GROUP 11
RADIO AND OTHER ACCESSORIES

SECTIONS IN GROUP 11

SECTION 11-A
RADIO

CONTENTS OF SECTION 11-A

SERVICE BULLETIN REFERENCE

Bulletin No.	Page No.	SUBJECT

11-1 RADIO DESCRIPTION AND OPERATING INSTRUCTIONS

a. Description

Buick Sonomatic Radios are engineered both mechanically and acoustically to fit with built-in accuracy and to make the most of the acoustical properties of the car. The installation consists of a receiver set with built-in speaker mounted at the center of the instrument panel and a four-section antenna mounted just above the center of windshield.

The Buick Sonomatic radio receiver employs the superheterodyne circuit. The tuner assembly is of the 3-coil iron core permeability-tuned type. This type of tuner assembly does not use the conventional plate type condenser. The 8-inch speaker is of either the electro-dynamic or the permanent magnet type in 1948 models, and is the permanent magnet type in the 1949 model. In addition to the manual controls by which any station may be tuned in, five push buttons are provided for touch-tuning of five pre-selected stations. An illuminated straight-line indicator shows the frequency tuned in.

The antenna position is controlled by a knob located just above the center of windshield inside the body. In the straight down position the antenna rod is held to prevent rattling by a stop mounted on the windshield division (outer) molding. The antenna may be rotated to straight up position by turning the control knob.

b. Antenna Operating Instructions

In metropolitan sections, with strong broadcasting stations, the radio will operate with antenna rod in the "down" position. Weaker stations will require the antenna to be raised to the "upright" position and fully extended. The antenna may be rotated from the "down" to the "upright" positions by turning the con-

trol knob; however, the rod extensions must be pulled out manually.

The antenna is hinged so that it will not ordinarily be damaged when coming in contact with low hanging limbs or other obstructions. The hinge allows the antenna to yield forward or backward, and the antenna returns to its normal position automatically as soon as the obstruction is passed. When entering a garage with a low hanging overhead door, however, the antenna should be turned to "down" position to avoid the possibility of damage when the car is backed out of garage.

c. Switch, Volume, and Tone Control Operation

The first portion of rotation of the switch and volume control knob operates the switch to turn on the radio; further rotation increases the volume. This is the *left* knob on *Series 40 and 1949 Series 50-70*. It is the *right* knob on *1948 Series 50-70*.

Rotation of tone control to extreme "treble" position gives brilliant reproduction of the full tone range. This position will reproduce speech very clearly and distinctly. Rotation counterclockwise toward "bass" diminishes brilliance and accentuates low notes.

d. Manual Tuning Operation

When tuning manually, or when setting up a station on one of the push buttons, remember: "A good radio properly tuned will give the utmost in radio reception, while the same radio improperly tuned may be quite unsatisfactory."

If the program sounds screechy 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 a good plan to tune the set to a point where the low notes are heard best and high notes are clear but not screechy. 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 an intermediate position giving best results.

e. Push Button Operation

To operate the push buttons, simply push the buttons in as far as possible. The button travels very easily for a ways and then a slightly harder push is necessary to complete the travel. It is suggested that the operator try tuning with the buttons a few times while the car is standing still so that he can watch the pointer move across the dial, and thus get to know the "push" necessary to operate the tuning mechanism.

11-2 RADIO TROUBLE DIAGNOSIS

The trouble diagnosis information in this paragraph is of a non-technical nature. It 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.*

a. Trouble Caused by the Antenna

An antenna can cause a radio to be weak, dead, noisy or intermittent. Before doing any work on the antenna installation always check the trimmer adjustment as described in paragraph 11-3.

The easiest method of checking an antenna installation is to substitute a piece of wire about 10 feet long in place of antenna, at end of a standard antenna lead-in, and place outside and away from the car. If radio operates near normal with substitute antenna, some part of car antenna or lead-in is at fault.

Lead-in wire may be checked for "grounds" by removing lead-in cable connector from radio receiver and checking with an ohmmeter from connector tip to car body. This check should show an entirely "open" circuit. CAUTION: *Do not check with a lamp or any device drawing current, since the conductor inside loom is only .010" in diameter and will burn off easily if grounded.*

The most common points to be checked for "grounds" are at attaching screws for windshield division inner molding and escutcheons at upper and lower ends of division inner molding. Grounds will occur at screws if lead-in wire is improperly installed and allowed to pass directly beneath one or more screws. The lead-in wire also may be pinched between garnish molding and the escutcheons.

To check antenna for cause of noisy or intermittent operation, fully extend antenna and turn radio volume control on full. If noise appears in speaker check antenna and lead-in wire for loose connections. If wiggling lead-in does not cause noise, rap antenna rod with insulated end of screwdriver: if noise then appears, check antenna for shorting to car body or corrosion

between antenna sections. Screws holding windshield division (inner) molding should be checked to see that they have not pierced insulation of lead-in wire, shorting it to the car body.

b. Trouble Caused by Tubes

Tubes can cause radio to be dead, weak, intermittent or distorted.

Before checking tubes, make sure that they are all firmly pressed in sockets. Tap each tube with handle of light screwdriver with volume control wide open, and replace any tube that causes noise in speaker. Replace tubes, one at a time, with tubes known to be good (allowing about 45 seconds to heat up) until the defective tube is found.

c. Fuse and Vibrator

If vibrator does not start when radio is turned on, check the fuse. If fuse is blown it indicates a sticking vibrator. Install a new fuse and check vibrator for sticking as described below.

If fuse is not blown, or vibrator does not start after a new fuse is installed, remove receiver cover and tap the vibrator. If vibrator starts after tapping, or after installation of a new fuse, let it run for about 15 minutes and then check for any tendency of vibrator to stick by turning radio on and off repeatedly.

Replace the vibrator if it will not start or has a tendency to stick. Replace vibrator if it buzzes unevenly or is exceptionally loud.

d. Wheel and Tire Static

This noise is electrical charges collecting on the wheels, then discharging to the road surface through the tires. The surface of the road determines the strength of discharge. Wheel or tire static very seldom occurs on gravel or dirt roads. This static in mild form shows up as a click in radio and increases with speed. Apply brakes lightly and if noise decreases check front wheels to see that static collectors have been properly installed and make sure that all grease has been wiped off contacts. In certain cases of wheel or tire static, these static collectors alone may not completely eliminate all noise from this source.

Static Eliminator Powder, available through C.M.P.D. warehouses under Group 9.674, may be used in cases where proper conditioning of static collectors does not remedy tire static. An injector for installing the powder is also available under the same group number. This powder equalizes the positive and negative charges developed by the tire, thus neutralizing the corona effect and eliminating radio interference difficulties from this source.

e. Radio Noise Caused by Generator

The sparking of the generator brushes will produce a noise in the radio which increases with speed. This noise is identified by a high-pitched whine. Check generator capacitor to see that all connections are tight and that paint under capacitor mounting has been removed. If these are in good condition replace capacitor with new one. Remove generator cover band and observe sparking. If this is excessive, check for open armature.

f. Ignition Interference

The car hood must be closed and securely latched when testing for ignition interference.

Ignition interference should not occur if the distributor suppressor and the coil capacitor are properly installed.

The distributor suppressor must be installed at distributor end of coil to distributor high tension wire; installation at coil end of this wire does not give satisfactory results. The coil capacitor must be firmly attached to mounting bracket with clean metal ground contact, and the lead must be attached to *battery* terminal of coil.

Make sure that all high tension wires are firmly pushed into socket in coil and distributor cap.

Make sure that the antenna trimmer screw plug button is installed in receiver cover. See figure 11-1.

Check the bond strap on the water temperature gauge tube to make sure it has a clean tight connection to the dash.

Check lead-in wire where it is fed up through hole in center of instrument panel to make sure that it is properly installed and grounded. See figure 11-7 or 11-8.

If the items mentioned do not reveal the cause of ignition interference, replace distributor suppressor and coil capacitor, one at a time, until defective unit is found.

11-3 RADIO ADJUSTMENTS—ON CAR

When making the adjustments described in this paragraph it is desirable to have the car in a location that is as free as possible from outside interference.

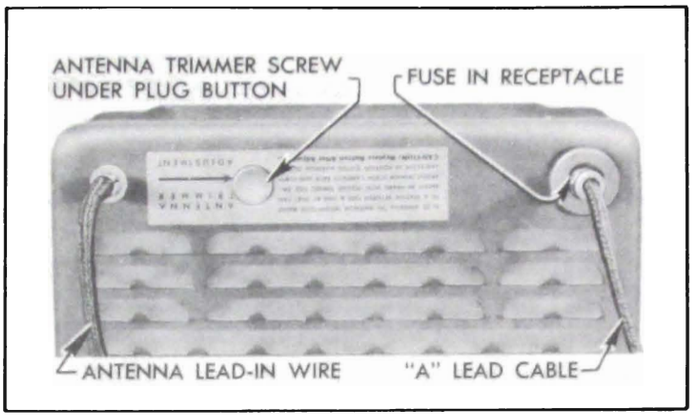

Figure 11-1—Antenna Trimmer Screw Location—Series 50-70

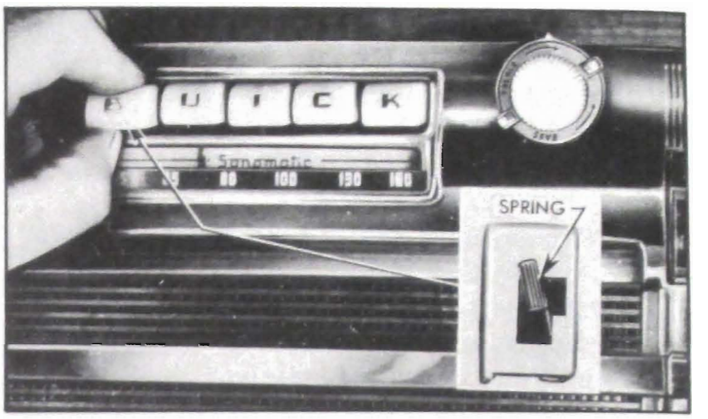

Figure 11-2—Removing Radio Push Button—1948 Models

a. 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.* The adjustment should also be checked whenever the radio reception is unsatisfactory.

1. Raise antenna to maximum height.

2. Tune radio to a station between 1300 and 1500 K.C. that can barely be heard with volume turned full on.

3. Pry out of receiver the plug button labeled "Antenna Trimmer Adjustment". See figure 11-1.

4. Insert screwdriver and adjust trimmer screw carefully back and forth and leave in position giving maximum volume.

5. *Be sure to install plug button in receiver cover after adjustment, to prevent ignition interference.*

b. Setting Push Buttons to Desired Stations—1948 Models

Setting up the push buttons to the desired stations is a simple procedure requiring no tools or equipment.

1. Turn on the radio.

2. Remove the push button by shifting sidewise the spring which is located on the bottom of button and pulling button straight out. See figure 11-2.

3. Loosen screw as shown in figure 11-3.

4. Push loosened screw in as far as possible and hold in this position with one hand while the other hand is used to tune in the desired station. See "Manual Tuning Operation," paragraph 11-1. Do this carefully because, if incorrect the error will repeat each time the push buttons are used.

