* ENGINE SYSTEMS UNIFORM INSPECTION GUIDELINES *

2001 Chevrolet Camaro

GENERAL INFORMATION
Engine Performance and Maintenance January 2000 Motorist
Assurance Program
Standards For Automotive Repair

All Makes and Models

INTRODUCTION TO MOTORIST ASSURANCE PROGRAM (MAP)

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INTRODUCTION TO MOTORIST ASSURANCE PROGRAM (MAP)

OVERVIEW OF MOTORIST ASSURANCE PROGRAM (MAP)

Automotive industry professionals and interested readers: The Motorist Assurance Program (MAP) is the consumer outreach effort of the Automotive Maintenance and Repair Association, Inc. (AMRA). Participation in the Motorist Assurance Program is drawn from auto repair companies and independents, parts and equipment manufacturers and suppliers, vehicle manufacturers and industry associations.

Our organization's mission is to strengthen the relationship between the consumer and the auto repair industry. We encourage motorists to take greater responsibility for their vehicles—through proper, manufacturer—recommended, maintenance, and endorse participating service and repair shops (including franchisees and dealers) who adopt (1) the MAP 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 an inspection of the vehicle's (problem) system and that the results be communicated to the customer according to industry standards. Since 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, and Electrical Systems.

Further, revisions to all of these inspection communication standards are re-published periodically. In addition to the above,

standards for Drive Train and Transmissions were promulgated and published in 1998. Participating shops utilize these Uniform Inspection & Communication Standards (UI&CS) 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 governing body, and the program adjusted as needed.

To assure recourse for auto repair customers if they are not satisfied with a repair transaction, the Motorist Assurance Program offers mediation and arbitration through the BBB and other similar 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 UI&CS in communicating the results of their inspection to their customers. Complaints and "come-backs" dropped significantly.

To put some "teeth" in the program, an accreditation requirement for shops was initiated. The requirements are stringent, and a self-policing technique has been incorporated which includes the "mystery shopping" of outlets. By year-end 1999, over 4,000 auto repair facilities had been accredited by the Motorist Assurance Program.

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:

1444 I Street, NW - Suite 700 Washington, DC 20005 Phone (202) 712-9042 - Fax (202) 216-9646 E-mail map@bostromdc.org

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 the 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 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 ASSEMBLY INSPECTION

Condition	Code	Procedure
Adjustable valve lash is out of specification Internal component failur		Require repair.
(any component)	. A	(1) Require repair or replacement of cylinder head assembly.

(1) - 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).

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 ASSEMBLY INSPECTION

Condition Code Procedure

(1) - 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).

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 ASSEMBLY INSPECTION

(1) - 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).

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

ACCELERATOR PEDAL POSITION SENSORS

Condition		Code	Procedur	e
Attaching missing	hardware	. C	Require replacement o)f
Attaching threads	hardware damaged	. А		nt
Attaching threads	stripped			
(threads	missing)	. A	Require repair or replacemen of hardware	
	broken (Weatherpack	. A	Require repair or replacement	•
	aking melted		Require repair or replacement (1) Require repair or replacement	or
	missing ve			or er
Missing Resistanc	e out of	. C	inspection required Require replacement	
specific Terminal	ation broken burned, affecting	. A	Require repair or replacement Require repair or replacement	
performa	nce		(1) Require repair of replacement	
affectin	burned, not g performance .	. 2	Suggest repair or replacement	
	g performance . corroded, not	. A	Require repair or replacement	. •
affectin	g performance . loose, affecting		Suggest repair or replacement	. .
performa	nce		Require repair or replacement	· •
affectin	g performance . tripped (threads		Suggest repair or replacement	. .
missing)	conductors		Require replacement	· •
exposed	corroded		Require repair or replacement Require repair or replacement	•
	open		Require repair or replacement	
	shorted		Require repair or replacement	
			ect prior to repair or	
(2) - Inog		s inte e comp	ermittent operation or out of OEM conents may be serviceable; check ocedure.	
				_

ACCESSORY BELTS

ACCESSORY BELT INSPECTION

Condit to	Q - 1 -	D
Condition	Code	Procedure
Alignment incorrect	в	(1) Further inspection required.
		 Suggest replacement. Suggest replacement.

Plies separated Tension out of	A	Require replacement.
specification	В	Require adjustment or replacement.
Worn beyond adjustment	B	Require replacement.
Worn so it contacts		
bottom of pulley	Α	Require replacement.
(1) - Determine cause of in(2) - Determine cause of no		rect alignment and require repair. and suggest repair.

ACCESSORY PULLEYS

ACCESSORY PULLEY INSPECTION

Condition	Code	Procedure
Alignment incorrect Attaching hardware	. В	Require repair or replacement.
3	. 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 . A	Require replacement.
<u> </u>	. A	Require replacement.

ACTUATORS

See SENSORS AND ACTUATORS.

AIR CONDITIONING CYCLING SWITCHES

AIR CONDITIONING CYCLING SWITCH INSPECTION

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		
1 1	. A	Require repair or replacement of hardware.
	. A	Require repair or replacement.
Connector (Weatherpack type) leaking	. A	Require repair or replacement.

Connector melted	Α	(1) Require repair or replacement.
Connector missing	С	
Contaminated	A	
		replacement.
Inoperative	В	
		replacement. Further
		inspection required.
Leaking	Α	
Missing	С	Require replacement.
Resistance out of		
specification	В	Require repair or replacement.
Restricted, affecting	-	
performance	A	
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting	7\	(1) Doguino monain on
performance	A	(1) Require repair or replacement.
Terminal burned, not		repracement.
affecting performance	2	Suggest repair or replacement.
Terminal corroded,		buggese repair or repracement.
affecting performance	Α	Require repair or replacement.
Terminal corroded, not		
affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting		
performance	В	Require repair or replacement.
Terminal loose, not		
affecting performance	1	
Threads damaged	Α	Require repair or replacement.
Threads stripped (threads		
missing)	А	Require replacement.
Wire lead conductors	_	
exposed	В	
Wire lead corroded	A	
Wire lead open	A	
Wire lead shorted	A	Require repair or replacement.
(1) - Determine cause and c	orr	root prior to ropair or
replacement of part.	OLL	rect prior to repair or
	ont	tamination, such as engine
		rticles, or water. Require
repair or replacement		
		termittent operation or out of OEM
		ponents may be serviceable; check
for accepted cleaning		
-	-	

AIR CONDITIONING PRESSURE SENSORS

AIR CONDITIONING PRESSURE SENSOR INSPECTION

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

Connector broken Connector (Weatherpack	A	Require repair or replacement.
type) leaking Connector melted	A A	Require repair or replacement (1) Require repair or replacement.
Connector missing Contaminated	C A	Require replacement
Inoperative	В	
Leaking	Α	Require repair or replacement.
Missing	С	Require replacement.
specification Restricted, affecting	В	Require repair or replacement.
performance	Α	Require repair or replacement.
Terminal broken	А	Require repair or replacement.
Terminal burned, affecting	7\	(1) Doguiro ropair or
performance	А	(1) Require repair or replacement.
Terminal burned, not		repracement.
affecting performance	2	Suggest repair or replacement.
Terminal corroded,		
affecting performance	А	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting	2	Suggest repair or repracement.
performance	В	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)	А	Require replacement.
Wire lead conductors	A	Require repracement.
exposed	В	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.
mile ieda emeleca		·· noquire repair or repracement.
(1) - Determine cause and c	orr	ect prior to repair or
replacement of part.		
(2) - Determine source of c		
coolant, fuel, metal	par	ticles, or water. Require
repair or replacement		
		ermittent operation or out of
		components may be serviceable;
check for accepted cl	ean	ing procedure.

AIR DUCTS AND TUBES

AIR DUCT AND TUBE INSPECTION

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	Α	Require repair or replacement
-		of hardware.
Leaking	Α	Require repair or replacement.
Missing	С	Require replacement.
Restricted, affecting		
performance	Α	Require repair or replacement.

AIR FILTER ELEMENTS

AIR FILTER ELEMENT INSPECTION

Condition	Code	Procedure
Leaking	. A	Require replacement.
oil-soaked	. A	(1) Require replacement.
		Suggest replacement to comply with vehicle's OEM recommended
		service intervals.
		Required replacement.
Missing	. C	Require replacement.
performance	. A	Require replacement.
Water-contaminated	. A	(1) Require replacement.
(1) - Further inspection	rogui	red to determine cause

(1) - Further inspection required to determine cause.

AIR FILTER GASKETS

See AIR FILTER HOUSINGS AND GASKETS.

AIR FILTER HOUSINGS AND GASKETS

AIR FILTER HOUSING AND GASKET INSPECTION

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

AIR FUEL RATIO SENSORS

AIR FUEL RATIO SENSOR INSPECTION

Condition		Code		Procedure
Attaching missing	hardware	С	 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 Connector (Weatherpack	A Require repair or replacement.
type) leaking Connector melted	A Require repair or replacement. A (1) Require repair or replacement.
Connector missing Contaminated	C Require replacement. A (2) Require repair or replacement.
Inoperative	B (3) Require repair or replacement. Further inspection required.
Leaking	A Require repair or replacement. C Require replacement.
Resistance out of specification Restricted, affecting	B Require repair or replacement.
performance Terminal broken Terminal burned, affecting	A Require repair or replacement. A Require repair or replacement.
performance	A (1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2 Suggest repair or replacement.
affecting performance Terminal corroded, not	A Require repair or replacement.
affecting performance Terminal loose, affecting	2 Suggest repair or replacement.
performance Terminal loose, not	B Require repair or replacement.
affecting performance Threads damaged Threads stripped (threads	1 Suggest repair or replacement.A Require repair or replacement.
missing)	A Require replacement.
exposed	B Require repair or replacement. A Require repair or replacement.
Wire lead open Wire lead shorted	A Require repair or replacement. A Require repair or replacement.
(1) - Determine cause and creplacement of part.	correct prior to repair or
(2) - Determine source of coolant, fuel, metal	contamination, such as engine particles, or water. Require
	intermittent operation or out of ome components may be serviceable;

AIR INJECTION CONTROL SOLENOIDS

AIR INJECTION CONTROL SOLENOID INSPECTION

Condition Code Procedure

missing	С	Require replacement of hardware.
Attaching hardware threads damaged	А	Require repair or replacement of hardware.
Attaching hardware threads stripped		
(threads missing)	A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	A	. Require repair or replacement.
type) leaking	Α	. Require repair or replacement.
Connector melted	A	(1) Require repair or replacement.
Connector missing	С	Require replacement.
Inoperative	В	(2) Require repair or replacement. Further
Looking	7\	inspection required.
Leaking	A C	Require repair or replacement. Require replacement.
Resistance out of	0	Require repracement.
specification	В	. Require repair or replacement.
Restricted, affecting		
performance	А	. Require repair or replacement.
Terminal broken	А	. Require repair or replacement.
Terminal burned, affecting performance	A	(1) Require repair or replacement.
Terminal burned, not		repracement.
affecting performance	2	. Suggest repair or replacement.
Terminal corroded,		
affecting performance	Α	. Require repair or replacement.
Terminal corroded, not		
affecting performance	2	. Suggest repair or replacement.
Terminal loose, affecting	D	Doguiro ropair or roplacement
performance Terminal loose, not	В	. Require repair or replacement.
affecting performance	1	. Suggest repair or replacement.
Threads damaged	Α	. Require repair or replacement.
Threads stripped (threads		
missing)	Α	Require replacement.
Wire lead conductors	D	. Require repair or replacement.
exposed	B A	
Wire lead open		. Require repair or replacement.
Wire lead shorted		. Require repair or replacement.
(1) - Determine cause and c	orre	ect prior to repair or
replacement of part.		
		ermittent operation or out of
OEM specification. So check for accepted cl		components may be serviceable;
check for accebred CI	eall.	ing procedure.

AIR PLENUMS

Attaching hardware

AIR PLENUM INSPECTION

Condition Code Procedure

inoperative	A			(1)	Requ	ire repair or replacement.
Internal air or fuel components damaged, affecting performance	A		Require	e repa		r replacement of component.
<pre>Internal air or fuel components damaged, not affecting performance</pre>			N	Jo ser		1
Internal air or fuel	• •	••	1	NO BCI	VICC	required.
components missing	С			Requi	re re	eplacement of component.
Leaking	Α		Require	repai	r or	replacement.
Restricted	Α		Require	repai	r or	replacement.
Threads damaged Threads stripped (threads	A	• •	Require	repai	r or	replacement.
missing)	A	• •	Require	repai	r or	replacement.
(1) - Inoperative includes OEM specification.	inte	ermit	ttent ope	eratio	n or	out of

AIR PUMP BELTS

AIR PUMP BELT INSPECTION

Condition	Code	Procedure
Alignment incorrect	. B	(1) Further inspection required.
Cracked	. 1	Suggest replacement. Suggest replacement.
Missing Noisy	. C	
Plies separated Tension out of	. A	Require replacement.
specification	. В	Require adjustment or replacement.
Worn beyond adjustment range		Require replacement.
		Require replacement.
(1) - Determine cause of(2) - Determine cause of		rect alignment and require repair. and suggest repair.

AIR PUMPS (ELECTRIC-DRIVEN)

AIR PUMP (ELECTRIC-DRIVEN) INSPECTION

Condition	Code		Procedure
Attaching hardware broken	. A	Require rep	air or replacement of hardware.
Attaching hardware missing	. C	Requ	ire replacement of

hardware.

Attaching hardware not functioning	А		Requ	ıir∈	e repai	lr o	r replacement
							of hardware.
Connector broken Connector (Weatherpack	A	• •	Requi	ire	repair	or	replacement.
type) leaking	Α		Reau	ire	repair	or	replacement.
Connector melted	A						ire repair or replacement.
Connector missing	С				. Requ	ire	replacement.
Inoperative	Α			(2	2) Requ	uire	replacement.
Leaking	Α				. Requ	uire	replacement.
Missing	С				. Requ	iire	replacement.
Noisy	2						replacement.
Terminal broken	Α						replacement.
Terminal burned, affecting			_		-		1
performance	A		• • • • •		(1) I	Requ	ire repair or replacement.
Terminal burned, not							1
affecting performance	2		Sugge	est	repair	or	replacement.
Terminal corroded,			ر ر		-		1
affecting performance	Α		Reau	ire	repair	or	replacement.
Terminal corroded, not			- 1-		-1 -		1
affecting performance	2		Sugge	est.	repair	or	replacement.
Terminal loose, affecting					- or o	-	
performance	В		Regu	ire	repair	or	replacement.
Terminal loose, not	_	• •	11094		ropari	- 01	101120000000000000000000000000000000000
affecting performance	1		Sugge	2st	repair	or	replacement
Threads damaged							replacement.
Threads stripped (threads	11	• •	ricqu	LLC	гсраті	01	repracement.
missing)	Δ		Remi	iro	renair	or	renlacement
missing,	11	• •	ricqu.	LIC	гсраті	. 01	repracement.
(1) - Determine cause and co	rre	act	nrior	+ ^	ronair	or	
replacement of part.	JIIC		PLIOI	LU	repari	. 01	
(2) - Inoperative includes	into	`rmi	++ on+	one	oration	or	011#
of OEM specification.	TIICE	2 T III T	CCEIIC	ope	=Lac_LOI	1 01	out
or orm specification.							

AIR TUBES

See AIR DUCTS AND TUBES.

