A longer cable (up to three feet) may be used in place of the provided cable without affecting AIM 65 performance.

PAPER INSTALLATION

Separate the start of the printer paper from the supplied roll. Tear or cut the paper evenly, being careful to remove any adhesive or foreign material from the paper. Slide the roll of paper onto the wire paper holder. The paper should feed from under the roll toward the printer.

Pull the printer head release lever toward the keyboard edge of the Master Module to release the printer thermal head from the platen. Insert the paper into the back of the printer under the platen until it can be grasped from above, then feed the paper under the tear bar. Pull the paper up slightly until the entire leading edge is past the tear bar edge. Push the lever on the top of the printer toward the connector edge of the Master Module to position the printer thermal head on the platen.

CAUTION

Any adhesive or foreign material that comes in contact with the printer thermal elements may damage the printer.

7.2.6 Printer Interface

CAUTION

This section is presented for information only. Since improper timing of the print commands may damage the printer thermal head, it is not recommended that user prepared printer interface functions be attempted. The monitor output subroutines described in Table 7-13 may, however, be safely used.

The printer prints on heat sensitive roll paper by means of ten thermal elements, each of which can print two 5 x 7 matrix dot characters. The 10 thermal elements are mounted in fixed positions on a moveable thermal head. During a print cycle, the thermal head is driven back and forth horizontally allowing a row of dots to be printed during movement in each direction. The individual thermal elements are turned on for discrete intervals during the thermal head movement to form partial characters. After a row of dots has been printed, the motor driven platen advances the paper vertically by one dot row. A full line of formed characters is complete after seven dot rows are printed. The printer column layout and dot progression are illustrated in Figure 7-7. The printed characters are formed by dot patterns stored in the AIM 65 Monitor. The print cycle set-up, sequencing and timing is also controlled by the AIM 65 Monitor.

The hardware interface with the printer is provided by a portion of the AIM 65 Monitor R6522 VIA (Z32) and discrete circuitry (see Figure 7-8).

