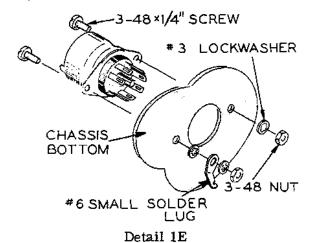
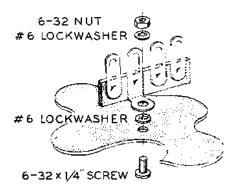


() Referring to Detail 1E, mount the 7-pin ceramic tube socket at location V1 with a #6 small solder lug on one mounting screw. Use 3-48 x 1/4" hardware. Position the blank space of the tube socket as shown in Pictorial 1.

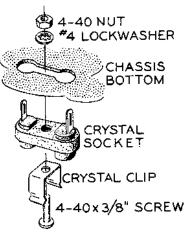


- () Mount the 9-pin ceramic tube socket at location V2 with a #6 small solder lug on one mounting screw. Use 3-48 x 1/4" hardware. Position the blank space as shown.
- () Mount a 7-pin phenolic tube socket at location V3 with a #6 small solder lug on one mounting screw. Use 3-48 x 1/4" hardware. Position the blank space as shown.
- () Mount a second 7-pin phenolic tube socket at location V7 with a #6 small solder lug on one mounting screw. Use 3-48 x 1/4" hardware. Position the blank space as shown.
- () Mount 9-pin phenolic tube sockets at locations V5 and V6. Use 3-48 x 1/4" hardware. Position the blank space as shown.
- () Mount the 9-pin molded tube socket on top of the chassis at location V4 with a #6 small solder lug on one mounting screw. Use 3-48 x 1/4" hardware. Position the blank space as shown.
- () Referring to Detail 1F, mount a 4-lug terminal strip at location A. Use 6-32 x 1/4" hardware.
- () Mount 2-lug terminal strips at locations Q and S. Use 6-32 x 1/4" hardware.



Detail 1F

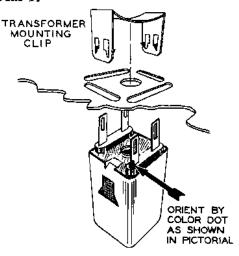
- () Mount a 3-lug terminal strip at location L. Use 6-32 x 1/4" hardware.
- () Mount a 6-lug terminal strip at location F. Use 6-32 x 1/4" hardware.
- () Mount a 1-lug terminal strip at location G. Use 6-32 x 1/4" hardware.
- () Install 3/8" rubber grommets at locations HB and HG.
- () Install the remaining grommets at HA, HD, HE, and HF.
- () Referring to Detail 1G, mount crystal sockets and crystal clips at locations M and N. Use 4-40 x 3/8" hardware. Do not overtighten the hardware or you may crack the sockets.



Detail 1G

() Mount #6 solder lugs at locations D, J, and U. Use 6-32 x 1/4" hardware. Position the solder lugs as shown.

() T2, T3. Referring to Detail 1H, mount interstage IF transformers (#52-17) at locations B and K. Use IF transformer mounting clips. Be sure to place the color dots as shown in Pictorial 1.



Detail 1H

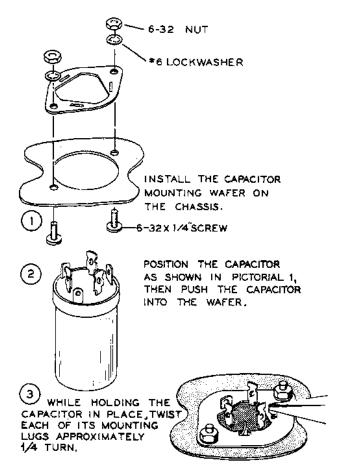
- () T5. Mount the BFO coil (#40-429) at location C. Use an IF transformer mounting clip. Place the color dot as shown.
- () T1. Similarly, mount the input IF transformer (#52-50) at location P. Use an IF transformer mounting clip. Place the color dot as shown.
- () Referring to Detail 1J, mount the electrolytic capacitor mounting wafer at location H. Use 6-32 x 1/4" hardware. Position the mounting lug slots as shown.
- () C55, C56, C57. Again refer to Detail 1J and mount the electrolytic capacitor at H. Position the capacitor lug markings as shown in Pictorial 1. Secure the capacitor by twisting each mounting lug 1/4 turn with long-nose pliers.

