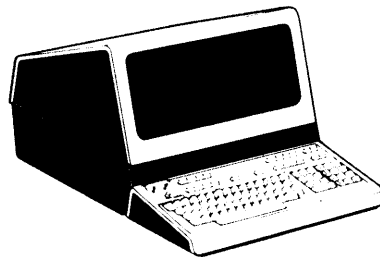HP 13255

KEYBOARD MODULE

Manual Part No. 13255-91018

PRINTED

AUG-01-76

DATA TERMINAL
TECHNICAL INFORMATION

HEWLETT **hp** *PACKARD*

1.0   INTRODUCTION.

The Keyboard Module provides direct data entry into the terminal by the terminal operator.

2.0   OPERATING PARAMETERS.

A summary of operating parameters for the Keyboard Module is contained in tables 1.0 through 6.4.

Table 1.0   Physical Parameters

Part Number	Nomenclature	Size (L x W x D) +/-0.100 Inches	Weight (Pounds)
02640-60018	Keyboard PCA	16.8 x 7.1 x 2.1	2.75
02640-60019	Keyboard Interface PCA	12.9 x 4.0 x 0.5	0.38
02640-60030	GP Keyboard Assembly	N/A	N/A
02640-60041	Speaker Cable Assembly	N/A	N/A
02640-60081	Keyboard Cable Assembly	N/A	N/A
02640-60091	Cyrillic Keyboard Assembly	N/A	N/A
02640-60105	Swedish Keyboard Assembly	N/A	N/A
02640-60113	Norwegian Keyboard Assembly	N/A	N/A
02640-60114	Cyrillic Keycap Assembly	N/A	N/A
02640-60145	2640B Keyboard Assembly	N/A	N/A
02644-60002	2644A Keyboard Assembly	N/A	N/A
02645-60001	2645A Keyboard Assembly	N/A	N/A

Number of Backplane Slots Required: 1

HP 13255

KEYBOARD MODULE

Manual Part No. 13255-91018

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NOTE: This document is part of the 264XX DATA TERMINAL product
        series Technical Information Package (HP 13255).

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02644-60002	2644A Keyboard Assembly	N/A	N/A
02645-60001	2645A Keyboard Assembly	N/A	N/A

Number of Backplane Slots Required: 1

Table 2.0   Reliability and Environmental Information

```
===================================================================
|                                                                 |
|  Environmental:     ( X ) HP Class B      (   ) Other:          |
|                                                                 |
|  Restrictions:  Type tested at product level                   |
|                                                                 |
|                                                                 |
| ==============================================================  |
|                                                                 |
|          Failure Rate:   2.108    (percent per 1000 hours)      |
|                                                                 |
===================================================================
```

Table 3.0   Power Supply and Clock Requirements - Measured
(At +/-5% Unless Otherwise Specified)

(Combined for Keyboard and Keyboard Interface PCA's)

+5 Volt Supply	+12 Volt Supply	-12 Volt Supply	-42 Volt Supply
@ 600 mA	@ 100 mA	@ 80 mA	@ mA
			NOT APPLICABLE

115 volts ac	220 volts ac
@ A	@ A
NOT APPLICABLE	NOT APPLICABLE

Clock Frequency: MHz

NOT APPLICABLE

Table 4.0   Jumper Definitions

PCA Designation	Function	
	In	Out
A through H	Jumpers A through H are located on the Keyboard Interface PCA and are applicable for software. (See table 6.2 for their interpretation.)	

Table 5.0   Connector Information - Keyboard PCA

Connector and Pin No.	Signal Name	Signal Description
J3, Pin 1	GND	} Ground
- 2	GND	}
- 3	BADDR3	Positive True, Column Address Bit 3
- 4	$\overline{BBUS4}$	Negative True, Buffered Data Bus Bit 4
- 5	$\overline{BBUS5}$	Negative True, Buffered Data Bus Bit 5
- 6	$\overline{BBUS7}$	Negative True, Buffered Data Bus Bit 7
- 7	$\overline{BBUS6}$	Negative True, Buffered Data Bus Bit 6
- 8	$\overline{READ . COL15}$	Negative True, Enables Reading the Column 0-13. Not asserted for Columns 14 & 15
- 9		Not Used
-10	LED EN	Strobes Data into LED Latches
-11	BEEP	Triggers Beeper Circuit
-12	+12V	+12 Volt Power Supply
-13	+5V	+5 Volt Power Supply
-14	-12V	-12 Volt Power Supply
-15	CHASSIS GND	Grounds the Switchplate

Table 5.1   Connector Information - Keyboard PCA

Connector and Pin No.	Signal Name	Signal Description
J4, Pin 1	PON	Resets the Terminal
- 2	+5V	+5 Volt Power Supply
- 3	COL OUT EN	Strobes Data into Column's Previous State in Input Register
- 4	$\overline{BBUS3}$	Negative True, Buffered Data Bus Bit 3
- 5	$\overline{BBUS0}$	Negative True, Buffered Data Bus Bit 0
- 6	$\overline{BBUS2}$	Negative True, Buffered Data Bus Bit 2
- 7	$\overline{BBUS1}$	Negative True, Buffered Data Bus Bit 1
- 8	BADDR2	Positive True, Column Address Bit 2
- 9	BADDR1	Positive True, Column Address Bit 1
-10	BADDR0	Positive True, Column Address Bit 0

Table 5.2 Connector Information - Keyboard Interface PCA

Connector and Pin No.	Signal Name	Signal Description
P1, Pin 1	+5V	+5 Volt Power Supply
- 2	GND	Ground Common Return (Power and Signal)
- 3		Not Used
- 4	-12V	-12 Volt Power Supply
- 5	ADDR0	Negative True, Address Bit 0
- 6	ADDR1	Negative True, Address Bit 1
- 7	ADDR2	Negative True, Address Bit 2
- 8	ADDR3	Negative True, Address Bit 3
- 9	ADDR4	Negative True, Address Bit 4
-10	ADDR5	Negative True, Address Bit 5
-11		} Not
-12		} Used
-13		}
-14	ADDR9	Negative True, Address Bit 9
-15	ADDR10	Negative True, Address Bit 10
-16	ADDR11	Negative True, Address Bit 11
-17		}
-18		} Not
-19		} Used
-20		}
-21	I/O	Negative True, Input Output/Memory
-22	GND	Ground Common Return (Power and Signal)

Table 5.2 Connector Information (Cont'd.) - Keyboard Interface PCA

Connector & Pin Number	Signal Name	Signal
P1, Pin A	GND	Ground Common Return (Power and Signal)
-B		Not Used
-C	+12V	+12 Volt Power Supply
-D	PWR ON	System Power On
-E	$\overline{BUS0}$	Negative True, Data Bus Bit 0
-F	$\overline{BUS1}$	Negative True, Data Bus Bit 1
-H	$\overline{BUS2}$	Negative True, Data Bus Bit 2
-J	$\overline{BUS3}$	Negative True, Data Bus Bit 3
-K	$\overline{BUS4}$	Negative True, Data Bus Bit 4
-L	$\overline{BUS5}$	Negative True, Data Bus Bit 5
-M	$\overline{BUS6}$	Negative True, Data Bus Bit 6
-N	$\overline{BUS7}$	Negative True, Data Bus Bit 7
-P	$\overline{WRITE}$	Negative True, Write/Read Type Cycle
-R		}
-S		} Not Used }
-T	PRIOR IN	Bus Controller Priority In
-U	PRIOR OUT	Bus Controller Priority Out
-V		}
-W		} Not Used
-X		}
-Y	$\overline{REQ}$	Negative True, Request (Bus Data Currently Valid)
-Z		Not Used

Table 5.3 Connector Information - Keyboard Interface PCA

Connector and Pin No.	Signal Name	Signal Description
P2, Pin 1	+5V	+5 Volt Power Supply
- 2	$\overline{BBUS0}$	Neaative True, Buffered Data Rus Bit 0
- 3	$\overline{BBUS1}$	Neaative True, Buffered Data Bus Bit 1
- 4	$\overline{BBUS2}$	Neaative True, Buffered Data Bus Bit 2
- 5	$\overline{BBUS3}$	Neaative True, Buffered Data Bus Bit 3
- 6	$\overline{BBUS4}$	Neaative True, Buffered Data Rus Bit 4
- 7	$\overline{BBUS5}$	Neaative True, Buffered Data Bus Bit 5
- 8	$\overline{BBUS6}$	Neaative True, Buffered Data Bus Bit 6
- 9	$\overline{BBUS7}$	Neaative True, Buffered Data Bus Bit 7
-10	BADDR0	Positive True, Column Address Bit 0
-11	BADDR1	Positive True, Column Address Bit 1
-12	BADDR2	Positive True, Column Address Bit 2
-13	BADDR3	Positive True, Column Address Bit 3
-14	$\overline{READ . COL15}$	Neaative True. Fnables Readina the Column 0-13. Not Asserted for Column 14 & 15
-15	COM	Common Return

Table 5.3 Connector Information (Cont'd.) - Keyboard Interface PCA

Connector and Pin No.	Signal Name	Signal Description
P2, Pin A	COM	Common Return
-B	BEEP	Triggers Beeper Circuit
-C	-12V	-12 Volt Power Supply
-D	CHASSIS GND	Grounds the Switchplate
-E		}
-F		} Not Used
-H		}
-J	COL OUT EN	Strobes Column's Previous States into Input Register
-K	LED EN	Strobes Data Into LED Latches
-L		Not Used
-M	PON	Resets the Terminal
-N	+5V	+5 Volt Power Supply
-P		} Not
-R		} Used
-S	+12V	+12 Volt Power Supply

Table 6.0   Module Bus Pin Assignments

Function Performed: Output a column's previous state into the Keyboard PCA's input register	Value	Bus Signal
Poll Bit: Not Applicable	X	ADDR 15
	X	ADDR 14
	X	ADDR 13
Module Address: (ADDR 11,10,9,4) = (0011)	X	ADDR 12
	0	ADDR 11
	0	ADDR 10
	1	ADDR 9
Function Specifier: ADDR 5 = 1	X	ADDR 8
	0	ADDR 7
	X	ADDR 6
	1	ADDR 5
	1	ADDR 4
	X	ADDR 3
	X	ADDR 2
Data Bus Bit Interpretation: Each data bit is	X	ADDR 1
associated with a switch in a column. If	X	ADDR 0
the bit is set to 1, it indicates that the		
switch was previously depressed. The column	B7	BUS 7
to which the value is applied is specified	B6	BUS 6
by a subsequent switch read as indicated	B5	BUS 5
in table 6.1.	B4	BUS 4
	B3	BUS 3
	B2	BUS 2
	B1	BUS 1
	B0	BUS 0