5. Remove pressure from screw so that it comes back to normal position. Tighten screw firmly.

6. Install button by pushing in as far as possible. (The spring will prevent it from coming off unintentionally.)

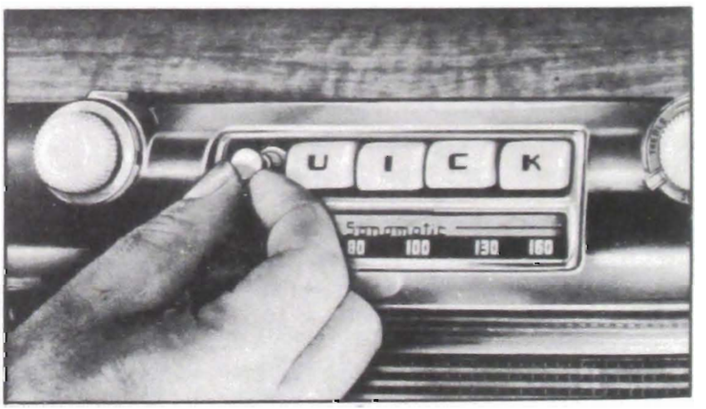

Figure 11-3—Loosening or Tightening Push Button Screw—1948 Models

c. Setting Push Buttons to Desired Stations—1949 Models

1. Turn on the radio.

2. Pull button to left and all the way out.

NOTE: *Push buttons are not removable as in 1948 models.*

3. Tune in the desired station manually.

4. Push button all the way in.

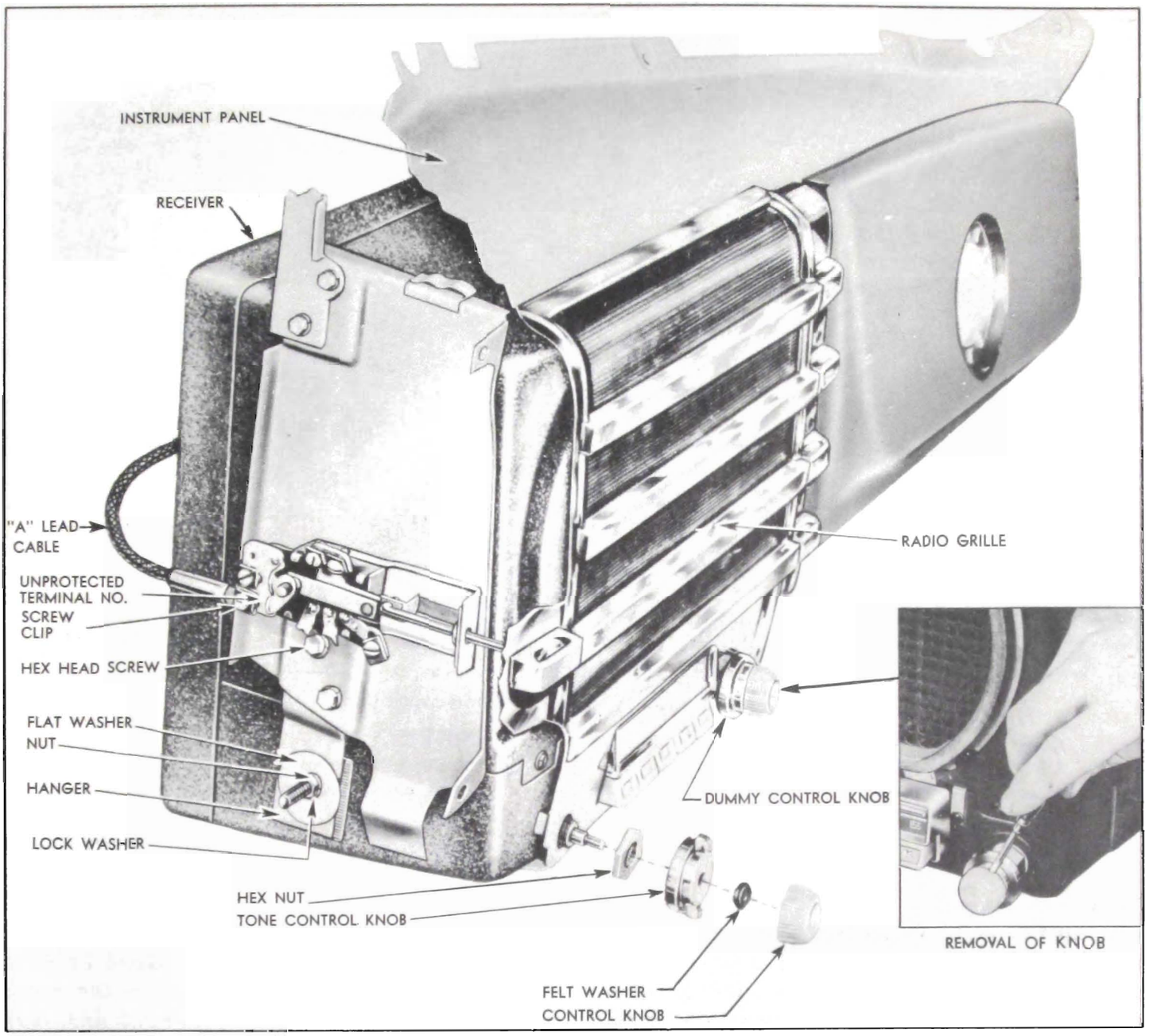

Figure 11-4—Radio Receiver Installation—Series 40

11-4 RADIO INSTALLATION INSTRUCTIONS

Although radios are usually installed at the factory, occasions may arise requiring installation in the field. It also may be necessary to remove and reinstall the radio receiver, antenna, or interference suppression items in the course of repairs to the car. In all such cases, the instructions contained in this paragraph must be carefully followed to insure proper installation and satisfactory operation of the radio.

a. Installation of Receiver

1. Remove control plate from radio speaker grille by prying off with a screwdriver inserted under the lower edge. Remove control hole buttons in the same manner.

2. Remove paper from forward side of speaker grille and remove all loose paper from speaker grille and instrument panel. Loose edges of paper will buzz when radio is played.

3. Thoroughly clean surface around mounting holes in speaker grille to insure a good electrical connection with the receiver.

4. Bolt radio hangers to radio support brackets with slot openings toward front of car. See figures 11-4 and 11-5. Hangers are not interchangeable between Series 40 and Series 50-70.

5. Install receiver by sitting in front seat holding receiver at arm's length while the two threaded bushings are inserted through control holes in speaker grille and the studs on side of receiver are engaged in the extended

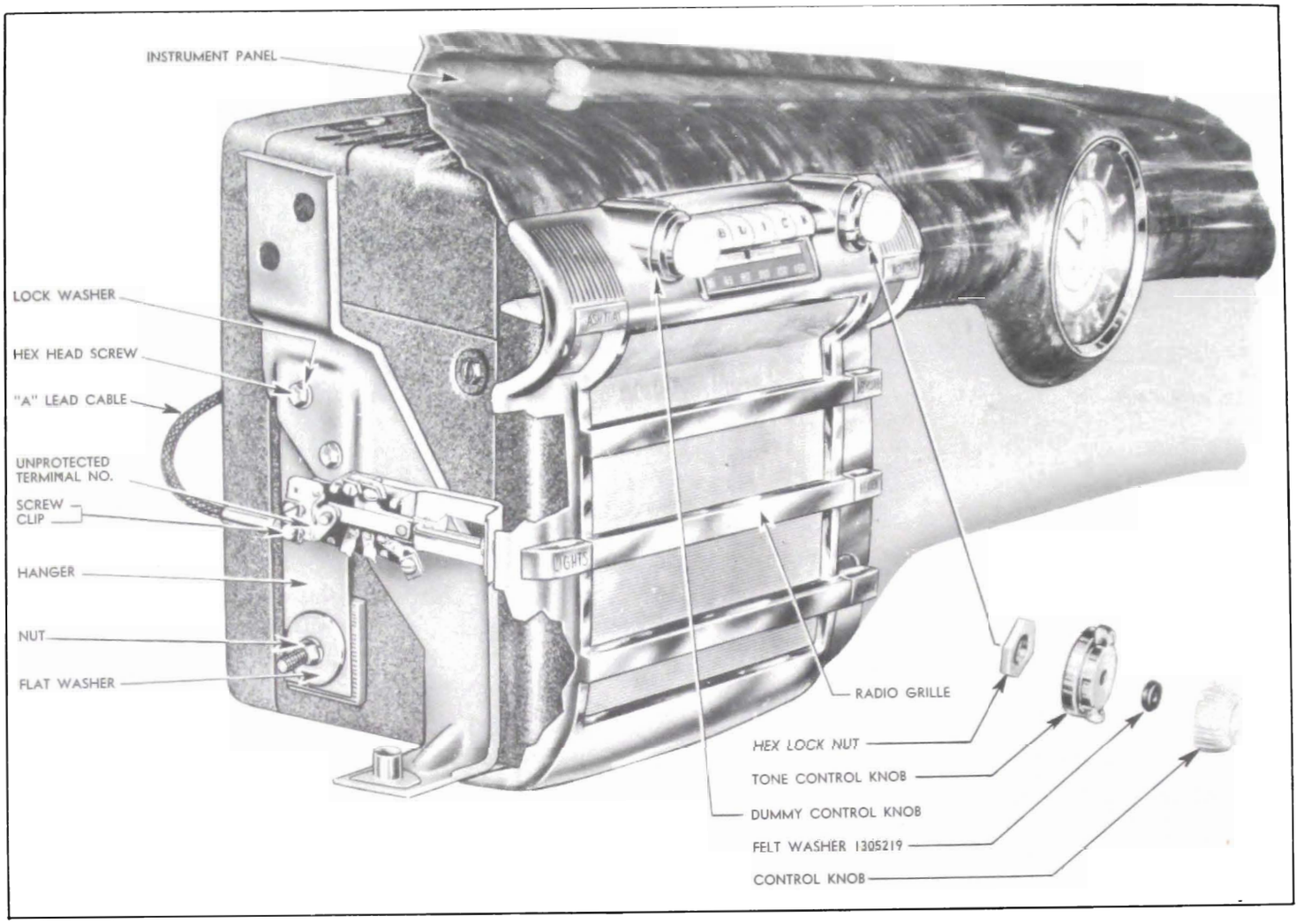

Figure 11-5—Radio Receiver Installation—1948 Series 50-70

lip on the hangers.

6. Install and tighten hex nuts on threaded bushings. Hold receiver up until rubber gasket at speaker opening touches the back of speaker grille, then install large flat washers, lockwashers and nuts on receiver studs and tighten nuts securely. See figures 11-4 or 11-5.

7. Install tone control and dummy knobs, felt washers, and control knobs. To install control knob, push knob on shaft as far as possible. To remove knob, insert a small screwdriver in slot on edge of knob and pry against the flat spring located inside of knob (fig. 11-4).

8. Connect the "A" lead cable to one of the No. 1 (unprotected) terminals of lighting switch. *Never connect to any other terminal.* Install 15 ampere fuse in receptacle in receiver and connect lead to receiver. On *Series 40*, the "A" lead connects to receiver socket toward right side of car. On *Series 50-70*, it connects to socket toward left side of car. See figure 11-1.

9. If antenna is installed, connect the antenna lead-in wire to receiver and make antenna trimmer adjustment (par. 11-3).

b. Installation of Radio Antenna—Closed Bodies

IMPORTANT: *The standard Buick antenna is matched with the receiver within the range of the trimmer adjustment. Other antennas may not match the receiver within the range of the trimmer adjustment; therefore the use of other than a standard Buick antenna is not recommended.*

If a new roof panel has been installed it will be necessary to cut a hole for the antenna control as described in steps 1 and 2. If new headlining has been installed, the headlining must be slit as described in step 3. Otherwise, these steps are not required as antennas are installed at the factory.

1. Cover area of roof panel where antenna control is to be installed with masking tape to avoid damaging the paint. Draw a line on masking tape in alignment with center of windshield division (outer) molding. On another car of same model measure distance from top edge of windshield reveal molding to center of antenna control, then lay off this same distance on the

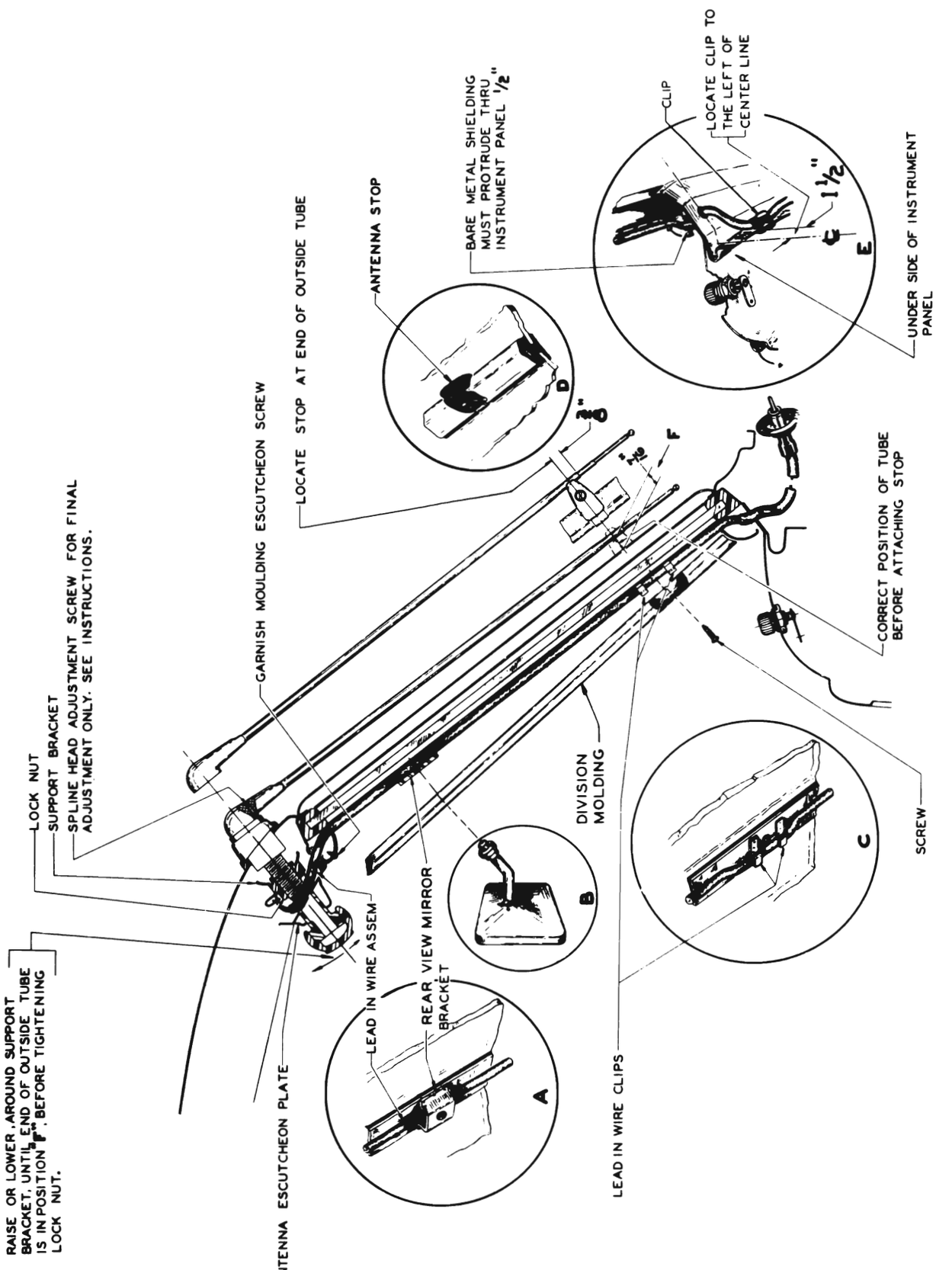

Figure 11-6—Antenna Lead-in Wire Installation—1948 Closed Bodies

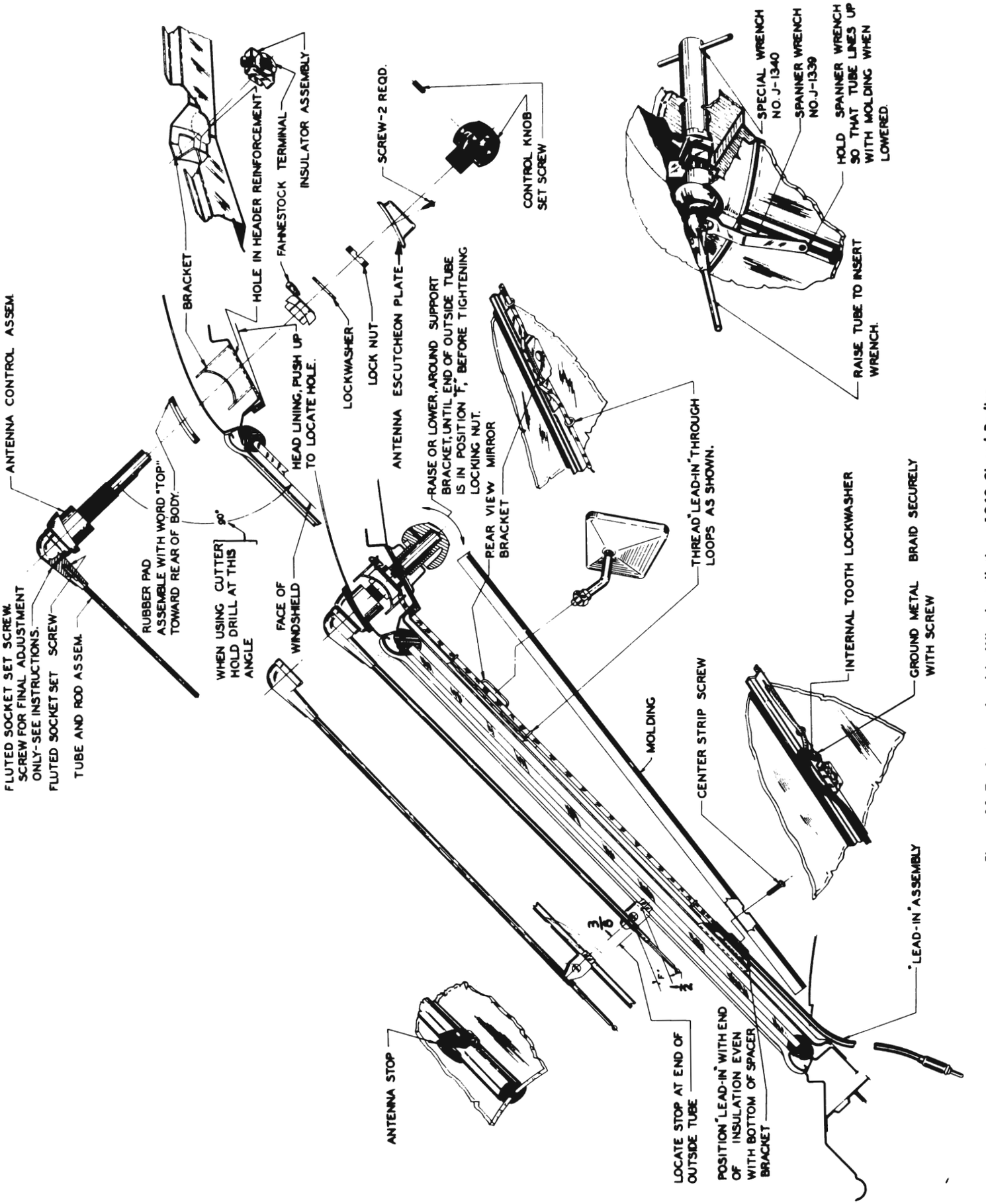

Figure 11-7—Antenna Lead-in Wire Installation—1949 Closed Bodies

line made on masking tape. Make center punch mark where lines on masking tape cross.