Cut the power transformer leads as follows:

I DAICTU

	FEAD COLOR	LENGTH
(((((((() Red) Red) Green) Green) Black) Black-green) Black-yellow) Black-red) Red-yellow	4-1/2" 3" 3-3/4" 3-1/2" 11" 11" 5-1/4" 5-1/4" 3-3/4"
()	•

TEAD COLOR



Detail 1J

() Strip 1/4" of insulation from the end of each lead.

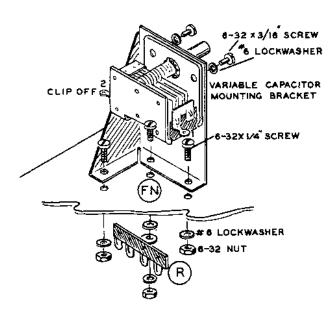
Cut the audio output transformer leads as follows:

		LEAD COLOR	<u>LENGTH</u>
()	Red	4''
()	Blue	3-3/4"
()	White	7-1/2''
()	Green	7''
()	Black	2-3/4"

- () Strip 1/4" of insulation from the end of each transformer lead.
- () T4. Mount the audio output transformer at location E with a 6-32 x 1/4" screw, #6 solder lug, and a 6-32 nut. Secure the other mounting foot with 6-32 x 1/4" hardware. Be sure to place all of the transformer leads through grommet HB.



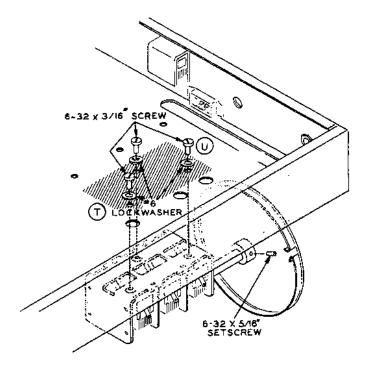
- () T6. Mount the power transformer with its leads through hole HC. Secure the transformer with 8-32 x 3/8" hardware.
- () Referring to Detail 1K, mount a variable capacitor mounting bracket on top of the chassis at location FN and a 4-lugterminal strip below the chassis at location R. Use 6-32 x 3/8" hardware for the double mounting and 6-32 x 1/4" hardware for the remaining mounting holes.



