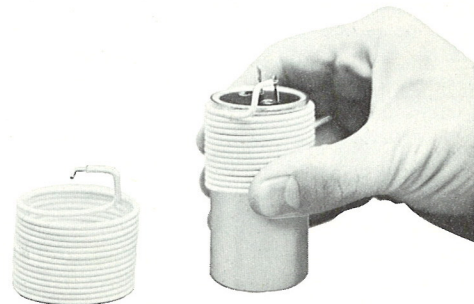


The next 5 steps describe the installation of the large capacitor mounting brackets. In each case, refer to the pictorial diagram for the correct placement of the clamp on the bracket, and also for the direction of insertion of the clamping screw. This will facilitate servicing access if required in the future. All mounting screws are installed from the outside (bottom) of the chassis, the capacitor bracket put in position, followed by a terminal strip if one is specified. Then use a lockwasher (or ground lug), and fasten with a nut. One #6 screw and nut referred to in each of these steps is to be installed *without a lockwasher* in the bracket *clamp* before mounting. Because the brackets are flexible, you will find that the capacitors will be most secure if they are temporarily slipped into each bracket for sizing as the bracket mounting bolts are tightened. While squeezing the bracket around the capacitor, tighten all the mounting bolts, starting first with the bolt farthest from the clamp. Then remove the capacitor. *Do not remove the outer insulation from any capacitor.*

- 5(✓) With four #6 screws and nuts, two #6 lockwashers and the ground lug, install the largest diameter (2½") bracket for C12. Note the location near the center of the chassis of the ground lug which goes on one of the mounting screws.
- 6(✓) With three #6 screws and nuts, and two lockwashers, plus the shorter of the two terminal strips, install the 1½" diameter bracket for C9 at the rear of the chassis. This is the middle size of those remaining. The terminal strip is installed on the screw nearest the rear of the chassis.
- 7(✓) With three #6 screws and nuts, and two lockwashers, install the smallest diameter bracket for C11 on the right side of the chassis.
- 8(✓) With four #6 screws and nuts, and three lockwashers, install one of the 2" diameter brackets near the center of the chassis.
- 9(✓) With four #6 screws and nuts, and three lockwashers, plus the remaining (longer) terminal strip, install the second 2" diameter bracket at the front of the chassis. The terminal strip is installed on the front mounting screw adjacent to the binding posts.
- 10(✓) Cut an 8" black wire. Connect one end to the right channel black binding post lug. Connect the other end to the ground lug on the C12 bracket in the center of the chassis.
- 11(✓) Cut another 8" black wire. Connect one end to the left black binding post lug. Connect the other end to the ground lug on the C12 bracket.
- 12(✓) Trim both leads of one 4.7 ohm resistor (yellow-violet-gold-silver) to ¾". Connect one lead to the right black binding post lug. Connect the other end to the adjacent lug #1 of the 2-lug terminal strip.
- 13(✓) Trim both leads of one 0.1 mfd capacitor to ½". Connect one lead to the same lug #1 of the terminal strip. Solder the two leads to the lug. Connect the other end to the lug of the right red binding post.
- 14(✓) Trim the leads of the remaining 4.7 ohm resistor (yellow-violet-gold-silver) to ¾". Connect one lead to the left black binding post lug. Connect the other end to the adjacent lug #2 of the 2-lug terminal strip.

