

- Remove the control nuts on all controls fastened to the brackets. (The nut on the volume control is different from the others, and should be set aside for identification.) Be careful not to tip the unit too far back, or the phone jack will fall out of its hole.
- Place the chassis assembly behind the front panel, so that all shafts line up with their corresponding holes in the panel. Carefully slide the unit up against the panel, and pull all shafts, bulbs, and the microphone jack into the front panel holes.
- Put the volume control nut (previously set aside) over the shaft, and tighten with wrench or pliers. Use care so as not to scratch the panel.
- Place flat washers and nuts over each of the other shafts and bushings and tighten. Use care at the microphone jack so as not to rotate it from its original position.
- Connect the black wire from grommet "G" to the left hand terminal lug on the speaker (solder 1).
- Connect a short length of black wire from terminal strip F, lug 2 (solder 3) to the right hand lug of the speaker terminal strip (solder 1).
- On the bottom of the panel, insert a long sheet metal screw into any one of the holes near the panel bend, making sure that it threads into the hole in the bracket, and tighten.
- Similarly, fasten the unit with long sheet metal screws at the other three holes in the panel bottom in line with the previous one.
- Back out the set-screw in one of the knobs, and place on the "VOLUME" control shaft. Push the knob to the panel, align the white pointer line with the word "OFF", and tighten the set-screw.
- Similarly, place a knob on the "RECEIVE" channel selector shaft, align the knob pointer line with the left-hand channel line, and tighten.
- In a similar manner, align the pointer mark on the third knob with the left-hand channel line on the "TRANSMIT" channel selector, and tighten the set-screw.
- Place the long bar knob on the "TRANSMIT-RECEIVE" switch shaft (near the word "OFF"). Align the knob end with the word "TRANSMIT", and tighten the set-screw.
- Flip this switch once or twice so as to make sure that it points to the word "RECEIVE" in the up position, and the word "TRANSMIT" in the down position. Readjust the knob if necessary to align with these words in each of the two positions of the switch.
- Check the knobs on the "CHANNEL" selector shafts to make sure that they point successively to each of the three channel positions. Readjust the knobs if necessary to secure this alignment.
- Insert the proper tube type in each of the tube sockets, referring to Pictorial A-Top for placement.
- Insert the crystal provided with the unit in the crystal socket for channel "A". See Pictorial A-Top.

Set the unit aside for now, and go on to the instructions which pertain to the building of the power supply type which you have purchased. (TC-11 for 110 volt, A.C. operation, or TC-612 for 6 or 12 volt D.C. operation in a boat or car). Now snap the tube shield over the 12AX7 tube in socket C. Make sure this shield is firmly seated on the tube base.

SECTION V

WIRING OF THE TC-11 POWER SUPPLY:

Determine if the power supply kit you have received with your Transceiver is the Model TC-11 (for use on 110 Volt, A.C. current only). If this is the case, then proceed with the instructions below. If the power supply is the Model TC-612 (for use with 6 or 12 Volt D.C. in a car or boat) then SKIP this section of the instructions, and go to the instructions for assembly pertaining to the TC-612 power supply. In either case, use as much care in wiring the power supply as you did in the wiring of the Transceiver itself.

- Place the chassis on the work bench in front of you so that its position corresponds to Figure 8. Referring to this diagram, mark all chassis holes with the grease pencil to correspond with the markings on the diagram.

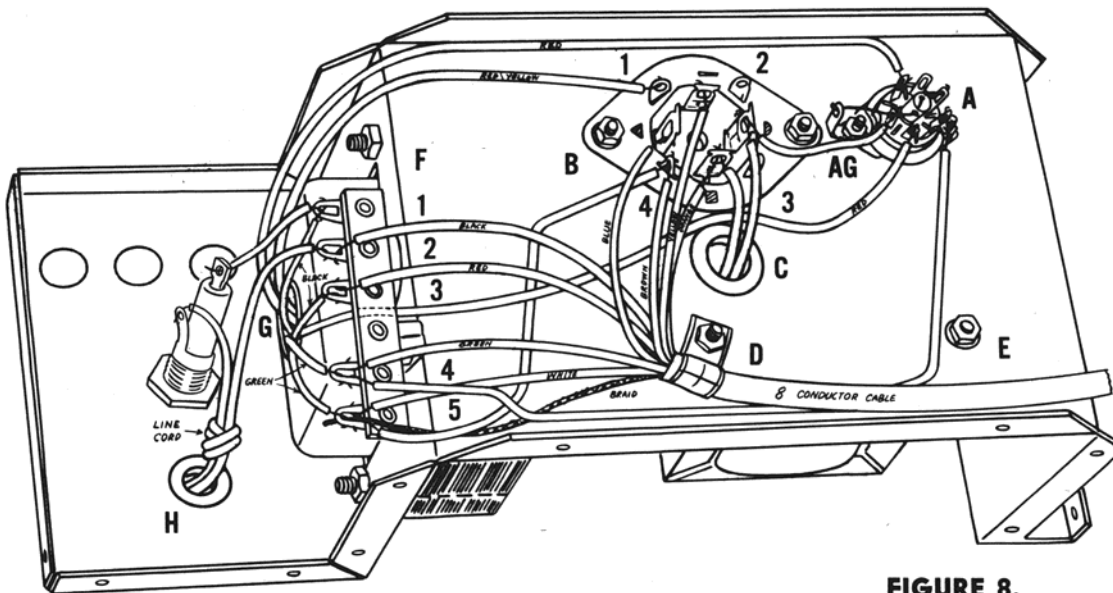


FIGURE 8.

- In the large hole just above hole H, mount the fuse extractor post so that the lugs of the post extend into the wiring side of the chassis. Do not overtighten the nut or the plastic will crack.
- Mount the seven pin miniature tube socket at position "A". Position so that the space between lugs 1 and 7 is to the left as shown in the diagram. Use 4-36 screws, nuts, and lockwashers. Make sure to mount a ground lug under the nut at position "AG".
- Using 6-32 screws, nuts, and lockwashers, mount the Electrolytic mounting plate at position "B". Mount on the WIRING side of the chassis as shown.
- Install the larger of the two grommets at position "C". Do not use a sharp metal instrument to install this grommet, or you will damage it.
- On the OTHER side of the chassis, position the power choke, part #TC1102, over holes "D" and "E", orienting it so that the two leads are near the grommet at "C". Fasten with 6-32 screws, nuts, and lockwasher, with the head of the screws on the choke side of the chassis. Do not mount the cable clamp that appears in Fig. 8 at hole "D" at this time.
- Mount the 5 terminal strip at position "F" as shown in Fig. 8. Use a 6-32 screw, nut, and lockwasher, with the head of the screw on the choke side of the chassis.
- Place the power transformer, part #TC1101, over the large square cutout on the same side of the chassis as the choke was previously mounted, and position so that the four protruding threaded studs fit into the mating holes in the chassis. Fasten to the chassis with four #8 nuts and lockwashers (these are the larger nuts provided). Tighten these four nuts securely.
- Mount the remaining small grommet at position "H". Use the same precautions in mounting this grommet as previously observed.
- Mount the Electrolytic capacitor can on the choke side of the chassis in its mounting plate previously installed. Note carefully that there are small cutouts in the phenolic base of the can next to each of the terminal lugs. Be sure to position the capacitor on its mounting plate so that the (Δ), (\triangleleft), and (\square) cutouts are in EXACTLY the same relative positions as they are in Fig. 8. With a pair of pliers, bend each of the mounting tabs with a quarter turn to the left so as to secure the can in place.
- Run a short piece of bare wire from ground lug AG, through the center post of socket A, to lug 3 on Socket A. Crimp and solder all three points.
- Run a short length of hook-up wire from Socket A, lug 7 (solder 1) to capacitor B, lug (\triangleleft) (crimp).
- Run a length of wire from socket A, lug 4 (solder 1) straight down to the fold in the chassis, across to the left inside the fold, and connect the other end to strip F, lug 4 (crimp).

