Modification Kit

for the

Heathkit®

H88/H89 DIGITAL COMPUTER

Model H89/H77

Use this Modification Kit to interface your H88/H89 Digital Computer with the H77 Floppy Disk.

SPECIAL NOTICE

Before you unpack your Modification Kit and begin to install it, please review the enclosed manual information and consider the following:

1. This Modification Kit is provided as a service to Heathkit customers. The modification instructions have been thoroughly evaluated and tested.
2. Be extremely careful when you perform the modification. An incorrect installation can cause operational difficulties.
3. For the first ninety (90) days after you receive it, Heath will replace, free of charge, any parts contained within this Modification Kit that are defective, either in materials or workmanship. No warranty is implied nor extended to any other parts or service associated with the modification. Replacement parts can be obtained from Heath's Parts Department (phone number (616)-982-3571) or a Heathkit Electronic Center.
4. This Modification Kit is authorized only for the product(s) designated in the enclosed Manual.
5. You must perform the entire modification before Heath can accept the product for service. If service is required, labor and parts charges will apply (except for parts supplied with the modification kit, which will be replaced no charge if defective).

If you find that the Modification Kit is not suitable for your purposes at this time, you may return it prepaid for credit or a refund by contacting Heath Company, Parts Department (phone (616)-982-3571). But, once the kit has been unpacked and/or assembly commenced, it is no longer resalable as a kit and a credit or refund request cannot be accommodated.

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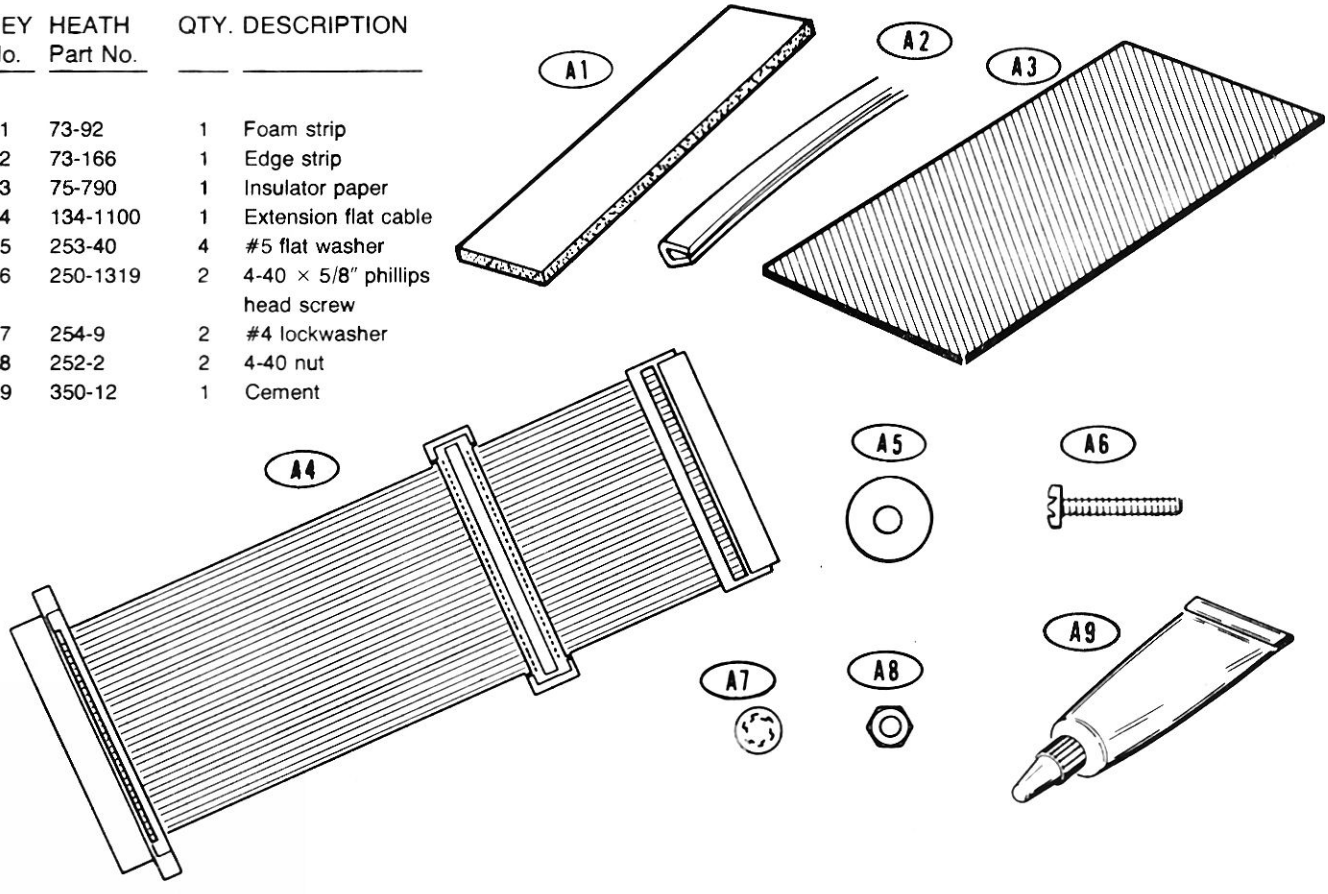
BENTON HARBOR, MI 49022

