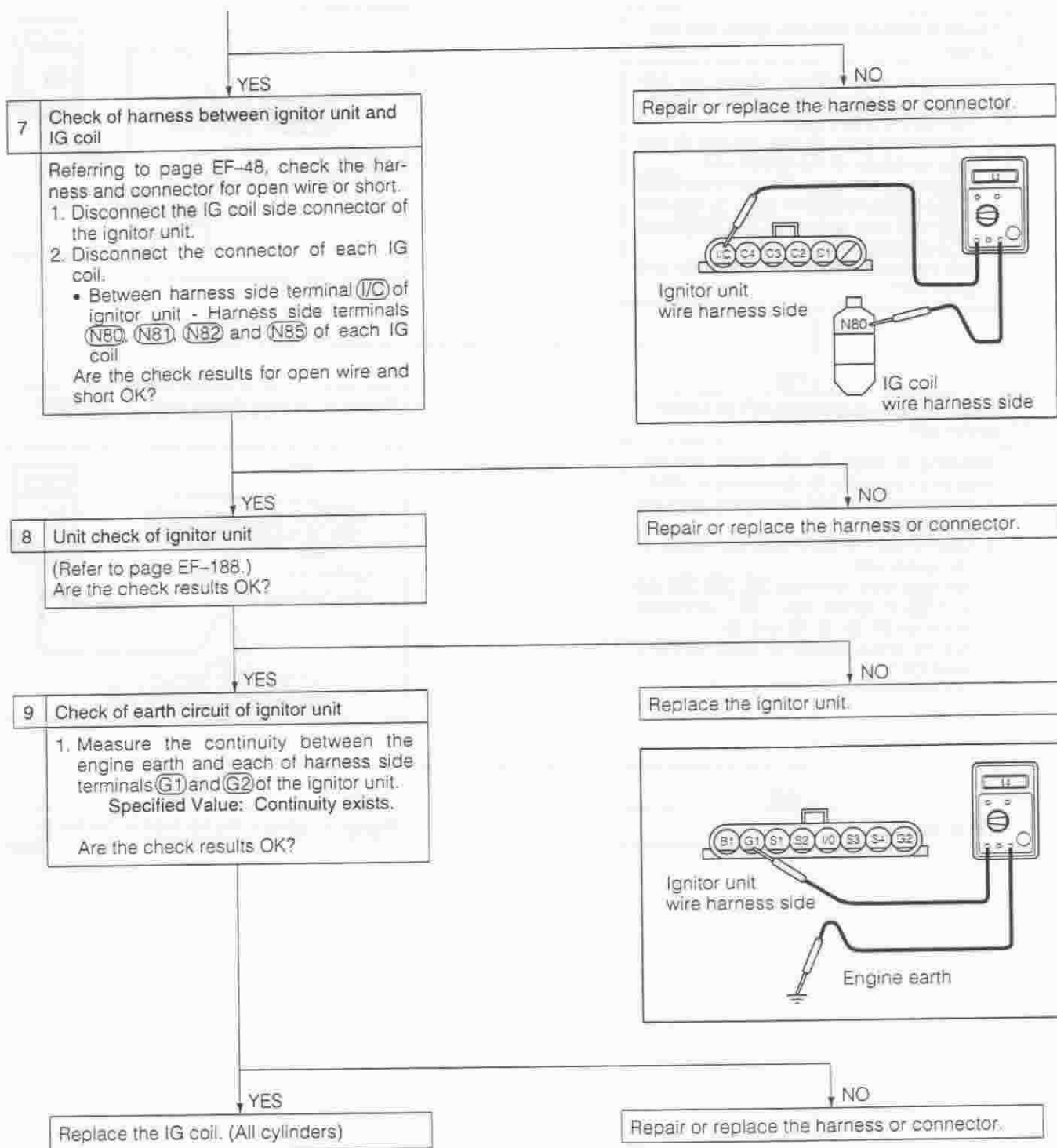
**6 Check of harness between ECU and ignitor unit**

1. Turn OFF IG switch.
2. Disconnect the SST connector of the EFI ECU.
3. Disconnect the ECU side connector of the ignitor unit.
4. Referring to page EF-63, check the harness and connector for open wire or short.
  - SST terminal ⑭ - Harness side (I/O) terminal of ignitor unit

Are the check results for open wire and short OK?

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

Check or replace the ECU. (Refer to page EF-51.)

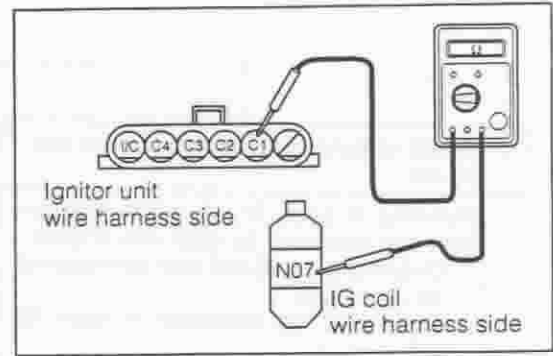


**10 Check of harness between ignitor unit and IG coil**

Referring to page EF-48, check the harness and connector for open wire or short.

1. Turn OFF the IG switch.
2. Disconnect each IG coil and the IG coil side connector of the ignitor unit.
  - Between harness side terminals (N07, N54, N65) and (N84) of each IG coil and harness side terminals (C1, C2, C3) and (C4) of ignitor unit

Are the check results for open wire and short OK?



YES

**11 Check of harness between EFI ECU and ignitor unit**

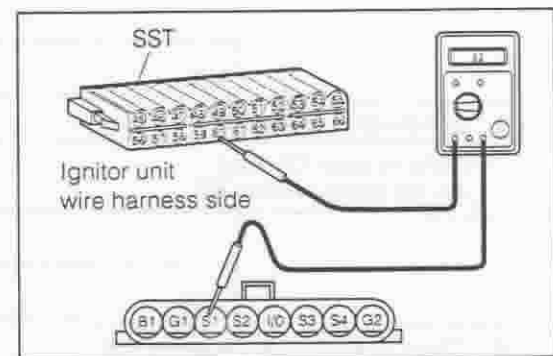
Referring to page EF-48, check the harness and connector for open wire or short.

1. Disconnect the SST connector from the EFI ECU.
2. Disconnect the ECU side connector of the ignitor unit.

Harness side terminals (S1, S2, S3, S4) and (I/O) of ignitor unit - SST connector terminals (60, 69, 68, 57) and (14)

Are the check results for open wire and short OK?

NO  
Repair or replace the harness or connector.



YES

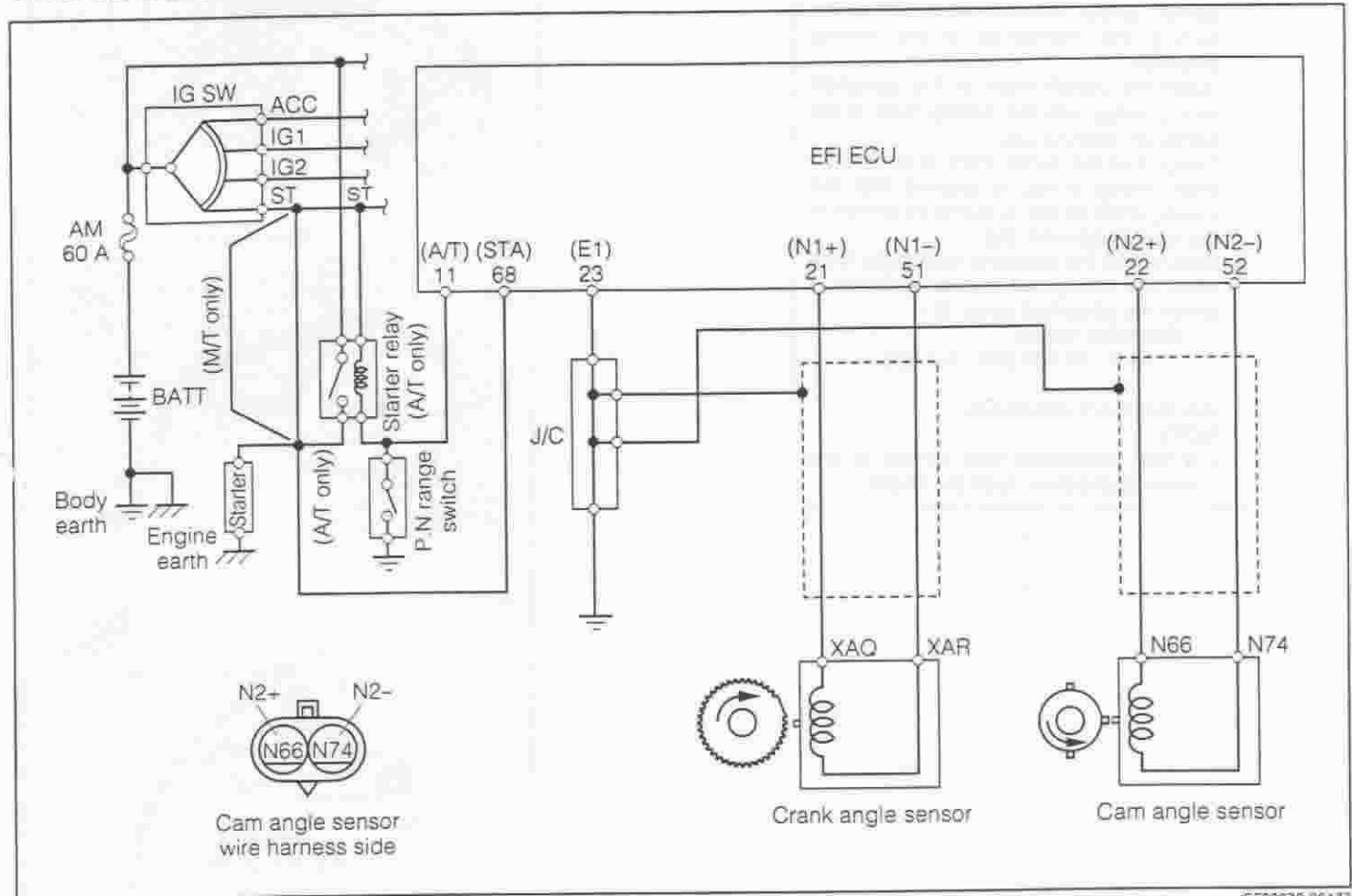
Go to Step 7.

NO  
Repair or replace the harness or connector.

JEF00271-00176

<b>DTC</b>	<b>P1346/75</b>	<b>VVT Sensor (Camshaft Position Sensor) Circuit Range/Performance Problem</b>
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**WIRING DIAGRAM**



JEF00272-00177

**CIRCUIT DESCRIPTION**

The camshaft angle sensor (N2+ signal) consists of a signal rotor and a pickup coil. The N2+ signal rotor has three timing pins on its outer disk surface and is integrated with the intake camshaft. The detection of the actual camshaft position and the discrimination of cylinders are carried out by these three timing pins (360-180-180° CA).

DTC No.	DTC Detecting condition	Trouble area
P1346/75	Deviation in crankshaft angle sensor signal and cam angle sensor signal (2 trip detection logic)	<ul style="list-style-type: none"> <li>Mechanical system malfunction (Skipping teeth of timing chain, chain stretched)</li> <li>Engine ECU</li> </ul>

JEF00273-00000

**INSPECTION PROCEDURE**

**NOTE:**

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

1 Check of valve timing

Check the timing belt for looseness and missing teeth. (For details, refer to EM section.)

1. Set the No. 1 cylinder to the top dead center under compression stroke by turning the crankshaft in the normal direction.  
(Align the punch mark of the camshaft timing pulley with the mating mark of the camshaft bearing cap.)
2. Check that the punch mark of the crankshaft timing pulley is aligned with the mating mark of the oil pump as shown in the right illustration. (b)
3. Ensure that the applying load at the time when the timing belt is pushed 5 mm is within the specified value. (c)

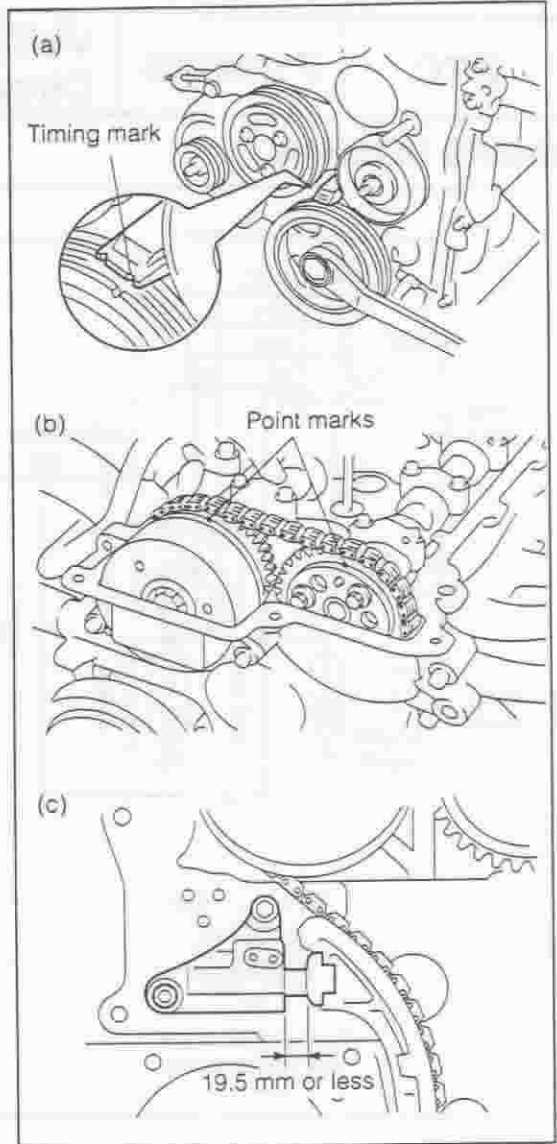
Specified Value:

19.6 - 29.4 N (2.0 - 3.0 kgf)

Are the check results OK?

NOTE:

- If the crankshaft was turned in the reverse direction, redo the check.



YES

Check or replace the engine ECU.  
(Refer to page EF-51.)

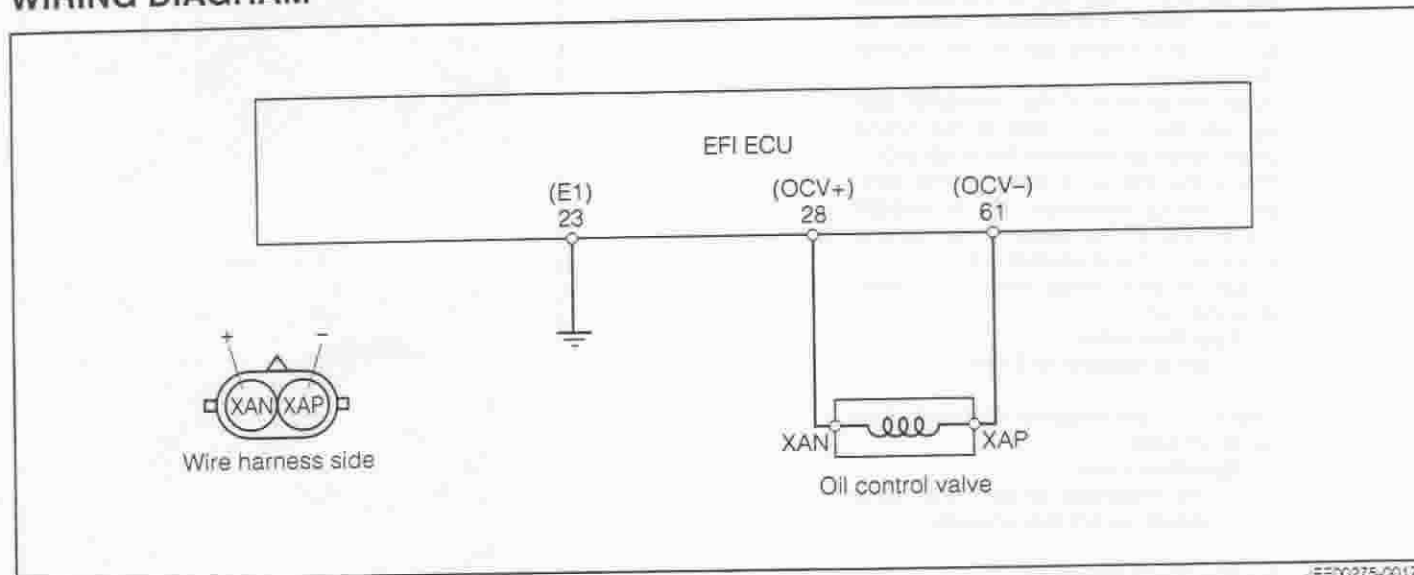
NO

Adjustment of valve timing  
(Adjustment or replacement of timing belt or tensioner)  
For details, refer to EM section.

JEF00274-00178

<b>DTC</b>	<b>P1349/73</b>	<b>VVT System Malfunction</b>
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**WIRING DIAGRAM**



JEF00275-00179

**CIRCUIT DESCRIPTION**

The DVVT system controls the intake valve timing to a proper timing in response to the driving conditions. The engine ECU controls the OCV (Oil Control Valve) to make the intake valve timing proper. The oil pressure controlled by the OCV is supplied to the DVVT controller, and then, the DVVT controller changes the relative position between the camshaft and the crankshaft.

DTC No.	DTC Detecting condition	Trouble area
P1349/73	Condition (a) or (b) continues after the engine has warmed up and when the engine speed is 400 to 4000 rpm. (a) Valve timing does not change from the current valve timing. (b) Current valve timing is fixed. (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Valve timing</li> <li>• Oil control valve</li> <li>• DVVT controller assembly</li> <li>• Engine ECU</li> </ul>

JEF00275-00000

**INSPECTION PROCEDURE**

**NOTE:**

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**1 Check of valve timing**

Check the timing chain for looseness and missing teeth. (For details, refer to EM section.)

1. Set the No. 1 cylinder to the top dead center under compression stroke by turning the crankshaft in the normal direction. (a)

(Align the groove of the crankshaft pulley with the timing mark of the timing chain cover as shown in the illustration.)

