

WAR DEPARTMENT TECHNICAL MANUAL

TM 11-620

RADIO SETS

SCR-608-A AND SCR-628-A

WAR DEPARTMENT • 1 JANUARY 1944

SECTION V. SUPPLEMENTARY DATA

42. Replacement of Parts.

a. Mounting FT-237-(*)

(1) Method of Removing Coaxial Cables from L and T Connectors.

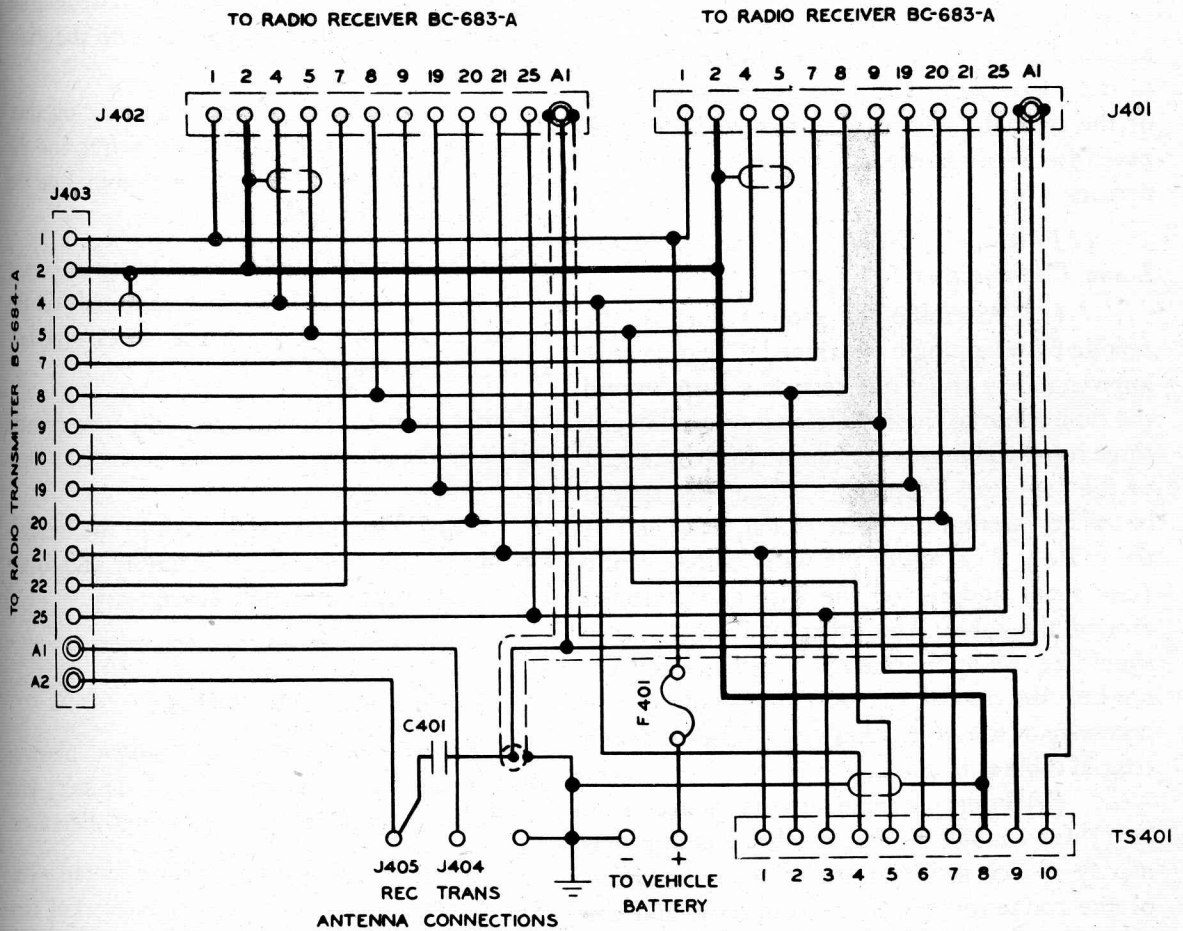
(a) Remove the covers from the rear and end channels of the mounting.

(b) Unsolder at the ground clips the ground wires running from the ferrule of the coaxial cable to the ground clips in the channel;

remove the varnished sleeving and bend the wires back from the channel.

(c) Remove the cover clips from the connectors and unsolder the connections inside the connectors.

(d) Loosen the Bristo set screw on the under side of the connectors, cut the tie strings which hold the coaxial cable in position, and pull out the coaxial cable and connectors from the rear channel.



APPARATUS LEGEND

C401 0.0001 UF 500V
 F401 75 AMPERE FUSE (W.E.66B)

JACKS

J401 RECEIVER A CONNECTION

J402 RECEIVER B CONNECTION
 J403 TRANSMITTER CONNECTION
 J404 TRANSMITTER ANT CONNECTION
 J405 RECEIVER ANT CONNECTION

TS401 TERMINAL STRIP

Fig. 61. Mounting FT-237-(*): Schematic Diagram

(e) Cut the tie strings holding the coaxial cable in position in the end channel, unsolder the connection between the coaxial cable and the capacitor, remove the screw and nut from the coaxial cable ground clamp, and pull out the coaxial cable from the end channel.

(f) With the connector held in a pair of gas pliers in the left hand, place the connector against the tip of a 200-watt soldering iron (held stationary), and remove the cable from the connector by pulling with the right hand when the solder in the connector has been heated sufficiently to become fluid. Remove the excess solder from the connector by tapping it while hot against a solid object. (This permits ready re-use of the connector). The ground clip at the end of the coaxial cable may be removed and prepared for re-use in the same manner as for connectors.

(2) Method of Soldering Coaxial Cables to L and T Connectors.

(a) Assemble the ground wire to the ferrule by wrapping bare, tinned 22-gauge wire approximately three quarters of a turn around the cable close to the ferrule and approximately three turns around the ferrule as close to the end of the ferrule as practicable. (The wire should be twisted around the open, or flat, bead end of the cable.) Spot solder the wire to the ferrule (one spot) and cut off the wire end wrapped around the cable. The other end of the wire should be left approximately 3 inches long. Do not heat the coaxial any more than is absolutely necessary to solder it, otherwise the beads in the coaxial cable will soften.

(b) Insert the cable into the connector (L or T) far enough so that the bead is approximately $\frac{1}{8}$ -inch inside of the milled-out portion of the connector. Hold the connector and the cable in a vertical position; solder the ferrule of the cable and the ground wire to the connector, using a 200-watt soldering iron. Avoid unnecessary heating of the cable.

(c) With the cable in a horizontal position, solder the ground clamp to the ferrule at the end of the cable. To avoid twisting the cable, solder the ground clamp at approximately 90

degrees to the long axis of the portion of the connector having the Bristo set screw.

(d) Place the cable in a position adjacent to and approximately parallel with the rear channel. Assemble the varnished tubing on the ferrule ground wires and connect and solder the ground wires to the ground clip at the J401 and J402 receptacles.

(e) Place the coaxial cable in the channel, push the connectors into position on the radio-frequency terminals of the J401 and J402 receptacles, and tighten the Bristo set screws with a $\frac{3}{8}$ -inch Bristo hexagonal wrench. Assemble the ground clamp in the end channel with the screw and nut.

(f) Inside the connectors, twist together, solder, and clip the coaxial cable wires and the wires from the radio-frequency terminal on the J401 and J402 receptacles.

Note: Be sure the beads are in position on the wire from the radio-frequency terminals on the receptacles before twisting the wires together. If necessary, replace the beads.

Twist together, solder, and clip the coaxial wire and the capacitor terminal in the end channel.

(g) Tie the coaxial cable to the hexagonal nut of the plunger pin assembly and to the local cable (approximately seven ties).

(h) Replace the channel covers.

b. Radio Receiver BC-683-A.

(1) *Replacement of a Channel Selector Unit.* To replace a channel selector (tuner) unit in a receiver, perform the following operations.

(a) Connections to be Unsoldered.—Unsolder seven (sometimes eight) electrical connections at the tuner unit (channel selector) to release it from other receiver apparatus.

(b) Screws to be Removed.

(1) Remove the four screws releasing the front guard of the receiver.

(2) Remove the eight screws releasing the front panel.

(3) Loosen the five screws in the rear

of the tuner, releasing the tuner unit from the receiver chassis.

(c) Method of Replacing Channel Selector.

(1) With the front panel guard and front panel removed from the receiver, insert the tuner unit through the front panel opening into the chassis.

(2) Loosely fasten the unit to the chassis by five screws. *Do not tighten these screws.* See operation (5) for tightening.

(3) With the tuner loosely in place add the front panel with its apparatus, and fasten securely to the chassis (six screws) and the tuner unit (two screws).

(4) Add the front panel guard to the receiver, secure it firmly with four screws.

(5) Supplement operation (2) by securing the tuner firmly to the chassis with the five screws in the rear of the tuner. Be sure to follow this procedure of fastening the five rear screws as it avoids setting up a strain while tightening the two front screws which hold the tuner in position. (The six other screws which hold the front panel do not affect the tuner.) Such possible strain might permanently impair the accuracy of the tuner. Check to see that all push buttons operate smoothly and do not bind on the receiver panel.

(6) Resolder the seven (sometimes eight) electrical connections at the tuner unit.

(2) *Replacement of a Push-button (Plunger) Assembly in a Channel Selector.*

(a) Release the push button setting as described in Paragraph 21*b*. Release all push buttons.

(b) Screw Removal Operation.

(1) Remove four screws to release the front panel guard.

(2) Remove eight screws to release the front panel.

(3) Remove four flathead screws to release the tuner front plate and the latch-plate assembly.

(c) Removal of Latch-plate and Push-button Assembly.—Pull the lower end of the latch-plate assembly outward slightly. Grasp the

edges of the latch plate just behind the face plate and pull the latch plate downward. Pull the entire assembly outward gently to prevent jamming, and nurse the top end of the latch plate past the edge of the mounting bracket. Pull the assembly further until it separates from the connecting rods.

(d) Substitution of Push Button.—With the push buttons hanging downward, pull the latch plate back against its spring. Remove the faulty button and replace it with a new button making sure that the notch is in line with the notch on other buttons. Allow the latch plate to return to normal.

(e) Replacement of Latch-plate and Push-button Assembly.—Line up the latch-plate assembly with the connecting rods. Release the latch plate and mesh each button separately, starting at the top. When all are properly meshed, pull all buttons forward so that the latch plate can release and hold them. Push the assembly into place carefully by nursing the latch plate past the mounting bracket while the latch plate is pulled down. When it is in position, release the latch plate and replace the flathead screws to hold it in place. Replace the front panel and the front panel guard. Set the push buttons for the desired channels as described in Paragraph 21*b*.

c. Radio Transmitter BC-684-A.

(1) *Replacement of a Channel Selector Unit.* To replace a channel selector (tuner) unit in a transmitter, perform the following operations.

(a) Connections to be Unsoldered.

(1) Unsolder the short and long coaxial cables at antenna post A on the rear of the front panel. Also unsolder R155 from this post.

(2) Unsolder the short coaxial cable at the antenna relay S101.

(3) Unsolder at the relay (S101) the capacitor (C161) which connects a long coaxial cable to this relay.

(4) Unsolder, at the relay, the bare wire which connects the top of the L111 coil to the antenna relay.

(5) Unsolder, at the bottom of the L110 output coil, the bare wire (covered with varnished tubing) which leads to the power amplifier screen resistor (R114) located in the bottom compartment of the chassis. Also unsolder the black-red wire leading from the coil to the local cable of the transmitter.

(6) Unsolder, at the insulated stud E, the bare wire leading to the bottom of the left-hand tuner contact spring assembly.

(7) Unsolder, at the crystal oven, the ten electrical connections to the tuner spring contact assembly.

(b) Screws to be Removed.

(1) Remove the screw on top of the selector to release the ground terminal lug and wire leading to ground post G on the rear of the front panel.

(2) Remove six screws from the thermocouple, releasing it from its electrical connections and mounting.

(3) Remove the screw which secures the ground lug to the top of the tuner,—the lug to which the ground wires leading to the short and long coaxial cables ferrules are connected.

(4) Remove the screw from the top of the tuner, releasing the clamp that holds the long coaxial cable in place across the top of the unit. Carefully bend this cable to the left so that it will not interfere with vertical movement of the tuner.

(5) Remove four screws, releasing the antenna relay (S101) from its location. Rotate the relay upward and to the right.

(6) Remove the gear from the bottom end of the tuner shaft by loosening the set screws with the Bristo wrench, and remove the rack connecting the tuner to the six-gang capacitor.

(7) Remove the three screws at the base of the tuner, releasing it from the chassis.

(8) Remove the four screws in the panel guard and remove the guard; unscrew the seven front panel screws and rotate the panel about its right-hand edge (where cables are located) to remove the panel apparatus from the panel opening. Lift the channel selector unit out through the top opening of the transmitter.

(c) Method of Replacing Channel Selector.

(1) With the front panel guard removed and the front panel swung out of the way, insert the selector unit into the chassis through the top opening of the transmitter.

(2) Loosely fasten the unit to the chassis by the three screws applied into the base of the selector through the bottom opening of the transmitter.

(3) Repeat, in reverse order, the remaining steps of (a) and (b) preceding with the exception of (b)(6).

Caution: When fastening the tuner firmly in position (after the front panel and its apparatus have been secured to the transmitter), observe that the tuner shaft rotates freely; if it does not, loosen the three mounting screws and shift the tuner until the tuner shaft is free to rotate without binding action. When locating the front panel and the tuner in position, be sure the push buttons do not rub in the panel openings.

(4) With the six-gang capacitor fully engaged and the pin (on the disk by which this capacitor is manually rotated) resting against the front stop in the semicircular opening in the right end of the chassis, and with the single-section tuning capacitor at the top of the tuner also fully closed (maximum capacitance), insert the gear on the tuner shaft, assemble the rack in place, and securely tighten the set screw on the gear. Note that the rack is centrally located and that it moves freely back and forth over its total travel.

(2) *Replacement of Capacitor Assembly (Including Six-gang Capacitor and Trimmer Capacitors).* To replace a capacitor assembly in a transmitter, perform the following operations.

(a) Connections to be Unsoldered.—Unsolder, through the bottom opening of the transmitter, all wires connecting to the six-gang capacitors.

(b) Screws to be Removed.

(1) Remove, at the left-hand end of the gang capacitor, the screw which holds a bracket and insulated terminal in place.

(2) Through the bottom of the transmitter remove four screws from the trimmer capacitor assembly bracket, releasing the entire capacitor assembly from the chassis.

(c) Replacement of Capacitor Assembly. —Remove the capacitor assembly, replace with a new unit, and reassemble in reverse order from (a) and (b).

(3) *Replacement of Gang Capacitor in the Gang-capacitor Assembly.*

(a) Repeat operations of (2) (a) and (2) (b) preceding to release the entire capacitor assembly from the transmitter chassis.

(b) Unsolder all electrical connections between the six-gang capacitor assembly and the trimmer capacitors.

(c) Remove four elastic stop nuts on the six-gang capacitor assembly to release the bracket on which the associated trimmer capacitors are mounted.

(d) Separate the six-gang capacitor from the trimmer capacitor assembly bracket released by the stop nuts.

(e) Replace the six-gang capacitor with a new unit and reassemble, with the trimmer capacitor assembly, into the transmitter chassis.

(4) *Replacement of Trimmer Capacitor Assembly.*

(a) Repeat the operations of (3) (a) and (3) (d) preceding.

(b) Replace the trimmer capacitor section with a new unit and reassemble, with the six-gang capacitor assembly, into the transmitter chassis.

(5) *Replacement of a Push-button (Plunger) Assembly in a Transmitter Channel Selector.* To replace a channel selector push button in a transmitter, perform the following operations.

(a) Unsolder the long and short coaxial cables at antenna post A on the rear of the front panel.

(b) Remove the screw from the frame at the top of the selector unit to release the ground terminal wire leading to ground post G on the rear of the front panel.

(c) Remove the tie-string which supports the short coaxial cable in the position near the left-hand post of the panel meter.

(d) Remove the four screws holding the front panel guard.

(e) Remove the seven screws holding the front panel and rotate the panel outward about its right-hand edge.

(f) Remove the four screws on the tuner front plate and latch-plate assembly in order to release the push buttons.

(g) Pull the defective plunger (push button) forward to separate it from its associated rod.

(h) Replace plunger and reassemble.

(6) *Removal of Tuning Coils in Low Power Stages.*

(a) Unsolder the leads to the upper and lower terminals of the defective coil winding (L106, L107, L108, L118, or L119).

(b) Break the Glytral seal at the bottom of the cylindrical metal tube in the top compartment.

(c) Unscrew the metal tube from the coil form.

(d) Remove the coil winding assembly from the chassis by withdrawing it from its location hole into the bottom compartment of the transmitter.

(7) *Removal of Coaxial Cable Terminals from Plug PG101.*

(a) Unsolder the ground straps between the coaxial cable ferrules and the chassis.

(b) Remove two screws and hexagonal nuts from each end of the plug to release the two metal plates (clamps) that hold the cable terminals in place.

(c) Remove the metal clamps and pull the cables and terminals from their locations in the plug.

43. Modifications during Manufacture.

a. General. The radio equipment described in this manual has been produced in large quantities over a relatively long period of time. Dur-

ing this period the equipments have been under continual study in the manufacturing plants and in the field. Some changes in the equipment have resulted from these studies. By far the greatest number of changes has been due to the necessity of using a different material, or a part from a different manufacturer. In general, you will find that the units which comprise your radio set will differ in some slight respect from other similar units bearing the same order number.

This apparatus has not only been made in large quantities but also has been constructed by a number of different subcontractors, which means that there may be minor differences in construction or parts. Watch for these variations although in most cases they will not affect servicing procedure.

Changes in materials or in the source from which similar parts are obtained do not in general affect the servicing procedure, so this type of change is not described in this manual. Circuit and apparatus changes which should be known to aid the proper servicing of the unit are described in some detail in Paragraph 43*b* for the receiver and Paragraph 43*c* for the transmitter.

Figure 70 is a schematic diagram of the receiver showing how it was before these changes were made. The parts that have been changed are crossed out and the new arrangements shown. Figure 73 gives corresponding information for the transmitter.

If you wish to make any of these changes in an earlier equipment and if the change has been authorized, all the items listed under a particular minor heading in the change must be made as a group in order to obtain the desired improvement.

b. Radio Receiver BC-683-A.

(1) *Changes Affecting R17 and R19.* R17 has been changed from 1 megohm to 0.25 megohm. R19 has been changed from 1 megohm to 2 megohms. The purpose of this change was to increase the voltage on the CALL SIGNAL lamp.

(2) *Changes Affecting L72 and L71.* In earlier drawings these two inductors were shown interchanged. L72 should be the primary wind-

ing in the plate circuit of V5. L71 should be the secondary winding in the grid circuit of V6.

(3) *Changes Affecting C11.* C11 has been reduced from 0.01 to 0.006 microfarad. The purpose of this change was to reduce the number of 0.01-microfarad capacitors.

(4) *Changes Affecting C82 and C20.3.* C82 has been reduced from 0.01 to 0.006 microfarad. C20.3 has been connected in parallel with C82. (It was previously in parallel with C20.2.) The purpose of this change was to reduce the number of 0.01-microfarad capacitors. It was found that the audio-frequency impedance of the circuit at the points across which C82 is connected should be reduced to improve circuit operation. This was accomplished by connecting C20.3 across C82 after which C82 could be reduced. It was found, also, that when C20.3 was so connected, the stability of the circuit was better than it had been with C20.3 connected across C20.2.

(5) *Changes Involving R8, R21, R71, R72, R74, and C71 (Limiter Characteristics of V5).*

R8 has been increased from 20,000 to 70,000 ohms (1/2-watt type).

R21, which is a 30,000-ohm (2-watt) type, has been added.

R71 has been increased from 100,000 ohms to 250,000 ohms.

R72 has been decreased from 43,000 ohms to 30,000 ohms.

R74 has been decreased from 10,000 to 1,000 ohms (1/2-watt type).

C71 has been decreased from 100 to 50 micromicrofarads.

These wiring changes were desirable because, on very strong signals, the output of the limiter previously fell off so much as to interfere with the operation of the squelch circuit under some conditions. In addition, the changes improved the reception of weak signals through high noise levels. In general, the changes were:

To make the second intermediate-frequency amplifier, V5, a more effective limiter by lowering screen and plate voltages. This involves R8 and R21 and a change in the plate return of V5. R74, formerly 10,000 ohms, could be reduced to 1000 ohms as drop in this resistor was no longer re-

quired. R71 was increased to improve the limiting action. This necessitated reducing C71 to maintain the proper time constant. R72 was decreased to obtain optimum load cross L71.

To remove the second intermediate-frequency amplifier from the influence of the delayed-automatic-volume-control circuit. This improved reception through strong noise. It involved moving the grid return of V5 from the automatic-volume-control circuit to the negative end of the dynamotor.

These changes are indicated graphically in Fig. 70 which shows the old arrangement crossed out and the new arrangement added.

The actual changes in wiring are as follows:

- (a) Move one pigtail of R8 from terminal 5 of FL2A to terminal 2 of FL2A.
- (b) Remove a wire (covered with a black sleeve) from terminal 6 of VS5 and terminal 5 of FL3A.
- (c) Connect one pigtail of R21 to terminal 5 of FL2A and the other pigtail to terminal 5 of FL3A.
- (d) Remove the green (tracer) wire from terminal 4 of VS9 and connect it to that terminal of C25 to which the blue (tracer) leads are connected.
- (e) Add a blue-brown (tracer) wire from terminal 5 of FL3A to terminal 5 of FL4.

(6) *Change Involving C44.* This 30-microfarad capacitor in the radio-frequency oscillator circuit was changed from silver mica to an N-080 Ceramicon. The change was made to improve temperature stability.

(7) *Change Involving C26.* C26 has been reduced from 0.001 to 0.0005 microfarad. This was done to permit the use of a ceramic capacitor as an alternate. This change also improved the operation of the beat oscillator by reducing the pull-in at low frequencies.

(8) *Changes in Capacitors of Dynamotors.* In Dynamotors DM-34(*) and DM-36(*), all the filter capacitors in some units have been reduced from 0.005 to 0.003 microfarad. No reduction in circuit performance results from this

change. Where a replacement problem involves a substitution of a filter capacitor, either a 0.003 or a 0.005-microfarad unit may be used in any position in the dynamotor without regard to the capacitance of the remaining units, but the replacements must meet the voltage rating prescribed in Paragraph 45, Table of Replaceable Parts.

(9) *Change in C35.* This unit was reduced from 0.01 to 0.006 microfarad.

(10) *Changes Affecting C53, C54, C55, C56, C63, C64, C65, C66, C73, C74, C75, C76, C84, C85, C86, C87, C88.* These changes are tabulated as follows:

Filter	Original Unit	Capacitance Value	
		Original	Replacing
FL1A	C53 and C54	*50 + †10	‡60
FL1A	C55 and C56	†10 + *50	‡60
FL2A	C63 and C64	*50 + †10	‡60
FL2A	C65 and C66	†10 + *50	‡60
FL3A	C73 and C74	*50 + †10	‡60
FL3A	C75 and C76	†10 + *50	‡60
FL4	C84, C85, and C86	†5, *50, and *50	‡60 and ‡60
FL4	C87 and C88	*25 + †10	‡35

*Silver-mica.
 †Ceramic N-680.
 ‡Ceramic N-080.

In filter units FL1A, FL2A, FL3A, and FL4 of the receiver, small ceramic capacitors were used originally in combination with silver-mica capacitors to provide temperature-compensated tuning capacitances. In later equipments these combinations of two capacitors have been replaced by single ceramic units each having capacitance and temperature compensation equal to those of the combination which it replaced. This is possible because a ceramic capacitor can be provided with any desired temperature coefficient (over a substantial range of positive and negative values). The single ceramic capacitor may be used as a direct replacement for the combination or vice versa. All the changes listed here fall in this class. Most of them are combinations where two units were in parallel and the changes involved a single ceramic with capacitance equal to the sum of the two and a temperature coefficient equivalent to their combination. In FL4, however, C85 and C86 (each a 50-micromicro-

farad silver-mica capacitor) were in series and C84 (a 5-micromicrofarad Ceramicon) was in parallel with the combination, making a total of 30 micromicrofarads. C85 and C86 have been changed to 60-micromicrofarad Ceramicons with the desired temperature coefficient which makes C84 unnecessary.

(11) *Change in Designation of Switch D2.* Switch D2 on the receiver was originally designated RADIO & EXT-EXT ONLY. This designation was changed to OUTPUT TO PHONES ON-OFF to provide a better conception of the function of this switch.

(12) *Change to Sealed Unit LCU3-C.* LCU3-C units are sometimes supplied as spare parts in place of LCU3-A units to replace the LCU3-A oscillator unit. The LCU3-C unit is essentially the same as the LCU3-A unit, except that it has been sealed to exclude moisture, thereby improving frequency stability of the receiver under high humidity conditions. The terminal numbers molded in the bakelite seals of the LCU3-C unit correspond to the terminal numbers of the unsealed LCU3-A unit.

If difficulty is encountered with frequency stability of a receiver under high humidity conditions, replace the LCU3-A unit with an LCU3-C sealed unit as follows:

Wire the LCU3-C unit in place without disturbing the cap. The adjustable slug of the LCU3-C unit has been preset at the factory and should seldom require adjustment during the alignment procedure. The capacity trimmer C1.7 should be adjusted for dial tracking at 38 megacycles and the dial tracking checked at 28, 32, and 35 megacycles. In many instances a slight readjustment of C1.7 will improve alignment.

A maximum dial tracking error at any frequency of three-fourths channel division is considered quite satisfactory providing the maximum error at the other two check frequencies is less than one-half dial division. When dial errors somewhat in excess of these values are found, they can frequently be tolerated; in such cases, it is preferable to avoid tampering with the seal of the unit, even though the tracking is not all that might be desired.

Caution: This unit is sealed against moisture. Do not remove the cap unless absolutely necessary.

Should a slug adjustment at 28 megacycles be found necessary, use the following procedure:

- (a) Find as dry a place as possible.
- (b) Run the receiver about an hour with the dust cover in place to warm the unit.
- (c) To remove the cap, heat the single point solder seal of the cap with a soldering iron while exerting a turning motion on the cap.
- (d) Complete the alignment as quickly as possible.
- (e) Replace the cap and re-solder in place.
- (f) If the cap was off for more than five minutes, run the receiver at least an hour with the dust cover in place and the cap off the unit.
- (g) Remove dust cover, replace cap, and re-solder.

c. Radio Transmitter BC-684-A.

(1) *A Change that Should be Made in Existing Equipment: Fuse F101.* Fuse F101 should be of 1/2-ampere rating. Some of the early equipment had 1-ampere fuses which do not always give adequate protection. One-half ampere fuses (as supplied in the spare parts groups) should be substituted for any 1-ampere fuses in this position.

(2) Changes in Parts.

(a) Change in C147.—The unit used in later production is a ceramic-type capacitor of cylindrical form covered with a black bakelite finish. This is the preferred replacement part. It is specified with plus or minus 2 per cent tolerance and rated at 800 volts, working. If it cannot be obtained it is satisfactory to use the single 175-micromicrofarad unit of the C-D Type 1R capacitor or four 175-micromicrofarad units of the C-D Type 5R capacitor in series-parallel. It is *not* satisfactory to use a single C-D Type 5R unit.

(b) Changes in Dynamotor Relay S102.—This relay has been changed from a Type AO to a Type BO relay with increased contact pres-

sure in the operated position. The latter unit is preferable but either can be used as available.

(c) Change in R107.—R107 was changed from 1/2-watt to 1-watt rating at 30,000 ohms in order to care for the higher current taken by some vacuum tubes.

(d) Changes in Resistors R119 and R155.—Two resistors R119 and R155 were originally specified as IRC Type F resistors. The IRC BT or BW types are just as satisfactory at these places and are or may be used interchangeably with Type F. The BT and BW types are preferred, however, because they mount in the transmitter more easily and with less chance of short-circuiting to adjacent parts or the chassis.

(e) Changes in Capacitors C138 and C142.—Capacitors C138 and C142 have been obtained from a number of different manufacturers and therefore it will be found that the "common" terminal (marked C on the capacitor can and in the wiring diagrams) will be located at one end of some capacitors and on the other end of other capacitors. Be careful in replacing a capacitor of this type to see that the C terminal is connected to the proper wires as shown in the wiring diagram of the transmitter.

(f) Changes in Transformers T101 and T102.—Some of these transformers were wound in the reverse direction from the majority. In many instances this will not cause poor operation but in some transmitters a reverse-wound transformer will be indicated by a high noise level on the radio carrier or on the interphone output. This can be cured by reversing (interchanging) the leads (red and blue) to terminals 5 and 6 on transformer T102. Transmitters using reversed transformers will have the wires interchanged at these terminals. Replacement transformers should be checked in this respect.

(3) Changes in Arrangement.

(a) Change in Connections of C122 and C123 and Addition of L123.—C122 was connected previously from the screen of V104 (power amplifier) to ground. Its ground terminal has been moved to the ungrounded side of the filament of V104. C123 was connected previously

from the ungrounded side of the filament of V104 to ground. It has been changed to connect between ground and the filament of V103. L123 has been added in the filament lead between V103 and V104. The purpose of these changes was to eliminate a tendency to spurious oscillation at very high frequency, which occurred in tube V104 of a few transmitters if a selector button was not depressed.

(b) Change in R118 and Addition of R162 and R163.—R118 has been changed to decrease the power dissipated in it. It was a 30,000-ohm, 2-watt unit, but has been changed to a 100,000-ohm, 2-watt unit, shunted by two other similar units (R162 and R163) mounted in the same resistance group. Thus the total resistance of the combination is not greatly changed but the power capacity is substantially increased. If a field replacement becomes necessary, it is desirable to use three 100,000-ohm, 2-watt units if possible. If they are not available a single 30,000-ohm, 2-watt unit may be used until the 100,000-ohm, 2-watt units can be obtained.

(c) Change in R102 and R107 and Addition of R160.—Some manufacturing variations caused the total current through dropping resistors R102 and R147 to exceed the allowable dissipation in these resistors. The later production units, therefore, were changed to add another resistor, R160, so that the three resistors could reliably dissipate the maximum heat. The total resistance of the three units was kept the same by reducing R102 and R147 from 1000 ohms each to 667 ohms each. R160 is 667 ohms.

(d) Change in R111 and Addition of R161.—R111 was changed from 15,000 ohms to 30,000 ohms, and R161 (30,000 ohms, 1 watt) was added in parallel to care for the increased grid current occurring with some tubes.

(e) Change in L106, L107, C111, C112, and Addition of C164.—During production it was found that some variations in wiring caused the coupling between L106 and L107 to be decreased below a suitable value. This was corrected by interchanging the coils and adding C164. The wiring changes are shown in the wiring diagram, Fig. 75. In the revised circuit some

of the coupling is obtained by mutual inductance between the two coils and additional coupling is obtained by the capacitor network C164, C111, and C112. It will be noted in the wiring diagram that in order to assure satisfactory operation, the leads to C111, C112, and C164 must be held to the length indicated. The tolerances of these capacitors must be held to those shown in Paragraph 45, Table of Replaceable Parts. If these capacitors are properly placed as shown by the wiring diagram and the leads correctly dimensioned, there should be no trouble in making this change in the field. This change need not be made in transmitters which are operating satisfactorily.