597-2164-01

PARTS LIST

Open the large shipping carton and locate the pack marked PK #3. Remove this pack and check each part against the following list.

KEY No.	HEATH Part No.	QTY.	DESCRIPTION
A1	73-92	1	Foam strip
A2	73-166	1	Edge strip
A3	75-790	1	Insulator paper
A4	134-1100	1	Extension flat cable
A5	253-40	4	#5 flat washer
A6	250-1319	2	4-40 × 5/8" phillips head screw
A7	254-9	2	#4 lockwasher
A8	252-2	2	4-40 nut
A9	350-12	1	Cement



COMPUTER CABINET REMOVAL

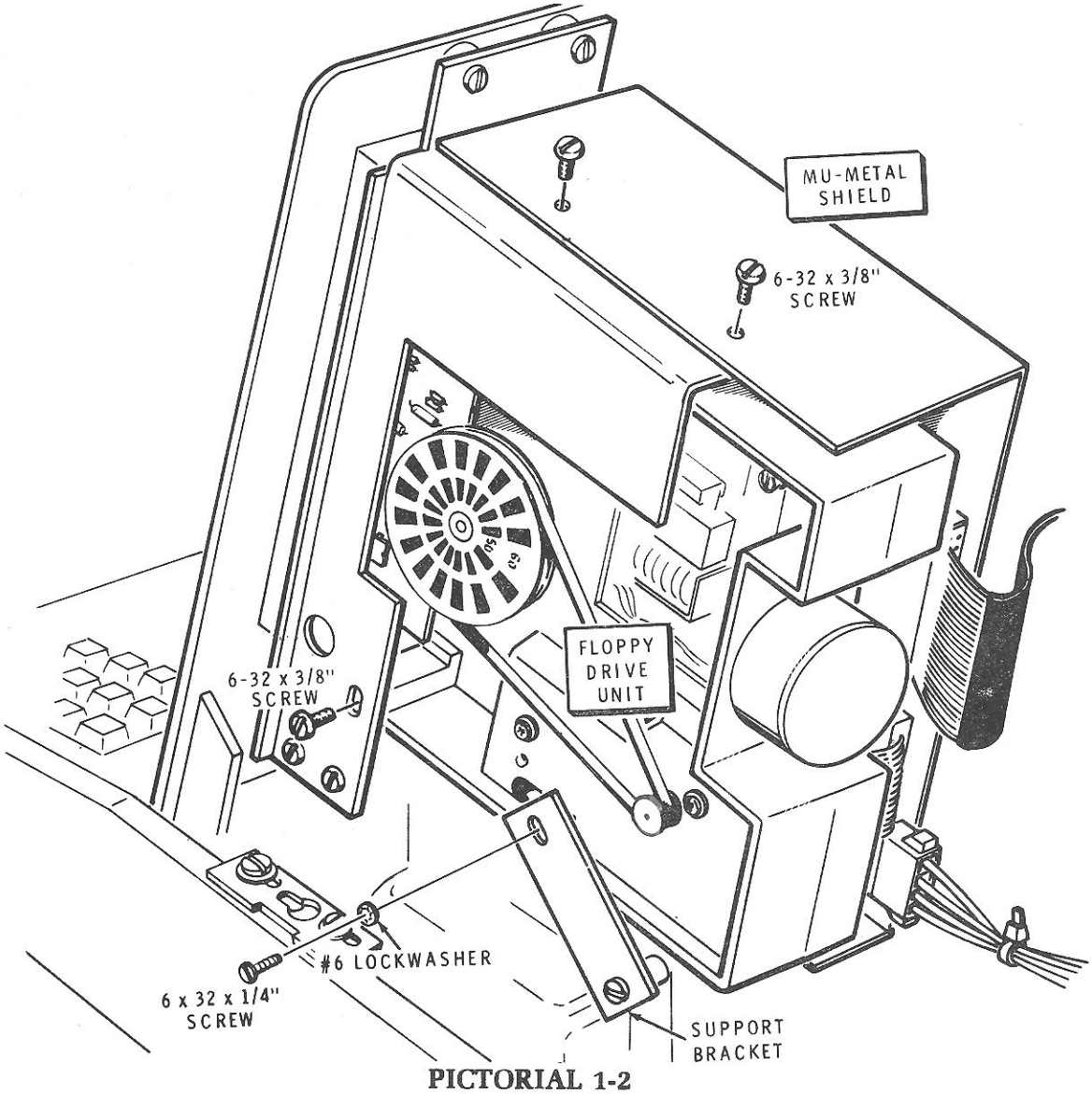
( ) Unplug your Computer.