2. Check that the point marks of the camshaft timing sprockets are in straight line on the timing chain cover surface as shown in the illustration. (b)

3. Check of protruding amount of chain tensioner (c)

Specified Value:

Not to exceed 19.5 mm

4. Check of chain tensioner arm and chain guide for wear

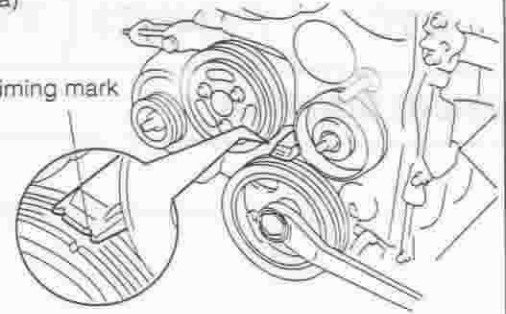
Specified Value:

The thickness of arm and guide should be 0.5 mm or more.

Are the check results OK?

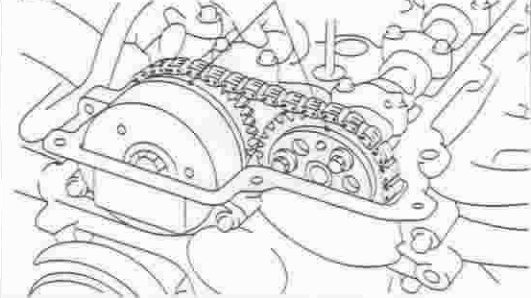
(a)

Timing mark



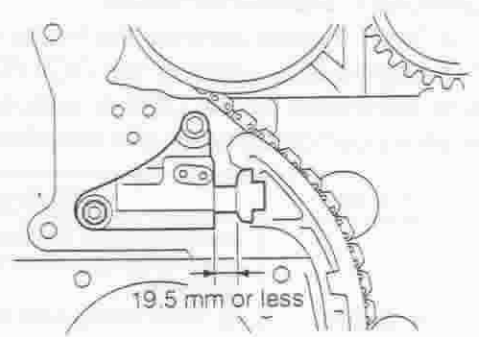
(b)

Paint marks



(c)

19.5 mm or less



YES

**2 Operation check of oil control valve (OCV)**

1. Set the SST (sub-harness). (Refer to page EF-8.)

2. Start the engine. Warm it up fully.

3. Disconnect the OCV connector.

4. Apply the battery voltage between the terminals of the OCV connector.

5. Check the engine idling condition.

Specification:

Rough idling or engine stall should take place.

Are the check results OK?

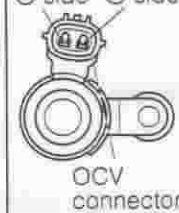
NOTE:

- Be careful not to mistake the polarity.
- Pay attention not to make short during operation.
- The energizing time should be limited to within one minute.

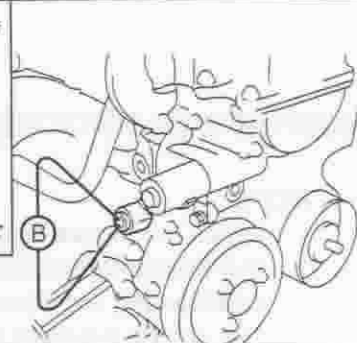
NO

Repair and adjustment of valve timing  
(Repair or replace the timing chain or tensioner, arm, guide, etc.)  
For details, refer to EM section.

⊖ side ⊕ side



OCV connector

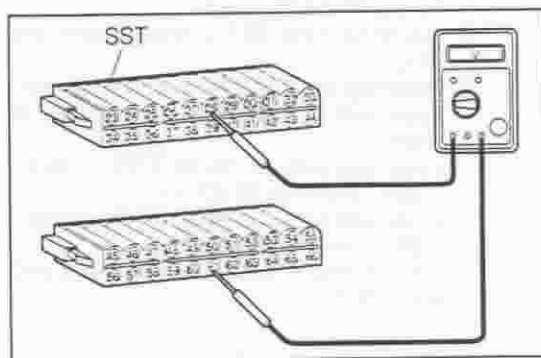


**3 Check of output voltage of ECU**

1. With the IG switch turned ON (the engine stopped), measure the voltage between the SST connector terminals 28 (OCV+) and 61 (OCV-).  
 Specified Value: 4.0 V or less

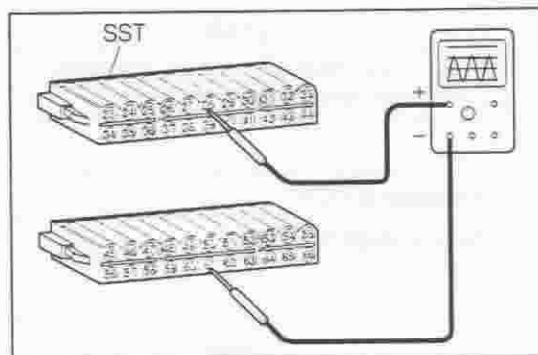
Is the measured value the specified value?

Go to Step 5.

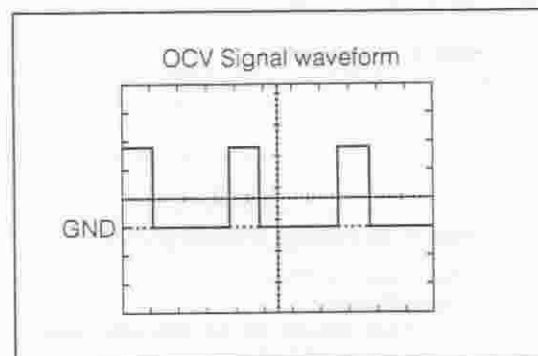


**[Reference]**  
 Check by oscilloscope

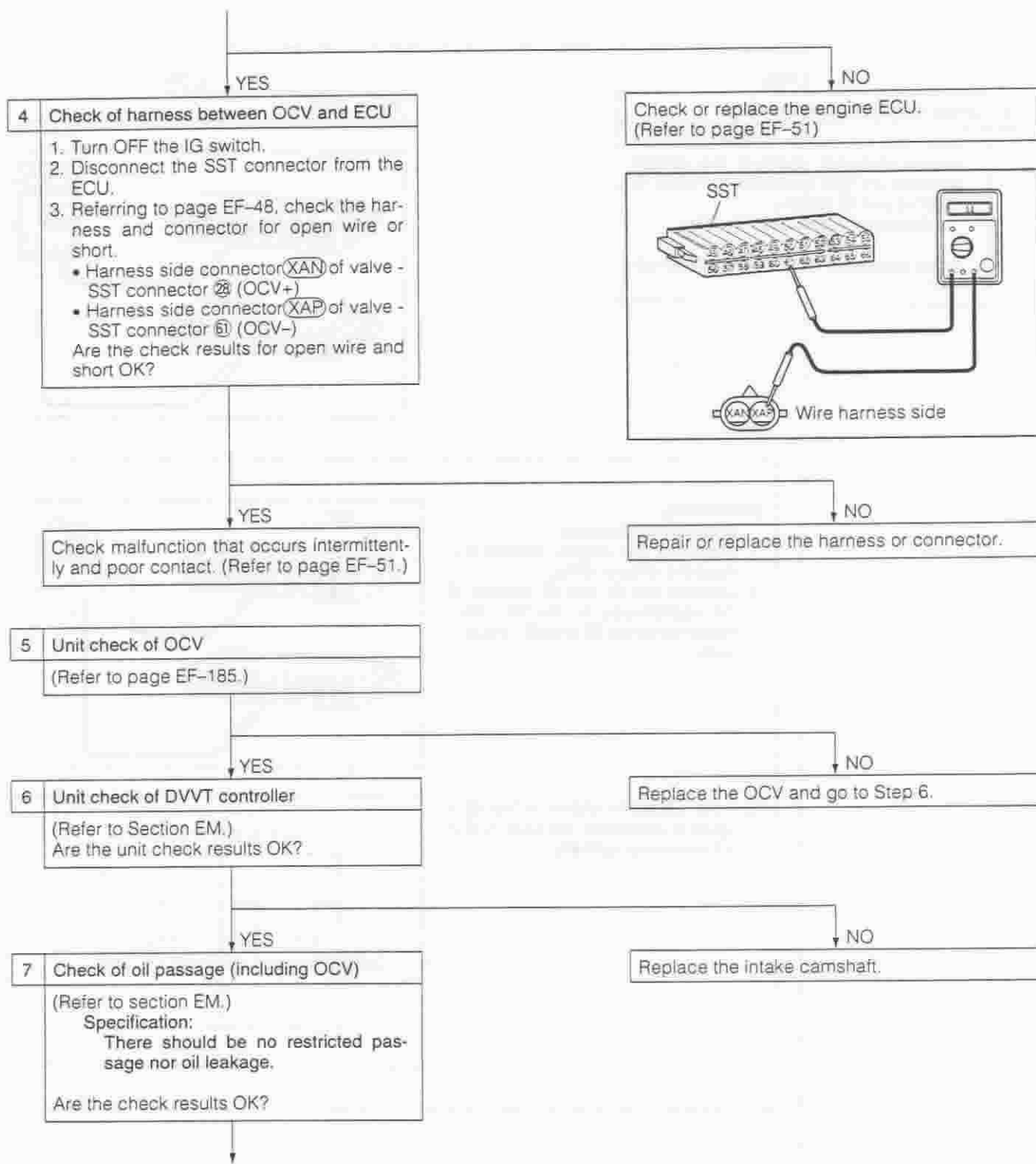
1. Warm up the engine completely. Keep the engine idling.
2. Connect the ⊕ and ⊖ probes of the oscilloscope to the SST connector terminals 28 and 61, respectively.

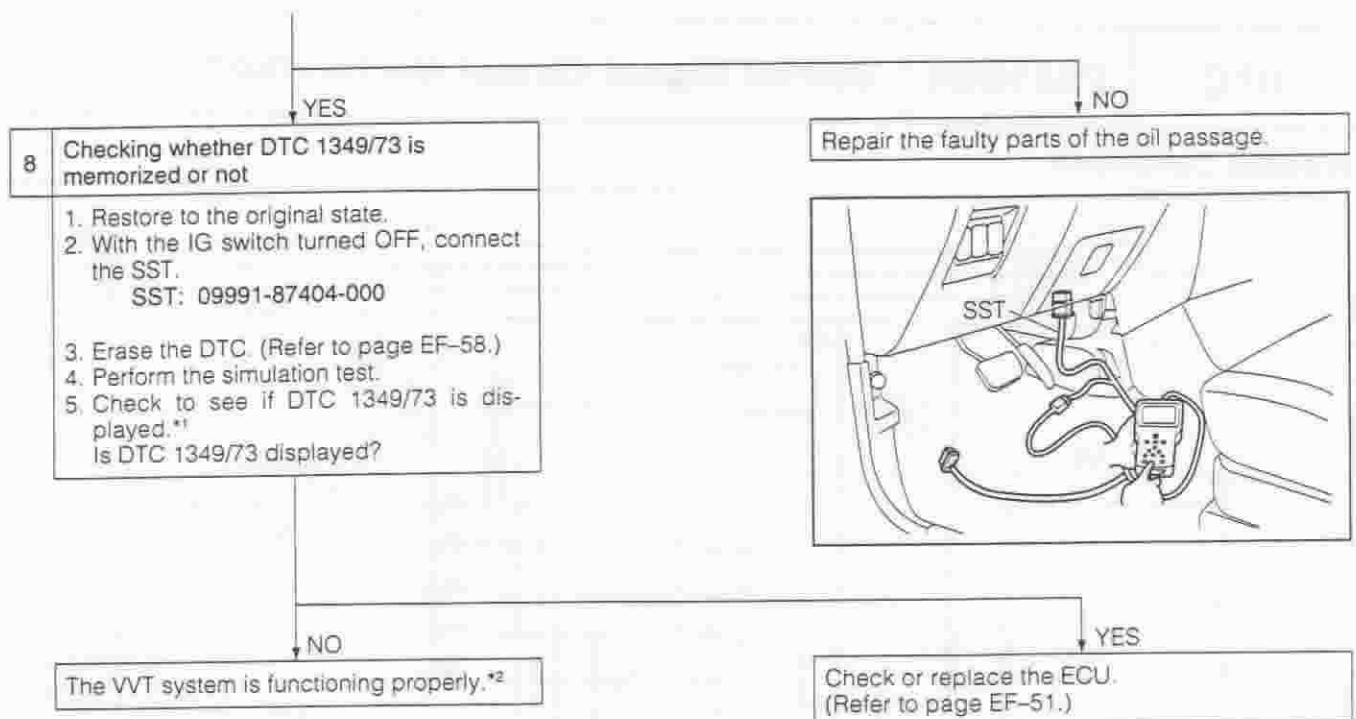


3. If the waveform shown in the right figure is observed, the OCV circuit is functioning normally.







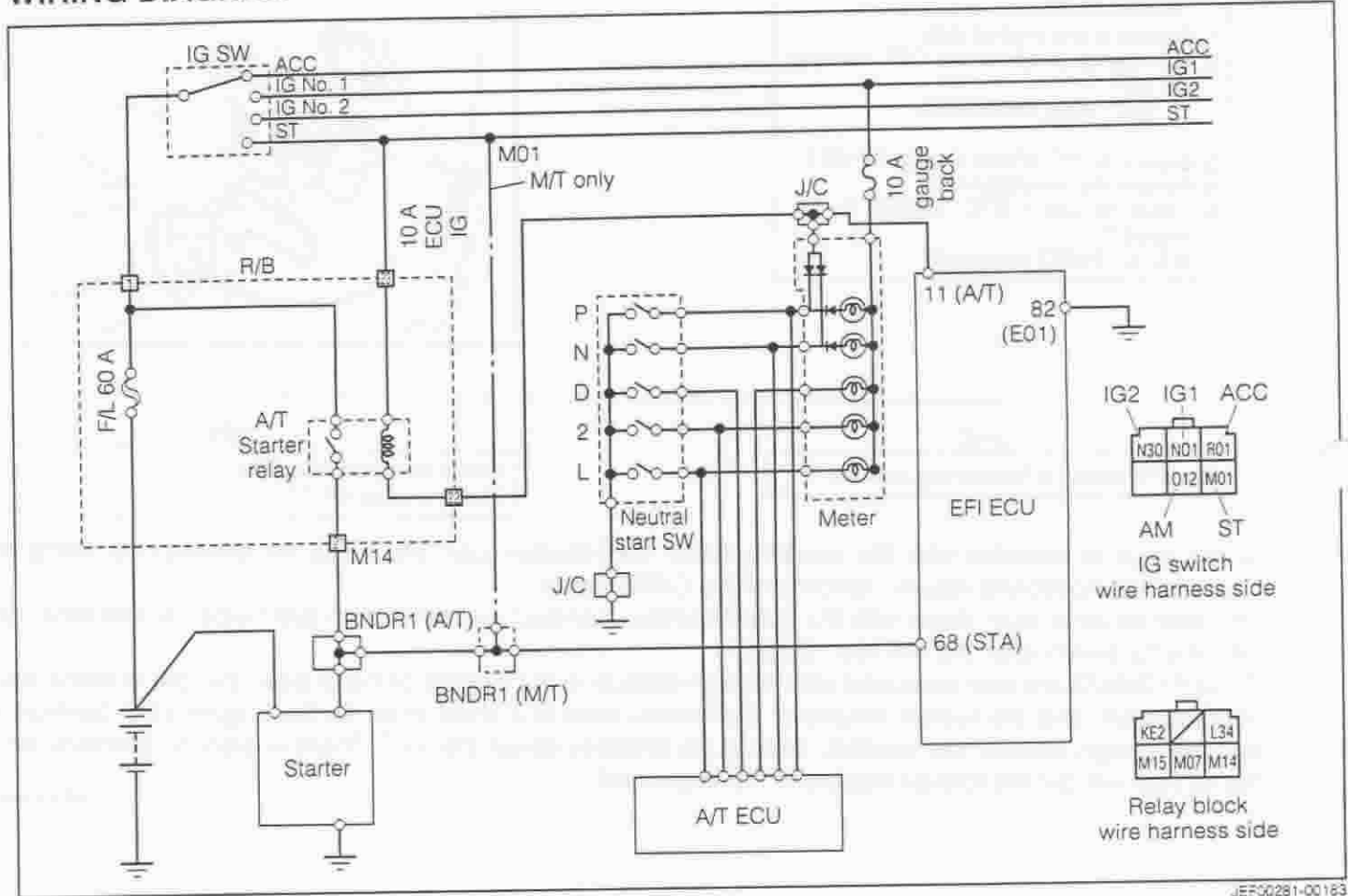


- \*1: In the case of vehicles with EU specifications, confirmation can be made by one-trip by using the "Continuous monitoring results" function of the CARB mode.  
On vehicles other than those with EU specifications, conduct the simulation test twice. At this time, turn OFF the IG switch after the first test. (2 trip)
- \*2: DTCs P1349/73 are also outputted after foreign objects in the engine oil have been caught in some parts of the system, and the system returns to the normal state in a short time. As the engine ECU controls so that the foreign objects are ejected, there is no problem about the VVT. There is also no problem since the oil filter will get the foreign objects in the engine oil.

JEF0277-0G180

DTC	P1510/54	Starter Signal Circuit Malfunction
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WIRING DIAGRAM



JEF00281-00183

CIRCUIT DESCRIPTION

When the engine is being cranked, the intake air flow is slow, so fuel vaporization is poor. A rich mixture is therefore necessary in order to achieve good startability. While the engine is being cranked, the battery positive voltage is applied to the terminal STA of the engine ECU. The starter signal is mainly used to create the fuel injection volume for the starting injection control and after-start injection control.