- Connect one of the red transformer leads from G to Socket A, lug 1 (solder 1). Run this wire up near the top fold of the chassis.
- Connect the other red transformer lead from G to Socket A, lug 6 (solder 1). Run this wire straight across chassis, just above grommet C.
- Connect the red/yellow transformer lead to electrolytic can mounting lug 1 (solder 1).
- Run a length of wire from electrolytic can mounting lug 4 (crimp) straight down to bottom fold of chassis, and over to the left, and connect to terminal strip F, lug 5 (crimp).
- Connect one of the black choke leads appearing through grommet C to capacitor B, lug (∩) (solder 2). Keep lead short.
- Connect the other black choke lead from grommet C to capacitor B, lug (□) (crimp). Keep lead short.
- Attach one of the green transformer leads from G to terminal strip F, lug 5 (crimp).
- Attach the other green transformer lead from G to terminal strip F, lug 4 (crimp).
- Connect one of the black transformer leads from G to terminal strip F, lug 3 (crimp).
- Connect the other black transformer lead from G to terminal strip F, lug 1 (crimp).
- Pass the stripped and tinned end of the line cord through grommet H from the other side of the chassis, and tie a knot in it approximately 4 inches from the end.
- Connect one lead of this line cord to the SIDE terminal of the fuse post. (solder 1). Connect a length of insulated wire from the CENTER terminal of the fuse post (solder 1), to terminal strip F, lug 1 (solder 2).
- Connect the other line cord lead to terminal strip F, lug 2 (crimp).
- Now examine the length of multi-conductor cable. With a sharp knife, remove 2 inches of the outer plastic jacket from one end. This can be done by making a cut around the jacket at the point indicated, carefully so as not to cut into the inner conductors, and then making a straight cut along the jacket from the end to the previous cut.
- Unwind the shielded braid from the twisted red and black leads at this end of the cable, and from the other end when exposed in the following step. Cut the braid off close to the jacket at this 2 inch end of the cable. At the other end, when exposed in the following step, retwist the shield braid to form another lead, and tin with solder.
- Now remove 3 inches of the jacket from the other end.
- At the 2 inch end of the cable, strip and tin each of the conductors back 1".
- Now remove the cap from the octal plug with a small screwdriver. Pry up in the slot at the side of the assembly, and the cap will snap off.
- Notice that each pin is numbered in the side of the plug AWAY from the metal pins (this is the side with the recessed holes). Insert the stripped end of the heavy BLACK wire into hole number 2, pushing the wire into the pin until the insulation on the wire rests in the recessed hole.
- Solder pin #2. This can be most easily done by arranging to hold the cable in a vise or makeshift holder so that the octal plug points with its pins straight upwards. Then take a CLEAN soldering iron, with no solder blobs on its tip, and hold it against the side of the pin, near the bakelite body of the plug. As soon as the pin has become sufficiently heated, feed a little solder into the hole at the end of the pin. If the pin is hot enough, the solder will flow down into the pin, without flowing down the outside of the pin. It is important to keep solder off the outside of the pin, so that the plug will insert into its socket without binding. If solder does flow outside, wipe off with a small rag while the pin is still hot. Work slowly and carefully, and you will have no difficulty.
- Insert the heavy RED wire into pin number 3 as before, and solder.
- Insert the BLUE wire into pin number 4 and solder.

- Insert the YELLOW wire into pin number 5 and solder.
- Insert the ORANGE wire into pin number 6 and solder.
- Insert the heavy GREEN wire into pin number 7 and solder.
- Connect the heavy BROWN wire to pin number 1, and solder.
- Insert the WHITE wire into pin number 8, and solder.
- Slide the cap back over the free end of the wire, and snap into place over the plug. Push the plug against a hard surface, and line up the dimple in the cap with one of the slots in the plug. If the cap is positioned properly, only a medium pressure will snap the cap into place.
- Place the cable clamp over the free end of the cable, on the plastic jacket just past the point at which the cable was stripped. Position as shown in Fig. 8.
- Remove the nut holding the choke at D, place the clamp hole over the screw, and retighten the nut on the screw.
- Connect the heavy BLACK wire from the cable to terminal strip F, lug 2 (solder 2).
- Connect the heavy RED wire from the cable to terminal strip F, lug 3 (solder 2).
- Connect the heavy GREEN wire to terminal strip F, lug 4 (solder 2).
- Connect the WHITE wire to terminal strip F, lug 5 (crimp).
- Connect the heavy BROWN wire to capacitor B, mounting lug 4 (solder 2).
- Connect the BLUE wire to capacitor B, lug (Δ) (solder 1).
- Connect the YELLOW wire to capacitor B, lug ($-$) (solder 1).
- Connect the ORANGE wire to capacitor B, lug (\square) (solder 2).
- Connect the shield braid at this end of the cable to terminal strip F, lug 5 (solder 4).

This completes the construction of your Model TC-11 power supply. Shake out all wire clippings and solder blobs, and inspect your work for shorts and poorly soldered joints. Insert the 6X4 tube in its socket. Do NOT attempt to test the power supply at this time, nor to mount it on the main chassis. Place the unit aside until called for under FINAL TESTS, ADJUSTMENTS, AND CALIBRATION below. Insert the 2 amp fuse in the fuse holder.

SECTION VI

WIRING OF THE TC-612 POWER SUPPLY:

Determine if the power supply kit you have received with your Transceiver is the Model TC-612 (for use on 6 or 12 volt D.C. current only). If this is the case, then proceed with the instructions below. If the power supply is the Model TC-11 (for use with 110 Volt A.C. current only), then SKIP this section of the instructions, and go back to the instructions for assembly pertaining to the TC-11 power supply. In either case, use as much care in wiring the power supply as you did in wiring the Transceiver itself.

- Place the chassis on the work bench in front of you so that its position corresponds to Figure 9. Referring to this diagram, mark all chassis holes with a grease pencil to correspond with the markings on the diagram.
- Mount the seven pin miniature tube socket at position "A". Position so that the space between lugs 1 and 7 is to the left as shown in the diagram. Use 4-36 screws, nuts, and lockwashers. Make sure to mount a ground lug under the nut at position "AG".
- Using 6-32 screws, nuts, and lockwashers, mount the electrolytic mounting plate at position "B". Mount on the WIRING side of the chassis as shown.
- Install the large grommet at position "D". Do not use a sharp metal instrument to install this grommet, or you will damage it.

- On the OTHER side of the chassis, position the power choke, part #TC1102, over the holes marked "E" and "F" orienting it so that the two leads are near the grommet at "D". Fasten with 6-32 screws, nuts, and lockwashers, with the head of the screws on the choke side of the chassis. Do not mount the cable clamp that appears in Fig. 9 at hole "E" at this time.
- Mount a 5 lug terminal strip at position "G" as shown in Fig. 9. Use a 6-32 screw, nut and lockwasher, with the head of the screw on the choke side of the chassis.
- Similarly, mount the second 5 lug terminal strip at position "H", aligning it with strip "G" previously mounted.
- Place the power Transformer, part #TC6105, over the large square cut-out on the same side of the chassis as the choke was previously mounted, and position so that the four protruding threaded studs fit into the mating holes on the chassis. Fasten to the chassis with four #8 nuts and lockwashers (these are the larger nuts provided). Tighten these four nuts securely.
- Slip a 6-32 screw into each of the holes in the vibrator clip, so that the heads of the screws are on the "prong" side of the clip. Place over position "C", on the CHOKE SIDE of the chassis, and feed the screws into the corresponding holes. Holding the screw heads in place with the fingers of one hand, place the 4-prong wafer socket over the screws on the WIRING side of the chassis, making sure to orient it so that the two LARGE socket clips are to the right, as shown in Fig. 9.
- Fasten the right-side screw down with a nut and lockwasher. Now place the two-lug strip on the screw protruding through the socket on the left side, and fasten with a nut and lockwasher. Orient the strip as shown in Fig. 9. Tighten both screws.
- Attach a 3 inch length of hookup wire to pin 6 of one of the octal sockets (solder 1). Bend pins 4, 5, 6 and 7 of this socket flat to the bakelite, and mount at position "K". Use 6-32 screws, nuts, and lockwashers. Keep the lugs on the WIRING side of the chassis. Make sure the lugs 6 and 7 do NOT short to the transformer case.
- Similarly, mount the second octal socket at position "J", with 6-32 screws, nuts, and lockwashers. Make sure that the key-way of each of these octal sockets is pointing downwards, as shown in Figure 9.
- In the large hole just above and between sockets J and K, mount the fuse extractor post so that the lugs of the post extend into the wiring side of the chassis. Do not overtighten the nut or the plastic will crack.

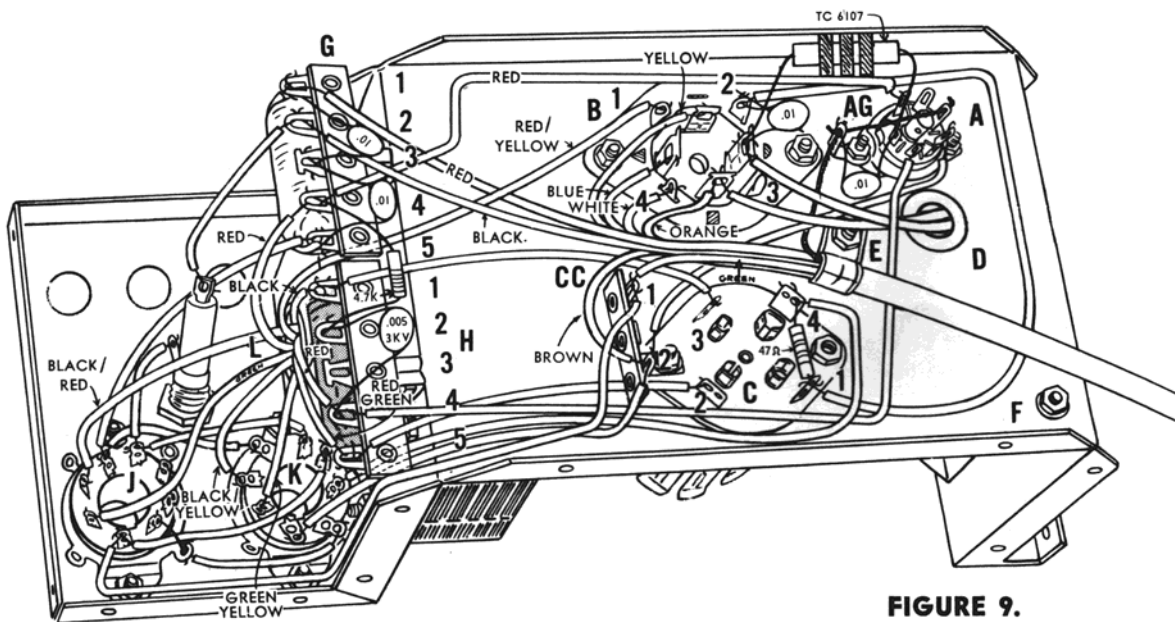


FIGURE 9.