( ) Refer to Pictorial 1-1 (Fold-in) and remove the cabinet shell from your Computer as follows:

- Unlatch the two side latch plates.
- Tilt back the cabinet shell.
- Unplug the fan.
- Remove the cabinet shell.

- **WARNING:** When the line cord is connected to an AC outlet, hazardous voltages can be present inside your Computer. See Pictorial 1-1 (Fold-in).

STEP-BY-STEP MODIFICATION



PICTORIAL 1-2

( ) Unplug the line cord and remove the cabinet shell (See Pictorial 1-1, Fold-in).

NOTES:

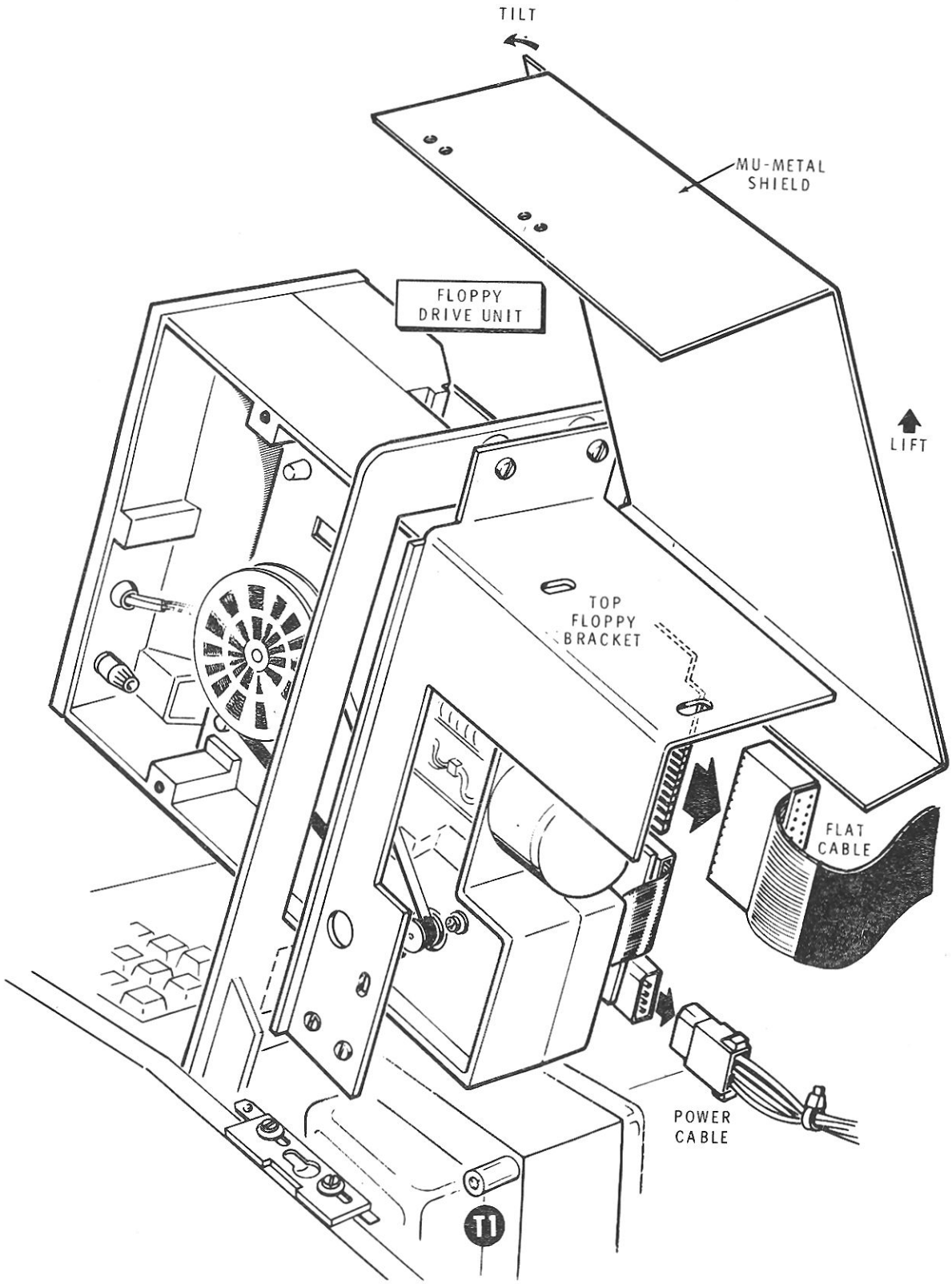
1. If you intend to use the H77 Floppy Disk with an H88 Computer, open the H88-4 Floppy Disk System carton and check the parts against the "Parts List" on Page 4-3 of your H88 Operation Manual. Proceed with the assembly instructions (Pages 4-4 to 4-9) in that Manual. Then proceed to "Extension Flat Cable" on Page 5 in this Manual.

