GROUP

AUXILIARY EQUIPMENT 35

(17000 & 18000)

SECTION 35-01 Sound Systems

VEHICLE APPLICATION

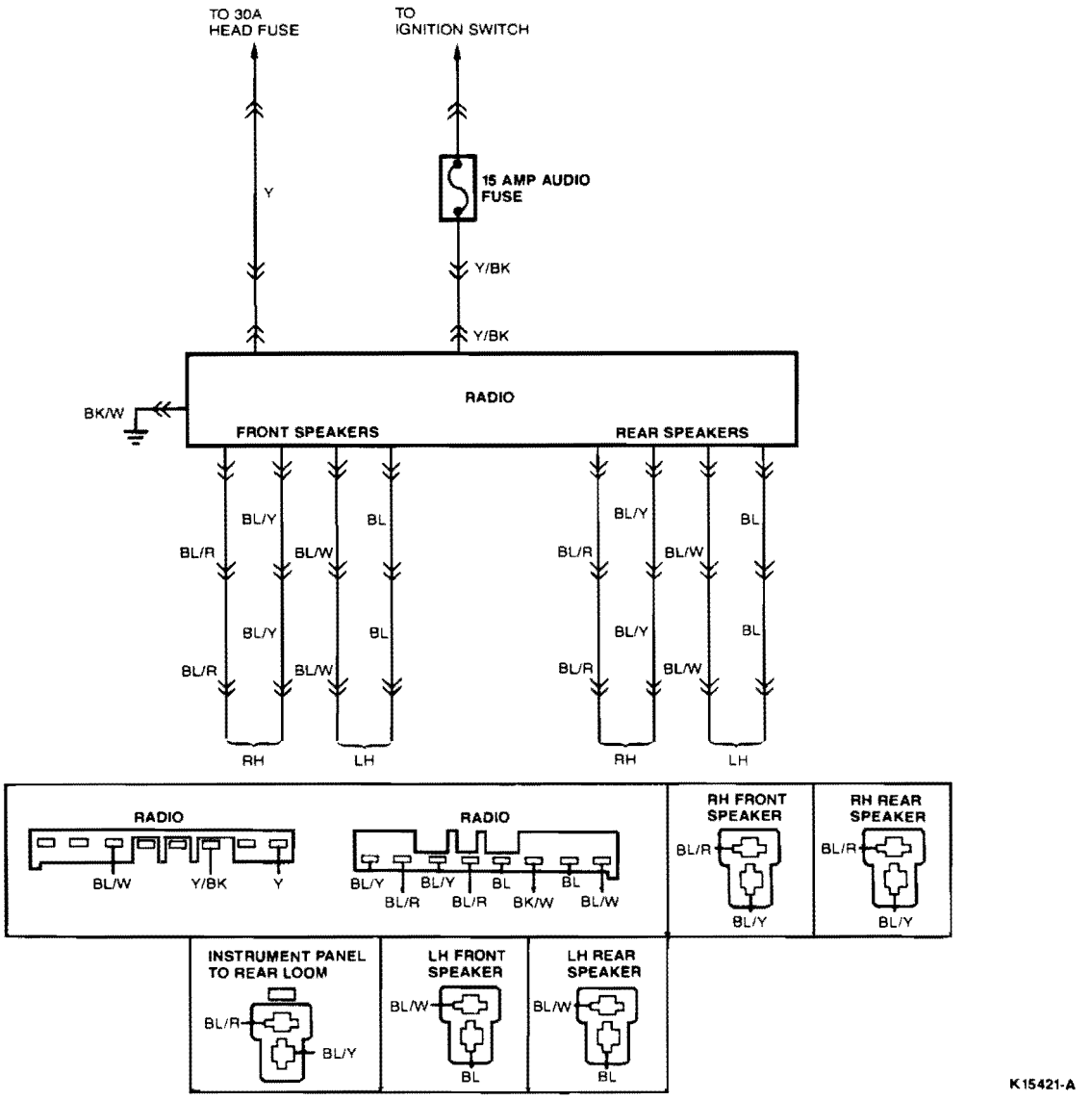
Capri.

DESCRIPTION AND OPERATION

The electronic AM/FM stereo radio includes advanced features; an optional cassette tape player with Dolby® noise reduction, and an optional Premium Sound Amplifier.

Each of these radios is electronically tuned.

DESCRIPTION AND OPERATION (Continued)



Premium Sound

The premium sound system is available with all stereo radios. The premium sound system contains a four-channel stereo amplifier.

Radio Reception

Tuning

Fine tuning is not required for the electronic radio.

The electronic radio automatically tunes to the center of any given station, eliminating the need for manual fine tuning.

Antennas and Mobility

Although an automobile radio will give excellent mobile reception, it is limited by the vehicle operating characteristics and certain geographical effects.

Interfering Noise

The vehicle ignition system is a source of radio interference. This high-voltage switching system produces a radio frequency electromagnetic field that radiates at AM, FM and CB frequencies, although components have been designed into the vehicle to minimize this problem. Vehicle electrical accessories and owner add-on accessories may also contribute to radio interference. There are also many noise sources which are external to the vehicle. These include power lines, communication systems, or other vehicles.

DESCRIPTION AND OPERATION (Continued)

Noise or static may result from many causes. Two of the most common sources of radio noise are listed below.

Ignition Noise

The most effective method of evaluating ignition noise is to compare the radio performance with engine running, versus engine off. If ignition noise is present with engine running:

- Make sure that the spark plug wires are the suppressor type and that the spark plugs are the correct resistor type.
- Make sure that the carbon center insert in the distributor cap is secure.

Missing or Faulty Noise Suppression Component

- Noise suppression components may be faulty or missing.
- Check bond strap grounding effectiveness by wedging a large file between metal components to ensure proper ground, such as between the tailpipe and body, or between the fender and frame, while the radio is playing and the engine is running. Listen for a decrease in the objectionable radio noise. If a reduction in radio noise is noted, first try tightening body and exhaust system clamps and brackets. If necessary, install a new bond strap between the two metal components to ensure proper ground.

FM Multi-Path Cancellation

This condition exists when the radio waves are reflected from objects or structures. The noise produced by cancellation is similar to flutter, with the addition of distortion in the program.

Stereo Indicator Lamp Inoperative or Flickering (AM and FM Reception are OK)

- Verify that the radio is tuned to stereo stations.
- A weak or distant signal may cause stereo indicator lamp to flicker. Tune radio to nearby FM stereo station. If reception is good, but stereo indicator lamp is still intermittent, remove radio chassis for service.
- Intermittent FM stereo indicator lamp operation is sometimes caused by a damaged AM/FM band switch. If normal operation can be restored by switching back and forth from AM to FM several times, radio should be removed for service. This condition should be noted on service tag.

Cassette Tape Player

Insert the tape cassette to play (radio on, ignition in RUN or ACC). At the end of the tape, the cassette automatically reverses and plays the other side of the tape. At any time the tape transport mechanism can be changed to play the other side of the tape by pressing the REVERSE button.

NOTE: Before turning off radio or ignition, always eject any cassette being played. Leaving the tape mechanism stopped while a tape is engaged can result in damage to the tape, or cassette player.

Operating Precautions

When inserting a tape cassette into the tape slot, it should be firmly pushed in and down to ensure that it is properly seated. Do not leave a tape cassette engaged in the tape player slot when not in use. Remove it completely to permit the door to close and keep out airborne dirt. Disengaging the cassette from the tape playback head in this manner will also prevent a flat spot from developing on the capstan roller.

Take care to protect the open edge of the cassette from damage, or contaminants. When not in use, store cassettes in their protective cases. Otherwise, there will be a risk of having the tape loosen on its hubs, which could cause the tape to spill or jam in the player. If a cassette is found with loose tape, make sure it is rewound firmly around the hubs before using it. Never try to open a cassette or try to pull the tape out of it.

Tape Player will Not Accept Cartridge, Eats Tape, Plays Too Fast or Too Slow, Etc. (AM and FM Operating Properly)

NOTE: Complaints about poor performance while using tapes usually indicates a dirty head in the tape deck. Poor fidelity of tape, low tape volume, garbled sound on tape, poor treble response or muffled sound are indications of a dirty head.

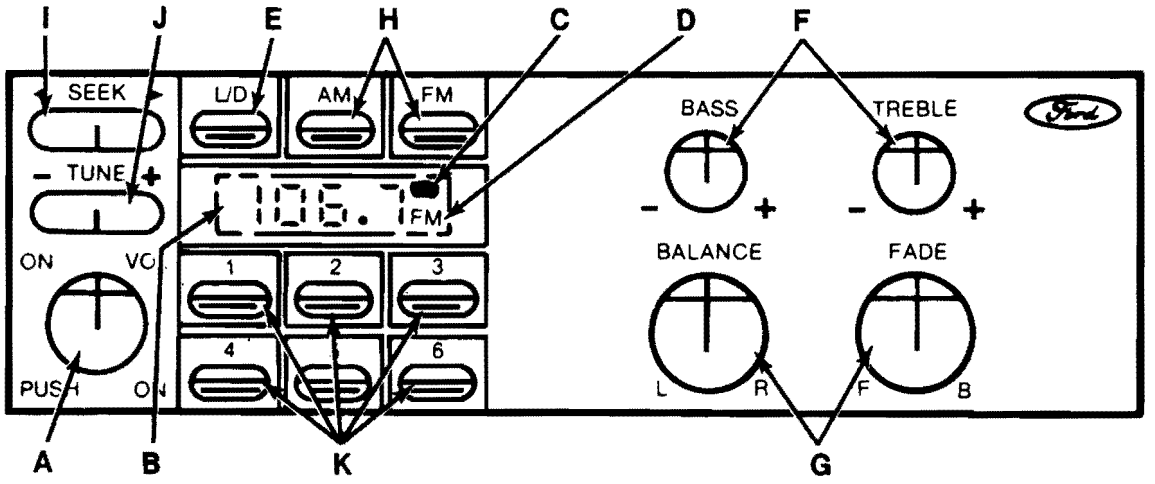
- Make sure tape cassette has not come to the end.
- Check operation of tape player by using a known good cassette.
- If condition is not corrected by substitution of known good cassette, radio chassis must be removed and sent to an authorized service facility for service.

WARNING: USE ONLY PROPERLY INSTALLED FCC APPROVED RADIO TRANSMITTING EQUIPMENT. USE OF OTHER TRANSMITTING EQUIPMENT MAY CAUSE THE VEHICLE TO MALFUNCTION OR STALL. IF THE ENGINE STALLS, POWER BRAKE AND POWER STEERING ASSIST WILL STOP. CONSULT AN AUTHORIZED DEALER BEFORE INSTALLING ANY RADIO TRANSMITTER.

AM/FM Multiplex Radio—ESR

The Electronic Search Radio (ESR) is mounted in the lower center console of the instrument panel.

DESCRIPTION AND OPERATION (Continued)



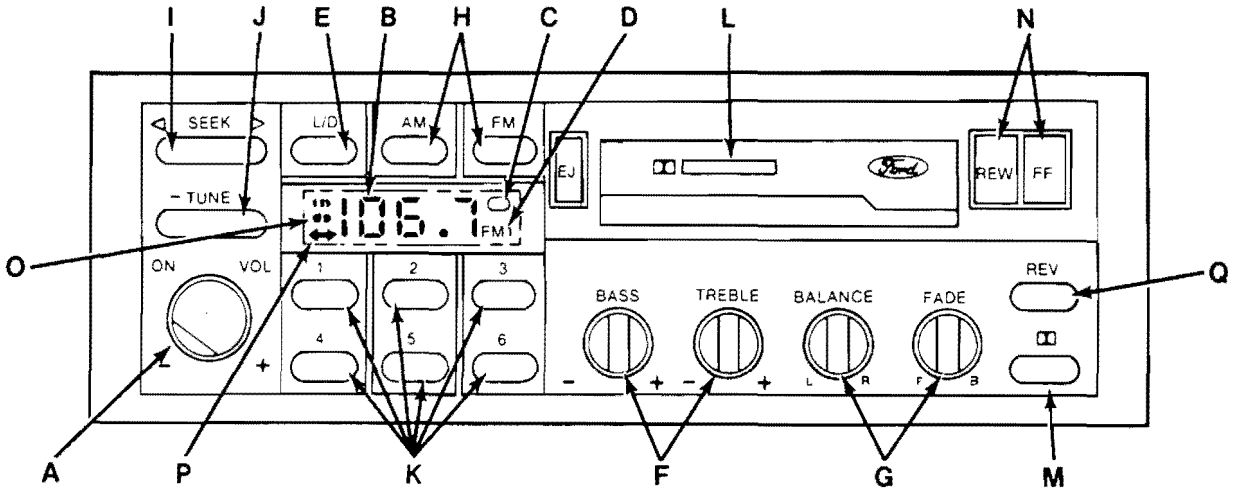
A. Power Switch / Volume Control
B. Station Frequency
C. Stereo Reception Indicator
D. AM / FM Band Selection Indicator
E. Local / Distant Switch
F. Bass / Treble Tone Control Knobs
G. Balance / Fader Control Knobs
H. AM / FM Band Selector

I. Seek Buttons
J. Tune Buttons
K. Memory Buttons

AM / FM Multiplex with Cassette Player

The Electronic Search Radio (ESR) with cassette player contains all of the same features of the ESR, with the added feature of a cassette player. All of the procedures used are identical for both systems.

