

Uniform Inspection and Communication Standards

ENGINE PERFORMANCE AND MAINTENANCE

OVERVIEW

The Motorist Assurance Program is the consumer outreach effort of the Automotive Maintenance and Repair Association, Inc. (AMRA). Participation in the Motorist Assurance Program is drawn from retailers, suppliers, independent repair facilities, vehicle manufacturers and industry associations.

Our organization's mission is to strengthen the relationship between the consumer and the auto repair industry. We produce materials that give motorists the information and encouragement to take greater responsibility for their vehicles through proper, manufacturer-recommended, maintenance. We encourage participating service and repair shops (including franchisees and dealers) to adopt (1) a Pledge of Assurance to their Customers and (2) the Motorist Assurance Program Standards of Service. All participating service providers have agreed to subscribe to this Pledge and to adhere to the promulgated Standards of Service demonstrating to their customers that they are serious about customer satisfaction.

These Standards of Service require that an inspection of the vehicle's (problem) system be made and the results communicated to the customer according to industry standards. Given that the industry did not have such standards, the Motorist Assurance Program successfully promulgated industry inspection communication standards in 1994-95 for the following systems: Exhaust, Brakes, ABS, Steering and Suspension, Engine Maintenance and Performance, HVAC, Electrical Systems, and Drive Train and Transmissions. Further, revisions to all of these inspection communication standards are continually re-published. Participating shops utilize these Uniform Inspection & Communication Standards as part of the inspection process and for communicating their findings to their customers.

The Motorist Assurance Program continues to work cooperatively and proactively with government agencies and consumer groups toward solutions that both benefit the customer and are mutually acceptable to both regulators and industry. We maintain the belief that industry must retain control over how we conduct our business, and we must be viewed as part of the solution and not part of the problem. Meetings with state and other government officials (and their representatives), concerned with auto repair and/or consumer protection, are conducted. Feedback from these sessions is brought back to the association, and the program adjusted as needed.

To assure auto repair customers recourse if they were not satisfied with a repair transaction, the Motorist Assurance Program offers mediation and arbitration through the Better Business Bureau and other non-profit organizations. MAP conducted pilot programs in twelve states before announcing the program nationally in October 1998. During the pilots, participating repair shops demonstrated their adherence to the Pledge and Standards and agreed to follow the UICS in communicating the results of their inspection to their customers.

To put some "teeth" in the program, an accreditation requirement for shops was initiated. The requirements are stringent, and a self-policing method has been incorporated which includes the "mystery shopping" of outlets.

We welcome you to join us as we continue our outreach with your support, both the automotive repair industry and your customers will reap the benefits. Please visit MAP at our Internet site www.motorist.org or contact us at:

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OVERVIEW OF SERVICE REQUIREMENTS AND SUGGESTIONS

It is MAP policy that all exhaust, brake, steering, suspension, wheel alignment, drive-line, engine performance and maintenance, and heating, ventilation and air conditioning, and electrical services be offered and performed under the standards and procedures specified in these sections.

Before any service is performed on a vehicle, an inspection of the appropriate system must be performed. The results of this inspection must be explained to the customer and documented on an inspection form. The condition of the vehicle and its components will indicate what services/part replacements may be "Required" or "Suggested". In addition, suggestions may be made to satisfy the requests expressed by the customer.

When a component is suggested or required to be repaired or replaced, the decision to repair or replace must be made in the customer's best interest, and at his or her choice given the options available.

This section lists the various parts and conditions that indicate a **required** or **suggested** service or part replacement. Although this list is extensive, it is not fully inclusive. In addition to this list, a technician may make a suggestion. However, any suggestions must be based on substantial and informed experience, or the vehicle manufacturer's recommended service interval and must be documented.

Some conditions indicate that service or part replacement is **required** because the part in question is no longer providing the function for which it is intended, does not meet a vehicle manufacturer's design specification or is missing.

Example: An exhaust pipe has corroded severely and has a hole in it through which exhaust gases are leaking. Replacement of the exhaust pipe in this case is **required** due to functional failure.

Example: A brake rotor has been worn to the point where it measures less than the vehicle manufacturer's discard specifications. Replacement of the rotor is **required** because it does not meet design specifications.

Some conditions indicate that a service or part replacement is **suggested** because the part is close to the end of its useful life or addresses a customer's need, convenience or request. If a customer's vehicle has one of these conditions, the procedure may be only to suggest service.

Example: An exhaust pipe is rusted, corroded or weak, but no leaks are present. In this case, the exhaust pipe has not failed. However, there is evidence that the pipe may need replacement in the near future. Replacement of the pipe may be **suggested** for the customer's convenience in avoiding a future problem.

Example: The customer desires improved ride and/or handling, but the vehicle's shocks or struts have not failed. In this case, replacement may be **suggested** to satisfy the customer's wishes. In this case, replacement of the shocks or struts may not be sold as a requirement.

A customer, of course, has the choice of whether or not a shop will service his or her vehicle. He or she may decide not to follow some of your suggestions. When a repair is **required**, a MAP shop must refuse partial service on that system if, in the judgment of the service provider, proceeding with the work could create or continue an unsafe condition. **When a procedure states that required or suggested repair or replacement is recommended, the customer must be informed of the generally acceptable repair/replacement options whether or not performed by the shop.**

When presenting **suggested** repairs to the customer, you must present the facts, allowing the customer to draw their own conclusions and make an informed decision about how to proceed.

The following reasons may be used for **required** and **suggested** services. These codes are shown in the "Code" column of the MAP Uniform Inspection & Communications Standards that follow:

Reasons to Require Repair or Replacement

- A - Part no longer performs intended purpose
- B - Part does not meet a design specification (regardless of performance)
- C - Part is missing

NOTE: When a repair is required, the shop must refuse partial service to the system in question, if the repair creates or continues an unsafe condition.

Reasons to Suggest Repair or Replacement

- 1 - Part is close to the end of its useful life (just above discard specifications, or weak; failure likely to occur soon, etc.)
- 2 - To address a customer need, convenience, or request (to stiffen ride, enhance performance, eliminate noise, etc.)
- 3 - To comply with maintenance recommended by the vehicle's Original Equipment Manufacturer (OEM)
- 4 - Technician's recommendation based on substantial and informed experience

NOTE: Suggested services are always optional. When presenting suggested repairs to the customer, you must present the facts, allowing the customer to draw their own conclusions and make an informed decision about how to proceed.

ENGINE ASSEMBLIES

Service Procedures Required and Suggested for Proper Vehicle Operation

CYLINDER HEAD ASSEMBLIES

NOTE: A Cylinder Head Assembly is a cylinder head fitted with valves, associated springs, retainers, and on overhead camshaft cylinder heads (OHC), camshaft, camshaft bearings, lash adjusters, tappets and rockers.

Cylinder Head Assemblies

Condition	Code	Procedure
Adjustable valve lash is out of specification	B	Require repair.
Combustion efficiency is reduced due to carbon deposits in the combustion chamber.	2	Suggest repair.
Combustion efficiency is reduced due to carbon deposits on the intake valve.	2	Suggest repair.
Internal component failure (any component)	A	Require repair or replacement of cylinder head assembly. See note below.

NOTE: It is Required that all other failure related components be inspected for cause and condition. Additional components or assemblies may be Suggested for repair or replacement, such as a water pump on a short block (reason code 4, technician's recommendation based on substantial and informed experience).

For example:

If there is a failed head gasket with an external coolant leak, in addition to Requiring replacement of the head gasket, inspection of the following for cause and condition is Required: Block, Cooling System, Cylinder Head. It may be Suggested that additional inspections be performed, such as the other head gasket on a V-type engine.

LONG BLOCK ASSEMBLIES

NOTE: A Long Block Assembly is a short block assembly together with a cylinder head assembly and all those components fitted within the rocker or cam cover, and timing cover (the whole presented as an assembly). A rebuilt or new oil pump, or kit shall be supplied or fitted as appropriate.

Long Block Assemblies

Condition	Code	Procedure
Combustion efficiency is reduced due to carbon deposits in the combustion chamber.	2	Suggest repair.
Internal component failure (any component)	A	Require repair or replacement of the long block assembly. See note below.

NOTE: It is Required that all other failure related components be inspected for cause and condition. Additional components or assemblies may be Suggested for repair or replacement such as a water pump on a short block (reason code 4, technician's recommendation based on substantial and informed experience).

