

# I - SYSTEM/COMPONENT TESTS

## 1998 Mitsubishi Montero

1998 ENGINE PERFORMANCE  
Mitsubishi - System & Component Testing

Diamante, Eclipse, Galant, Mirage, Montero, Montero Sport,  
3000GT

### INTRODUCTION

**NOTE:** Testing individual components does not isolate shorts or opens. Perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with minimum 10-megohm input impedance, unless stated otherwise in test procedure. Use ohmmeter to isolate wiring harness shorts or opens. Testing procedures not covered in this article require a scan tool. See G - TESTS W/CODES article.

Before testing separate components or systems, perform basic diagnostic procedures in F - BASIC TESTING article. Since many computer-controlled and monitored components set a diagnostic trouble code if they malfunction, also perform self-diagnostics in G - TESTS W/CODES article.

### AIR INDUCTION SYSTEMS

#### TURBOCHARGER

Turbocharger Pressure Check

1) Disconnect Black turbocharger pressure control hose at wastegate solenoid valve, and plug valve nipple. Attach pressure gauge to hose. Drive vehicle and accelerate engine, in 2nd gear, to 3500 RPM or more. Check turbocharger pressure when pressure gauge stabilizes. See TURBOCHARGER PRESSURE SPECIFICATIONS table.

2) If pressure gauge reading is more than specified, check wastegate actuator. See DTCs P1103 and P1104 in G - TESTS W/CODES article. Replace wastegate actuator as required. If pressure gauge reading is less than specified, check for malfunctioning wastegate valve, turbocharger pressure leaks and faulty turbocharger.

TURBOCHARGER PRESSURE SPECIFICATIONS TABLE

Application	Pressure psi (kg/cm <sup>2</sup> )
Eclipse .....	6.4-14.7 (.4-1.0)
3000GT .....	2.9-8.7 (.2-.6)

Air By-Pass Valve

Remove air by-pass valve. Valve is mounted to intake air duct between air-to-air intercooler and intake plenum. Apply vacuum to diaphragm of vacuum valve. Valve should begin opening at approximately 16 in. Hg. Observe operation of valve through by-pass opening.

Wastegate Actuator Test

Actuator is mounted on turbocharger. For testing procedures, see DTCs P1103 and P1104 in G - TESTS W/CODES article.

Wastegate Control Solenoid Valve Test

On Eclipse, valve is mounted to top back section of air cleaner. On 3000GT, valve is mounted to firewall, beside EGR solenoid.

For testing procedures, see DTCs P1103 and P1104 in G - TESTS W/CODES article.

COMPUTERIZED ENGINE CONTROLS

CONTROL UNIT

NOTE: For Powertrain Control Module (PCM) location, see POWERTRAIN CONTROL MODULE (PCM) LOCATION table. To identify PCM power and ground terminals, see appropriate pin voltage chart in J - PIN VOLTAGE CHARTS article. To identify PCM power and ground circuits, see appropriate wiring diagram in L - WIRING DIAGRAMS article.

Ground Circuits

- 1) Turn ignition off. Using an ohmmeter, check continuity between chassis ground and PCM ground terminal(s). See Figs. 1-5. Ohmmeter should indicate zero ohms. If reading is not as specified, check and repair open circuit between PCM connector and chassis ground. If reading is as specified, go to next step.
- 2) Connect voltmeter negative lead to chassis ground. Connect positive lead to PCM ground terminal(s). With engine running, voltmeter should indicate less than one volt. If reading is more than one volt, check for open, corrosion or loose connection in ground circuit.

Power Circuits

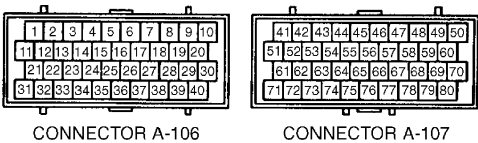
Turn ignition on. Check for battery voltage on both PCM power terminals. See Figs. 1-5. If battery voltage is not present, check operation of MFI relay. See RELAYS under MOTORS, RELAYS & SOLENOIDS.

