

SERVICE MANUAL
Supplement

MODEL 2649D
REMOTE/250 CONSOLE



Manual part no. 02645-90009
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OPTIONS COVERED

This supplement covers the 2649D REMOTE/250 standard model terminal together with options 015, 016, 044, 050, 900, 901, 902, and 906. Included are part numbers for options 252, 253, 254, 255, 256, 257, 258, and 500.

ACCESSORIES COVERED

Part numbers for the following accessories are also listed in this supplement:

- | | |
|-----------|--|
| 13296A | Shared Peripherals Interface Kit, Printer Support |
| 1818-0768 | I.C. ROM, Printer Support |
| 13250B | Extended Asynchronous Data Communications (Current Loop) Interface Kit |
| 13232F | Current Loop Cable Kit |

NOTICE

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This document is a supplement to the *Model 2641A, Model 2645A/S Display Station Service Manual*, HP Part No. 02645-90003. Many of the HP 2645A service procedures are also applicable to the HP 2649D REMOTE/250 Console. Differences in service procedures between these two models are described in this document.

This supplement provides field service information for the Hewlett-Packard 2649D REMOTE/250 Console. There are three *customer* manuals associated with this model -- the *REMOTE/250 Console Operator's Guide*, HP Part No. 45120-90010, the *REMOTE/250 Programming Manual*, HP Part No. 45120-90020, and the *REMOTE/250 Console Installation and Reference Manual*, HP Part No. 45120-90060. The *Operator's Guide* provides user operating information. The *Programming Manual* contains multiple-user programming information. The *Installation and Reference Manual* contains installation procedures for the REMOTE/250 Console. Included are console specifications, options, installation instructions for the terminal and accessories, self-test instructions and a brief overview of the terminal's architecture.

The following accessory manual is also available:

HP 13250A/B *Serial Printer/Extended Asynchronous Data Communications Interface Operating Manual*,
HP Part No. 13250-90004

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INSTALLATION

SECTION

I

Refer to the *REMOTE/250 Installation and Reference Manual*, HP Part No. 45120-90060 for REMOTE/250 Console installation instructions.



FUNCTIONAL OPERATION

SECTION

II

Refer to Section II of the *Model 2641A, Model 2645A/S Display Station Service Manual*, Part No. 02645-90003 for functional operation information. Substitute the following information for the fifth paragraph under section 2-2 in the Service Manual:

The memory section provides the operator with the usable RAM storage capability of the terminal. This memory

section consists of the 8K RAM Memory PCA. This assembly adds 8192 bytes of random access memory to the terminal. All read/write memory is accessed by the Processor PCA through the Backplane assembly.

Within the remaining material in Section II, ignore all Cartridge Tape Unit (CTU) references.





Refer to Section III of the *Model 2641A, Model 2645A/S Display Station Service Manual*, Part No. 02645-90003 for service information. Ignore all references to Cartridge Tape Units (CTU).

Substitute the following information for the paragraphs under sections 3-5 and 3-6 and for Figure 3-0 in the Service Manual.

3-5. KEYBOARD CHECKOUT

A keyboard matrix test is included as one of the terminal's extended self-tests. See the next section (3-6) for self-test information.

3-6. SELF TEST

The 2649D Remote/250 Console self-test feature provides an overall check of the terminal so that a terminal malfunction can be quickly analyzed and isolated. Complete instructions for performing the remote console self-test are contained in the *Remote/250 Installation and Reference Manual* (HP Part No. 45120-90060) and in Section 3 of the *Remote/250 Operator's Guide* (HP Part No. 45120-90010).

Note that except for self-test, the Remote/250 Console has no off-line capability.

An overview of self-test and interpretations of possible results are given below together with information about the type and location of appropriate assemblies.

TESTING THE REMOTE CONSOLE

Press the TEST key to initiate a general self-test of the remote console. This is a local test that does not require a data communications link to the HP 250 System. The general self-test performs the following operations:

1. The display screen is cleared and any input to or output from the remote console is terminated.
2. The keyboard LED indicators are illuminated momentarily. If no indicators light, the problem may be in the Power Supply or Power Supply Printed Circuit Assembly (PCA).
3. Each installed ROM (Read Only Memory) unit is tested and then checked for correct placement. Figure 3-1 shows the ROM part numbers and the correct placement of the ROM units on the Control Memory PCA.

4. A pattern test is performed in Display Memory.
5. If the HP-IB interface firmware ROM unit is present in the remote console, a test of this interface is performed.
6. The remote console bell tone is sounded. If this does not occur, the keyboard speaker may be defective or the problem may exist in the Processor PCA.
7. All character sets present in the remote console are displayed on the screen.
8. A Display Enhancement pattern is displayed on the screen.
9. The remote console status information (14 bytes) is displayed on the screen.