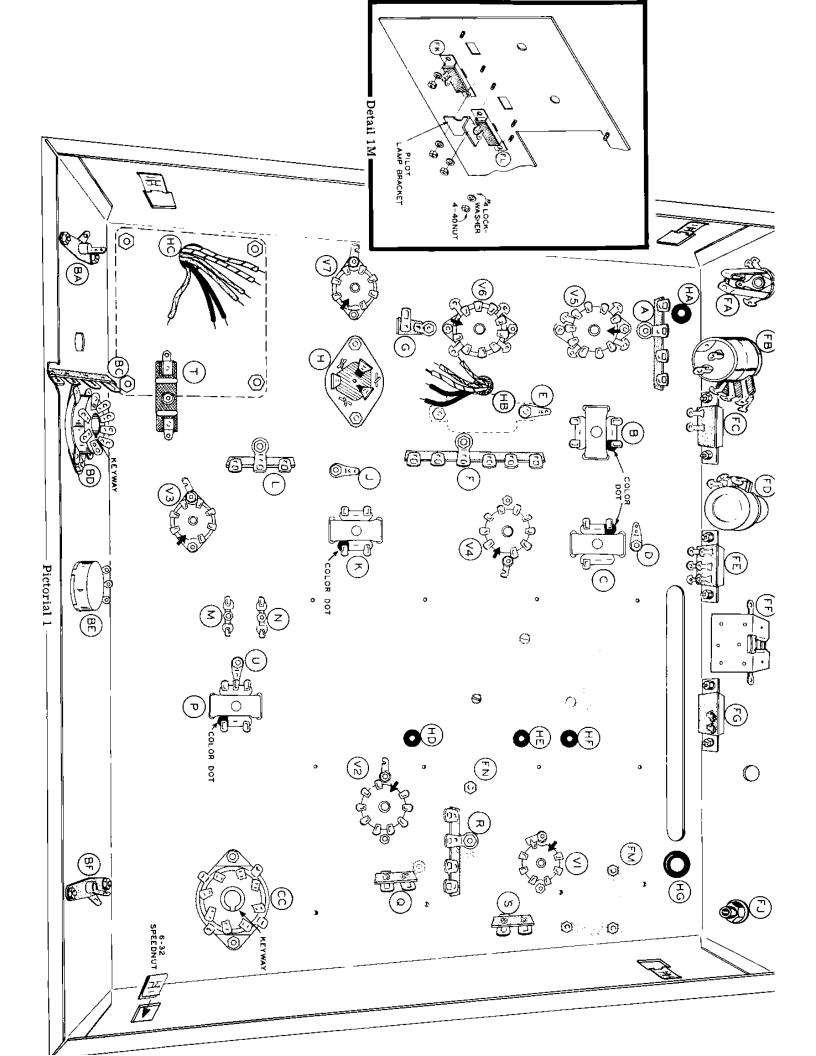
Detail 1K

- Mount the remaining variable capacitor mounting bracket at location FM on top of the chassis. Use 6-32 x 1/4" hardware.
- () C62. Again referring to Detail 1K, clip off lug 2 of a 21 $\mu\mu$ f variable capacitor and mount this capacitor on the variable capacitor mounting bracket at location FM. Use #6 lockwashers and 6-32 x 3/16" screws. Turn the capacitor shaft until the plates are fully meshed. This will protect them from being bent.
- () C45. Similarly, clip off lug 2 of another 21 $\mu\mu$ f variable capacitor and mount this capacitor on the variable capacitor mounting bracket at location FN. Use #6 lockwashers and 6-32 x 3/16" screws. Turn the capacitor shaft until the plates are fully meshed.

- () Mount a SPST slide switch (#60-18) at location FC on the front apron. Use #4 lockwashers and 4-40 nuts. Position the switch lugs as shown.
- () Mount the DPDT slide switch (#60-36) at location FE on the front apron. Use #4 lockwashers and 4-40 nuts.
- () Mount a SPST slide switch at location FG on the front apron. Use #4 lockwashers and 4-40 nuts. Position the switch lugs as shown. Bend the lugs at a 90 degree angle as shown in Pictorial 1.
- () C41. Mount the remaining 21 $\mu\mu$ f variable capacitor (#26-64) at location FF on the front apron. Use 6-32 x 3/16" flat head screws. Do not use #6 lockwashers.
- () Start a 6-32 x 5/16" setscrew in the dial drum. Place the dial drum on the shaft of the MAIN TUNING capacitor (#26-84).
- () C6A, C6B, C6C. Mount the MAIN TUNING capacitor on the top side of the chassis as shown in Detail 1L. Secure the capacitor with 6-32 x 3/16" screws, and #6 lockwashers.

