FUEL

CONTENTS

FUEL SYSTEM <6G72-24 Valve Engine, 6G74 Engine>

GENERAL

OUTLINE OF CHANGES

The maintenance service points below have been established to correspond to the following changes.

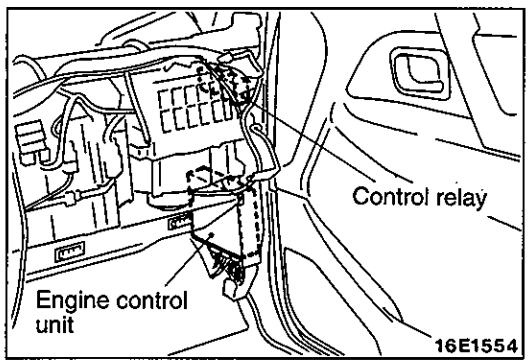
- Changes in the engine-ECU
- Separation of the engine control relay and fuel pump control relay which were previously integrated

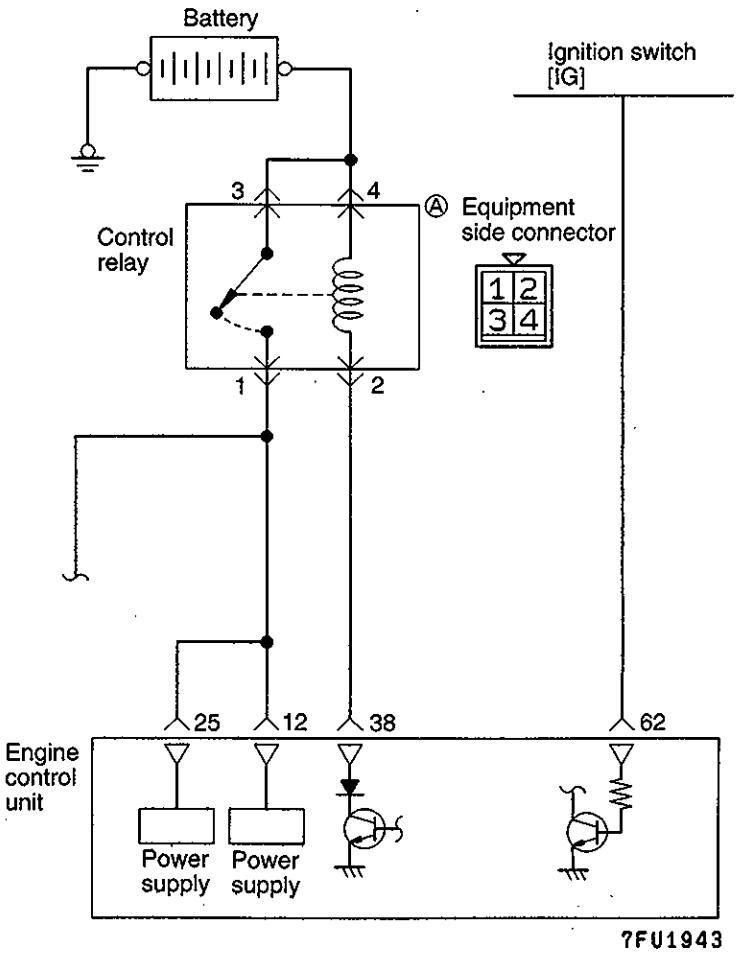
GENERAL INFORMATION

Items			Specifications
Engine ECU	Identification model No.	SOHC	E2T37498 E2T37499 <Vehicles with immobilizer system>
		DOHC	E2T39987 E2T39988 <Vehicles with immobilizer system>

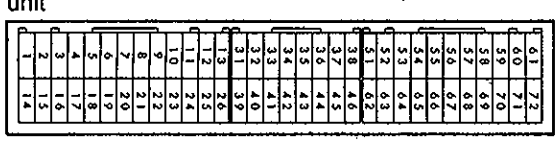
ON-VEHICLE INSPECTION OF MPI COMPONENTS

POWER SUPPLY (Control relay) AND IGNITION SWITCH-IG





Engine control unit



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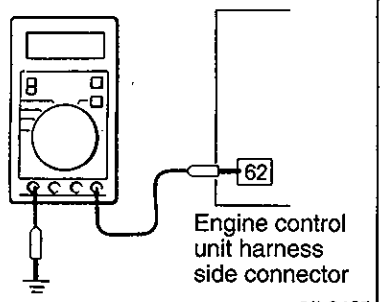
HARNESS INSPECTION

1

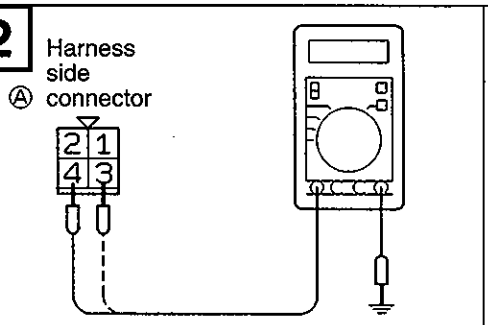


Measure the ignition switch (IG) terminal input voltage
- Engine control unit connector: Disconnected