2. If a 1⅛" diameter piloted circular cutter is available, drill proper size pilot hole at center punch mark, then cut the 1⅛" hole while holding cutter at 90° to windshield glass. See figure 11-7. If cutter is not available, use center punch mark as center to scribe a circle 1 3/16" diameter, then drill and file out to circle.

3. Cut two slits at right angles to each other, through the headlining directly in the center and opposite the hole drilled in roof panel. By holding the headlining tightly against the header reinforcement, a hole 1¼" in diameter can be felt in the reinforcement. The slits should extend only across this hole.

4. If antenna tube and rod assembly is not assembled to the antenna control assembly, remove spline head screw from control, insert tube so that hole in tube aligns with screw hole in control then install and tighten set screw securely. See figure 11-7.

5. Remove rear view mirror, windshield garnish molding escutcheon and windshield division (inner) molding.

6. On *1948 models,* feed the antenna lead-in wire up through the hole in the center of instrument panel until the bare metal shielding on lead-in wire protrudes through panel approximately ½". Install clip to hold wire to instrument panel to establish a positive ground and to prevent shifting of wire. See figure 11-6, view E. NOTE: *Correct installation of metal shielding and clip is important in preventing ignition interference in radio.*

6*a*. On *1949 models,* feed the antenna lead-in wire up through the hole in center of instrument panel until insulation is even with bottom of spacer bracket on center division, then attach metal braid to ground with screw and internal tooth lock washer. See figure 11-7.

7. On *1948 model,* pass upper end of lead-in wire through the rear view mirror bracket (fig. 11-6, view A). On *1949 model,* pass wire through loops on center division and around rear view mirror bracket (fig. 11-7).

8. Feed lead-in wire up through center of windshield garnish molding and fish it out of slit hole in headlining. The hole above garnish molding is approximately ½" to right of center to avoid possibility that escutcheon screw will damage the lead-in wire during installation. *Gently* pull wire up to remove all slack; a hard pull may break the small lead inside the loom.

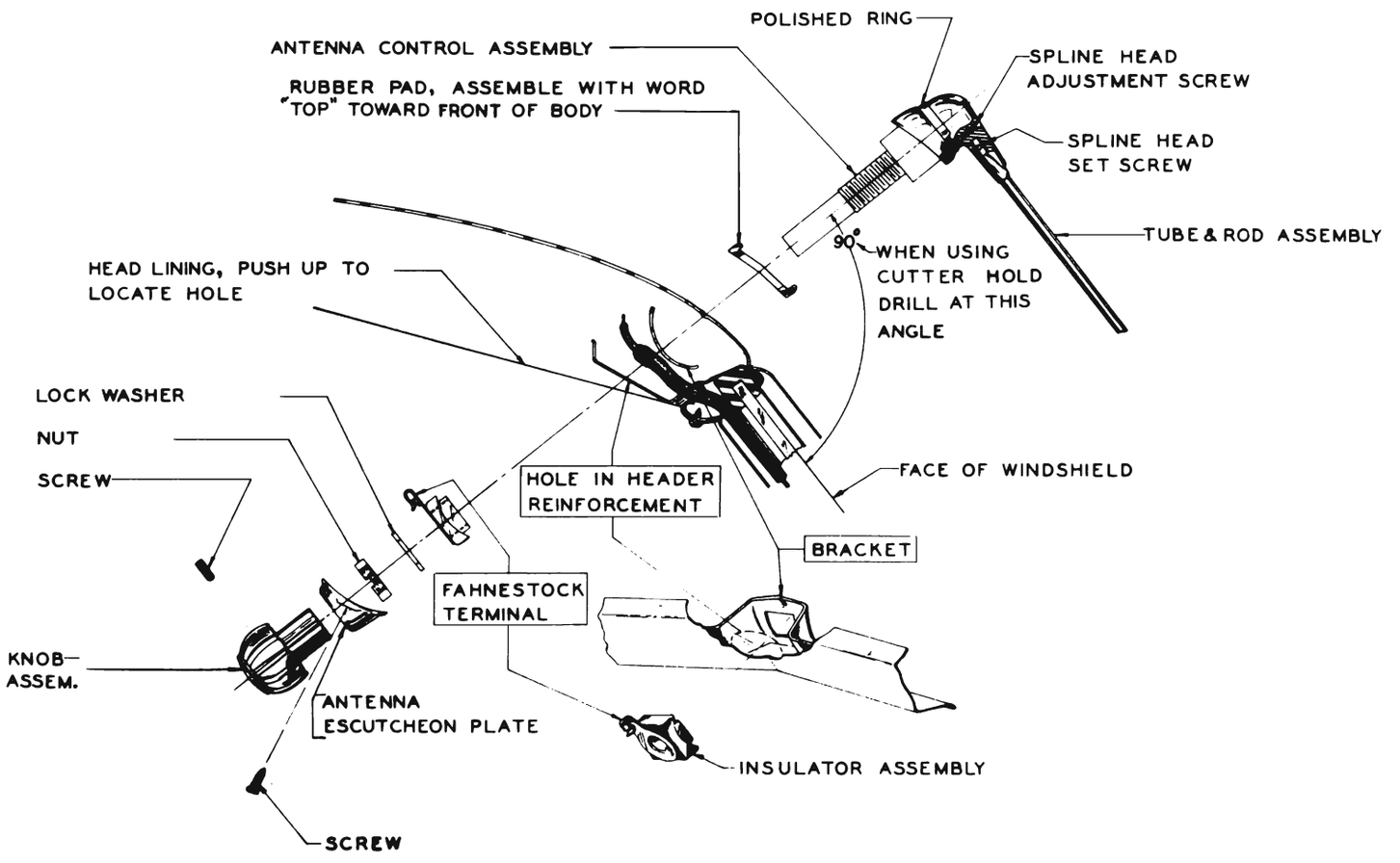

Figure 11-8—Antenna Control Installation Details—Closed Bodies

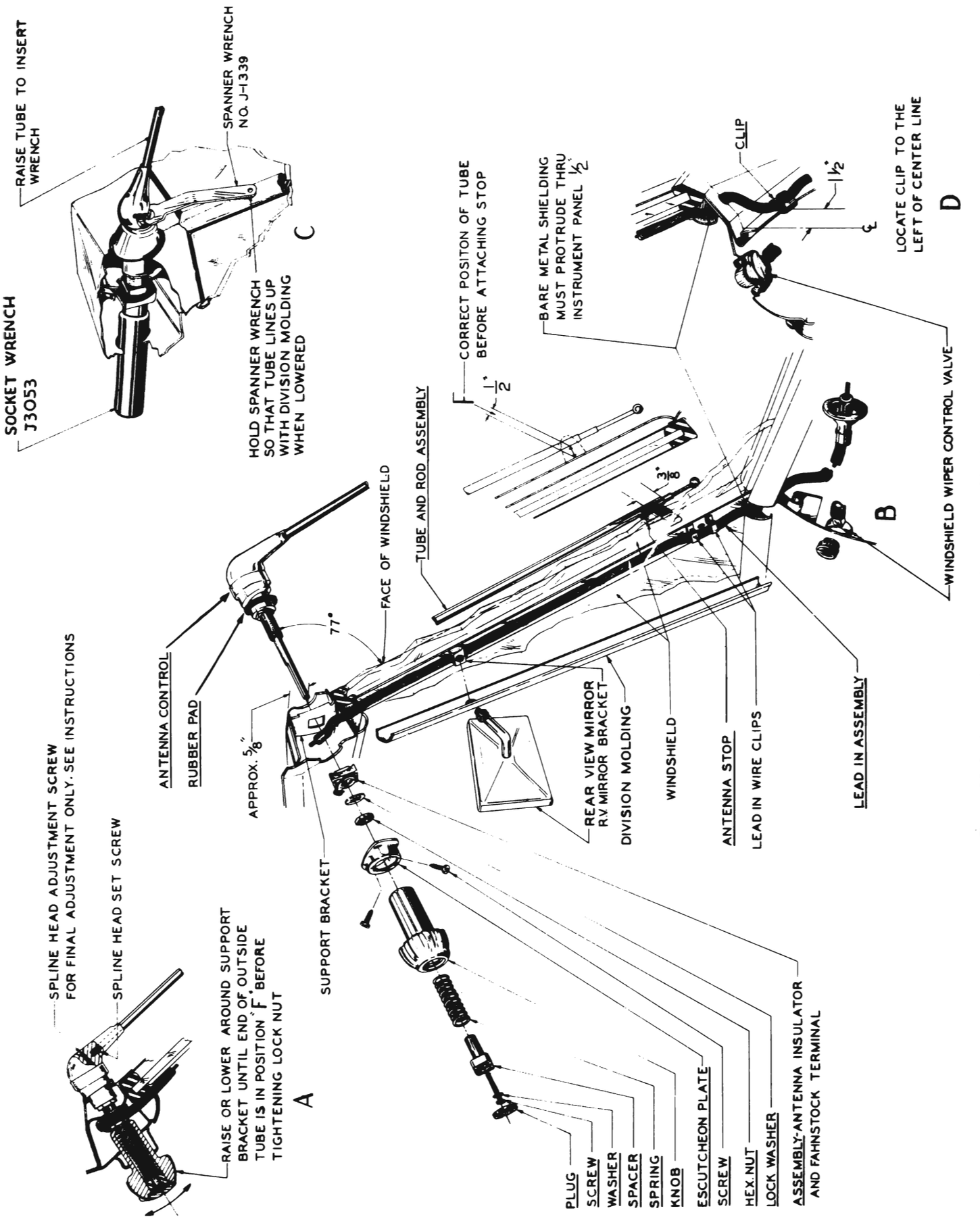

Figure 11-9—Antenna Installation—1948 Convertible Coupes

9. Insert bare end of lead-in wire into the Fahnestock terminal on the hard rubber insulator. Push the slack wire up into the hole, insert insulator up through the hole in the header reinforcement, and locate in the square hole of the bracket just back of the header reinforcement. The Fahnestock terminal must be located in the upper left corner. See figure 11-8.

10. While holding this insulator in place, have a helper place the rubber pad on control assembly so that the molded work "TOP" will be toward *front* of body when installed, then insert the control assembly through the hole in the top and through the hole in the insulator.

11. Install lockwasher and run nut up until the assembly is snug but not tight, using Wrench J 1340. See that point of adjustment screw does not strike polished ring.

12. Place tube in the "down" position and raise or lower the inside of the antenna control assembly until the end of the outside tube is 7/16" from the top of the windshield division (outer) molding. See figure 11-6 or 11-7 at "F".
NOTE: *It is essential that this adjustment be made correctly in order that the rod and tube assembly can be easily located in the antenna stop by means of the control knob inside the car.*

13. Using special Spanner Wrench J 1339 the man on the outside must hold the antenna body so that the tube lines up with the windshield division molding when lowered. Tighten the nut on the inside securely with special Wrench J 1340.

NOTE: *If there is any doubt of the location of the Fahnestock terminal the lead-in wire should be checked for "grounds" with an ohmmeter. It should, of course, show an entirely "open circuit". Do not check with a lamp or any device drawing current as the conductor inside of the loom is only .010" in diameter and will burn off easily if grounded. For the same reason, care should be taken to see that the bare terminal on the end of the plug does not touch any "hot" terminal behind the instrument panel.*

14. Install antenna escutcheon plate, threading screws into holes provided in header reinforcement. Install knob and tighten set screw securely. See figure 11-8.

15. Install windshield division (inner) molding, garnish molding escutcheon and rear view mirror.

16. Install antenna stop on windshield division (outer) molding in location shown in figure 11-6 or 11-7 and tighten screw securely. If antenna rod does not snap into antenna stop easily, spline head adjustment screw can be turned in against polished ring to vary clearance between rod and windshield division molding. Tension should be sufficient, however, to prevent rod from rattling. This adjustment should not be used except for a very slight change. See step 12.

17. Connect lead-in wire to receiver and make antenna trimmer adjustment (par. 11-3).

c. Installation of Radio Antenna—Convertible Coupe

Installation of the radio antenna on a convertible coupe is very similar to that on closed bodies (subpar. b, above). The installation details are clearly shown in figure 11-9 (1948) and figure 11-10 (1949). Note that the end of the outside tube is located 1/2" from the top of windshield division molding (at "F") whereas this dimension is 7/16" on closed bodies.

d. Installation of Interference Suppression Parts

Figure 11-11 shows proper installation of the capacitor to prevent interference caused by the generator. Note that capacitor lead is connected to the armature ("A") terminal of generator. Capacitor must never be connected to the field ("F") terminal as this will cause bad pitting of the voltage regulator points, thus preventing it from operating properly.

The distributor suppressor must be securely attached to the coil-to-distributor high tension wire at the distributor end. Installation of suppressor on coil end of wire will not give satisfactory results.

