ASSEMBLY INSTRUCTIONS

BAUER

AM BROADCAST TRANSMITTER

MODEL 707

Bauer

ELECTRONICS CORPORATION

ASSEMBLY INSTRUCTIONS

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AM BROADCAST TRANSMITTER

MODEL 707

Bauer Electronics Corporation
1663 Industrial Road
San Carlos, California.

WARRANTY

Bauer Electronics Corporation warrants new equipment of its manufacture and assembly for one (1) year against breakage or failure of parts due to imperfection of workmanship or material, its obligation being limited to repair or replacement of defective parts upon return thereof, prepaid to the Bauer plant. High-voltage transformers, modulation transformers and reactors and filter chokes carry an extended warranty with 50% of the replacement cost being allowed should failure occur during the second year. Warranty will be based on date of invoice. No return shipments will be accepted without prior authorization. Electron tubes and silicon rectifiers bear only the warranty of the manufacturer thereof in effect at the time of shipment to Purchaser.

P R E F A C E

The kit assembly of a Bauer Model 707 Transmitter can be completed by anyone who is familiar with electronic construction techniques. This requires a normal facility with a screw driver and soldering iron, and the ability to follow directions carefully. However, the final adjustment and performance measurements should be made only by a qualified engineer who is experienced in transmitter adjustment and operation. With careful workmanship and attention to details during construction, the finished product will be a source of pride and satisfaction.

This book is intended to be used only for the assembly of the Model 707 kit. No attempt is made to discuss theory or operation within the pages of this book. The Model 707 instruction book covers these details thoroughly and it is assumed that anyone building the kit will have this book available.

The assembly of the kit is logically sub-divided into ten sections. These are as follows:

1. Location and identification of all parts
2. Pre-assembly of component boards
3. Installation of smaller parts in cabinet
4. Installation of wiring harness
5. Pre-assembly of HV rectifier and power control panels
6. Installation of HV rectifiers, power control panels and HV harness
7. Installation of final amplifier RF circuit
8. Installation of heavy chokes and transformers
9. Preliminary checks and adjustments
10. Final performance measurements

The written assembly instructions in this book are divided into small operations or steps. Each step is a complete operation. Read the entire step through, then do that operation and check it off as completed. After an interruption it is easy to find where you left off by the check mark. Read over the last checked step and you are ready to continue. Additional helpful information is contained in the appendix of this instruction book. It should be studied carefully before transmitter assembly is undertaken.

SECTION I

Location and Identification of Parts

All components should be unpacked enough to permit identification and each part should be checked off against the packing list supplied in each box. The resistors should be arranged in order of resistance value for convenient location as required.

Shortages should be reported to the Bauer Electronics Corporation. In the event any components have suffered either visible or hidden shipping damage a full report and claim should be filed immediately with the transportation company.

SECTION II

Pre-Assembly of Component Boards

The jumper and component pigtails should be wound around the terminal once, clipped, and crimped to prevent any part from falling off before being soldered.

Components should be centered between mounting terminals so that they are positioned as shown in the accompanying sketches. Do not solder any terminals until instructed.

COMPONENT BOARD #1

Install the jumpers as follows, using #20 tinned solid wire. Use black sleeving where insulation is required. Refer to figure CB-1.

(✓) 1. Jumper terminal 1 to terminal 2

(✓) 2. Jumper terminal 3 to terminal 4

(✓) 3. Jumper terminal 5 to terminal 6

(✓) 4. Jumper terminal 7 to terminal 8

(✓) 5. Jumper terminal 12 to terminal 13

(✓) 6. Jumper terminal 9 to terminal 11 (insulate)

(✓) 7. Jumper terminal 14 to terminal 16 (insulate)

(✓) 8. Jumper terminal 10 to terminal 15 (insulate)

(✓) 9. Mount R54 (220k,2w) between terminal 2 and terminal 10

(✓) 10. Mount R52 (68k,2w) between terminal 3 and terminal 11

(✓) 11. Mount R51 (68k,2w) between terminal 4 and terminal 12

(✓) 12. Mount R50 (68k,2w) between terminal 5 and terminal 13

(✓) 13. Mount R49 (68k,2w) between terminal 6 and terminal 14

(✓) 14. Mount R53 (220k,2w) between terminal 7 and terminal 15

(✓) 15. Solder terminals 2, 3, 4, 5, 6, 7, 11 and 15

(✓) 16. Mount C40 (.1 mfd,1000v)between terminal 1 and terminal 9

(✓) 17. Mount C39 (.1 mfd, 1000v)between terminal 8 and terminal 16

The pre-assembly of CB-1 is now complete

NOTE: Dotted lines indicate jumper wires on back of component board. Where wires cross insulation is used. All component boards are mounted on standoffs when installed in the transmitter thus insuring sufficient clearance for all wiring on the back of the board

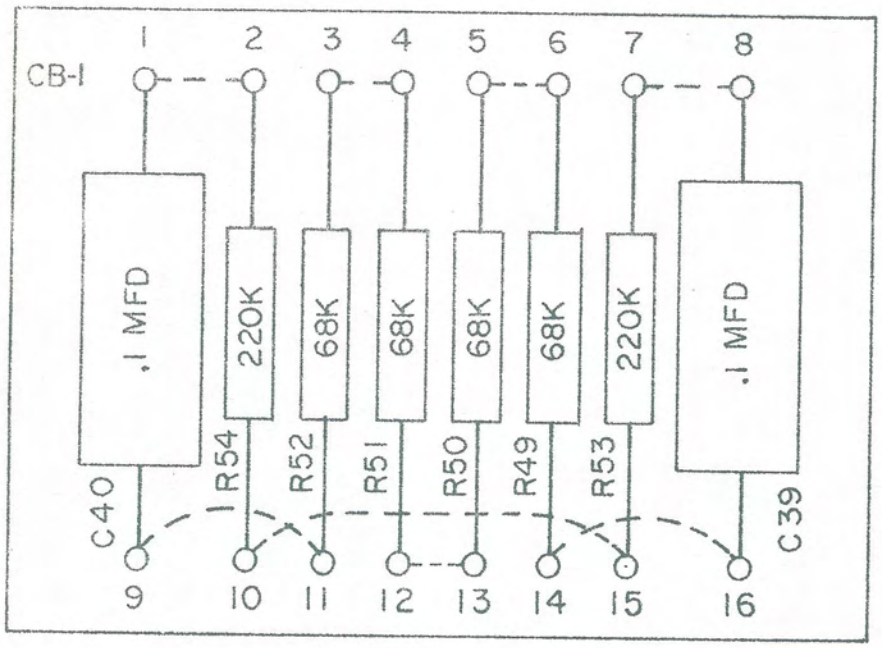


Figure CB-1

COMPONENT BOARD NO. 2

Following same procedure as CB-1

(✓) 1. Jumper terminal 7 to terminal 8

(✓) 2. Jumper terminal 6 to terminal 10 (insulate)

(✓) 3. Temporarily attach ground lug to mounting hole between terminal 1 and terminal 6, using screw and nut

(✓) 4. Jumper from terminal 2 through ground lug to terminal 6

(✓) 5. Mount R44 (6.8k, 2w, 5%) between terminal 1 and terminal 6

(✓) 6. Mount R47 (82k, 2w) between terminal 2 and terminal 7

(✓) 7. Mount R48 (82K, 2w) between terminal 3 and terminal 8

(✓) 8. Mount R45 (2.2k, 2w) between terminal 4 and terminal 9

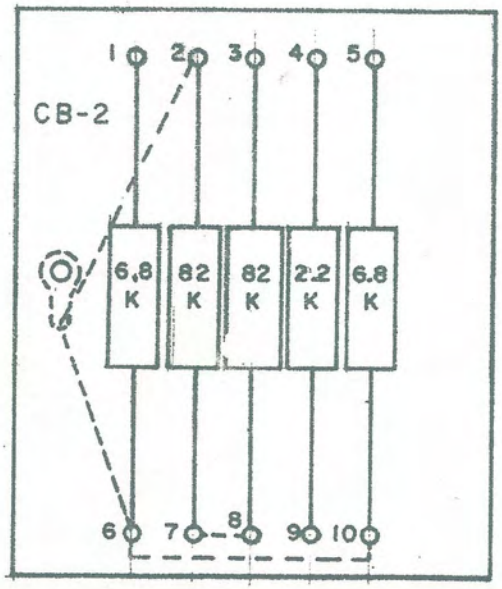
(✓) 9. Mount R43 (6.8k, 2w, 5%) between terminal 5 and terminal 10

(✓) 10. Solder terminals 2, 6, 10 and lug on rear

(✓) 11. Remove screw that temporarily held the ground lug

The pre-assembly of CB-2 is now complete

FIGURE CB-2



COMPONENT BOARD NO. 3

Use previous procedure and refer to Figure CB-3. This component board includes an octal socket. The connections on the octal socket are referred to as "pins" to distinguish them from the other terminals.

( ) 1. Install octal socket using 6-32 x 3/8" BH screws and kep nuts. Octal index pin should be between terminals 8 and 9 on the component board

( ) 2. Jumper terminal 4 to terminal 5

( ) 3. Jumper from terminal 6 to terminal 7 to pin 5 (insulate)

( ) 4. Jumper terminal 9 to pin 7 (insulate)

( ) 5. Jumper terminal 8 to pin 8 (insulate)

( ) 6. Jumper terminal 10 to pin 2 (insulate)

( ) 7. Jumper from terminal 12 to terminal 11 to pin 1 (insulate)

( ) 8. Jumper from terminal 1 to terminal 2 to pin 6 (insulate)

( ) 9. Temporarily attach ground lug to mounting hole nearest terminal 3, using screw and nut

( ) 10. Jumper from ground lug to terminal 3 to pin 4

( ) 11. Mount R40 (power determining part) between terminal 1 and terminal 5

( ) 12. Mount R39 (power determining part) between terminal 2 and terminal 6

( ) 13. Mount R13 (power determining part) between terminal 3 and terminal 11

( ) 14. On front side of board solder terminals 1, 2, 3, 6 and 11

( ) 15. On rear side of board solder all octal socket connections and ground lug

( ) 16. Remove screw that temporarily held ground lug.

The pre-assembly of CB-3 is now complete.

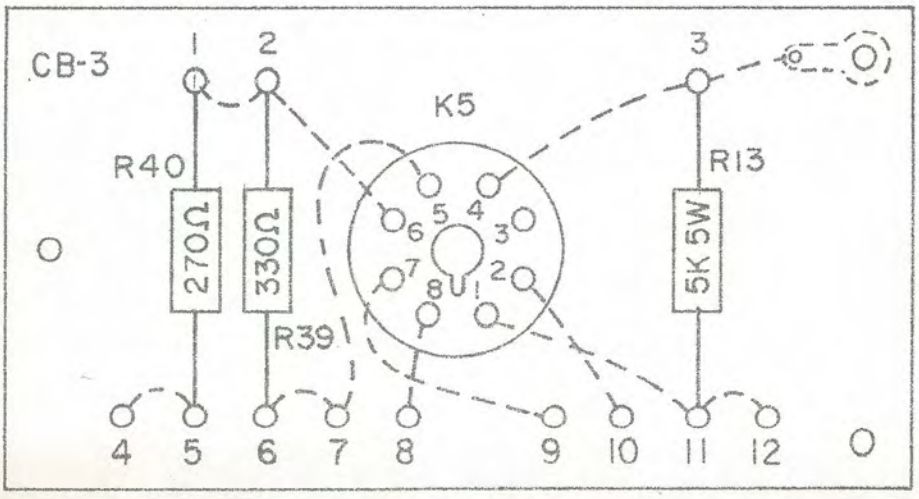


Figure CB-3

MOUNTING OF SILICON DIODES

In the assembly of Component Boards 4, 5, 8, 12 and 13 you will use a total of 369 silicon diodes. Diodes of the same manufacturer are supplied with each transmitter. They are of a hermetic seal type with a PIV rating of 600 volts and a current rating of 1 amp. Resistive and capacitive equalization is used on the low voltage board (CB-8) and the high voltage boards (CB-12 and CB-13). When mounting these diodes a definite technique should be used and this will be discussed now before proceeding to CB-4.

When mounting the diode be certain to observe polarity and make a point of keeping any identifying marks visible. The diode leads, you will note from the pictures of CB-8 and CB-12/13, are wrapped around the terminals. Solder carefully and then cut off the excess lead 1/8 inch from the terminal - this pigtail facilitates replacement, should it ever become necessary. After soldering, run a resistance check on each component board, checking each diode from terminal to terminal. Each diode should have a forward resistance of less than 20 ohms and a reverse resistance of more than 500,000 ohms. Use the low ohms scale when reading the forward resistance and the high ohms scale when reading the reverse resistance. Keep in mind that the normal reverse resistance of the diodes on CB-8, CB-12, and CB-13 will be masked by the equalizing resistors. Since the resistors are 100 k, a point to point check on these boards should indicate this value of resistance. Anything less than this should indicate a faulty diode. Careful workmanship on the diode board will insure trouble-free rectifiers for years.

COMPONENT BOARD NO. 4

Use previous procedure and refer to Figure CB-4.

( ) 1. Bolt electrolytic capacitor mounting wafer supplied with C-43 to back side of board using two 6-32 x 3/8" BH screws and kep nuts.

( ) 2. Mount capacitor C-43 (150 mfd, 150 v) and orient as shown on Figure CB-4.

( ) 3. Mount R-61 (10 k, 2 w, pot) with indexing ear projecting through hole provided.

( ) 4. Mount relay socket using three 6-32 x 3/8" PH screws and three 6-32 kep nuts.

( ) 5. Jumper terminal 1 to nearest D-77 diode terminal.

( ) 6. Jumper the other D-77 diode terminal through top terminal to center terminal of R-61.

( ) 7. Jumper the lower terminal of R-61 through the plus terminal of C-43 to pin 3 of the relay. (insulate). Note that the relay carries designations of L 1-6, R 1-6 and 1-4. Refer to Figure CB-4 when making these connections, keeping in mind that the drawing is a top view and dotted lines indicate wiring on the back of the component board.

( ) 8. Jumper from the C-43 ground lug closest to the relay socket through pin L-3 to pin 4 of the relay socket. (insulate)

( ) 9. Jumper from the lower C-43 ground lug to terminal 5.

( ) 10. Jumper from pin L-2 to pin 2 of the relay socket. (insulate)

( ) 11. Jumper from pin 1 of the relay socket to terminal 4.

( ) 12. Jumper from pin R-1 of the relay socket to terminal 3. (insulate)

( ) 13. Jumper from pin R-2 of the relay socket to terminal 2. (insulate)

( ) 14. Install D-77, the silicon diode rectifier, carefully observing polarity. The proper mounting of silicon diodes is discussed on Page 7.

( ) 15. Carefully solder all connections.

The pre-assembly of CB-4 is now complete.

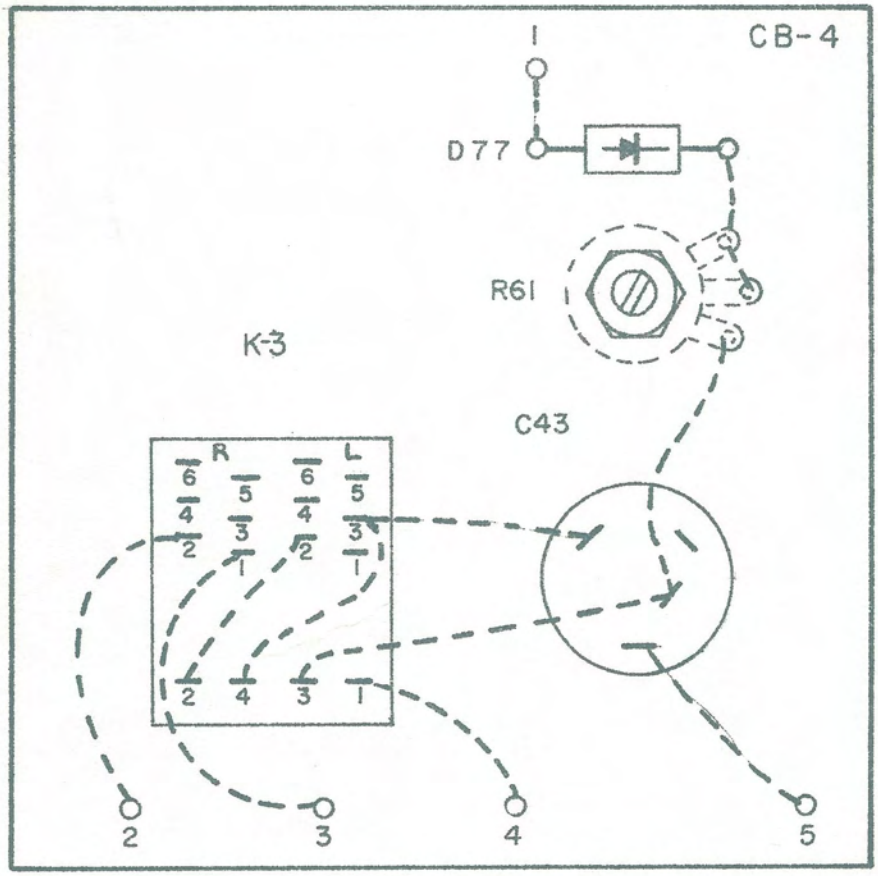


FIGURE CB-4

COMPONENT BOARD NO. 5

Use previous procedures and refer to Figure CB-5.

( ) 1. Jumper terminal 1 to AC-1.

( ) 2. Jumper terminal 6 to AC-2.

( ) 3. Jumper terminal 8 to ➖.

( ) 4. Jumper terminal 3 to terminal 4.

( ) 5. Temporarily mount ground lug on mounting hole between terminals 1 and 6, using screw and nut.

( ) 6. Jumper from terminal 5 through ground lug to ➕ (insulate).

( ) 7. Mount the rectifier package as shown on the drawing below. Clip the rectifier leads to a 1" length and insert into the spring-loaded clips, observing carefully the markings on the rectifier.

( ) 8. Mount R-25 (1 k, 5 w) between terminal 3 and terminal 8.

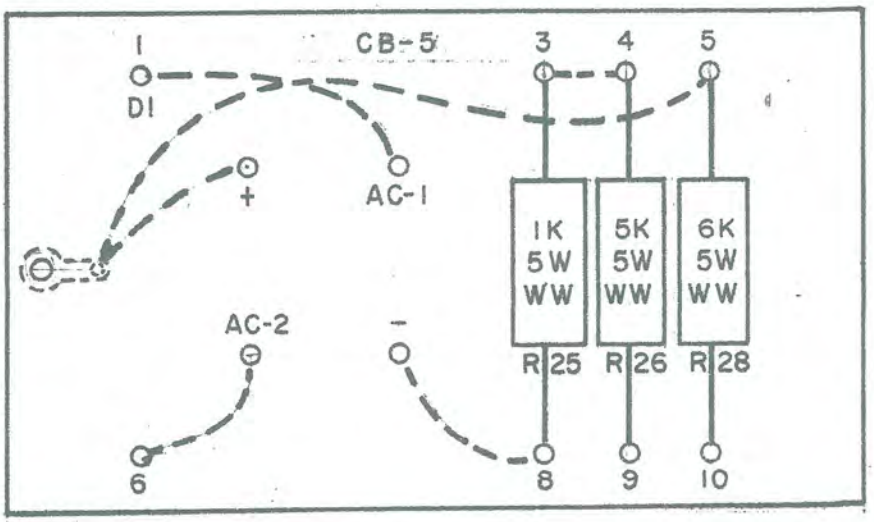
( ) 9. Mount R-26 (5 k, 5 2) between terminal 4 and terminal 9.

( ) 10. Mount R-28 (6k, 5 w) between terminal 5 and terminal 10.

( ) 11. Solder all terminals and the ground lug.

( ) 12. Remove screw that temporarily held ground lug.

The pre-assembly of CB-5 is now complete.



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COMPONENT BOARD NO. 6

Use previous procedures and refer to Figure CB-6

(✓) 1. Jumper from terminal 4 through terminal 7 to terminal 8

(✓) 2. Jumper terminal 2 to terminal 3

(✓) 3. Jumper terminal 1 to terminal 6 (insulate)

(✓) 4. Temporarily attach ground lug to mounting hole nearest terminal 5 using screw and nut

(✓) 5. Jumper from terminal 5 to the ground lug attached in the step above

(✓) 6. Mount red multiplier resistor, R30 (5 megohms 5 w, 1%) between terminal 3 and terminal 4

(✓) 7. Mount red multiplier resistor, R37 (4 megohms 5 w, 1%) between terminal 6 and terminal 8

(✓) 8. Mount R38 (10 k, 2 w) between terminal 5 and terminal 6

(✓) 9. Solder terminals 3, 4, 5, 6, 8 and ground lug on rear

(✓) 10. Remove screw that temporarily held ground lug.

The pre-assembly of CB-6 is now complete.

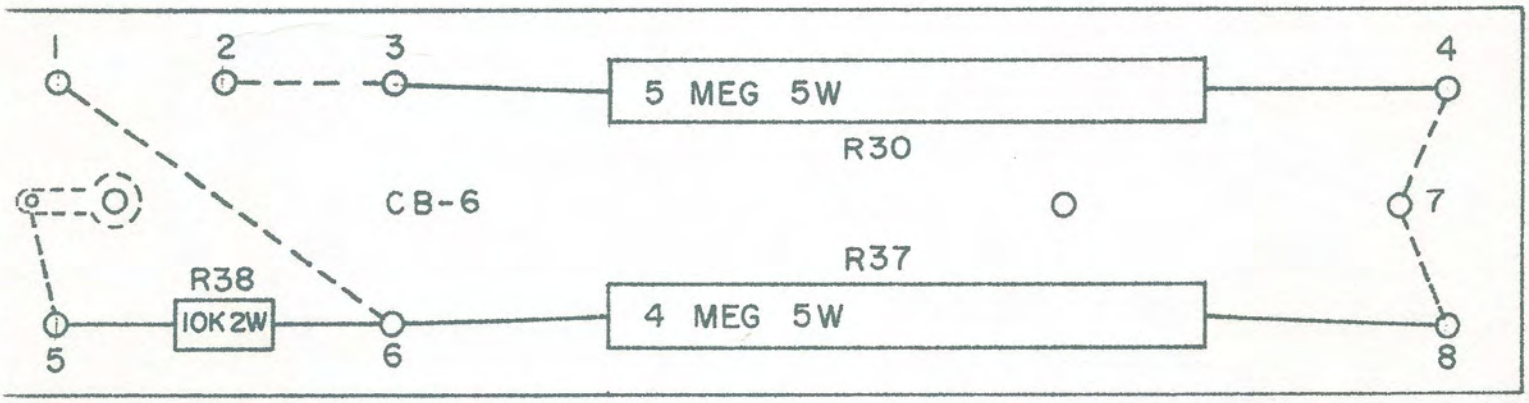

Figure CB-6

COMPONENT BOARD NO. 7

Use previous procedures and refer to Figure CB-7

( ) 1. Mount C28 (.05 mfd, 1 kv, bathtub) on left end of board using two 6-32 x 3/8" BH screws and kep nuts

( ) 2. Temporarily mount ground lug on rear of mounting hole nearest terminal 1 using screw and nut

( ) 3. Jumper from terminal 2 through terminal 1 to ground lug

( ) 4. Jumper terminal 3 to terminal 4

( ) 5. Jumper terminal 6 to terminal 7

( ) 6. Jumper terminal 8 to terminal 9

( ) 7. Mount R22 (5 k, 10 w) between terminal 1 and terminal 5

( ) 8. Mount R24 (50 k, 10 w) between terminal 2 and terminal 6

( ) 9. Mount R23 (25 k, 10 w) between terminal 3 and terminal 7

( ) 10. Mount R29 (10 k, 10 w) between terminal 4 and terminal 8

( ) 11. On front of panel jumper from terminal 5 to closest terminal of C28 (insulate)

( ) 12. Solder terminals 1, 2, 5, 7, C28 and ground lug on real of panel

( ) 13. Remove screw that temporarily held ground lug.