DESCRIPTION AND OPERATION (Continued)



A. POWER SWITCH/VOLUME CONTROL
B. STATION FREQUENCY
C. STEREO RECEPTION INDICATOR
D. AM/FM BAND SELECTION INDICATOR
E. LOCAL/DISTANT SWITCH
F. BASS/TREBLE TONE CONTROL KNOBS
G. BALANCE/FADER CONTROL KNOBS
H. AM/FM BAND SELECTOR
I. SEEK BUTTONS
J. TUNE BUTTONS
K. MEMORY BUTTONS
L. TAPE DOOR
M. DOLBY* SYSTEM SELECTOR
N. FAST TRAVEL BUTTONS
O. DOLBY* SYSTEM INDICATOR
P. DIRECTION ARROW
Q. DIRECTION BUTTON
R. TAPE EJECTOR BUTTON

K114944-A

A. Power Switch / Volume Control. Push for ON. Push again to turn OFF. Turn control clockwise to increase volume, counterclockwise to decrease volume.

B. Station Frequency. Indicates tuned station frequency (dims when lights are on).

C. Stereo Reception Indicator. Indicates when radio is tuned to a station broadcasting in stereo.

D. AM / FM Band Indicator. Indicates which band has been selected.

E. Local / Distant Switch. Toggles between Local and Distant mode. Only displays LOC in local mode (distant mode not displayed). LOC mode is for use in metropolitan areas and only stops on strong signal stations.

F. Bass / Treble Tone Control. Bass—Rotate the control clockwise for more bass; counterclockwise for less bass. Treble—Rotate the control clockwise for more treble; counterclockwise for less treble.

G. Balance / Fader Controls. Balance—Adjusts the sound between the left and right sides of the vehicle. Fader—Adjusts the sound between the front and rear of the vehicle.

H. AM / FM Band Selector. Pushing AM enables the AM mode to be displayed. There are six AM memories. Pushing FM enables the FM mode. Pushing FM again will toggle between FM1 and FM2. There are six FM memories in FM1 and another six in FM2. FM1 or FM2 will be displayed.

I. Seek Buttons. Seek up or down to the next listenable station.

J. Tune Buttons. Tune up or down to the next channel (2 mHz in FM, 10 kHz in AM).

K. Memory Button. To store a station, depress the memory button and hold for two seconds (sound will disappear and come back after two seconds). To recall a station, depress the memory button and release.
Storing a Station in Memory. To set the memory button, use manual, seek or scan tuning to select the desired station. When the station is tuned, depress and hold a memory button. When the memory button is pressed, the station's sound will be interrupted for approximately two seconds. When the sound returns, the button is set and may be released. This process is repeated for each of the memory buttons.

DESCRIPTION AND OPERATION (Continued)

L. Tape Door. Insert tape cassette, open edge to the right, to PLAY (radio ON, ignition ON or ACC). Adjust the volume, tone and speaker balance as for radio programs. At the end of the tape, the cassette automatically reverses and plays the other side of the tape.

M. DOLBY® System Selector. Press for playing tapes recorded using the DOLBY® System. Press again to de-activate.

N. Fast Travel Buttons. If the direction of the arrows for the button pressed is the same as the direction of tape travel (indicator 17), the tape will fast advance the program being played. If the indicator and button arrows are opposite, the tape will fast rewind. To resume tape play, partially depress the EJECT button. This will interrupt the fast advance / rewind mode and allow the player to resume tape play.

O. DOLBY® System Indicator. Indicates DOLBY System activated when lit.

P. Direction Arrow. Indicates direction of tape travel.

Q. Direction Button. Press to change direction of tape travel.

R. Tape Ejector Button. Press to eject tape.

NOTE: Before turning off the radio or the ignition of the vehicle, always eject any cassette being played. Leaving the tape mechanism stopped while tape is engaged can result in damage to the tape, pinch roller, or capstan.

Hints on the Care and Operation of Tapes

TEMPERATURE EXTREMES: Be careful not to expose tape cassettes to intense sunlight or other temperature extremes. If they do become exposed to high or low temperatures, allow each cassette to reach a moderate temperature before playing them. During cold weather, it is advisable to take cassettes indoors overnight to protect them.

OPERATING PRECAUTIONS: When inserting a cassette into the tape slot, it should be firmly pushed into the tape slot, to ensure that it is properly seated.

Do not leave a tape cassette engaged in the tape player slot when not in use. Remove it completely to permit the slot door to close and keep out airborne dirt.

Take care to protect the open edge of the tape from damage or contaminants. When not in use, store tapes in their protective cases. If a cassette is found with loose tape, be sure it is rewound firmly around the hubs before using it.

Cassette tapes can vary in performance and size. If any one cassette gives continual trouble, discontinue using it.

For best results, use cassette tapes with no more than 90 minutes of playing time. The thinness of the tape used in C120 and C180 cassettes makes the tape more likely to stretch and break.

DIAGNOSIS AND TESTING

Visual Inspection

1. Visually inspect the components. Check for:

Electrical

a. Damaged fuse.

b. Loose connections.

c. Damaged wiring harness.

Mechanical

a. Damaged radio controls.

b. Damaged cassette tape.

2. Turn ignition key ON. Cycle radio between each speaker channel and observe radio function.

3. Briefly inspect the exposed wiring harnesses and connectors for apparent damage.

4. If a fault is not visually evident, determine condition and refer to the following chart.

CONDITION	POSSIBLE SOURCE	ACTION
• Radio Functions Not Working	• Radio. • Circuit.	• Go to **AS7** through **AS31** for function tests desired.
• Radio Has Noisy AM Reception	• Radio. • Antenna. • Noise suppression. • Hardware. • Circuit.	• Go to **AS31.**

DIAGNOSIS AND TESTING (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
• Radio Has Noisy FM Reception	• Radio. • Antenna. • Noise suppression. • Hardware. • Circuit.	• Go to **AS31.**
• Radio Has Weak Reception	• Radio. • Antenna. • Circuit.	• Go to **AS31.**
• Radio / Cassette Not Working or Intermittent	• Fuse. • Radio. • Circuit.	• Go to **AS25.**
• Left Front Speaker Not Working	• Radio. • Speaker. • Circuit.	• Go to **AS43.**
• Right Front Speaker Not Working	• Radio • Speaker. • Circuit.	• Go to **AS43.**
• Right Rear Speaker Not Working	• Radio. • Speaker. • Circuit.	• Go to **AS43.**
• Left Rear Speaker Not Working	• Radio. • Speaker. • Circuit.	• Go to **AS43.**

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS1	CHECK FUSE		
	• Locate interior fuse panel. • Check 15 amp audio fuse. • Is fuse OK?	Yes ▶ No ▶	GO to **AS4.** GO to **AS2.**
AS2	CHECK SYSTEM		
	• Replace blown fuse. • Key ON. • Did fuse blow again?	Yes ▶ No ▶	GO to **AS3.** GO to **AS4.**
AS3	CHECK FOR SHORTS TO GROUND		
	• Key OFF. • Disconnect the Y / BK wire from fuse panel. • Measure resistance of Y / BK wire to ground. • Is resistance less than 5 ohms?	Yes ▶ No ▶	SERVICE the Y / BK wire. GO to **AS4.**
AS4	CHECK SUPPLY TO RADIO		
	• Locate radio connector. • Key ON. • Measure voltage on Y / BK wire at the radio. • Is voltage greater than 10 volts?	Yes ▶ No ▶	GO to **AS5.** SERVICE Y / BK wire.
AS5	CHECK RADIO GROUND		
	• Key OFF. • Measure resistance of BK wire at radio connector to ground. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to **AS6.** SERVICE BK wire.
AS6	SYMPTOM MENU		
	• Radio functions not operating correctly. • Radio has weak reception. • One or more speaker(s) not working.	▶ ▶ ▶	GO to **AS7.** GO to **AS31.** GO to **AS43.**
AS7	AM INDICATOR TEST		
	• Push the band or AM button and observe that AM on display is lit. • Is AM indicator OK?	Yes ▶ No ▶	GO to **AS8.** REMOVE radio for service.
AS8	UP TEST		
	• Depress seek or scan button and verify that number on display increases. If display reads 1610 AM or 107.9 FM, display will not increase and the seek button should be depressed until display reads less than 1610 AM or 107.9 FM. • Does UP test function properly?	Yes ▶ No ▶	GO to **AS9.** REMOVE radio for service.
AS9	DOWN CHECK		
	• Depress seek button and verify that number on display decreases. If display reads 530 AM or 88.1 FM, display will not decrease and the seek button should be depressed until display reads greater than 530 AM or 88.1 FM. • Is down function OK?	Yes ▶ No ▶	GO to **AS10.** REMOVE radio for service.

DIAGNOSIS AND TESTING (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
AS10	FAST UP CHECK		
	• Push tune + button and hold.	Yes ▶	GO to **AS11.**
	• Is fast up OK?	No ▶	REMOVE radio for service.
AS11	FAST DOWN CHECK		
	• Push tune - button and hold.	Yes ▶	GO to **AS12.**
	• Is fast down working?	No ▶	REMOVE radio for service.
AS12	CHECK HEAD FUSE		
	• Locate main fuse panel.	Yes ▶	GO to **AS15.**
	• Check the 30 amp head fuse.		
	• Is fuse OK?	No ▶	GO to **AS13.**
AS13	CHECK SYSTEM		
	• Replace blown fuse.	Yes ▶	GO to **AS14.**
	• Did fuse blow again immediately?	No ▶	GO to **AS15.**
AS14	CHECK FOR SHORT TO GROUND		
	• Disconnect the Y wire at main fuse panel.	Yes ▶	SERVICE Y wire.
	• Measure resistance of Y wire between fuse panel and ground.	No ▶	GO to **AS15.**
	• Is resistance less than 5 ohms?		
AS15	CHECK SUPPLY TO MEMORY CIRCUIT		
	• Locate radio connector.	Yes ▶	GO to **AS16.**
	• Measure voltage on Y wire at the connector.	No ▶	SERVICE Y wire.
	• Is voltage greater than 10 volts?		
AS16	STATION RECALL MEMORY TEST		
	• Depress seek or scan tuning to select desired station. When station is tuned, depress and hold a memory button. When memory button is depressed, station's sound will be interrupted. Depress button for approximately two seconds. When station's sound returns, button is set and may be released. This process is repeated for each memory button. Turn radio off then on. Depress each station recall button and verify the stations indicated are the same as stations stored above.	Yes ▶	GO to **AS17.**
	• Is memory working?	No ▶	SERVICE / REPLACE radio.
AS17	FM INDICATOR CHECK		
	• Push the band or FM button and observe that FM on display is illuminated.	Yes ▶	GO to **AS18.**
	• Is FM indicator working?	No ▶	SERVICE / REPLACE radio.
AS18	FM STEREO INDICATOR TEST		
	• Tune radio to a known FM stereo station and observe that the stereo indicator lamp is on.	Yes ▶	GO to **AS19.**
	• Is stereo indicator lamp on?	No ▶	REMOVE radio for service.

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS19	VOLUME CONTROL TEST		
	• Tune radio to a local station. • Rotate volume control to the right and verify that an increase in the sound level occurs. Rotate volume control to left and verify a decrease in the sound level. • Does volume change for each direction?	Yes ▶ No ▶	GO to **AS20.** CHECK speaker connection and perform speaker test. Refer to Section 35-30. REPEAT volume vehicle test. If volume still is not OK, REMOVE radio to service. If volume OK, GO to **AS12.**
AS20	TONE CONTROL TEST		
	• Rotate bass control to right and verify that an increase in the low frequency content of the sound occurs. • Rotate treble control to right and verify that an increase in the high frequency content of the sound occurs. • Does content of sound change for each direction?	Yes ▶ No ▶	GO to **AS21.** REMOVE radio for service.
AS21	BALANCE CONTROL TEST		
	• Rotate balance control at speaker button (L or R) from left to right to verify that sound moves from LH speakers to RH speakers. • Is balance control working?	Yes ▶ No ▶	GO to **AS22.** CHECK speakers and speaker connections. REPEAT balance control test. If balance still is not OK, REMOVE radio for service. If balance OK, GO to **AS22.**
AS22	FADER CONTROL TEST		
	• Rotate fader control at speaker button (marked for F, B) and verify that sound moves from front speakers to rear speakers. • Is fader control working?	Yes ▶ No ▶	GO to **AS23.** CHECK speakers and connections. REPEAT fader control test. If fader is not OK, REMOVE radio for service. If fader is OK, GO to **AS23.**
AS23	SEEK TEST		
	• Depress seek button and verify that radio stops on next station. • Is seek button working?	Yes ▶ No ▶	GO to **AS24.** TURN radio off and then on to determine if seeking stops. If seek does not stop, REMOVE radio for service. If seek does stop, GO to **AS24.**

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS24	SCAN TEST		
	• Tune radio on AM band (should be done outside of any building). Press scan button and count the number of listenable stations that can be tuned. Compare to a vehicle with a known, good radio system.	Yes ▶	GO to **AS25.**
		No ▶	PERFORM antenna system check. Refer to Section 35-10. REPEAT scan test. If still not receiving normal number of stations REMOVE radio from vehicle and have serviced. If normal number of stations received GO to **AS25.**
	• Is radio receiving a normal number of stations?		
AS25	CASSETTE CHECK (NO SOUND FROM ANY SPEAKER WITH RADIO ON)		
	• Key ON, radio ON.	Yes ▶	GO to **AS26.**
	• Observe radio for digital display.	No ▶	GO to radio not working or intermittent.
	• Is display on?		
AS26	CASSETTE FUNCTION TEST (CASSETTE TAPE WILL NOT LOAD)		
	• Insert known good cassette tape into cassette.	Yes ▶	PERFORM cassette tape loading procedure with customer present. GO to **AS27.**
	• Does cassette tape load?	No ▶	CHECK cassette tape for damage or loose labels. If no damage or loose labels are evident SERVICE / REPLACE radio.