- 15(✓) Trim the leads of the remaining 0.1 mfd capacitor to ½". Connect one lead to the same lug #2 of the terminal strip. Solder the two leads to the lug. Connect the other end to the lug of the left red binding post.
- 16(✓) Cut a 6½" black wire and a 7" green wire. Twist these together so that the wires are even at one end. The even ends will be connected now. Connect the black wire to the ground (short) lug of the right input socket. (S). Connect the green wire to the long lug of the right input socket. (S). These wires should project upwards from the chassis when they are soldered in place.
- 17(✓) Cut a 3¼" green wire and a 3½" black wire. Twist these together so that the wires are even at one end. The even ends will be connected now. Connect the black wire to the ground (short) lug of the left input socket. (S). Connect the green wire to the long lug of the left input socket. (S). These wires should also project upwards when soldered.
- 18() There are two coils of heavy gauge insulated wire supplied in your kit. These are to be wound tightly around the 2" output capacitors C7 (right and left). To facilitate the forming of these coils and their installation, you will use a *smaller* electrolytic capacitor C9 (1000 mfd) as a form. To do this, strip one end of one of the coils ¼". Form a hook on this end, and engage the hook with either one of the lugs on the capacitor C9. Form two right angles, as shown in Detail B, so that the wire comes over the side of the capacitor and starts in a *clockwise direction* when looking at the top (lug end) of the capacitor. Wind the wire tightly, with the turns as close together as possible until all of the wire is used. You must hold the "start" while you wind. This is the most tedious part of the kit. Take the time to do a good job. When you release your hold, the wire will spring loose to form a larger diameter coil. Disengage the hook from the lug and slide the coil off. You will now install this coil on one of the two 2" diameter (3300 mfd @ 50 volts) capacitors C7. With the hook at the top, wind or guide the preformed coil onto this capacitor, one section at a time, as though you were threading it on. Patience will reward you with a neat job. With care, you can avoid deforming the coil and keep it snug. When the coil is all on the capacitor, slide it around so that it is convenient to engage the black capacitor lug with the hook and crimp the hook through the lug. Keep the turns snug.



Detail B

Now turn to page 12

COMPONENT VALUES

All resistors are 1/2 watt, 5% unless otherwise specified.

R 1	4,700 ohms	PART #	113472		PART #	
R 2	4,700 ohms		113472	R23	1,000 ohms, 10%	112102
R 3	30,000 ohms		113303	R24	4,700 ohms	
R 4	150 ohms		113151		1 watt, 10%	115472
R 5	100,000 ohms		113104	R25	10,000 ohms	113103
R 6	1,000 ohms		113102	R26	22,000 ohms, 10%	112223
R 7	1,500 ohms		113152	R27	0.47 ohms	
R 8	270 ohms		113271		2 watt, 10%	128004
R 9	4,700 ohms		113472	R28	3.3 ohms	113030
R10	3,900 ohms		113392			
R11	10,000 ohms		113103	C 1	5 mfd, 10v.	283505
R12	10,000 ohms		113103	C 2	150 pf mica	245151
R13	100 ohms		103101	C 3	250 mfd, 40v.	283267
R14	100 ohms		103101	C 4	35 mfd, 20v.	
R15	4,700 ohms		113472		non-polarized	283356
R16	300 ohms			C 5	250 mfd, 16v.	283257
	7 watt, 5%		120301	C 6	50 mfd, 10v.	
R17	300 ohms				non-polarized	282506
	7 watt, 5%		120301	C 7	3300 mfd, 50v.	283338
R18	4.7 ohms			C 8	0.1 mfd, 100v.	264104
	1 watt, 10%		125040	C 9	1000 mfd, 100v.	284108
R19	6,200 ohms		113622	C10	50 mfd, 25v.	283516
R20	1,000 ohms, 10%		112102	C11	500 mfd, 100v.	284507
R21	1,200 ohms		113122	C12	3300 mfd, 100v.	284338
R22	3,900 ohms,			C13	27 pf disc	244271
	1 watt, 5%		116392	C14	0.01 mfd, 100v.	244104

Q 1	BC108A	130-180 Beta	572683
Q 2	2N5320	140-260 Beta, 90 V _{cer} , r = 5KΩ	572002
Q 3	2N5320	100-200 Beta, 90 V _{cer} , r = 5KΩ	572001
Q 4	2N5322	100-160 Beta, 90 V _{cer} , r = 5KΩ	562671
Q 5	2N3772	40-90 Beta @ 1 A, 100 V _{cer} , r = 100Ω	571844
Q 6	2N3772	40-90 Beta @ 1 A, 100 V _{cer} , r = 100Ω	571844
Q 7	2N4037	100-250 Beta, 90 V _{cer} , r = 5KΩ	564671
Q 8	2N5320	100-140 Beta, 90 V _{cer} , r = 5KΩ	574003
Q 9	2N4347	25-50 Beta @ 1 A, 110 V _{ceo}	574844

