



293X TABLE OF CONTENTS

SECTION 1: PRODUCT INFORMATION 1-1

- A. 293X Product Description
- B. Specifications
- C. Equipment Provided
- D. Accessories and Supplies
- E. Interface Options Available
- F. Interface Kits

SECTION 2: ENVIRONMENTAL/INSTALLATION/PM 2-1

- A. Environmental
- B. Physical Characteristics
- C. Electrical Characteristics
- D. Voltage Selection/Fuse Replacement
- E. Preventative Maintenance
- F. Ribbon Life
- G. Print Head Life

SECTION 3: CONFIGURATION 3-1

- Serial Interface to HP 2623A/2627A
- Serial Interface to HP 2624B/2625A/2626A/2626W/2628A
- Serial Interface to HP 2645A
- Serial Interface to HP 120/125/150
- Serial Interface to HP 250
- Serial Interface to HP 1000 "A" Series
- Serial Interface to HP 3000 4X, 6X, Series III
- HP-IB Interface to HP 2647A/2647F/2648A
- HP-IB Interface to HP 80 Series/120/125/150
- HP-IB Interface to HP 9816/9826/9836/9920/9000
- HP-IB Interface to HP 250/1000 "A" Series

SECTION 4: TROUBLESHOOTING 4-1

- A. Power Supply Fuses/LEDs
- B. Motor Resistance
- C. Motor/Head Drive PCA Subminiature Fuses
- D. 293X Printer Troubleshooting Hints
- E. 29340S Troubleshooting Hints

SECTION 5: DIAGNOSTICS/SELF-TEST 5-1
A. 293X Self-Tests
B. 2932A Power On Test
C. 2932A Error Indication
D. 2933A/2934A Power On Test
E. 2933A/2934A Error Indication
F. Manufacturing Burn-In Test
G. Confidence Test
H. Controller Test
I. Interface Test
J. Alignment Test
K. Counter Check

SECTION 6: ADJUSTMENTS 6-1
A. Introduction
B. Print Head Gap
C. Carriage Belt Tension

SECTION 7: PERIPHERALS 7-1

SECTION 8: REPLACEMENT PARTS 8-1
A. 293X Printed Circuit Assemblies
B. Available Print Mechanism/Fan Housing Assemblies
C. Fan Housing Assembly
D. Major Print Mechanism Part
E. 29340S Sheet Feeder Parts List

SECTION 9: DIAGRAMS 9-1
A. 293X Block Diagrams
B. 293X Printer I/O Pin-Outs

SECTION 10: REFERENCE 10-1
A. Documentation Summary
B. Supported Control Codes and Escape Sequences
C. 263X Escape Sequences Not Implemented
D. Deleted Print Modes

SECTION 11: SERVICE NOTES/IOSMs 11-1

1



**PRODUCT
INFORMATION**
A. 293X PRODUCT DESCRIPTION

The 293X Family of products consist of the 2932A, 2933A, and 2934A printers, and the 29340S Sheet Feeder. All three printers are 136 column, bidirectional, dot matrix impact printers, designed for desk top usage and contain a variety of interfaces for connection to different types of terminals and computers. The 2933A and 2934A printers offer increased printing capabilities and fonts by adding optional character cartridges with double pass printing and word processing features. The optional 29340S single bin sheet feeder attaches to the 2933A and 2934A printers.

B. SPECIFICATIONS

Print Speed: (characters per second)	200 cps 67,40 cps (2933A/2934A with optional character cartridges)
Print Direction:	Bidirectional, optimized path
Character Cell:	9 x 12 (200 cps) 36 x 12 (67/40 cps)
Character Sets:	HP Roman8 which includes 128 USACII (upper/lower case control codes) 96 Roman Extension (French, Spanish, German, Italian, United Kingdom, Norwegian/Danish, Swedish/Finnish, JASCI I) ISO 7-bit languages Kana8 character set 128 JASCI I 96 Katakana 64 Line Drawing character set 64 Math Symbols character set Bar Code (2933A/2934A) Large Characters (2933A/2934A)
Printing Format:	
Print Pitch (characters per inch)	16.36 – Compressed 10.0 – Normal (2932A/2933A/2934A) 12.0 – Normal (2933A/2934A) 5.0 – Expanded Proportional (2933A/2934A)
Line Length (characters per line)	223 – Compressed 136 – Normal (at 10 characters per inch) 68 – Expanded
Variable Line Spacing (lines per inch)	1,2,3,4,6,8 or 12

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Graphics: 90 x 90 dots per inch dot addressable raster

**Bar Code Printing
(2933A/2934A):**

Code Types	InterMec Code 39* Industrial 2 of 5 Matrix 2 of 5 Interleaved 2 of 5 Internally-generated
Throughput	User definable codes may be generated by user program. 650 labels per hour maximum (10-character Code 39TM Alphanumeric bar code label 0.6 inches high, printed with the default density of 3.4 characters per inch)
Paper Type	OCR quality single part fanfold paper with uniform thick- ness, opacity, and reflectivity. Paper should have a smooth, non-gloss surface finish.

**Word Processing
(2933A/2934A):**

Right justification
Auto centering
Proportional spacing
Underlining
Optional Character cartridges
Optional sheet feeder

Forms Handling:

Forms tractors
Last-form tearoff (requires one inch top margin)
16 Channel vertical forms control
Programmable page and text length, margins and tabs
Automatic perforation skip

*Code 39 is a trademark of Interface Mechanisms, Inc.

Forms Requirements:

Paper widths (edge to edge)	
293X Maximum width	400mm(15.75")
293X Minimum width	57mm(2.25")
29340S Maximum width	
Auto loading	305mm(12")
Manual loading	356mm(14")
29340S Minimum width	
Auto loading	178mm(7")
Manual loading	152mm(6")
29340S Maximum length	
Auto loading	356mm(14")
Manual loading	No restrictions
29340S Minimum length	
Auto loading	152mm(6")
Manual loading	152mm(6")

Paper Weights	
293X Printers	56 to 380 g/m sq. (15 to 100 lb.)
Single part	46 g/m sq. (12 lb.), up to six total copies; 8 lb carbons (30 g/m sq.); .51mm(.020") maximum pack thickness. All forms and card stock should be tested for satisfactory feeding, registration and print quality.
Multipart	
29340S Sheet feeder	70 to 90 g/m sq. (18 to 24 lb.)
29340S Paper Skew	0.008 inch/inch (0.008 mm/mm)
29340S Paper Tray	
Capacity	
Rear Paper Tray	200 sheets (20 lb paper)
Front Paper Rack	100 sheets (20 lb paper)

C. EQUIPMENT PROVIDED

The following equipment and documentation is provided with the printer:

1. Power Cord
2. Owner's Manual, P/N 02932-90001
3. Operator's Guide, P/N 02932-90006
4. Ribbon, P/N 02932-60072
5. Power Module Parts consisting of:
 - Power Line Module Key, P/N 02932-00032
 - 4A/250V Fuse, P/N 2110-0055
 - 3.15A/250V Fuse, P/N 2110-0655
 - Fuseholder (3AG style), P/N 2110-0686
 - Fuseholder (5 x 20mm European style), P/N 2110-0687
 - Voltage Selector Drum, P/N 9135-0248
6. 92188A Courier Typestyle Cartridge (2934A only)



D. ACCESSORIES AND SUPPLIES**Table 1-1. Accessories and Supplies.**

ACCESSORY NUMBER	DESCRIPTION
29340S	Single bin sheet feeder (2933A/2934A)
29340S option #010	Sheet feeder with printer upgrade kit (2933A/2934A)
29340S option #030	Printer upgrade kit only (2933A/2934A)
92154B	Print head
92155L	Three ribbon pack
92171G	Paper catcher, for table top
92214P	Printer stand. Includes cabinet, paper catcher, and casters.

Table 1-2. 2933A/2934A Typestyle Character Cartridges.

CARTRIDGE NUMBER	DESCRIPTION
92188A	Courier 10
92188B	Courier 12
92188E	Helv
92188G	OCR A
92188H	Italic
92188M	Prestige Pica
92188N	Prestige Elite 12
92188R	Letter Gothic 12
92188T	OCR B

E. INTERFACE OPTIONS AVAILABLE

Options are factory modifications to a standard serial printer that are requested by the customer at the time of purchase. These options are listed in Table 1-3. Unless otherwise stated, cables are not provided with these options.

Table 1-3. 293X Printer Interface Options.

OPTION	DESCRIPTION
#034	Daisychain Multipoint Sync I/O with cable (2933A/2934A only)
#035	RS-422 Serial I/O
#039	DSN/Datalink I/O with cable (2933A/2934A only)
#042	Centronics-type Parallel I/O
#046	HP-IB I/O

F. INTERFACE KITS

The 2932A, 2933A, and 2934A Printers' I/O design allows the printer interface to be easily changed. Order I/O update kit 29085A and the appropriate option number from Table 1-2 for a 2932A printer interface. The I/O update kit for 2933A and 2934A printers is 29086A. Not specifying an option number results in ordering the standard RS-232-C interface.

Table 1-2. Interface Kits.

OPTION	DESCRIPTION
#034	Daisychain Multipoint I/O (2933A/2934A only)
#035	RS-422 Serial I/O
#039	Data Link (2933A/2934A only)
#042	Centronics-type Parallel I/O
#046	HP-IB I/O

2


**ENVIRONMENTAL/
INSTALLATION/PM**
A. ENVIRONMENTAL**Temperature, free space ambient:**

293X Printers	
Operating	0 to 55° C (32 to 131° F)
Non-operating	-40 to 75° C (-40 to 167° F)
29340S Sheet Feeder	
Operating	5 to 55° C (41 to 131° F)
Non-operating	-40 to 75° C (-40 to 167° F)

**Acoustics**

(per ISO DP7779 standard)

Sound power level-Lwa	73dB(A)
Sound pressure level-Lpa	63dB(A)
	(@ 1 meter bystander position)

Humidity:

(RH, non-condensing)

293X Printers	
Top paper exit	10% to 90%
Rear paper exit	10% to 70%
29340S Sheet Feeder	10% to 75%

B. PHYSICAL CHARACTERISTICS**293X Printers**

Physical size	365mm(14.37")D x 600mm(23.85")W x 185mm(7.28")H
Net weight	20.4 kg(45 lbs.)

29340S Sheet Feeder

Physical size	520.7mm(20.5")D x 460.3mm(18.12")W x 152.4mm(6")H
Net weight	3.1 kg(6.84 lbs.)

C. ELECTRICAL CHARACTERISTICS

293X Printers

AC input voltages (selectable from rear panel)
100 VAC, +5%, -10%
120 VAC, +5%, -10%
220 VAC, +5%, -10%
240 VAC, +5%, -10%

Input frequency 47.5-66 Hz

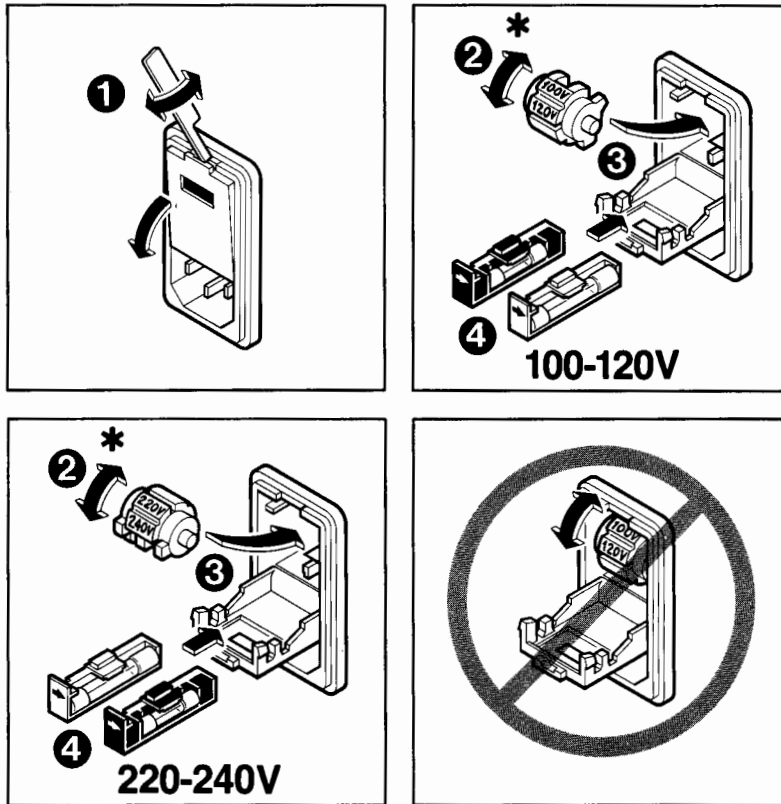
Power consumption

Maximum, non-printing 120VA

Maximum, printing 300 VA

29340S Sheet Feeder Contains no electrical components.

D. VOLTAGE SELECTION/FUSE REPLACEMENT



E. PREVENTATIVE MAINTENANCE

There is no preventative maintenance required on the 2933A or 2934A printers.

F. RIBBON LIFE

Each ribbon cartridge provides an average life of 10 million characters.

G. PRINT HEAD LIFE

Each customer installable print head has an average life of 200 million characters.



3

CONFIGURATION

SERIAL INTERFACE to HP2623A HP2627A

2623A CONFIGURATION

Interface Cable: 13242G

EXTERNAL DEVICE CONFIGURATION

BaudRate 2400 Parity None PrinterCode4 EXT PrinterNulls 000
 XmitPace None SRRXmit NO SRRIinvert NO CS(CB)Xmit YES

2627A CONFIGURATION

Interface Cable: 13242G

EXTERNAL DEVICE CONFIGURATION

BaudRate 2400 Parity None GraphContent B&W PrinterNulls 000
 XmitPace None SRRXmit NO SRRIinvert NO CS(CB)Xmit YES

293X PRINTER SETTINGS (for the above host configurations)

Printer Settings: HP Terminal Mode in "OTHER SETTINGS" should be set to "ON."

