

# AUDIO SYSTEM

## CONTENTS

	page		page
ANTENNAS .....	5	RADIOS .....	1
COMPACT DISC PLAYER .....	14	SPEAKERS .....	9

## RADIOS

### INDEX

	page		page
AA Body .....	1	Description .....	1
AC and AY Bodies .....	2	Interference Elimination .....	1
AG and AJ Bodies .....	2	Test .....	1
AP Body Replacement .....	2		

### DESCRIPTION

For operation of the factory installed standard and optional radios and the optional compact disc player, refer to the Sound Systems Operating Instructions Manual supplied with the vehicle.

All vehicles are equipped with an Ignition-Off Draw Connector which, is used when the vehicles are originally shipped from the factory. This connector which, is located near the battery, helps to prevent battery discharge during storage. For specific connector type and location, refer to Group 8W, Wiring Diagrams.

This connector is included in the radio memory circuitry and should be checked if the memory of time or radio station programming is inoperative.

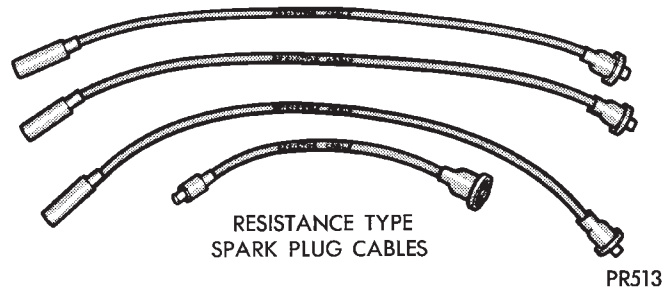
### INTERFERENCE ELIMINATION

Some components are used on vehicles equipped with a radio capacitor, to suppress radio frequency interference/static.

Capacitors are mounted in various locations, on the alternator either internal or external, internal to the instrument cluster, and internal to the windshield wiper motor.

Ground straps are mounted from radio chassis to cowl, engine to cowl, across engine mount on right hand side. On vehicles with air conditioning there is a strap from evaporator valve to cowl. These ground straps should be securely tightened to assure good metal to metal contact. Ground straps conduct very small high frequency electrical signals to ground and require clean large surface area contact.

Radio resistance type spark plug cables in the high tension circuit of the ignition system complete the interference suppression (Fig. 1).



**Fig. 1 Resistance Type Spark Plug Cables**

If radio noises are evident, be sure the capacitor lead wires are making good contact on their respective terminals and are securely mounted. Faulty or deteriorated spark plug wires should be replaced.

### TEST

Whenever a radio malfunction occurs, first verify that the radio wire harness is properly connected to all connectors before starting normal diagnosis and repair procedures. Refer to Radio Diagnosis Chart (Fig. 2) and/or Radio Connector Circuit Chart (Fig. 3).

### AA BODY

#### REMOVAL

- (1) Remove center bezel by pulling straight back disengaging the five clips.
- (2) Remove radio mounting screws (Fig. 4)

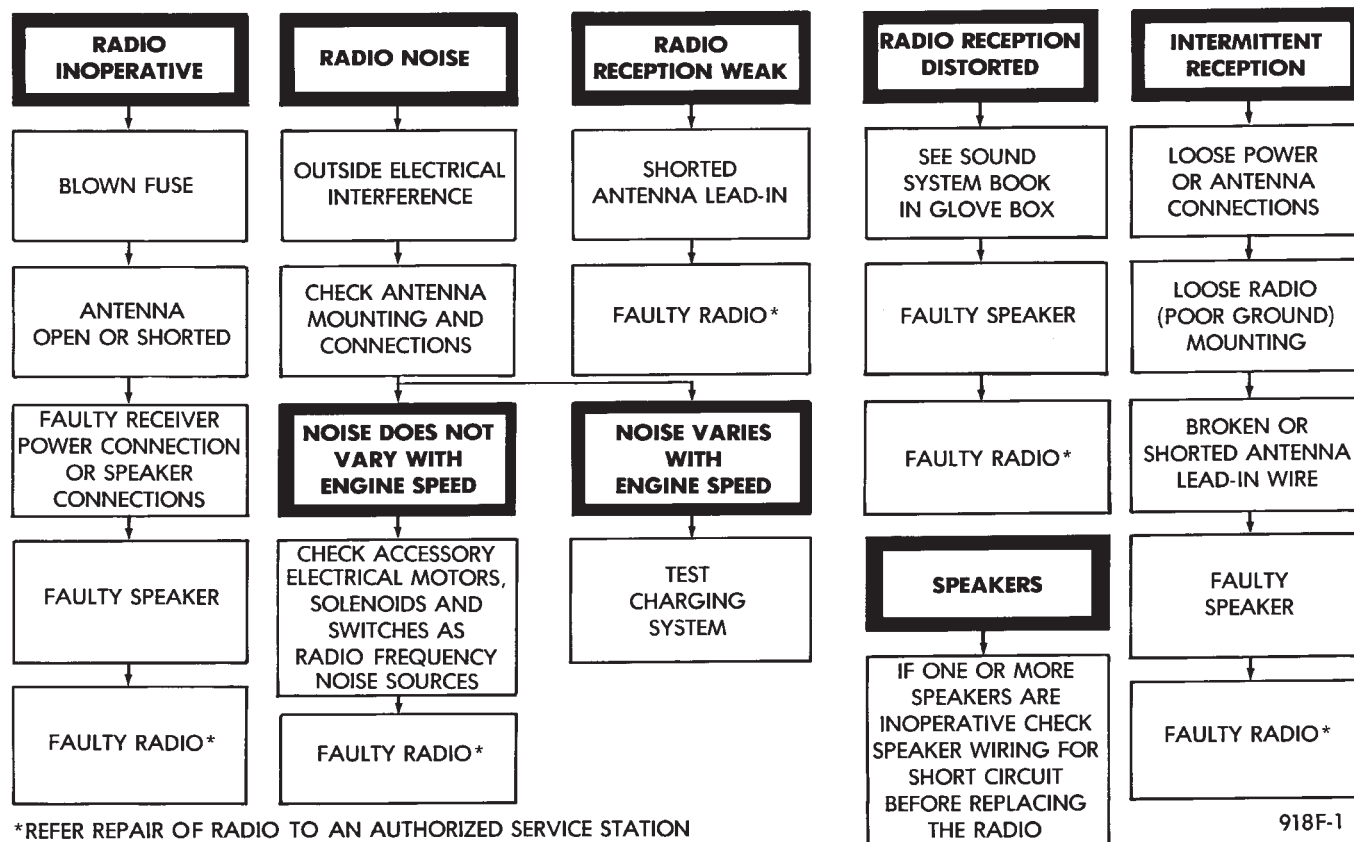


Fig. 2 Radio Diagnosis

(3) Pull radio from panel and disconnect wiring, ground strap and antenna lead from radio.

(4) Remove radio.

#### INSTALLATION

(1) Connect wiring, ground strap and antenna lead to radio.

(2) Position radio into panel, install mounting screws and tighten securely.

(3) Install center bezel.

#### AG AND AJ BODIES

##### REMOVAL

(1) Remove center instrument panel bezel by pulling toward the rear of the car (Fig. 5).

(2) Remove two screws attaching radio to console.

(3) Pull radio through front face of console, disconnect wiring harness, antenna lead, and ground strap.

##### INSTALLATION

(1) Position radio so that the wiring harness, antenna lead, and ground strap can be connected.

(2) Install two screws attaching radio to console.

(3) Install center bezel by pushing in until clips engage.

#### AC AND AY BODIES

##### REMOVAL

(1) Remove four cluster bezel screws (Fig. 6).

(2) Remove two radio attaching screws.

(3) Disconnect wiring connectors and antenna cable.

(4) Remove screw attaching ground strap.

##### INSTALLATION

(1) Secure ground strap with attaching screw.

(2) Connect wiring and antenna cable.

(3) Install radio and cluster bezel.

#### AP BODY REPLACEMENT

(1) Remove center module bezel (Fig. 7).

(2) Remove lower center module cover if equipped with base console.

(3) Remove right console side wall if equipped with full console assembly.

(4) Remove two mounting screws on the radio and pull out of instrument panel (Fig. 8).

(5) Disconnect wiring and antenna cable.

(6) Remove ground strap from radio.

(7) For installation reverse above procedures.