The pre-assembly of CB-7 is now complete.

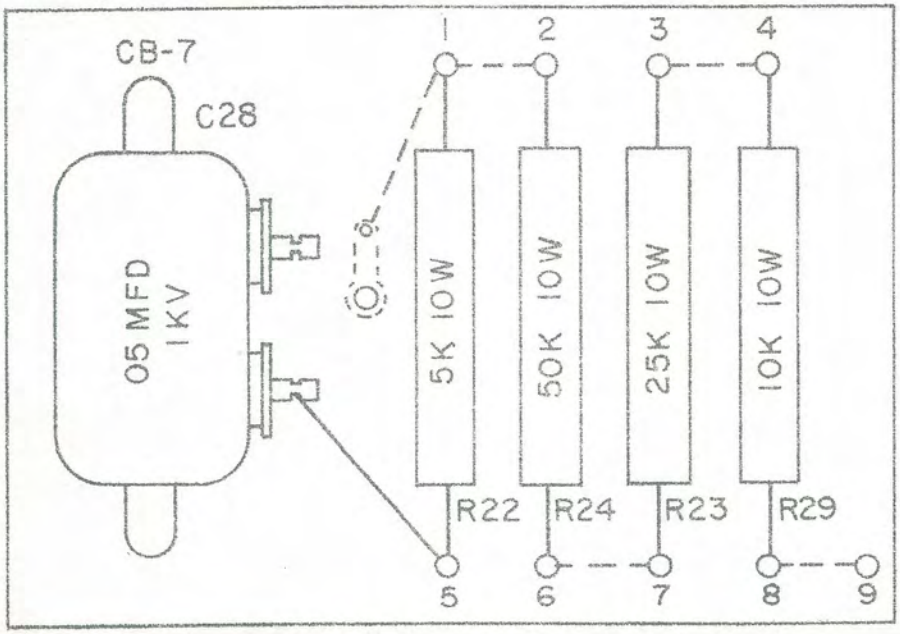

Figure CB-7

COMPONENT BOARD No. 8

Refer to Figure CB-8

( ) 1. Temporarily attach ground lugs to the rear of both mounting holes, using 6-32 screws and nuts (Points A and B). Align so that the soldering lugs face the end terminals (Points C and D).

( ) 2. Using a #20 tinned solid wire, jumper from the two solder lugs (A and B) to the end terminals (C and D). Such jumpers should go on the bottom of the terminal barrel.

( ) 3. Using #20 tinned solid wire, jumper from terminal E around terminal 2 to terminal F.

( ) 4. Using #20 tinned solid wire, jumper from terminal G around terminal 3 to terminal H.

( ) 5. Using #20 tinned solid wire, jumper from terminal I around terminal 4 to terminal J.

( ) 6. Noting the figure, carefully solder the 8 capacitors (.0022 uf) between terminals C C' E - F F' G - H H' I - J J'D. Use the lower portion of the terminal barrel.

( ) 7. Install the 16 100k 1w resistors. Stagger as shown on Figure CB-8. Use the top of the terminal barrel to mount the resistors. After the resistors are mounted, solder each terminal on the bottom of the board carefully.

( ) 8. Turning the board over, install the diodes. Carefully observe polarity. Note how the diodes are staggered. To accomplish this every other diode is mounted on the lower part of the terminal barrel. Each lead is wrapped around the barrel once and then extended approximately 1/8 inch. This greatly facilitates replacement should it ever become necessary. When all diodes are mounted, solder carefully.

( ) 9. Remove the screws that temporarily held the ground lugs.

The pre-assembly of CB-8 is now complete.

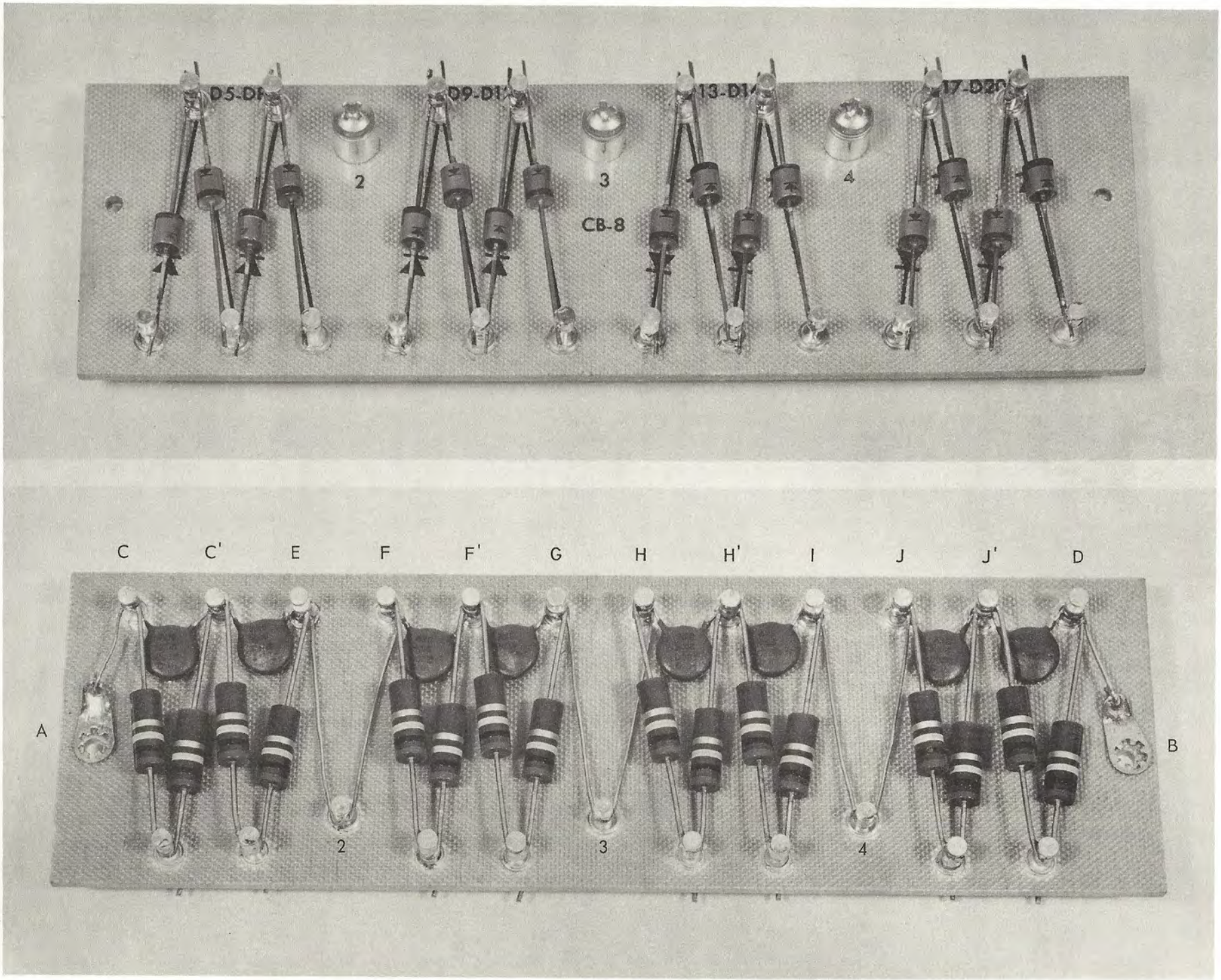

FIGURE CB-8

COMPONENT BOARD NO. 9

Use previous procedures and refer to Figure CB-9.

( ) 1. Jumper terminal 1 to terminal 2.
( ) 2. Jumper terminal 9 to terminal 10.
( ) 3. Jumper terminal 11 to terminal 12.
( ) 4. Jumper terminal 13 to terminal 14.
( ) 5. Temporarily attach ground lugs to both mounting holes using screw and nut.
( ) 6. Jumper terminal 8 to nearest ground lug.
( ) 7. Jumper from terminal 5 through nearest ground lug to terminal 7.
( ) 8. Mount C12 (.0022 mf, 3 kv) between terminal 1 and terminal 8.
( ) 9. Mount L4 (2.4 mh RF choke) between terminal 2 and terminal 9.
( ) 10. Mount C14 (500 mmfd, 3 kv) between terminal 3 and terminal 10.
( ) 11. Mount R11 (3000 ohm, 5 w) between terminal 4 and terminal 11.
( ) 12. Mount C10 (.0022 mf, 3 kv) between terminal 5 and terminal 12.
( ) 13. Mount R14 (15 k, 5 w) between terminal 6 and terminal 13.
( ) 14. Mount C11 (.0022 mf, 3 kv) between terminal 7 and terminal 14.
( ) 15. On front side of board solder terminals 1,5,7,8,9,12 and 14.
( ) 16. On rear side of board solder both ground lugs.
( ) 17. Remove screws that temporarily held ground lugs.

The pre-assembly of CB-9 is now complete.

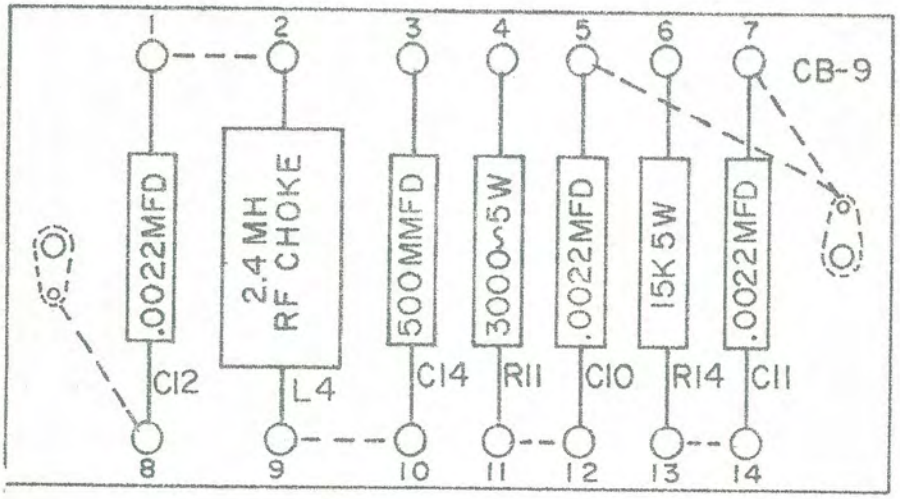

Figure CB-9

COMPONENT BOARD NO. 10

Use previous procedures and refer to Figure CB-10.

( ) 1. Mount octal socket using two 6-32 x 3/8" BH screws and kep nuts. The octal index pin should be between component board terminals 6 and 7.

( ) 2. Jumper from terminal 1 through terminal 2 to pin 7. (insulate from terminal 2 to pin 7)

( ) 3. Jumper from pin 6 to terminal 5

( ) 4. Jumper from pin 1 to terminal 6.

( ) 5. Jumper from terminal 4 through pin 2 to terminal 7 (insulate).

( ) 6. Jumper terminal 3 to terminal 8 (insulate).

( ) 7. Mount R15 (20 k, 20 w) between terminal 1 and terminal 3.

( ) 8. Mount R60 (4.7 k, 2 w) between terminal 2 and terminal 4.

( ) 9. Mount R-99 (100 k, 2 w) between terminal 9 and terminal 10.

( ) 10. Solder terminals 1, 2, 3 and 4

( ) 11. On back side solder all octal socket connections.

The pre-assembly of CB-10 is now complete.

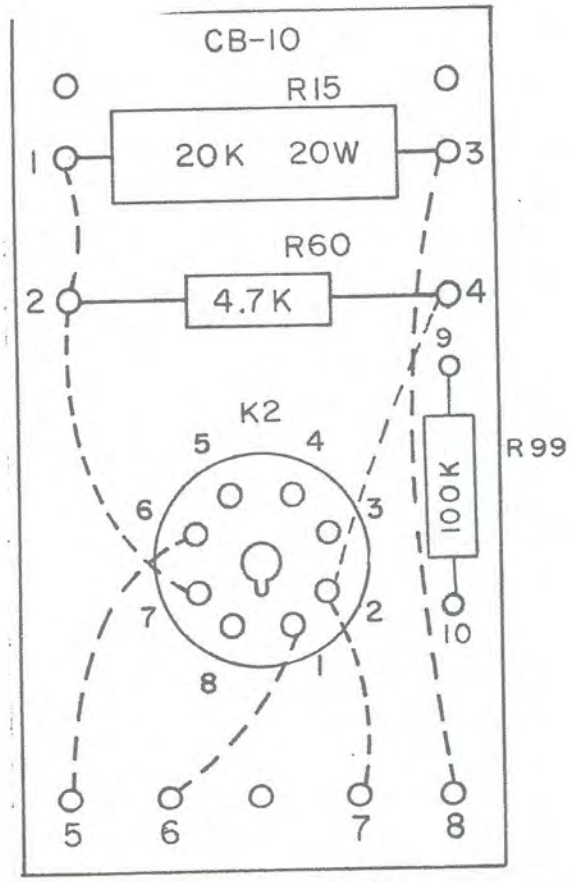

Figure CB-10

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SECTION III

Installation of Small Parts

~~All front panel screws are painted to match the front panel.~~ Using the front panel installation diagram as a guide, perform the following:

(✓) 1. Install at all of the points marked "X" (component board mounting screws) 6-32 x 1¼" PH painted screws. There are 23 of these screws. Screw in tightly.

(✓) 2. Install 6-32 kep nuts on the screws installed in Item 1. Using a 5/16" nut driver, tighten well against the panel. There are 23 of these kep nuts.

(✓) 3. Install a 5/8" spacer on each of the screws. 23 are used.

(✓) 4. Install CB-1. Use 6-32 kep nuts to mount the board and tighten carefully with a nut driver.

(✓) 5. Repeat the above step for each of the component boards, CB-2, CB-3, CB-4, CB-5, CB-6, CB-7, CB-8, CB-9 and CB-10. 23 additional 6-32 kep nuts will be used in this process. On those boards where a ground lug is used make certain it is properly seated on the mounting screws.

(✓) 6. Install the octal socket for V-3 using two 6-32 x 3/8" PH painted screws, two 6-32 x ¼" hex nuts and two #6 shakeproof washers. Note from the installation diagram that the locking pin points upward.

(✓) 7. Repeat the above procedure for V-4 and V-5.

(✓) 8. Install R-12 (3k, 4w, pot) with the terminals down as shown in the drawing.

(✓) 9. Install R-46 (500 ohm, 2w, pot) with the terminals to the side as shown in the drawing. Bend over the alignment ear. Use the lock washer supplied <u>behind</u> the panel.

(✓) 10. Install R-27 (2500 ohms, 2w pot) with the terminals to the side as shown in the drawing. Bend over the alignment ear. Use the lock washer supplied <u>behind</u> the panel.

(✓) 11. Install C-31 and C-38 using two 6-32x1½" PH painted screws, six 6-32 kep nuts and two ground wires (short lengths of #18 wire in one terminal supplied with the capacitors). After installing the screws mount C-31 (2 mfd, 600 v. bathtub). The capacitor terminals mount toward the side of the cabinet. Carefully scrape the paint from around the two screws so that the capacitor ears will make a good ground contact to the panel. Use two kep nuts, putting the ground terminal under the bottom kep nut, wires toward the right. To mount C-38 put on two additional kep nuts (washer out) at approximately the outside edge of C-31. Put on C-38 (terminals toward the side of the cabinet) and put on two more kep nuts. Adjust the four kep nuts on either side of C-38 so that it fits snugly against C-31. Tighten carefully.

(✓) 12. Install C-37 (.1 mfd, 600v. bathtub) using two 6-32x 3/8" PH painted screws and two kep nuts. The capacitor terminals mount to the left with the ground lugs supplied going to the top mounting screw. Top terminal grounded

(✓) 13. Install T-6 (audio input transformer, UTC LS-26) using four 6-32 x 3/8" PH painted screws. Note that terminals 1 and 2 are on the down side.

(✓) 14. Install S-2 (ST-52 K). Note the printing on the side of the switch and mount so that "on" is up. The washer with the ear can be discarded. However, the lock washer should be used between the inside nut and the back of the panel. Adjust the nut on the front of the panel so that it is flush with the switch mounting stem. Using the nut behind the panel, tighten in place.

(✓) 15. Install S-4 (ST-52 K). Use same procedure as in Step 14.

(✓) 16. Install S-6 (ST-52 K). Use same procedure as in Step 14 EXCEPT that "on" is down.

(✓) 17. Install S-7 (ST-52 K). Use same procedure as in Step 16 - "on" is down.

(✓) 18. Install S-3 (ST-52 R). This is a spring loaded switch. In normal position the toggle should be up.

(✓) 19. Install S-5 (ST-52 S). Use same procedure as in Step 14. Since this is a momentary DPDT switch either "on" end can go up.

(✓) 20. Install S-1, the master start switch. This switch is of the self-mounting type. Insert in the rectangular hole in the center of the panel, pushing in until the spring clips engage.

(✓) 21. Install the fuse holders for F1, F2, F3, F4, F5 and F9. (F5 is mounted in the hole to the right of TB-1; F-9 mounts right above it). The rubber gasket goes on the front of the panel. When mounting, all terminals should be on the "up" side.

( ) 22. DELETED

(✓) 23. Install K-9, modulator overload relay (Heinemann CRT-617-XXA, .2 amp, 50 VDC) using two 6-32 x 3/4" PH painted screws and two 6-32 kep nuts.

(✓) 24. Install K-1 master start relay (Guardian DPST, NO, 230V) using two 6-32 x 3/4" PH painted screws and two 6-32 kep nuts. When properly mounted the coil contacts are <u>below</u> the mounting screws.

(✓) 25. Install K-8, final overload relay (Heinemann CRI-617-XXA, .2 amp, 50 VDC) using same procedure as above in Step 23.

(✓) 26. Install R-16 (50 ohm, 25w, ww adjustable) using a 6-32 x 3" RH painted screw. Use a 6-32 kep nut against the panel, then slip on a No. 6 extruded fiber washer followed by the resistor. The resistor terminals should point down and the terminal with wires already attached should be towards the panel. Slip on another #6 extruded fiber washer and follow with a #6 metal washer and a 6-32 kep nut. Set the resistor carefully on the extruded washers before tightening.

no room - K-8 in way

(✓) 27. Install R-59 (50 ohm, 25w, ww adjustable) using a 6-32 x 3" RH painted screw. Carefully scrape the paint from around the screw so that the ground lug supplied attached to the resistor will make a good contact with the panel. Slip on the lug first and follow with a 6-32 kep nut. Tighten securely with the lug facing the left (when viewed from the rear). Next slip on a #6 extruded fiber washer followed by the resistor. The resistor terminal should point down. Finally slip on another #6 extruded fiber washer followed with a #6 metal washer and a 6-32 kep nut. Set the resistor carefully on the extruded washers before tightening.

no room K-9 in way

(✓) 28. Install C-27 (10 mfd, 600 v) using two 10-32 kep nuts and the spade type brackets supplied.

(✓) 29. Install C-29 (12 mfd, 1 kv) using four 10-32 kep nuts and the spade type brackets supplied.

(✓) 30. Install L-18 (15 h, 85 ma) using six 6-32 x 3/8" BH screws (painted to match L-18) and six 6-32 kep nuts.

(✓) 31. Install L-11 (15 h, 85 ma) using same procedure as above in step 30.

(✓) 32. Install R-20 (15 ohm, 20 w, ww) using a 6-32 x 2½" RH painted screw. R-20, when shipped, has a ground lug attached. Carefully scrape the paint around the screw so that the ground lug will make a good contact with the panel. After putting in the screw slip the lug over the screw, follow with a 6-32 kep nut and the extruded fiber washer supplied.

Work the complete assembly down against the panel, sliding the resistor on over the screw. Follow with another extruded fiber washer, a #6 metal washer and a 6-32 kep nut. Set the resistor carefully and tighten. The resistor terminals should point down.

(✓) 33. Mount R-19 (motor rheostat) using two 8-32 x 5/8" painted screws and two 8-32 kep nuts. This assembly is mounted with the motor up, the rheostat down.

(✓) 34. Mount T-3, mod. filament transformer (Chicago F-530) using six 10-32 x 1/2" BH painted screws and six 10-32 kep nuts. Note on the installation diagram where terminal 1 goes.

(✓) 35. Mount T-4, PA filament transformer (Chicago F-530) using four 10-32 x 1/2" BH painted screws, two 10/32 x 3/4" BH painted screws, six 10-32 kep nuts and two 10-32 hex nuts. The two 3/4" screws go in the middle and bottom mounting holes on the left side (viewed from the rear) to be used in the next step. When mounting T-4 note on the installation diagram where terminal 1 goes.

(✓) 36. Mount C-41 (300 mf, 150 v) using the middle screw of T-4 (installed in step 35 above) to hold the capacitor and the bottom screw for the ground terminal. The 1" plastic cable clamp supplied should be slipped on to a point approximately one inch from the positive end of the capacitor. The capacitor then should be mounted with the plus end up. The clamp and the ground lug then mount on top of the kep nuts previously installed. Using two 10-32 hex nuts, secure the clamp and ground terminal.

(✓) 37. Mount K-10, primary overload relay (Heinemann CTI-617-XXA, 18 amps, 220 V) using two 8-32 x 3/4" PH screws and two 8-32 kep nuts. The mounting screws are towards the top of the cabinet.

(✓) 38. Mount C-30 (2 mfd, 600 v bathtub) using two 6-32 x 3/8" PH painted screws and two 6-32 kep nuts. The capacitor terminals should be on the right side and the 2" ground lead supplied should go under the bottom kep nut.

( ) 39. DELETED

( ) 40. DELETED.

(✓) 41. Install K-7, the HV transformer primary contactor. This relay is not shown on the installation drawing since it mounts on the front of the panel. Mount K-7 with the contacts up using three 10-32 x 3/8" BH screw (not painted) and three 10-32 kep nuts. The mounting holes are just below K-10.

( ) 42. Install the fuse block F-6 and F-7 using two 10-32 x 5/8" BH screws, two 10-32 kep nuts and two #10 extruded fiber washers. The fuse block mounts just below K-7 on the front of the panel.

( ) 43. Install the frequency and modulation monitor receptacles (Amphenol Type 31-102) using the hardware supplied. The rubber gasket goes in the front of the panel. On the rear of the panel carefully scrape the paint for 1/8" around each hole so that the ground lug will make a good ground contact.

( ) 44. Install TB-1 using four 6-32 x ½" PH screws (not painted). This 20 position terminal strip mounts on the front of the panel. Center the lugs carefully.

