CE 52

262X DATA TERMINAL INDEPENDENT STUDY

Computer Support Division
19310 Pruneridge Avenue
Cupertino, CA 95014

MAY, 1980
P/N 5955-6105

TABLE OF CONTENTS

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INTRODUCTION

This manual is designed to be a self-study instructional guide to servicing the HP-2621A/P Interactive Terminals.

The overall objective of this manual is to provide you with the knowledge and experience necessary to solve 80% of all service problems associated with the HP 2621A/P terminal. The areas to which this manual will address its attention will be the Objectives listed on page ii.

It will be necessary to acquire the resources found on page iii in order to complete this course of study. It is also recommended you review the service notes and IOSM's listed in Appendix 1 & 2 in this manual.

This is a self-study course and the success of it is dependent on your resourcefullness. Acquiring the necessary materials for this course could prove to be the most challenging part of the course. It is important that you have a 2621A/P terminal to practive on and a support kit that includes all the necessary materials listed in IOSM 2621-0380-12.

First step is to study the resources listed on page iii.

Second step is to answer the self-test questions.

Third step is to determine if you have met the objectives of the course.

Fourth step is to fill out the Course Evaluation form and mail it.

Fifth step is to secure the proper signatures on the Course Completion Summary form.

COURSE OBJECTIVES

1. To become familiar with the operation of the 2621A/P Interactive Terminal.

2. To become proficient at removal and replacement of 2621A/P modules.

3. To be able to perform all alignments and adjustments on the 2621A/P.

4. To become familiar with the various self-test features of the 2621A/P.

5. To become familiar with the different exchange modules of the 2621A/P and understand their functions.

6. To become familiar with the different socketed components of the 2621A/P and their functions.

LIST OF REQUIRED RESOURCES

Documentation provided with this course:

1. Self-study course.
2. 1 set of Service Notes, Appendix 1.
3. 1 set of IOSM'S Notes, Appendix 2.

Additional documentation needed to supplement this course:

1. 2621A/P Owners Manual (02620-90001).
2. 2621A/P Service Manual (02620-90002).
3. Rom Application Brief (5953-2027).

Additional tools needed to supplement this course:

1. Support Kit (02620-67801).
2. Medium Phillips screw driver.
3. 2621P Interactive Terminal.

Return to:
Hewlett-Packard
Computer Marketing Group
Attn: Development, 49B
19320 Pruneridge Avenue
Cupertino, California 95014

READER'S COMMENT FORM

TITLE: CE 52 262X Data Terminal Part Number: P/N 5955-6105

Independent Study Dated: May 1980

This form may be used to convey your views about the content, style, and usefulness of this independent study course.

They will be evaluated by the author for review and action, if any, as appropriate.

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ADDRESS _____

COURSE COMPLETION SUMMARY

Date Course Started _____

Date Course Completed _____

Time required to
complete course _____

Student Signature _____

Technical Support
Engineer Signature _____

District Manager Signature _____

Tear out this page and bring with you to the Training Center when you attend the SCE Residency Program.

Fill in the functional names of the blocks, and the HP part numbers.....

FIGURE 1.

2621A Modules

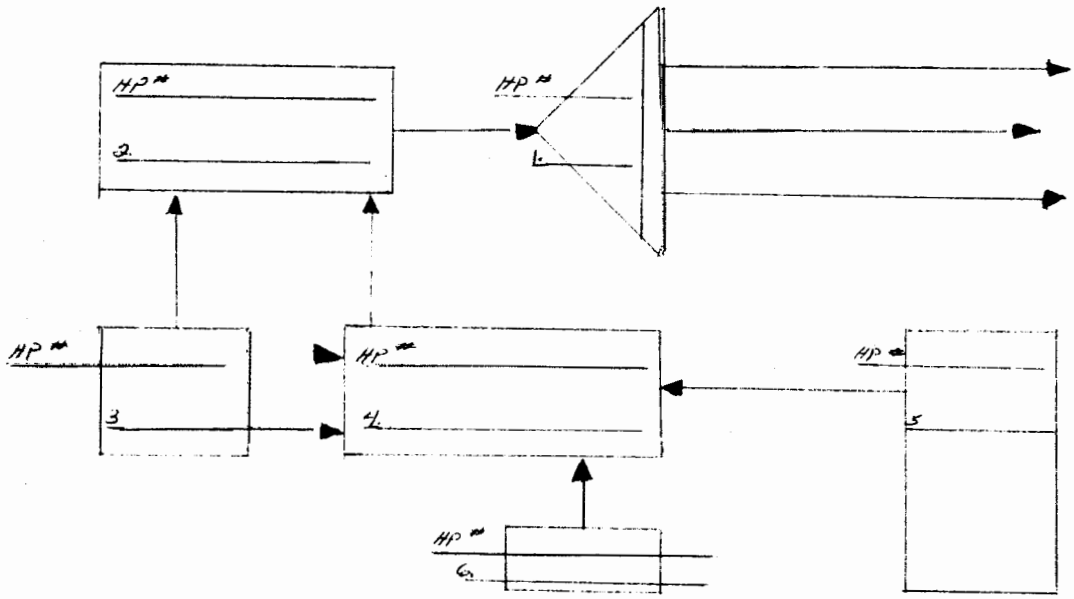
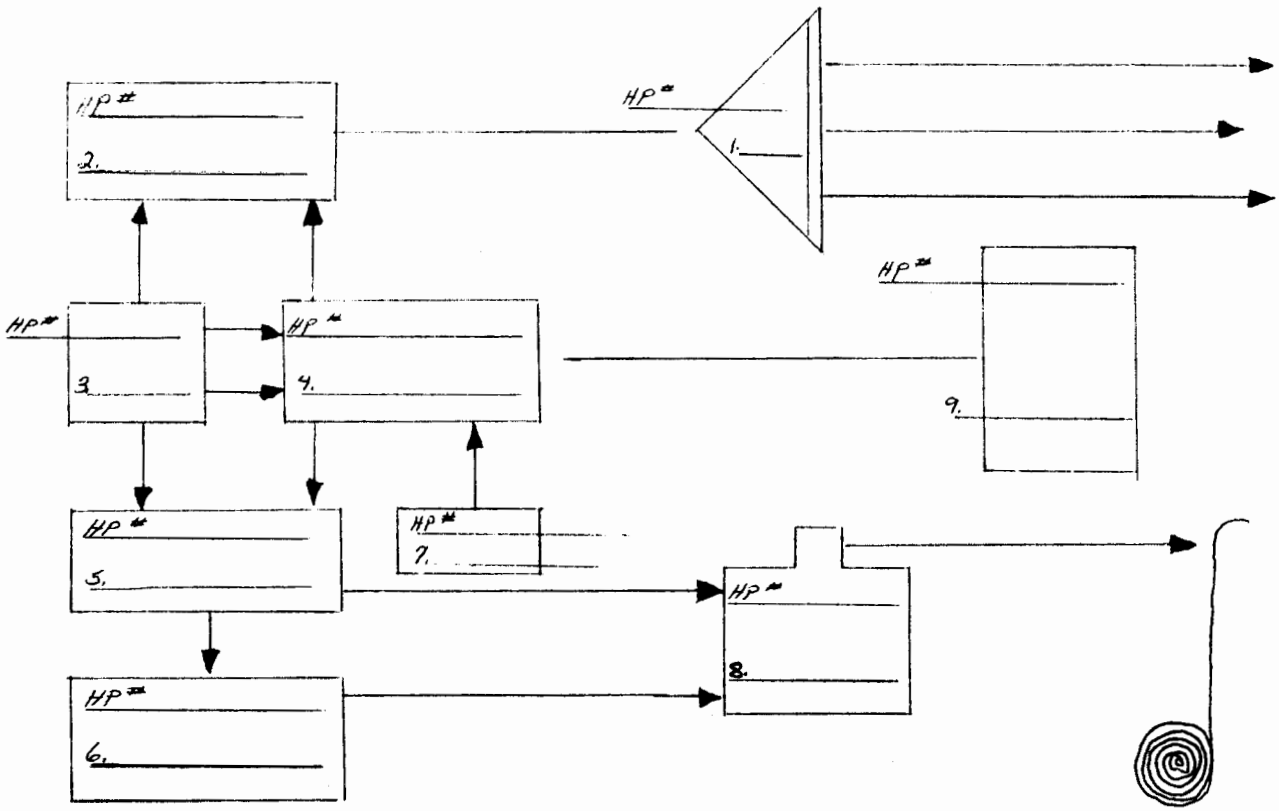


FIGURE 2.

2621P Modules

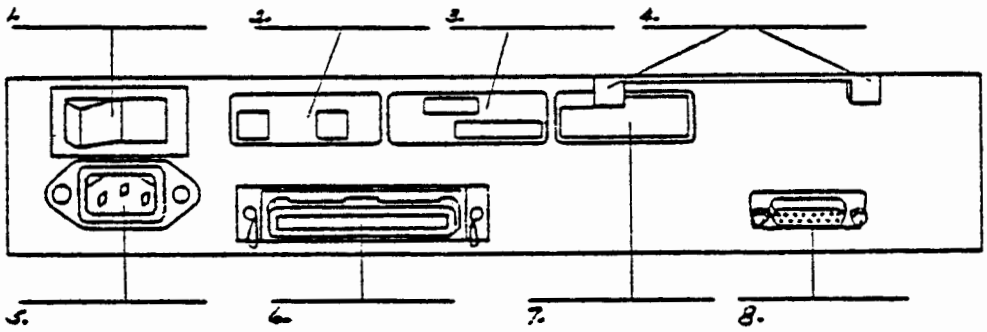


If your terminal is a 2621P, what would option 015 be?

Fill in the blanks describing the rear panel of the 2621, shown below.

FIGURE 3

Rear Panel



When the terminal is turned on and starts up running the self-test, repeating continously, what does this usually mean?

What would you do about it...

How many lines of contiguous display memory will the terminal store?

How do you position the cursor to the top of the screen?

What does this key sequence do? ESC&d@

If you press the NUM and SHIFT key then press the K, what will you get on the screen?

While the terminal is in the above state, what will you get if you press the E Key?

Put your terminal in Local Mode, and become familiar with the key board and what the keys will do.

List all the different levels of the screen labels...

1. 5.

2. 6.

3. 7.

4. 8.

What does the asterisk mean in the screen label?

How do you put the terminal in continuous self-test?

If the terminal is in continuous self-test and you remove the key board, will self-test continue to run?

What is the default state for...

Baud Rate	Duplex	Handshake	Start Column
Parity	Straps	HZ	Return

How do you clear all labels from the screen?

What are the Escape Sequences to do the following...

1. Cursor Home Down
2. Self Test Terminal
3. Delete All Tab Stops
4. Delete Character

How do you clear labels with ESC Sequences?

What is the Escape Sequence to position the cursor on the 12th row, 37th column?

List two (2) ways to save the configuration when changing the terminal battery...

1.

2.

STATUS:

What does the following status changes mean?

From 4048020 To 404:020 =

From 4089020 To 4088020 =

From 4088020 To 408<020 =

How much memory does this terminal have?

Status Word = 408<020

How many wires does it take to run the 2621 terminal "hardwired RS 232" to the HP 3000 System?

What are the RS 232 Pin numbers that are used to make the above connection and what are their functions?

What does the following mnemonics mean?

1. RAM
2. TPM
3. ENQ/ACK
4. ESD
5. TIP

What is the HP part number for paper stepping motor?

Open 2621P Terminal, locate connector J1-Fan on the 02620-60019 Power Supply PCA. Check the Fan Cable Plug for correct wiring.

Which service note talks about a possible miss wiring condition?

Label Correct Colors

What is the +5V tolerance?

On the 2621P, what other voltage is affected when the +5V is adjusted?

On the Processor PCA, what is the R9 adjustment?

A tilted CRT display requires adjustment by...

To perform Data Com Self Test, you need test hood part number...

When running self test and the following error messages are reported, what would your first replacement action be?

ERROR	ACTION
PROGRAM ROM 1?	
ROM 1?	
PRINTER CHIP?	

What two (2) cables that plug into J1 and J2, must be connected to the video generator test board?

1.

2.

What are the seven (7) switches labeled on the video generator board?

1.

2.

3.

4.

5.

6.

7.

The head Load Test Board should be used before replacing the _____ because the _____ may be defective.

What is the voltage used for the CRT Biasing?

Is the input power requirements the same for the 2621A and 2621P?

If not, what are the specifications?

2621P

2621A

What are the four (4) operating modes for the 2621 terminals?

1.

2.

3.

4.

What is the highest BAUD Rate?

What is the lowest BAUD Rate?

If you wanted to replace 1818-0793 (U701), what would you replace it with.

If the print head on the 2621P goes into Head Protect Mode, what is the only way to recover from this condition.

If retrace lines occur on the CRT before the desired brightness level is reached, check your sweep PCA for revision level and up. The level at which the problem was repaired.

If your terminal does not have both absolute and relative cursor sense, you probably need...

What does the asterisk mean?

FIGURE 4

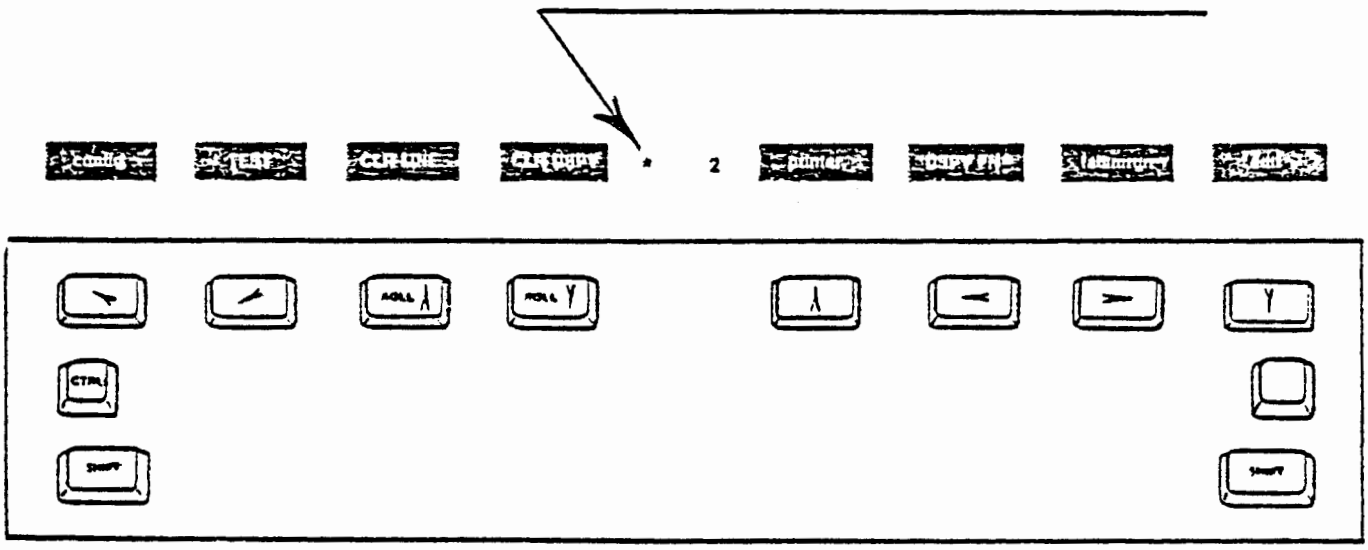


FIGURE 5

PROCESSOR PCA REPLACEABLE
COMPONENTS 02620-60003

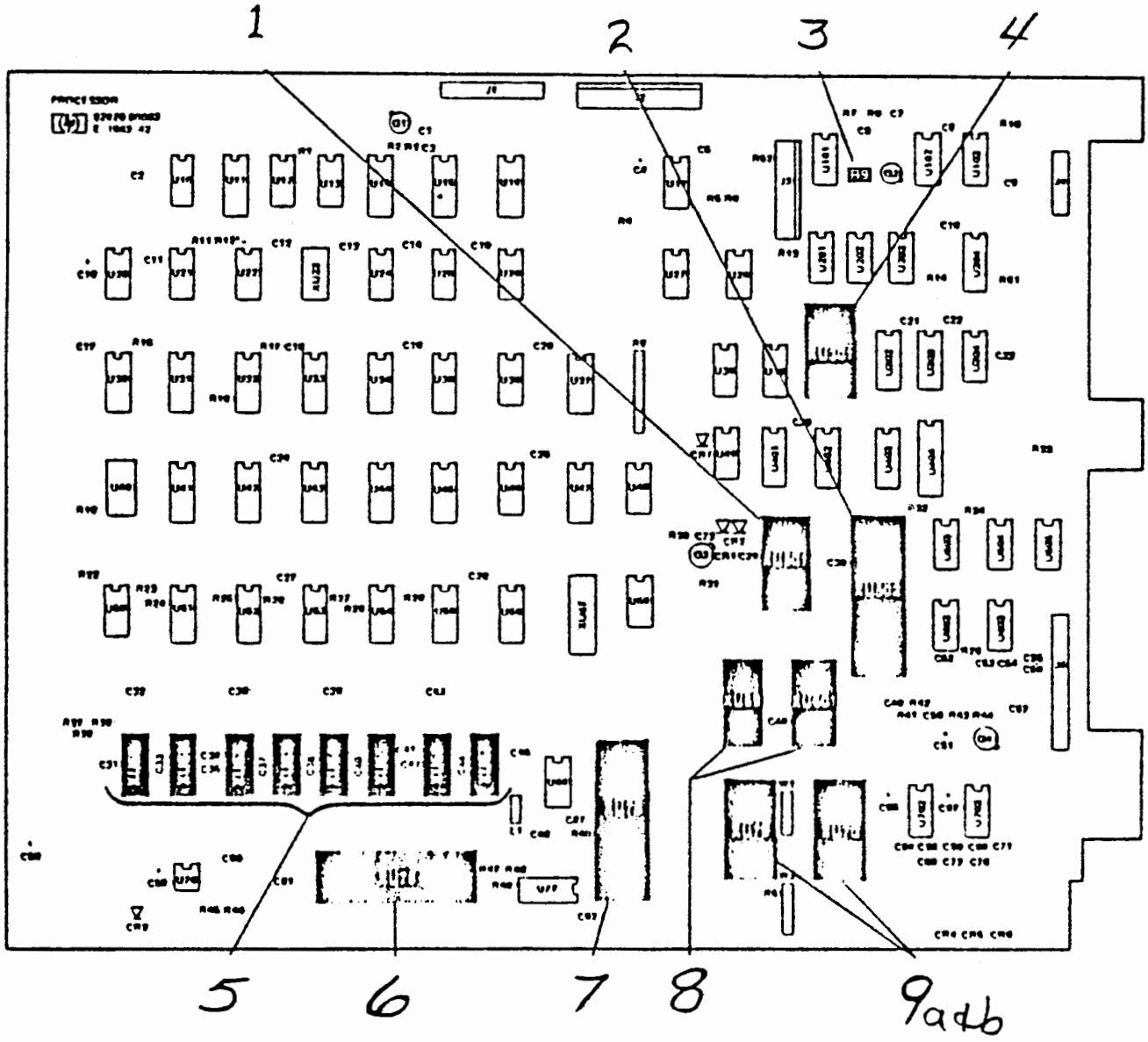


Figure 5 is an illustration of socketed components on the processor PCA. Fill in the blanks below using figure 5 as reference for numerical meanings.

