

# ENGINE AND EMISSION CONTROL

## CONTENTS

<b>EMISSION CONTROL SYSTEM &lt;MPI&gt;</b> .....	<b>2</b>	Purge Control Solenoid Valve Check .....	<b>9</b>
<b>GENERAL</b> .....	<b>2</b>	<b>EXHAUST GAS RECIRCULATION (EGR) SYSTEM</b> .....	<b>10</b>
Outline of Change .....	2	EGR Control Solenoid Valve Check <4G6> .....	10
<b>SERVICE SPECIFICATIONS</b> .....	<b>2</b>	EGR Control Solenoid Valve Check <6A1> .....	10
<b>VACUUM HOSE</b> .....	<b>3</b>	<b>CANISTER</b> .....	<b>11</b>
Vacuum Hose Piping Diagram .....	3	<b>EMISSION CONTROL SYSTEM &lt;GDI&gt;</b> .....	<b>12</b>
Vacuum Circuit Diagram .....	5	<b>GENERAL</b> .....	<b>12</b>
<b>EVAPORATIVE EMISSION CONTROL SYSTEM</b> .....	<b>7</b>	Outline of Change .....	12
System Diagram .....	7	<b>CANISTER</b> .....	<b>12</b>
Purge Control System Check .....	8		
Purge Port Vacuum Check .....	8		

## **EMISSION CONTROL SYSTEM <MPI>**

### **GENERAL**

#### **OUTLINE OF CHANGE**

The following service procedures have been established to correspond to the following changes.

- Evaporative emission control system
- EGR control solenoid valve
- Canister

Items	Name	Specification
Evaporative emission control system	Canister Purge control solenoid valve	Equipped Duty cycle type solenoid valve (Purpose: HC reduction)