( ) 45. Install the mounting hardware for the breaker cover using eight 6-32 x 3/8" PH screws (not painted) eight 6-32 x 3/8" screws (painted to match breaker cover), eight 6-32 kep nuts and the hardware supplied. The wood screws supplied with the friction catch are not used and can be discarded. The male portion of the friction catch mounts on the panel using the plated screws. Two are located just below T-5 with the remaining two located to the left and right, respectively, of the fuse block. Mount the female portion of the catch on the breaker cover using the painted screws and kep nuts. Make certain that the cover snaps on easily.

( ) 46. Install T-5, low voltage power transformer (UTC OG-422), using four 10-32 x ½" BH painted screws and four 10-32 kep nuts. Note on the installation diagram where terminal 1 goes.

( ) 47. Install M-9, audio plate current, using the hardware provided with the meter.

( ) 48. Install M-8, oscillator plate current, using the hardware provided with the meter.

( ) 49. Install M-7, driver plate current, using the hardware provided with the meter.

( ) 50. Install M-5, final grid current, using the hardware supplied.

( ) 51. Install M-6, final screen grid current, using the hardware provided with the meter.

( ) 52. Install a cone-type standoff ½" high, using one 6-32 x 3/8" PH painted screw in the hole just below and to the right of V-3.

(✓) 53. Install a 8-32 x ½" PH painted screw in the tapped hole, midway between the sockets for V-8 and V-9. Install a 8-32 kep nut and tighten securely. Finger tighten a second 8-32 kep nut to be used later as a grounding point for the filament bypass capacitors.

(✓) 54. Install a ½" cone-type insulator using a 6-32 x 3/8" PH painted screw in the tapped hole approximately 2½ inches to the rear of the ground screw installed in Step 53. above. The insulator is mounted on the bottom side of the tube shelf, using a 6-32 x 3/8" PH painted screw.

(✓) 55. Install L-5, final grid tune (Miller, adjustable coil, type determined by frequency) in the ½" hole to the left of the V-9 socket (when viewed from the rear). The coil mounts on the bottom side of the tube shelf. Carefully scrape the paint for ¼" around the edge of the mounting hole. L-5 is supplied with C-15 attached. When mounting, work from the rear and work up through the V-9 socket hole when putting on the lock washer and nut. Tighten securely, holding L-5 so that the terminals point toward the V-9 tube socket.

(✓) 56. Install S-12, the airflow switch assembly, using the parts supplied. This switch, a precut vane type, mounts within the tube compartment. The ½" hole (center rear, 4" above tube shelf) feeds the vane with the switch mounted (vane up) using two 6-32 x 3/8" BH screws and kep nuts. When properly mounted the top of the vane should be in line with the top of the air feed hole. In this manner maximum leverage is accomplished. Make certain that you have the vane mounted in this manner. The 3/8" rubber grommet included with the assembly should be installed in the hole in the tube shelf directly below S-12.

(✓) 57. Install a ½" cone type insulator using a 6-32 x 3/8" PH painted screw in the tapped hole midway between the front of the V-6/V-7 tube sockets.

(✓) 58. Mount R-68 (500 ohms, 50 w) on the bottom of the cabinet. These holes have been pre-marked at the factory. Insert two 10-32 x 1" PH screws from the bottom of the cabinet, install two 10-32 kep nuts, the resistor and then two additional 10-32 kep nuts. The resistor terminals should point toward the right side of the cabinet (when viewed from the rear).

(✓) 59. Mount C-42 (2 mfd, 1 kv) to the right of R-68 using the brackets supplied

SECTION IV

Installation of Harness

The harness is shipped with the 4-400A sockets partially wired and, where possible, terminal lugs attached. When installing, the sockets carrying wires 111, 112, 113 and 114 will be on the left side of the cabinet (when viewed from the rear). With the harness arranged in this manner proceed as follows:

( ) 1. Clamp the harness about one-half inch from the point the left trunk makes its final turn (near wires 111 and 113) using a 1/2" plastic cable clamp, anchoring the clamp with a 6-32 x 5/8" PH painted screw and a 6-32 kep nut. Use the tapped holes in front of V-8.

( ) 2. Similarly clamp the harness one-half inch from the point the right trunk makes its top turn (beyond wires 117 and 118). Use a 3/8" plastic cable clamp, anchoring the clamp with a 6-32 x 3/8" PH painted screw and a 6-32 kep nut. Use the tapped hole in front of V-7.

( ) 3. Pull the laced cable consisting of wires 99, 100, 102, 103, 119 and 120, through the grommet previously installed in the upper right corner (when viewed from the rear). These wires should be pulled through to the front of the panel. Further routing of these wires will come later.

( ) 4. Clamp the harness to the left of wire 84, using a 3/8" plastic cable clamp, anchoring the clamp with a 6-32 x 3/8" PH painted screw and a 6-32 kep nut. Use the tapped hole in front of V-6.

( ) 5. Install the socket for V-6 using four 8-32 x 5/8" PH painted screws, four #8 fiber washers and four 8-32 hex nuts. The fiber washer should be used between the nut and the socket. The V-6 socket is mounted with the pins carrying filament leads #115 and #116 facing the side of the cabinet. Do not tighten yet.

( ) 6. Install the socket for V-7 in a similar manner. This socket should be positioned so that wires 117 and 118 are toward V-8.

( ) 7. Install the socket for V-8. This socket should be positioned so that wires 111 and 113 are toward V-9.

( ) 8. Install the socket for V-9. This socket should be positioned so that wires 112 and 114 are toward V-8.

( ) 9. Carefully insert a 4-400A in each of the four sockets to assure correct setting as you tighten the mounting screws.

(✓) 10. Clamp the left trunk of the harness at a point one-half inch below wires 77, 78 and 80, using a 3/4" plastic cable clamp. When mounting use an additional 10-32 kep nut on the lower spade lug that holds C-29.

(✓) 11. At a point on the right trunk directly opposite the above, repeat Step 10 using another 3/4" plastic cable clamp and a 10-32 kep nut.

(✓) 12. At a point just below and to the left of CB-10 (on the cross brace) clamp the branch of the harness carrying wires 14, 15, 20, 21, etc. using a 3/8" plastic cable clamp and a 6-32 x 3/8" PH screw. Since the hole is tapped a nut is not required.

(✓) 13. Using the lower screw that holds the power control motor bracket (R-19) clamp the branch of the harness carrying wires 103, 104, 148, etc. using a 3/16" plastic cable clamp.

(✓) 14. Now that the harness has been sufficiently clamped, wiring can begin. Study carefully the close-up photograph on the next page. Note how the wires are looped gently into the terminals. Follow this procedure when wiring. The end result will be a neat, workmanlike job. If, for some reason, a change ever has to be made you will have plenty of lead length. Start from the top and work down, following the steps listed below carefully.

(✓) 14. Run wires 14 and 150 through the grommet on the bottom of the tube compartment and solder to the contacts of S-12 (Airflow switch).

(✓) 15. Solder wires 53 and 54 to the contacts of S-9.

(✓) 16. Connect the PA filament bypass capacitors C-16, C-17, C-18 and C-19 to the ground lug previously installed between V-8 and V-9.

(✓) 17. Install wire #106 and resistors R-17 and R-18 (100 ohms, 2 w) on the cone type standoff insulator mounted between the sockets of V-8 and V-9. The resistors are supplied with the terminal lug already attached. R-17 will go to the screen terminal of V-8. R-18 will go to the screen terminal of V-9. The screen terminal of both sockets is the one facing towards the rear of the transmitter and is directly in line with the standoff. After mounting wire #106, R-17 and R-18, solder the resistor at the screen grid connection of both V-8 and V-9.

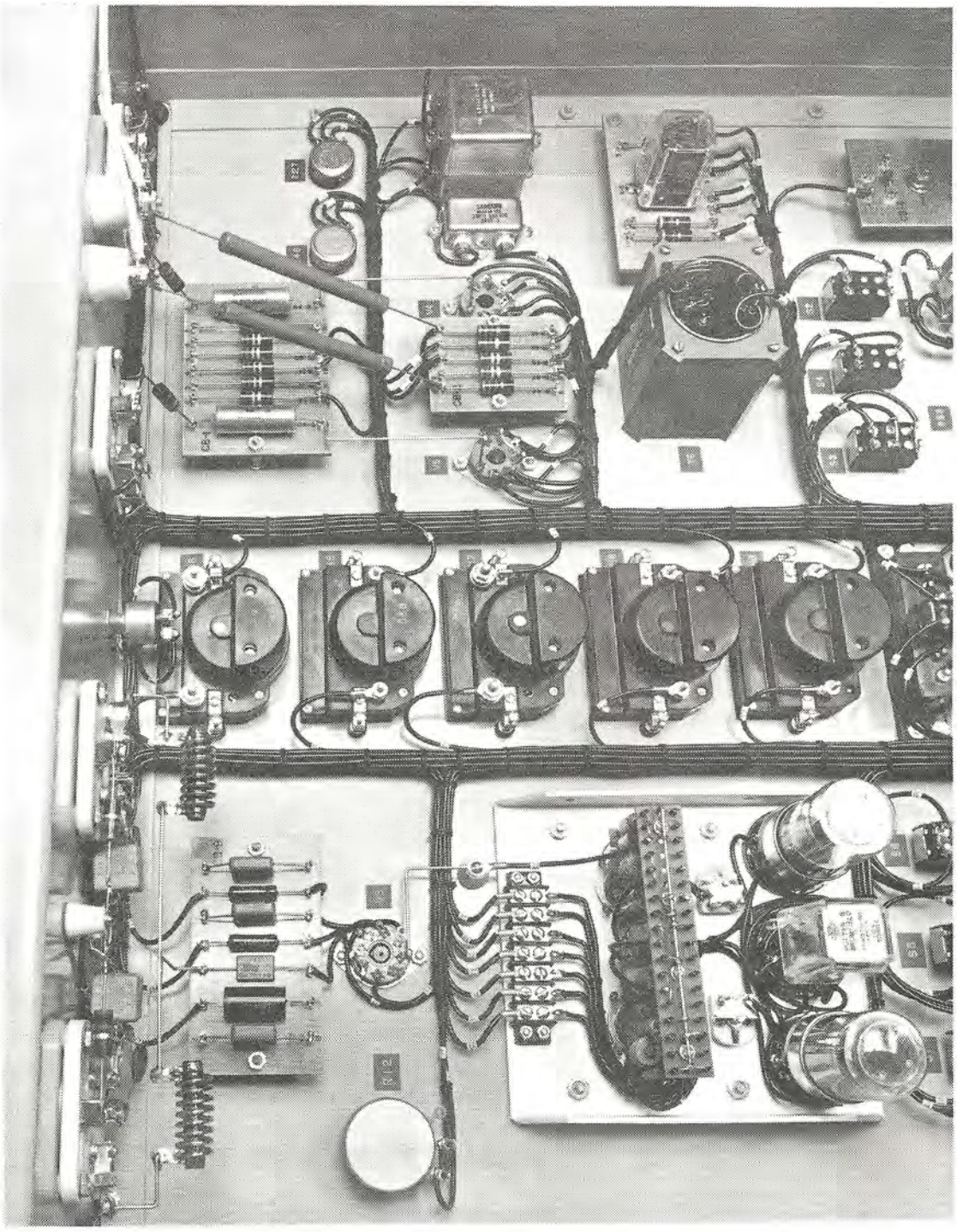
(✓) 18. Solder wire #73 to terminal 6 on CB-9.

(✓) 19. Solder wire #94 to terminal 4 on CB-9.

(✓) 20. Solder wire #79 to terminal 2 on CB-9.

(✓) 21. Solder a 3½" length of #18 wire from terminal 10 on CB-9 to pin 3 of V-3. Make full use of the length so that the wire lies against the panel and has a neat appearance.

(✓) 22. Solder a 4" length of #18 wire between terminal 13 on CB-9 and pin 4 of V-3.



Close-up rear view Bauer Type 707 broadcast transmitter (cover removed from oscillator)

(✓) 23. Solder a 2" length of #18 wire from terminal 11 on CB-9 to pins 1 and 8 of V-3. Strip back the wire approximately 3/4" so that the jumper from pin 1 to pin 8 is just a continuation of this wire.

(✓) 24. Solder wire #63 to pin 7 of V-3

(✓) 25. Solder wire #64 to pin 2 of V-3. Loop up and over the socket from the left side.

(✓) 26. Solder wire #96 to lower terminal of L-5. C-15 is already connected at this point.

(✓) 27. Connect a 2" length of #20 solid tinned wire between the top terminal of L-5 and the grid pin of the socket for V-9 (the pin nearest the coil and directly opposite the filament connections). Do not solder at the grid end yet.

Note: For mechanical convenience the coil L-5 is connected directly to the grid of V-9. Electrically the schematic shows the coil on the other side of parasitic suppressor, SU-1. Operation in this manner is perfectly satisfactory.

(✓) 28. With the #12 bus bar wire supplied, connect the grid parasitic suppressors SU-1 and SU-3 (Ohmite P-300) as shown in the drawing on the next page. Solder carefully.

(✓) 29. Solder the assembly completed in Step 28 to the grid pins of V-8 and V-9. The completed assembly will hang approximately 3/4" below the tube sockets.

(✓) 30. Using a 3" length of #18 wire, connect terminal 3 on CB-9 to the center of the bus bar between the two parasitic suppressors, SU-1 and SU-3. Loop around the bus bar and solder both connections carefully.

(✓) 31. Connect wire #106 to the negative terminal of M-6. The positive terminal is on the left, negative on the right when viewed from the rear.

(✓) 32. Connect wire #107 to positive terminal of M-6.

(✓) 33. Connect wire #96 to negative terminal of M-5.

(✓) 34. Connect wire #97 to positive terminal of M-5.

(✓) 35. Connect wire #79 to negative terminal of M-7.

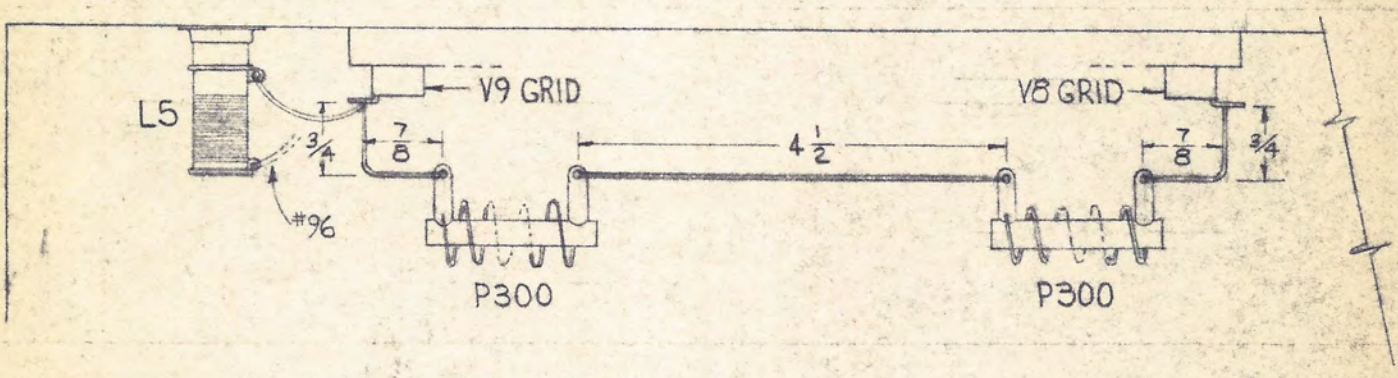
(✓) 36. Connect wire #78 to positive terminal of M-7.

(✓) 37. Connect wire #72 to negative terminal of M-8.

(✓) 38. Connect wire #71 to positive terminal of M-8.

(✓) 39. Connect wire #127 to negative terminal of M-9.

(✓) 40. Connect wire #126 to positive terminal of M-9.



FINAL GRID PARASITIC SUPPRESSOR ASSEMBLY

( ) 41. Install wire #84 and resistors R-73 and R-74 (470 ohms, ½w) on the cone type standoff insulator mounted between the sockets of V-6 and V-7. The screen grid of either socket is the one closest to the front panel and in line with the standoff. Solder the other end of the resistors to these screen grids.

( ) 42. DELETED

( ) 43. Connect R-56 (3.3k, 2w) from terminal 8 on CB-1 to the control grid of V-6. The grid pin is directly above terminal 8 on CB-1. Make a direct run with the resistor, cutting off any excess lead length. Solder carefully

( ) 44. Connect R-57 (3.3k, 2w) from terminal 1 on CB-1 to the control grid of V-7. The grid pin is directly above terminal 1 on CB-1. Make a direct run with the resistor, cutting off any excess lead length. Solder carefully.

( ) 45. Solder wire #138 to terminal 13 on CB-1.

( ) 46. Connect wire #81 to terminal 12 on CB-1.

( ) 47. Solder wire #137 to terminal 10 on CB-1.

( ) 48. Connect wire #124 to the bottom lug of R-46.

( ) 49. Solder wire #125 to the center lug of R-46.

( ) 50. Solder wire #123 to the top lug of R-46.

( ) 51. Connect wire #88 and wire #137 to the top terminal of C-31 (when viewed from the rear). C-31 is the capacitor closest to the panel.

( ) 52. Solder wire #121 to the top terminal of C-38.

( ) 53. Solder the two short ground leads previously installed under the lower mounting screw for C-31 and C-38. The short lead goes to the lower terminal of C-31, the longer lead going to the lower terminal of C-38.

( ) 54. Connect wire #127 to ground at the top mounting screw for C-37. The ground wire for C-37 previously installed is also at this point.

( ) 55. Solder wire #87 to the bottom of R-27.

( ) 56. Solder wire #88 to the ~~top~~ center of R-27.

( ) 57. Solder wire #89 to the top of R-27.

( ) 58. Solder wire #125 to terminal 4 on CB-2.

( ) 59. Solder wires #121 and #138 to terminal 3 on CB-2.

( ) 60. Install a short length of #18 bus bar from terminal 9 on CB-1 to pin 8 on V-5. A pre-formed piece of bus bar (Part #250-119) is supplied for this purpose. Solder carefully.

( ) 61. Install a short length of #18 bus bar from terminal 16 on CB-1 to pin 8 on V-4. A pre-formed piece of bus bar (Part #250-120) is supplied for this purpose. Solder carefully.

( ) 62. Solder wires #143 and #144 to pin 6 of V-5.

( ) 63. Solder wires #12 and #145 to pin 7 of V-5.

( ) 64. Solder wires #13 and #146 to pin 2 of V-5.

( ) 65. Solder wire #141 to pin 4 of V-5.

( ) 66. Solder wire #124 to pin 5 of V-5 with a jumper from pin 5 to pin 3.

( ) 67. Solder wire #122 to terminal 7 of CB-2.

( ) 68. Solder wire #144 to terminal 8 on CB-2.

( ) 69. Solder wire #126 to terminal 9 on CB-2.

( ) 70. Solder wire #145 to pin 7 of V-4.

( ) 71. Solder wire #146 to pin 2 of V-4.

( ) 72. Solder wire #143 to pin 6 of V-4.

( ) 73. Solder wire #142 to pin 4 of V-4.

( ) 74. Solder wire #123 to pin 5 of V-4 with a jumper from pin 5 to pin 3

( ) 75. Solder wire #122 to the bottom terminal of C-37.

( ) 76. Solder R-41 (33k, ½w, 5%) between terminals 7 and 9 on T-6. Form R-41 so that it mounts above the terminals.

( ) 77. Solder R-42 (33k, ½w, 5%) between terminals 8 and 10 on T-6. Form R-42 so that it mounts below the terminals.

( ) 78. Solder wire #141 to terminal 7 on T-6.

( ) 79. Solder wire #139 to terminal 8 on T-6.

( ) 80. Solder wire #140 to terminal 9 on T-6.

( ) 81. Solder wire #142 to terminal 10 on T-6.

( ) 82. Solder wires #61 and #62 to the top terminals of S-3. Jumper the two top terminals of S-3 together.

( ) 83. Solder wire #59 to the center terminal of S-3. Jumper the center terminals of S-3 together.

( ) 84. Solder wire #56 and a 3" length of #18 wire to the bottom terminal of S-3. Jumper the bottom terminals of S-3 together.

( ) 85. Solder the jumper wire installed on S-3 above to the bottom terminal of S-4. Jumper the bottom terminals of S-4 together.

( ) 86. Solder wires #57 and #58 to the top terminal of S-4. Jumper the top terminals of S-4 together.

( ) 87. Solder wire #25 to the top terminals of S-2. Jumper the top terminals of S-2 together.

( ) 88. Solder wire #26 to the bottom terminals of S-2. Jumper the bottom terminals of S-2 together.

( ) 89. Solder wire #50 to terminal 1 on CB-4.

( ) 90. Solder wire #133 to terminal 4 on CB-3.

( ) 91. Solder wire #136 to terminal 5 on CB-3.

( ) 92. Solder wire #134 to terminal 7 on CB-3.

( ) 93. Solder wire #135 to terminal 8 on CB-3.

( ) 94. Solder wire #33 to terminal 9 on CB-3.

( ) 95. Solder wire #34 to terminal 10 on CB-3.

( ) 96. Solder wire #95 to terminal 12 on CB-3.

( ) 97. Solder wire #135 to terminal 1 on T-6.

( ) 98. Solder wire #136 to terminal 2 on T-6.

( ) 99. Solder wires #30 and #31 to the top terminals of S-6. Jumper the two top terminals of S-6 together.

( )100. Solder wires #34, #35 and #40 to the bottom terminals of S-6. Jumper the two bottom terminals of S-6 together.

( )101. Solder wires #42 and #43 to the top terminals of S-5. Jumper the two top terminals of S-5 together.

( )102. Solder wires #31 and #32 to the center terminals of S-5. Jumper the two center terminals of S-5 together.

( )103. Solder wires #44 and #45 to the bottom terminals of S-5. Jumper the two bottom terminals of S-5 together.

( )104. Solder wires #38, and #39 to the top terminals of S-7. Jumper the two top terminals of S-7 together.

( )105. Solder wire #32 to the bottom terminals of S-7. Jumper the two bottom terminals of S-7 otogether.

( )106. Solder wire #52 to terminal 5 on CB-10.

( )107. Solder wire #55 to terminal 6 on CB-10.

( )108. Solder wire #97 to terminal 7 on CB-10.

( )109. Solder wire #98 to terminal 8 on CB-10.

( )110. Cut and install a terminal lug (blue) on a 2" length of #18 wire. Solder the end of this wire to terminal 9 on CB-10.

( )111. Cut and lug a 2½" length of #18 wire. Use two of the insulated lugs (blue). Use this wire as a jumper from the top left terminal of K-1 to the center left terminal (coil) of K-1. Connect wire #1 to the top left terminal of K-1. Connect the lead from terminal 9 of CB-10 installed in Step 110 (above) to the center left terminal of K-1.

( )112. Solder wire #10 to terminal 10 on CB-10.

( )113. Connect wire #15, #16 and #19 to the bottom left terminal on K-1.

( )114. Connect wire #2 and #5 to the top right terminal on K-1.

( )115. Connect wire #8 and #9 to the center right terminal (coil) of K-1.

( )116. Connect wire #150, #17 and #18 to the bottom right terminal of K-1.

( )117. Connect wire #102 and the short length of #18 wire supplied attached to R-16 to the left terminal (screw type) of K-8. Solder the two wires together before inserting into the K-8 terminal.

( )118. Solder a 4" length of #18 wire on the outside terminal of R-16(farthest from the panel).

( )119. Connect wire #101 and the short length just soldered to R-16 in Step 116 to the right terminal (screw type) of K-8. Solder the two wires together before inserting into K-8.

