

# **\* ELECTRICAL SYSTEM UNIFORM INSPECTION GUIDELINES \***

## **Article Text**

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Sunday, March 19, 2000 12:35AM

## **ARTICLE BEGINNING**

### **GENERAL INFORMATION**

Electrical System Motorist Assurance Program  
Standards For Automotive Repair

All Makes and Models

## **INTRODUCTION TO MOTORIST ASSURANCE PROGRAM (MAP)**

The Motorist Assurance Program was formed in 1992 by forty (40) companies who were concerned about the image of automotive service establishments. Today, MAP is an industry-wide association dedicated to strengthening consumer satisfaction with the automotive repair industry. MAP's participants represent the majority of the nation's multi-bay retail automotive outlets, their parts and equipment suppliers, independent repair shops, industry associations, car companies, manufacturers representatives, and the trade press. MAP is developing standards of service, uniform inspection procedures and other programs to assure consumers of the industry's professionalism and the commitment to excellence shared by MAP's sponsoring companies.

MAP's achievements to date include production and distribution (over 280,000) of the consumer brochure "How to Find Your Way Under the Hood and Around Your Car", development of a Pledge of Satisfaction to Consumers and Standards of Service and establishment of relationships with regulatory agencies.

As auto repair becomes an issue for federal and state regulators, MAP is working to educate government leaders on the dynamics of automotive service and the self-monitoring efforts MAP has undertaken on the industry's behalf. MAP's sponsoring companies are becoming well-known to government representatives as exemplary businesses working to improve the industry. Media sources also look to MAP to provide information and advice to consumers and on working with automotive technicians and repair establishments.

In the next few months, MAP plans to assist member repair facilities in implementing the MAP Pledge to Customers, establishing an alternate dispute resolution system to help resolve customer complaints within the industry, and developing a shop accreditation program to encourage policies in concert with the MAP Standards of Service and Inspection Guidelines.

MAP has united the aftermarket behind its consumer-oriented goals and has established itself both within and outside of the industry. We welcome you to join us as MAP continues its outreach. With your support, both the automotive repair industry and your customers will reap the benefits. Please contact MAP at:

808 17th Street, NW  
Suite 200  
Washington, D.C. 20006  
202 466 7050

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**PLEDGE TO CUSTOMERS**

1. That recommendations will be clearly explained and based on system failure, improved system performance or preventive maintenance according to accepted industry standards.

2. That personnel will be properly trained and qualified to identify and perform an accurate and complete inspection and service of vehicle systems.

3. That a written estimate will be provided and no work will be performed without a prior authorization.

4. That a written limited warranty will be included at no additional cost.

**STANDARDS OF SERVICE**

I. Our recommendations are based upon the following definitions.

A. System Failure - Parts/system indicated are out of manufacturers' specifications, have failed, or are unable to perform their normal function as intended or designed by the manufacturers. Service/replacement is needed now.

B. Preventive/Schedule Maintenance - Parts/system are scheduled for service/replacement per industry standards or are near the end of their useful life and repair/replacement is recommended in advance of parts/system failure. Service/replacement is optional.

C. Improved System Performance (Performance Improvement) - Parts/system indicated are recommended for repair/replacement to enhance/improve the vehicle's ability to perform as intended or designed by the manufacturer, or as requested by the customer. Service/replacement is optional.

**II. Training/Criteria**

A. Our personnel have acquired auto repair expertise through formal education or work experience.

B. Where appropriate, personnel are moving toward certification (e.g. vehicle manufacturers, ASE, etc.) for the services performed.

C. Continuing education will be supported by all MAP participants.

III. Appropriate Company Approved Inspection - We will perform an appropriate inspection based on MAP Uniform Inspection Guidelines.

IV. Written Estimates - Written estimates based on our inspection, in compliance with state and local regulations, will include parts (dollar amount), labor (dollar amount), and the total

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estimate.

V. Work Authorization - No work will be performed without the customer's prior approval.

VI. Limited Warranty - A minimum limited warranty will be offered of 90 days or 4,000 miles, whichever comes first, covering parts and labor.

VII. Returned Parts - All customers will be entitled to the return of old parts, or if they choose, they may examine the parts prior to leaving the store. Where failed parts are required to be returned to the manufacturer in order to honor the warranty, the customer will be allowed to examine the parts.

VIII. Classification of Parts - Replaced parts will be identified as new, remanufactured, rebuilt or used. MAP participants will inform the customer and indicate on the estimate and invoice whether a part is new, remanufactured, rebuilt or used.

## **MAP UNIFORM INSPECTION GENERAL GUIDELINES**

### **OVERVIEW OF SERVICE REQUIREMENTS & SUGGESTIONS**

It is MAP policy that all exhaust, brake, ABS, steering and suspension, wheel alignment, tires and wheels, driveline, engine performance and maintenance and heating, ventilation and air conditioning services be offered and performed under the guidelines 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 needs expressed by the customer.

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

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.

