RADIO

CONTENTS

DIVISION I

SPECIFICATIONS AND ADJUSTMENTS

129-1 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 and 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.

1. Position antenna at a height of 31 inches.

2. Tune radio to a weak station (near 1400 K.C.) which can barely be heard with volume turned fully on.

3. Remove right inner and outer knobs.

4. On cars having a rear speaker, it is necessary to fabricate a jumper wire and insert it into center and an outside hole.

NOTE: There are three small holes (electrical connecting points) in receiver which are located directly behind right knob. When the 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.

5. Adjust trimmer screw until maximum volume is achieved.

6. Reinstall both right knobs.

129-2 RADIO PUSH BUTTON ADJUSTMENT

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 button, next higher frequency station on second button, etc.

3. 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 push the button to make certain the station will be properly tuned in.

5. Turn tuning knob back and forth to make certain that best tuning is obtained with the push button. If best tuning is not obtained, repeat Steps 2, 3, and 4.

NOTE: 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 and tuning for the lowest volume and pitch of this noise. 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.

DIVISION II

DESCRIPTION AND OPERATION

129-3 GENERAL DESCRIPTION

The radio system for 1967 Buicks consists of three components: (1) a receiver mounted in the center of the instrument panel, (2) a separate, front mounted speaker and (3) an antenna mounted on either the front or rear fender. Five different receivers are used on 1967 Buicks. On 43-44000 series cars, two types of receivers are available--a push button 2-1/2 watt AM receiver and an AM-FM receiver. On 45-46-48-49000 series cars, three types of receivers are available--a Sonomatic push button 5 Watt receiver, an AM-FM receiver, and an AM-FM stereo receiver. When an optional rear seat speaker is provided, the right larger knob controls the sound balance between front and rear speakers. When the control is rotated fully clockwise, the radio sound is channeled through the rear speaker only. Full counter clockwise rotation of the control sends the sound through the front speaker only, and midway positioning of control sends sound through both speakers.

The radio has a current draw of 1.3 amps at 12 VDC. All speakers have an impedance of 10 ohms. When replacing a speaker, the replacement speaker should have the same impedance for satisfactory results.

129-4 RADIO NOISE INTERFERENCE SUPPRESSORS

Three noise suppressor capacitors are used to eliminate radio interference (see Figure 120-70). Two of the capacitors are exterior mounted, one on the voltage regulator and the other on

the ignition coil. The third capacitor is pressed into the end bell of the delcotron. The ignition coil capacitor (0.3 MF) is connected to the positive terminal of the coil. Connection of the capacitor lead to the negative terminal will cause excessive pitting of the distributor points. The voltage regulator and delcotron capacitors are both rated at 0.5 MF. The built in resistance of each spark plug wire approximates 4000 ohms per foot.

A static collector is installed in each front wheel hub cap. For good results, the cup and the center of steering knuckle spindle must be clean and free from grease. The contact button of the static collector is made of self-lubricating material. Always make sure the cotter pin is bent in such a way that it will clear the static collector.

129-5 AM-FM RADIO

This radio is identical to the Sonomatic radio as far as the operation of the on-off and volume control, tone control, manual tuning control and push buttons are concerned. The AM-FM selector bar is located directly above the dial face. 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 radio and acts to automatically adjust the receiver to select the strongest of the incoming signals if the tuner is adjusted to a point where more than one incoming signal is being received. In general, FM operation will provide greater reception fidelity and freedom from static and other atmospheric disturbances. The FM signal is very susceptible to interference due to tall buildings, hills, etc. In these cases, reception may be partially or totally blanked out until the car has moved around or away from the interfering object. In fringe areas (beyond 25 miles from the station) where FM radio reception is weak, the station sound may flutter or vary up and down and interference from passing cars may be picked up by your FM radio. If this happens, the receiver should be readjusted to a stronger station.

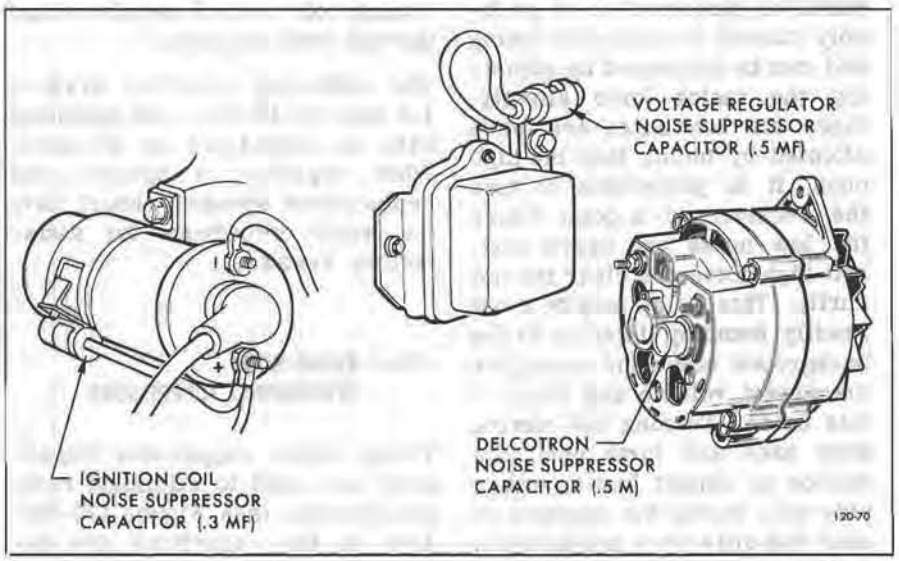


Figure 129-1—Installation of Noise Suppressors

129-6 AM-FM STEREO RADIO

A stereo system is offered on 45-46-48-49000 series cars and includes a special AM-FM receiver, a separate second amplifier (or stereo adaptor), and a rear speaker. The radio is designed to receive and reproduce the dual FM stereo signal as well as monaural AM-FM signals. Operation of the controls is identical to previous AM-FM receivers.

DIVISION III

SERVICE PROCEDURES

129-7 REMOVAL & INSTALLATION OF RADIO PARTS— SPECIAL & SKYLARK

a. R. & I. Receiver (Without Air Conditioning)

1. Disconnect battery negative lead.

2. Pull off receiver control knobs and unscrew two nuts holding receiver to instrument panel. (See Figure 129-2).

3. Disconnect receiver, speaker lead connector, and antenna cable.

4. Remove screw holding support to receiver and withdraw receiver from underside of dash.

5. Install receiver by reversing above steps. If receiver was repaired, make antenna trimmer adjustment.

b. R. & I. Receiver (With Air Conditioning)

1. Pull off radio control knobs and unscrew nuts securing receiver to instrument panel. (See Figure 129-2).

2. Remove clamps connecting air conditioning outlet hoses to distribution duct; take off two screws securing duct to heater assembly and lower out duct.

3. Pry open two spring clips holding center duct to instrument panel and take out center duct.

4. Disconnect receiver, speaker lead connector and antenna cable.

5. Remove screw holding support to receiver (see Figure 129-2) and withdraw receiver from underside of dash.

6. Install receiver by reversing above steps. If receiver was repaired, make antenna trimmer adjustment.

c. R. & I. Antenna

1. Unscrew antenna cap nut (see Figure 129-3) and antenna mast from base and lift off mast and pad from fender.

2. Raise hood and remove outside air inlet grille located forward of the windshield.

3. Unplug antenna wire from receiver, remove nut securing base and lock plate to shroud and withdraw base and antenna cable assembly through opening in topside of cowl.

4. Install antenna by reversing above steps.

d. R. & I. Front Speaker

1. Remove glove box.

2. Reach in through glove box opening and disconnect receiver, speaker lead connector and separate receiver power lead. See Figure 129-2.

3. Remove four screws behind speaker securing it to instrument panel and take out speaker through glove box opening.

129-8 REMOVAL & INSTALLATION OF RADIO PARTS—LE SABRE, WILDCAT & ELECTRA

a. R. & I. Receiver

1. Pull off radio control knob and unscrew nuts securing receiver to instrument panel (see Figure 129-5).

2. Unscrew six screws securing instrument panel cover to instrument panel; then carefully pull cover rearward and raise it sufficiently so that any connectors attached to underside of cover may be disengaged. Complete removal of cover.

3. Remove screw securing left and right radio mounting brackets to underside of receiver; disengage receiver-speaker lead connector and antenna cable at rear of receiver, and lift out receiver.

4. Install receiver by reversing above steps. If receiver was repaired, make antenna trimmer adjustment.

b. R. & I. Manual Antenna

1. Unscrew and remove antenna cap nut and antenna mast. See Figure 129-7.

2. Unscrew nut holding antenna base to fender and take off spacer and spacer gasket.

3. Open door and unscrew and remove plastic filler plate between fender and body.

4. Separate antenna cable at center connector, remove screw holding base support to fender and lift out antenna base.

5. Install antenna by reversing above steps.

c. R. & I. Power Antenna

1. Unscrew chrome antenna cap nut and take off nut, adapter and pad (see Figure 120-79).

2. Open trunk and if cardboard liners are present, remove them as necessary.

3. Remove screws securing antenna, disconnect antenna cable and electrical connector and remove antenna.

d. R. & I. Front Speaker

1. Remove six screws securing instrument panel cover to instrument panel; then carefully pull cover rearward and raise it sufficiently so that any connections attached to underside of cover may be disengaged. Complete removal of cover. See Figure 129-5.

2. Unscrew four speaker nuts and lift off speaker from cover.

3. Install front speaker by reversing above steps.

129-9 REMOVAL & INSTALLATION OF RADIO PARTS—RIVIERA

a. R. & I. Receiver

1. Open ash tray and remove three screws from upper portion of ash tray and three screws from underside of assembly. Partially withdraw assembly; disconnect light and lighter leads; then complete removal.

2. Pry out chrome trim strip at center of instrument panel.

3. Remove two screws securing center outlet in position, lift off center outlet, and pull out plastic duct.

4. Pull off radio control knobs, see Figure 129-10, unscrew two nuts holding receiver to instrument panel, and take off escutcheon.

