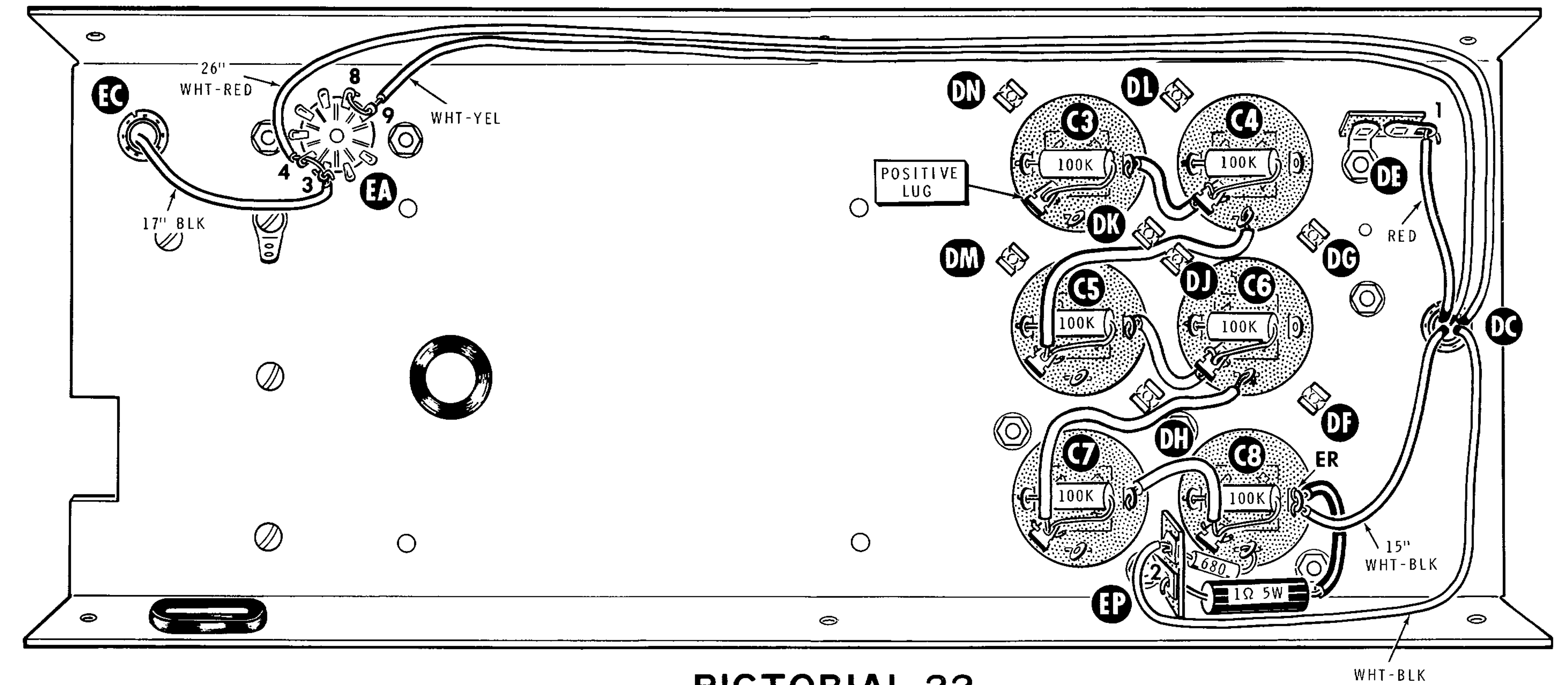
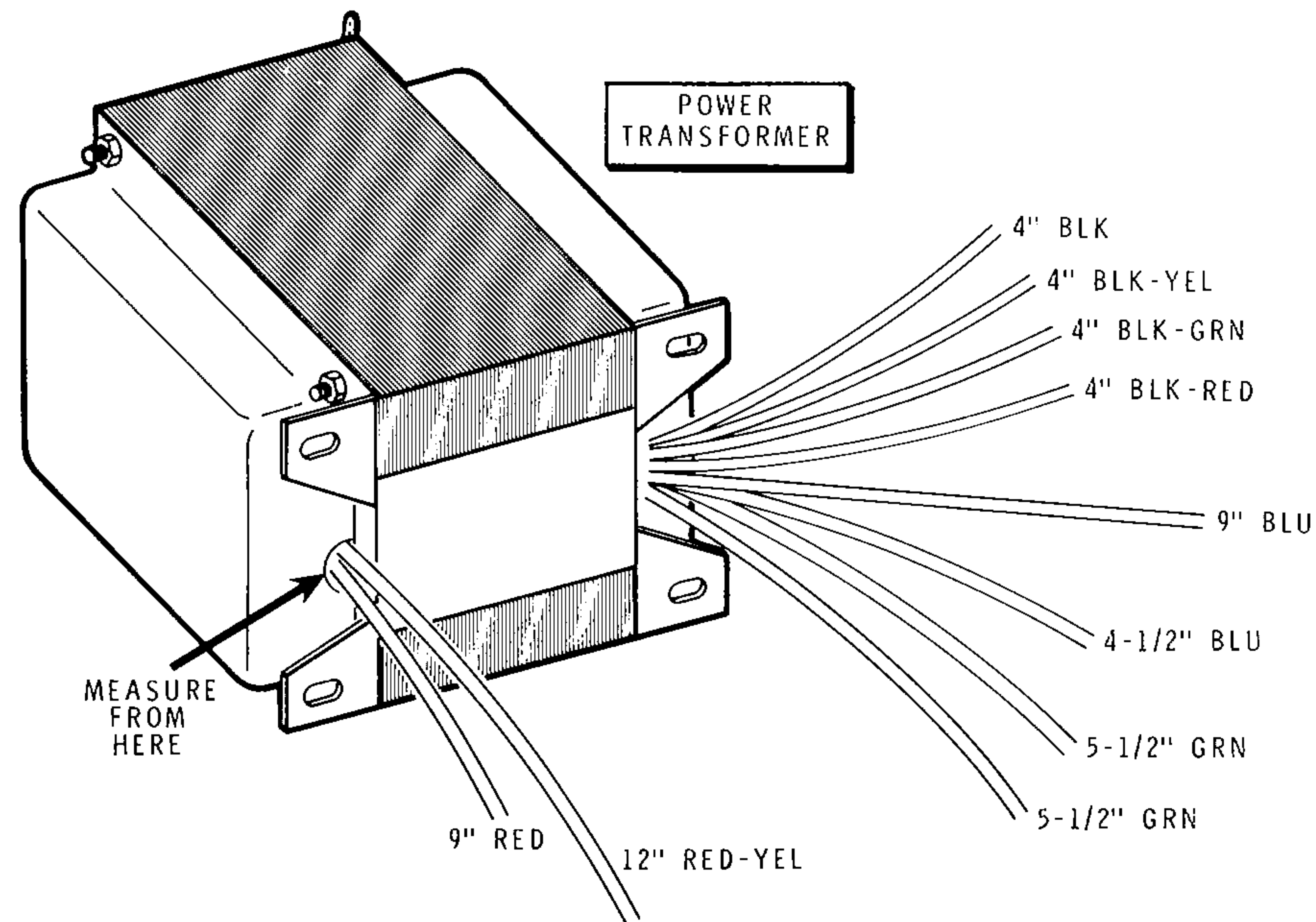


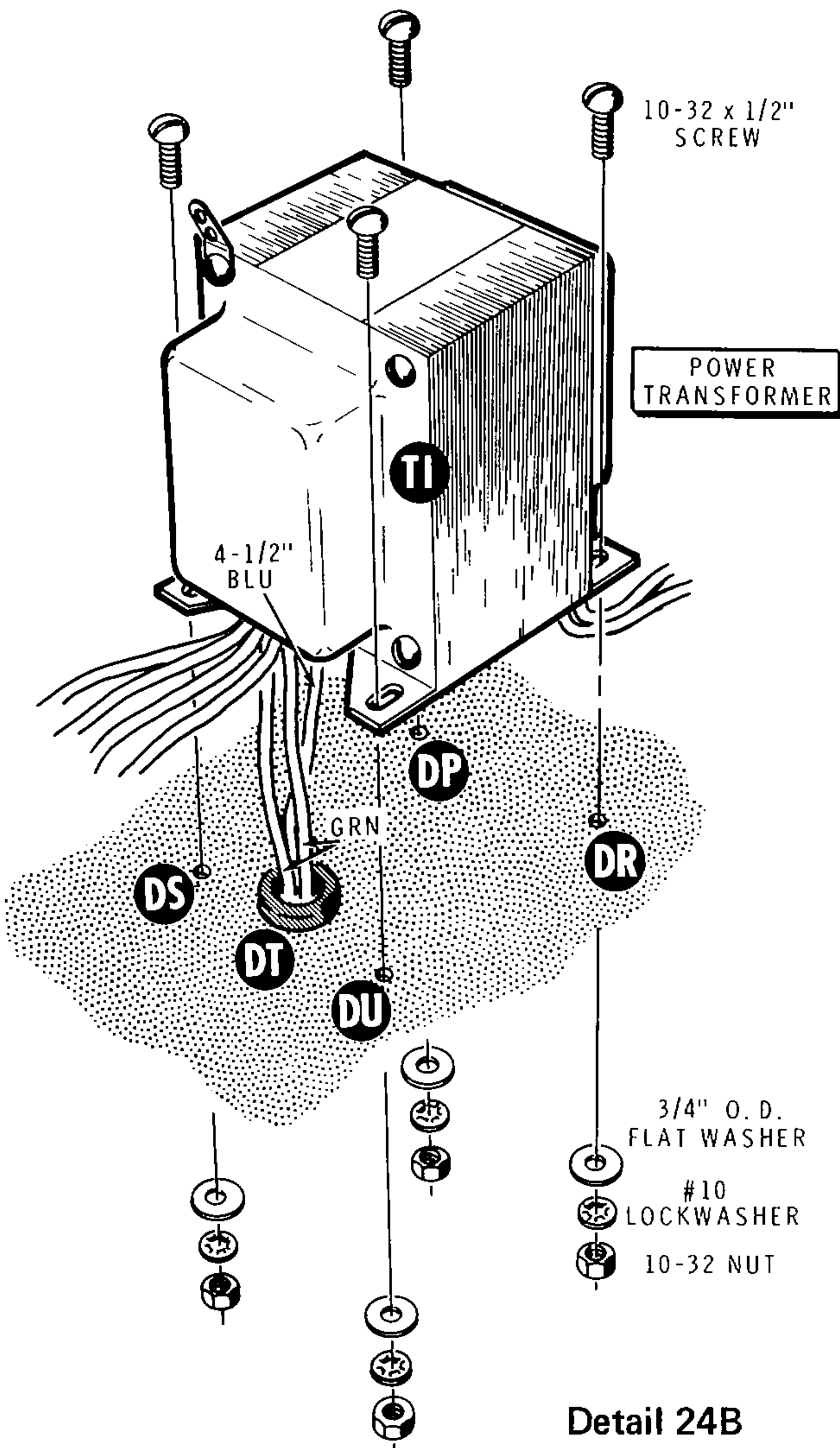
PICTORIAL 23



PICTORIAL 22



Detail 24A



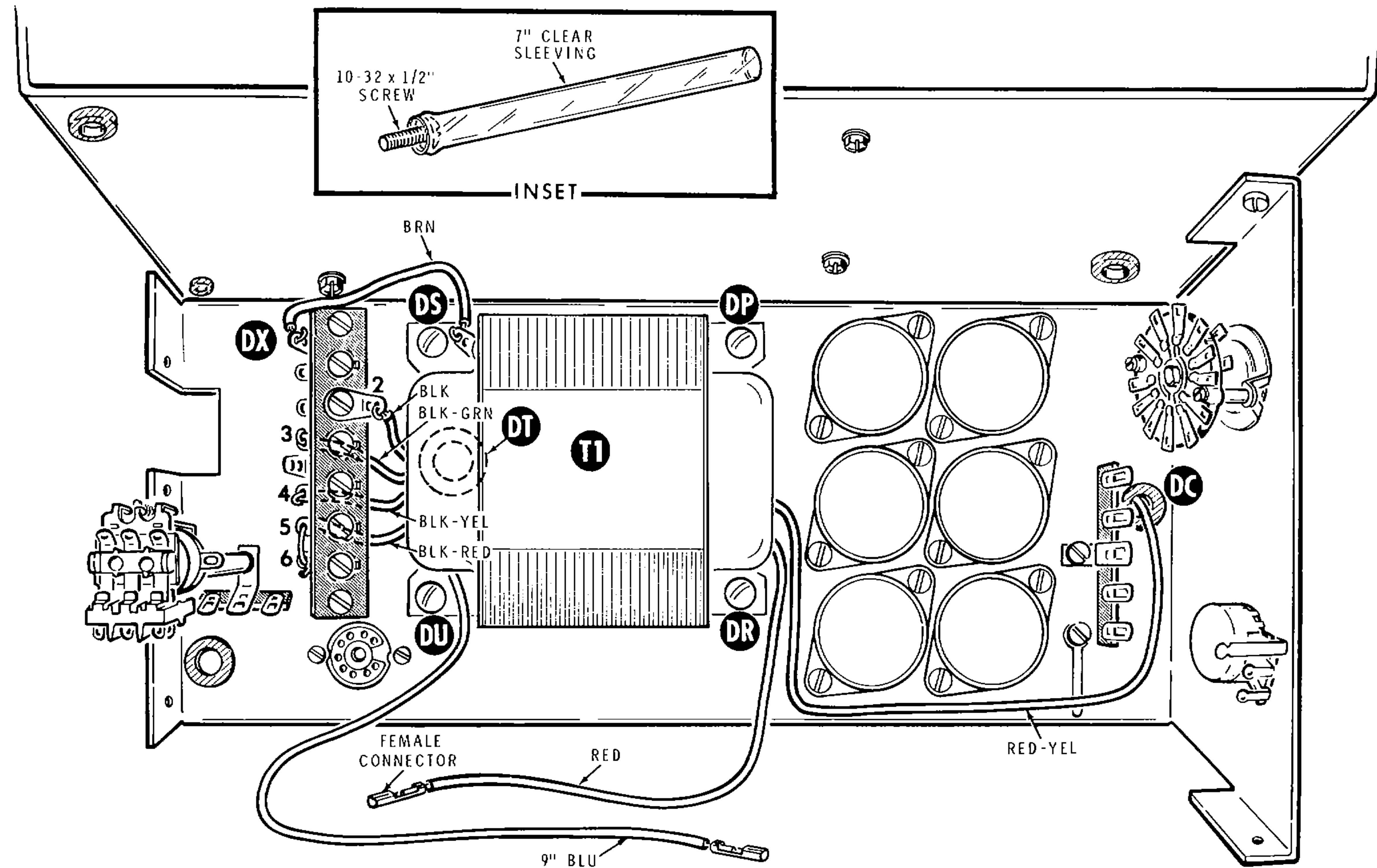
Detail 24B

Refer to Pictorial 24 (fold-out from this page) for the following steps.

- () Refer to Detail 24A and cut the leads of the power transformer to the following lengths. Measure all leads from where they exit from the end bells. After cutting the leads, remove 1/4" of insulation from the end of each lead. If the stranded leads are not solder coated, twist the fine strands together and melt a minimum amount of solder on each to prevent the strands from "straying" and possibly causing a short circuit.

Lead Color	Cut To:
Red	9"
Red/yellow	12"
Black	4"
Black/yellow	4"
Black/green	4"
Black/red	4"
One blue	9"
Other blue	4-1/2"
Both green	5-1/2"

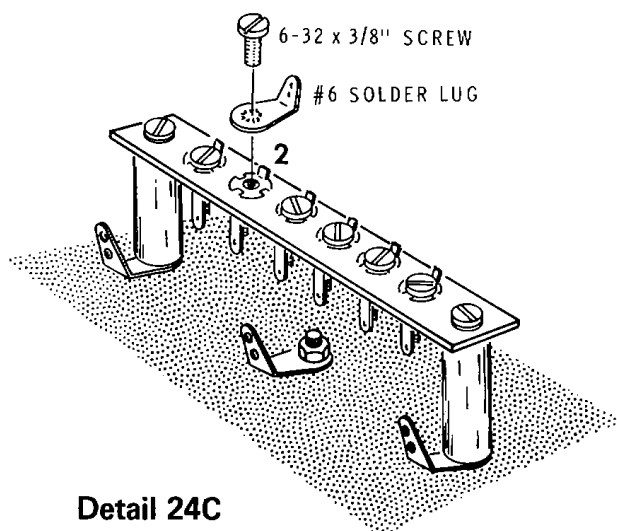
- () T1: Refer to Detail 24B and mount the power transformer at holes DP, DR, DS, and DU. At each hole, use a 10-32 x 1/2" screw, a 3/4" O.D. flat washer, a #10 lockwasher, and a 10-32 nut. As you lower the transformer into place, insert both green



PICTORIAL 24

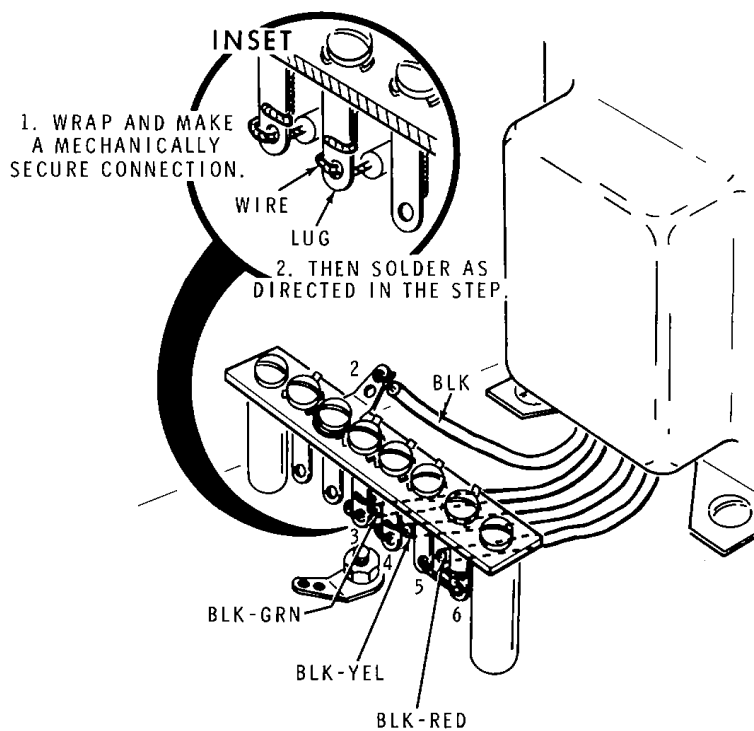
leads and the 4-1/2" blue lead down through grommet DT. NOTE: Insertion of the screws into holes DP and DS may be easier if you will refer to the inset drawing on the Pictorial and use the 7" length of clear sleeving as an aid for placing the screws. Save the sleeving for use later.

- () Check to make sure there are no transformer leads or other wires pinched under the transformer.
- () Solder a female connector to the end of the red transformer lead.
- () Solder a female connector to the end of the 9" blue transformer lead.
- () Bring the red/yellow lead around the end of the filter capacitors and push it down through grommet DC.



Detail 24C

- () Remove and discard the screw from lug 2 of the 6-screw terminal strip. Refer to Detail 24C and replace this screw with a #6 solder lug and a 6-32 x 3/8" screw. Turn the screw only halfway in.
- () Point the solder lug toward the transformer and solder the #6 solder lug to the terminal strip metal on the top of the terminal strip insulator. Try to keep the solder away from the screw threads (the screw is present during the soldering to maintain the correct alignment of the solder lug with the screw threads).

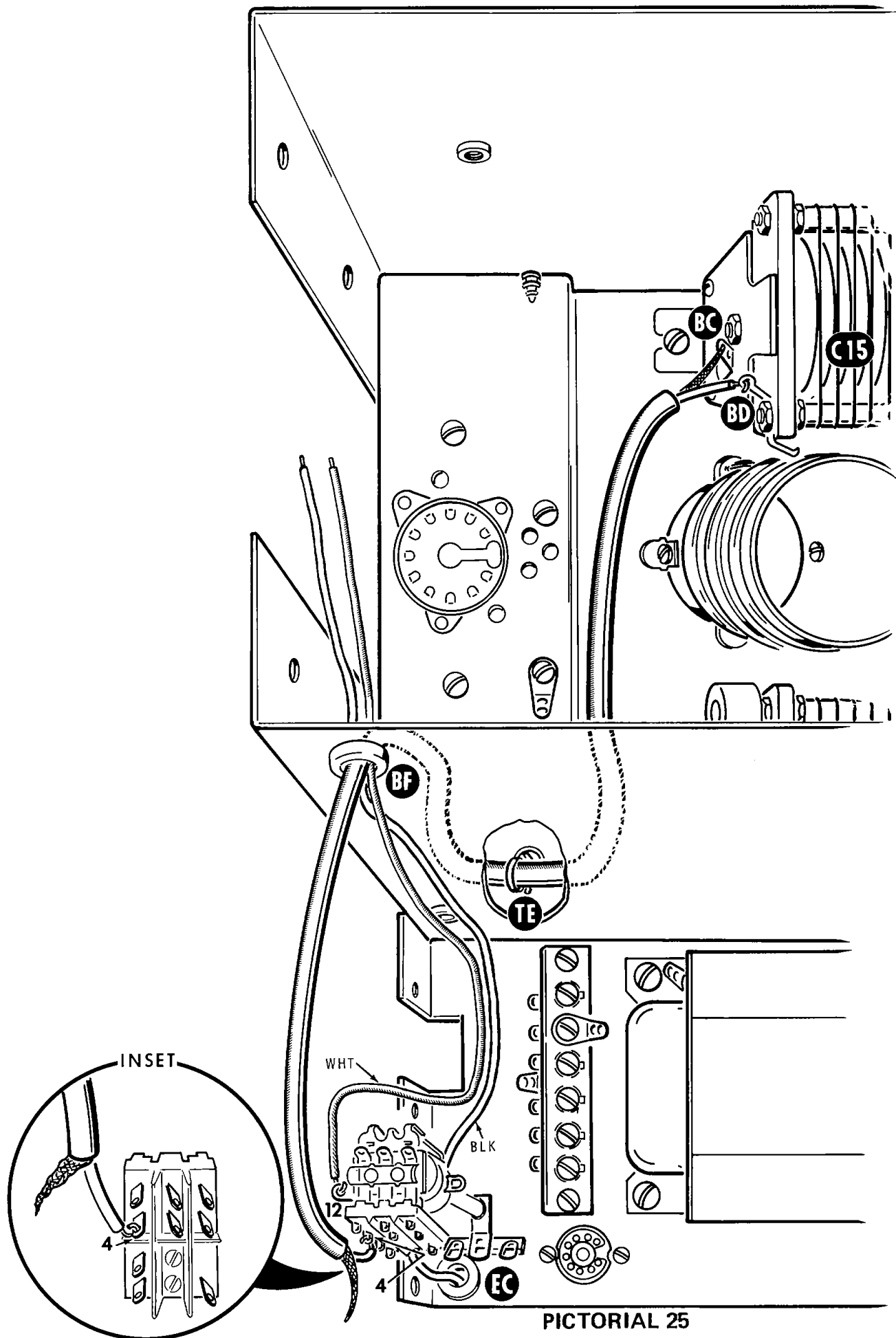


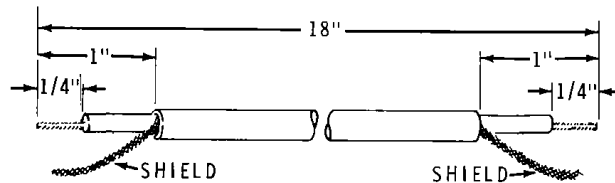
Detail 24D

Refer to Detail 24D and connect transformer primary leads to the solder lugs of the 6-screw terminal strip as follows. Make sure each connection is mechanically secure before you solder it. To make a mechanically secure connection, insert the wire through or wrap it around the lug or terminal, or both, before soldering. See the inset drawing.