1=Logical 1=Bus Low
0=Logical 0=Bus High
X=Don't Care

Table 6.1   Module Bus Pin Assignments

Function Performed:	Read switches in column "n" as determined by A3, A2, A1, and A0	Value	Bus Signal
		X	ADDR 15
Poll Bit:	Not Applicable	X	ADDR 14
		X	ADDR 13
Module Address:	(ADDR 11,10,9,4) = (0011)	X	ADDR 12
		0	ADDR 11
		0	ADDR 10
		1	ADDR 9
Function Specifier:	ADDR 0,1,2,3 are used to specify	X	ADDR 8
	which keyboard column is to be	0	ADDR 7
	read. The column number	X	ADDR 6
	specified by these bits must be	X	ADDR 5
	less than 14 (decimal).	1	ADDR 4
		A3	ADDR 3
		A2	ADDR 2
Data Bus Bit Interpretation: Each data bit is		A1	ADDR 1
associated with a switch in a column. If		A0	ADDR 0
the switch is depressed, the data bit is 1.		B7	BUS 7
(Refer to figure 1 for a cross-reference of		B6	BUS 6
key numbers to the physical switches on the		B5	BUS 5
keyboard.)		B4	BUS 4
		B3	BUS 3
		B2	BUS 2
		B1	BUS 1
		B0	BUS 0

1=Logical 1=Bus Low
0=Logical 0=Bus High
X=Don't Care

Column Address				DATA BUS BIT							
A3	A2	A1	A0	B7	B6	B5	B4	B3	B2	B1	B0
0	0	0	0	007	006	005	004	003	002	001	000
0	0	0	1	017	016	015	014	013	012	011	010
0	0	1	0	027	026	025	024	023	022	021	020
0	0	1	1	037	036	035	034	033	032	031	030
0	1	0	0	047	046	045	044	043	042	041	040
0	1	0	1	057	056	055	054	053	052	051	050
0	1	1	0	067	066	065	064	063	062	061	-
0	1	1	1	077	076	075	074	073	072	071	070
1	0	0	0	107	106	105	104	103	102	101	100
1	0	0	1	117	116	115	114	113	112	111	110
1	0	1	0	127	126	125	124	123	122	121	120
1	0	1	1	137	136	-	134	133	132	131	130
1	1	0	0	147	-	-	144	-	142	141	140
1	1	0	1	157	-	-	154	-	152	151	150

Table 6.2 Module Bus Pin Assignments

Function Performed: Read Jumpers A through H on Keyboard Interface PCA	Value	Bus Signal
Poll Bit: Not Applicable	X	ADDR 15
	X	ADDR 14
	X	ADDR 13
Module Address: (ADDR 11,10,9,4) = (0011)	X	ADDR 12
	0	ADDR 11
	0	ADDR 10
	1	ADDR 9
Function Specifier: ADDR 0,1,2,3 = (0111)	X	ADDR 8
	0	ADDR 7
	X	ADDR 6
	X	ADDR 5
	1	ADDR 4
	1	ADDR 3
	1	ADDR 2
Data Bus Bit Interpretation:	1	ADDR 1
	0	ADDR 0
B7	B7	BUS 7
When set to 1, Jumper H is out	B6	BUS 6
	B5	BUS 5
B6	B4	BUS 4
When set to 1, Jumper G is out	B3	BUS 3
	B2	BUS 2
	B1	BUS 1
B5	B0	BUS 0
When set to 1, Jumper F is out	1=Logical 1=Bus Low	
	0=Logical 0=Bus High	
B4	X=Don't Care	
When set to 1, Jumper E is out		
B3		
When set to 1, Jumper D is out		
B2		
When set to 1, Jumper C is out		
B1		
When set to 1, Jumper B is out		
B0		
When set to 1, Jumper A is out		

Table 6.3   Module Bus Pin Assignments

Function Performed:	Read data comm switches on Keyboard PCA (Refer to figure 1 for physical location of data comm switches and their positions.)	Value	Bus Signal
		X	ADDR 15
		X	ADDR 14
Poll Bit: Not Applicable		X	ADDR 13
		X	ADDR 12
Module Address: (ADDR 11,10,9,4) = (0011)		0	ADDR 11
		0	ADDR 10
		1	ADDR 9
Function Specifier: ADDR 0,1,2,3 = (1111)		X	ADDR 8
		0	ADDR 7
		X	ADDR 6
		X	ADDR 5
Data Bus Bit Interpretation:		1	ADDR 4
		1	ADDR 3
		1	ADDR 2
		1	ADDR 1
		1	ADDR 0

Switch 1

Position	0	1
B7	1	0

B6   Not assigned, always 0

Switch 2

Position	0	1	2
B5	0	0	1
B4	0	1	0

Switch 3

Position	0	1	2	3	4	5	6	7
B3	0	0	0	0	1	1	1	1
B2	0	0	1	1	0	0	1	1
B1	0	1	0	1	0	1	0	1

B0   Not assigned, always 0

Value	Bus Signal
B7	BUS 7
B6	BUS 6
B5	BUS 5
B4	BUS 4
B3	BUS 3
B2	BUS 2
B1	BUS 1
B0	BUS 0

1=Logical 1=Bus Low
0=Logical 0=Bus High
X=Don't Care

Table 6.4   module Bus Pin Assignments

Function Performed: Write LED latch and trigger alarm generator (Beep)	Value	Bus Signal
Poll Bit: Not Applicable	X	ADDR 15
	X	ADDR 14
	X	ADDR 13
Module Address: (ADDR 11,10,9,4) = (0011)	X	ADDR 12
	0	ADDR 11
	0	ADDR 10
	1	ADDR 9
Function Specifier: ADDR 5 = 0	X	ADDR 8
	0	ADDR 7
	X	ADDR 6
	0	ADDR 5
	1	ADDR 4
	X	ADDR 3
	X	ADDR 2
Data Bus Bit Interpretation:	X	ADDR 1
	X	ADDR 0
B7	b7	BUS 7
when Set, Beeper is triggered	B6	BUS 6
	b5	BUS 5
B6	B4	BUS 4
when Set, LED #7 is turned on	B3	BUS 3
	b2	BUS 2
	B1	BUS 1
B5	B0	BUS 0
when Set, LED #6 is turned on	1=Logical 1=Bus Low	
	0=Logical 0=Bus High	
B4	X=Don't Care	
when Set, LED #5 is turned on		
B3		
when Set, LED #4 is turned on		
B2		
when Set, LED #3 is turned on		
B1		
when Set, LED #2 is turned on		
B0		
when Set, LED #1 is turned on		

3.0   FUNCTIONAL DESCRIPTION. Refer to the switch location diagram (figure
             1), block diagram (figure 2), schematic diagrams (figures 3 and 4),
             timing diagram (figure 5), component location diagrams (figures 6 and
             7), and parts lists (02640-60018, 02640-60019, 02640-60030, 02640-
             60041, 02640-60081, 02640-60091, 02640-60105, 02640-60113, 02640-60114,
             02640-60145, 02644-60002, and 02645-60001) located in the appendix.

             The Keyboard Module provides the communication link between the termi-
             nal operator and the terminal. All of the keyboard keys are arranged
             in a key matrix of 14 columns of eight key switches each. Two more
             columns are provided for reading the data comm switches and keyboard
             jumpers A through H.

             The key matrix is constantly monitored by the processor, one column at
             a time. As each column is scanned, it appears to the processor as an
             8-bit value where each bit represents one key switch in the column.
             Depressed keys are represented by a logic 1 and released keys by a
             logic 0. Key columns are monitored in discrete intervals. Therefore,
             the present state of each key must be compared to its previous state
             when last scanned in order for the processor to recognize when a key
             has just been depressed, is being held depressed, or has just been re-
             leased. The previous state of each key is saved by the processor.

             The keyboard logic is physically located on the Keyboard Interface and
             Keyboard PCA's. Connection between the two PCA's is accomplished by
             the 5-foot Keyboard Cable Assembly. As shown in the block diagram, the
             Keyboard Interface PCA consists of bus decoder logic circuits, option
             jumper network circuits, and an alarm generator. The Keyboard PCA
             consists of a column decoder, an 8 by 14 key matrix, ramp generator,
             differential comparator circuits, an output register (data taken by
             processor), an input register (receives previous state of the key
             switches from processor), data comm logic, and a LED register.

3.1   BUS DECODER LOGIC - Keyboard Interface PCA.

3.1.1   The bus decoder logic interprets signals from the terminal bus that are
             sent by the processor. The processor accesses the keyboard by applying
             $\overline{I/O}$, $\overline{REQ}$, $\overline{ADDR4}$, $\overline{ADDR9}$, $\overline{ADDR10}$ and $\overline{ADDR11}$. $\overline{ADDR0}$ to $\overline{ADDR3}$ determine
             which column in the key matrix will be read by the processor. The
             logic level of $\overline{WRITE}$ determines if data is to be received or transmit-
             ted by the keyboard. When $\overline{WRITE}$ is low, the bus decoder logic applies
             a Data Input Enable signal (DATA IN EN) to the input buffers and pre-
             vious state column data or LED data can be applied to the keyboard.

             When $\overline{WRITE}$ is high, the bus decoder logic applies Data Output Enable
             signal (DATA OUT EN) to the output buffers and data from the keyboard

can be read into the processor. In addition, if the address of $\overline{ADDR0}$

through $\overline{ADDR3}$ is between 0 and 13 then READ . $\overline{COL}$ 15 is generated. When

column 14 is addressed, a RD JUMPERS signal is generated. If $\overline{WRITE}$ is

low and $\overline{ADDR5}$ is low, then COL OUT EN is asserted. $\overline{WRITE}$ low and $\overline{ADDR5}$

high generate a LED EN signal. when $\overline{WRITE}$ is low, $\overline{ADDR5}$ is high, and

$\overline{BUS7}$ is low, then an Alarm Enable ($\overline{ALARM\ EN}$) signal is asserted.

3.1.2   When the module is decoded, $\overline{REQ}$ and $\overline{I/O}$ are low and $\overline{WRITE}$ is high, then

DATA OUT EN (U47, Pin 6) is asserted. If $\overline{WRITE}$ is low and the module

is decoded, the DATA IN EN (U48, Pin 6) signal is true. When $\overline{ADDR0}$

through $\overline{ADDR3}$ address columns 0 to 13 and DATA OUT EN is asserted, then

negative true READ . $\overline{COL15}$ (U49, Pin 6) is asserted. If column 14 is
addressed and DATA OUT EN is true, then RD JUMPRS (U59, Pin 8) is
asserted.

Assertion of DATA IN EN, $\overline{REQ}$, $\overline{I/O}$, and $\overline{ADDR5}$ (low) signals results in
the generation of COL OUT EN (U48, Pin 11). Finally, assertion of DATA
IN EN, $\overline{REQ}$, $\overline{I/O}$, and $\overline{ADDR5}$ (high) signals, generates positive true LED
EN (U48, Pin 3) signal. When LED EN is generated and $\overline{BUS7}$ is asserted
low, the $\overline{ALARM\ EN}$ (U49, Pin 11) signal goes low.

3.2   OPTION JUMPER NETWORK - Keyboard Interface PCA.

Eight pluggable Jumpers (A through H), are located on the Keyboard
Interface PCA. These jumpers are interpreted by the software and have
no significance to the function of the keyboard. The jumpers are read
by the processor when the RD JMPRS signal is decoded. (Refer also to
table 6.2.)