2. If you intend to use the H77 Floppy Disk with an H89 Computer, proceed with the following steps.

Refer to Pictorial 1-2 for the following steps.

( ) Remove the three 6-32 × 3/8" screws holding the mu-metal shield and the floppy drive in place.

( ) Remove the 6-32 × 1/4" screw and #6 lockwasher holding the support bracket to the floppy drive.



PICTORIAL 1-3

Refer to Pictorial 1-3 for the following steps.

( ) Slide the floppy drive unit part way out of the bezel.

( ) Unplug the flat cable from the floppy drive circuit board.

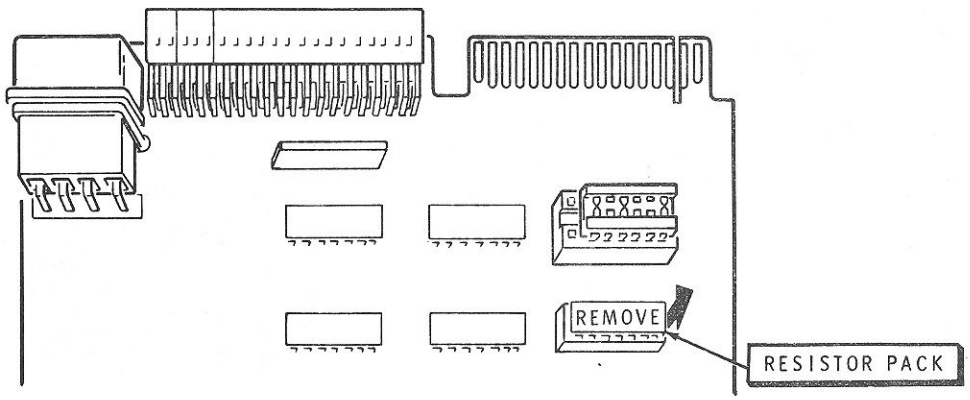
( ) Unplug the power cable from the floppy drive circuit board connector.

( ) Slide the floppy drive out of the bezel and set it on your work surface.

EXTENSION FLAT CABLE

( ) Refer to Pictorial 1-4 and remove the resistor pack from the socket as shown. Save the pack in case you decide to restore the original system.

NOTE: Only the last floppy drive on the cable should have a resistor pack installed. When you assemble your H77 Floppy Disk, you will remove the resistor pack from SY2:, if you have a three drive system.