DTC No.	DTC Detecting condition	Trouble area
P1510/54	Open wire or short in starter signal circuit (2 trip detection logic)	<ul style="list-style-type: none"> <li>Open wire or short in starter signal circuit</li> <li>Engine ECU</li> </ul>

JEF00282-00000

INSPECTION PROCEDURE

NOTE:

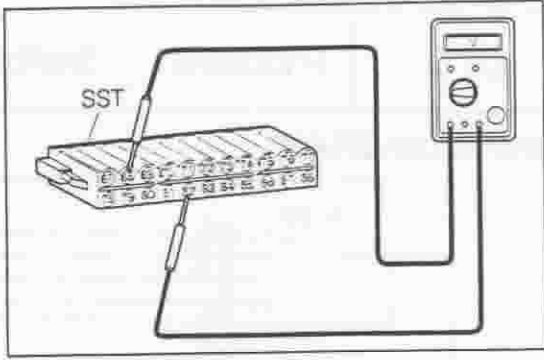
- This diagnostic chart is based on the premise that the engine is being cranked under normal conditions. If the engine does not crank, proceed to the matrix table for troubleshooting according to malfunctioning phenomena on page EF-47.

**1 Check of ECU input signal STA**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. Measure the voltage between the SST connectors 68 and 62 (STA - E01) under the following conditions.

Condition	Specified value
Engine being cranked	6 - 10 V
After engine has started	0 V

Is the measured value the specified value?



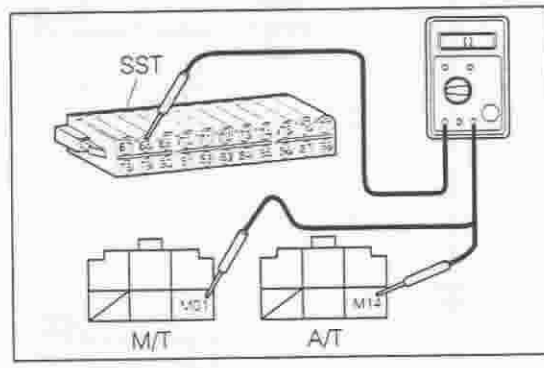
NO

**2 Check of harnesses between IG switch and ECU (M/T vehicles) and between relay block and ECU (A/T vehicles)**

1. Turn OFF the IG switch.
2. Disconnect the connector of the IG switch.
3. Disconnect the SST connector at ECU side.
4. M/T vehicles:  
Connector (M03) at IG switch side - Connector 68 (STA) at ECU side  
A/T vehicles:  
Connector (M14) at relay block side - Connector 68 (STA) at ECU side  
Are the check results for open wire and short (according to page EF-48) OK?

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

YES



YES

Check or replace the engine ECU. (Refer to page EF-51.)

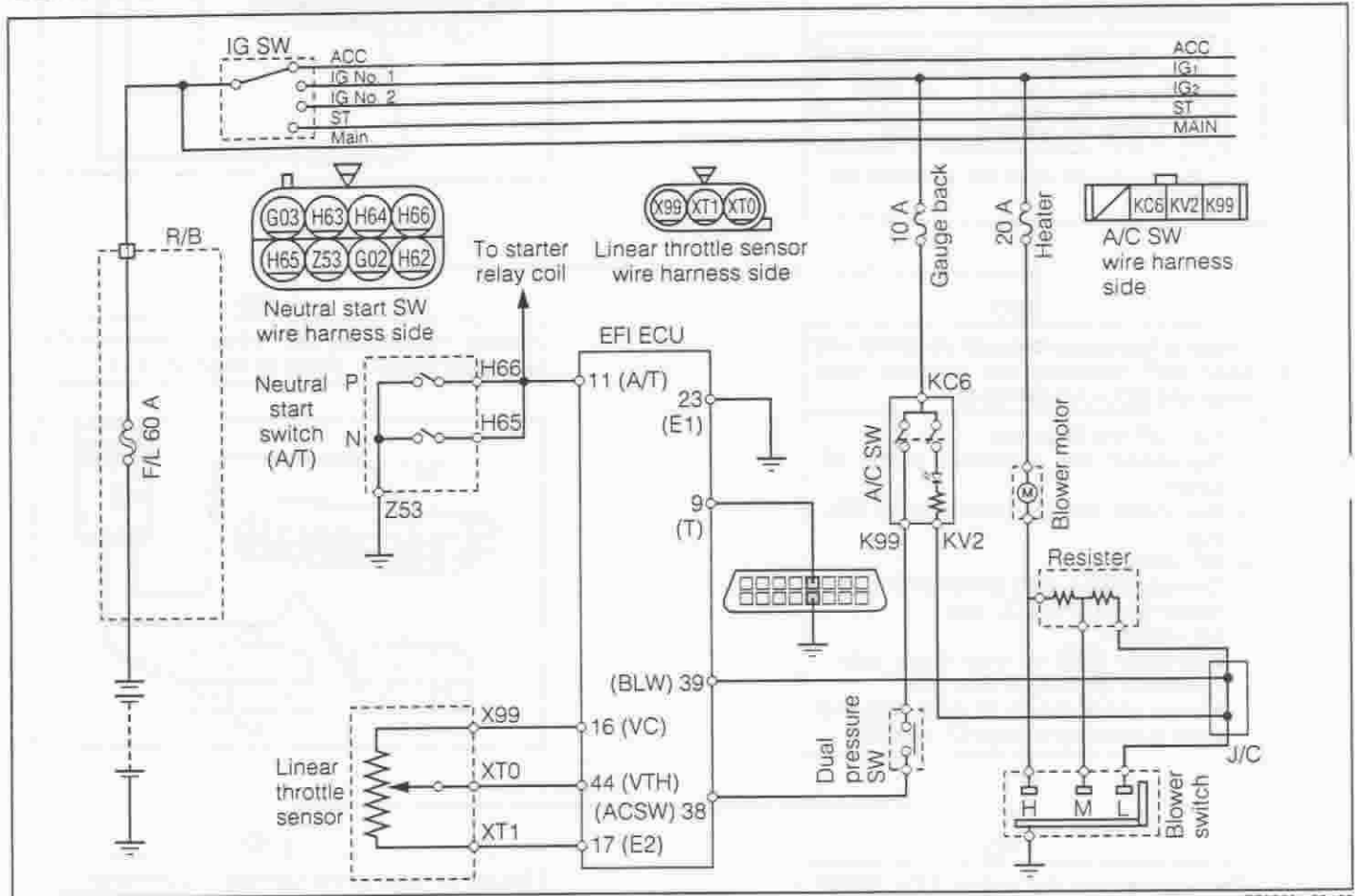
NO

Repair or replace the harness or connector.

JEFC0283-G0184

DTC	P1520/51	Switch Signal Circuit Malfunction
-----	----------	-----------------------------------

**WIRING DIAGRAM**



JEP00284-00165

**CIRCUIT DESCRIPTION**

This is used as the normal state judging code for the switch system. While the terminal T is "ON", if the idle switch becomes "OFF" or the air conditioner becomes "ON", or the shift lever is placed in **D**, **2**, **L**, or **R** range, the DTC is outputted. However, the DTC is diagnosed only when the terminal T is "ON". No memorization is made.

DTC No.	DTC Detecting condition	Trouble area
P1520/51	When conditions 1 and 2 below are met: 1. Terminal T is "ON". 2. Idle switch "OFF", air conditioner "ON" or neutral start switch "ON"	<ul style="list-style-type: none"> <li>• Open wire or short in A/C switch circuit</li> <li>• A/C switch</li> <li>• Open wire or short in linear throttle sensor circuit</li> <li>• Linear throttle sensor</li> <li>• Open wire or short in neutral start switch circuit</li> <li>• Neutral start switch</li> <li>• Engine ECU</li> </ul>

**NOTE:**

- When the idle switch becomes "OFF" with the terminal T being "ON", you can check to see if the IDL system of the linear throttle sensor is functioning properly by examining the DTC output.
- With the engine idling, and the terminal T being "ON", when the A/C and heater blower switch are switched on (air conditioner "ON"), you can check to see if the air conditioner switch system is functioning properly by examining the DTC output.
- With the terminal T being "ON", when the shift lever is placed in **D**, **2**, **L**, or **R** range, you can check to see if the neutral start switch system is functioning properly by examining the DTC output.

JEP00285-001

**INSPECTION PROCEDURE**

**NOTE:**

- If DTC P0110/43 (Intake Air Temp. Circuit Malfunction), P0115/42 (Engine Coolant Temp. Circuit Malfunction), P0120/41 (Throttle/Pedal Position Sensor/Switch "A" Malfunction) are outputted simultaneously, E2 (Sensor Ground) may be open.

**When using DS-21 diagnosis tester:**

1 Check of input signal by A/C switch and idle switch to ECU

1. Turn OFF the IG switch. Connect the DS-21 diagnosis tester to the DLC through the SST.  
SST: 09991-87404-000

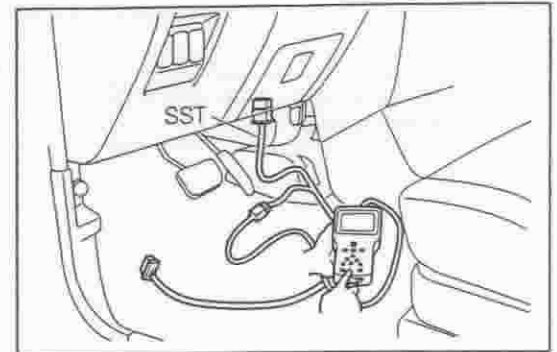
2. Turn ON the IG switch. Turn ON the main switch of the tester. Check the signals of the A/C switch and idle switch.  
(As for the operation, refer to the instruction manual of the DS-21 diagnosis tester.)

A/C switch	A/C signal indication
OFF	OFF
ON	ON

Throttle valve	IDL signal indication
Fully closed	ON
Fully opened	OFF

Are the check results OK?



NO

2 Check of harnesses between A/C switch and ECU and between linear throttle sensor and ECU

1. Turn OFF the main switch of the tester. Turn OFF the IG switch.

2. Set the SST (sub-harness). (Refer to page EF-8.)  
Do not connect the SST connector to the ECU.

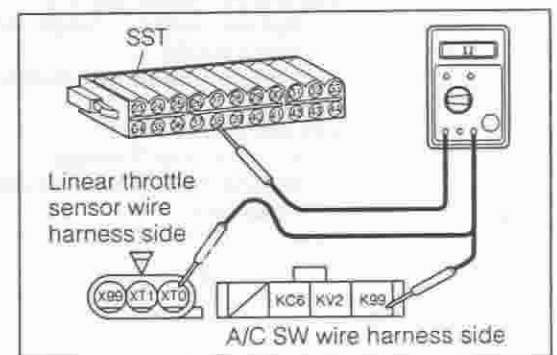
3. Referring to page EF-48, check the harness and connector for open wire or short.

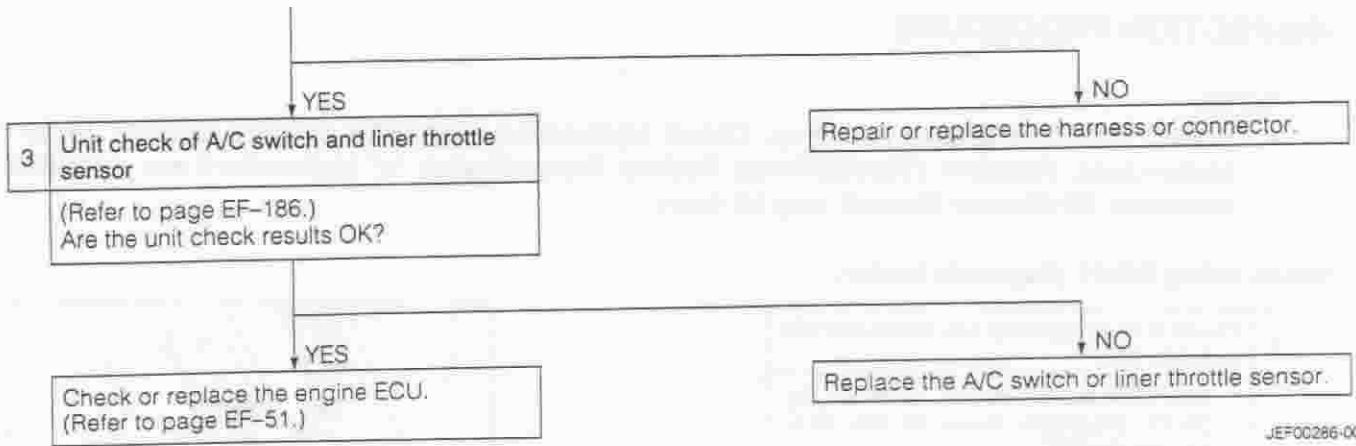
- A/C switch  
Switch side connector (K99) - ECU side connector 38 (ACSW)
- Linear throttle sensor  
Sensor side connector (XT1) - ECU side connector 17 (E2)  
Sensor side connector (XT0) - ECU side connector 44 (VTH)  
Sensor side connector (X99) - ECU side connector 15 (VC)

Are the check results for open wire and short OK?

YES

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

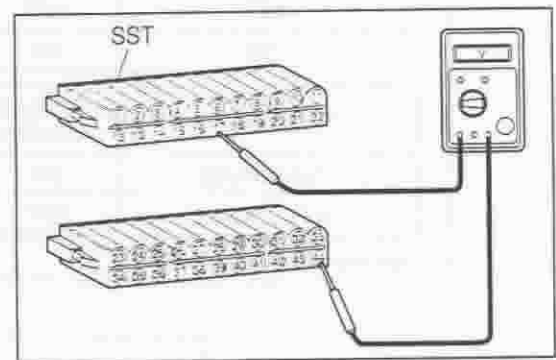


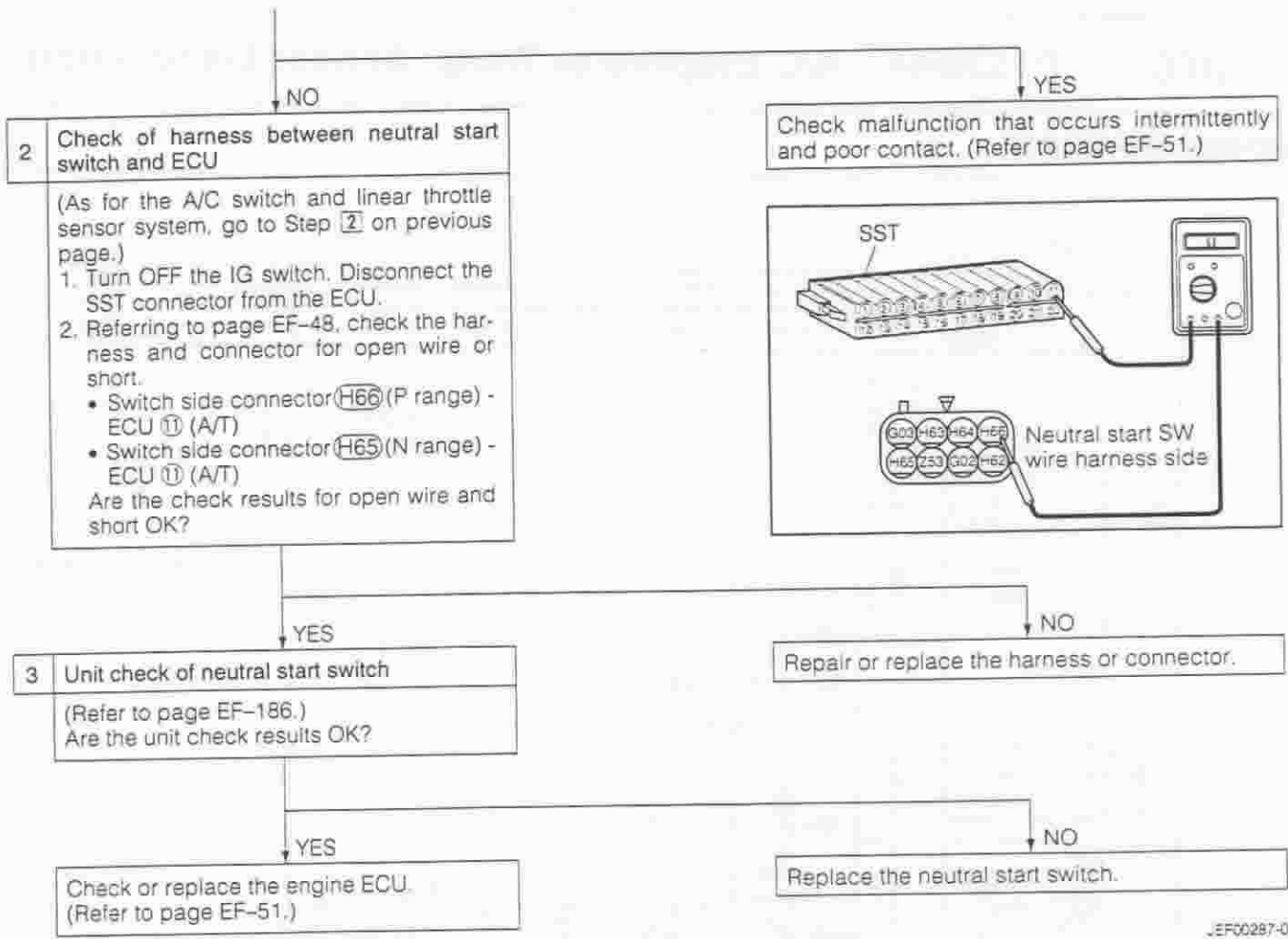


JEF00286-00186

**When not using DS-21 diagnosis tester:**

- |   |  |
|---|--|
| 1 | <p><b>Check of ECU input signal</b></p> <ol style="list-style-type: none"> <li>Set the SST (sub-harness). (Refer to page EF-8.)</li> <li>With the IG switch turned ON, measure the voltage between SST ⑬ and ⑰ (VC and E2), between ④④ and ⑰ (VTH and E2), between ③③ and ②③ (ACSW and E1), and between ①① and ②③ (A/T and E1).</li> </ol> <p><b>Specified Value:</b></p> <ul style="list-style-type: none"> <li>⑬ and ⑰ (VC and E2):<br/>4.5 - 5.5 V</li> <li>④④ and ⑰ (VTH and E2):<br/>When throttle lever is changed from full close state to full open state, voltage should increase proportionally from 0 to 4.8 V.</li> <li>③③ and ②③ (ACSW and E1):<br/>Battery voltage (when A/C switch is ON)<br/>0 - 0.5 V (When A/C switch is OFF)</li> <li>①① and ②③ (A/T and E1):<br/>0 - 0.5 V (P or N range)<br/>Around 10 V (other than ranges above)</li> </ul> |
|---|--|