- Mount the electrolytic capacitor can on the CHOKE SIDE of the chassis in its mounting plate previously installed. Note carefully that there are small cutouts in the phenolic base of the can, next to each of the terminal lugs. Be sure to position the capacitor on its mounting plate so that the (Δ), (\triangleleft), (\square) cutouts are in EXACTLY the same relative positions as they are in Fig. 9. With a pair of pliers, bend each of the mounting tabs with a quarter turn to the left so as to secure the can in place.
- Run a short piece of bare wire from ground lug AG, through the center post of socket A, to lug 3 on socket A. Crimp and solder the center post and lug A3, but do not solder ground lug AG.
- Connect a .01 mfd disc capacitor from socket A, lug 7 (crimp) to ground lug AG (solder 2).
- Connect another .01 mfd disc capacitor from capacitor B, lug (\triangleleft), (crimp) to capacitor mounting lug 2 (crimp).
- Run a length of hook-up wire from socket A, lug 1 (solder 1) to terminal strip G, lug 4 (crimp).
- Run another length of hook-up wire from socket A, lug 6 (solder 1), down to the chassis fold, over to the left inside the fold, and connect the other end to terminal strip H, lug 4 (crimp).
- Run a third length of hook-up wire from socket A, lug 4 (solder 1), between capacitor B and socket C, and connect the other end to terminal strip CC, lug 2 (crimp).
- Connect one of the black choke leads appearing through grommet D to capacitor B, lug (\triangleleft) (crimp). Keep this lead short.
- Connect the other black choke lead from grommet D to capacitor B, lug (\square) (crimp).
- Connect the 1.1 millihenry R.F. choke, part #TC6107 (this is the coil with pigtail leads and three separate wound sections, or "pies") from socket A, lug 7 (solder 2) to capacitor B, lug (\triangleleft) (solder 3). Keep the body of this coil away from ground lug AG by squaring the leads and dressing up in the air about 1 inch from the chassis.
- Connect a 47 ohm resistor (yellow-violet-black) between socket C, lug 1 (crimp) and socket C, lug 4 (crimp). Dress body of resistor down to socket.
- Run a length of hookup wire from socket C, lug 1 (solder 2) against the chassis and under the R.F. choke to capacitor B, mounting lug 2 (solder 2).
- Run a piece of wire from socket C, lug 3 (solder 1) to terminal strip H, lug 1 (crimp).
- Connect another piece of wire from socket C, lug 2 (solder 1) to terminal strip H, lug 5 (crimp).
- Connect the large .47 mfd (may be .5 mfd) tubular paper capacitor from terminal strip H, lug 1 (crimp) to terminal strip H, lug 5 (crimp). Dress the body of this capacitor between terminal strip H and the transformer shell, tight to chassis.
- Connect the .005 mfd, 2KV disc capacitor from strip H, lug 4 (crimp) to strip H, lug 2 (crimp). Do not allow leads to short to lug 3.
- Run a 4.7 K ohm resistor (yellow-violet-red) from terminal strip H, lug 2 (solder 2) to terminal strip G, lug 4 (crimp). Dress the body of this resistor close to the phenolic of the strips, but do not allow the leads to short to any other lugs.
- Connect a .01 mfd disc capacitor from terminal strip G, lug 5 (crimp) to terminal strip G, lug 3 (crimp). Dress the body of this capacitor down flat to chassis.
- Connect another .01 mfd disc capacitor from terminal strip G, lug 1 (crimp) to terminal strip G, lug 3 (solder 2). Dress close to chassis as before.
- Connect the battery hash choke (large coil of very heavy wire, self-supporting) from strip G, lug 1 (crimp) to strip G, lug 5 (crimp). Keep the body of the coil on the side of the strip next to the transformer, close to the strip, but not touching the lugs or the chassis.
- Run a length of wire from terminal strip CC, lug 2 (crimp) inside the chassis fold to the left, under the bottom edge of strip H, flat against the side wall, and connect the other end to socket K, lug 1 (solder 1).

- Run another length of wire from terminal strip CC, lug 1 (crimp), over the same path to socket J, lug 1 (crimp).
- Run a length of hook-up wire from socket C, lug 4 (solder 2), down to the fold and over the same path as the two previous wires, and connect the other end to socket K, lug 7 (solder 1).
- Connect the short length of wire from socket K lug 6 to socket J, lug 1 (solder 2).
- Connect a length of wire to socket K, lug 8 (solder 1). Cut to length of 1-1/2 inches, and strip the other end back 3/4". Pass this lead through socket J, lug 8 (solder 1), and then to the ground lug on the rim of the socket near lug 8, and connect to this lug (solder 1).
- Cut the RED/GREEN lead of the power transformer from L to reach strip H, lug 5, with about 1/4" extra for stripping. Strip back 1/4", tin, and connect to H5 (solder 3). Do not discard the extra lead cut off, or any lead from the transformer removed, as they will be used later.
- Cut the BLACK lead from L to length, strip and tin, and connect to terminal strip H, lug 1 (solder 3).
- Cut one RED lead from L to length, strip and tin, and connect to terminal strip H, lug 4 (solder 3).
- Cut the other RED lead from L to length, strip and tin, and connect to terminal strip G, lug 4 (solder 3).
- Dress the RED/YELLOW lead from L above the end of terminal strip G, inside the chassis fold at the top, and connect to capacitor B, mounting lug 1 (solder 1).
- Connect the GREEN/YELLOW lead from L to socket K, lug 2 (solder 1).
- Connect the BLACK/YELLOW lead from L to socket K, lug 3, (solder 1).
- Connect the GREEN lead from L to socket J, lug 2 (solder 1).
- Connect the BLACK/RED lead from L to socket J, lug 3 (solder 1).
- Connect a piece of the BLACK/YELLOW lead, previously cut off, from socket K, lug 4 (solder 1) to socket J, lug 4 (crimp).
- Connect another piece of the BLACK/YELLOW lead from socket K, lug 5 (solder 1) to socket J, lug 5 (crimp).
- Connect a piece of GREEN/YELLOW lead, previously cut off, from socket J, lug 4 (solder 2) to terminal strip G, lug 5 (solder 3).
- Connect a short piece of GREEN lead, previously cut off, from socket J, lug 5 (solder 2) to the side terminal of the fuse post (solder 1). Connect another short piece of GREEN lead from the center terminal of the fuse post (solder 1) to terminal strip G, lug 2 (crimp).
- Now examine the length of multi-conductor cable. With a sharp knife, remove 2 inches of the outer plastic jacket from one end. This can be done by making a cut around the jacket at the point indicated, carefully, so as not to cut into the inner conductors, and then making a straight cut along the jacket from the end to the previous cut. Untwist the shield braid at this end, and cut off close to the jacket.
- Now remove 5 inches of jacket from the other end. Untwist the shield braid at this end, retwist to form another lead, and tin with solder.
- At the 2 inch end of the cable, strip and tin each of the conductors back 1".
- Now remove the cap from one of the octal plugs with a small screwdriver. Pry up in the slot at the side of the assembly, and the cap will snap off.
- Notice that each pin is numbered on the side of the plug AWAY from the metal pins (this is the side with the recessed holes). Insert the stripped end of the heavy BLACK wire into the hole number 3, pushing the wire into the pin until the insulation on the wire rests in the recessed hole.
- Solder pin number 3. This can be most easily done by arranging to hold the cable in a vise or makeshift holder so that the octal plug points with its pins straight upwards. Then take a CLEAN soldering iron, with no solder blobs on its tip, and hold it against the side of the pin, near the bakelite body of the plug.

As soon as the pin has become sufficiently heated, feed a little solder into the hole at the end of the pin, without flowing down the outside of the pin. It is important to keep solder off the outside of the pin, so that the plug will insert into its socket without binding. If solder does flow outside, wipe off with a small rag while the pin is still hot. Work slowly and carefully, and you will have no difficulty.

