

Z89-47 ACCESSORY

for the



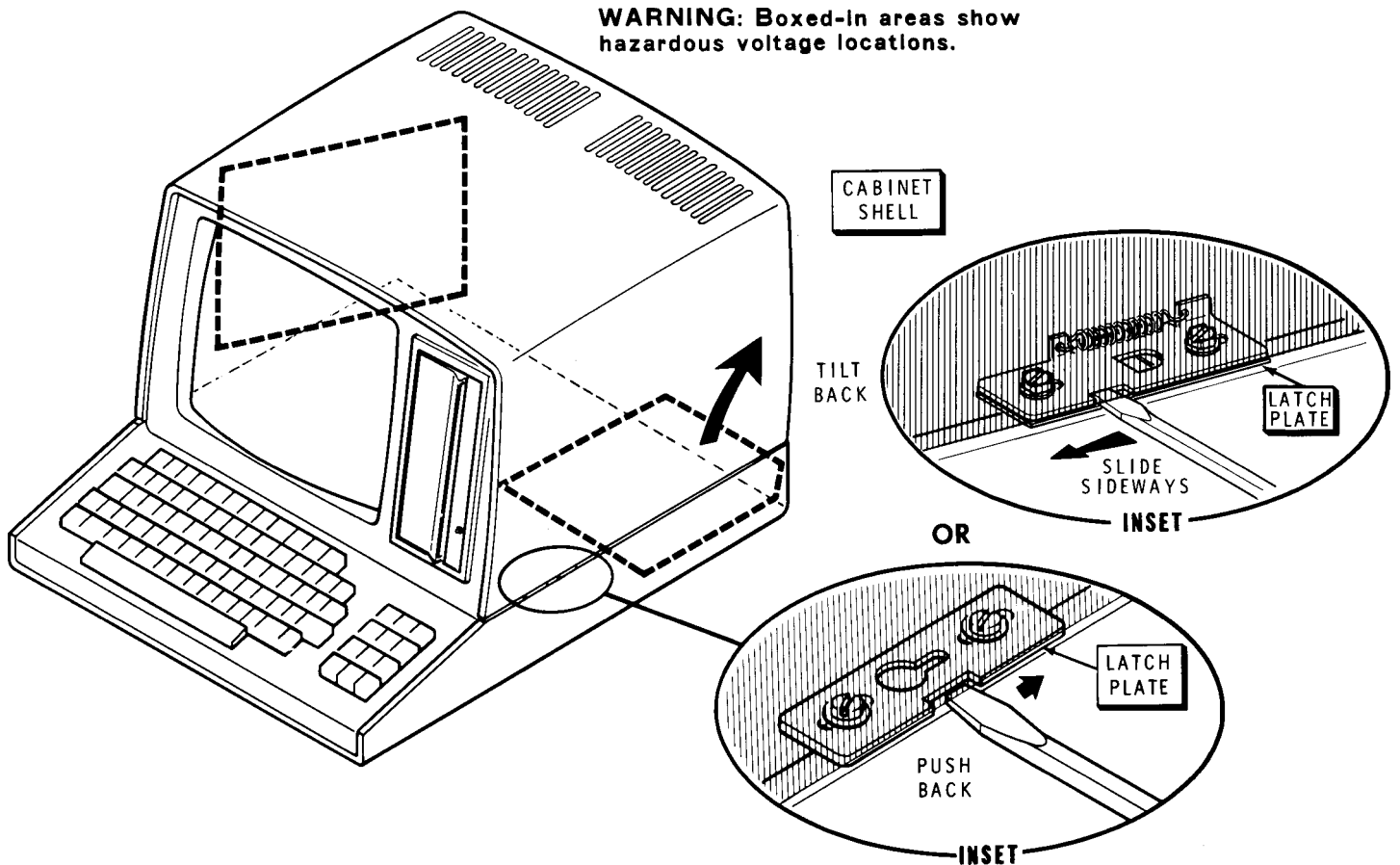
Z89 DIGITAL COMPUTER.

Use this accessory to interface the Z89 Digital Computer with the Z47 Floppy Disk.

