I - SYSTEM/COMPONENT TESTS

1998 Mitsubishi Galant

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/cm²)
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

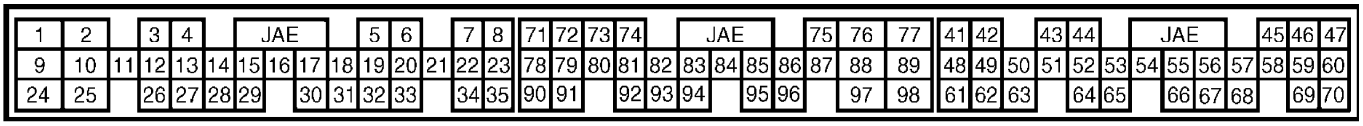

Fig. 1: Identifying PCM Terminals (Diamante)
Courtesy of Mitsubishi Motor Sales of America

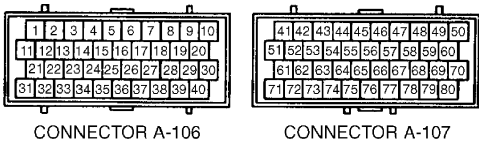

Fig. 2: Identifying PCM Terminals (Eclipse 2.0L Non-Turbo)
Courtesy of Mitsubishi Motor Sales of America

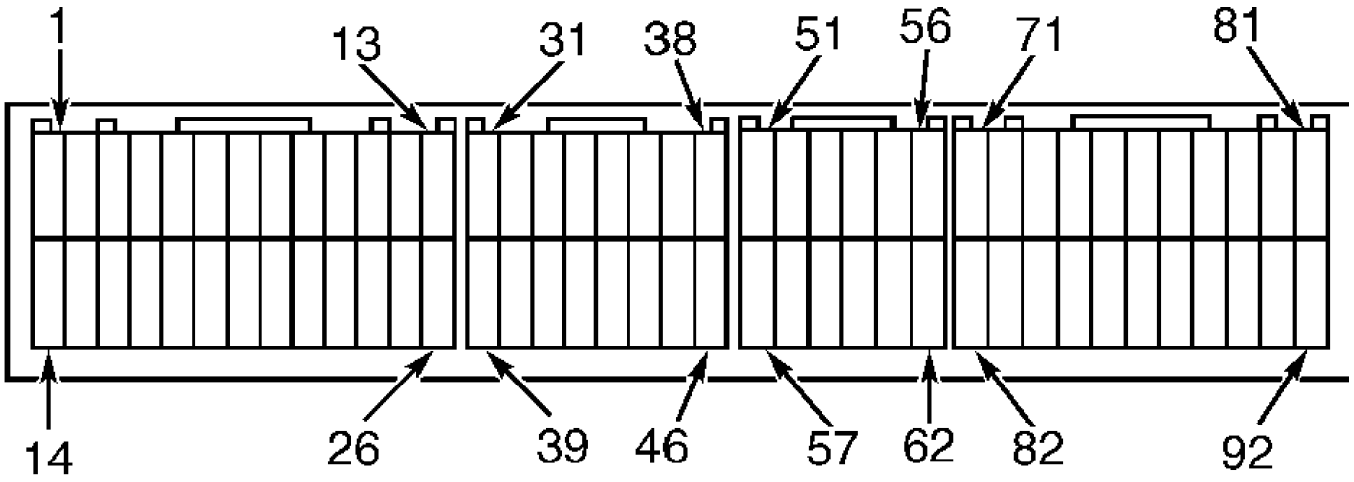

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Fig. 3: Identifying PCM Terminals (Eclipse 2.0L Turbo, 2.4L & Mirage)
Courtesy of Mitsubishi Motor Sales of America

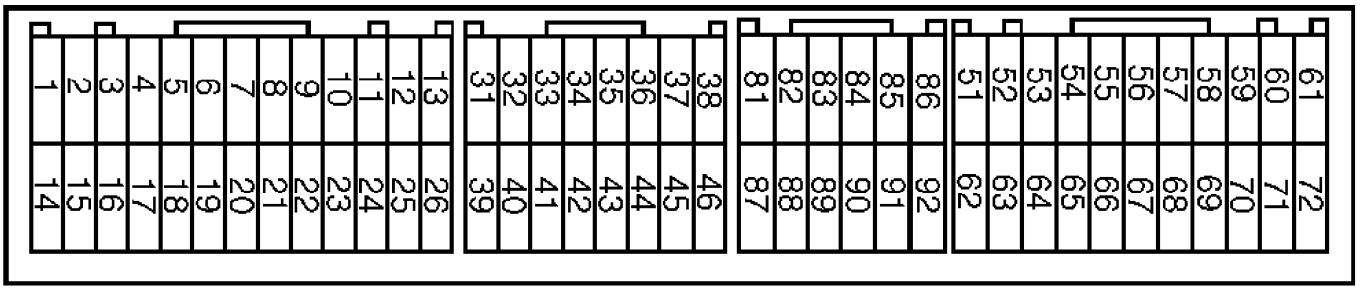

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Fig. 4: Identifying PCM Terminals (Galant)
Courtesy of Mitsubishi Motor Sales of America

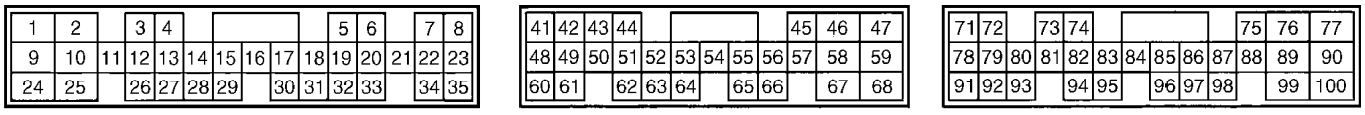

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Fig. 5: Identifying PCM Terminals (All Other Models)
Courtesy of Mitsubishi Motor Sales of America

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).