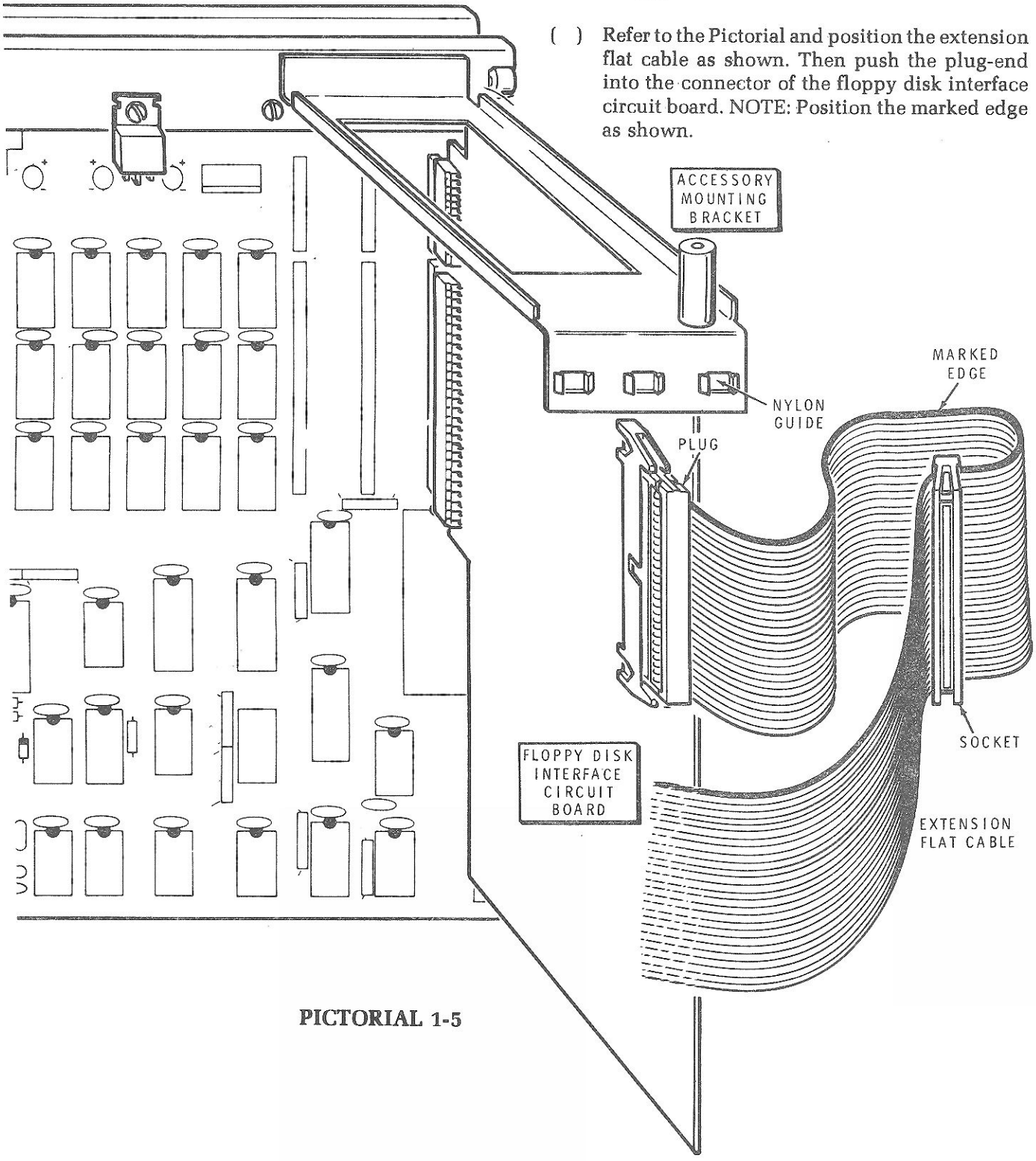


PICTORIAL 1-4

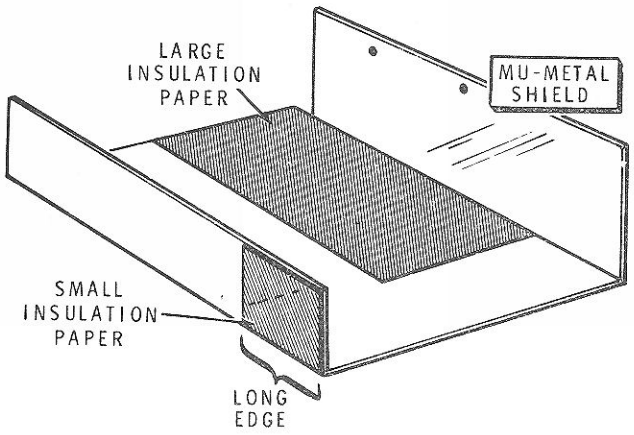
Refer to Pictorial 1-5 for the following steps.

( ) Remove the short flat cable that is plugged into the connector on the floppy disk interface circuit board. It will not be used with the H77 Floppy Disk.

( ) Refer to the Pictorial and position the extension flat cable as shown. Then push the plug-end into the connector of the floppy disk interface circuit board. NOTE: Position the marked edge as shown.



PICTORIAL 1-5



Detail 1-6A

Refer to Pictorial 1-6 (Fold-in) for the following steps.

NOTE: Skip the next two steps if you are modifying an H89.

( ) Refer to Detail 1-6A and position the mu-metal shield as shown. Then remove the protective backing from the large insulation paper and press the insulation paper onto the shield as shown.

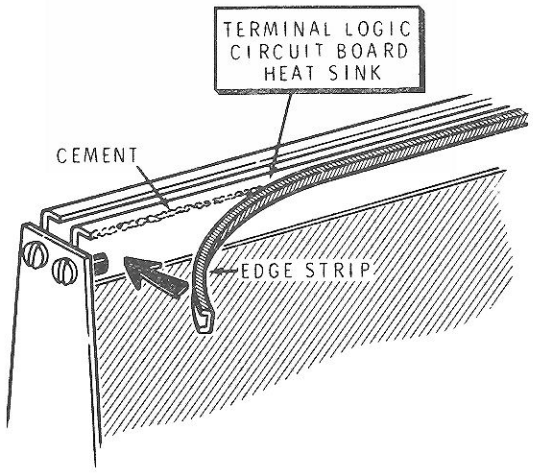
( ) Again refer to Detail 1-6A and, in a similar manner, install a small insulation paper on the mu-metal shield. Position the paper with the long edge as shown.