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- \* Example: A brake rotor has been worn to the point where it measures less than the vehicle manufacturer's 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 to address a customer's need, convenience or request. If a customer's vehicle has one of these conditions, the procedure may only be 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. The following reasons may be used for required and suggested services:

#### Reasons to Require Repair or Replacement:

- \* component no longer performs intended purpose
- \* component does not meet a design specification (regardless of performance)
- \* component is missing.

#### Reasons to Suggest Repair or Replacement

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

## **ELECTRICAL SYSTEMS**

NOTE: When working on electrical systems, if a potentially hazardous condition is observed, require repair or

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replacement of affected components.

### **BATTERY PREFACE COVER PAGE**

Proper operation of any electrical system 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. Before condemning any component, test vehicle following OEM test and diagnostic procedures.

A battery should meet or exceed the intended vehicle's OEM (Original Equipment Manufacturer) specifications with regard to Cold Cranking Amps for that specific vehicle. A battery should be tested using the test procedures outlined by Battery Council International (BCI) - an association of battery industry companies whose members establish policy and standards for the industry and/or the manufacturer of the battery,

### **DEFINITION OF TERMS**

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 amps 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).

Hot Cranking Amps - A rating (non-recognized by BCI) used by some battery manufacturers for testing purposes based on 80°F (26.7°C).

OEM Cranking Amps - A number indicating the amount of amps (current) at 0 recommended by the vehicle manufacturer intended to meet the starting requirements for a specific vehicle.

Fails to Accept and Hold a Charge - This term refers a battery that fails to either accept and/or retain a charge using appropriate times listed in the Battery Charging Guide section of the BCI Technical Service Manual or battery manufacturer's specifications.

### **BATTERY LOAD TESTING**

- \* Battery Load Testing requirements should be tested at vehicle OEM specifications or battery CCA specifications for pass/fail criteria using the highest rating.
- \* Battery Load Testing and OEM specifications are based on testing at the CCA level only. When a battery is rated at any other given temperature (32°F or 80°C), the battery rating should be converted to a corresponding CCA for testing

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purposes.

**BATTERY**

NOTE: Must meet or exceed OE specs for intended vehicle and component manufacturer's specifications for specific battery.

**BATTERY**

AA			
Condition	3	Procedure	3 Note
AA			
Fails to accept and hold charge	3	Require replacement.	3
AA			
Discharged battery/ open circuit voltage low/ low specific gravity	3	Further inspection required.	3 Recharge and retest to manufacturer's specifications if battery fails load test or fails to accept or hold a charge - replacement required.
AA			
Corroded posts/ terminals	3	Require repair.	3
AA			
Burned, melted posts/terminals	3	Require repair or replacement.	3
AA			
Loose posts/ terminals	3	Require replacement.	3
AA			
Loose or missing vent caps	3	Require repair or replacement of vent caps.	3
AA			
Case leaking	3	Require replacement.	3
AA			
Low fluid level	3	Further inspection required.	3 Determine cause of low fluid level, refill to proper level with water (distilled water preferred). If level was below top of plates, recharge and retest to manufacturer's specifications to verify condition. If battery does not meet specifications, require replacement. If battery is sealed type (non-removable filler caps) and the eye color

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	3	3	indicates low fluid level
	3	3	require replacement.
AA			
Swollen casing	3	Further inspection	3 No service suggested or
	3	required.	3 required unless the
AA			
Electrolyte	3		3 battery fails load test
discoloration/	3		3 or fails to accept or
contamination	3		3 hold a charge -
			3 replacement required.
AA			
Wet/dirty top	3	Clean battery using	3 Check fluid level and
	3	BCI procedures.	3 adjust to manufacturer's
	3	Further inspection	3 specification. Check
	3	required.	3 charging system for
			3 proper operation.
AA			
Frozen battery	3	Further inspection	3 Do not attempt to charge
	3	required.	3 a frozen battery. Allow
	3		3 battery to warm and then
	3		3 recharge and test to
	3		3 manufacturer's
			3 specifications.
AA			

**BATTERY TRAY/HOLD DOWN HARDWARE**

**BATTERY TRAY/HOLD DOWN HARDWARE**

AA			
Condition	3	Procedure	3 Note
AA			
Missing	3	Require replacement.	3
AA			
Damaged/corroded	3	Suggest repair or	3 If battery tray/hold down
	3	replacement.	3 hardware no longer
	3		3 performs intended purpose
	3		3 require repair or
			3 replacement.
AA			

**CHARGING SYSTEM**

NOTE: Inoperative means output does not meet OE specs for the intended vehicle. If components have been added that increase vehicle electrical load requirement (e.g., sound systems, air conditioning, alarm systems, etc.) charging system output must meet the increased demand.

