

altair 680b

V. FRONT PANEL AND FINAL CASE ASSEMBLY

Front Panel Assembly Instructions
Replace Front Panel
Prepare Case Bottom
Mate PC Boards
Install PC Boards
Case Top and Back Panel

ALTAIR 680b FRONT PANEL ASSEMBLY

The switches and LEDs that make up the front panel display will be mounted on-
to the non-silk-screened side of the
display/control board, as outlined in
the instructions below.

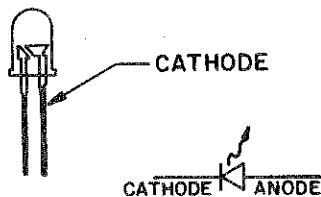
BE SURE TO READ THE INSTRUCTIONS BEFORE
YOU BEGIN THE WORK. THE COMPACT DESIGN
OF THE ALTAIR 680 MAKES IT ESSENTIAL
THAT THE ASSEMBLY STEPS BE FOLLOWED IN
ORDER.

The copies of the foil pattern shown on
pages 64 and 65 will aid in the correct
placement of the switches and LEDs.

There are 27 switches to be mounted to
the board. Two of these are momentary
contact SPDT switches and 25 are latch-
ing type SPDT switches. The momentary
contact switches can be distinguished
from the latching type switches by their
spring action. The momentary contact
type will return to the center position
automatically when pressure is released.

There are 27 LEDs (RL-21) to be mounted
on the board. All LEDs must be inserted
with the cathode lead towards the top
edge of the board. (For all but two of
the LEDs, the hole for the cathode lead
is indicated on the non-silk-screened
side of the board with a "K.") The
diagram below shows you how to determine
which lead is the cathode. Hold the LED
up to the light. The larger of the two
elements inside is the cathode.

RL-21



Front Panel Assembly Instructions

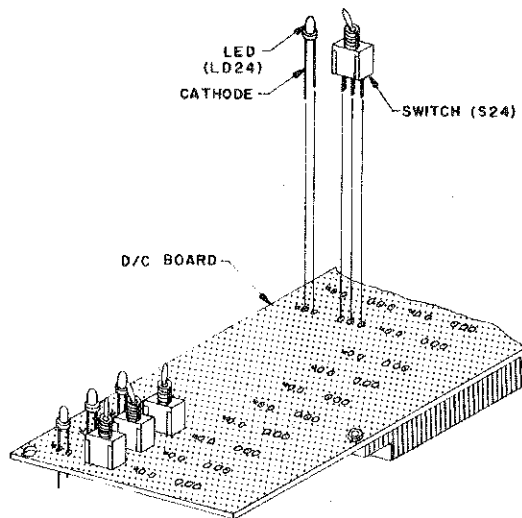
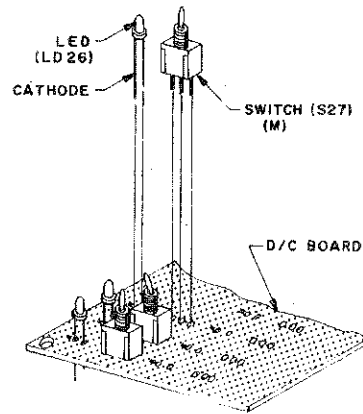
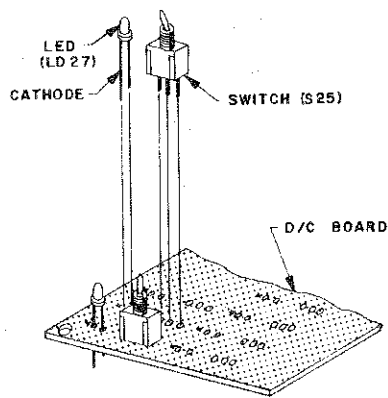
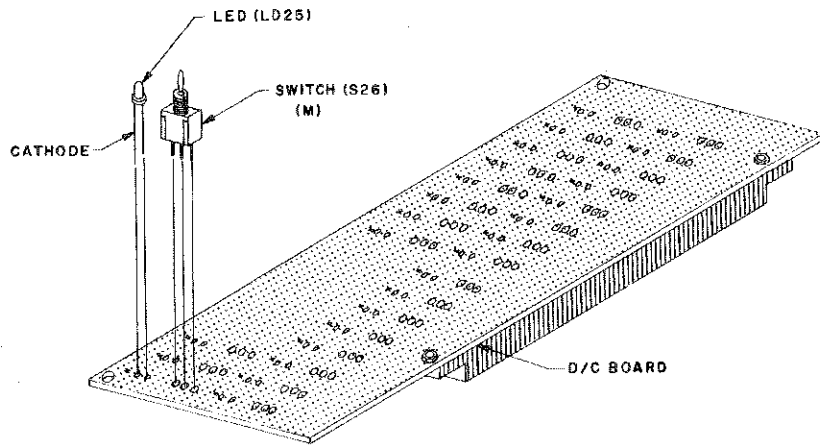
1. Set the display/control board in an elevated position so there is enough room underneath for the leads of the switches and LEDs to clear when they are inserted. Orient the board as shown in the diagrams (next page), so that the edge with the 100-pin connector is closest to you and the non-silk-screened side is facing up.
2. Begin inserting the switches and LEDs into their proper holes on the board.