(f) Change in Wiring of R109.—One end of R109 was formerly connected to the bottom terminal of L106. This connection was moved in later transmitters to terminal 6 of VS108 in order to reduce the current through resistor R157.

(g) Shortening of Studs E and F and Relocation of L117-R149.—In the early production these studs were longer than necessary. This excess length produced coupling which caused poor oscillator operation in a few cases. Along with the shortening of the studs there were some wiring changes which are discussed in paragraph (3) following. The arrangements can be visualized by reference to Figs. 50 and 75. If this change is found necessary it will be facilitated by inspection of a late model transmitter as a guide. The steps in making the change are as follows:

(1) On stud F, interchange the top and bottom halves of the stud insulator and clip off the unnecessary part of the stud at the under side.

(2) On stud E, interchange the top and bottom halves of the stud insulator and clip off the unnecessary part of the stud at the under side.

(3) The coil-resistor combination (L117-R149) was previously connected from the end of stud E to R101 (the end away from the chassis). It crossed L102 on the side away from the chassis. This unit should be reconnected from the shortened stud E to R101—the end

nearest to the chassis. The wire previously connected to that end of R101 should be removed and reconnected to R101 at the end away from the chassis. With this rearrangement the coil-resistor combination passes between the chassis and coil L102.

(4) The two wires coming to L102 should be interchanged.

(h) Arrangement of Thermocouple Connections.—In order to permit adjusting the antenna current (TUNE-ANT CUR) meter reading over a wider range, the slide-wire adjustment was removed from between the terminals of the thermocouple and placed between the ends of the short coaxial transmission line connecting the antenna relay and the antenna binding post (A) on the front panel of the transmitter. This change cannot be made unless the replacement metering length of coaxial line is available. In installations where the antenna current reading on M101 is too low for convenient use, the reading may be raised by unsoldering the thermocouple slider tap and moving the tap to increase the reading. Take care that the antenna current reading will not go off scale under the highest voltage conditions. If the antenna current reading is too high, the direction of change should be reversed. This adjustment is most effective with the newer type arrangement of the thermocouple circuit.

(i) Meters and Thermocouples.—Meters from three manufacturers and thermocouples from two manufacturers have been used in the transmitters in order to maintain production when the meter or thermocouple from any one manufacturer became temporarily unavailable. Any of the meters and thermocouples will operate satisfactorily in a transmitter although there may be an inconsequential difference in meter readings when different meters are substituted, and the slide-wire tap may need slight adjustment when different thermocouples are substituted. The Weston thermocouples are somewhat faster in operation than the vacuum type marked with a number (ES-680241-7). The Weston meter originally had three connection studs, the two top ones going to the meter movement, the lower one going to the scale plate and magnet.

The lower stud is not and should not be used (see the wiring diagram, Fig. 75). In later meters this third stud has been eliminated. During the change-over from three to two studs, a number of the meters (about 1000) were incorrectly constructed to include a strap connection from the moving coil to the magnet and scale plate. This does not affect its operation at the TUNE position of D121 nor its operation with vacuum thermocouples for ANT CUR position of D121. However, in some transmitters a Weston meter having the incorrect connection may not operate properly with a Weston thermocouple. This will be indicated by very sluggish action of the meter when the antenna trimmer (usually at the highest frequency) is tuned. The meter reading will not drop to low values as it should when the antenna circuit is detuned by the trimmer. The approximately 1000 transmitters which have the incorrectly wired meter are satisfactory because they are equipped with vacuum thermocouples. When a Weston thermocouple is to be substituted for a vacuum thermocouple, tests as mentioned should be made to check the operation of the thermocouple-meter combination. If the trouble appears to be present, three methods of correction are available.

(1) Use a vacuum thermocouple if available; or

(2) Use a Hickok or Triplett meter if available; or

(3) Remove the Weston meter and unscrew and lift off the front portion of the case; open-circuit the connection between the scale plate and moving coil by clipping the strap which runs from the left screw and nut on the moving coil support and under the scale plate to the scale plate screw. Do not remove the nut on the moving coil support as that might cause the moving coil to become incorrectly positioned in its bearings and cause unsatisfactory operation of the meter.

(4) *Changes in Values.*

(a) Reduction in the Capacitance of C501, C502, C601, and C602.—C501 and C502 in the 12-volt dynamotor have been reduced from

0.003 to 0.002 microfarad. The same is true for C601 and C602 in the 24-volt dynamotor. Either value (0.002 or 0.003 microfarad) is satisfactory, however.

(b) Change in the Voltage Rating of the Postage-stamp Capacitors.—Some of the postage-stamp type of mica capacitors were changed to ones having a higher voltage rating. Capacitors having the voltage ratings shown in Paragraph 45, Table of Replaceable Parts, should be used for replacement purposes. Many capacitors of this type used in sets of early production did not show a designation as to voltage rating. More recently the voltage rating has been color coded, as shown in Paragraph 44. The sixth dot on the capacitor indicates the voltage rating—green for 500 volts, gray for 800 volts, and gold for 1000 volts.

(c) Change in Resistor R106.—R106 has been decreased from 1000 ohms to 100 ohms. The purpose was to keep the meter reading from going off scale when the battery voltage is high and switch D125 is in position 2. The resistor furnished in the spare parts has a resistance of 100 ohms. Replacement of a good existing 1000-ohm unit is not necessary unless the meter reading goes off scale when the battery voltage is high. Since this affects the meter reading you should allow for this when checking the operation of different transmitters.

(5) *Elimination and Addition of Parts.*

(a) Addition of R159.—R159 was added in later transmitters from the screen of the doubler V103 to ground, in order to make this tube operate more uniformly with wide variations of input voltage.

(b) Elimination of Capacitors C102 and C110.—C102, formerly connected to the filament of V101, and C110, formerly connected to the filament of V102, have been eliminated from the later transmitters. The purpose of this change was to reduce the use of mica capacitors. Either or both of these units may be omitted or removed without impairing the operation of the transmitter.

(c) Elimination of C160.—Capacitor C160 (across the primary of T102) has been

omitted from most transmitters. Some of these capacitors have failed due to surges occurring in the carbon microphone circuit. The omission of this unit in new equipment or removal of it from the existing equipment does not impair the performance of the transmitter. Its removal may cause a slight increase in response at the higher audio frequencies.

(d) Elimination of C107.—This capacitor has been found unnecessary because the units with which it was associated can be held to close tolerances during manufacture.

(e) Elimination of C503 and C603.—These capacitors across the low-voltage end of the 12- and 24-volt dynamotors, respectively, can be eliminated without causing trouble.

d. Changes Affecting All Units. All units of Radio Sets SCR-608-A and SCR-628-A use fasteners to hold covers in place. Most of the units employ Dzus fasteners but a number employ a Shakeproof fastener. Spare Shakeproof fasteners should not be used as replacements on units that have Dzus fasteners and vice versa.

e. Relative Characteristics of Various Types of Capacitors and Resistors. It has been necessary to substitute other types of capacitors in some places where mica units were specified. This has been done where such substitutions do not interfere with satisfactory operation of the radio equipment. In many cases the replacing units differ from the original units in size or

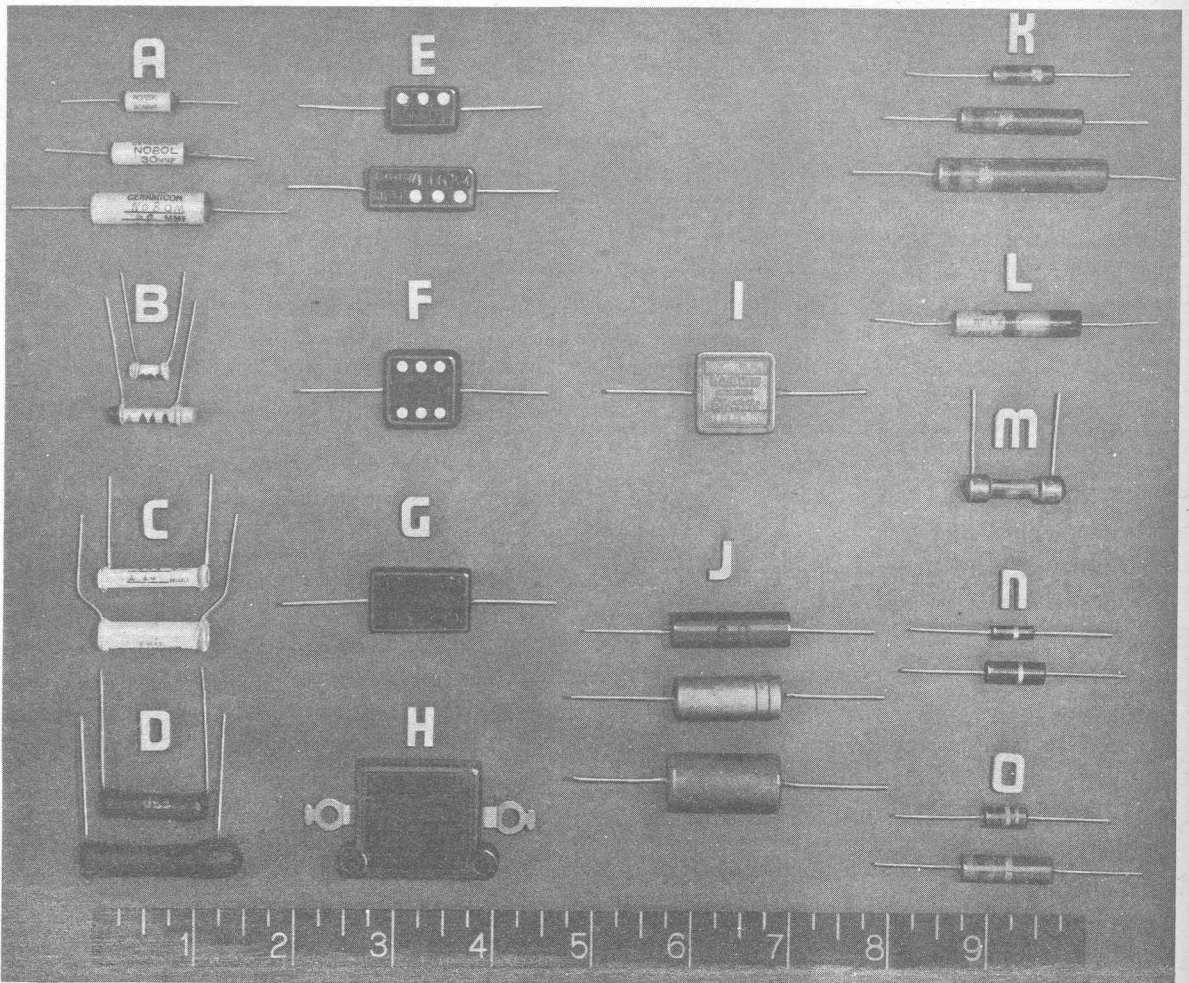


Fig. 63. Types of Capacitors and Resistors

shape or both. The relative appearance of the various capacitors and resistors used in these radio sets is shown in Fig. 63. The first column (A-D) shows ceramic capacitors. The second (E-H) shows mica capacitors and the third (I-J) shows oiled paper capacitors. In the fourth column (K-O) are various kinds of resistors. The general characteristics of such units are given in Table VII and discussed in more detail later. While Fig. 63 covers the range of types, it does not necessarily include all the variations produced by different manufacturers.

The units listed in Paragraph 45, Table of Replaceable Parts, have been selected because

they are the most suitable for the use for which they are specified. Other units, particularly ceramic capacitors, should not be used indiscriminately as replacements.

There are two general types of dielectric (insulation) which are often used in capacitors in place of mica. They are (1) ceramic material and (2) oiled paper. The ceramic capacitor consists of silver fired on ceramic insulation, the composition of the ceramic being varied to obtain different temperature coefficients. These are extremely stable and can be made to cover a wide range of values of temperature coefficients (from plus 120 to minus 750 parts per million

Table VII. Capacitor Characteristics

Group Letter (Fig. 63)	Type	Maximum as Used in This Equipment		Advantages	Disadvantages	Typical Use
		D-C Volts, Working Rating	$\mu\mu\text{f}$ Capacitance			
First Column						
A	Insulated Ceramicon (trade name)	800	200	Stability and choice of temperature compensation	Size limitation for large capacitance; also B, C, and D must not touch metal	Temperature compensation and replacement for small silver- mica units
B	Uninsulated ceramic	800	500			
C	Uninsulated Ceramicon	800	500			
D	Uninsulated ceramic	800	500			
*Second Column						
E (red)	Insulated silver-mica	800	700	Stability		Tuned circuits
E (brown)	Insulated mica	800	500	Ease of manu- facture		By-pass
F (red)	Insulated silver-mica	1000	1000	Stability		Tuned circuits
F (brown)	Insulated mica	1000	10,000	Ease of manu- facture		By-pass
G (brown)	Insulated mica	1000	10,000	Ease of manu- facture		By-pass
H (brown)	Insulated mica	1200	10,000	Ease of manu- facture		By-pass
*Third Column						
I	Insulated oiled paper	800	10,000	Does not require mica, a critical war material	Not suitable for tuned circuits or large r-f currents	By-pass, replacing F and G
J	oiled paper	800	10,000			

*These capacitors are not obtainable with controlled temperature coefficients.

per degree Centigrade.) For a given size of unit, the capacitance increases as the temperature coefficient becomes more negative. Therefore, no range of capacitance values can be assigned to a particular size without specifying the temperature coefficient. For a given temperature coefficient, the capacitance of a ceramic unit can be increased only by increasing the length or diameter of the tube.

The three sizes shown under group A (Fig. 63) cover the range of physical sizes in which these insulated ceramic capacitors are manufactured. These units were supplied originally in small sizes to provide temperature compensation for the combination of coil and mica capacitor in a tuned circuit. More recently, they have been specified in larger sizes in some tuned circuits to eliminate the need for a mica capacitor and provide temperature compensation for the coil. Since ceramic units with equal capacitance may differ greatly in temperature coefficient, it is not safe to use a ceramic unit for a replacement (where stability is needed) unless the temperature coefficient is known to be correct for that use.

The units illustrated under A and C have the value, tolerance, and temperature coefficient stamped on the unit. The black units shown under D are stamped with the capacitance and a letter signifying the temperature coefficient. Those shown under B are marked with dots in accordance with the color code described in Paragraph 44. Of all these ceramics, the A items are the only ones having adequate insulation to permit installing them where they might touch metal parts. Groups B and C are merely enameled. Group D has a black bakelite coating for moistureproofing but this is not sufficient insulation to permit contact with metal.

Five sizes of ceramic capacitors are shown in Fig. 63. The two smallest are those in B. The next two are those in C, and the largest is the lower unit in D. Except for insulation the largest unit in group A corresponds in characteristics to the small unit in group C.

It will be noticed that with uninsulated ceramic capacitors, the leads are sometimes at

unequal distances from the ends of the unit. The lead which is farther from the end is connected to the outer surface of the capacitor. Whenever possible, this lead should be connected to the ground, or low potential, side of the circuit.

In the conventional type of mica capacitor, strips of metal foil are interleaved between sheets of mica dielectric (insulation). Changes in temperature cause an undesirable amount of variation in the capacitance of such units. The silver-mica unit gives a much more stable capacitor which is suitable for tuned circuits. It consists of sheets of mica with electrodes of silver bonded to each surface.

Groups E and F illustrate the two types of color code discussed in Paragraph 44. Groups E, F, and G are made in both foil-mica and silver-mica units. Group H is used in the transmitter. It is a larger capacitor with higher voltage rating and has a more rigid mounting arrangement.

All the mica capacitors shown in the second column of Fig. 63 are insulated by a molded bakelite jacket and can be allowed to rest against metal. In general, the foil-mica units have a brown jacket, and the silver-mica units have a red jacket. Capacitors with a straw-colored bakelite jacket, as used in this equipment, may be either foil-mica, silver-mica, or paper units.

Ceramic capacitors are used where high stability is necessary and paper capacitors elsewhere whenever possible.

The capacitors shown in the third column of Fig. 63 use oil-impregnated paper for insulation. For stability, they do not compare with silver-mica types but they can be used as replacements for foil-mica types for screen grid and filament positions of vacuum tubes where they do not need to pass much radio-frequency current. In general, they are good substitutes for mica units for most by-pass purposes. The voltage rating decreases as the capacitance increases as follows:

Capacitance (microfarads)	0.003	0.006	0.01
Rating (d-c volts, working)	800	600	400

Group I shows a molded bakelite case which is adequate insulation. In general, such units will be black though they may be straw-colored.

Group J shows tubular-shaped units. The top unit has a thin bakelite cover and may be allowed to touch metal. The second unit in this group has a metal case and may have either one or both leads insulated from this case. If one lead is not insulated, it should be connected to ground or the lower voltage connection. The bottom unit in group J is identical with the second except for a cover which gives some insulating protection but is not sufficient to permit resting the unit against metal.

In summary, the unit specified in the Table of Replaceable Parts for a particular circuit symbol may be different in appearance from the one which it replaces and may require some ingenuity in mounting. Groups I and J are intended to take the place of F and G in some applications. Groups A, B, C, and D replace silver-mica units of groups E, F, and G where stability is required but must be used only as specified because of the wide range of temperature coefficients which they cover. As described in Paragraph 43b(10), sometimes a single ceramic unit is used to replace a silver-mica plus a small ceramic.

The fourth column (groups K-O) shows various small resistors. They vary considerably in size and shape for the same wattage ratings due to differences in manufacture. The units shown in group K are $\frac{1}{2}$ watt, 1 watt, and 2 watts, respectively. They are bakelite-insulated and may touch metal. The unit shown under L is a 1-watt unit. The unit shown at M with side leads is a high-frequency resistor. This has metal ends and is not insulated. This unit is used only in a few places in the transmitter. It is rated at $\frac{1}{2}$ watt. The units shown at group N (brown body) are bakelite-insulated resistors of the $\frac{1}{2}$ - and 1-watt sizes made by another manufacturer. (This manufacturer also makes a similar uninsulated resistor with a black body.) These are directly interchangeable with the upper two units in group K, above. The units shown at O are $\frac{1}{2}$ - and 1-watt sizes from still another manufacturer and are interchangeable with corresponding units already mentioned.

Similar units of other manufacture not shown may be used to replace those illustrated.

44. Color Codes on Components. The various types of capacitors and resistors used in Radio Sets SCR-608-A and SCR-628-A are illustrated in Fig. 63 and discussed in Paragraph 43e. Some capacitors and resistors have their values stamped on the unit, but in many cases colored dots and bands are used instead. The various color codes used for capacitors and resistors are shown in Figs. 64 to 68 inclusive, and are discussed in the following paragraphs.

a. Molded Mica Dielectric Capacitors. Capacitors of this type are illustrated in groups E, F, G, and H of Fig. 63. Three different color codes are used on these units:

The three-dot code.

The RMA (Radio Manufacturers Association) six-dot code.

The AWS (American War Standard) six-dot code.

(1) *Three-dot Code for Molded Mica Capacitors.* This code, which was widely used for a number of years, is gradually being replaced by the other two codes. However, many components so marked are used in Radio Sets SCR-608-A and SCR-628-A. Also, this code is likely to be encountered in parts stocks. As indicated in Fig. 64, the basis of the code is a series of three colored dots which indicate the capacitance, in micromicrofarads, of the unit. Two auxiliary colored dots indicating, respectively, the voltage rating and the capacitance tolerance, are sometimes, but not always, added. There is usually a molded or stamped arrow to show the sequence in which the dots are to be read. Dots one and two indicate the first two digits, while dot three tells the decimal multiplier to be used. Take, for example, a 0.006-microfarad capacitor. Its capacitance in micromicrofarads is 6000; the three dots, in sequence, are: blue (6), black (0), red (100).

The dot indicating the tolerance, when used, is usually located above or below the third (decimal multiplier) dot. As shown in Fig. 64, the various colors correspond to tolerances between plus or minus 1 per cent and plus or minus 20 per cent.

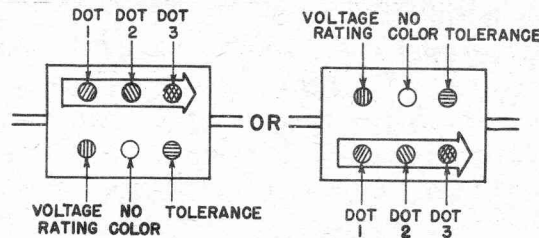
The voltage dot, when used, is ordinarily located above or below the first (first digit) dot. The various colors tell, according to the code of Fig. 64, the d-c working voltage.

When either or both of the auxiliary dots are omitted, it indicates that the capacitance tolerance is plus or minus 20 per cent and that the d-c working voltage is the lowest rating for the particular type and size of capacitor.

(2) *RMA Code for Molded Mica Capacitors.* The RMA (Radio Manufacturers Association) code illustrated in Fig. 65 is used to a limited extent. It uses six colored dots with an arrow to show the sequence. The first three dots give the first three digits of the capacitance in micromicrofarads; the fourth dot (directly below the third) gives the decimal multiplier. The fifth indicates the tolerance in capacitance, and

the sixth, the d-c working voltage. For example: a capacitor of 0.006 microfarad (6000 micromicrofarads) plus or minus 10 per cent, 800 volts d-c, working, would be marked with dots in the following order: blue (6); black (0); black (0); brown (multiplier 10); silver (plus or minus 10 per cent); gray (800 volts).

(3) *AWS Code for Molded Mica Capacitors.* The AWS (American War Standard) code for molded mica capacitors is shown in Fig. 66a. Like the RMA code, it uses six colored dots, but with somewhat different significance. The first four dots give the capacitance in micromicrofarads, as follows: first significant figure; second significant figure; third significant figure; decimal multiplier. It will be noted that this scheme makes provision for marking units in three significant figures. For example, consider a capaci-



Color	First Dot	Second Dot	Third Dot	Tolerance	Voltage Rating
	First Digit	Second Digit	Decimal Multiplier		
Black	0	0	1	± 20%	
Brown	1	1	10	± 1%	100
Red	2	2	100	± 2%	200
Orange	3	3	1,000	± 3%	300
Yellow	4	4	10,000	± 4%	400
Green	5	5	100,000	± 5%	500
Blue	6	6	1,000,000	± 6%	600
Violet	7	7	10,000,000	± 7%	700
Gray	8	8	100,000,000	± 8%	800
White	9	9	1,000,000,000	± 9%	900
Gold	—	—	0.1	± 5%	1,000
Silver	—	—	0.01	± 10%	2,000
Body	—	—	—	± 20%	*

*When no color is indicated, the voltage rating may be as low as 300 volts.

Fig. 64. Molded Mica Capacitors: Three-dot Color Code

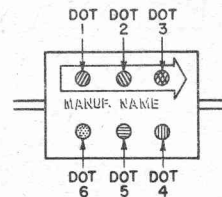
tor of 1,250 micromicrofarads. With the AWS code, the 1,250-micromicrofarad capacitor would be marked: brown (1), red (2), green (5), brown (10); the precise value of 1,250 micromicrofarads would thus be shown by the color code.

In practice, the precision markings just described are seldom necessary. In fact, none of the capacitors standardized under the AWS code requires more than two significant digits to specify its capacitance. For example, molded-mica-dielectric capacitors of the size known as "CM30" are standard in capacitances of 1000, 1100, 1200, 1300, 1500, 1600, etc., micromicrofarads. Intermediate values, such as 1,250 or 1,530, are not at present incorporated in the code. This is taken advantage of, as follows: The first dot on all capacitors now standard is black (0), and the two necessary significant figures are given by the second and third dots. The black first dot thus becomes a distinguishing feature or identification symbol, as it were, for a capacitor marked according to the AWS code. A couple of examples may serve to make this clear. Take, first, a 120-micromicrofarad capacitor; it is marked: black (0); brown (1); red (2); brown (10)—0120 micromicrofarads.

Or, consider a 9,100-micromicrofarad capacitor: black (0); white (9); brown (1); red (100)—09100 micromicrofarads. It will be noticed that in both these instances the first dot is black.

The fifth dot in the AWS code indicates the capacitance tolerance in per cent of nominal capacitance. The sixth dot indicates the design characteristics. The principal design characteristic, as indicated in Fig. 66a, is the temperature coefficient. For example a 0.006-microfarad (6000 micromicrofarads) plus or minus 10 per cent mica by-pass capacitor would be marked: black (0); blue (6); black (0); red (100); silver (plus or minus 10 per cent); black (mica by-pass, with no temperature coefficient specified).

It will be noted that this color code does not include the voltage rating. This is considered



Color	First Dot First Digit	Second Dot Second Digit	Third Dot Third Digit	Fourth Dot Decimal Multiplier	Fifth Dot Tolerance	Sixth Dot Voltage
Black	0	0	0	1	—	—
Brown	1	1	1	10	1%	100
Red	2	2	2	100	2%	200
Orange	3	3	3	1,000	3%	300
Yellow	4	4	4	10,000	4%	400
Green	5	5	5	100,000	5%	500
Blue	6	6	6	1,000,000	6%	600
Violet	7	7	7	10,000,000	7%	700
Gray	8	8	8	100,000,000	8%	800
White	9	9	9	1,000,000,000	9%	900
Gold	—	—	—	0.1	5%	1,000
Silver	—	—	—	0.01	10%	2,000
Body	—	—	—	—	20%	500

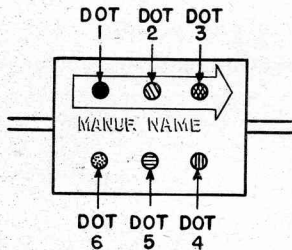
Fig. 65. Molded Mica Capacitors: RMA Six-dot Color Code

unnecessary, since with few exceptions, all capacitors marked with this color code are rated at 500 d-c working volts. The exceptions, all of which are rated at 300 volts, are:

Type CM35 capacitors (53/64-inch maximum length) with capacitances of 6,800, 7,500, and 8,200 micromicrofarads.

Type CM40 capacitors (1-1/32 inch maximum length) with capacitances of 9,100 and 10,000 micromicrofarads.

Further details of the American War Standard for fixed-mica-dielectric capacitors will be found in Standard C75.3 of the American Standards Association.



b. Molded Paper Dielectric Capacitors. A new AWS color code for small molded paper dielectric capacitors is shown in Fig. 66b. Although this code has found little application to date, it is possible that some units so marked may be encountered in future equipment or stocks. Like the code for mica capacitors just discussed, it employs six colored dots, together with an arrow to indicate the sequence. Units marked according to this system can readily be identified by the fact that both the first and fifth dots are always silver. The other dots are used as follows: the second dot gives the first digit of the capacitance in micromicrofarads; the third dot gives the second significant figure; the fourth dot indicates the decimal multiplier; the sixth tells whether the unit has a maximum operating temperature of 167 degrees or 185 degrees Fahrenheit.

No indication of the working voltage is given by the color code. In general, it can be said that molded paper dielectric capacitors meeting the AWS specification have d-c working voltages be-

Color	First Dot	Second Dot	Third Dot	Fourth Dot	Fifth Dot	*Sixth Dot
	First Digit	Second Digit	Third Digit	Decimal Multiplier	Tolerance	Characteristics
Black	0	0	0	1	± 20%	A
Brown	1	1	1	10	—	B
Red	2	2	2	100	± 2%	C
Orange	3	3	3	1,000	—	D
Yellow	4	4	4	—	—	E
Green	5	5	5	—	—	F
Blue	6	6	6	—	—	G
Violet	7	7	7	—	—	—
Gray	8	8	8	—	—	—
White	9	9	9	—	—	—
Gold	—	—	—	0.1	± 5%	—
Silver	—	—	—	0.01	± 10%	—

- *A. Ordinary mica by-pass.
- B. Same as A, low-loss case.
- C. By-pass or silver-mica capacitor (temperature coefficient: ± 200 parts/million/C).
- D. Silver-mica capacitor (temperature coefficient: ± 100 parts/million/C).
- E. Silver-mica capacitor (temperature coefficient: 0 to + 100 parts/million/C).
- F. Silver-mica capacitor (temperature coefficient: 0 to + 50 parts/million/C).
- G. Silver-mica capacitor (temperature coefficient: 0 to -50 parts/million/C).

Fig. 66a. Molded Mica Capacitors: AWS Six-dot Color Code

Color	First Dot	Second Dot	Third Dot	Fourth Dot	Fifth Dot	Sixth Dot
		First Digit	Second Digit	Decimal Multiplier		Characteristics
Black		0	0	1		*A
Brown		1	1	10		†B
Red	First dot silver to indicate AWS paper capacitor	2	2	100		—
Orange		3	3	1,000		—
Yellow		4	4	—		—
Green		5	5	—		—
Blue		6	6	—		—
Violet		7	7	—		—
Gray		8	8	—		—
White		9	9	—		—
Gold		—	—	—		—
Silver		—	—	—		—

*A. Operating temperature range, -67 to +185 F.
 †B. Operating temperature range, -67 to +167 F.

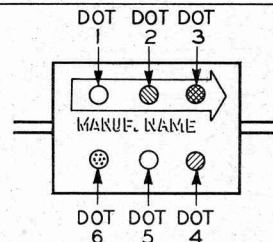
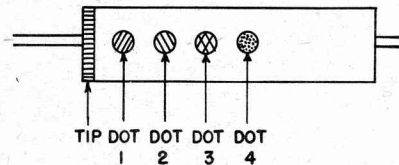


Fig. 66b. Molded Paper Capacitors: AWS Six-dot Color Code

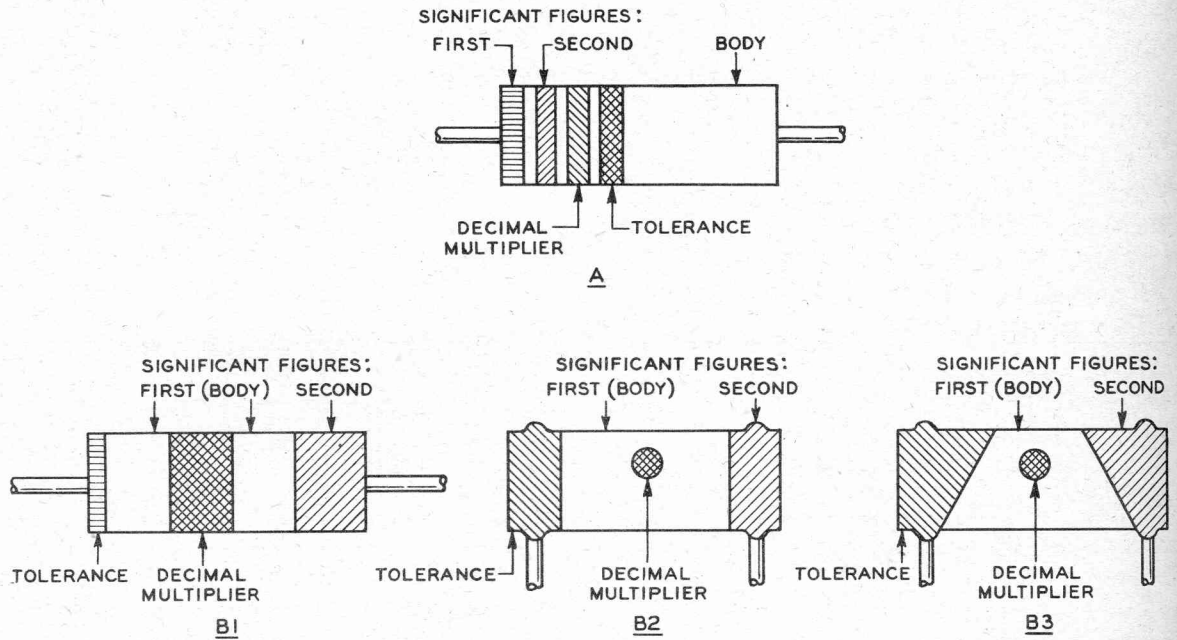
Color	Tip	First Dot	Second Dot	Third Dot	Fourth Dot
	*Temperature Coefficient	First Digit	Second Digit	Decimal Multiplier	†Tolerance
Black	0	0	0	1	±20
Brown	0.00003 neg.	1	1	10	± 1
Red	0.00008 neg.	2	2	100	± 2
Orange	0.00015 neg.	3	3	1,000	± 3
Yellow	0.00022 neg.	4	4	10,000	± 4
Green	0.00033 neg.	5	5	100,000	± 5
Blue	0.00047 neg.	6	6	1,000,000	± 6
Violet	0.00075 neg.	7	7	0.001	± 7
Gray	—	8	8	0.01	± 2.5
White	—	9	9	0.1	±10

*The temperature coefficient is expressed in micromicrofarads per micromicrofarad per degree Centigrade. Some capacitors are marked with a numeral instead of a color code; for example, N-030 represents 0.00003 neg.
 †Tolerances for capacitors of 10 micromicrofarads or less are expressed in tenths of a micromicrofarad instead of percentages.