- Insert the heavy RED wire into pin number 2 as before, and solder.
- Insert the BLUE wire into pin number 4 and solder.
- Insert the YELLOW wire into pin number 5 and solder.
- Insert the ORANGE wire into pin number 6 and solder.
- Insert the heavy BROWN wire into pin number 7 and solder.
- Insert the heavy GREEN wire into pin number 8 and solder.
- Insert the WHITE wire into pin number 1 and solder.
- Slide the cap back over the free end of the wire, and snap it into place over the plug. Push the plug against a hard surface, and line up the dimple in the cap with one of the slots in the plug. If the cap is positioned properly, only a medium pressure will snap the cap into place.
- Place the cable clamp over the free end of the cable, on the plastic jacket just past the point at which the cable was stripped. Position as shown in Fig. 9.
- Remove the nut holding the choke at E, place the clamp hole over the screw, and re-tighten the nut on the screw.
- Connect the twisted shield braid from the cable to ground lug AG (solder 3).
- Connect the heavy BLACK wire from the cable to terminal strip G, lug 2 (solder 2).
- Connect the heavy RED wire from the cable to terminal strip G, lug 1 (solder 3).
- Connect the heavy GREEN wire from the cable to terminal strip CC, lug 1 (solder 2).
- Connect the heavy BROWN wire from the cable to terminal strip CC, lug 2 (solder 3).
- Connect the WHITE wire to capacitor B, mounting lug 4 (solder 1).
- Connect the BLUE wire to capacitor B, lug (Δ) (solder 1).
- Connect the YELLOW wire to capacitor B, lug ($-$) (solder 1).
- Connect the ORANGE wire to capacitor B, lug (\square) (solder 2).
- Now remove the cap from the remaining octal plug assembly. Slide the cap over the stripped end of the line cable, with the open end of the cap towards the stripped end of the cable.
- At the octal plug, place a piece of bare wire into pin number 1 from the recessed hole side in the same manner as you did with the other plug. Solder this pin.
- Pass the other end of this bare wire into pin number 2, and clip off close to metal end of the pin. Feed the end of another length of bare wire into this pin, and then solder both these wires into the pin. Keep the jumper lead from pin 1 to pin 2 close to the body of the plug.
- Pass the other end of the bare wire from pin 2 into pin 3, tight to the body of the plug, and cut off close to the pin. Feed another piece of wire into this pin and solder both wires in the pin.
- Pass the other end of the bare wire from pin 3 into pin 4, tight to the body of the plug, and cut off the excess close to the pin. Solder this wire into pin 4.
- Pass one end of a piece of bare wire into pin 6 of the plug, and solder.
- Twist a SMALL loop in this wire, close to the point where it enters the plug, and then pass the other end into pin 7, and cut off close to the pin.

- Place one end of another piece of bare wire in pin 7, and solder the pin with both wires in it. Place the other end of this wire in pin 8, draw tight to the body of the plug, and solder pin 8.
- Identify the lead in the power cable that attaches to the CENTER terminal of the cigarette lighter plug. This can easily be done with an ohmmeter or flashlight bulb and battery connected between this center connector and one of the stripped leads at the other end of the cable. When properly identified, insert the stripped end of this wire into pin 5 of the octal plug, and solder. Make SURE that you have the proper wire. It may be necessary in some cases to remove about 1/4 of the strands of this wire before tinning it to get it to insert in the pin.
- Connect the other wire of the cable (this is the wire that connects to the side contacts of the cigarette lighter plug) to the loop previously formed in the jumper between pins 6 and 7. Connect this wire up close to the insulation, so that there is no possibility of a short circuit to the jumpers between pins 1, 2, 3, and 4.
- Snap the cap back on the plug as previously done.

This completes the construction of your Model TC-612 power supply. Shake out all wire clippings and solder blobs, and inspect your work for shorts and poorly soldered joints. Insert the 6X4 tube in its socket. Do NOT attempt to test the power supply at this time, nor to mount it on the main chassis. Place the unit aside until called for under FINAL TESTS, ADJUSTMENTS, and CALIBRATION, below.

Insert the 8 amp fuse in the fuse holder. Place the vibrator over its socket so that the two larger pins are over the matching socket holes, and insert into the clip so that the vibrator is firmly seated.

SECTION VII

FINAL TESTS, ADJUSTMENTS, AND CALIBRATION

The adjustments made in this section are required to properly align the Transceiver prior to putting your station on the air. Under NO conditions should the unit be connected to an antenna until specifically instructed to do so, and further, at no time should the unit, when connected to an antenna, be switched to TRANSMIT unless authorization in the form of your license has been received from the F. C. C.

Start by taking a preliminary test on the power supply. With the supply DISCONNECTED from the power source and the main chassis, an ohmmeter connected between pin 6 of the power cable plug and the chassis of the power supply should read approximately 20,000 ohms or more after 30 seconds to allow the filter capacitor to charge. If the reading is considerably lower, go back and check the wiring of the plug, filter capacitor, and tube pins on the supply.

Plug the supply into the octal socket on the main chassis, but do NOT mount the supply on the chassis bottom at this time. Place the supply to the right, well away from the main chassis. If you have the Model TC-11 power supply, the following tests can be made right at the work bench. If the Model TC-612 was purchased, then the tests must be conducted in the car or boat, or the battery brought to the work bench from the vehicle. Alternately, a battery eliminator power supply might be used at the bench to simulate the vehicle battery. However if two Transceivers were purchased, and one of them has the Model TC-11 power supply, this supply can be used to adjust both Transceiver kits at the bench for convenience.

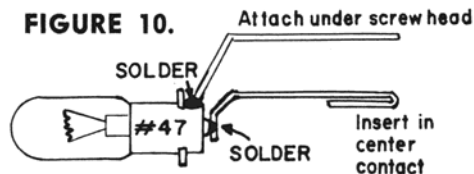
Set the front panel controls on the unit thus: VOLUME control to "OFF", TRANSMIT-RECEIVE lever knob to RECEIVE, Transmit and Receive CHANNEL selectors full COUNTERCLOCKWISE (left-of-center channel). Turn the Receiver Sensitivity control shaft on the back of the main chassis full COUNTERCLOCKWISE. No antenna load is plugged into the UHF socket at this time.

If the power supply is the Model TC-11, plug the line cord into the wall outlet (this MUST be 110-120 Volts, A. C.). If the Model TC-612 power supply is being used for these tests, plug the octal plug end of the line cable into the appropriate socket on the rear of the supply for either 6 or 12 volt battery operation. If the battery or battery-eliminator supply is used at the bench, attach a clip-lead from the center terminal of the cigarette-lighter plug to the positive (+) post, and one from the side connectors to the negative (-) post. In either case, ALWAYS make sure that all octal connector plugs are in their proper sockets before connecting the line cord to a power source. (Socket "K" for 6 volts, socket "J" for 12 volts).

Turn the VOLUME control full clockwise "ON". After approximately 30 seconds the POWER indicator bulb should glow orange. If not, turn the set OFF immediately, and inspect for shorts. If all is well, inspect the tubes to make sure that the filaments are lit.

Turn the receiver sensitivity control shaft full clockwise. A loud hiss should be heard in the speaker. If not, try turning the screw of the channel "A" receiver coil out (counterclockwise) until the rushing or hissing sound is heard. If any difficulty is encountered in any of the above tests, go to the section on SERVICE, and follow instructions for correcting it.

Now turn the volume control down to minimum, but not off. Make sure that a crystal is inserted in the Channel "A" crystal socket. Connect a #47 pilot lamp, into the UHF socket to serve as a dummy antenna. See Fig. 10.



Notice that the microphone plug has NOT been attached to the microphone cable as yet. Unscrew the plastic body from the plug, and insert the metal portion into the OUTPUT METER jack on the rear of the main chassis. If a milliammeter is available which can read in the range of 0 - 50 milliamps, attach the positive post of the Milliammeter to the center connector of the phone plug, and the negative post of the meter to the side connector of the plug, or to the chassis. If no meter is available, do not plug the phone plug into the chassis jack, but do not connect it to the microphone at this time, as it will be used later.