POWERTRAIN CONTROL MODULE (PCM) LOCATION TABLE

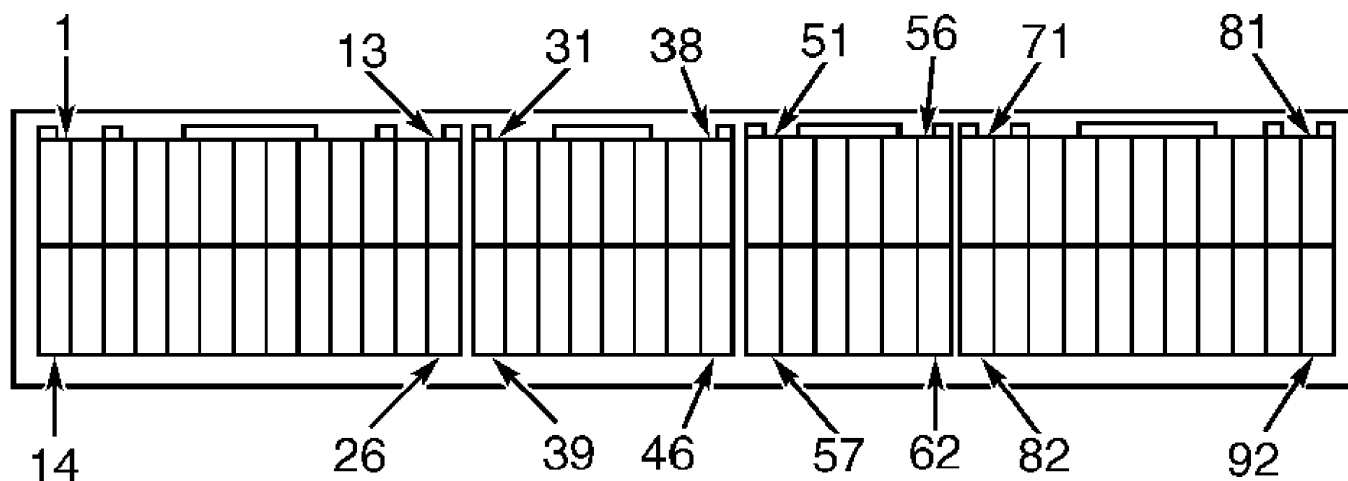
Application	Location
Eclipse 2.0L Non-Turbo	In Front Of Left Front Strut Tower
Mirage & Montero Sport	Behind Right Side Of Instrument Panel (Glove Box)
Montero	Right Front Kick Panel
All Other Models	Behind Center Console

1	2		3	4	JAE					5	6		7	8	71	72	73	74		JAE					75	76	77	41	42		43	44		JAE					45	46	47
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	78	79	80	81	82	83	84	85	86	87	88	89	48	49	50	51	52	53	54	55	56	57	58	59	60		
24	25		26	27	28	29		30	31	32	33		34	35	90	91		92	93	94		95	96		97	98	61	62	63		64	65		66	67	68		69	70		

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Fig. 1: Identifying PCM Terminals (Diamante)  
Courtesy of Mitsubishi Motor Sales of America