3.3   ALARM GENERATOR - Keyboard Interface PCA.

3.3.1   when the alarm generator is triggered by the ALARM EN signal, it drives
the speaker with a "Beep" signal having a frequency of 650 Hz for
approximately 110 milliseconds.

3.3.2   The alarm generator is a dual timer 556. One-half of the 556 timer is

connected as a one-shot that is triggered when the ALARM EN signal goes
low at U39, Pin 6. Resistor R5 and capacitor C5 determine the length
of the pulse. The other half of the timer is connected as an astable
multivibrator that is enabled only when the one-shot is on. The fre-
quency is determined by resistor R7, R8, and capacitor C7. The output
signal of the astable circuit (U39, Pin 9) drives the speaker located
on the keyboard. Resistor R9 determines the intensity of the tone.

3.4   COLUMN DECODER - Keyboard PCA. The column decoder selects one column

in the key matrix when binary address ADDR0 through ADDR3 is applied.

3.5   KEY MATRIX - Keyboard PCA.

3.5.1   The key switches are arranged in a matrix of 8 rows and 14 columns.
The matrix is scanned column by column, so that eight switches at a
time are read.

3.5.2   The key switch used is a LICON type consisting of a ferrite core, a
drive wire, a sense wire, and two magnets. When the switch is in the
undepressed state, the two magnets are in close proximity to the core,
thus saturating the core and inhibiting the coupling of a signal from
the drive wire to the sense wire. When the switch is depressed, two
magnets are moved away from the core and a signal is coupled from the
drive wire to the sense wire. All switches in one column are connected
serially by drive lines and switches in one row are connected serially
by sense lines. One side of the drive lines is connected to the col-
umn decoder (U5 and U7), and the other side to the ramp generator (to
collector of Q2). Eight sense lines are connected to differential
comparators on one side and are grounded on the other end. After the
column decoder selects a column and the ramp generator is enabled, then
drive current (80 milliamperes) flows through the selected column.
Depressed keys in the selected column couple the drive signal to the
sense line which is then applied to the differential comparator.

3.6   RAMP GENERATOR - Keyboard PCA.

3.6.1   When a PD . $\overline{COL15}$ signal is applied to the ramp generator, the current
           is enabled into the selected column. The current rises linearly from
           0 to 80 milliamperes in 80 nanoseconds.

3.6.2   The ramp generator is a combination of a Miller integrator (transistor
           Q1, resistor R35, and capacitor C5) and a current mirror (transistors

           Q3 and Q2). When the RD . $\overline{COL15}$ signal is applied to the input, the
           collector of transistor Q1 falls to ground according to the transit
           time determined by R35 and C5. The collector current of Q1 rises
           linearly and is determined by resistors R39 and R36.   Since the same
           base emitter voltage is applied to Q2 and Q3, the emitter current of
           Q2 "reflects" the current of Q3. This current flows through the
           selected column of the matrix. Nominally, the current rises from 0 to
           80 milliamperes in 80 nanoseconds. The function of R37 (10 kilohms)
           is to bias the drive lines to ground when Q2 is off and no column is
   selected.

3.7   DIFFERENTIAL COMPARATORS - Keyboard PCA.

3.7.1   The eight sense lines out of the key matrix are fed into the eight
           differential comparators. Each depressed switch generates a pulse on
           the corresponding row when its column is scanned. Differential com-
           parators translate this pulse into the required TTL level.

3.7.2   Differential comparators are MC1414 or equivalent. Sense lines are fed
           into the minus input and are terminated by a 200-ohm resistor. Thresh-
           old is determined by resistor network (47K, 47K, 1.2K) and the previous
           state held in the input register. When the previous state is "0", the
           threshold is set to 200 millivolts and when "1", it is 100 millivolts.
           The differential comparator timing is shown in figure 5. When the pro-
           cessor wants to read one column, it puts the binary address of the
           column on the terminal data bus and the column decoder selects the
           corresponding drive line for the column. Approximately 200 nanoseconds

after the column has been selected, the RD. COL15 signal comes true and
turns on the ramp generator. This current is transformed into sense
lines only on those switches that are depressed. The sense pulse is
approximately 400 millivolts in amplitude and 80 nanoseconds wide at
the base. Differential comparators set the corresponding bits in the
output register.

3.8   OUTPUT REGISTER - Keyboard PCA. Outputs of the differential compara-
tors set the corresponding bits in an 8-bit output register. Signals
RD. COL15 and DATA OUT EN (on the Keyboard Interface PCA) enable the
result of the selected column on the terminal data bus.

3.9   INPUT REGISTER - Keyboard PCA. Before a column is read, the previous
state of that column is sent from the processor to the input register.
Outputs of this register determine the threshold of the differential
comparators. If the previous state of a switch was "0", the threshold
is 200 millivolts; if it was "1", the threshold is 100 millivolts.
This causes hysteresis in the key travel since the sense pulse ampli-
tude is proportional to the key depression.

3.10   DATA COMM LOGIC - Keyboard PCA. The data communications logic contains
a baud rate encoder and the keyboard data communications switches.
Eight positions of the rotary BAUD RATE switch (Switch 3) are encoded
into three binary bits. The 3-position PARITY switch (Switch 2), is
encoded into two bits. The 2-position DUPLEX switch (Switch 1) uses
one bit for detection. When column 15 is addressed, the RD. COL15 (U8,
Pin 10) signal is decoded and the data comm byte is released to the
terminal data bus. (Refer to table 6.3 for more details.)