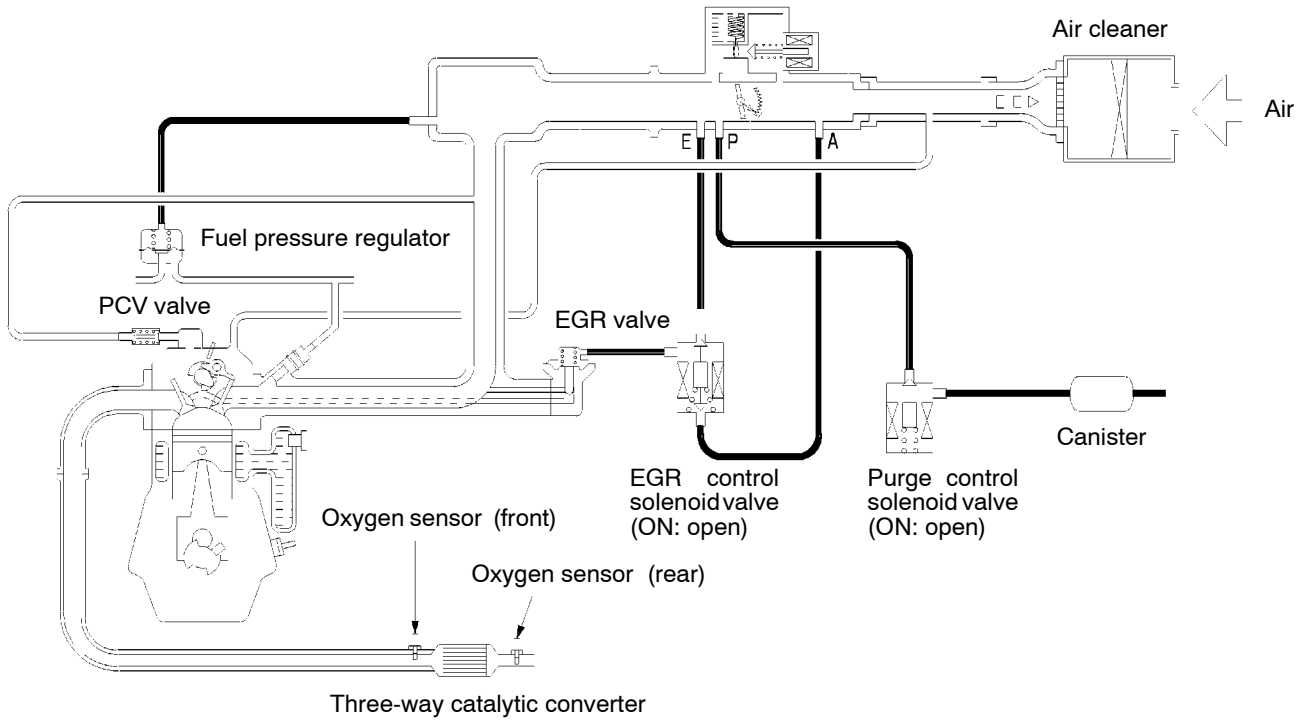
### **SERVICE SPECIFICATIONS**

Items		Standard value
EGR control solenoid valve coil resistance (at 20°C) Ω		29 - 35
Purge control solenoid valve coil resistance (at 20°C) Ω	4G6	29 - 35
	6A1	30 - 34