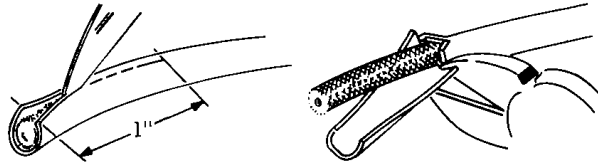
- () Remove an additional 1/2" of insulation from the black/red lead. Push this lead through lug 5 (S-3) to lug 6 (S-1).
- () Connect the black/yellow lead to lug 4 (S-2).
- () Connect the black/green lead to lug 3 (S-1).
- () Connect the black lead to the solder lug which was added to screw 2 (S-1).
- () Refer to Pictorial 24 and connect the brown wire coming from the solder lug under spacer DX to the solder lug on the transformer core bolt (S-1).



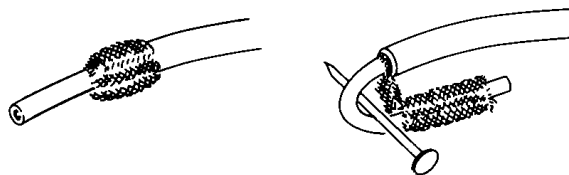
**PICTORIAL 25**



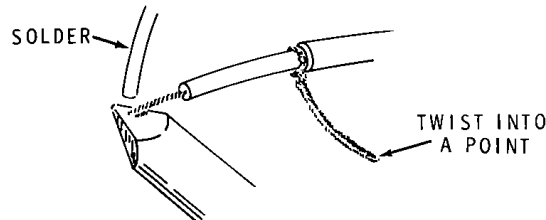
REMOVE THE OUTER INSULATION



PUSH BACK THE SHIELD, THEN MAKE AN OPENING IN THE SHIELD AND BEND OVER AS SHOWN. PICK OUT THE INNER LEAD.



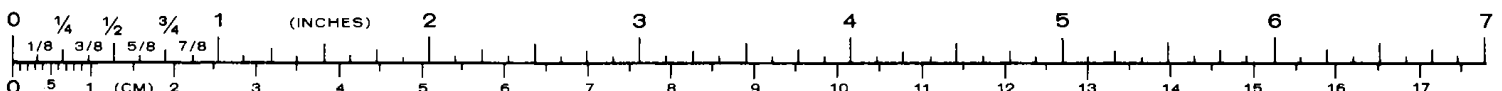
REMOVE THE INNER INSULATION AND STRETCH OUT THE SHIELD. APPLY A SMALL AMOUNT OF SOLDER TO THE END OF THE SHIELD AND INNER LEAD. USE ONLY ENOUGH HEAT FOR THE SOLDER TO FLOW.

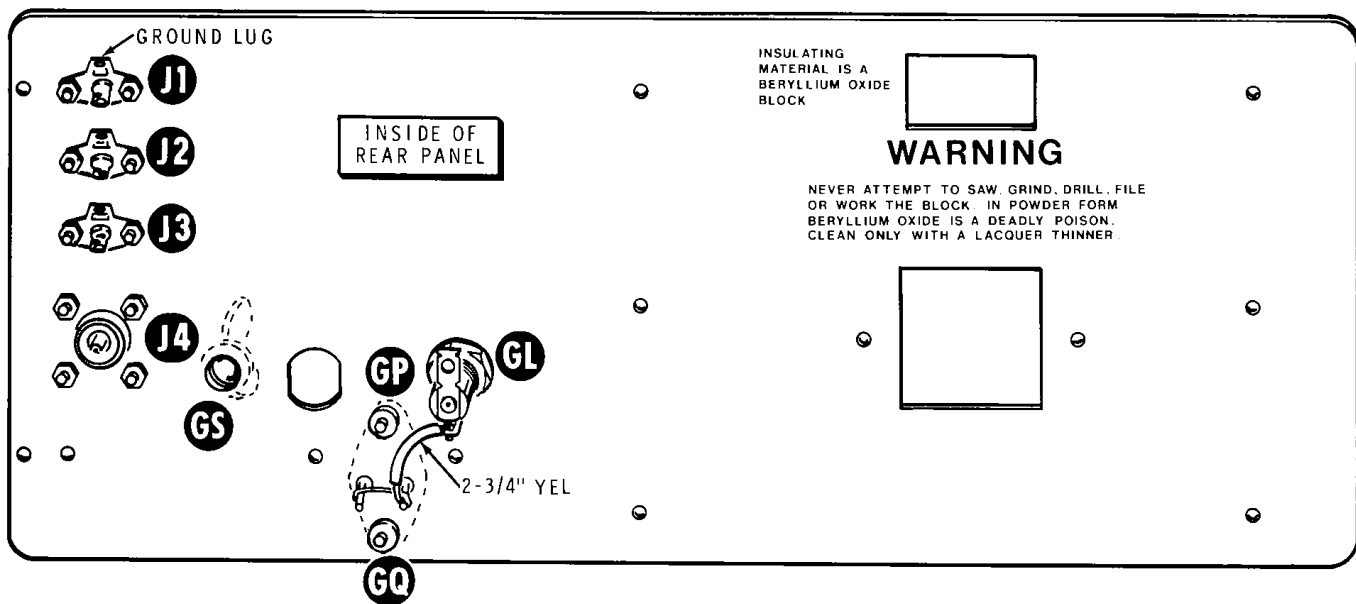


Detail 25A

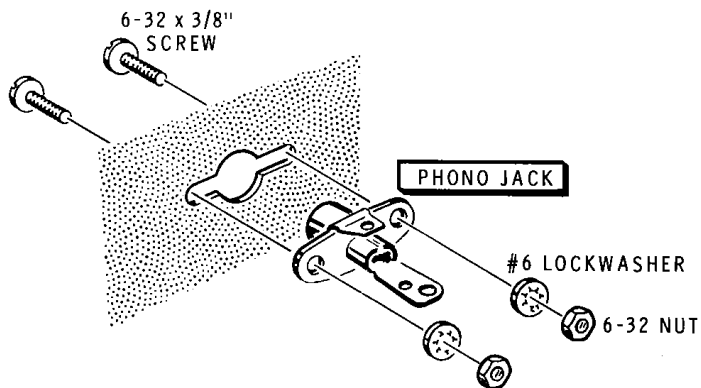
Refer to Pictorial 25 for the following steps.

- () Prepare a 16" white wire. Connect one end of this wire to relay lug 12 (S-4). Position this wire down against the chassis and push the other end through grommet BF into the RF enclosure.
- () Route the black wire (coming from grommet EC) under the relay, along the white wire, and through grommet BF as in the previous step.
- () Refer to Detail 25A and prepare an 18" coaxial cable.
- () At one end of the coaxial cable, connect the inner conductor to relay lug 4 (S-1). The shield wires will be connected later.
- () Push the other end of the coaxial cable through grommet BF into the RF enclosure. Bend the cable down and secure it by wrapping lug TE around the body of the cable. Then connect the inner conductor to loading capacitor C15 at solder lug BD. Use the lug to which the RF choke was soldered (S-1). Connect the shield wires to the solder lug at BC (S-2).

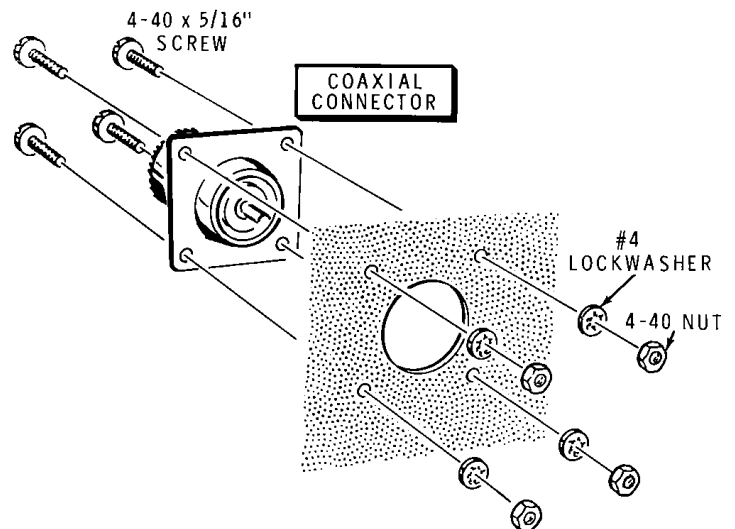




PICTORIAL 26



Detail 26A



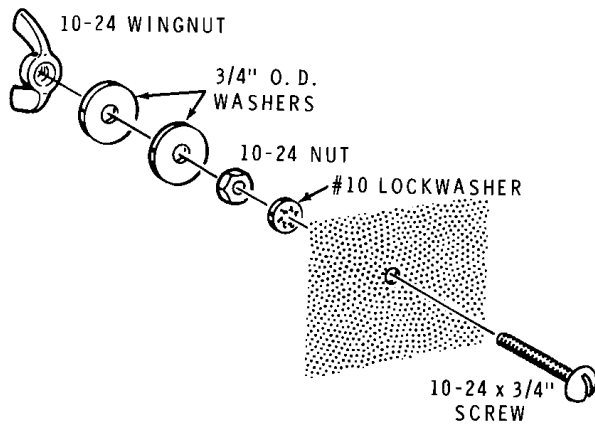
Detail 26B

Refer to Pictorial 26 for the following steps.

() J1, J2, J3: Refer to Detail 26A and install phono jacks at J1, J2, and J3 on the rear panel. Use 6-32 x 3/8" hardware at each mounting hole. Position the ground lug as shown.

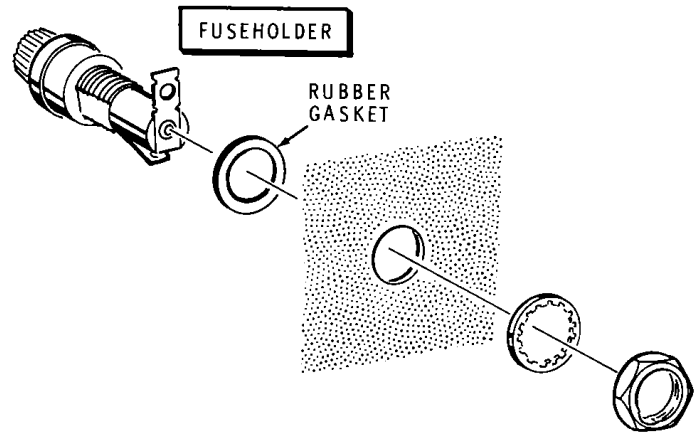
() J4: Refer to Detail 26B and install a coaxial connector at J4 on the rear panel. Use 4-40 x 5/16" hardware.





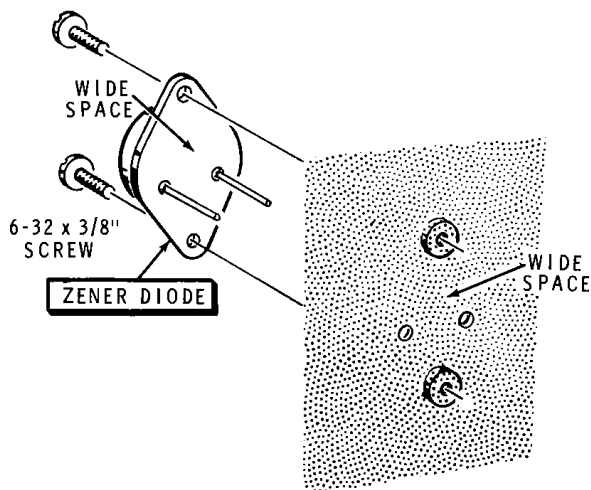
Detail 26C

- () Refer to Detail 26C and install a 10-24 x 3/4" screw, a #10 lockwasher, a 10-24 nut, two 3/4" O.D. flat washers, and a 10-24 wingnut at GS on the rear panel.



Detail 26E

- () Prepare a 2-3/4" yellow wire. Connect one end of this wire to the solder lug on the side of the fuseholder (S-1).
- () Remove an additional 1" of insulation from the free end of the yellow wire.
- () Connect the free end of this yellow wire to zener diode ZD1. Wrap the yellow wire around either diode pin (S-2) and then connect the wire to the remaining pin (S-1).



Detail 26D

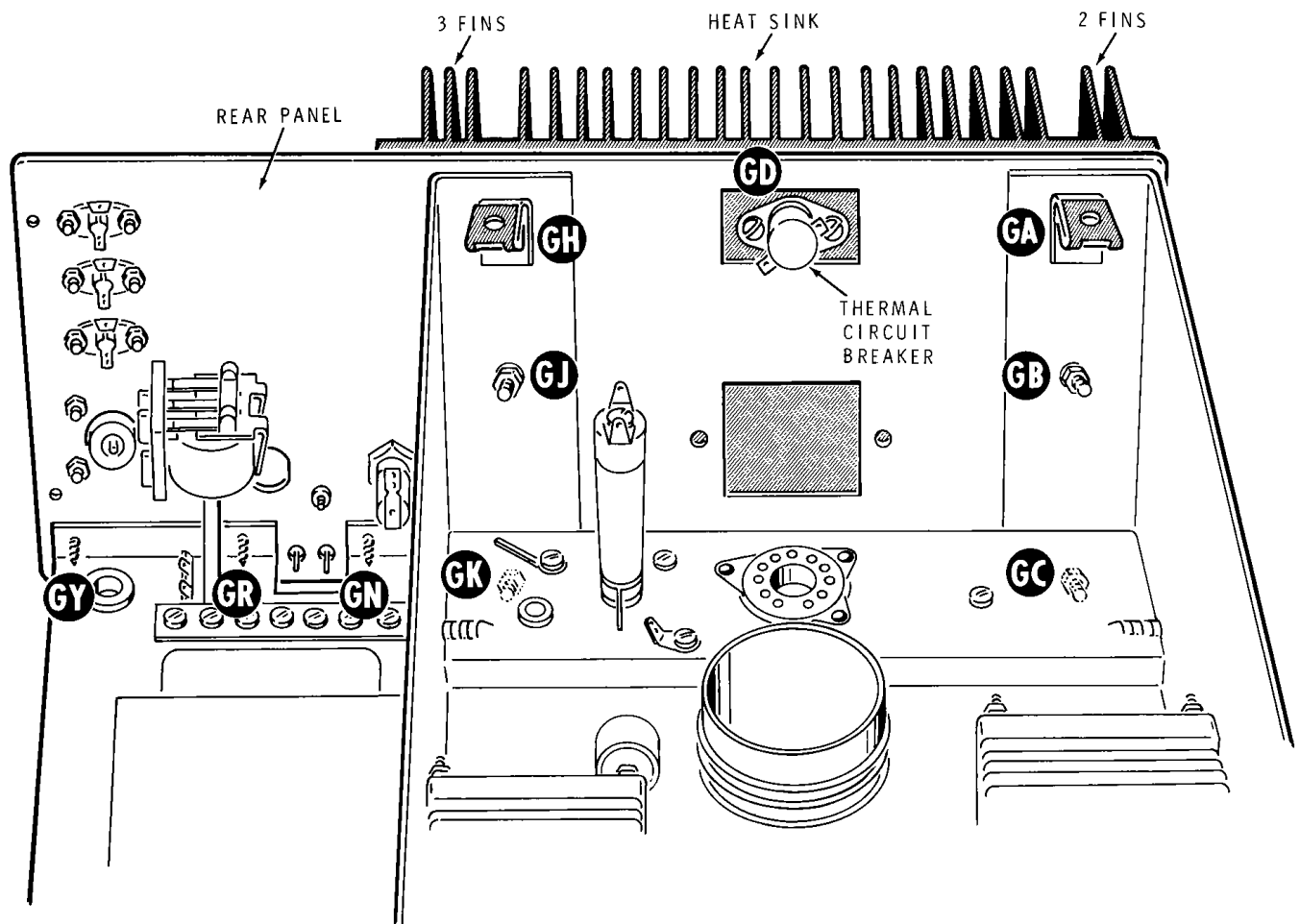
- () ZD1: Refer to Detail 26D and install a 1N2806A zener diode (#56-609) on the rear panel. Use 6-32 x 3/8" screws at GP and GQ.
- () Refer to Detail 26E and install the fuseholder at GL on the rear panel using the rubber gasket and the hardware supplied with the holder.
- () F1: Install the 3/4 ampere, slow-blow fuse in the fuseholder.

WARNING:

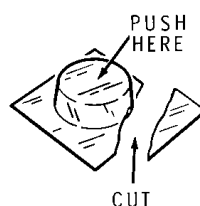
The thermal compound used in the following step (and later when mounting the amplifier tube) can be injurious to both your eyes and your clothes. It should be handled with utmost care.

KEEP THE COMPOUND AWAY FROM YOUR EYES. Wash your hands immediately after using the compound. Should you get any in your eyes, wash them out with water at once and get to a doctor as soon as possible.

KEEP THE COMPOUND OFF YOUR CLOTHES. If you get the compound on your clothes it may leave a permanent white stain.



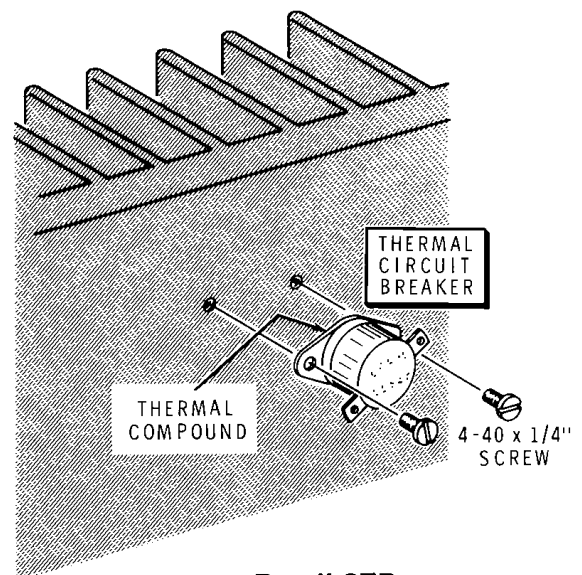
PICTORIAL 27



Detail 27A

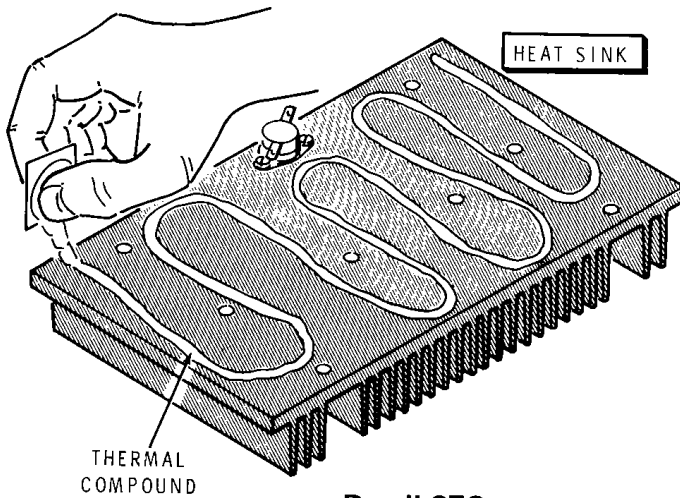
Refer to Pictorial 27 for the following steps.

- () Refer to Detail 27A and open one of the thermal compound pods by cutting across the corner and into the pod just enough to make a small opening. Use diagonal cutters or scissors.
- () Refer to Detail 27B and squeeze out an amount of thermal compound equal to a medium sized pea; then smear it evenly over the back of the thermal circuit breaker. **WASH YOUR HANDS.**



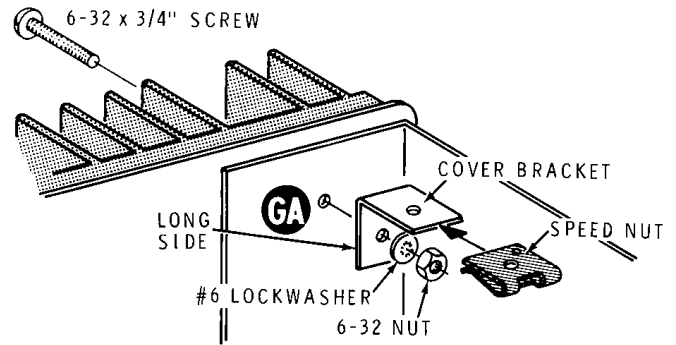
Detail 27B

- () TC1: Refer to Detail 27B and mount the thermal circuit breaker on the heat sink at the location shown. Use 4-40 x 1/4" screws. If you get any of the thermal compound on your fingers while mounting the thermal circuit breaker, wash your hands again.



Detail 27C

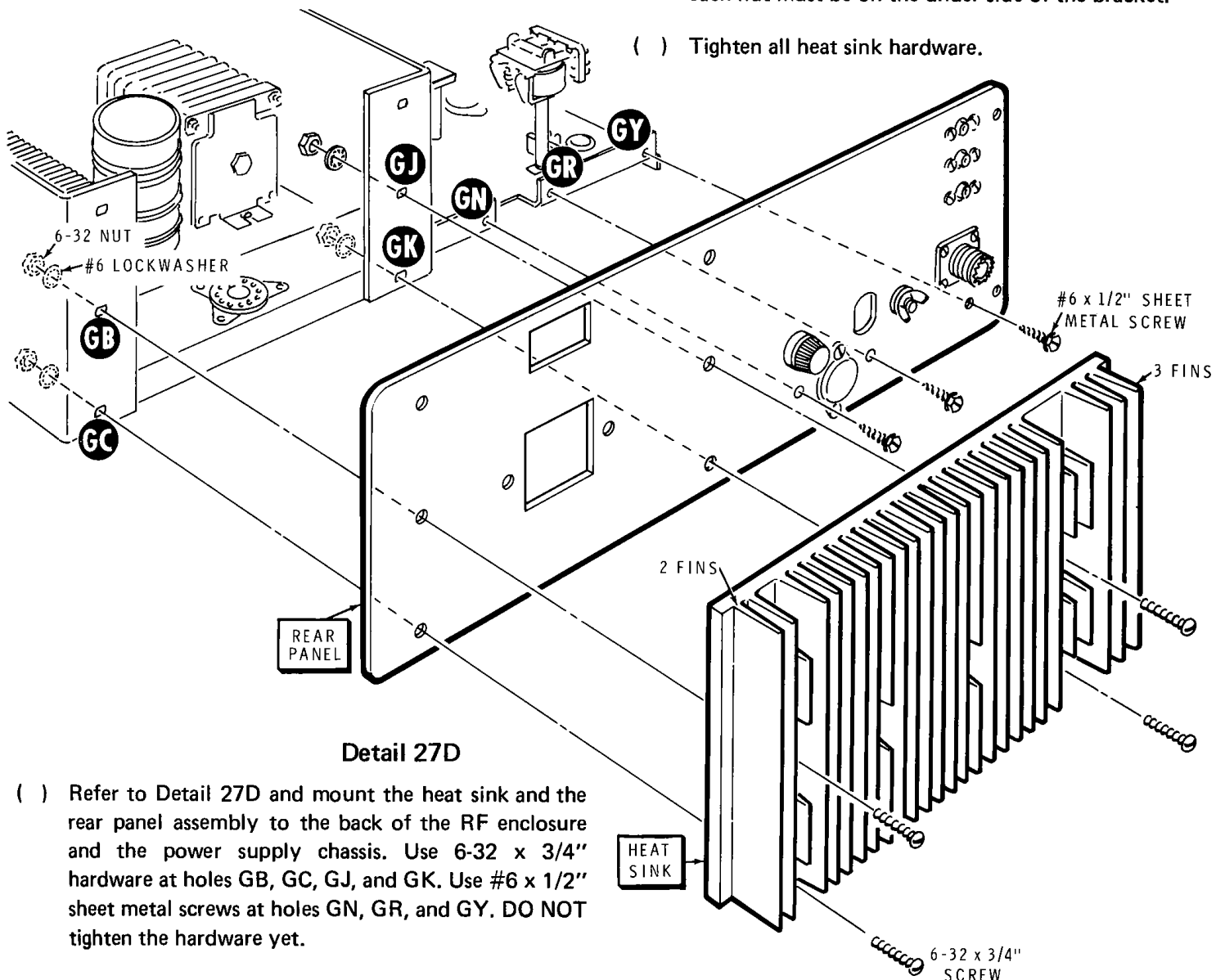
- () Refer to Detail 27C and make lines of thermal compound on the face of the heat sink. DO NOT use more than two pods. KEEP the compound at least 1/2" from the holes in the heat sink.