Push the TRANSMIT-RECEIVE lever down to the TRANSMIT position. If a milliammeter and a #47 dummy load lamp are both used, the current should read somewhere near 20 milliamps, and the dummy load lamp MAY glow. Turn the screw on the R. F. TRAP trimmer in snug (full clockwise), and back out the screw on the OUTPUT TRIMMER capacitor about two (2) full turns from the snug in position. Now slowly back out the TRANSMITTER TANK COIL slug, and watch the reading on the milliammeter, or the brightness of the dummy load lamp. A point of adjustment of this slug will be reached where the lamp is at its brightest, and the milliammeter reading dips to its lowest point, which should be between 18 and 22 milliamperes. Stop this adjustment at this point, and retune the OUTPUT TRIMMER capacitor for maximum brightness of the lamp, and/or lowest reading on the milliammeter. Now tune the R. F. TRAP trimmer for the same conditions. Go back and touch up the adjustment on the TRANSMITTER TANK COIL slug for the best possible output (brightest glow of the lamp, and/or lowest "dip" of the milliammeter). DO NOT, UNDER ANY CONDITIONS, ATTEMPT TO ADJUST THE SEALED SLUG OF THE OSCILLATOR COIL. This coil has been pre-set at the factory for proper operation on Citizen's Band frequencies, and sealed in accordance with F. C. C. regulations, Part 19, Section 19.71, paragraph (d), as amended. The certification of the Philmore Mfg. Co. Inc., concerning the design of this kit as complying with the provisions of Part 19 of the regulations will be voided if such adjustments of the oscillator coil are attempted by the user.

If crystals have been purchased for the additional two channels, insert them in ascending order of frequency (lowest frequency in "A" channel crystal socket), and repeat the above steps for the HIGHEST frequency channel (right-of-center on CHANNEL selector switch). It is not necessary that this adjustment be performed at this point, except for convenience, and can be done when the additional crystals are purchased. In any event, make sure that the oscillator turns on properly when switching between channels, and when switching on and off with the TRANSMIT-RECEIVE switch on each of the three channels.

Note: For those with access to the proper equipment, and knowledge of its use, the following information is provided. Maximum efficiency of power transfer to the antenna can be achieved if a 52 ohm, non-inductive load, capable of dissipating at least 3 watts, is connected to the antenna socket. Measurements should be simultaneously made of the total cathode current of the R. F. amplifier (the 0-50 milliammeter connected to the phone jack at the OUTPUT METER position), and, with a suitable R. F. Voltmeter, of the voltage drop across the 52 ohm load. Alternately, for those technicians holding a first or second class radiotelephone operator's permit, readings of output can be taken with an SWR bridge or R. F. voltmeter, while loading directly into the proper antenna. Depending on the load impedance of the antenna, anywhere from 1 to 3 watts of R. F. power will be transferred into the load (from 7.2 to 12.6 volts, R. M. S.). Resonance adjustments of the OUTPUT TRIMMER capacitor when the best cathode current dip has been obtained will insure maximum power transfer.

INITIAL RECEIVER CALIBRATION: Assuming that the hissing or rushing sound has been previously obtained in the receiver section, now turn the unit OFF. Insert the phone plug (with NO microphone attached) into the OUTPUT METER jack on the rear of the main chassis. Connect a jumper wire between lugs 4 and 5 on terminal strip H. Switch the unit to RECEIVE, and turn the power on, VOLUME control setting about 2/3 up. Set the TRANSMIT channel selector to "A" (left-of-center) channel, and the RECEIVE channel selector to the corresponding "A" channel. Do not make ANY connections to the phone plug in the OUTPUT METER jack at this time.

Adjust the coil slug of the channel "A" receiver tuning coil until a definite quiet spot (absence of hiss) is found. On both sides (in and out adjustment of the coil slug) of this spot, the receiver hiss should return. Make sure that the RECEIVER SENSITIVITY control is full clockwise. Leave the coil set at this spot. Since there is some range to the setting (about 1 full turn of the coil slug), try to set the slug near the middle of this range.

When the additional two crystals have been properly set-up in the transmitter section, adjustments of the other two receive channels can be made. Switch the transmitter to the second channel (center of channel selector), switch the receiver channel selector to the corresponding second channel, and repeat the above step for this channel at coil "B". Switch both receiver and transmitter selectors to the third channel, and repeat for the channel "C" coil of the receiver.

Final plate input power will now be calculated, so that you are assured of staying within the legal limit, imposed by the F.C.C. on this class of service, of 5 watts maximum anode (plate) circuit input power. The formula for this calculation is:

$$W \text{ (watts)} = I \text{ (plate current)} \times E \text{ (plate voltage)} \times .001 \text{ (conversion factor)}$$

Switch the unit to TRANSMIT, attach a 0-30 or 0-50 milliammeter to the phone plug in the OUTPUT METER jack, and record the current in milliamps obtained, with the unit properly aligned and the lamp at full brilliance. Now measure the positive D.C. voltage at terminal strip F, lug 1. Record this voltage.

Since the current recorded in the OUTPUT METER jack is actually a combination of plate and screen current in the output tube, we must deduct from the recorded current the screen current of the tube to obtain plate current. For all intents and purposes this current will be very close to 4.5 milliamperes when the dummy load is lit to full brilliance. Subtract 4.5 from the recorded current at the OUTPUT METER jack.

Multiply this revised current by the recorded plate voltage, and multiply this total by .001 (to convert milliamperes to amperes. This can be done by moving the decimal point of "plate current times plate voltage" three places to the left). This total is now actual plate input power. If it is over 5 watts, or under 3 watts, refer to the SERVICE instructions. An example of the above calculation follows:

Recorded plate voltage - 250 Volts	<u>SOLUTION</u>
Recorded cathode current - 23 M. A.	23.0 milliamperes
	- 4.5 milliamperes
	18.5 milliamperes
	<u>x 250</u> volts
	4625.0
	<u>x .001</u>
	4.625 Watts

The above example shows a transmitter operating at 4.625 Watts plate input power, within the legal limits imposed by the F.C.C. You MUST have 5 watts or less of plate input power to comply with Part 19 of the F.C.C. regulations, Section 19.32.

Now turn the unit OFF, and disconnect the phone plug from the OUTPUT METER jack. Wire this plug to the microphone cable, Be sure to slip the plastic body of the plug over the cable before wiring.

Plug the microphone into the front panel jack marked "MICROPHONE", turn the unit ON, switch to TRANSMIT, and allow to warm up. The dummy antenna lamp should glow at full brilliance. Speak slowly and distinctly into the microphone, about 3 inches from your mouth, and notice that the lamp will flicker in brightness as you speak. This indicates that the output is being properly modulated, and all is well in the audio and modulation circuits. If difficulty is encountered, refer to the proper section of the SERVICE instructions. After this check is completed, turn the unit OFF, and disconnect the dummy antenna.

You now have gone as far as you can in the final calibration of your Transceiver until you receive your F. C. C. station license. All adjustments of the transmitter that you are legally allowed to make have been accomplished. You will notice in Part 19 of the regulations that any adjustments made to the transmitter while on the air which might result in operation on a spurious frequency must be made by a person holding a first or second class radiotelephone operators permit. The adjustments you have made of your transmitter operating into a dummy load will, in most cases, be entirely satisfactory for operation of the unit into a properly designed antenna, so that it will not be necessary for you to make any adjustments while actually on the air. These regulations in no way restrict adjustment of the receiver, however, and instructions will be given below so that the receiver of unit can be peaked for most efficient operation. All instructions that follow are predicated on the assumption that you have received your station license, and are authorized to go on the air, or that you have a friend with a license and a transmitter who can assist you by giving you test transmissions.

This is now a good time to decide upon the two additional crystals which you should obtain so that you will have use of all three available operating channels of your Transceiver. Philmore has provided one crystal so that you can begin operations, but the choice of additional operating frequencies is up to you. This choice mainly depends upon local conditions and interference. If you are not familiar with conditions on the Citizens Band in your area, discuss it with the dealer from whom you purchased this equipment. He will gladly give you information and advice regarding the best frequencies to use. In any event, be SURE to purchase crystals which meet the tolerance specifications outlined in Section I of this manual, under the heading "Frequency Control". When these crystals are purchased, align the two additional channels as outlined above.

Fill out the TRANSMITTER IDENTIFICATION CARD on the adhesive-backed sheet included. Carefully cut it off the main sheet, strip away the protective backing, and attach it to the side of the Transceiver cabinet. Remember that this card is not and may not be used as a license, but only indicates that you have obtained your license and authorization to use your Transceiver.

Cut out, with a single-edge razor blade, the numbers and letters that constitute your call sign. Carefully strip the backing off each of these, and neatly place them in the appropriate space on the panel. Smooth each down with your fingernail, so that they will stay on permanently.

Cut out a number to identify each Transceiver you own as a specific unit. More than one unit can be registered on one license and call sign, but each must be identified by a number during transmission.

Cut out a channel identifying number from the sheet for each of the three channels you have selected, and place in the appropriate space on the TRANSMIT CHANNEL selector control. Place so that the lowest frequency channel is at the left-of-center position, the next highest in the center position, and the highest frequency in the right-of-center position. The chart below will help you to identify channel numbers by exact frequency. Make sure that the crystal corresponding to each of the marked channels on the front panel is placed in the proper crystal socket, socket "A" being the lowest channel, "B" the intermediate channel, and "C" the highest channel, respectively. Now place corresponding numbers in each of the positions of the RECEIVE CHANNEL selector.