If an error condition is encountered during steps 3, 4, or 5 the test is suspended at the step where the error occurred and an error message is displayed on the screen. After noting the content of the message, press the RESUME key to continue the self-test from the point of suspension.

DATA COMMUNICATIONS SELF TEST

To test the Data Communication interface, either the RS232C/CCITT V.24 test connector assembly (HP Part No. 02645-60002) or the Current Loop test connector assembly (HP Part No. 02645-60035) must be attached to the Data Communications PCA. DO NOT USE the test connector assembly with HP Part No. 02645-60003 for testing the Current Loop interface.

Press and hold down the SHIFT key while simultaneously pressing the TEST KEY. The Data Communication self test executes and issues appropriate messages. If an error condition is encountered during execution of this test, an error message is displayed on the screen. It is not necessary to use the RESUME key with this test. Once an informative or error message is generated, the test terminates; simply issue any desired function request.

EXTENDED SELF TESTS

A set of four extended tests is provided with which to execute continuous self testing, or check the keyboard matrix, LED indicator lights, and keyboard Data Communication switch settings.

To execute the extended self tests, press and hold down the CONTROL key and simultaneously press the TEST key. The extended self test begins with the following message

displayed on the screen:

Enter extended test number (1-4)

where the test numbers are:

- 1 — Continuous Self Test
- 2 — Keyboard Matrix Test
- 3 — Data Communications Switch Setting Test
- 4 — Keyboard LED Indicator Test

Note that the RESUME key function is disabled during execution of test number 2, 3, or 4. To exit one of these tests, press the SPACE bar once.

Continuous Self Test — 1

In response to the initial prompt, enter the value 1 to execute the continuous self test. The general test of the remote console repeats continuously until terminated by entry of a space character (press the SPACE bar once).

If switch W on the Keyboard Interface PCA is closed, and a test hood is in place, the general self test is followed by execution of the Data Communications self test. These tests repeat continuously until terminated by entry of a space character (press the SPACE bar once).

Keyboard Matrix Test — 2

In response to the initial extended test prompt, enter the value 2 to execute the keyboard matrix test. The message:

Key matrix

is displayed in the upper left corner of the screen. A 20 × 6 element matrix representing every key on the keyboard is displayed centered on the screen. Each key is represented by a vertical arrow pointing toward the top of the screen. When a key is pressed, the corresponding arrow in the displayed matrix is changed to a downward pointing arrow. When the key is released, its arrow is changed to a double-headed, upward pointing arrow to indicate that this key has passed the test. This double-headed arrow continues to represent the corresponding key on the screen but points downward whenever this key is pressed and upward when the key is released. This progression is shown in the following illustration:



If a key is pressed and an invalid character code is generated, the ASCII DEL character appears in the lower right corner of the screen. This indicates a malfunction for the key just pressed.

To exit this test, press the SPACE bar once.

If the keyboard is malfunctioning so that CONTROL-TEST is not recognized, the keyboard matrix test can be executed using the following technique:

1. On the Processor PCA, ground the test point INT IN. This results in immediate execution of the keyboard matrix test.
2. To terminate this test, press the SPACE bar once. If the INT IN test point remains grounded, the test is repeated until the ground is removed.

IMPORTANT NOTE

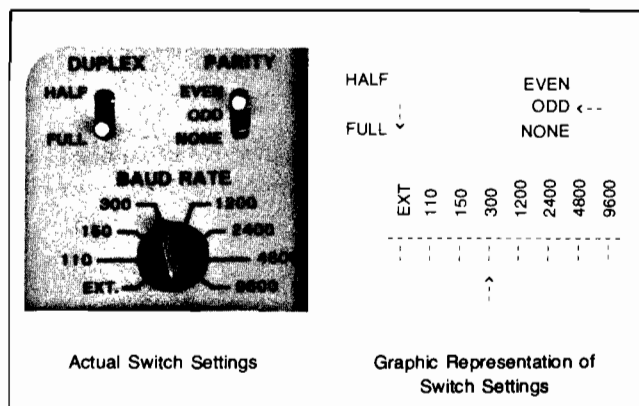
There may be a problem involving this feature because grounding the INT IN test point results in generation of an interrupt through the eighth interrupt vector (RST 7). A common failure within terminal ROM and RAM memories results in the erroneous execution of an RST 7 instruction which, for the Remote/250 Console, causes execution of the Keyboard Matrix Test rather than an error message.