Detail 27E

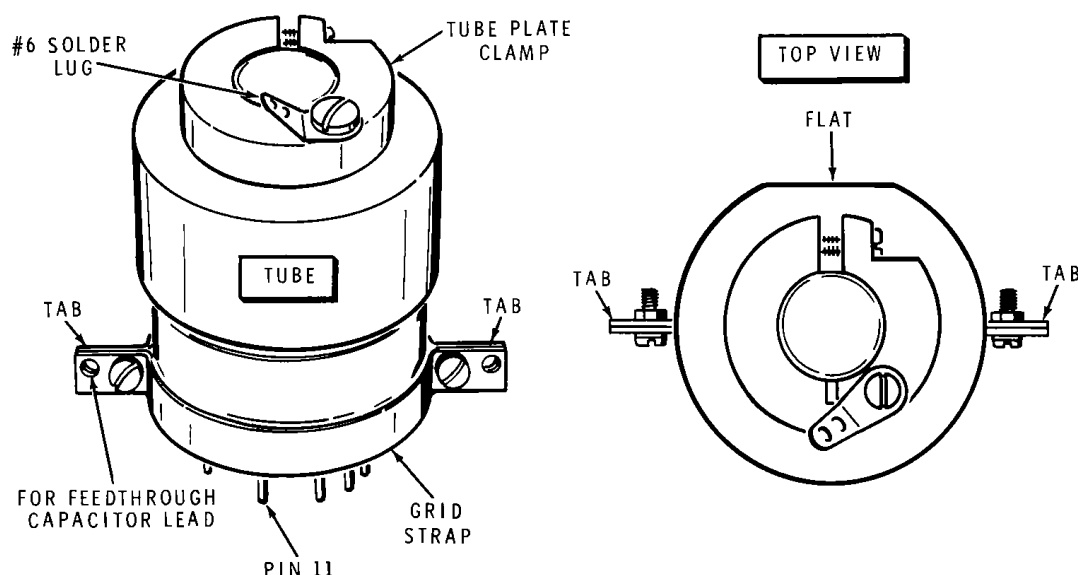
Refer to Detail 27E for the following two steps.

- () Mount cover brackets at GA and GH. Use 6-32 x 3/4" hardware. Position the long side as shown.
- () Push a 6-32 Speed Nut onto each bracket so the holes in the nuts and brackets are aligned. The curved lip of each nut must be on the under side of the bracket.
- () Tighten all heat sink hardware.

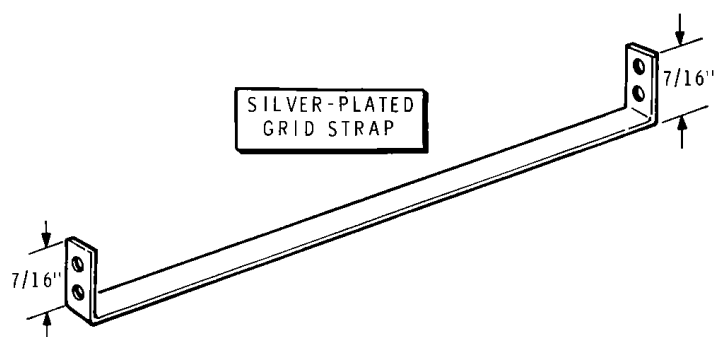


Detail 27D

- () Refer to Detail 27D and mount the heat sink and the rear panel assembly to the back of the RF enclosure and the power supply chassis. Use 6-32 x 3/4" hardware at holes GB, GC, GJ, and GK. Use #6 x 1/2" sheet metal screws at holes GN, GR, and GY. DO NOT tighten the hardware yet.



PICTORIAL 28

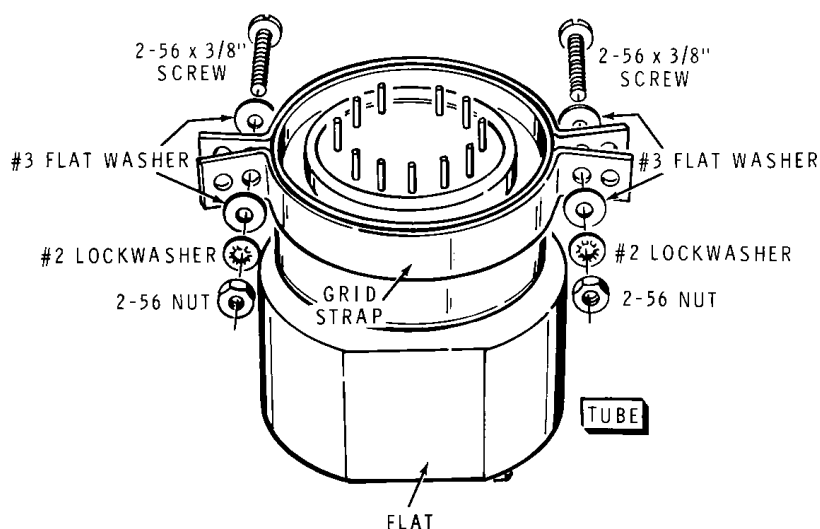


Refer to Pictorial 28 for the following steps.

- () Remove the type 8873 tube from its package. **HANDLE THE TUBE CAREFULLY**—it is expensive.

Refer to Detail 28A for the following two steps.

- () Bend $7/16''$ of each end of the two silver-plated grid straps (#212-45) as shown.
- () Form the silver-plated grid straps around the grid ring of the tube. Use 2-56 x $3/8''$ hardware. Place the protruding tabs so they are positioned as shown in Pictorial 28 and tighten the hardware.



Detail 28A

Refer to Detail 28B for the next two steps.

- () Mount a #6 solder lug on the tube plate clamp. Use a 6-32 x $1/4''$ screw. Position the solder lug as shown.
- () Start a 3-48 x $7/16''$ brass screw into the tube plate clamp. Place the plate clamp on the tube with the opening in the clamp toward the flat on the tube. Then tighten the screw.

BERYLLIUM OXIDE CERAMIC BLOCK

CAUTION:

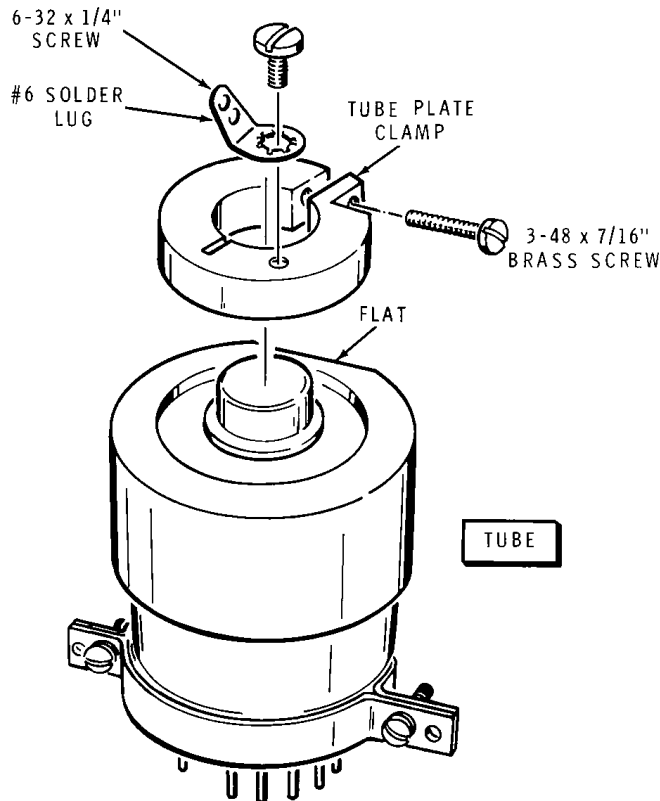
Dust and fumes of Beryllium Oxide are **DEADLY POISONOUS** and should not be inhaled or brought into contact with the skin or eyes.

Do not perform any dust-producing operations (drilling, chipping, crushing, sawing, or filing) on the block.

Do not heat it over 1,000°C (unit operation will not exceed 400°C).

Wash hands after handling.

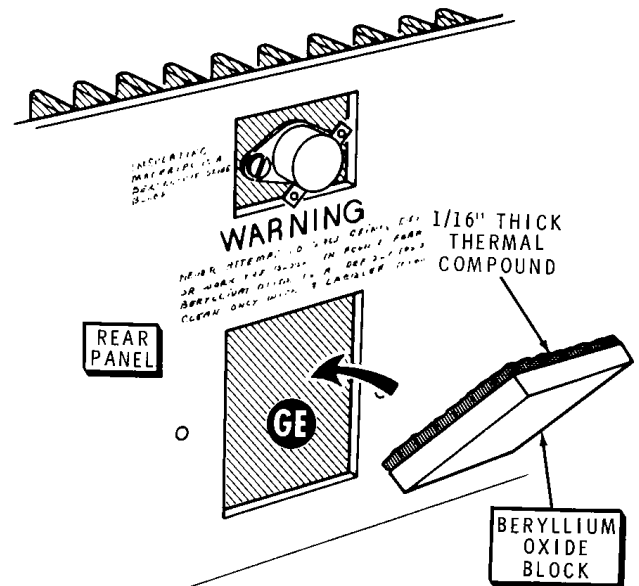
If it is dropped, remove any chips and dust with a wet towel, which should be discarded in a sealed plastic bag — do not sweep or vacuum.



Detail 28B

Refer to Pictorial 29 (fold-out from Page 71) for the following steps.

- () Refer to Detail 29A and carefully remove the beryllium oxide block from its packaging. Apply a 1/16" thick coating of thermal compound to one side. Then place this side against the heat sink at opening



Detail 29A

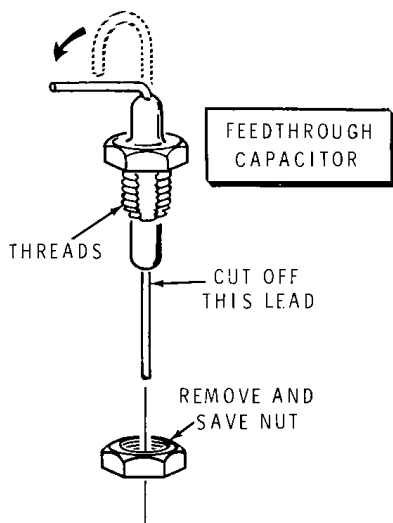
GE in the rear panel. Rotate the block back and forth slightly to insure adequate contact between the beryllium block, the compound, and the heat sink.

- () Coat the flat side of the tube with a 1/16" thick coating of thermal compound.
- () V1: Insert the tube into its socket. As you seat the tube, wiggle it against the beryllium oxide block so the thermal compound will form a solid bond with the beryllium oxide block.
- () WASH YOUR HANDS.

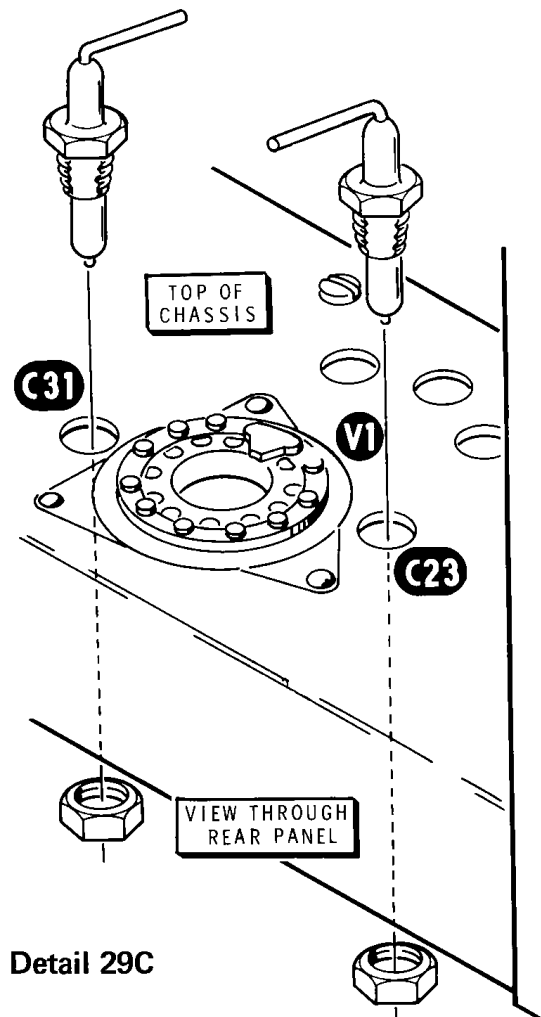


NOTES:

1. Be very careful when forming the lead and mounting each feedthrough capacitor in the following steps, as the ceramic body can be broken.
2. In the two following steps, turn the nuts finger tight only, as the position of the two capacitors will be adjusted later.



Detail 29B



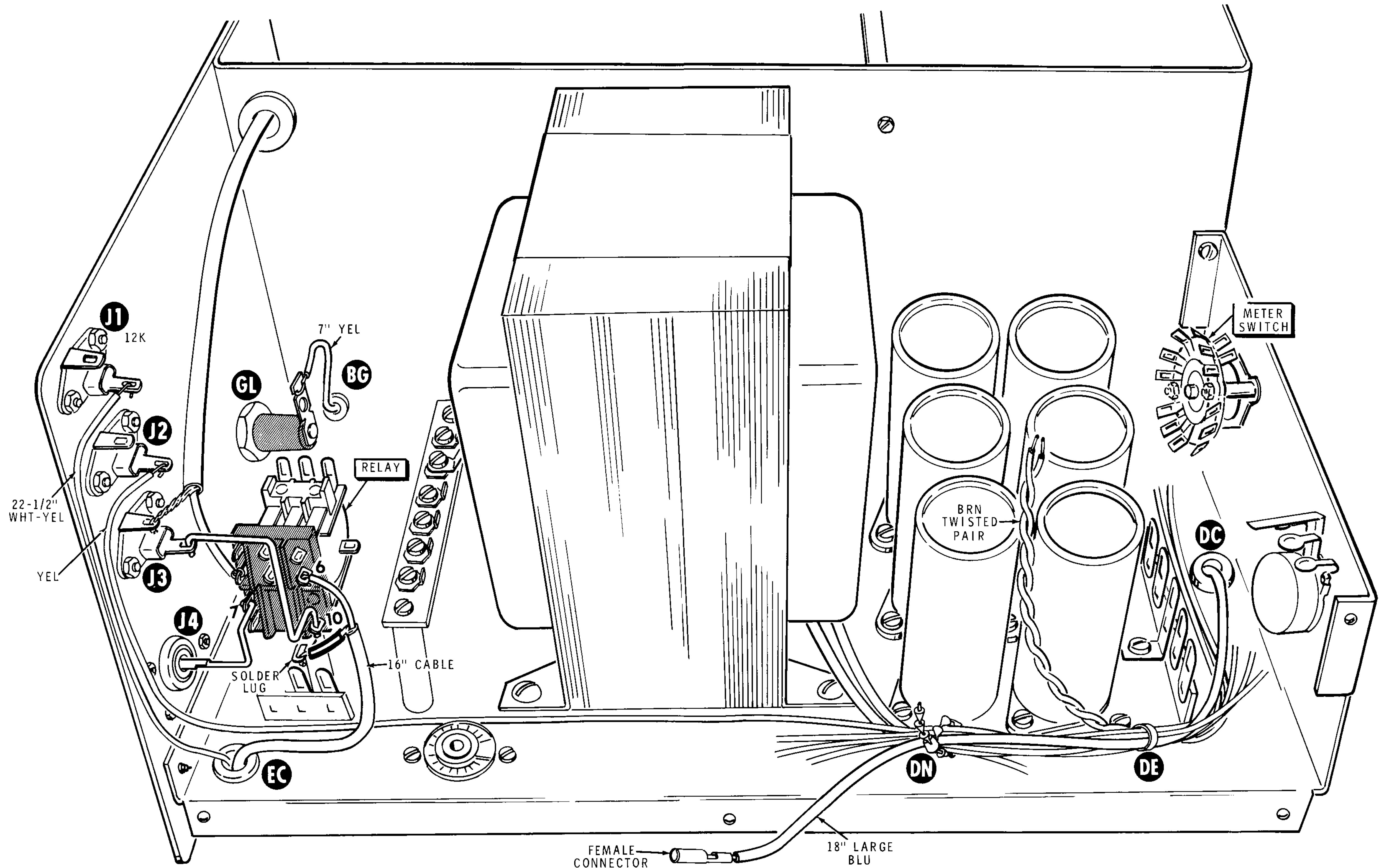
Detail 29C

- () Refer to Detail 29B and, at the end opposite the threads, carefully straighten and bend the lead of each feedthrough capacitor as shown.
- () Cut off the lead at the threaded end of each capacitor.
- () Remove the nut from each feedthrough capacitor.
- () C23: Refer to Detail 29C and insert one of the feedthrough capacitors into hole C23 from the top of the rear of the chassis, as shown. Secure the capacitor on the bottom of the chassis with the nut removed in the preceding step.
- () C31: Similarly, mount the other feedthrough capacitor in hole C31, except that the bent lead should point toward the front of the chassis.

Refer to Detail 29D for the next five steps.

- () From the back of the heat sink, insert 8-32 x 3" screws into holes GF and GG. Start these screws into the two tapped holes of the tube mounting bracket.

- () Insert the small tip of the white insulator (#75-701) into the center hole of the tube mounting bracket and the other end of the insulator against the tube body. Then tighten the two long screws until the tube mounting bracket just starts to bow.
- () Solder one tab on the grid strap to the lead of capacitor C23.
- () Solder the other tab on the grid strap to the lead of capacitor C31.
- () After the solder has cooled, tighten the nuts on the two feedthrough capacitors.
- () Refer to Detail 29E and prepare a ferrite bead assembly:
 1. Bend down 1/4" of the end of a 3" bare wire.
 2. Thread two ferrite beads onto the wire.
 3. Bend a 1/8" "dog leg" to retain the beads at one end of the wire.



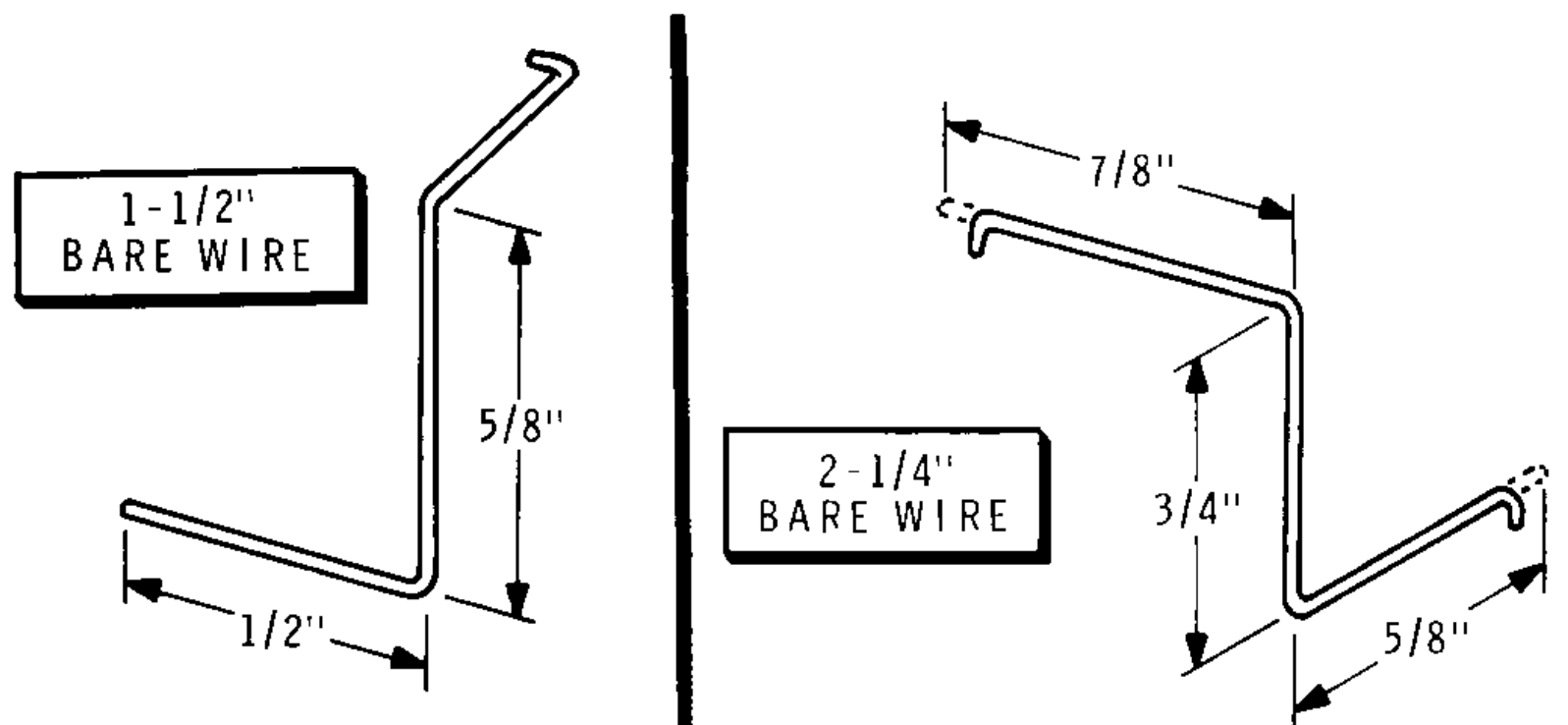
PICTORIAL 30

Refer to Pictorial 30 (fold-out from this page) for the following steps.