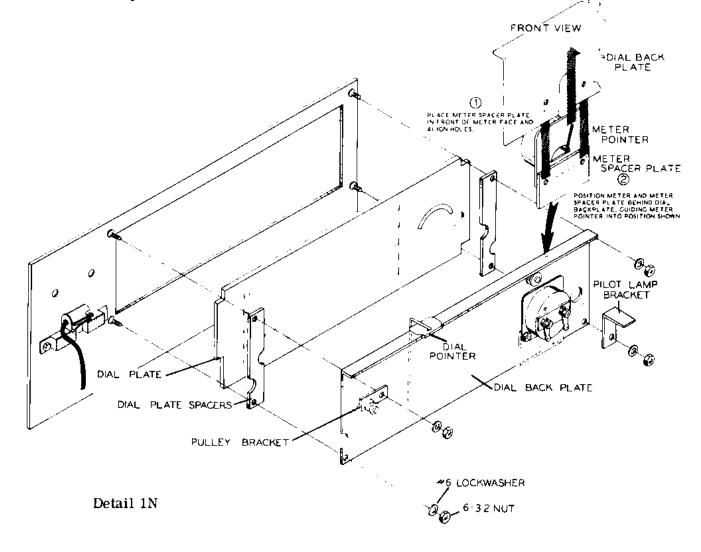


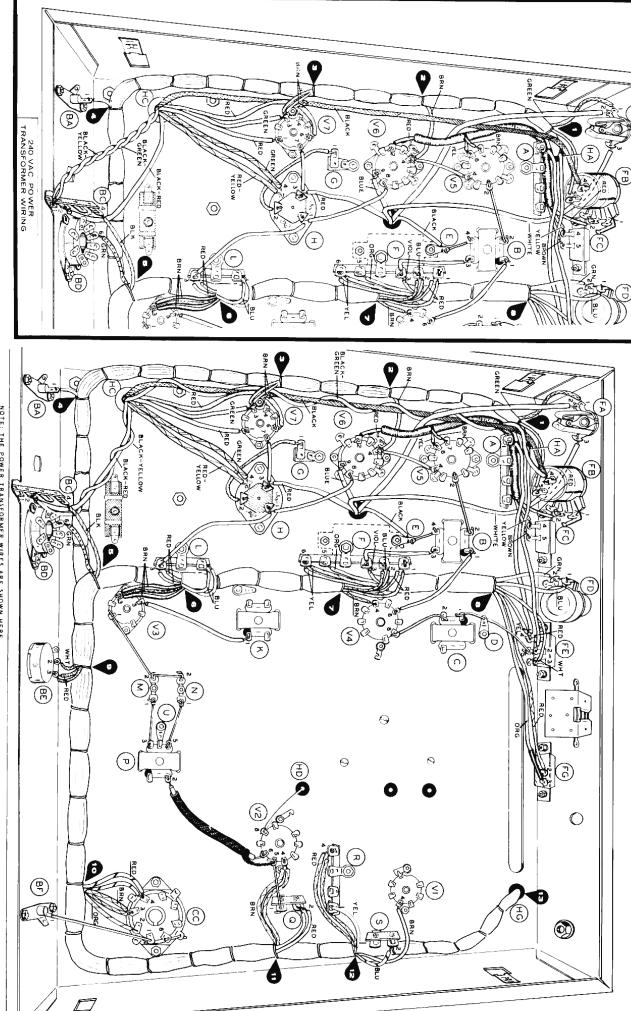
Detail 1L



- Locate the front panel and referring to Detail 1M (fold-out from this page), mount SPST slide switches at locations FK and FL along with a pilot lamp bracket. Use #4 lockwashers and 4-40 nuts on the studs.
- () Carefully remove the meter from its box. When handling the meter, be careful not to bend the pointer or scratch the meter face.
- () Remove any wire between the meter terminals.
- () Referring to Detail 1N, mount the S meter to the dial back plate. Tilt the meter so that the dial plate can be inserted between the meter pointer and the meter face. Place the meter spacer plate in position. Secure the meter and the meter spacer plate to the dial back plate with the two black 6-32 x 1/4" truss head machine screws and 6-32 nuts.
- () Place the dial pointer on the dial backplate assembly. Place a piece of tape over the rear of the pointer to hold it in place.

- () Locate the plastic dial plate. Handle the plastic by its edges to avoid finger smudges. Remove the protective paper. Using a solution of a few drops of household detergent (Joy. Liquid Lux, etc.,) in a cup of lukewarm water, wipe over both sides of the plastic plate with a sponge or soft cloth. This will prevent static charges from collecting on the plastic that normally attracts dust particles, and will also clean any smudges that may be present.
- () Again, referring to Detail 1N, mount the dial plate so that the lettering can be read from the front panel, the dial spacer plates, dial back plate assembly, pulley bracket assembly, and the pilot lamp bracket to the front panel. Use #6 lockwashers and 6-32 nuts on the front panel studs. Use care when tightening to prevent breaking the studs from the front panel. Also line up the pilot lamp holes in the dial plate, dial spacer plate, and dial backplate.





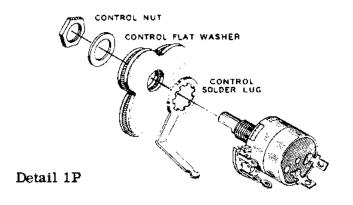
Detail 2A

NOTE: THE POWER TRANSFORMER WIRES ARE SHOWN HERE CONNECTED FOR 120 VAC WIRING.

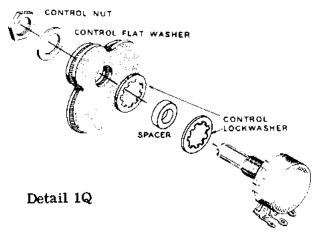
Pictorial 2



() R33. Referring to Detail 1P and Pictorial 1, mount the front panel to the front apron with the AF GAIN control (#19-72) at location FB on the front apron. Use a control solder lug on the control bushing and a control flat washer and control nut on the front panel side. Do not tighten securely yet.



() R5. Similarly, mount the RF GAIN control (#10-131) at location FD. Use a large spacer, two control lockwashers, a control flat washer, and a control nut. See Detail 1Q. Do not tighten securely yet.