CHANNEL	FREQ. (MC)	CHANNEL	FREQ. (MC)	CHANNEL	FREQ. (MC)
1	26.965	9	27.065	17	27.165
2	26.975	10	27.075	18	27.175
3	26.985	11	27.085	19	27.185
4	27.005	12	27.105	20	27.205
5	27.015	13	27.115	21	27.215
6	27.025	14	27.125	22	27.225
7	27.035	15	27.135		
8	27.055	16	27.155		

If you own two or more transceivers, it is a good idea to get crystals for each of them on identical channels, to facilitate cross-communication between them.

You are now ready to make the final adjustment to peak the receiver to each of the three channels selected. If you own two Transceivers, this will be relatively easy, and will "lock" each of them to identical channels during the process. If only one Transceiver is owned, it will be necessary to have a friend with another unit transmit to you over each of the channels, or to listen in on the air until you find a station transmitting on each channel you wish to speak.

Make sure that the unit to which you are listening is at least a half-mile away. Have the sending station transmit on your lowest frequency channel. Attach the antenna to your Transceiver, set the unit to RECEIVE, and turn it on. Select your lowest-frequency channel on the RECEIVE CHANNEL SELECTOR control, and slowly turn the slug of the Channel "A" receiver coil in and out until the transmission is picked up. Peak this signal for maximum reduction of the background hiss, and best clarity of speech. Now have the other unit switch to the second channel, select the middle frequency on the CHANNEL SELECTOR control, and repeat the above with the channel "B" tuning coil slug. Repeat again for channel "C". The process may now be reversed, with you doing the transmitting, so that the other unit may be "locked in" with yours. In all transmissions, be sure to follow the rules for transmitting which are included herein. After peaking reception on all channels, turn the RECEIVER SENSITIVITY control down, and then up again until the hiss is just heard. Turn up 1/4 turn from this point for the setting of maximum sensitivity. An access hole is provided on the back for later re-setting of this control should more sensitivity be needed later for weaker stations.

Turn on a TV set that you can see from your work-bench, and tune to one of the three lower channels that has a station operating in your vicinity. If you notice a "cross-hatch" or "wavy-line" pattern on the screen while you are transmitting, it will be necessary to adjust the RF trap capacitor from its "snug-in" position to eliminate this interference. This will usually only be necessary when the transmitting antenna is located near the TV antenna, or that of a neighbor. Since this adjustment might possibly be construed as to affect the proper operation of the unit while on the air, it should be made by a person holding a first or second class radiotelephone operators permit.

After all the above adjustments have been made to the receiver, the Transceiver is ready to "button-up", and put into service. Turn the unit off, disconnect from the power source, and remove any antenna connection that has been made.

Using the short, sheet-metal screws provided, attach the power supply to the chassis bottom. Notice that the screw holding the power supply chassis in the rear, left hand corner (looking at the bottom from the panel edge of the unit) is a long sheet metal screw, which is first passed through one of the rubber feet, then into the chassis. Slip the piece of insulating paper between the power supply lip and the chassis bottom, inserting only 1/2" of the long edge under the long bottom lip. Adjust so that the right-hand edge is flush with the right-hand bend in the chassis. After the chassis is firmly secured with the sheet-metal screws, fold the insulating paper up to the top lip, and fasten to this lip with some "Scotch" tape, or masking tape. The purpose of this paper is to cover the wiring of the power supply, so that shocks will not be encountered when making further adjustments to the transceiver at a later date.

Attach rubber feet, with 6-32 screws, nuts, and lockwashers, to each of the other three corner holes of the chassis bottom.

Carefully knock out the proper mating hole in the cabinet cover to correspond to the position of the antenna connector jack. This can be done with a pair of pliers for the side slot, and hammer and punch or screw-driver for the top hole. Be sure to knock-out only ONE of these holes, leaving the other intact for appearance.

Carefully slide the cabinet cover over the main chassis, power supply and panel, using care so as not to damage the panel, and seat down so that it rests snugly around the unit.

Using short, sheet-metal screws, attach the cabinet to the chassis at each of the two holes in either side of the cabinet.

If using a model TC-612 power supply, cut out the words "6 Volts" and "12 Volts" from the adhesive backed sheet, and apply over each of the appropriate sockets on the rear of the power supply. (6 volt over socket "K" and 12 volt over socket "J").

SECTION VIII SERVICE

General Information

The PHILMORE MANUFACTURING CO. makes every effort to supply only the finest of components that undergo rigorous factory tests before shipment. Despite these controls, it sometimes occurs that a defective part or tube appears in a kit assembly. More often, however, improper operation can be traced to incorrect wiring or the use of the wrong parts in certain connections. General service procedure calls for re-inspection and tracing of the wiring, and re-evaluation of color-coded components before beginning instrument testing. Once you are certain that all assembly instructions have been followed exactly, the next step consists of taking a set of voltage readings at the tube terminals. These should be compared with those given in the accompanying table. Variations from given voltages, up to plus or minus 20%, should not affect the operation of the equipment seriously.

VOLTAGE CHART

MODEL TC-11 AND MODEL TC-612

Readings taken with Vacuum Tube Voltmeter or 20,000 ohms/volt meter.
All voltages are positive D.C. measured to chassis unless otherwise noted.
Significant control settings are:

VOLUME control minimum, just ON.
TRANSMIT-RECEIVE switch to RECEIVE (an (*) indicates switch in TRANSMIT position)
CHANNEL selectors both to "A" (left-of-center position)
RECEIVER SENSITIVITY control full clockwise.
No MICROPHONE in front panel jack.
No connection to OUTPUT METER jack.
Dummy antenna in ANTENNA socket.

Readings taken with TC-11 power supply. (-) indicates D.C. reading for Model TC-612 power supply, 6 volt battery source. ((-)) indicates D.C. reading for 12 volt battery source.

TUBE TYPE	PIN NUMBERS								
	1	2	3	4	5	6	7	8	9
12AX7	160	0	1.7	0	0 (0) ((12))	95*	0	1.5*	6.3 AC (6) ((6))
6AQ5	0	15	0	6.3 AC (6) ((6))	250 220 *	250 240 *	0	---	---
6AN8	30	-1	0	0 (0) ((12))	6.3 AC (6) ((6))	220	75	0	1.5
6AU8	0	-13.5 *	200 *	0 (0) ((12))	6.3 AC (6) ((6))	0 *	-15 *	150*	250*
6X4	265 AC	0	0	6.3 AC ((6))	0	265 AC	255	---	---
SOCKET "E"	0	117 AC (6) ((12))	117 AC (6) ((12))	200	15	250	6.3 AC (6) ((6))	0 (0) ((12))	---

Measure tube pin voltages with respect to chassis and compare with voltages given in the chart.

If one or more measured voltages differ significantly from those in the chart for the same points, determine from the schematic diagram, if possible, which component(s) might give rise to this trouble if defective. Also check wiring to all parts that might affect this voltage reading. Use standard service procedure and service instruments for locating troubles and, if possible, enlist the assistance of a competent radio serviceman.

Listed below are some possible difficulty which might arise in the construction and operation of your Transceiver. The suggested corrective measures given definitely DO NOT RULE OUT all other possibilities, but are given primarily to direct your attention to the areas most likely to be faulty.

RECEIVER SECTION DEAD: Check 6AN8, 12AX7, and 6AQ5 tubes. Check for wiring error. Receiver SENSITIVITY control mis-adjusted. 6.8 mmf capacitor across cathode choke (wound on 1 watt resistor) not properly soldered. Capacitors and resistors away from socket not properly dressed. Receiver channel selector switch improperly connected to coils and terminal strip. Readjust position of green wire from switch. Speaker grounding in TRANSMIT-RECEIVE switch improperly wired. Check for faulty speaker or output/modulation transformer.

RECEIVER WEAK: Check 6AN8, 12AX7, 6AQ5. Receiver SENSITIVITY control mis-adjusted. Receiver tuning coils mis-adjusted. Faulty antenna or connecting cable. Green wire from receiver channel switch dressed too close to other wires or coils. Input tuning coil mistuned.

TRANSMITTER SECTION DEAD: Check 6AU8 tube. Check for wiring error. Check and re-tune OSCILLATOR TANK coil and TRANSMITTER TANK coil. Connections from TRANSMITTER-RECEIVE switch improperly wired. Dummy antenna shorted or open. .001 mfd capacitor improperly substituted for 100 mmf capacitor. Coil lugs not properly soldered.

STRONG CARRIER SIGNAL BUT NO MODULATION: Faulty microphone connections. Microphone damaged by having plugged it into OUTPUT METER jack rather than into MICROPHONE jack. Check 12AX7 and 6AQ5 tubes. Check for wiring error. Microphone jack on antenna bracket improperly wired.

POWER INPUT TO PLATE CIRCUIT TOO HIGH OR TOO LOW: Check 6AU8 tube. Check for wiring error. Check line voltage from wall outlet (should be between 105 - 125 Volts A.C.) OSCILLATOR TANK coil or TRANSMITTER TANK coil mistuned. B plus voltage too high or low. Meters not giving correct reading. Crystal activity too low. Crystal damaged through omission of 47 K ohm resistor from B2 to ground.