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS27	CASSETTE FUNCTION TEST (CASSETTE TAPE WILL NOT PLAY)		
	• Load a known good cassette tape into cassette.	Yes ▶	< Play symbol is present on radio display and sound is at all speakers. PERFORM play procedure with customer present. GO to **AS28.**
	• Observe cassette operation and that < play symbol is present in the lower left corner of radio display.		
	• Is < play symbol present and is there sound from all speakers?	Yes ▶	> Play symbol is present on display: no sound or partial sound from speakers. GO to radio procedure for indicated problem.
		Yes ▶	Sound is OK: No < play symbol on radio display. SERVICE / REPLACE radio.
		No ▶	Sound or < play symbol not present. SERVICE / REPLACE radio.
AS28	CASSETTE FUNCTION TEST (CASSETTE TAPE WILL NOT REWIND)		
	• Load a known good cassette tape into cassette.	Yes ▶	> Rewind symbol is present on display and tape rewinds. PERFORM rewind procedure with customer present. GO to **AS29.**
	• Push rewind (RR) button in.		
	• Is > rewind symbol present in the lower left corner of display?	Yes ▶	Tape rewinds: No > rewind symbol is present. SERVICE / REPLACE radio.
		Yes ▶	> Rewind symbol is on display: Tape will not rewind. SERVICE / REPLACE radio.
		No ▶	> Rewind symbol is not on display and tape will rewind. SERVICE / REPLACE radio.

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS29	CASSETTE FUNCTION TEST (CASSETTE TAPE WILL NOT FAST FORWARD)		
	• Load a known good cassette tape into cassette.	Yes ▶	< Play symbol is on display and tape is fast forwarding. PERFORM fast forwarding procedure with customer present. GO to **AS30.**
	• Push fast forward button in.		
	• Is < play symbol present on radio display and tape fast forwarding?	Yes ▶	Cassette tape fast forwards: No < play symbol on radio display. SERVICE / REPLACE radio.
		Yes ▶	< Play symbol is on radio display: Tape will not fast forward. SERVICE / REPLACE radio.
		No ▶	< Play symbol is not on display and tape will not fast forward. SERVICE / REPLACE radio.
AS30	CASSETTE FUNCTION TEST (CASSETTE TAPE WILL NOT EJECT)		
	• Load a known good cassette tape into cassette.	Yes ▶	PERFORM eject procedure with customer present.
	• Push eject button in.		
	• Does cassette tape eject?	No ▶	CHECK cassette door area for foreign objects. If nothing is found, SERVICE / REPLACE radio.
AS31	CHECK ANTENNA CABLE CONNECTIONS		
	• Check antenna cable connections including extension cable, if so equipped.	Yes ▶	GO to **AS32.**
	• Connection must be clean and secure.	No ▶	CLEAN and / or SECURE antenna cable connections as required.
	• Are connections OK?		
AS32	SUBSTITUTE ANTENNA EXTENSION CABLE		
	• Substitute a known good antenna cable.	Yes ▶	REPLACE antenna extension cable.
	• Verify operation of radio.		
	• Is noise eliminated?	No ▶	GO to **AS33.**

DIAGNOSIS AND TESTING (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
AS33	CHECK ANTENNA MOUNTING		
	• Check to make sure antenna is securely mounted to body at ground points. (Manual antenna-mounting screws to fender, and that prongs of grounding collar at fender underside are contacting metal.) Contacts must be clean and metal-to-metal. • Are mounting contacts OK?	Yes ▶ No ▶	GO to **AS34.** CLEAN and / or SECURE connections as required.
AS34	SUBSTITUTE ANTENNA		
	• Substitute a known good speaker and antenna, making sure to ground antenna base to an unpainted metal surface. • Verify operation of radio. • Is noise eliminated?	Yes ▶ No ▶	REPLACE / SERVICE speaker or antenna. GO to **AS35.**
AS35	CHECK SUPPRESSION EQUIPMENT		
	• Check for presence of all required suppression equipment, body grounding strap for security, cleanliness and metal-to-metal connection. • Is suppression equipment OK?	Yes ▶ No ▶	GO to **AS36.** INSTALL missing or damaged equipment and / or CLEAN connections as required.
AS36	CHECK MOUNTING AND CONNECTING WIRES OF FOLLOWING COMPONENTS		
	• Check the mounting and connecting wires of the alternator's voltage regulator capacitor, if so equipped, and ignition coil capacitor for secureness, cleanliness, metal-to-metal contact (Refer to Group 31 and Group 23.) **NOTE: The capacitor mounting points are used to complete the electrical circuit and must be mounted securely to clean surfaces.**	Yes ▶ No ▶	GO to **AS37.** CLEAN and / or SECURE connections as required.
AS37	CHECK OPERATION OF THE FOLLOWING COMPONENTS		
	• Check the operation of the alternator regulator capacitor and voltage regulator capacitor by replacing with known good components. • Check alternator by disconnecting wiring harness from voltage regulator. • Verify radio reception. • Is noise eliminated?	Yes ▶ No ▶	GO to **AS38.** SERVICE / REPLACE damaged components as required.
AS38	CHECK SPARK PLUG WIRES		
	• Check spark plug wires for proper routing, grounding and secureness of connections. • Are spark plug wires OK?	Yes ▶ No ▶	GO to **AS39.** RE-ROUTE or REPLACE spark plug wires or SECURE connections as required.

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
AS39	CHECK IGNITION SYSTEM		
	• Check ignition system for proper operation. (Use ignition system analyzer or check for open circuit spark plug wires using ohmmeter.)	Yes ▶	GO to **AS40.**
		No ▶	SERVICE / REPLACE components as required.
	• Check spark plugs for cracked insulators.		
	• Is ignition system OK?		
AS40	CHECK CHASSIS MOUNTING POINTS		
	• Check all radio chassis mounting points for secureness, cleanliness and metal-to-metal contact.	Yes ▶	GO to **AS41.**
	• Is radio mounted securely?	No ▶	CLEAN and / or SECURE as required.
AS41	REPOSITION THE FOLLOWING COMPONENTS		
	• Check if noise can be eliminated by repositioning antenna, speaker or radio power feed lines from other wires and / or brackets.	Noise eliminated ▶	REPOSITION permanently by taping.
	• Verify operation of radio.	Noise not eliminated. ▶	GROUND various parts of the vehicle to the frame using a jumper cable. For example, engine fenders, quarter panels, stone deflectors, air cleaner, body sheet metal. When noise is eliminated, provide a permanent ground where required.
AS42	SUBSTITUTE RADIO		
	• Substitute known good radio.	Yes ▶	SERVICE radio unit at authorized service center.
	• Verify operation of radio.		
	• Is noise eliminated?	No ▶	INSTALL noise suppression equipment.

DIAGNOSIS AND TESTING (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
AS43 CHECK LEADS TO SPEAKERS		
• Key OFF. • Locate speaker connectors. • Measure resistance of the following wires between the radio connector and speaker connector. • Are the resistances correct?	Yes ▶ No ▶	GO to **AS44**. SERVICE wire in question.
AS44 CHECK CHANNEL SIGNAL		
• Key ON. • Radio ON. • Set radio to a known strong station. • Connect a low wattage test lamp across the following channel wire colors. • Does the test lamp dimly flicker?	Yes ▶ No ▶	REFER to Section 35-30. SERVICE/REPLACE radio.

Speaker	Wire	Resistance
RF	BL/R	Less than 5 ohms
	BL/Y	Less than 5 ohms
LF	BL/W	Less than 5 ohms
	BL	Less than 5 ohms
RR	BL/R	Less than 5 ohms
	BL/Y	Less than 5 ohms
LR	BL/W	Less than 5 ohms
	BL	Less than 5 ohms

NOTE: Do not set volume above 3/4.

Wire Colors	Channel
BL/R — BL/Y	Right-Front
BL/W — BL	Left-Front
BL/R — BL/Y	Right-Rear
BL/W — BL	Left-Rear

CK15422-A

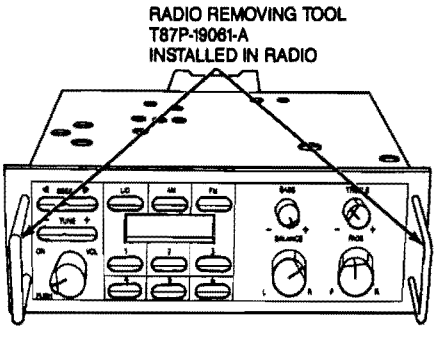
REMOVAL AND INSTALLATION

Radio

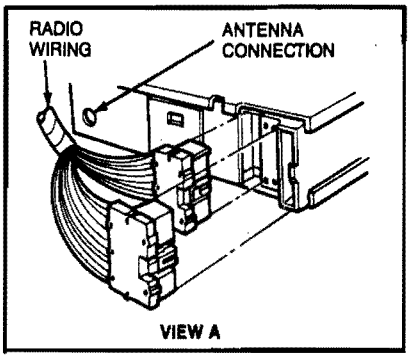
Non-Premium Sound

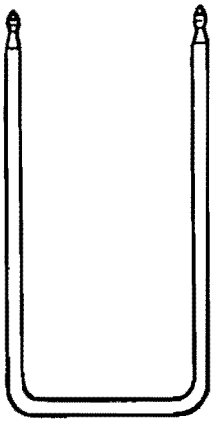
Removal

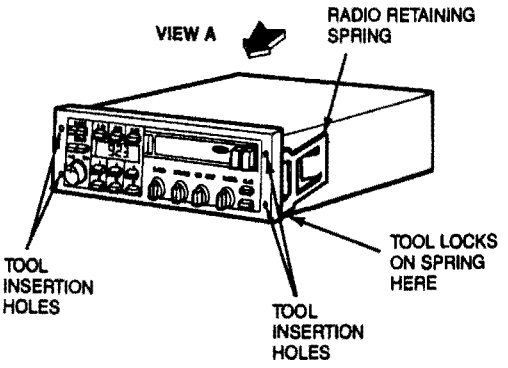
1. Remove heater / radio bezel as outlined in Section 45-61.
2. Insert Radio Removing Tool T87P-19061-A or equivalent into four removal holes in face of radio.
3. Slide radio toward rear of vehicle to gain access to wiring harnesses.



4. Disconnect two harness connectors.
5. Disconnect antenna.
6. Remove nut securing retaining radio rear support.
7. Remove radio rear support.







Installation

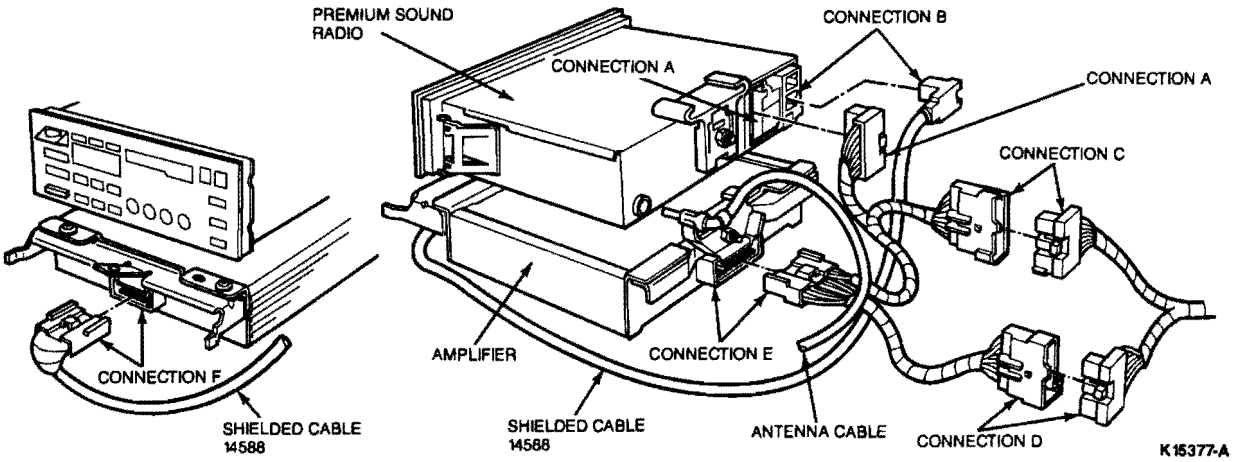
1. Install radio rear support.
2. Install nut on stud retaining radio rear support.
3. Plug antenna lead into receptacle.
4. Connect two wire harness connectors into proper receptacles.
5. Slide radio assembly into slot, maintaining proper alignment.
6. Install heater / radio bezel as outlined in Section 45-61.

Premium Sound

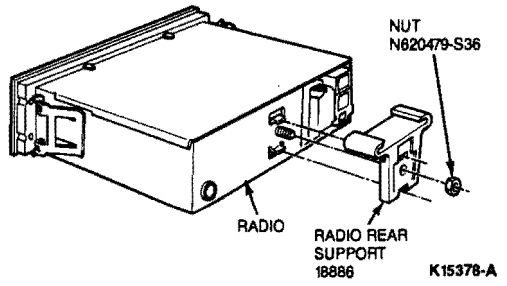
Removal and Installation

1. Remove heater / radio bezel as outlined in Section 45-61.
2. Insert Radio Removing Tool T87P-19061-A or equivalent into the four removal holes in face of radio.
3. Slide radio out from track.
4. Disconnect antenna cable.
5. Disconnect shielded cable from radio (connection B).