ASPIRATOR, CHECK AND DECEL VALVES

ASPIRATOR, CHECK AND DECEL VALVE INSPECTION

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

performance	• •	No service suggested or required.
Missing	С	Require replacement.
		Require repair or replacement.
	Α	Require repair or replacement.
(1) - Inoperative includes of OEM specification.		ermittent operation or out

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 RESISTOR AND PRIMARY SUPPLY RESISTOR WIRE INSPECTION

Condition	Code	Procedure
Attaching hardware broken	А	Require repair or replacement of hardware.
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware not functioning	А	Require repair or replacement of hardware.
Conductor exposed Connector broken	A	Require replacement.
Connector missing Inoperative Insulation overheated Terminal broken Terminal burned, affecting the state of	A A A	Require replacement.
performance	A	(1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2	Suggest repair or replacement.
	A	Require repair or replacement.
affecting performance	. 2	Suggest repair or replacement.
Terminal loose, affecting performance		Require repair or replacement.
Terminal loose, not affecting performance	1	Suggest repair or replacement.
(1) - Determine cause and replacement of part		ect prior to repair or
(2) - Inoperative include		ermittent operation or out

of OEM specification.

BAROMETRIC PRESSURE SENSORS

BAROMETRIC PRESSURE SENSOR INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. С	Require replacement of hardware.
Attaching hardware threads damaged	. А	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	. А	
Connector broken	. А	$ \qquad \qquad \text{of hardware.} \\ \dots \text{ Require repair or replacement.} $
Connector (Weatherpack type) leaking		Require repair or replacement (1) Require repair or replacement.
Connector missing		Require replacement(2) Require repair or replacement.
Inoperative	. В	
Leaking		Require repair or replacement Require replacement.
specification	. В	Require repair or replacement.
performance	. A	Require repair or replacement.Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance Terminal corroded, not	. А	Require repair or replacement.
affecting performance Terminal loose, affecting	. 2	Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance Threads damaged		 Suggest repair or replacement. Require repair or replacement.
Threads stripped (threads missing)	. А	Require replacement.
exposed		
Wire lead open		
	conta	ect prior to repair or amination, such as engine coolant, water. Require repair or

- replacement.
- (3) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable;

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.

BATTERY INSPECTION

Condition	Code	Procedure
Battery frozen	• •	(1) Further inspection required.
Circuit open internally . Electrolyte	Α .	Require replacement.
<u> </u>	Α .	(2) Further inspection required.
Electrolyte discoloration	Α .	(2) Further inspection required.
		(3) Require replacement (4) Further inspection required.
Out of performance specification		-
	В.	(5) Require replacement.
application	В.	(5) Require replacement.
affecting performance	Α .	(6) Require repair or replacement.
Post (top or side) burned, not affecting		repracement.
	2 .	(6) Suggest repair or

replacement.
Post (top or side) corroded, affecting performance
corroded, not affecting performance
loose
performance
melted, not affecting performance 2 (6) Suggest repair or replacement.
Specific gravity low B (7) Further inspection required.
State of charge low A (7) Further inspection required.
Top dirty 2 Suggest cleaning battery. Top wet A (8) Require cleaning battery. Further inspection required.
Vent cap loose A Require repair or replacement of vent cap.
Vent cap missing C Require replacement of vent cap.
(1) - DO NOT attempt to charge a frozen battery. Allow battery to warm thoroughly and then performance-test.
If battery fails performance test, require replacement. (2) - No service suggested or required unless the battery fails performance test, in which case, require
replacement. (3) - 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.
(4) - Determine cause of low fluid level. Refill to proper level(s) with water (distilled water preferred).
Recharge battery and performance-test. (5) - The battery may meet battery manufacturer's specifications but test below the minimum specification defined by the vehicle's OEM for
<pre>that vehicle. (6) - Determine cause and correct prior to repair or replacement of part.</pre>
(7) - Recharge and test to manufacturer's specifications. If battery fails performance test, require replacement.
(8) - Check fluid level and adjust to manufacturer's specification. Suggest checking charging system
for proper operation.

BATTERY CABLES, WIRES AND CONNECTORS

BATTERY CABLE, WIRE AND CONNECTOR INSPECTION

Condition Code Procedure

Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	С	
Attaching hardware not functioning	А	Require repair or replacement of hardware.
Connector broken Connector melted	A A	Require repair or replacement (1) Require repair or replacement.
Connector missing Insulation damaged,	С	Require replacement.
conductors exposed	А	(2) Require repair or replacement.
Insulation damaged, conductors not exposed . Open	1 A	Suggest replacement Require repair or replacement.
(conduit) melted	2	(1) Suggest repair or replacement.
Protective shield (conduit) missing Resistance (voltage drop)	2	Suggest repair or replacement.
out of specification Routed incorrectly Secured incorrectly Shorted Terminal broken Terminal burned, affecting	A B B A A	Require repair or replacement. Require repair. Require repair. Require repair or replacement. Require repair or replacement.
performance Terminal burned, not	А	(1) Require repair or replacement.
affecting performance Terminal corroded,	2	Suggest repair or replacement.
affecting performance Terminal corroded, not	A	Require repair or replacement.
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.
performance Terminal loose, not	В	Require repair or replacement.
affecting performance Voltage drop out of	1	Suggest repair or replacement.
specification	А	Require repair or replacement.
(1) - Determine cause and converged replacement of part.(2) - Exposed conductor at end does not require	rep	lacement (aftermarket) terminal

BATTERY CONNECTORS

See BATTERY CABLES, WIRES AND CONNECTORS.

BATTERY TRAYS AND HOLD DOWN HARDWARE

BATTERY TRAY AND HOLD DOWN HARDWARE INSPECTION

Condition Code Procedure

secured	2	Suggest repair.
performance	A	Require repair or replacement.
Bent, not affecting performance		No service suggested or required.
Broken, affecting performance Broken, not affecting	A	Require repair or replacement.
	• •	No service suggested or required.
Corroded, affecting		
performance	Α	Require repair or replacement.
performance	2	Suggest repair or replacement.
performance	A	Require repair or replacement.
performance	1 C A	Suggest repair or replacement Require replacement Require repair or replacement.
Threads stripped (threads missing)	A A	- · · · · · · · · · · · · · · · · · · ·

BATTERY WIRES

See BATTERY CABLES, WIRES AND CONNECTORS.

BELT-DRIVEN AIR PUMPS

BELT-DRIVEN AIR PUMP INSPECTION

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 Leaking Missing Noisy Pulley alignment	. A . C	
<pre>incorrect Pulley bent Pulley cracked Pulley loose Pulley missing Threads damaged Threads stripped (threads</pre>	. A . A . A . C . A	Require replacement. Require replacement. Require repair or replacement. Require repair or replacement. Require repair or replacement.
missing)		Require repair or replacement.

BELT IDLER ASSEMBLIES (ACCESSORY AND CAM BELTS)

BELT IDLER ASSEMBLY (ACCESSORY AND CAM BELT) INSPECTION

Condition	Code	Procedure
Alignment incorrect Attaching hardware	. В	Require repair or replacement.
2	. 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 Cracked Missing Noisy Seized	. 2 . C . 2	Suggest replacement. Suggest replacement. Require replacement. Suggest replacement. Require repair or replacement.

BELT TENSIONERS (ACCESSORY AND CAM BELTS)

BELT TENSIONER (ACCESSORY AND CAM BELT) INSPECTION

Condition	Code	Procedure
Alignment incorrect Attaching hardware	. В	Require repair or replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of
Attaching hardware not functioning	. A	hardware Require repair or replacement
Bearings worn Belt tension incorrect .	. 1	of hardware Suggest replacement Require adjustment or repair.
Cracked	. 2	
Noisy		Suggest replacement.
belt life		Require replacement Require repair or replacement.

BOOST CONTROL MECHANISMS

See WASTE GATES AND BOOST CONTROL MECHANISMS.

CAMSHAFT POSITION SENSORS

CAMSHAFT POSITION SENSOR INSPECTION

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

damaged	A	Require repair or replacement of hardware.			
Attaching hardware threads stripped					
(threads missing)	Α	of hardware.			
Connector broken Connector (Weatherpack	Α	Require repair or replacement.			
type) leaking Connector melted	A A	Require repair or replacement (1) Require repair or replacement.			
Connector missing Contaminated	C A	Require replacement. (2) Require repair or replacement.			
Inoperative	В	(3) Require repair or replacement. Further inspection required.			
Leaking	Α	Require repair or replacement.			
Missing Terminal broken	C A	Require replacement Require repair or replacement.			
Terminal burned, affecting	А	Require repair or repracement.			
performance	A	(1) Require repair or replacement.			
Terminal burned, not affecting performance Terminal corroded,	2	Suggest repair or replacement.			
affecting performance Terminal corroded, not	A	Require repair or replacement.			
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.			
performance Terminal loose, not	В	Require repair or replacement.			
affecting performance Wire lead conductors	1	Suggest repair or replacement.			
exposed	В	Require repair or replacement.			
Wire lead corroded	Α				
Wire lead open	Α	Require repair or replacement.			
Wire lead shorted	A	Require repair or replacement.			
(1) - Determine cause and c replacement of part.	orr	ect prior to repair or			
(2) - Determine source of c	ont	amination, such as engine			
		cticles, or water. Require			
repair or replacement					
		termittent operation or out of			
OEM specification. Some components may be serviceable;					

OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

CARBURETORS AND CHOKES

Attaching hardware threads

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 NOTE: standards. Adjustments are to be considered repairs.

CARBURETOR AND CHOKE INSPECTION

Condition	Code				Procedure
Air/fuel control	D	Doguino		0.70	man la gaman+
incorrect	, в	 кеquire	repair	or	replacement.

Application incorrect Attaching hardware	B Require repair or replacement.			
	A Require repair or replacement of hardware.			
Attaching hardware				
missing	C Require replacement of hardware.			
Attaching hardware not				
	A Require repair or replacement of hardware.			
Components binding Components damaged, affecting operation or	A Require repair or replacement.			
	A Require repair or replacement.			
	A (1) Require repair or replacement. Further inspection required.			
Controlling linkages				
	A Require repair or replacement of linkage.			
Leaking Mechanical operation	A Require repair or replacement.			
incorrect	B Require repair or replacement.			
Operating incorrectly	B Require repair or replacement.			
(1) - 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.				

CASTING CORE PLUGS AND EXPANSION PLUGS

CASTING CORE PLUG AND EXPANSION PLUG INSPECTION

Condition	Code	Procedure
Leaking	A	. Require replacement.
	2	. Suggest replacement.

CHARGE AIR COOLERS "INTERCOOLERS" (CAC)

CHARGE AIR COOLER "INTERCOOLER" (CAC) INSPECTION

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

Missing	С		Require	replacement.
Restricted, affecting				
performance	Α	Require n	repair or	replacement.

CHECK VALVES

See ASPIRATOR, CHECK AND DECEL VALVES.

CHOKES

See CARBURETORS AND CHOKES.

CLUTCH PEDAL POSITION SWITCHES

CLUTCH PEDAL POSITION SWITCH INSPECTION

Condition	(Code	Procedure
Attaching hardware missing		С	Require replacement of hardware.
Attaching hardware t damaged		А	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)		A	Require repair or replacement
		A A	of hardware Require repair or replacement (1) Require repair or replacement.
Connector missing . Inoperative		C B	Require replacement. (2) Require repair or replacement. Further inspection required.
Missing		С	Require replacement.
specification Terminal broken Terminal burned, aff		B A	Require repair or replacement.Require repair or replacement.
performance		А	(1) Require repair or replacement.
Terminal burned, not affecting performan Terminal corroded,		2	Suggest repair or replacement.
affecting performan Terminal corroded, n		А	Require repair or replacement.
affecting performan Terminal loose, affe	ce	2	Suggest repair or replacement.
performance Terminal loose, not		В	Require repair or replacement.
affecting performan Threads damaged Threads stripped (th		1 A	 Suggest repair or replacement. Require repair or replacement.
missing) Wire lead conductors		А	Require replacement.
exposed Wire lead corroded Wire lead open Wire lead shorted .		B A A	Require repair or replacement.Require repair or replacement.Require repair or replacement.Require repair or replacement.

^{(1) -} Determine cause and correct prior to repair or

replacement of part.

(2) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

COLD START INJECTORS

See FUEL AND COLD START INJECTORS.

CONNECTORS

See WIRING HARNESSES AND CONNECTORS.

COOLANT

COOLANT INSPECTION

Condition	Code	Procedure
Acidity (pH) incorrect .	. 1	Suggest correction or replacement.
Contaminated	. В	(1) Require replacement or recycling. Further inspection required.
Level low	. В	(2) Require filling to proper level.
		(3) Suggest replacement Require correction or replacement.
Type incorrect	. В	Require replacement.
(3) - The system should b refilled with corre	coola inco: e dra: ct co	±

COOLANT RECOVERY TANKS

COOLANT RECOVERY TANK INSPECTION

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.
j .	. C	Require replacement.

COOLING FAN MOTOR RELAYS AND MODULES

COOLING FAN MOTOR RELAY AND MODULE INSPECTION

Condition	Code	Procedure
Attaching hardware broken	. A	Require repair or replacement
Attaching hardware missing	. C	of hardware Require replacement of
Attaching hardware not functioning	. A	± ± ±
Connector broken Connector (Weatherpack	. A	of hardware Require repair or replacement.
type) leaking Connector melted		<pre> Require repair or replacement (1) Require repair or</pre>
Connector missing Housing cracked Malfunctioning	. 2	Require replacement. Suggest repair or replacement. (2) Require repair or replacement.
Missing Terminal broken Terminal burned, affecting	. A g	Require replacement. Require replacement.
performance	. A	(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance	. B	Require repair or replacement.
affecting performance . Wire lead conductors	. 1	Suggest repair or replacement.
exposed		Require repair or replacement.
Wire lead corroded		Require repair or replacement.
Wire lead open		Require repair or replacement.
Wire lead shorted	. A	Require repair or replacement.
	e, in	termittent operation, failure
replacement of part (2) - Includes inoperativ	e, in	-

COOLING FAN MOTOR RESISTORS

COOLING FAN MOTOR RESISTOR INSPECTION

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

Attaching hardware missing	С	Require replacement of hardware.
Attaching hardware not functioning	А	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	A	Require repair or replacement.
type) leaking Connector melted	A A	<pre> Require repair or replacement (1) Require repair or</pre>
Connector missing Missing Open Resistance out of	C C A	Require replacement. Require replacement. Require replacement.
specification	B A A	<pre> Require repair or replacement Require replacement Require repair or replacement.</pre>
performance	A	(1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2	. Suggest repair or replacement.
•	A	. Require repair or replacement.
	2	. Suggest repair or replacement.
performance Terminal loose, not	В	. Require repair or replacement.
	1	. Suggest repair or replacement.
(1) - Determine cause and c replacement of part.	orre	ect prior to repair or

COOLING FAN MOTOR SENSORS AND SWITCHES

COOLING FAN MOTOR SENSOR AND SWITCH INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C F	Require replacement of hardware.
Attaching hardware thread damaged		repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	. A Require	repair or replacement of hardware.
Connector broken Connector melted		repair or replacement.
Connector missing Contaminated		<u> </u>
Inoperative	. в	(3) Require repair or replacement. Further inspection required.
Leaking	±	repair or replacement. Require replacement.

Resistance out of specification Terminal broken Terminal burned, affecting	B A					replacement. replacement.
performance	A			(1) R	equ	ire repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2		Suggest	repair	or	replacement.
affecting performance Terminal corroded, not	А		Require	repair	or	replacement.
affecting performance Terminal loose, affecting	2		Suggest	repair	or	replacement.
performance Terminal loose, not	В		Require	repair	or	replacement.
affecting performance	1		Suggest	repair	or	replacement.
Threads damaged	А	• •	Require	repair	or	replacement.
Threads stripped (threads missing)	A			. Requi	ire	replacement.
exposed	В		-	-		replacement.
Wire lead corroded	Α					replacement.
Wire lead open	A	• •	_	-		replacement.
Wire lead shorted	A	• •	Require	repair	or	replacement.
 Wire lead shorted A Require repair or replacement. (1) - Determine cause and correct prior to repair or replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure. 						