Function of 1.
Part number of 1.

Function of 2.
Part number of 2.

Function of 3.
Part number of 3.

Function of 4.
Part number of 4.

Function of 5.
Part number of 5.

Function of 6.
Part number of 6.

Function of 7.
Part number of 7.

Function of 8.
Part number of 8.

Function of 9.
Part number 9,a.
Part number 9,b.

FIGURE 6

TPM PCA
02670-60001

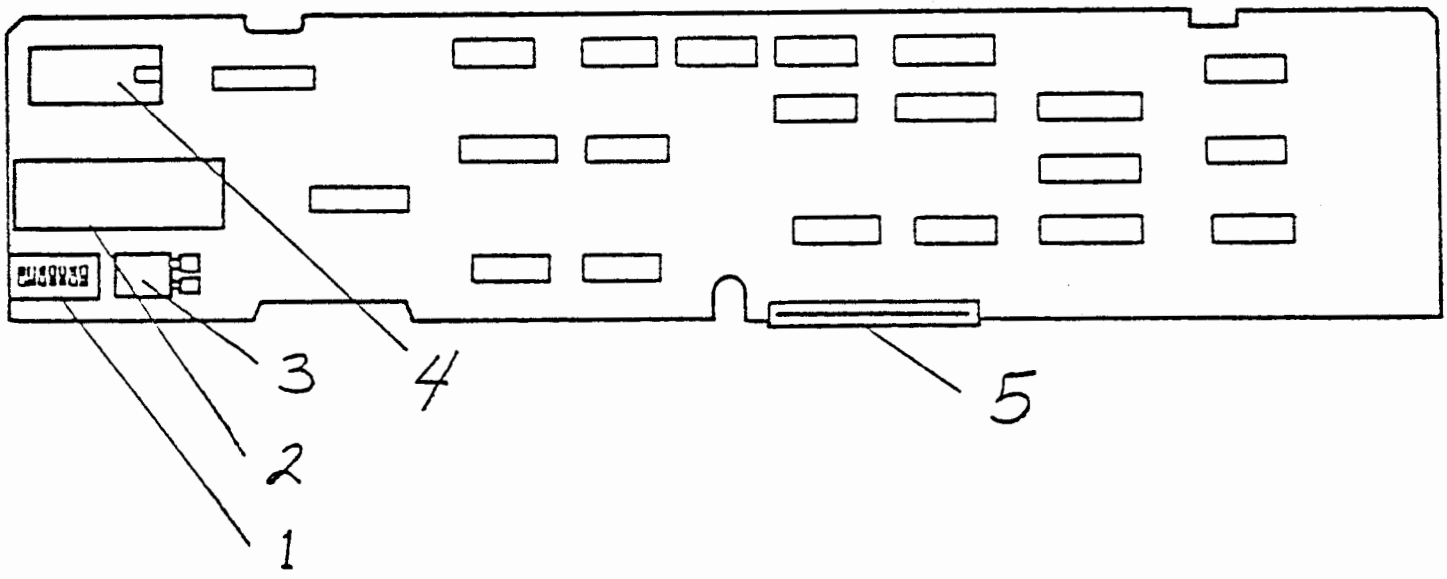


Figure 6 is an illustration of socketed components on the thermal printer PCA. Fill in the blanks below using figure 6 as reference for numerical meanings.

Function of 1.

Function of 2.
Part number of 2.

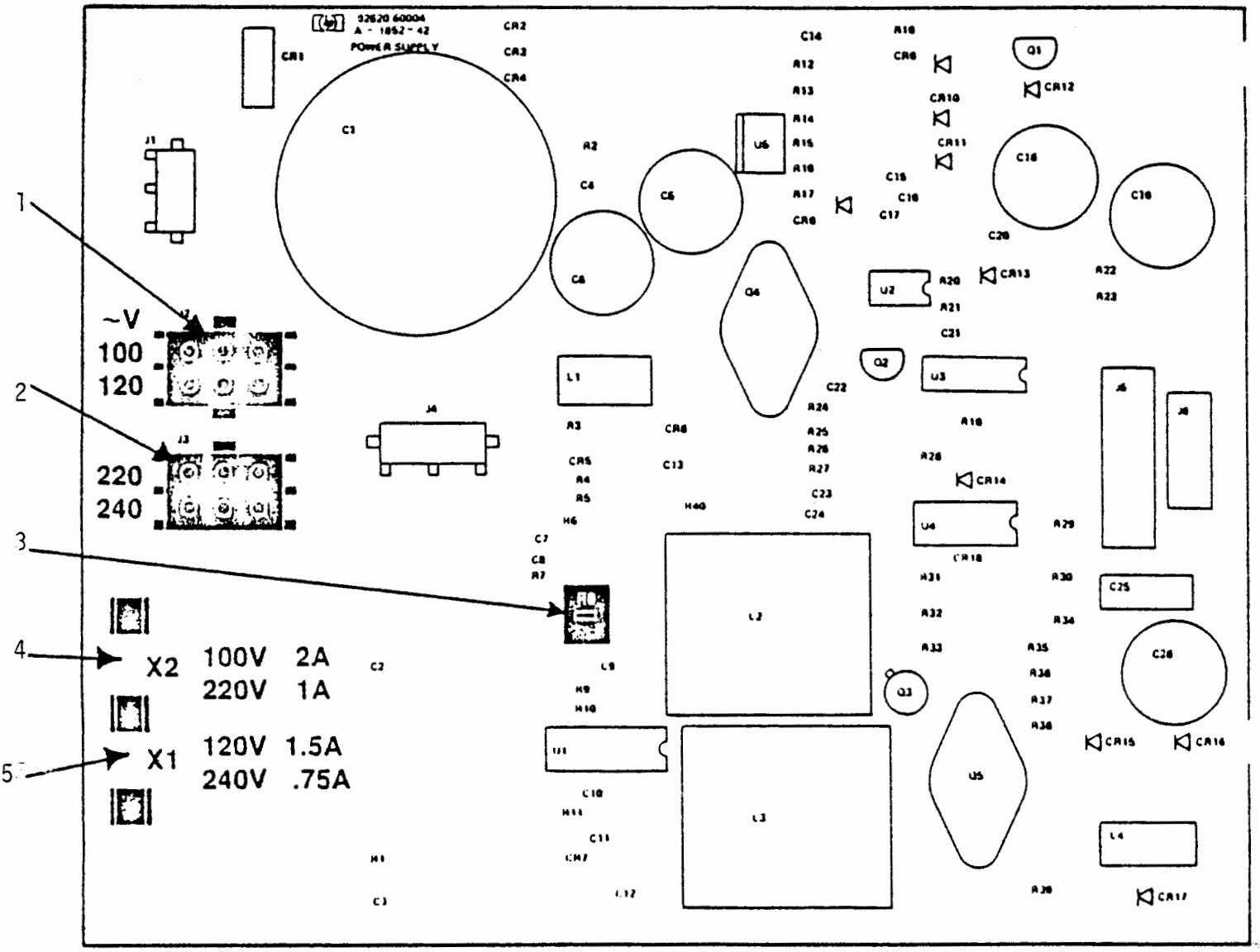
Function of 3.
Part number of 3.

Function of 4.
Part number of 4.

Function of 5.

FIGURE 7

2621A POWER SUPPLY
02620-60004



5V Adjustment

Figure 7 is an illustration of the 2621A power supply, 02620-60004. The numerals indicate important parts of this assembly.

Function of 1.

Function of 2.

Function of 3.

Function of 4.

Function of 5.

FIGURE 8

2621P POWER SUPPLY
02620-60019

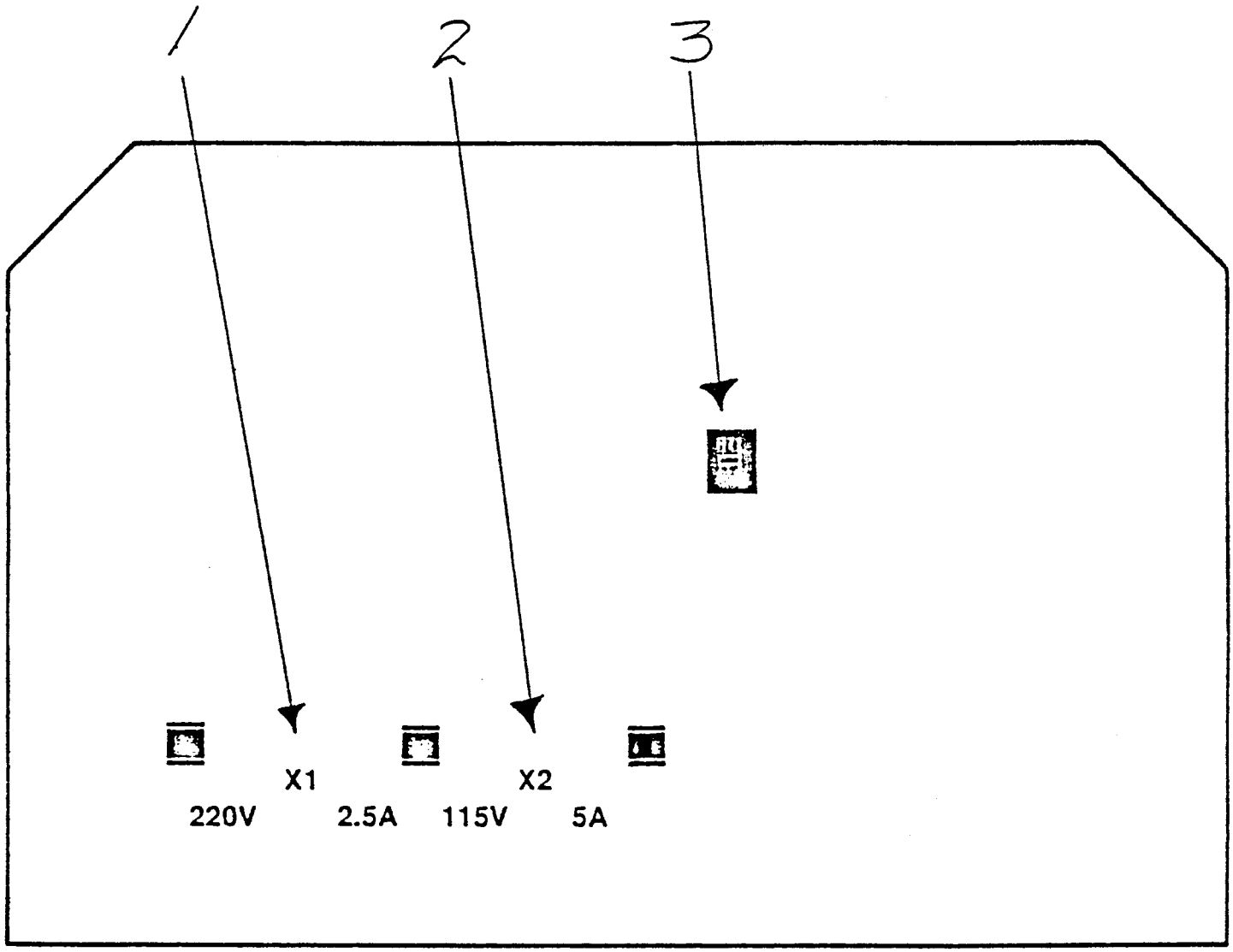


Figure 8 is an illustration of the 2621P power supply, 02620-60019. The numerals indicate important parts of this assembly.

Function of 1.

Function of 2.

Function of 3.

FIGURE 9

Height
Brightness
Focus
Centering, (Vertical), (No Horizontal)
Width 1 2 3 4

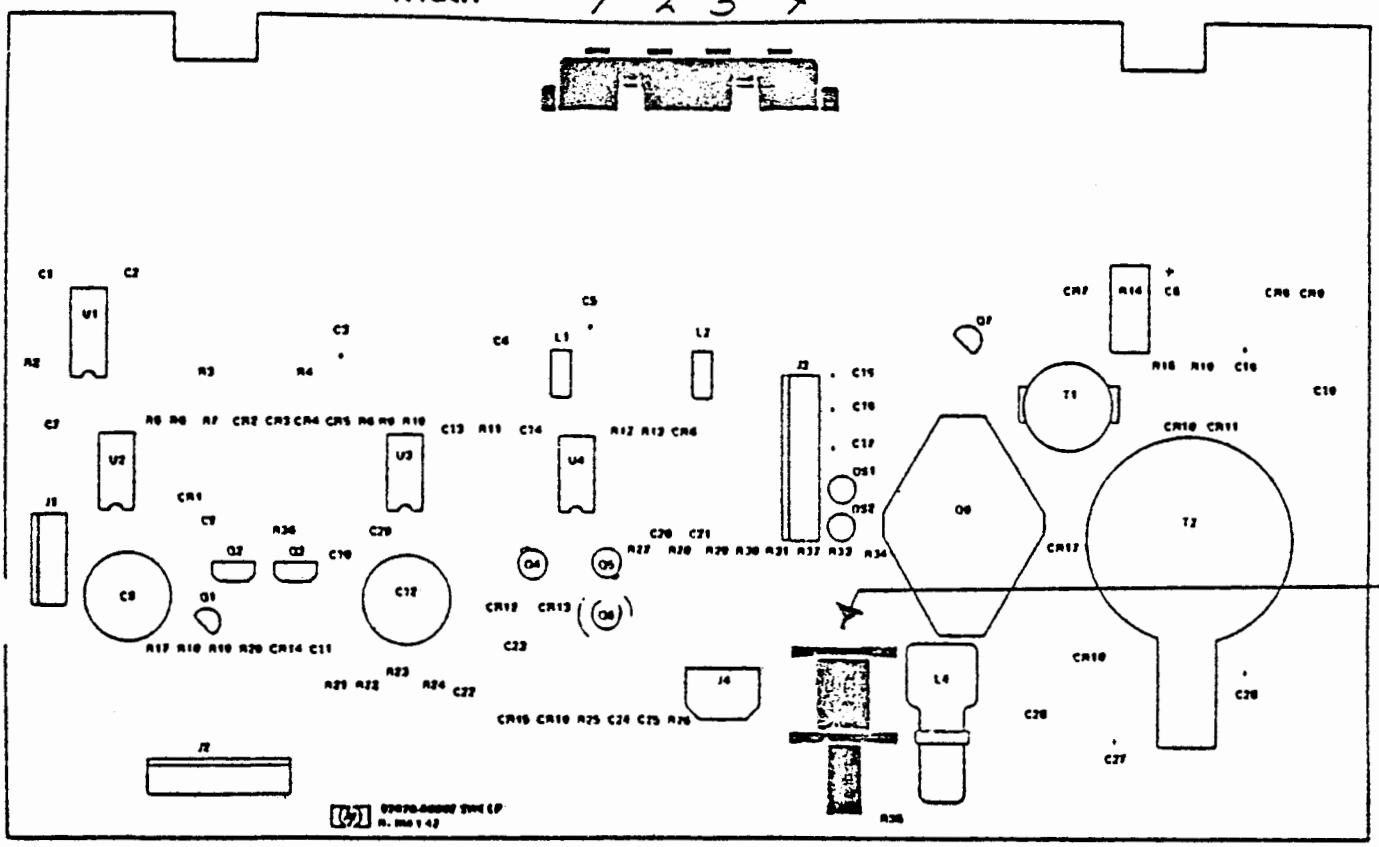


Figure 9 is an illustration of the 2X sweep PCA, 02620-60002. The numerals indicate important parts of the is assembly.