REMOVAL AND INSTALLATION (Continued)



6. Disconnect premium sound adapter harness to radio (connection A).
7. Remove radio rear support retaining nut and support.



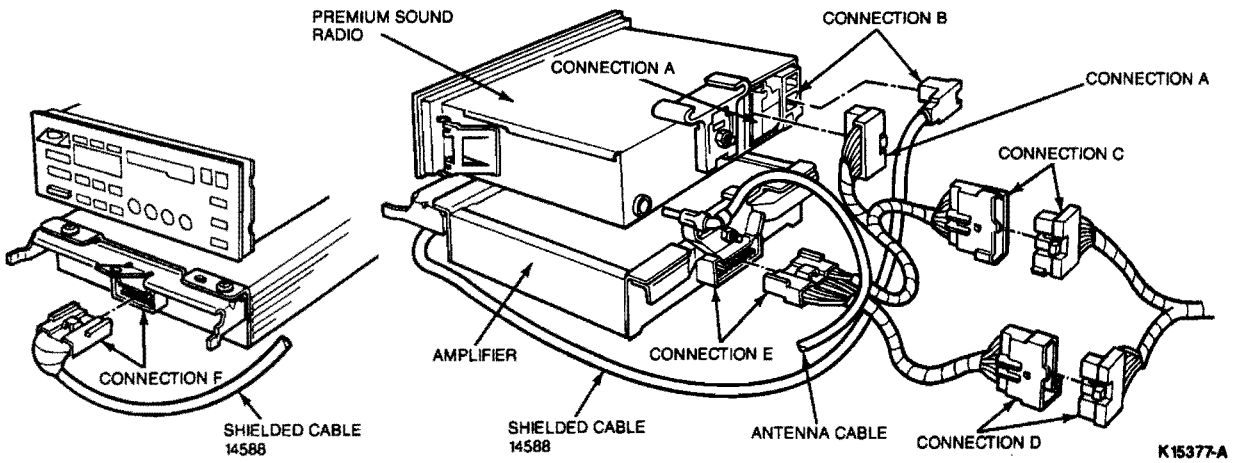
8. To install, reverse Steps 1 through 7.

Premium Sound Amplifier

Removal and Installation

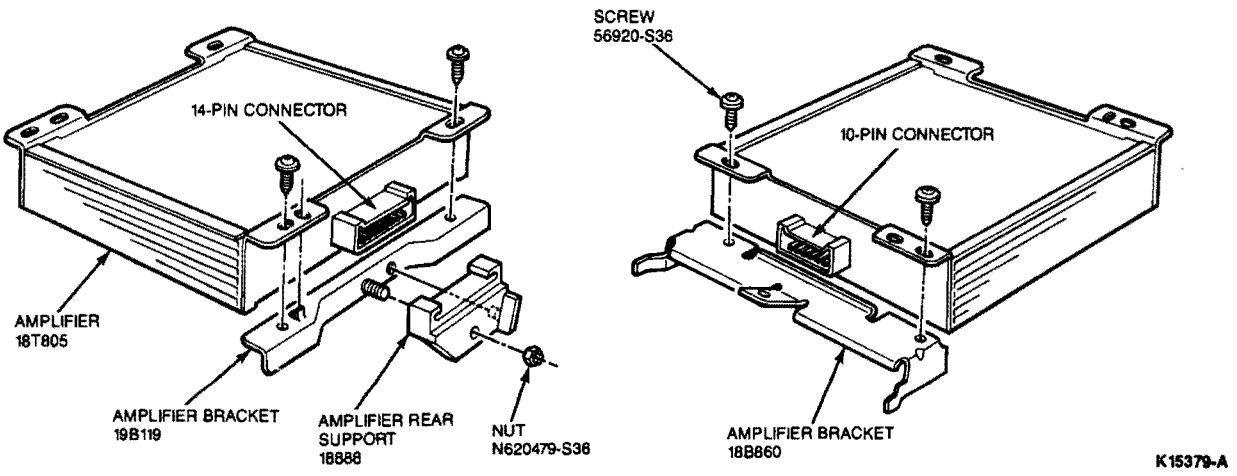
1. Remove heater / radio bezel as outlined in Section 45-61.
2. Remove screw at top of opening, retaining amplifier to instrument panel.
3. Disconnect shielded amplifier connector from front of amplifier (connection F).
4. Slide amplifier out from track while holding shielded cable aside.
5. Disconnect premium sound adapter to amplifier 14-pin connector (connection E).

REMOVAL AND INSTALLATION (Continued)



6. Remove amplifier rear support from amplifier bracket.

7. Remove amplifier brackets (18B860 and 19B119) from amplifier. Notice that bracket (19B119) is attached to 14-pin connector side of amplifier.



8. To install, reverse Steps 1 through 7.

SPECIAL SERVICE TOOLS

Tool Number	Description
T87P-19061-A	Radio Removing Tool

SECTION 35-10 Antennas

VEHICLE APPLICATION

Capri.

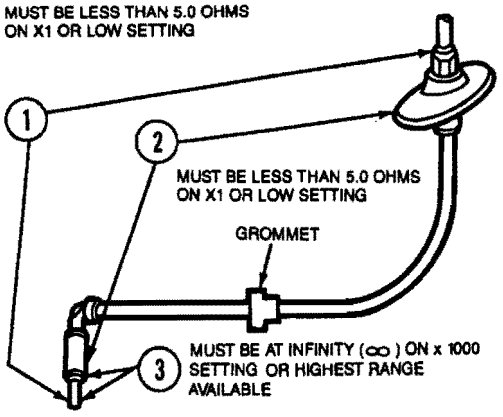
DESCRIPTION

The antenna is mounted on the right front fender and is a solid, one piece flexible unit. The base is secured to the fender with three screws.

DIAGNOSIS AND TESTING

Antenna with Cable and Mast

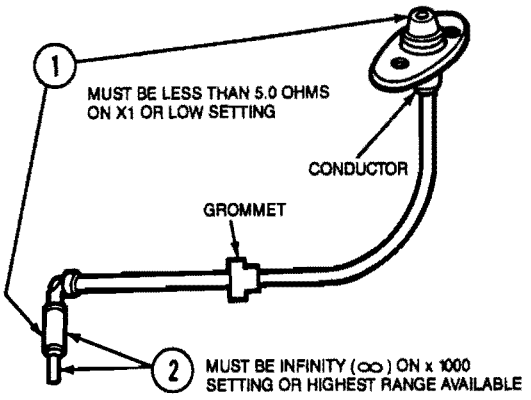
With antenna cable installed on vehicle and cable unplugged from radio, check resistance with ohmmeter test probes contacting antenna at indicated points. If results are satisfactory, antenna assembly is in good condition. If not, check antenna cable and base separately.



DIAGNOSIS AND TESTING (Continued)

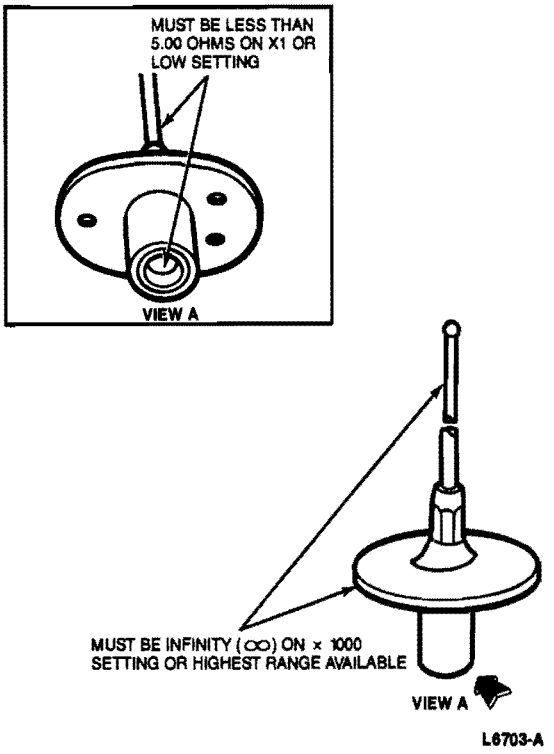
Antenna Cable and Base

With antenna cable unplugged from radio, check resistance at indicated points on cable. If results are satisfactory, cable is in good condition. If not, replace with new cable.



Antenna Base and Mast

With cable disconnected from antenna base, check resistance at indicated points on base. If results are satisfactory, install new cable. If either test is unsatisfactory, install new base assembly only; mast should be acceptable.



REMOVAL AND INSTALLATION

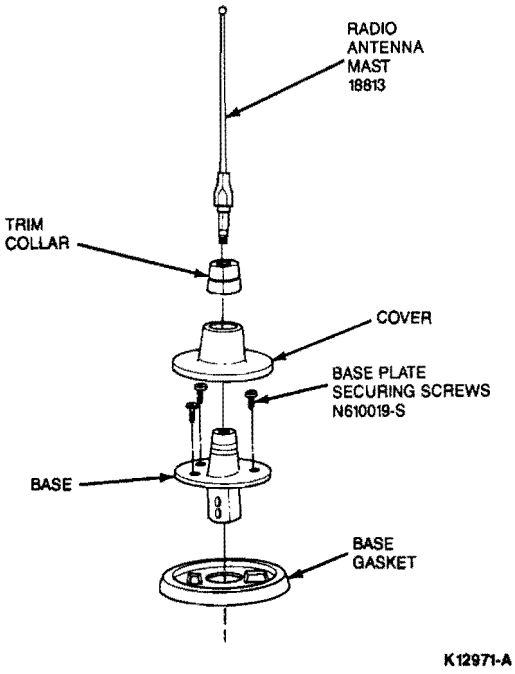
Antenna Mast and Base

Removal

1. Using a wrench, carefully unscrew and remove the antenna mast.
2. Remove the trim collar.
3. Carefully pry off cover.
4. Remove retaining screws and antenna base. Disconnect wiring from antenna base.
5. Remove antenna base gasket.

REMOVAL AND INSTALLATION (Continued)

NOTE: Take care to prevent antenna cable from falling into fender well.



Installation

1. Position base gasket.
2. Connect antenna base to antenna wire and position base onto gasket.
3. Install base retaining screws and tighten.
4. Snap cover and trim collar into place.
5. Install and tighten antenna mast.

SPECIAL SERVICE TOOLS

ROTUNDA EQUIPMENT

Model	Description
007-00001	Digital Volt-Ohm Meter

SECTION 35-30 Speakers

VEHICLE APPLICATION

Capri.

DESCRIPTION

The front speakers are installed in the front lower sides of the door panels, and diffuse the sound by pointing in a downward direction. The rear speakers point forward.

All vehicles are equipped with premium sound speakers. Premium sound speakers are printed with "6 ohms" on the magnet.

DIAGNOSIS

Stereo radios have both speakers on one side of the vehicle (right or left) powered by the same circuitry in conventional radios. Electronic radios power the front speakers separately from the rear speakers. Therefore if only one speaker is inoperative, the radio chassis is not likely to be damaged. Refer to Section 35-01 for radio diagnosis.

CONDITION	POSSIBLE SOURCE	ACTION
• One or More Speakers Are Not Functioning or Are Distorted During Radio Check	• Damaged radio or cassette. • Damaged speaker.	• Go to **SP1.**

DIAGNOSIS (Continued)

SPEAKER DIAGNOSIS — ONE OR MORE SPEAKERS DISTORTED OR INOPERATIVE

TEST STEP		RESULT ▶	ACTION TO TAKE
SP1	SUBSTITUTE SPEAKER AND BYPASS SPEAKER WIRING HARNESS		
	• Unplug radio from speaker wiring harness. Set radio balance and fader controls to their center position. Using a speaker of known good quality, jumper the pins corresponding to the suspect speaker of the radio connector to the test speaker.	Yes ▶	GO to **SP2.**
	• Is sound OK from speaker?	No ▶	REMOVE radio for service.
SP2	SUBSTITUTE SPEAKER USING SPEAKER WIRING HARNESS		
	• Reconnect radio to speaker wiring harness. Disconnect suspect speaker from speaker wiring harness and connect last speaker of known good quality.	Yes ▶	REPLACE speaker.
	• Is sound OK from speaker?	No ▶	SERVICE speaker wiring harness. REFER to Section 35-01.

Poor Sound Quality

Experience has shown that rattles and buzzes are caused most often by loose speakers or speaker mountings, speaker grilles or trim panels. Check for tightness of mountings and trim pieces.

Distortion can be caused by the speaker, radio chassis or wiring. Distortion caused by damaged wiring is most often accompanied by lower than normal sound output.

Buzzes, rattles, distorted or weak sound from speakers is often caused by bent sheet metal around the speaker opening, or missing or loose attaching hardware or speaker covers. Bent sheet metal should be straightened and the speaker reinstalled. Loose attaching hardware should be finger-tight plus approximately one full turn. Be careful not to overtighten hardware as this may bend or deform the speaker basket, causing buzzes and / or distorted sound.

NOTE: Shorted wiring does not always result in a completely dead speaker. If a diagnostic inspection indicated that the condition is related to the speakers or wiring, refer to Section 35-01.