- () Prepare a 7" yellow wire. Connect one end of the wire to the solder lug on the end of the fuseholder (S-1). Push the other end of the wire through grommet BG.

CAUTION: To avoid damage to the relay solder lugs, form and fit the bare wires in the following steps before you solder either end.

- () Refer to Detail 30A, form a 1-1/2" bare wire to connect coaxial fitting J4 (S-1) to relay lug 7 (S-2). At the relay, form the wire so it touches the relay lug and the resistor lead.



Detail 30A

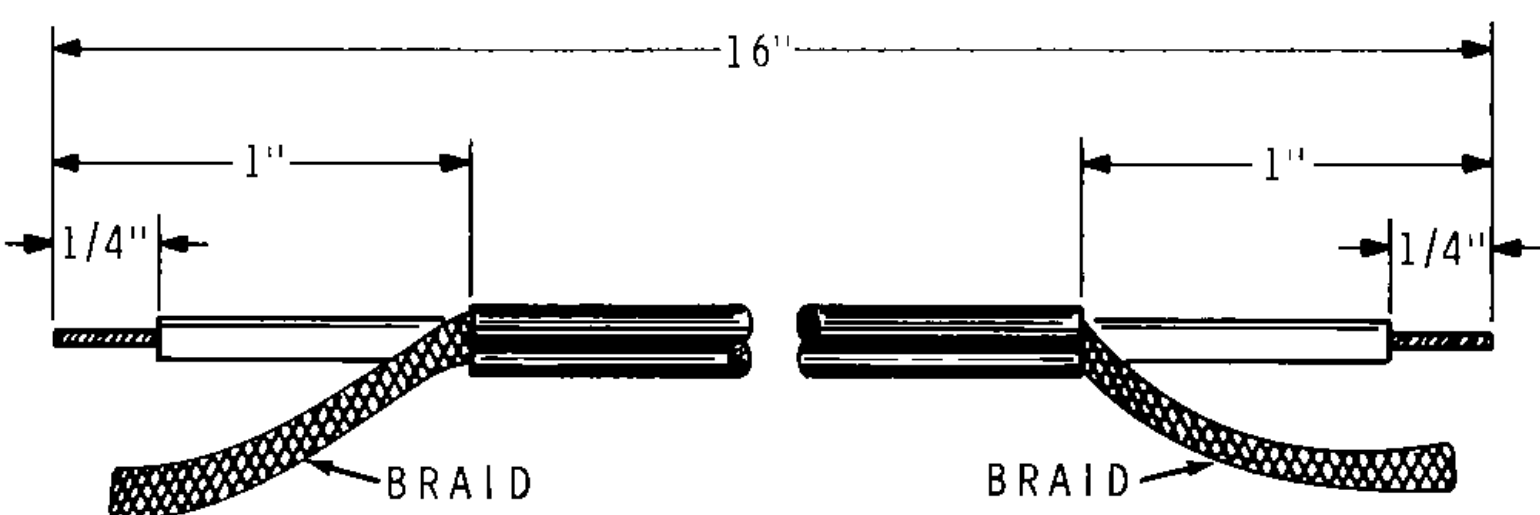
Detail 30B

- () Refer to Detail 30B and form a 2-1/4" bare wire to connect relay lug 10 (S-1) to phono socket J3 at its center terminal (S-1).

- () Connect the twisted shield wires of the coaxial cable to phono socket J3 at its ground lug (S-1). Cut off any excess shield braid. Make sure the shield wires clear the center terminal of the phono socket by at least 1/4".

- () Connect the yellow wire coming from the meter switch to phono socket J2 at its center terminal (S-1).

- () Prepare a 22-1/2" white-yellow wire. Connect one end of this wire to phono socket J1 at its center terminal (S-1). Push the other end of the wire down through grommet EC.

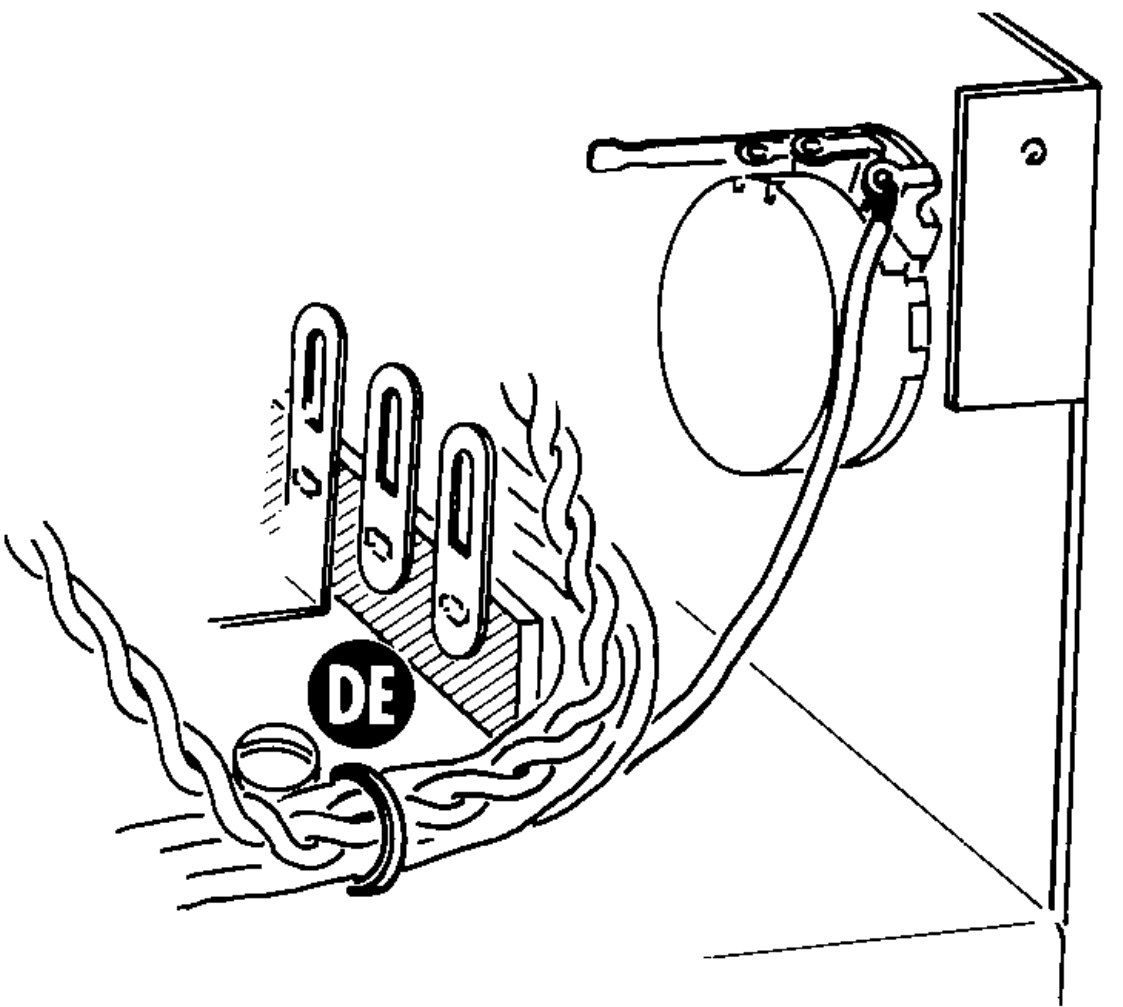


Detail 30C

- () Refer to Detail 30C and prepare a 16" length of coaxial cable.

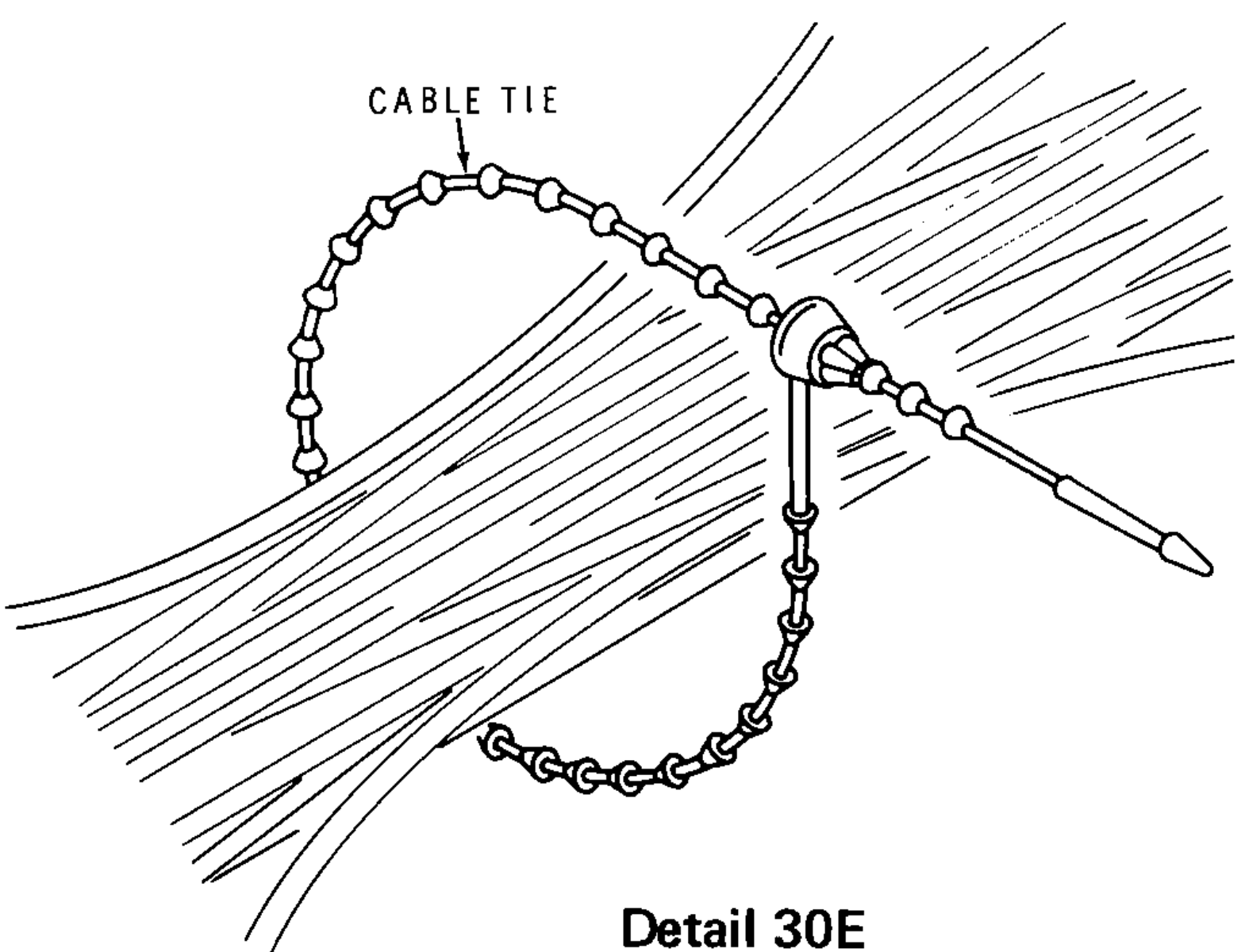
- () At one end of the cable, connect the inner conductor to relay lug 6 (S-1). Push the shield wires through a 1/2" length of small clear sleeving and connect the wires to the solder lug between the spacer and the relay (S-1). Push the other end of the cable down through grommet EC.

- () Prepare an 18" large blue wire and solder a female connector on one end. Position this end of the wire over the long lug at DE. Push 5" of the other end of this wire down through grommet DC.



Detail 30D

- () Refer to Detail 30D and bend the long lug at DE so it encircles all the wires which pass it, including the brown twisted pair.



Detail 30E

- () Refer to Detail 30E and place a cable tie around all the wires at DN. Pull the tie up snugly and cut off all but 1/4" of the excess tie length.

Refer to Pictorial 31 (fold-out from this page) for the following steps.

- () Prepare two 7" small brown (tinned) wires. Form a twisted pair.
- () Connect the wires at one end of the twisted pair to socket EA, lugs 1 (S-1) and 6 (S-1).
- () Push the other end of the twisted pair through grommet EN and connect it to terminal strip TE, lugs 1 (NS) and 2 (NS).
- () Connect the blue wire coming from grommet DT to the solder lug at DZ (S-1).
- () Form a twisted pair from the two green wires coming from grommet DT. Push the twisted pair through grommet EN.
- () Connect one wire of the green twisted pair to terminal strip TE lug 2 (S-3), and connect the other wire to lug 1 (S-3).
- () Push the white-yellow wire coming from grommet EC through grommet EN. Position this wire in the chassis corners and connect it to terminal strip TA lug 6 (S-3).
- () Push the white wire coming from grommet EC through grommet EN and connect it to terminal strip TC lug 2 (NS).
- () Push the violet wire coming from grommet DC through grommet EN and connect it to terminal strip TC lug 2 (S-2).
- () Push the white-blue wire coming from grommet DC through grommet EN and connect it to terminal strip TC lug 1 (S-2).
- () Twist the long lug at BR around the violet, white-black, and white-blue wires to hold them in place.

Refer to Pictorial 32 for the following steps.

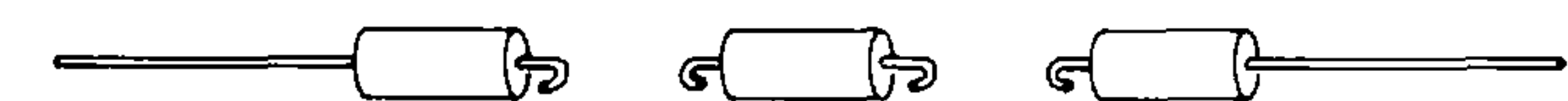
- () Push the coaxial cable coming from grommet EC through grommet EN, between terminal strip TC and the chassis lip, and under the ends of the two terminal boards. Connect the cable to terminal strip TA: the shield wires to the lower hole of lug 3 (S-1) and the inner conductor to the lower hole of lug 1 (S-1).

- () Connect the yellow wire coming from grommet BG to terminal strip TD lug 4 (S-3).
- () Push the large blue wire coming from grommet CL through grommet EN and connect it to capacitor C3 lug ES (NS).
- () Connect the large blue wire coming from grommet DC to capacitor C3 lug ES (NS). Pull any excess wire back through grommet DC.
- () Connect the red-yellow wire coming from grommet DC to capacitor C6 lug ET (S-3).
- () R15: Connect a 100 k Ω (brown-black-yellow) resistor to terminal strip DE between lugs 1 (S-1) and 2 (NS).
- () Refer to Detail 32A and prepare a 3-megohm resistance assembly from three 1 megohm, 2-watt (brown-black-green) resistors and a 3" length of large clear sleeving.

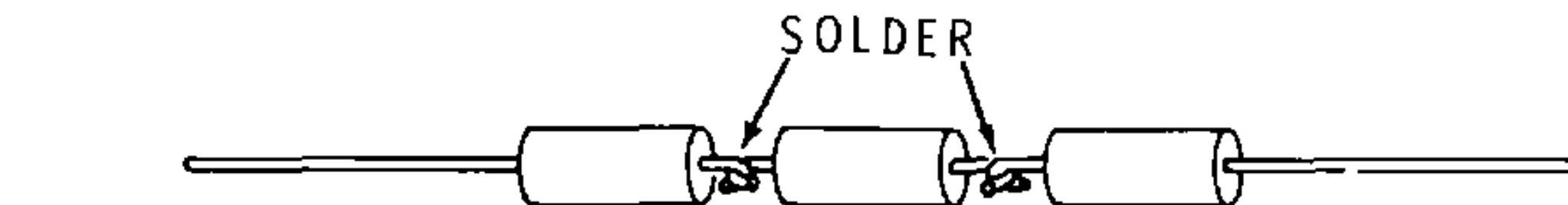
1 CUT LEADS OF 1M Ω (BROWN-BLACK-GREEN), 2-WATT RESISTOR AS SHOWN.



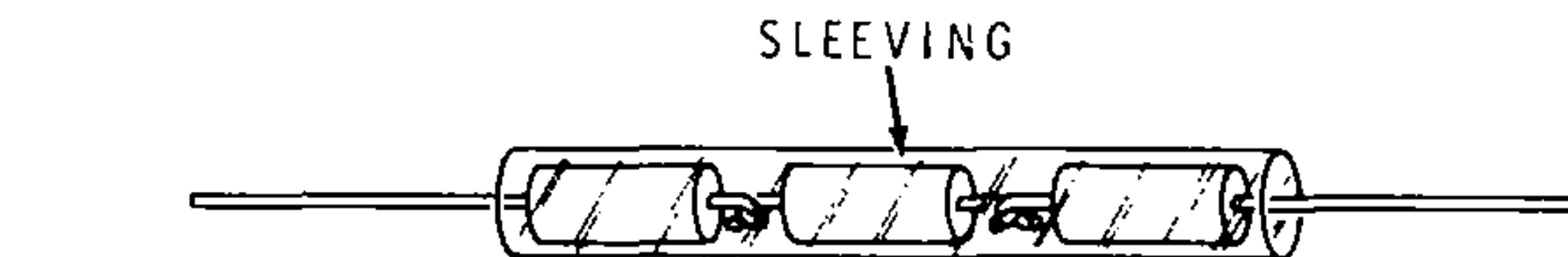
2 FORM HOOKS IN THE 3/8" LEADS.



3 HOOK RESISTORS TOGETHER AND SOLDER.

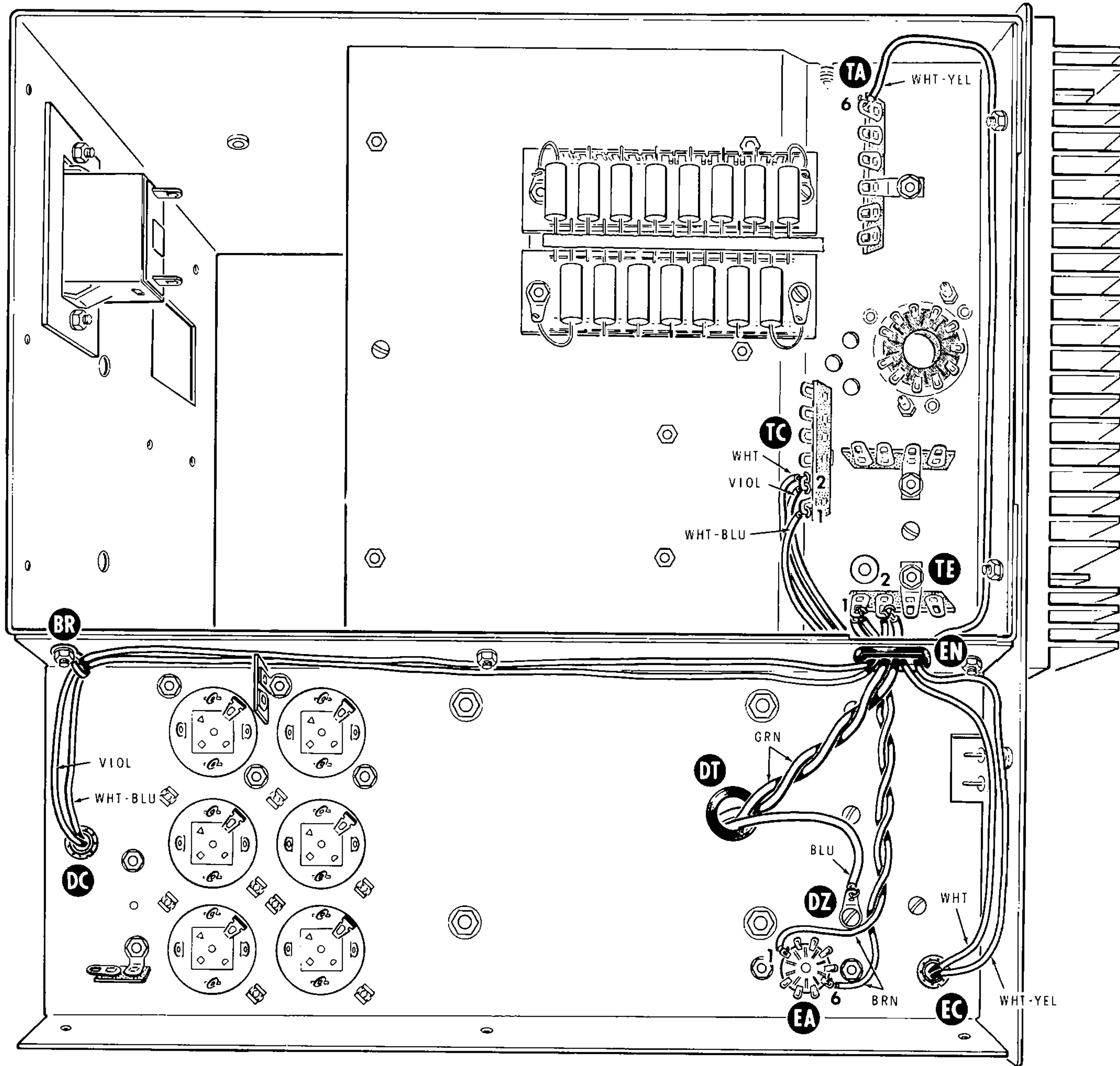


4 SLIDE 3" OF CLEAR SLEEVING OVER RESISTORS.

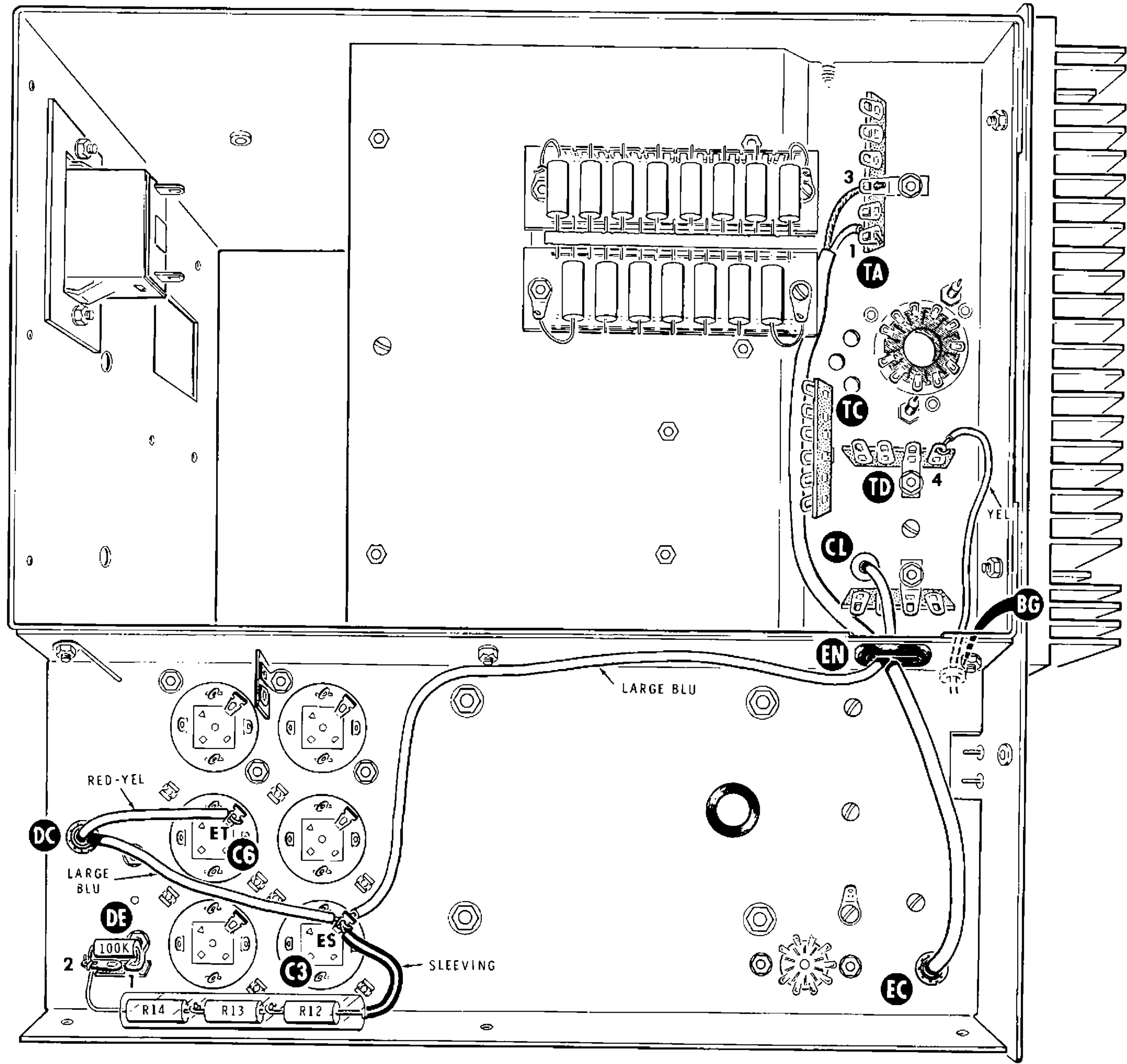


Detail 32A

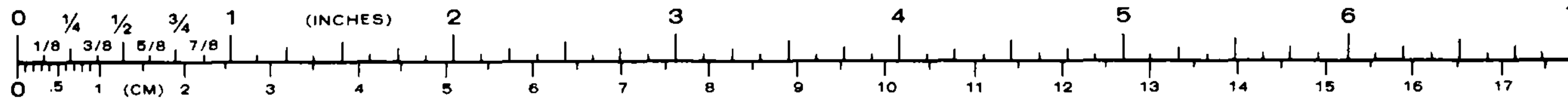
- () R12, R13, R14: Position the 3-megohm resistance assembly as shown in the Pictorial. Slide a 1" length of small black sleeving on one lead and connect it to capacitor C3 lug ES (S-4). Connect the other lead to terminal strip DE lug 2 (S-3).

