

N - REMOVE/INSTALL/OVERHAUL

1998 Mitsubishi Galant

1998 ENGINE PERFORMANCE
Mitsubishi - Removal, Overhaul & Installation

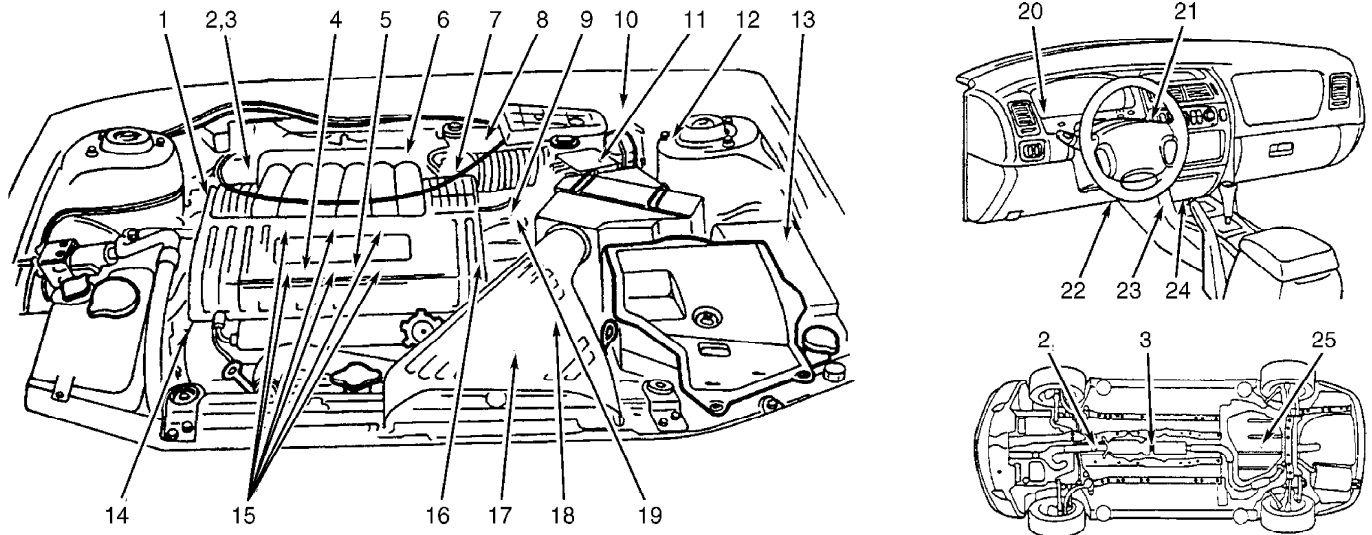
Diamante, Eclipse, Galant, Mirage, Montero, Montero Sport,
3000GT

INTRODUCTION

Removal, overhaul and installation procedures are covered in this article. If component removal and installation is primarily an unbolt and bolt-on procedure, only a torque specification may be furnished.

COMPONENT LOCATION

The following illustrations are provided to assist in locating components for which removal and installation procedures may not be provided. See Figs. 1-12.

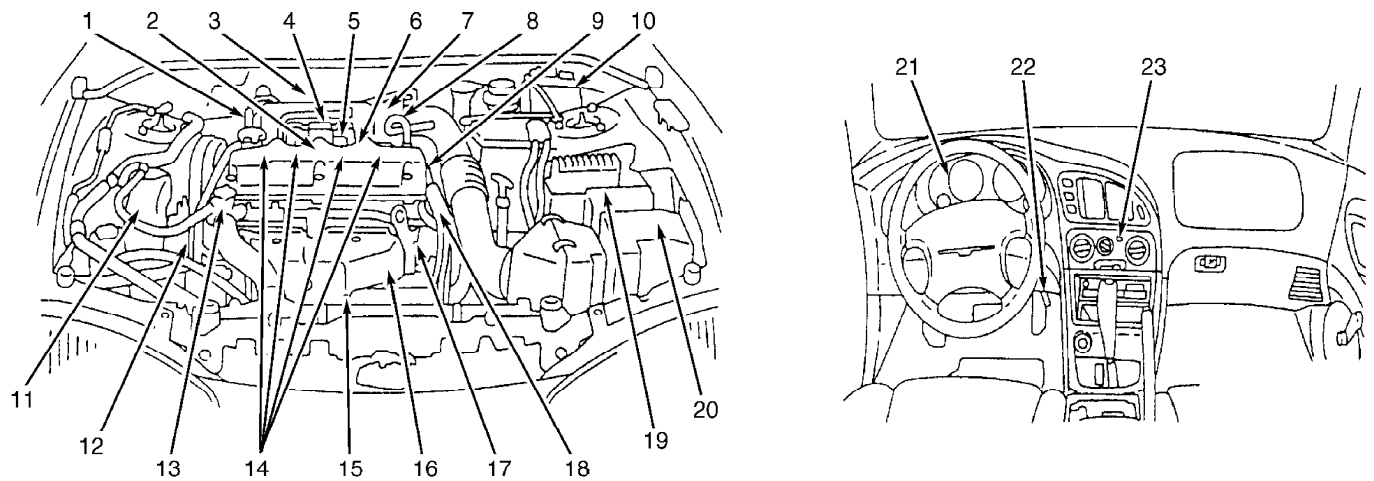


1. Power Steering Pressure (PSP) Switch
2. Front Heated Oxygen Sensor (HO2S)
3. Rear Heated Oxygen Sensor (HO2S)
4. Evaporative Emission (EVAP) Purge Solenoid
5. Exhaust Gas Recirculation (EGR) Solenoid
6. Manifold Differential Pressure (MDP) Sensor
7. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP)
8. Idle Air Control (IAC) Motor
9. Camshaft Position (CMP) Sensor
10. Fuel Pump Check Terminal
11. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors
12. Evaporative Emission (EVAP) Vent Solenoid
13. A/C Clutch Relay

14. Crankshaft Position (CKP) Sensor
15. Fuel Injector
16. Engine Coolant Temperature (ECT) Sensor
17. Vehicle Speed Sensor (VSS)
18. Park/Neutral Position (PNP) Switch (A/T)
19. Ignition Coil/Power Transistor
20. Malfunction Indicator Light (MIL)
21. A/C Switch
22. Data Link Connector (DLC)
23. MFI & Fuel Pump Relays
24. Powertrain Control Module (PCM)
25. Fuel Tank Pressure Differential Sensor