**ALTERNATOR/GENERATOR**

**ALTERNATOR/GENERATOR**

AA			
Condition	3	Procedure	





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**PULLEYS**

AA		
Condition	3	Procedure
AA		
Improper alignment	3	Require repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement of
	3	mounting hardware.
AA		
Damaged	3	Require replacement.
AA		

**TENSIONERS**

**TENSIONERS**

AA			
Condition	3	Procedure	3 Note
AA			
Missing	3	Require replacement.	3
AA			
Noisy	3	Suggest replacement.	3
AA			
Damaged	3	Suggest replacement.	3
AA			
Improper tension	3	Further inspection	3 Follow manufacturer's
	3	required.	3 recommended adjustment
	3		3 procedures. Suggest
	3		3 replacement if unable to
	3		3 meet OE specifications.
AA			

**VOLTAGE REGULATOR**

**VOLTAGE REGULATOR**

AA		
Condition	3	Procedure
AA		
Inoperative/Intermittent	3	Require replacement.
AA		
Output outside of OEM specifications	3	Require repair or replacement.
AA		
Corroded, loose terminal ends	3	Suggest repair or replacement.
AA		
Noisy	3	Suggest repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement
	3	of mounting hardware.
AA		
Damaged	3	Suggest replacement.
AA		

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**WIRING HARNESS/CONNECTORS**

**VOLTAGE REGULATOR**

AA		
Condition	3	Procedure
AA		
Routed incorrectly	3	Suggest repair.
AA		
Shorted/open	3	Require repair or replacement.
AA		
Connector terminal problem (e.g., bent, corroded, loose)	3	Suggest repair or replacement.
AA		
Excessive resistance	3	Require repair or replacement.
AA		
Poor ground	3	Require repair.
AA		
Damaged	3	Suggest repair or replacement.
AA		

**FUSE BOX/BLOCK**

**FUSE BOX/BLOCK**

AA		
Condition	3	Procedure
AA		
Burned/melted	3	Further inspection
	3	required.
	3	
	3	
AA		
Connector, terminal problem (e.g., bent, corroded, loose)	3	Suggest repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require replacement of mounting hardware.
AA		

**SYSTEM INDICATOR LIGHTS**

**SYSTEM INDICATOR LIGHTS**

AA		
Condition	3	Procedure
AA		
Light does not come on during bulb check	3	Further inspection required.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		
Fail to function properly during test mode	3	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		

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On constantly or	3	3
intermittently	3	3
below.	3	3

AA

**SYSTEM GAUGE**

**SYSTEM GAUGE**

AA

Condition	3	Procedure	3	Note
-----------	---	-----------	---	------

AA

Inoperative/ intermittent	3	Further inspection required.	3	See service manual for further information
------------------------------	---	---------------------------------	---	---

AA

Indicating out of OEM's specification	3		3	
--	---	--	---	--

AA

Missing, damaged mounting hardware	3	Require replacement of mounting hardware.	3	
---------------------------------------	---	--	---	--

AA

**GROUND STRAP**

**GROUND STRAP**

AA

Condition	3	Procedure
-----------	---	-----------

AA

High resistance/open	3	Require repair or replacement.
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AA

Missing	3	Require replacement.
---------	---	----------------------

AA

Corroded	3	Require repair or replacement.
----------	---	--------------------------------

AA

Loose	3	Require repair.
-------	---	-----------------

AA

Missing, damaged mounting hardware	3	Require replacement of mounting hardware.
------------------------------------	---	--

AA

Damaged	3	Suggest repair or replacement.
---------	---	--------------------------------

AA

**STARTER SYSTEMS**

To prevent misdiagnosis, care should be taken to eliminate the possibilities of mechanical problems or high resistance in power and/or ground circuits.

**STARTER SYSTEMS**

AA

Condition	3	Procedure	3	Note
-----------	---	-----------	---	------

AA

Inoperative/	3	Require repair or	3	
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intermittent	3 replacement.	3
Excessive resistance/		
open	3 Require repair or	3
	3 replacement.	3
Amperage does not		
meet OEM	3 Require repair or	3
	3 replacement.	3
specifications	3	3
Missing, damaged		
mounting hardware/	3 Require repair or	3
brackets	3 replacement of	3
	3 mounting hardware.	3
Noisy		
	3 Further inspection	3 Identify source of
	3 required.	3 noise, suggest repair
	3	3 or replacement.
Damaged drive gear		
	3 Require repair or	3 Inspect ring gear and
	3 replacement.	3 service as needed.
Corroded, loose		
terminals	3 Require repair or	3
	3 replacement.	3
Cracked/broken		
housing	3 Suggest repair or	3
	3 replacement.	3

## SOLENOID

## SOLENOID

Condition	Procedure	Note
Inoperative/ intermittent	Require repair or replacement.	
Excessive resistance/ open	Require repair or replacement.	
Noisy	Further inspection required.	Identify source of noise, suggest repair or replacement.
Missing, damaged mounting hardware/ brackets	Require repair or replacement of mounting hardware.	
Fails to disengage	Further inspection required.	See service manual for further information.
Damaged	Suggest replacement.	

