

# RADIO / TAPE PLAYER

## ALL SERIES

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## DESCRIPTION AND OPERATION

### GENERAL DESCRIPTION

The radio system for the 1973 Buicks consists of three components: (1) a radio receiver; (2) one or more speakers; and (3) an antenna embedded in the windshield or a front fender mounted power antenna (B-C-E Series only). Five different receivers are available for all 1973 Buicks; AM, AM/FM, AM/FM stereo, AM/tape player, and AM/FM stereo-tape player. All series will use a ten-slide tuner for both AM/FM and stereo AM/FM radio receivers. The AM, like the AM/FM receivers (monaural) incorporate one speaker in the center of the dash.

The radios have a current draw of: AM - 1.0 amp plus .3 for dial lamp; AM/FM - 1.0 amp plus .4 for dial lamp; AM/FM Stereo - 2.0 amps plus .4 for dial lamp; AM Tape - 2.9 amps; and AM/FM Stereo Tape - 2.9 amps at 12 VDC. Radio/tape current draw includes .4 amp for the dial lamp. All speakers have an impedance of 10 ohms. When replacing a speaker, the replacement speaker should have the same impedance for satisfactory results.

### RADIO NOISE INTERFERENCE SUPPRESSORS

Four noise suppressor capacitors are used to eliminate radio interference.

Three of the capacitors are exterior mounted, one on the blower motor (on FM radios only), one is mounted internally inside the integrated voltage regulator/generator, and one on the primary side of the ignition coil (on Max-Trac cars only). The interior mounted capacitor is attached to the brake pedal support bracket and connected to the terminal on the fuse block, on B-C-E cars and attached to the fuse block on A cars. The delcotron and fuse block capacitors are rated at .05 MFD, and the blower motor capacitor at .25 MFD. All models have resistor spark plugs, .075 inch rotor gap, and spark plug wires with an approximate resistance of 2000 ohms per foot.

On cars equipped with Stage I option with automatic transmission, there is a 150 ohm, 5 watt resistor installed in the vacuum solenoid electrical wiring harness for the timing control system.

Various types of ignition suppressors are used to prevent spark noise from interfering with radio reception. Failure of any of these parts to function properly is accompanied by a popping noise. The noise increases as the engine is accelerated and varies with engine speed.

### AM-FM RADIO

This radio is identical to the AM radio, as far as the

operation of the ON-OFF and volume control, tone control, manual tuning control, and pushbuttons are concerned. The AM/FM selector bar is located directly below the dial face on all series. Movement of the bar to the left exposes the letters "FM" and switches the radio to FM operation. Movement of the bar to the right provides AM radio operation. An automatic frequency control circuit is incorporated in the FM portion of the radio and automatically keeps the receiver on frequency. This eliminates any station detuning due to temperature changes around the radio.

### STEREO AM/FM RADIO

The stereo system includes a special AM/FM receiver with a multiplex section and four speakers. The radio is designed to receive and reproduce the dual stereo FM signal, as well as monaural AM/FM signals. The right rear and left front speakers are one channel, and the left rear and right front are the other channel. This gives a criss-cross, or a surrounding, sound effect. Operation of the controls is identical to previous AM/FM receivers, except the word "STEREO" lights up to the right of the dial when tuned to a stereo signal, on B-C-E cars, and an illuminated jewel indicator lights up on A cars.

The receivers operate with 12 volts DC input. All speakers have an impedance of 10 ohms. When replacing a speaker, the replacement speaker should have the same impedance for satisfactory results.

### RADIO/TAPE COMBINATIONS

Two radio/tape combinations are available: One is an AM/radio/tape, and the other is a stereo AM/FM tape. The pushbuttons and control knobs operate in the same manner as the AM/FM radios.

This unit uses a standard eight-track tape cartridge that is inserted through the spring-loaded radio dial (tape door).

### RADIO CONTROLS

#### Volume Switch and Tone Controls

The left knob turns the radio ON and OFF, and controls the volume. On the stereo radio the knob controls the volume in both channels simultaneously and on radio/tape combinations the knob changes the tape programs when depressed. The tone control ring around the left knob is turned counterclockwise for bass tones and clockwise for treble tones. When indexed at the detent, it provides a balanced normal tone. On the stereo radio, this control varies the tone in both channels simultaneously.

For best stereo reception, neutralize the tone control

by turning it to the center detent position, then adjust the front and rear speaker control so that the sound is balanced to your ears. Centering the tone control permits normal response from the speakers, and balanced speaker output is desirable for greatest stereo effect.

### Station Selector and Speaker Control

The right knob is used to tune stations manually. The ring around the knob is the front-rear speaker(s) control. When the ring is turned all the way clockwise the volume of the rear speaker(s) is increased. As the ring is turned counterclockwise, the rear speaker(s) volume decreases while the front speaker(s) volume increases. When the ring is turned all the way counterclockwise, the front speaker(s) is stronger. This control has no effect on the balance of stereo channels.

## DIAGNOSIS

### RADIO TROUBLE DIAGNOSIS

Because radio problems are most often repaired at United Delco authorized Warranty Repair Stations, the tendency for many dealer servicemen is to remove the set when a problem is reported, without any preliminary diagnosis. This results in a large number of radios showing up as "NO TROUBLE FOUND" units when received by the Warranty Repair Stations. This indicates that the trouble can often be corrected without removal of the radio.

The inconvenience to an owner of driving without a radio while his set is being serviced at a Warranty Station can frequently be avoided if the following quick checks are used to eliminate external radio system problems before removing the radio for repair.

Always determine from the owner the exact nature of the radio problem as an aid to diagnosis. Knowing whether the condition is intermittent or constant, whether it occurs with engine off or running, with car stationary or moving, will help to pinpoint the problem.

#### *Dead Radio*

1. Check the fuse and connectors to the radio.
2. Check the speaker - listen for a thump when the radio is first turned on. If no thump, check the speaker and connectors.
3. Check the antenna - is the antenna plugged into the radio - is the windshield antenna "pigtail" plugged into the lead-in On "B-C-E" Series with

fender mounted power antenna, is the antenna lead-in screwed into the antenna?

Check the windshield antenna with the Kent-Moore Tool J-23520 and the power antenna with Kent-Moore Tool J-22194.

4. If the trouble is not found, remove radio for repair.

#### *Weak on AM*

1. Peak the antenna trimmer adjustment. On "B-C-E" Series with fender mounted power antenna trim the radio with antenna fully extended.
2. Check the antenna using the J-23520 on the windshield and the lead-in cable or the J-22194 on the power antenna.
3. If the windshield has been replaced, check around the pigtail to insure white or clear RTV or equivalent was used at this location.
4. If the problem is not found, remove the radio for repair.

#### *Intermittent*

1. Check connections to the radio and speakers by wiggling the wires and bumping the bottom of the radio with the heel of your hand.
2. Check connections to the antenna.
3. Check the radio installation for a good ground (all bolts tight).
4. Remove radio for repair if the problem is not discovered.

#### *Noisy - AM Static*

1. Trim antenna trimmer, power antenna fully extended. Storm and fluorescent or neon sign noise is normal for AM.
2. Motor noise and switch pops.

**DO NOT REMOVE RADIO** Go to the source of the noise in the car and suppress the noise by adding capacitors, chokes, or rerouting wires.

#### *Noisy on FM*

1. Flutter or Multipath.

This condition may be objectionable but is normal for some FM reception areas. The customer's radio operation should be compared to a "known good car" in the same area to determine if the flutter is normal. This can be done by driving a short distance in both cars. Be sure customer fine tunes radio to FM

station after using pushbutton to locate station. If radio is not fine tuned, noise and weak reception will be present.

## 2. Motor Noise and Switch Pops

**DO NOT REMOVE RADIO** Refer to "Noisy AM Static".

### *Windshield Antenna*

The windshield antenna has been incorporated into the 1973 Buicks to improve antenna reliability, extend the life of the antenna, to eliminate antenna replacements due to vandalism, to eliminate antenna wind noise, and to enhance the appearance of the automobile.

With the windshield antenna the radio will perform equally as well as previous radio installations. Customers may notice a faint "swish" sound on weak FM stations, as the windshield wipers pass over the windshield antenna elements when it is raining. *This is a normal occurrence.*

It is extremely important that the AM antenna trimmer adjustment at the radio be checked before any complaint of poor AM reception is further diagnosed. It is equally important that the dealership readjust the antenna trimmer after reinstallation of a repaired radio or if a new windshield is installed.

### *Testing*

The following guide will aid in further diagnosing the radio system, using the windshield antenna tester J-23520 and systems checker J-22194 available from Kent-Moore Corporation.

The spring shield must be on the tester J-23520 at all times to direct the signal only to the area being tested. Always check the testers on a known good car to make sure they are operating properly and that the batteries are not weak or dead.

The radio trouble diagnosis guide is intended as an aid in locating minor faults which can be corrected without a specialized knowledge of radio and without special radio test equipment. If the suggestions given here do not affect a correction, further testing should be *done only by a trained radio technician having proper test equipment.*

## DIAGNOSIS GUIDE

### RADIO DEAD

*(Turn on radio.)*

### NO THUMP HEARD

*(Check fuse.)*

*Fuse blown* Replace fuse and check for short or open in wiring.

*Fuse okay* Check receiver and speaker connectors.

*Connectors loose or defective* Correct as required.

*Connectors okay* Check speaker with radio systems tester J-22194. Substitute a known good speaker or switch to rear speaker if car is so equipped.

*Radio does not play even with a known good substitute speaker* Defective receiver. Remove for servicing.

*Radio plays with substitute speaker* Replace speaker.

## THUMP HEARD

*(Check antenna connection at back of radio at base of windshield or on "B-C-E" Series with power antenna check lead-in at the antenna.)*

*Connections defective* Correct as necessary.

*Connections okay* Substitute a known good lead-in cable.

*Radio plays* Defective cable.

*Radio still won't play, even with a known good lead-in cable* Substitute and trim a known good radio.

*Good radio plays* Defective radio.

*Good radio still won't play* Defective antenna. Change windshield or power antenna.

## RADIO CUTS ON AND OFF

*(Check for defective or loose receiver or antenna connectors at the rear of radio or base of windshield or on power antennas at the lead-in connection.)*

*Defective or loose connectors* Repair as necessary.

*Connectors okay* Substitute a known good lead-in cable.

*Radio plays okay* Defective cable.

*Radio still cuts out with a known good lead-in cable* Check speaker with radio system tester J-22194. Substitute a known good speaker or switch to rear speaker if car is so equipped.

*Radio plays okay* Replace speaker.

*Radio still plays intermittently, even with a known good speaker* Defective receiver.

**RADIO STATIONS MIX TOGETHER**

*(Carefully trim radio. However, if two or more signals are picked up at the same time, there is no known way to separate them.)*

**RADIO NOISY**

*Static* - Start engine, rev up engine several times, and listen for speaker static.

**STATIC HEARD**

Trim radio - check for spark plug wire breakdown, loose or improperly-seated wire, or loose or missing engine ground strap.

Check suppressors on voltage regulator, Delcotron, blower motor and resistor on timing control solenoid.

**STATIC STILL PRESENT**

*(Defective receiver.)*

**WEAK RADIO SIGNAL - WINDSHIELD ANTENNA**

*(Place radio to AM band, just off a station, and turn volume up full. Hold tester J-23520 to antenna beginning at upper corner of antenna on both sides of windshield.)*

**HIGH-PITCH SOUND HEARD THROUGH RADIO SPEAKER WHEN BOTH ANTENNA WIRES ARE TESTED**

*Windshield antenna is okay* - Check radio and speaker with radio system tester J-22194.

**HIGH-PITCH SOUND HEARD THROUGH ONLY ONE ANTENNA WIRE**

Check the problem antenna by moving the tester until sound begins - this is the area of the defect. Replace windshield.

**NO HIGH-PITCH SOUND IS HEARD THROUGH EITHER ANTENNA WIRE**

Unplug antenna lead at the radio and touch tester to antenna socket in the radio

**(a) If High-Pitch Sound Is Heard**

*(Remove windshield lower reveal molding.)*

Disconnect pigtail at windshield, connect lead-in extension J-22276 to antenna lead-in and plug into J-22194 system tester.

Insert a 1/8 inch diameter metallic object into lead-in cable at cowl and attach alligator clip.

*Cable tests okay* Replace windshield.

**(b) If No High-Pitch Sound Is Heard**

*(Check radio and speaker with system checker J-22194.)*

Replace defective components.

**WEAK RADIO SIGNAL - POWER ANTENNA**

*Tune radio to a station at or near 1400 KHz that can barely be heard with volume on full. Fully extend antenna and adjust trimmer screw until the position is found that gives maximum volume. Adjust trimmer on AM/FM sets in AM position only. Check lead-in and antenna with system checker J-22194, if okay - defective receiver.*

**DISTORTED TONE**

*(Turn on radio, adjust for high volume and maximum bass. Check speaker with radio systems tester J-22194. Substitute a good speaker or switch to rear speaker if car is so equipped.)*

**NO DISTORTION**

Replace speaker.

**DISTORTION**

Defective receiver - remove for servicing.

**RADIO/TAPE PLAYER TROUBLE DIAGNOSIS**

The tape player trouble diagnosis guide is intended as an aid in locating minor faults which can be corrected without a specialized knowledge of electronics and without special test equipment. If the suggestions given here do not affect a correction, further testing should be done only by a trained radio technician having proper test equipment. It should first be determined if the owner's tape and not the player is at fault. Substituting a known good tape cartridge for the owner's is a simple check.

Because tape player service problems are generally corrected by United Motors Service repair shops, there is a tendency for many dealer servicemen to remove a set when a problem is reported. The irritation to an owner of having to drive with the tape player removed can frequently be avoided if the tape player trouble diagnosis guide is used to eliminate problems which can be easily fixed or which are not even caused by a faulty player.

**DIAGNOSIS GUIDE****PLAYER NOISY**

*(Set all controls to mid-position. Insert test tape.)*

**A. NOISE ON ONE CHANNEL**

*(Check interconnecting cable and connections.)*

*Cable and/or connectors loose or defective* Replace or correct as required.

*Cable and connectors okay* Check speakers by substitution.

*Speaker defective* Replace speaker.

*Speaker okay* Remove player for repair.

**B. NO NOISE**

*(Jar player with heel of hand.)*

*Noisy* Check speaker connections.

*Loose or defective connections* Replace or correct as required.

*Connections okay* Remove player for repair.

*No noise* Player okay.

**C. NOISE ON BOTH CHANNELS**

*(Check speaker and power line connections.)*

*Connections loose or defective* Correct as required.

*Connections okay* Check for loose mounting (player or speakers).

*Loose mounting (player or speakers)* Correct as required.

*Mounting okay* Remove player for repair.

**PLAYER SPEED INCORRECT**

*(Set all controls to mid-position. Insert test tape.)*

*Speed too slow, too fast, or constantly changing* Remove player for repair.

*Speed normal* Player okay.

**PLAYER DEAD**

*(Set all controls to mid-position. Insert test tape and listen for speaker "thump".)*

**A. NO THUMP HEARD IN ONE CHANNEL ONLY**

*(Check interconnecting cable and connectors.)*

*Cable and/or connections loose or defective* Replace or correct as required.

*Cable and connectors okay* Check speaker by substitution.

*Speaker defective* Replace speaker.

*Speaker okay* Remove player for repair.

**B. NO THUMP HEARD**

*(Check fuse.)*

*Fuse blown* Replace fuse and check for short or open in wiring.

*Fuse not blown* Check speaker and power line connections.

*Connections loose or defective* Correct as required.

*Connections okay* Remove player for repair.

**C. THUMP HEARD**

Remove player for repair.

**DIVISION III****MAINTENANCE AND ADJUSTMENTS****ANTENNA TRIMMER ADJUSTMENT**

An antenna trimmer adjustment is provided for matching the antenna coil in the receiver to the car antenna. This adjustment must always be made after installation of receiver, windshield antenna, power antenna or after any repairs to these units. This adjustment should also be performed whenever the AM radio reception is unsatisfactory.

