

CHAPTER 2

OPERATION

2-1. INTRODUCTION.

2-2. GENERAL DESCRIPTION. This chapter contains a brief functional description of the switches, indicators, and input/output (I/O) devices used in the Input/Output Console OA-7984(V)/UYK (I/O Console). In addition, basic operational setup procedures, modes of operation, and emergency operating procedures are described.

2-3. SWITCHES AND INDICATORS. The I/O Console control switches and indicators are mounted on the control panel, the power panel, and the keyboard/printer. The switches and indicators are listed in tables 2-1 through 2-3.

2-4. Control Panel. The control panel on the I/O Console (figure 2-1) supports the switches and indicators for the operational modes of the I/O Console. These devices and their functions are listed in table 2-1.

2-5. Power Panel. The power panel on the I/O Console is mounted on the hood assembly and contains the switches and indicators applicable to the power for the unit. These devices are illustrated in figure 2-2 and the function(s) of each are listed in table 2-2.

2-6. Keyboard/Printer. The keyboard/printer on the I/O Console (figure 2-3) contains the controls and indicators applicable to the transmission and receipt of data for the unit. These devices and the function(s) of each are listed in table 2-3.

NOTE

Complete operation, maintenance, and parts listing information for the Teletype Model 35 Typing Unit, Teletype Model 35 Printer, High-Speed Paper Tape Punch Set (BRPE-11), and Digitronics Paper Tape Reader Model 2500 is contained in this manual.

2-7. INPUT/OUTPUT DEVICES. The input of the I/O Console are the keyboard and paper tape reader. The output devices are the printer and the paper tape punch.

2-8. Keyboard. The keyboard generates the data listed in table 2-4 when the corresponding keys are pressed. Data entered into the keyboard can be simultaneously printed by the printer. Figure 2-4 illustrates the keyboard arrangement.

2-9. Paper Tape Reader. The paper tape reader reads (at 300 frames per second) chad type paper tape, oiled paper tape, mylar tape, or metalized mylar tape. These tapes have 5-, 6-, 7-, or 8-levels and widths of 11/16-inch, 7/8-inch, or 1-inch.

2-10. Paper Tape Punch. The paper tape punch code punches (at 110 frames per second) chad type paper tape, oiled paper tape, mylar tape, or metalized mylar tape. These tapes have 5-, 6-, 7-, or 8-levels and widths of 11/16-inch, 7/8-inch, or 1-inch.

Table 2-1. Control Panel Switches and Indicators

Label	Type	Function
ON LINE/OFF LINE	Two-position switch	ON LINE position enables console operation. OFF LINE position enables console operation.
READ/READ ONE	Two-position switch	READ position causes continuous reading (off-line). READ ONE position causes reader to read one frame, advance to next frame, and then stop. Applicable only to off-line operation.
TAPE FEED	Indicator switch	Punch generates tape with only sprocket holes punched.
START READ	Indicator switch	Starts tape reading.
CLR	Momentary-contact switch	Clears off-line read flip-flop and stops reading.
FUNCTION:		
READ	Indicator switch	Enables off-line tape reading.
CLR	Momentary-contact switch	Disables off-line tape reading.
KEYBOARD	Indicator switch	Enables off-line keyboard operation.
CLR	Momentary-contact switch	Disables off-line keyboard operation.
PUNCH	Indicator switch	Enables off-line tape punching.
CLR	Momentary-contact switch	Disables off-line tape punching.
PRINT	Indicator switch	Enables off-line printing.
CLR	Momentary-contact switch	Disables off-line printing.
COPY	Indicator switch	Enables off-line printing from tape, punching from tape, and printing and punching from tape simultaneously.
CLR	Momentary-contact switch	Disables copy mode.

Table 2-1. Control Panel Switches and Indicators (Contd)

Label	Type	Function
TAPE LEVELS	Three-position rotary switch	Enables reading of selected tape channels (on-line only).
MC	Momentary-contact switch	Stops console operation and sets all logic to an initial state.
INT	Indicator switch	Enables generation of keyboard interrupt.
INPUT	Eight indicator switches	Display contents of input register and provide for manually entering data into input register.
OUTPUT	Eight indicator switches	Display contents of output register and provide for manually entering data into output register.

Table 2-2. Power Panel Switches and Indicators

Label	Type	Function
POWER: ON/OFF	Two-position switch	Switches power on or off.
LOGIC	Indicator	Lights when power is applied to logic circuitry.
BLOWERS	Indicator	Lights when power is applied to blowers.
PERFORATOR TAPE	Indicator	Lights when power is applied to perforator.
OVER TEMP	Indicator	Lights when temperature in unit exceeds 50°C (122°F).
ALARM BYPASS/ NORMAL	Two-position switch	NORMAL position keeps OVER TEMP indicator in circuitry. ALARM BYPASS position removes OVER TEMP indicator out of circuitry.

Table 2-3. Keyboard/Printer Controls and Indicator

Item	Label	Description and Function
Keyboard	None	Permits operator to manually enter data into console logic for use by the console or for transmission to the computer.
Margin indicator	None	Lights when keyboard type box reaches right margin.
ON/OFF two-position switch	ON/OFF	Closes circuit in power line to keyboard/printer motor.

2-11. Printer. The printer uses the data code listed in table 2-4 for representation of the corresponding 65 characters and actions. The printer is a 10-character per second, 72-character per line (low-speed) printer and prints 10 characters per inch horizontally and 6 lines per inch vertically.

2-12. OPERATING PROCEDURES.

2-13. GENERAL. The I/O Console functions in two operating modes: on-line and off-line. The following five operations are performed during both modes.

- a. I/O Console turn-on
- b. Loading the paper tape punch
- c. Loading the paper tape reader
- d. Rewinding paper tape
- e. I/O Console turnoff.

2-14. Operator Turn-On Procedures. To turn the I/O Console on, perform the following operations.

- a. Set POWER ON/OFF switch (figure 2-2) to the ON position. Determine that LOGIC POWER and BLOWER POWER indicators light, showing application of operating power to logic chassis and fan assemblies. If both indicators do not light, remove power from the I/O Console and perform necessary maintenance before proceeding.

- b. Set ALARM BYPASS/NORMAL switch to the NORMAL position to make overtemperature alarm operable. The I/O Console is ready for operation immediately; no warm-up period is required.

2-15. Perforator Tape Loading. The tape perforator accommodates both 1-inch and 7/8-inch tape; however, changing from one tape width to another requires adjustment of the tape biasing spring. If the tape width of the new roll is the same as that of the preceding roll, load the tape perforator as explained in paragraph 2-16, steps a. through q.. If the tape width of the new roll is different from that of the previous roll, adjust the tape biasing spring and load the tape as explained in paragraph 2-17, steps a. through o..

2-16. Loading Tape. To load a tape of the same width as the preceding roll, perform the following steps (see figures 2-5 and 2-6):

- a. Release latches of reader-perforator and pull chassis out to fully extended position (figure 2-5).

- b. Remove tape supply reel (figure 2-6) from holder.

