

SECTION I, LAMINATED CIRCUIT BOARD TO REAR CHASSIS

Laminated Circuit Board To Rear Chassis

PARTS LIST

Symbol	Description Marking Indicated by Quotation Marks (" ").	Qty.
	Self-tapping machine screws, #6 x 3/8" long	3
	Grommet, 1-inch outside diameter	1
	Power Cord	1

Illustrations: Figure 10; Figure 10A; Figure 10B.

Steps 1 through 41. Check (✓) each step as it is completed.

- ( ) Cut the following lengths of insulated hookup wire:  
Violet: 7 1/2" ( ) 9 3/4" ( )  
Gray: 7 1/2" ( ) 9 3/4" ( )
- ( ) Strip and tin the above cut wires.
- ( ) Place the rear chassis into position with the laminated circuit board as shown in Figure 10, so that the three holes match. Make sure that no wires are caught in between the two sections.
- ( ) Insert the three #6 x 3/8" long self-tapping machine screws into the holes from the rear, and tighten securely.
- ( ) Connect one end of a 9 3/4-inch cut-length of violet wire to lug #1 on the pilot lamp socket as shown in Figure 10B. (S)
- ( ) Connect one end of a 9 3/4-inch cut-length of gray wire to lug #2 on the pilot lamp socket. (S)
- ( ) Twist the above violet and gray wires together along their length.
- ( ) Connect the gray wire from lug #2 of the pilot lamp socket to R-76 lug #3. (NS)
- ( ) Connect the violet wire from lug #1 on the pilot lamp socket to R-76 lug #1. (NS)
- ( ) Connect one end of a 7 1/2-inch cut-length of violet wire to R-76 lug #1. (S)
- ( ) Connect one end of a 7 1/2-inch cut-length of gray wire to R-76 lug #3. (S)
- ( ) Twist the above violet and gray wires together along their lengths, and run the twisted pair over the rear edge of the laminated circuit board and through hole #3 on the rear chassis.
- ( ) Connect the above violet wire from R-76, lug #1 to V-5, lug #4. (NS)
- ( ) Connect the above gray wire from R-76, lug #3 to V-5, lug #3. (NS)
- ( ) Run the violet and yellow twisted pair of wires from holes #28 and #29 on the laminated circuit board, back along the center of the board, under the CRT socket, under terminal strip #1, to V-5 socket.
- ( ) Connect the above violet wire from board hole #29 to V-5, lug #3. (S)
- ( ) Connect the above yellow wire from board hole #28 to V-5, lug #4. (S)
- ( ) Run the white wire from hole #6 on the laminated circuit board, back along the edge of the board to the rear chassis, under the CRT socket, under terminal strip #1 to C-38. Connect to C-38, lug "A". (S)
- ( ) Run the orange wire from board hole #27 back along the edge of the board, through the space between the end of the board and the rear chassis, and connect to R-76, lug #2. (S)
- ( ) Connect the white wire from hole #31 on the laminated circuit board to terminal strip #1, lug #9. (S)
- ( ) Connect the violet wire from board hole #34 to terminal strip #1, lug #7. (S)
- ( ) Run the orange wire from board hole #32 under the CRT socket, under terminal strip #1, and connect to one of the ground lugs on electrolytic capacitor C-39. (S)
- ( ) In like manner, connect the orange wire from board hole #37 to C-39, lug "A". (S)
- ( ) In like manner, connect the gray wire from board hole #40 to C-39, lug "D". (S)
- ( ) Identify the yellow and white twisted pair of wires coming from terminal strip #1 through hole #1 on the rear chassis.
- ( ) Connect the above identified yellow wire to R-73, lug #1 on the front panel. (S)
- ( ) Connect the above identified white wire to R-73, lug #3. (S)
- NOTE: The above twisted pair of wires will be dressed into final position in a later step.
- ( ) Identify the orange wire from terminal strip #1, lug #3 and pass it through hole #1 on the rear chassis, and connect to R-71, lug #3 on front panel. (S)
- ( ) Identify the white and gray twisted pair of wires from terminal strip #2 lugs #3 and #6, going through hole #2 on the rear chassis.
- ( ) Connect the above-identified white wire from TS-2, lug #3 to R-73, lug #4. (S)
- ( ) Connect the above-identified gray wire from TS-2, lug #6 to R-73, lug #5. (S)
- ( ) Identify the yellow wire from S-1, wafer #3, lug #3; run it through hole #4 on the rear chassis, and connect to C-38, lug "D". (S)
- ( ) Identify the gray wire from S-1, wafer #3, lug #6; run through hole #4 on rear chassis, and connect to C-38, lug "B". (S)
- ( ) Identify the orange wire from S-1, wafer #4, lug #6; run it through hole #4 on rear chassis; and connect to R-11, lug #2. (S)
- ( ) Identify the violet wire from S-1, wafer #4, lug #17; run it through hole #4 on rear chassis; and connect to C-38, lug "C". (S)
- ( ) Identify the yellow wire from S-1, wafer #4, lug #16; run it through hole #4 on the rear chassis; under terminal strip #1; and connect to R-11, lug #1. (S)
- ( ) Identify the gray wire from R-43B, lug #2; run it through hole #4 on rear chassis; and connect to one of the ground lugs on C-38. (S)
- ( ) Unwind the power cord, and pass the stripped-and-tinned end through the large rubber grommet.
- ( ) Pass the stripped-and-tinned end of the power cord about 3-inches through the strain-relief clasp, and tie a knot to make it secure.
- ( ) Connect one lead of the power cord to terminal strip #2, lug #3. (S)
- ( ) Connect the other lead of the power cord to terminal strip #2, lug #4. (S)