3.11   LED REGISTER - Keyboard PCA. The LED register is loaded with seven
data bits when a LED EN signal is decoded. Outputs of this latch
drive seven LED indicators.
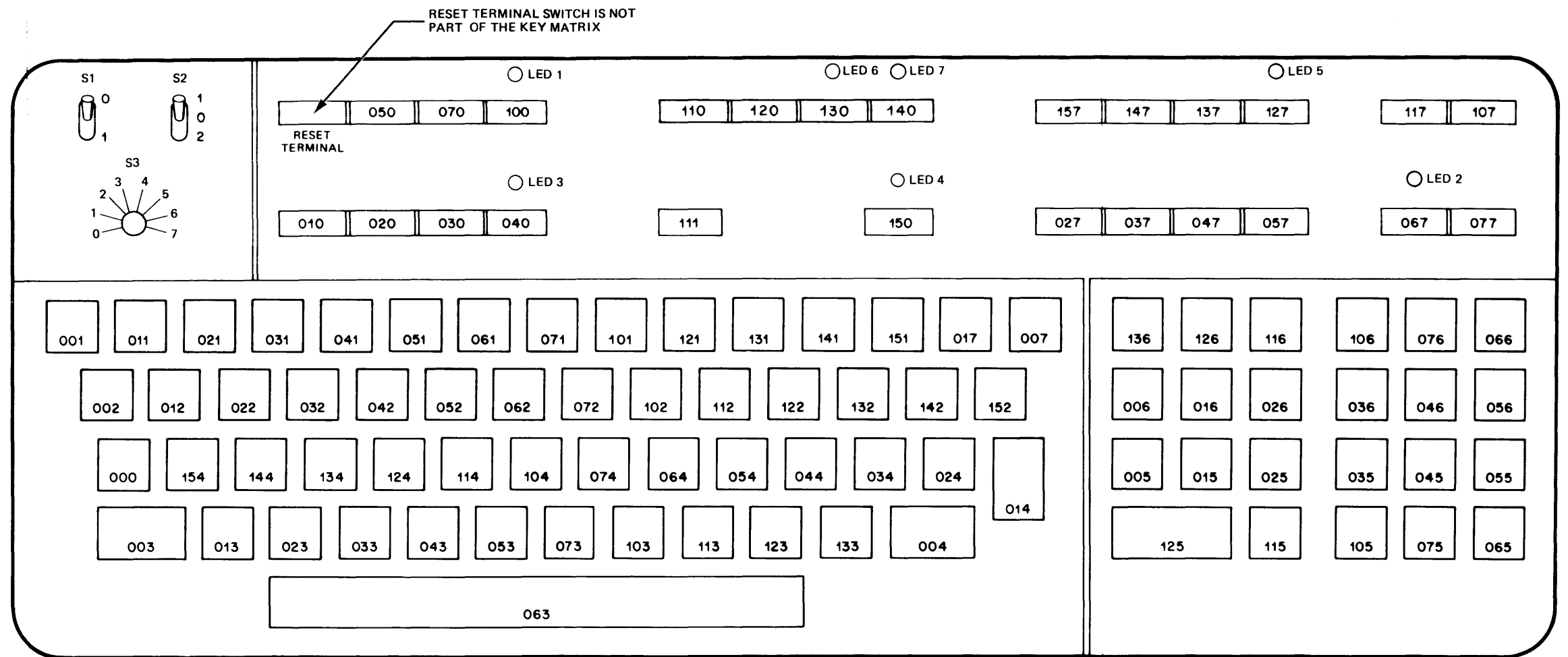
Figure 1
Keyboard PCA Switch Location Diagram
AUG-01-76   13255-91018
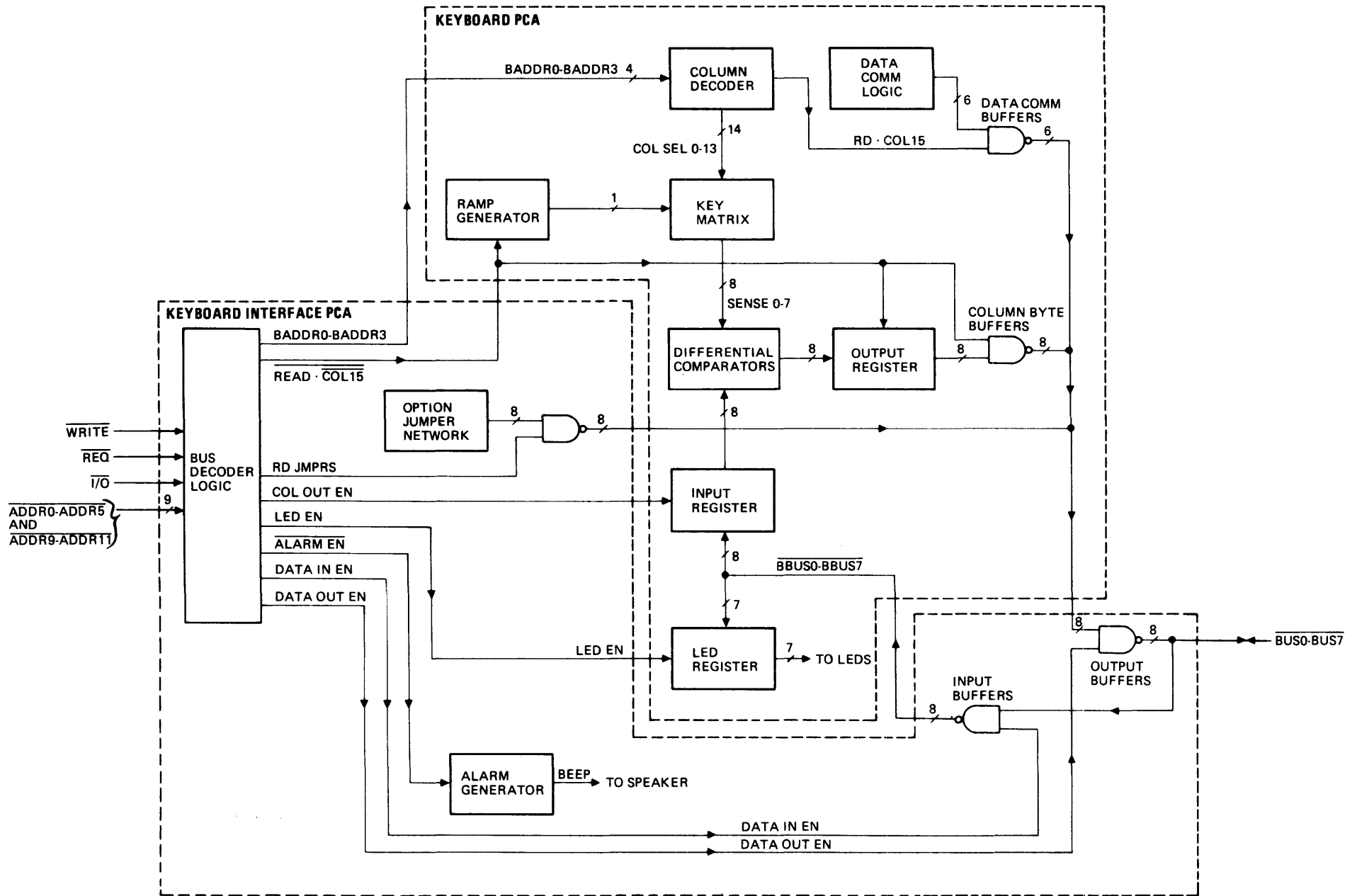
Figure 2
Keyboard Module Block Diagram
AUG-01-76   13255-91018
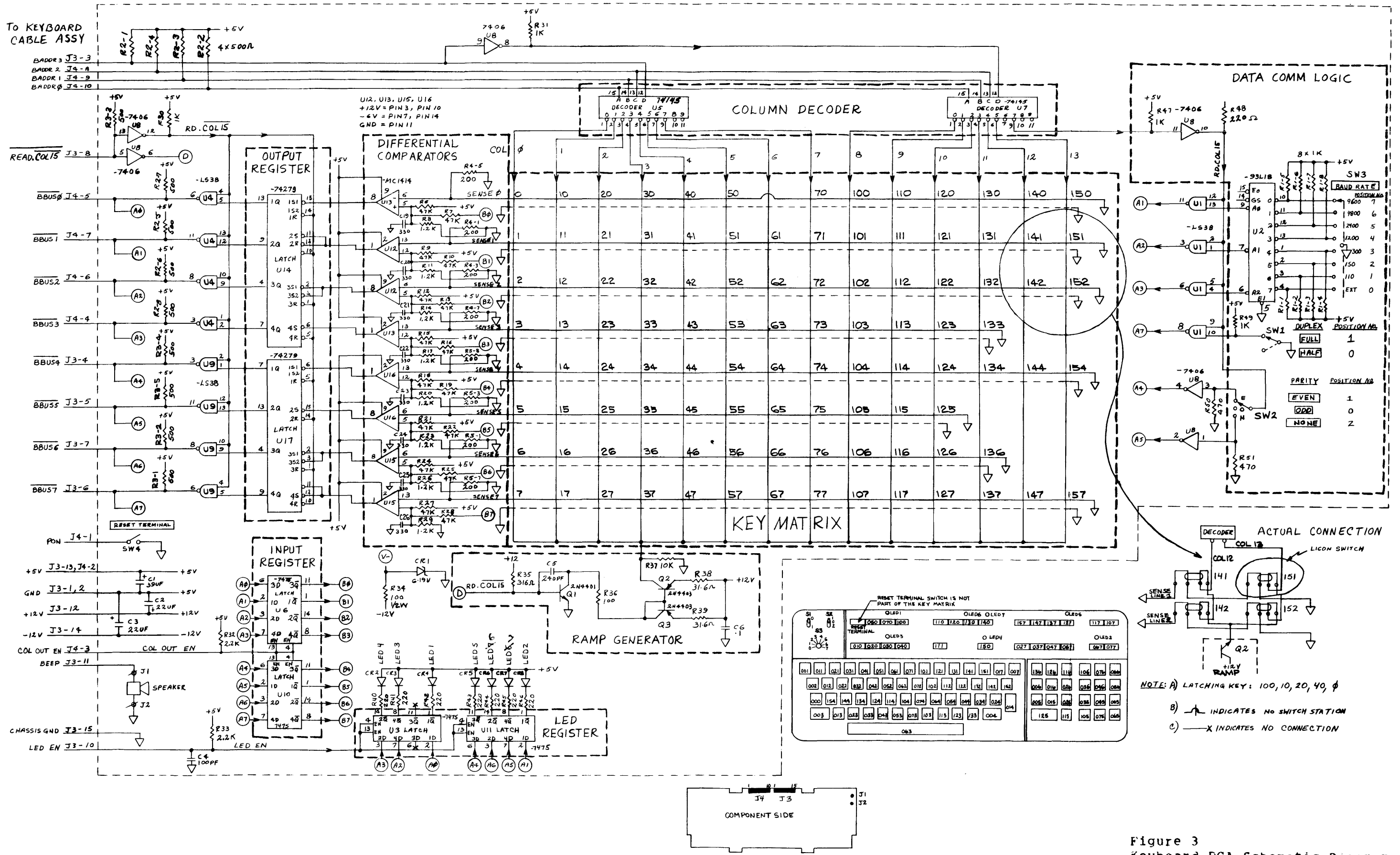
Figure 3
Keyboard PCA Schematic Diagram
AUG-01-76   13255-91018
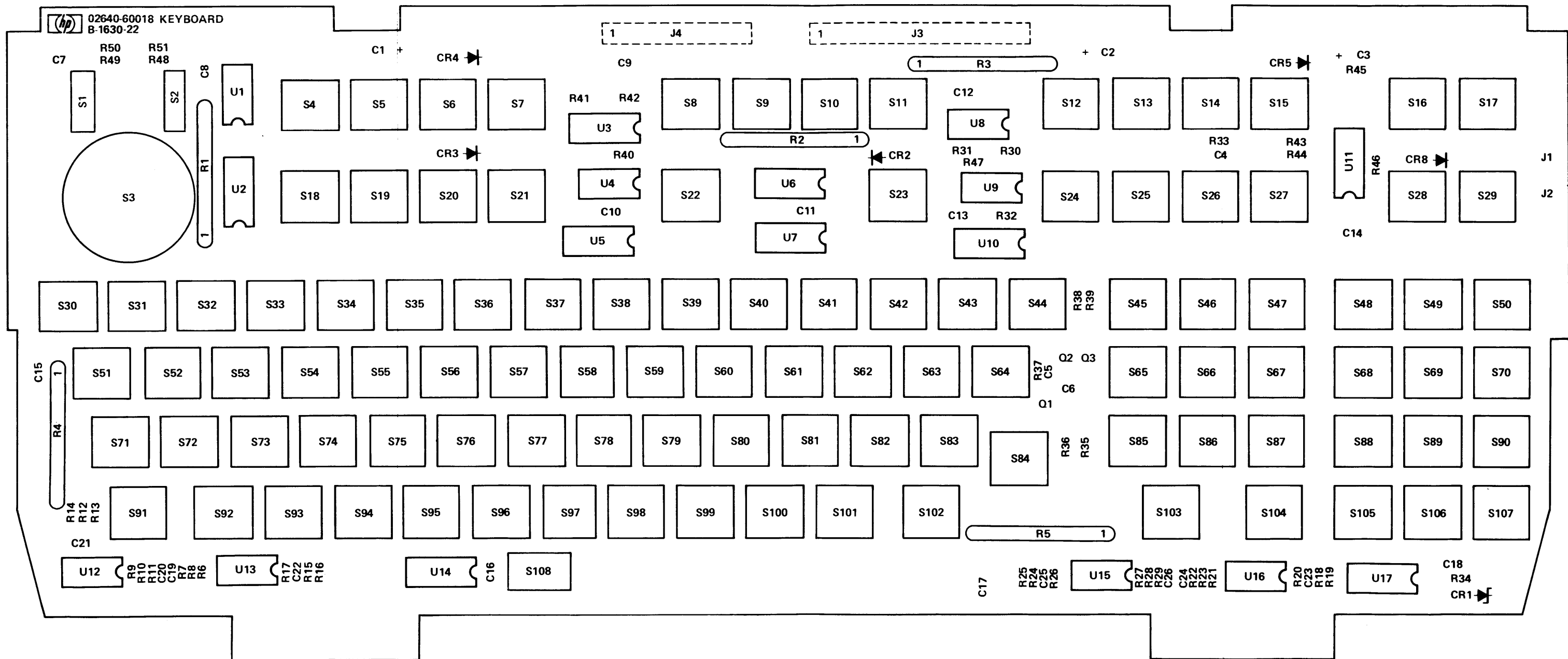
Figure 6
Keyboard PCA Component Location Diagram
AUG-01-76   13255-91018