Ignition switch	Voltage (V)
OFF	0 – 1
ON	SV

OK → 2
Repair the harness. (Ignition switch – 62) or check the ignition switch

2

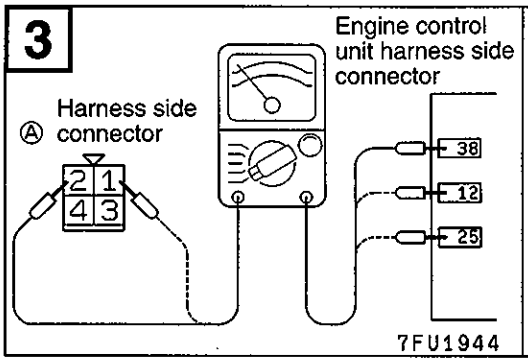


Measure the power supply voltage of the control relay.
- Ignition switch: OFF
- Control relay connector: Disconnected

Voltage (V)
SV

OK → 3
Repair the harness. (Battery – Ⓐ 3, Ⓐ 4)

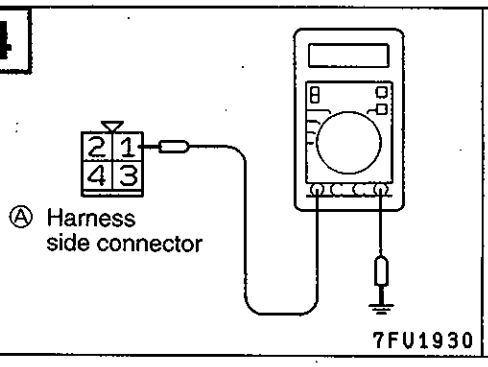
3



Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the control relay.
- Engine control unit connector: Disconnected
- Control relay connector: Disconnected

OK → 4
Repair the harness. (Ⓐ 2 ~ 38) (Ⓐ 1 ~ 12, 25)

4

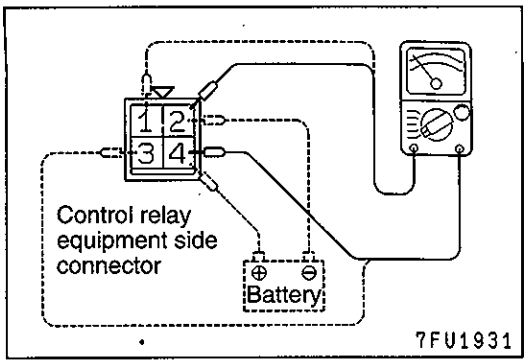


Measure power voltage to the actuator.
- Control relay connector: Connected
- Engine control unit connector: Connected

Engine	Voltage (V)
Cranking	8V oder higher
Racing	SV

OK → STOP
Replace the control relay or defective engine control unit

CONTROL RELAY INSPECTION

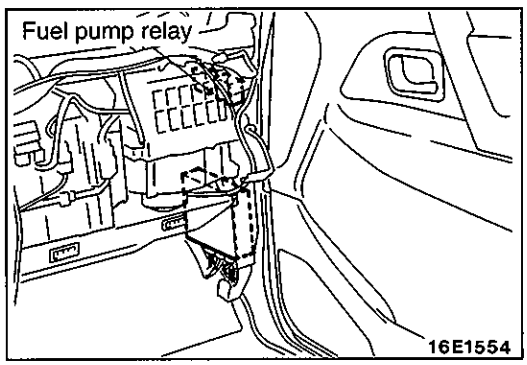


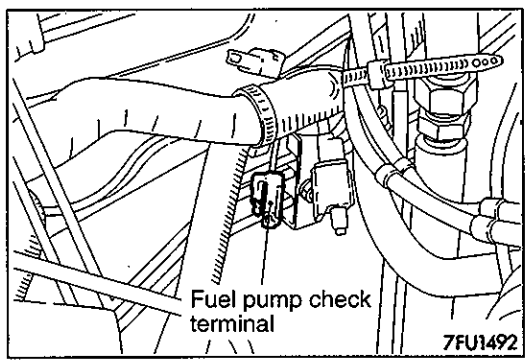
(1) Disconnect the control relay.