DO NOT SOLDER ANY OF THEM UNTIL INSTRUCTED TO DO SO.

The series of drawings on the next page shows the placement of switches S26, S25, S27, S24 and LEDs LD25, LD27, LD26, LD24.

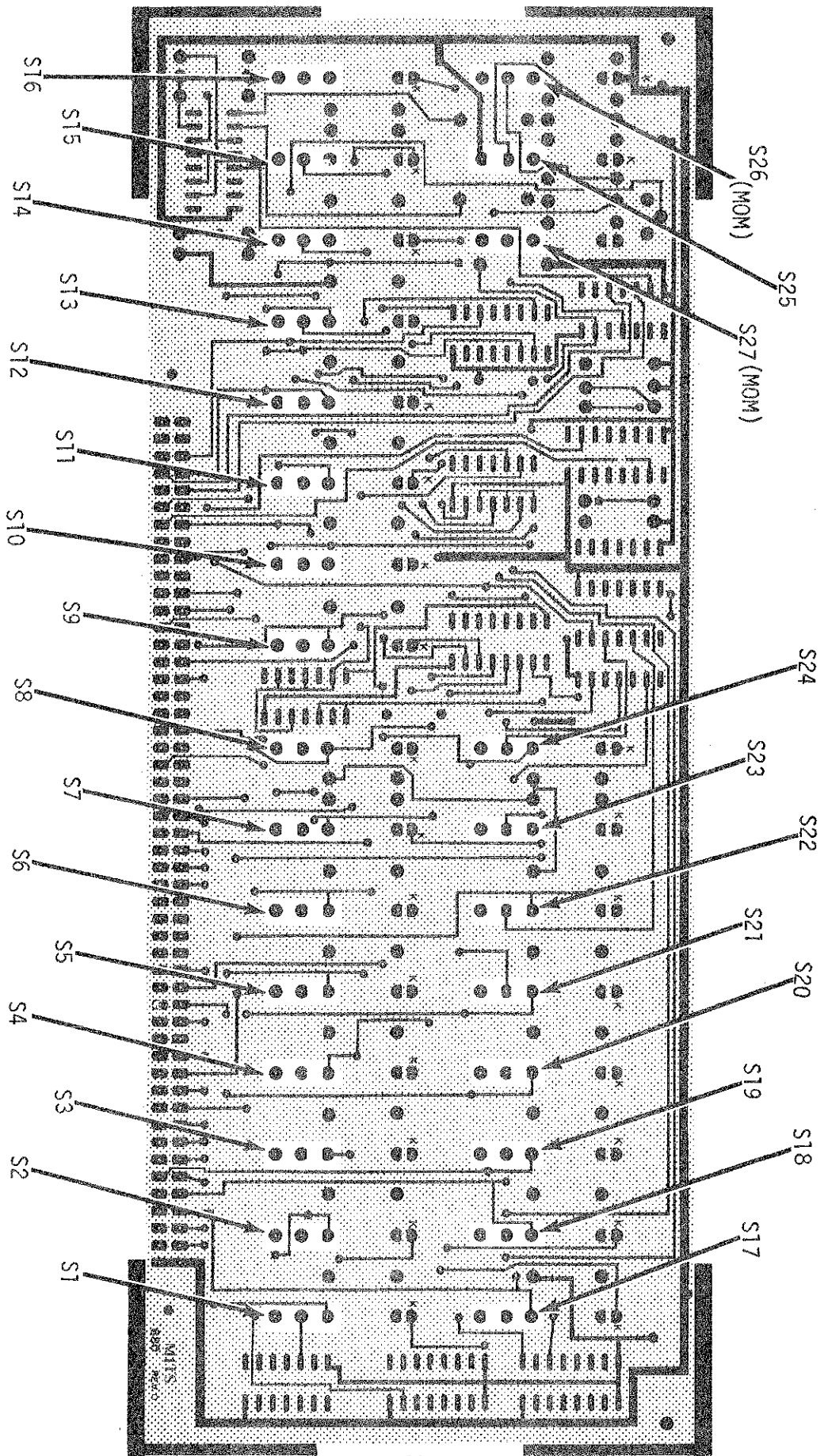
NOTE THAT S26 AND S27 ARE
MOMENTARY CONTACT SWITCHES.