COOLING FAN MOTOR SWITCHES

See COOLING FAN MOTOR SENSORS AND SWITCHES.

COOLING FAN MOTORS

COOLING FAN MOTOR INSPECTION

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	. А	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	. Require repair or replacement.
type) leaking		. Require repair or replacement (1) Require repair or replacement.
Connector missing Hydraulic fan motor	. C	Require replacement.
leaking		Require repair or replacement. (2) Require replacement.

Missing						replacement. replacement.
application Terminal broken Terminal burned, affecting	B A					replacement. replacement.
performance Terminal burned, not	A			(1)	Requ	ire repair or replacement.
	2	. S	Suggest	repair	r or	replacement.
affecting performance Terminal corroded, not	A	. R	Require	repair	r or	replacement.
affecting performance	2	. S	Suggest	repair	r or	replacement.
Terminal loose, affecting performance Terminal loose, not	В	. R	Require	repai	r or	replacement.
affecting performance Vibration						replacement. replacement.
Wire lead conductors exposed Wire lead corroded Wire lead open		. R	Require	repair	r or	replacement. replacement.
Wire lead shorted	А					replacement.
(1) - Determine cause and creplacement of part.	orr	ect p	rior to	repai	ir o	r
(2) - Check fan motor/contr intermittent operatio						

CRANKSHAFT POSITION SENSORS

CRANKSHAFT POSITION SENSOR INSPECTION

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
Connector broken Connector (Weatherpack		of hardware Require repair or replacement.
type) leaking Connector melted		<pre> Require repair or replacement(1) Require repair or</pre>
Connector missing Contaminated Inoperative	. A	Require replacement Require repair or replacement Require repair or replacement. Further inspection required.
Leaking		.
specification Terminal broken Terminal burned, affectin	. A	 Require repair or replacement. Require repair or replacement.
performance	_	(1) Require repair or

						replacement.
Terminal burned, not affecting performance	2		Cuaracat	ronair	0.70	ronlagoment
Terminal corroded,	2	• •	suggest	reparr	OI	repracement.
affecting performance	A		Require	repair	or	replacement.
Terminal corroded, not			-	-		1
affecting performance	2	• •	Suggest	repair	or	replacement.
Terminal loose, affecting	Б		D '			
performance Terminal loose, not	В	• •	Require	repair	or	replacement.
affecting performance	1		Suggest	repair	or	replacement
Threads damaged				-		replacement.
Threads stripped (threads			-	-		1
missing)	Α			Requi	re	replacement.
Wire lead conductors	_					
exposed			-	-		replacement.
Wire lead corroded			-	-		replacement.
Wire lead open						replacement.
wile ieda siloreea	71	••	REQUITE	гсратт	ΟŢ	repracement.
(1) - Determine cause and	corre	ect]	prior to	repair	or	
replacement of part.						
(2) - Determine source of						
coolant, fuel, metal	_	ticle	es, or wa	ater. Re	equ:	ire
repair or replacement (3) - Inoperative includes		ormi:	ttent one	ration	or	out of OFM
specification. Some						
for accepted cleaning	_					,

DECEL VALVES

See ASPIRATOR, CHECK AND DECEL VALVES.

DEFLECTORS

See SHROUDS, BAFFLES AND DEFLECTORS.

DIP STICKS AND TUBES

DIP STICK AND TUBE INSPECTION

Condition	Code	Procedure
	. 2	Require replacement Suggest repair or replacement.
<u>*</u>	•	Require repair or replacement.
performance Leaking, affecting performance (for example		Suggest repair or replacement.
±	•	Require repair or replacement.
performance	. 2 C	Suggest repair or replacement. Require replacement.

DIP STICK TUBES

DISTRIBUTOR ADVANCES AND RETARDERS (MECHANICAL AND VACUUM)

DISTRIBUTOR ADVANCE AND RETARDER (MECHANICAL AND VACUUM) INSPECTION

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.
		Require repair or replacement (1) Require repair or
		replacement Require replacement Require repair or replacement.
(1) - Inoperative include	s inte	ermittent operation.

DISTRIBUTOR BOOTS AND SHIELDS

DISTRIBUTOR BOOT AND SHIELD INSPECTION

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 Leaking Missing Torn	. A . A	Require replacement. Require replacement.

DISTRIBUTOR CAPS

DISTRIBUTOR CAP INSPECTION

Condition	Code	Procedure
Application incorrect Arcing		Require replacement. Require replacement.
2	. 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			• • • • • • • •	- .	replacement. replacement.
affecting performance Carbon button worn, not	A			. Require	replacement.
affecting performance Carbon-tracked	1 A A 2 A			Require Require repair or	replacement. replacement. replacement. replacement. replacement.
performance	A	• • •		(1) Requ	ire repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2	• •	Suggest	repair or	replacement.
affecting performance Terminal corroded, not	A	• •	Require	repair or	replacement.
•	2		Suggest	repair or	replacement.
performance	A	• •	Require	repair or	replacement.
affecting performance			1	No service	suggested or required.
Terminal loose, affecting performance Terminal loose, not	В	• •	Require	repair or	replacement.
affecting performance	1	• •	Suggest	repair or	replacement.
(1) - Determine cause and c replacement of part.	orre	ect p	prior to	repair or	

DISTRIBUTOR RETARDERS (MECHANICAL AND VACUUM)

See

DISTRIBUTOR ADVANCES AND RETARDERS (MECHANICAL AND VACUUM).

DISTRIBUTOR ROTORS

DISTRIBUTOR ROTOR INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware not functioning	. A	Require repair or replacement
Carbon-tracked	. A . 1 . 1	of hardware. Require replacement. Require replacement. Suggest replacement. Suggest replacement. Require repair or replacement. Require replacement.

DISTRIBUTORS

DISTRIBUTOR INSPECTION

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	
Bushings worn, affecting performance Bushings worn, not	. A	
affecting performance . Cam lobes worn, affecting	-	Suggest repair or replacement.
performance		 Require repair or replacement. Suggest repair or replacement.
Gear broken	. A	Require repair or replacement.
gear worn, not affecting performance		Require replacement No service suggested or
Integrated pickup		required.
Integrated pickup	. A	Require repair or replacement.
triggering device magnetism incorrect Leaking oil internally .	. A	Require repair or replacement.
Noisy		 Suggest repair or replacement. Require repair or replacement.
Pickup triggering device (reluctor) loose Pickup triggering device	. A	Require repair or replacement.
<pre>(reluctor) weak Reluctor (pickup triggering device)</pre>	. A	Require repair or replacement.
broken	. A	Require repair or replacement.
triggering device) loose	. A	Require repair or replacement.
triggering device) weak		Require repair or replacement Require replacement.
Thrust washer broken Thrust washer missing	. A	Require repair or replacement.Require repair or replacement.
Thrust washer worn, affecting performance. Thrust washer worn, not	. A	Require repair or replacement.
	. 1	Suggest repair or replacement.

EARLY FUEL EVAPORATION VALVES (HEAT RISER ASSEMBLIES)

EARLY FUEL EVAPORATION VALVE (HEAT RISER ASSEMBLY) INSPECTION

Condition	Code Proce	edure
Broken	A . Require replacement of affe	ected arts.
Diaphragm inoperative .	A (1) Further inspe	
Leaking	 A Require repair or replacer 2 Suggest repair or replacer A . Require replacement of affe	ment. ment. ected
	B Require replacement spring	g(s).
Spring inoperative	A (2) Require replaceme spring	
OEM specification. separate from the of the inoperative diaphragm is part heat riser.	es intermittent operation or out of If the inoperative diaphragm is heat riser, then require replacement diaphragm. If the inoperative of the heat riser, then replace the	
(2) - Inoperative include specification	es intermittent operation or out of (MAC

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 PASSAGE INSPECTION

Condition	Code	Procedure
Leaking	. A	 Require repair or replacement.
•	. A	 Require repair or replacement.

EGR PLATES AND COOLERS

EGR PLATE AND COOLER INSPECTION

Condition	Code		Procedure
Leaking			
performance	. A	 Require repair or	replacement.

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement of hardware.
Attaching hardware threads stripped	7	
(threads missing)		Require repair or replacement of hardware.
Connector broken Connector (Weatherpack		Require repair or replacement.
type) leaking Connector melted		Require repair or replacement (1) Require repair or replacement.
Connector missing Contaminated		replacement
Leaking	. A	Require repair or replacement (3) Require repair or
Missing Terminal broken	. A	replacement Require replacement Require repair or replacement.
Terminal burned, affectin performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance .	. 1	Suggest repair or replacement.
Threads damaged Threads stripped (threads	. A	Require repair or replacement.
missing)		Require replacement.
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		Require repair or replacement.
(1) - Determine cause and		ect prior to repair or
	cont	amination, such as engine coolant, or water. Require repair or
	e, in	termittent operation, failure to or out of OEM specification.

ELECTRONIC TRANSMISSION CONTROL DEVICES

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of
Attaching hardware threads damaged	. A	hardware Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	. A	Require repair or replacement
Connector broken	. A	of hardware Require repair or replacement.
Connector (Weatherpack type) leaking Connector melted	. A	Require repair or replacement (1) Require repair or
Connector missing Contaminated		replacement
Leaking		Require repair or replacement. (3) Require repair or replacement.
Missing Resistance out of		Require replacement.
specification		 Require repair or replacement. Require repair or replacement.
Terminal broken Terminal burned, affectin	. A	Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance . Threads damaged Threads stripped (threads	. A	
missing)		Require replacement.
Wire lead corroded	. A	Require repair or replacement.Require repair or replacement.
Wire lead open Wire lead shorted		Require repair or replacement.Require repair or replacement.
(1) - Determine cause and replacement of part		ect prior to repair or
(2) - Determine source of	conta	amination, such as engine coolant, r water. Require repair or
replacement. (3) - Includes inoperativ	e, in	termittent operation, failure , or out of OEM specification.

Attaching hardware threads stripped (threads missing) A Require repair or Connector broken A Require repair or Connector (Weatherpack type) leaking A Require repair or Connector melted A Require repair or Connector melted (1) Require	hardware. replacement f hardware. replacement. replacement. replacement. replacement. replacement. replacement.
Attaching hardware threads damaged A Require repair or	replacement replacement.
threads damaged A Require repair or Attaching hardware threads stripped (threads missing) A Require repair or Connector broken A Require repair or r Connector (Weatherpack type) leaking A Require repair or r Connector melted A Require repair or r Connector melted A Require repair or r Connector melted A Require repair or r Connector missing C Require r	replacement replacement. replacement. replacement replacement. replacement. replacement. replacement.
Attaching hardware threads stripped (threads missing) A Require repair or Connector broken A Require repair or Connector (Weatherpack type) leaking A Require repair or Connector melted A (1) Require Connector missing C Require require reconnector missing C Require require require reconnector missing Require r	replacement replacement. replacement. replacement replacement. replacement. replacement. replacement.
threads stripped (threads missing) A Require repair or Connector broken A Require repair or r Connector (Weatherpack type) leaking A Require repair or r Connector melted A (1) Require Connector missing C Require r	of hardware. replacement. replacement or repair or replacement. replacement.
(threads missing) A Require repair or Connector broken A Require repair or Connector (Weatherpack type) leaking A Require repair or Connector melted A (1) Require repair or Connector missing C	of hardware. replacement. replacement or repair or replacement. replacement.
Connector broken A Require repair or r Connector (Weatherpack type) leaking A Require repair or r Connector melted A	replacement. replacement or replacement. replacement.
Connector (Weatherpack type) leaking A Require repair or r Connector melted A (1) Require r Connector missing C Require r	replacement. re repair or replacement. replacement.
Connector melted A (1) Require r Connector missing C Require r	re repair or replacement. replacement.
r Connector missing C Require r	replacement. replacement.
Connector missing C Require r Contaminated A (2) Requir	
oncaminated 1 (2) Reguin	
r	eplacement.
Inoperative B (3) Requir	re repair or ent. Further
	n required.
Leaking A Require repair or r	eplacement.
Missing Require rates out of	eplacement.
specification B Require repair or r	eplacement.
estricted, affecting performance A Require repair or r	conlagoment
erminal broken A Require repair or r	
erminal burned, affecting	
performance A (1) Requir	re repair or replacement.
Germinal burned, not	_
affecting performance 2 Suggest repair or r Terminal corroded,	eplacement.
affecting performance \dots A \dots Require repair or r	eplacement.
'erminal corroded, not affecting performance 2 Suggest repair or r	enlacement
erminal loose, affecting	epiacement.
performance B Require repair or r	eplacement.
erminal loose, not affecting performance l Suggest repair or r	eplacement.
'hreads damaged A Require repair or r	
Threads stripped (threads missing) Require r	replacement.
Zire lead conductors	opiacoment.
exposed B Require repair or r Vire lead corroded A Require repair or r	
Tire lead corroded A Require repair or r	
Fire lead shorted A Require repair or r	
(1) - Determine cause and correct prior to repair or	
replacement of part.	
(2) - Determine source of contamination, such as engine fuel, metal particles, or water. Require repair	
replacement.	

- replacement.

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

ENGINE COOLANT TEMPERATURE SENSORS

ENGINE COOLANT TEMPERATURE SENSOR INSPECTION

Condition		Code					Procedure
Attaching ha missing	rdware	. C			Requir	e re	
Attaching ha threads dam	rdware aged	. A	Re	quire	e repai		hardware. replacement of hardware.
Attaching ha threads str		Α	Re	oni re	renai		
	oken						of hardware. replacement.
Connector (W	eatherpack						
type) leaki Connector me	ng lted	. A . A	. Rec	uire	repair (1) F	or Requi	replacement. ire repair or
	ssing				Requ (2) F	ire Requi	replacement. replacement. ire repair or
Inoperative		. В			repl	acen	replacement. ire repair or ment. Further ion required.
					repair	or	replacement.
	on	. В	Rec	uire	repair	or	replacement.
performance Terminal bro	ken ned, affecting	. A					replacement. replacement.
				• • • •	(1) F	Requi	ire repair or replacement.
	erformance .	. 2	Sug	gest	repair	or	replacement.
Terminal cor affecting p Terminal cor	erformance .	. A	Rec	uire	repair	or	replacement.
affecting p			Sug	gest	repair	or	replacement.
			Rec	uire	repair	or	replacement.
	erformance .	. 1	Sug	gest	repair	or	replacement.
Threads dama	ged	. A	Rec	ūire	repair	or	replacement.
missing) .	pped (threads	. A			Requ	ire	replacement.
Wire lead co		. B	Doo	miro	rensir	02	replacement.
Wire lead co	rroded	. в					replacement.
	en						replacement.
	orted						replacement.
	ine cause and ement of part		ct pric	r to	repair	or	
(2) - Determ coolan	ine source of t, fuel, metal	conta l part					
repair (3) - Inoper	or replacement ative includes	nt. s inte	rmitten	ıt ope	eration	or	out of

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 COVER (OIL PAN, VALVE COVER, TIMING COVER) INSPECTION

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

ENGINE OIL

ENGINE OIL INSPECTION

Condition	Code		Procedure
Contaminated	. A	• •	(1) Require replacement of oil and filter.
Level high	. В		Determine source of incorrect level and require repair.
Level low	. В	• • •	Determine source of incorrect level and require repair.
Maintenance intervals	. 3	•••	Suggest replacement to comply with vehicle's OEM recommended service intervals.

(1) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water when changing oil. Require repair or replacement.

ENGINE OIL COOLERS (EXTERNAL)

ENGINE OIL COOLER (EXTERNAL) INSPECTION

Condition	Code	Procedure
Air flow restriction Attaching hardware	. A	Require repair or replacement.
	. 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.
performance Fins damaged, not	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
Fluid flow restrictions Internal restrictions,	. A	Require repair or replacement.
affecting performance .	. A	Require repair or replacement.
Leaking		Require repair or replacement.
Missing		Require replacement.
Threads damaged Threads stripped (threads	. A	Require repair or replacement.
missing)		Require replacement.