5. Disconnect receiver, speaker lead connector and antenna cable.

6. Remove two nuts and two screws from receiver support and remove support.

7. Lower out receiver through ash tray opening in instrument panel.

8. Install receiver by reversing above steps. If receiver was repaired, make antenna trimmer adjustment.

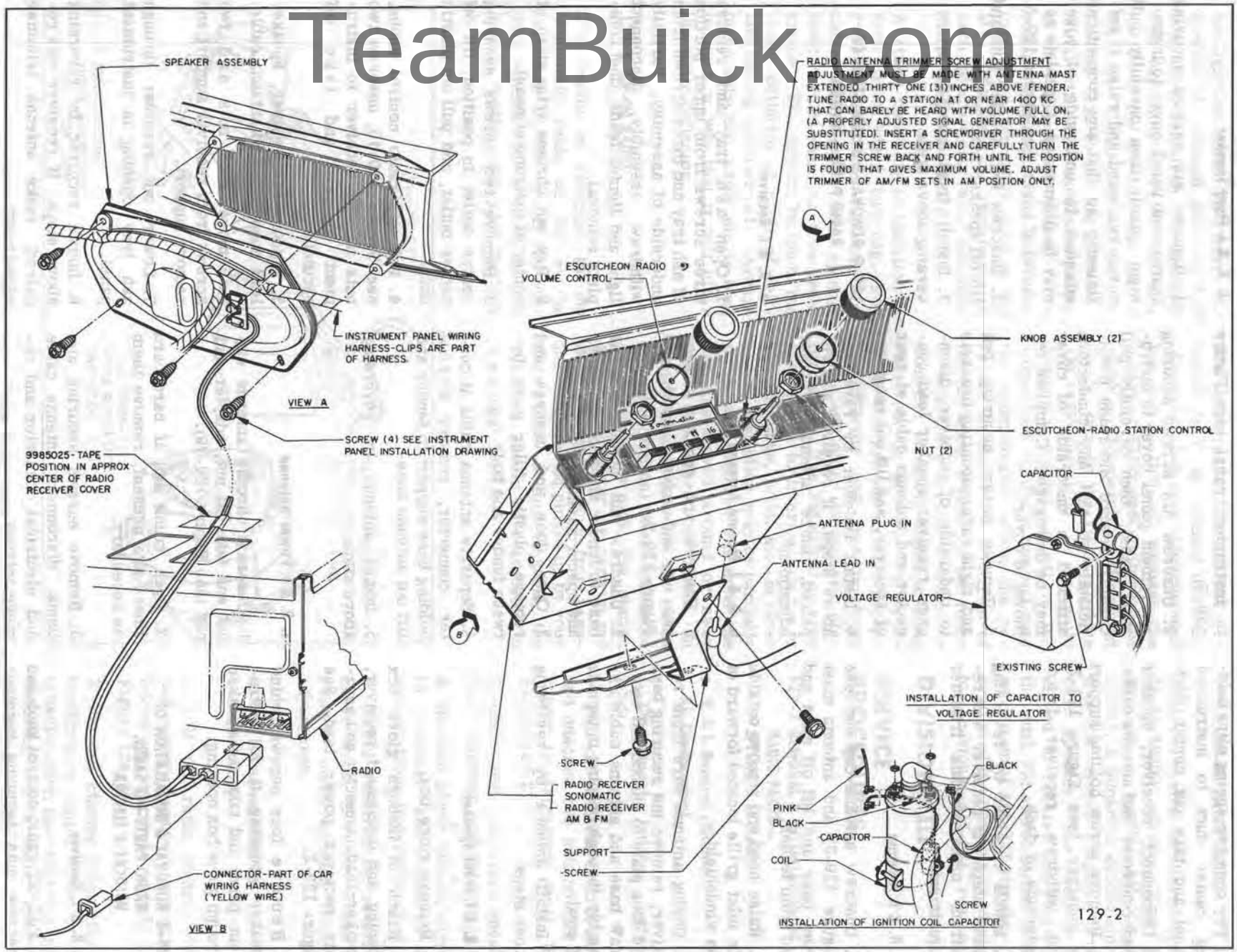


Figure 129-2—Radio Receiver Installation - Special and Skylark