The coil capacitor is mounted on the coil bracket and the lead is connected to the battery (+) terminal of coil. See figure 11-12. If capacitor is connected to the distributor (−) terminal excessive pitting of distributor contact points will result.

Figure 11-13 shows the static collector installed in a front wheel hub grease cap. For good results the grease cap and the center of steering knuckle spindle must be clean and free from grease. The center of static collector is made of self-lubricating material.

In addition to the items mentioned above, a bond strap is attached to the temperature gauge tube. This strap must have a clean tight connection to the dash.

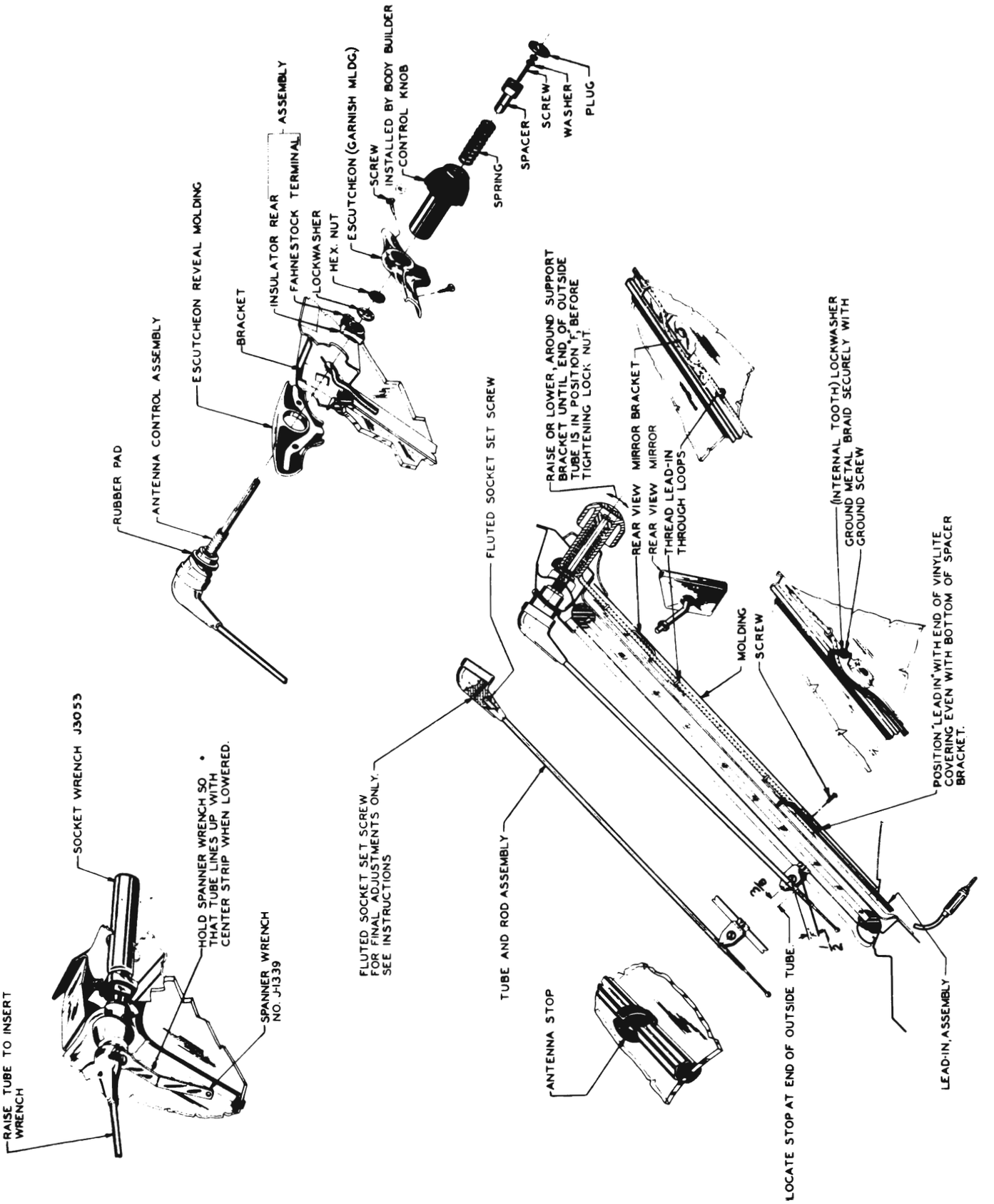

Figure 11-10—Antenna Installation—1949 Convertible Coupes

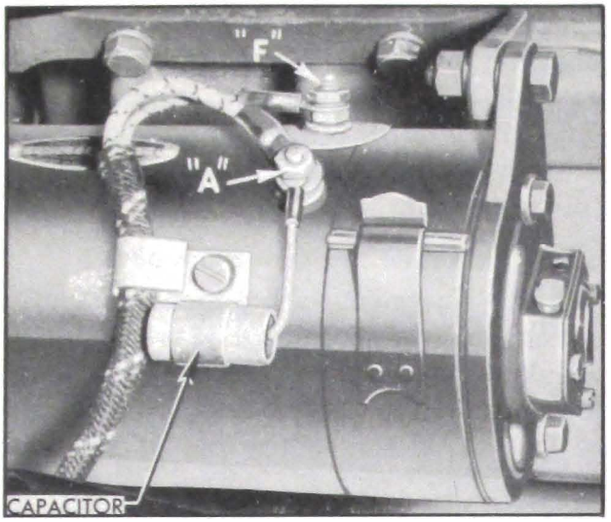

Figure 11-11—Capacitor Mounted on Generator

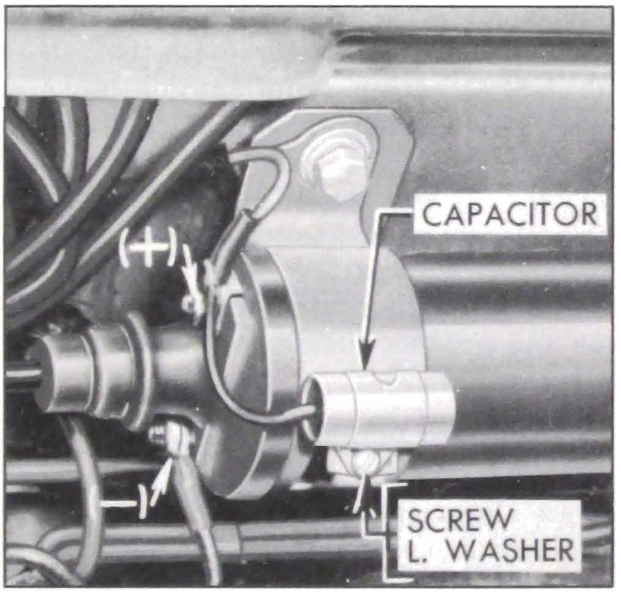

Figure 11-12—Capacitor Mounted on Coil

Figure 11-13—Static Collector Installed in Front Hub Grease Cap

11-5 RADIO ALIGNMENT PROCEDURE

Under no circumstance should alignment be attempted without calibrated test oscillator and output meter, or by untrained personnel.

These alignment instructions must be rigidly adhered to and all adjustments must be made in the order given.

a. Alignment Preliminaries

The radio receiver should be functioning before the various aligning adjustments are made. Trouble shooting, if necessary, should *precede* the final adjustment. Receiving signals at correct dial setting depends upon having the proper relation between tuning condenser and the dial scale. Pointer or dial setting is necessary because the scales are not linear with frequency and all scales are precalibrated for maximum accuracy.

b. Superheterodyne Theory and Alignment

Buick Sonomatic Auto Radios employ the superheterodyne circuit which uses an intermediate frequency (I-F) amplifier, the characteristics of which largely govern the selectivity of the receiver. The I-F amplifier characteristics are determined principally by the adjustment and design of the I-F transformers. It is, therefore, important that the I-F amplifier be correctly adjusted to provide the best selectivity. These adjustments are in the form of iron cores placed within the coils. During alignment it is necessary only to adjust these iron cores as specified in the tabulated alignment procedure, to obtain best operation. Incorporated in every superheterodyne is a local oscillator, the output of which mixes with the incoming signal from the antenna. The local oscillator does not operate at the same frequency as the incoming signal which is to be received. The resonant (acceptance) frequency of the I-F amplifier established the difference in frequency required; 260 K.C. is used on Buick radios. The local oscillator operates at a frequency higher than the incoming signal, the two predominating resultant frequencies produced are the sum and the difference of the two frequencies. The design of these receivers is such that the difference in frequency is the same as the I-F amplifier resonant frequency. Modulation of the incoming signal will be present as modulation of input to the I-F amplifier.

c. Effects of R-F or I-F Misalignment

The effects of misaligned R-F or I-F stages

are most commonly observed as a loss of sensitivity either over a portion or over entire band; loss of sensitivity, often characterized by the selectivity being noticeably unequal on the two sides of the point of best reception; change in fidelity; and inaccurate dial readings. Loss of fidelity will be apparent as a loss of high or low audio frequencies. If the I-F amplifier is not tuned to the specified frequency, the oscillator and other tuned circuits will not track. The dial readings will then be incorrect and a portion of the band will have low sensitivity.

d. Test Oscillator Connections— Dummy Antenna Use.

The chassis or frame of the radio receiver is considered as being at ground potential and the "O" or "GND" terminal of the test oscillator should be connected to the chassis wherever good contact can be established. The "ANT" or "HIGH" terminal of the Test Oscillator output must be connected to the antenna connector or other points in the radio receiver as specified in "Tabulated Alignment Specifications" (subpar. g or h). The use of a fixed condenser in series with the test oscillator lead is specified in some instances. A .1 mfd. condenser is used in aligning the I-F stages and a .00006 (1948) or .000068 (1949) condenser is used in series with the antenna connector. This condenser, sometimes called "Dummy Antenna", provides a proper input loading to the receiver. It is important that this condenser be connected at the point where the Test Oscillator lead joins the radio set, and should not be connected at the test oscillator. Shielded leads should be used.

e. Output Meter Connections

Any standard type of output meter can be employed during alignment. The meter should be connected across the secondary of the output transformer. It is best to leave the voice coil connected while using the output meter. It is essential that an output meter with sufficient sensitivity be used to avoid the possibility of using too much Test Oscillator output to get a readable indication on the output meter. Sometimes it is desirable to connect the output meter from plate to plate of output tubes; when this connection is employed be sure that a .1 mfd. condenser is connected in series with the meter to afford protection from the d-c potential.

f. Alignment of the Tuned Circuits

Tuning adjustment with trimmers or adjustable iron cores is accomplished while applying a modulated signal, of the specified frequency to the input of the stage being adjusted. Maximum Output Meter indication, of the amplitude of Audio-Frequency output, of the radio receiver, shows when tuning is correct. The various tuned circuits are aligned by adjusting each in this manner. During all alignment adjustment, the output of the Test Oscillator must be kept as low as possible, consistent with a reasonable output meter indication, to prevent A-V-C action from taking place and making all adjustments seem very broad.

The tuning tool used must have a minimum of metal so it will cause little or no tuning reaction. If removing the tool, after making an adjustment, reduces the output appreciably, a slight compensating mistuning will correct the error and produce maximum output when the tool is removed.

g. Tabulated Alignment Specifications— 1948 Models

These alignment specifications apply to 1948 model radios bearing the following numbers:

Car Series	Radio Model Number	Receiver (only) Part No.
40	980797	7257814
50-70	980798	7257804

Volume Control Maximum
Signal generator output minimum for satisfactory output indication.
See figure 11-15 for location of adjustment

TABLE OF ALIGNMENT SPECIFICATIONS—1948 MODELS

Series Condenser or Dummy Antenna	Connect to	Tune Receiver To	Signal Generator Frequency	Adjust Screws In Order
0.1 Mfd.	6SA7 Pin #8	No Broadcast Signal	262KC	A B C D
*.000060 Mfd.	Antenna Connector	Extreme Hi. Freq. End of Dial	1615KC	E F G
**.000060 Mfd. ***See below	Antenna Connector	Signal Generator	1430KC	J & K

screws indicated in the Table of Alignment Specifications—1948 Models.

*Before making this adjustment turn core screws J, H, K by means of a bakelite screwdriver, so that the rear end of the cores are $1\frac{13}{16}$" from the rear or the coil form. The purpose of this adjustment is to set the cores at the correct starting point with respect to the windings.

**Cores J and K are adjusted by means of a bakelite screwdriver through the rear end of the coils. There must not be any metal in part of screwdriver inserted in the coil.

***Should it be necessary to calibrate the pointer after this adjustment, tune signal generator to 1300 KC and the receiver to the signal. Loosen dial cord pulley set screws and adjust pointer to 1300 KC. Re-tighten set screws.

Adjust trimmer G to match car antenna (at approx. 1400 KC) when radio is installed (par. 11-3).

h. Tabulated Alignment Specifications—1949 Models

These alignment specifications apply to 1949 radios bearing the following numbers.

Car Series	Radio Model Number	Receiver (only) Part No.
50-70	980782	7256204

Output Meter Connections . . . . . Across Voice Coil
Signal Generator Return . . . . . To Chassis
Dummy Antenna . . . . . In Series with Generator
Volume Control . . . . . Maximum Volume
Tone Control . . . . . Treble
Generator Output . . . Minimum for Readable Indication

See figure 11-16 for location of adjustment screws indicated in the Table of Alignment Specifications—1949 Models.

TABLE OF ALIGNMENT SPECIFICATIONS—1949 MODELS

Steps	Series Cond. or Dummy Ant.	Connect to	Signal Generator Freq.	Tune Receiver to	Adjust in seq. for max. Output
1	0.1 mfd.	6SA7 Grid (Pin #8)	260 KC	High Freq. Stop	A, B, C, D
2	0.000068 mfd.	Antenna Connector	1615 KC	High Freq. Stop	*, E, F, G
3	0.000068 mfd.	Antenna Connector	1430 KC	Signal Gen. Signal	J, K
4	0.000068 mfd.	Antenna Connector	1615 KC	High Freq. Stop	F, G
5	0.000068 mfd.	Antenna Connector	1000 KC	Signal Gen. Signal	L **

*Before making this adjustment (Step 2) check the mechanical setting of the oscillator core "H". The slotted end of the core should be $1\frac{13}{16}$" from the mounting end of the coil form. (This measurement is readily made with a suitable plug from the mounting end of the coil form). Core adjustments are made from the mounting end of the coil form with an insulated screwdriver, and core studs should be sealed with glyptal or household cement after alignment.

**"L" (Step 5) is the pointer adjusting screw on the pointer connecting link. Adjust so the pointer reads 1000 K.C.

With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" (see sticker on case) for maximum volume with the radio tuned to a weak station near 1400 KC (par. 11-3).