Function of 1.

Function of 2.

Function of 3.

Function of 4.

Function of 5.

PART REMOVAL AND REPLACEMENT

Follow the removal and replacement procedures in Section VII in the 2621A/P service manual, part number 02620-90002, to remove and replace the following parts. Time yourself for each exercise and write the total time elapsed for each removal and replacement procedure.

	PART DESCRIPTION	TIME DURATION
1.	Top cover	_____
2.	Main Frame	_____
3.	Support	_____
4.	Pedestal	_____
5.	Ventilating Fan	_____
6.	Processor PCA	_____
7.	Sweep PCA	_____
8.	Power Supply PCA 21A	_____
9.	Power Supply PCA 21P	_____
10.	Keyboard PCA	_____
11.	Key Cap	_____
12.	Battery	_____
13.	Intergrated Circuit	_____
14.	Thermal Print Mechanism	_____
15.	TPM PCA	_____
16.	Print Head and Cable Assembly	_____

EXCHANGE MODULES

Table 7-7 on page 7-44 of the 2621A/P Service Manual lists exchange modules for the 2621A and 2621P terminals. Before a module is sent to CSD some parts must be removed. Using table 7-7, list the parts that must be removed from each exchange module.

1.	022620-69002	Sweep PCA
	A.	
2.	02620-69003	Processor PCA
	A.	
	B.	
	C.	
	D.	
	E.	
	F.	
3.	02620-69004	Power Supply PCA,2621A
	A.	
4.	02620-690019	Power Supply PCA,2621P
	A.	
5.	02620-69032	Keyboard Inner Module
	A.	
6.	02670-69001	TPM PCA
	A.	
	B.	
	C.	
7.	02670-69015	TPM Mechanical Assembly
	A.	
	B.	
	C.	

APPENDIX 1.

2621A/P SERVICE NOTES

SERVICE NOTE

SUPERSEDES:

HP 2621A LOW COST TERMINAL

SERIAL PREFIX 1847 AND BELOW

POWER-ON OPERATION

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)		X				
Parts		X				
Travel		X				

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design			
Enhancement			
Workmanship			
Information			

SYMPTOM: Positive voltages do not come up to their full potentials. 5 volts is approximately 3 volts dc. At this time there is no display and the power supply sings.

This symptom occurs after the terminal has been on awhile and is turned off and then back on. This symptom also can occur during line interruptions or occasionally at initial turn on.

CAUSE: This problem is caused by unstable sync pulses from the horizontal drive during the turn on transition of the power supply.

SOLUTION: To prevent this CR-18 (1901-0050) has been added which clamps the sync (Horizontal Drive) line low until the "Power On Signal" goes positive.

This problem occurs on the 02620-69004 and 02620-60004 Power Supply boards with date codes A-1830 and below.

ACTION: If symptom occurs on 2621A, replace power supply board (02620-60004), date code A-1830 and below with a new power supply board, date code A-1852 and above.

Larry Bricker/sr

02/79-42

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For more information, call your local HP sales office or these regional offices: East (301) 948-6370 Midwest (312) 255-9800 South (404) 955-1500 West (213) 877-1282. Or write Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. In Europe: Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH-1217, Meyrin 2, Geneva, Switzerland. In Japan: Yokogawa-Hewlett-Packard Ltd., 29-21, Takaido-Higashi, 3-CHOME, Suginami-Ku, Tokyo, 168.

SERVICE NOTE

SUPERSEDES:

HP 2621A/P LOW COST TERMINALS

ALL TERMINALS

TPM & KEYBOARD CONTROLLER ICs

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)			X			
Parts			X			
Travel			X			

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design			
Enhancement			
Workmanship			
Information			

IC 8041 HP part number 1820-2189 is being used on the 02620-60003 Processor PCA as a Keyboard Controller IC in socket U502. If this IC part number 1820-2189 is used as a TPM Controller in socket U75, it will cause the error message "Printer Error?" to appear intermittently.

CAUTION

DO NOT USE THIS IC 8041 HP PART NUMBER 1820-2189 IN SOCKET U75 AS A TPM CONTROLLER!

IC 8041A HP part number 1820-2263 must be used as the TPM Controller in socket U75 on the processor PCA 02620-60003 and can be used as a Keyboard Controller in socket U502.

The TPM Controller IC is used on the 2621P Terminal to interface the Thermal Print Mechanism to the processor PCA.

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02/79-42

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S E R V I C E N O T E

SUPERSEDES:

HP 2621A/P LOW COST TERMINALS

LOW BRIGHTNESS LEVEL

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)		X				
Parts		X				
Travel		X				

CHANGE TYPE	PERFORM IMMEDIATELY	AT PM	ON FAIL
Design			
Enhancement			
Workmanship			
Information			

SYMPTOM: The brightness level at which retrace occurs is too low on some sweep PCA's, 02620-60002 Rev. B and 02620-69002 Rev. B. When the brightness is increased, retrace lines occur on the CRT display before the desired brightness level is reached.

ACTION: If above symptom is detected, replace defective sweep PCA with existing FSI inventory. CSD will scrap all returned, defective sweep PCA's that are Rev. B's and will replace with Rev. C-1911. The changes on Rev. C sweep PCA have raised the brightness level at which retrace occurs.

Larry Bricker/sr

05/79-42

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SERVICE NOTE

SUPERSEDES:

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)			X			
Parts			X			
Travel			X			

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design			
Enhancement			
Workmanship			
Information			

HP 2621A LOW COST TERMINAL

FUSE CHANGE

For some line voltages the fuse size will change on the new power supply 02620-60004 Rev. C. Fuse sizes for the old power supply 02620-60004 Rev. A will remain the same.

New fuse 2110-0063 size 3/4 amp will be used on the 2621A option 013 and new fuse 2110-0043, size 1½ amp will be used on 2621A standard unit with the Rev. C power supply 02620-60004.

The proper fuse size and line voltage will be marked on the power supply PCA. For the 2621A recommended spare parts list

ADD .75A Fuse 2110-0063 Qty. 5

ADD 1.5A Fuse 2110-0043 Qty. 5

Larry Bricker/sr 05/79-42

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2621A POWER SUPPLY 02620-60004 REV. C

Options	Line Voltage	Line Frequency	Power	Amperage	Fuse Size	Fuse Part Number	Socket
Std.	120V	60Hz	60W	0.5A	1.50A	2110-0043	X1
013	240V	50Hz	75W	0.3A	.75A	2110-0063	X1
014	100V	60Hz	60W	0.6A	2.0A	2110-0002	X2
015	220V	50Hz	75W	0.4A	1.0A	2110-0001	X2
016	100V	50Hz	60W	0.6A	2.0A	2110-0002	X2

2621P POWER SUPPLY 02620-60019

Options	Line Voltage	Line Frequency	Power	Amperage	Fuse Size	Fuse Part Number	Socket
Std.	115V	60Hz	140W	2.4A	5.0A	2110-0010	X2
015	220V	50Hz	170W	1.2A	2.5A	2110-0083	X1
016	115V	50Hz	170W	2.4A	5.0A	2110-0010	X2

2621A POWER SUPPLY 02620-60004 REV. A

Options	Line Voltage	Line Frequency	Power	Amperage	Fuse Size	Fuse Part Number	Socket
Std.	120V	60Hz	60W	0.5A	2A	2110-0002	X1
013	240V	50Hz	75W	0.3A	1A	2110-0001	X1
014	100V	60Hz	60W	0.6A	2.0A	2110-0002	X2
015	220V	50Hz	75W	0.4A	1.0A	2110-0001	X2
016	100V	50Hz	60W	0.6A	2.0A	2110-0002	X2

SERVICE NOTE

SUPERSEDES:

HP 2621A LOW COST TERMINAL

INSTRUCTION ROM CHANGE

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs) Parts Travel					X	

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design Enhancement Workmanship Information			X

The 2621A Low Cost Terminal uses two instruction ROMs in its' instruction set for microprocessor operation. Both of these ROMs are being upgraded in the 2621A Terminal.

SOCKET	OLD PART NUMBER	DESCRIPTION
U79	1818-0732	ROM CODE 3 21
U701	1818-0793	ROM CODE 4 21

OBSOLETE
Date 8-79 By LB
SUPERSEDED
By 2621-06

SOCKET	NEW PART NUMBER	DESCRIPTION
U79	1818-0951	ROM CODE 5 21
U701	1818-0952	ROM CODE 6 21

ADD BOTH OF THESE NEW ROMs TO YOUR 2621A SUPPORT KIT.

Larry Bricker/sr

05/79-42

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S E R V I C E N O T E

SUPERSEDES:

HP 2621A/P LOW COST TERMINAL

INSTRUCTION ROM CHANGE

SERIAL PREFIX 1929 AND ABOVE

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)	X					
Parts	X					
Travel						

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design			X
Enhancement			
Workmanship			
Information			

Current production versions of the 2621A and 2621P terminals are using instruction ROMs 1818-0951 and 1818-1040. These terminals with current instruction ROMs will have serial prefix 1929 and above. This change adds absolute and relative cursor sensing as a feature on both 2621A's and 2621P's.

Socket	Original ROMs	First Revision	Second Revision
U 79	1818-0732	*1818-0951	
U 701	1818-0793	1818-0952	*1818-1040

*Current Instruction ROMs

For support kit considerations, add 1818-1040 ROMs to the 2621A/P support kits. Use up existing old ROMs and then convert to all current ROMs, 1818-0951 and 1818-1040. CPC will discontinue old ROMs 1818-0732, 1818-0793, and 1818-0952.

Larry Bricker/sr 08/79-42

S E R V I C E N O T E

SUPERSEDES:

HP 2621P LOW COST PRINTING TERMINAL

HEAD PROTECT MODE CAUSED BY ESD

SERVICE	STD WTY			PARTS ONLY WTY		
	WA	WO	WN	WA	WO	WN
Labor (Hrs)	X					
Parts	X					
Travel						

CHANGE TYPE	PERFORM		
	IMMEDIATELY	AT PM	ON FAIL
Design Enhancement			X
Workmanship Information			

SYMPTOM:

Low levels of ESD, ElectroStatic Discharge or noise can cause the thermal printer to go into head protect mode. When in head protect mode, the only way to reset the terminal is to power down and then back up.

SOLUTION:

To raise the noise and ESD susceptibility levels, the TPM PCA is being reworked, part number 02670-60001 or 02670-69001. This change will be incorporated on Rev. C-1933 date coded PCAs and above.

ACTION:

If a terminal exhibits the symptoms described above, replace the TPM PCA with a Rev. C-1933 date coded PCA or above. FSI inventory and failed TPM PCAs will be reworked by CSD.

Larry Bricker/sr

08/79-42

HEWLETT hp PACKARD

FOR MORE INFORMATION, CALL YOUR LOCAL HP SALES OR SERVICE OFFICE or East (201) 265-5000 ● Midwest (312) 255-9800 ● South (404) 955-1500 ● West (213) 970-7500 or (415) 968-9200; **OR WRITE**, Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. **IN EUROPE, CALL YOUR LOCAL HP SALES or SERVICE OFFICE OR WRITE**, Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH-1217 MEYRIN 2 - Geneva, Switzerland. **IN JAPAN**, Yokogawa-Hewlett-Packard Ltd., 9-1, Takakura-cho, Hachioji-shi, Tokyo, Japan 192.

Printed in U.S.A.

PRODUCT SAFETY SERVICE NOTE

SUPERSEDES:

None

HP 2621P INTERACTIVE TERMINAL SERIALS 1932A03600 AND BELOW

SERVICE	STD WTY			PARTS ONLY WTY		
	WA	WO	WN	WA	WO	WN
Labor (Hrs)	X					
Parts	X					
Travel	X					

CHANGE TYPE	PERFORM		
	IMMEDIATELY	AT PM	ON FAIL
Design Enhancement			
Workmanship Information	X		

CORRECTIVE ACTION FOR A POTENTIAL SAFETY HAZARD

WARNING

The fan casing and its retaining screws on some 2621P terminals are at 230 VAC potential with respect to ground. The fan is located inside the terminal pedestal and the heads of the retaining screws are located on the underside of the pedestal.

9/79/42

HEWLETT hp PACKARD

For more information, call your local HP sales office or these regional offices: East (301) 948-6370 Midwest (312) 255-9800 South (404) 955-1500 West (213) 877-1282. Or write Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. In Europe: Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH-1217, Meyrin 2, Geneva, Switzerland. In Japan: Yokogawa-Hewlett-Packard Ltd., 29-21, Takaido-Higashi, 3-CHOME, Suginami-Ku, Tokyo, 168.

9320-3500 (2/79)

Printed in U.S.A

PROCEDURE

1. Contact each customer to schedule unit inspection and correction visit.

1a. Advise customer of existence of possible miswiring condition.

1b. Indicate that given the nature of the miswiring condition, HP wants to perform an inspection of terminals as soon as possible.

1c. Advise the customer to continue normal use of the 2621P, but to turn off terminal and unplug the power cord prior to any relocation.

1d. Assure customer that any inspection and any necessary correction will be performed by HP at no expense to the customer.

2. Visit customer site and inspect all 2621P terminals.

2a. If a miswiring condition is discovered make the necessary repairs.

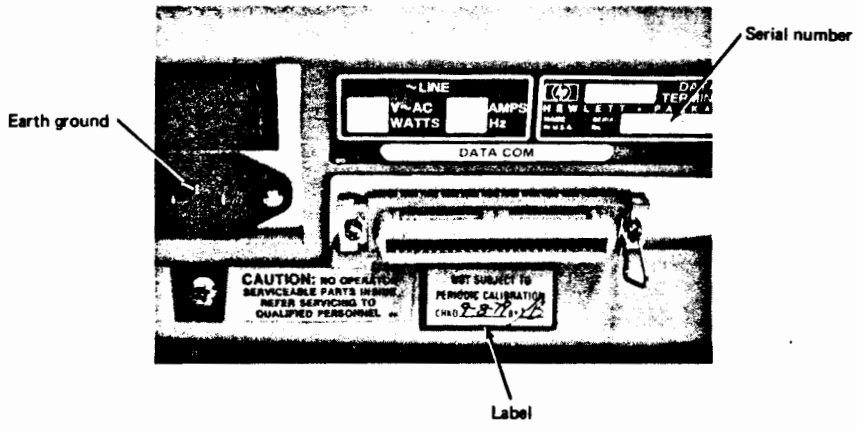
3. Report each inspected terminal on a separate Repair Order. Report on this R.O. the inspection and repair of the miswiring condition ***only.*** Any unrelated repairs should be reported on a separate R.O.

4. Apply sticker as illustrated in Rear Panel figure to all inspected terminals.

4a. Write on sticker the current date and inspector's initials.

5. If customer's mailing address is a loading dock or if customer no longer has possession of some or all terminals, request the customer's assistance in locating all terminals.

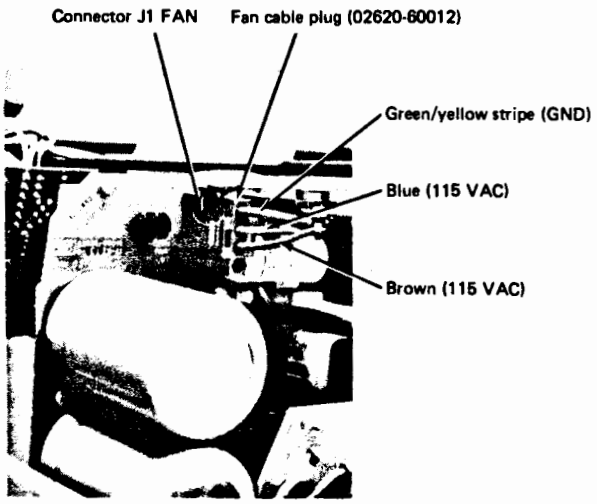
6. If a customer insists on doing his own inspection and repair, then send Comgram or call in customer's name and address to DTD to the attention of *Larry Bricker.* The proper instructions and tools will then be sent to that customer.