- c. Place roll of tape on tape supply reel. Holding tape (low arm away from holder), install loaded reel. Reel should be positioned so that, as tape feeds, reel turns counterclockwise as viewed from reel side of tape punch.

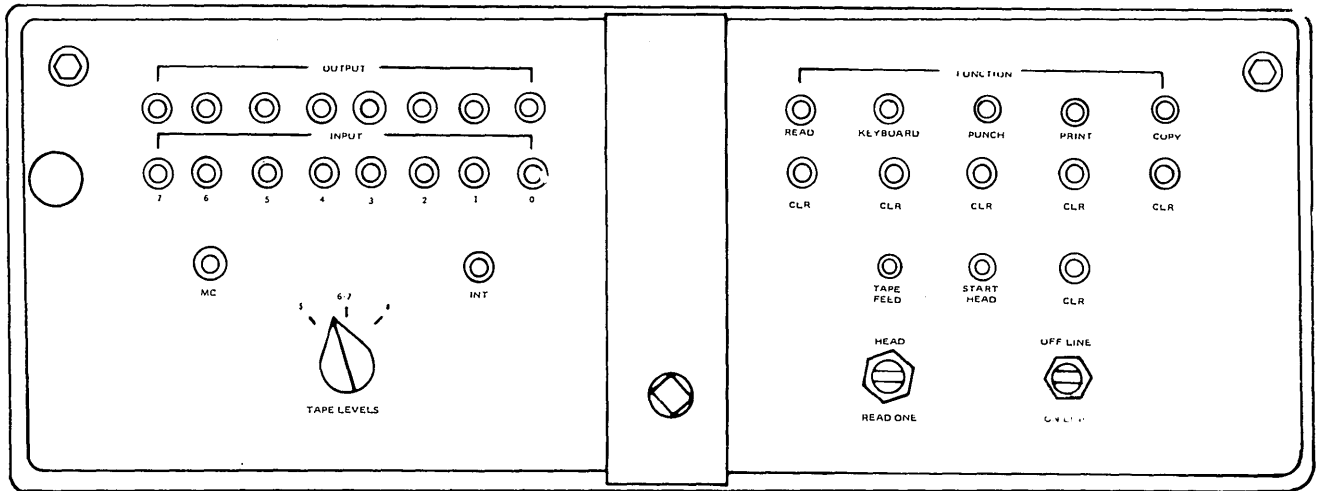


Figure 2-1. I/O Console Control Panel.

- d. Thread tape from bottom of reel up through rear tape guide. Twist tape slightly clockwise and feed through front tape guide.
- e. Manually rotate tape perforator motor until sprocket pin of punch block is raised.
- f. Make diagonal cut across leading end of tape using scissors.
- g. Route tape over upper roller, down along side of punch mechanism cover, and under lower roller.
- h. Thread tape along top of lower tape guide into punch block assembly.
- i. Ensure tape perforator ON/OFF switch is set to ON position.
- j. Turn on I/O Console.
- k. Depress PUNCH indicator switch on control panel (figure 2-1) to start tape perforator motor.

NOTE

The leading portion of the tape may be damaged from being manually pulled through the punch block in

steps l. and n.. If necessary, use scissors to remove this portion of the tape.

- l. Depress feed-out lever (figure 2-6) and pull approximately 6 inches of tape through punch block assembly. Release feed-out lever.
- m. Lift tape lid and route tape over feed wheel.
- n. Release tape lid and again depress feed-out lever while pulling on leading end of tape. When tape feeds automatically, release feed-out lever.
- o. Insert new leading edge of tape into inside tape guide. Depress feed-out lever until tape is visible at front panel of reader-perforator.
- p. Empty chad box.
- q. Close and secure reader-perforator chassis. Turn off I/O Console if no further operation is required.

2-17. Loading Tape of Different Widths. To load a tape of a different width than the preceding roll, see figures 2-5, 2-6, and 2-7, and perform the following steps:

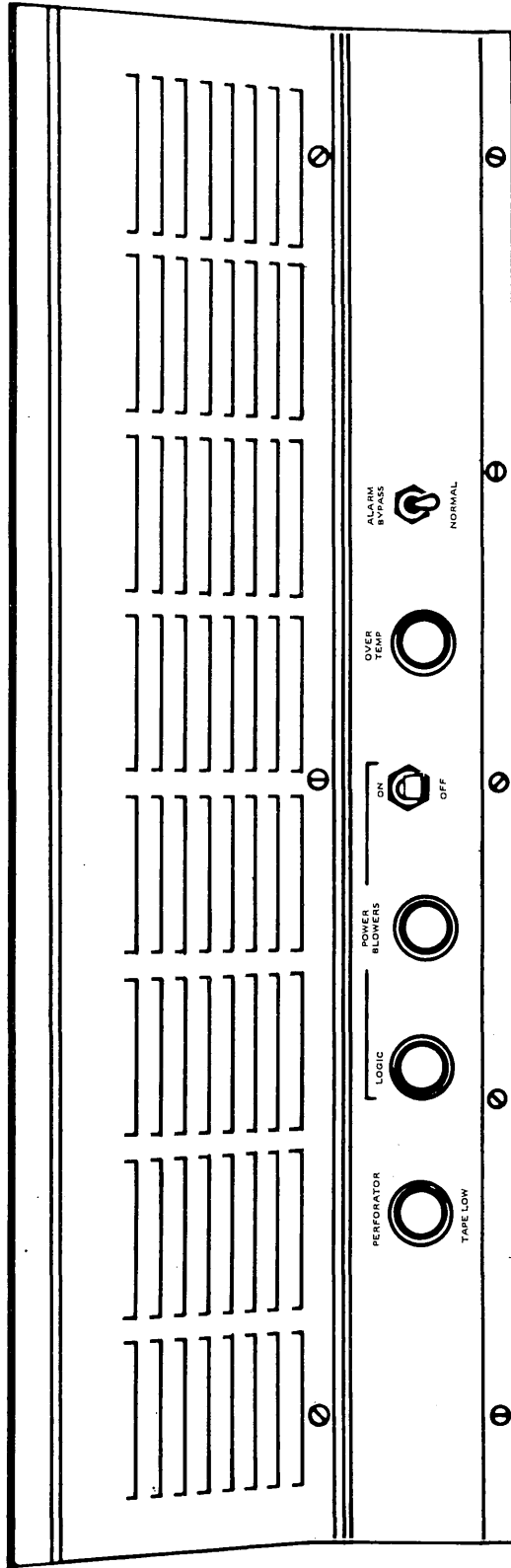


Figure 2-2. I/O Console Power Panel (Hood Assembly).