Interface Settings:

```

***** SETTINGS *****
***** LIST *****      ***** MODIFY *****
PRINTER      INTERFACE  PRINTER      INTERFACE

***** LIST INTERFACE *****
***** SERIAL *****
DATA SETTINGS      CONTROL SETTINGS      SET DEFAULTS

***** DATA SETTINGS *****
BAUD RATE      DATA BITS      PARITY      PARITY CHECK      STRIP NULL/DEL      ALL
2400           8               none        off                off

***** CONTROL SETTINGS *****
XON/XOFF      END/ACK      BINARY END/ACK      DTR/CD      (S)RTS/SCA      CTS/CB      RS/CH
off           off          off                Busy=Low    Low              ignore     Low
    
```

**SERIAL INTERFACE to HP2624B
HP2625A
HP2626A
HP2626W
HP2628A**

2624B CONFIGURATION

Interface Cable: 13242G

FULL DUPLEX HARDWIRED PORT 2

BaudRate	2400	Parity	None	DataBits	8	BufSize	256	Clk	ON
Asterisk	OFF	Chk Parity	N/C	StopBits	1	EnqAck	NO		
TR(CD)	OFF			SR(CH)	NO	StripNulDel	YES		
RecvPace	None			SRRXmit	NO	RR(CF)Recv	NO		
XmitPace	Xmit Xmit			SRRInvert	NO	CS(CB)Xmit	NO		

2625A/2628A CONFIGURATION

Interface Cable: 13242G

FULL DUPLEX HARDWIRED PORT 2

BaudRate	2400	Parity	None	DataBits	8	EnqAck	NO	Clk	ON
Asterisk	OFF	Chk Parity	N/C	StopBits	1				
TR(CD)	OFF			SR(CH)	NO				
RecvPace	None			SRRXmit	NO	RR(CF)Recv	NO	DM(CC)Xmit	NO
XmitPace	Xmit Xmit			SRRInvert	NO	CS(CB)Xmit	NO		

2626A/2626W CONFIGURATION

Interface Cable: 13242G

FULL DUPLEX HARDWIRED #2

BaudRate	2400	Parity	None	DataBits	8	BufSize	256	XmitClkSource	NO
Asterisk	OFF	Chk Parity	N/C	StopBits	1	EnqAck	NO	RecvClkSource	NO
TR(CD)	OFF			SR(CH)	NO	StripNulDel	YES	XmitClkOut	NO
RecvPace	None			SRRXmit	NO	RR(CF)Recv	NO	ExtClkIn	NO
XmitPace	Xmit Xmit			SRRInvert	NO	CS(CB)Xmit	NO		

293X PRINTER SETTINGS (for the above host configurations)

Printer Settings: HP Terminal Mode, in "OTHER SETTINGS" should be set to "ON".

Interface Settings: Set Defaults

SERIAL INTERFACE to HP2645A**2645A CONFIGURATION****Interface Cable:** 13232G

- 13261A Device Support ROM must be installed. (Already installed on units with cartridge tape drives or presently using a printer or plotter.)
- 13250A or 13250B accessory must be installed in the terminal. Below are the switch settings for this interface accessory:

02640-60143 PCA Switch Settings (0 = Closed, 1 = Open)

FC7	FC6	FC5	FC4	FC3	FC2	FC1	FC0	A4	A11	A10	A9	IAT	ATN2	THE	RHE	NOSB	2SB
0	0	0	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1

02640-60089 PCA Switch Settings (0 = Closed, 1 = Open)

FC7	FC6	FC5	FC4	FC3	FC2	FC1	FC0	A4	A11	A10	A9	IAT	2SB	THE	RHE
0	0	0	0	1	1	1	1	1	0	1	0	1	1	1	1

293X PRINTER SETTINGS**Printer Settings:** HP Terminal Mode, in "OTHER SETTINGS" should be set to "ON".**Interface Settings:**

```

***** SETTINGS *****

***** LIST *****          ***** MODIFY *****
PRINTER      INTERFACE      PRINTER      INTERFACE

***** LIST INTERFACE *****

SERIAL

DATA SETTINGS      CONTROL SETTINGS      SET DEFAULTS

***** DATA SETTINGS *****
BAUD RATE      DATA BITS      PARITY      PARITY CHECK      STRIP NULL/DEL      ALL
9600           7              even        on                 off

***** CONTROL SETTINGS *****
XON/XOFF      ENQ/ACK      BINARY ENQ/ACK      DTR/CD      (S)RTS/SCA      CTS/CB      RS/CH
off           off          off                 Busy=Low    Busy=Low        Ignore      Low

```


**SERIAL INTERFACE to HP120
HP125
HP150**

120/125 CONFIGURATION

Interface Cable: 13242G

DATA COMMUNICATIONS / SERIAL PRINTER Port 2

BaudRate 2400 Parity None Straps xZ Hndsk etX
PtrNulls 0 SRRXmit OFF SRRInvert OFF Xon/Xoff(X) Xmit

OPSYS GENERAL LIST DEVICE

Display OFF IntPtr OFF Port 2 ON HPIB OFF

150 CONFIGURATION

Interface Cable: 13242G

Model choice shown is 2932A; use 2934A as choice when using 2933A or 2934A printer.

MS-DOS Device Configuration Main Active Values

System Devices	Interface	Address	Model	Print Wheel	Interface	Address
PRN:	Port2		2932A	PLT:	Port2	
LST:	Port2		2934A	COM1:	Port2	
AUX:	Port2			COM2:	Port2	

FULL DUPLEX HARDWIRED Port 2

BaudRate 2400 Parity None DataBits 8 Clock ON
Asterisk OFF StopBits 1 EnqAck NO
TR(CD) HI Chk Parity NO SR(CH) NO
RecvPace NO SRRXmit NO RR(CF)Recv NO
XmitPace XZ SRRInvert NO CS(CB)Xmit NO DM(CC)Xmit NO

293X PRINTER SETTINGS

Printer Settings: When using the HP150 as an HP150 terminal, HP Terminal Mode in "OTHER SETTINGS" should be set to "ON".

Interface Settings: Set Defaults

SERIAL INTERFACE to HP250

HP250 CONFIGURATION

Interface Cable: 8120-3258

This information is intended only to be a guide for configuring the HP293X Printer on the HP250. Please refer to the manuals provided with the HP250 for complete information and procedures.

RS-232-C Interface:

- OC Revision: B.06.00 or greater
- DROMs Required: TIO
- ASI Port: Any port, with each printer on a separate port if multiple
- ASI Board
 Baud Rate Setting: The baud rate set on the ASI board must match the baud rate set on the printer. This example assumes 1200 baud.
- ASI Panel Strapping: The ASI panel must be strapped correctly. This strapping depends upon whether you have directly connected your printer or are using a modem with it. Refer to the HP250 manuals for more information.
- RFIG Values: Class: Printer
 Type: 293X
 Format: 8N1

293X PRINTER SETTINGS

Interface Settings:

```

***** SETTINGS *****
***** LIST *****      ***** MODIFY *****
   PRINTER  INTERFACE    PRINTER  INTERFACE

***** LIST INTERFACE *****
                        SERIAL
                DATA SETTINGS      CONTROL SETTINGS      SET DEFAULTS

***** DATA SETTINGS *****
BAUD RATE  DATA BITS  PARITY  PARITY CHECK  STRIP NULL/DEL  ALL
   1200         8      none      off           off

***** CONTROL SETTINGS *****
XON/XOFF  ENQ/ACK  BINARY ENQ/ACK  DTR/CD  (S)RTS/SCA  CTS/CB  RS/CH
  off      on      off           High     Low          Ignore  Low
    
```



SERIAL INTERFACE to HP1000 "A" Series III

HP1000 "A" CONFIGURATION

Interface Cables: 5061-6605

12005A Interface
 RTE-A Operating System
 I/F DVR - ID.00
 Device Driver - %DD.00

HP1000 "A" (WITH MULTIPLEXER) CONFIGURATION

Interface Cables: 92219G or 13242N

RTE-A Operating System
 I/F DVR - IDM00
 Device Driver - %DD.00

293X PRINTER CONFIGURATION

Interface Settings: Match baud rate initialized on Multiplexer port

```

*****
***** SETTINGS *****
***** LIST *****
PRINTER INTERFACE PRINTER INTERFACE
*****
***** LIST INTERFACE *****
***** SERIAL *****
DATA SETTINGS CONTROL SETTINGS SET DEFAULTS
***** DATA SETTINGS *****
BAUD RATE DATA BITS PARITY PARITY CHECK STRIP NULL/DEL ALL
2400 8 none off off
***** CONTROL SETTINGS *****
XON/XOFF ENQ/ACK BINARY ENQ/ACK DTR/CD (S)RTS/SCA CTS/CB RS/CH
off on off High Low Ignore Low
    
```

SERIAL INTERFACE to HP3000 4X, 6X, Series III (Remote Spooled Only)

HP3000 4X, 6X, SERIES III CONFIGURATION

Interface Cables: 13242N

MPE Configuration:

LDEV? (provided by customer engineer)
 DRT? (provided by customer engineer)
 UNIT? (provided by customer engineer)
 SOFTWARE CHANNEL? 0
 TYPE? 32
 SUBTYPE? 14 or 15
 TERM TYPE? 19
 SPPED? 120
 REC WIDTH? 66
 OUTPUT DEVICE? 0
 ACCEPT JOB/SESSIONS? NO
 ACCEPT DATA? NO
 INTERACTIVE? NO
 DUPLICATIVE? NO
 INITIALLY SPOOLED? YES
 DRIVER NAME? HIOASLPO (for use with ATP)
 HIOTERMO (for use with ADCC)
 IOTERMO (for use with Series III)
 DEVICE CLASSES? (user's choice)

293X PRINTER CONFIGURATION

Interface Settings:

***** SETTINGS *****

***** LIST ***** ***** MODIFY *****
 PRINTER INTERFACE PRINTER INTERFACE

***** LIST INTERFACE *****

SERIAL

DATA SETTINGS CONTROL SETTINGS SET DEFAULTS

***** DATA SETTINGS *****

BAUD RATE	DATA BITS	PARITY	PARITY CHECK	STRIP NULL/DEL	ALL
2400	7	odd	on	off	

***** CONTROL SETTINGS *****

XON/XOFF	END/ACK	BINARY ENQ/ACK	DTR/CD	(S)RTS/SCA	CTS/CB	RS/CH
on	off	off	High	Low	Ignore	Low

**HP-IB INTERFACE to HP2647A
HP2647F
HP2648A**

2647A/2647F/2648A CONFIGURATION

Interface Cable: 10833 A/B/C/D

13296A shared peripheral interface must be installed in the 2647A and 2648A.

293X PRINTER SETTINGS

Printer Settings: HP Terminal Mode in "OTHER SETTINGS" should be set to "ON".

Interface Settings: Set Defaults

HP-IB INTERFACE to HP9816
HP9826
HP9836
HP9920
HP9000 (500 Series)

9816/9826/9836/9920/9000 (500 Series) CONFIGURATION

Interface Cables: 10833 A/B/C/D or 45529A/B

Basic program statement "Printer is" or "Output" must specify same address as printer settings.

For example:

"Printer is 701" or "Output 701" would correspond to an HP-IB printer address of 1, which is the printer's default setting.

293X PRINTER SETTINGS

Interface Settings: Set Defaults

4

TROUBLESHOOTING

A. POWER SUPPLY FUSES/LEDs

The Power Supply PCA provides six output voltage rails for the 293X printers. These six rails come from three rectified transformer voltage supplies, +10V, +26V, and –30V, and each supply is protected by an on-board fuse. The +6.5V, +5V, and –12V power supply output rails have LEDs to indicate correct power supply operation. The printer Power Supply PCA is functioning correctly when all three LEDs are on.

If one or more LEDs are off, at least one of the six output voltage rails is down. Turn off power to the printer and check the three on-board Power Supply PCA fuses. If okay, remove a PCA and turn on the printer power. Continue to cycle power and remove PCAs until all three LEDs light when power is applied. This indicates the last PCA removed is faulty and needs replacing. If an LED(s) stay off when power is applied with all PCAs removed, replace the Power Supply PCA. Table 4-1 shows the correlation between LEDs and the six Power Supply PCA output voltage rails.

CAUTION

On 2933A/2934A printers with an Extender PCA, P/N 02934-60065, do not power-up the printer with the Extender PCA removed and the Processor PCA installed.

Table 4-1. Power Supply Voltage Rails/LEDs

– 12V LED	+ 6.5V LED	+ 5V LED	COMMENTS
on	on	on	All rails OK
off	on	on	– 30V or – 12V down
on	off	on	+ 6.5V down
on	on	off	+ 5V down
on	off	off	+ 12V or + 26V down
off	off	off	Main fuse blown

B. MOTOR RESISTANCE

Before a motor is replaced, its internal resistance can be measured to determine if the internal windings are shorted or open. The d.c. ribbon motor has a resistance of about 8.5 ohms (no tolerances are given). The two stepper motors measure 5.0 ohms \pm 10% between phases. Other normal measurements on the stepper motors are 10 ohms and infinity. See Figure 4-1.