- () Mount the phone jack on the front apron at location FA. Use a control lockwasher, control flat washer, and a control nut. Do not tighten securely yet.
- () Mount a 3/8" x 3/8" brass bushing at location FJ on the front apron. Pass this bushing through from the front panel side. Use a control lockwasher, control flat washer, and a control nut. Now tighten all control nuts.
- () Mount a 6-32 speednut in the cutout at each corner of the chassis. Be sure that the flat

side of each speednut faces outward as shown in Pictorial 1.

TRANSFORMER WIRING

Refer to Pictorial 2 for the following steps.

Connect the audio output transformer leads as follows:

LEAD COLOR	CONNECT TO
() Black () Blue	solder lug E (NS). lug 9 of tube socket V6 (NS).
() Red	lug 3 of electrolytic capacitor H (NS).
() Green	lug 2 of phone jack FA (S-1).
() White	Lug 3 of phone jack FA (NS).

Connect the power transformer leads as follows:

LEAD COLOR	CONNECT TO
() Short red	lug 1 of tube socket V7 (S-1).
() Long red	lug 6 of tube socket V7 (S-1).
() Short green	lug 3 of tube socket V7 (NS).
() Long green	lug 4 of electrolytic capacitor H (NS).
() Red-yellow	lug 4 of electrolytic ca- pacitor H (S-2). Apply enough solder and heat to securely solder the mounting tab to the ca- pacitor mounting wafer.

Two sets of line voltage wiring instructions are given below, one for 120 VAC line voltage and the other for 240 VAC line voltage. In the U.S.A., 120 VAC is most often used, while in foreign countries 240 VAC is more common. USE ONLY THE INSTRUCTIONS THAT AGREE WITH THE LINE VOLTAGE IN YOUR AREA.

120 VAC Wiring

- () Twist together loosely the black and blackgreen leads. Then connect both to lug 4 of control FB (S-2).
- () Twist together loosely the black-red and black-yellow leads. Then connect both to lug 2 of terminal strip BC (NS).

Now proceed to Harness Wiring.



240 VAC Wiring

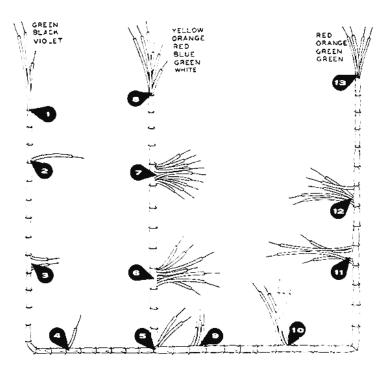
Refer to Detail 2A for the following steps.

- () Cut the black-green lead to the same length as the black-yellow lead. Then twist these leads together loosely and connect both to lug 1 of terminal strip BC (S-2).
- () Connect the black lead to lug 4 of control FB (S-1).
- () Connect the black-red lead to lug 2 of terminal strip BC (NS).

HARNESS WIRING

NOTE: In the following steps, the harness breakout points will be referred to with the letters BO.

() Locate the wiring harness and form it as shown in Detail 2B.



Detail 2B

- () Place the wiring harness on the chassis as shown in Pictorial 2.
- () Place the four leads at BO 13 through grommet HG. They will be connected later.

Connect the harness leads extending from BO12 as follows:

- () Connect the brown harness lead to lug 4 of tube socket V1 (NS).
- () Connect the yellow harness lead to lug 1 of terminal strip R (NS).
- () Connect the blue harness lead to lug 2 of terminal strip S (NS).
- () Connect both red harness leads to lug 4 of terminal strip R (NS).

Connect the leads extending from BO 11 as follows:

- () Connect both red harness leads to lug 2 of terminal strip Q (NS).
- () Connect both brown harness leads to lug 4 of tube socket V2 (NS).

Connect the harness leads extending from BO10 as follows:

- () Connect the orange harness lead to lug 2 of octal socket CC (NS).
- () Connect both brown harness leads to lug 3 of octal socket CC (NS).
- () Connect both red harness leads to lug 4 of octal socket CC (NS).

Connect the harness leads extending from BO 9 as follows:

- () Connect both red harness leads to lug 3 of control BE (S-2).
- () Connect the white harness lead to lug 2 of control BE (S-1).

Connect the harness leads extending from BO 5 as follows:

- () Connect the green harness lead to lug 6 of octal socket BD (S-1).
- () Connect the black harness lead to lug 4 of terminal strip BC (NS).