Fig. 67. Tubular Ceramic Capacitors: RMA Color Code

tween 300 and 800 volts. The lower voltage applies to units with high-capacitance ratings; the higher voltage applies to units with low-capacitance ratings. Further details will be found in Standard C75/221 of the American Standards Association.

c. Tubular Ceramic Dielectric Capacitors. Tubular ceramic dielectric capacitors, which are widely used for temperature compensation, are sometimes marked according to the RMA color code shown in Fig. 67. As will be seen from the figure, the negative temperature coefficient is in-



Color	First Significant Figure	Second Significant Figure	Decimal Multiplier	Tolerance
Black	0	0	1	—
Brown	1	1	10	± 1%
Red	2	2	100	± 2%
Orange	3	3	1,000	± 3%
Yellow	4	4	10,000	± 4%
Green	5	5	100,000	± 5%
Blue	6	6	1,000,000	± 6%
Violet	7	7	10,000,000	± 7%
Gray	8	8	100,000,000	± 8%
White	9	9	1,000,000,000	± 9%
Gold	—	—	0.1	± 5%
Silver	—	—	0.01	± 10%
No color	—	—	—	± 20%

Fig. 68. Fixed Resistors: RMA and AWS Standard Color Codes

indicated by the color of the band or tip at one end of the unit; the capacitance in micromicrofarads is shown by the first three dots; the capacitance tolerance, either in per cent or tenths of a micromicrofarad, depending upon the size of the unit, is indicated by the fourth and last dot. Example: a 30-micromicrofarad plus or minus 5-per-cent capacitor with a negative temperature coefficient of 80 parts per million per degree Centigrade would be marked as follows: tip, red (-80); first dot, orange (3); second dot, black (0); third dot, black (1); fourth dot, green (plus or minus 5 per cent).

d. Fixed Resistors. Small fixed resistors, both composition-type and wire-wound, are frequently marked with colored bands and dots to indicate the resistance and tolerance. Two color codes are widely used: the RMA and the AWS. The two codes are not identical in all particulars, but they are similar in many respects. One chart, applicable to both, is shown in Fig. 68. It will be seen that in all cases the various combinations of body color, bands, and dots indicate the resistance to two significant figures (the first two digits), the decimal multiplier, and the per cent tolerance in resistance.

As illustrated by Fig. 68, two basic methods are used for indicating the resistance and tolerance:

Method A. This uses four colored bands, starting at one end of the unit, to show resistance and tolerance. The bands, reading from left to right, indicate: first significant figure; second significant figure; decimal multiplier; per cent tolerance. (The significance of

the body color under this method will be explained later.)

Method B. Several variations of this method are in use (B1, B2, B3 of Fig. 68). With all of these, however, the interpretation of the code is practically the same: left end, tolerance; body, first significant figure; right end, second significant figure; central dot or band, decimal multiplier.

To illustrate the basic schemes, consider a 5,600-ohm \pm 10-per-cent fixed resistor. It would be marked:

Method A. First band, green (5); second band, blue (6); third band, red (100); fourth band, silver (\pm 10 per cent).

Method B. Left end, silver (\pm 10 per cent); body, green (5); right end, blue (6); central band or dot, red (100).

In Method A, where the body color plays no part in indicating resistance or tolerance, it may be used to indicate the type of resistor unit. Under the RMA code, a black body is frequently used to indicate an uninsulated composition unit; a tan, olive, or white body, an insulated composition unit; and a dark brown body, an insulated wire-wound unit. The AWS code requires that an uninsulated unit using Method A have a black body; the body of an insulated unit may be any color, although a natural tan is preferred.

When there is doubt as to whether a particular resistor is composition or wire-wound, it is well to remember that any resistor of 100 ohms or less is very likely to be wire-wound—also, to remember that it may be wound inductively.

45 TABLE OF REPLACABLE PARTS (TABLE IX).

NOTE: The list of stock numbers is intended to supplement the Signal Corps General Catalog until such time as the catalog is revised to include the stock numbers in this table. Order re-placement part by stock number and description.

<u>Reference Number</u>	<u>Signal Corps Stock Number</u>	<u>Name and Description of Part</u>	<u>Function</u>	<u>Mfr.'s. Code and Type Number</u>	<u>Contractor's Drawing Number</u>
a. Radio Receiver BC-683-A:					
	204460-683A	Radio Receiver BC-683-A		WE	
†C1.2, C1.4		Variable air capacitor, 62 µf, part of push-button tuner assembly	Tuning Control	WE	
†C1.6, C1.8		Trimmer capacitor, 16 µf, part of push-button tuner assembly	Trimming	WE	
†C1.1, C1.3		Capacitor, 0.006 µf, 300 volts dc	R-F Screen By-pass	C-D Type 1W	
†C1.5, C1.7	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Modulator Cathode By-pass	C-D Type 1W	
†C2	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Modulator Screen By-pass	C-D Type 1W	
†C3	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Beating Oscillator Plate Filter	C-D Type 1W	
†C4	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	First I-F Screen By-pass	C-D Type 1W	
†C5	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Second I-F Screen By-pass	C-D Type 1W	
†C6	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Limiter Cathode By-pass	C-D Type 5W	
†C7	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	Limiter Screen By-pass	C-D Type 1W	
†C8	3D9500-18	Capacitor, 500 µf, 500 volts dc	I-F Oscillator Coupling	Erie Type N680L	
†C9	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	First Audio Grid Coupling	C-D Type 1W	
†C10	3D8975	Capacitor, 0.75 ± 0.25 µf, 500 volts dc	First Audio Grid Bias Filter	C-D Type 1D	
†C11	3DA6-10	Capacitor, 0.006 µf, 300 volts dc			
†C12	3DA10-48	Capacitor, 0.01 µf, 300 volts dc			

†Available in depot stock.

‡these capacitors are furnished as part of tuner assembly; see page 166.

†C13	3D9500-18	Capacitor, 500 µf, 500 volts dc	H-F Cutoff, First Audio Grid	C-D Type 5W	
†C14	3DA6-10	Capacitor, 0.006 µf, 300 volts dc	I-F AVC Filter	C-D Type 1W	
†C15	3DA500-30	Capacitor, 0.5 µf, 600 volts dc	AVC Filter	C-D Type DYR-6050	ESO-680334-2
†C16	3DB2.6020	Capacitor, 2 µf, 600 volts dc	Plate Supply Filter	C-D Type TLA-6020	ESO-680334-5
†C17	3DA10-48	Capacitor, 0.01 µf, 300 volts dc	Squelch Timing	C-D Type 1D	
†C18	3DA10-48	Capacitor, 0.01 µf, 300 volts dc	Squelch Timing	C-D Type 1D	
†C19	3DA2-16	Capacitor, 0.002 µf, 500 volts dc	H-F Cutoff, Second Audio Grid	C-D Type 1W	
†C20.1	3DA100-27	Capacitor (3 x 0.1 µf), 600 volts dc	Heater By-pass	C-D Type VC-932	ESO-680334-4
†C20.2			Squelching Voltage Filter		
†C20.3			First Audio Plate Filter		
†C21	3DA10-48	Capacitor, 0.01 µf, 300 volts dc	Second Audio Grid Coupling	C-D Type 1D	
†C22	3DA5-8	Capacitor, 0.005 µf, 300 volts dc	H-F Cutoff Second Audio Plate	C-D Type 1W	
†C23	3DB40-1	Special capacitor, 40 µf, 25 volts dc	Second Audio Cathode By-pass	C-D Per drawing	ESO-680334-1 ESO-680334-3
†C24	3DB1.6100A	Capacitor, 1 µf, 600 volts dc	Second Audio Screen By-pass	C-D Type DY-6100	
†C25	3DB2.88A	Capacitor, 2 µf, 600 volts dc	Plate Supply Filter	WE 288A	
C26	3DAL-13	Capacitor, 0.001 µf, 500 volts dc	I-F Oscillator Coupling	C-D Type 1W	
*†C26	3D9500-60	Capacitor, 0.0005 µf, 500 volts dc	I-F Oscillator Coupling	C-D Type 1W	
†R1	3Z4570	Resistor, 20,000 ohms ± 10%	R-F Screen Filter	IRC BT-1/2	
†R2	3Z4562	Resistor, 0.25 megohm ± 10%	Modulator Screen Filter	IRC BT-1/2	
†R3	3Z4524	Resistor, 500 ohms ± 10%	Modulator Cathode Bias	IRC BT-1/2	

†Available in depot stock.

*Modification during manufacture; see Paragraph 43.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
a. Radio Receiver BC-683-A (continued).					
†R4	3Z4531	Resistor, 50,000 ohms ± 10%	Beating Oscillator Grid Leak	IRC BT-1/2	
†R5	3Z6500-8	Resistor, 5000 ohms ± 10%	Beating Oscillator Plate Filter	IRC BT-1	
†R6	3Z4550	Resistor, 0.1 megohm ± 10%	I-F Oscillator Coupling	IRC BT-1/2	
†R7	3Z6630-8	Resistor, 30,000 ohms ± 10%	First I-F Screen Filter	IRC BT-1	
R8	3Z6620-12	Resistor, 20,000 ohms ± 10%	Second I-F Screen Filter	IRC BT-2	
*†R8	3Z6670-1	Resistor, 70,000 ohms ± 10%	Second I-F Screen Filter	IRC BT-1/2	
†R9	3Z4525	Resistor, 1,000 ohms ± 10%	Limiter Screen Filter	IRC BT-1/2	
†R10	3Z4562	Resistor, 0.25 megohm ± 10%	First Audio Grid Coupling	IRC BT-1/2	
†R11	3Z4534	Resistor, 1 megohm ± 10%	First Audio Grid Leak	IRC BT-1/2	
†R12	3Z6200-17	Resistor, 2000 ohms ± 10%	First Audio Cathode Bias	IRC BT-1/2	
†R13	3Z4529	Resistor, 10,000 ohms ± 10%	AVC Filter	IRC BT-1/2	
†R14	3Z4562	Resistor, 0.25 megohm ± 10%	AVC Bias	IRC BT-1/2	
†R15	3Z4534	Resistor, 1 megohm ± 10%	Squelch Timing	IRC BT-1/2	
†R16	3Z4534	Resistor, 1 megohm ± 10%	Squelch Timing	IRC BT-1/2	
†R17	3Z4562	Resistor, 0.25 megohm ± 10%	Squelch Plate Load	IRC BT-1/2	
†R18	3Z4550	Resistor, 0.1 megohm ± 10%	First Audio Plate	IRC BT-1/2	
†R19	3Z4542	Resistor, 2 megohms ± 10%	Indicator Lamp Shunt	IRC BT-1/2	
†R20	3Z6030-11	Resistor, 300 ohms ± 10%	Second Audio Cathode Bias	IRC BW-1	

*Modification during manufacture; see Paragraph #3.
†Available in depot stock.

**†R21	3Z6630-7	Resistor, 30,000 ohms ± 10%	Voltage Divider Shunt	IRC BT-2
†R22	3Z4540	Resistor, 30,000 ohms ± 10%	Phone Series	IRC BT-1/2
†R23	3Z4528	Resistor, 5,000 ohms ± 10%	Second Audio Screen Filter	IRC BT-1/2
†R24	3Z6005-13	Resistor, 50 ohms ± 5%	Voltage Dividing Network	IRC BW-1/2
†R25	3Z6250-6	Resistor, 2,500 ohms ± 5%	Voltage Dividing Network	IRC BT-1/2
†R26	3Z6120	Resistor, 1,200 ohms ± 5%	Voltage Dividing Network	IRC BT-1/2
†R27	3Z6250-6	Resistor, 2,500 ohms ± 5%	Voltage Dividing Network	IRC BT-1/2
†R28	3Z6250-6	Resistor, 2,500 ohms ± 5%	Voltage Dividing Network	IRC BT-1/2
†R29	3Z6613	Resistor, 13,000 ohms ± 5%	Voltage Dividing Network	IRC BT-2
†R30	3Z4805	Resistor, 5 ohms ± 5%, 1 in.	Audio Output Dummy Load	W-L Type Z
†R31	3Z6568-1	Resistor, 6,800 ohms ± 5%	Voltage Dividing Network	IRC BT-1
†R32	3Z4540	Resistor, 30,000 ohms ± 10%	Phone Series	IRC BT-1/2
†R33	3Z4540	Resistor, 30,000 ohms ± 10%	Phone Series	IRC BT-1/2
†L1	2C4403A/C7	Choke (SC-1002)	Limitter Cathode Choke	W-E KS-8712
†FLLA	2C4460-683A/F1	Filter	First I-F Input	W-E Per drawing ESL-684082-3
C51	3D9100-19A	Capacitor, 100 µf ± 5%, 500 volts dc Part of FLLA	First I-F Grid Coupling	C-D Type 5R
C52	3DA1-22	Capacitor, 0.001 µf, 500 volts dc Part of FLLA	First I-F Grid Filter	C-D Type 1W
C53	3D9050-13	Capacitor, 50 µf ± 5%, 500 volts dc Part of FLLA	Modulator Plate Fixed Tuning	C-D Type 5R
C54	3D9010-5	Capacitor, 10 ± 1 µf, 500 volts dc Part of FLLA	Temperature Compensator for C53	Erie Type N680K ESL-684082-3

*Modification during manufacture; see Paragraph 43.

†Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
a. Radio Receiver BC-683-A (continued).					
C55	3D9010-5	Capacitor, 10 ± 1 μf, 500 volts dc Part of FL1A	Temperature Compensator for C56	Erie Type N680K	
C56	3D9050-13	Capacitor, 50 μf ± 5%, 500 volts dc Part of FL1A	First I-F Grid Fixed Tuning	C-D Type 5R	
C57	3DA6-10	Capacitor, 0.006 μf, 300 volts dc Part of FL1A	Modulator Plate Filter	C-D Type 1W	
R51	3Z4550	Resistor, 0.1 megohm ± 10% Part of FL1A	First I-F Grid Leak	IRC BT-1/2	
R52	3Z6643	Resistor, 43,000 ohms ± 10% Part of FL1A	First I-F Input Filter Termination	IRC BT-1/2	
R53	3Z4550	Resistor, 0.1 megohm ± 10% Part of FL1A	First I-F Grid Filter	IRC BT-1/2	
R54	3Z4550	Resistor, 0.1 megohm ± 10% Part of FL1A	Modulator Plate Filter	IRC BT-1/2	
R55	3Z4550	Resistor, 0.1 megohm ± 10% Part of FL1A	Modulator Plate Filter	IRC BT-1/2	
I51	2C4403A/C9	Coil Part of FL1A	First I-F Grid Tuned Coupling	WE Per drawing	ES0-680255-1
L52	2C4403A/C9	Coil Part of FL1A	Modulator Plate Tuned Coupling	WE Per drawing	ES0-680255-1
†FL2A	2C4460-683A/F2	Filter	Second I-F Input	WE Per drawing	ESL-684082-1
C61	3D9100-19A	Capacitor, 100 μf ± 5%, 500 volts dc Part of FL2A	Second I-F Grid Coupling	C-D Type 5R	
C62	3DA1-22	Capacitor, 0.001 μf, 500 volts dc Part of FL2A	Second I-F Grid Filter	C-D Type 1W	
C63	3D9050-13	Capacitor, 50 μf ± 5%, 500 volts dc Part of FL2A	First I-F Plate Fixed Tuning	C-D Type 5R	
C64	3D9010-5	Capacitor, 10 ± 1 μf, 500 volts dc Part of FL2A	Temperature Compensator for C63	Erie Type N680K	
C65	3D9010-5	Capacitor, 10 ± 1 μf, 500 volts dc Part of FL2A	Temperature Compensator for C66	Erie Type N680K	
C66	3D9050-13	Capacitor, 50 μf ± 5%, 500 volts dc Part of FL2A	Second I-F Grid Fixed Tuning	C-D Type 5R	

†Available in depot stock.

C67	3DA6-10	Capacitor, 0.006 μ f, 300 volts dc Part of FL2A	First I-F Plate Filter	C-D Type 1W
R61	3Z4550	Resistor, 0.1 megohm \pm 10% Part of FL2A	Second I-F Grid Leak	IRC BT-1/2
R62	3Z6643	Resistor, 43,000 ohms \pm 10% Part of FL2A	Second I-F Input Filter Termination	IRC BT-1/2
R63	3Z4529	Resistor, 10,000 ohms \pm 10% Part of FL2A	Second I-F Grid Filter	IRC BT-1/2
R64	3Z4525	Resistor, 1,000 ohms \pm 10% Part of FL2A	First I-F Plate Filter	IRC BT-1/2
L61	2C4403A/C9	Coil Part of FL2A	Second I-F Grid Tuned Coupling	WE Per drawing ES0-680255-1
L62	2C4403A/C9	Coil Part of FL2A	First I-F Plate Tuned Coupling	WE Per drawing ES0-680255-1
†FL3A	2C4460-683A/F3	Filter	Limiter Input Filter	WE Per drawing ESL-684082-2
*C71	3D9100-13	Capacitor, 50 μ f \pm 5% Part of FL3A	Limiter Input Filter	C-D Type 5R ESL-684082-2
C71	3D9100-19A	Capacitor, 100 μ f \pm 5%, 500 volts dc Part of FL3A	Limiter Grid Coupling	C-D Type 5R
C72	3DA1-22	Capacitor, 0.001 μ f, 500 volts dc Part of FL3A	Limiter Grid Filter	C-D Type 1W
C73	3D9050-13	Capacitor, 50 μ f \pm 5%, 500 volts dc Part of FL3A	Second I-F Plate Fixed Tuning	C-D Type 5R
C74	3D9010-5	Capacitor, 10 \pm 1 μ f, 500 volts dc Part of FL3A	Temperature Compensator for C73	Erie Type N680K
C75	3D9010-5	Capacitor, 10 \pm 1 μ f, 500 volts dc Part of FL3A	Temperature Compensator for C76	Erie Type N680K
C76	3D9050-13	Capacitor, 50 μ f \pm 5%, 500 volts dc Part of FL3A	Limiter Grid Fixed Tuning	C-D Type 5R
C77	3DA6-10	Capacitor, 0.006 μ f, 300 volts dc Part of FL3A	Second I-F Plate Filter	C-D Type 1W
R71	3Z4550	Resistor, 0.1 megohm \pm 10% Part of FL3A	Limiter Grid Leak	IRC BT-1/2
*R71	3Z4562	Resistor, 250,000 ohms \pm 10% Part of FL3A	Limiter Grid Leak	IRC BT-1/2
R72	3Z6643	Resistor, 43,000 ohms \pm 10% Part of FL3A	Limiter Input Filter Termination	IRC BT-1/2

*Modification during manufacture; see Paragraph 43.

†Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr's. Code and Type Number	Contractor's Drawing Number
a. Radio Receiver BC-683-A (continued).					
*R72	3Z4540	Resistor, 30,000 ohms ± 10% Part of FL3A	Limiter Input Filter Termination	IRC BT-1/2	
R73	3Z4529	Resistor, 10,000 ohms ± 10% Part of FL3A	Limiter Grid Filter	IRC BT-1/2	
R74	3Z4529	Resistor, 10,000 ohms ± 10% Part of FL3A	Second I-F Plate Filter	IRC BT-1/2	
*R74	3Z4525	Resistor, 1,000 ohms ± 10% Part of FL3A	Second I-F Plate Filter	IRC BT-1/2	
L71	2C4403A/C9	Coil Part of FL3A	Limiter Grid Tuned Coupling	IRC Per drawing	ESO-680255-1
L72	2C4403A/C9	Coil Part of FL3A	Second I-F Plate Tuned Coupling	WE Per drawing	ESO-680255-1
†FL4	2C4403A/F4	Filter	Discriminator Filter Network	WE Per drawing	ESL-680250-1
C81	3D9250-9	Capacitor, 250 μf ± 10%, 500 volts dc Part of FL4	Detector R-F By-pass	C-D Type 5W	
C82	3DA6-10	Capacitor, 0.006 μf, 300 volts dc Part of FL4	Detector Cathode Filter	C-D Type 1W	
C83	3DA6-10	Capacitor, 0.006 μf, 300 volts dc Part of FL4	Limiter Plate Filter	C-D Type 1W	
C84	3D9005-13	Capacitor, 5 ± 0.5 μf, 500 volts dc Part of FL4	Temperature Compensation for Slope Circuit Secondary	Erie Type N680K	
C85	3D9050-13	Capacitor, 50 μf ± 2%, 500 volts dc Part of FL4	Half of Slope Circuit Secondary Tuning	C-D Type 5R	
C86	3D9050-13	Capacitor, 50 μf ± 2%, 500 volts dc Part of FL4	Half of Slope Circuit Secondary Tuning	C-D Type 5R	
C87	3D9025-4	Capacitor, 25 μf ± 5%, 500 volts dc Part of FL4	Limiter Plate Fixed Tuning	C-D Type 5R	
C88	3D9010-5	Capacitor, 10 ± 1 μf, 500 volts dc Part of FL4	Temperature Compensator for C87	Erie Type N680K	
R81	3Z6670-1	Resistor, 70,000 ohms ± 10% Part of FL4	Detector Load	IRC BT-1/2	
R82	3Z4562	Resistor, 0.25 megohm ± 10% Part of FL4	Detector Cathode Bias	IRC BT-1/2	

*Modification during manufacture; see Paragraph 43.
†Available in depot stock.

R83	3Z6670-1	Resistor, 70,000 ohms \pm 10% Part of FL4	Detector Load	IRC BT-1/2	
R84	3Z4562	Resistor, 0.25 megohm \pm 10% Part of FL4	Detector Cathode Bias	IRC BT-1/2	
R85	3Z4525	Resistor, 1,000 ohms \pm 10% Part of FL4	Limiter Plate Filter	IRC BT-1/2	
L81	2C4403A/C10	Coil Part of FL4	Detector Input Tuned Coupling	WE Per drawing	ES0-680254-1
L82	2C4403A/C9	Coil Part of FL4	Limiter Plate Tuned Coupling	WE Per drawing	ES0-680254-4
†LCU4	2C4460-683A/F4	Coupling Unit	Antenna Coupling	WE Per drawing	ESL-684080-1
C75	3DA6-10	Capacitor, 0.006 μ f, 300 volts dc Part of LCU4	R-F Grid Filter	C-D Type 1W	
R37	3Z4562	Resistor, 0.25 megohm \pm 10% Part of LCU4	R-F Grid Filter	IRC BT-1/2	
L32	2C4460-683A/C1	Coil Part of LCU4	Antenna Coupling	WE Per drawing	ES0-684085-5
†LCU2A	2C4460-683A/F5	Coupling unit	Modulator Input Tuning	WE Per drawing	ESL-684081-1
C36	3D9010-5	Capacitor, 10 \pm 1 μ f, 500 volts dc Part of LCU2A	R-F Plate Tuning and Compensation	Erie Type N680K	
C38	3D9005-13	Capacitor, 5 \pm 0.5 μ f, 500 volts dc Part of LCU2A	Modulator Grid Tuning and Compensation	Erie Type N680K	
C39	3DA6-10	Capacitor, 0.006 μ f, 300 volts dc Part of LCU2A	R-F Plate Filter	C-D Type 1W	
R38	3Z4525	Resistor, 1000 ohms \pm 10% Part of LCU2A	R-F Plate Filter	IRC BT-1/2	
L33	2C4460-683A/C2	Coil Part of LCU2A	R-F Plate Tuned Coupling	WE Per drawing	ES0-684083-1
L34	2C4460-683A/C2	Coil	Modulator Grid Tuned Coupling	WE Per drawing	ES0-684083-1
†LCU3A	2C4460-683A/F6	Tuned unit (unsealed)	R-F Oscillator Tuning Unit	WE Per drawing	ESL-684079-1
*†LCU3C	2C4460-683A/F6	Tuned unit (sealed)	R-F Oscillator Tuning Unit	WE Per drawing	ESL-694190-1
C41	3D9700	Capacitor, 700 μ f \pm 5%, 500 volts dc Part of LCU3A	Beating Oscillator Series Padder	C-D Type 2R	

†Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
a. Radio Receiver BC-683-A (continued).					
C42	3D9200-6	Capacitor, 200 ± 10 μmf, 500 volts dc Part of LCU3A	Temperature Compensator for C41	Erie Type N680M	
C43	3D9100-19A	Capacitor, 100 μmf ± 5%, 500 volts dc Part of LCU3A	Beating Oscillator Grid Blocking	C-D Type 5R	
*C44	—	Capacitor, 30 ± 1.5 μmf, 500 volts dc Part of LCU3A	Beating Oscillator Plate Coupling	Erie Type N150L	
C44	3D9030-3	Capacitor, 30 ± 1.5 μmf, 500 volts dc Part of LCU3A		Erie Type N080L	
*C44	—	Capacitor, 30 ± 1.5 μmf, 500 volts dc Part of LCU3A		Muter Type N200L	
C45	3D9100-19A	Capacitor, 100 μmf ± 5%, 500 volts dc Part of LCU3A	Oscillator-Modulator Coupling	C-D Type 5R	
C46	3D9020-1	Capacitor, 20 ± 1 μmf, 500 volts dc Part of LCU3A	Beating Oscillator Plate Temperature Compensator	Erie Type N680K	
R41	3Z4550	Resistor, 0.1 megohm ± 10% Part of LCU3A	Modulator Suppressor Grid Leak	IRC BT-1/2	ES0-684084-1
L41	2C4460-683A/C3	Coil Part of LCU3A	Beating Oscillator Tuning and Feedback	WE Per drawing	ESL-680247-1
1LCU4	2C4403A/21	Tuned unit	I-F Oscillator Tuning	WE Per drawing	
C91	3D9050-13	Capacitor, 50 μmf ± 5%, 500 volts dc Part of LCU4	I-F Oscillator Grid Coupling	C-D Type 5R	
C92	3D370	Capacitor, 50 ± 2 μmf, 500 volts dc Part of LCU4	I-F Oscillator Plate Shunt	Erie Type N680K	
C93	3D9100-19A	Capacitor, 100 μmf ± 5%, 500 volts dc Part of LCU4	I-F Oscillator Fixed Tuning	C-D Type 5R	
C94	3D9050-13	Capacitor, 50 μmf ± 5%, 500 volts dc Part of LCU4	I-F Oscillator Plate Coupling	C-D Type 5R	
R91	2Z4550	Resistor, 0.1 megohm ± 10% Part of LCU4	I-F Oscillator Grid Leak	IRC BT-1/2	
R92	3Z4549	Resistor, 40,000 ohms ± 10% Part of LCU4	I-F Oscillator Plate Load	IRC BT-1/2	
R93	3Z4549	Resistor, 40,000 ohms ± 10% Part of LCU4	I-F Oscillator Plate Load	IRC BT-1/2	

*Modification during manufacture; see Paragraph 43.
†Available in depot stock.

L91	2C4403A/G14	Coil Part of LOU4	I-F Oscillator Inductance	WE Per drawing	ES0-680254-2				
†D1	2C4403A/S2	Switch (SPST)	Power	H&H Per drawing	ES0-676800-6				
†D2	2C4403A/S2	Switch (SPST)	Headset	H&H Per drawing	ES0-676800-6				
†D3	2C4403A/S4	Switch (SPDT)	Loudspeaker	H&H Per drawing	ES0-676800-23				
†D4	2C4403A/S3	Switch (SPST and SPDT)	Squelch	H&H Per drawing	ES0-680937-1				
†D5	2C4403A/S2	Switch (SPST)	Tuning Oscillator	H&H Per drawing	ES0-676800-6				
†E1	2Z5893-1	Neon lamp	Indicator Lamp	GE Per drawing	ES0-680193-7				
†ES1	2Z5990-3	Socket, lamp-mounting	Socket for E1	Drake Per drawing	ES0-680506-1				
†F1	3Z1924	Fuse, 15 amperes	Power Supply	Littel Type 4AG					
†FML	3Z3282	Fuse holder	Fuse Holder	Littel No. 1212					
†FM2	3Z3282	Fuse holder	Spare	Littel No. 1212					
†J1	2C4403A/P3	Part of jack assembly	Headset	WE Per drawing	ES0-680358-1				
†J2	2C4403A/P3	Part of jack assembly	Headset	WE Per drawing	ES0-680358-1				
†J3	2C4403A/J2	Jack, socket assembly	Front Panel Socket Assembly	WE Per drawing	ES0-680358-3				
†LS1	6C35	Loudspeaker	Loudspeaker	Jensen Type PM 4FS Per drawing	ES0-678545-1				
†P1	2Z7298-1	Potentiometer, 100,000 ohms, taper C	Volume Control	IRC Type CS	ES0-680193-1				
†P2	2Z7299	Potentiometer, 200 ohms	Squelch Control	IRC Type W	ES0-680193-2				
†PG1	2C4403A/F1	Special plug	External Connections	Cannon Per drawing	ES0-677409-20				
†PG2	2Z7228	Plug	Dynamotor Plug	Jones Type P-318-AB					

†Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr's. Code and Type Number	Contractor's Drawing Number
a.		Radio Receiver BC-683-A (continued).			
†PG3	2C4403A/P3	Plug, part of jack assembly	Front Panel Connections	WE Per drawing	ES0-680358-1
†T1	2C4403A/T3	Audio output transformer (50-1005)	Audio Output	WE	KS-8714
†V1	2T112	Vacuum tube VT-112	R-F Amplifier	RCA (6AC7)	
†V2	2T112	Vacuum tube VT-112	Modulator	RCA (6AC7)	
†V3	2T94	Vacuum tube VT-94	Oscillator	RCA (6J5)	
†V4	2T209	Vacuum tube VT-209	I-F Amplifier	RCA (12SG7)	
†V5	2T209	Vacuum tube VT-209	I-F Amplifier	RCA (12SG7)	
†V6	2T112	Vacuum tube VT-112	Limiter	RCA (6AC7)	
†V7	2T90	Vacuum tube VT-90	Detector	RCA (6H6)	
†V8	2T107A	Vacuum tube VT-107-A	Second Audio Amplifier	RCA (6V6-GT)	
†V9	2T229	Vacuum tube VT-229	AVC and Squelch	RCA (6SL7-GT)	
†V10	2T229	Vacuum tube VT-229	First Audio and Oscillator	RCA (6SL7-GT)	
†VS1- VS10	2C4403A/S1	Socket	Socket	United Per drawings	ESL-678315-6 ESL-678315-10
†	2C4403A/S5.1	Push-button tuner assembly (includes Cl.1, Cl.2, Cl.3, Cl.4, Cl.5, Cl.6, Cl.7 and Cl.8)	Tuning	WE	KS-10099, List 2
†	2C6494/S6/2	Locking assembly, part of push-button tuner assembly, consisting of: Retainer yoke assembly Cam	Tuning	WE	
		Yoke lock screw			ES0-684055-1
		Cam yoke			ES0-684056-2
		1/4-28 (NC3) hex. nut 3/8 in. across flats x 3/16 in. (steel-zinc plate)			ES0-684054-5
		1/4-28 (NC3) hex. nut 3/8 in. across flats x 3/32 in. (steel-zinc plate)			ES0-684056-1

†Available in depot stock.
‡Spare tubes furnished as separate item on contract.