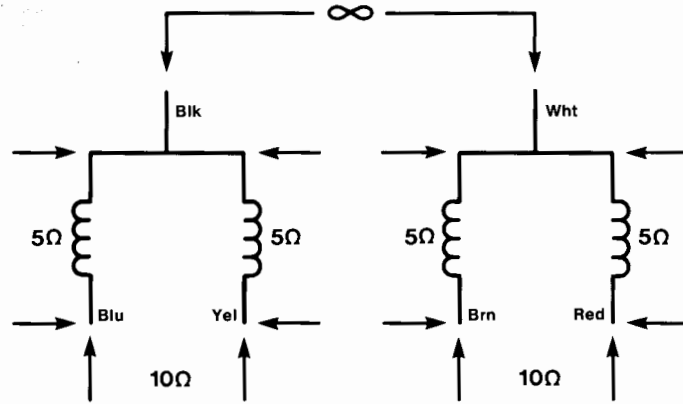


Figure 4-1. Stepper Motor Measurements

C. MOTOR/HEAD DRIVE PCA SUBMINIATURE FUSES

The Motor/Head Drive PCA, P/N 02932-60002 or 02932-600017, contains the circuitry to "fire" print head wires. If dots are missing from the print and the head gap is adjusted properly, a probable cause are the subminiature fuses. There are twelve subminiature fuses, one for each print head wire, soldered on the Motor/Head Drive PCA. See Figure 4-2 for the fuse locations.

2.5 A Subminiature Fuse Part Number: 2110-0698

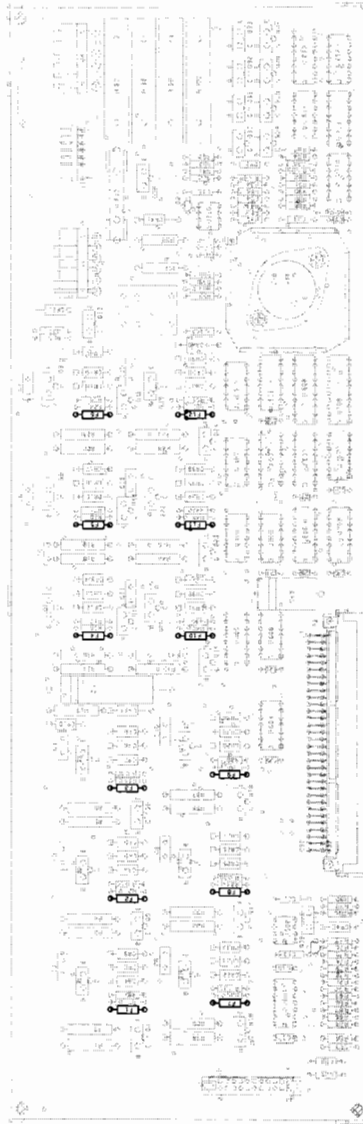


Figure 4-2. Subminiature Fuse Locations.

D. 293X PRINTER TROUBLESHOOTING HINTS**Table 4-2. 293X Printer Troubleshooting Hints.**

Print is too light.	<ol style="list-style-type: none"> 1. Ribbon cartridge needs replacing. 2. Ribbon motor or its fuse faulty. 3. Ribbon not advancing properly. 4. Improper head gap adjustment. 5. Print head needs replacement (worn). 6. Power Supply PCA (– 30V, 6.5V). 7. Motor/Head Driver PCA. 8. Print head not fully seated.
Missing dots.	<ol style="list-style-type: none"> 1. Improper head gap adjustment. 2. Subminiature fuse on Motor/Head Driver PCA open (see Section C). 3. Print head needs replacement. 4. Print head cable (Serv. Note 2932A-2) 5. Motor/Head Driver PCA. 6. Processor PCA.
Characters jammed together or margin wander.	<ol style="list-style-type: none"> 1. Carriage motor belt too tight; stalling* (see Section 6.C). 2. Carriage motor belt too loose; slipping. 3. Carriage motor. 4. Head gap too small.
Ink is being tracked onto paper by drive roller.	<ol style="list-style-type: none"> 1. Drive roller needs to be cleaned. 2. Print head gap adjusted to close.
Horizontal print alignment is out of specification.	<ol style="list-style-type: none"> 1. Older paper deflector on right carriage (Serv. Note 2932A-8). 2. Worn carriage bearings. 3. Front bearing preloader. 4. Ribbon guide (on Carriage Assembly). 5. Carriage motor belt needs adjustment. 6. Print head gap adjustment
Printer will not advance paper.	<ol style="list-style-type: none"> 1. Head gap too small. 2. Ribbon guide. 3. Paper caught going into printer. 4. Incorrect paper path. 5. Paper jammed in rear paper path exit. 6. Paper drive motor disconnected. 7. Paper drive motor. 8. Loose paper drive belt. 9. Motor/Head Driver PCA.
Improper line feeds.	<ol style="list-style-type: none"> 1. Head gap too small. 2. Paper drive motor belt too loose. 3. Defective tractor(s). 4. Pinch roller assembly. 5. Drive roller needs cleaning. 6. Paper drive motor.

(continued on next page)

Table 4-2. 293X Printer Troubleshooting Hints (continued)

Multi-part forms not feeding correctly.	<ol style="list-style-type: none"> 1. Print head gap adjustment. 2. Ribbon guide (on Carriage Assembly). 3. Old paper deflector (Serv. Note 2932A-8). 4. Out of spec forms thickness. 5. Out of spec forms thickness for rear exit paper path.
Paper not taut across platen.	<ol style="list-style-type: none"> 1. Tractors not locked in place. 2. Incorrect tractor adjustment. 3. Pinch roller needs replacing. 4. Print head gap is adjusted too close to platen. 5. Drive roller needs to be cleaned or replaced.
Cannot set proper left margin.	<ol style="list-style-type: none"> 1. Left edge of paper not adjusted to column zero at tractors. 2. Power-on left margin position is nonvolatile on some units. Adjust these with right/left arrow keys.
Paper indicating paper out condition with paper installed.	<ol style="list-style-type: none"> 1. Paper not fed thru paper sensor. 2. Defective paper sensor. 3. Motor/Head Driver PCA. 4. Processor PCA.
Tractor paper ejected out bottom of printer during a paper load.	<ol style="list-style-type: none"> 1. Paper not fed thru paper sensor. 2. Defective paper sensor. 3. Motor/Head Driver PCA. 4. Processor PCA.
Extra dots.	<ol style="list-style-type: none"> 1. Print head cable shorted to mechanism.
Smearing or light print across the page.	<ol style="list-style-type: none"> 1. Rear preloader missing. 2. Improper head gap adjustment. 3. Ribbon not properly installed in ribbon guide (on Carriage Assembly).
Capital W missing dots.	<ol style="list-style-type: none"> 1. 10 cpi character cartridge selected with 12 cpi print pitch configured. (2933A/2934A only)

*A stall may exhibit itself as a failure of the print head to fully sweep across the width of the page. It may then return to the left and crash into the side, or vice versa.

E. 29340S TROUBLESHOOTING HINTS**Table 4-3. 29340S Sheet Feeder Troubleshooting Hints.**

SYMPTOM	CAUSE
29340S sheet feeder will not fit properly on the 2933A/2934A printer.	<ol style="list-style-type: none"> 1. Printer does not have 29340S compatible print mechanism. 2. Printer view window not removed. 3. Both latch release levers not simultaneously pressed when lowered onto the printer. 4. 29340S ground wire draped over the printer slot.
Sheet feeder not feeding paper.	<ol style="list-style-type: none"> 1. 29340S incorrectly installed. 2. Printer requires the 29340S Sheet Feeder Compatible Upgrade Kit. 3. Load bar is not in the down/engaged position. 4. Paper incorrectly loaded in the sheet feeder. 5. Printer faulty. Check with tractor-fed paper. 6. Faulty load bar springs.
Excessive paper skew.	<ol style="list-style-type: none"> 1. Rear tray walls too tight or loose against the paper stack. 2. Printer mechanism pinch rollers require cleaning. 3. Printer tractors not to the far right and left positions of the print mechanism. 4. Paper weight outside of the manufacturer's specification for the 29340S sheet feeder (18-24 lb). 5. Printer paper guides not positioned for the sheet feeder paper width. 6. Less than 5 sheets of paper in the rear paper tray. 7. Printer Print Mechanism requires upgrade for sheet feeder compatibility.
Paper jams or improper feeding.	<ol style="list-style-type: none"> 1. Rear tray walls too tight or loose against the paper stack. 2. Paper is hitting the work surface. Move the printer to the front edge of the work surface. 3. Printer or sheet feeder rollers need cleaning. 4. Sheet feeder ground wire not attached to the printer. 5. Printer tractors not to the extreme right and left of the print mechanism. 6. Paper weight outside of the manufacturer's specification for the 29340S sheet feeder (18-24 lb). 7. Less than 5 sheets left in the rear paper tray. 8. Paper has folds, creases, tears, or staples. 9. Incorrect printer configuration setting.
Paper won't exit properly.	<ol style="list-style-type: none"> 1. Incorrect printer configuration setting. 2. Faulty 29340S output pressure rollers. 3. Paper not fed down to top-of-form position during the paper load cycle. 4. More than 100 sheets in the front paper rack. 5. Paper weight outside of the manufacturer's specifications for the 29340S sheet feeder (18-24 lb).

5

DIAGNOSTICS/ SELF TESTS

A. 293X SELF-TESTS

Three modes consisting of a total of seven tests are available for 293X printers. These modes and tests are:

1. Power On Test (invoked automatically at power on.)
2. Manufacturing Burn-In Test (continuous looping test)
3. User Invocable Tests (press SELECT then TEST keys)
 - Nondestructive Confidence Test
 - Print Mechanism Test
 - Controller Test
 - Interface Test
 - Alignment Test



B. 2932A POWER ON TEST

Table 5-1. Extent of 2932A Power On Self-Test.

PART TESTED	EXTENT OF TEST
8051 Processor	Functional
Firmware/Character ROM's	Present, correct ID, correct checksum
Static RAM's	Functional
Nonvolatile RAM	Initialized, correct checksum
Serial Interface	Present, functional data loopback, baud rate timing, byte configuration, control lines, interrupts
HP-IB Interface	Present
Parallel Interface	Present
Print Mechanism	8051 ready, 8051 ROM and RAM correct, test displayed for visual indication

C. 2932A ERROR INDICATION

When a fatal error is encountered, the keypad LED's will flash a code to indicate the error condition (see Table 5-2). Nonfatal errors are printed by the printer (see Table 5-3).

Table 5-2. 2932A Fatal Error Isolation Codes.

LED ERROR CODES			FAILURE	COMMENTS
0	1	2		
-	-	-	8051 Int. RAM	Replace the 8051 microprocessor.
-	-	*	ROM 0	Replace ROM 0 (U101)
-	*	-	ROM 1	Replace ROM 1 (U301)
-	*	*	Reserved	A paper out condition can mimick this.
*	-	-	RAM 0	Replace RAM 0 (U401)
*	-	*	RAM 1	Replace RAM 1 (U601)
*	*	-	Nonvolatile RAM	Replace NVRAM (U701)
*	*	*	Reserved	

* LED is always on
 - LED blinks

Table 5-3. 2932A Nonfatal Error Printed Messages.

MESSAGE	MEANING
A3D	Control line malfunction
A38	No data seen on loopback
A37	Wrong data seen on loopback
A20	HP-IB register access error
A10	No I/F hardware installed
A11	Wrong RS-232-C I/F board installed
PRINTER SETTINGS WERE RESET	NVRAM checksum failure

D. 2933A/2934A POWER ON TEST**Table 5-4. Extent of 2933A/2934A Power On Self-Test.**

PART TESTED	EXTENT OF TEST
Z80 Processor	Functional
Firmware ROM's	Present, correct ID, correct checksum
Static RAM's	Functional
Character ROM	Present, correct ID, correct checksum
Option character ROMs	Correct ID, correct checksum
Nonvolatile RAM	Initialized, correct checksum
Timer	Functional
Serial Interface	Present, functional data loopback, baud rate timing, byte configuration, control lines, interrupts
HP-IB Interface	Present, functional registers
Parallel Interface	Present
Print Mechanism	8051 ready, 8051 ROM and RAM correct, text displayed for visual indication

E. 2933A/2934A ERROR INDICATION

When a fatal error is encountered, the self-test character display LED, mounted on the Processor PCA, will indicate the error condition (see Table 5-5). Nonfatal errors are printed by the printer (see Table 5-6).

Table 5-5. 2933A/2934A Fatal Error Isolation Codes.

LED ERROR CODES			MEANING	PROBABLE CAUSE
1ST	2ND	3RD		
1			Z80 processor error	- Z80 - Processor PCA
2	1	0	Firmware ROM checksum error	- ROM #1 (U503)
	2	0	2nd ROM checksum error	- ROM #2 (U504)
	2	1	2nd ROM ID error	- ROM #2 (U504)
3	1	0	First 2k RAM error	- RAM #1 (U703)
	2	0	Second 2k RAM error	- RAM #2 (U803)
	3	0	Third 2k RAM error	- RAM #3 (U804)
	4	0	Fourth 2k RAM error	- RAM #4 (U704)
4	1	0	Stake usage error	- Processor PCA
5	1	0	8051A not ready	- 8051A - Processor PCA
	2	0	8051A self-test error	- 8051A
	3	0	FIFO failure, low nibble	- U410
	4	0	FIFO failure, high nibble	- U310
	5	0	FIFO failure, both nibbles	
	6	0	ULA not connected	- U710
6	M	1	EXT character ROM checksum error	
6	N	2	EXT character ROM mis-inserted where M is the ROM number and N is the slot number.	
7	1	0	Timer not functional	- Processor PCA
	2	0	Timer too fast	- Processor PCA
	3	0	Timer too slow	- Processor PCA
8			Processor not running.	- Z80 - Processor PCA - ROM - RAMs 1-4
9			Not used	
A	1	0	No I/O board installed	
	2	0	HP-IB register access error	- HP-IB PCA
	3	0	RS-232 or RS-422 error	- I/O PCA
	4	0	Data Link error	- I/O PCA
	5	0	Asynchronous Multipoint error	- I/O PCA

(continued on next page)

Table 5-5. 2933A/2934A Fatal Error Isolation Codes (continued)

LED ERROR CODES			MEANING	PROBABLE CAUSE
1ST	2ND	3RD		
A	6	0	Synchronous Multipoint error	- I/O PCA
		1	False datacomm interrupt noted	
		2	False transmit ready noted	
		3	False receiver ready noted	
		4	Datacomm interrupt not noted	
		5	Transmit ready not noted	
		6	Receive ready not noted	
	*	7	Wrong data seen on loopback	
		8	Not data seen on loopback	
		9	Framing error	
		A	Parity error	
		B	Baud rate too fast	
		C	Baud rate too slow	
		D	Control line malfunction	
		E	Sync/Break detected	
B			Failure while printing symbol set displays	- Control panel
C			Stuck key	
D			Not used	
E			Error encountered during test	



*Any of these digits could have a second digit of 3, 4, 5, or 6. For example, A39 is a framing error with the serial I/O, while A49 is a framing error with a data link I/O.