Rear Panel figure

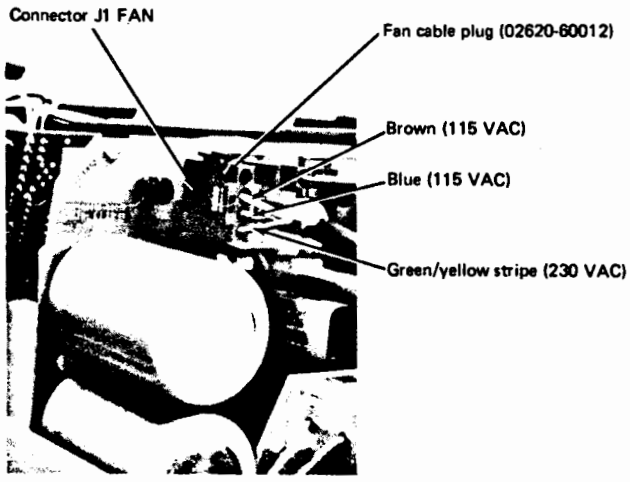
CHECKING FOR A MISWIRING CONDITION

1. Turn power switch to the off position.
2. Unplug power cord.
3. Loosen two screws securing top cover and then remove top cover.
4. Locate connector J1-FAN on the 02620-60019 power supply PCA.
5. Check fan cable plug for correct wiring, part number 02620-60012, which plugs into connector J1-FAN on the 02620-60019 PCA.
6. If necessary make indicated repairs per attached Repair Procedure.
7. If unit is correctly wired check continuity between earth ground on power connector and screwheads securing fan located under pedestal.
8. Replace top.
9. Restore power.
10. Apply label and fill out R.O.



Correct Wiring Figure

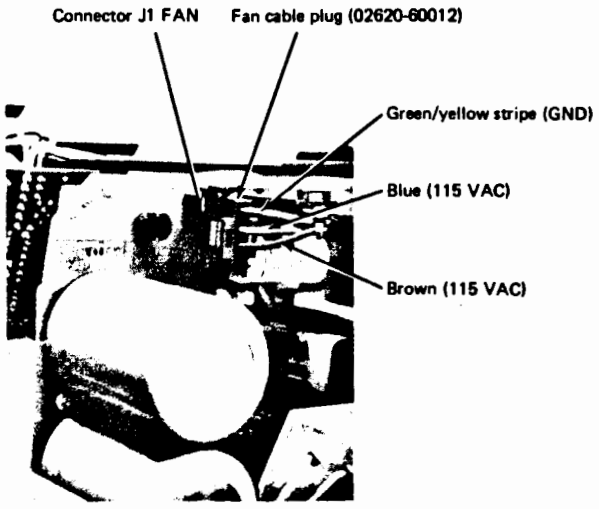
WRONG



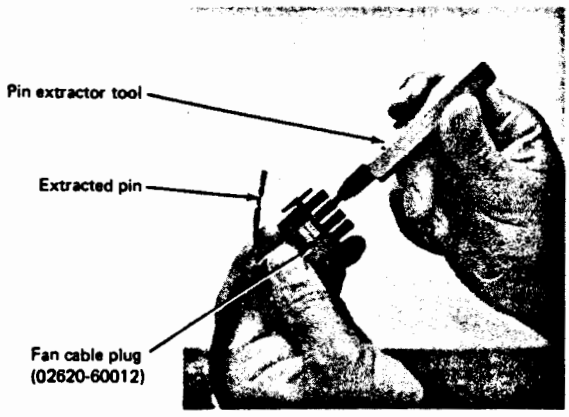
Miswiring Condition Figure

REPAIR PROCEDURE

1. Unplug fan cable plug, 02620-60012.
2. Using pin extractor tool, part number AMP 458994-1-0, push out the three connector pins as illustrated in pin extraction figure.
3. Replace connector pins into their correct position per correct wiring figure.
4. Replace fan cable plug.
5. Check continuity between earth ground on power connector and screwheads securing fan located under pedestal.
6. Replace top.
7. Restore power.
8. Apply sticker and fill out R.O.

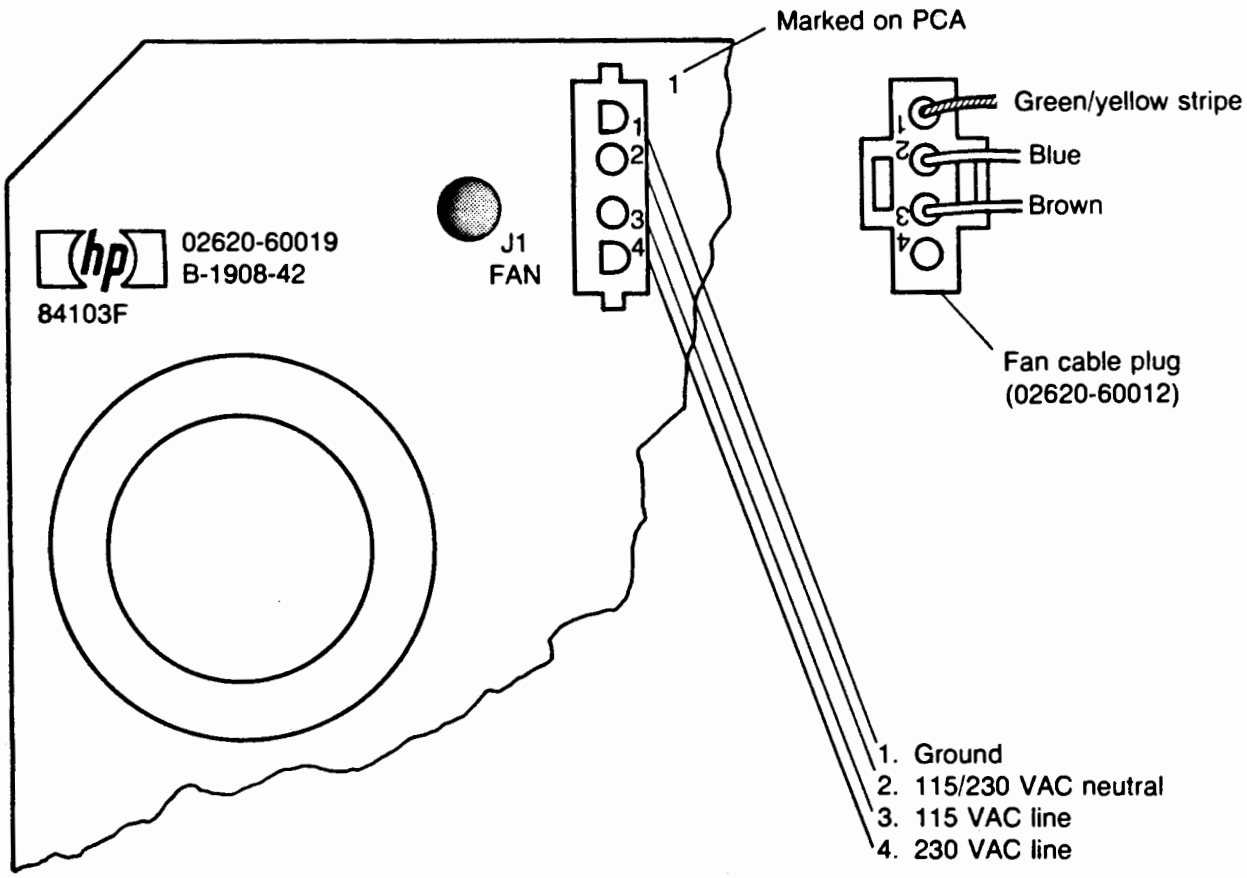


Correct Wiring Figure



Pin Extraction Figure

SAFETY SERVICE NOTE HP-2621P-08-S (ADDITION)



This is an addition to Safety Service Note HP-2621P-08-S.

Connector J1 on the power supply P.C.A. (02620-60019) is keyed so that the fan cable plug can only plug into it one way. If connector J1 is soldered in upside down, this can also cause a potential safety hazard as mentioned in Safety Service Note HP-2621P-08-S. If this is the case, J1 must be unsoldered and repositioned.

The easiest way to check for this is to visually check to see if pin one of connector J1 is positioned to the top of the power supply PCA. Pin one is marked on the power supply PCA and is also molded into connector J1.

Attach this addition to Safety Service Note HP-2621P-08-S.

SERVICE NOTE

SUPERSEDES

HP 2621A/P INTERACTIVE TERMINAL

NEW PROCESSOR PCA

SERIAL PREFIX 1943 AND ABOVE

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)			X			
Parts			X			
Travel			X			

CHANGE TYPE	PERFORM IMMEDIATELY	AT PM	ON FAIL
Design			
Enhancement			
Workmanship			
Information			

The 2621A Terminal options 013, 014, 015, 016, 017 and the 2621P Terminal options 015, 016 and 017 will be shipped with the new 4-layer processor PCA 02620-60033. This will happen around November 1, 1979. This was necessary to comply with European regulations.

The 4-layer processor PCA #02620-60033 is functionally similar to the 2-layer processor PCA #02620-60003. The main difference is the addition of separate ground and five volt layers to the 4-layer processor PCA.

If 2621A and 2621P Terminals with the above mentioned options are used in your service area, add the 4-layer processor PCA to your 2621A/P Support kit.

The 4-layer processor PCA is on the Blue Stripe Exchange Program, part #02620-69033.

The 2-layer processor PCA #02620-60003 will continue to be shipped in the standard 2621A and 2621P Terminals.

Use only the 02620-69033 PCA for 02620-60033 failures.

Use only the 02620-69003 PCA for 02620-60003 failures.

The 02620-60003 does not comply with European regulations and the 02620-60033 complies with European regulations, VDE.

Larry Bricker/sr

11/79-42

HEWLETT hp PACKARD

FOR MORE INFORMATION, CALL YOUR LOCAL HP SALES OR SERVICE OFFICE or East (201) 265-5000 ● Midwest (312) 255-9800 ● South (404) 955-1500 ● West (213) 970-7500 or (415) 968-9200; **OR WRITE**, Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. **IN EUROPE, CALL YOUR LOCAL HP SALES or SERVICE OFFICE OR WRITE**, Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH-1217 MEYRIN 2 - Geneva, Switzerland. **IN JAPAN**, Yokogawa-Hewlett-Packard Ltd., 9-1, Takakura-cho, Hachioji-shi, Tokyo, Japan 192.

Printed in U.S.A.

HP 2621A/P INTERACTIVE TERMINAL

NEW PROCESSOR PCA

SERIAL PREFIX 1943 AND ABOVE

SERVICE	STD WTY			PARTS ONLY WTY		
	WA	WO	WN	WA	WO	WN
Labor (Hrs)			X			
Parts			X			
Travel			X			

CHANGE TYPE	PERFORM		
	IMMEDIATELY	AT PM	ON FAIL
Design			
Enhancement			
Workmanship			
Information			

The 2621A Terminal options 013, 014, 015, 016, 017 and the 2621P Terminal options 015, 016 and 017 will be shipped with the new 4-layer processor PCA 02620-60033. This will happen around November 1, 1979. This was necessary to comply with European regulations.

The 4-layer processor PCA #02620-60033 is functionally similar to the 2-layer processor PCA #02620-60003. The main difference is the addition of separate ground and five volt layers to the 4-layer processor PCA.

If 2621A and 2621P Terminals with the above mentioned options are used in your service area, add the 4-layer processor PCA to your 2621A/P Support kit.

The 4-layer processor PCA is on the Blue Stripe Exchange Program, part #02620-69033.

The 2-layer processor PCA #02620-60003 will continue to be shipped in the standard 2621A and 2621P Terminals.

Use only the 02620-69033 PCA for 02620-60033 failures.

Use only the 02620-69003 PCA for 02620-60003 failures.

The 02620-60003 does not comply with European regulations and the 02620-60033 complies with European regulations, VDE.

Larry Bricker/sr

11/79-42

S E R V I C E N O T E

SUPERSEDES:

HP 2621P INTERACTIVE TERMINAL

POWER SUPPLY CIRCUIT CHANGE

SERIAL PREFIX 1941 AND ABOVE

SERVICE	STD WTY			PARTS ONLY WTY		
	WA	WO	WN	WA	WO	WN
Labor (Hrs)		X				
Parts		X				
Travel						

CHANGE TYPE	PERFORM		
	IMMEDIATELY	AT PM	ON FAIL
Design			
Enhancement			X
Workmanship			
Information			

SYMPTOM: If the 2621P Terminal is powered on and off, there is a possibility of a power supply failure. If the power supply fails in this mode the fuses are blown and the two power transistors fail. A switching regulator that is caught in an unpredicatable state, is usually the cause.

SOLUTION: A new circuit is being added to the 2621P Power Supply (02620-60019). This circuit inhibits the switching regulator until the control supply voltage (VCC) is at a sufficiently high level to allow the regulator to operate predictably.

ACTION: Power Supply PCA 02620-60019 with revision C-1941 and above, will have this new protective circuitry. Power supply exchange modules, 02620-69019, will be updated by CSD.

Larry Bricker/sr

11/79-42

HEWLETT hp PACKARD

FOR MORE INFORMATION, CALL YOUR LOCAL HP SALES OR SERVICE OFFICE or East (201) 265-5000 ● Midwest (312) 255-9800 ● South (404) 955-1500 ● West (213) 970-7500 or (415) 968-9200; **OR WRITE**, Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. **IN EUROPE, CALL YOUR LOCAL HP SALES or SERVICE OFFICE OR WRITE**, Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH-1217 MEYRIN 2 - Geneva, Switzerland. **IN JAPAN**, Yokogawa-Hewlett-Packard Ltd., 9-1, Takakura-cho, Hachioji-shi, Tokyo, Japan 192.

Printed in U.S.A.

HP 2621P INTERACTIVE TERMINAL

POWER SUPPLY CIRCUIT CHANGE

SERIAL PREFIX 1941 AND ABOVE

SERVICE	STD WTY			PARTS ONLY WTY		
	WA	WO	WN	WA	WO	WN
Labor (Hrs)		X				
Parts		X				
Travel						

CHANGE TYPE	PERFORM		
	IMMEDIATELY	AT PM	ON FAIL
Design			
Enhancement			X
Workmanship			
Information			

SYMPTOM: If the 2621P Terminal is powered on and off, there is a possibility of a power supply failure. If the power supply fails in this mode the fuses are blown and the two power transistors fail. A switching regulator that is caught in an unpredicatable state,is usually the cause.

SOLUTION: A new circuit is being added to the 2621P Power Supply (02620-60019). This circuit inhibits the switching regulator until the control supply voltage (VCC) is at a sufficiently high level to allow the regulator to operate predictably.

ACTION: Power Supply PCA 02620-60019 with revision C-1941 and above, will have this new protective circuitry. Power supply exchange modules, 02620-69019, will be updated by CSD.

Larry Bricker/sr

11/79-42

SERVICE NOTE

2621A/P Low Cost Terminal

PROCESSOR PCA - Modification

DATE CODES: F-2013 and above

SERVICE	STD WTY WA	STD WTY WO	STD WTY WN	PARTS ONLY WTY WA	PARTS ONLY WTY WO	PARTS ONLY WTY WN
Labor (Hrs)	X					
Parts	X					
Travel			X			

CHANGE TYPE	PERFORM IMMEDIATELY	PERFORM AT PM	PERFORM ON FAIL
Design			X
Enhancement			
Workmanship			
Information			

SYMPTON:

Terminal locks up and operator is not able to input from the Keyboard. Cursor usually freezes and does not blink. A power reset is required to clear this condition.

SOLUTION: An L-C network, pull ip resistor and capacitor is added to the 02620-60003 Processor P.C.A.
This modification improves ESD and line transient susceptibility which can cause keyboard lockups. The new Date Code for the 02620-60003 Processor P.C.A. with this modification is F-2013 and above.

ACTION:

If a terminal exhibits the symptoms described above, replace the processor P.C.A. with a modified processor P,C.A. Date Code F-2013 or above.

Larry Bricker/er 04/80 42

APPENDIX 2

2622A/P INTER-OFFICE SERVICE MEMOS

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: 2621A AND 2621P PRODUCT SUPPORT PLAN

LARRY BRICKER/sr 11/78-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS DIVISION PRODUCT SUPPORT

SUBJECT: 2621A TECHNICAL INFORMATION PACKAGE

A good set of documentation for the 262X product line to have in your office is the Technical Information Package. The TIP contains schematics and explanations of hardware as well as software listings.

To order a TIP for the first time, the part numbers are as follows:

Part Number	Description
	TIP
13220-91001	Keyboard PCA
13220-91002	Sweep PCA
13220-91003	Processor PCA
13220-91004	Power Supply PCA

Larry Bricker/sr 02/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

OBSOLETE
Date 03-80 By LB
SUPERSEDED
By 2621-0380-12

The 2621P, Low Cost Printing Terminal, is now being shipped to customers. To support the 2621P Terminal, the following will be added to the 2621A support materials list.