WEAK TRANSMITTED SIGNAL: Faulty antenna. Shorted or open connecting cable. TRANSMITTER TANK coil improperly tuned on dummy load. Poor antenna location. Faulty ground connection at antenna socket. Improper connection of 6 or 12 volt cable to TC-612 power supply.

INTERFERENCE ENCOUNTERED ON TRANSMISSION OR RECEPTION: Change transmitter frequencies to uncrowded channels in your location. Check with distributor or others on Citizens Band in your area for advice on uncrowded frequencies available. Remember that the F.C.C. does NOT guarantee freedom from interference on the Citizens Band, since this service is used on a shared basis. Try to keep away from medical diathermy band (27.120 MC) and radio-control band (27.255 MC).

Parts Replacement

If further testing reveals a defective component, and if this defect has not been caused by improper handling on the part of the purchaser, the PHILMORE MANUFACTURING CO. will gladly replace the component if the following conditions are fulfilled: identify the part by part number as listed in this instruction book and state the type and model of the equipment for which the component is required. In your letter, refer to the date of purchase and the dealer from whom the kit was bought, in addition to complete details relative to the defect in the components.

In all cases, return the defective part postage prepaid and carefully packaged to avoid breakage in transit.

Service

In extreme cases, where the equipment cannot be made operative by the kit builder, the PHILMORE MANUFACTURING CO. will undertake to provide the necessary service under the conditions outlined below.

Equipment will be serviced only if it has been completely wired and assembled in accordance with the instructions contained in this manual. Equipment that has been constructed in any other manner, that has been modified in any way, that has been wired with acid core solder or soldering paste of any type, or that is incompletely assembled will be shipped back to the sender collect.

A minimum service charge of \$5.00 will be made to the sender, plus the cost of replacement parts if they are required. This offer is valid only for equipment purchased one year or less before shipment for service is made. No money should be sent with the equipment. After repairs have been effected, PHILMORE MANUFACTURING CO., INC. will bill the sender in full. Upon receipt of payment, the equipment will be shipped back by the company.

Shipping Instructions

(1) Obtain a tag intended for express shipment and enter your name, address, and trouble symptoms on the tag. Attach the tag to the body of the instrument itself, not to the carton or package.

(2) Be certain that all equipment components are securely mounted on the chassis in the positions given in this manual.

(3) The carton in which the kit is sold is NOT SUITABLE FOR SHIPMENT BACK TO THE FACTORY. The container must be rugged and oversized to permit the use of generous layers of padding material such as shredded newspaper, excelsior, or styrofoam. Allow room for at least 3-1/2 inches of padding on all sides and bottom of carton.

(4) Ship to PHILMORE MANUFACTURING CO., INC., 130-01 Jamaica Avenue, Richmond Hill 18, N. Y. express prepaid.

The Philmore Manufacturing Co., Inc., guarantees each new radio or electronic product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service disclosed such defect provided the item is returned to us intact, for our examination, with all transportation charges prepaid to our factory, within ninety days from the date of shipment and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio or electronic products which have been subjected to misuse, neglect, accident, improper wiring in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory.

We are not responsible for damage that occurs in transit. The consignee must file claims for recovery with the carrier. We reserve the right to change instrument specifications at any time without being obliged to modify existing instruments or those already sold in like manner.

PARTS LIST

MODEL TC-11 MAIN UNIT (LESS POWER SUPPLY)

<u>PART #</u>	<u>QUAN.</u>	<u>DESCRIPTION</u>	<u>PART #</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
<u>Resistors:</u>			<u>Transformer:</u>		
TC1001	1	470 ohm, 1/2 watt	TC1032	1	Modulation/output
TC1002	1	470 ohm, 1 watt	<u>Chokes:</u>		
TC1003	2	3.3 K, 1/2 watt	TC1030	1	RF choke on 1 watt res.
TC1004	2	4.7 K, 1/2 watt	TC1031	1	75 mh., pigtail form
TC1005	1	10 K, 1 watt	<u>Coils:</u>		
TC1006	1	56 K, 1/2 watt	TC1033	2	Rec. input, Trans. output
TC1007	1	22 K, 1 watt	TC1034	3	Rec. tuning
TC1008	1	47 K, 1/2 watt	TC1035	1	Oscillator tank
TC1009	1	150 K, 1/2 watt	TC1036	1	RF trap
TC1010	3	220 K, 1/2 watt	<u>Crystal:</u>		
TC1011	1	270 K, 1/2 watt	TC1037	1	Citizens Band, .005% tol.
TC1012	4	1 Meg, 1/2 watt	<u>Speaker:</u>		
TC1013	1	10 Meg, 1/2 watt	TC1038	1	3 1/2", PM, 3.2 ohm
<u>Potentiometers:</u>			<u>Microphone:</u>		
TC1016	1	1 Meg Volume w/switch	TC1039	1	Ceramic, no plug
TC1017	1	500 K Sensitivity	<u>Switches:</u>		
<u>Capacitors:</u>			TC1040	1	#1882-J 4 pole, 2 pos.
TC1018	1	1.5 mmf, disc or tubular	TC1041	2	#1884-J 4 pole, 3 pos.
TC1019	1	4.7 mmf, disc or tubular	<u>Jacks and Plugs:</u>		
TC1021	3	10 mmf, disc or tubular (1 mounted on TC1035)	TC1042	2	Closed ckt. phone jack
TC1022	1	15 mmf, disc or tubular	TC1043	1	Phone plug
TC1023	1	100 mmf, disc or tubular	<u>Tubes:</u>		
TC1024	7	.001 mfd disc ceramic	TC1044	1	12AX7 Tube
TC1025	7	.005 mfd disc ceramic			
TC1026	2	.01 mfd disc ceramic			
TC1027	2	10 mfd, 25 V. Electrolytic			
TC1028	2	Ceramic trimmers			

PART #	QUANTITY	DESCRIPTION	PART #	QUANTITY	DESCRIPTION
--------	----------	-------------	--------	----------	-------------

TC1045	1	6AN8 tube
TC1046	1	6AU8 tube
TC1047	1	6AQ5 tube

Sockets:

TC1048	1	7 pin min. bakelite
TC1049	1	octal bakelite
TC1050	2	9 pin min. bakelite
TC1051	3	Ceramic crystal sockets
TC1052	1	UHF antenna socket
TC1054	2	Bayonet lamp sockets
TC1056	1	9 pin min. bakelite, shield base
TC1057	1	Tube shield

Lamps:

TC1053	2	NE-51 neon
TC1055	1	#47 dummy antenna

Chassis:

TC1058	1	Panel and cabinet bottom
TC1059	1	Main wiring chassis
TC1060	1	Control Bracket
TC1061	1	Antenna Bracket
TC1062	1	Cabinet cover

Knobs:

TC1063	3	Small knob, w/line
TC1064	1	Bar knob

Grommets:

TC1065	3	3/8" ID, 7/16 mtg.
TC1078	4	Rubber feet

Terminal Strips:

TC1066	2	7 lug strips
TC1067	1	3 lug strips

Screws:

TC1069	12	4-36 x 1/4, BHMS
TC1070	12	6-32 x 3/8, BHMS
TC1071	15	Sheet metal, 1/4 long
TC1072	5	Sheet metal, 3/8 long
TC1073	3	4-36 x 3/8, BHMS

Nuts:

TC1075	15	4-36 x 3/16 Hex.
TC1076	12	6-32 x 1/4, Hex.
TC1077	2	3/8" x 32 Control, Hex.

Washers and Lugs:

TC1079	15	#4 Int'l tooth lockwashers
TC1080	12	#6 Int'l tooth lockwashers
TC1081	6	Ground lugs

Wire and Cable:

TC1084	1 ft.	shielded cable
TC1085	1-1/2 ft.	sleeving
TC1086A	3 ft.	black #20 wire
TC1086B	3 ft.	brown #20 wire
TC1086C	4 ft.	red #20 wire
TC1086D	1 ft.	orange #20 wire
TC1086E	1 ft.	white #20 wire
TC1086F	1-1/2 ft.	blue #20 wire
TC1086G	1 ft.	yellow #20 wire
TC1086H	1 ft.	green #20 wire
TC1087	4 ft.	#20 bare wire

Grille:

TC1088	1	Gray flock speaker grille
--------	---	---------------------------

Printed Matter:

TC1089	1	Adhesive -back sheet
TC1090	1	Instruction manual
TC1091	1	Fold-out print

Miscellaneous poly bags and small packing boxes, large packing carton.