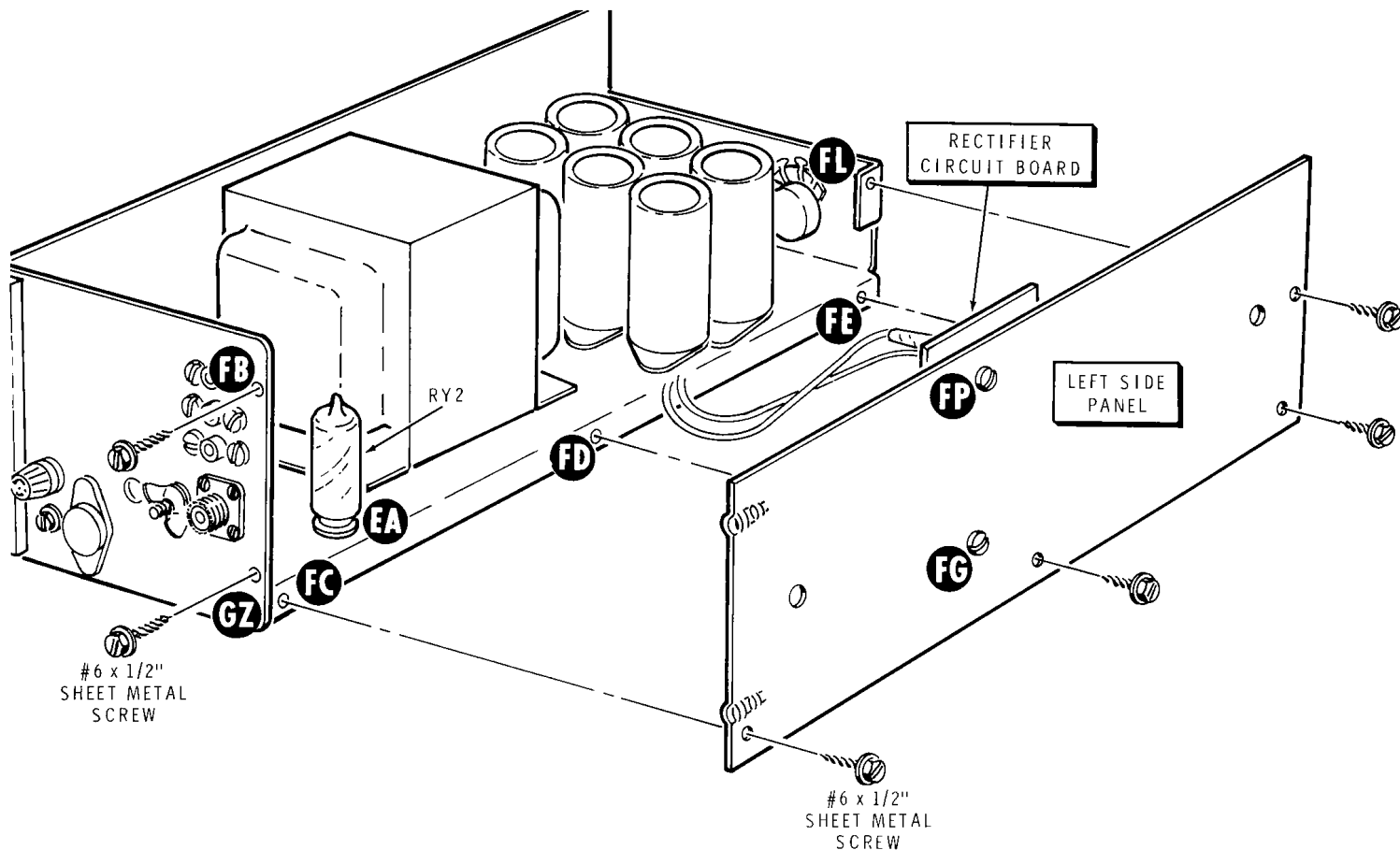


PICTORIAL 31

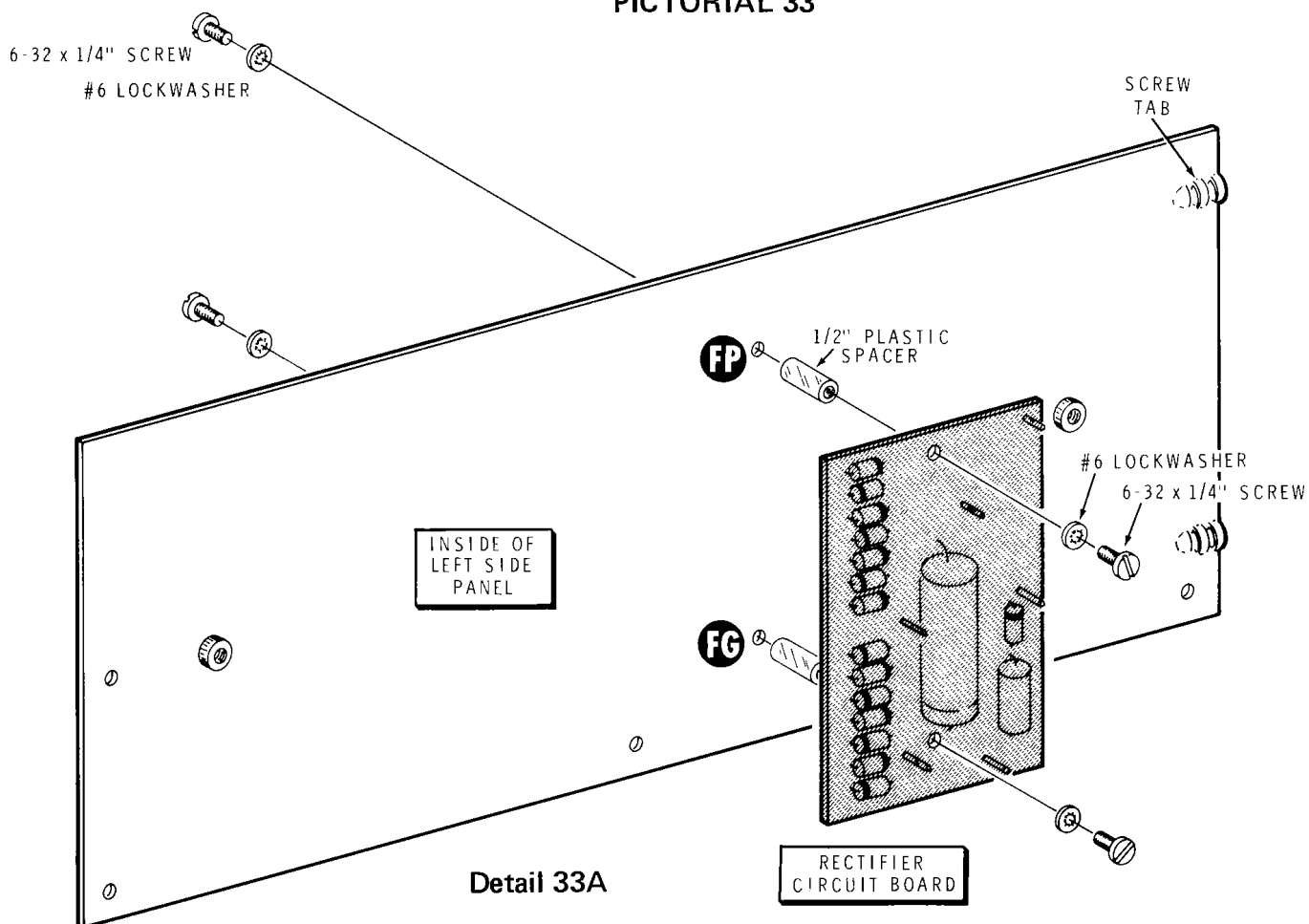


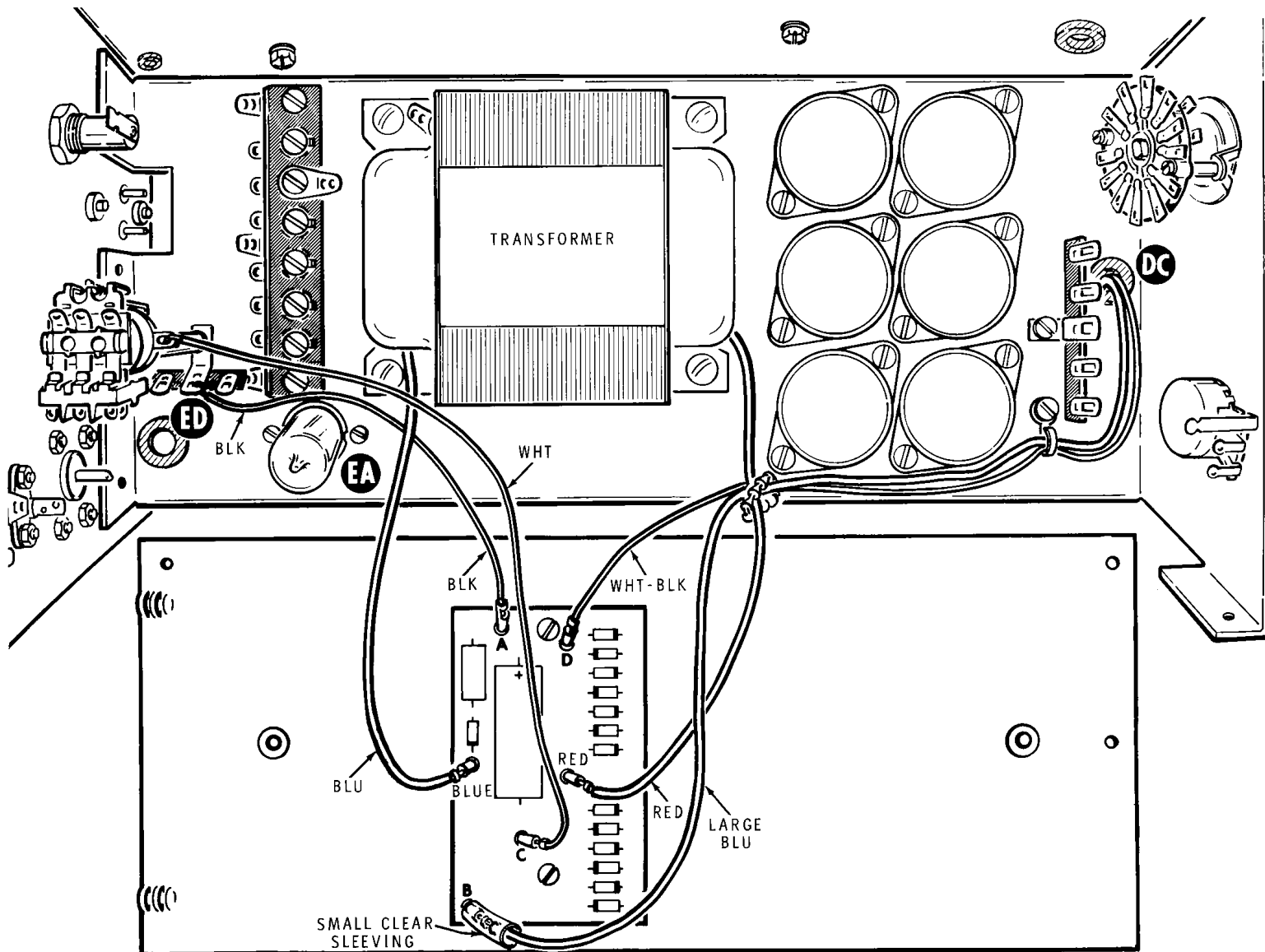
PICTORIAL 32





PICTORIAL 33





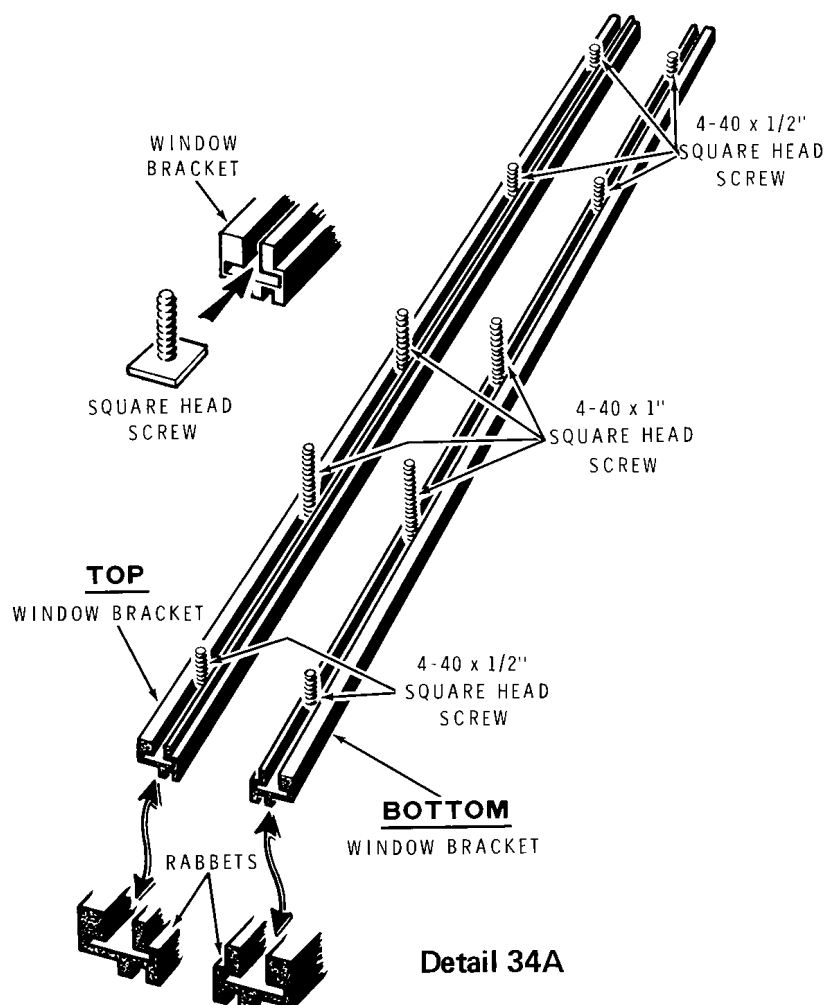
Detail 33B

Refer to Pictorial 33 for the following steps.

- () Refer to Detail 33A and mount the rectifier circuit board at FG and FP on the left side panel. Use 1/2" plastic spacers, 6-32 x 1/4" screws, and #6 lockwashers. Position the screw tabs as shown in the Detail.

Refer to Detail 33B for the following seven steps.

- () Push the connector on the black wire coming from terminal strip ED onto pin A on the circuit board.
- () Push the connector on the white-black wire onto pin D.
- () Push the connector on the blue transformer lead onto pin BLUE.
- () Push the connector on the red transformer lead onto pin RED.
- () Push the connector on the white wire onto pin C.
- () Slide a 1-1/2" length of small clear sleeving onto the large blue wire coming from grommet DC. Push the connector on this wire onto pin B on the circuit board. Then push the clear sleeving along the wire until it touches the circuit board.
- () RY2: Install the time delay relay in socket EA.
- () Secure the left side panel to the power supply chassis. Make sure no wires are pinched between the panel and the chassis. Use #6 x 1/2" sheet metal screws at FC, FD, FE, and FL on the left side panel and at FB and GZ on the rear panel. Look under the chassis to make sure no wire insulation has been damaged by the attaching screws.



Detail 34A

Refer to Pictorial 34 (fold-out from Page 79) for the following steps.

- () Refer to Detail 34A and slide 4-40 x 1/2" and 4-40 x 1" square head screws, arranged as shown, into the slots of two window brackets. Arrange the brackets with the rabbets facing each other.

Refer to Detail 34B (fold-out from Page 79) for the next six steps.

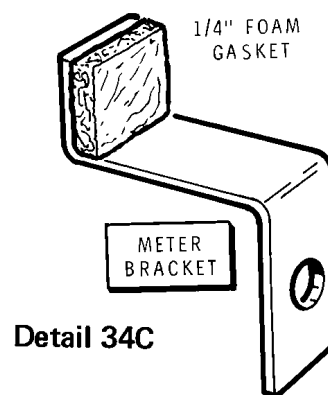
- () Insert the five screws in each bracket into the holes at AA, AB, AC, AD, and AE. Temporarily place #4 lockwashers and 4-40 nuts onto the two screws at AE. Leave the nuts loose. Be sure that the rabbets in the edges of each bracket, face each other as shown.

NOTE: If there is protective paper on one side of the red window, remove it.

- () Wash the red window with soap and water to remove all finger prints. After washing, handle the window only by the edges.
- () Hold the red window against the light so the words read correctly. If you have some clear, adhesive tape, position the diffuser strip back of the wording on the

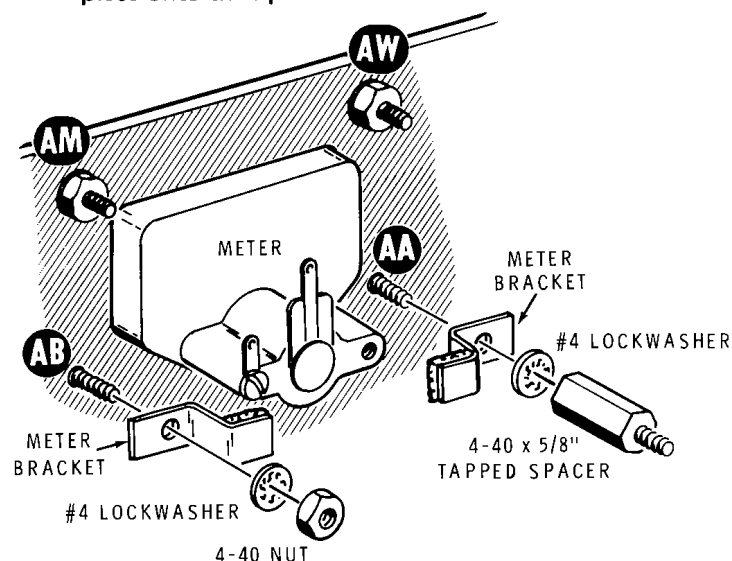
window with the right end of the window diffuser strip 1" in from the right end of the window. If you do not have the tape, the diffuser strip will be installed later.

- () Grasp the red window by the edges and slide it into the rabbets in the window brackets on the panel. Make sure the wording reads correctly and is centered in front of the panel opening.
- () If you did not tape the diffuser strip to the back of the red window, slide the diffuser strip into the rabbets between the red window and the panel. Adjust the strip so it covers the entire lamp housing opening.
- () Tighten the nuts at AE finger tight.



Detail 34C

- () Refer to Detail 34C and cut two 1/4" lengths of foam strip. Remove the protective covering and press each piece onto the lip of a meter bracket.



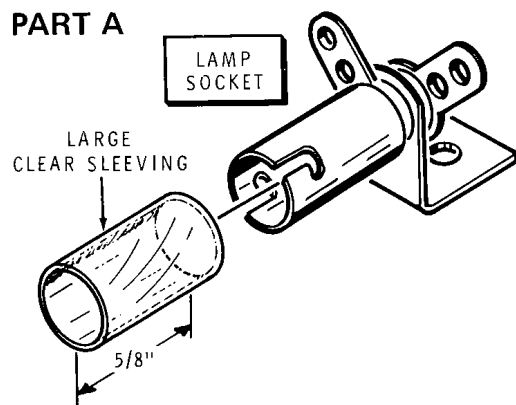
Detail 34D

Refer to Detail 34D for the next four steps.

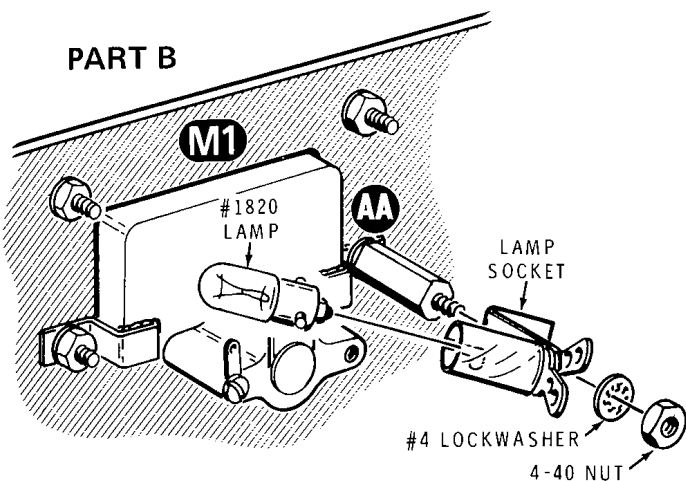
- () Mount a meter bracket on the back of the panel on screw AB. Use a #4 lockwasher and a 4-40 nut. Leave the nut loose.

