

SECTION C, ASSEMBLY OF
LAMINATED CIRCUIT BOARD
TO U-SHAPED CHASSIS BRACKET

Assembly of Laminated Circuit Board to
"U"-Shaped Chassis Bracket

PARTS LIST

Symbol	Description	Qty.
	Markings Indicated by Quotation Marks (" ")	
C-22	Capacitor, disc, 0.02 mf., "AC, .02"	1
C-42	Capacitor, tubular, 0.1 mf., 200 volt, ".1 MFD., 200 WVDC"	1
R-27	Potentiometer, 5000 ohms, "5000"	1
R-42	Resistor, 100K ohms, 5%, 1 watt, "100K, 1W, 5%"	1
R-43A/B	Dual Potentiometer, 5 megohms and 1 megohm, "F5 MEG", "R1 MEG"	1
R-54	Potentiometer, 50K ohms, "50K"	1
R-75A/B	Dual Potentiometer, 250K ohms and 250K ohms, "F 250K", "R 250K"	1
R-77	100K ohms, 10%, "brn, blk, ylw, silv"	1

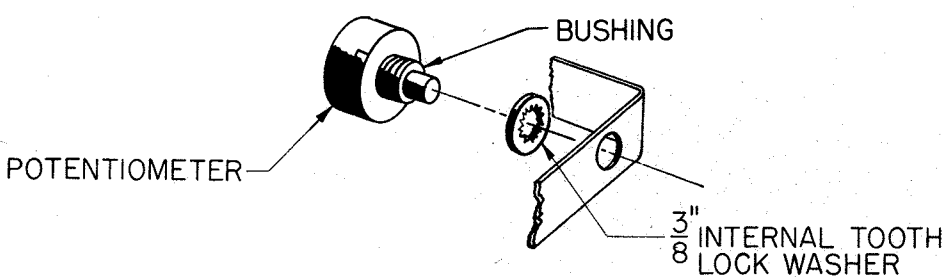
MISCELLANEOUS

(The quantities of hookup wire and sleeving are sufficient for complete assembly of the kit.)	
Insulated Sleeving, black	4"
Chassis Bracket (U-shaped bracket)	1
#6 x 3/8 in.-long Machine screw, self-tapping, has split shank at start of threads	4
Internal tooth lockwasher, inside diameter is 3/8-inch	4
Hex nut, 3/8-inch inside diameter	4
Hookup wire, #22 stranded, "wht insulation"	12'
Hookup wire, #22 stranded, "org insulation"	12'
Hookup wire, #22 stranded, "gray insulation"	12'
Hookup wire, #22 stranded, "vial insulation"	12'
Hookup wire, #22 stranded, "yel insulation"	12'

Illustrations: Figure 2; Figure 2, Details A and B; Figure 3; Figure 3, Detail A.

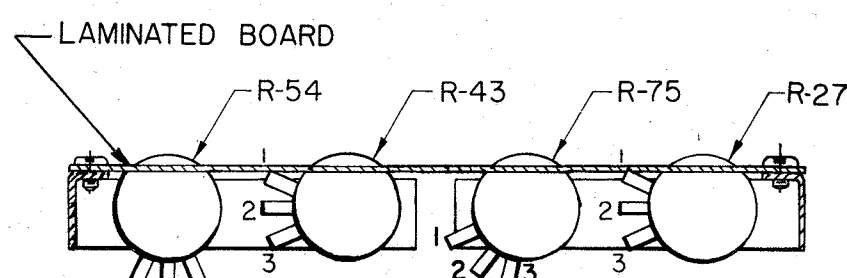
Steps 1 through 59. Check (✓) each step as it is completed.