NOTE THAT THE CATHODE LEAD OF
THE LEDs IS ALWAYS INSERTED
TOWARDS THE TOP EDGE OF THE
BOARD.



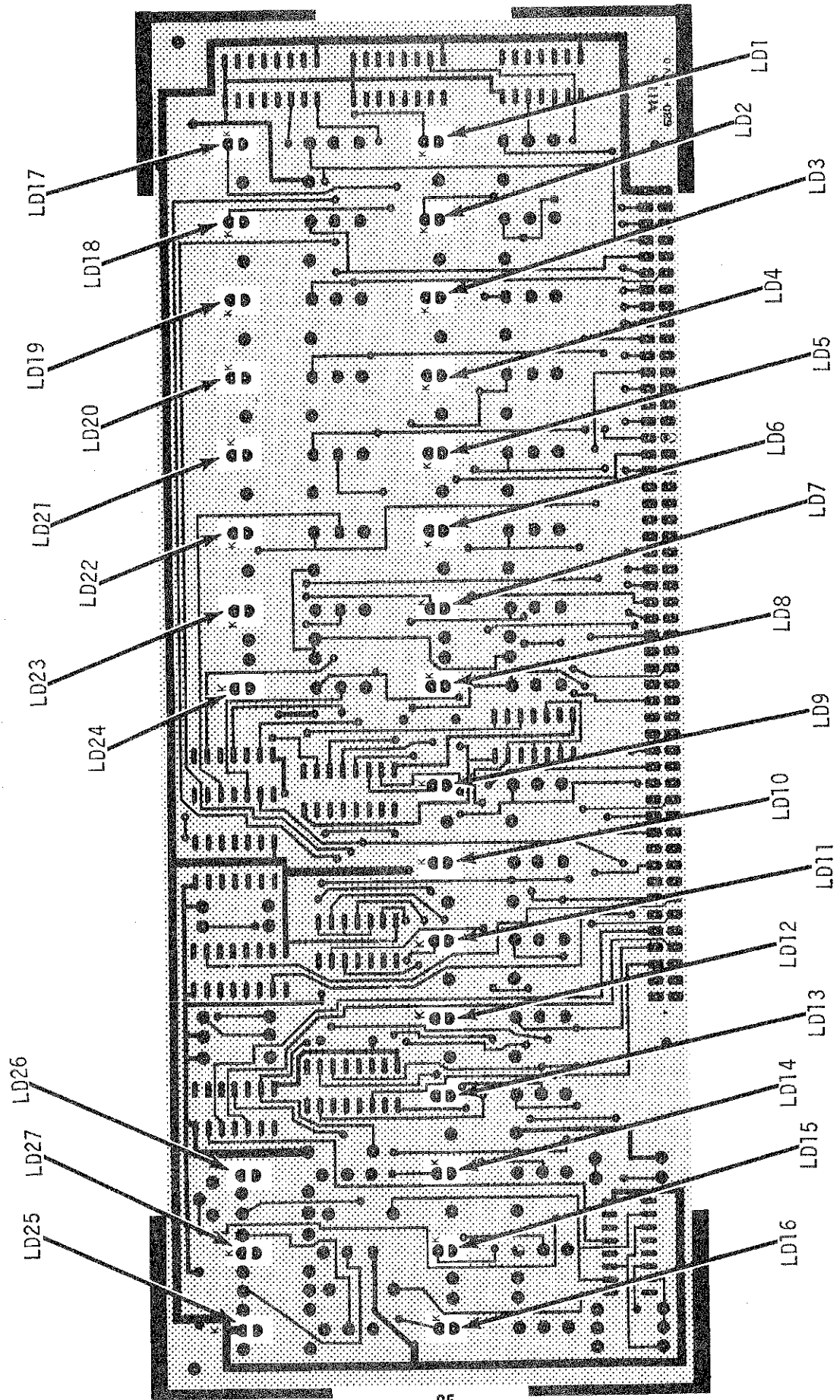
3. Insert all of the remaining switches and LEDs onto the board in this same manner. Use the copies of the foil pattern shown on the next two pages for proper placement of these components.