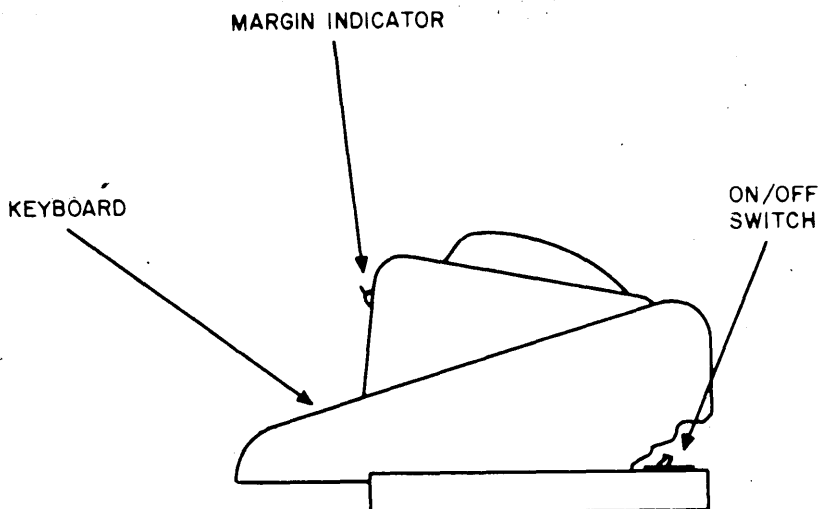


Figure 2-3. Keyboard/Printer, Controls and Indicator.

- a. Release latches of reader-perforator, and pull chassis out to fully extended position (figure 2-5).
- b. Remove tape supply reel (figure 2-6) from holder.
- c. Remove punch mechanism cover (figure 2-7) by removing four mounting screws and lifting cover away.
- d. Remove tape biasing spring by removing two mounting screws and withdrawing spring from slot of punch block.
- e. Insert tail of tape biasing spring in correct slot of punch block.
- f. Insert mounting screws through holes in tape biasing spring and tighten slightly. Spring must be able to move laterally.
- g. Thread paper tape through punch block assembly. Slide tape biasing spring to position where tail of spring lightly touches edge of tape.
- h. Tighten tape biasing spring mounting screws.
- i. Load new tape roll in tape punch as specified in steps 3 through 16 of paragraph 2-16.
- j. Ensure that keyboard/printer ON/OFF switch (figure 2-3) is set to ON position.
- k. Depress KEYBOARD switch on control panel (figure 2-1). Keyboard motor will start and associated indicator will light.
- l. Depress keyboard CTRL and RUB OUT keys. Hold keys down and depress REPT key. Tape perforator will begin punching a 7-level tape of logic 1's.
- m. Release CTRL and RUB OUT keys but continue holding REPT key depressed until approximately 4 feet of tape has been punched. As tape punch operates, visually ensure that tape edge is not crimping or curling as tape passes through punch block assembly.
- n. Remove punched tape, hold at eye level, and sight down tape length. Ensure perforations are in a straight line with no wavering from edge to edge. Re-adjust tape biasing spring if any wavering is detected.

Table 2-4. Keyboard Characters, Actions, and Data Codes

Key	Character or Action	Code						
		6	5	4	3	2	1	0

NOTE

Operating the CTRL key in conjunction with some other key generally does not cause a character to print, nor does any keyboard action take place, but a data word is transmitted (exceptions: CTRL and ALT MODE prints an = ; CTRL and RUB OUT prints a ?). The significance of the data words available through use of the CTRL key is determined by the computer program.

CTRL and @		0	0	0	0	0	0	0
CTRL and A		0	0	0	0	0	0	1
CTRL and B		0	0	0	0	0	1	0
CTRL and C		0	0	0	0	0	1	1
CTRL and EOT		0	0	0	0	1	0	0
CTRL and WRU		0	0	0	0	1	0	1
CTRL and RU		0	0	0	0	1	1	0
CTRL and BELL		0	0	0	0	1	1	1
CTRL and H		0	0	0	1	0	0	0
CTRL and I		0	0	0	1	0	0	1
LINE FEED	Line feed	0	0	0	1	0	1	0
CTRL and K		0	0	0	1	0	1	1
CTRL and L		0	0	0	1	1	0	0
RETURN	Carriage return	0	0	0	1	1	0	1
CTRL and N		0	0	0	1	1	1	0
CTRL and O		0	0	0	1	1	1	1
CTRL and P		0	0	1	0	0	0	0
CTRL and Q		0	0	1	0	0	0	1

Table 2-4. Keyboard Characters, Actions, and Data Codes (Contd)

Key	Character or Action	Code						
		6	5	4	3	2	1	0
CTRL and TAPE		0	0	1	0	0	1	0
CTRL and XOFF		0	0	1	0	0	1	1
CTRL and $\overline{\text{TAPE}}$		0	0	1	0	1	0	0
CTRL and U		0	0	1	0	1	0	1
CTRL and V		0	0	1	0	1	1	0
CTRL and W		0	0	1	0	1	1	1
CTRL and X		0	0	1	1	0	0	0
CTRL and Y		0	0	1	1	0	0	1
CTRL and Z		0	0	1	1	0	1	0
CTRL, SHIFT, and K		0	0	1	1	0	1	1
CTRL, SHIFT, and L		0	0	1	1	1	0	0
CTRL, SHIFT, and M		0	0	1	1	1	0	1
CTRL, SHIFT, and ↑		0	0	1	1	1	1	0
CTRL, SHIFT, and ←		0	0	1	1	1	1	1
Space Bar	Space	0	1	0	0	0	0	0
SHIFT and !	!	0	1	0	0	0	0	1
SHIFT and "	"	0	1	0	0	0	1	0
SHIFT and #	#	0	1	0	0	0	1	1
SHIFT and \$	\$	0	1	0	0	1	0	0
SHIFT and %	%	0	1	0	0	1	0	1
SHIFT and &	&	0	1	0	0	1	1	0
SHIFT and '	'	0	1	0	0	1	1	1
SHIFT and (	(	0	1	0	1	0	0	0

Table 2-4. Keyboard Characters, Actions, and Data Codes (Contd)

Key	Character or Action	Code						
		6	5	4	3	2	1	0
SHIFT and )	)	0	1	0	1	0	0	1
SHIFT and *	*	0	1	0	1	0	1	0
SHIFT and +	+	0	1	0	1	0	1	1
LOC LF	Continuous line feed, no code transmitted.							
LOC CR	Carriage return, no code transmitted.							
REPT	Used in conjunction with another coded key, selected character repeats continuously until REPT key is released.							
'	'	0	1	0	1	1	0	0
-	-	0	1	0	1	1	0	1
.	.	0	1	0	1	1	1	0
/	/	0	1	0	1	1	1	1
0	0	0	1	1	0	0	0	0
1	1	0	1	1	0	0	0	1
2	2	0	1	1	0	0	1	0
3	3	0	1	1	0	0	1	1
4	4	0	1	1	0	1	0	0
5	5	0	1	1	0	1	0	1
6	6	0	1	1	0	1	1	0
7	7	0	1	1	0	1	1	1
8	8	0	1	1	1	0	0	0
9	9	0	1	1	1	0	0	1

Table 2-4. Keyboard Characters, Actions, and Data Codes (Contd)

Key	Character or Action	Code						
		6	5	4	3	2	1	0
:	:	0	1	1	1	0	1	0
;	;	0	1	1	1	0	1	1
SHIFT and <	<	0	1	1	1	1	0	0
SHIFT and =	=	0	1	1	1	1	0	1
SHIFT and >	>	0	1	1	1	1	1	0
CTRL and ALT MODE	=	1	1	1	1	1	1	0
RUB OUT		1	1	1	1	1	1	1
CTRL and RUB OUT	?	1	1	1	1	1	1	1

o. After completing tape biasing spring adjustment, replace punch mechanism cover. Turn off I/O Console if no further operation is required.