02620-67801	PSP [After 6 months introduction usage]	
	02645-60004	Cable Test Plug
	02670-60029	Headload Board
02620-67001	PSP & Recommended Spare Parts [For first 6 months of introduction only]	
	02645-60004	Cable Test Plug
	02670-60029	Headload Board
	1820-2196	8048 TPM Processor
	1818-0763	TPM Character ROM
	1820-2263	8041A TPM Interface
	EXCHANGE MODULES	
02620-69019	2621P Power Supply	
02670-69001	TPM PCA	
02670-69015	TPM Mechanism	

This coincides with the Product Support Plan, IOSM 2621-1178-01 contents list, with one addition - the 02670-60029, Headload Board. This Headload Board is used to help diagnosis dot drop out problems on the 2621P's Printhead.

Larry Bricker/sr 02/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

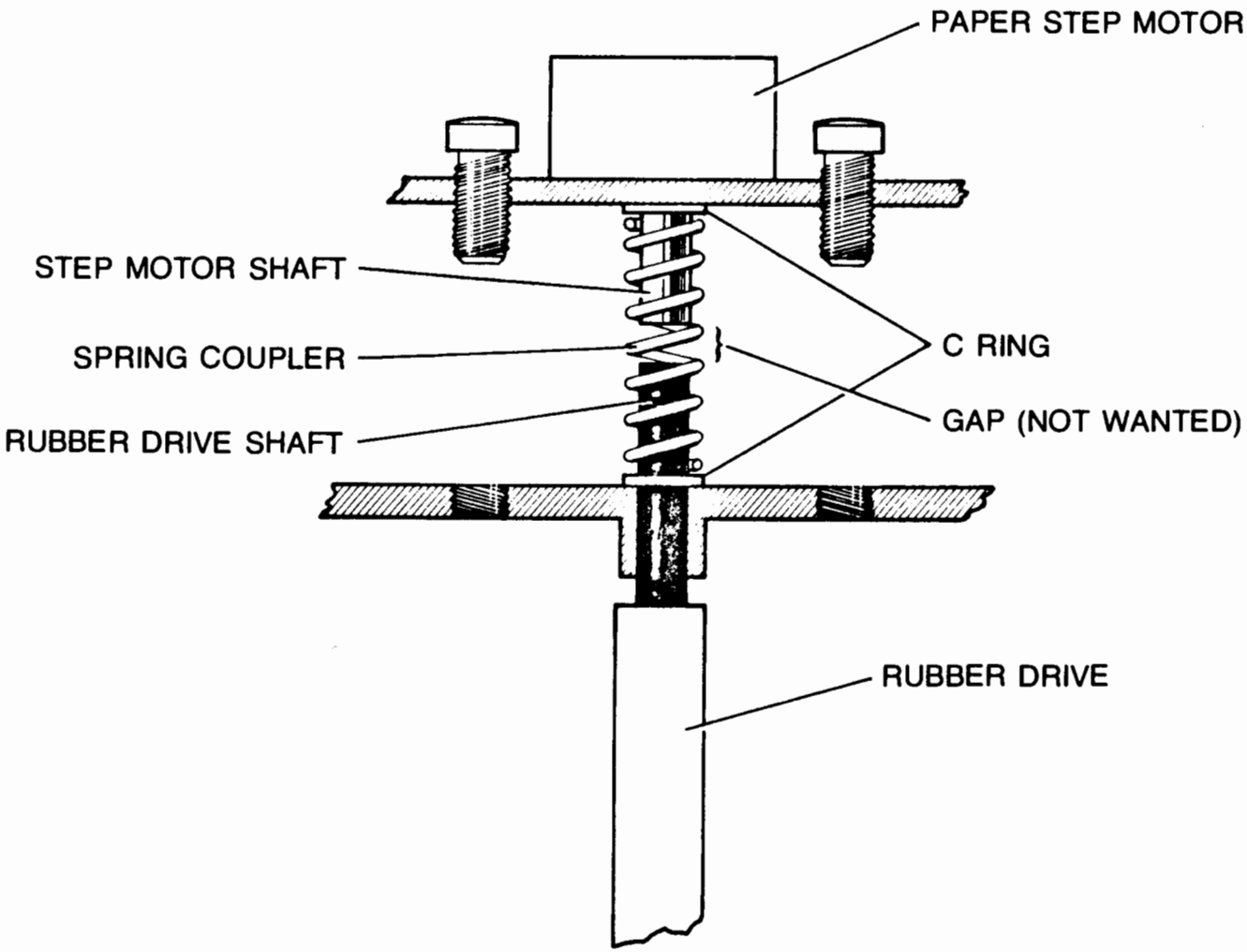
SUBJECT: LINE FEED PROBLEM ON THE 2621P LOW COST PRINTING TERMINAL

Figure 1 shows a part of the TPM module. This is to illustrate a fix for a line-feed problem that has been encountered in the field. The rubber drive rod that advances the paper should have some play, that is, it can be moved back and forth toward the step motor a short distance if installed properly. Also the step motor shaft end should be touching the rubber drive shaft end with no GAP present. If there is a GAP between these shafts a binding situation can occur and a linefeed problem will exist.

To correct this situation, hold the spring couple with one hand and with the other hand twist and push the rubber driver shaft until its' end meets the step motor shaft end and the GAP disappears. This should free the rubber drive shaft to perform its' task of advancing the paper.

Larry Bricker/sr 05/79-42

HEWLETT hp PACKARD


PAPER STEP MOTOR
STEP MOTOR SHAFT
SPRING COUPLER
RUBBER DRIVE SHAFT
C RING
GAP (NOT WANTED)
RUBBER DRIVE

INTER-OFFICE SERVICE MEMO

TO: MAIL

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: HEAD PROTECT CIRCUITS ON THE 2621P LOW COST PRINTING TERMINAL

The resistor elements that perform the task of burning dots into the thermal paper are very delicate. To protect these resistor elements located in the Print Head and Cable Assembly, a head protect circuit was designed into the TPM PCA. Once the TPM goes into Head Protect Mode, printing is not possible or it is possible but the print is very light and garbled. The only way to recover from this mode is to power down and power back up, this will restore proper operation.

Electro Static Discharge (ESD) can cause the TPM to go into Head Protect Mode.

Larry Bricker/sr 05/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: PRINT HEAD AND CABLE ASSEMBLY (02620-60014)
REPLACEMENT ON THE 2621P LOW COST PRINTING TERMINAL

When replacing a Print Head Assembly it is important to align the contacts of the Print Head Asembly with the contacts on the TPM PCA. This is more critical in some instances, since we have found the width of the plug end of the print head and cable assembly, can vary.

To be positive of a perfect alignment, remove the TPM MECHANISM and turn it upside down, to view the connection pin alignment.

Larry Bricker/sr 05/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: DISPLAY RAM'S ON THE 2621A/P, LOW COST TERMINAL, PROCESSOR PCA 02620-60003

There is another way of identifying display RAM failures besides RAM error messages. It seems a different character is displayed randomly in the Screen Labels Area, rows 25 and 26 for each individual display RAM failure.

A list of these characters as well as the corresponding display RAM socket are as follows:

Character	Display RAM
!	U-60
"	U-61
$	U-62
(	U-63
0 (Zero)	U-64
N_u	U-65
`	U-66
_ (Underline)	U-67

Larry Bricker/sr 05/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: INSTRUCTION SET UPGRADE FOR THE 2621A LOW COST TERMINAL

Current production versions of the 2621A will have new instruction set ROMs. The 2621A uses two instruction ROMs in its' instruction set.

SOCKET	OLD PART NUMBER	DESCRIPTION
U79	1818-0732	ROM CODE 3 21
U701	1818-0793	ROM CODE 4 21
SOCKET	NEW PART NUMBER	DESCRIPTION
U79	1818-0951	ROM CODE 5 21
U701	1818-0952	ROM CODE 6 21

ADD BOTH OF THESE NEW ROMs TO YOUR 2621A SUPPORT KIT.

OBSOLETE
Date 09-79 By LB
SUPERSEDED
By 02621-0979-10

Larry Bricker/sr

05/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: HP 2621A/P LOW COST TERMINAL PRODUCT SUPPORT KIT

The 02620-67001, Product Support Kit, has been discontinued. This kit included recommended spare parts for the 6 month start up phase of the 2621A and 2621P terminals in addition to the Product Support Package.

The 02620-67801, Product Support Package, will continue to be available. Recommended spare parts must be ordered individually. Please see the current Product Support Plan for a list of recommended spare parts, exchange assemblies and Product Support Package contents list.

Larry Bricker/sr 08/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: 2621A/P INSTRUCTION ROM CHANGE

Current production versions of the 2621A and 2621P Terminals are using instruction ROMs 1818-0951 and 1818-1040. These terminals with current instruction ROMs will have serial prefix 1929 and above. This change adds absolute and relative cursor sensing as a feature on both 2621A's and 2621P's.

Socket	Original ROMs	First Revision	Second Revision
U 79	1818-0732	*1818-0951	
U701	1818-0793	1818-0952	*1818-1040

*Current Instruction ROMs

For support kit considerations, add 1818-1040 ROMs to the 2621A/P support kits. Use up existing old ROMs and then convert to all current ROMs, 1818-0951 and 1818-1040. CPC will discontinue old ROMs 1818-0732, 1818-0793 and 1818-0952.

Larry Bricker/sr 08/79-42

HEWLETT hp PACKARD

PRODUCTION
1. Video turned on sooner in test
2. Prod self-test does DC test if hood is on
3. Return key freezes production self-test display

DATA COMM
1. X-on/X-off handshake resumes at 25% full - not 50%
2. Error messages revised
3. Data Comm ok message added level (1) and (2)

STATUS
1. Byte 3, bit 3 → left at a 1 → no secondary status
2. Byte 6 - device completion pending added

PRINTER
1. Copy page fixed
2. ^f works with all repeat mode variations

ADDITIONS
1. Absolute and relative cursor sense

FIXES
1. DC1/DC3 handshake - no multiple DC3's
2. ESC&d - and ESC&j - eats garbage sequences correctly
3. Z strap fixed to work properly
4. X-on/X-off handshake sends X-off when 128 character buffer is 88 characters full
5. Fixed log top - no more spurious characters

Error messages appear in line 26 & removed by hitting return key

DATA COMM 1? No clear to send (CB) available

DATA COMM 2? Char received not same as char sent (in logs back mode)

DATA COMM 3? Char not received (loop back) within approx. 2.5 seconds

DATA COMM 4? All control lines did not go true

DATA COMM 5? All control lines did not go false

Appears at current cursor position on the screen.

DATA COMM SELF-TEST (1) OK

Message received when loop back is modem or similar device. Does not check control lines. CB & CF (true) are required from the modem.

DATA COMM SELF-TEST (2) OK

Message received when loop back is standard 25 or 50 pin hood.

INTER-OFFICE SERVICE MEMO

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: PRINT HEAD CABLE ASSEMBLY (02670-60014)

Return all defective Print Head Cable Assemblies, 02670-60014 to:

Data Terminals Division
Attention: 2621 Production Engineering
Building 43U

Use Hewlett-Packard's interoffice mail service.

Additional information that is not necessary, but would help is:

1. Unit serial number
2. TPM PCA Rev. code
3. Mode of failure

It is essential that we receive failed Print Head Cable Assemblies from the field to conduct a reliability study of the Print Head.

The success of this study is dependent upon a high percentage of field failures being returned.

Larry Bricker/sr 11/79-42

HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

SUPERCEDES: 2621-1178-01

TO: MAILS

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: 2621 AND 2621P PRODUCT SUPPORT PLAN

I. PRODUCT DESCRIPTION

II. PRODUCT SPECIFICATIONS

III. PRODUCT SUPPORT STRATEGIES

- A. WARRANTY & INSTALLATION
- B. BASIC MONTHLY MAINTENANCE CHARGE
- C. MAINTENANCE
- D. REPAIR METHOD
- E. DOCUMENTATION
- F. CUSTOMER ENGINEER TRAINING
- G. FACTORY TECHNICAL SUPPORT

IV. ATTACHMENT 1

PRODUCT SUPPORT PACKAGE CONTENTS

V. ATTACHMENT 2

RECOMMENDED SPARE PARTS LIST

VI. ATTACHMENT 3

EXCHANGE MODULES LIST

LB'er. 03/80-42

HEWLETT hp PACKARD

I. PRODUCT DESCRIPTION

The 2620 Series Interactive Terminals are designed to stress ease of use and low cost of ownership. They are to fill the low end of the terminal market in cost and function.

The 2621 Character Mode Terminal can be purchased in either of two standard configurations, the 2621A and the 2621P. The 2621A is the basic unit and the 2621P has an added capability of a thermal printer which is integral to the terminal.

These character mode terminals feature full upper and lower case characters with displayable control codes, a 24 line by 80 character display with two pages of memory (48 lines) as standard. Soft configuration, a new feature, prodvides strapping information stored in non-volatile memory that is supported by a battery. Tab and margin operation is offered as well as text editing capabilities.

The thermal printer in the 2621P operates at 120 characters per second and the terminal has a variety of print functions to control printer operation.

The 2621A and 2621P Terminals have been designed with service-ability and reliability as prime objectives. To make these units more serviceable, modularity was designed in. Modules have been kept to a minimum and are easy to replace.

Self-tests, a standard of Hewlett-Packard terminals, make it simple to verify proper module operation. Self-tests have the potential of locating faulty components and identifying these faults with specific error messages. Removable components are held in place with sockets for field replacement.

Reliability has been stressed by using a minimum number of modules, components and connectors. Additionally, we have assured the quality of the terminal by putting them through what we term "strife testing". Strife testing is a method that provides for testing the terminal past normal environmental requirements. When a component fails it is removed and replaced with a better performing part. The terminal is then returned to environmental testing and is stressed even further. In this manner we assure that the terminal will always exceed our pub-lished specifications for reliability.

..... continued

Specifications

GENERAL

Screen Size:	150 mm (6 inches) × 215 mm (8.5 inches)
Screen Capacity:	24 lines × 80 columns (1,920 characters)
Character Generation:	7 × 9 enhanced dot matrix; 9 × 15 dot character cell: non-interlaced raster scan
Character Size:	2.4 mm (.094 inches) × 3.5 mm (.138 inches)
Character Set:	Upper/lower case, displayable control codes
Cursor:	Blinking-Underline
Display Enhancements:	Underline
Refresh Rate:	60 Hz (50 Hz optional)
Tube Phosphor:	P4
Implosion Protection:	Bonded implosion panel
Memory:	4096 bytes (two full pages) 256 bytes, non-volatile (battery powered)
Keyboard:	Full ASCII Code Keyboard; 8 screen labeled keys; cursor controls; embedded numeric pad; auto-repeat; N-key roll-over; detached; with 1.2M (4 ft) cable

DATA COMMUNICATIONS

Data Rate:	110, 150, 200, 300, 600, 1200, 1800, 2400, 3600, 4800, 9600 baud, and external (110 selects two stop bits). Operation with control codes, escape sequences, or integral printer may require CPU supplied delays or handshakes. Typical printer throughput is 60 cps. Full 24 line × 80 character screen copies require 18 seconds.
Asynchronous Interface:	EIA standard RS232C (fully compatible with Bell 103A modems) CCITT V.24
Transmission Modes:	Full duplex, asynchronous
Operating Modes:	On-line; Off-line; Character, Line
Parity:	Selectable; Even, Odd, Zero, One

POWER REQUIREMENTS

2621A Input Voltage:	120V (+5%, −10%) at 60 Hz (±5%) 100V (+5%, −10%) at 60 Hz (±5%) 100V (+5%, −10%) at 50 Hz (±5%) 220V (+5%, −10%) at 50 Hz (±5%) 240V (+5%, −10%) at 50 Hz (±5%)
2621A Power Consumption:	50W
2621P Input Voltage:	115V (+10%, −25%) at 50/60 Hz (±5%) 230V (+10%, −15%) at 50 Hz (±5%)
2621P Power Consumption:	100W

ENVIRONMENTAL CONDITIONS

Temperature, Free Space Ambient:	Non-Operating: −40 to +75°C (−40 to +167°F) 2621A Operating: 0 to +55°C (+32 to +131°F) 2621P Operating: + 5 to +40°C (+42 to +104°F)
Humidity:	2621A: 5 to 95% (non-condensing) 2621P: 5 to 80% (non-condensing)
Altitude:	Non-Operating: Sea level to 15240 meters (50,000 feet) Operating: Sea level to 4572 meters (15,000 feet)
Vibration and Shock:	Vibration*: .38 mm (0.015") pp, 5 to 55 Hz, 3 axis Shock*: 30g, 11 ms, 1/2 sine *Type tested to qualify for normal shipping and handling in original shipping container

PHYSICAL SPECIFICATIONS

Display Monitor Weight:	2621A: 14.5 kg (32 pounds) 2621P: 16.4 kg (36 pounds)
Keyboard Weight:	1.6 kg (3.5 pounds)
Display Monitor Dimensions:	380 mmW × 475 mmD × 440 mmH (15.0"W × 18.7"D × 17.3"H) (665 mmD (26.2"D) including keyboard)
Keyboard Dimensions:	380 mmW × 190 mmD × 75 mmH (15.0"W × 7.5"D × 3.0"H)

PRODUCT SAFETY

Products Meets:	U.L. requirements for: EDP equipment, office appliances, teaching equipment CSA requirements for: EDP equipment U.L. and CSA labels are applied to equipment shipped to the U.S. and Canada

III. PRODUCT SUPPORT STRATEGIES

A. Warranty and installation

Warranty and installation for Data Terminals products conforms to the terms and conditions outlines in the current Computer Systems Group contract regarding terminals.