(Note: Set aside twelve of the nuts provided with the switches for use in Step 11 of this procedure. The rest of the hardware associated with the switches will not be used.)



SWITCHES

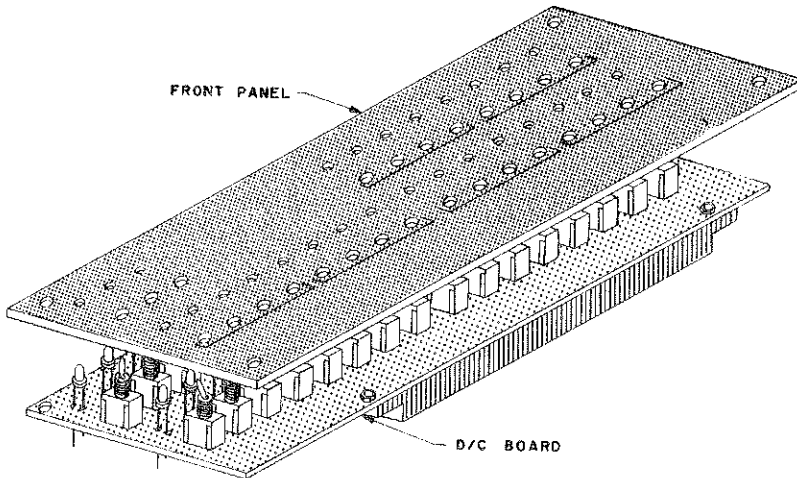
Altair 680
Front Panel Assembly



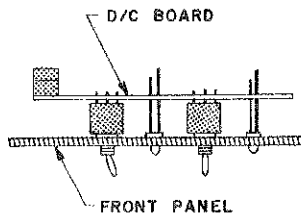
Altair 680
Front Panel Assembly

LEDS

When all the switches and LEDs have been placed on the board, you are ready to place the front panel over them as shown in the diagram below. The purpose of putting the front panel over the D/C board at this time is to hold the switches and LEDs in place while they are being soldered.

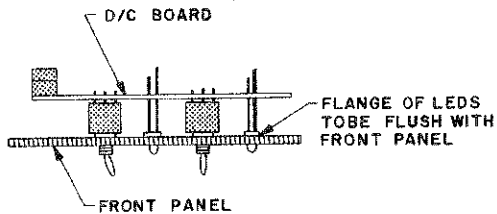


4. Remove the front panel from the case by removing the four corner screws. Set the screws aside, as two of them are to be used again later.
5. Place the front panel over the switches and LEDs on the D/C board as shown in the diagram above.
6. Hold the D/C board and the front panel together and turn them upside down. At this point, a side view of the entire assembly should look like this:



Once again, set the assembly in an elevated position so that the switches and lights are not in contact with the work surface. Make sure all the switches are pushed flush against the inside of the front panel.

7. Now you are ready to begin soldering. Soldering will be done on the silk-screened side of the board. Solder all the switches first. Make sure you solder all three leads of each switch.
8. When all the switches have been soldered, make sure all the LEDs are pushed flush against the inside of the front panel.