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Fig. 1: Engine Performance-Related Components (Diamante)
Courtesy of Mitsubishi Motor Sales of America

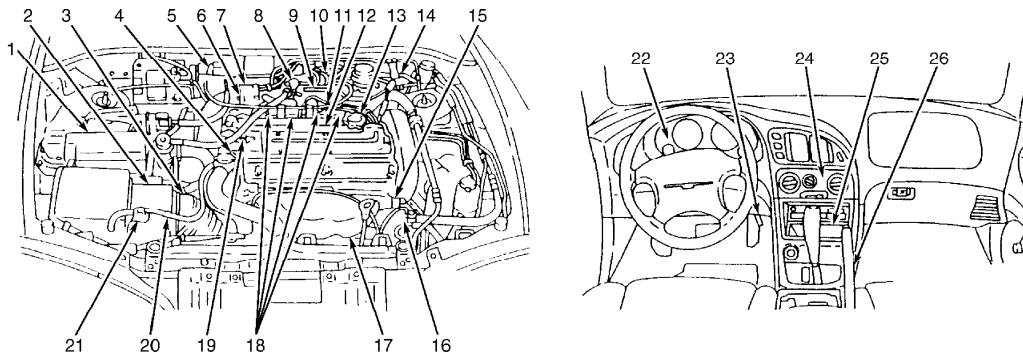


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| <ol style="list-style-type: none"> 1. Manifold Absolute Pressure (MAP) Sensor 2. Crankshaft Position (CKP) Sensor 3. Intake Air Temperature (IAT) Sensor 4. Ignition Coil 5. Rear Heated Oxygen Sensor (HO2S) 6. Knock Sensor (KS) 7. Idle Air Control (IAC) Motor 8. Throttle Position (TP) Sensor 9. Camshaft Position (CMP) Sensor 10. MFI/ASD Relay 11. Evaporative Emission (EVAP) Purge Solenoid 12. Power Steering Pressure (PSP) Switch | <ol style="list-style-type: none"> 13. Engine Coolant Temperature (ECT) Sensor 14. Fuel Injector 15. Front Heated Oxygen Sensor (HO2S) 16. Vehicle Speed Sensor 17. Park/Neutral Position (PNP) Switch (A/T) 18. Electric Exhaust Gas Recirculation (EGR) Transducer Solenoid 19. Powertrain Control Module (PCM) 20. A/C Clutch Relay 21. Malfunction Indicator Light (MIL) 22. Data Link Connector (DLC) 23. A/C Switch |
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Fig. 2: Engine Performance-Related Components (Eclipse 2.0L Non-Turbo)

Courtesy of Mitsubishi Motor Sales of America

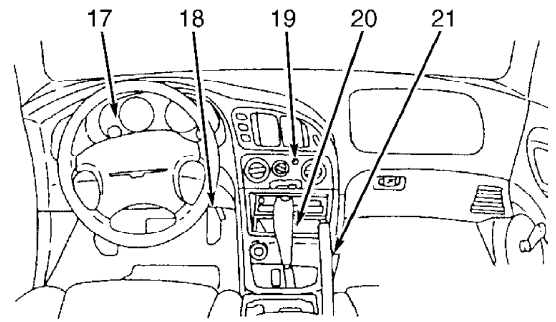
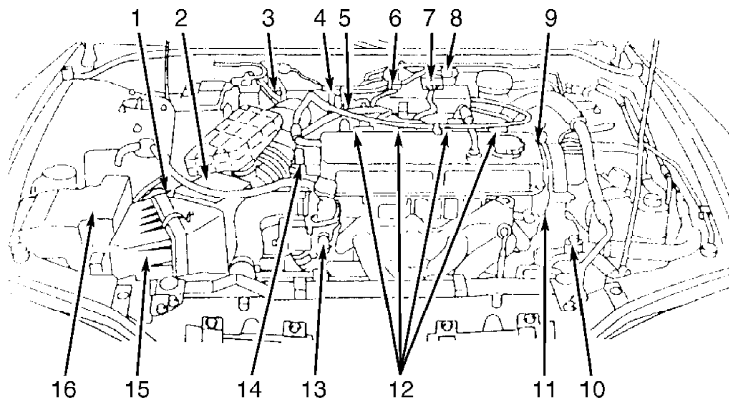


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| <ol style="list-style-type: none"> 1. A/C Clutch Relay 2. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 3. Vehicle Speed Sensor (VSS) 4. Engine Coolant Temperature (ECT) Sensor 5. Fuel Pump Check Terminal 6. Idle Air Control (IAC) Motor 7. Throttle Position (TP) Sensor With Built-In Closed Throttle Position (CTP) Sensor 8. Manifold Differential Pressure (MDP) Sensor 9. Resistor 10. Exhaust Gas Recirculation (EGR) Solenoid 11. Ignition Coil/Power Transistor 12. Knock Sensor (KS) | <ol style="list-style-type: none"> 13. Evaporative Emission (EVAP) Purge Solenoid 14. Fuel Pressure Solenoid 15. Crankshaft Position (CKP) Sensor 16. Power Steering Pressure (PSP) Switch 17. Front Heated Oxygen Sensor (HO2S) 18. Fuel Injector 19. Camshaft Position (CMP) Sensor 20. Turbocharger Wastegate Solenoid (Turbo) 21. MFI Relay 22. Malfunction Indicator Light (MIL) 23. Data Link Connector (DLC) 24. A/C Switch 25. Powertrain Control Module (PCM) 26. Fuel Pump Relay |
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Fig. 3: Engine Performance-Related Components (Eclipse 2.0L Turbo)