This adjustment applies only to AM radios or to the AM portion of AM-FM radios. Trimming for FM reception is accomplished automatically whenever the antenna is raised to 31 inches on cars with dealer installed whip antennas.

1. Fully extend power antenna if equipped.
2. On cars with dealer installed whip antennas, raise antennas to 31 inches.
3. Tune radio to a weak station near 1400 KHz which can barely be heard with volume turned fully on.

4. Remove right inner and outer knobs.
5. On cars having a rear speaker, it is necessary to fabricate a jumper wire and insert it into center and an outside hole unless it is a stereo radio B-C-E cars only. A cars with factory installed rear speaker have a built in fader. Dealer installed rear speakers use a hang-on fader.

There are three small holes (electrical connecting points) in receiver which are located directly behind right knob. When a non-stereo car is equipped with a rear speaker, the right larger knob (rear speaker control) has three prongs which interconnect these points. When the rear speaker control is removed to gain access to the trimmer screw behind it, two of the holes (the center and an outside hole) must be interconnected by a short piece of jumper wire to channel sound to a speaker. It is generally desirable to trim the radio while using the front speaker.

6. Adjust trimmer screw until maximum volume is achieved.
7. Reinstall both right knobs.

#### **RADIO PUSH BUTTON SET-UP PROCEDURE**

1. Turn on the radio.
2. Pull buttons outward. It is desirable to set up the push buttons in logical sequence. For example -- lowest frequency on first buttons, next higher frequency station on second button, etc.
3. Select either the AM or FM band. Carefully tune in the desired station manually, then push the button all the way in.
4. Move dial pointer away from the selected station and try the button to make certain the station is properly tuned in. Fine tuning will usually be required for optimum reception.
5. Turn the tuning knob back and forth to make certain that best tuning is obtained with the push button. If the best tuning is not obtained, repeat Steps 2, 3, and 4.
6. Any single push button on the AM/FM or stereo radios can be adjusted for BOTH A/M and F/M reception. This provides five A/M and five F/M station capability.

On push button selection, if the program sounds shrill or distorted, it is probably caused by improper tuning and can be corrected by adjusting the tuning knob slightly. Since the low notes are more affected by tuning than the high ones, it is preferable to tune the receiver to a point where the low notes are heard best, and high notes are clear but not shrill. This

point may be most readily found by listening to the background noise of a station and tuning for the lowest noise level of the station. Turning the control knob back and forth until the station is almost lost on either side will enable the operator to hear the difference in reception and select the intermediate position giving best results.

#### **TAPE PLAYER - PERIODIC MAINTENANCE**

With use, lubricant and oxide from the player may build up on the capstan, head and tape guide. This may cause the tape to slip or run slowly. A head cleaning tape cartridge which contains a mildly abrasive tape is designed to remove these deposits. The cleaning tape cartridge is inserted in the tape player and allowed to run for approximately 30 seconds. This procedure is recommended after every 50 hours of operation or sooner if necessary. No lubricants should be used since they will cause the player to operate improperly especially at extreme temperatures.

#### **MAJOR REPAIR**

##### **REMOVAL AND INSTALLATION OF RADIO - A SERIES**

###### **Removal**

1. Remove radio knobs and escutcheons.
2. Disconnect center air duct assembly control (if equipped) by removing 2 retaining screws. See Figure 9C-1.
3. Disconnect left air conditioning hose if equipped.
4. Disconnect antenna lead-in, radio and speaker(s) connections. See Figure 9C-21.
5. Loosen 1 radio support nut. See Figure 9C-15.
6. Remove 2 front attaching nuts at radio face and slide radio towards front of car and downward.
7. Install in reverse of removal, trimming radio before installing right radio knob. See Figure 9C-22.

##### **RADIO-TAPE PLAYER-REMOVAL AND INSTALLATION - A SERIES**

The integral radio/tape unit consists of 2 units, the radio/tape unit and remote converter. Should the radio/tape unit require servicing, it must be serviced with the remote converter, not as an individual component.



Figure 9C-1 Center Air Duct Control

1. Refer to radio R & I procedures.
2. Remove the screws retaining the convector assembly to the lower edge of the instrument panel on the passenger side. See Figure 9C-13.
3. Install in reverse of removal, trimming radio before installing right radio knob. See Figure 9C-22.

### SPEAKER(S) - REMOVAL AND INSTALLATION - A SERIES

#### Center Speaker

1. Disconnect speaker wires from rear of the radio. See Figure 9C-21.
2. Remove 4 vertical screws on the upper horizontal surface of the instrument panel and from behind the glove box door remove 2 screws. Remove glove box and release clip on passenger side and lift off instrument cover assembly. See Figure 9C-18.
3. Remove screw at speaker bracket and remove speaker. See Figure 9C-17.

### FRONT DUAL SPEAKER SYSTEM - A SERIES

#### Center Stereo Speaker

1. Refer to center speaker R & I for removal of the center stereo speaker. Disconnect the green and black wires from receptacles B and D from the speaker connector.
2. Install in reverse of removal making sure the speaker wires are installed into the correct receptacles. See Figure 9C-16.

To remove the passenger side stereo speaker, it is not necessary to remove the instrument panel cover.

#### Right Stereo Speaker

3. Disconnect the speaker wires from the rear of the radio. See Figure 9C-16.
4. Remove from the connector plug, the green and black wires (receptacles A & C) for the right speaker. See Figure 9C-16.
5. If equipped with A/C disconnect right hose and remove 1 bracket screw and lower speaker from beneath the instrument panel assembly. See Figure 9C-16.

6. Install in reverse of removal making sure speaker wires are connected into the correct receptacles of radio connector. See Figure 9C-16.

### POWER ANTENNA REMOVAL AND INSTALLATION - B-C SERIES

1. Remove right rocker panel moulding.
2. Remove 5 fender to wheelhouse screws starting at the bottom of fender to the rear of the tire.
3. Remove 2 bottom and 1 top fender to body screws and shims if equipped.
4. Pull bottom of fender out approximately 10 inches and use a block of wood to hold fender out.
5. On top of fender, remove special nut, adapter, and trim adapter pad. See Figure 9C-33.
6. Disconnect antenna lead-in cable, unplug electrical connector, remove bottom antenna assembly nut to mounting bracket and remove assembly.
7. Install in reverse of removal and trim radio with antenna extended fully.



## POWER ANTENNA REMOVAL AND INSTALLATION - E SERIES

1. Disconnect antenna lead-in cable and electrical connector.
2. On top of fender, remove special nut, adapter, and trim adapter pad. See Figure 9C-33.

## DISASSEMBLY, ADJUSTMENT AND REASSEMBLY OF ELECTRIC ANTENNA

### DISASSEMBLY

Before work is started mark (index) each part so reassembly is exactly as disassembly.

1. Remove 3 screws holding the body and upper insulator assembly to support tube.
2. While applying a back and forth motion, carefully pull the body upper insulator assembly out of the support tube and slide it over the 0.40 inch diameter section of the mast.
3. Remove 2 screws holding male lead-in connector and apply heat to center pin of connector and remove.
4. Remove 3 screws which hold the support tube to antenna drive.
5. Hold antenna drive in one hand, grasp support tube in other hand and pull with a rocking motion until the support tube is removed.
6. While still holding antenna drive in one hand,

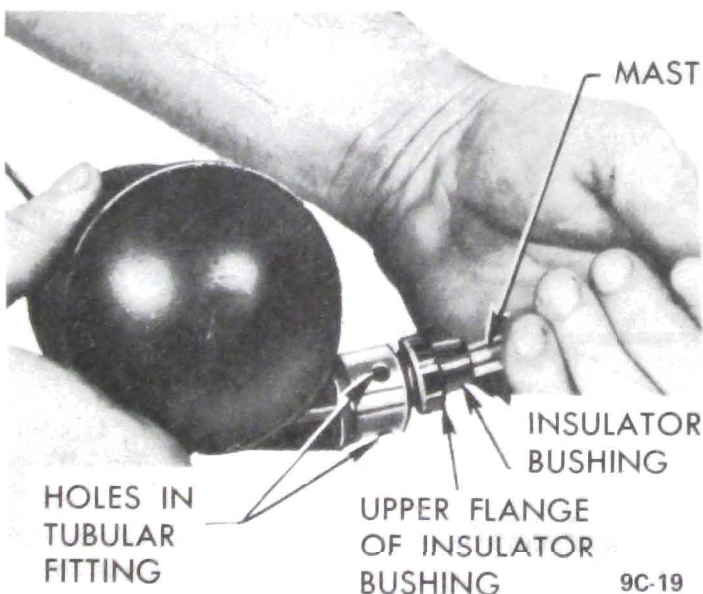


Figure 9C-2 Removing or Installing Mast and Insulator Bushing

grasp the mast with the other hand and pull with a rocking motion until the insulator bushing and mast are free from the tubular fitting of antenna drive (see Figure 9C-2).

7. Apply 12 volts D.C. to the black wire of the antenna drive until the entire length of nylon reed has been expelled, and remove mast. Pull on the mast to keep the nylon taut.

If the antenna drive is inoperative, it will be necessary to manually remove the nylon reed. Place the assembly in a vise so that the normal plane of the nylon reed is parallel with the floor. Using both hands, pull on the 0.30 inch diameter section of the mast until the reed is completely removed.

8. Remove burrs from inside of screw holes then using a wire hook or long nose pliers, remove bottom insulator and water seal washer from tubular fitting of antenna drive if necessary.

### Adjustment - All Models

Before adjustment is made, check and clean mast assembly.

1. Remove electric antenna assembly.
2. Remove the drive cover and place antenna drive in a vise so that the center line of antenna drive is parallel to the bench top.
3. Using 12 volts D.C., adjust mast tip approximately 6 inches from the extreme down position.
4. Connect one end of a wire securely to the mast just below the tip and the other end to a 25 lb. capacity spring scale. Secure the spring scale to the bench so that the centerline of the scale is in line with that of the mast assembly. See Figure 9C-3.

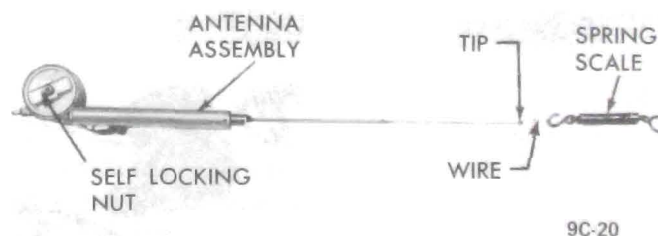


Figure 9C-3 Antenna Adjustment Test

5. Using 12 volts D.C. engage motor to the point of maximum pull before the clutch starts to slip. If the maximum pull is less than 15 lbs., turn the self locking nut clockwise a slight amount and recheck the maximum pull. If the pull is greater than 15 lbs., turn

the self-locking nut counterclockwise a slight amount and recheck pull. Repeat until the pull is set at 15 lbs. See Figure 9C-4.



Figure 9C-4 Antenna Motor Drive Cover Removed

6. Disconnect spring scale and engage the motor until the mast is all the way out and allow the motor to continue running until the clutch has made a minimum of 15 engagements or clicks.

7. Do the same in the down position.

8. Run antenna up and down for a 3 minute period, then reassemble spring scale to mast and recheck for maximum pull. Adjust as necessary.

9. Snap front cover onto antenna drive and make sure that the vent hole is at the top when the mast is installed in the car.

10. Reseal the assembly with body sealer and make sure that neither the vent hole nor the drain hole in the antenna drive is plugged.

11. Reinstall antenna assembly.

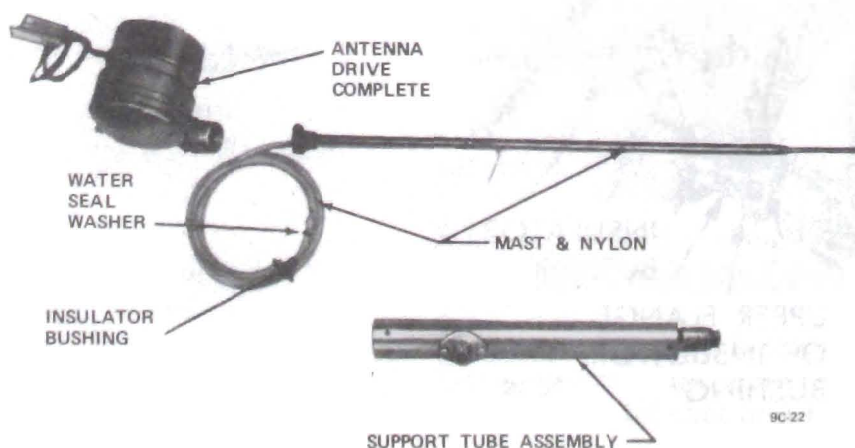


Figure 9C-5 Electric Antenna Assembly

## REMOVAL AND INSTALLATION OF RADIO - RADIO TAPE UNIT - B-C-E SERIES

### Removal

The integral radio/tape unit consists of two (2) units, the radio/tape unit and remote converter. Should the radio/tape unit require servicing, it must be serviced with the remote converter, not as an individual component.

1. Remove knobs and escutcheons from radio control shafts. If car is equipped with trip set and/or speed alert, hold the shafts and unscrew the cone-shaped knobs to allow removal of the face plate. See Figure 9C-6.

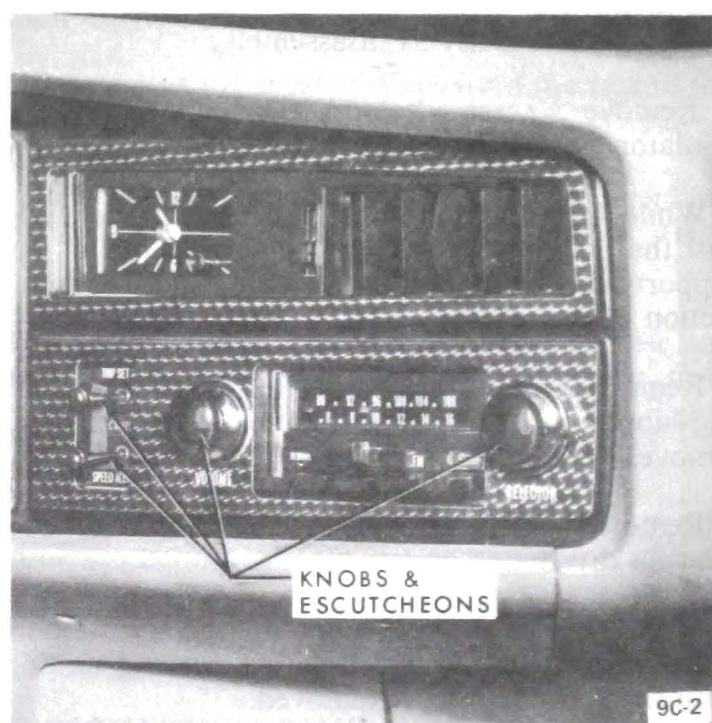


Figure 9C-6

2. Remove face plate by grasping edges revealed by

knob absence and pull directly outward. See Figure 9C-7.

