

WANG

3308

**DATAPRODUCTS (300/600 LPM)
LINE PRINTERS
MAINTENANCE GUIDE**

Models:

300 LPM PRINTERS

2273V-1

2273-1

5573

600 LPM PRINTERS

2273-2

5574

**Customer Engineering Reprint
Product Maintenance Manual**

741-0432

PREFACE

The following are the Wang model numbers for the B300/B600 Band Printers.

5573	300LPM	serial printer
5574	600LPM	serial printer
2273-1	300LPM	parallel printer
2273-2	600LPM	parallel printer
2273V-1	300LPM	parallel remote printer

All the printer models listed above are configured with the following options.

Maximum print columns (132)

DAVFU: Direct access vertical format unit

Standard pedestal (acoustical cabinet not used)

Universal 50/60Hz and domestic 60Hz only power supplies are used

Dataproducts Centronics compatible interface, WLI part number 726-1108, OEM part number 257265-001

The purpose of this manual is to provide the Wang-trained Customer Engineer (CE) with instructions to operate, troubleshoot and repair the Dataproducts 300/600 LPM Line Printers.

Second Edition (October 1984)

This reprint is the converted number for and obsoletes document numbers 729-0432 and 741-0433. The material in this document may be used only for the purpose stated in the Preface. A cross reference listing of Wang P/N to Dataproducts P/N and Dataproducts P/N to Wang P/N is supplied in Appendix B at the back of this manual. Updates and/or changes to this document will be published as Publications Update Bulletins (PUB's) or subsequent editions.

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Maintenance Guide

GENERAL
INFORMATION

1

VOLUME I

**300 LPM/
600 LPM**

LINE PRINTERS

INSTALLATION,
INTERFACES
AND CONFIGURATIONS

2

MAINTENANCE
PROCEDURES

3

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WOODLAND HILLS, CALIFORNIA 91365

MARCH, 1984

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SPECIAL NOTE TO READER

Despite every reasonable effort by Dataproducts Corporation, a manual of this scope may contain errors, omissions, or ambiguities. To a large extent, we depend upon feedback from our users to correct this situation. We urge you, therefore, to let us know how you think this manual can be improved. The best way to do this is to use the Reader's Comment Sheet located at the back of the manual.

RELATED PUBLICATIONS

<u>Title</u>	<u>Publication Number</u>
Master Support and Logistics Manual, B-Series Line Printers, Models 300/600/1000 LPM	267726
Operator's Guide, B-Series Line Printer, Models 300/600 LPM	255136
Operator's Guide, B-Series Line Printers, with Acoustic Cabinets	267720
Maintenance Guide, B-Series Line Printers with Acoustic Cabinet, Models 300/600/1000 LPM	267788
Schematics Package, B-Series Line Printers, Models 300/600 LPM	255122

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If customer facility is located east of the Mississippi River:

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If customer facility is located west of the Mississippi River:

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67-4473 DATAPROD LSA

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DATAPRODUCTS HAS A VARIETY OF TRAINING FORMATS
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THE B-SERIES PRINTER TRAINING COURSE: A 5-day analysis of the B300 and B600 Line Printers, ideal for Teachers, Engineers, Support Personnel, or others requiring an in-depth understanding of B-Series Line Printer technology to the component level. A 3-day maintenance level course is also available for the B300, B600, and B1000 Line Printers. This course is designed especially for Maintenance Personnel who require more of a module level understanding with emphasis on maintenance and adjustment procedures. Regularly scheduled classes of both the 3-day and 5-day courses are conducted in Canoga Park, California. Special classes may be conducted at your facility.

THE B-SERIES INSTRUCTOR TRAINING GUIDE: The Instructor Training Guide provides all necessary information to accurately conduct a training course on Dataproducts B300, B600 and B1000 Line Printers. The guide provides the instructor with overall course strategy, detailed theory of operation, lecture preparatory notes, laboratory directions and sample problems, exams, exam answer sheets, and viewgraph slide masters.

THE B-SERIES STUDENT TRAINING GUIDE: Used by the student in conjunction with the training course, this text provides pictorial aids which simplify concepts.

THE B300/B600 SLIDE/CASSETTE TRAINING PROGRAM: The Slide/Cassette Program delivers a sound module-level understanding of the B300 and B600 printers, enabling the trainee to perform all required maintenance, calibrations, and adjustments, disassembly and reassembly, and to troubleshoot and resolve printer problems in a logical and orderly way. Lecture and laboratory are presented via photographic slides and tape cassettes. Each program includes a B300/B600 Maintenance Guide and a slide/cassette Student Guide. This program is also available in video cassette edition.

FOR REGISTRATION OR ORDERING INFORMATION, CALL:

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TECHNICAL EDUCATION CENTER

(818) 887-8489

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If your equipment is still under warranty, you may contact the Product Support Representative in your area. Call your local sales office for information.

Dataproducts Corporation provides comprehensive out-of-warranty repair services for all product lines.

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Circuit card and subassemblies are tested and repaired utilizing components and assembly/test procedures which meet or exceed original product specification.

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Attention: Repair and Remanufacture

Telephone: (818) 888-4079

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HOW TO USE THIS MAINTENANCE GUIDE

This **MAINTENANCE GUIDE** for the **B-Series 300 LPM and 600 LPM Non-Acoustic Cabinet Line Printers** is meant to be used by service personnel with some knowledge of printer electronics and mechanics. It provides information on how to install, maintain and repair these two models in the B-Series line.

The information is arranged in the following sections:

GENERAL INFORMATION shows location of the major assemblies and subassemblies and provides information relating to the printer's specifications, character sets, options, and accessories.

INSTALLATION, INTERFACES AND CONFIGURATIONS explains how to install the printer and the various interfaces that can be used with the printer. The configuration describes how the printer can be set up for various operating formats.

MAINTENANCE PROCEDURES provides information for removing, installing, adjusting, and testing the printer assemblies to keep the printer in good working order.

TROUBLESHOOTING in Volume II contains information on how to diagnose and correct faults.

An alphabetical index in the back of the Maintenance Guide will help locate information on specific assemblies and problems.

Special attention must be given to **NOTE**, **CAUTION**, and **WARNING**. They are used to highlight information and help protect the user and the printer during maintenance and troubleshooting procedures. The purpose of each is described below:

NOTE

A note will give you important information about the description or procedure.

CAUTION

A caution when not strictly observed could result in damage to the printer.

WARNING

A warning when not strictly observed could result in injury to personnel or loss of life.

Use this manual with the Operator's Guide that was shipped with the printer. The Operator's Guide has instructions for loading paper, changing ribbons and character bands, weekly and monthly cleaning, Tape Control Vertical Forms Unit (TCVFU) tape loading and preparation, Forms Length Select (FLS) switch settings, and paper and ribbon selection.

For those who need more detailed information about the printer, the B-Series Master Support and Logistics Manual (MSL), provides detailed description including: the theory of operation of the printer's electronics and mechanics, logic diagrams (schematics), and illustrated parts breakdown.

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**SECTION
I
GENERAL
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SECTION I

GENERAL INFORMATION

1.1 INTRODUCTION

This section outlines the features of the B-Series 300 LPM/600 LPM, Medium Speed, Impact Type, Non-Acoustic Cabinet Line Printers.

- General Description
- Specifications
- Character Bands and Character Sets
- Options and Accessories

1.2 GENERAL DESCRIPTION

A B-Series non-acoustic cabinet line printer, as shown in figures 1-1 and 1-2, is a "hard copy" output terminal for electronic data processing systems (computer systems). As an output terminal, the printer system accepts user data, processes the data for a line of print, prints the data, and moves paper according to a programmed format. A microprocessor on the Processor Circuit Card Assembly (CCA) controls the logical, electrical, and mechanical functions needed to operate the printer.

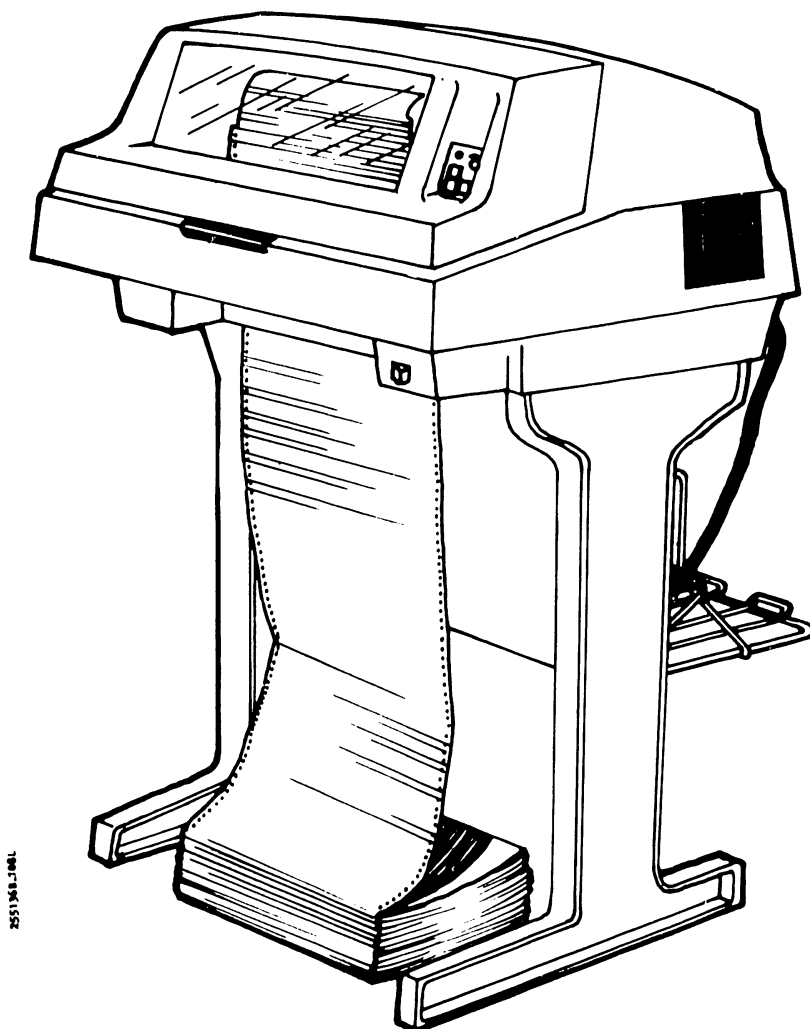
The printer, controlled by the microprocessor, inputs user data through an input/output (I/O) assembly connected between the user system and the printer electronics. The data is processed, under program control, and stored for printing.

When a line of data has been stored, the hammers on the hammer bank assembly are "triggered" to strike a horizontal font carrier (character band) and produce a line of print on the paper. The paper then moves vertically into place for the next line of print. It is held in place by paper clamps.

The character band (font carrier) is a continuous steel band embossed with sets of fully-formed characters. The character band is motor driven to move horizontally between the hammer bank assembly and a platen.

The inked-nylon ribbon moves horizontally between the hammers and the character band. It is belt-coupled to the band drive motor and pulled from the ribbon cartridge across the print station. It is then fan-folded back into the ribbon cartridge.

The printer's voltage and current needs are met by the standard 90-132 VAC, 60 Hz power supply configuration. A universal power supply, which lets the user select input voltages in either the 90-132 VAC or 180-250 VAC range at 50 to 60 Hz, is optional.

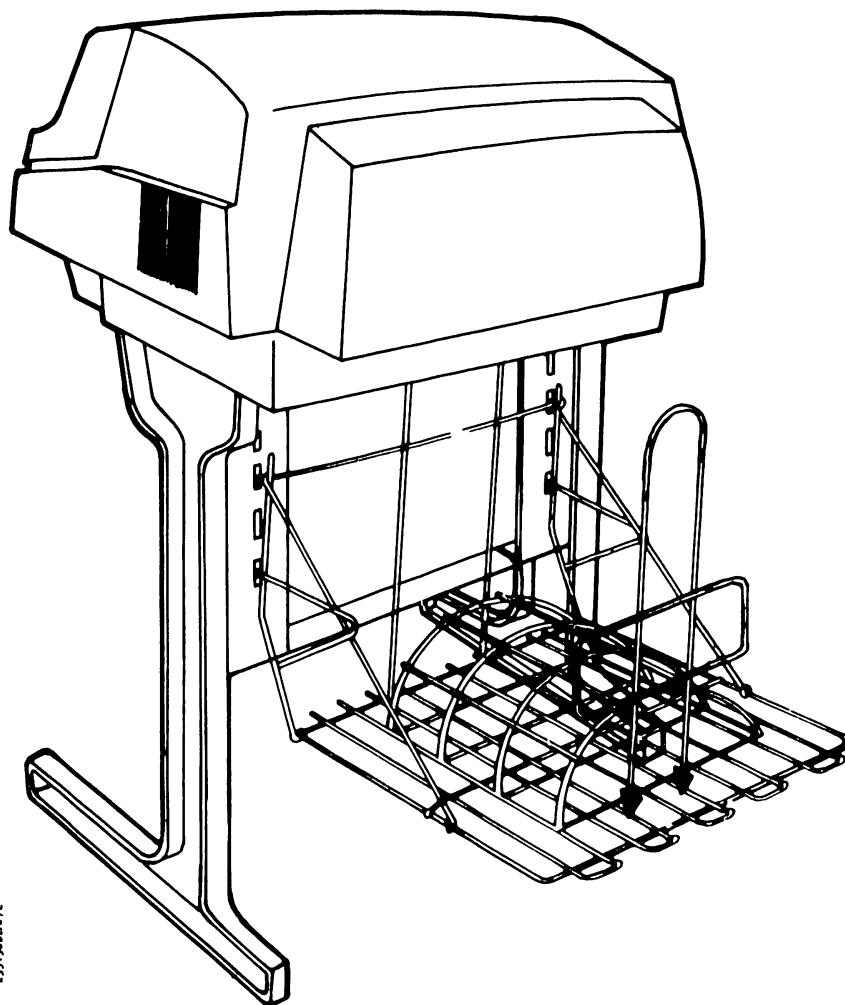


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NOTE

PEDESTAL IS OPTIONAL WITH 300 LPM PRINTER AND STANDARD WITH THE 600 LPM PRINTER.

Figure 1-1. Printer with Optional Pedestal and Shelf (Front View)



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NOTE

PEDESTAL IS OPTIONAL WITH 300 LPM PRINTER AND STANDARD WITH THE 600 LPM PRINTER.

Figure 1-2. Printer with Optional Pedestal and Shelf (Rear View)

GENERAL INFORMATION

Fan/blower assemblies circulate the air inside the cabinet to keep the printer components from overheating. A failure in the cooling system, which causes the electronic circuit card assemblies to overheat, will stop all printer operations.

Figure 1-3 shows, in block diagram format, the major assemblies and subassemblies of the printers.

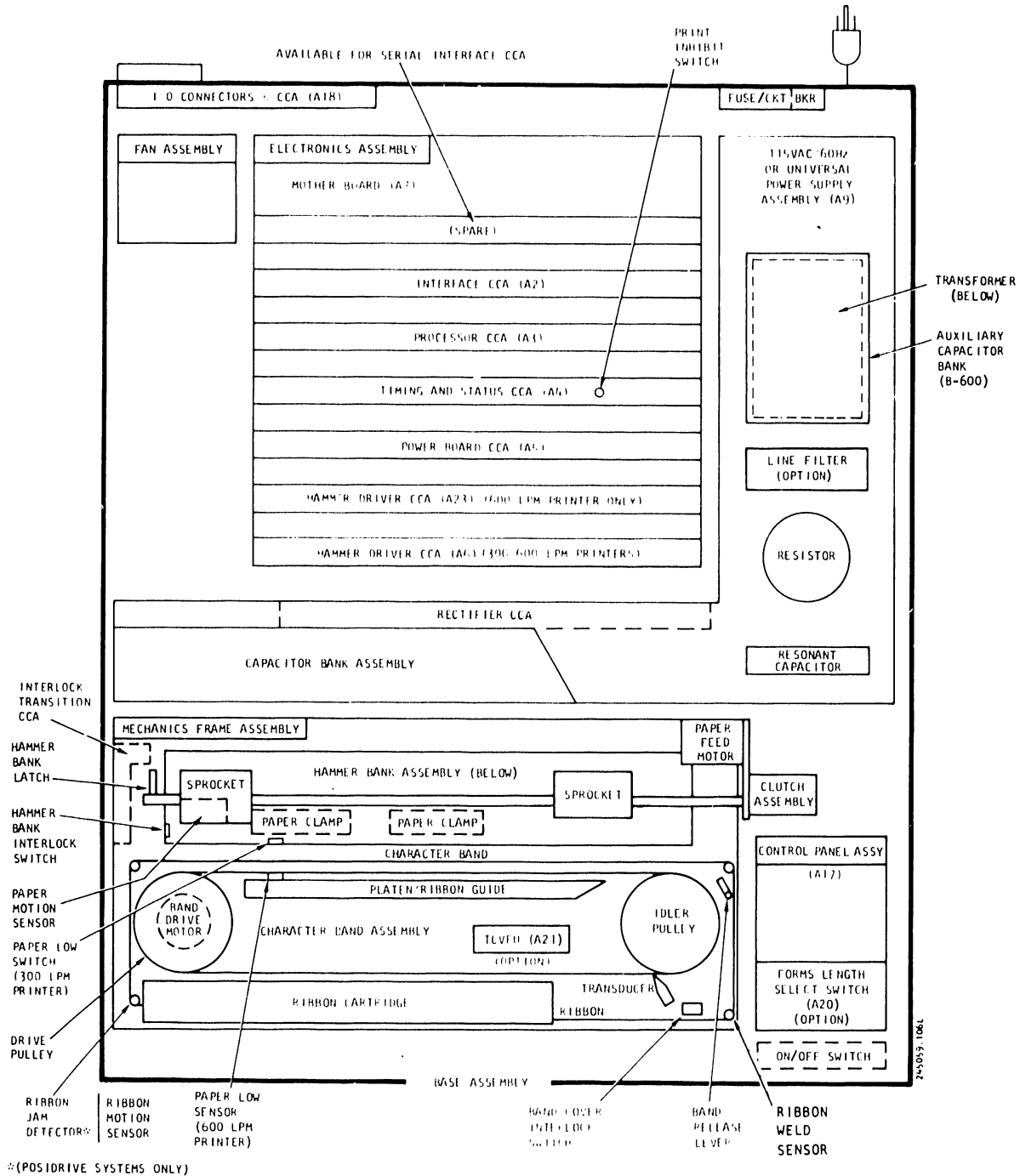


Figure 1-3. Major Assemblies and Subassemblies, Block Diagram

1.3 SPECIFICATIONS

Table 1-1 summarizes the power requirements, environmental requirements, physical characteristics, and performance characteristics of the printer.

NOTE

Specifications common to both models are noted once; specifications unique to each model are identified with the particular model.

TABLE 1-1. SPECIFICATION SUMMARY

Item	Specification	Remarks
Standard 115 VAC, 60 Hz Power Supply Input Voltage	90 to 132 VAC, 60 \pm 1 Hz, single phase.	
Universal Power Supply Input Voltage	90 to 132 VAC, 50/60 \pm 2 Hz low range. Single phase. 180 to 250 VAC, 50/60 \pm 2 Hz high range. Single phase.	Selection of low or high voltage and 50 or 60 Hz is made by plug connections on the power supply assembly transformer.
Temperature:		
Operating	10°C to 38°C (50°F to 100°F)	
Storage	-10°C to 50°C (14°F to 122°F)	
Transit	-40°C to 71°C (-40°F to 160°F)	
Humidity:		
Operating	20% to 80% relative humidity	Humidity noncondensing
Storage	10% to 90% relative humidity	10% per hour rate of change
Transit	95% maximum relative humidity	10% per hour rate of change
Altitude:		
Operating	0 to 3000 meters	
Storage	0 to 3000 meters	
Transit	0 to 10,000 meters	
Printer Cabinet Dimensions:		
Weight	<u>300 LPM</u> <u>600 LPM</u>	Nominal Weights
Printer Weight (without pedestal)	71.67 kg (158 lbs) 77.11 kg (170 lbs)	Differences may occur due to printer variants, options, and accessories
Printer Weight (with pedestal)	84.37 kg (186 lbs) 89.81 kg (198 lbs)	

GENERAL INFORMATION

TABLE 1-1. SPECIFICATION SUMMARY (Cont'd)

Item	Specification		Remarks
Weight: (Cont'd)	<u>300 LPM</u>	<u>600 LPM</u>	
Pedestal only	12.70 kg (28 lbs)	12.70 kg (28 lbs)	
Shipping Weight (without pedestal)	77.11 kg (170 lbs)	82.56 kg (182 lbs)	
Shipping Weight (with pedestal)	93.44 kg (206 lbs)	98.88 kg (218 lbs)	
Pedestal Shipping Weight	16.33 kg (36 lbs)	16.33 kg (36 lbs)	
Height:			
Standard Configuration	38 cm (17.9 in.) 74.75 cm (29.43 in.)		Cover closed Cover open
Pedestal Configuration	111 cm (43.70 in.) 148 cm (58.27 in.)		Cover closed Cover open
Depth:			
Standard Configuration	64 cm (25.2 in.)		
Pedestal Configuration	85.3 cm (33.58 in.)		With Paper Shelf
Width:			
Standard Configuration	77 cm (30.3 in.)		
Pedestal Configuration	77 cm (30.3 in.)		
Print Characteristics:			
Band Speed	Standard Interface		
300 LPM Printer	420.37 cm (165.5 in.) per second 467.36 cm (184 in.) per second		Implemented by choice of Band Speed, Programmable, and Flight Time Headers on Timing and Status CCA and Hammer Driver CCA.
600 LPM Printer	271.02 cm (106.7 in.) per second 321.56 cm (126.6 in.) per second		
Printable Columns	132 Standard (136 optional)		
Horizontal Characters per inch:			
300 LPM Printer	10 characters/25.4 mm (1 in.) 15 characters/25.4 mm (1 in.)		Optional
600 LPM Printer	10 characters/25.4 mm (1 in.)		
Method	Impact		

TABLE I-1. SPECIFICATION SUMMARY (Cont'd)

Item	Specification	Remarks
Hammer Bank:		
300 LPM Printer (Single Bank)	Wired for 66 Mark V double column spacing hammers (17 four-hammer modules). All located in upper bank.	132 column
	or	
	Wired for 68 Mark V double column spacing hammers (17 four-hammer modules), All located in upper bank.	136 columns (option)
600 LPM Printer (Double Bank)	Wired for 66 Mark V single column spacing hammers in upper bank; 66 Mark V single column spacing hammers in lower bank (17 four-hammer modules).	132 columns
	or	
	Wired for 68 Mark V single column spacing hammers in upper bank; 68 Mark V single column spacing hammers in lower bank (17 four-hammer modules).	136 columns (option)
Paper Feed:		
Step	30 milliseconds maximum (300 LPM); 25 milliseconds maximum (600 LPM)	Single Line Advance
Slew	38.1 cm (15 in.) per second	Following the receipt of a control character that causes two or more lines to be slewed.
Format Control	ASCII (LF, FF, CR), 11 inches or 12 inches Fixed Form, TC/DAVFU and FLS switch optional.	
Interfaces	15 meters (49 feet) maximum 150 meters (492 feet) maximum	Short Line Long Line
Power Consumption:		
115 VAC, 60 Hz Supply	<u>Standby</u>	<u>Printing</u>
300 LPM Printer	200 Watts maximum	300 Watts maximum
600 LPM Printer	250 Watts maximum	400 Watts maximum
Universal Supply		
300 LPM Printer	250 Watts maximum	350 Watts maximum
600 LPM Printer	300 Watts maximum	450 Watts maximum

GENERAL INFORMATION

TABLE 1-1. SPECIFICATION SUMMARY (Cont'd)

Item	Specification	Remarks
Standard Controls	Quantity: 5	
Optional Controls	Determined by configuration	
Indicators	Quantity: 4	
Protective Devices:		
Circuit Breaker		
Standard Configuration (115 VAC 60 Hz) Power Supply	Quantity: 1 Thermal, SPST 240VAC, 8 AMP	Pushbutton Type
(Universal) Power Supply	Quantity: 1 Series Trip, Single Handle, Two Pole Pole 1: 250 VAC, 4 AMPS Pole 2: 125 VAC, 8 AMPS, 50/60 Hz	Trip Time: 2 to 40 Seconds at 150% of Rated Current
Interlock Switches:		
300 LPM Printer	Quantity: 3 (4*)	Band Cover, Hammer Bank, Paper Low (Ribbon Jam Detector)*
600 LPM Printer	Quantity: 2 (3*)	Band Cover, Hammer Bank (Ribbon Jam Detector)*
Sensors:		
300 LPM Printer	Quantity: 2	Paper Motion, Ribbon Motion
600 LPM Printer	Quantity: 3	Paper Motion, Ribbon Motion, Paper Low
Fuses	Quantity: 6	
Power Cord Length	4 meters (13.1 feet)	
Paper Forms		See Operator's Guide
Ribbon		See Operator's Guide
* Posidrive Ribbon Drive Only		

1.4 CHARACTER BANDS AND CHARACTER SETS

The B-Series Non-Acoustic Cabinet printers use a continuous steel band (character band) for their printing operation. Standard character bands are available in 48, 64, upper and lower 96, and 128 character sets.

NOTE

Printers with the Centronics-Compatible Interface CCA cannot use the 128 character set and do not print the 96th character in the 96 character set.

A printer is usually shipped with one character band and a matching Programmable Read-Only Memory (PROM) set. Tables 1-2 and 1-3 list, by language or country, the character band/PROM sets available with the printers.

Special characters and other font styles are also available. Unique characters can be designed on request. Other options available are described in the following paragraphs.

1.4.1 Foldover Band Image PROM

In addition to the standard character bands, the 64 character band sequences can use automatic foldover of lower case characters into upper case characters when a foldover band image PROM is used.

NOTE

Character bands and band image PROMs must be matched by dash number.

1.4.2 Multiple Band Sensing

By installing two more band image PROMs on the Processor CCA, three or more different character bands can be used without any change to the printer's internal electronics.

NOTE

Printer cannot be equipped at the same time with both United States and United Kingdom PROMs.

1.4.3 Condensed Print (300 LPM Printers only)

Standard horizontal character spacing for both 300 LPM and 600 LPM printers is ten characters per inch (CPI). Additionally, the 300 LPM models can use the condensed print 15 CPI band/PROM sets. When the multiple band sensing option is installed, changing from standard 10 CPI printing to 15 CPI printing is a simple matter of changing the character band.

NOTE

The 15 CPI option reduces the width of the printout. The number of columns printed remains the same.

GENERAL INFORMATION

TABLE 1-2. 300 LPM CHARACTER BAND AND PROM SET KITS*

Country/ Language	Character Band Number	PROM Number**	Number of Printable Characters	Description	Font Style	Spacing in Characters Per Inch
Arabic:	250145-022	250529-022	96	Latin/Arabic	DPC-C	10
Arabic:	250160-059	250691-059	60	Arabic Only	Arabic	10
Russia	250134-049	250648-049	96	Latin/Cyrillic	DPC-B	10
Denmark/Norway	250015-008	250510-008	64	EDP	DPC-B	10
Denmark/Norway	250015-008	250549-008	64	EDP w/foldover	DPC-B	10
Denmark/Norway	250017-009	250511-009	64	Utility	DPC-B	10
Denmark/Norway	250017-009	250543-009	64	Utility w/foldover	DPC-B	10
Denmark/Norway	250018-009	250511-009	64	Utility	DPC-15	15
Denmark/Norway	250018-009	250543-009	64	Utility w/foldover	DPC-15	15
Denmark/Norway	250019-010	250512-010	96	Upper/Lower Case	DPC-B/C	10
Denmark/Norway	250089-040	250612-040	64	ASCII, Modified	DPC-B	10
Denmark/Norway	250089-040	250615-040	64	EBCDIC	DPC-B	10
French	250060-025	250551-025	96	Upper/Lower Case	DPC-B	10
German	250010-005	250507-005	64	EDP	DPC-B	10
German	250010-005	250547-005	64	EDP w/foldover	DPC-B	10
German	250012-006	250508-006	64	Utility	DPC-B	10
German	250012-006	250541-006	64	Utility w/foldover	DPC-B	10
German	250013-006	250508-006	64	Utility	DPC-15	15
German	250013-006	250541-006	64	Utility w/foldover	DPC-15	15
German	250014-007	250509-007	96	Upper/Lower Case	DPC-B/C	10
German/Austrian	250089-040	250614-040	64	ASCII, Modified	DPC-B	10
German/Austrian	250089-040	250617-040	64	EBCDIC	DPC-B	10
Greek	250129-022	250529-022	96	ASCII	DPC-B	10
Hebrew	250076-034	250578-034	96	Upper/Lower Case	DPC-B	10
Hungary	250135-050	250649-050	96	Upper/Lower Case	DPC-B	10
Japan	250037-021	250527-021	128	Katakana	DPC-C	10
Japan	250136-048	250647-048	96	ASCII	DPC-B	10
Spain	250080-037	250606-047	64	EBCDIC	DPC-B	10
Spain	250099-044	250634-044	96	ASCII	DPC-B	10
Spain/Portugal	250025-014	250516-014	64	EDP	DPC-B	10
Spain/Portugal	250025-014	250550-014	64	EDP w/foldover	DPC-B	10
Spain/Portugal	250027-015	250517-015	64	Utility	DPC-B	10
Spain/Portugal	250027-015	250544-015	64	Utility w/foldover	DPC-B	10
Spain/Portugal	250028-015	250517-015	64	Utility	DPC-15	15
Spain/Portugal	250028-015	250544-015	64	Utility w/foldover	DPC-15	15
Spain/Portugal	250029-016	250518-016	96	Upper/Lower Case	DPC-B/C	10
Sweden/Finland	250020-011	250513-011	64	EDP	DPC-B	10
Sweden/Finland	250020-011	250548-011	64	EDP w/foldover	DPC-B	10
Sweden/Finland	250022-012	250514-012	64	Utility	DPC-B	10
Sweden/Finland	250022-012	250542-012	64	Utility w/foldover	DPC-B	10
Sweden/Finland	250023-012	250514-012	64	Utility	DPC-15	15
Sweden/Finland	250023-012	250542-012	64	Utility w/foldover	DPC-15	15
Sweden/Finland	250024-013	250515-013	96	Upper/Lower Case	DPC-B/C	10
Sweden/Finland	250089-040	250613-040	64	ASCII, Modified	DPC-B	10
Sweden/Finland	250089-040	250616-040	64	EBCDIC	DPC-B	10

TABLE 1-2. 300 LPM CHARACTER BAND AND PROM SET KITS* (Cont'd)

Country/ Language	Character Band Number	PROM Number**	Number of Printable Characters	Description	Font Style	Spacing in Characters Per Inch
United Kingdom	250005-002	250504-002	64	EDP	DPC-B	10
United Kingdom	250005-002	250546-002	64	EDP w/foldover	DPC-B	10
United Kingdom	250034-019	250528-019	64	Utility	DPC-C	10
United Kingdom	250034-019	250540-019	64	Utility w/foldover	DPC-C	10
United Kingdom	250038-019	250528-019	64	Utility	DPC-B	10
United Kingdom	250038-019	250540-019	64	Utility w/foldover	DPC-B	10
United Kingdom	250039-002	250504-002	64	EDP	DPC-C	10
United Kingdom	250039-002	250546-002	64	EDP w/foldover	DPC-C	10
United Kingdom	250040-019	250528-019	64	Utility	DPC-15	15
United Kingdom	250040-019	250540-019	64	Utility w/foldover	DPC-15	15
United Kingdom	250041-022	250530-022	96	Upper/Lower Case	DPC-B/C	10
United Kingdom	250057-022	250530-022	96	Upper/Lower Case	DPC-C	10
United Kingdom	250064-028	250640-028	64	ASCII	DPC-B	10
United Kingdom	250064-028	250642-028	64	EBCDIC	DPC-B	10
United Kingdom	250066-029	250587-029	64	EBCDIC	DPC-B/C	10
United Kingdom	250146-028	250640-028	64	ASCII	DPC-B	10
United States	250005-002	250533-002	64	EDP	DPC-B	10
United States	250005-002	250545-002	64	EDP w/foldover	DPC-B	10
United States	250034-019	250525-019	64	Utility	DPC-C	10
United States	250034-019	250539-019	64	Utility w/foldover	DPC-C	10
United States	250038-019	250525-019	64	Utility	DPC-B	10
United States	250038-019	250539-019	64	Utility w/foldover	DPC-B	10
United States	250039-002	250533-002	64	EDP	DPC-C	10
United States	250040-019	250525-019	64	Utility	DPC-15	15
United States	250040-019	250539-019	64	Utility w/foldover	DPC-15	15
United States	250041-022	250529-022	96	Upper/Lower Case	DPC-B/C	10
United States	250043-023	250536-023	48	Utility	DPC-B	10
United States	250057-022	250529-022	96	Upper/Lower Case	DPC-C	10
United States	250061-026	250553-026	64		DPC-B/C	10
United States	250062-027	250554-027	64		DPC-B/C	10
United States	250064-028	250561-028	66	ANSII, Modified	DPC-B	10
United States	250064-028	250563-028	66	ANSII, Modified	DPC-B	10
United States	250066-029	250562-029	64	EBCDIC	DPC-B/C	10
United States	250072-031	250569-031	48	ASCII	DPC-B	10
United States	250078-035	250588-035	96	EBCDIC	DPC-B/C	10
United States	250079-036	250594-036	96	ASCII, Modified	DPC-B/C	10

* For a complete listing of the character bands and PROM set kits available or for custom character sets, contact Dataproducts Corporation Sales Administrator.

** PROM kits are referenced MEM6 through MEM8 on the Processor CCA.

GENERAL INFORMATION

TABLE 1-3. 600 LPM CHARACTER BAND AND PROM SET KITS*

Country/ Language	Character Band Number	PROM Number**	Number of Printable Characters	Description	Font Style	Spacing in Characters Per Inch
Arabic	250071-032	250652-032	96	Upper/Lower Case	DPC-B	10
Arabic	250150-057	250668-057	128		DPC-C	10
Arabic	250161-059	250691-059	60			10
Arabic	250186-072	250709-072	96	EBCDIC	DPC-B	10
Arabic	250186-072	250716-072	96	Latin Numbers	DPC-B	10
Arabic	250186-072	250725-072	97	ASCII	DPC-B	10
Arabic	250187-072	250708-072	96	EBCDIC	DPC-B	10
Arabic	250187-072	250716-072	96	Arabic Numbers	DPC-B	10
Arabic	250187-072	250725-072	97	ASCII	DPC-B	10
Arabic	250190-074	250711-074	96		DPC-B	
Cyrillic	250201-049	250648-049	96		DPC-B	10
Denmark/Norway	250051-009	250511-009	64	Utility	DPC-B	10
Denmark/Norway	250051-009	250543-009	64	Utility w/foldover	DPC-B	10
Denmark/Norway	250052-010	250512-010	96	Upper/Lower Case	DPC-B/C	10
Denmark/Norway	250090-040	250615-040	64	EBCDIC	DPC-B	10
Denmark/Norway	250124-019	250638-019	64		DPC-B	10
Denmark/Norway	250177-067	250699-067	97	EBCDIC	DPC-B	10
Denmark/Norway	250198-080	250720-080	63	With foldover	DPC-B	10
French	250138-022	250529-022	96	Upper/Lower Case	DPC-B	10
German	250046-006	250508-006	64	Utility	DPC-B	10
German	250046-006	250541-006	64	Utility w/foldover	DPC-B	10
German	250047-007	250509-007	96	Upper/Lower Case	DPC-B/C	10
German	250126-019	250638-019	64		DPC-B	10
German	250130-022	250530-022	96	ASCII	DPC-B	10
Greek	250131-022	250530-022	96	ASCII	DPC-B	10
Hebrew	250077-034	250578-034	96	Upper/Lower Case	DPC-B	10
Japan	250137-048	250685-048	96	EBCDIC	DPC-B	10
Japan	250199-081	250723-081	128		DPC-C	10
Korean	250149-056	250663-056	96		DPC-C	10
Spain/Portugal	250053-015	250517-015	64	Utility	DPC-B	10
Spain/Portugal	250053-015	250544-015	64	Utility w/foldover	DPC-B	10
Spain/Portugal	250054-016	250518-016	96	Upper/Lower Case	DPC-B/C	10
Spain/Portugal	250081-037	250605-037	64	EBCDIC	DPC-B	10
Spain/Portugal	250100-044	250634-044	96	ASCII	DPC-B	10
Spain/Portugal	250125-019	250638-019	64		DPC-B	10
Spain/Portugal	250127-019	250638-019	64		DPC-B	10
Sweden/Finland	250048-012	250514-012	64	Utility	DPC-B	10
Sweden/Finland	250048-012	250542-012	64	Utility w/foldover	DPC-B	10
Sweden/Finland	250049-013	250515-013	96	Upper/Lower Case	DPC-B/C	10
Sweden/Finland	250123-019	250638-019	64		DPC-B	10
Sweden/Finland	250173-065	250697-065	97	EBCDIC	DPC-B	10
Thai	250200-082	250726-082	128		DPC-D	10

TABLE 1-3. 600 LPM CHARACTER BAND AND PROM SET KITS* (Cont'd)

Country/ Language	Character Band Number	PROM Number**	Number of Printable Characters	Description	Font Style	Spacing in Characters Per Inch
United Kingdom	250035-019	250528-019	64	Utility	DPC-C	10
United Kingdom	250035-019	250540-019	64	Utility w/foldover	DPC-C	10
United Kingdom	250042-022	250530-022	96	Upper/Lower Case	DPC-B/C	10
United Kingdom	250044-019	250528-019	64	Utility	DPC-B	10
United Kingdom	250044-019	250540-019	64	Utility w/foldover	DPC-B	10
United Kingdom	250045-022	250530-022	96	Upper/Lower Case	DPC-C	10
United Kingdom	250067-028	250565-028	66	ANSII, Modified	DPC-B	10
United Kingdom	250084-022	250529-022	96	ASCII, U/L	DPC-C	10
United Kingdom	250088-039	250610-039	96	ASCII, Modified	DPC-B	10
United Kingdom	250133-022	250530-022	96	Upper/Lower Case	DPC-B	10
United States	250035-019	250525-019	64	Utility	DPC-C	10
United States	250035-019	250539-019	64	Utility w/foldover	DPC-C	10
United States	250042-022	250529-022	96	Upper/Lower Case	DPC-B/C	10
United States	250044-019	250525-019	64	Utility	DPC-B	10
United States	250044-019	250539-019	64	Utility w/foldover	DPC-B	10
United States	250045-022	250529-022	96	Upper/Lower Case	DPC-C	10
United States	250067-028	250563-028	66	ANSII, Modified	DPC-B	10
United States	250088-039	250609-039	96	ASCII, Modified	DPC-B	10
United States	250133-022	250529-022	96	Upper/Lower Case	DPC-B	10
United States	250207-029	250587-029	64	EBCDIC	DPC-D	10

* For a complete listing of the character bands and PROM set kits available or for custom character sets, contact Dataproducts Corporation Sales Administrator.

** PROM kits are referenced MEM6 through MEM8 on the Processor CCA for 600 LPM models.

GENERAL INFORMATION

1.5 OPTIONS AND ACCESSORIES

This section describes the other options and accessories available for the B-Series Non-Acoustic Cabinet printers. Options relating to the character bands and character sets are discussed in paragraph 1.4.

1.5.1 Paint Schemes

Special paint colors for the exterior skins of the printer may be applied upon request. Usually, a paint chip is required at the time of order. Contact a Dataproducts Corporation Sales Administrator for details.

1.5.2 136 Column Print Capability

The 132 column print capability can be expanded to 136 columns. Additional circuitry on the Hammer Driver CCA(s) is needed to implement the option. Printers with either the Centronics-Compatible Interface CCA or the Serial Interface CCA with VFU option cannot use this 136 column print option.

1.5.3 Interface Options

In addition to the standard Short Line Interface CCA and Long Line Interface CCA, a Centronics-Compatible Interface CCA and a Serial Interface CCA are available to meet specific needs. Configuration switches mounted on the Interface CCA(s) are used to meet other interfacing requirements. See the Index for other information on the Interface CCAs and the configuration switches.

a. Centronics-Compatible Interface

The Centronics-Compatible Interface CCA allows printer operation with most Centronics-Compatible Controllers. The Vertical Format Unit (VFU) is standard with this interface.

NOTE

The 96th character (octal 177) is used as a delete code. Any character set used with the Centronics-Compatible Interface CCA must be limited to 95 characters.

b. Serial Interface

The Serial Interface CCA uses standard RS-232-C receivers and drivers, or 20 mA current loops, to receive and send data in serial format. The serial circuit card assembly is plugged into the spare slot of the Mother Board CCA. A non-VFU Short Line or Centronics-Compatible CCA is plugged into the regular Interface CCA Mother Board CCA slot.

The Serial Interface CCA and the Centronics-Compatible CCA are used when the VFU option is needed. However, printers with the VFU serial configuration cannot support the optional 136 column print capability.

c. Low True and Buffer Clear Invert Interfaces

A configuration switch mounted on the Short Line Interface CCA allows all received and transmitted signals, except Buffer Clear, to be inverted to low true. The low true interfacing capability is available only when using the standard Short Line Interface CCA.

The standard low active Buffer Clear signal can be inverted to high active by another Interface CCA configuration switch. The high true Buffer Clear is available in either short line or long line configured printers.

d. Customer Interfaces

Other system-compatible interfacing options are possible. For example, parity checking and automatic line feed on carriage return are configuration switch-controlled. Custom interface requirements can be met by special order from a Dataproducts Corporation Sales Administrator. Custom interfaces are not covered in this maintenance guide.

1.5.4 Input/Output Harness Assemblies

Non-standard I/O harness assemblies are provided as needed for each of the interface options described in paragraph 1.5.4. User pin assignments for these I/O assemblies are given in Section II. Check the index for the exact location of the I/O pin assignment tables. Other options available are:

a. Pull Up/Pull Down Resistors

Custom termination resistors on the receiver lines can be provided. Minimum acceptable resistance is 200 ohms. When both pull up and pull down resistors are installed on the I/O CCA, 470 ohms is the optimum value for each resistor.

b. Winchester Connector

An optional 50-pin Winchester connector with mating connector and 50 crimp-type pins can be supplied with the printer instead of the standard AMP connector. The pin assignments for the Winchester connector are given in Section II. Check the index for the location of the I/O pin assignment table.

1.5.5 Ground Isolation

The standard printer is shipped with the logic and frame grounds tied together. If ground isolation is needed, plug P8 must be removed from the Rectifier CCA connector (J8).

1.5.6 Elapsed Time Meter Assembly

The Elapsed Time Meter Assembly is made up of two chemical-type meters that measure power on time and print time. The meters are accurate within $\pm 10\%$. Power On time is recorded on a 0 to 10,000 hour meter. Print Time is recorded on a 0 to 1000 hour meter. The information is for historical use only.

GENERAL INFORMATION

1.5.7 Line Filter Assembly

The Line Filter Assembly is a low-pass filter that lessens high frequency noise from the power line. The assembly is mounted on the power supply chassis between the transformer and resonant capacitor. It is wired between the power cord and power switch (see figure 1-3).

1.5.8 Universal Power Supply

The Universal Power Supply can operate with inputs of 90 to 132 VAC or 180 to 250 VAC and 50 or 60 Hz \pm 2 Hz. The locations of universal transformer plugs P4, P5, and P9 are changed to select voltage or frequency combinations. Check the index under Installation, Interfaces, and Configurations for more information on configuring the Universal Power Supply.

1.5.9 Format Control

In standard printers, Interface CCA configuration switches are used to set form length, number of overprints, carriage return/line feed, etc. Additional format control is available with the following options:

a. Tape Controlled Vertical Format Unit (TCVFU)

With the Tape Controlled Vertical Format Unit (TCVFU), a variety of form lengths (up to 144 lines) can be handled and, within each form, paper can be moved (slewed) rapidly. The TCVFU optically reads a punched 12 channel paper tape of up to 144 lines (or 126 lines for Centronics-Compatible printers).

Data read from the tape is stored in the printer's VFU memory on the Interface CCA. Interface CCA configuration switches set the parameters for TCVFU instructions sent by the user.

Table 1-4 shows the TCVFU instruction format. See the alphabetical index entry "Configuration Switches" for the settings needed to operate the TCVFU with the standard, Centronics-Compatible and Serial Interface CCAs.

b. Direct Access Vertical Format Unit (DAVFU)

The Direct Access Vertical Format Unit (DAVFU) allows the same form handling and movement capability as the TCVFU. The DAVFU, however, is under direct user control and allows the user to handle form length up to 143 lines.

The user directly loads the printer's VFU memory by sending a start code followed by the format data over the input/output data lines. No tape loop is used. Table 1-5 compares a DAVFU format data load with a TCVFU load.

Interface CCA configuration switches are set to select DAVFU or TCVFU operation. See the Index entry "Configuration Switches" for the settings needed to operate the DAVFU.

TABLE 1-4. VFU INSTRUCTION FORMAT (ASCII)

Number of Lines Stepped	PI	Data Lines							
		8	7	6	5	4	3	2	1
0	1	X	X	X	1	0	0	0	0
1	1	X	X	X	1	0	0	0	1
2	1	X	X	X	1	0	0	1	0
3	1	X	X	X	1	0	0	1	1
4	1	X	X	X	1	0	1	0	0
5	1	X	X	X	1	0	1	0	1
6	1	X	X	X	1	0	1	1	0
7	1	X	X	X	1	0	1	1	1
8	1	X	X	X	1	1	0	0	0
9	1	X	X	X	1	1	0	0	1
10	1	X	X	X	1	1	0	1	0
11	1	X	X	X	1	1	0	1	1
12	1	X	X	X	1	1	1	0	0
13	1	X	X	X	1	1	1	0	1
14	1	X	X	X	1	1	1	1	0
15	1	X	X	X	1	1	1	1	1

Tape Channel Selected	PI	Data Lines							
		8	7	6	5	4	3	2	1
1	1	X	X	X	0	0	0	0	0
2	1	X	X	X	0	0	0	0	1
3	1	X	X	X	0	0	0	1	0
4	1	X	X	X	0	0	0	1	1
5	1	X	X	X	0	0	1	0	0
6	1	X	X	X	0	0	1	0	1
7	1	X	X	X	0	0	1	1	0
8	1	X	X	X	0	0	1	1	1
9	1	X	X	X	0	1	0	0	0
10	1	X	X	X	0	1	0	0	1
11	1	X	X	X	0	1	0	1	0
12	1	X	X	X	0	1	0	1	1

NOTE: X = DON'T CARE. In this example, Configuration Switch S4-1 is OFF; Data 5 is the control bit. With S4-1 ON, Data 7 is the control bit. Switch S4-2 sets the control bit polarity; here Switch S4-2 is ON.

TABLE 1-5. DAVFU LOAD COMPARED TO TCVFU LOAD

DAVFU LOAD		Tape Channel		
Data Lines		Second Byte	First Byte	
P	1 8 7 6 5 4 3 2 1	12 11 10 9 8 7	6 5 4 3 2 1	
1	X 1 1 0 1 1 1 0			Start Code
X	X X 0 0 0 0 0 1			First byte (TOF)
X	X X 0 0 0 0 0 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 0 0 0 0 1 0			Second byte
X	X X 0 0 0 1 0 0			First byte
X	X X 0 0 1 0 0 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 0 0 0 0 0 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 0 0 0 0 0 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 0 1 0 0 0 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 0 0 0 0 0 0			Second byte
X	X X 0 0 1 1 1 0			First byte
X	X X 0 0 1 0 1 0			Second byte
X	X X 0 0 0 0 0 0			First byte
X	X X 1 0 0 0 0 0			Second byte (BOF)
1	X 1 1 0 1 1 1 1			Stop Code

VFU Load Data Stream	
X = DON'T CARE	

Paper Tape

c. Forms Length Selector Assembly (FLS)

The Forms Length Selector Assembly consists of two thumbwheel switches mounted on the control panel bracket. When a VFU option is installed in a printer, a FLS/VFU select switch is also part of the assembly.

By changing the setting of thumbwheel switch S1, the printer can use forms of lengths from 3 to 14 inches. Thumbwheel switch S2 sets fractional inches from 1/4 to 3/4 inch. The Operator's Guide gives the switch setting procedure.

1.5.10 Pedestal and Paper Shelf Assemblies

The pedestal and paper shelf assemblies are part of the standard 600 LPM printer package. They are available as options to the table top method in 300 LPM printers. The assembly parts are shipped in a separate container with detailed assembling instructions.

The paper shelf attaches to the rear of the pedestal and accepts various form sizes and lengths of paper. Installation instructions for the pedestal and paper shelf are provided in section II, "Installation, Interfaces, and Configurations".

1.5.11 Acoustic Cabinet (Figure 1-4)

The acoustic cabinet is an option for 300 LPM and 600 LPM printers. It is an acoustically insulated, floor length cabinet that fully encloses the printer and provides quiet operation. Figure 1-4 shows the cabinet with top cover raised and front access doors open. A separate publication, the 300 LPM/600 LPM/1000 LPM Acoustic Cabinet Maintenance Guide (DPC 267788), gives complete maintenance and troubleshooting information for printers mounted in the acoustic cabinet.

1

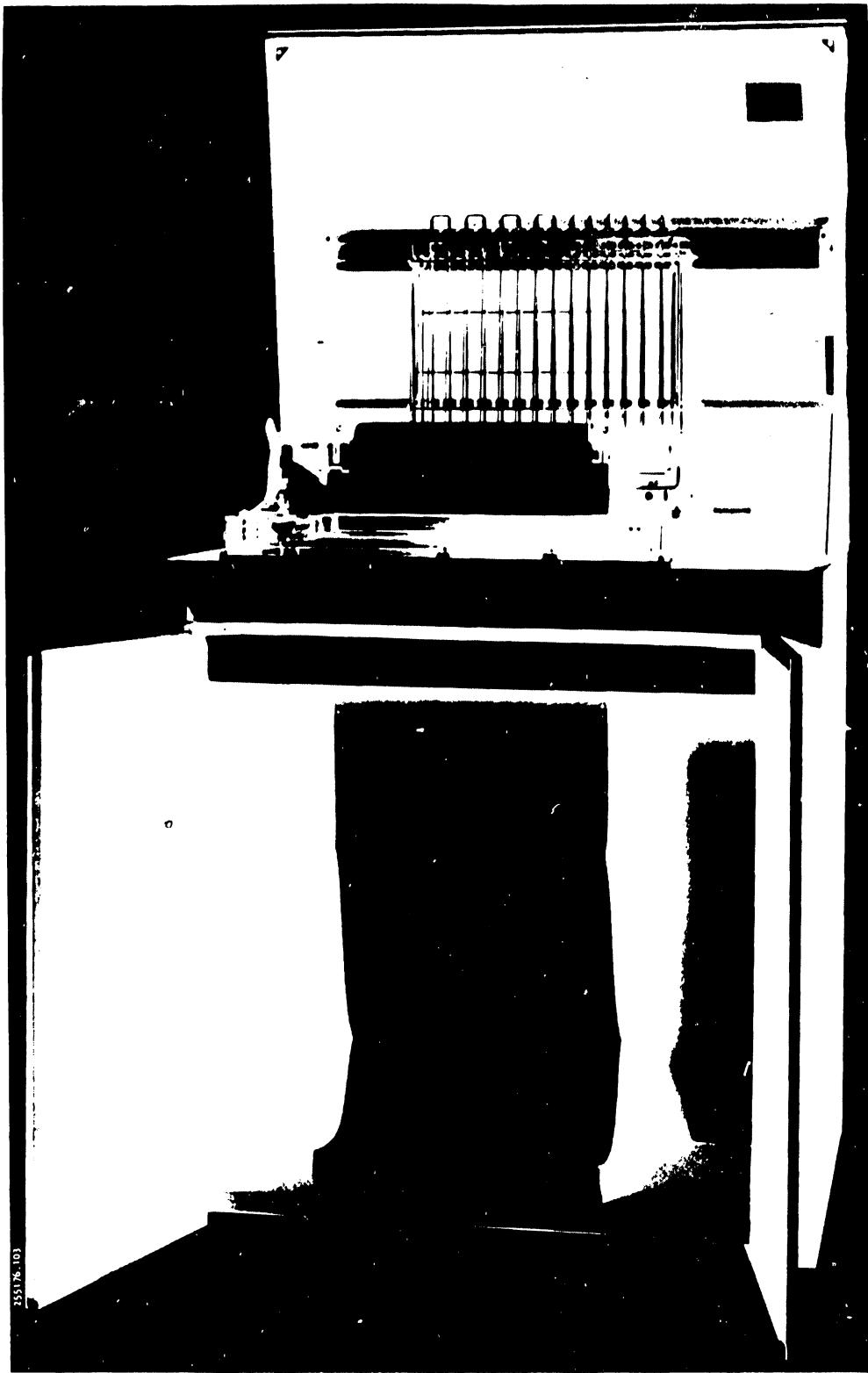


Figure 1-4. Acoustic Cabinet Option, Cover Raised and Doors Open

SECTION

II

**INSTALLATION
INTERFACES, AND
CONFIGURATIONS**

SECTION II
INSTALLATION, INTERFACES, AND CONFIGURATIONS

2.1 INTRODUCTION

This section has all the information needed to install and start up a B-Series Non-Acoustic Cabinet printer. Included are interface methods available to the user.

Table 2-1 lists the topics covered in this section.

TABLE 2-1. SECTION CONTENTS

Topic	Paragraph
Introduction	2.1
Installation	2.2
Preparation	2.2
Unpacking/Repacking the Printer	2.2.2
Mounting Printer to Table	2.3
Pedestal and Paper Shelf Assemblies	2.4
Assembling the Pedestal	2.4.1
Assembling the Paper Shelf	2.4.2
Printer Cover Removal/Installation	2.5
Inspection	2.6
Visual Manual Inspection	2.6.1
Band Time-Out Configurations	2.6.2
Interface Configuration Switches	2.6.3
Controls and Indicators	2.7
Paper Forms and Ribbon	2.8
Printer Interfaces	2.9
Input/Output Harness and Connector Assemblies	2.9.1
Signal Levels	2.9.2
Data/Format Control Codes	2.9.3
Data Transfer and Signal Timing Methods	2.9.4



INSTALLATION, INTERFACES, AND CONFIGURATIONS

2.2 INSTALLATION

The procedures given in this section are the first steps in preparing the printer for full operation. Be sure to go on to the procedures in paragraphs 2.3 through 2.6 before powering up the printer.

2.2.1 Preparation

When installing a B-Series Non-Acoustic Cabinet printer, consider the printer's space requirements, transportation, and mounting before beginning to unpack it.

a. Space Requirements

Figure 2-1 illustrates the space requirements of the printer configured with the pedestal and paper shelf assemblies. The standard table top printer will not require the additional space needed by the pedestal and paper shelf. In planning the printer installation, allow additional space around the printer for maintenance and operating personnel.

b. Transporting the Printer

WARNING

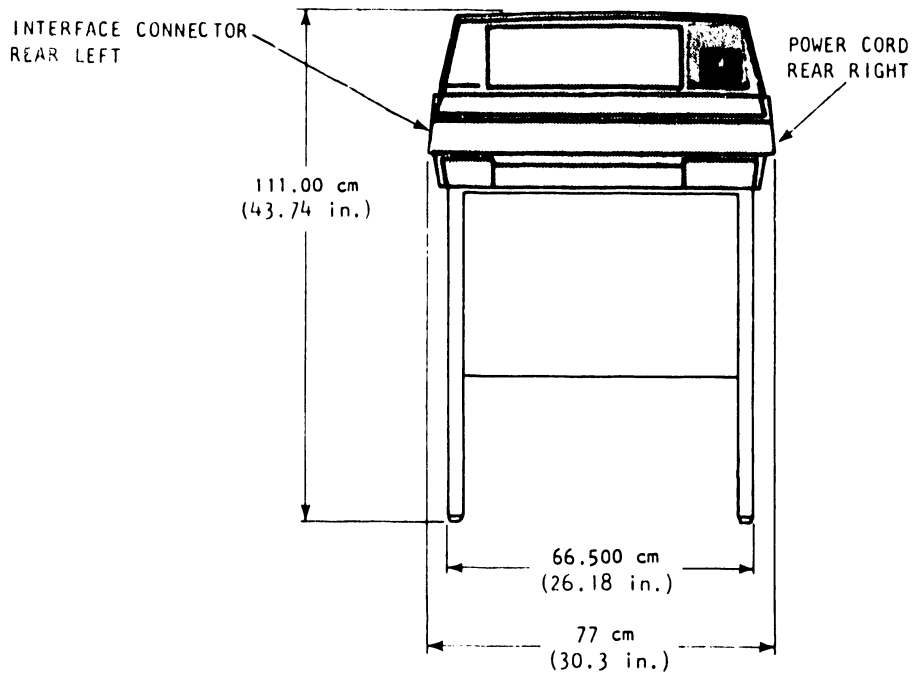
The 300 LPM printer weighs 71.67 kg (158 lbs); the 600 LPM printer weighs 77.11 kg (170 lbs). Two or more persons may be required to lift it.

The packaged 300 LPM printer weighs 77.11 kg (170 lbs) without the pedestal and 93.44 kg (206 lbs) with the pedestal. The packaged 600 LPM printer weighs 82.56 kg (182 lbs) without the pedestal and 98.88 kg (218 lbs) with the pedestal. A forklift should be used to transport the printer to its installation site.

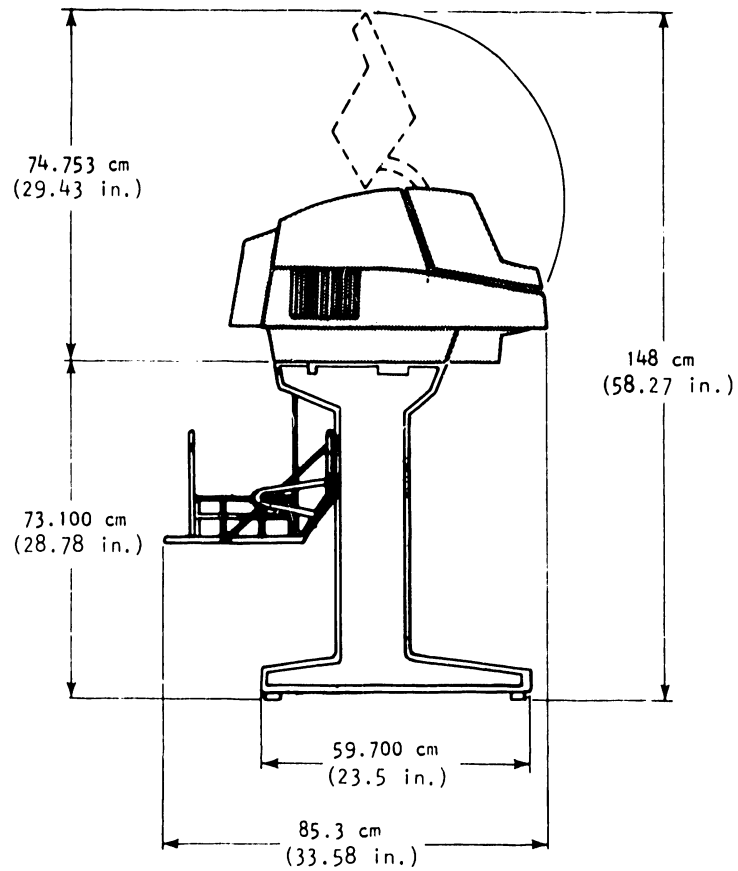
NOTE

The shipping weight of the printer varies with model and accessories. Table 1-2 lists the weights of each standard printer model.

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2



245058A.202

Figure 2-1. Printer Dimensions

2.2.2 Unpacking/Repacking The Printer

This paragraph supplements the unpacking instructions included in the printer shipping container (located on the protective polyethylene bag) and provides procedures for repacking the printer in the event that it must be moved to another location.

Unpacking (Figure 2-2)

Transport the packaged printer to the installation site before unpacking, and then unpack as follows:

CAUTION

The table's mounting surface should support at least 340 pounds.

- a. Place the packaged printer, with the cover facing up, on a table or other flat surface.

NOTE

If the optional pedestal assembly is included, its container should be opened first, and the pedestal assembled as shown in paragraph 2.4.1.

- b. Cut the container straps and remove the container cover.

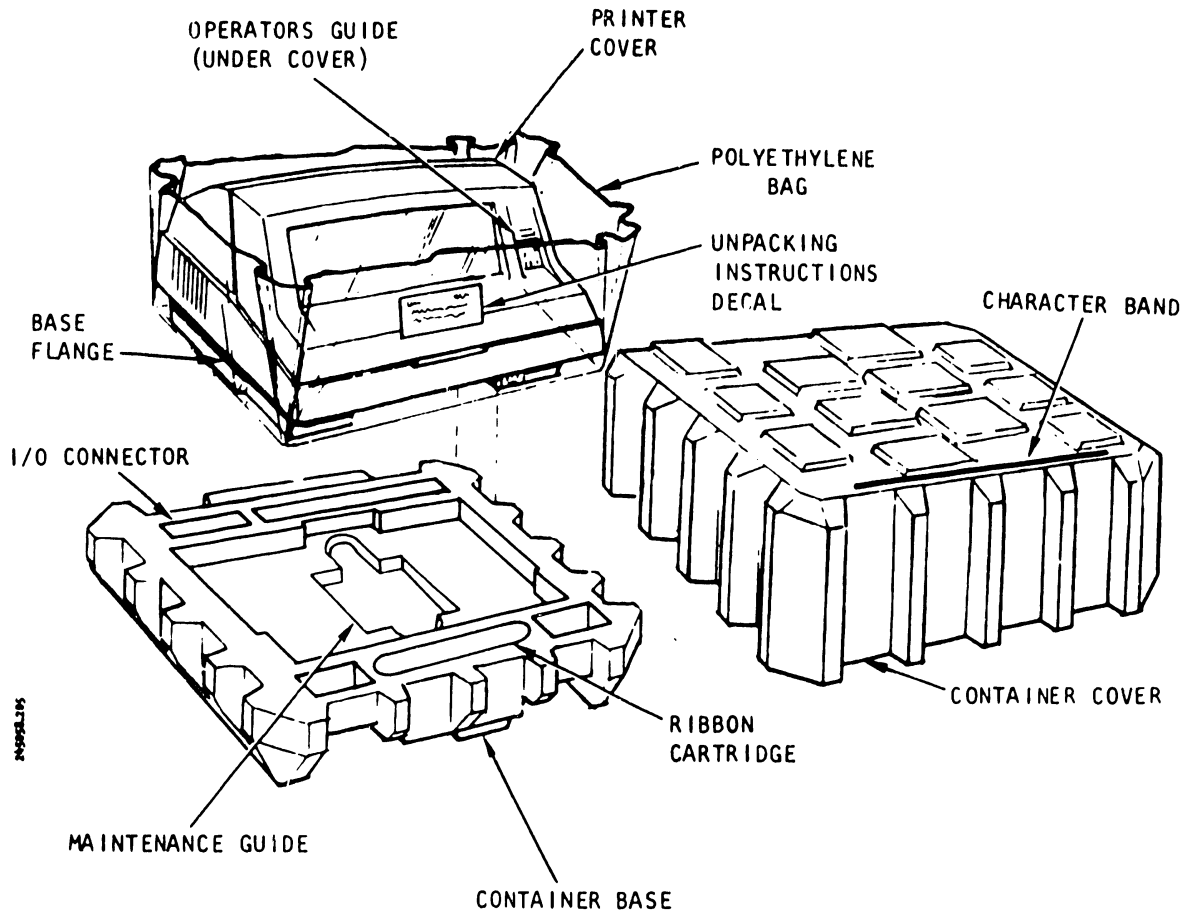
WARNING

The 300 LPM printer weighs 71.67 kg (158 lbs); the 600 LPM printer weighs 77.11 kg (170 lbs). Two or more persons may be required to lift it.

CAUTION

The cover is not designed to support the weight of the printer, therefore, be sure to lift it at its base.

- c. Reach inside the polyethylene bag, grasp the printer at its base flanges, lift the printer free of the container base, and place it on the table or flat surface.



CAUTION

LIFT PRINTER FROM INSIDE OF POLYETHYLENE BAG AND ONLY BY BASE FLANGE. DO NOT LIFT BY THE PRINTER COVER.

Figure 2-2. Printer Shipping Container (Pedestal Container Not Shown)

INSTALLATION, INTERFACES, AND CONFIGURATIONS

- d. Remove and save the following accessories, if included, from the container:
 - Character band(s) (located in container cover)
 - Ribbon cartridge
 - Input/Output (I/O) connector and pins
 - Maintenance Guide
- e. Lift the printer cover door. Remove the two cable ties that secure the paper support assembly and the cable ties that fasten the hammer bank latch (see figure 2-3).
- f. Remove the two cardboard band-casting restraining inserts from the inside front of the printer (see figure 2-3).
- g. Place the cardboard band-casting restraining inserts in the polythylene bag and put the bag in the shipping container. Store the container for future use.

Repacking

In the event that the printer is to be shipped to another location, careful packaging will minimize the possibility of damage. The following procedures are recommended for repacking the printer:

- a. Remove all paper from the printer.
- b. Unplug the AC power cord from the power source.
- c. Disconnect the I/O connector from the printer.

NOTE

It is recommended that the printer be shipped with the ribbon cartridge and character band installed; however, these items can be removed, if desired, and placed in the shipping pockets provided.

- d. Insert the two cardboard band casting restraining inserts removed when the printer was unpacked.
- e. Secure the paper support assembly with cable ties like those removed in step e above.
- f. Close the character band cover and fasten the hammer bank latch in the closed position with cable ties like those removed in step e above.

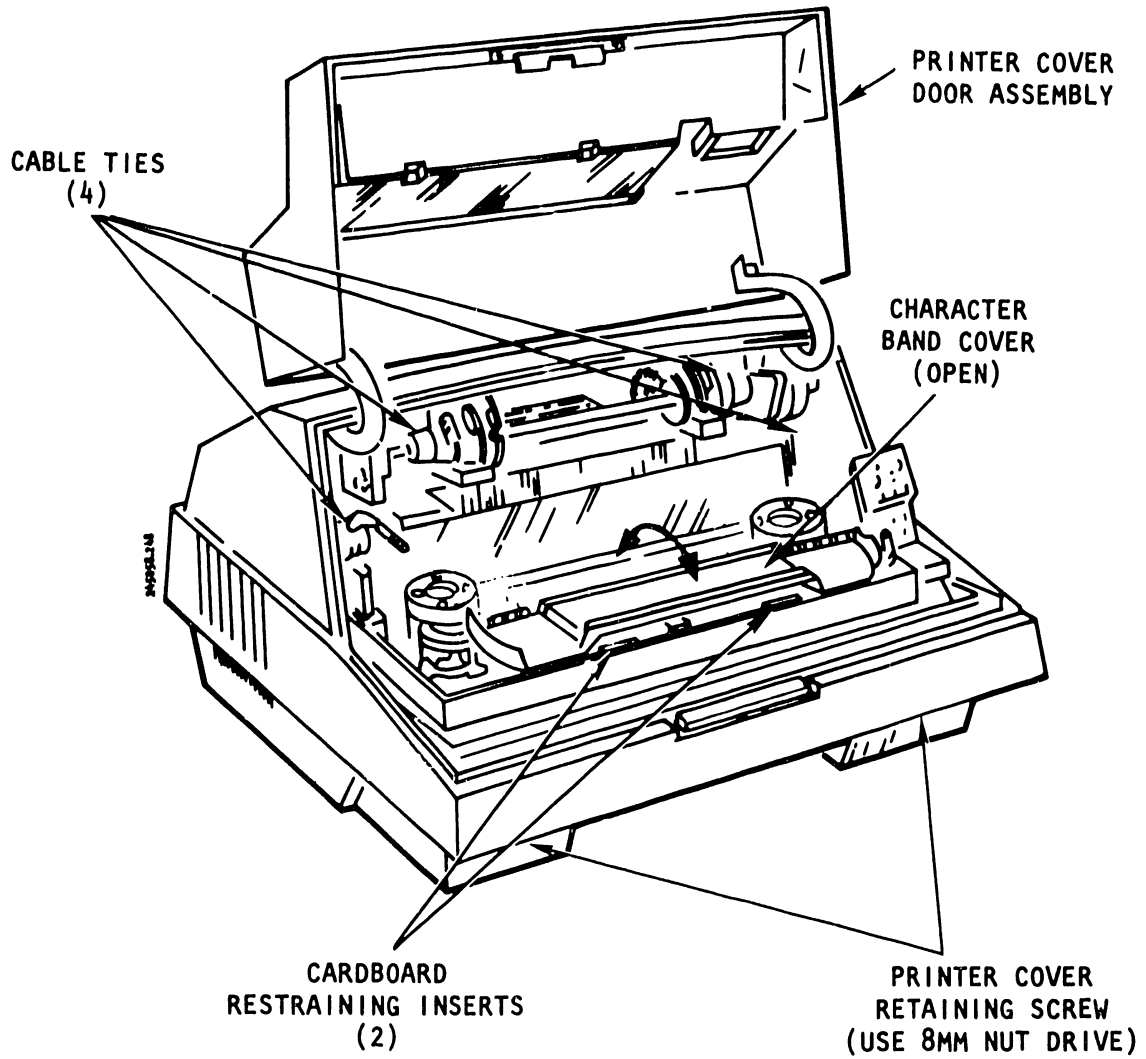


Figure 2-3. Printer Shipping Hardware

WARNING

The 300 LPM printer weighs 71.67 kg (158 lbs); the 600 LPM printer weighs 77.11 kg (170 lbs). Two or more persons may be required to lift it.

- g. Grasp the printer at its base flanges and place it inside the polyethylene bag.
- h. With the printer in its polyethylene bag, again grasp it at its base flanges and place it in the container base (see figure 2-2).
- i. Tuck the power cord into the allocated space in the bottom of the shipping container.
- j. Place the container cover over the bottom section of the container and secure it with filament tape or equivalent.
- k. Transport the printer as instructed in paragraph 2.2.

2.3 MOUNTING PRINTER TO TABLE (Figure 2-4)

The printer can be table mounted or pedestal mounted. Instructions for pedestal mounting are given under "Pedestal and Paper Shelf Assemblies" in this section.

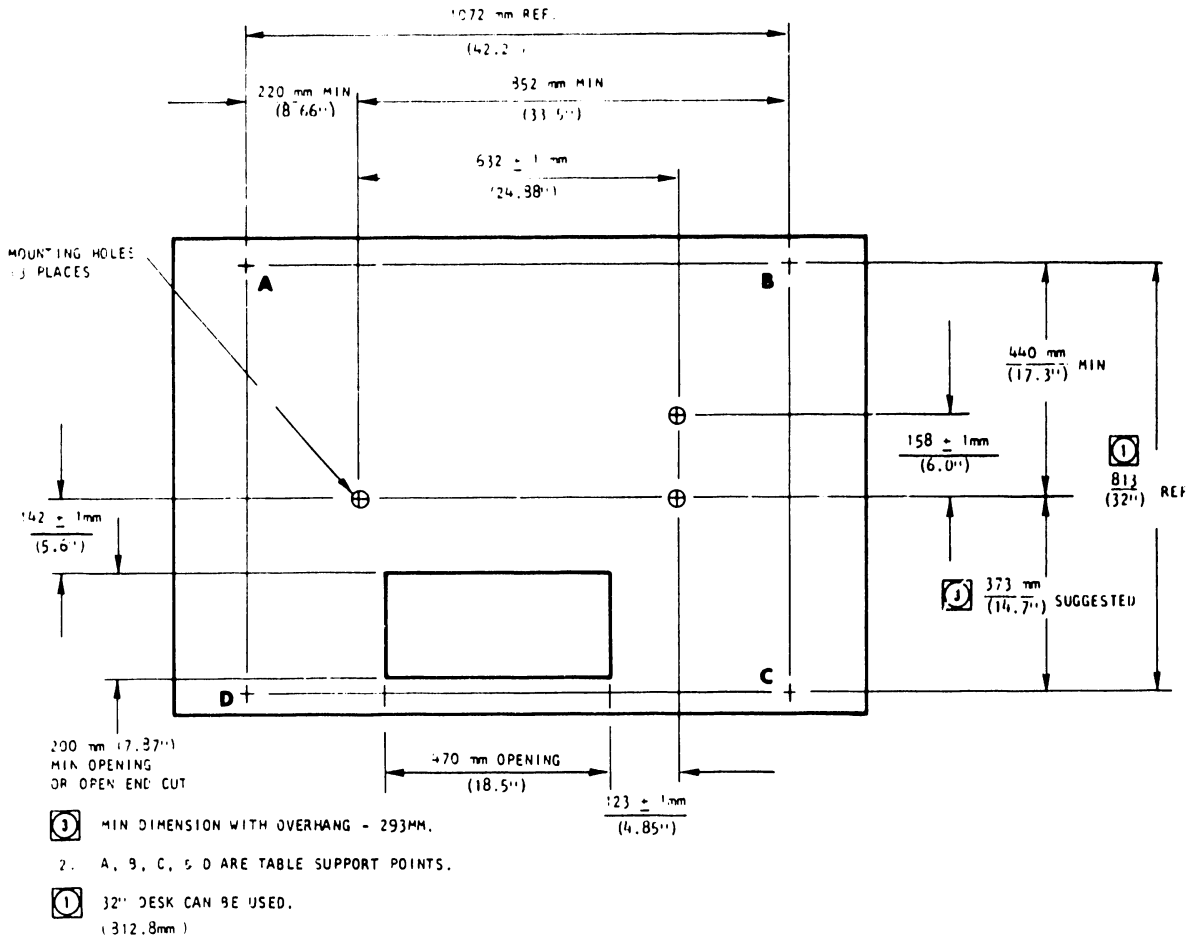
The printer may be mounted to any standard 32-inch or 36-inch deep table or office desk with a minimum width of 43 inches. Recommended table height is 32 inches. After ensuring that the table is flat and will support the printer's weight, perform the following procedure:

- a. Cut out a section near the front of the table to allow free movement of paper through the paper throat. See figure 2-4 for the recommended location and dimensions of the cutout.
- b. Locate and mark the three mounting screw holes as shown in figure 2-4.
- c. Using a 5/16-inch bit, drill the three mounting screw holes through the mounting surface.

WARNING

The 300 LPM printer weighs 71.67 kg (158 lbs); the 600 LPM printer weighs 77.11 kg (170 lbs). Two or more persons may be required to lift it.

- d. Place the printer on the table.



255135-133

Figure 2-4. Recommended Dimensions For Printer Table Mounting

INSTALLATION, INTERFACES, AND CONFIGURATIONS

- e. Align the three tapped screw holes on the underside of the printer over the drilled mounting holes in the table. See figure 2-4 for the tapped screw hole locations.
- f. Bolt the printer to the table by installing three 6 mm diameter screws through the mounting surface and into the printer base. Determine the length of the screw by measuring the thickness of the table and adding 30 mm for best penetration into the printer base.

2.4 PEDESTAL AND PAPER SHELF ASSEMBLIES

The pedestal and paper shelf assemblies are shipped to you in a separate container. Figure 2-5 shows the individual piece parts that make up the pedestal and paper shelf assemblies.

Assemble the pedestal and paper shelf using the following instructions:

2.4.1 Assembling the Pedestal

The following tools are needed to assemble the pedestal:

- o Hex Drivers (Allen Wrench), 5 mm and 6 mm
- o Open End Wrench, 10 mm

Table 2-2 lists the individual piece parts that make up the pedestal assembly.

- a. Unpack the three pieces of the pedestal assembly (2 legs and center bracket) along with the mounting hardware.
- b. Press fit the threaded inserts into the pedestal legs as shown in figure 2-5; then screw the adjustable glides equally into the inserts.

TABLE 2-2. PEDESTAL ASSEMBLY PARTS LIST

Description	Part Number	Qty	Figure 2-5 Reference
Pedestal Assembly Kit	247840-001	1	
Pedestal Leg	263370-001	2	
Center Bracket	247839-001	1	
Threaded Insert	801744-001	4	
Adjustable Glide	801745-001	4	
Cap Screw, M6x25 mm	801519-625	4	A
Hex Head Screw, M6X20 mm	801797-620*	3	B

*Part of Hardware Pack No. 251704-012.

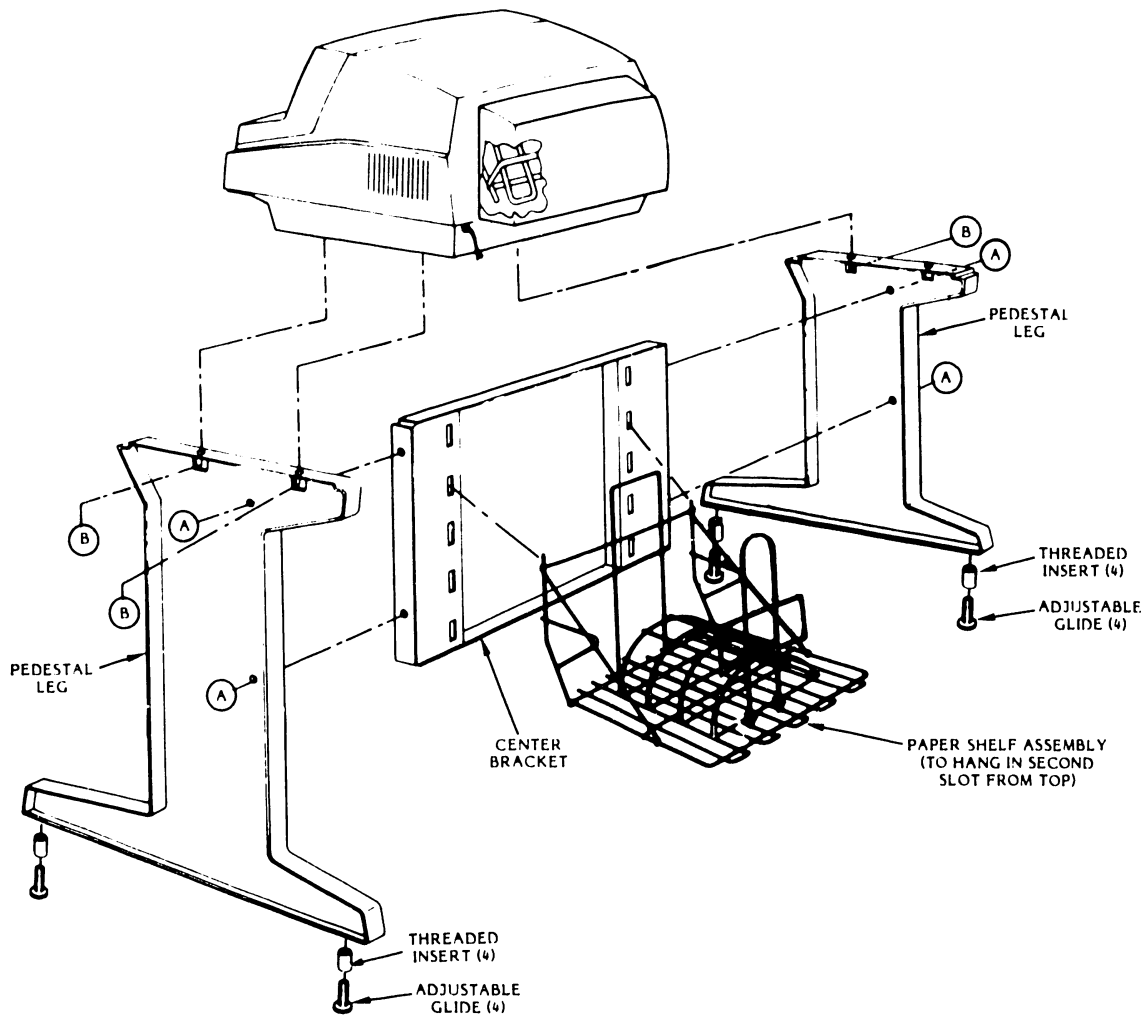


Figure 2-5. Printer-to-Pedestal and Paper Shelf-to-Pedestal Installation

- c. Using the 5 mm hex driver and the four socket head cap screws, connect the pedestal assembly parts together firmly at location (A) as shown in figure 2-5. Then loosen those screws one turn.

WARNING

The 300 LPM printer weighs 71.67 kg (158 lbs); the 600 LPM printer weighs 77.11 kg (170 lbs). Two or more persons may be required to lift it.

- d. Set the printer on the pedestal assembly as shown in figure 2-5.
- e. Using the 10 mm open end wrench, secure the printer to the pedestal with the three 6 mm hex head screws at location (B) as shown in figure 2-5.
- f. Adjust the glides to level the pedestal assembly.
- g. Go to paragraph 2.4.2 for the paper shelf assembly instructions.

2.4.2 Assembling the Paper Shelf

Table 2-3 lists the individual piece parts that make up the paper shelf assembly.

TABLE 2-3. PAPER SHELF PARTS LIST

Description	Part Number	Qty
Paper Shelf Kit	273467-001	1
Shelf Base	273468-001	1
Handles	273469-001 (Left) 273469-002 (Right)	2
Brace	273470-001	1
Stacker	267487-001	1
Clips	247963-001	2
Paper Guide	247962-001	1

- a. Unpack the paper shelf parts.
- b. Connect the parts in the sequence listed below and as shown in figure 2-6.
 1. Set the shelf base on a flat surface with its U-shaped rods on top and closest to you.
 2. Connect the handles into the eyelets on the sides of the base. Make sure the handles' V-shaped reinforcement rods are facing outward.
 3. Install the brace to fit on the handles, with its center portion facing inward.
 4. Mount the stacker on the base to have its bottom hooks fit into the cross bar at the bottom center of the base.
 5. Press fit the paper guide clips on the two bottom rods of the base, close to its outer edge.
 6. Fit the paper guide, with its rectangular portion facing out, into the paper guide clips.
- c. Mount the paper shelf assembly to the printer pedestal as shown in figure 2-5.

2.5 PRINTER COVER REMOVAL/INSTALLATION

The printer cover will have to be removed and installed for a number of procedures provided in this document. Initially, it will have to be removed for a visual inspection of the printer during these installation procedures.

Removal

- a. Use an 8 mm nut driver to remove the two printer cover retaining screws (see figure 2-7).

CAUTION

The printer cover is heavy and bulky. It weighs approximately 27 pounds (12.25 kg) and may require two persons to lift it.

- b. Unlatch the cover door and lift it enough to clear the control panel switch caps.
- c. Lift the front of the printer cover slightly and move it back slightly to unhook the rear brackets from the printer base (see figure 2-7).

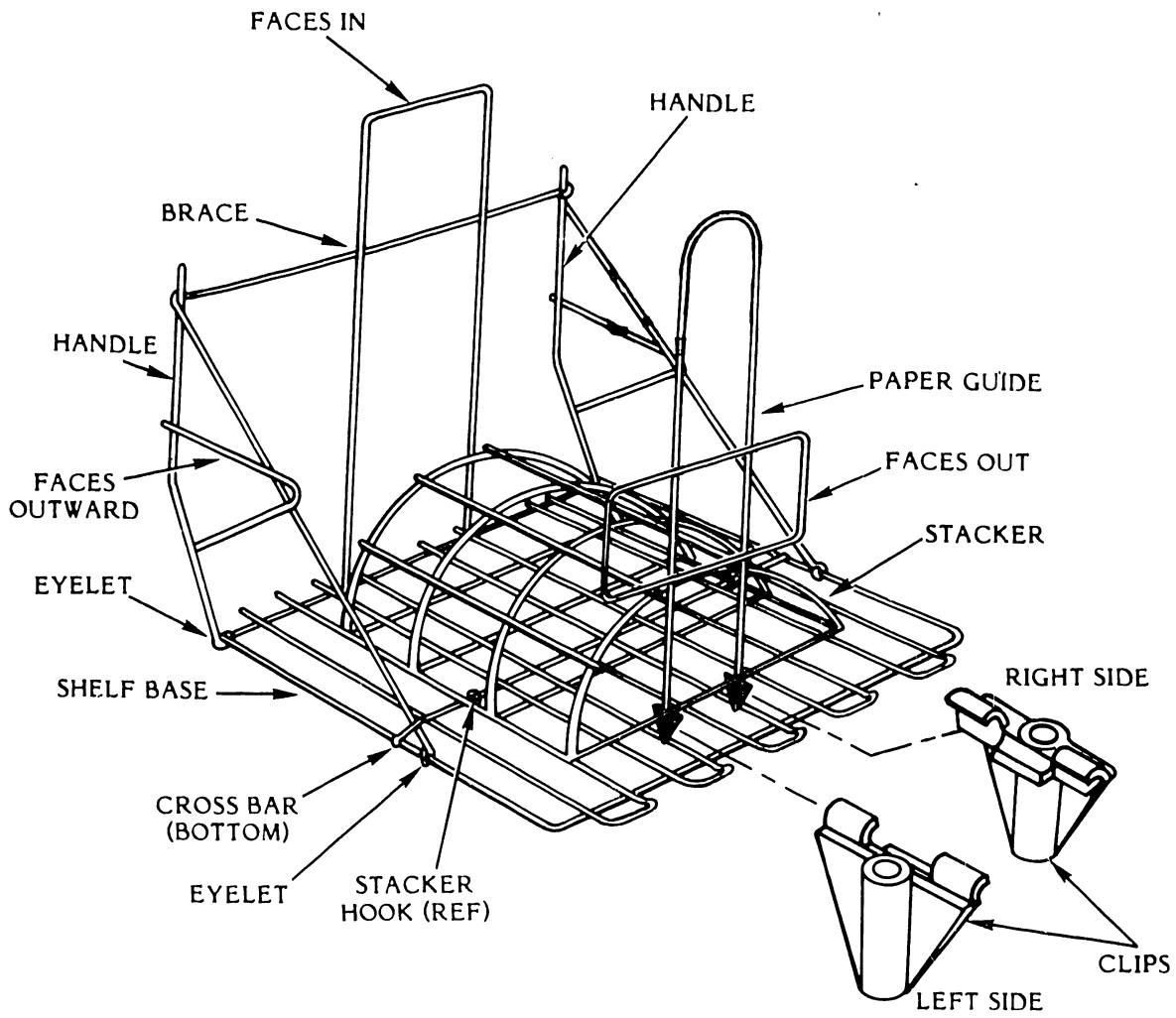
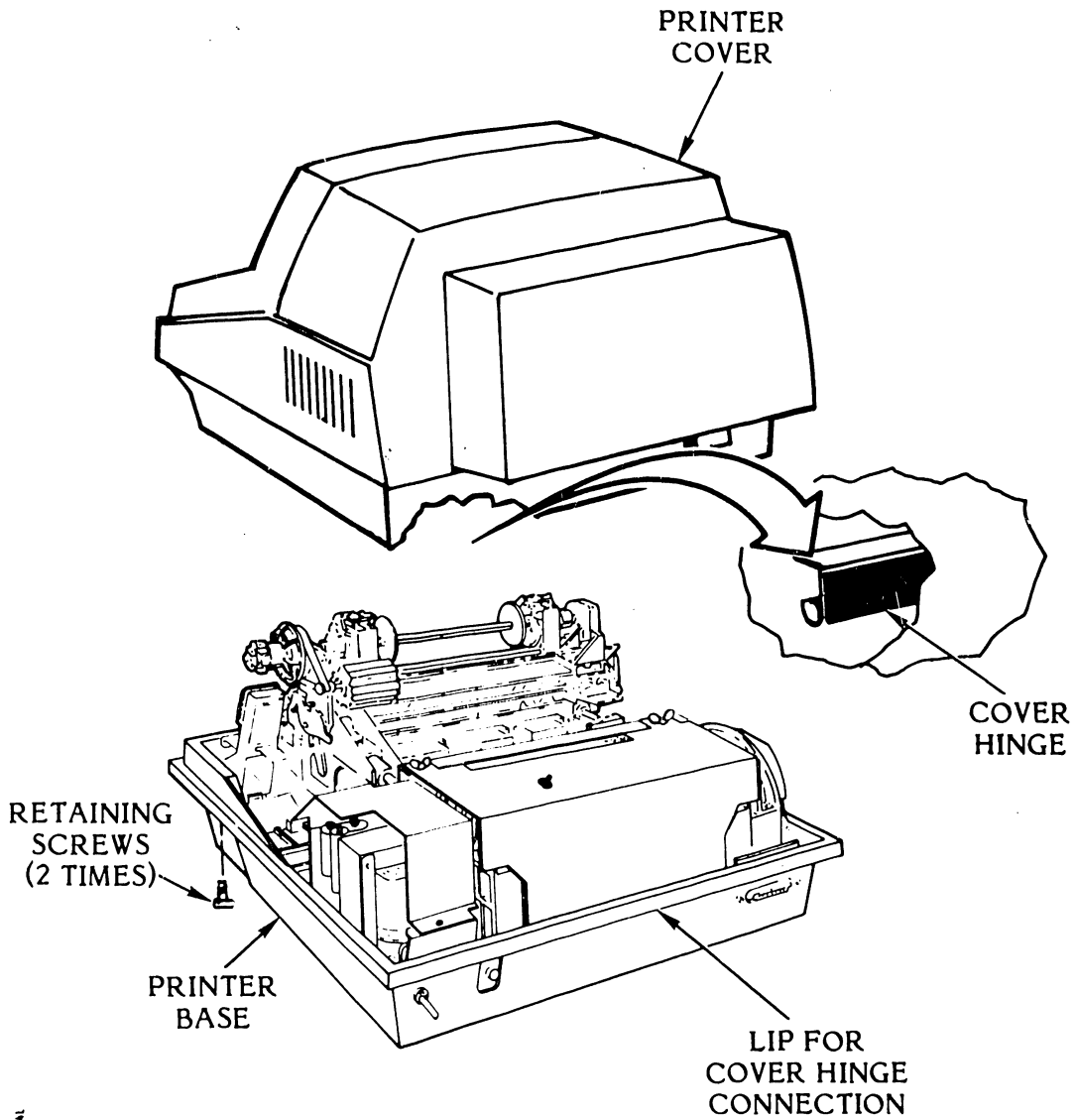


Figure 2-6. Paper Shelf Assembly



2

3551370-16A1

Figure 2-7. Printer Cover Removal/Reinstallation

- d. Lift the cover up and off the printer base.