Connect the harness leads extending from BO 6 as follows:

- () Connect both blue harness leads to lug 1 of terminal strip L (NS).
- () Connect both red harness leads to lug 3 of terminal strip L (NS).
- () Connect the three brown harness leads to lug 3 of tube socket V3 (S-3).

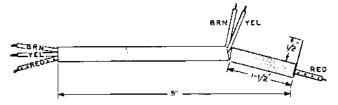


Connect the harness leads extending from BO 7 as follows:	Connect the harness lead extending from BO 2 as follows:
() Connect the brown harness lead to lug 4 of tube socket V4 (S-1).	() Connect the brown harness lead to lug 4 of tube socket V6 (NS).
() Connect both red harness leads to lug 1 of terminal strip F (NS).	Connect the harness leads extending from BO 1 as follows:
() Connect both blue harness leads to lug 2 of terminal strip F (NS).	() Connect the green harness lead to lug I of phone jack FA (S-1).
() Connect the violet harness lead to lug 3 of terminal strip F (NS).	() Connect the black harness lead to lug 5 of control FB (S-1).
() Connect the orange harness lead to lug 5 of terminal strip F (NS).	() Place the violet harness lead through rubber grommet HA. It will be connected later.
() Connect both yellow harness leads to lug 6 of terminal strip F (NS).	This completes the harness wiring on the bottom of the chassis. Continue with Initial Wiring.
Connect the harness leads extending from BO 8 as follows:	INITIAL WIRING
() Connect the white harness lead to lug 3 of switch FE (S-1).	Refer to Pictorial 2 for the following steps. () Connect a length of bare wire from lug 1 of
() Connect the yellow harness lead to lug 4 of switch FE (NS).	terminal strip Q (S-1) to lug 5 of tube socket V2 (NS).
() Connect the green harness lead to lug 2 of control FD (S-1).	() Referring to Detail 2C prepare a 3-1/2" length of coaxial cable.
() Connect the blue harness lead to lug 1 of control FD (S-1).	3-1/2" -1/2"- -1/4"-
Place a length of sleeving over the orange harness lead and connect it to lug 3 of switch FG (S-1). Push the length of sleeving over the switch lug.	Detail 2C
() Connect the red harness lead to lug 2 of switch FG (S-1).	() Connect the shield lead of the prepared
Connect the harness lead extending from BO 4 as follows:	cable to lug 5 (NS) and the inner conductor to lug 6 (S-1) of tube socket V2.
() Connect the green harness lead to lug 1 of phono socket BA (S-1).	() At the other end of this cable connect the inner conductor to lug 2 of IF transformer P (S-1). Position this lead as shown in Pictorial 2.
Connect the harness leads extending from BO 3 as follows:	() Connect one end of a 4-1/2" yellow wire to
() Connect both brown harness leads to lug 3 of tube socket V7 (S-3).	lug 8 of tube socket V2 (NS). Place the other end of this wire through grommet HD. It will be connected later.



- () Connect a length of bare wire from lug 1 of octal socket CC (S-1) to lug 1 of phono socket BF (NS).
- () Connect a length of bare wire between lug 8 (S-1) and the ground lug nearest lug 8 (S-1) of octal socket CC.
- () Connect a length of bare wire from lug 5 of IF transformer P (S-1) to lug 1 of crystal socket N (S-1).
- () Connect a length of bare wire from lug 3 of IF transformer P (S-1) to lug 1 of crystal socket M (S-1).
- () Place one end of a length of bare wire through lug 2 of crystal socket M (NS) to lug 2 of crystal socket N (S-1). Now solder lug 2 of M (S-2). Connect the other end of this wire to lug 1 of tube socket V3 (NS).
- () Connect a 2" red wire from lug 1 of IF transformer K (S-1) to lug 5 of tube socket V3 (S-1).
- () Connect a length of bare wire from lug 8 of tube socket V4 (S-1) to lug 2 of BFO coil C (NS).
- () Place one end of a length of bare wire through solder lug D (NS) to lug 5 of switch FE (S-1). Now solder solder lug D (S-2). Connect the other end of this wire to lug 1 of BFO coil C (S-1).
- () Connect a 3-1/4" red wire from lug 6 of tube socket V4 (S-1) to lug 1 of IF transformer B (S-1).
- () Connect a 3-1/2" red wire from lug 3 of IF transformer B (NS) to lug 3 of terminal strip F (NS).
- () Connect a length of bare wire from lug 4 of IF transformer B (S-1) to solder lug E (NS).
- () Connect a length of bare wire from lug 2 of IF transformer B (S-1) to lug 2 of tube socket V5 (NS).
- () Connect a 5" yellow wire from lug 4 of switch FE (S-2) to lug 1 of terminal strip A (NS).