For example:

If there is a failed head gasket with an external coolant leak, in addition to Requiring replacement of the head gasket, inspection of the following for cause and condition is

Required: Block, Cooling System, Cylinder Head. It may be Suggested that additional inspections be performed, such as the other head gasket on a V-type engine.

SHORT BLOCK ASSEMBLIES

NOTE: A Short Block Assembly is a cylinder block and all those components contained within the limits of the block deck or decks, the pan rail, the block rear face and the timing cover (where fitted), including the crankshaft.

Short Block Assemblies

Condition	Code	Procedure
Combustion efficiency is reduced due to carbon deposits in the combustion chamber.	2	Suggest repair
Internal Component Failure (Any Component)	A	Require repair or replacement of the short block assembly. See note below.

NOTE: It is Required that all other failure related components be inspected for cause and condition. Additional components or assemblies may be Suggested for repair or replacement, such as a water pump on a short block (reason code 4, technician's recommendation based on substantial and informed experience).

For example:

If there is a failed head gasket with an external coolant leak, in addition to Requiring replacement of the head gasket, inspection of the following for cause and condition is Required: Block, Cooling System, Cylinder Head. It may be Suggested that additional inspections be performed, such as the other head gasket on a V-type engine.

ENGINE COMPONENTS

Service Procedures Required and Suggested for Proper Vehicle Operation

ACCELERATOR PEDAL POSITION SENSORS

Accelerator Pedal Position Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Connector missing	C	Require replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.

NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Condition	Code	Procedure
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

ACCESSORY BELTS

Accessory Belts

Condition	Code	Procedure
Alignment incorrect	B	Further inspection required. See note below.
NOTE: Determine cause of incorrect alignment and require repair.		
Cracked	1	Suggest replacement.
Frayed	1	Suggest replacement.
Missing	C	Require replacement.
Noisy	2	Further inspection required. See note below.
NOTE: Determine cause of noise and suggest repair.		
Plies separated	A	Require replacement.

Tension out of specification	B	Require adjustment or replacement.
Worn beyond adjustment range	B	Require replacement.
Worn so it contacts bottom of pulley	A	Require replacement.

ACCESSORY PULLEYS

Accessory Pulleys

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bent	A	Require replacement.
Cracked	A	Require replacement.
Loose	A	Require repair or replacement.
Missing	C	Require replacement.
Pulley damaged, affecting belt life	A	Require replacement.

ACTUATORS

See Sensors and Actuators.

AIR CONDITIONING CYCLING SWITCHES

Air Conditioning Cycling Switches

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles,		

or water. Require repair or replacement.

Inoperative	B	Require repair or replacement. Further inspection required. See note below.
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NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

AIR CONDITIONING PRESSURE SENSORS

Air Conditioning Pressure Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type)	A	Require repair or replacement.

leaking		
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

AIR DUCTS AND TUBES

Air Ducts and Tubes

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Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require repair or replacement.

AIR FILTER ELEMENTS

Air Filter Elements

Condition	Code	Procedure
Leaking	A	Require replacement.
Paper filter element oil-soaked	A	Require replacement. See note below.
NOTE: Further inspection required to determine cause.		
Maintenance intervals	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.
Melted	A	Required replacement.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require replacement.
Water-contaminated	A	Require replacement. See note below.
NOTE: Further inspection required to determine cause.		

AIR FILTER GASKETS

See Air Filter Housings and Gaskets.

AIR FILTER HOUSINGS AND GASKETS

Air Filter Housings and Gaskets

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.

AIR FUEL RATIO SENSORS

Air Fuel Ratio Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

AIR INJECTION CONTROL SOLENOIDS

Air Injection Control Solenoids

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.

Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

AIR PLENUMS

Air Plenums

Condition	Code	Procedure
Integrated air or fuel control components inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Internal air or fuel components damaged, affecting performance	A	Require repair or replacement of component.
Internal air or fuel components damaged, not affecting performance		No service suggested or required.
Internal air or fuel components missing	C	Require replacement of component.
Leaking	A	Require repair or replacement.
Restricted	A	Require repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.

AIR PUMP BELTS

Air Pump Belts

Condition	Code	Procedure
Alignment incorrect	B	Further inspection required. See note below.
NOTE: Determine cause of incorrect alignment and require repair.		
Cracked	1	Suggest replacement.
Frayed	1	Suggest replacement.
Maintenance intervals	3	Suggest replacement to comply with vehicle OEM recommended service intervals.
Missing	C	Require replacement.
Noisy	2	Further inspection required. See note below.
NOTE: Determine cause of noise and suggest repair.		
Plies separated	A	Require replacement.

Tension out of specification	B	Require adjustment or replacement.
Worn beyond adjustment range	B	Require replacement.
Worn so it contacts bottom of pulley	A	Require replacement.

AIR PUMPS (ELECTRIC-DRIVEN)

Air Pumps (Electric-driven)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.

Threads stripped (threads missing)	A	Require repair or replacement.
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AIR TUBES

See Air Ducts and Tubes.

ASPIRATOR, CHECK, AND DECEL VALVES

Aspirator, Check, and Decel Valves

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Melted, affecting performance	A	Require replacement.
Melted, not affecting performance		No service suggested or required.
Missing	C	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.

BAFFLES

See Shrouds, Baffles, and Deflectors.

BALLAST PRIMARY SUPPLY RESISTOR WIRES

See Ballast Resistors and Primary Supply Resistor Wires.

BALLAST RESISTORS AND PRIMARY SUPPLY RESISTOR WIRES

Ballast Resistors and Primary Supply Resistor Wires

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Conductor exposed	A	Require replacement.

Connector broken	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Insulation overheated	A	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

BAROMETRIC PRESSURE SENSORS

Barometric Pressure Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles,		

or water. Require repair or replacement.

Inoperative	B	Require repair or replacement. Further inspection required. See note below.
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NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

BATTERIES

Proper operation of any electrical system or component can be affected by battery condition. The battery(ies) must meet or exceed minimum specification for vehicle as equipped and test to that specific battery's CCA.

Definition of Terms

Battery Performance Testing - Testing that determines whether or not a battery meets both vehicle OEM and battery manufacturer's specifications.

Cold Cranking Amp (CCA) Rating - The number of amperes a new, fully charged battery at 0° F (-17.8° C) can deliver for 30 seconds and maintain at least a voltage of 1.2 volts per cell (7.2 volts for a 12-volt battery).

Cranking Amps (CA) - The number of amperes a new, fully charged battery, typically at 32° F (0° C) can deliver for 30 seconds and maintain at least a voltage of 1.2 volts per cell (7.2 volts for a 12-volt battery).

OEM Cranking Amps - The minimum CCA required by the original vehicle manufacturer for a specific vehicle.

Batteries

Condition	Code	Procedure
Battery frozen		Further inspection required. See note below.
NOTE: Do not attempt to charge a frozen battery. Allow battery to warm thoroughly and then performance-test. If battery fails performance test, require replacement.		
Case leaking	A	Require replacement.
Casing swollen	A	Further inspection required. See note below.
NOTE: No service suggested or required unless the battery fails performance test, in which case, require replacement.		
Circuit open internally	A	Require replacement.
Electrolyte contamination	A	Further inspection required. See note below.
NOTE: No service suggested or required unless the battery fails performance test, in which case, require replacement.		
Electrolyte discoloration	A	Further inspection required. See note below.
NOTE: No service suggested or required unless the battery fails performance test, in which case, require replacement.		
Fails to accept and hold charge	A	Require replacement. See note below.
NOTE: This phrase refers to a battery that fails to either accept and/or retain a charge using appropriate times listed in the Battery Charging Guide of the BCI Service Manual, battery charger operating manual, or battery manufacturer's specifications.		
Fluid level low	B	Further inspection required. See note below.
NOTE: Determine cause of low fluid level. Refill to proper level(s) with water (distilled water preferred). Recharge battery and performance-test. If battery does not meet specifications, require replacement. If battery is sealed type (non-removable filler caps), require replacement.		
Out of performance specification for battery	B	Require replacement. See note below.
NOTE: The battery may meet vehicle's OEM specifications for that vehicle but test below the minimum specifications defined by the battery manufacturer.		
Out of specification for application	B	Require replacement.
NOTE: The battery may meet battery manufacturer's specifications but test below the minimum specification defined by the vehicle's OEM for that vehicle.		