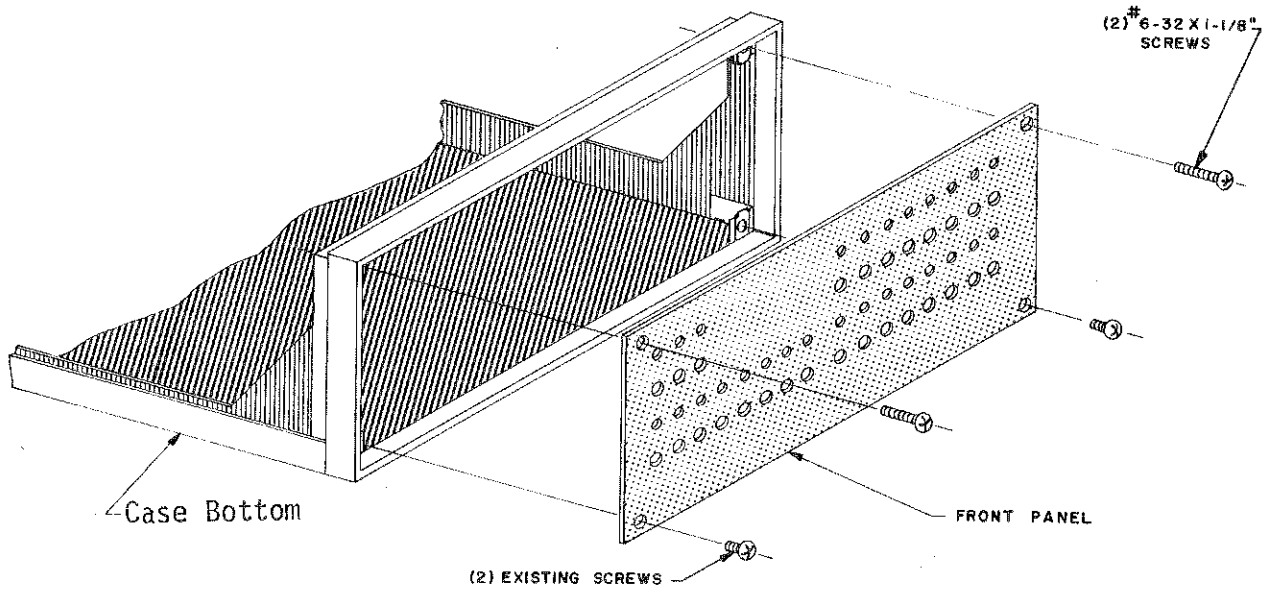
WARNING: LEDs are heat-sensitive. Use a minimum amount of heat for a minimum length of time when soldering them.

9. Solder the LEDs into place. Make sure each LED is pushed all the way down before you solder it. THIS IS IMPORTANT, AS IT ENSURES AN EVEN ALIGNMENT OF THE LIGHTS FOR THE FRONT PANEL DISPLAY.
10. When all the LEDs have been soldered, turn the entire assembly right side up again and remove the front panel.
11. Using the twelve nuts you set aside in Step 3, attach two nuts to each of the following switches: S1, S17, S7, S25, S16, S26 (corresponding to A0, D0, A7, D7, A15, RESET respectively). These nuts help provide the proper spacing between the front panel and the D/C board, so that the LEDs will be at the correct height for the display.