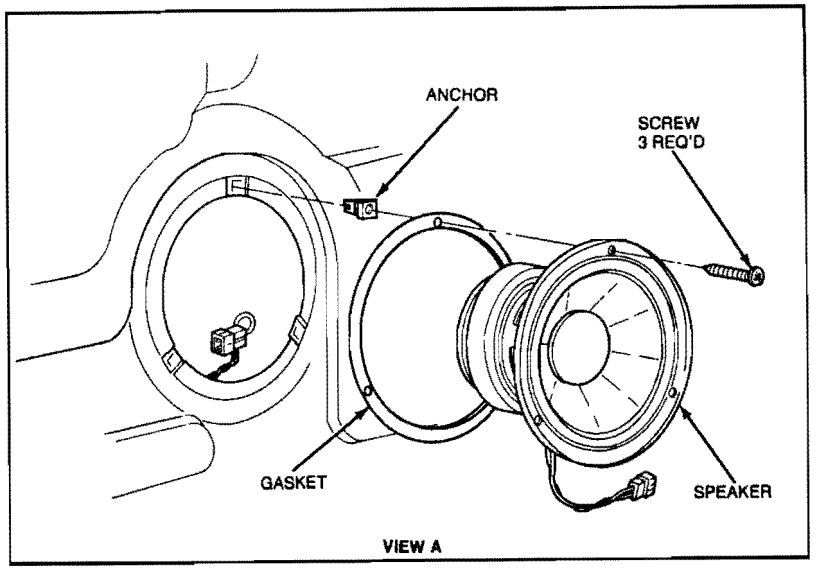
REMOVAL AND INSTALLATION

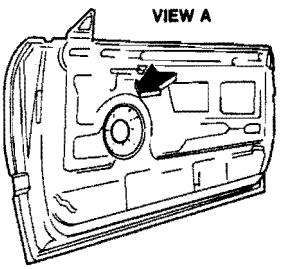
Speakers, Door Mounted

Removal

1. Remove the door trim panel. Refer to Section 45-03.
2. Remove three screws retaining the speaker to the speaker grille. Remove speaker and gasket. Disconnect wiring.

REMOVAL AND INSTALLATION (Continued)





L6728-A

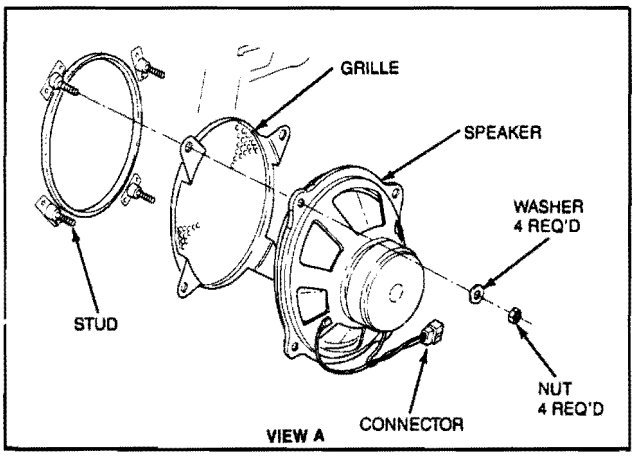
Installation

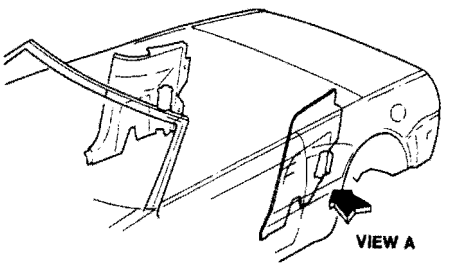
1. Connect wiring.
2. Position speaker with gasket and install three retaining screws.
3. Install the door trim panel. Refer to Section 45-03.

Speakers, Rear Seat

Removal

1. Remove the rear inner fender covers located in the convertible top storage compartment. Refer to Section 45-03.
2. Remove the four nuts and washers retaining the speaker to the speaker grille. Remove speaker and grille. Disconnect wiring.





L6727-A

REMOVAL AND INSTALLATION (Continued)

Installation

1. Connect wiring.
2. Position speaker with grille and install four retaining washers and nuts.
3. Install the inner fender covers. Refer to Section 45-03.

SECTION 35-40 Ash Receptacles and Cigar Lighter

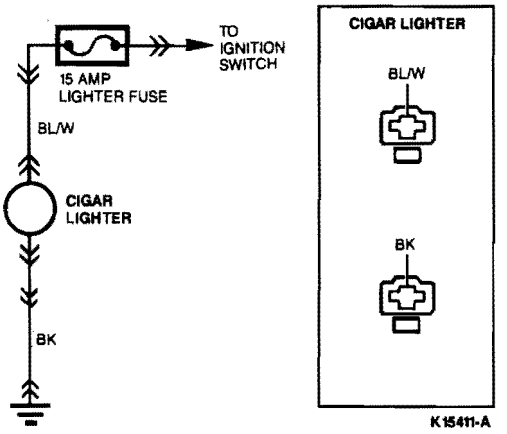
VEHICLE APPLICATION

Capri.

DESCRIPTION AND OPERATION

The cigar lighter is located in the floor mounted console to the left of the ash receptacle.

The cigar lighter element has a low resistance heating coil which operates similar to the coil used in a portable heater. When the lighter is pushed in, the circuit is closed and the current flows through the coil to ground. When sufficient heat is generated, the element will overcome the spring tension of the bimetal retaining fingers and be released.



DIAGNOSIS AND TESTING

CONDITION	POSSIBLE SOURCE	ACTION
• Lighter Not Working	• Blown 15 amp lighter fuse.	• Go to **A1.**
• Lighter Not Working or Intermittent	• Lighter socket ground. • Lighter supply.	• Go to **A5.** • Go to **A6.**

TEST STEP		RESULT ▶	ACTION TO TAKE
A1	LIGHTER FUSE CHECK		
	• Check 15 amp lighter fuse.	Yes ▶	GO to **A4.**
	• Is fuse OK?	No ▶	GO to **A2.**
A2	LIGHTER FUSE CHECK—CONTINUED		
	• Replace fuse.	Yes ▶	GO to **A4.**
	• Key ON.	No ▶	GO to **A3.**
	• Check lighter fuse.		
	• Is fuse OK?		

DIAGNOSIS AND TESTING (Continued)

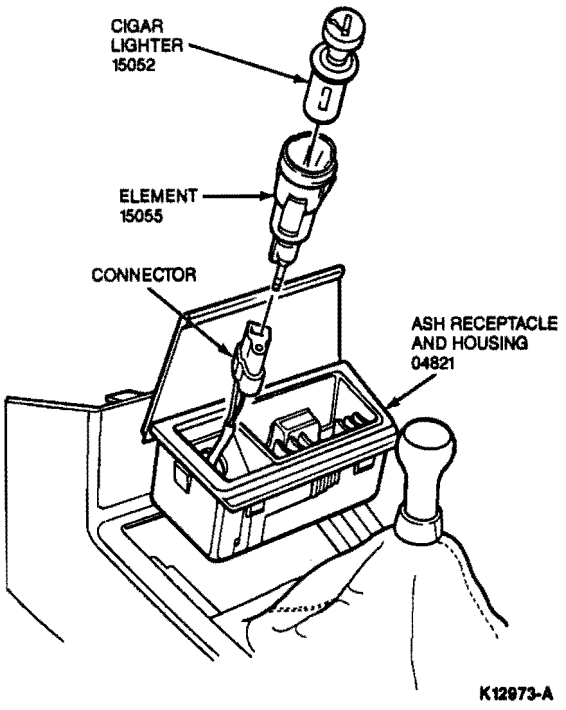
TEST STEP		RESULT ▶	ACTION TO TAKE
A3	LIGHTER SUPPLY SHORT CHECK		
	• Key OFF.	Yes ▶	GO to **A4.**
	• Disconnect BL / W wire connector from lighter.	No ▶	SERVICE BL / W wire between lighter and fuse.
	• Remove fuse.		
	• Measure resistance of BL / W wire between lighter connector and ground.		
	• Is resistance greater than 10,000 ohms?		
A4	LIGHTER SHORT CHECK		
	• Key ON.	Yes ▶	REPLACE lighter element.
	• Lighter element not engaged.	No ▶	SERVICE / REPLACE lighter socket.
	• Check lighter fuse.		
	• Is fuse OK?		
A5	LIGHTER SOCKET GROUND CHECK		
	• Check lighter mounting hardware is present and secure.	Yes ▶	GO to **A6.**
	• Disconnect BK wire from lighter socket.	No ▶	INSTALL correct or missing hardware. If lighter will not work, SERVICE BK wire between connector at lighter socket and ground.
	• Measure resistance of BK wire between connector at lighter socket and ground.		
	• Is resistance less than 5 ohms?		
A6	LIGHTER SOCKET SUPPLY CHECK		
	• Key ON.	Yes ▶	GO to **A7.**
	• Disconnect BL / W wire connector from lighter socket.	No ▶	SERVICE BL / W wire between lighter socket and fuse.
	• Check for volatage on the BL / W wire.		
	• Is there greater than 10 volts?		
A7	LIGHTER ELEMENT SUPPLY CHECK		
	• Key ON.	Yes ▶	REPLACE lighter element.
	• Remove lighter element from socket.	No ▶	REPLACE lighter socket.
	• Check for voltage at the center contact inside the socket.		
	• Is there greater than 10 volts?		

REMOVAL AND INSTALLATION

Ash Receptacle and Cigar Lighter

Removal

1. Pull ash receptacle from console.
2. Remove cigar lighter and element.
3. Unplug connector from element.



Installation

1. Plug connector into element.
2. Install element, cigar lighter and ash receptacle.
3. Check lighter for proper operation.

SECTION 35-60 Windshield Wipers

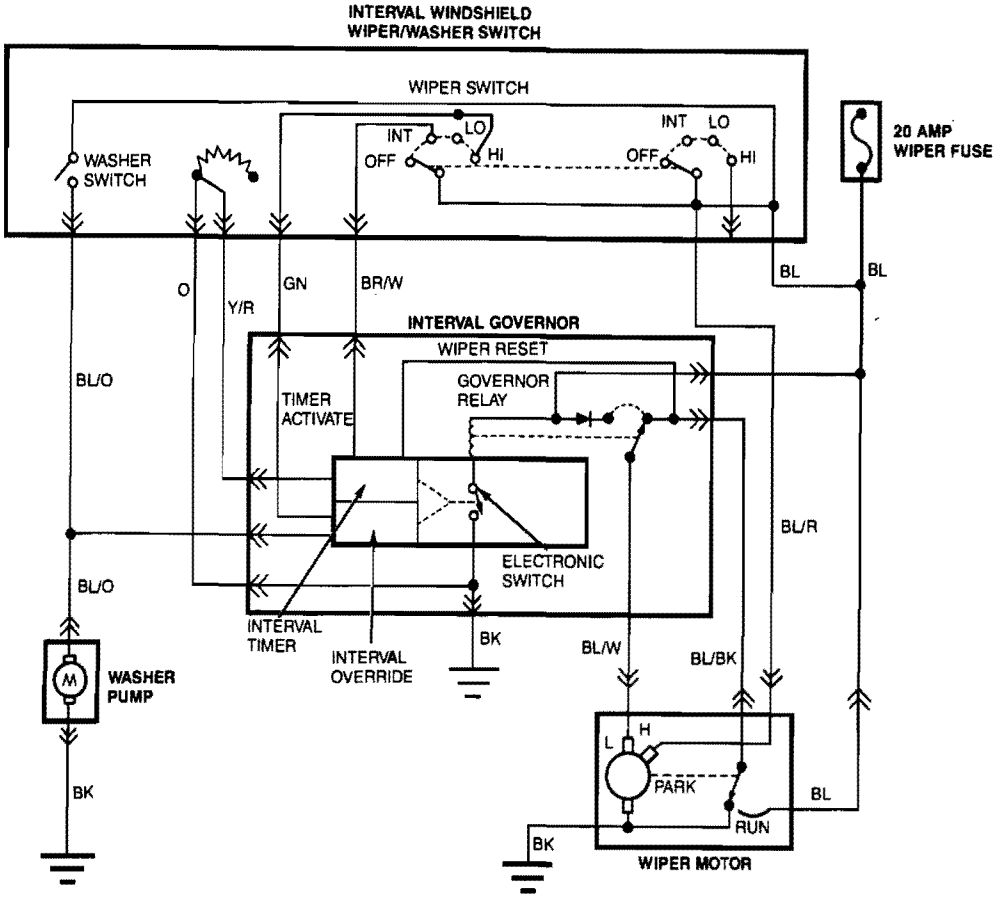
VEHICLE APPLICATION

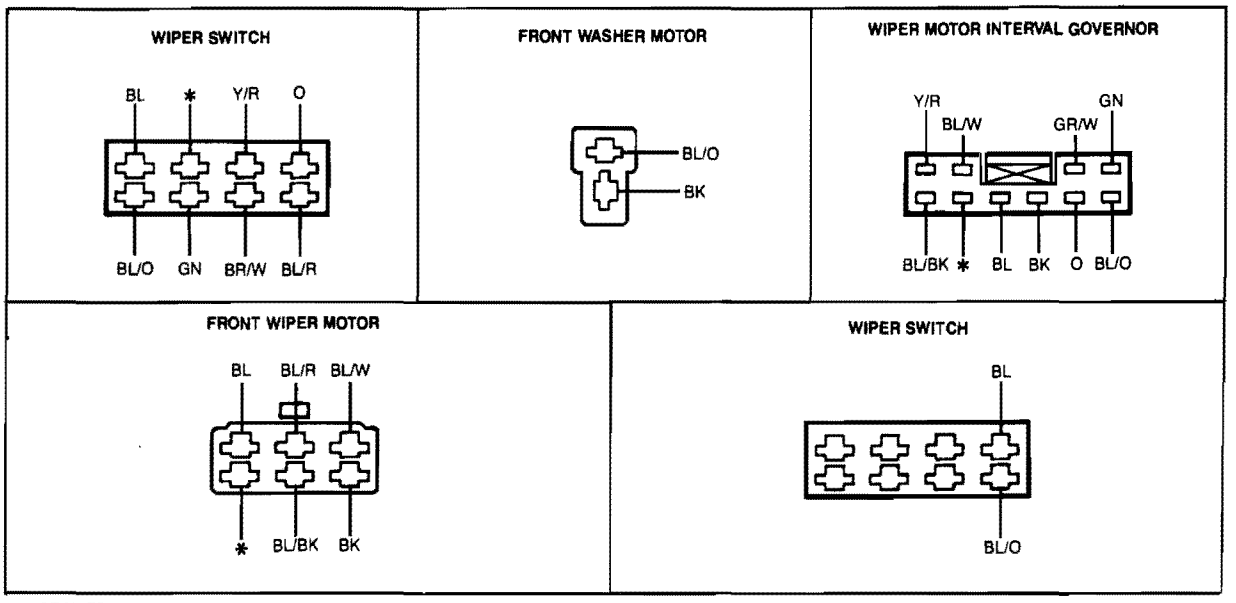
Capri.