# VACUUM HOSE

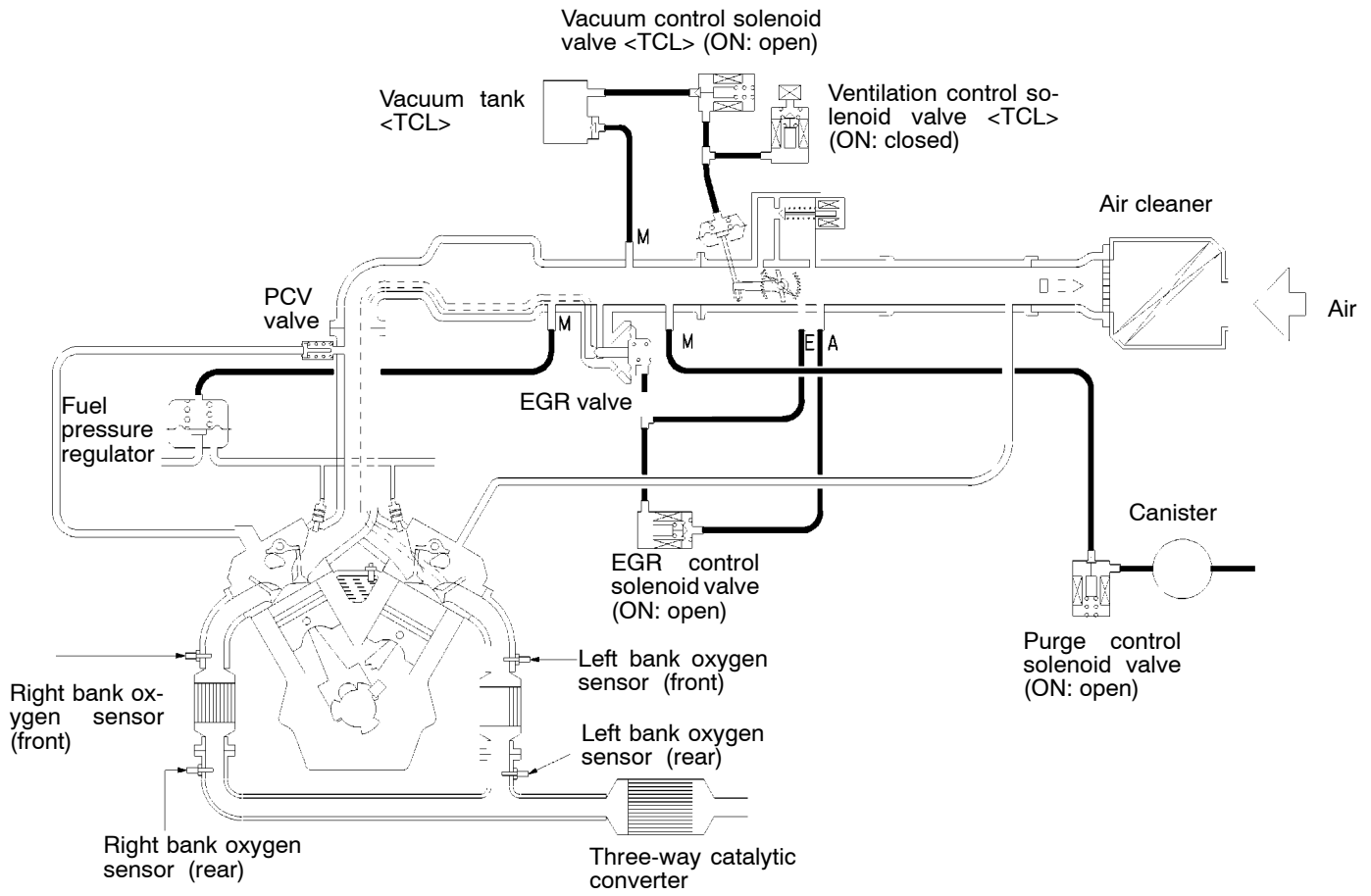
## VACUUM HOSE PIPING DIAGRAM

<4G6>



Y6001BE

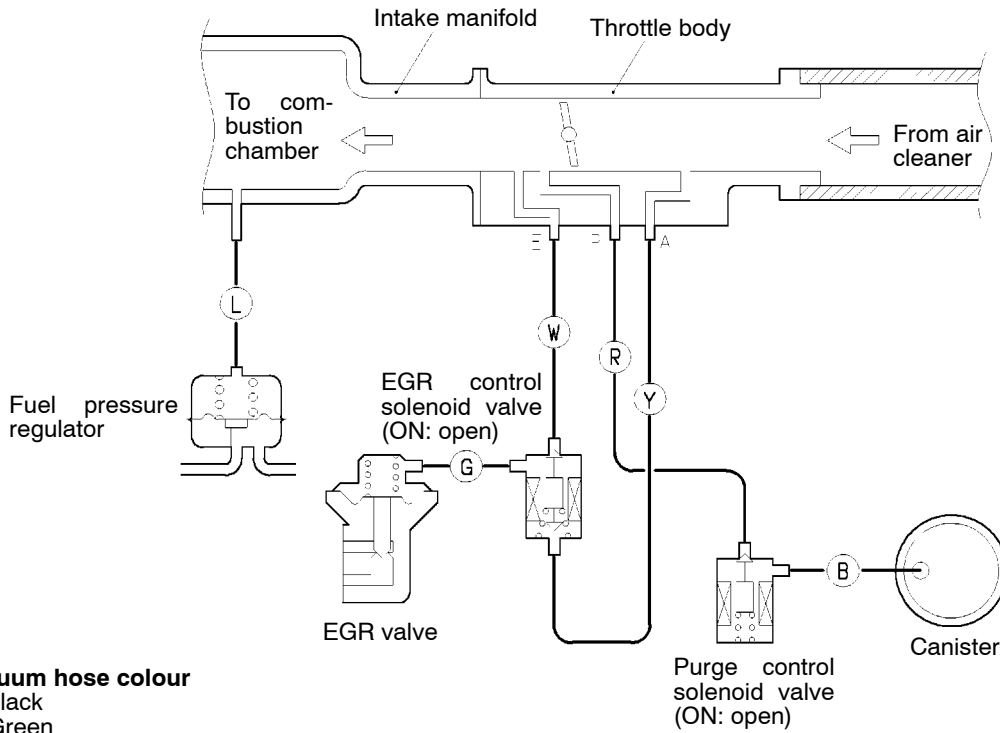
<6A1>



Y6002BE

VACUUM CIRCUIT DIAGRAM

<4G6>

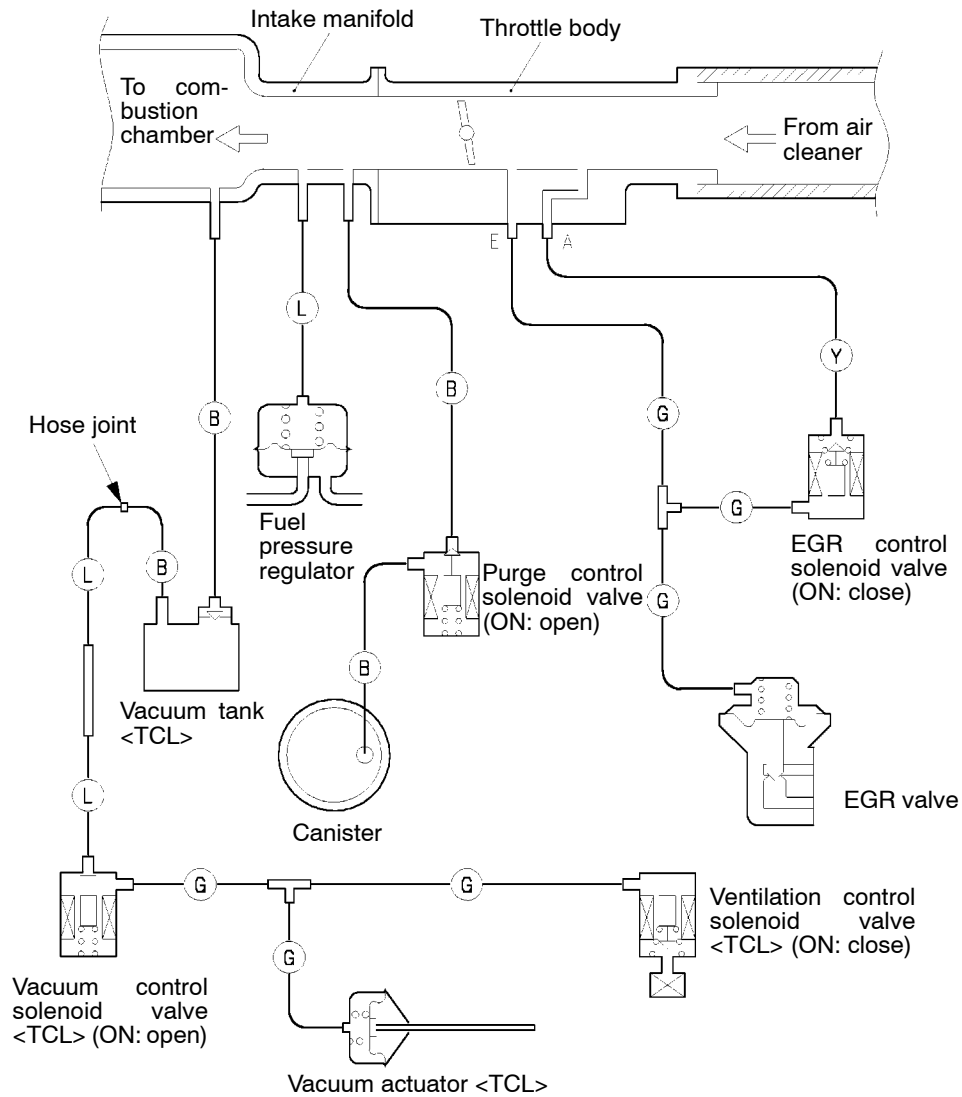


**Vacuum hose colour**

- B: Black
- G: Green
- L: Light blue
- R: Red
- W: White
- Y: Yellow

Y6003BE