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**RELAYS**

RELAYS

AA		
Condition	3	Procedure
AA		
Inoperative/intermittent	3	Require replacement.
AA		
Missing	3	Require replacement.
AA		
Missing, damaged mounting hardware	3	Require replacement of mounting hardware.
AA		
Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Damaged	3	Suggest replacement.
AA		

**IGNITION SWITCH**

IGNITION SWITCH

AA		
Condition	3	Procedure
AA		
Inoperable	3	Require replacement.
AA		
Intermittent	3	Suggest replacement.
AA		
Malfunctioning (e.g., binding, worn, won't return, etc.)	3	Suggest repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require replacement of mounting hardware.
AA		
Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Damaged (e.g., melted, burned, cracked, etc.)	3	Suggest replacement.
AA		

**NEUTRAL SAFETY SWITCH/CLUTCH SWITCH**

NEUTRAL SAFETY SWITCH/CLUTCH SWITCH

AA		
Condition	3	Procedure
AA		
Inoperative	3	Require replacement.
AA		
Intermittent	3	Suggest replacement.
AA		
Malfunctioning (e.g.,	3	Suggest repair or

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Condition	3	Procedure	3	Note
Out of adjustment	3	Further inspection	3	Follow OEM recommended
	3	required.	3	adjustment procedures.
	3		3	Repair or replace if out
	3		3	of specification.
Inoperative	3	Require replacement.	3	
Intermittent	3	Require replacement.	3	
Corroded, loose	3	Suggest repair or	3	
terminals	3	replacement.	3	
Missing, damaged	3	Require repair or	3	
mounting hardware	3	replacement of	3	
	3	mounting hardware.	3	
Damaged	3	Suggest replacement.	3	

**BULB SOCKETS**

Condition	3	Procedure	3	Note
Missing, damaged	3	Require repair or	3	
mounting hardware	3	replacement of	3	
	3	mounting hardware.	3	
Burned/melted	3	Further inspection	3	Determine cause and
	3	required.	3	correct prior to repair
	3		3	or replacement of
	3		3	socket(s).
Corroded, loose	3	Suggest repair or	3	
terminals	3	replacement.	3	
Inoperative/ intermittent	3	Require repair or	3	
	3	replacement.	3	
Damaged	3	Suggest repair or	3	
	3	replacement.	3	

**WIRING HARNESS/CONNECTORS**

Condition	3	Procedure
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Routed incorrectly	3 Suggest repair.
Shorted/open	3 Require repair or replacement.
Connector terminal problem (e.g., bent, corroded, loose)	3 Suggest repair or replacement.
Excessive resistance	3 Require repair or replacement.
Poor ground	3 Require repair.
Damaged	3 Suggest repair or replacement.

## FUSE/FUSIBLE LINK/CIRCUIT BREAKER

# FUSE/FUSIBLE LINK/CIRCUIT BREAKER

Condition	Procedure	Note
Inoperative/ intermittent	Require replacement. Further inspection required.	Determine cause of condition and correct prior to replacement.
Corroded, loose terminals	Suggest repair or replacement.	
Missing	Require replacement.	Refer to OEM owner's manual for proper amperage and location.
Damaged (e.g., melted, burned, cracked, etc.)	Suggest repair or replacement.	

## SWITCHES/DIMMERS/TIMERS/DELAYS

## SWITCHES/DIMMERS/TIMERS/DELAYS

Condition	3	Procedure
Inoperative/intermittent	3	Require replacement.
Missing	3	Require replacement.
Malfunctioning (e.g., binding, worn, won't return, etc.)	3	Suggest repair or replacement.
Missing, damaged mounting hardware/adjusters	3	Require repair or replacement of mounting hardware/adjusters.



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Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Damaged (e.g., melted, burned, cracked, etc.)	3	Suggest replacement.
AA		

**LENSES**

LENSES		
AA		
Condition	3	Procedure
AA		
Missing	3	Require replacement.
AA		
Missing, damaged mounting hardware/adjusters	3	Require repair or replacement of mounting hardware/adjusters.
AA		
Broken	3	Require replacement.
AA		
Damaged	3	Suggest replacement.
AA		

**ACTUATOR MOTOR/DOOR ASSEMBLY**

ACTUATOR MOTOR/DOOR ASSEMBLY				
AA				
Condition	3	Procedure	3	Note
AA				
Inoperative/intermittent	3	Require replacement.	3	
AA				
Malfunctioning (e.g. binding, worn, won't return, etc.)	3	Suggest repair or replacement.	3	
AA				
Missing	3	Require replacement.	3	
AA				
Out of adjustment	3	Further inspection required.	3	Follow OEM recommended adjustment procedures.
	3		3	Repair or replace if out of specification.
AA				
Leaking (vacuum)	3	Suggest repair or replacement.	3	
AA				
Noisy	3		3	
AA				
Missing, damaged mounting hardware	3	Require repair or replacement of mounting hardware.	3	
AA				
Corroded, loose	3	Suggest replacement.	3	