Table 5-6. 2933A/2934A Nonfatal Printed Self Test Messages.

MESSAGE	MEANING
6XX CHAR. ROM FAILURE	Character ROM
7X0 INTERNAL TIMER FAILURE	Internal timer on Processor PCA
PRINTER SETTINGS RESET	Nonvolatile RAM; bad or not initialized
AXX INTERFACE FAILURE	Interface related problem
RELEASE ** KEY	Stuck key
Where ** equals one of the following 2-character ID codes corresponding to keypad positioning below.	
	TE ON SE
<<	>> VI NP
UP	DW ST NL
Example: "Release DW key" indicates that the down arrow key is stuck.	

NOTE

This table should be used with Table 5-5 to define the error isolation codes. These codes are shown in the above table as 6XX, 7X0, and AXX.

F. MANUFACTURING BURN-IN TEST

This test is a continuous-loop test that checks all printer modules. It is useful for troubleshooting intermittently failing units. As the test executes successfully, the printer will print the mechanism self-test pattern once each half hour. For 2932A fatal and nonfatal error indication see Table 5-2 and 5-3, respectively. 2933A/2934A fatal and nonfatal errors are shown in Tables 5-5 and 5-6, respectively.

To invoke the manufacturing burn-in test:

1. Press the select key.
2. Press the test and on line keys simultaneously.
3. The printer is now in the Manufacturer Burn-In test.
4. To exit this test, press any key.

NOTE

Cycling the primary power will not clear this test from being executed, since it is stored in nonvolatile memory.

G. CONFIDENCE TEST (press TEST key)

The confidence test is similar to the Power On test in all respects, except the RAM test, where it performs a nondestructive test in the form of a read, complement, store, and compare operation twice on each location of RAM to verify it and leave it in its original state. This test is the same as that invoked programmatically by Esc z. Successful completion is indicated by a beep and printing of "Self Test Passed." 2932A fatal and nonfatal error isolation information can be found in Tables 5-2 and 5-3, respectively. Tables 5-5 and 5-6 contain 2933A/2934A error isolation information.

H. CONTROLLER TEST

The 2932A controller test is identical to the 2932A confidence test. Successful completion is indicated by the printer printing "SELF TEST PASSED" followed by a listing of the part numbers and date codes of the ROMs installed.

The 2933A/2934A controller test is a destructive test in that it performs a more comprehensive test on the RAMs (not NVRAM), which is destructive to all data contained in them. Successful completion is indicated by the printer printing "SELF TEST PASSED" followed by a listing of the Processor PCA and optional character cartridge ROMs installed.

I. INTERFACE TEST

This test begins by verifying an interface PCA is installed in the 2932A printer. No further internal testing capabilities are available for the parallel interface PCAs. See the 2930 Series Printers Service Manual for further information on specific interface testing.

External data looping of serial interfaces is accomplished by using the external loopback device, P/N 02620-60062. A VCD Printer Test Tape is available, P/N 5010-0824, for testing and troubleshooting HP-IB, Centronics, and RS-232-C interfaces with an HP 85 computer.

J. ALIGNMENT TEST

The alignment test prints a pattern of vertical bars that give an indication of how well the carriage belt is adjusted. If the belt is adjusted too loosely, the vertical bars will not line up properly. It is important to know that it is not necessary or even desirable to have all the printed bars perfectly aligned. Correct adjustment is accomplished when most of them are aligned. The alignment test is a continuous looping test that is exited by pressing any key.

K. COUNTER CHECK

Although not actually a test, the Counter Check gives the operator and service person information about the number of characters or pages that have accumulated on the ribbon cartridge since it was last changed. The title TOTAL USAGE indicates the total number of characters the printer has used since the current Processor PCA was installed (this PCA contains the character count). Or, the count could indicate the total number of characters the printer has used since the current print mechanism was installed and the counter was reset.

For the purpose of service contracts, a page is defined as 2048 characters. The service contract prices are tiered so that one rate is charged for printers used under 3,000 pages per month while those operated between 3,000 and 12,000 pages per month are charged at a higher rate. Units operated beyond 12,000 pages per month are repaired on a time and material basis only.

To reset the CHARACTER COUNT (ONLY AFTER REPLACING A PRINT MECHANISM):

1. Press the SELECT then TEST keys.
2. Position the yellow arrow on the print head to point to COUNTERS.
3. Press the SELECT key.
4. Position the yellow arrow on the print head to point to REPLACED RIBBON.
5. Simultaneously press the RIGHT ARROW and LINEFEED key. The printer will beep.
6. Press the RESET key.
7. Verify the character count was reset by going back into the COUNTERS section of the user-invocable tests.

6

ADJUSTMENTS



A. INTRODUCTION

There are virtually no adjustments to be performed on a 293X printer; the only exceptions being the print head gap (performed by the user) and the carriage belt tension.

B. PRINT HEAD GAP

The printer print head gap is adjustable to maintain optimum print quality for the various thicknesses of material printed on. Print head gap is the distance between the tip of the print head nose and the printer's platen. No tools are needed to perform this adjustment. Turning the large green knob on the right side of the print mechanism rotates the front eccentric print head carriage rail, varying the distance between the print head and the platen.

C. CARRIAGE BELT TENSION

The tension of the carriage belt is best adjusted while the mechanism is actually printing. Moving the thermal compensator vertically along the end plate adjusts the belt tension. Follow the steps below to complete the alignment.

1. Loosen the screw holding the thermal compensator.
2. Start the alignment pattern by pushing the select and test keys and then select "Alignment" from the menu.
3. Push the thermal compensator upward to loosen the belt slightly.
4. Pull down on the compensator until most of the printed bars are aligned with one another.

NOTE

It is not necessary or desirable to have all the printed bars perfectly aligned. Correct adjustment is accomplished when most of them are aligned.

5. When the correct adjustment position is determined, secure the thermal compensator by tightening the screw.
6. Push the reset key to exit the alignment test pattern.

7

PERIPHERALS

DOES NOT APPLY.



8

REPLACEMENT PARTS

A. 293X PRINTED CIRCUIT ASSEMBLIES

Table 8-1. 293X Printed Circuit Assemblies.

DESCRIPTION	HP PART NO.	COMMENTS	UNITS PER ASSEMBLY
Power Supply PCA	02932-60001	Exchange PCA 02932-69001	1
Motor/Head Drive PCA	02932-60017	Exchange PCA 02932-69017 PCA Replaces 02932-60002	1
Processor PCA 2932A	02932-60103	Exchange PCA 02932-69103 PCA Replaces 02932-60003	1
2933A/2934A	02934-60051	Exchange PCA 02934-69051	1
RS-232-C I/O PCA 2932A	02932-60004		1
2933A/2934A	02934-60053		1
Backplane PCA	02932-60005		1
HP-IB I/O PCA	02932-60006		Opt.
Parallel I/O PCA	02932-60007		Opt.
RS-422/RS-232-C I/O PCA 2932A	02932-60010		Opt.
2933A/2934A	02934-60058		Opt.
Daisychain Multpt. I/O PCA (2933A/2934A only)	02934-60061		Opt.
Data Link I/O PCA (2933A/2934A only)	02934-60056		Opt.
Control Panel Ay	02932-60061		1
Extender PCA*	02934-60065		1

*Older 2933A and 2934A printers only

B. AVAILABLE PRINT MECHANISM/FAN HOUSING ASSEMBLIES

Table 8-2. Available Print Mechanism/Fan Housing Assemblies*

ASSEMBLY DESCRIPTION	ASSEMBLY PART NUMBER
Complete Mechanism Assembly	02932-60091
Print Structure Assembly	02932-60090
Carriage Assembly	02932-60052
Fan Housing Assembly	02932-60053
Tractor Assembly	02932-60060
Pinch Roller Assembly	02932-60084
Drive Roller Assembly	02932-60059

**See the 2930 Series Printers Service Manual for more information regarding parts in each assembly.*

C. FAN HOUSING ASSEMBLY

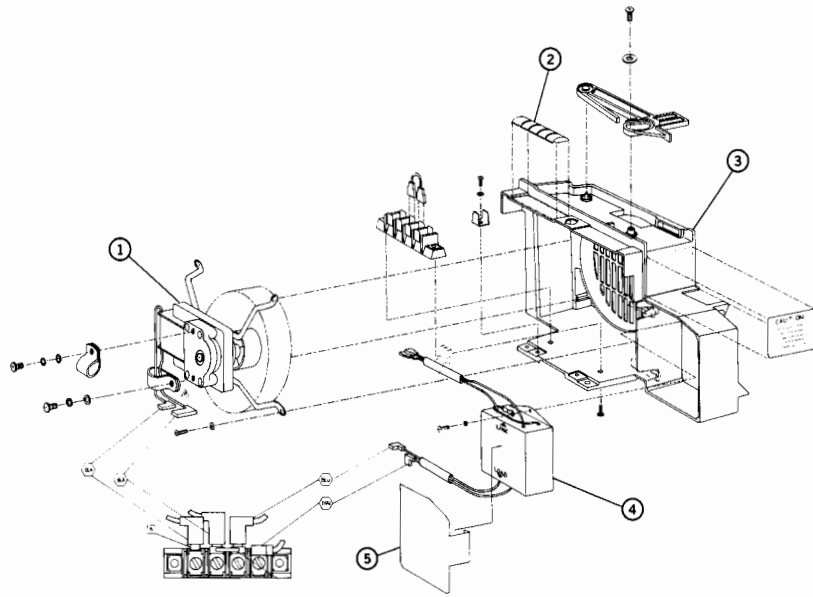


Figure 8-1. Fan Housing Assembly.

Table 8-3. Fan Housing Assembly — 02932-60053 (see Figure 8-1).

FIG 8-1 REF DES	DESCRIPTION	HP PART NO.	COMMENTS	UNITS PER ASSEMBLY
	Fan Housing Ay	02932-60053		1
8-1-1	Fan, Skeleton	3160-0435		1
8-1-2	RFI Strip, Finger	8160-0443		2
8-1-3	Fan Housing	02932-20011		1
8-1-4	Line Filter Ay	02932-60067		1
8-1-5	Cover, Line Filter	02932-00042	Replaces 2190-0646	1

**For other Fan Assembly part numbers, refer to the 2930 Series Printers Service Manual.*

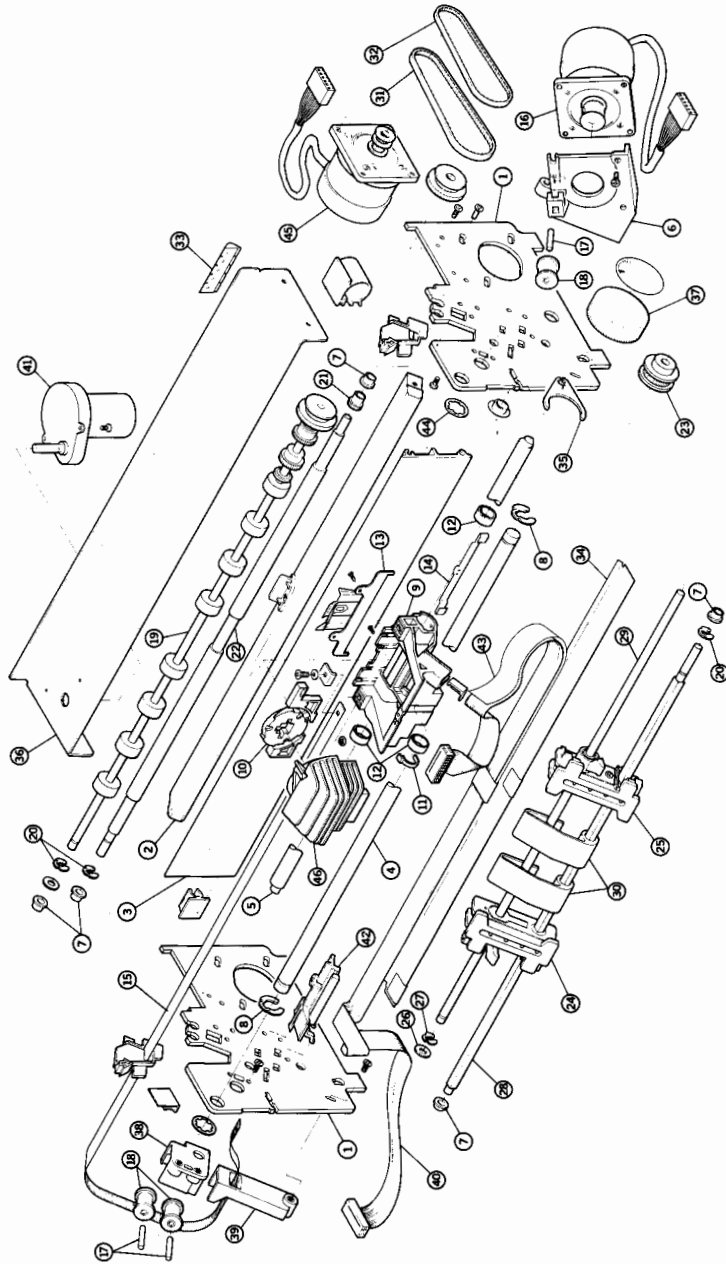


Figure 8-2. 293X Print Mechanism—Exploded View.