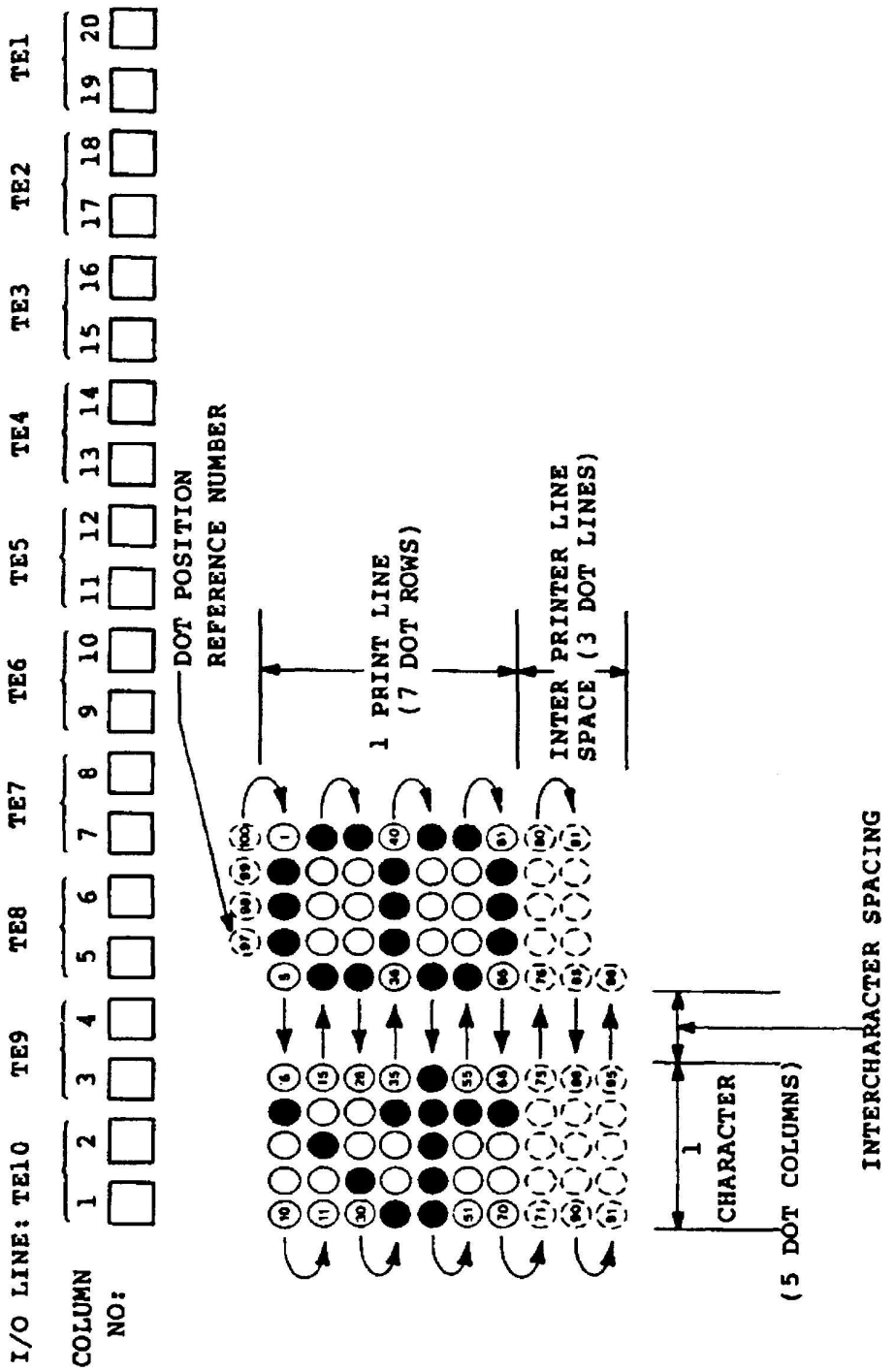


Figure 7-7. Printer Column Layout and Dot Progression

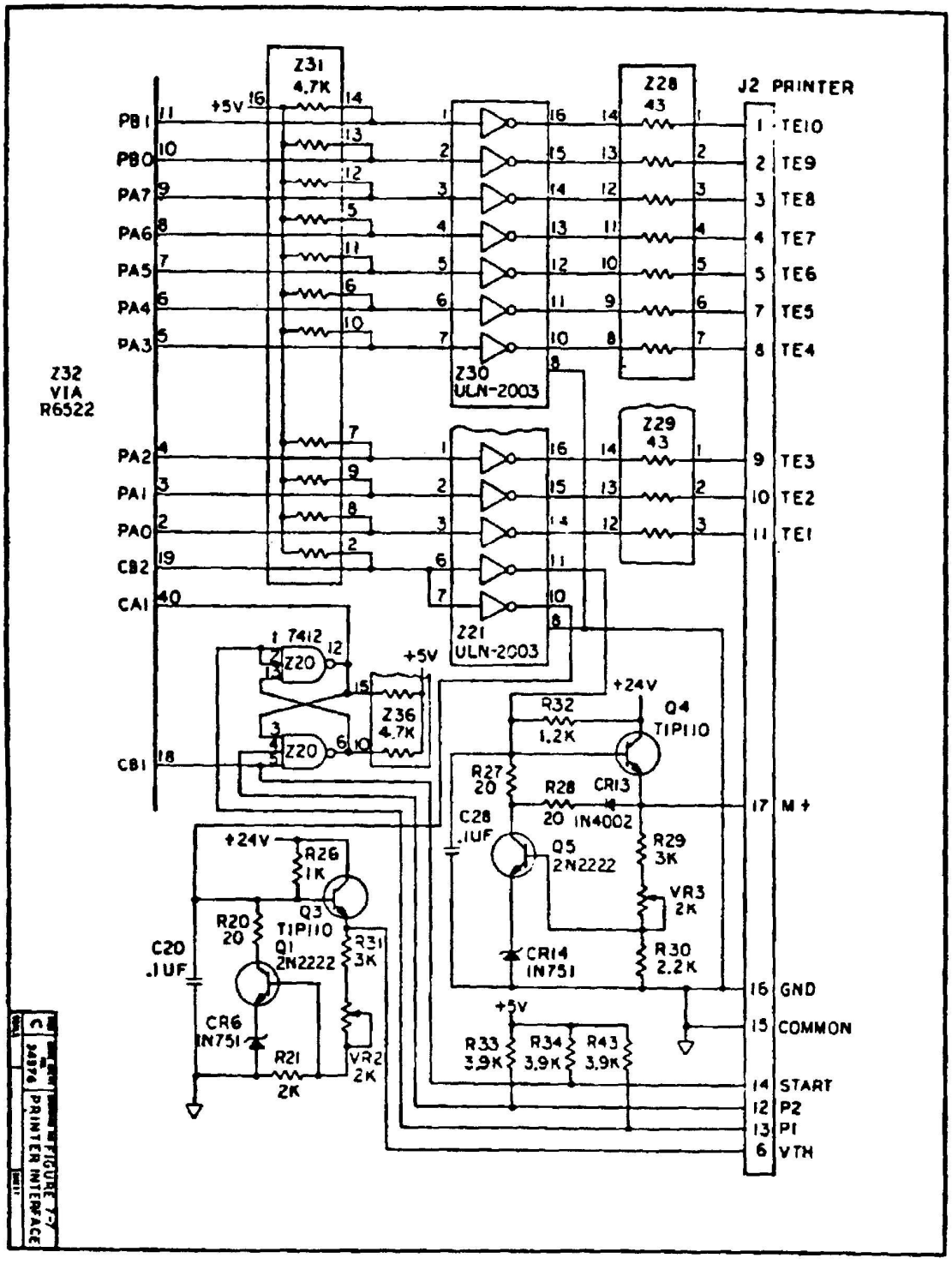


Figure 7-8. Printer Interface Schematic

11.3 PRINTER PAPER

The AIM 65 Printer uses thermal/heat-sensitive paper. This paper is available from our Service Center, as Part Number TT 270, at a cost of 3 rolls for $3.50, plus shipping costs. You may also use Olivetti Type No. 295933R35 or Sears Type 3974. DO NOT USE Texas Instruments Type TP-27225 paper!

11.4 PRINTER ADJUSTMENT

The printer has been adjusted at the factory, and no further adjustment should be required during normal operation. There are four adjustments on the printer that may be required, however, after extended printer operation.

11.4.1 Release Level Print Adjustment