2-18. Tape Reader Loading. To place a data punched tape in the tape reader, see figures 2-8 and 2-9, and perform the following steps:

a. Place perforated tape in tape reader holder assembly with wide margin toward operator (figure 2-8).

b. Move handle of adjustable tape guide (figure 2-9) to clockwise stop.

c. Thread tape into position, positioning tape under brake and between pinch roller and capstan (figure 2-9). Tape leader must be over photodiodes, with data to right as viewed from front of I/O Console.

d. Move handle of adjustable tape guide to counterclockwise stop.

e. Open tape bin access door and pull bin out sufficiently to receive tape.

f. Set TAPE LEVELS switch on control panel (figure 2-1) to position corresponding to number of data levels on tape.

2-19. Tape Rewinding. To rewind the tape after reading or punching, see figure 2-10, and perform the following steps:

a. Push tape guide disk (figure 2-10) of tape rewinder toward crank to expose maximum hub surface.

b. Insert end of tape trailer into hub slot.

c. Apply light tension to tape and turn crank. Ensure edge of tape is flush against tape guide disk.

d. After winding complete tape, release tape from tape rewinder by pulling tape guide disk toward end of hub.

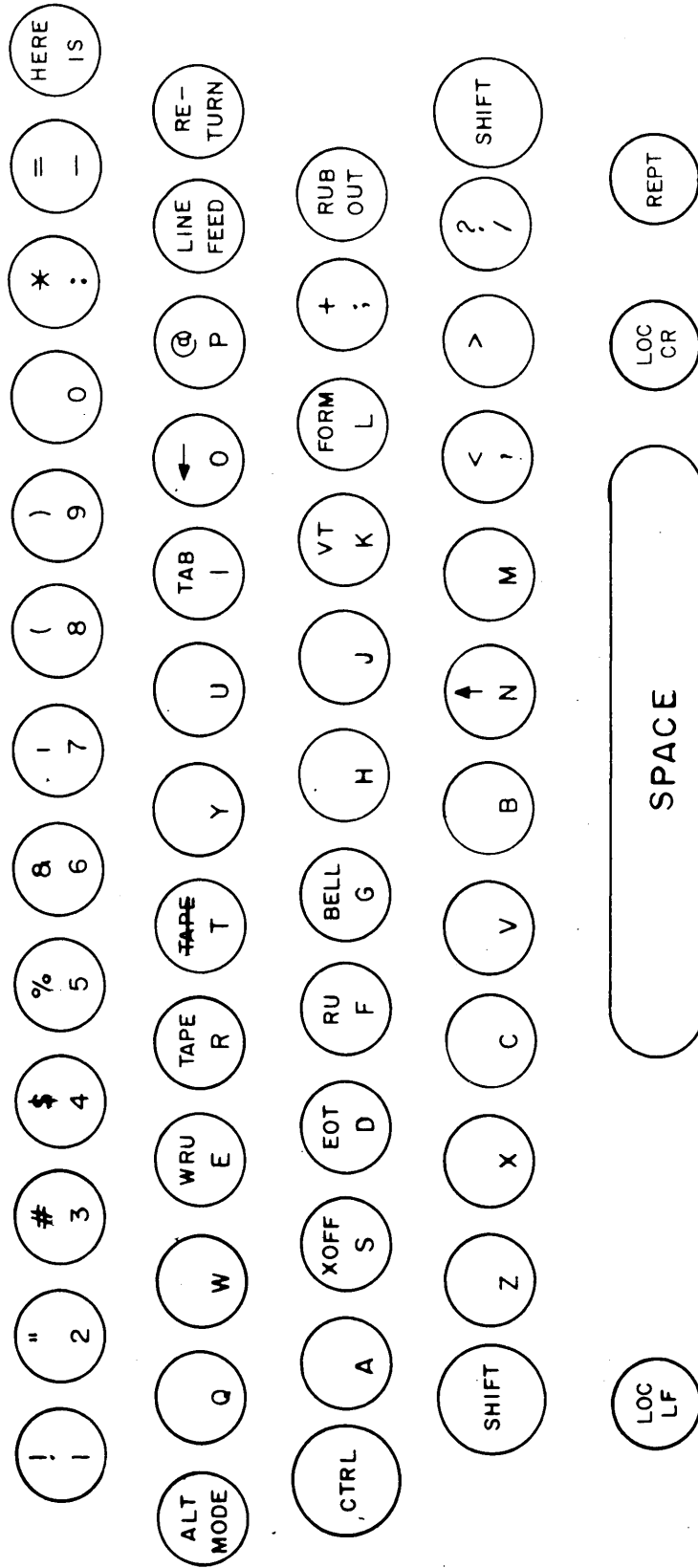


Figure 2-4. Keyboard/Printer Keyboard Arrangement.