THIS PROCEDURE SHOULD BE PERFORMED BY
A QUALIFIED SERVICE TECHNICIAN.

COMPUTER CABINET REMOVAL

WARNING: Boxed-in areas show hazardous voltage locations.



PICTORIAL 1-1

Whenever you need to remove the cabinet shell:

- Refer to the inset drawing on Pictorial 1-1, insert the blade of a small screwdriver onto the notch in the latch plate, and then slide the latch plate as shown in the inset drawings.
- Likewise, open the latch plate on the other side of 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.
- Carefully tilt the cabinet shell back. **NOTE:** The hinges are designed so you can easily remove the cabinet shell once you have opened it completely.
- Unplug the fan.

Reverse this procedure to close and lock the cabinet shell back on the Computer.

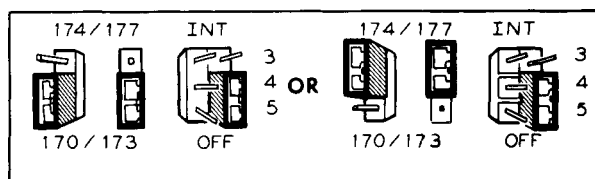
MODIFICATION

To operate the Z47 Floppy Disk with the Z89 Digital Computer, the floppy disk interface circuit board and extension flat cable must be installed. To properly use this modification, the rear panel of your computer must look like the one shown in Pictorial 1-3. If it does not, install the Z89-6 Modification first.

NOTE: The installation of the Z47 Floppy Disk interface circuit board depends largely on the current configuration of your Z89 Digital Computer. We recommend that you install the interface circuit board on plugs P504 and P510. However, it could also be installed in either of the other two slots. If a 5-1/4" drive exists in your system, the interface circuit board for it

must be plugged onto P506 and P512. If your Z47 will be addressed for port 174/177, then the interface circuit board for it must be installed on P506 and P512, eliminating the 5-1/4" drive interface.

You may have two interface circuit boards installed at the same time as either two Z47 interfaces with different port addresses, or as one Z47 interface and one 5-1/4" drive interface. If the 5-1/4" drive interface is installed, the Z47 interface circuit board must be jumpered for port 170/173. Interrupts should be jumpered for OFF. See Detail 1-2A and "Monitor MTR-89 Floppy Boot" for a description of port selection.