( ) Position the mu-metal shield into the Computer as shown. Then slide the floppy drive unit part way into the Computer and connect the power cable and extension flat cable.

( ) Slide the drive unit the rest of the way into the Computer and secure it and the mu-metal shield in place with three 6-32 × 3/8" screws as shown.

( ) Tighten the four screws you left loose earlier.

( ) Install the support bracket as shown in Pictorial 1-6. Use an 8-32 × 5/16" screw and #8 lockwasher at T1 and 6-32 × 1/4" screw and #6 lockwasher at A.



Detail 1-7A

Refer to Pictorial 1-7 for the following steps.

( ) Open the tube of cement. Refer to Detail 1-7A and form a bead of cement along the top edge of the terminal logic circuit board heat sink as shown.

( ) Press the edge strip in place along the length of the heat sink as shown in the Detail.

( ) Cut two 1" pieces of foam strip.

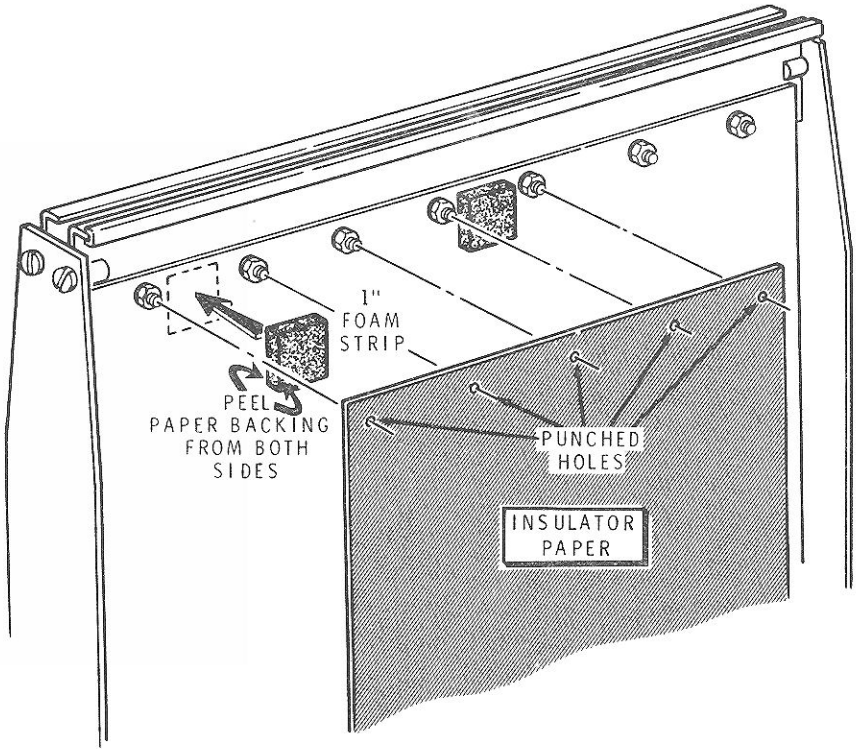
( ) Peel the backing paper off one side of one piece of foam strip. Then refer to Detail 1-7B and press the foam strip in place near the corner as shown.

( ) Peel the backing paper off one side of the other piece of foam strip and press it in place as shown.

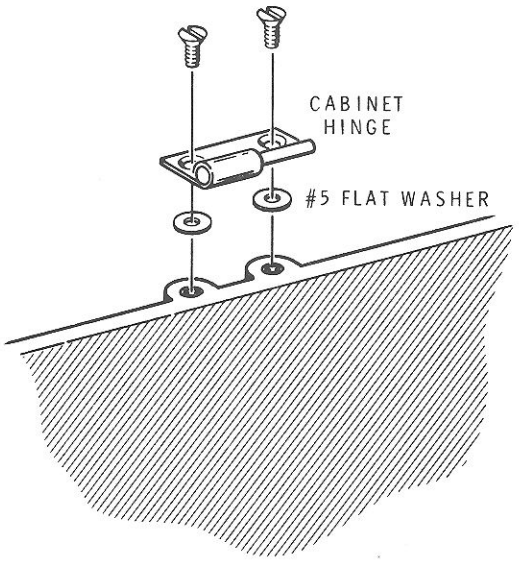
( ) Peel the remaining backing paper from the 1" foam strips.

( ) Align the punched holes of the insulator paper with the screws sticking through the terminal logic circuit board. Slip the insulator paper behind the cable connector. Press the insulator paper against the two foam strips.