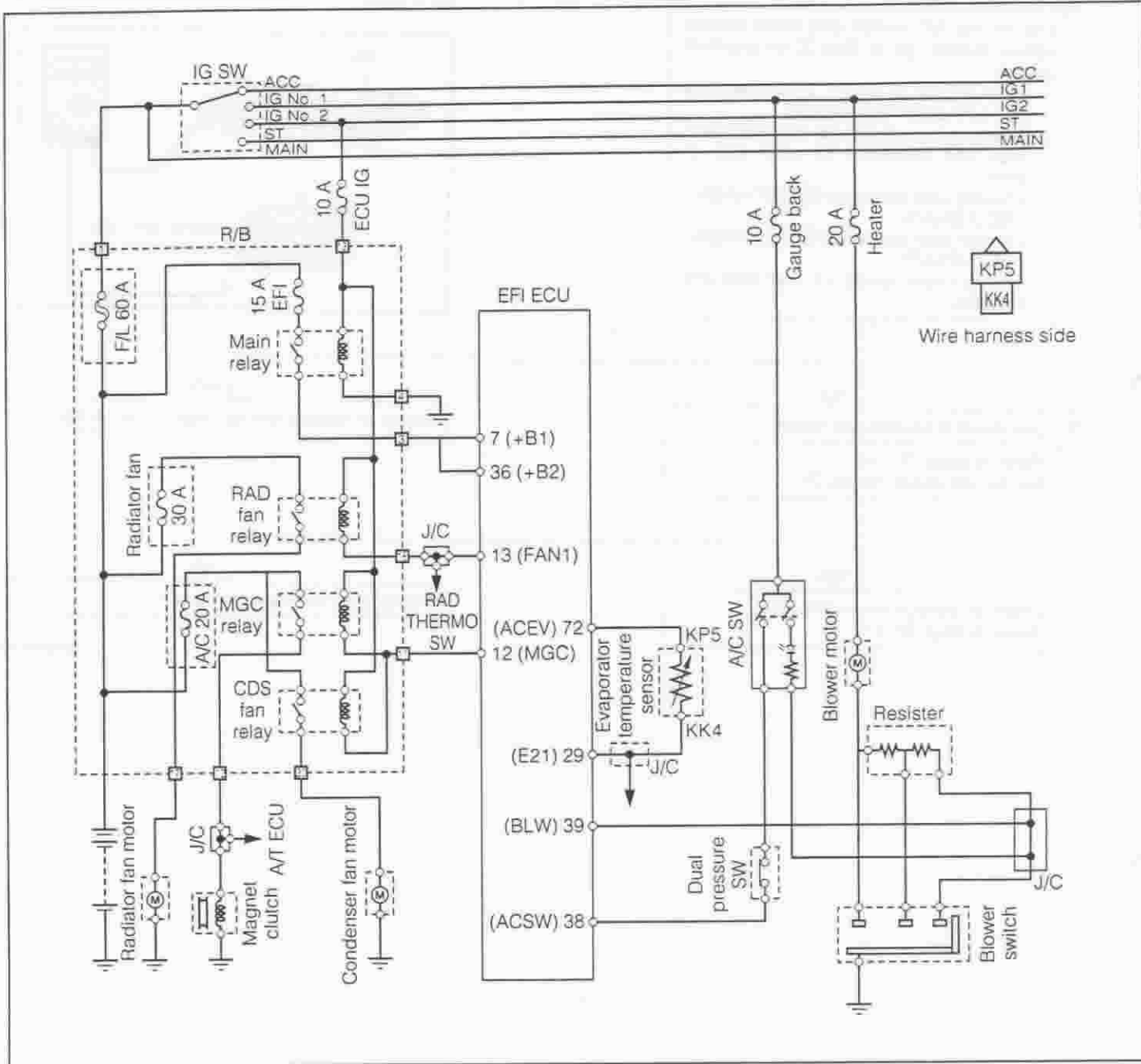


J.EF00287-00187



DTC	P1530/44	A/C Evaporator Temp. Sensor Malfunction
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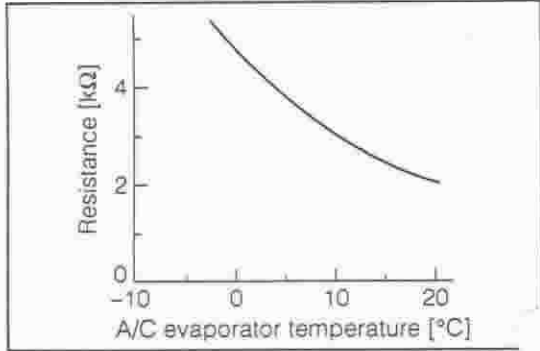
WIRING DIAGRAM



JEF00288-00188

CIRCUIT DESCRIPTION

This circuit, located at the rear of the evaporator of the air conditioner unit, detects the temperature of the air passing through the evaporator. A thermistor is incorporated in the sensor. This thermistor has such characteristics that its resistance decreases as the temperature rises, while the resistance increases as the temperature drops. When the temperature becomes about 0°C, the thermistor disengages the magnet clutch through the MGC relay, thus preventing frosting.



JEF00289-00188

DTC No.	DTC Detecting condition	Trouble area
P1530/44	Open wire or short in evaporator temperature circuit	<ul style="list-style-type: none"> <li>• Open wire or short in evaporator temp. circuit</li> <li>• Evaporator temperature sensor</li> <li>• Engine ECU</li> </ul>

## INSPECTION PROCEDURE

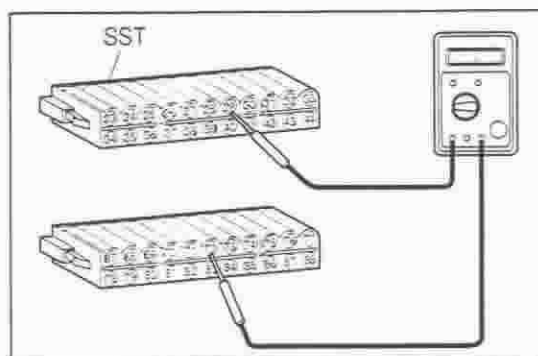
### NOTE:

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**1 Check of ECU output voltage**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. With the IG switch turned "ON", measure the voltage between the SST connector ② (ACEV) and ③ (E21).  
Specified Value:  
0.1 - 4.8 V (Varies, depending upon the temperature.)  
(Reference: 1.8 - 2.9 V at 20°C)

Are the check results OK?



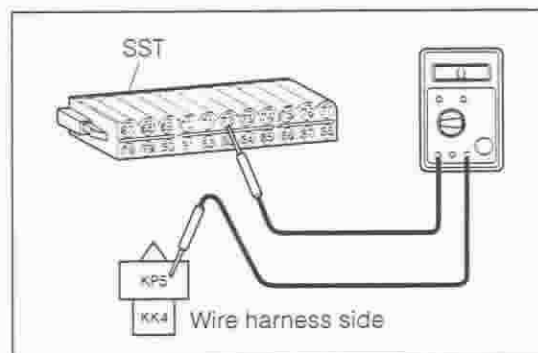
NO

**2 Check of harness between evaporator temperature sensor and ECU**

1. With the IG switch turned OFF, disconnect the SST connector from the ECU.
2. Referring to page EF-48, check the harness and connector for open wire or short.
  - Harness side connector (KP5) of sensor - ECU ② (ACEV)
  - Harness side connector (KK4) of sensor - ECU ③ (E21)

Are the check results for open wire and short OK?

YES  
Check malfunction that occurs intermittently and poor contact. (Refer to page EF-61.)

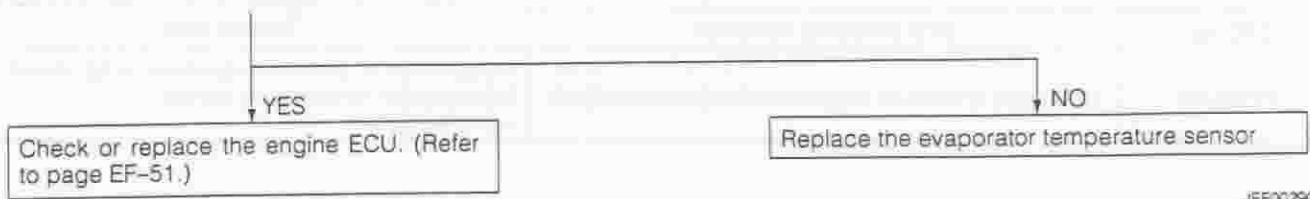


YES

**3 Unit check of evaporator temperature sensor**

(Refer to page EF-186.)  
Are the unit check results OK?

NO  
Repair or replace the harness or connector.



JEF00290-00190

### Evaporator Temperature Sensor

EF-166

Check the evaporator temperature sensor. If the sensor is not working, the engine ECU will not receive the correct information and the engine will not start. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working.



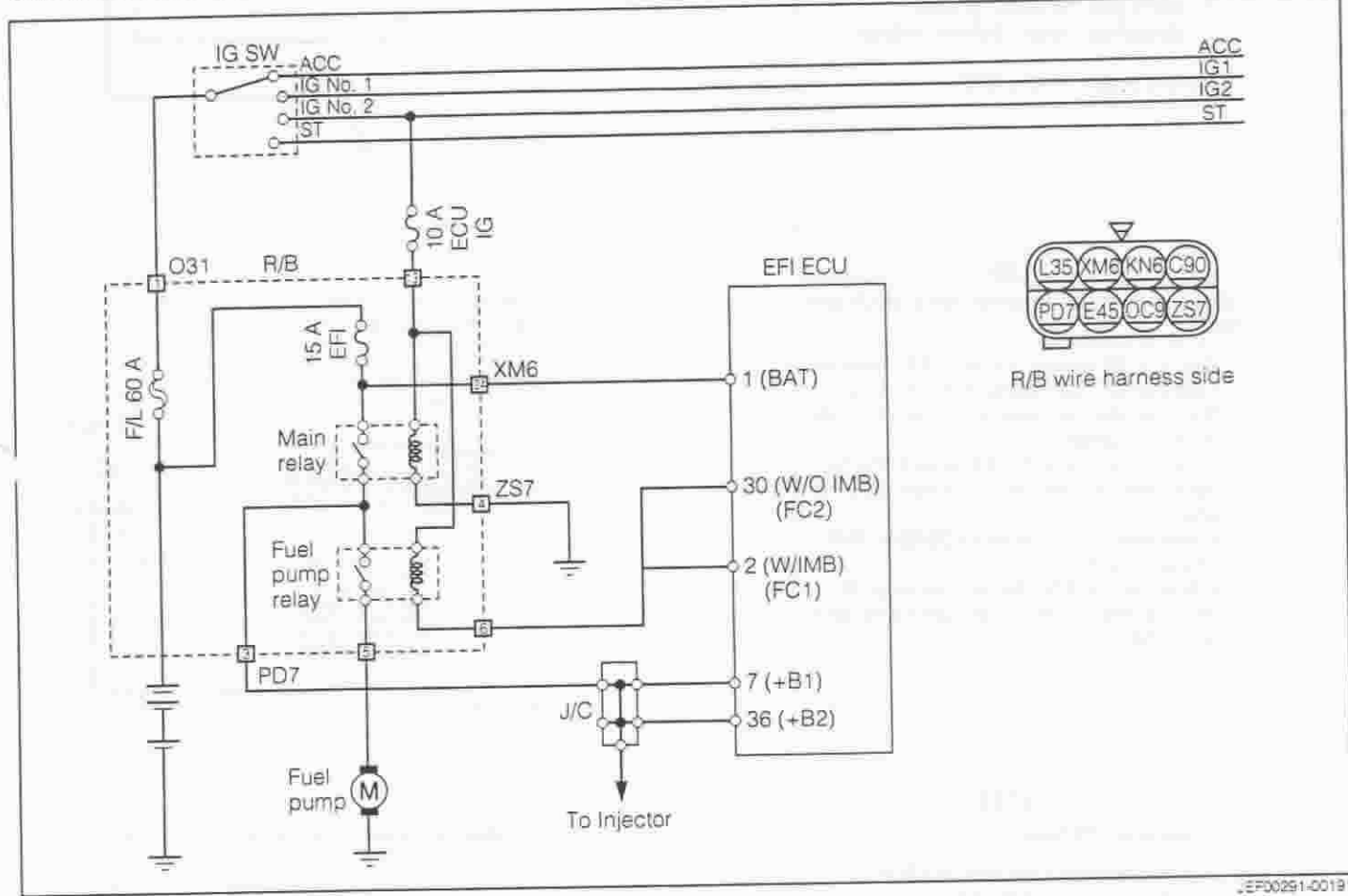
The evaporator temperature sensor is used to monitor the temperature of the evaporator. The sensor is connected to the engine ECU. The engine ECU uses the sensor information to control the engine. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working.



The evaporator temperature sensor is used to monitor the temperature of the evaporator. The sensor is connected to the engine ECU. The engine ECU uses the sensor information to control the engine. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working. The engine will not start if the evaporator temperature sensor is not working.

<b>DTC</b>	<b>P1560/61</b>	<b>ECU Back-up Power Source Circuit Malfunction</b>
------------	-----------------	---

**WIRING DIAGRAM**



JEF00291-00191

**CIRCUIT DESCRIPTION**

The battery positive voltage is supplied to the terminal BAT of the engine ECU even when the ignition switch is OFF for use by the DTC memory and air-fuel ratio adaptive control value memory, etc.

DTC No.	DTC Detecting condition	Trouble area
P1560/61	Open wire in back-up power source circuit	<ul style="list-style-type: none"> <li>• Open wire in back-up power source circuit</li> <li>• Engine ECU</li> </ul>

**HINT:**

If DTC P1560/61 appears, the engine ECU does not store another DTC.

JEF00292-00000

**INSPECTION PROCEDURE**

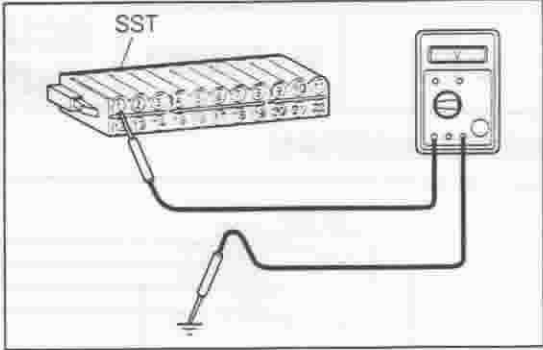
**NOTE:**

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**1 Check of ECU backup power supply voltage**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. With the IG switch turned OFF, measure the voltage between the SST connector ① (BAT) and the body ground.  
Specified Value: Battery voltage

Are the check results OK?



NO

YES

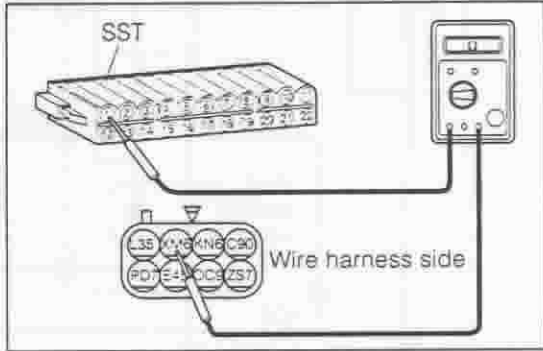
**2 Check of harness between relay block and ECU**

1. With the IG switch turned OFF, disconnect the SST connector from the ECU.
2. Remove the harness from the terminal ⊕ of the battery.  
Referring to page EF-48, check the harness and connector for open wire or short.

- Harness side connector (XM6) of R/B - ECU ① (BAT)
- Stud bolt of R/B - Battery terminal ⊕

Are the check results for open wire and short OK?

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)



YES

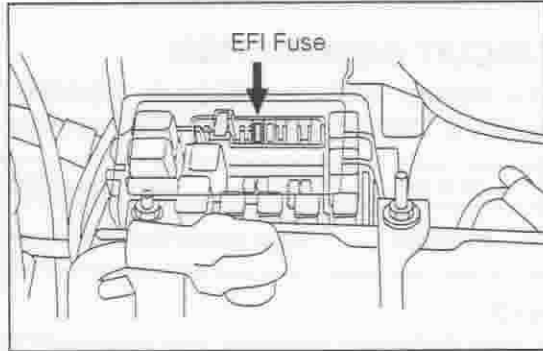
NO

**3 Unit check of EFI fuse**

1. Remove the EFI fuse from the R/B.
2. Check continuity of the EFI fuse.  
Specification:  
Continuity should exist.

Are the check results OK?

Repair or replace the harness or connector.