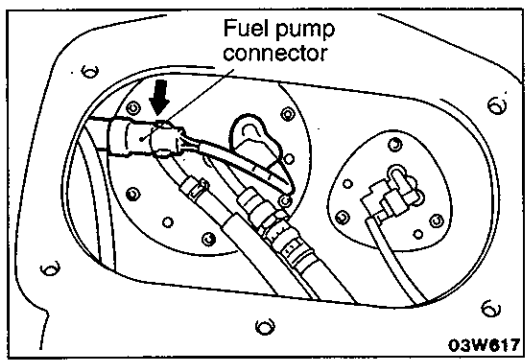
Battery voltage	Terminal No.			
	1	2	3	4
Not supplied		○		○
Supplied	○	⊖	○	⊕

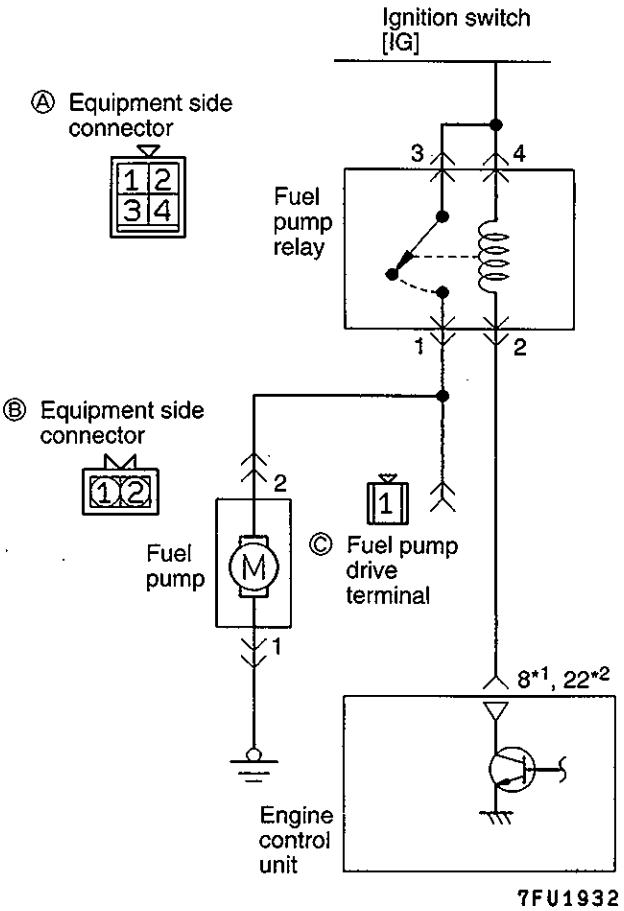
(2) Replace the control relay if faulty.

FUEL PUMP

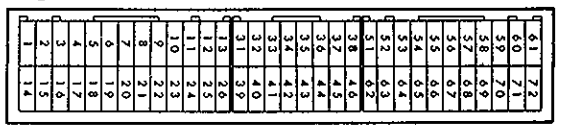








Engine control unit connector

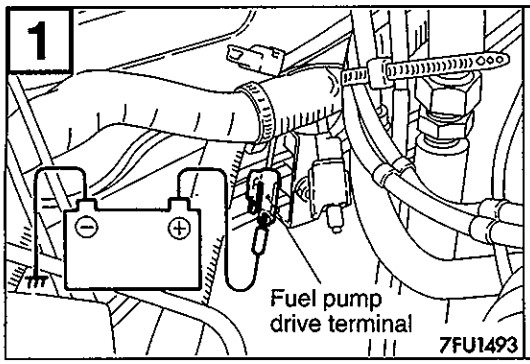


9FU0101

NOTE
*1 : Vehicle without immobilizer system
*2 : Vehicles with immobilizer system

HARNESS INSPECTION

1

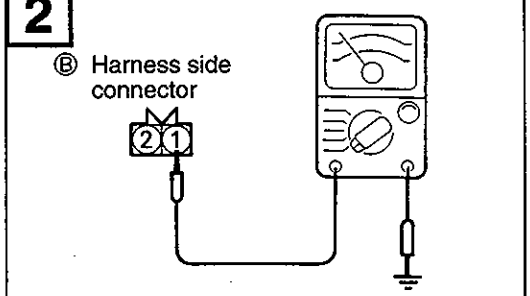


Check the fuel pump
- Apply battery voltage to the fuel pump drive terminal and operate the pump

OK → 4

NO → 2

2

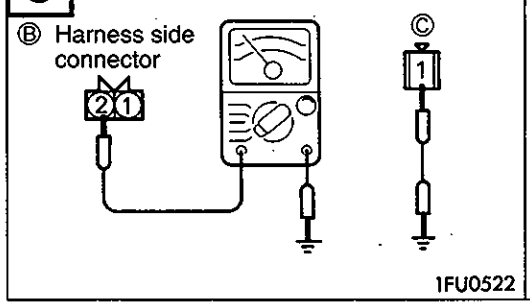


Check for continuity of the fuel pump earthing line.
- Fuel pump connector: Disconnected

OK → 3

NO → Repair the harness. (Ⓑ 1 – Earth)