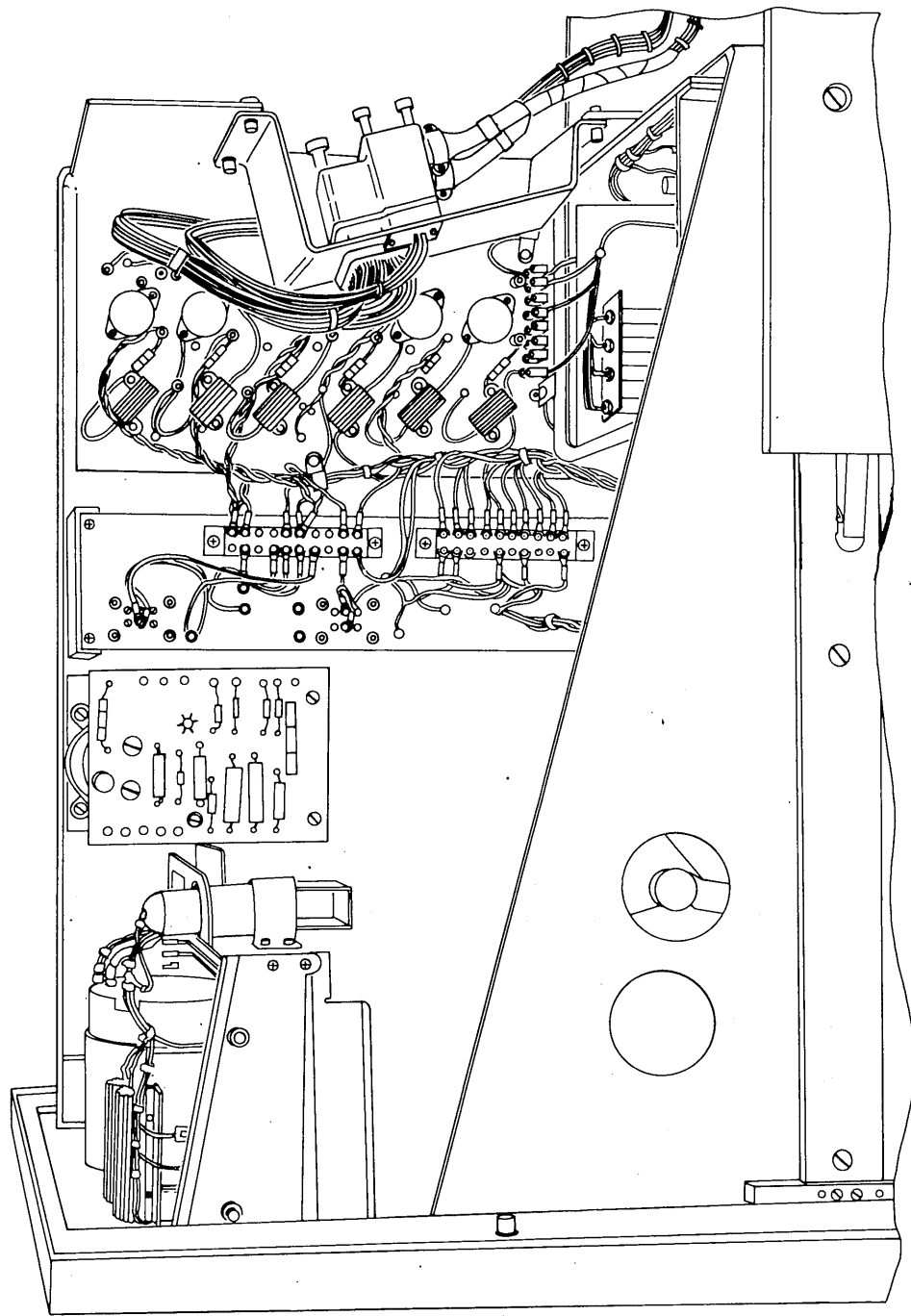


Figure 2-5. Punch Reader Drawer Extended.

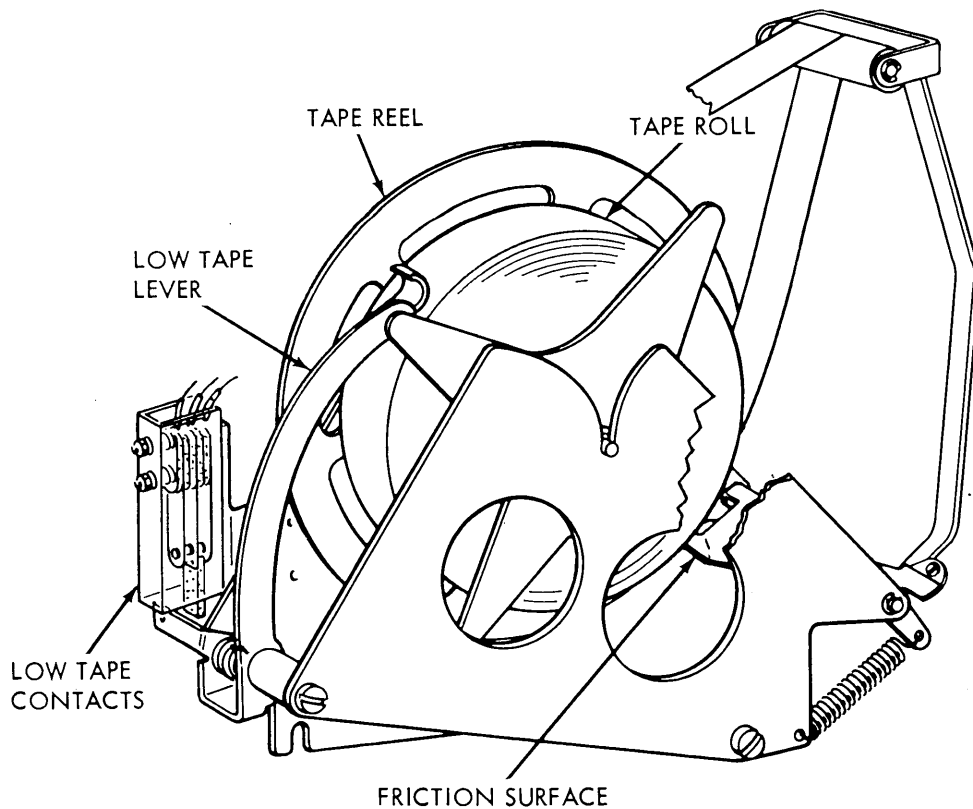


Figure 2-6. Tape Reel and Brake Assembly.

2-20. Console Turnoff Procedure. To secure power to the I/O Console, set the POWER ON/OFF switch on the power panel (figure 2-2) to the OFF position. (Normally, the individual power switches mounted on the tape reader, tape perforator, and keyboard/printer are not turned off, since the application of power to these units is controlled by the logic circuitry of the I/O Console.)

2-21. OPERATIONAL MODES. The I/O Console basic modes of operation are on-line mode for normal operation and off-line mode for maintenance and tape preparation.

2-22. ON-LINE MODE. In the on-line mode [ON LINE/OFF LINE switch on control panel (figure 2-1) set to ON LINE position], the I/O Console operates as an input-output device under computer control and performs the following functions:

- a. Sends data from perforated tape to the computer
- b. Simultaneously prints and sends data entered at the keyboard to the computer
- c. Punches only data received from the computer
- d. Prints only data received from the computer while punching
- e. Simultaneously punches and prints data received from the computer
- f. Prints and sends data, entered at the keyboard, to the computer and simultaneously punches data received from the computer
- g. Sends data from perforated tape to the computer and simultaneously prints data returned from the computer