Figure 4
Keyboard Interface PCA Schematic Diagram
AUG-01-76   13255-91018
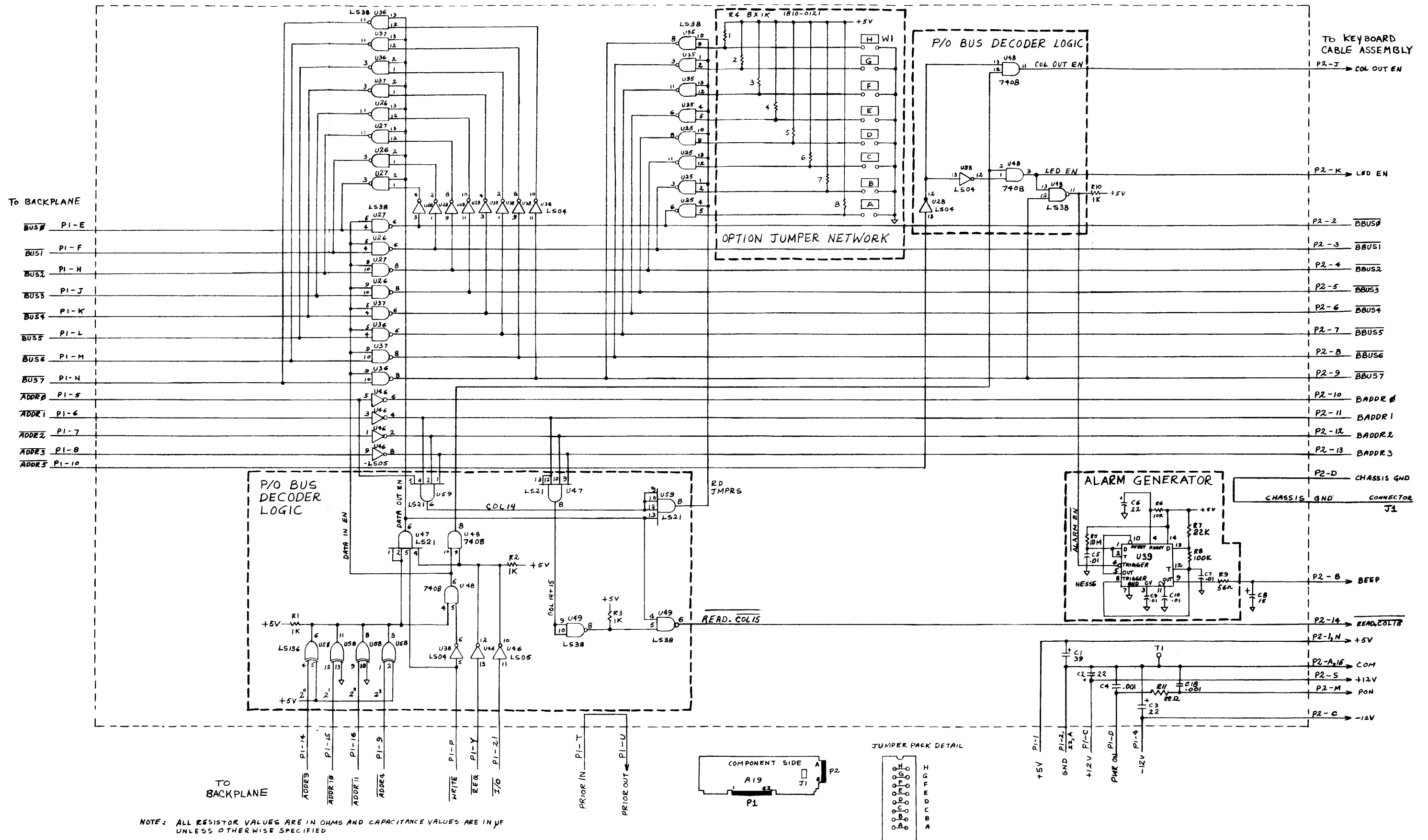
NOTE: ALL RESISTOR VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN μF
UNLESS OTHERWISE SPECIFIED

SIGNAL NAME	CONNECTOR # PIN NO.
(COLUMN DECODER OUTPUT)	U7, U5
RD·$\overline{COL15}$	U8, PIN 6
(CURRENT IN A SELECTED LINE)	—
(DIFFERENTIAL COMPARATOR INPUT)	U12, U13, U15, U16
(DIFFERENTIAL COMPARATOR OUTPUT)	U12, U13, U15, U16
(OUTPUT REGISTER)	U14, U17

0.8V

200 NSEC

0.7V

80 NSEC

80 MA
Ø MA

400 MV
Ø MV

+5V
0V

+5V
0V
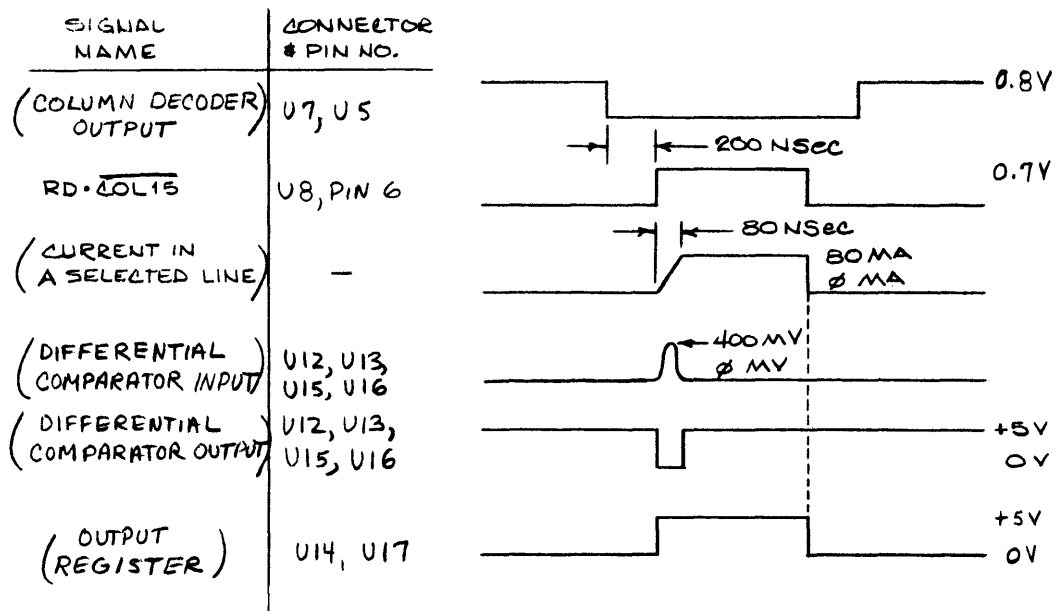
Figure 5
Differential Comparator Timing Diagram
AUG-01-76   13255-91018
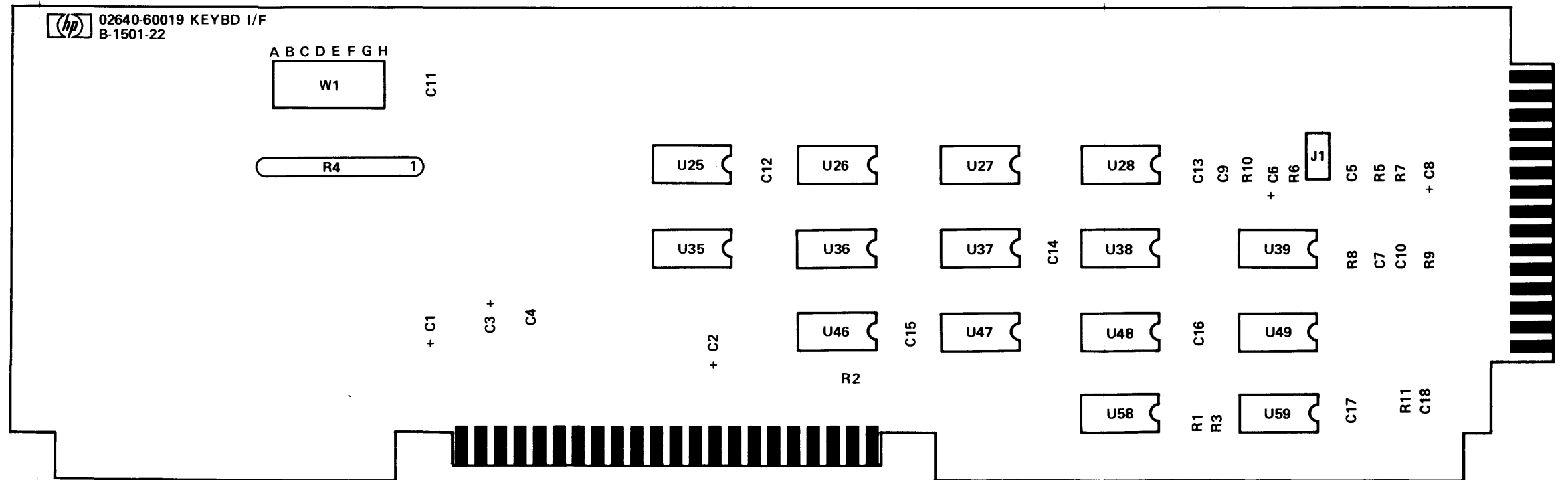
02640-60019 KEYBD I/F
B-1501-22

A B C D E F G H

W1

C11

R4   1

A B C D E F G H

U25   C12   U26   U27   U28   C13 C9 R10 +C6 R6   J1   C5 R5 R7 +C8

U35   U36   U37   C14   U38   U39   R8 C7 C10 R9

+ C1   C3 +   C4   + C2   U46   C15   U47   U48   C16   U49

R2

U58   R1 R3   U59   C17   R11 C18

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60018	1	2640A KEYBOARD ASSEMBLY DATE CODE: B-1630-22 REVISION DATE: 08-25-76	28480	02640-60018
C1	0180-0393	1	CAPACITOR-FXD 39UF+-10% 10VDC TA	56289	150D396X9010B2
C2	0180-0228	2	CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
C3	0180-0228		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
C4	0160-2204	1	CAPACITOR-FXD 100PF +-5% 300WVDC MICA	28480	0160-2204
C5	0140-0199	1	CAPACITOR-FXD 240PF +-5% 300WVDC MICA	72136	DM15F241J0300WV1CR
C6	0150-0121	1	CAPACITOR-FXD .1UF +80-20% 50WVDC CER	28480	0150-0121
C7	0160-2055	12	CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C8	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C9	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C10	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C11	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C12	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C13	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C14	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C15	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C16	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C17	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C18	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C19	0160-3572	8	CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C20	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C21	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C22	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C23	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C24	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C25	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
C26	0160-3572		CAPACITOR-FXD 330PF +-10% 500WVDC CER	28480	0160-3572
CR1	1902-0049	1	DIODE-ZNR 6.19V 5% DO-7 PD=.4W TC=+.022%	28480	1902-0049
E1	0360-0124	5	TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
E2	0360-0124		TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
E3	0360-0124		TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
E4	0360-0124		TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
E5	0360-0124		TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
Q1	1854-0467	1	TRANSISTOR NPN 2N4401 SI TO-92 PD=310MW	04713	2N4401
Q2	1853-0271	2	TRANSISTOR PNP 2N4403 SI TO-92 PD=310MW	04713	2N4403
Q3	1853-0271		TRANSISTOR PNP 2N4403 SI TO-92 PD=310MW	04713	2N4403
R1	1810-0121	1	NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0121
R2	1810-0132	2	NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0132
R3	1810-0132		NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0132
R4	1810-0163	2	NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0163
R5	1810-0163		NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0163
R6	0683-4735	16	RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R7	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R8	0683-1225	8	RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R9	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R10	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R11	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R12	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R13	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R14	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R15	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R16	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R17	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R18	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R19	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R20	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R21	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R22	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R23	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R24	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R25	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R26	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R27	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R28	0683-4735		RESISTOR 47K 5% .25W FC TC=-400/+800	01121	CB4735
R29	0683-1225		RESISTOR 1.2K 5% .25W FC TC=-400/+700	01121	CB1225
R30	0683-1025	4	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R31	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R32	0683-2225	2	RESISTOR 2.2K 5% .25W FC TC=-400/+700	01121	CB2225
R33	0683-2225		RESISTOR 2.2K 5% .25W FC TC=-400/+700	01121	CB2225
R34	0686-1015	1	RESISTOR 100 5% .5W CC TC=0+529	01121	EB1015
R35	0698-3402	1	RESISTOR 316 1% .5W F TC=0+-100	91637	MFF-1/2-10