3

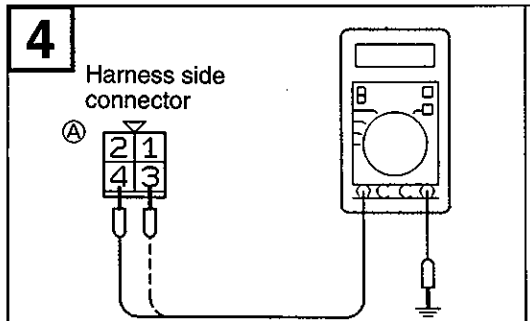


Check for open-circuit or short-circuit between the fuel pump and the fuel pump drive terminal.
- Fuel pump connector: Disconnected
- Fuel pump relay connector: Disconnected

OK → 4

NO → Repair the harness. (Ⓑ 2 – Ⓒ 1)

4



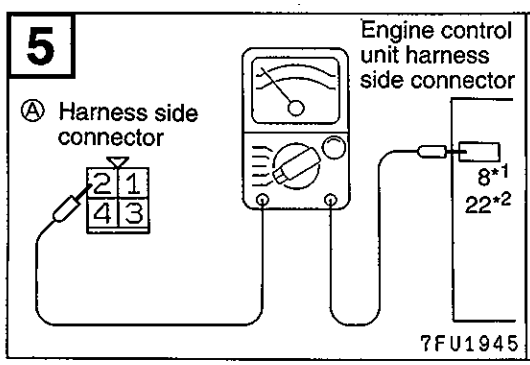
Measure the power supply voltage of the fuel pump relay.
- Fuel pump relay connector: Disconnected

Ignition switch	Voltage (V)
OFF	0 – 1
ON	SV

OK → 5

NO → Repair the harness. (Ignition switch – Ⓐ 3 4) or check for ignition switch.

5

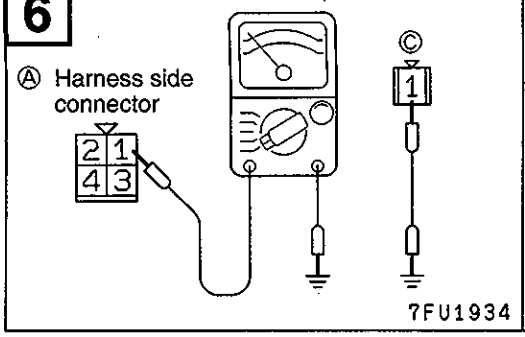


Check for an open-circuit, or a short-circuit to earth between the fuel pump relay and the engine control unit.
- Fuel pump relay connector: Disconnected
- Engine control unit connector: Disconnected

OK → 6

NO → Repair the harness. (Ⓐ 2 – 8) *1 (Ⓐ 2 – 22) *2

6



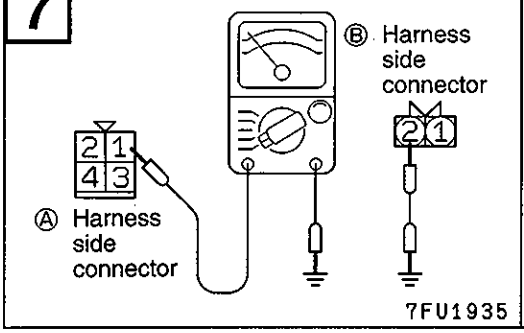
Check for continuity between the fuel pump drive terminal and the fuel pump relay.

- Fuel pump relay connector: Disconnected
- Fuel pump connector: Disconnected

OK → 7

NG → Repair the harness. (Ⓐ 1 – Ⓒ 1)

7



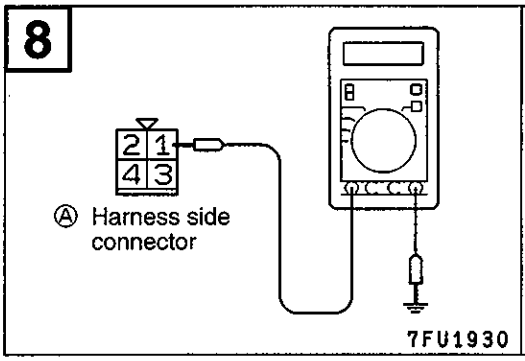
Check for an open-circuit, or a short-circuit to earth between the fuel pump relay and the fuel pump.

- Fuel pump relay connector: Disconnected
- Fuel pump connector: Disconnected

OK → 8

NG → Repair the harness. (Ⓐ 1 – Ⓑ 2)

8



Measure the power supply voltage of the fuel pump.

- Fuel pump relay connector: Connected
- Engine control unit connector: Connected

Engine	Voltage (V)
Cranking	8V or more
Racing	SV

OK → STOP

NG → Fuel pump relay or engine control unit is defective.

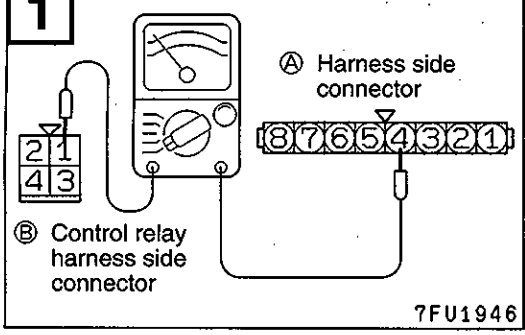
FUEL PUMP RELAY INSPECTION

Refer to P.13-4.