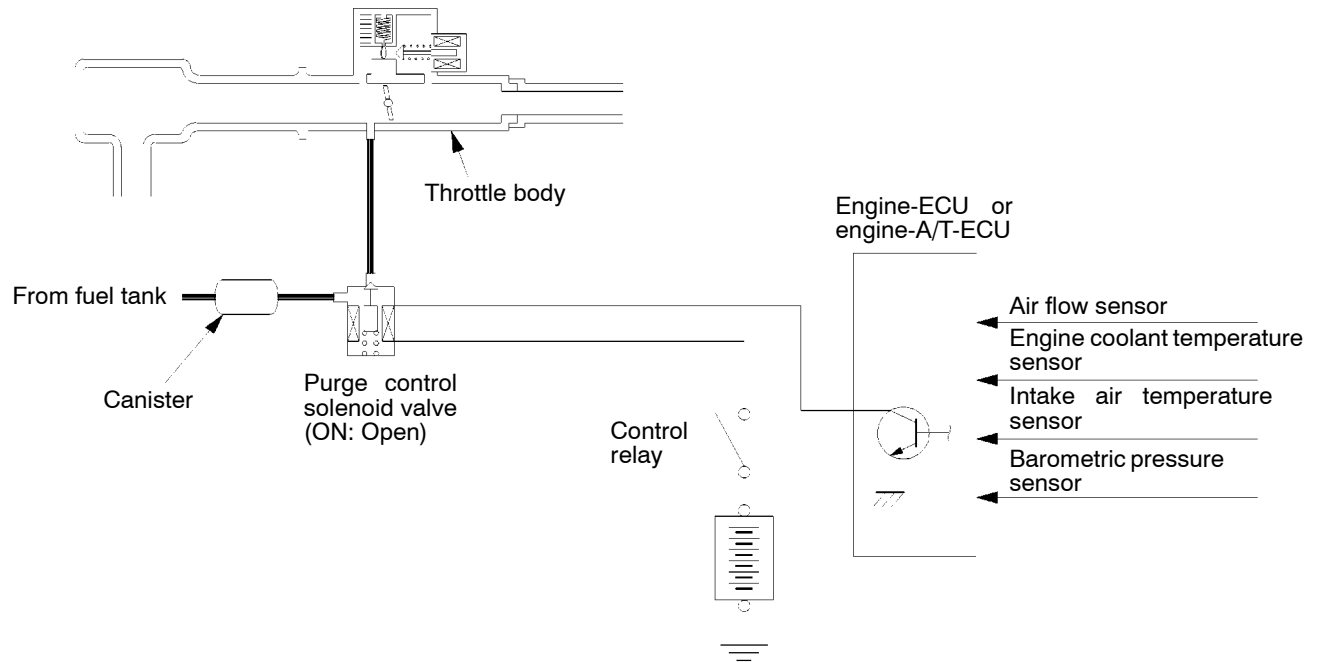
<6A1>



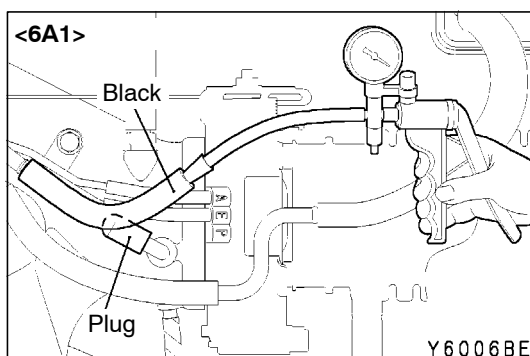
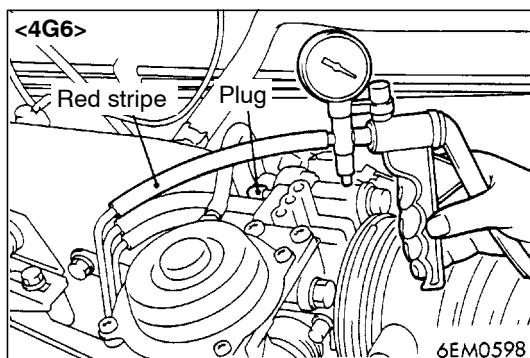
Y6004BE

**Vacuum hose colour**

- B: Black
- G: Green
- L: Light blue
- R: Red
- Y: Yellow

**EVAPORATIVE EMISSION CONTROL SYSTEM****SYSTEM DIAGRAM**

Y6005BE



### PURGE CONTROL SYSTEM CHECK

1. Disconnect the vacuum hose (red stripe) from the throttle body and connect it to a hand vacuum pump. <4G6> Disconnect the vacuum hose (black) from the surge tank and connect it to a hand vacuum pump. <6A1>
2. Plug the nipple from which the vacuum hose was removed.
3. When the engine is cold or hot, apply a vacuum of 53 kPa, and check the condition of the vacuum.