Installation

- a. Position the printer cover over the printer base.
- b. Tilt the front of the cover upward and hook the rear bracket under the ridge at the back of the printer base.
- c. Raise the cover door and lower the front part of the printer cover to its fully seated position.
- d. Lower the cover door.
- e. Use an 8 mm nut driver to install the two printer cover retaining screws.

2.6 INSPECTION

Before operating the printer for the first time, or after transporting it to a new site, the printer should be checked for damage, miswires, and loose harness connections or assemblies. If the printer is damaged or miswired or has mechanical problems, contact your service representative or:

Dataproducts Corporation
Product Support Department
21300 Roscoe Boulevard
Canoga Park, CA 91304
Tel: (213) 887-8000
Telex 67-4473

2.6.1 Visual and Manual Inspection

- a. Remove the printer cover as described in paragraph 2.5.

WARNING

Printers equipped with the Universal Power Supply can be damaged if operated with the incorrect voltage and frequency.

- b. If the printer is equipped with the Universal Power Supply, make sure its transformer is properly connected to the Rectifier CCA and resonant capacitor for the source voltage and frequency. See table 2-4 and figure 2-8 for the Universal Power Supply transformer harness connections.
- c. Perform steps 1 through 12 as shown in figure 2-9.

- d. Check that the Interlock Transition CCA is properly connected as shown in figure 2-10.
- e. Loosen the two card cage cover fasteners and remove the card cage cover.
- f. Check the PROMs, headers, and switches on the CCAs as follows:
 1. See table 2-5 for the CCA and its components to be checked.
 2. Remove the CCA as described in figure 2-11.

NOTE

Tables 2-6 and 2-7 list the PROMs and headers that can be used in the 300 LPM and 600 LPM printer. Figures 2-12 and 2-13 show header and switch locations.

3. Compare the part numbers printed on each PROM or header against the card cage cover orientation decal part number (see figure 2-14).
4. If the part numbers do not match, contact a Dataproducts Corporation Product Support representative.
5. If the part numbers match, make sure the components are seated firmly in their sockets.
6. Check the band time-out switch setting as described in paragraph 2.6.2.

NOTE

Refer to the Sales Order Notice for the desired band time-out.

7. Check the Interface CCA(s) configuration switches as described in paragraph 2.6.3.
 8. Install the CCA as described in figure 2-11.
 9. Install the card cage cover and tighten the two cover fasteners.
- g. Install the printer cover as described in paragraph 2.5.

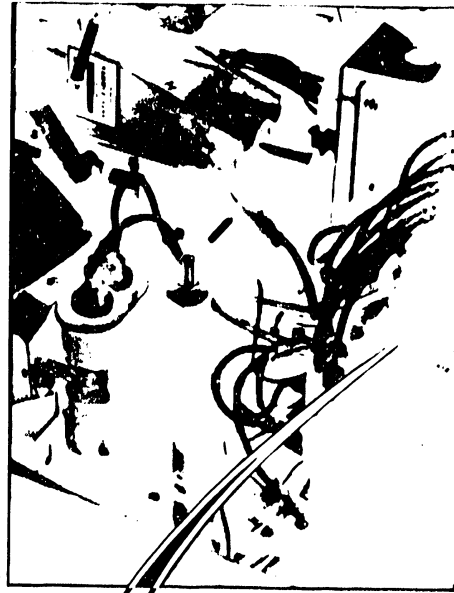
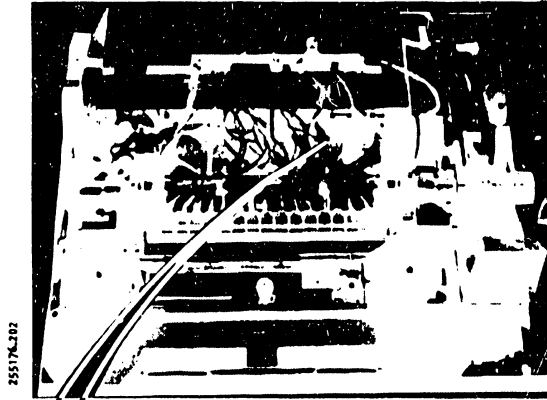
INSTALLATION, INTERFACES, AND CONFIGURATIONS

TABLE 2-4. UNIVERSAL TRANSFORMER HARNESS PLUG CONNECTIONS

Transformer Harness Plug			
Input Voltage/ Frequency	A9P4 Connects to Rectifier CCA Connector	A9P5 Connects to Rectifier CCA Connector	A9P9 Connects to Resonant Transformer Harness Connector
115 VAC/50 Hz	J4A/115V	J5A/50 Hz	J9A/50 Hz
115 VAC/60 Hz	J4A/115V	J5B/60 Hz	J9B/60 Hz
230 VAC/50 Hz	J4B/230V	J5A/50 Hz	J9A/50 Hz
230 VAC/60 Hz	J4B/230V	J5B/60 Hz	J9B/60 Hz

TABLE 2-5. CCA COMPONENTS VISUAL/MANUAL INSPECTION

CCA	Check Components	Location	Reference
Processor CCA	PROMs MEM1 - MEM5 MEM6 - MEM8	Figure 2-15	Table 2-6
	Band Time-out Switch	Figure 2-15	Paragraph 2.6.2
Timing and Status	Band Speed, Programmable Headers	Figure 2-12	Table 2-7
Hammer Driver	Flight Time Header	Figure 2-13	Table 2-7
Interface Short Line/Long Line Configuration Switches	FLS PROM Configuration Switches	Figure 2-16 Figure 2-16	Paragraph 2.6.3
Centronics-Compatible Interface	FLS PROM Decoder PROM Configuration Switches	Figure 2-16 Figure 2-16 Figure 2-16	Paragraph 2.6.3
Serial Interface CCA	PROMs MEM1 - MEM4 Configuration Switches S1, S2, S3	Figure 2-16	Paragraph 2.6.3



2

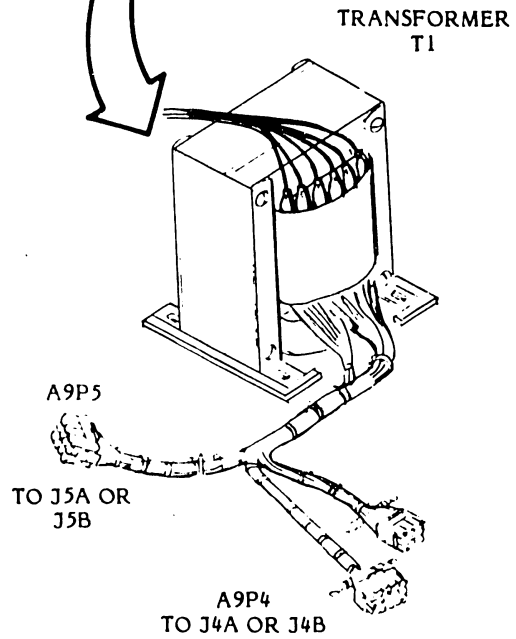
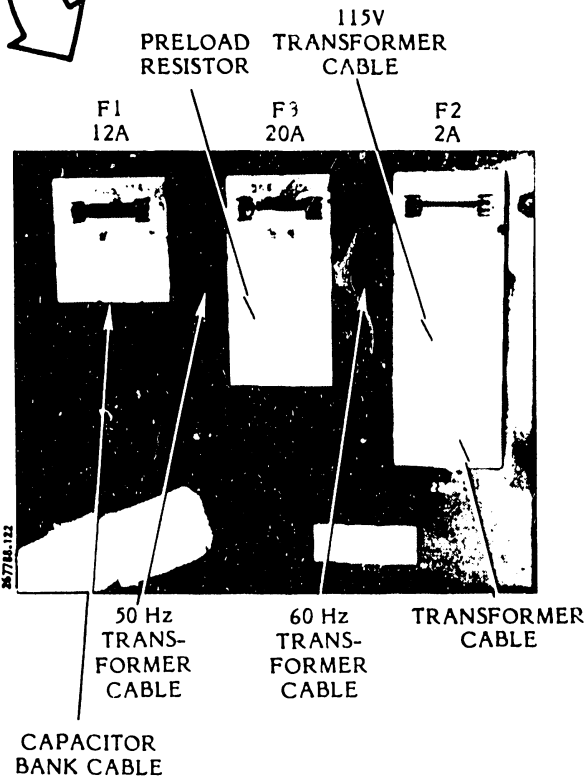


Figure 2-8. Universal Power Supply Transformer Connections

INSTALLATION, INTERFACES, AND CONFIGURATIONS

2

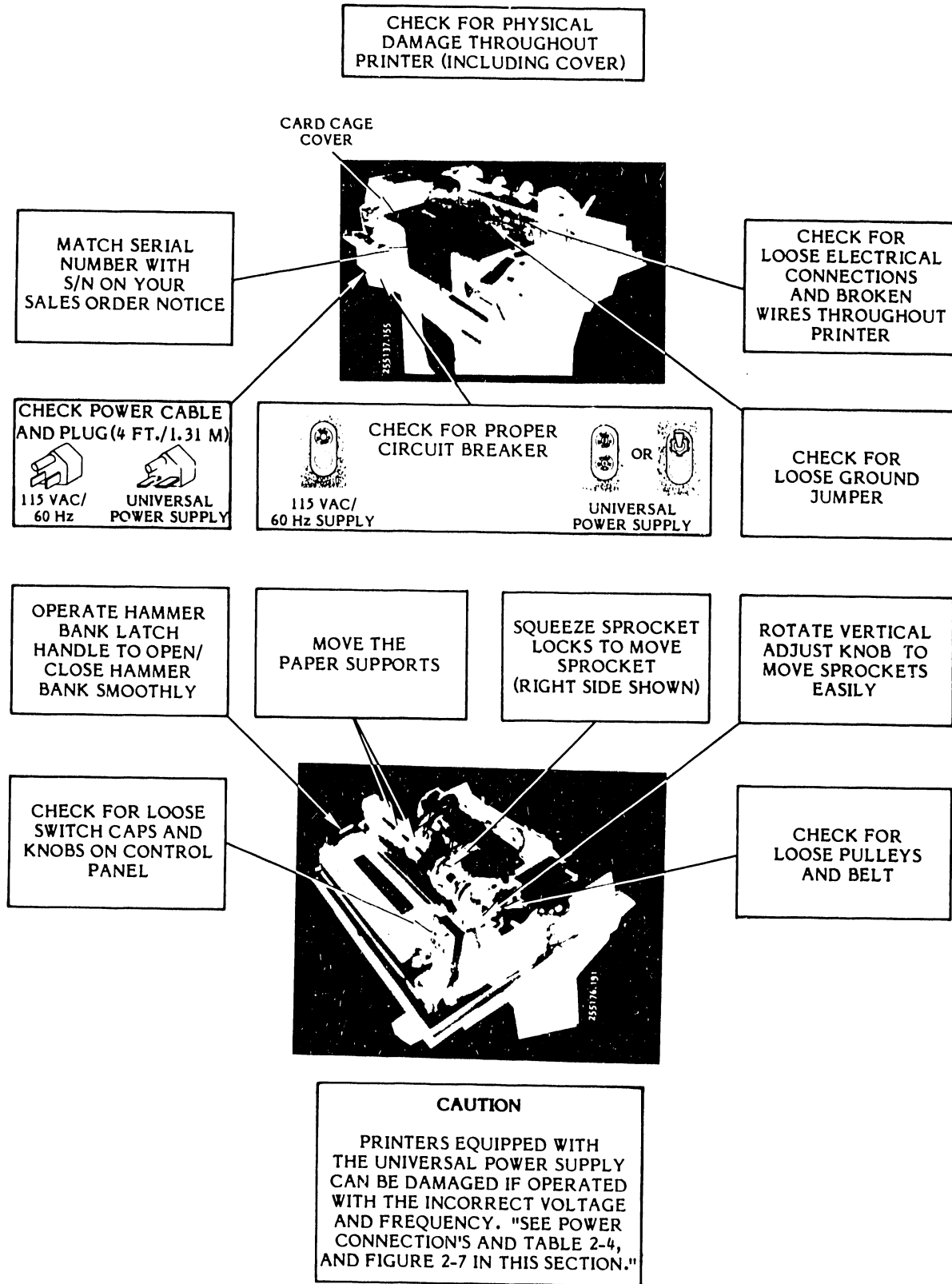
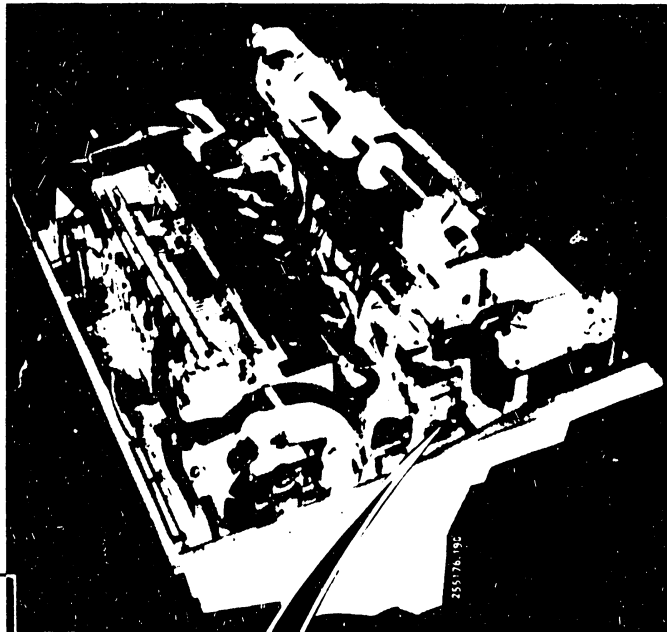
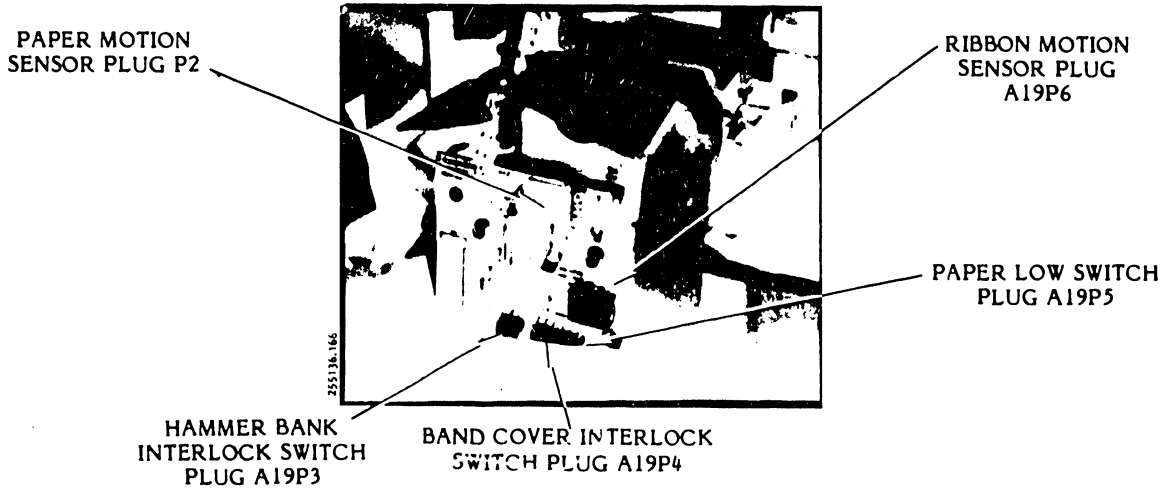


Figure 2-9. Visual and Manual Inspection Areas of Printer

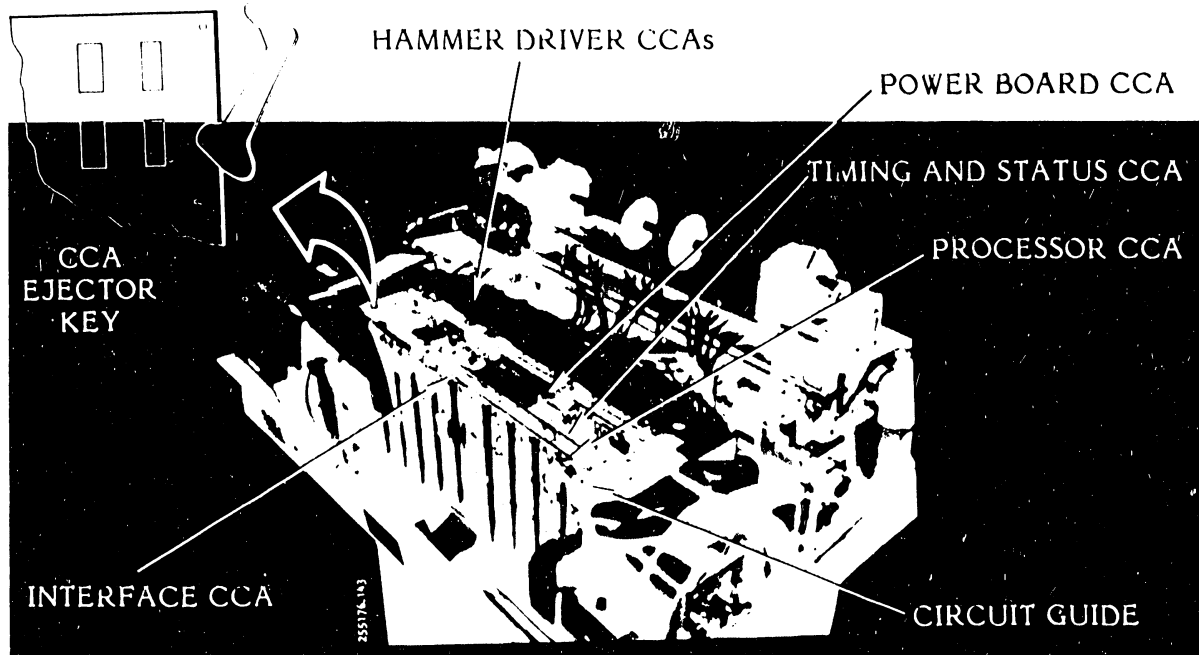


WARNING
IT IS NECESSARY THAT THE INTERLOCK TRANSITION CCA CONNECTORS BE PROPERLY CONNECTED AT ALL TIMES TO PREVENT OPERATOR INJURY AND DAMAGE TO THE PRINTER



MAKE SURE THE INTERLOCK TRANSITION CCA CABLE PLUGS ARE LOCATED AS SHOWN ABOVE AND ARE FIRMLY SEATED

Figure 2-10. Interlock Transition CCA Connection



2

To Remove a CCA:

Swing the ejector keys upward on the CCA to free it from its Mother Board and CCA connector.

NOTE

Do not remove the harness or cable plugs from the CCA unless it is necessary to do so.

Lift the CCA only as far as necessary to impact its components.

To Install a CCA:

Line up the CCA in the circuit guide slots and push it down into the Mother Board CCA connectors.

Using your thumb, press on the ejector keys to seat the CCA firmly into the Mother Board CCA.

Figure 2-11. Circuit Card Assembly Removal/Installation

TABLE 2-6. PROM PARTS LIST

Model Number	CCA and Type	Kit Number and Contents	Reference Designator	Used With
300 LPM	Processor - Memory PROMs (Figure 2-15)	273352-999		Short Line or Long Line Interface with VFU
		273352-001	MEM1	
		273352-002	MEM2	
		273352-003	MEM3	
		273352-004	MEM4	
273352-005	MEM5			
300 LPM	Processor - Memory PROMs (Figure 2-15)	273351-999		Short Line or Long Line Interface without VFU
		273351-001	MEM1	
		273351-002	MEM2	
		273351-003	MEM3	
		273351-004	MEM4	
273351-005	MEM5			
300 LPM	Processor - Memory PROMs (Figure 2-15)	273374-999		Centronics- Compatible Interface
		273374-001	MEM1	
		273374-002	MEM2	
		273374-003	MEM3	
		273374-004	MEM4	
273374-005	MEM5			
600 LPM	Processor - Memory PROMs (Figure 2-15)	273347-999		Short Line or Long Line Interface with VFU
		273347-001	MEM1	
		273347-002	MEM2	
		273347-003	MEM3	
		273347-004	MEM4	
273347-005	MEM5			
600 LPM	Processor - Memory PROMs (Figure 2-15)	273346-999		Short Line or Long Line Interface without VFU
		273346-001	MEM1	
		273346-002	MEM2	
		273346-003	MEM3	
		273346-004	MEM4	
273346-005	MEM5			
600 LPM	Processor - Memory PROMs (Figure 2-15)	273376-999		Centronics- Compatible Interface
		273376-001	MEM1	
		273376-002	MEM2	
		273376-003	MEM3	
		273376-004	MEM4	
273376-005	MEM5			

2

TABLE 2-6. PROM PARTS LIST (Cont'd)

Model Number	CCA and Type	Kit Number and Contents	Reference Designator	Used With
300/ 600	Processor - Band Image PROMs (Figure 2-15)	See note*	MEM6 MEM7 MEM8	See note*
300/ 600 LPM	Serial Interface Memory PROMs (Figure 2-16)	263462-999 263462-001 263462-002	MEM1 MEM2	1K Data Buffer
300/ 600 LPM	Serial Interface Memory PROMs (Figure 2-16)	263463-999 263463-001 263463-002	MEM1 MEM2	2K Data Buffer
300/ 600 LPM	Serial Interface Memory PROMs (Figure 2-16)	263464-999 263464-001 263464-002	MEM1 MEM2	4K Data Buffer
300/ 600 LPM	Interface CCA Forms Length PROM (Figure 2-16)	249320-001	MEM1	Forms Length Select Option
300/ 600 LPM	Centronics- Compatible Interface Decoder PROM (Figure 2-16)	257290-001	MEM2	Centronics- Compatible Set Busy on Delete

*The Band Image PROMs, which are installed on the Processor CCA, are not listed in this table. See the index for the location of the character band/PROM table in section 1. While checking the other PROMs on the Processor CCA, the band image PROMs should also be inspected for correct seating.

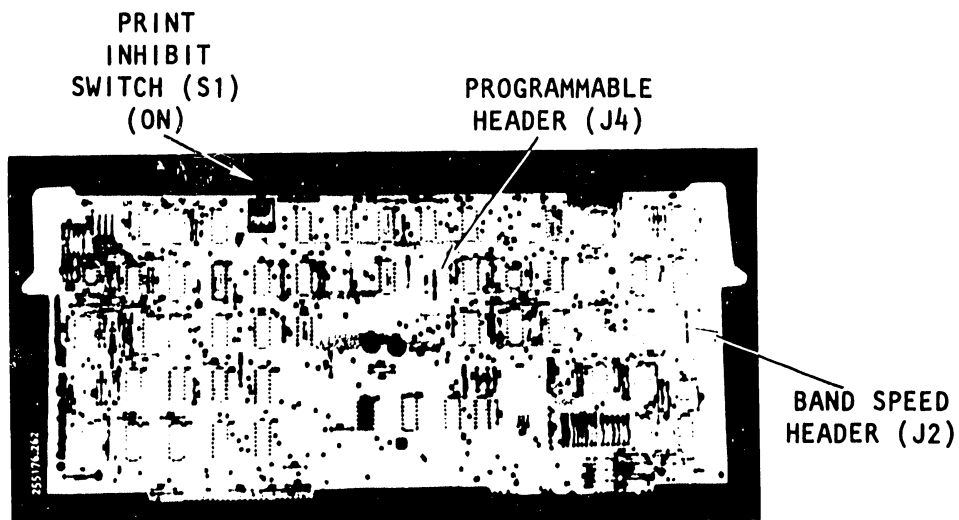
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TABLE 2-7. HEADER PARTS LIST

Model Number	CCA and Type	Kit Number and Contents	Reference Designator	Used With
300 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-001 251175-001 247980-001	J4 J2	165.3 IPS
300 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-002 251175-003 247980-003	J4 J2	184.0 IPS*
600 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-003 251175-004 247980-004	J4 J2	106.7 IPS
600 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-004 251175-005 247980-005	J4 J2	126.6 IPS
600 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-005 251175-006 247980-004	J4 J2	106.7 IPS*
600 LPM	Timing and Status - Band Speed (Figure 2-12)	257435-006 251175-007 247980-005	J4 J2	126.6 IPS*
300 LPM	Hammer Driver Flight Time (Figure 2-13)	257436-001 247981-001	J18	165.3 IPS
300/600 LPM	Hammer Driver Flight Time (Figure 2-13)	257436-002 247981-003	J18	184 IPS-300 126.6 IPS-600
600 LPM	Hammer Driver Flight Time (Figure 2-13)	257436-003 247981-002	J18	106.7 IPS*
300/600 LPM	Hammer Driver Flight Time (Figure 2-13)	257436-004 247981-004	J18	184 IPS-300* 126.6 IPS-600*

*Current Production Configuration

2



NOTE

PRINT INHIBIT SWITCH, S1, IS ON WHEN TOGGLED TO THE RIGHT.

Figure 2-12. Timing and Status CCA Headers and Print Inhibit Switch Locations

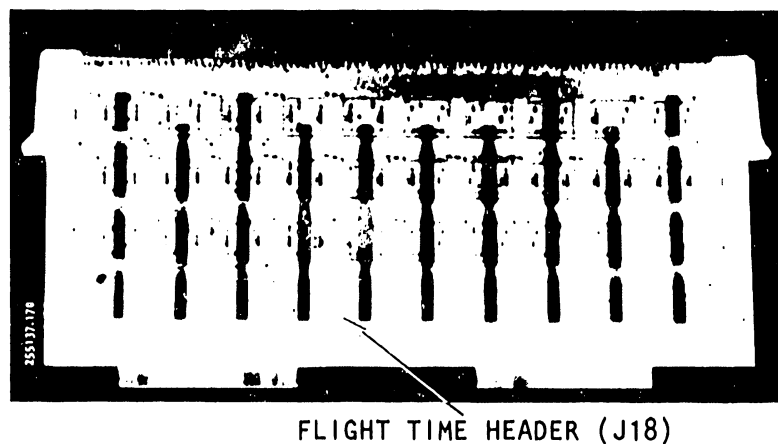
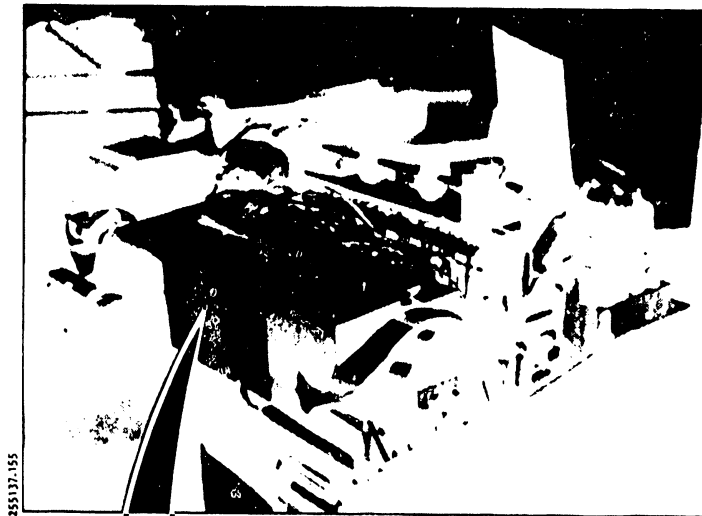


Figure 2-13. Hammer Driver CCA Flight Time Header Location



2

CIRCUIT CARD ORIENTATION																							
		HAMMER DRIVER ONLY HAMMER DRIVER ONLY B-300, B-900, B-1000 POWER		B-600 B-300, B-900, B-1000																			
		TIMING & STATUS PROCESSOR INTERFACE OPTIONS		*HEADER P/N EQUIVALENCY 247980-XXX=B10106-XXX 247981-XXX=B10107-XXX 251175-XXX=B10108-XXX SUFFIX NO. CORRESPOND																			
FIELD CHANGE ORDER RECORD																							
F.C.O. NO.	DATE	INSTALLED BY	F.C.O. NO.	DATE	INSTALLED BY																		
STANDARD SWITCH SETTINGS																							
<table border="1"> <thead> <tr> <th></th> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>S1</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>OFF</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>							S1	S2	S3	S4	S1	ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OFF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	S1	S2	S3	S4	S1																		
ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																		
OFF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																		
PROCESSOR CCA BAND IMAGE PROM (UP TO 3) INTERFACE CCA BAND IMAGE PROM NO. BAND NO. HEADERS (3) HEADER PART NO. # MEMORY PROM KIT NO. SKIN SET NO. POWER SUPPLY NO. RECTIFIER CCA NO. T & S CCA NO. MECH. ASSY NO./REV. PROCESSOR CCA MEMORY PROMS PRINTER SERIAL NO.	A.C. INPUT I/O HARNESS DECODER PROM NO. POWER CCA NO. HWR. DR. CCA NO. PROCESSOR CCA NO. PPR. FEED NO./REV.			SERIAL SWITCH SETTING ON S1 OFF S1 ON S2 OFF S2 ON S3 OFF S3 SERIAL INTERFACE CCA PROM SERIAL INTERFACE CCA PROMS PWR. BD. CFG. MAINT. GDE. MEMORY PROM KIT NO. INTERFACE CCA																			

Figure 2-14. Orientation Decal On Card Cage Cover

2.6.2 Band Time-Out Configuration

The character band will stop if the printer does not receive printable data within a certain number of band revolutions. Permanent wiring on the Processor CCA will provide a time-out count of eight revolutions for the 300 LPM printer and four revolutions for the 600 LPM printer. An optional switch mounted on the Processor CCA will allow a choice among five time-out periods. Figure 2-15 shows the location of the time-out switch and its switch segment S1-1 through S1-5. Table 2-8 provides the timing for each switch setting.

To check the Band Time-Out switch (S1):

Remove the Processor CCA as directed under "Circuit Card Assembly Removal/Installation" in this section.

Compare the switch settings of S1 with your band time-out requirements by using figure 2-15 and table 2-8. Reset the switch if it doesn't match your band time-out requirement.

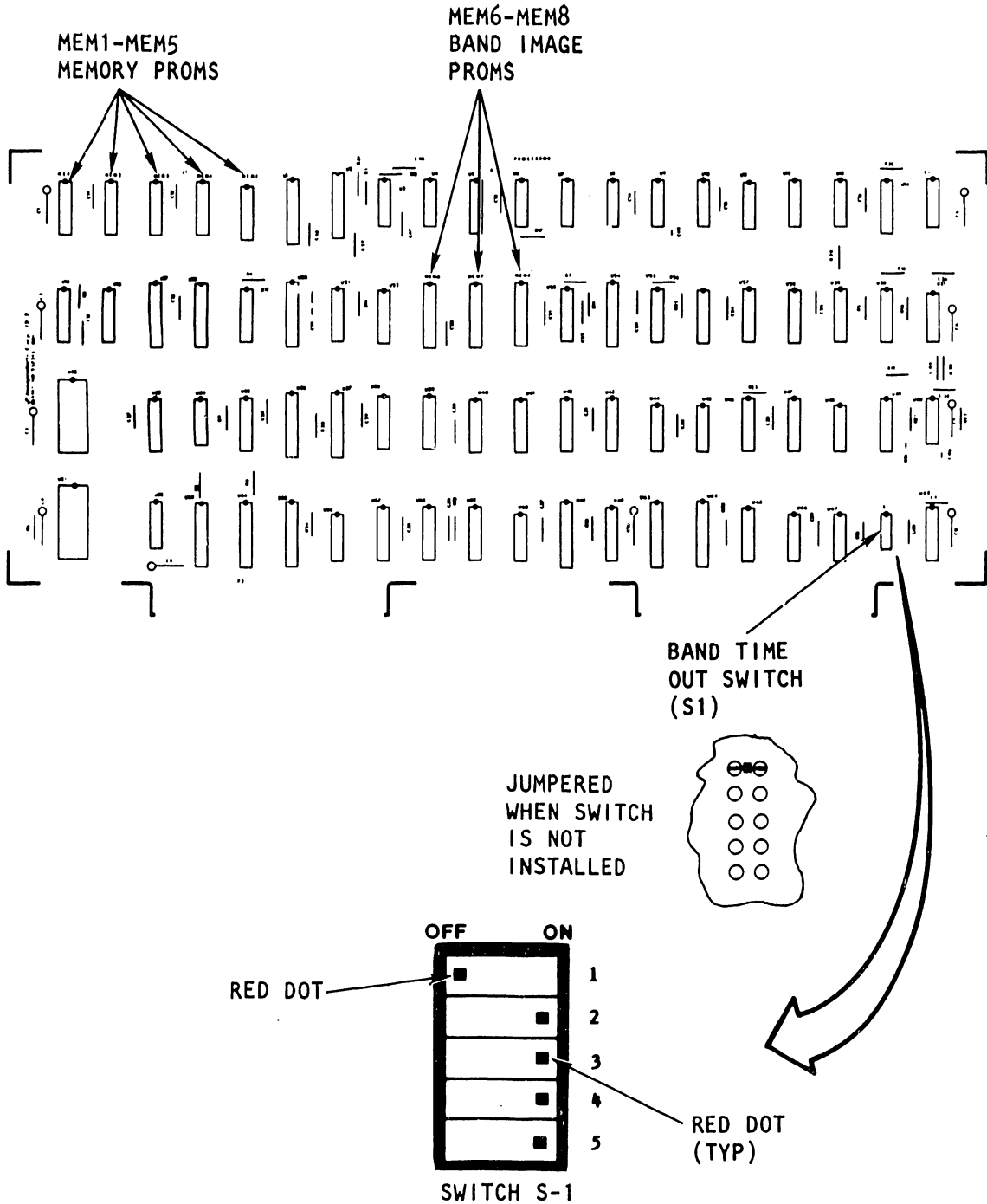
TABLE 2-8. PROCESSOR CCA BAND TIME-OUT SWITCH SETTINGS

Processor CCA Switch S1					Band Time-Out			
					300 LPM Printer		600 LPM Printer	
S1-1	S1-2	S1-3	S1-4	S1-5	No. of Band Revolutions	Time-Out (Seconds)	No. of Band Revolutions	Time-Out (Seconds)
ON	OFF	OFF	OFF	OFF	8*	2.03	4*	1.75
OFF	ON	OFF	OFF	OFF	16	4.06	8	3.50
OFF	OFF	ON	OFF	OFF	32	8.12	16	7.00
OFF	OFF	OFF	ON	OFF	64	16.24	32	14.00
OFF	OFF	OFF	OFF	ON	128	32.48	64	28.00

*Standard Configuration

NOTE

The standard "hard-wired" band time-out configuration is equivalent to the Switch S1-1 ON setting. See figure 2-15.



SELECTED FOR
8 BAND REVOLUTIONS (300 LPM)
OR 4 BAND REVOLUTIONS (600 LPM)
(SEE TABLE 2-8)

Figure 2-15. Processor CCA PROMs and Band Time-Out Switch Locations

2

2.6.3 Interface Configuration Switches

The DIP (Dual In-line Package) configuration switches located on the Interface Circuit Card Assemblies allow a large number of printer operations. If your printer uses only the Short Line, Long Line or Centronics-Compatible Interface CCA, all the switches will be located on that single CCA. If it has the Serial Interface CCA, there will be switches on two CCAs. Look at figure 2-16 for the location of the switches on the respective Interface Circuit Card Assemblies.

a. Switch Setting Inspection

To inspect the switch settings, the printer cover, card cage cover, and circuit card assembly must be removed as described in paragraph 2.6.1.

Compare the switch settings on the Interface CCA(s) in your printer with the switch information on the card cage cover orientation decal (figure 2-14). If the settings do not match, contact a Dataproducts Corporation Product Support representative.

b. Switch Selection

Remove the printer cover (see Printer Cover Removal/Installation in paragraph 2.5). Loosen the two card cage cover fasteners and remove the cover.

Look at your card cage cover. It will have a printer orientation decal attached which shows the printer's original configuration switch settings. As shown in figure 2-17, the "1" will indicate the active side of the switch.

The configuration switches are the blue switches on the CCAs. Look at a switch to see how it is set. Is it ON or OFF? Most of the switches are push-type rocker switches but some will be the slide type (see figure 2-18).

For the push type, use a ball point pen and push a switch segment on the ON or OFF side. You will see the opposite side of the switch show a red dot. The red dot means that its switch side is inactive.

For the slide type, push the switch segment nipple to one side. That will mean that the switch segment is activated on that side and inactive on its opposite side.

INSTALLATION, INTERFACES, AND CONFIGURATIONS

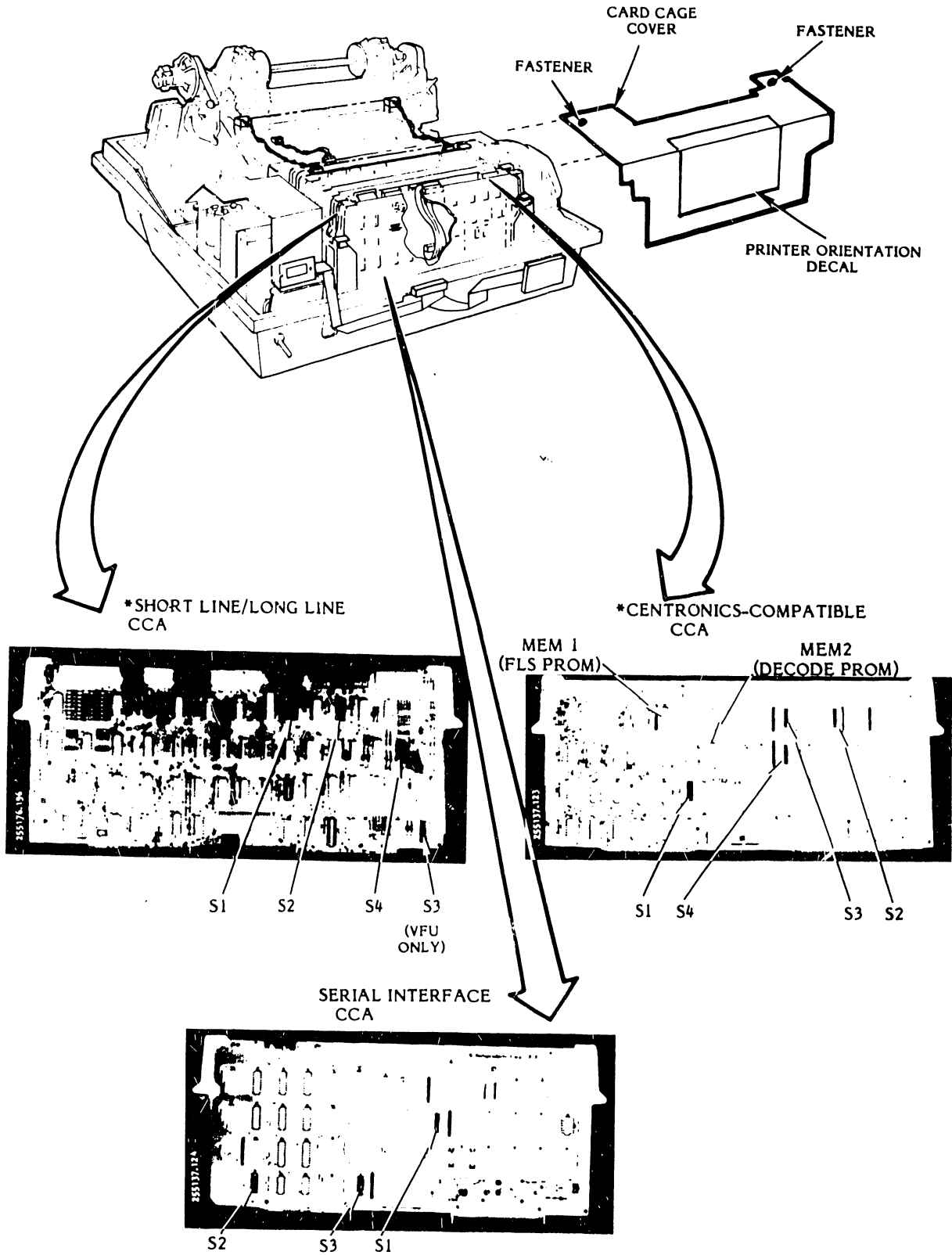
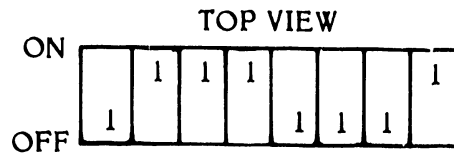


Figure 2-16. Configuration Switch Locations on Interface CCAs

SAMPLE SWITCH SELECTION
ORIENTATION DECAL



"1" INDICATES SIDE OF PUSH TYPE SWITCH OR POSITION OF SLIDER NIPPLE ON SLIDE TYPE SWITCH.

Figure 2-17. Printer Orientation Decal Sample Switch Selection

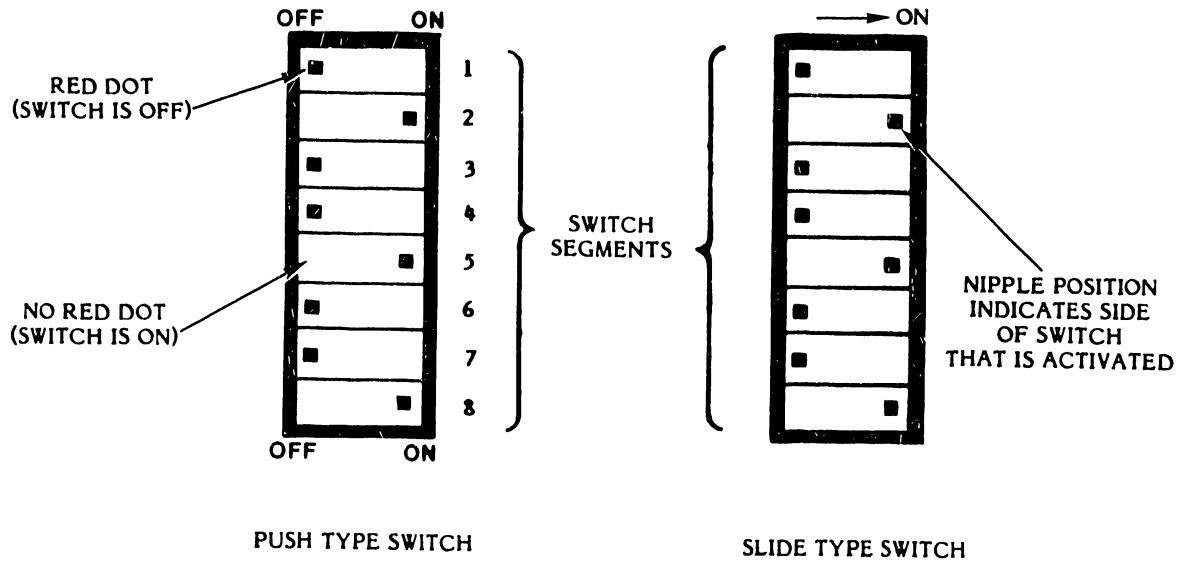


Figure 2-18. Configuration Switch Types

c. Switch Settings

Now, let's proceed with the description of the functions available from the printer through its configuration switch settings. We'll start with the switches located on the Standard Short Line and Long Line Interface CCAs (figures 2-19 to 2-21) and then follow up with Centronics-Compatible Serial Interface CCA switches (figures 2-22 to 2-35).

INSTALLATION, INTERFACES, AND CONFIGURATIONS

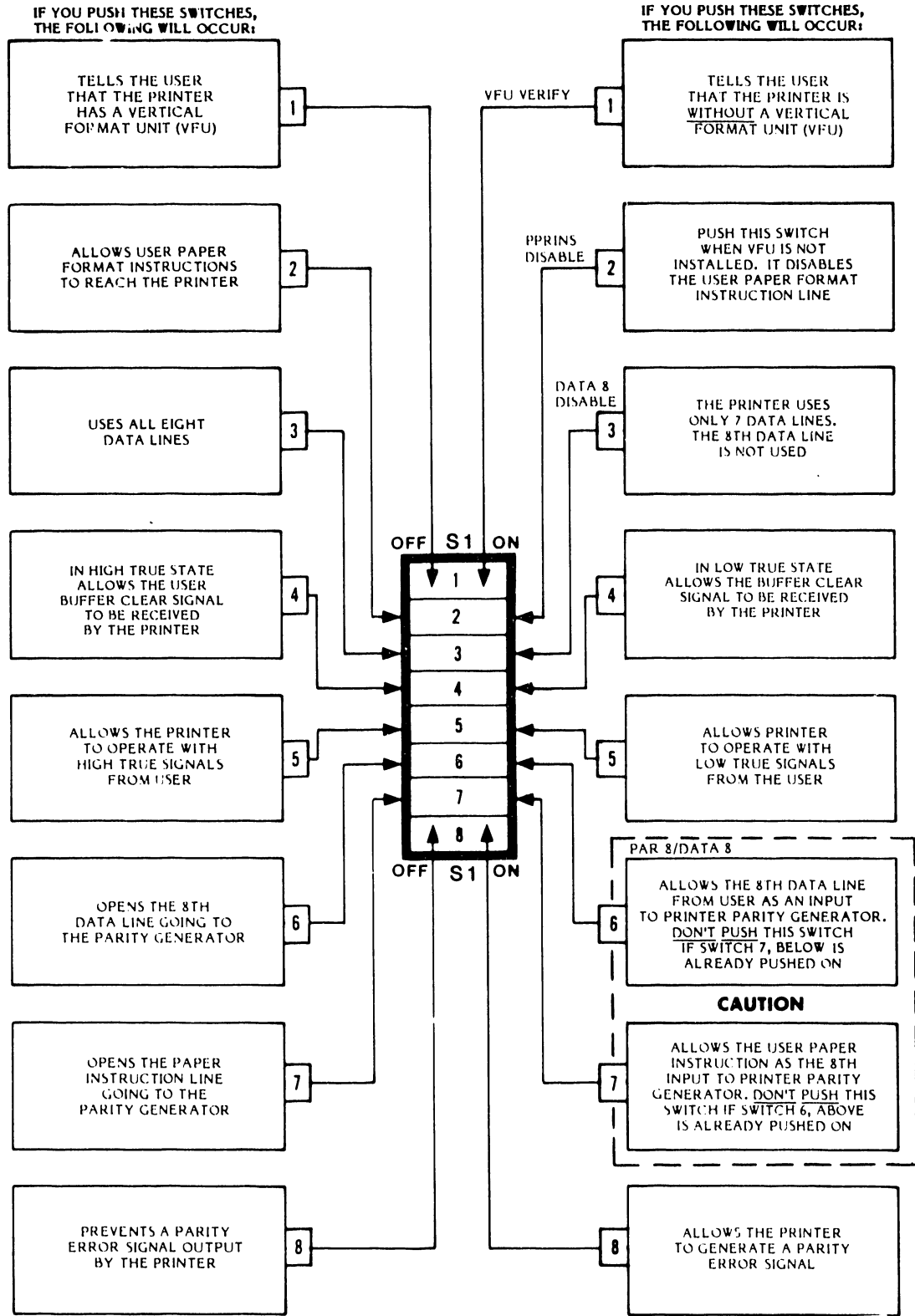


Figure 2-19. Short Line or Long Line Interface CCA, Switch S1

INSTALLATION, INTERFACES, AND CONFIGURATIONS

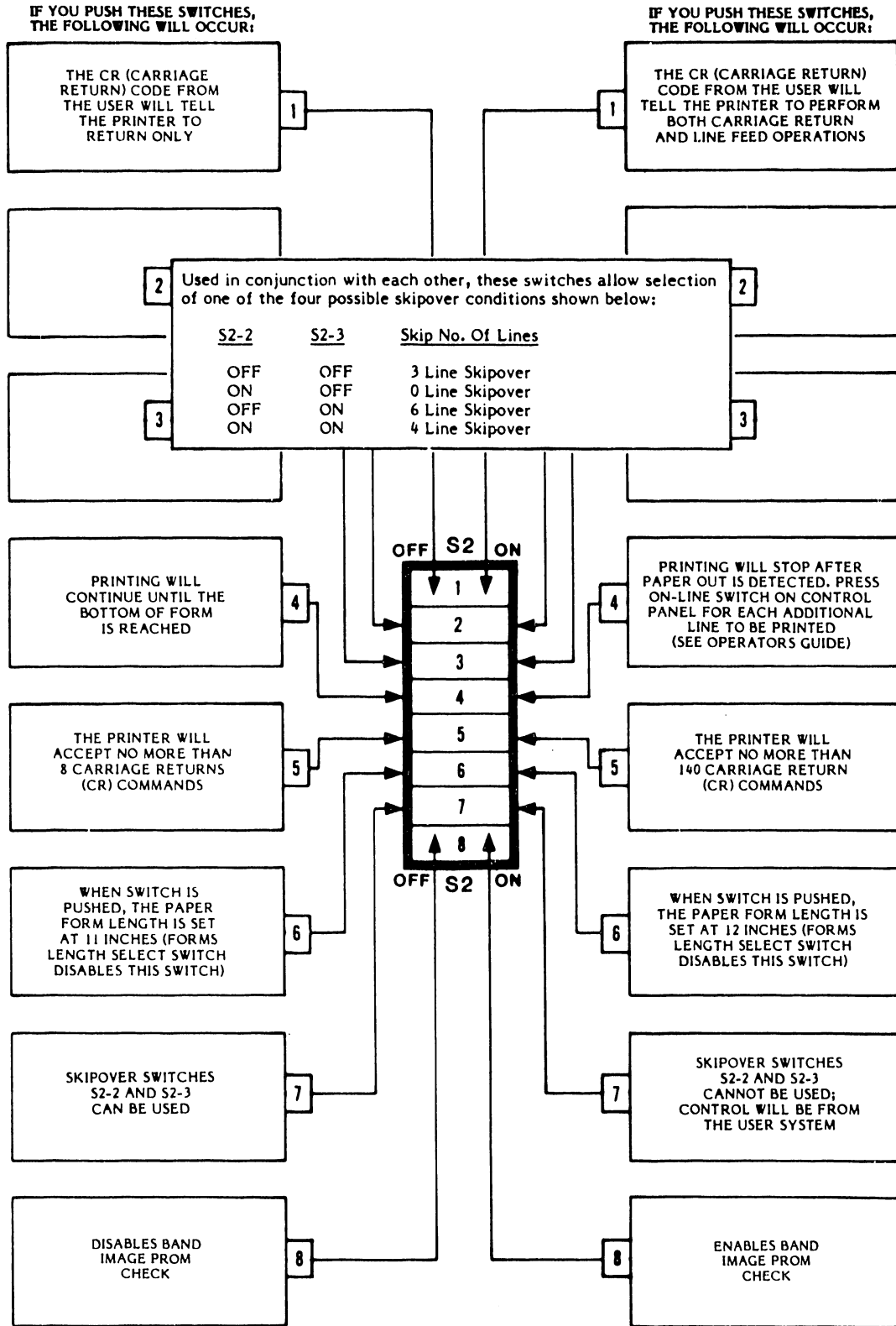


Figure 2-20. Short Line or Long Line Interface CCA, Switch S2

2

INSTALLATION, INTERFACES, AND CONFIGURATIONS

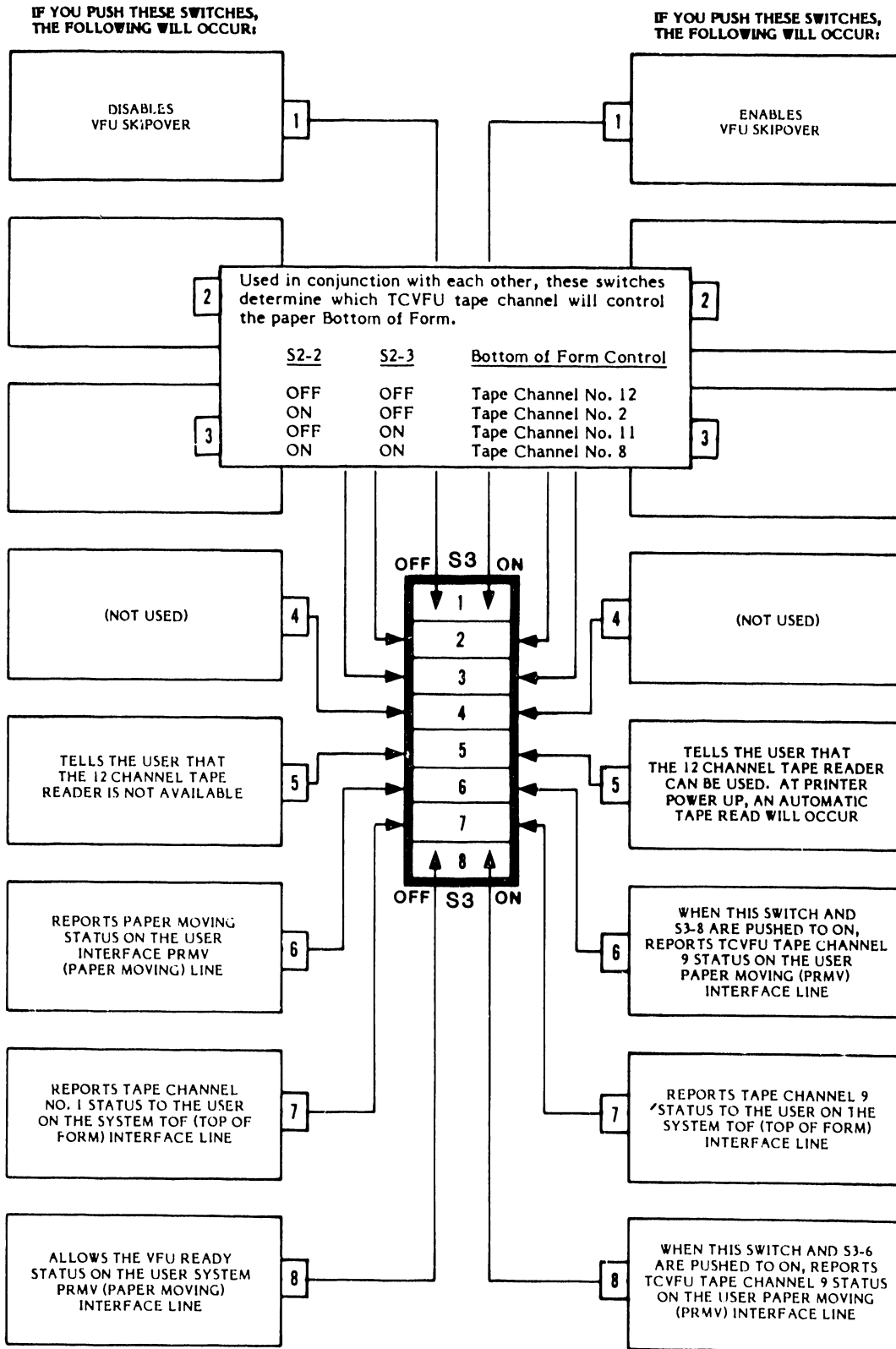


Figure 2-21. Short Line or Long Line Interface CCA, Switch S3

INSTALLATION, INTERFACES, AND CONFIGURATIONS

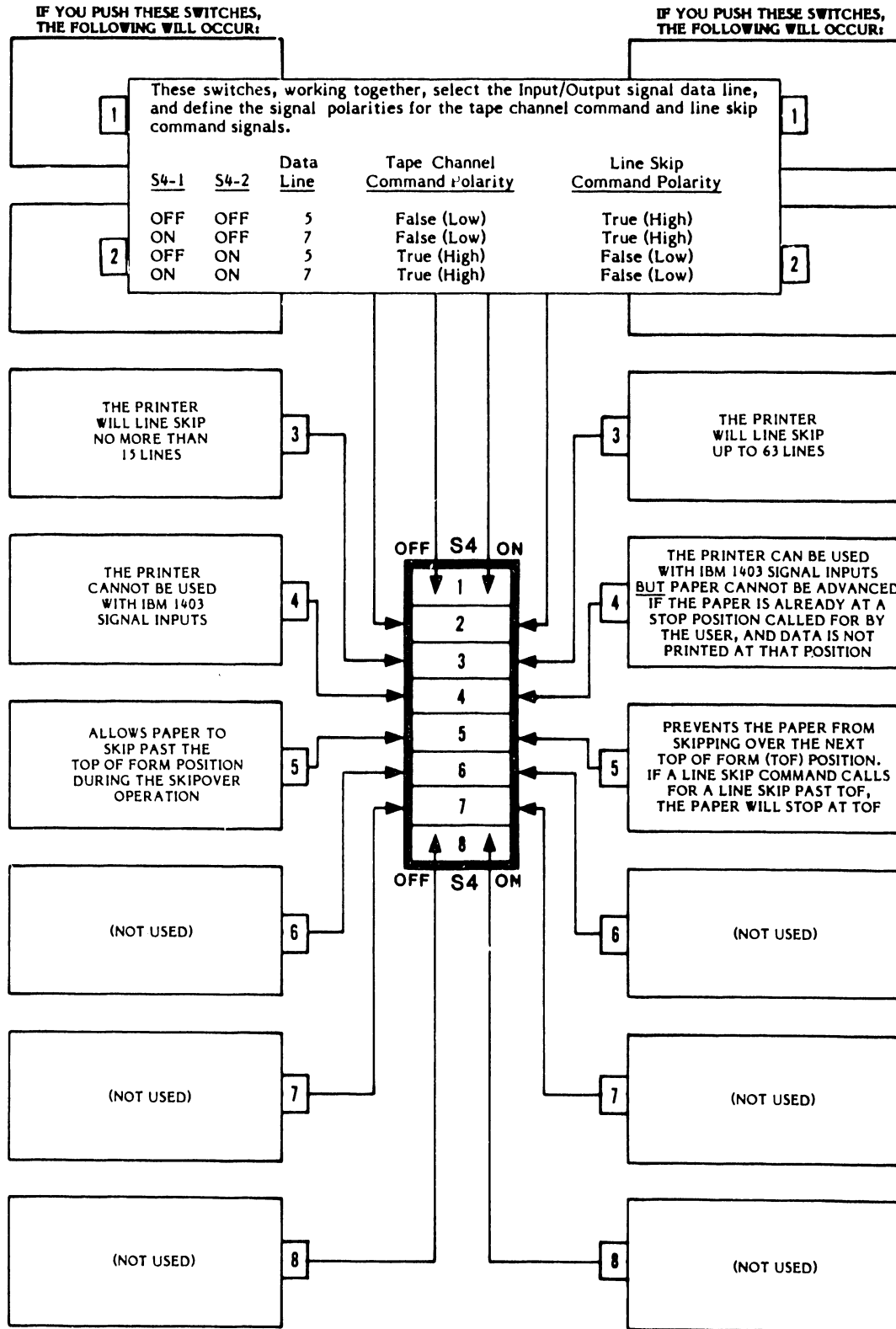


Figure 2-22. Short Line or Long Line Interface CCA, Switch S4

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INSTALLATION, INTERFACES, AND CONFIGURATIONS

2

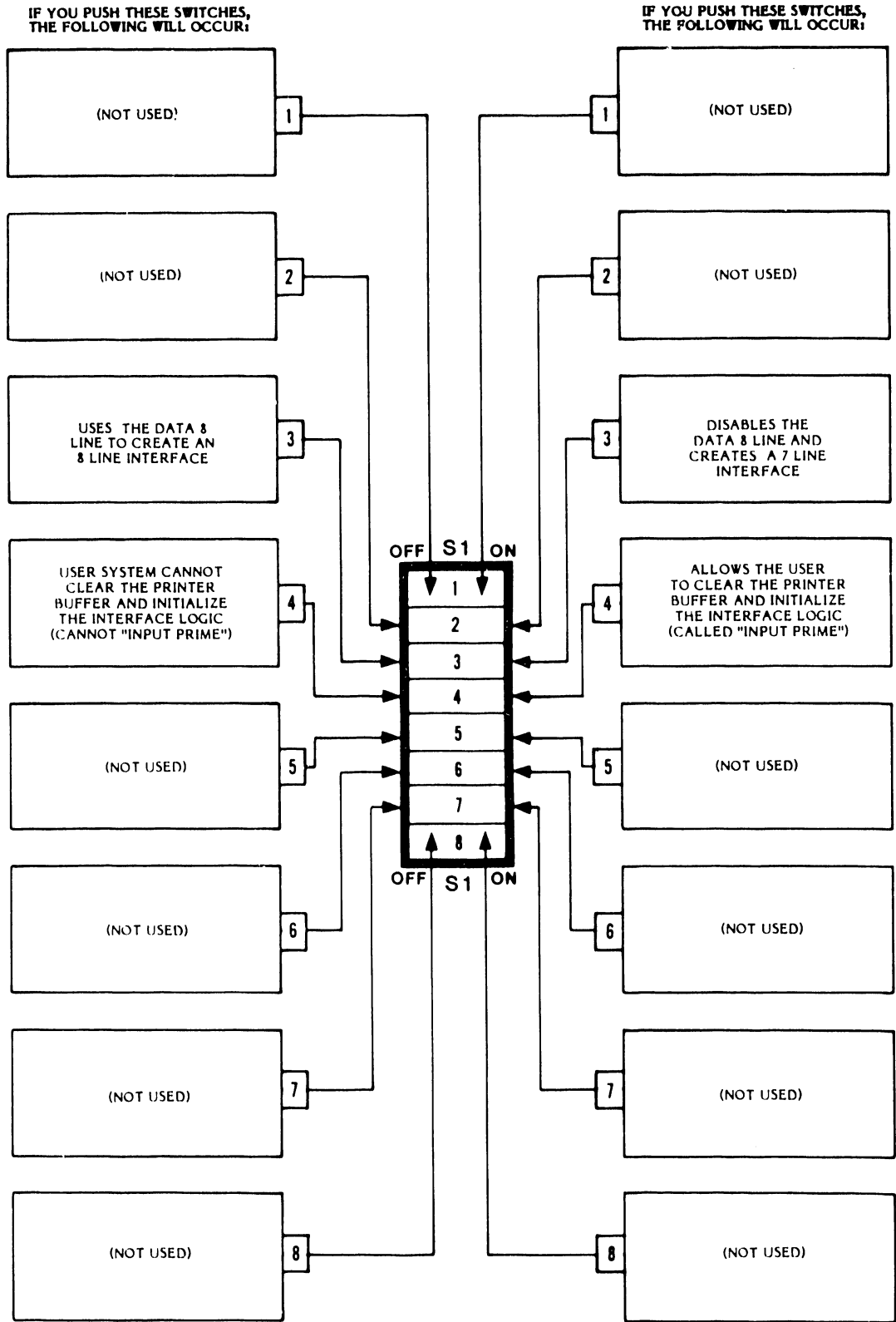
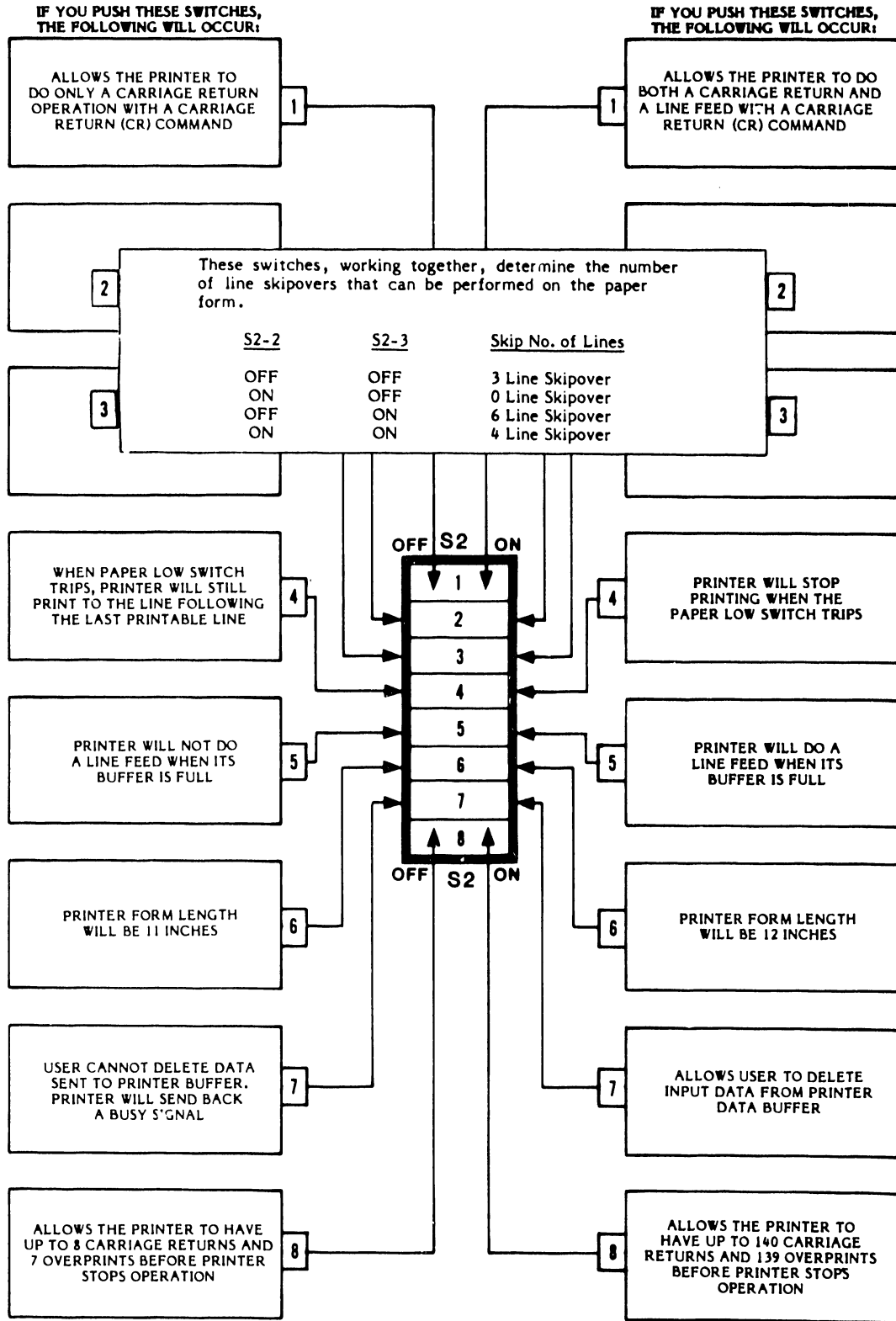


Figure 2-23. Centronics-Compatible Interface, Switch S1

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-24. Centronics-Compatible Interface, Switch S2

INSTALLATION, INTERFACES, AND CONFIGURATIONS

2

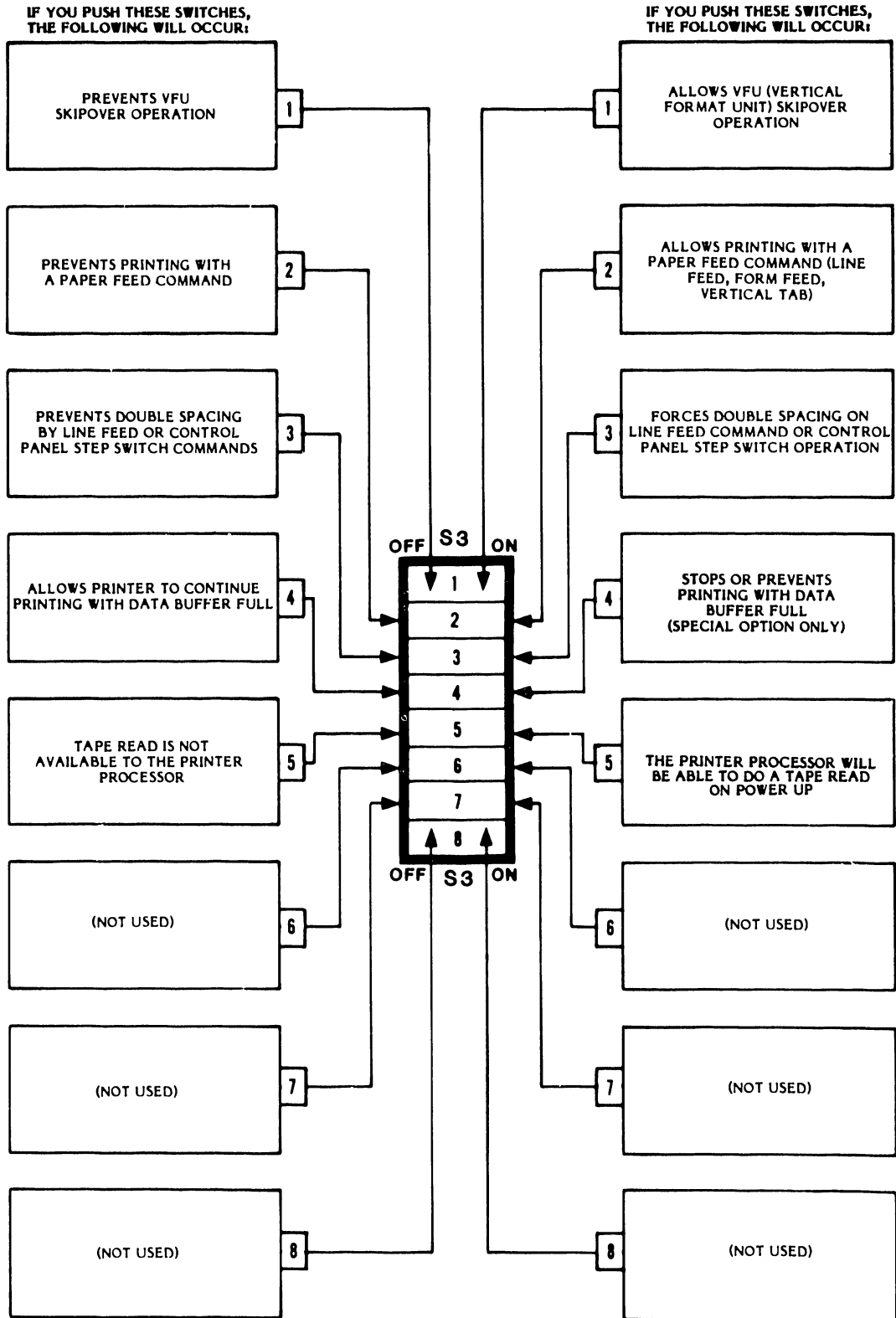
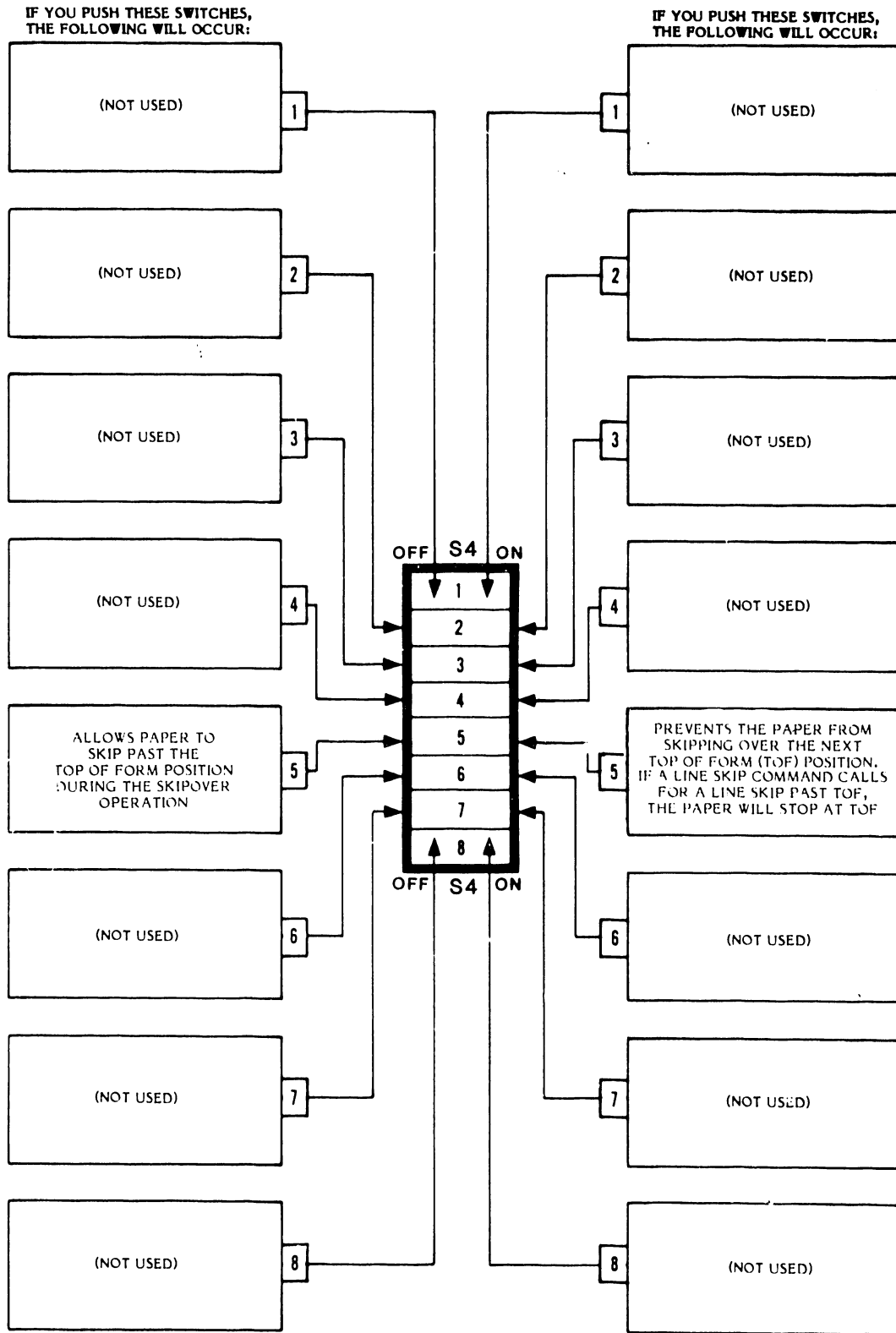


Figure 2-25. Centronics-Compatible Interface, Switch S3

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-26. Centronics-Compatible Interface, Switch S4

INSTALLATION, INTERFACES, AND CONFIGURATIONS

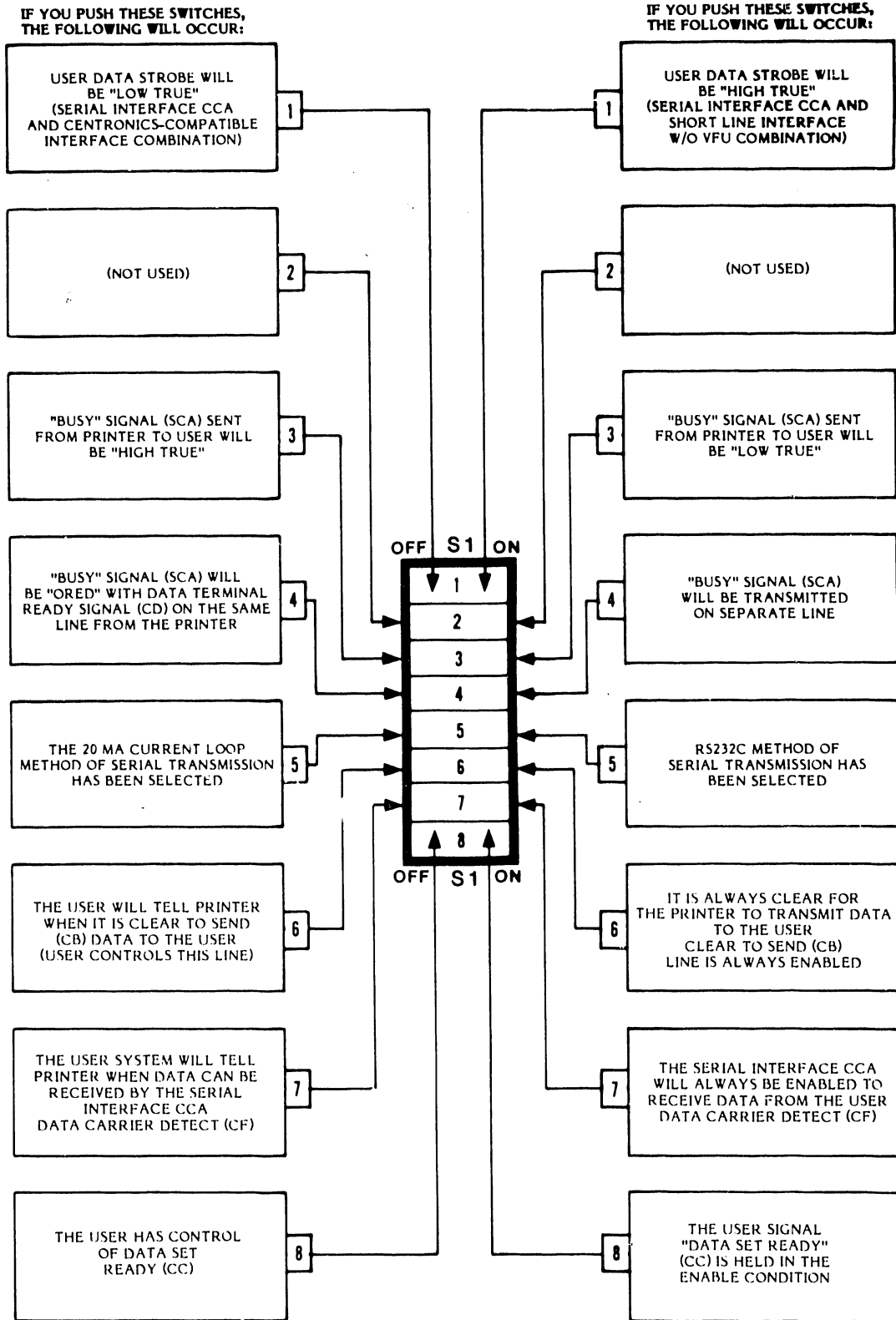
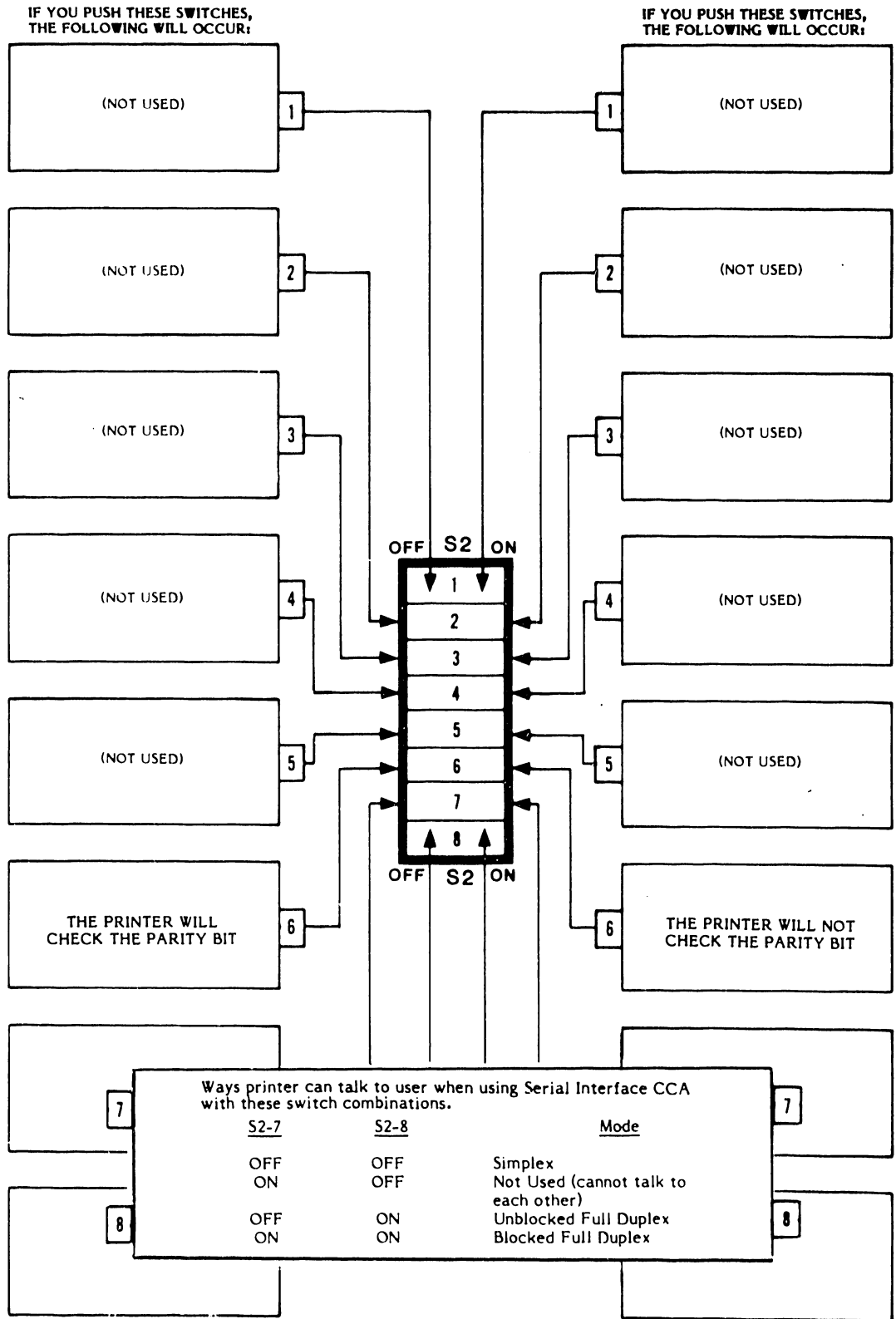


Figure 2-27. Serial Interface Switch Settings, Switch S1

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-28. Serial Interface CCA Switch Settings, Switch S2

INSTALLATION, INTERFACES, AND CONFIGURATIONS

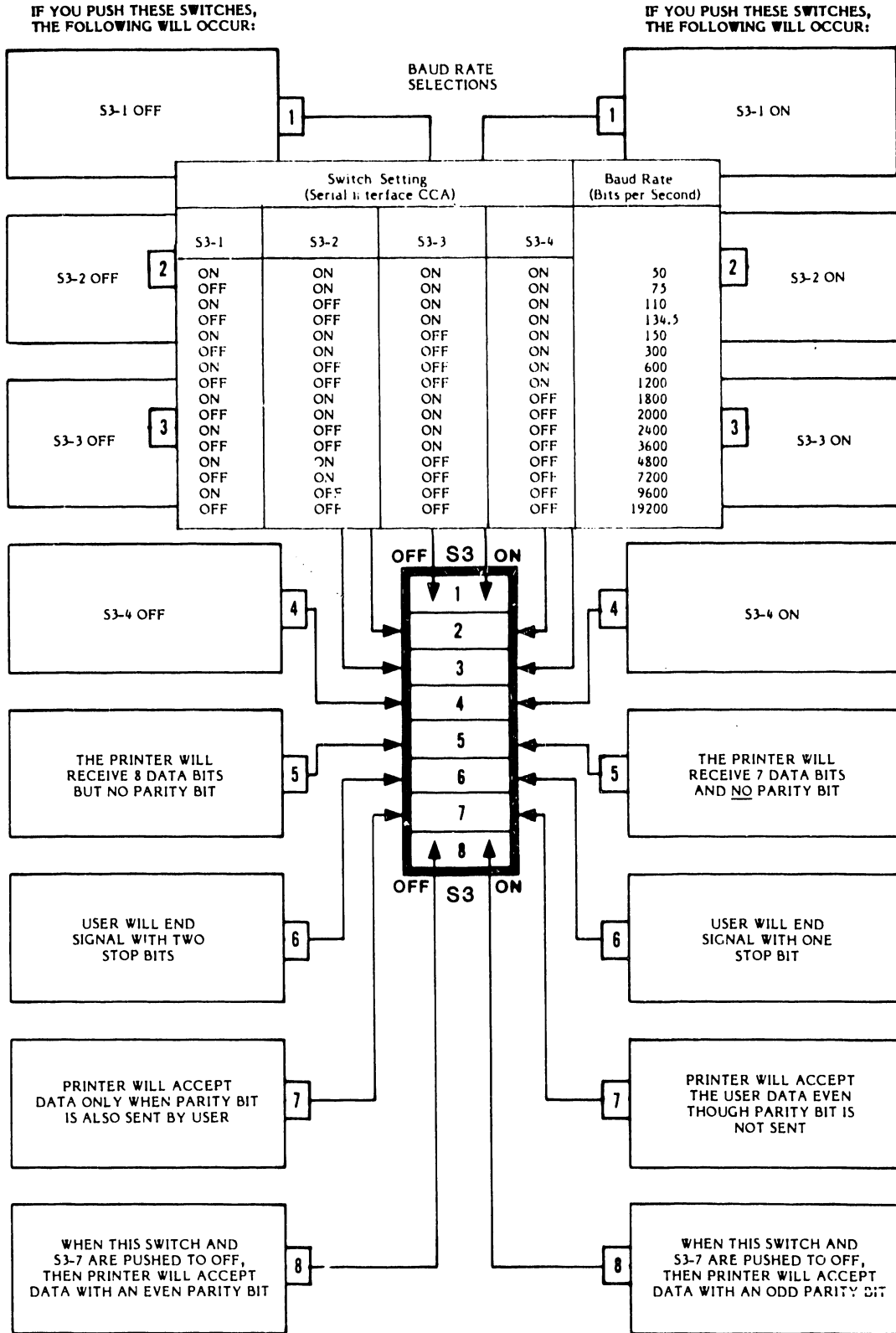
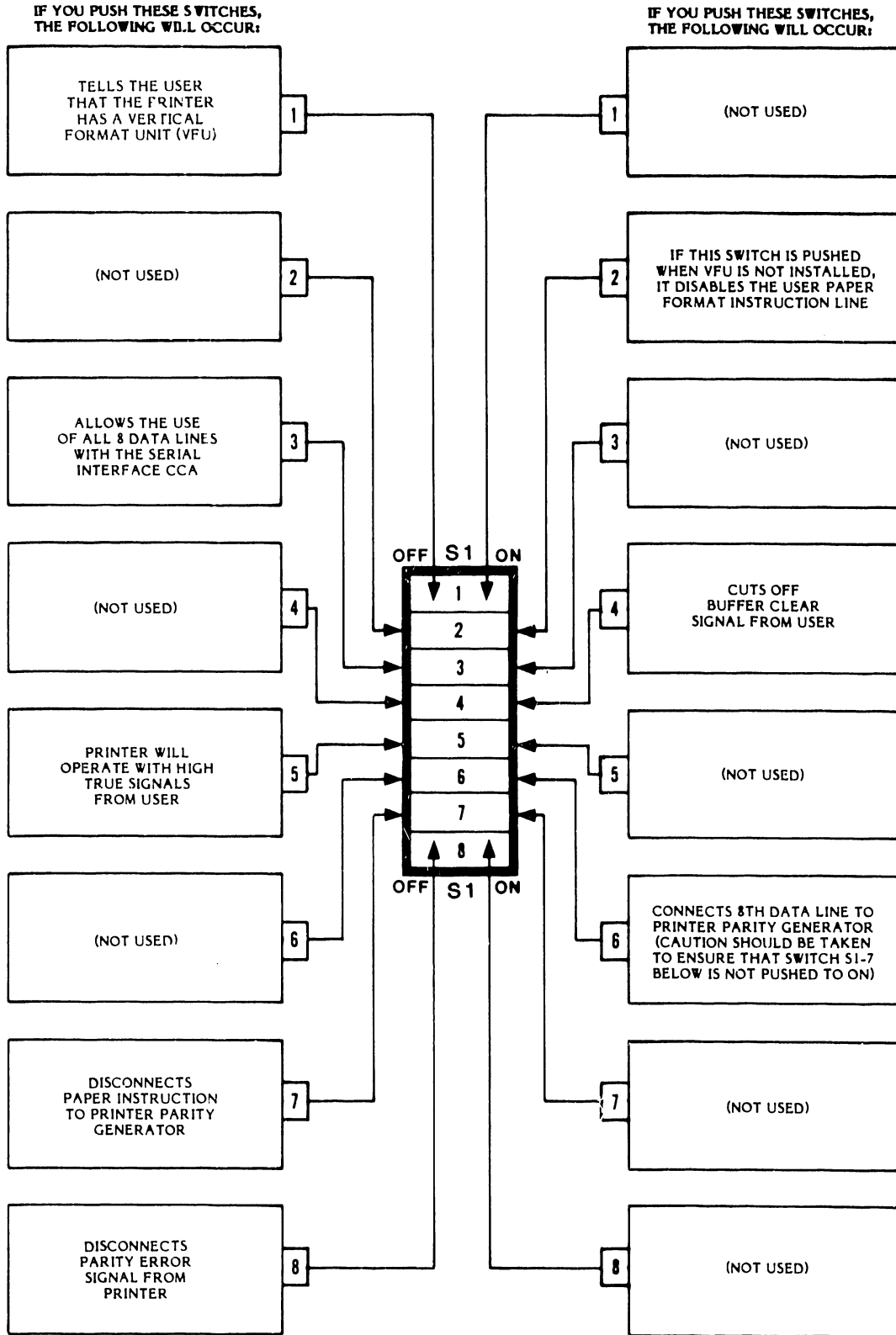