D. MAJOR PRINT MECHANISM PARTS**Table 8-4. Major Print Mechanism Parts***

FIG & INDEX	DESCRIPTION	HP PART NO.	COMMENTS	UNITS PER ASSEMBLY
8-2-1	Plate, Side	02932-00006		2
8-2-2	Platn/Sup Blk Ay	02932-60088	Replaces 02932-20003	1
8-2-3	Extrusion	02932-20004		1
8-2-4	Rail, Rear Guide	02932-20005		1
8-2-5	Rail, Front Guide	02932-20006		1
8-2-6	Brkt, Carr Dr Mtr	02932-40014		1
8-2-7	Bushing, Bronze	1410-1193		5
8-2-8	Ring, E	0510-1226		2
8-2-9	Carriage	02932-20015	Replaces 02932-40008	1
8-2-10	Mount, Head	02932-20014	Replaces 02932-40009	1
8-2-11	Preloader, Rear	02932-40025		1
8-2-12	Bearing, Carriage	02932-40039		3
8-2-13	Ribbon Guide Ay	02932-60073		1
8-2-14	Preloader, Front	02932-60076		1
8-2-15	Carriage Belt	02932-20016	Replaces 1500-0658	1
8-2-16	Motor/Pulley Ay	02932-60081		1
8-2-17	Shaft, Idler	02932-20001		3
8-2-18	Pulley, Idler Ay	02932-60082		3
8-2-19	Pinch Roller Ay	02932-60084	Replaces 02932-60058	1
8-2-20	Ring, Retaining	0510-1224		1
8-2-21	Gear, Spur	1430-0611		3
8-2-22	Roller, Drive	02932-20008		1
8-2-23	Pulley, Tractor	1500-0657		1
8-2-24	Tractor, Left	1530-2179		1
8-2-25	Tractor, Right	1530-2180		1
8-2-26	Washer, Curved	3050-1180		1
8-2-27	Ring, Retaining	0510-1245		1
8-2-28	Shaft, Sq Trct Dr	02932-20009		1
8-2-29	Shaft, Trct Guide	02932-20010		1
8-2-30	Guide, Paper	02932-40026		2
	Paper Deflector	02932-00044	On Rt Trct, Not Shown	1
8-2-31	Belt, Pinch Roller	1500-0669	Replaces 1500-0653	1
8-2-32	Belt, Tractor	1500-0659		1
8-2-33	Strip, RFI Finger	8160-0443		3
8-2-34	Supp, Cable Head	02932-00007		1
8-2-35	Adjuster, Fork	02932-00022		1
8-2-36	Brkt, Ribbon Mtr	02932-00030		1
8-2-37	Knob, Adjuster	02932-40012		1
8-2-38	Bracket, Idler	02932-40013		1
8-2-39	Compnstr, Thermal	02932-40032		1
8-2-40	Cable, Head Ay	02932-80065		1
8-2-41	Ribbon Drive Ay	02932-60074		1
8-2-42	Opto Sensor Ay	02932-60086	Replaces 02932-60075	1
8-2-43	Wear Strip	02932-40041		1
8-2-44	Ring, Retaining	0515-1169	For head gap knob	1
8-2-45	Paper Motor Ay	02932-60057		1
8-2-46	Print Head	02932-60054		1

*For mechanism parts not listed, refer to the 2930 Series Printers Service Manual.



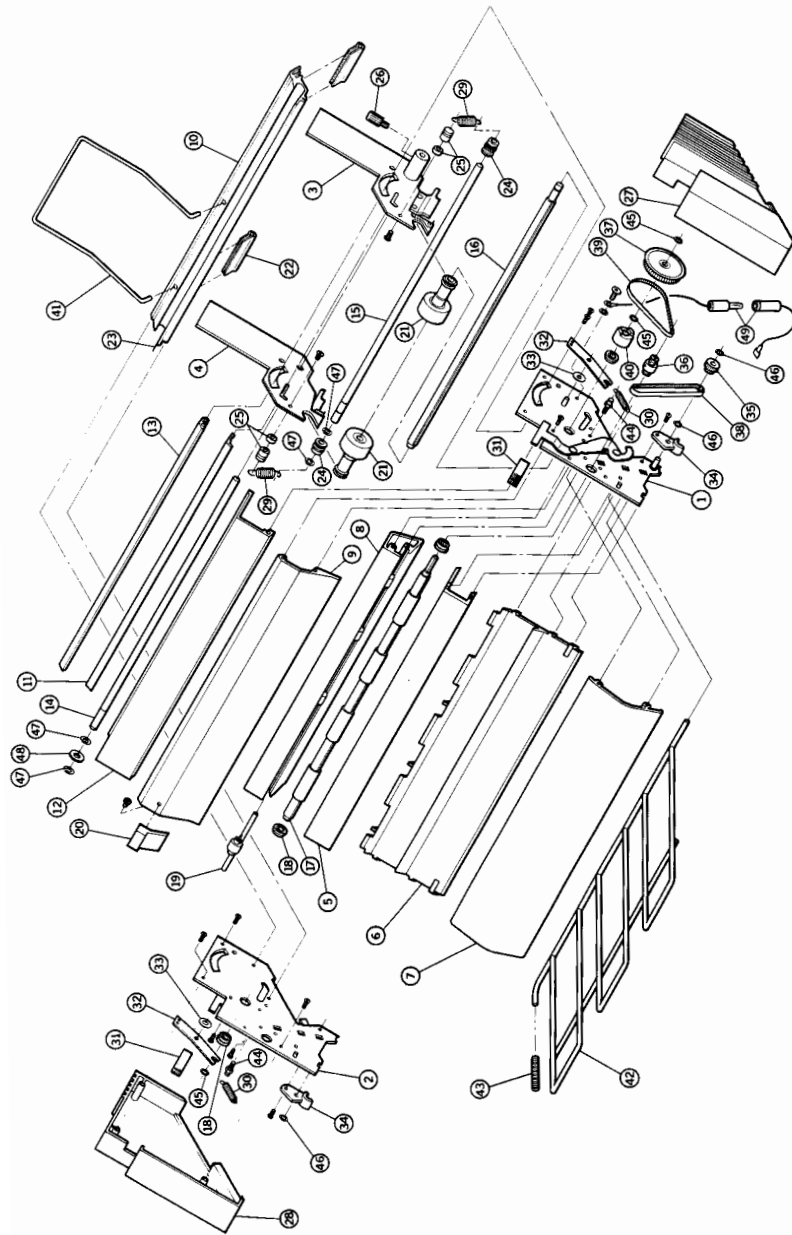


Figure 8-3. 29340S Sheet Feeder—Exploded View.

E. 29340S SHEET FEEDER PARTS LIST

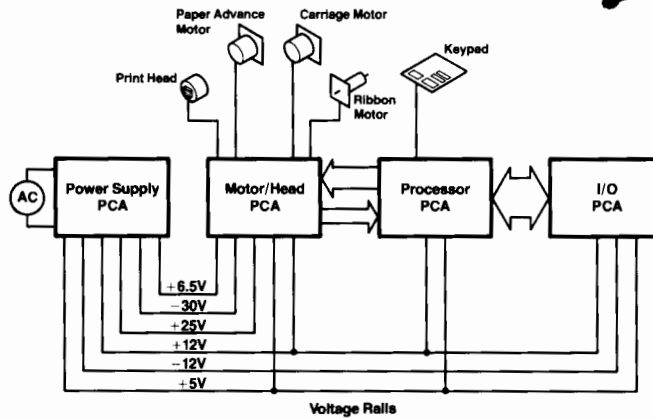
Table 8-5. 29340S Sheet Feeder Parts List

FIG & INDEX #	DESCRIPTION	HP PART NO.	UNITS PER ASSEMBLY
8-3-1	Right Side Plate Assy	11-1601-00-DAT	1
8-3-2	Left Side Plate Assy	11-1602-00-DAT	1
8-3-3	Moveable Tray Wall	11-1652-00-DAT	1
8-3-4	Stationary Tray Wall	11-1651-00-DAT	1
8-3-5	Sound Cover	28-1654-00-DAT	1
8-3-6	Clear Window	28-1650-00-DAT	1
8-3-7	Bottom Paper Guide	20-1665-00-DAT	1
8-3-8	Front Paper Guide	20-1646-00-DAT	1
8-3-9	Rear Paper Guide	20-1647-00-DAT	1
8-3-10	Hopper Wall	20-1664-00-DAT	1
8-3-11	Stack Limiter	20-1631-01-DAT	1
8-3-12	Access Cover	20-1644-00-DAT	1
8-3-13	Load Bar	20-1641-00-DAT	1
8-3-14	Tray Wall Support Shaft	20-1613-00-DAT	1
8-3-15	Load Bar Support Rod	20-1614-00-DAT	1
8-3-16	Feed Shaft	20-1612-00-DAT	1
8-3-17	Output Shaft	11-1655-00-DAT	1
8-3-18	Bearing	91-0545-01-DAT	4
8-3-19	Pressure Roller Assy	11-0673-00-DAT	4
8-3-20	Paper Edge Guide	28-1666-00-DAT	1
8-3-21	Feed Shaft Roller Assy	11-1657-00-DAT	2
8-3-22	Rear Foot	27-1671-01-DAT	2
8-3-23	Hopper Floor	28-1670-00-DAT	1
8-3-24	Load Bar Support Rod Bushing	22-1610-00-DAT	2
8-3-25	Tray Wall Stud	20-1668-00-DAT	2
8-3-26	Adjustment Knob	28-1632-00-DAT	1
8-3-27	Right Side Plate Cover	28-1616-01-DAT	1
8-3-28	Left Side Plate Cover	28-1616-02-DAT	1
8-3-29	Load Bar Spring	90-1640-00-DAT	2
8-3-30	Latch Spring	90-0599-08-DAT	2
8-3-31	Latch Release Lever Button	28-1618-00-DAT	2
8-3-32	Load Bar Arm	20-1633-00-DAT	2
8-3-33	Load Bar Arm Washer	96-1555-04-DAT	2
8-3-34	Mounting Foot	28-1660-00-DAT	2
8-3-35	Composite Gear/Pulley	28-1620-00-DAT	1
8-3-36	Composite Pulley	28-1619-00-DAT	1
8-3-37	Feed Roller Pulley	28-1624-00-DAT	1
8-3-38	Output Shaft Belt	28-1334-04-DAT	1
8-3-39	Feed Shaft Belt	28-1334-05-DAT	1
8-3-40	Clutch/Hub Assy	11-1656-00-DAT	1
8-3-41	Rear Paper Tray	20-1622-00-DAT	1
8-3-42	Front Paper Rack	11-1678-00-DAT	1
8-3-43	Front Paper Rack Spring	90-1199-05-DAT	1
8-3-44	Spring Retainer Stud	20-0881-00-DAT	2
	Retaining Rings		
8-3-45	Feed Shaft	92-0591-05-DAT	3
8-3-46	Mounting Feet	92-0591-03-DAT	3
8-3-47	Support Shaft/Load Bar	92-0971-03-DAT	4
8-3-48	Support Shaft Washer	96-0845-01-DAT	1
8-3-49	Grounding Wire Assy	13-1523-00-DAT	1
	Misc. Items		
	#6-32 Screws	95-0356-07-DAT	20
	Paper Edge Guide Screw	95-1669-01-DAT	1
	Side Plate Cover Screws	95-1669-02-DAT	6
	Load Bar Scale	33-1667-00-DAT	1
	Silicon Grease (tube)	92-1187-00-DAT	N/A
	Adhesive, Loctite #404	92-1673-00-DAT	N/A
	Roller Cleaner Kit	11-0799-00-DAT	N/A
	Paper Feeding Label	33-1679-00-DAT	1