With the head release lever in the PRINT position, wing "A" of the level should not touch the Thermal Head group. There must be visible clearance at "B" so that the Thermal Head group may rest on the platen (see Figure 11-1a).

11.4.2 Release Level Release Adjustment

When the head release lever is in the RELEASE position, the Thermal Head group must be held away from the platen. Minimum clearance is 0.8mm, as shown. To obtain both these conditions, form wings "A" as necessary (see Figure 11-1b).

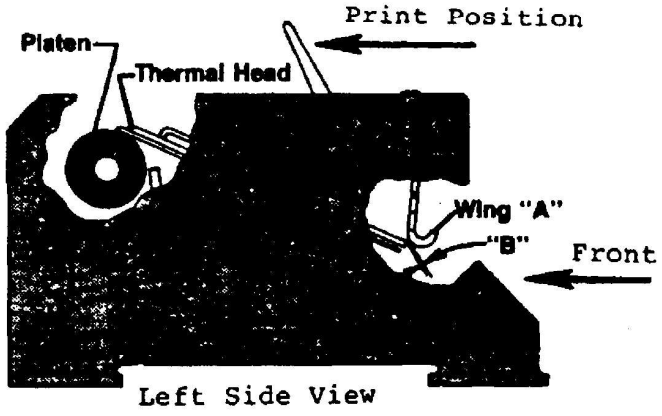
11.4.3 Motor Gear Mesh Adjustment

Motor gear mesh is adjusted by loosening the top and bottom motor mounting screws, and repositioning the motor as necessary. Mesh between the motor and the large transmission gear must be as deep as possible without binding. When this condition is obtained, tighten the motor mounting screws (see Figure 11-1c).