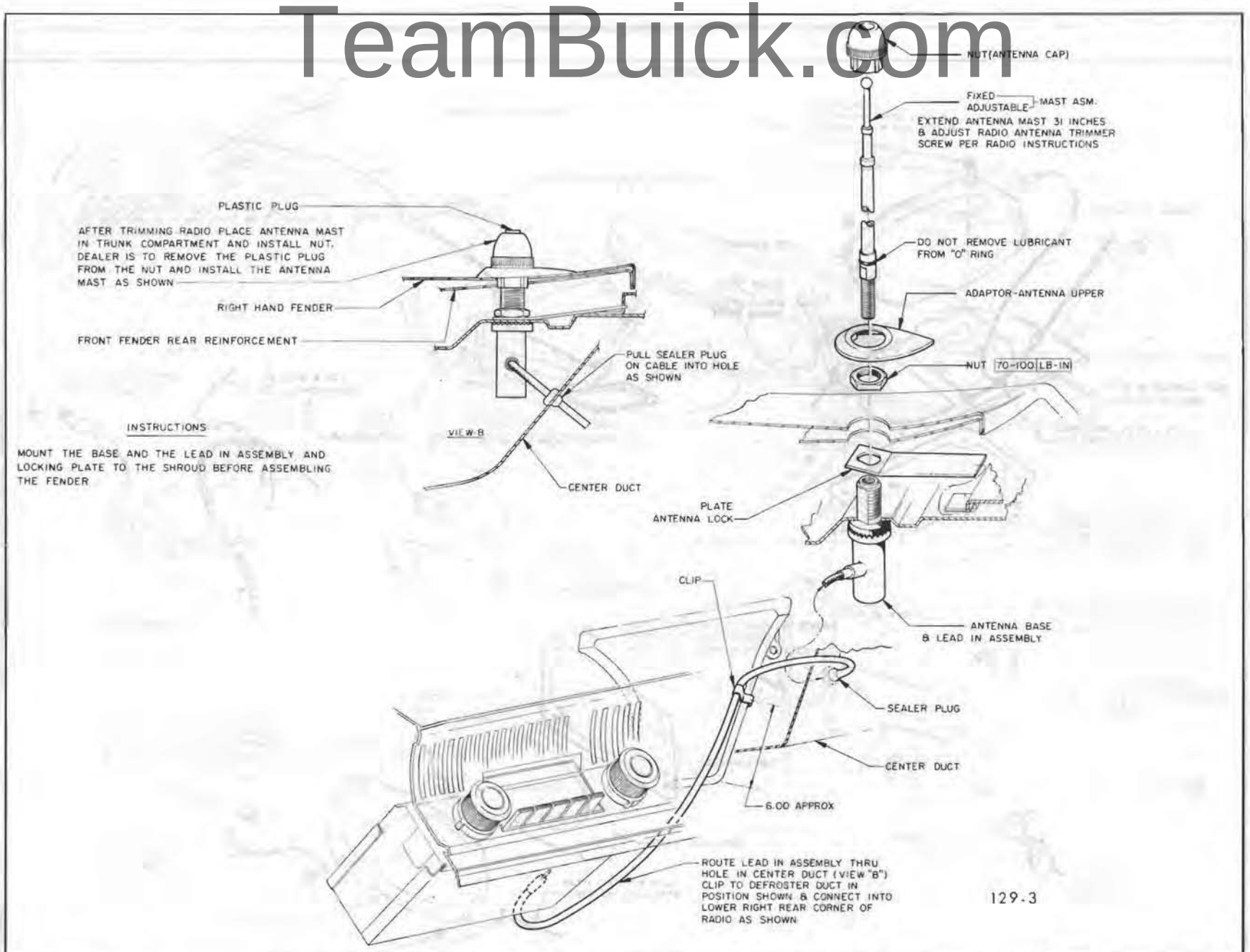


Figure 129-3—Antenna Installation - Special and Skylark

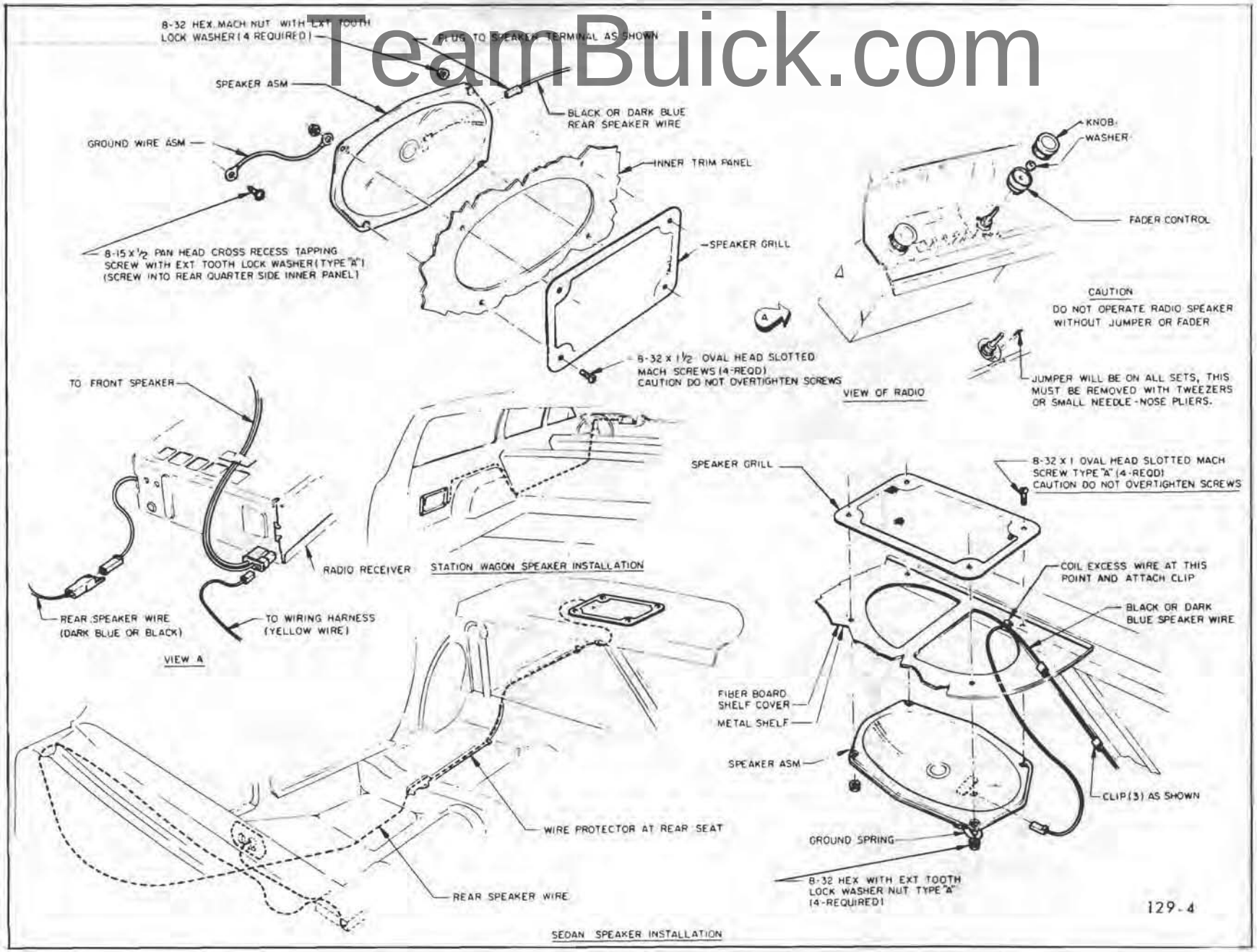


Figure 129-4—Rear Speaker Installation - Special and Skylark

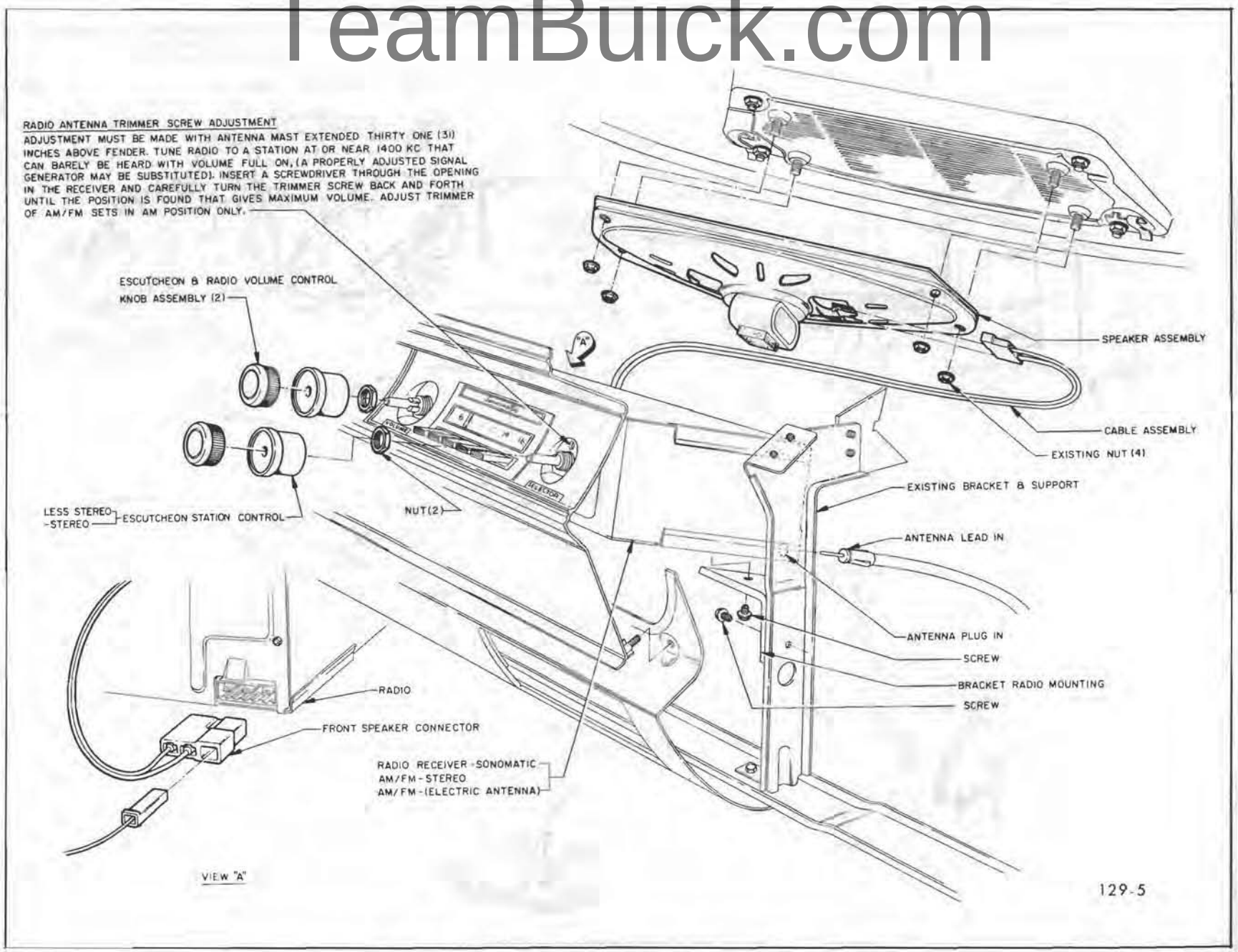


Figure 129-5—Radio Receiver Installation - LeSabre, Wildcat and Electra

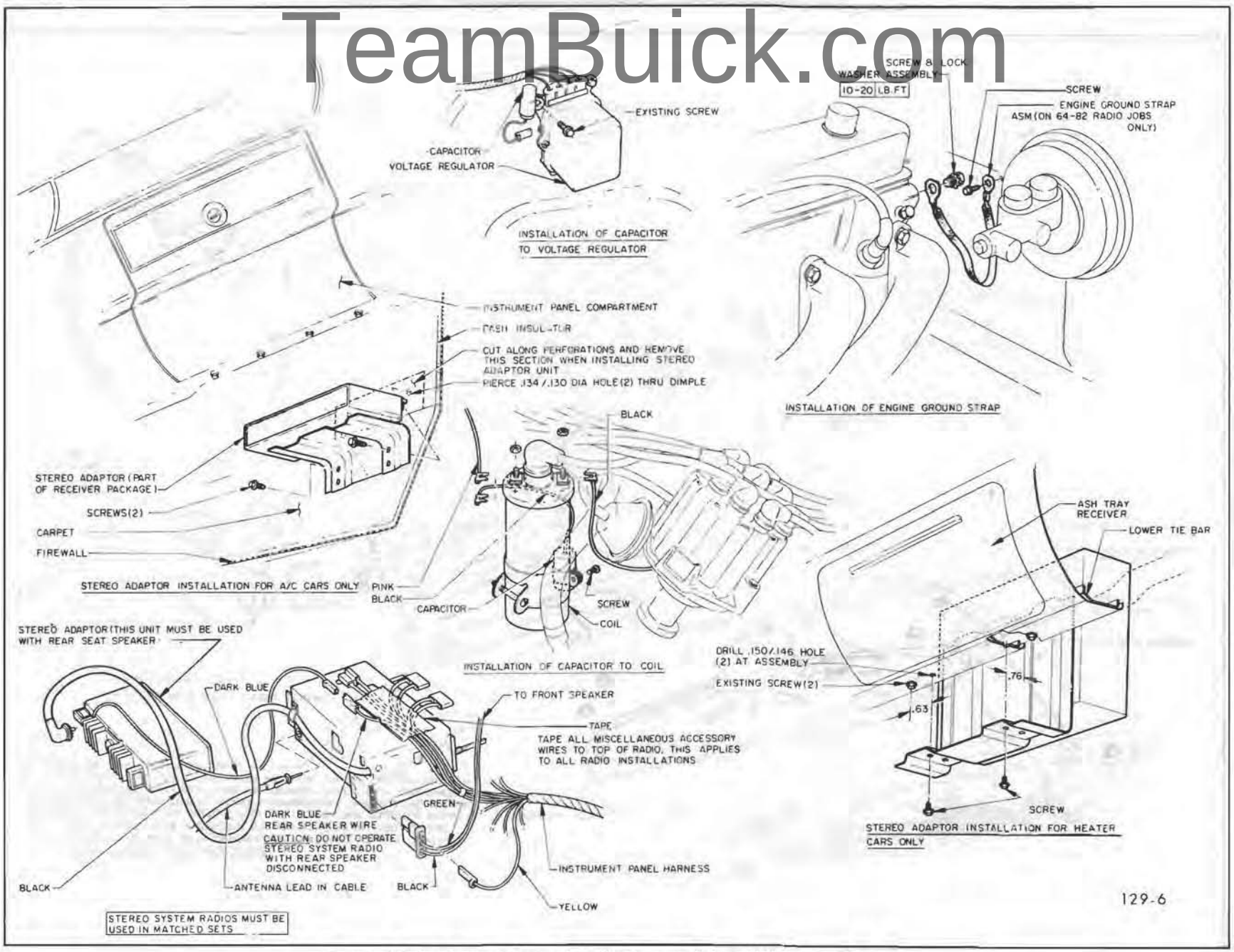


Figure 129-6—Stereo Adaptor Installation - LeSabre, Wildcat and Electra