Post (top or side) burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Post (top or side) burned, not affecting performance	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Post (top or side) corroded, affecting performance	A	Require repair.
Post (top or side) corroded, not affecting performance	2	Suggest repair.
Post (top or side) loose	A	Require replacement.
Post (top or side) melted, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Post (top or side) melted, not affecting performance	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Specific gravity low	B	Further inspection required. See note below.
NOTE: Recharge and test to manufacturer's specifications. If battery fails performance test, require replacement.		
State of charge low	A	Further inspection required. See note below.
NOTE: Recharge and test to manufacturer's specifications. If battery fails performance test, require replacement.		
Top dirty	2	Suggest cleaning battery.
Top wet	A	Require cleaning battery. Further inspection required. See note below.
NOTE: Check fluid level and adjust to manufacturer's specification. Suggest checking charging system for proper operation.		
Vent cap loose	A	Require repair or replacement of vent cap.
Vent cap missing	C	Require replacement of vent cap.

BATTERY CABLES, WIRES, AND CONNECTORS

Battery Cables, Wires, and Connectors

Condition	Code	Procedure
Application incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of

		hardware.
Connector broken	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Insulation damaged, conductors exposed	A	Require repair or replacement. See note below.
NOTE: Exposed conductor at replacement (aftermarket) terminal end does not require repair or replacement.		
Insulation damaged, conductors not exposed	1	Suggest replacement.
Open	A	Require repair or replacement.
Protective shield (conduit) melted	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Protective shield (conduit) missing	2	Suggest repair or replacement.
Resistance (voltage drop) out of specification	A	Require repair or replacement.
Routed incorrectly	B	Require repair.
Secured incorrectly	B	Require repair.
Shorted	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Voltage drop out of specification	A	Require repair or replacement.

BATTERY CONNECTORS

See Battery Cables, Wires, and Connectors.

BATTERY TRAYS AND HOLD DOWN HARDWARE

Battery Trays and Hold Down Hardware

Condition	Code	Procedure
Battery improperly secured	2	Suggest repair.
Bent, affecting performance	A	Require repair or replacement.
Bent, not affecting performance		No service suggested or required.
Broken, affecting performance	A	Require repair or replacement.
Broken, not affecting performance		No service suggested or required.
Corroded, affecting performance	A	Require repair or replacement.
Corroded, not affecting performance	2	Suggest repair or replacement.
Cracked, affecting performance	A	Require repair or replacement.
Cracked, not affecting performance	1	Suggest repair or replacement.
Missing	C	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Water drain clogged	A	Require repair.

BATTERY WIRES

See Battery Cables, Wires, and Connectors.

BELT-DRIVEN AIR PUMPS

Belt-Driven Air Pumps

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Pulley alignment incorrect	B	Require repair or replacement.
Pulley bent	A	Require replacement.
Pulley cracked	A	Require replacement.
Pulley loose	A	Require repair or replacement.
Pulley missing	C	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.

BELT IDLER ASSEMBLIES (ACCESSORY AND CAM BELTS)

Belt Idler Assemblies (Accessory and Cam Belts)

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bearings worn	1	Suggest replacement.
Cracked	2	Suggest replacement.
Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Seized	A	Require repair or replacement.

BELT TENSIONERS (ACCESSORY AND CAM BELTS)

Belt Tensioners (Accessory and Cam Belts)

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bearings worn	1	Suggest replacement.
Belt tension incorrect	B	Require adjustment or repair.
Cracked	2	Suggest replacement.
Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Pulley damaged, affecting belt life	A	Require replacement.
Seized	A	Require repair or replacement.

BOOST CONTROL MECHANISMS

See Waste Gates and Boost Control Mechanisms.

CAMSHAFT POSITION SENSORS

Camshaft Position Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.

Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

CARBURETORS AND CHOKES

NOTE: Proper operation of a carburetor includes the ability to control air/fuel mixtures during all phases or driving operation to comply with all federal and local emissions standards. Adjustments are to be considered

repairs.

Carburetors and Chokes

Condition	Code	Procedure
Air/fuel control incorrect	B	Require repair or replacement.
Application incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Components binding	A	Require repair or replacement.
Components damaged, affecting operation or performance	A	Require repair or replacement.
Components missing	C	Require replacement of components.
Contaminated	A	Require repair or replacement. Further inspection required. See note below.
NOTE: Some components may be serviceable; check for accepted cleaning procedure. Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Controlling linkages binding	A	Require repair or replacement of linkage.
Leaking	A	Require repair or replacement.
Mechanical operation incorrect	B	Require repair or replacement.
Operating incorrectly	B	Require repair or replacement.

CASTING CORE PLUGS AND EXPANSION PLUGS

Casting Core Plugs and Expansion Plugs

Condition	Code	Procedure
Leaking	A	Require replacement.
Material type incorrect	2	Suggest replacement.

CHARGE AIR COOLERS "INTERCOOLERS" (CAC)

Charge Air Coolers "Intercoolers" (CAC)

Condition	Code	Procedure
Air-to-air intercooler leaking, affecting boost performance	A	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking coolant	A	Require repair or replacement.

Missing	C	Require replacement.
Restricted, affecting performance	A	Require repair or replacement.

CHECK VALVES

See Aspirator, Check, and Decel Valves.

CHOKES

See Carburetors and Chokes.

CLUTCH PEDAL POSITION SWITCHES

Clutch Pedal Position Switches

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Connector missing	C	Require replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.

NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.

performance		
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

COLD START INJECTORS

See Fuel and Cold Start Injectors.

CONNECTORS

See Wiring Harnesses and Connectors.

COOLANT

Coolant

Condition	Code	Procedure
Acidity (pH) incorrect	1	Suggest correction or replacement.
Contaminated	B	Require replacement or recycling. Further inspection required. See note below.
NOTE: Determine source of contamination and require correction prior to coolant replacement.		
Level low	B	Require filling to proper level. See note below.
NOTE: Determine source of incorrect level and suggest repair.		
Maintenance intervals	3	Suggest replacement. See note below.
NOTE: The system should be drained and/or flushed and refilled with correct coolant according to OEM recommended service interval and procedures.		
Mixture incorrect	B	Require correction or replacement.
Type incorrect	B	Require replacement.

COOLANT RECOVERY TANKS

Coolant Recovery Tanks

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.

Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require repair or replacement.
Missing (if original equipment)	C	Require replacement.

COOLING FAN MOTOR MODULES

See Cooling Fan Motor Relays and Modules.

COOLING FAN MOTOR RELAYS AND MODULES

Cooling Fan Motor Relays and Modules

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Housing cracked	2	Suggest repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, failure to perform all functions, or out of OEM specification.		
Missing	C	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

COOLING FAN MOTOR RESISTORS

Cooling Fan Motor Resistors

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Missing	C	Require replacement.
Open	A	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Shorted	A	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

COOLING FAN MOTOR SENSORS AND SWITCHES

Cooling Fan Motor Sensors and Switches

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.

Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

COOLING FAN MOTOR SWITCHES

See Cooling Fan Motor Sensors and Switches.

COOLING FAN MOTORS

Cooling Fan Motors

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Connector missing	C	Require replacement.
Hydraulic fan motor leaking	A	Require repair or replacement.
Inoperative	A	Require replacement. See note below.

NOTE: Check fan motor/controls. Inoperative includes intermittent operation or out of OEM specification.

Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Rotation incorrect for application	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

Vibration	1	Suggest replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

CRANKSHAFT POSITION SENSORS

Crankshaft Position Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.

Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

DECEL VALVES

See Aspirator, Check, and Decel Valves.

DEFLECTORS

See Shrouds, Baffles, and Deflectors.

DIP STICKS AND TUBES

Dip Sticks and Tubes

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Bent	2	Suggest repair or replacement.
Broken, affecting performance (for example, fuel mixture)	A	Require repair or replacement.
Broken, not affecting performance	2	Suggest repair or replacement.
Leaking, affecting performance (for example, fuel mixture)	A	Require repair or replacement.
Leaking, not affecting performance	2	Suggest repair or replacement.
Missing	C	Require replacement.

DIP STICK TUBES

See Dip Sticks and Tubes.

DISTRIBUTOR ADVANCES AND RETARDERS (MECHANICAL AND VACUUM)

Distributor Advances and Retarders (Mechanical and Vacuum)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Binding	A	Require repair or replacement.
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation.		
Leaking	A	Require replacement.
Out of specification	B	Require repair or replacement.

DISTRIBUTOR BOOTS AND SHIELDS

Distributor Boots and Shields

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Deteriorated	A	Require replacement.
Leaking	A	Require replacement.
Missing	A	Require replacement.
Torn	A	Require replacement.