DESCRIPTION

The windshield wiper motor is located in the engine compartment and is directly connected to the wiper linkage. The motor is a two-speed permanent magnet non-depressed park type. It is operated by a lever-type switch mounted on the steering column. Intermittent operation is adjustable by a rotary knob mounted on the stalk. One touch operation is achieved by pushing on the control for a single pass.

DESCRIPTION (Continued)





*NOT USED

K14644-A

DIAGNOSIS AND TESTING

Visual Inspection

1. Visually inspect the components. Check for:

Electrical

a. Fuse (20 amp) wiper.
b. Loose or corroded connections.
c. Damaged wiring harness.
d. Damaged wiper motor.
e. Damaged wiper switch.

Mechanical

a. Binding wiper arms.
b. Damaged wiper motor.
c. Damaged or disconnected wiper arm linkage.
d. Damaged wiper switch.

2. Turn ignition key on. Place wiper switch in each position and observe if wiper is functioning.
3. Inspect the exposed wiring harnesses and connectors for apparent damage.
4. If a fault is not visually evident, determine condition and refer to the following chart.

CONDITION	POSSIBLE SOURCE	ACTION
• Wiper Not Working	• Wiper fuse. • Governor ground. • Wiper motor ground. • Circuit.	• Go to **FW1.** • Go to **FW9.** • Go to **FW10.** • Go to **FW4.**
• Low Wiper Speed Not Working	• Wiper switch. • Wiper governor. • Wiper motor. • Circuit.	• Go to **FW5.** • Go to **FW8.** • Go to **FW12.** • Go to **FW4.**
• High Wiper Speed Not Working	• Wiper switch • Wiper motor. • Circuit.	• Go to **FW5.** • Go to **FW12.** • Go to **FW4.**
• Intermittent Wiper Speed Not Working	• Wiper switch. • Wiper governor. • Wiper motor. • Circuit.	• Go to **FW14.** • Go to **FW15.** • Go to **FW12.** • Go to **FW4.**
• Wiper Not Working With Washer Working	• Wiper motor. • Wiper governor. • Circuit.	• Go to **FW12.** • Go to **FW8.** • Go to **FW4.**
• Park Not Working	• Wiper switch. • Wiper governor. • Wiper motor. • Circuit.	• Go to **FW5.** • Go to **FW8.** • Go to **FW13.** • Go to **FW4.**

DIAGNOSIS AND TESTING (Continued)

	TEST STEP	RESULT ▶	ACTION TO TAKE
FW1	FRONT WIPER FUSE CHECK		
	• Check 20 amp wiper fuse.	Yes ▶	GO to **FW4.**
	• Is fuse OK?	No ▶	GO to **FW2.**
FW2	WIPER SWITCH, GOVERNOR AND WIPER MOTOR PARK SWITCH SUPPLY CHECK		
	• Replace fuse.	Yes ▶	GO to **FW4.**
	• Turn key ON.	No ▶	GO to **FW3.**
	• Check wiper fuse.		
	• Is fuse OK?		
FW3	WIPER SWITCH, GOVERNOR AND WIPER MOTOR PARK SWITCH SUPPLY SHORT CHECK		
	• Key OFF.	Yes ▶	GO to **FW4.**
	• Disconnect BL wire connectors from wiper switch, governor, and wiper motor.	No ▶	SERVICE each affected BL wire between the component connector and the fuse.
	• Measure resistance of BL wire between each component connector and ground.		
	• Wiper switch		
	• Governor		
	• Wiper motor		
	• Is resistance greater than 10,000 ohms?		
FW4	CHECK SUPPLY AT WIPER SWITCH, WIPER GOVERNOR AND WIPER MOTOR		
	• Access the wiper switch, wiper governor and the wiper motor connectors.	Yes ▶	GO to **FW5.**
	• Key ON.	No ▶	SERVICE BL wire in question.
	• Measure the voltage on the BL wire at the wiper motor connectors.		
	• Is the voltage greater than 10 volts?		

CK15407-A

DIAGNOSIS AND TESTING (Continued)

TEST STEP		RESULT	ACTION TO TAKE
FW5	WIPER SWITCH CHECK		
• Key OFF.		Yes ▶	GO to **FW6.**
• Disconnect wiper switch connector.		No ▶	REPLACE wiper switch.
• Measure resistance between the BL terminal and the following terminals at the switch:			
Switch Position	**Terminal**	**Resistance**	
OFF	All wires	Greater than 10,000 ohms	
INT	BR/W	Less than 5 ohms	
	All others	Greater than 10,000 ohms	
LOW	GN	Less than 5 ohms	
	All others	Greater than 10,000 ohms	
HI	GN and BL/R	Less than 5 ohms	
	All others	Greater than 10,000 ohms	
• Are the resistances correct?			
FW6	CHECK LEADS BETWEEN WIPER SWITCH AND WIPER GOVERNOR		
• Access the wiper governor.		Yes ▶	GO to **FW7.**
• Measure the resistance of the following wires between the wiper switch and the wiper governor: • O • Y/R • GN • BR/W		No ▶	SERVICE wires in question.
• Are the resistances less than 5 ohms?			
FW7	CHECK WIPER GOVERNOR GROUND		
• Measure the resistance of the BK wire between the governor and ground.		Yes ▶	GO to **FW8.**
• Is the resistance less than 5 ohms?		No ▶	SERVICE BK wire.

CK15408-A

DIAGNOSIS AND TESTING (Continued)

TEST STEP		RESULT	ACTION TO TAKE
FW8	CHECK WIPER GOVERNOR		
• Key ON. • Check the wiper governor operation by measuring the voltage on the following terminals at the wiper governor connector in the stated wiper switch position. • Are the voltages correct?		Yes ▶ No ▶	GO to **FW9.** SERVICE wiper governor.
FW9	CHECK HI-SPEED LEAD BETWEEN WIPER SWITCH AND WIPER MOTOR		
• Disconnect the wiper motor connector. • Measure the voltage on the BL/R wire at the harness connector. • Is the voltage greater than 10 volts?		Yes ▶ No ▶	GO to **FW10.** SERVICE BL/R wire.
FW10	CHECK LEADS BETWEEN WIPER GOVERNOR AND WIPER MOTOR		
• Key OFF. • Measure the resistance of the BL/W and BL/BK wires between the wiper governor and the wiper motor. • Are the resistances less than 5 ohms?		Yes ▶ No ▶	GO to **FW11.** SERVICE wire in question.
FW11	CHECK WIPER MOTOR GROUND		
• Measure the resistance on the BK wire between the wiper motor and ground. • Is the resistance less than 5 ohms?		Yes ▶ No ▶	GO to **FW12.** SERVICE BK wire.

Switch Position	Terminal Color	Voltage
OFF	BL/W, BL/BK	Less than 1 volt
LOW	BL/W, BL/BK	Greater than 10 volts less than 1 volt
HIGH	BL/W, BL/BK, BL/R	Greater than 10 volts less than 1 volt
INT	BL/W, BL/BK	Greater than 10 volts less than 1 volt during each cycle

CK15409-A

DIAGNOSIS AND TESTING (Continued)

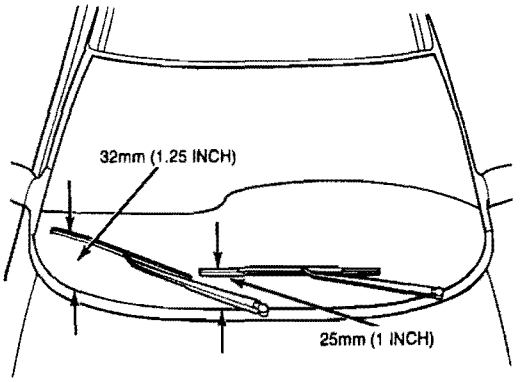
TEST STEP	RESULT	ACTION TO TAKE
FW12 CHECK WIPER MOTOR		
• Key ON. • Put the wiper switch in the low position. • Do the wipers operate? • Put the wiper switch in the high position. • Do the wipers operate faster?	Yes ▶ No ▶	GO to **FW13.** SERVICE/REPLACE wiper motor.
FW13 CHECK WIPER MOTOR PARK SYSTEM		
• Key ON. • Turn the wiper switch to low. • Turn wiper switch off while wiper is not in the park position. • Measure the voltage on the BL/W wire until the wiper reaches the park position. • Is the voltage greater than 10 volts while not in park position?	Yes ▶ No ▶	GO to **FW14.** SERVICE/REPLACE wiper motor.
FW14 CHECK THE INTERVAL WIPER SWITCH		
• Turn the interval switch to the following positions: • Measure the resistance of the Y/R terminal to the O terminal at the wiper switch for each position listed in the table. • Are readings similar to these given in the following table? **Resistance Table** Slow 1.5K ohms (± 10-15%) 1 9.3K ohms (± 10-15%) 2 7.6K ohms (± 10-15%) 3 5.8K ohms (± 10-15%) 4 4.2 ohms (± 10-15%) 5 2.4K ohms (± 10-15%) Fast 750 ohms	Yes ▶ No ▶	GO to **FW15.** SERVICE/REPLACE the wiper switch.
FW15 CHECK WIPER GOVERNOR		
• Key ON. • Move the wiper switch to the INT position. • Move the interval switch to the first position. • Do the wipers operate intermittently? • Turn the interval switch to increase the time interval. • Does length of time between wipe cycles increase?	Yes ▶ No ▶	RETURN to condition chart. SERVICE/REPLACE wiper governor.

CK15420-A

ADJUSTMENTS

Windshield Wiper Arm Position

1. Operate the windshield wiper through three or four cycles.
2. Turn the wiper switch to the OFF position and allow the wiper arms to park.
3. Measure the distance between the end of the wiper arm blade and the bottom of the windshield. The distance should be as shown.
4. Remove the wiper arm and reposition it as needed. If necessary refer to Wiper Arm Removal and Installation.



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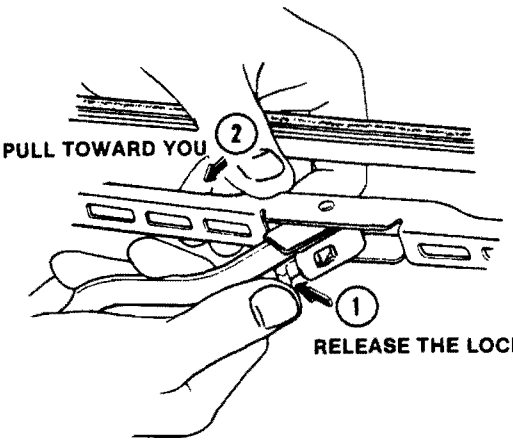
REMOVAL AND INSTALLATION

Wiper Blade

Removal

1. Lift the wiper arm away from the windshield until it locks in an up position.
2. Rotate the blade 45 degrees from the arm.
3. Depress the spring clip and slide the blade down and then up the wiper arm hook.

REMOVAL

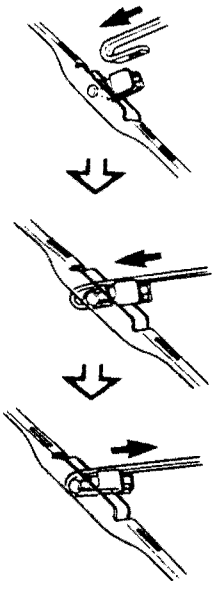


K10205-A

Installation

1. Slide the wiper blade onto the arm.
2. Slide the blade toward the end of the arm until it clicks into position.
3. Place the blade against the windshield by gently pushing on the arm.
4. Check wipers for proper operation. Service as required.