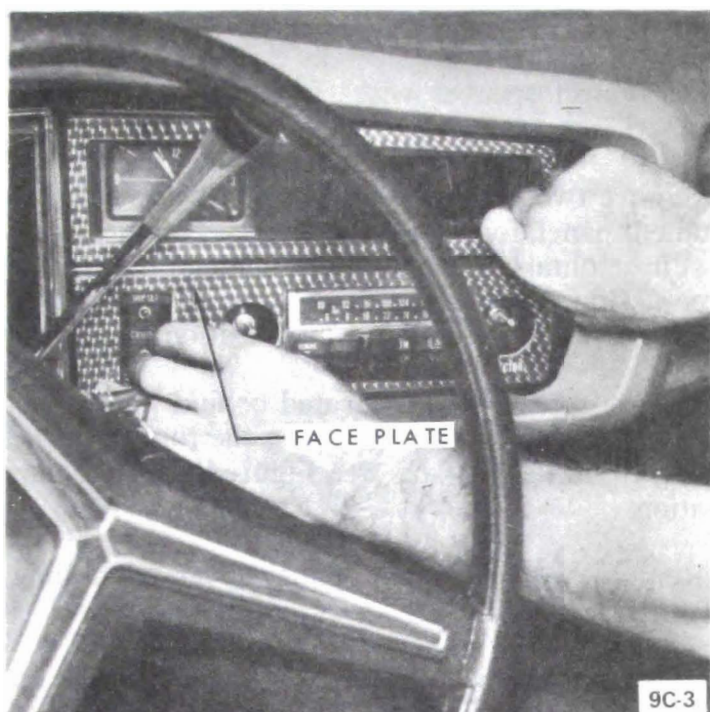


Figure 9C-7

3. Remove the retaining nuts (2) from the threaded portion of the control shaft. See Figure 9C-9.

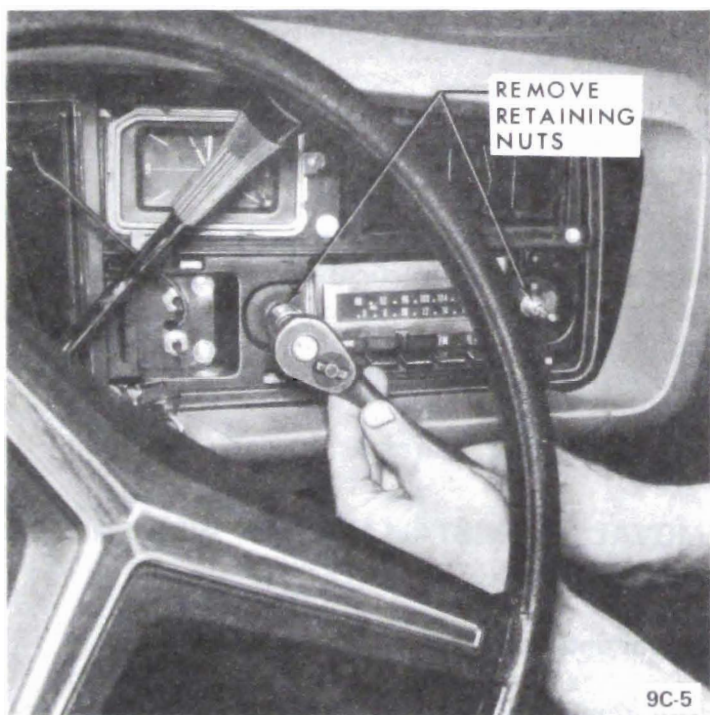


Figure 9C-9

4. Remove the ash tray by unscrewing (4) screws and pulling the ash tray and frame from the instrument panel. See Figure 9C-11.

5. Separate the (2) multiple connectors and antenna lead-in before the radio is removed. See Figure 9C-12.

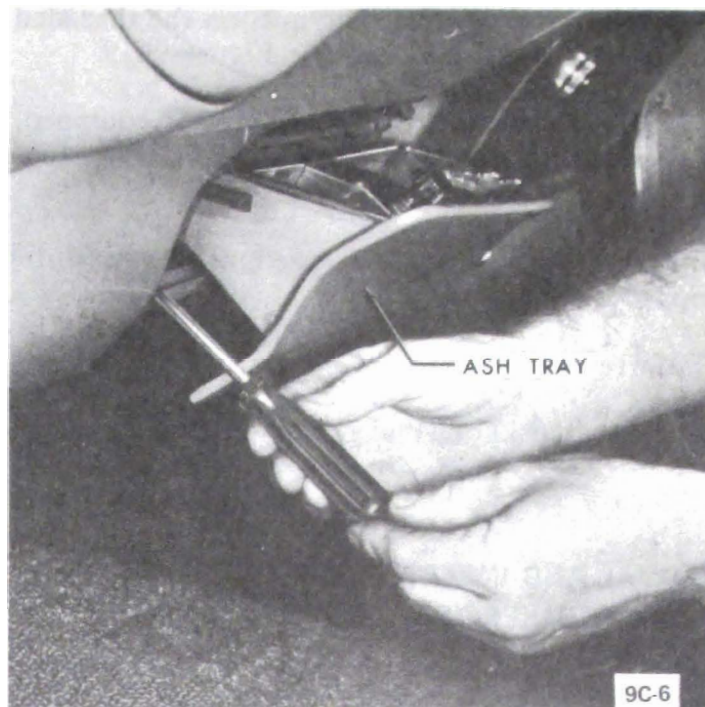


Figure 9C-11

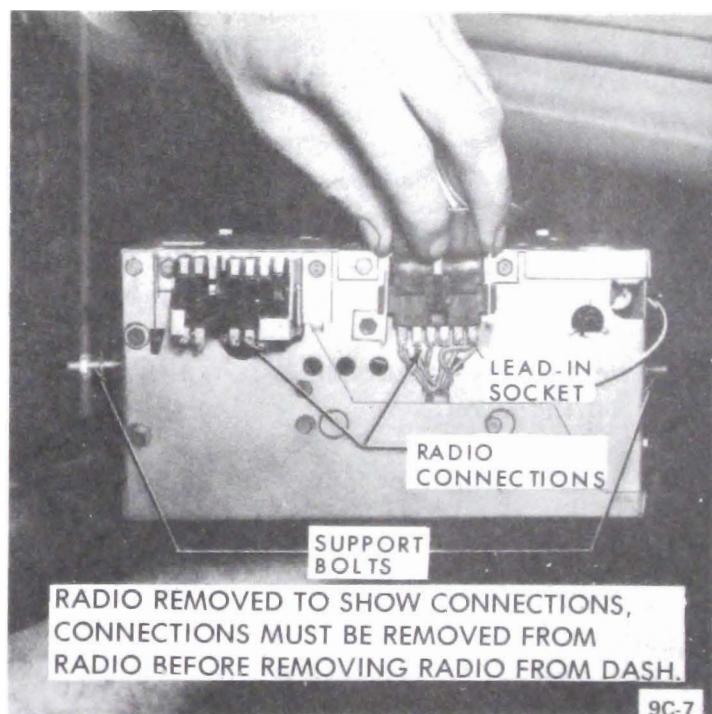


Figure 9C-12

6. Unscrew the nuts on the radio support bolts and remove the radio from the opening, lowering it from behind the instrument panel. See Figure 9C-12.

### Installation

1. Install radio and secure with radio support, bolts, and nuts. See Figure 9C-12.

2. Connect the two (2) multiple connectors and antenna lead-in. See Figure 9C-12.

3. Install the ash tray assembly and secure with four (4) screws. See Figure 9C-11.

4. Install the two (2) retaining nuts on the threaded portion of the control shaft. See Figure 9C-9.
5. Install trip set and/or speed alert, if equipped, sealites into face plate and install face plate. See Figures 9C-8 and 9C-7.
6. Install trip set and/or speed alert knobs (if equipped).
7. Trim radio.
8. Install radio knobs and escutcheons. See Figure 9C-6.

### REMOVAL AND INSTALLATION OF FRONT CENTER SPEAKER - B-C-E SERIES

#### Removal

1. Disconnect speaker wires from the rear of the radio.
2. Remove two (2) horizontal screws below the instrument panel, four (4) vertical screws on the upper most horizontal surface of the instrument panel, and three (3) nuts above and inside the glove box. See Figures 9C-24 for screw and nut location.
3. Release three (3) clips located behind the instrument panel by grasping the tongue of the clip and pulling forward. See Figure 9C-24 for clip location.
4. Remove the instrument panel cover by pulling outward on the cover.
5. Remove the speaker by removing one (1) screw and slipping the speaker from beneath a side bracket. See Figure 9C-26.

#### Installation

1. Install speaker under the side bracket and secure with one (1) screw. See Figure 9C-26.
2. Install the instrument panel cover by pushing inward on the cover.
3. Install three (3) clips located behind the instrument panel. See Figure 9C-24 for clip location.
4. Install two (2) horizontal screws below the instrument panel, four (4) vertical screws on the uppermost horizontal surface of the instrument panel, and three (3) nuts above and inside the glove box. See Figure 9C-24 for screw and nut location.
5. Connect speaker wires to the rear of radio.

### REMOVAL AND INSTALLATION OF FRONT DUAL SPEAKER SYSTEM - B-C-E SERIES

#### Removal

1. Disconnect speaker wires from the rear of the radio.
2. Remove two (2) horizontal screws below the instrument panel, four (4) vertical screws on the upper most horizontal surface of the instrument panel, and three (3) nuts above and inside the glove box. See Figure 9C-24 for screw and nut location.
3. Release three (3) clips located behind the instrument panel, the right, by grasping the tongue of the clip and pulling forward. See Figure 9C-24 for clip location.
4. Remove the instrument panel cover by pulling outward on the cover.
5. Remove speakers by removing one (1) screw on each speaker. See Figure 9C-27.

#### Installation

1. Install the speaker(s) and secure with one (1) screw on each speaker. See Figure 9C-27.
2. Install the instrument panel cover by pushing inward on the cover.
3. Install three (3) clips located behind the instrument panel. See Figure 9C-24 for clip location.
4. Install two (2) horizontal screws below the instrument panel, four (4) vertical screws on the uppermost horizontal surface of the instrument panel, and three (3) nuts above and inside the glove box. See Figure 9C-24 for screw and nut location.
5. Connect speaker wires to the rear of radio.

### REMOVAL AND INSTALLATION OF WINDSHIELD GLASS WITH BUILT-IN ANTENNA

#### Removal and Installation

Before removing windshield glass, disconnect antenna lead at lower center of windshield. If glass is to be reinstalled, fold and tape lead wire back onto outer surface of windshield to protect it during glass removal and installation.