Figure 2-29. Serial Interface Switch Settings, Switch S3

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-30. Standard Short Line Interface CCA Switches Used With Serial Interface CCA, Switches (Non-VFU), Switch S1

INSTALLATION, INTERFACES, AND CONFIGURATIONS

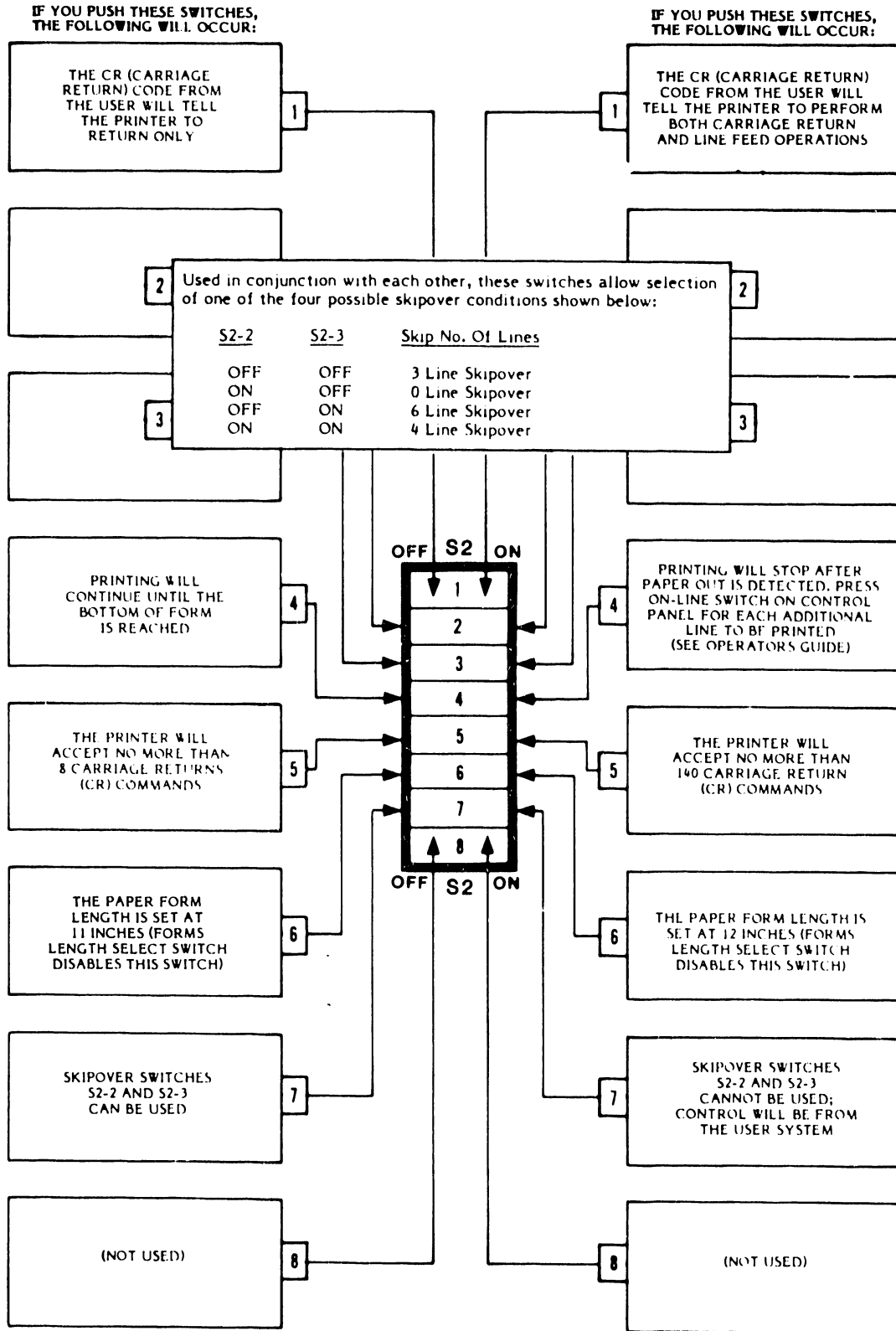
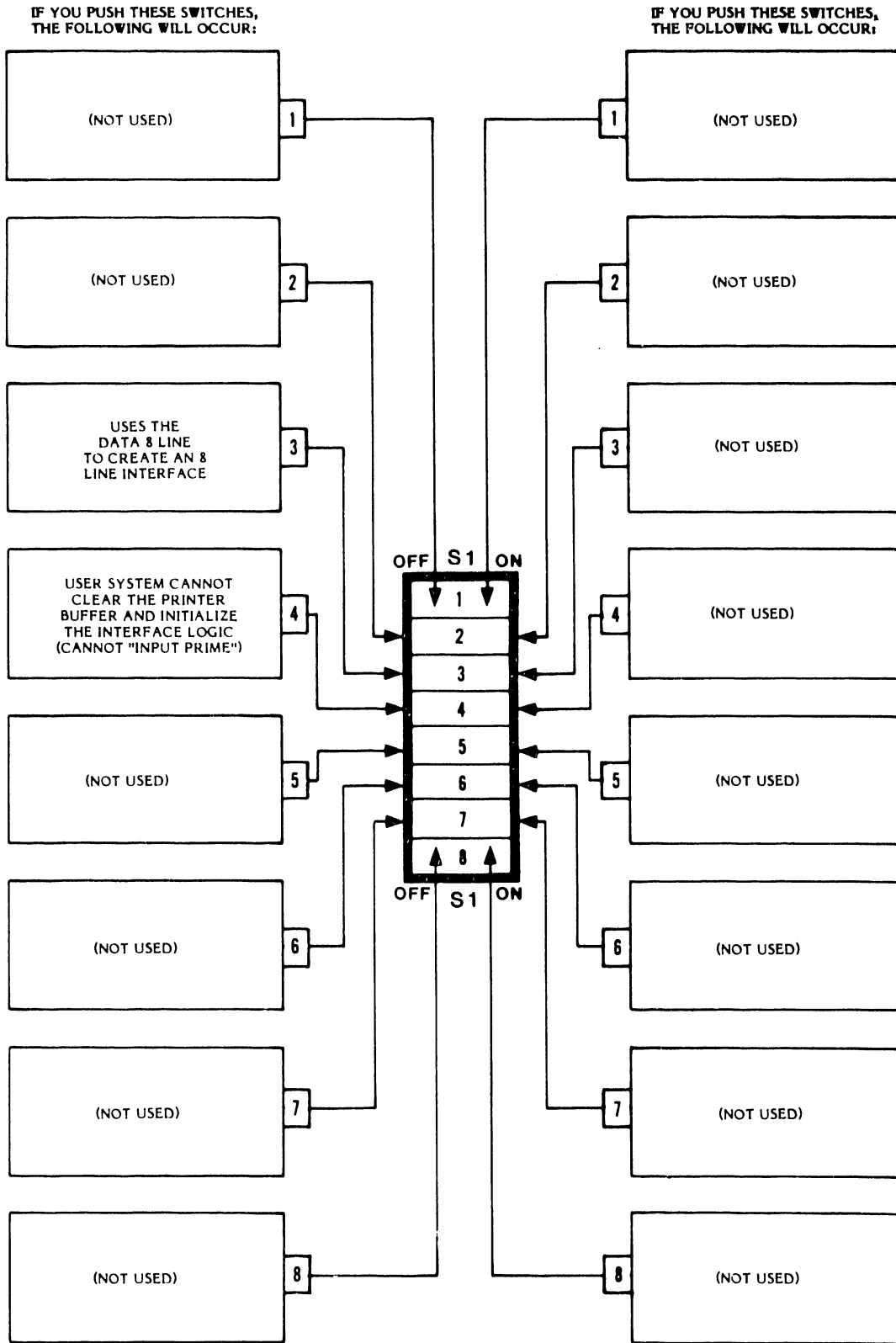


Figure 2-31. Standard Short Line Interface CCA Switches Used With Serial Interface CCA, Switch S2

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-32. Centronics-Compatible Interface CCA, Used With Serial Interface CCA, Switch S1

INSTALLATION, INTERFACES, AND CONFIGURATIONS

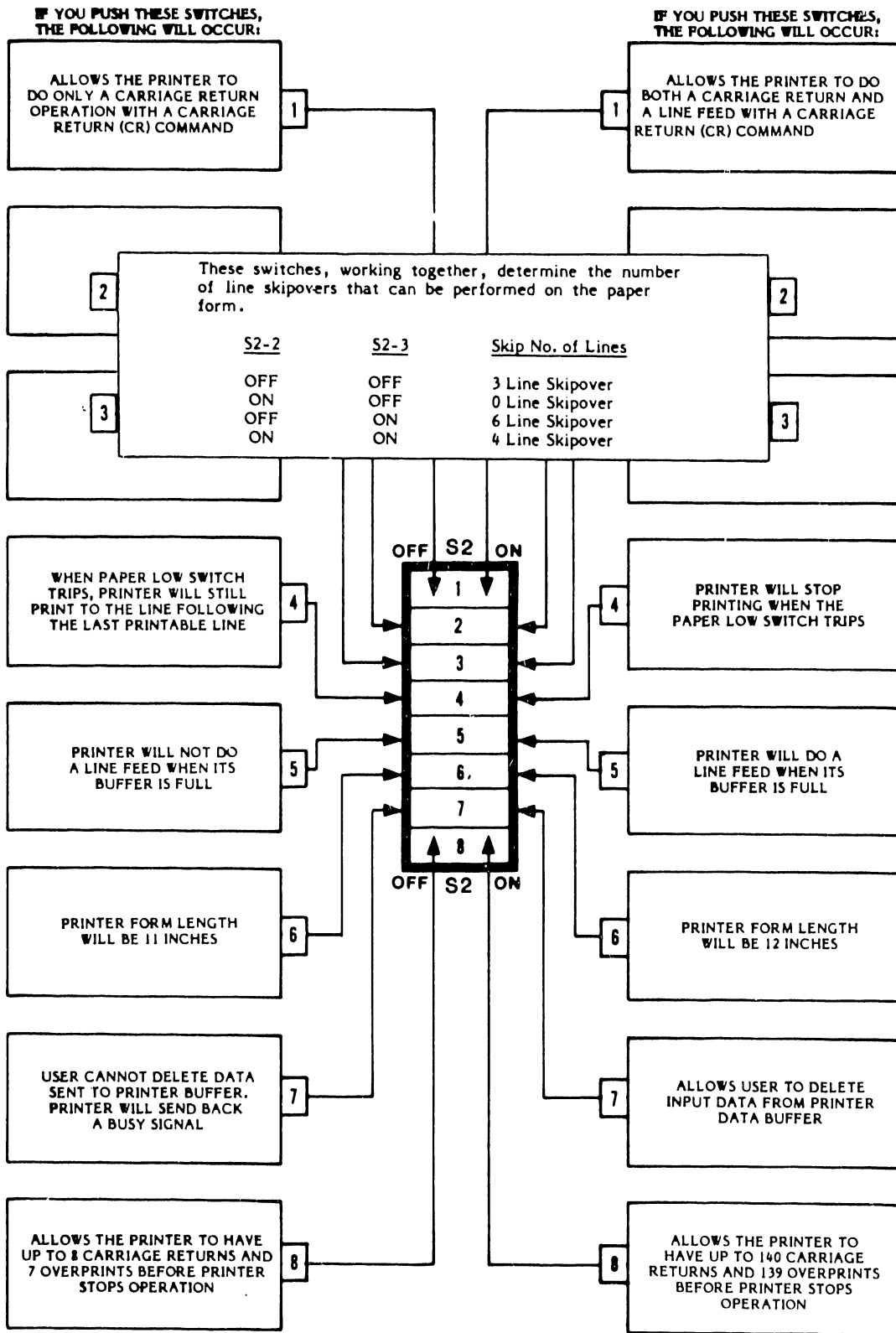
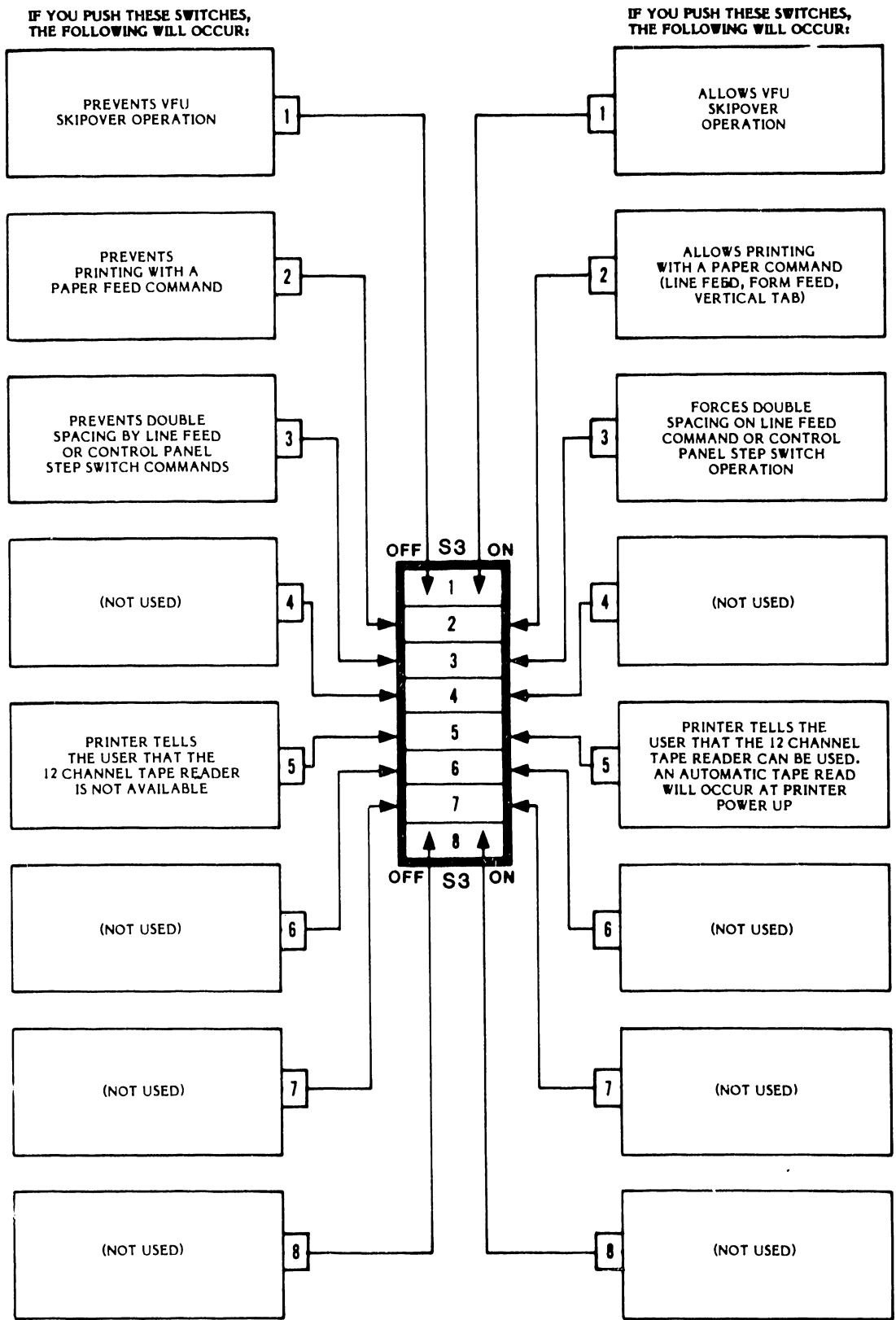


Figure 2-33. Centronics-Compatible Interface CCA, Used With Serial Interface CCA, Switch S2

INSTALLATION, INTERFACES, AND CONFIGURATIONS



2

Figure 2-34. Centronics-Compatible Interface CCA, Used With Serial Interface CCA, Switch S3

INSTALLATION, INTERFACES, AND CONFIGURATIONS

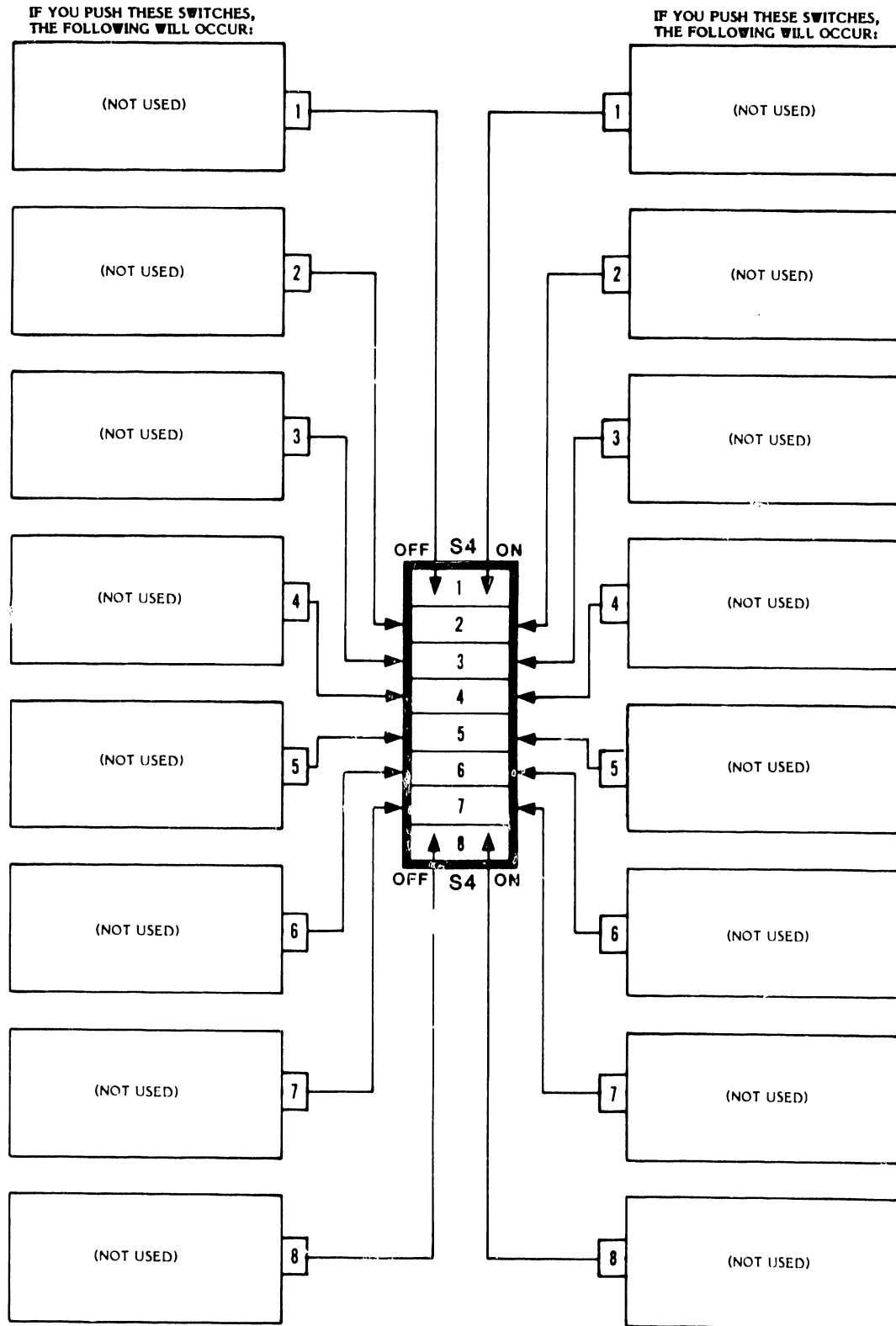


Figure 2-35. Centronics-Compatible Interface CCA, Used With Serial Interface CCA, Switch S4

2

2.7 CONTROLS AND INDICATORS

Controls and indicators located on the operator's control panel and in other areas of the printer are fully described in the 300 LPM/600 LPM Operator's Guide.

2.8 PAPER FORMS AND RIBBON

Information regarding paper form and ribbon characteristics is provided in the printer Operator's Guide.

CAUTION

Certain carbonless multi-copy paper forms may not produce good print using this printer. If you intend to use carbonless paper in place of Dataproducts recommended paper forms, conduct test printings before you buy large amounts. See the printer Operator's Guide Paper Selection Guide.

2

2.9 PRINTER INTERFACES

Several types of user-to-printer interface arrangements are commonly available for the B-Series Printers. They are:

- Short Line Interface with or without Vertical Format Unit (VFU) Paper Motion Control
- Long Line Interface with or without Vertical Format Unit (VFU) paper Motion Control
- Centronics-Compatible Interface with Vertical Format Unit (VFU) Motion Control
- Serial System Interface with Vertical Format Unit (VFU) Paper Motion Control

NOTE

Serial System Interface requires Centronics-Compatible Interface CCA to function with VFU control.

- Serial System Interface without Vertical Format Unit (VFU) Paper Motion Control

NOTE

Serial System Interface requires Short Line Interface CCA to function without VFU control.

These interface systems are located at the rear of the printer as illustrated in figure 2-36.

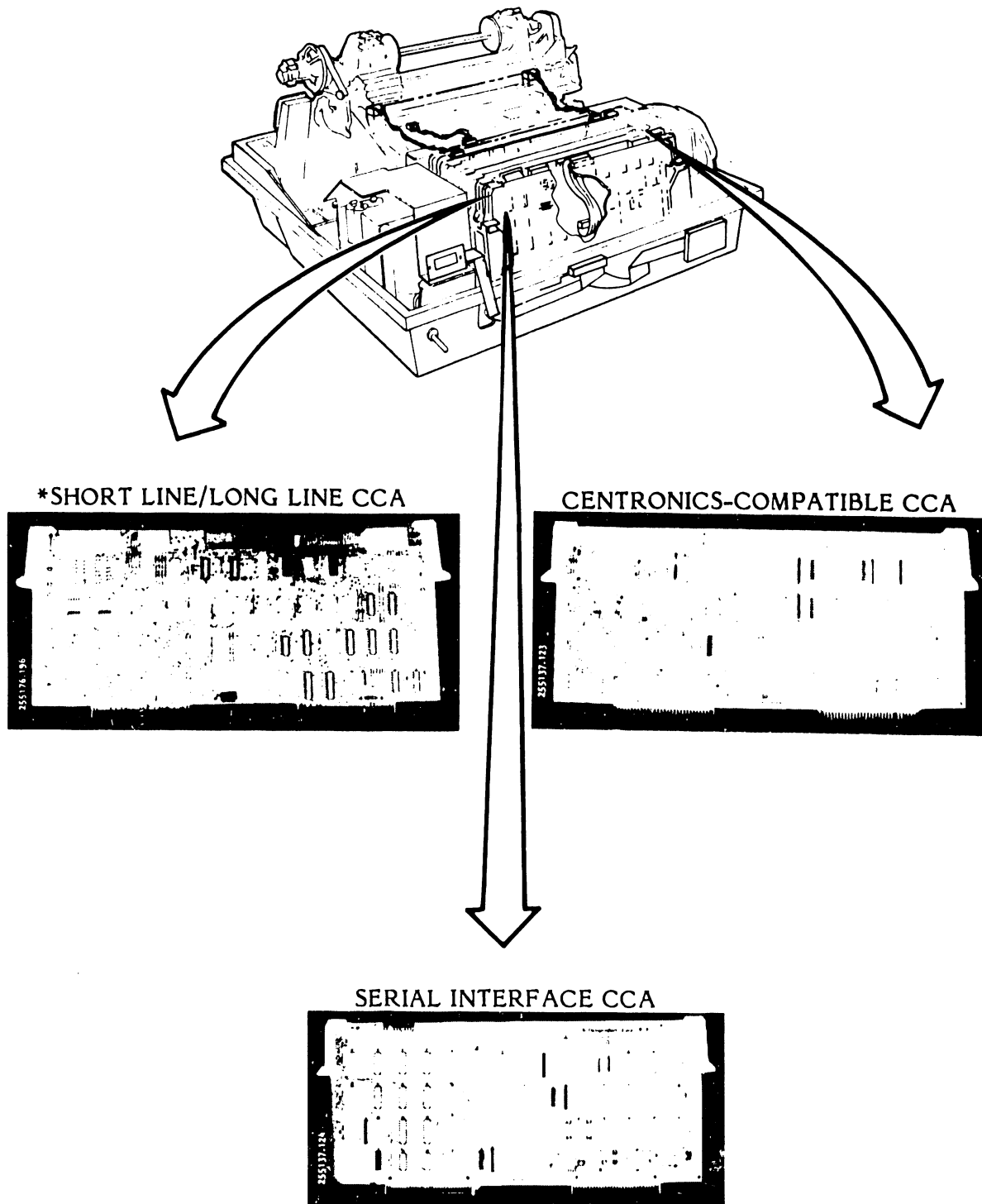
Four different Input/Output connector configurations can be installed in the B-Series printers. The standard Short Line and Long Line Interfaces are available with an Amp or optional Winchester I/O Connector. The Centronics-Compatible and Serial Interface configurations have unique Input/Output (I/O) connections which are not interchangeable with other systems.

2.9.1 Input/Output Harness and Connector Assemblies

Figure 2-37 illustrates the four types of Input/Output Harness Assemblies available with the printer. Tables 2-9 through 2-11 define the signals assigned to the connector pin numbers.

2

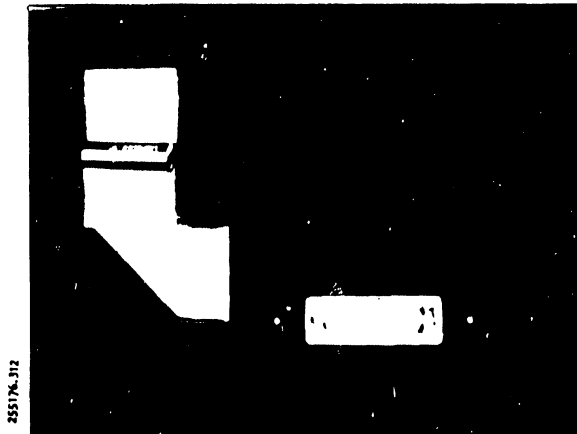
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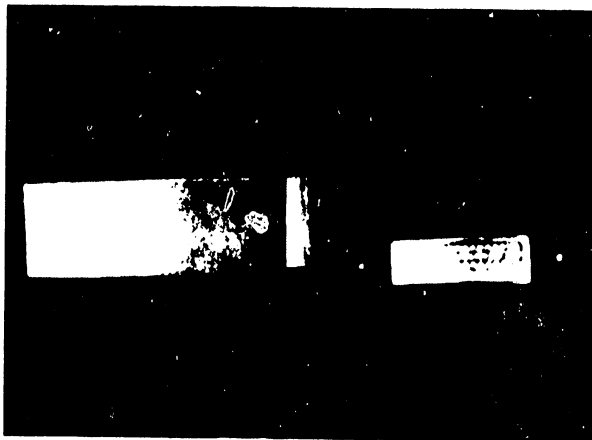
*Short Line/Long Line Interface CCA and Centronics-Compatible CCA use the same card slot.

Figure 2-36. Printer Interface Circuit Card Assemblies Location

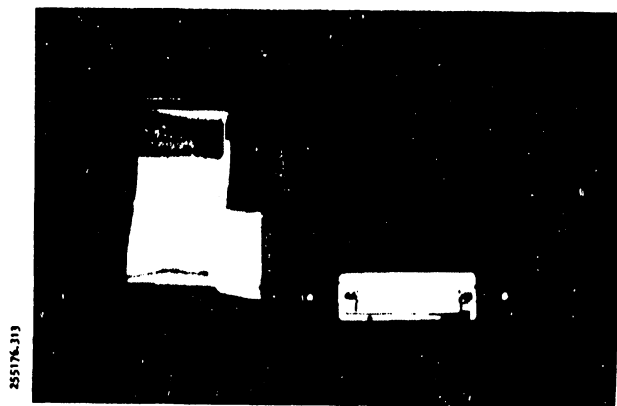
2



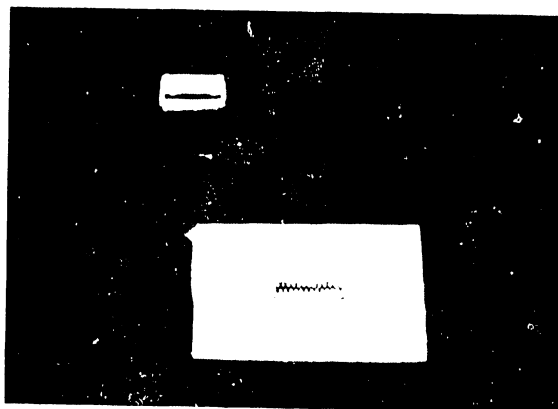
SHORT/LONG LINE AMP
TYPE CONNECTOR
(See Table 2-9)



SHORT/LONG LINE WINCHESTER
TYPE CONNECTOR (OPTIONAL)
(See Table 2-9)



CENTRONICS-COMPATIBLE
TYPE CONNECTOR
(See Table 2-10)



SERIAL TYPE CONNECTOR
(See Table 2-11)

Figure 2-37. I/O Harness Assembly Connector Types

TABLE 2-9. SHORT LINE AND LONG LINE I/O CONNECTOR PIN ASSIGNMENTS

Signal Mnemonic	Amp Connector (J1)		Winchester Connector (J1)		Definition															
	Signal Pin	Ground Pin	Signal Pin	Ground Pin																
<u>Standard Signal Lines</u>																				
READY (RDY)	22	6	CC	EE	Printer-generated to indicate it is ready to be placed on line.															
ON LINE (ONLN)	21	5	y	AA	Printer-generated to indicate it is on line.															
DEMAND (DEM)	23	7	E	C	Printer-generated to request data from user. Only active when ONLINE is active except in the Print Inhibit Mode.															
STROBE	38	37	j	m	User-generated to indicate stable data on the data lines.															
<u>DATA Lines 1-8</u>																				
DATA 1	19	3	B	D	User-generated data lines for transmission of print data and format control codes.															
DATA 2	20	4	F	J																
DATA 3	1	2	L	N																
DATA 4	41	40	R	T																
DATA 5	34	18	V	X																
DATA 6	43	42	Z	b																
DATA 7	36	35	n	k																
DATA 8	28	44	u	w																
(Option)																				
IDENT 0 (IDNT 0)	50	32	d	f	Printer-generated to identify the characteristics of the band currently installed.															
IDENT 1 (IDNT 1)	49	16	a	c																
<table border="1"> <thead> <tr> <th>IDENT 0</th> <th>IDENT 1</th> <th>BAND</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>EDP (300 LPM Only)</td> </tr> <tr> <td>1</td> <td>1</td> <td>48 or 128 Character Set</td> </tr> <tr> <td>1</td> <td>0</td> <td>64 Character Set</td> </tr> <tr> <td>0</td> <td>1</td> <td>96 Character Set (U/L Case)</td> </tr> </tbody> </table>						IDENT 0	IDENT 1	BAND	0	0	EDP (300 LPM Only)	1	1	48 or 128 Character Set	1	0	64 Character Set	0	1	96 Character Set (U/L Case)
IDENT 0	IDENT 1	BAND																		
0	0	EDP (300 LPM Only)																		
1	1	48 or 128 Character Set																		
1	0	64 Character Set																		
0	1	96 Character Set (U/L Case)																		
INTERFACE	46		v																	
CONN VERIFY	45		x																	
+5V (Test only)	12		HH																	
Ground		39		K																

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INSTALLATION, INTERFACES, AND CONFIGURATIONS

**TABLE 2-9. SHORT LINE AND LONG LINE I/O CONNECTOR PIN ASSIGNMENTS
(Cont'd)**

Signal Mnemonic	Amp Connector (J1)		Winchester Connector (J1)		Definition
	Signal Pin	Ground Pin	Signal Pin	Ground Pin	
<u>Optional Signal Lines</u>					
PPR INST (PI)	30	14	p	s	User-generated to inform printer that format data is on the data lines used with TCVFU or DAVFU options only.
BOF	25	9	M	P	Printer-generated to inform user that the bottom of form position has been reached.
TOF	24	8	S	U	Printer-generated to inform user that the top of form position has been reached.
PRMVG/ VFURDY	26 48	10 17	W FF	Y DD	Printer-generated to inform user that paper is moving. In VFU units, it indicates that the VFU memory is loaded.
PARITY BIT (PARBIT)	29	13	z	BB	User-generated to provide the parity bit for the pre-set parity option.
BUFFER CLR (BUFCLR)	31	15	A	H	User-generated to clear all data stored in the printer buffer before starting a new data transfer.
PARITY ERR (PARERR)	27	11	r	t	Printer-generated to inform the user of a parity error on the last data transfer.
NOT VFU	47		e		
VFU VERIFY	33		h		
NOTE: AMP connector pins 26 and 48 and Winchester connector pins W and FF are internally connected on the I/O connector.					

TABLE 2-10. CENTRONICS-COMPATIBLE I/O CONNECTOR PIN ASSIGNMENTS

Signal	Signal Pin	Return Pin	Definition
STROBE*	1	19	User-generated signal to inform printer that data on the data lines are stable.
DATA Lines			User-generated data lines for transmission of print data and control codes.
DATA 1	2	20	
DATA 2	3	21	
DATA 3	4	22	
DATA 4	5	23	
DATA 5	6	24	
DATA 6	7	25	
DATA 7	8	26	
DATA 8	9	27	
ACK*	10	28	Printer-generated to inform the user that a data word was received.
BUSY	11	29	Printer-generated to inform the user that the printer is not able to receive print or format data.
PE	12		Printer-generated to indicate that the printer is out of paper; also active during power up to back-up BUSY.
SLCT	13		Printer-generated to indicate that the printer has been selected.
INPUT PRIME*	31	30	User-generated to clear the printer buffer and initialize the interface logic.
FAULT*	32	33	Printer-generated to inform the user that a fault has occurred in the printer.
± 0 V	14,16		Printer's logic ground; may be tied to chassis.
+5 V	18		Regulated five volt supply.
CHAS GND	17		

2

INSTALLATION, INTERFACES, AND CONFIGURATIONS

TABLE 2-11. SERIAL I/O CONNECTOR PIN ASSIGNMENTS

Signal	I/O Connector Pin No.	CCA Connector (J2) Pin No.	Definition
<u>RS-232-C</u>			
(AA)	1	N/C	Protective Ground
(AB)	7	12	Signal Ground (Common Return)
(BB) RXD	3	4	User-generated to transmit all print, format, and control data to the printer. (Received Data)
(CD) DTR*	20	13	Printer-generated to indicate the printer is ready to receive data. (Data Terminal Ready)
(CA) RTS*	4	6	Printer-generated to indicate the printer is ready to transmit data. (Request to Send)
(SCA) SRS*	11, 19	11, 20	Printer-generated to send busy status and to control data flow along the BB line. (Secondary Request to Send)
(BA)	2	2	Printer-generated to send information to the user. TXD(Transmitted Data)
(CC)	6	10	(Optional) User-generated to indicate the status of the user equipment. (DSR* - Data Set Ready)
(CF)	8	14	(Optional) User-generated to validate data being sent to the printer. (DCD* - Data Carrier Detect)
(CB)	5	8	(Optional) User-generated to inform the printer that the user is ready to receive data. (CTS* - Clear To Send)
<u>20 mA Current Loop</u>			
(RXD+)	17	7	User-generated to transmit all print, format, and control code data and to indicate the status of the user equipment. (Received Data Plus)
(RXD-)	16	5	Current loop return for RXD+. (Received Data Minus)
(PTXD+)	14	1	Printer-generated to indicate it is able to receive data. (Passive Transmitted Data Plus)
(PTXD-)	13	24	Current loop return for PTXD+. (Passive Transmitted Data Minus)
(ATXD+)	24	21	Printer-generated to provide printer status information and allow for full duplex 20 mA current loop transmission. (Active Transmitted Data Plus)
(ATXD-)	23	19	Current loop return for ATXD+. (Active Transmitted Data Minus)

2

2.9.2 Signal Levels

All the interface configurations except the Serial Interface, use the following signal levels.

Logic 1 - Must be greater than 2.4 VDC and less than 5.0 VDC.

Logic 0 - Must be greater than 0.0 VDC and less than 0.4 VDC

Signal levels for the Serial Interface system should fall within the following levels:

a. RS232C Voltage

Space - Must be greater than +3 V and less then +25 VDC.

Mark - Must be more negative than -3 VDC and less negative than -25 VDC.

b. 20 mA Current Loop

Logic 1 - Must be greater than 15 mA and less than 20 mA.

Logic 0 - Must be greater than,0 mA and less than 3 mA.

2.9.3 Data/Format Control Codes

Print data codes and format control codes accepted by the printers are defined in the ASCII or user-defined character sets. Table 2-12 describes the functions generated by the ASCII format codes. Table 2-13 lists the data and format codes for both the ASCII 64 character and 96 character band sets available with the printer.

TABLE 2-12. ASCII FORMAT CONTROL CODE FUNCTIONS

Code	Function
LF (Line Feed)	Terminates the load routine, initiates the print routine, and then causes a single line forms advance.
FF (Form Feed)	Terminates the load routine, initiates the print routine, and then causes the form to advance to the next top of form position.



INSTALLATION, INTERFACES, AND CONFIGURATIONS

TABLE 2-12. ASCII FORMAT CONTROL CODE FUNCTIONS (Cont'd)

Code	Function
CR (Carriage Return)	Terminates the load routine, initiates the print routine and results in no paper advance.

NOTE

Overprinting the same line seven or 139 times (based on configuration switch setting) will cause the printer to enter the off line mode and the appropriate status code to be displayed on the STATUS indicators.

TABLE 2-13. ASCII CODE FOR STANDARD CHARACTER SETS

b7	b6	b5	b4	b3	b2	b1	0 0 0	0 1 0	0 1 1	1 0 0	1 0 1	1 1 0	1 1 1
0	0	0	0	0	0	0		SPACE	0	@	p	\	p
0	0	0	0	1	0	0		'	1	A	Q	a	q
0	0	1	0	0	0	0		"	2	B	R	b	r
0	0	1	1	0	0	0		#	3	C	S	c	s
0	1	0	0	0	0	0		\$	4	D	T	d	t
0	1	0	1	0	0	0		%	5	E	U	e	u
0	1	1	0	0	0	0		&	6	F	V	f	v
0	1	1	1	0	0	0		'	7	G	W	g	w
1	0	0	0	0	0	0		(	8	H	X	h	x
1	0	0	1	0	0	0		)	9	I	Y	i	y
1	0	1	0	0	0	0	LF	*	:	J	Z	j	z
1	0	1	1	0	0	0		+	:	K	[	k	[
1	1	0	0	0	0	0	FF	,	<	L	\	l	|
1	1	0	1	0	0	0	CR	-	=	M	]	m]
1	1	1	0	0	0	0		.	>	N	^	n	~
1	1	1	1	0	0	0		/	?	O	_	o	|

64 Character Set

96 Character Set

2

2.9.4 Data Transfer and Signal Timing Methods

The user-to-printer data transfer arrangement and signal timing depends upon the Interface CCA used with your printer. Different methods are implemented for the Short Line/Long Line Interface CCAs, the Centronics-Compatible Interface CCA, and the Serial Interface CCA.

a. Short Line and Long Line Interface Data Transfer Signal Timing

The Short Line system interface uses a demand/response handshake routine and a bit parallel data transfer format. Figure 2-38 provides a flow diagram of the Short Line system interface handshaking mode of operation. The Long Line system interface functions in the same way. Figure 2-39 supplies the timing diagram.

2

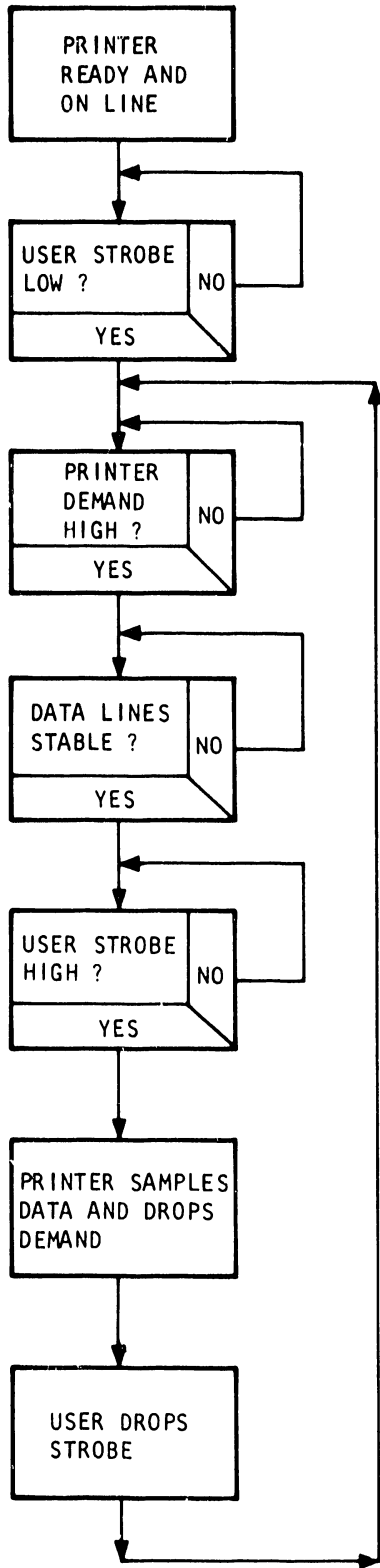
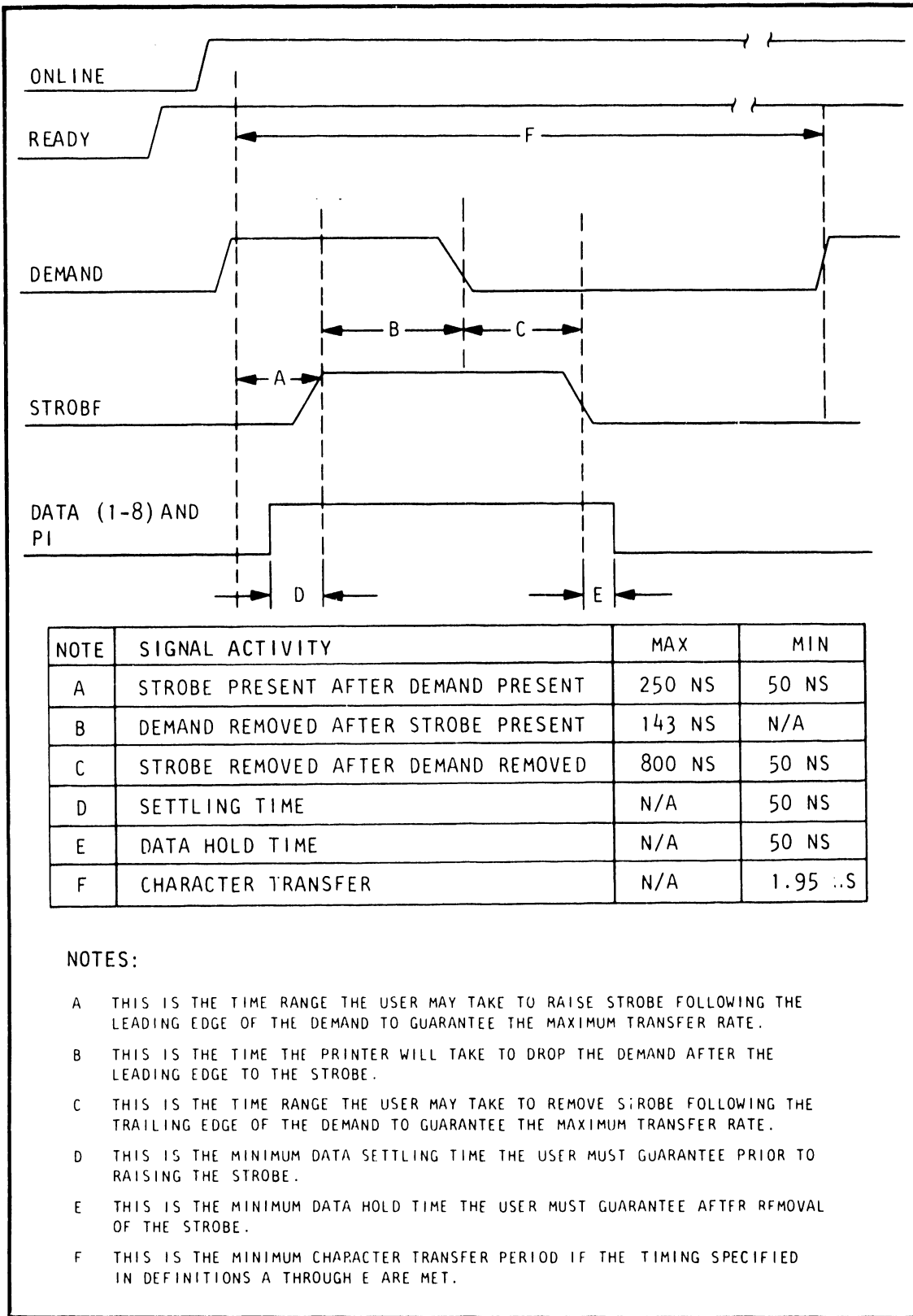


Figure 2-38. Short Line/Long Line Handshaking Routine Flow Diagram



2

Figure 2-39. Short Line and Long Line Interface Timing Diagram

INSTALLATION, INTERFACES, AND CONFIGURATIONS

When the printer is ready, on line, and able to load data, the handshaking sequence proceeds as follows:

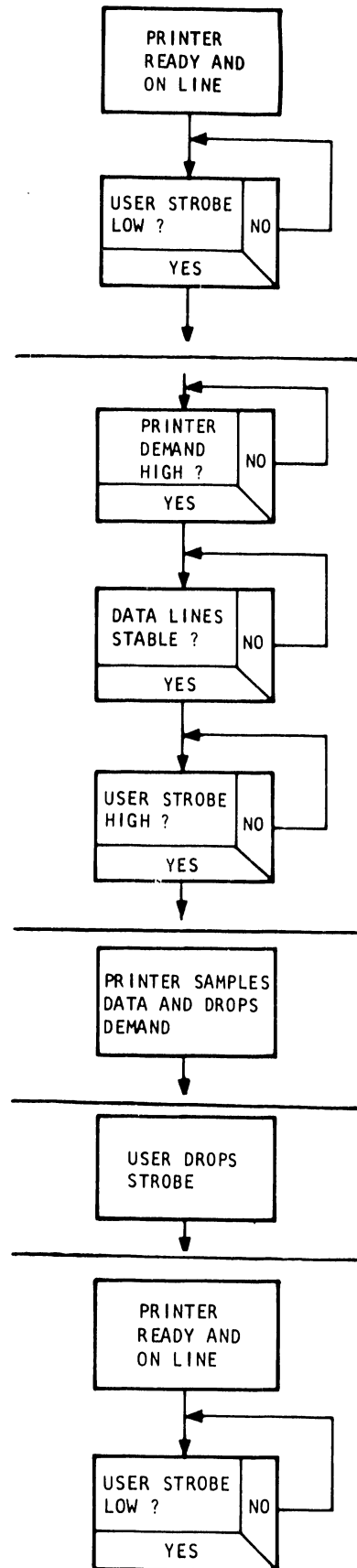
1. If the STROBE signal is inactive (low), the DEMAND line can go active (high) to request data from the user. DEMAND will remain high until STROBE is received by the printer.

2. When DEMAND is high and the data lines are stable, STROBE can go active.

3. When the data lines have been sampled by the printer, DEMAND goes inactive (low).

4. When the user detects that DEMAND is inactive, STROBE should go low (inactive).

5. When the printer detects the inactive STROBE, the next DEMAND can be generated.



b. Centronics-Compatible Interface Data Transfer and Signal Timing

The Centronics-Compatible system interface uses a pulsed handshaking routine rather than an interlocked handshaking mode of operation. Data is transferred in a bit parallel format on a Strobe/Acknowledge basis.

Before the printer can receive print or format data, it must be selected by pressing the ON/OFF LINE switch on the control panel or by the user transmitting a DC1 (Hex 11) control code on the data lines. The SLCT (Select) line to the user is then set active, and BUSY, which is activated during power up, is inactivated. An Acknowledge (ACK*) pulse of 2.5 microseconds is immediately sent to the user.

Figure 2-40 provides a flow diagram of the selection and handshaking routines for the Centronics-Compatible system interface. Select and data transfer timing diagrams are supplied by figures 2-41 through 2-44.

2

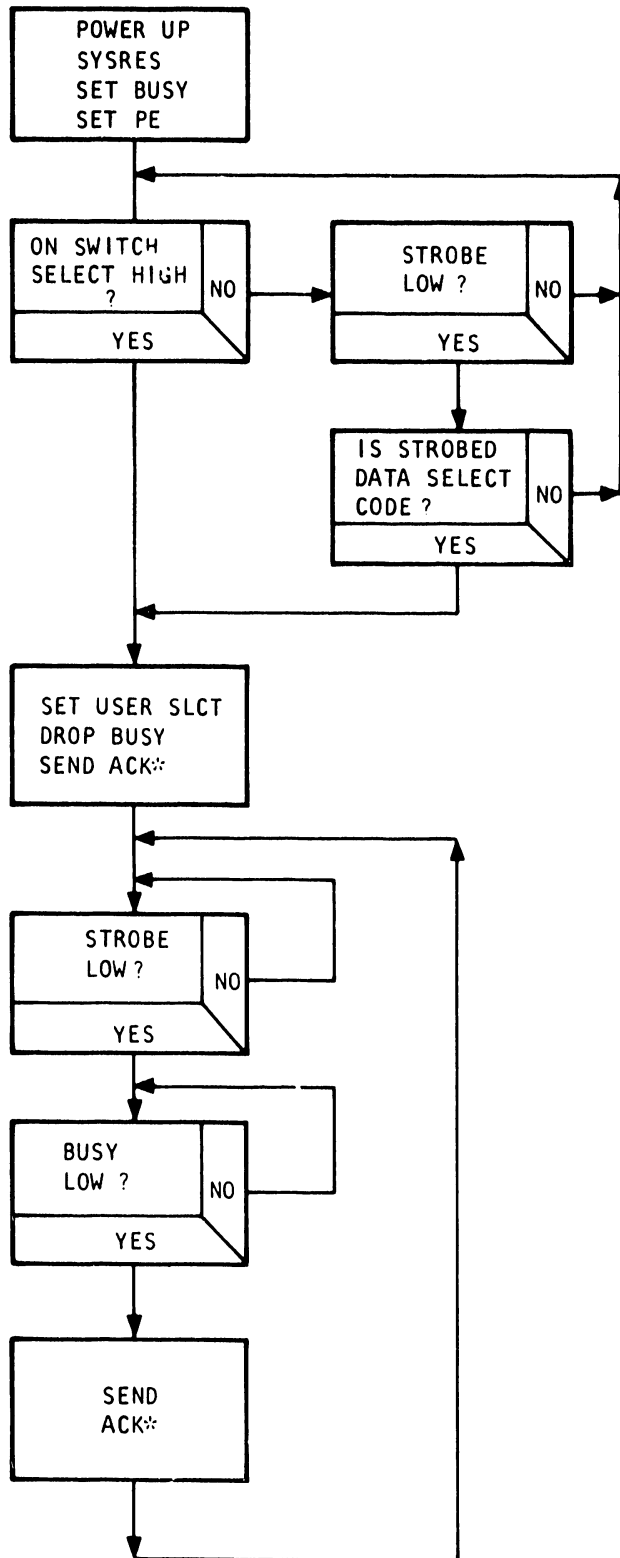


Figure 2-40. Centronics-Compatible Handshaking Routine Flow Diagram

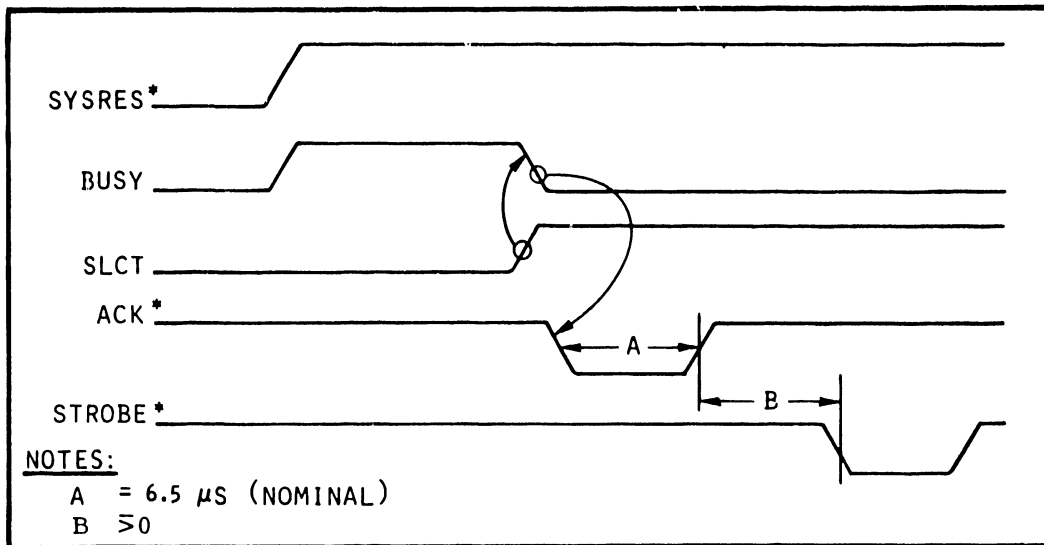


Figure 2-41. Centronics-Compatible Interface Select Timing Via ON/OFF LINE Switch

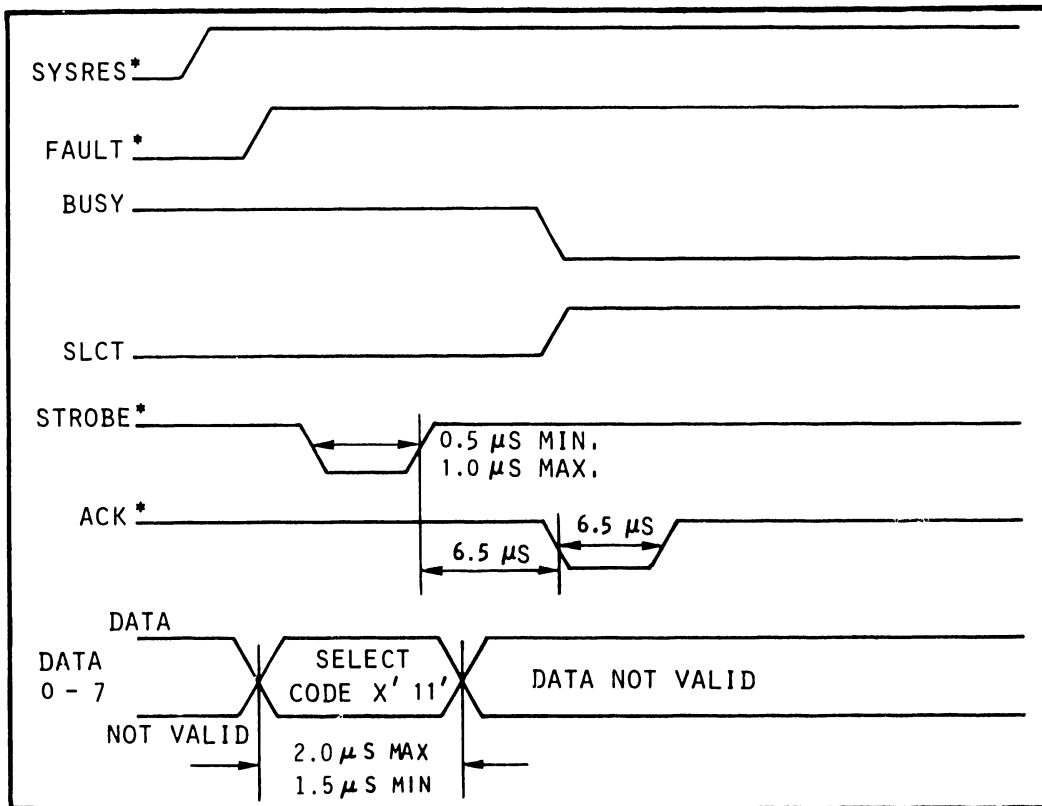


Figure 2-42. Centronics-Compatible Interface Select Timing Via Data Bus

2

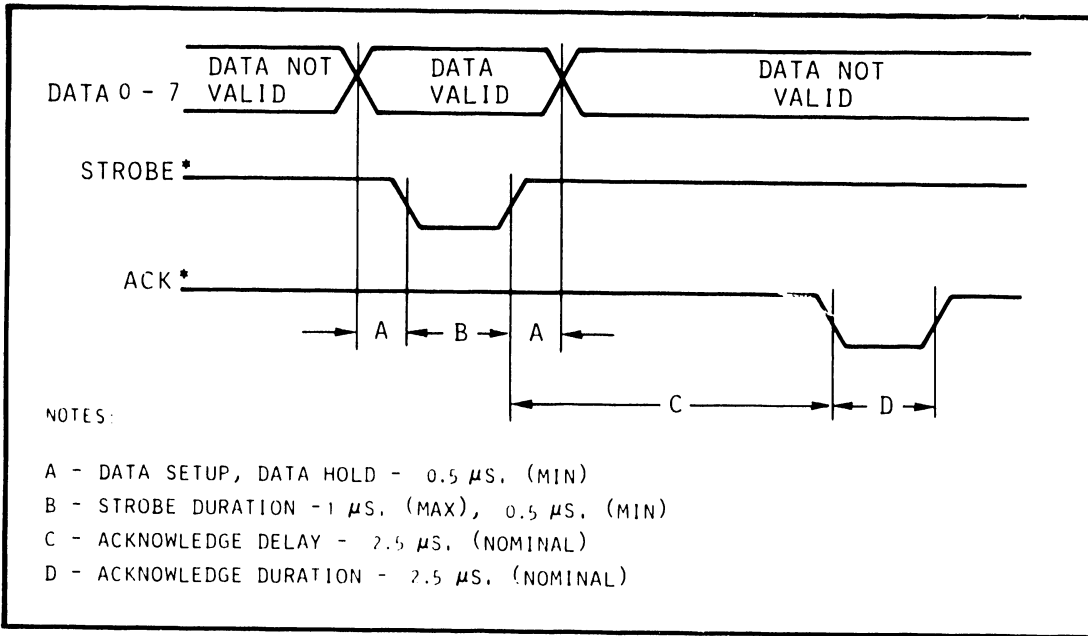


Figure 2-43. Centronics-Compatible Interface Data Transfer Timing without BUSY

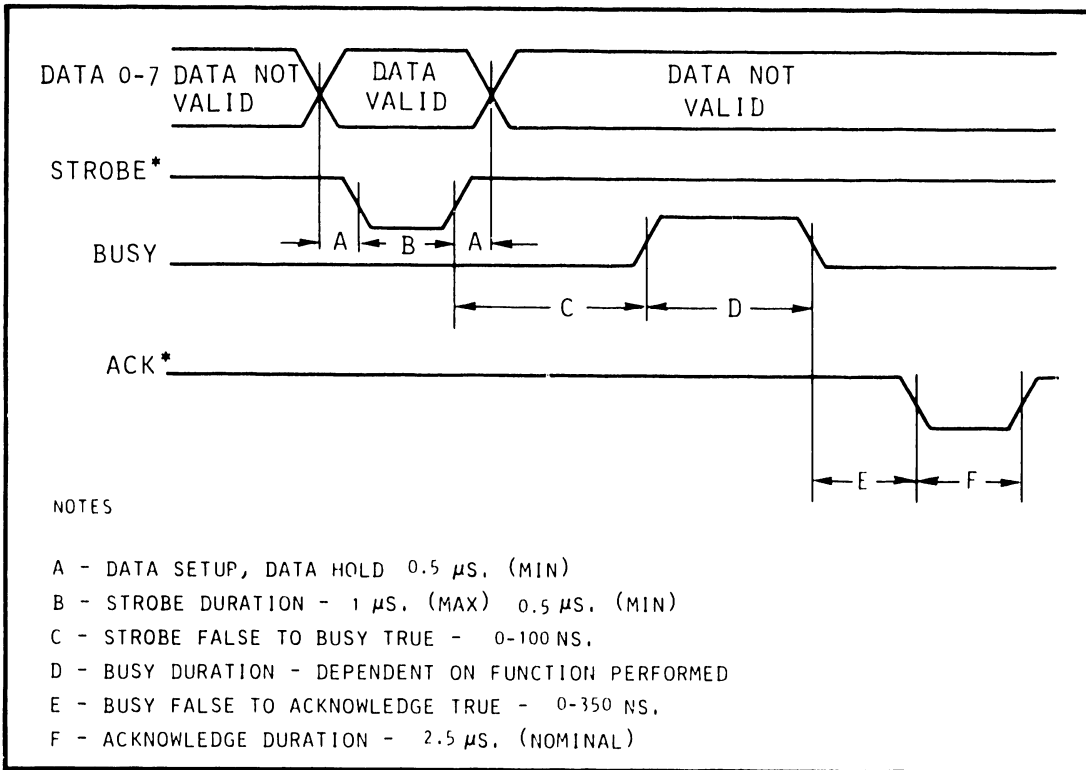
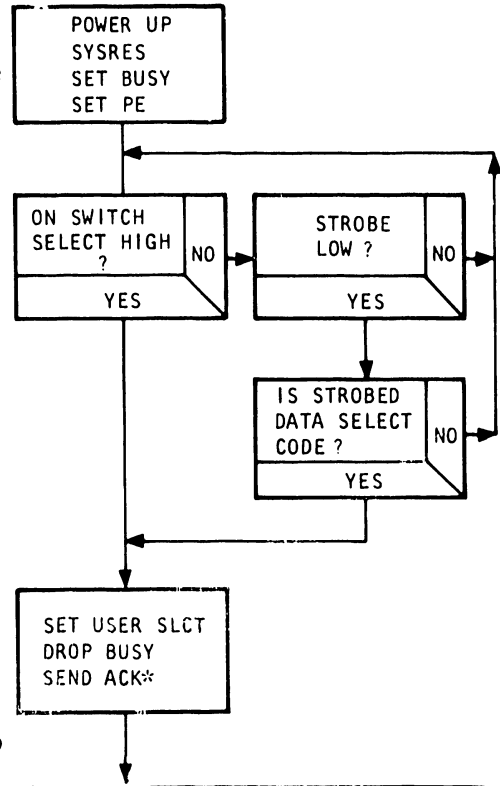


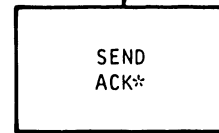
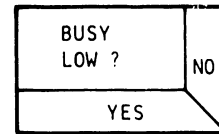
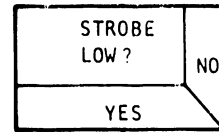
Figure 2-44. Centronics-Compatible Interface Data Transfer with BUSY

INSTALLATION, INTERFACES, AND CONFIGURATIONS

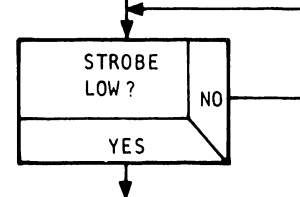
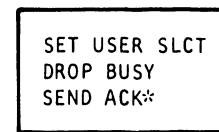
Once the printer has been selected and the BUSY signal dropped, the handshaking sequence proceeds as follows:



1. The user transmits a data STROBE of 0.5 to 1.0 microseconds to the printer.
2. The printer senses the active STROBE and stores the data in memory.
3. If BUSY is inactive, the printer waits for 2.5 microseconds and then issues a 2.5 microsecond ACK* pulse. If BUSY is active, the ACK* pulse will not be sent until BUSY becomes inactive.



4. The user system then senses the ACK* pulse and can then transmit another data STROBE to the printer.



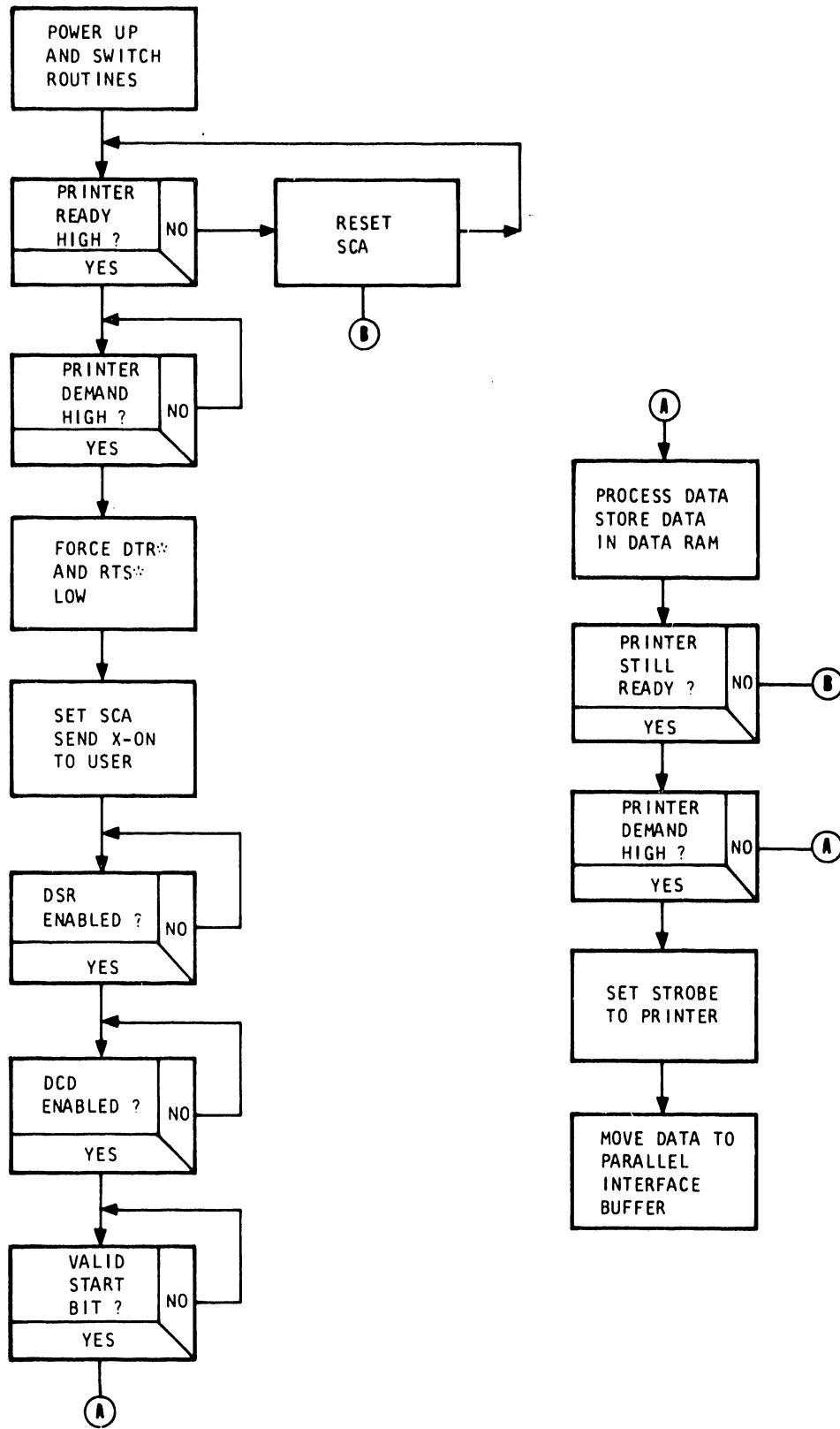
c. Serial Interface Data Transfer

Operating in an asynchronous mode, the Serial Interface CCA accepts the user data in serial form and converts it to the parallel format recognized by the printer. Serial data can be transmitted by either the Standard RS232C Voltage or the 20 mA Current Loop method.

In addition to the two methods of transmitting data, the Serial Interface CCA can support three different RS-232-C communications formats or protocols. Switches mounted on the CCA determine whether serial data transmission will be in the simplex, unblocked duplex, or blocked duplex format.

Asynchronous communication between the user system and the Serial Interface CCA is controlled by a 2651 Programmable Communications Interface integrated circuit (PCI). Communication between the Serial Interface CCA and the printer's parallel interface is controlled by an 8255 Programmable Peripheral Interface integrated circuit (PPI). Both are under the program control of an 8085A microprocessor that is mounted on the circuit card assembly.

Figure 2-45 provides a flow diagram of the user to Serial Interface CCA and serial to parallel interface communications.



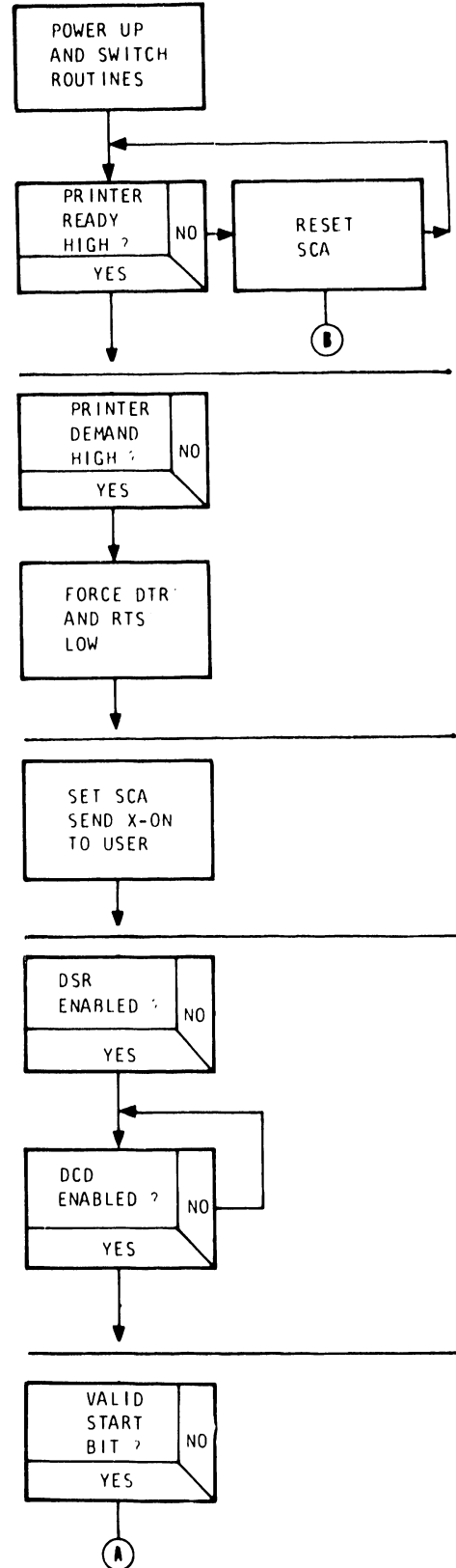
2

Figure 2-45. Serial Interface Flow Diagram

INSTALLATION, INTERFACES, AND CONFIGURATIONS

After the printer is turned on and the power up and switch routines are completed, the following communications occur to begin data transmission:

1. An active READY signal is transmitted from the parallel interface to the PPI on the serial CCA.
2. With READY high, an active demand (DEM) signal from the parallel interface to the PPI causes the PCI on the Serial Interface CCA to enable its receivers and transmitters and force the Data Terminal Ready (DTR*) and Request to Send (RTS*) signals to the user to go low.
3. Signal Secondary Request to Send (SCA) is then set to indicate that the interface is able to receive data. Code XON (Hex 11) is also sent to the user.
4. If the optional signals Data Set Ready (DSR*) and Data Carrier Detect (DCD*) are under user control, the user must set input lines Data Set Ready (CC) and Data Carrier Detect (CF) to high before transmitting data.
5. A valid start bit must precede each byte of data. The falling edge of the normally high Received Data (RXD) line marks the beginning of a valid start bit which allows the PCI to load the character into its parallel to serial receive buffer.

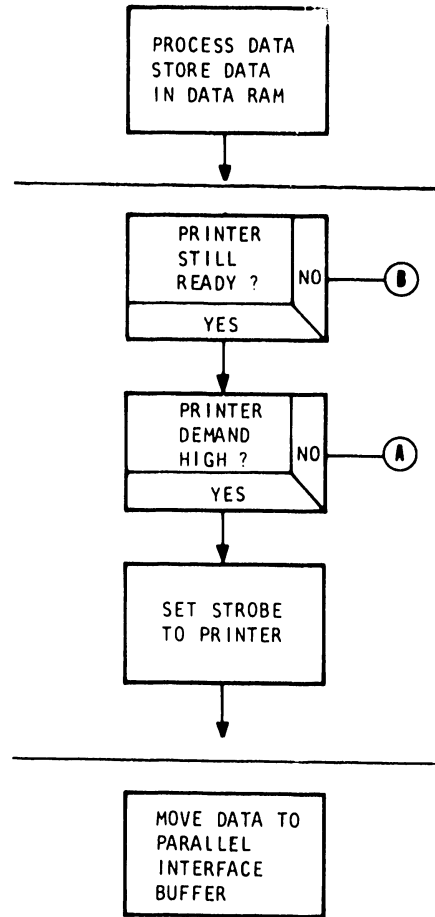


INSTALLATION, INTERFACES, AND CONFIGURATIONS

6. The PCI's Receiver Ready (RxRDY) signal is raised to initiate a Reset (RST) 6.5 Interrupt to the microprocessor so that the data is written into a temporary location in the serial interface data Random Access Memory (RAM).

7. With data in the serial interface data RAM and the READY signal from the printer high active, an active DEM transmitted from the parallel interface to the PPI causes the STROBE signal to the printer to be set.

8. Data is then transferred from the PPI port to the parallel interface user data latch buffer.



2

SECTION

III

**MAINT-
ENANCE**

SECTION III
MAINTENANCE

3.1 INTRODUCTION

This section contains the information necessary to maintain the printer in good working order. Detailed procedures are provided for service personnel to successfully test, adjust, and remove and install assemblies as needed.

Except for certain piece parts, such as fuses, replacement in the field should be restricted to mechanical assemblies, subassemblies, and circuit card assemblies. Replacement at the component level is advised only where the user has a depot facility adequately equipped to perform testing and troubleshooting at that component level.

NOTE

Dataproducts Corporation Customer Service Division includes a Repair and Remanufacture Department. See the Product Repair and Remanufacture notice in the front part of this document for details.

The following maintenance information is organized into four parts: Preventive Maintenance, Test Procedures, Adjustment Procedures, and Removal/Installation Procedures. An index listing the individual procedures to be performed is included in each part.

3.2 RECOMMENDED TOOLS AND EQUIPMENT

Table 3-1 provides the list of tools and equipment needed to perform test, adjustment and maintenance procedures.

TABLE 3-1. RECOMMENDED TOOLS AND EQUIPMENT

Tool	Type/Size
Nut Driver	2.5 mm; 3 mm; 4 mm; 5.5 mm; 7 mm; 8 mm; 10 mm
Hex Driver, Allen	2 mm; 2.5 mm; 3 mm; 4 mm; 5 mm
Nut Driver, Flexible or 90° shaft	8 mm
Allen Wrench 90°	5 mm
Allen Wrench	5/64 inch

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TABLE 3-1. RECOMMENDED TOOLS AND EQUIPMENT (Cont'd)

Tool	Type/Size
Ratchet Wrench	1/4-inch drive
Allen Wrench Socket	7/64-inch bit, 1/4-inch drive
Allen Wrench Ball Head	10 mm
Socket Head Wrench	5.5 mm
Wrenches, Box/Open End	7 mm; 8 mm; 10 mm
Feeler Gauge	0.040 to 0.052 inch
Feeler Stock	0.013 mm (.0005 in.) 0.125 mm (0.005 in.) 0.254 mm (.010 in.) 0.50 mm (0.02 in.) 0.51 mm (0.020 in.) 0.64 mm (0.025 in.) 0.762 mm (0.762 in.) 0.78 mm (0.030 in.) 1.0 mm (0.040 in.) 2.5 mm (0.100 in.)
Torque Screwdriver	1.0 to 30 inch/pounds (0.11 to 3.39 newton meters) 1.0 to 40 inch/pounds (0.11 to 4.52 newton meters)
Torque Wrench (1/4 inch) With Hex Socket	10-100 in/oz (0.07 to 0.7 N-M) 5.5 mm hex socket
Screwdriver	No. 2 Phillips
Hex Key (Torque Screwdrivers)	3 mm; 4 mm
Screwdriver, Torque Flat Blade	4.8 to 5.0 in/lbs
Spring Gauge	0 to 10 kg (0 to 20 lbs) 0 to 1 kg (0 to 2 lbs)
Plastic Mallet	
Pliers, Retainer Ring, External	
Force Gauge	0 to 500 grams

TABLE 3-1. RECOMMENDED TOOLS AND EQUIPMENT (Cont'd)

Tool	Type/Size
VOM (Volt/Ohmmeter)	1.0V to 500V
DVM (Digital Voltmeter)	1.0 ma to 100 ma RX 1 to RX 10,000
Oscilloscope	Dual-Trace oscilloscope with 10 MHz band-pass minimum
Inspection Mirror	
Inspection Magnet	
Ruler	16 inch
Straight Edge	10 cm
Column Scale	136 Column (10 CPI/15 CPI)

3.3 PRINTER COVER REMOVAL/INSTALLATION (Figure 3-1)

The printer cover must be removed and installed for most of the procedures in this section. Use the following procedure to remove and install the printer cover:

Removal

- a. Use an 8 mm nut driver to remove the two printer cover retaining screws (figure 3-1).

CAUTION

The printer cover is heavy and bulky. It weighs approximately 27 lbs (12.25 kg) and may require two persons to lift it.

- b. Unlatch the cover door and lift it enough to clear the control panel switch caps.
- c. Lift the front of the cover slightly and move it back slightly to unhook the rear bracket from the printer base.
- d. Lift the cover up and off the printer.

Installation

- a. Position the printer cover over the printer base.
- b. Tilt the front of the cover upward and hook the rear bracket under the ridge at the back of the printer base.



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- c. Raise the cover door and lower the front part of the cover to its fully seated position.
- d. Lower the cover door.
- e. Using an 8 mm nut driver, install the two cover retaining screws.

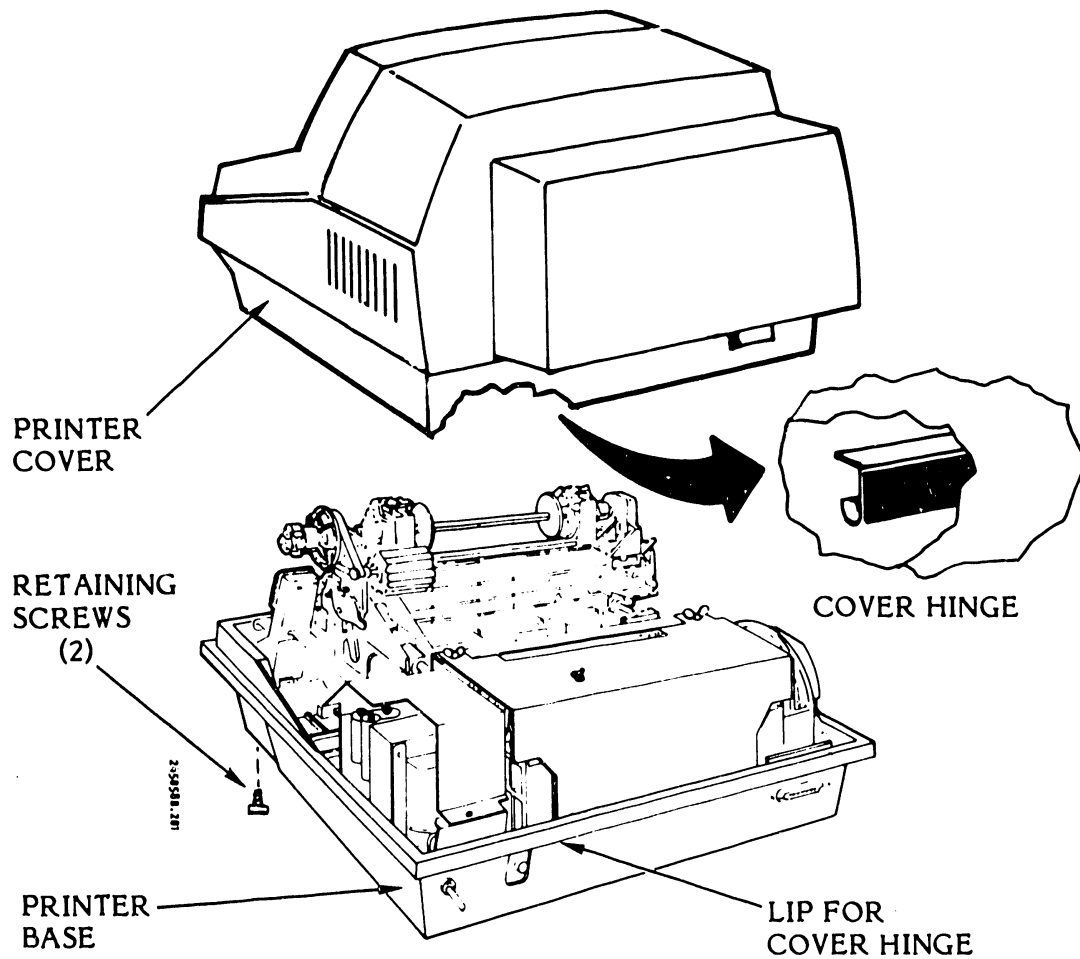


Figure 3-1. Printer Cover Removal/Installation

3.4 PREVENTIVE MAINTENANCE

The printer is designed to provide maximum use with a minimum of maintenance. However, a regular schedule of inspection, cleaning, and adjustment and periodic belt inspection is needed to keep the printer in good working order. This section contains information needed to establish a preventive maintenance routine.

Table 3-2 is an inspection, cleaning, and adjustment or replacement schedule to be followed to ensure good print quality and printer reliability.

TABLE 3-2. INSPECTION, CLEANING, MAINTENANCE, AND REPLACEMENT SCHEDULE

Interval*	Item	Responsible Personnel
7 days	Inspect the character band and pulleys/drivers for lint buildup	①
7 days	Clean (vacuum) the printer mechanical assembly	①
7 days	Clean (vacuum) the band area	①
7 days	Clean (vacuum) the cooling fan area	①
7 days	Clean the ribbon drive rollers and ribbon motion sensor	①
30 days	Clean the character band	①
30 days	Clean the paper motion sensor	①
30 days	Clean the band platen	①
30 days	Inspect for inoperative or damaged items and loose hardware	①
30 days	Inspect the ribbon mask for wear or breaks	①
180 days	Check/Adjust hammer flight time	②
180 days	Check/Adjust band tracking	②

* More frequent servicing may be required if operating in an abnormally dirty environment or beyond the normal duty cycle.

① Operator or Maintenance Personnel ② Maintenance Personnel Only

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TABLE 3-2. INSPECTION, CLEANING, MAINTENANCE,
AND REPLACEMENT SCHEDULE (Cont'd)

Interval*	Item	Responsible Personnel
180 days	Check/Replace ribbon rollers, if necessary	②
180 days	Check O-ring and posidrive belts for cuts or stretching. Replace if necessary	②
180 days	Check/Replace edge guide assemblies	②
180 days	Check cooling fan for unrestricted air flow	②
180 days	Check/Adjust paper feed belt tension	②
180 days	Check/Adjust paper feed motor pulley	②
180 days	Check interlock switches for damage, adjustment, or non-operation	②
180 days	Vacuum printer interior (Do not remove CCAs)	②
180 days	Check operator controls and fault indicators	②
1 year	On 600 LPM printers, check forms compressor and replace if damaged or worn	②

* More frequent servicing may be required if operating in an abnormally dirty environment or beyond the normal duty cycle.

① Operator or Maintenance Personnel ② Maintenance Personnel Only

3.4.1 Cleaning Procedures

CAUTION

Except as specified in certain procedures, isopropyl alcohol is the only recommended cleaning solution for the printer. **Do not** use trichloroethylene, methylethylketone, or acetone unless specified and required.

WARNING

Isopropyl alcohol is a combustible liquid. Keep away from heat and open flame. Use with adequate ventilation.

- a. Set the power switch to OFF.
- b. Disconnect the AC power plug from the power source.
- c. Remove the ribbon cartridge as described in the Operator's Guide.
- d. Remove the character band as described in the Operator's Guide.

CAUTION

Do not bend the band to a radius of less than that of the band pulleys.

- e. Clean the character band as follows:
 - 1. Place the band in a shallow pan.
 - 2. Use isopropyl alcohol in a bottle with a spray nozzle and saturate the character band.
 - 3. Clean the entire type face with a small stiff-bristled brush.
 - 4. Clean both sides of the band with a soft lint free cloth.
 - 5. Allow the band to drip dry.
- f. Clean the character band area as follows:
 - 1. Vacuum the character band area and the mechanical assembly.
 - 2. Moisten a soft cloth with the isopropyl alcohol.
 - 3. Clean both band pulley/driver assemblies.
 - 4. Clean the ribbon mask.
 - 5. Clean the platen beneath the ribbon mask.
 - 6. Check and clean the entire path traveled by the character band and ribbon.

7. Clean the ribbon drive rollers, ribbon motion sensor, and paper motion sensor.
- g. Install the character band as described in the Operator's Guide.
- h. Install the ribbon cartridge as described in the Operator's Guide.