ALTAIR 680b FINAL CASE ASSEMBLY

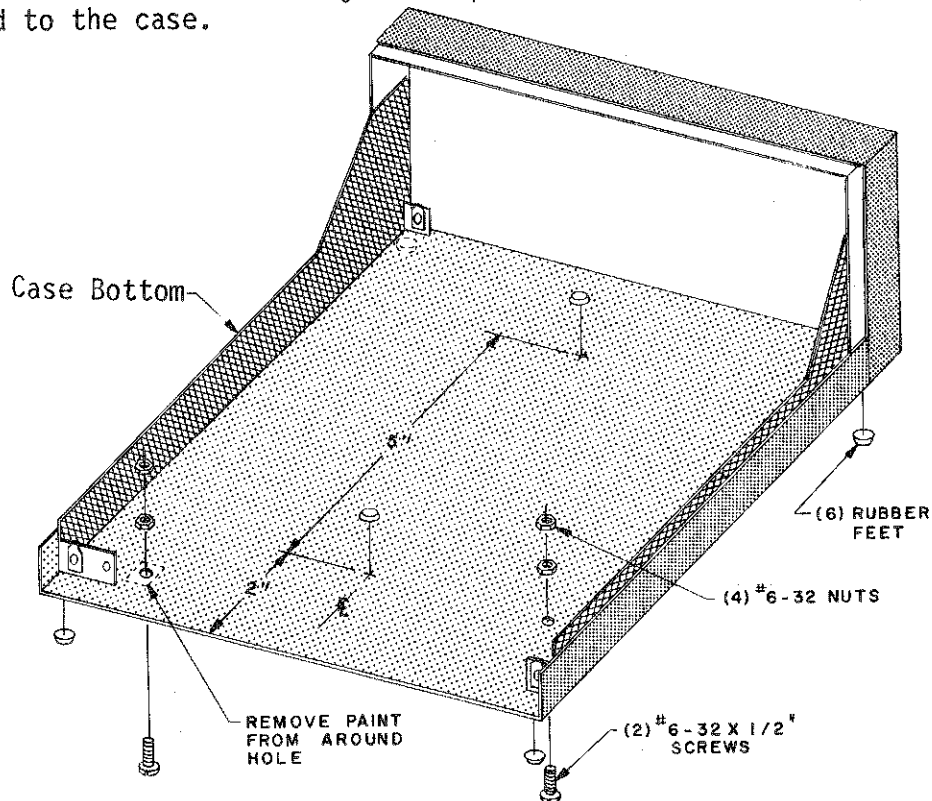
A. Replace Front Panel

1. Return the front panel to its place on the case bottom as shown below. Use two of the original screws for the bottom holes, but use #6-32 x 1 1/8" screws for the top holes. Longer screws must be used at the top to provide adequate spacing between the front panel and the D/C board.



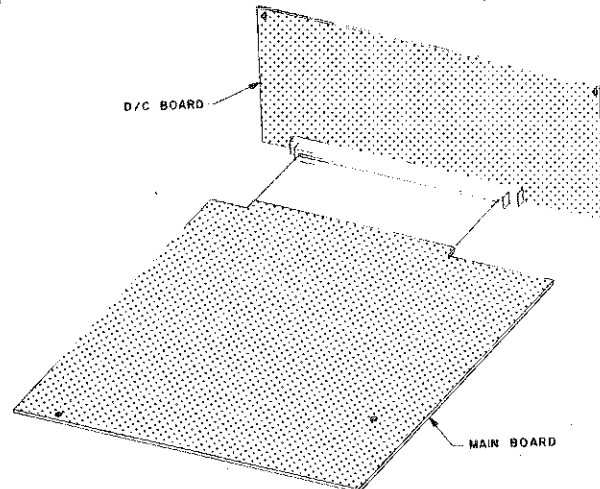
B. Prepare Case Bottom

1. Remove the paint from around the rear-most mounting hole in the case bottom (to establish a ground connection with the main PC board).
2. Insert a #6-32 x 1/2" screw with two #6-32 nuts into each of the two mounting holes in the case bottom.
3. Attach six rubber feet: One to each corner of the outside case bottom, and two on the inside center line, as shown. The rubber feet are self-adhesive and need only to be peeled from their backing and applied to the case.