- () Mount the other meter bracket on the screw at AA. Use a #4 lockwasher and a 4-40 x 5/8" tapped spacer. Leave the spacer loose.
- () M1: Slide the meter down between the two meter brackets until the meter face fits into opening M1 in the panel. Position the meter brackets as shown and gently tighten the 4-40 nut and the spacer. Do not overtighten.
- () Install #4 lockwashers and 4-40 nuts on screws AM and AW. Leave the nuts loose.

PART A

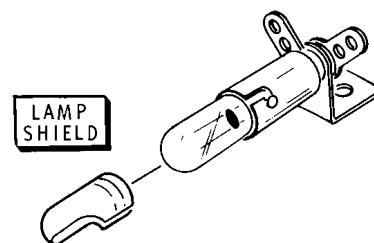


PART B



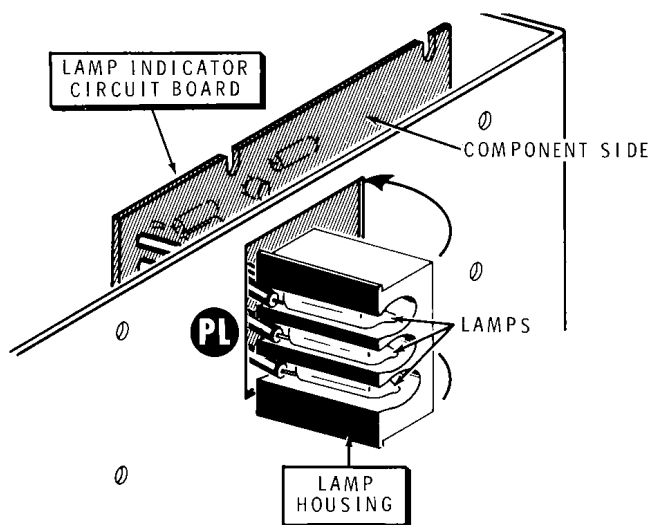
Detail 34E

- () Refer to Part A of Detail 34E and slide a 5/8" length of large clear sleeving onto the pilot lamp socket.
- () Refer to Part B of Detail 34E and mount the lamp socket on the spacer at AA. Use a #4 lockwasher and a 4-40 nut.
- () Insert a #1820 lamp into the lamp socket.



Detail 34F

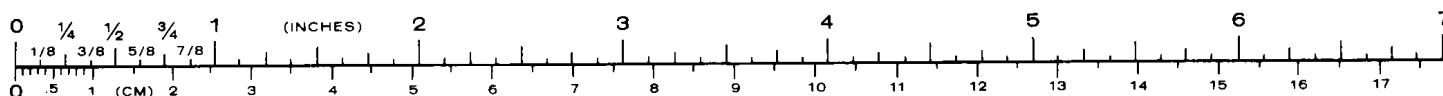
- () Refer to Detail 34F and install a lamp shield on the lamp. Turn the shield so the opening is toward the back of the meter and so the closed portion will prevent light from shining up through the cabinet (when installed later).
- () Temporarily remove the control nuts and control flat washers from the shaft bushings at SW2 and R34.

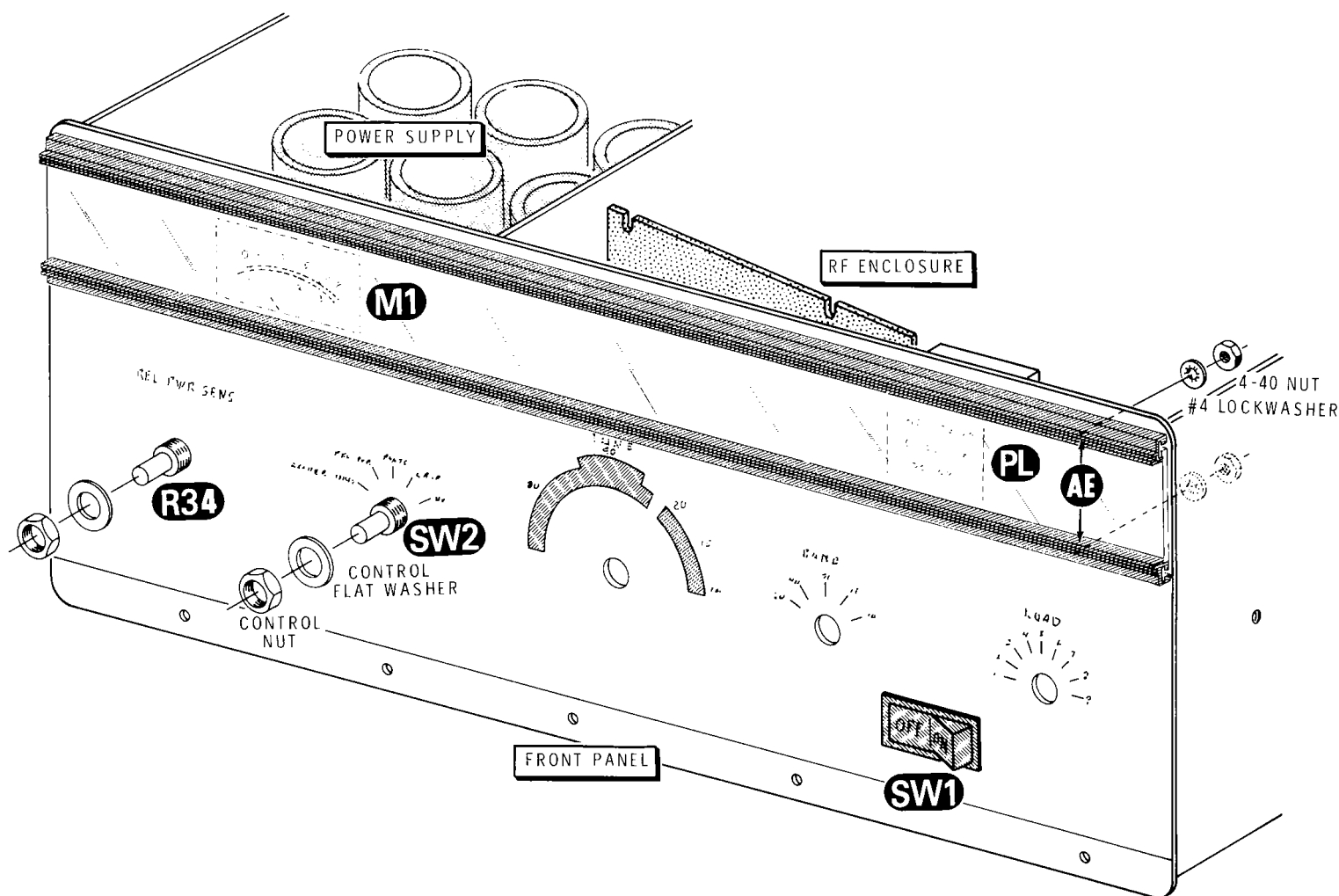


Detail 34G

Refer to Detail 34G for the following two steps.

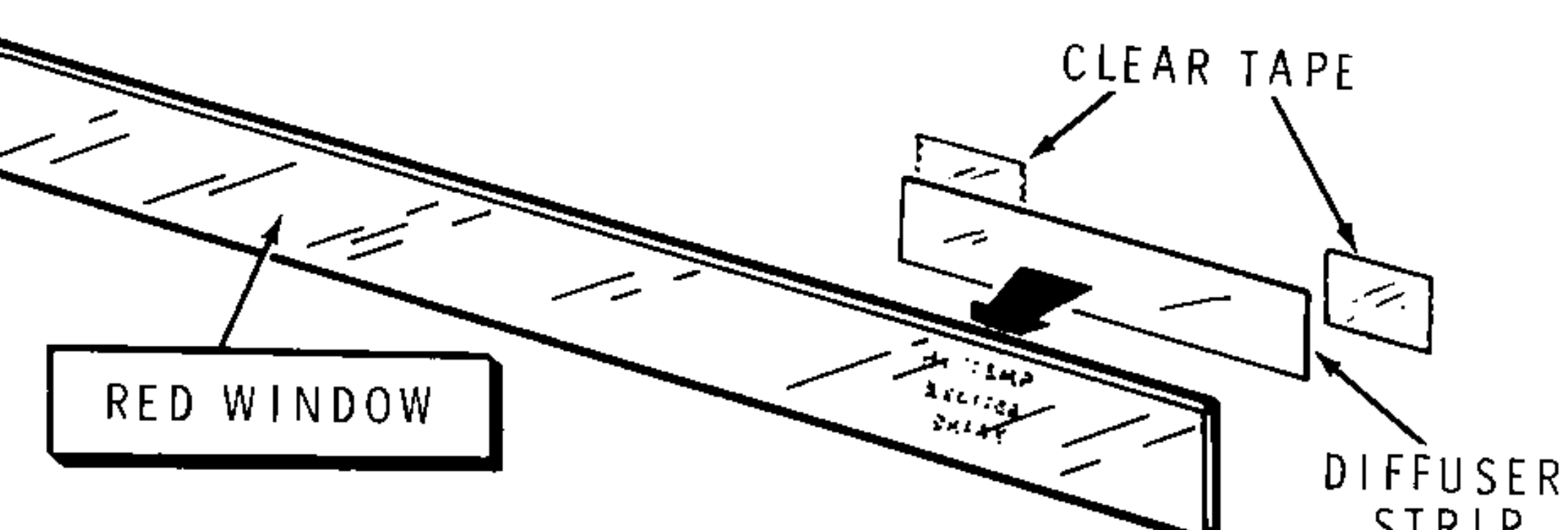
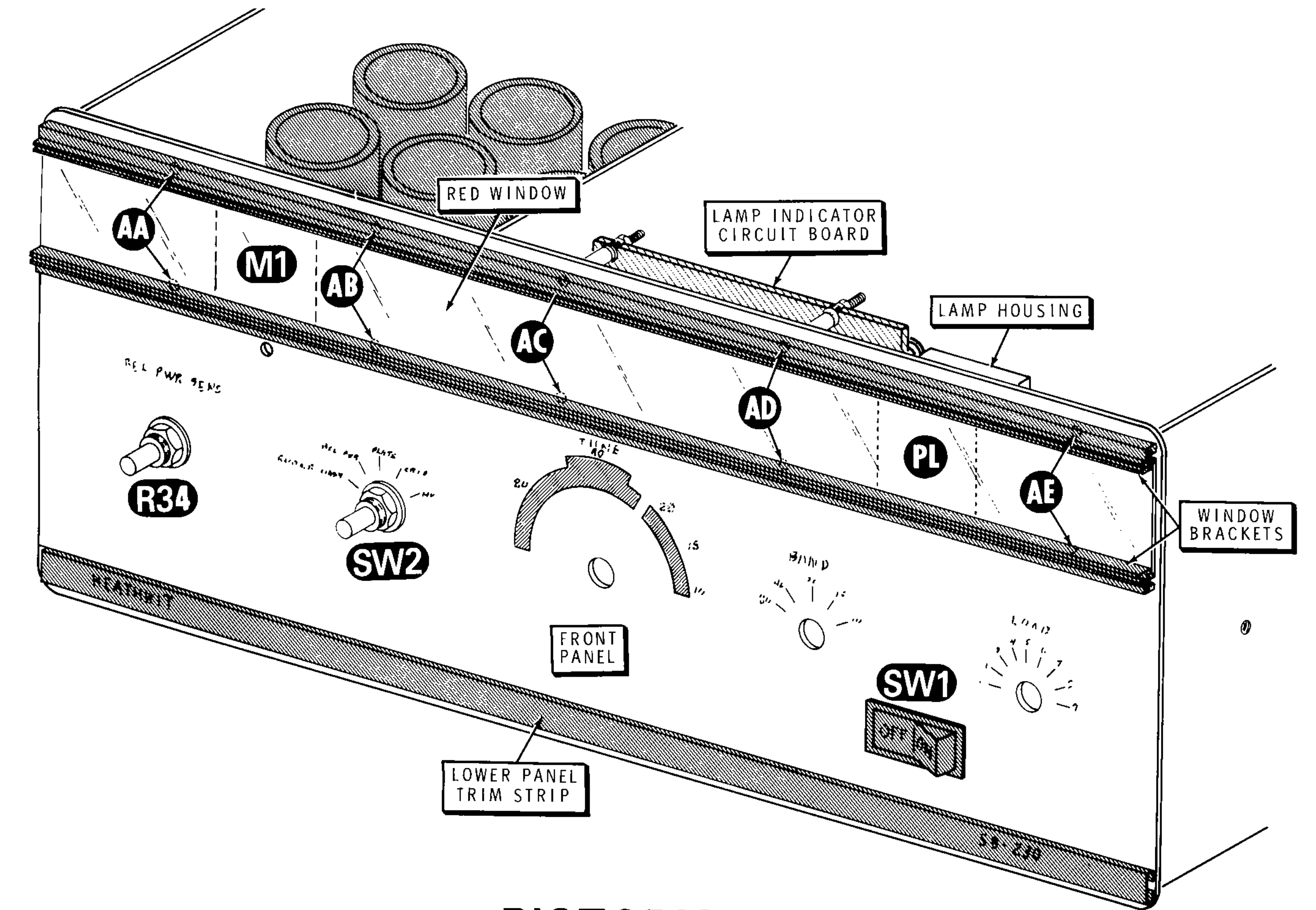
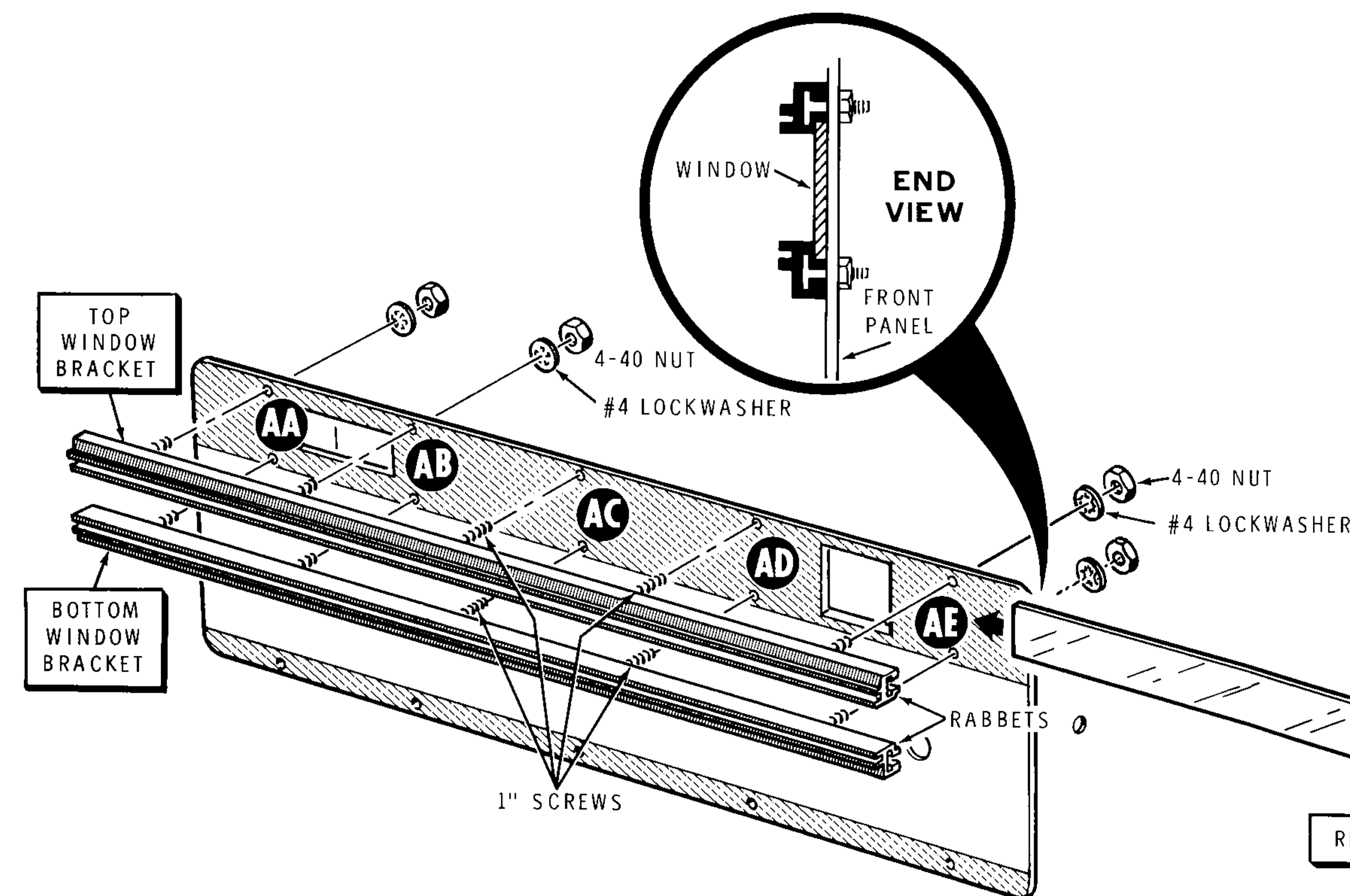
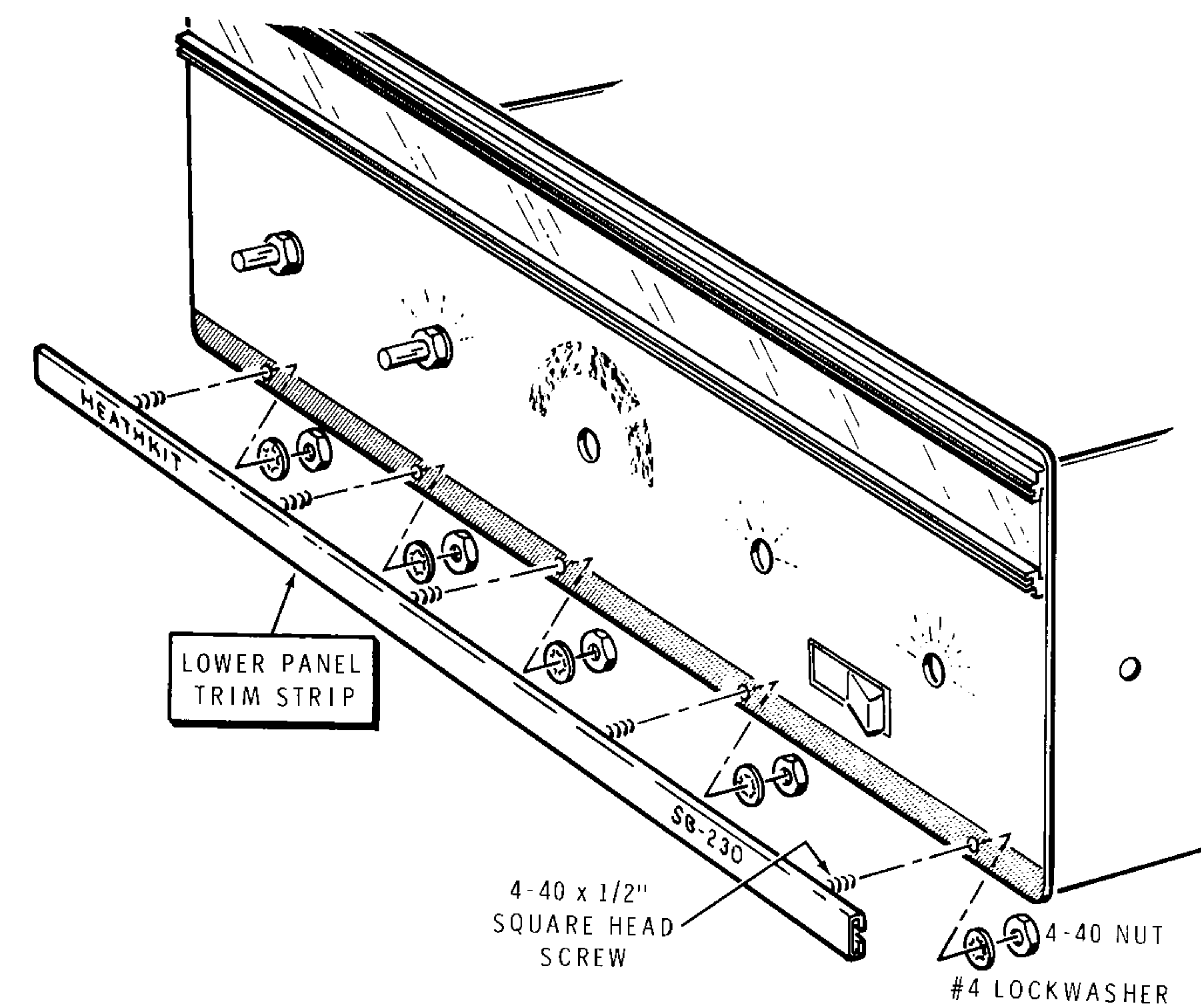
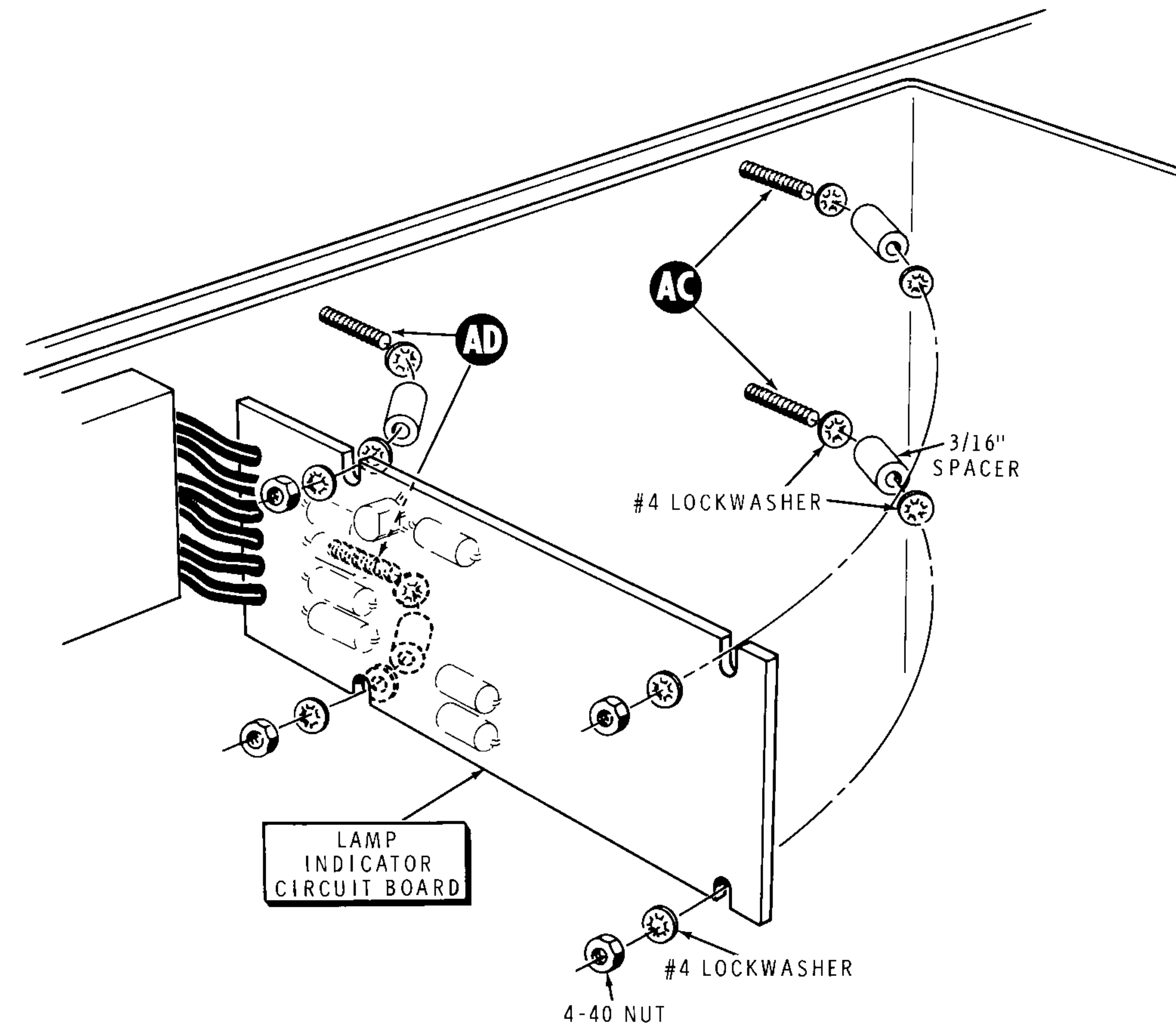
- () Hold the lamp indicator circuit board with its component side toward the RF enclosure subpanel and with the three lamps extending through opening PL. Hold the lamp housing as shown and push the three lamps into the three slots in the housing.
- () Push the left side of the lamp housing against the left side of opening PL and swing the right side of the housing into the opening. The upper and lower housing flanges should be against the subpanel. The lamp indicator circuit board should now be hanging from the lamp leads.