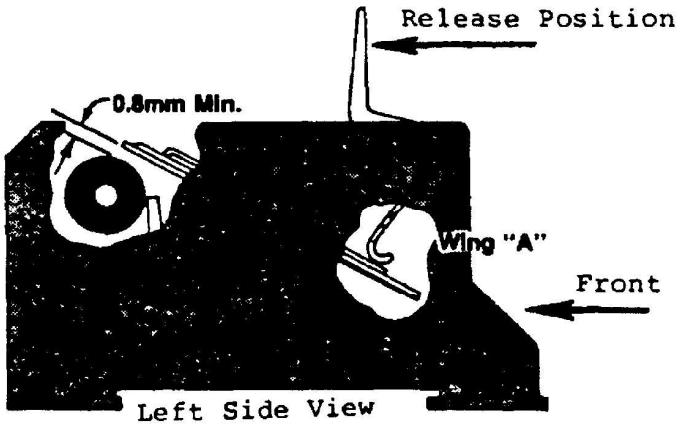
11.4.4 Vertical Dot Alignment Adjustment

To adjust vertical dot alignments, print a series of eights and ones: 81818181...

Loosen the strobe cap mounting nut slightly. Rotate the strobe cap until all vertical dots are in line. Tighten the strobe cap mounting nut (see Figure 11-1d).

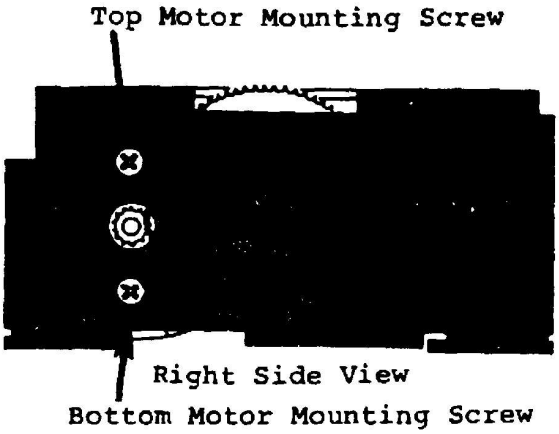


A. Release Level Print Adjustment

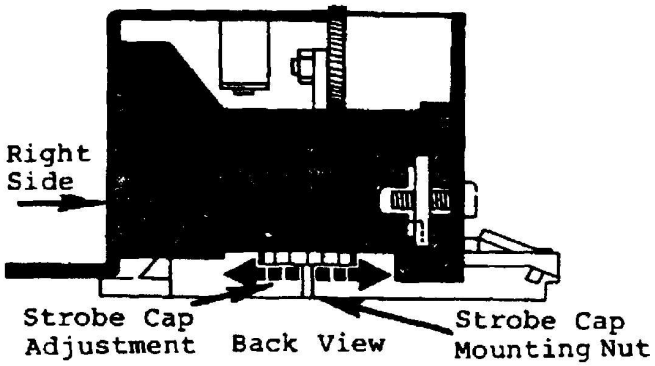


B. Release Level Release Adjustment

Figure 11-1. AIM 65 Printer Adjustments



C. Motor Gear Adjustment



D. Vertical Dot Alignment

Figure 11-1. AIM 65 Printer Adjustments (Cont.)