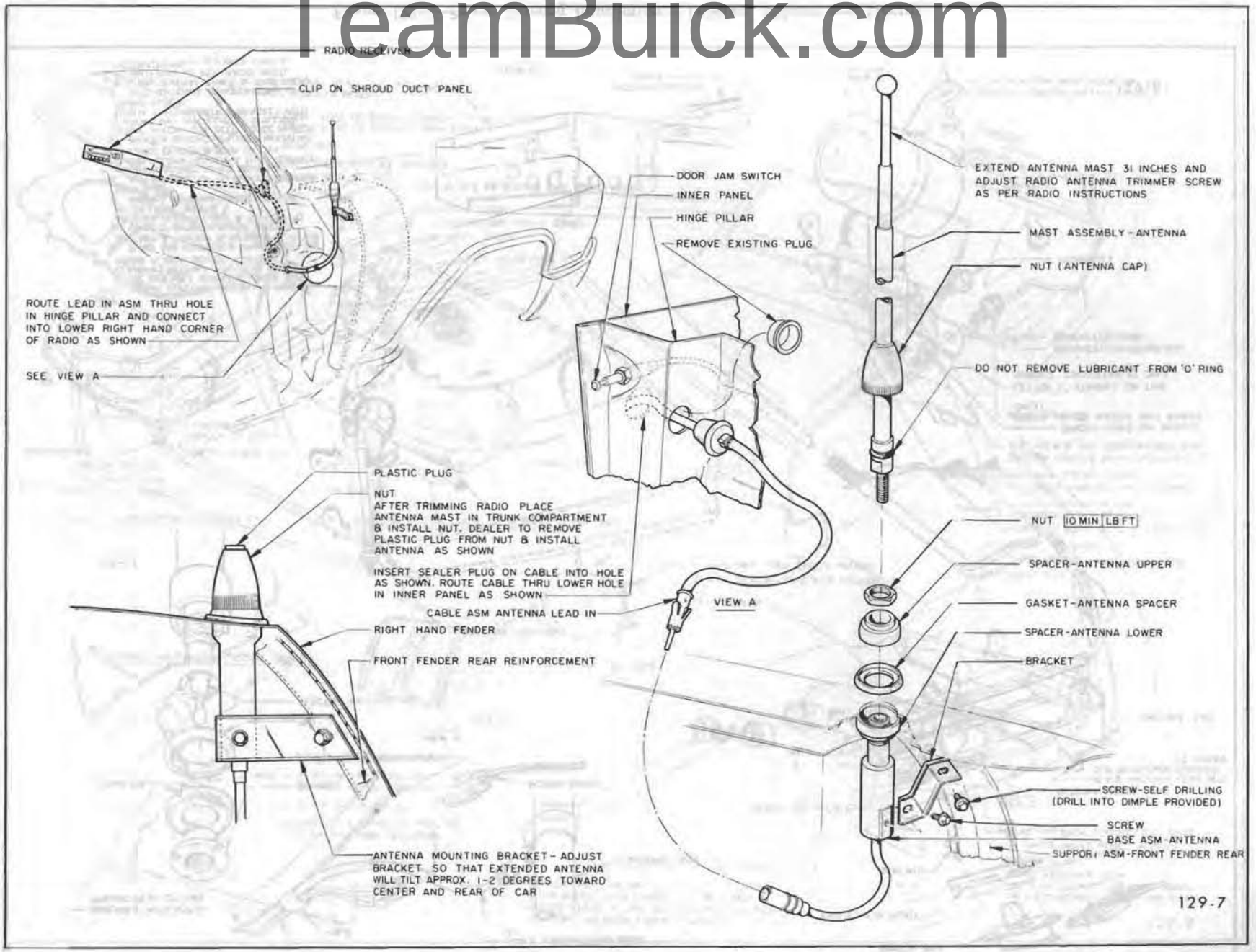


Figure 129-7—Manual Antenna Installation - LeSabre, Wildcat and Electra

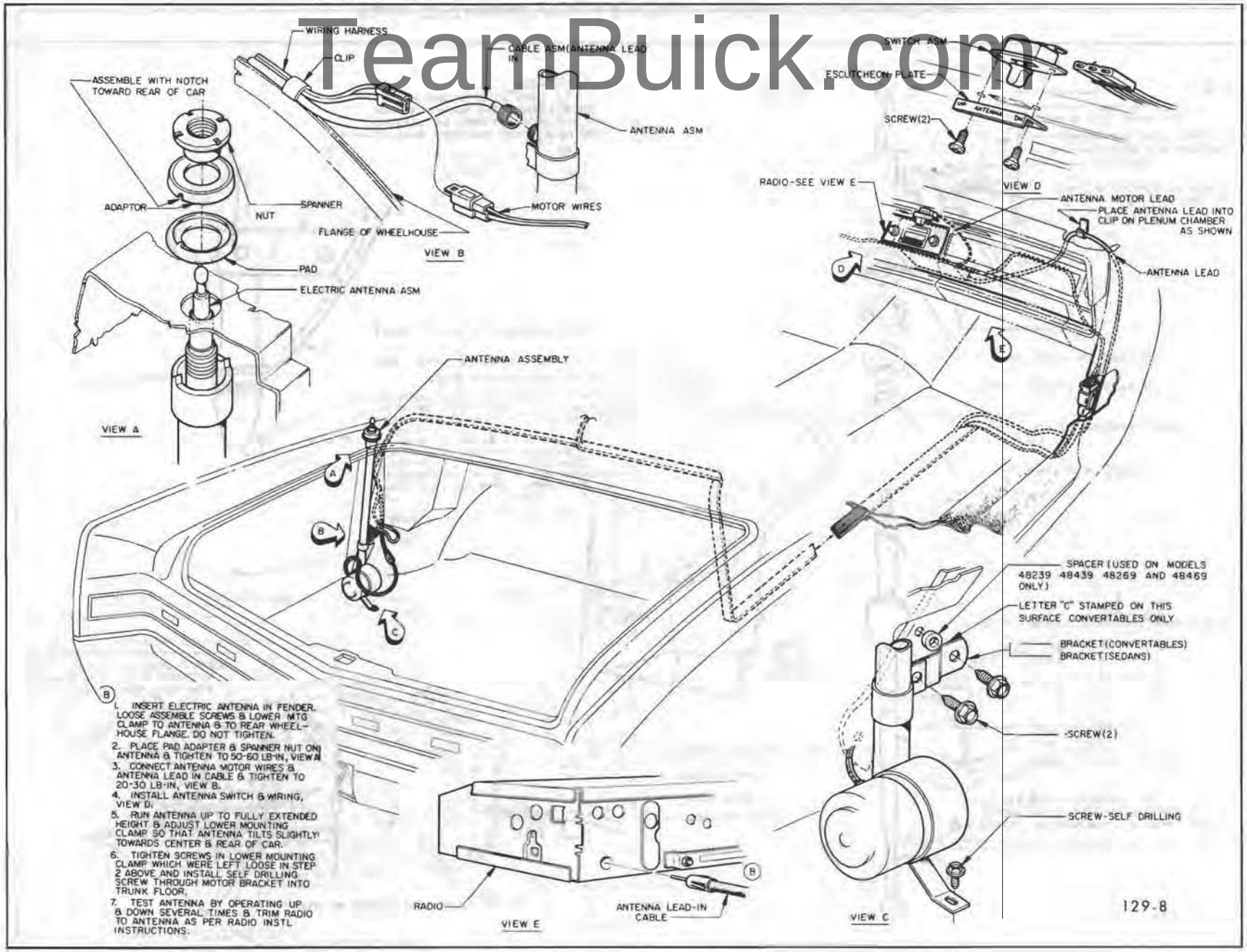


Figure 129-8—Power Antenna Installation - LeSabre, Wildcat and Electra

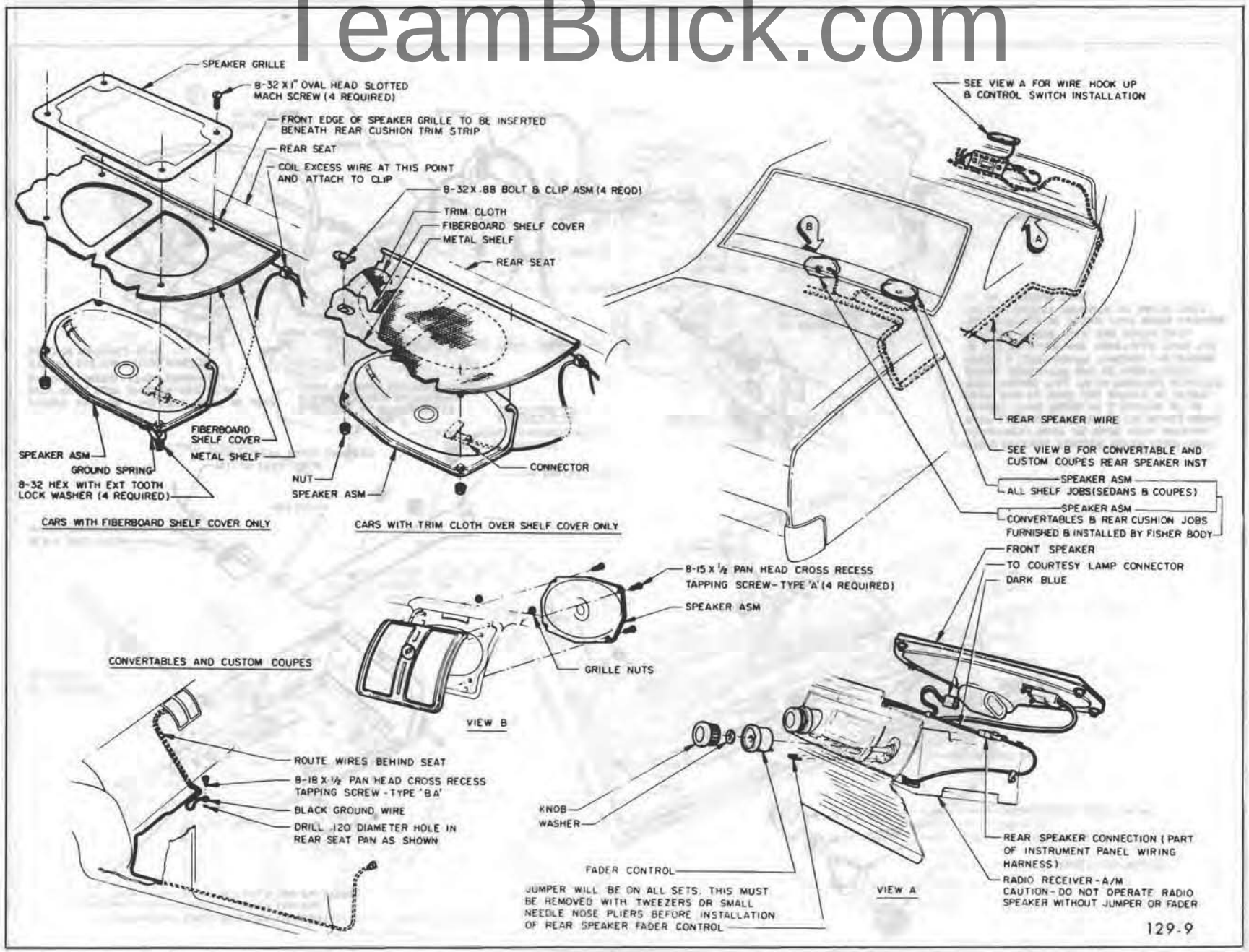


Figure 129-9—Rear Speaker Installation - LeSabre, Wildcat and Electra

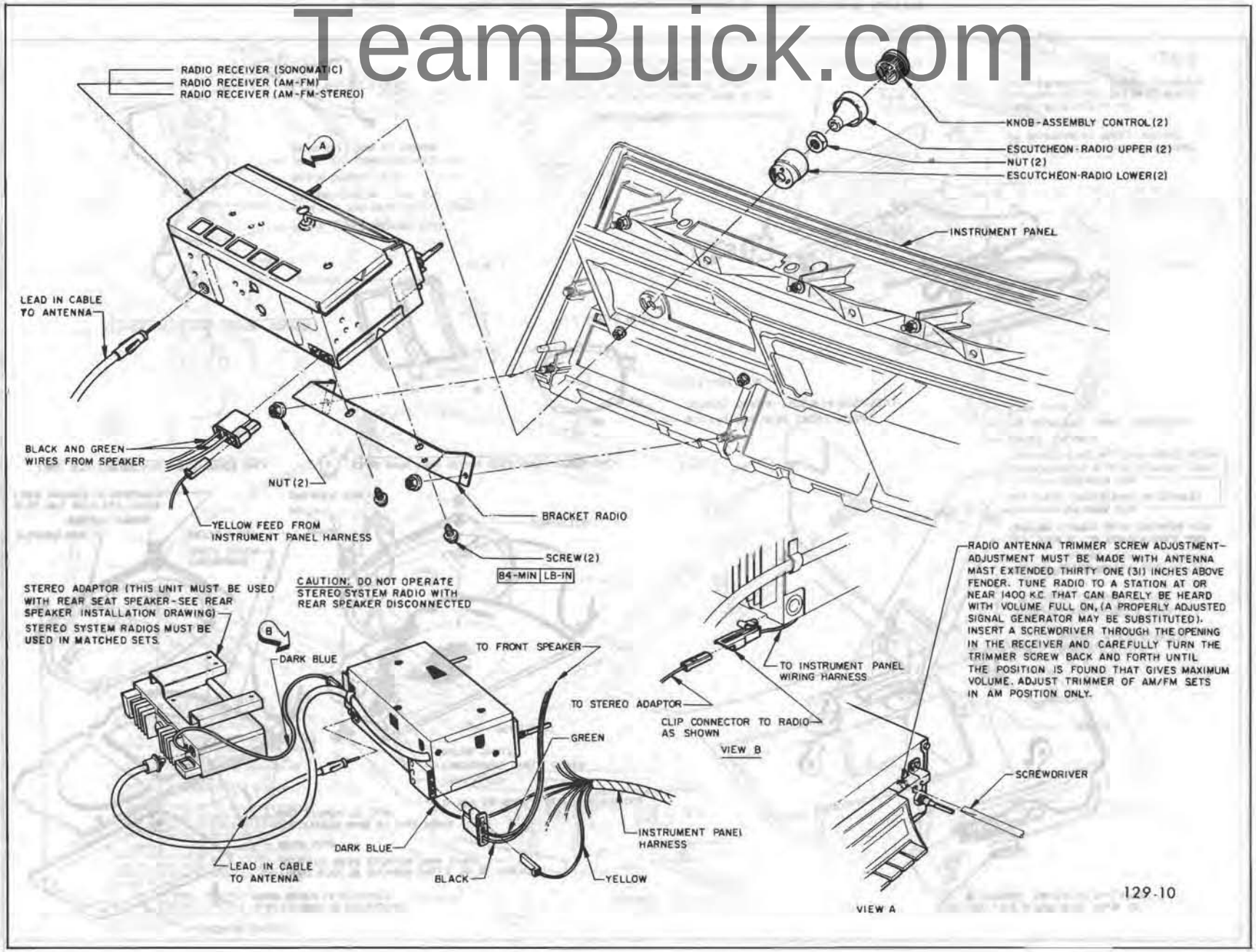


Figure 129-10—Radio Receiver Installation - Riviera