#### When engine is cold

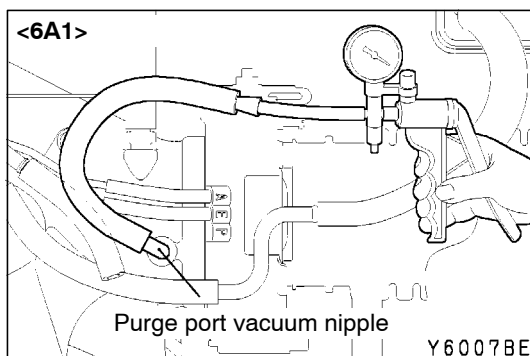
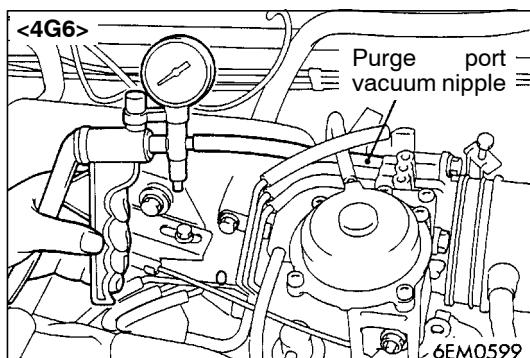
(Engine coolant temperature: 40°C or less)

Engine condition	Normal condition
At idle	Vacuum is maintained
3,000 r/min	

#### When engine is hot

(Engine coolant temperature: 80°C or higher)

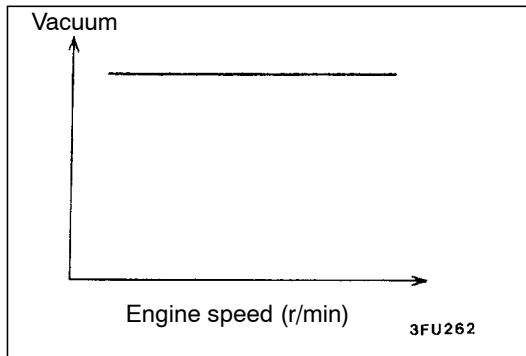
Engine condition	Normal condition
At idle	Vacuum is maintained
3,000 r/min (for approximately 3 minutes after the engine is started.)	Vacuum will leak



### PURGE PORT VACUUM CHECK

1. Disconnect the vacuum hose (red stripe) from the throttle body and connect it to a hand vacuum pump. <4G6> Disconnect the vacuum hose (black) from the surge tank and connect it to a hand vacuum pump. <6A1>

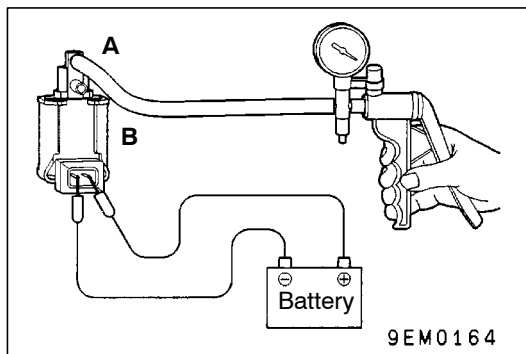




2. Start the engine and check that the vacuum remains fairly constant after racing the engine.

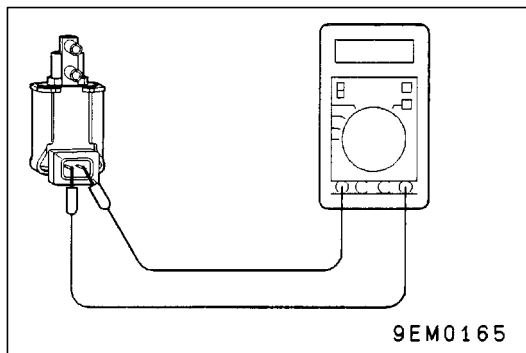
**NOTE**

If vacuum changes, it is possible that the purge port may be clogged and require cleaning.