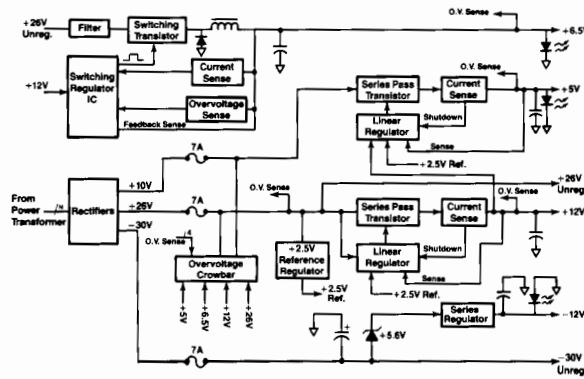
9

DIAGRAMS

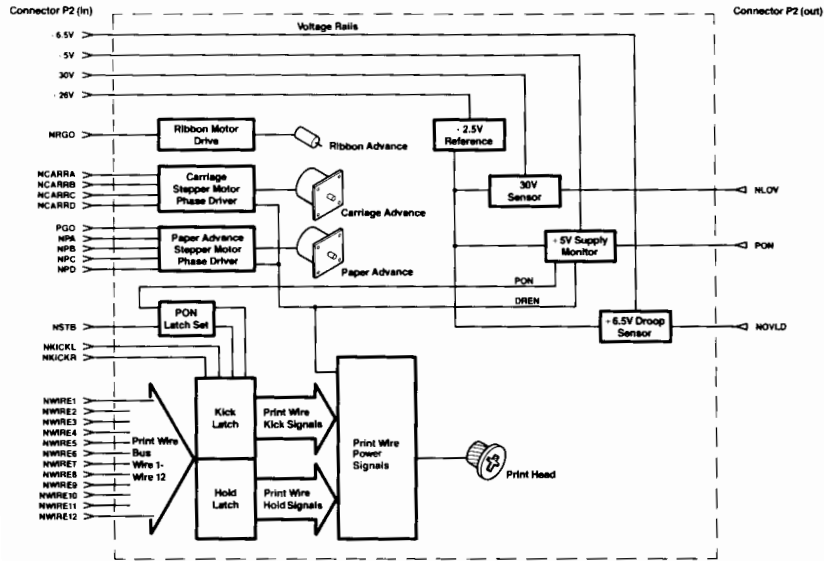
A. 293X BLOCK DIAGRAMS



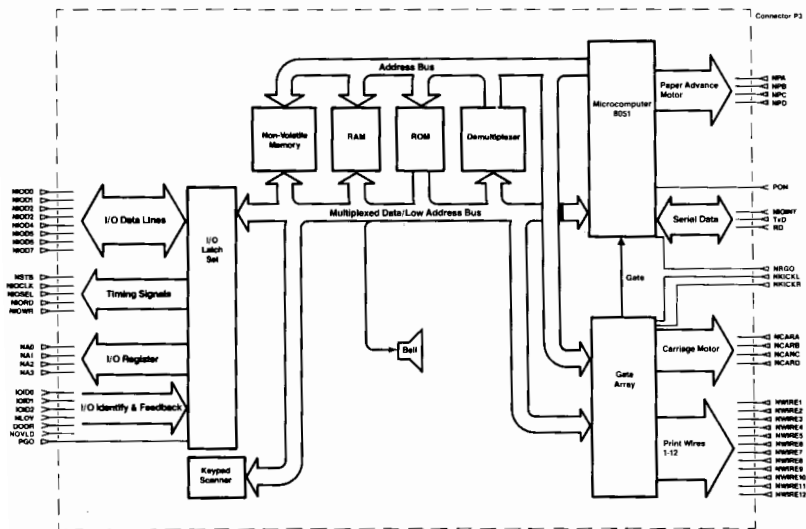
Overall Block Diagram.



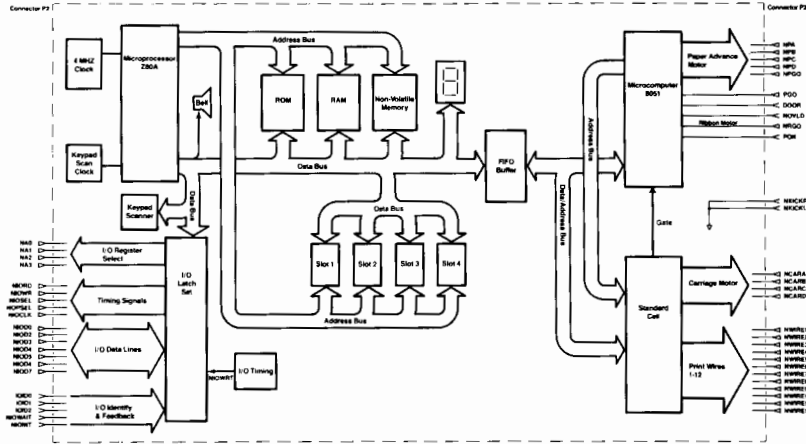
Power Supply Block Diagram.



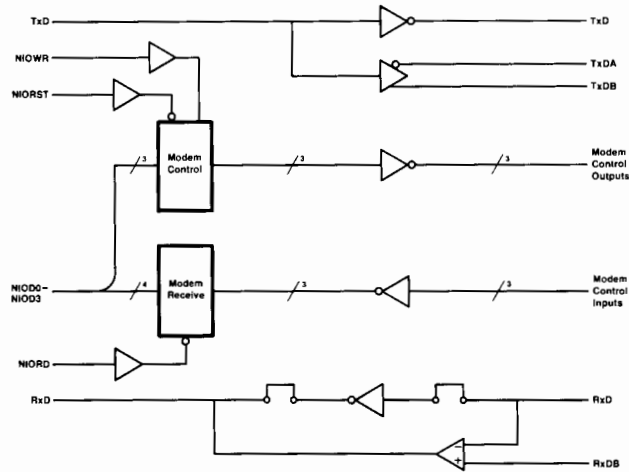
Motor Head PCA Block Diagram.



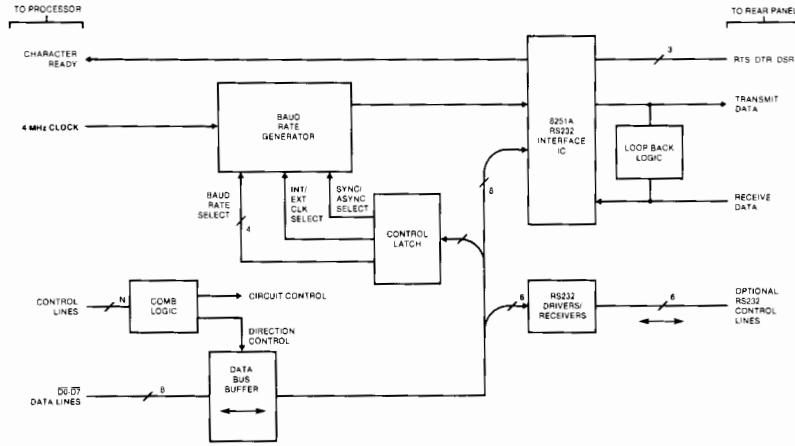
2932 Processor PCA.



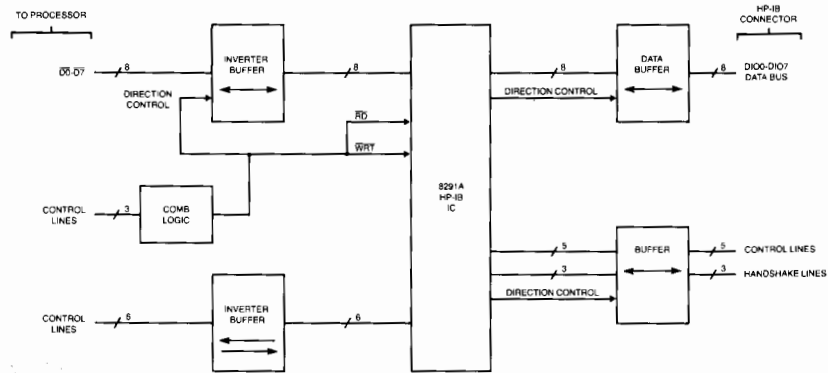
2933/34A Processor PCA.



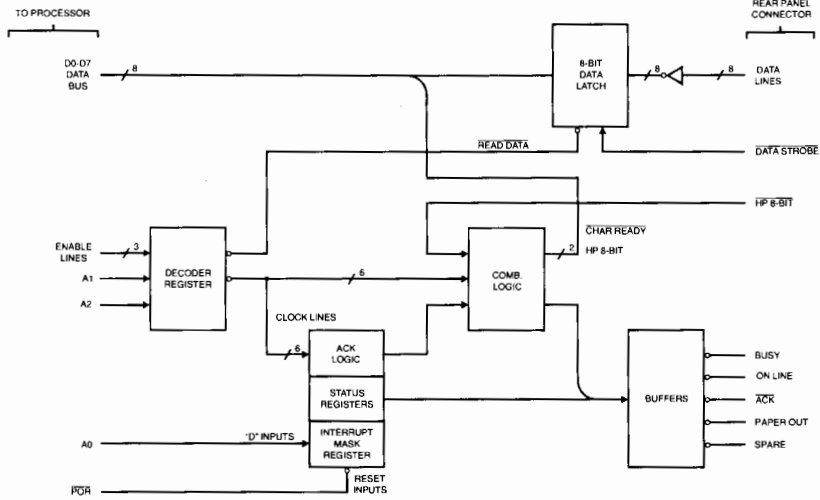
RS-232-C/RS-422 I/O Block Diagram (2932A).



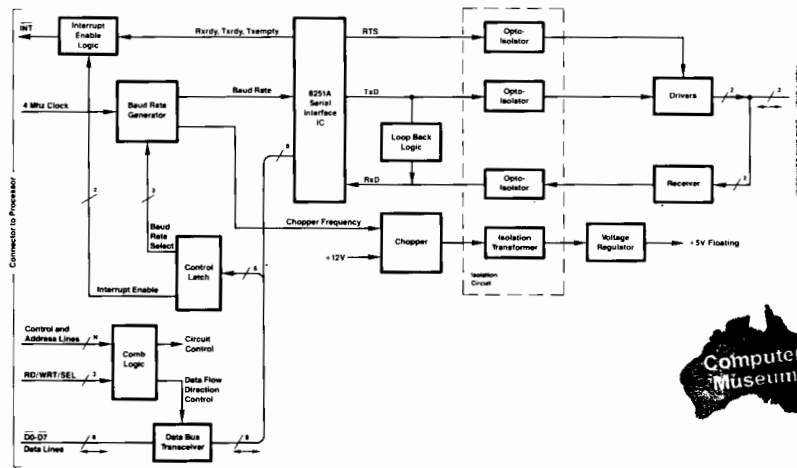
RS-232-C/RS-422 I/O Block Diagram (2933/34).



HP-IB Block Diagram.

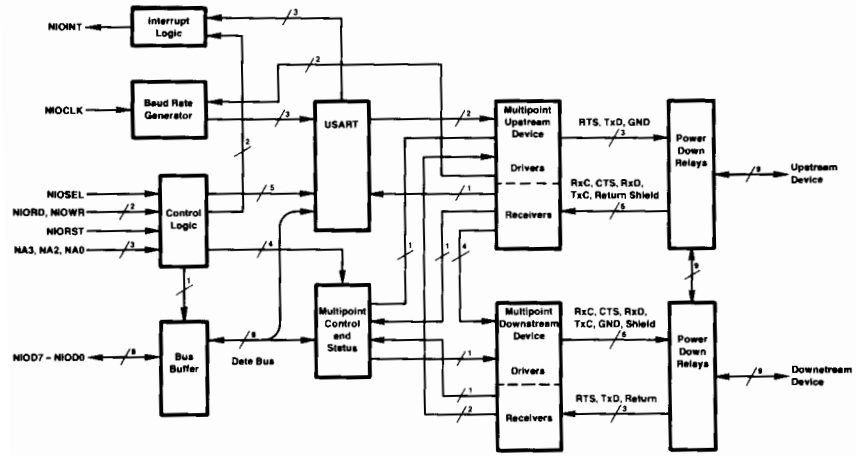


Parallel Block Diagram.



DSN/Data Link Block Diagram.





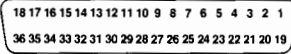
Daisychain Multipoint (Synchronous) I/O Block Diagram.

B. 293X PRINTER I/O PIN-OUTS



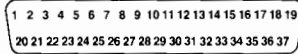
PIN	FUNCTION	SIGNAL
1	Protective Ground (shield)	AA (101)
2	Transmitted Data	BA (103)
3	Received Data	BB (104)
4	Request to Send	CA (105)
5	Clear to Send	CB (106)
6	Data Set Ready	CC (107)
7	Signal Ground	AB (102)
9	Send Data	SDA
10	Not Send Data	SDB
17	Receiver Signal Element Timing—DCE Source	DD (115)
18	Not Receive Data	RDB
19	Secondary Request to Send	SCA (120)
20	Data Terminal Ready	CD (108.2)
24	Transmit Signal Element Timing—DTE Source	DA (113)

25-Pin Serial Connector.



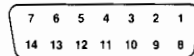
PIN	FUNCTION	SIGNAL	SOURCE	PIN	FUNCTION	SIGNAL	SOURCE
1	Pulse clocks data from Controller to printer	Strobe	Controller	12	A "High" indicates printer is out of paper	Paper Empty	Printer
2	Input data levels. A "High" represents a binary one, a "Low" represents a binary zero	Data 1	Controller	13	A "High" indicates the printer is selected. Similar to ON-LINE	SELECT	Printer
3	Same function as Pin 2	Data 2	Controller	16	Logic Ground Level	GND	Printer
4	Same function as Pin 2	Data 3	Controller	17	Printer Chassis Ground	CHASSIS GND	Printer
5	Same function as Pin 2	Data 4	Controller	18	+ 5 V Power Bus	+ 5 V	Printer
6	Same function as Pin 2	Data 5	Controller	19-30	Signal Grounds	GND	Printer
7	Same function as Pin 2	Data 6	Controller	31	A "Low" clears the printer buffer and resets the printer to power-on conditions	INPUT PRIME	Controller
8	Same function as Pin 2	Data 7	Controller	32	A "Low" indicates a fault condition such as printer de-select or paper out	FAULT	Printer
9	Same function as Pin 2	Data 8	Controller				
10	Acknowledge pulse indicates printer has received data	ACKNLG	Printer				
11	A "High" indicates printer cannot receive data	BUSY	Printer				

Centronics-Type Connector (5061-4001 Cable Connection).



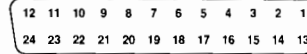
PIN NUMBERS	DESCRIPTION
4	HP vs Centronics; HP BBIT
5	Out of Paper; PAPER OUT
7	Busy; BUSY
9	Data Strobe; NSTROBE
10	Reset
11	Acknowledge; NACK
12	Data Bus 7; DATA BIT 7
13	Data Bus 6; DATA BIT 6
14	Data Bus 5; DATA BIT 5
24	On Line; ON LINE
25	Protective Ground; CHASSIS GROUND
26,27,33,34	Logic Ground; LOGIC GROUND
28	Data Bus 0; DATA BIT 0
29	Data Bus 1; DATA BIT 1
30	Data Bus 2; DATA BIT 2
31	Data Bus 3; DATA BIT 3
32	Data Bus 4; DATA BIT 4
35	Power; -5V

Parallel PCA Connector



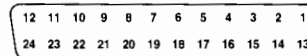
PIN	FUNCTION	SIGNAL
10	Upstream (-) Differential Signal	Link -
11	Upstream (+) Differential Signal	Link +
12	Shield, Floating Ground	SH
13	Downstream (-) Differential Signal	Link -
14	Downstream (+) Differential Signal	Link +

DSN/Data Link Connector.