- () Cut the following lengths of insulated hookup wire—all lengths in inches:
White: 2 1/2" () 3" () 7" () 8 3/4" ()
9 1/4" () 12" ()
Orange: 3" () 3" () 5" () 7" ()
7 1/2" () 10 1/2" ()
Yellow: 3" () 3" () 3" () 5 1/2" ()
6" () 6 1/2" () 7" () 10 1/2" ()
Violet: 2 1/2" () 3" () 4" () 4 1/2" ()
5" () 6 1/2" () 9 1/2" () 10 1/2" ()
Gray: 2 1/2" () 2 1/2" () 4" () 5" ()
5 1/2" () 6 1/2" () 12" ()
- () Strip off 1/4-inch of insulation from each end of the above cut wires. Make sure the exposed stranded ends are not frayed; then "tin" the tips to prevent untwisting.
NOTE: This operation will be employed in subsequent steps, and will be described simply as "Strip and Tin ..."
- () Insert one end of a 3-inch cut-length of orange hookup wire into hole #2 on the laminated circuit board. Push wire through hole until the insulation touches the board. Turn the board over, and bend wire slightly to hold it in place. (S) Clip off the excess end just above the solder globule. Use this procedure to install the following cut wires.
- () Insert one end of a 3-inch cut-length of white wire into hole #1. (S)
- () Insert one end of a 6-inch cut-length of yellow wire into hole #3. (S)
- () Insert one end of a 12-inch cut-length of white wire into hole #6. (S)
- () Insert one end of a 10 1/2-inch cut-length of orange wire into hole #27. (S)
- () Insert one end of a 10 1/2-inch cut-length of yellow wire into hole #28. (S)
- () Insert one end of a 10 1/2-inch cut-length of violet wire into hole #29. (S)
- () Twist the preceding 10 1/2-inch yellow and violet wires together at a rate of about 1-turn-per-inch.
- () Insert one end of a 7-inch cut-length of white wire into hole #31. (S)
- () Insert one end of a 7 1/2-inch cut-length of orange wire into hole #32. (S)
- () Insert one end of a 4 1/2-inch cut-length of violet wire into hole #34. (S)
- () Insert one end of a 6 1/2-inch cut-length of violet wire into hole #39. (S)
- () Insert one end of a 5-inch cut-length of orange wire into hole #7. (S)
- () Insert one end of a 5 1/2-inch cut-length of yellow wire into hole #8. (S)
- () Insert one end of a 7-inch cut-length of yellow wire into hole #23. (S)
- () Insert one end of a 3-inch cut-length of orange wire into hole #17. (S)
- () Insert one end of a 3-inch cut-length of yellow wire into hole #18. (S)
- () Insert one end of a 9 1/2-inch cut-length of violet wire into hole #24. (S)
- () Insert one end of a 5 1/2-inch cut-length of gray wire into hole #35. (S)