**PURGE CONTROL SOLENOID VALVE CHECK****NOTE**

When disconnecting the vacuum hose, always make a mark so that it can be reconnected at original position.

1. Disconnect the vacuum hose from the solenoid valve.
2. Disconnect the harness connector.
3. Connect a hand vacuum pump to nipple (A) of the solenoid valve (refer to the illustration at left).
4. Check air tightness by applying a vacuum with voltage applied directly from the battery to the purge control solenoid valve and without applying voltage.



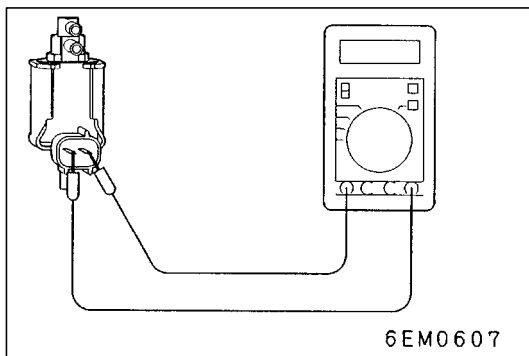
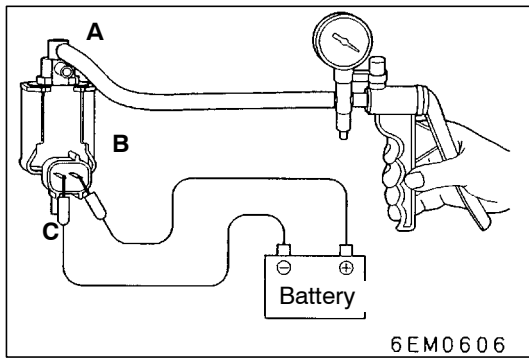
Battery voltage	Normal condition
Applied	Vacuum leaks
Not applied	Vacuum maintained

5. Measure the resistance between the terminals of the solenoid valve.

**Standard value:**

29 - 35  $\Omega$  (at 20°C) <4G6>

30 - 34  $\Omega$  (at 20°C) <6A1>



## EXHAUST GAS RECIRCULATION (EGR) SYSTEM

### EGR CONTROL SOLENOID VALVE CHECK <4G6>

**NOTE**

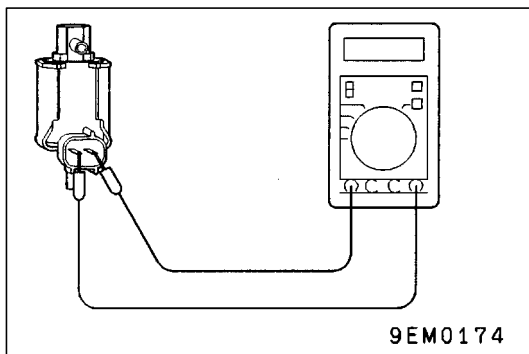
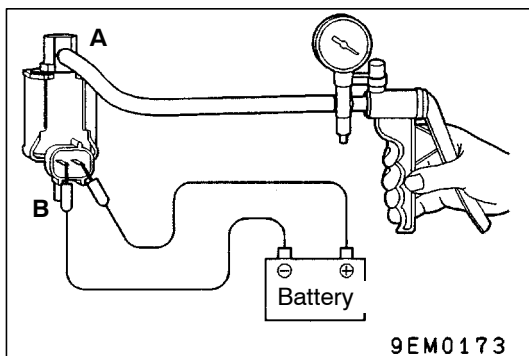
When disconnecting the vacuum hose, always make a mark so that it can be reconnected at original position.

1. Disconnect the vacuum hose from the solenoid valve.
2. Disconnect the harness connector.
3. Connect a hand vacuum pump to nipple (A) of the solenoid valve (refer to the illustration at left).
4. Check air tightness by applying a vacuum with voltage applied directly from the battery to the EGR control solenoid valve and without applying voltage.