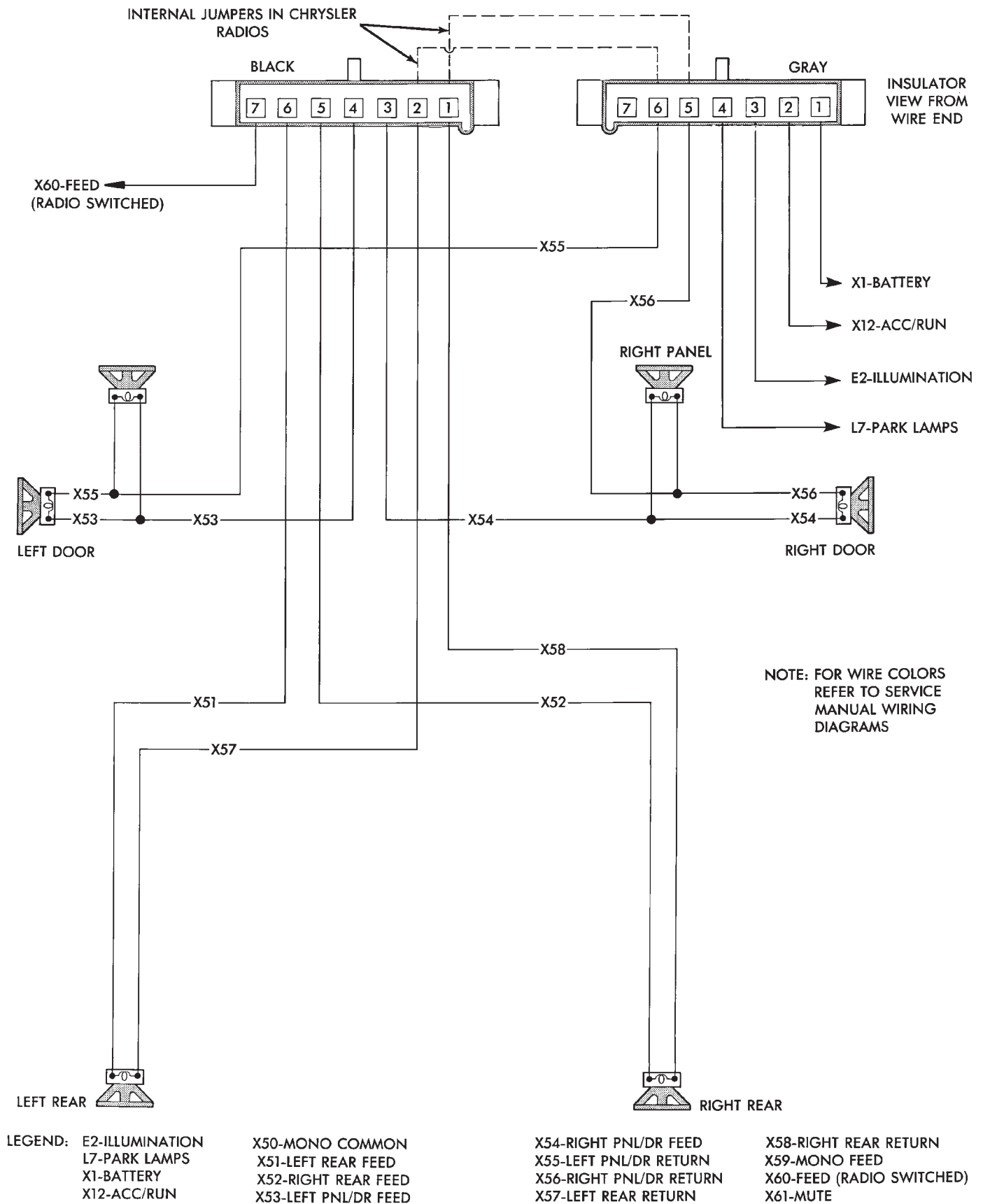
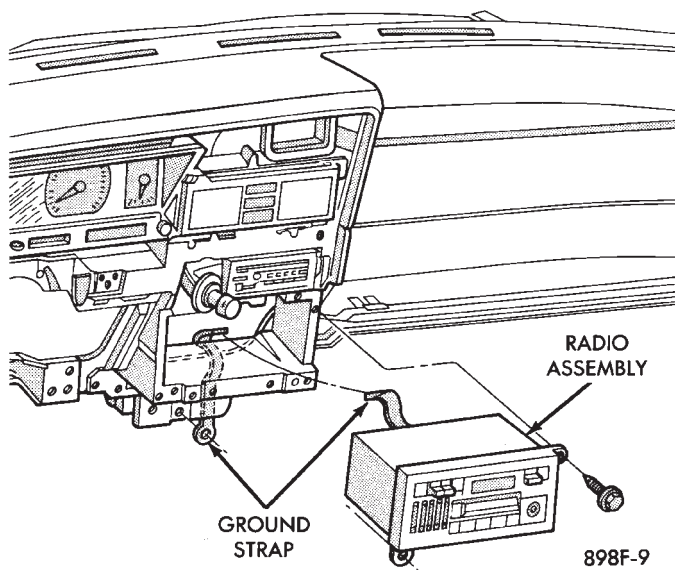
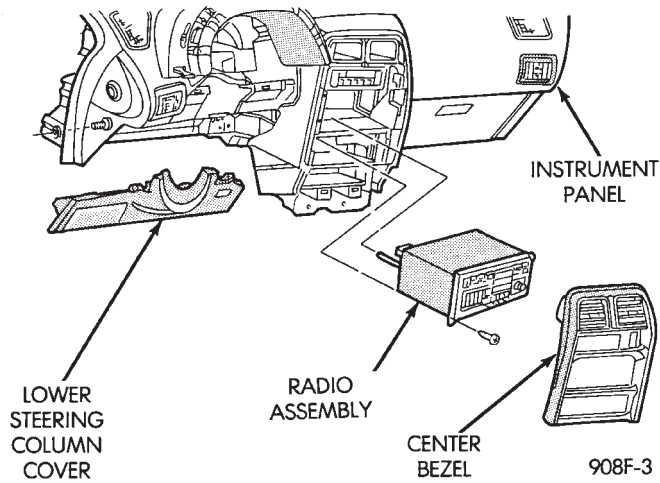


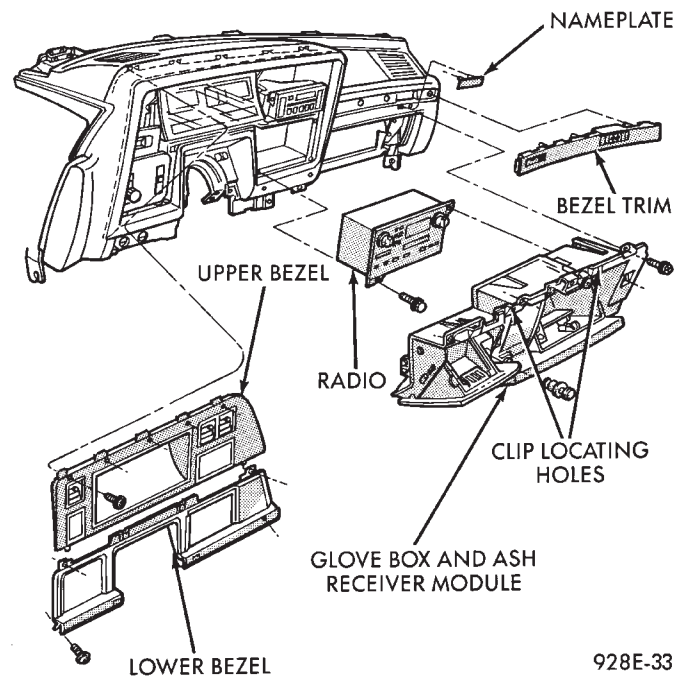
Fig. 3 Radio Connector Circuits



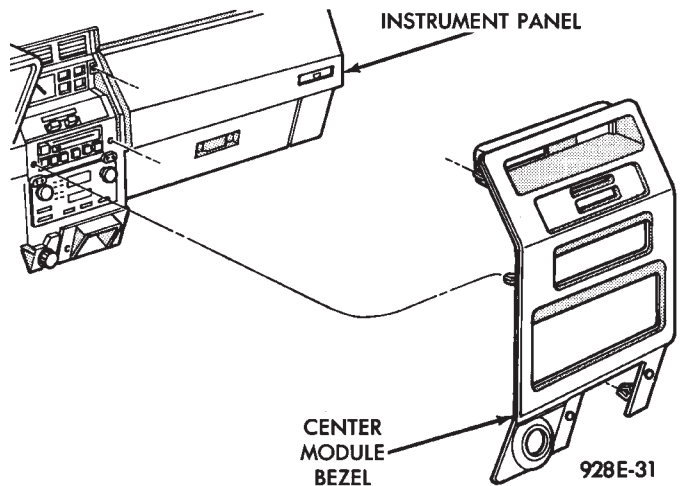
**Fig. 4 Radio Assembly—AA BODY**



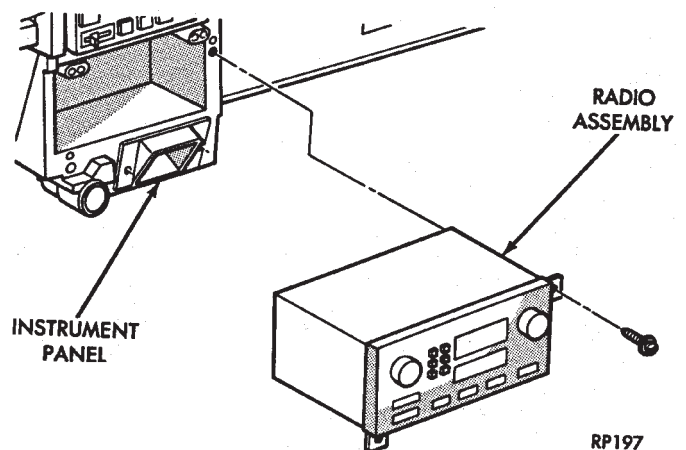
**Fig. 5 Radio Assembly—AG and AJ Bodies**



**Fig. 6 Radio Assembly—AC and AY Bodies**



**Fig. 7 Center Module Bezel**



**Fig. 8 Radio Assembly—AP Body**

## ANTENNAS

## INDEX

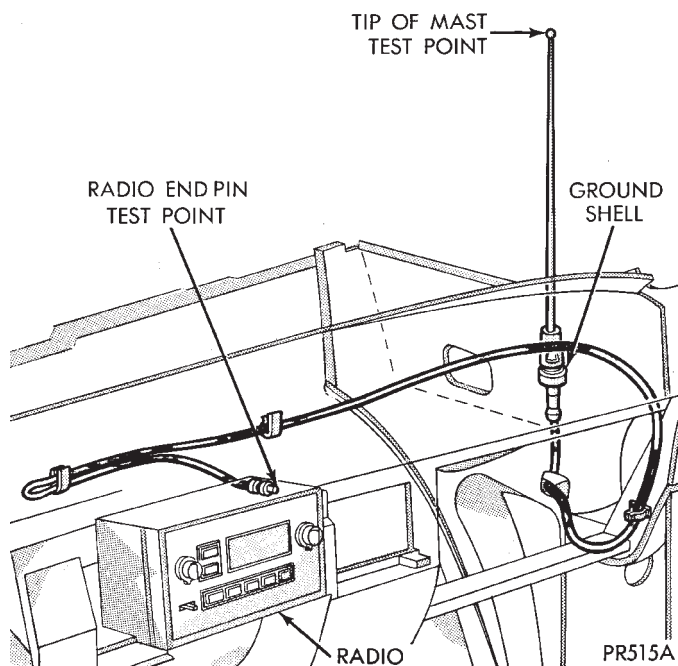
	page		page
Manual Antennas .....	5	Power Antenna Mast .....	8
Power Antenna .....	6		

## MANUAL ANTENNAS

## TESTING

Antenna performance may be tested by substituting a known good antenna. It is also possible to check short or open circuits with an ohmmeter or continuity light once the antenna cable is disconnected from the radio as follows:

(1) Continuity should be present between the antenna mast and radio end pin of antenna cable plug (Fig. 9 and 10).