Part Number	Description	Quantity	Unit	Notes
† 2C4403A/S5/1	Push button, part of push-button tuner assembly			
† 2C4403A/G1	Front panel guard			
† 2C4403A/B1	Binding post A			
† 2C4403A/B2	Binding post G			
† 2C4403A/B3	Bracket, hold-down			
† 2C4403A/W1	Shielded wire assembly			
† 2C4403A/W2	Shielded wire assembly			
† 2C4460-683A/H1	Knob			
† 2C4460-683A/G22	Dust cover			
† 2C6494A/F2	Shakeproof fastener			
† 2C4403A/P1/1	Special screw			
† 2C4403A/J3	Insulator			
† 2C4403A/H1	Handle			
† 2C4403A/W1	Mounting strip			
† 2S508/H1	Hardware for Radio Receiver BC-683-A			
† 2S508/1	Wire for Radio Receiver BC-683-A			
<u>b. Radio Transmitter BC-684-A.</u>				
† C101	Radio Transmitter BC-684-A			
† C103	3DA3-6 Capacitor, 0.003 µf, 800 volts dc			
	3D9100-21 Capacitor, 0.0001 µf ± 5%, 800 volts dc			
† Available in depot stock.				
	Tuning	WE	KS-10099 List 2	
	Front Panel Protection	WE Per drawing	ESO-678546-2	
	Antenna Connection	WE Per drawing	ESO-678764-16	
	Ground Connection	WE Per drawing	ESO-678764-20	
	Securing Receiver	WE Per drawing	ESO-680124-2	
	Antenna Jack Connections	WE Per drawing	ESO-680492-1	
	Antenna Post Connections	WE Per drawing	ESO-680492-2	
	Volume Control Knob	WE Per drawing	ESO-680382-3	
	Cover	WE Per drawing	ESR-678448-10	
	Securing Cover	Dzus		
	Mounting PGI	WE Per drawing	ESO-677334-11	
	Mounting Binding Posts A and G	WE Per drawing	ESO-680241-2	
	Front Panel	WE Per drawing	ESO-678672-1	
	Mounting Small Parts	WE Per drawing	{ ESO-688720-1 ESO-679393-1 ESO-680506-4	
	First R-F Screen By-pass	C-D Type IWPS		
	First R-F Plate Coupling	C-D Type IWPS		

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
†C104	3D9500-20	Capacitor, 0.0005 µf, 800 volts dc	Oscillator Plate By-pass	C-D Type LWPS	
†C105	3D9015-2	Capacitor, 15 µf ± 10%, 500 volts dc	Oscillator Plate Tuning	WE Type N680K	
C106	See Note	Variable air capacitor, 350 µpf, Part of push-button tuner capacitor assembly	Rectifier Grid Tuning	WE	
†C108	3D9500-20	Capacitor, 0.0005 µf, 800 volts dc	Rectifier Grid Coupling	C-D Type LWPS	
†C109	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Rectifier Screen By-pass	C-D Type LWPS	
†C111	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Tripler Plate By-pass	C-D Type LWPS	
†C112	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Doubler Grid By-pass	C-D Type LWPS	
C113	See Note	Variable air capacitor, 60 µpf, Part of push-button tuner capacitor assembly	Tripler Plate Tuning	WE	
†C114	See Note	Variable air capacitor, 20 µpf, Part of push-button tuner capacitor assembly	Tripler Plate Trimmer	WE	
C115	See Note	Variable air capacitor, 60 µpf, Part of push-button tuner capacitor assembly	Doubler Grid Tuning	WE	
†C116	See Note	Variable air capacitor, 20 µpf, Part of push-button tuner capacitor assembly	Doubler Grid Trimmer	WE	
†C117	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Doubler Screen By-pass	C-D Type LWPS	
†C118	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Doubler Plate By-pass	C-D Type LWPS	
C119	See Note	Variable air capacitor, 80 µpf Part of push-button tuner capacitor assembly	Doubler Plate Tuning	WE	
†C120	See Note	Variable air capacitor, 20 µpf Part of push-button tuner capacitor assembly	Doubler Plate Trimmer	WE	

NOTE: Capacitors C106, C113, C115, C119, C152, C156, C114, C116, C120, C153, C157, C125-C130 inclusive, furnished as part of tuner assembly, page 177.
 †Available in depot stock.

†C121	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Doubler Plate Coupling	C-D Type 1WPS	
†C122	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Power Amplifier Screen By-pass	C-D Type 1WPS	
†C123	3DA10-48	Capacitor, 0.01 µf, 300 volts dc	Doubler Filament By-pass	C-D Type 1D	
†C124	3DA2-34	Capacitor, 0.002 µf, 1,200 volts dc	Power Amplifier Plate	C-D Type 4	
C125	See Note, page 168	Variable air capacitor, 60 µpf Part of push-button tuner assembly	Power Amplifier Tuning	WE	
C126	See Note, page 168	Variable air capacitor, 20 µpf Part of push-button tuner assembly	Power Amplifier Trimmer	WE	
C127 to C136 incl.	See Note, page 168	Variable air capacitor, 100 µpf Part of push-button tuner assembly	Antenna Tuning	WE	
†C137	3DA500-27	Capacitor, 0.5 µf, 600 volts dc	First Audio Grid By-pass	C-D Type DVRT-6050	ES0-680242-2
†C138.1 } C138.2 }	3DA100-28	Capacitor, 600 volts dc Two sections, each 0.1 µf	Carbon Microphone Coupling	C-D Type DVRT-6011	ES0-680242-3
†C139	3DA500-27	Capacitor, 0.5 µf, 600 volts dc	First Audio Screen By-pass	C-D Type DVRT-6050	
†C140	206494/06	Electrolytic capacitor, 30 µf 500 volts dc	Carbon Microphone Filter	Mallory Type FF	ES0-680242-6
†C141	3DA500-27	Capacitor, 0.5 µf, 600 volts dc	First Audio Plate Coupling	C-D Type DVRT-6050	ES0-680242-2
†C142.1 } C142.2 }	3DA100-28	Capacitor, 600 volts dc Two sections, each 0.1 µf	Second Audio Grid By-pass First Audio Plate By-pass	C-D Type DVRT-6011	ES0-680242-3
†C143	3DA500-27	Capacitor, 0.5 µf, 600 volts dc	Second Audio Screen By-pass	C-D Type DVRT-6050	
†C145	3DB2.21	Capacitor, 2 µf, 1,000 volts dc	Plate Supply Filter	C-D Type TLA 10020	
†C146	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Oscillator Screen By-pass	C-D Type 1WPS	
C147	3D9175	Capacitor, 175 µf ± 3%, 500 volts dc	First R-F Plate Padding	C-D Type 1R	
*†C147	3D9175-5	Capacitor, 175 µf ± 2%, 800 volts dc	First R-F Plate Padding	Muter Type N100	

*Modification during manufacture; see Paragraph 43.
†Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
b. Radio Transmitter BC-681-A (continued).					
†C148	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Power Amplifier Grid By-pass	C-D Type LWPS	
†C149	3DA1-21	Capacitor, 0.001 µf, 1,200 volts dc	Power Amplifier Plate Coupling	C-D Type 4	
†C150	3DA1-72	Capacitor, 0.001 µf, 800 volts dc	Oscillator Plate Coupling	C-D Type LWPS	
†C151	3D9050-53	Capacitor, 0.00005 µf ± 5%, 800 volts dc	Oscillator Grid	C-D Type 5RPS	
C152	See Note, page 168	Variable air capacitor, 60 µpf Part of push-button tuner capacitor assembly	Rectifier Plate Tuning	WE	
†C153	See Note, page 168	Variable air capacitor, 20 µpf Part of push-button tuner capacitor assembly	Rectifier Plate Trimmer	WE	
†C154	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Rectifier Plate By-pass	C-D Type LWPS	
†C155	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Tripler Grid By-pass	C-D Type LWPS	
C156	See Note, page 168	Variable air capacitor, 60 µpf Part of push-button tuner capacitor assembly	Tripler Grid Tuning	WE	
†C157	See Note, page 168	Variable air capacitor, 20 µpf Part of push-button tuner capacitor assembly	Tripler Grid Trimmer	WE	
†C158	3DA3-6	Capacitor, 0.003 µf, 800 volts dc	Tripler Screen By-pass	C-D Type LWPS	
†C159	3DA10-48	Capacitor, 0.01 µf, 300 volts dc	Tripler Filament By-pass	C-D Type 1D	
†C161	3D9100-70	Capacitor, 0.0001 µf, 800 volts dc	Transmission Line Series	C-D Type 5WPS	
†C162	206494A/05	Electrolytic capacitor, 4 µf, 50 volts dc	Dynamotor Relay Filter	C-D Type AVL	ES0-678687-5
*†C164	3DA3-6	Capacitor, 0.003 µf, 1,000 volts dc	Tripler Plate By-pass	C-D Type LWPS	
†R101	3Z4550	Resistor, 100,000 ohms ± 10%	Oscillator Grid	IRC BT-1/2	

*Modification during manufacture; see Paragraph 43
†Available in depot stock.

Part No.	Value	Application	W-L Type
R102	3Z5410-2	Resistor, 2 in., 1,000 ohms ± 10%	W-L Type T
*†R102	3Z5366A7	Resistor, 2 in., 667 ohms ± 10%	W-L Type A
†R103	3Z6725-5	Resistor, 250,000 ohms ± 10%	IRC BT-1
†R104	3Z6670-1	Resistor, 70,000 ohms ± 10%	IRC BT-1/2
†R105	3Z4531	Resistor, 50,000 ohms ± 10%	IRC BT-1/2
*†R106	3Z6010-18	Resistor, 100 ohms ± 10%	IRC BW-1/2
R107	3Z4540	Resistor, 30,000 ohms ± 10%	IRC BT-1/2
*†R107	3Z6630-21	Resistor, 30,000 ohms ± 10%	A-B GB-1
†R108	3Z6003-13	Resistor, 30 ohms ± 5%	IRC BW-1/2
†R109	3Z6675-10	Resistor, 75,000 ohms ± 10%	IRC BT-2
†R110	3Z4525	Resistor, 1,000 ohms ± 10%	IRC BT-1/2
R111	3Z6615-14	Resistor, 15,000 ohms ± 10%	IRC BT-1
*†R111	3Z6630-8	Resistor, 30,000 ohms ± 10%	IRC BT-1
†R112	3Z6001-2	Resistor, 10 ohms ± 10%	IRC BW-1/2
†R113	3Z4801-1	Resistor, 1-3/4 in., 1.0 ohm ± 5%	W-L Type Z
†R114	3Z6630-7	Resistor, 30,000 ohms ± 10%	IRC BT-2
†R115	3Z4550	Resistor, 100,000 ohms ± 10%	IRC BT-1/2
†R116	3Z6630-7	Resistor, 30,000 ohms ± 10%	IRC BT-2
†R117	3Z4531	Resistor, 50,000 ohms ± 10%	IRC BT-1/2

*Modification during manufacture; see Paragraph 43.
 †Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Parts	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
b. Radio Transmitter BC-684-A (continued).					
R118	3Z6670-7	Resistor, 30,000 ohms \pm 10%	Oscillator Plate	IRC BT-2	
*†R118	3Z6700-12	Resistor, 100,000 ohms \pm 10%	Oscillator Plate	IRC BT-2	
R119	3Z6120-1	Resistor, 1,200 ohms \pm 10%	Rectifier Plate	IRC F-1/2	
*†R119	3Z6120-8	Resistor, 1,200 ohms \pm 10%	Rectifier Plate	IRC BT-1/2	
†R120	3Z6020-9	Resistor, 200 ohms \pm 10%	Carbon Microphone Series	IRC EW-1	
†R121	3Z6010-18	Resistor, 100 ohms \pm 10%	Carbon Microphone Filter	IRC EW-1/2	
†R122	3Z6725-5	Resistor, 250,000 ohms \pm 10%	First Audio Screen	IRC BT-1	
†R123	3Z6610-11	Resistor, 10,000 ohms \pm 10%	First Audio Plate Filter	IRC BT-1	
†R124	3Z4529	Resistor, 10,000 ohms \pm 10%	Second Audio Grid Filter	IRC BT-1/2	
†R125	3Z4528	Resistor, 5,000 ohms \pm 10%	Second Audio Grid	IRC BT-1/2	
†R126	3Z6675-10	Resistor, 75,000 ohms \pm 10%	Second Audio Screen	IRC BT-2	
†R127	3Z4801-1	Resistor, 1-3/4 in., 1.0 ohm, \pm 5%	Filament	W-L Type Z	
†R128	3Z4529	Resistor, 10,000 ohms \pm 10%	Sidetone Fixed	IRC BT-1/2	
†R129	3Z5450.4	Resistor, 2 in., 5,000 ohms \pm 10%	Bias	W-L Type A	
†R130	3Z4900-1	Resistor, 1-3/4 in., 100 ohms \pm 10%	Bias	W-L Type Z	
†R131	3Z4812	Resistor, 2 in., 12 ohms \pm 5%	Filament Supply Series	W-L Type A	
†R132	3Z4812	Resistor, 2 in., 12 ohms \pm 5%	Filament Supply Series	W-L Type A	

*Modification during manufacture; see Paragraph 43.

†Available in depot stock.

†R133	3Z4880	Resistor, 1-3/4 in., 80 ohms ± 10%	Dynamotor Relay Series	W-L Type Z
†R134	3Z4540	Resistor, 30,000 ohms ± 10%	Plate Current Metering	IRC ET-1/2
†R135	3Z4830	Resistor, 1-3/4 in., 30 ohms ± 10%	Antenna and Disabling Relays Series	W-L Type Z
†R136	3Z4540	Resistor, 30,000 ohms ± 10%	First Audio Screen Shunt	IRC ET-1/2
†R137	3Z6010-8	Resistor, 100 ohms ± 10%	Meter Series	A-B EB-1/2
†R138	3Z4531	Resistor, 50,000 ohms ± 10%	Oscillator Screen	IRC ET-1/2
†R139	3Z4550	Resistor, 100,000 ohms ± 10%	First R-F Grid	IRC ET-1/2
†R140	3Z4812	Resistor, 2 in., 12 ohms ± 5%	Filament Supply Series	W-L Type A
†R141	3Z4812	Resistor, 2 in., 12 ohms ± 5%	Filament Supply Series	W-L Type A
†R142	3Z6718-1	Resistor, 180,000 ohms ± 10%	Rectifier Screen Shunt	IRC ET-1
†R143	3Z6010-18	Resistor, 100 ohms ± 10%	Tripler Grid Metering	IRC BW-1/2
†R144	3Z4550	Resistor, 100,000 ohms ± 10%	Tripler Grid Leak	IRC ET-1/2
†R145	3Z6650-7	Resistor, 50,000 ohms ± 10%	Tripler Screen	IRC ET-2
†R147	3Z5366A7	Resistor, 2 in., 667 ohms ± 10%	High Voltage Reducing	W-L Type A
†R149	3Z6005-9	Resistor, 50 ohms ± 10% with L117	Oscillator Grid Anti-Sing	IRC F-1/2 Per drawing
†R151	3Z4608	Resistor, 100,000 ohms ± 10%	First Audio Plate	IRC ET-1
†R153	3Z5998-1	Resistor, 8.3 ohms ± 10%	Heater for Crystal Oven	IRC MW-5
†R154	3Z5998-1	Resistor, 8.3 ohms ± 10%	Heater for Crystal Oven	IRC MW-5

ES0-680330-2

†Available in depot stock.

<u>Reference Number</u>	<u>Signal Corps Stock Number</u>	<u>Name and Description of Part</u>	<u>Function</u>	<u>Mfr.'s. Code and Type Number</u>	<u>Contractor's Drawing Number</u>
b. <u>Radio Transmitter BC-684-A (continued).</u>					
†R155	3Z4550	Resistor, 100,000 ohms ± 10%	Antenna Static Leak	IRC BT-1/2	
†R156	3Z6003-4	Resistor, 30 ohms ± 10%	A-F Load	IRC BW-1	
†R157	3Z6030-5	Resistor, 300 ohms ± 10%	Tripler Plate Filter	IRC BT-1	
*†R157	3Z6030-11	Resistor, 300 ohms ± 10%	Tripler Plate Filter	IRC BW-1	
†R158	3Z6005-9	Resistor, 50 ohms ± 10% with L122	Power Amplifier Grid Anti-Sing	IRC P-1/2 Per drawing	ESO-680330-2
†R159	3Z4608	Resistor, 100,000 ohms ± 10%	Doubler Screen Shunt	IRC BT-1	
†R160	3Z5366A7	Resistor, 2 in., 667 ohms ± 10%	High Voltage Reducing	W-L Type A	
†R161	3Z6630-8	Resistor, 30,000 ohms ± 10%	Amplifier Grid	IRC BT-1	
†R162	3Z6700-12	Resistor, 100,000 ohms ± 10%	Oscillator Plate	IRC BT-2	
†R163	3Z6700-12	Resistor, 100,000 ohms ± 10%	Oscillator Plate	IRC BT-2	
†P101	2Z288-3	Potentiometer, 50,000 ohms	Sidestone Control	IRC Type CP Per drawing	ESO-680243-6
†L101	206494/C8	Coil, 3 millihenries, duolateral	First R-F Plate Choke	WE Per drawing	ESO-680243-3
†L102	206494/C9	Coil, 1 millihenry, duolateral	Oscillator Plate	WE Per drawing	ESO-680243-4
†L103A	206530-684A/C10	Coil, 0.38 millihenry, duolateral	First R-F Plate Tuning	WE Per drawing	ESO-690077-2
†L104	206494/C11	Retardation coil (SC-1003)	Modulation	WE D-164820	
†L105A	206530-684A/C12	Coil, 0.38 millihenry, duolateral	Second Audio R-F Choke	WE Per drawing	ESO-690077-3

*Modification during manufacture; see Paragraph 43.
†Available in depot stock.

†LL06	206530-684A/C13	Coil, close-wound solenoid	Tripler Plate Tuning	WE Per drawing	ESO-684453-1
†LL07	206530-684A/C13	Coil, close-wound solenoid	Doubler Grid Tuning	WE Per drawing	ESO-684453-1
†LL08	206530-684A/C14	Coil, close-wound solenoid	Doubler Plate Tuning	WE Per drawing	ESO-684453-2
†LL10	206530-684A/C15	Coil, space-wound solenoid	Amplifier Output Tuning	WE Per drawing	ESO-684455-1
†LL11	206530-684A/C15	Coil, space-wound solenoid	Antenna Coupling	WE Per drawing	ESO-684455-1
†LL17	206494A/C16	Coil, wound on R149	Oscillator Grid Anti-Sing	WE Per drawing	ESO-680330-2
†LL18	206530-684A/C17	Coil, close-wound solenoid	Tripler Grid Tuning	WE Per drawing	ESO-684453-3
†LL19	206530-684A/C17	Coil, close-wound solenoid	Rectifier Plate Tuning	WE Per drawing	ESO-684453-3
†LL20	206530-684A/C1	Coil, Z1 choke	Power Amplifier Plate Choke	Ohmite	
†LL21	206530-684A/C1	Coil, Z1 choke	Power Amplifier Grid Choke	Ohmite	
†LL22	206494A/C16	Coil, wound on R158	Power Amplifier Grid Anti-Sing	WE Per drawing	ESO-680330-2
†TL01	206494A/T2	Audio input transformer (SI-1005)	Microphone Input	WE	KS-8715
†TL02	206494A/T3	Audio output transformer (SO-1006)	Audio Output	WE	KS-8716
†SL01	206494A/R2	Relay (coil resistance, 44 ohms ± 5%)	Antenna Switching	Allied Per drawing	ESO-681226-1
†SL02	206494A/R3	Relay (coil resistance, 77 ohms; min. 73 ohms, max. 84 ohms)	Dynamotor Starting	Allied Per drawing	ESO-680329-1
†SL03	206494A/R5	Relay (coil resistance, 90 ohms)	Receiver Disabling	Allied Per drawing	ESO-677080-3
†DL10 to DL10 incl.	—	Switch (SPST), part of push-button tuner assembly	Quartz Plate Selector		
†DL11 to DL20 incl.	—	Switch (SPST), part of push-button tuner assembly	Antenna Capacitor Selector		
†DL21	206494A/S3	Toggle switch (DPDT)	Panel Meter	H&H Per drawing	ESO-676800-10
†DL22	206494A/S3	Toggle switch (DPDT)	Receiver Tune	H&H Per drawing	ESO-676800-10
†DL24	206494A/S4	Toggle switch (DPST)	Power Supply	H&H Per drawing	ESO-676800-21
†DL25	206494A/S5	Switch, with slotted shaft 1/2 in. long	Circuit Test	Mallory Type 3226J	ESO-680330-3

† Available in depot stock.
‡ See tuner assembly, page 177.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
b. Radio Transmitter BC-684-A (continued).					
†F101	3Z2595-3	Fuse, 1/2 ampere	High Voltage	Littel Type 4AG	
†FM101	3Z3282	Fuse post	Fuse Holder	Littel Catalog No. 1212	
†FM102	3Z3282	Fuse post	Spare Fuse Holder	Littel Catalog No. 1212	
†J101	2C6494A/R1	Jack, 4-contact connector	Dynamic Microphone	Amphenol Per drawing	ESO-680353-3
†J102	2Z5575	Jack, with nickel-plated sleeve	Carbon Microphone	WE 249B	
†PG103	2C6494A/P2	Plug, 1/16, eight-contact plug	Dynamotor Plug	Jones P-408-AB	
†PG104	2C6949A/P2	Plug, 1/16, eight-contact plug	Dynamotor	Jones P-408-AB	
†E101	2Z5896	Lamp bulb, 28 volts, 0.17 ampere	Pilot Light	GE Mazda T 1-3/4 651 Base	ESO-680243-7
†ES101	2Z5990-2	Lamp mounting	Socket for Pilot Lamp	Drake Per drawing	ESO-680243-5
†M101	3F891-7	Meter	Tuning and Antenna Current	Weston Model No. 507 Per drawing	ESO-680241-1
†TC101	3F910-7/1	Thermocouple, 120 ma. radio frequency	Antenna Current	Weston Per drawing	ESO-680241-7
†TP101	2Z9183	Thermostat	Oven Control	Spencer Per drawing	ESO-680302-7
†PG101	2C6494A/P1	Plug	External Connections	Cannon Per drawing	ESO-677409-19
†V101	2T164	Vacuum tube, VT-164	First R-F Amplifier	RCA (1619)	
†V102	2T164	Vacuum tube, VT-164	R-F Rectifier	RCA (1619)	
†V103	2T164	Vacuum tube, VT-164	Doubler	RCA (1619)	

†Available in depot stock.
‡Spare tubes furnished as separate item on contact.

†V104	2T165	Vacuum tube, VT-165	Power Amplifier	RCA (1624)	
†V105	2T164	Vacuum tube, VT-164	First Audio Amplifier	RCA (1619)	
†V106	2T164	Vacuum tube, VT-164	Second Audio Amplifier	RCA (1619)	
†V107	2T164	Vacuum tube, VT-164	Oscillator	RCA (1619)	
†V108	2T164	Vacuum tube, VT-164	Tripler	RCA (1619)	
†VS101, VS102, VS103, VS105, VS106, VS107, and VS108	2C4403A/S1	Socket	Socket	United Per drawing	ESL-678315-3
†VS104	2Z8711	Socket, Isolantite, 5-prong	Socket	National Type CIR-5	
†	2C6494A/S6	Push-button tuner assembly (includes D101-D120 incl., C125, C126, C127-C136 incl., and capacitor assembly consisting of C106, C113, C115, C119, C152, C156, C114, C116, C120, C153, and C157)	Tuning	WE	KS-10098
†	2C6494/S/2	Locking assembly, part of push-button tuner assembly, consisting of:	Tuning	WE	
		Retainer yoke assembly			ES0-684055-1
		Cam			ES0-684056-2
		Yoke lock screw			ES0-684054-5
		Cam yoke			ES0-684056-1
		1/4-28 (NC3) hex. nut 3/8 in. across flats x 3/16 in. (steel-zinc plate)			
		1/4-28 (NC3) hex. nut 3/8 in. across flats x 3/32 in. (steel-zinc plate)			
†	2C4403A/S5/1	Push button, part of push-button tuner assembly	Tuning	WE	KS-10098
†	2C6494/G1	Front panel guard	Front Panel Protection	WE	ES0-678593-2
†	2C4403/B1	Binding post A	Antenna Connection	WE	ES0-678764-16
				Per drawing	

†Available in depo. stock.
‡Spare tubes furnished as separate item on contract.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr's. Code and Type Number	Contractor's Drawing Number
†	206494B2	Binding post G	Ground Connection	WE Per drawing	ESO-678764-19
†	206494B9	Hold-down screw (incl. hold-down cup and spring)	Securing Radio Transmitter	WE Per drawing	ESO-678634-1
†	206494A13	Hold-down spacer	Securing Radio Transmitter	WE Per drawing	ESO-678634-5
†	206494A22	Cable assembly	Coaxial Cable from P101 to Binding Post A and S101	WE Per drawing	ESO-680502-2
†	206494A23	Cable assembly	Coaxial Cable from S101 to Binding Post A	WE Per drawing	ESO-680341-18
†	206494A11	Handle	Handle	WE Per drawing	ESO-678672-7
†	206530-6A/P3	Mounting plate	Resistor and Capacitor Mounting	WE Per drawing	ESO-688838-3
†	206530-6A/P4	Mounting plate	Mounting R114 and R116	WE Per drawing	ESO-690077-4
†	206530-6A/P5	Mounting plate	Mounting R112	WE Per drawing	ESO-686543-1
†	206494A/P5	Mounting plate	Mounting R110 and R143	WE Per drawing	ESO-680240-6
†	206494A/P7	Plate	Cover Plate (D111-D120 incl.)	WE Per drawing	ESO-680273-1
†	206494A/C24	Cover	Crystal Compartment Cover	WE Per drawing	ESO-680303-1
†	206494A/C25	Cover	Bottom Cover	WE Per drawing	ESO-680262-1
†	206530-684A/C1	Cover	Top Cover	WE Per drawing	ESO-679429-2
†	206494A/C27	Cover	Back Cover	WE Per drawing	ESO-680274-1
†	206494A/S10	Crystal socket strip	Sockets	WE Per drawing	ESO-680301-2
†	206494A/F1	Fastener	Crystal Drawer	Dzus	
†	206494A/F2	Fastener	Top, Bottom, and Back Cover	Dzus	

†Available in depot stock.

†	2C6494A/S11	Tube lock spacer assembly	Spacer	WE Per drawing	ESO-678634-8
†	2C6494A/C30	Tube clamp	Tube Clamp	WE Per drawing	ESO-680506-3
†	2C6530-684A/C29	Crystal drawer assembly	Crystal Storage	WE Per drawing	ESO-680270-1
†	2C6494A/P1/1	Mounting screw	Mounting PG101	WE Per drawing	ESO-680506-5
†	2C6494A/J2	Insulator	Crystal Socket Stud (short insulator)	WE Per drawing	ESO-606323-5
†	2C6494A/J3	Insulator	Crystal Socket Stud (long insulator)	WE Per drawing	ESO-606323-9
†	2C6494A/J4	Insulator	Antenna Binding Post	WE Per drawing	ESO-678721-6
†	2C6494A/J5	Insulator	Ground Binding Post	WE Per drawing	ESO-680241-2
†	2C6494A/C32	Cable clamp	Securing Cabled Wiring	Diamond No. 6	
†	2C6494A/C30	Clamp assembly	Tube Clamp Assembly	WE Per drawing	ESO-680506-3
†	2C6494A/C31	Plate connector	Plate of V104	WE Per drawing	ESO-681367-1
†	2C6494A/S12	Spring	Crystal Drawer	WE Per drawing	ESO-680263-1
†	2C6494A/B3	Brass plug button		United 48161	
†	2S508/H1	Hardware for Radio Transmitter BC-684-A			
†	2S508/1	Wire for Radio Transmitter BC-684-A			KS-8640
	c. Crystal Units.		Frequency Control	WE	ESO-680100

D-150249 crystal units
U.S. Signal Corps Holders FT-241-A,
for channels 270-389 in the 27.0 to
38.9-mc range

† Available in depot stock.

<u>Reference Number</u>	<u>Signal Corps Stock Number</u>	<u>Name and Description of Part</u>	<u>Function</u>	<u>Mfr's. Code and Type Number</u>	<u>Contractor's Drawing Number</u>
d. <u>Mounting FT-237-(*)</u> .					
† C401	2Z6721-237D	Mounting FT-237-(*)			
	3D9100-20	Capacitor, 0.0001 µf, 500 volts dc	Radio Receiver Transmission-Line Compensator	C-D Type 5W	
† J401	2Z6721-237A/R1	Receptacle	Radio Receiver A Connection	Cannon Per drawing	ESO-677409-8
† J402	2Z6721-237A/R1	Receptacle	Radio Receiver B Connection	Cannon Per drawing	ESO-677409-8
† J403	2Z6721-237A/R2	Receptacle	Transmitter Connection	Cannon Per drawing	ESO-677409-7
† J404	2Z6721-237A/T2	Terminal	Transmitter Antenna	WE Per drawing	ESO-678764-17
† J405	2Z6721-237A/T1	Terminal	Radio Receiver Antenna	WE Per drawing	ESO-678764-18
†	2Z1480	Button	Cover for Unused Cable Openings	United No. 48157	
†	2Z8500	Vibro-insulator shock mounting	Shock Absorber	USR Per drawing	ESO-680179-1
† F401	3Z2166B	Fuse, 75 amperes	Battery Fuse	WE 66B	
† FW401	2Z6721-237A/P1	Fuse mounting (part of plate assembly) (incl. TS401)	Mounting Plate	WE Per drawing	ESO-680163-1
† TS401	2Z6721-237A/P1	Terminal strip (part of plate assembly) (incl. FW401)	Mounting Plate	WE Per drawing	ESO-680163-1
	2Z9014	Ground Strap	Flexible Grounding Strap	WE Per drawing	ESO-680165-3
†	2C6494A/J4	Insulator	Antenna Binding Post Bushings	WE Per drawing	ESO-678721-6
	6L4905-9.24Z	Mounting screw, 5/16-24x9/16 hex. head-iron cap mounting screw	Securing Mounting to Vehicle		
	6L4905-22.24Z	Mounting screw, 5/16-24x1-3/8 hex. head-iron cap mounting screw	Securing Mounting to Vehicle		
	6L3505-24	Mounting nut, 5/16-24 elastic stop mounting nut	Securing Mounting to Vehicle		

† Available in depot stock.