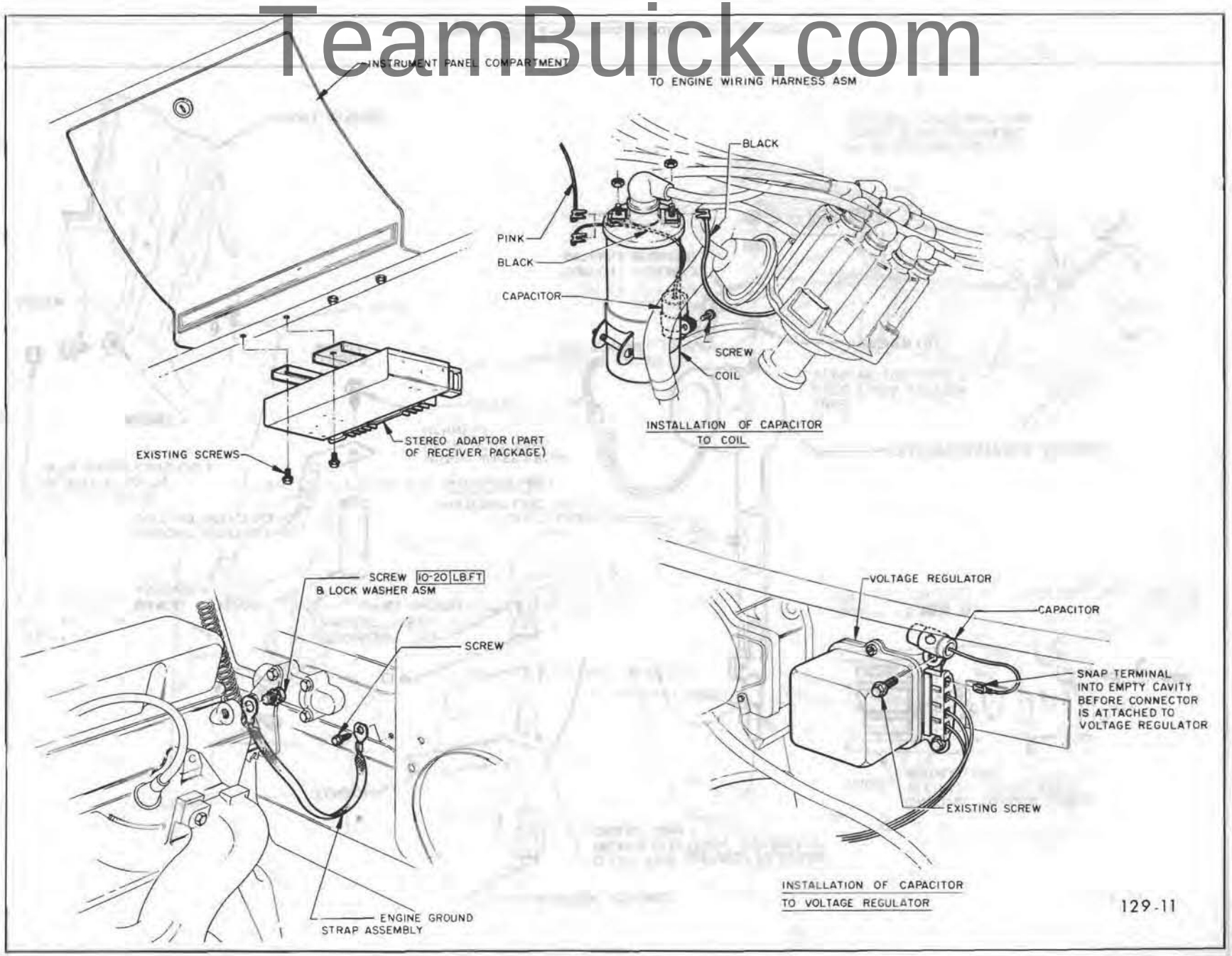


Figure 129-11—Stereo Adaptor Installation - Riviera

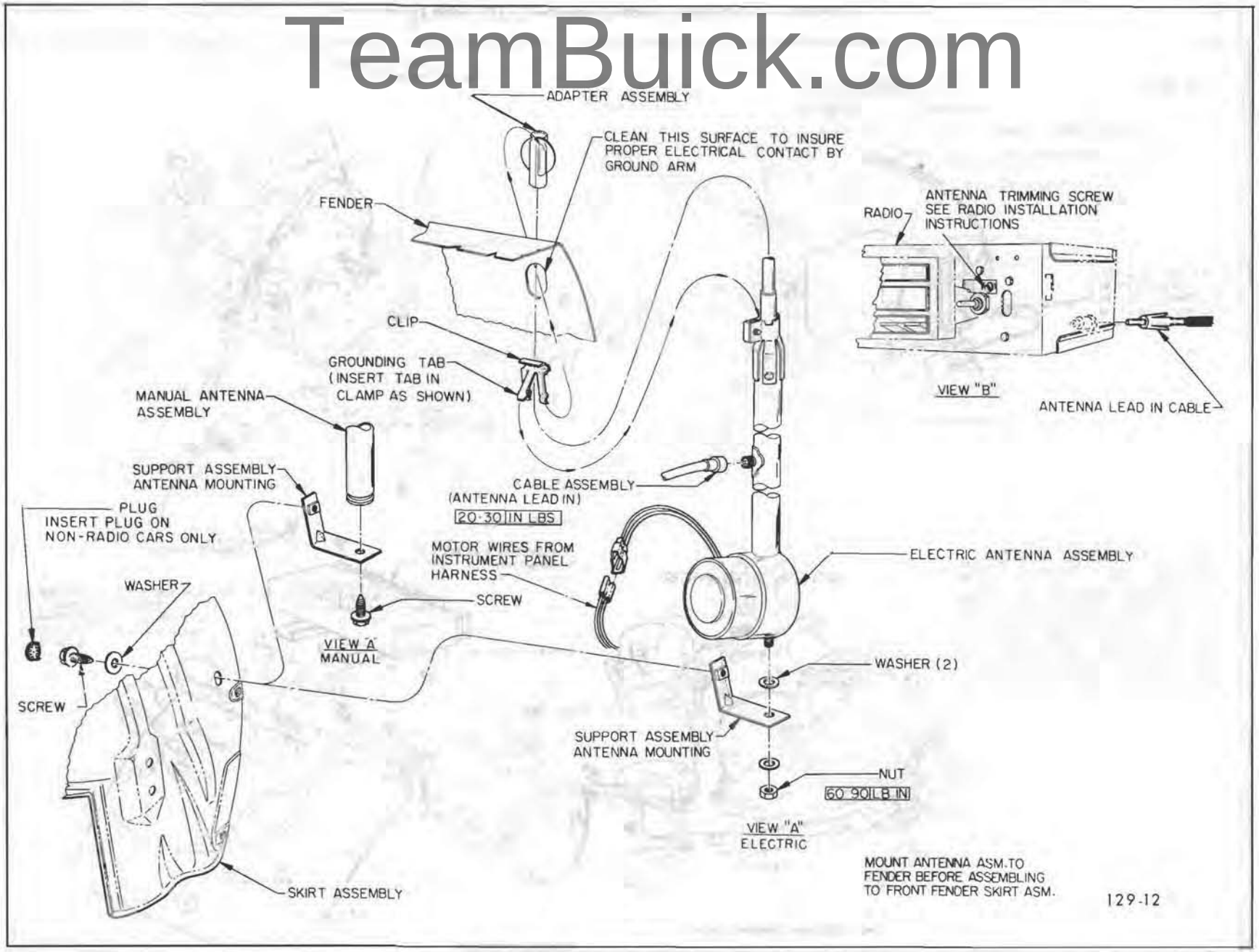


Figure 129-12—Antenna Installation - Riviera

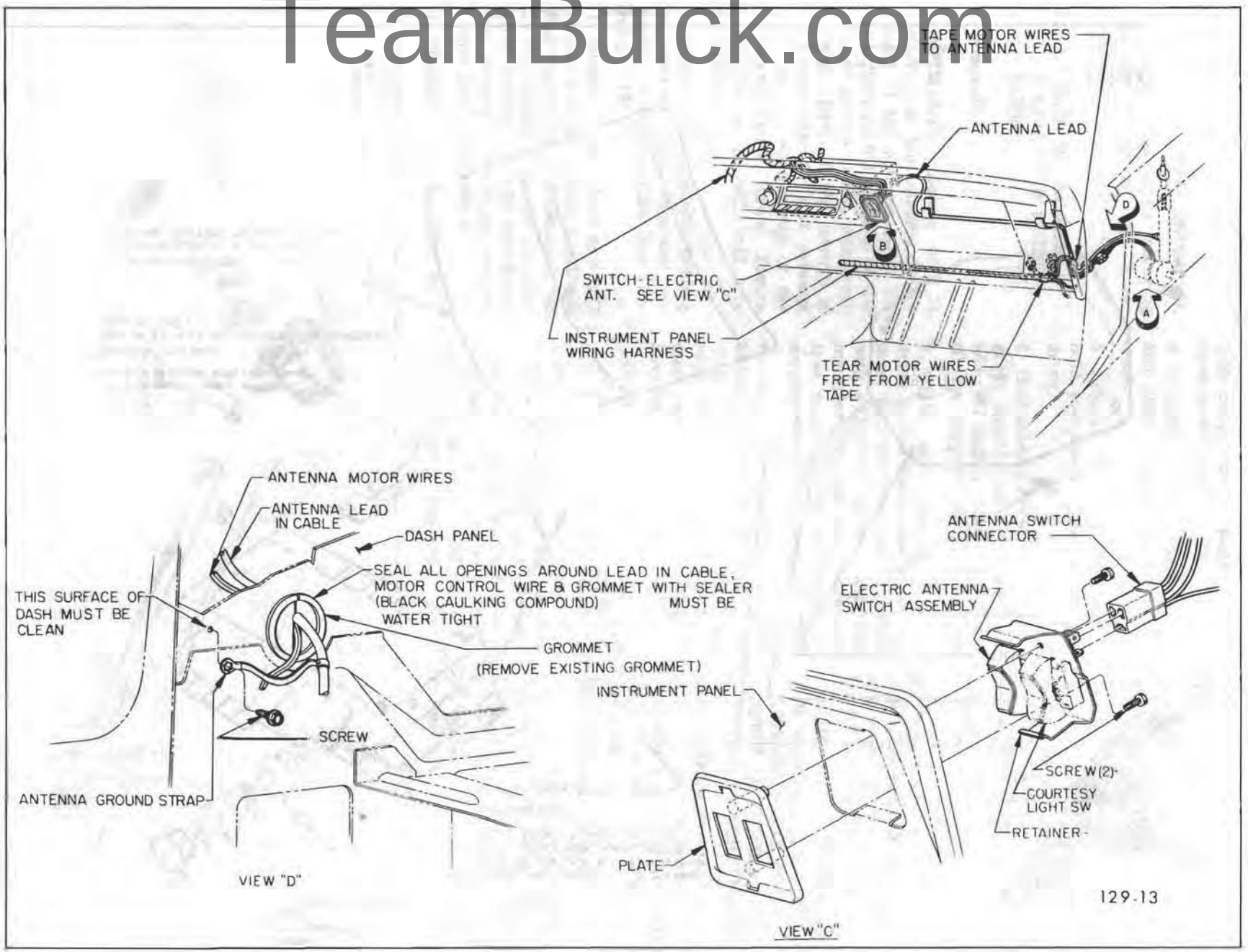


Figure 129-13—Antenna Switch Installation - Riviera

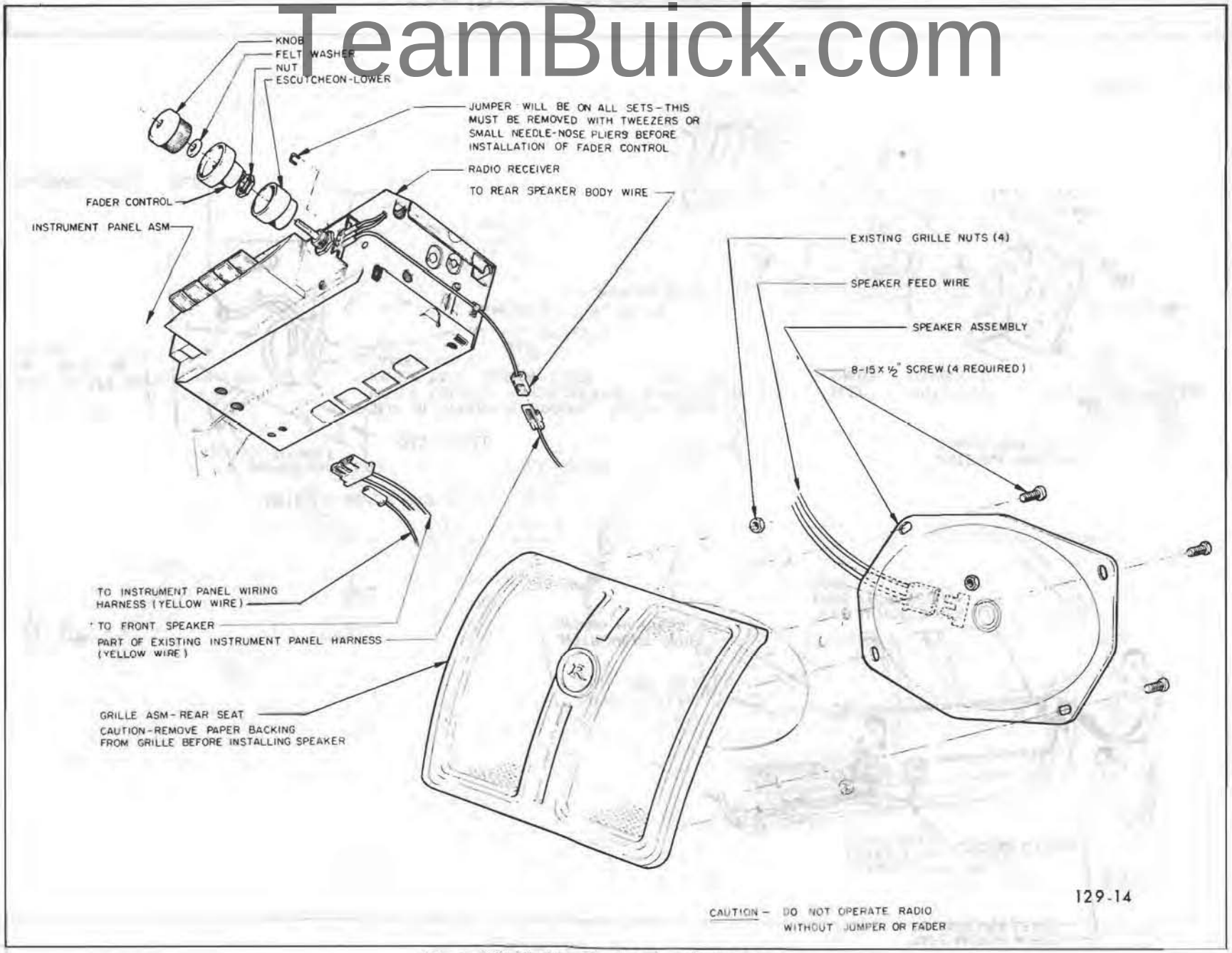


Figure 129-14—Rear Speaker Installation - Riviera

b. R. & I. Front Speaker

1. Remove receiver (subpar a).

2. Remove four nuts securing speaker to grille and lower speaker.

129-10 DISASSEMBLY, REASSEMBLY & ADJUSTMENT OF ELECTRIC ANTENNA

a. Disassembly

IMPORTANT: Before work is started on the antenna, determine if the antenna is in the warranty period which is 24,000 miles or two years, whichever occurs first. If the antenna is in warranty do not attempt service on components of the antenna drive (see Figure 195-15) as it will void the warranty.