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```
terminals          3          3
AAAAAAAAAAAAAAAAAA 3
Damaged            3          3
AAAAAAAAAAAAAAAAAA
```

**VEHICLE ACCESSORIES**

Vehicle accessories refers to OEM installed equipment, including but not limited to power windows, locks, seats, roof/top, antennas, heated seats, mirrors, windshield/window defrosters, trunk pull down/release, keyless entry, tire pressure monitors, electric mirrors, etc.

**POWER LOCKS, WINDOWS, SEATS, MIRRORS, ROOF/TOPS, ANTENNAS,  
SLIDING DOORS**

```
SWITCHES
AAAAAAAAAAAAAAAAAA
Condition          3          Procedure
AAAAAAAAAAAAAAAAAA
Inoperable         3 Require replacement.
AAAAAAAAAAAAAAAAAA
Intermittent       3 Suggest replacement.
AAAAAAAAAAAAAAAAAA
Malfunctioning (e.g., binding, worn, 3 Suggest repair or replacement.
won't return, etc.) 3
AAAAAAAAAAAAAAAAAA
Missing            3 Require replacement.
AAAAAAAAAAAAAAAAAA
Missing, damaged mounting hardware 3 Require repair or replacement
of mounting hardware.
AAAAAAAAAAAAAAAAAA
Corroded, loose terminals 3 Suggest repair or replacement.
AAAAAAAAAAAAAAAAAA
Damaged (e.g., melted, burned, 3 Suggest replacement.
cracked, etc.) 3
AAAAAAAAAAAAAAAAAA
```

**ACTUATORS/MOTORS/SOLENOIDS/TRANSDUCERS**

```
ACTUATORS/MOTORS/SOLENOIDS/TRANSDUCERS
AAAAAAAAAAAAAAAAAA
Condition          3          Procedure          3          Note
AAAAAAAAAAAAAAAAAA
Inoperative/       3 Require replacement. 3
intermittent       3
AAAAAAAAAAAAAAAAAA
Malfunctioning (e.g. 3 Suggest repair or 3
binding, worn, won't 3 replacement. 3
return, etc.) 3
AAAAAAAAAAAAAAAAAA
Missing            3 Require replacement. 3
```

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AA		
Out of adjustment	3 Further inspection	3 Follow OEM recommended
	3 required.	3 adjustment procedures.
	3	3 Repair or replace if out
	3	3 of specification.
AA		
Leaking (vacuum/ fluid/air)	3 Suggest repair or	3
	3 replacement.	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAA-		3
Noisy	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAA-		3
Corroded, loose	3	3
terminals	3	3
AA		
Missing, damaged	3 Require repair or	3
mounting hardware	3 replacement of	3
	3 mounting hardware.	3
AA		
Damaged	3 Suggest repair or	3
	3 replacement.	3
AA		

**WIRING HARNESS/CONNECTORS**

WIRING HARNESS/CONNECTORS		
AA		
Condition	3	Procedure
AA		
Routed incorrectly	3	Suggest repair.
AA		
Shorted/open	3	Require repair or replacement.
AA		
Connector terminal problem (e.g., bent, corroded, loose)	3	Suggest repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-		
Excessive resistance	3	
AA		
Poor ground	3	Suggest repair.
AA		
Damaged	3	Suggest repair or replacement.
AA		

**FUSE BOX/BLOCK**

FUSE BOX/BLOCK		
AA		
Condition	3	Procedure
AA		
Burned/melted	3	Require replacement.
	3	Determine cause and
	3	correct prior to repair
	3	or replacement of fuse
	3	box.

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```

Connector, terminal 3 Suggest repair or 3
problem (e.g., bent, 3 replacement. 3
corroded, loose) 3 3
Loose terminals/ 3 3
connectors 3 3
Missing, damaged 3 Require replacement 3
mounting hardware 3 of mounting hardware. 3

```

**FUSE/FUSIBLE LINK/CIRCUIT BREAKER**

```

FUSE/FUSIBLE LINK/CIRCUIT BREAKER
Condition 3 Procedure 3 Note
Inoperative, 3 Require replacement. 3 Determine cause of
intermittent 3 Further inspection 3 condition and correct
3 required. 3 prior to replacement.
Corroded, loose 3 Suggest repair or 3
terminals 3 replacement. 3
Missing 3 Require replacement. 3 Refer to OEM owner's
3 3 manual for proper
3 3 amperage and location.
Damaged (e.g., 3 Suggest repair or 3
melted, burned, 3 replacement. 3
cracked, etc.) 3 3

```

**RELAYS**

```

RELAYS
Condition 3 Procedure
Inoperative, intermittent 3 Require replacement.
Missing 3 Require replacement.
Missing, damaged mounting hardware 3 Require repair or replacement
3 of mounting hardware.
Corroded, loose terminals 3 Suggest repair or replacement.
Damaged 3 Suggest replacement.