614905-12.24Z	5/16-24x3/4 hex. head-iron cap mounting screw	Securing Mounting to Vehicle	
6171005	5/16x9/64x5/64 steel nontangling spring lock washer	Securing Mounting to Vehicle	
2Z6600	Cable clamp	Cable Clamp	Zierick No. 79
3E2278	Signal Corps Cord CO-278 (8 feet long)	Battery Connections	ES0-680504-1
2Z6721-237A/C1	Cover	Covers for Unused Receptacles	WE Per drawing ES0-684051-1
2Z6721-237A/C5	Coaxial cable	Long Coaxial Cable	WE Per drawing ES0-680341-5
2Z6721-237A/C6	Coaxial cable	Short Coaxial Cable	WE Per drawing ES0-680341-6
2Z6721-237A/C2	Cover	Cover for Connector Assembly	WE Per drawing ES0-678721-5
2Z6721-237A/C11	Connector assembly	T-Shaped Connector	WE Per drawing ES0-678721-4
2Z6721-237A/C12	Connector assembly	L-Shaped Connector	WE Per drawing ES0-680341-10
2Z6721-237A/R3	Rear guide and fastener		WE
2Z6721-237A/F2	Front fastener		WE
2Z6721-237A/C7	Clamp	Dual Cable Clamp	WE Per drawing ES0-680164-4
2Z6721-237A/C8	Clamp	Interphone Cable	WE Per drawing ES0-680164-8
2Z6721-237A/C9	Clamp	Cabled Wiring Clamp	WE Per drawing ES0-680165-2
2Z6721-237A/C3	Cover	Rear Cover	WE Per drawing ES0-680159-1
2Z6721-237A/C4	Cover	End Cover	WE Per drawing ES0-680159-3A
2Z6721-237A/F1	Fastener	Door	Dzus

e. Remote Control Unit RM-29-D.

For the Table of Replaceable Parts for this unit, see Technical Manual TM 11-308.

† Available in depot stock.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
f. Dynamotor DM-35-(*) (Transmitter; 12-Volt).					
†MG501	3H1635D	Dynamotor	High-Voltage Supply, with jack to Make 12-Volt Circuit Changes	WE Per drawing	KS-5581, List 1
C501	3D9300-2	Capacitor, 0.003 μf, 800 volts dc	R-F By-pass	C-D Type LWP	
*†C501	3DA3-7	Capacitor, 0.002 μf, 800 volts dc	R-F By-pass	C-D Type LWP	
C502	3D9300-2	Capacitor, 0.003 μf, 800 volts dc	R-F By-pass	C-D Type LWP	
*†C502	3DA3-7	Capacitor, 0.002 μf, 800 volts dc	R-F By-pass	C-D Type LWP	
†J501	3H1635A/R1	Receptacle	Dynamotor Connection and 12-Volt Circuit Changes	Jones SS-8-AB	
†J502	3H1635A/R1	Receptacle		Jones SS-8-AB	
†	3H1635A/B4	Low-voltage dynamotor brushes	Dynamotor Input	WE	Parts of KS-5581, List 1, Item 3
†	3H1635A/B5	High-voltage dynamotor brushes	Dynamotor Output	WE	
†	3H1635A/A1	Dynamotor armature and bearings		WE	
†	3H1635A/B2	Dynamotor bearings		WE	
†	3H1635A/E27	End bell		WE Per drawing	
†	3H1635A/S1	Screw		WE Per drawing	KS-5581, List 1 Detail 4
†	66670	Lubricant, 1/2-lb. can		N.Y. & N.J. Type S-58	
†	6Z4919	Rubber grommets			

*Modification during manufacture; see Paragraph 43.
 †Available in depot stock.
 ‡These parts formerly furnished as spares. Present spare parts list calls for complete dynamotor unit as a spare instead of these parts.

g. Dynamotor DM-37-(*) (Transmitter; 24-Volt) (not furnished on this order; listed for information only).

MG601	3H1637D	Dynamotor assembly	WE Per drawing	KS-5581, List 2
C601	3D9300-2	Capacitor, 0.003 μ f, 800 volts dc	C-D Type LWP	
*C601	3DA3-7	Capacitor, 0.002 μ f, 800 volts dc	C-D Type LWP	
C602	3D9300-2	Capacitor, 0.003 μ f, 800 volts dc	C-D Type LWP	
*C602	3DA3-7	Capacitor, 0.002 μ f, 800 volts dc	C-D Type LWP	
J601	3H1635A/R1	Receptacle	Jones SS-8-AB	
J602	3H1635A/R1	Receptacle	Jones SS-8-AB	
†	3H1637A/B4	Low-voltage dynamotor brushes	WE	Parts of KS-5581, List 2, Item 4
†	3H1635A/B5	High-voltage dynamotor brushes	WE	
†	3H1637A/A1	Dynamotor armature and bearings	WE	
†	3H1637A/B2	Dynamotor bearings	WE	
	3H1637A/B27	End bell	WE Per drawing	KS-5581, List 2, Detail 4
	3H1635A/S1	Screw	WE Per drawing	
	6G670	Lubricant, 1/2-lb. can	N.Y. & N.J. Type S-58	
	6Z4919	Rubber grommets		

h. Dynamotor DM-34-(*) (Receiver; 12-Volt).

†MG701	3H1634D	Dynamotor assembly	WE Per drawing	KS-5582, List 1
C701	3DA5-13	Capacitor, 0.005 μ f, 800 volts dc	C-D Type 3WP	

*Modification during manufacture; see Paragraph 43.

†Available in depot stock.

‡These parts were formerly furnished as spares. The present spare parts list calls for a complete dynamotor unit as a spare instead of these parts.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr.'s. Code and Type Number	Contractor's Drawing Number
h. Dynamotor DM-34-(*) (Receiver; 12-Volt) (continued).					
*†C701	3DA3-24	Capacitor, 0.003 μf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
C702	3DA5-13	Capacitor, 0.005 μf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*†C702	3DA3-24	Capacitor, 0.003 μf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
C703	3DA5-13	Capacitor, 0.005 μf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*†C703	3DA3-23	Capacitor, 0.003 μf, 500 volts dc	R-F By-pass	C-D Type 3W	
C704	3DA5-13	Capacitor, 0.005 μf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*†C704	3DA3-23	Capacitor, 0.003 μf, 500 volts dc	R-F By-pass	C-D Type 3W	
C705	3DA5-13	Capacitor, 0.005 μf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*†C705	3DA3-24	Capacitor, 0.003 μf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
C706	3DA5-13	Capacitor, 0.005 μf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*†C706	3DA3-24	Capacitor, 0.003 μf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
†L701	2C4403A/C8	Choke coil (SC-1004)	High-Voltage Filter	WE	
†L702	3H1634A/C1	Coil	Low-Voltage Filter	WE Per drawing	ESO-680352-2
†L703	3H1634A/C2	Coil	High-Voltage Filter	WE Per drawing	ESO-680352-3
†L704	3H1634A/C2	Coil	Low-Voltage Filter	WE Per drawing	ESO-680352-3
†J701	3H1634A/R1	Receptacle	Dynamotor Connection and 12-Volt Circuit Changes	Jones S-318-AB	

*Modification during manufacture; see Paragraph 4j.
†Available in depot stock.

†	3H1634A/B4	Low-voltage dynamotor brushes	Dynamotor Input	WE	Parts of KS-5582, List 1, Item 1, Fig. 2
†	3H1634A/B5	High-voltage dynamotor brushes	Dynamotor Output	WE	
†	3H1634A/A1	Dynamotor armature and bearings		WE	
†	3H1634A/B2	Dynamotor bearings		WE	
†	3H1634A/E27	End bell		Per drawing	
†	3H1634A/S1	Screw		WE	KS-5582, List 1, Detail 3
†	6G670	Lubricant, 1-1/2 lb. can		Per drawing	

1. <u>Dynamotor DM-36-(*) (Receiver; 24-Volt)</u> (not furnished on this order; listed for information only).					
MG801	3H1636D	Dynamotor assembly	High-Voltage Supply, with Jack to Make 24-Volt Circuit Changes	WE	KS-5582, List 2 Per drawing
C801	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C801	3DA3-24	Capacitor, 0.003 µf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
C802	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C802	3DA3-24	Capacitor, 0.003 µf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
C803	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C803	3DA3-23	Capacitor, 0.003 µf, 500 volts dc	R-F By-pass	C-D Type 3W	
C804	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C804	3DA3-23	Capacitor, 0.003 µf, 500 volts dc	R-F By-pass	C-D Type 3W	
C805	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C805	3DA3-24	Capacitor, 0.003 µf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	

*Modification during manufacture; see Paragraph 43.
 †Available in depot stock.
 ‡These parts were formerly furnished as spares. The present spare parts list calls for a complete dynamotor unit as a spare instead of these parts.

Reference Number	Signal Corps Stock Number	Name and Description of Part	Function	Mfr's. Code and Type Number	Contractor's Drawing Number
1. Dynamotor DM-36-(*) (Receiver; 24-Volt) (continued).					
C806	3DA5-13	Capacitor, 0.005 µf, 800 volts dc	R-F By-pass	C-D Type 3WP	
*C806	3DA3-24	Capacitor, 0.003 µf, 1,000 volts dc	R-F By-pass	C-D Type 3WP	
L801	2C4403A/C8	Choke coil (SC-1004)	High-Voltage Filter	WE	
L802	3H1634A/C1	Coil	Low-Voltage Filter	WE Per drawing	ESO-680352-2
L803	3H1634A/C2	Coil	High-Voltage Filter	WE Per drawing	ESO-680342-3
L804	3H1634A/C2	Coil	Low-Voltage Filter	WE Per drawing	ESO-680352-3
J801	3H1634A/R1	Receptacle	Dynamotor Connection and 24-Volt Circuit Changes	Jones S-318-AB	
	3H1636A/B4	Low-voltage dynamotor brushes	Dynamotor Input	WE	Parts of KS-5582, List 2, Item 2, Fig. 2
	3H1634A/B5	High-voltage dynamotor brushes	Dynamotor Output	WE	
†	3H1636A/A1	Dynamotor armature and bearings		WE	
†	3H1636A/B2	Dynamotor bearings		WE	
†	3H1636A/E27	End bell		WE Per drawing	
	3H1634A/S1	Screw		WE	KS-5582, List 2, Detail 3
	60670	Lubricant, 1/2-lb. can		Per drawing	

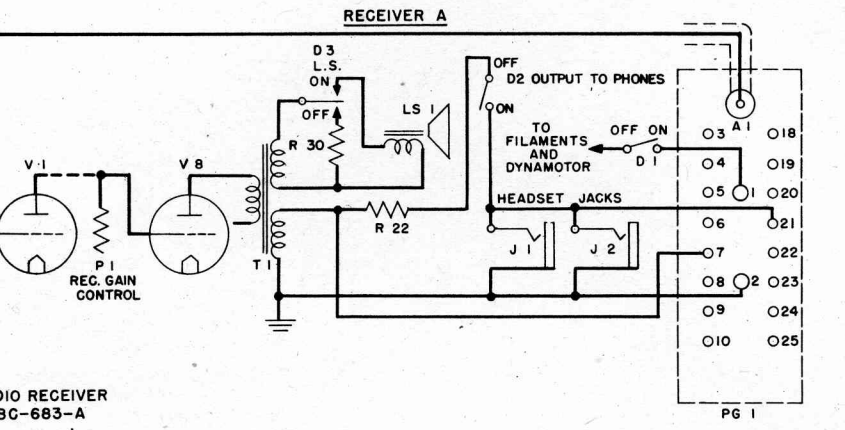
N.Y. & N.J.
Type S-58

*Modification during manufacture; see Paragraph 43.
†These parts were formerly furnished as spares. The present spare parts list calls for a complete dynamotor unit as a spare instead of these parts.

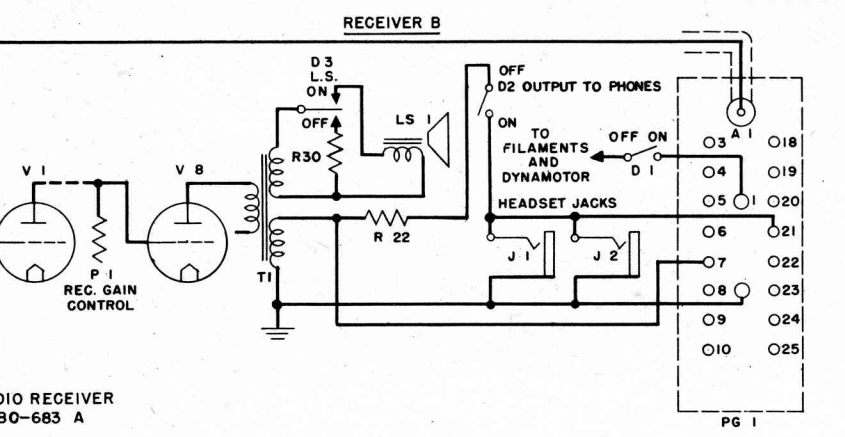
j. List of Manufacturers (Table IX).

<u>Mfr's. Code</u>	<u>Name</u>	<u>Address</u>
A-B	Allen-Bradley Co.	136 West Greenfield Avenue, Milwaukee, Wis.
Allied	Allied Control Co.	227 Fulton Street, New York, N.Y.
Amphenol	American Phenolic Corporation	1250 Van Buren Street, Chicago, Ill.
Cannon	Cannon Electric Development Co.	420 West Avenue 33, Los Angeles, Calif.
C-D	Cornell-Dubilier Electric Corp.	South Plainfield, N.J.
Diamond	Diamond Expansion Bolt Co.	Garwood, N.J.
Drake	Drake Manufacturing Co.	1713 West Hubbard Street, Chicago, Ill.
Dzus	Dzus Fastener Co., Inc.	Babylon, N.Y.
Erie	Erie Resistor Corporation	Erie, Pa.
G.E.	General Electric Co.	Schenectady, N.Y.
H&H	Arrow-Hart & Hegeman Electric Co.	Hartford, Conn.
IRC	International Resistance Co.	403 North Broad Street, Philadelphia, Pa.
Isolanlite	Isolanlite, Incorporated	233 Broadway, New York, N.Y.
Jensen	Jensen Radio Manufacturing Co.	6601 South Laramie Avenue, Chicago, Ill.
Jones	Howard B. Jones	2300 Wabansia Avenue, Chicago, Ill.
Littel	Littelfuse, Inc.	4757 Ravenswood Avenue, Chicago, Ill.
Mallory	P. R. Mallory & Co., Inc.	Indianapolis, Ind.
Muter	Muter Company	1255 South Michigan Avenue, Chicago, Ill.
National	National Company	Malden, Mass.
N.Y. & N.J.	New York and New Jersey Lubricant Co.	300 Delancey Street, Newark, N.J.
Oak	Oak Manufacturing Co.	1260 Clybourn Avenue, Chicago, Ill.
Ohmite	Ohmite Manufacturing Co.	4837 Flournoy Street, Chicago, Ill.
RCA	RCA Manufacturing Co., Inc.	Harrison, N.J.
Spencer	Spencer Thermostat Co.	Attleboro, Mass.
United	United-Carr Fastener Corp.	Cambridge, Mass.
USR	United States Rubber Co.	191 Hudson Street, New York, N.Y.
WE	Western Electric Co., Inc.	120 Broadway, New York, N.Y.
W-L	Ward-Leonard Electric Corp.	32 South Street, Mount Vernon, N.Y.
Weston	Weston Electrical Instrument Corp.	618 Freylinghuysen Avenue, Newark, N.J.
Zierick	Zierick Manufacturing Co.	385 Gerard Avenue, New York, N.Y.

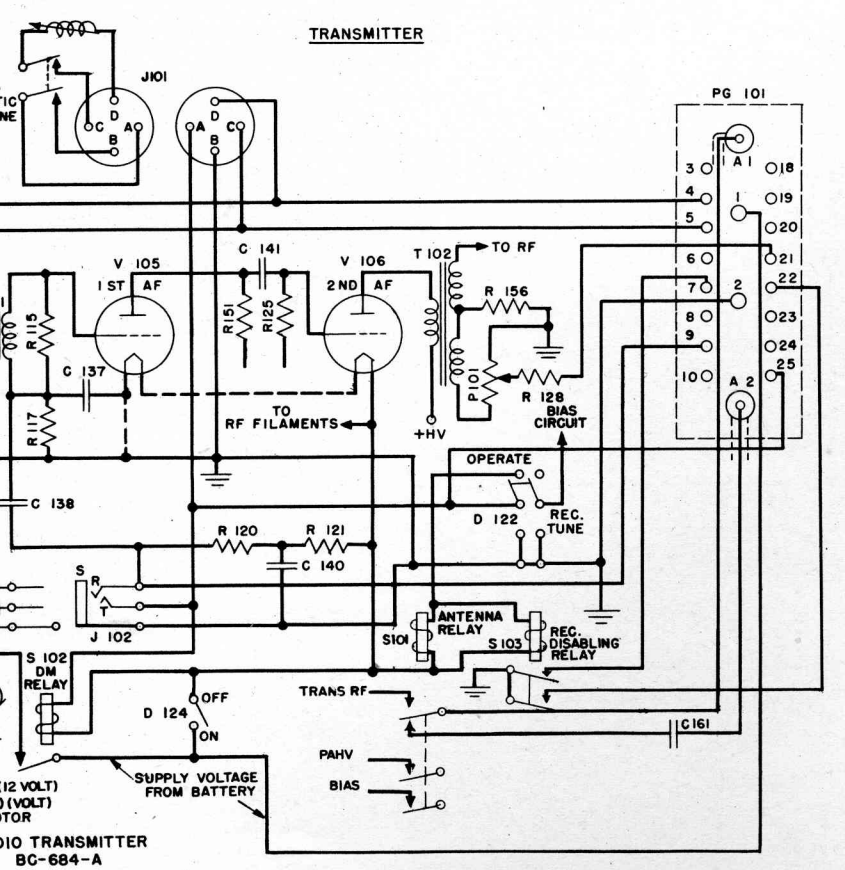
"6020 - Phila. - 45 - 02 - 7482 - Dec. - 44."



RADIO RECEIVER
BC-683-A



RADIO RECEIVER
BC-683 A



RADIO TRANSMITTER
BC-684-A

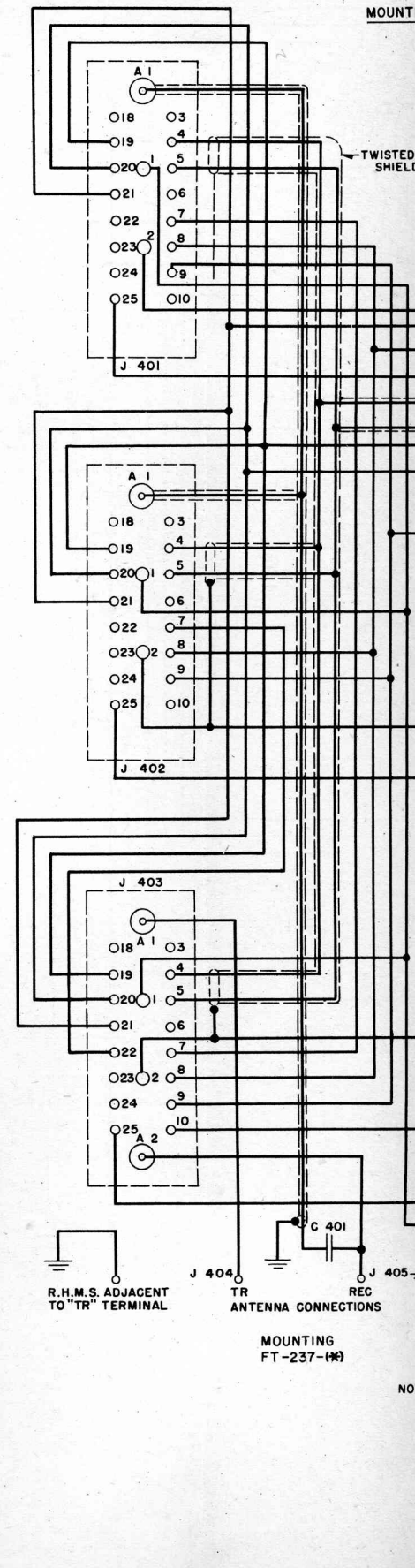
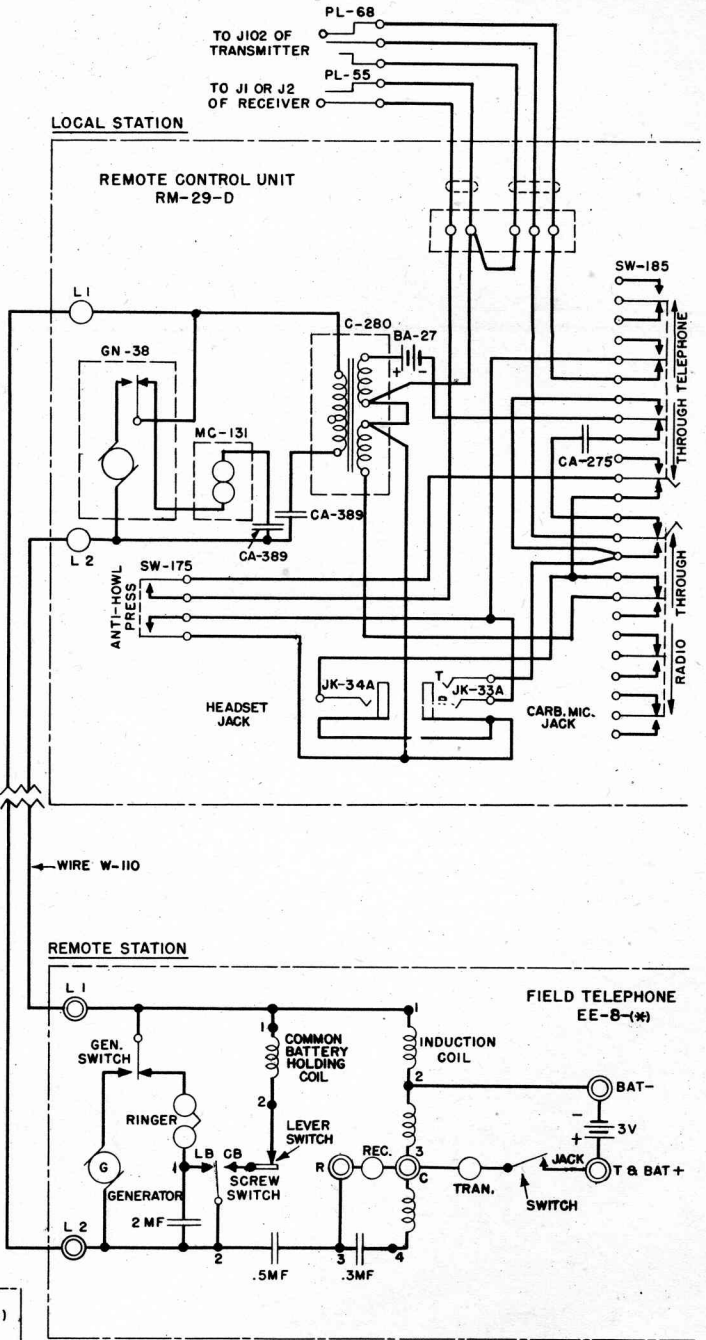
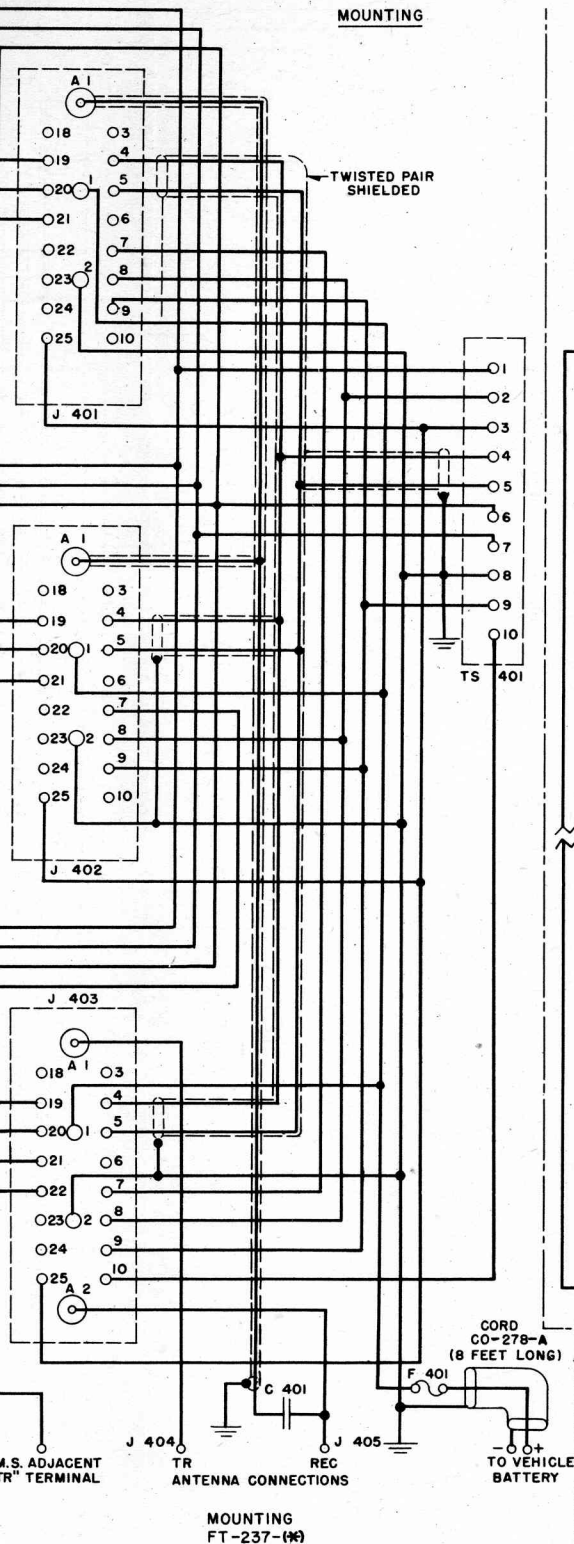
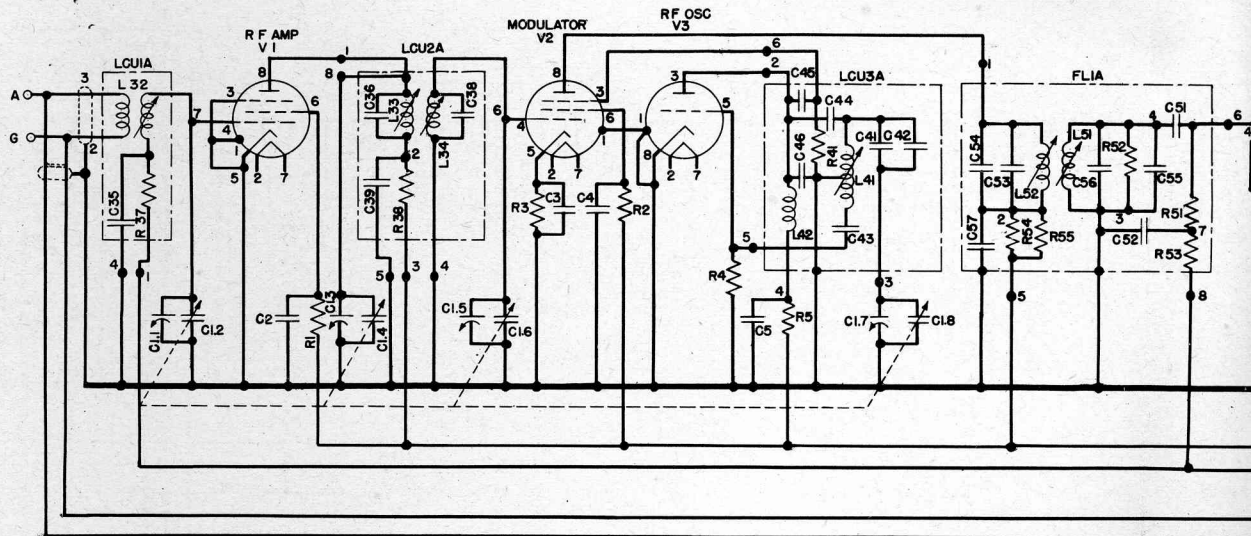


Fig. 69. Radio Set SCR-608-A: System Schematic Diagram



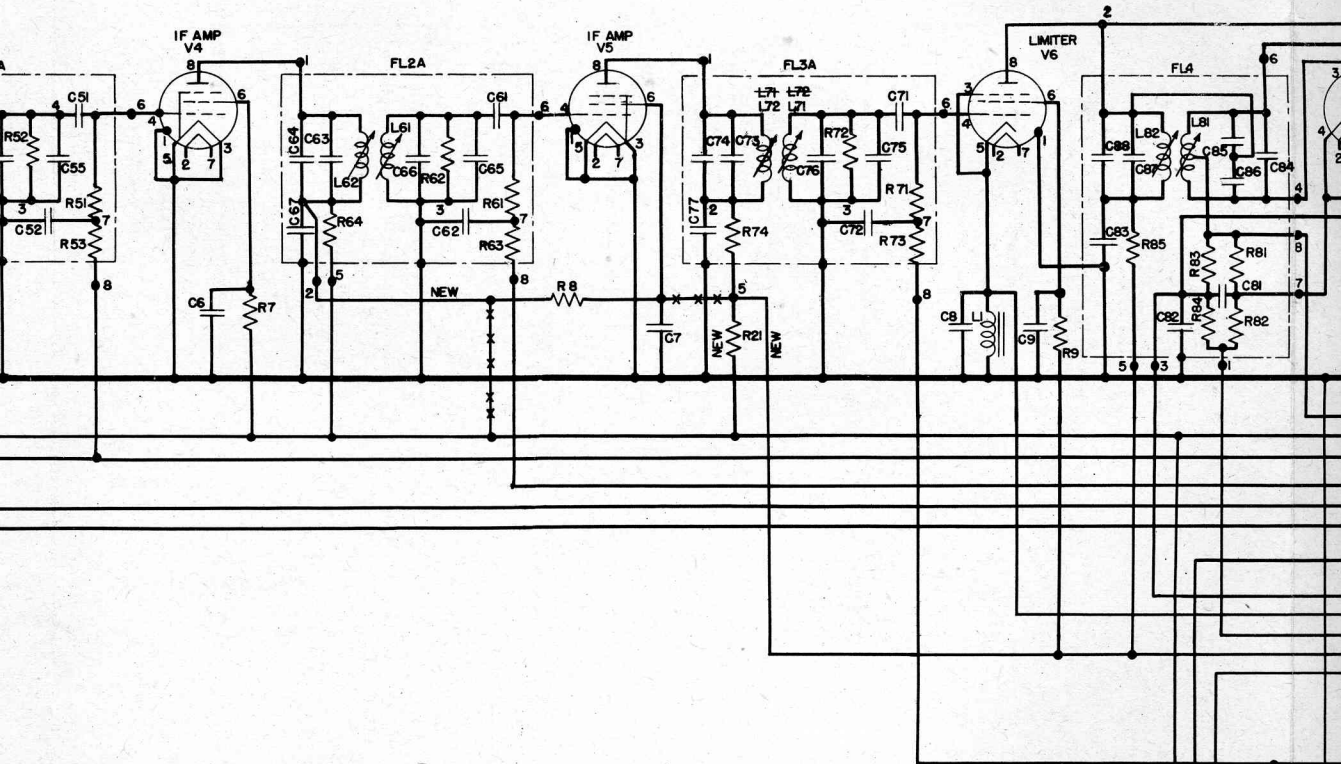
NOTES:
 1. RADIO SET SCR-628-A TO BE SAME AS SHOWN EXCEPT ONLY ONE RADIO RECEIVER BC-683-A IS USED.