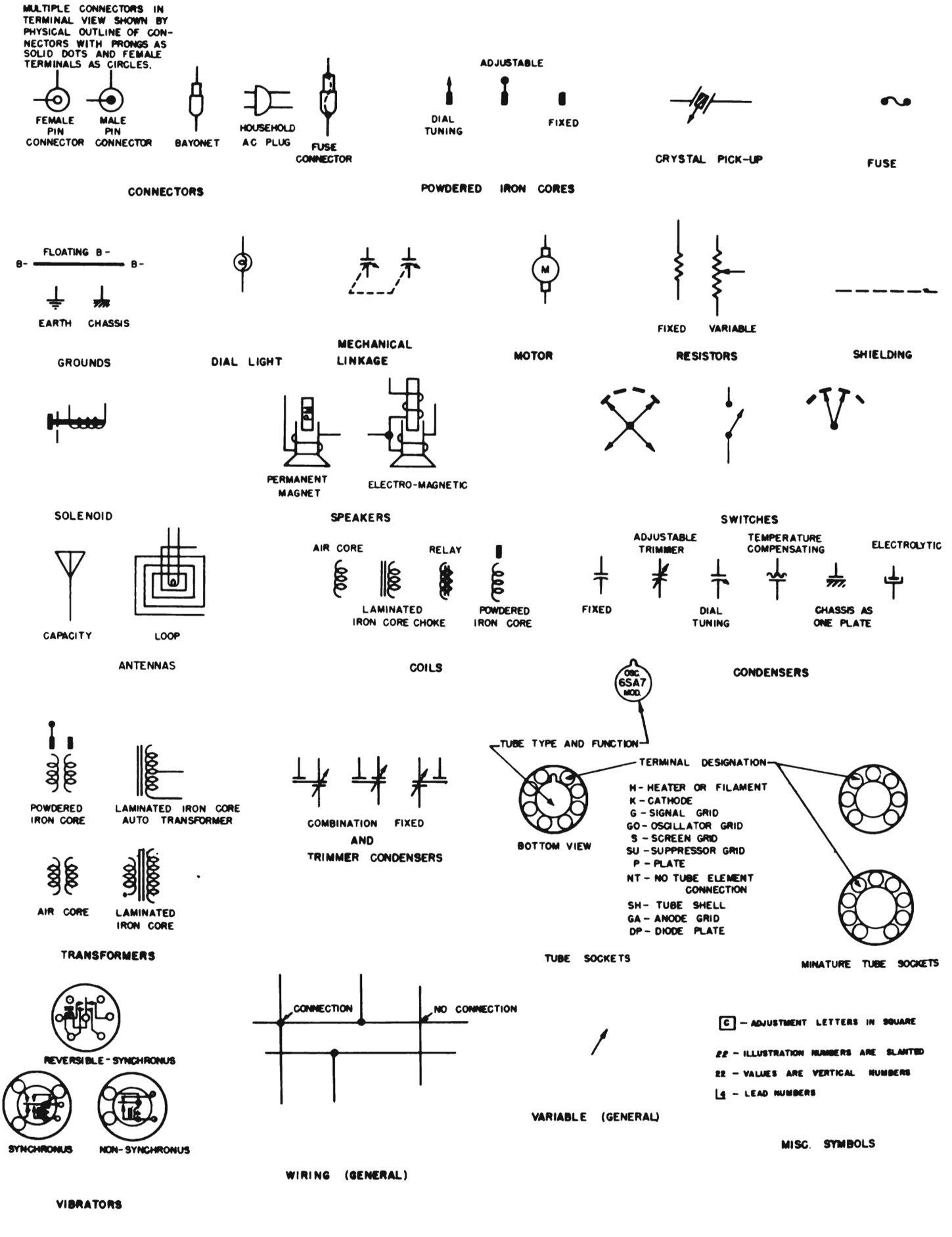

Figure 11-14—Symbol Legend for Figures 11-15, 11-16, 11-18, 11-19

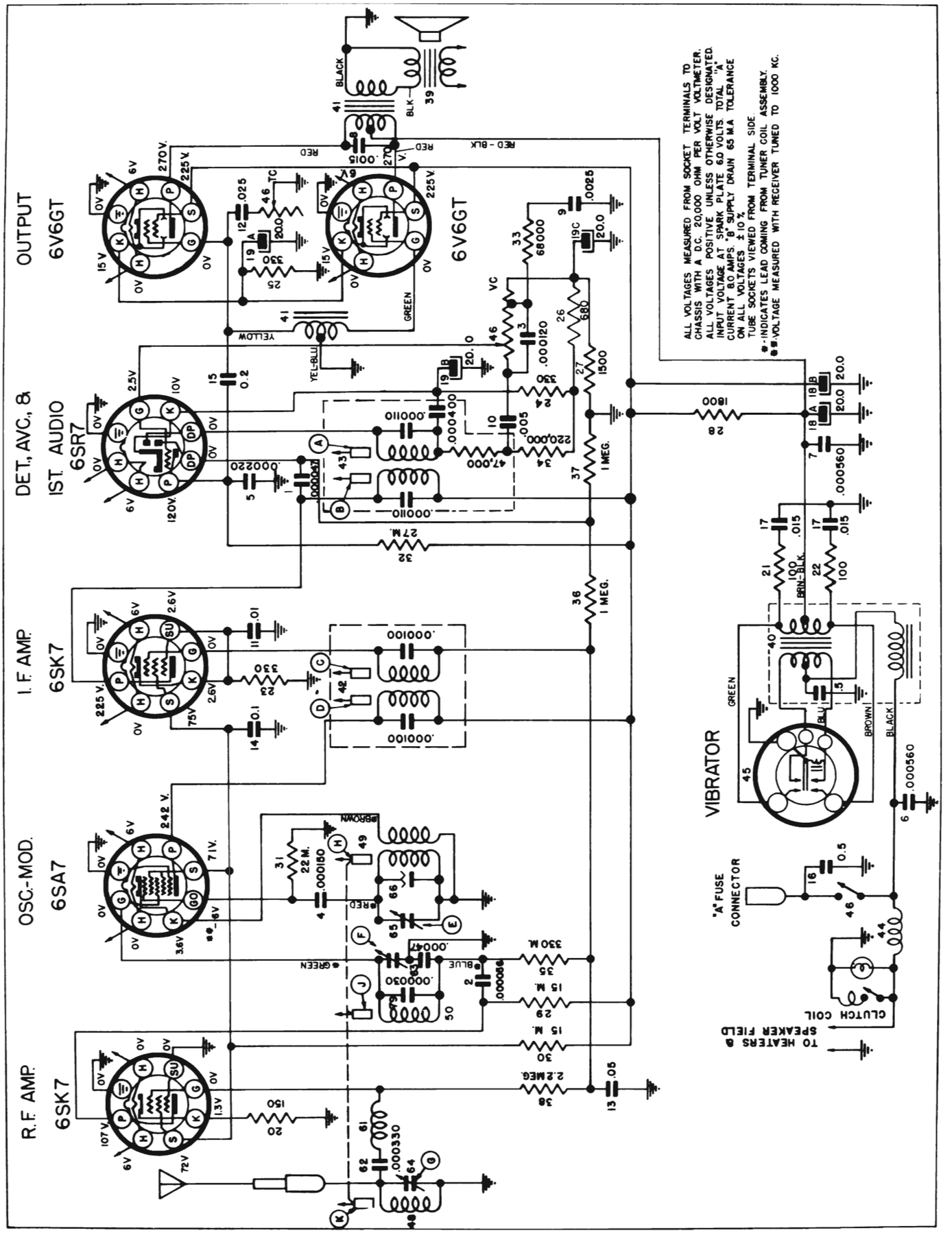

Figure 11-15—Radio Circuit Schematic—1948 Models (See Fig. 11-14 for Symbol Legend)

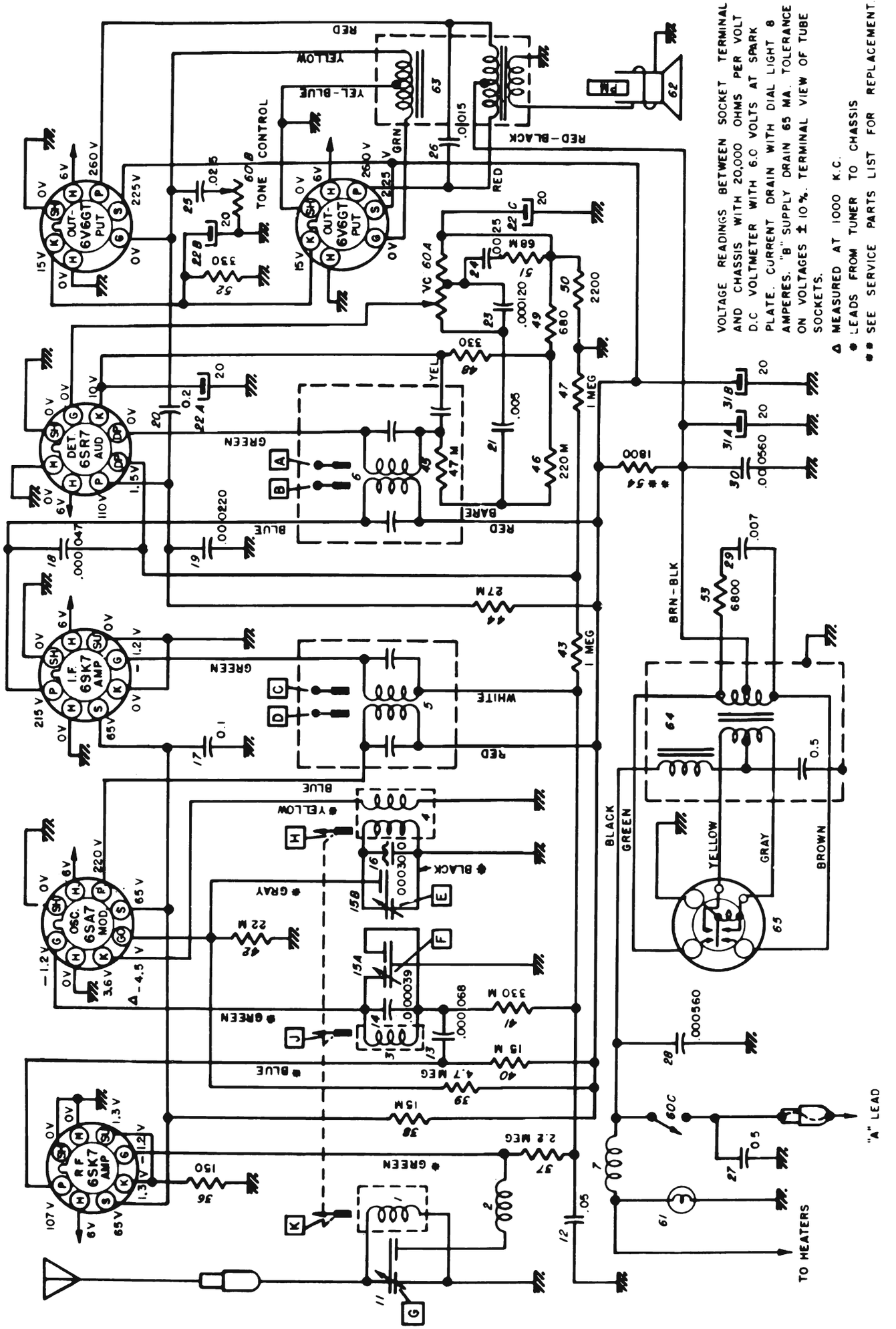

Figure 11-16—Radio Circuit Schematic—1949 Model (See Fig. 11-14 for Symbol Legend)

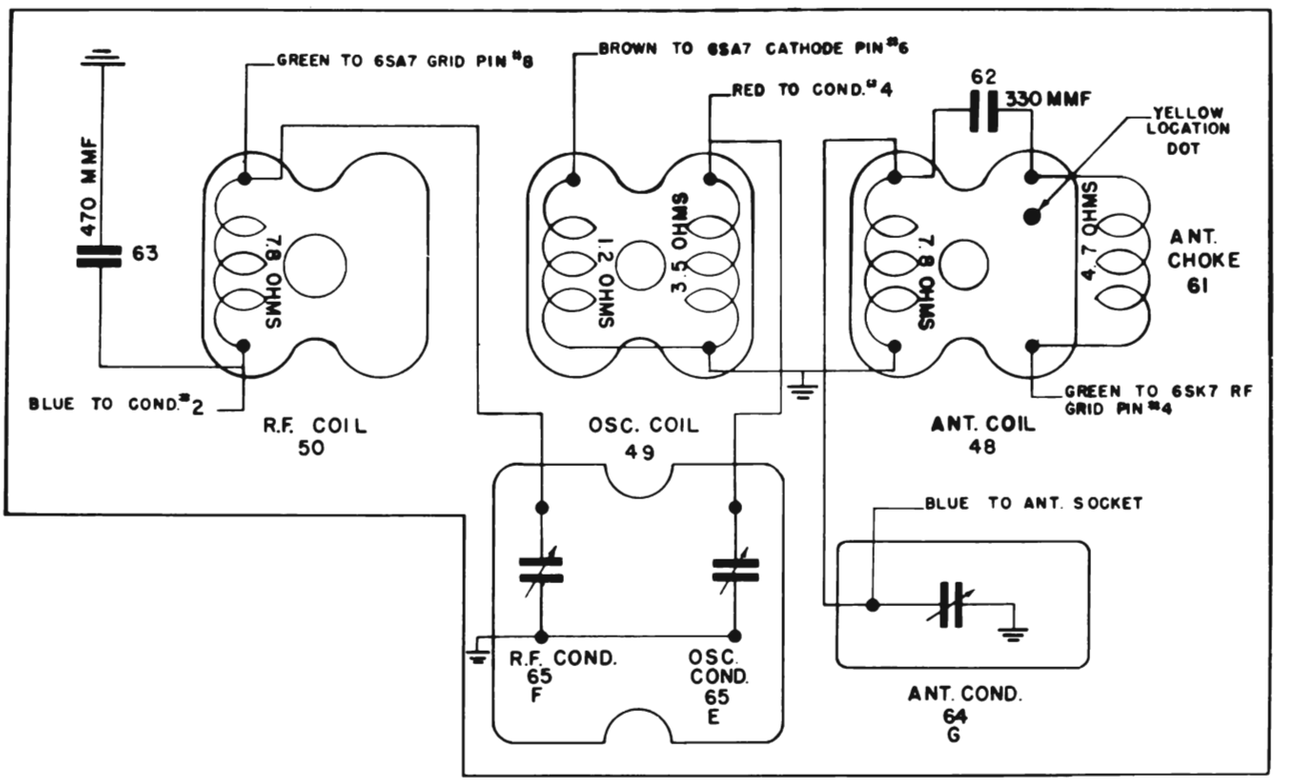

Figure 11-17—Radio Coil Connections—1948 Models
(See Fig. 11-14 for Symbol Legend)