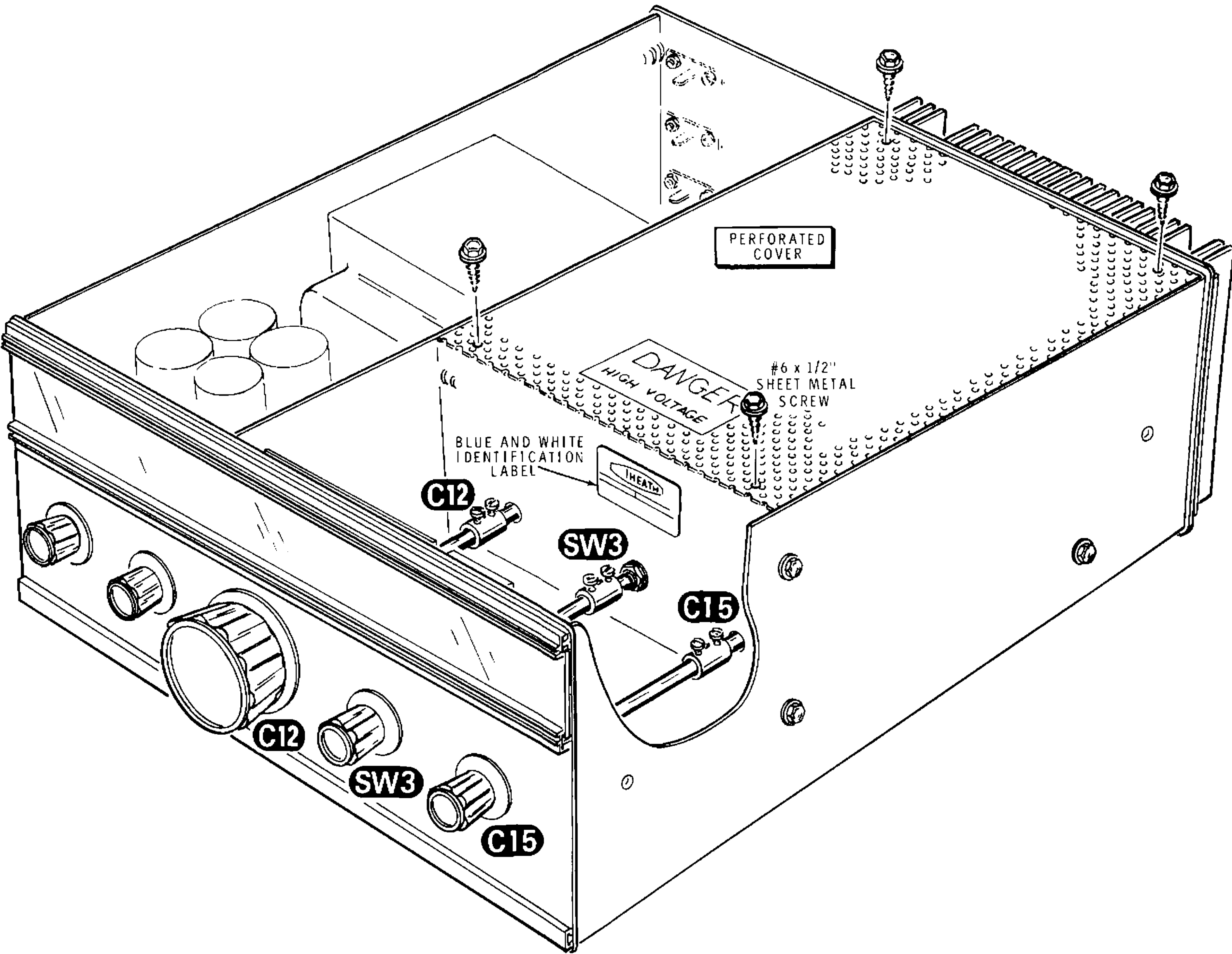




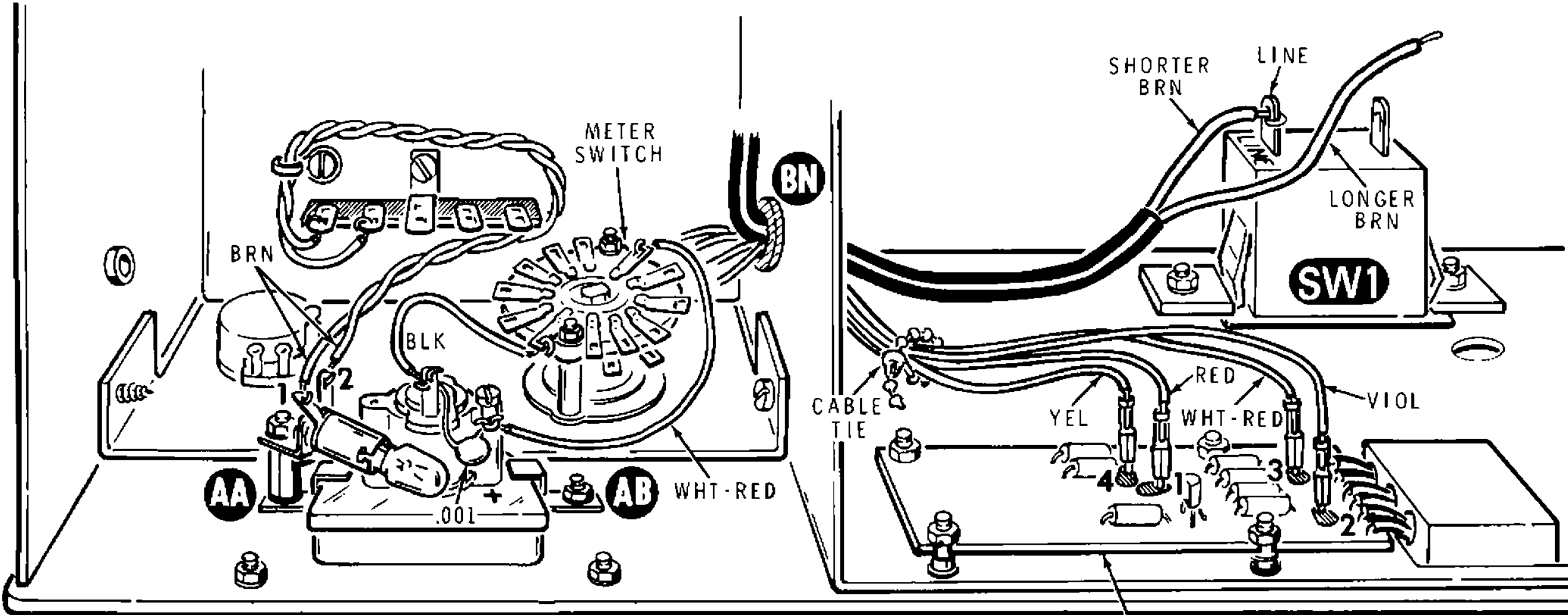
Detail 34H

- () Temporarily remove the nuts and lockwashers at AE.
- () Refer to Detail 34H and place the front panel across the front of the RF enclosure and the power supply chassis with the two shaft bushings through holes SW2 and R34, the power switch through opening SW1, and the lamp housing through opening PL. Secure the panel with the control flat washers and control nuts removed in a preceding step, #4 lockwashers, and 4-40 nuts at holes AE. The front panel should lie flat against the front of the RF enclosure. The control nuts should be only finger tight. It may be necessary to make a small adjustment in the position of SW1.
- () Refer to Detail 34J and place two #4 lockwashers and a 3/16" spacer on each of the four screws at AC and AD. Then mount the lamp indicator circuit board on the screws and secure it with a #4 lockwasher and a 4-40 nut on each of the four screws. Tighten the nuts finger tight only.
- () Refer to Detail 34K and slide the heads of five 1/2" square head screws into the channel in the lower panel trim strip. Then mount the trim strip on the lower edge of the front panel in the five holes provided. Use a #4 lockwasher and a 4-40 nut on each of the five screws.
- () Center the two trim strips and the red window on the panel and tighten all the nuts on both sides of the panel. Use the 1/4" end wrench for the 4-40 nuts.





PICTORIAL 37



PICTORIAL 35

LAMP INDICATOR CIRCUIT BOARD

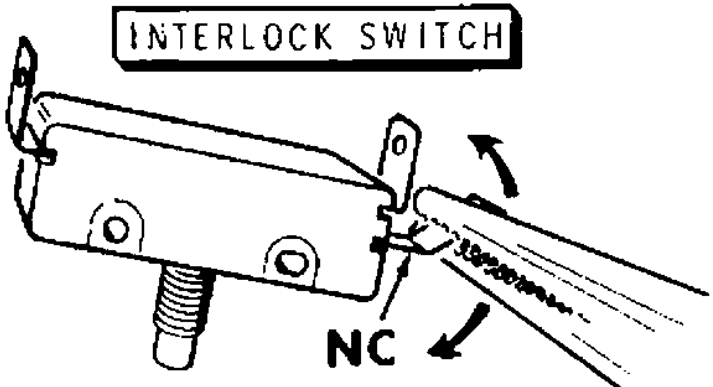
Refer to Pictorial 35 for the following steps.

- () Carefully inspect the back of the meter. If there is a wire between the positive and negative terminals, remove and discard it.
- () Bend the center (negative) terminal of the meter so it points straight back.
- () C18: Connect a .001 μ F disc capacitor between the two meter terminals (NS).
- () Connect the black wire coming from the 1-wafer switch to the negative (unmarked) meter terminal (S-2).
- () Connect the white-red wire coming from the 1-wafer switch to the positive (marked "+") meter terminal (S-2).
- () Connect the brown twisted pair to the pilot lamp socket, one wire to lug 1 (S-1) and the other wire to lug 2 (S-1).
- () Push the connectors on wires coming from grommet BN onto pins of the lamp indicator circuit board as follows:

Yellow onto pin 4.
Violet onto pin 2.
White-red onto pin 3.
Red onto pin 1.

- () Place a cable tie around the four colored wires in the preceding step, about halfway between the circuit board and the grommet. Pull the tie up snugly and cut off all but 1/4" of the excess tie length.
- () Refer to Pictorial 36 for the following steps.

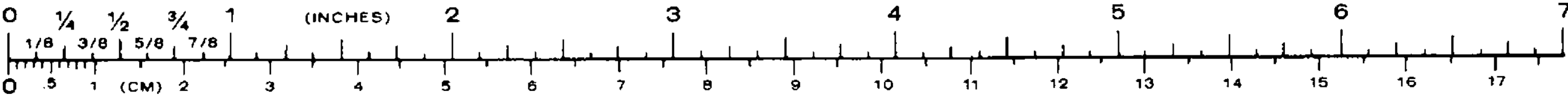
Detail 36A

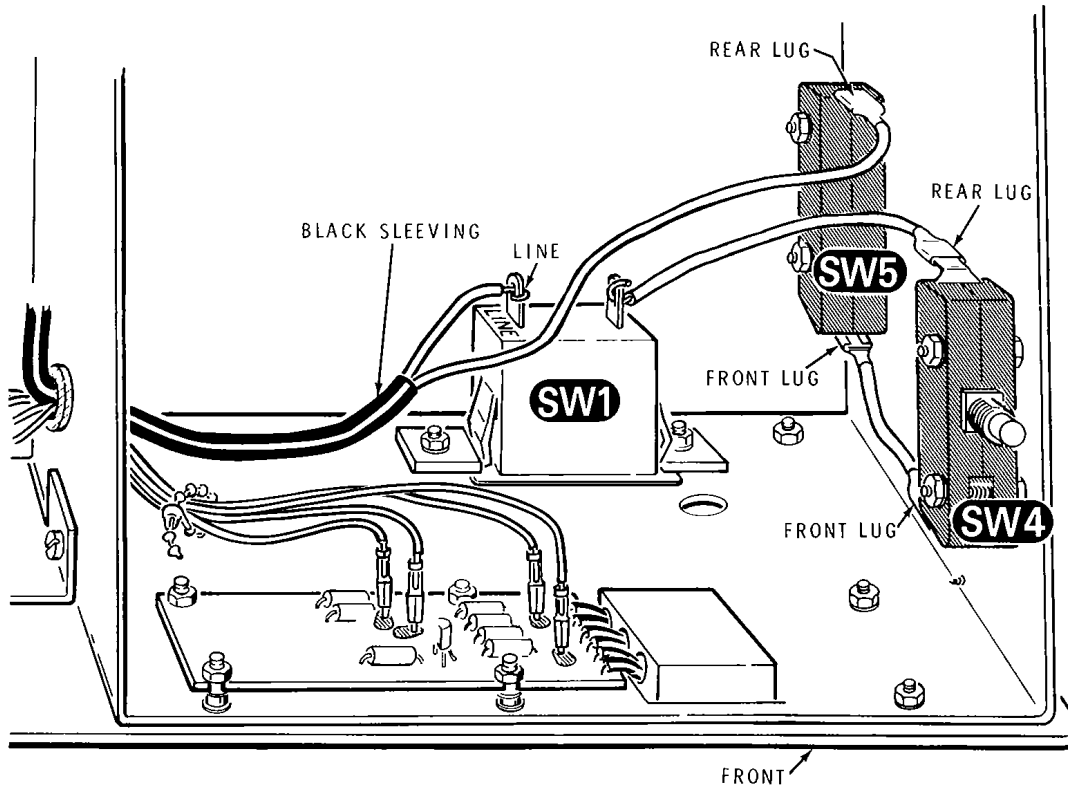


- () Refer to Detail 36A and identify the interlock switch lug marked NC on one side of the switch body. Grasp this lug with pliers and bend it back and forth until it breaks off. Break off this lug on both interlock switches.
- () SW5: Refer to Detail 36B and install an interlock switch at GT and GU on the right side of the RF enclosure. Be sure the switch button is on the underside of the switch. Use 6-32 x 1" hardware. Note the number of nuts used.
- () SW4: Similarly, install the other interlock switch at GW and GZ. The switch button should be on the upper side of the switch.

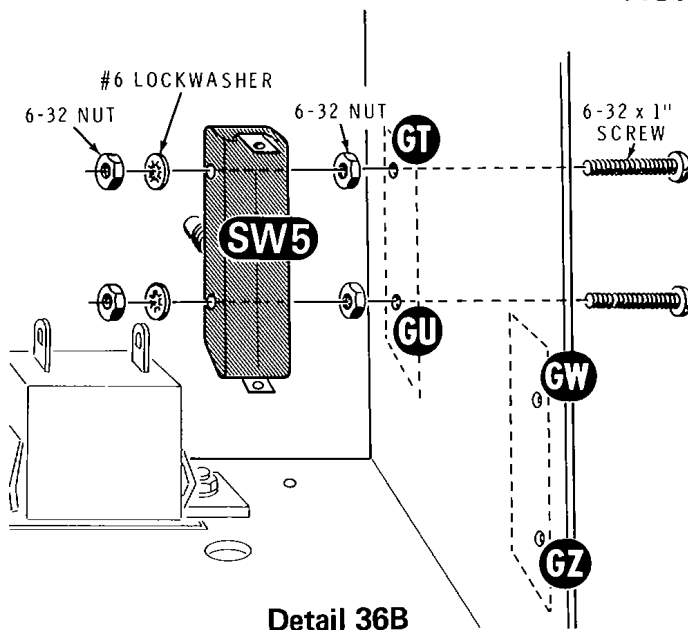
- () Prepare large brown (stranded) wires as follows:

3-1/4"
5"

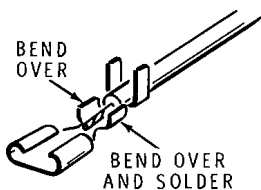
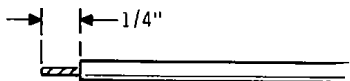




PICTORIAL 36

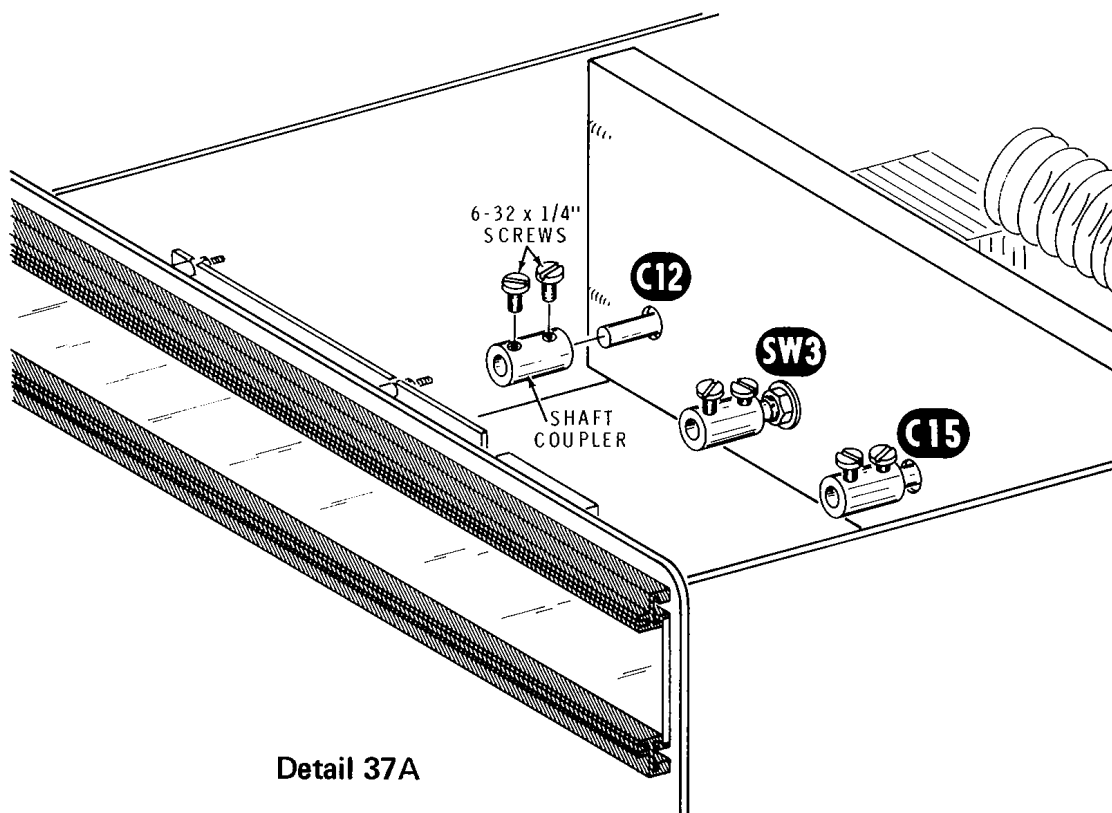


Detail 36B



Detail 36C

- () Refer to Detail 36C and install push-on connectors on each end of the 3-1/4" brown wire.
 - () Install a push-on connector on one end of the 5" wire.
 - () Install a push-on connector on the end of the longer brown wire coming from the black sleeving.
 - () Push this connector onto the rear lug of SW5.
 - () Push one connector on the 3-1/2" wire onto the front lug of SW4 and the other connector onto the front lug of SW5.
 - () Push the connector on the 5" wire onto the rear lug of SW4.
- NOTE:** In the following two steps, push each wire through the switch lug and wrap it around the lug to make a mechanically secure connection.
- () Connect the shorter brown wire coming from the black sleeving to SW1 at the lug marked "line" (S-1).
 - () Connect the brown wire coming from the rear lug of SW4 to the other lug of SW1 (S-1).



Detail 37A

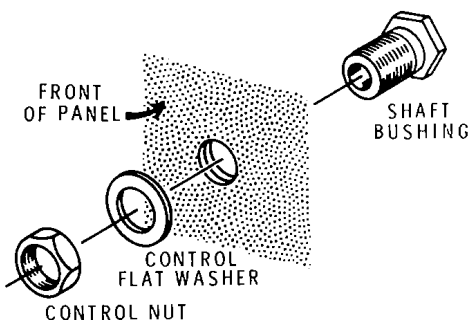
Refer to Pictorial 37 (fold-out from Page 80) for the following steps:

- () Turn the shafts of the two variable capacitors so their plates are fully meshed. Turn the shaft of switch SW3 fully counterclockwise.
- () Refer to Detail 37A and start two 6-32 x 1/4" screws into each of the three shaft couplers.
- () Push 3/8" of a shaft coupler onto each of the shafts at C12, SW3, and C15 in the front of the RF chassis. Tighten the rear screw of each coupler onto the shafts.

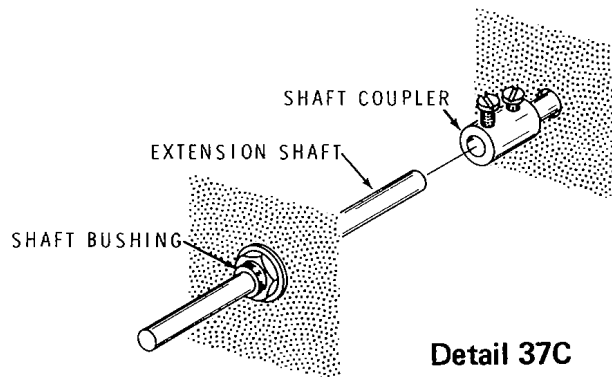
- () Refer to Detail 37B and, from the back of the panel, install shaft bushings in holes C12, SW3, and C15 in the front panel. Use control flat washers and control nuts.