**Fig. 9 Antenna Test Points**

(2) No continuity should be observed or a very high resistance of several megohms between the ground shell of the connector and radio end pin.

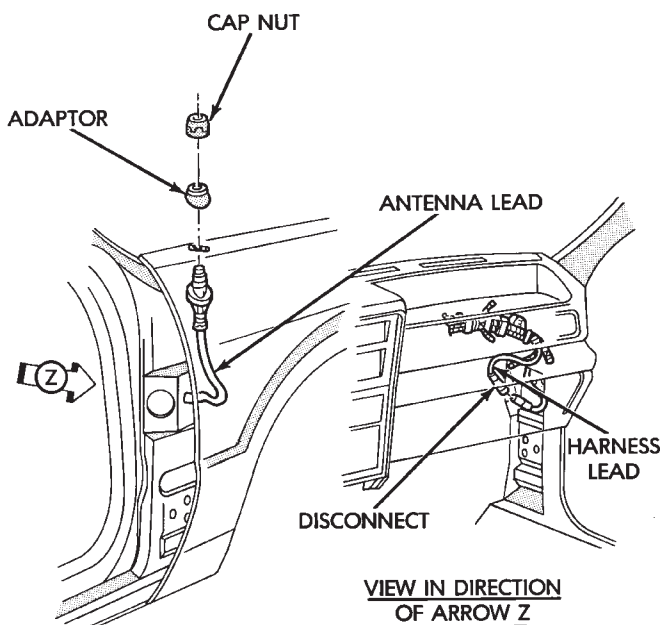
(3) Continuity should be observed between the ground shell of the connector and the mounting hardware on the vehicle fender.

## REMOVAL

AA and AC bodies have a short cable that plugs into the panel harness cable.

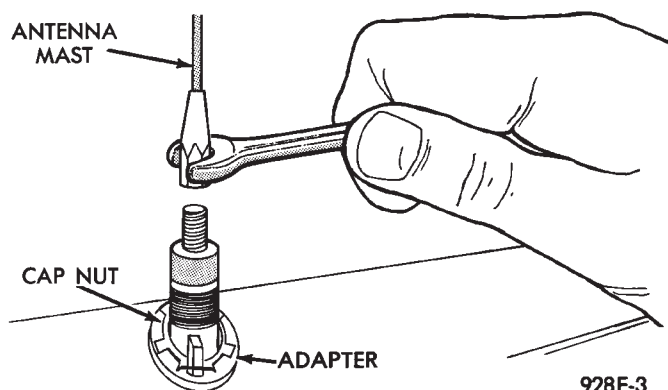
To remove antenna, the radio must be removed first. See radio removal. Except AA and AC bodies.

(1) Unplug antenna lead from radio receiver.



918F-4

**Fig. 10 Antenna Test Points—Two Piece Cable**



928F-3

**Fig. 11 Antenna Mast Removal and Installation**

(2) Remove antenna mast by unscrewing mast from antenna body (Fig. 11).

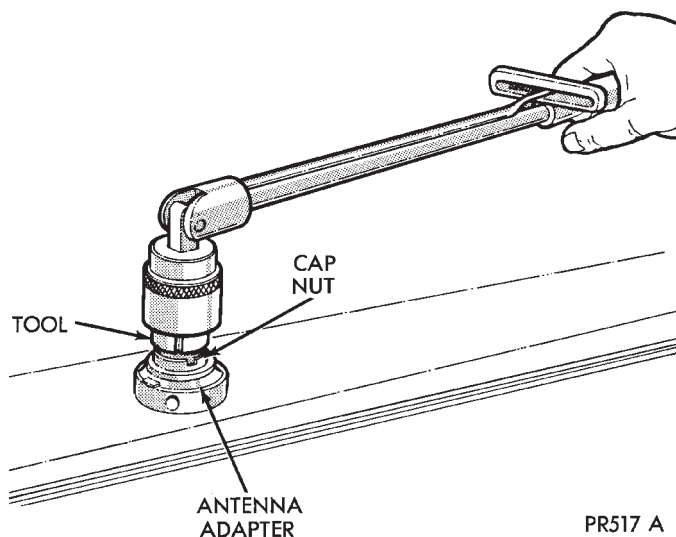
(3) Remove cap nut with Antenna Nut Wrench C-4816 (Fig. 12).

(4) Remove antenna adapter and gasket (Fig. 13).

(5) Unfasten three push pins from the rear of the plastic inner fender shield and bend the shield away to gain access to the antenna body.

(6) From under fender remove antenna lead and body assembly (Fig. 13).



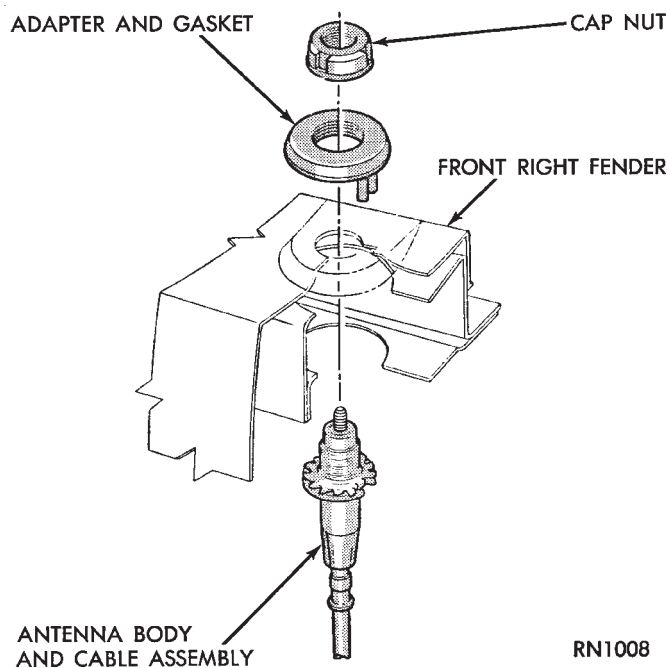


**Fig. 12 Removing or Tightening Antenna Cap Nut**  
INSTALLATION

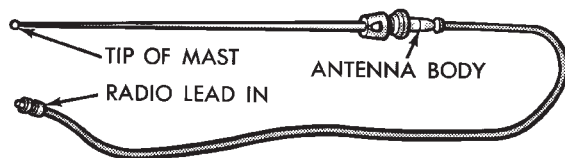
- (1) Install antenna body and cable from underneath fender (Fig. 13).
- (2) Install gasket, adapter, and cap nut. Tighten cap nut to 14 N•m (125 in. lbs.) with Antenna Nut Wrench C-4816.
- (3) Install antenna mast into antenna body until sleeve bottoms on antenna body (Fig. 11).
- (4) Route cable to radio if necessary.

#### BENCH TEST FOR ANTENNA MALFUNCTION

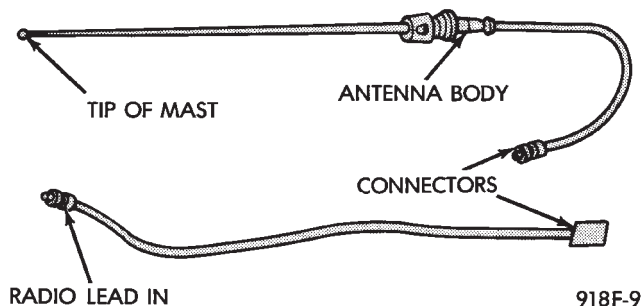
It is also possible to check short or open circuits with an ohmmeter or continuity light once the antenna has been removed from the vehicle.



**Fig. 13 Antenna Mounting**



**Fig. 14 Antenna Bench Test Points**



**Fig. 15 Antenna Bench Test Points—Two Part**

- (1) Continuity should be present between the tip of the mast and radio end pin (Fig. 14 and 15).
- (2) No continuity should be observed or a very high resistance of several megohms between the ground shell of the connector and radio end pin.
- (3) Continuity should be observed between the ground shell of the connector and the mounting hardware.

**Wiggle cable over its entire length to reveal intermittent short or open circuits during step 1, 2 and 3.**

#### POWER ANTENNA

##### OPERATION

The power operated radio antenna (Fig. 16) is a telescoping type antenna, extended and retracted by a reversible electric motor.

The Automatic Power Antenna is controlled by a combination of an external relay and limit switches which, are built into the antenna motor housing. This antenna is actuated when the radio is switched ON and with the ignition switch in ON or ACCESSORY positions the antenna mast should extend. When the ignition switch is turned OFF or the radio the antenna mast should retract fully and declutch.

Many antenna problems may be avoided by frequent cleaning of the antenna mast telescoping sections. Clean the antenna mast sections with a clean soft cloth.

Before an antenna is removed, the antenna performance should be tested to decide if it is a reception problem or an operational problem.