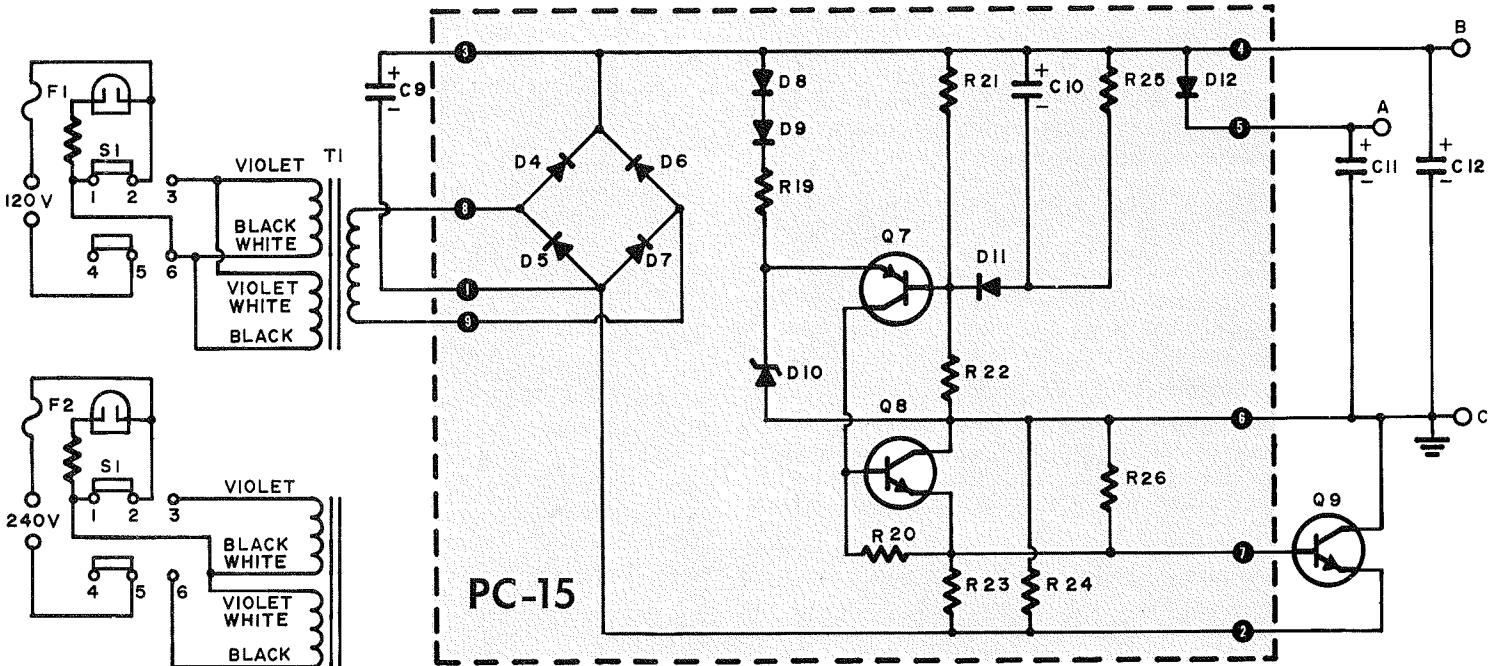
D 1	zener diode, 5.1 volt, 5%, 400 mw.	PART #	540405
D 2	silicon diode, 0.8 volt drop @ 140 ma.		544015
D 3	silicon diode, 0.8 volt drop @ 140 ma.		544015
D 4	silicon diode, 3 amperes, 200 prv.		544322
D 5	silicon diode, 3 amperes, 200 prv.		544322
D 6	silicon diode, 3 amperes, 200 prv.		544322
D 7	silicon diode, 3 amperes, 200 prv.		544322
D 8	silicon diode, 1N4003		544012
D 9	silicon diode, 1N4003		544012
D10	zener diode, 58 volt, 2%, 1 watt.		540158
D11	silicon diode, 1N4003		544012
D12	silicon diode, 1N4003		544012
T 1	Dynaco FA-704 power transformer		464001
S 1	DPDT lighted switch		334001
F 1	fuse 3 amp slo-blo		342030
F 2	fuse 1.5 amp slo-blo (alternate)		342015
L 1	74 inches of #16 insulated wire		319907