PARTS LIST

MODEL TC-11 POWER SUPPLY

PART #	QUANTITY	DESCRIPTION
--------	----------	-------------

Capacitors:

TC1100	1	4-section electrolytic
--------	---	------------------------

Transformer:

TC1101	1	Power transformer
--------	---	-------------------

Choke:

TC1102	1	8 henry power choke
--------	---	---------------------

Tube:

TC1103	1	6X4 tube
TC1110	1	2 amp fuse, 3AG size

Socket:

TC1048	1	7 pin. min. bakelite
TC1104	1	Fuse extractor post

Plug:

TC1105	1	Octal plug and cap assembly
--------	---	-----------------------------

Mounting Plate:

TC1106	1	4 prong 'lytic plate
--------	---	----------------------

Chassis:

TC1107	1	Power supply sub-chassis
--------	---	--------------------------

Grommets:

TC1108	1	1/4" ID, 3/8 mtg.
TC1065	1	3/8" ID, 7/16 mtg.

Terminal Strip:

TC1109	1	5 lug terminal strip
--------	---	----------------------

Screws:

TC1069	2	4-36 x 1/4, BHMS
TC1070	5	6-32 x 3/8, BHMS

Nuts:

TC1112	4	8-32 x 5/16 Hex.
TC1075	2	4-36 x 3/16 Hex.
TC1076	5	6-32 x 1/4 Hex.

Washers:

TC1115	4	#8 Int'l tooth lockwashers
TC1079	2	#4 Int'l tooth lockwashers
TC1080	5	#6 Int'l tooth lockwashers
TC1117	1	Sheet 5" x 7" insulating paper

Cable:

TC1118	1 ft.	8 Conductor cable
TC1121	1-1/2 ft.	Black #20 wire
TC1120	1	6 ft. line cord w/plug

PART # QUAN. DESCRIPTION

Clamp:
TC1119 1 Cable clamp

Miscellaneous poly bags and small packing boxes,
large packing carton.

PARTS LIST

MODEL TC612 POWER SUPPLY

PART # QUANTITY DESCRIPTION

Resistors:

TC6100 1 47 ohm, 1 watt
TC1004 1 4.7 K ohm, 1/2 watt

Capacitors:

TC6101 1 .005 mfd, disc. 2 KV
TC1026 4 .01 mfd, disc ceramic
TC6104 1 .5 (.47) mfd paper
TC1100 1 4 section electrolytic

Transformer:

TC6105 1 Vibrator power transformer

Choke:

TC1102 1 8 henry power choke

Coils:

TC6106 1 Battery hash choke coil
TC6107 1 1.1 mh RF choke coil

Tube:

TC1103 1 6X4 tube
TC6102 1 8 amp fuse, 3AG size

Sockets:

TC1048 1 7 pin min. bakelite
TC6108 1 4 prong wafer socket
TC1049 2 Octal bakelite sockets
TC1104 1 Fuse extractor post

Plugs:

TC1105 * 2 Octal plug and cap assembly

PART # QUAN. DESCRIPTION

Mounting Plate:
TC1106 1 4 prong 'lytic plate

Chassis:
TC6109 1 Power supply sub-chassis

Grommet:

TC1108 1 1/4" ID, 3/8" mtg.

Terminal Strips:

TC6110 2 5 lug terminal strips
TC1067A 1 2 lug terminal strip

Screws:

TC1069 2 4-36 x 1/4 BHMS
TC1070 12 6-32 x 3/8, BHMS

Nuts:

TC1112 4 8-32 x 5/16 Hex.
TC1075 2 4-36 x 3/16 Hex.
TC1076 12 6-32 x 1/4 Hex.

Washers:

TC1115 4 #8 Int'l tooth lockwashers
TC1079 2 #4 Int'l tooth lockwashers
TC1080 12 #6 Int'l tooth lockwashers
TC1117 1 Sheet 5" x 7" insulating paper

Cable:

TC1118 1 ft. 8 conductor cable
TC6111 1 4 ft. #16 line cord, w/plug
TC6114 4 ft. Black #20 wire

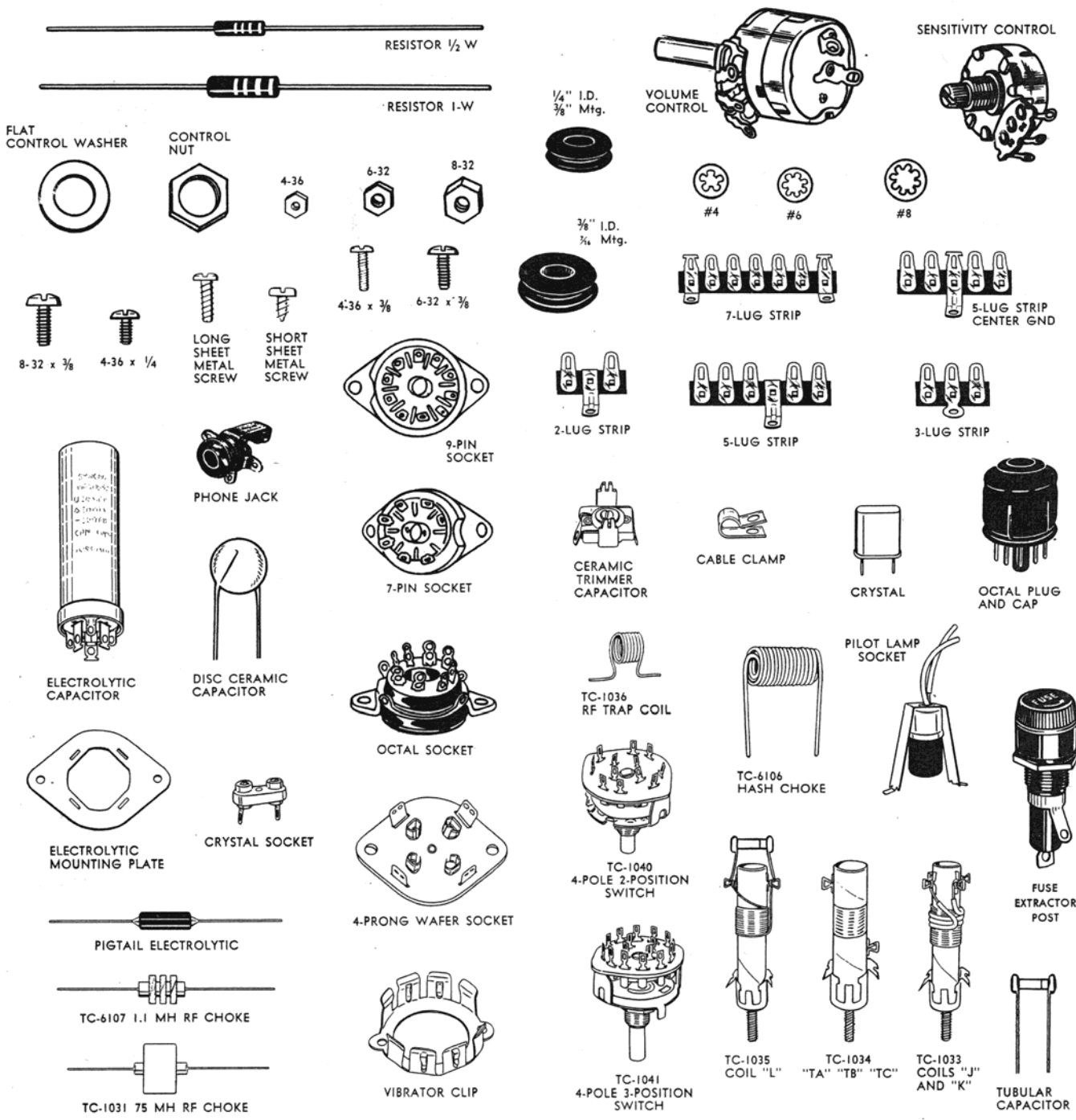
Vibrator:

TC6112 1 Special 6 volt vibrator

Clamps:

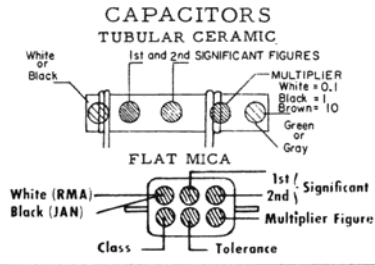
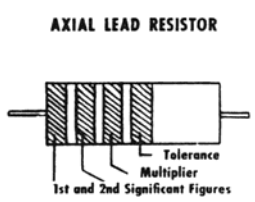
TC6113 1 Vibrator clamp
TC1119 1 Cable clamp

Miscellaneous poly bags, small packing boxes,
large packing carton.



STANDARD COLOR CODE — RESISTORS AND CAPACITORS

Color	First Figure	Second Figure	Multiplier
BLACK	0	0	None
BROWN	1	1	0
RED	2	2	00
ORANGE	3	3	.000
YELLOW	4	4	0.000
GREEN	5	5	00.000
BLUE	6	6	000.000
VIOLET	7	7	0,000.000
GRAY	8	8	00,000.000
WHITE	9	9	000,000.000



PHILMORE MANUFACTURING CO., INC. • RICHMOND HILL 18, N. Y.