ENGINE OIL DRAIN PLUGS AND GASKETS

ENGINE OIL DRAIN PLUG AND GASKET INSPECTION

Condition	Code	Procedure
Missing	. C	Require repair or replacement Require replacement(1) Require repair or replacement.

(1) - 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 FILTER AND CANISTER INSPECTION

Condition	Code	Procedure
Bulged	. A	(1) Require replacement. Further inspection required.
Canister attaching hardware broken	. A	Require repair or replacement of hardware.
Canister attaching hardware loose	. A	Require repair.

Canister attaching hardware missing C C Canister attaching hardware not	Require replacement.
functioning A I	Require repair or replacement of hardware.
Center tube collapsed A	(2) Require replacement. Further inspection required.
Contaminated A	oil and filter.
Dented 2	Further inspection required.
	equire repair or replacement. Suggest replacement to comply ith vehicle's OEM recommended service intervals.

Conjeton ottochine

- (1) Inspect pressure relief valve.
 (2) Inspect bypass.
 (3) Determine cause of contamination, such as engine coolant, fuel, metal particles, or water when changing oil. Require repair or replacement.
- (4) Determine cause, such as broken motor mount.

ENGINE OIL GASKETS

See ENGINE OIL DRAIN PLUGS AND GASKETS.

ENGINE OIL PRESSURE GAUGES (MECHANICAL)

ENGINE OIL PRESSURE GAUGE (MECHANICAL) INSPECTION

Condition	Code	Procedure
Indicates out of range .	B (1) Further	inspection required.
Inoperative	A (2) Further	_
	A Require repair or rej	
pressure, or temper (2) - Gauge may indicate pressure, or temper Inoperative include	problem with contaminated oil, rature, or problem with gauge. problem with contaminated oil, rature, or problem with gauge. es intermittent operation, out of range. Further inspection and cause.	level,

EVAPORATIVE EMISSION (EVAP) CANISTER FILTERS

EVAPORATIVE EMISSION (EVAP) CANISTER FILTER INSPECTION

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

Attaching hardware not		
functioning	Α	Require repair or replacement
		of hardware.
Maintenance interval	3	Suggest replacement to comply
		with OEM recommended service
		interval.
Missing	С	Require replacement.
Restricted, affecting		
performance	Α	Require replacement.
Restricted, not affecting		
performance	1	Suggest replacement.
		Require replacement.

EVAPORATIVE EMISSION (EVAP) CANISTER PURGE DEVICES

EVAPORATIVE EMISSION (EVAP) CANISTER PURGE DEVICE INSPECTION

EVAPORATIVE EMISSION (EVAP) CANISTER PURGE DEVICE INSPECTION
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)	
Connector broken	of hardware. A Require repair or replacement.
Connector (Weatherpack type) leaking Connector melted	A Require repair or replacement. A (1) Require repair or replacement.
Connector missing Contaminated	C Require replacement.
Inoperative	
Leaking	A Require repair or replacement.
specification	B Require repair or replacement.
performance Terminal broken Terminal burned, affecting	A Require repair or replacement.
performance	
affecting performance Terminal corroded,	2 Suggest repair or replacement.
affecting performance Terminal corroded, not	A Require repair or replacement.
affecting performance Terminal loose, affecting	
performance Terminal loose, not	
affecting performance Threads damaged Threads stripped (threads	

missing)	Α		. Require	replacement.
Wire lead conductors				
exposed		_	_	_
Wire lead corroded				
Wire lead open	Α	Require	repair or	replacement.
Wire lead shorted	Α	Require	repair or	replacement.
(1) - Determine cause and of replacement of part.(2) - Determine source of of fuel, metal particles	cont	amination, s	uch as eng	jine coolant,
replacement.				
(3) - Inoperative includes OEM specification. So		_		

EVAPORATIVE EMISSION (EVAP) CANISTERS

check for accepted cleaning procedure.

EVAPORATIVE EMISSION (EVAP) CANISTER INSPECTION

Condition	Code	Procedure
Inoperative	Α	(1) Require repair or replacement.
Leaking	C	 Require replacement. Require replacement.
(1) - Inoperative include OEM specification.	intermittent	operation or out of

EVAPORATIVE EMISSION (EVAP) FEEDBACK DEVICES

EVAPORATIVE EMISSION (EVAP) FEEDBACK DEVICE INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement
Attaching hardware threads stripped		of hardware.
± ±	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
•		Require repair or replacement (1) Require repair or
		replacement Require replacement.
		(2) Require repair or replacement.
Inoperative	. В	(3) Require repair or replacement. Further
Leaking		inspection required Require repair or replacement Require replacement.

specification	В		Require	repair	or	replacement.
Restricted, affecting performance Terminal broken Terminal burned, affecting	A A					replacement. replacement.
performance	A	•••		(1) R	equ	ire repair or replacement.
Terminal burned, not						_
affecting performance Terminal corroded,	2	• •	Suggest	repair	or	replacement.
affecting performance Terminal corroded, not	Α	• •	Require	repair	or	replacement.
affecting performance Terminal loose, affecting	2		Suggest	repair	or	replacement.
performance Terminal loose, not	В		Require	repair	or	replacement.
affecting performance	1		Suggest	repair	or	replacement.
Threads damaged	Ā					replacement.
Threads stripped (threads		• •	1104011	101011	0 =	101910000000000000000000000000000000000
missing)	A			. Requi	ire	replacement.
exposed	В		Require	repair	or	replacement.
Wire lead corroded	A					replacement.
Wire lead open	Α					replacement.
Wire lead shorted	Α					replacement.
(1) - Determine cause and c	orre	ect	prior to	repair	or	
replacement of part.						
(2) - Determine source of confuel, metal particles						
replacement.	2 4	·				
(3) - Inoperative includes						
OEM specification. So check for accepted cl					=r.v.	rceabre;
check for accepted cr	cail.	ти 9	procedure	- ·		

EXHAUST GAS RECIRCULATION DEVICES

EXHAUST GAS RECIRCULATION DEVICE INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement
Attaching hardware threads stripped (threads missing)	. A	of hardware Require repair or replacement
Connector broken Connector (Weatherpack	. A	of hardware Require repair or replacement.
		<pre> Require repair or replacement (1) Require repair or</pre>
Connector missing Contaminated		Require replacement.
Inoperative	. В	

Leaking	A C	Require repair or replacement Require replacement.
specification	В	Require repair or replacement.
performance	A	Require repair or replacement.
performance	1	
Terminal broken Terminal burned, affecting	А	Require repair or replacement.
performance	A	(1) Require repair or replacement.
Terminal burned, not		-
affecting performance Terminal corroded,	2	Suggest repair or replacement.
affecting performance	A	Require repair or replacement.
Terminal corroded, not affecting performance	2	Suggest repair or replacement.
Terminal loose, affecting	_	
performance Terminal loose, not	В	Require repair or replacement.
affecting performance	1	Suggest repair or replacement.
Threads damaged	A	Require repair or replacement.
Threads stripped (threads missing)	А	Require replacement.
Wire lead conductors		
exposed	В	1 1
Wire lead corroded	А	Require repair or replacement.
Wire lead open	Α	Require repair or replacement.
Wire lead shorted	A	Require repair or replacement.
(1) - Determine cause and c replacement of part.	orr	ect prior to repair or
(2) - Determine source of c fuel, metal particles		amination, such as engine coolant, or water. Require repair or
	me (ermittent operation or out of components may be serviceable; ing procedure.

EXHAUST GAS RECIRCULATION FEEDBACK DEVICES

EXHAUST GAS RECIRCULATION FEEDBACK DEVICE INSPECTION

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware.
Attaching hardware threads damaged	А	Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement
Connector broken Connector (Weatherpack		of hardware Require repair or replacement.
type) leaking	А	Require repair or replacement (1) Require repair or replacement.
Connector missing	C	Require replacement.

Contaminated	Α	(2) Require repair or replacement.			
Inoperative	В	<u>-</u>			
Leaking	A C				
specification	В	Require repair or replacement.			
performance	A	Require repair or replacement.			
performance Terminal broken	1 A	 Suggest repair or replacement. Require repair or replacement.			
Terminal burned, affecting performance	А	(1) Require repair or replacement.			
Terminal burned, not affecting performance Terminal corroded,	2	-			
affecting performance Terminal corroded, not	A	Require repair or replacement.			
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.			
performance	В	Require repair or replacement.			
affecting performance	1				
Threads damaged Threads stripped (threads	Α	Require repair or replacement.			
missing)	Α	Require replacement.			
exposed	В	Require repair or replacement.			
Wire lead corroded	A	Require repair or replacement.			
Wire lead open Wire lead shorted	A A	Require repair or replacement.Require repair or replacement.			
(1) - Determine cause and correct prior to repair or replacement of part.					
(2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or					
replacement. (3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.					

EXPANSION PLUGS

See CASTING CORE PLUGS AND EXPANSION PLUGS.

FAN CONTROL SENSORS

FAN CONTROL SENSOR INSPECTION

Condition		Code			Procedure
Attaching l missing	hardware	. С	 	Require	replacement of hardware
Attaching l threads da	hardware amaged	. А	 Requir	e repair	
Attaching l	hardware				

threads stripped		
(threads missing)	А	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	A	Require repair or replacement.
type) leaking	A	Require repair or replacement.
Connector melted	A	(1) Require repair or replacement.
Connector missing Contaminated	C A	
Inoperative	В	(3) Require repair or replacement. Further
Looking	7\	inspection required.
Leaking	A C	Require repair or replacement Require replacement.
specification	В	Require repair or replacement.
performance	А	Require repair or replacement.
Terminal broken Terminal burned, affecting	Α	Require repair or replacement.
performance	A	(1) Require repair or replacement.
Terminal burned, not	0	
affecting performance Terminal corroded,	2	Suggest repair or replacement.
affecting performance Terminal corroded, not	A	Require repair or replacement.
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.
performance Terminal loose, not	В	Require repair or replacement.
affecting performance	1	Suggest repair or replacement.
Threads damaged Threads stripped (threads	Α	Require repair or replacement.
missing)	A	Require replacement.
exposed	В	Require repair or replacement.
Wire lead corroded	Α	Require repair or replacement.
Wire lead open	Α	Require repair or replacement.
Wire lead shorted	Α	Require repair or replacement.
(1) - Determine cause and c replacement of part.	orre	ect prior to repair or
(2) - Determine source of c		amination, such as engine ticles, or water. Require
repair or replacement		,
(3) - Inoperative includes	inte	ermittent operation or out of
	me o	components may be serviceable;

FUEL

FUEL INSPECTION

Condition	Code	Procedure
Contaminated	В	(1) Require repair or replacement.
Fuel incorrect	В	(2) Require flushing of system.

- (2) 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 ACCUMULATOR AND DAMPER INSPECTION

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.
	. A	Require repair or replacement (1) Require replacement Require replacement.
(1) - Inoperative include OEM specification.	s inte	ermittent operation or out of

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 INJECTOR INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware		
missing	. С	Require replacement of hardware.
Attaching hardware not		
functioning	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
·	. A	Require repair or replacement.
Connector melted		
Connector missing	C	Require replacement.
Flow restricted		
Inoperative		
		replacement. Further
		inspection required.
Leaking	. A	Require repair or replacement.

		Require replacement.
Terminal broken	Α	Require repair or replacement.
Terminal burned, affecting	70	(1) Demilion was in
periormance	А	(1) Require repair or replacement.
Terminal burned, not		-
affecting performance	2	Suggest repair or replacement.
Terminal corroded,		
2 I	Α	Require repair or replacement.
Terminal corroded, not	_	
3 ±	2	Suggest repair or replacement.
Terminal loose, affecting	D	Doguiro ronair or ronlagoment
Terminal loose, not	D	Require repair or replacement.
·	1	Suggest repair or replacement.
		Require repair or replacement.
Threads stripped (threads		
± ± ·	Α	Require replacement.
(1) - Determine cause and c	orr	ect prior to repair or
replacement of part.		
		ermittent operation, out of
OEM specification. So	me (components may be serviceable.

FUEL DAMPERS

See FUEL ACCUMULATORS AND DAMPERS.

FUEL DELIVERY CHECK VALVES

FUEL DELIVERY CHECK VALVE INSPECTION

Condition	Code	Procedure
Leaking externally Missing Pressure leaking (bleeds	. A . C	(1) Require replacement Require repair or replacement Require replacement Require replacement.
(1) - Inoperative include specification.	s inte	rmittent operation or out of OEM

FUEL DISTRIBUTORS (BOSCH CIS)

FUEL DISTRIBUTOR (BOSCH CIS) INSPECTION

Condition	Code	Procedure
Inoperative	. A	 (1) Require repair or replacement. Further inspection required.
Leaking		
performance	. A	 (2) Require repair or replacement. Further inspection required.

- (1) Inoperative includes intermittent operation.(2) Some components may be serviceable; check for accepted

FUEL FILLER NECKS AND RESTRICTORS

FUEL FILLER NECK AND RESTRICTOR INSPECTION

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.
Missing	. C	Require repair or replacement.Suggest repair or replacement.

FUEL FILTERS

FUEL FILTER INSPECTION

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 Maintenance interval		Require repair or replacement Suggest replacement to comply with OEM recommended service interval.
Missing	. C	Require replacement.
·		Require replacement.
performance		

FUEL INJECTORS

FUEL INJECTOR INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C Requir	e replacement of hardware.
Attaching hardware threads damaged	. A Require repai	
Attaching hardware		or nardware.

threads stripped (threads missing)	А		Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	A	. R	Require repair or replacement.
type) leaking Connector melted	A A		Require repair or replacement (1) Require repair or replacement.
Connector missing Contaminated	C A		Require replacement (2) Require repair or replacement.
Inoperative	В		(3) Require repair or replacement. Further inspection required.
Leaking	Α	. R	Require repair or replacement.
Missing Resistance out of	С		Require replacement.
specification Restricted, affecting	В	. R	Require repair or replacement.
performance	А	. R	Require repair or replacement.
performance	2	. S	Suggest repair or replacement.
Terminal broken Terminal burned, affecting	Α		Require repair or replacement.
performance	A	• • • •	(1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2	. S	Suggest repair or replacement.
affecting performance Terminal corroded, not	A	. R	Require repair or replacement.
affecting performance Terminal loose, affecting	2	. S	Suggest repair or replacement.
performance Terminal loose, not	В	. R	Require repair or replacement.
affecting performance	1	. S	Suggest repair or replacement.
Threads damaged Threads stripped (threads	А		Require repair or replacement.
missing)	Α		Require replacement.
exposed	В	. R	Require repair or replacement.
Wire lead corroded	Α	. R	Require repair or replacement.
Wire lead open	Α		Require repair or replacement.
Wire lead shorted	Α	. R	Require repair or replacement.
(1) - Determine cause and c	orr	ect p	rior to repair or
fuel, metal particles			tion, such as engine coolant, er. Require repair or
	me (compo	tent operation or out of onents may be serviceable; procedure.