YES

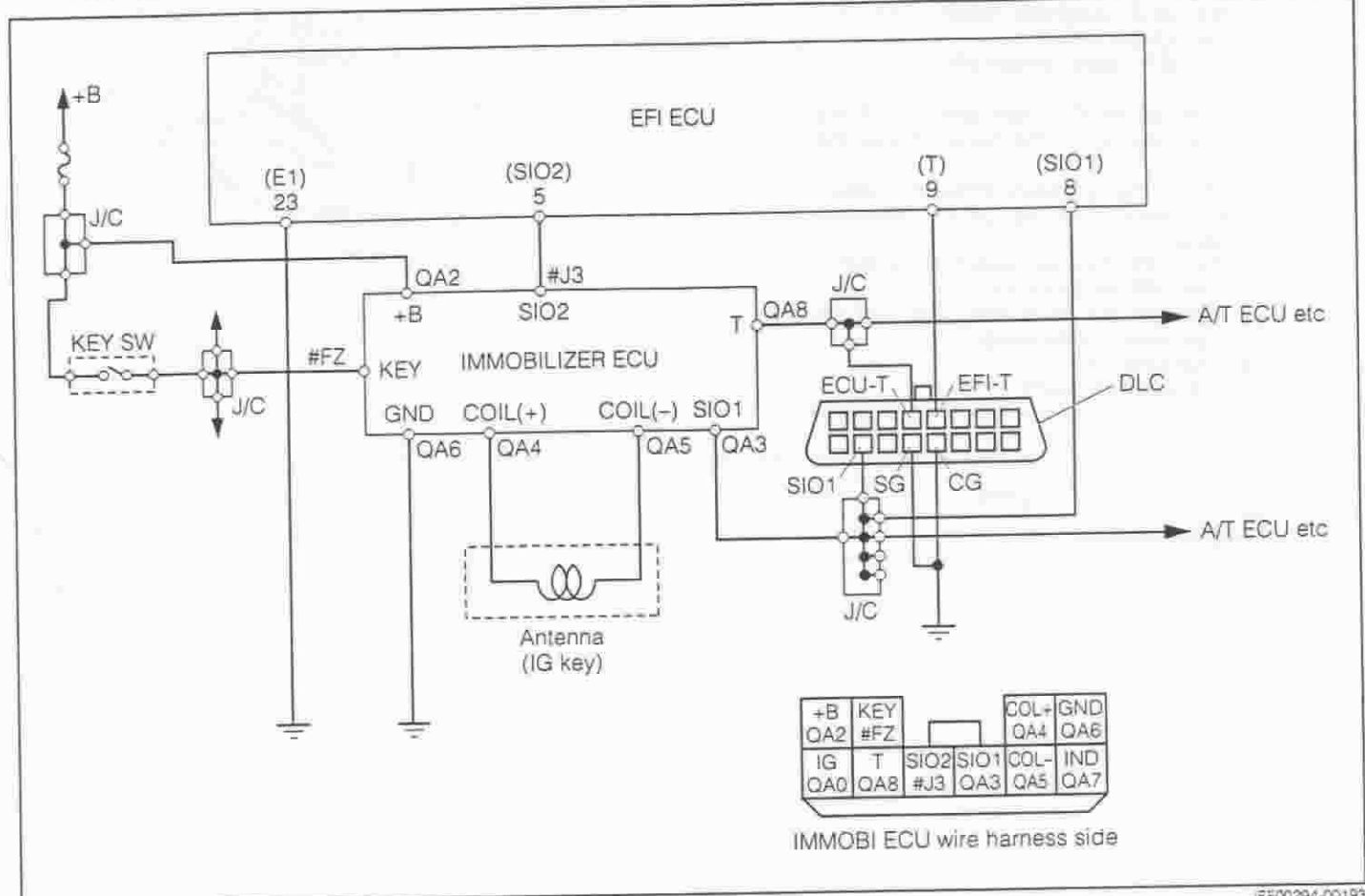
NO

Check or replace the engine ECU. (Refer to page EF-51.)

Replace the EFI fuse.

DTC	P1600/83	Immobilizer Signal Malfunction
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WIRING DIAGRAM



JEF00294-00193

CIRCUIT DESCRIPTION

This circuit performs collation and updating of the rolling code in the communication between the immobilizer ECU and the EFI ECU. The engine can start only when the collation and updating of the rolling code can be done. The rolling code is collated and updated by reading out or writing to non volatile memory (E2PROM) of both ECUs.

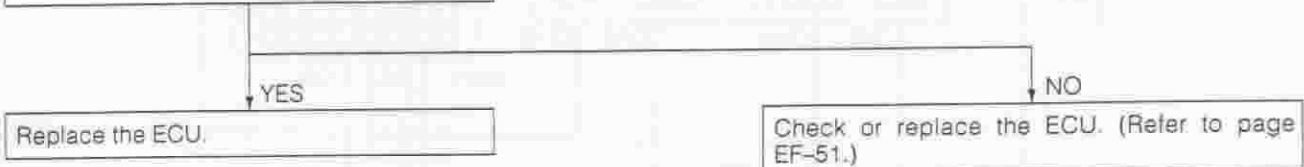
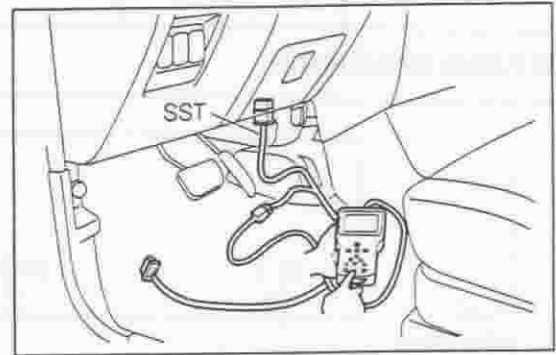
DTC No.	DTC Detecting condition	Trouble area
P1600/83	In immobilizer communication, <ul style="list-style-type: none"> <li>When writing of rolling code to E2PROM is abnormal;</li> </ul> or <ul style="list-style-type: none"> <li>When reading out rolling code from E2PROM is abnormal;</li> </ul>	<ul style="list-style-type: none"> <li>Engine ECU</li> </ul>

JEF00295-00000

**INSPECTION PROCEDURE**

When using DS-21 diagnosis tester:

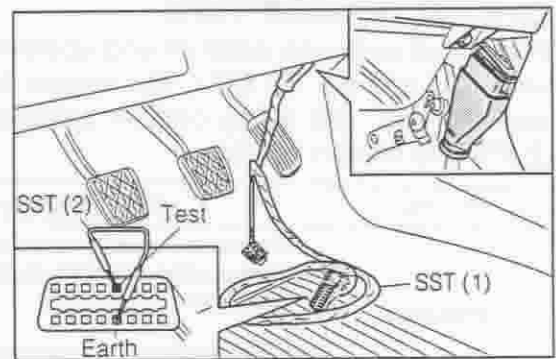
- |   |  |
|---|--|
| 1 | <p><b>Re-confirmation of DTC</b></p> <ol style="list-style-type: none"> <li>With the IG switch turned OFF, connect the DS-21 diagnosis tester to the DLC through the SST.<br/>SST: 09991-87404-000</li> <li>Turn ON the IG switch, and turn ON the main switch of the tester. Erase the DTC.<br/>(As for the operation, follow the instruction manual of the DS-21 diagnosis tester.)</li> <li>Turn OFF the main switch of the tester. Turn OFF the IG switch.</li> <li>Turn ON the IG switch. Turn ON the main switch of the tester.</li> <li>Check the DTC.<br/>Is P1600 indicated?</li> </ol> |
|---|--|



JEF00296-00194

When not using DS-21 diagnosis tester:

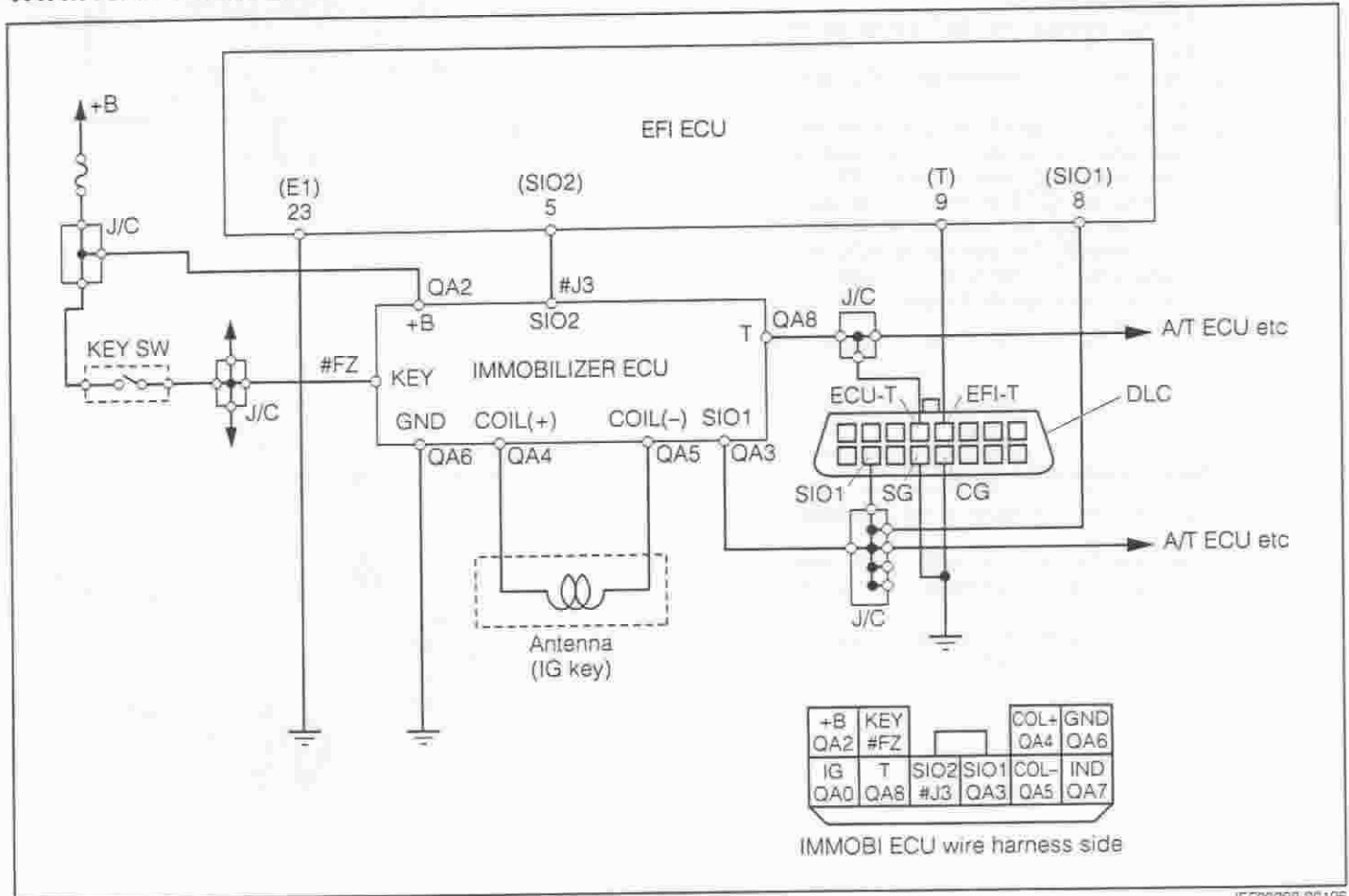
- |   |  |
|---|--|
| 1 | <p><b>Re-confirmation of DTC</b></p> <ol style="list-style-type: none"> <li>With the IG switch turned OFF, connect the DS-21 diagnosis tester to the DLC through the SST.<br/>SST: 09991-87404-000</li> <li>Connect the terminal T and the earth terminal of the SST connector with a jump wire.<br/>SST (2): 09991-87403-000</li> <li>Remove the EFI fuse. Erase the DTC.<br/>(As for the erasing method, refer to page EF-58.)</li> <li>Set the EFI fuse to the original position.</li> <li>Turn ON the IG switch.</li> <li>Check the DTC. (Read out the flashing pattern of the MIL.)<br/>Is "83" indicated?</li> </ol> |
|---|--|



JEF00297-001...

<b>DTC</b>	<b>P1601/81</b>	<b>Immobilizer Signal Circuit Malfunction</b>
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**WIRING DIAGRAM**



JEF00298-00196

**CIRCUIT DESCRIPTION**

When the IG switch is turned ON, communication starts between the immobilizer ECU and the EFI ECU. The engine can start only when the communication between the two ECUs is possible and the rolling codes are matched. In other cases, fuel injection and ignition are prohibited, thus making engine starting impossible.

DTC No.	DTC Detecting condition	Trouble area
P1601/81	When any of the following items takes place in the communication between the immobilizer ECU and EFI ECU, with the IG switch turned ON: • Communication error with immobilizer ECU occurs. • The rolling codes are not matched.	<ul style="list-style-type: none"> <li>• Open wire or short in immobilizer signal circuit</li> <li>• Immobilizer ECU</li> <li>• Engine ECU</li> </ul>

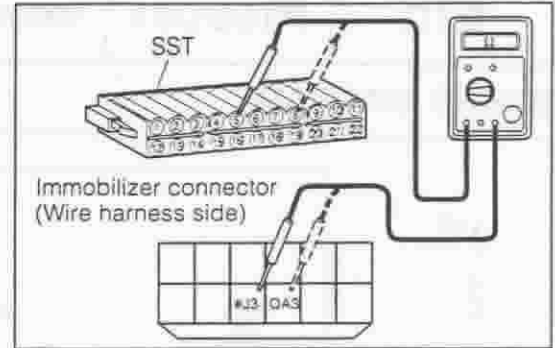
JEF00299-00000



## INSPECTION PROCEDURE

**1** Check of harness between immobilizer ECU and EFI ECU

1. Set the SST (sub-harness). (Refer to page EF-8.)  
Do not connect the SST connector to the EFI ECU.
2. Disconnect the immobilizer ECU connector.
3. Referring to page EF-48, check the harness and connector for open wire or short, with the IG switch turned OFF.
  - Connector (QA3) at immobilizer ECU harness side - SST terminal ③ (SIO1)
  - Connector (#J3) at immobilizer ECU harness side - SST terminal ⑤ (SIO2)
 Are the check results for open wire and short OK?



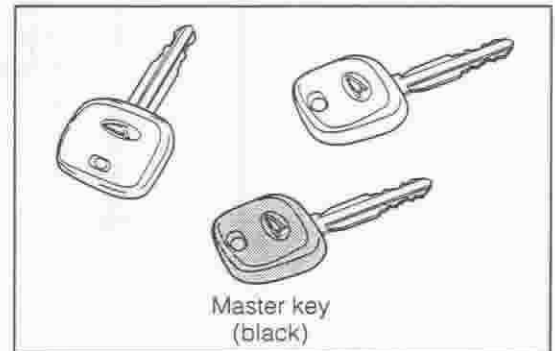
YES

**2** Check of immobilizer system (1)

1. Connect the connector of the immobilizer ECU.
2. Replace the EFI ECU with a new one. Connect the SST connector to the EFI ECU.
3. Start the engine with the master key. Does the engine start?

NO

Repair or replace the harness or connector.



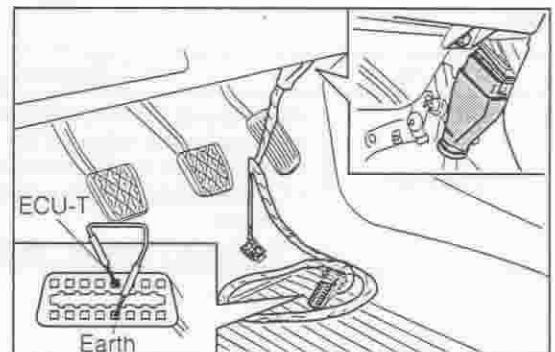
NO

**3** Check of immobilizer system (2)

1. Replace the immobilizer ECU with a new one, with the IG switch turned OFF.
2. Connect the SST to the DLC.  
SST: 09991-87404-000
3. Connect the ECU-T and the earth terminal of the SST connector with a jump wire.  
SST: 09991-87403-000
4. Start the engine with the master key. Does the engine start?

YES

Check or replace the engine ECU. (Refer to page EF-51.)



NO

Check the IG key, antenna coil, etc. (Refer to section BE.)

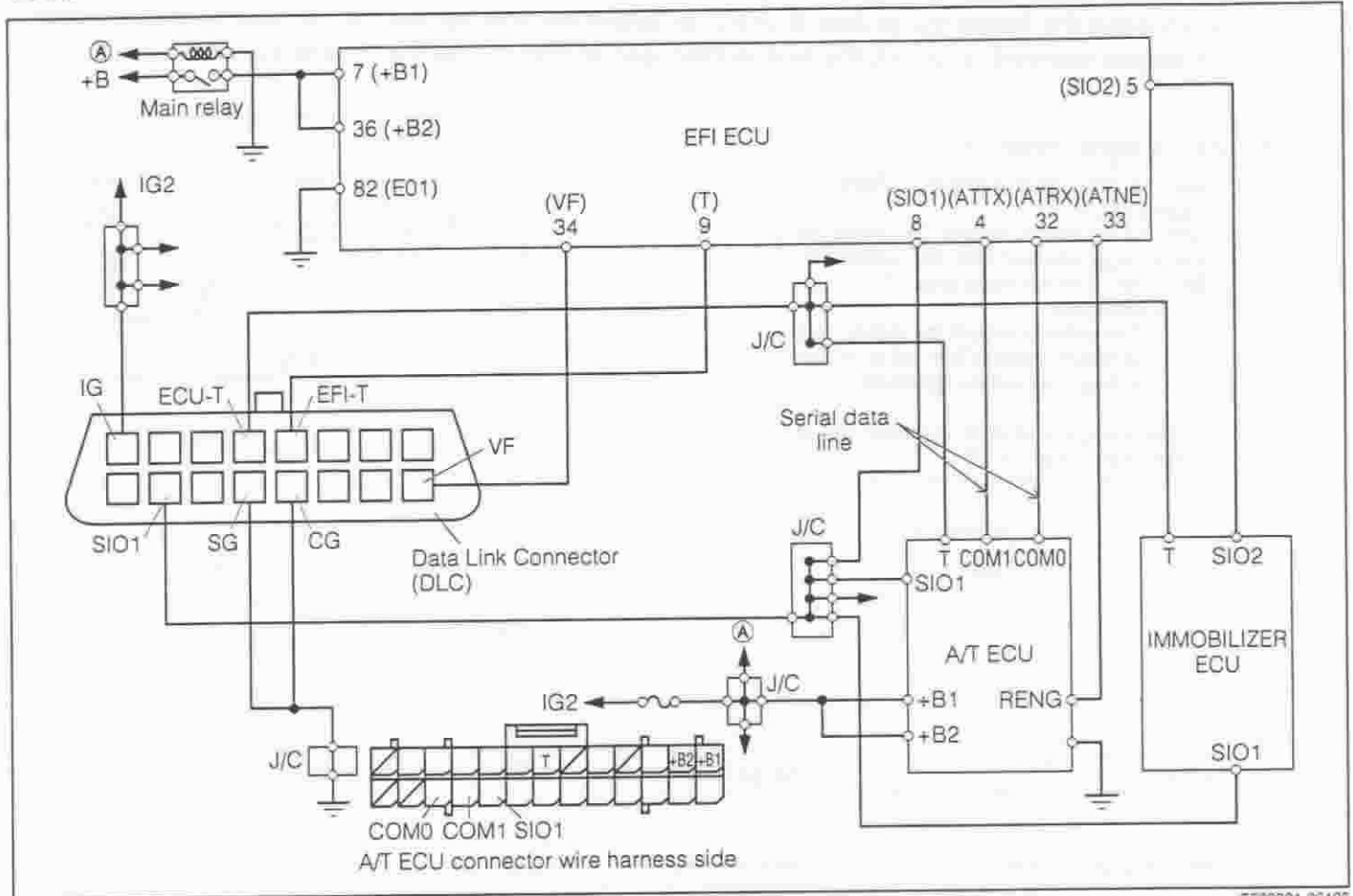
YES

Check or replace the immobilizer ECU. (Refer to section BE.)