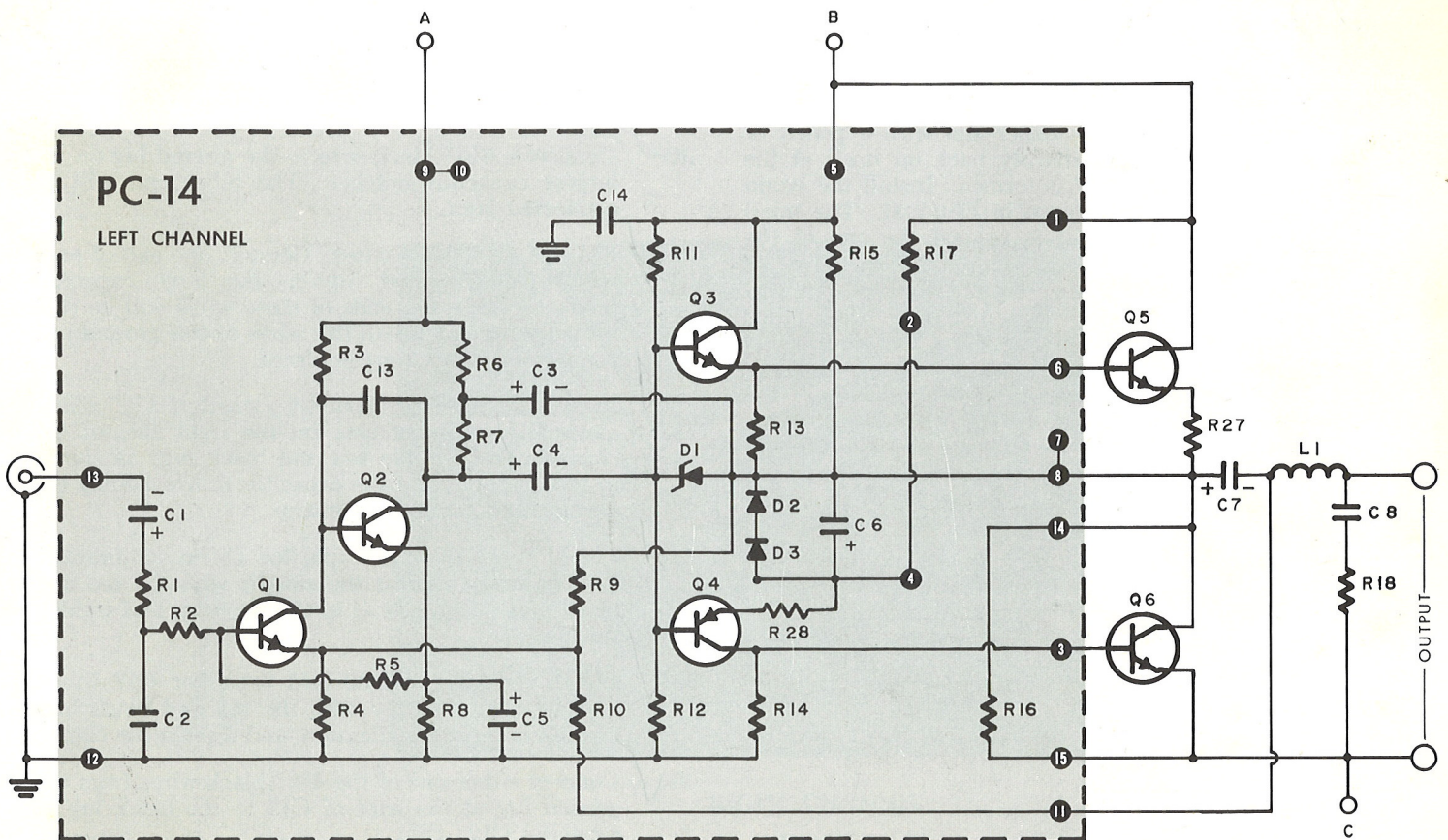