1. Remove and install windshield.
2. Connect windshield antenna lead to radio lead in cable.
3. Trim radio.

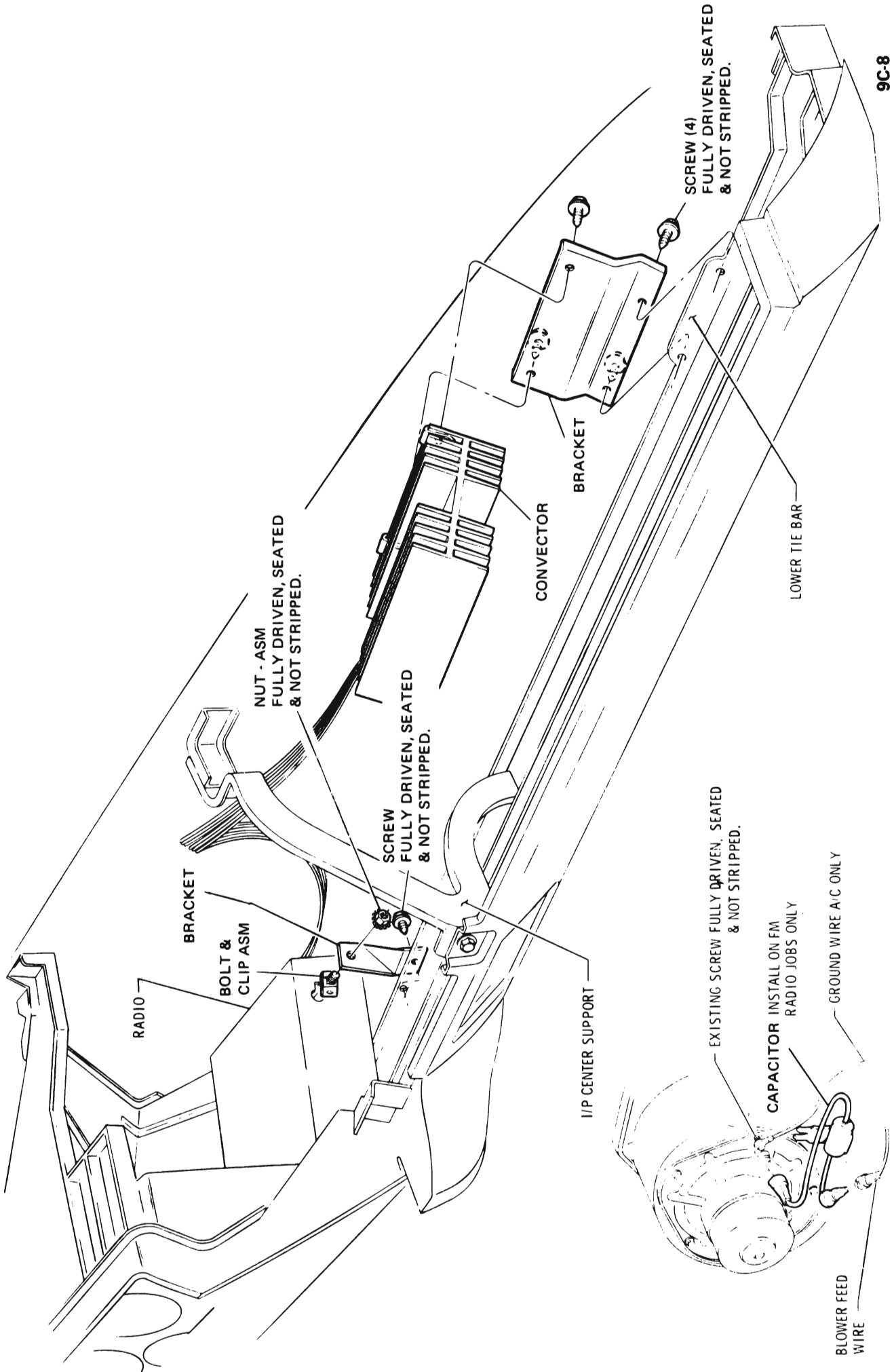


Figure 9C-13 Radio - Convector - Radio Tape Player Combination "A" Series

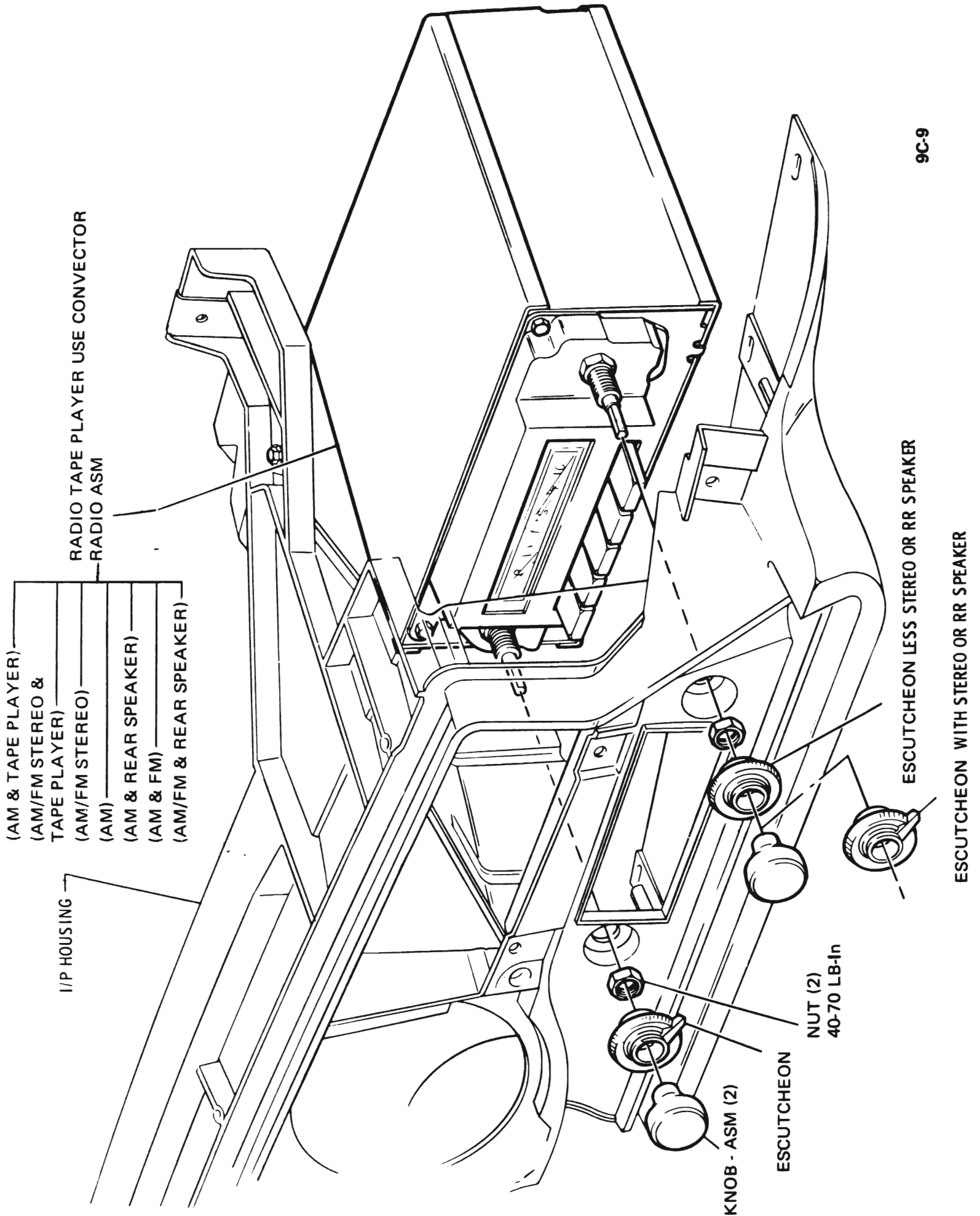


Figure 9C-14 Radio Receiver and Knobs - "A" Series

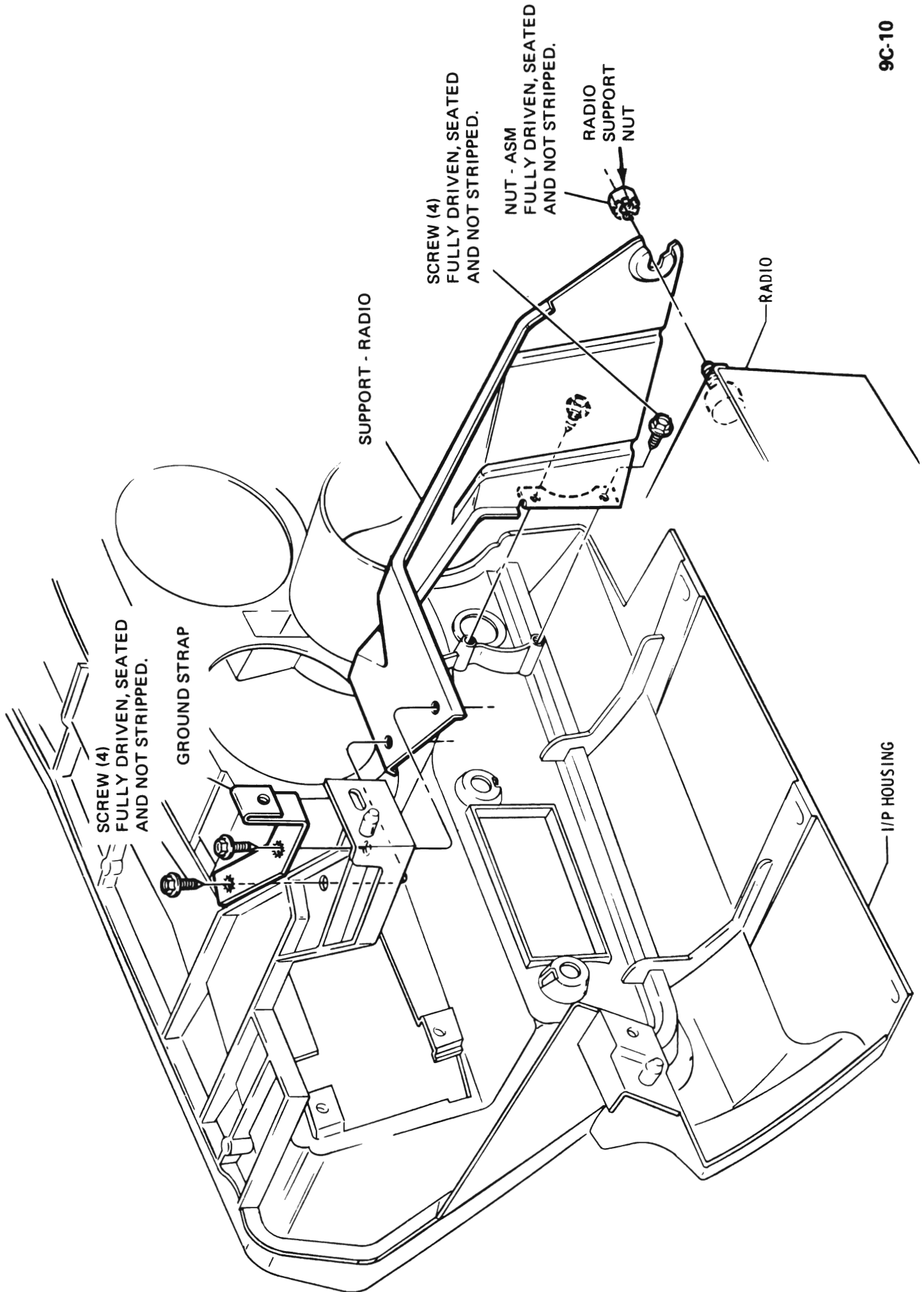
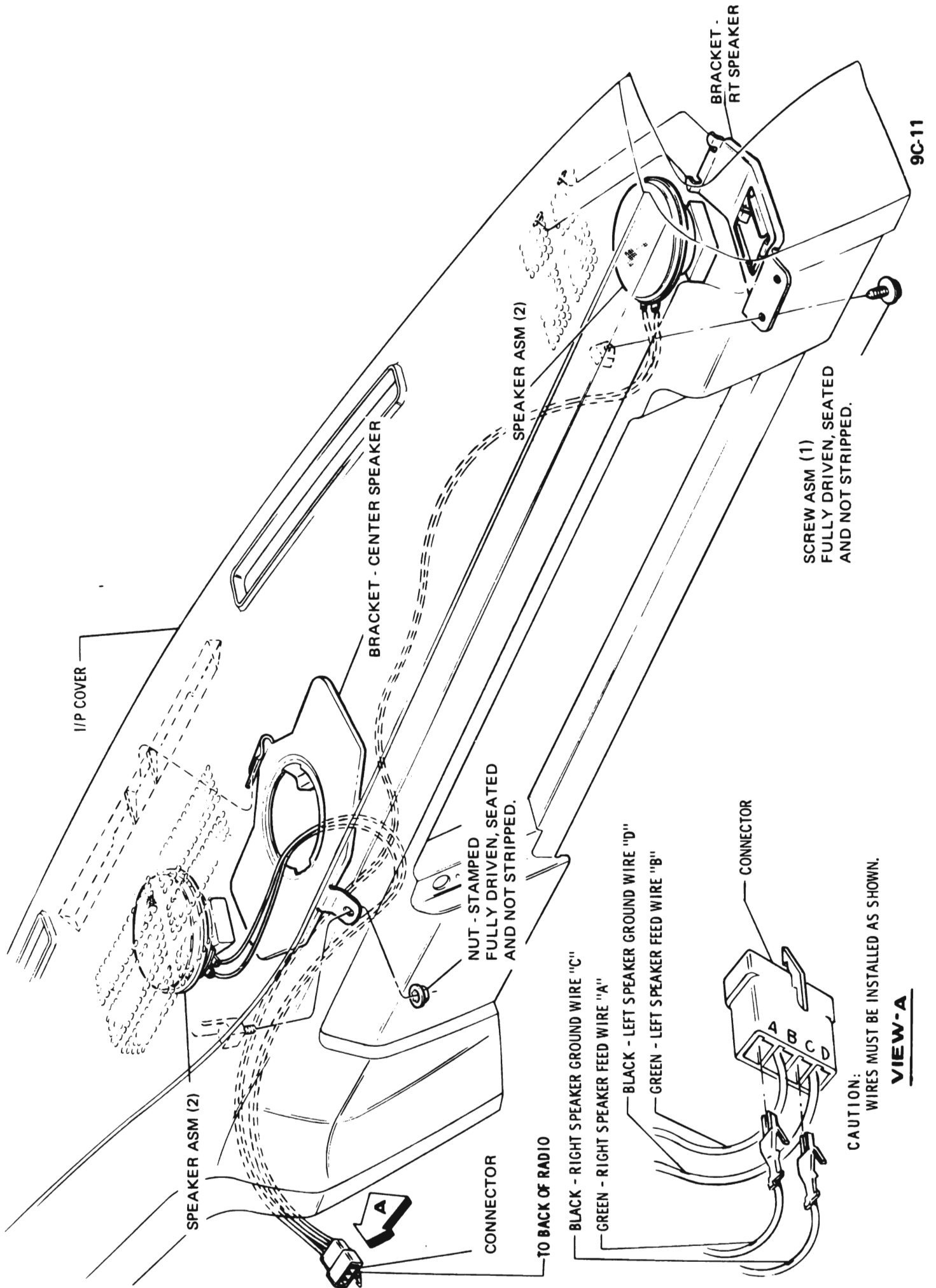


Figure 9C-15 Radio Support - "A" Series



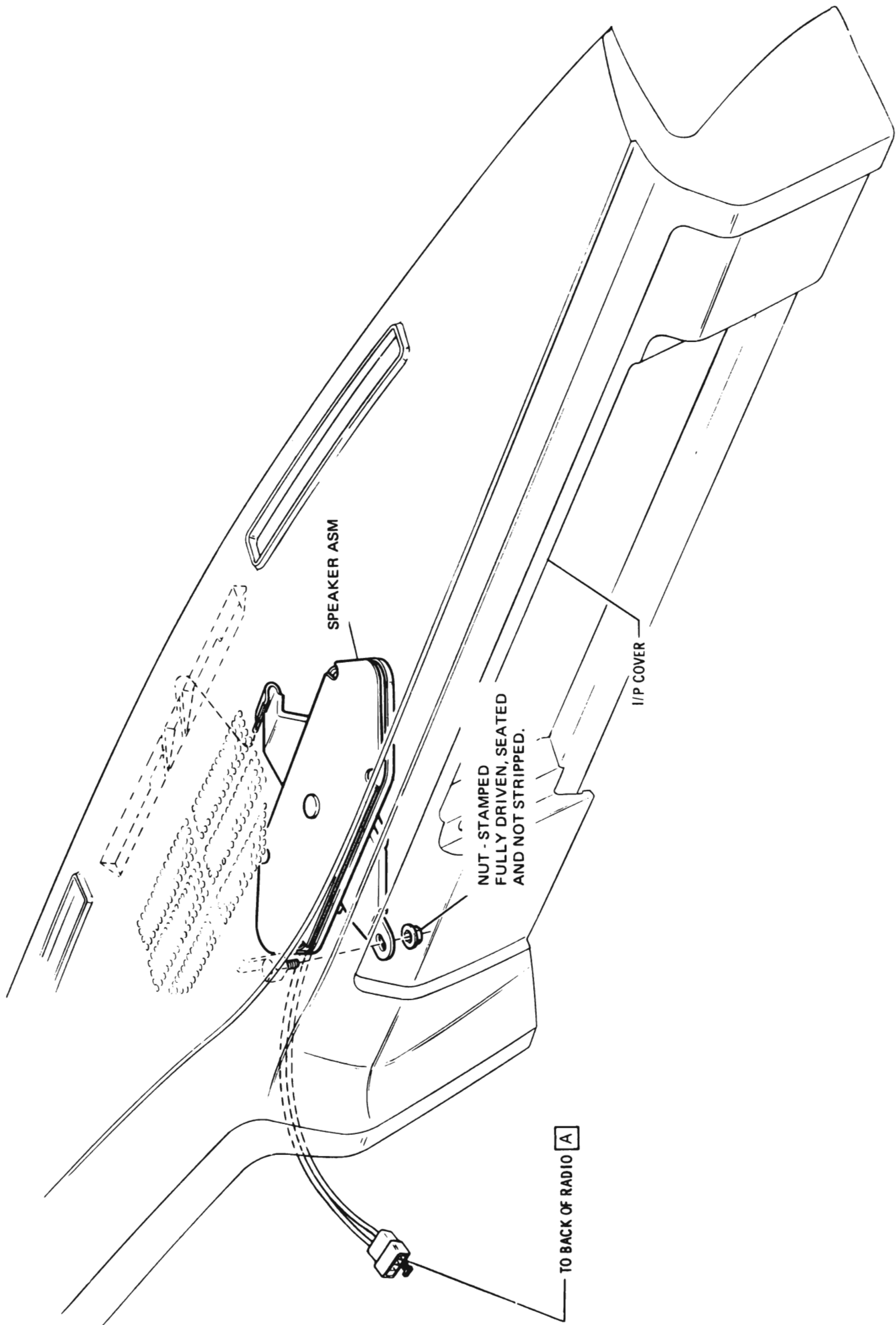
9C-11

CAUTION:  
WIRES MUST BE INSTALLED AS SHOWN.

**VIEW-A**

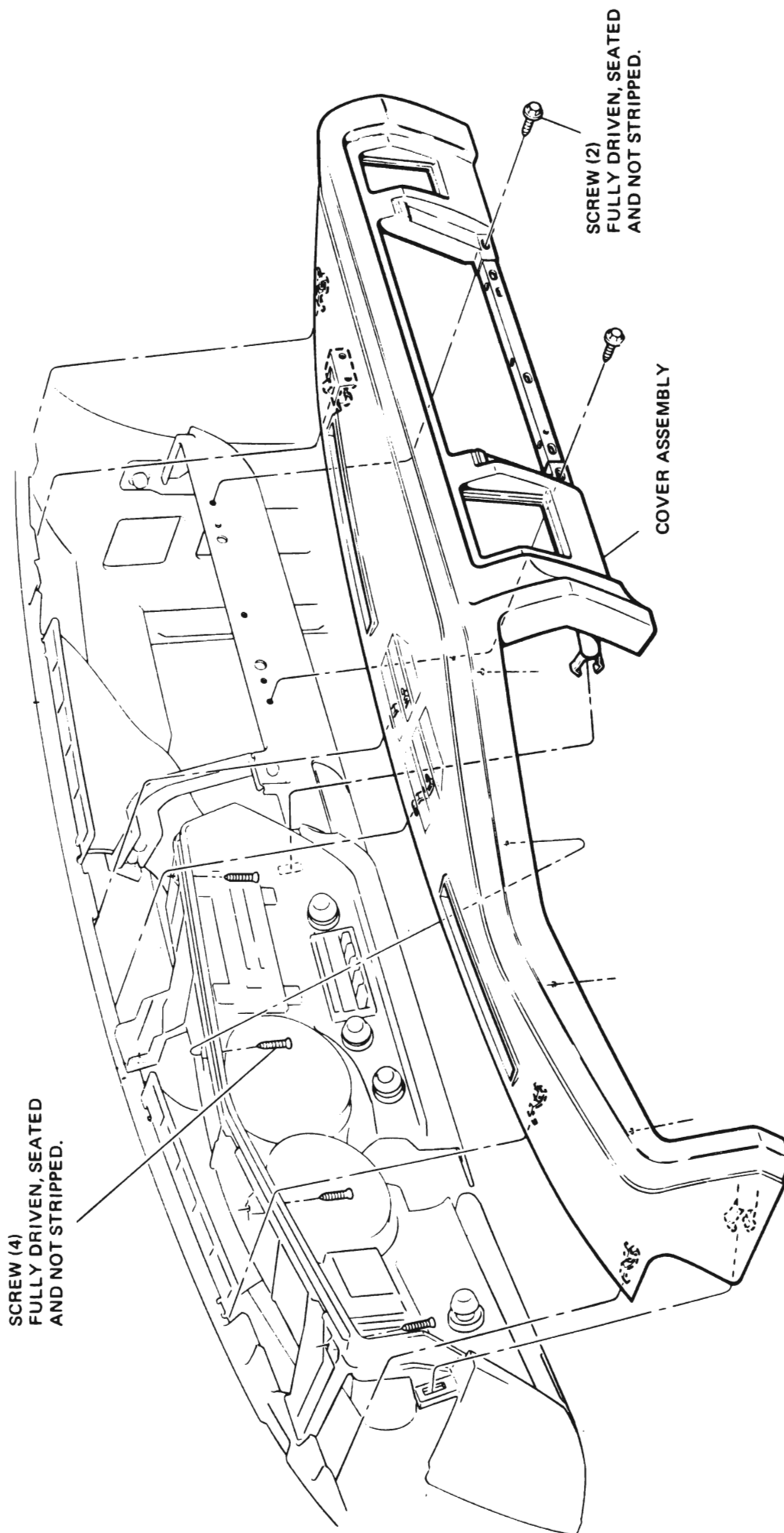
Figure 9C-16 Radio Speakers - Stereo "A" Series