3.4.2 Periodic Belt Removal/Installation (Figures 3-2, 3-3)

Two alternate ribbon drive subassemblies are currently used in the 300 LPM and 600 LPM printers: one has a clear O-ring drive belt; the other has a black, toothed, positive-drive (posidrive) belt. Either belt normally should be replaced at intervals of about one year or when necessary because of stretching, wear, or breakage. A different replacement procedure must be followed for each type. These procedures are given below.

a. Ribbon Drive with O-Ring Belt (Figure 3-2)

Removal

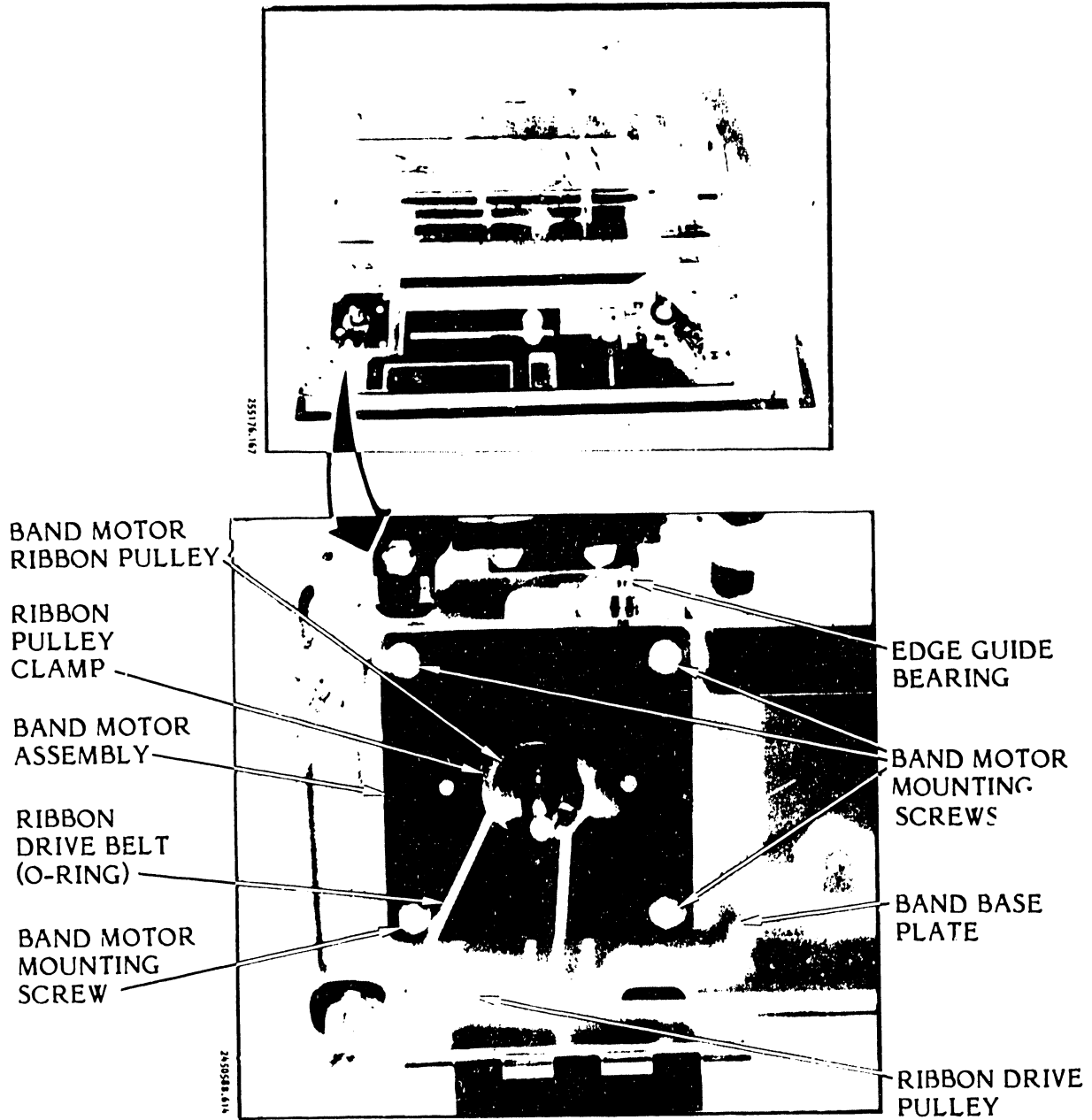
1. Set the power switch to OFF.
2. Raise the printer cover door.
3. Remove the ribbon cartridge and character band as described in the Operator's Guide.
4. Use a 7 mm nut driver to remove the drive pulley mounting screw and washer.
5. Using a nonmetallic mallet, tap the drive pulley and remove the pulley.
6. Remove the ribbon drive belt from the band motor ribbon pulley and the ribbon drive pulley.

Installation

CAUTION

In the following steps **do not** stretch or stress the new ribbon drive belt.

1. Carefully place the new ribbon drive belt over the band drive shaft and ribbon drive pulley shaft.
2. Place the drive belt in the band motor ribbon pulley groove.



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Figure 3-2. Band Motor/Ribbon Drive Assembly Removal/Installation
(Band Motor with O-Ring Belt)

CAUTION

Make sure that the drive belt is in the pulley groove and **not** between the bottom of the pulley and the motor base.

3. Place the drive belt at the edge of the ribbon drive pulley, hold it with your index finger, rotate the band motor shaft, and at the same time guide the drive belt into the drive pulley groove.
4. Make sure that the drive belt is in the grooves of both pulleys.
5. Place the drive pulley over the band motor shaft and use the 7 mm nut driver to secure it to the shaft with the mounting washer and screw.
6. Perform the Registration Adjustments Procedure as described in the printer Operator's Guide.

NOTE

See Related Documents page in the front part of this Maintenance Guide.

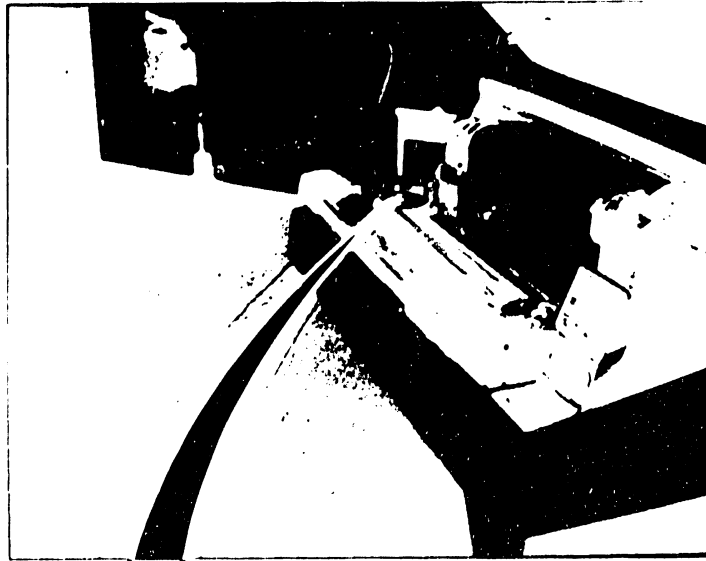
- b. Ribbon Drive Assembly with Posidrive Belt (Figure 3-3)

Removal

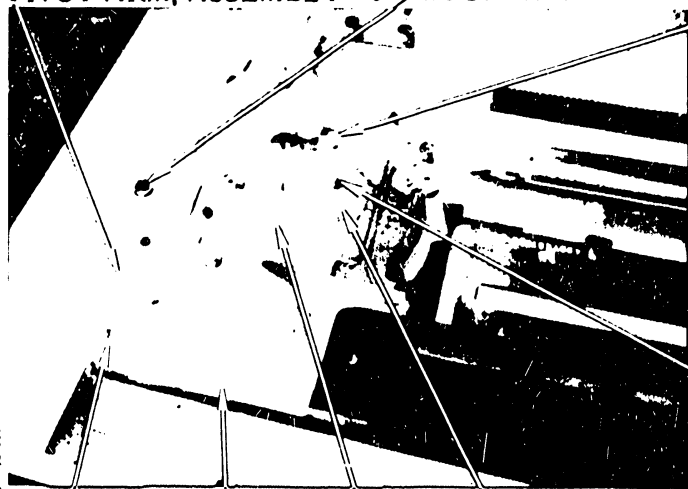
1. Set the AC power switch to OFF.
2. Raise the printer cover door.
3. Remove the ribbon cartridge and character band as described in the Operator's Guide.
4. Remove the band drive pulley as described in paragraph 3.7.15.
5. Remove the old ribbon drive belt from the band motor ribbon pulley and the ribbon drive pulley.

Installation

1. Place the drive belt first around the ribbon drive pulley, then around the band motor ribbon pulley. Guide the belt inside the roller arm so that the arm presses the belt in and takes up slack.



PIVOT ARM ASSEMBLY MOUNTING SCREW



BAND DRIVE PULLEY SHAFT

NOTE

Some models may contain slip clutch as shown below.

MOTOR DRIVE SHAFT

MOTOR DRIVE SHAFT HUB

BAND MOTOR RIBBON PULLEY

TENSION ARM

RIBBON DRIVE PULLEY

TENSION SPRING

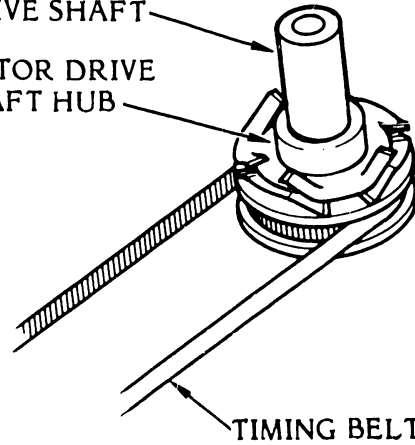


Figure 3-3. Ribbon Drive Assembly with Posidrive Belt

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MAINTENANCE

2. Make sure that the drive belt is in the grooves of both pulleys.
3. If the drive motor has a slip clutch, make sure its finger washers are positioned correctly (see figure 3-3).
4. Place the drive pulley over the band motor shaft and, using the 8 mm nut driver and mounting screw, secure the pulley to the band motor shaft.
5. Install the ribbon cartridge and character band as described in the Operator's Guide.
6. Close the printer cover door.

3.5 TEST PROCEDURES

The following test procedures are provided to support various troubleshooting steps developed in Section IV, Troubleshooting. Certain steps such as turning power off, unplugging the power cord, and raising or removing the cover may have already been done if several test procedures are performed in sequence. Also, final steps such as powering up and retesting have been omitted. Return to the last step in the troubleshooting sequence and continue as required. Table 3-3 is an index to the test procedures contained in this section.

WARNING

Do not attempt to perform the following test procedures with the AC power plug connected to the power source unless power is necessary for the performance of a specific procedure.

TABLE 3-3. TEST PROCEDURES

Test	Paragraph No.
Band Drive Motor Test	3.5.14
Circuit Card Assembly Test Points and References	3.5.1
Control Panel & 9VDC Short Test	3.5.2
Forms Length Selector (FLS) Switch Continuity Test	3.5.3
Paper Feed Motor Continuity Test	3.5.4
Paper Low Switch (600 LPM Printer) Continuity Test	3.5.5
Paper Motion Sensor Test	3.5.6
PHASE/COPIES Controls Resistance Test	3.5.7
Power Switch/Circuit Breaker Test	3.5.8
Rectifier CCA Diode CR3 Test	3.5.9

TABLE 3-3. TEST PROCEDURES (Cont'd)

Test	Paragraph No.
Ribbon Drive (Posidrive) Slip Clutch Test (To be supplied)	3.5.10
Self Test	3.5.11
6/8 LPI Switch Continuity Test	3.5.13
TCVFU Assembly Components Test	3.5.12

3.5.1 Circuit Card Assembly Test Points and References (Figures 3-4 through 3-14)

Test points, located on the various circuit card assemblies, may be used for the monitoring of signals or data in the process of CCA fault isolation or in support of various test and adjustment procedures. Field maintenance approach is to replace (not repair) the CCAs when a fault or failure occurs.

Perform the following steps to reach the various CCA test points:

1. Set power switch to OFF.
2. Remove the printer cover as described in paragraph 3.3.
3. Remove the electronics assembly card cage cover (see figure 3-4).
4. Set the control panel TEST switch to the right or left (see figure 3-5).
5. Set the PRINT INHIBIT switch located on the TIMING and STATUS CCA to OFF. (OFF is to the right when you are facing the back of the printer.)
6. Set the power switch to ON.
7. Press the ON/OFF Line switch to generate SELF TEST signals without having printer hammer fire.
8. Connect the oscilloscope probe to the desired CCA test point. Test point locations signal description, and signal levels are provided in the paragraphs that follow.
 - a. Timing and Status CCA Test Points (Figure 3-6)

Figure 3-6 shows the Timing and Status CCA test point locations and figures 3-7 to 3-11 show the typical waveforms to be found when the printer is in the ON LINE or SELF TEST Mode and operating continuously. These test points are for reference only. No adjustments other than the transducer gap adjustment can be made to affect the signal levels. Table 3-4 defines the signals and signal levels at the CCA test point locations.

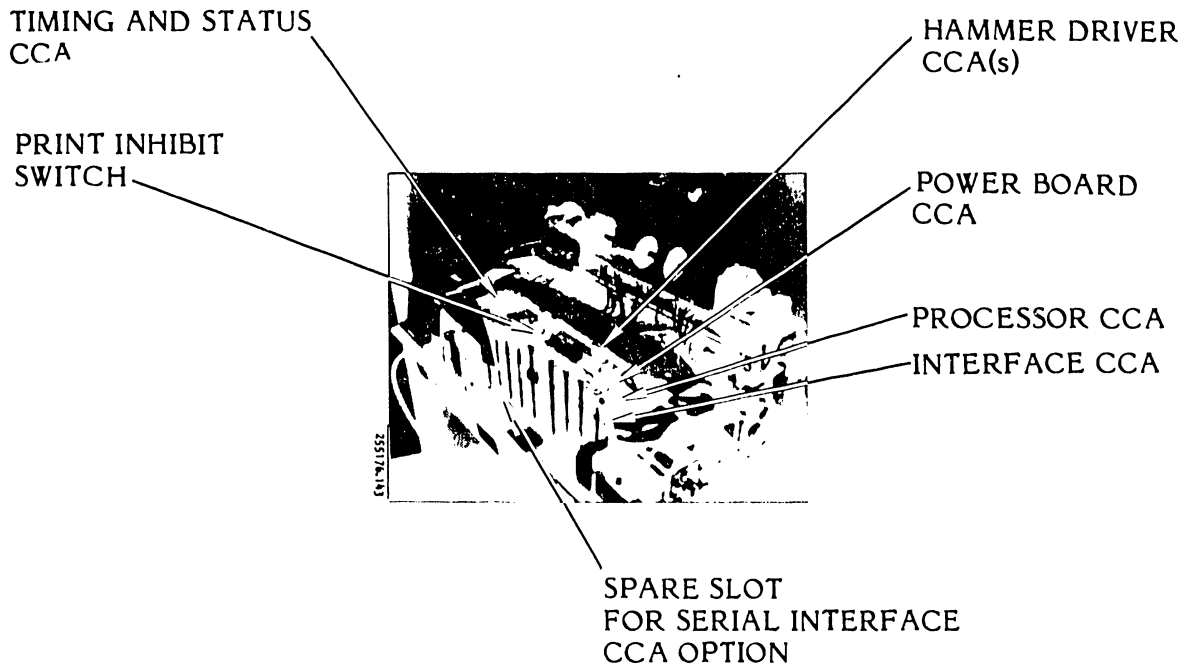
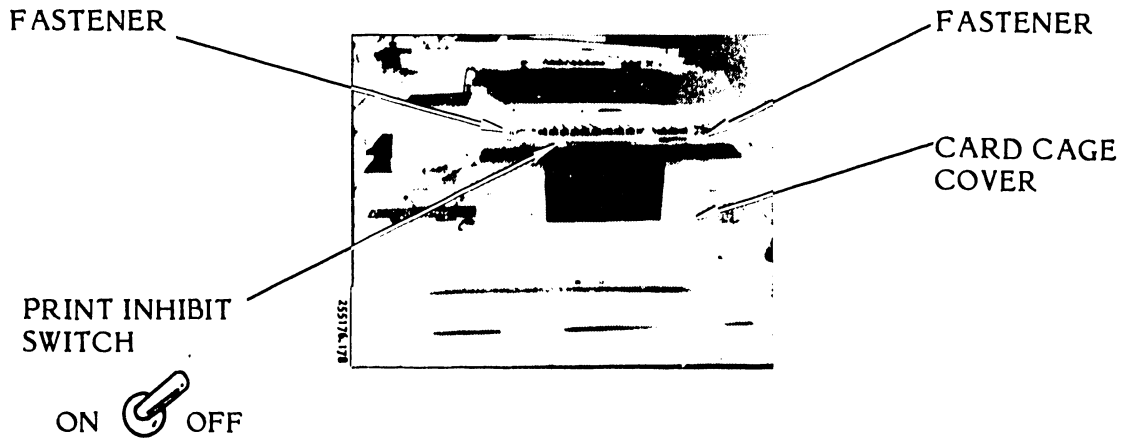
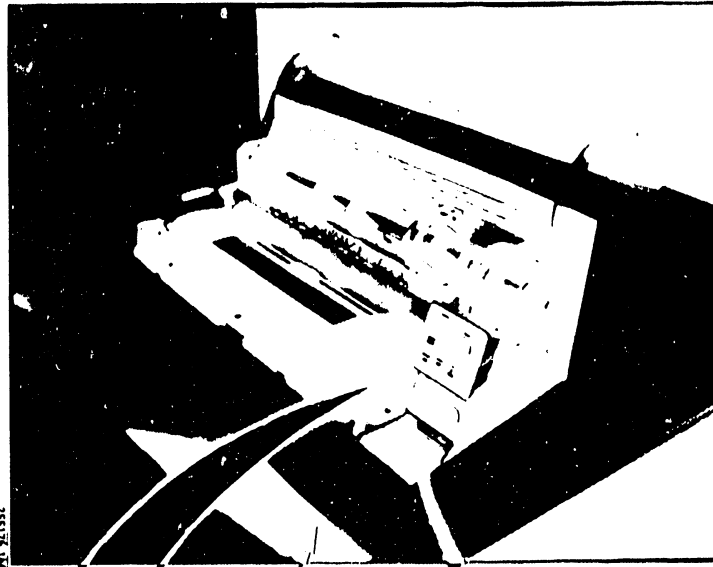


Figure 3-4. Circuit Card Assembly Locations



POWER ON/OFF
(UNDER PRINTER COVER)

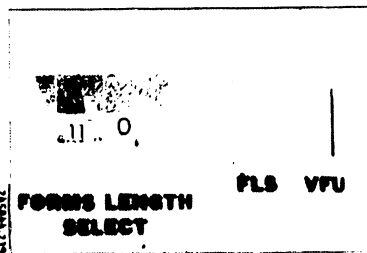
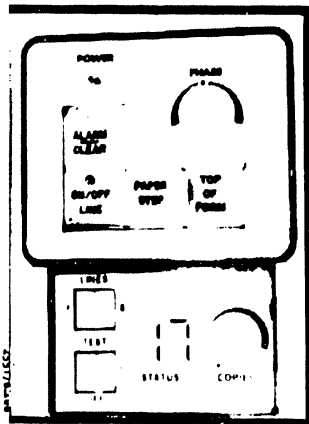


Figure 3-5. Control Panel, Forms Length Select (FLS) Switch and Vertical Format Unit (VFU) Switch

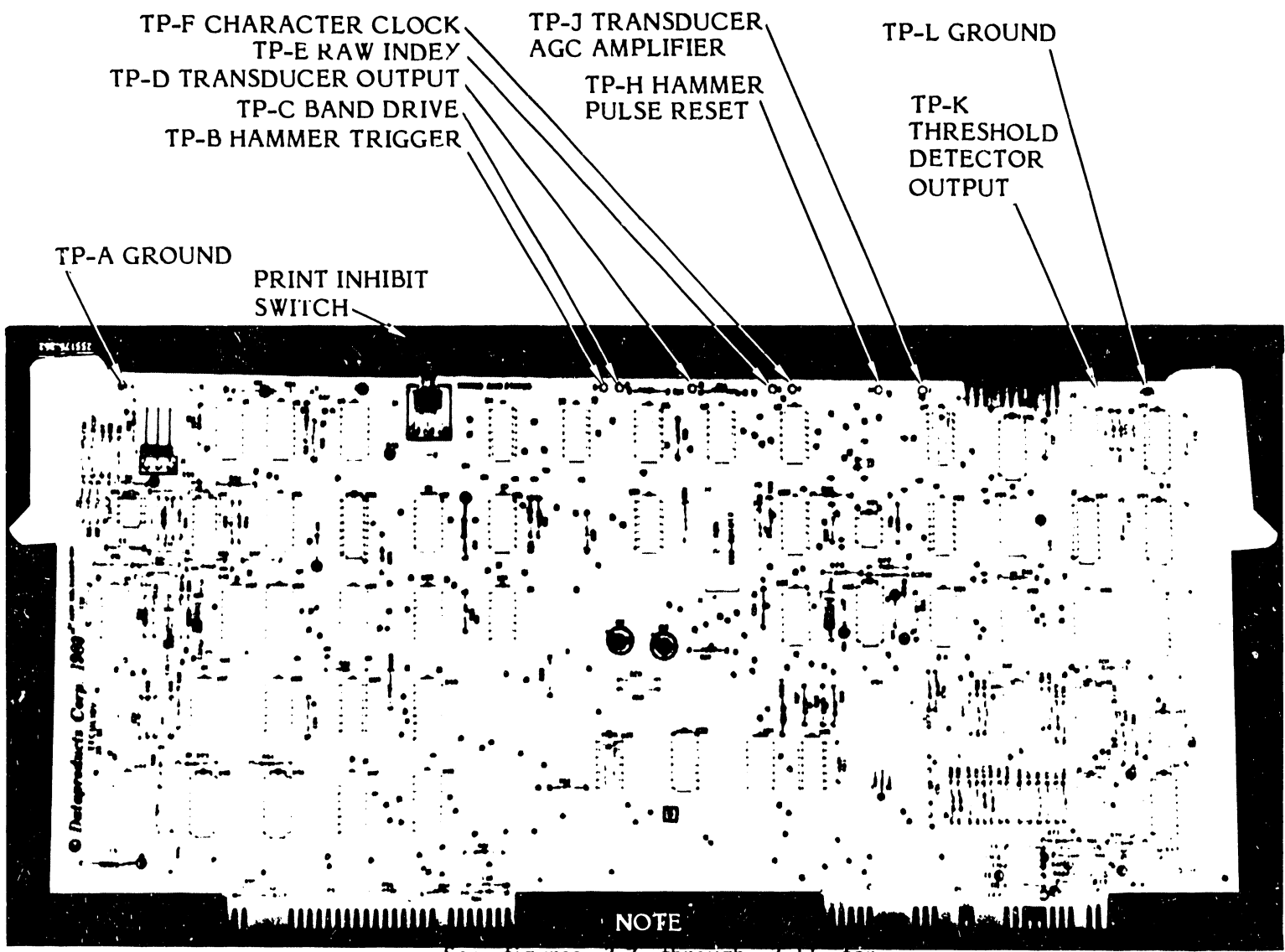
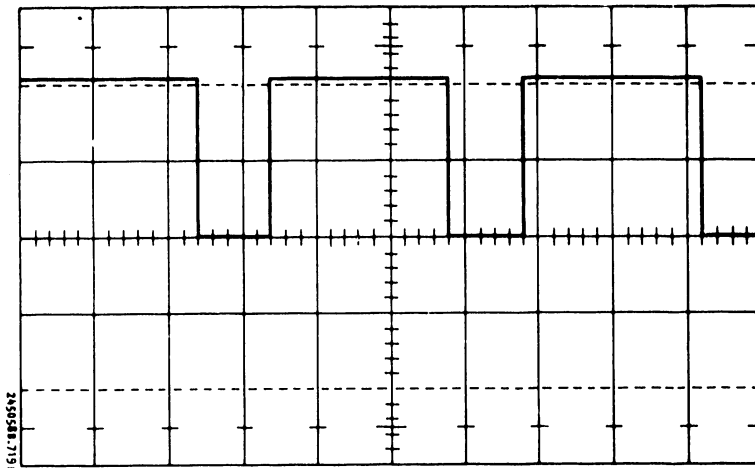


Figure 3-6. Timing and Status CCA Test Points

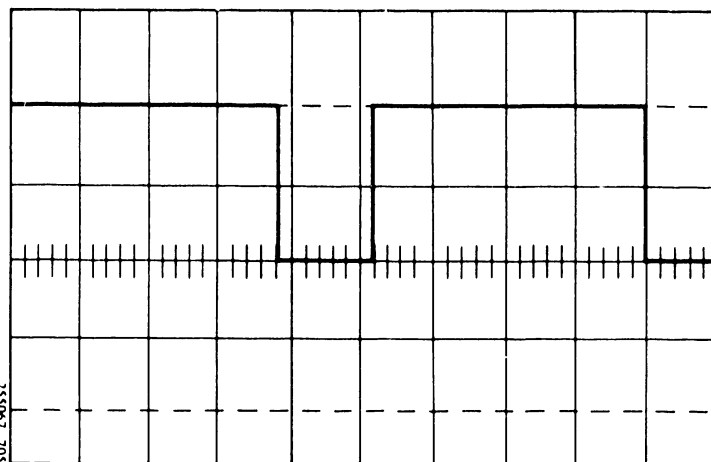
300 LPM PRINTER



TEST POINT - K
 VOLTS/DIV: 2V(DC)
 TIME/DIV: .2mS
 TRIGGER:
 AUTO, POS, INT

235058 719 L

600 LPM PRINTER



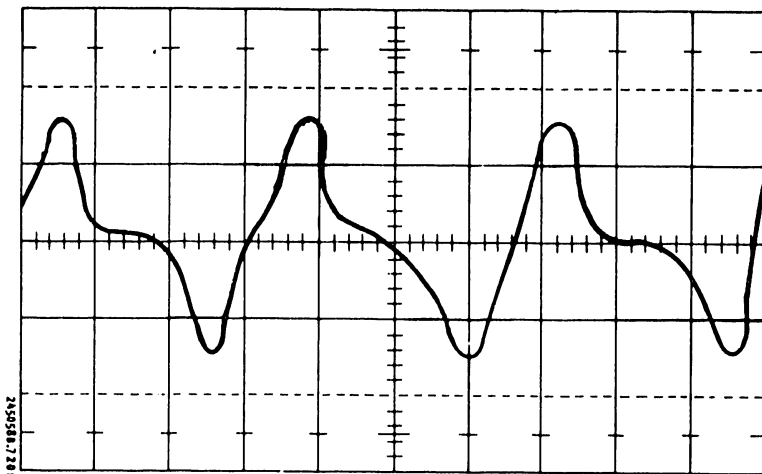
TEST POINT - K
 VOLTS/DIV: 2V (DC)
 TIME/DIV: .2 mS
 TRIGGER:
 AUTO, POS, INT

235067 705

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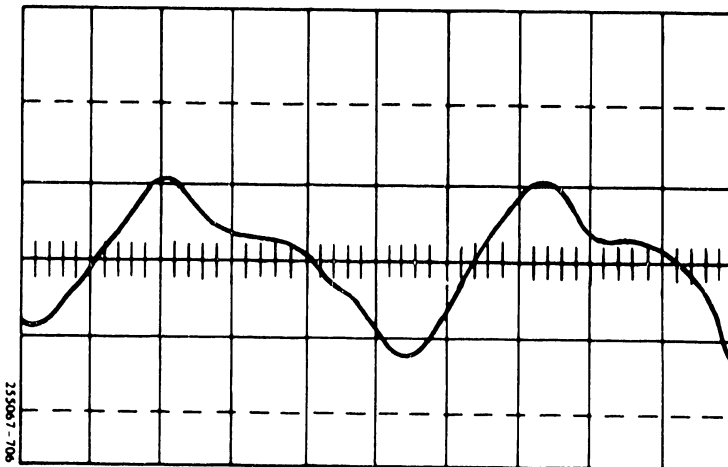
Figure 3-7. Timing and Status CCA Transducer Threshold Detector

300 LPM PRINTER



TEST POINT - D
VOLTS/DIV: 200 mV (AC)
TIME/DIV: .2mS
TRIGGER
AUTO, POS, INT

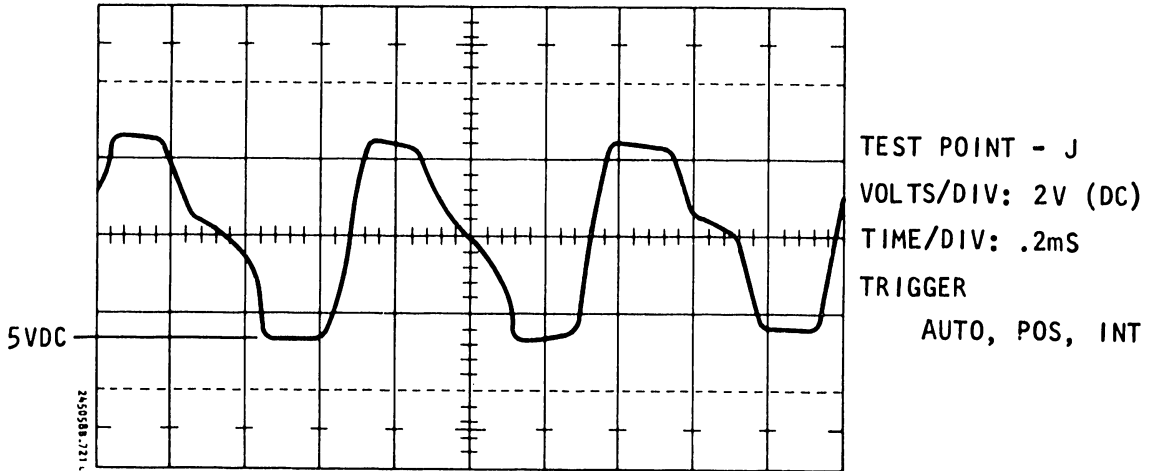
600 LPM PRINTER



TEST POINT-D
VOLTS/DIV:
500 mV (AC)
TIME/DIV:
.2 mS
TRIGGER:
AUTO, POS, INT

Figure 3-8. Timing and Status CCA Transducer Output

300 LPM PRINTER



600 LPM PRINTER

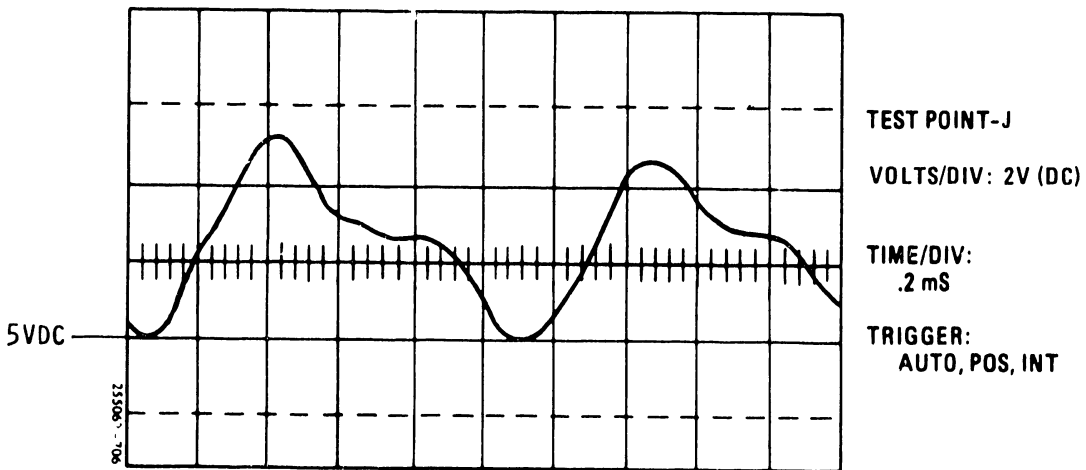
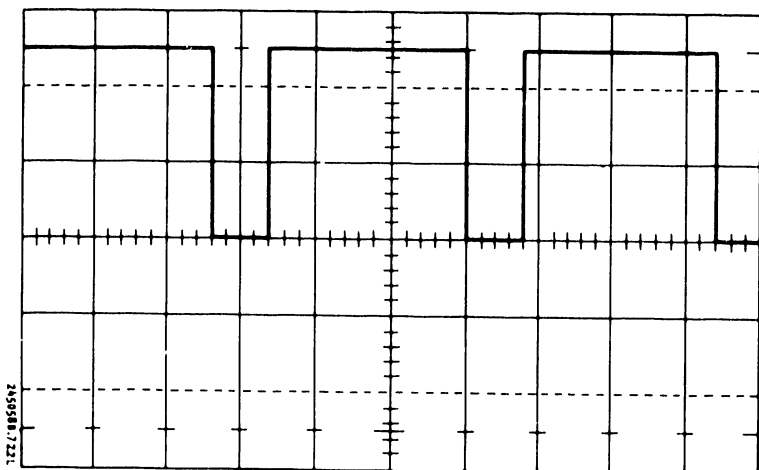


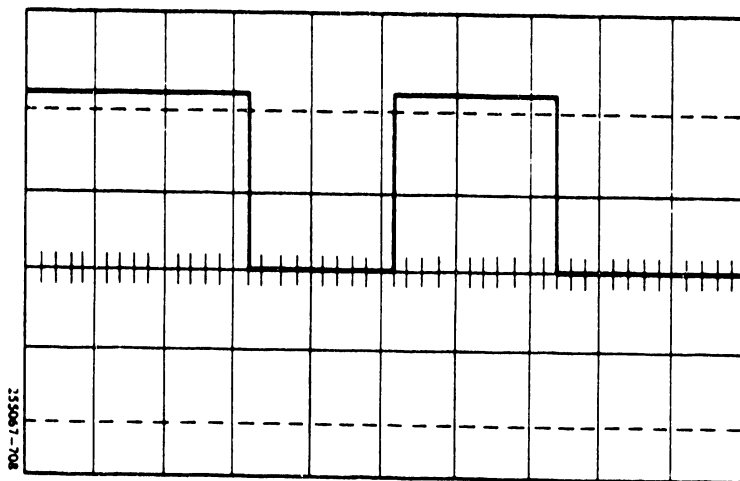
Figure 3-9. Timing and Status CCA Transducer AGC Amplifier Output

300 LPM PRINTER



TEST POINT - F
VOLTS/DIV: 2V (DC)
TIME/DIV: .2ms
TRIGGER:
AUTO, POS, INT

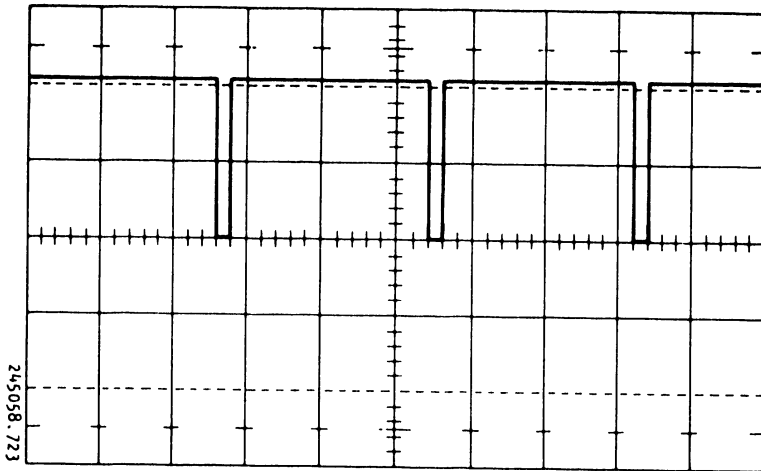
600 LPM PRINTER



TEST POINT-F
VOLTS/DIV:
2V (DC)
TIME/DIV:
.2 ms
TRIGGER:
AUTO, POS, INT

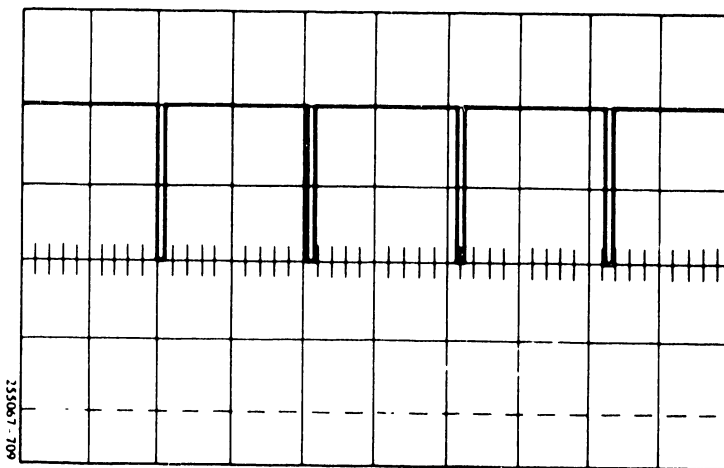
Figure 3-10. Timing and Status CCA Character Clock

300 LPM PRINTER



TEST POINT - H
VOLTS/DIV: 2V (DC)
TIME/DIV: .5ms
TRIGGER:
AUTO, POS, INT

600 LPM PRINTER



TEST POINT-H
VOLTS/DIV:
2V (DC)
TIME/DIV:
.5 mS
TRIGGER:
AUTO, POS, INT

3

Figure 3-11. Timing and Status CCA Hammer Pulse Reset

NOTE

If the transducer output at TP-D (table 3-4) is below the minimum level after the transducer gap has been properly adjusted, replacement of the Transducer assembly will be required. See table 3-9 for the Transducer Gap Adjustment procedure and table 3-10 for the Transducer Removal/Installation procedure.

TABLE 3-4. TIMING AND STATUS CCA SIGNALS

Location	Description	Level	Reference
TP-K	Transducer Threshold Detector	4V P/P	Figure 3-7
TP-D	Transducer Output	600 mV P/P minimum 300 LPM Printer, 800 mV P/P minimum 600 LPM Printer	Figure 3-8
TP-J	Transducer AGC Amplifier Output	5.0V P/P	Figure 3-9
TP-F	Character Clock	4.5V P/P	Figure 3-10
TP-H	Hammer Pulse Reset	4.5V P/P	Figure 3-11

b. Interface CCA Test Points

The test points on the Interface CCA are for monitoring user data and control signals. The data or information on these test points can only be utilized when all parameters are known. These are reference points only. Figure 3-12 shows the Interface CCA test point locations.

c. Power Board CCA Test Points

Test points for checking the paper feed motor, band motor, and paper clamp solenoid voltage/current levels are located on the Power Board CCA as shown in figure 3-13A. No adjustments for these voltages can be made.

d. Mother Board CCA Test Points

The test points for checking the DC voltages generated by the power supply and the Power Board CCA are located on the Mother Board CCA. The test points are for reference and no adjustments can be made on the Mother Board CCA. Figure 3-13B shows the location of the test points on the Mother Board CCA and table 3-4A specifies the voltage range to be expected at each output. Detailed schematics of the printer power supply and Power Board CCA are provided in the B-Series 300 LPM/600 Line Printer Schematics Package.

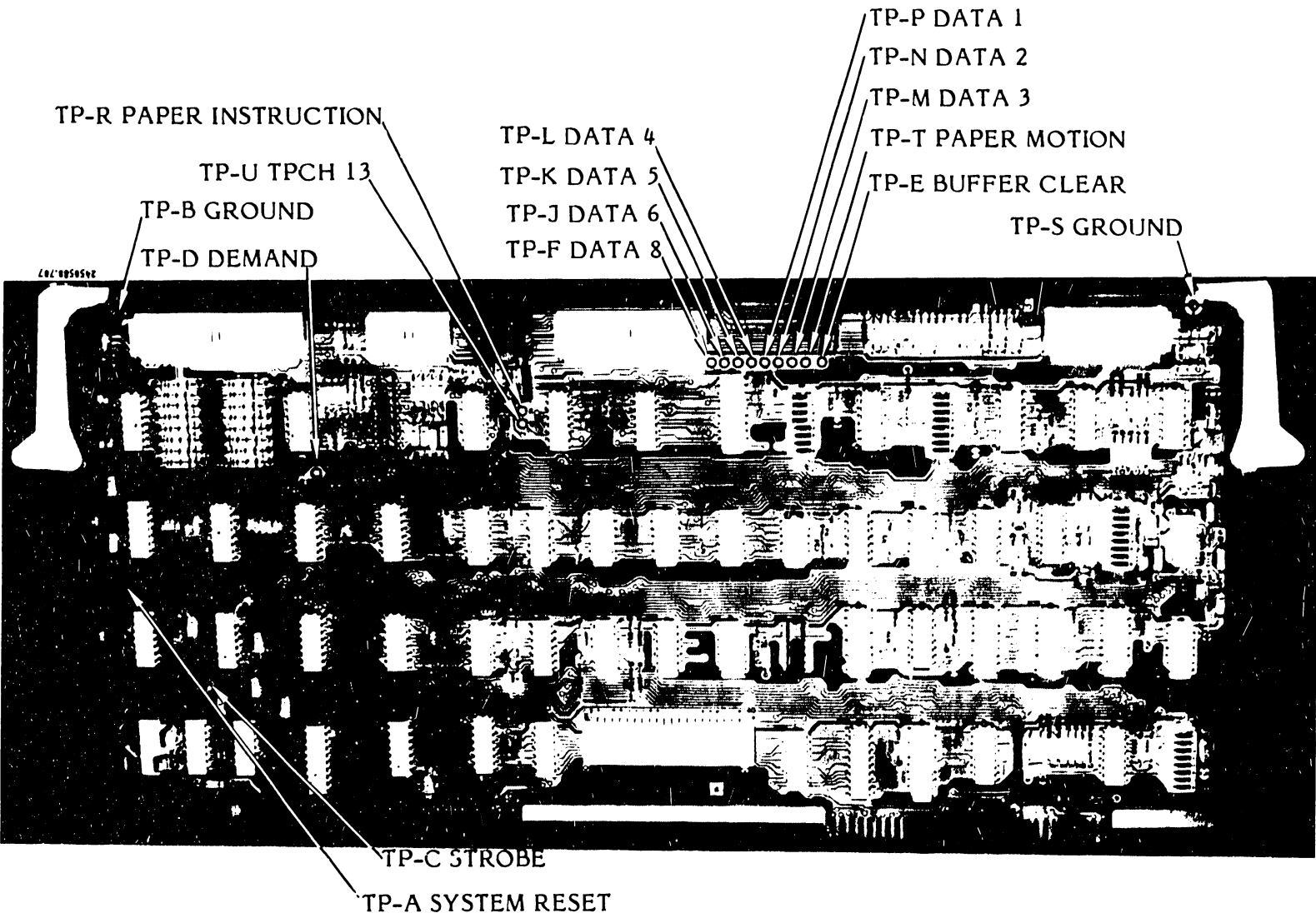


Figure 3-12. Interface CCA Test Points

3-23

MAINTENANCE

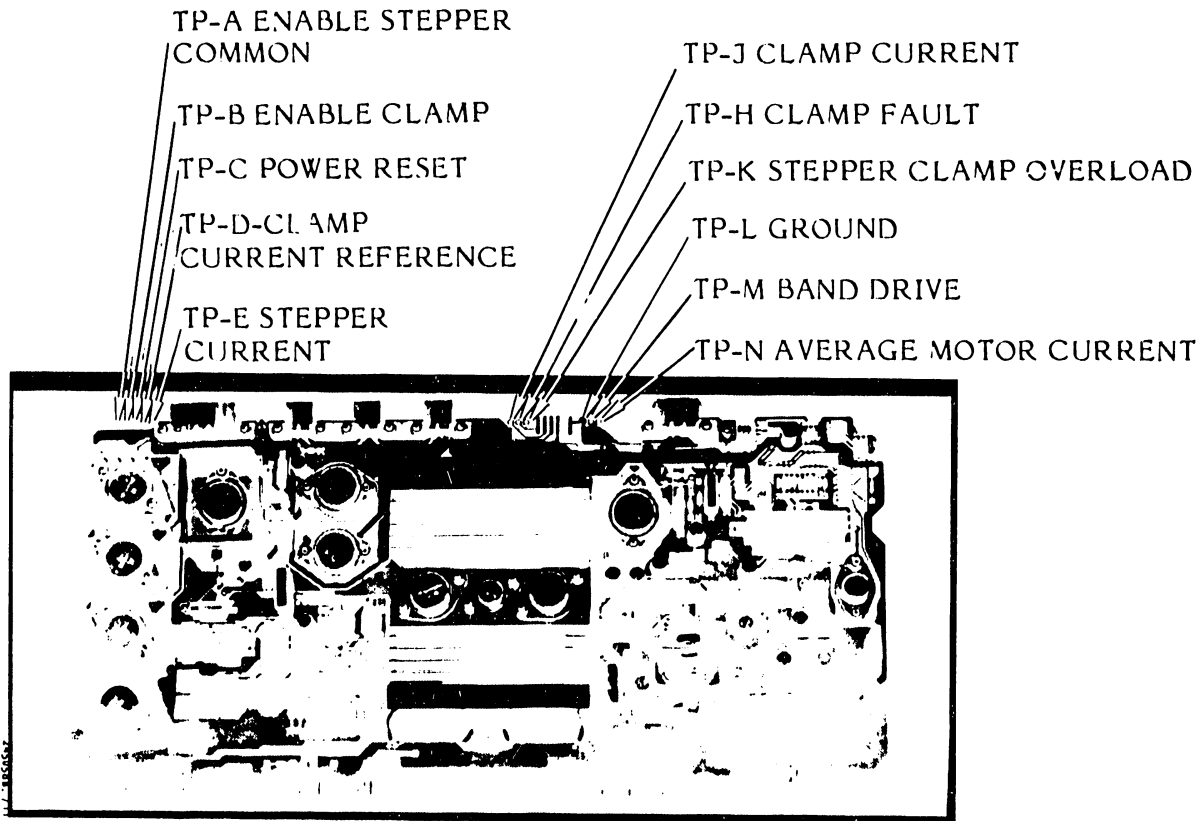


Figure 3-13A. Power Board CCA Test Points

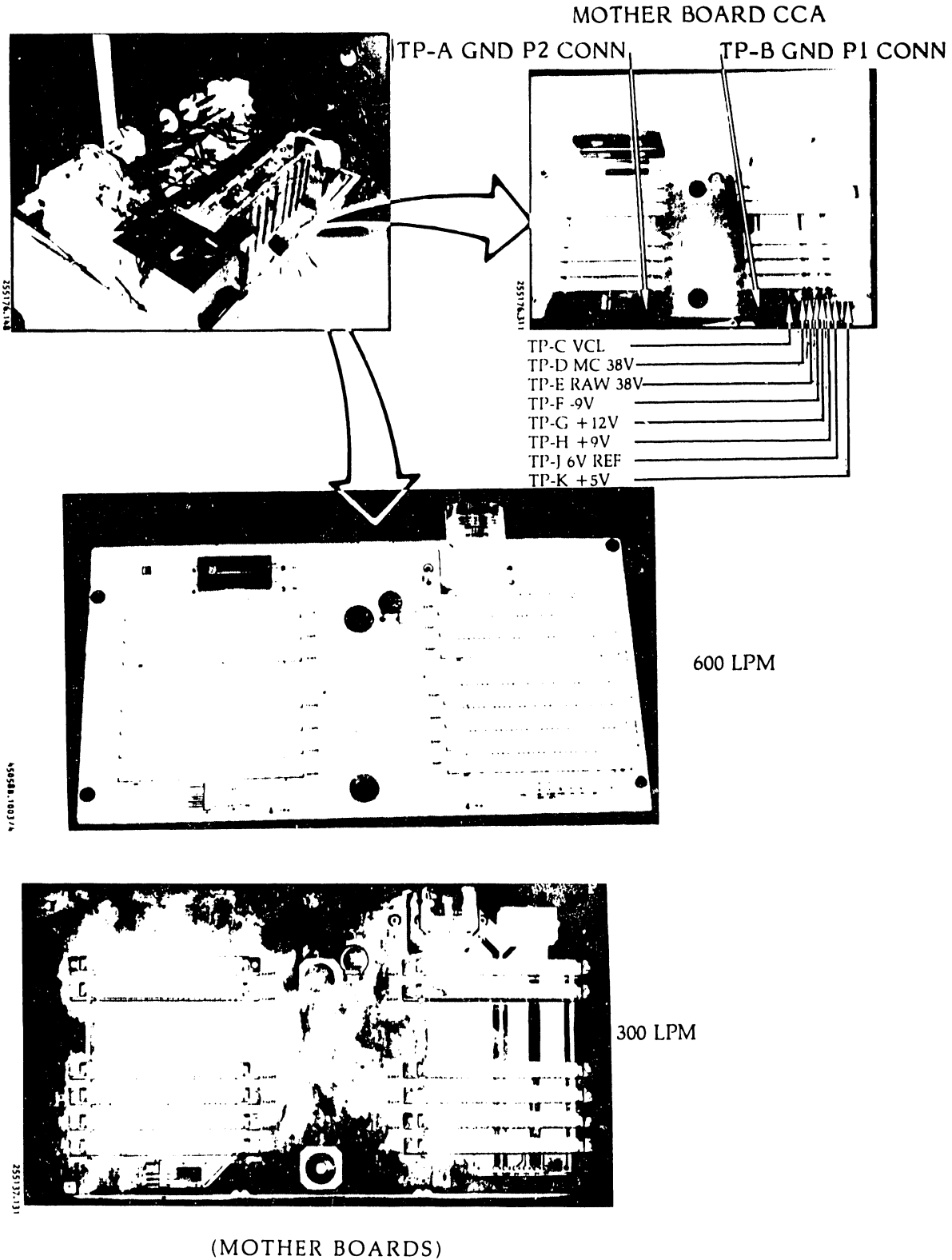


Figure 3-13B. DC Voltage Test Points on Mother Board CCA

NOTE

See the "Related Documents" in the front matter of this Maintenance Guide for the Schematics Package part number.

e. Processor CCA Test Points and PROM Locations

The following test points are for reference only. No adjustments can be made.

- TP-A, B Ground
- TP-C Clock

The Processor CCA contains the program PROMs and the band image PROMs. Figure 3-14 shows the Processor CCA test points and PROM locations.

**TABLE 3-4A. MOTHER BOARD LOCATION
DC VOLTAGE RANGES**

Test Point	Source	Function	Minimum VDC	Maximum VDC
TP-C	Power Board CCA	VCL	1.31	1.51
TP-K	Power Board CCA	+5V	4.87	5.15
TP-H	Power Supply	+9V*	8.0	10.0
TP-F	Power Supply	-9V	-8.0	-12.0
N/A	Power Supply	9 VEW	8.0	12.0
TP-G	Power Board CCA	+12V	11.83	12.18
TP-J	Power Board CCA	6V REF	6.12	6.28
TP-E	Power Supply	RAW 38V**	36.0	40.0
TP-D	Power Supply	MC 38V	36.0	40.0

* 115 VAC, 60 Hz power supply only. +9V may range from 8.0V to 12.0V for the optional universal power supply.

** 115 VAC, 60 Hz power supply only. RAW 38V may range from 44V to 60V for the optional universal power supply.

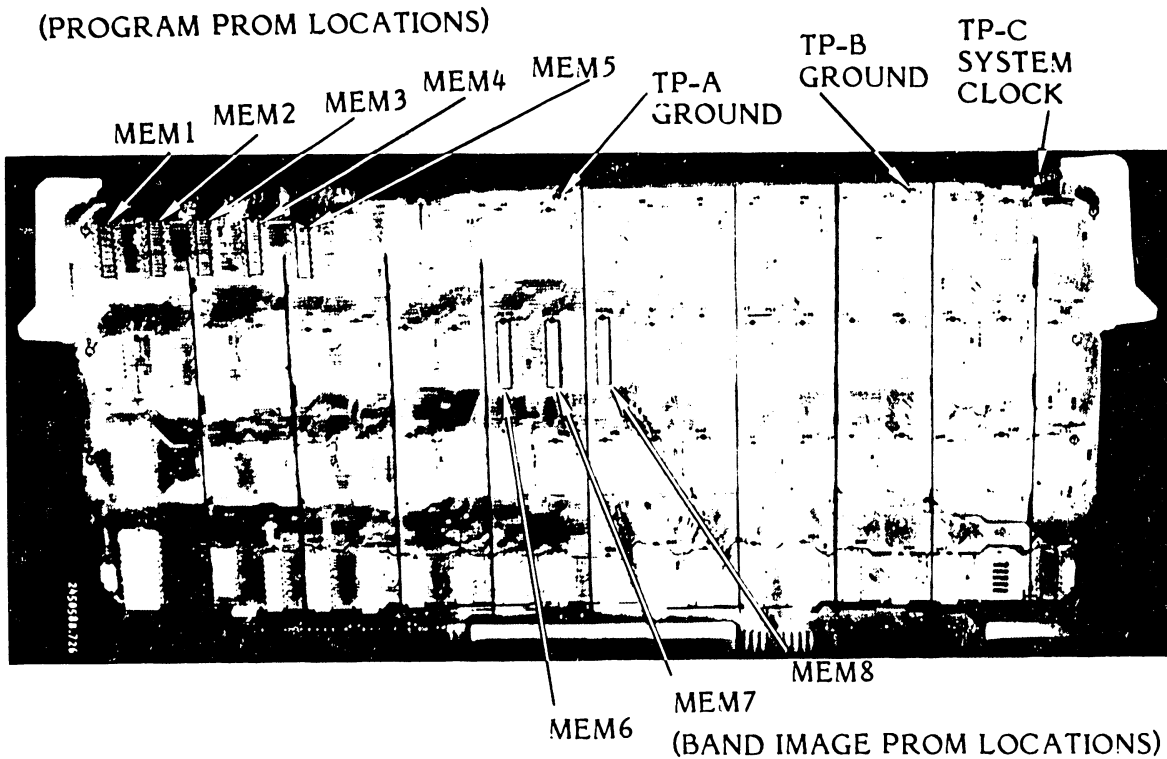


Figure 3-14. Processor CCA Test Points and PROM Locations

3.5.2 Control Panel +9VDC Short Test (Figure 3-15)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the card cage cover.
- e. Unplug the control panel ribbon cable at Interface CCA Connector J4.
- f. Using an ohmmeter set at the Rx1 scale, test for a shorted condition between pin 2 (GND) and pin 19 (+9VDC) of the cable connector.
- g. If a short exists, perform the control panel CCA removal/installation procedure in the Removal/Installation part of this section (see table 3-10). If there is no short, remove the ohmmeter leads and go to step h.

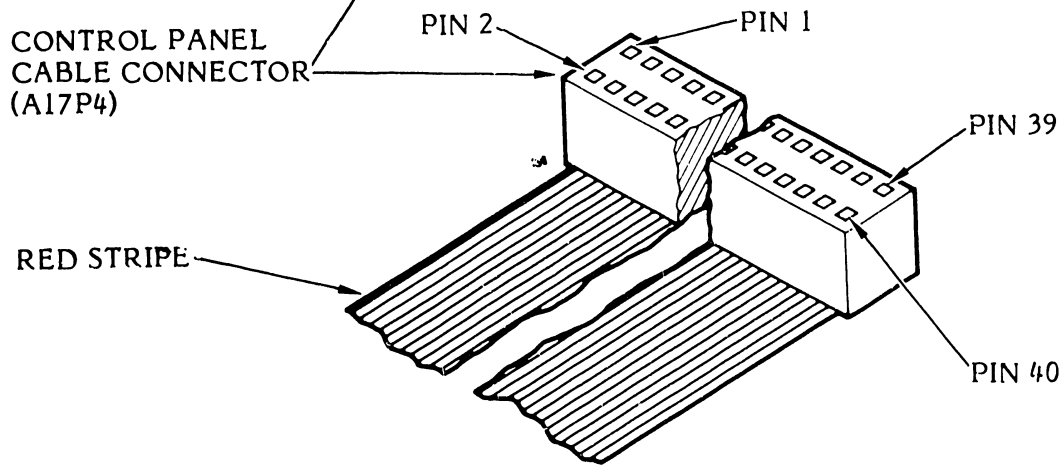
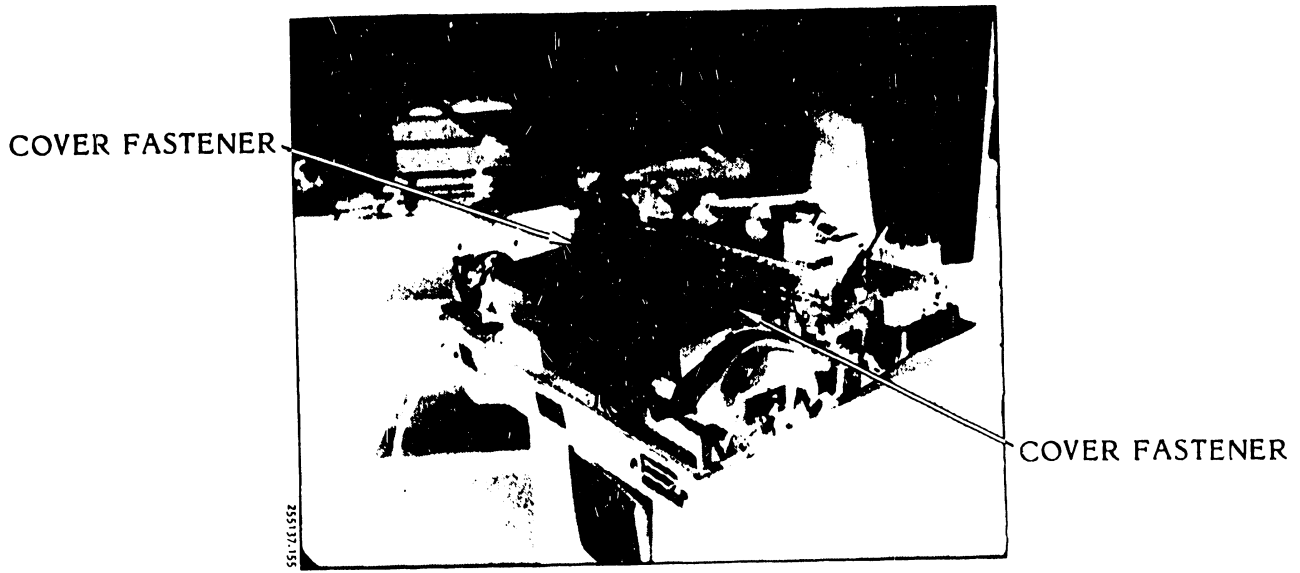


Figure 3-15. Control Panel +9VDC Short Test

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- h. Plug the control panel ribbon cable back into Interface CCA connector J4.
- i. Install the card cage cover. Secure the card cage cover fasteners.
- j. Install the printer cover as described in paragraph 3.3.

3.5.3 Forms Length Select (FLS) Switch Continuity Test (Figures 3-16, 3-17)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the card cage cover.
- e. Unplug the FLS switch cable connector A20P3 from the Interface CCA connector J3 (see figure 3-16).
- f. Using a ohmmeter or DVM, test for the FLS switch and cable continuity at the FLS connector as noted in figure 3-17 and tables 3-5, 3-6, and 3-7.

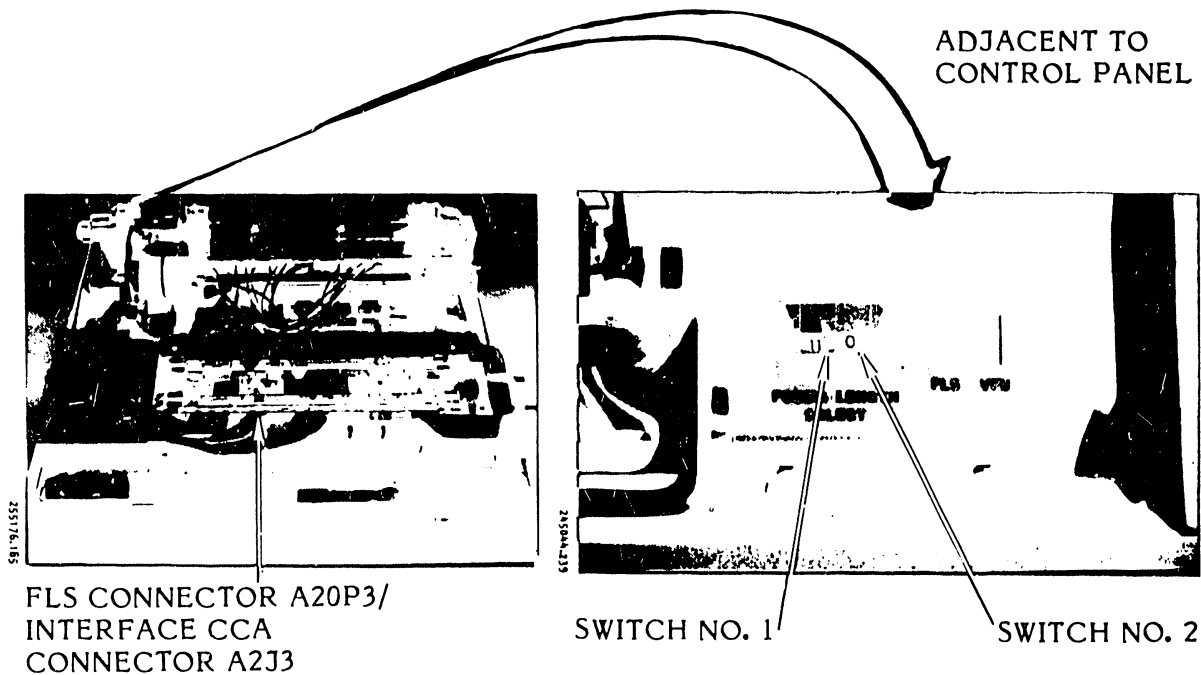


Figure 3-16. Forms Length Select (FLS) Switch and Connector Locations

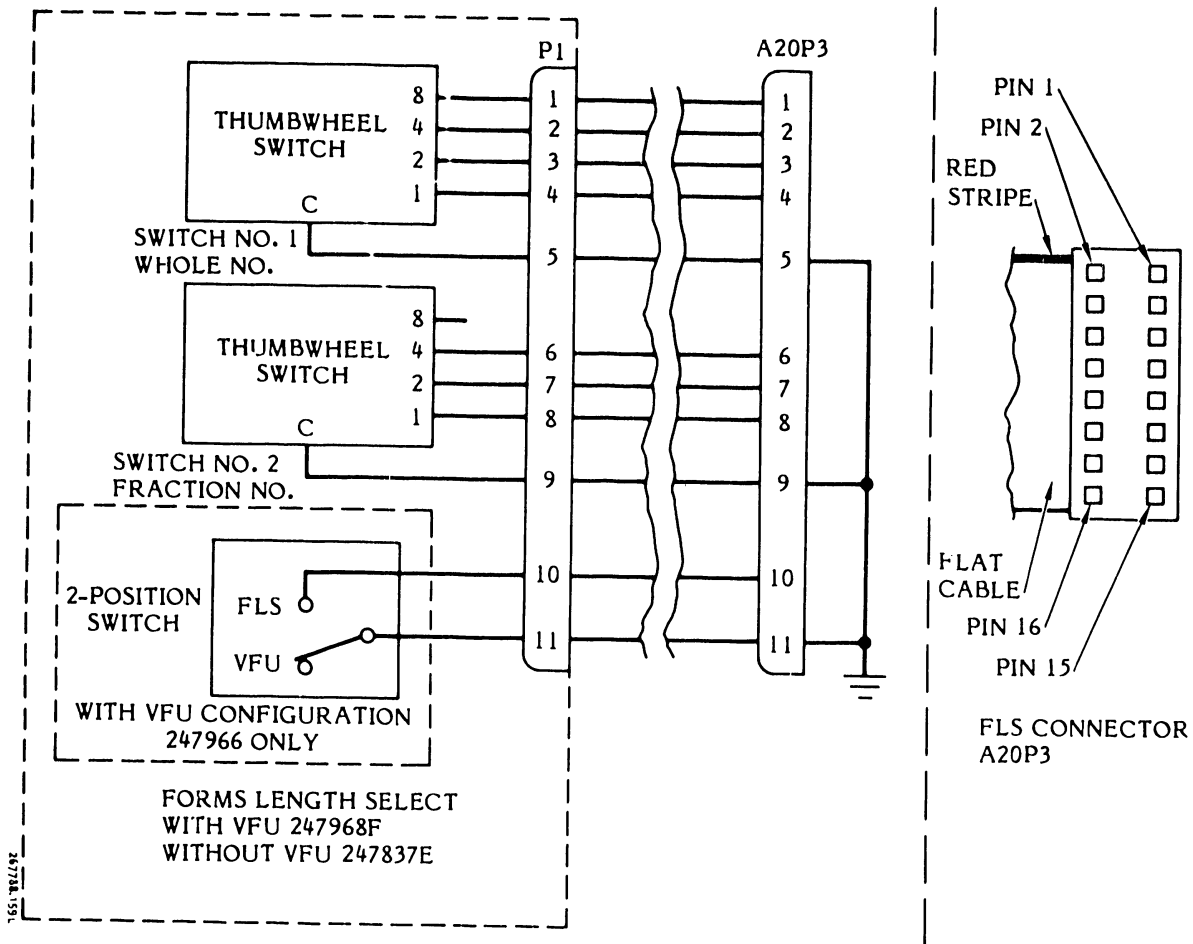


Figure 3-17. Forms Length Selector (FLS) Circuit

TABLE 3-5. FLS/VFU SWITCH CONTINUITY TEST*

Switch Setting	Ohmmeter Probe Location A20P3	Expected Result
FLS	Pin 10 Pin 11	Continuity (1)
VFU	Pin 10 Pin 11	Open (0)

* Perform if FLS/VFU Switch is installed

TABLE 3-6. FLS SWITCH NO. 1 CONTINUITY TEST

Switch Setting* Sequence		Connect Ohmmeter (DVM) Common probe to A20P3 pin 5. For each switch setting, apply ohmmeter (DVM) test probe sequentially to FLS cable connector A20P3 pins 1, 2, 3 and 4 for continuity (1) or an open condition. (0).				
Inches	Centimeters	P3-1	P3-2	P3-3	P3-4	
3	7.62	0	0	1	1	
4	10.16	1	1	0	1	
5	12.70	0	1	0	1	
6	15.24	1	0	0	1	
7	17.78	0	0	0	1	
8	20.32	1	1	1	0	
9	22.86	0	1	1	0	
10	25.40	1	0	1	0	
11	27.94	0	0	1	0	
12	30.48	1	1	0	0	
13	33.02	0	1	0	0	
14	35.56	1	0	0	0	

*Switch stops at setting 3 and setting 14

TABLE 3-7. FLS SWITCH NO. 2 CONTINUITY TEST

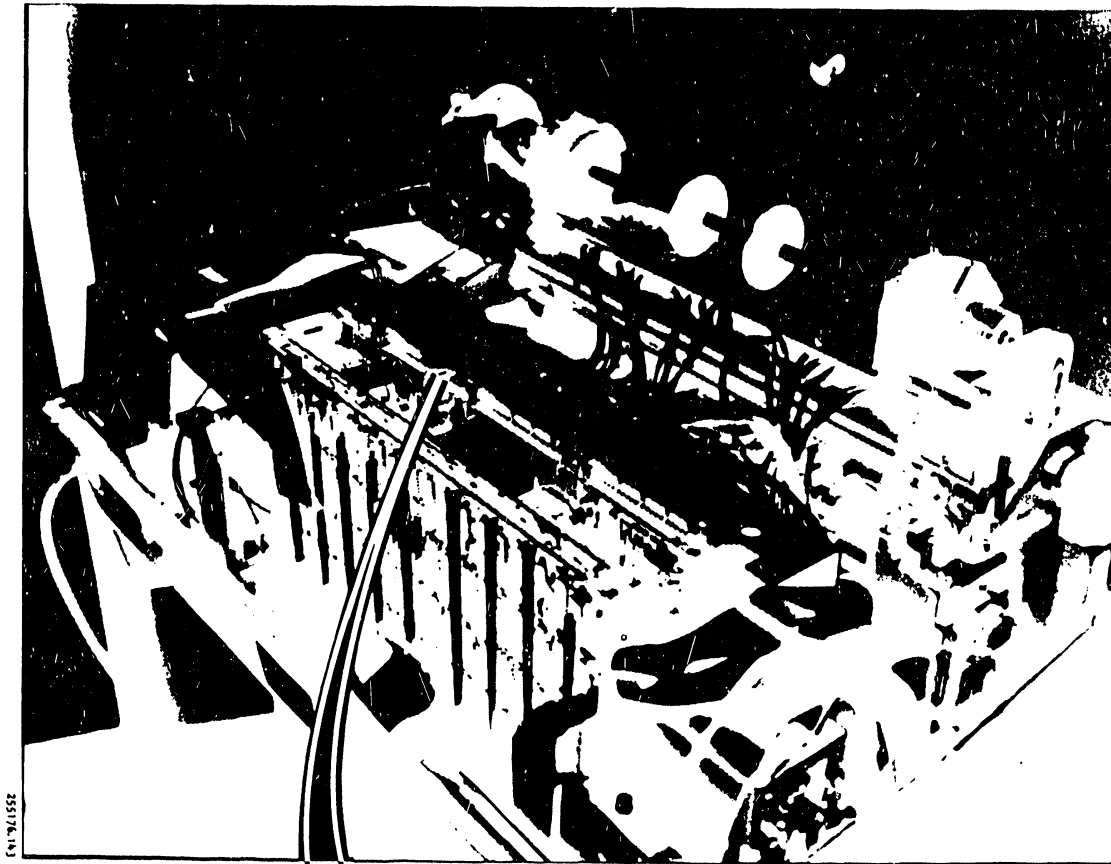
Switch Setting* Sequence		Connect Ohmmeter (DVM) Common probe to A20P3 pin 9. For each switch setting, apply the ohmmeter (DVM) test probe to A20P3 pins 6, 7, 8 for continuity (1) or an open (0).		
Inches	Centimeters	P3-6	P3-7	P3-8
0	0	1	1	1
1/4	0.625	0	1	1
1/3	0.846	1	0	1
1/2	1.270	0	0	1
2/3	1.693	1	1	0
3/4	1.905	0	1	0

*Switch is stopped at 0-inch and 3/4-inch settings

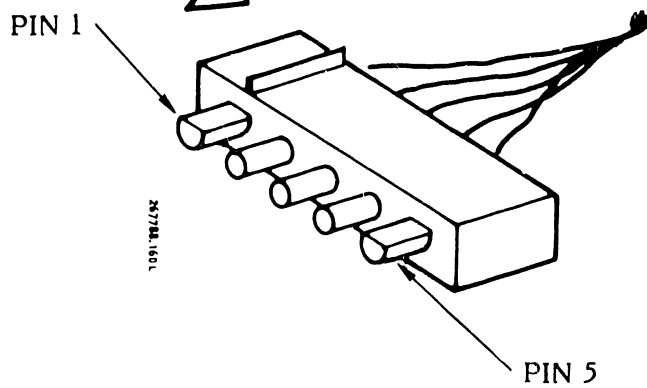
- g. If the Forms Length Select switch fails the above tests replace the switch assembly as described in the Removal/Installation part of this section (see table 3-10). If the test does not fail, go to step h.
- h. Install the card cage cover. Secure the card cage cover fasteners.
- i. Install the printer cover as described in paragraph 3.3.
- j. Plug the AC power cord into the power source.

3.5.4 Paper Feed Motor Continuity Test (Figure 3-18)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the cover.
- e. Unplug the paper feed motor cable A13P4 from the Power Board CCA as shown in figure 3-18.
- f. Connect a DVM (Rx1) scale between pin 4 (common) and, successively, pins 2 and 3. The resistance reading should be between 1.87 and 2.53 ohms.
- g. If the paper feed motor fails the test, replace the motor as described in the Removal/Installation part of this section (see table 3-10). If the test does not fail, go to step h.
- h. Install the card cage cover and secure the card cage cover fastener.
- i. Install the printer cover as described in paragraph 3.3.
- j. Plug the AC power cord into the power source.



ENTREPRISE

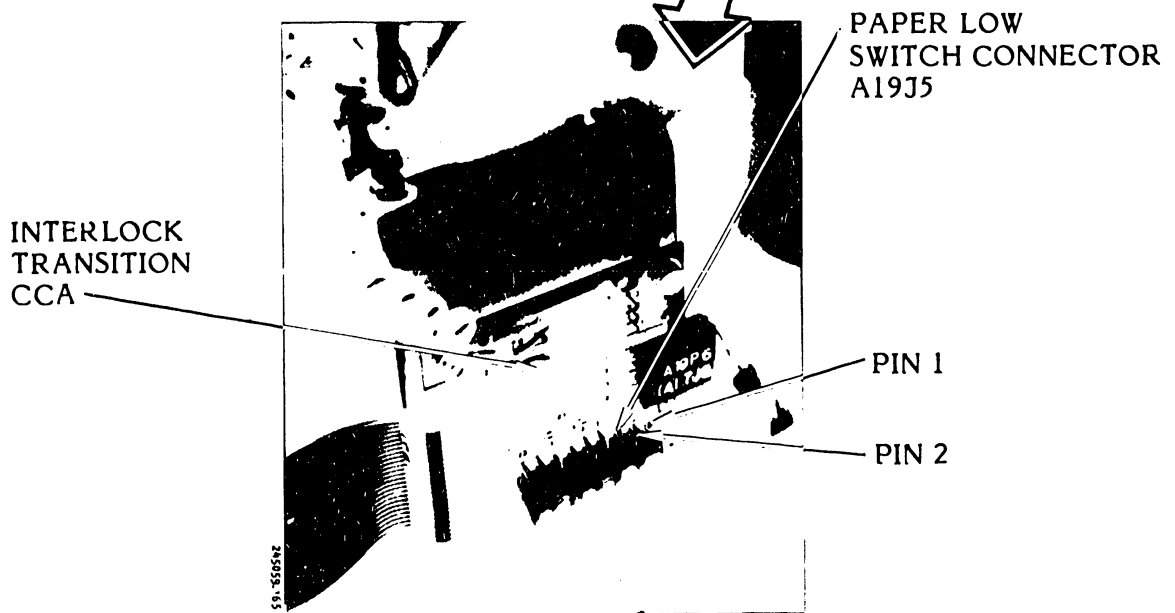
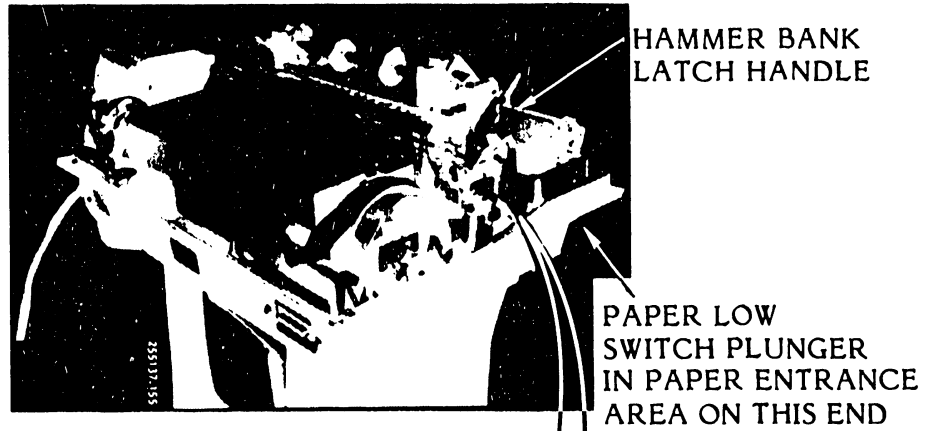


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Figure 3-18. Paper Feed Motor Continuity Test

3.5.5 Paper Low Switch (600 LPM Printer) Continuity Test (Figure 3-19)

- a. Set the AC power switch to OFF.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fasteners and remove the card cage cover.
- d. Connect a voltmeter (DVM) across pins 1 (GND) and 2 (+9VDC) of Interlock Transition CCA Connector A19J5 (see figure 3-19).
- e. Set the AC power switch to ON.
- f. Load paper as described in the Operator's Guide.
- g. Close the hammer bank.
- h. The voltmeter reading should be approximately 8.9 vdc.
- i. Open the hammer bank and unload the paper.
- j. The voltage reading shall switch to a range of 1.1 to 0.4 vdc.
- k. If the voltage reading is 1.1 to 0.4 VDC go to step n.
- l. If there is no change in the voltage reading, reach into the paper entrance area (figure 3-19) and manually actuate the paper low switch plunger, and:
 1. Replace the switch assembly if it moves freely (see table 3-10).
 2. Try to adjust the plunger if it is stuck using the Removal/Installation procedure (table 3-10). Test switch again and replace if it fails.
- m. Remove the voltmeter leads.
- n. Set the AC power switch to OFF.
- o. Install the card cage cover and secure the card cage cover fasteners.
- p. Install the printer cover as described in paragraph 3.3.



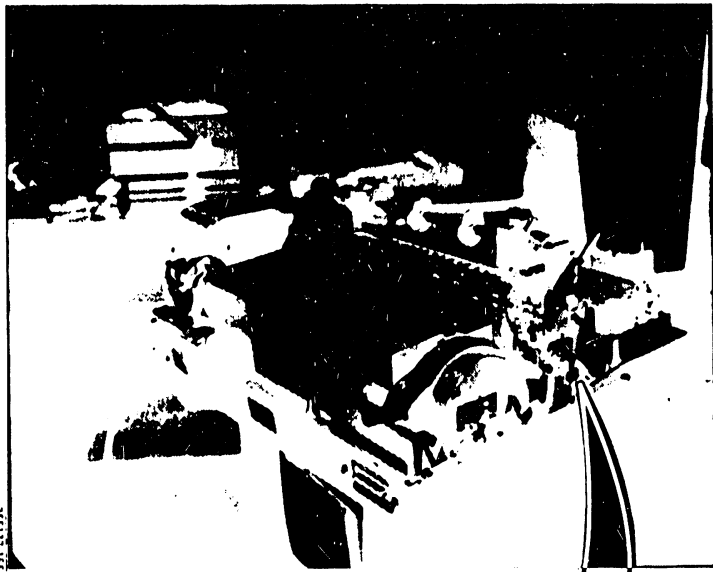
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Figure 3-19. Paper Low Switch (600 LPM Printer) Continuity Test

MAINTENANCE

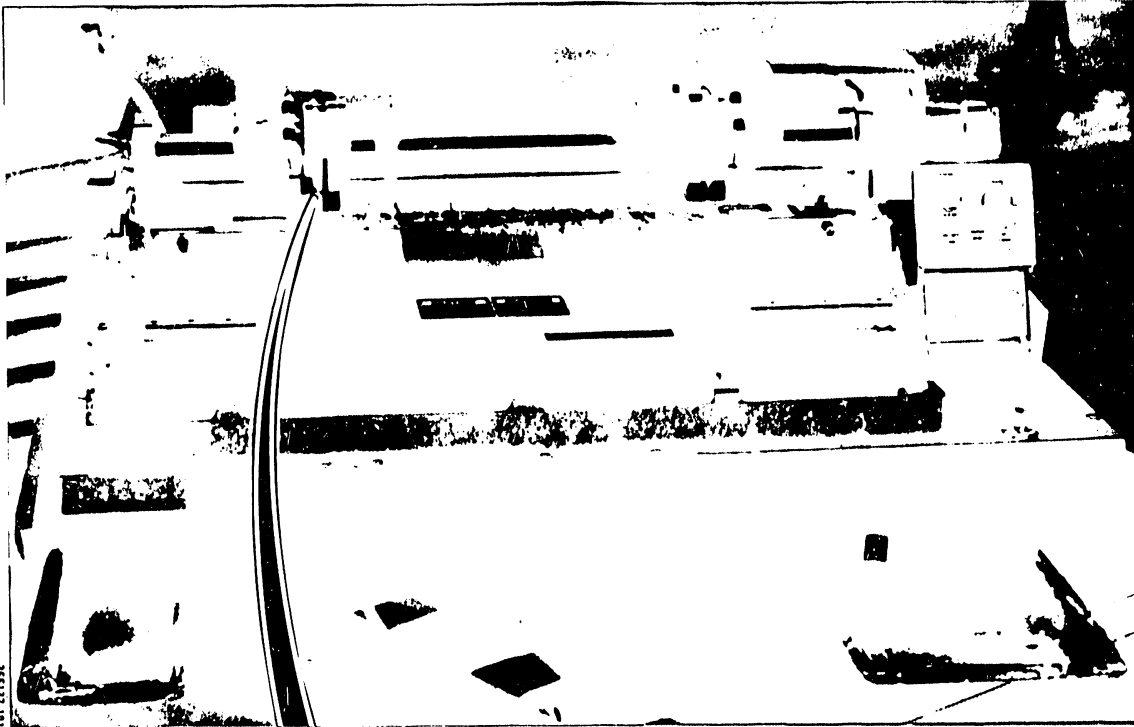
3.5.6 Paper Motion Sensor Test (Figures 3-20, 3-21)

- a. Set the AC power switch to OFF.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fasteners and remove the cover.
- d. Connect a voltmeter (VOM or DVM) across pins 1 and 4 of Interlock Transition CCA connector A19J6 (see figure 3-20).
- e. Set the AC power switch to ON.
- f. Open the left paper sprocket cover (see figure 3-21).
- g. Using a paper sheet, alternately block and unblock the light to the paper motion sensor.
- h. The voltage reading should switch to a range of 0.0 vdc and 5.0 vdc.
- i. If the voltage reading does not change, replace the paper motion sensor as described in the Removal/Installation part of this section (see table 3-10). If the voltage reading is 0.0 vdc to 5.0 vdc, go to step j.
- j. Set the AC power switch to OFF.
- k. Remove the voltmeter leads.
- l. Install the card cage cover and secure the card cage cover fasteners.
- m. Install the printer cover as described in paragraph 3.3.



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Figure 3-20. Paper Motion Sensor Test, Voltmeter Connections



3

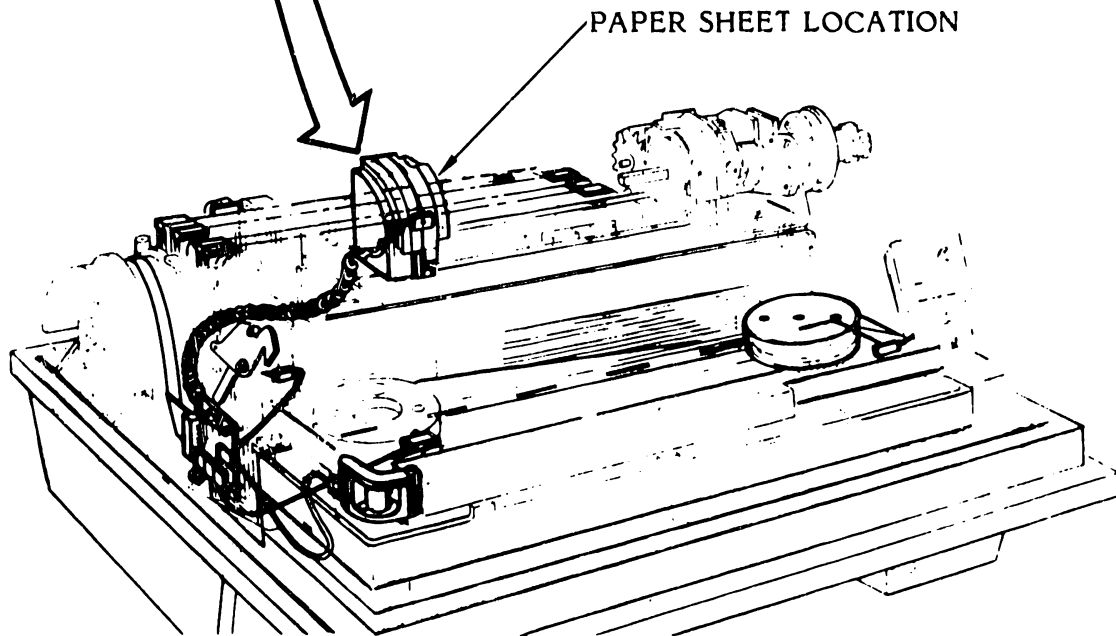


Figure 3-21. Paper Motion Sensor Test Location

3.5.7 PHASE/COPIES Controls Resistance Test (Figures 3-22, 3-23)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the cover.
- e. Unplug the control panel cable (A17P4) from the Interface CCA connector J4 (see figure 3-22).
- f. Using an ohmmeter set at the Rx100 scale, test for resistance between the following pins of connector A17P4:
 1. Pins 37 and 4 - 5.0K ohm
 2. Pins 37 and 39 - variable from approximately zero to 5.0K ohm by rotating the PHASE knob.
 3. Pins 38 and 4 - 5.0K ohm
 4. Pins 38 and 34 - variable from approximately 0.0 to 5.0K ohm by rotating the COPIES knob.
- g. If the test indicates a short or open condition for either control, replace the control panel CCA as described in the Removal/Installation part of this section (see table 3-10). If there is no short or open condition, go to step h.
- h. Remove the ohmmeter leads.
- i. Plug the control panel cable into Interface CCA connector J4.
- j. Install the card cage cover and secure the card cage cover fasteners.
- k. Install the printer cover as described in paragraph 3.3.
- l. Plug the AC power cord into the power source.

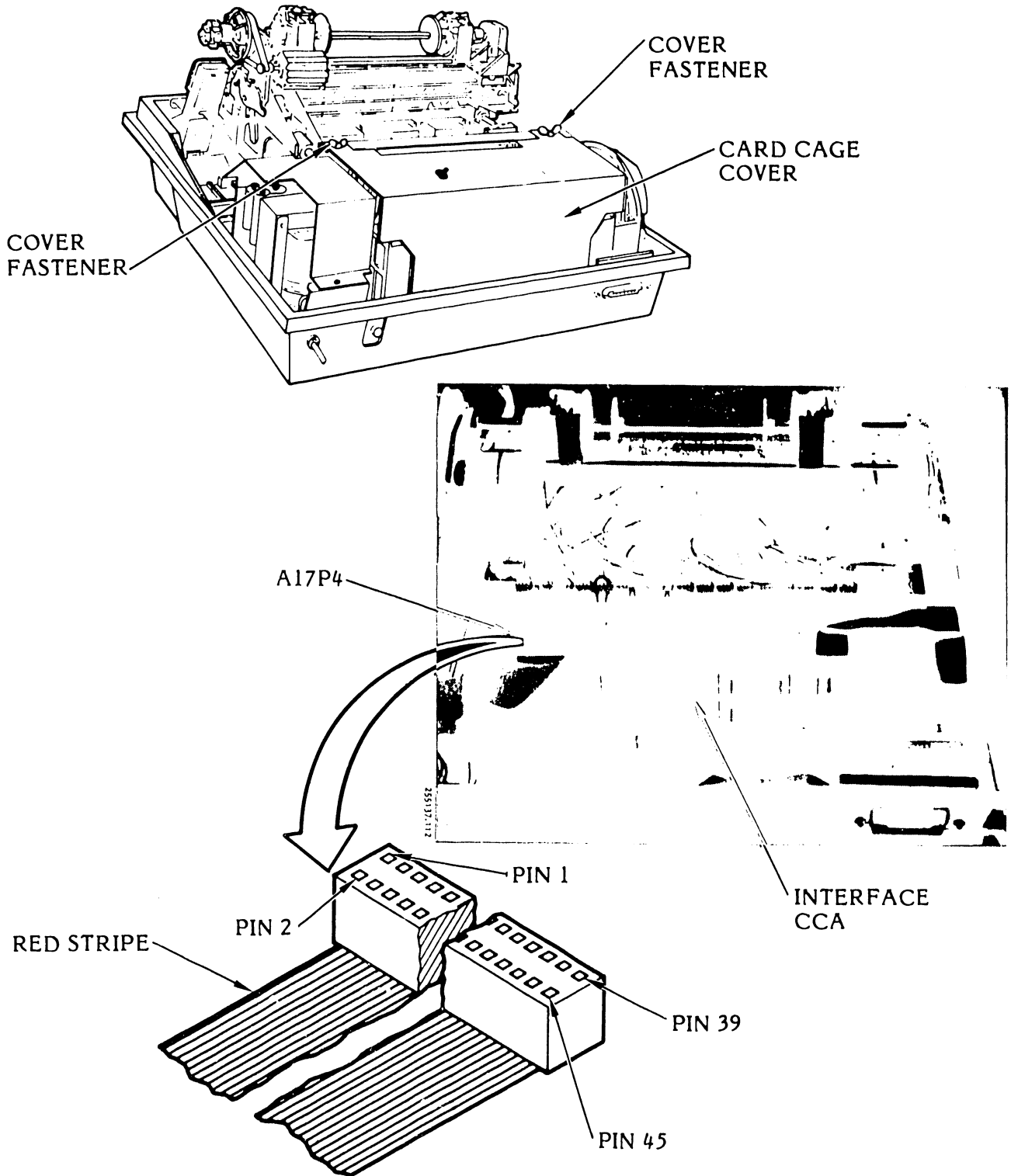


Figure 3-22. PHASE/COPIES Controls Resistance Test, Connector/Pin Locations

3

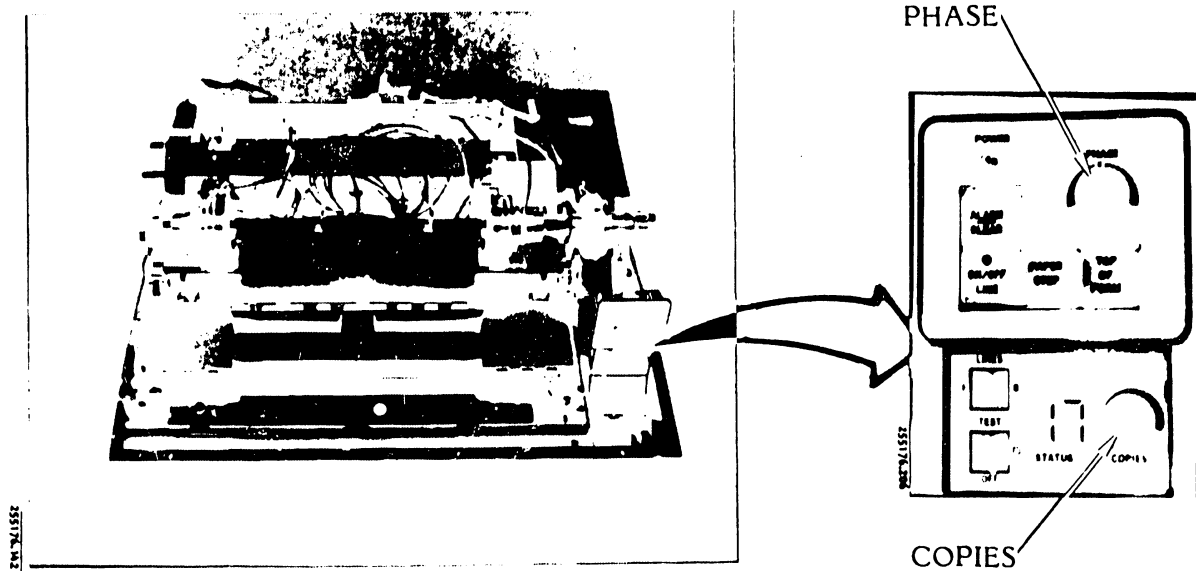


Figure 3-23. PHASE/COPIES Controls Resistance Test, Controls Locations

3.5.8 Power Switch/Circuit Breaker Test (Figure 3-24)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the cover.
- e. Using a voltmeter (DVM or VOM), test for the power switch/circuit breaker continuity as follows:
 1. Connect the meter (Rx1 scale) leads between the two voltage prongs of the AC power cord plug.
 2. Actuate the AC power switch to ON and OFF. The meter reading should switch between a short condition and a resistance of approximately one (1) ohm.
 3. If the test fails, disconnect the AC power switch wires at the push-on terminals running along the side of the printer base (see figure 3-24).