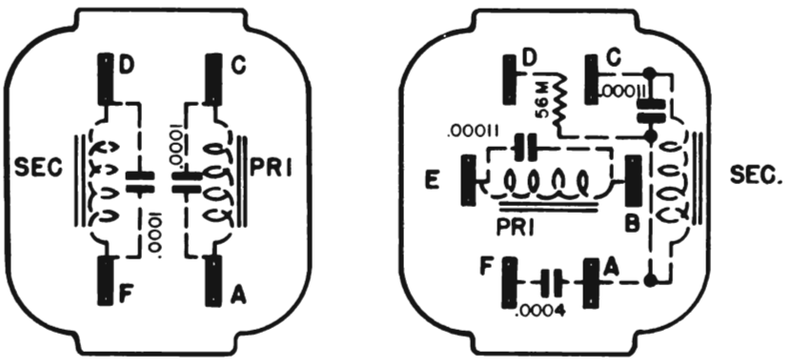

Figure 11-18—Radio I. F. Coil Connections—1949 Model
(See Fig. 11-14 for Symbol Legend)

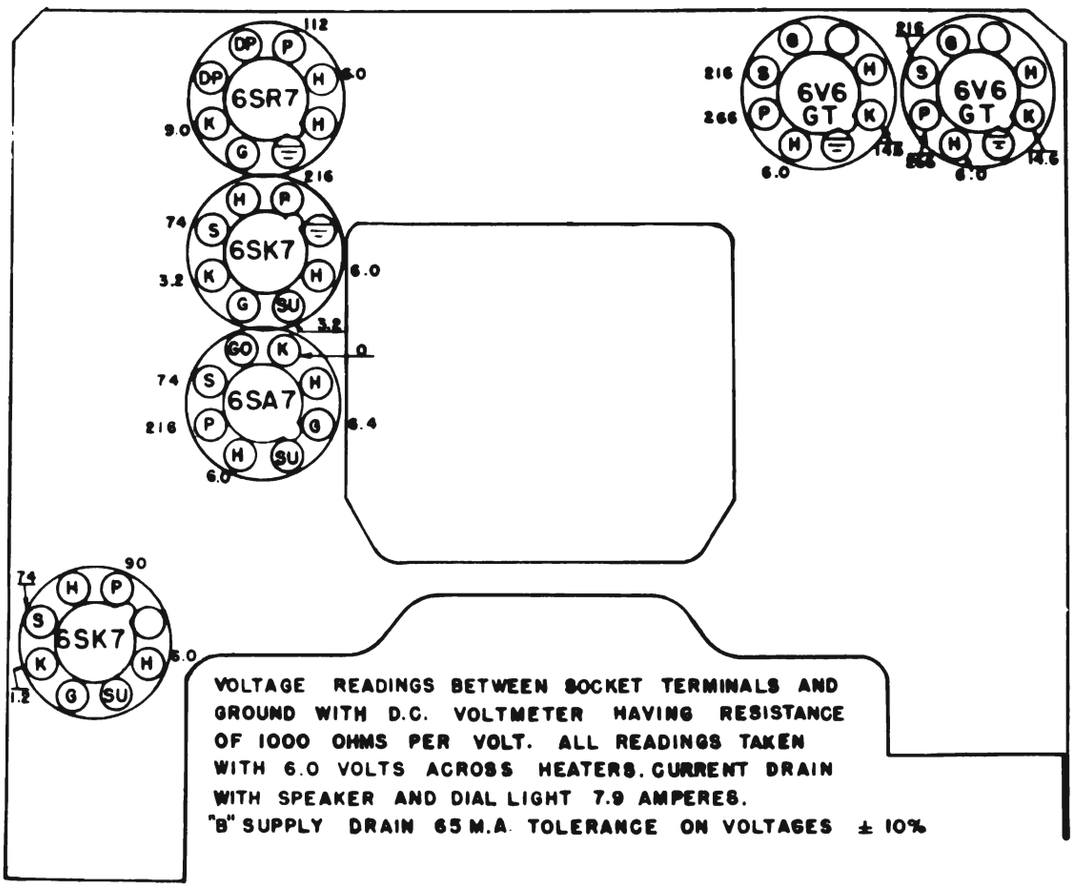

Figure 11-19—Tube Socket Voltages—1948 Models

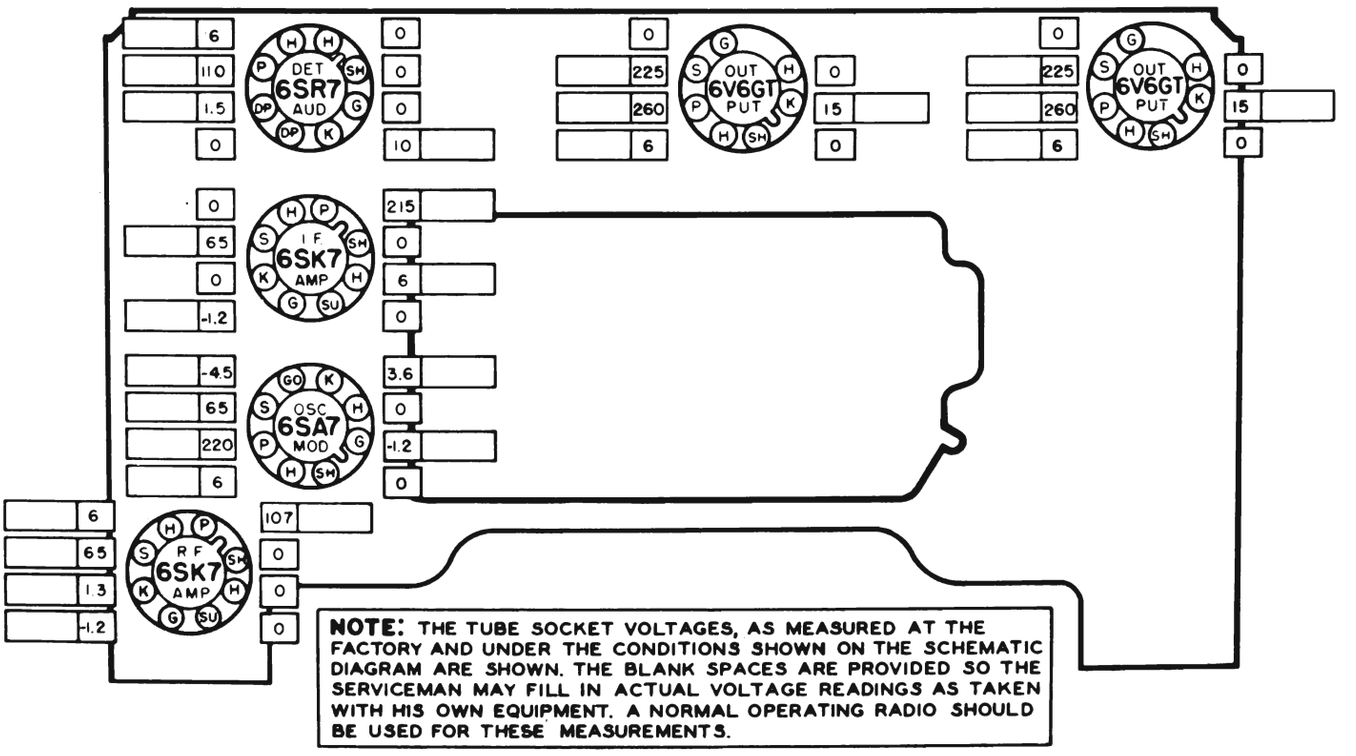

Figure 11-20—Tube Socket Voltages—1949 Model

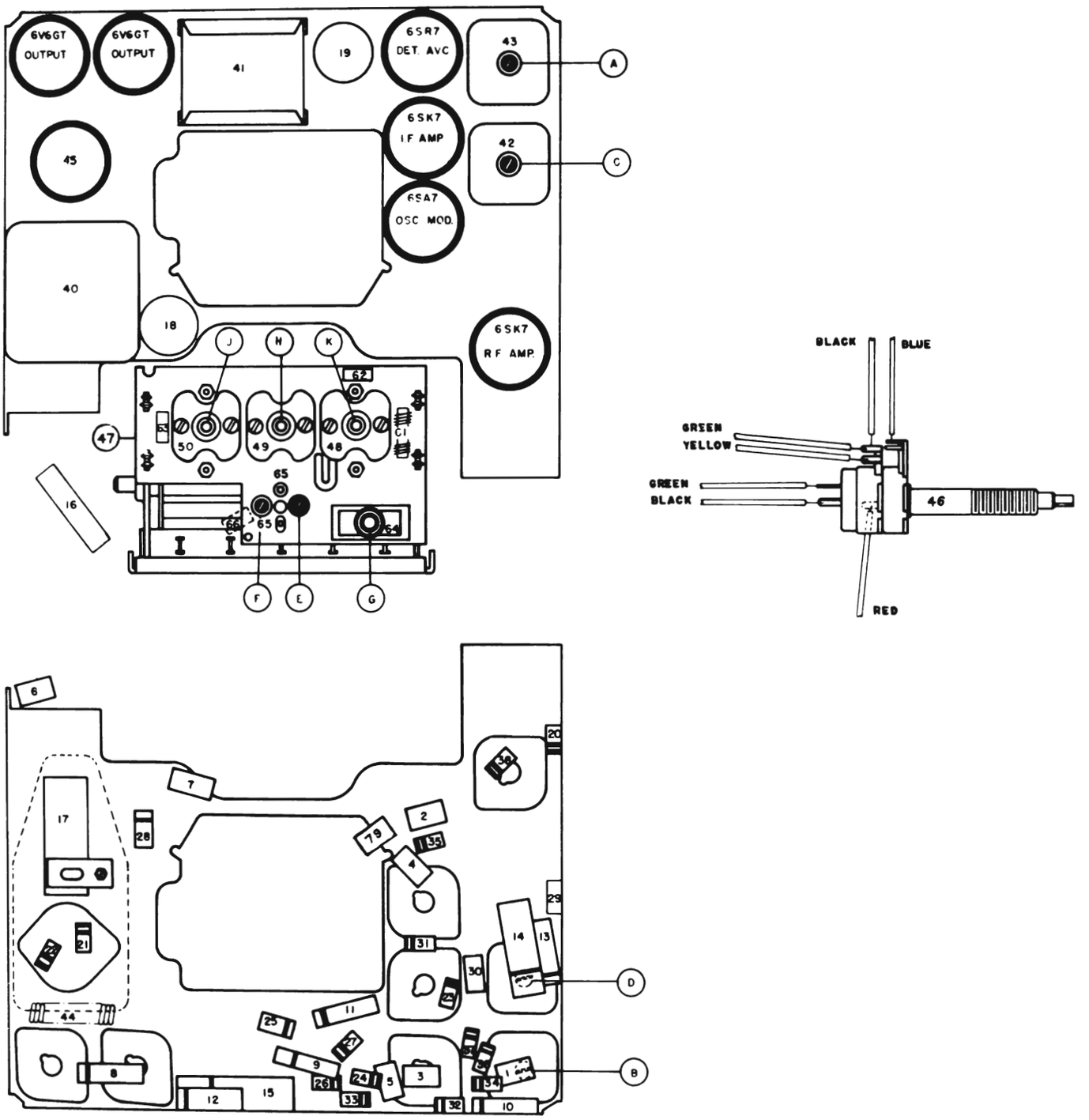

Figure 11-21—Radio Parts Layout, Chassis and Tubes—1948 Models

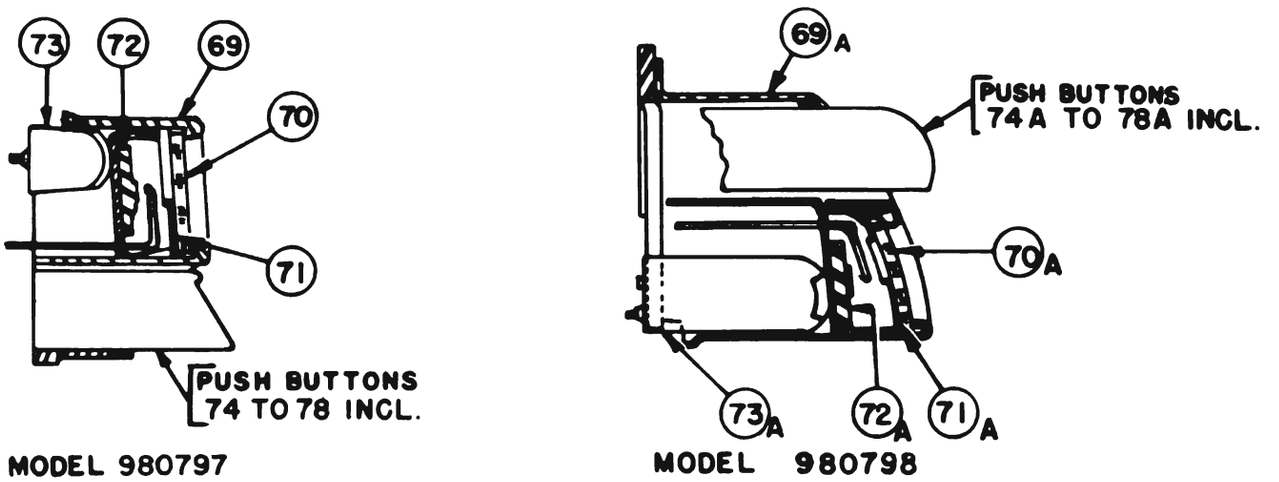

Figure 11-22—Escutcheon Cross Section—1948 Models

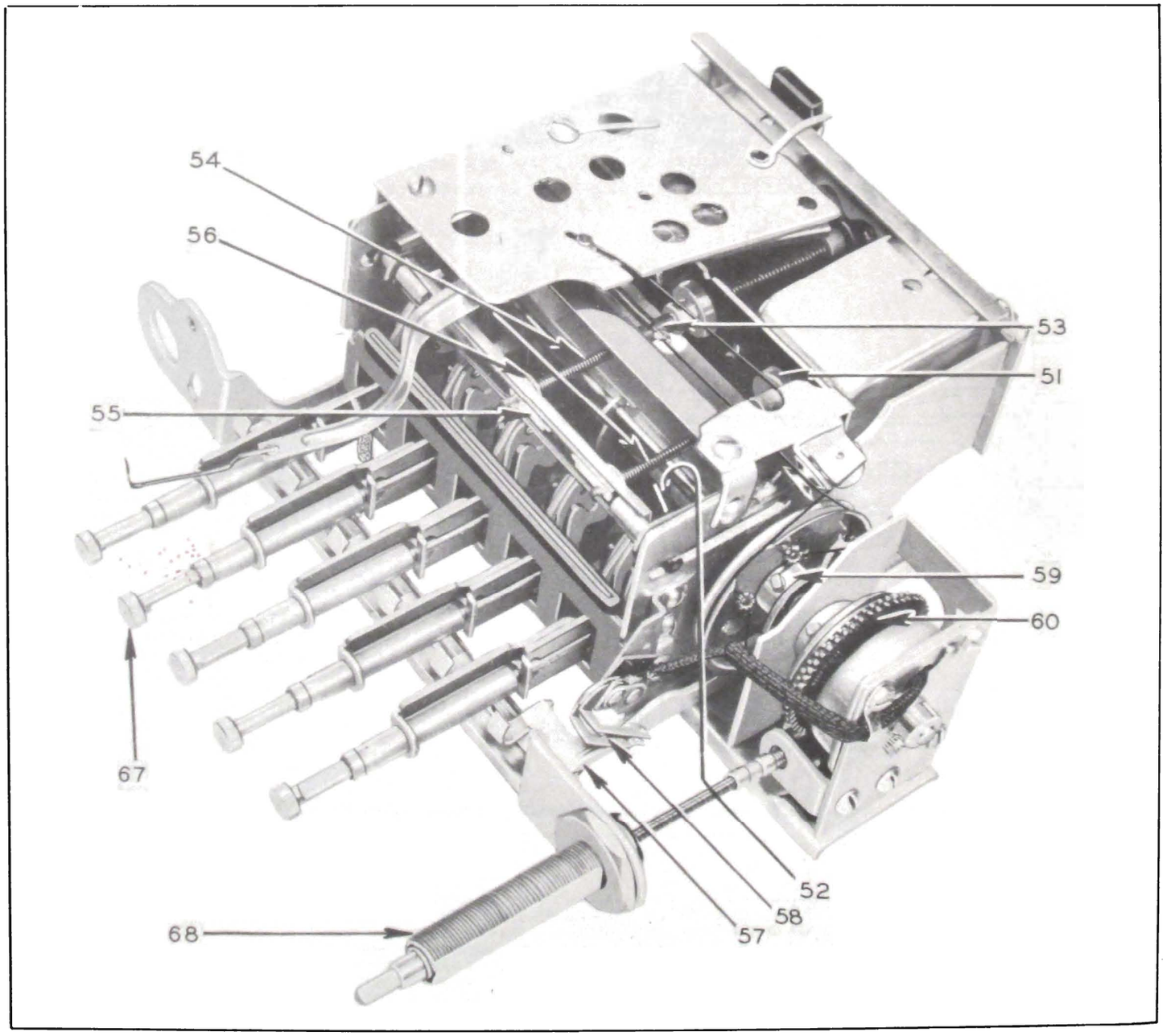

Figure 11-23—Tuner Assembly—1948 Models

11-6 RADIO SERVICE PARTS LIST—1948 MODELS

The parts listed here are available through United Motors Service, for use on Buick Radios bearing the following model (package) and receiver part numbers.

Car Series	Radio Model Number	Receiver (only) Part No.
40	980797	7257814
50-70	980798	7257804

Refer to figures 11-21, 11-22, 11-23 for indicated illustration numbers which identify parts of the receiver.

a. Condensers in Receiver

Illus. No.	Service Part No.	Description
1	7233313	.000047 MFD Molded
2	1215188	.000056 MFD Molded
3	7240577	.000120 MFD Molded
4	7230893	.000150 MFD Molded
5	7236105	.000220 MFD Molded
6	7240566	.000560 MFD Mica
7	7240566	.000560 MFD Mica
Alt. for 6 & 7	7255665	.000560 MFD Mica—Molded
8	7236134	.0015 MFD 800 V. Tubular
9	7240578	.0025 MFD 400 V. Tubular
10	7230912	.005 MFD 600 V. Tubular
11	7233608	.01 MFD 600 V. Tubular
12	1211232	.025 MFD 400 V. Tubular
13	7230592	.05 MFD 600 V. Tubular
14	1207908	.1 MFD 400 V. Tubular
15	7240579	.2 MFD 400 V. Tubular
16	7236621	.5 MFD 200 V. Tubular
17	7236075	.015 x .015 1500 V. Dual Tubular
18	7240612	Electrolytic—2 Section 20-20 MFD 400 V.
19	7238553	Electrolytic—3 Section 20-20-20 MFD 25 V
79	G330	.000033 MFD Molded

b. Resistors in Receiver

Illus. No.	Service Part No.	Description
20	A151	150 Ohms ½ W. insulated
21	1213217	100 Ohms ½ W. insulated
22	1213217	100 Ohms ½ W. insulated
23	1213224	330 Ohms ½ W. insulated
24	1213224	330 Ohms ½ W. insulated
25	1214572	330 Ohms 2 W. insulated
26	1214543	660 Ohms ½ W. insulated
27	1213237	1,500 Ohms ½ W. insulated
28	1214573	1,800 Ohms 2 W. insulated
29	7237595	15,000 Ohms 1 W. insulated
30	7233653	15,000 Ohms 2 W. insulated
31	1214550	22,000 Ohms ½ W. insulated
32	1213342	27,000 Ohms 1 W. insulated
33	1213644	68,000 Ohms ½ W. insulated
34	1214555	220,000 Ohms ½ W. insulated
35	1214557	330,000 Ohms ½ W. insulated
36	1213282	1 Megohm ½ W. insulated
37	1213262	1 Megohm ½ W. insulated
38	1214563	2.2 Megohm ½ W. insulated
39	7255895	Speaker—8", Permanent Magnet

c. Miscellaneous Electrical Parts in Receiver

Illus. No.	Service Part No.	Description
40	7256939	Power Transformer
41	7240464	Audio Pack-Driver and Output Transformer Assembly
42	7238546	First I.F. Transformer Assembly
43	7240467	Second I.F. Transformer Assembly
44	7241708	"A" Filter Choke
45	7238525 (8630)	Vibrator—Synchronous
46	7241967	Volume and Tone Control with Switch Model 980797
46a	7241928	Volume and Tone Control with Switch Model 980798

d. Tuner, Dial, and Escutcheon Parts in Receiver

Illus. No.	Service Part No.	Description
47	7257817	Tuner Assembly Complete—Model 980797
47a	7257797	Tuner Assembly Complete—Model 980798
48	*7244056	Antenna Coil Assembly
49	*7244058	Oscillator Coil Assembly
50	*7244057	R. F. Coil Assembly
51	*7255779	Grommet
52	*7244034	Spring—Connecting Link
	*7256014	Iron Core Parts Package
53		Iron Core
54		Spring—Core Tension
55		Nut—Core Coupling
56		Washer
57	*7240410	Declutching Switch Lever Assembly
	*7242961	Shaft—Declutching Switch Lever
	*7242962	Spring—Delutching Switch Lever
	*7255698	Retainer Spring
58	*7240397	Switch Assembly—Declutching
59	*7240396	Drive Drum Assembly
60	*7240471	Clutch Assembly Complete
	*7237174	Universal Joint Spring
61	*7240251	Antenna Choke Coil
62	*7232957	Condenser—.000330 MFD Molded
63	*7238879	Condenser—.000470 MFD Molded
64	*7242984	Antenna Trimmer Condenser