AIR FLOW SENSOR

HARNESS INSPECTION

1



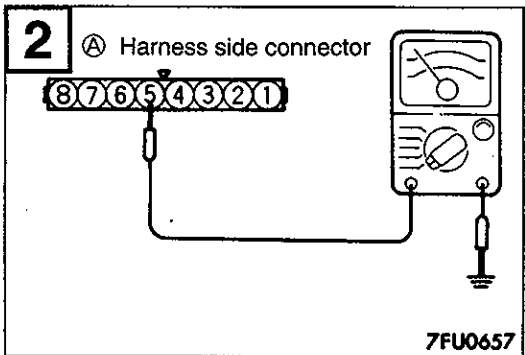
Check the continuity between the air flow sensor and the control relay.
- Control relay connector: Disconnected
- Air flow sensor connector: Disconnected

NOTE
Touch the circuit tester probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 4 – Ⓑ 1)

2

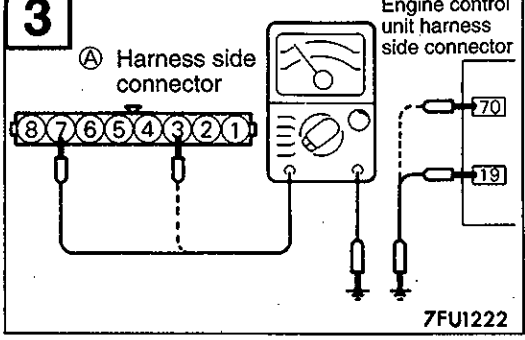


Check for continuity of the earth circuit.
- Connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 5 – 72)

3

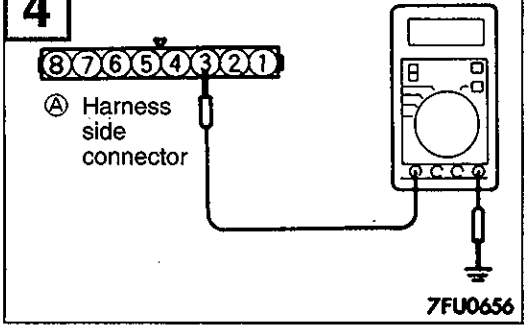


Check for open-circuit or short-circuit between the air flow sensor and the engine control unit.
- Air flow sensor connector: Disconnected
- Engine control unit connector: Disconnected

OK → 4

NG → Repair the harness. (Ⓐ 3 – 70) (Ⓐ 7 – 19)

4



Measure the applied voltage.
- Air flow sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

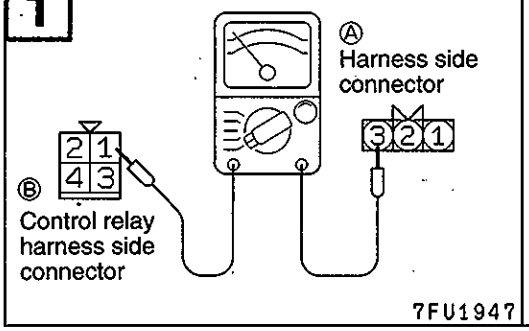
OK → STOP

NG → Replace the engine control unit.

CAM POSITION SENSOR

HARNESS INSPECTION

1



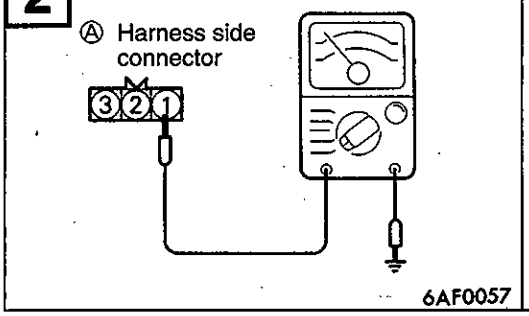
Check for continuity between the cam position sensor and control relay.
- Cam position sensor connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 3 – Ⓑ 1)

2

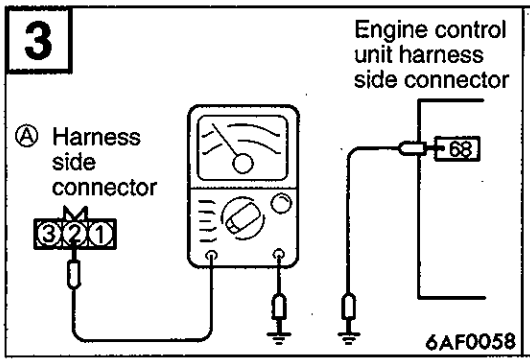


Check for continuity of the earth circuit.
- Cam position sensor connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 1 – Earth)