1. Remove the 3 screws holding the body and upper insulator assembly to support tube (see Figure 129-15).

2. While applying a back and forth rotary motion, carefully pull the body upper insulator assembly out of the support tube and partially slide it over the 0.40 inch diameter section of the mast until the solder joint is accessible.

3. Unsolder hook-up wire from 0.40 inch diameter section of the mast (see Figure 129-16).

4. Complete removal of the body and upper insulator from the mast.

5. Remove the 3 screws which hold the support tube to antenna drive.

6. Hold antenna drive in one hand, grasp support tube in other hand and pull with a rotary motion until the support tube is removed.

7. While still holding antenna drive in one hand, now 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 129-17).

8. Apply 12 volts D.C. to the green 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.

NOTE: 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.

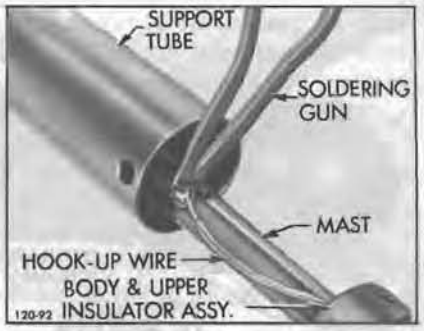


Figure 129-16—Soldering Hook-Up Wire to Mast

9. Using a wire hook or long nose pliers, remove bottom insulator and water seal washer from tubular fitting of antenna drive.

NOTE: IF THE ANTENNA IS IN WARRANTY, DO NOT DISASSEMBLY BEYOND THIS POINT AS IT WILL VOID THE WARRANTY AGREEMENT.

If the antenna drive is no longer covered by the manufacturer's warranty and it is necessary to repair the antenna drive, proceed as follows:

10. Remove drive cover.

11. Hold the 7/16" hex nut on the output gear assembly shaft, remove the 3/8" hex nut (see Figure 129-18).

12. Remove the 7/16" hex nut and washer.

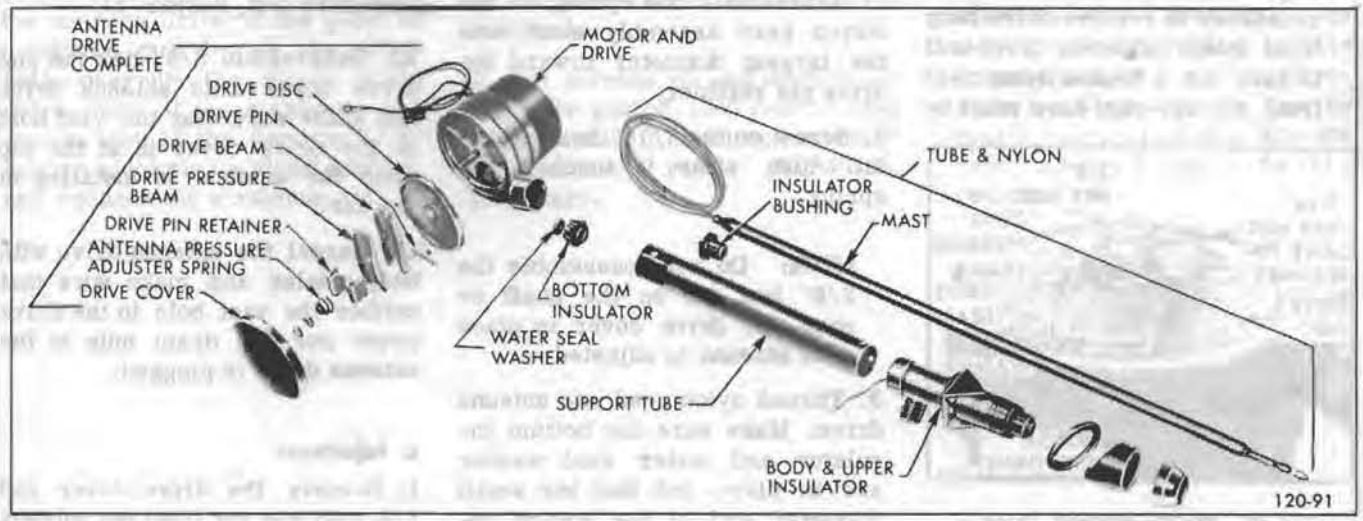


Figure 129-15—Electric Antenna

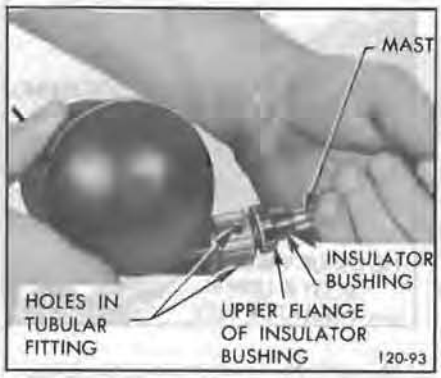


Figure 129-17—Removing or Installing Mast and Insulator Bushing

13. Lift antenna pressure adjuster spring off shaft (see Figure 129-18).

14. Remove drive pin retainer.

15. Remove the drive pressure beam.

16. Slide the drive pin from hole in the shaft and take off drive beam.

NOTE: Do not lose the 2 steel balls in the holes at the ends of the drive beam.

17. Remove the 2 steel balls.

18. Remove the drive disc from the shaft.

NOTE: Exercise care not to bend the drive disc or burr the edges of the channel. If it is necessary to remove drive body from motor of motor drive unit to take out a broken nylon reed from storage cup, care must be

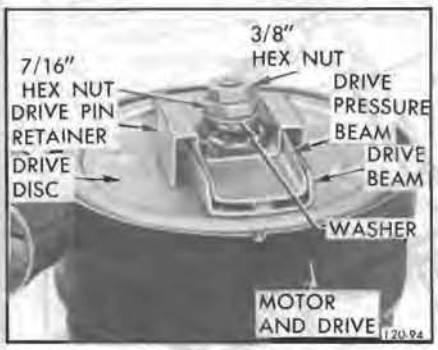


Figure 129-18—Antenna Drive - Cover Removed

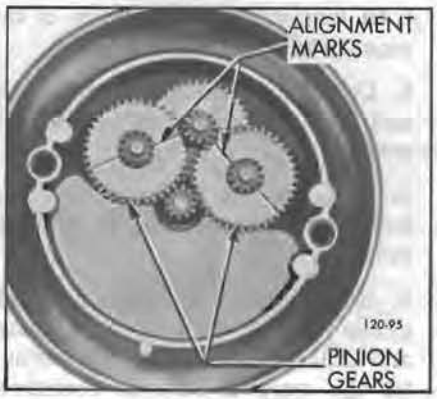


Figure 129-19—Alignment of Gears

used to prevent pinion gears (see Figure 129-19) from falling loose. If for any reason the gears fall out or have been removed, it will be necessary to realign them. This is done by positioning the right and left pinion gears so that the mark on each one points at the center of the pinion shaft of the drive gear which receives the motor pinion.

b. Reassembly

Reassemble antenna drive components reverse of disassembly procedures. The following notes apply to assembly steps on which special emphasis is placed.

1. Reassemble the spring on the output gear assembly shaft with the largest diameter toward the drive pin retainer.

2. Screw on the 7/16" hex nut one full turn after it touches the spring.

NOTE: Do not reassemble the 3/8" hex nut on the shaft or snap the drive cover in place until antenna is adjusted.

3. Thread nylon reed into antenna drive. Make sure the bottom insulator and water seal washer are in place and that the small diameter end of the bottom insulator is downward. Apply 12 volts D.C. to blue power lead to assist feeding operation. Keep nylon reed straight to avoid kinking.

NOTE: Position water seal washer and bottom insulator in the tubular fitting of antenna drive before the nylon reed completely disappears in drive assembly.

4. Push 0.40 inch diameter section of mast and insulator bushing into tubular fitting (see Figure 129-17). Make sure that the upper edge of insulator bushing flange is below the 3 holes in the tubular fitting of antenna drive.

5. Install support tube.

6. Slip body and upper insulator assembly over the 0.40 inch section of mast, but do not connect to support tube. Make sure that the free-end of the hook-up wire extends below the lower edge of the body and upper insulator assembly.

7. Solder the free-end of the hook-up wire to the 0.40 inch diameter section of the mast section, using rosin flux solder (see Figure 129-16).

8. Position and reassemble body and upper insulator to support tube.

9. Perform antenna adjustment procedure (ref. subpar. c).

10. Reassemble 3/8" hex nut and drive cover onto antenna drive and make sure that the vent hold in the drive cover is at the top when the antenna is installed in the car.