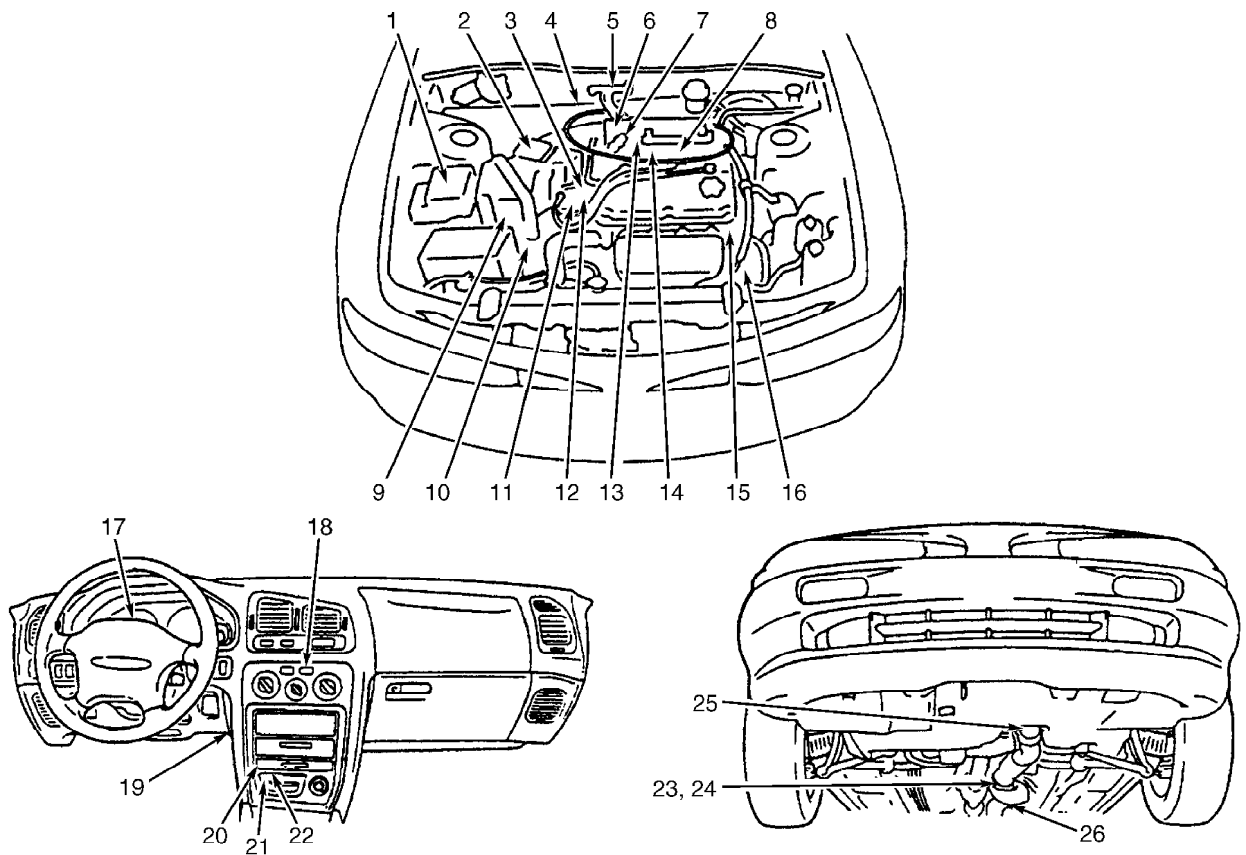
Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. Vehicle Speed Sensor 2. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 3. Fuel Pump Check Terminal 4. Idle Air Control Motor 5. Throttle Position (TP) Sensor With Built-In Closed Throttle Position (CTP) Sensor 6. Manifold Differential Pressure (MDP) Sensor 7. Ignition Power Transistor 8. Evaporative Emission (EVAP) Purge Solenoid 9. Ignition Coil/Power Transistor 10. Power Steering Pressure (PSP) Sensor | <ol style="list-style-type: none"> 11. Crankshaft Position (CKP) Sensor 12. Fuel Injector 13. Engine Coolant Temperature (ECT) Sensor 14. Camshaft Position (CMP) Sensor 15. Park/Neutral Position (PNP) Switch (A/T) 16. A/C Clutch Relay 17. Malfunction Indicator Light (MIL) 18. Data Link Connector (DLC) 19. A/C Switch 20. Powertrain Control Module (PCM) 21. Fuel Pump Relay |
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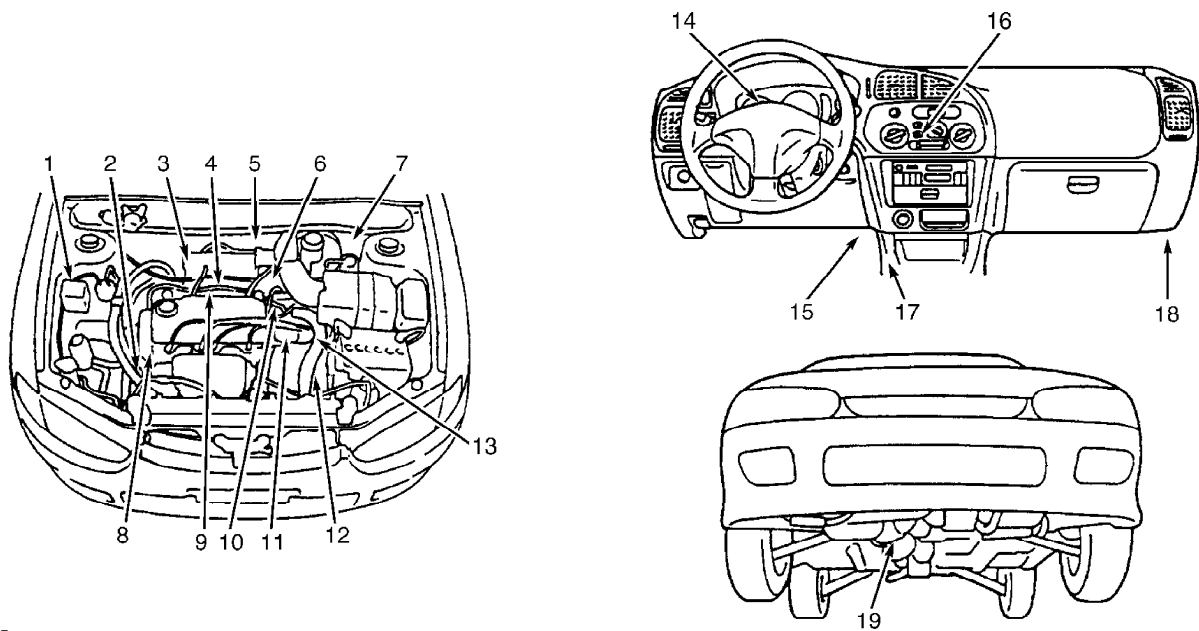
Fig. 4: Engine Performance-Related Components (Eclipse 2.4L)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. A/C Clutch Relay 2. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 3. Engine Coolant Temperature (ECT) Sensor 4. Fuel Pump Check Terminal 5. Exhaust Gas Recirculation (EGR) Solenoid (Fed.) 6. Idle Air Control (IAC) Motor 7. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 8. Fuel Injector 9. Vehicle Speed Sensor (VSS) 10. Park/Neutral Position (PNP) Switch (A/T) 11. Ignition Coil/Power Transistor 12. Camshaft Position (CMP) Sensor | <ol style="list-style-type: none"> 13. Manifold Differential Pressure (MDP) Sensor (Fed.) 14. Evaporative Emission (EVAP) Purge Solenoid 15. Crankshaft Position (CKP) Sensor 16. Power Steering Pressure (PSP) Switch 17. Malfunction Indicator Light (MIL) 18. A/C Switch 19. Data Link Connector (DLC) 20. MFI & Fuel Pump Relays 21. Powertrain Control Module (PCM) 22. Fuel Pump Relay Module (Ca.) 23. Front Heated Oxygen Sensor (HO2S - Fed.) 24. Rear Heated Oxygen Sensor (HO2S - Ca.) 25. Front Heated Oxygen Sensor (HO2S - Ca.) 26. Rear Heated Oxygen Sensor (HO2S - Fed.) |
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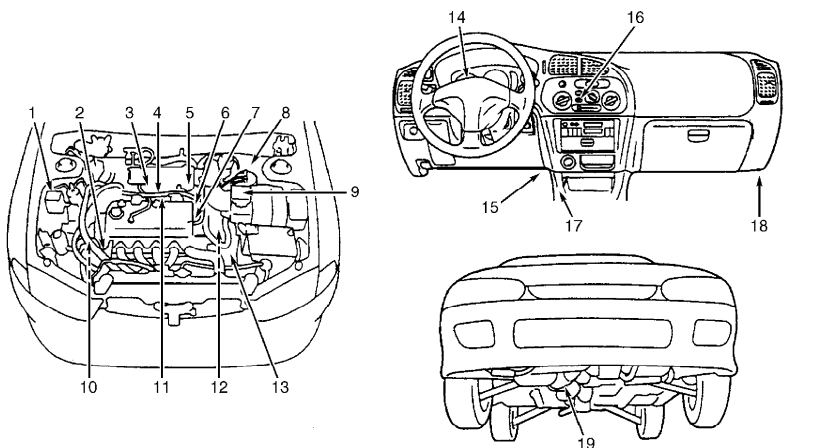
Fig. 5: Engine Performance-Related Components (Galant)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. A/C Clutch Relay 2. Power Steering Pressure (PSP) Switch 3. Intake Air Temperature (IAT) Sensor 4. Exhaust Gas Recirculation (EGR) & Evaporative Emission (EVAP) Purge Solenoids 5. Manifold Absolute Pressure (MAP) Sensor 6. Idle Air Control (IAC) Motor & Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 7. Fuel Pump Check Terminal 8. Crankshaft Position (CKP) Sensor 9. Fuel Injector | <ol style="list-style-type: none"> 10. Engine Coolant Temperature (ECT) Sensor 11. Camshaft Position (CMP) Sensor & Ignition Coil/Power Transistor 12. Park/Neutral Position (PNP) Switch (A/T) 13. Vehicle Speed Sensor (VSS) 14. Malfunction Indicator Light (MIL) 15. Data Link Connector (DLC) 16. A/C Switch 17. MFI & Fuel Pump Relays 18. Powertrain Control Module (PCM) 19. Heated Oxygen Sensor (HO2S) |
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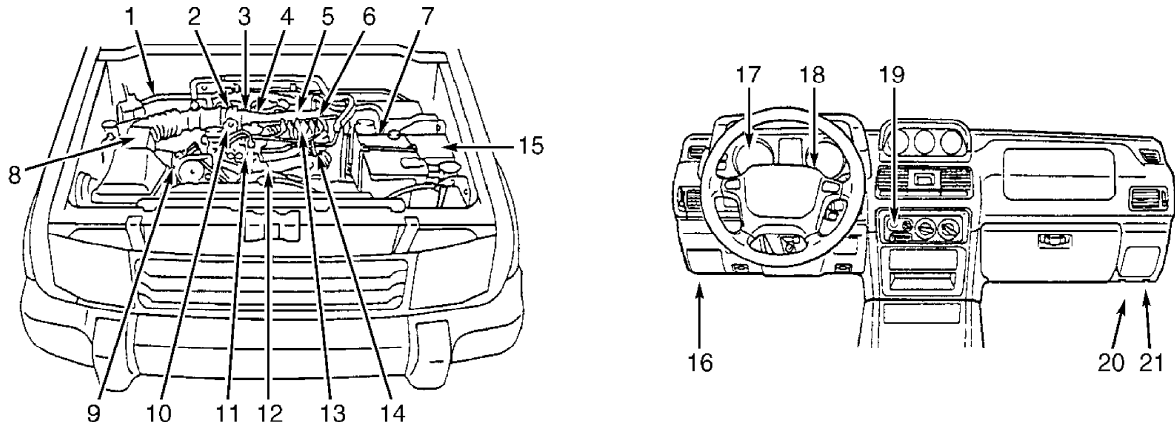
Fig. 6: Engine Performance-Related Components (Mirage 1.5L)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. A/C Clutch Relay 2. Power Steering Pressure (PSP) Switch 3. Exhaust Gas Recirculation (EGR) & Evaporative Emission (EVAP) Purge Solenoids 4. Manifold Differential Pressure (MDP) Sensor 5. Idle Air Control (IAC) Motor & Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 6. Camshaft Position (CMP) Sensor 7. Engine Coolant Temperature (ECT) Sensor 8. Fuel Pump Check Terminal 9. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors | <ol style="list-style-type: none"> 10. Ignition Failure Sensor 11. Injector & Ignition Coil/Power Transistor 12. Vehicle Speed Sensor 13. Park/Neutral Position (PNP) Switch (A/T) 14. Malfunction Indicator Light (MIL) 15. Data Link Connector (DLC) 16. A/C Switch 17. MFI & Fuel Pump Relays 18. Powertrain Control Module (PCM) 19. Heated Oxygen Sensor (HO2S) |
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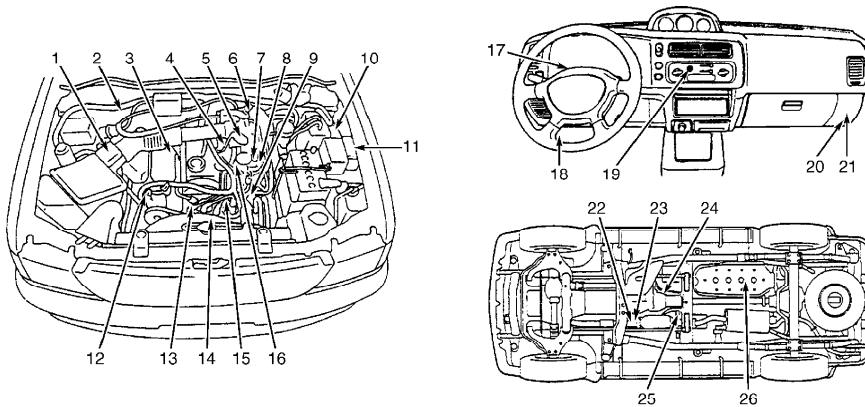
Fig. 7: Engine Performance-Related Components (Mirage 1.8L)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. Fuel Pump Check Terminal 2. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 3. Exhaust Gas Recirculation (EGR) Solenoid 4. Evaporative Emission (EVAP) Purge Solenoid 5. Fuel Injector 6. Manifold Differential Pressure (MDP) Sensor 7. Evaporative Emission (EVAP) Vent Solenoid 8. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 9. Power Steering Pressure (PSP) Switch 10. Idle Air Control (IAC) Motor | <ol style="list-style-type: none"> 11. Engine Coolant Temperature (ECT) Sensor 12. Crankshaft Position (CKP) Sensor 13. Ignition Coil/Power Transistor 14. Camshaft Position (CMP) Sensor 15. A/C Clutch Relay 16. Data Link Connector (DLC) 17. Vehicle Speed Sensor (VSS) 18. Malfunction Indicator Light (MIL) 19. A/C Switch 20. Powertrain Control Module (PCM) 21. MFI & Fuel Pump Relays |
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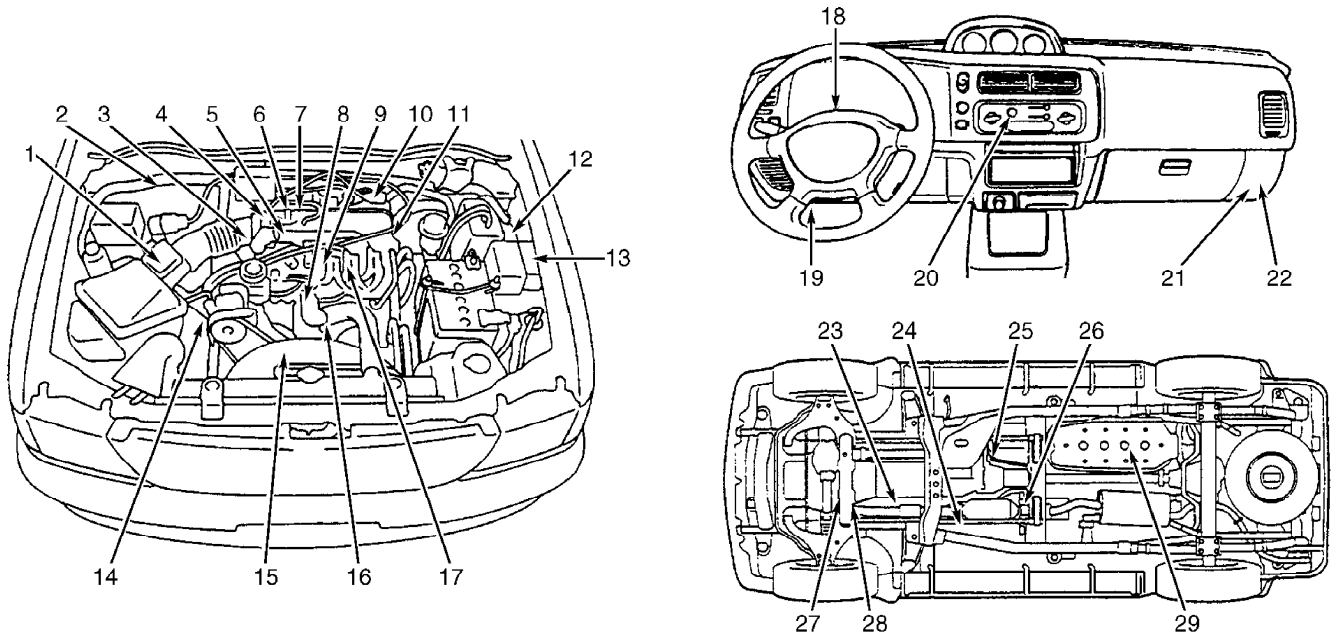
Fig. 8: Engine Performance-Related Components (Montero)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 2. Fuel Pump Check Terminal 3. Front Heated Oxygen Sensor (HO2S - Ca.) 4. Idle Air Control (IAC) Motor 5. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 6. Manifold Differential Pressure (MDP) Sensor (Fed.) 7. Evaporative Emission (EVAP) Purge & Exhaust Gas Recirculation (EGR) Solenoids (Fed.) 8. Evaporative Emission (EVAP) Purge Solenoid (Ca.) 9. Engine Coolant Temperature (ECT) Sensor 10. Evaporative (EVAP) Vent Solenoid (Ca.) 11. A/C Clutch Relay 12. Power Steering Pressure (PSP) Switch | <ol style="list-style-type: none"> 13. Camshaft Position (CMP) Sensor 14. Crankshaft Position (CKP) Sensor 15. Ignition Coil/Power Transistor 16. Fuel Injector 17. Malfunction Indicator Light (MIL) 18. Data Link Connector (DLC) 19. A/C Switch 20. MFI & Fuel Pump Relays 21. Powertrain Control Module (PCM) 22. Rear Heated Oxygen Sensor (HO2S - Ca.) 23. Front Heated Oxygen Sensor (HO2S - Fed.) 24. Vehicle Speed Sensor (VSS) 25. Rear Heated Oxygen Sensor (HO2S - Fed.) 26. Fuel Tank Differential Pressure Sensor |
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Fig. 9: Engine Performance-Related Components (Montero Sport 2.4L)
 Courtesy of Mitsubishi Motor Sales of America