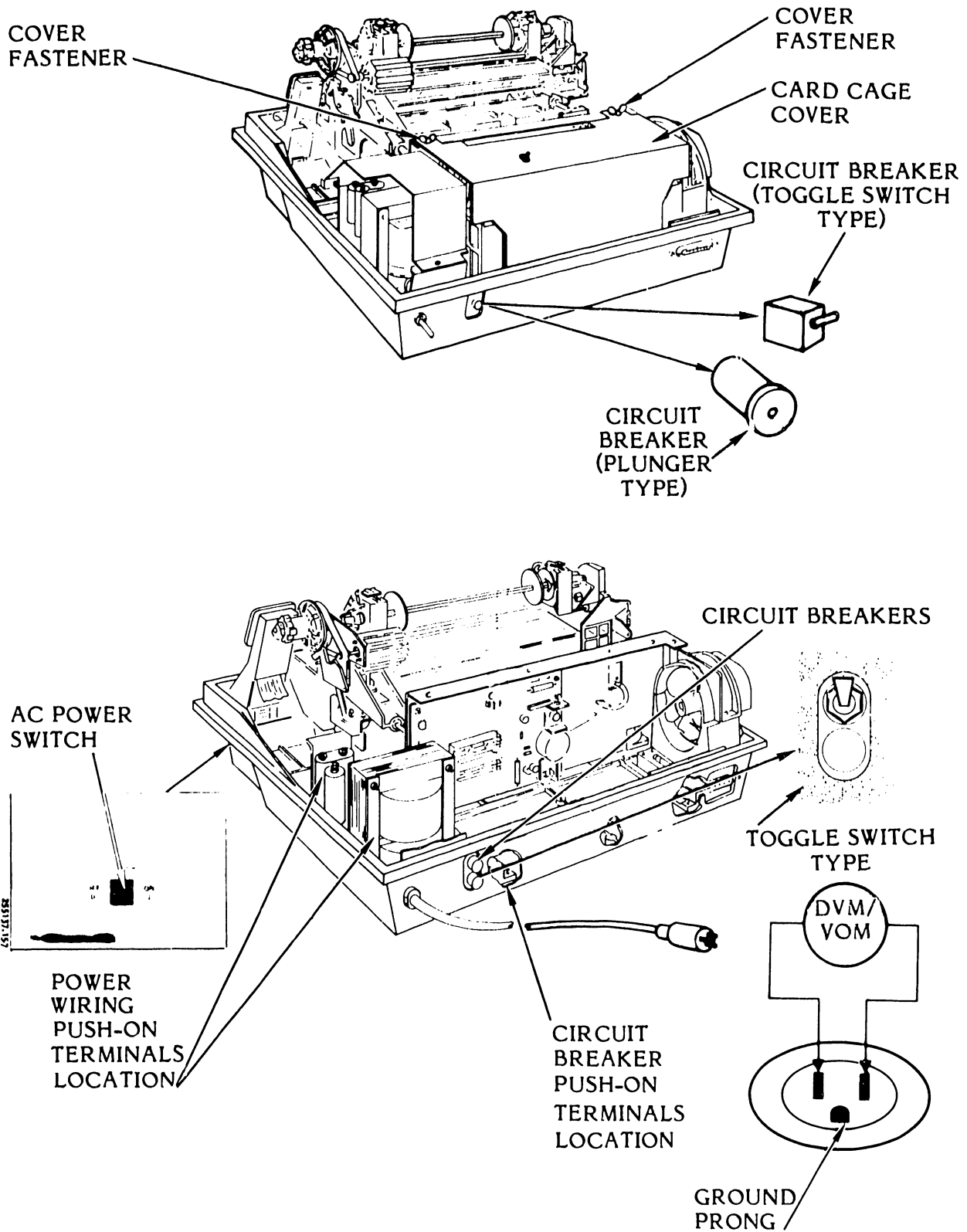


Figure 3-24. Power Switch/Circuit Breaker Test

4. Connect the DVM/VOM (Rx1 scale) across the two push-on terminals and then actuate the power ON/OFF switch for the following readings:

Power OFF- Open Condition
Power ON - Short Condition

5. If the AC power switch fails the test, remove the AC power switch as described in the Removal/Installation part of this section (see table 3-10); otherwise, reconnect the switch wiring.
6. Remove the push-on terminals from the circuit breaker(s) (plunger or toggle switch type).
7. Place the DVM/VOM (Rx1 scale) across the circuit breaker terminals.
8. Make sure that the circuit breaker is not actuated (plunger is in or toggle lever is up) (see figure 3-24).
9. The meter reading should indicate a closed condition.

NOTE

If two circuit breakers are installed, perform the above tests for each circuit breaker.

10. If the circuit breaker(s) fail(s) the test, replace it (them) as described in the Removal/Installation part of this section (see table 3-10). If the circuit breakers do not fail the test, proceed to step 11.
11. Remove the meter leads and plug the AC power wires into the circuit breaker(s).
12. Install the card cage cover and secure the card cage cover fasteners.
13. Install the printer cover as described in paragraph 3.3.
14. Plug the AC power cord into the power source.

3.5.9 Rectifier CCA Diode CR3 Test (Figure 3-25)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.

WARNING

To avoid possibility of shock, allow two minutes for the capacitor bank(s) to discharge.

- d. Unplug the transformer cable from Rectifier CCA connector J5A or J5B (see figure 3-25).
- e. Using an ohmmeter, test for a defective Rectifier CCA CR3 as indicated in table 3-8.

TABLE 3-8. RECTIFIER CCA CR3 TEST

Ohmmeter Probe +	-	Ohmmeter Scale	Expected Reading
J5B PIN 1	Fuse F3 Right Side Clip	Rx1	Approx 10 ohms
J5B PIN 3	Fuse F3 Right Side Clip	Rx1	Approx 10 ohms
Fuse F3 Right Side Clip	J5B Pin 1	Rx10,000	High End of Scale
Fuse F3 Right Side Clip	J5B Pin 3	Rx10,000	High End of Scale

- f. If CR3 fails the test, remove the Rectifier CCA as described in the Removal/Installation part of this section (see table 3-10). If the CR3 does not fail the test, proceed to step g.
- g. Plug the transformer cable back into Rectifier CCA Connector J5A or J5B.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug the AC power cord into the power source.

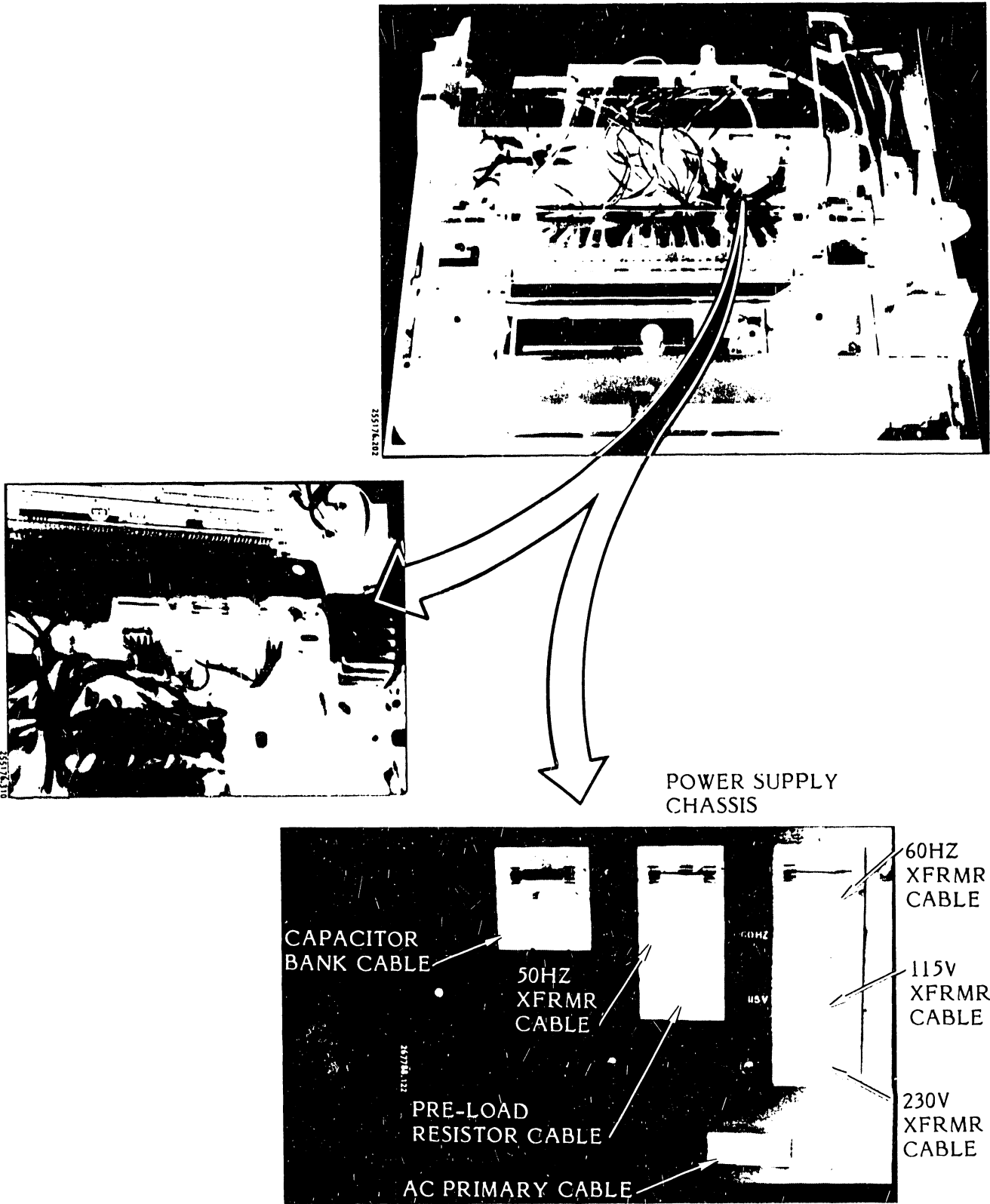


Figure 3-25. Rectifier CCA Diode CR3 Test

MAINTENANCE

3.5.10

TO BE SUPPLIED

3

TO BE SUPPLIED

3

Figure 3-26.

3.5.11 Self Test

Self test is provided as an aid to allow printer trouble-shooting without the need for an external exerciser or tying up the user system. If the printout shows poor print quality, self test procedures can be performed to aid in its correction.

When the three position TEST switch on the control panel is placed to the right or left while the printer system is off-line, the Processor CCA detects and interprets the switch input. After the printer has been placed on-line by actuation of the control panel ON/OFF LINE switch, the Processor CCA then inhibits the interface data load mode, allowing the data buffer to be loaded from printer internal sources rather than from the user system.

When the TEST switch is actuated, one of three patterns can be generated and printed; a sliding pattern (right), a band image pattern (center), and a fixed pattern (left). After each line of self test data has been printed, the Processor CCA will call for a single line paper advance and return the printer to self test data load mode. The operation will continue until the ON/OFF LINE switch is again pressed to take the printer off line, or until a fault or interlock condition is detected. Should a fault or interlock condition be detected, the Processor CCA will take the printer off line and direct an appropriate fault code to be displayed by the control panel STATUS indicator. A status code of 66 or 67 indicates that the printer is in the self test mode. Instructions for performing the printer registration adjustment using the self test are given in the Operator's Guide Registration Adjustment Section.

3.5.12 TCVFU Assembly Components Test (Figures 3-27 through 3-30)

- a. Set the AC power switch to OFF.
- b. Open the printer cover door.
- c. Remove the character band as described in the Operator's Guide.
- d. Set the control panel FLS/VFU switch to VFU (figure 3-27).
- e. Make sure that a VFU tape is properly installed.
- f. Using a 7 mm nut driver, remove the five TCVFU assembly mounting screws.
- g. Lift the TCVFU assembly out, invert it, and set it on the printer to show the TCVFU CCA.

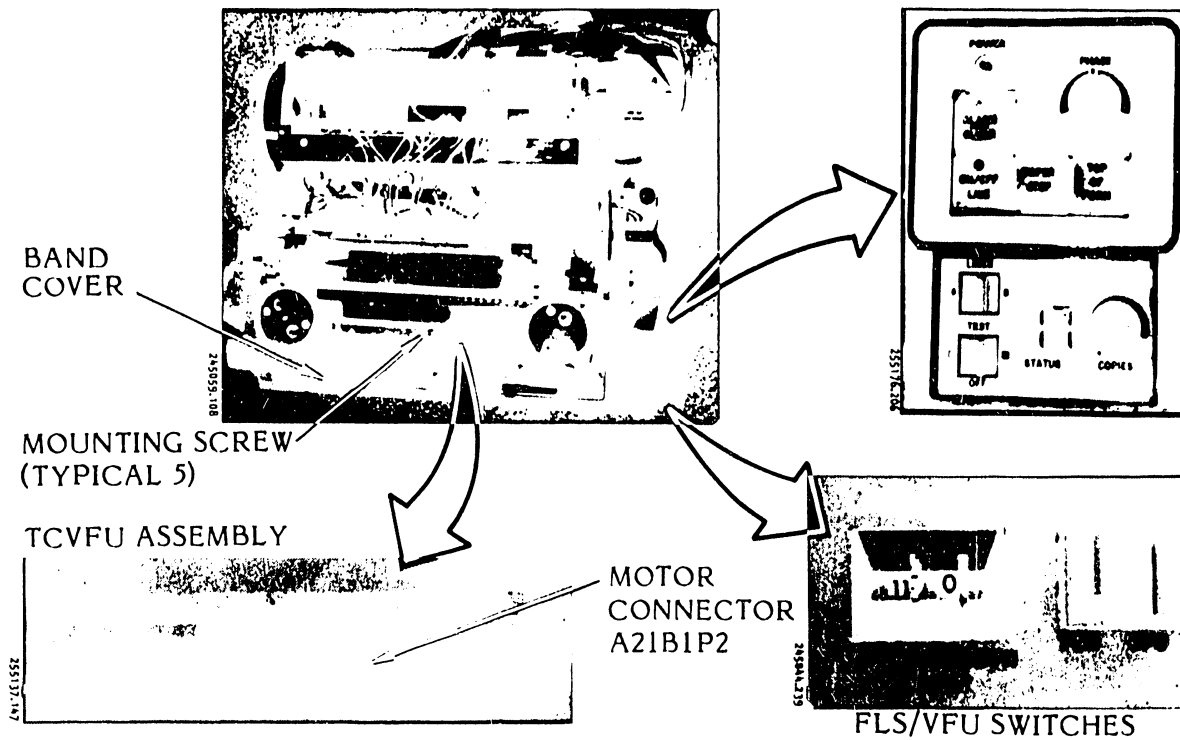


Figure 3-27. TCVFU Components Test

- h. Perform the Tape Read Request (TRRQ) Switch Test as follows:
1. Make sure that the TCVFU motor plug A21B1P2 is properly seated in TCVFU CCA connector A21J2.
 2. Connect an ohmmeter (Rx1 scale) across R1 and C4 of the TCVFU CCA (see figure 3-28).
 3. Press the Tape Read Request switch.
 4. The ohmmeter should indicate continuity when the Tape Read Request Switch is pressed and on open condition when it is released.
 5. If the switch is defective, replace the tape reader head assembly as described in the Removal/Installation part of this section (see table 3-10). If the switch is not defective, proceed to steps i or j as needed.

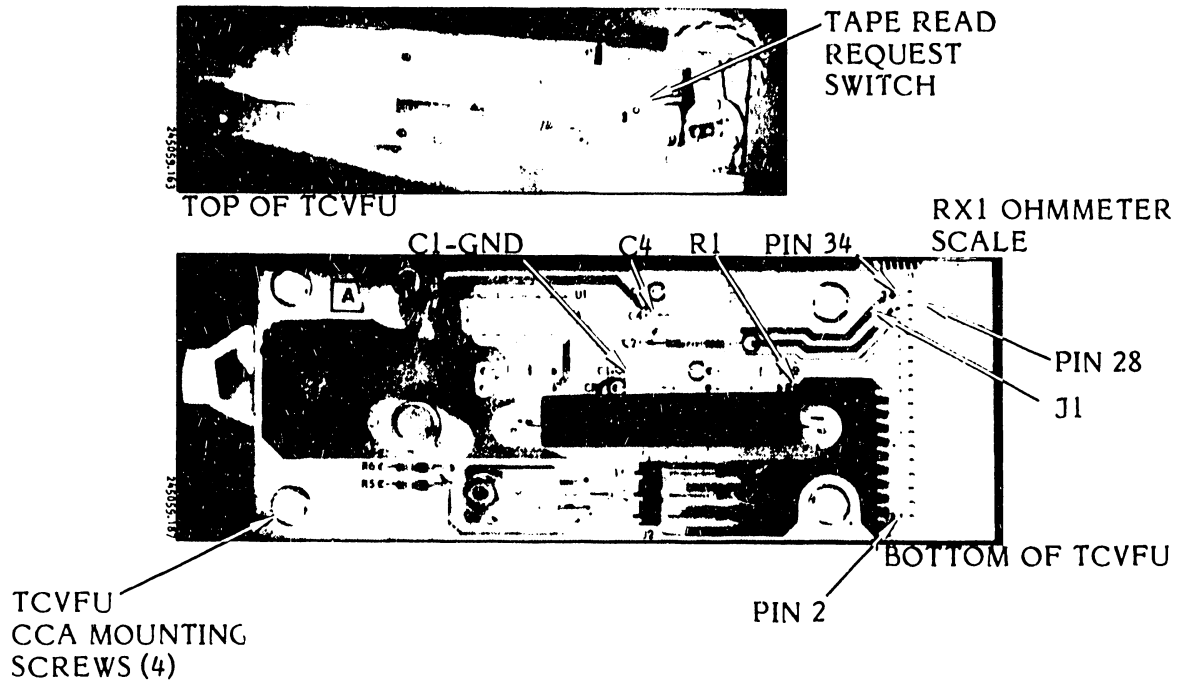


Figure 3-28. Tape Read Request Switch Test

- i. Perform the TCVFU Tape Drive Motor Test as follows:
 1. Disconnect the TCVFU Motor Plug A21P2 from Connector J1.
 2. Use an ohmmeter (VOM or DVM) set at its Rx1 scale.
 3. Place the ohmmeter probes between Pins 1 and 3 of the motor plug. The ohmmeter reading should be between 3 ohm and 5 ohm (see figure 3-29).
 4. If the ohmmeter reading registers a short condition (zero ohm) replace the TCVFU motor assembly as described in the Removal/Installation part of this section (table 3-10). If the ohmmeter reading does not register a short condition, proceed to step 5.
 5. If the ohmmeter reading indicates the proper resistance (3 to 5 ohms), reconnect plug A21P2 and go to steps k, l.

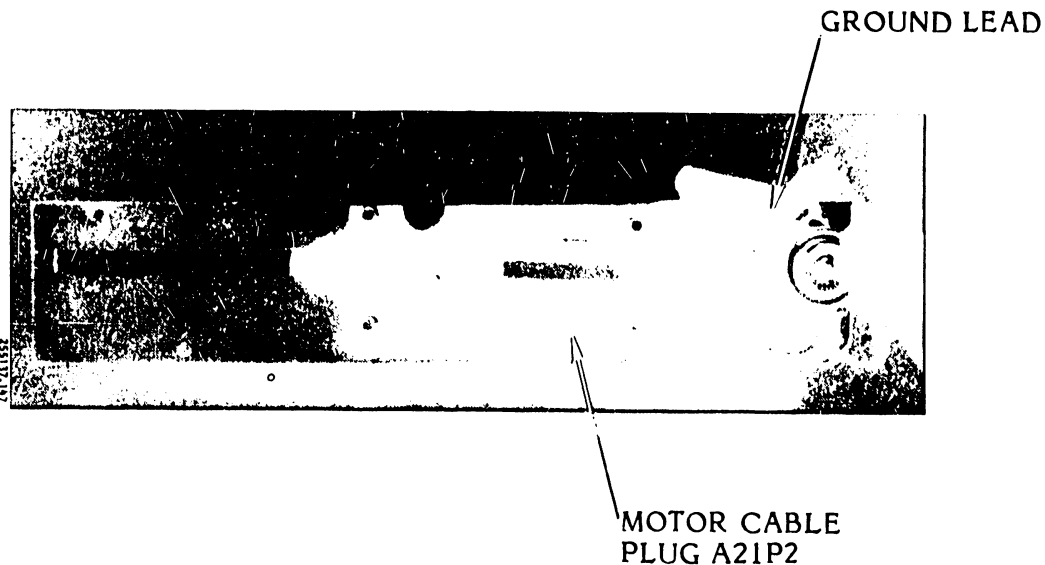
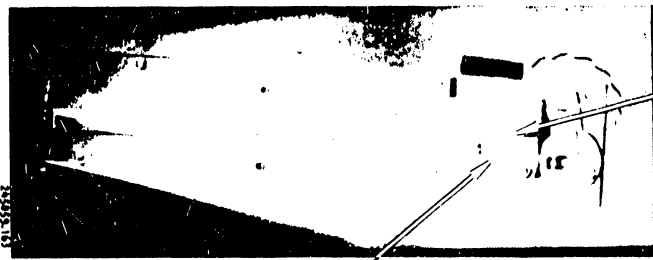


Figure 3-29. TCVFU Tape Drive Motor Test

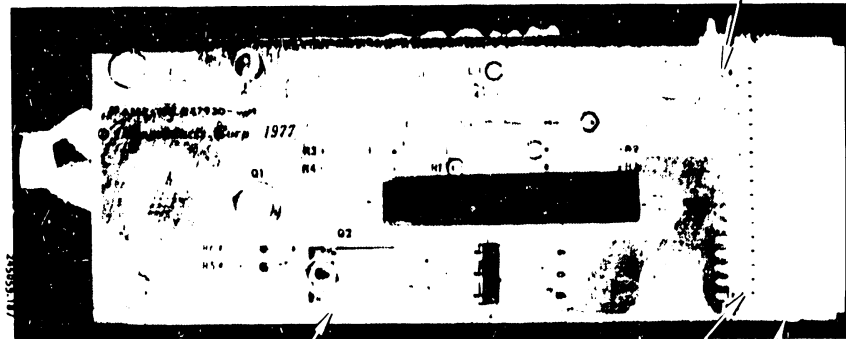
- j. Perform the Tape Reader Head Output Test (figure 3-30) as follows:
 1. Remove the TCVFU tape from the tape reader head.
 2. Set the AC power switch to ON.
 3. Connect an oscilloscope or a voltmeter (VOM or DVM) to Pin 2 of Connector J1.
 4. Pass an opaque sheet through the tape reader slot.
 5. The voltage reading shall switch from +5 vdc to ground.
 6. Pass the opaque sheet each time through the tape reader slot as you locate the probe sequentially on even-numbered pins four through 22.
 7. The voltage reading shall switch at each pin location from +5 vdc to ground.
 8. If the tape reader head fails the test, replace the tape reader head as directed in the Removal/Installation part of this section (see table 3-10). If the tape reader head does not fail the test, proceed to step k.

3



PASS OPAQUE SHEET THRU SLOT

TAPE READER HEAD



TCVFJ CCA

PIN 2
J1 CONNECTOR

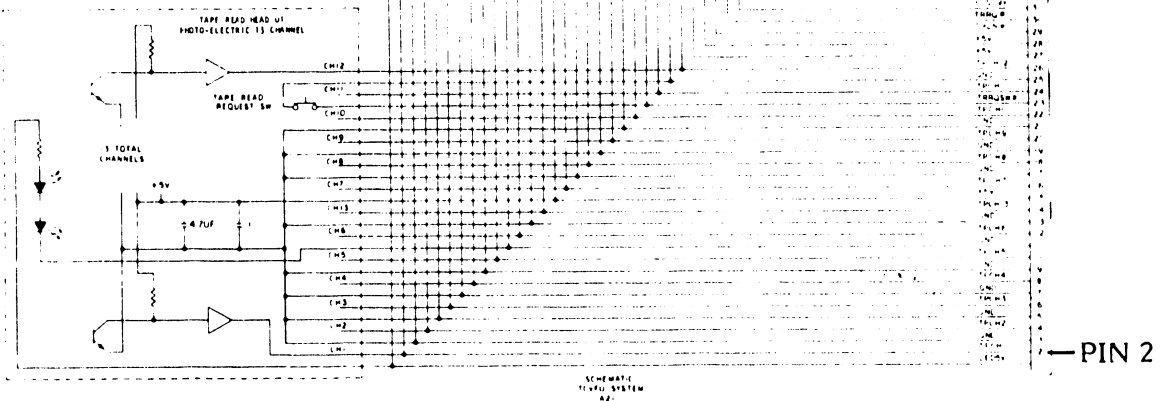
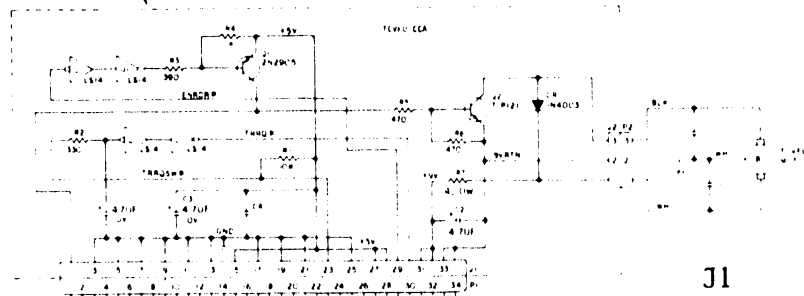
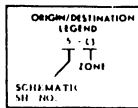


Figure 3-30. TCVFU Tape Reader Head Output Test

3

- k. Set the AC power switch to OFF.
- l. Place the TCVFU assembly in position on the character band casting.
- m. Using the 7 mm nut driver and mounting screws/washers, secure the assembly to band casting.
- n. Close the band cover.
- o. Close the printer cover door.

3.5.13 6/8 LPI Switch Continuity Test (Figure 3-31)

- a. Set the AC Power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Loosen the card cage cover fasteners and remove the cover.
- e. Unplug the control panel cable A17P4 from the Interface CCA connector A2J4.
- f. Connect an ohmmeter (VOM or DVM), set at the Rx1 scale, between pins 2 and 4 of the cable plug A17P4 (see figure 3-31).
- g. Actuate the control panel 6/8 LPI switch between "6" and "8" a few times. The ohmmeter should switch between an open condition and a short condition.
- h. If the switch fails the test, replace it as directed in the Removal/Installation part of this section (see table 3-10). If the switch does not fail the test, proceed to step i.
- i. Plug the cable back into the Interface CCA Connector A2J4.
- j. Install the card cage cover and secure the card cage cover fasteners.
- k. Install the printer cover as described in paragraph 3-3.
- l. Plug the AC power cord into the power source.

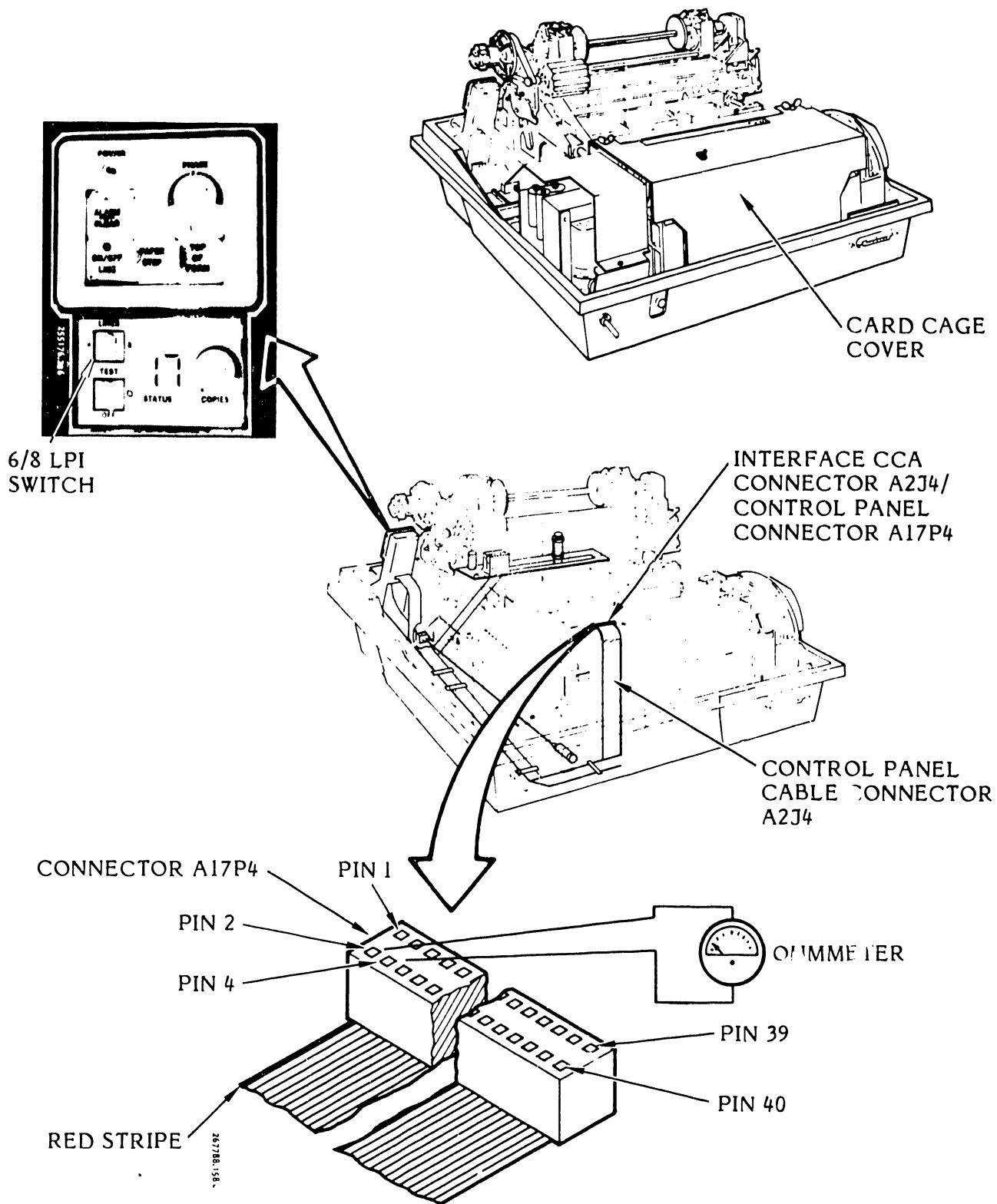


Figure 3-31. 6/8 LPI Switch Continuity Test

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3.5.14 Band Drive Motor Test (Figures 3-31A, 3-31B, 3-31C)

This test consists of three parts; a resistance test, a voltage test, and current flow test.

- a. Set the power switch to OFF.
- b. Unplug the AC power cord plug from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Remove the paper guide shield.
- e. Unplug the band drive motor cable plug A15P1 from the Power Board CCA connector J1 (see figure 3-31A).
- f. Connect ohmmeter (VOM) leads across pins 1 and 3 of the motor cable plug as shown.
- g. Set the motor to the Rx1 scale and look for a zero ohm condition on the scale.
- h. Set the meter to the Rx10,000 scale and look for maximum reading on the scale.
- i. If the meter indicates either a short or open condition replace the band drive motor as directed in the Removal/Installation part of this section (see table 3-10). If the meter does not indicate a short or open condition, proceed to step j.

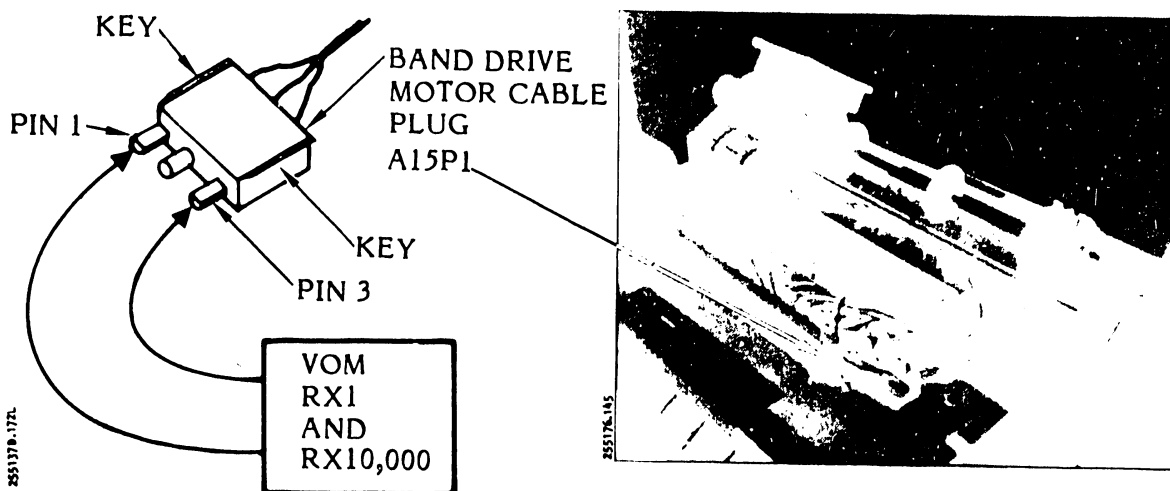


Figure 3-31A. Band Drive Motor Resistance Test

- j. Test the voltage drop (see figure 3-31B) across the motor as follows:
1. Connect a 6-volt lantern battery across pin 1 and pin 3 of the motor cable plug.
 2. Connect a VOM set on the 10 vdc scale, across pin 1 and pin 3 of the motor cable plug.
 3. Write down the voltage reading showing on the meter scale.
 4. Disconnect the VOM.
 5. Disconnect the battery lead from pin 3 of the cable plug.

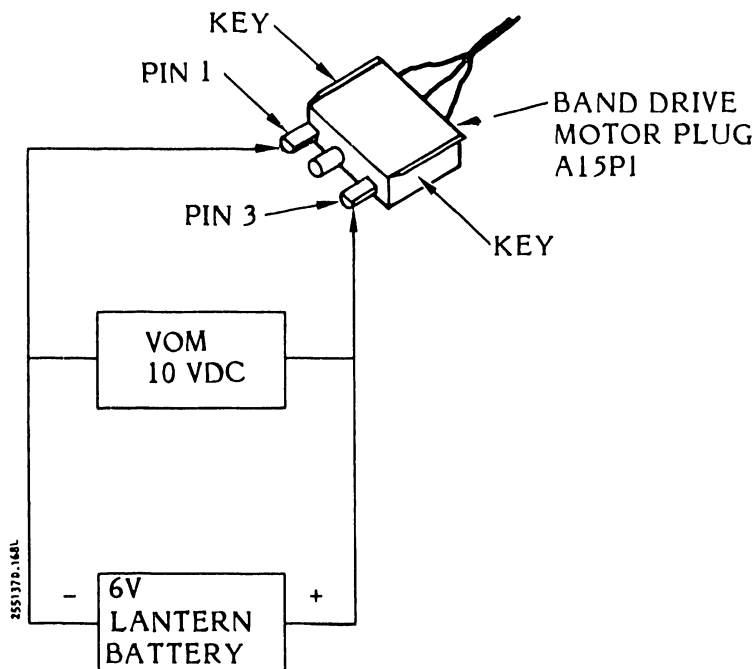


Figure 3-31B. Band Motor Voltage Drop Test

- k. Test the current flow (see figure 3-31C) as follows:
 1. Set the meter probe leads into the VOM for 10 ten ampere scale reading.
 2. Place the VOM select switch in the 10 amp position.
 3. Connect the VOM leads between the loose battery lead and pin 3 of the cable plug.
 4. Write down the ampere reading showing on the meter scale.
 5. Disconnect the VOM and the battery from the cable plug.
- l. Write the voltage and ampere readings in the equation below:

2.3 (Amperes) is Equal to or Greater than (Voltage).
- m. If the above equation is **not true** the motor is defective.
- n. If the motor is defective replace the band drive motor as directed in the Removal/Installation part of this section (see table 3-10). If the motor is not defective, proceed to step 0.
- o. Install the paper guide shield.
- p. Install the printer cover as described in paragraph 3.3.
- q. Plug the AC power cord into the power source.

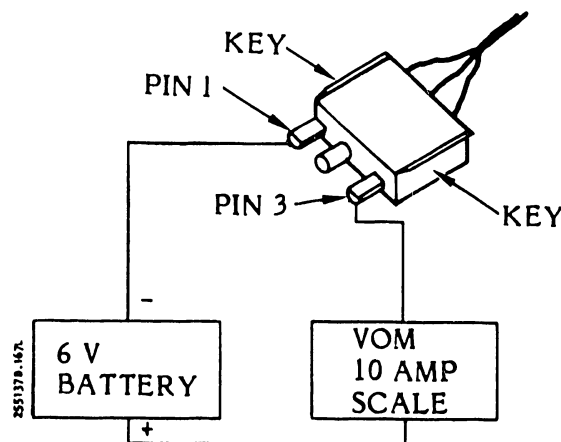


Figure 3-31C. Band Motor Current Test

3.6 ADJUSTMENT PROCEDURES

Applicable adjustment procedures in this section should be performed whenever an assembly is removed and installed, as part of the suggested periodic maintenance procedures, or as directed by the troubleshooting procedures provided in Section IV. Certain steps such as turning power off, unplugging the power cord, and raising or removing the cover may have already been done if several adjustment procedures are performed in sequence. Also, final steps such as powering up and retesting have been omitted. Return to the last step in the troubleshooting sequence and continue as required. Table 3-9 lists the adjustment procedures.

WARNING

Do not attempt to perform the following adjustment procedures with the AC power plug connected to the power source unless power is necessary for the performance of a specific procedure.

TABLE 3-9. ADJUSTMENT PROCEDURES

Assembly	Paragraphs
Band Cover Assembly	3.6.1
Band Cover Interlock Switch	3.6.2
Band Tracking	3.6.3
Hammer Bank Flight Time	3.6.4
Hammer Bank Interlock Switch Continuity Test and Adjustment	3.6.5
Hammer Bank Pin and Latch Assembly	3.6.6
Paper Clamp Armature Assembly	3.6.7
Paper Clamp Solenoid Assembly (300 LPM/600 LPM Printers)	3.6.8
Paper Entrance Cover Assembly	3.6.9
Paper Feed Assembly	3.6.10
Paper Low Switch Continuity Test and Adjustment (300 LPM Printer)	3.6.11
Paper Feed Motor Timing Belt Tension	3.6.12
Paper Feed Motor Pulley	3.6.13
Paper Skew Adjustment	3.6.14

TABLE 3-9. ADJUSTMENT PROCEDURES (Cont'd)

Assembly	Paragraphs
Platens	3.6.15
Ribbon Pivot Arm Roller	3.6.16
Transducer Gap	3.6.17
Transducer Phasing	3.6.18

3.6.1 Band Cover Assembly Adjustment (Figure 3-32)

- a. Set the power switch to OFF.
- b. Unplug the AC power plug from the power source.
- c. Raise the printer cover door.
- d. Remove the ribbon cartridge as directed in the Operator's Guide.
- e. Open the character band cover.

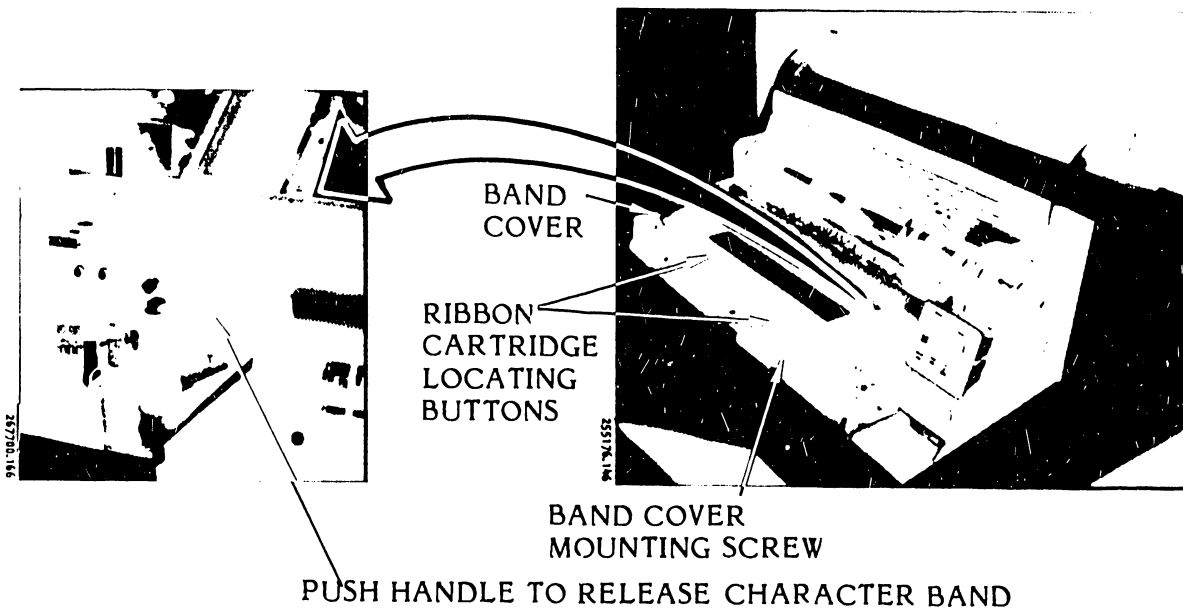


Figure 3-32. Band Cover Adjustment

MAINTENANCE

- f. Push the character band release handle forward to release the character band.
- g. Close the character band cover.
- h. Using a blade screwdriver and 7 mm nut driver loosen the ribbon cartridge locating buttons and character band cover mounting screw which secure the cover hinge bracket.
- i. Position the character band cover hinge bracket so that the cover rests on the character band release handle. The cover should not close.
- j. Make sure that the character band cover clears the left rear ribbon guide and the left pulley/driver assembly.

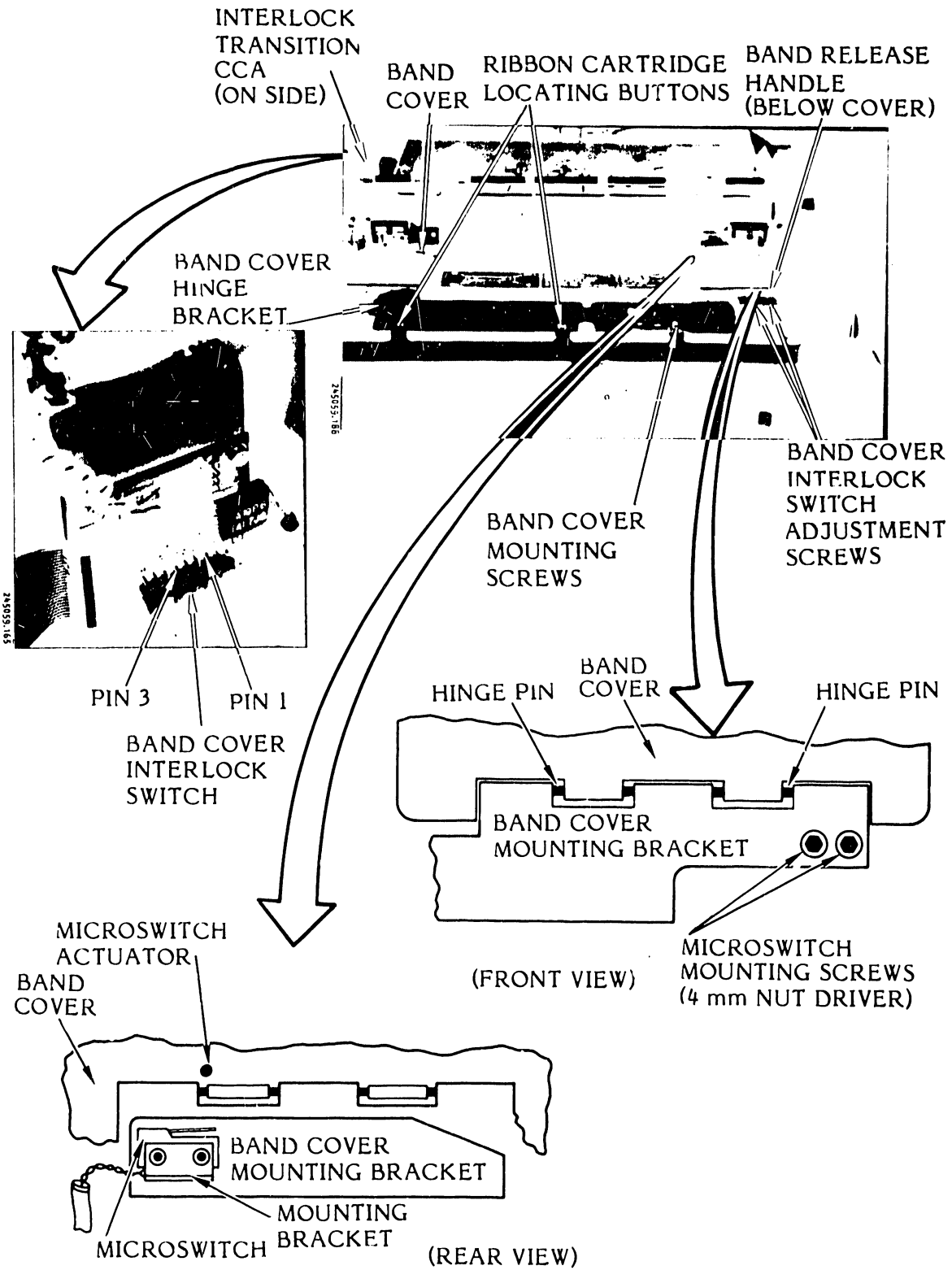
CAUTION

Do not overtighten the locating buttons and band cover mounting screws.

- k. Using a torque screwdriver, tighten the two ribbon cartridge locating buttons and the band cover mounting screw to 12 inch-ounces.
- l. Open the character band cover and then pull the band release handle to engage the character band.
- m. Rotate the band pulley by hand to make sure the band is seated on the edge guide bearing.
- n. Close the character band cover. Make sure that the cover does not catch on top of the character band or touch the pulley/driver assembling. Readjust the band cover, beginning with step h, if necessary.
- o. Install the ribbon cartridge as directed in the Operator's Guide.
- p. Close the printer cover door.
- q. Plug the AC power cord into the power source.

3.6.2 Band Cover Interlock Switch Adjustment (Figure 3-33)

- a. Set the power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Remove the ribbon cartridge as directed in the Operator's Guide.



3

Figure 3-33. Band Cover Interlock Switch Adjustment

- e. Using a 4 mm nut driver, slightly loosen the two screws that secure the band cover interlock switch to the band cover assembly.
- f. Connect an ohmmeter across pins 2 and 3 of Connector J4 located on the Interlock Transition CCA (see figure 3-33A).
- g. Make sure the band cover is closed.
- h. Reach under the interlock switch bracket with your index finger (see figure 3-33C) and push the bracket and switch upward until you hear the switch click and see a short circuit indication (zero ohms on Rx1 scale) on the ohmmeter.
- i. Hold the switch in position and slide the band cover from side to side (see figure 3-33B). The ohmmeter should maintain its short indication. If the ohmmeter switches to an open circuit condition (opposite end of the scale) slide the band cover to each side and make sure the switch is closed (zero ohm on Rx1 scale) by pushing upward on the bracket.
- j. Hold the switch in position and, using the 4 mm nut driver, tighten the switch retaining screws.
- k. Remove your index finger from the switch bracket.
- l. Alternately open and close the band cover a few times to make sure the switch opens when the band cover is opened and closes when the band cover is closed.
- m. Remove the ohmmeter leads from the Interlock Transition CCA.
- n. Install the printer cover as directed in paragraph 3.3.
- o. Install the ribbon cartridge as described in the Operator's Guide.
- p. Plug the AC power cord into the power source.

3.6.3 Band Tracking Adjustment (Figures 3-34, 3-35 and 3-36)

This adjustment should be performed after replacement of the band motor assembly or band idler shaft assembly. Two alternate band drive/ribbon assemblies are currently used in the B-Series 300 LPM and 600 LPM printers. A different band tracking adjustment procedure must be used for each assembly as follows:

- a. Band Motor with Posidrive Belt and Roller Arm (Figure 3-34)
 1. Set the AC power switch to OFF.

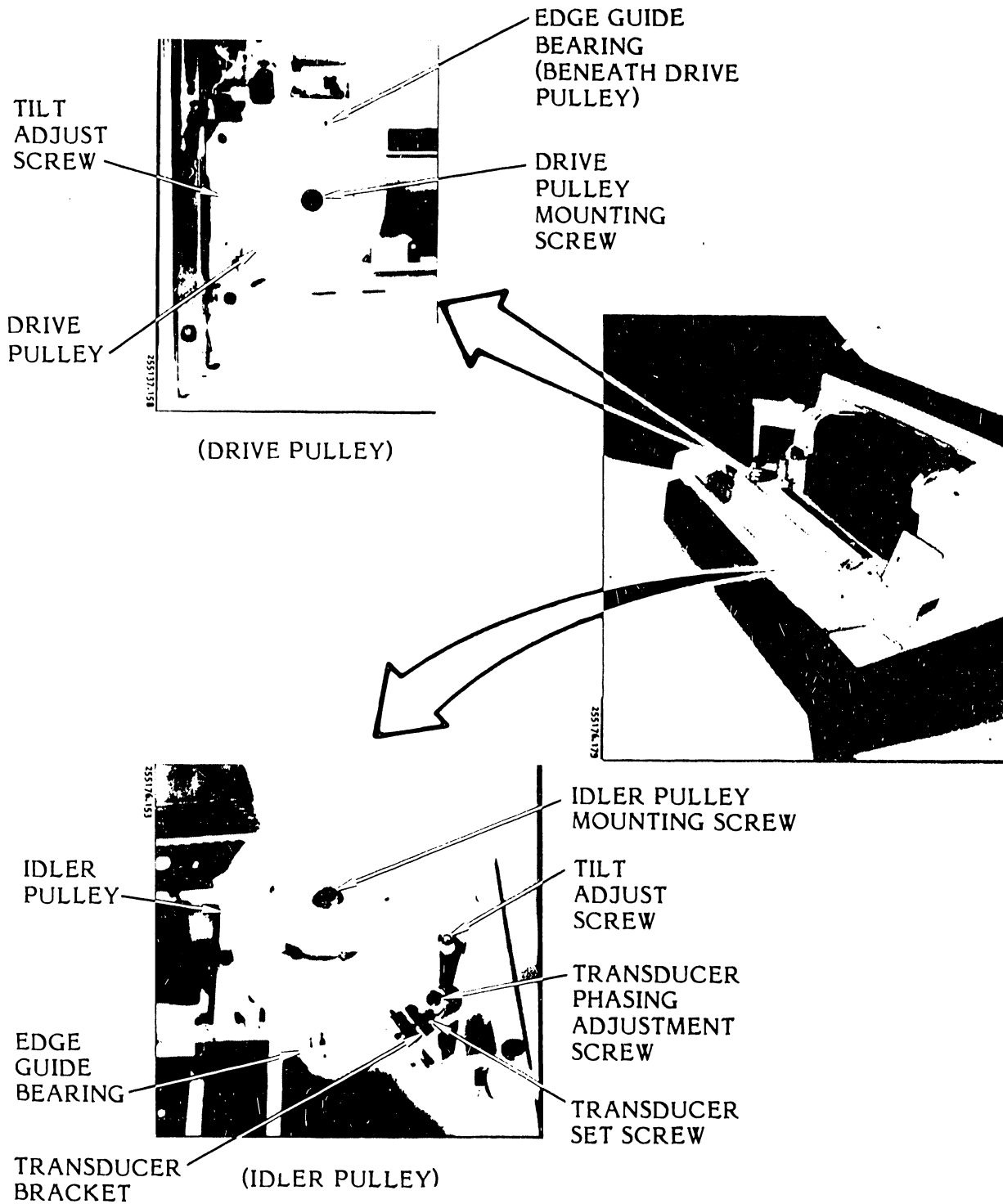


Figure 3-34. Posidrive Band Tracking Adjustment

2. Unplug the AC power cord from the power source.
3. Raise the printer cover door.
4. Open the hammer bank.
5. Remove the ribbon cartridge as directed in the Operator's Guide.
6. Open the band cover.
7. While turning the band pulleys by hand, adjust the drive pulley tilt adjust screw and the idler pulley tilt adjust screw alternately so that the band just barely touches each pulley's associated edge guide bearing, causing intermittent turning of the bearing. Perform the drive and idler adjustments until this condition is obtained. Turning the adjustment screw clockwise allows the character band to ride higher on the pulley; turning it counterclockwise allows the character band to ride lower on the pulley.

NOTE

Marking the edge guide bearings with a felt tip marker pen will make it easier to see movement in the bearings.

8. After the previous adjustment is completed, turn each tilt adjustment screw $1/4$ turn clockwise.
9. Close the band cover.
10. Install the ribbon cartridge as directed in the Operator's Guide.
11. Close the hammer bank assembly.
12. Close the operator door.
13. Plug the AC power cord into the power source.

b. Band Motor with O-Ring Belt and Without Roller Arm (Figure 3-35)

For this assembly, two procedures for the band idler adjustment may be used. The first method requires no special tools but will provide a satisfactory adjustment. The second method utilizes a force gauge (0 to 500 grams) and provides an absolute adjustment.

Method 1

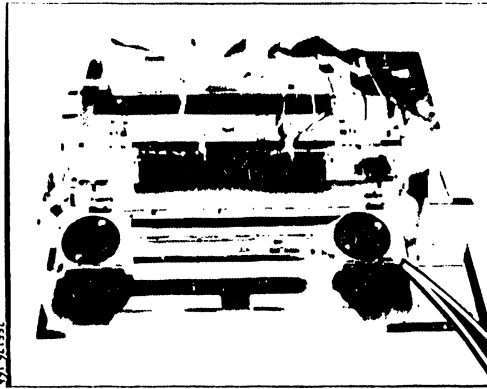
1. Set the AC power switch to OFF.
2. Unplug AC power cord from the power source.
3. Raise the printer cover door.
4. Remove the ribbon cartridge as instructed in the Operator's Guide.
5. Open the band cover.
6. With a washable felt tip pen, mark the forward facing surface of the right hand edge guide bearing.
7. Loosen the band alignment lever screw.
8. Set the band alignment lever to its forward position.

NOTE

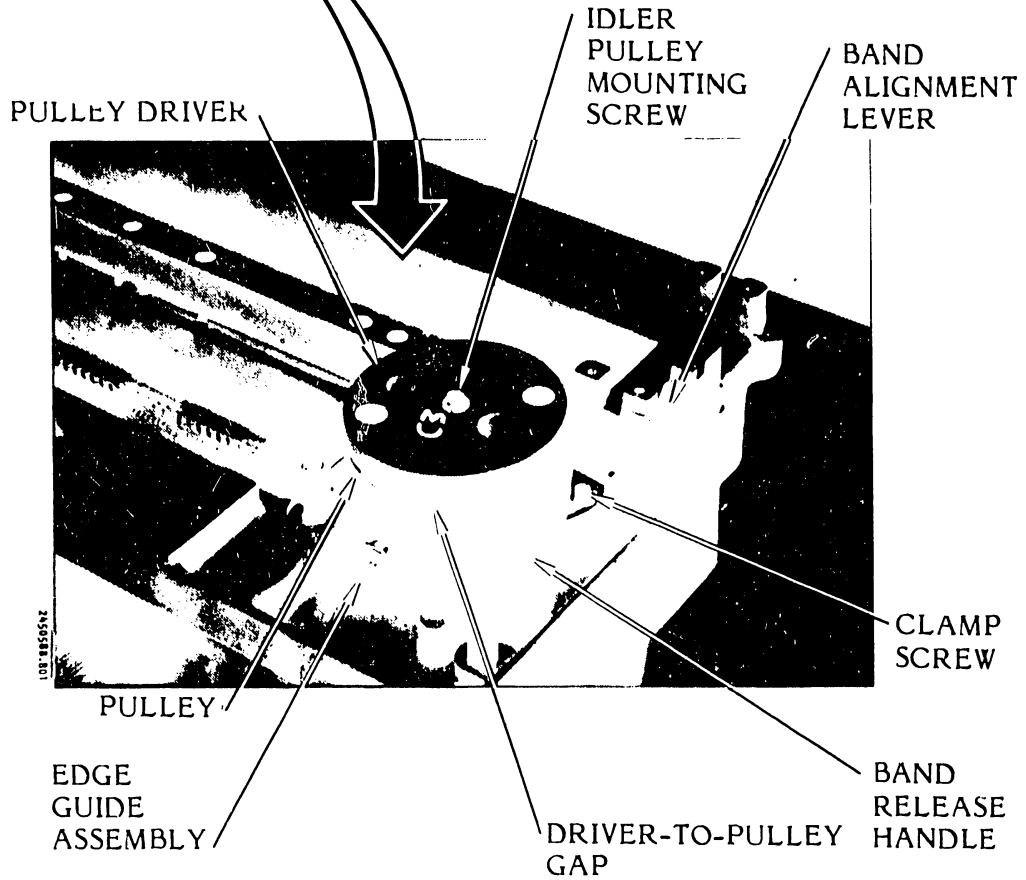
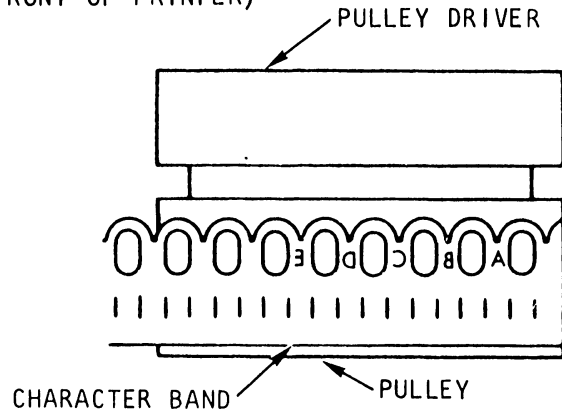
Band pressure is minimal at the most forward position of the band alignment lever.

9. Manually rotate the character band in a counter-clockwise direction.
10. Observe the movement of the mark placed on the right edge guide bearing.
11. If necessary, move the band adjustment lever backward the least distance needed for band contact to produce a smooth and consistent rotation in the edge guide bearing.
12. Tighten the band alignment lever screw loosened in step 7.
13. Close the band cover.
14. Replace the ribbon cartridge as directed in the Operator's Guide.

IDLER PULLEY DRIVER ASSEMBLY
(RIGHT PULLEY/DRIVER ASSEMBLY
AS SEEN FROM FRONT OF PRINTER)



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Figure 3-35. O-Ring System, Band Tracking Adjustment (Method 1)

15. Close the printer cover door.
16. Plug the AC power cord into the power source.

Method 2

1. Set the AC power switch to OFF.
2. Unplug the AC power cord from the power source.
3. Raise the printer cover door.
4. Remove the ribbon cartridge as instructed in the Operator's Guide.
5. Open the band cover.
6. Using a washable felt tip pen, mark the forward face of the right hand edge guide bearing.
7. Mark the left hand edge guide bearing in a similar manner.
8. Place the hook of a grams force gauge (0-500 grams) in the position illustrated in figure 3-36.
9. Apply a lifting force on the gauge while rotating the band manually.
10. Note the amount of force necessary to lift the band from the edge guide bearing.
12. Repeat steps 9 and 10.

NOTE

The force necessary to lift the band should be between 75 and 150 grams at both test points.

13. If the force gauge readings are not within the 75 to 150 grams required, reposition the band alignment lever.
-

NOTE

Moving the band alignment lever towards the back of the printer increases the downward force of the band and vice versa.

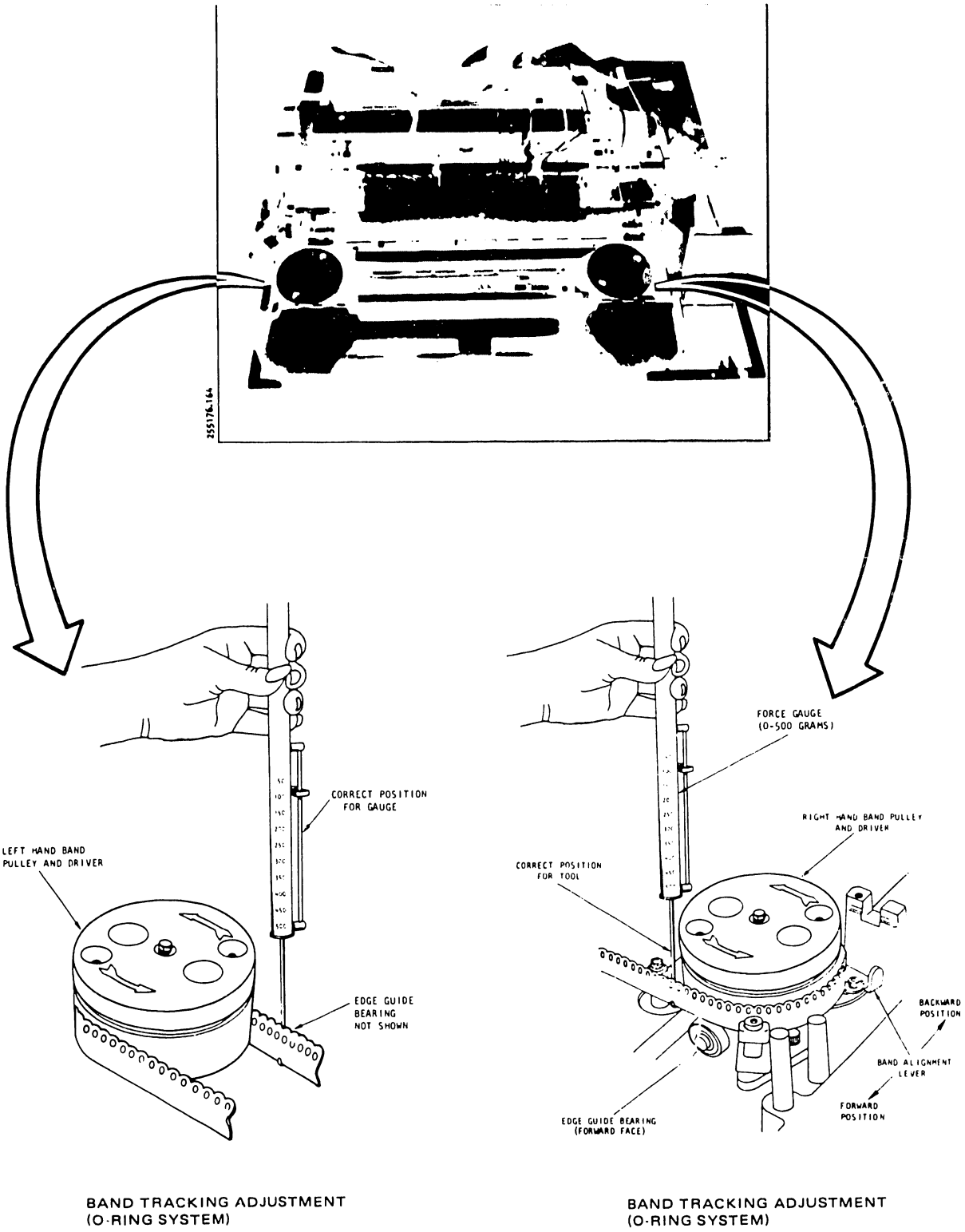


Figure 3-36. O-Ring System, Band Tracking Adjustment (Method 2)

14. Repeat steps 9 through 13 until the correct force gauge readings are achieved.
15. Close the band cover.
16. Install ribbon cartridge as directed in the Operator's Guide.
17. Close the printer cover door.
18. Plug the AC power cord into the power supply.

3.6.4 Hammer Bank Flight Time Adjustment (Figures 3-37, 3-38, 3-39, 3-40, 3-41)

- a. Remove the printer cover as described in paragraph 3.3.
- b. Loosen the card cage cover fasteners and remove the cover.
- c. Set up an oscilloscope as follows:
 1. VOLTS/DIV - 0.5V/DIV, DC Mode
 2. TIME/DIV - 0.2 msec/DIV
 3. TRIGGER MODE - Internal, Negative
- d. Set the power switch to ON.
- e. Load the printer with single part paper as directed in the Operator's Guide.
- f. Set the control panel PHASE, COPIES, TEST controls as follows:
 1. PHASE - Mid Range
 2. COPIES - Full CCW
 3. TEST - Sliding Patten
- g. Connect an X10 oscilloscope probe to J1-1 of the Hammer Driver CCA (reference designation A6 for the 300 LPM printer and A23 for the 600 LPM printer) and the oscilloscope ground lead to TP-A of the Mother Board CCA (see figure 3-38).
- h. Press and release the ON/OFF LINE switch to initialize the printer.
- i. Observe the oscilloscope trace and adjust for a stable waveform.

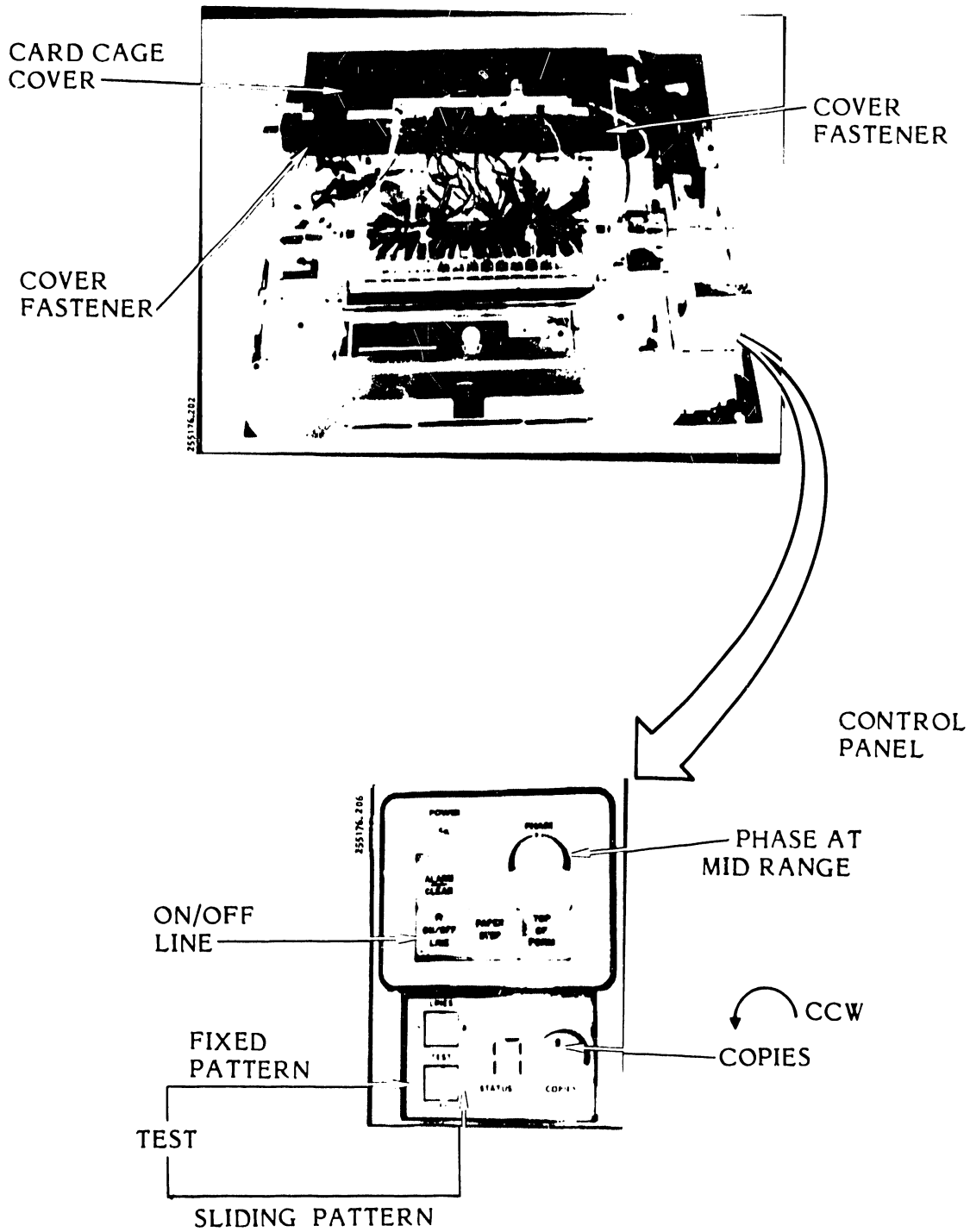
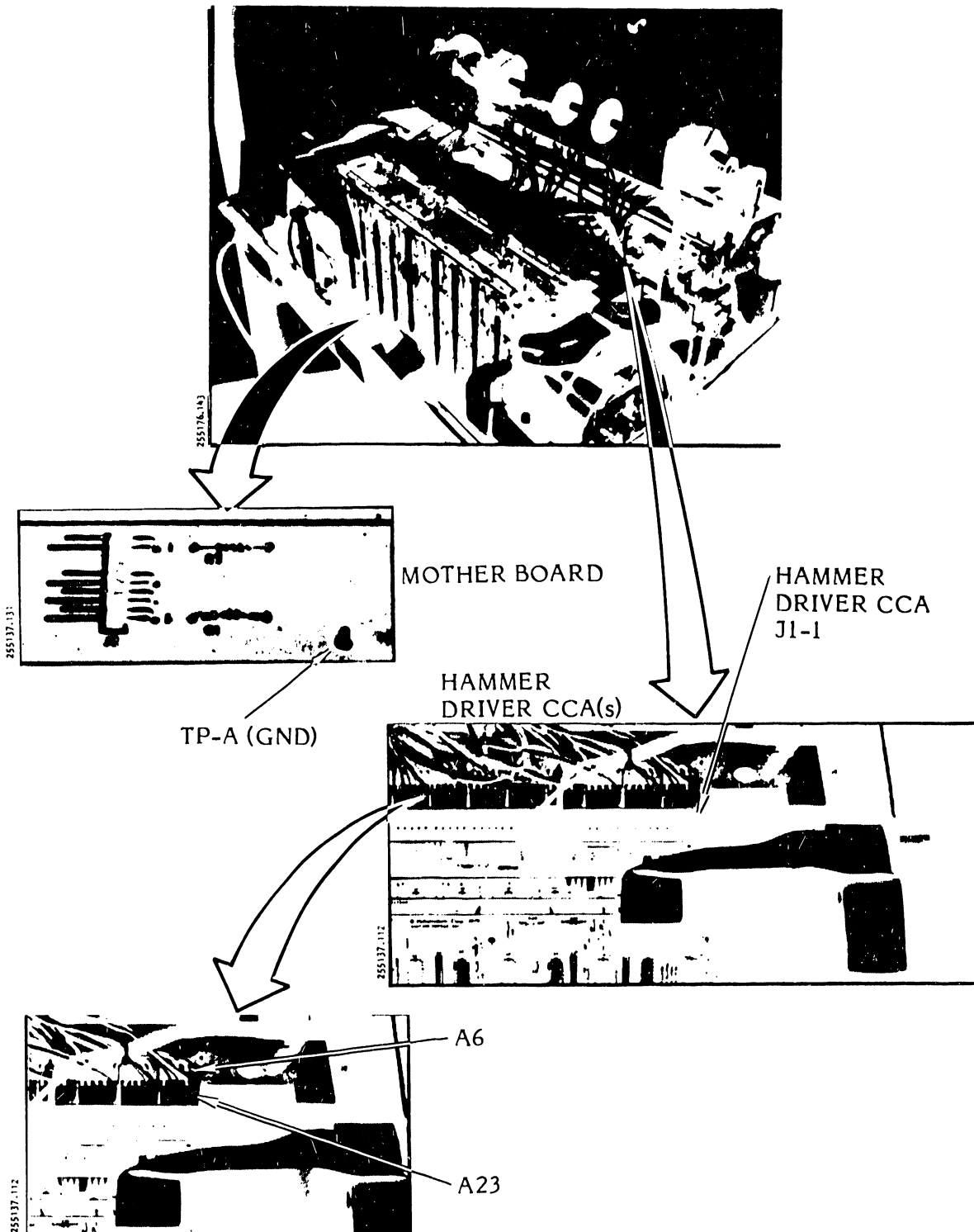


Figure 3-37. Hammer Flight Time Adjustment, Controls Location

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Figure 3-38. Hammer Flight Time Adjustment, Oscilloscope Probe Locations

- j. Turn the backstop screw for hammer number one to obtain a 2.00 mS pulse for the 300 LPM printer and a 1.80 ms pulse for the 600 LPM printer. See figure 3-39 for the backstop screw locations. Note that the 600 LPM printer has a lower and an upper row of backstop screws.

NOTE

A clockwise turn will shorten the flight time, and a counterclockwise turn will lengthen the flight time.

- k. Set the oscilloscope vertical centering so the top part of the curve touches the center line. Then set the oscilloscope X10 magnifier to on and move the horizontal centering until the flight lead point reaches the center of the screen (see figure 3-40).

CAUTION

Do not alter the oscilloscope settings obtained above for the remainder of this procedure. If you change the setting you will have to start over beginning with step i.

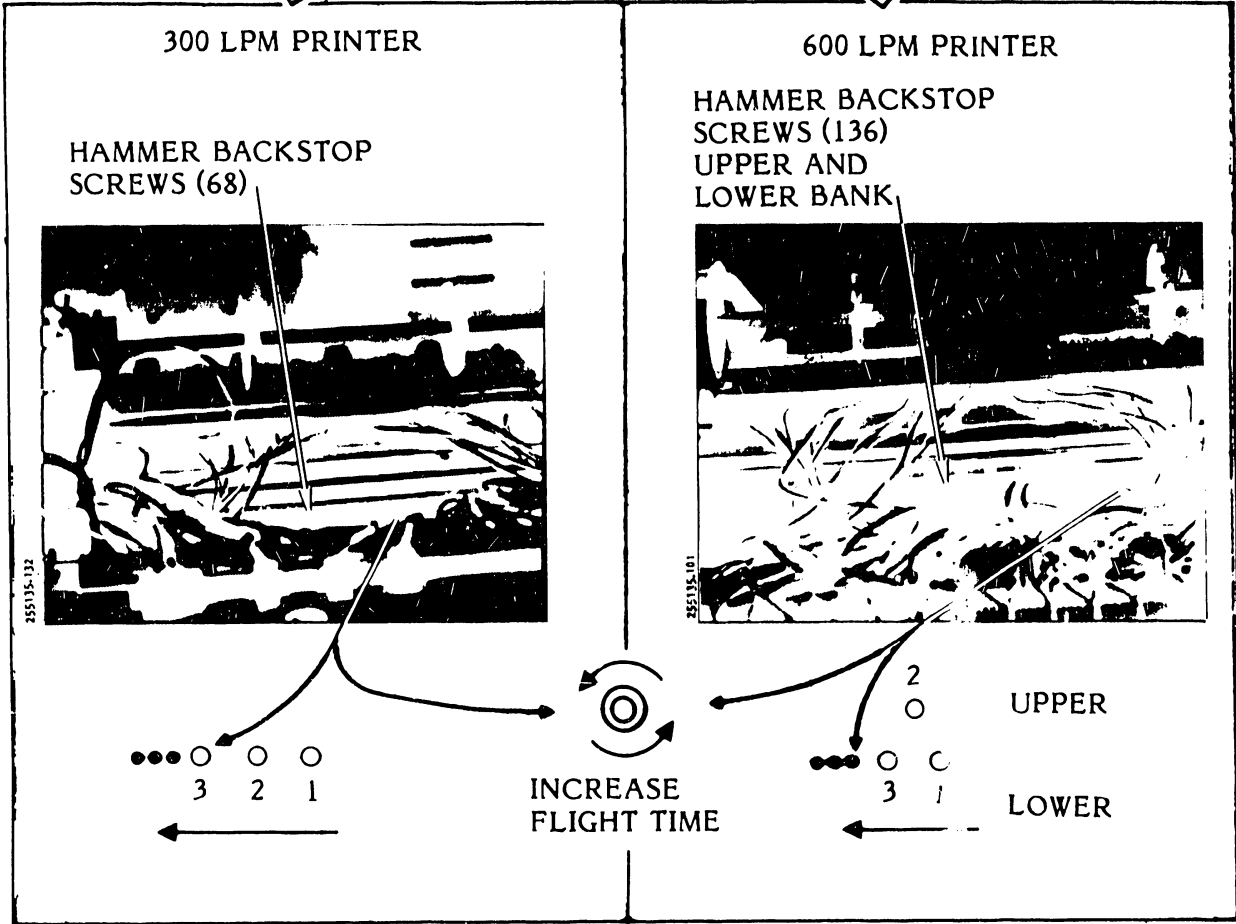
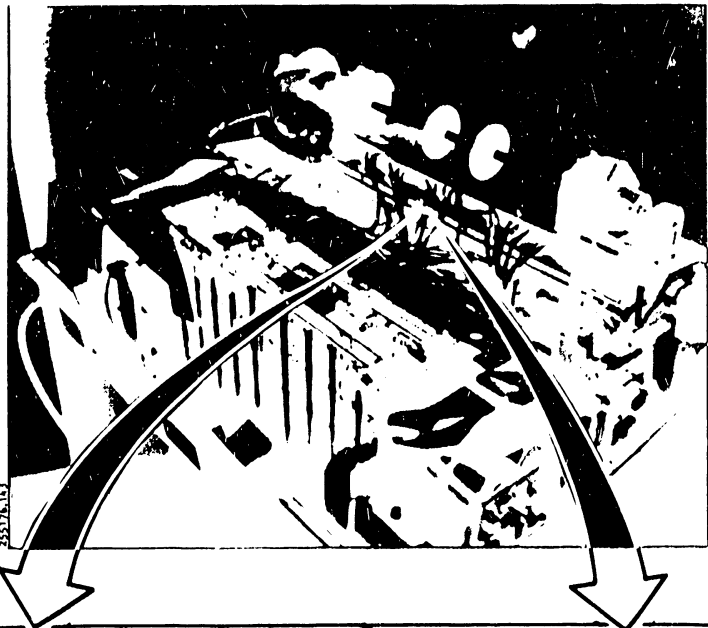
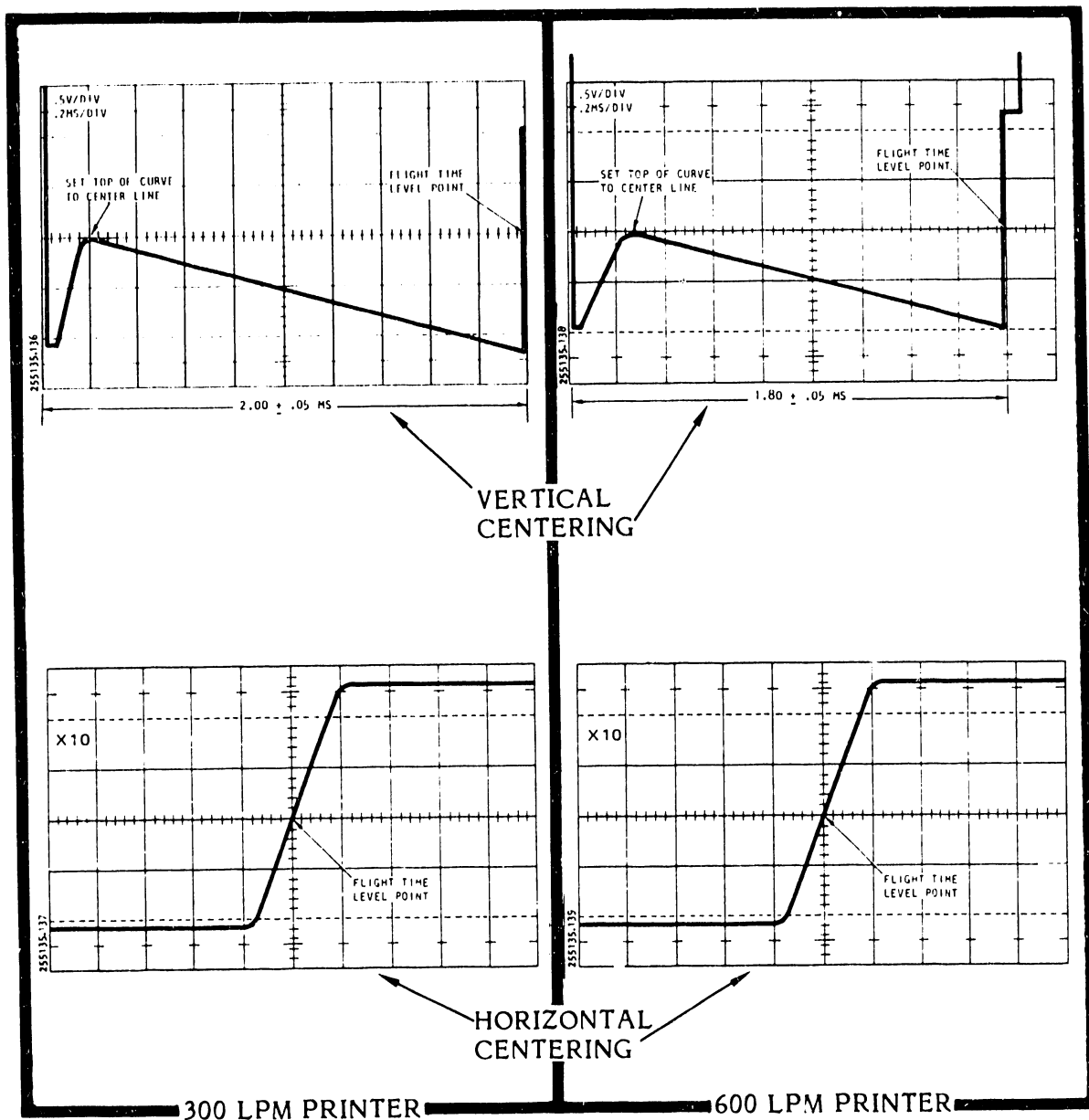


Figure 3-39. Hammer Flight Time Adjustment, Back Stop Screw Locations



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300 LPM PRINTER

600 LPM PRINTER

Figure 3-40. Hammer Flight Time Adjustment, Waveforms

1. Move the oscilloscope probe in sequence from J1-2 through J17-4 and adjust the corresponding backstop screw until the flight time signal is identical to that set on hammer number one (see figure 3-41). This procedure will adjust all the hammers of the 300 LPM printer and all odd hammers of the 600 LPM printer.

NOTE

Pin 5 of J1 through J17 does not correspond to any of the hammers. It is the voltage source HD38V.

- m. For the 600 LPM printer, move the oscilloscope probe in sequence from J1-1 through J17-4 on the second Hammer Drive CCA (A6) and adjust the corresponding upper row backstop screw until the flight time signal is identical to that set on hammer number one (see figure 3-41). This procedure will adjust all **even** hammers of the 600 LPM printer.

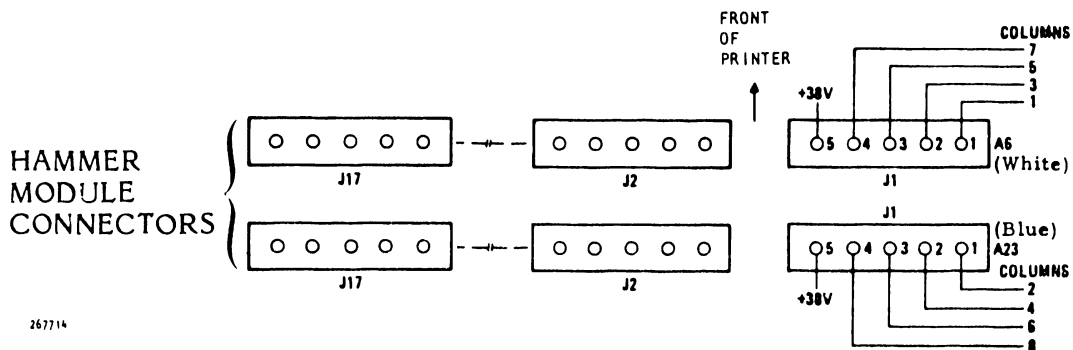
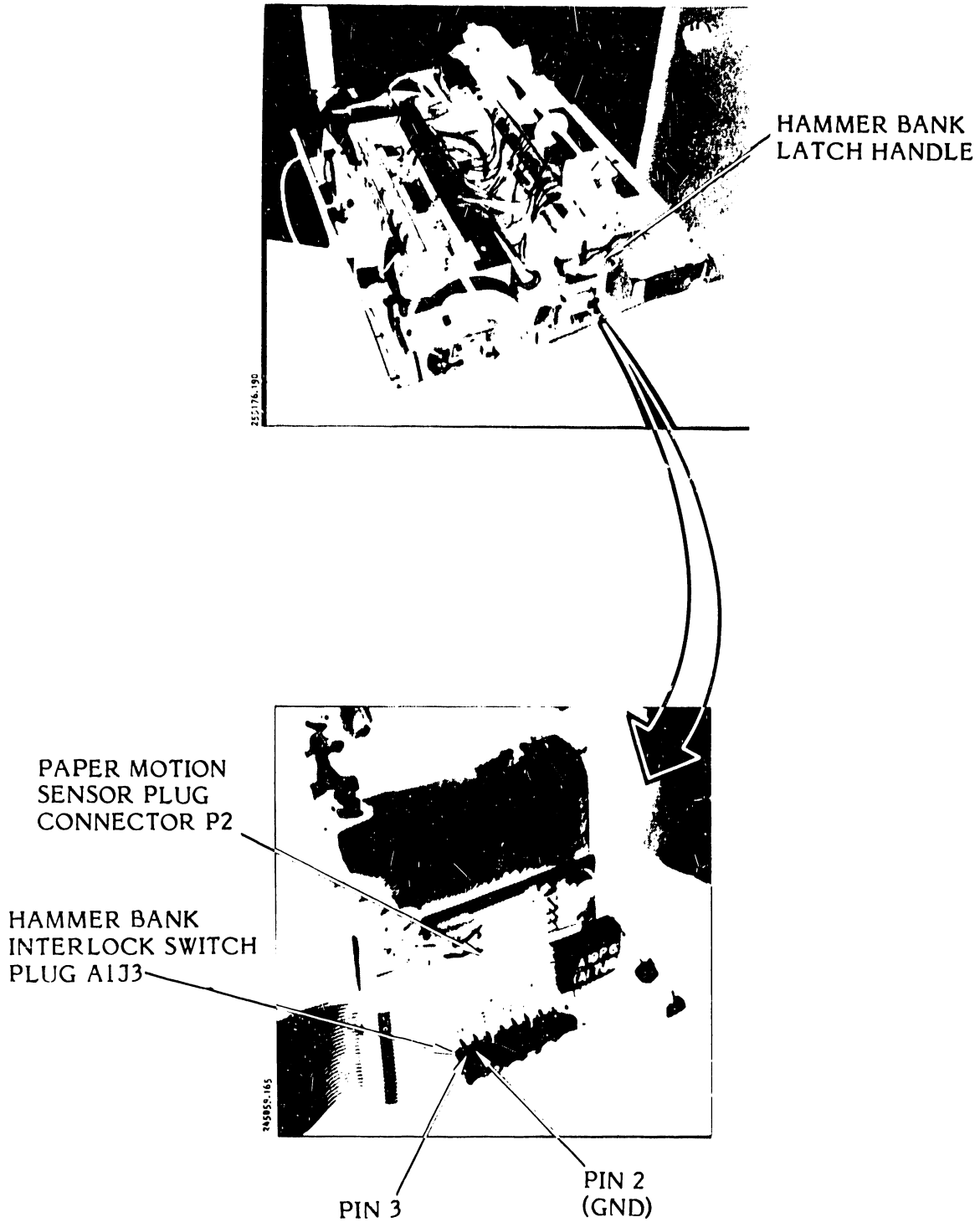


Figure 3-41. Hammer Flight Time Adjustment, Probe Sequence

- n. Set the TEST switch to the fixed character pattern (see figure 3-37).
- o. Check the print quality for even column spacing.
- p. Adjust the hammer bank backstop screws as necessary to minimize uneven column spacing.
- q. Remove the oscilloscope probe and ground connector.
- r. Perform the transducer phasing adjustment procedure (see table 3-9).
- s. Set the TEST switch to OFF.
- t. Set the AC power switch to OFF.
- u. Replace the printer cover as described in paragraph 3.3.