Whenever a operational malfunction occurs, first verify that the radio antenna wire harness is properly connected. Check all connectors before starting normal diagnosis and repair procedures. Refer to Power Antenna Electrical Diagnosis Chart (Fig. 17).

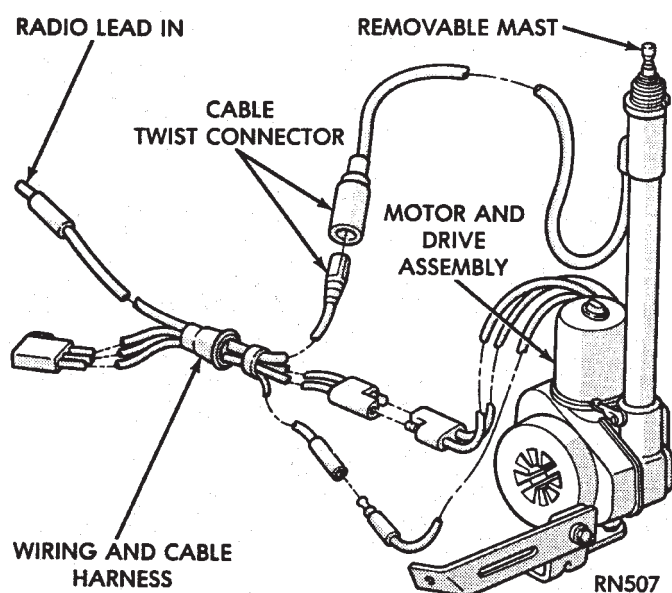


Fig. 16 Power Antenna Assembly

## TEST

## EXTEND OR RETRACT ANTENNA

(1) To extend antenna, attach the positive (+) lead of a 12 volt power source to the green antenna lead and the negative (-) lead to the gray antenna lead.

(2) To retract antenna attach the positive (+) lead of a 12 volt power source to the white antenna lead and the negative (-) lead to the green antenna lead.

(3) If the motor will not operate, replace the antenna assembly.

(4) If the motor runs freely and the antenna does not extend or retract, the mast or drive assembly is at fault.

(a) Remove the mast and verify that all the drive teeth are intact. If not replace mast.

(b) Check for a defective drive mechanism, if defective replace antenna assembly.

(5) If the mast jumps or travel rate is slow during operation or the motor labors.

(a) Check for bent mast. If bent replace mast.

(b) Check for dirty or corroded mast. If necessary clean and lubricate.

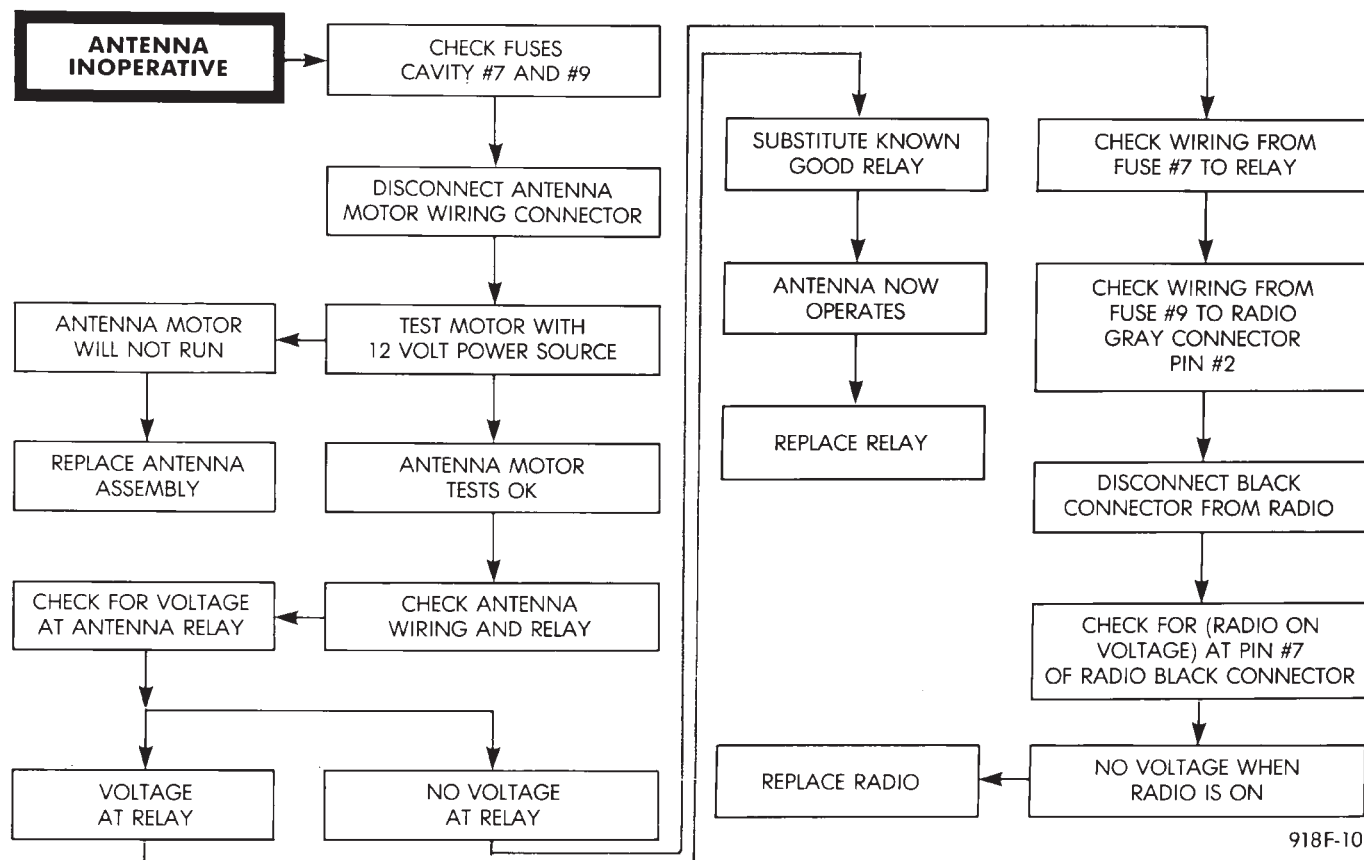
(c) If cleaning the antenna sections does not solve the problem, the antenna mast should be replaced.

(6) If mast fails to extend or retract completely, or motor continued to operate after full extension or retraction of mast.

(a) Check for broken teeth on the mast drive rod or bent mast.

(b) Check limit switches, replace if necessary.

(7) If the mast checks good, the antenna assembly should be replaced.



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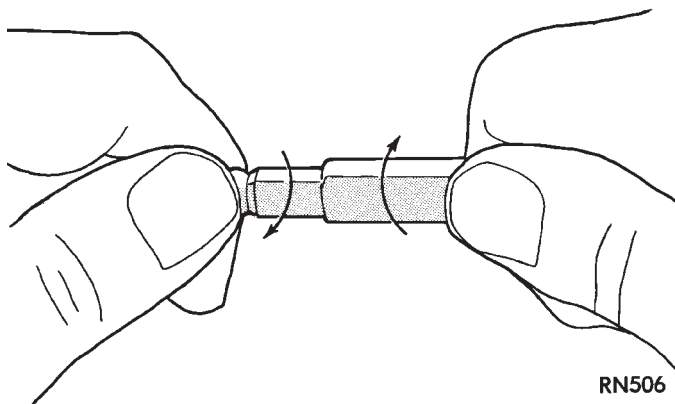
Fig. 17 Power Antenna Electrical Diagnosis

(8) Upon establishing that the fault is in the antenna assembly, it may be traced to one or more of the following conditions:

- (a) Broken lead-in wire or shielding.
- (b) Grounded lead-in wire or mast assembly.
- (c) Moisture in support tube or lead-in assembly.
- (d) Poor connection at antenna lead-in assembly or shielding ground.

#### REMOVAL

- (1) Disconnect battery negative cable.
- (2) Remove the right front fender splash shield fasteners and pull shield away from the wheel housing.
- (3) Disconnect motor leads at the connector (Fig. 16).
- (4) Disconnect lead-in cable by twisting at connector (Fig. 18).



**Fig. 18 Power Antenna Twist Connector**

- (5) Remove one screw attaching antenna to antenna brace (Fig. 19).
- (6) Remove cap nut on fender surface with Antenna Nut Wench C-4816 (Fig. 12).
- (7) Remove antenna from under fender.

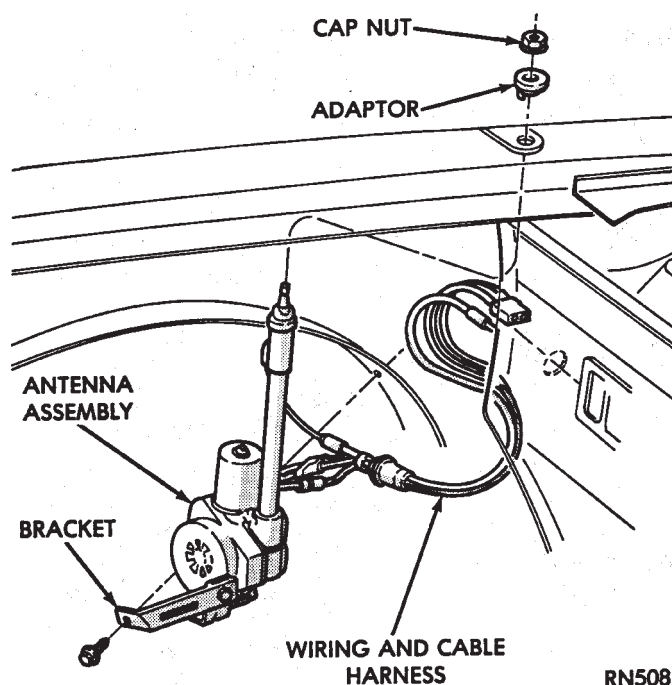
#### INSTALLATION

- (1) Position antenna under fender and through fender adaptor.
- (2) Replace and tighten cap nut to 14 N•m (125 in. lbs.) with Antenna Nut Wench C-4816.
- (3) Position antenna on antenna brace and install attaching screw. Tighten to 4 N•m (40 in. lbs.).
- (4) Connect antenna lead at twist connector.
- (5) Connect motor leads at connector.
- (6) Position right front fender splash shield and install attaching fasteners.
- (7) Connect negative battery cable and test operation of antenna.