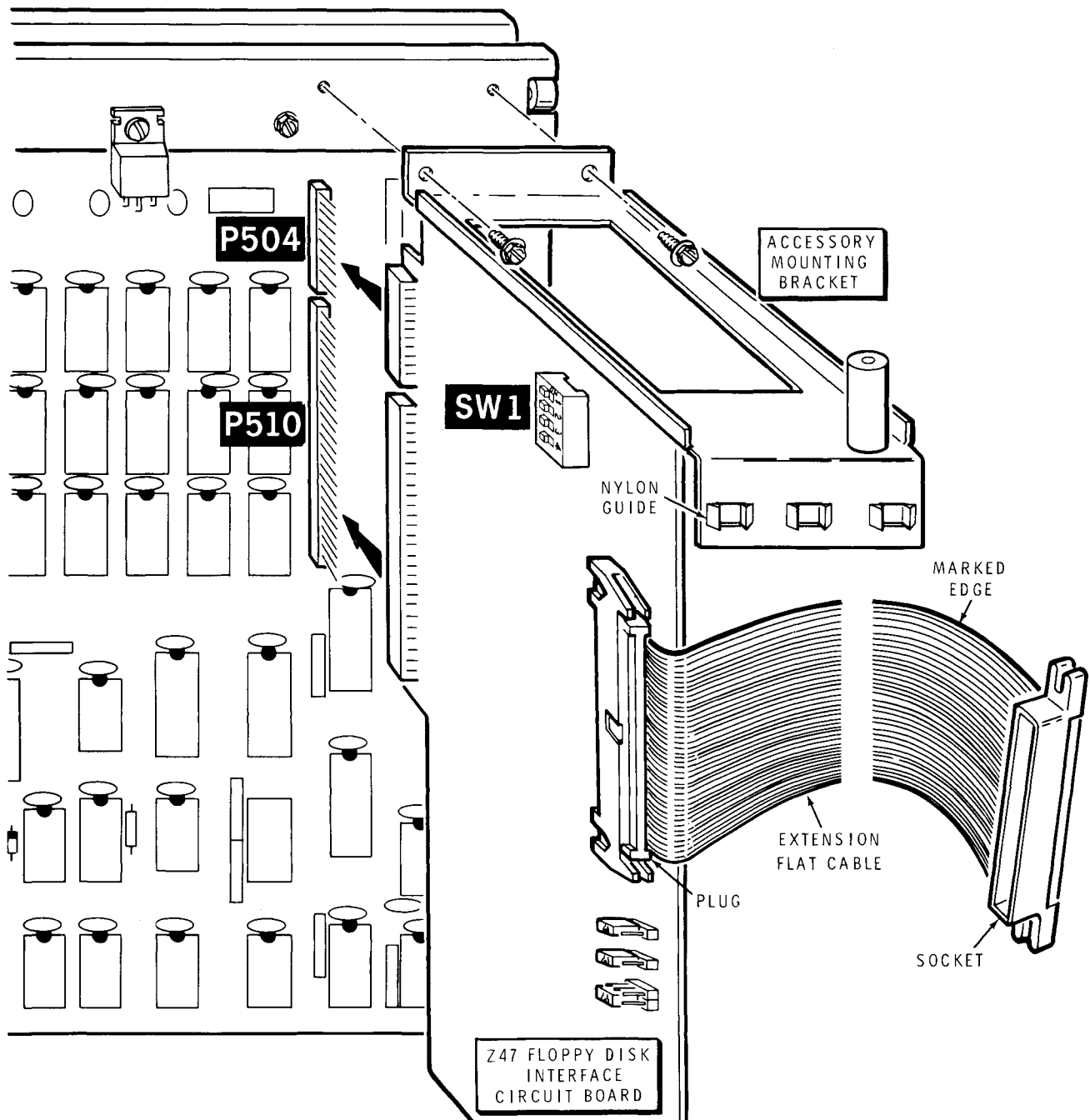


Detail 1-2A

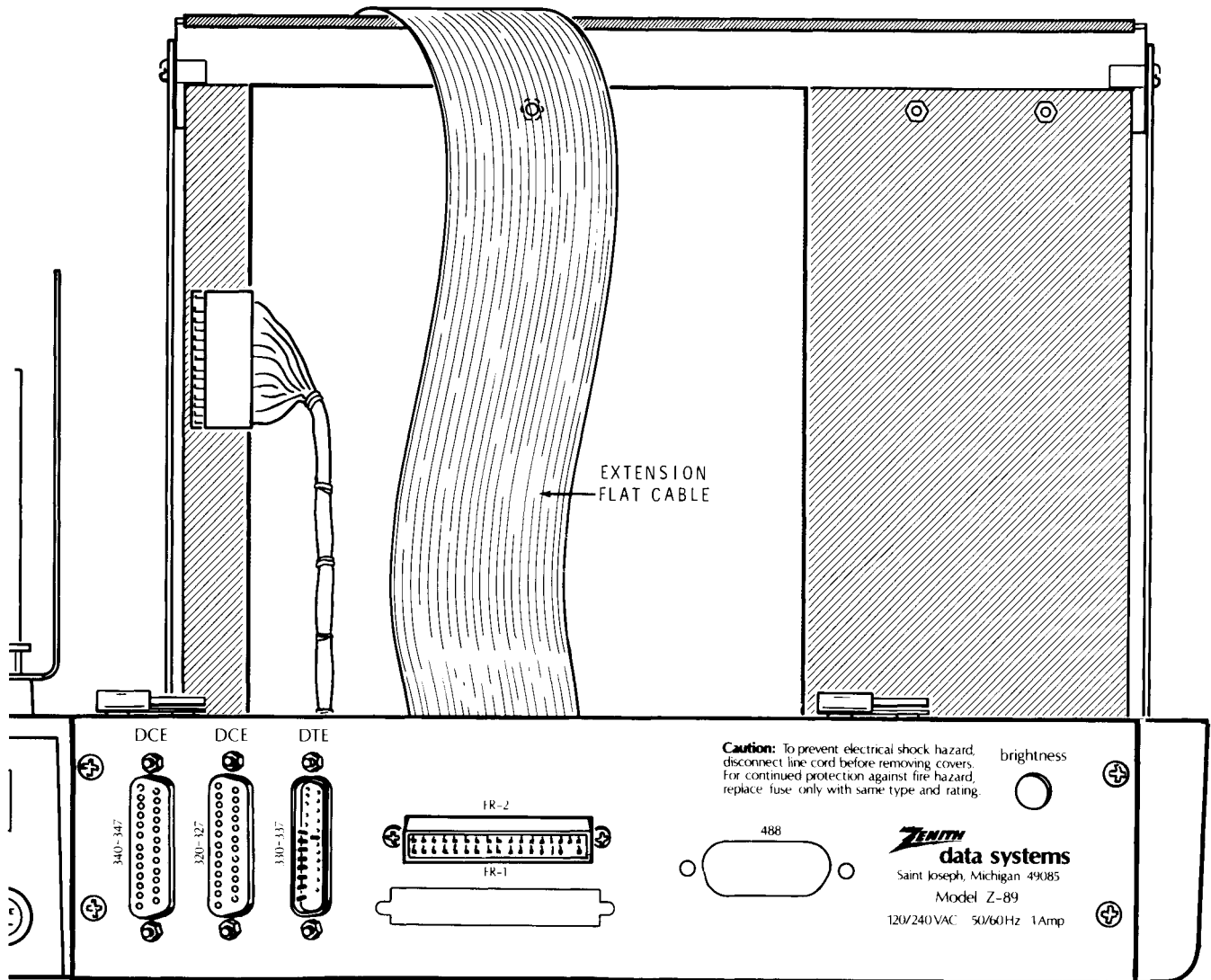
Refer to Pictorial 1-2.

- () Remove the accessory mounting bracket from the CPU logic circuit board.
- () Plug the extension flat cable into the Z47 floppy disk interface circuit board with the marked edge up.

- () Install the floppy disk interface circuit board on plugs P504 and P510.
- () Replace the accessory mounting bracket.