( )120. Solder wire #47 to the bottom control contact terminal of K-8.

( )121. Solder wire #48 to the top control contact terminal of K-8.

( )122. Solder wire #24 to the body terminal of fuse post F-4. (Note- the body terminal is nearest the panel)

( )123. Solder wires #28, #29 and #30 to the end terminal of fuse post F-4.

( )124. Solder wire #19 to the body terminal of fuse post F-2.

( )125. Solder wires #46 and #47 to the end terminal of fuse post F-2.

( )126. Solder wire #18 to the body terminal of fuse post F-3.

( )127. Solder wire #59 to the end terminal of fuse post F-3.

( )128. Solder wire #5 to the body terminal of fuse post F-1.

( )129. Solder wire #7 and the black lead of S-1 to the end terminal of fuse post F-1.

( )130. Connect wire #9 to the red lead of S-1, the master start switch.

( )131. Connect wire #10 to the white lead of S-1, the master start switch.

( )132. Connect the ground wire from R-59 to the left terminal (screw type) of K-9.

( )133. Solder a 4" length of #18 wire on the outside terminal of R-59 (farthest from the panel).

( )134. Connect wire #120 and the short length just soldered to R-59 in the step above to the right terminal (screw type) of K-9.

( )135. Connect wire #48 to the top control contact terminal on K-9.

( )136. Solder wire #49 to the lower control contact terminal on K-9.

STEPS 137/139 DELETED

( )140. Solder wire #62 to terminal 4 on CB-4.

( )141. Solder wire #54 to terminal 3 on CB-4.

( )142. Solder wire #58 to terminal 2 on CB-4.

( )143. DELETED

( )144. Solder wire #46 to terminal 5 on CB-4.

( ) 145. Solder wire #44 to terminal 3 of the power control motor. Note the drawing on the next page.

( ) 146. Solder wire #41 to terminal 2 of the power control motor.

( ) 147. Solder wire #42 to terminal 1 of the power control motor.

( ) 148. Cut and lug a 2" length of #18 wire. Use an insulated lug (blue). Using the mounting stud of C-27 as a ground point, bolt on the lug and solder the free end to the right hand terminal of C-27. Use a 10-32 kep nut.

( ) 149. Solder wires #70, #71, #73 and #74 to the left terminal of C-27.

( ) 150. Cut and lug a 2" length of #18 wire. Use an insulated lug (blue). Using the mounting stud of C-29 as a ground point, bolt on the lug and solder the free end to the right hand terminal of C-29. Use a 10-32 kep nut.

(note--C-29 may be supplied with pillar terminals. If so, terminal lugs (blue) will be supplied with it as it will be necessary to lug the wires connected to this capacitor (Steps 151 and 150).

( ) 151. Solder wires #77, #78 and #80 to the left terminal of C-29.

( ) 152. Solder wire #70 to the left terminal of L-18.

( ) 153. Solder wire #69 to the right terminal of L-18.

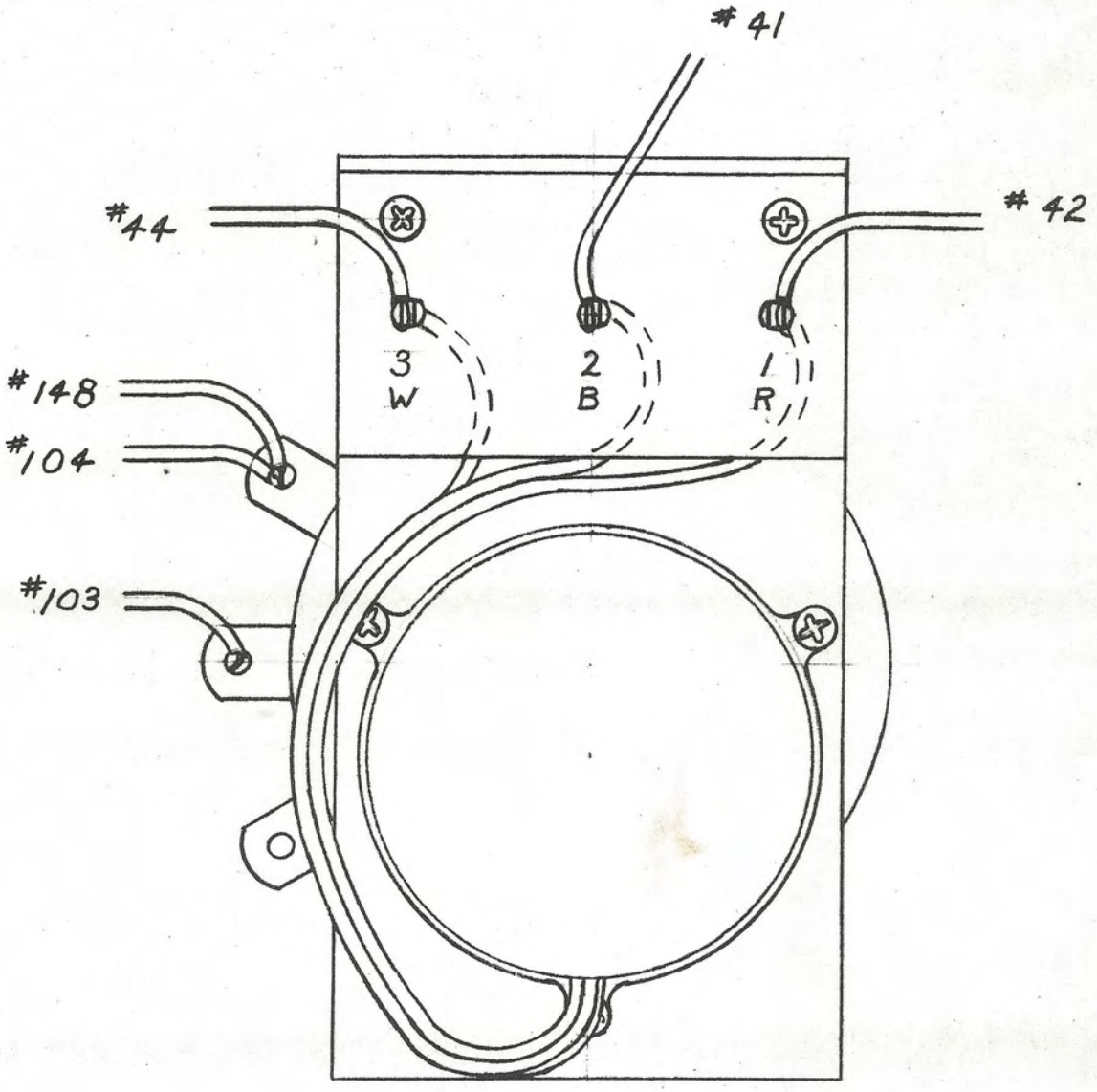
( ) 154. Solder wire #77 to the left terminal of L-11.

( ) 155. Solder wire #75 to the right terminal of L-11.

( ) 156. Solder wire #148 to the outside terminal of R-20 (farthest from the panel).

( ) 157. Solder wire #103 to the center terminal of R-19 (power control rheostat).

( ) 158. Solder wires #104 and #148 to the forward terminal (nearest the panel) of R-19 (power control rheostat)



MOTOR CONTROLLED RHEOSTAT

Wire transformer T-5 according to the schedule below. Solder each terminal carefully, checking off each step as it is performed.

( ) 159. Jumper from terminal 12 to terminal 19, using #18 wire.

	Wire #	to	Terminal #
( )	28	"	2
( )	67	"	3
( )	69	"	5
( )	64 - 92	"	17
( )	13	"	18
( )	68	"	7
( )	27	"	1
( )	91 - 63	"	15
( )	12	"	11
( )	86	"	10
( )	85	"	8

( ) 160. Wire transformer T-4 according to the schedule below. There should be jumpers between terminals 2 and 4 and terminals 1 and 3. Normally these are supplied with the transformer. If not, make them from a length of #18 wire and two insulated terminals (blue). Where more than one wire mounts on a terminal the terminals should be mounted back to back, then a second 10-32 hex nut used and another pair of terminals installed. Tighten carefully and adjust lugs so that there is ample clearance between terminals.

	Wire #	to	Terminal #
( )	111-114	"	7
( )	21	"	1
( )	112 - 113	"	5
( )	22	"	3
( )	99 - 98- 101 and positive end of C-41	"	6
( )	20-23 ~~37-41~~	"	4
( )	37-41	"	2

( ) 161. Solder wire #76 to top terminal of C-28 on CB-7.

( ) 162. Solder wire #80 to terminal 3 on CB-7.

( ) 163. Solder wire #82 to terminal 4 on CB-7.

( ) 164. Wire transformer T-3 according to the schedule below. There should be jumpers between terminals 2 and 4 and terminals 1 and 3. Normally these are supplied with the transformer. If not, make them from a length of #18 wire and two insulated terminals (blue). Where more than one wire mounts on a terminal the terminals should be mounted back to back, then a second 10-32 hex nut used and another pair of terminals installed. Tighten carefully and adjust lugs so that there is ample clearance between terminals.

	Wire #	to	Terminal #
( )	119	"	6
( )	115 - 117	"	7
( )	116 - 118	"	5
( )	11 - 22 - 24	"	4
( )	23 - 25 - 33	"	3
( )	36 - 65	"	1

( ) 165. Solder wire #85 to terminal 1 on CB-5.

( ) 166. Solder wire #149 to terminal 4 on CB-5. Solder the other end of wire #149 to the top terminal of C-30. Since this is such a short piece of wire be certain that you use the end physically located best for the connection.

( ) 167. Solder wire #86 to terminal 6 on CB-5.

( ) 168. Solder wire #89 to terminal 9 on CB-5.

( ) 169. Solder wire #87 to terminal 10 on CB-5.

( ) 170. Solder wire #105 to terminal 1 on CB-6.

( ) 171. Solder wire #100 to terminal 2 on CB-6.

( ) 172. Solder the ground wire supplied on the bottom terminal of C-30.

( ) 173. Using the bottom mounting screw of C-30, connect the ground wire installed in step 172 above.

( ) 174. Feed wires #82 and #83 through the grommet above K-10.

( )175. Feed wires #1, #2, #51 and #55 through the grommet below K-10.

( )176. Connect lugged wire #60 to ground, using the left hand mounting screw (when viewed from the rear) for the fuse block as the ground point. Scrape paint for about 1/8 inch around this screw to insure a good ground contact for the lug.

( )177. Solder wire #49 to the top control contact terminal of K-10.

( )178. Solder wires #50 and #51 to the bottom control contact terminal of K-10.

( )179. Solder wire #81 to terminal 6 on CB-7.

( )180. Solder wire #83 to terminal 8 on CB-7.

( )181. Solder wire #84 to terminal 9 on CB-7.

( )182. Connect wire #68 to terminal 4 on CB-8.

( )183. Connect wires #75 and #76 to terminal 3 on CB-8.

( )184. Connect wire #67 to terminal 2 on CB-8.

( )185. Cut the 15" length of #6 plastic tubing supplied into 15 short pieces approximately 1" long. Slip each of these pieces over the wire that is to be connected to TB-1.
(note: After soldering the proper wires to TB-1 this tubing will be slipped down over the terminal lug to provide positive insulation).

( ) 186. Wire TB-1, following the schedule shown below: (Note: TB-1 is numbered on the front of the cabinet from left to right, therefore the numbers shown below will read from right to left when working from rear of cabinet).

	Wire #	to	Terminal #
( ) Solder	133	"	1 on TB-1
( ) "	134	"	2 " "
( ) "	105	"	4 " "
( ) "	60	"	5 " "
( ) "	104	"	6 " "
( ) "	7	"	8 " "
( ) "	8	"	9 " "
( ) "	61	"	11 " "
( ) "	56	"	12 " "
( ) "	57	"	13 " "
( ) "	43	"	14 " "
( ) "	45	"	15 " "
( ) "	29	"	16 " "
( ) "	40	"	17 " "
( ) "	39	"	18 " "
( ) "	65	"	20 " "

Slip the plastic tubing back down over each wire so that it covers the terminal at the point where the soldered connection was made.

( ) 186A. Solder Wire #16 to the body terminal of F5.

( ) 186B. Solder Wire #153 to the end terminal of F5.

( ) 186C. Solder Wire #11 to the body terminal of F9

( ) 186D. Solder a 3" length of #18 wire from the end terminal of F9 to terminal 19 on TB-1.

( )187. Using a ½" plastic cable clamp, a 6-32 x 3/8" PH screw and a 6-32 kep nut, clamp the branch of harness that feeds TB-1. Use the screw hole just above the left hand side of TB-1 (when viewed from the front).

( )188. Route the wires of the right trunk of the cable harness along the bottom of the cabinet past the monitor jacks and around toward the right rear corner. Using a 5/16" plastic clamp, clamp the harness at a point approximately 1" from where the right trunk of the harness makes its turn on the cabinet bottom. Use a 6-32 x 3/8" PH screw at this point. The wire should be between the mounting hole and the front panel.

( )189. Using a 5/16" plastic cable clamp, clamp the harness at a point just to the rear of the modulation monitor jack. Use a 6-32 x 3/8 PH screw, keeping the harness between the screw and the front panel.

( )190. Using three 5/16" plastic cable clamps, clamp the harness along the right hand side of the cabinet bottom. Keep the wire between the screw and the side of the cabinet. Use an additional hex nut to secure the cable clamp.

( )191. Connect Wire #90 (RG-174 coax) to the frequency monitor jack. Prepare the coax properly by pulling the center of the coax through the braid, soldering the braid to the ground lug and the center of the coax to the terminal pin of the jack.

( )192. Connect Wire #110 (RG-174 coax) to the modulation monitor jack. Prepare the coax properly by pulling the center of the coax through the braid, soldering the braid to the ground lug and the center of the coax to the terminal pin of the jack.

( )193. Using a 5/16" plastic cable clamp, clamp the right hand trunk of the harness using the second screw from the bottom of the rear door piano hinge as the mounting stud.

( )194. Using a 5/16" plastic cable clamp, clamp the harness at the 5th screw (from the bottom) of the rear door piano hinge. This cable clamp should be just below Wires #17, #154 and #155.

( )195. At approximately the middle of the rear door piano hinge and at a point just below Wire #107, clamp the harness, using a 5/16" plastic cable clamp.

( )196. At a point just below Wires #35 and #36, clamp the harness with a 3/16" plastic cable clamp. Again, use a mounting screw on the rear door piano hinge.

( )196A. At a point 20 inches from the top, clamp Wire #110 using a 3/16" cable clamp. Leave about 12 inches slack in #110 at this point.

( )197. Clamp Wire #110 at a point near the top right rear corner. Use a 3/16" plastic cable clamp, a 6-32 x 3/8" PH screw and a 6-32 kep nut.

( )198. Clamp Wire #110 once again using the same materials as in step 197 above at a point approximately 11" to the left of the above clamp.

( )199. Install S-10 and S-11, the rear door interlock switch (Acro 3D05-8P2T-normal open). Since threaded mounting bars are supplied welded to the door frame, screw in the switch until the plunger, when depressed to the level of the door weatherstripping, closes the switch. This physical action can be heard. When screwed in the proper distance, advance the nut behind the mounting bar so as to lock the switch in place.

( )200. Solder wires #52 and #53 to the two terminals of S-10 (the top interlock switch).

( )201. Solder wires #26 and #27 to the two terminals of S-11 (the lower interlock switch).

( )202. Cut two 4-inch lengths of the #10 wire supplied. Using the minimarkers supplied, designate one as #3 and one as #4. The markers should be placed approximately 1½ inches from each end of the wire. Install insulated terminal lugs (yellow) on these wires.

( )203. Cut one 10-inch length of #10 wire. Designate as #128.

( )204. Cut one 66-inch length of #10 wire. Designate as #129.

( )205. Cut one 60-inch length of #10 wire. Designate as #130.

( )206. Feed wires 1, 2, 51 and 55 through the grommet below K-10. Using the tool provided, install insulated terminal lugs (blue) on these leads.

( )207. Connect wires #2 and #4 (#10 wire made up in step 202 above) to the top terminal of F-7 (fuse block right hand side). Connect the other end of Wire #4 to the bottom right contact of K-7.

( )208. Connect wires #1 and #3 (#10 wire made up in step 202 above) to the top terminal of F-6 (fuse block left hand side). Connect the other end of wire #3 to the bottom middle contact of K-7.

( )209. Connect wire #55 to the left coil retainer of K-7.

( )210. Connect wire #51 to the right coil retainer of K-7.

( )211. Feed Wires #82, #83, #128, and #129 through the grommet above K-10. Install yellow terminals on Wires #128 and #129 - blue terminals on Wires #82 and #83.

( )212. Connect Wire #82 to the top left contact of K-7.

( )213. Connect Wire #83 to the bottom left contact of K-7.

( )214. Connect Wire #128 (#10 wire made up in Step 203) to the top center contact of K-7.

( )215. Connect Wire #129 (#10 wire made up in Step 204) to the top right contact of K-7.

( )216. Working from the rear of the front panel, connect Wire #128 to the left terminal (screw type) of K-10.

( )217. Connect Wire #130 (#10 wire made up in Step 205) to the right terminal (screw type) of K-10.

( )218. Using the lacing cord supplied, carefully tie Wire #128 in with the left trunk of the harness.

( )219. Tie Wire #129 and #130 in with the right trunk of the harness.

( )220. Route Wires #129 and #130. These two wires will go to the left along the cabinet base and then turn and run along the side to the left rear of the cabinet. Using five 3/8" plastic cable clamps, and five 6-32 x 3/8" PH screws, clamp these wires, using the tapped holes provided. Keep the wires between the screw and the front and side panels.

( )221. Cut Wire #129 and #130 at a point that is 15 inches from the cable clamp in the left rear corner. Install two insulated terminal lugs (yellow) on these wires.

( )222. Install four 10-32 x ½" PH screws in the four tapped holes to the left and right of V-1/V-2 and the frequency adjust trimmers.

( )223. Unpack the oscillator-buffer assembly and mount it (terminals up) using four 10-32 kep nuts.

( )224. Connect TB-2 as follows:

	Terminal	to	Wire#
( )	1	"	72
( )	2	"	92
( )	3	"	91
( )	4	"	90
( )	5	"	74
( )	6	"	38
( )	7	"	37

( )225. Connect the oscillator buffer assembly output wire to the standoff insulator to the right of terminal 7. Using the preformed bus bar supplied (Part No. 250-121) connect from the standoff to Pin 5 of V-3. Solder carefully at the grid connection (Pin 5 of V-3)

( )226. Solder Wire #94 to the center lug of R-12.

( )227. Solder Wire #95 to the left terminal of R-12 (when viewed from the rear).

( )228. Using the 10" length of plastic spiral wrap supplied, wrap the group of wires to the left of V-6. Carefully work the spiral wrap right up to the grommet. At the point where the spiral wrap ends lace the cable carefully. This section of the harness will be routed up the front left hand corner of the cabinet. Wires #119 and #120 should come out the first meter hole (mod. current). Wires #99 and #100 will come out the second meter hole. Wires #102 and #103 will come out the third meter hole.
There are no wires for the fourth meter in this cable.

( )229. Using a ½" plastic cable clamp, clamp the cable using one of the screws that secure the front door piano hinge (fourth from the top). When properly clamped all that will be seen on this part of the harness will be enclosed in spiral wrap from the point where it leaves the front panel to a point in the corner of the cabinet.

(✓) 230. Using a 3/8" plastic cable clamp, clamp the cable using the top screw securing the front door piano hinge.

(✓) 231. Using a 5/16" plastic cable clamp, one 6-32 x 3/8" PH screw and one 6-32 kep nut, anchor the harness, using the hole provided in the top of the cabinet (left front corner).

(✓) 232. Using a 5/16" and a 3/16" plastic cable clamp, two 6-32 x 3/8" PH screws and two 6-32 kep nuts, clamp the harness in the center (front) and right center (front) using the hole provided in the top of the cabinet.

(✓) 233. Install six insulated terminal lugs (red) on each of the meter wires.

(✓) 234. Unpack M-1, mod plate (0-1 amp). With wires extending through the meter hole connect wire #119 to the right (plus) terminal of the meter (when viewing the meter from the front) Connect Wire #120 to the left (negative) terminal. Secure the meter into position using the hardware provided with the meter.

(✓) 235. Unpack M-2, final plate voltage (0-5 kv). Using the same procedure as above, connect Wire #100 to the right (plus) terminal and Wire #99 to the left (negative) terminal. Mount the meter with the hardware provided.

(✓) 236. Unpack M-3, final plate current 0-1 amp) and using the same procedure as above, connect Wire #102 to the right (plus) terminal and Wire #103 to the left (negative) terminal. Mount the meter with the hardware provided.

NOTE (✓) 237. Either one of two types of meters will be supplied for the M-4 position depending upon the arrangements made at the time of transmitter purchase. One is a meter with a 0-1 MADC movement and a scale in RF amperes designed to be used with a remote metering diode such as the Bauer RMD-1 (not supplied). The alternate is a metering relay - a 100 UADC movement and a percent of power scale - designed to automatically control the transmitter output power. Instructions for the installation and operation of this meter are packed with the unit.

(✓) 238. Install the meter panel using the hardware provided.

The installation of the harness, except for a few leads to be connected later, is now complete. Proceed to the next section.

SECTION V

The high voltage rectifiers and power control panels are supplied precut and drilled. The high voltage rectifier board is the smaller of the two, measuring 8½x16". Starting with the HV rectifier board, proceed as follows, using the drawing titled "HV Rectifier and Power Control" as a guide:

( ) 1. Mount a 1" pillar insulator at Point A. Use a 8-32 x ½" BH screw and a #8 shakeproof washer.

( ) 2. Mount two 1" insulators (square type) to support the HV fuse F-8. Use two 10-32 x ½" BH screws. Use #10 shakeproof washers under each screw.

( ) 3. Mount the six 1½" standoff insulators (with jack attached) to support CB-12 and CB-13, the HV silicon rectifiers. Use 6-32 x 7/8" PH screws, #6 extruded fiber washers and 6-32 kep nuts. The extruded fiber washers should go under the screw head. Mount loosely. Carefully orient all terminals on the standoff insulators so that they match the drawing. Insert CB-12 and CB-13 and tighten.

( ) 4. Mount a 1" insulator (square type) to support R-31. Use a 10-32 x ½" BH screw and a #10 shakeproof washer.

( ) 5. Mount R-31 (1000 ohms, 25 w) using a 10-32 x 2½" RH screw, two #10 extruded fiber washers and two #10 metal washers on the stand-off insulator mounted in Step 4 above. Orient the terminals toward C-32.

( ) 5A. Mount 1" pillar insulators at Points B and C using 8-32 x 5/8" BH screws. Use a #8 shakeproof washer under each screw. Using #8 solder lugs on insulators B and C, mount resistors R-92 and R-93 (25 ohm, 20 w). Orient as shown on the drawing and solder.

( ) 6. Mount C-32 (.1 mfd, 6 kv) using the brackets provided with the capacitor.

( ) 7. Connect the 5" length of #16 bus bar provided (Part #250-122) from Point A-1 through A-2 to the top of F-8. Give the stand-off insulator terminals a 90° twist so that the bus bar can be passed directly through the terminal hole. Slip the bus bar through the A-1/A-2 terminals first and then form carefully so that it reaches the top of the fuse post (F-8) terminal. Using a 10-32 x 3/8" BH screw and the fuse clip provided, connect the terminal end of the bus bar to F-8. Solder the terminals at A-1 and A-2 carefully.