NOTE: If the rear panel of your Computer looks like the one in Pictorial 1-9, proceed to "Large Rear Panel" (Page 10) and perform those steps. Otherwise, proceed with the following steps.



Detail 1-7B



Detail 1-7C

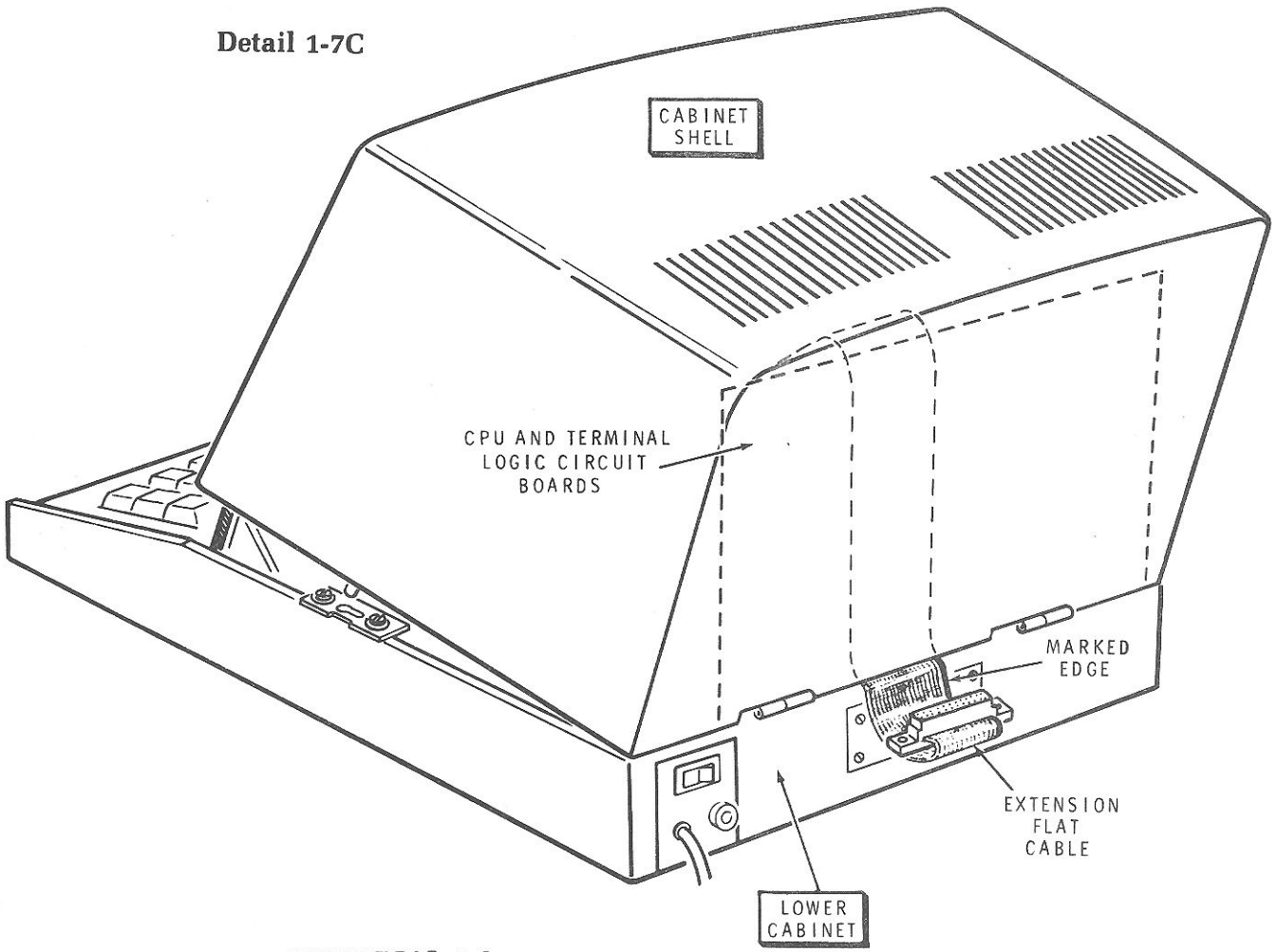
( ) Refer to Detail 1-7C and remove the screws from the cabinet hinges.

( ) Install two #5 flat washers under each cabinet hinge as shown in the Detail.

( ) Route the extension flat cable over the top of the CPU and terminal logic circuit boards. Lay the socket-end of the extension flat cable outside the rim of the lower cabinet. Be sure the marked edge of the cable is as shown.

( ) Refer to Pictorial 1-8 and replace the cabinet shell. The extension cable will extend under the shell when it is closed.

This completes the modification of your H89 Digital Computer.