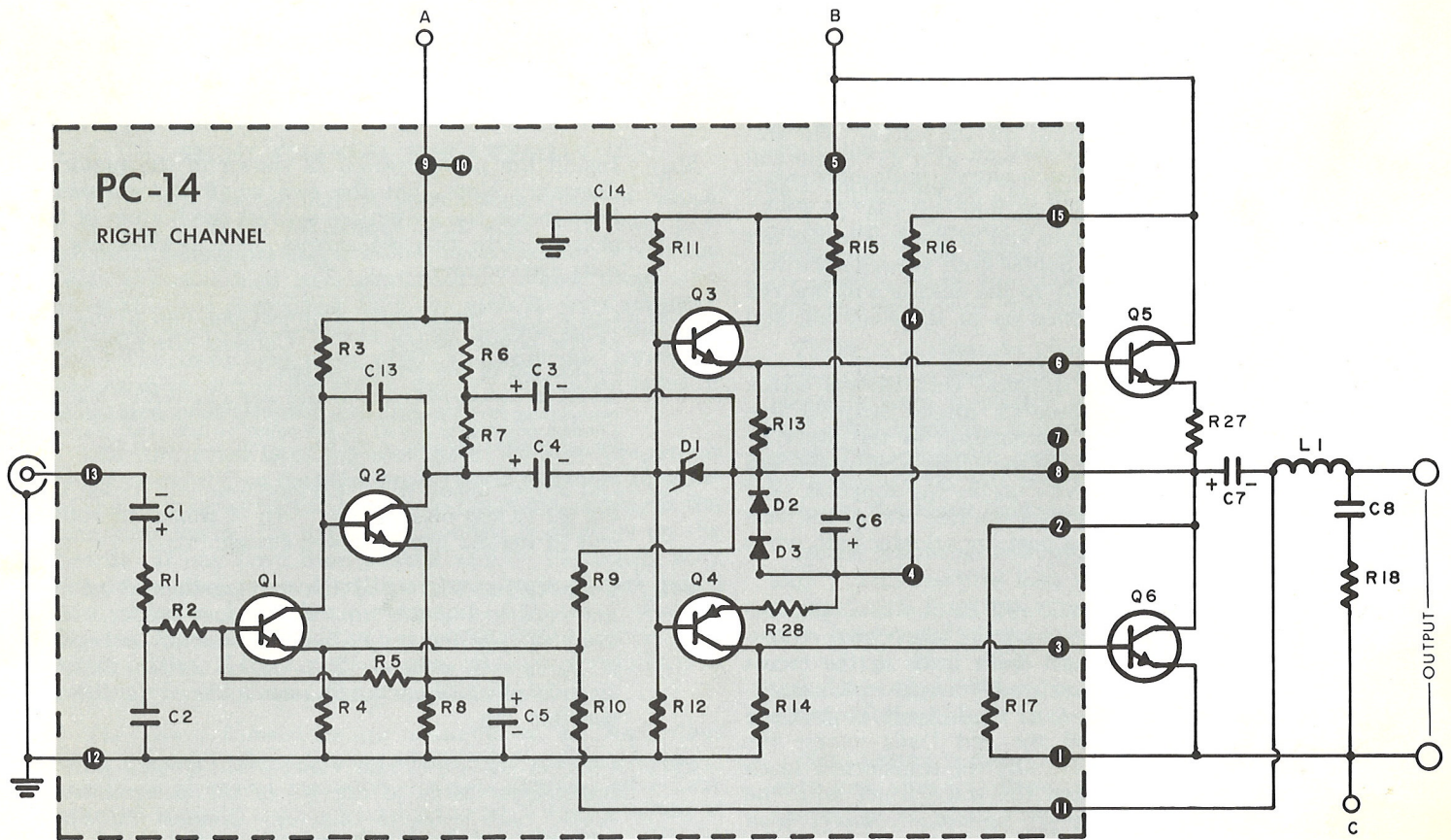
VOLTAGE TEST POINTS