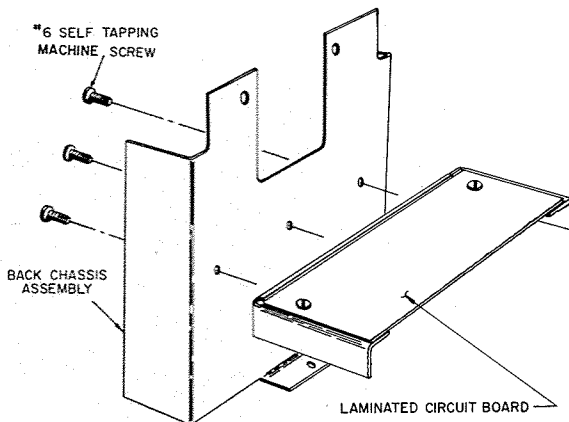


FIGURE 10

ASSEMBLY OF LAMINATED CIRCUIT BOARD TO REAR CHASSIS

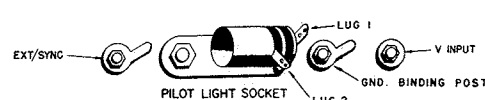
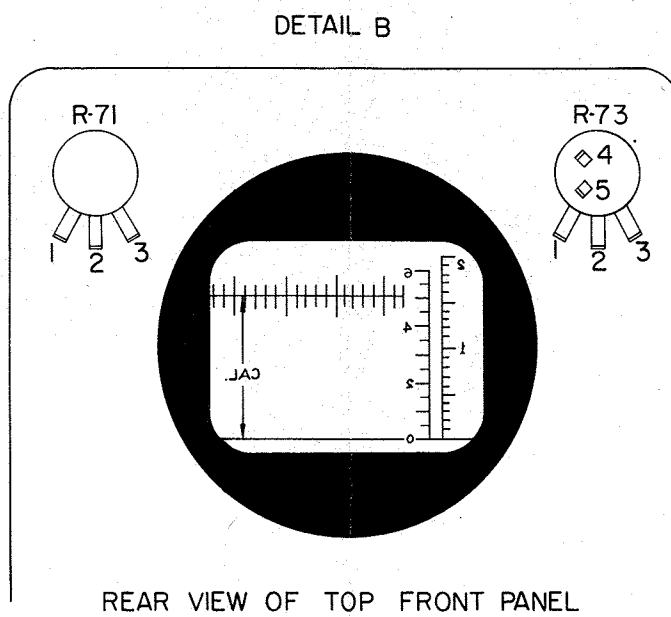
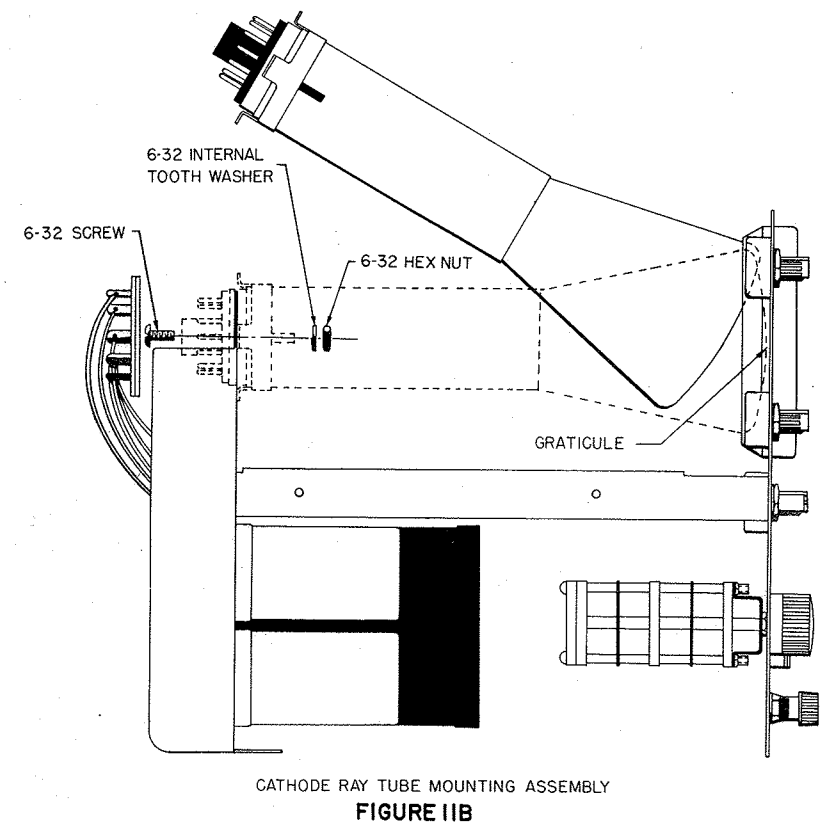
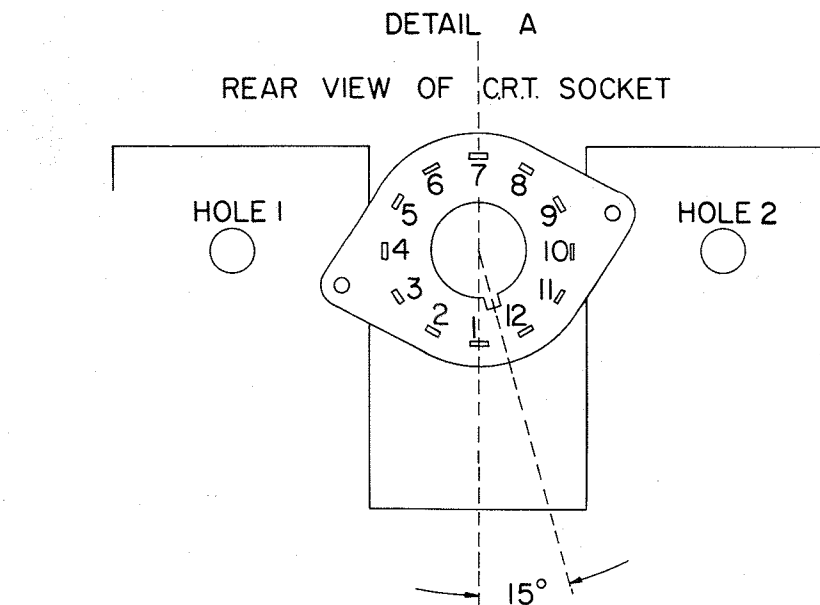