- () Connect one end of a 7-3/4" red wire to lug 2 of switch FE (S-1). Place the free end of this wire through grommet HA. It will be connected later.
- () Cut a 5" length of spiral shield and unwind 1/2" from one end. See Detail 2D. Now separate the spiral shield at a point 1-1/2" from this end.
- () Cut a 5-1/2" yellow wire, a 5-1/2" brown wire, and a 7-1/2" red wire. Place these wires through the length of spiral shield from the end farthest from the break. The yellow and brown wires should be pushed through the break in the shield and the red wire should pass on through the shield. Refer to Detail 2D.



Detail 2D

- () At the end of the prepared spiral shield with only the red wire extending, connect the shield lead to the ground lug nearest lug 3 of tube socket V6 (NS). Connect the red wire to lug 2 of tube socket V6 (S-1).
- () At the break in the shield, connect the yellow wire to lug 6 (S-1) and the brown wire to lug 7 (NS) of tube socket V5.
- () At the other end of this shield connect the red wire to lug 2 of control FB (S-1).
- () Connect the yellow wire to lug 4 of switch FC (NS) and the brown wire to lug 5 of FC (NS).
- () Solder lug 1 of control FB to the control solder lug.
- () Connect a 2" brown wire from lug 4 of tube socket V5 (NS) to lug 4 of tube socket V6 (S-2).
- () Connect a 3" red wire from lug 8 of tube socket V6 (S-1) to lug 1 of electrolytic capacitor H (NS).

HEATHKIT

- () Connect a 3" red wire from lug 1 of electrolytic capacitor H (NS) to lug 3 of terminal strip L (NS).
- () Connect a 3-1/2" red wire from lug 2 of electrolytic capacitor H (NS) to lug 1 of terminal strip G (NS).
- () Connect a 2" red wire from lug 3 of electrolytic capacitor H (NS) to lug 7 of tube socket V7 (S-1).
- () Connect a length of bare wire from lug 4 of tube socket V7 (S-1) to the solder lug mounted on V7 (S-1).

COMPONENT INSTALLATION

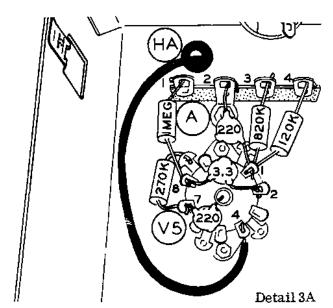
Refer to Pictorial 3 (fold-out from Page 25) for the following steps.

NOTE: Before proceeding, read paragraph 3 under Chassis Wiring And Soldering on Page q

- () C35. Connect a .005 μ fd disc ceramic capacitor from lug 3 of control FB (S-1) to lug 4 of switch FC (NS).
- () R32. Connect a 1 megohm (brown-black-green) 1/2 watt resistor from lug 4 of switch FC (S-3) to lug 3 of terminal strip A (NS).
- () R29. Connect a 47 KΩ (yellow-violet-orange) 1/2 watt resistor from lug 5 of switch FC (S-2) to lug 4 of terminal strip A (NS).
- () R34. Connect a 1500 Ω (brown-green-red)
 2 watt resistor between lugs 3 (S-2) and 4 (S-1) of phone jack FA.
- () C29. Connect a .05 μ fd disc ceramic capacitor between lugs 1 (NS) and 2 (NS) of terminal strip A.
- () C33. Connect a .05 μ fd disc ceramic capacitor between lugs 2 (NS) and 3 (NS) of terminal strip A.
- () C32. Connect a 220 $\mu\mu$ f disc ceramic capacitor between lugs 2 (NS) and 4 (NS) of terminal strip A.

- () Place one end of a length of bare wire through lug 3 (NS) to the center post (NS) of tube socket V5. Now solder lug 3 of V5. Connect the other end of this wire to the ground lug nearest lug 3 of V5 (NS).
- () Place one end of a length of bare wire through lug 5 (NS) through the center post (NS) to lug 9 (NS) of tube socket V5. Now solder lug 5 (S-2). Connect the other end of this wire to the ground lug nearest lug 5 of V5 (NS).
- () Connect a length of bare wire from lug 9 of tube socket V5 (S-2) to the ground lug nearest lug 9 of V5 (NS).
- () R27. Connect a 2.2 megohm (red-red-green) 1/2 watt resistor from lug 8 of tube socket V5 (NS) to the ground lug nearest lug 5 of V5 (S-2).
- C36. Connect the positive (+) lead of a 10
 µfd electrolytic capacitor to lug 6 of tube
 socket V6 (NS). Connect the other lead of
 this capacitor to the ground lug nearest
 lug 3 of tube socket V5 (S-2).