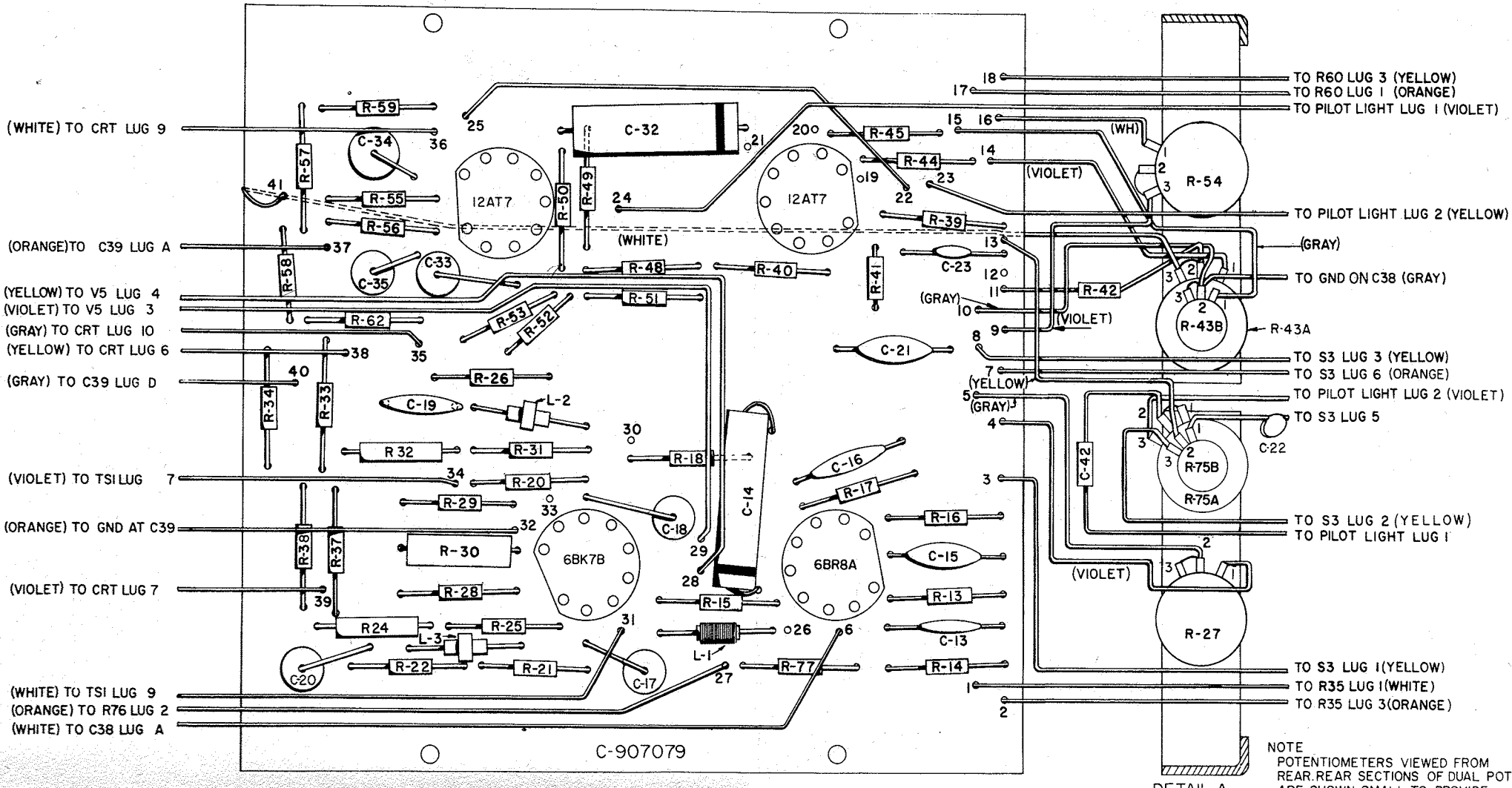


TYPICAL MOUNTING OF ALL POTENTIOMETERS

DETAIL A
FIGURE 2



DETAIL B
FIGURE 2



TOP VIEW OF LAMINATED CIRCUIT BOARD
FIGURE 3

NOTE: POTENTIOMETERS VIEWED FROM REAR. REAR SECTIONS OF DUAL POTS ARE SHOWN SMALL TO PROVIDE VISIBILITY.

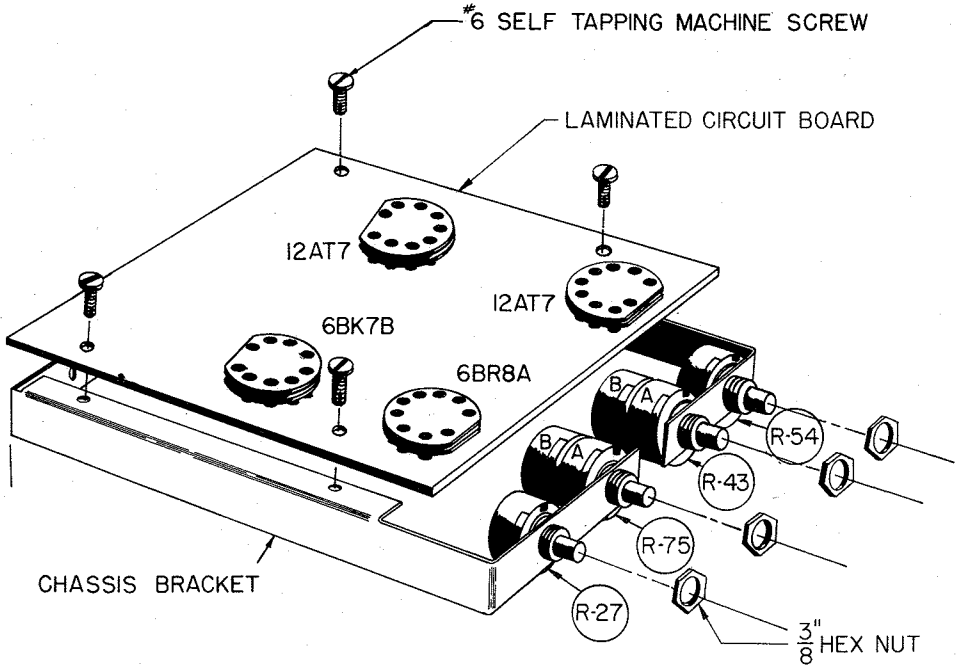
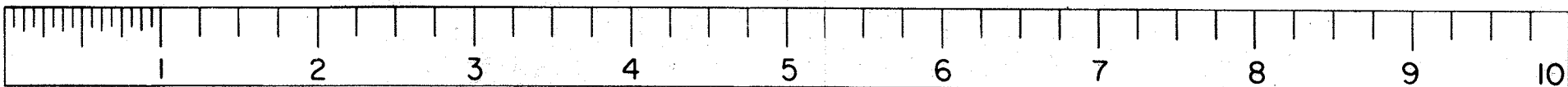