Data Communication Switch Setting Test — 3

In response to the initial prompt, enter the value 3 to execute the Data Communication Switch Setting Test. The Data Communication switches are located beneath a removable cover in the upper left side of the keyboard. Included are the DUPLEX, PARITY, and BAUD RATE switches. The test of the switch settings begins with the message:

Keyboard switches

Beneath this message a graphic representation of the switch settings is displayed, as follows:



This displayed representation is updated each time a switch setting is changed.

To exit this test, press the SPACE bar once. Note that if the DUPLEX switch is set to HALF or the BAUD RATE

switch is set to EXT. upon an attempt to exit this test, the following message is displayed in inverse video on the screen:

IMPROPER SETTINGS

Because of HP 250 system requirements, the Remote/250 Console DUPLEX switch must be set to FULL and the BAUD RATE switch must be set to one of the numeric baud rate labels before this test can be terminated.

Keyboard LED Indicator Test — 4

In response to the initial prompt, enter the value 4 to execute the LED indicator test. This test begins with the message:

Keyboard LED's

Test each LED by pressing the key with which it is associated. If the LED is functioning properly, it is illuminated and remains illuminated until the key is pressed once again.

To exit this test, press the SPACE bar once.

REMOTE CONSOLE SELF TEST ERROR MESSAGES

General Self Test Messages

ROM ERROR x	ROM checksum failure.	Probable cause, bad firmware ROM. The ROM location in 1K bytes (octal) is given in x.
RAM ERROR x	Bad display RAM board.	The RAM location (starts on a 4K byte octal boundary) is given in x.

HPIB	HP-IB printer interface failure.	The HP-IB test number is given in x. The HP-IB error number is given in y.
ROM ERROR	ROM position verification failure.	A firmware ROM may be in the wrong socket. The ROM location in 1K bytes (octal) is given in aa. The expected identity code (octal) is given in bb. The actual identity code (octal) is given in cc.
RAM ERROR	Failure of single location in RAM.	The failed location (octal) is given in aaaaa. The expected value (octal) is given in bbb. The actual value (octal) is given in ccc.

Data Communications Self Test Messages

BASIC DATA COMM Self test error x	Data Communications error encountered.	where x=0 indicates no test occurred. Close jumper "W" on keyboard interface PCA to enable test. x=1 indicates no CB (self-test hood may not be in place). x=2 indicates parity error. x=3 indicates lost character. x=4 CB, CF did not toggle. x=5 SB did not toggle.
-----------------------------------	--	--

General Error Messages

DATA COMM ERROR	A character was received with incorrect parity. Press the RESUME key to continue. This could indicate improper parity or baud rate switch setting. A data communications error often occurs when power to the HP 250 is turned off. This condition is considered normal.
I/O ERROR x	Invalid interrupt. This is usually caused by an improper configuration or a hardware problem.
BUFFER OVERFLOW	Indicates insufficient RAM memory for data communications input/output. This is probably caused by a bad RAM board.