DISTRIBUTOR CAPS

Distributor Caps

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Arcing	A	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Burned	A	Require replacement.
Carbon button missing	A	Require replacement.
Carbon button worn, affecting performance	A	Require replacement.
Carbon button worn, not affecting	1	Suggest replacement.

performance		
Carbon-tracked	A	Require replacement.
Cracked	A	Require replacement.
Loose	2	Suggest repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal eroded, affecting performance	A	Require repair or replacement.
Terminal eroded, not affecting performance		No service suggested or required.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

DISTRIBUTOR RETARDERS (MECHANICAL AND VACUUM)

See Distributor Advances and Retarders (Mechanical and Vacuum).

DISTRIBUTOR ROTORS

Distributor Rotors

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Carbon-tracked	A	Require replacement.
Contact burned	A	Require replacement.
Corroded	1	Suggest replacement.
Eroded	1	Suggest replacement.
Loose	A	Require repair or replacement.
Out of specification	B	Require replacement.

DISTRIBUTOR SHIELDS

See Distributor Boots and Shields.

DISTRIBUTORS

Distributors

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bushings worn, affecting performance	A	Require repair or replacement.
Bushings worn, not affecting performance	1	Suggest repair or replacement.
Cam lobes worn, affecting performance	A	Require repair or replacement.
Cam lobes worn, not affecting performance	1	Suggest repair or replacement.
Gear broken	A	Require repair or replacement.
Gear worn, affecting performance	A	Require replacement.
Gear worn, not affecting performance		No service suggested or required.
Integrated pickup triggering device loose	A	Require repair or replacement.
Integrated pickup triggering device magnetism incorrect	A	Require repair or replacement.
Leaking oil internally	A	Require repair or replacement.
Noisy	2	Suggest repair or replacement.
Pickup triggering device (reluctor) broken	A	Require repair or replacement.
Pickup triggering device (reluctor) loose	A	Require repair or replacement.
Pickup triggering device (reluctor) weak	A	Require repair or replacement.
Reluctor (pickup triggering device) broken	A	Require repair or replacement.
Reluctor (pickup triggering device) loose	A	Require repair or replacement.
Reluctor (pickup triggering device) weak	A	Require repair or replacement.
Shaft bent	A	Require replacement.
Thrust washer broken	A	Require repair or replacement.
Thrust washer missing	C	Require repair or replacement.
Thrust washer worn, affecting performance	A	Require repair or replacement.
Thrust washer worn, not affecting performance	1	Suggest repair or replacement.

EARLY FUEL EVAPORATION VALVES (HEAT RISER ASSEMBLIES)

Early Fuel Evaporation Valves (Heat Riser Assemblies)

Condition	Code	Procedure
Broken	A	Require replacement of affected parts.

Diaphragm inoperative	A	Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. If the inoperative diaphragm is separate from the heat riser, then require replacement of the inoperative diaphragm. If the inoperative diaphragm is part of the heat riser, then replace the heat riser.		
Leaking	A	Require repair or replacement.
Noisy	2	Suggest repair or replacement.
Seized	A	Require replacement of affected parts.
Spring broken	B	Require replacement of spring(s).
Spring inoperative	A	Require replacement of spring(s). See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		

EGR COOLERS

See EGR Plates and Coolers.

EGR EXHAUST MANIFOLD PASSAGES

See EGR Intake and Exhaust Manifold Passages.

EGR INTAKE AND EXHAUST MANIFOLD PASSAGES

EGR Intake and Exhaust Manifold Passages

Condition	Code	Procedure
Leaking	A	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.

EGR PLATES AND COOLERS

EGR Plates and Coolers

Condition	Code	Procedure
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require repair or replacement.

ELECTRONIC SPARK CONTROL MODULES

Electronic Spark Control Modules

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of

		hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	A	Require repair.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement of source.		
Leaking	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, failure to perform all functions, or out of OEM specification.		
Missing	C	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

ELECTRONIC TRANSMISSION CONTROL DEVICES

Electronic Transmission Control Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.

Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Leaking	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, failure to perform all functions, or out of OEM specification.		
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

ELECTRONIC TRANSMISSION FEEDBACK DEVICES

Electronic Transmission Feedback Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.

Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

ENGINE COOLANT TEMPERATURE SENSORS

Engine Coolant Temperature Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.

performance		
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

ENGINE COOLING SYSTEMS

NOTE: Overheating, poor engine performance, and insufficient cabin heat can be affected by, but are not limited to, all of the components in the engine cooling system.

ENGINE COVERS (OIL PAN, VALVE COVER, TIMING COVER)

Engine Covers (Oil Pan, Valve Cover, Timing Cover)

Condition	Code	Procedure
Attaching hardware incorrect	B	Require replacement.
Attaching hardware loose	A	Require repair or replacement.
Attaching hardware missing	C	Require replacement.
Baffle loose	2	Suggest repair or replacement.
Baffle missing	C	Require replacement.
Bent, affecting performance	A	Require repair or replacement.
Bent, not affecting performance		No service suggested or required.
Cracked (not leaking)	2	Suggest repair or replacement.
Leaking externally	A	Require repair or replacement.
Leaking internally, causing fluid contamination	A	Require repair or replacement.
Missing	C	Require replacement.
Restricted passage	A	Require repair or replacement.
Threads damaged	A	Require repair or replacement.

ENGINE OIL

Engine Oil

Condition	Code	Procedure

Contaminated	A	Require replacement of oil and filter. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water when changing oil. Require repair or replacement.		
Level high	B	Determine source of incorrect level and require repair.
Level low	B	Determine source of incorrect level and require repair.
Maintenance intervals	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.

ENGINE OIL CANISTERS

See Engine Oil Filters and Canisters.

ENGINE OIL COOLERS (EXTERNAL)

Engine Oil Coolers (External)

Condition	Code	Procedure
Air flow restriction	A	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bypassed	A	Require repair or replacement.
Connection leaking	A	Require repair or replacement.
Corroded	1	Suggest repair or replacement.
Fins damaged, affecting performance	A	Require repair or replacement.
Fins damaged, not affecting performance	2	Suggest repair or replacement.
Fluid flow restrictions	A	Require repair or replacement.
Internal restrictions, affecting performance	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Missing	A	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

ENGINE OIL DRAIN PLUGS AND GASKETS

Engine Oil Drain Plugs and Gaskets

Condition	Code	Procedure
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.

Threads damaged	A	Require repair or replacement. See note below.
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NOTE: Some OEMs require replacement of drain plug gasket when removing drain plug. Inspect threads in oil pan for damage.

ENGINE OIL FILTERS AND CANISTERS

Engine Oil Filters and Canisters

Condition	Code	Procedure
Bulged	A	Require replacement. Further inspection required. See note below.
NOTE: Inspect pressure relief valve.		
Canister attaching hardware broken	A	Require repair or replacement of hardware.
Canister attaching hardware loose	A	Require repair.
Canister attaching hardware missing	C	Require replacement.
Canister attaching hardware not functioning	A	Require repair or replacement of hardware.
Center tube collapsed	A	Require replacement. Further inspection required. See note below.
NOTE: Inspect bypass.		
Contaminated	A	Require replacement of oil and filter. See note below.
NOTE: Determine cause of contamination, such as engine coolant, fuel, metal particles, or water when changing oil. Require repair or replacement.		
Dented	2	Suggest replacement. Further inspection required. See note below.
NOTE: Determine cause, such as broken motor mount.		
Leaking	A	Require repair or replacement.
Maintenance intervals	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.

ENGINE OIL GASKETS

See Engine Oil Drain Plugs and Gaskets.

ENGINE OIL PRESSURE GAUGES (MECHANICAL)

Engine Oil Pressure Gauges (Mechanical)

Condition	Code	Procedure
Indicates out of range	B	Further inspection required. See note below.

NOTE: Gauge may indicate problem with contaminated oil, level, pressure, or temperature, or problem with gauge.

Inoperative	A	Further inspection required. See note below.
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NOTE: Gauge may indicate problem with contaminated oil, level, pressure, or temperature, or problem with gauge. Inoperative includes intermittent operation, out of OEM specification, or out of range. Further inspection required to determine cause.

Leaking	A	Require repair or replacement.
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Reads inaccurately	2	Suggest repair or replacement.
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EVAPORATIVE EMISSION (EVAP) CANISTER FILTERS

Evaporative Emission (EVAP) Canister Filters

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Maintenance interval	3	Suggest replacement to comply with OEM recommended service interval.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require replacement.
Restricted, not affecting performance	1	Suggest replacement.
Water-contaminated	A	Require replacement.