```

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**CONTROL MODULE**

CONTROL MODULE

AA			
Condition	3	Procedure	3 Note
AA			
Inoperative/ intermittent	3	Require replacement.	3
AA			
Malfunctioning (i.e., consistent with expected operations)	3	Suggest replacement.	3
AA			
Code set (if applicable)	3	Further inspection required.	3 Refer to manufacturer's 3 diagnostic trouble code 3 procedure and repair or 3 replacement of affected 3 component(s).
AA			
Damaged	3	Suggest replacement.	3
AA			
Corroded, loose terminals	3		3
AA			
Missing, damaged mounting hardware	3	Require replacement of mounting hardware.	3
AA			

**ELECTROCHROMATIC MIRROR**

ELECTROCHROMATIC MIRROR

AA			
Condition	3	Procedure	
AA			
Inoperative, intermittent	3	Require replacement.	
AA			
Corroded, loose terminals	3	Suggest repair or replacement.	
AA			
Malfunctioning	3	Suggest replacement.	
AA			
Missing, damaged mounting hardware	3	Require repair or replacement of mounting hardware.	
AA			
Missing	3	Require replacement.	
AA			
Damaged	3	Suggest replacement.	
AA			

**HEATING ELEMENTS (DEFROSTER/DEFOGGER - ELECTRIC HEATERS,  
MIRRORS, SEATS. ETC.)**

HEATING ELEMENTS (DEFROSTER/DEFOGGER - ELECTRIC HEATERS, ETC.)

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AA		
Condition	3	Procedure
AA		
Inoperative, intermittent	3	Require repair or replacement.
AA		
Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Damaged	3	Suggest repair or replacement.
AA		

**CLOCK**

CLOCK		
AA		
Condition	3	Procedure
AA		
Inoperative, intermittent	3	Require repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement of mounting hardware.
AA		
Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Damaged (e.g., melted, burned, cracked, etc.)	3	Suggest repair or replacement.
AA		

**CIGARETTE LIGHTER/SOCKET/ELEMENT**

CIGARETTE LIGHTER/SOCKET/ELEMENT		
AA		
Condition	3	Procedure
AA		
Inoperative, intermittent	3	Require repair or replacement.
AA		
Corroded, loose terminals	3	Suggest repair or replacement.
AA		
Missing	3	Suggest replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement of mounting hardware.
AA		
Damaged	3	Suggest repair or replacement.
AA		

**CRUISE CONTROL/LINKAGE/CABLES**

CRUISE CONTROL/LINKAGE/CABLES		
AA		
Condition	3	Procedure 3 Note
AA		
Missing	3	Require replacement. 3

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AA		
Out of adjustment	3 Further inspection	3 Follow OEM recommended
	3 required.	3 adjustment procedures.
	3	3 Repair or replace if out
	3	3 of specification.
AA		
Disconnected	3 Further inspection	3 CAUTION: Reconnect and
	3 required.	3 check for proper
	3	3 operation.
AA		
Binding/seized	3 Further inspection	3 Determine cause of
	3 required.	3 binding. Require repair
	3	3 or replacement.
AA		
Broken	3 Require replacement.	3
AA		
Damaged	3 Suggest replacement.	3
AA		
Missing, damaged	3 Require repair or	3
mounting hardware	3 replacement of	3
or brackets	3 mounting hardware	3
	3 or brackets.	3
AA		
Routed incorrectly	3 Suggest repair.	3
AA		

**VACUUM HOSES/TUBES/RESERVOIRS**

VACUUM HOSES/TUBES/RESERVOIRS		
AA		
Condition	3	Procedure
AA		
Missing	3	Require replacement.
AA		
Leaking	3	Require repair or replacement.
AA		
Restricted	3	Require repair or replacement.
AA		
Routed incorrectly	3	Suggest repair.
AA		
Damaged	3	Suggest repair or replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement
or brackets	3	of mounting hardware or
	3	brackets.
AA		

**VEHICLE SPEED SENSORS**

VEHICLE SPEED SENSORS		
AA		
Condition	3	Procedure
	3	Note

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AA

Improper output signal	3	Further inspection required.	3	Follow OEM recommended service procedures.
Internal resistance does not meet specifications	3		3	Component failure may be caused by water intrusion into the wiring harness. Always check insulation for damage and wiring for excessive resistance. Require repair or replacement of affected component(s).

AA

Cracked sensor housing	3	Require replacement.	3
------------------------	---	----------------------	---

AA

Lead routed incorrectly	3	Require re-routing according to vehicle manufacturer's specifications.	3
-------------------------	---	--	---

AA

Damaged wire lead	3	Require repair or replacement.	3
-------------------	---	--------------------------------	---

AA

Contamination of surface	3	Further inspection required.	3	Identify and correct source of contamination. Suggest repair (cleaning).
--------------------------	---	------------------------------	---	--

AA

Missing sensor/tip	3	Require replacement.	3
--------------------	---	----------------------	---

AA

Loose	3	Require repair or replacement.	3
-------	---	--------------------------------	---

AA

Damaged	3	Suggest replacement.	3
---------	---	----------------------	---

AA

Missing, damaged mounting hardware or brackets	3	Require repair or replacement of mounting hardware or brackets.	3
--	---	---	---