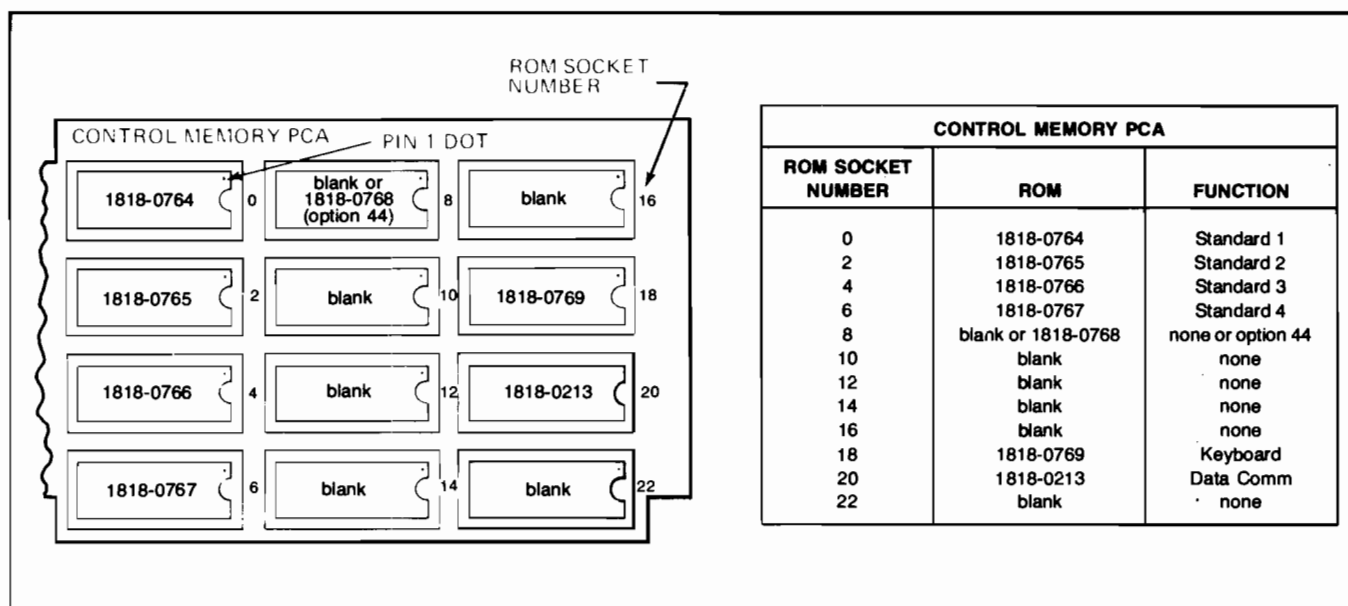


Figure 3-0. HP 2649D REMOTE/250 Console, Control Memory PCA ROM Locations



REPAIR

SECTION

IV

Refer to Section IV of the *Model 2641A, Model 2645A/S Display Station Service Manual*, Part No. 02645-90003, for repair information. Ignore all references to Cartridge Tape Units (CTU).

Substitute the following material under Table 4-1 and for Figure 4-4 in the Service Manual.

Table 4-1. HP 2649D Remote/250 Console Replaceable Parts List

FIG. & INDEX NO.	HP PART NO.	DESCRIPTION	UNITS PER ASSY
1	2649D 8120-1378	REMOTE/250 CONSOLE *Power Cord Set, 125V, 10A (remove for options 900-902, and 906)	1
	8120-1351	*Power Cord Set, 250V, 13A (option 900)	1
	8120-1369	*Power Cord Set, 250V, 10A (option 901)	1
	8120-1689	*Power Cord Set, 250V, 10/16A (option 902)	1
	8120-2104	*Power Cord Set, 250V, 6A (option 906)	1
2	02640-00064	*Cover, Power Supply	1
3	2360-0015	*Screw, Machine, no. 6-32, 0.312 in, w/lockwasher	1
4	02640-60148	*Cable Assembly	1
6	02640-60109	*Power Supply Control Assembly	1
7	2110-0202	*Fuse, .5A, 250V (remove for option 15)	1
	2110-0365	*Fuse, 4A, 250V (remove for option 15)	1
	2110-0587	*Fuse, 2A, 250V (option 15)	1
	2110-0588	*Fuse, 200mA, 250V (option 15)	1
8	02640-60202	*Power Supply Assembly	1
	- - - X - - - - -	- - - X - - - - -	
9	02640-60192	*Control Memory	1
	1818-0764	**I.C., ROM, MOS	1
	1818-0765	**I.C., ROM, MOS	1
	1818-0766	**I.C., ROM, MOS	1
	1818-0767	**I.C., ROM, MOS	1
	1818-0768	**I.C., ROM, MOS (option 44)	1
	1818-0769	**I.C., ROM, MOS	1
	1818-0213	**I.C., ROM, MOS	1
	- - - - -	- - - X - - - - -	
10	02640-60209	*Processor Assembly	1
13	02640-60022	*Top Plane Connector Assembly (4-connector)	1
14	02640-60112	*Display Control Assembly	1
	1816-0612	**I.C., ROM (64-character uppercase Roman)	1
	1816-0613	**I.C., ROM (128-character lowercase Roman)	1
	- - - - -	- - - X - - - - -	
15	02640-60088	*General Purpose Display Timing Assembly	1
	0410-0646	**Crystal, 17.55 MHz(Y1) (add for options 15, 16)	1
	0410-0647	**Crystal, 21.06 MHz(Y1) (remove for options 15, 16)	1
	- - - - -	- - - X - - - - -	
16	02640-60124	*Display Memory Access Assembly	1
17	02640-60024	*Display Enhancement Assembly	1
	1816-0641	**I.C., ROM (Line Drawing Set)	1
	1816-1315	**I.C., ROM (Display Control Set)	1
	1816-1314	**I.C., ROM (options 252 thru 258 and 500)	1
	1816-0744	**I.C., ROM (option 258)	1
18	02640-60123	*Keyboard Interface Assembly	1
19	02640-60101	*bK RAM Memory Assembly	1
21	02640-60131	*Modem Cable Assembly (remove for option 15)	1
	5061-2409	*Modem Cable, Europe (option 15)	1
22	02640-60086	*Asynchronous Data Comm Assy (remove for option 50)	1
	02645-60002	**Data Comm Self Test Hood	1
	02640-60143	*Extended Async Data Comm Assembly (option 50)	1
	5061-2408	**Cable Assembly, Current Loop (option 50)	1
	02645-60035	**Hood, Current Loop (option 50)	1
	- - - - -	- - - X - - - - -	
25	02640-60021	*Top Plane Assembly (2-connector)	1
29	1390-0326	*Latch, door, right	1
30	1390-0327	*Latch, door, left	1
31	02640-20018	*Rear Door	1
32	3110-0100	*Right Hinge	1
33	02640-00025	*Hinge Support	1
34	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	2
35	3110-0101	*Left Hinge	1
36	02640-00025	*Hinge Support	1
37	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	2
38	02640-00010	*Support	1
39	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	2
40	2190-0851	*washer, Lock, split, no. 6	2