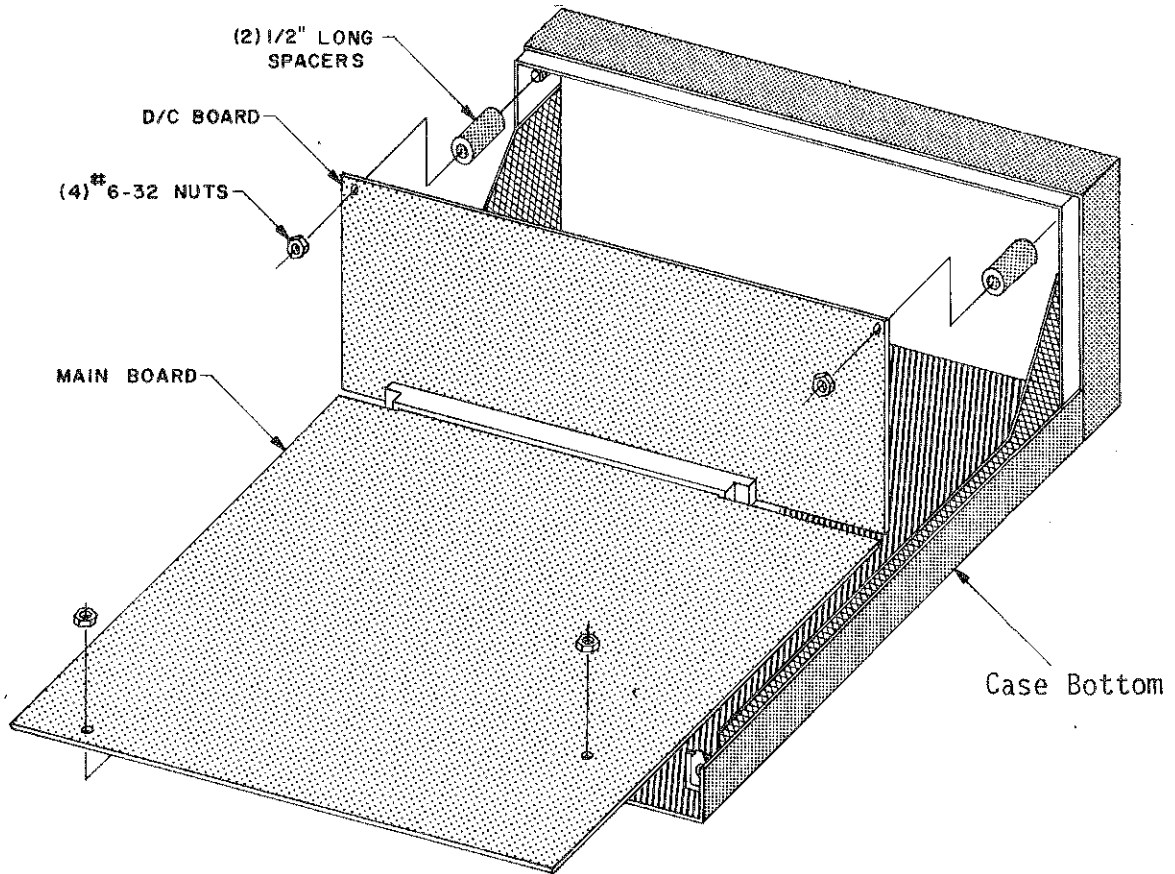
C. Mate PC Boards

1. Connect the two PC boards by inserting the top edge of the main board into the 100-pin connector on the D/C board, as shown below.