FUEL LEVEL SENDERS

FUEL LEVEL SENDER INSPECTION

Condition Code Procedure

broken	А	• • •	Require	e repain	01	r replacement of hardware.
Attaching hardware						
missing	С			Require	e re	eplacement of hardware.
Attaching hardware not						nardware.
functioning	А	• • •	Require	e repain	01	r replacement of hardware.
Inoperative	A			(1) Re	equ:	ire repair or replacement.
Leaking	А		Require	repair	or	replacement.
Terminal broken	Α		Require	repair	or	replacement.
Terminal burned, affecting performance	А			(2) D	~ ~ 11 ·	ire repair or
periormance	А			(Z) N	=qu.	replacement.
Terminal burned, not						-
affecting performance	2	• •	Suggest	repair	or	replacement.
Terminal corroded, affecting performance	А		Require	repair	or	replacement.
Terminal corroded, not		• •	11094110	1010411	-	ropracomono.
affecting performance	2	• •	Suggest	repair	or	replacement.
Terminal loose, affecting performance	В		Peguire	rensir	or	replacement.
Terminal loose, not	ם	• •	Require	repair	OI	repracement.
affecting performance	1		Suggest	repair	or	replacement.
Wire lead conductors	_		D .			
exposed	В					replacement. replacement.
Wire lead open	A					replacement.
Wire lead shorted	А	• •	Require	repair	or	replacement.
(1) - Inoperative includes	inte	ermit	tent ope	eration	or	out of
OEM specification.						
(2) - Determine cause and c replacement of part.	orre	ect p	orior to	repair	or	

FUEL PRESSURE REGULATORS

FUEL PRESSURE REGULATOR INSPECTION

TODE TREBUIRE	TO COLLIE OIL TIVE	,, ,,	11011			
Condition	C	ode				Procedure
Contaminated		2			replac	ggest repair or ement. Further tion required.
Inoperative		В			_	quire repair or replacement.
Leaking (inte externally) Pressure out		А		Require	repair c	r replacement.
specificatio	n					r replacement. r replacement.
cleanin Require	mponents may k g procedure. I repair or rep tive includes	ete:	rmin emen	e source t.	of conta	mination.
	cification.					-

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		Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		Require repair or replacement.
Connector melted	. A	(1) Require repair or replacement.
Connector missing	. C	Require replacement.
Contaminated		(2) Require replacement.
Inoperative	. A	(3) Require repair or replacement.
Leaking externally	_	
<pre>(includes pulsator) Leaking internally</pre>	. A	Require repair or replacement.
(includes pulsator)	. A	Require repair or replacement.
Noisy		Suggest repair or replacement.
Out of specification		Require repair or replacement.
Terminal broken		Require repair or replacement.
Terminal burned, affectin performance		(1) Require repair or replacement.
Terminal burned, not		repracement.
	. 2	Suggest repair or replacement.
Terminal corroded,		33 1
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
affecting performance . Terminal loose, affecting	. 2	Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance .	. 1	Suggest repair or replacement.
Threads damaged		Require repair or replacement.
Threads stripped (threads		
missing)		Require replacement.
exposed	. B	Require repair or replacement.
		Require repair or replacement.
		Require repair or replacement.
Wire lead shorted		
(1) - Determine cause and		ect prior to repair or
replacement of part (2) - Determine source of	conta	amination. Require repair or
replacement.		
(3) - Inoperative include	s inte	ermittent operation.

FUEL RAILS

FUEL RAIL INSPECTION

Condition Code Procedure

Attaching hardware broken	A	Require repair or replacement of hardware.
Attaching hardware missing	С	Require replacement of hardware.
Attaching hardware not functioning	А	Require repair or replacement of hardware.
Leaking	A A	(1) Require replacement Require repair or replacement Require repair or replacement Suggest replacement.
(1) - Determine source of coreplacement.	onta	amination. Require repair or

FUEL RESTRICTORS

See FUEL FILLER NECKS AND RESTRICTORS.

FUEL TANKS

FUEL TANK INSPECTION

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 repair or replacement.Require repair.Require repair or replacement.
		Require replacement.
•		No service suggested or required.
Leaking	. A	Require repair or replacement.
(1) - Determine source of replacement.	conta	amination. Require repair or

GAS CAPS

GAS CAP INSPECTION

Condition	Code	Procedure
Application incorrect Fails to maintain proper	. В	 Require replacement.
pressure	. C	 Require replacement.

Missing	С	 Require replacement.
Plugged (vacuum and		
pressure relief)	Α	 Require replacement.
Seals missing	С	 Require replacement.

GASKETS

GASKET INSPECTION

Condition	Code	Procedure
Leaking	A	(1) Require repair or replacement.
	spection of mating and replace as necessary.	sealing surface and

GROMMETS (VALVE COVER)

GROMMET (VALVE COVER) INSPECTION

Conditio	n Code	Procedure
Leaking	2	(1) Suggest repair or replacement.

(1) - Require inspection of mating and sealing surface and repair or replace as necessary.

HARMONIC DAMPERS

HARMONIC DAMPER INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
	. 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 Dented (fluid	. A	Require replacement.
type only)	. A	Require replacement.
Keyway distorted Leaking (Fluid damper		. Require repair or replacement.
only)	. A	Require replacement.
Loose		Require replacement.
Noisy		Require replacement.
position	. A	Require replacement.
Positioned incorrectly . Rubber damping material	. A	. Require repair or replacement.
deteriorated Seal surface worn, causin		Suggest replacement.
a leak	_	. Require repair or replacement.

Threads damaged	Α	Require	repair	or	replacement.
Threads stripped (threads					
missing)	Α	 	. Requi	ire	replacement.

HEATER CONTROL VALVES

HEATER CONTROL VALVE INSPECTION

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.
Coolant leak	. A	Require replacement Require repair or replacement (1) Require repair or replacement.
	. A	Require replacement Require repair or replacement.
(1) - Includes inoperative failure to perform	•	± ,

HEATER CORES

HEATER CORE INSPECTION

Condition	Code	Procedure
Air flow restriction Attaching hardware	. A	Require repair or replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware not	7	
functioning	. A	Require repair or replacement of hardware.
Bypassed	. A	Require repair or replacement.
3 ·	. A	Require repair or replacement.
- ·	. 2	Suggest repair or replacement.
affecting performance . Leaking	. A	Require repair or replacement.Require repair or replacement.Require replacement.

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

HOSE AND TUBE COUPLER, CONNECTOR AND CLAMP INSPECTION

Condition	Code	Procedure
± ±		Require replacement. Require repair. Suggest replacement. Require replacement.
leak	. A	Require repair or replacement Require replacement.
_		Require replacement of safety clip 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)

HOSE AND TUBE (FUEL LINE, RADIATOR, VACUUM, BY PASS, HEATER, RECOVERY TANK AND OIL COOLER) INSPECTION

Condition	Code	Procedure
Application incorrect Connected incorrectly Corroded, not reusable Cracked	. A . 1 . A . 1	Require replacement. Require repair. Suggest replacement. Require replacement. Suggest repair or replacement. Suggest repair or replacement. Require replacement.
leak Leaking Maintenance intervals Melted Missing Outer covering damaged Outer covering damaged to the extent that the inne fabric is visible	. A . 3 . 1 . C . 1	Require repair or replacement Require repair or replacement Suggest replacement Suggest repair or replacement Require replacement Suggest replacement Require replacement.

damaged	2	. Suggest replacement of sleeves.
missing	2	. Suggest replacement of sleeves.
performance	A	Require repair or replacement.
performance	2	Suggest repair or replacement.
Routed incorrectly	2	Suggest repair or replacement.
Safety clip missing	С	Require replacement.
Spongy	1	Suggest repair or replacement.
Stripped	Α	Require replacement.
Swollen	В	Require replacement.
Threads damaged Threads stripped (threads	A	Require repair or replacement.
missing)	A 1	Require replacement Suggest repair or replacement.

HOUSINGS

See THERMOSTATS AND HOUSINGS.

IDLE AIR CONTROLS

IDLE AIR CONTROL INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of
Attaching hardware		hardware.
threads damaged	. A	Require repair or replacement of hardware.
Attaching hardware threads stripped		
	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		± ± ± ±
		replacement Require replacement.
Contaminated		
Inoperative	. В	(3) Require repair or replacement. Further
Looking	71	inspection required Require repair or replacement.
Leaking		1 1
Missing Resistance out of		Require replacement.
specification Restricted, affecting	. В	Require repair or replacement.
performance	. A	Require repair or replacement.
Terminal broken Terminal burned, affectin		Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance .	. 2	Suggest repair or replacement.
Terminal corroded,		
affecting performance .	. A	Require repair or replacement.

Terminal corroded, not affecting performance Terminal loose, affecting performance			33	-		1
Terminal loose, not affecting performance Threads damaged Threads stripped (threads	1		Suggest	repair	or	-
missing)	A	• • •		. Requi	ire	replacement.
exposed	A A		Require Require	repair repair	or or	replacement. replacement. replacement.
 (1) - Determine cause and converged replacement of part. (2) - Determine source of confuel, metal particles replacement. (3) - Inoperative includes of the converged replacement. (4) - Determine cause and converged replacement. (5) - Inoperative includes of the converged replacement. 	onta , oi inte	amina wat ermit	ation, su ter. Requ ttent ope onents ma	ich as e lire reperation ay be se	eng: pai: or	out of

IDLE SPEED CONTROL ACTUATORS

IDLE SPEED CONTROL ACTUATOR INSPECTION

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 Connector (Weatherpack	. A	
type) leaking Connector melted		<pre> Require repair or replacement (1) Require repair or</pre>
Connector missing Contaminated		Require replacement (2) Require repair or
Inoperative	. В	replacement(3) Require repair or replacement. Further
Leaking		inspection required Require repair or replacement Require replacement.
specification Terminal broken Terminal burned, affectin	. A	Require repair or replacement.Require repair or replacement.
performance	-	(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.

affecting performance	Α		Require re	epair	or	replacement.
Terminal corroded, not						
affecting performance	2		Suggest re	epair	or	replacement.
Terminal loose, affecting				_		_
performance	В		Require re	epair	or	replacement.
Terminal loose, not			-	-		1
affecting performance	1		Suggest re	epair	or	replacement.
Threads damaged	Α		Require re	epair	or	replacement.
Threads stripped (threads			_	-		1
missing)	Α			Requi	re	replacement.
Wire lead conductors				_		1
exposed	В		Require re	epair	or	replacement.
Wire lead corroded						replacement.
Wire lead open			-	_		replacement.
<u>-</u>			_	_		-
Wire lead shorted	А	• •	Require re	epair	or	replacement.

- (1) Determine cause and correct prior to repair or replacement of part.
- (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.
- (3) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

IGNITION BOOTS

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

IGNITION COIL TOWERS

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

IGNITION COILS

IGNITION COIL INSPECTION

Condition	Code	Procedure
Arcing	. A	Require replacement.
2	. 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 Connector (Weatherpack	. A	Require repair or replacement.
		Require repair or replacement (1) Require repair or replacement.
Connector missing Corroded, affecting	. C	Require replacement.
performance	. A	Require replacement.
-		Suggest replacement (2) No service suggested or

Inoperative	Α		required (3) Require replacement Require replacement. Require replacement. Require repair or replacement.
Terminal burned, affecting performance	A	• • •	(1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2		Suggest repair or replacement.
affecting performance	A		Require repair or replacement.
Terminal corroded, not affecting performance Terminal loose, affecting	2		Suggest repair or replacement.
	В	• •	Require repair or replacement.
·	1		Suggest repair or replacement.
exposed	В		Require repair or replacement.
Wire lead corroded			Require repair or replacement.
Wire lead open			Require repair or replacement.
Wire lead shorted	А	• •	Require repair or replacement.
(1) - Determine cause and c replacement of part.	orre	ect p	orior to repair or
± ±	res	sult	of overheating; coil should
(3) - Inoperative includes	inte	ermit	ttent operation.

IGNITION CONTROL MODULES (ICM)

IGNITION CONTROL MODULE (ICM) INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
	. 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
Code set		of hardware.
	. A	(1) Further inspection required.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		Require repair or replacement.
Connector melted	. A	(2) Require repair or replacement.
		Require repair (3) Require repair or
Ieaking	7\	replacement Require repair or replacement.
Malfunctioning		(4) Require repair or replacement.
Missing	. C	Require replacement.

Terminal broken Terminal burned, affecting	Α		Require	repair	or	replacement.
performance	A	• • •		(2) R	equ	ire repair or replacement.
Terminal burned, not						_
affecting performance Terminal corroded,	2	• •	Suggest	repair	or	replacement.
affecting performance Terminal corroded, not	А	• •	Require	repair	or	replacement.
affecting performance Terminal loose, affecting	2	• •	Suggest	repair	or	replacement.
performance Terminal loose, not	В	• •	Require	repair	or	replacement.
affecting performance Threads damaged Wire lead conductors			22	-		replacement. replacement.
exposed			Require Require	repair repair	or or	replacement. replacement. replacement.

- (1) Refer to manufacturer's diagnostic trouble code procedure and require repair or replacement of affected component(s).
- (2) Determine cause and correct prior to repair or
- replacement of part.

 (3) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require
- repair or replacement.

 (4) Includes inoperative, intermittent operation, or failure to perform all functions.

IGNITION SWITCHES

See SWITCHES.

IGNITION TERMINALS

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 WIRE, BOOT, COIL TOWER AND TERMINAL (SECONDARY) INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware	C	Require replacement of
-		hardware.
Attaching hardware not functioning	. A	Require repair or replacement of hardware.
Carbon-tracked	. A	Require replacement.

	1	Suggest repair or replacement.
Insulation leaking		
(shorted)	Α	Require repair or replacement.
Metal heat shield bent		Suggest repair or replacement.
Missing		Require replacement.
Oil-soaked (spongy)	1	
Resistance incorrect		Require replacement.
Routed incorrectly		
Terminal broken	А	Require repair or replacement.
Terminal burned, affecting	_	
performance	А	(2) Require repair or
m ' 1 1 1 1		replacement.
Terminal burned, not	2	Comment was in an armination
	2	Suggest repair or replacement.
Terminal corroded,	7\	Doguino monoin en monlecement
	А	Require repair or replacement.
Terminal corroded, not	2	Current manain an manlacement
	2	Suggest repair or replacement.
Terminal loose, affecting	D	Doguino monoin en monlecement
	Ь	Require repair or replacement.
Terminal loose, not	1	Cuggost ropair or roplacement
affecting performance	Τ	Suggest repair or replacement.
(1) - If improper routing a	ffo	cts the performance of other
		Proper routing, hardware,
		ntended to prevent premature
failure of secondary		
(2) - Determine cause and c		
replacement of part.	OLL	coc bitot co rebati or
repracement or part.		

IN-TANK FUEL STRAINERS

IN-TANK FUEL STRAINER INSPECTION

Condition	Code		Procedure
Missing	. A	Require repair or	replacement.