( ) 8. Connect the 5" length of #16 bus bar with terminal attached (Part #250-123) from point A through B1 to B2. Give the jack terminals a 90° twist so that the bus bar can pass directly through these terminals. Solder carefully at B1 and B2.

( ) 9. Cut a 4" length of #18 wire and attach an insulated terminal (blue) to each end. Connect one end to the bottom of F-8 using the fuse clip provided, a 10-32 x 3/8" BH screw and a #10 shakeproof washer. The other end will use the board mounting screw as a ground point later.

( ) 10. Cut a 5" length of HV wire and attach a terminal lug (yellow) to one end. For maximum contact fold back the wire within the terminal lug. Connect to the bottom terminal of C-32. Solder the other end to the top terminal of R-31.

* The pre-assembly of the high voltage rectifier board is now complete. Proceed now to the pre-assembly of the power control board following the steps shown below.

( ) 11. Mount 1" pillar insulators at Points A, B, C and D, using 8-32 x ½" BH screws. Use a #8 shakeproof washer under each screw.

( ) 12. Mount 1½" cone insulators at Points E and F using 8-32 x 5/8" BH screws and #8 shakeproof washers.

( ) 13. Mount R-66 and R-67 (250 k, 50 w) using 6-32 x 5/8" PH screws and 6-32 kep nuts. Run the screw from the back of the board and secure with a kep nut, then install the resistor and secure with a second kep nut. Such a procedure permits replacement should it ever become necessary without removing the entire board from the transmitter.

( ) 14. Mount K-4 using two 6-32 x 1" PH screws and four 6-32 kep nuts. The coil terminals go on top. Before mounting on the power board attach an 8" length of #18 wire to terminal K using an insulated terminal lug (blue). The other end of this wire will be connected to R-67 later. When mounting K-4 install the screw and one kep nut first, then the relay followed by the second kep nut. This will allow removal if ever necessary without removing the board from the transmitter.

( ) 15. Mount R-35 (40 k, 200 w) using 10-32 x ½" BH screws and 10-32 kep nuts. Note the drawing as to the positioning of the resistor terminals. Use same mounting procedure as in Step 14 above.

* 1000/500 W POWER CONTROL BOARD IS SUPPLIED ASSEMBLED -

( ) 16. Mount R-36 (60 k, 25 w) using the hardware provided (10-32 x 2-3/4" RH screw, two #10 extruded washers, #10 metal washer, 10-32 kep nut). Do not overtighten.

( ) 17. Mount C-35 and C-45 (.047 mfd, 1600 v) by first installing #8 solder lugs using a 8-32 x 3/8" BH screw at points A, B, C and D. Mount the capacitors between the lugs and solder carefully.

( ) 18. Connect the 9½" bus bar (part #250-124) between points B and D.

( ) 19. Connect a 6½" bus bar (part #250-125) between points B and E. Use a 8-32 x 3/8" BH screw at point E.

( ) 20. Connect R-70 (50 ohm, 5w) from R-67 to C-45. Note the drawing. Use the stand-off insulator as the C-45 connecting point. Connect the wire previously installed on K-4 to R-67 also. Do not solder yet.

( ) 21. Connect the other end of R-67 to the bus bar running between B and D, using a short length of #18 wire. Solder both ends carefully.

( ) 22. Jumper the normally closed contacts of K-4 as shown on the drawing, using a 3" length of #18 wire with insulated terminals (blue) on each end.

( ) 23. Connect the upper right contact of K-4 to the bus bar running between B and D. Note the drawing. Using a short length of #18 wire for this purpose, install an insulated terminal lug (blue) on one end.

( ) 24. Connect R-66 to the bus bar running between B and D. Use a short length of #18 wire for this purpose. Solder both ends carefully.

( ) 25. Cut a 2" length of wire and install an insulated terminal lug (blue) on one end. Connect the lugged end of this wire and R-69 (50 ohms, 5 w) to the stand-off insulator at point F using a 8-32 x 3/8" BH screw. Connect the other end of R-69 to point A of C-35 using the stand-off insulator as the connecting point. Connect the other length of wire to R-66. Do not solder yet.

( ) 26. Cut a 3" length of #18 wire. Install an insulated terminal lug (blue) on one end. Connect this end to the upper left contact of K-4. Connect the other end to R-66 and solder carefully

( ) 27. Connect the bottom end of R-35 to the top end of R-36 using a 3" length of #18 wire. Solder the connection at R-35 only. The connection at R-36 will be soldered later.

( ) 28. Cut a 3" length of #18 wire and install an insulated terminal lug (blue) on one end. Solder the free end to the bottom terminal of R-36. The terminal end of this wire will become a ground when this component board is mounted in place.

( ) 29. Connect the top end of R-35 to the bus bar running between B and E. Use a short length of #18 wire for this purpose. Solder carefully at both ends.

( ) 30. Mount R-75 (150 ohm, 25 w) using the hardware provided, 10-32 x 2-3/4" RH screw, two #10 extruded washers, #10 metal washer, 10-32 kep nut. Do not overtighten. Mount with resistor terminals facing toward left.

( ) 31. Mount K-11 (Advance AM 2 C 115 V A) using the hardware provided, 6-32 x 1/2" PH screw, #6 shakeproof washer, and 1/2" threaded stand-off. Mount with majority of relay terminals facing the resistor.

( ) 32. Cut two 12" lengths of #18 wire and solder to each of the two K-11 coil terminals.

( ) 33. Using #20 tinned wire, jumper through the two normally open contacts of K11 through the tap to the bottom lug of R-75 (insulate). Leave enough slack to allow adjustment of the tap. Solder only at the relay terminals and at the R-75 tap at this time.

( ) 34. Using #20 tinned wire, jumper the two arm contacts of K-11, continuing the lead to the top terminal of R-75 (insulate). Solder only at the K-11 terminals at this time.

The pre-assembly of the power board is now complete.

SECTION VI

The Installation of the High Voltage Rectifiers, the HV Rectifier Power Control Panels and HV Harness

( ) 1. Mount the rectifier board using four 10-32 x ½" BH screws. Use a #10 shakeproof washer under each screw. Be sure to include the ground lead under the lower left screw.

( ) 2. Mount the power control panel, using four 10-32 x ½" BH screws. Use #10 shakeproof washers under each screw. When mounting this panel, feed wires #35 and #36 and the two wires from K-11 through the hole under K-4. Available slack on these wires can be pushed back behind the board after the terminals are installed. Be sure to include the ground lead for R-36 when installing the mounting screw near it.

( ) 3. Install insulated terminal lugs (blue) on wires #35 and #36. Include one of the wires to K-11 with each terminal, then connect to the K-4 coil terminals. Push back any excess lead.

( ) 4. Solder wire #107 to the top end of R-36. extended lead

( ) 5. Mount C-46 (6 mfd, 2000 v) on the hat section located between the HV boards. Use the footed brackets supplied with the capacitor, securing them with four 10-32 x 5/8" PH screws. Use #10 shakeproof washers under each screw. Do not install the top right hand screw yet.

( ) 6. Cut an 8½" length of #18 wire and install an insulated terminal lug (blue) at each end. Connect this jumper from the top right capacitor mounting screw to the lower terminal of C-46. This ground lead should lie between C-46 and L-10.

( ) 7. Mount L-10 (UTC S35) using four 10-32 x 3/8" BH screws. Use #10 shakeproof washers under each screw.

( ) 8. Using the 12" length of high voltage wire supplied, jumper from L-10 (left terminal) to R-67 on the power change panel above. Connect at the same point where R-70 and K-4 connect to R-67. This jumper lead should run in between C-46 and L-10. Solder the R-67 end of this jumper only at this time.

( ) 9. Using the 6" length of HV wire with terminal supplied, jumper from L-10 (left terminal) to C-46 (top terminal). You should now have two wires on the left terminal of L-10. Solder carefully.

Now that the HV boards have been mounted, proceed with the installation of the HV harness. This harness is lugged, labeled and laced for easy assembly. After unrolling, note the one single long lead (#153). This lead will go on the left side of the cabinet (facing the rear). The section carrying Wires #161, #163, #164, #165, etc., will run up the right side of the cabinet to the left of the rectifier and power control boards. Six tapped holes are provided on these boards and on the hat section supporting L-10 and C-46 for mounting the cable clamps that secure this harness. Proceed, using the following steps:

(✓) 10. Using a 3/8" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp just below the point Wire #161 leaves the harness. Use the tapped hole to the left of R-66. When properly clamped Wires #161 and #163 should loop easily into the standoff insulators at Points E and F. Note the drawing.

(✓) 11. Using a 3/8" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point to the left of R-67.

(✓) 12. Using a ½" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point to the left of C-46 (on the hat section).

(✓) 13. Using a ½" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point to the left of CB-12. This clamp will not include Wires #158 and #159.

(✓) 14. Using a 5/8" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point to the left of F-8. This clamp will not include Wire #160.

(✓) 15. Using a 5/8" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point on the base of the cabinet approximately 1½" from the side and in line with the harness run. The clamp and the harness should be on the back side (toward rear of cabinet) of the mounting screw.

(✓) 16. Using a 3/8" plastic cable clamp and a 6-32 x 3/8" BH screw, clamp the harness at a point on the base approximately 7 inches from the left side of the cabinet (viewed from the rear).

( ) 17. Route wire #153 along the side of the cabinet and toward the left side (viewed from the rear) of the front panel. Using the second, fourth, sixth and eighth front panel screws for mounting, install four 3/16" plastic cable clamps to support wire #153. The clamps and wire #153 should lie between the screw and the side of the cabinet.

( ) 18. Using two 3/16" plastic cable clamps, secure wire #153. Use the two screws on the tube shelf to the rear and left of L-5. One will be at the rear of the horizontal portion of the tube compartment, the other will be the first screw on the vertical portion of the tube compartment. Note the picture titled "Final RF Section" to see how this is done.

The installation of the HV harness is as complete as necessary for the present status of the kit construction. The actual hookup of the harness will come later. Proceed now to the next section - the installation of the final RF circuit.

SECTION VII

Installation of Final Amplifier RF Circuit

The construction of the final amplifier RF circuit should begin with the installation of the dummy antenna. To accomplish this it is necessary to remove the protective screen from the top of the transmitter and referring to the drawing "Dummy Antenna", perform the following steps:

( ) 1. Install the 1½" feedthrough insulator (Part #220-102) and the bus bar assembly (Part #250-126) at Point A, the 3/4" hole in the upper left corner (when viewed from the front) of the tube compartment. When installing, the head of the feedthrough screw should be in the tube compartment. Use a #10 shakeproof washer first, followed by the bus bar assembly. On the other end use a #10 fiber washer first, followed by a #10 metal washer and a 10-32 kep nut.

( ) 2. Install a 1" pillar standoff insulator at Point B (in the tube compartment) using a 8-32 x 3/8" BH screw.

( ) 3. Install a 1" pillar standoff insulator at Point C. Use a 8-32 x 3/8" BH screw.

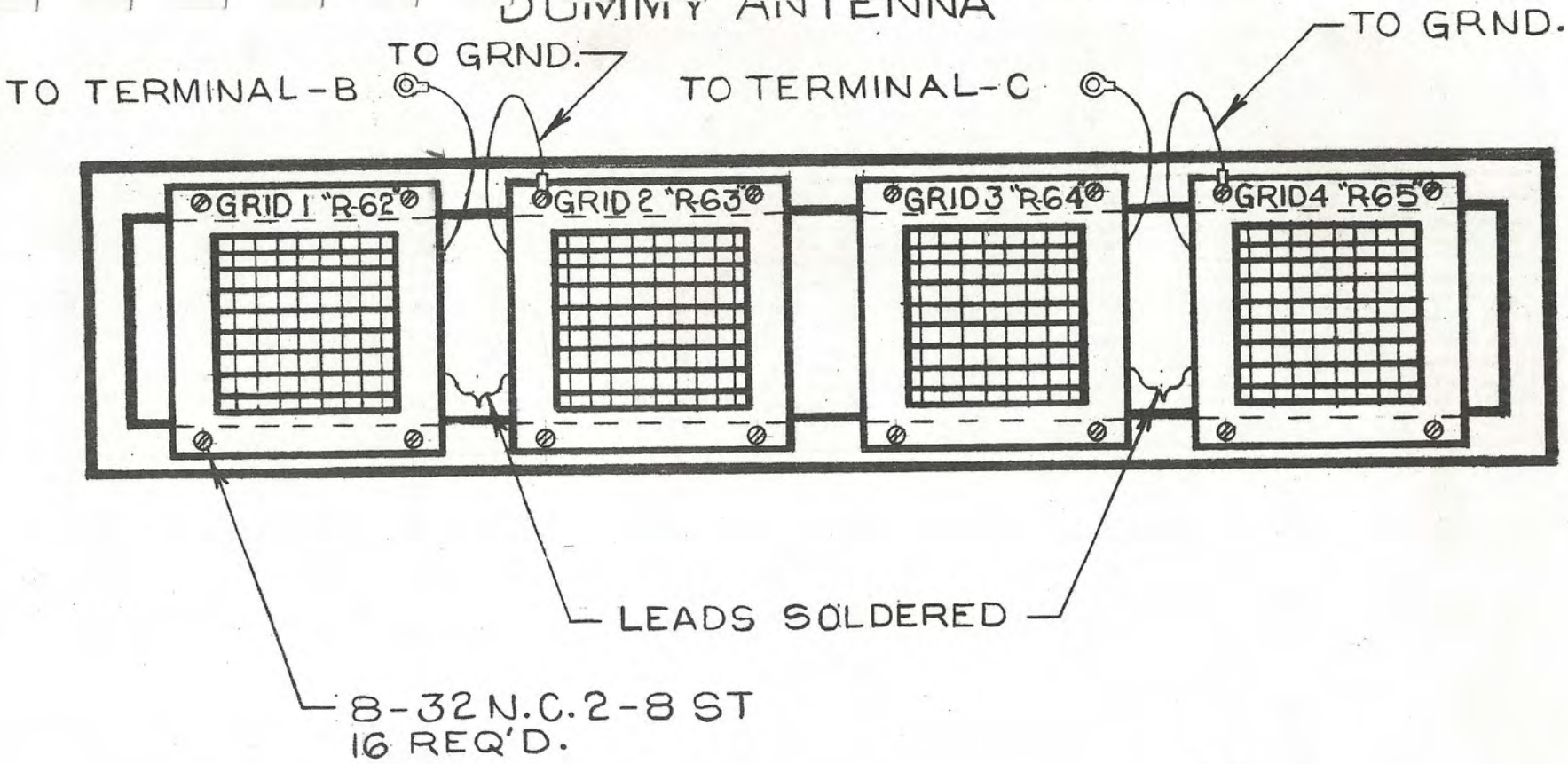
( ) 4. Install the four Ohmspun resistance grids (R-62, R-63, R-64, R-65). Mount as shown on the drawing using sixteen 8-32 x 3/8" PH self-tapping screws. Install four insulated terminal lugs (blue) on the leads as shown. When using wire of this type double the wire within the lug barrel. Use #8 metal washers between the lug and the grids at the two ground connections. Cut the other four leads to a length of 1". Pair as shown on the drawing and solder carefully. Arrange all leads for proper clearance.

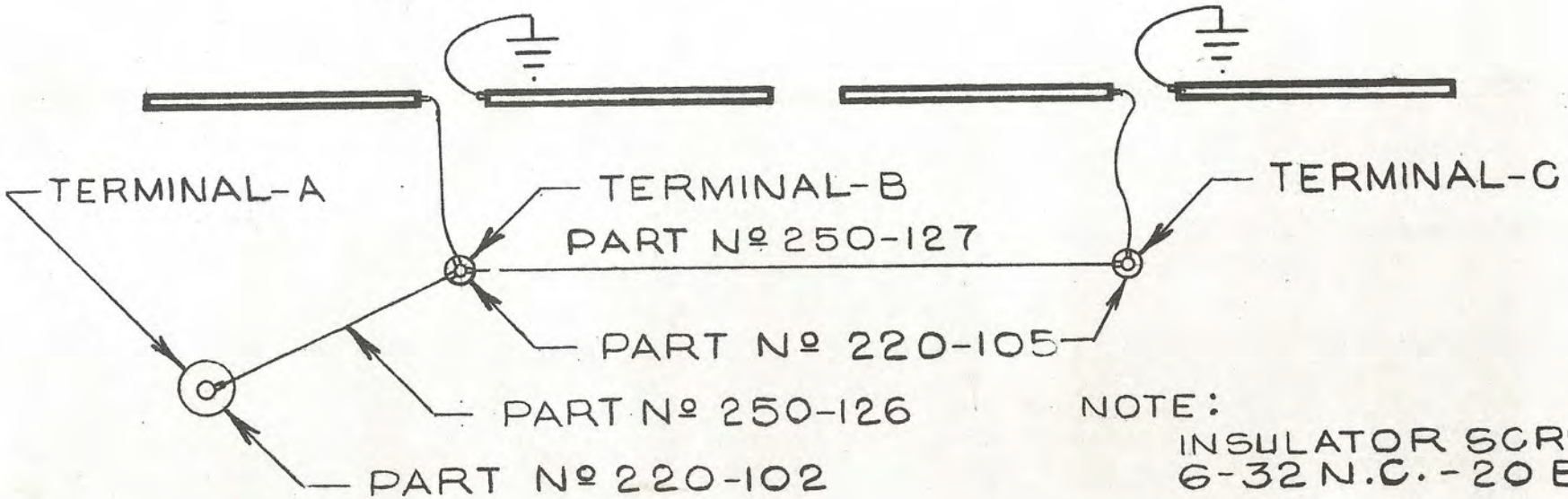
( ) 5. Using a 8-32 x 3/8" BH screw, connect at Point B the 13¾" bus bar (Part #250-127), the terminal from Grid #1 and the bus bar previously installed on the feedthrough insulator.

( ) 6. Using a 8-32 x 3/8" BH screw, connect the terminal from Grid 3 and the bus bar installed in the step above at Point C.

The installation of the dummy antenna is now complete. Replace the protective screen and proceed with the mounting of parts in the final RF section.

DUMMY ANTENNA





NOTE:
INSULATOR SCREWS
6-32 N.C. - 20 BH.

( ) 7. Mount C-24A (final tank padder capacitor) using three 10-32 x 3/8" BH screws and three 10-32 kep nuts. The kep nuts are on the tube compartment side of the panel. Insert the capacitor in the mounting flange carefully and tighten securely.

NOTE: C-24A is used only at the lower end of the broadcast band. Refer to Figure 4 "Frequency Determining Parts" in the instruction book.

( ) 8. Install the variable vacuum capacitor, C-24, Jennings UCS-500). Unpack carefully, remove the mounting flange and mount it using six 10-32 x 3/8" BH screws and six 10-32 kep nuts. The kep nuts should be on the tube compartment side of the panel. Mount with the flange-tightening screw up. Insert the capacitor and tighten the flange screw firmly.

( ) 9. Mount L-7 (EFJ 200-206, or EFJ 200-105 - depending on frequency) using four 2½" pillar standoff insulators, eight 10-32 x ½" BH screws and eight #10 shakeproof washers. The name plate should be on the right hand side. When mounting be careful of C-24.

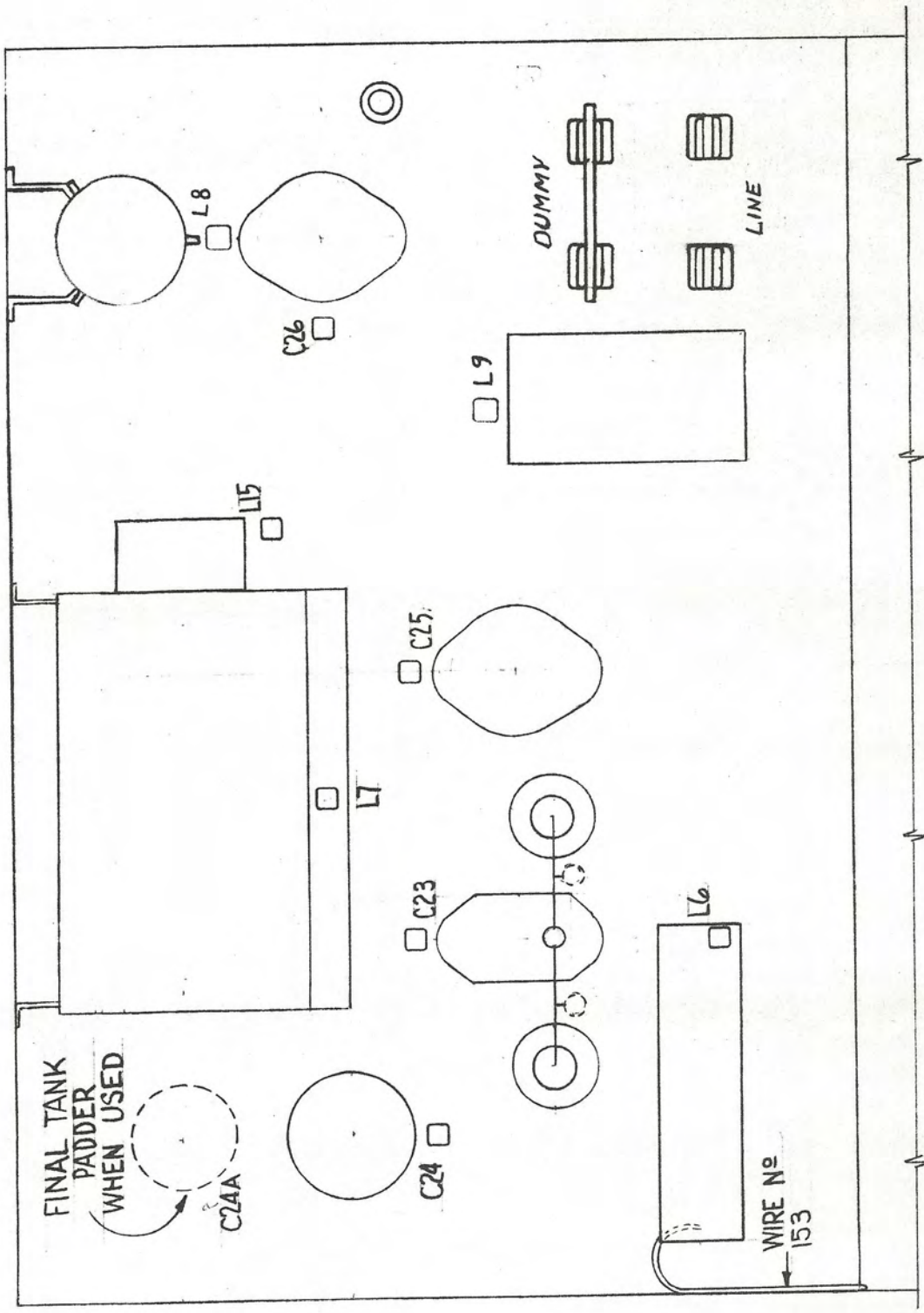
( ) 10. Mount L-15 (the modulation monitor pick-up coil). This coil is of a diameter that permits it to be fitted into the end of L-7. Note the picture on the next page. Mount so that the terminals are on the right and easily accessible. Loosen the tank coil and support and insert the pickup coil approximately ½". When mounted, tighten the end support carefully.