9C-12

Figure 9C-17 Radio Speaker - Less Stereo "A" Series



9C-13

Figure 9C-18 Instrument Panel Cover Assembly "A" Series

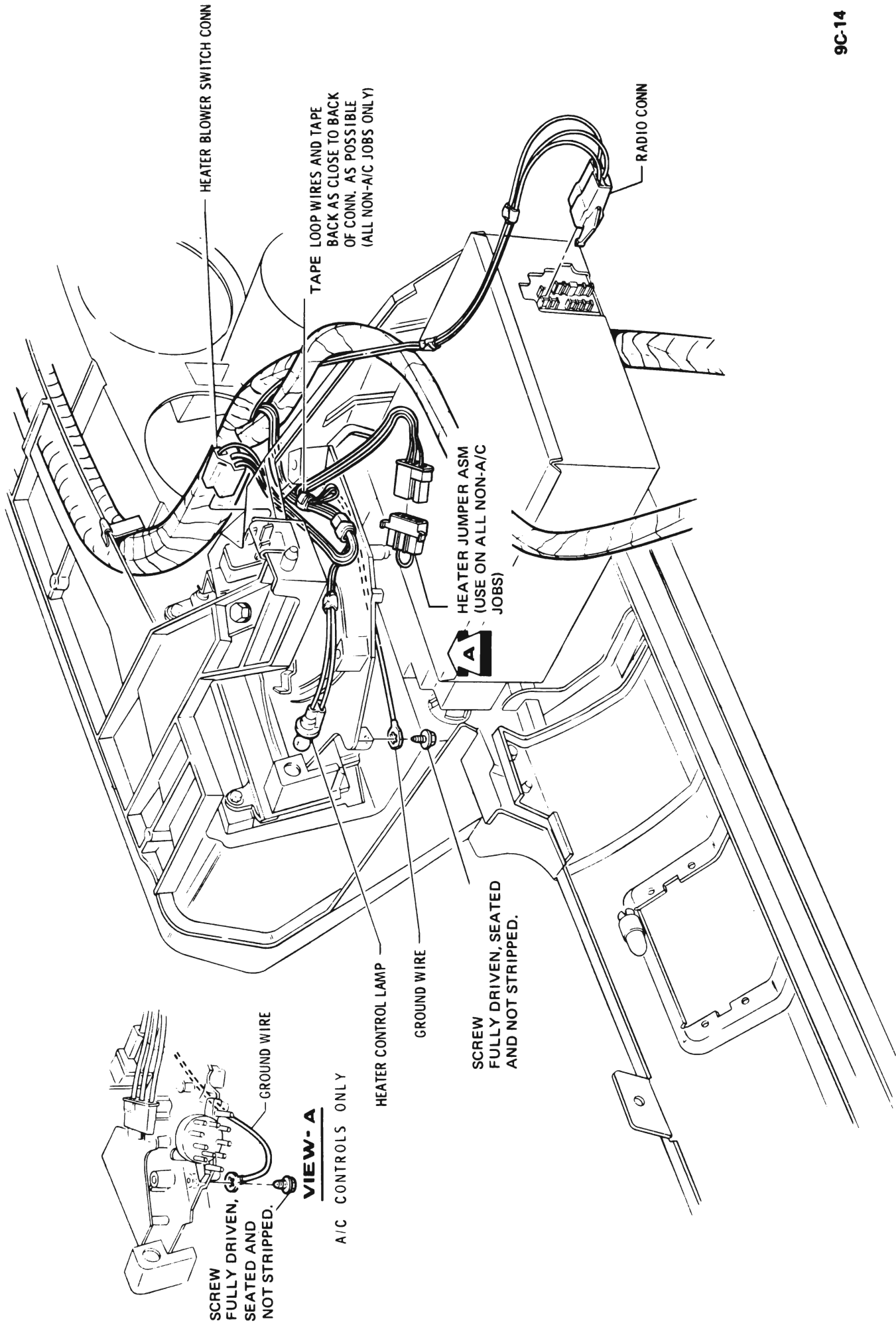


Figure 9C-20 Wiring - Right Side of Instrument Cluster "A" Series

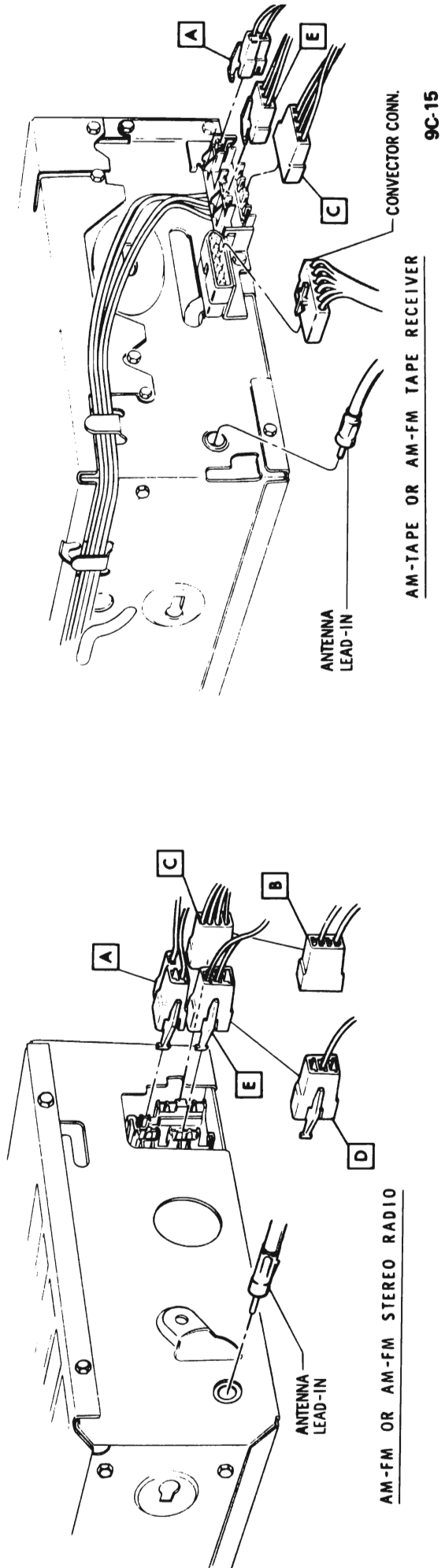
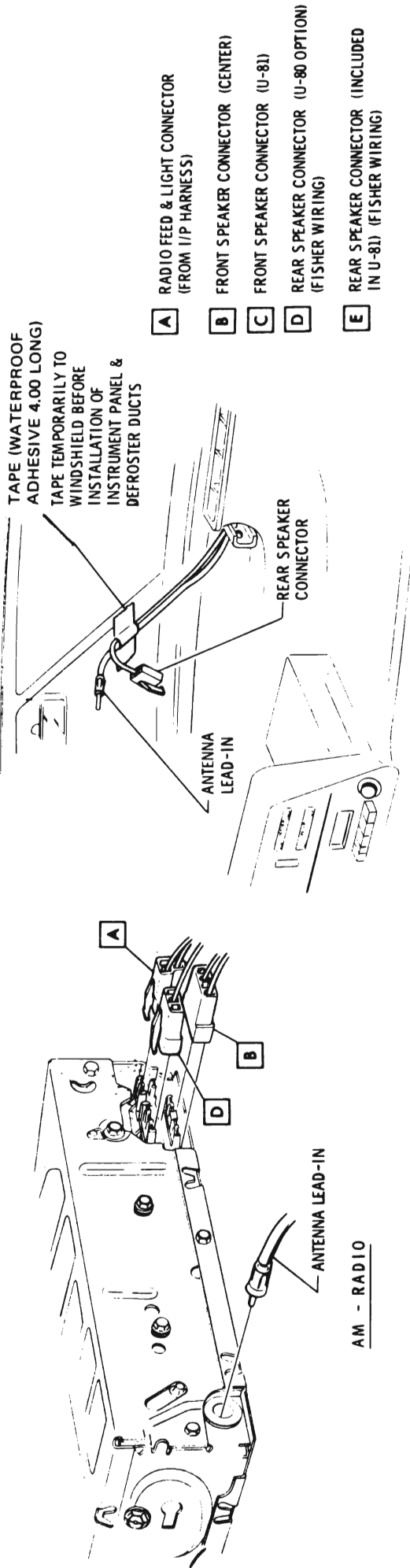
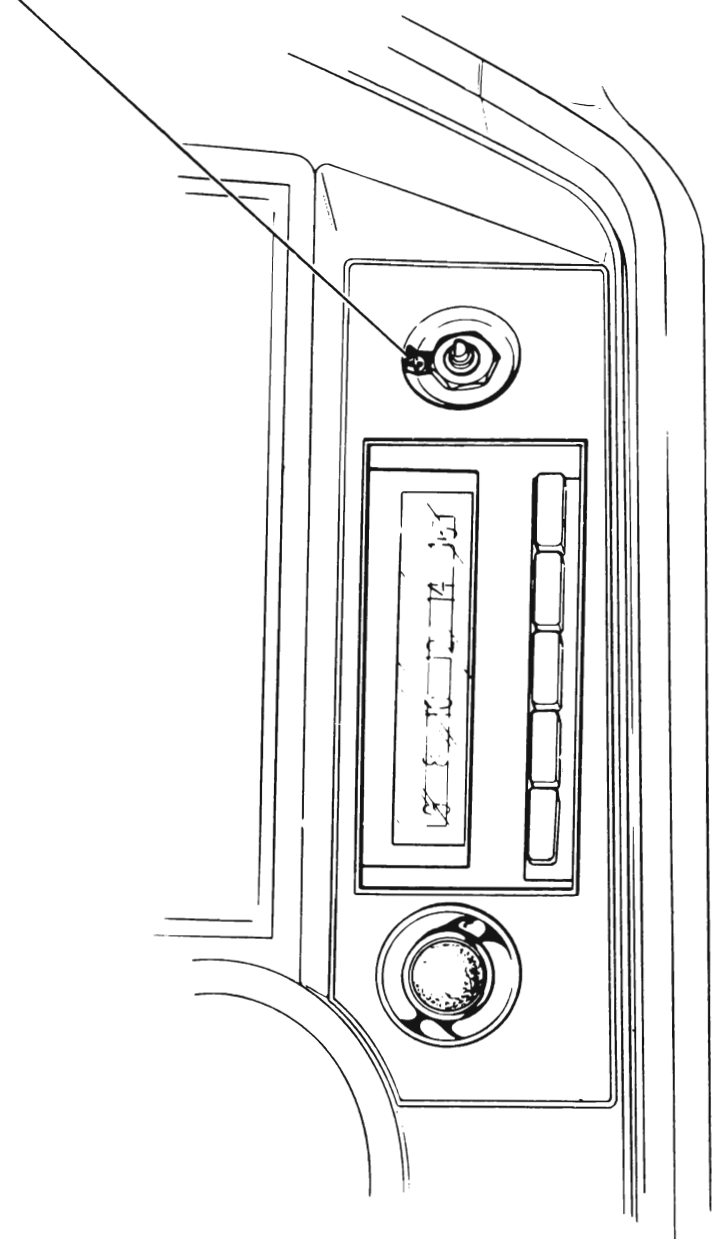


Figure 9C-21 Radio and Speaker(s) Connections - "A" Series

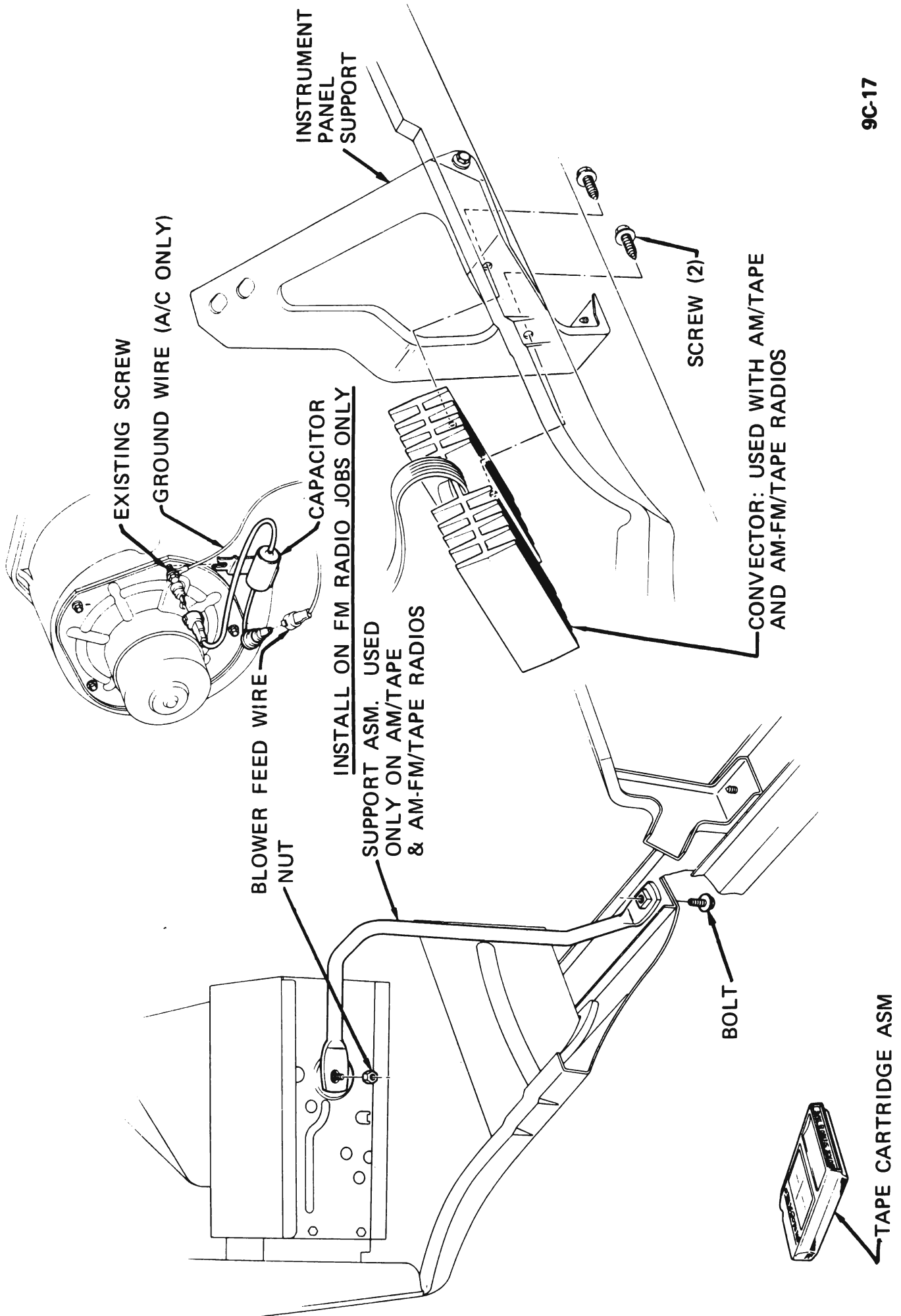
RADIO ANTENNA TRIMMER SCREW ADJUSTMENT

1. TUNE RADIO TO A STATION AT OR NEAR 1400 KHz THAT CAN BARELY BE HEARD WITH VOLUME FULL ON. (A PROPERLY ADJUSTED SIGNAL GENERATOR MAY BE SUBSTITUTED).
2. INSERT A SCREWDRIVER THROUGH THE OPENING IN THE RECEIVER AND SLOWLY TURN THE TRIMMER SCREW BACK AND FORTH UNTIL THE POSITION IS FOUND THAT GIVES MAXIMUM VOLUME.
3. ADJUST TRIMMER ON AM/FM SETS IN AM POSITION ONLY.