3.6.5 Hammer Bank Interlock Switch Continuity Test and Adjustment (Figures 3-42, 3-43)

- a. Set the AC power switch to OFF.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Connect an ohmmeter (VOM or DVM) across pins 2 and 3 of the Interlock Transistor CCA connector A19J3.
- d. Open and close the hammer bank a few times. The ohmmeter should alternately indicate continuity and an open condition. If the ohmmeter fails to change its reading, continue to step e. If the ohmmeter does not fail to change reading, proceed to step m.
- e. Using an 8 mm hex driver, remove the hammer bank mask mounting screws and the hammer bank mask (see figure 3-43).
- f. Using a 4 mm nut driver, loosen the two screws which secure the switch to the mounting plate.
- g. Close the hammer bank.
- h. Using your index finger, push the switch fully downward (see figure 3-43). Then push the switch upward until you hear the switch click.
- i. Keep the switch in position and, using the 4 mm nut driver, tighten the mounting screws.



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Figure 3-42. Hammer Bank Interlock Switch Continuity Test

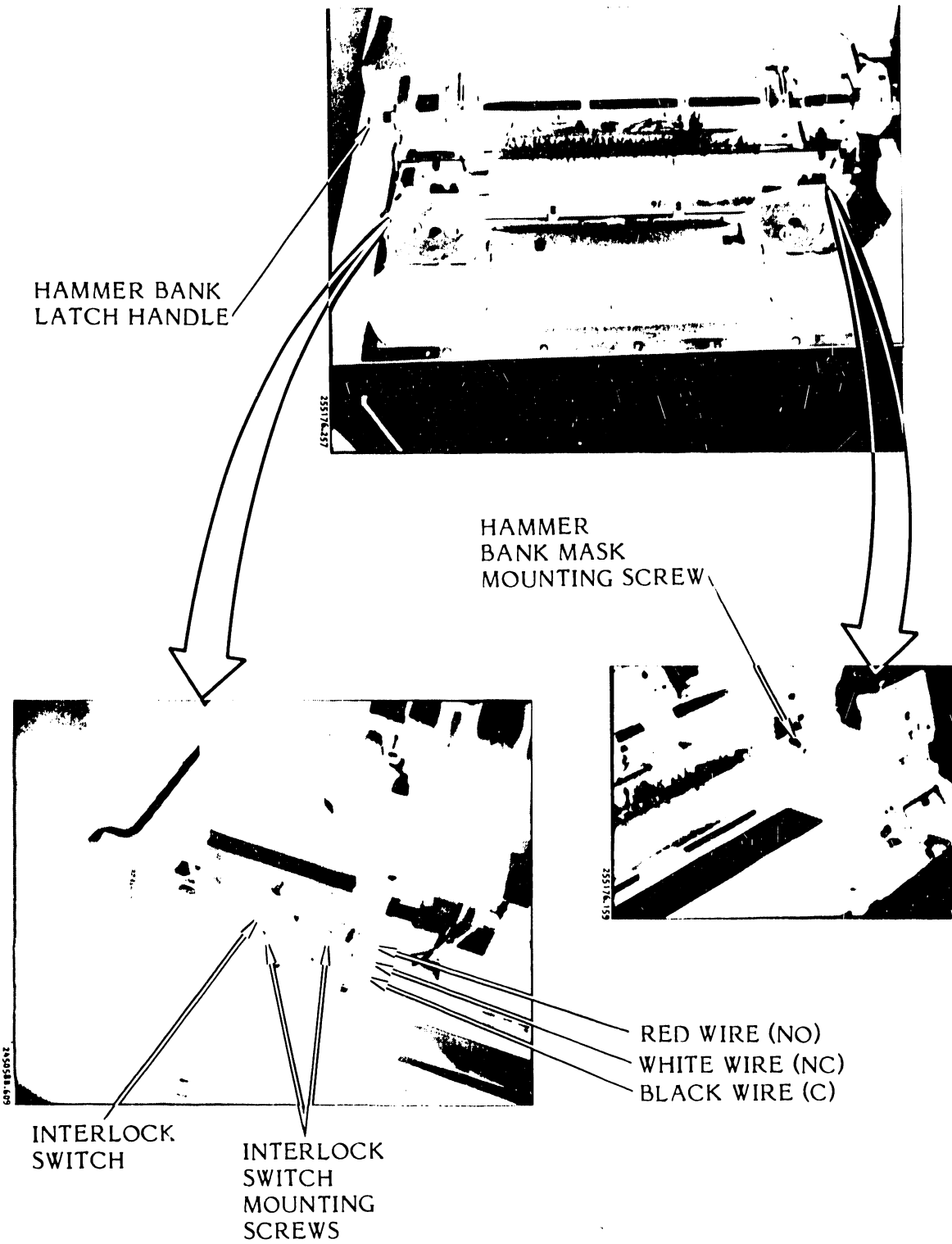
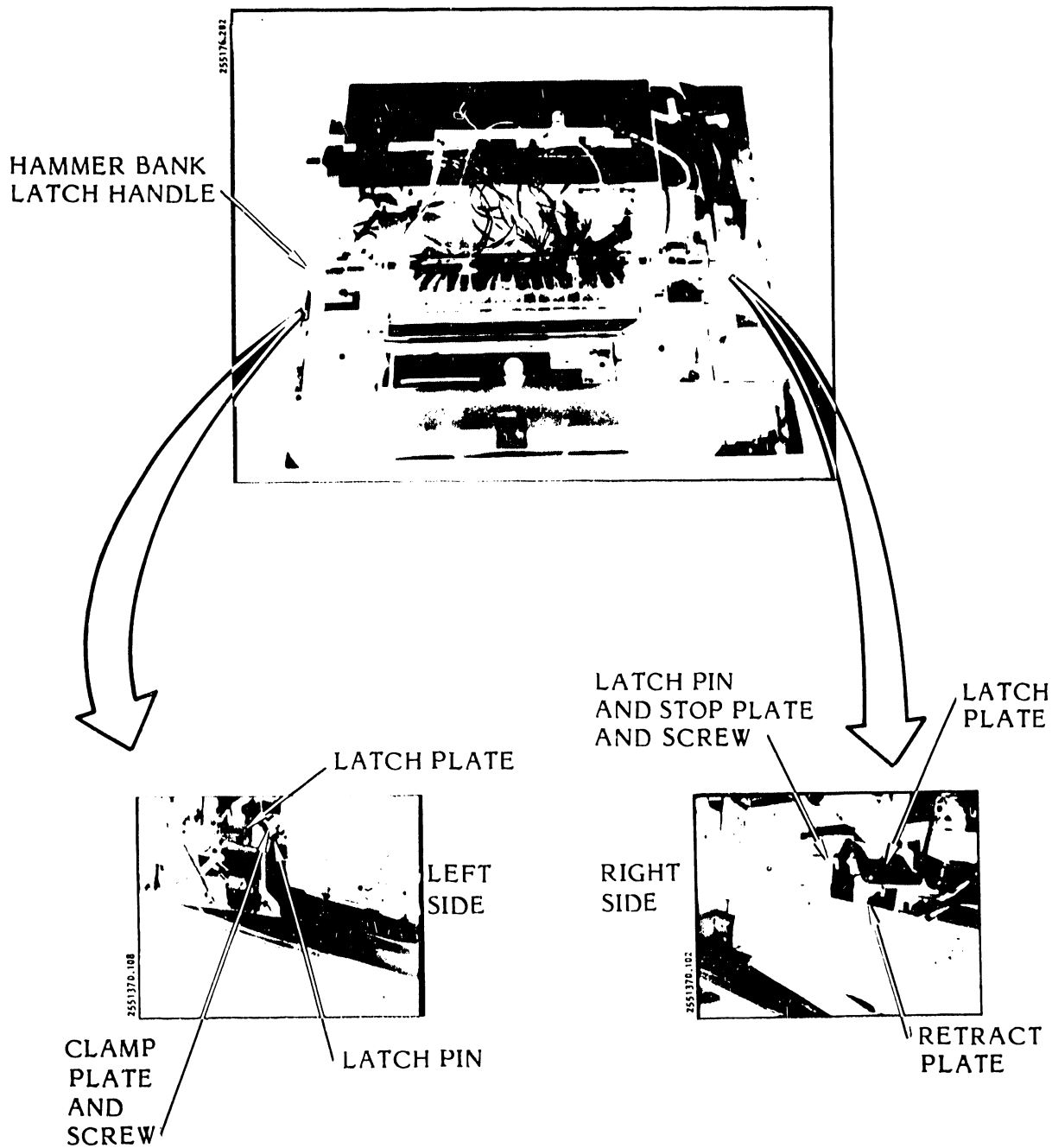


Figure 3-43. Hammer Bank Interlock Switch Adjustment

- j. Open and close the hammer bank a few times. The ohmmeter should alternately indicate an open (needle to full scale) and a short (needle at zero) condition.
- k. If the ohmmeter fails to indicate the required readings, replace the hammer bank interlock switch as directed in the Removal/Installation part of this section (see table 3-10); otherwise go to the next step.
- l. Reinstall the hammer bank mask (see figure 3-43).
- m. Install the printer cover as described in paragraph 3.3.
- n. Plug the AC power cord into the power source.

3.6.6 Hammer Bank Pin and Latch Assembly Adjustment (Figures 3-44, 3-45, 3-46).

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Use the hammer bank latch handle to open the hammer bank.
- e. Refer to figures 3-44 and 3-45 and loosen the screws which secure the right and left latch pin clamp plates of the 300 LPM printer or the hammer bank stop plates of the 600 LPM printer.



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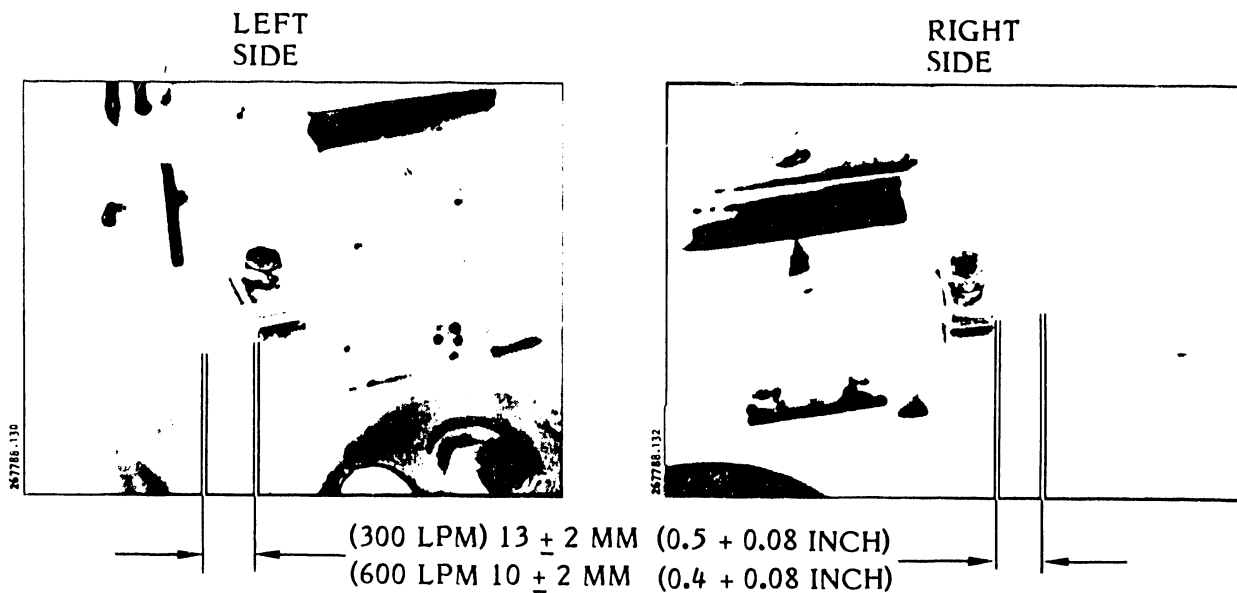
Figure 3-44. Hammer Bank Latch and Pin Assembly Adjustment

- f. Adjust the latch pins to protrude 13 ± 2 mm (0.5 ± 0.08 inch) from the side of the casting for the 300 LPM printer, or 10 ± 2 mm (0.4 ± 0.08 inch) from the side of the 600 LPM printer casting.
- g. Tighten the two screws loosened in step e.

NOTE

Ensure that the 600 LPM printer stop plates are tightened completely in place.

- h. Using the latch handle, close the hammer bank so that the latch plates are engaged over the latch pins.
- i. Loosen the two screws securing the right side retract plate (see figure 3-44 and figure 3-45).



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Figure 3-45. Latch Pin Protrusion, Typical

- j. Adjust the hammer bank latch mechanism so that an equal gap is maintained between the top and bottom of the upper latch handle roller and the hammer bank latch (see Dimension A on figure 3-46).
- k. Holding the latch handle in position, slide the right retract plate until it is touching the lower roller.
- l. Tighten the two screws loosened in step i.
- m. Recheck to ensure that Dimension A illustrated in figure 3-46 is to specifications.
- n. Readjust as needed.
- o. Replace the printer cover as described in paragraph 3.3.
- p. Plug the AC power cord into the power source.

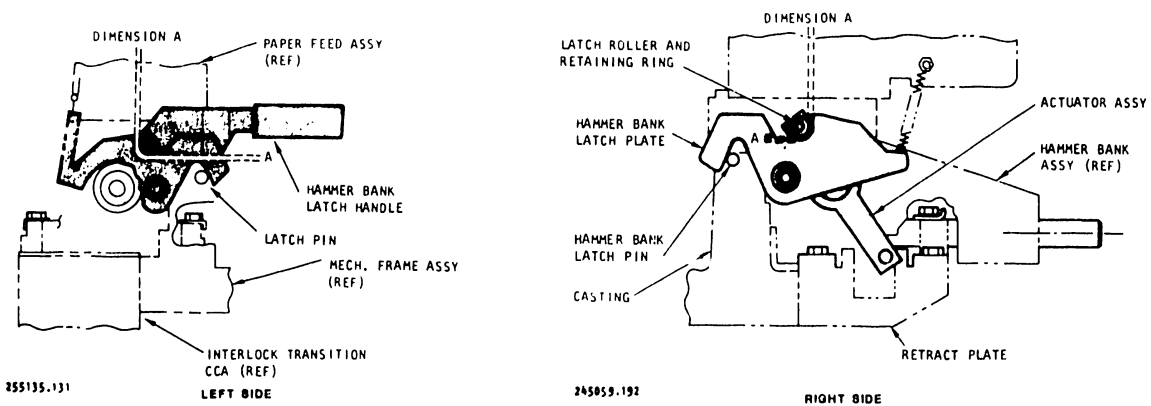


Figure 3-46. Hammer Bank Latch and Pin Assembly Adjustment

3.6.7 Paper Clamp Armature Assembly Adjustment (Figures 3-47, 3-48, 3-49)

NOTE

Once the paper clamp armature assembly has been set, under normal circumstances, it should not require readjustment.

- a. Set the power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Open the printer cover door.
- d. Open the hammer bank.
- e. Remove the ribbon cartridge, and character band as directed in the Operator's Guide.
- f. Observe the platen. It will be one of three configurations:
 1. A thick platen with an attached character alignment decal over the platen mounting and the armature access holes.
 2. A thin platen with a press fit character alignment decal assembly.
 3. A thin platen with a screw-mounted ribbon guide assembly.
- g. Find access to the armature mounting screws (see figure 3-47) as follows:
 1. Thick platen - pierce the decal at column locations 5, 42, 80 and 115.
 2. Thin platen with the press fit alignment scale assembly - use moderate force and lift the scale free of the platen.
 3. Thin platen with screw mounted ribbon guide - pierce the decal at column locations 30 and 92. Use a 5 mm Allen wrench to remove the mounting screws, and then remove the mounting screws, and then remove the ribbon guide assembly.
- h. Using a 3 mm hex driver, loosen the four screws which mount the paper clamp armature assembly to the printer frame (see figures 3-47 and 3-48).

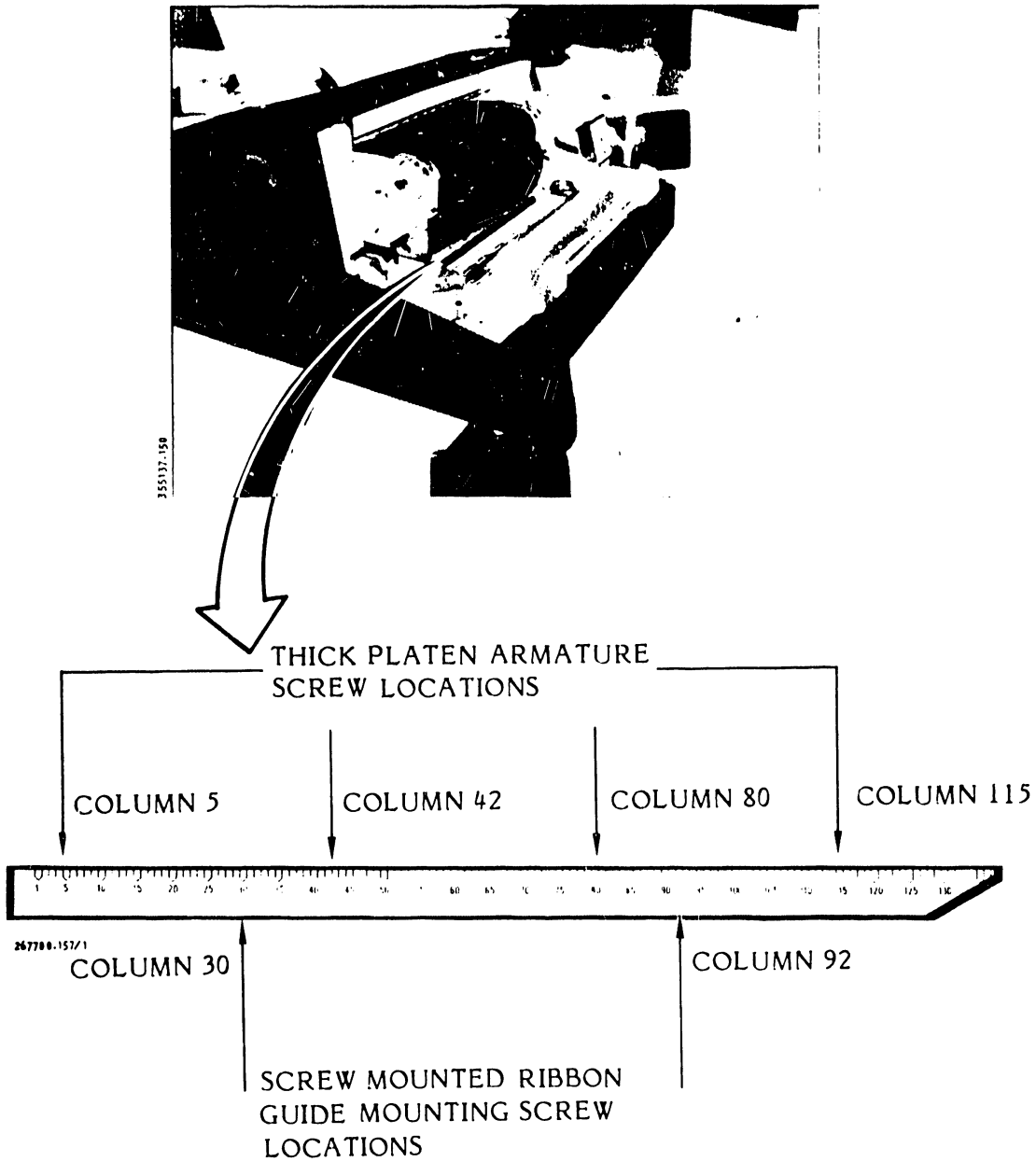


Figure 3-47. Armature and Ribbon Guide Mounting Screw Locations

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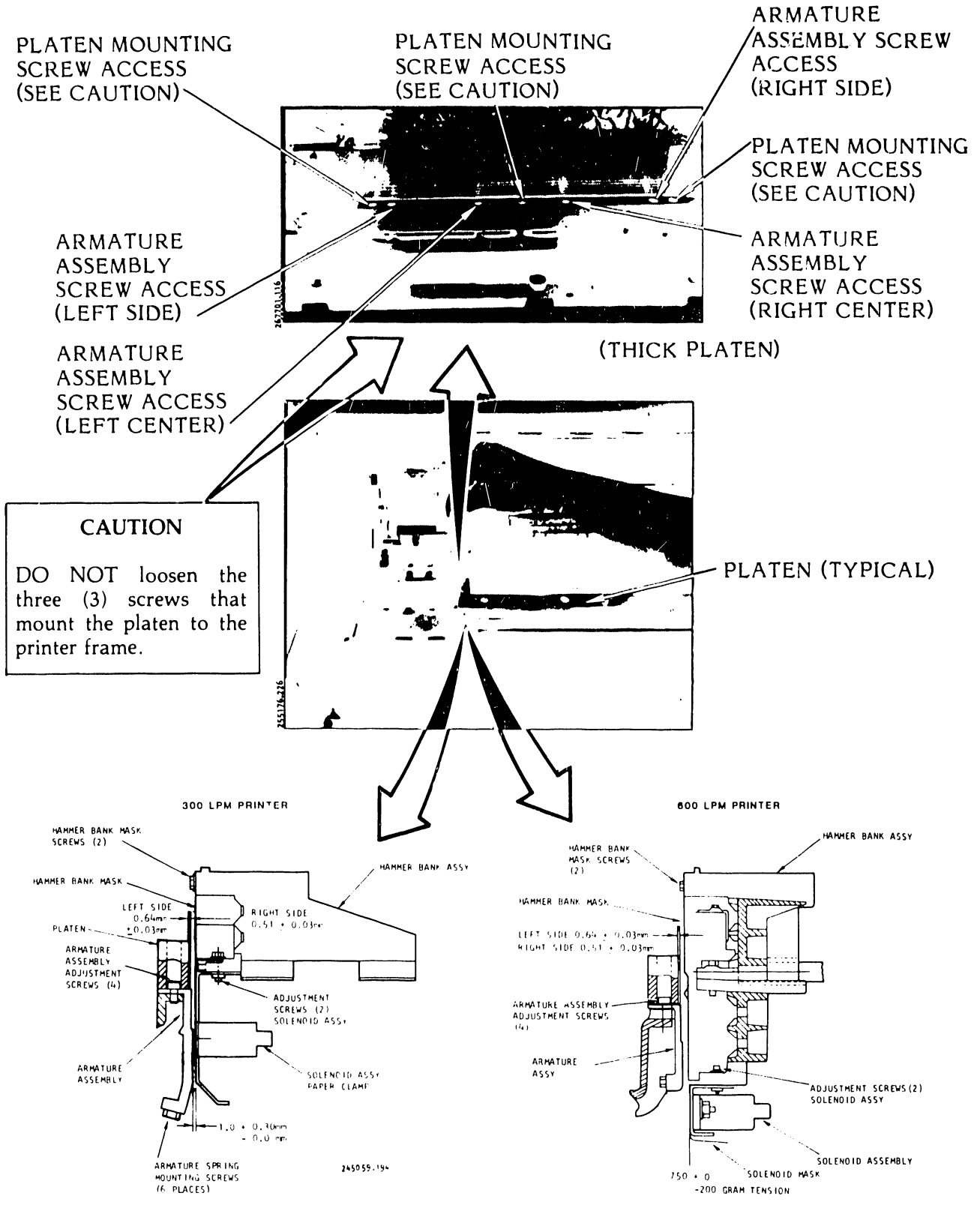


Figure 3-48. Paper Clamp Armature Assembly Adjustment, Thick Platen

- i. See figure 3-48 for the thick platen/armature plate configuration of your printer. If your printer contains the thin platen proceed to step j, otherwise, adjust the thick platen and armature plate ridge dimensions as follows:
- j. Use the appropriate feeler gauge on the left end of the platen and adjust the armature plate to protrude 0.64 ± 0.03 mm (0.025 ± 0.001 inch) from the lower edge of the platen.

NOTE

Ensure that the feeler gauge is positioned between the ribbon mark and the platen.

- k. Use the appropriate feeler gauge on the right end of the plate and adjust the armature plate to protrude 0.51 ± 0.03 mm (0.020 ± 0.001 inch) from the lower edge of the platen.
- l. Using a 3 mm hex key and a torque wrench, tighten the four paper clamp armature assembly mounting screws to a torque of 1.8 nm.
- m. Check the settings again using the appropriate feeler gauges. Readjust the armature plate again if necessary beginning with step h.
- n. See figure 3-49 for the thin platen/armature plate configuration. Adjust for the thin platen and armature plate offset dimensions as follows:
 1. Use the appropriate feeler gauge on the left end of the platen and adjust the armature plate to protrude 0.64 ± 0.03 mm (0.025 ± 0.001 inch) from the edge of the platen.

NOTE

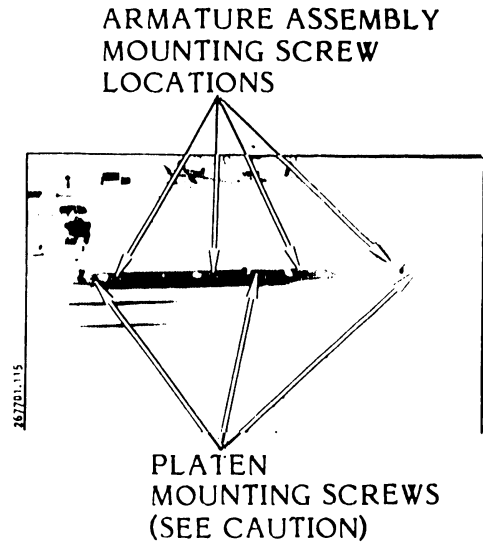
Ensure that the feeler gauge is positioned between the ribbon mask and the platen.

2. Use the appropriate feeler gauge on the right end of the platen and adjust the armature plate to protrude 0.64 ± 0.03 mm (0.025 ± 0.001 inch) from the edge of the platen.
3. Using a 3 mm hex key and a torque wrench, tighten the four paper clamp armature assembly mounting screws to a torque of 1.8 nm.



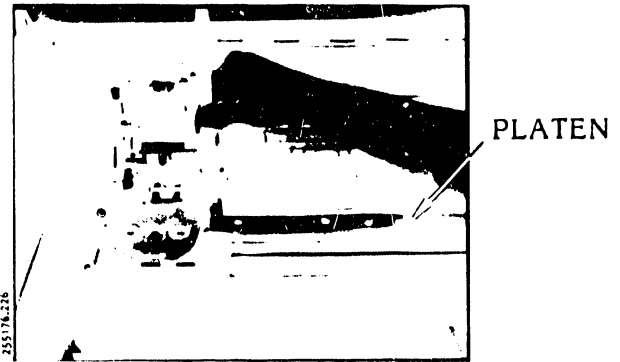
247788-129

RIBBON GUIDE MOUNTING SCREWS



247701-115

CAUTION
DO NOT loosen the three screws that mount the platen to the printer frame.



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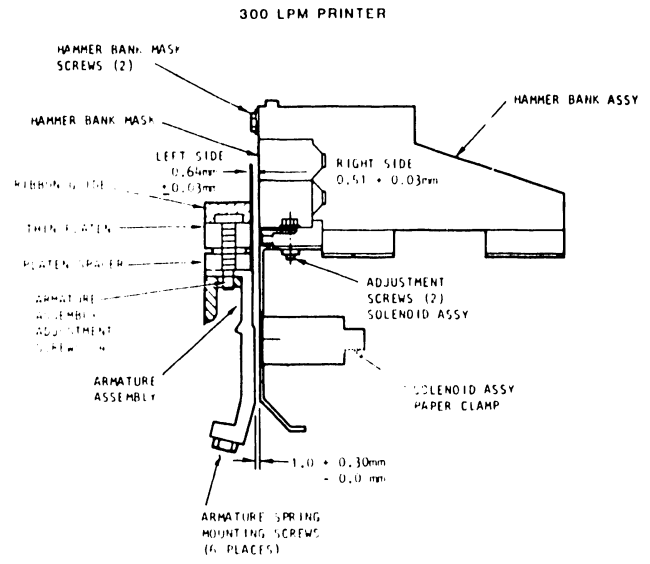
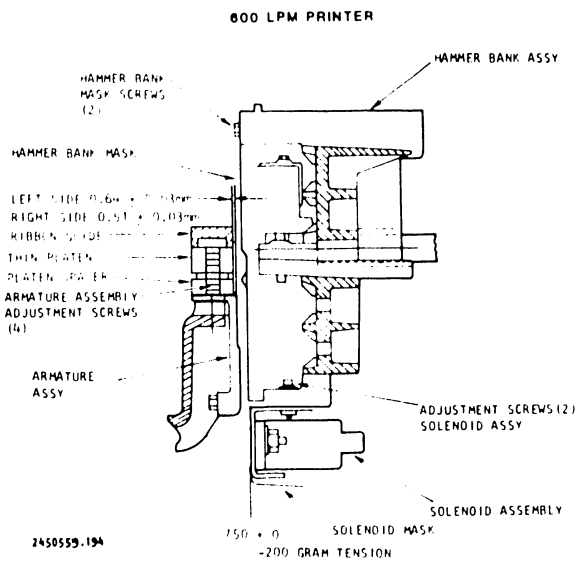


Figure 3-49. Paper Clamp Armature Assembly Adjustment, Thin Platen

4. Check the settings again, using the appropriate feeler gauges. Readjust the armature plate again if necessary beginning with step h.
- o. Install the Ribbon Guide Assembly and Character Alignment Scale Decal as directed in the Removal/Installation part of this section (see table 3-10).

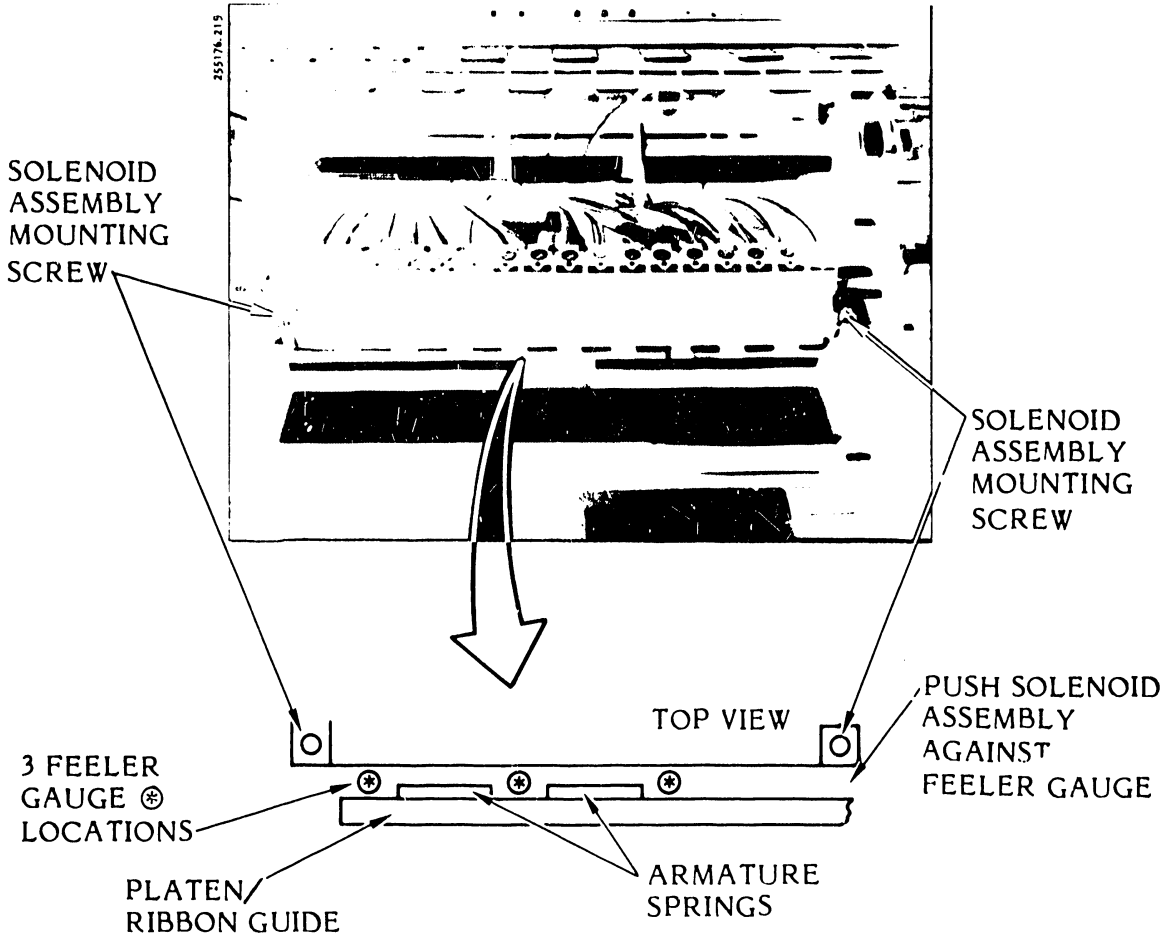
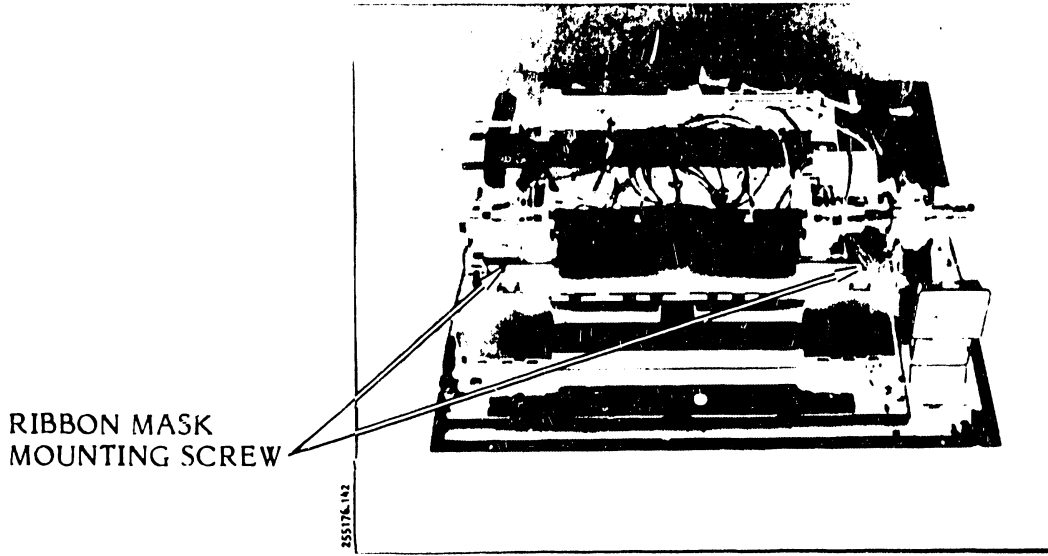
NOTE

For printers with thick platens, character alignment decal replacement is only required.

- p. Install the character band and ribbon cartridge as directed in the Operator's Guide.
- q. Close the hammer bank and character band cover.
- r. Close the printer cover door.
- s. Plug the AC power cord into the power source.

3.6.8 Paper Clamp Solenoid Assembly Adjustment (300 LPM/600 LPM Printer) (Figures 3-50, 3-51, 3-52)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Using an 8 mm nut driver, remove the hammer bank mask mounting screws and then the hammer bank mask (see figure 3-50).
- e. Remove the ribbon cartridge and the character band as directed in the Operator's Guide.
- f. To adjust the 300 LPM printer solenoid assembly proceed with step g. To adjust the 600 LPM printer solenoid assembly go to step h.
- g. Adjust the 300 LPM printer solenoid as follows:
 1. Using a 4 mm allen wrench, loosen the two solenoid assembly adjustment mounting screws.

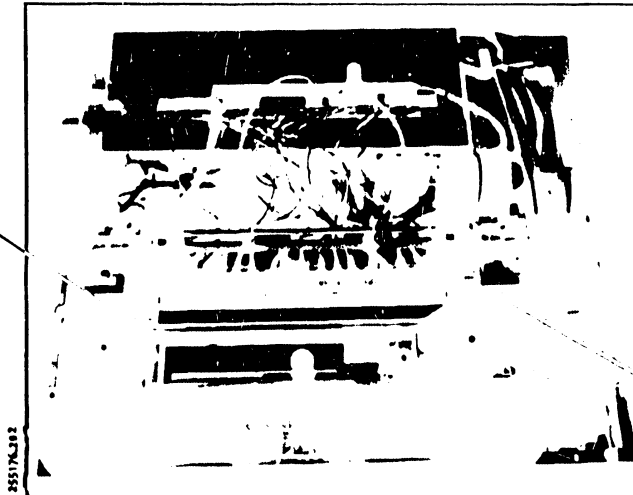


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Figure 3-50. Paper Clamp Solenoid (300 LPM Printer) Assembly Adjustment

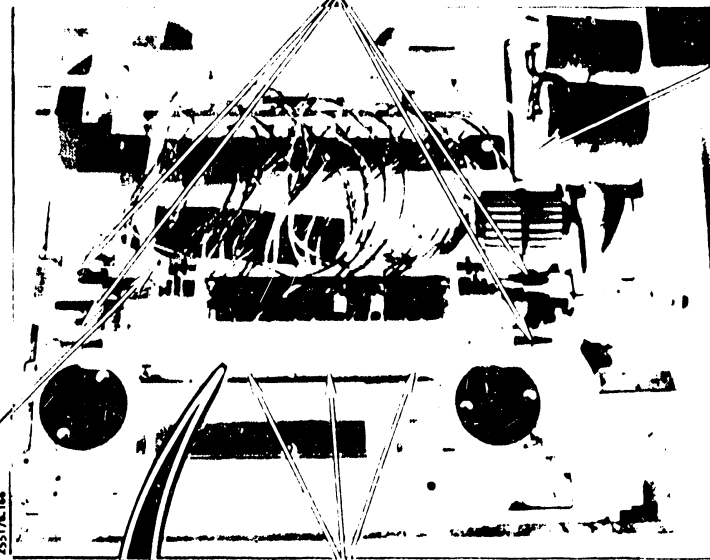
2. Close the hammer bank and insert a 1.0 to 1.3 mm feeler gauge between the armature assembly plate and the solenoid assembly plate at the left end of the assemblies (see figure 3-50).
 3. Move the solenoid assembly plate against the feeler gauge. Then sequentially locate the feeler gauge between the armature/solenoid plates at three additional positions as shown in figure 3-50. Each time, move the solenoid plate against feeler gauge.
 4. Hold the solenoid assembly in place and tighten the two mounting screws.
 5. Recheck the adjustment by closing the hammer bank on the feeler gauge in the areas noted in steps 2 and 3 above and, each time, extract the feeler gauge. The feeler gauge should encounter a small amount of drag or friction when it is pulled out. Repeat the adjustment procedure if the feeler gauge cannot be extracted from the gap or if it moves too freely.
- h. Adjust the 600 LPM printer solenoid assembly as follows:
1. Using a 4 mm allen wrench, loosen the two solenoid assembly adjustment mounting screws (see figure 3-51).
 2. Close the hammer bank.
 3. Slide a three inch strip of single part paper between the solenoid assembly and the armature plate assembly at the left end of the assemblies. Move the solenoid assembly forward until it lightly contacts the armature springs.
 4. Sequentially, position the paper strip at the two places between the armature plate springs and then at the right end of the assembly. Each time move the solenoid assembly lightly against the armature spring(s). Verify that there is even tension on the paper strip at the four places across the throat gap (see figure 3-51).
 5. Hold the solenoid assembly in place and tighten its two mounting screws (see figure 3-51). Then install the hammer bank mask using an 8 mm nut driver.
 6. Install the paper form in the paper throat. Close the paper entrance cover and the hammer bank (see figure 3-52).
 7. Attach a spring gauge (0-1000 grams) to the paper form.

HAMMER BANK
MASK MOUNTING
SCREW



HAMMER BANK
MASK MOUNTING
SCREW

PAPER FEED ASSEMBLY
MOUNTINGS
SCREWS

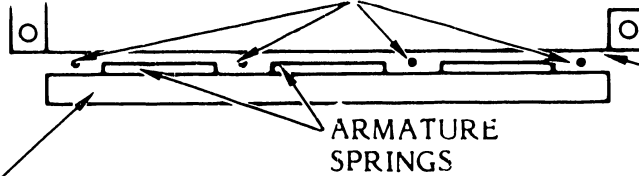


PAPER
FEED
MOTOR
CABLE

PAPER
MOTION
SENSOR
CABLE

PAPER CLAMP
ADJUSTMENT
CHECK POINTS
(THROAT GAP)

3" PAPER STRIP
LOCATIONS



PLATEN/
RIBBON GUIDE

TOP VIEW

PUSH
SOLENOID
ASSEMBLY
AGAINST
PAPER STRIP

Figure 3-51. Paper Clamp Solenoid (600 LPM Printer) Assembly Adjustment

3

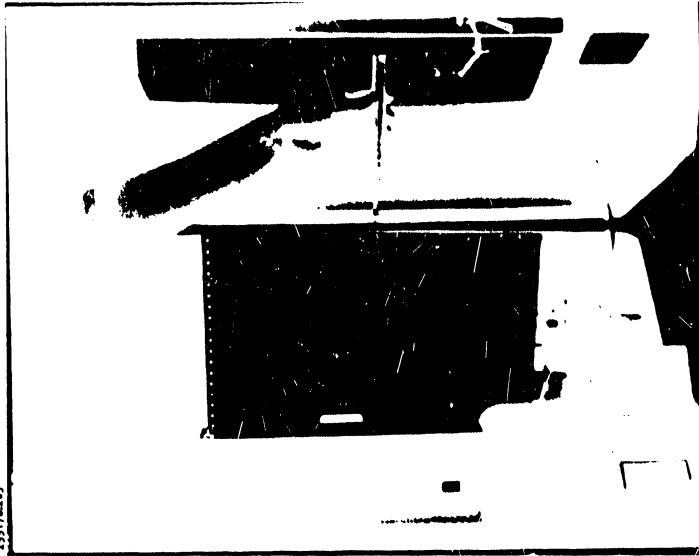


Figure 3-52. Paper Clamp Armature and Solenoid Assembly Tension Test

8. Pull upward with the spring gauge until the paper moves.
9. The spring gauge reading should not be less than 550 grams nor more than 750 grams. If the paper movement is out of the range perform the Paper Entrance Cover Adjustment procedure (see table 3-9) and then this procedure again. If the paper movement is not out of this range, proceed to step 10.
10. Install the character band and the ribbon cartridge as directed in the Operator's Guide.
11. Install the printer cover as described in paragraph 3.3.
12. Plug the AC power cord into the power source.

3.6.9 Paper Entrance Cover Assembly Adjustment (Figures 3-53, 3-54)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Using a 1.5 mm to 2.0 mm feeler gauge, check the spacing between each side of the deflector and the printer base assembly (see figure 3-53).

CAUTION

Loosen the hinge bracket adjustment screws only part way to prevent the printer door from falling off.

- d. Loosen the four adjustment screws which secure the two hinge brackets to the printer base.
- e. Close and open the paper entrance cover to ensure that there is no interference between the springs and the cover hinge pins, then close the cover.
- f. Insert a feeler gauge 2.5 to 3.0 mm thick (0.100 to 0.120 inch) between the paper entrance cover and the paper deflector in the center of the paper path.
- g. Move the hinge brackets in their clearance holes to lightly press the cover against the feeler gauge while sliding the feeler gauge across the paper path.
- h. Tighten the four adjustment screws and then slide the feeler gauge across the paper path. A slight drag should occur on the feeler gauge as it slides across the paper path. If the feeler gauge moves too freely or cannot be moved repeat this procedure beginning with step f.
- i. Open and close the paper entrance cover several times to make sure that the cover will not fall out of the hinge brackets.
- j. Open the printer cover door.
- k. Open the hammer bank.

3

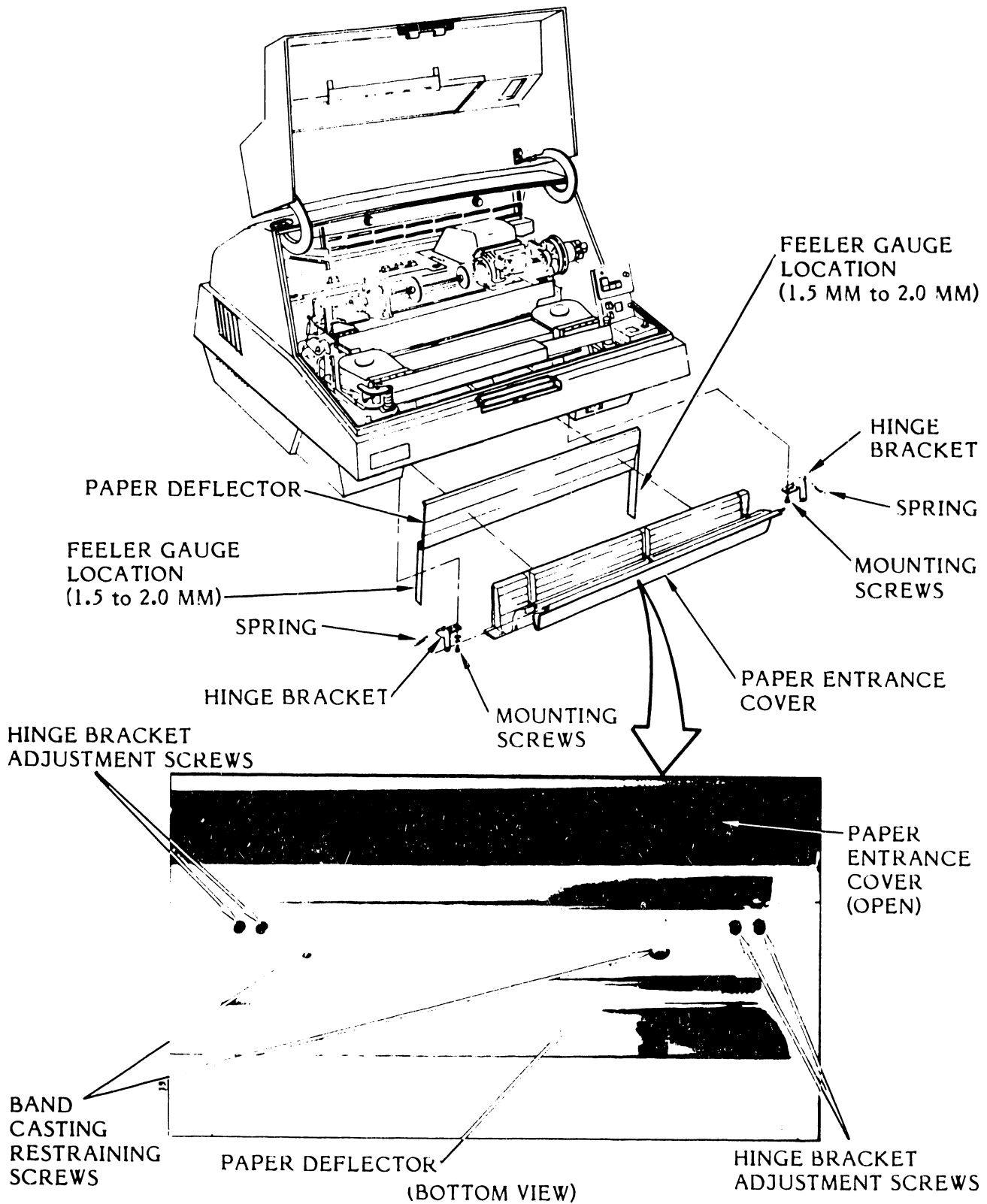


Figure 3-53. Paper Entrance Cover Parts Location

- l. Insert paper into the paper path through the paper entrance, and close the paper entrance cover.
- m. Pull paper through the paper entrance to check for even tension across the paper path.
- n. Attach a spring gauge to the paper, and again pull the paper through the paper entrance. Drag on the paper in excess of 90 grams will require a readjustment of the paper entrance cover assembly (see figure 3-54).
- o. Close the hammer bank.
- p. Close the printer cover door.
- q. Plug the AC power cord into the power source.

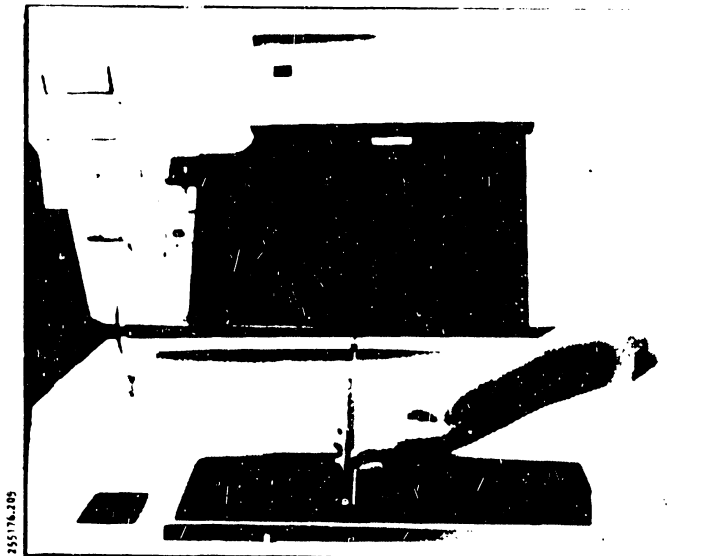
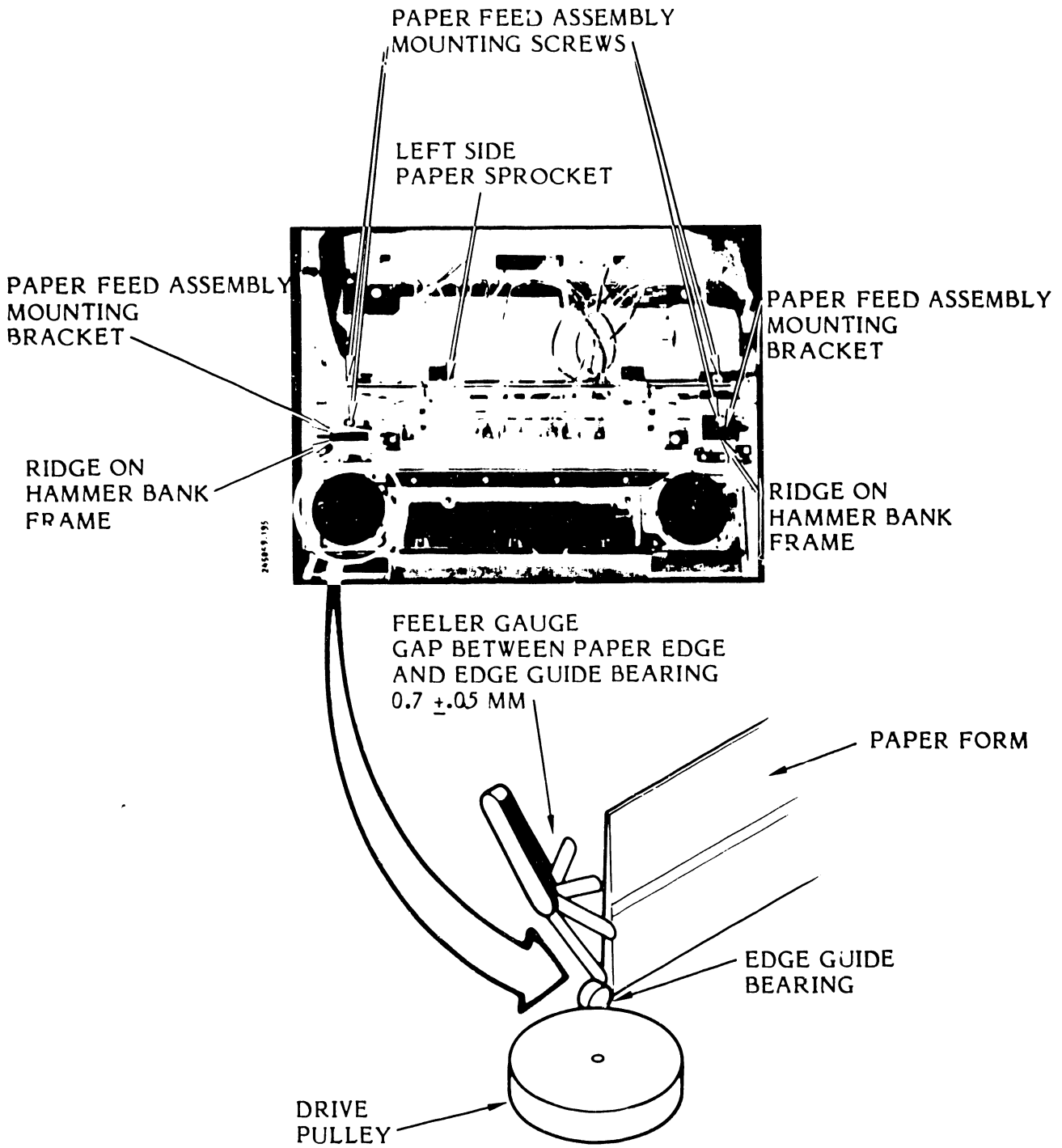


Figure 3-54. Paper Entrance Cover Assembly Tension Test

3.6.10 Paper Feed Assembly Adjustment (Figure 3-55)

- a. Perform the Paper Skew Adjustment procedure (see table 3-9).
- b. Set the AC power switch to OFF.
- c. Unplug the AC power cord from the power source.
- d. Remove the printer cover as described in paragraph 3.3.
- e. Using an 8 mm nut driver, loosen the four screws that mount the paper feed assembly to the hammer bank assembly (see figure 3-55).
- f. Install paper as directed in the Operator's Guide Paper Loading.
- g. Move the left sprocket to its extreme left position.
- h. Make sure that the paper feed assembly left and right side mounting brackets are flush against the forward ridges on the hammer bank frame assembly (see figure 3-55).
- i. Slide the paper feed assembly to the right or left enough to allow a 0.7 ± 0.05 mm gap (using a proper sized feeler gauge) between the left edge of the paper and the right edge of the driver pulley edge guide bearing.
- j. Using the 8 mm nut driver, tighten the four paper feed assembly mounting screws.
- k. Install the printer cover as described in paragraph 3.3.
- l. Plug the AC power cord into the power source.



3

Figure 3-55. Paper Feed Assembly Adjustment

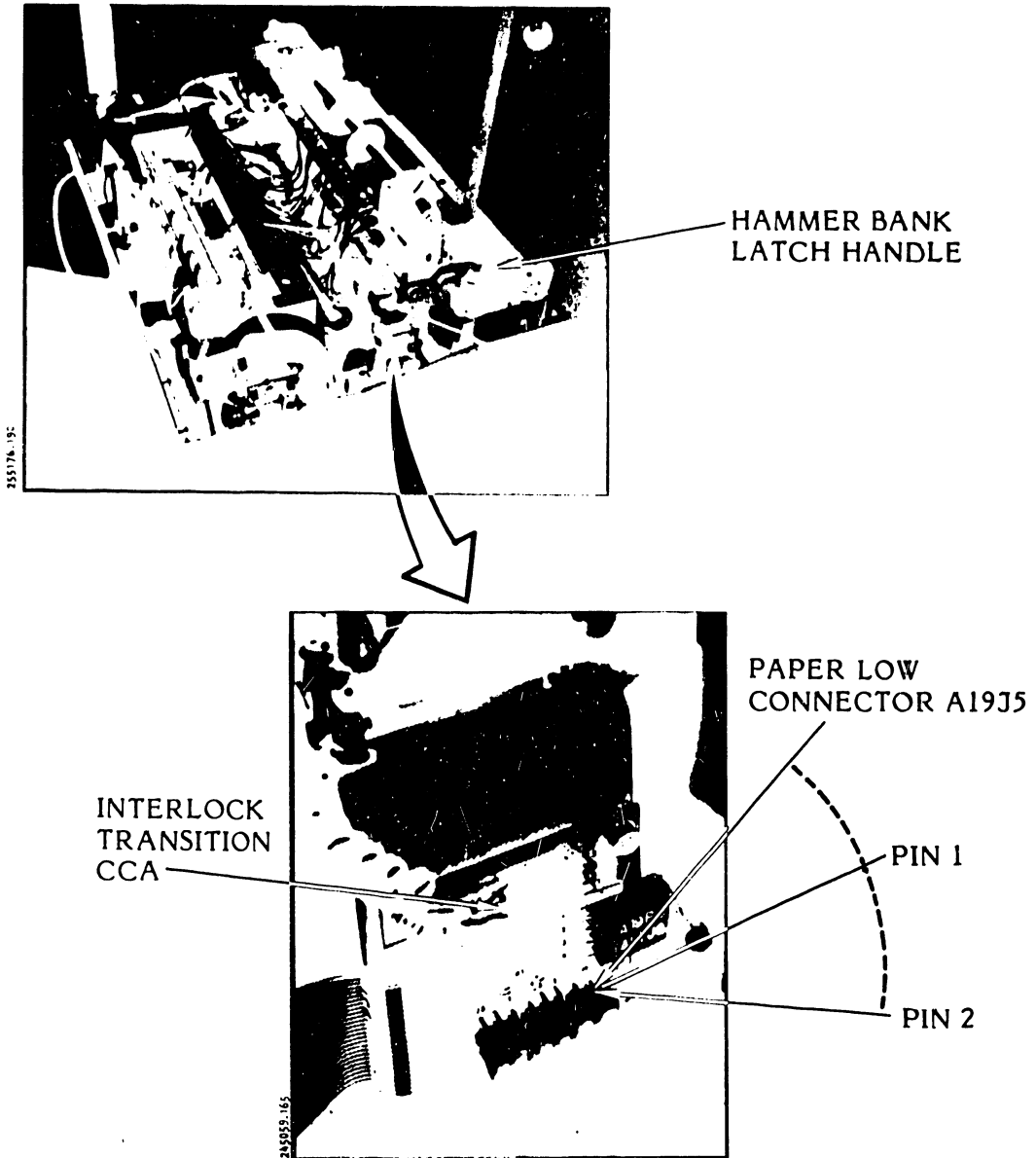
3.6.11 Paper Low Switch Continuity Test and Adjustment
(300 LPM Printer) (Figures 3-56, 3-57)

- a. Set the power switch to OFF and then remove the AC power cord from the power source.

WARNING

To avoid possibility of shock, allow at least two minutes for capacitor bank(s) to discharge.

- b. Remove the printer cover as described in paragraph 3.3.
- c. Locate the Interlock Transition CCA as shown in figure 3-56.
- d. Connect an ohmmeter (VOM or DVM) set at Rx1 across A19J5 pins 1 and 2 of the Interlock Transition CCA.
- e. Open the hammer bank (see figure 3-56).
- f. The ohmmeter should indicate an open switch condition (maximum reading).
- g. Load the printer with paper as directed in the Operator's Guide (Paper Loading).
- h. Close the hammer bank.
- i. The ohmmeter should indicate a closed switch condition (zero ohms).
- j. If the ohmmeter fails to indicate the proper readings for opening and closing the hammer bank, proceed to step k. If the ohmmeter does not fail to indicate the proper reading, proceed to step l.
 1. Remove the ohmmeter leads from the Interlock Transition CCA.
 2. Install the printer cover as directed in paragraph 3.3.
 3. Plug the AC power cord to the power source.
- k. Open the hammer bank, then adjust the paper low switch as follows:
 1. See figure 3-57 for the location of the paper switch and its adjustment screw location on the solenoid plate, and the location of the switch plunger on the armature assembly plate.



3

Figure 3-56. Interlock Transition CCA Connector Pin Locations

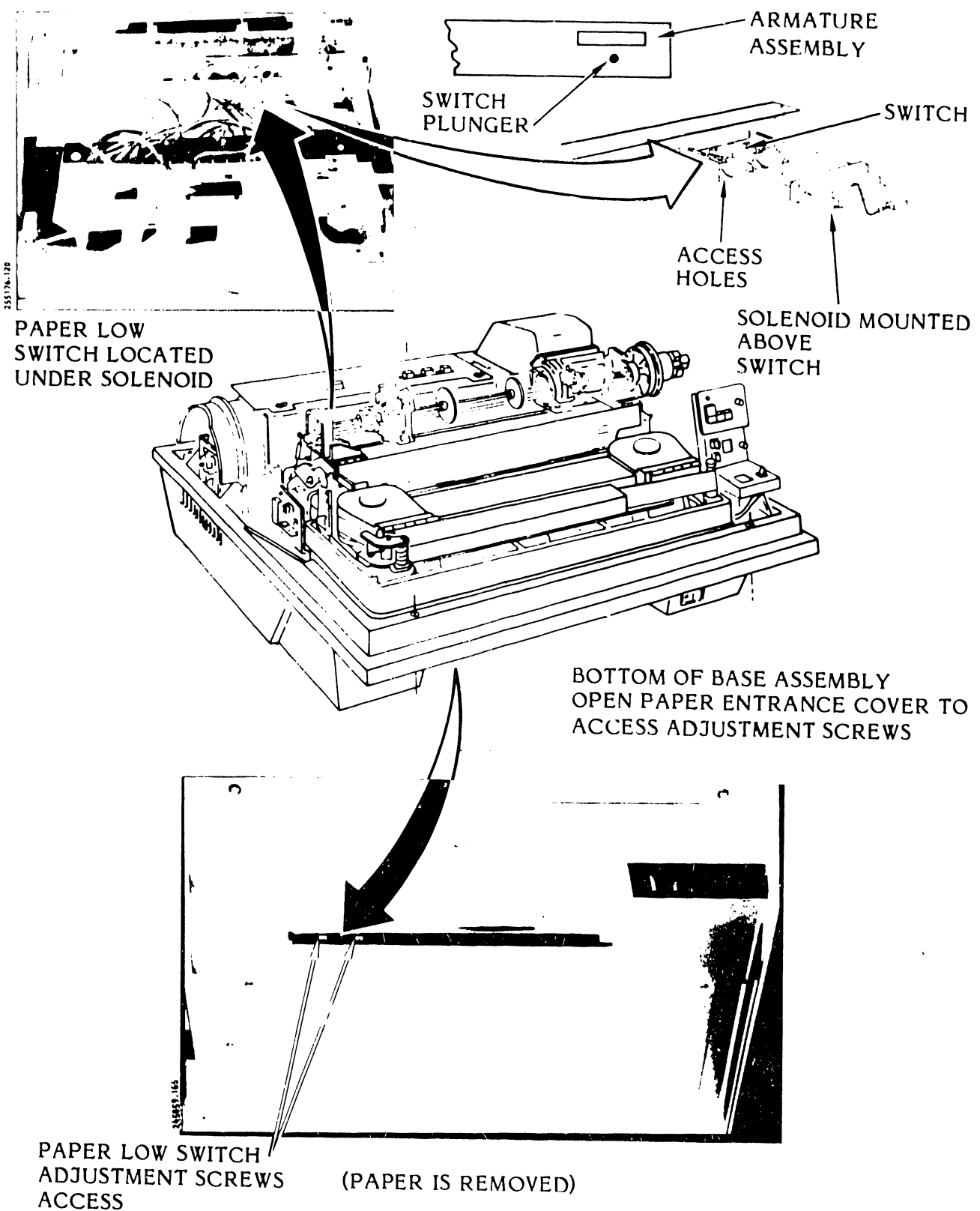


Figure 3-57. Paper Low Switch (300 LPM Printer) Switch Location and Adjustment Screw Access Location

NOTE

The adjustment screws are reached from beneath the printer as shown in figure 3-57B. The switch is reached from the rear of the printer as shown in figure 3-57A. It is located beneath the right paper clamp solenoid.

2. Locate the switch plunger knob on the armature assembly plate; make sure it moves freely through the hole in the armature assembly plate.
-

NOTE

If the switch plunger is stuck refer to the 300 LPM Armature Assembly Removal/Installation procedure in table 3-10. Remove the armature assembly and use a 3 mm hex driver to adjust the switch plunger for free movement.

3. Close the hammer bank and then open the paper entrance cover that is reached from the bottom (front) of the printer.
-

NOTE

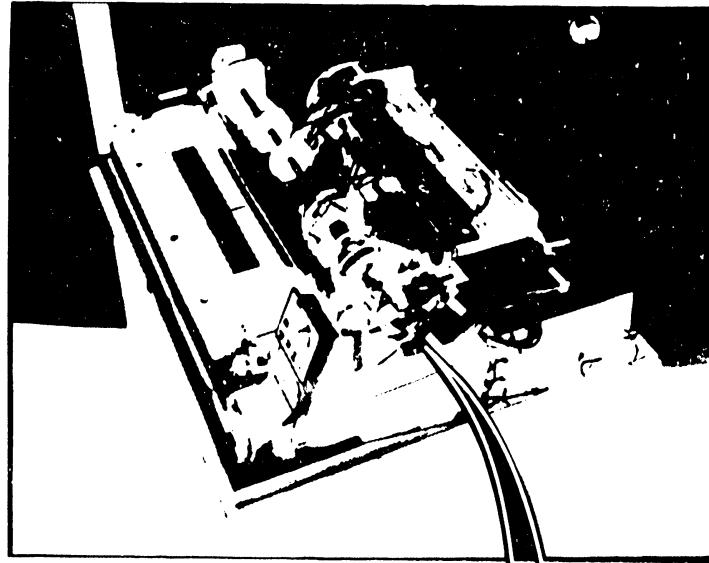
Separate the bottom of the paper form that is set in print position from the next form in line out of the stack.

4. Using a long (4-inch shaft) 3 mm hex driver (allen wrench), loosen the two adjustment screws **only** enough to allow the switch plate to move.
5. Reach under the right most paper clamp solenoid (facing the back of the hammer bank) to grasp the switch plate.
6. Move the switch forward until its contacts close as indicated by a closed switch reading (zero ohms) on the ohmmeter. Then move the switch backward until an open switch reading (maximum scale) is indicated on the ohmmeter. If the switch fails the test, perform the Paper Low Switch Removal Installation procedure provided in this section (see table 3-10). If the switch does not fail the test, proceed to step 1.

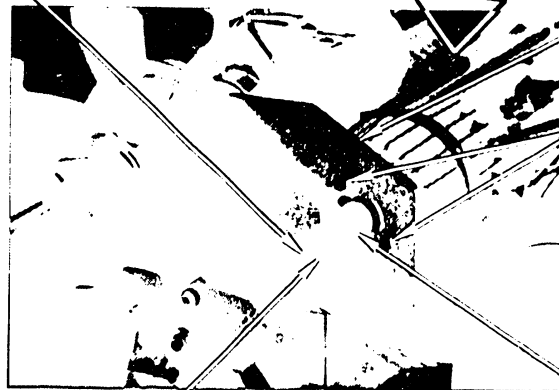
- l. Move the switch forward until its contacts are closed as indicated by a switch closed reading (zero ohms) on the ohmmeter. Hold the switch in that position and then use the 3 mm hex driver to fully tighten the two adjustment screws.
- m. Open and close the hammer bank a few times to make sure the switch opens and closes as indicated by the readings on the ohmmeter.
- n. Remove the ohmmeter leads.
- o. Install the printer cover as described in paragraph 3.3.
- p. Plug the AC power cord into the power source.

3.6.12 Paper Feed Motor Timing Belt Tension Adjustment (Figure 3-58)

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Using a 2.5 mm hex driver, remove the hammer bank latch spring screw and the spring from the standoff (see figure 3-58).
- e. Using a 1/4-inch nut driver, loosen the hex standoff mounting screw. Using a 7 mm nut driver, loosen the two hex mounting screws.
- f. Connect the spring scale to the motor shaft between the mounting plate and paper feed motor pulley.
- g. Pull the spring scale in the direction shown in figure 3-58 to a force of 31.4 ± 2.2 nm (7.0 ± 0.5 lb.). Hold it at that tension and, at the same time, tighten the two hex mounting screws using the 7 mm nut driver, and then tighten the standoff mounting screw using the 1/4-inch nut driver.
- h. Remove the spring scale.
- i. Mount the allen screw and the latch spring to the standoff mounting screw using the 2.5 mm hex driver.
- j. Install the printer cover as described in paragraph 3.3.
- k. Plug the AC power cord into the power switch.



HAMMER BANK
LATCH SPRING AND
MOUNTING SCREW
(2.5 MM NUT DRIVER)




MOUNTING
PLATE

MOUNTING SCREWS
(7 MM NUT DRIVER)

STANDOFF MOUNTING SCREW
(1/4" NUT DRIVER)

SPRING
SCALE

 →
3.2 ± 0.2 KG
(7.0 ± 0.5 LBS)

3

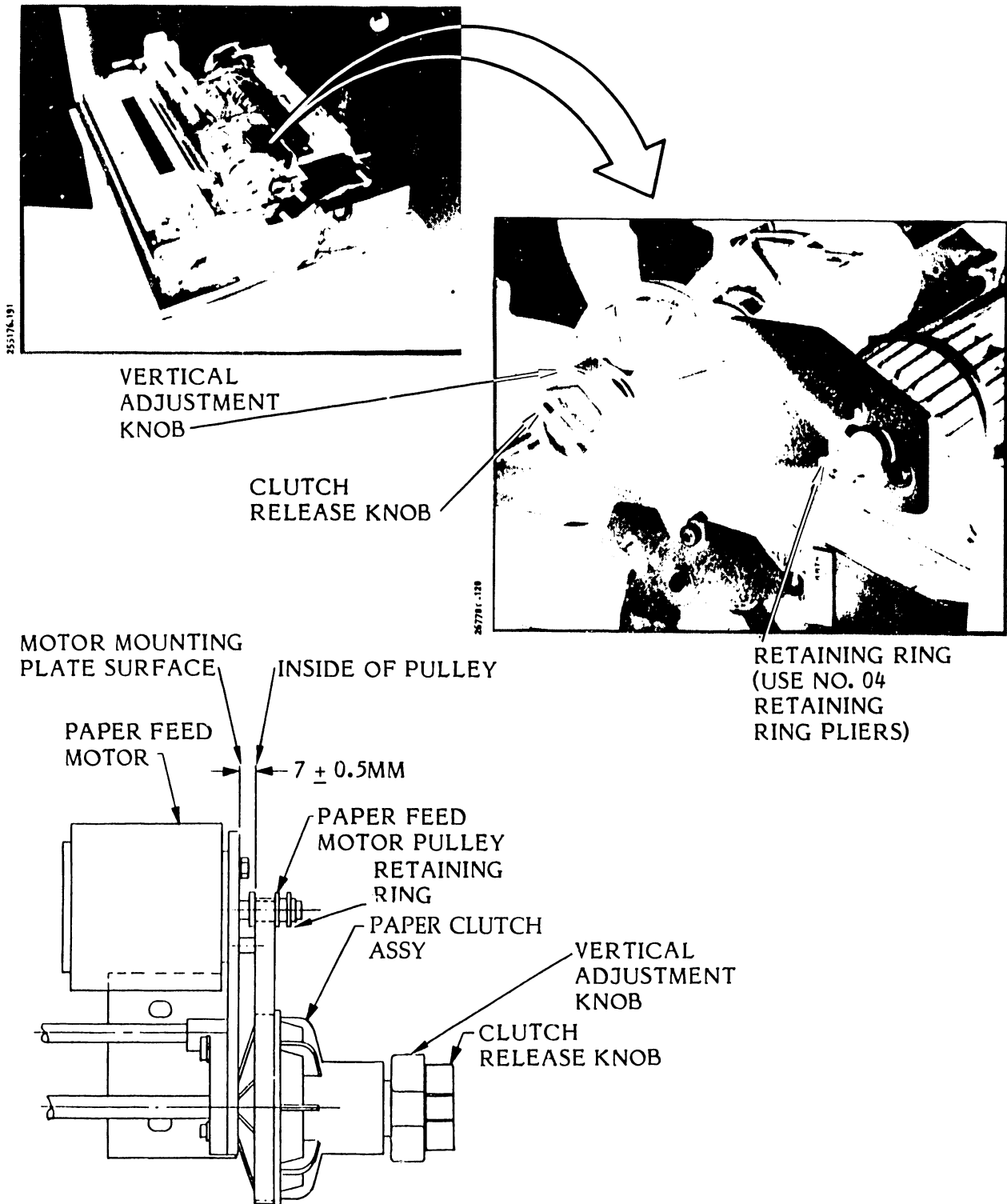
Figure 3-58. Paper Feed Motor Timing Belt Tension Adjustment

3.6.13 Paper Feed Motor Pulley Adjustment (Figure 3-59)

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Load the printer with paper as described in the Operator's Guide (Paper Loading).
- d. Using No. 04 retaining ring pliers, remove the retaining ring that secures the motor pulley to the motor shaft.
- e. Using a metric scale, adjust the pulley so that it is spaced 7.0 ± 0.5 mm from the motor mounting plate surface as shown in figure 3-59.
- f. Rotate the vertical adjustment knob several times, then check the mounting-plate-to-pulley spacing again. If the spacing is correct, proceed to step 9. If the spacing is not correct, repeat step e.
- g. Using the No. 04 retaining ring pliers, reinstall the retaining ring.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug the AC power cord into the power source.

3.6.14 Paper Skew Adjustment (Print Line Slant) (Figures 3-60, 3-61)

- a. Open the printer cover door.
- b. Load single part paper into the printer as described in the Operator's Guide.
- c. Move the perforation between paper forms to line up between the 0 and 4 of the top of form scale located on the hammer bank mask (see figure 3-60C).
- d. Set power to ON.
- e. Move the control panel TEST switch to the right for a single character printout (see figure 3-60A).
- f. Press the ON/OFF LINE switch and obtain several lines of the single character printout, then press ON/OFF LINE switch to OFF.
- g. Compare the printout lines with the perforation line between forms (see figure 3-61).



3

Figure 3-59. Paper Feed Motor Pulley Adjustment

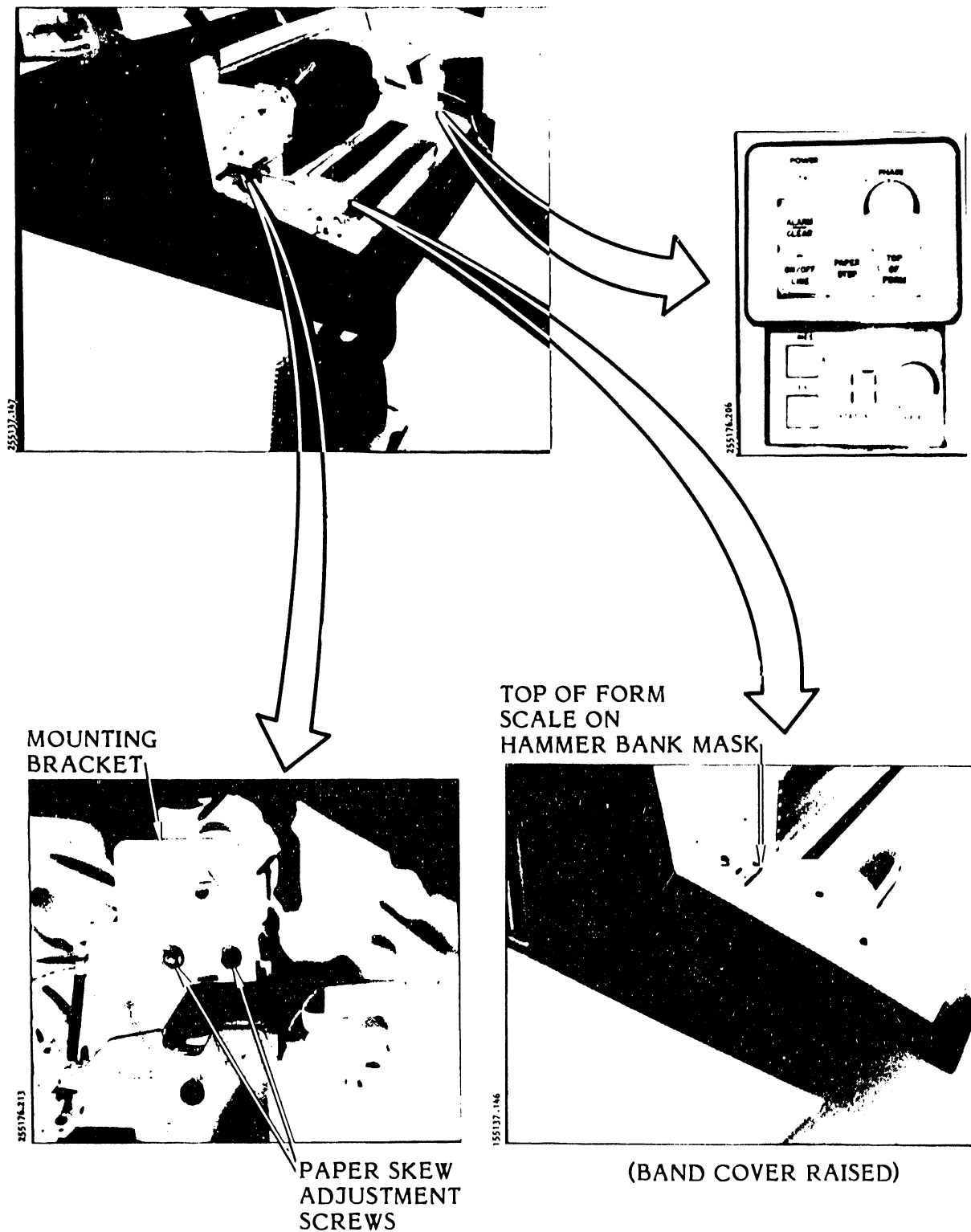


Figure 3-60. Paper Skew Adjustments

PERFORATIONS (TYPICAL)	BRACKET NEEDS TO BE LOWERED	BRACKET NEEDS TO BE RAISED
<pre> ----- HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH </pre>	<pre> ----- HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH </pre>	<pre> ----- HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHHHHHH </pre>
(NORMAL)	OBVIOUS PRINT SLANT	

Figure 3-61. Paper Skew (Print Slant) Verification

- h. If the printout lines are parallel to the perforation line, return to normal printer operation. If the printout lines are not parallel to perforation line, proceed to step i.
- i. Using a 7 mm nut driver, loosen the two paper skew adjustment screws.
- j. Lower the mounting bracket to correct skew if perforation-to-print line space is wider on the left side of the paper (see figure 3-60B). Raise the mounting bracket to correct skew if perforation-to-print line space is narrower on the left side of the paper.
- k. Using the 7 mm nut driver, tighten the paper skew adjustment screws.
- l. Press the ON/OFF LINE switch to print a few lines of single characters and then press the ON/OFF line switch to OFF.
- m. Check the printout as in step h and figure 3-61 to make sure that the paper skew condition is corrected. If the paper skew condition still exists repeat steps f through l until it is corrected.
- n. Move the control panel TEST switch to center (OFF).
- o. Reposition the paper for required top of form.
- p. Close printer cover door and resume printer operation.

3.6.15 Platen Adjustment (Figures 3-62, 3-63, 3-64, 3-65, 3-66, 3-67)

NOTE

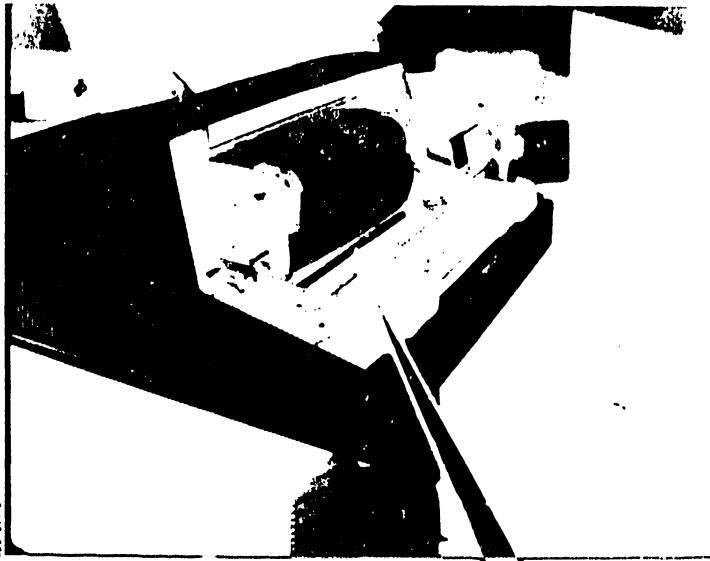
The platen is normally not adjusted in the field. Once set in the factory, it should not require resetting. If the platen is moved, removed, or replaced, it must be set from the casting datum surface, not from the hammer bank face.

- a. Set the AC power switch to OFF.
- b. Unplug the AC power cord from the power source.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Remove the ribbon cartridge and character band as directed in the Operator's Guide.
- e. The platen will be one of three configurations:
 1. A thick platen with a character alignment decal bonded over the platen.
 2. A thin platen with a press fit character alignment decal assembly.
 3. A thin platen with a screw mounted ribbon guide assembly.

NOTE

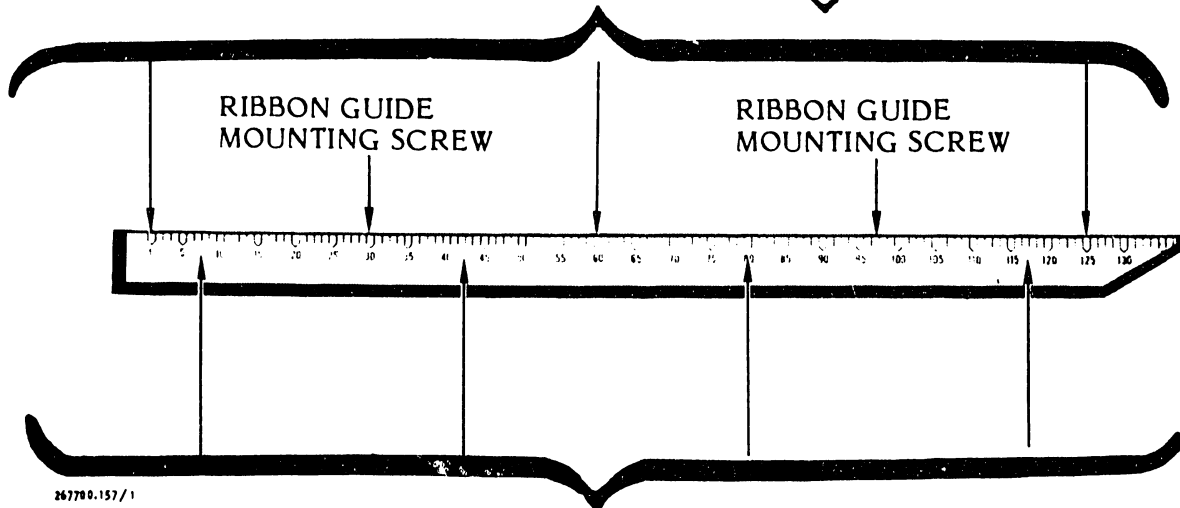
Figure 3-62 points out the ribbon guide mounting screws, armature clamp assembly, and platen mounting screw locations.

- f. If your printer contains the thin platen, proceed to step g; otherwise, adjust the thick platen as follows:
 1. Puncture the character alignment decal at column locations 1, 60, and 125 (see figure 3-62).
 2. Using a 4 mm hex driver, loosen **only**, the three platen mounting screws at locations 1, 60, and 125 (see figure 3-63).
 3. Set the platen clearance to 30.81 ± 0.02 mm (1.21 ± 0.0008 inches) from the datum casting surface as shown in figure 3-64.



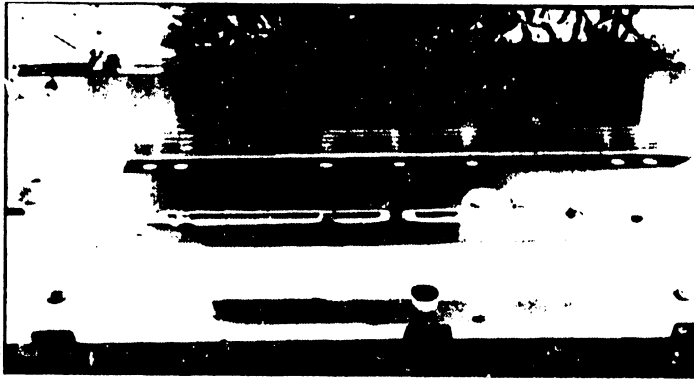
CHARACTER
ALIGNMENT DECAL
RIBBON GUIDE/
PLATEN/

PLATEN
MOUNTING SCREW
LOCATIONS

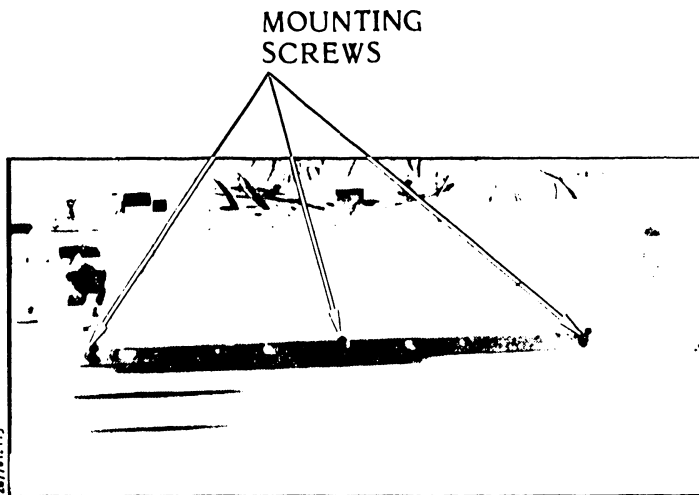


3

Figure 3-62. Mounting Screw Locations Under Character Alignment Decal

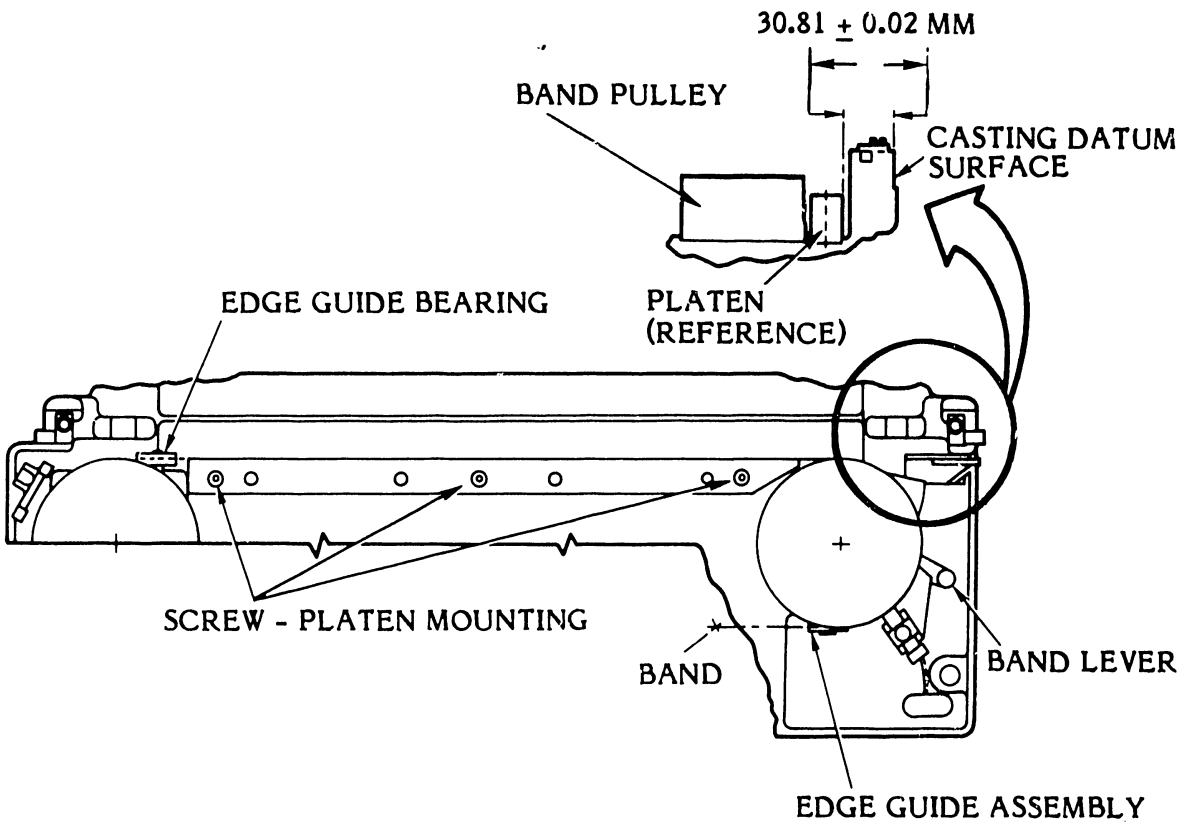


THICK PLATEN



THIN PLATEN

Figure 3-63. Platens



3

Figure 3-64. Platen Assembly Adjustment

4. Using a 40 in/lb torque screwdriver and a 4 mm hex key, tighten the three platen mounting screws to 4 nm (35.4 in/lbs).
 5. Recheck the clearance and readjust if needed.
 6. Install a new character alignment decal on the platen (as described in the Removal/Installation part of this section (see table 3-10).
- g. Adjust the thin platen (figure 3-65) as follows:
1. Observe the ribbon guide on top of the platen. The screw mounted ribbon guide will have "bumps" at column locations 30 and 92 for containing the mounting screws. The press fit ribbon guide will not have the "bumps".
 2. If the press fit ribbon guide is installed, use moderate force and lift it free of the platen. If it is the screw mounted type, puncture the character alignment decal at columns 30 and 92; then, using a 5 mm hex driver (allen wrench), remove the mounting screws and ribbon guide.