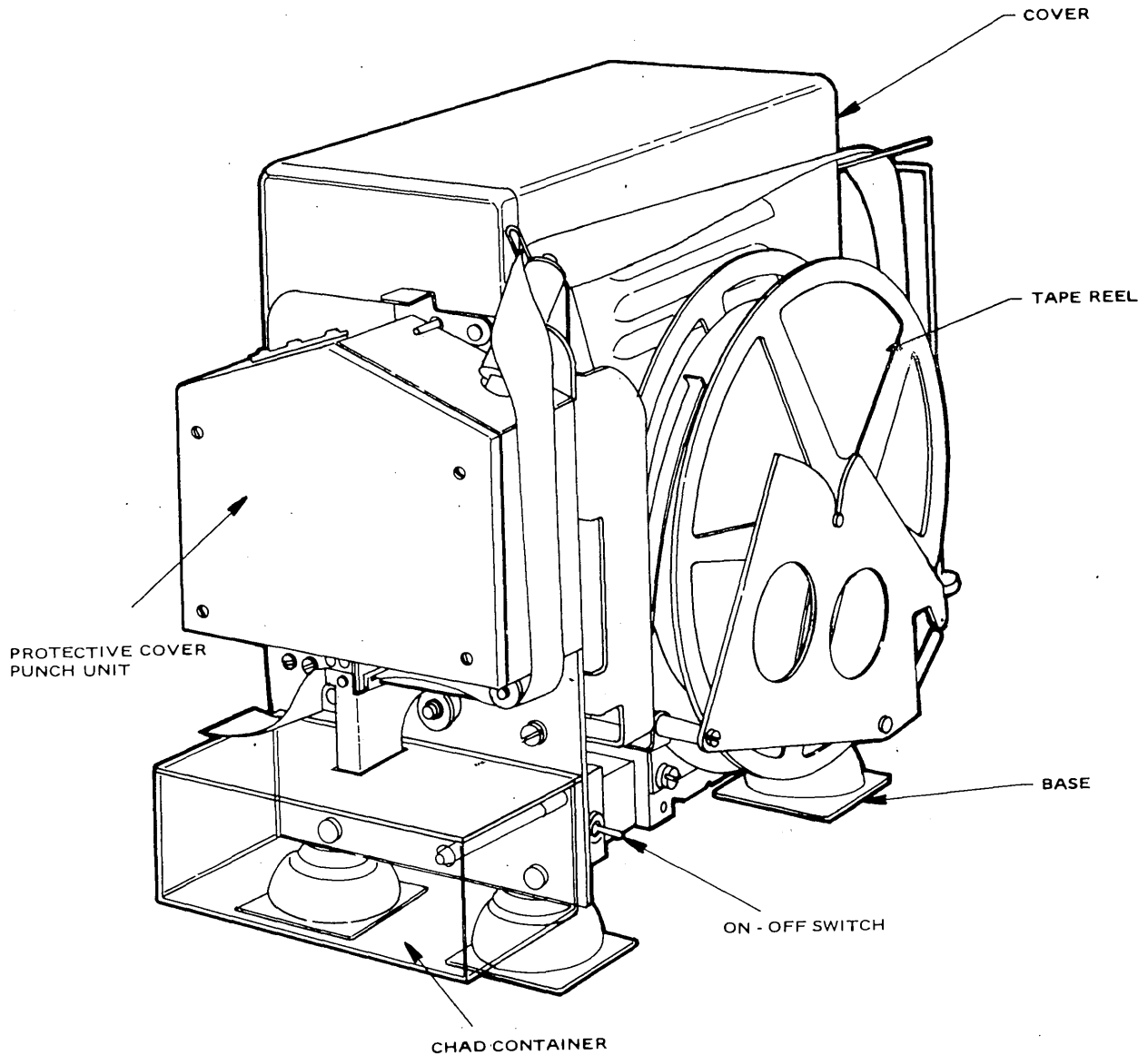


Figure 2-7. Typical High-Speed Tape Punch Set.

h. Sends data from perforated tape to the computer and simultaneously punches data returned from the computer

i. Sends data from perforated tape to the computer and simultaneously punches and prints data returned from the computer.

2-23. The following steps contain the procedure to be followed for the on-line mode of operation:

a. Determine that keyboard/printer is loaded with paper and that printer ribbon is in satisfactory condition. Replenish these items as necessary.

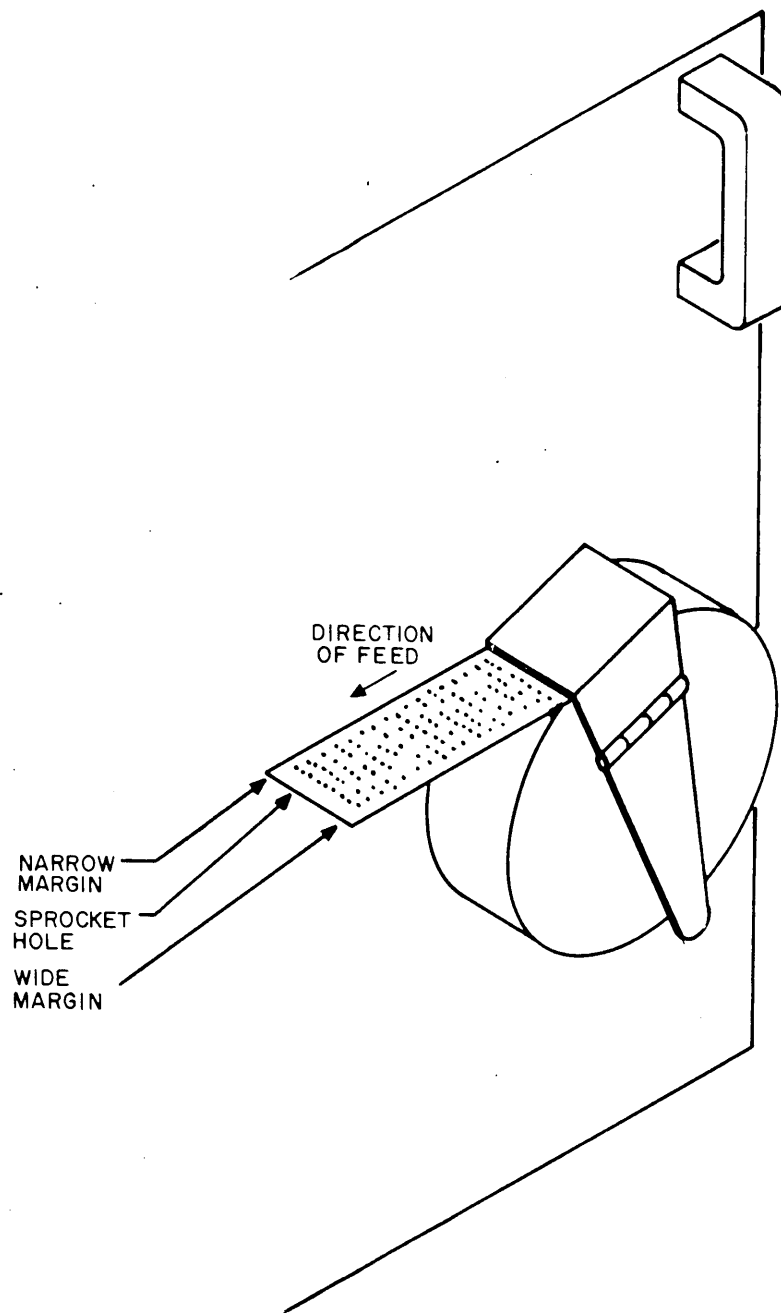


Figure 2-8. Tape Orientation on Tape Reader.

b. Determine that there is sufficient tape in tape perforator. If tape supply is low, load new reel.