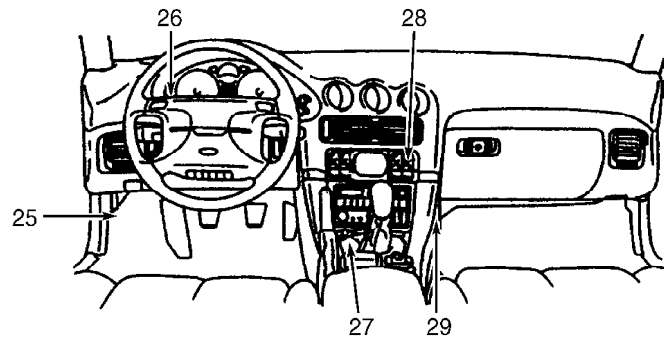
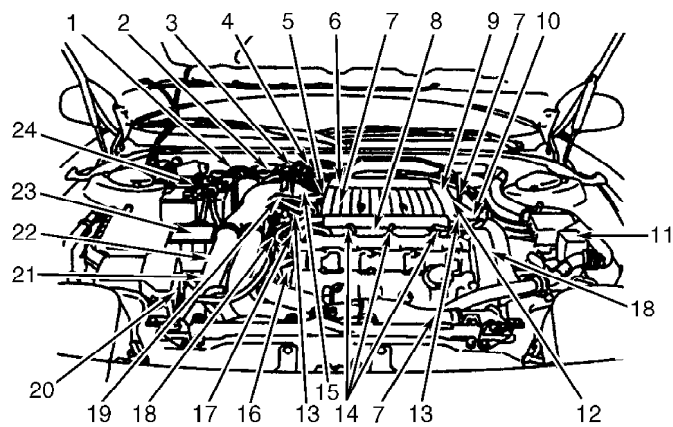