PICTORIAL 1-2

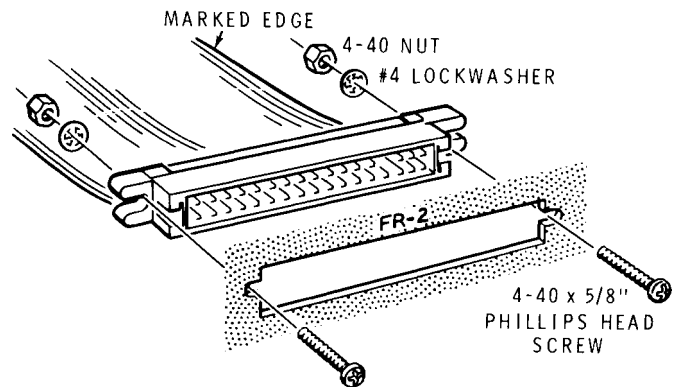


PICTORIAL 1-3

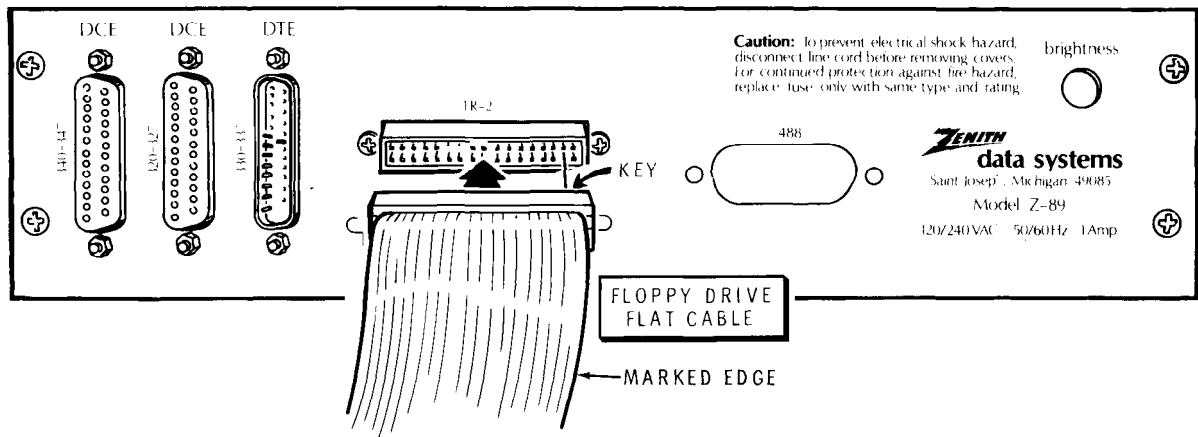
Refer to Pictorial 1-3.

- () Route the extension flat cable over the top of the CPU and terminal logic circuit boards.
- () Refer to Detail 1-3A and mount the socket at FR-2 on the rear panel with two 4-40 × 5/8" phillips head screws, #4 lockwashers, and 4-40 nuts.
- () Replace the cabinet shell.

This completes the modification of the Z89 Digital Computer.



Detail 1-3A



PICTORIAL 1-4

- () Refer to Pictorial 1-4 and connect the free end of the floppy disk flat cable to FR-2 on the Z89 Digital Computer rear panel. The connector is keyed and will connect only one way.

VERIFICATION TEST

The following program is provided as a hardware check for the newly installed systems. Use it to confirm the integrity of the Z47 Floppy Disk interface.

Refer to "MTR-89 Monitor" for a description of the monitor SUBSTITUTE command. Familiarize yourself with the sections on "Displaying and Altering Memory" and "Program Execution Control."

1. Use the SUBSTITUTE command to change location 41120A to 170 if the Z47 is the secondary boot device. Change it to 174 if the Z47 is the primary boot device.
2. Use the SUBSTITUTE command to enter the following codes, beginning at location 43000A:

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 076 | 002 | 315 | 063 | 006 | 076 | 017 |
| 315 | 027 | 006 | 076 | 032 | 315 | 023 |
| 006 | 315 | 170 | 006 | 346 | 040 | 050 |
| 371 | 315 | 170 | 006 | 346 | 001 | 041 |
| 051 | 043 | 050 | 003 | 041 | 054 | 043 |
| 315 | 100 | 006 | 303 | 322 | 000 | 117 |
| 113 | 000 | 102 | 101 | 104 | 000 | |
3. Check the codes to insure that they are correct.
4. Apply power to the floppy disk unit.

5. Insert a blank write-enabled diskette into drive 0 and close the door. The write-protect switches must be down.
6. Start the verification test at 43000A with the GO command.
7. The drive will begin to format the diskette. You should see the drive activity light come on and hear a clicking noise.
8. A message will appear on the screen. "OK" means that your floppy disk interface is verified and ready for use. "BAD" means that a hardware problem exists.
9. If you get the "BAD" message, perform the following checks.
 - A. Check the flat cable connections at the rear of the floppy disk and the computer.
 - B. Check the installation of the Z89-47 Floppy Disk Interface Circuit Board.
 - C. Check the extension flat cable connection at the interface circuit board.
 - D. Check the switch settings on SW501 on the CPU Logic Circuit Board.

CIRCUIT BOARD TEST

The following program is provided to confirm the operation of the interface circuit board. You only need to run it if the "Verification Test" fails. Refer to that test first.