APPARATUS LEGEND

CAPACITORS				COILS		PLUGS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
C 11	16 UUF MAX	C 57	0.006 UF 300 V	C 804	-0.005 0.003 UF 800V	PG 1	RECEIVER PLUG
C 13	16 UUF MAX	C 61	100 UUF 500 V	C 805	-0.005 0.003 UF 800V	PG 2	DYNAMOTOR PLUG
C 15	16 UUF MAX	C 62	0.001 UF 500 V	C 806	-0.005 0.003 UF 800V	PG 3	FRONT PANEL PLUG
C 17	16 UUF MAX	C 63	50 UUF	POTENTIOMETERS			
C 12	62 UUF MAX	C 64	10 UUF SEE NOTE 2	P 1	100,000 Ω		
C 14	62 UUF MAX	C 65	10 UUF	P 2	200 Ω		
C 16	62 UUF MAX	C 66	50 UUF SEE NOTE 2	RESISTORS			
C 18	62 UUF MAX	C 67	0.006 UF 300 V	R 1	20,000 Ω 1/2W		
C 2	0.006 UF 300 V	C 71	100 50 UUF 500V	R 2	250,000 Ω 1/2W		
C 3	0.006 UF 300 V	C 72	0.001 UF 500 V	R 3	500 Ω 1/2W		
C 4	0.006 UF 300 V	C 73	50 UUF 60 UUF 500 V	R 4	50,000 Ω 1/2W		
C 5	0.006 UF 300 V	C 74	10 UUF SEE NOTE 2	R 5	5,000 Ω 1/2W		
C 6	0.006 UF 300 V	C 75	10 UUF 60 UUF 500 V	R 6	100,000 Ω 1/2W		
C 7	0.006 UF 300 V	C 76	50 UUF SEE NOTE 2	R 7	30,000 Ω 1 W		
C 8	500 UUF 500 V	C 77	0.006 UF 300 V	R 8	40,000-70,000 Ω 1/2W		
C 9	0.006 UF 300 V	C 81	250 UUF 500 V	R 9	1,000 Ω 1/2W		
C 10	0.75 UUF 500 V	C 82	-0.01 0.006 UF 300 V	R 10	250,000 Ω 1/2W		
C 11	-0.01 0.006 UF 300V	C 83	0.006 UF 300 V	R 11	1,000,000 Ω 1/2W		
C 12	0.01 UF 300 V	C 84	5 UUF 500V SEE NOTE 1	R 12	2,000 Ω 1/2W		
C 13	500 UUF 500 V	C 85	50 UUF OR 60 UUF 500 V SEE	R 13	10,000 Ω 1/2W		
C 14	0.006 UF 300 V	C 86	50 UUF OR 60 UUF 500 V NOTE 2	R 14	250,000 Ω 1/2W		
C 15	0.5 UF 600 V	C 87	25 UUF	R 15	1,000,000 Ω 1/2W		
C 16	2 UF 600 V	C 88	10 UUF SEE NOTE 2	R 16	1,000,000 Ω 1/2W		
C 17	0.01 UF 300 V	C 89	10 UUF	R 17	100,000 Ω 1/2W		
C 18	0.01 UF 300 V	C 91	50 UUF 500 V	R 18	100,000 Ω 1/2W		
C 19	0.002 UF 500 V	C 92	50 UUF 500 V	R 19	100,000 Ω 1/2W		
C 20.1	0.1 UF 600 V	C 93	100 UUF 500 V	R 20	300 Ω 1 W		
C 20.2	0.1 UF 600 V	C 94	50 UUF 500 V	R 21	30,000 Ω 2 W (ADDED)		
C 20.3	0.1 UF 600 V	CAPACITORS DYNAMOTOR DM-34-(R) 12 V		R 22	30,000 Ω 1/2W		
C 21	0.01 UF 300 V	C 701	-0.005 0.003 UF 800 V	R 23	5,000 Ω 1/2W		
C 22	0.005 UF 300V	C 702	-0.005 0.003 UF 800 V	R 24	50 Ω 1/2W		
C 23	40 UF 25 V	C 703	-0.005 0.003 UF 800 V	R 25	2,500 Ω 1/2W		
C 24	1 UF 600 V	C 704	-0.005 0.003 UF 800 V	R 26	1,200 Ω 1/2W		
C 25	2 UF 600 V	C 705	-0.005 0.003 UF 800 V	R 27	2,500 Ω 1/2W		
C 26	-0.001 0.0005 UF 500V	C 706	-0.005 0.003 UF 800 V	R 28	2,500 Ω 1/2W		
C 35	-0.01 0.006 UF 300V	CAPACITORS DYNAMOTOR DM-36-(R) 24 V		R 29	13,000 Ω 2 W		
C 36	10 UUF 500 V	C 801	-0.005 0.003 UF 800 V	R 30	5 Ω 4 W		
C 38	5 UUF 500 V	C 802	-0.005 0.003 UF 800 V	R 31	6,800 Ω 1 W		
C 39	0.006 UF 300 V	C 803	-0.005 0.003 UF 800 V	R 32	30,000 Ω 1/2W		
C 41	700 UUF 500 V	C 804	-0.005 0.003 UF 800 V	R 33	30,000 Ω 1/2W		
C 42	200 UUF 500 V	CAPACITORS DYNAMOTOR DM-34-(R) 12 V		R 37	250,000 Ω 1/2W		
C 43	100 UUF 500 V	C 801	-0.005 0.003 UF 800 V	R 38	1,000 Ω 1/2W		
C 44	30 UUF 500 V	C 802	-0.005 0.003 UF 800 V	R 41	100,000 Ω 1/2W		
C 45	100 UUF 500 V	C 803	-0.005 0.003 UF 800 V	R 51	100,000 Ω 1/2W		
C 46	20 UUF 500 V	C 804	-0.005 0.003 UF 800 V	R 52	43,000 Ω 1/2W		
C 51	0.001 UF 500 V	CAPACITORS DYNAMOTOR DM-36-(R) 24 V		R 53	100,000 Ω 1/2W		
C 52	0.001 UF 500 V	C 801	-0.005 0.003 UF 800 V				
C 53	50 UUF	C 802	-0.005 0.003 UF 800 V				
C 54	10 UUF SEE NOTE 2	C 803	-0.005 0.003 UF 800 V				
C 55	10 UUF	COILS DYNAMOTOR DM-34-(R) 12 V					
C 56	50 UUF SEE NOTE 2	COILS DYNAMOTOR DM-36-(R) 24 V					
				L 701	HV AF FILTER		
				L 702	LV RF FILTER		
				L 703	HV RF FILTER		
				L 704	HV RF FILTER		
				COILS DYNAMOTOR DM-34-(R) 12 V			
				L 801	HV AF FILTER		
				L 802	LV RF FILTER		
				L 803	HV RF FILTER		
				L 804	HV RF FILTER		
				COILS DYNAMOTOR DM-36-(R) 24 V			
				L 801	HV AF FILTER		
				L 802	LV RF FILTER		
				L 803	HV RF FILTER		
				L 804	HV RF FILTER		
				JACKS			
				J 1	PHONES		
				J 2	PHONES		
				J 3	FRONT PANEL JACK		
				J 701	DYNAMOTOR JACK		
				J 801	DYNAMOTOR JACK		

Fig. 70.



DESCRIPTION	SYMBOL	DESCRIPTION
RESISTORS		
RESISTOR PLUG	R 54	100,000 Ω 1/2 W
RESISTOR PLUG	R 55	100,000 Ω 1/2 W
PANEL PLUG	R 61	100,000 Ω 1/2 W
	R 62	43,000 Ω 1/2 W
	R 63	10,000 Ω 1/2 W
	R 64	1,000 Ω 1/2 W
	R 71	100,000 250,000 Ω 1/2 W
	R 72	43,000 30,000 Ω 1/2 W
	R 73	10,000 Ω 1/2 W
	R 74	100,000 1,000 Ω 1/2 W
	R 81	70,000 Ω 1/2 W
	R 82	250,000 Ω 1/2 W
	R 83	70,000 Ω 1/2 W
	R 84	250,000 Ω 1/2 W
	R 85	1,000 Ω 1/2 W
	R 91	100,000 Ω 1/2 W
	R 92	40,000 Ω 1/2 W
	R 93	40,000 Ω 1/2 W
SWITCHES		
	D 1	REC ON-OFF
	D 2	RADIO-B-EXT-EXT-ONLY- OUTPUT TO PHONES
	D 3	ON-OFF SPEAKER
	D 4	ON-OFF SQUELCH
	D 5	TUNE-OPERATE
VACUUM TUBES		
	V 1	VT-112 (6AC7)
	V 2	VT-112 (6AC7)
	V 3	VT-94 (6J5)
	V 4	VT-209 (12S67)
	V 5	VT-209 (12S67)
	V 6	VT-112 (6AC7)
	V 7	VT-90 (6H6)
	V 8	VT-107A (6V6GT)
	V 9	VT-229 (6SL7GT)
	V 10	VT-229 (6SL7GT)
MISCELLANEOUS		
	E 1	CALL SIGNAL (NEON)
	F 1	FUSE 15 AMP
	MG 701	12V DYNAMOTOR
	MG 801	24V DYNAMOTOR
	LS 1	LOUDSPEAKER
	T 1	OUTPUT TRANSFORMER

NOTES:

1. WHEN CAPACITORS C85 AND C86 ARE 60UUF, CAPACITOR C84 IS OMITTED. (OPTIONAL METHOD NOT SHOWN IN DIAGRAM.)
 2. TWO CAPACITORS REPLACED BY ONE HAVING A CAPACITY EQUAL TO THE TOTAL OF THE REPLACED TWO. (OPTIONAL METHOD NOT SHOWN IN DIAGRAM.)
- X ELIMINATED IN LATER UNITS.

PG 2

J 701

1 2 3 4

1 2 3 4

C703

C704

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

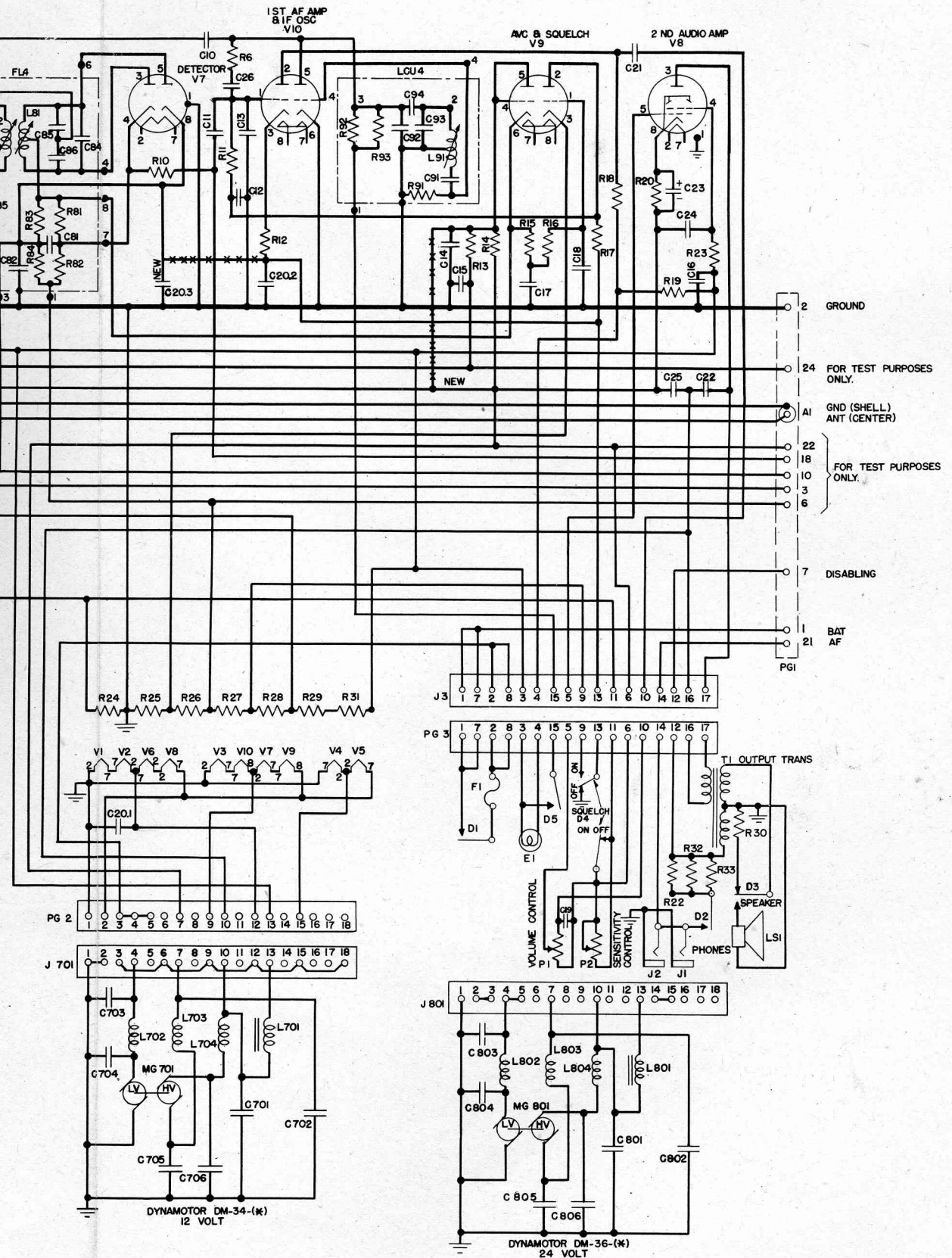
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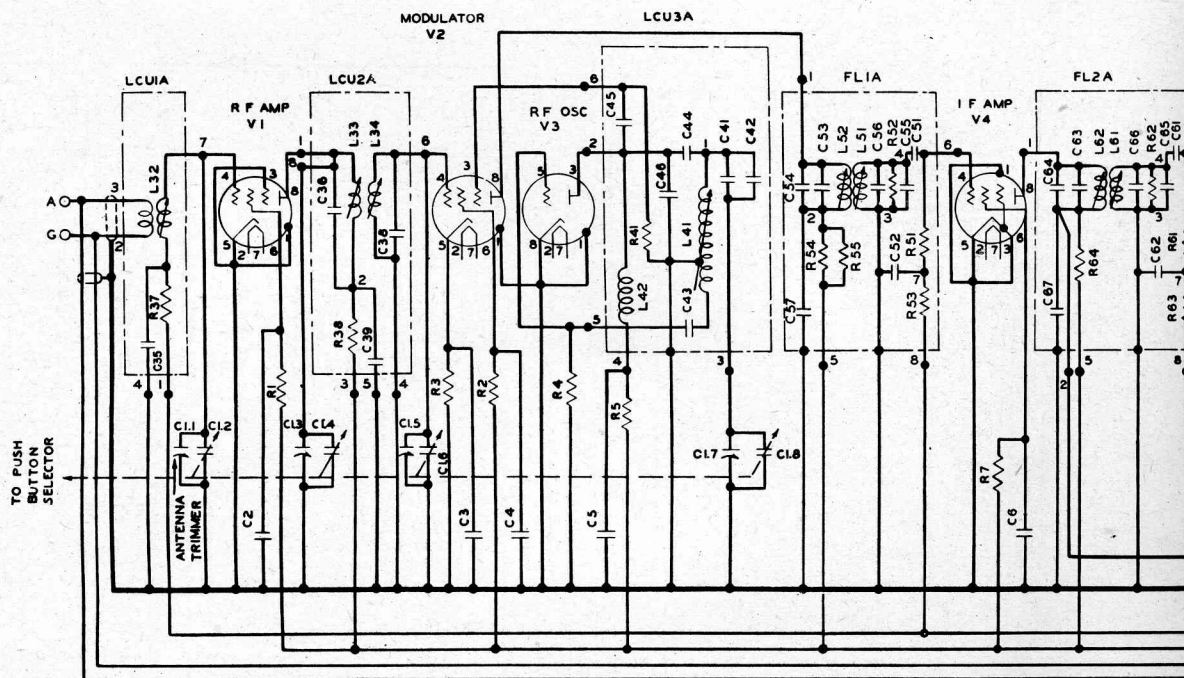
1 2 3 4

1 2 3 4

1 2 3 4

Fig. 70. Radio Receiver BC-683-A: Schematic Diagram Showing Modifications During Manufacture





RADIO RECEIVER BC-683-A

CAPACITORS

- C1.1 16 UUF MAX
- C1.3 16 UUF MAX
- C1.5 16 UUF MAX
- C1.7 16 UUF MAX
- C1.2 62 UUF MAX
- C1.4 62 UUF MAX
- C1.6 62 UUF MAX
- C1.8 62 UUF MAX
- C2 0.006 UF 300 V
- C3 0.006 UF 300 V
- C4 0.006 UF 300 V
- C5 0.006 UF 300 V
- C6 0.006 UF 300 V
- C7 0.006 UF 300 V
- C8 500 UUF 500 V
- C9 0.006 UF 300 V
- C10 0.75 UUF 500 V
- C11 0.006 UF 300 V
- C12 0.01 UF 300 V
- C13 500 UUF 500 V
- C14 0.006 UF 300 V
- C15 0.5 UF 600 V
- C16 2 UF 600 V
- C17 0.01 UF 300 V
- C18 0.01 UF 300 V
- C19 0.002 UF 500 V
- C20.1 0.1 UF 600 V
- C20.2 0.1 UF 600 V
- C20.3 0.1 UF 600 V
- C21 0.01 UF 300 V
- C22 0.005 UF 300 V
- C23 40 UF 25 V
- C24 1 UF 600 V
- C25 2 UF 600 V
- C26 0.0005 UF 500 V
- C35 0.006 UF 300 V
- C36 10 UUF 500 V
- C38 5 UUF 500 V
- C39 0.006 UF 300 V
- C41 700 UUF 500 V
- C42 200 UUF 500 V
- C43 100 UUF 500 V
- C44 30 UUF 500 V
- C45 100 UUF 500 V
- C46 20 UUF 500 V
- C51 100 UUF 500 V
- C52 0.001 UF 500 V
- C53 50 UUF 600 UUF 500 V
- C54 10 UUF SEE NOTE 2

NOTES:

1- WHEN CAPACITORS C85 AND C86 ARE 60 UUF, CAPACITOR C84 IS OMITTED. (OPTIONAL METHOD NOT SHOWN IN DIAGRAM.)

2- TWO CAPACITORS REPLACED BY ONE HAVING A CAPACITY EQUAL TO THE TOTAL OF THE REPLACED TWO. (OPTIONAL METHOD NOT SHOWN IN DIAGRAM.)

- C55 10 UUF 60 UUF 500 V
- C56 50 UUF SEE NOTE 2
- C57 0.006 UF 300 V
- C61 100 UUF 500 V
- C62 0.001 UF 500 V
- C63 50 UUF 60 UUF 500 V
- C64 10 UUF OR SEE NOTE 2
- C65 10 UUF 60 UUF 500 V
- C66 50 UUF SEE NOTE 2
- C67 0.006 UF 300 V
- C71 50 UUF 500 V
- C72 0.001 UF 500 V
- C73 50 UUF 60 UUF 500 V
- C74 10 UUF OR SEE NOTE 2
- C75 10 UUF 60 UUF 500 V
- C76 50 UUF OR SEE NOTE 2
- C77 0.006 UF 300 V
- C81 250 UUF 500 V
- C82 0.006 UF 300 V
- C83 0.006 UF 300 V
- C84 5 UUF 500 V (SEE NOTE 1)
- C85 50 UUF OR 60 UUF 500 V SEE NOTE 2
- C86 50 UUF OR 60 UUF 500 V 2
- C87 25 UUF OR 35 UUF 500 V
- C88 10 UUF SEE NOTE 2
- C91 50 UUF 500 V
- C92 50 UUF 500 V
- C93 100 UUF 500 V
- C94 50 UUF 500 V

SWITCHES

- D1 REC ON-OFF
- D2 OUTPUT TO PHONES
- D3 ON-OFF SPEAKER
- D4 ON-OFF SQUELCH
- D5 TUNE-OPERATE

LAMP

- E1 CALL SIGNAL (NEON)

FUSE

- F1 FUSE 15 AMP

JACKS

- J1 PHONES
- J2 PHONES
- J3 FRONT PANEL JACK

APPARATUS LEGEND

LOUD SPEAKER

- LS1 LOUD SPEAKER

COILS

- L1 LIMITER CATHODE CHOKE
- L32 ANTENNA COUPLING
- L33 RF PLATE
- L34 MOD GRID
- L41 RF OSCILLATOR
- L42 OSC SHUNT FEED
- L51 1ST IF GRID
- L52 MODULATOR PLATE
- L61 2ND IF GRID
- L62 1ST IF PLATE
- L71 LIMITER GRID
- L72 2ND IF PLATE
- L81 DETECTOR INPUT
- L82 LIMITER PLATE
- L91 IF OSCILLATOR

POTENTIOMETERS

- P1 100,000 Ω
- P2 200 Ω

PLUGS

- PG1 RECEIVER PLUG
- PG2 DYNAMOTOR PLUG
- PG3 FRONT PANEL PLUG

RESISTORS

- R1 20,000 Ω 1/2 W
- R2 250,000 Ω 1/2 W
- R3 500 Ω 1/2 W
- R4 50,000 Ω 1/2 W
- R5 5,000 Ω 1/2 W
- R6 100,000 Ω 1/2 W
- R7 30,000 Ω 1 W
- R8 70,000 Ω 1/2 W
- R9 1,000 Ω 1/2 W
- R10 250,000 Ω 1/2 W
- R11 1,000,000 Ω 1/2 W
- R12 2,000 Ω 1/2 W
- R13 10,000 Ω 1/2 W
- R14 250,000 Ω 1/2 W
- R15 1,000,000 Ω 1/2 W
- R16 1,000,000 Ω 1/2 W
- R17 250,000 Ω 1/2 W
- R18 100,000 Ω 1/2 W
- R19 2,000,000 Ω 1/2 W
- R20 300 Ω 1 W
- R21 30,000 Ω 2 W
- R22 30,000 Ω 1/2 W
- R23 5,000 Ω 1/2 W
- R24 50 Ω 1/2 W
- R25 2,500 Ω 1/2 W
- R26 1,200 Ω 1/2 W
- R27 2,500 Ω 1/2 W
- R28 2,500 Ω 1/2 W
- R29 13,000 Ω 2 W
- R30 5 Ω 4 W
- R31 6,800 Ω 1 W
- R32 30,000 Ω 1/2 W
- R33 30,000 Ω 1/2 W
- R37 250,000 Ω 1/2 W
- R38 1,000 Ω 1/2 W
- R41 100,000 Ω 1/2 W
- R51 100,000 Ω 1/2 W
- R52 43,000 Ω 1/2 W
- R53 100,000 Ω 1/2 W
- R54 100,000 Ω 1/2 W
- R55 100,000 Ω 1/2 W
- R61 100,000 Ω 1/2 W
- R62 43,000 Ω 1/2 W
- R63 10,000 Ω 1/2 W
- R64 1,000 Ω 1/2 W
- R71 250,000 Ω 1/2 W
- R72 30,000 Ω 1/2 W
- R73 10,000 Ω 1/2 W
- R74 1,000 Ω 1/2 W
- R81 70,000 Ω 1/2 W
- R82 250,000 Ω 1/2 W
- R83 70,000 Ω 1/2 W
- R84 250,000 Ω 1/2 W
- R85 1,000 Ω 1/2 W
- R91 100,000 Ω 1/2 W
- R92 40,000 Ω 1/2 W
- R93 40,000 Ω 1/2 W

TRANSFORMER

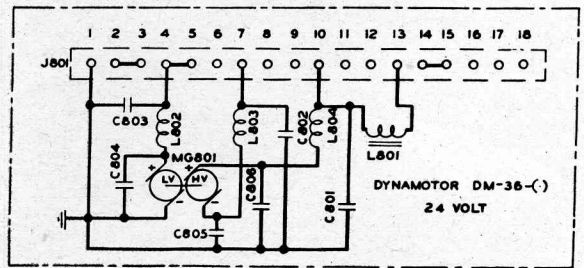
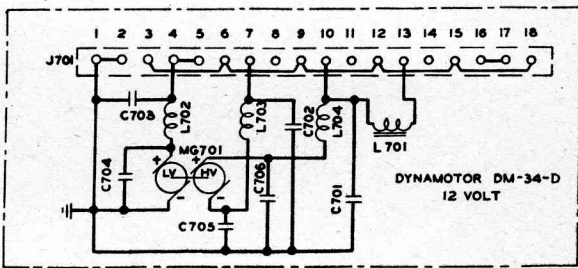
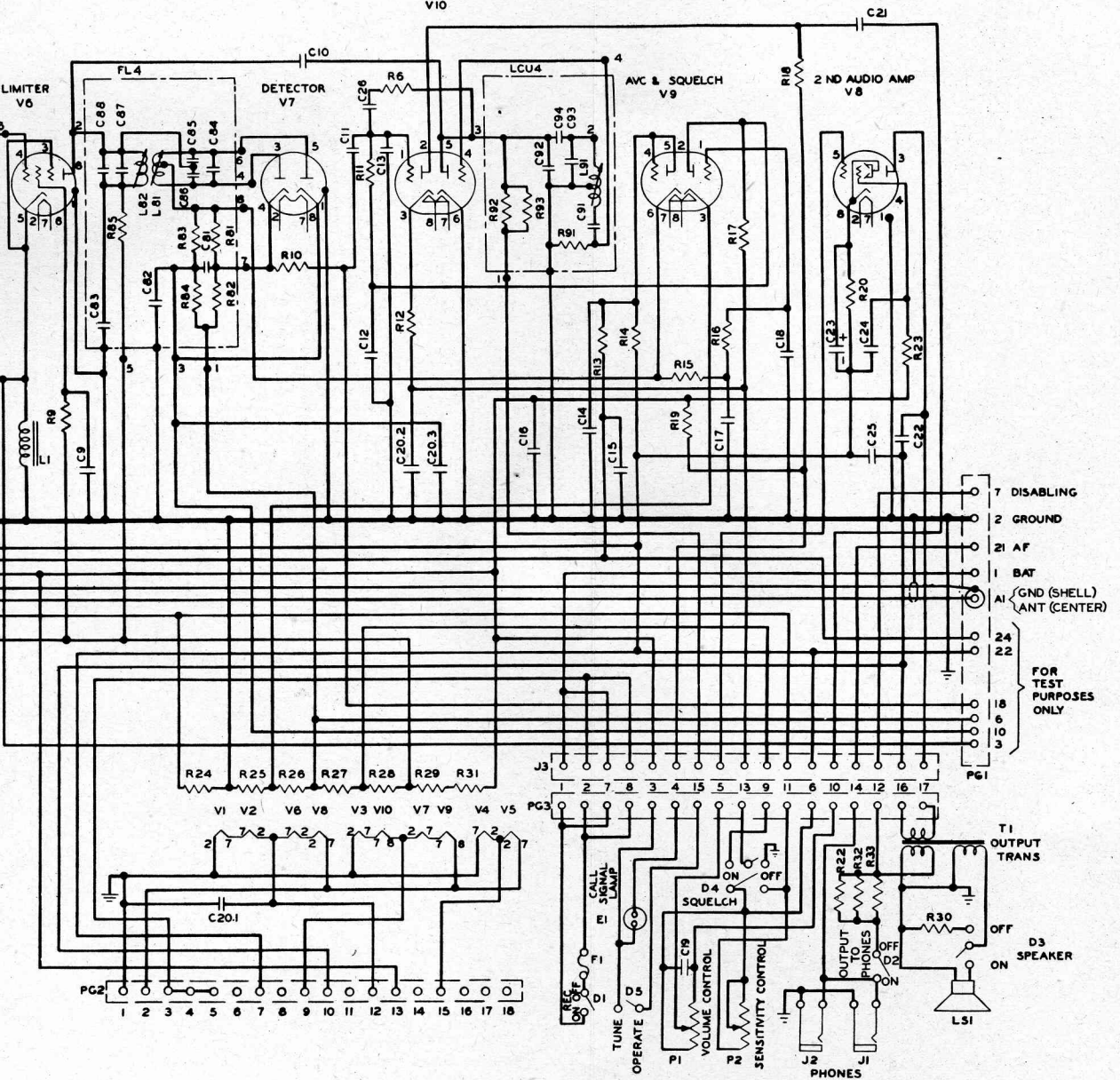
- T1 OUTPUT TRANSFORMER