During warranty for the 2621P, HP qualified paper is required.

B. Basic Monthly Maintenance Charge

The 2621A Terminal has a BMMC of $16 and the 2621P Printer Terminal has a BMMC of $27. The Print Head Cable Assembly is covered in the BMMC for the 2621P. For warranty and service contracts HP qualified paper is required for the 2621P.

Site maintenance agreements may be arranged by contacting a local Hewlett-Packard Computer Service Representative.

The BMMC is based on the following performance parameters:

1. MTTR of less than 1 hour for both 2621A and 2621P
2. MTBF of 10073 hours for the 2621A
3. MTBF of 5992 hours for the 2621P

C. Maintenance

1. Preventive Maintenance

   No preventive maintenance is required by a Customer Service Engineer.

2. User Maintenance

   a. Normal appearance cleaning of both CRT and keyboard.

   b. Changing of battery once a year. (The battery may also be available locally-Mallory Duracell TR133.) The HP part number for this battery is 1420-0259.

   c. Changing of paper for 2621P. For warranty and service contracts HP qualified paper is required, part numbers; black thermal paper, 9270-0656 and blue thermal paper, 9270-0638.

The maintenance information customers require is included in our User's Manual.

D. Repair Method

The prime on-site repair method for Customer Service Engineers will be module and/or component replacement.

Modules will be part of the Computer Service Division's Blue Stripe Exchange Board Program. Attachment 3 lists these modules for the 2621A and 2621P. Replacement procedures and a description of each module is included in the 2621A and P Service Manual part number 02620-90002.

Components are listed on Attachment 2 as replacement parts. These components will be in sockets for easy replacement. Replacement procedures and component locations are listed in the 2621A and P Service Manual.

The 2621A has four exchange modules and the 2621P has six. This is significantly fewer than the 264X terminals. Basically this is made possible by using one large board for the 2621A and P, called Processor PCA, in place of several PCA's. Additionally, with the advent of large scale integration, we are progressing from multi-board level replacement to component level replacement. Thus our repair emphasis is starting to focus on these replaceable components which perform whole functions.

To facilitate quick and easy repairs we are continuing to offer self-tests that will help isolate a faulty component or module. If a self-test does not locate the faulty component, it is recommended that the CE replace the module that is faulty.

A list of self-test and a description of the function that each performs is listed in the 2621A and P Service Manual. Also, a list of error codes and their meanings are provided in this same manual.

A video generator has also been designed and provided to help differentiate between sweep, processor and power supply module problems. When used, the processor board is replaced with the video generator and specific patterns are generated on the CRT display. If these patterns are correctly displayed, this will insure that the power supply, sweep and CRT modules are operating properly. Detailed operation and use of the video generator is also covered in the Service Manual.

The head load assembly, 02670-60029, can be used in place of the print head assembly to help isolate problems between the head assembly and the TPM PCA. The head load assembly simulates the firing of the resistor elements by turning on and off the LEDs that correspond to each resistor element. Information on how to use the head load assembly can be found in the 2621A/P Service Manual.

E. Documentation

1 User's Manual, part number 02620-90001

Basic operator information on use of product.

2. Service Manual, part number 02620-90002

The Service Manual is intended to help the Customer Service Engineer successfully repair the 2621A and 2621P. It contains installation, alignment, troubleshooting and repair information.

F. Customer Engineering Training

Training for the 2621 terminals is to be accomplished through the reading of the 2621 User's Manual and Service Manual. The CE should also make use of the 2621A/P Terminals to gain knowledge of their operation.

Additionally the CE should use the various training aids available for the 264X line of terminals. An understanding of the 264X terminals will lead to a more thorough understanding of the 2621A/P Terminals. The training aids available for the 264X line of terminals are listed in the respective product support plans.

Besides utilizing the above methods, CSD provides a course called ACE training. ACE is mainly designed for the new CE. It provides the CE with a basic knowledge of all terminal products. Data Terminals Division assists by providing Specialist Training on our terminals. The Specialist program is designed to put experts in the field, close to those who need assistance in their regions.

G. Factory Technical Support

Technical assistance for the 2621A/P CE-related problems not covered in the supporting documentation or through your District Service Manager can be obtained from the Data Terminals Product Support Group. Please call after all other field resources have been exhausted. The phone number is (408) 257-7000.

PRODUCT SUPPORT
PACKAGE CONTENT

HEWLETT hp PACKARD

COMPUTER SYSTEMS GROUP

PART NO. 02620-67801

DESCRIPTION 2621A and 2621P

	DESCRIPTION	PART NO.	QTY.
	CONTENTS		
	OWNER'S MANUAL	02620-90001	1
	SERVICE MANUAL	02620-90002	2
	IC REMOVAL	8710-0585	1
	TOOL TUNING	8730-0016	2
	TOOL REMOVAL	5040-7433	1
	DOT XHATCH PCA	02620-60029	1
	DC SELF-TESY ASY	02620-60030	1
	ASY SELF-TEST CON	02645-60004	1
	FSTNR-SNP-IN	1390-0104	10
	FSTNR-SNP-IN	1390-0281	10
	SNAP-IN PLUNGER	1390-0459	10
	HEADLOAD ASSEMBLY	02670-60029	1
	PACKAGING		
	CTN-CORRRSC (BOX)	9211-1049	1
	CNTNR-POLYSTY (LARGE)	1540-0016	1
	CNTR-PLASTIC (SMALL)	1540-0340	1
	FM-POLYU, NON MAG	4208-0094	1 SQ.FT.
	LABEL-SERV KIT	7120-6047	1
	CUSHG-WRAP	9223-0325	.001

REVISION DATE	ORIGINATOR	DATE	A
8/79	Larry Bricker	11/78	

RECOMMENDED SPARE PARTS LIST

ATTACHMENT 2

DESCRIPTION	WHERE USED	PART NUMBER	QTY
ROM CHAR 1 21 US	21A&P	1818-0709	1
ROM CHAR-2 TPM US	TPM	1818-0763	1
IC Z80 CPU	21A&P	1820-2188	1
IC-CPU INT-8048	TPM	1820-2196	1
IC CPO-1P8041A	21A&P	1820-2263	1
IC M6850 DC	21A&P	1820-1690	1
RAM 1K P5101L	21A&P	1818-0708	1
4K RAM	21A&P	5090-0108	2
XTAL 6MHZ	TPM	0410-1189	1
FUSE 5A 250V	21P	2110-0010	5
FUSE 2.5A 250V	21P	2110-0083	5
FUSE .75A 250V	21A	2110-0063	5
FUSE 1A 250V	21A	2110-0001	5
FUSE 1.5A	21A	2110-0043	5
FUSE 2A 250V	21A	2110-0002	5
PRINT HEAD CA ASY	TPM	02670-60014	1
BAT-MERC 4.2V	21A&P	1420-0259	2
ROM CODE	21A&P	1818-0951	1
ROM CODE	21A&P	1818-1040	1
EUR CODE 1	INTERNATIONAL	1818-0980	1
EUR CODE 2	INTERNATIONAL	1818-0982	1
IC CHAR ROM 001	SWEDISH	1818-0988	1
IC CHAR ROM 002	NORWEGIAN	1818-0987	1
IC CHAR ROM 003	FRENCH	1818-0986	1
IC CHAR ROM 004	GERMAN	1818-0985	1
IC CHAR ROM 005	UK	1818-0984	1
IC CHAR ROM 006	SPANISH	1818-0983	1

EXCHANGE MODULE LIST

ATTACHMENT 3

DESCRIPTION	WHERE USED	EXCHANGE PART NUMBER
PROCESSOR PCA	2621A&P	02620-69003
SWEEP PCA	2621A&P	02620-69002
KEYBOARD EXCHANGE MODULE	2621A&P	02620-69032
36 WATT POWER SUPPLY	2621A	02620-69004
120 WATT POWER SUPPLY	2621P	02620-69019
TPM MECHANICAL MODULE	TPM	02670-69015
TPM PCA	TPM	02670-69001
PROCESSOR PCA 4 LAYER (OPTIONS 13, 14, 15, 16, & 17)	2621A&P	02620-69033

2621-0480-13

INTER-OFFICE SERVICE MEMO

TO: M. A. I. L. S.

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: Modified Roms

Some Signetic Roms (1818-1040) have been modified because the programmable chip select (pin 21) was programmed high instead of low.

To allow use of these roms it was necessary to clip pin 21 such that it won't touch the socket and place a jumper between pins 21 and 24. Any misprogramed ROMS not reworked displays all "0's" on the CRT when plugged in.

Some International Character ROMS have also been modified because chip select was not programmed correctly.

On these ROMS pin 21 needs to be clipped such that it won't touch the socket and place a jumper between pins 21 and 22. The part numbers of the ROMS are;

1818-0988	SWEDISH	1818-0985	GERMAN
1818-0987	NORWEGIAN	1818-0984	U.K.
1818-0986	FRENCH	1818-0983	SPANISH

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HEWLETT hp PACKARD

2621-0480-14

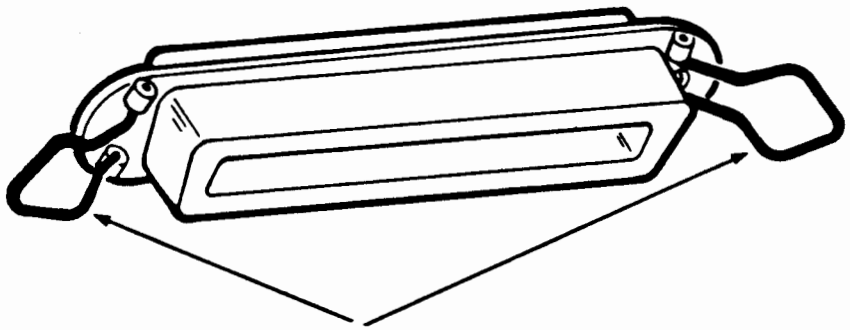
INTER-OFFICE SERVICE MEMO

TO: M.A.I.L.S.

FROM: DATA TERMINALS PRODUCT SUPPORT

SUBJECT: DATA COMM CLIPS

Data Comm Clips on the 50 pin Connector have been set up at CPC under part number (1251-2248). This is to allow the CE to replace lost or broken clips economically.



DATA COM CLIPS
(1251-2248)

Larry Bricker'er 04/80 -42

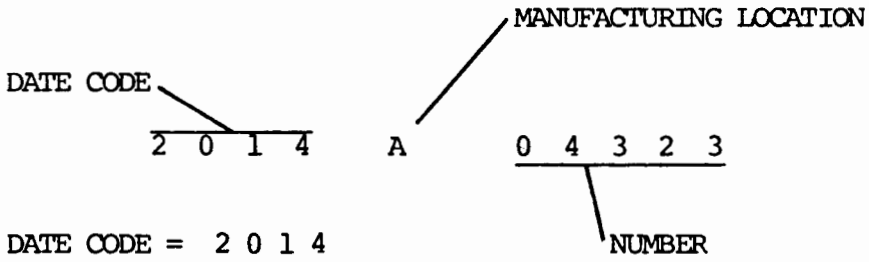
HEWLETT hp PACKARD

INTER-OFFICE SERVICE MEMO

TO: M.A.I.L.S.

FROM: Larry Bricker

SUBJECT: Serial Numbers/262X



DATE CODE = 2 0 1 4

The date code reflects the date of the latest revision to the terminal. The 20 stands for the 20th year since 1960 or 1980. The 14 stands for the 14th week of 1980.

MANUFACTURING LOCATION = A

A = Cupertino, California

V = Puerto Rico

W = Roseville, California

Puerto Rico and Roseville manufacturing locations are just now starting to produce 262X terminals. You will soon be seeing terminals shipped from these new locations.

HEWLETT hp PACKARD

NUMBER = 04323.

This is the actual number of the terminal. Each manufacturing location starts with serial number 00100 for each serialized product and continues from there.

***** S P E C I A L N O T I C E *****

PRODUCT SUPPORT will now be called:

TECHNICAL MARKETING

Technical Marketing will be moving from Cupertino, California to Sunnyvale, California as of 1 June 1980. The new address and telephone number are as follows:

HEWLETT-PACKARD COMPANY
TECHNICAL MARKETING
974 East Arques Avenue
Sunnyvale, Ca. 94086

New Telephone No.: (408) 735-1550

Larry Bricker/er. 05/80 - 42

Fill in the functional names of the blocks, and the HP part numbers.....

FIGURE 1.

2621A Modules

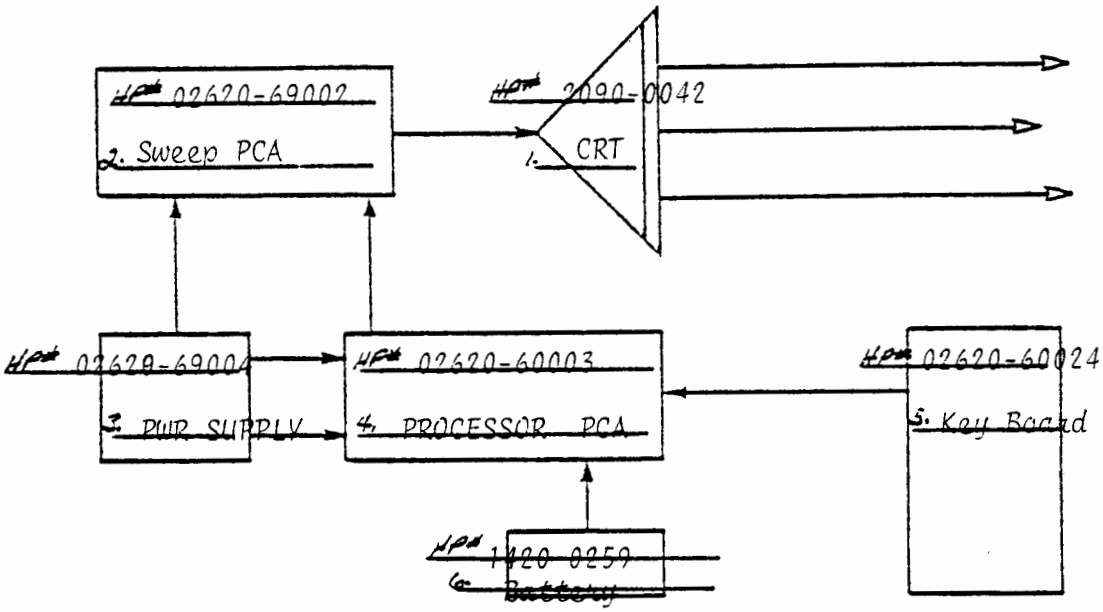
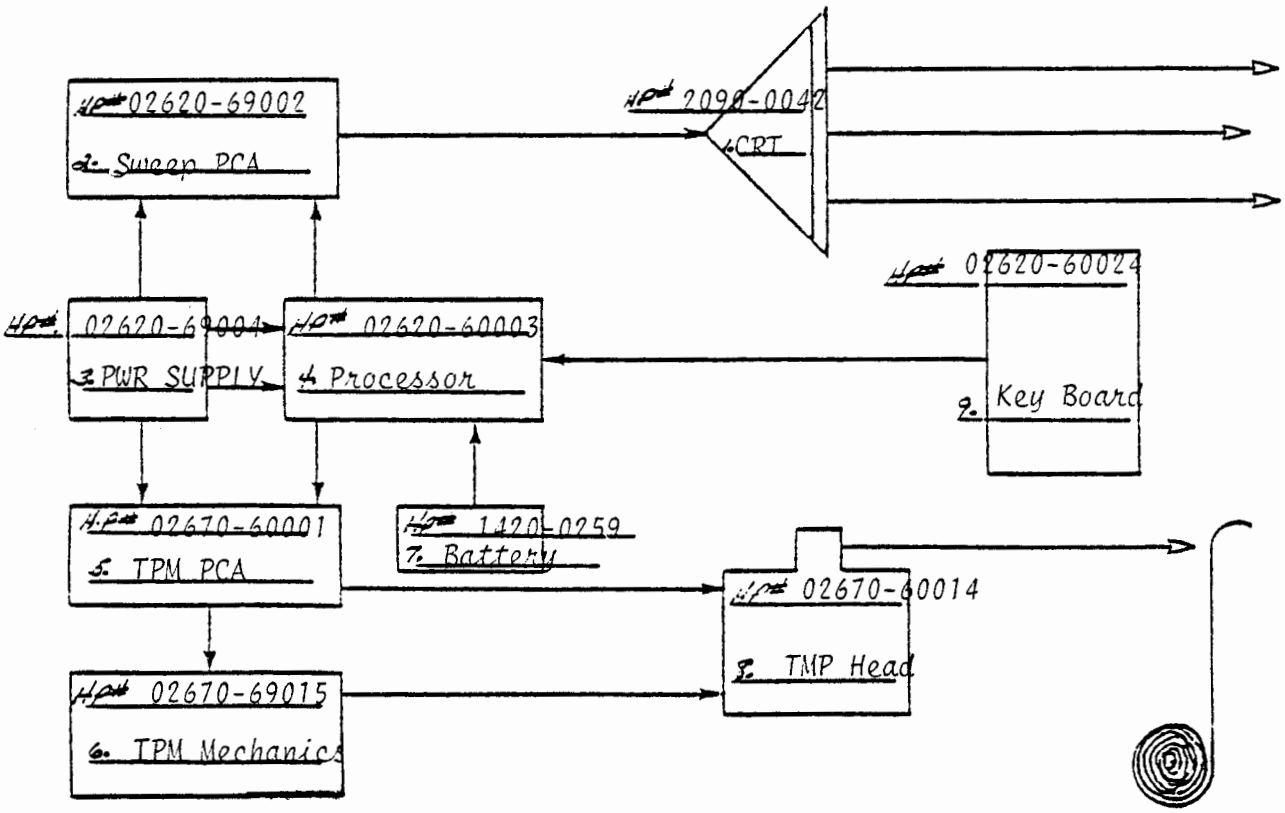


FIGURE 2.