PICTORIAL 1-8

LARGE REAR PANEL

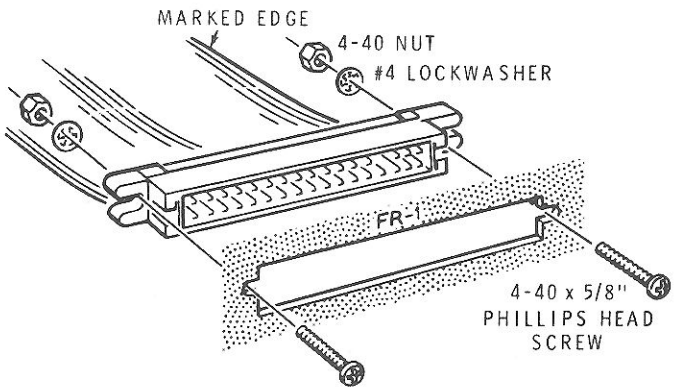
Refer to Pictorial 1-9 for the following steps.

( ) Route the extension flat cable over the top of the CPU and terminal logic circuit boards.

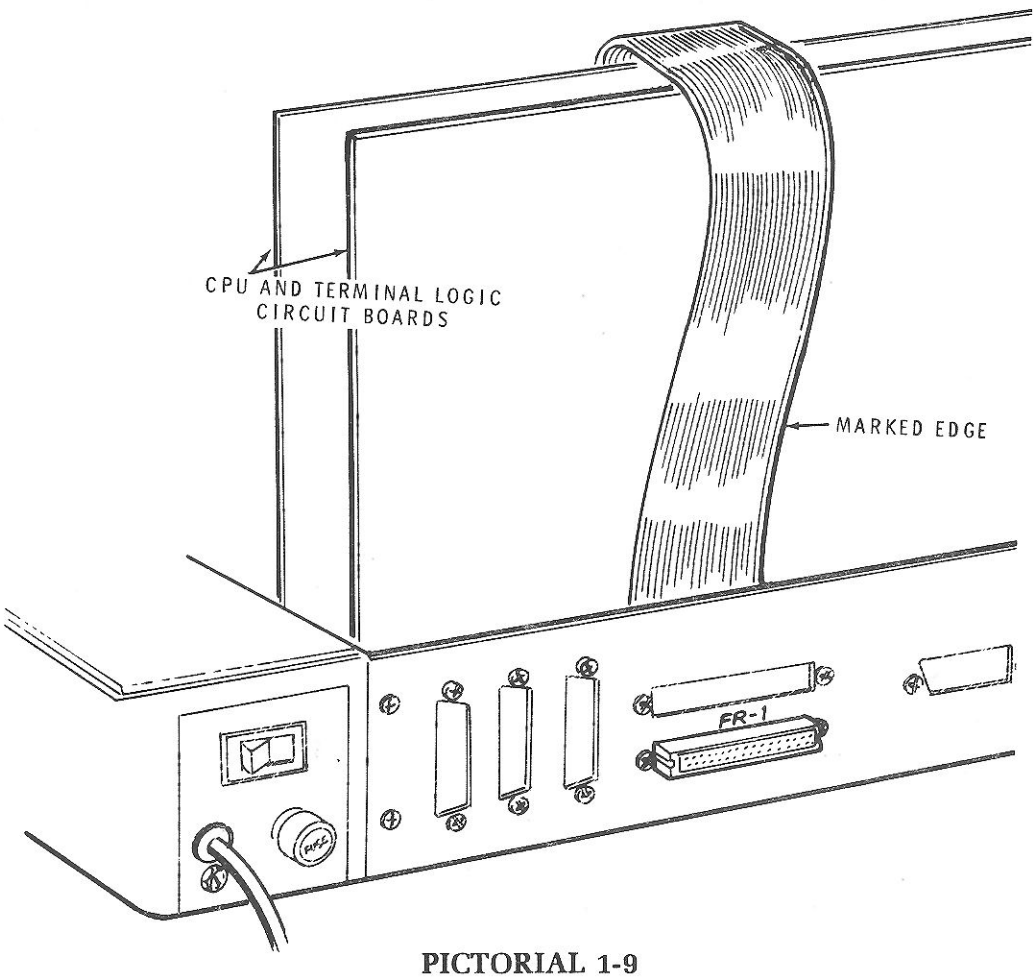
( ) Refer to Detail 1-9A and mount the flat cable connector at FR-1 as shown. Use two 4-40 × 5/8" phillips head screws, two #4 lockwashers, and two 4-40 nuts. Be sure to position the marked edge of the cable as shown.

( ) Replace the cabinet shell.

This completes the modification of your H89 Digital Computer.



Detail 1-9A



PICTORIAL 1-9