Refer to Detail 3A for the following steps.



() R30. Connect a 270 KΩ (red-violet-yellow) resistor from lug 7 of tube socket V5 (NS) to the ground lug nearest lug 9 of V5 (S-2).

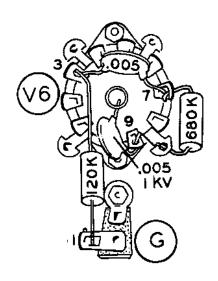
- () R26. Connect a 1 megohm (brown-black-green) 1/2 watt resistor from lug 1 of terminal strip A (S-3) to lug 8 of tube socket V5 (NS).
- () R31. Connect an 820 KΩ (gray-red-yellow) 1/2 watt resistor from lug 3 of terminal strip A (S-3) to lug 1 of tube socket V5 (NS).
- () R28. Connect a 120 KΩ (brown-red-yellow)
 1/2 watt resistor from lug 4 of terminal strip A (S-3) to lug 1 of tube socket V5 (NS).
- () C32. Connect a 220 $\mu\mu$ f disc ceramic capacitor from lug 2 of terminal strip A (S-4) to lug 1 of tube socket V5 (S-3).
- () C31. Connect a 220 $\mu\mu$ f disc ceramic capacitor between lug 7 (S-3) and the center post (S-4) of tube socket V5.
- () C34. Connect a 3.3 $\mu\mu$ f disc ceramic capacitor between lugs 2 (S-2) and 8 (S-3) of tube socket V5.
- () Locate one of the pilot lamp sockets. Place the lead extending from this socket through grommet HA from the top side of the chassis. Connect this lead to lug 4 of tube socket V5 (S-2).

Refer to Pictorial 3 for the following steps.

- () R35. Connect a 100 Ω (brown-black-brown)
 1/2 watt resistor from lug 6 of tube socket
 V6 (S-2) to the ground lug nearest lug 8 of
 V6 (NS).
- () Place one end of a length of bare wire through lug 5 (NS) to the center post (NS) of tube socket V6. Now solder lug 5 of V6 (S-2). Connect the other end of this wire to the ground lug nearest lug 6 of V6 (S-1).
- () R37. Connect a 1000 Ω (brown-black-red)
 1/2 watt resistor from lug 1 of tube socket
 V6 (S-1) to the ground lug nearest lug 4 of
 V6 (S-2).

Refer to Detail 3B for the following steps.

() C37. Connect a .005 μ fd 1.4 kv disc ceramic capacitor between lug 9 (S-2) and the center post (S-2) of tube socket V6.



Detail 3B

- R36. Connect a 680 KΩ (blue-gray-yellow) 1/2 watt resistor from lug 7 of tube socket V6 (NS) to the ground lug nearest lug 8 of V6 (S-2).
- () R38. Connect a 120 KΩ (brown-red-yellow)
 1/2 watt resistor from lug 3 of tube socket
 V6 (NS) to lug 1 of terminal strip G (S-2).
- () C38. Connect a .005 μ fd disc ceramic capacitor between lugs 3 (S-2) and 7 (S-2) of tube socket V6.

Refer to Pictorial 3 for the following steps.

- () R44. Connect a 1500 Ω 10 watt wire-wound resistor between lugs 1 (NS) and 3 (S-3) of electrolytic capacitor H.
- () R43. Connect a 22 KΩ (red-red-orange) 1/2 watt resistor between lugs 1 (S-4) and 2 (S-2) of electrolytic capacitor H.
- () C28. Connect a .005 μ fd disc ceramic capacitor from lug 3 of IF transformer B (S-2) to solder lug E (S-3).
- () C40. Connect a 30 $\mu\mu$ f resin dipped mica capacitor from lug 2 of BFO coil C (S-2) to lug 1 of variable capacitor FF (S-1).
- () Place one end of a length of bare wire through the center post (NS) of tube socket V4 to the solder lug mounted on V4 (NS). Connect the other end of this wire to lug 5 of V4 (S-1).