AA

**BRAKE/CLUTCH SWITCH**

**BRAKE/CLUTCH SWITCH**

AA

Condition	3	Procedure	3	Note
-----------	---	-----------	---	------

AA

Inoperative	3	Require replacement.	3
-------------	---	----------------------	---

AA

Intermittent	3		3
--------------	---	--	---



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**Article Text (p. 25)**

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AA			
Malfunctioning (e.g.,	3	Suggest repair or	3
binding, worn, won't	3	replacement.	3
return, etc.)	3		3
AA			
Out of adjustment	3	Further inspection	3
	3	required.	3
	3		3
	3		3
	3		3
	3	Follow OEM recommended	
		adjustment procedure.	
		Require repair or	
		replacement if out of	
		specification.	
AA			
Leaking	3	Suggest replacement.	3
AA			
Missing	3	Require replacement.	3
AA			
Missing, damaged	3	Require repair or	3
mounting hardware	3	replacement of	3
	3	mounting hardware.	3
AA			
Corroded, loose	3	Suggest repair or	3
terminals	3	replacement.	3
AA			
Damaged	3	Suggest replacement.	3
AA			

**VACUUM DUMP RELEASE VALVE**

VACUUM DUMP RELEASE VALVE			
AA			
Condition	3	Procedure	3
		Note	
AA			
Inoperative	3		3
AA			
Intermittent	3	Require replacement.	3
AA			
Out of adjustment	3	Further inspection	3
required.	3	required.	3
	3		3
	3		3
	3	Follow OEM recommended	
		adjustment procedure.	
		Require repair or	
		replacement if out of	
		specification.	
AA			
Leaking	3	Suggest replacement.	3
AA			
Missing, damaged	3	Require repair or	3
mounting hardware	3	replacement of	3
	3	mounting hardware.	3
AA			
Damaged	3	Suggest replacement.	3
AA			

**CELLULAR PHONES/ANTENNA**

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[illegible]

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Condition	3	Procedure
AAAAA		
Inoperative	3	Require repair or replacement.
AAAAA		
Intermittent	3	
AAAAA		Suggest repair or replacement.
Malfunctioning	3	
AAAAA		
Missing	3	Require replacement.
AAAAA		
Missing, damaged mounting hardware	3	Require repair or replacement
	3	of mounting hardware.
AAAAA		
Corroded, loose terminals	3	
AAAAA		Suggest repair or replacement.
Damaged	3	
AAAAA		

**SECURITY/ALARM SYSTEM/SENSORS**

SECURITY/ALARM SYSTEM/SENSORS		
AAAAA		
Condition	3	Procedure
AAAAA		
Inoperative	3	Require repair or replacement.
AAAAA		
Intermittent	3	
AAAAA		Suggest repair or replacement.
Malfunctioning	3	
AAAAA		
Missing	3	Require replacement.
AAAAA		
Missing, damaged mounting hardware	3	Require repair or replacement
	3	of mounting hardware.
AAAAA		
Corroded, loose terminals	3	
AAAAA		Suggest repair or replacement.
Damaged	3	
AAAAA		

**KEYLESS ENTRY/KEY PAD/TRANSMITTER**

KEYLESS ENTRY/KEY PAD/TRANSMITTER		
AAAAA		
Condition	3	Procedure
AAAAA		
Inoperative/intermittent	3	Require repair or replacement.
AAAAA		
Malfunctioning	3	Suggest repair or replacement.
AAAAA		
Missing	3	Require replacement.
AAAAA		

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Missing, damaged mounting hardware      ⚠ Require repair or replacement  
of mounting hardware.

Corroded, loose terminals <sup>3</sup> Suggest repair or replacement.

AA  
 Damaged <sup>3</sup> Suggest replacement.

## SOUND SYSTEMS/WIRING HARNESS/CONNECTORS

## SOUND SYSTEMS/WIRING HARNESS/CONNECTORS

<div style="text-align:center;">Condition</div>						<div style="text-align:center;">3</div>						<div style="text-align:center;">Procedure</div>					
---	--	--	--	--	--	---	--	--	--	--	--	---	--	--	--	--	--

AA

Routed incorrectly<sup>3</sup> Suggest repair.

Shorted/open <sup>3</sup> Require repair or replacement.

Connector terminal problem (e.g., <sup>3</sup> Suggest repair or replacement.

```

bent, broken, corroded, loose)
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

[illegible]

```
Poor ground                                     3 Suggest repair.
```

Damaged <sup>3</sup> Suggest repair or replacement.

## RECEIVER/AMPLIFIER/SPEAKERS/EQUALIZER

## SUB-WOOFER VOLUME CONTROL

## RECEIVER/AMPLIFIER/SPEAKERS/EQUALIZER/SUB-WOOFER VOLUME CONTROL

Condition					
		3	Procedure		3
Note					

Inoperative                      3   Require repair or                      3

AAAAAAAAAAAAAAAAAAAAAAAAA	3	replacement	3
Intermittent	3		3

Malfunctioning                    3   Suggest repair or                    3

[illegible][illegible]

Missing, damaged	3	Require replacement	3
mounting hardware	3	of mounting hardware.	3

POOR sound quality      3    Further inspection      3    Make sure poor sound is

Pool sound quality	3	Make sure pool sound is
Further inspection	3	not caused by ignition/
	3	charging system or other

3 charging system or other  
3 forms of electrical  
3 interference

REFERENCES:

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```

Corroded, loose      3 Suggest repair or      3
terminals            3 replacement.          3
Damaged              3 Suggest replacement.  3