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			2640A KEYBOARD ASSEMBLY, CONT'D.		
R36	0757-0198	1	RESISTOR 100 1% .5W F TC=0+-100	19701	MF7C1/2-T0-101-F
R37	0683-1035	1	RESISTOR 10K 5% .25W FC TC=-400/+700	01121	CB1035
R38	0757-0180	2	RESISTOR 31.6 1% .125W F TC=0+-100	24546	C4, T-0
R39	0757-0180		RESISTOR 31.6 1% .125W F TC=0+-100	24546	C4, T-0
R40	0683-2215	8	RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R41	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R42	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R43	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R44	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R45	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R46	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R47	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R48	0683-2215		RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R49	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R50	0683-4715	2	RESISTOR 470 5% .25W FC TC=-400/+600	01121	CB4715
R51	0683-4715		RESISTOR 470 5% .25W FC TC=-400/+600	01121	CB4715
SW1	3101-1858	1	SWITCH-TGL SUBMIN SPDT NS .02A 20VAC/DC	09353	7101-L2YCBE
SW2	3101-1859	1	SWITCH-TGL SUBMIN SPDT NS .02A 20VAC/DC	09353	7103-L2YCBE
SW3	3100-3313	1	SWITCH-RTRY .812 IN CTR SPCG IDX-ANG=36	28480	3100-3313
SW4	3101-1745	1	SWITCH-PB SPST-NC MOM .12A 28VAC	28480	3101-1745
SW5	3101-1899	99	SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW6	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW7	3101-1900	5	SWITCH-PB SPST-NO ALTNG .08A	28480	3101-1900
SW8	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW9	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW10	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW11	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW12	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW13	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW14	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW15	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW16	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW17	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW18	3101-1900		SWITCH-PB SPST-NO ALTNG .08A	28480	3101-1900
SW19	3101-1900		SWITCH-PB SPST-NO ALTNG .08A	28480	3101-1900
SW20	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
SW21	3101-1900		SWITCH-PB SPST-NO ALTNG .08A	28480	3101-1900
SW22-SW70	3101-1899		SWITCH-PB SPST-NC MOM .08A	28480	3101-1899
SW71	3101-1900		SWITCH-PB SPST-NO ALTNG .08A	28480	3101-1900
SW72-SW108	3101-1899		SWITCH-PB SPST-NO MOM .08A	28480	3101-1899
U1	1820-1209	3	IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U2	1820-0987	1	IC-DIGITAL 93L18PC TTL L 8	07263	93L18PC
U3	1820-0301	4	IC-DIGITAL SN7475N TTL D-TYPE	01295	SN7475N
U4	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U5	1820-0491	2	IC-DIGITAL SN74145N TTL 4 BCD-TO-DEC	01295	SN74145N
U6	1820-0301		IC-DIGITAL SN7475N TTL D-TYPE	01295	SN7475N
U7	1820-0491		IC-DIGITAL SN74145N TTL 4 BCD-TO-DEC	01295	SN74145N
U8	1820-0471	1	IC-DIGITAL SN7406N TTL HEX 1	01295	SN7406N
U9	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U10	1820-0301		IC-DIGITAL SN7475N TTL D-TYPE	01295	SN7475N
U11	1820-0301		IC-DIGITAL SN7475N TTL D-TYPE	01295	SN7475N
U12	1826-0051	4	IC MC 1414 COMPARATOR	04713	MC1414P
U13	1826-0051		IC MC 1414 COMPARATOR	04713	MC1414P
U14	1820-1089	2	IC-DIGITAL SN74279N TTL QUAD	01295	SN74279N
U15	1826-0051		IC MC 1414 COMPARATOR	04713	MC1414P
U16	1826-0051		IC MC 1414 COMPARATOR	04713	MC1414P
U17	1820-1089		IC-DIGITAL SN74279N TTL QUAD	01295	SN74279N
			MISCELLANEOUS		
	0360-0040	3	TERMINAL-SLDR LUG LK-MTG FOR-#1/4-SCR	73734	1958
	0360-0268	1	TERMINAL-SLDR LUG LK-MTG FOR-#6-SCR	78189	2103-06-00
	0370-1129	1	KNOB-CONC-BAR AND PTR .5 IN JGK	28480	0370-1129
	0380-0371	7	SPACER-RND .375LG .171ID .250D FBR	83330	2131
	0380-0585	4	STANDOFF-RVT-ON .531LG 6-32THD .250D BRS	28480	0380-0585
	0470-0010		ADHESIVE, LOCTITE 404 CYANOACRYLATE	05972	404
	1450-0528	7	SKT-LAMP BIPIN		
	2360-0197	6	SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	28480	2360-0197
	2950-0052	2	NUT-HEX-DBL-CHAM 1/4-40-THD .062-THK	28480	2950-0054
	3050-0099	2	WASHER-FL MTLC NO.-12 .25-IN-ID .5-IN-OD	28480	3050-0099
	8151-0013		WIRE 22AWG 1X22	28480	8151-0014
	02640-00003	1	PLATE, SWITCH MOUNTING	28480	02640-00003
	02640-00041	1	SPRING, CONTACT	28480	02640-00041
J3	1251-3198	1	CONN 15 PIN		
J4	1251-3475	1	CONN MALE 10 POST		

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60019	1	KEYBOARD INTERFACE ASSEMBLY DATE CODE: B-1501-22 REVISION DATE: 04-15-76	28480	02640-60019
C1	0180-0393	1	CAPACITOR-FXD 39UF+-10% 10VDC TA	56289	150D396X9010B2
C2	0180-0228	3	CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
C3	0180-0228		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
C4	0160-3456	2	CAPACITOR-FXD 1000PF +-10% 1000WVDC CER	28480	0160-3456
C5	0160-0161	2	CAPACITOR-FXD .01UF +-10% 200WVDC POLYE	56289	292P10392
C6	0180-0228		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
C7	0160-0161		CAPACITOR-FXD .01UF +-10% 200WVDC POLYE	56289	292P10392
C8	0180-1746	1	CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
C9	0160-2055	9	CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C10	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C11	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C12	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C13	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C14	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C15	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C16	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C17	0160-2055		CAPACITOR-FXD .01UF +80-20% 100WVDC CER	28480	0160-2055
C18	0160-3456		CAPACITOR-FXD 1000PF +-10% 1000WVDC CER	28480	0160-3456
E1	0360-0124	1	TERMINAL-STUD SGL-PIN PRESS-MTG	28480	0360-0124
J1	1251-1126	1	CONNECTOR-SGL CONT SKT .08-IN-BSC-SZ RND	74970	105-0754-001
R1	0683-1025	10	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R2	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R3	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R4	1810-0121		NETWORK-RES 9-PIN-SIP .15-PIN-SPCG	28480	1810-0121
R5	0683-1065	1	RESISTOR 10M 5% .25W FC TC=-900/+1100	01121	CB1065
R6	0683-1035	1	RESISTOR 10K 5% .25W FC TC=-400/+700	01121	CB1035
R7	0683-2235	1	RESISTOR 22K 5% .25W FC TC=-400/+800	01121	CB2235
R8	0683-1045	1	RESISTOR 100K 5% .25W FC TC=-400/+800	01121	CB1045
R9	0686-5605	1	RESISTOR 56 5% .5W CC TC=0+412	01121	EB5605
R10	0683-1025		RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R11	0683-2205	1	RESISTOR 22 5% .25W FC TC=-400/+500	01121	CB2205
U25	1820-1209	7	IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U26	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U27	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U28	1820-1199	2	IC-DIGITAL SN74LS04N TTL LS HEX 1	01295	SN74LS04N
U35	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U36	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U37	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U38	1820-1199		IC-DIGITAL SN74LS04N TTL LS HEX 1	01295	SN74LS04N
U39	1826-0205	1	IC NE 556 TIMER	18324	NE556A
U46	1820-1200	1	IC-DIGITAL SN74LS05N TTL LS HEX 1	01295	SN74LS05N
U47	1820-1205	2	IC-DIGITAL SN74LS21N TTL LS DUAL 4 AND	01295	SN74LS21N
U48	1820-0511	1	IC-DIGITAL SN7408N TTL QUAD 2 AND	01295	SN7408N
U49	1820-1209		IC-DIGITAL SN74LS38N TTL LS QUAD 2 NAND	01295	SN74LS38N
U58	1820-1215	1	IC-DIGITAL SN74LS136N TTL LS QUAD 2	01295	SN74LS136N
U59	1820-1205		IC-DIGITAL SN74LS21N TTL LS DUAL 4 AND	01295	SN74LS21N
W1	1200-0482	1	SOCKET-IC 16-CONT DIP-SLDR	91506	516-AG110
W1A	1258-0124	8	PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1B	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1C	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1D	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1E	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1F	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1G	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1
W1H	1258-0124		PIN-PROGRAMMING JUMPER;.30 CONTACT	91506	8136-475G1

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60030	1	G.P. KEYBOARD ASSEMBLY REVISION DATE: 09-11-76	28480	02640-60030
	0370-0620	1	KEYCAP, DBLC	28480	0370-0620
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2266	1	KEYCAP, 7'	28480	0370-2266
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, O	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, Q	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2296	1	KEYCAP, <	28480	0370-2296
	0370-2297	1	KEYCAP, >	28480	0370-2297
	0370-2298	1	KEYCAP, ?/	28480	0370-2298
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2324	1	KEYCAP, +:	28480	0370-2324
	0370-2325	1	KEYCAP, COLON	28480	0370-2325
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	1	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	1	KEYCAP, ARROW	28480	0370-2640
	0370-2641	1	KEYCAP, 0	28480	0370-2641
	0370-2642	1	KEYCAP, 45 ARROW	28480	0370-2642
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0370-2644	14	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2647	1	KEYCAP, LOCK	28480	0370-2647
	0370-2648	1	KEYCAP, =—	28480	0370-2648
	0370-2649	1	KEYCAP, LINE FEED	28480	0370-2649
	0370-2650	1	KEYCAP, DEL—	28480	0370-2650
	0370-2651	1	KEYCAP, SLASH	28480	0370-2651
	0370-2652	1	KEYCAP, BKT LEFT	28480	0370-2652
	0370-2653	1	KEYCAP, BKT RT	28480	0370-2653
	0370-2654	1	KEYCAP, APPROX	28480	0370-2654

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			G.P. KEYBOARD ASSEMBLY, CONT'D.		
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL CN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2898	1	KEYCAP, RECT	28480	0370-2898
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231		COMPOUND:NUT LOCKING	28480	0470-0231
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0440	1	CABLE TIE .062-1.75-DIA .184-WD NYL	59730	TY 35M
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-ID	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	6	WASHER-FL MTLC NO.-6 .147-IN-ID	28480	3050-0066
	7120-1927	1	BLANK LABEL .625-IN-WD 1.5-IN-LG AL	28480	7120-1927
	7120-4403	1	LABEL, INFO	28480	7120-4403
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00004	1	OVERLAY KEYBOARD	28480	02640-00004
	02640-00019	1	KEY CAP-SPACE	28480	02640-00019
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081
CR2	1990-0486	5	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR3	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR4	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR5	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR8	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60041	1	SPEAKER CABLE ASSEMBLY REVISION DATE: 05-15-76	28480	02640-60041
	1200-0063 8120-1072	2	CONNECTOR-SGL CONT SKT RND CABLE-UNSHLD 26AWG 2-CNDCT	28480 28480	1200-0063 8120-1072