JEF00300-00197

<b>DTC</b>	<b>P1602/82</b>	<b>Serial Communication Problem Between EFI and A/T ECU</b>
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**WIRING DIAGRAM**



JEF00301-00198

**CIRCUIT DESCRIPTION**

The two serial data lines are pulled up to about 12 V by means of the EFI ECU and A/T ECU. Those EFI ECU and A/T ECU send data (to A/T ECU and EFI ECU, respectively) by controlling their grounds. As long as the IG switch is ON, the A/T ECU keeps sending to the EFI ECU the data concerning whether or not all detectable DTCs have been checked and whether or not any abnormality has been found by the check.

DTC No.	DTC Detecting condition	Trouble area
P1602/82	With IG switch turned ON when any of the followings takes place: • Serial communication is abnormal at receiving side (A/T → EFI) • Serial communication is abnormal at sending side (EFI → A/T)	• Open wire or short in serial communication link circuit • Open wire in power or ground circuit of A/T ECU • A/T ECU • EFI ECU

JEF00302-00000

## INSPECTION PROCEDURE

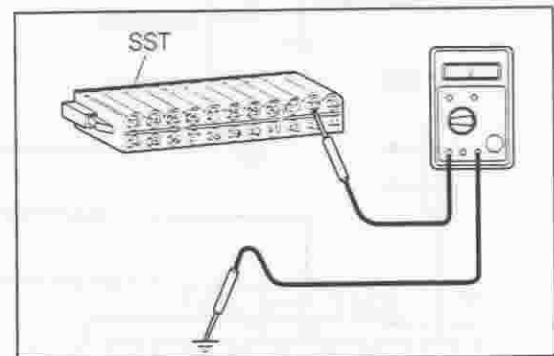
### NOTE:

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**1 Check of signal voltage (1)**

- Set the SST (sub-harness). (Refer to page EF-8.)
- With the IG switch turned ON, measure the voltage between the SST connector ⑩ (ATRX) and the body ground.  
Specification:  
The voltage should be stable at a constant value. (The value of the voltage can not be specified.)

Is the voltage stable at a certain value (other than 0 v or 12 V)?



NO

YES

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

About 0 V

Change between about 0 - 12 V

About 12 V

**2 Check of signal circuit**

- Turn OFF the IG switch. Disconnect the connector of the A/T ECU.
- Turn ON the IG switch. Measure the voltage between the A/T ECU connector terminal ⑩ (COM0) and the body ground. Is the measured voltage about 12 V (battery voltage)?

Check of malfunction that occurs intermittently or check of A/T ECU or EFI ECU  
Referring to page EF-51, check the malfunction that occurs intermittently and poor contact.  
Are the check results OK?

- Turn OFF the IG switch. Disconnect the connector of the A/T ECU.
- Turn ON the IG switch. Measure the voltage between the A/T ECU connector terminal ⑩ (COM0) and the body ground. Is the measured voltage about 0 V?

YES

NO

Check the A/T ECU power supply and check the earth circuit for short.

Check the harness between the EFI and the A/T ECU for short to ground or check the EFI ECU for faulty connectors.

Repair or replace the harness or connector.

YES

NO

Check or repair the A/T ECU or EFI ECU. (Refer to page EF-51.)

Repair or replace the harness or connector.

YES

NO

Check the harness between the EFI and the A/T ECU for open wire or check the A/T ECU for faulty connectors.

Repair or replace the harness or connector.

Check or replace A/T ECU.

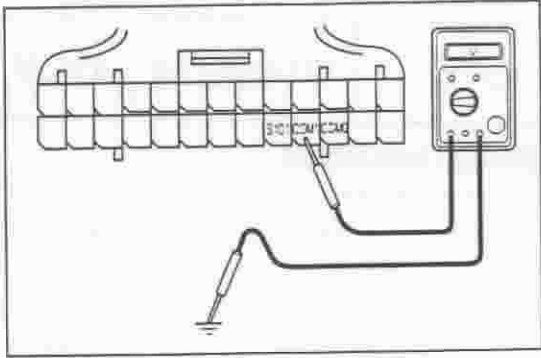
**3 Check of signal voltage (2)**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. With the IG switch turned ON, measure the voltage between the A/T ECU connector (COM1) and the body ground.

Specification:  
The voltage should be stable at a constant value. (The value of the voltage can not be specified.)

Is the voltage stable at a certain value (other than 0 V or 12 V)?

NOTE:  
• When applying a probe to the terminal (COM1), apply it from the harness side with the connector connected to the A/T ECU.



NO

YES

Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

About 0 V

Change between about 0 - 12 V

About 12 V

**4 Check of signal circuit**

1. Turn OFF the IG switch. Disconnect the SST connector from the EFI ECU.
2. Turn ON the IG switch. Measure the voltage between the SST connector terminal ④ (ATTX) and the body ground. Is the measured voltage about 12 V (battery voltage)?

Check of malfunction that occurs intermittently or check of A/T ECU or EFI ECU  
Referring to page EF-51, check the malfunction that occurs intermittently and poor contact.  
Are the check results OK?

1. Turn OFF the IG switch. Disconnect the SST connector from the EFI ECU.
2. Turn ON the IG switch. Measure the voltage between the SST connector terminal ④ (ATTX) and the body ground. Is the measured voltage about 0 V?

YES

NO

YES

NO

YES

NO

Check the EFI ECU power supply and check the earth circuit for short.

Check the harness between the EFI and the A/T ECU for short to ground or check the A/T ECU for faulty connectors.  
↓  
Repair or replace the harness or connector.

Check or repair the EFI ECU or A/T ECU. (Refer to page EF-51.)

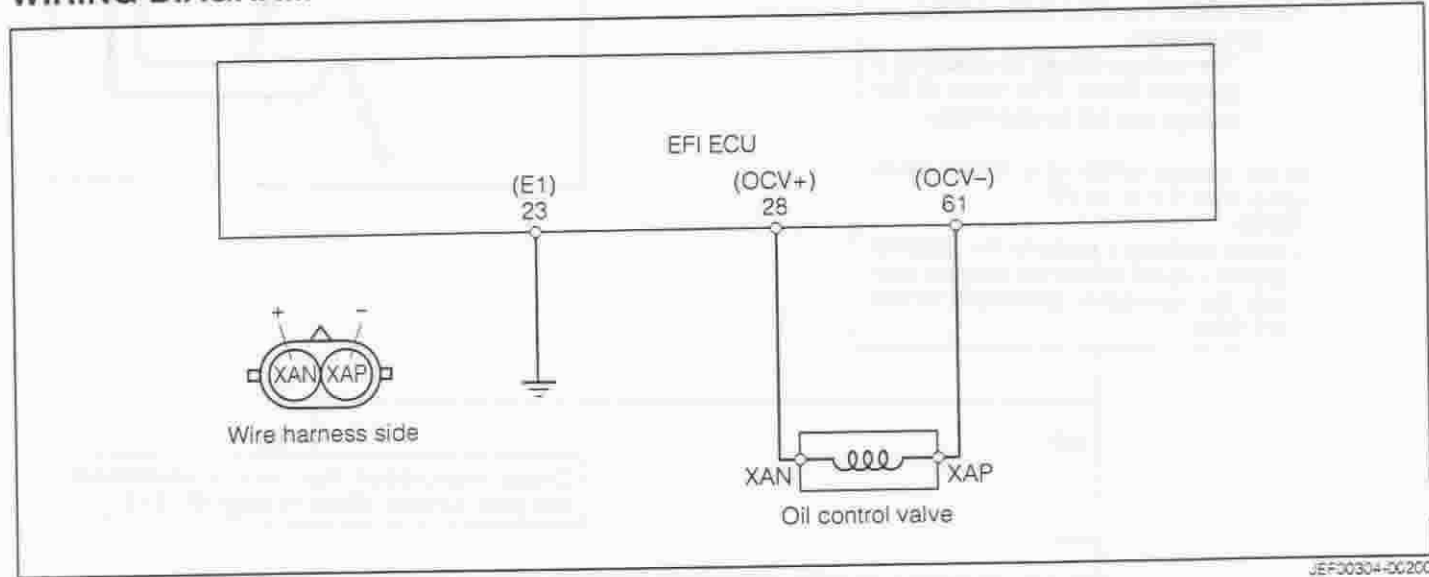
Repair or replace the harness or connector.

Check the harness between the EFI and the A/T ECU for open wire or check the EFI ECU for faulty connectors.  
↓  
Repair or replace the harness or connector.

Check or replace EFI ECU.

DTC	P1656/74	OCV Circuit Malfunction
-----	----------	-------------------------

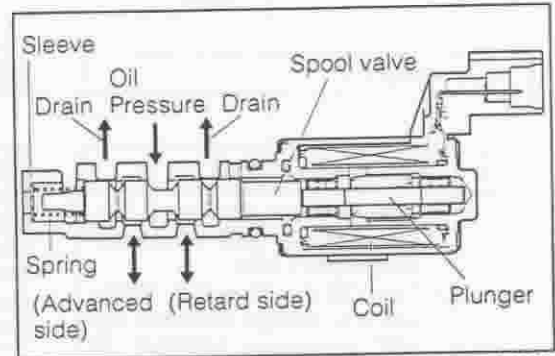
**WIRING DIAGRAM**



JEF00304-00200

**CIRCUIT DESCRIPTION**

This circuit operates the spool valve by means of the duty signal from the engine control computer so as to switch the oil passages at the advanced side and retarded side to the DVVT controller. In this way, the valve timing is always controlled at the optimum one. When the engine is stopped, the camshaft timing oil control valve is set to the most retarded state.



JEF00305-00201

DTC No.	DTC Detecting condition	Trouble area
P1656/74	Open wire or short in oil control valve circuit	<ul style="list-style-type: none"> <li>• Open wire or short in oil control valve circuit</li> <li>• Oil control valve</li> <li>• Engine ECU</li> </ul>

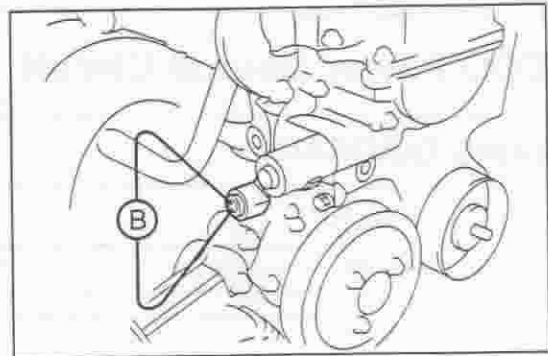
**INSPECTION PROCEDURE**

**NOTE:**

- Read the freeze frame data, using the DS-21 diagnosis tester or OBD II generic scan tool. Because the freeze frame data records the engine conditions when the malfunction was detected, when troubleshooting the freeze frame data is useful to determine whether the vehicle was running or stopped, the engine warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

**1 Operation check of oil control valve**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. Start the engine and fully warm it up.
3. Disconnect the connector of the oil control valve (OCV).
4. Apply the battery voltage to between the terminals of the OCV connector.
5. Check the engine running condition. Does rough idling or engine stall take place?



YES

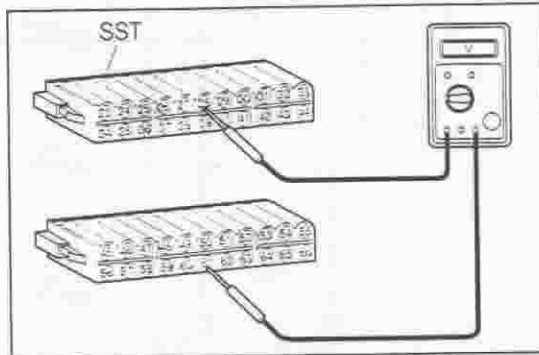
NO

**2 Check of ECU output voltage**

1. With the engine idling, measure the voltage between the SST connector terminals ② (OCV+) and ⑤ (OCV-).  
Specified Value: 4.0 V or less

Is the measured value the specified value?

Replace the OCV.



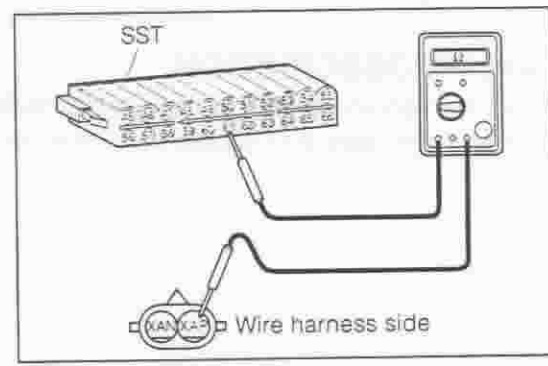
YES

NO

**3 Check of harness between OCV and ECU**

1. Turn OFF the IG switch.
2. Disconnect the SST connector from the ECU.
3. Referring to page EF-48, check the harness and connector for open wire or short.
  - Valve harness side connector (XAN) - SST connector ② (OCV+)
  - Valve harness side connector (XAP) - SST connector ⑤ (OCV-)
 Are the check results for open wire and short OK?

Check or replace the ECU. (Refer to page EF-51.)



YES

NO

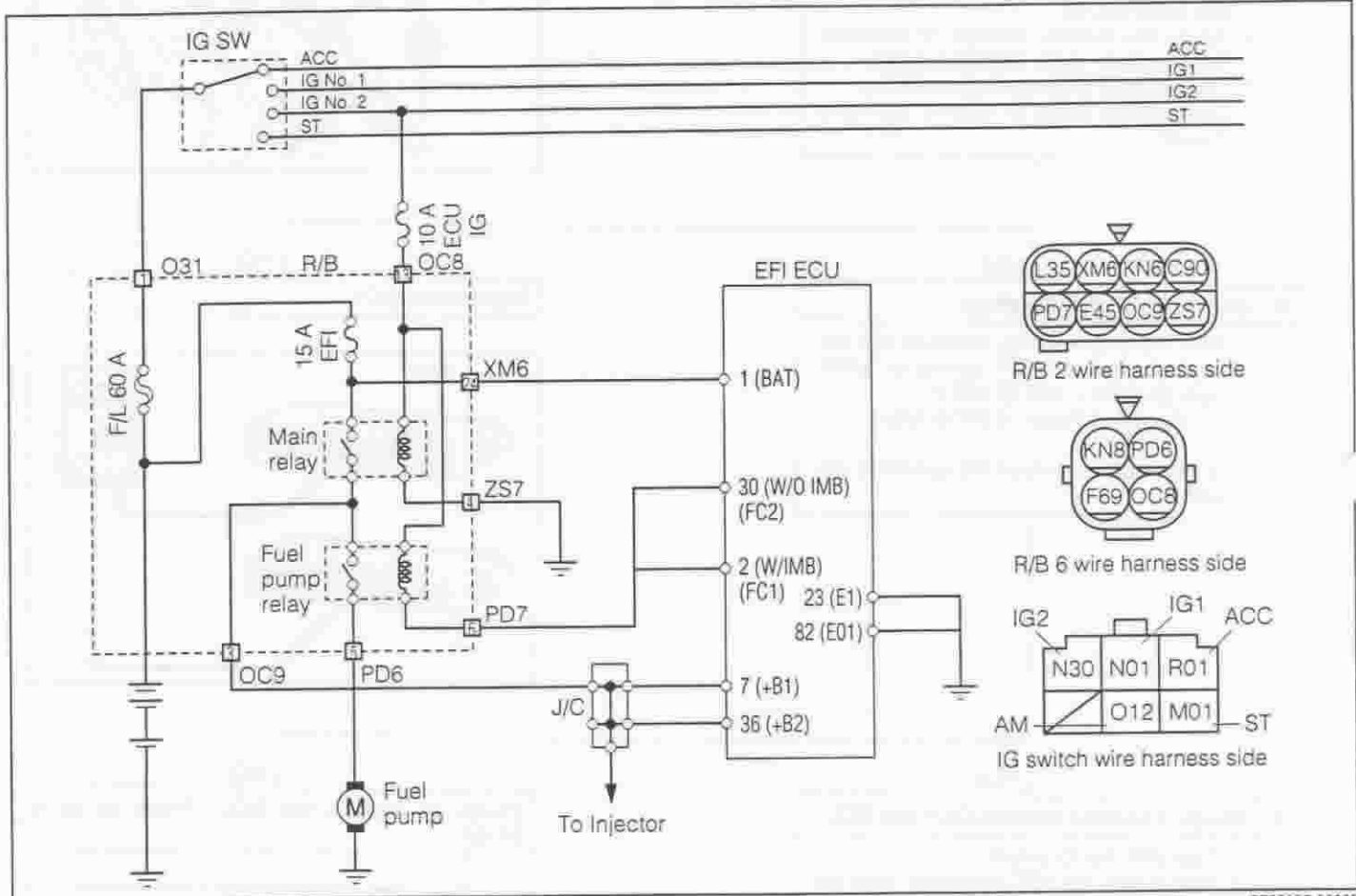
Check malfunction that occurs intermittently and poor contact. (Refer to page EF-51.)

Repair or replace the harness or connector.

JEF00306-C0202

## ECU Power Source Circuit

### WIRING DIAGRAM



JEF00307-00203

### CIRCUIT DESCRIPTION

When the ignition switch is turned ON, battery positive voltage is applied to the coil, closing the contacts of the EFI main relay and supplying power to the terminals +B1 and +B2 of the engine ECU.