```

**TAPE/CD PLAYER**

```

TAPE/CD PLAYER
Condition            3 Procedure          3 Note
Inoperative          3 Require repair or      3
                    3 replacement          3
Intermittent         3 Suggest repair or      3
                    3 replacement.          3
Malfunctioning       3
Missing              3 Require replacement.  3
Missing, damaged     3 Require replacement    3
mounting hardware    3 of mounting hardware.  3
Poor sound quality   3 Further inspection     3 Make sure poor sound is
                    3 required.              3 not caused by ignition/
                    3                        3 charging system or other
                    3                        3 forms of electrical
                    3                        3 interference.
Corroded, loose      3 Suggest repair or      3
terminals            3 replacement.          3
Skips                 3
Incorrect speed      3
Damaged              3 Suggest replacement.  3

```

**WIPER SYSTEMS/MOTOR**

```

WIPER SYSTEMS/MOTOR
Condition            3 Procedure          3 Note
Inoperative/         3 Require repair or      3
intermittent         3 replacement.          3
Malfunctioning (e.g. 3 Suggest repair or      3
binding, worn, won't 3 replacement.          3

```

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**Article Text (p. 30)**

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return, etc.)	3	3
AA		
Missing	3	Require replacement. 3
AA		
Out of adjustment	3	Further inspection 3 Follow OEM recommended
	3	required. 3 adjustment procedures.
	3	3 Repair or replace if out
		3 of specification.
AA		
Leaking (vacuum/	3	Suggest repair or 3
fluid/air)	3	replacement. 3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 3		
Noisy	3	3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 3		
Corroded, loose	3	3
terminals	3	3
AA		
Missing, damaged	3	Require repair or 3
mounting hardware	3	replacement of 3
	3	mounting hardware. 3
AA		
Damaged	3	Suggest repair or 3
	3	replacement. 3
AA		

**LINKAGE/ARMS/BLADES**

LINKAGE/ARMS/BLADES		
AA		
Condition	3	Procedure
AA		
Inoperative	3	Require replacement.
AA		
Malfunctioning	3	Suggest repair or replacement.
AA		
Missing	3	Require replacement.
AA		
Missing, damaged mounting hardware	3	Require repair or replacement
	3	of mounting hardware.
AA		
Loose	3	
AA 3		
Noisy	3	Suggest repair or replacement.
AA 3		
Damaged	3	
AA		

**PUMP RESERVOIR**

PUMP RESERVOIR		
AA		
Condition	3	Procedure

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AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Leaks                                     3 Require repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Missing                                 3 Require replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Missing, damaged mounting hardware      3 Require repair or replacement
                                         3 of mounting hardware.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Damaged                                 3 Suggest repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

**HOSES/NOZZLES**

```

HOSES/NOZZLES
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Condition                               3 Procedure
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Leaks                                  3 Require repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Missing                               3 Require replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Missing, damaged mounting hardware     3 Require repair or replacement
                                         3 of mounting hardware.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Incorrect spray pattern                3 Suggest repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Blocked                               3 Require repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Damaged                               3 Suggest repair or replacement.
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

```

**PASSIVE RESTRAINT SYSTEMS**

FOR ALL SIR COMPONENTS AND CONDITIONS, CUSTOMER MUST BE REFERRED TO DIAGNOSIS AND PART REPLACEMENT.

**FACILITY ACCREDITATION PROGRAM**

The mission of the Motorist Assurance Program (MAP) is ... To promote trust and the assurance of customer satisfaction in the vehicle repair industry through education and the creation of industry guidelines. In continuing to fulfill its mission, MAP will be establishing a facility accreditation procedure to provide customers with some assurance that standards of service are being followed throughout the industry, and that when those standards are not met, there is a method for the customer to achieve satisfaction.

A repair facility which commits to participate in the program will be permitted to display the MAP Facility Accreditation Program sign. Display of the sign will notify the consuming public that they can have confidence in the inspection performed at the facility, and that any dispute over repairs or service will be resolved fairly.

Facilities participating in the MAP Accreditation Program

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must adopt and diligently adhere to MAP's Pledge to Customers and MAP's Standards of Service.

If you are interested in obtaining more information about the Accreditation Program when it is issued, please complete the form below and then FAX it to MAP headquarters at (202) 223 9569.

Please send me information about MAP's accreditation program as soon as it is available.

NOTE: To print information request for Facilities Accreditation Program, print portion of article between dashed lines.

-----

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Please send me information about MAP's accreditation program as soon as possible.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_ FAX \_\_\_\_\_

-----

**END OF ARTICLE**