Table 4-1. HP 2649D Remote/250 Console Replaceable Parts List (Continued)

FIG. & INDEX NO.	HP PART NO.	DESCRIPTION	UNITS PER ASSY
41	7120-1142	*Front Bezel Insert, Hewlett-Packard Logo	1
	7120-1143	*Front Bezel Insert, REMOTE/250	1
42	4040-1249	*Front Bezel	1
43	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	4
44	2190-0918	*Washer, Lock, spring, no. 6	4
50	02640-60158	*Backplane Assembly	1
51	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	6
52	2190-0851	*Washer, Lock, split, no. 6	6
53	0570-0528	*Stud, Retainer	2
54	0403-0324	*Bumper, Rubber	4
55	02645-60019	*Mainframe Shell (remove for option 17)	1
	02645-60025	*Mainframe Shell, RFI (option 17)	1
56	02640-00021	*Access Key	1
57	02645-60021	*Display Top, Monitor Assy (remove for option 17)	1
	02645-60024	*Display Top, Monitor Assy (option 17)	1
58	3110-0099	*Hinge Top	2
59	2360-0196	*Screw, Machine, flh, no. 6-32, 3/8 in.	4
60	02640-00107	*CRT Shield	1
61	1390-0365	*Plunger, Snap-in for attaching CRT shield	2
62	1390-0366	*Grommet, Snap-in for attaching CRT shield	2
63	02640-40033	*Right Side	1
64	2360-0201	*Screw, Machine, ph, no. 6-32, 0.5 in. pozi	3
65	2190-0918	*Washer, Lock, spring, no. 6	3
66	3050-0066	*Washer, Flat, no. 6	3
67	1460-1580	*Spring, Wireform, right	1
	1600-0655	*Plate, Latching	1
68	1480-0069	*Pin, 0.125 in., 0.5 in.	1
69	02640-40034	*Left Side	1
	2360-0201	*Screw, Machine, ph, no. 6-32, 0.5 in. pozi	3
	2190-0918	*Washer, Lock, spring, no. 6	3
	3050-0066	*Washer, Flat, no. 6	3
	02640-60039	*Sweep Cable Assembly (not shown)	1
70	1460-1579	*Spring, wireform, left	1
	1600-0655	*Plate, Latching	1
71	1480-0069	*Pin, 0.125 in., 0.5 in.	1
72	02640-00034	*Shield, Transformer	1
73	2360-0197	*Screw, Machine, ph, no. 6-32, 3/8 in.	2
74	2190-0918	*Washer, Lock, spring, no. 6	2
75	02640-60095	*Sweep Assembly	1
76	02640-60042	*CRT Cable Assembly	1
77	02640-60138	*Fan Cable Assembly	1
78	1400-1440	*Cable Tie	2
79	2420-0001	*Nut, Hex, no. 6-32	2
80	2360-0205	*Screw, no. 6-32, 3/4 in.	2
81	3160-0208	*Fan	1
82	3030-0064	*Screw, Cap, no. 6-32, 5/8 in.	4
83	2190-0918	*Washer, Lock, spring, no. 6	4
84	02640-00066	*Fan Shroud	1
85	02640-00046	*Screen, Display	1
86	02640-60084	*CRT/Yoke Assembly	1
87	2510-0107	*Screw, Machine, ph, no. 8-32, 0.5 in.	4
88	2190-0017	*Washer, Spring, no. 8	4
89	2190-0010	*Washer, Lock, ext-tooth, no. 8	1
90	3050-0001	*Washer, Flat, no. 8	3
92	02640-60083	**Keyboard Cable Assembly	1
93	2360-0201	**Screw, Machine, ph, no. 6-32, 0.5 in. pozi	1
94	2190-0918	**Washer, Lock, spring, no. 6	1
95	3050-0066	**Washer, Flat, no. 6	1
96	1400-0440	**Cable Clamp	1
97	7120-6388	**Baudrate Label	1
99	02649-00006	**Keyboard Overlay	1
100	7120-7796	***Overlay, Softkey	1
101	02649-40001	**Keyboard Cover	1
102	2360-0203	**Screw, Machine, ph, no. 6-32, 0.625 in.	5
103	2190-0918	**Washer, Lock, spring, no. 6	5
104	3050-0066	**Washer, Flat, no. 6	5