VACUUM TUBES

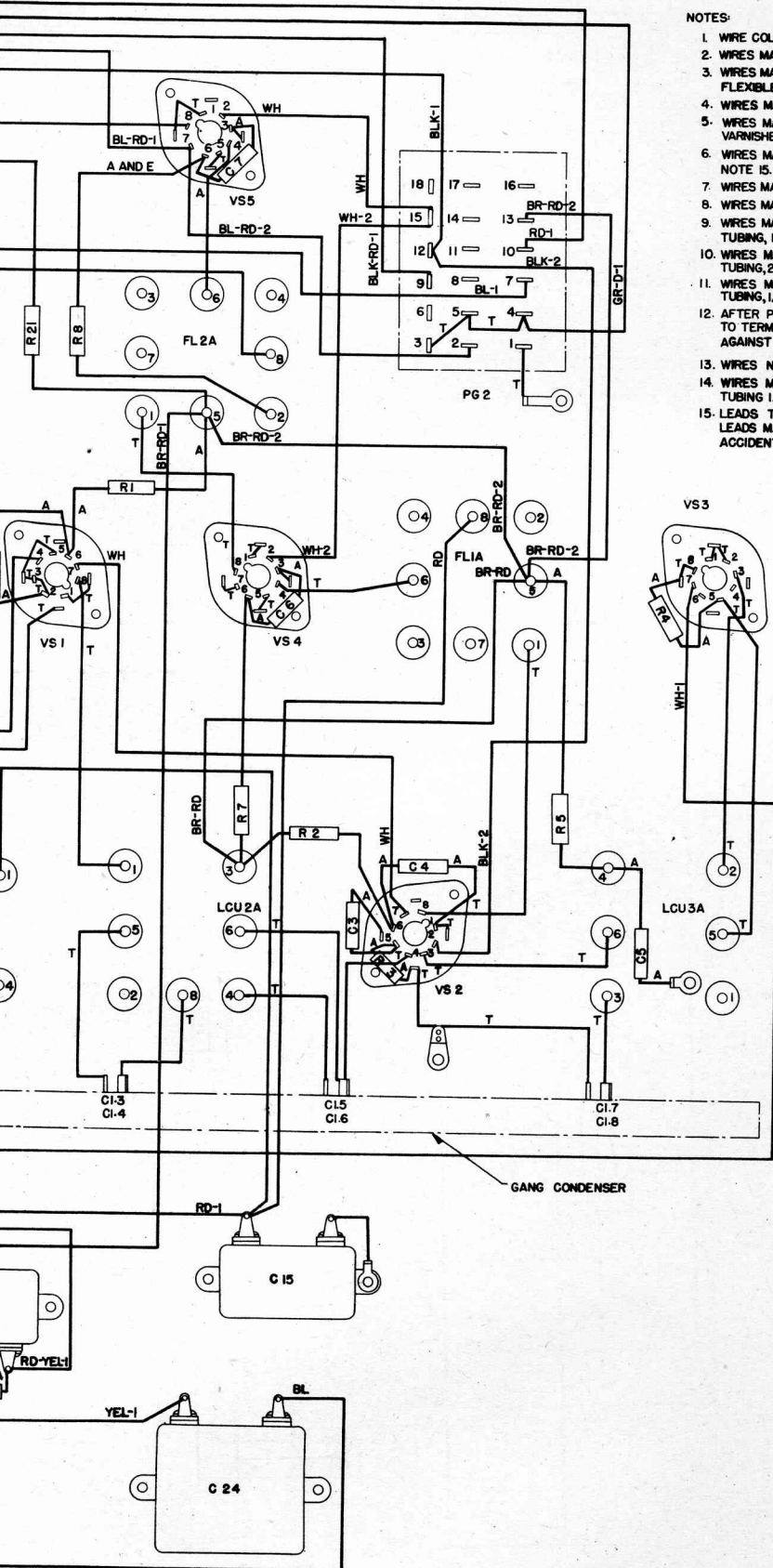
- V1 VT-112 (6AC7)
- V2 VT-112 (6AC7)
- V3 VT-94 (6J5)
- V4 VT-209 (12SG7)
- V5 VT-209 (12SG7)
- V6 VT-112 (6AC7)

Fig. 71. Radio Receiver BC-683-A

1ST A F AMP
& I F OSC
V10

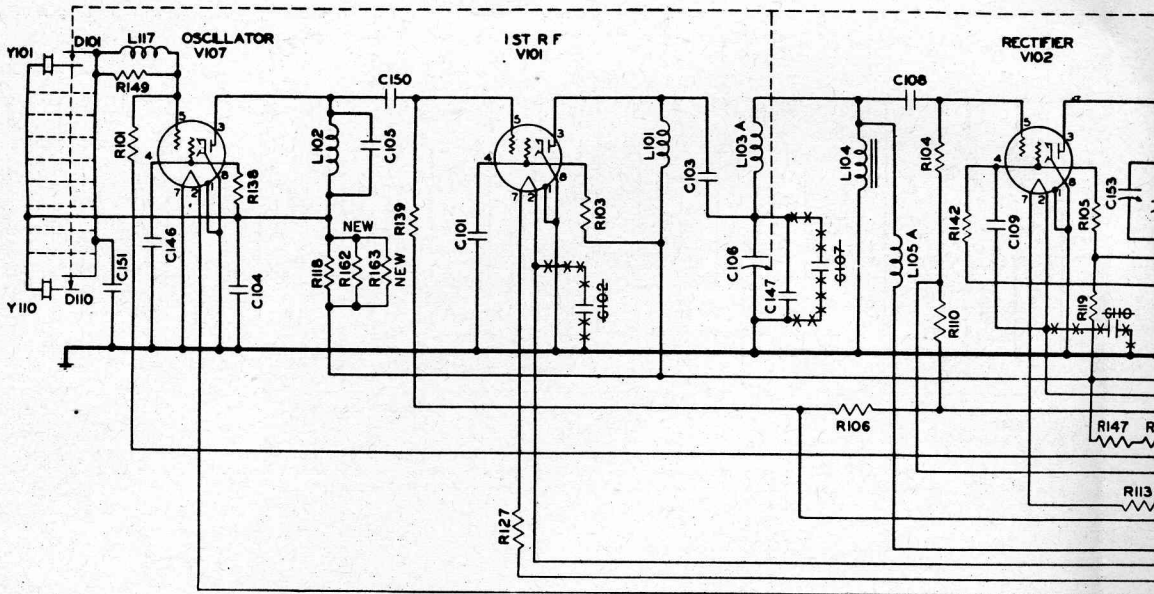


Schematic Diagram



NOTES:

1. WIRE COLORS SPECIFIED ARE TRACER COLORS ON WHITE WIRE.
2. WIRES MARKED "A" ARE FURNISHED WITH APPARATUS.
3. WIRES MARKED "C" ARE NO.18 A.W.G. "T" WIRES COVERED WITH NO.18 BLACK FLEXIBLE VARNISHED TUBING.
4. WIRES MARKED "D" ARE NO.16 A.W.G. STRANDED WIRE.
5. WIRES MARKED "E" ARE "A" WIRES COVERED WITH NO.18 BLACK FLEXIBLE VARNISHED TUBING.
6. WIRES MARKED "T" ARE NO.18 OR NO.20 A.W.G. TINNED COPPER WIRE. SEE NOTE 15.
7. WIRES MARKED "H" ARE IN CABLE NO.1.
8. WIRES MARKED "2" ARE IN CABLE NO.2.
9. WIRES MARKED "G" ARE COVERED WITH YELLOW FLEXIBLE VARNISHED TUBING, 1/16 IN. LONG AT PG1.
10. WIRES MARKED "H" ARE COVERED WITH YELLOW FLEXIBLE VARNISHED TUBING, 2 IN. LONG AT PG1.
11. WIRES MARKED "L" ARE COVERED WITH YELLOW FLEXIBLE VARNISHED TUBING, 1/2 IN. LONG AT PG1.
12. AFTER PLACING YELLOW TUBING OVER LEADS AT PG1, SOLDER LEADS TO TERMINALS AND SLIP TUBING OVER SOLDERED JOINT UNTIL IT BEARS AGAINST FACE OF RECEPTACLE.
13. WIRES NOT DESIGNATED ARE NO.20 A.W.G. SOLID WIRE.
14. WIRES MARKED "M" ARE COVERED WITH YELLOW FLEXIBLE VARNISHED TUBING 1/2 IN. LONG AT PG1.
15. LEADS TO BE AS SHORT AND AS STRAIGHT AS POSSIBLE HOWEVER LEADS MAY BE FORMED WHERE NECESSARY TO INSURE AGAINST ACCIDENTAL SHORTS.



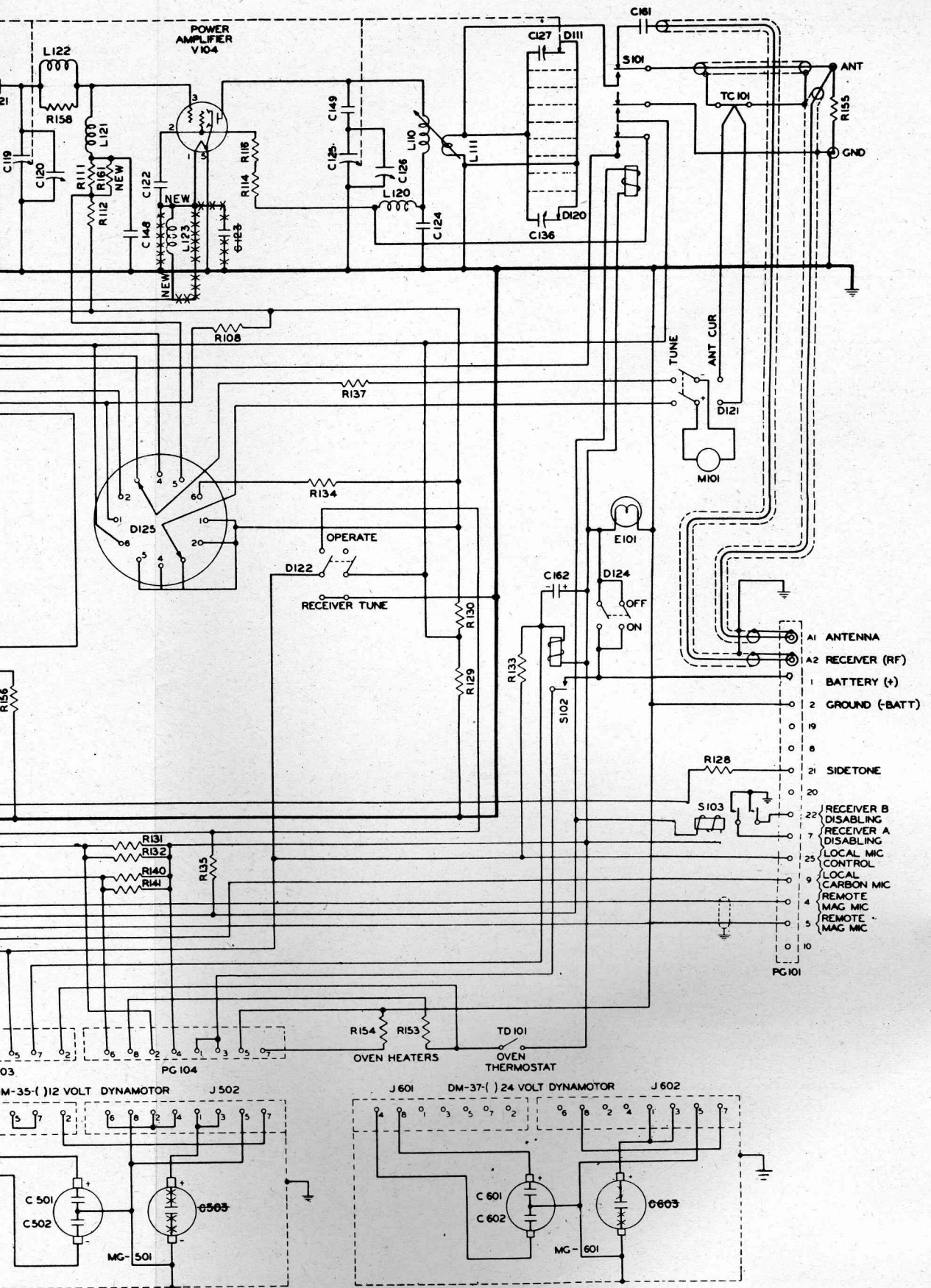
RADIO TRANSMITTER BC-684-A CAPACITORS

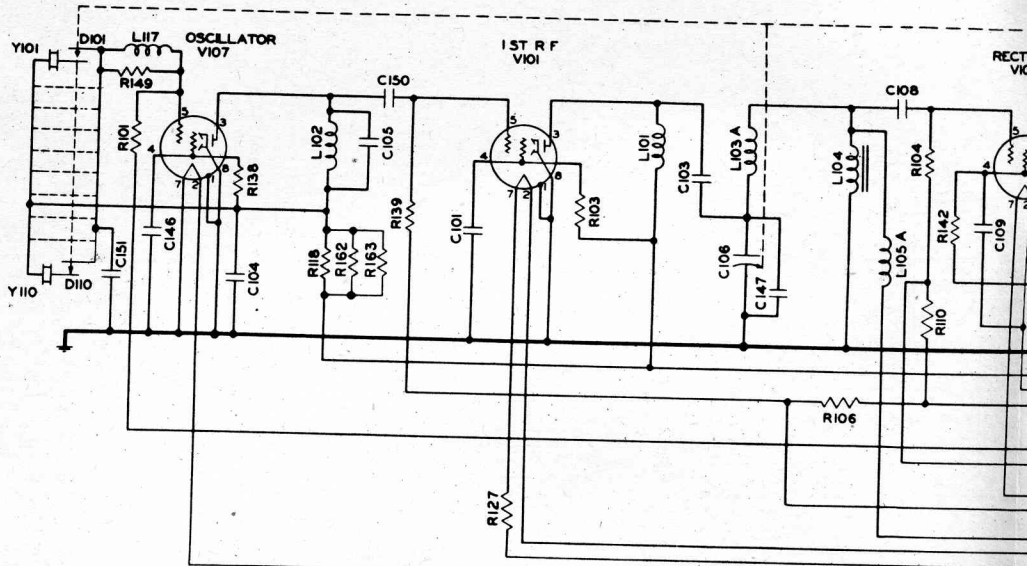
C101	0.003 UF 800 V
6H6E	ELIMINATED IN LATER UNITS
C103	100 UUF 800 V
C104	500 UUF 800 V
C105	15 UUF 500 V
C106	350 UUF MAX-AIR GAP 0.025"
C113	60 UUF MAX-AIR GAP 0.025"
C115	60 UUF MAX-AIR GAP 0.025"
C119	80 UUF MAX-AIR GAP 0.025"
C152	60 UUF MAX-AIR GAP 0.025"
C156	60 UUF MAX-AIR GAP 0.025"
6H6E	ELIMINATED IN LATER UNITS
C108	500 UUF 800 V
C109	0.003 UF 800 V
6H6E	ELIMINATED IN LATER UNITS
C111	0.003 UF 800 V
C112	0.003 UF 800 V
C114	20 UUF MAX-AIR GAP 0.025"
C116	20 UUF MAX-AIR GAP 0.025"
C117	0.003 UF 800 V
C118	0.003 UF 800 V
C120	20 UUF MAX-AIR GAP 0.025"
C121	0.003 UF 800 V
C122	0.003 UF 800 V
C123	0.01 UF 300 V
C124	0.002 UF 1200 V
C125	60 UUF MAX-AIR GAP 0.030"
C126	20 UUF MAX-AIR GAP 0.025"
C127	100 UUF MAX-AIR GAP 0.0195"
C128	100 UUF MAX-AIR GAP 0.0195"
C129	100 UUF MAX-AIR GAP 0.0195"
C130	100 UUF MAX-AIR GAP 0.0195"
C131	100 UUF MAX-AIR GAP 0.0195"
C132	100 UUF MAX-AIR GAP 0.0195"
C133	100 UUF MAX-AIR GAP 0.0195"
C134	100 UUF MAX-AIR GAP 0.0195"
C135	100 UUF MAX-AIR GAP 0.0195"
C136	100 UUF MAX-AIR GAP 0.0195"
C137	0.5 UF 600 V
C138.1	0.1 UF 600 V
C138.2	0.1 UF 600 V
C139	0.5 UF 600 V
C140	30 UF 50 V
C141	0.5 UF 600 V
C142.1	0.1 UF 600 V
C142.2	0.1 UF 600 V
C143	0.5 UF 600 V
C145	2 UF 1000 V
C146	0.003 UF 800 V
C147	175 UUF 800 V
C148	0.003 UF 800 V
C149	0.001 UF 1200 V
C150	0.001 UF 800 V
C151	50 UUF 800 V
C153	20 UUF MAX-AIR GAP 0.025"
C154	0.003 UF 800 V
C155	0.003 UF 800 V
C157	20 UUF MAX-AIR GAP 0.025"
C158	0.003 UF 800 V
C159	0.01 UF 300 V
6H6E	ELIMINATED IN LATER UNITS

APPARATUS LEGEND

C161	100 UUF 800 V
C162	4 UF 50 V
C164	0.003 MF 800 V (ADDED)
SWITCHES	
D101	PUSH BUTTON ASSEMBLY
TO	CRYSTAL SELECTORS
D110,	
D111	PUSH BUTTON ASSEMBLY
TO	ANT CAP SELECTORS
D120	
D121	ANT CUR-TUNE
D122	RECEIVER TUNE - OPERATE
D124	ON-OFF POWER SUPPLY
D125	METER SWITCH
LAMP	
E101	PILOT LAMP
FUSE	
F101	+ 1/2 AMPERE FUSE
JACKS	
J101	MAGNETIC MICROPHONE
J102	CARBON MICROPHONE
COILS	
L101	1ST RF PLATE CHOKE
L102	OSC PLATE
L103A	1ST RF PLATE TUNING
L104	MODULATION
L105A	RF CHOKE
L106	TRIPLER PLATE TUNING
L107	DOUBLER GRID TUNING
L108	DOUBLER PLATE TUNING
L110	POWER AMP TUNING
L111	ANTENNA COUPLING
L117	OSC GRID FILTER
L118	TRIPLER GRID TUNING
L119	RECTIFIER PLATE TUNING
L120	POWER AMP RF CHOKE
L121	POWER AMP RF GRID CHOKE
L122	POWER AMP ANTI-SING
L123	FILAMENT CHOKE (ADDED)
METER	
M101	ANT CUR-TUNE METER
POTENTIOMETER	
P101	50,000 Ω SIDETONE CONTROL
PLUGS	
PG 101	TRANSMITTER
PG 103	DYNAMOTOR
PG 104	DYNAMOTOR
RESISTORS	
R101	100,000 Ω 1/2 W
R102	667 Ω 25 W
R103	250,000 Ω 1 W
R104	70,000 Ω 1/2 W
R105	50,000 Ω 1/2 W
R106	1000 Ω 100 Ω 1/2 W
R107	30,000 Ω 1/2 W
R108	30 Ω 1/2 W
R109	75,000 Ω 2 W
R110	1,000 Ω 1/2 W
R111	30,000 Ω 1 W
R112	10 Ω 1/2 W
R113	1.0 Ω 10 W
R114	30,000 Ω 2 W
R115	100,000 Ω 1/2 W
R116	30,000 Ω 2 W
R117	50,000 Ω 1/2 W
R118	100,000 Ω 2 W
R119	1,200 Ω 1/2 W
R120	200 Ω 1 W
R121	100 Ω 1/2 W
R122	250,000 Ω 1 W
R123	10,000 Ω 1 W
R124	10,000 Ω 1/2 W
R125	5,000 Ω 1/2 W
R126	75,000 Ω 2 W
R127	1.0 Ω 10 W
R128	10,000 Ω 1/2 W
R129	5,000 Ω 25 W
R130	100 Ω 10 W
R131	12 Ω 25 W
R132	12 Ω 25 W
R133	80 Ω 10 W
R134	30,000 Ω 1/2 W
R135	30 Ω 10 W
R136	30,000 Ω 1/2 W
R137	100 Ω 1/2 W
R138	50,000 Ω 1/2 W
R139	100,000 Ω 1/2 W
R140	12 Ω 25 W
R141	12 Ω 25 W
R142	180,000 Ω 1 W
R143	100 Ω 1/2 W
R144	100,000 Ω 1/2 W
R145	50,000 Ω 2 W
R147	667 Ω 25 W
R149	50 Ω 1/2 W
R151	100,000 Ω 1 W
R153	8.3 Ω 17.9 W
R154	8.3 Ω 17.9 W
R155	100,000 Ω 1/2 W
R156	30 Ω 1 W
R157	300 Ω 1 W
R158	50 Ω 1/2 W
R159	100,000 Ω 1 W (ADDED)
R160	667 Ω 25 W (ADDED)
R161	30,000 Ω 1 W (ADDED)
R162	100,000 Ω 2 W (ADDED)
R163	100,000 Ω 2 W (ADDED)
RELAYS	
S101	ANTENNA SWITCHING
S102	DYNAMOTOR STARTING
S103	RECEIVER DISABLING

Fig. 73





RADIO TRANSMITTER BC-684-A

CAPACITORS

C101	0,003 UF 800 V
C103	100 UUF 800 V
C104	500 UUF 800 V
C105	15 UUF 500 V
C106	350 UUF MAX-AIR GAP 0,025"
C113	60 UUF MAX-AIR GAP 0,025"
C115	60 UUF MAX-AIR GAP 0,025"
C119	80 UUF MAX-AIR GAP 0,025"
C152	60 UUF MAX-AIR GAP 0,025"
C156	60 UUF MAX-AIR GAP 0,025"
C108	500 UUF 800-V
C109	0,003 UF 800 V
C111	0,003 UF 800 V
C112	0,003 UF 800 V
C114	20 UUF MAX-AIR GAP 0,025"
C116	20 UUF MAX-AIR GAP 0,025"
C117	0,003 UF 800 V
C118	0,003 UF 800 V
C120	20 UUF MAX-AIR GAP 0,025"
C121	0,003 UF 800 V
C122	0,003 UF 800 V
C123	0,01 UF 300 V
C124	0,002 UF 1200 V
C125	60 UUF MAX-AIR GAP 0,030"
C126	20 UUF MAX-AIR GAP 0,025"
C127	100 UUF MAX-AIR GAP 0,0195"
C128	100 UUF MAX-AIR GAP 0,0195"
C129	100 UUF MAX-AIR GAP 0,0195"
C130	100 UUF MAX-AIR GAP 0,0195"
C131	100 UUF MAX-AIR GAP 0,0195"
C132	100 UUF MAX-AIR GAP 0,0195"
C133	100 UUF MAX-AIR GAP 0,0195"
C134	100 UUF MAX-AIR GAP 0,0195"
C135	100 UUF MAX-AIR GAP 0,0195"
C136	100 UUF MAX-AIR GAP 0,0195"
C137	0,5 UF 600 V
C138.1	0,1 UF 600 V
C138.2	0,1 UF 600 V
C139	0,5 UF 600 V
C140	30 UF 50 V
C141	0,5 UF 600 V
C142.1	0,1 UF 600 V
C142.2	0,1 UF 600 V
C143	0,5 UF 600 V
C145	2 UF 1000 V
C146	0,003 UF 800 V
C147	175 UUF 800 V
C148	0,003 UF 800 V
C149	0,001 UF 1200 V
C150	0,001 UF 800 V
C151	50 UUF 800 V
C153	20 UUF MAX-AIR GAP 0,025"
C154	0,003 UF 800 V
C155	0,003 UF 800 V
C157	20 UUF MAX-AIR GAP 0,025"
C158	0,003 UF 800 V
C159	0,01 UF 300 V

APPARATUS LEGEND

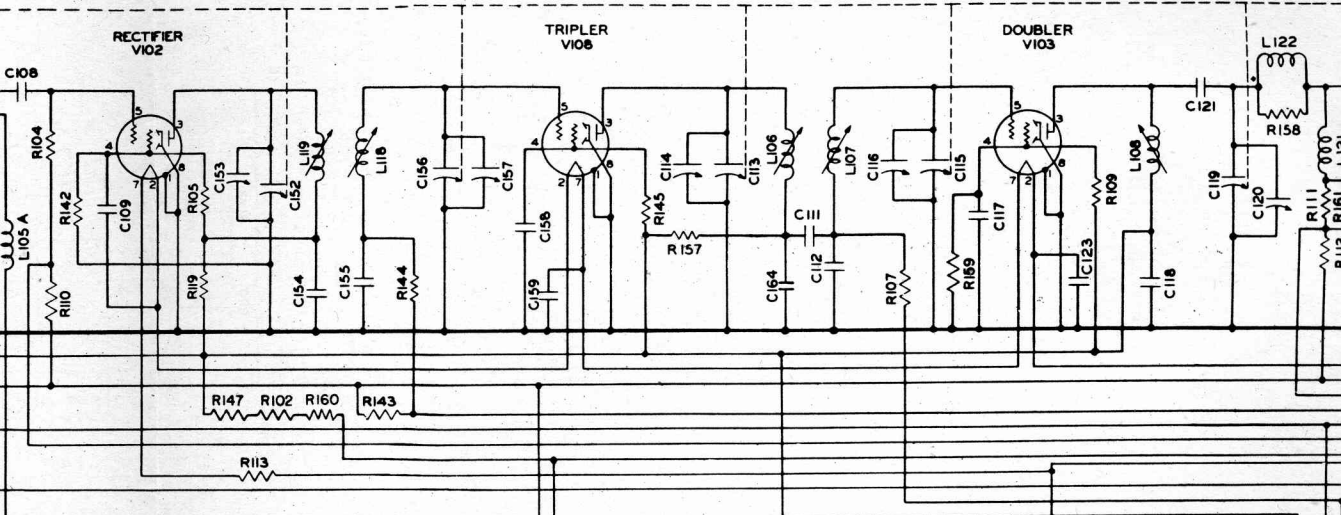
C161	100 UUF 800 V	R106	100 Ω 1/2 W
C162	4 UF 50 V	R107	30,000 Ω 1 W
C164	0,003 MF 800 V	R108	30 Ω 1/2 W
D101	PUSH BUTTON ASSEMBLY	R109	75,000 Ω 2 W
D110	CRYSTAL SELECTORS	R110	1,000 Ω 1/2 W
D111	PUSH BUTTON ASSEMBLY	R111	30,000 Ω 1 W
D120	ANT CAP SELECTORS	R112	10 Ω 1/2 W
D121	ANT CUR-TUNE	R113	1,0 Ω 10 W
D122	RECEIVER TUNE-OPERATE	R114	30,000 Ω 2 W
D124	ON-OFF POWER SUPPLY	R115	100,000 Ω 1/2 W
D125	METER SWITCH	R116	30,000 Ω 2 W
D121	ANT CUR-TUNE	R117	50,000 Ω 1/2 W
D122	RECEIVER TUNE-OPERATE	R118	100,000 Ω 2 W
D124	ON-OFF POWER SUPPLY	R119	1,200 Ω 1/2 W
D125	METER SWITCH	R120	200 Ω 1 W
D121	ANT CUR-TUNE	R121	100 Ω 1/2 W
D122	RECEIVER TUNE-OPERATE	R122	250,000 Ω 1 W
D124	ON-OFF POWER SUPPLY	R123	10,000 Ω 1 W
D125	METER SWITCH	R124	10,000 Ω 1/2 W
D121	ANT CUR-TUNE	R125	5,000 Ω 1/2 W
D122	RECEIVER TUNE-OPERATE	R126	75,000 Ω 2 W
D124	ON-OFF POWER SUPPLY	R127	1,0 Ω 10 W
D125	METER SWITCH	R128	10,000 Ω 1/2 W
D121	ANT CUR-TUNE	R129	5,000 Ω 2 W
D122	RECEIVER TUNE-OPERATE	R130	100 Ω 10 W
D124	ON-OFF POWER SUPPLY	R131	12 Ω 25 W
D125	METER SWITCH	R132	12 Ω 25 W
D121	ANT CUR-TUNE	R133	80 Ω 10 W
D122	RECEIVER TUNE-OPERATE	R134	30,000 Ω 1/2 W
D124	ON-OFF POWER SUPPLY	R135	30 Ω 10 W
D125	METER SWITCH	R136	30,000 Ω 1/2 W
D121	ANT CUR-TUNE	R137	100 Ω 1/2 W
D122	RECEIVER TUNE-OPERATE	R138	50,000 Ω 1/2 W
D124	ON-OFF POWER SUPPLY	R139	100,000 Ω 1/2 W
D125	METER SWITCH	R140	12 Ω 25 W
D121	ANT CUR-TUNE	R141	12 Ω 25 W
D122	RECEIVER TUNE-OPERATE	R142	180,000 Ω 1 W
D124	ON-OFF POWER SUPPLY	R143	100 Ω 1/2 W
D125	METER SWITCH	R144	100,000 Ω 1/2 W
D121	ANT CUR-TUNE	R145	50,000 Ω 2 W
D122	RECEIVER TUNE-OPERATE	R147	667 Ω 25 W
D124	ON-OFF POWER SUPPLY	R149	50 Ω 1/2 W
D125	METER SWITCH	R151	100,000 Ω 1 W
D121	ANT CUR-TUNE	R153	8,3 Ω 17,9 W
D122	RECEIVER TUNE-OPERATE	R154	8,3 Ω 17,9 W
D124	ON-OFF POWER SUPPLY	R155	100,000 Ω 1/2 W
D125	METER SWITCH	R156	30 Ω 1 W
D121	ANT CUR-TUNE	R157	300 Ω 1 W
D122	RECEIVER TUNE-OPERATE	R158	50 Ω 1/2 W
D124	ON-OFF POWER SUPPLY	R159	100,000 Ω 1 W
D125	METER SWITCH	R160	667 Ω 25 W
D121	ANT CUR-TUNE	R161	30,000 Ω 1 W
D122	RECEIVER TUNE-OPERATE	R162	100,000 Ω 2 W
D124	ON-OFF POWER SUPPLY	R163	100,000 Ω 2 W
D125	METER SWITCH		

RESISTORS

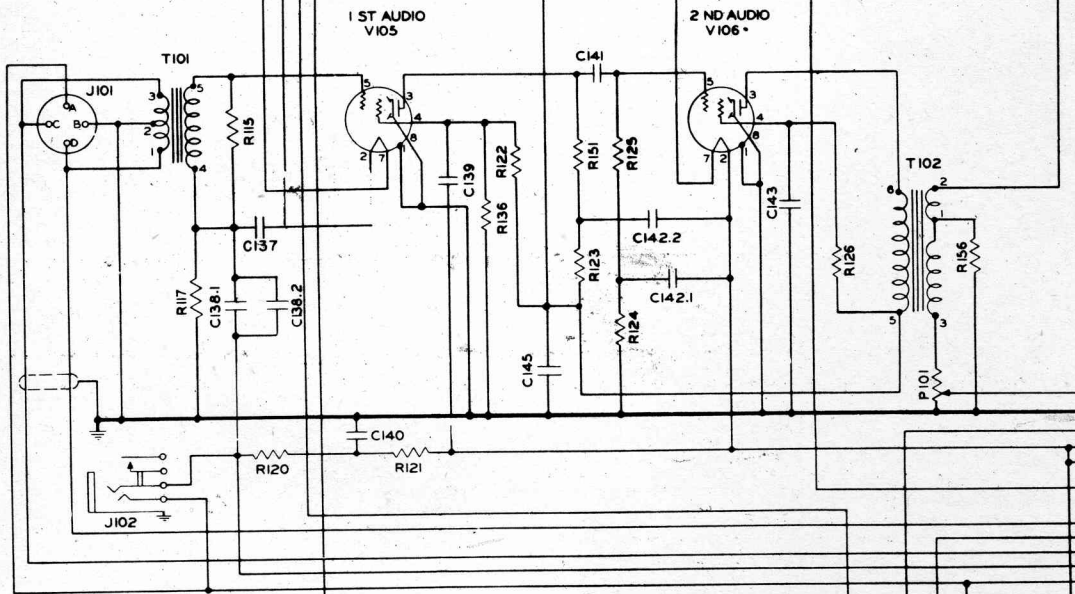
R101	100,000 Ω 1/2 W
R102	667 Ω 25 W
R103	250,000 Ω 1 W
R104	70,000 Ω 1/2 W
R105	50,000 Ω 1/2 W