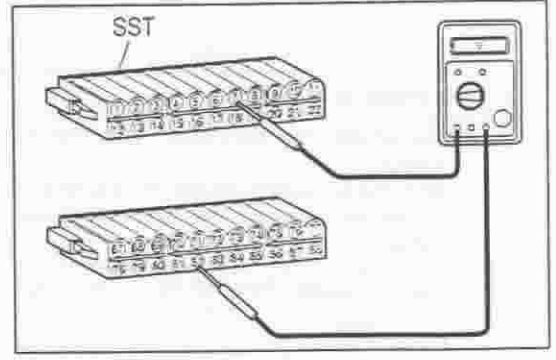
JEF00308-00000

**INSPECTION PROCEDURE**

**1 Check of power supply voltage of ECU**

1. Set the SST (sub-harness). (Refer to page EF-8.)
2. With the IG switch turned ON, measure the voltage between the SST connectors ⑦, ⑳ through ㉓ (E01).  
Specified Value: Battery voltage

Are the check results OK?



NO

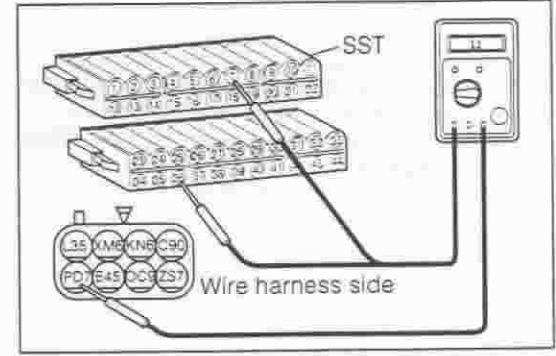
YES

**2 Check of harness between relay block and ECU**

1. With the IG switch turned OFF, disconnect the SST connector from the ECU.
2. Disconnect the harness from the positive ⊕ terminal of the battery.
3. Referring to page EF-48, check the harness and connector for open wire or short.
  - Connector (PD7) of the relay block at the harness side and the SST terminal ⑦ and ⑳
  - Stand bolt of the relay block and the positive ⊕ terminal of the battery

Are the check results for open wire and short OK?

Check malfunction that occurs intermittently or poor contact. (Refer to page EF-51.)



YES

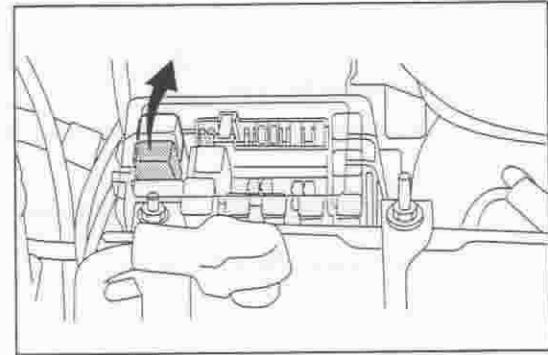
NO

**3 Unit check of EFI main relay**

1. Disconnect the EFI main relay from the relay block.
2. Referring to page EF-187, perform the check.

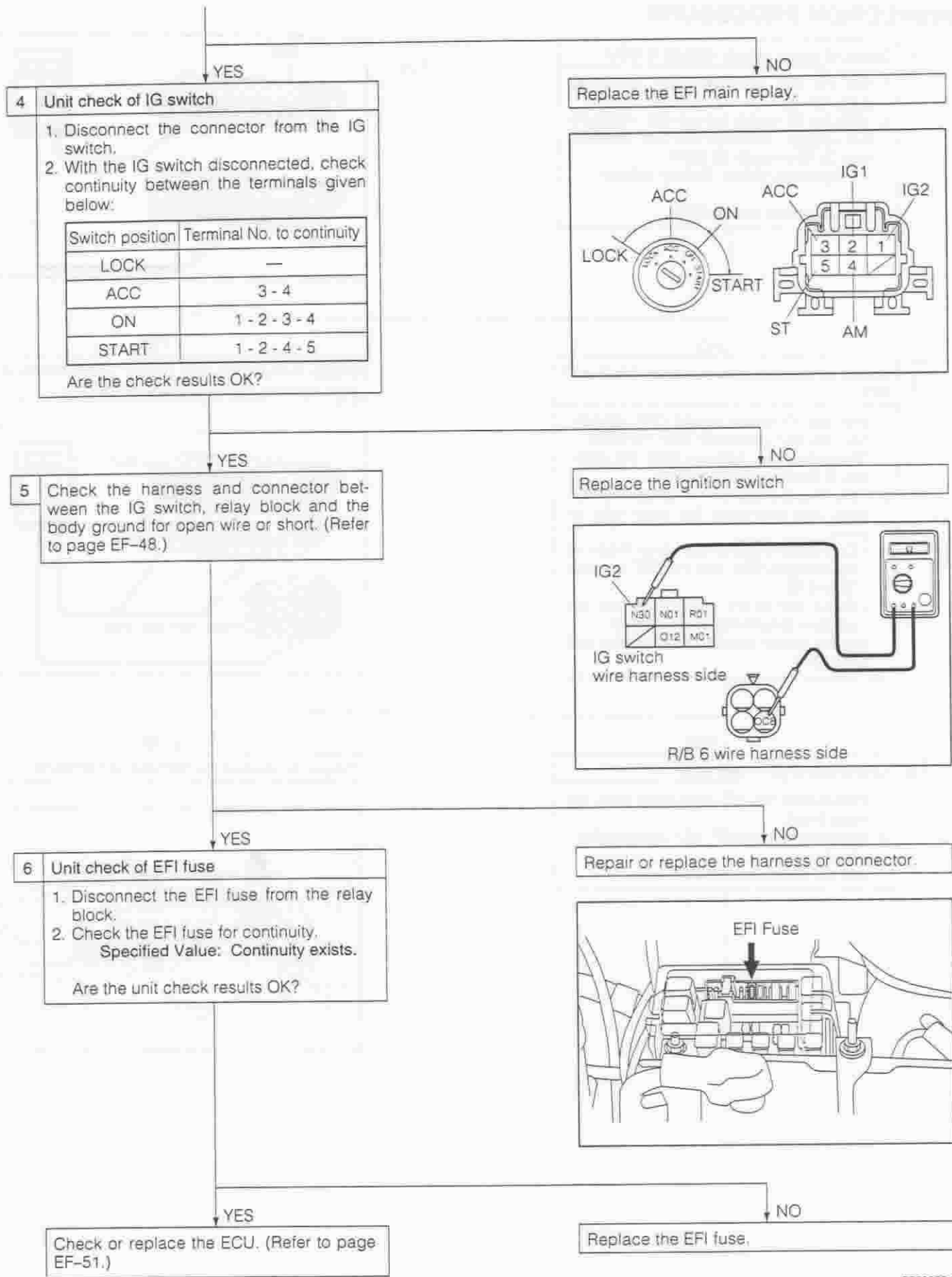
Are the check results OK?

Repair or replace the harness or connector.



↓

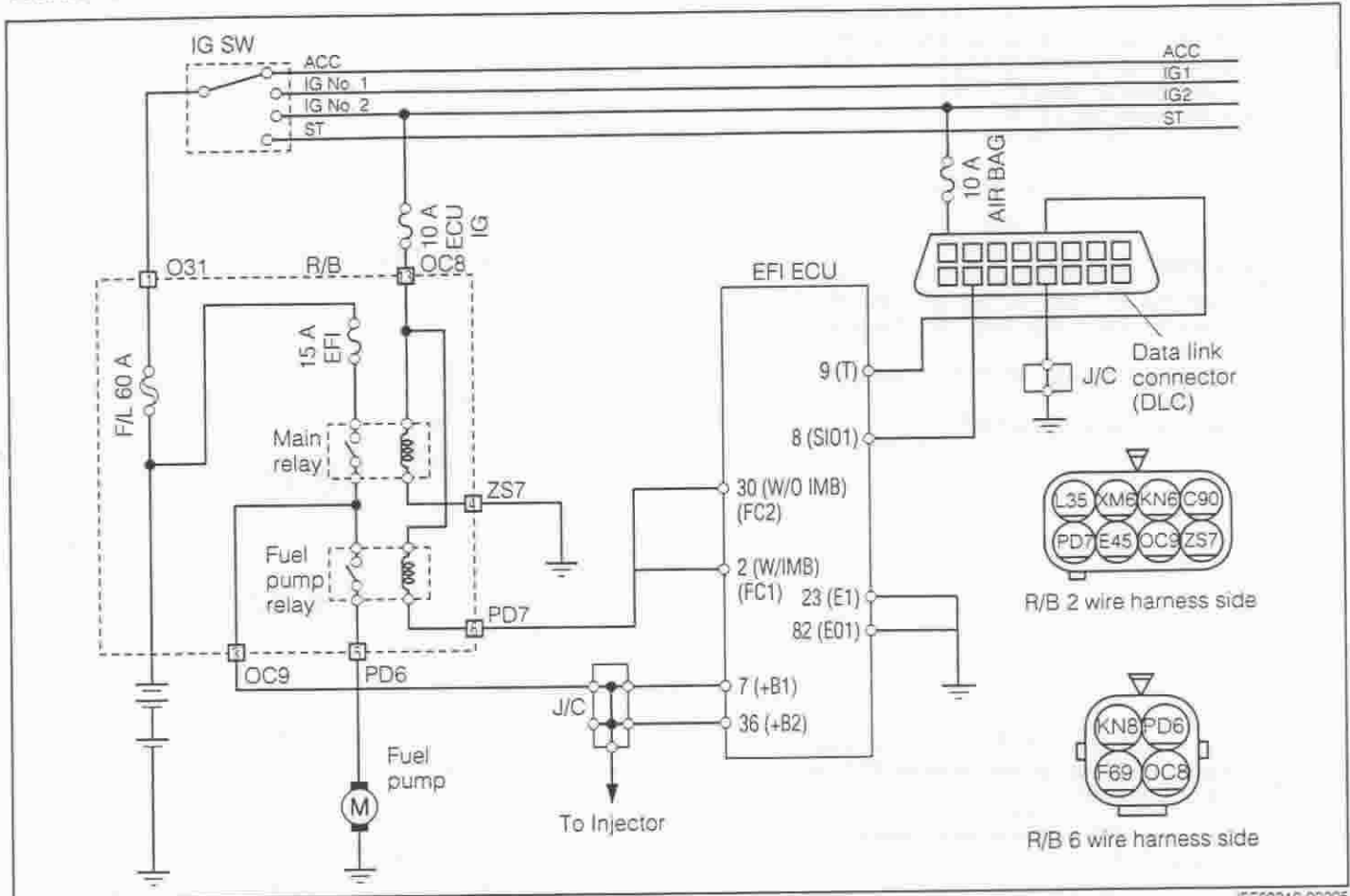




JEF00309-00214

## Fuel Pump Control Circuit

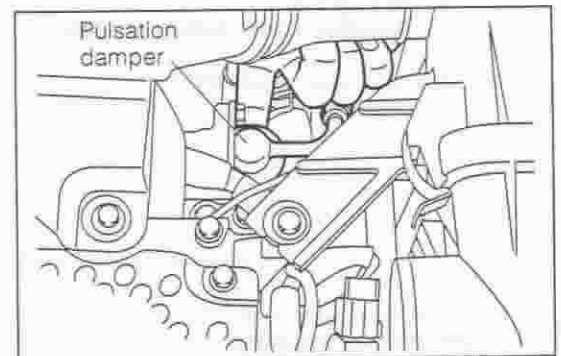
### WIRING DIAGRAM

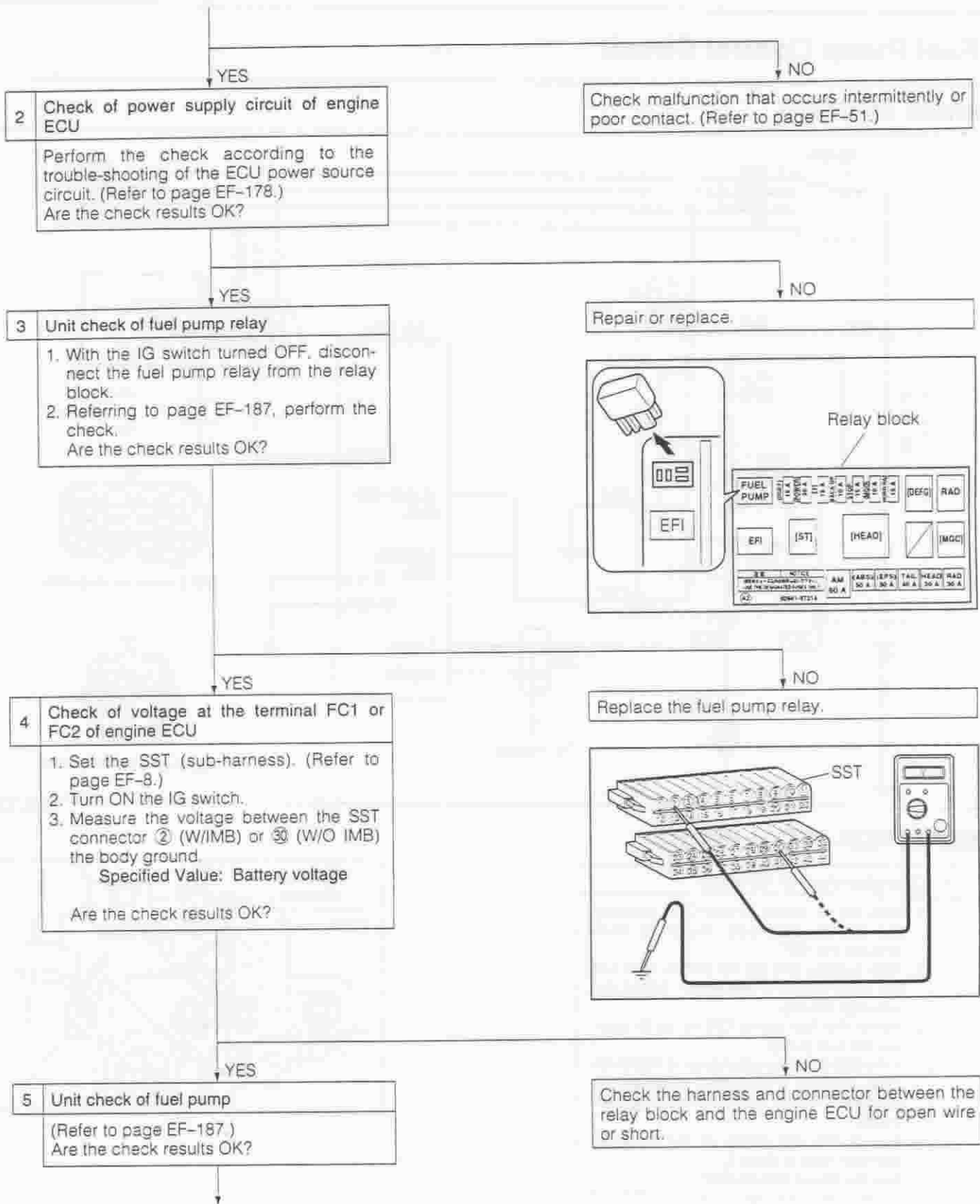


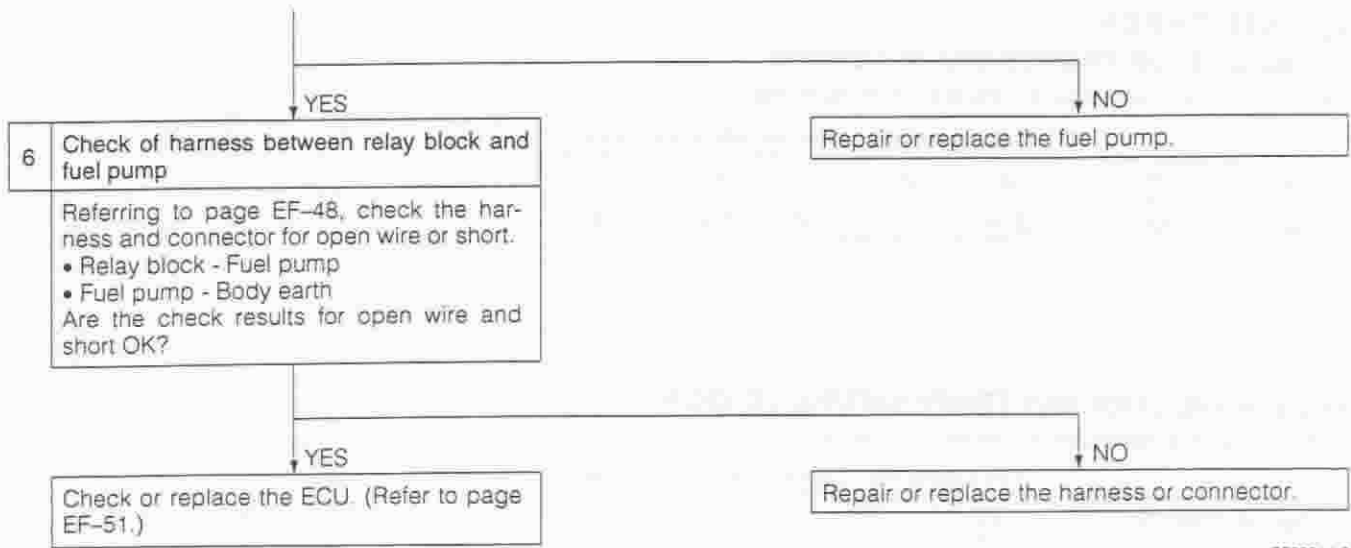
JEF00310-00205

### INSPECTION PROCEDURE

- 1 Operation check of fuel pump
  1. With the IG switch turned OFF, connect the DS-21 diagnosis tester to DLC through the SST.
  2. After turning ON the IG switch, turn ON the main switch of the tester. Select the actuator driving.
  3. Select the fuel pump ON so as to actuate the fuel pump.  
If the DS-21 diagnosis tester is not available, connect a jump wire between the terminal T of the DLC and the earth terminal.
  4. Ensure that the screw of the pulsation damper rises in Step 3.  
Are the check results OK?