EVAPORATIVE EMISSION (EVAP) CANISTER PURGE DEVICES

Evaporative Emission (EVAP) Canister Purge Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.

Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

EVAPORATIVE EMISSION (EVAP) CANISTERS

Evaporative Emission (EVAP) Canisters

Condition	Code	Procedure
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Missing	C	Require replacement.

Saturated	A	Require replacement.
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EVAPORATIVE EMISSION (EVAP) FEEDBACK DEVICES

Evaporative Emission (EVAP) Feedback Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.

Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

EXHAUST GAS RECIRCULATION DEVICES

Exhaust Gas Recirculation Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Restricted, not affecting performance	1	Suggest repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting	A	Require repair or replacement. See note

performance		below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

EXHAUST GAS RECIRCULATION FEEDBACK DEVICES

Exhaust Gas Recirculation Feedback Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.

NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Restricted, not affecting performance	1	Suggest repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

EXPANSION PLUGS

See Casting Core Plugs and Expansion Plugs.

FAN CONTROL SENSORS

Fan Control Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.

Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

FUEL

Fuel

Condition	Code	Procedure
Contaminated	B	Require repair or replacement.
NOTE: Determine of source of contamination. Require repair or replacement.		
Fuel incorrect	B	Require flushing of system. See note below.
NOTE: If a fuel other than specification fuel is present in the system, the required service is to flush and fill with the correct fuel.		

FUEL ACCUMULATORS AND DAMPERS

Fuel Accumulators and Dampers

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connections leaking	A	Require repair or replacement.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.

FUEL AND COLD START INJECTORS

NOTE: You are not required to replace injectors in sets. However, you may suggest replacement of all injectors for preventive maintenance.

Fuel and Cold Start Injectors

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Flow restricted	B	Require repair or replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.

NOTE: Inoperative includes intermittent operation, out of OEM specification. Some components may be serviceable.

Leaking	A	Require repair or replacement.
Resistance out of specification	B	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

FUEL DAMPERS

See Fuel Accumulators and Dampers.

FUEL DELIVERY CHECK VALVES

Fuel Delivery Check Valves

Condition	Code	Procedure
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking externally	A	Require repair or replacement.
Missing	C	Require replacement.
Pressure leaking (bleeds down)	A	Require repair or replacement.

FUEL DISTRIBUTORS (BOSCH CIS)

Fuel Distributors (Bosch CIS)

Condition	Code	Procedure
Inoperative	A	Require repair or replacement. Further inspection required. See note below.

NOTE: Inoperative includes intermittent operation.

Leaking	A	Require repair or replacement.
Out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement. Further inspection required. See note below.

NOTE: Some components may be serviceable; check for accepted cleaning procedure.

FUEL FILLER NECKS AND RESTRICTORS

Fuel Filler Necks and Restrictors

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Restricted	2	Suggest repair or replacement.

FUEL FILTERS

Fuel Filters

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require repair or replacement.
Maintenance interval	3	Suggest replacement to comply with OEM recommended service interval.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require replacement.
Restricted, not affecting performance	1	Suggest replacement.
Water-contaminated	2	Suggest replacement.

FUEL INJECTORS

Fuel Injectors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.

Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Restricted, not affecting performance	2	Suggest repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

FUEL LEVEL SENDERS

Fuel Level Senders

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

FUEL PRESSURE REGULATORS

Fuel Pressure Regulators

Condition	Code	Procedure
Contaminated	2	Suggest repair or replacement. Further inspection

required. See note below.

NOTE: Some components may be serviceable; check for accepted cleaning procedure. Determine source of contamination. Require repair or replacement.

Inoperative	B	Require repair or replacement. See note below.
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NOTE: Inoperative includes intermittent operation or out of OEM specification.

Leaking (internally or externally)	A	Require repair or replacement.
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Pressure out of specification	B	Require repair or replacement.
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Vapor bypass restricted	A	Require repair or replacement.
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FUEL PUMPS (IN-TANK AND EXTERNAL, ELECTRICAL, OR MECHANICAL)

Fuel Pumps (In-Tank and External, Electrical, or Mechanical)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require replacement.
NOTE: Determine source of contamination. Require repair or replacement.		
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation.		
Leaking externally (includes pulsator)	A	Require repair or replacement.
Leaking internally (includes pulsator)	A	Require repair or replacement.
Noisy	2	Suggest repair or replacement.
Out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.

Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

FUEL RAILS

Fuel Rails

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Contaminated	A	Require replacement. See note below.
NOTE: Determine source of contamination. Require repair or replacement.		
Leaking	A	Require repair or replacement.
Restricted	A	Require repair or replacement.
Rust-pitted	1	Suggest replacement.

FUEL RESTRICTORS

See Fuel Filler Necks and Restrictors.

FUEL TANKS

Fuel Tanks

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Baffles loose	A	Require repair or replacement.
Contaminated	A	Require repair. See note below.
NOTE: Determine source of contamination. Require repair or replacement.		

Corroded internally	A	Require repair or replacement.
Distorted, affecting performance	B	Require replacement.
Distorted, not affecting performance		No service suggested or required.
Leaking	A	Require repair or replacement.

GAS CAPS

Gas Caps

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Fails to maintain proper pressure	A	Require replacement.
Gaskets missing	C	Require replacement.
Leaking	A	Require replacement.
Missing	C	Require replacement.
Plugged (vacuum and pressure relief)	A	Require replacement.
Seals missing	C	Require replacement.

GASKETS

Gaskets

Condition	Code	Procedure
Leaking	A	Require repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

GROMMETS (VALVE COVER)

Grommets (Valve Cover)

Condition	Code	Procedure
Leaking	2	Suggest repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

HARMONIC DAMPERS

Harmonic Dampers

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.

Cracked	A	Require replacement.
Dented (fluid type only)	A	Require replacement.
Keyway distorted	A	Require repair or replacement.
Leaking (Fluid damper only)	A	Require replacement.
Loose	A	Require replacement.
Noisy	A	Require replacement.
Outer ring slipped out of position	A	Require replacement.
Positioned incorrectly	A	Require repair or replacement.
Rubber damping material deteriorated	1	Suggest replacement.
Seal surface worn, causing a leak	A	Require repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

HEATER CONTROL VALVES

Heater Control Valves

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bypassed	A	Require replacement.
Coolant leak	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Missing	C	Require replacement.
Restricted	A	Require repair or replacement.
Vacuum leak	A	Require repair or replacement.

HEATER CORES

Heater Cores

Condition	Code	Procedure
Air flow restriction	A	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.

Bypassed	A	Require repair or replacement.
Connection leaking	A	Require repair or replacement.
Corroded	1	Suggest repair or replacement.
Fins damaged, affecting performance	A	Require repair or replacement.
Fins damaged, not affecting performance	2	Suggest repair or replacement.
Internal restrictions, affecting performance	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.

HOSE AND TUBE COUPLERS, CONNECTORS, AND CLAMPS

NOTE: When replacing fuel lines and hoses, replace with product that meets or exceeds OEM design specifications.

Hose and Tube Couplers, Connectors, and Clamps

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Connected incorrectly	A	Require repair.
Corroded, not reusable	1	Suggest replacement.
Cracked	A	Require replacement.
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Safety clip missing (not leaking)	C	Require replacement of safety clip.
Stripped	A	Require replacement.

HOSE CLAMPS

See Hose and Tube Couplers, Connectors, and Clamps.

HOSE CONNECTORS

See Hose and Tube Couplers, Connectors, and Clamps.

HOSE COUPLERS

See Hose and Tube Couplers, Connectors, and Clamps.

HOSES AND TUBES (FUEL LINES, RADIATOR, VACUUM, BY PASS, HEATER, RECOVERY TANK, AND OIL COOLERS)

Hoses and Tubes (Fuel Lines, Radiator, Vacuum, By Pass, Heater, Recovery Tank, and Oil Coolers)

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Connected incorrectly	A	Require repair.
Corroded, not reusable	1	Suggest replacement.
Cracked	A	Require replacement.
Dry-rotted	1	Suggest repair or replacement.
Hard	1	Suggest repair or replacement.
Inner fabric (webbing) damaged	A	Require replacement.
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Maintenance intervals	3	Suggest replacement.
Melted	1	Suggest repair or replacement.
Missing	C	Require replacement.
Outer covering damaged	1	Suggest replacement.
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement.
Protective sleeves damaged	2	Suggest replacement of sleeves.
Protective sleeves missing	C	Require replacement of sleeves.
Restricted, affecting performance	A	Require repair or replacement.
Restricted, not affecting performance	2	Suggest repair or replacement.
Routed incorrectly, where failure is likely to occur	B	Require repair or replacement.
Safety clip missing	C	Require replacement.
Spongy	1	Suggest repair or replacement.
Stripped	A	Require replacement.
Swollen	B	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Type incorrect	1	Suggest repair or

		replacement.
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HOUSINGS

See Thermostats and Housings.