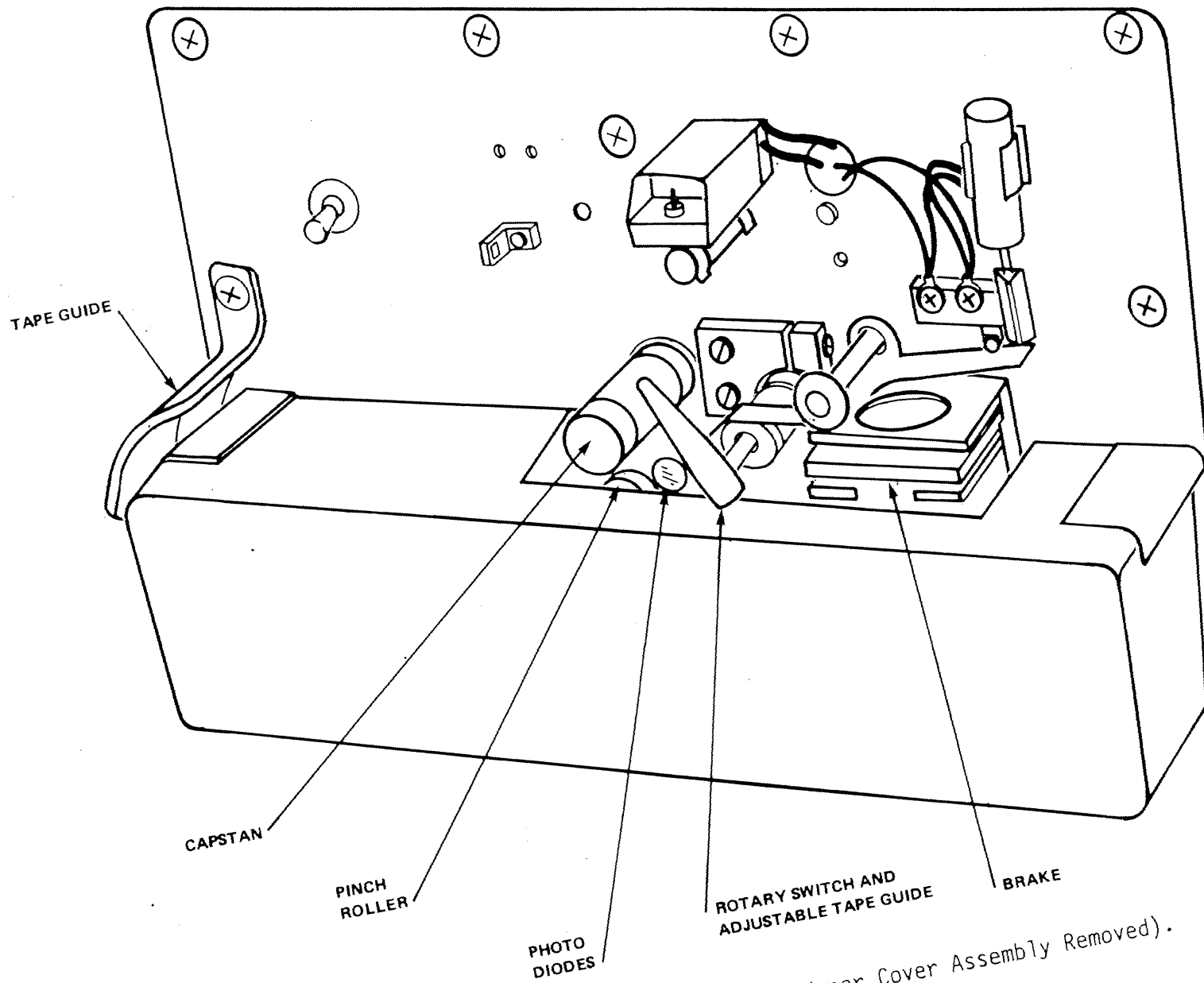
c. Turn on I/O Console.

d. Set OFF LINE/ON LINE switch on control panel (figure 2-1) to ON LINE position.

e. Depress MC switch to clear I/O Console.

f. Place program tape in tape reader.

g. Load program tape data into computer.



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Figure 2-9. Threading Tape Reader (Upper Cover Assembly Removed).

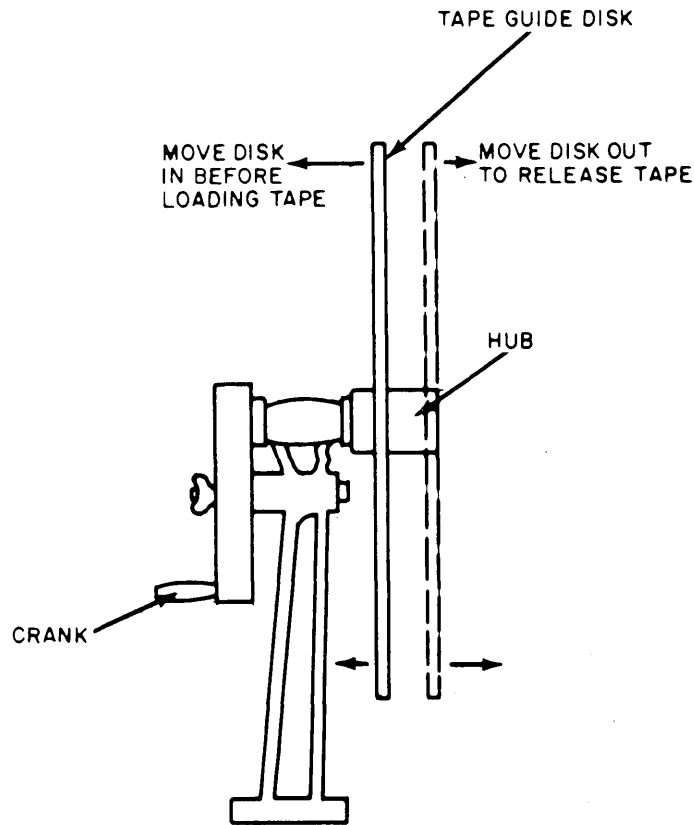


Figure 2-10. Loading and Unloading the Tape Rewinder.

h. When input data from keyboard is required during program operation, computer will transmit external function word to turn on keyboard/printer. Keyboard/printer motor will start, and KEYBOARD and PRINT indicators will light. Enter data in accordance with program format. After data has been entered, KEYBOARD and PRINT indicators will extinguish if computer transmits a master clear external function word.

i. When computer transmits output data to printer, monitor copy produced for missing or garbled data. When computer transmits output data to tape perforator, ensure that tape moves smoothly through inside tape guide.

j. If computer program includes an interrupt feature, computer can be interrupted from keyboard by depressing INT switch, KEYBOARD switch, and any keyboard key that transmits a code. (Refer to table 2-4 for keyboard keys and associated data codes.)

k. At end of I/O Console operation, secure power.

2-24. OFF-LINE MODE. In the off-line mode, the I/O Console is controlled by the operator. The operator selects the desired input and output devices from the control panel of the logic chassis assembly. The I/O Console performs five distinct operations in the off-line

mode. The following paragraphs explain how these five operations are performed.

- a. Prints from perforated tape input
- b. Punches from perforated tape input
- c. Performs simultaneous printer and punch operation from perforated tape input
- d. Prints from keyboard input
- e. Performs simultaneous printer and punch operation from keyboard input.