( ) 11. Solder the coax cable (Wire #110) to the L-15 terminals, the center conductor to the top terminal, the ground sheath to the lower terminal.

( ) 12. Mount L-8 (EFJ 232-610) using four 6-32 x 3/8" BH screws and four 6-32 kep nuts.

( ) 13. Mount C-26 (Sangamo Type G1-B, - see Figure 4 of the instruction book "Frequency Determining Parts"). Use two ¼-20 x 1" RH painted screws and four ¼-20 kep nuts. Two of the kep nuts are used against the panel to hold the screws in place and provide a good ground. The capacitor mounts next, using the two additional kep nuts. Tighten securely.

( ) 14. Mount L-9 (EFJ Type 232-610) using four 6-32 x 3/8" BH screws and four 6-32 kep nuts.



REAR VIEW
FINAL R.F. SECTION

( ) 15. Mount a 200-109 assembly (part of dummy/line switch) using a 10-32 x ½" BH painted screw. Four #10 holes are provided to the right of L-9 for this purpose. As viewed from the rear, this first assembly should go in the top left position with the clip lead facing L-9.

( ) 16. Repeat the above procedure, mounting another 200-109 assembly directly below the one installed in Step 15.

( ) 17. Mount a 200-110 assembly (no coil clip) in the top right position. The lead should come out on the right side. Connect the other end to the dummy antenna feed-through insulator above.

( ) 18. Mount a 200-118 assembly in the lower RH position. This will provide the output line connection.

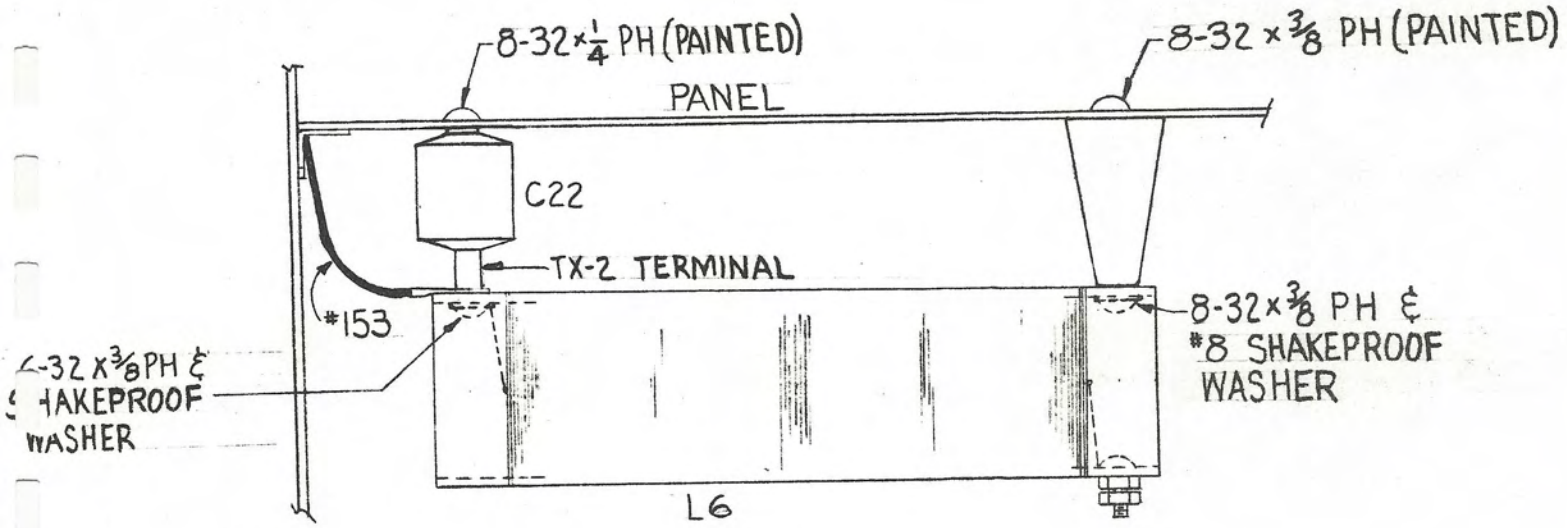
( ) 19. Mount C-25 (Sangamo Type G1-B - see Figure 4 of the instruction book "Frequency Determining Parts"). Two of the kep nuts are used against the panel to hold the screws in place and provide a good ground. The capacitor mounts next, using the two additional kep nuts. Tighten securely.

( ) 20. Install the two 2¼" feed-through insulators above V-8 and V-9. The final plate leads (plated strap, ½"x4", Part #190-105) should be installed at this time. The screw head is inside the tube compartment, follow with the split washer, then the plate lead. On the other end use a metal washer first and then the nut. The second washer and nut can be installed at the time the parasitic suppressor is connected.

( ) 21. Mount the C-23 (plate blocking capacitor) assembly, using the hardware provided. Connect the two parasitic suppressors to the V8/V9 feed-through insulators installed in the step above.

( ) 22. Install the two plate caps (Eimac HR6) on the V-8 and V-9 plate leads.

( ) 23. Mount L-6, the final plate RF choke. Study the drawing on the next page. You will note that L-6, C-22 and a 1½" cone type stand-off insulator make up this assembly. Mount the stand-off first, using a 8-32 x 3/8" PH painted screw. Next mount C-22 (500 mmfd, 20 kv, Centralab TV-20) using a 8-32 x ½" PH painted screw. This capacitor should have a type TX-2 terminal attached. Next mount the RF choke, using a 8-32 x 3/8" PH screw and a #8 shakeproof washer. Do not tighten yet. Using a 6-32 x 3/8" PH screw and a #6 shakeproof washer, secure the other end of L-6. The high voltage wire (#153) should go between the capacitor terminal and the coil. Tighten both mounting screws carefully.



L6 FINAL PLATE RF CHOKE

( ) 24. Connect the lead from the top of the C-23 assembly to the terminal on the top of L-6.

( ) 25. Connect the assembly 200-101 or 200-101A (depends on frequency and type of tank coil) from C-24 to L-7. Refer to Figure 4 in the instruction book for the proper placement of the tuning capacitor tap.

( ) 26. If a tank padding capacitor is used, connect assembly (200-115) from C-24A to C-24.

( ) 27. Connect the lead from the bottom terminal of C-23 to L-7. Refer to the instruction book (Figure 4) for the proper position of the plate tap.

( ) 28. Connect the assembly 200-105 or 200-105A (depends on frequency and type of tank coil) from C-25 to L-7. Use a ¼-20 x 3/4" HH screw and a ¼-20 kep nut on C-25*. The L-7 connection is made at the coil terminal screw.

( ) 29. Connect the assembly 200-106 or 200-106A (depends on frequency and type of tank coil) from L-7 to L-8. Refer to the instruction book (Figure A) for the proper placement of the load tap. At L-8 it is placed on the first turn (nearest the panel).

( ) 30. Connect the assembly 200-107 from L-8 to C-26. Refer to the instruction book (Figure 4) for the proper placement of the output tap on L-8. Count the turns carefully. The coil clip already connected (from L-7) should be on turn #1. Use a ¼-20 x 3/4" HH screw and a ¼-20 kep nut in the top hole of C-26.

( ) 31. Connect the assembly (200-108) from C-26 to L-9. Use a ¼-20 x 3/4" HH screw and a ¼-20 kep nut in the bottom hole of C-26*. The coil clip goes to the #1 turn (top of L-9).

( ) 32. Connect the two leads on the dummy/line switch to L-9. Refer to the instruction book (Figure 4) for the proper placement of these coil clips. The top lead is the dummy load tap, the lower lead is the load tap.

*If Sprague encapsulated type of capacitor is supplied use connecting screw supplied with capacitor.

( ) 33. Install the two 1½" feedthrough insulators for the modulator plate feed, using the hardware supplied. Note the picture showing the RF section. The modulator plate leads (plated strap, ½" x 7½", Part #190-104) should be installed at this time. The screw head should be inside the tube compartment. Follow with the split washer, then the plate lead. On the opposite end use a metal washer first and then a 10-32 hex nut. Additional connections at this point will be made later.

( ) 34. Install the two plate caps (Eimac HR-6) on V-6 and V-7 plate leads.

( ) 35. Install the drive shaft and knob for C-24. Use the panel bearing with the 3" shaft, the coupling and the spinner knob supplied. Tighten carefully and check to see that the shaft does not bind. Turn the knob completely counter-clockwise to the point of maximum capacity. You will note that when you reach the end there will be a slight reduction of torque and a sudden loosening of the capacitor dustcap. Turn clockwise to the point that the dustcap will reset.

( ) 36. Connect the modulator plate leads (#164 - #165) to the two feedthrough insulators previously installed. Wire #164 goes to V-6 (right insulator, facing the rear). Wire #165 goes to V-7 (left insulator, facing the rear). Use an additional 10-32 hex nut on each feedthrough bolt.

( ) 37. Install a 5/16" plastic cable clamp to support wires #164 and #165 using the tapped hole to the right of the feedthrough insulators. Use a 6-32 x 3/8" BH painted screw and a 6-32 kep nut.

( ) 38. Using the mounting screw to the right of the clamp installed above, install another 5/16" plastic cable clamp and secure Wires #164 and #165.

( ) 39. Install R-58 (5 meg. 5w with terminal attached). Take care when handling this resistor (being of a film type a scratch on the surface could cause an open). The terminal end of R-58 goes to the left modulator plate feedthrough insulator (facing the rear). Use a 10-32 kep nut at this point. The other end of R-58 and Wire #139 should be carefully soldered to terminal 1 of CB-2. This wire should be run behind the component board (CB-2).

( ) 40. Install R-55 (5 meg, 5w with terminal attached). The terminal end of R-55 goes to the right modulator plate feedthrough insulator (facing the rear). Use a 10-32 kep nut at this point. The other end of R-55 and Wire #140 should be carefully soldered to terminal 5 of CB-2, This wire should run behind the component board (CB-2).

The final amplifier circuit is now completed.
Proceed to the next section.

SECTION VIII

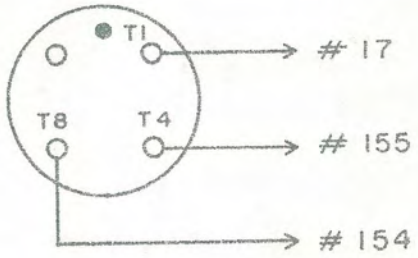
Installation of Heavy Chokes and Transformers

You are now ready to begin the final step in the assembly of the Model 707 - the installation of heavy chokes and transformers. If the kit is being constructed at the spot where it will be used (no further transportation involved) the plate transformer, modulation reactor and the modulation transformer can be bolted down. If the transmitter is to be moved after testing these items can be merely slipped into place. Proceed as follows:

(✓) 1. Install the blower motor using the four clamps provided. When mounted the propellor is closest to the filter. Orient so that the connecting block is at an approximate 9:00 o'clock position.

(✓) 2. Using the terminals provided make the following connections - be sure to slip on the protecting cap first:

Wire #17 to T-1; Wire #155 to T-4; Wire #154 to T-8.

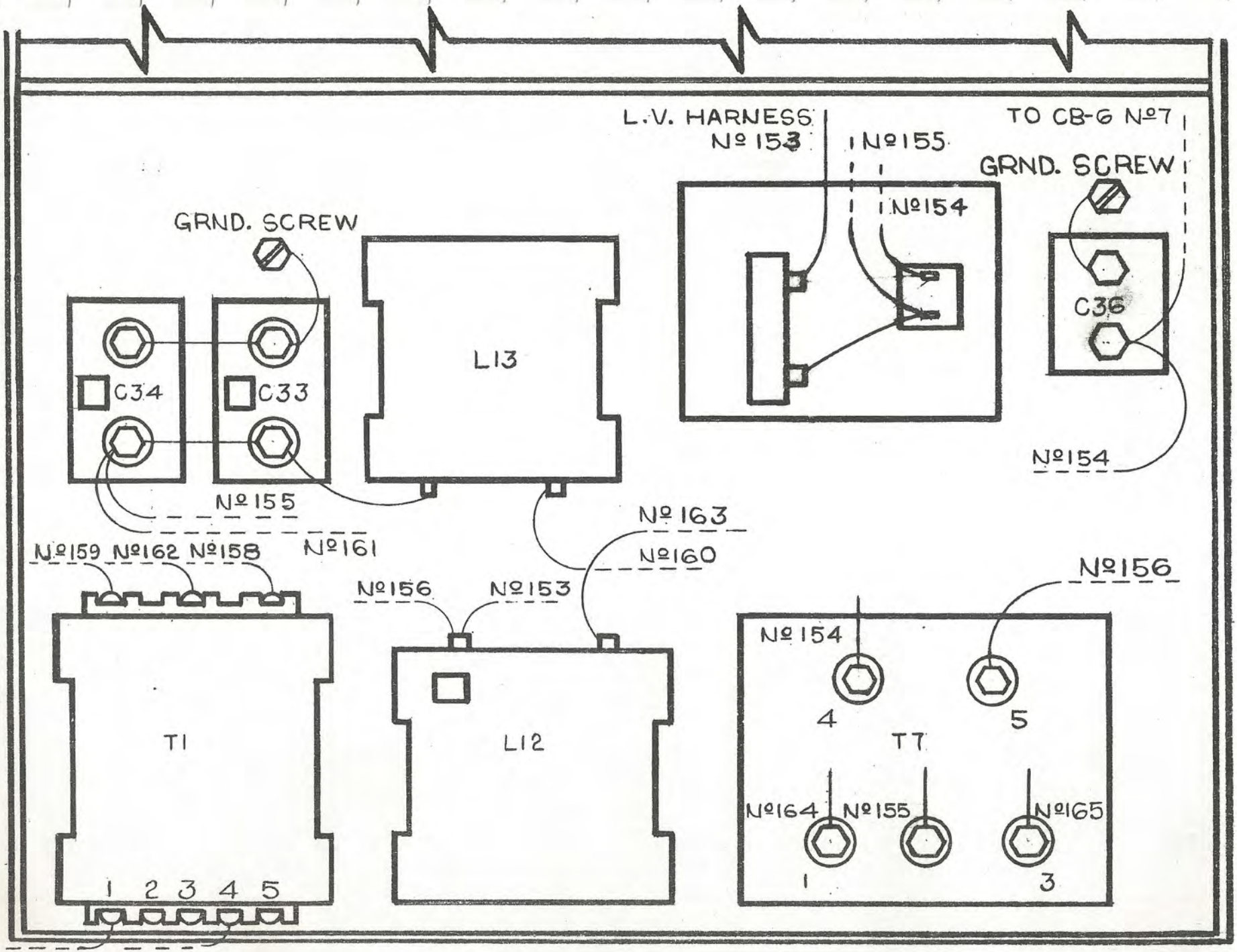


( ) 3. Using the length of spiral wrap provided, wrap Wires #17, #155 and #154 from the blower motor back to the main harness.

(✓) 4. Using a 5/16" plastic cable clamp and a #8 self-tapping screw, clamp the spiral wrap using the hole to the left and below the blower.

Wire the blower motor run capacitor (C-42) and the voltage dropping resistor (R-68) (shown on the drawing on the next page) using the following steps:

( ) 5. Solder Wire #153 to the R-68 terminal nearest the front panel.



MOUNTING OF HIGH
VOLTAGE COMPONENTS

( ) 6. Using a 6-inch length of #18 wire run a jumper from the other end of E-68 to the rear terminal of C-42.

( ) 7. Connect Wire #155 to the same C-42 terminal that carries the jumper to E-68

( ) 8. Connect Wire #154 to the front terminal of C-42.

( ) 9. Mount C-36 (1 mfd, 4 kv) using the footed bracket supplied, two 10-32x3/8" PH screws and two 10-32 kep nuts. The terminal with the ground lead attached goes toward the front.

( ) 10. Mount the filter reactor L-13 (10 h, 800 ma) using four ¼-20x3/4" HH screws, four ¼" metal washers and four ¼-20 kep nuts. The two terminals face the rear of the transmitter.

( ) 11. Install the ground stud for C-33/C-34, a 8-32x½" PH screw. The hole for the ground stud is located in front of C-33. Run the screw up from the bottom of the cabinet and secure with the 8-32 kep nut provided. Attach the C-33/C-34 ground lead (Part #250-129) and secure with a second 8-32 kep nut.

( ) 12. Install filter capacitors C-33 and C-34 (4 mfd, 4 kv) using the footed bracket supplied, four 10-32x3/8" PH screws and four 10-32 kep nuts.

( ) 13. Install the bus bar assemblies (Part #250-128) between the common terminals of C-33 and C-34 (note the drawing). At this time also connect the ground wire mounted in Step 11 above to the front terminals (nearest the panel) of C-33. Connect Wires #155 and #161 to the rear terminals of C-34.

( ) 14. Connect the HV lead supplied (Part #250-131) from the left terminal of L-13 to the rear terminal of C-33.

( ) 15. Connect Wire #160 to the right terminal of L-13.

( ) 16. Install the modulation transformer T-7 (Electro-Engineering E-11691) using four ¼-20 x 3/4" HH screws and four ¼-20 kep nuts. Terminals 1, 2 and 3 go toward the rear of the transmitter. Make the following connections:

Wire #	to	Terminal #
164	"	1
155	"	2
165	"	3
154	"	4
156	"	5

(✓) 17. Connect HV wire (Part #250-132) and HV wire #154 to the rear terminal of C-36. Solder the other end to terminal 7 of CB-6.

(✓) 18. Install the ground stud for C-36 - a 8-32x½" PH screw. the hole for this ground stud is located to the front and left of C-36. Run the screw up from the bottom of the cabinet and secure with the 8-32 kep nut provided. Attach the C-36 ground lead and secure with a second 8-32 kep nut.

(✓) 19. Install the plate transformer (T-1) using four ¼-20x3/4" HH screws, four ¼" metal washers and four ¼-20 kep nuts. Terminals 1-5 face the rear. Make the following connections:

Wire #	to	Terminal #
( ) 129	"	1
( ) 130	"	5
( ) 159	"	8
( ) 162	"	7
( ) 158	"	6

not (250 watt)

(✓) 20. Install L-12, the modulation reactor, using four ¼-20x 3/4" HH screws, four ¼-20 kep nuts and four ¼" metal washers. The two terminals face the front of the transmitter. Connect wires #156 and #153 to the left hand terminal (when facing the front) and wire #163 to the right hand terminal. These connections should be made before bolting down the reactor.

(✓) 21. Mount the constant voltage transformer T-2 (Sola 23-22-150). Install a 3/4" grommet in the rear of the transformer. Use the knock-out that will be closest to the front panel when mounted. T-2 mounts on the side of the cabinet above the plate transformer and is shock mounted using the four Lord shock mounts provided (Part #180-100). These should be installed first. You will note that a ground strap is supplied with one of the shock mounts. Install the shock mounts, putting the one with the ground strap on the bottom right side. Secure the transformer, using four ¼-20 kep nuts. Run the four wires from the harness below up behind the transformer and in through the grommet. Make the following connections:

Wire #	to	Terminal #
( ) 14	"	H-1
( ) Jumper H-2	"	H-3 (using #18 wire)
( ) 15	"	H-4
( ) 20	"	X-1
( ) 21	"	X-2

( ) 22. Connect wire #163 to point E on the power control board.

( ) 23. Connect wires #161 and #166 to point F on the power control board.

( ) 24. Solder wire #162 to the right hand terminal of L-10. This lead should run in between L-10 and C-46. Lace the white HV wires at this point.

( ) 25. Connect wire #159 to point C on the HV board.

( ) 26. Connect wire #158 to point B on the HV board.

( ) 27. Cut a 8" length of HV wire. Install an insulated terminal (yellow) at one end and an insulated terminal (blue) at the other end. Connect one end of this jumper (yellow terminal) to the top terminal of C-32.

( ) 28. Connect wire #160 and the other end of the jumper from C-32 (installed in Step 27 above) to Point A on the HV board. Include also the bus bar from point B1.

( ) 29. Solder wire #166 to the bottom lug of R-31.

( ) 30. Connect the modulation monitor lead (#110) running up the corner near the power board to R-75. The braid of the coax should be kept continuous - the center conductor, however, should be cut with one end going to the top terminal of R-75, the other end to the bottom terminal of R-75. Solder carefully.

The construction of the transmitter is now completed. Proceed to the next section, "Preliminary Checks and Adjustments".

SECTION IX

Preliminary Checks and Adjustments

( ) 1. Install a 4-400A in the V-6, V-7, V-8 and V-9 sockets. Connect the place connectors and tighten firmly.

( ) 2. Install a 6AG7 in the V-1 and V-2 sockets.

( ) 3. Install a 6CA7/EL34 in the V-3 socket.

( ) 4. Install a 6SJ7 in the V-4 and V-5 sockets.

( ) 5. Install 30 amp fuses in the F-6 and F-7 positions.

( ) 6. Install a 1.6A, 3AG Slo-Blo fuse in the F-1, F-2, F-3, and F-4 positions.

( ) 7. Install a 1/2 amp 3AG Slo-Blo fuse in the F-5 position. F-5 is the blower fuse located in the lower right hand corner of the front panel.

( ) 8. Install the 1½A, 5 kv fuse in the F-8 position on the HV rectifier board.

( ) 9. Remove the oscillator buffer cover and install the crystal. The No. 1 position of the crystal selector switch corresponds to the right hand socket, the No. 2 position to the left hand socket (when viewed from the rear). For one crystal operation use the right hand socket and the No. 1 position of the crystal selector switch. Use care when handling the crystal. When extracting from the socket grasp the base, not the glass envelope.

( ) 10. Install the final grid underdrive relay, K-2 (Potter-Brumfield - KC_5, 5000 ohm coil). K-2 mounts on CB-10.

( ) 11. Install K-5 (Potter-Brumfield KRP11A, 115 V). K-5 mounts on CB-3.

( ) 12. Install K-3 and its plastic cover on CB-4.

( ) 13. Install the bias rectifier assembly in the octal socket on CB-5.

( ) 14. Check again with Figure 4 of the Model 707 Instruction Book and determine that the normal adjustments (for L-7, L-8, and L-9) have been correctly made.

Refer now to the Model 707 Instruction Book, Pages 5, 6, 7 and 8 for installation and tuning instructions. Follow these carefully. Note also the chart of typical meter readings on Page 69.

IMPORTANT

Check the filament voltage of V-4 and V-5 (6SJ7). If it is low (4 volts) move Wires #11 and #13 from terminal 18 on T-5 to terminal 20.

Looking at the 707 schematic you will note that a 2.5 volt winding (Terminals 11 and 12) and one-half of a 5 volt winding (Terminals 18 and 20) are used in series to provide the 6 volts necessary. As the transformer manufacturer is not consistent in the phasing of the filament connections it is possible for these windings to be connected so that they oppose rather than add. Make a point of checking this now.

TYPICAL MODEL 707 METER READINGS

	250 Watts	500 Watts	1000 Watts
	0% Mod.	0% Mod.	0% Mod.
Audio Plate (MA)	4 - 5	4 - 5	4 - 5
Osc. Plate (MA)	10 - 12	10 - 12	10 - 12
Driver Plate (MA)	8 - 14	14 - 18	16 - 24
Final Grid (MA)	11 - 13*	14 - 16*	18 - 20
Final Screen (MA)	26 - 29	34 - 38	52 - 58
Mod. Plates (MA)	140	130	120
At 100% Modulation Sine Wave	190/210	290/315	380/420
Final Plate (Volts)	1450/1550	2050/2150	2900/3100
Plate & Screen (MA)	220/260	320/360	480/560
RF Out (Amps**	2.25	3.18	4.5

* If the proper grid current cannot be obtained on the lower power, reduce the size of R-13 on CB-~~K.3~~ A 4K and a 3K resistor (5w - axial type) are provided in the spares for this purpose. Try the 4K resistor first.