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60081	1	KEYBOARD CABLE ASSEMBLY REVISION DATE: 03-13-76	28480	02640-60081
	0624-0098	2	SCREW-TPG 4-40 .438-IN-LG PAN-HD-POZI	28480	0624-0099
	0890-0215		TUBING-FLEX .102-ID PVC .016-WALL	96904	400/461 FR-1
	0890-0291		TUBING-HS .375-D/.187-RCVD .025-WALL	28480	0890-0295
	0890-0771		TUBING-HS .125-D/.062-RCVD .02-WALL	92194	FIT 221 1/8 BLK
	1251-0159	1	CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	71785	251-15-30-261
	1251-3073	22	CONTACT-CONN FEM CRP	27264	08-50-0107
	1251-3202	1	CONNECTOR 15-PIN F POST TYPE	27264	09-50-7151
	1251-3537	1	CONNECTOR 10-PIN F POST TYPE	27264	09-50-7101
	1251-4339	1	POLARIZING KEY-PC EDGE CONN	28480	1251-4339
	1400-0493	2	CABLE TIE .062-1.25-DIA .14-WD NYL	59730	TY 24M-8
	2200-0149	1	SCREW-MACH 4-40 .625-IN-LG PAN-HD-POZI	28480	2200-0149
	2260-0002	1	NUT-HEX-DBL-CHAM 4-40-THD .062-THK	28480	2260-0005
	3030-0009	1	SCREW-SET 6-32 .375-IN-LG SMALL CUP-PT	28480	3030-0009
	8120-2126		CABLE-SHLD 24AWG 24-CNDCT JGK-JKT	28480	8120-2126
	5040-6004	1	CLAMP, CABLE, SMALL	28480	5040-6004
	5040-6072	1	MOUNTING BLOCK	28480	5040-6072
	5040-6086	1	HOOD, CONNECTOR	28480	5040-6086

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60091	1	CYRILLIC KEYBOARD ASSEMBLY	28480	02640-60091
			REVISION DATE: 09-18-76		
	0370-1129	1	KNOB	28480	0370-1129
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	2	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2641	1	KEYCAP, 0	28480	0370-2641
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0370-2644	14	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL DN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, SQUARE	28480	0370-2877
	0370-2878	1	KEYCAP, SQUARE	28480	0370-2878
	0370-2879	1	KEYCAP, SQUARE	28480	0370-2879
	0370-2898	1	KEYCAP, RECT	28480	0370-2898
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0054	2	CABLE CLAMP-MFCL .078-DIA .375-WD STL	73734	1549
	1400-0440	1	CABLE TIE .062-1.75-DIA .184-WD NYL	59730	TY 35M
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	1990-0486	6	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-ID	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	6	WASHER-FL MTLC NO.-6 .147-IN-IC	28480	3050-0066
	7120-1927	1	SERIAL TAG	28480	7120-1927
	7120-4403	1	LABEL, INFO	28480	7120-4403
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	KEY CAP, SPACE	28480	02640-00019
	02640-00051	1	OVERLAY KEYBOARD	28480	02640-00051
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081
	02640-60114	1	ASSY, COVER KEYCAP	28480	02640-60114

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60105	1	SWEDISH KEYBOARD ASSEMBLY	28480	02640-60105
			REVISION DATE: 09-08-76		
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-0620	1	KEYCAP, DBLO	28480	0370-0620
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, O	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, Q	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	2	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2642	1	KEYCAP, 45 ARROW	28480	0370-2642
	0370-2644	13	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL DN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, BACK SPCE	28480	0370-2877
	0370-2878	1	KEYCAP, TAB	28480	0370-2878
	0370-2898	1	KEYCAP, RECT	28480	0370-2898

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			SWEDISH KEYBOARD ASSEMBLY, CONT'D.		
	0370-2957	1	KEYCAP, Q"	28480	0370-2957
	0370-2959	1	KEYCAP, DEL	28480	0370-2959
	0370-2960	1	KEYCAP, -CARROT	28480	0370-2960
	0370-2961	1	KEYCAP, -_	28480	0370-2961
	0370-2962	1	KEYCAP, Ö=	28480	0370-2962
	0370-2963	1	KEYCAP, .:	28480	0370-2963
	0370-2964	1	KEYCAP,	28480	0370-2964
	0370-2965	1	KEYCAP, '*	28480	0370-2965
	0370-2966	1	KEYCAP, +?	28480	0370-2966
	0370-2967	1	KEYCAP, 7/	28480	0370-2967
	0370-2968	1	KEYCAP,	28480	0370-2968
	0370-2969	1	KEYCAP, A.	28480	0370-2969
	0370-297	1	KEYCAP, A"	28480	0370-2970
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231		COMPOUND:NUT LOCKING	28480	0470-0231
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0440	1	CABLE TIE .062-1.75-DIA .184-WD NYL	59730	TY 35M
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-ID	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	6	WASHER-FL MTLC NO.-6 .147-IN-ID	28480	3050-0066
	7120-1927	1	SERIAL TAG	28480	7120-1927
	7120-4403	1	LABEL, INFO	28480	7120-4403
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	KEY CAP-SPACE	28480	02640-00019
	02640-00059	1	KEYBOARD OVERLAY	28480	02640-00059
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081
CR2	1990-0486	5	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR3	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR4	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR5	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR8	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60113	1	NORWEGIAN KEYBOARD ASSEMBLY	28480	02640-60113
			REVISION DATE: 09-08-76		
	0370-0620	1	KEYCAP, DBLO	28480	0370-0620
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, O	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, Q	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	2	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2642	1	KEYCAP, 45 ARROW	28480	0370-2642
	0370-2644	13	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL DN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, BACK SPCE	28480	0370-2877
	0370-2878	1	KEYCAP, TAB	28480	0370-2878
	0370-2898	1	KEYCAP,-FUNC BLK	28480	0370-2898

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			NORWEGIAN KEYBOARD ASSEMBLY, CONT'D.		
	0370-2958	1	KEYCAP, 0/	28480	0370-2958
	0370-2959	1	KEYCAP, DEL	28480	0370-2959
	0370-2961	1	KEYCAP, -	28480	0370-2961
	0370-2962	1	KEYCAP, 0=	28480	0370-2962
	0370-2963	1	KEYCAP, .:	28480	0370-2963
	0370-2964	1	KEYCAP,	28480	0370-2964
	0370-2965	1	KEYCAP, '*	28480	0370-2965
	0370-2966	1	KEYCAP, +?	28480	0370-2966
	0370-2967	1	KEYCAP, 7/	28480	0370-2967
	0370-2968	1	KEYCAP, ><	28480	0370-2968
	0370-2969	1	KEYCAP, A.	28480	0370-2969
	0370-2971	1	KEYCAP, U"	28480	0370-2971
	0370-2972	1	KEYCAP, AE	28480	0370-2972
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231		COMPOUND:NUT LOCKING	28480	0470-0231
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0440	1	CABLE TIE .062-1.75-DIA .184-WD NYL	59730	TY 35M
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUH	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-IC	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HC-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	6	WASHER-FL MTLC NO.-6 .147-IN-IC	28480	3050-0066
	7120-1927	1	SERIAL TAG	28480	7120-1927
	7120-4403	1	LABEL, INFO	28480	7120-4403
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	HEY CAP, SPACE	28480	02640-00019
	02640-00059	1	KEYBOARD OVERLAY	28480	02640-00059
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081
CR2	1990-0486	5	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR3	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR4	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR5	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
CR6	1990-0486		LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60114	1	CYRILLIC KEYCAP ASSEMBLY REVISION DATE: 03-13-76	28480	02640-60114
	5040-7431	48	KEYCAP INSERT	28480	5040-7431
	5040-7846	48	KEYCAP	28480	5040-7846
	02640-80108		LABEL, CYRILLIC SET 1	28480	02640-80108
	02640-80109		LABEL, CYRILLIC	28480	02640-80109

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02640-60145	1	ASSEMBLY, 2640B KEYBOARD	28480	02640-60145
			REVISION DATE: 09-08-76		
	0370-0620	1	KEYCAP, DBLG	28480	0370-0620
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2266	1	KEYCAP, 7'	28480	0370-2266
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, O	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, Q	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2296	1	KEYCAP, <	28480	0370-2296
	0370-2297	1	KEYCAP, >	28480	0370-2297
	0370-2298	1	KEYCAP, ?/	28480	0370-2298
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2324	1	KEYCAP, +;	28480	0370-2324
	0370-2325	1	KEYCAP, COLON	28480	0370-2325
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	1	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2641	1	KEYCAP, 0	28480	0370-2641
	0370-2642	1	KEYCAP, 45 ARROW	28480	0370-2642
	0370-2644	13	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2648	1	KEYCAP, =-	28480	0370-2648
	0370-2650	1	KEYCAP, DEL-	28480	0370-2650
	0370-2651	1	KEYCAP, SLASH	28480	0370-2651
	0370-2652	1	KEYCAP, BKT .LEFT	28480	0370-2652
	0370-2653	1	KEYCAP, BKT, RT	28480	0370-2653
	0370-2654	1	KEYCAP, APPROX	28480	0370-2654
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET .TAB	28480	0370-2657

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			2640B KEYBOARD ASSEMBLY, CONT'D.		
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL DN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, BACK SPCE	28480	0370-2877
	0370-2878	1	KEYCAP, TAB	28480	0370-2878
	0370-2898	1	KEYCAP,-FUNC BLK	28480	0370-2898
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231		COMPOUND:NUT LOCKING	28480	0470-0231
	0510-0573	5	RETAINER-PUSH ON TRNGL EXT .125-DIA SST	79136	5305-12-H
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0054	2	CABLE CLAMP-HFCL .078-DIA .375-WD STL	73734	1549
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	1990-0486	5	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-ID	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	5	WASHER-FL MTLC NO.-6 .147-IN-ID	28480	3050-0066
	7120-1927	1	SERIAL TAG	28480	7120-1927
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	KEY CAP, SPACE	28480	02640-00019
	02640-00059	1	KEYBOARD OVERLAY	28480	02640-00059
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02644-60002	1	G.P. KEYBOARD ASSEMBLY REVISION DATE: 09-18-76	28480	02644-60002
	0370-0620	1	KEYCAP, DBLC	28480	0370-0620
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2266	1	KEYCAP, 7'	28480	0370-2266
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, C	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, C	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2296	1	KEYCAP, <	28480	0370-2296
	0370-2297	1	KEYCAP, >	28480	0370-2297
	0370-2298	1	KEYCAP, ?/	28480	0370-2298
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2324	1	KEYCAP, +:	28480	0370-2324
	0370-2325	1	KEYCAP, COLON	28480	0370-2325
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	2	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2641	1	KEYCAP, 0	28480	0370-2641
	0370-2642	1	KEYCAP, 45 ARROW	28480	0370-2642
	0370-2644	15	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2647	1	KEYCAP, LOCK	28480	0370-2647
	0370-2648	1	KEYCAP, =-	28480	0370-2648
	0370-2649	1	KEYCAP, LINE FEED	28480	0370-2649
	0370-2650	1	KEYCAP, DEL-	28480	0370-2650
	0370-2651	1	KEYCAP, SLASH	28480	0370-2651
	0370-2652	1	KEYCAP, BKT LEFT	28480	0370-2652
	0370-2653	1	KEYCAP, BKT RT	28480	0370-2653
	0370-2654	1	KEYCAP, APPROX	28480	0370-2654