Measured with VTVM, 120 or 240 volt 60 cycle AC line, 8 ohm load, shorted input. All voltages are DC unless specified AC.

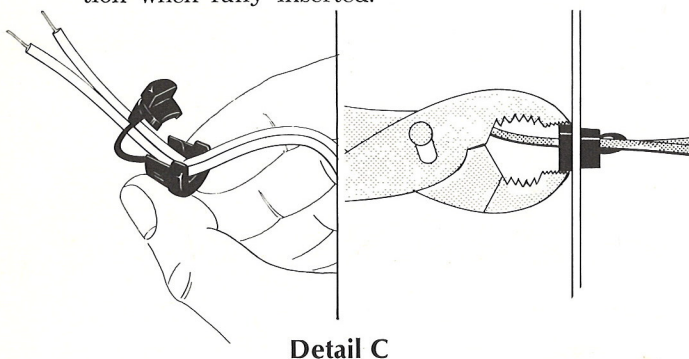
Left PC-14	Right PC-14	PC-15
#1 72	#1 0	#1 -21
#2 37	#2 36	#2 -21
#3 <0.5	#3 <0.5	#3 72
#4 37	#4 37	#4 72
#5 72	#5 72	#5 71
#6 36	#6 36	#6 0
#7 36	#7 36	#7 -20
#8 36	#8 36	#8 } 70 AC*
#9 71	#9 71	#9 }
#10 71	#10 71	
#11 0	#11 0	
#12 0	#12 0	
#13 0	#13 0	
#14 36	#14 37	
#15 0	#15 72	

*Measured between eyelets located on circuit board edge





- 19(✓) Form a second coil as above and install it on the other 2" diameter (3300 mfd @ 50 volts) capacitor.
- 20(✓) Count 10 full turns on one of the coils just made, allow 1½" extra, and cut off the excess. On this end of the coil, cutting the wire at a 45° angle will aid connection. Strip off ¼" of insulation. Insert this coil-capacitor combination in the front 2" bracket. Connect the free end of the coil to the left red binding post lug. Solder both wires to the lug. Seat the capacitor firmly to the chassis with the red and black lugs positioned as in the diagram, and tighten the clamp.
- 21(✓) Count 10 full turns on the other coil, allow 6" extra, and cut off the excess on a 45° angle. Strip the free end ¼". Install this combination in the other 2" bracket, seat it firmly to the chassis with the red and black lugs positioned as in the diagram, and tighten the clamp. Connect the free end of the wire to the right red binding post lug. Solder both wires to the lug.
- 22(✓) Twist together the black and black-white, and the violet and violet-white leads of the power transformer FA-704. Position these leads in the recess at the rear of the chassis as you place the transformer on the chassis with these leads around the right rear corner, and the red leads nearer the center of the chassis. Be sure the transformer leads are not pinched. Fasten the transformer with the four sets of #8 (largest) hardware. Insert each screw from the bottom, place a lockwasher over the transformer foot, and fasten with a nut. Now you should also tighten the rubber foot under the transformer, but be careful that you do not deform it.
- 23(✓) Separate the two conductors of the line cord for about 3". Cut off one inch of one of the conductors. Strip ¼" of insulation from each (unless the line cord was supplied with stripped ends). Mark the line cord 4" from the longer end with a pencil or pen. Bend the cord sharply back on itself at the marking so that a "V" is formed. Install the strain relief at the "V" as shown in Detail C. The small end of the strain relief is nearest the end of the wire. With heavy pliers, crimp the two halves of the strain relief together around the wire to partially form the wire before insertion. Now grasp only the larger diameter portion of the strain relief with the tips of the pliers, squeeze it fully closed, and insert the combination from the outside of the chassis into the cutout nearest the power transformer. The device can only be installed in the cutout one way, and will snap into its locked position when fully inserted.