Battery voltage	B nipple condition	Normal condition
Not applied	Open	Vacuum maintained
Applied	Open	Vacuum leaks
	Closed	Vacuum maintained

5. Measure the resistance between the terminals of the solenoid valve.

**Standard value: 29 - 35 Ω (at 20°C)**



### EGR CONTROL SOLENOID VALVE CHECK <6A1>

**NOTE**

When disconnecting the vacuum hose, always make a mark so that it can be reconnected at original position.

1. Disconnect the vacuum hose from the solenoid valve.
2. Disconnect the harness connector.
3. Connect a hand vacuum pump to nipple (A) of the solenoid valve (refer to the illustration at left).
4. Check air tightness by applying a vacuum with voltage applied directly from the battery to the EGR control solenoid valve and without applying voltage.

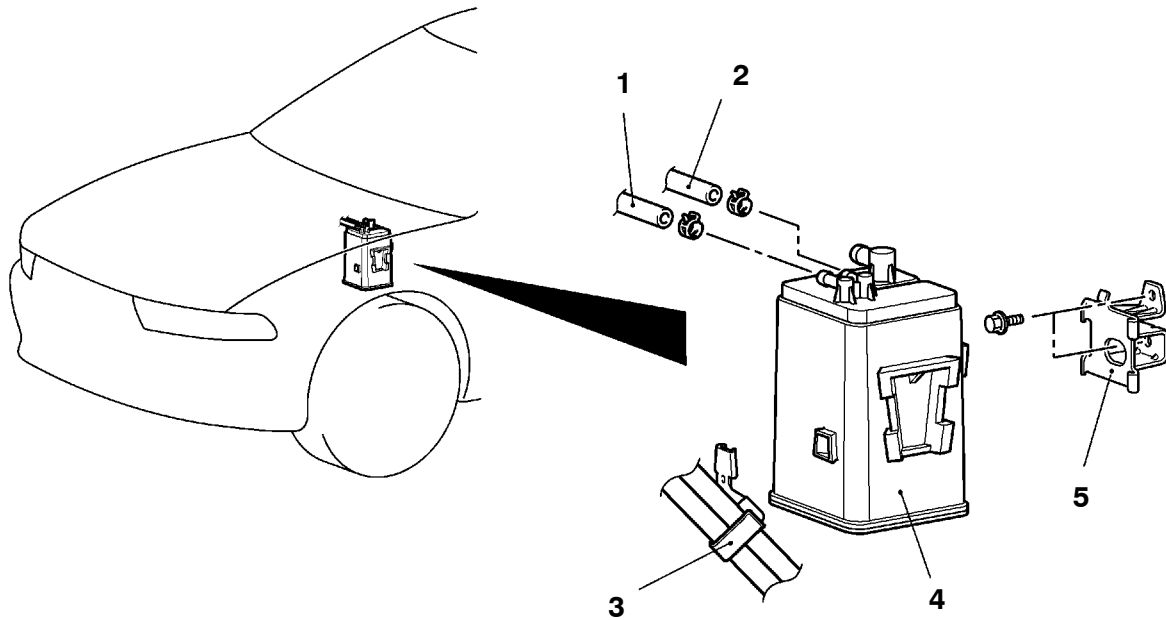
Battery voltage	Normal condition
Not applied	Vacuum leaks
Applied	Vacuum maintained

5. Measure the resistance between the terminals of the solenoid valve.

**Standard value: 29 - 35 Ω (at 20°C)**

## CANISTER

### REMOVAL AND INSTALLATION



AY0066BE

#### Removal steps

1. Vacuum hose connection
2. Vapor hose connection
3. Hose clamp

4. Canister
5. Canister bracket

## **EMISSON CONTROL SYSTEM <GDI>**

### **GENERAL**

#### **OUTLINE OF CHANGE**

The following service procedures have been established correspond to the change of the canister.

#### **CANISTER**

Refer to P.17-11.