INSTALLATION



K10206-A

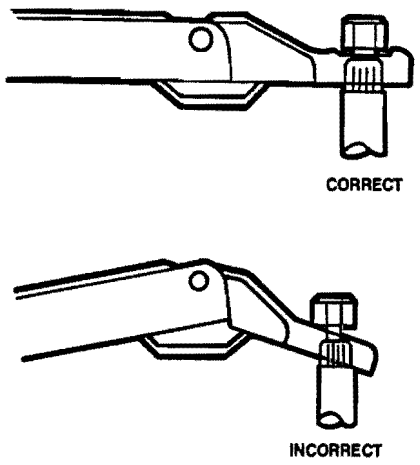
REMOVAL AND INSTALLATION (Continued)

Wiper Arm

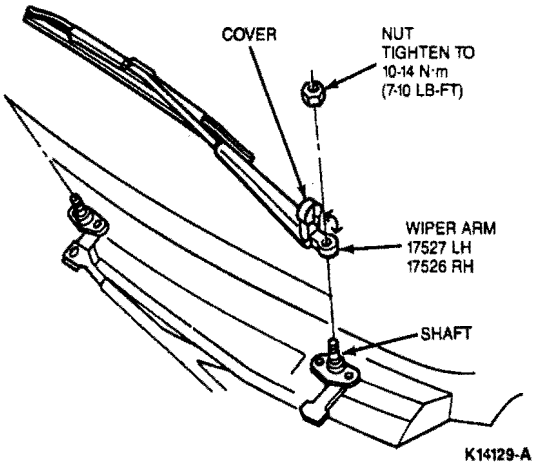
Removal and Installation

1. Lift cover and remove nut from shaft.
2. Gently pry arm from shaft being careful not to scratch cowl trim panel.
3. Install arm on shaft so that the end of the blade is positioned as outlined in Adjustments.

   NOTE: Make sure wiper arm is horizontal to the pivot shaft so the pivot shaft splines are fully seated in the wiper arm.



4. Install nut and tighten to 10-14 N·m (7-10 lb-ft).
5. Cycle wipers several times and then tighten nut again.



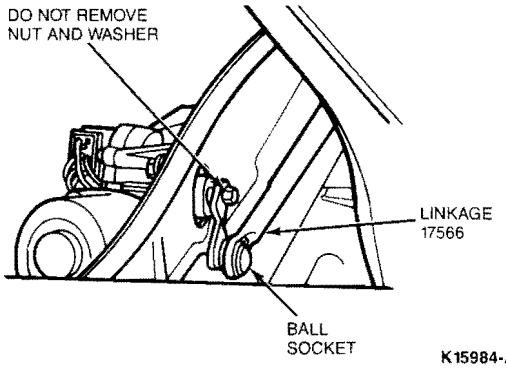
Wiper Motor

Removal

1. Disconnect negative battery cable.

   NOTE: Disconnect linkage from motor at ball socket NOT by removing nut and linkage arm from motor. This will eliminate the need to retime the motor / linkage.

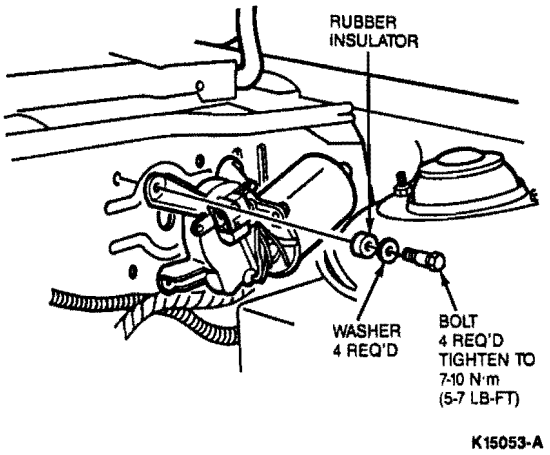
2. Gently pry linkage off ball socket at motor.



3. Unplug connector from motor.
4. Remove four mounting bolts and rubber insulators securing motor to dash panel.

Installation

1. Position motor and install four mounting bolts and rubber insulators. Tighten to 7-10 N·m (5-7 lb-ft).



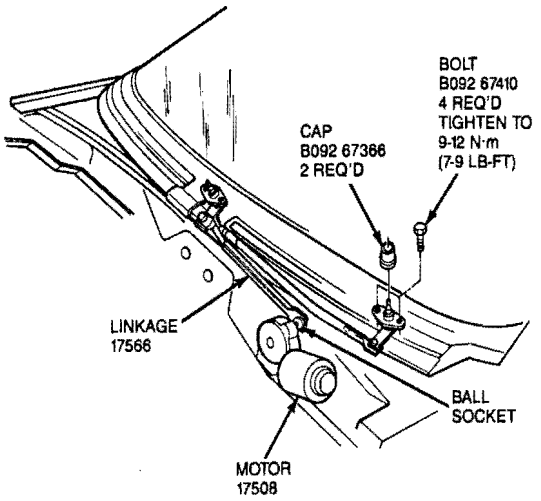
2. Install connector onto motor.
3. Snap linkage onto ball socket at motor.
4. Connect negative battery cable.
5. Check wipers for proper operation. Service as required.

REMOVAL AND INSTALLATION (Continued)

Linkage

Removal

1. Remove wiper arms as outlined.
2. Remove lower windshield moulding. Refer to Section 43-02.
3. Gently pry linkage off ball socket at motor.
4. Remove cap and two bolts from each pivot shaft.
5. Remove linkage.



K14132-A

Installation

1. Position linkage and install two bolts and cap at each pivot shaft. Tighten bolts to 9-12 N·m (7-9 lb-ft).
2. Snap linkage onto ball socket at motor.
3. Install lower windshield moulding. Refer to Section 43-02.
4. Install wiper arms as outlined.
5. Check wipers for proper operation. Service as required.

Wiper Switch and Lever

Removal

1. Remove center trim panel and access cover beneath steering column.
2. Remove two screws retaining steering column lower shroud and remove.
3. Disconnect electrical connector and pull wiring out of routing clip.
4. Firmly grasp switch and lever and pull out to remove.

Installation

1. Align mounting tang on lever and push in to install.
2. Route wiring through clip and connect electrical connector.
3. Position lower steering column shroud and install two retaining screws.
4. Install access cover and trim panel with retaining screws.

SPECIFICATIONS

TORQUE SPECIFICATIONS

Description	Nom	Lb-Ft
Wiper Arm Retaining Nut	14-16	10-12
Wiper Motor Retaining Bolts	7-10	5-7
Wiper Linkage Pivot Shaft Retaining Bolts	9-12	7-9

SECTION 35-70 Windshield Washers

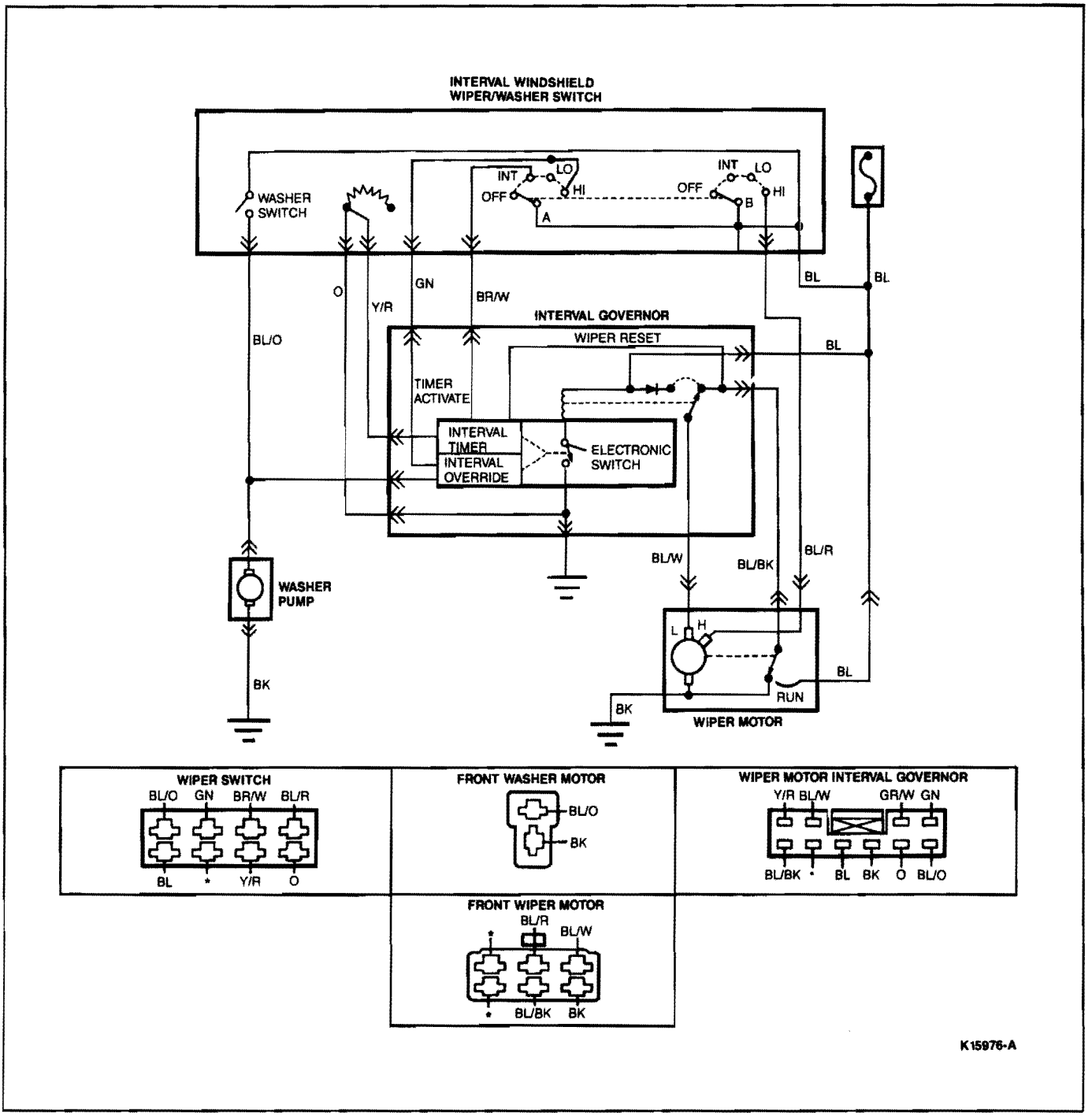
VEHICLE APPLICATION

Capri.

DESCRIPTION

An electrically operated pump supplies washer fluid to the windshield washer system. The reservoir is located in the engine compartment. The windshield washer system consists of a control switch (part of multi-function switch on steering column), hoses, clips and two nozzles.

DESCRIPTION (Continued)



DIAGNOSIS AND TESTING

Visual Inspection

1. Visually inspect the components. Check for:

Electrical

a. Fuse 20 amp wiper.
b. Loose or corroded connections.
c. Damaged wiring harness.
d. Damaged wiper / washer switch.
e. Damaged wiper motor.

Mechanical

a. Washer fluid level.
b. Plugged / damaged washer fluid hoses.
c. Plugged / damaged washer fluid jets.

DIAGNOSIS AND TESTING (Continued)

2. Turn ignition key ON. Operate the washer switch button and observe the if washer pump is functioning.
3. Check the washer fluid hoses for proper routing and connections.
4. Inspect the wiring harness and connectors for apparent damage.
5. If fault is not visually evident, determine condition and refer to the following chart.

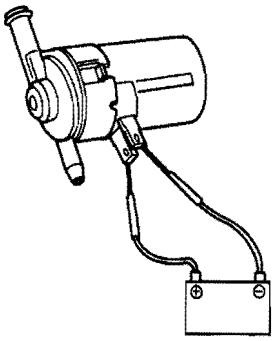
CONDITION	POSSIBLE SOURCE	ACTION
• Washer Not Working Properly	• Blown fuse. • Washer system supply. • Washer motor ground. • Wiper/washer switch.	• Go to **WW1.**
• Washers Work, Wipers Do Not Work	• Circuit wiring. • Interval governor.	• Refer to Section 35-60.

TEST STEP		RESULT ▶	ACTION TO TAKE
WW1	WINDSHIELD WASHER FUSE CHECK		
	• Check 20 amp wiper fuse. • Is fuse OK?	Yes ▶ No ▶	GO to **WW3.** GO to **WW2.**
WW2	WASHER SWITCH SUPPLY CHECK		
	• Replace fuse. • Key ON. • Check 20 amp wiper fuse. • Is fuse OK?	Yes ▶ No ▶	GO to **WW3.** SERVICE BL wire between fuse and wiper/washer switch.
WW3	WASHER MOTOR GROUND CHECK (WASHER NOT WORKING)		
	• Key OFF. • Measure resistance of BK wire between washer motor connector and ground. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to **WW4.** SERVICE BK/Y wire between washer motor and ground.
WW4	WASHER MOTOR SUPPLY CHECK (WASHER NOT WORKING)		
	• Key ON. • Operate washer switch and measure voltage on BL/O wire at wiper/washer switch connector. • Are there greater than 10 volts?	Yes ▶ No ▶	GO to **WW5.** REPLACE washer/wiper switch.
WW5	WASHER MOTOR SUPPLY CHECK (WASHER NOT WORKING)		
	• Measure voltage on BL/O wire at washer motor connector. • Is the voltage greater than 10 volts?	Yes ▶ No ▶	REPLACE washer motor. SERVICE BL/O wire between wiper washer and washer motor.

DIAGNOSIS AND TESTING (Continued)

Pump

1. Remove reservoir and remove washer pump from reservoir as outlined.
2. Apply 12 volts DC to pin A and ground pin B. The pump motor should operate.
3. Replace pump if required.