Detail C

- 24(✓) Note the location of the connecting lugs on the fuse holder. Install it next to the line cord, with its rubber ring on the outside of the chassis. Fasten it with the lockwasher and nut inside the chassis.
- 25(✓) Install the power switch as shown in the pictorial diagram. Note that the two small wires coming from inside the switch are nearest the bottom of the chassis. Use two #4 screws. No lockwashers or nuts are required.
- 26(✓) Cut a 1¼" black wire. Connect one end to lug #1 of the power switch. (S). Connect the other end to lug #6 of the power switch.
- NOTE: If the amplifier is to be used with a 240 volt AC line, the connections for this step are as follows: Cut a 1¼" black wire. Connect one end to lug #1 of the power switch. (S). Connect the other end to lug #1 of the 2-lug terminal strip at C9.
- 27(✓) Cut a 1½" black wire. Connect one end to the top lug #1 of the fuse holder. (S). Connect the other end to lug #2 of the power switch. (S).
- 28(✓) Connect the shorter of the two conductors of the line cord to lug #2 (tip) of the fuse holder. (S). Connect the longer line cord conductor to lug #5 of the power switch. (S). Make certain that all strands of each conductor are soldered to the respective lug.
- 29(✓) Connect the violet and violet-white twisted pair of transformer leads to lug #3 of the power switch. Solder both wires to this lug. Connect the black and black-white twisted pair of transformer leads to lug #6 of the power switch. Solder all three wires to this lug.
- NOTE: If the amplifier is to be used with a 240 volt AC line, the connections for this step are as follows: Solder only the violet transformer lead to lug #3 of the power switch, and solder only the black transformer lead to lug #6 of the switch. Twist together the black-white and the violet-white transformer leads and connect them to lug #1 of the 2-lug terminal strip. Solder all three wires to this lug. *Make certain that these wires are not connected to the same terminal strip lug which is bolted to the chassis!*
- 30(✓) Connect a 6½" black wire to the ground lug on the largest capacitor bracket. The other end will be connected later.
- 31(✓) Cut two 4½" black wires. Connect one end of each wire to the ground lug on the large capacitor bracket. The other ends of these wires will be connected later. Solder all five wires to this ground lug. *Be certain that all are soldered.*
- 32(✓) Install the 500 mfd capacitor (smallest 1⅜" diameter) C11 in its bracket on the right side of the chassis. Position the red and black lugs as shown in the diagram, seat the capacitor firmly against the chassis, and tighten the clamp.
- 33(✓) Install the 1000 mfd capacitor C9 in its bracket. Seat it firmly against the chassis with the red and black lugs positioned as in the diagram, and tighten the clamp.
- 34(✓) Install the largest 3300 mfd capacitor C12 in its bracket, seat it firmly with the red and black lugs positioned as in the diagram, and tighten the clamp.
- 35(✓) Connect either one of the 4½" black wires from the ground lug at the base of C12 to the black lug of capacitor C12. (S).

36(✓) Connect the remaining 4½" black wire from the same ground lug at the base of C12 to the black lug of capacitor C11. (S).

RIGHT CHANNEL SUB-ASSEMBLY

There are two similar sub-assemblies, each of which comprises a black aluminum heat sink with two pre-mounted transistors and a PC-14 circuit board (which has been pre-assembled and pre-tested). When these sub-assemblies are completed, they are each 60 watt amplifier channels with the exception of the output capacitor and coil. The third heat sink, which has only one transistor mounted, is part of the power supply. The other holes in this third heat sink are not used.

Use care when handling each part. Unwrap the circuit boards carefully so that the small finned radiators on some of the transistors on the boards do not catch and twist the transistor leads. Do not bend over the transistors on the boards. If any have been pushed against the board, they should be straightened so that their leads do not touch each other or any other components. Use care, however, because the small radiators are friction-fitted on the transistor bodies; if the radiators come off, they are difficult to replace without flexing the transistor leads.

The power transistors are mounted on the heat sinks with a special silicon grease which conducts heat readily, but is an electrical insulator. In case handling may have allowed some of it to get on leads which will be soldered to later, it is suggested that you carefully wipe off the transistor leads which protrude through the heat sink, and also the connecting lugs on all three heat sink assemblies. Be careful not to bend the transistor leads which protrude through the holes. When soldering to these leads, always make the connection at the *end* of the lead. See Detail D. Do not allow solder to flow into the recess formed by the hole in the heat sink.