3

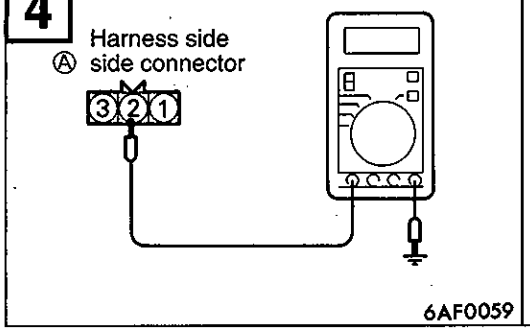


Check for an open-circuit, or a short-circuit to earth between the cam position sensor and the engine control unit.
- Engine control unit connector: Disconnected
- Cam position sensor connector: Disconnected

OK → 4

NG → Repair the harness. (Ⓐ 2 – 68)

4



Measure the impressed voltage
- Cam position sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

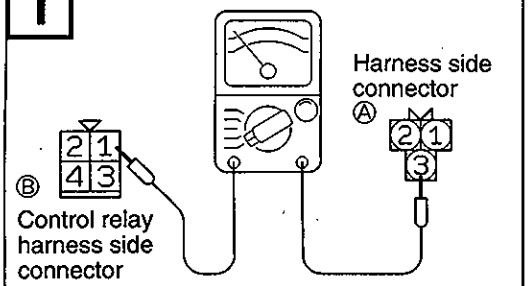
OK → STOP

NG → Replace the engine control unit.

CRANK ANGLE SENSOR

HARNESS INSPECTION

1



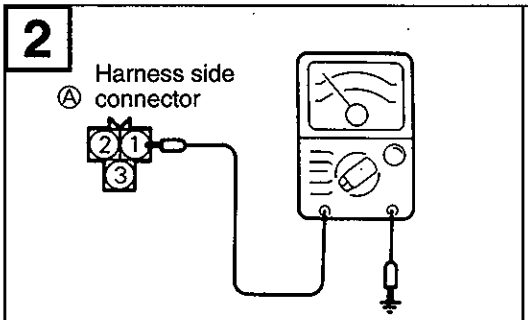
Check for continuity between the crank angle sensor and the control relay.
- Crank angle sensor connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch ohmmeter probes to both ends of the harness

OK → 2

NO GOOD → Repair the harness. (Ⓐ 3 – Ⓑ 1)

2

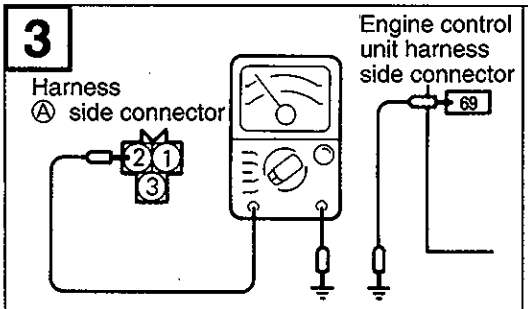


Check for continuity of the earth circuit.
- Crank angle sensor connector: Disconnected

OK → 3

NO GOOD → Repair the harness. (Ⓐ 1 – Earth)

3

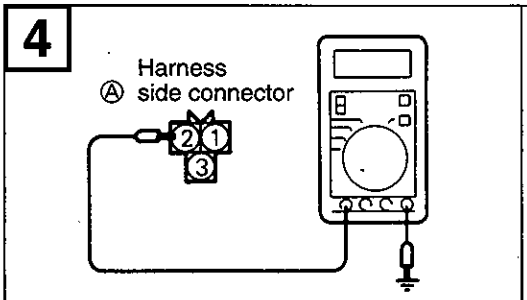


Check for an open-circuit, or a short-circuit to earth between the crank angle sensor and the engine control unit.
- Engine control unit connector: Disconnected
- Crank angle sensor connector: Disconnected

OK → 4

NO GOOD → Repair the harness. (Ⓐ 2 – 69)

4



Measure the impressed voltage.
- Crank angle sensor connector: Disconnected
- Engine control unit connector: Connected
- Ignition switch: ON

Voltage (V)
4.8 – 5.2

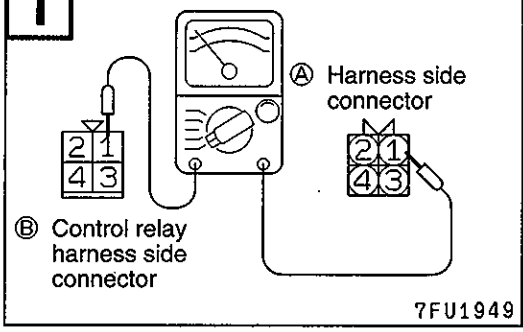
OK → STOP

NO GOOD → Replace the engine control unit.

