

CHAPTER 6

CONSOLE OPERATION

6.1 INTRODUCTION

There are two types of consoles for the PDP-8/A—the operator's panel and the programmer's console. The operator's panel is supplied with each PDP-8/A. The programmer's console is optional.

6.2 OPERATOR'S PANEL

The operator's panel (Figure 6-1) contains the necessary switches to apply power and bootstrap the computer, and also contains the necessary indicators—POWER ON, RUN, and BATTERY CHARGING—to determine whether or not the computer is operating. Table 6-1 describes the function of the various switches on the panel. A PANEL LOCK switch is provided to prevent the accidental modification of memory contents or system operation by inappropriate use of switches on the programmer's console.



Figure 6-1 PDP-8/A Operator's Panel

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6.3 PROGRAMMER'S CONSOLE

The key pad switches and indicators on the PDP-8/A programmers' console (Figure 6-2) augment the operator's panel by allowing manual control of computer operation and presenting a convenient indication of system conditions. PDP-8/A program execution can be started, stopped, monitored, or switched between various modes of operation by use of the keys. The key pad switches also provide a means of selecting a memory location or major register for examination and allow selective modification of read/write memory. Table 6-2 describes the indicators and functions relating to the programmer's console.

Table 6-1 PDP-8/A Operator's Console Controls and Indicators

CONTROL OR INDICATOR	FUNCTION
POWER ON/OFF	In the up position, this switch applies power to the computer and all controls and indicators. Power is removed by moving the switch down.
PANEL LOCK	In the up position, this switch prevents the removal of power from the computer and disables all key pad switches except switch register (SR) and the read functions.
BOOT	When this switch is down, the Omnibus SW line is disabled (voltage level high). When it is up, the SW line is asserted (low). This switch is used to start programmable read only memory (PROM) and bootstrap loader programs. The key pad BOOT switch on the programmer's console has the same function.
POWER	This indicator is lit when ac power is applied to the computer.
BATTERY CHARGING	This indicator is lit when the battery back-up supply is charging.
RUN	This indicator is lit when the RUN flip-flop is set.

Table 6-2 PDP-8/A Programmer's Console Controls and Indicators

CONTROL OR INDICATOR	FUNCTION
ADDRS (Octal Readout)	ADDRS is a 5 character octal readout that displays the content of the 3-bit extended memory address (EMA) register and the 12-bit memory address (MA) register. The five characters (digits) show the address of the memory to be accessed next.
DISP (Octal Readout)	DISP is a 4 character octal readout that displays the content of the register that has been selected for display. The accumulator (AC), multiplier quotient (MQ), STATUS register, switch register (SR), STATE, memory data (MD), or data bus (BUS), contents may be read. To select one of these for display, first depress the appropriate key pad switch (i.e., AC) and then press DISP. One of the LED indicators to the left of the key pad will be lit indicating which data is displayed in the readout. If none of the indicators are lit, the content of the entry register is displayed.
RUN	This indicator is lit when the RUN flip-flop is set.
Key Pad Switches AC (0)	When key pad AC and then DISP are depressed, the content of the AC is displayed in the 4 character octal readout. The AC indicator to the left of the key pad will also light.
MQ (1)	When key pad MQ and then DISP are depressed, the content of the MQ register is displayed in the 4 character octal readout. The MQ indicator to the left of the key pad will also light.
BUS (2)	When key pad BUS and then DISP are depressed, the content of the DATA BUS (DATA 0-11) is displayed in the 4 character octal readout. The BUS indicator to the left of the key pad will also light.
STATUS (3)	When key pad STATUS and then DISP are depressed, the contents of the STATUS register is displayed in the 4-bit octal readout (Figure 6-3). The STATUS indicator to the left of the key pad will also light. The six most significant bits of the status register (bits 0-5) indicate either a set or cleared condition (logical one or logical zero). Thus, the octal readout for

Table 6-2 (Cont.)
PDP-8/A Programmer's Console Controls and Indicators

CONTROL OR INDICATOR				FUNCTION							
				these digits must be decoded to determine whether the bit is set or cleared.							
FIRST DIGIT OF OCTAL DISPLAY			SECOND DIGIT OF OCTAL DISPLAY			THIRD DIGIT OF OCTAL DISPLAY			FOURTH DIGIT OF OCTAL DISPLAY		
0	1	2	3	4	5	6	7	8	9	10	11
LINK	NOT USED	INT RQST	INTERRUPT INHIBIT	INTERRUPT ENABLED	USER MODE	IFO	IF1	IF2	DFO	DF1	DF2

Figure 6-3 Status Register

First Digit Position
 Second Digit

An octal 4 or 5 indicates that the link is set. An octal 1 or 5 indicates that the Omnibus interrupt request line is asserted.

An octal 4, 5, 6, or 7 indicates that the interrupt inhibit flip-flop is set. The interrupt inhibit flip-flop is located in the memory extension and timeshare option.

An octal 2, 3, 6, or 7 indicates that the interrupt system is enabled.

An octal 1, 3, 5, or 7 indicates that the USER MODE line is asserted. Signal USER MODE originates in the memory extension and timeshare option on the KM8-A option board to disable execution of all OSR, LAS, HLT and IOT instructions when the computer is operating in timeshare mode.

Third Digit

Displays the content of the 3-bit instruction field register (IFO-2) contained in the memory extension and timeshare option on the KM8-A option board.

Fourth Digit

Displays the content of the 3-bit data field register (DFO-2) contained in the memory extension and timeshare option on the KM8-A option board.

SR (4)

When key pad switch SR and then DISP are depressed, the content of the SR (switch register) will be displayed in the 4 character octal readout. The SR indi-