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

c. Adjustment

1. Remove the drive cover and 3/8 inch hex nut from the antenna drive.

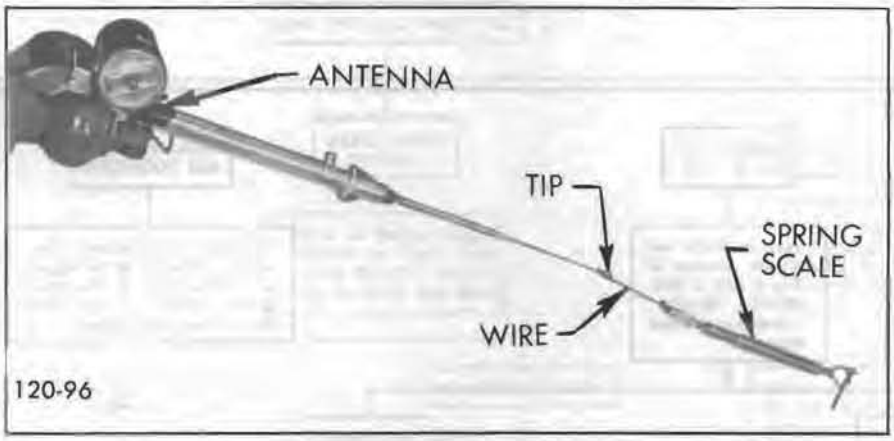


Figure 129-20—Antenna Adjustment Test

2. Place antenna drive in a vise so that the centerline 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 129-20).

5. Attach the 12 volt D.C. power leads to the antenna drive housing and touch the other power lead to the blue (down) terminal to job the antenna drive to the point of maximum pull before the clutch balls override the ridges of the drive disc. If the maximum pull is less than 15 lbs. turn the 7/16" hex nut clockwise a slight amount, and recheck the maximum pull. If the pull is greater than 15 lbs., turn the 7/16" hex nut counterclockwise a slight amount and recheck pull. Repeat until the pull is set at 15 lbs.

6. Holding the 7/16" hex nut so it cannot turn, tighten the 3/8" hex nut against the 7/16" nut to lock it in place.

7. Disconnect spring scale and apply power to the green (up) terminal. Run the mast all the way out and allow the motor to continue running until the clutch has made a minimum of 15 engagements or clicks.

8. Do the same in the down position.

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

10. 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.

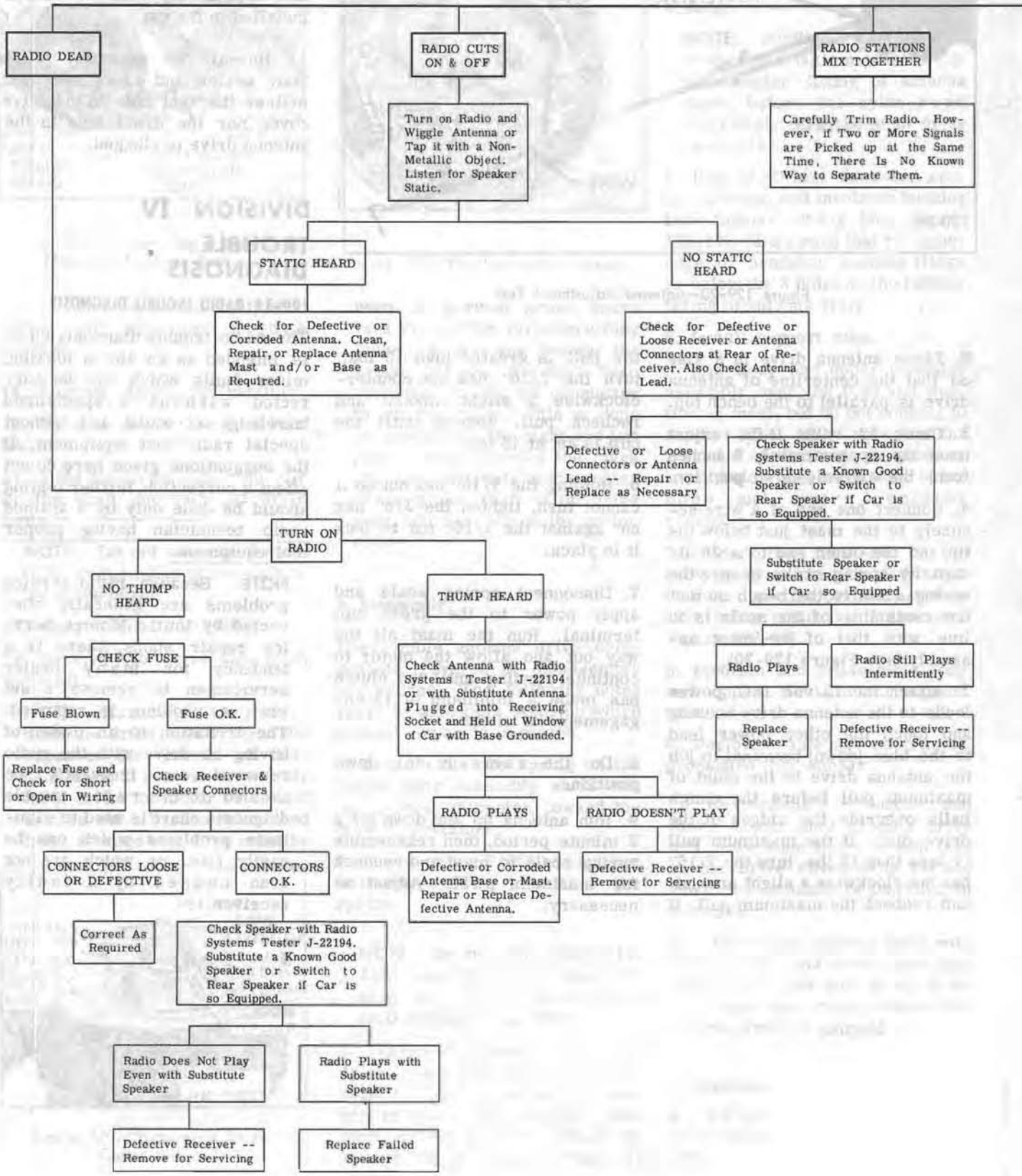
11. Reseal the assembly with body sealer and make sure that neither the vent hole in the drive cover nor the drain hole in the antenna drive is plugged.

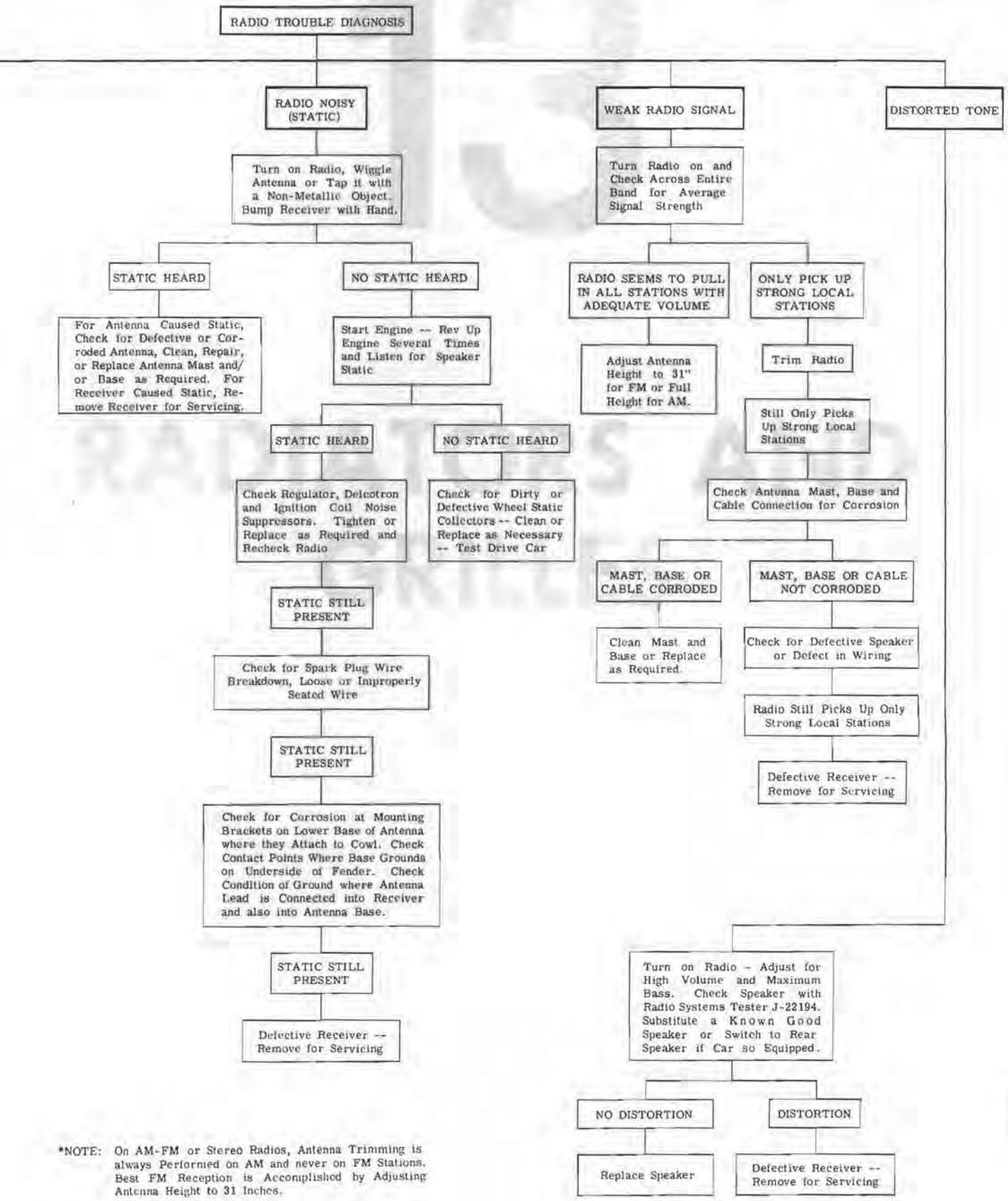
DIVISION IV
TROUBLE DIAGNOSIS

129-11 RADIO TROUBLE DIAGNOSIS

The radio trouble diagnosis chart 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.

NOTE: Because radio 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 radio removed can frequently be avoided if the radio trouble diagnosis chart is used to eliminate problems which can be easily fixed or which are not even caused by a faulty receiver.





*NOTE: On AM-FM or Stereo Radios, Antenna Trimming is always Performed on AM and never on FM Stations. Best FM Reception is Accomplished by Adjusting Antenna Height to 31 Inches.