OXYGEN SENSOR

HARNESS INSPECTION

1



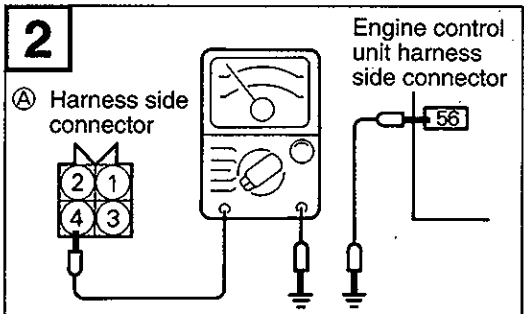
Check for continuity between the oxygen sensor and the control relay.
- Control relay connector: Disconnected
- Oxygen sensor connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NG → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2

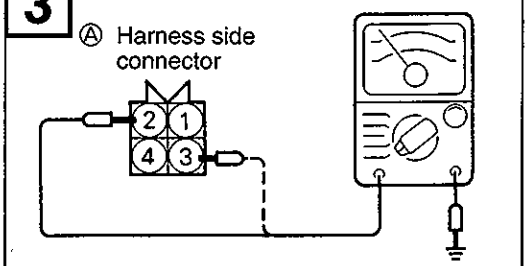


Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the oxygen sensor.
- Oxygen sensor connector: Disconnected
- Engine control unit connector: Disconnected

OK → 3

NG → Repair the harness. (Ⓐ 4 – 56)

3



Check for continuity of the earth circuit.
- Oxygen sensor connector: Disconnected
- Engine control unit connector: Disconnected

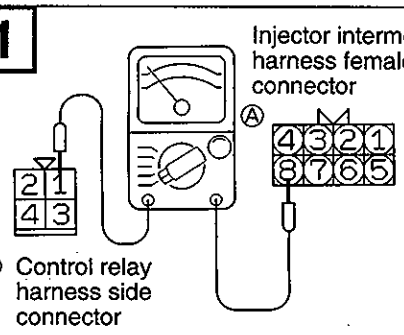
OK → STOP

NG → Repair the harness. (Ⓐ 2 – 72) (Ⓐ 3 – Earth)

INJECTORS

HARNESS INSPECTION

1



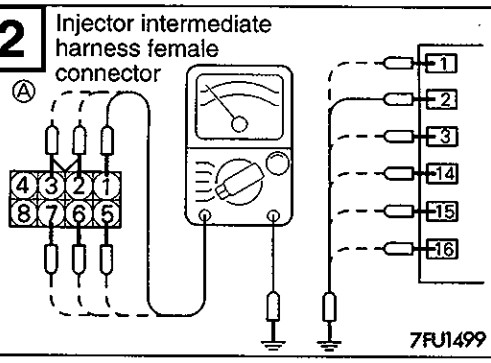
Check for continuity between the injectors and the control relay.
- Injector intermediate connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NO → Repair the harness. (Ⓐ 8 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the engine control unit and the injector.
- Engine control unit connector: Disconnected
- Injector intermediate connector: Disconnected

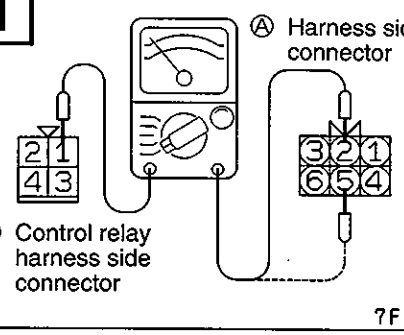
OK → STOP

NO → Repair the harness.
(Ⓐ 1 – 2)
(Ⓐ 2 – 14)
(Ⓐ 3 – 1)
(Ⓐ 5 – 16)
(Ⓐ 6 – 3)
(Ⓐ 7 – 15)

IDLE SPEED CONTROL SERVO (STEPPER MOTOR TYPE)

HARNESS INSPECTION

1



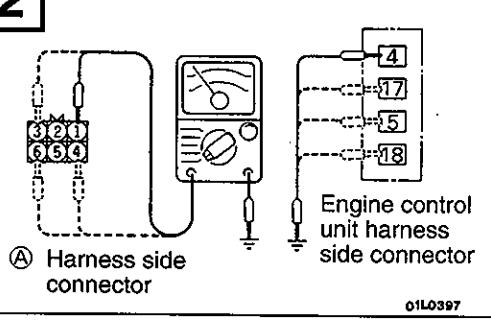
Check for continuity between the idle speed control servo and the control relay.
- Idle speed control servo connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NO → Repair the harness. (Ⓐ 2 5 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth between the engine control unit and the idle speed control servo.
- Engine control unit connector: Disconnected
- Idle speed control servo connector: Disconnected