65	*7244037	Dual Trimmer Condenser
66	*7255725	Compensating Condenser
*Included in Tuner Assembly Complete Part Nos. 7257817 and 7257797.		
	**7252167	Cord and Spring Assembly
	**7242168	Cord and Link Assembly
67	**7240368	Reset Screw Assembly
68	**7241981	Tuning Shaft Assembly
69	**7257811	Escutcheon
70	**7257765	Dial
71	**7257766	Dial Shield
72	**7257803	Backplate Assembly
73	**7238513	Dial Clamp
74	**7257779	Button Assembly "B"
75	**7257780	Button Assembly "U"
76	**7257781	Button Assembly "I"
77	**7257782	Button Assembly "C"
78	**7257783	Button Assembly "K"
**Included in Tuner Assembly Complete Part No. 7257817.		
	***7242005	Cord and Spring Assembly
	***7242006	Cord and Link Assembly
67a	***7241982	Reset Screw Assembly
68a	***7241980	Tuning Shaft Assembly
69a	***7257818	Escutcheon Assembly
70a	***7257755	Dial
71a	***7257756	Dial Shield
72a	***7257796	Backplate Assembly
73a	***7242093	Dial Clamp
74a	***7257786	Button Assembly "B"
75a	***7257787	Button Assembly "U"
76a	***7257788	Button Assembly "I"

Illus. No.	Service Part No.	Description
77a	***7257789	Button Assembly "C"
78a	***7257790	Button Assembly "K"

***Included in Tuner Assembly Complete Part No. 7257797.

e. Miscellaneous Receiver Parts

Service Part No.	Description
7242034	"A" Lead Connector Assembly
7242035	Antenna Lead Connector Assembly
7238539	Vibrator Socket
7236279	Octal Tube Socket
1217841	Dial Light Socket (Less Lamp)
125588	Bulb—Dial Lamp

f. External Installation Parts

No. Req'd.	Part No.	Description
2	1334393	Assembly, Knobs—Radio Control
2	1305219	Washer, Felt
1	1320576	Knob, Radio Tone Control
1	1320577	Knob, Dummy Radio
2	1320547	Nut, Special Hex. (Radio to Instrument Panel)
1	1321177	Assembly, "A" Lead Cable, for Model 980797
1	1321178	Assembly, "A" Lead Cable, for Model 980798
1	120151	Fuse
1	1910147	Capacitor, Ignition Coil
1	121832	Screw, #8-32 x 3/8
1	121841	Lock Washer, #8
1	1336763	Generator Capacitor
1	1207820	Distributor Suppressor
1	1853686	Suppressor Adapter
2	1286759	Static Collector
1	1324056	Hanger, Right, for Model 980797
1	1324057	Hanger, Left, for Model 980797
1	1323926	Hanger, Right, for Model 980798
1	1323927	Hanger, Left, for Model 980798
2	1320624	Washer, Flat (Receiver to Hanger)
6	120380	Washer, Lock, 1/4 Medium (Cadmium or Zinc Plated)
4	123291	Screw, Hex, 1/4-28 x 5/16 (Cadmium or Zinc Plated)
2	134551	Nut, Hex, 1/4-20 (Cadmium or Zinc Plated)

11-7 RADIO SERVICE PARTS LIST—1949 MODEL

The parts listed here are available through United Motors Service for use on Buick radio bearing the following model (package) and receiver part numbers.

Car Series	Radio Model Number	Receiver (only) Part No.
50-70	980782	7256204

Refer to figures 11-24, 11-25 and 11-26 for indicated illustration numbers which identify parts of the receiver.

a. Coils in Receiver

Illus. No.	Service Part No.	UMS No.	Description
1	7257979		Antenna
2	7240251		Antenna Spark Choke
3	7257979		R.F.
4	7258148		Oscillator
5	7238546		1st I.F.
6	7240467		2nd I.F.
7	7241701		"A" Spark Choke

b. Condensers in Receiver

11	7256905		Antenna Trimmer
12	7230592	E 503	0.05 mfd. 200 V. Tubular
13	7236104	G 680	0.000068 mfd. Molded
14	1217736	G 390	0.000039 mfd. Ceramic
15	7242454		Dual Trimmer
15A			R.F. Section
15B			Oscillator Section
16	7258162		0.000300 mfd. Compensating
17	7231536	E 104	0.1 mfd. 400 V. Tubular
18	7233313	G 470	0.000047 mfd. Molded
19	7236105	G 221	0.000220 mfd. Molded
20	7240579	E 204	0.2 mfd. 400 V. Tubular
21	7232956	E 502	0.005 mfd. 600 V. Tubular
22	7238553		Electrolytic
22A			20 mfd. 25 V.
22B			20 mfd. 25 V.
22C			20 mfd. 25 V.
23	7240577	G 121	0.000120 mfd. Molded
24	7240578		0.0025 mfd. 400 V. Tubular
25	1211232		0.025 mfd. 400 V. Tubular
26	7236134		0.0015 mfd. 800 V. Tubular
27	7232403	E 504	0.5 mfd. 200 V. Tubular
28	7240566		0.000560 mfd. Hi-Q Molded
29	7257439		0.007 mfd. 3000 V. Buffer
30	7240566		0.000560 mfd. Hi-Q Molded
31	7240612		Electrolytic
31A			20 mfd. 400 V.
31B			20 mfd. 400 V.