PIN	FUNCTION	SIGNAL
1	Data Bus 1	D101
2	Data Bus 2	D102
3	Data Bus 3	D103
4	Data Bus 4	D104
5	End or Identify	EOI
6	Data Valid	DAV
7	Not Ready for Data	NRPD
8	Not Data Accepted	NDAC
9	Interface Clear	IFC
10	Service Request	SRQ
11	Attention	ATN
12	Earth Ground	SHIELD
13	Data Bus 5	D105
14	Data Bus 6	D106
15	Data Bus 7	D107
16	Data Bus 8	D108
17	Remote Enable	REM
18-24	Signal Ground	GND

HP-IB Connector.



PIN	FUNCTION	SIGNAL	
1	Received Data Input	BBI	Upstream Device To Male Connector
2	Clear to Send Input	CBI	
3	Transmitted Data Output	BBO	
4	Request to Send Output	CAO	
5	Receiver Timing	DDI	
6	Signal Return	RETURN	
7	Transmitter Timing Input	DBI	Downstream Device To Female Connector
8	Signal Ground	AB	
9	N.C.	SHIELD	
13	Received Data Output	BBO	
14	Clear to Send Output	CBO	
15	Transmitted Data Input	BAI	
16	Request to Send Input	CAI	
17	Receiver Timing Output	DDO	
18	Signal Ground	AB	
19	Transmitter Timing Output	DBO	
20	Signal Return	RETURN	
21	Protective Ground	SHIELD	

Daisychain Multipoint (Synchronous) Connector.

10

REFERENCE

A. DOCUMENTATION SUMMARY

TITLE	HP P/N
2930 Series Printers Owner's Manual	02932-90001
2930 Series Printers Operator's Guide	02932-90006
2930 Series Printers Service Manual	02932-90007
Upgrade Kit Installation Guide	02934-90020
HP 2932A General Purpose Printer Data Sheet	5953-6276 (54)
HP 2933A Factory Data Printer Data Sheet	5953-6277 (54)
HP 2934A Office Printer	5953-6278 (54)
HP 29340S Single Bin Sheet Feeder Data Sheet	5953-6287 (54)
29340S Sheet Feeder Installation Instructions	02934-90015
29340S Upgrade Kit Installation Guide	02934-90020

B. SUPPORTED CONTROL CODES AND ESCAPE SEQUENCES

Supported control codes and escape sequences can be found in the Appendix of the 2930 Series Printers Owner's Manual.

C. 263X ESCAPE SEQUENCES NOT IMPLEMENTED

SEQUENCE	DESCRIPTION
ESC & k # I	Character Set Selection Control
ESC & k # V	Head View Mode
ESC & k # W	Bidirectional Print
ESC & k # I	Character Set Default
ESC & k # Q	Character Set Selection
ESC (s # Q	Select Primary Set Density
ESC) s # Q	Select Secondary Set Density
ESC n	On-Line
ESC # Z	Bar Codes
ESC * b x/y/z	
ESC # r # c/d/e/i/j/m/n/p/q/x/y/z	
ESC & a 1 <	Request Horizontal Format Status
ESC & k 1 <	Request Latching Mode Status
ESC & l 1 <	Request VFC Mode Status
ESC & s 1 <	Request Strap Status

Mute characters are not implemented. Mute character set IDs are not recognized when selected by escape sequences.

D. DELETED PRINT MODES

The following print modes are deleted:

- 16.7 cpi
- 8.33 cpi
- 12.5 cpi
- 6.25 cpi
- 4.16 cpi

11

SERVICE NOTES/ IOSMs



SERVICE NOTE LISTING

2932A Service Notes

2932A-1	ROM Replacement for EPROMs
2932A-1A	New ROM, P/N 1818-3450
2932A-2	Fuse Failures on Motor/Head Drive PCA
2932A-3	293X Print Mechanism Changes
2932A-4	Pinch Roller Belt
2932A-4A	Pinch Roller Belt Part # Correction
2932A-5	New Motor/Head Drive PCA
2932A-6	New Repair Processor PCA
2932A-7S	Possible Shock Hazard
2932A-8	New Paper Deflector

2933A and 2934A Service Notes

2933A-1	Compatible Firmware Sets
2933A-2	Fuse Failures on Motor/Head Drive PCA
2933A-3	293X Print Mechanism Changes
2933A-4	Pinch Roller Belt
2933A-4A	Pinch Roller Belt Part # Correction
2933A-5	New Motor/Head Drive PCA
2933A-6S	Possible Shock Hazard

IOSM LISTING

29340S-0784-01	29340S Sheet Feeder Troubleshooting Hints/Replaceable Parts
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S E R V I C E N O T E

Supersedes:

2932A GENERAL PURPOSE PRINTER
 2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

293X PRINT MECHANISM CHANGES

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/> On Failure <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/> Information Only <input checked="" type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			
PARTS:	N/A	N/A	N/A
TRAVEL:			
SERVICE INVENTORY	Return for update <input type="checkbox"/>	Return for salvage <input checked="" type="checkbox"/>	Use as is <input type="checkbox"/> See text <input type="checkbox"/>
WARRANTY EXTENDED UNTIL:	N/A		

The 293X print mechanism has been modified to accommodate the 29340S Sheetfeeder. The new mechanism will be used in all three members of the 293X family. However, the sheetfeeder is only operational on the 2934/2933 printers.

Changes to the print mechanism were incorporated as the supply of old parts ran out and the new parts became available. Therefore, a number of printers were built with print mechanisms that had a combination of new and old parts. Printers built with a hybrid mechanism were given a series prefix of 2422 (i.e. S/N 2422AXXXX). HP2933 and 2934 printers with a hybrid mechanism are not sheetfeeder compatible and will require upgrading for use with the sheetfeeder.

The series prefix was changed to 2424 when print mechanisms containing all of the new parts began being built. HP2933 and 2934 printers with series prefix 2424 or higher are sheetfeeder compatible and require no upgrading.

HP2933 and HP2934 PRINTERS

Note: It will be difficult to visually determine if a print mechanism is sheetfeeder compatible or not. Please use the series prefix number when determining if a printer contains a mechanism that is or is not sheetfeeder compatible. Again, printers with series prefix 2422 or lower are not sheetfeeder compatible and will require upgrading to operate with the sheetfeeder.

REPAIR ASSEMBLIES

A number of the repair assemblies set up for the 293X print mechanism were affected by these changes, and these have been given new part numbers. A description of the changes and the new part numbers are provided below. Information on their compatibility with existing units in the field is also provided.

Any of the old assemblies referenced in this service note should no longer be used. They can be returned to CPC for credit.

9320 4766 (1/83)



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Supersedes:

2932A GENERAL PURPOSE PRINTER
 2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>
PERFORM:	Immediately <input type="checkbox"/> On Failure <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/> Information Only <input checked="" type="checkbox"/>
WARRANTY:	EXTENDED	NORMAL
LABOR:		
PARTS:	N/A	N/A
TRAVEL:		
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>
INVENTORY	Return for salvage <input checked="" type="checkbox"/>	See text <input type="checkbox"/>
WARRANTY EXTENDED UNTIL:	N/A	

293X PRINT MECHANISM CHANGES

PRINT MECHANISM (02932-60091)

The new print mechanism, PN 02932-60091, replaces the old print mechanism, PN 02932-60051.

Here is a summary of the changes to the print mechanism:

- (1) A wider pinch roller belt is used to provide additional torque for the sheet-feeder.
- (2) A wider drive pulley is used on the paper motor assembly to incorporate the new pinch roller belt.
- (3) The plastic housing for the optical paper sensor was modified to increase reliability for single-sheet loading.
- (4) A new pinch roller assembly was designed for the sheetfeeder. Further details are provided below.
- (5) An additional paper guide is added to the tractor assembly.
- (6) A support block was added to the platen to support the sheetfeeder.

The new print mechanism is compatible with all new and old 293X printers.

PRINT STRUCTURE ASSEMBLY (02932-60090)

The new print structure assembly, PN 02932-60090, replaces the old print structure assembly, PN 02932-60080.

Supersedes:

2932A GENERAL PURPOSE PRINTER
 2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>	
	On Failure <input type="checkbox"/>	Information Only <input checked="" type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			
PARTS:	N/A	N/A	N/A
TRAVEL:			
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>	
INVENTORY	Return for salvage <input checked="" type="checkbox"/>	See text <input type="checkbox"/>	
WARRANTY EXTENDED UNTIL:	N/A		

293X PRINT MECHANISM CHANGES

The new print structure assembly has a redesigned platen. The new platen has a plastic support block installed on it. The support block sits beneath the pinch roller assembly to prevent bowing when the sheetfeeder is installed.

The new print structure is compatible with all new and old 293X printers.

PINCH ROLLER ASSEMBLY (02932-60084)

The new pinch roller assembly, PN 02932-60084, replaces the old pinch roller assembly, PN 02932-60058.

Three major changes were made to the pinch roller assembly to accommodate the sheetfeeder.

- (1) A spur gear was added to the pinch roller assembly to drive the sheetfeeder. In addition, the spur gear (PN 1430-0612) on the old pinch roller assembly is being changed over to this part. The spur gears will no longer be available for field replacement due to manufacturing changes to the pinch roller assembly.
- (2) A new pinch roller pulley replaces the old pinch roller pulley. The change is necessary to accommodate the wider pinch roller belt. The pinch roller pulley will no longer be available for field replacement due to manufacturing changes to the roller assembly.
- (3) Additional foam rollers were added to increase the reliability of loading paper from the sheetfeeder. These are not replaceable.

The new pinch roller assembly is compatible with all new and old 293X printers.

Supersedes:

- 2932A GENERAL PURPOSE PRINTER
- 2933A FACTORY DATA PRINTER
- 2934A OFFICE PRINTER

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>	
	On Failure <input type="checkbox"/>	Information Only <input checked="" type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			
PARTS:	N/A	N/A	N/A
TRAVEL:			
SERVICE	Return for update <input type="checkbox"/>	Return for salvage <input checked="" type="checkbox"/>	Use as is <input type="checkbox"/>
INVENTORY			See text <input type="checkbox"/>
WARRANTY EXTENDED UNTIL:	N/A		

293X PRINT MECHANISM CHANGES

PINCH ROLLER BELT (1500-0669)

The new pinch roller belt, PN 1500-0669, replaces the old pinch roller belt, PN 1500-0653.

The new belt is wider to handle the additional torque requirements of the sheetfeeder.

```

*****
*
*
*           I M P O R T A N T - S E E S E R V I C E N O T E S 2 9 3 X A - 4
*
*
*
* If a belt fails on a pre-sheetfeeder unit (Series prefix, 2422 and below) the
* pinch roller assembly and the paper motor assembly may need to be replaced to
* accommodate the wider replacement belt. See service notes 293XA-4 for more
* details including warranty considerations.
*
*
*****
    
```

PAPER MOTOR ASSEMBLY (02932-60085)

The new paper motor assembly, PN 02932-60085, replaces the old paper motor assembly, PN 02932-60057.

The new paper motor assembly has a new drive pulley that replaces the old drive pulley. The new drive pulley will accommodate the wider pinch roller belt, the old drive pulley will not. The drive pulley will no longer be available for field replacement due to manufacturing changes to the paper motor assembly.

The new paper motor assembly is compatible with all new and old 293X printers.



Supersedes:

2932A GENERAL PURPOSE PRINTER
 2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

293X PRINT MECHANISM CHANGES

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>	
	On Failure <input type="checkbox"/>	Information Only <input checked="" type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			
PARTS:	N/A	N/A	N/A
TRAVEL:			
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>	
INVENTORY	Return for salvage <input checked="" type="checkbox"/>	See text <input type="checkbox"/>	
WARRANTY EXTENDED UNTIL:	N/A		

OPTO SENSOR ASSEMBLY (02932-60086)

The new opto sensor assembly, PN 02932-60086, replaces the old opto sensor assembly, PN 02932-60075.

The new opto sensor assembly has redesigned plastic housing to correctly feed paper from the sheetfeeder.

The new opto sensor assembly is compatible with all old and new 293X printers.