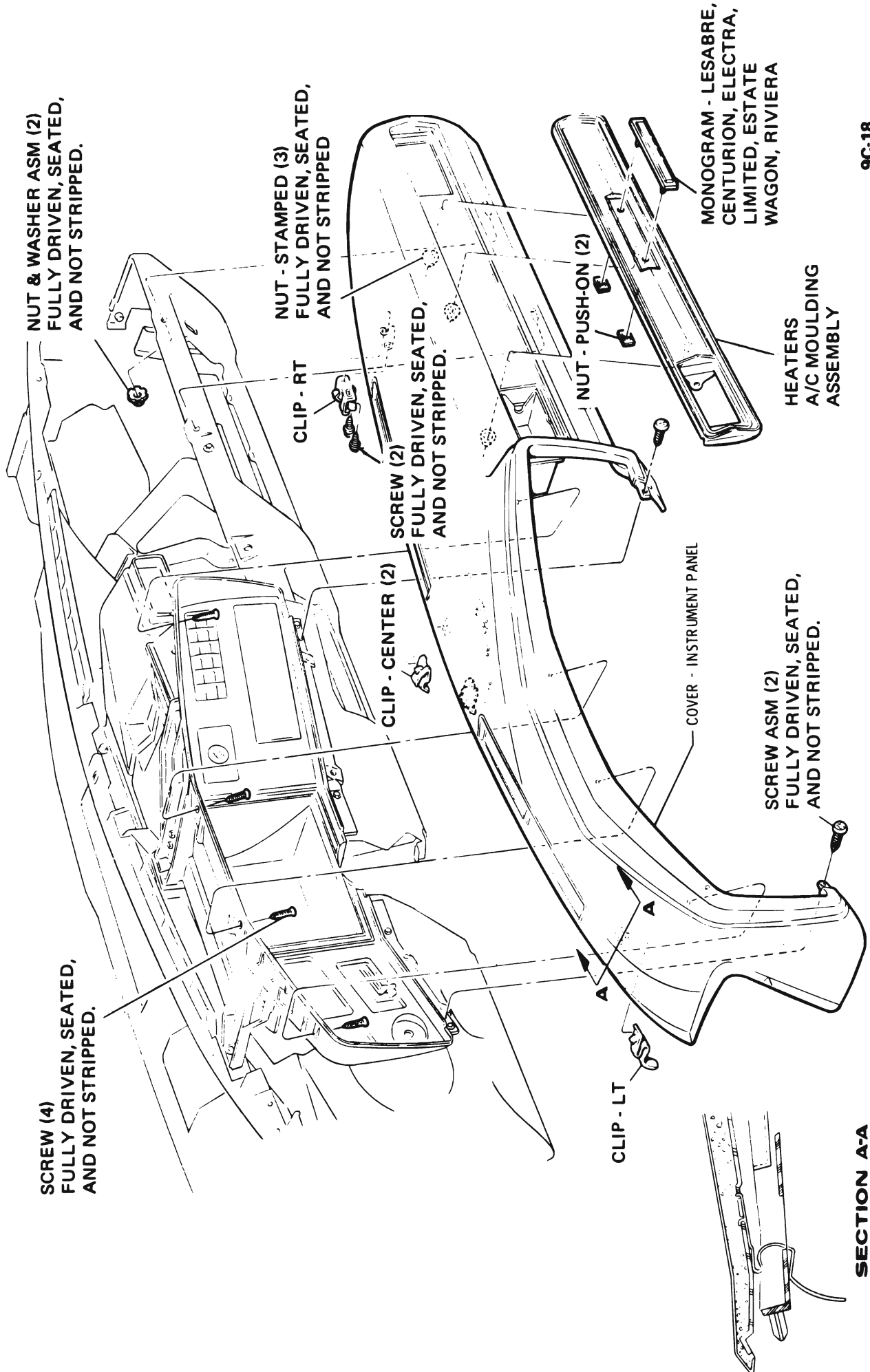
9C-16

Figure 9C-22 Antenna Trimmer Adjustment - "A" Series



9C-17

Figure 9C-23 Stereo Components - "B-C-E" Series



9C-18

Figure 9C-24 Instrument Panel Cover Assembly - "B-C-E" Series

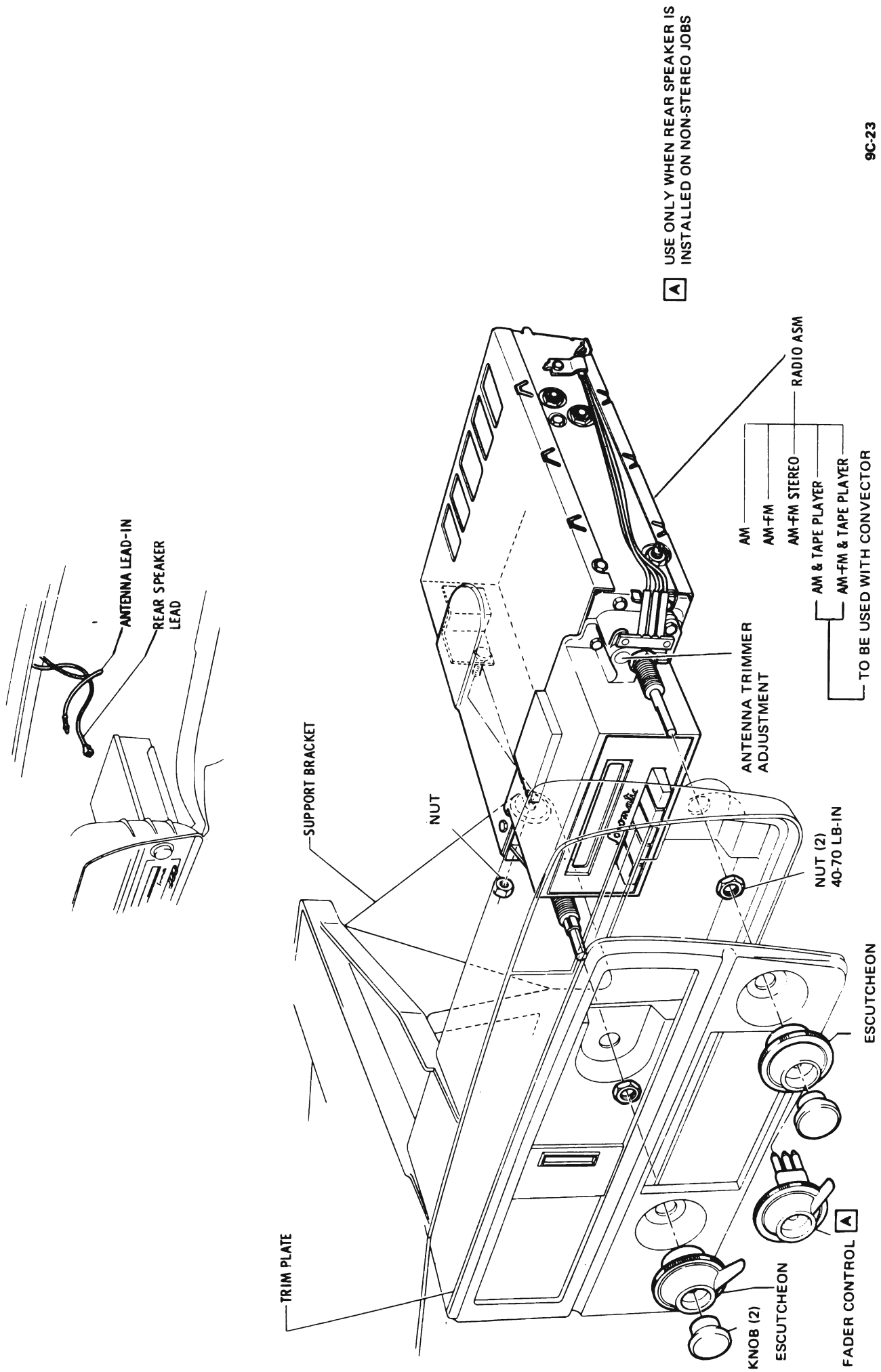


Figure 9C-25 Radio - Receiver and Knobs "B-C-E" Series



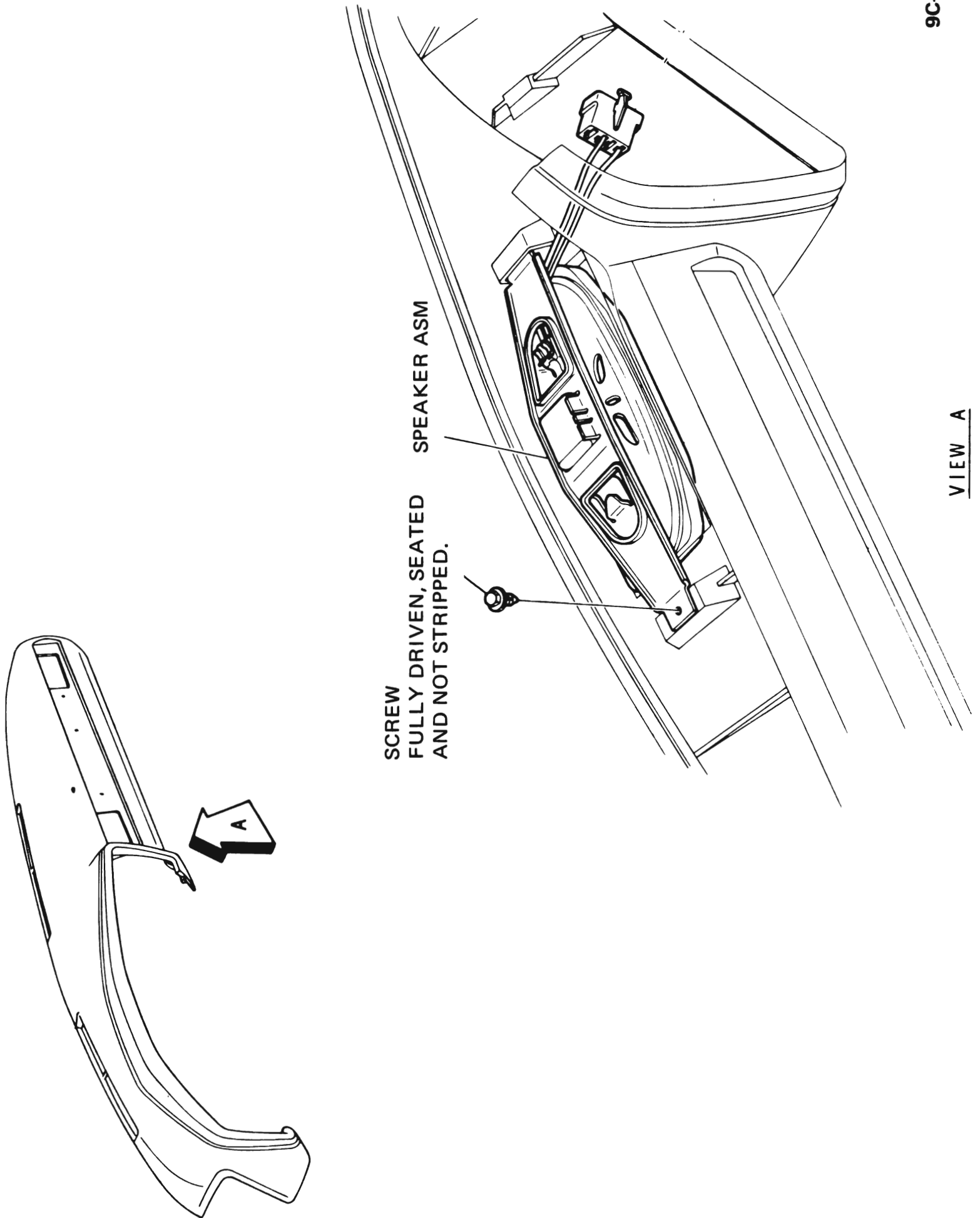


Figure 9C-26 Center Front Speaker - Non Stereo "B-C-E" Series

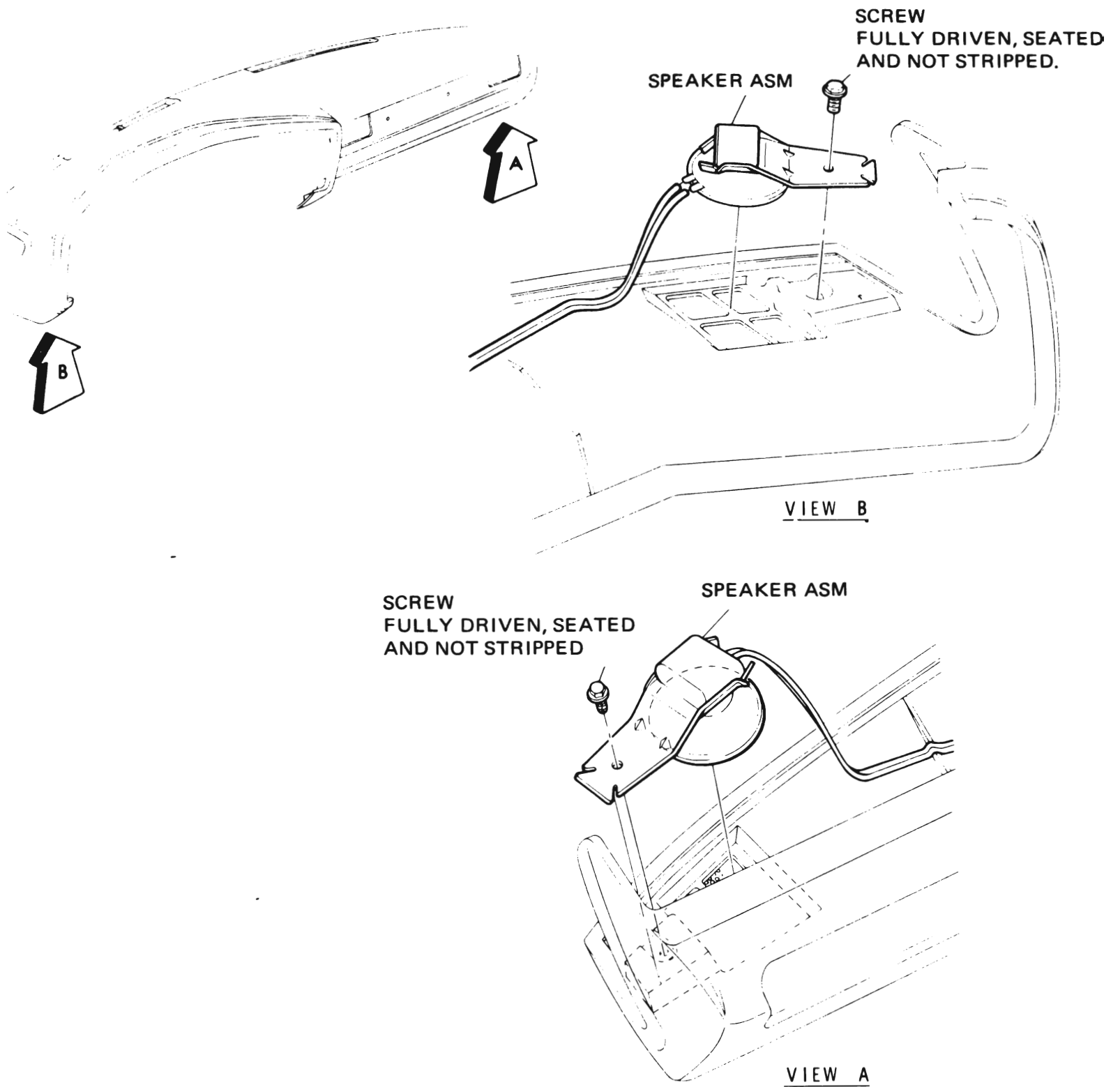
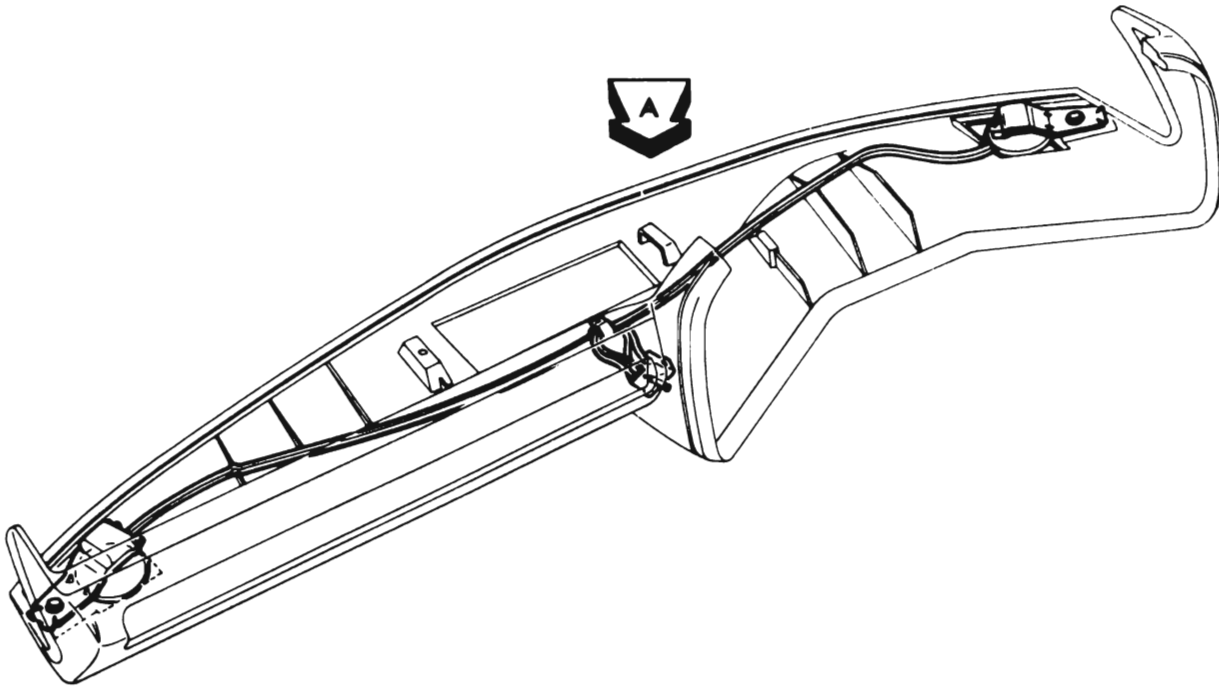
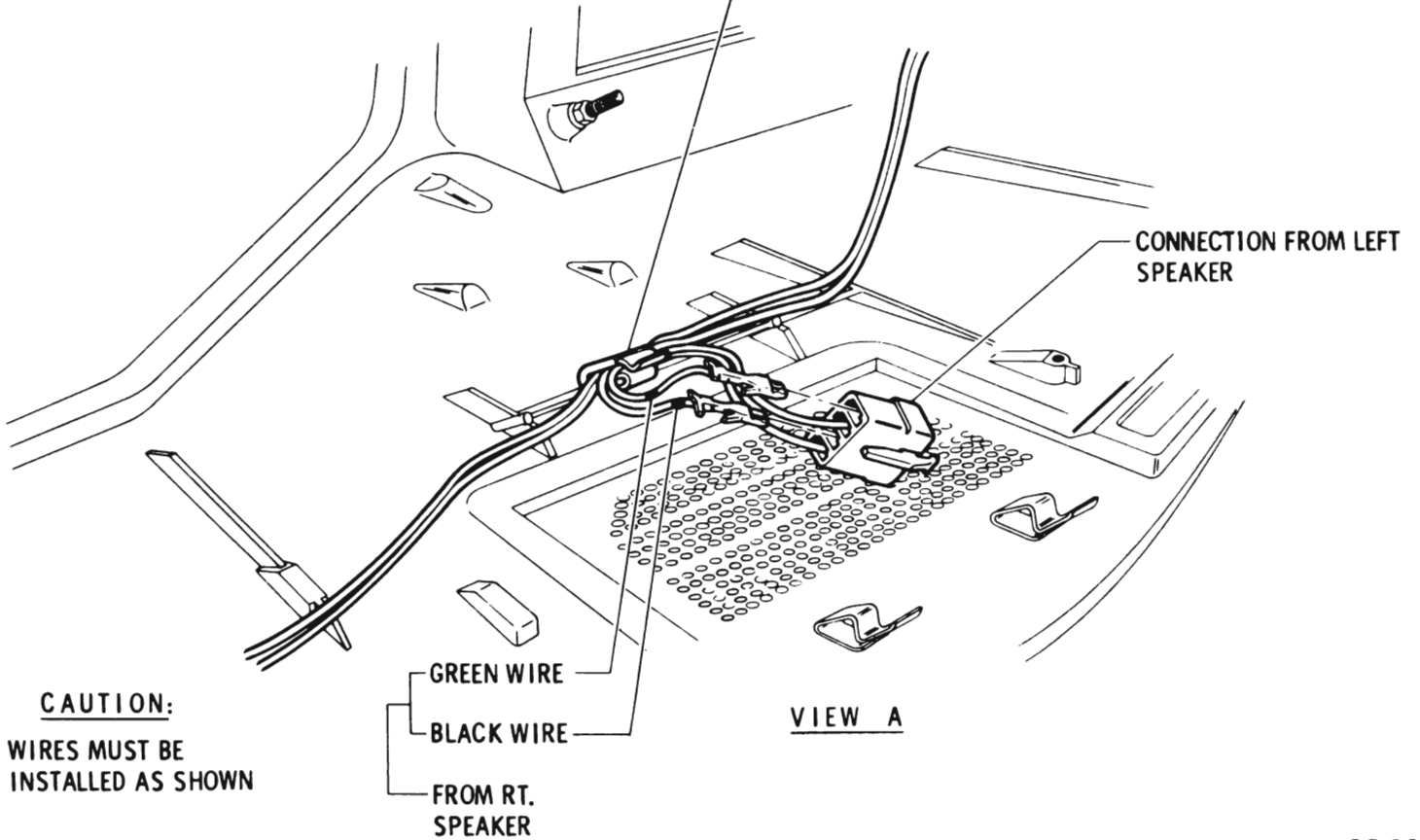


Figure 9C-27 Right and Left Front Stereo Speakers - "B-C-E" Series



CLIP  
PULL WIRES TIGHT IN CLIP  
BEFORE COVER INSTALLATION  
TO PREVENT DAMAGE.



**CAUTION:**  
WIRES MUST BE  
INSTALLED AS SHOWN