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| <ol style="list-style-type: none"> 1. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 2. Fuel Pump Check Terminal 3. Idle Air Control (IAC) Motor 4. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 5. RF Heated Oxygen Sensor (HO2S - Ca.) 6. Exhaust Gas Recirculation (EGR) & Evaporative Emission (EVAP) Purge Solenoids (Fed.) 7. Evaporative Emission (EVAP) Purge Solenoid (Ca.) 8. Engine Coolant Temperature (ECT) Sensor 9. Fuel Injector 10. Manifold Differential Pressure (MDP) Sensor 11. LF Heated Oxygen Sensor (HO2S - Ca.) 12. Evaporative Emission (EVAP) Vent Solenoid 13. A/C Clutch Relay | <ol style="list-style-type: none"> 14. Power Steering Pressure (PSP) Switch 15. Crankshaft Position (CKP) Sensor 16. Camshaft Position (CMP) 17. Ignition Coil/Power Transistor 18. Malfunction Indicator Light (MIL) 19. Data Link Connector (DLC) 20. A/C Switch 21. MFI & Fuel Pump Relays 22. Powertrain Control Module (PCM) 23. Park/Neutral Position (PNP) Switch (A/T) 24. Front Heated Oxygen Sensor (HO2S - Fed.) 25. Vehicle Speed Sensor (VSS) 26. Rear Heated Oxygen Sensor (HO2S - Fed.) 27. RR Heated Oxygen Sensor (HO2S - Ca.) 28. LR Heated Oxygen Sensor (HO2S - Ca.) 29. Fuel Tank Differential Pressure Sensor |
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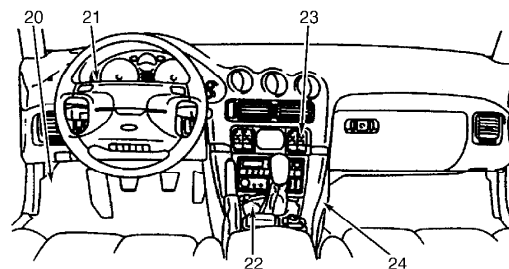
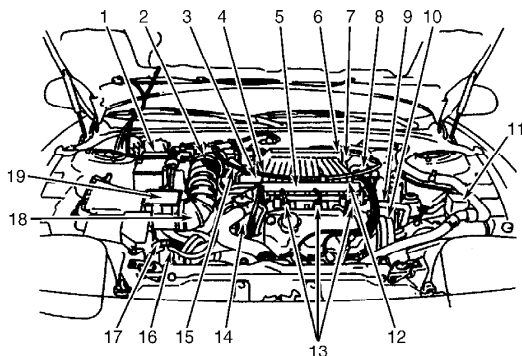
Fig. 10: Engine Performance-Related Components (Montero Sport 3.0L)

Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. Resistor (Turbo) 2. Fuel Pressure Solenoid (Turbo) 3. Exhaust Gas Recirculation (EGR) Solenoid (Turbo) 4. Wastegate Solenoid (Turbo) 5. Evaporative Emission (EVAP) Purge Solenoid 6. Manifold Differential Pressure Sensor 7. Heated Oxygen Sensor (HO2S) 8. Knock Sensor (KS) 9. Variable Induction Control (VIC) Motor With Built-In VIC Control Valve Sensor (Non-Turbo) 10. Power Steering Pressure (PSP) Switch 11. A/C Clutch Relay 12. Exhaust Gas Recirculation (EGR) Sensor 13. Camshaft Position (CMP) Sensor 14. Fuel Injector 15. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) | <ol style="list-style-type: none"> 16. Ignition Coil/Power Transistor 17. Engine Coolant Temperature (ECT) Sensor 18. Crankshaft Position (CKP) Sensor 19. Idle Air Control (IAC) Motor 20. Evaporative Emission (EVAP) Vent Solenoid 21. Park/Neutral Position (PNP) Switch (A/T) 22. Vehicle Speed Sensor (VSS) 23. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 24. Ignition Timing Terminal 25. Data Link Connector (DLC) 26. Malfunction Indicator Light (MIL) 27. Powertrain Control Module (PCM) 28. A/C Switch 29. MFI Relay |
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 Fig. 11: Engine Performance-Related Components (3000GT DOHC)
 Courtesy of Mitsubishi Motor Sales of America