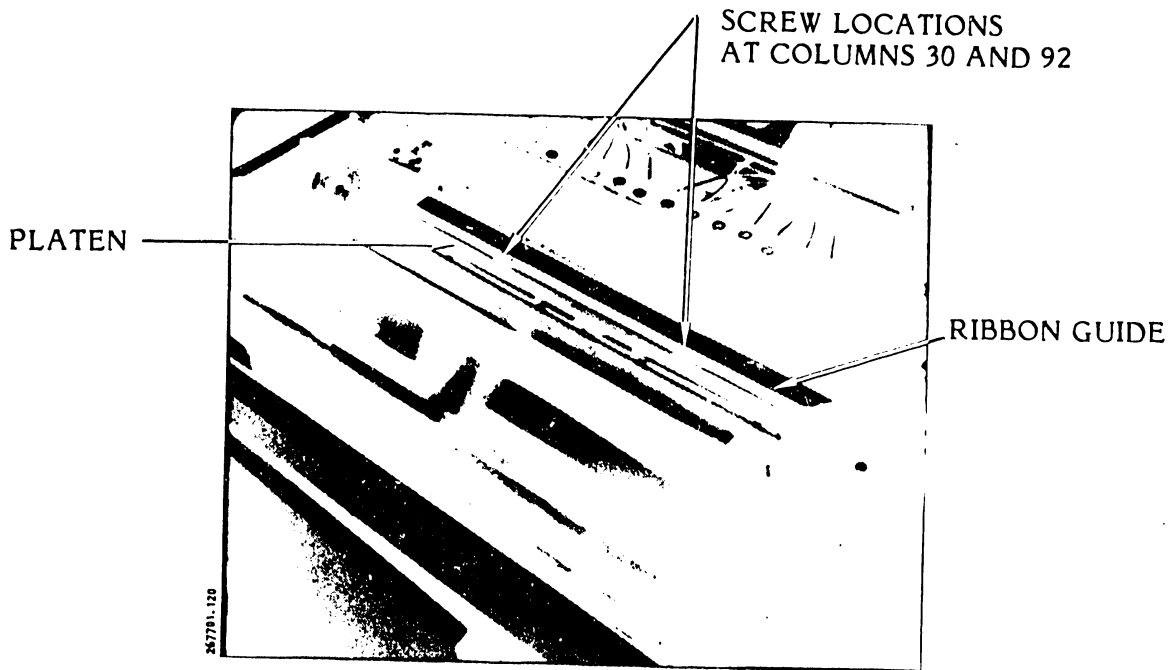
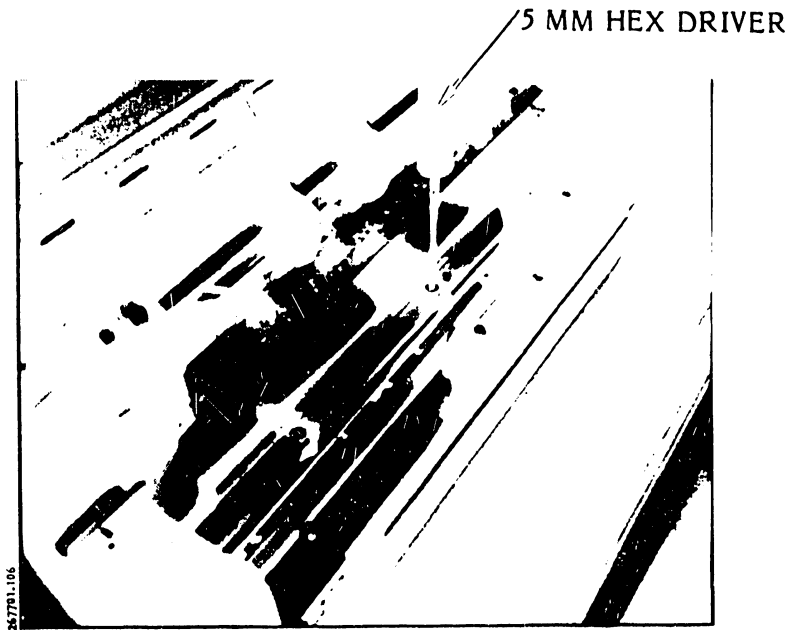


Figure 3-65. Screw Mounted Ribbon Guide

3. Using an 8 mm nut driver, loosen **only** the three platen mounting screws (see figure 3-63, "thin" platen).
4. Set the platen clearance to 30.81 ± 0.02 mm (1.21 + 0.0008 inches) from the datum casting surface as shown in figure 3-64.
5. Using a 40 in/lb torque driver and a 8 mm nut driver key, tighten the three platen mounting screws to 4 nm (35.4 in/lbs).
6. Check the platen clearance (figure 3-64) and readjust, if necessary.
7. Reinstall the press fit ribbon guide, if that was the type removed earlier, and then install the printer cover (paragraph 3.3) and plug in the AC power cord. If the ribbon guide was not press fit type, proceed to step 8.
8. Completely remove the old character alignment decal from the screw mounted type ribbon guide and clean the ribbon guide surface with isopropyl alcohol.
9. Using the two mounting screws and a 5 mm nut driver, secure the ribbon guide **loosely** to the platen (see figure 3-66A).
10. Close and latch the hammer bank.
11. At one end, insert a 0.028-inch feeler gauge between the ribbon guide and hammer bank (see figure 3-66B).
12. Push the ribbon guide toward the hammer bank to press firmly against the feeler gauge while moving the feeler gauge the entire length of the ribbon guide; then use the 5 mm nut driver and tighten the mounting screws to secure the ribbon guide to the platen.
13. Open and then close the hammer bank with the feeler gauge still in position.
14. Move the feeler gauge the entire length of the ribbon guide. There should be a slight drag on the feeler gauge. If it moves too freely or with a heavy drag, loosen the ribbon guide mounting screws and repeat the adjustment steps beginning with step 12; otherwise, proceed to step 15.



A
RIBBON GUIDE
INSTALLATION



B
RIBBON GUIDE
ADJUSTMENT

Figure 3-66. Ribbon Installation and Adjustment

15. Install a new character alignment decal on the ribbon guide as follows:

- (a) Reinstall the ribbon cartridge, character band and load paper into the printer as directed in the Operator's Guide.
- (b) Perform the "Registration Adjustments" procedure as directed in the Operator's Guide to produce a few lines of the single character (H) printout.
- (c) Remove the backing from the character alignment decal.
- (d) See figure 3-67. Lay the left end of the decal on the ribbon guide to align its column 1 marking with the first (leftmost) character of the printout. Then run the decal smoothly along the inner edge of the ribbon guide.

h. Install the printer cover as described in paragraph 3.3.

i. Plug the AC power cord into the power source.

3.6.16 Ribbon Pivot Arm Roller Adjustment (Figure 3-68)

- a. Set the power switch to OFF and then unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the ribbon cartridge as described in the Operator's Guide.
- d. Using No. 04 retaining ring pliers, loosen and lower the retaining ring, located on the roller journal, to be close to the bottom of the journal (see figure 3-68).
- e. Select a feeler gauge within a thickness range of $0.076 + 0.01, - 0.025$ mm ($0.003 + 0.0, - 0.001$ inch).
- f. Slide the feeler gauge between the flanged part of the journal and the pivot arm surface.
- g. Using No. 04 retaining ring pliers, move the retaining up to fit against the pivot arm.
- h. Install the ribbon cartridge as described in the Operator's Guide.

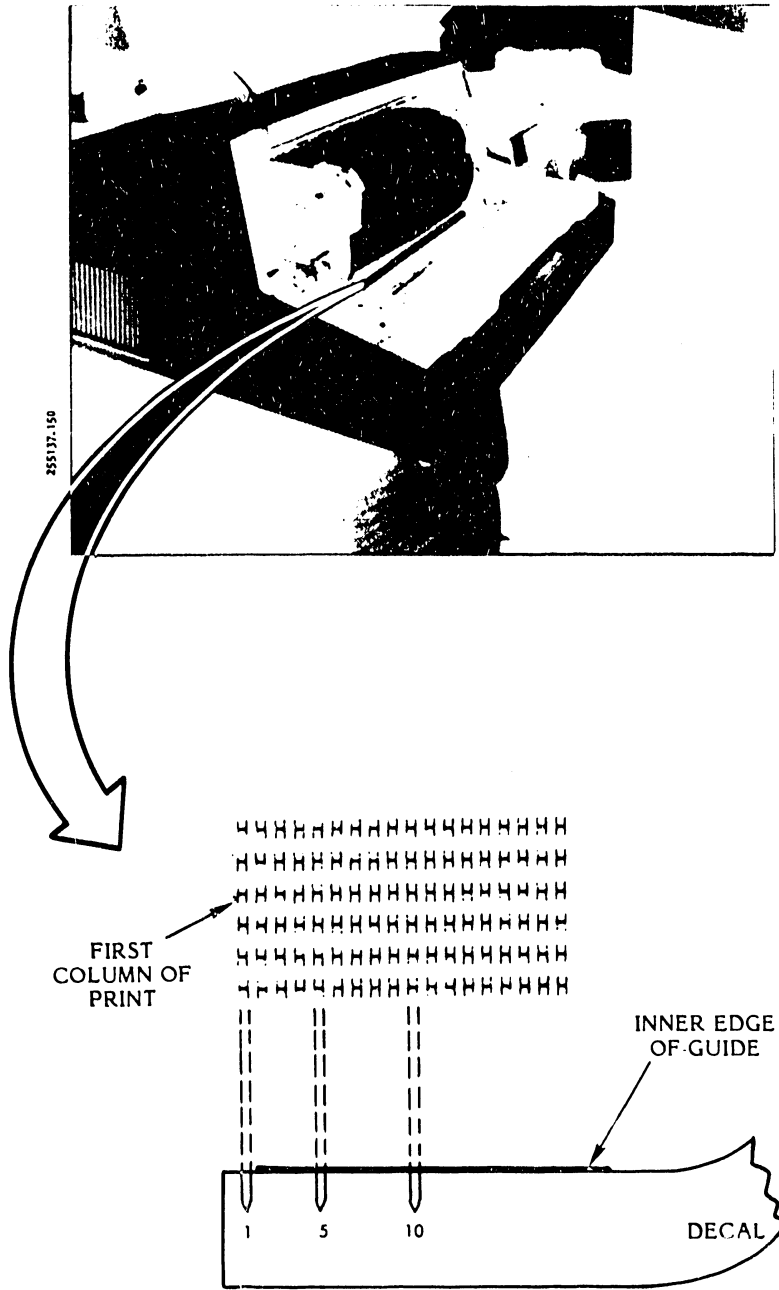
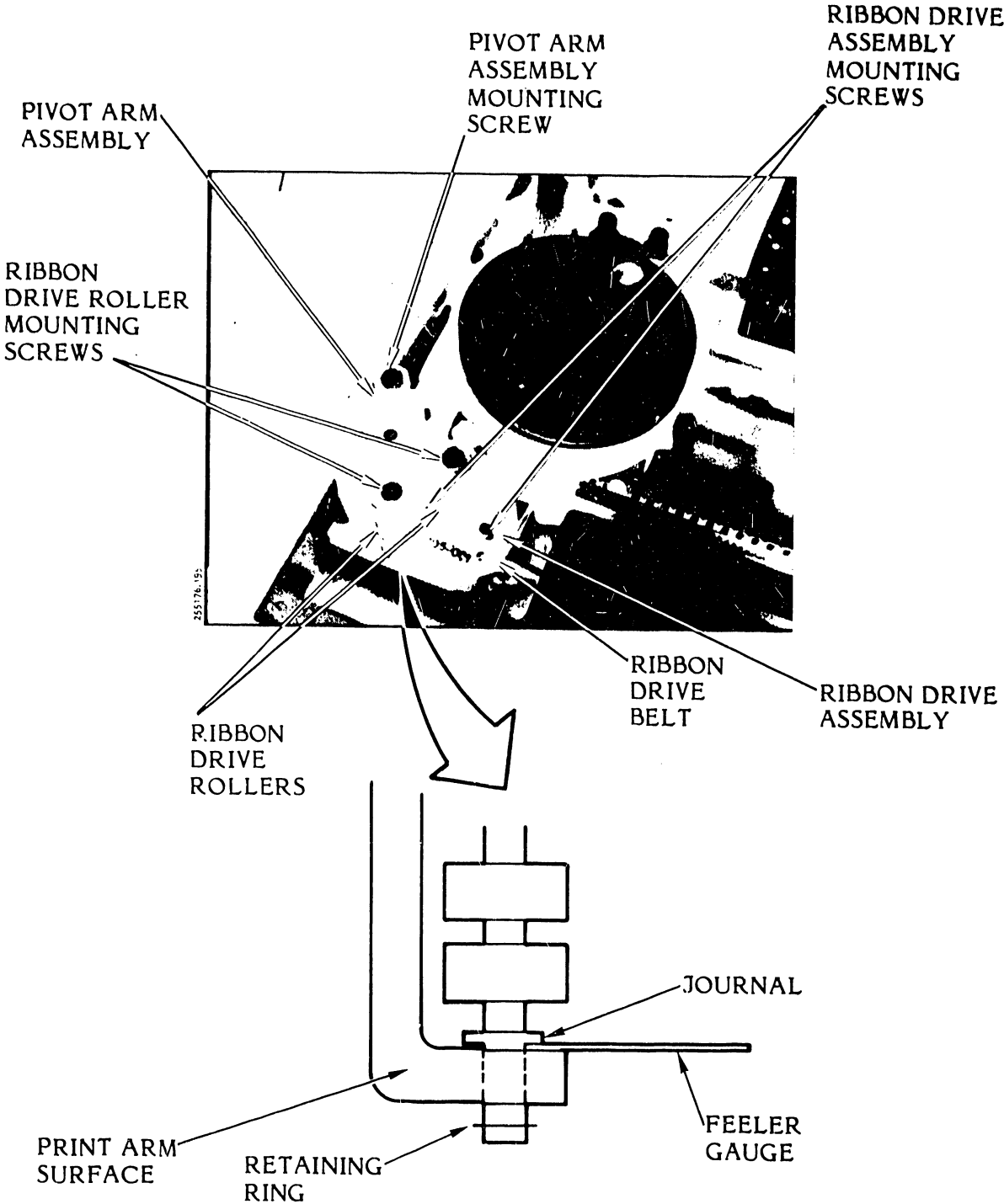


Figure 3-67. Character Alignment Decal Installation



3

Figure 3-68. Ribbon Pivot Arm Roller Adjustment

- i. Close the printer cover door.
- j. Plug the AC power cord into the power source.

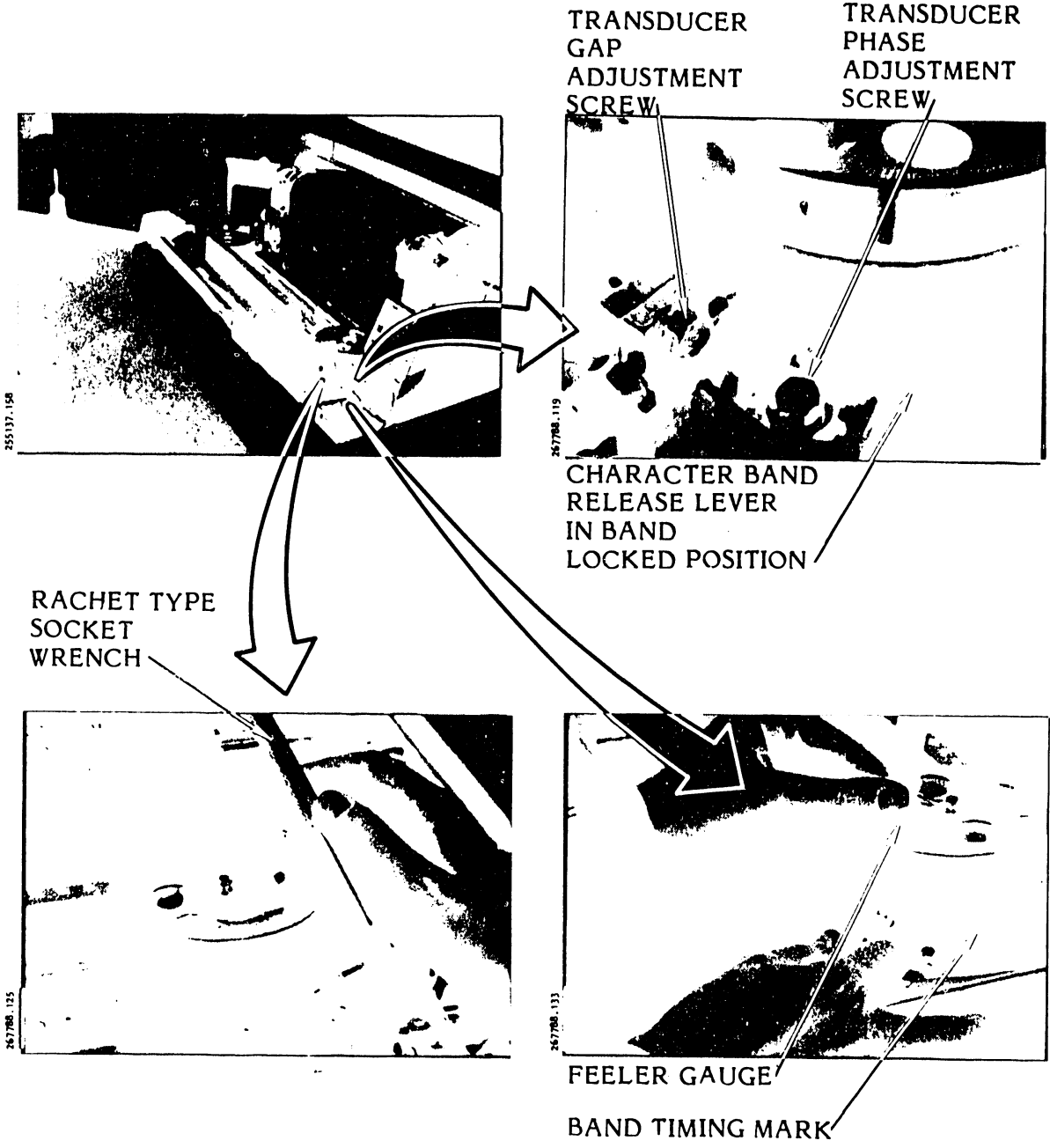
3.6.17 Transducer Gap Adjustment (300 LPM and 600 LPM Printers) (Figure 3-69)

- a. Set the power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Open the hammer bank and raise the band cover.
- d. Make sure that the character band release lever is in the locked position to maintain tension on the character band (see figure 3-69A).
- e. Using a ratchet type wrench with an 8 mm socket, loosen the transducer gap adjustment screw.
- f. Insert a 0.13 mm (0.005 inch) feeler gauge between the character band raised timing markers and the transducer (see figure 3-69B).
- g. Using additional feeler gauges of 0.026 mm thickness (0.001 inch), adjust the transducer-to-turning marker gap to be 0.13 + 0.08, - 0.0 mm (0.005 + 0.003, - 0.0 inch).
- h. Using a torque wrench and an 8 mm socket tighten the transducer gap adjustment screw to a torque of 10 in/lbs (see figure 3-69C).
- i. Close the band cover and the hammer bank.
- j. Perform the transducer signal output test as directed earlier in this section (see table 3-9), Circuit Card Assembly Test Points and References.

NOTE

Transducer output should be 600 mv P/P (minimum) for the 300 LPM printer and 800 mv P/P (minimum) for the 600 LPM printer.

- k. Install the printer cover as described in paragraph 3.3.
- l. Plug the AC power cord into the power source.



3

Figure 3-69. Transducer Gap Adjustment

3.6.18 Transducer Phasing Adjustment (Figures 3-70, 3-71)

WARNING

During this procedure, press the control panel ON/OFF Line switch off (unlit) **each time** before making the transducer bracket adjustment. **ALLOW TIME FOR THE CHARACTER BAND TO STOP** and keep your fingers clear of the moving character band.

CAUTION

Care should be taken to prevent the transducer head from rubbing against the character band.

- a. Set the AC power switch to OFF.
- b. Raise the printer cover door and **ALLOW TIME FOR THE CHARACTER BAND TO STOP**.
- c. Open the band cover, manually rotate the idler pulley to move the character band and listen for possible rubbing of the band against the transducer.
- d. If you feel the band is rubbing against the transducer, perform the Transducer Gap Adjustment procedure as described in this section (see table 3-9); otherwise, go to the next step.
- e. Perform the transducer signal output test as described in the Test Procedures part of this section (see table 3-3, Circuit Card Assembly Test).
- f. Load single part paper into the printer as described in the Operator's Guide (paper loading).
- g. Open the hammer bank and the band cover.
- h. Secure the band cover interlock switch with a rubber band to prevent a band-cover-open fault.
- i. Rotate the control panel **COPIES** control fully counter clockwise.
- j. Set the control panel **PHASE** control to center position.

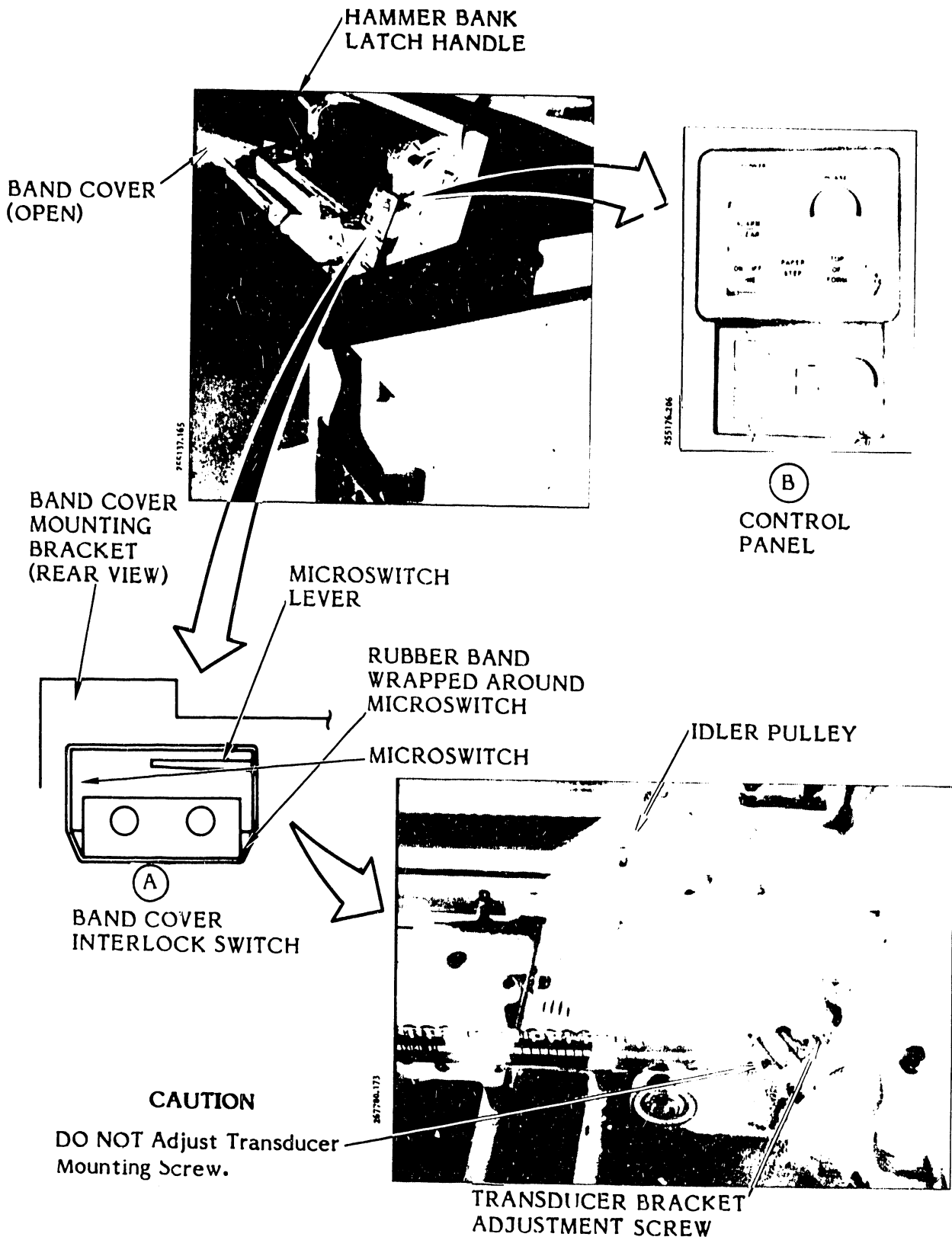


Figure 3-70. Transducer Phasing Adjustment

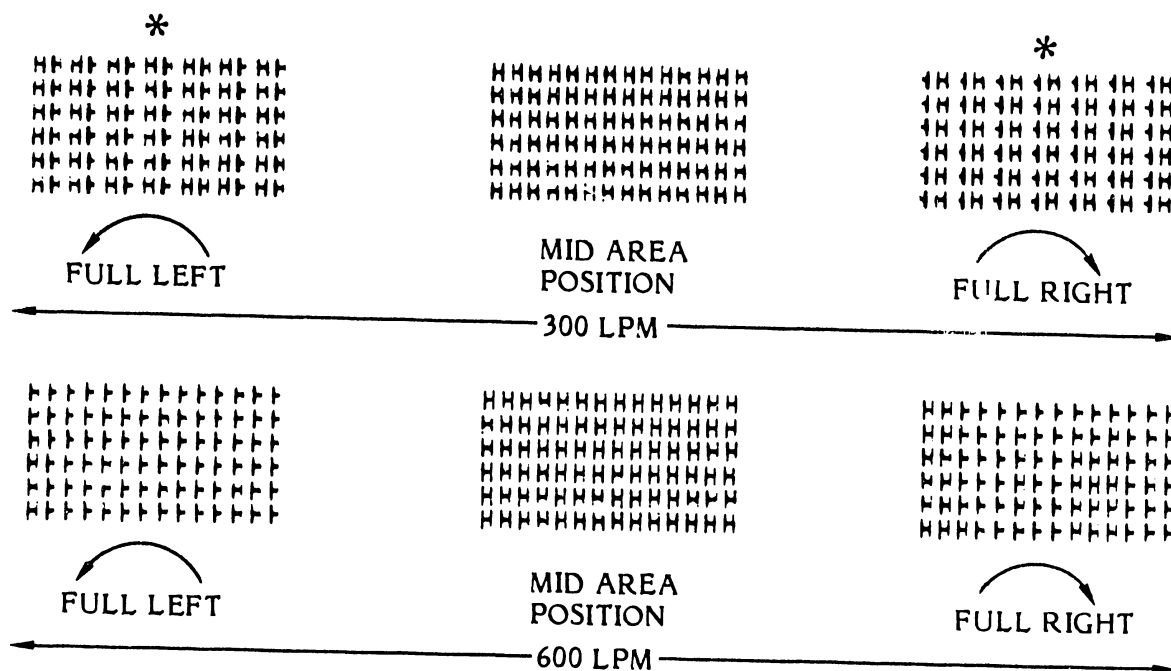
MAINTENANCE

- k. Set the control panel **LINES** switch to 8.
- l. Set the control panel **TEST** switch to the left (fixed character) position.
- m. Close the hammer bank.

WARNING

To avoid possible injury, DO NOT TOUCH THE CHARACTER BAND IF IT IS MOVING.

- n. Set the power switch to ON.
- o. Press the control panel ON/OFF LINE switch to ON (lit) and allow the printer to produce several lines of a single character, usually Hs.
- p. Press the ON/OFF LINE switch to OFF (unlit).
- q. Observe the printout and compare it to figure 3-71.



* CLIPPING ON EVERY OTHER CHARACTER DUE TO DOUBLE SPANNING HAMMERS

Figure 3-71. Transducer Phasing Adjustment Printouts, PHASE Control Settings

NOTE

The printout will differ between the 300 LPM and 600 LPM printers.

- r. If the characters are clipped on the right, allow the character band to stop and proceed as follows:
 - 1. Slightly loosen the transducer bracket adjustment screw, using an 8 mm nut driver.
 - 2. Move the transducer bracket slightly to the right and tighten the bracket screw.
 - 3. Remove the wrench.
 - 4. Press the ON/OFF LINE switch to ON and produce a few lines of single characters, then press the ON/OFF LINE switch to OFF.
 - 5. If the characters are still clipped, ALLOW THE CHARACTER BAND TO STOP and repeat steps 1 to 5. If the characters are not clipped, proceed to step s.

- s. If the characters are clipped on the left:
 - 1. ALLOW THE CHARACTER BAND TO STOP and, using an 8 mm nut driver, slightly loosen the transducer bracket adjustment screw.
 - 2. Move the bracket slightly to the left and tighten the bracket screw.
 - 3. Remove the wrench.
 - 4. Press the ON/OFF LINE switch to ON, produce a few lines of the single character, and press the ON/OFF LINE switch to OFF.
 - 5. If the characters are still clipped, ALLOW THE CHARACTER BAND TO STOP, and repeat steps 1 to 5. If the characters are not clipped, proceed to step t.

- t. Rotate the control panel PHASE control fully counter-clockwise.

- u. Press the ON/OFF LINE switch to ON, print several lines of single characters, and press the ON/OFF LINE switch to OFF. Each character should be clipped on the right side.

NOTE

If clipping occurs on the 300 LPM printer printout, it will only be on every other character due to double spanning hammers.

- v. Rotate the PHASE control fully clockwise.
- w. Press the ON/OFF LINE switch to ON, print a few lines, and press the ON/OFF LINE switch to OFF. Each character should be clipped on the left side (see NOTE in step u).
- x. Make sure that the characters are clipped equally on each side. If they are not, rotate the PHASE control to midposition and repeat this procedure beginning with step o. If the characters are equally clipped, proceed to step y.
- y. Remove the rubber band from the band cover interlock switch (see figure 3-70).
- z. Rotate the control panel PHASE control and set TEST switch to midposition.

3.7 REMOVAL/INSTALLATION PROCEDURES

The following procedures tell you how to remove and install the printer assemblies. Certain steps such as turning power off, unplugging the power cord, and raising or removing the cover may have already been done if several removal/installation procedures are performed in sequence. Also, final steps such as powering up and retesting have been omitted. Return to the last step in the troubleshooting sequence and continue as required. Table 3-10 lists the procedures and paragraph numbers. Figure 3-72 shows the sequence of events and the time required for each procedure.

WARNING

Do not attempt to perform the following Removal/Installation procedures with the AC power plug connected to the power source unless power is necessary for the performance of a specific procedure.

TABLE 3-10. REMOVAL/INSTALLATION PROCEDURES

Assembly	Paragraph No.
AC Power Switch	3.7.1
Auxiliary Capacitor Bank Assembly	3.7.2
Band and Idler Pulley (Posidrive)	3.7.15
Band and Idler Pulley Driver (O-Ring System)	3.7.3
Band Cover Interlock Switch (Ribbon Weld Skipover Version)	3.7.7
Band Idler Pulley Shaft (Posidrive)	3.7.18
Band Idler Pulley Shaft Assembly (O-Ring System)	3.7.14
Band Motor with Edge Guide Bearing (O-Ring System)	3.7.4
Band Motor with Edge Guide Bearing (Posidrive System)	3.7.16
Bottom of Form (BOF) Guide	3.7.65
Capacitor Bank Assembly	3.7.8
Capacitor Bank Assembly Capacitors	3.7.9
Character Alignment Scale Decal	3.7.19
Circuit Breaker	3.7.20
Circuit Card Assembly	3.7.10
Control Panel Circuit Card Assembly	3.7.24
Edge Guide Bearing (Band Motor, O-Ring System)	3.7.5
Edge Guide Bearing (Idler Pulley, O-Ring System)	3.7.6
Edge Guide Bearing (Posidrive Band Motor)	3.7.17
Electronics Assembly CCAs	3.7.11
Fan Assembly	3.7.25
Fan Motor	3.7.26
Forms Compressor	3.7.27
Forms Length Select Switch Circuit Card Assembly	3.7.28

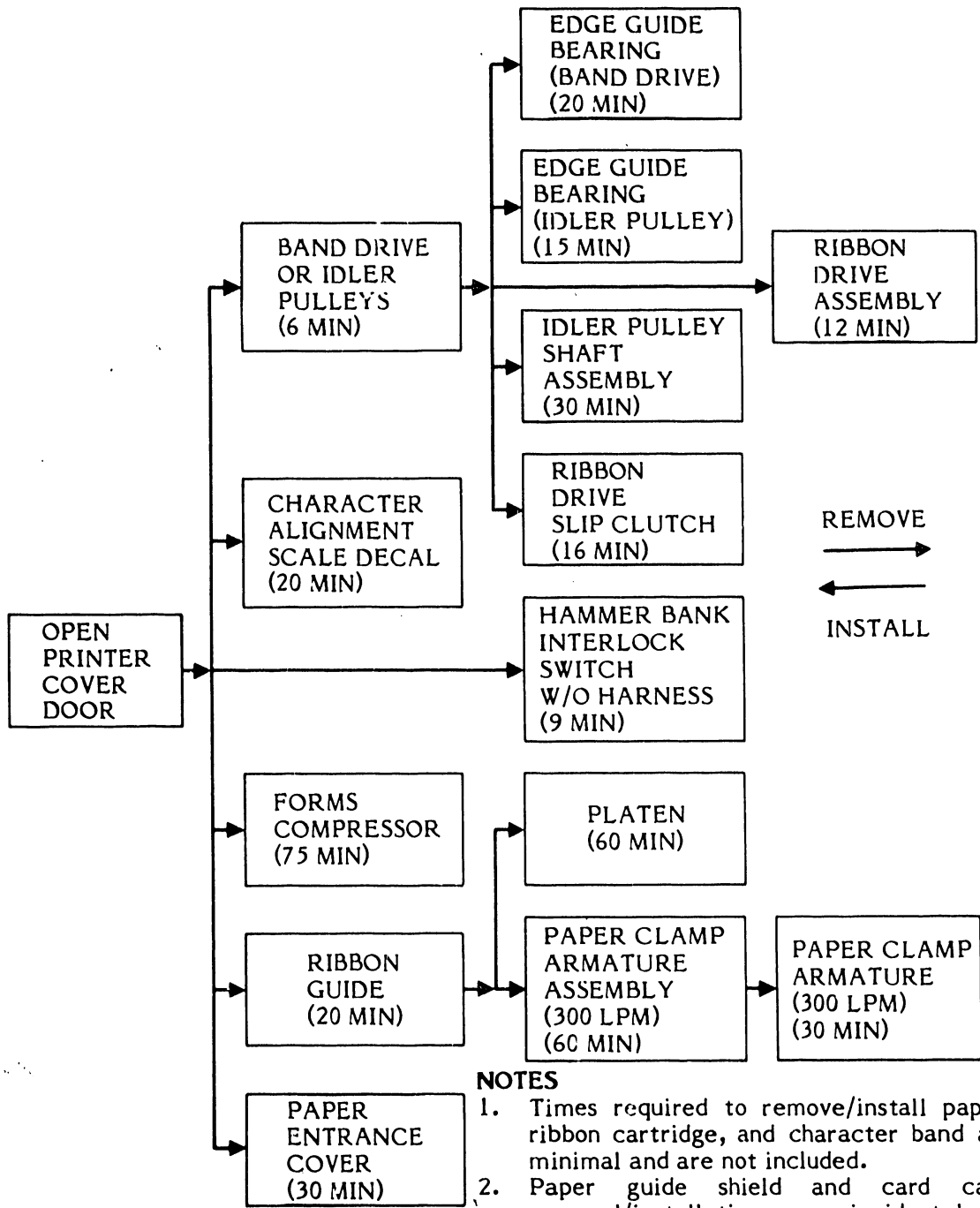
TABLE 3-10. REMOVAL/INSTALLATION PROCEDURES (Cont'd)

Assembly	Paragraph No.
Hammer Bank Assembly	3.7.29
Hammer Bank Interlock Switch	3.7.30
Hammer Module (300 LPM Printer)	3.7.31
Hammer Module (600 LPM Printer)	3.7.32
Input/Output (I/O) Harness Assembly	3.7.34
Interlock Transition CCA	3.7.33
Mother Board CCAs	3.7.13
Paper Clamp Armature (300 LPM Printer)	3.7.36
Paper Clamp Armature (600 LPM Printer)	3.7.38
Paper Clamp Armature Assembly (300 LPM Printer)	3.7.35
Paper Clamp Armature Assembly (600 LPM Printer)	3.7.37
Paper Clamp Solenoid (300 LPM Printer)	3.7.40
Paper Clamp Solenoid (600 LPM Printer)	3.7.41
Paper Clamp Solenoid Assembly	3.7.39
Paper Entrance Cover	3.7.42
Paper Feed Assembly	3.7.43
Paper Feed Drive Belt	3.7.45
Paper Feed Motor	3.7.44
Paper Low Switch Assembly (300 LPM Printer)	3.7.46
Paper Low Switch Assembly (600 LPM Printer)	3.7.47
Paper Motion Sensor Assembly	3.7.48
Platen	3.7.49
Plunger Type Circuit Breaker (115 VAC 60 Hz, Standard)	3.7.21
Power Supply Components	3.7.50

TABLE 3-10. REMOVAL/INSTALLATION PROCEDURES (Cont'd)

Assembly	Paragraph No.
Rectifier CCA	3.7.12
Ribbon Drive (Posidrive) Slip Clutch	3.7.51
Ribbon Drive (O-Ring System) Assembly	3.7.52
Ribbon Drive (Posidrive) Assembly	3.7.53
Ribbon Guide Assembly	3.7.54
Ribbon Mask	3.7.55
Ribbon Pivot Arm Assembly	3.7.56
Ribbon Rollers	3.7.57
Sprockets and Shaft/Clutch Assemblies	3.7.58
TCVFU Assembly	3.7.59
TCVFU CCA	3.7.60
TCVFU Motor and Tape Sprocket	3.7.61
TCVFU Tape Reader Head	3.7.62
TCVFU Slide Tensioner	3.7.63
Transducer Assembly	3.7.64
Universal Power Supply Circuit Breaker (Plunger Type)	3.7.22
Universal Power Supply Circuit Breaker (Switch Type)	3.7.23

3

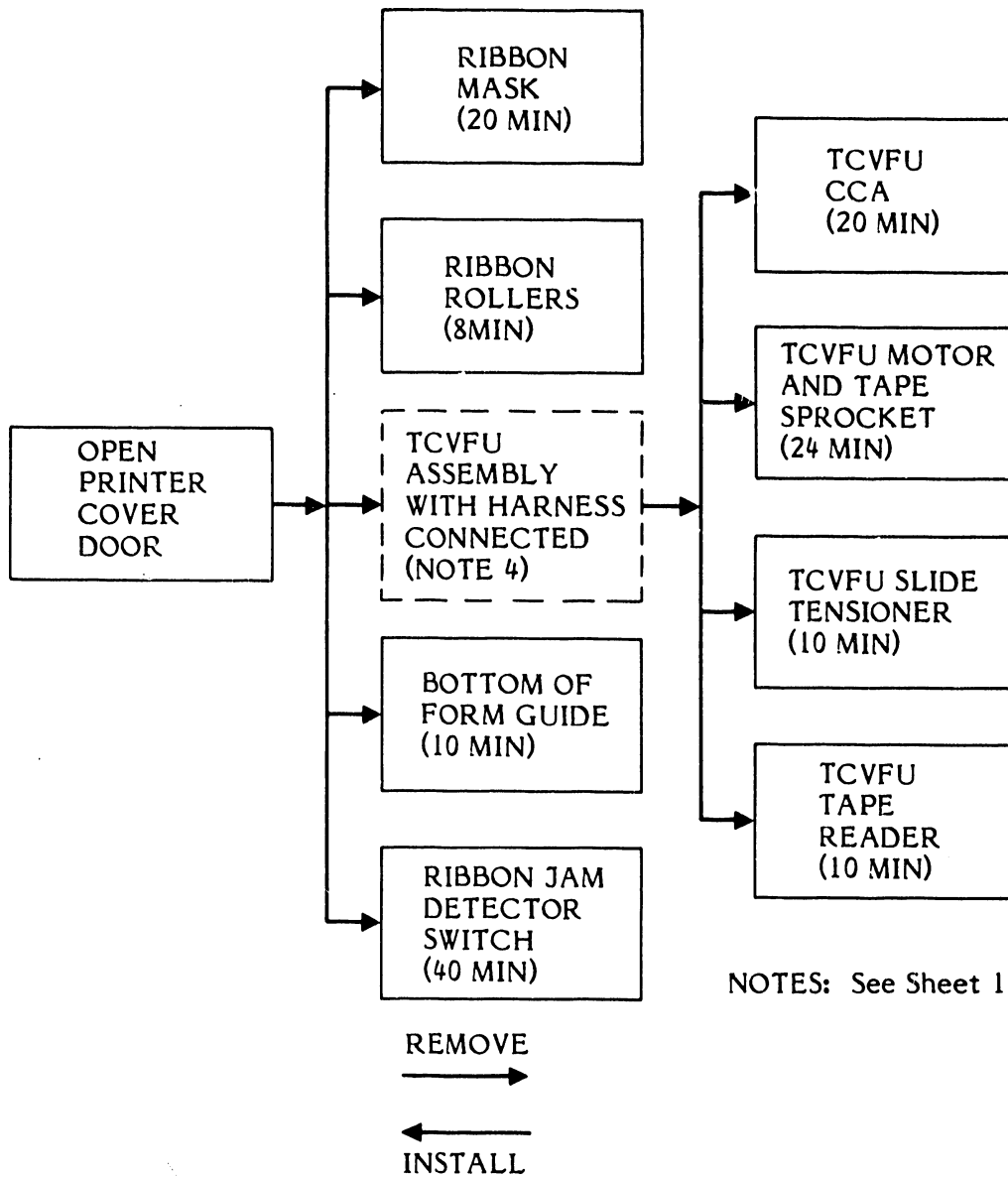


NOTES

1. Times required to remove/install paper, ribbon cartridge, and character band are minimal and are not included.
2. Paper guide shield and card cage removal/installation are incidental to each procedure as required.
3. See Table 3-10 for location of procedures.
4. Dotted blocks indicate partial procedures required to reach the next assembly in the chain.

Figure 3-72. Removal/Installation Sequence and Timing Chart (Sheet 1 of 4)

3



NOTES: See Sheet 1.

Figure 3-72. Removal/Installation Sequence and Timing Chart (Sheet 2 of 4)

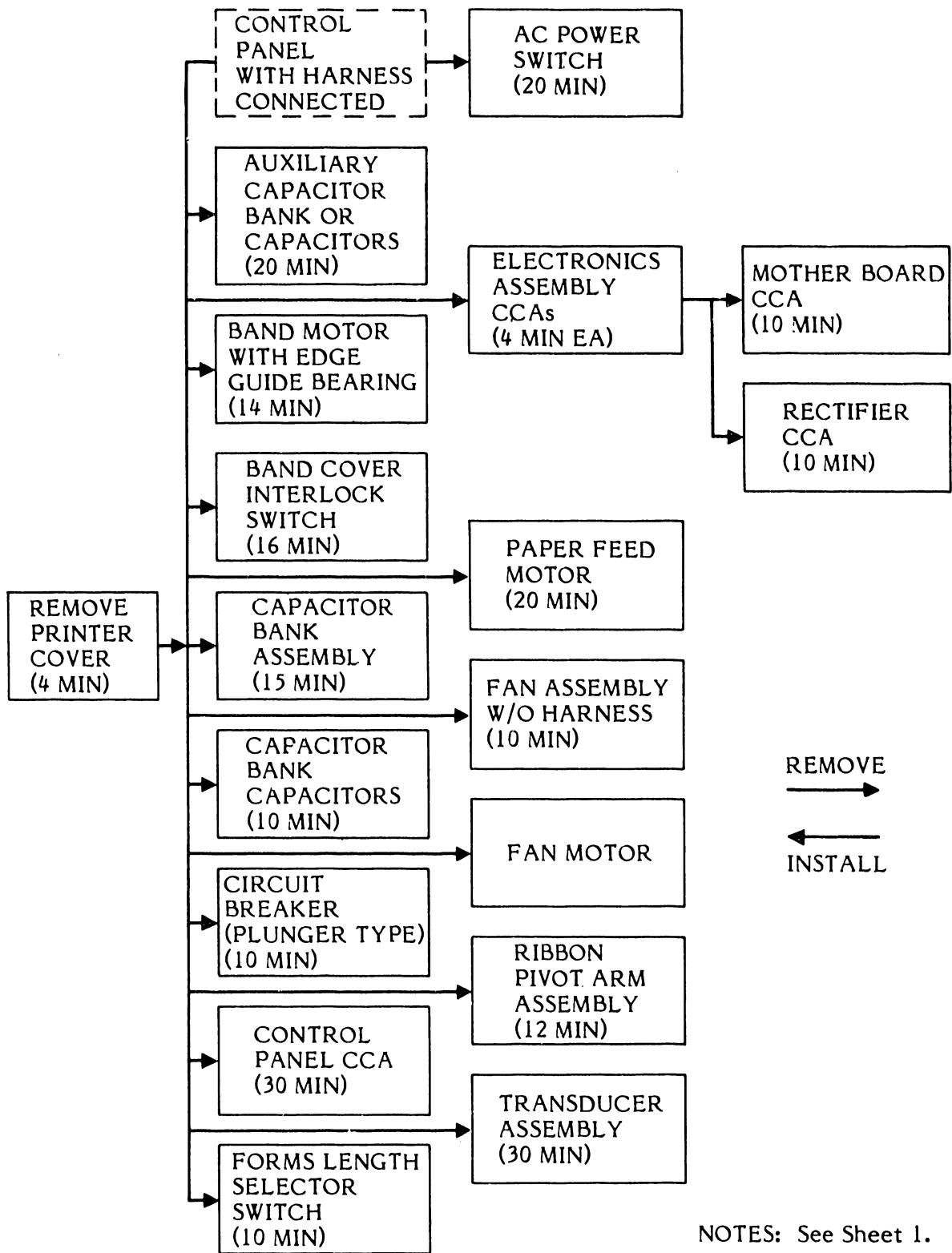


Figure 3-72. Removal/Installation Sequence and Timing Chart (Sheet 3 of 4)

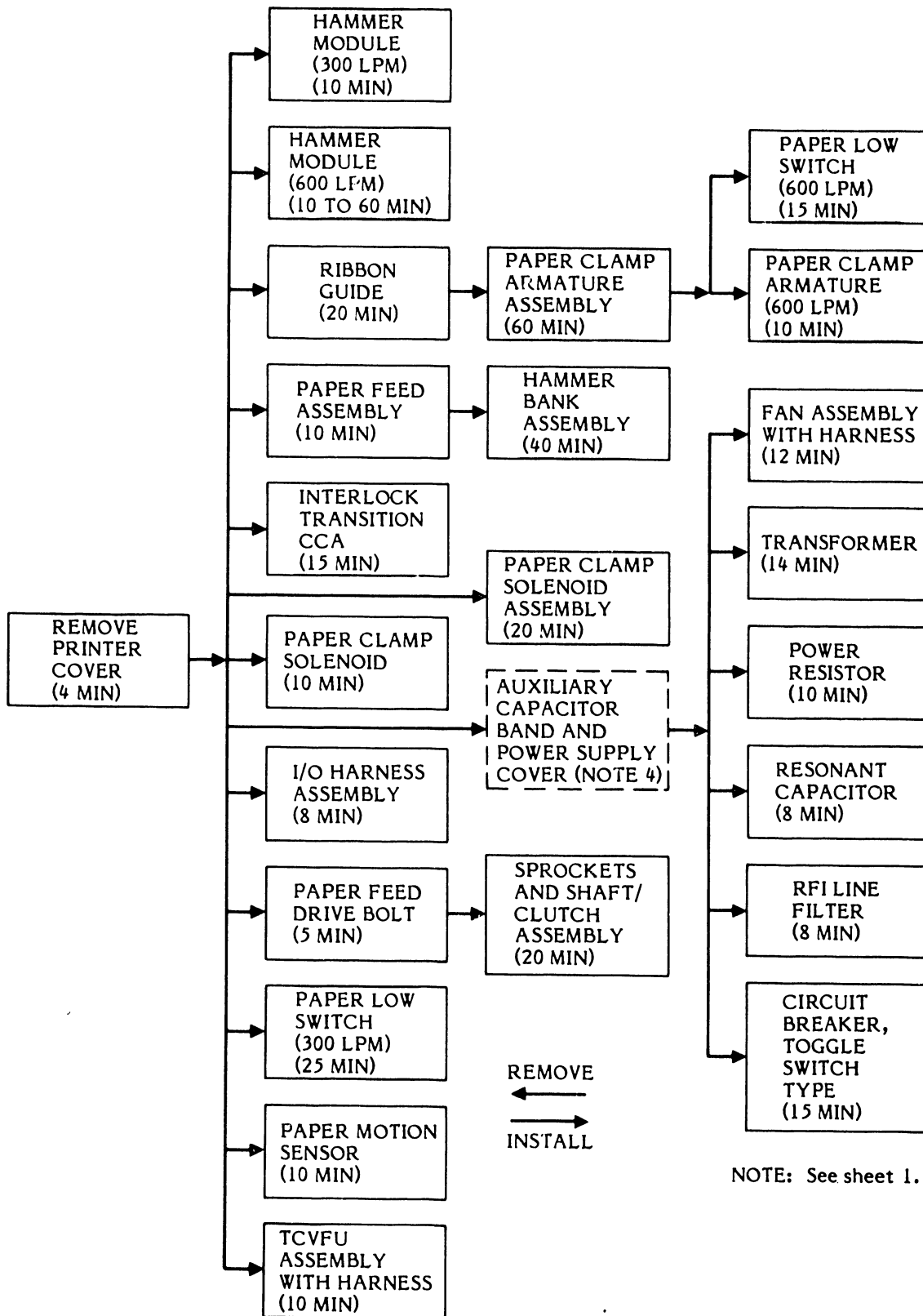


Figure 3-72. Removal/Installation Sequence and Timing Chart (Sheet 4 of 4)

3.7.1 AC Power Switch Removal/Installation (Figure 3-73)

Replacement Part

AC Power Switch

P/N 800931-005

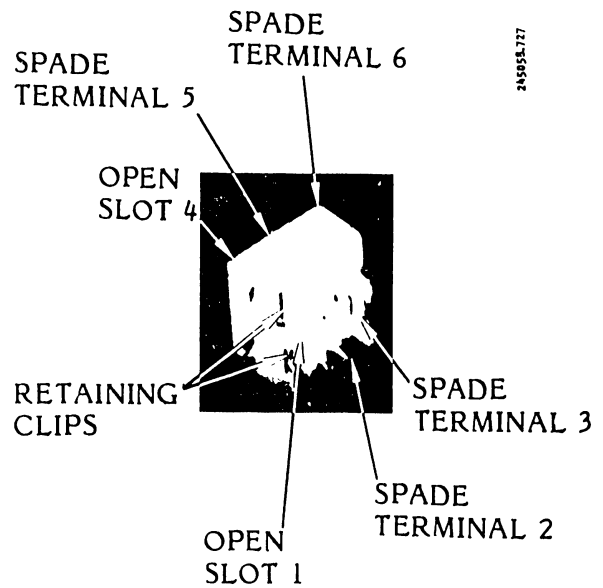
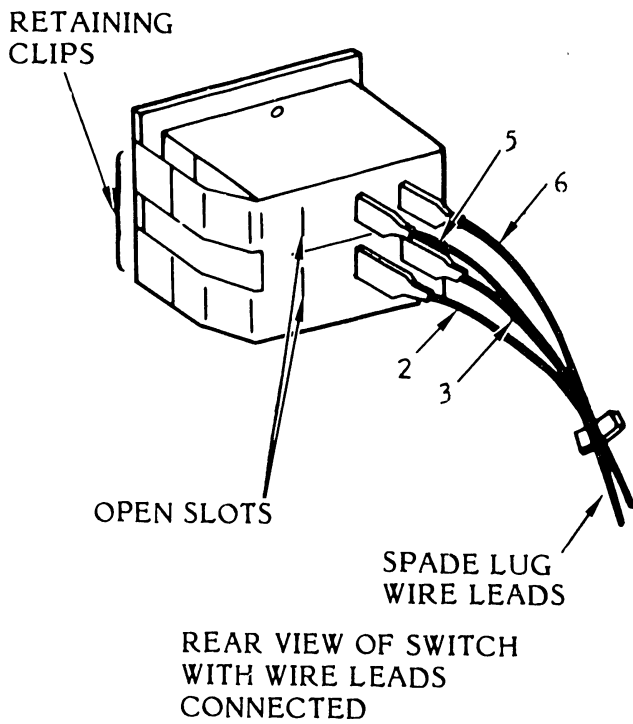
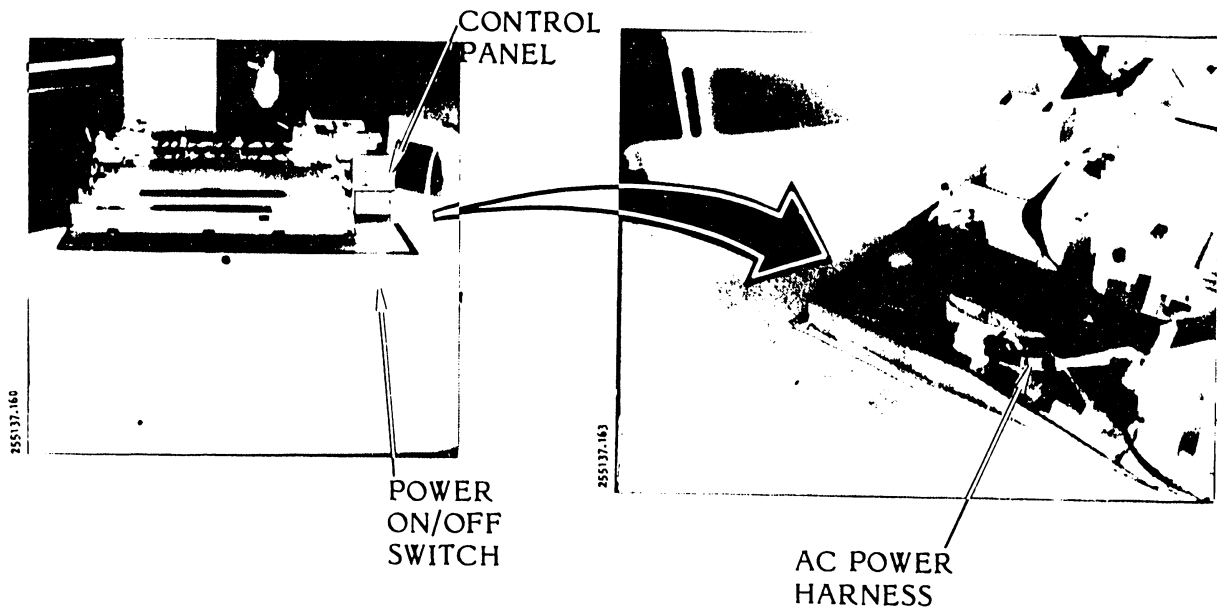


Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the control panel with the harness still connected as described in the Control Panel Removal/Installation procedure (see table 3-10).
- d. Observe the wire connections at the power switch. Each spade lug wire lead should be tagged with a number as shown in figure 3-73. If the spade lug wire leads are not numbered, tag each with the proper number shown in figure 3-73 before disconnecting them.
- e. Disconnect the four spade lug wire leads from the power switch.
- f. Squeeze the retaining clips on each side of the switch and push the switch assembly free from its mounting hole.

Installation

- a. Hold the switch with the numbers 4, 5 and 6 at the top. These numbers correspond with open slot 4, spade lug terminal 5 and spade lug terminal 6.
- b. Insert the switch in the mounting hole and press until it locks in place.
- c. Reinstall the four spade lug wire leads.
- d. Install the Control Panel Assembly as described in the Control Panel Assembly Removal/Installation procedure (see table 3-10).



3

Figure 3-73. AC Power Switch Removal/Installation

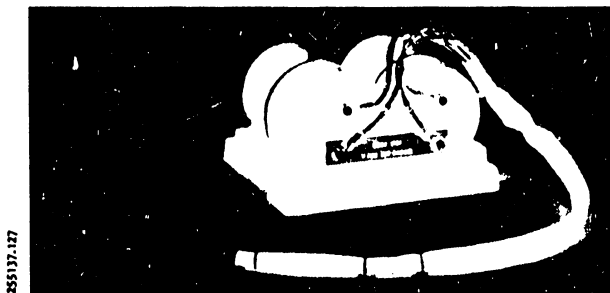
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

3.7.2 Auxiliary Capacitor Bank Assembly Removal/Installation
(Figure 3-74)

This procedure provides instructions for removing only the assembly capacitors or the entire assembly including its wiring harness.

Replacement Parts

Auxiliary Capacitor Bank Assembly	P/N 251086-001
Capacitor 41,000 μ F (C5)	P/N 801743-002
Capacitor 27,000 μ F (C6)	P/N 801743-003



Removal

- a. Set the AC power switch and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.

WARNING

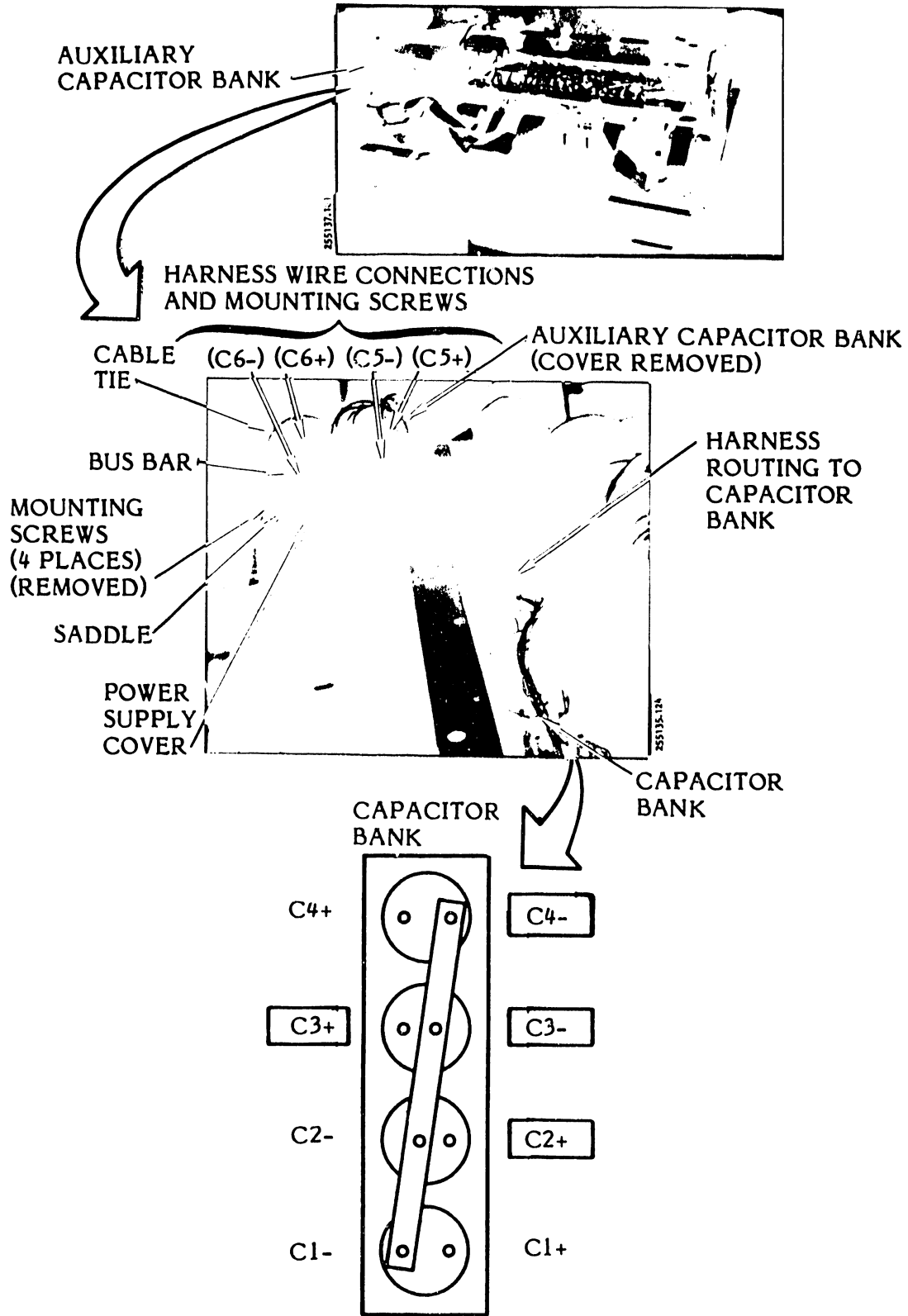
To avoid possibility of shock, allow at least two minutes for the capacitor bank(s) to discharge.

- c. Use an 8 mm nut driver to remove the four auxiliary capacitor bank cover mounting screws and remove the cover.

NOTE

The auxiliary capacitor bank assembly will remain loose on the power supply cover.

- d. Proceed to the next step to remove only the capacitors; otherwise, go to step f.



3

Figure 3-74. Auxiliary Capacitor Bank Assembly Removal/Installation

- e. Remove the single capacitors as follows:
 1. Cut the cable tie that secures the capacitor to the saddle.
 2. Use an 8 mm nut driver to remove the capacitor wire mounting screws and wires for the capacitor to be replaced (see figure 3-74 for polarities and wire identification).
 3. Remove the capacitor.
- f. Use the 8 mm nut driver to remove the capacitor bank insulator cover hex head screws/washers (2) and remove the cover.
- g. Use the 8 mm nut driver to remove the mounting screws and assembly harness wires from the capacitor bank assembly at capacitor terminals C4-, C3-, C3+ and C2+. See figure 3-74 for the location of the assembly harness wires on the capacitor bank assembly.

NOTE

The harness wire leads are tagged to identify with the capacitor terminals.

- h. Observe the present routing of the assembly harness and remove the entire assembly.

Installation

- a. Place the auxiliary capacitor bank assembly on the power supply cover.
- b. Route the harness along the bottom of the power supply chassis.
- c. Use the 8 mm nut driver and mounting screws to connect the assembly harness wire leads to their respective capacitor bank terminals (see figure 3-74).
- d. Use the 8 mm nut driver and hex head screws/washers to install the insulator cover on the capacitor bank.
- e. Proceed to the next step if only the capacitors were removed; otherwise, go to step g.
- f. Install the single capacitors as follows:

1. Place the capacitor in position on the saddle.
 2. Use the 8 mm nut driver and capacitor wire mounting screws to secure the wires to the capacitor as shown in figure 3-74.
 3. Secure the capacitor to the saddle with a new cable tie.
- g. Use the 8 mm nut driver and mounting screws to secure the auxiliary capacitor bank cover and assembly to the power supply cover.
 - h. Install the printer cover as described in paragraph 3.3.
 - i. Plug the AC power cord into the power source.

3.7.3 Band and Idler Pulley/Driver (O-Ring System) Removal/Installation (Figure 3-75)

This procedure is applicable for both the Band Pulley/Driver and Idler Pulley/Driver removal/installation.

Replacement Parts

Pulley and Driver Assembly	263192-001
Screw, Hex Head w/lockwasher M4x12 mm	801797-412



Removal

- a. Set the AC power switch to OFF and unplug the AC power plug from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Use a 7 mm nut driver to remove the driver pulley hex head mounting screw (see figure 3-75).
- e. Tap the pulley sharply with a soft rubber or plastic mallet. When the bearing releases a distinct click is heard.
- f. Lift the pulley and driver assembly off the band motor shaft.

3

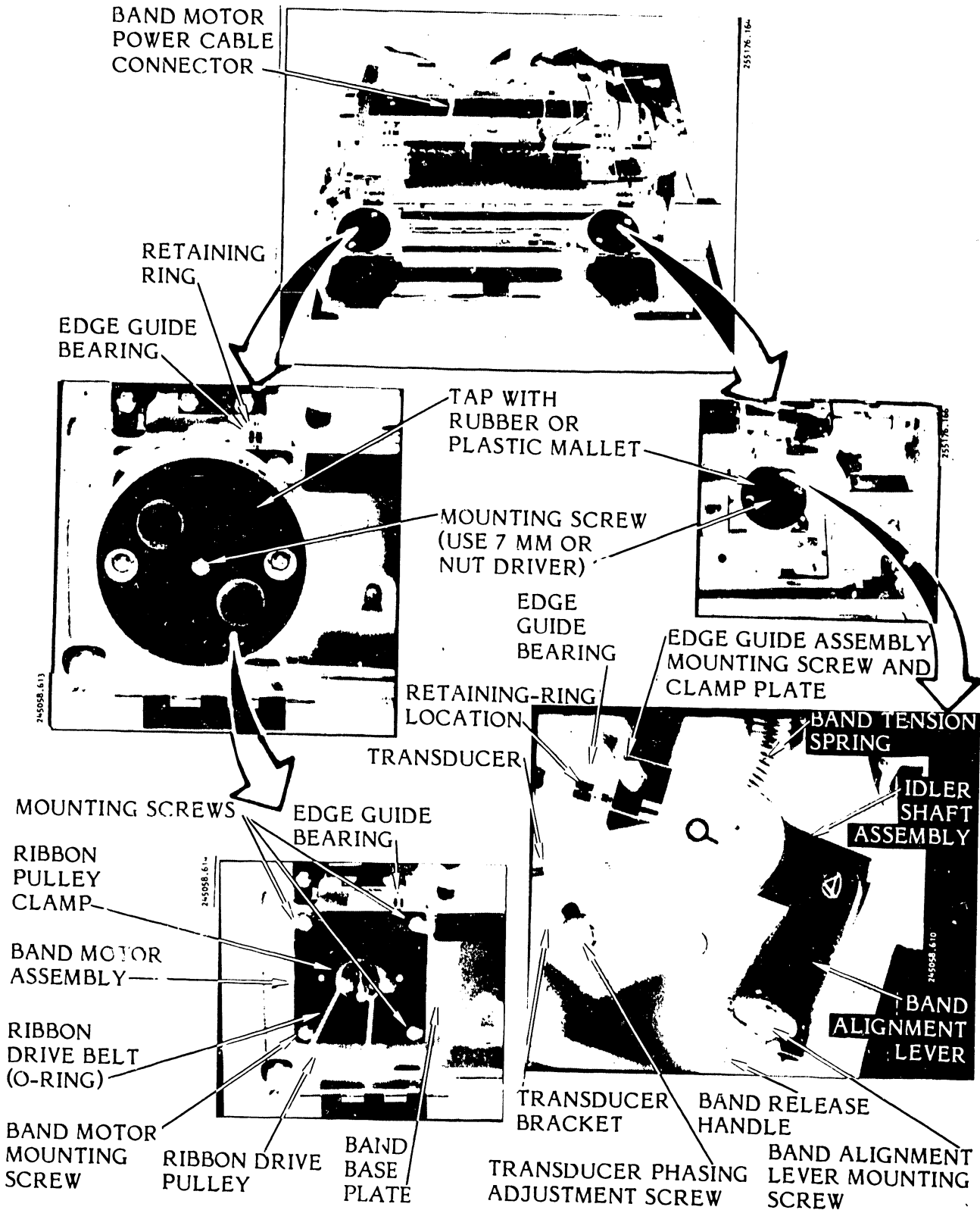


Figure 3-75. Band and Idler Pulley/Driver (O-Ring System) Removal/Installation

Installation

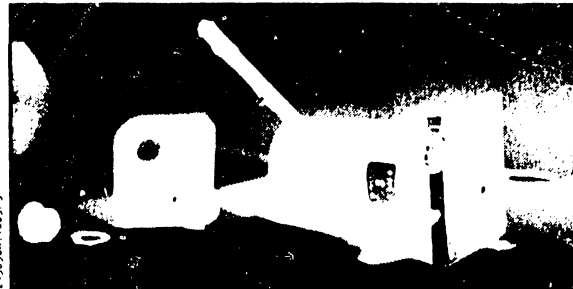
- a. Place the pulley and driver assembly over the band motor shaft.
- b. Press the pulley and driver assembly firmly on the band motor shaft.
- c. Use a 7 mm nut driver to secure the assembly to the band motor shaft with the mounting screw.
- d. Install the character band and ribbon cartridge described in the Operator's Guide.
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

3.7.4 Band Motor With Edge Guide Bearing (O-Ring System) Removal/Installation (Figure 3-76)

Replacement Parts

Band Motor Assembly
with Edge Guide Bearing

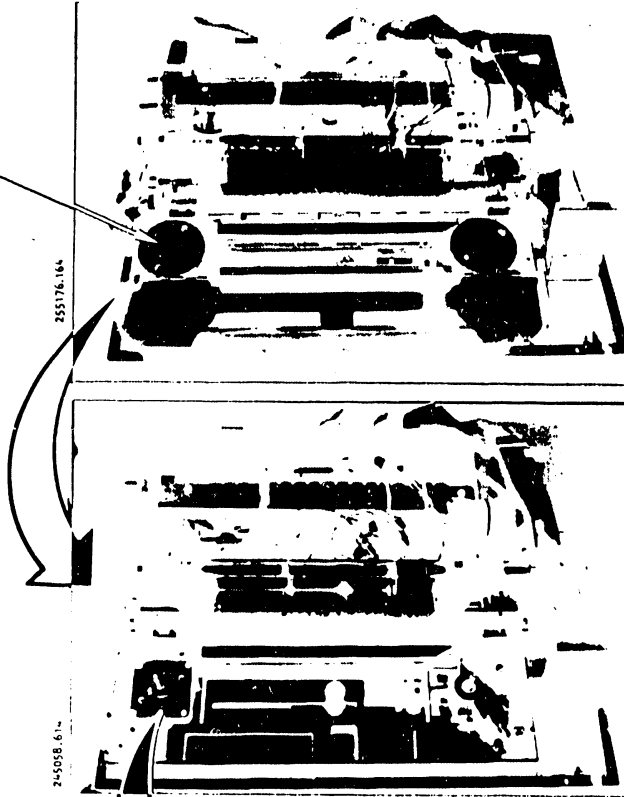
P/N 246164-002



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Open the hammer bank.
- d. Remove the ribbon cartridge as described in the Operator's Guide.
- e. Open the band cover.
- f. Remove the character band as described in the Operator's Guide.

BAND DRIVE
PULLEY
MOUNTING
SCREW



BAND MOTOR
RIBBON PULLEY

BAND MOTOR
MOUNTING SCREWS

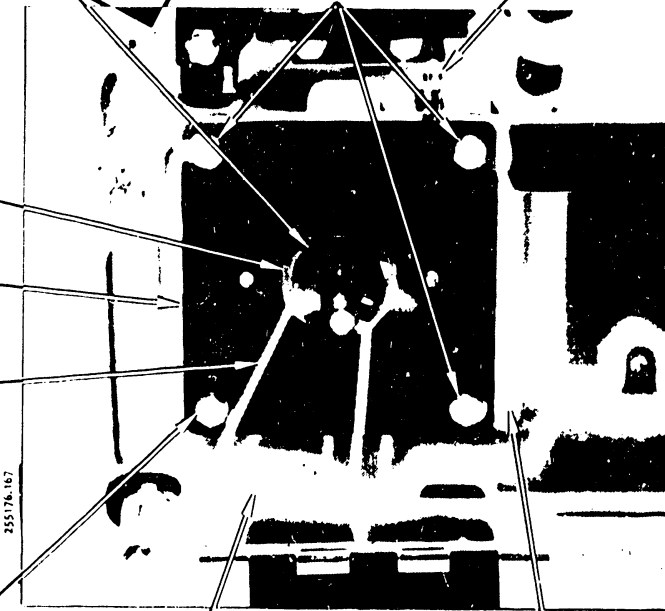
EDGE GUIDE
BEARING

3

RIBBON
PULLEY
CLAMP

BAND MOTOR
ASSEMBLY

RIBBON
DRIVE BELT
(O-RING)



BAND MOTOR
MOUNTING
SCREW

RIBBON DRIVE
PULLEY

BAND BASE
PLATE

Figure 3-76. Band Motor with Edge Guide Bearing (O-Ring System) Removal/Installation

- g. Remove the band drive pulley as described in this section (see table 3-10).
- h. Disconnect the band motor power cable from the Power Board CCA.
- i. Remove the O-Ring ribbon drive belt from the ribbon drive pulley on the band motor shaft.
- j. Use a 3 mm hex driver (allen wrench) to remove the four band motor mounting screws and save them for future use.
- k. Carefully lift and twist the band motor assembly to remove it from the base.
- l. If shims have been installed under the band motor base note their location, remove and save them for reinstallation with the new band motor.

Installation

- a. Route the band motor power cable under the character band base along the inner edge of the printer base up to Connector A5J1 of the Power Board CCA (see figure 3-76).
- b. Install the band motor assembly into the band base plate (see figure 3-76).
- c. Reinstall any shims that were removed from under the band motor base.

NOTE

The total thickness of each set of the factory-installed band motor shims is stamped on the left front side of the band base casting.

- d. Use a 3 mm hex driver (allen wrench) and four mounting screws to secure the band motor assembly to the band base.
- e. Install the O-Ring drive belt over the band motor ribbon drive pulley.
- f. Connect the band motor power cable plug, A15P1, to the Power Board CCA Connector A5J1.
- g. Install the band drive pulley as described in this section (see table 3-10).

- h. Install the character band and ribbon cartridge as described in the Operator's Guide.
- i. Install the printer cover as described in paragraph 3.3.
- j. Plug the AC power cord into the power source.

3.7.5 Edge Guide Bearing (Band Motor O-Ring System) Removal/Installation (Figures 3-76 and 3-77)

Replacement Part

Edge Guide Bearing
with Retaining Ring

P/N 251704-009



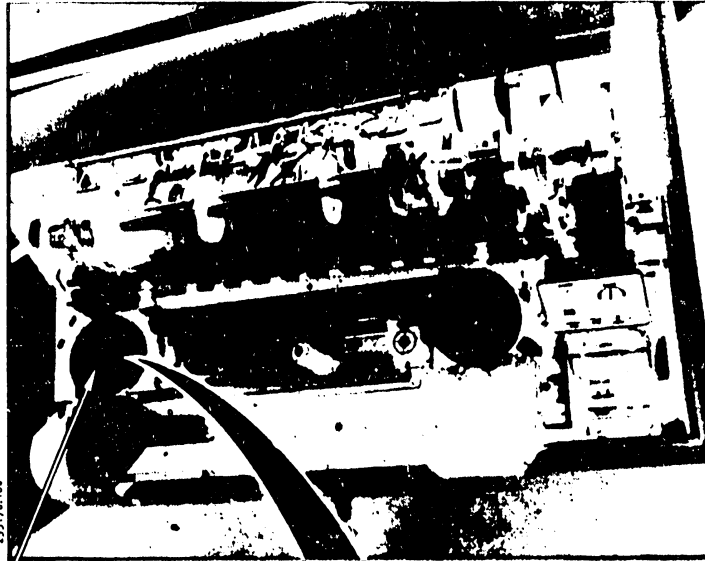
Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the band motor (O-Ring System), as described in this section, enough to be able to reach the edge guide bearing retaining ring (see table 3-10).

NOTE

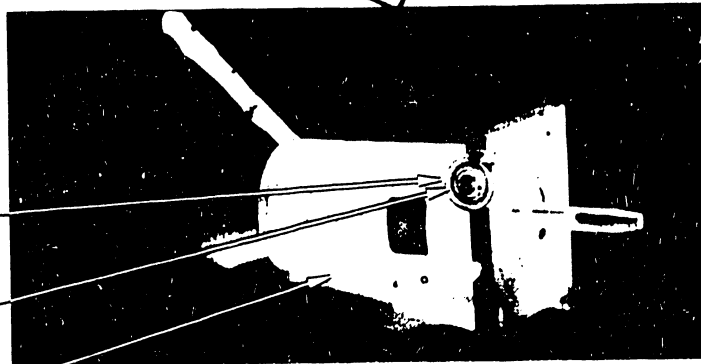
The band motor cable does not have to be unplugged from the Power Board CCA.

- d. Use a No. 2 retaining ring pliers to remove the retaining ring and the edge guide bearing from the motor assembly post.



255176-160

BAND MOTOR
LOCATION



EDGE GUIDE
BEARING

RETAINING
RING

BAND
MOTOR
ASSEMBLY

25958-10575

3

NOTE

Band Motor is removed as described in the "Band Motor With Edge Guide Bearing (O- Ring System)" Removal/Installation procedure (see table 3-10).

Figure 3-77. Edge Guide Bearing (Band Motor O-Ring System) Removal/Installation

Installation

- a. Slip the edge guide bearing on the motor assembly post.
- b. Use a No. 2 retaining ring pliers to install the new retaining ring on the edge guide bearing post.
- c. Place the band motor assembly in the band base opening.
- d. Install the band motor assembly (O-Ring System) in the band base as described in this section (see table 3-10).

NOTE

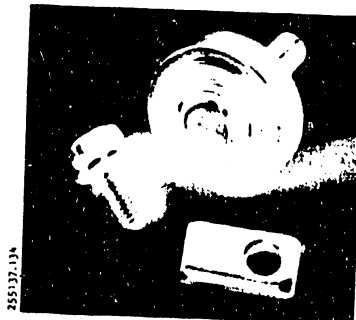
This procedure will be completed when you perform the Band Motor (O-Ring System) Installation procedure.

3.7.6 Edge Guide Bearing (Idler Pulley O-Ring System) Removal/Installation (Figure 3-78)

Replacement Part

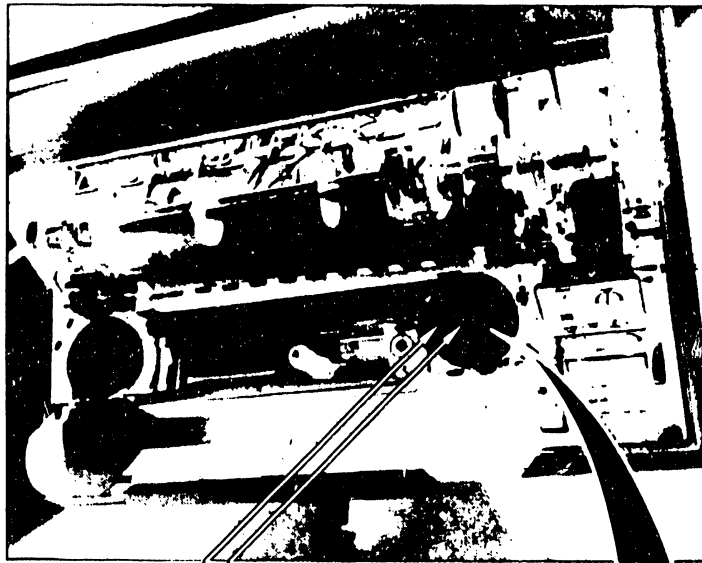
Edge Guide Bearing
with Retaining Ring

P/N 251704-009



Removal

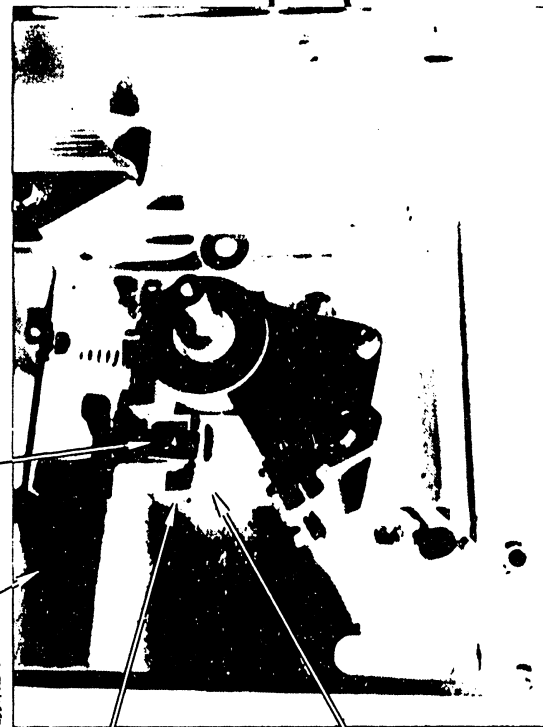
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the ribbon cartridge and the character band as described in the Operator's Guide.
- d. Use a 7 mm nut driver to remove the idler pulley mounting screw/washer.



255176-160

IDLER PULLEY

MOUNTING
SCREW



455176-238

EDGE GUIDE
BEARING
CLAMP SCREW
AND CLAMP
PLATE

BAND
CASTING

RETAINING-RING

EDGE GUIDE
BEARING

3

Figure 3-78. Edge Guide Bearing (Idler Pulley O-Ring System)
Removal/Installation

- e. Tap the idler pulley firmly with a soft non-metallic mallet to free it from its mounting shaft and remove the pulley.
- f. Use the 7 mm nut driver to remove the edge guide leaving clamp screw and clamp.
- g. Remove the edge guide bearing.

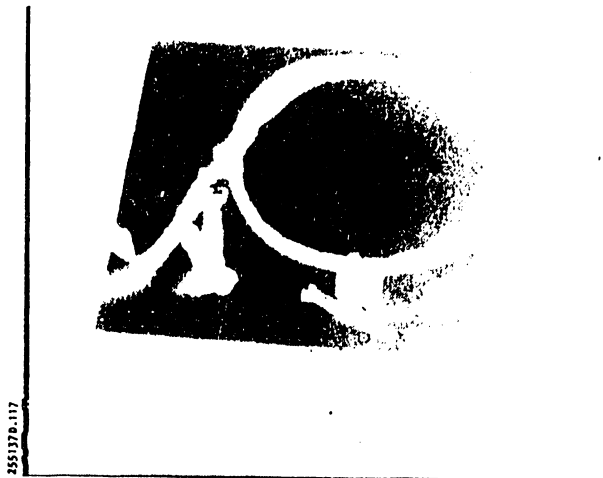
Installation

- a. Install the new edge guide bearing assembly on the band casting as shown in figure 3-78.
- b. Place the clamp in position over the bearing shaft and secure it to the band casting with the clamp screw, using the 7 mm nut driver. Make sure the bearing bushing is against the band casting.
- c. Install the idler pulley, using the 7 mm nut driver and mounting screw/washer.
- d. Install the character band and ribbon cartridge as described in the Operator's Guide.
- e. Plug the AC power cord into the power source.

3.7.7 Band Cover Interlock Switch (Ribbon Weld Skipover Version) Removal/Installation (Figure 3-79)

Replacement Parts

Band Interlock/Ribbon Weld Assembly With Verify	P/N 273420-002
Band Interlock/Ribbon Weld Assembly Without Verify	P/N 273420-001



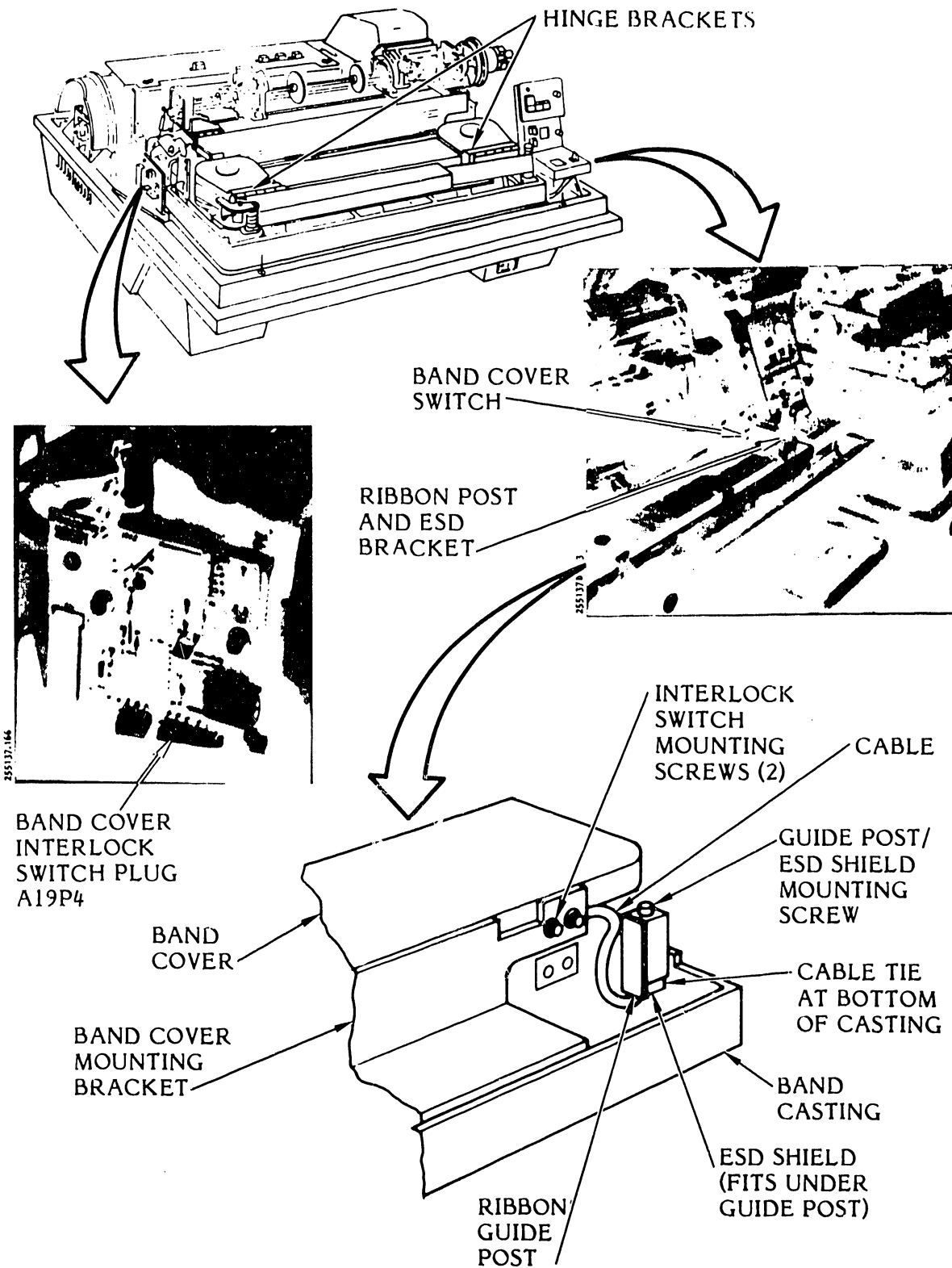


Figure 3-79. Band Cover Interlock/Ribbon Weld Skipover Assembly Removal/Installation

Removal

- a. Set the power switch to OFF and unplug the AC power from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Unsnap the character band cover from its two hinge brackets.
- e. Use a 4 mm hex nut driver to remove the two screws and washers that mount the band cover interlock switch and its nut plate to the band cover hinge bracket. Note that the nut plate is no longer attached to the switch.
- f. Using wire cutters, clip the tie wrap that holds the band cover interlock switch harness to the printer base. The tie wrap is located in the front right corner near the ribbon guide post.
- g. Note the position of the weld detector shield on the right front ribbon guide post.
- h. Use the 7 mm hex nut driver to remove the nut that fastens the right front guide post to the printer base.
- i. Pull the band cover interlock switch plug P3 from the J3 connector on the interlock transition CCA.
- j. Carefully pull the switch harness out from behind the hammer bank assembly.
- k. Once the harness is free, remove the whole switch harness assembly.

Installation

- a. Position the band cover interlock switch and nut plate so that the holes line up with the holes in the band cover hinge bracket.
- b. Partially insert the two screws and washers into the mounting holes. The switch will need adjustment later.
- c. Be sure that the electrostatic storage discharge (ESD) bracket is in place between the switch and hinge bracket.
- d. Place the right front ribbon guide post into position with the ribbon weld detection shield in the ribbon path.