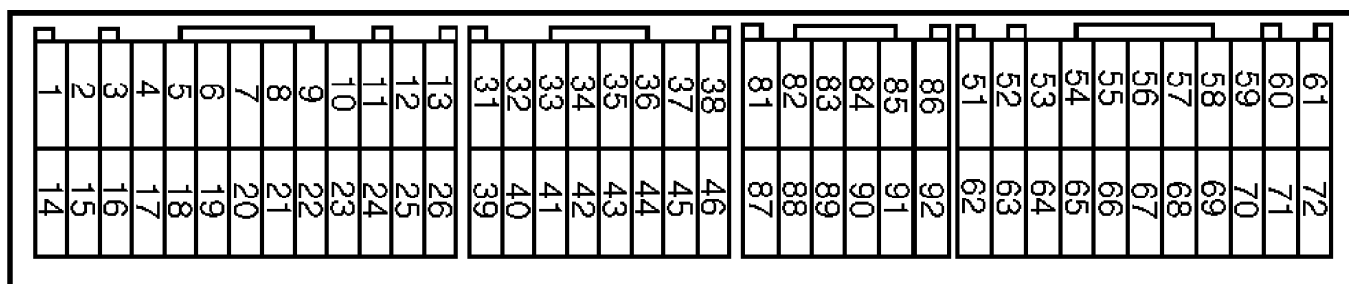


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Fig. 2: Identifying PCM Terminals (Eclipse 2.0L Non-Turbo)  
Courtesy of Mitsubishi Motor Sales of America



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Fig. 3: Identifying PCM Terminals (Eclipse 2.0L Turbo, 2.4L & Mirage)  
Courtesy of Mitsubishi Motor Sales of America



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Fig. 4: Identifying PCM Terminals (Galant)  
Courtesy of Mitsubishi Motor Sales of America

1	2		3	4						5	6				7	8
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
24	25		26	27	28	29		30	31	32	33		34	35		

41	42	43	44						45	46	47
48	49	50	51	52	53	54	55	56	57	58	59
60	61		62	63	64		65	66		67	68

71	72		73	74					75	76	77	
78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93		94	95		96	97	98		99	100

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Fig. 5: Identifying PCM Terminals (All Other Models)  
Courtesy of Mitsubishi Motor Sales of America

## ENGINE SENSORS & SWITCHES

NOTE: For circuit identification, see appropriate wiring diagram in L - WIRING DIAGRAMS article.

Automatic Transaxle/Transmission Range Switch Or Park Neutral Position Switch  
See G - TESTS W/CODES article.

Barometric Pressure Sensor  
Sensor is a part of volume airflow sensor assembly. See G - TESTS W/CODES article.

Closed Throttle Position Switch  
Switch is part of throttle position sensor. See CLOSED

THROTTLE POSITION (TP) SWITCH or THROTTLE POSITION (TP) SENSOR in G - TESTS W/CODES article.

Engine Coolant Temperature Sensor  
See G - TESTS W/CODES article.

Heated Oxygen Sensor  
See G - TESTS W/CODES article.

Intake Air Temperature (IAT) Sensor  
On all models except Eclipse 2.0L non-turbo and Mirage 1.5L, IAT sensor is a part of volume airflow sensor assembly. On all models, see G - TESTS W/CODES article.

Manifold Absolute Pressure Sensor  
See G - TESTS W/CODES article.

Manifold Differential Pressure Sensor  
See G - TESTS W/CODES article.

Power Steering Oil Pressure (PSP) Switch  
On Eclipse 2.0L non-turbo, see DTC 115 in G - TESTS W/CODES - NON-TURBO article. On all other models except Eclipse 2.0L non-turbo, see G - TESTS W/CODES article.

Throttle Position Sensor  
See G - TESTS W/CODES article.

Vehicle Speed Sensor  
See G - TESTS W/CODES article.

Volume Airflow Sensor  
See G - TESTS W/CODES article.

## **MOTORS, RELAYS & SOLENOIDS**

### **MOTORS**

Idle Air Control Motor  
See G - TESTS W/CODES article.

### **RELAYS**

ASD, Fuel Pump & MFI Relay  
See G - TESTS W/CODES article.

Radiator Cooling Fan Control Relay (High & Low)  
See G - TESTS W/CODES article.

### **SOLENOIDS**

EGR Control Solenoid Valve  
See EXHAUST GAS RECIRCULATION (EGR) under EMISSION SYSTEMS & SUB-SYSTEMS.

EVAP Purge Control Solenoid Valve  
See FUEL EVAPORATION under EMISSION SYSTEMS & SUB-SYSTEMS.