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| <ol style="list-style-type: none"> 1. Ignition Timing Terminal 2. Idle Air Control (IAC) Motor 3. Evaporative Emission (EVAP) Purge Solenoid 4. Exhaust Gas Recirculation (EGR) Solenoid 5. Heated Oxygen Sensor (HO2S) 6. Manifold Differential Pressure (MDP) Solenoid 7. Variable Induction Control (VIC) Motor With Built-In Idle Air Control (IAC) Valve 8. Camshaft Position (CMP) Sensor 9. Power Steering Pressure (PSP) Switch 10. Crankshaft Position (CKP) Sensor 11. A/C Clutch Relay 12. Ignition Coil/Power Transistor 13. Fuel Injector | <ol style="list-style-type: none"> 14. Engine Coolant Temperature (ECT) Sensor 15. Throttle Position (TP) Sensor With Built-In Closed Throttle Position Sensor (CTP) 16. Evaporative Emission (EVAP) Vent Solenoid 17. Park/Neutral Position (PNP) Switch (A/T) 18. Vehicle Speed Sensor 19. Volume Airflow Sensor (VAF) With Built-In Intake Air Temperature (IAT) & Barometric (BARO) Pressure Sensors 20. Data Link Connector (DLC) 21. Malfunction Indicator Light (MIL) 22. Powertrain Control Module (PCM) 23. A/C Switch 24. MFI Relay |
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 Fig. 12: Engine Performance-Related Components (3000GT SOHC)
 Courtesy of Mitsubishi Motor Sales of America

IGNITION SYSTEM

DISTRIBUTOR

NOTE: Eclipse, Mirage 1.8L, Montero, Montero Sport 3.0L and 3000GT DOHC use Distributorless Ignition System (DIS). All other models use distributor type ignition systems with non-serviceable distributors on which only the rotor and distributor cap can be changed.

FUEL SYSTEM

*** PLEASE READ THIS FIRST ***

WARNING: Always relieve fuel pressure before disconnecting any fuel injection-related component. DO NOT allow fuel to contact engine or electrical components.

FUEL SYSTEM PRESSURE RELEASE

Relieving Fuel Pressure

1) On Diamante, disconnect fuel pump harness connector at fuel tank from underneath vehicle. On Montero and Montero Sport, remove cargo compartment carpet, remove access plate and disconnect fuel pump harness connector. On all other models, remove rear seat cushion and remove access plate (if required) to disconnect fuel pump harness connector.

2) On all models, start engine. Let engine run until it stops. Turn ignition off. Disconnect negative battery cable. Connect fuel pump harness connector. Reinstall rear seat (if necessary.)

FUEL PUMP

Removal & Installation (Diamante, Eclipse, Galant & Montero)

1) Fuel pump assembly is located inside fuel tank. Release fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove access panel under seat, in trunk or in rear cargo area. Disconnect electrical connectors and fuel hoses at fuel tank.

2) Remove fuel filler hose from fuel tank. Remove fuel pump assembly. To install, reverse removal procedure. Tighten nuts to specification. See TORQUE SPECIFICATIONS.

Removal & Installation (Mirage, Montero Sport & 3000GT)

1) Fuel pump assembly is located inside fuel tank. Release fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Raise vehicle on hoist. Drain fuel into suitable container. Disconnect electrical connectors and breather/fuel hoses at fuel tank.

2) Remove fuel filler hose from fuel tank. Support fuel tank with transmission jack. Remove nuts securing fuel tank. Remove fuel tank from vehicle. Remove fuel pump assembly. To install, reverse removal procedure. Tighten nuts to specification. See TORQUE SPECIFICATIONS.

FUEL RAILS & INJECTORS

WARNING: Use a rag to cover fuel hose connection before disconnecting high pressure fuel hose at fuel rail. Some residual fuel pressure may still be in system.

CAUTION: DO NOT drop injectors while removing or installing fuel rail.

Removal (Diamante, Montero Sport 2.4L & 3000GT)

1) Relieve fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Drain coolant. Remove air intake hose. Remove throttle body and gasket with control cables and vacuum hoses attached.

2) Remove EGR pipe (if equipped). Disconnect power brake hose. Label and disconnect vacuum hoses and wiring harness connectors as necessary. Remove intake plenum brackets and mounting bolts. Remove intake plenum and gasket.

3) Disconnect high pressure fuel hose at fuel rail. Disconnect fuel return hose. Disconnect vacuum hoses. Disconnect injector electrical connectors. Remove fuel rail bolts, and lift fuel rail and injectors from engine. Injectors may be removed after fuel rail is removed from intake manifold.

Installation

To install, reverse removal procedure. Use NEW insulators and "O" rings when installing injectors. Install injectors into fuel rail with a twisting motion. Ensure injectors rotate smoothly when installing. Refill cooling system.

Removal (Eclipse, Galant, Mirage & Montero Sport 3.0L)

1) Relieve fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Disconnect PCV hose and breather hoses. Disconnect high pressure fuel hose at fuel rail. Disconnect fuel return hose and vacuum hoses.

2) Disconnect injector electrical connectors. Remove fuel rail bolts, and lift fuel rail and injectors from engine. Injectors may be removed after fuel rail is removed from intake manifold.

Installation

To install, reverse removal procedure. Use NEW insulators and "O" rings when installing injectors. Use lubricant on "O" rings. Install injectors into fuel rail with a twisting motion. Ensure injectors rotate smoothly when installing.

Removal (Montero)

1) Relieve fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Remove air intake hose. Remove accelerator cable adjusting bolts. On A/T models, remove throttle control cable. On all models, remove accelerator cable. Label and disconnect all vacuum hoses from throttle body and upper intake manifold (air intake plenum).

2) Remove EGR pipe and gasket. Remove ignition coil (if necessary). Remove engine oil filler neck bracket. Disconnect PCV hose. Remove throttle body, leaving coolant hoses connected. Remove throttle body gasket. Remove front and rear intake plenum brackets. Remove intake plenum mounting bolts. Remove intake plenum and gasket.

3) Disconnect high pressure fuel hose at fuel rail. Disconnect fuel return hose. Disconnect vacuum hoses. Disconnect injector electrical connectors. Remove fuel rail bolts, and lift fuel rail and injectors from engine. Injectors may be removed after fuel rail is removed from intake manifold.

Installation

To install, reverse removal procedure. Use NEW insulators and "O" rings when installing injectors. Use lubricant on "O" rings. Install injectors into fuel rail using a twisting motion. Ensure injectors rotate smoothly when installing. Adjust throttle control and accelerator cables (if necessary). Refill cooling system.

HEATED OXYGEN SENSOR (HO2S)

Removal & Installation

1) Front HO2S is mounted in exhaust pipe below exhaust header. Rear HO2S is mounted behind catalytic converter. HO2S is equipped with a permanent pigtail which must be protected from damage when HO2S is removed. Ensure HO2S is free of contaminants. Avoid using cleaning solvents of any type.