1. Use the SUBSTITUTE command to change location 41120A to 170 if the Z47 is the secondary boot device. Change it to 174 if the Z47 is the primary boot device.
2. Use the SUBSTITUTE command to enter the following codes beginning at location 42200A:

315 170 006 016 060 004 037

365 346 001 261 315 302 003

361 020 365 303 322 000

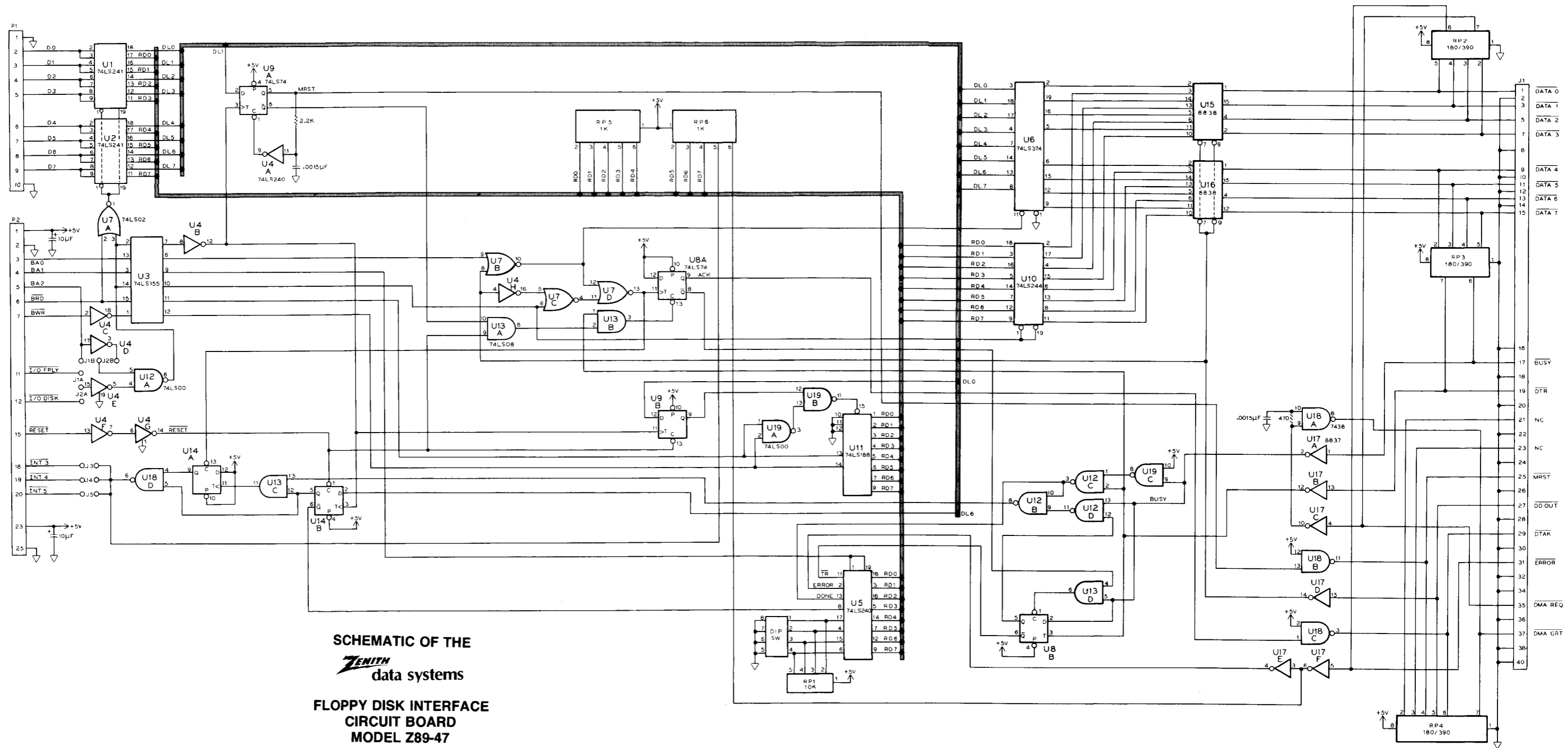
3. Set switch SW1 on the interface circuit board to the following pattern:

SECTION

1 2 3 4

1 0 1 0 1 = on

4. Start the test at 42200A with the GO command.
5. The screen will display 1010 (same as switch setting) if the interface circuit board is functioning properly.



SCHEMATIC OF THE
ZENITH
data systems
FLOPPY DISK INTERFACE
CIRCUIT BOARD
MODEL Z89-47