INERTIA FUEL SHUT-OFF SWITCHES

INERTIA FUEL SHUT-OFF SWITCH INSPECTION

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.
		Require repair or replacement. (1) Require repair or replacement.
Contaminated	. A	Require replacement. (2) Require replacement. (3) Require repair or

performance	Missing Terminal broken Terminal burned, affecting	A	• •	Require	repair or	replacement.
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		Α	• • •	• • • • • • • •	(1) Requ	
Terminal corroded, not affecting performance 2 Suggest repair or replacement. Terminal loose, affecting performance	affecting performance	2		Suggest	repair or	replacement.
affecting performance 2 Suggest repair or replacement. Terminal loose, affecting performance		A	• •	Require	repair or	replacement.
performance	affecting performance	2		Suggest	repair or	replacement.
affecting performance 1 Suggest repair or replacement. Wire lead conductors exposed	performance	В		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. (1) - Determine cause and correct prior to repair or replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of 	affecting performance	1	••	Suggest	repair or	replacement.
 Wire lead open A Require repair or replacement. Wire lead shorted A Require repair or replacement. (1) - Determine cause and correct prior to repair or replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of 	exposed	В				
 Wire lead shorted A Require repair or replacement. (1) - Determine cause and correct prior to repair or replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of 						
 (1) - Determine cause and correct prior to repair or replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of 	Wire lead open	Α		_	-	-
replacement of part. (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of	Wire lead shorted	A	• •	Require	repair or	replacement.
 (2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. (3) - Inoperative includes intermittent operation or out of 		orr	ect	prior to	repair or	
(3) - Inoperative includes intermittent operation or out of	(2) - Determine source of c fuel, metal particles					
		int	ermi	ttent ope	eration or	out of

INTAKE AIR TEMPERATURE SENSORS

INTAKE AIR TEMPERATURE SENSOR INSPECTION

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 Connector (Weatherpack	. A	Require repair or replacement.
· · ·		Require repair or replacement. (1) Require repair or replacement.
Connector missing Contaminated	. C . A	Require replacement (2) Require repair or
Inoperative	. В	replacement(3) Require repair or replacement. Further inspection required.
Leaking		Require repair or replacement.
specification	. В	Require repair or replacement.

performance Terminal broken	A A		-	-		replacement. replacement.
Terminal burned, affecting performance	A			(1) R	equ:	ire repair or replacement.
Terminal burned, not						repracement.
affecting performance	2		Suggest	repair	or	replacement.
Terminal corroded,	7\		Doguitos	manain	0.70	monlocomen+
affecting performance Terminal corroded, not	A	• •	Require	repair	or	replacement.
affecting performance	2		Suggest	repair	or	replacement.
Terminal loose, affecting			2 2	-		-
performance	В		Require	repair	or	replacement.
Terminal loose, not affecting performance	1		Cuaract	ronair	0.70	ronlagoment
Threads damaged	1 A			-		replacement. replacement.
Threads stripped (threads		• •	nequire	reparr	O L	repracement.
missing)	Α			. Requi	ire	replacement.
Wire lead conductors						_
exposed	В					replacement.
Wire lead corroded Wire lead open	A A					replacement. replacement.
Wire lead shorted	A					replacement.
			1.	-1 -		1
(1) - Determine cause and c	orre	ect	prior to	repair	or	
replacement of part.				1		
(2) - Determine source of c fuel, metal particles						
replacement.	, 0.	L wa	ter. Keq	TITE TE	раті	L OI
(3) - Inoperative includes	inte	ermi	ttent ope	eration	or	out of
OEM specification. Sc	me o	comp	onents ma	ay be se		
check for accepted cl	ean	ing	procedure	€.		

INTAKE MANIFOLDS

INTAKE MANIFOLD INSPECTION

Condition	Code	Procedure
Corroded, affecting sealability Integrated air or fuel control components	. A	Require repair or replacement.
	. A	(1) Require repair or replacement.
<pre>Internal air or fuel components damaged, affecting performance .</pre>	. A	Require repair or replacement
<pre>Internal air or fuel components damaged, not affecting performance .</pre>		of component. No service suggested or required.
<pre>Internal air or fuel components missing</pre>	. C	Require replacement of component.
Leaking Out of specification Restricted Threads damaged Threads stripped (threads missing)	. B . A . A	Require repair or replacement.Require replacement.Require repair or replacement.
9,		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Warped B .. Require repair or replacement.

(1) - Inoperative includes intermittent operation or out of $\ensuremath{\mathsf{OEM}}$ specification.

INTERCOOLERS

See CHARGE AIR COOLERS "INTERCOOLERS" (CAC).

KNOCK SENSORS

KNOCK SENSOR INSPECTION

Condition	Code	Procedure
Attaching hardware		
missing		Require replacement of hardware.
Attaching hardware thread damaged		Require repair or replacement of hardware.
Attaching hardware threads stripped		or nardware.
(threads missing)	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack		Require repair or replacement.
type) leaking Connector melted	. A . A	Require repair or replacement. (1) Require repair or replacement.
Connector missing Inoperative		
Leaking		<pre>inspection required Require repair or replacement Require replacement.</pre>
Resistance out of specification		Require repair or replacement.
Terminal broken Terminal burned, affectin	g	Require repair or replacement.
performance Terminal burned, not	. A	(1) Require repair or replacement.
affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
affecting performance . Terminal loose, affecting		Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance . Threads damaged		 Suggest repair or replacement. Require repair or replacement.
Threads stripped (threads missing)		Require replacement.
Wire lead conductors		
exposed		 Require repair or replacement. Require repair or replacement.
Wire lead open Wire lead shorted		Require repair or replacement.Require repair or replacement.

^{(1) -} Determine cause and correct prior to repair or

replacement of part.

(2) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

LIQUID VAPOR SEPARATORS

LIQUID VAPOR SEPARATOR INSPECTION

Condition	Code		Procedure
Inoperative	Α	• • • •	repair or placement.
Leaking	C	Require re Require re	placement. placement.
(1) - Inoperative include specification.	intermitt	ent operation or ou	t of OEM

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSORS

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR INSPECTION

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 Connector (Weatherpack	. A	Require repair or replacement.
type) leaking Connector melted		Require repair or replacement (1) Require repair or replacement.
Connector missing Contaminated		Require replacement.
Inoperative	. В	(3) Require repair or replacement. Further
Leaking	. A	<pre>inspection required Require repair or replacement.</pre>
Missing		Require replacement.
specification	. В	Require repair or replacement.
performance	. A	Require repair or replacement.
Terminal broken Terminal burned, affecting		Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance .	. A	Require repair or replacement.

Terminal corroded, not affecting performance Terminal loose, affecting	2		Suggest	repair	or	replacement.
performance Terminal loose, not	В		Require	repair	or	replacement.
affecting performance Threads damaged Threads stripped (threads						
missing)	A			. Requi	ire	replacement.
exposed	Α	• •	Require Require	repair repair	or or	replacement. replacement. replacement.
 Determine cause and correct prior to repair or replacement of part. Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or 						
replacement.						

(3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

MASS AIR FLOW (MAF) SENSORS

MASS AIR FLOW (MAF) SENSOR INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware thread damaged		Require repair or replacement of hardware.
Attaching hardware threads stripped (threads missing)	. A	Require repair or replacement
Connector broken Connector (Weatherpack	. A	of hardware Require repair or replacement.
type) leaking Connector melted		Require repair or replacement. (1) Require repair or replacement.
Connector missing Contaminated		Require replacement(2) Require repair or replacement.
Inoperative	. В	(3) Require repair or replacement. Further inspection required.
Leaking		Require repair or replacement Require replacement.
specification Restricted, affecting	. В	Require repair or replacement.
performance Terminal broken Terminal burned, affectin	. A	 Require repair or replacement. Require repair or replacement.
performance Terminal burned, not		(1) Require repair or replacement.

affecting performance Terminal corroded,	2		Suggest	repair	or	replacement.
affecting performance Terminal corroded, not	A		Require	repair	or	replacement.
affecting performance	2		Suggest	repair	or	replacement.
Terminal loose, affecting performance	В		Require	repair	or	replacement.
Terminal loose, not affecting performance						
Threads damaged Threads stripped (threads	Α	• •	Require	repair	or	replacement.
missing)	A			. Requi	ire	replacement.
exposed	A A	• •	Require Require	repair repair	or or	replacement. replacement. replacement. replacement.
(1) - Determine cause and coreplacement of part.	orre	ect j	prior to	repair	or	
(2) - Determine source of coolant, fuel, metal						
repair or replacement (3) - Inoperative includes OEM specification. So check for accepted cla	inte me d	comp	onents ma	ay be se		

METAL AIR MANIFOLDS AND PIPES

METAL AIR MANIFOLD AND PIPE INSPECTION

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		manifold.
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		Require replacement.
Restricted	. A	Require replacement of injection tube or manifold.
Threads damaged Threads stripped (threads		Require repair.
missing)		Require replacement.

MIX CONTROL SOLENOIDS

MIX CONTROL SOLENOID INSPECTION

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 Connector (Weatherpack	. A	Require repair or replacement.
type) leaking	. A	Require repair or replacement.
Connector melted	. A	
Connector missing	. C	Require replacement.
Contaminated	. A	(2) Require repair or replacement.
Inoperative	. В	
		inspection required.
Leaking		Require repair or replacement Require replacement.
Resistance out of specification		Require repair or replacement.
Restricted, affecting		
performance		Require repair or replacement.
Terminal broken Terminal burned, affectin		Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance .	. 2	Suggest repair or replacement.
Terminal corroded,		
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
affecting performance .		Suggest repair or replacement.
Terminal loose, affecting performance		Require repair or replacement.
Terminal loose, not affecting performance .	. 1	Suggest repair or replacement.
Threads damaged		Require repair or replacement.
Threads stripped (threads missing)		Require replacement.
Wire lead conductors	• 11	Require repracement.
exposed		Require repair or replacement.
Wire lead corroded		Require repair or replacement.
Wire lead open		
Wire lead shorted	. A	Require repair or replacement.
(1) - Determine cause and replacement of part		ect prior to repair or

- (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.

(3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

MOTOR MOUNTS

MOTOR MOUNT INSPECTION

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.
	. А	Require replacement.
· · · · · · · · · · · · · · · · · · ·	. A	Require replacement.
affecting performance .		No service suggested or required.
Rubber deteriorated, affecting performance . Rubber deteriorated, not	. A	Require replacement.
· · · · · · · · · · · · · · · · · · ·		No service suggested or required.
Threads damaged Threads stripped (threads	. A	Require repair or replacement.
missing)	. А	Require replacement.

O-RINGS, GASKETS, SEALS AND SPRING LOCKS

O-RING, GASKET, SEAL AND SPRING LOCK INSPECTION

Conditio	n Code	Procedure
Leaking	А	 (1) Require repair or replacement.

(1) - Require inspection of mating and sealing surface and repair or replace as necessary.

02 SENSORS

O2 SENSOR INSPECTION

Condition		Code			Procedure
Attaching missing	hardware	. С	 	Require	replacement of hardware.
Attaching threads	hardware damaged	. A	 Requir	e repair	or replacement of hardware.

Attaching hardware threads stripped (threads missing)	Α	Require repair or replacement
(cirreduct missing)		of hardware.
Connector broken Connector (Weatherpack	A	Require repair or replacement.
type) leaking Connector melted	A A	Require repair or replacement (1) Require repair or
Connector missing	С	replacement. Require replacement.
Contaminated	Α	(2) Require repair or replacement.
Inoperative	В	(3) Require repair or replacement. Further inspection required.
Leaking	Α	Require repair or replacement.
Missing	С	Require replacement.
Resistance out of specification	В	Require repair or replacement.
Restricted, affecting	ے	Require repair of repracement.
performance	Α	Require repair or replacement.
Terminal broken Terminal burned, affecting	А	Require repair or replacement.
performance	A	(1) Require repair or replacement.
Terminal burned, not	0	
affecting performance Terminal corroded,		Suggest repair or replacement.
affecting performance Terminal corroded, not	Α	Require repair or replacement.
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.
performance Terminal loose, not	В	Require repair or replacement.
affecting performance	1	Suggest repair or replacement.
Threads damaged Threads stripped (threads	A	Require repair or replacement.
missing)	A	Require replacement.
exposed	В	Require repair or replacement.
Wire lead corroded	А	Require repair or replacement.
Wire lead open	Α	Require repair or replacement.
Wire lead shorted	А	Require repair or replacement.
(1) - Determine cause and creplacement of part.	orr	ect prior to repair or
(2) - Determine source of c		amination, such as engine ticles, or water. Require
repair or replacement (3) - Inoperative includes OEM specification. So	into me	ermittent operation or out of components may be serviceable;
check for accepted cl	ean	ing procedure.

OIL PRESSURE SENDING UNITS

OIL PRESSURE SENDING UNIT INSPECTION

Condition	(Code				Procedure
Connector b	roken	A	 Require	repair	or	replacement.
,	ing	A	 Require	repair	or	replacement.

Connector melted	A	(1) Require repair or
Connector missing	С	replacement Require replacement.
1		replacement.
		Require replacement.
Output signal incorrect .		
Terminal broken	A	Require repair or replacement.
Terminal burned, affecting	71	(1) Parrias marsins an
periormance	А	(1) Require repair or replacement.
Terminal burned, not		repracement.
· · · · · · · · · · · · · · · · · · ·	2	Suggest repair or replacement.
Terminal corroded,		
	Α	Require repair or replacement.
Terminal corroded, not	0	Constant and the second second
Terminal loose, affecting	2	Suggest repair or replacement.
	В	Require repair or replacement.
Terminal loose, not	ב	Require repair of repracement.
•	1	Suggest repair or replacement.
Threads damaged	Α	Require repair or replacement.
Threads stripped (threads	_	
missing)	А	Require replacement.
(1) - Determine cause and c	orr	ect prior to repair or
replacement of part.	OLL	ccc prior to repair or
	int	ermittent operation or out of
OEM specification.		-

OIL PUMP PICK-UP SCREENS

OIL PUMP PICK-UP SCREEN INSPECTION

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 Cracked Loose Missing Positioned incorrectly Restricted Screen torn	. A . A . C . A	 Require repair or replacement.

OIL PUMPS

OIL PUMP INSPECTION

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

		of hardware.
Attaching hardware missing	С	Require replacement of hardware.
Attaching hardware not		
functioning	Α	Require repair or replacement of hardware.
D 1	-	
		Require repair or replacement.
Housing cracked	Α	Require repair or replacement.
Leaking	Α	Require repair or replacement.
Pressure relief valve		
. 1	- 70	B 1

stuck A .. Require repair or replacement. Seized A .. Require repair or replacement.

specifications B .. Require repair or replacement.

PARK NEUTRAL POSITION SWITCHES

PARK NEUTRAL POSITION SWITCH INSPECTION

Worn beyond

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)	. А	Require repair or replacement
Connector broken		of hardware.
Connector (Weatherpack type) leaking Connector melted		Require repair or replacement (1) Require repair or
Connector missing Contaminated		replacement
Inoperative	_	replacement (3) Require repair or
Leaking		1 1
Missing		 Require replacement. Require repair or replacement.
Terminal broken Terminal burned, affecting	. A	Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
affecting performance . Terminal loose, affecting	. 2	Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance . Threads damaged		

Threads stripped (threads missing)	A Require replacement.
	B Require repair or replacement. A Require repair or replacement.
Wire lead open	A Require repair or replacement. A Require repair or replacement.
(1) - Determine cause and converged replacement of part.(2) - Determine source of converged replacement of converged replacement of converged replacement of the converged re	
repair or replacement (3) - Inoperative includes	intermittent operation or out of me components may be serviceable;

PCV BREATHER ELEMENTS

PCV BREATHER ELEMENT INSPECTION

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		Require replacement Suggest replacement to comply with vehicle's OEM recommended service intervals.
		Required replacement. Require replacement.
•		Require replacement.
performance	. 1	

PCV ORIFICES

PCV ORIFICE INSPECTION

Condition	Code	Procedure
		Require replacement Suggest repair or replacement to comply with OEM recommended service intervals.
		Require replacement. Require replacement.

PCV VALVES

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
2	. A	Require repair or replacement of hardware.
Attaching hardware		or maramaro.
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 Grommet not	. C	. Require replacement of grommet.
	. A	Require repair or replacement of grommet.
Inoperative	. A	
Leaking		
Maintenance interval	. 3	Suggest replacement to comply with vehicle's OEM recommended service intervals.
Missing	. C	Require replacement.
Restricted		
(1) - Inoperative include OEM specification.	s inte	ermittent operation or out of

$\begin{array}{c} \textbf{PICK-UP ASSEMBLIES (INCLUDES MAGNETIC, HALL EFFECT AND} \\ \textbf{OPTICAL)} \end{array}$

PICK-UP ASSEMBLY (MAGNETIC, HALL EFFECT AND OPTICAL) INSPECTION

Condition	Code	Procedure
Adjustment incorrect Attaching hardware	. В	Require repair.
	. 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 Connector (Weatherpack	. A	Require repair or replacement.
·	. A	Require repair or replacement.
Connector melted		(1) Require repair or
Connector missing	C	replacement Require replacement.
		(2) Require replacement.
		Require replacement.
Terminal broken		Require repair or replacement.
Terminal burned, affectin		··· ··· ··· ··· ··· ··· ··· ··· ··· ··
performance	_	(1) Require repair or replacement.
Terminal burned, not		
affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.

affecting performance	Α		Require	repair	or	replacement.
Terminal corroded, not	0					
affecting performance	2	• •	Suggest	repair	or	replacement.
Terminal loose, affecting performance	D		Poguiro	ronair	or	ronlagoment
Terminal loose, not	Ъ	• •	redaire	reparr	OI	repracement.
affecting performance	1		Suggest	repair	or	replacement.
Wire lead conductors	_	• •			_	_ or
exposed	В		Require	repair	or	replacement.
Wire lead corroded	Α		Require	repair	or	replacement.
Wire lead open			_	-		replacement.
Wire lead shorted	А	• •	Require	repair	or	replacement.
(1)						
(1) - Determine cause and c	orre	ect :	prior to	repair	or	
replacement of part. (2) - Inoperative includes	int	ormi:	ttont one	aration	or	out of
OEM specification. Re			_			
procedures.	TCT		OTH LECON	illicriaea	56.	LVICC
Procedures.						