Table 4-1. HP 2649D Remote/250 Console Replaceable Parts List (Continued)

FIG. & INDEX NO.	HP PART NO.	DESCRIPTION	UNITS PER ASSY
105	02649-60012	**Keyboard Printed Circuit Assembly	1
106	1990-0487	***Light Emitting Diode, yellow	3
	0371-1071	***A Keycap	1
	0371-1072	***B Keycap	1
	0371-1073	***C Keycap	1
	0371-1074	***D Keycap	1
	0371-1075	***E Keycap	1
	0371-1076	***F Keycap	1
	0371-1077	***G Keycap	1
	0371-1078	***H Keycap	1
	0371-1079	***I Keycap	1
	0371-1080	***J Keycap	1
	0371-1081	***K Keycap	1
	0371-1082	***L Keycap	1
	0371-1083	***M Keycap	1
	0371-1084	***N Keycap	1
	0371-1085	***O Keycap	1
	0371-1086	***P Keycap	1
	0371-1087	***Q Keycap	1
	0371-1088	***R Keycap	1
	0371-1089	***S Keycap	1
	0371-1090	***T Keycap	1
	0371-1091	***U Keycap	1
	0371-1092	***V Keycap	1
	0371-1093	***W Keycap	1
	0371-1094	***X Keycap	1
	0371-1095	***Y Keycap	1
	0371-1096	***Z Keycap	1
	0371-1097	***1 Keycap (Data Entry Pad)	1
	0371-1098	***2 Keycap (Data Entry Pad)	1
	0371-1099	***3 Keycap (Data Entry Pad)	1
	0371-1100	***4 Keycap (Data Entry Pad)	1
	0371-1101	***5 Keycap (Data Entry Pad)	1
	0371-1102	***6 Keycap (Data Entry Pad)	1
	0371-1103	***7 Keycap (Data Entry Pad)	1
	0371-1104	***8 Keycap (Data Entry Pad)	1
	0371-1105	***9 Keycap (Data Entry Pad)	1
	0371-1106	***. Keycap (Data Entry Pad)	1
	0371-1107	***- Keycap (Data Entry Minus)	1
	0371-1108	*** Keycap	1
	0371-1109	***] [Keycap	1
	0371-1110	***" ' Keycap	1
	0371-1111	***; ; Keycap	1
	0371-1112	***? / Keycap	1
	0371-1113	***> . Keycap	1
	0371-1114	***< , Keycap	1
	0371-1115	***REF. Keycap	1
	0371-1116	***CTRL Keycap	1
	0371-1117	***! 1 Keycap	1
	0371-1118	***@ 2 Keycap	1
	0371-1119	***# 3 Keycap	1
	0371-1120	***\$ 4 Keycap	1
	0371-1121	***% 5 Keycap	1
	0371-1122	***^ 6 Keycap	1
	0371-1123	***& 7 Keycap	1
	0371-1124	***# 8 Keycap	1
	0371-1125	***() 9 Keycap	1
	0371-1126	***) 0 Keycap	1
	0371-1127	***_ - Keycap	1
	0371-1128	***+ = Keycap	1
	0371-1129	*** Keycap (Backspace)	1
	0371-1130	***TAB Keycap	1
	0371-1131	*** Keycap	2
	0371-1132	***0 Keycap (Data Entry Pad)	1
	0371-0892	*** Keycap (Data Entry ENTER)	1

Table 4-1. HP 2649D Remote/250 Console Replaceable Parts List (Continued)