#### POWER ANTENNA MAST

##### REMOVAL

- (1) Remove cap nut using Antenna Nut Wrench C-4816.

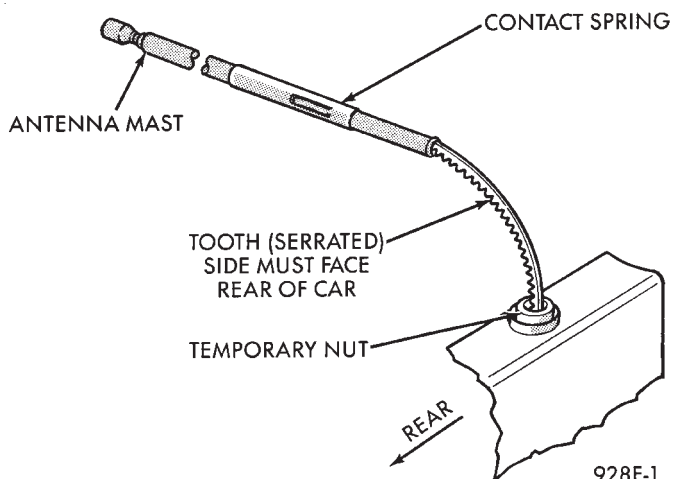


**Fig. 19 Power Antenna Mounting**

- (2) Install temporary nut provided with the replacement mast.
- (3) Turn ignition key to ACCESSORY position and turn on radio.
- (4) While the mast is moving up pull upward to remove mast and drive rod from the mast tube.

#### INSTALLATION

- (1) Insert new drive rod into mast tube with drive teeth toward antenna motor (Fig. 20).
- (2) Turn off radio and guide mast into tube. The mast may not be fully lowered when first installed.
- (3) Replace the temporary nut with the original cap nut and torque to 14 N•m (125 in. lbs.) using Antenna Nut Wench C-4816.
- (4) Turn radio on and off to extend and retract antenna. Mast should be fully lowered after recycling.



**Fig. 20 Power Antenna Mast**



## SPEAKERS

## INDEX

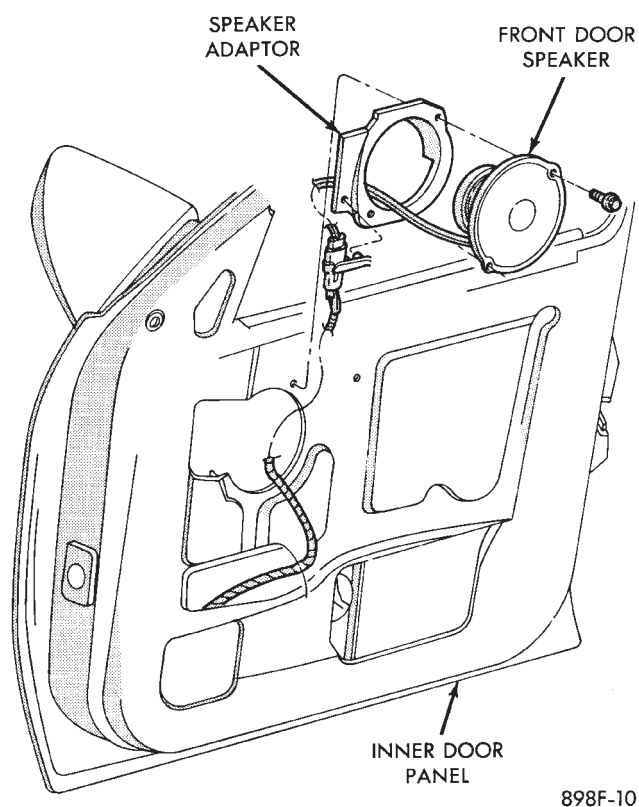
	page		page
AA Body .....	9	AP Body .....	11
AC and AY Bodies .....	12	Infinity Remote Amplifier—AC and AY Bodies .....	13
AG and AJ Bodies .....	9	Relay/Choke—Infinity Speaker .....	14

## AA BODY

**CAUTION:** Do not operate the radio with speaker leads detached. Damage to the transistors may result.

## FRONT DOOR MOUNTED SPEAKER REPLACEMENT

- (1) Remove door trim panel.
- (2) Remove speaker-adaptor retaining screws (Fig. 21).



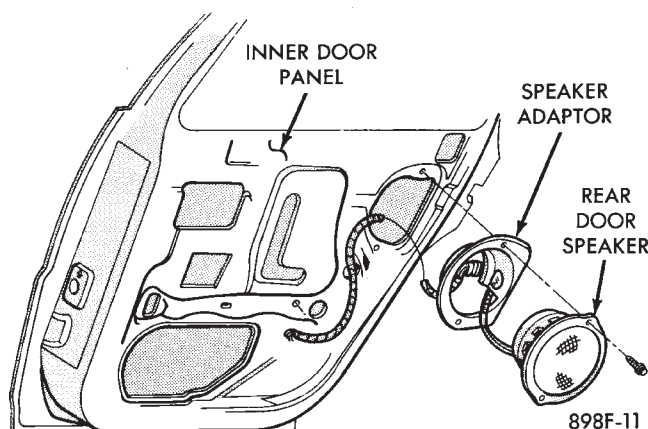
**Fig. 21 Front Door Mounted Speaker—AA Body**

- (3) Pull speaker away from door and disconnect wiring.
- (4) For installation reverse the above procedures.

## REAR DOOR MOUNTED SPEAKER REPLACEMENT

- (1) Remove door trim panel.

- (2) Remove speaker-adaptor retaining screws (Fig. 22).



**Fig. 22 Rear Door Mounted Speaker—AA Body**

- (3) Pull speaker away from door and disconnect wiring.
- (4) For installation reverse above procedures.

## AG and AJ BODIES

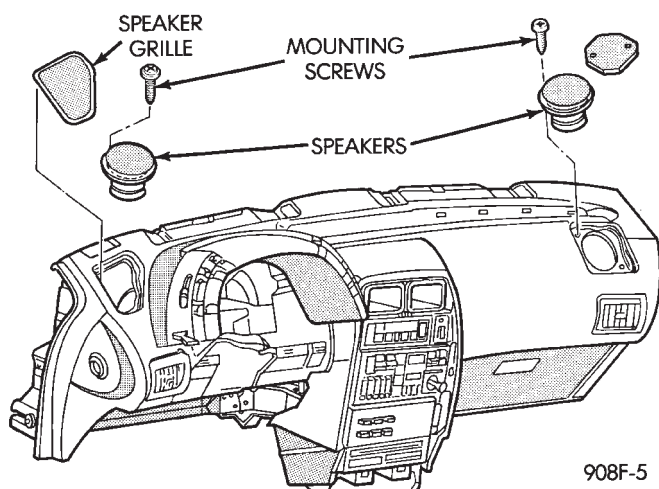
**CAUTION:** Do not operate the radio with speaker leads detached. Damage to the transistors may result.

## INSTRUMENT PANEL SPEAKERS REPLACEMENT

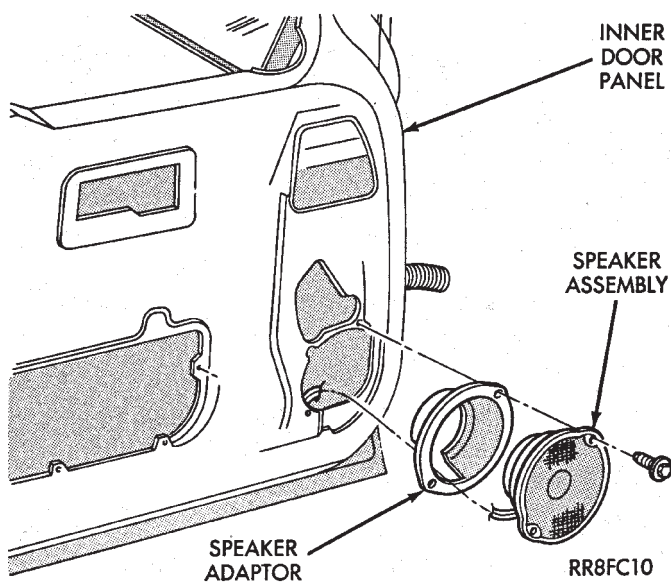
- (1) Remove instrument panel top cover (Fig. 23).
- (2) Remove two speaker retaining screws.
- (3) Lift speaker away from panel and disconnect wiring.
- (4) For installation reverse above procedures.

## FRONT DOOR MOUNTED SPEAKER REPLACEMENT—AG BODY

- (1) Remove door trim panel.
- (2) Remove two speaker-adaptor retaining screws (Fig. 24).
- (3) Pull speaker away from door and disconnect wiring.
- (4) For installation reverse above procedures.



**Fig. 23 Instrument Panel Speakers—AG and AJ Bodies**



**Fig. 24 Front Door Mounted Speaker—AG Body**

#### REAR SPEAKER REPLACEMENT—AG BODY

(1) Remove speaker grille by pulling away from quarter trim panel to disengage retaining clips (Fig. 25).