JEP00311-00206

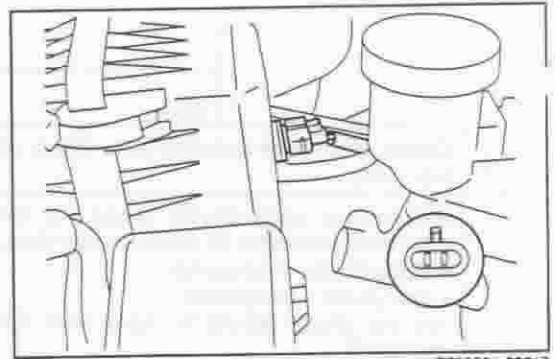
5.15 UNIT CHECK

5.15.1 INTAKE AIR TEMPERATURE SENSOR

1. Measure the resistance between the terminals.

The figures in ( ) denote reference values.

Temperature (°C)	-30	-20	20	80	120
Resistance (kΩ)	(28.6)	(16.2)	2.45	0.33	0.18



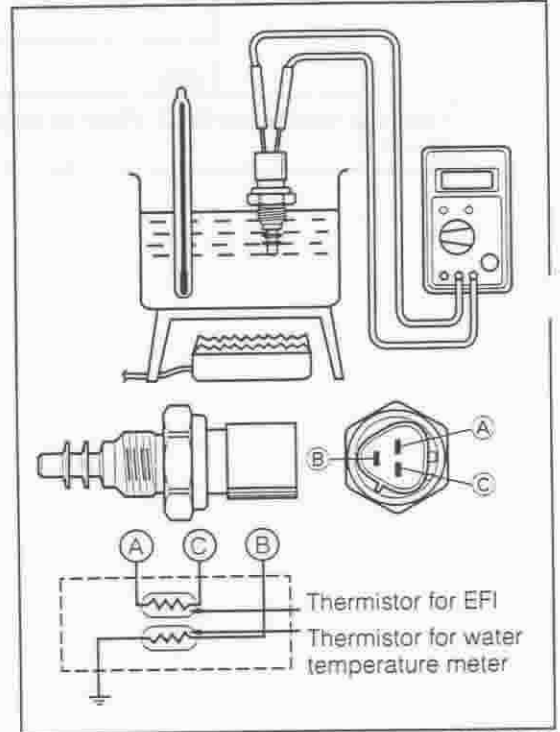
JEF00324-00219

5.15.2 ENGINE COOLANT TEMPERATURE SENSOR

1. Measure the resistance between the terminals.

The figures in ( ) denote reference values.

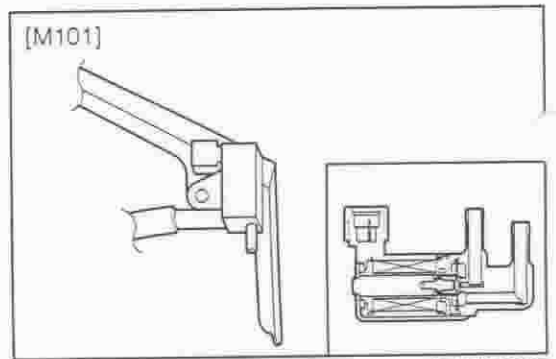
Temperature (°C)	-20	20	80	110
Resistance (kΩ)	15.06	2.44	0.32	0.14



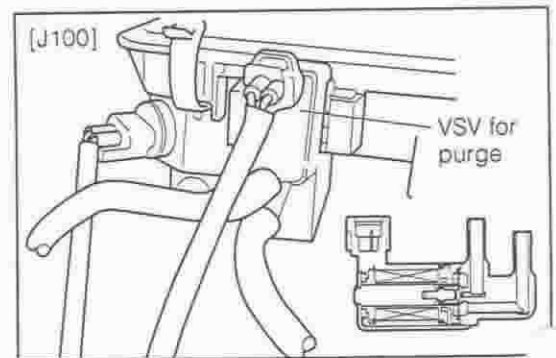
JEF00325-00220

5.15.3 VSV FOR EVAPORATIVE EMISSION PURGING

1. Perform continuity check between ports.  
Specification: No continuity should exist.
2. With a voltage applied to the VSV connector terminals, perform continuity check between ports.  
Specification: Continuity should exist.
3. Measure the resistance value between the terminals.  
Specified Value: 30 to 34 Ω at 20°C



JEF00326-00232



JEF00000-002

### 5.15.4 SPARK PLUG

**WARNING:**

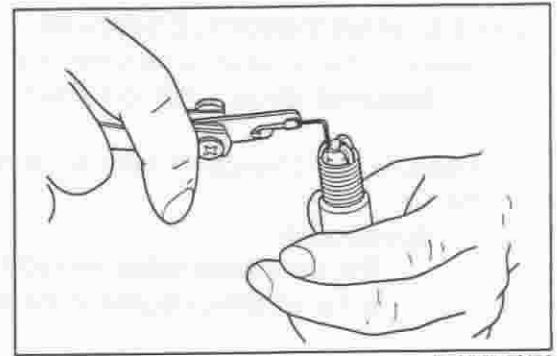
- The spark plug may be still very hot. Special care must be exercised to avoid getting a burn.

1. Check the spark plug for fouling or being too burning.
2. Check the spark plug for plug gap, using a spark plug gauge.

Specified Value:

	EU spec.	Others
Denso (mm)	0.9 - 1.0	0.7 - 0.8
NGK (mm)	0.9 - 1.0	1.0 - 1.1

3. Check the internal resistance value of the spark plug.  
Specified Value: 3.0 - 7.5 kΩ



JEF00327-00222

### 5.15.5 OIL CONTROL VALVE (Only for EU specifications)

1. With the battery voltage applied to the oil control valve terminals, visually check the operation of the valve.

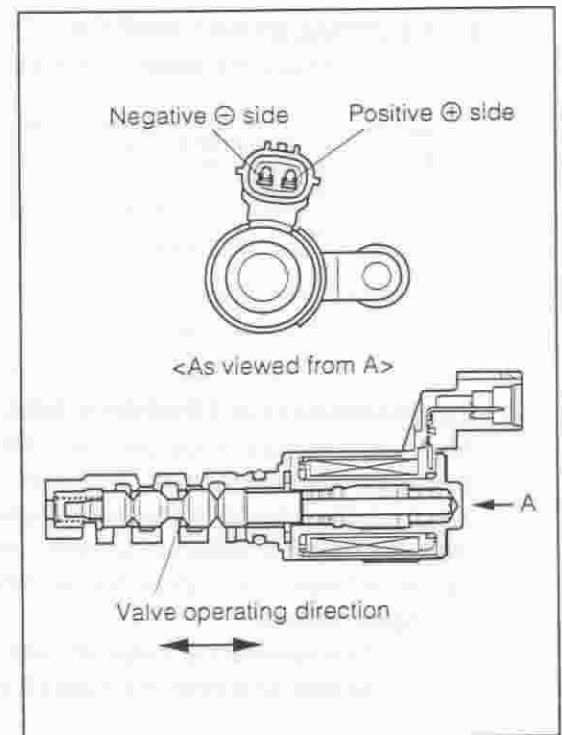
Specification:

When the battery voltage is applied, the valve should operate.

**NOTE:**

- The right figure indicates the correct polarity (+ or -) when applying the voltage.
- Never apply the battery voltage in excess of one minute.

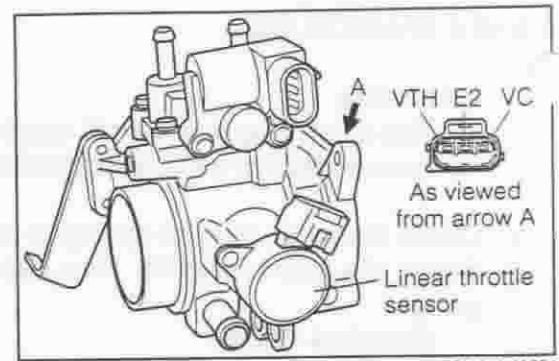
2. Measure the resistance between the terminals.  
Specified Value: 6.9 to 7.5 Ω at 20°C



JEF00328-00223

## 5.15.6 LINEAR THROTTLE SENSOR

1. Measure the resistance between the VC and the E2.  
Specified Value: 2.5 to 5.0 kΩ
2. Measure the change in resistance between the VTH and the E2.  
Specification:  
The resistance value should increase in proportion to the opening degree of the throttle lever.



### REFERENCE:

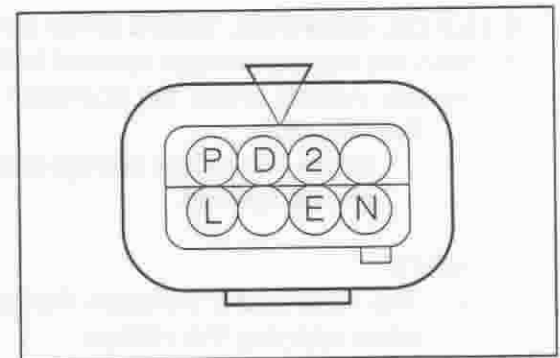
- When the throttle lever is fully closed, the resistance value should be about 0.4 kΩ.
- When the throttle lever is fully opened, the resistance value should be about 3.4 kΩ.

## 5.15.7 NEUTRAL START SWITCH

1. Check continuity between terminals given below.

○—○: Continuity exists.

Position \ Terminal	P	N	D	2	L	E
P	○—○					○—○
N		○—○				○—○
D			○—○			○—○
2				○—○		○—○
L					○—○	



## 5.15.8 EVAPORATOR TEMPERATURE SENSOR

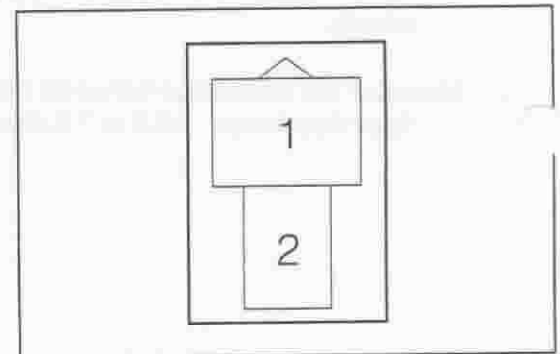
1. Measure the resistance between the connector terminals.
2. Connect the connectors. Turn ON the air conditioner and keep on the operation for five minutes.
3. With the air conditioner turned OFF, measure the resistance between the connector terminals.

### Specification:

The resistance value should vary between times, before and after the operation.

### REFERENCE:

- As the temperature drops, the resistance value will rise.



### 5.15.9 MAIN RELAY & FUEL PUMP RELAY

1. Turn ON the IG switch. Check to see if the relay is functioning through sound and vibration.

**NOTE:**

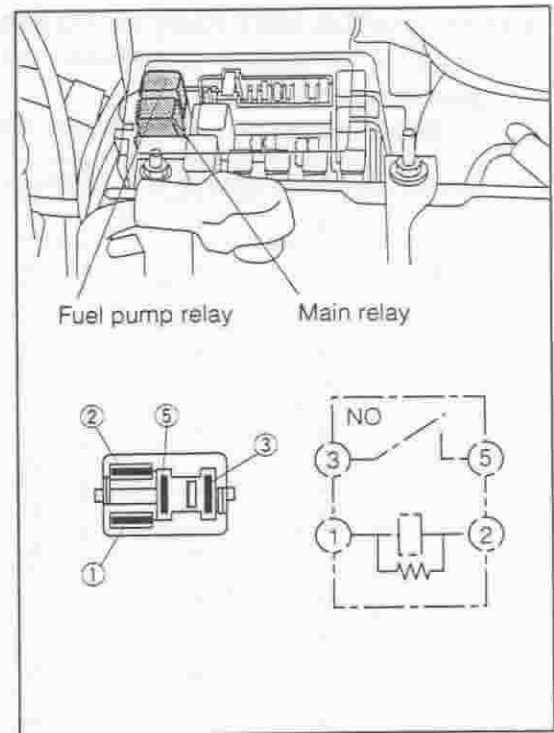
- The relay may be very hot through its operation. Do not touch it with your hand.

2. Measure the resistance between the terminals ① and ②.  
Specified Value: 86 to 148  $\Omega$

**NOTE:**

- The measurement should be conducted after the relay unit has been soaked at least one hour in an ambient temperature of 0°C to 40 hour°C.

3. Ensure that no continuity exists except between terminals ① and ②.
4. Apply the battery voltage to between the terminals ① and ②. Ensure that continuity exists between terminals ③ and ⑤.



JEF00332-00227

### 5.15.10 FUEL PUMP

**WARNING:**

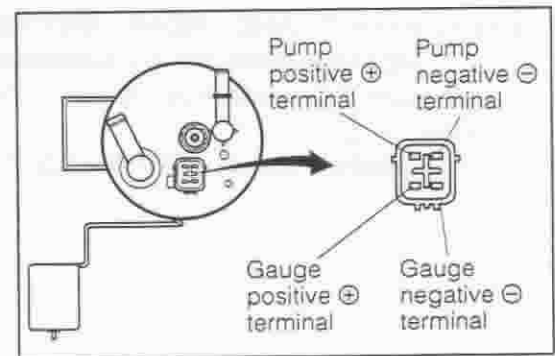
- Fire is prohibited strictly during the operation.

1. Turn ON the IG switch.
2. Using the SST, short between terminals T and E of the DLC. Check to see if the relay emits an operating sound.

SST: 09991-87404-000  
09991-87403-000

3. Turn OFF the IG switch.
4. Pull out the connector located at the top of fuel tank. Measure the resistance between the terminals of the fuel pump.

Specified Value: 0.2 to 3.0  $\Omega$



JEF00333-00228



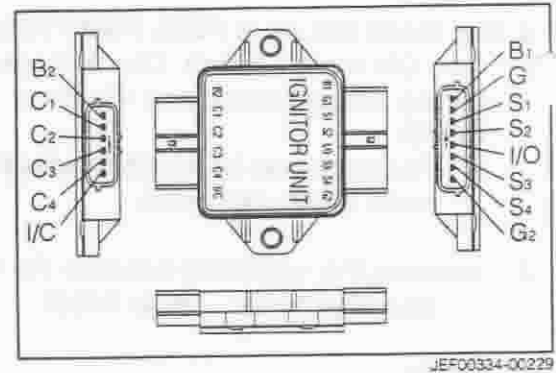
## 5.15.11 IGNITOR UNIT (Only for EU specifications)

1. Measure the resistance between the connector terminals given below.

Specified Value: Refer to the table below.

Between terminals	Resistance value
B <sub>1</sub> G <sub>1</sub>	∞
B <sub>2</sub> G <sub>1</sub>	∞
C <sub>1</sub> G <sub>1</sub>	∞
C <sub>2</sub> G <sub>1</sub>	∞
C <sub>3</sub> G <sub>1</sub>	∞
C <sub>4</sub> G <sub>1</sub>	∞
I/C G <sub>1</sub>	∞
S <sub>1</sub> G <sub>1</sub>	∞
S <sub>2</sub> G <sub>1</sub>	∞
I/O G <sub>1</sub>	1.9 - 2.1 kΩ
S <sub>3</sub> G <sub>1</sub>	∞
S <sub>4</sub> G <sub>1</sub>	∞
G <sub>2</sub> G <sub>1</sub>	∞

Between terminals	Resistance value
B <sub>1</sub> G <sub>2</sub>	∞
B <sub>2</sub> G <sub>2</sub>	∞
C <sub>1</sub> G <sub>2</sub>	∞
C <sub>2</sub> G <sub>2</sub>	∞
C <sub>3</sub> G <sub>2</sub>	∞
C <sub>4</sub> G <sub>2</sub>	∞
I/C G <sub>2</sub>	∞
S <sub>1</sub> G <sub>2</sub>	3.7 - 4.1 kΩ
S <sub>2</sub> G <sub>2</sub>	3.7 - 4.1 kΩ
I/O G <sub>2</sub>	∞
S <sub>3</sub> G <sub>2</sub>	3.7 - 4.1 kΩ
S <sub>4</sub> G <sub>2</sub>	3.7 - 4.1 kΩ
G <sub>1</sub> G <sub>2</sub>	∞

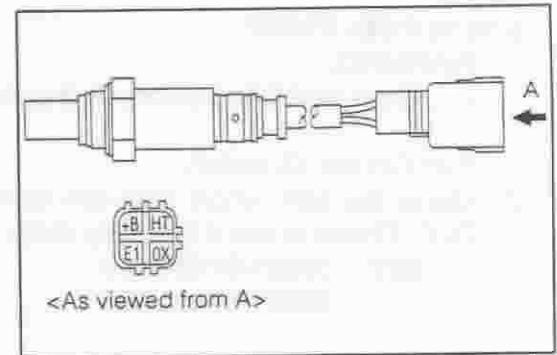


JEF00334-00229

## 5.15.12 FRONT AND REAR OXYGEN SENSORS WITH HEATER (Only for EU specifications)




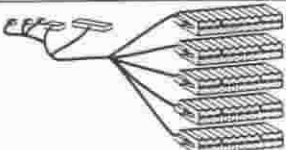



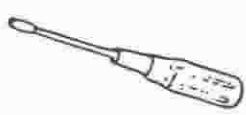


1. Measure the resistance between the connector terminals  $\oplus B$  and  $HT$ .

Specified Value: 11.7 to 14.5 Ω at 20°C



JEF00335-00230

5.16. SST (Special Service Tools)

Shape	Parts number & Name	Purpose
	09268-87701-000 EFI fuel pressure gauge	Inspection of fuel pressure
	09842-30070-000 EFI inspection wire	Inspection of fuel injector
	09268-87702-000 Inspection measuring tool set	Inspection of fuel pressure Inspection of fuel injector
	09842-97203-000 EFI computer check sub-harness	Inspection of computer input/output voltage
	09991-87404-000 Engine control system inspection wire	Diagnosis code check
	09991-87402-000 Tacho-pluse pick-up wire	Measurement of engine revolution speed
	09991-87403-000 Diagnosis check wire	Shorting terminal T
	09243-87201-000 Idle adjusting wrench	Adjustment and check of variable resistor
	09991-87301-000 Diagnosis tester set	Reading of diagnosis codes Erasing of diagnosis codes
	09965-97215-000 (English) 09965-97216-000 (German) 09965-97217-000 (Dutch) 09965-97218-000 (French) Trouble-shooting program card	Reading of diagnosis codes Erasing of diagnosis codes

JEF00336-00231