2621P Modules

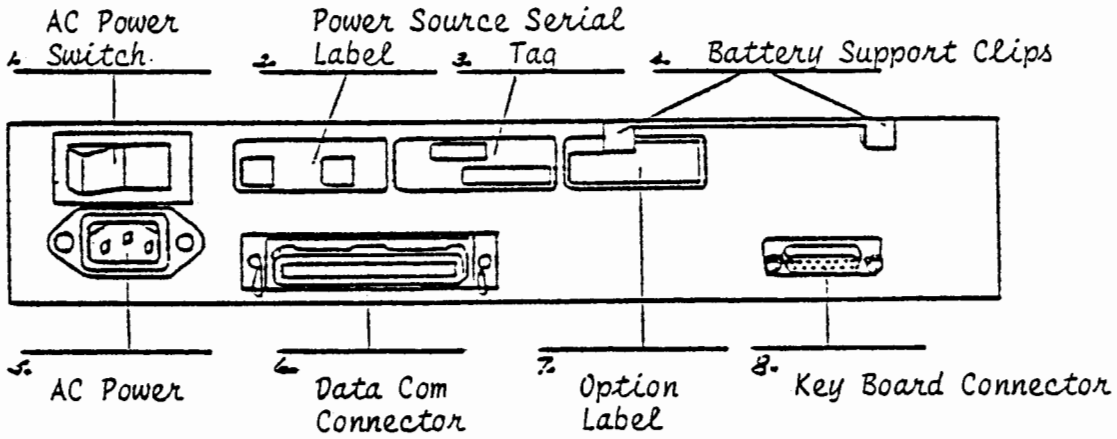


If your terminal is a 2621P, what would option 015 be? *230v 50 Hz*

Fill in the blanks describing the rear panel of the 2621, shown below.

FIGURE 3

Rear Panel



When the terminal is turned on and starts up running the self-test, repeating continously, what does this usually mean?

Unit was turned off while running continous self-test.

What would you do about it... | SHIFT | | CONTRL | | BREAK | | |

How many lines of contiguous display memory will the terminal store?

48

How do you position the cursor to the top of the screen?

What does this key sequence do? ESC&d@

Disable Enhancements

If you press the NUM and SHIFT key then press the K, what will you get on the screen?

2

While the terminal is in the above state, what will you get if you press the E Key?

E

Put your terminal in Local Mode, and become familiar with the key board and what the keys will do.

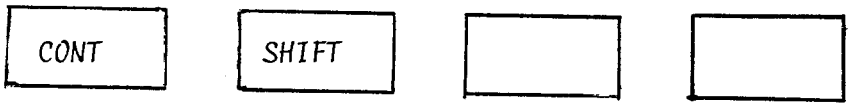
List all the different levels of the screen labels...

1. *Primary*
2. *Configuration*
3. *Printer*
4. *Tap/Margin*
5. *Editing*
6. *F1-F8*
7. *No Labels*
8.

What does the asterisk mean in the screen label?

Function Enabled

How do you put the terminal in continuous self-test?



If the terminal is in continuous self-test and you remove the key board, will self-test continue to run?

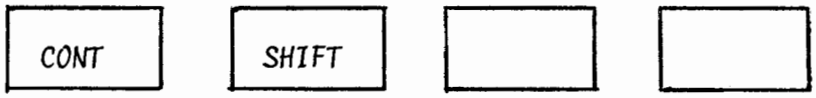
YES

What is the default state for...

Baud Rate *2400* Duplex *Full* Handshake *Ext* Start Column *1*

Parity *None* Straps *bcghxz* HZ *60* Return *CR*

How do you clear all labels from the screen?



What are the Escape Sequences to do the following...

1. Cursor Home Down *esc F*
2. Self Test Terminal *esc Z*
3. Delete All Tab Stops *esc 3*
4. Delete Character *esc P*

How do you clear labels with ESC Sequences?

esc S J @

What is the Escape Sequence to position the cursor on the 12th row, 37th column?

esc S a 37c 11R

List two (2) ways to save the configuration when changing the terminal battery...

1. *Leave terminal on*
2. *Write it down on paper*

STATUS:

What does the following status changes mean?

From 4048020 To 404:020 = *Line Mode*

From 4089020 To 4088020 = *Caps Lock*

From 4088020 To 408<020 = *Auto Line Feed*

How much memory does this terminal have?

Status Word = 408<020 - *4*

How many wires does it take to run the 2621 terminal "hardwired RS 232" to the HP 3000 System?

3

What are the RS 232 Pin numbers that are used to make the above connection and what are their functions?

2 *3* *GND*

What does the following mnemonics mean?

1. RAM *Random Access Memory*
2. TPM *Thermal Print Mech*
3. ENQ/ACK *Enquire Acknowledge*
4. ESD *Electro Static Discharge*
5. TIP *TEC Info Pack*

What is the HP part number for paper stepping motor? *3140-0613*

Open 2621P Terminal, locate connector J1-Fan on the 02620-60019 Power Supply PCA. Check the Fan Cable Plug for correct wiring.

Which service note talks about a possible miss wiring condition?

HP 2621P-08-S

Label Correct Colors

What is the +5V tolerance? + .2VDC

On the 2621P, what other voltage is affected when the +5V is adjusted?

+12 -12 +15.8

On the Processor PCA, what is the R9 adjustment? Dot Stretch

A tilted CRT display requires adjustment by... Rating the CRT

To perform Data Com Self Test, you need test hood part number...

02620-60030

When running self test and the following error messages are reported, what would your first replacement action be?

ERROR	ACTION
PROGRAM ROM 1?	Replace U 601
ROM 1?	Replace U 701
PRINTER CHIP?	Replace U 75

What two (2) cables that plug into J1 and J2, must be connected to the video generator test board?

1. Power
2. Sweep

What are the seven (7) switches labeled on the video generator board?

1. HOR
2. Cross Hatch
3. DOT
4. Bright Raster
5. Normal
6. Half Brt
7. 60 HZ

The head Load Test Board should be used before replacing the _____ because the _____ may be defective.

TPM

What is the voltage used for the CRT Biasing? 12KVA

Is the input power requirements the same for the 2621A and 2621P?

If not, what are the specifications?

2621P 50W

2621A 100W

What are the four (4) operating modes for the 2621 terminals?

1. On Line
2. Off Line
3. Character
4. Line

What is the highest BAUD Rate? 9600

What is the lowest BAUD Rate? 110

If you wanted to replace 1818-0793 (U701), what would you replace it with.

1818-0952

If the print head on the 2621P goes into Head Protect Mode, what is the only way to recover from this condition.

Turn off thar on terminal

If retrace lines occur on the CRT before the desired brightness level is reached, check your sweep PCA for revision level *C-1911* and up. The level at which the problem was repaired.

If your terminal does not have both absolute and relative cursor sense, you probably need...

1818-0951 *and* *1818-1040*

What does the asterisk mean? *Data Set Ready*

FIGURE 4

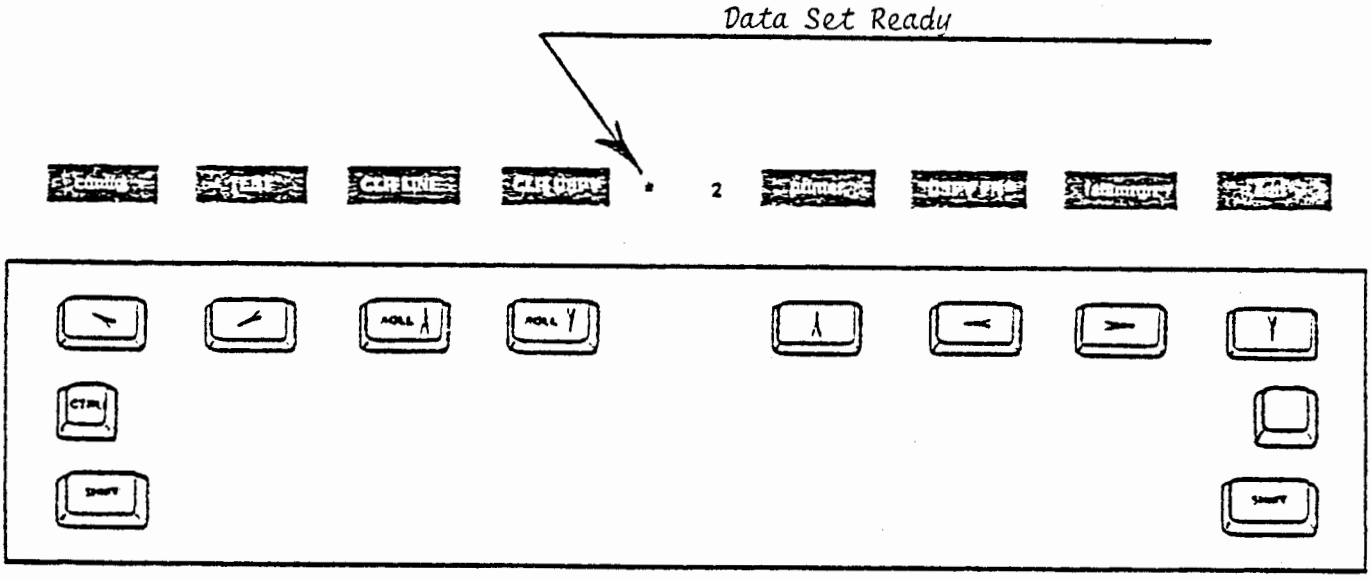


FIGURE 5

PROCESSOR PCA REPLACEABLE
COMPONENTS 02620-60003

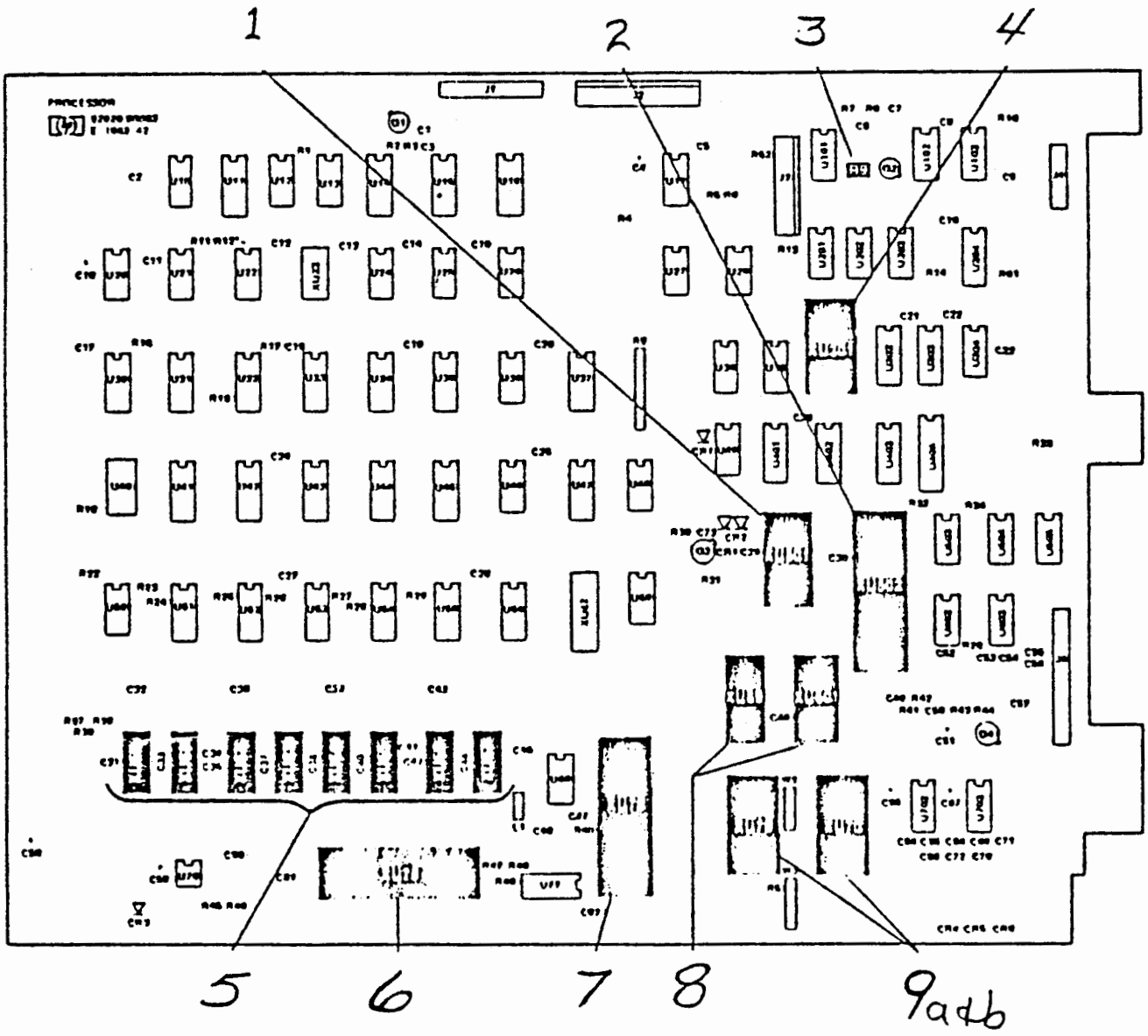


Figure 5 is an illustration of socketed components on the processor PCA. Fill in the blanks below using figure 5 as reference for numerical meanings.

Function of 1. *Data Comm*
Part number of 1. *1820-1690*

Function of 2. *Keyboard Controller*
Part number of 2. *1820-2263*

Function of 3. *Dot Stretch Adj.*
Part number of 3. *Variable Resister*

Function of 4. *Character Rom*
Part number of 4. *1818-0709*

Function of 5. *Display Rom 4K*
Part number of 5. *5090-0108*

Function of 6. *TPM Controller*
Part number of 6. *1820-2263*

Function of 7. *Central Processing*
Part number of 7. *Unit*
1820-2188

Function of 8. *CMOS-RAM battery*
Part number of 8. *supported*
1818-0708

Function of 9. *Instruction Roms*
Part number 9,a. *1818-0951*
Part number 9,b. *1818-1040*

FIGURE 6

TPM PCA
02670-60001

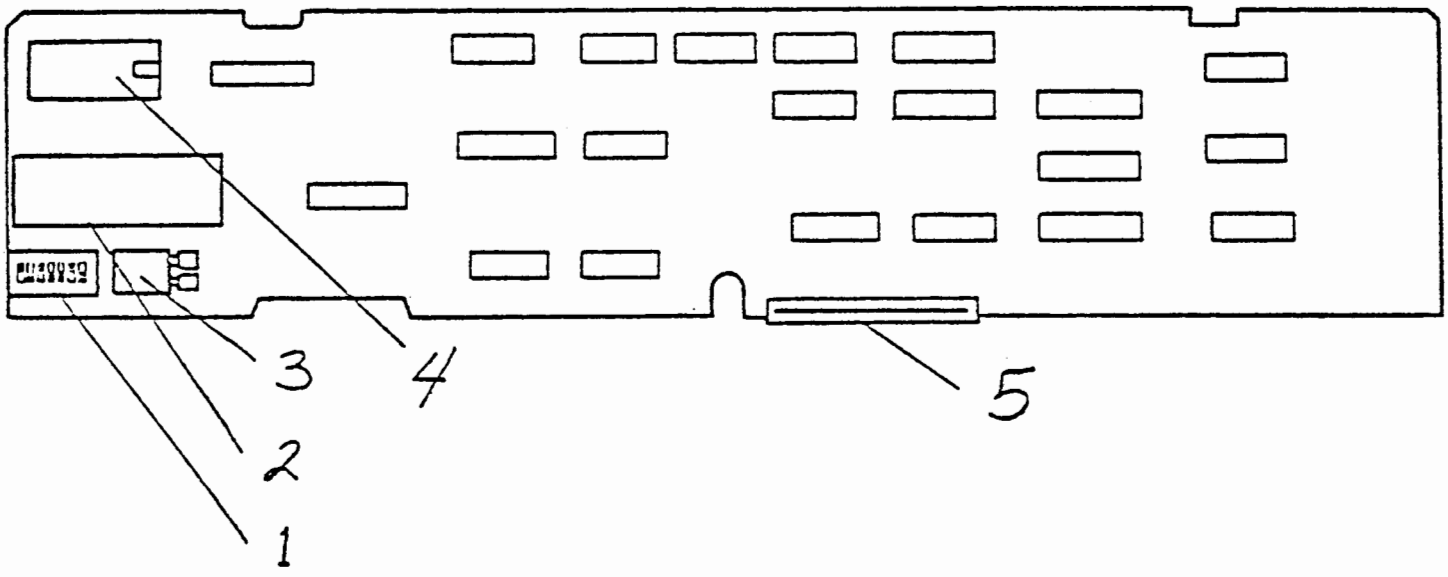


Figure 6 is an illustration of socketed components on the thermal printer PCA. Fill in the blanks below using figure 6 as reference for numerical meanings.