FIGURE 2

- () Insert one end of an 8 3/4-inch cut-length of white wire into hole #36. (S)
- () Insert one end of a 5-inch cut-length of gray wire into hole #25. (S)
- () Insert other end of gray wire from hole #25 (above) into hole #22. (S)
- () Insert one end of a 6 1/2-inch cut-length of yellow wire into hole #38. (S)
- () Insert one end of a 7-inch cut-length of orange wire into hole #37. (S)
- () Insert one end of a 6 1/2-inch cut-length of gray wire into hole #40. (S)
- () Insert one end of a 3-inch cut-length of violet wire into hole #4. (S)
- () Insert one end of a 4-inch cut-length of gray wire into hole #5. (S)
- () Insert one end of a 4-inch cut-length of violet wire into hole #9. (S)
- () Insert one end of a 2 1/2-inch cut-length of gray wire into hole #10. (S)
- () Insert one end of a 3-inch cut-length of yellow wire into hole #13. (S)
- () Insert one end of a 2 1/2-inch cut-length of violet wire into hole #14. (S)
- () Insert one end of a 2 1/2-inch cut-length of white wire into hole #16. (S)
- () Insert one end of a 2 1/2-inch cut-length of gray wire into hole #15. (S)
- () Insert one end of a 9 1/4-inch cut-length of white wire into hole #41. (S)
- () Clip one wire lead of R-42 to a length of 1-inch. Insert this lead into hole #11 on the laminated circuit board so that it protrudes about 1/8-inch on the copper foil side. (S)
- () Identify the "U"-shaped chassis bracket and the four #6 x 3/8 inch-long self-tapping machine screws. Before attempting to fasten the laminated board to the chassis bracket, as shown in Figure 2, it is necessary to tap threads in the holes—without the laminated board in place. Insert a screw in each hole; drive it all the way down with a screwdriver; then remove the screw. The board may now be screwed down to the chassis bracket with ease.
- () Place a 3/8-inch internal-tooth lockwasher on the threaded bushing of R-54 and insert the bushing into the chassis bracket as shown in Figure 2, Detail A. Secure with a 3/8-inch hex nut (finger tight only).
- () Install dual potentiometer R-43A/B as above.
- () Install dual potentiometer R-75A/B.
- () Install potentiometer R-27.
- () Rotate all four of the above potentiometers into position as shown in Figure 2, Detail B. Do not tighten nuts with pliers, as they will be removed in a subsequent operation.
- () Connect white wire from hole #16 on the laminated board to R-54, lug #1, as shown in Figure 3, Detail A. (S)
- () Connect gray wire from hole #15 on board to R-43B, lug #1. (S)
Note that R-43B is rear section of dual potentiometer.
- () Connect violet wire from hole #14 to R-43A, lug #1. (S)
- () Connect yellow wire from hole #13 to R-75B, lug #2. (S)
- () Identify resistor R-42 which has one end connected to hole #11 on the laminated board. Pass the unused lead of R-42 through R-43A, lug #2, and connect to R-43A, lug #3. (NS)
- () Remove an extra 1/4-inch of insulation from the open end of the gray wire coming from hole #10, and pass through R-43B, lug #2, and connect to R-43B, lug #3. (NS)
- () Remove an extra 1/4-inch of insulation from the open end of the violet wire coming from hole #9, and pass it through R-54 lug #3, and connect it to R-54 lug #2. Solder both lugs #2 and #3.
- () Remove an extra 1/4-inch of insulation from the open end of the gray wire coming from hole #5, and pass it through R-27, lug #2 and connect to R-27 lug #3. Solder to both lugs #2 and #3.
- () Connect the violet wire from hole #4 to R-27 lug #1. (S)
- () Identify the white wire from hole #41, and run it between the rear edge of the board and the chassis bracket, and then under the board to R-43A, lug #3. Solder all connections on lugs #2 and #3 of R-43A.
- () Clip the banded-end lead of capacitor C-42 to a length of 1 1/2-inches, and pass through R-75A lug #2, and connect to R-75A lug #1, as shown in Figure 3, Detail A. Solder lug #1 only.
- () Connect one end of a 12-inch cut-length of gray wire to R-43B, lug #2. (S)
- () Connect one end of a 5-inch cut-length of violet wire to R-75A, lug #3. (S)
- () Connect one end of a 3-inch cut-length of yellow wire to R-75B, lug #3. (S)
- () Cut a 1-1/2-inch length of black insulating sleeving. Pass one lead of capacitor C-22 through the sleeving, and connect to R-75B lug #1. (S)
- () Inspect work. All connections made thus far to the laminated circuit board should be soldered to the copper foil. The four potentiometers should be in the position shown in Figure 2, Detail B.

WORK AREA



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