ADDITIONAL DOCUMENTATION

The HP2930 Service Manual will be updated to show these changes. Update will be distributed to anyone subscribing to the following subscription services:

- | | |
|-----------------------------------|-----------------|
| (1) VCD CE DOT MATRIX PRINTER SS | (P/N 5957-3591) |
| (2) VCD TSE DOT MATRIX PRINTER SS | (P/N 5957-3597) |
| (3) VCD O2 LIBRARIAN SS | (P/N 5957-3601) |

Supersedes:

2932A GENERAL PURPOSE PRINTER
 2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM: Normal Call <input type="checkbox"/>	
	On Failure <input type="checkbox"/>	Information Only <input checked="" type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:			
PARTS:	N/A	N/A	N/A
TRAVEL:			
SERVICE INVENTORY	Return for update <input type="checkbox"/>	Return for salvage <input checked="" type="checkbox"/>	Use as is <input type="checkbox"/>
			See text <input type="checkbox"/>
WARRANTY EXTENDED UNTIL:	N/A		

293X PRINT MECHANISM CHANGES

ORIGINAL PARTS TO REPLACEMENT PARTS

<u>Original HP Part Number</u>	<u>Description</u>	<u>Replacement Part Number</u>	<u>Description</u>
02932-60051	Print Mechanism	02932-60091	Print Mechanism
02932-60080	Print Structure Assembly	02932-60090	Print Structure Assembly
02932-60058	Pinch Roller Assembly	02932-60084	Pinch Roller Assembly
02932-60057	Paper Motor Assembly	02932-60085	Paper Motor Assembly
02932-60075	Opto Sensor Assembly	02932-60086	Opto Sensor Assembly
1500-0653	Pinch Roller Belt	1500-0669	Pinch Roller Belt
1430-0612	Spur Gear	02932-60084	Pinch Roller Assembly
02932-40035	Pinch Roller Pulley	02932-60084	Pinch Roller Assembly
02932-40034	Drive Pulley	02932-60085	Paper Motor Assembly

SERVICE NOTE

Supersedes:

2932A GENERAL PURPOSE PRINTER

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>
	On Failure <input type="checkbox"/>	Information Only <input checked="" type="checkbox"/>
WARRANTY:	EXTENDED	NORMAL
LABOR:		X
PARTS:		X
TRAVEL:		X
SERVICE INVENTORY	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>
	Return for salvage <input type="checkbox"/>	See text <input checked="" type="checkbox"/>
WARRANTY EXTENDED UNTIL:		

New Repair Processor PCA
P/N 02932-60103 (Exchange PCA P/N 02932-69103)

The repair board for the HP2932A Processor PCA will no longer contain the printer firmware. This will result in a less expensive repair board and it should eliminate some of the confusion associated with firmware revisions by minimizing PCA part number changes.

The new repair board has the part number 02932-60103 (Exchange PCA 02932-69103). Current inventories of Processor PCA 02932-60003 can be used until gone. Processor PCA 02932-60003 will continue to be used in manufacturing.

Transferring Firmware (Jumpers W1 and W3)

When installing the new repair boards, the firmware must be transferred from the processor PCA that has failed. If this is not possible, order and install the ROM, P/N 1818-3450, into socket U101 on the Processor PCA.

Three different configurations of firmware exist:

1. EPROM version.
2. PCA card with ROM (See Service Note 2932A-1).
3. Single ROM.

The EPROM configuration has two EPROMs installed. The first EPROM in socket U101 and the second EPROM in socket U301. When using this configuration, Jumper W1 should be removed and Jumper W3 should be installed.

The second configuration has a PCA card and ROM installed in socket U101. Socket U301 is empty. The PCA card with ROM is held into place by a nut and screw. The new repair PCA is not designed to accommodate the nut and screw. While the PCA card with ROM can be installed without the nut and screw, it may be desirable to cont'd.

9320 4766 (1/83)



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1 of 2

2932A GENERAL PURPOSE PRINTER Cont'd.

install the single ROM (P/N 1818-3450) for increased reliability. When using this configuration, both Jumper W1 and Jumper W3 should be installed.

The third configuration has the ROM, P/N 1818-3450, installed in socket U101. Socket U301 is empty. When using this configuration, both Jumper W1 and W3 should be installed.

Summary Table

<u>Configuration</u>	<u>Socket U101</u>	<u>Socket U301</u>	<u>Jumper W1</u>	<u>Jumper W3</u>
EPR0M	02932-80087 (02932-80069)	02932-80088 (02932-80070)	Open Open	Closed Closed
PCA Card with ROM	02932-60016	Empty	Closed	Closed
Single ROM	1818-3450	Empty	Closed	Closed



SC/scz
PC0 54-0418

S E R V I C E N O T E

2933A FACTORY DATA PRINTER
 2934A OFFICE PRINTER

COMPATIBLE FIRMWARE SETS

Supersedes:

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>
	On Failure <input checked="" type="checkbox"/>	Information Only <input type="checkbox"/>
WARRANTY:	EXTENDED	NORMAL
LABOR:		X
PARTS:	X	
TRAVEL:		X
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>
INVENTORY	Return for salvage <input type="checkbox"/>	See text <input checked="" type="checkbox"/>
WARRANTY EXTENDED UNTIL:	5/1/85	

The 2934A/2933A printers have had two firmware revisions; the first to correct some bugs, and the second to introduce the 29340S Sheetfeeder. The firmware is contained in four EPROMs. Three of the EPROMs reside on the Processor Extender PCA (#02934-60065). The other EPROM resides on the Processor PCA (#02934-60051).

The four EPROMs operate as a set, therefore EPROMs from different revisions cannot be mixed. This incompatibility between the different sets of firmware can lead to problems when replacing either the Processor PCA or the Processor Extender PCA. If the replacement board contains firmware that does not match the set in the unit, the printer will not be operable.

The problem is further complicated because there are no board part number changes to the two affected PCAs associated with these revisions. This will be accomplished when masked ROMs containing the sheetfeeder revision arrive. At that time the Processor Extender PCA will no longer be required and the field inventory of Processor PCAs will be reworked or replaced by the new Processor PCA with masked parts. (**Approximate time for these changes is September 1984; note that the Processor Extender PCA is NOT an exchange assembly and that it will be obsoleted when the Processor PCA part number changes.)

Until the masked parts arrive, the EPROM incompatibility problem will need to be addressed. The quickest and easiest solution to the problem if the processor PCA fails is to keep the original firmware with the unit. To help make this happen, the exchange Processor PCAs will be shipped without an EPROM in socket U504. The EPROM from the failed board will have to be swapped out before the exchange board is installed. A note will go out with the Processor PCA explaining the EPROM swap.

SC/scz
 PCO #54-0383

9320-4766 (1/83)



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There is no exchange for the Processor Extender PCA. New boards will be fully loaded with the sheetfeeder firmware set. If this board fails, the matching EPROM for the Processor PCA can be ordered to ensure compatibility. The part number is 02934-80192.

The three sets of compatible EPROMs are outlined below, including EPROM part numbers and their location on the PCA boards. Both the revised set and the sheetfeeder set will be available at CPC until the masked ROMs arrive.

NOTE: The EPROMs are stamped with only the last five digits of the part number. The prefix 02934 is not present.

Description	Original Set	1st Revision	Sheetfeeder	PCA Board	Location
Z80 #1	02934-80099	02934-80183	02934-80190	02934-60065	U1
Z80 #2	02934-80150	02934-80184	02934-80191	02934-60065	U2
Z80 #3	02934-80153	02934-80185	02934-80192	02934-60051	U504
8051	02934-80098	02934-80186	02934-80193	02934-60065	U8

SC/scz
PCO #54-0383

PRODUCT SAFETY SERVICE NOTE

Supersedes:

HP MODEL 2932A PRINTER

ALL UNITS

POSSIBLE SHOCK HAZARD

APPLIES TO:	All Units <input checked="" type="checkbox"/>	Only Units on Agreement <input type="checkbox"/>
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>
	On Failure <input checked="" type="checkbox"/>	Information Only <input type="checkbox"/>
WARRANTY:	EXTENDED	NORMAL
LABOR:	X	
PARTS:		X
TRAVEL:		X
SERVICE	Return for update <input type="checkbox"/>	Use as is <input checked="" type="checkbox"/>
INVENTORY	Return for salvage <input type="checkbox"/>	See text <input type="checkbox"/>
WARRANTY EXTENDED UNTIL:	Always	

WARNING

There is an increased chance of a shock hazard developing due to the possibility of an incorrectly installed Power Line Module Assembly. A shock hazard could develop if the Power Line Module Assembly is forcibly removed from the printer.

Whenever a 2934 printer is serviced, the Power Line Module Assembly (p/n 02932-60065) should be checked to make sure that both of the Metal Power Line Module Retainers (p/n 02932-00038) are properly installed.

Units in house were discovered with only one of the retainers completely installed. Under normal operating conditions this does not present a problem, as the Power Line Module will remain in place and stay flush inside the unit. However, if a power cord is installed in the module and it is pulled to one side or the other, it may be possible to pull the unconnected side of the module out. It is possible that someone could trip over a power cord and have this happen.

Whenever an HP2934 printer is serviced, the Power Line Module Assembly should be checked for proper installation. The best way to perform the check is to take a disconnected power cord and plug the female end into the Power Line Module. Pull the cord to the left and right and try to twist the Power Line Module out of the printer. If the Power Line Module is loose, open the top cover, remove the shield and clip the Power Line Module into place using a screwdriver. Repeat the above test to ensure that the retainer clips are correctly installed.

NOTE: Make sure the power cord is disconnected from line power during this testing.

W/OF/WA

9/84

5400/SC/SCZ

9320-5190 (1/83)



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1 of 1

SERVICE NOTE

2932A-21

Supersedes:

2932A Printer

APPLIES TO:	All Units <input type="checkbox"/>	Only Units on Agreement/Warranty <input checked="" type="checkbox"/>
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>
	On Failure <input checked="" type="checkbox"/>	Information Only <input type="checkbox"/>
WARRANTY:	EXTENDED	NORMAL
LABOR:		X
PARTS:		X
TRAVEL:	X	X
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>
INVENTORY	Return for salvage <input type="checkbox"/>	See text <input checked="" type="checkbox"/>
WARRANTY EXTENDED UNTIL: 9/87		

New Ribbon Motor Assembly (P/N 02932-67903)

There is a new Ribbon Motor Assembly available for the HP2932A Printers. It replaces the original ribbon motor (P/N 02932-60074) which has been experiencing reliability problems. The new Ribbon Motor Assembly has part number 02932-67903 and it is available through CPC/PCE.

The new Ribbon Motor Assembly is forward and backwards compatible with all HP2932A Printers. It is shipped already installed on the ribbon motor bracket to ensure mechanical compatibility with older units. Four screws are included for mounting the new ribbon motor bracket. These screws must be used.

Ribbon Motor Reliability Problems (P/N 02932-60074)

The failure rate of the original ribbon motor for the HP2932A has been extremely high due to two distinct problems. The first failure mode is caused by an internal shorting of the motor windings. The ribbon motors are driven by the +12V supply, which is used as a reference by the +5V regulator. When the ribbon motor shorts, the +12V supply is pulled down, which causes the +5V supply to drop slightly. The drop in the +5V supply can trigger the RESET line to the processor, causing 'random resets' of the printer. A severe case of this problem can also blow the ribbon motor fuse on the Motor/Head Drive PCA. This problem can be very difficult to troubleshoot as the shorts are usually temporary and intermittent. The reset will occur during the middle of a print job, often when no one is around. A reset will clear the buffer and set the printer back to the default configuration. Loss of data, loss of margins, and print head stalls are all common symptoms of a resetting motor. The second and more common failure is simply a locking of the motor gear train due to wear. When the motor quits turning the ribbon will slacken and it can get wrapped around the drive roller assembly. This failure can also cause the ribbon motor fuse to blow (Fuse F13: P/N 2110-0360 on the Motor/Head Drive PCA).

8/86

9320-4766 (1/83)



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1012

2932A-21

Service Inventory

Scrap all field inventory of the original ribbon motor, P/N 02932-60074.

Warranty Information

VCD will cover the cost of the new Ribbon Motor Assembly, P/N 02932-67903, for a 1 year period ending September 1, 1987. Labor and Travel is not included.

5400/SCC/scc

8/86

SERVICE NOTE

Supersedes:

2933A Printer

APPLIES TO:	All Units <input type="checkbox"/>	Only Units on Agreement/Warranty <input checked="" type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>	
	On Failure <input checked="" type="checkbox"/>	Information Only <input type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:		X	
PARTS:	X		
TRAVEL:		X	
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>	
INVENTORY	Return for salvage <input type="checkbox"/>	See text <input checked="" type="checkbox"/>	
WARRANTY EXTENDED UNTIL:	9/87		

New Ribbon Motor Assembly (P/N 02932-67903)

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9320-4766 (1/83)



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1 of 2

2933A-21

Service Inventory

Scrap all field inventory of the original ribbon motor, P/N 02932-60074.

Warranty Information

VCD will cover the cost of the new Ribbon Motor Assembly, P/N 02932-67903, for a 1 year period ending September 1, 1987. Labor and Travel is not included.

5400/SCC/scc

8/86

2934A-21
S E R V I C E N O T E

Supersedes:

2934A Printer

APPLIES TO:	All Units <input type="checkbox"/>	Only Units on Agreement/Warranty <input checked="" type="checkbox"/>	
PERFORM:	Immediately <input type="checkbox"/>	At PM/Normal Call <input type="checkbox"/>	
	On Failure <input checked="" type="checkbox"/>	Information Only <input type="checkbox"/>	
WARRANTY:	EXTENDED	NORMAL	NONE
LABOR:		X	
PARTS:		X	
TRAVEL:	X	X	
SERVICE	Return for update <input type="checkbox"/>	Use as is <input type="checkbox"/>	
INVENTORY	Return for salvage <input type="checkbox"/>	See text <input checked="" type="checkbox"/>	
WARRANTY EXTENDED UNTIL:	9/87		

New Ribbon Motor Assembly (P/N 02932-67903)

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9320-4766 (1/83)



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Service Inventory

Scrap all field inventory of the original ribbon motor, P/N 02932-60074.

Warranty Information

VCD will cover the cost of the new Ribbon Motor Assembly, P/N 02932-67903, for a 1 year period ending September 1, 1987. Labor and Travel is not included.

5400/SCC/scc

8/86

VANCOUVER DIVISION
CE HANDBOOK
(3/85)

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- **Green Tabs** – 293X
- **Future VCD products**

To order Volume 1, contact DMK (Direct Marketing Division, formerly CSO). Volume 1 contains the following:

- 2601A
- 26010D
- 2602A
- 9871A
- 263XA
- 263XB
- 2631G
- 2671A/G
- 2673A

Thank You!

Hewlett-Packard
Product Support Manager
VCD
PO Box C-006
Vancouver, WA 98668-C006