GREEN WIRE  
BLACK WIRE  
FROM RT.  
SPEAKER

CONNECTION FROM LEFT  
SPEAKER

VIEW A

Figure 9C-30 Front Stereo Speakers Wire Routing - "B-C-E" Series

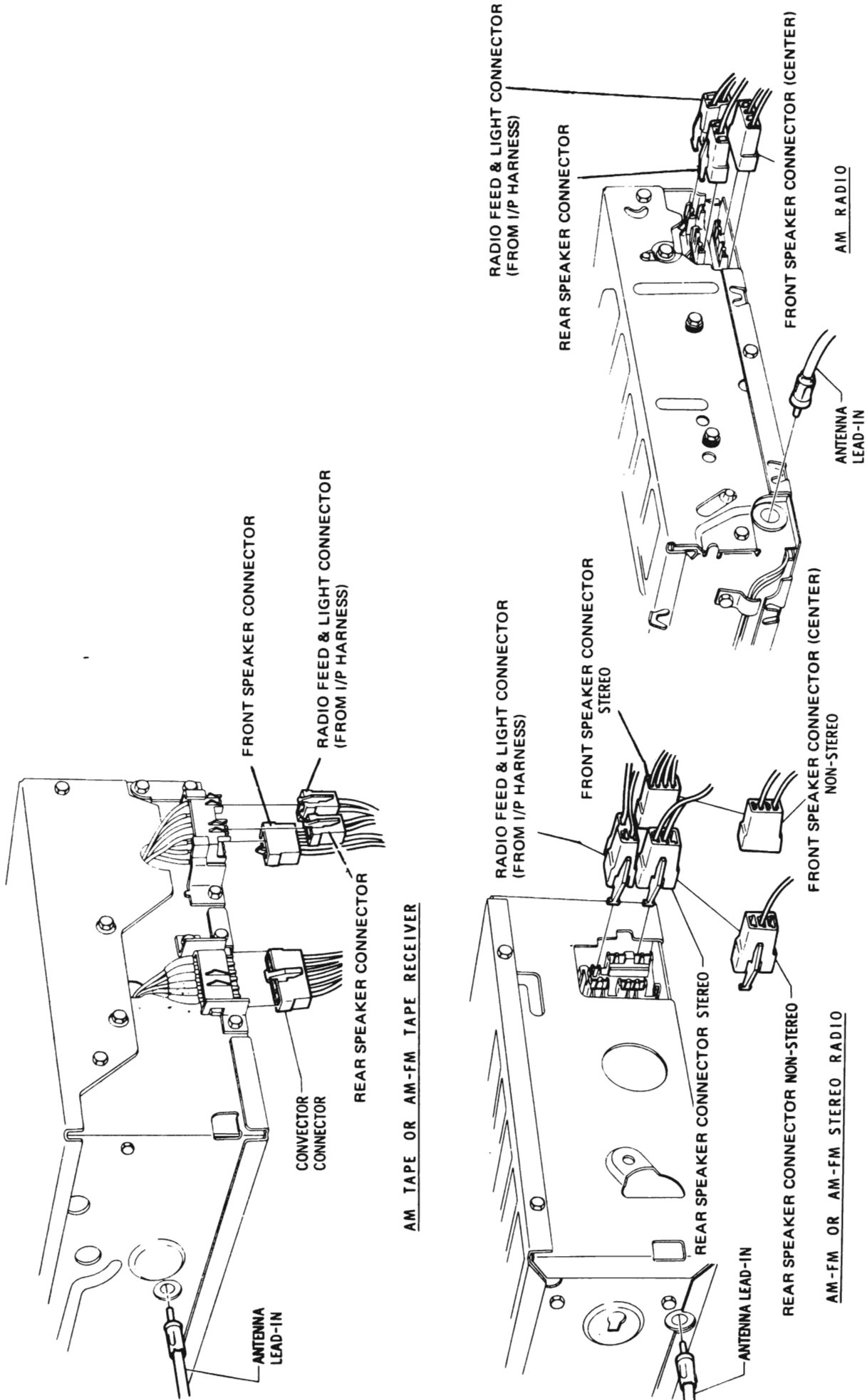


Figure 9C-31 Radio Connectors - Feed, Speaker and Antenna "B-C-E" Series

RADIO ANTENNA TRIMMER SCREW ADJUSTMENT

MAKE ADJUSTMENT PRIOR TO REMOVING JUMPER ON NON-STEREO REAR SPEAKER INSTALLATION.

TUNE RADIO TO A STATION AT OR NEAR 1400 KHz THAT CAN BARELY BE HEARD WITH VOLUME FULL ON. (A PROPERLY ADJUSTED SIGNAL GENERATOR MAY BE SUBSTITUTED).

INSERT A SCREWDRIVER THROUGH THE OPENING IN THE RECEIVER & CAREFULLY TURN THE TRIMMER SCREW BACK & FORTH UNTIL THE POSITION IS FOUND THAT GIVES MAXIMUM VOLUME. ADJUST TRIMMER OF AM/FM SETS IN AM POSITION ONLY.