Table 11-1. Troubleshooting Procedure (Cont.)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
2. No response to keyboard entry	2a. KB/TTY switch not in proper position for selected AIM 65 or TTY keyboard.	2a. Select KB or TTY on KB/TTY switch to match desired keyboard. Press RESET.
	2b. Monitor or User program hung-up or lost.	2b. Press RESET.
	2c. AIM 65 Keyboard Module disconnected from Master Module.	2c. Ensure Keyboard Module to Master Module interconnect cable is securely connected to both modules.
	2d. Stuck key on keyboard.	2d. Release stuck key(s).
3. Printer not printing.	3a. Printer control turned off.	3a. Type CTRL & PRINT after "<" prompt displayed simultaneously until <ON is displayed.

Table 11-1. Troubleshooting Procedure (Cont.)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
	3b. Printer Release lever is in Release position.	3b. Move Printer Release Lever to Print position.
	3c. +24 absent or low.	3c. Ensure +24 ± 1.5V on TB1-6.
	3d. Printer cable . loose.	3d. Ensure printer cable contacts are securely inserted into J2
	3e. Printer cable pins misaligned in J2.	3e. Ensure printer cable contacts are properly aligned in J2
	3f. Z32 R6522 failed.	3f. Replace Z32 with Z1 R6522 to isolate failed R6522
4. Printer not printing one or more columns	4a. See 3d.	4a. See 3d.
	4b. See 3e.	4b. See 3e.
	4c. See 3f.	4c. See 3f.

Table 11-1. Troubleshooting Procedure (Cont.)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
5. Printer printing too light or too dark	5a. Potentiometer VR2 out of adjustment.	5a. Adjust VR2 counter-clockwise to darken printout, or clock-wise to lighten printout
6. Printer printing too fast or too slow.	6a. Potentiometer VR3 out of adjustment.	6a. Adjust VR3 clock-wise for slower operation, or counterclockwise for faster
7. Printer Vertical dots are misaligned	7a. Printer speed is too fast.	7a. Adjust VR3 clockwise for slower operation
	7b. Print vertical dots are out of adjustment.	7b. See Printer Vertical Dot adjustment (Section 11.4.4).
8. Printer is not printing evenly or consistently.	8a. Loose +24V power or GND connection.	8a. Ensure proper connections on power supply and TB1.
	8b. Foreign material between printer elements and paper.	8b. Release Printer Paper Release bar and ensure nothing is between the print element and the paper.

Table 11-1. Troubleshooting Procedure (Cont.)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
	8c. Printer Thermal Head is not resting on the platen when the Printer Release lever is in the Print position.	8c. See Printer Release level adjustment. (Section 11.4.2)
9. Printer motor runs slow or is stopped when energized.	9a. Motor gear mesh is too tight.	9a. See Printer Gear Mesh adjustment. (Section 11.4.3)
10. Printer motor runs but Thermal Head does not move.	10a. Motor gear mesh is too loose.	10a. See Printer Gear Mesh adjustment. (Section 11.4.3)
	10b. Printer Release lever is in Release position.	10b. Move lever to Print position.
11. Incorrect Assembler operation.	11a. Incorrect R3224 ROM installation.	11a. Ensure R3224 ROM is correctly installed in Z24.

PIN	SIGNAL
1	TE10
2	TE9
3	TE8
4	TE7
5	TE6
6	VTH
7	TE5
8	TE4
9	TE3
10	TE2
11	TE1
12	P2
13	P1
14	START
15	COMMON
16	GND
17	M+

Connector J2 Pin Assignments (Top View)

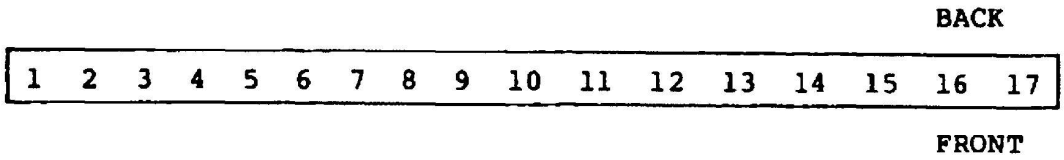


Figure J-3 Connector J3 (Printer) Signals