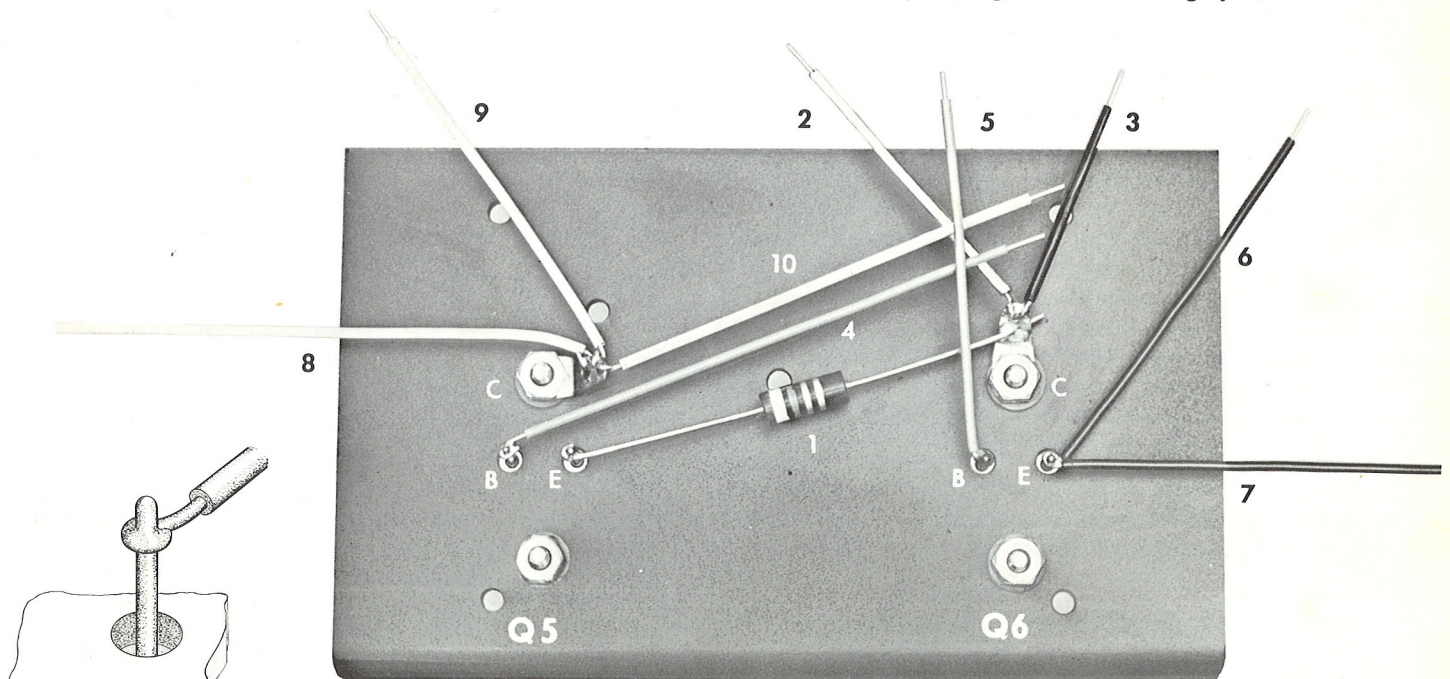
While excessive heat may damage any transistor, the silicon types used in the Stereo 120 are very rugged, and it is more important that you have the transistor lead and the wire you are connecting to it hot enough before you apply the solder, so that the solder will flow quickly over the connection, giving you a smooth junction, without running down the lead into the recess. A small drop of solder on the tip of the iron will assist in heat transfer and good soldering. If the solder does not flow easily around the connection, allow the connection to cool, and try again after the tip of your iron is again hot.

There is a separate photograph showing the wiring to each amplifier heat sink, Detail E and Detail F, which identifies each transistor lead. The number adjacent to each wire identifies the step number. You may wish to mark the transistor leads on the heat sinks for quicker reference, and a soft pencil will be visible in good light, even on the black background.

In the following instructions you will be told to "form a loop". This requires that you first strip the standard ¼" of insulation from the wire (except resistor leads). Then with long nosed pliers, form a "U" or loop with the bare end of the wire. Slip the loop over the very tip of the transistor lead. When you crimp it in place with the pliers, it should hold to the lead while you solder it.

Neat wiring is *essential*. Observe on the photograph of each heat sink the direction each wire takes from its connecting point when you attach and solder the connection.

1(✓) Place one of the amplifier heat sinks with the two transistors in front of you so that the transistor leads protrude toward you and the folded edge is at the bottom. Form a loop at one end of a 0.47 ohm resistor (yellow-violet-silver-silver) and crimp the loop onto the transistor lead Q5E. (S). Push the other end through the hole in lug Q6C.



Detail D

RIGHT CHANNEL

Detail E