2-25. Print From Tape. The print from tape operation permits generation of printed copy from a perforated tape input, provided that the tape is in ASCII format. To print from a tape, perform the following steps:

- a. Determine that keyboard/printer is loaded with paper and printer ribbon is in satisfactory condition. Replenish these items as required.
- b. Ensure that keyboard/printer ON/OFF switch (figure 2-3) and tape reader POWER ON switch (figure 2-9) are set to ON position.
- c. Place tape in tape reader and set OFF LINE/ON LINE switch on control panel (figure 2-1) to OFF LINE position. Depress MC switch.
- d. Depress READ, START READ, and PRINT switches. Associated indicators will light and motors of tape reader and keyboard/printer will operate.
- e. To move tape one frame at a time, momentarily set READ/READ ONE switch to READ ONE position. Each time switch is actuated, tape will advance one frame; for each frame of information on tape, one character will be printed. If continuous read is desired, place switch in READ position.

- f. Upon reaching end of tape, or any time it is desired to stop tape drive mechanism of tape reader, momentarily set READ/READ ONE switch to READ ONE position.

- g. After completing print from tape operation, rewind tape.

- h. Turn off I/O Console.

2-26. Punch From Tape. The punch from tape operation permits copying of existing tapes of any format. To punch from a tape, perform the following steps:

- a. Determine that there is sufficient tape in tape perforator. If tape supply is low, install a new roll.

- b. Ensure that tape reader POWER ON switch (figure 2-9) and tape perforator ON/OFF switches are set to ON position.

- c. Place tape to be copied in tape reader.

- d. Turn I/O Console on and set OFF LINE/ON LINE switch on control panel (figure 2-1) to OFF LINE position. Depress MC switch.

- e. Depress READ, START READ, and PUNCH switches. Associated indicators will light, and motors of tape reader and tape perforator will operate.

- f. To move tape one frame at a time, momentarily set READ/READ ONE switch to READ ONE position. Each time the switch is actuated, tape will advance in reader one frame, and tape perforator will punch one identical frame in new tape. For continuous read and punch, set READ/READ ONE switch to READ position.

- g. Upon reaching end of tape, or any time it is desired to stop tape drive mechanism or tape reader, momentarily set READ/READ ONE switch to READ position.

h. After completing punch from tape operation, depress TAPE FEED switch until all data punched tape and 2 feet of trailer are clear of reader-perforator front panel.

i. Rewind both tapes.

j. Verify copy tape against original tape by using both for a print from tape operation and comparing printed copy. If some portions of tape contain non-printable data, verify these portions through visual comparison with original tape. If tape is not in ASCII format, visually compare tapes, or read tapes into computer and use applicable sub-route for verification.

k. Rewind both tapes.

l. Turn off I/O Console.

2-27. Print and Punch From Tape. The print and punch from tape operation permits copying of existing tapes, and provides a printed copy of the tape if the data is in ASCII format. To print and punch from tape, perform the following steps:

a. Determine that keyboard/printer is loaded with paper and that printer ribbon is in satisfactory condition. Replace these items as required.

b. Determine that there is sufficient tape in tape perforator. If tape supply is low, install a new roll.

c. Ensure that tape reader POWER ON switch, tape perforator ON/OFF switch, and keyboard/printer ON/OFF switch are set to ON position.

d. Place tape in tape reader.

e. Turn I/O Console on and set OFF LINE/ON LINE switch on control panel (figure 2-1) to OFF LINE position. Depress MC switch.

f. Depress READ, START READ, PUNCH, and PRINT switches. Associated indicators will light and motors of tape reader, tape perforator, and keyboard/printer will operate.

g. To move tape one frame at a time, momentarily set READ/READ ONE switch to READ ONE position. Each time the switch is actuated, tape will advance one frame and tape perforator will punch one identical frame in new tape. For each frame of information on tape, one character will be printed. If continuous read is desired, set switch to READ position.

h. Upon reaching end of tape, or any time it is desired to stop tape drive mechanism, momentarily set READ/READ ONE switch to READ ONE position.

i. After completing print and punch from tape operation, depress TAPE FEED switch until all data punched tape and 2 feet of trailer are clear of reader-perforator front panel.

j. Rewind original and copy tape.

k. Verify copy tape by placing in tape reader, performing print from tape operation, and comparing resultant copy with that produced during print and punch from tape operation. If some portions of tape contain nonprintable data, verify these portions through visual comparison with original tape.

l. Rewind tape(s).

m. Turn off I/O Console.

2-28. Print From Keyboard. The print from keyboard operation produces a written copy of the data entered at the keyboard. This operation is normally performed only for purposes of equipment inspection or maintenance. To print from the keyboard, perform the following steps:

a. Determine that keyboard/printer is loaded with paper and that printer ribbon is in satisfactory condition. Replace these items as required.

b. Ensure that keyboard/printer ON/OFF switch is set to ON position.

c. Turn I/O Console on and set OFF LINE/ON LINE switch on control panel (figure 2-1) to OFF LINE position. Depress MC switch.

d. Depress KEYBOARD switch. Associated and PRINT indicators will light, and motor of keyboard/printer will operate.

e. Operate keyboard. Printer will print characters corresponding to keys operated.

2-29. Print and Punch From Keyboard. The print and punch from keyboard operation allows the preparation of perforated tape from data entered at the keyboard. To print and punch from the keyboard, perform the following steps:

a. Determine that the keyboard/printer is loaded with paper and the printer ribbon is in satisfactory condition. Replenish these items as required.

b. Determine that there is sufficient tape in perforator. If tape supply is low, install a new roll.

c. Ensure that keyboard/printer ON/OFF switch and tape perforator ON/OFF switches are set to ON position.

d. Turn I/O Console on and set OFF LINE/ON LINE switch on control panel (figure 2-1) to OFF LINE position. Depress MC switch.

e. Depress KEYBOARD and PUNCH switches. Associated indicators will light, PRINT indicator will light, and motors of keyboard/printer and tape perforator will operate.

f. Open tape bin access door and pull bin out sufficiently to receive tape.

NOTE

Always operate the RETURN key before the LINE FEED key at the beginning of a data line. This sequence will eliminate the possibility of dropping the initial data in the line when the tape is read back in a print from tape operation.

g. Operate keyboard. Printer and punch will operate simultaneously with keyboard. When at beginning of data line, depress RETURN and LINE FEED keys to advance printed copy one line and return type box to starting position.

h. After completing punching of new tape, depress TAPE FEED switch until all data punched tape and 2 feet of trailer are clear of reader-perforator front panel.

i. Remove tape and rewind.

j. Verify tape by placing in reader, performing print from tape operation, and comparing resultant printed copy with copy produced during print and punch from keyboard operation. If some portions of tape contain nonprintable data, verify these portions through visual comparison of punched data words with original material.

k. Rewind tape.

l. Turn off I/O Console.

2-30. EMERGENCY OPERATION. If the temperature within the console subassembly exceeds 46°C (115°F), an alarm will sound and the OVERTEMP indicator on the power panel (figure 2-2) will light. The I/O Console should be turned off immediately; however, if the I/O Console is being operated on-line in an emergency situation and continued use is required, it is possible to maintain operation until the internal temperature reaches 60°C (140°F). At this temperature the operating power is automatically shut off, and no further operation is possible.