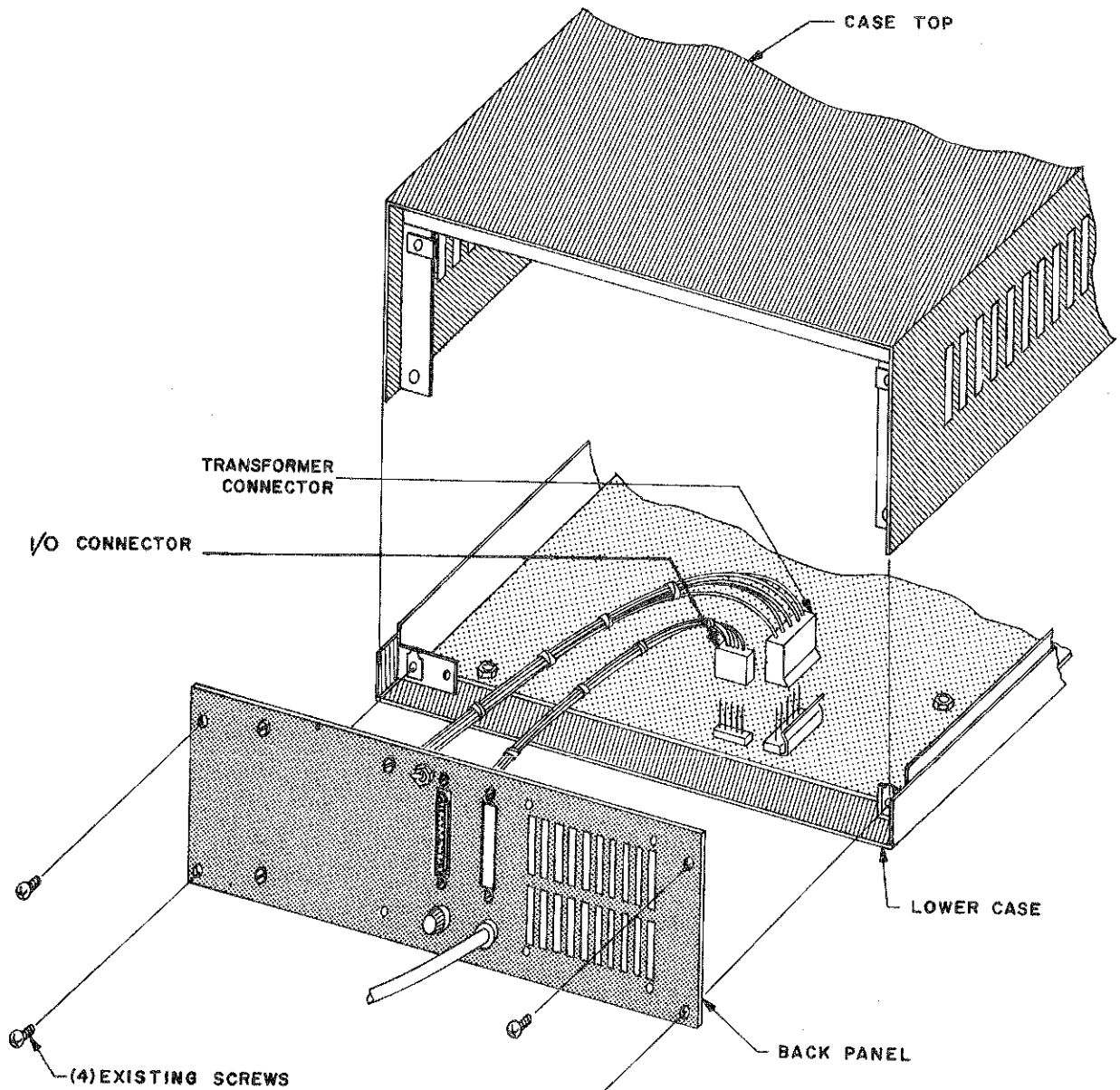
D. Install PC Boards

1. Make sure all latching switches on the D/C board are in the "UP" position.
2. Put a 1/2" spacer on each of the two top front panel screws. (Two 1/4" spacers may be substituted for a 1/2" spacer.)
3. Insert the boards into the case bottom at a slight angle so that the switches and LEDs go into their respective holes first, and then the main board settles into place.
4. Secure the boards with four #6-32 nuts as shown in the illustration.



E. Case Top and Back Panel

1. Install the case top in its place on the case bottom, as shown in the illustration below.
2. Install the 5-pin female connector from the transformer onto the 5-pin male connector on the Main PC Board. Install the 5-pin miniature female connector from the I/O plug onto the 5-pin miniature male connector.
3. Put the back panel on the case, securing it with the same screws that you set aside earlier.



SERVICE

Should you have a problem with your computer, it can be returned to MITS for repair. If the unit is still under warranty, any defective part will be replaced free of charge. The purchaser is responsible for all postage. In no case should a unit be shipped back without the outer case fully assembled.

If you need to return the unit to us for any reason, remove the top cover of your computer and make sure the boards are secured inside the case. Replace the cover and pack the unit in a sturdy cardboard container and surround it on all sides with a thick layer of packing material. You can use shredded newspaper, foamed plastic, or excelsior. The packed carton should be neatly sealed with gummed tape and tied with a stout cord. Be sure to tape a letter containing your name and address, a description of the malfunction, and the original invoice (if the unit is still under warranty) to the outside of the box.

Mail the carton by parcel post or UPS--for extra fast service, ship by air parcel post. Be sure to insure the package.

SHIP TO: MITS, Inc.
 2450 Alamo SE
 Albuquerque, NM 87106

All warranties are void if any changes have been made to the basic design of the machine or if the internal workings have been tampered with in any way.

mits

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Albuquerque, NM 87106**