Refer to Detail 37C for the next two steps:

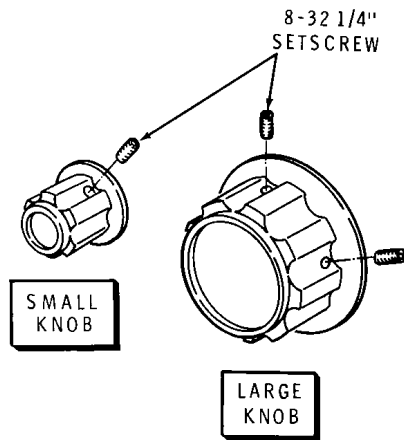
- () Push 4-3/4" extension shafts through the shaft bushings into the shaft couplers at C12 and C15. Tighten the shaft coupler screws.
- () Push a 4-3/8" extension shaft through the shaft bushing into the shaft coupler at SW3. Tighten the shaft coupler screws.



Detail 37B



Detail 37C



Detail 37D

- () Push the knobs onto the five shafts. Position the index mark of each as shown. Then tighten the setscrews in each knob (two setscrews in the large knob).
- () Install the perforated cover on the RF enclosure. Use #6 x 1/2" sheet metal screws.
- () Remove the protective backing from the "Danger" label and press its adhesive side down on the perforated cover as shown in Pictorial 37.

NOTE: The blue and white identification label shows the Model Number of your kit. Refer to these numbers in any communications with the Heath Company.

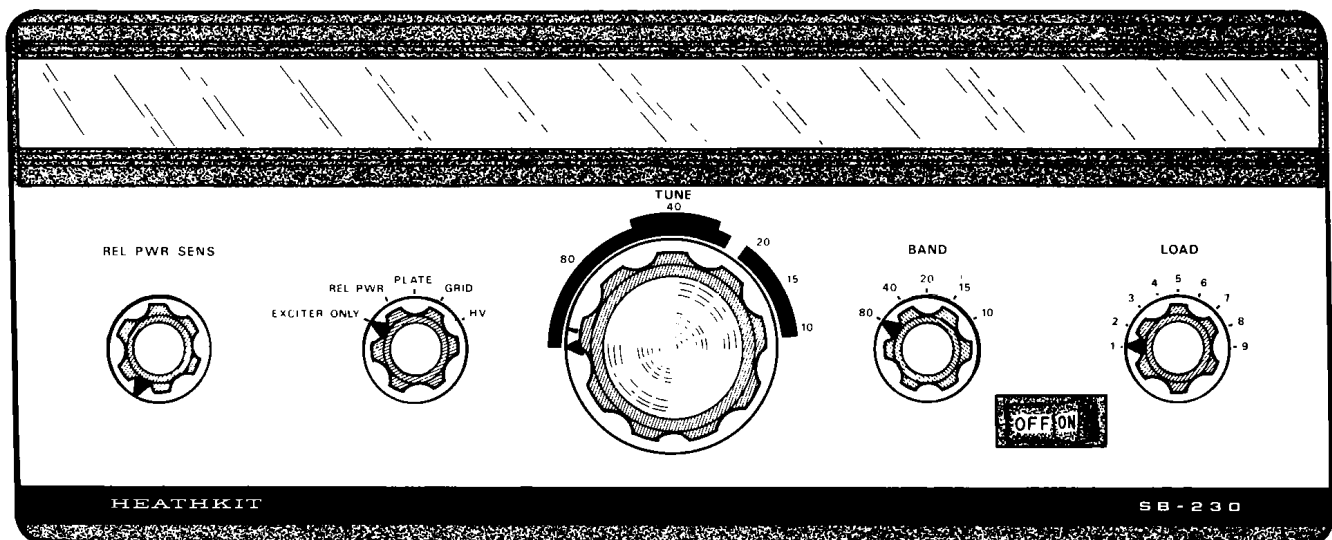
- () Refer to Detail 37D and start two 8-32 x 1/4" setscrews into the large knob. Start one 8-32 x 1/4" setscrew into each of four small knobs.

Refer to Detail 37E for the following two steps.

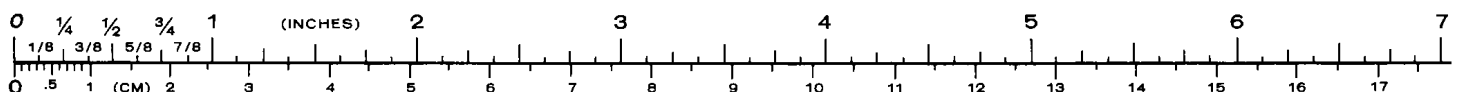
- () Turn the shafts at Tune and Load so the capacitor plates are fully meshed. Turn all other shafts fully counterclockwise.

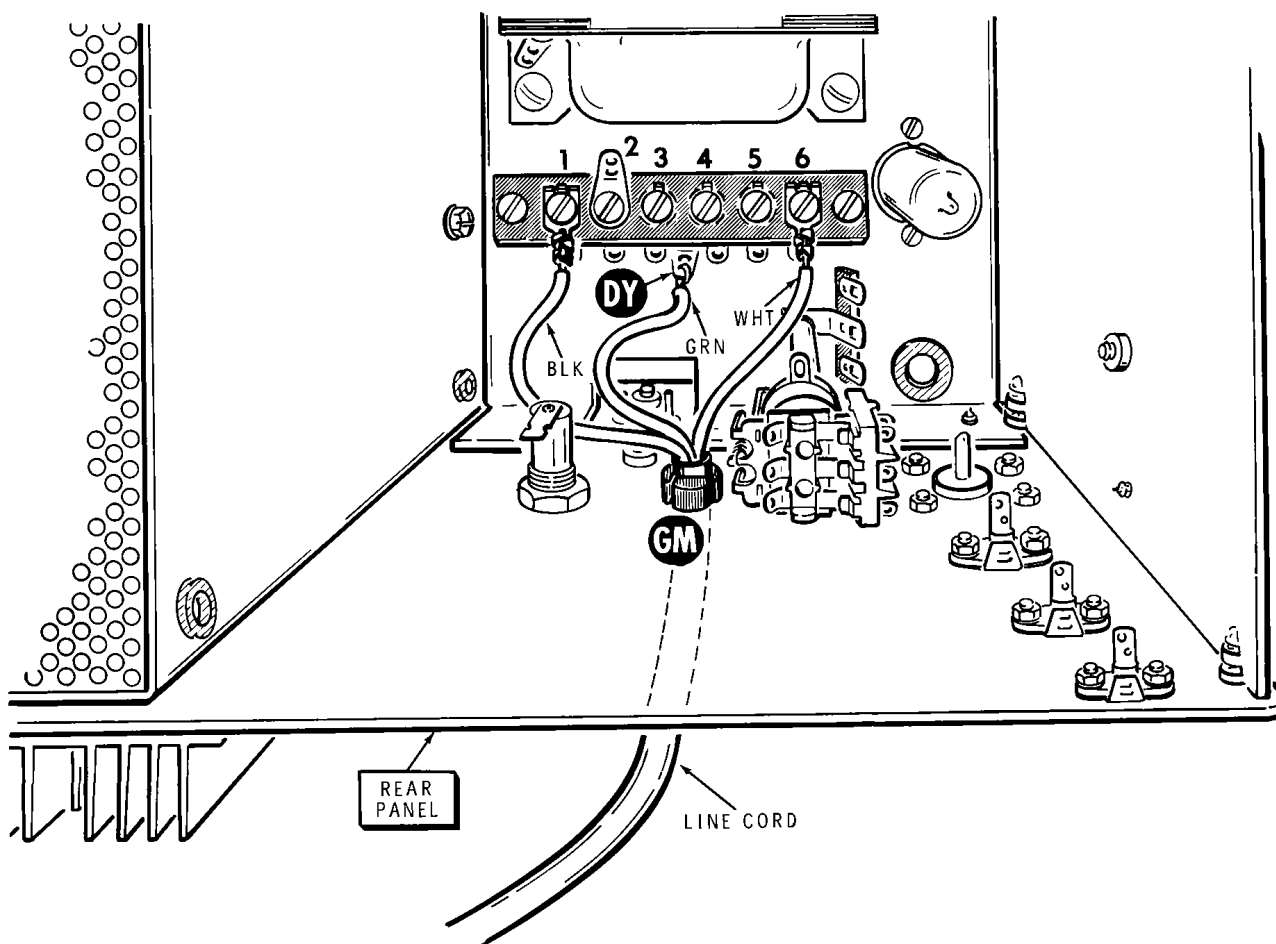
Install the identification label in the following manner.

- () Carefully peel away the backing paper. Then press the label into position as shown in the Pictorial. You will avoid smearing the numbers on the label if you will put the piece of waxed backing paper on top of the label and then rub on it instead of directly on the label.



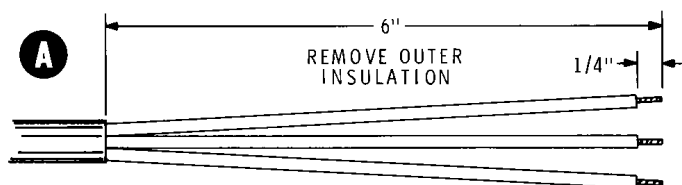
Detail 37E



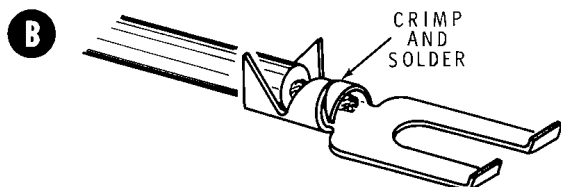


PICTORIAL 38

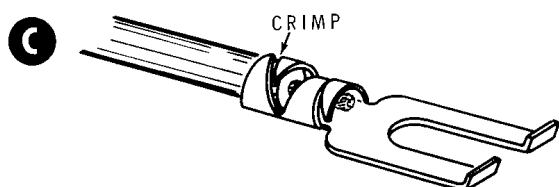
Refer to Pictorial 38 for the following steps.



- () If not already done, remove 1/4" of insulation from each of the three line cord wires. Twist the fine strands of each wire together and melt a minimum amount of solder on each bare end.



- () Refer to Detail 38A and install one spade lug on the end of the black wire and another on the end of the white wire.

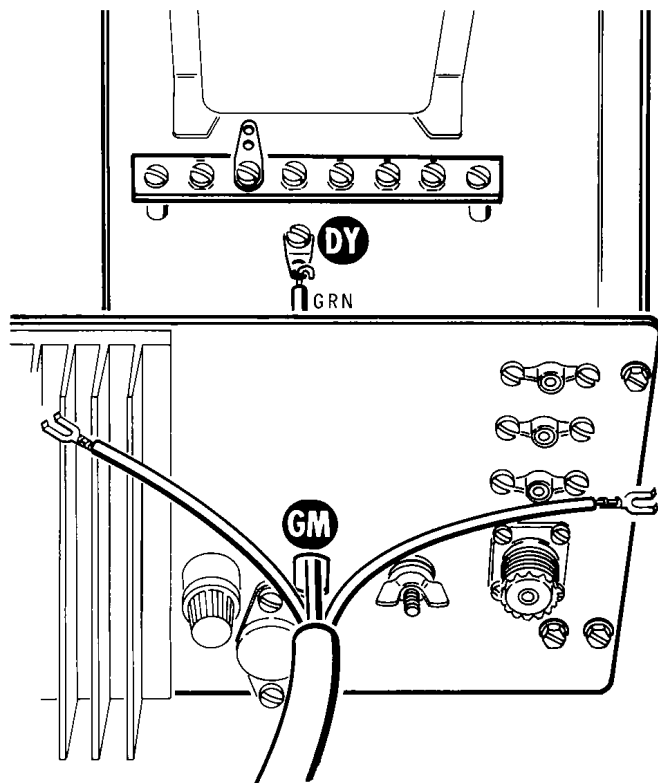


- () Refer to Detail 38B, bend up the end of the green line cord wire, push it through hole GM in the rear panel, and work it into the hole in solder lug DY under the 6-screw terminal strip (S-1).

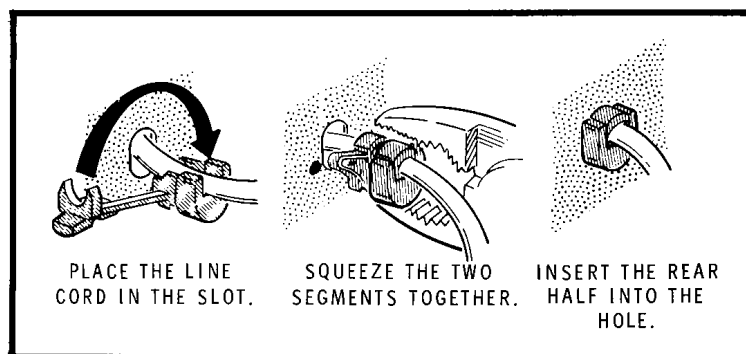
- () Insert the white and the black line cord wires into hole GM.

Detail 38A



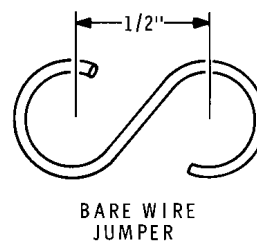


Detail 38B



Detail 38C

- () Refer to Detail 38C and place the strain relief 1/4" from the end of the line cord outer insulation with the smaller end of the strain relief toward the panel. To preform the cord, use pliers to compress the smaller part of the strain relief onto the line cord with as much pressure as possible, and hold the pressure for about 10 seconds. Use water-pump pliers, if you have them.
- () Place the rounded nose of the strain relief against hole GM, and press the strain relief into the hole.
- () Connect the solder lug on the black line cord wire under screw 1 on the 6-screw terminal strip and the solder lug on the white line cord wire under screw 6 as shown in the Pictorial.



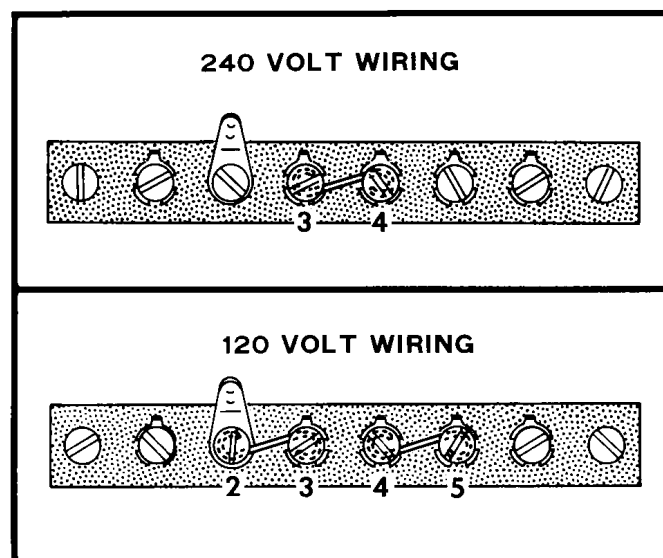
Detail 38D

120-240 VOLT WIRING

This Amplifier can be operated from 120 or 240 volts, 50/60 Hertz, alternating current. If 240 volts can be made available, its use is recommended.

Detail 38D shows the bare wire jumpers to be used on the 6-screw terminal strip for the two supply voltages.

- () Refer to Detail 38D and form one jumper for 240 volts or two jumpers for 120 volts.



Detail 38E

Refer to Detail 38E and perform only one of the following two steps.

- () For 240 VAC operation, connect one jumper between screws 3 and 4.
- () For 120 VAC operation, connect one jumper between screws 2 and 3 and a second jumper between screws 4 and 5. Make sure all screws on the terminal strip are well tightened.

This completes the wiring of your Linear Amplifier.

CAUTION

Use extreme care during initial testing and all subsequent operation of this Linear Amplifier. While the SB-230 is designed for maximum safety, never lose respect for the high voltage present in this unit. Protect yourself always against lethal or severe electric shock.

HEATH COMPANY

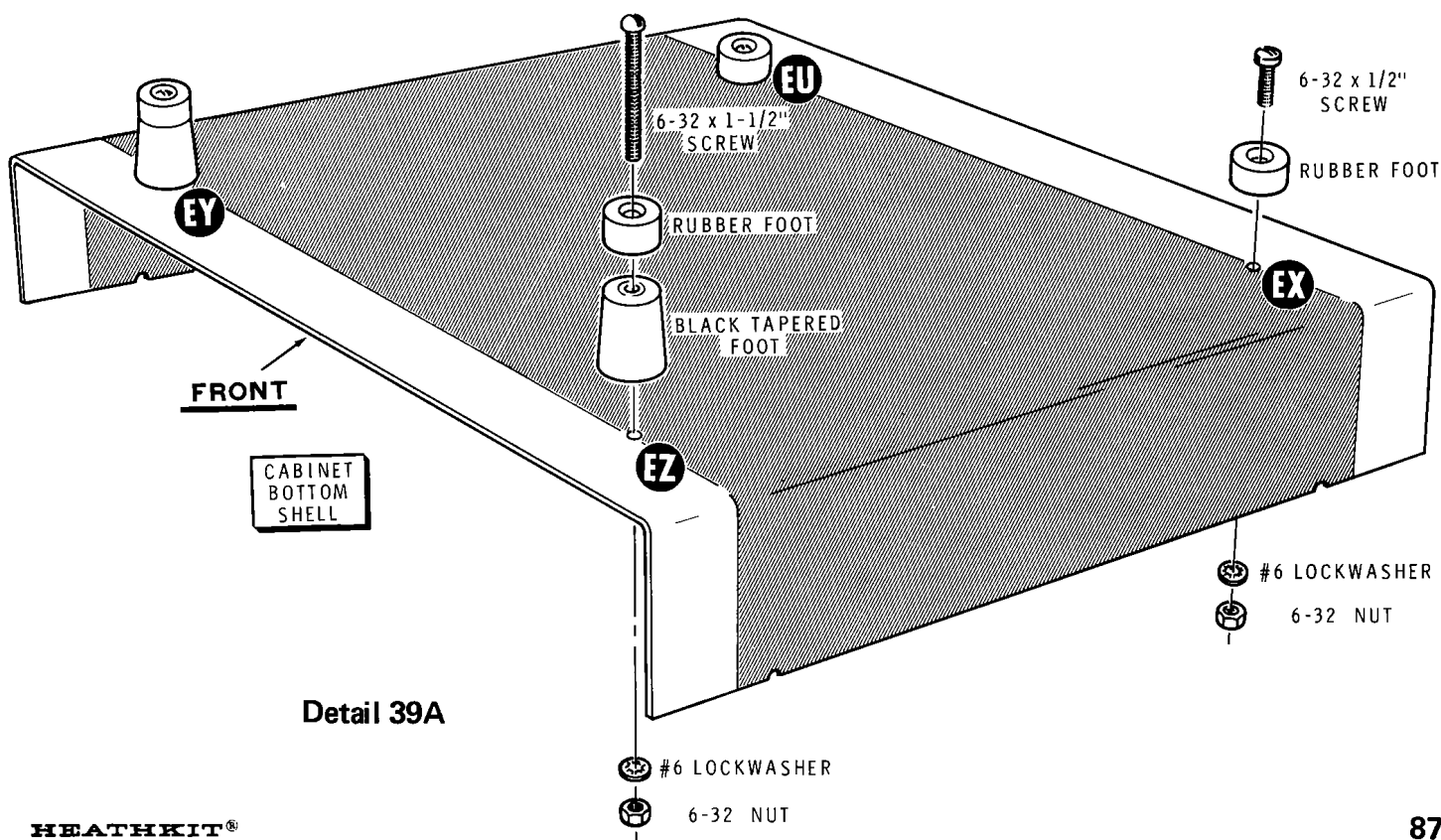
TESTS AND FINAL ASSEMBLY

Refer to Pictorial 39 (fold-out from Page 89) for the following steps.

- () Install a cabinet retainer strip on the left side panel at holes FJ and FK. Use a 10-32 x 1/2" truss head screw and two 3/4" O.D. flat washers at each hole. Position the brushed aluminum side of the retainer strip on the outside (away from the cabinet).
- () Install the other cabinet retainer strip on the right side of the RF enclosure at holes AM and AP. Use a 10-32 x 1/2" truss head and two 3/4" O.D. flat washers at each hole.

Perform only one of the following two steps, depending upon how you want your amplifier cabinet positioned.

- () If you want your amplifier to sit level, install a rubber foot at each corner of the bottom shell. For each foot, use 6-32 x 1/2" hardware.
- () If you want the front of the cabinet elevated, refer to Detail 39A and install rubber feet at holes EU and EX. Use 6-32 x 1/2" hardware. Install a rubber foot and a black tapered foot at each of holes EY and EZ. Use 6-32 x 1-1/2" hardware.
- () Install the bottom cabinet shell on the chassis. Insert the edge of the shell between the cabinet retainer strips and the flat washers. The rear edge of the shell should be flush with the rear panel.



METER ZERO:

- () With the POWER switch OFF and no drive to the amplifier, turn the screw in the hole just below the meter until the meter needle rests on zero.

If you do not obtain the proper results, as described in the following steps, refer to the "In Case of Difficulty" section of this Manual.

CHECK NUMBER 1

If you have an ohmmeter available, make the following resistance checks to make sure the power supply wiring is not short circuited. If you do not have an ohmmeter, proceed to "Check Number 2." Read the meter after the needle stabilizes.

CHASSIS TO 6-SCREW TERMINAL STRIP*	EXPECTED READING
Screw 1	∞ (infinity)
Screw 2	∞ (infinity)
Screw 6	∞ (infinity)
Chassis to large blue wire (pin B) on rectifier circuit board.	Over 450 k Ω

CHECK NUMBER 2

- () Pull the connector on the white-red wire from pin 3 on the lamp indicator circuit board. Wrap tape around the connector to insulate it temporarily.
- () Refer to Pictorial 39 (fold-out from Page 89) and temporarily install the top cover on the Amplifier. As both covers are now installed, both interlock switches are closed and power can be turned on.
- () With the POWER switch OFF and the METER switch in the PLATE position, connect the line cord to your electric outlet.

- () Push the POWER switch to ON. If the needle moves up-scale, shut the Amplifier OFF immediately and refer to the "In Case of Difficulty" section. If the meter properly remains at 0, the HI TEMP lamp should light. If the POWER switch opens immediately after you push the switch to ON, refer to the note under "Power Considerations" on Page 89.
- () Turn the Amplifier off and remove the line cord from the electric outlet.
- () Remove the amplifier top cover and reinstall the white-red wire connector on pin 3 of the lamp indicator circuit board.
- () Reinstall the top cover on the Amplifier and tighten the four screws on the sides.
- () Plug in the line cord and turn the Amplifier on. The meter lamp and the DELAY lamp should light. The DELAY lamp should turn off automatically within 60 to 90 seconds.
- () Turn the METER switch to EXCITER only. The EXCITER lamp should light. When the METER switch is turned to any other position, the EXCITER lamp should turn off.
- () With the DELAY lamp off and the METER switch at PLATE, use a piece of hookup wire to simultaneously touch the chassis and the center terminal of the RELAY phono socket:
 1. The relay, RY1 should close for the duration of the connection. If the relay does not close, check to see that diode D17 (across the relay terminals) has been installed with its banded end toward the rear panel.
 2. The needle of the meter should move up scale and rest between 0 and 1 on the upper scale. This reading represents the zero signal (resting) plate current of about 22 mA.

This completes the "Tests and Final Assembly." Proceed to the Installation section.

*DO NOT count the mounting screws.