FIGURE 10B

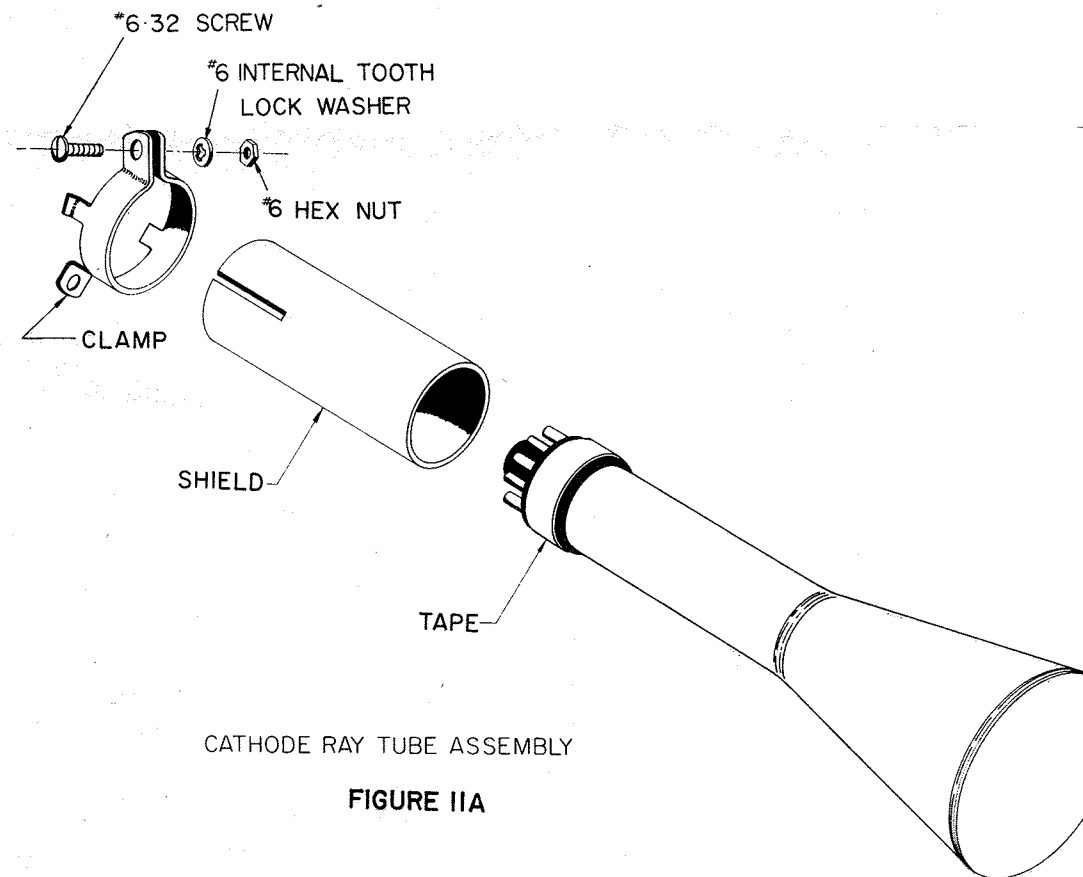


REAR VIEW OF TOP FRONT PANEL



CATHODE RAY TUBE MOUNTING ASSEMBLY

FIGURE 11B



CATHODE RAY TUBE ASSEMBLY

FIGURE 11A

SECTION J, CATHODE RAY TUBE AND AMPLIFIER TUBES

Cathode Ray Tube and Amplifier Tubes

PARTS LIST

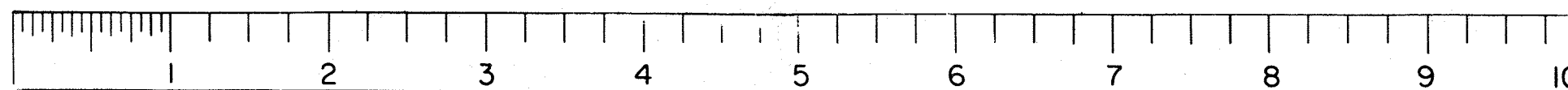
Symbol	Description Marking Indicated by Quotation Marks (" ").	Qty.
I-1	Pilot Lamp, TS-47	1
V-1	6BR8A Tube	1
V-2	6BK7B Tube	1
V-3, V-4	12AT7 Tubes	2
V-5	6X4 Rectifier Tube	1
V-6	6C4 (Used as high voltage rectifier)	1
V-7	3AQP1 Cathode Ray Tube (CRT)	1
	Clamp for base of CRT	1
	Cork tape, 4 1/2-inch length	1
	Green Graph Screen	1
	Hex nuts, #6	3
	Lockwashers, #6, internal tooth	3
	Machine screws, #6-32 x 1/4-inch long	2
	Machine screw, #6-32 x 3/4-inch long	1
	Metal shield for CRT, tubular	1

Illustrations: Figure 11; Figure 11, Detail A; Figure 11A; Figure 11B.