(2) Remove four speaker retaining screws.

(3) Pull speaker away from body and disconnect wiring.

(4) For installation reverse above procedures.

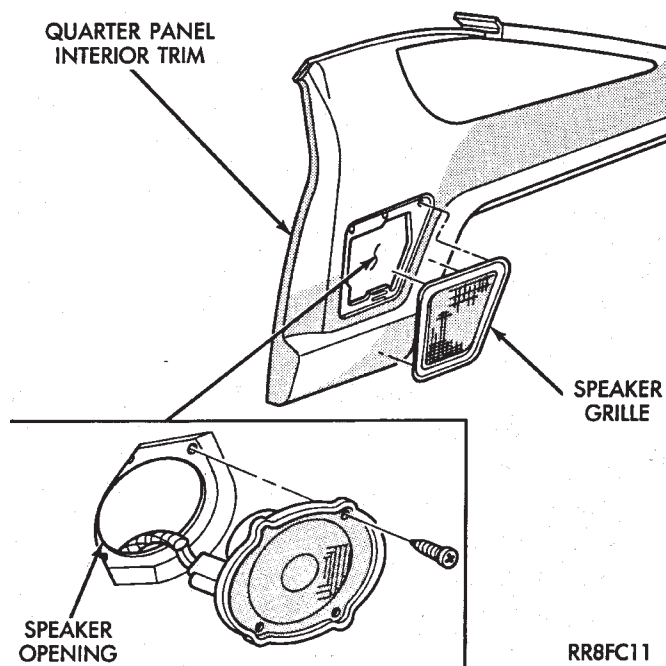
#### DOOR MOUNTED SPEAKER REPLACEMENT—AJ BODY

(1) Pull speaker grille away from door trim panel to disengage retaining clips (Fig. 26).

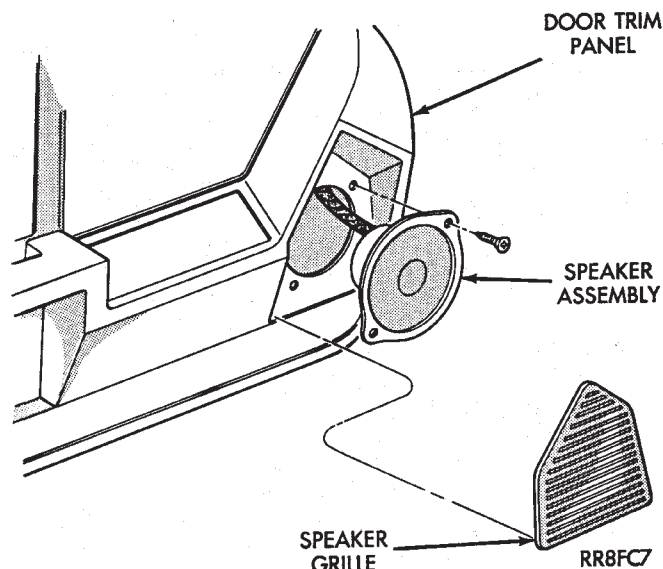
(2) Remove two speaker retaining screws.

(3) Pull speaker away from door and disconnect wiring.

(4) For installation reverse above procedures.



**Fig. 25 Rear Speaker—AG Body**



**Fig. 26 Door Mounted Speaker—AJ Body**

#### REAR SPEAKER REPLACEMENT—AJ BODY WITH 60/40 FOLDING REAR SEAT

(1) Remove 40-side seat back.

(2) Remove 60-side seat back.

(3) Remove outboard pivot brackets.

(4) Remove seat cushion.

(5) Remove quarter trim lower extension panel.

(6) Remove front seat belt turning loop and cover.

(7) Remove rear reading lamp.

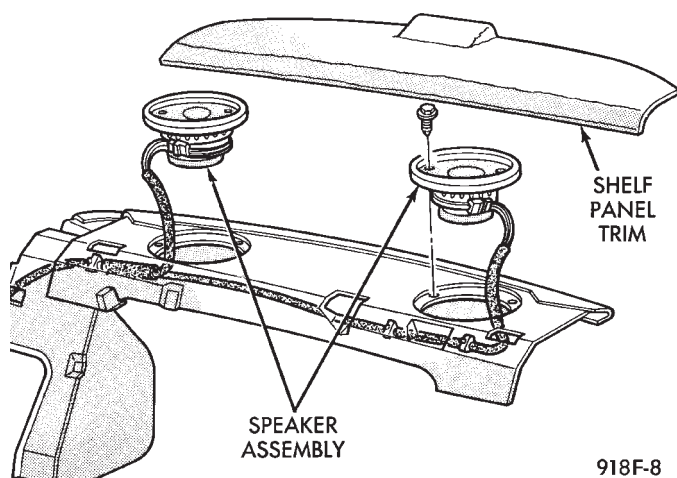
(8) Remove quarter trim panel.

(9) Remove two seat back latches.

(10) Pull out shelf trim side extension molding.

(11) Remove shelf trim center extension molding.

(12) Remove shelf trim panel (Fig. 27).



**Fig. 27 Rear Speaker—AJ Body**

(13) Remove four speaker retaining screws.

(14) Lift speaker away from shelf panel and disconnect wiring.

(15) For installation reverse above procedures. Be sure to position speakers so that terminals are pointing outward.

#### REAR SPEAKER REPLACEMENT—AJ BODY WITH FIXED SEAT BACK

- (1) Remove seat cushion.
- (2) Remove seat back.
- (3) Remove quarter trim panels.
- (4) Remove shelf trim panel.
- (5) Remove four speaker retaining screws (Fig. 27).
- (6) Lift speaker away from shelf panel and disconnect wiring.

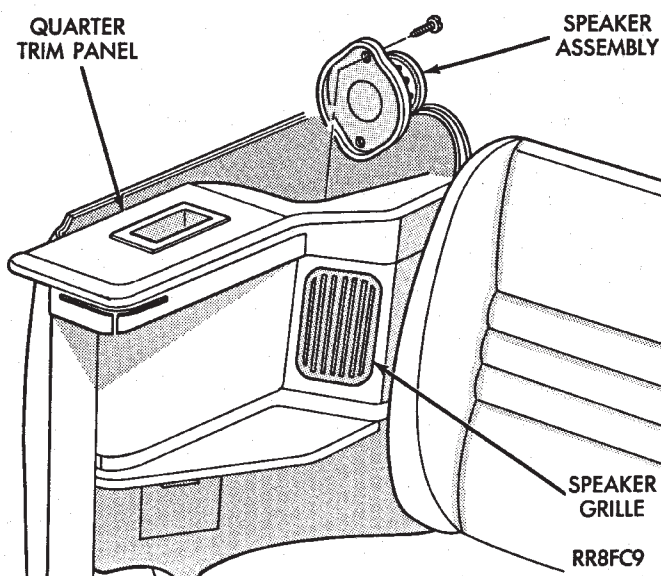
(7) For installation reverse above procedures. Be sure to position speakers so that terminals are pointing outward.

#### REAR SPEAKER REPLACEMENT—AJ BODY CONVERTIBLE

- (1) Move folding top to UP position.
- (2) Unsnap sling well from tacking strip and fold-out of the way to gain access to speaker.
- (3) Lower folding top to improve speaker accessibility.
- (4) Remove two speaker retaining screws (Fig. 28).
- (5) Disconnect wiring and pull out speaker.
- (6) For installation reverse above procedures.

#### AP Body

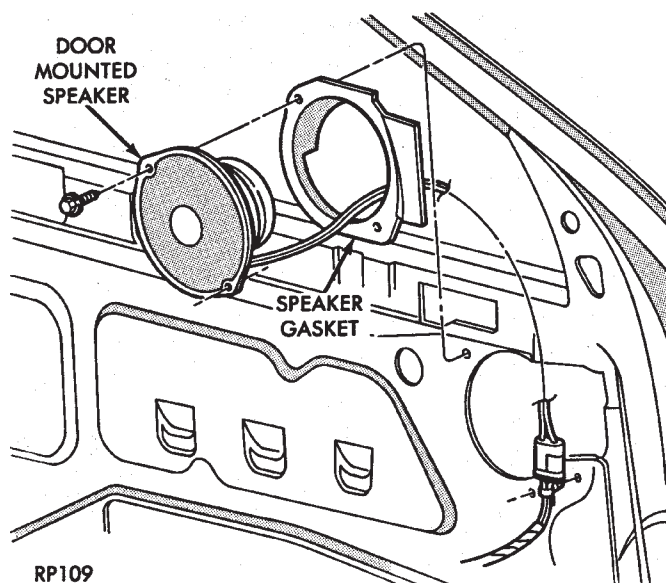
**CAUTION:** Do not operate the radio with speaker leads detached. Damage to the transistors may result.



**Fig. 28 Rear Speaker—AJ Body**

#### DOOR MOUNTED SPEAKER REPLACEMENT—AP BODY

- (1) Remove door trim panel.
- (2) Remove two screws holding speaker to inner door panel (Fig. 29).



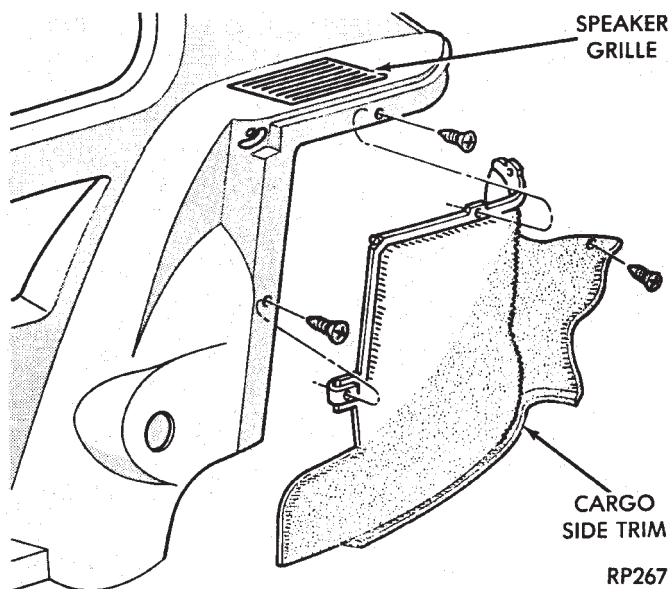
**Fig. 29 Door Mounted Speaker—AP Body**

- (3) Pull speaker out and disconnect wiring.
- (4) For installation reverse above procedures.