POWER STEERING PRESSURE SENSORS

POWER STEERING PRESSURE SENSOR INSPECTION

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)	. А	Require repair or replacement
Connector broken		of hardware.
Connector (Weatherpack type) leaking Connector melted		1 1
Connector missing Contaminated		Require replacement.
Inoperative	. B	(3) Require repair or replacement. Further inspection required.
Leaking		
specification	. B	Require repair or replacement.
performance Terminal broken Terminal burned, affectir	. A	Require repair or replacement.Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
affecting performance .	. 2	Suggest repair or replacement.

Terminal loose, affecting						
performance	В		Require	repair	or	replacement.
Terminal loose, not						
affecting performance	1		Suggest	repair	or	replacement.
Threads damaged	Α		Require	repair	or	replacement.
Threads stripped (threads						
missing)	Α			. Requi	ire	replacement.
Wire lead conductors						
exposed						
Wire lead corroded			_	_		replacement.
Wire lead open			_	_		replacement.
Wire lead shorted	A	• •	Require	repair	or	replacement.
(1)						
(1) - Determine cause and co	orre	ect 1	prior to	repair	or	
replacement of part.				1.		
(2) - Determine source of control of the source of control of the source					_	
coolant, fuel, metal	_	TCT	es, or wa	ater. Re	equ.	rre
repair or replacement		i d	-+-n+ -n-		0.70	011+ 0 f
(3) - Inoperative includes			_			
OEM specification. Son		_		4	3T V -	rceabre;
check for accepted cl	Ealll	riig j	procedure	₹.		

POWERTRAIN CONTROL MODULES (PCM) AND PROM

POWERTRAIN CONTROL MODULE (PCM) AND PROM INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	. В	Require replacement.
	. 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	(1) Further inspection required.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking Connector melted		<pre> Require repair or replacement (2) Require repair or</pre>
Connector missing Contaminated		Require repair.
Leaking Malfunctioning		Require repair or replacement (4) Require repair or
Missing Terminal broken Terminal burned, affecting	. A	replacement Require replacement Require repair or replacement.
		(2) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
•	. A	Require repair or replacement.

Terminal corroded, not					
affecting performance	2	 Suggest	repair	or	replacement.
Terminal loose, affecting					
performance	В	 Require	repair	or	replacement.
Terminal loose, not					
affecting performance	1	 Suggest	repair	or	replacement.
Threads damaged	Α	 Require	repair	or	replacement.
Threads stripped (threads					
missing)	Α	 	. Requi	ire	replacement.
Wire lead conductors			-		-
exposed	В	 Require	repair	or	replacement.
Wire lead corroded		 Require	repair	or	replacement.
Wire lead open		 _	-		replacement.
Wire lead shorted		 _	_		replacement.

- (1) Refer to manufacturer's diagnostic trouble code procedure and require repair or replacement of affected component(s).
- (2) Determine cause and correct prior to repair or replacement of part.
- (3) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.
- (4) Includes inoperative, intermittent operation, failure to perform all functions, or out of OEM specification.

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 CAP AND PRESSURIZED EXPANSION TANK CAP INSPECTION

Condition	Code	Procedure
Application incorrect Coolant recovery check	. В	Require replacement.
<u> </u>	. A	(1) Require replacement.
Gasket missing	. C	Require replacement. Require replacement of gasket. Require replacement. Require replacement of seal.
(1) - Inoperative includes OEM specification.	s int	ermittent operation or out of

RADIATOR FAN BLADES

RADIATOR FAN BLADE INSPECTION

Condition	Code	Procedure
Application incorrect Attaching hardware	в	Require replacement.

broken	A	Require repair or replacement of hardware.
Attaching hardware missing	С	Require replacement of hardware.
Attaching hardware not functioning	А	Require repair or replacement of hardware.
Bent Broken Cracked Loose Missing	A A A	Require replacement. Require replacement.

RADIATOR FAN CLUTCHES

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

RADIATOR FAN CLUTCH INSPECTION

Condition	Code	Procedure
Attaching hardware broken	. A	Require repair or replacement of hardware.
3	. C	Require replacement of hardware.
Attaching hardware not functioning	. A	Require repair or replacement of hardware.
Bearing worn	. A	Require replacement Require replacement Require repair or replacement of fastener.
Inoperative	. 1 . A	(1) Require replacement Suggest replacement.
	. В	Require repair or replacement.
(1) - Inoperative include OEM specification.	s inte	ermittent operation or out of

RADIATORS

RADIATOR INSPECTION

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

Attaching hardware not			
functioning	А	• •	Require repair or replacement of hardware.
Connection leaking	Α		Require repair or replacement.
Corroded	1		Suggest repair or replacement.
Fins damaged, affecting			
performance	Α		Require repair or replacement.
Fins damaged, not			
affecting performance	2		Suggest repair or replacement.
Internal oil cooler			
leaking	Α		Require repair or replacement.
Internal restrictions,			
affecting performance	В		Require repair or replacement.
Internal restrictions, not			
affecting performance	2		Suggest repair or replacement.
Leaking	Α		Require repair or replacement.
Threads damaged	Α		Require repair or replacement.
Threads stripped (threads			
missing)	Α		Require repair or replacement.
Tubes damaged, affecting			
performance	Α		Require repair or replacement.
Tubes damaged, not			
affecting performance			No service suggested or
			required.

ROLL OVER VALVES

ROLL OVER VALVE INSPECTION

Condition	Code		Procedure
Inoperative Leaking Missing	. A		Require replacement.
(1) - Inoperative include OEM specification.	s inte	ermittent ope	ration or out of

SEALING COMPOUNDS

SEALING COMPOUND INSPECTION

Condition	Code	Procedure
Leaking	A	. (1) Require repair or replacement.

(1) - Require inspection of mating and sealing surface and repair or replace as necessary.

SEALS

SEAL INSPECTION

Condition	ו	Code			Procedu	ıre
Leaking		. A	 (1)	_	repair lacemer	

(1) - Require inspection of mating and sealing surface and

SECONDARY AIR INJECTION SYSTEM MANAGEMENT DEVICES

SECONDARY AIR INJECTION SYSTEM MANAGEMENT DEVICE INSPECTION

Condition	Code	Procedure
Attaching hardware		
	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement of hardware.
Attaching hardware threads stripped		or naraware.
(threads missing)	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	
type) leaking	. A	Require repair or replacement.
Connector melted	. A	(1) Require repair or replacement.
Connector missing		Require replacement.
Contaminated	. A	(2) Require repair or replacement.
Inoperative	. B	(3) Require repair or
-		replacement. Further
		inspection required.
Leaking		Require repair or replacement.
Missing		Require replacement.
specification Restricted, affecting	. В	Require repair or replacement.
performance	. A	Require repair or replacement.
Terminal broken Terminal burned, affectin		Require repair or replacement.
performance		(1) Require repair or
Terminal burned, not		replacement.
affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
affecting performance .	. 2	Suggest repair or replacement.
Terminal loose, affecting performance		Require repair or replacement.
Terminal loose, not		
affecting performance .		
Threads damaged		Require repair or replacement.
Threads stripped (threads	_	D
missing)	. A	Require replacement.
exposed		Require repair or replacement.
Wire lead corroded		Require repair or replacement.
Wire lead open		Require repair or replacement.
Wire lead shorted	. A	Require repair or replacement.
(1) - Determine cause and	corr	act prior to repair or

- (1) Determine cause and correct prior to repair or
- replacement of part.

 (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or

replacement.

(3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

SENSORS AND ACTUATORS

NOTE:

Conditions pertaining to the sensors and actuators listed in this section may be found under the name of the sensor $% \left(1\right) =\left(1\right) +\left(1\right)$ or actuator.

SENSOR ABBREVIATION TABLE

Sensor Abbreviation
SensorAbbreviationAccelerator Pedal Position SensorAPPAir Conditioning Cycling SwitchACAir Conditioning Pressure SensorAir Fuel Ratio SensorBarometric Pressure SensorBAROCamshaft Position SensorCMPClutch Pedal Position SwitchCPPCooling Fan Motor Sensors and SwitchesCrankshaft Position SensorCKPElectronic Transmission Feedback DevicesEngine Coolant Temperature SensorECTEvaporative Emission feedback devicesExhaust Gas Recirculation feedback devicesFan Control SensorFCIntake Air Temperature SensorKSManifold Absolute Pressure SensorKSManifold Absolute Pressure SensorMAPMass Air Flow SensorMAPO2 SensorO2SPark Neutral Position SwitchPNPPower Steering Pressure SensorPSPThermal Vacuum ValveTVVThrottle Position SensorTP Sensor
Throttle Position Switch

ACTUATOR ABBREVIATION TABLE

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

SHROUDS, BAFFLES AND DEFLECTORS

SHROUD, BAFFLE AND DEFLECTOR INSPECTION

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

Condition	Code	Procedure
Application incorrect Electrode eroded	. 1	Suggest replacement.
Gap incorrect Insulation broken Insulator cracked Leaking compression Maintenance interval Threads damaged Threads stripped (threads missing)	. A . A . A . 3	Require repair or replacement Require replacement

SPRING LOCK INSPECTION

Condition	Code	Procedure
Leaking	A	(1) Require repair or replacement.
	pection of mating and eplace as necessary.	sealing surface and

SUPER CHARGERS

SUPER CHARGER INSPECTION

Condition	Code	Procedure
Attaching hardware damaged, affecting operation or		
performance	. A	Require repair or replacement of hardware.
Attaching hardware		
missing	. С	Require replacement of hardware.
Bearing noisy	. A	Require replacement.
Bearing worn Boost pressure	. A	Require replacement.
<u>*</u>	. A	(1) Require repair or replacement.
Clearance out of		
specification		Require repair or replacement.
Leaking		1 1
Noisy		22 1
Threads damaged Threads stripped (threads		Require repair or replacement.
missing)	. A	Require repair or replacement.
(1) - Boost pressure prob components.	lems 1	may be caused by other systems or

SWITCHES

SWITCH INSPECTION

Condition	Code	Procedure
Attaching hardware broken	. A	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of hardware.
-	. A	Require repair or replacement of hardware.
Binding, affecting performance Binding, not affecting	. A	Require repair or replacement.
2.		Suggest repair or replacement Require repair or replacement.

_	A	(1) Require repair or replacement.
Burned, not affecting performance	2	
Cracked, affecting performance Cracked, not affecting	A	Require repair or replacement.
performance Leaking Malfunctioning	1 A A	Require repair or replacement.
Melted, affecting		replacement.
performance	A	(1) Require repair or replacement.
Melted, not affecting performance	2	(1) Suggest repair or replacement.
Missing Out of adjustment	C B	Require replacement Require repair or replacement.
Terminal broken Terminal burned, affecting	A	Require repair or replacement.
performance	A	(1) Require repair or replacement.
Terminal burned, not affecting performance	2	Suggest repair or replacement.
Terminal corroded, affecting performance Terminal corroded, not	A	Require repair or replacement.
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.
performance Terminal loose, not	В	Require repair or replacement.
affecting performance Won't return	Α	 Suggest repair or replacement. Require repair or replacement. Suggest replacement.
(1) - Determine cause and c replacement of part.	orr	ect prior to repair or
		termittent operation, or failure

THERMAL VACUUM VALVES

THERMAL VACUUM VALVE INSPECTION

Condition	Code	Procedure
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking	. A	Require repair or replacement.
Connector melted	. A	
Connector missing Contaminated		Require replacement.
		replacement.
Inoperative	. В	(3) Require repair or replacement. Further inspection required.
Leaking	Δ	1
Missing		Require replacement.

specification	В		Require	repair	or	replacement.
Restricted, affecting performance Terminal broken Terminal burned, affecting	A A	• •				replacement. replacement.
performance	A			(1) R	equ.	ire repair or replacement.
Terminal burned, not						-
	2	• •	Suggest	repair	or	replacement.
affecting performance Terminal corroded, not	Α	• •	Require	repair	or	replacement.
affecting performance Terminal loose, affecting	2		Suggest	repair	or	replacement.
performance Terminal loose, not	В		Require	repair	or	replacement.
affecting performance	1		Suggest.	repair	or	replacement.
Threads damaged						replacement.
Threads stripped (threads			- 1-	-1 -	_	-1
missing)	A			. Requi	ire	replacement.
exposed	В		Require	repair	or	replacement.
Wire lead corroded	Α		Require	repair	or	replacement.
Wire lead open	Α					replacement.
Wire lead shorted	А		Require	repair	or	replacement.
(1) - Determine cause and c	orre	ect	prior to	repair	or	
replacement of part.				_		
(2) - Determine source of c fuel, metal particles	onta , or	amin r wa	ation, sı ter. Reqı	ıch as q ıire rep	eng: pai:	ine coolant, r or
replacement.	4 m + 1	- 20m -	++05+ 6		0.75	0.1.t o.f
(3) - Inoperative includes OEM specification. So check for accepted cl	me o	comp	onents ma	ay be se		
cuecy in accepted ci	ean.	LIIG	brocedure	₹•		

THERMOSTATIC AIR DOOR ASSEMBLIES

THERMOSTATIC AIR DOOR ASSEMBLY INSPECTION

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

THERMOSTAT AND HOUSING INSPECTION

Condition	Code	Procedure
Application incorrect	В	 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.
Inoperative	A Require repair or replacement.
± ± ·	A Require repair or replacement.
(1) - Inoperative includes OEM specification.	intermittent operation or out of

THROTTLE BODIES

THROTTLE BODY INSPECTION

Condition	Code	Procedure
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		1 1
Connector melted	. A	(1) Require repair or replacement.
Connector missing		Require replacement.
Contaminated	. A	(2) Require repair or replacement.
Leaking	. A	Require repair or replacement.
Restricted		(-, -1
Terminal broken Terminal burned, affectin		Require repair or replacement.
performance		
Terminal burned, not		replacement.
·	. 2	Suggest repair or replacement.
Terminal corroded,	• -	buggest repair of repracement.
	. A	Require repair or replacement.
Terminal corroded, not affecting performance .	. 2	Suggest repair or replacement.
Terminal loose, affecting		
performance Terminal loose, not	. В	Require repair or replacement.
affecting performance .	. 1	Suggest repair or replacement.
Threads damaged		
Threads stripped (threads		
missing)		Require repair or replacement.
Throttle shaft binding, affecting performance .	7\	Require repair or replacement.
Throttle shaft worn,	• •	Medatte repatt of repracement.
affecting performance .	. A	Require repair or replacement.

Throttle shaft worn, not						
affecting performance	1		Suggest	repair	or	replacement.
Wire lead conductors			3 3	-		-
exposed	В		Require	repair	or	replacement.
Wire lead corroded	Α		Require	repair	or	replacement.
Wire lead open	Α		Require	repair	or	replacement.
Wire lead shorted	Α		Require	repair	or	replacement.
(1) - Determine cause and co	orre	ect	prior to	repair	or	
replacement of part.			-	-		
(2) - Determine source of co	onta	amin	ation, su	uch as	enq:	ine coolant,
fuel, metal particles,						
replacement.				_	-	
(3) - Some components may be	- SE	rwi	ceable:	check :	for	accepted
cleaning procedure.				0110011		accopcoa

THROTTLE CABLES

See THROTTLE LINKAGES AND CABLES.