IDLE AIR CONTROLS

Idle Air Controls

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.

Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

IDLE SPEED CONTROL ACTUATORS

Idle Speed Control Actuators

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.

Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

IGNITION BOOTS

See Ignition Wires, Boots, Coil Towers, and Terminals (Secondary).

IGNITION COIL TOWERS

See Ignition Wires, Boots, Coil Towers, and Terminals (Secondary).

IGNITION COILS

Ignition Coils

Condition	Code	Procedure
Arcing	A	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Corroded, affecting performance	A	Require replacement.
Corroded, not affecting performance	2	Suggest replacement.
Distorted		No service suggested or required. See note below.
NOTE: Distortion may be the result of overheating; coil should be tested.		
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation.		
Oil leaking	A	Require replacement.
Out of specification	B	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

IGNITION CONTROL MODULES (ICM)

Ignition Control Modules (ICM)

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Code set (if applicable)	A	Further inspection required. See note below.

NOTE: Refer to manufacturer's diagnostic trouble code procedure and require repair or replacement of affected component(s).

Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Connector missing	A	Require repair.
Contaminated	A	Require repair or replacement. See note below.

NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.

Leaking	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.

NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.

Missing	C	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.

NOTE: Determine cause and correct prior to repair or replacement of part.

Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

IGNITION SWITCHES

See Switches.

IGNITION TERMINALS

See Ignition Wires, Boots, Coil Towers, and Terminals (Secondary).

IGNITION WIRES, BOOTS, COIL TOWERS, AND TERMINALS (SECONDARY)

NOTE: You are not required to replace ignition wires in sets. However, you may suggest replacement of the entire secondary wire set for preventive maintenance.

Ignition Wires, Boots, Coil Towers, and Terminals (Secondary)

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Carbon-tracked	A	Require replacement.
Corroded	1	Suggest repair or replacement.
Insulation leaking (shorted)	A	Require repair or replacement.
Metal heat shield bent	2	Suggest repair or replacement.
Missing	C	Require replacement.
Oil-soaked (spongy)	1	Suggest replacement.
Resistance incorrect	B	Require replacement.
Routed incorrectly	2	Suggest repair. See note below.
NOTE: If improper routing affects the performance of other systems, require repair. Proper routing, hardware, heatshields, etc., are intended to prevent premature failure of secondary ignition components.		
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

IN-TANK FUEL STRAINERS

In-Tank Fuel Strainers

Condition	Code	Procedure
Missing	C	Require replacement.
Restricted	A	Require repair or replacement.

Torn	A	Require replacement.
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INERTIA FUEL SHUT-OFF SWITCHES

Inertia Fuel Shut-Off Switches

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require replacement.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Missing	C	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

INTAKE AIR TEMPERATURE SENSORS

Intake Air Temperature Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.

Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

INTAKE MANIFOLDS

Intake Manifolds

Condition	Code	Procedure
Corroded, affecting sealability	A	Require repair or replacement.
Integrated air or fuel control components inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Internal air or fuel components damaged, affecting performance	A	Require repair or replacement of component.
Internal air or fuel components damaged, not affecting performance		No service suggested or required.
Internal air or fuel components missing	C	Require replacement of component.
Leaking	A	Require repair or replacement.
Out of specification	B	Require replacement.
Restricted	A	Require repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.
Warped	B	Require repair or replacement.

INTERCOOLERS

See Charge Air Coolers "Intercoolers" (CAC).

KNOCK SENSORS

Knock Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.

Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

LIQUID VAPOR SEPARATORS

Liquid Vapor Separators

Condition	Code	Procedure
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		

Leaking	A	Require replacement.
Missing	C	Require replacement.
Restricted	A	Require repair or replacement.

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSORS

Manifold Absolute Pressure (MAP) Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; heck for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.

performance		
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

MASS AIR FLOW (MAF) SENSORS

Mass Air Flow (MAF) Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.

Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

METAL AIR MANIFOLDS AND PIPES

Metal Air Manifolds and Pipes

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Broken	A	Require repair of injection tube or replacement of manifold.
Corroded, affecting structural integrity	1	Suggest replacement of injection tube or manifold.
Leaking	A	Require repair of injection tube or replacement of manifold.
Loose	A	Require repair.
Missing	C	Require replacement.
Restricted	A	Require replacement of injection tube or manifold.
Threads damaged	A	Require repair.
Threads stripped (threads missing)	A	Require replacement.

METAL AIR PIPES

See Metal Air Manifolds and Pipes.

MIX CONTROL SOLENOIDS

Mix Control Solenoids

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.

Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

MOTOR MOUNTS

Motor Mounts

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Broken	A	Require replacement.
Leaking (hydraulic mount)	A	Require replacement.
Mounting hole worn, affecting performance	A	Require replacement.
Mounting hole worn, not affecting performance		No service suggested or required.
Rubber deteriorated, affecting performance	A	Require replacement.
Rubber deteriorated, not affecting performance		No service suggested or required.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

O-RINGS, GASKETS, SEALS, AND SPRING LOCKS

O-Rings, Gaskets, Seals, and Spring Locks

Condition	Code	Procedure
Leaking	A	Require repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

O₂ SENSORS

O₂ Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Maintenance Intervals	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.

Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

OIL PANS

See Engine Covers, Gaskets, and Grommets (Valve Cover).

OIL PRESSURE SENDING UNITS

Oil Pressure Sending Units

Condition	Code	Procedure
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	A	Require repair or replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Output signal incorrect	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

OIL PUMP PICK-UP SCREENS

Oil Pump Pick-Up Screens

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bypass stuck	A	Require repair or replacement.
Cracked	A	Require repair or replacement.
Loose	A	Require repair or replacement.
Missing	C	Require replacement.
Positioned incorrectly	A	Require repair or replacement.
Restricted	A	Require repair or replacement.
Screen torn	A	Require replacement.

OIL PUMPS

Oil Pumps

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Broken	A	Require repair or replacement.
Housing cracked	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Pressure relief valve stuck	A	Require repair or replacement.
Seized	A	Require repair or replacement.
Worn beyond specifications	B	Require repair or replacement.

PARK NEUTRAL POSITION SWITCHES

Park Neutral Position Switches

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.

Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

PCV BREATHER ELEMENTS

PCV Breather Elements

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.

Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Leaking	A	Require replacement.
Maintenance intervals	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.
Melted	A	Required replacement.
Missing	C	Require replacement.
Restricted, affecting performance	A	Require replacement.
Restricted, not affecting performance	1	Suggest replacement.
Water-contaminated	A	Require replacement.

PCV ORIFICES

PCV Orifices

Condition	Code	Procedure
Leaking	A	Require replacement.
Maintenance interval	3	Suggest repair or replacement to comply with OEM recommended service intervals.
Missing	C	Require replacement.
Restricted	A	Require repair or replacement.

PCV VALVES

PCV Valves

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Grommet broken	A	Require repair or replacement of grommet.
Grommet missing	C	Require replacement of grommet.
Grommet not functioning	A	Require repair or replacement of grommet.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		

Leaking	A	Require replacement.
Maintenance interval	3	Suggest replacement to comply with vehicle's OEM recommended service intervals.
Missing	C	Require replacement.
Restricted	A	Require replacement.

PICK-UP ASSEMBLIES (INCLUDES MAGNETIC, HALL EFFECT, AND OPTICAL)

Pick-Up Assemblies (Includes Magnetic, Hall Effect, and Optical)

Condition	Code	Procedure
Adjustment incorrect	B	Require repair.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	B	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Refer to OEM recommended service procedures.		
Oil-soaked	A	Require replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.

Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

POWER STEERING PRESSURE SENSORS

Power Steering Pressure Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.

Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

POWERTRAIN CONTROL MODULES (PCM) AND PROM

Powertrain Control Modules (PCM) and PROM

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Code set (if applicable)	A	Further inspection required. See note below.
NOTE: Refer to manufacturer's diagnostic trouble code procedure and require repair or replacement of affected component(s).		
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	A	Require repair.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Leaking	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, failure to perform all functions, or out of OEM specification.		
Missing	C	Require replacement.

Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

POWERTRAIN CONTROL PROM

See Powertrain Control Modules (PCM) and PROM.

PRESSURIZED EXPANSION TANK CAPS

See Radiator Caps and Pressurized Expansion Tank Caps.

RADIATOR CAPS AND PRESSURIZED EXPANSION TANK CAPS

Radiator Caps and Pressurized Expansion Tank Caps

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Coolant recovery check valve inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Fails to maintain proper pressure	B	Require replacement.
Gasket missing	C	Require replacement of gasket.
Missing	C	Require replacement.
Seal missing	C	Require replacement of seal.

RADIATOR FAN BLADES

Radiator Fan Blades

Condition	Code	Procedure

Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bent	A	Require replacement.
Broken	A	Require replacement.
Cracked	A	Require replacement.
Loose	A	Require repair or replacement.
Missing	C	Require replacement.

RADIATOR FAN CLUTCHES

NOTE: Some lateral movement, measured at the fan blade tip, may be normal.

Radiator Fan Clutches

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bearing noisy	A	Require replacement.
Bearing worn	A	Require replacement.
Fastener loose	A	Require repair or replacement of fastener.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	1	Suggest replacement.
Seized	A	Require replacement.
Slips (insufficient fan speed)	A	Require replacement.
Thermal control incorrect	B	Require repair or replacement.

RADIATORS

Radiators

Condition	Code	Procedure
Air flow restriction	A	Require repair.
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.

Connection leaking	A	Require repair or replacement.
Corroded	1	Suggest repair or replacement.
Fins damaged, affecting performance	A	Require repair or replacement.
Fins damaged, not affecting performance	2	Suggest repair or replacement.
Internal oil cooler leaking	A	Require repair or replacement.
Internal restrictions, affecting performance	B	Require repair or replacement.
Internal restrictions, not affecting performance	2	Suggest repair or replacement.
Leaking	A	Require repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.
Tubes damaged, affecting performance	A	Require repair or replacement.
Tubes damaged, not affecting performance		No service suggested or required.

ROLL OVER VALVES

Roll Over Valves

Condition	Code	Procedure
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Leaking	A	Require replacement.
Missing	C	Require replacement.

SEALING COMPOUNDS

Sealing Compounds

Condition	Code	Procedure
Leaking	A	Require repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

SEALS

Seals

Condition	Code	Procedure
Leaking	A	Require repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

SECONDARY AIR INJECTION SYSTEM MANAGEMENT DEVICES

Secondary Air Injection System Management Devices

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.

Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

SENSORS AND ACTUATORS

NOTE: Conditions pertaining to the sensors and actuators listed in this section may be found under the name of the sensor or actuator.

Sensors and Actuators

Sensor	Abbreviation
Accelerator Pedal Position Sensor	APP
Air Conditioning Cycling Switch	AC
Air Conditioning Pressure Sensor	
Air Fuel Ratio Sensor	
Barometric Pressure Sensor	BARO
Camshaft Position Sensor	CMP
Clutch Pedal Position Switch	CPP
Cooling Fan Motor Sensors and Switches	
Crankshaft Position Sensor	CKP
Electronic Transmission Feedback Devices	
Engine Coolant Temperature Sensor	ECT
Evaporative Emission feedback devices	
Exhaust Gas Recirculation feedback devices	
Fan Control Sensor	FC
Intake Air Temperature Sensor	IAT
Knock Sensor	KS
Manifold Absolute Pressure Sensor	MAP
Mass Air Flow Sensor	MAF
O2 Sensor	O2S
Park Neutral Position Switch	PNP
Power Steering Pressure Sensor	PSP
Thermal Vacuum Valve	TVV
Throttle Position Sensor	TP Sensor
Throttle Position Switch	
Transmission Range Switch	TR Switch
Vehicle Speed Sensor	VSS
Volume Air Flow Sensor	VAF

Air Injection Control Solenoid	
Electronic Transmission control devices	
Evaporative Emission Canister Purge Device	EVAP
Exhaust Gas Recirculation Device	EGR
Fuel Injector	
Idle Air Control	IAC
Idle Speed Control Actuator	ISC
Mix Control Solenoid	MC Solenoid
Secondary Air Injection System Management Device	AIR, PAIR
Vacuum Regulator Solenoid	
Waste Gate Control Solenoid	

SHROUDS, BAFFLES, AND DEFLECTORS

Shrouds, Baffles, and Deflectors

Condition	Code	Procedure
Application incorrect, affecting cooling system performance	A	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bent, affecting cooling system performance	A	Require repair or replacement.
Blocked, affecting cooling system performance	A	Require repair or replacement.
Broken, affecting cooling system performance	A	Require repair or replacement.
Cracked, affecting cooling system performance	A	Require repair or replacement.
Loose, affecting cooling system performance	A	Require repair.
Loose, not affecting cooling system performance	2	Suggest repair.
Missing, affecting cooling system performance	C	Require replacement.

SPARK PLUGS

NOTE: You are not required to replace spark plugs in sets. However, you may suggest replacement of the other plugs for preventive maintenance.

Spark Plugs

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Electrode eroded	1	Suggest replacement.

Fouled	A	Require repair or replacement. See note below.
NOTE: Determine cause of fouling and suggest repair.		
Gap incorrect	B	Require repair or replacement.
Insulation broken	A	Require replacement
Insulator cracked	A	Require replacement.
Leaking compression	A	Require repair or replacement.
Maintenance interval	3	Suggest replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

SPRING LOCKS

Spring Locks

Condition	Code	Procedure
Leaking	A	Require repair or replacement. See note below.
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

SUPER CHARGERS

Super Chargers

Condition	Code	Procedure
Attaching hardware damaged, affecting operation or performance	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Bearing noisy	A	Require replacement.
Bearing worn	A	Require replacement.
Boost pressure incorrect	A	Require repair or replacement. See note below.
NOTE: Boost pressure problems may be caused by other systems or components.		
Clearance out of specification	B	Require repair or replacement.
Leaking	A	Require repair or replacement.
Noisy	2	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.

SWITCHES

Switches

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of

		hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Binding, affecting performance	A	Require repair or replacement.
Binding, not affecting performance	2	Suggest repair or replacement.
Broken	A	Require repair or replacement.
Burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Burned, not affecting performance	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Cracked, affecting performance	A	Require repair or replacement.
Cracked, not affecting performance	1	Suggest repair or replacement.
Leaking	A	Require repair or replacement.
Malfunctioning	A	Require repair or replacement. See note below.
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Melted, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Melted, not affecting performance	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Missing	C	Require replacement.
Out of adjustment	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Won't return	A	Require repair or replacement.

THERMAL VACUUM VALVES**Thermal Vacuum Valves**

Condition	Code	Procedure
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

THERMOSTATIC AIR DOOR ASSEMBLIES

Thermostatic Air Door Assemblies

Condition	Code	Procedure
Attaching hardware damaged, affecting operation or performance	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Binding	A	Require repair or replacement.
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Seized	A	Require repair or replacement.

THERMOSTATS AND HOUSINGS

Thermostats and Housings

Condition	Code	Procedure
Application incorrect	B	Require replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware corroded	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Housing corroded	1	Suggest replacement of housing.
Inoperative	A	Require replacement. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification.		
Installation incorrect	B	Require repair or replacement.
Leaking	A	Require repair or replacement.
Thermostat missing	C	Require replacement of thermostat.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.

THROTTLE BODIES

Throttle Bodies

Condition	Code	Procedure
Connector broken	A	Require repair or replacement.

Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Deposits on throttle body components	A	Require repair. See note below.
NOTE: Some throttles are coated by manufacturer; follow OEM-recommended procedures.		
Leaking	A	Require repair or replacement.
Restricted	A	Require repair. See note below.
NOTE: Some components may be serviceable; check for accepted cleaning procedure.		
Restricted, not affecting performance	2	Suggest repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require repair or replacement.
Throttle shaft binding, affecting performance	A	Require repair or replacement.
Throttle shaft worn, affecting performance	A	Require repair or replacement.
Throttle shaft worn, not affecting performance	1	Suggest repair or replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

THROTTLE CABLES

See Throttle Linkages and Cables.