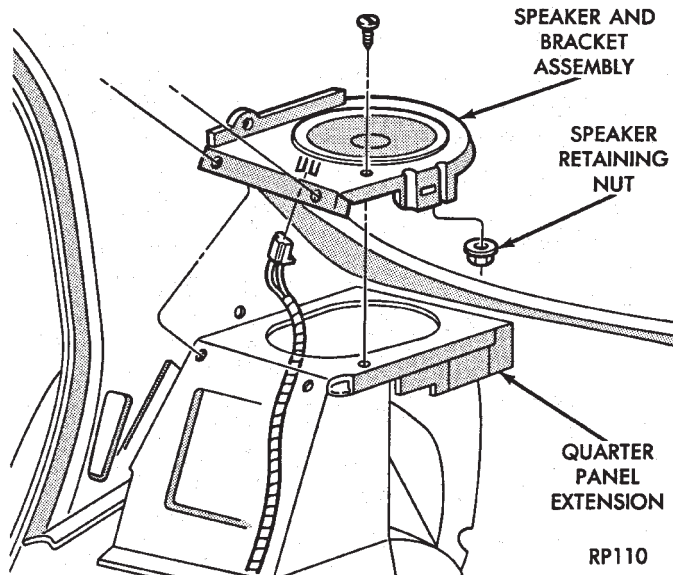
#### REAR MOUNTED SPEAKER REPLACEMENT—AP BODY

- (1) Remove cargo side trim panel (Fig. 30).
- (2) Reaching up underneath quarter panel extension, remove four speaker retaining nuts (Fig. 31).
- (3) Move speaker away from mounting bracket and disconnect wiring.





**Fig. 30 Cargo Side Trim Panel—AP Body**



**Fig. 31 Rear Mounted Speaker—AP Body**

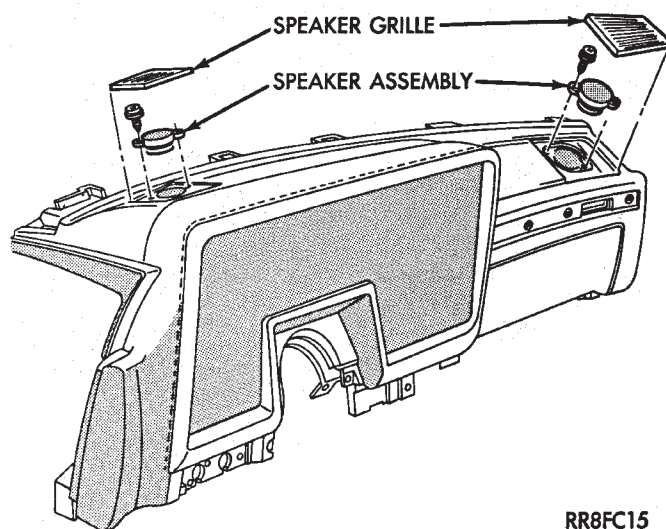
(4) For installation reverse above procedures.

## AC AND AY BODIES

**CAUTION:** Do not operate the radio with speaker leads detached. Damage to the transistors may result.

### INSTRUMENT PANEL SPEAKER REPLACEMENT

- (1) Carefully, pry speaker grille away from instrument panel (Fig. 32).
- (2) Remove two speaker retaining screws.
- (3) Lift speaker away from panel and disconnect wiring.

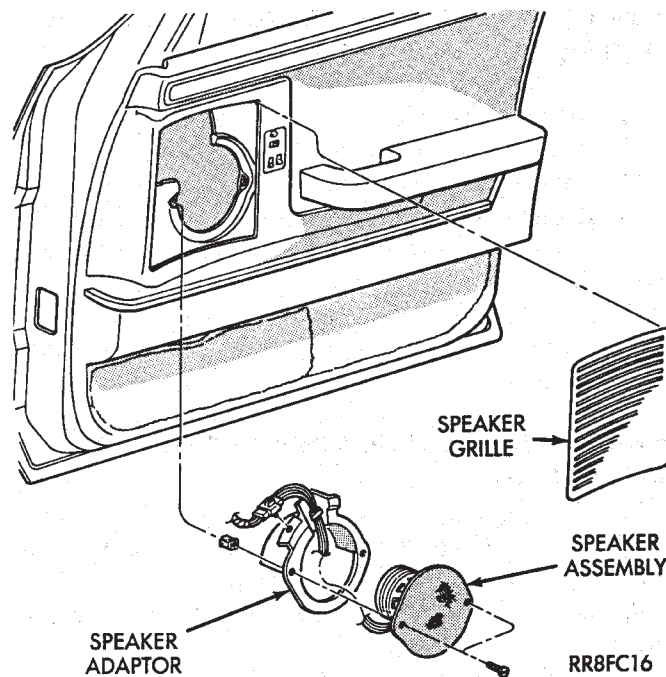


**Fig. 32 Instrument Panel Speakers—AC and AY Bodies**

(4) For installation reverse above procedures.

### DOOR MOUNTED SPEAKER REPLACEMENT—AC AND AY BODIES

(1) Carefully, pry speaker grille away from door trim panel (Fig. 33).

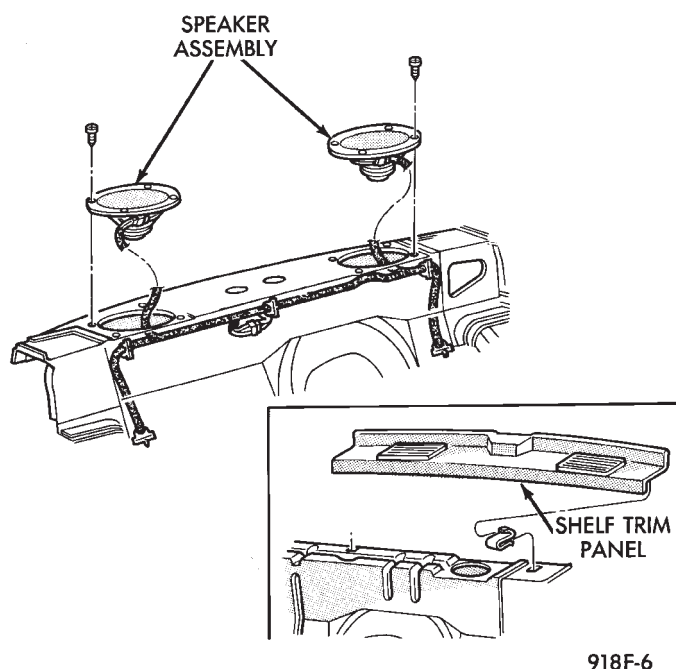


**Fig. 33 Door Mounted Speaker—AC and AY Bodies**

- (2) Remove two speaker retaining screws.
- (3) Pull speaker away from door and disconnect wiring.
- (4) For installation reverse above procedures.

## REAR SPEAKER REPLACEMENT—AC AND AY BODIES

- (1) Remove seat cushion.
- (2) Remove seat back.
- (3) Remove shelf trim panel (Fig. 34).



**Fig. 34 Rear Speakers—AC and AY Bodies**

- (4) Remove four speaker retaining screws.
- (5) Pull speaker away from shelf panel and disconnect wiring.
- (6) For installation reverse above procedures.

## INFINITY REMOTE AMPLIFIER—AC AND AY BODIES

The amplifier is located in the trunk on the rear seat bulkhead and the behind rear trim panel.

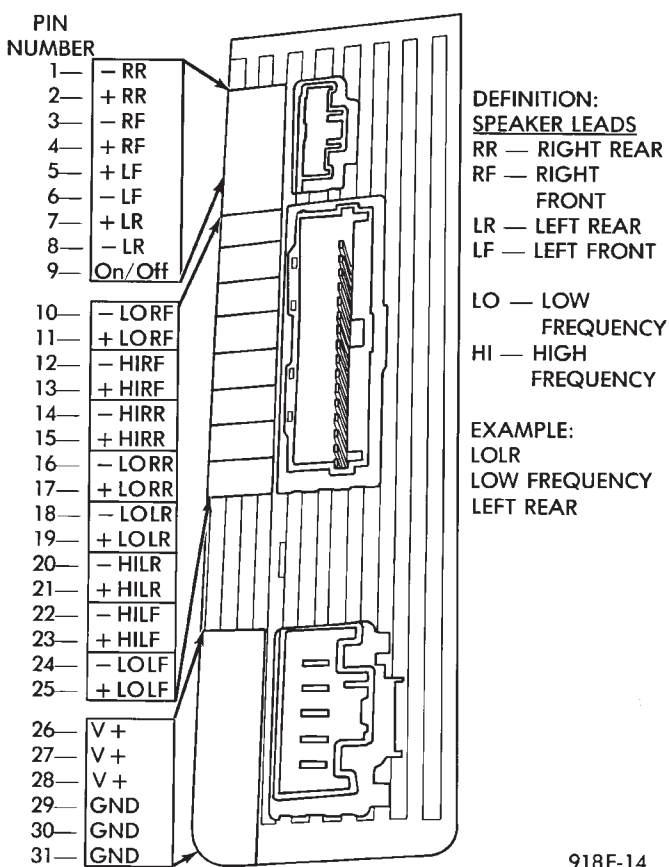
When the radio system is ON, and all or some speakers are not operating or have a noise distortion refer to the diagnostic tests. The amplifier has the pin connections list on the case (Fig. 35).