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			G.P. KEYBOARD ASSEMBLY, CONT'D.		
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL GN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, BACK SPCE	28480	0370-2877
	0370-2878	1	KEYCAP, TAB	28480	0370-2878
	0370-2894	1	KEYCAP, -FUNC GRN	28480	0370-2894
	0370-2895	1	KEYCAP, -FUNC GLD	28480	0370-2895
	0370-2898	1	KEYCAP, -FUNC BLK	28480	0370-2898
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	04C3-0243	4	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	04C3-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231		COMPOUND:NUT LOCKING	28480	0470-0231
	0510-0573	5	RETAINER-PUSH ON TRNGL EXT .125-DIA SST	79136	5305-12-H
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0054	2	CABLE CLAMP-HFCL .078-DIA .375-WD STL	73734	1549
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	1950-0485	1	LED-VISIBLE LUM-INT=800UCD IF=30MA-MAX	28480	1990-0485
	1950-0487	1	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0487
	1990-0486	5	DIODE-LIGHT EMIT	28480	1990-0486
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-IC	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-PCZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HC-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	5	WASHER-FL MTLC NC.-6 .147-IN-IC	28480	3050-0066
	7120-1927	1	BLANK LABEL .625-IN-WD 1.5-IN-LG AL	28480	7120-1927
	7120-4403	1	LABEL, INFO	28480	7120-4403
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	KEY CAP-SPACE	28480	02640-00019
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081
	02644-00002	1	OVERLAY KEYBOARD	28480	02644-00002

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
	02645-60001	1	KEYBOARD ASSEMBLY	28480	02645-60001
			REVISION DATE: 09-02-76		
	0370-0620	1	KEYCAP, CBLO	28480	0370-0620
	0370-2260	1	KEYCAP, 1	28480	0370-2260
	0370-2261	1	KEYCAP, 2"	28480	0370-2261
	0370-2262	1	KEYCAP, 3#	28480	0370-2262
	0370-2263	1	KEYCAP, 4$	28480	0370-2263
	0370-2264	1	KEYCAP, 5%	28480	0370-2264
	0370-2265	1	KEYCAP, 6&	28480	0370-2265
	0370-2266	1	KEYCAP, 7'	28480	0370-2266
	0370-2267	1	KEYCAP, 8(	28480	0370-2267
	0370-2268	1	KEYCAP, 9)	28480	0370-2268
	0370-2270	1	KEYCAP, A	28480	0370-2270
	0370-2271	1	KEYCAP, B	28480	0370-2271
	0370-2272	1	KEYCAP, C	28480	0370-2272
	0370-2273	1	KEYCAP, D	28480	0370-2273
	0370-2274	1	KEYCAP, E	28480	0370-2274
	0370-2275	1	KEYCAP, F	28480	0370-2275
	0370-2276	1	KEYCAP, G	28480	0370-2276
	0370-2277	1	KEYCAP, H	28480	0370-2277
	0370-2278	1	KEYCAP, I	28480	0370-2278
	0370-2279	1	KEYCAP, J	28480	0370-2279
	0370-2280	1	KEYCAP, K	28480	0370-2280
	0370-2281	1	KEYCAP, L	28480	0370-2281
	0370-2282	1	KEYCAP, M	28480	0370-2282
	0370-2283	1	KEYCAP, N	28480	0370-2283
	0370-2284	1	KEYCAP, C	28480	0370-2284
	0370-2285	1	KEYCAP, P	28480	0370-2285
	0370-2286	1	KEYCAP, C	28480	0370-2286
	0370-2287	1	KEYCAP, R	28480	0370-2287
	0370-2288	1	KEYCAP, S	28480	0370-2288
	0370-2289	1	KEYCAP, T	28480	0370-2289
	0370-2290	1	KEYCAP, U	28480	0370-2290
	0370-2291	1	KEYCAP, V	28480	0370-2291
	0370-2292	1	KEYCAP, W	28480	0370-2292
	0370-2293	1	KEYCAP, X	28480	0370-2293
	0370-2294	1	KEYCAP, Y	28480	0370-2294
	0370-2295	1	KEYCAP, Z	28480	0370-2295
	0370-2296	1	KEYCAP, <	28480	0370-2296
	0370-2297	1	KEYCAP, >	28480	0370-2297
	0370-2298	1	KEYCAP, ?/	28480	0370-2298
	0370-2312	1	KEYCAP, 1	28480	0370-2312
	0370-2313	1	KEYCAP, 2	28480	0370-2313
	0370-2314	1	KEYCAP, 3	28480	0370-2314
	0370-2315	1	KEYCAP, 4	28480	0370-2315
	0370-2316	1	KEYCAP, 5	28480	0370-2316
	0370-2317	1	KEYCAP, 6	28480	0370-2317
	0370-2318	1	KEYCAP, 7	28480	0370-2318
	0370-2319	1	KEYCAP, 8	28480	0370-2319
	0370-2320	1	KEYCAP, 9	28480	0370-2320
	0370-2322	1	KEYCAP, .	28480	0370-2322
	0370-2324	1	KEYCAP, +;	28480	0370-2324
	0370-2325	1	KEYCAP, COLCN	28480	0370-2325
	0370-2635	1	KEYCAP, RETURN	28480	0370-2635
	0370-2636	1	KEYCAP, SHIFT	28480	0370-2636
	0370-2637	1	KEYCAP, CNTL	28480	0370-2637
	0370-2638	1	KEYCAP, NEXT PG	28480	0370-2638
	0370-2639	1	KEYCAP, PREV PG	28480	0370-2639
	0370-2640	4	KEYCAP, ARROW	28480	0370-2640
	0370-2641	1	KEYCAP, 0	28480	0370-2641
	0370-2642	1	KEYCAP, 45 ABROW	28480	0370-2642
	0370-2644	15	KEYCAP, FUNCTION	28480	0370-2644
	0370-2646	1	KEYCAP, ESC	28480	0370-2646
	0370-2648	1	KEYCAP, =-	28480	0370-2648
	0370-2650	1	KEYCAP, DEL-	28480	0370-2650
	0370-2651	1	KEYCAP, SLASH	28480	0370-2651
	0370-2652	1	KEYCAP, BKT, LEFT	28480	0370-2652
	0370-2653	1	KEYCAP, BKT, RT	28480	0370-2653
	0370-2654	1	KEYCAP, APPRCX	28480	0370-2654
	0370-2655	1	KEYCAP, AT	28480	0370-2655
	0370-2656	1	KEYCAP, CLR TAB	28480	0370-2656
	0370-2657	1	KEYCAP, SET TAB	28480	0370-2657

Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
			KEYBOARD ASSEMBLY, CONT'D.		
	0370-2658	1	KEYCAP, ROLL UP	28480	0370-2658
	0370-2659	1	KEYCAP, ROLL DN	28480	0370-2659
	0370-2765	1	KEYCAP, F1	28480	0370-2765
	0370-2766	1	KEYCAP, F2	28480	0370-2766
	0370-2767	1	KEYCAP, F3	28480	0370-2767
	0370-2768	1	KEYCAP, F4	28480	0370-2768
	0370-2769	1	KEYCAP, F5	28480	0370-2769
	0370-2770	1	KEYCAP, F6	28480	0370-2770
	0370-2771	1	KEYCAP, F7	28480	0370-2771
	0370-2772	1	KEYCAP, F8	28480	0370-2772
	0370-2877	1	KEYCAP, BACK SPCE	28480	0370-2877
	0370-2878	1	KEYCAP, TAB	28480	0370-2878
	0370-2894	1	KEYCAP, -FUNC GRN	28480	0370-2894
	0370-2895	1	KEYCAP, -FUNC GLD	28480	0370-2895
	0370-2898	1	KEYCAP, -FUNC BLK	28480	0370-2898
	0370-2982	1	KEYCAP, CLR DISPL	28480	0370-2982
	0403-0243	2	BUMPER, FOOT, WHITE RUBBER .38" W	00000	OBD
	0403-0324	4	BUMPER FOOT, GRAY PLASTIC 0.560" W	76381	SJ-5025-GRAY
	0470-0231	5	COMPOUND:NUT LOCKING	28480	0470-0231
	0510-0573	5	RETAINER-PUSH ON TRNGL EXT .125-DIA SST	79136	5306-12-H
	0890-1134	1	TUBING-FLEX .188-ID NPRN-RBR .062-WALL	28480	0890-1134
	1400-0440	1	CABLE TIE .062-1.75-DIA .184-WD NYL	59730	TY 35M
	1460-0691	1	SPRING-TRSN .531-IN-W 4-IN-LG MUW	28480	1460-0691
	1530-1737	2	PLUNGER FOR MTG SPACE BAR MECH;STL NP	04426	80-550767
	1530-1738	2	HOUSING, SPACE BAR, END HOUSING FOR MTG	04426	80-550774
	1990-0485	1	LED-VISIBLE LUM-INT=800UCD IF=30MA-MAX	28480	1990-0485
	1990-0486	5	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0486
	1990-0487	1	LED-VISIBLE LUM-INT=1MCD IF=20MA-MAX	28480	1990-0487
	2190-0918	8	WASHER-LK HLCL NO.-6 .141-IN-ID	28480	2190-0918
	2360-0193	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	28480	2360-0193
	2360-0201	1	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	28480	2360-0201
	2360-0203	5	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	28480	2360-0203
	3050-0066	5	WASHER-FL MTLC NO.-6 .147-IN-ID	28480	3050-0066
	7120-1927	1	SERIAL TAG	28480	7120-1927
	9160-0233	1	LOUDSPEAKER	28480	9160-0233
	02640-00019	1	KEY CAP, SPACE	28480	02640-00019
	02640-40007	1	BASE, KEYBOARD	28480	02640-40007
	02640-40008	1	COVER, KEYBOARD	28480	02640-40008
	02640-60018	1	ASSY, 2640A KEYBOARD	28480	02640-60018
	02640-60041	1	ASSY, SPEAKER CABLE	28480	02640-60041
	02640-60081	1	ASSY, CABLE KEYBOARD	28480	02640-60081