FIG. & INDEX NO.	HP PART NO.	DESCRIPTION	UNITS PER ASSY
	0371-1133	***blank Keycap (CAPS LOCK)	1
	0371-1134	***blank Keycap (SHIFT)	2
	0371-1135	*** Keycap (ENTER, small)	1
	0371-0896	***blank Keycap (Space bar)	1
	0371-1136	***blank keycap (Function Keys)	14
	0371-1137	*** Keycap (Execute)	1
	0371-1141	*** Keycap	2
	0371-1142	*** Keycap	2
	0371-1143	*** Keycap	1
	0371-1139	***blank keycap (Halt)	1
	0371-1356	*** Keycap (Resume)	1
110	9160-0233	**Loudspeaker Assembly	1
111	2360-0193	**Screw, Machine, ph, no.6-32, 0.25 in.	2
	2190-0918	**Washer, Lock, spring, no. 6	2
112	1400-0054	**Mounting Clamp	2
113	0403-0324	**Bumper, Rubber	4
114	02640-40029	**Keyboard Bottom	1
115	0370-2991	**Baud Rate Knob	1
	3030-0609	**Set Screw, knurled, no. 4-40, 1/8 in. (not Shown)	1
	8570-0585	**Keycap Removal Tool (not shown)	1
	- - - - -	- - X - - - - -	
	02640-60128	*Interface, HPiB (option 44)	1
	02640-60215	*Load Box, HPiB (option 44)	1
	8120-1834	**Cable Assembly 100318 (option 44)	1
	8710-0585	**Extractor, I.C. (option 44)	1
	02649-60009	*Keyboard, U.S.A. (remove for options 252-258, and 500)	1
	02649-60011	*Keyboard, French (option 252)	1
	02649-60010	*Keyboard, German (option 253)	1
	02649-60013	*Keyboard, United Kingdom (option 254)	1
	02649-60014	*Keyboard, Swedish (option 255)	1
	02649-60015	*Keyboard, Spanish (option 256)	1
	02649-60016	*Keyboard, Italian (option 257)	1
	02649-60018	*Keyboard, Katakana (option 258)	1
	02649-60017	*Keyboard, Danish (option 500)	1
	- - - - -	- - X - - - - -	
	45120-90010	*Manual, Operator's Guide	1
	45120-90060	*Manual, Installation and Reference	1