RELAYS

S101	ANTENNA SWITCHING
S102	DYNAMOTOR STARTING
S103	RECEIVER DISABLING



- 100 \sim 1/2 W
- 30,000 \sim 1 W
- 30 \sim 1/2 W
- 75,000 \sim 2 W
- 1,000 \sim 1/2 W
- 30,000 \sim 1 W
- 10 \sim 1/2 W
- 1.0 \sim 10 W
- 30,000 \sim 2 W
- 100,000 \sim 1/2 W
- 30,000 \sim 2 W
- 50,000 \sim 1/2 W
- 100,000 \sim 2 W
- 1,200 \sim 1/2 W
- 200 \sim 1 W
- 100 \sim 1/2 W
- 250,000 \sim 1 W
- 10,000 \sim 1 W
- 10,000 \sim 1/2 W
- 5,000 \sim 1/2 W
- 75,000 \sim 2 W
- 1.0 \sim 10 W
- 10,000 \sim 1/2 W
- 5,000 \sim 25 W
- 100 \sim 10 W
- 12 \sim 25 W
- 12 \sim 25 W
- 80 \sim 10 W
- 30,000 \sim 1/2 W
- 30 \sim 10 W
- 30,000 \sim 1/2 W
- 100 \sim 1/2 W
- 50,000 \sim 1/2 W
- 100,000 \sim 1/2 W
- 12 \sim 25 W
- 12 \sim 25 W
- 180,000 \sim 1 W
- 100 \sim 1/2 W
- 100,000 \sim 1/2 W
- 50,000 \sim 2 W
- 667 \sim 25 W
- 50 \sim 1/2 W
- 100,000 \sim 1 W
- 8.3 \sim 17.9 W
- 8.3 \sim 17.9 W
- 100,000 \sim 1/2 W
- 30 \sim 1 W
- 300 \sim 1 W
- 50 \sim 1/2 W
- 100,000 \sim 1 W
- 667 \sim 25 W
- 30,000 \sim 1 W
- 100,000 \sim 2 W
- 100,000 \sim 2 W



- TRANSFORMERS**
- T 101 AF INPUT
 - T 102 AF OUTPUT
- THERMOCOUPLE**
- TC 101 ANT CUR THERMOCOUPLE
- THERMOSTAT**
- TD 101 OVEN THERMSTAT
- VACUUM TUBES**
- V 101 VT-164 (1619)
 - V 102 VT-164 (1619)
 - V 103 VT-164 (1619)
 - V 104 VT 165 (1624)
 - V 105 VT-164 (1619)
 - V 106 VT-164 (1619)
 - V 107 VT-164 (1619)
 - V 108 VT-164 (1619)

- DYNAMOTOR DM-35-()12 V**
- CAPACITORS**
- C 501 0,003 UF 800 V
 - C 502 0,003 UF 800 V
- JACKS**
- J 501 DYNAMOTOR
 - J 502 DYNAMOTOR
- DYNAMOTOR DM-37-()24 V**
- CAPACITORS**
- C 601 0,003 UF 800 V
 - C 602 0,003 UF 800 V

- CRYSTAL HOLDERS**
- Y 101 } CRYSTAL HOLDERS
 - TO } FT-241-D
 - Y 110 }

- JACKS**
- J 601 DYNAMOTOR
 - J 602 DYNAMOTOR

ANTENNA SWITCHING
DYNAMOTOR STARTING
RECEIVER DISABLING

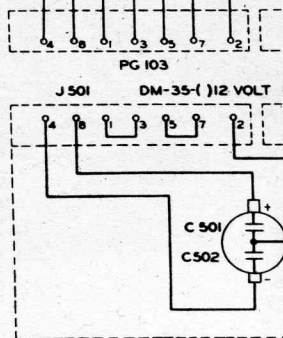
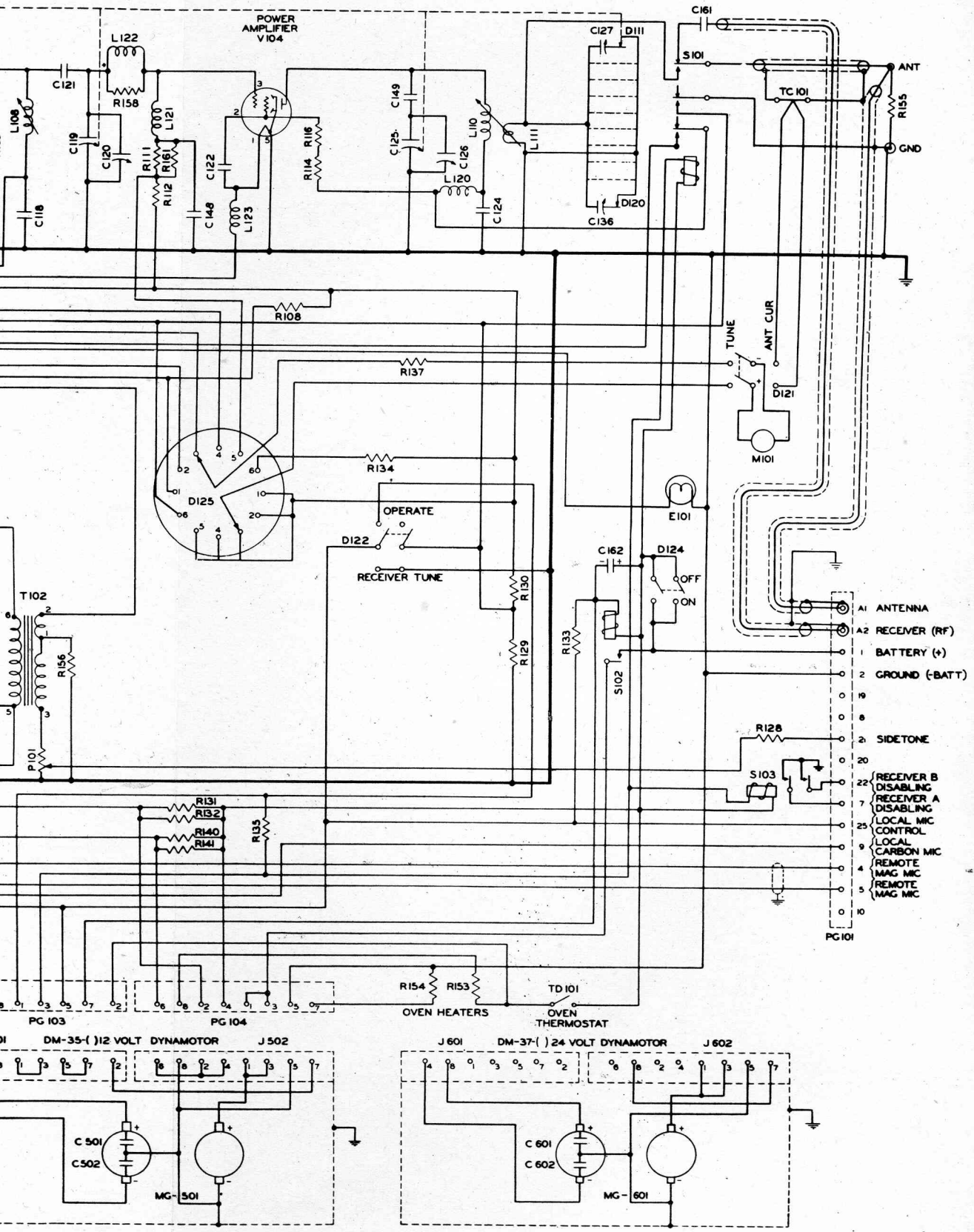
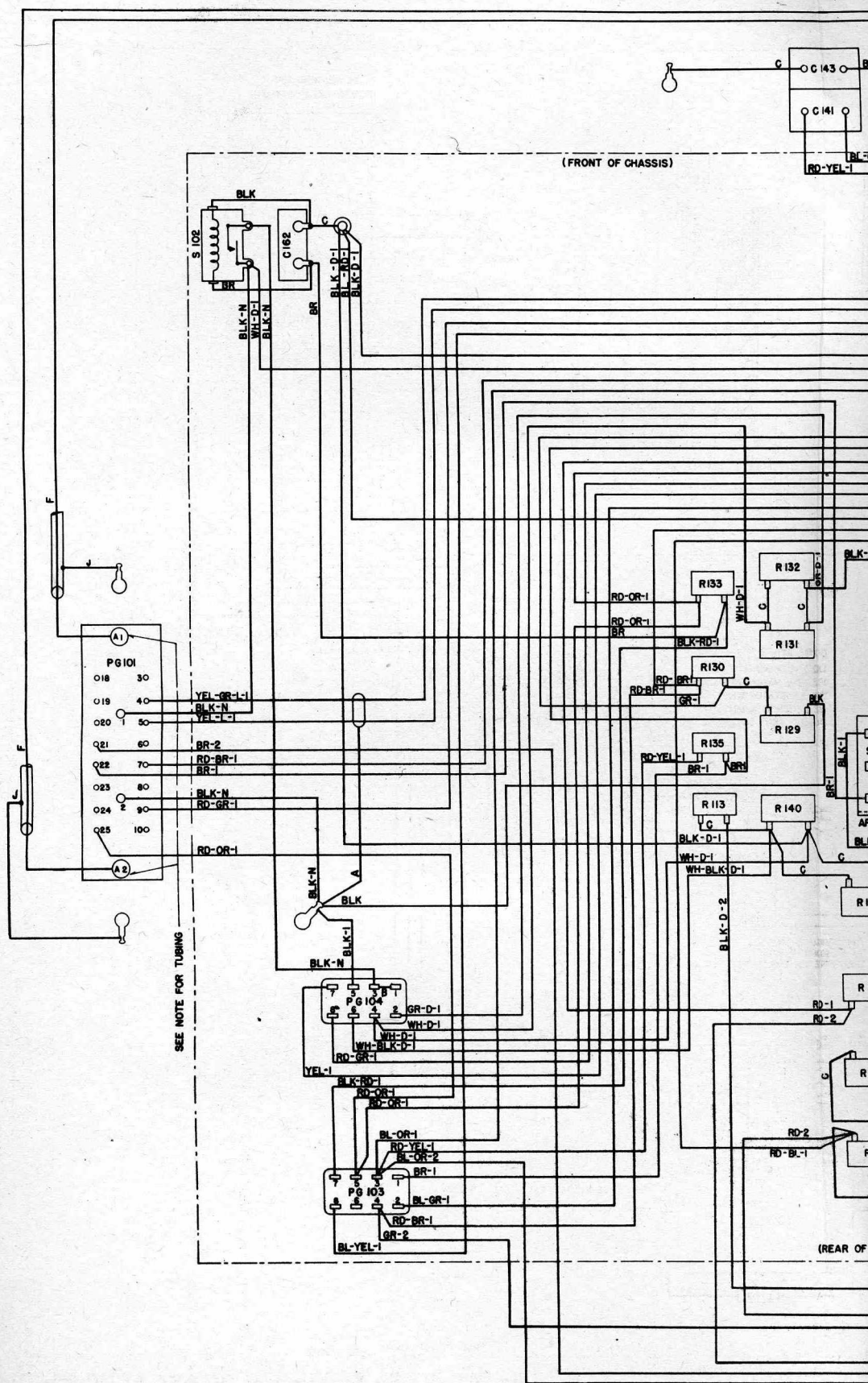


Fig. 74. Radio Transmitter BC-684-A: Schematic Diagram



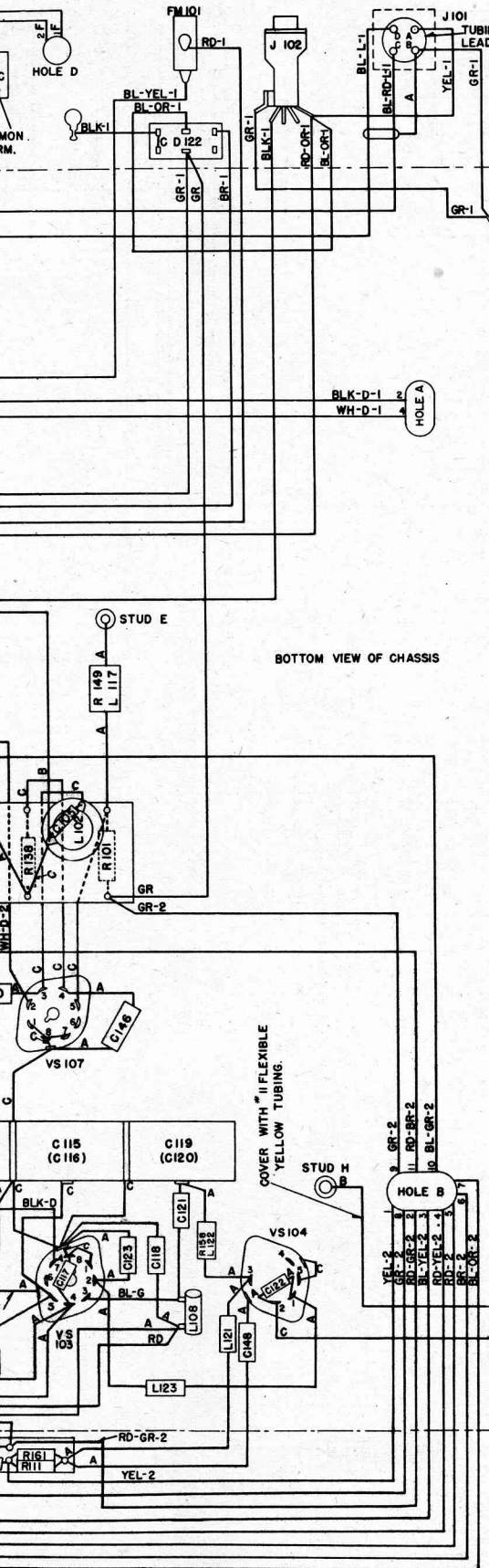
- A1 ANTENNA
 - A2 RECEIVER (RF)
 - BATTERY (+)
 - 0 2 GROUND (-BATT)
 - 0 19
 - 0 8
 - 0 2 SIDETONE
 - 0 20
 - 0 22 RECEIVER B
DISABLING
 - 0 7 RECEIVER A
DISABLING
 - 0 25 LOCAL MIC
CONTROL
 - 0 9 CARBON MIC
 - 0 4 REMOTE
MAG MIC
 - 0 5 REMOTE
MAG MIC
 - 0 10
- PG 101



(FRONT OF CHASSIS)

SEE NOTE FOR TUBING

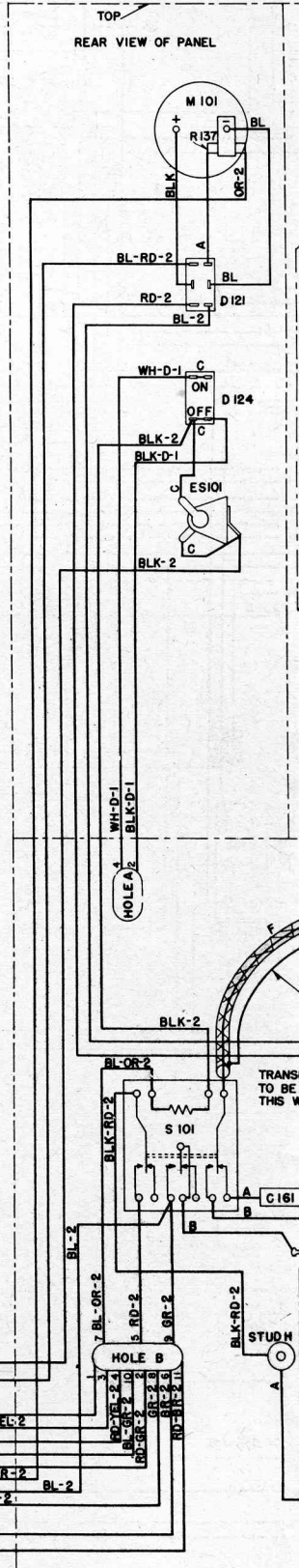
(REAR OF CHASSIS)



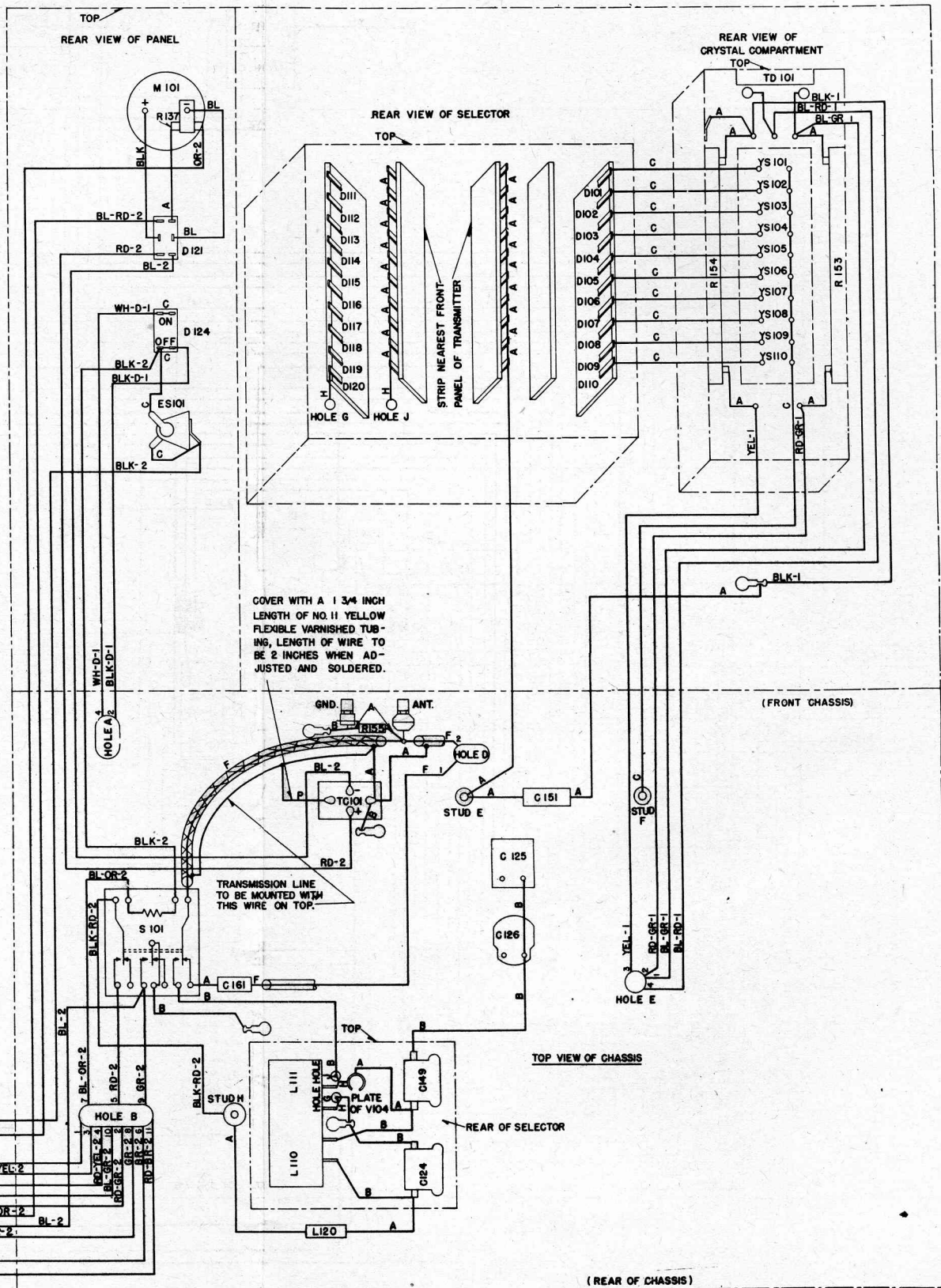
TUBING ON THESE LEADS SEE NOTES

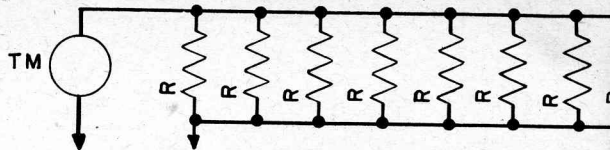
NOTES

1. WIRES MARKED "A" ARE FURNISHED WITH APPARATUS.
2. WIRES MARKED "B" ARE NO. 16 A.W.G.A. TINNED.
3. WIRES MARKED "C" ARE NO. 18 A.W.G.A. TINNED.
4. WIRES MARKED "D" ARE NO. 16 A.W.G.A. STRANDED 1250 VOLT RADIO HOOK-UP WIRE.
5. WIRES MARKED "E" ARE NO. 20 A.W.G.A. SOLID 1250 VOLT RADIO HOOK-UP WIRE SHIELDED.
6. WIRES MARKED "F" ARE TRANSMISSION LINE.
7. WIRES MARKED "G" ARE NO. 20 A.W.G.A. STRANDED 1250 VOLT RADIO HOOK-UP WIRE.
8. WIRES MARKED "H" ARE FLEXIBLE 1/4 IN. COPPER STRIP.
9. WIRES MARKED "J" ARE TINNED COPPER BRAID 1/4 IN. WIDE.
10. WIRES MARKED "L" ARE NO. 22 A.W.G.A.
11. WIRES MARKED "N" ARE NO. 10 A.W.G.A. STRANDED 1250 VOLT RADIO HOOK-UP WIRE.
12. WIRES MARKED "P" ARE NO. 22 A.W.G.A. T WIRE.
13. WIRES MARKED "I" ARE IN CABLE NO. 1.
14. WIRES MARKED "2" ARE IN CABLE NO. 2.
15. ALL OTHER WIRES NOT MARKED ARE NO. 20 A.W.G.A. SOLID 1250 VOLT AEROGLOSS RADIO HOOK-UP WIRE.
16. ALL WIRE IS WHITE BACKGROUND. COLORS SPECIFIED ARE TRACER COLORS.
17. AT PG101 AND J101 PLACE A 7/8 INCH LENGTH OF YELLOW FLEXIBLE VARNISHED CAMBRIC TUBING OVER WIRE, SOLDER WIRE TO TERMINAL, AND SLIP THE TUBING OVER SOLDERED JOINT UNTIL IT BEARS AGAINST BACK FACE OF JACK OR RECEPTACLE. USE NO. 11 TUBING FOR SMALL WIRES AND NO. 4 TUBING FOR LARGE WIRES OR WHERE TWO WIRES ARE CONNECTED TO THE SAME TERMINAL.
18. WHERE 3 OR MORE WIRES WHICH ARE NOT SEWN INTO THE CABLE RUN PARALLEL THEY SHALL BE TIED TOGETHER AT APPROXIMATELY ONE INCH INTERVALS IN ORDER TO HOLD THEM NEATLY AND SECURELY IN PLACE.
19. EACH WIRE END SHALL BE WRAPPED AROUND THE TERMINAL TO WHICH IT CONNECTS FOR AT LEAST ONE FULL TURN, CRIMPED TO TERMINAL, THEN NEATLY SOLDERED; EXCEPT AT PG101 AND J101 WHERE THE WIRES MUST ENTER THE END OF THE TERMINALS FOR AT LEAST 1/8 INCH AND THEN NEATLY AND SECURELY SOLDERED. CARE SHALL BE USED TO PREVENT SOLDER FROM RUNNING INTO TUBE SOCKET PIN CLIPS.
20. BARE WIRES, EXCEPT THOSE RUNNING DIRECTLY TO A GROUND LUG, MUST CLEAR ALL ADJACENT WIRES AND APPARATUS BY AT LEAST 1/8 INCH, AND MUST BE SO FORMED AS TO PREVENT CONTACT BEING MADE DURING THE NORMAL MOVEMENT OF ANY ADJACENT ITEM OR PART.
21. INCORPORATE BENDS IN "B" WIRES TO L103A, L104 AND L105A TO RELIEVE VIBRATION STRESS ON TERMINALS.



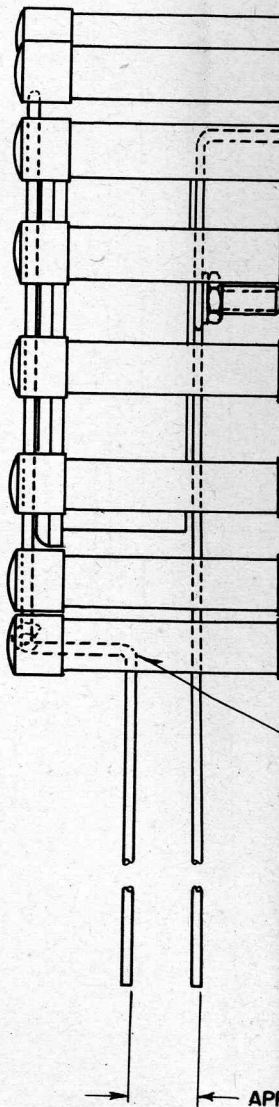
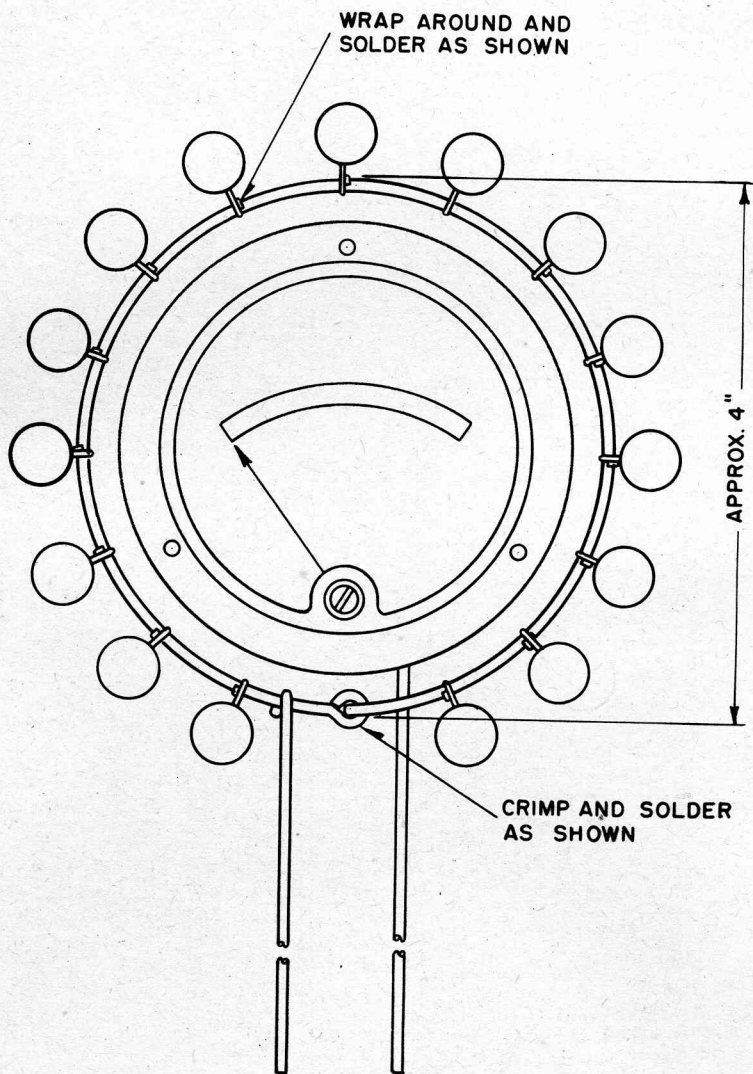
Transmitter BC-684-A: Wiring Diagram





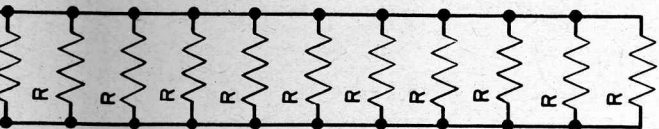
SCHEN

APPARATUS DESIG.	DE
R	15 RESISTORS, IRC F3
TM	THERMOAMMETER W
	(BA



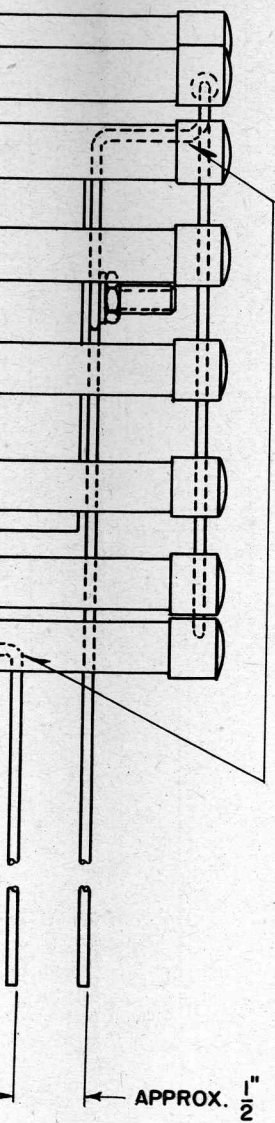
ASSEMBL

Fig. 77. Artificial Antenna for Testing Ra



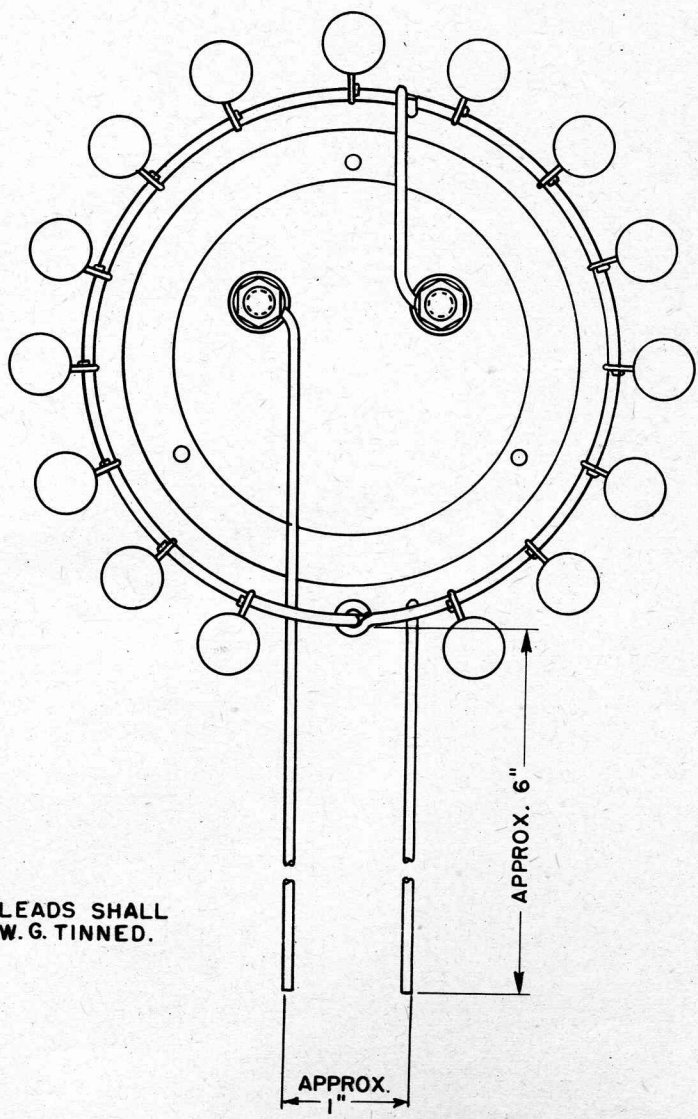
SCHEMATIC CIRCUIT DIAGRAM

DESCRIPTION
RESISTORS, IRC F3, EACH 600 OHMS (APPROX. 40 OHMS TOTAL)
DC MILLIAMMETER WESTON MODEL 425 0-1 AMP.
(BAKELITE CASE, FLUSH MOUNTING)



BEND LEADS
APPROX. AS SHOWN

NOTE:
RINGS AND LEADS SHALL
BE NO. 12 A.W.G. TINNED.



ASSEMBLY