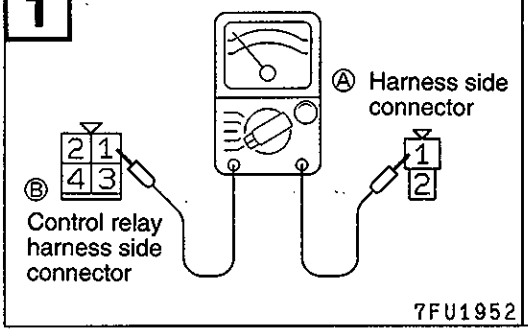
OK → STOP

NO → Repair the harness.
(Ⓐ 1 – 4)
(Ⓐ 3 – 17)
(Ⓐ 4 – 5)
(Ⓐ 6 – 18)

VARIABLE INDUCTION CONTROL SOLENOID VALVE <DOHC>

HARNESS INSPECTION

1



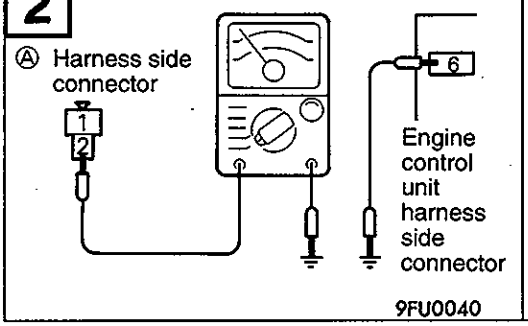
Check for continuity between variable induction control solenoid valve and control relay.
- Variable induction control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NO → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the variable induction control solenoid valve and the engine control unit.
- Variable induction control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

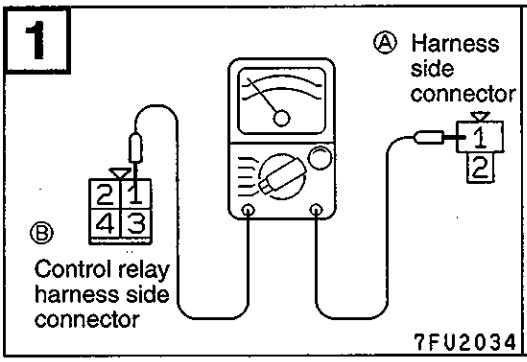
OK → STOP

NO → Repair the harness. (Ⓐ 2 – 6)

PURGE CONTROL SOLENOID VALVE

HARNESS INSPECTION

1



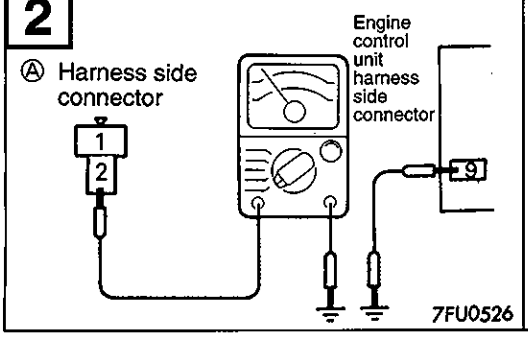
Check for continuity between the purge control solenoid valve and the control relay.
- Purge control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness.

OK → 2

NO → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the purge control solenoid valve and the engine control unit.
- Purge control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

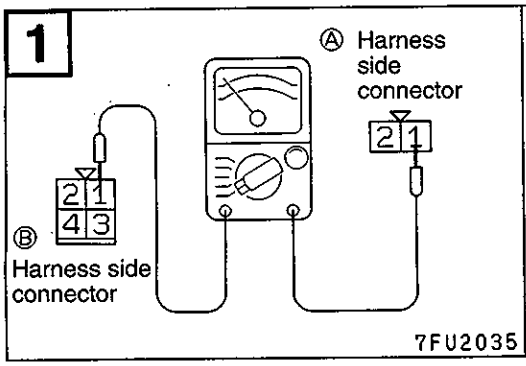
OK → STOP

NO → Repair the harness. (Ⓐ 2 – 9)

EGR CONTROL SOLENOID VALVE

HARNESS INSPECTION

1



Check for continuity between EGR control solenoid valve and control relay

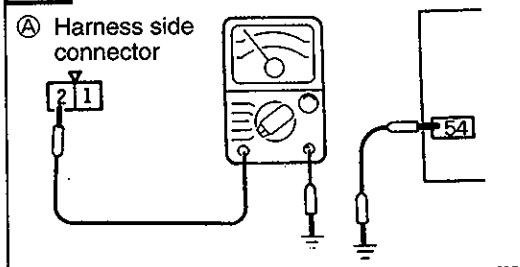
- EGR control solenoid valve connector: Disconnected
- Control relay connector: Disconnected

NOTE
Touch the ohmmeter probes to both ends of the harness

OK → 2

NO → Repair the harness. (Ⓐ 1 – Ⓑ 1)

2



Check for an open-circuit, or a short-circuit to earth, between the EGR control solenoid valve and the engine control unit.

- EGR control solenoid valve connector: Disconnected
- Engine control unit connector: Disconnected

OK → STOP

NO → Repair the harness. (Ⓐ 2 – 54)