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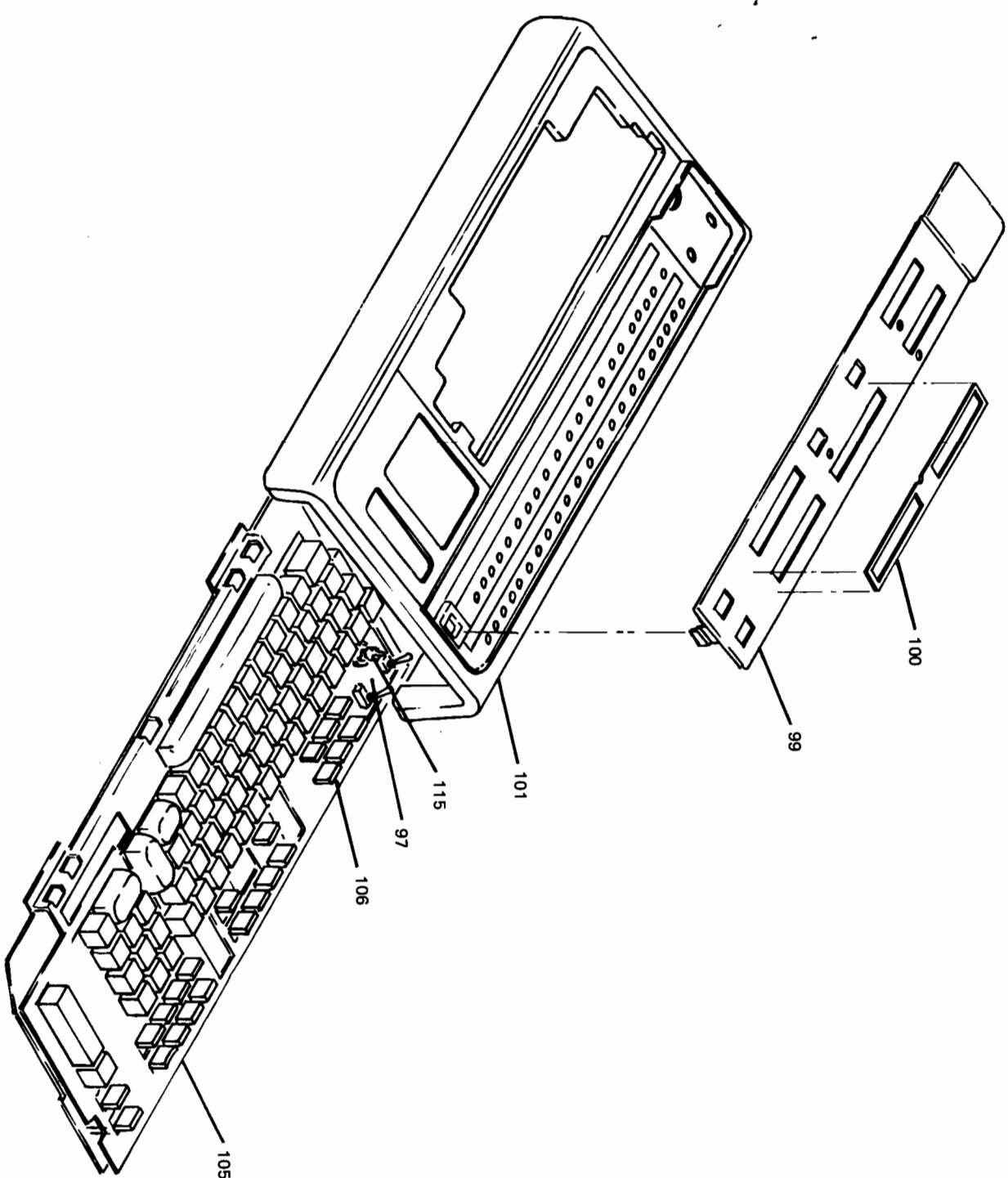
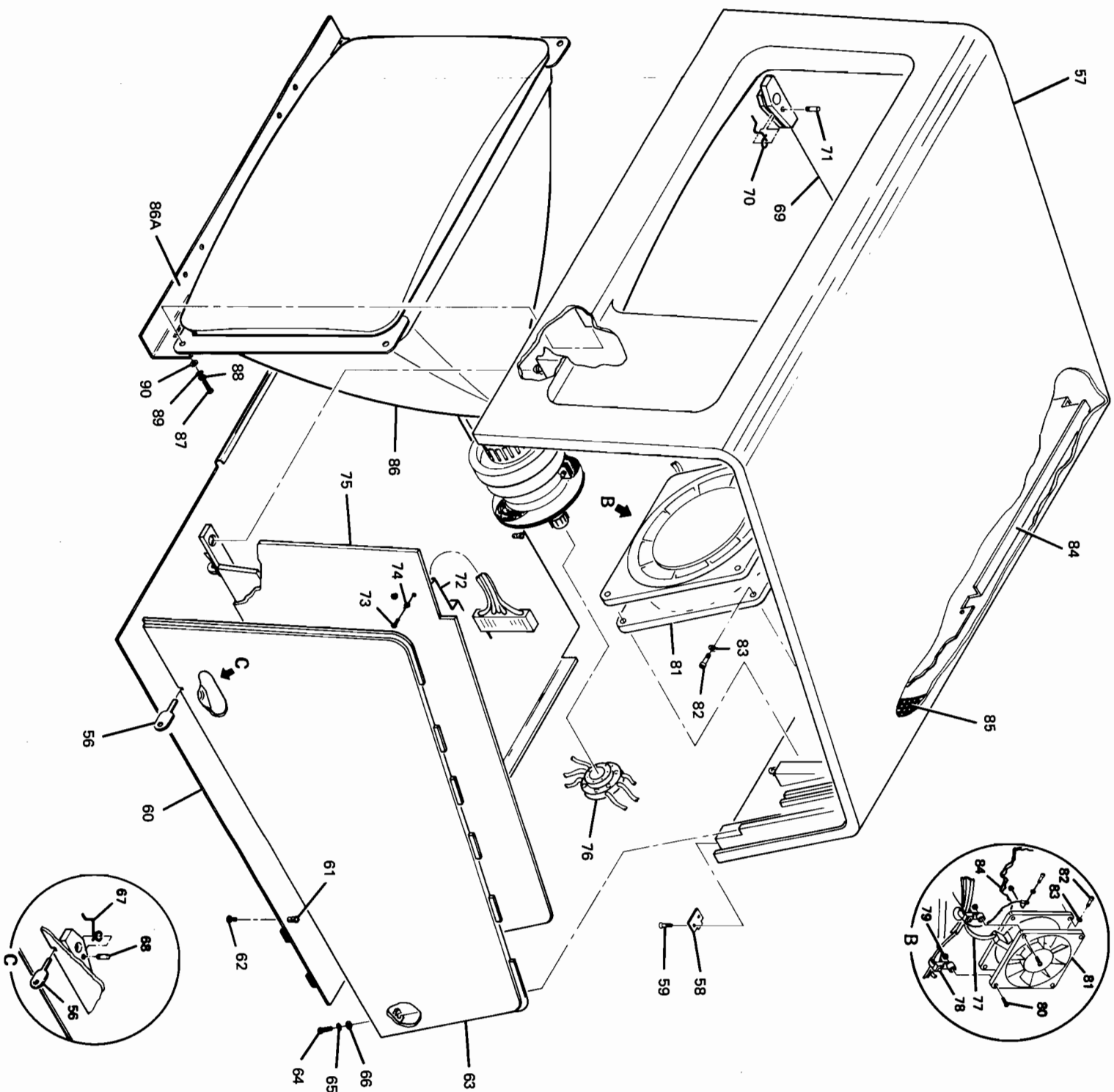


Figure 4-4. HP 2649D REMOTE/250 Console,
Exploded View