2) HO2S may be difficult to remove when engine temperature is less than 120°F (48°C). If using original sensor, always use anti-seize compound on threads before installation. New sensor threads are pre-coated with anti-seize. Tighten HO2S to specification. See TORQUE SPECIFICATIONS.

THROTTLE BODY

Removal

1) Relieve fuel pressure. See FUEL SYSTEM PRESSURE RELEASE. Drain enough coolant to ensure coolant level is below throttle body. Disconnect air intake hose.

2) Remove accelerator, cruise control and A/T throttle valve cables (if equipped). Disconnect fuel vapor hose, electrical harness connector, vacuum hose and coolant hoses. Remove throttle body retaining bolts.

Disassembly

Remove throttle position sensor. Remove idle air control motor. Remove throttle bracket and connector bracket (if equipped). Remove idle position switch and adjusting nut (if equipped).

CAUTION: DO NOT remove throttle valve. DO NOT use cleaning solvents on throttle position sensor, idle air control motor or idle position switch.

Cleaning

1) Clean all parts except throttle position sensor, idle air control motor and idle position switch in solvent.

WARNING: Safety glasses MUST be worn whenever compressed air is used for parts cleaning.

2) Check vacuum port and passage for clogging. Clean vacuum, vapor and fuel passages using compressed air.

Reassembly

To reassemble, reverse disassembly procedure.

Installation

To install, reverse removal procedure.

THROTTLE POSITION (TP) SENSOR

Removal & Installation

Throttle Position (TP) sensor is located on throttle body. Disconnect TP sensor electrical connector. Remove TP sensor screws and TP sensor. To install, reverse removal procedure. Tighten TP sensor screws to specification. See TORQUE SPECIFICATIONS. For TP sensor adjustment procedure, see D - ADJUSTMENTS article.

TURBOCHARGERS

Removal (Eclipse)

1) Disconnect negative battery cable. Drain engine coolant and oil. On models equipped with A/C, remove condenser fan motor assembly. Remove front heated oxygen sensor. Remove oil dipstick guide and "O" ring.

2) Disconnect air intake hose and vacuum hoses. Remove air hose and air outlet housing. Remove heat protectors. Disconnect exhaust pipe. Remove power steering oil pump and bracket. Remove engine hanger bracket. Disconnect oil inlet pipe.

3) Disconnect engine coolant hoses and tubes from turbocharger. Remove exhaust manifold nuts and bolts. Remove exhaust manifold and gaskets. Disconnect oil pressure and return pipes. Remove turbocharger and exhaust manifold assembly. Separate turbocharger from exhaust manifold.

Removal (3000GT - Front)

1) Disconnect negative battery cable. Drain engine oil and coolant. Remove radiator. Disconnect exhaust pipe. Remove air intake hose, air hoses and air pipe. Remove generator and belt. Remove oil dipstick guide.

2) Remove heat protector. Disconnect front heated oxygen sensor connector. Remove oil return pipe. Remove turbocharger support bracket, and remove turbocharger from exhaust manifold.

Removal (3000GT - Rear)

1) Disconnect battery cables, and remove battery. Drain engine oil and cooling system. Remove accelerator cable. Remove air hose, air pipe and heat protectors. Disconnect clutch booster vacuum hose. Remove air intake hoses and EGR pipe. Disconnect heated oxygen sensor connectors.

2) Remove oil pipe and EGR valve. Disconnect exhaust fitting, and remove rear heat protector. Remove oil return pipe. Remove turbocharger assembly.

Inspection (All Models)

Check turbine and compressor wheels for cracking and other damage. Ensure turbine and compressor wheels turn smoothly. Check for oil leakage from turbocharger assembly. Check for proper wastegate valve operation. See I - SYSTEM/COMPONENT TESTS article.

CAUTION: Apply light coat of oil to inner surface of flared area on water pipe (flare nut fitting) before connecting to engine.

Installation (All Models)

1) To install, reverse removal procedure. Before oil pipe flare nut (above turbocharger) is installed, pour clean engine oil into turbocharger oil pipe installation hole. Ensure oil and air hoses are properly installed and securely clamped.

2) Use NEW gaskets. Adjust accelerator cable (if necessary). Refill engine oil and coolant. Check for oil and coolant leaks. Tighten all bolts to specification. See TORQUE SPECIFICATIONS.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Applications	Ft. Lbs. (N.m)
Coolant Pipe-To-Turbocharger Banjo Bolt	31 (42)
EGR Valve	16 (22)
Engine Coolant Temperature Sensor	22 (30)
Exhaust Manifold-To-Engine Nuts	18-21 (24-29)
Exhaust Manifold-To-Turbocharger Bolts	40-47 (54-64)
Exhaust Pipe Bolts	21-36 (29-49)
Fuel Filter Line	27 (36)
Fuel Tank Drain Plug	11-18 (15-24)
Fuel Tank Nuts	15-21 (20-29)

Heated Oxygen Sensor	
Front	29-33 (39-44)
Rear	15-29 (20-39)
Heat Protector Bolts	8.8-11 (12.0-15.0)
Intake Manifold Plenum Bolt/Nut	13 (18)
Knock Sensor	15-18 (20-24)
Oil Return Pipe-To-Engine	10-14 (14-19)
Oil Supply Pipe-To-Engine Nut	14 (19)
Oil Supply Pipe-To-Turbocharger Nut	14 (19)
Plenum-To-Intake Manifold Bolts	11-15 (15-20)
Throttle Body	14 (19)
Turbocharger-To-Exhaust Manifold Bolt/Nut	
Step 1	21 (29)
Step 2	Additional 60-70 Degrees
Water Pipe-To-Turbocharger	
Eclipse	25-36 (34-49)
3000GT	22 (30)

INCH Lbs. (N.m)

Camshaft Position Sensor	80 (9)
Crankshaft Position Sensor	80 (9)
Distributor Hold-Down Bolt	106 (12)
Engine Cover	22-40 (2.5-4.5)
Fuel Pressure Regulator	80 (9)
Fuel Pump Nuts	22 (2.5)
Fuel Rail Bolts	80-106 (9.0-12.0)
TP Sensor Screws	13-22 (1.5-2.5)
Wastegate Actuator Bolts	80-106 (9.0-12.0)