Function of 1. *Switch Array*

Function of 2. *Processor*
Part number of 2. *1820-2196*

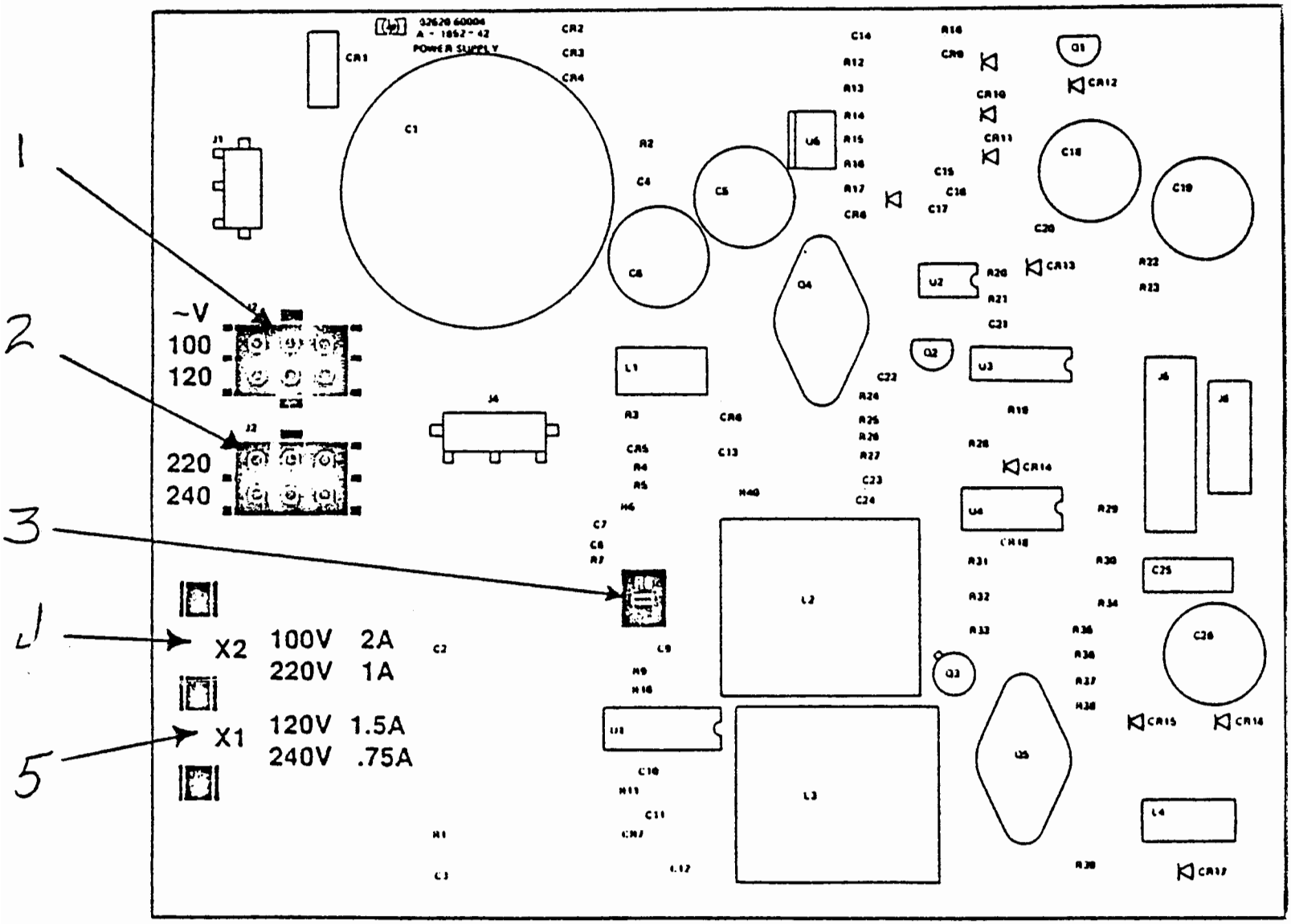
Function of 3. *Crystal*
Part number of 3. *0410-1189*

Function of 4. *Rom, Character*
Part number of 4. *1818-0763*

Function of 5. *Plug for Head Assembly*

FIGURE 7

2621A POWER SUPPLY
02620-60004



5V Adjustment

Figure 7 is an illustration of the 2621A power supply, 02620-60004. The numerals indicate important parts of this assembly.

Function of 1. *Plug for 100 to 120 volt operation.*

Function of 2. *Plug for 220 to 240 volt operation.*

Function of 3. *Potentiometer for +5 volt power supply.*

Function of 4. *Fuse holder for 100 or 220 volt operation.*

Function of 5. *Fuse holder for 120 or 240 volt operation.*

FIGURE 8

2621P POWER SUPPLY
02620-60019

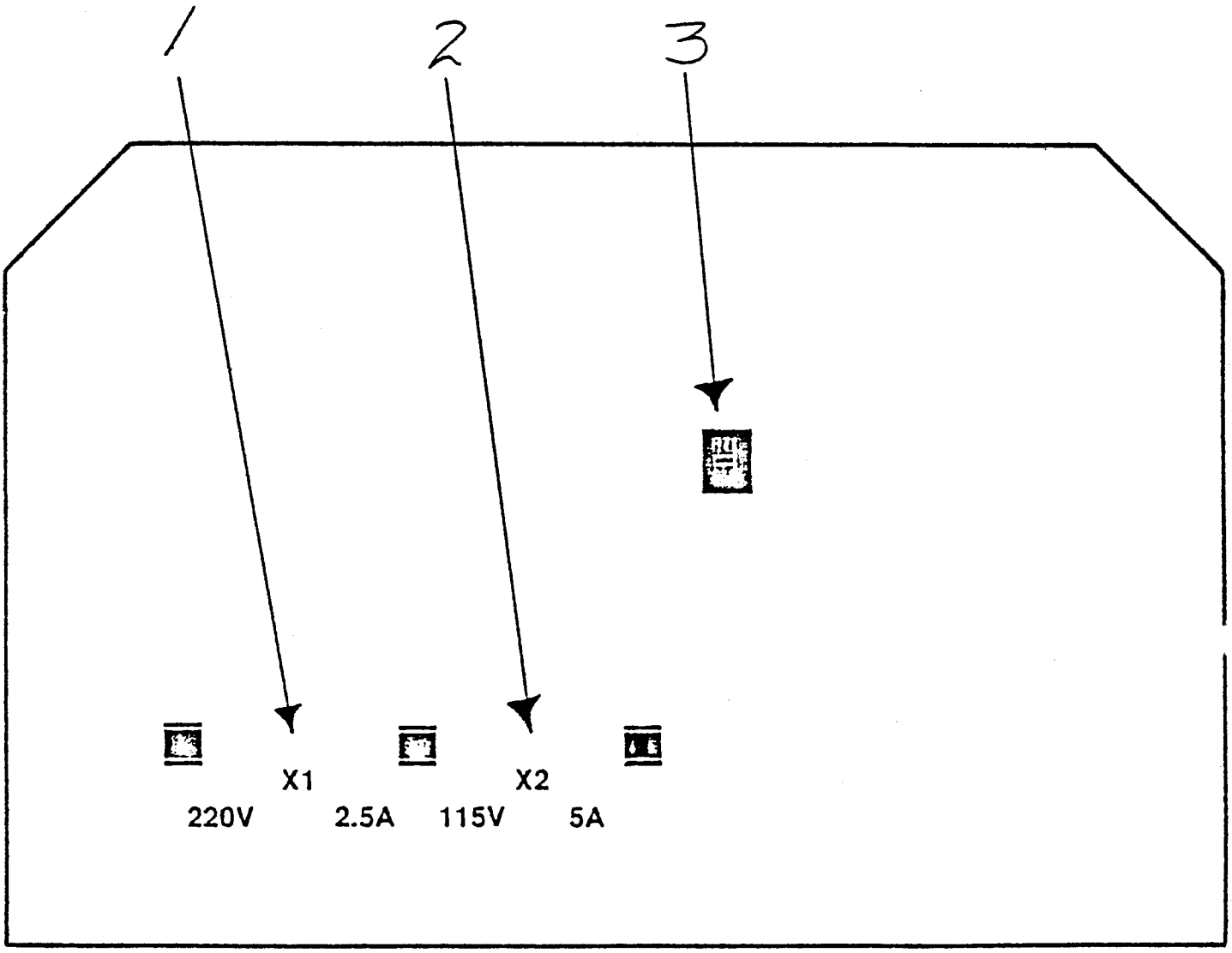


Figure 8 is an illustration of the 2621P power supply, 02620-60019. The numerals indicate important parts of this assembly.

Function of 1. *Fuse holer for 220 to 240 volt operation.*

Function of 2. *Fuse holder for 100 to 120 volt operation.*

Function of 3. *Potentiometer for +5 volt power supply.*

FIGURE 9

ADJUSTMENTS SWEEP PCA
02620-60002

Height
Brightness
Focus
Centering, (Vertical), (No Horizontal)
Width 1 2 3 4

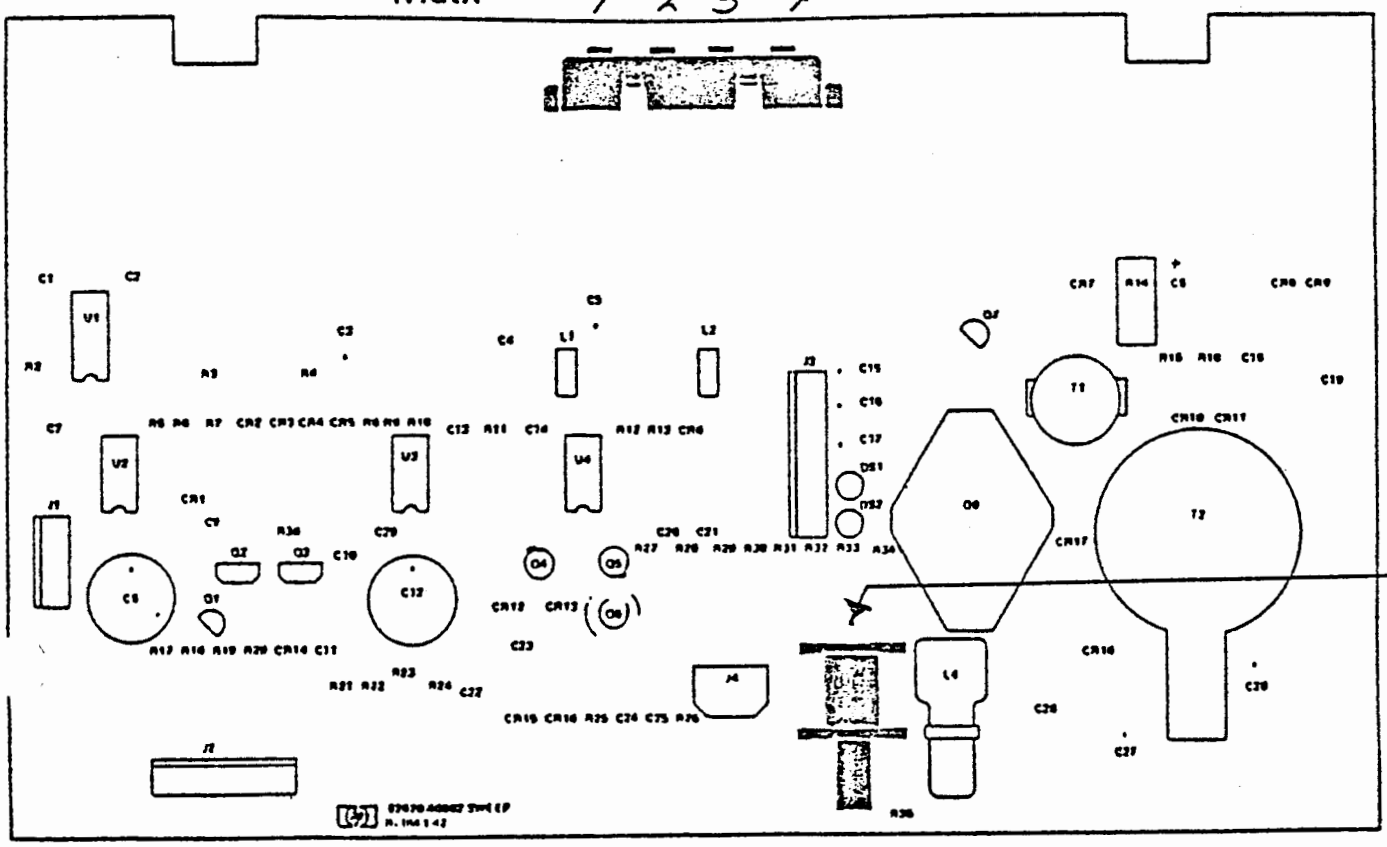


Figure 9 is an illustration of the 2X sweep PCA, 02620-60002. The numerals indicate important parts of the is assembly.

Function of 1. *Adjustment for centering display.*

Function of 2. *Adjustment for height of display.*

Function of 3. *Adjustment for focus of display.*

Function of 4 *Adjustment for brightness of display.*

Function of 5 *Adjustment for width of display.*

PART REMOVAL AND REPLACEMENT

Follow the removal and replacement procedures in Section VII in the 2621A/P service manual, part number 02620-90002, to remove and replace the following parts. Time yourself for each exercise and write the total time elapsed for each removal and replacement procedure.

	PART DESCRIPTION	TIME DURATION
1.	Top cover	_____
2.	Main Frame	_____
3.	Support	_____
4.	Pedestal	_____
5.	Ventilating Fan	_____
6.	Processor PCA	_____
7.	Sweep PCA	_____
8.	Power Supply PCA 21A	_____
9.	Power Supply PCA 21P	_____
10.	Keyboard PCA	_____
11.	Key Cap	_____
12.	Battery	_____
13.	Intergrated Circuit	_____
14.	Thermal Print Mechanism	_____
15.	TPM PCA	_____
16.	Print Head and Cable Assembly	_____

EXCHANGE MODULES

Table 7-7 on page 7-44 of the 2621A/P Service Manual lists exchange modules for the 2621A and 2621P terminals. Before a module is sent to CSD some parts must be removed. Using table 7-7, list the parts that must be removed from each exchange module.

1. 022620-69002 Sweep PCA

    A. *None*

2. 02620-69003 Processor PCA

    A. *02620-60021 I/O Panel Assembly*

    B. *U301 Character Rom*

    C. *U79 Program Rom*

    D. *U701 Program Rom*

    E. *U75 TPM Interface*

    F. *U502 Keyboard Interface*

3. 02620-69004 Power Supply PCA,2621A

    A. *Fuses*

4. 02620-690019 Power Supply PCA,2621P

    A. *Fuses*

5. 02620-69032 Keyboard Inner Module

    A. *None*

6. 02670-69001 TPM PCA

    A. *U11 TPM Character Rom*

    B. *U21 TPM CPU Rom*

    C. *Y1 Crystal 6 MHz*

7. 02670-69015 TPM Mechanical Assembly

    A. *0260-60001 TPM PCA*

    B. *0260-60014 Print Head and Cable Assembly.*

    C. *8160-0309 Magnetic Shield*

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