** At an average dummy antenna resistance of 49.5 ohms

TO : Model 707 kit builder

FROM: Customer Service Department (707)

RE : Final Checkout

As you know a checkout of your completed transmitter will be made by a Bauer representative. He will visually inspect your completed transmitter, run an audio proof on it, and check its operation. When he is satisfied that the transmitter meets specifications he is authorized to affix the nameplate within the front door. Without this nameplate the transmitter will not be acceptable to the FCC. So that we might schedule the checkout as soon as possible, complete the form below and return it to us. The transmitter should be capable of normal operation in the dummy antenna before a checkout is scheduled.

- -

COMPLETION NOTICE

The transmitter sold to _____ has been
Station

completed and is now ready for a final checkout by a factory representative. We desire that this checkout be completed by

_____.
Date

Contact _____ regarding time and place for
Name

checkout.

Signed:

_____

Sign and send to Customer Service (707)
Bauer Electronics Corporation
1663 Industrial Road,
San Carlos, California

SECTION X

FINAL PERFORMANCE MEASUREMENTS

The following section is to be completed by the checkout engineer:

(1) Tx. Serial No._____ (5) Station_____

(2) Frequency_____ (6) City_____

(3) Power_____ (7) Checkout Engineer_____

(4) Date_____ (8) Station Engineer_____

1. Final overload relay operates at_____ma (Final Plate I)

2. Modulator overload relay operates at _____ma (Mod.Plate I)

3. Is "overload lockout" (R-61) adjusted to recycle?_____

   How many times?_____

4. Are interlocks working correctly?_____

5. Was transmitter checked on air?_____on dummy?_____

6. What is the transmission line impedance?_____Type_____

7. What type of frequency monitor is used?_____

8. What type of modulation monitor is used?_____

9. What is licensed antenna/or common point resistance?_____ ohms

10. If transmitter was operated "on the air" what was the antenna/or common point current?_____RFA

    Transmitter efficiency_____%

11. Indicate make and model of test equipment you used:

    Audio Oscillator_____

    Distortion Meter_____

12. Did you feed transmitter directly?_____

    If not, what audio equipment was in use?_____

13. Did you check harmonics and spurious radiation?_____

Bauer Model 707

Serial #_____

Frequency_____

Power_____

TRANSMITTER PERFORMANCE DATA

1000 Watts

Circuit	0% Mod.	100% Mod.*
Audio Plate	_____ma	_____ma
Oscillator Plate	_____ma	_____ma
Driver Plate	_____ma	_____ma
Final Grid	_____ma	_____ma
Final Screen	_____ma	_____ma
Modulator Plates	_____ma	_____ma
Final Plate Voltage	_____volts	_____volts
Final Plate and Screen	_____ma	_____ma
RF Output	_____amps	_____amps

*at 1000cps.

Performance

Audio input level, 1000 cps. 100% mod._____db.

Noise_____db below 100% modulation.

Distortion, measured at 95% modulation:

50 cps._____100 cps._____400 cps._____

1000 cps._____5000 cps._____7500 cps._____

Response (in db variation from 1000 cps, 95% modulation)

30 cps._____ 50 cps_____ 100 cps_____

400 cps._____1000 cps_____ 3000 cps_____

5000 cps._____7500 cps_____10,000 cps_____

Bauer Model 707

TRANSMITTER PERFORMANCE DATA

Serial #_____

_____Watts

Frequency_____

Power_____

Circuit	0% Mod.	100% Mod.*
Audio Plate	_____ma	_____ma
Oscillator Plate	_____ma	_____ma
Driver Plate	_____ma	_____ma
Final Grid	_____ma	_____ma
Final Screen	_____ma	_____ma
Modulator Plates	_____ma	_____ma
Final Plate Voltage	_____volts	_____volts
Final Plate and Screen	_____ma	_____ma
RF Output	_____amps	_____amps

*at 1000 cps.

Performance

Audio input level, 1000 cps. 100% mod._____db.

Noise_____db below 100% modulation

Distortion, measured at 95% modulation:

50 cps._____ 100 cps._____ 400 cps._____

1000 cps._____ 5000 cps._____ 7500 cps._____

Response (in db variation from 1000 cps, 95% modulation)

30 cps._____ 50 cps._____ 100 cps_____

400 cps._____1000 cps._____ 3000 cps_____

5000 cps._____7500 cps._____10,000 cps._____

FEDERAL COMMUNICATIONS COMMISSION
PART 3 - RADIO BROADCAST SERVICES

SECTION 3.40 Transmitter; design, construction and safety of life requirements

(2) The equipment is capable of satisfactory operation at the authorized operating power or the proposed operating power with modulation of at least 85% to 95% with no more distortion than given in (3) below.

(3) The total audio frequency distortion does not exceed 5% harmonics (voltage measurements of arithmetical sum or r.s.s.) when modulated from 0 to 84% and not over 7.5% harmonics when modulating 85% to 95% (distortion shall be measured with modulating frequencies of 50, 100, 400, 1000, 5000 and 7500 cycles up to tenth harmonic or 16000 cycles, or any intermediate frequency that readings on these frequencies indicate is desirable).

(4) The audio frequency transmitting characteristics of the equipment does not depart more than 2 decibels from that at 1000 cycles between 100 and 5000 cycles.

(5) The carrier shift (current) at any percentage of modulation does not exceed 5%.

(6) The carrier hum and extraneous noise (exclusive of microphone and studio noises) level (unweighted r.s.s.) is at least 45 decibels below 100% modulation for the frequency band of 30 to 20,000 cycles.

I certify that the Bauer Model 707_____watt AM transmitter, Serial #_____built for Radio Station_____meets or exceeds the FCC specifications listed above. I have affixed the Bauer nameplate on this date:

_____
Date

_____
Consulting Engineer - Checkout Representative

Complete both copies of Section X. One should be sent immediately to Customer Service Department (707), Bauer Electronics Corporation, 1663 Industrial Road, San Carlos, California. The second copy should be signed and left with the Station.

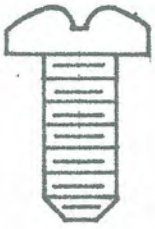
Figure 2 of the Instruction Book should be completed to give the Station a standard set of data. These readings should represent normal operating conditions. Please attach any comments you might have to this report.

APPENDIX

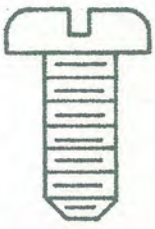
HARDWARE

In the assembly of a unit as complex as a broadcast transmitter there are many mechanical considerations and virtually all of these boil down to the selection of basic hardware. Several hundred nuts, bolts, lockwashers, cable clamps, etc. are used in the assembly of a Bauer transmitter and they are all important in their application. For example an assembly step may call for a 10-32 x 3/8" BH (binder head) screw to be used to secure a capacitor bracket to a stand-off insulator. In this particular case the choice of head is important. A binding head has greater head diameter than a round or pan head and thus is used where more holding force is required. The length is important in this case, also. A stand-off insulator is threaded a specific depth - a longer screw might not cinch up properly - a shorter screw would not have sufficient thread contact and as a consequence the mounting would be potentially weak. The choice of screw types is important - there is a reason behind every one. Care should be taken to follow the instructions carefully and use the hardware specified. The types of screws used in the transmitter assembly are shown below.

Round Head (RH)
Slotted



Pan Head (PH)
Phillips

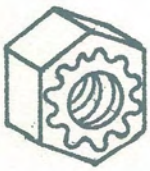


Binding Head (BH)
Slotted

Identifying abbreviations are used in the text, RH for Round Head, PH for Pan Head and BH for Binding Head.

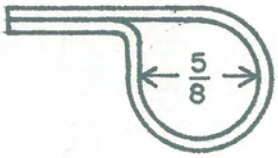
The majority of the screws used in the transmitter assembly are Phillips though slotted types are supplied also. In the instructions the screw size and type, thread count, head style, length and finish (when necessary) are always given. To maintain a "custom" look all screws that appear on the front panel are painted the panel color except the few that mount the low voltage power supply components. These are painted the cabinet color since the components they secure are of this color. Care exercised here will support the eye appeal of your Bauer transmitter.

There are two different types of nuts used in the transmitter assembly - kep nuts and standard hex nuts. They are shown below.



Keps have the advantage in that the lock washer is fixed to the nut and thus can't be lost, mismatched or forgotten. The washer teeth also give a firmer bite and this is important where good, positive contact to the panel is necessary to insure a positive ground. In other situations shakeproof washers are used to provide a positive lock. In all cases follow the instructions carefully and use all parts regardless of how small and insignificant they may seen to be.

Several different sizes of plastic cable clamps are used in the assembly of the transmitter. They are classified by their inside diameter as shown below:



DESIGN FEATURES OF A BROADCAST TRANSMITTER KIT

A new development in the broadcast equipment field is the availability of kits. The new 1000/250 watt transmitter kit offered by Bauer Electronics Corp. is described in this article.

By PAUL GREGG*

THE "do-it-yourself" trend has reached the broadcast equipment field with the introduction of the Bauer Model 707 AM transmitter. The design was based on an existing one-kilowatt Bauer model but has been simplified mechanically to meet the modern concept of "kit form" electronics.

Not only did this simplification make the transmitter easier to build, it also provided a layout that permits complete component accessibility. Note in Figures 2 and 3 the ease with which every component can be reached. All wiring is accomplished with just one harness which is supplied with the kit, properly laced, and with each wire number coded. All small components are mounted on well marked component boards (such as Fig. 4). Eleven of these insulated boards are used in various sections of the transmitter. An illustrated assembly instruction book shows the correct placement of each part and outlines each step of the wiring.

The average assembly time is 100 hours. When a Bauer kit transmitter is completed the builder sends a notice to the manufacturer, who then sends a representative to the station to run a proof-of-performance on the completed transmitter. When the representative is satisfied that the transmitter meets factory specifications he installs the Bauer nameplate and it is ready for use.

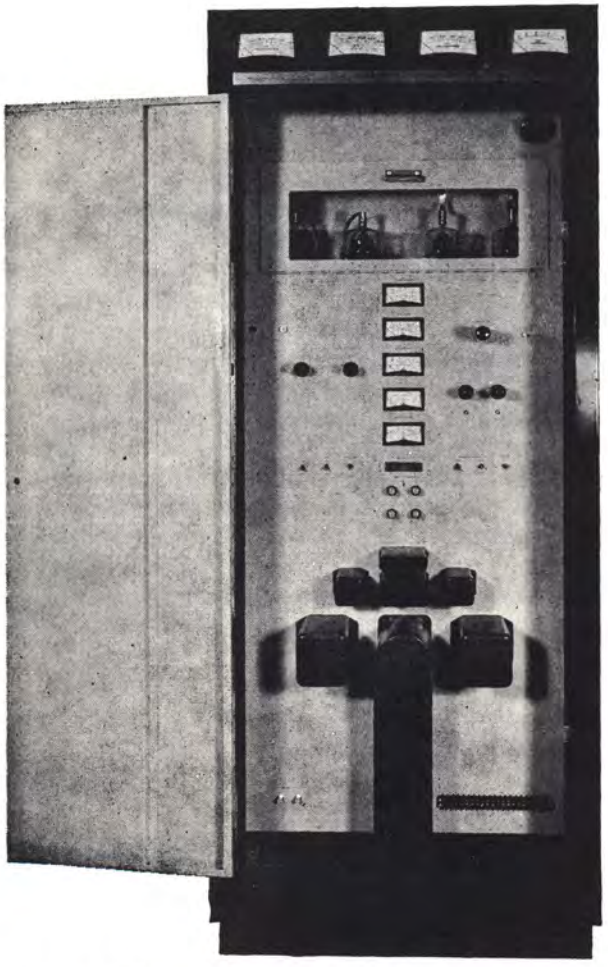


Figure 1. The Model 707 showing the front panel.

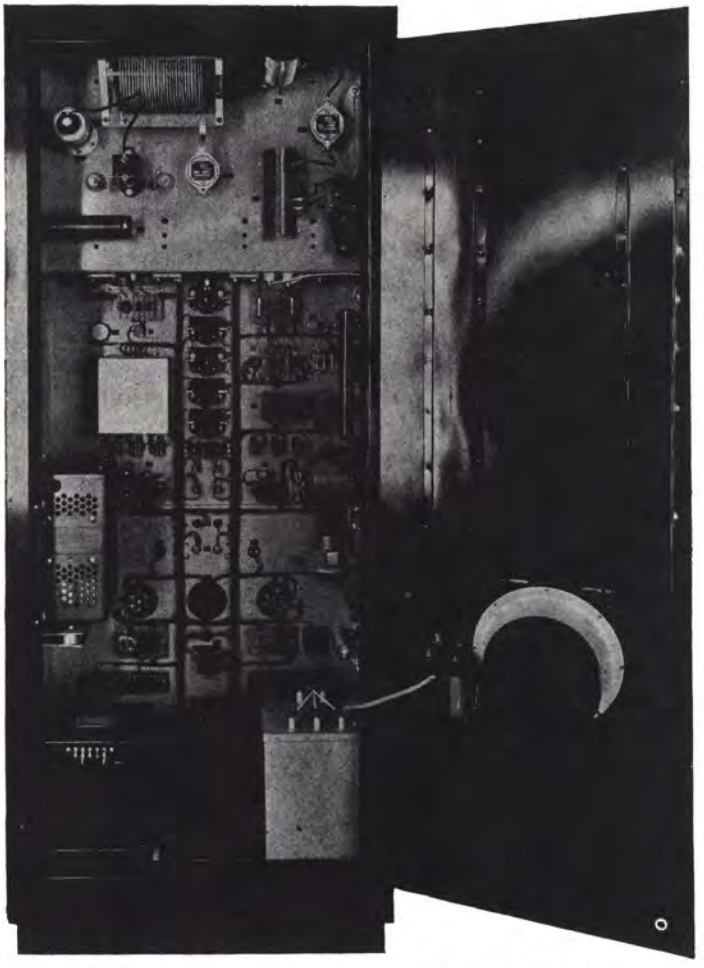


Figure 2. Rear view of completed transmitter.

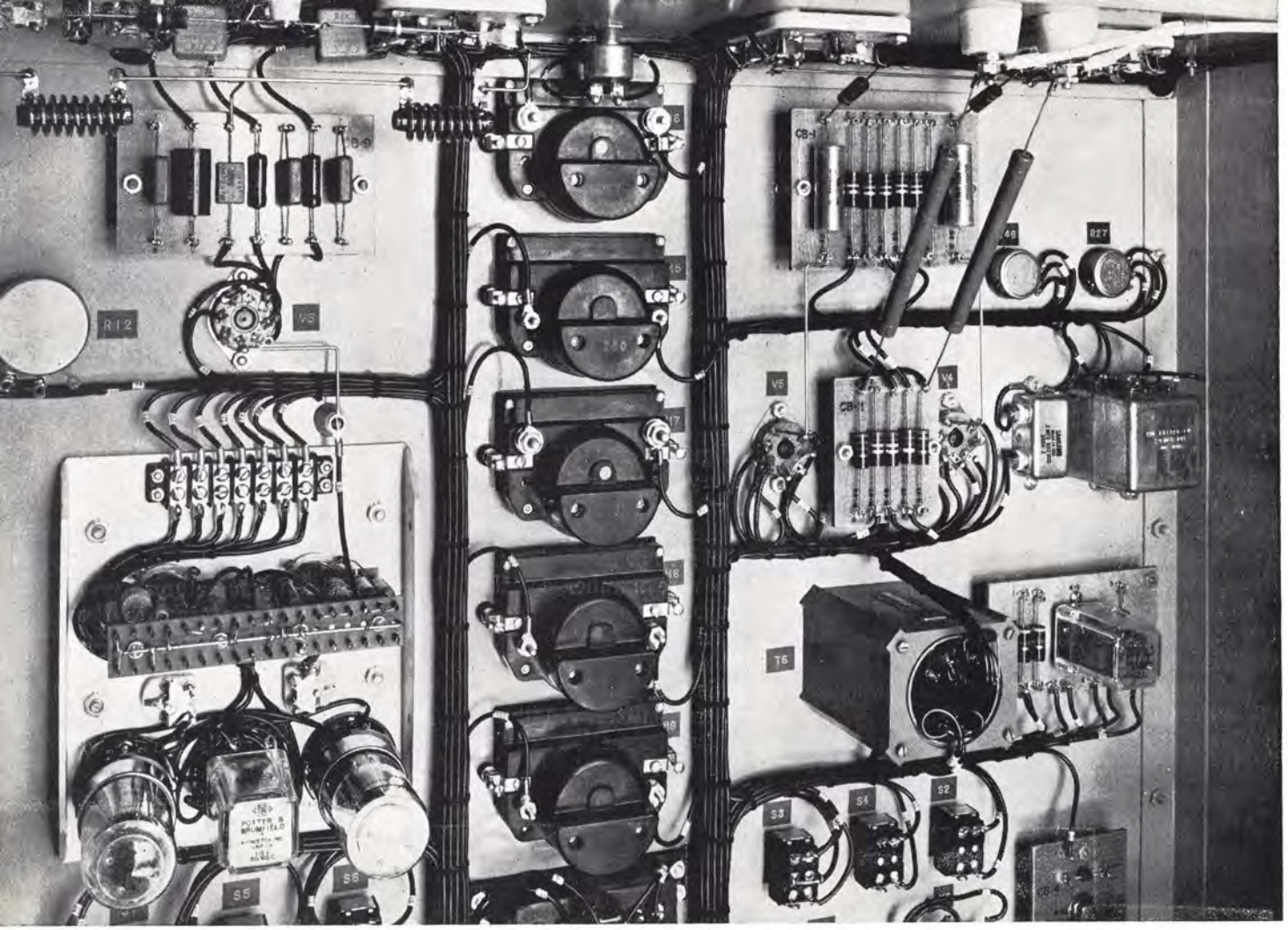


Figure 3. Closeup of transmitter rear.

The RF Section

Looking from the rear (Fig. 2) the RF section is on the left side of the transmitter. Figure 3 shows a closeup of the oscillator-buffer section with the cover removed. This section is assembled on a separate shielded chassis, factory wired and checked, to insure stability. There are provisions for two vacuum crystals and either one can be selected by a relay which is controlled from a switch on the front panel or remotely. The vacuum crystal supplied with the Model 707 is capable of controlling the carrier frequency with an accuracy of $\pm$ 5 cps without the use of heaters, thermostats or ovens.

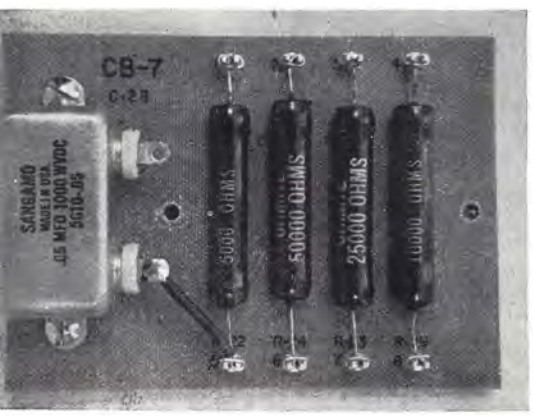


Figure 4. Component board of the low voltage power supply.

The oscillator is a Type 6AG7 connected in an electron-coupled circuit and is followed by another Type 6AG7 functioning as a Class A buffer. The driver is a Type 6CA7/EL-34 operating as a Class C stage. The driver excites two Type 4-400A tetrodes operating in parallel as a plate modulated power amplifier. A motor-driven rheostat in the cathode circuit of the final stage controls output power so as to compensate for variations in line voltage. The final tank circuit is unique in that tuning is accomplished through the use of a variable vacuum capacitor, a top quality method not usually found in one-kilowatt transmitters.

The transmitter is designed to match a 50-ohm unbalanced load. The RF output circuit provides the required impedance transformation and adequate harmonic suppression through the use of a "Pi" network followed by a "Tee" network. Additional suppression of second harmonic output is provided by connecting the load to the "Pi" network coil at a point where the impedances of the coil and a fixed capacitor are series resonant at the second harmonic frequency. A simple adjustment of this circuit provides harmonic suppression well beyond that required by the new FCC rules made effective last Jan. 1.

The Bauer Model 707 was one of the first transmitters type accepted by the FCC under these new rules. In looking at Figure 2 you will no-

*Bauer Electronics Corp., Burlingame, Calif.

tice the dummy antenna switch. The built-in dummy load is made up of four "ohmspun" grids mounted in the outgoing air stream. Since all the dummy antennas used in the broadcast band are reactive, a means is provided in the Model 707 to automatically cancel out this reactance at any frequency and provide a pure resistive load.

The AF Section

Looking from the rear (Fig. 2) the AF section is on the right side of the transmitter. Four tubes are used in this section. A pair of push-pull 6SJ7's drive a pair of push-pull 4-400A tetrodes operating as Class AB-1 modulators. 8DB of inverse feedback is provided over the two audio stages. One interesting feature of the design is that the modulator plate current when fully modulated does not vary more than 10 per cent over a 30 to 12,000 cycle range. The over-all response of the transmitter is flat within ± 1.5 db over a 30 to 12,000 cycle range. Distortion is below 2 per cent and noise is down — 64 db.

The Power Supplies

Vacuum tubes have been eliminated in all high voltage, low voltage and bias rectifier circuits in the Bauer Model 707 in favor of semiconductor units. Type 1N2071 silicon diodes are used exclusively, 16 in the low voltage supply, 4 in the bias supply and 56 in the high voltage supply. The low voltage supply is located on the left side of the transmitter (Fig. 2—lower left). The bias supply is located on the lower right and the high voltage rectifier (two plug-in sections) is located on the right above the modulation transformer.

Standard bridge rectifiers are used throughout and transformer center taps play an important part in the low and high voltage supplies. The tap on the low voltage supply provides the 400 volts necessary for the low level audio stages and the oscillator-buffer section. In the high voltage section the center tap provides the 1500 volts necessary for power reduction thus providing a transmitter that draws no more power during the cutback operation than any of the many 250-watt transmitters now in use.

An interesting feature of the power cutback circuit is that the reduced final plate voltage has an additional filter allowing excellent noise specifications (—64DB) at 250 watts. When reducing power a reduction in drive to the final and a 6DB reduction in the audio input are automatic. Power cutback to 500 or 250 watts is standard equipment on the Bauer 707. Cutback is essential for the Class IV station with a lower nighttime power and is a bonus for the kit builder who can perform initial tune-up at low power.

The Control Circuits

With the use of semi-conductor power supplies the Bauer control circuits were greatly simplified and automatic starting was provided. Actually, only one master start-stop switch is necessary since the silicon power supplies require no warmup time. High voltage comes on automatically as soon as there is sufficient grid drive to the final tubes to close an underdrive relay. The master start-stop switch is of the new illuminated bar type (Fig. 1—middle), three inches long and easy for even the newest third-class operator to find. An interesting feature of the control circuit is a "second chance" device that automatically resets the overload relays in the event of an outage. This circuit is adjustable so that single short overloads will not take the transmitter off the air although continued overloads will. The relay protective system can be easily reset by remote control. The modulator and final RF stages, as well as the high-voltage transformer, are well protected by reliable delay-type overload relays that eliminate nuisance outages due to momentary overloads. Low voltage and control circuits are fused by the new indicator type fuse holders.