THROTTLE LINKAGES AND CABLES

Throttle Linkages and Cables

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bent	A	Require repair or replacement.
Binding	A	Require repair or replacement.
Bracket bent, affecting performance	A	Require repair or replacement.
Bracket bent, not affecting performance		No service suggested or required.
Bracket broken, affecting performance	A	Require replacement.
Bracket broken, not affecting performance		No service suggested or required.
Bracket corroded, affecting performance	A	Require repair or replacement.
Bracket corroded, not affecting performance	2	Suggest repair or replacement.
Bracket cracked, affecting performance	A	Require repair or replacement.
Bracket cracked, not affecting performance	1	Suggest repair or replacement.
Bracket loose, affecting performance	A	Require repair or replacement.
Bracket loose, not affecting performance	1	Suggest repair or replacement.
Bracket missing	C	Require replacement.
Broken	A	Require replacement.
Cracked	A	Require repair or replacement.
Disconnected	A	Require repair or replacement.
Kinked	A	Require repair or replacement.
Melted	A	Require repair or replacement.
Missing	C	Require replacement.
Noisy	2	Suggest repair or replacement.
Out of adjustment	B	Require repair or replacement. See note below.

NOTE: Follow OEM recommended adjustment procedures. Require repair or

replacement if out of specification.		
Routed incorrectly	2	Suggest repair.
Seized	A	Require repair or replacement.

THROTTLE POSITION SENSORS

Throttle Position Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.

Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.

Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

TIMING BELT SPROCKETS

Timing Belt Sprockets

Condition	Code	Procedure
Alignment incorrect	B	Require repair.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Bent	A	Require replacement.
Cracked	A	Require replacement.
Key damaged	A	Require replacement.
Loose	A	Require repair or replacement.
Missing	C	Require replacement.
Pulley damaged, affecting belt life	A	Require replacement.
Sprocket damaged, affecting belt life	A	Require repair or replacement.
Sprocket loose	B	Require repair or replacement.
Sprocket-to-shaft alignment incorrect	B	Require repair or replacement.

TIMING BELTS

Timing Belts

Condition	Code	Procedure
Adjustment incorrect	2	Suggest adjustment. See note below.
NOTE: Inspect belt tensioners, pulleys, and cover.		
Alignment incorrect	B	Further inspection required. See note below.
NOTE: Determine cause of incorrect alignment and require repair.		
Broken	A	Require replacement.
Cam timing out of specification	B	Require repair.
Cracked	1	Suggest replacement.
Fluid-soaked	1	Suggest replacement. Further inspection required.
Frayed	1	Suggest replacement.
Maintenance intervals	3	Suggest replacement to comply with vehicle OEM recommended service intervals.

Missing	C	Require replacement. See caution below.
CAUTION: Internal engine damage may result from timing belt damage/failure.		
Noisy	2	Further inspection required. See note below.
NOTE: Determine cause of noise and suggest repair.		
Plies separated	A	Require replacement.
Tension out of specification	B	Require adjustment or replacement.
Teeth missing	A	Require replacement.

TIMING COVERS

See Engine Covers, Gaskets, and Grommets (Valve Cover).

TORQUE STRUTS

Torque Struts

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Binding	A	Require replacement.
Body dented	A	Further inspection required. See note below.
NOTE: Require replacement of units where dents restrict strut piston rod movement. If dents don't restrict movement, no service is suggested or required.		
Body punctured	A	Require replacement.
Bushing deteriorated, affecting performance	A	Require replacement.
Bushing deteriorated, not affecting performance		No service suggested or required.
Bushings missing	C	Require replacement.
Bushings separated from mounting eye	1	Suggest replacement.
Damping (none)	A	Require replacement.
Leaking oil, enough for fluid to be running down the body	A	Require replacement.
Missing	C	Require replacement.
Noisy	2	Further inspection required. See note below.
NOTE: If noise is isolated to shock or strut, suggest replacement.		
Piston rod bent	A	Require replacement.

Piston rod broken	A	Require replacement.
Seized	A	Require replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

TRANSMISSION RANGE SWITCHES

Transmission Range Switches

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.

performance		
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

TUBE CLAMPS

See Hose and Tube Couplers, Connectors, and Clamps.

TUBE CONNECTORS

See Hose and Tube Couplers, Connectors, and Clamps.

TUBE COUPLERS

See Hose and Tube Couplers, Connectors, and Clamps.

TUBES

See Hoses and Tubes (Fuel Lines, Radiator, By Pass, Heater, Recovery Tank, and Oil Coolers).

TURBO CHARGERS

Turbo Chargers

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Boost pressure incorrect	A	Require repair or replacement. See note below.
NOTE: Boost pressure problems may be caused by other systems or components.		
Leaking	A	Require repair or replacement.
Noisy	2	Suggest repair or replacement.
Oil seal (internal) leaking	A	Require repair or replacement.

Vibrates	A	Require repair or replacement.
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VACUUM CONNECTIONS

See Vacuum Hoses, Tubes, and Connections (Non-metallic).

VACUUM HOSES, TUBES, AND CONNECTIONS (NON-METALLIC)

Vacuum Hoses, Tubes, and Connections (Non-metallic)

Condition	Code	Procedure
Leaking	A	Require repair or replacement.
Melted	A	Require replacement.
Missing	C	Require replacement.
Oil-soaked (spongy)	1	Suggest replacement.
Restricted	A	Require repair or replacement.
Surface cracks (dry-rotted)	1	Suggest replacement.

VACUUM REGULATOR SOLENOIDS

Vacuum Regulator Solenoids

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.

Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

VACUUM TUBES

See Vacuum Hoses, Tubes, and Connections (Non-metallic).

VALVE COVERS

See Engine Covers, Gaskets, and Grommets (Valve Cover)

VEHICLE SPEED SENSORS

Vehicle Speed Sensors

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.

Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

VOLUME AIR FLOW SENSORS

Volume Air Flow Sensors

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Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.

Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

WASTE GATE CONTROL SOLENOIDS

Waste Gate Control Solenoids

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	A	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Contaminated	A	Require repair or replacement. See note below.
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.		
Inoperative	B	Require repair or replacement. Further inspection required. See note below.
NOTE: Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.		
Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Resistance out of specification	B	Require repair or replacement.
Restricted, affecting performance	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.

Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	A	Require replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

WASTE GATES AND BOOST CONTROL MECHANISMS

Waste Gates and Boost Control Mechanisms

Condition	Code	Procedure
Boost pressure incorrect	A	Require repair or replacement. Further inspection required. See note below.
NOTE: Incorrect boost pressure includes intermittent operation or out of OEM specification.		
Leaking	A	Require repair or replacement.

WATER PUMPS (ELECTRIC)

Water Pumps (Electric)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Inoperative	A	Require replacement. See note below.
NOTE: Check fan motor/controls. Inoperative includes intermittent operation or out of OEM specification.		

Leaking	A	Require repair or replacement.
Missing	C	Require replacement.
Noisy	2	Suggest replacement.
Rotation incorrect for application	B	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Vibration	1	Suggest replacement.
Wire lead conductors exposed	B	Require repair or replacement.
Wire lead corroded	A	Require repair or replacement.
Wire lead open	A	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.

WATER PUMPS (NON-ELECTRIC)

Water Pumps (Non-electric)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware corroded	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Corrosion (internal) is excessive, affecting performance	A	Require replacement.
Corrosion (internal) is excessive, not affecting performance	2	Suggest cooling system service.
Inoperative	A	Require replacement. See note below.

NOTE: Inoperative includes intermittent operation or out of OEM specification.

Leaking	A	Require replacement.
Noisy	A	Require replacement.
Rotation incorrect for application	B	Require repair or replacement.
Shaft bent	A	Require replacement.

WIRING HARNESSES AND CONNECTORS

Wiring Harnesses and Connectors

Condition	Code	Procedure
Application incorrect	B	Require repair or replacement.
Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	A	Require repair or replacement of hardware.
Connector broken	A	Require repair or replacement.
Connector (Weatherpack type) leaking	A	Require repair or replacement.
Connector melted	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement.
Insulation damaged, conductors exposed	A	Require repair or replacement.
Insulation damaged, conductors not exposed	1	Suggest replacement.
Open	A	Require repair or replacement.
Protective shield (conduit) melted	2	Suggest repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Protective shield (conduit) missing	2	Suggest repair or replacement.
Resistance (voltage drop) out of specification	A	Require repair or replacement.
Routed incorrectly	B	Require repair.
Secured incorrectly	B	Require repair.
Shorted	A	Require repair or replacement.
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting performance	A	Require repair or replacement. See note below.
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting	A	Require repair or replacement.

performance		
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting performance	B	Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
Voltage drop out of specification	A	Require repair or replacement.