c. Resistors in Receiver

36	1213220	A 151	150 Ohms 1/2 W. Insulated
37	1214563	A 225	2.2 Megohms 1/2 W. Insulated
38	7233653	C 153	15,000 Ohms 2 W. Insulated
39	1214566	A 475	4.7 Megohms 1/2 W. Insulated
40	7237595	B 153	15,000 Ohms 1 W. Insulated
41	1214557	A 334	330,000 Ohms 1/2 W. Insulated
42	1214550	A 223	22,000 Ohms 1/2 W. Insulated
43	1213282	A 105	1 Megohm 1/2 W. Insulated
44	1213342	B 273	27,000 Ohms 1 W. Insulated
45	1214553	A 473	47,000 Ohms 1/2 W. Insulated (in I.F. Can)
46	1214555	A 224	220,000 Ohms 1/2 W. Insulated
47	1213282	A 105	1 Megohm 1/2 W. Insulated
48	1213224	A 331	330 Ohms 1/2 W. Insulated
49	1214543	A 681	680 Ohms 1/2 W. Insulated
50	1214545	A 222	2200 Ohms 1/2 W. Insulated
51	1213844	A 683	68,000 Ohms 1/2 W. Insulated
52	1214572	C 331	330 Ohms 2 W. Insulated
53	1216154	B 682	6800 Ohms 1 W. Insulated
54	7242824 7240918	C 272 B 562	1800 Ohms replace with 2700 ohms 2 W and 5600 Ohms 1 W. in parallel

d. Tubes in Receiver

1213793	5241	6V6GT
1218107	5233	6SR7
7237751	5229	6SK7
7237752	5222	6SA7

e. Miscellaneous Electrical Parts in Receiver

60	7256847		Control—Volume, Tone and Switch
60A			Volume Control
60B			Tone Control
60C			Switch
61	125588	55	Lamp—Dial
62	7255895		Speaker—8" round permanent magnet
63	7240464		Transformer—Input Output
64	7256939		Transformer—Power
65	7238525	8630	Vibrator—Synchronous

f. Chassis Parts

70	7242034	Connector—"A" Lead
71	7242035	Connector—Antenna
72	1219092	Socket—Dial Light
73	7236279	Socket—Octal Tube
74	7238539	Socket—Vibrator

g. Tuner Parts

81	7257606	Backplate—Pointer
82	7256874	Bushing—Drive Shaft
83	7256105	Clutch Disc—Driven
84	7258203	Connecting Link—Core Bar
85	7258211	Core Guide Bar—Parallel
86	7256271	Pointer Connecting Link
87	7255992	Spring—Pointer Connecting Link
88	7258468	Core—Powdered Iron
89	7256871	Drive Shaft—Manual
90	7256861	Pointer Assy.
	1219093	Pointer Tip Pkg.
91	7256102	Gear and Bushing—Clutch
92	7256883	Escutcheon
93	7256885	Dial
94	7256886	Backplate—Dial
95	7257415	Spring—Core Bar Connecting Link
96	7255991	Spring—Clutch
97	7255984	Spring—Slide Return
98	1218036 (gray) 1219150 (black)	Tuner Slide and Pushbutton "B"
99	1218037 (gray) 1219151 (black)	Tuner Slide and Pushbutton "U"
101	1218038 (gray) 1219152 (black)	Tuner Slide and Pushbutton "I"
102	1218039 (gray) 1219153 (black)	Tuner Slide and Pushbutton "C"
103	1218040 (gray) 1219154 (black)	Tuner Slide and Pushbutton "K"
104	7256866	Worm Gear and Bracket

NOTE: Letter inserts for push buttons are available from Buick Parts Warehouse under Group 9.650. These may be installed with suitable cement.

h. Installation Parts

1335482		"A" Lead and Fuse Connector
1336763	6015	Capacitor—Generator
1910147	6015	Capacitor—Ignition Coil
120151		Fuse—14 Amperes
1334393		Knob—Control
1320577		Knob—Dummy
1320576		Knob—Tone Control
1853686	6008	Suppressor Adaptor
1207820	6001	Suppressor—Distributor

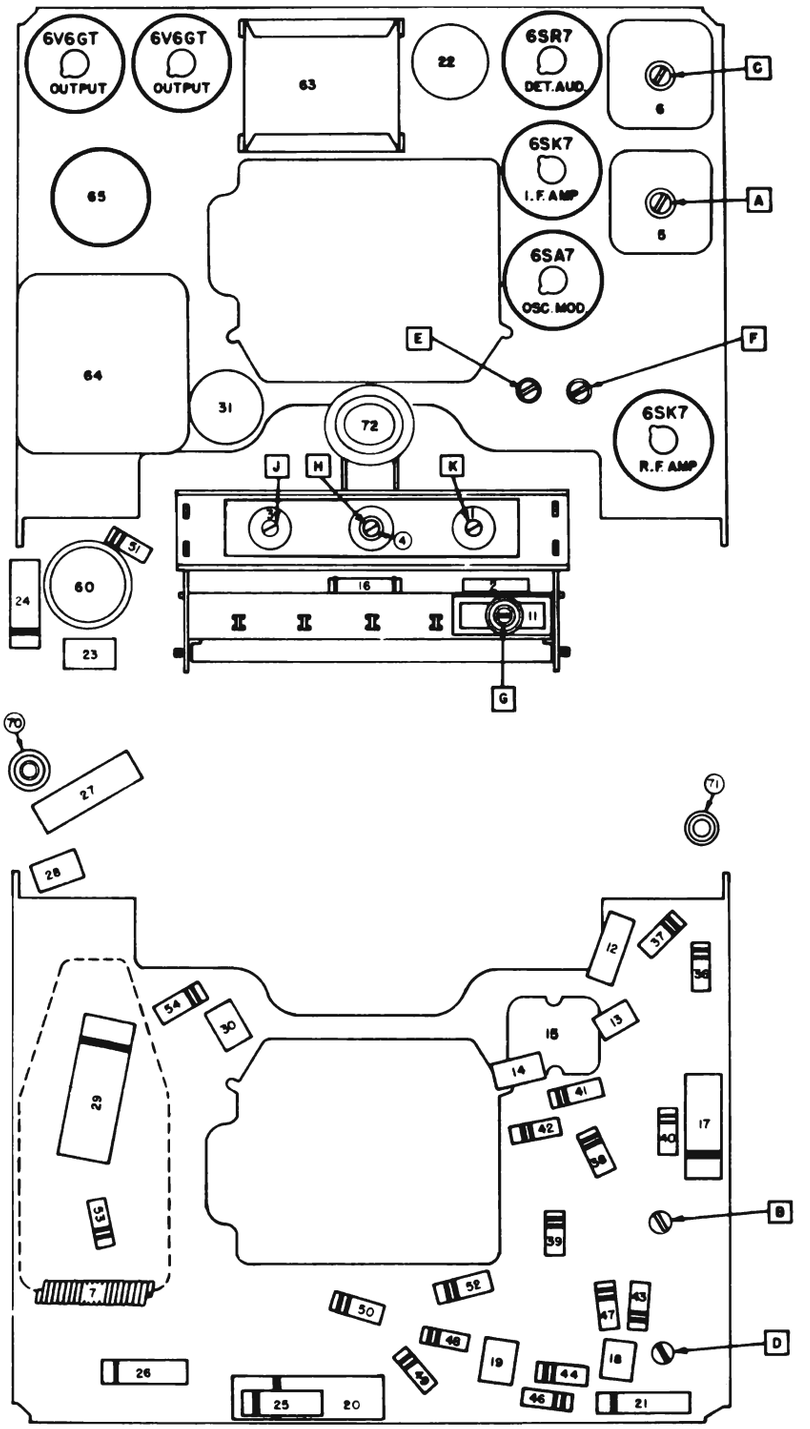

Figure 11-24—Radio Parts Layout, Chassis and Tubes—1949 Model

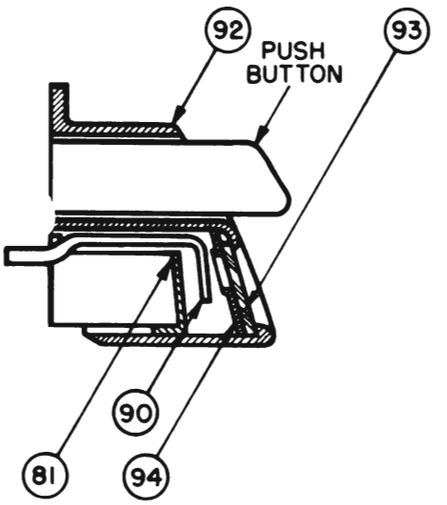

Figure 11-25—Escutcheon Cross Section—1949 Model

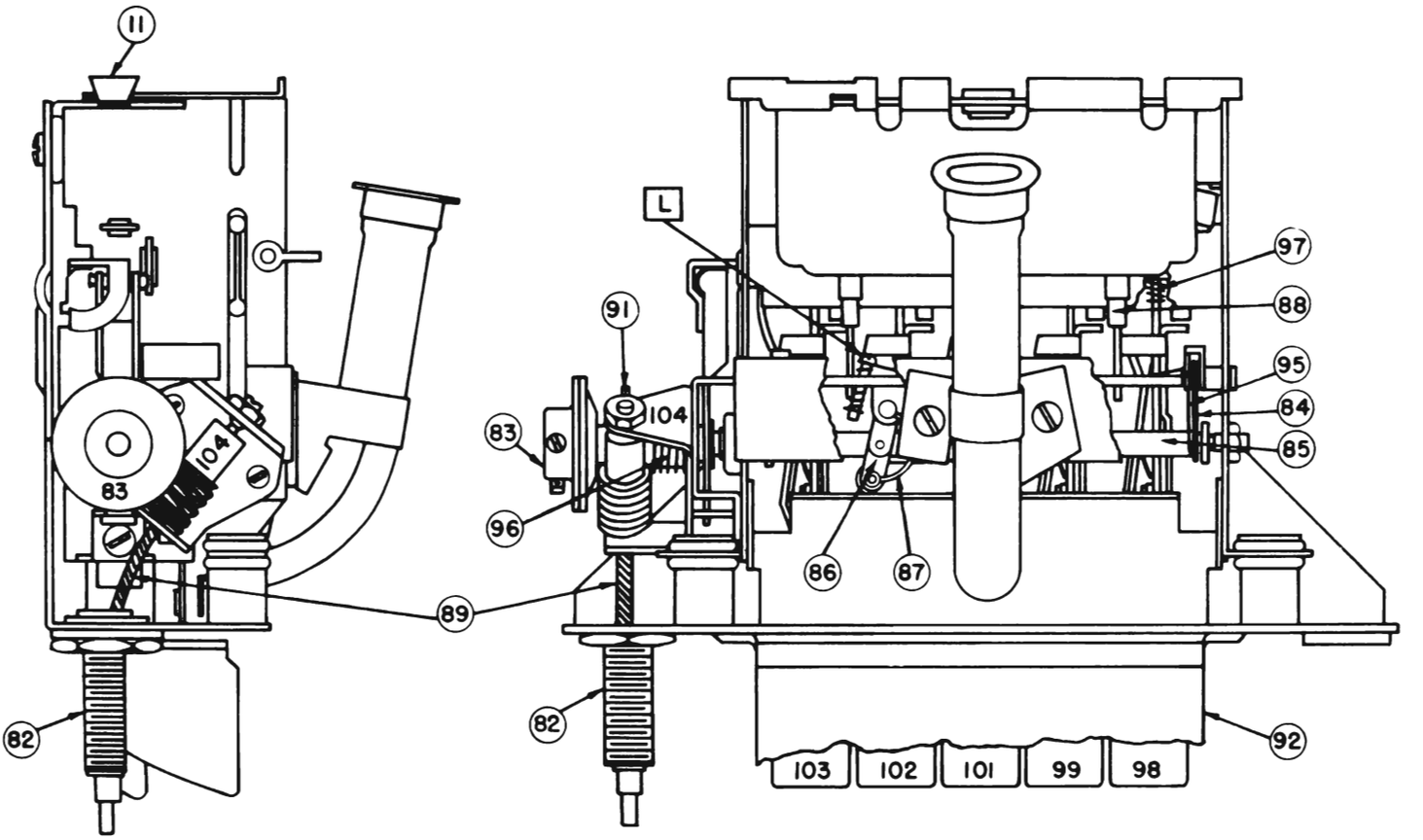

Figure 11-26—Tuner Assembly—1949 Model

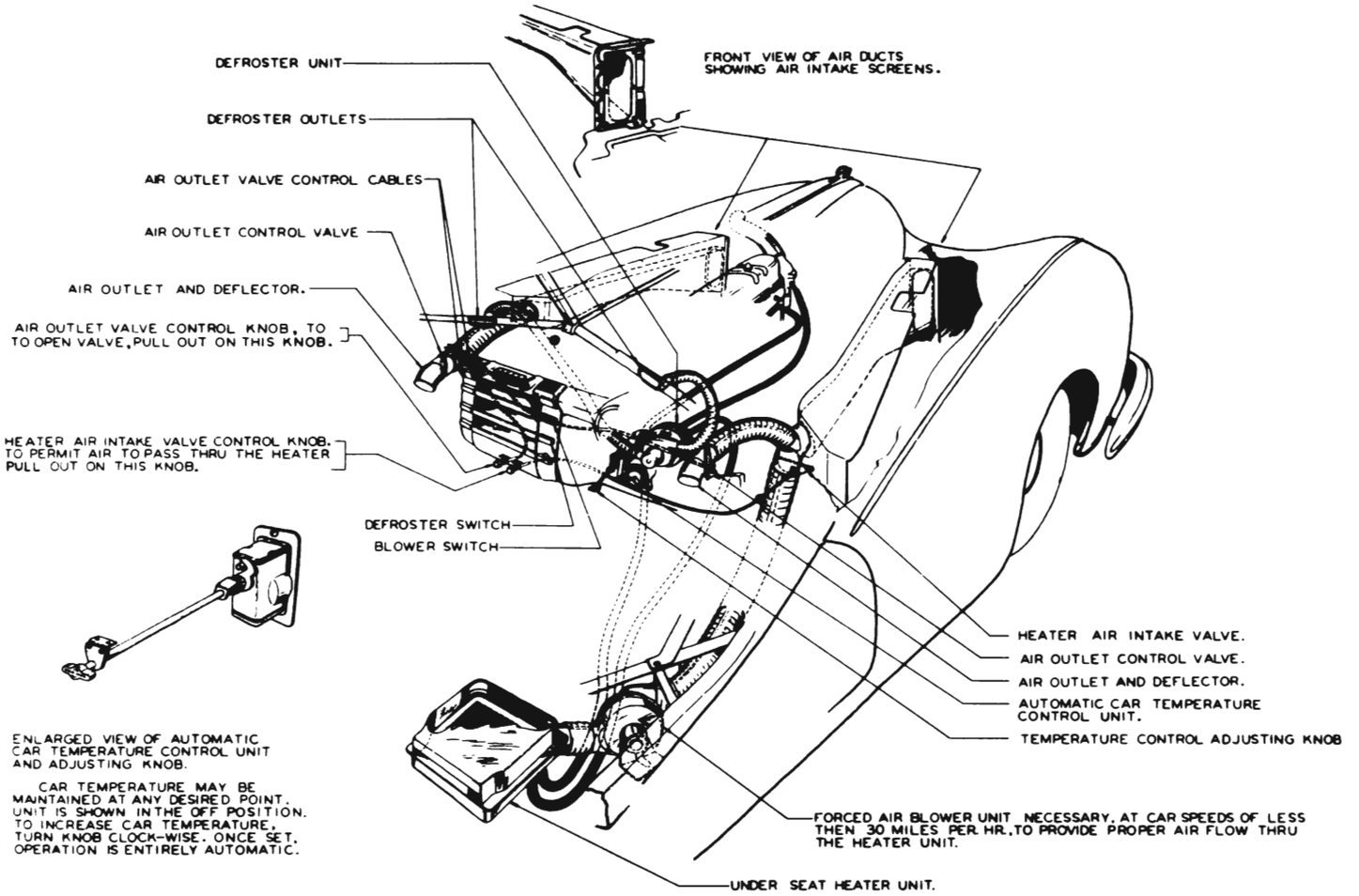

Figure 11-27—Heater, Defroster and Air Ventilators—1948 Models