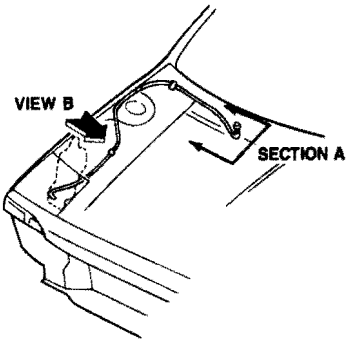
K15014-A

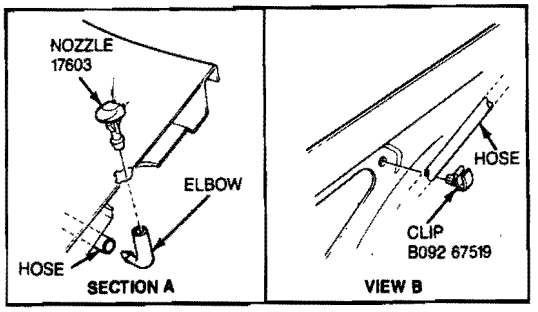
REMOVAL AND INSTALLATION

Nozzles and Hose

Removal

1. Remove fitting from below nozzle. Depress tabs and pull out nozzle(s).
2. Remove hose or clips if necessary.





K14133-A

Installation

1. Install hose and clips if removed. Be sure to avoid kinks. Route hose to avoid being pinched as hood is closed.
2. Snap nozzles into hood. Make sure nozzle is fully seated. Connect fitting to nozzle.
3. Check washers for proper operation. Service as required.

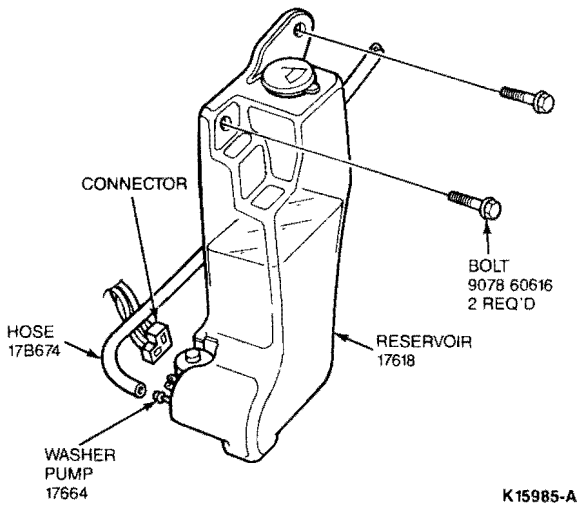
Reservoir and Washer Pump

Removal

1. Drain reservoir if necessary.
2. Remove two bolts and reservoir.
3. Disconnect washer hose.
4. Disconnect washer pump wiring.

REMOVAL AND INSTALLATION (Continued)

5. Remove washer pump if necessary.



Installation

1. Install washer pump if removed.
2. Connect washer hose and pump harness.
3. Position reservoir and install two bolts.
4. Fill reservoir and check for proper operation. Service as required.

Washer Switch

Removal and Installation

The washer switch is part of the wiper switch located with the multi-function switch on the steering column. Refer to Section 35-60.

SECTION 35-80 Horns

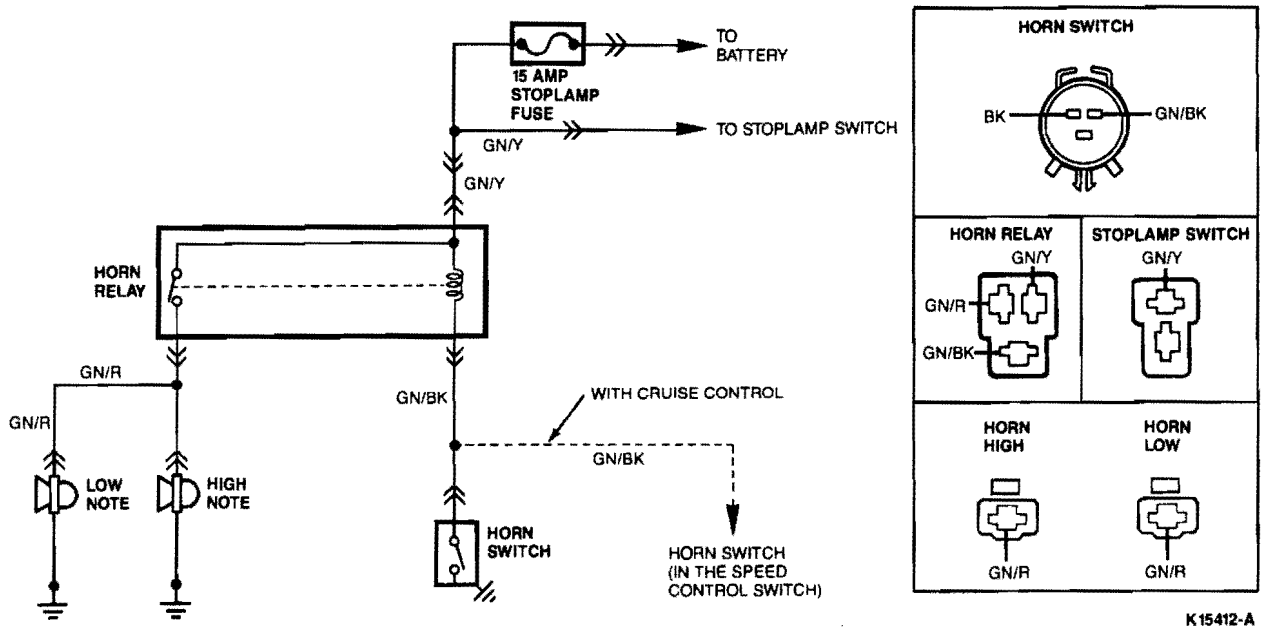
VEHICLE APPLICATION

Capri.

DESCRIPTION

The horns are mounted above the left fog lamp, behind the front bumper. The horn switches are located in the upper steering wheel spokes and are actuated by pushing on either horn symbol on the switches.

The horn relay is mounted on the left inner headlamp support.



DIAGNOSIS AND TESTING

Visual Inspection

1. Visually inspect the components. Check for:

Electrical

a. Blown 15 amp stoplamp fuse.

b. Loose connections.

c. Damaged wiring harnesses.

Mechanical

a. Damaged horn button.

DIAGNOSIS AND TESTING (Continued)

b. Damaged horn unit.

2. Operate horn switch and observe high and low horn operation.

3. Briefly inspect the exposed wiring harnesses and connectors for apparent damage.

4. If a fault is not visually evident, determine the condition and refer to the following chart.

CONDITION	POSSIBLE SOURCE	ACTION
• Horn Does Not Work	• Fuse. • Horn relay. • Horn switch. • Horns. • Circuit.	• Go to **H1.** • Go to **H5.** • Go to **H9.** • Go to **H8.** • Go to **H4.**
• Horn Works Continuously	• Horn relay. • Horn switch. • Horns. • Circuit.	• Go to **H5.** • Go to **H9.** • Go to **H8.** • Go to **H4.**
• Horns Work Abnormally	• Horn relay. • Horn switch. • Horns. • Circuit.	• Go to **H5.** • Go to **H9.** • Go to **H8.** • Go to **H4.**

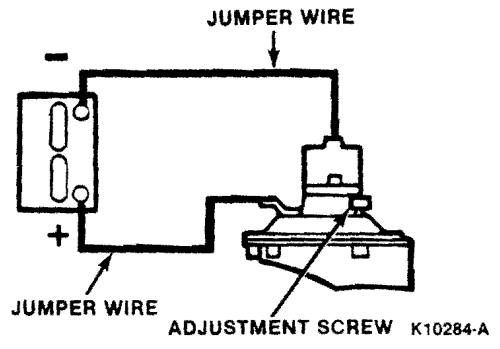
TEST STEP		RESULT ▶	ACTION TO TAKE
H1	CHECK HORN FUSE		
	• Access interior fuse panel. • Check the 15 amp stoplamp fuse. • Is the fuse good?	Yes ▶ No ▶	GO to **H4.** GO to **H2.**
H2	CHECK SYSTEM		
	• Replace blown fuse. • Did fuse blow again?	Yes ▶ No ▶	GO to **H3.** GO to **H4.**
H3	CHECK FOR SHORTS TO GROUND		
	• Remove the stoplamp fuse. • Disconnect the GN / Y wire from the fuse panel. • Measure the resistance between the GN / Y wire and ground. • Is the resistance less than 5 ohms?	Yes ▶ No ▶	SERVICE GN / Y wire. GO to **H4.**
H4	CHECK SUPPLY AT HORN RELAY		
	• Install the stoplamp fuse. • Disconnect the horn relay connector. • Measure the voltage on the GN / Y wire terminal. • Is the voltage greater than 10 volts?	Yes ▶ No ▶	GO to **H5.** SERVICE GN / Y wire.
H5	CHECK HORN RELAY		
	• Disconnect the horn relay connector. • Measure the resistance between the GN / Y terminal and the GN / R terminal. • Is the resistance greater than 10,000 ohms? • Apply 12 volts to the GN / Y terminal. • Ground the GN / BK terminal. • Measure the resistance between the GN / Y terminal and the GN / R terminal. • Is the resistance less than 5 ohms?	Yes ▶ No ▶	GO to **H6.** SERVICE / REPLACE horn relay.

DIAGNOSIS AND TESTING (Continued)

TEST STEP		RESULT	ACTION TO TAKE
H6	CHECK LEAD BETWEEN HORN RELAY AND HORNS		
	• Measure the resistance on the GN/R wire between the horn relay and the horns.	Yes ▶	GO to **H7.**
	• Is the resistance less than 5 ohms?	No ▶	SERVICE GN/R wire.
H7	CHECK HORNS		
	• Disconnect the horn connectors.	Yes ▶	GO to **H8.**
	• Apply 12 volts to the GN/R terminals.	No ▶	SERVICE/REPLACE horns.
	• Did the horns sound?		
H8	CHECK LEAD BETWEEN HORN RELAY AND HORN SWITCH		
	• Access the horn switch.	Yes ▶	GO to **H9.**
	• Measure the resistance on the GN/BK wire between the horn relay and the horn switch.	No ▶	SERVICE GN/BK wire.
	• Is the resistance less than 5 ohms?		
H9	CHECK HORN SWITCH		
	• Disconnect the horn switch connector.	Yes ▶	RETURN to condition chart.
	• Measure the resistance between the GN/BK terminal and ground.	No ▶	SERVICE/REPLACE horn switch.
	• Is the resistance greater than 10,000 ohms?		

ADJUSTMENTS

1. Verify that the ground is good by checking the connections for corrosion and checking that the mounting screw is tight.
2. Attach a wire to the positive battery terminal and to the horn contact. If the horn sounds normally, check the wiring to the horn. If it does not sound, proceed to step 3.
3. Connect a wire between the negative (-) terminal of the battery and the mounting bracket. Connect another wire from the positive (+) terminal of the battery to the horn contact. If the horn does not sound and there is no evidence of a spark at the battery terminal, turn the adjusting screw one-quarter to three-eighths of a turn. Then secure adjusting screw by clinching housing extrusion with diagonals or pliers. If horn does not function, refer to Diagnosis and Testing.



REMOVAL AND INSTALLATION

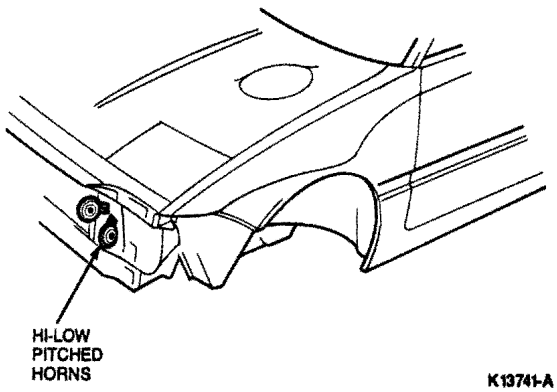
Horns and Brackets

Removal

1. Disconnect wiring connectors from horn.
2. Remove retaining bolts from brackets.

REMOVAL AND INSTALLATION (Continued)

3. Remove horn from below bumper.



Installation

1. Position horn assembly.
2. Install bolt through bracket and into radiator support. Tighten to 7-10 N·m(5-7 lb-ft).
3. Attach wiring connector to horn contact.
4. Verify proper operation of horns.

Horn Switch

Removal

1. Disconnect negative battery cable.
2. Remove horn switch by carefully prying around switch bezel with small, flat-bladed screwdriver.
3. Disconnect two wires from switch.

Installation

1. Connect two wires to switch.
2. Install switch in steering wheel.
3. Connect negative battery cable and verify proper operation.

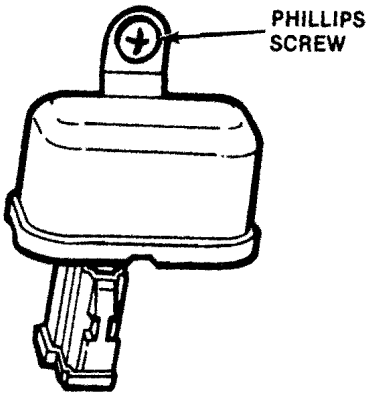
Horn Relay

Removal

1. Disconnect plug at horn relay.
2. Remove screw securing relay to inner headlamp support.

Installation

1. Install screw through relay bracket and into inner fender.
2. Connect plug at horn relay.



SPECIFICATIONS

TORQUE SPECIFICATIONS

Description	N·m	Lb-ft
Horn Retaining Bolt(s)	7-10	5-7