An additional feature found in the Bauer 707 is automatic voltage control. A Sola constant voltage transformer of the new low harmonic type (Fig. 2—left side) maintains all filament and low voltage supplies within one per cent. Filament rheostats that require manual adjustment are thereby eliminated and tube life is extended.

Cooling of tubes and components is controlled through the use of a pressurized cabinet. Filtered air is drawn in by a high quality blower on the rear door, circulated throughout the cabinet, and then forced through the 4-400A tube sockets for maximum cooling. All switching and control functions are pre-wired to the main terminal board making remote control a simple matter. In addition the plate voltage and plate current kits are built in—a standard part of the 707 circuitry. Note in Figure 1 the number of meters, nine in all, providing continuous metering of all circuits.

Summary

The engineer who builds the 707 kit can gain valuable experience during the construction period. Also he achieves a familiarity with the transmitter that will prove very helpful over the years that he will service it. Since professional tools are supplied with every kit he will be able to turn out a first class transmitter and capture the personal satisfaction that goes with a job well done.

Reprinted from June, 1960, *Broadcast Engineering*

THE BAUER 1000/250 WATT AM TRANSMITTER KIT

GENERAL DESCRIPTION

The Bauer 1000/250 watt AM Transmitter Kit is an established design based on the many years of success of the Bauer FB-1000-J, yet utilizes today's most advanced components to provide optimum performance with a minimum of maintenance.

The Model 707 Transmitter Kit is shipped complete with: detailed assembly instructions; a coded wiring harness; premarked component boards for individual transmitter sections; a factory assembled and checked oscillator-buffer section; a complete set of operating tubes; a vacuum crystal for your operating frequency; and a tool kit.

Upon completion of your Bauer Kit a representative of the company will inspect and test your assembled transmitter on location . . . at no additional cost. It must meet factory specifications in every way. This is your assurance of a transmitter of factory quality.

STANDARD EQUIPMENT

Silicon Rectifiers in All Power Supplies
Variable Vacuum Condenser
Automatic Voltage Control
Built-In Dummy Antenna
Vacuum Crystal
Power Reduction — 1000/500 or 250 Watts
Pressurized Cabinet
Built-In Remote Control Facilities
Complete Set of Operating Tubes
Tool Kit

GENERAL PERFORMANCE CHARACTERISTICS AND SPECIFICATIONS

TYPE OF EMISSION A3

RATED POWER OUTPUT ..... 1000/500/250 watts

POWER OUTPUT CAPABILITY ..... 1100 watts

R.F. OUTPUT IMPEDANCE ..... 50 ohms, unbalanced

FREQUENCY RANGE ..... 540-1600 Kc

FREQUENCY STABILITY ..... ±5 cps

AUDIO INPUT LEVEL (100% mod.) ..... 10 dbm

FREQUENCY RESPONSE (0-95% mod.)
1000/500/250 watts
50-10,000 cps ..... ±0.5 db
30-12,000 cps ..... ±1.5 db

DISTORTION (0-95% mod.)
1000/500/250 watts
50-10,000 cps ..... 2.0% max

CARRIER SHIFT 1000/500/250 watts ..... less than 3%

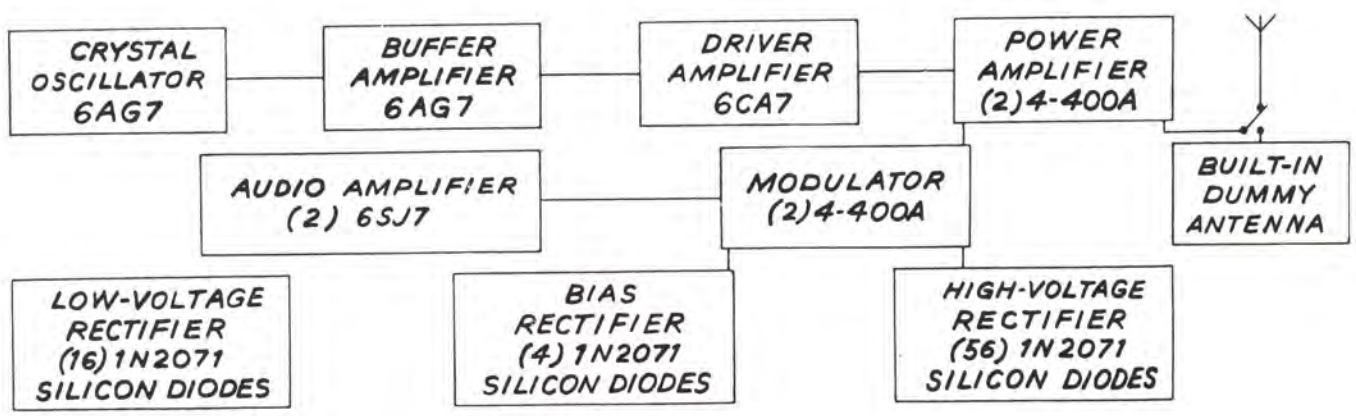
NOISE LEVEL (below 100% mod.)
1000 and 500 watts ..... —60 db
250 watts ..... —57 db

POWER CONSUMPTION
(For one kilowatt carrier power)
Average modulation ..... 3300 watts
100% modulation ..... 3950 watts

POWER REQUIREMENTS ..... 208-240 volts
50/60 cycles
Single phase

DIMENSIONS —
Height ..... 75"
Width ..... 30"
Depth ..... 25"

NET WEIGHT ..... 800 pounds (approx.)



Bauer
ELECTRONICS CORPORATION • 1663 INDUSTRIAL ROAD, SAN CARLOS, CALIF.
PHONE LYTELL 3-0800

PRINTED IN U.S.A.

3-60-2500

KINS

PACKING SLIP BOX 1 Page 1

Serial # 269
Date 2-4-61

	Item	Order	Ship	Description
				(Package 1)
	1	1		Component board (CB-1)
✓	2	2		Resistors, 220k, 2w (R53, R54)
	3	4		Resistors, 68k, 2w (R49, R50, R51, R52)
	4	2		Capacitors, .1 mfd, 1 kv (C39, C40)
				(Package 2)
	5	1		Component board (CB-2)
✓	6	2		Resistors, 6.8k, 2w, 5% (R43, R44)
	7	1		Resistor, 2.2k, 2w (R45)
	8	2		Resistors, 82k, 2w (R47, R48)
				(Package 3)
	9	1		Component board (CB-3)
	10	1		Resistor, 330 ohms, 2w (R39)
✓	11	1		Resistor, 270 ohms, 2w (R40)
	12	1		Resistor, 5k, 5w, ww "axial" (R13)
	13	1		Octal Socket
	14	1		Relay, Potter-Brumfield Type KRP11A, 115 v coil (K-5)
				(Package 4)
	15	1		Component board (CB-4)
✓	16	1		Capacitor, 150 mfd, 150 v (C43)
	17	1		10k, 2w pot (R61)
	18	1		Relay, socket and cover (K3)
				(Package 5)
	19	1		Component board (CB-5)
✓	20	1		Resistor, 1k, 5w, ww "axial" (R-25)
	21	1		Resistor, 5k, 5w, ww "axial" (K-26)
	22	1		Resistor, 6k, 5w, ww "axial" (R-28)
	23	1		~~Octal socket~~ GI 1N66 diode assembly
	~~24~~	~~1~~		~~Turret assembly~~
				(Package 6)
	25	1		Component board (CB-6)
✓	26	1		Resistor, 5 megohms, 5w, 1% (R-30)
	27	1		Resistor, 4 megohms, 5w, 1% (R-37)
	28	1		Resistor, 10k, 2w (R-38)

ITEM	Order	Ship	Description
			(Package 7)
29	1		Component board (CB-7)
30	1		Resistor, 5k, 10w (R-22)
31	1		Resistor, 25k, 10w (R-23)
32	1		Resistor, 50k, 10w (R-24)
33	1		Resistor, 10k, 10w (R-29)
34	1		Capacitor, .05 mfd, 1 kv (C-28)
			(Package 8)
35	1		Component board (CB-8)
			(Package 9)
36	1		Component board (CB-9)
37	1		Resistor 3000 ohm, 5 w (R-11)
38	1		Resistor, 15k, 5w, ww "axial" (R-14)
39	3		Capacitor, .0022 mfd, 3 kv (C10, C11, C12)
40	1		Capacitor, 500 mmfd, 3 kv (C-14)
41	1		RF choke 2.4 mh (L-4)
			(Package 10)
42	1		Component board (CB-10)
43	1		Resistor, 20k, 20w, ww (R-15)
44	1		Resistor, 4.7k, 2w (R-60)
45	1		Resistor, 100k, 1/2w (R-99)
46	1		Octal Socket
47	1		Relay, Potter-Brumfield Type KCP5, 5000 ohm coil (K2)
			(Package 11)
48	~~22~~ 18		Silicon diodes (1 spare)
49	16		Resistors, 100k, 1w (diode equalizing)
50	8		Capacitors, .0022 uf, 3 kv (diode equali'ng)
			(Package 12)
51	10'		Insulating tubing
52	10'		Solder
53	~~20~~ 15		#20 tinned solid wire
54	9		Ground lugs, #6 hole, 11/16" long
55	10		6-32 x 3/8" BH screws
56	3		6-32 x 1/2" BH screws
57	13		6-32 kep nuts
58	1		Soldering Iron
59	1		Kit IB
60	1		707 IB

KINS

PACKING SLIP

BOX 2 Page 1

Serial # 269

Date 2-12-65

Item	Order	Ship	Description
			Package 1 - Hardware
			Box #1 (6-32 nuts)
1	144		6-32 kep nuts
2	10		6-32 hex nuts
			Box #2 (6-32 screws)
3	25		6-32 x 3/8" PH painted
4	50		6-32 x 3/8" PH
5	12		6-32 x 3/8" PH painted (brown)
6	12		6-32 x 1/2" PH
7	6		6-32 x 3/4" PH painted
8	2		6-32 x 1" BH
9	23		6-32 x 1¼" PH painted
10	2		6-32 x 1½" PH painted
11	4		6-32 x 1/4" PH
12	25		6-32 x 3/4" BH
13	12		6-32 x 3/4" PH
14	12		6-32 x 7/8" PH
			Box #3 (8-32 screws)
15	4		8-32 x 5/8" BH
16	18		8-32 x 5/8" PH painted
17	2		8-32 x 3/4" PH painted
18	14		8-32 x 3/8" BH
19	16		8-32 x 3/8" self tapping
20	11		8-32 x 1/2" BH
21	2		8-32 x 3/8" BH painted
			Box #4 (9-32 nuts)
22	16		8-32 hex nuts
23	6		8-32 kep nuts
			Box #5 (Washers)
24	20		#6 shakeproof
25	13		#8 "
25	31		#10 "
27	20		#6 extruded fiber
28	6		#10 " "
29	16		#8 fiber
30	4		#6 metal washers
31	2		#8 metal washers
32	8		#10 metal washers
33	18		1/4" metal washers

NOTE - PAINTED SCREWS ARE NO LONGER USED.

Item	Order	Ship	Description
			Box #6 (10-32 screws)
34	20		10-32 x 3/8" BH
35	31		10-32 x 1/2" BH
36	14		10-32 x 1/2" BH painted (brown)
37	4		10-32 x 1/2" PH painted
38	6		10-32 x 5/8" BH
39	2		10-32 x 3/4" PH painted (brown)
40	2		10-32 x 1" PH
			Box #7 (Spacers)
41	23		5/8" spacers for #6 screws
			Box #8 (10-32 nuts)
42	75		10-32 kep nuts
43	25		10-32 hex nuts
			Box #9 (¼"-20 screws)
44	24		1/4"-20 x 3/4" HH
45	4		1/4"-20 x 1" RH painted
			Box #10 (¼"-20 nuts)
46	40		1/4" x 20 kep nuts
			----------Package 2 ----------
47	3		Octal sockets
48	5		Fuse holders, Indicator Type, Bussman HKL-X
			----------Package 3----------
49	3	2 in Pkg 14	Capacitors, 2 mfd, 600 v, bathtub (C-30, C-31, C-38)
50	2		Ground leads (for C-30, C-31, C-38)
			---------Package 4----------
51	1		Capacitor, .1 mfd, 600 v, bathtub (C-37)
52	1		Ground lead for C-37
			---------Package 5----------
53	4		Switches, ST-52K (S-2, S-4, S-6, S-7)
54	1		Switch, ST-52R (S-3)
55	1		Switch, ST-52S (S-5)
			----------Package 6----------
56	1		Capacitor, 300 mfd, 150 v (C-41) w/lugs attached
57	1		1-3/8" plastic cable clamp

Item	Order	Ship	Description
			---------Package 7----------
57	1		Breaker cover hardware including
58	8	In Hard. Box	6-32 x 3/8" PH screws
59	8		6-32 x 3/8" PH screws painted (brown)
60	8		6-32 kep nuts
61	4		Friction catches
			---------Package 8----------
62	3		Cone type insulators, 1/2"
63	1		Coil, final grid, (determined by frequency) with C-15 (.0022 mf, 3 kv) attached ~~Miller 43A 103CB1, .6 mh to 1.25 mh 500 kc to 800 kc~~ Miller 43A474CB1, .205 mh to .580 mh, 800 to 1300 kc. ~~Miller 43A224CB1, .138 mh to .187 mh, 1300 kc to 1700 kc.~~
			----------Package 9----------
64	40'		#18 wire
65	15'		#6 plastic tubing
66	20'		Lacing cord
67	16'		#10 wire
68	8"		Spiral Wrap
			----------Package 10----------
69	14	w/ Pkg 14	3/8" plastic cable clamps
70	2		3/4" plastic cable clamps
71	14		3/16" plastic cable clamps
72	4		1/2" plastic cable clamps
73	13		5/16" plastic cable clamps
74	2		5/8" plastic cable clamps
			---------Package 11----------
75	46	w/ Hardware Box	Terminal lugs (blue)
76	14		Terminal lugs (yellow)
77	8		Terminal lugs (red)
			---------Package 12----------
78	2		Resistors, 100 ohm, 2w, 10% (R-17, R-18) w/terminal lug attached
79	2		Resistors, 3.3k, 2w, 10% (R-56, R-57)
80	2		Resistors, 33k, ½w, 5% (R-41, R-42)
81	2		Resistors, 470 ohm, ½ w, 10% (R-73,R-74) w/terminal lug attached.

Item	Order	Ship	Description
			----------Package 13----------
82	2	w/ Pkg 14	Parasitic suppressors, Ohmite P-300 (SU1 - SU3)
83	2		Switches, rear door Interlock Acro 3D05-8PST (S-10, S-11)
			----------Package 14----------
84	1		HV rectifier panel
85	1		Power control panel
86	2		1½" cone insulators
87	~~5~~		1" pillar insulators
88	6		1½" stand-off insulators w/jack attached
89	3		1" square insulators
90	2		60A fuse clips
91	1	Note 1000/500W Power board to be supplied assembled	Resistor, 1000 ohms, 25w (R-31) including: 1 - 10-32 x 2½" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - #10-32 kep nut
92	1		Resistor, 40k, 200 w (R-35)
93	1		Resistor, 60k, 25w (R-36) including: 1 - 10-32 x 2-3/4" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - 10-32 kep nut
94	2		Resistors, 250k, 50w (R-66/R-67)
95	2		Resistors, 50 ohm, 5w (R-69/R-70)
96	1		Resistor, 50 ohm, 25w, adjustable (R-75) including: 1 - 10-32 x 2-3/4" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - #10-32 kep nut
97	1		Capacitor, .1 mfd, 5 kv (C-32 w/hardware
98	2		Capacitors, .047 mfd, 1.6 kv (C-35, C-45)
99	1		Relay, Advance AT/2C/115 VA (K4)
100	1		Relay, Advance AM2C (K11) w/hardware
101	4		#8 solder lugs
102	1		Bus bar 250-124
103	1		Bus bar 250-125
104	1		Bus bar 250-122
105	1		Bus bar 250-123
			**********
106	1	Pkg. 14	Set mini markers ~~0-49~~ 384
107	1		Set mini markers ~~100-132~~ 128, 129, 130
108	1		3k, 4w pot (R-12)
109	1		500 ohm, 2w, pot (R-46)
110	1		2500 ohms, 2w pot (R-27)
111	1		Audio input transformer, UTC LS-26 (T-6)
112	1		Switch (S-1) including 2 pilot lamps installed

Item	Order	Ship	Description
113	2		Relays, Heinemann CR1-617-XXA (K-8,K-9)
114	1		Relay, Guardian (K-1)
115	2		Filament transformers, Chicago F-530 (T-3, T-4)
116	1		Relay, Heinemann CT1-617-XXA (K-10)
117	1		Relay, HV contactor (K-7)
118	1		Fuse block (30A)
119	2		Receptacles, Amphenol 31-102
120	1		Terminal board, 20 position
121	1		LV power transformer, UTC-CG-422 (T-5)
122	3		Meter, 0-50 ma (M-5,M-7, M-8)
123	1		Meter, 0-100 ma (M-6)
124	1		Meter, 0-10 ma (M-9)
125	1		Resistor, 50 ohm, 25w, ww, adjustable (R-16) w/wires attached and including: w/ C29 1 - 6-32 x 3" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
126	1		Resistor, 50 ohm, 25w, ww, adjustable (R-59) w/wires and ground lug attached and including: w/ C29 1 - 6-32 x 3" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
127	1		Capacitor, 10 mfd, 600 v (C-27)
128	1		Capacitor, 12 mfd, 1 kv (C-29)
129	2		Filter chokes 15 h, 85 ma (L-11, L-18)
130	1		Resistor, 15 ohm, 20 w ww (R-20 w/ground lug attached and including the following: w/ C29 1 - 6-32 x 2½" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
131	1		Motor rheostat assembly (R-19)
132	1		Oscillator-buffer assembly
133	3		Bus bar assemblies (250-119, 120, 121)
134	2'		#12 bus bar
135	2		Meters (0-1 amp)
136	1		Meter (0-5 kv)
137	1		~~Meter (0-6 RFA)~~ 0-125 POWER METER
138	1		Airflow switch assembly (S-12)
139	1		Capacitor, 2 mfd, 1 kv (C-42) w/mounting brackets
140	1		Resistor, 500 ohms, 50 w (R-68)
141	2		Plugs, Amphenol 31-002
142	1		Breaker cover
143	1		Power control unit

K-105

PACKING SLIP

Box 3 Page 1
Serial # 269
Date 2-12-65

Item	Order	Ship	Description
			Package 1
1	4		2½" pillar insulators
2	1		1½" feed-thru insulators
			Package 2
3	2		200-109 assembly
4	1		200-110 assembly
5	1		200-118 assembly
6	1		Shorting bar
7	4		10-32 x ½" BH painted screws
8	4		#10 shakeproof washers
			Package 3
9	1	Installed	1 3" shaft and bearing for C-24
10	1		Spinner knob
11	2		1/4" to 1/4" coupling
			Package 4
12	1		3/4" rubber grommet
13	4		Lord shock mounts
14	1		ground strap
			Package 5
15	1		Bus bar #250-126
16	1		Bus bar #250-127
17	2		Bus bar #250-128
18	1		Bus bar #200-112
19	1		Ground wire #250-129
20	1		HV wire #250-131
21	1		HV wire #250-132
22	12"		HV wire w/insulated terminal lug on one end (yellow)
23	6"		HV wire w/insulated terminal lug on one end (yellow)
24	1		Connector assembly #200-101,
			~~or Connector assembly #200-101A~~
~~25~~	~~1~~		~~Connector assembly #200-115~~ (used only when padder capacitor is used)
26	1		Connector assembly #200-103
			~~or Connector assembly #200-103A~~
27	1		Connector assembly #200-105
			~~or Connector assembly #200-105A~~
28	1		Connector assembly #200-106
			~~or Connector assembly #200-106A~~
29	1		Connector assembly #200-107
30	1		Connector assembly #200-108

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Item	Order	Ship	Description
31	2		Resistors, 5 meg, 5w, w/terminal attached (R-55, R-58)
32	4		Ohmspun resistance grids, 50 ohm R-62, R-63, R-64, R-65)
~~33~~	~~1~~		~~Capacitor, 200 mmf, Jennings Type JCS (C-24A) (used on lower frequencies only)~~
34	1	Installed	Capacitor, 25 - 500 mmf, Jennings Type UCS (C-24)
35	1		Capacitor, .002 mfd, (C-25)
36	1		Capacitor, .002 mfd, (C-26)
37	1		Capacitor, .001 mfd, 12.5 kv (C-23) including 2 - ¼-20 x 1½" RH painted screws 4 - ¼" rubber grommets 2 - #12 metal washers 2 - ¼-20 kep nuts 2 - ¼-20 hex nuts
38	1		Capacitor, 500 mmf, 20 kv (C-22) including 1 - TX-2 terminal 1 - 1½" cone insulator 1 - 8-32 x 3/8" PH painted screw 1 - 8-32 x 3/8" PH screw 1 - 8-32 x ¼" PH painted screw 1 - #8 shakeproof washer 1 - #6 shakeproof washer 1 - 6-32 x 3/8" PH screw
39	1		~~Tank coil 50 uh, EFJ Type 200-206 (L-7)~~ or Tank coil, 120 uh, EFJ Type 200-105 (L-7) (depends on frequency)
40	1		Mod. monitor pick-up coil (L-15)
41	2		Coils, 31 uh, EFJ Type 232-610 (L-8, L-9)
42	1		RF choke, 1.5 mh (L-6)
43	1		HV harness
44	4'		Spiral wrap

Item	Order	Ship	Description
45	1		Parasitic Suppressor assembly including 2 - Ohmite P-300 suppressors 1 -- #250-134 connector assembly
46	2		Final tube feed-through assembly including 1 - 2½" feed-thru insulator 1 - ¼-20 x 3" RH screw 1 - ¼" split washer 2 - ¼" metal washers 2 - ¼-20 hex nuts 1 - #190-105 plate lead 1 - HR6 plate connector
47	2		Modulator tube feed-through assemblies including 1 - 1½" feed thru insulator 1 - 10-32 x 2¼" RH screw 1 - #10 split washer 1 - #10 metal washer 1 - 10-32 hex nut 1 - #190-105 plate lead 1 - HR6 plate connector
48	1		Capacitor, 1 mfd 4 kv w/ground lead attached (C-36) including 2 - spade type brackets 24 - 10-32 kep nuts
49	2		Capacitors, 4 mfd, 4 kv (C-33, C-34)
50	1		Capacitor, 6 mfd, 2 kv (C-46) including 2 - footed brackets 24 - 10-32 x 5/8" PH screws 24 - #10 shakeproof washers
51	1		Reactor, 8H, 400 ma (L-10)
52	1		Blower motor, Rotron saucer fan
53	1		Tool kit including 4 - nut drivers #8, #10, #12, #14 1 - Phillips screw driver 1 - Wrench 1 - Champ hand tool 1 - Resistor, 4k, 5w "axial" 1 - Resistor, 3k, 5w "axial" 1 - Wire stripper