Fuel Pressure Regulator Control Solenoid Valve (Turbo Models)  
See FUEL DELIVERY under FUEL SYSTEM.

Wastegate Control Solenoid Valve

See TURBOCHARGER under AIR INDUCTION SYSTEMS.

## **FUEL SYSTEM**

### **FUEL DELIVERY**

NOTE: For fuel system pressure testing, see  
F - BASIC TESTING article.

Fuel Pressure Regulator Control Solenoid Valve (Turbo Models)  
See G - TESTS W/CODES article.

### **FUEL CONTROL**

Fuel Injectors  
See G - TESTS W/CODES article.

## **IDLE CONTROL SYSTEM**

### **ELECTRICAL LOAD SWITCH**

3000GT (DOHC)

1) Turn ignition off. Disconnect PCM connector. See  
POWERTRAIN CONTROL MODULE (PCM) LOCATION table under COMPUTERIZED  
ENGINE CONTROLS. Go to next step.

2) Turn headlights on. Using DVOM, check voltage between PCM  
connector terminal No. 58 and chassis ground. If battery voltage is  
present, turn headlights off and go to next step. If battery voltage  
is not present, check and repair circuit between headlight relay  
connector and PCM connector.

3) Turn defogger switch on. Using DVOM, check voltage between  
PCM connector terminal No. 58 and chassis ground. If battery voltage  
is present, turn defogger switch off and go to next step. If battery  
voltage is not present, check and repair circuit between defogger  
relay connector and PCM connector.

4) Turn blower switch on. Using DVOM, check voltage between  
PCM connector terminal No. 58 and chassis ground. If battery voltage  
is present, turn blower switch off and go to next step. If battery  
voltage is not present, check and repair circuit between blower switch  
connector and PCM connector.

5) If battery voltage is present and preceding tests do not  
show any system or component malfunction and PCM is suspected,  
substitute PCM with known-good unit and retest system.

### **IDLE AIR CONTROL (IAC) MOTOR**

For testing procedures, see G - TESTS W/CODES article.

## **IGNITION SYSTEM**

NOTE: For basic ignition checks, see F - BASIC TESTING article.

### **TIMING CONTROL SYSTEMS**

Camshaft Position Sensor  
See G - TESTS W/CODES article.

Crankshaft Position Sensor  
See G - TESTS W/CODES article.

Knock Sensor  
See G - TESTS W/CODES article.

## **EMISSION SYSTEMS & SUB-SYSTEMS**

### **EXHAUST GAS RECIRCULATION (EGR)**

EGR Control Solenoid Valve  
See G - TESTS W/CODES article.

### **FUEL EVAPORATION**

EVAP Purge Control Valve  
See G - TESTS W/CODES article.

EVAP Purge Control Solenoid Valve  
See G - TESTS W/CODES article.

### **POSITIVE CRANKCASE VENTILATION (PCV)**

PCV Valve  
Remove PCV valve. Shake valve. Valve should rattle if moving freely. Apply air pressure to valve. Air should flow freely in one direction only. Connect PCV valve to vacuum hose and start engine. Ensure vacuum is flowing through valve.

## **MISCELLANEOUS CONTROLS**

NOTE: Although the controlled devices listed here are not technically engine performance components, they can affect driveability if they malfunction.

NOTE: To identify PCM A/C power supply voltage terminals, see appropriate pin voltage chart in J - PIN VOLTAGE CHARTS article. To identify PCM A/C power supply circuit, see appropriate wiring diagram in L - WIRING DIAGRAMS article.

A/C Switch & Compressor Clutch Relay  
Using DVOM, check A/C power supply voltage from PCM. Turn ignition switch to OFF position. Disconnect PCM connector. Turn A/C switch and ignition switch to ON position. Check voltage between PCM A/C power supply terminal and chassis ground. If battery voltage is not as present, check and repair circuit(s).