THROTTLE LINKAGES AND CABLES

THROTTLE LINKAGE AND CABLE INSPECTION

Condition	Code	Procedure
Attaching hardware broken	. А	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware not functioning	. А	Require repair or replacement of hardware.
Bent	. A	Require repair or replacement.
		Require repair or replacement.
affecting performance .		No service suggested or required.
Bracket broken, affecting performance		Require replacement.
affecting performance .		No service suggested or required.
Bracket corroded, affecting performance . Bracket corroded, not	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance . Bracket loose, affecting		Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance . Bracket missing	. C	Suggest repair or replacement Require replacement Require replacement Require repair or replacement.

Disconnected	Α	Require repair or replacement.
		Require repair or replacement.
Melted	Α	Require repair or replacement.
Missing	С	Require replacement.
Noisy	2	Suggest repair or replacement.
Out of adjustment	В	(1) Require repair or
		replacement.
		Suggest repair.
Seized	Α	Require repair or replacement.
(1) - Follow OEM recommende	d ac	djustment procedures. Require

 Follow OEM recommended adjustment procedures. Require repair or replacement if out of specification.

THROTTLE POSITION SENSORS

THROTTLE POSITION SENSOR INSPECTION

Condition	Code	Procedure
Attaching hardware	~	
-	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement of hardware.
Attaching hardware threads stripped		or nardware.
(threads missing)	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		<pre> Require repair or replacement(1) Require repair or</pre>
Connector missing Contaminated		Require replacement (2) Require repair or
Inoperative	. В	replacement(3) Require repair or replacement. Further
Missing	. C	inspection required Require replacement.
Resistance out of	D	Doggine mensin en menlagement
specification Terminal broken Terminal burned, affectin	. A	Require repair or replacement.Require repair or replacement.
performance Terminal burned, not		(1) Require repair or replacement
affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
affecting performance . Terminal loose, affecting		Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance .		Suggest repair or replacement.
Chreads damaged Chreads stripped (threads		Require repair or replacement.
missing)	. A	Require replacement.
exposed		Require repair or replacement.Require repair or replacement.

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

- (1) Determine cause and correct prior to repair or replacement of part.
- (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.
- (3) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

THROTTLE POSITION SWITCHES

THROTTLE POSITION SWITCH INSPECTION

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 Connector (Weatherpack	. A	Require repair or replacement.
type) leaking Connector melted		<pre> Require repair or replacement(1) Require repair or</pre>
Connector missing Inoperative		Require replacement. (2) Require repair or replacement. Further inspection required.
Missing	. C	Require replacement.
specification Terminal broken Terminal burned, affectin	. A	Require repair or replacement.Require repair or replacement.
performance	_	(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance . Threads damaged	. A	 Suggest repair or replacement. Require repair or replacement.
Threads stripped (threads missing)		Require replacement.
Wire lead conductors exposed Wire lead corroded	. A	Require repair or replacement.Require repair or replacement.Require repair or replacement.Require repair or replacement.

- (1) Determine cause and correct prior to repair or replacement of part.
 (2) Inoperative includes intermittent operation or out of
- (2) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

TIMING BELT SPROCKETS

TIMING BELT SPROCKET INSPECTION

Condition	Code	Procedure
Alignment incorrect Attaching hardware	. В	Require repair.
2	. A	Require repair or replacement of hardware.
Attaching hardware missing	. C	Require replacement of
Attaching hardware not	Α	hardware Require repair or replacement
-		of hardware.
Bent Cracked	. A	Require replacement.
Key damaged		Require replacement Require repair or replacement.
Missing		Require replacement.
belt life		Require replacement.
affecting belt life Sprocket loose Sprocket-to-shaft		
alignment incorrect	. В	Require repair or replacement.

TIMING BELTS

TIMING BELT INSPECTION

Condition	Code	Procedure
Broken	. A	Require replacement.
Cracked	. 1	
Frayed		
Missing Noisy	. C	(3) Require replacement (4) Further inspection required. See note below.
Plies separated Tension out of	. A	Require replacement.

specification		В		Require	adjustment	or
Teeth missing		Α		Require	replacemer replacemer	
	e cause of in Internal en ge/failure.	correc gine d	t alignmen amage may	t and req result fr		ĵ.
(4) - Determine	e cause of no	ise an	a suggest	repair.		

TORQUE STRUTS

TORQUE STRUT INSPECTION

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		
Body punctured Bushing deteriorated,	. A	Require replacement.
affecting performance . Bushing deteriorated, not		Require replacement.
affecting performance .		No service suggested or required.
Bushings missing Bushings separated from	. C	Require replacement.
mounting eye Damping (none) Leaking oil, enough for fluid to be running down	. A	Suggest replacement. Require replacement.
the body	. A	
Piston rod bent	. A . A . A	Require replacement. Require replacement. Require replacement. Require replacement. Require replacement.
missing)	. A	1 1
piston rod movement service is suggeste	. If d d or r	its where dents restrict strut lents don't restrict movement, no required. Thock or strut, suggest replacement

TRANSMISSION RANGE SWITCHES

TRANSMISSION RANGE SWITCH INSPECTION

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)	
Connector broken	of hardware. A Require repair or replacement.
Connector (Weatherpack type) leaking Connector melted	A Require repair or replacement. A (1) Require repair or
Connector missing	replacement.
Contaminated	A (2) Require repair or replacement.
Inoperative	B (3) Require repair or replacement. Further inspection required.
Leaking	A Require repair or replacement. C Require replacement.
specification Terminal broken Terminal burned, affecting	B Require repair or replacement. A Require repair or replacement.
performance	A (1) Require repair or replacement.
Terminal burned, not affecting performance Terminal corroded,	2 Suggest repair or replacement.
affecting performance Terminal corroded, not	A Require repair or replacement.
affecting performance Terminal loose, affecting	2 Suggest repair or replacement.
performance Terminal loose, not	B Require repair or replacement.
affecting performance Threads damaged Threads stripped (threads	1 Suggest repair or replacement.A Require repair or replacement.
missing)	A Require replacement.
exposed	A Require repair or replacement.
Wire lead open Wire lead shorted	A Require repair or replacement. A Require repair or replacement.
(1) - Determine cause and creplacement of part.	correct prior to repair or
(2) - Determine source of c	contamination, such as engine coolant, s, or water. Require repair or
	intermittent operation or out of ome components may be serviceable; eaning procedure.

TUBE 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 CHARGER INSPECTION

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	
Leaking		Require repair or replacement.
		Require repair or replacement.Require repair or replacement.
(1) - Boost pressure prob or components.	lems r	may be caused by other systems

VACUUM CONNECTIONS

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

VACUUM HOSES, TUBES AND CONNECTIONS (NON-METALLIC)

VACUUM HOSE, TUBE AND CONNECTION (NON-METALLIC) INSPECTION

Condition	Code		Procedure
Leaking	. A . C . 1	Require Require Suggest	replacement. replacement. replacement.
rotted)	. 1	Suggest	replacement.

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	Require repair or replacement
Attaching hardware threads stripped		of hardware.
(threads missing)		Require repair or replacement of hardware.
Connector broken Connector (Weatherpack		Require repair or replacement.
type) leaking Connector melted		Require repair or replacement. (1) Require repair or replacement.
Connector missing Contaminated		Require replacement (2) Require repair or
Inoperative	. В	replacement(3) Require repair or replacement. Further
Leaking		inspection required Require repair or replacement Require replacement.
Resistance out of specification Restricted, affecting	. В	Require repair or replacement.
performance Terminal broken Terminal burned, affectin	. A	Require repair or replacement.Require repair or replacement.
performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance . Threads damaged Threads stripped (threads	. A	 Suggest repair or replacement. Require repair or replacement.
missing)		Require replacement.
exposed		 Require repair or replacement. Require repair or replacement.
Wire lead open Wire lead shorted	. A	
(1) - Determine cause and replacement of part		ect prior to repair or
(2) - Determine source of fuel, metal particl	conta	amination, such as engine coolant, water. Require repair or
	Some of	ermittent operation or out of components may be serviceable; and procedure.

VACUUM TUBES

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

VEHICLE SPEED SENSORS

VEHICLE SPEED SENSOR INSPECTION

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
(enreads missing)	• 11	of hardware.
Connector broken Connector (Weatherpack		Require repair or replacement.
type) leaking Connector melted	. A	Require repair or replacement (1) Require repair or replacement.
Connector missing Contaminated		
Inoperative	. В	(3) Require repair or replacement. Further
Leaking		inspection required Require repair or replacement Require replacement.
specification Terminal broken	. A	Require repair or replacement.Require repair or replacement.
Terminal burned, affecting performance		(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
	. 2	Suggest repair or replacement.
performance		Require repair or replacement.
affecting performance .	. 1	Suggest repair or replacement.
Threads damaged	. A	Require repair or replacement.
Threads stripped (threads		D '
missing)	. A	Require replacement.
exposed	. В	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.

^{(1) -} Determine cause and correct prior to repair or

replacement of part.

(2) - Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or

replacement.

(3) - Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

VOLUME AIR FLOW SENSORS

VOLUME AIR FLOW SENSOR INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	
Attaching hardware threads stripped (threads missing)	. A	Require repair or replacement
Connector broken		of hardware. Require repair or replacement.
Connector (Weatherpack type) leaking		Require repair or replacement.
Connector melted Connector missing		
Contaminated		
Inoperative	. В	(3) Require repair or replacement. Further inspection required.
Leaking		Require repair or replacement Require replacement.
specification Restricted, affecting	. В	Require repair or replacement.
performance Terminal broken Terminal burned, affecting	. A	Require repair or replacement.Require repair or replacement.
performance	. A	(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance . Terminal corroded, not	. A	Require repair or replacement.
Terminal loose, affecting		Suggest repair or replacement.
performance Terminal loose, not affecting performance		 Require repair or replacement. Suggest repair or replacement.
Threads damaged Threads stripped (threads	. A	Require repair or replacement.
missing)		Require replacement.
exposed	. A	Require repair or replacement.Require repair or replacement.
Wire lead open Wire lead shorted		Require repair or replacement.Require repair or replacement.

⁽¹⁾ - Determine cause and correct prior to repair or

- replacement of part.

 (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement.
- (3) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

WASTE GATE CONTROL SOLENOIDS

WASTE GATE CONTROL SOLENOID INSPECTION

Condition	Code	Procedure
Attaching hardware missing	. C	Require replacement of hardware.
Attaching hardware threads damaged	. A	
Attaching hardware threads stripped	7	
(threads missing)	. A	Require repair or replacement of hardware.
Connector broken Connector (Weatherpack		Require repair or replacement.
type) leaking Connector melted		Require repair or replacement (1) Require repair or replacement.
Contaminated		
Inoperative	. В	
Leaking		Require repair or replacement Require replacement.
Resistance out of specification	. В	Require repair or replacement.
Restricted, affecting performance	. A	Require repair or replacement.
Terminal broken Terminal burned, affectin	. A	Require repair or replacement.
performance Terminal burned, not		(1) Require repair or replacement.
affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
	. A	Require repair or replacement.
affecting performance . Terminal loose, affecting		Suggest repair or replacement.
performance Terminal loose, not		Require repair or replacement.
affecting performance . Threads damaged Threads stripped (threads	. A	 Suggest repair or replacement. Require repair or replacement.
missing)		Require replacement.
exposed	. A	Require repair or replacement.Require repair or replacement.Require repair or replacement.

- Wire lead shorted A .. Require repair or replacement.
- (1) Determine cause and correct prior to repair or
- replacement of part.

 (2) Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or
- (3) Inoperative includes intermittent operation or out of OEM specification. Some components may be serviceable; check for accepted cleaning procedure.

WASTE GATES AND BOOST CONTROL MECHANISMS

WASTE GATE AND BOOST CONTROL MECHANISM INSPECTION

Condition	Code		Procedure
Boost pressure incorrect	. A		(1) Require repair or replacement. Further inspection required.
Leaking	. A	Requi	
(1) - Incorrect boost pre or out of OEM speci			intermittent operation

WATER PUMPS (ELECTRIC)

WATER PUMP (ELECTRIC) INSPECTION

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 Connector (Weatherpack	. A	Require repair or replacement.
type) leaking		<pre> Require repair or replacement (1) Require repair or</pre>
Connector missing Inoperative Leaking Missing Noisy Rotation incorrect for	. A . A . C	Require replacement. (2) Require replacement. Require repair or replacement. Require replacement. Suggest replacement.
application Terminal broken Terminal burned, affectin	. A g	Require repair or replacement.Require repair or replacement.
performance	. A	(1) Require repair or replacement.
Terminal burned, not affecting performance . Terminal corroded,	. 2	Suggest repair or replacement.
affecting performance .	. A	Require repair or replacement.

Terminal corroded, not						
affecting performance	2.		Suggest.	repair	or	replacement.
Terminal loose, affecting				1	-	
performance	B		Peguire	rensir	or	renlacement
	ם	• •	Medatre	reparr	OI	repracement.
Terminal loose, not	_					-
affecting performance			22	-		_
Vibration	1			. Sugge	est	replacement.
Wire lead conductors						
exposed	В		Require	repair	or	replacement.
Wire lead corroded						
Wire lead open						
Wire lead shorted	А	• •	Require	repair	O.L.	replacement.
(1) - Determine cause and c	orre	ect j	prior to	repair	or	
replacement of part.						
(2) - Check fan motor/contr	ols.	Ind	pperative	e includ	des	
intermittent operatio			_			ion
THECTHITCEHE OPERACIO	11 01	. ou	C OI OHN	PLCCII.	LCai	

WATER PUMPS (NON-ELECTRIC)

WATER PUMP (NON-ELECTRIC) INSPECTION

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		Require replacement.
excessive, not affecting performance Inoperative	. 2	. Suggest cooling system service (1) Require replacement.
Leaking		± . ± <u>-</u>
application		
(1) - Inoperative include OEM specification.	s inte	ermittent operation or out of

WIRING HARNESSES AND CONNECTORS

WIRING HARNESS AND CONNECTOR INSPECTION

Condition	С	ode				Procedure
Application incorrect Attaching hardware		В	• •	Require repair	or	replacement.

broken	A	Require repair or replacement of hardware.		
Attaching hardware missing	С	Require replacement of hardware.		
Attaching hardware not functioning	А	Require repair or replacement of hardware.		
Connector broken Connector (Weatherpack	A	Require repair or replacement.		
type) leaking	A A	Require repair or replacement (1) Require repair or replacement.		
Connector missing Insulation damaged,	С	Require replacement.		
conductors exposed Insulation damaged,	A	Require repair or replacement.		
conductors not exposed . Open	1 A	Suggest replacement Require repair or replacement.		
(conduit) melted	2	(1) Suggest repair or replacement.		
Protective shield (conduit) missing Resistance (voltage drop)	2	Suggest repair or replacement.		
out of specification Routed incorrectly Secured incorrectly Shorted Terminal broken Terminal burned, affecting performance	A B B A A	<pre> Require repair or replacement Require repair</pre>		
Terminal burned, not		replacement.		
affecting performance Terminal corroded,	2	Suggest repair or replacement.		
affecting performance Terminal corroded, not	Α	Require repair or replacement.		
affecting performance Terminal loose, affecting	2	Suggest repair or replacement.		
performance Terminal loose, not	В	Require repair or replacement.		
affecting performance Voltage drop out of	1	Suggest repair or replacement.		
specification	А	Require repair or replacement.		
(1) - Determine cause and correct prior to repair or replacement of part.				