Steps 1 through 28. Check (✓) each step as it is completed.

- ( ) Align socket for CRT as shown in Figure 11, Detail A.
- ( ) Connect the open end of the orange wire from CRT socket, lug #3 to R-73, lug #2 as shown in Figure 11, Detail B.
- ( ) Connect open end of yellow wire from CRT socket, lug #4 to R-71, lug #2. (S)
- ( ) Connect the open end of the yellow wire from hole #38 on the laminated circuit board to CRT socket, lug #6. (S)
- ( ) Connect the open end of the violet wire from board hole #39 to CRT socket, lug #7. (S)
- ( ) Connect the open end of the white wire from board hole #36 to CRT socket, lug #9. (S)
- ( ) Connect the open end of the gray wire from board hole #35 to CRT socket, lug #10. (S)
- ( ) Group together the five wires from R-73 about 1/2-inch behind R-73, and tie a knot around them with a piece of unused hookup wire.
- ( ) Dress the orange, white and yellow wires from the knot across to R-71. Group them together with the orange and yellow wires from R-71, and use another piece of hookup wire to tie them together.
- ( ) Tie another knot around the wires about half-way back to the rear of the chassis.
- ( ) Pull the white backing from the 4 1/2-inch length of cork tape, and wrap the tape around the bakelite CRT base. Trim if necessary so that the ends do not overlap.
- ( ) Insert neck of CRT into and through the metal shield, with the slotted-end of the shield away from the face of the CRT.
- ( ) Slip the CRT clamp around the shield, with the ears and lugs to the rear.
- ( ) Insert a #6-32 x 1/4-inch long machine screw through the clamp, and place a #6 lockwasher and nut on the screw. Do not tighten.
- ( ) Clean the green graph-screen with a soft cloth, and insert it into the rear of the rubber bezel so that it can be read properly from the front of the scope.
- ( ) Clean the face of the CRT with a soft cloth, and insert it into the bezel, as shown in Figure 11B. Lower into position.
- ( ) Align the CRT-clamp holes with the holes in the rear chassis, and fasten securely with two #6-32 x 1/4-inch long machine screws, #6 lockwashers, and nuts.
- ( ) Press the socket onto the CRT base, applying pressure against the face-end of the CRT with the other hand. Rock the socket back-and-forth until it is fully seated.
- ( ) Rotate the CRT and socket so the socket is in the position shown in Figure 11, Detail A. Lugs #1 and #7 should be in line vertically.
- ( ) Adjust the bezel and green graph screen into final position, and press the CRT forward to seat it snugly in the bezel against the green graph screen. Tighten the CRT clamp only enough so that the CRT cannot be rotated easily by hand.
- ( ) Insert the 6X4 tube into the bottom socket on the rear chassis.
- ( ) Insert the 6C4 tube into the upper socket in the rear chassis.
- ( ) Insert the 12AT7 tubes into the laminated circuit board sockets marked "12AT7".
- ( ) Insert the 6BK7B tube into the laminated circuit board socket marked "6BK7B".
- ( ) Insert the 6BR8A tube into the remaining laminated circuit board socket.
- ( ) Insert the pilot lamp into the pilot lamp socket on the front panel, and twist it so that it locks in place.
- ( ) Examine the upright tubular capacitors on the laminated circuit board to make sure they do not touch the CRT shield.
- ( ) Inspect work. All wiring on the scope is completed. All wires and components should be connected at both ends. All connections should be soldered. No adjacent lugs or terminals should be accidentally touching. The body or uninsulated leads of any components must not touch other components. This is the final inspection, so examine each part and each terminal carefully.

WORK AREA



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