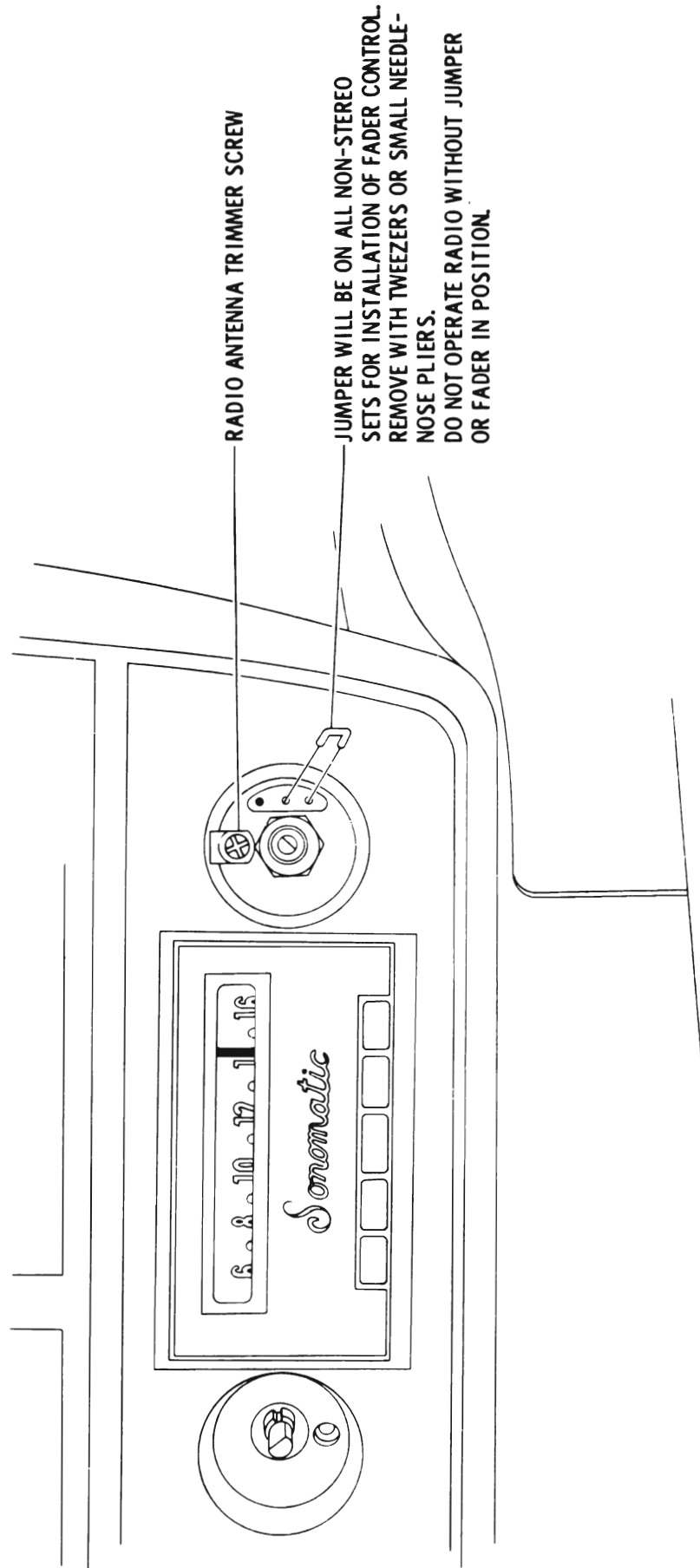


Figure 9C-32 Radio Antenna Trimmer and Rear Speaker Jumper - "B-C-E" Series

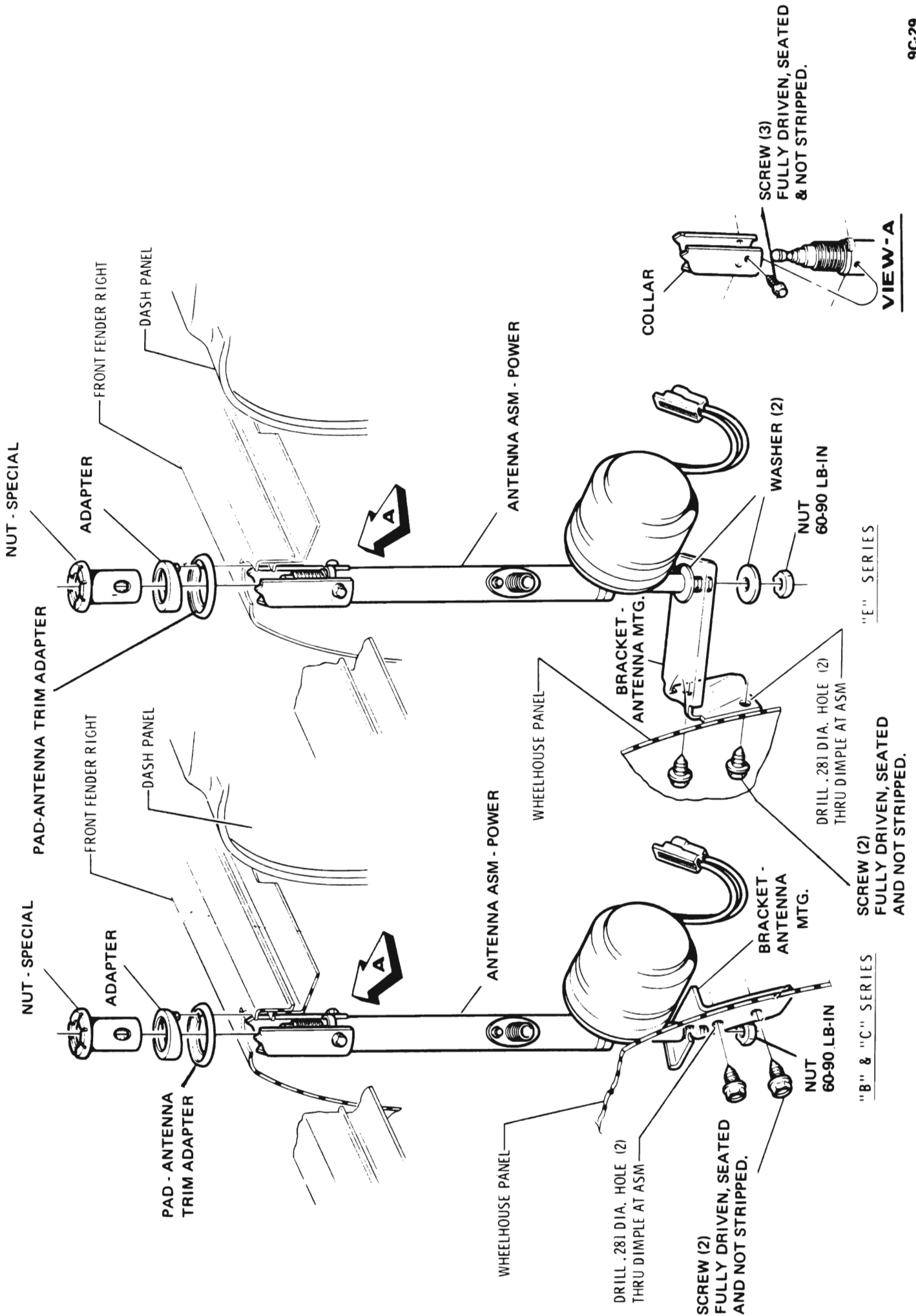
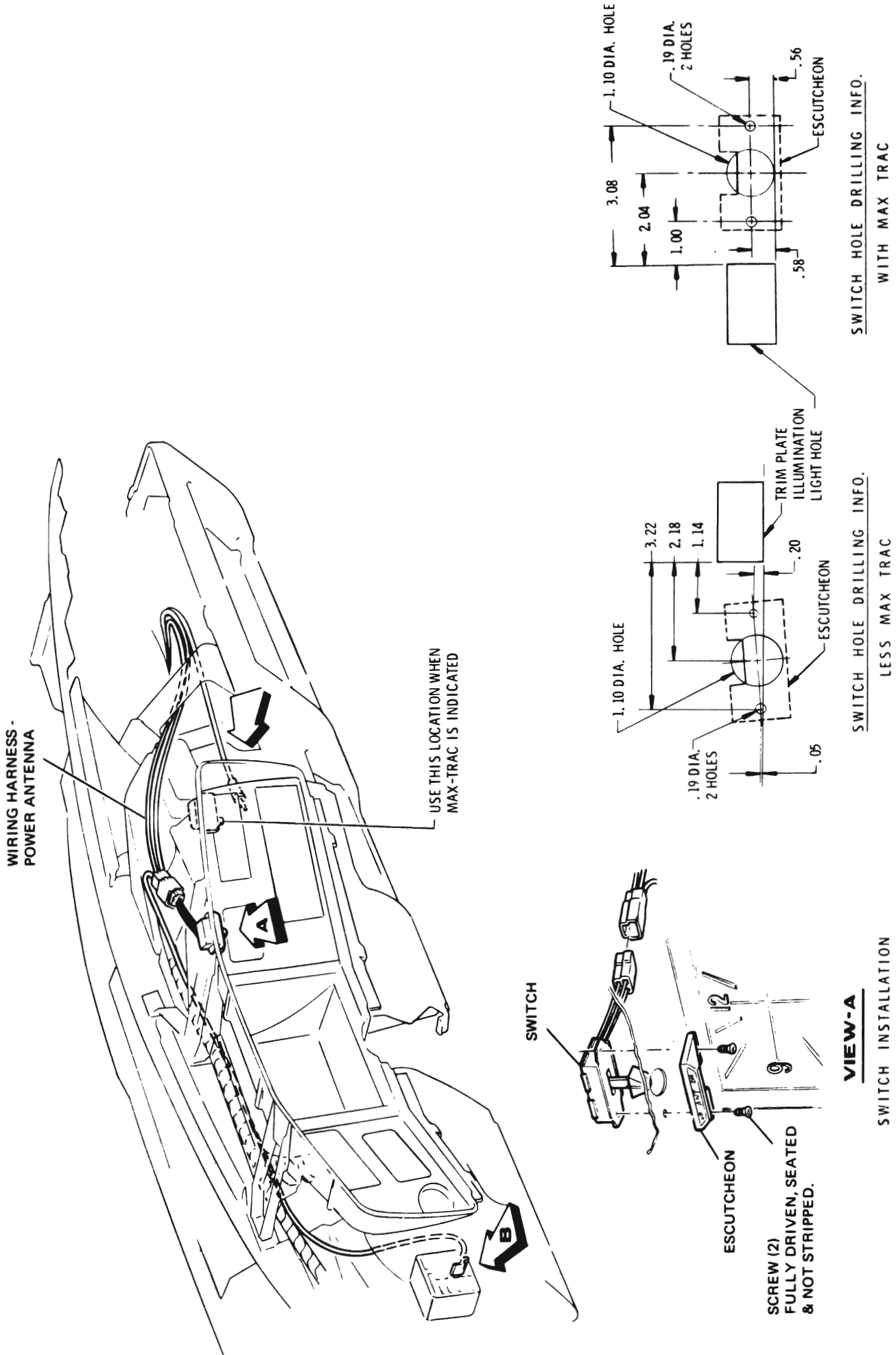


Figure 9C-33 Power Antenna Mounting "B-C-E" Series



9C-30

Figure 9C-34 Power Antenna Wiring - "B-C-E" Series

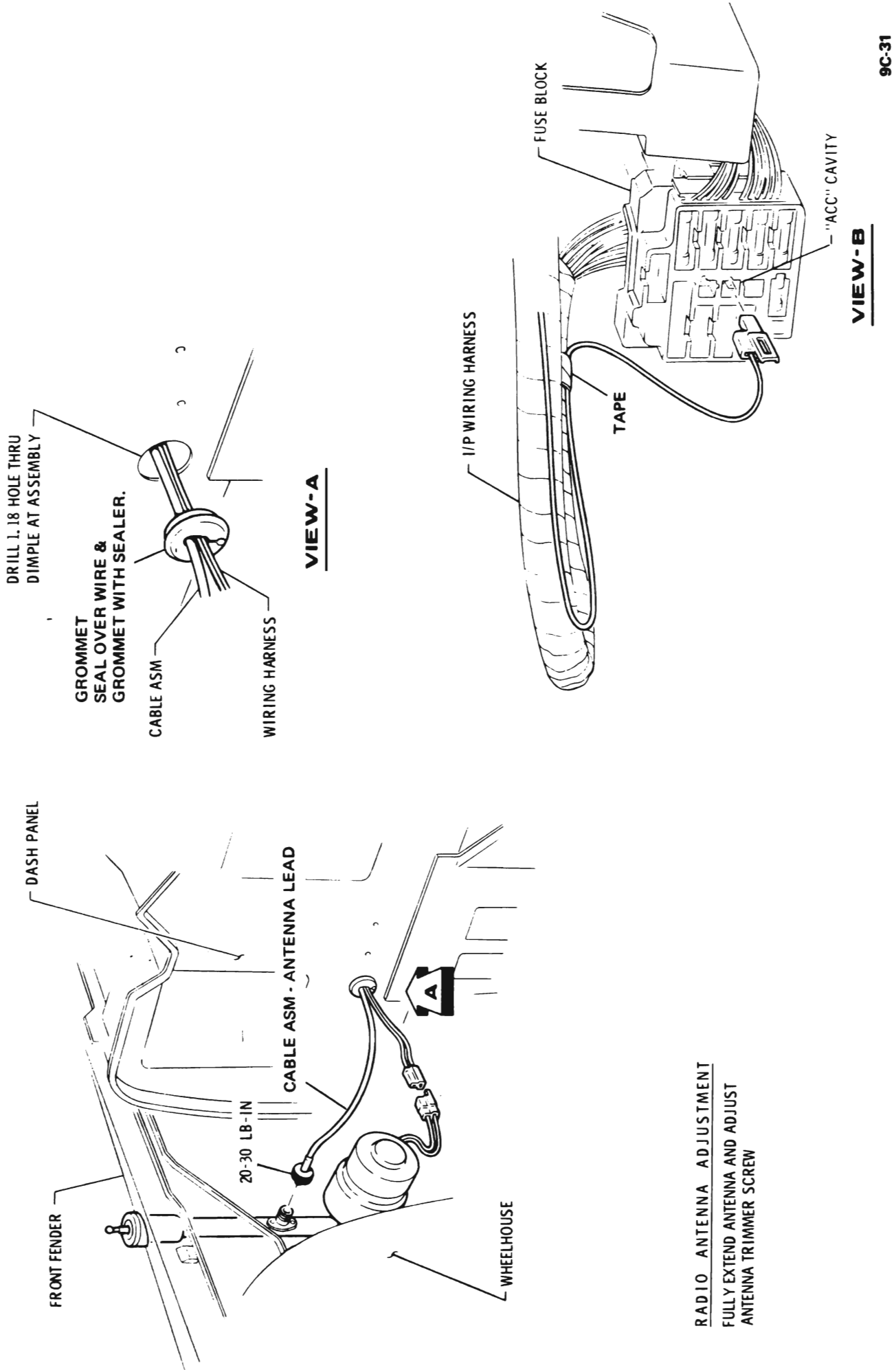
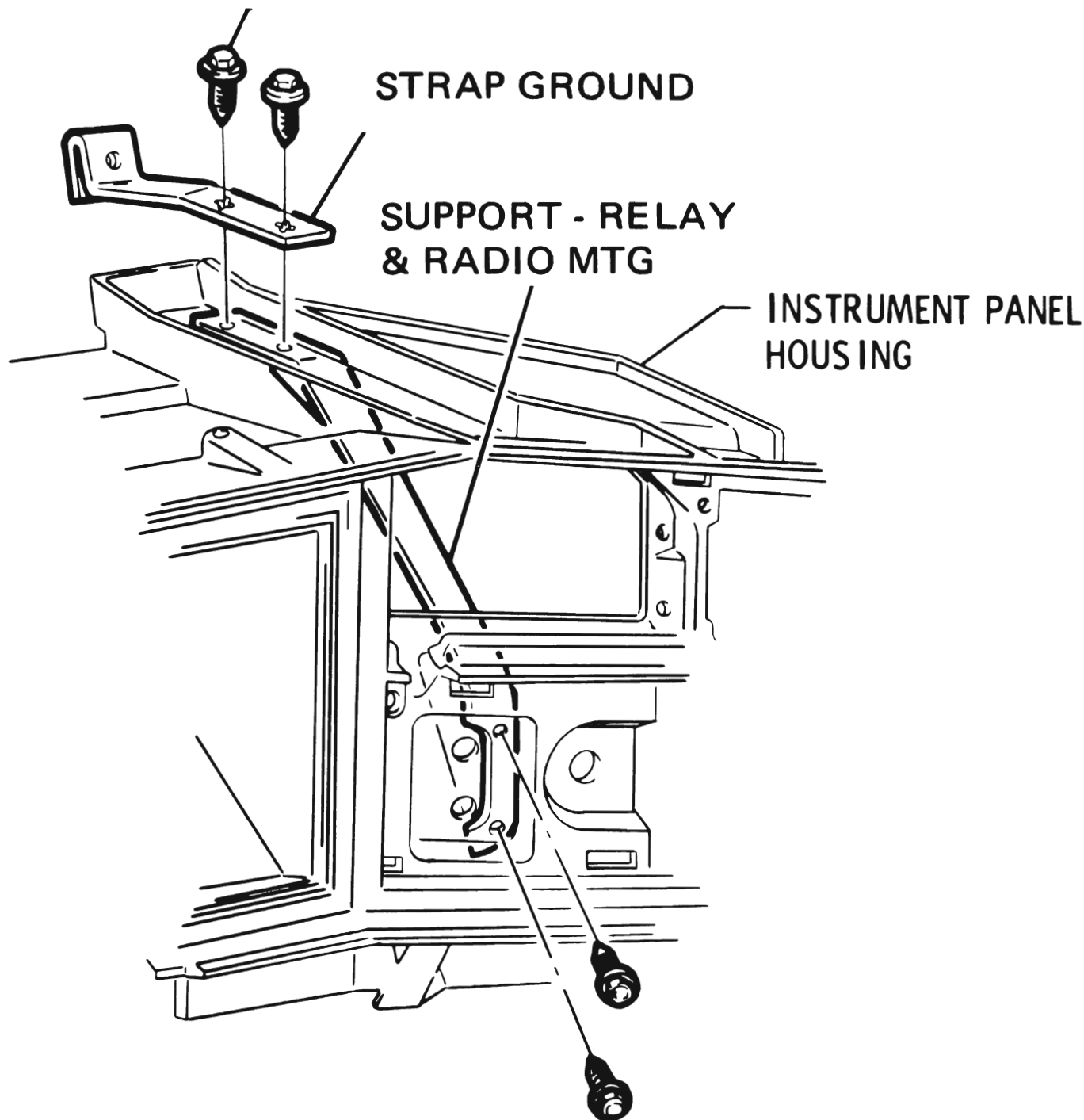


Figure 9C-35 Power Antenna Wiring - "B-C-E" Series



**SCREW ASM (4)  
FULLY DRIVEN, SEATED  
AND NOT STRIPPED.**



**9C-32**

Figure 9C-36 Ground Strap and Mounting Support - "B-C-E" Series