### CONDITION: NOISE DISTORTION IN ALL SPEAKERS

- Check battery voltage for 11 Volts or more
- Check amplifier connectors and wires for proper connection
- If OK check radio, refer to Radio Diagnosis
- If OK replace amplifier

### CONDITION: ELECTRICAL NOISE DISTORTION ONE SPEAKER

- Remove output signal connector from amplifier and check for short to ground on the speaker with the distortion. Refer to Fig. 35 for the appropriate pin numbers.



**Fig. 35 Amplifier Test**

- If shorted to ground disconnect speaker connector and recheck from the amplifier for short to ground.
- If still shorted to ground repair wires. Not shorted to ground replace speaker.
- No Short to ground, check speaker resistance at amplifier connector for three to five ohms.
- If resistance is OK refer to Radio Diagnosis. If radio checks OK replace amplifier.
- If resistance is less than three ohms check speaker. Less than three ohms replace speaker. If resistance is OK repair wires

### CONDITION: MECHANICAL NOISE DISTORTION

- Check trim for loose parts and speaker attachments for buzzes
- Remove speaker still connected and listen for distortion. Distortion replace speaker.

### CONDITION: ONE SPEAKER NON-OPERATIVE

- Remove output signal connector from amplifier and check for three to five ohms resistance to the non-operative speaker. Refer to Fig. 35 for the appropriate pin numbers.
- If resistance is less than three ohms, test speaker for resistance.
- If OK repair wire. If not replace speaker.



**CONDITION: ALL SPEAKERS NON-OPERATIVE**

- Check radio for being ON, are the display lights on
- Radio not ON, refer to Radio Diagnosis
- Check Amplifier Connectors and wires for proper connection
- Check pin 9 and pin 27 for battery voltage
- If voltage OK replace amplifier
- If pin 27 has battery voltage and pin 9 has 0 voltage. Refer to Power Antenna Diagnosis and test voltage at antenna relay.
- If pin 9 has battery voltage and pin 27 has 0 voltage. Check pin 27 for short to ground.
- If shorted to ground repair wire
- If no short to ground check fuse cavity number 16 for blown fuse.
- If fuse blows again replace amplifier

**RELAY/CHOKE—INFINITY SPEAKER**

No Bass, test across the connector for continuity. If no continuity Replace Relay/Choke Assembly (Fig. 36).

**COMPACT DISC PLAYER**

**WARNING: USE OF THE CONTROLS, ADJUSTMENTS, OR SERVICE PROCEDURES NOT SPECIFIED HERE OR IN THE OWNER MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. REPAIR PROCEDURES SHOULD ONLY BE PERFORMED BY A TRAINED TECHNICIAN.**

**DIAGNOSIS TEST**

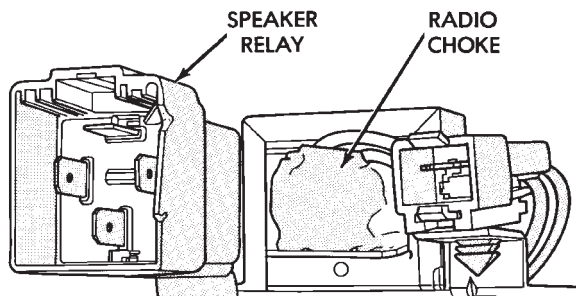
Power to the compact disc player is supplied by the radio through the CD interface cable. The compact disc player will only work with the radio system turned ON. When a compact disc is inserted with the label side facing up, the disc is automatically loaded and will begin to play.

The CD player may eject the disc with a display of E under the following conditions:

- The surface of the disc is dirty or wet
- The disc was inserted with the label side facing down

**LOCATION**

- (1) AA and AP Bodies attached to the reinforcement above glove box.
- (2) AG and AJ Bodies attached to the dimmer module bayonet bracket on the bulkhead behind the glove box.



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**Fig. 36 Relay/Choke Assembly**

- The disc is defective
- The CD player may skip or mute while playing a disc under severe vibration conditions example pot holes, railroad tracks, etc.
- If the CD player becomes too hot at temperatures above 60°C (100 °F) the CD player will shut down with a display of HOT until it cools down. Refer to the compact disc player diagnosis chart (Fig. 37).

**COMPACT DISC PLAYER REPLACEMENT**

- (1) Remove center instrument panel bezel by pulling toward the rear of the car.
- (2) Remove two screws attaching disc player to console (Fig. 38).
- (3) Pull disc player out of console and disconnect interface cable.
- (4) To install compact disc player, above the removal procedures.

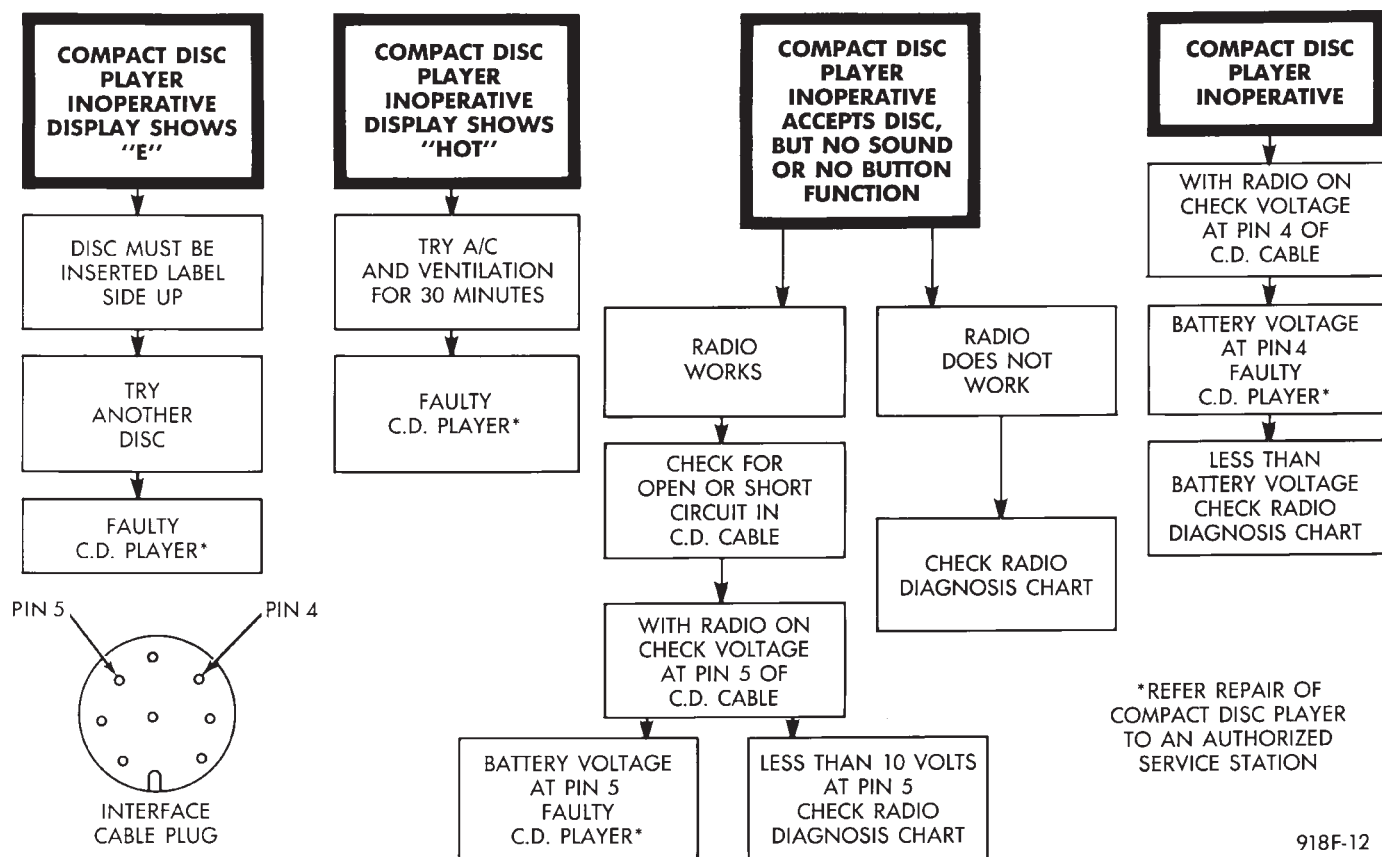


Fig. 37 Compact Disc Player Diagnosis

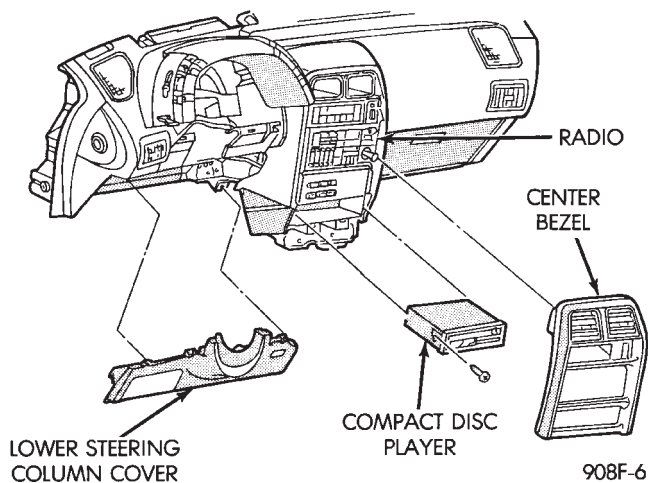


Fig. 38 Compact Disc Player