- e. Use a 7 mm hex nut driver to fasten the ribbon guide post in place.
- f. Install a new cable tie in the front right corner to keep the harness wire out of the way of the band pulley.
- g. Thread the cable down through the hole in the mechanics frame assembly, along the inside base of the control panel, and under the hammer bank blower assembly.
- h. Plug the harness plug P3 into the interlock transition CCA connector J3.
- i. Snap the character band cover back onto the hinge brackets.
- j. Adjust the band cover interlock switch and tighten the two switch mounting screws (see table 3-10).
- k. Install the character band and the ribbon cartridge as described in the Operator's Guide.
- l. Install the printer cover as described in paragraph 3.3.

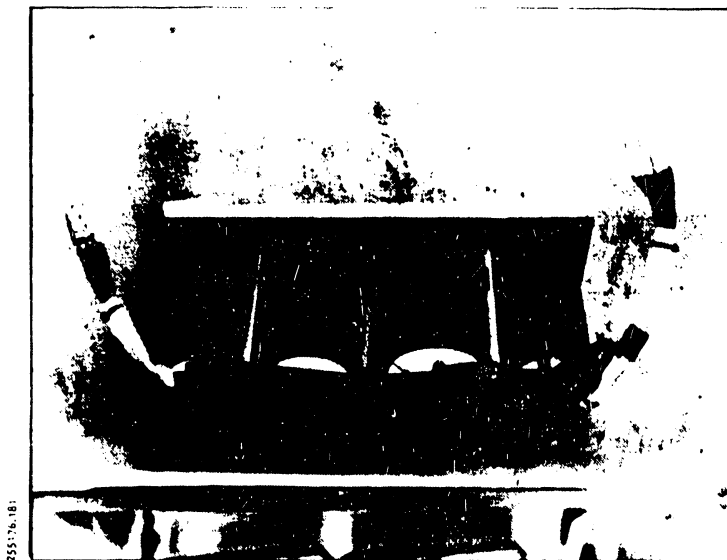
3.7.8 Capacitor Bank Assembly Removal/Installation (Figure 3-80)

This procedure provides instructions for removing and installing the entire assembly. See Capacitor Bank Assembly Capacitors Removal/Installation in this section for changing capacitors only.

Replacement Part

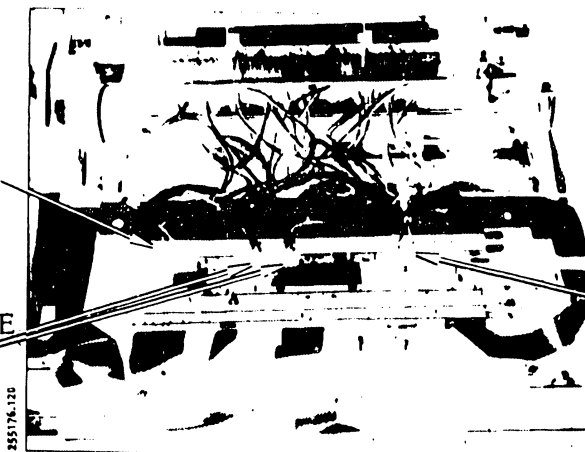
Capacitor Bank Assembly

P/N 263155-001



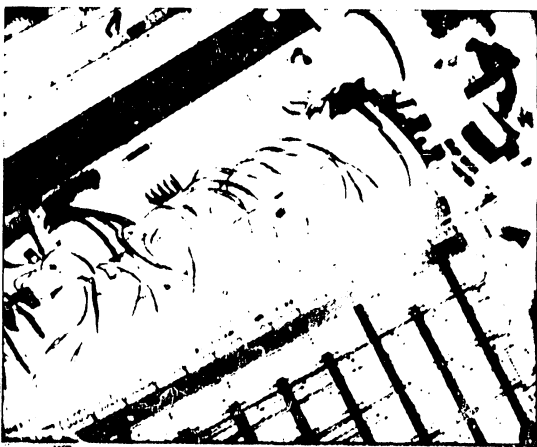
PAPER FEED
MOTOR CABLE
PLUG
A13P4

PAPER CLAMP
SOLENOID CABLE
PLUG A14P4

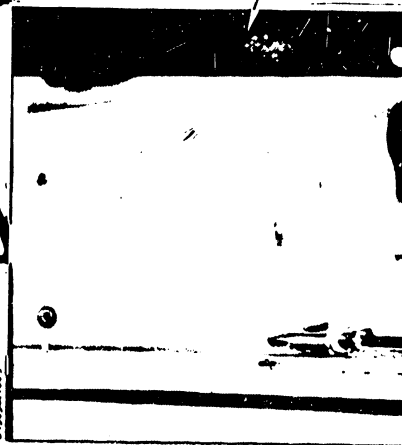


BAND MOTOR
CABLE PLUG
A15P1

POWER
SUPPLY
CHASSIS



CAPACITOR BANK
ASSEMBLY
PLUG A8P7 AT
RECTIFIER CCA
CONNECTOR A9J7



CAPACITOR BANK
ASSEMBLY
PLUG A8P1 CONNECTED
TO MOTHER BOARD
CONNECTOR A7J1

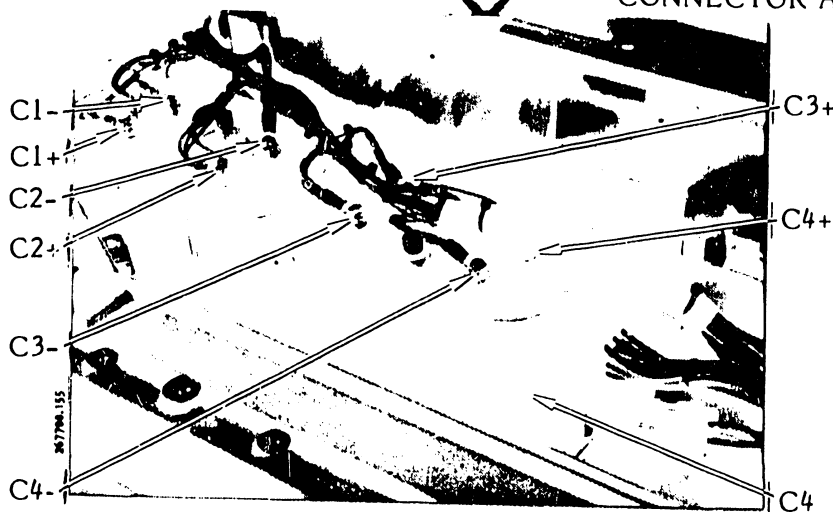


Figure 3-80. Capacitor Bank Assembly Removal/Installation

3

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.

WARNING

To avoid possibility of shock, allow at least two minutes for the capacitor bank(s) to discharge.

- c. Remove the paper guide shield from behind the paper feed assembly and set it aside.
- d. Turn the two wing screws that are located on the top of the power supply chassis to free the electronics card cage cover. Remove the cover.
- e. Pull the band motor cable plug (P1), paper clamp solenoid plugs (P3A and P3B), and paper feed motor cable plug (P4) from their connectors on the Power Board CCA.
- f. Use the two ejector keys on each side of the circuit card assembly to remove the Power Board CCA and set it aside.
- g. Using the ejector keys, remove the Hammer Driver CCA(s) and place it/them on the front of the printer. There is no need to unplug the hammer modules. The 600 LPM model has two Hammer Driver CCAs installed.

WARNING

The back side of the circuit card assemblies are sharp. Use care when removing the plugs from the CCAs.

- h. Pull the capacitor harness A8J7 plug from the Rectifier CCA Connector A9P7 and the A8J1 plug from the Mother Board CCA connector A7P1.

- i. If the printer has the auxiliary capacitor bank assembly mounted on the power supply cover, proceed as follows (otherwise, go to step j).
 1. Use an 8 mm nut driver to remove the capacitor bank insulator cover.
 2. Use an 8 mm nut driver to remove the four auxiliary capacitor bank wires from capacitor terminals C4-, C3-, C3+, and C2+ (see figure 3-80).
- j. Use an 8 mm nut driver to remove the two screws that mount the capacitor bank assembly to the printer base standoffs. The screws are at diagonally opposite corners of the capacitor mounting plate. If the auxiliary capacitor bank harness was disconnected, be careful to not tilt the loose capacitors free from the mounting plate.
- k. Lift the assembly up and free of the printer.

Installation

- a. Place the capacitor bank assembly in position on the printer base standoffs (see figure 3-80). Harness plug A8P1 will be on the fan assembly side of the printer.
- b. Insert the assembly harness plug A8P1 into the Mother Board connector A751.
- c. Insert the assembly harness plug A8P7 into the Rectifier CCA connector A9J7.
- d. Using an 8 mm nut driver and two mounting screws, secure the assembly base to the printer. Be sure the washers are in the right position before tightening the screws.
- e. Install the Hammer Driver CCA(s).
- f. Install the Power Board CCA.
- g. Plug the band motor cable plug (P1), the paper clamp solenoid plugs (P3A and P3B), and the paper feed motor cable plug (P4) back into their Power Board connectors (see figure 3-80).
- h. Install the electronics card cage cover and tighten its two wing screws.
- i. Install the paper guide shield behind the paper feed assembly.
- j. Install the printer cover as described in paragraph 3.3.

3.7.9 Capacitor Bank Assembly Capacitors Removal/Installation
(Figure 3-81)

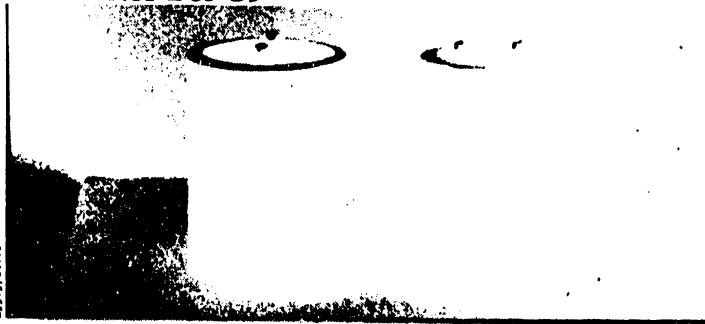
This procedure provides instructions for removing and installing any one or all of the capacitors in the Capacitor Bank Assembly. See Capacitor Bank Assembly Removal/Installation in this section for changing the entire assembly.

Replacement Parts

Capacitor, Aluminum P/N 801743-001
Polarized 83,000 μ F
-10 + 75%, 50V
Ref Des C1, C4

Capacitor, Aluminum P/N 801743-002
Polarized 41,000 μ F
-10 + 75%, 50V
Ref Des C2

Capacitor, Aluminum P/N 801743-003
Polarized 27,000 μ F
-10 + 75%, 75V
Ref Des C3



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.

WARNING

To avoid possibility of shock, allow at least two minutes for the capacitor bank(s) to discharge.

- c. Remove the paper guide shield from behind the paper feed assembly and set it aside.

- d. Use an 8 mm nut driver to remove the two capacitor bank insulator cover mounting screws and the insulator cover.

NOTE

See figure 3-81 to locate the capacitor(s).

- e. Using an 8 mm nut driver, totally loosen but do not remove the four bus bar screws at C1-, C2-, C3-, and C4-.
- f. Use an 8 mm nut driver to remove the screw and wiring from the plus (+) terminal of the capacitor to be changed.
- g. Lift the bus bar as far as necessary and slide the capacitor away from the mounting base and out of the printer.

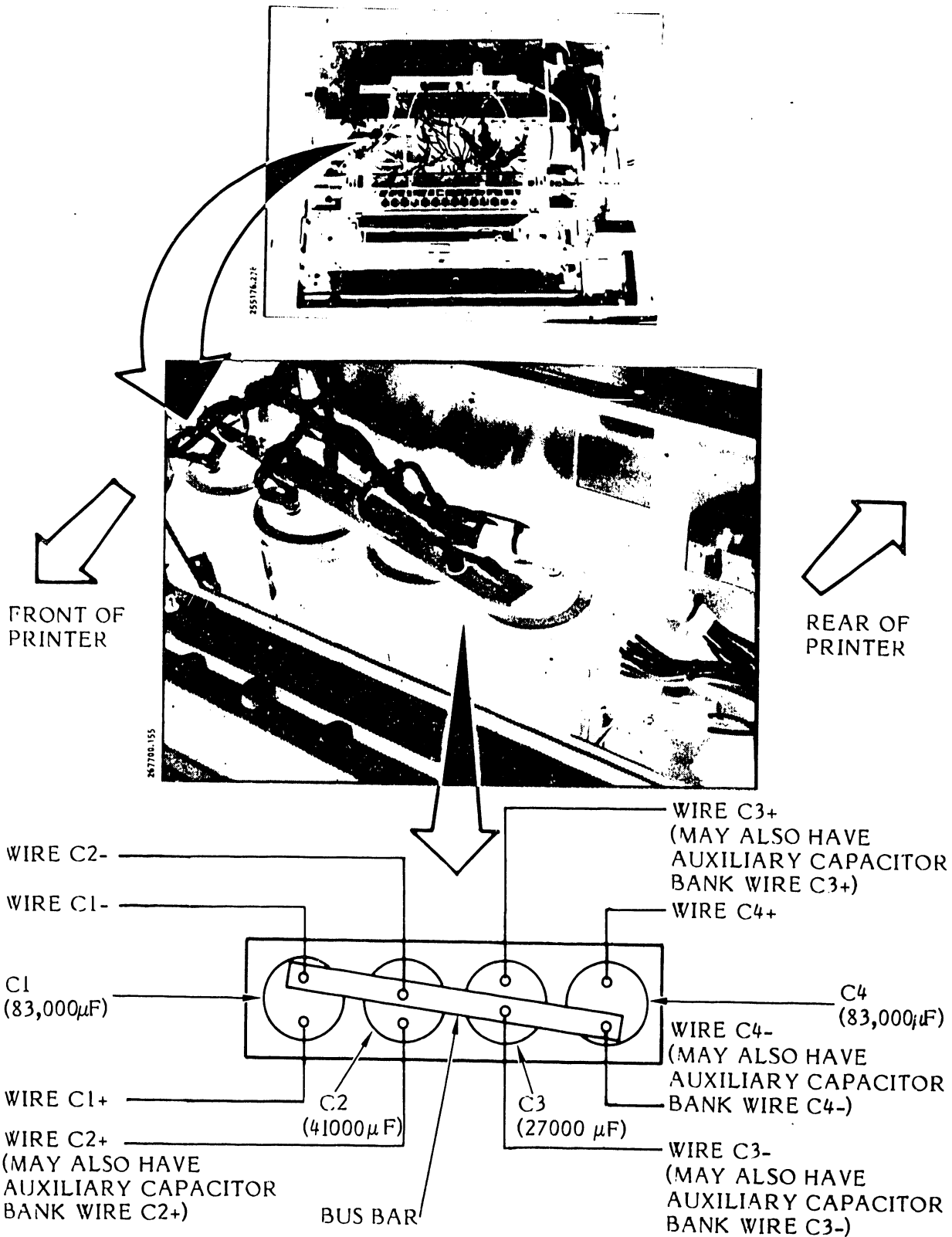
Installation

- a. Place the capacitor in position under the bus bar and on the mounting plate.

NOTE

The minus (-) terminal should be located under the bus bar mounting screw.

- b. Using an 8 mm nut driver and bus bar mounting screw, secure each minus (-) wire lead loosely to its minus (-) capacitor terminal.
- c. Using the 8 mm nut driver and bus bar mounting screw, secure each plus (+) wire lead to its plus (+) capacitor terminal.
- d. Make sure the bus bar lays flat over all the minus (-) terminals of the capacitors and then, using the 8 mm nut driver, secure all four bus bar mounting screws.
- e. Check again to make sure the wiring is correct as shown in figure 3-81.
- f. Using the 8 mm nut driver and mounting screws, secure the capacitor bank insulator cover to the capacitor bank.
- g. Install the paper guide shield behind the paper feed assembly.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug in the AC power cord to the power source.



3

Figure 3-81. Capacitor Bank Capacitor Removal/Installation

3.7.10 Circuit Card Assembly Removal/Installation

This procedure provides the initial instructions for the removal of the circuit card assemblies and the final instructions for installation of the circuit card assemblies. See paragraphs 3.7.11, 3.7.12, and 3.7.13 for the removal/installation of the individual circuit card assemblies.

Before removing any CCAs perform the following removal procedure:

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the paper guide shield from behind the Paper Feed Assembly.
- d. Remove the electronics assembly card cage cover by loosening the two fasteners and lifting it out.
- e. Proceed with the removal of each individual circuit card assembly as described in paragraphs 3.7.11, 3.7.12, and 3.7.13.

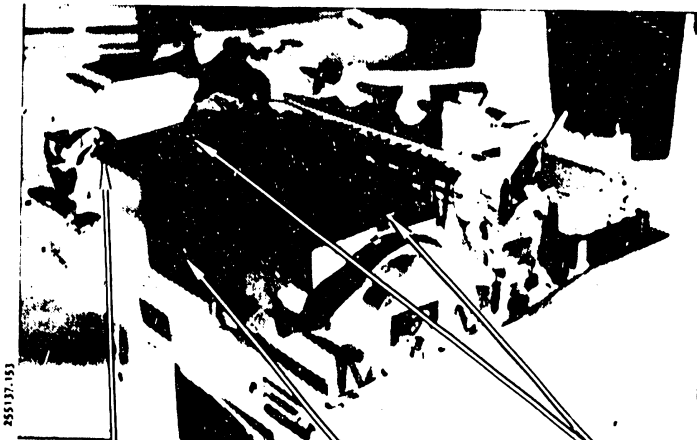
Installation

- a. Install each circuit card assembly as described in paragraphs 3.7.11, 3.7.12, and 3.7.13.
- b. Install the electronics card cage cover and tighten the wing screws.
- c. Install the paper guide shield behind the paper feed assembly.
- d. Install the printer cover as described in paragraph 3.3.
- e. Plug the AC power cord into the AC power source.

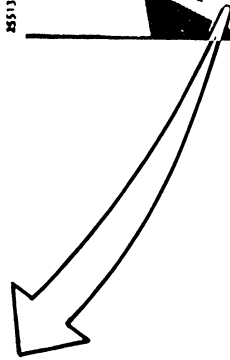
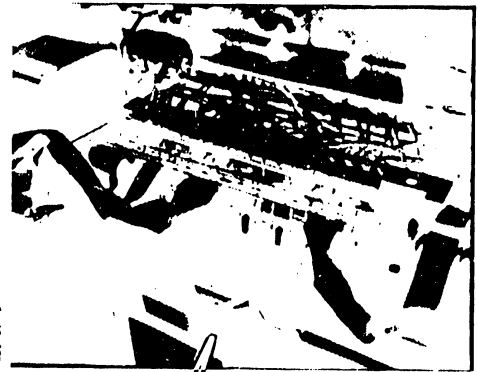
3.7.11 Electronics Assembly CCA Removal/Installation (Figure 3-82)

NOTE

Check the orientation decal on the card cage cover for the CCAs belonging to your printer.



CARD CAGE COVER
ORIENTATION DECAL
COVER FASTENERS



ELECTRONICS ASSEMBLY CIRCUIT CARDS

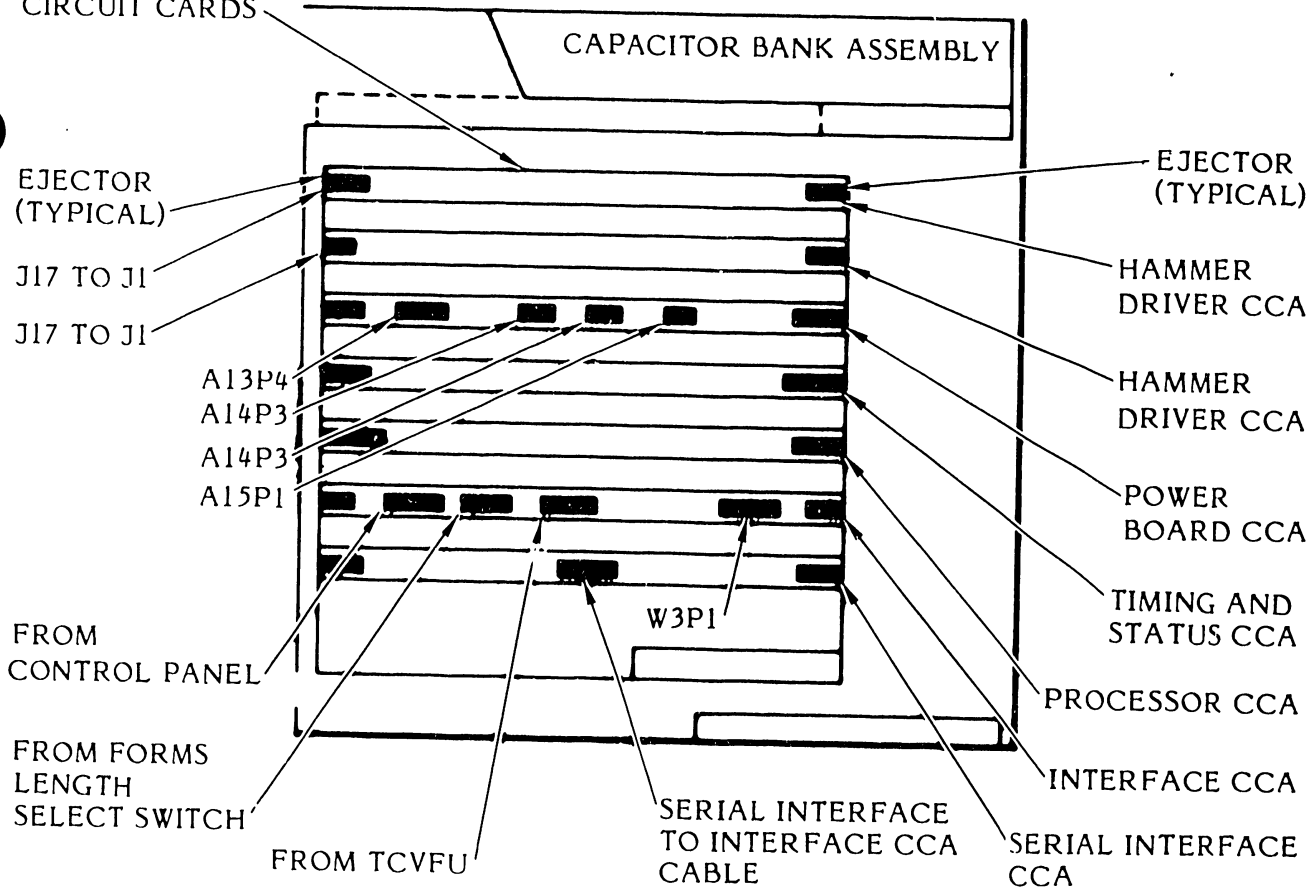
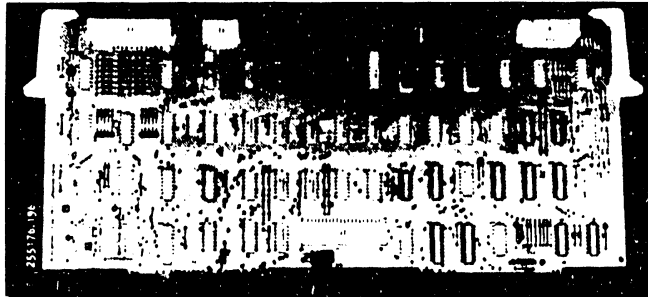


Figure 3-82. Electronics Assembly CCA Removal/Installation

3

Replacement Parts

Short Line Interface CCA	
Without VFU	P/N 257345-001
With VFU	P/N 257345-002
Long Line Interface CCA	
Without VFU	P/N 257240-001
With VFU	P/N 257240-002
Serial Interface CCA	
1K Buffer	P/N 267295-001
2K Buffer	P/N 267265-002
4K Buffer	P/N 267265-003
Centronics-Compatible Interface CCA	P/N 257265-001
Processor CCA	
20 Bit w/Sentinel and	P/N 257315-001
Variable Band Time-out	
20 Bit w/o Sentinel and	P/N 257315-002
Variable Band Time-out	
20 Bit w/Variable Band	P/N 257315-003
Time-out only	
Timing and Status CCA	P/N 263080-001
Power Board CCA	P/N 263040-001
Hammer Driver CCA	
132 Columns	P/N 251165-001
136 Columns	P/N 251165-002



TYPICAL

Removal

- a. Perform the steps described in the initial instructions for the removal of the circuit card assemblies in paragraph 3.7.10.
- b. Locate the particular CCA.
- c. Lift the ejector key on each side of the CCA to free the CCA from the Mother Board slots.
- d. Lift the CCA free of its slots.
- e. Unplug the attached cables, if required.

NOTE

Most CCAs can be lifted free without unplugging their attached cables. However, it may be necessary to unplug cables from other CCAs if they overlay the CCA you wish to lift.

- f. Proceed with the installation or go to paragraph 3.7.12 if it is necessary to remove and install a Rectifier CCA.

Installation

- a. Find the proper circuit card guide slot location in the mother board (see figure 3-82) and position the CCA in that slot.

NOTE

All the CCAs except the Hammer Driver CCAs will have the component side facing toward the back of the printer.

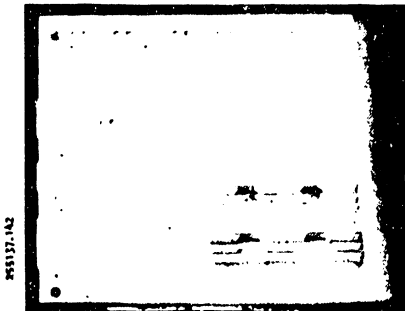
- b. Line up the CCA end plugs with the Mother Board CCA connector.
- c. Push firmly on the ejector keys to seat the CCA in the mother board.
- d. Proceed with the removal/installation of the Rectifier or Mother Board CCAs if required or finish the installation procedure as described in paragraph 3.7.10.

3.7.12 Rectifier CCA Removal/Installation (Figure 3-83)

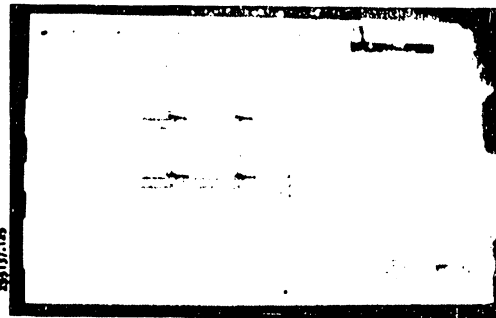
Replacement Parts

115 VAC, 60 Hz Rectifier CCA
 Universal Power Supply

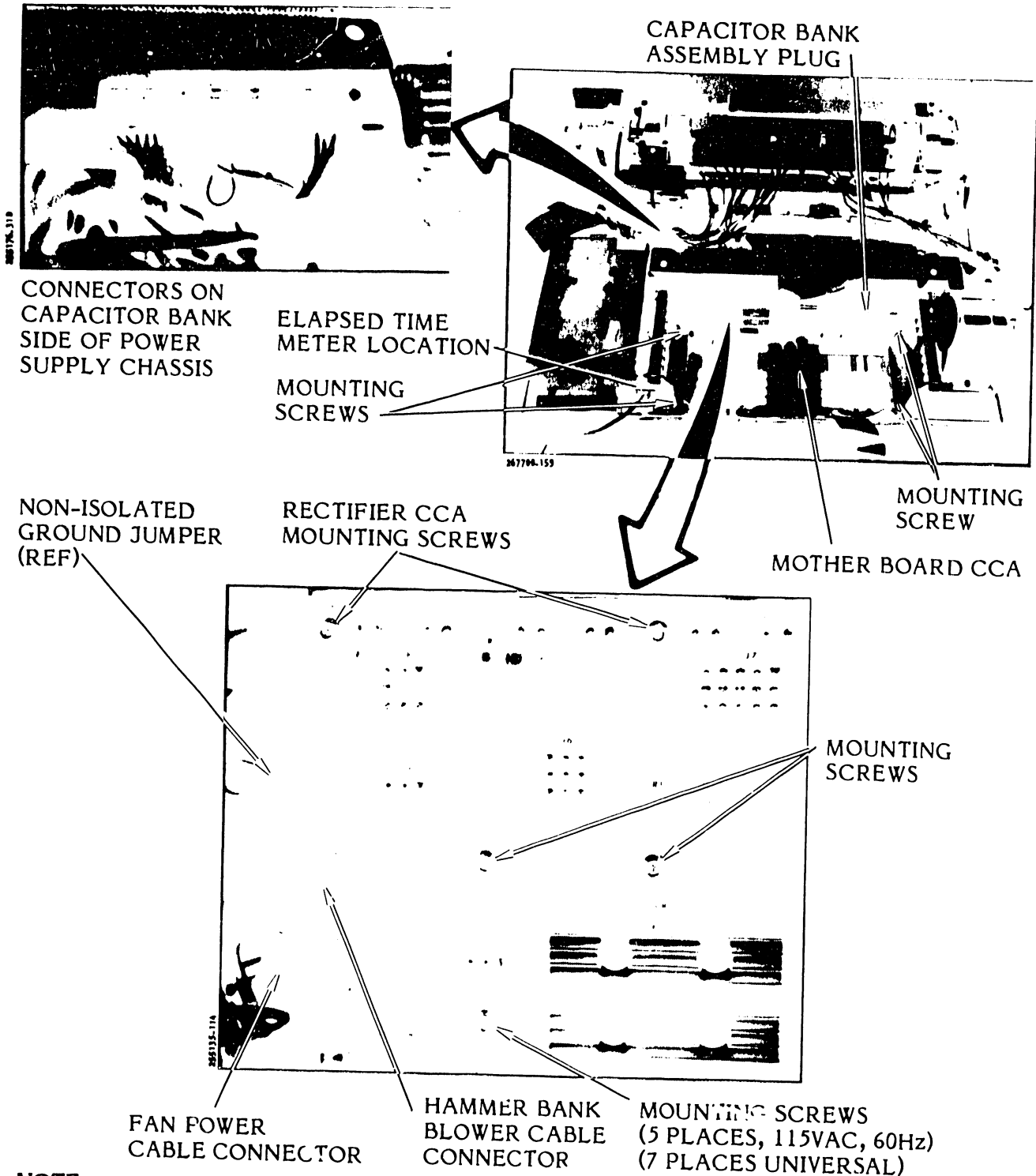
P/N 251725-001
 P/N 251895-001



115 VAC 60 HZ



UNIVERSAL



NOTE

Rectifier CCA located last in card cage as seen from rear of printer.

Figure 3-83. Rectifier CCA and Mother Board CCA Removal/Installation

3

Removal

- a. Perform the steps described in the initial instructions for the removal of the circuit card assemblies in paragraph 3.7.10.
- b. Unplug the connectors from the top of the card cage CCAs and perform the Electronics Card Cage removal procedure (paragraph 3.7.11). See figure 3-82 for the various cable plug connections.

NOTE

The 115 VAC 60 Hz (standard) Rectifier CCA is mounted with five screws and the Universal Power Supply Rectifier CCA is mounted with seven screws.

- c. Unplug the following cables from the Rectifier CCA.
 - Capacitor Bank Assembly cable plug A8P7 from J7.
 - Transformer Cable plugs P4 and P5 from J4A or J4B and J5A or J5B.
 - AC power cable A9P1 from J1.
 - Fan Assembly cable A11P2 from J2.
- d. Use an 8 mm nut driver to remove the five or seven mounting screws from the power supply chassis.
- e. Remove the Rectifier CCA from the power supply chassis.

Installation

- a. Place the Rectifier CCA on the power supply chassis from the mother board side of the chassis.

NOTE

The fuses must be at the top and the connectors must face toward the capacitor bank assembly.

- b. Start the mounting screws in the screw location to loosely secure the CCA to the chassis.

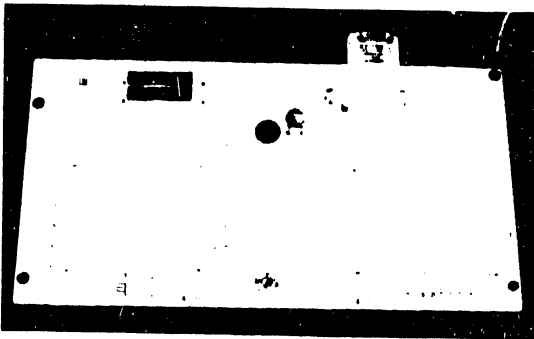
- c. Use the 8 mm nut driver to secure the CCA firmly to the chassis.
- d. Plug in the transformer cables, capacitor bank assembly cable, AC power cable, and fan assembly cable to their associated Rectifier CCA connectors (see figure 3-83).
- e. Install the Electronics Assembly CCAs as described in paragraph 3.7.11.
- f. Finish the installation procedure as described in paragraph 3.7.10.

3.7.13 Mother Board CCAs Removal/Installation (Figure 3-83)

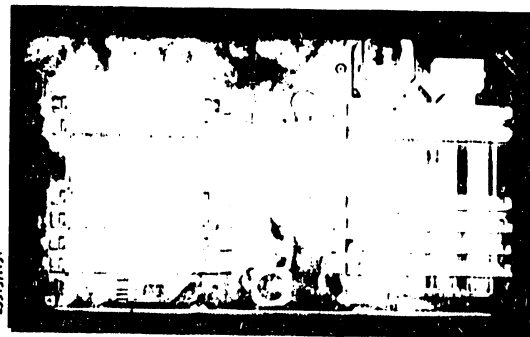
Replacement Parts

300 LPM Printer
600 LPM Printer

P/N 251995-001
P/N 251190-001



600 LPM



300 LPM

- a. Perform the steps described in the initial instructions for the removal of the circuit card assemblies in paragraph 3.7.10.
- b. Perform the Electronics Assembly CCA removal procedure as described in paragraph 3.7.11.
- c. Unplug the capacitor bank assembly cable from the mother board connector (far right).
- d. If the elapsed time meter is installed, unplug it from the Mother Board CCA.
- e. Use an 8 mm nut driver to remove the four mounting screws and lift the Mother Board CCA out of the printer.

Installation

- a. Place the Mother Board CCA in position on the printer base mounting holes.

NOTE

The relay will be on the right toward the power supply chassis.

- b. Use an 8 mm nut driver and mounting screws to secure the mother board to the printer base.
- c. Plug the capacitor bank assembly cable (P1) into J1.
- d. If the elapsed time meter is installed, plug it in at J2.
- e. Install the Electronics Assembly CCA and the Rectifier CCA.
- f. Finish the installation procedure as described in paragraph 3.7.10.

3.7.14 Band Idler Pulley Shaft Assembly (O-Ring System) Removal/Installation (Figure 3-84)

Replacement Parts

Idler Shaft Assembly P/N 251880-001

Associated Parts

Transducer Assembly 251704-004
 Band Alignment Lever Assembly 263004-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Use a 7 mm nut driver to remove the idler pulley mounting screw, tap the pulley with a nonmetallic mallet, and remove the pulley.

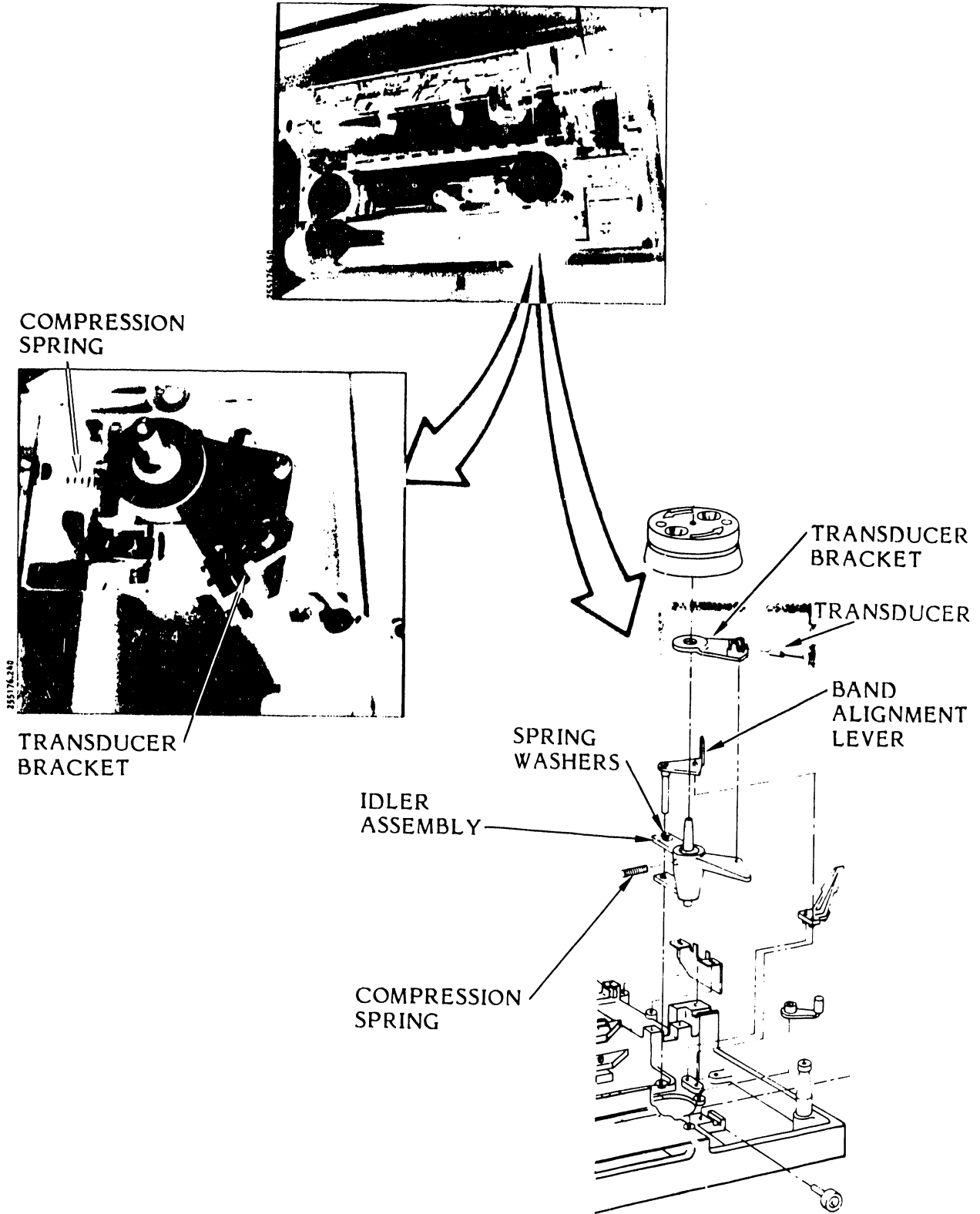


Figure 3-84. Band Idler Pulley/Shaft Assembly (O-Ring System) Removal/Installation

- e. Use the 7 mm nut driver to remove the transducer phasing adjustment screw and set the transducer bracket with the transducer out of the way.
- f. Use a 3 mm hex driver (allen wrench) to remove the band alignment lever mounting screw and lift the lever up and out.
- g. Observe the order of the three spring washers located beneath the lever shaft. Remember the order in which the washers are assembled and save them for installation.
- h. Remove the band tension (compression) spring.
- i. Remove the idler shaft assembly.

Installation

- a. Place the idler shaft assembly in position to straddle the band casting pivot hole.
- b. Place the three spring washers back in proper order on the idler arm over the pivot hole.
- c. Insert the band alignment lever shaft into the pivot hole.
- d. Use a 3 mm hex driver to connect the band alignment lever to the idler shaft yoke with the mounting screw.
- e. Insert one end of the band tension (compression) spring over the nipple on the band casting, then snap the other end of the spring over the nipple on the idler shaft yoke.
- f. Place the transducer bracket assembly snugly over the idler shaft assembly yoke.
- g. Secure the transducer bracket assembly loosely to the idler assembly with the mounting screw, using the 7 mm nut driver.
- h. Use the 7 mm nut driver and mounting screw/washer to install the idler pulley.
- i. Perform the Transducer Gap Adjustment and Transducer Phasing Adjustment procedures as described in the Adjustments part of this section (see table 3-9).

3.7.15 Band and Idler Pulley (Posidrive) Removal/Installation (Figure 3-85)

This procedure can be used for both the band driver pulley and the band idler pulley.

Replacement Part

Band Drive Pulley

P/N 257570-001

POSIDRIVE



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Use an 8 mm nut driver to remove the pulley mounting screw/washer.
- e. Tap the pulley firmly with a non-metallic mallet to free it from the shaft and remove the pulley.

Installation

CAUTION

Later models will contain the Posidrive Slip Clutch Assembly under the band pulley. Make sure the spring washers are set over the motor shaft hub properly (see figure 3-123).

- a. Place the pulley over the mounting shaft and press it down.
- b. Use the 8 mm nut driver and mounting screw/washer to secure the pulley to the shaft.
- c. Install the character band and ribbon cartridge as described in the Operator's Guide.
- d. Plug the AC power cord into the power source.

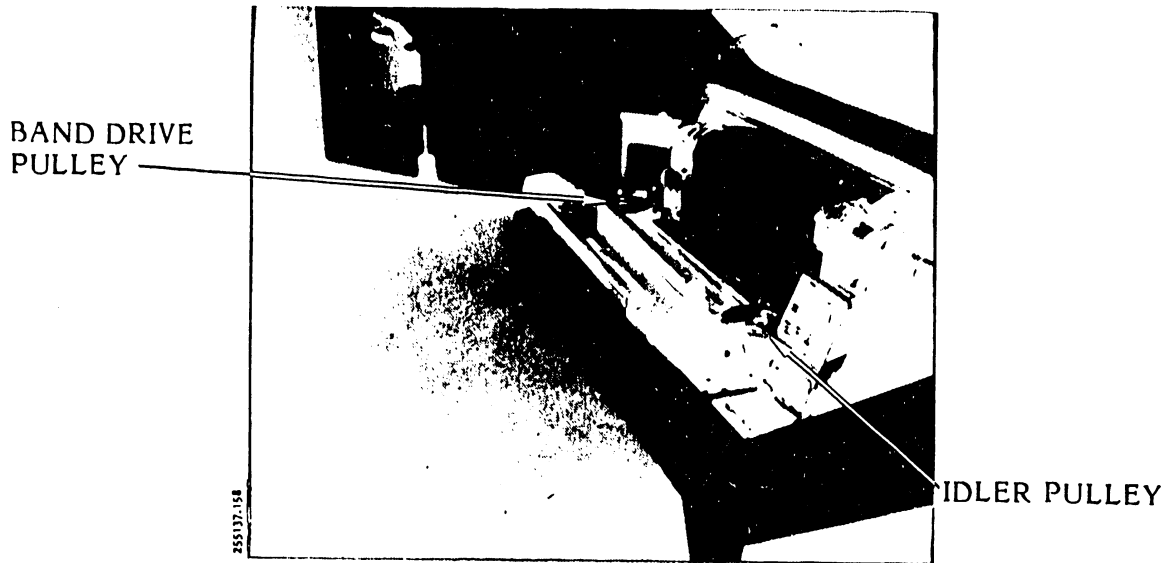
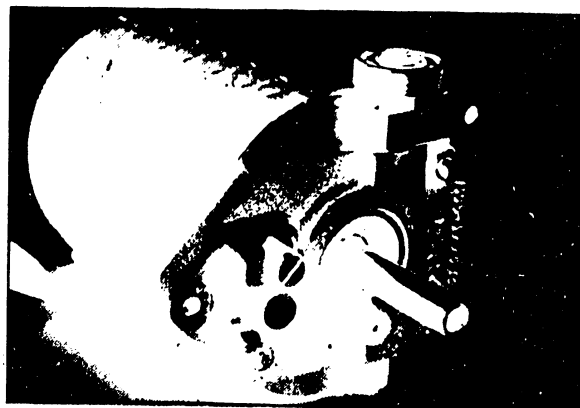


Figure 3-85. Band and Idler Pulley (Posidrive) Removal/Installation

3.7.16 Band Motor with Edge Guide Bearing (Posidrive System) Removal/Installation (Figure 3-86)

Replacement Parts

Band Motor Assembly (Posidrive) P/N 263476-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.

- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the ribbon cartridge and character band as described in the Operator's Guide.
- d. Use an 8 mm nut driver to remove the band drive pulley mounting screw, then tap the pulley with a nonmetallic mallet and remove the pulley.
- e. Unplug the band motor cable from the Power Board CCA (see figure 3-86).
- f. Remove the ribbon drive belt.
- g. Use an 8 mm nut driver to remove the two band motor hold down screws and clamps (see figure 3-86).

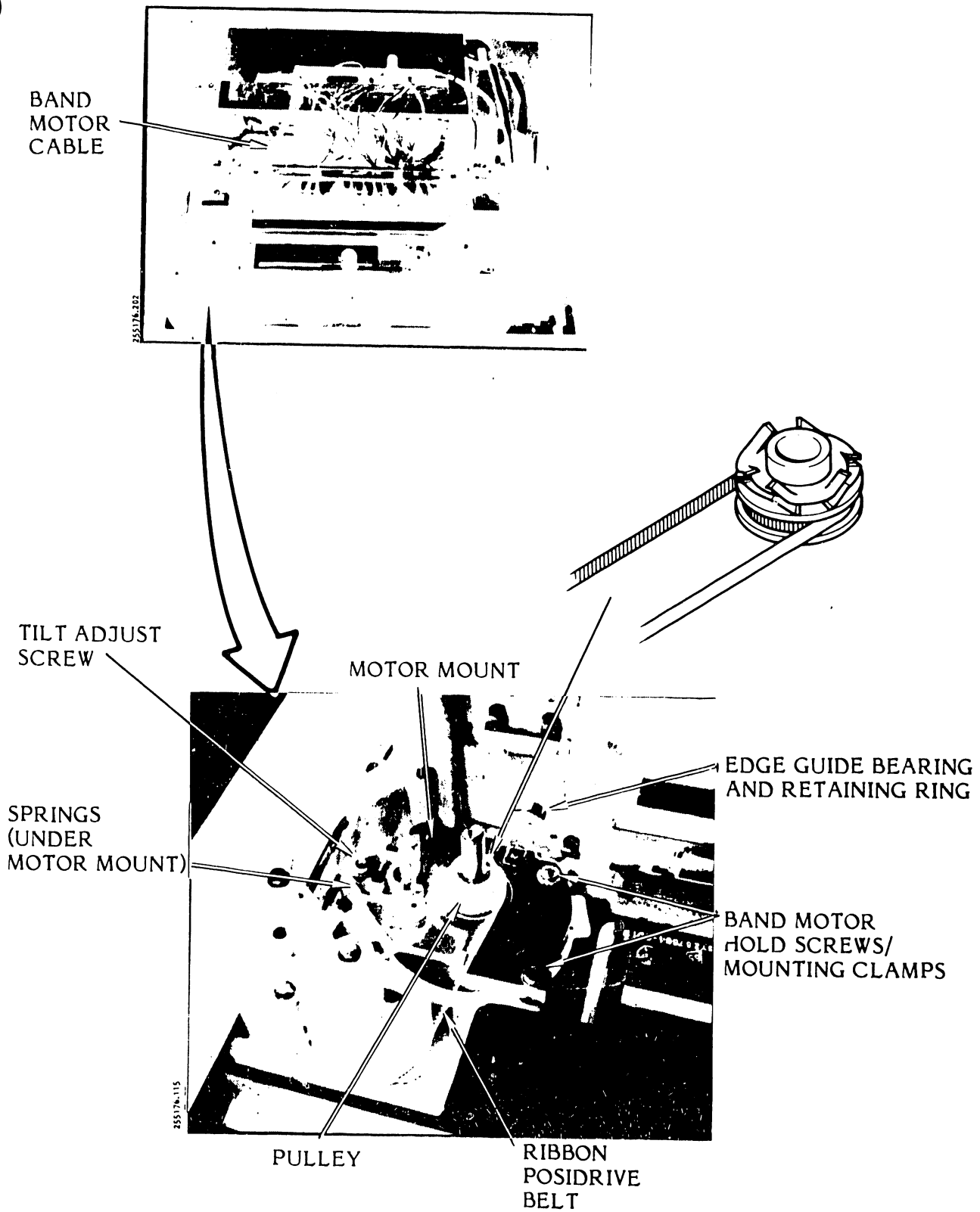
CAUTION

Make sure that the tilt adjust spring under the motor mount remains in position or is available during the installation procedure.

- h. Use a 3 mm hex driver to remove the tilt adjust screw.
- i. Remove the band motor assembly by lifting and turning counterclockwise to place the motor cable at the casting cut out. Once positioned, lift out the motor.
- j. If the assembly has the slip clutch, remove the slip clutch and washer.
- k. Remove the ribbon.

Installation

- a. Make sure that the tilt adjust spring is in place and place the motor so that the cable is in the casting cut out.
- b. Lower the motor into position.
- c. Feed the cable through and plug it into the Power Board CCA at A5J1.
- d. Use the 3 mm hex driver to secure the motor with the tilt adjust screw.
- e. Use the 3 mm nut driver to secure the motor with the two hold down clamps and screws.



3

Figure 3-86. Band Motor Assembly (Posidrive) Removal/Installation

- f. Install the ribbon belt pulley.
- g. Place the ribbon drive belt in place over the ribbon belt pulley and ribbon drive pulley (see figure 3-86).
- h. If the motor assembly is the slip clutch type, install the slip clutch as shown in figure 3-86. Make sure the finger washers fit completely over the motor shaft hub.
- i. Place the band drive pulley on the motor shaft.
- j. Use an 8 mm nut driver and mounting screw/washer to secure the drive pulley to the motor shaft.
- k. If the motor assembly has the slip clutch, complete this procedure with the slip clutch test as described in the test procedures part of this section (see table 3-5); otherwise go to the next step.
- l. Install the character band and ribbon cartridge as described in the Operator's Guide.
- m. Plug the AC power cord into the power source.

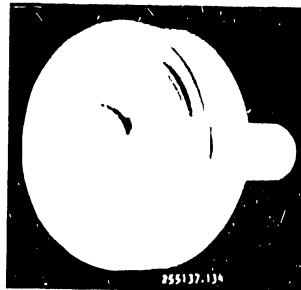
3.7.17 Edge Guide Bearing (Posidrive Band Motor) Removal/Installation
(Figures 3-86 and 3-87)

This procedure provides instructions for both the band motor and idler pulley.

Replacement Part

Edge Guide Bearing
With Retaining Ring

P/N 251704-009



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.

- d. Remove the band drive pulley or idler pulley as follows:
 1. Use an 8 mm nut driver to remove the mounting screw.
 2. Tap the pulley with a nonmetallic mallet to free it from the shaft.
- e. Remove the edge guide bearing from the band motor location as follows:
 1. Remove but do not unplug the band motor as described in paragraph 3.7.13.
 2. Use a No. 2 retaining ring pliers to remove the retaining ring (see figure 3-86).
 3. Slip the bearing off the shaft.
- f. Remove the edge guide bearing from the idler pulley location as follows:
 1. Use a No. 2 retaining ring pliers to remove the retaining ring (see figure 3-87).
 2. Slip the bearing off the shaft.

Installation

- a. Install the edge guide bearing on the idler pulley as follows:
 1. Slip the new bearing on the shaft.
 2. Use the No. 2 retaining ring pliers to snap the new retaining ring on the shaft to hold the bearing in place (see figure 3-87).
 3. If the band drive pulley was removed, go to step c.
- b. Install the edge guide bearing on the band motor as follows:
 1. Slip the new bearing on the shaft.
 2. Use the No. 2 retaining ring pliers to snap the new retaining ring on the shaft to hold the bearing in place (see figure 3-86).
 3. Install the band motor as described in paragraph 3.7.13.
 4. If the band drive pulley was removed, go to step c.

3

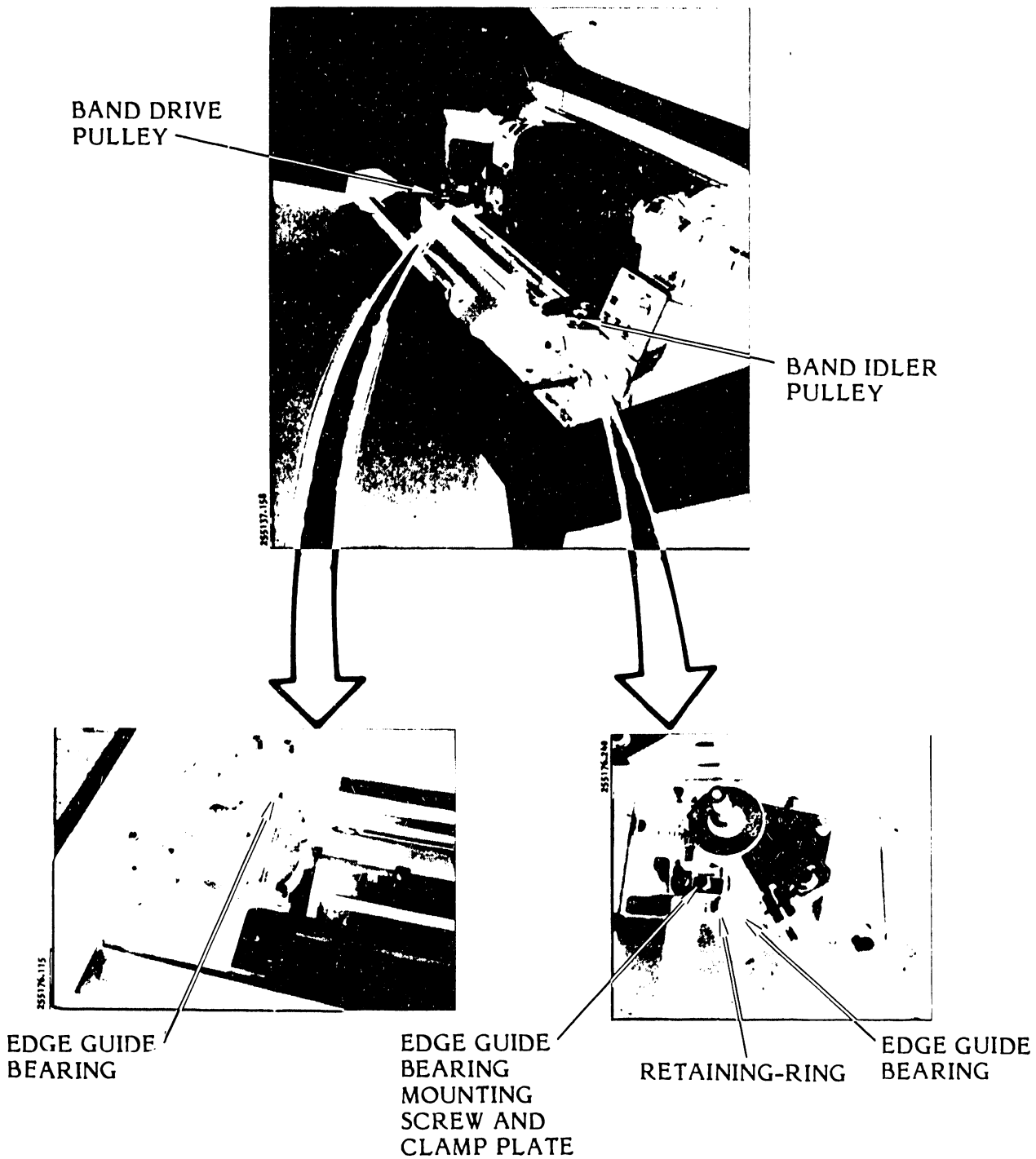


Figure 3-87. Edge Guide Bearing (Posidrive Band Motor) Removal/Installation

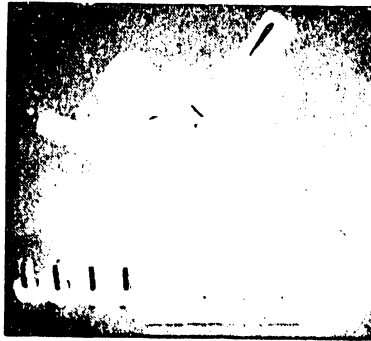
- c. If the band drive pulley was removed and has the slip clutch underneath, make sure it is installed properly as shown in figure 3-86. Place the pulley on the motor shaft or idler shaft and secure it using the 8 mm nut driver and mounting screw washer.
- d. Install the character band and ribbon cartridge as described in the Operator's Guide.
- e. Plug the AC power cord into the power source.

3.7.18 Band Idler Pulley Shaft (Posidrive) Removal/Installation
(Figure 3-88)

Replacement Part

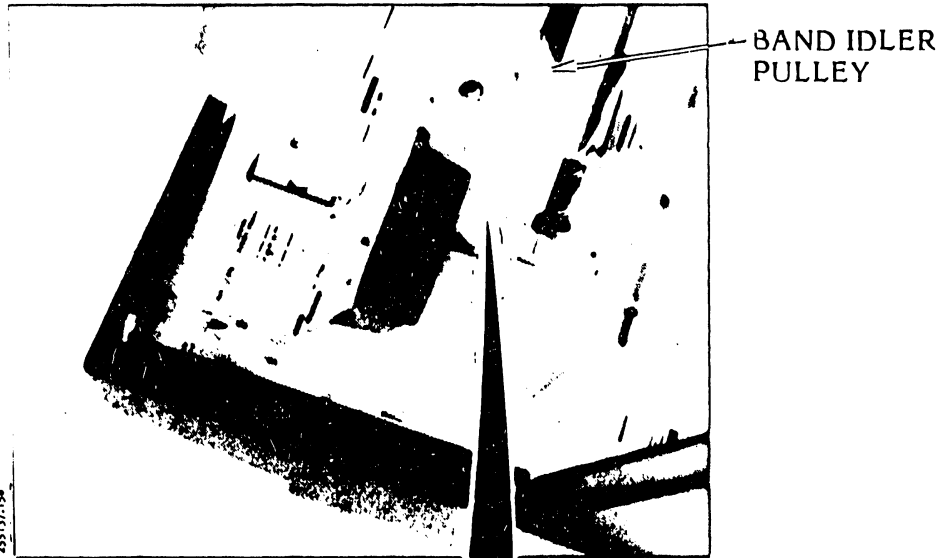
Idler Shaft Assembly

P/N 263006-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Use an 8 mm nut driver to remove the band idler pulley mounting screw/washer.
- e. Using a nonmetallic mallet, tap the pulley to free it from the mounting shaft and remove the pulley.
- f. Use the 8 mm nut driver to remove the transducer phasing adjustment screw.
- g. Lift the transducer bracket free of the idler pulley shaft and set it aside with the transducer **still** installed.



BAND IDLER
SHAFT
ASSEMBLY
HOLD DOWN
SCREW/
MOUNTING
CLAMP

3
SHAFT
NIPPLE

COMPRESSION
SPRING

CASTING
NIPPLE

TRANSDUCER
PHASING
ADJUSTMENT
SCREW

SPACER

BAND RELEASE
LEVER HANDLE

BAND IDLER
SHAFT
ASSEMBLY
HOLD DOWN
SCREW/
MOUNTING
CLAMP
(UNDER
TRANSDUCER
BRACKET)

TRANSDUCER
BRACKET



Figure 3-88. Band Idler Pulley Shaft (Posidrive) Removal/Installation

- h. Push the band release lever handle away from the idler shaft to release the band tension.
- i. Use a 3 mm hex driver to remove the four screws and clamps securing the band idler shaft assembly.
- j. Remove the assembly.

Installation

- a. Place the band idler shaft assembly into the band casting opening.
- b. Use the 3 mm hex driver and mounting clamps/screws/washers to secure the assembly to the band casting.
- c. Insert the band tension spring under the nipple on the casting and onto the nipple on the idler shaft.
- d. Place the transducer bracket assembly in place over the band idler shaft.
- e. Using the 8 mm nut driver and mounting screw/washer, loosely secure the transducer bracket to the idler shaft.
- f. Using the 8 mm nut driver and mounting screw/washer, install the band idler pulley on the idler pulley shaft.
- g. Install the character band and ribbon cartridge described in the Operator's Guide.
- h. Perform the following adjustment procedures as described in the Adjustments part of this section (see table 3-5):
 - 1. Band Tracking Adjustment (Posidrive System)
 - 2. Transducer Gap Adjustment
 - 3. Transducer Phasing Adjustment

NOTE

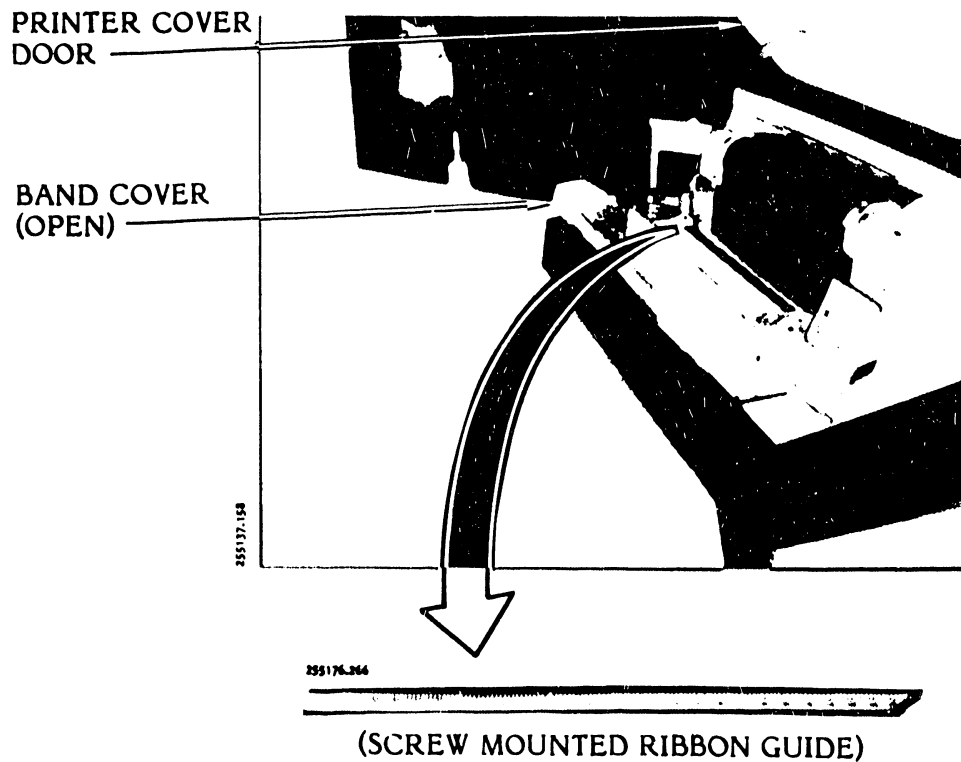
This procedure will be completed when you perform the adjustments required in step h.

3.7.19 Character Alignment Scale Decal Removal/Installation
(Figure 3-89)

Replacement Part

Alignment Scale Decal

P/N 267244



3

Removal

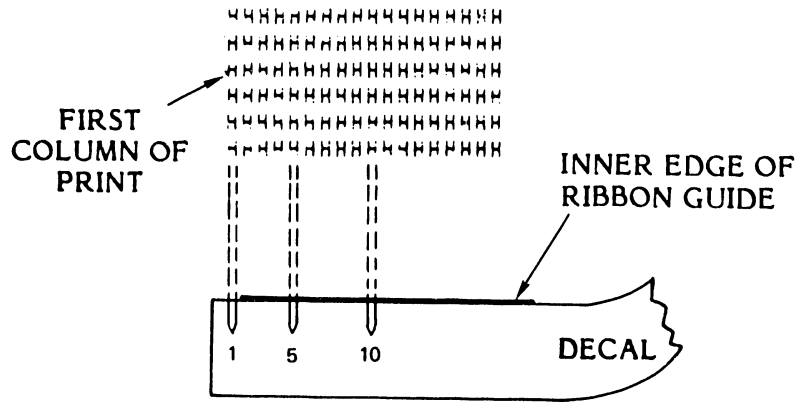
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door, lift the hammer bank latch, and open the band cover.
- c. If your printer has the thick platen, proceed to step d; otherwise, remove the decal from the ribbon guide as follows:
 1. Carefully pick up one end of the decal and peel it free from the ribbon guide.
 2. Use isopropyl alcohol and a soft cloth to clean all dirt and residue from the top of the ribbon guide.

- d. Remove the alignment decal from the thick platen as follows:
 - 1. Carefully pick up one end of the decal and pull it free from the ribbon guide.
 - 2. Using a nonmetallic scraper, remove the remaining pieces of the decal from the platen surface.
 - 3. Use isopropyl alcohol and a soft cloth to clean all dirt and residue from the platen surface.

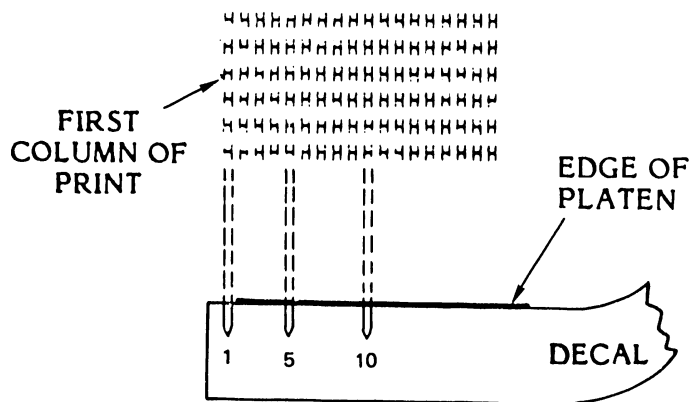
Installation

- a. Plug the power cord into the power source.
- b. Load paper into the printer as described in the Operator's Guide (Paper Loading).
- c. Perform the Registration Adjustments procedure as described in the Operator's Guide to produce a few lines of the single character (usually Hs) printout.
- d. If your printer has the thick platen, go to step e; otherwise, install the new character alignment decal on the ribbon guide as follows:
 - 1. Remove the backing from the character alignment decal.
 - 2. Lay the left end of the decal on the ribbon guide to align its column 1 marking with the first (leftmost) character of the printout. Then run the decal smoothly along the ribbon guide **while** making sure that the decal is positioned against the inner edge of the ribbon guide (see figure 3-89).
 - 3. Rub the whole decal with a clean cloth to remove any air bubbles.
 - 4. Perform the Ribbon Guide Adjustment procedure as described in the Adjustments part of this section (see table 3-9).
 - 5. Go to step f.

- e. Install the new alignment decal on the thick platen as follows:
 - 1. Remove the backing from the character alignment decal.
 - 2. Lay the left end of the decal on the platen to align its column 1 marking with the first (left most) character of the printout. Then run the decal smoothly along the platen **while** making sure that the decal is positioned evenly at the inner edge of the platen (see figure 3-89).
 - 3. Rub the whole decal with a clean cloth to remove any air bubbles.
- f. Plug the AC power cord into the power source.



RIBBON GUIDE DECAL ALIGNMENT



THICK PLATEN DECAL ALIGNMENT

Figure 3-89. Character Alignment Scale Decal Installation

3.7.20 Circuit Breaker Removal/Installation (Figure 3-90)

Your printer may contain one of two types of circuit breakers: a plunger type or a toggle switch type. The 115 VAC, 60 Hz power supply will contain the single plunger type circuit breaker. The Universal power supply may contain either two plunger type circuit breakers or the toggle switch type. See paragraphs 3.7.21, 3.7.22, or 3.7.23 for procedures relating to your particular printer.

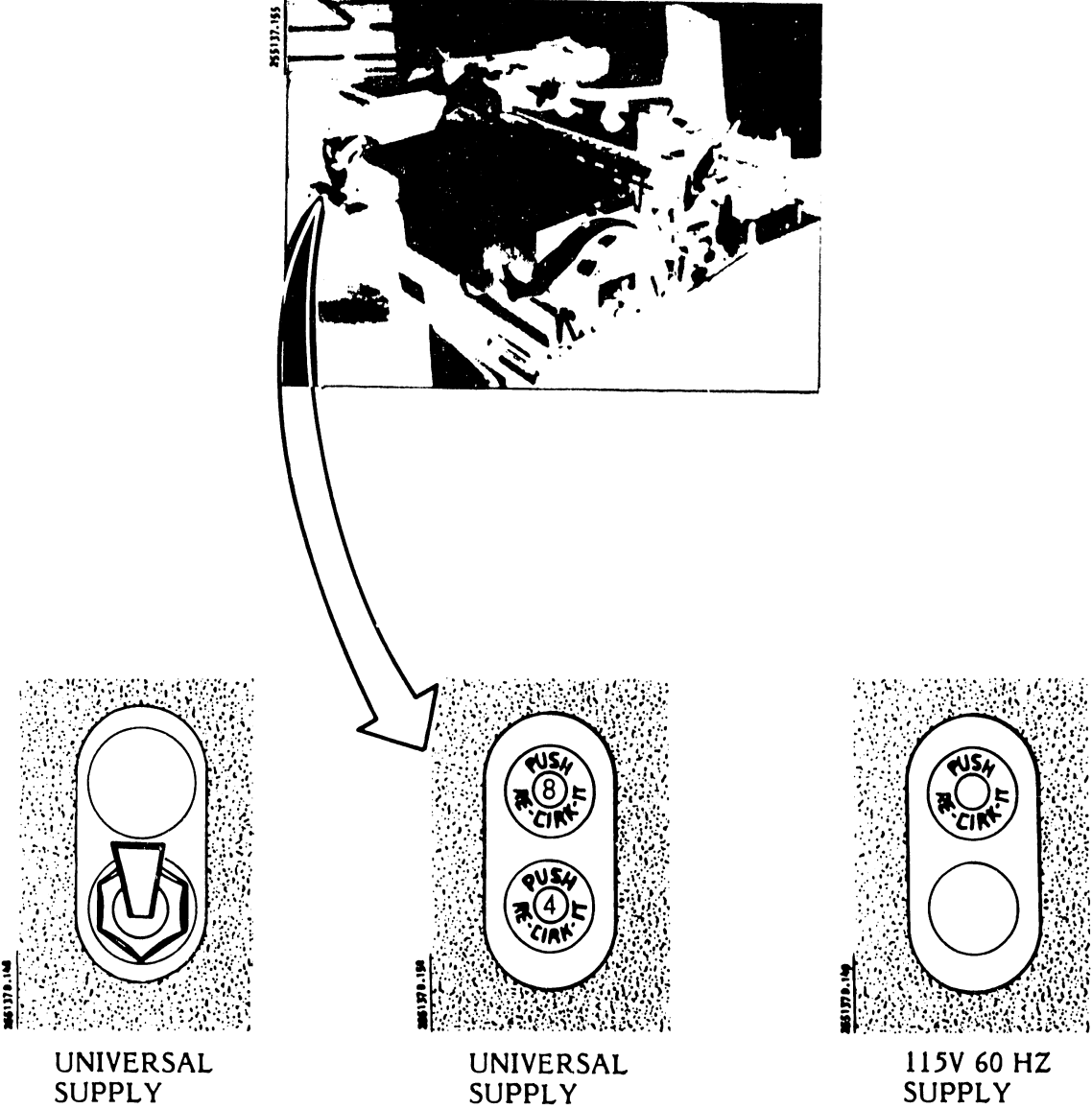


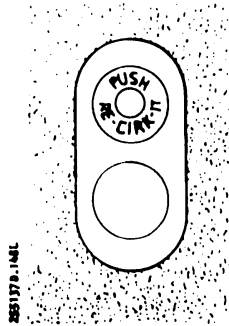
Figure 3-90. Circuit Breaker Removal/Installation

3.7.21 Plunger Type Circuit Breaker (115 VAC 60 Hz, Standard, Power Supply) Removal/Installation (Figure 3-91)

Replacement Part

115 VAC 60 Hz Power Supply

801732-004



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the two push-on terminals from the circuit breaker (see figure 3-91).
- d. Use a small blade screwdriver to remove the locking ring from the back side of the circuit breaker.
- e. Remove the circuit breaker from the power supply chassis.

Installation

- a. Insert the circuit breaker through the printer base and into the power supply chassis as shown in figure 3-91.
- b. Slide the locking ring over the circuit breaker from the rear and secure the circuit breaker firmly to the power supply chassis.
- c. Push the wire cable leads (A19CB1-1 and -2) over the circuit breaker pins (see figure 3-91).

NOTE

Make sure the push-on terminals are firmly seated over the pins. Lead one should be on the upper pin.

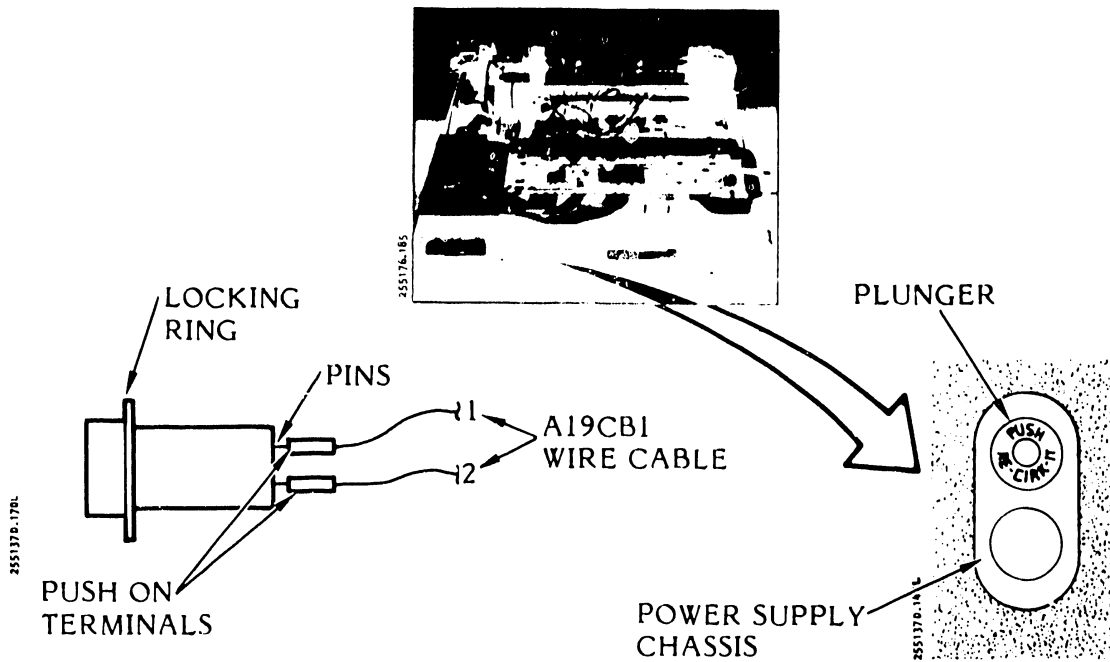


Figure 3-91. Plunger Type Circuit Breaker (115 VAC 60 Hz, Standard Power Supply) Removal/Installation

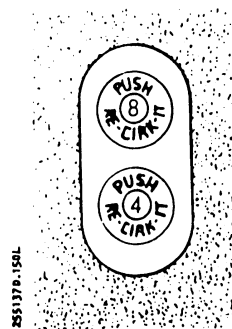
- d. Push the circuit breaker plunger in, if necessary.
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

3.7.22 Universal Power Supply Circuit Breaker (Plunger Type) Removal/Installation (Figure 3-92)

Replacement Parts

Circuit Breaker - 8A
 Circuit Breaker - 4A

801732-004
 810601-001



3

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Use an 8 mm nut driver to remove the three power supply cover mounting screws.
- d. Lift the power supply cover and auxiliary capacitor bank assembly free and lay them on the edge of the card cage cover.

NOTE

Do not disconnect the ribbon cables routed along the auxiliary capacitor bank cover. However, they may be temporarily freed from the ribbon routing clips.

- e. Disconnect the cable wiring push-on terminals from the circuit breakers.
- f. Use a small blade screwdriver to remove the locking rings located behind the power supply chassis from the circuit breakers.
- g. Remove the circuit breakers.

Installation

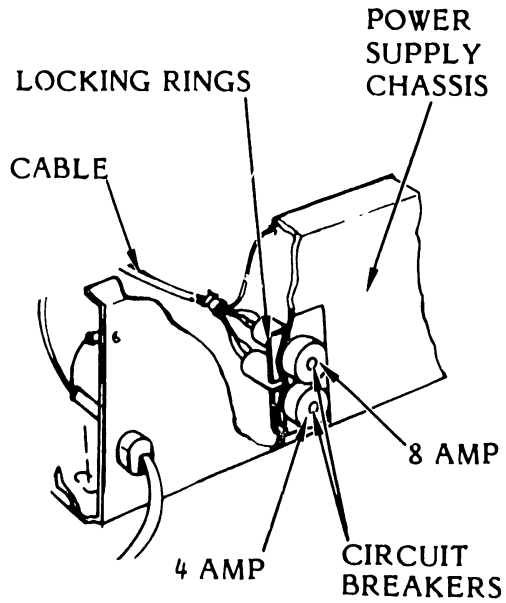
- a. Insert the circuit breakers through the printer base and into the power supply chassis as shown in figure 3-92.
- b. Slide a locking ring over each circuit breaker and secure them firmly to the power supply chassis.
- c. Connect the cable wiring push-on terminals to the circuit breakers as follows:
 - 8A Circuit Breaker - Wires 1-1 (top pin) and 1-2 (bottom pin)
 - 4A Circuit Breaker - Wires 2-1 (top pin) and 2-2 (bottom pin)
- d. If necessary, push the circuit breaker plungers in.

POWER SUPPLY
COVER
MOUNTING SCREWS

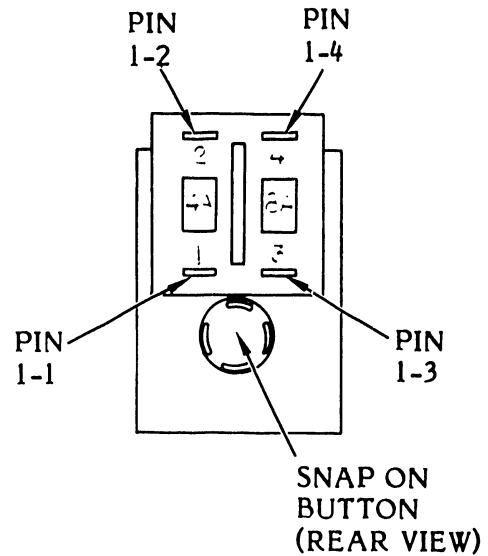
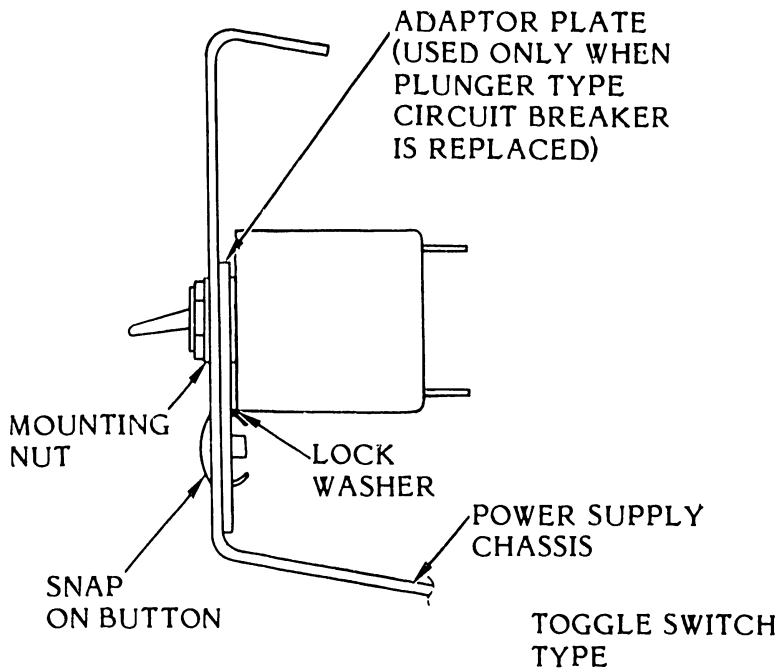


255137-161

POWER SUPPLY
COVER
MOUNTING SCREWS



PLUNGER
TYPE



3

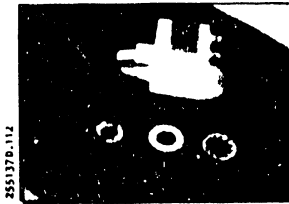
Figure 3-92. Universal Power Supply Circuit Breakers Removal/Installation

- e. Use the 8 mm nut driver and mounting screws/washers to install the power supply cover and auxiliary capacitor bank.
- f. Insert the ribbon cables into the ribbon routing clips on the power supply cover and auxiliary capacitor bank covers, if necessary.
- g. Install the printer cover as described in paragraph 3.3.
- h. Plug the AC power cord into the power source.

3.7.23 Universal Power Supply Circuit Breaker (Toggle Switch Type) Removal/Installation Figure 3-92)

Replacement Parts

Circuit Breakers	P/N 810601-002
Internal Tooth Lock Washer	P/N 800076-009
Flat Washer 1/2 x .875 OD	P/N 800718-008



Removal

- a. Set the AC power switch to OFF and unplug the power card from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Use an 8 mm nut driver to remove the three power supply cover mounting screws.
- d. Lift the power supply cover and auxiliary capacitor bank free and lay them on the edge of the card cage cover.

NOTE

Do not disconnect the ribbon cables routed along the auxiliary capacitor bank cover. However, they may be temporarily freed from the ribbon routing clips.

- e. Disconnect the cable wiring push-on terminals from the circuit breakers.
- f. Use a 5/8-inch open end wrench to remove the circuit breaker mounting nut and flat washer.
- g. Remove the circuit breaker from the power supply chassis and remove the lock washer.

Installation

- a. Place the lock washer over the circuit breaker shaft.
- b. Insert the circuit breaker from the inside of the power supply chassis, through the top hole of the power supply chassis.
- c. Place the flat washer and the circuit breaker mounting nut over the circuit breaker shaft.
- d. Tighten the mounting nut a few turns.
- e. Turn the circuit breaker, if necessary, so that its wiring terminals are as shown in figure 3-82.
- f. Using a 5/8-inch open end wrench, fully tighten the mounting nut.
- g. Connect the cable wiring push-on terminals to the installed circuit breaker as follows:
 - Wire 1-1 to pin 1
 - Wire 1-2 to pin 2
 - Wire 1-3 to pin 3
 - Wire 1-4 to pin 4
- h. Using the 8 mm nut driver and the three mounting screws, install the power supply cover and auxiliary capacitor bank.
- i. Insert the ribbon cables into the ribbon routing clips on the power supply cover and auxiliary capacitor bank cover, if necessary.
- j. Install the printer cover as described in paragraph 3.3.
- k. Plug the AC power cord into the power source.

3.7.24 Control Panel Circuit Card Assembly Removal/Installation
(Figures 3-93A and 3-93B)

In this procedure, the Control Panel Assembly must be removed first before the Control Panel CCA can be removed/installed.

Replacement Parts

Control Panel CCA*

P/N 263435-001

* See Figure 3-93B

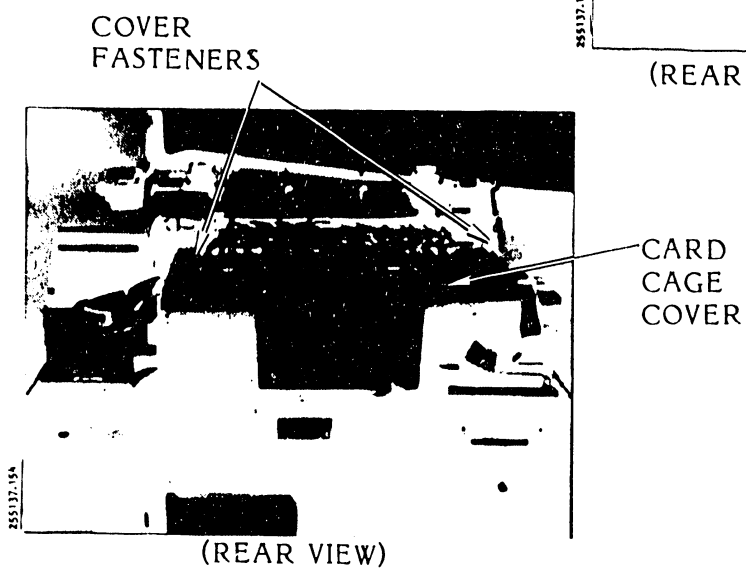
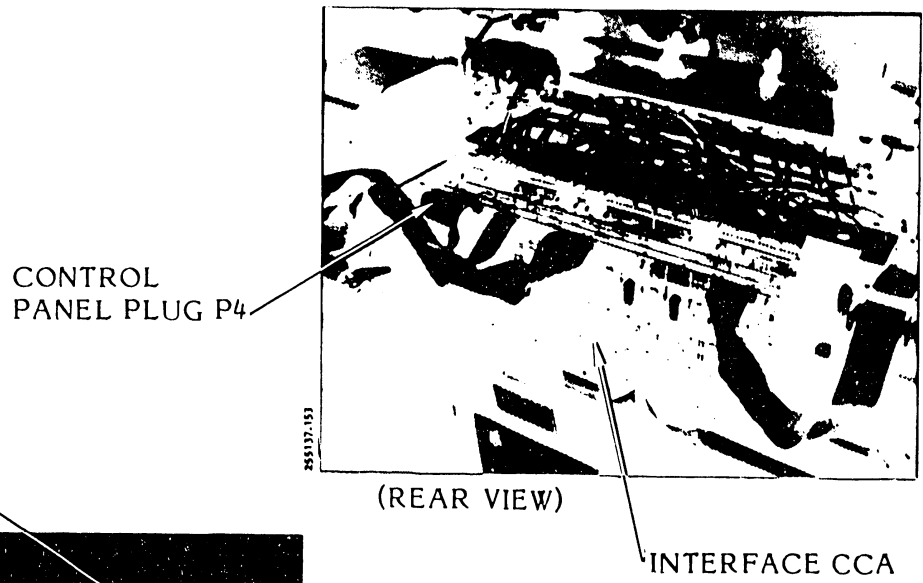
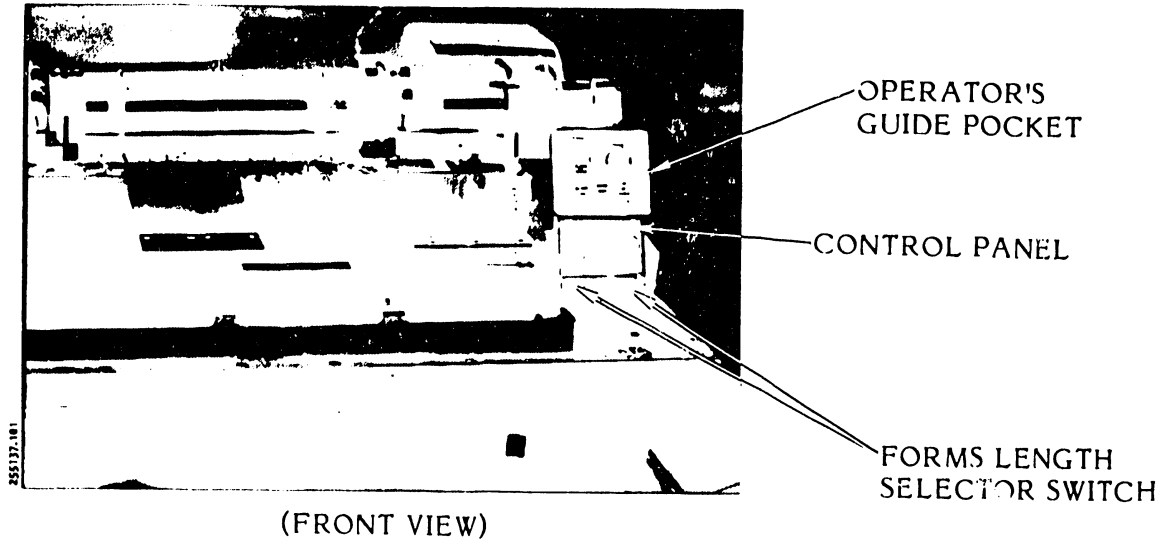
Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fasteners and remove the cover.
- d. Disconnect the control panel cable plug P4 from the Interface CCA.

NOTE

If the optional Forms Length Selector (FLS) Switch Assembly is installed, it must be removed in order to have access to the Control Panel Assembly mounting screws. Access to the FLS switch requires that the Operator's Guide pocket be removed first.

- e. Using an 8 mm nut driver, remove the two screws mounting the FLS Switch Assembly to the Control Panel Assembly (see figure 3-93A).
- f. Use an 8 mm nut driver to remove the four screws that fasten the Control Panel Assembly to the printer base (see figure 3-93B). This step removes the entire assembly with the CCA and cable.
- g. To remove the Control Panel Circuit Card Assembly, use a 1 mm hex driver to loosen the two setscrews that mount the COPIES and PHASE control knobs. Remove the knobs by pulling forward.
- h. Remove the switch caps by pulling straight forward. The four switch caps removed are labelled ALARM/CLEAR, ON/OFF LINE, PAPER STEP, and TOP OF FORM.
- i. With a 5.5 mm nut driver, remove the three screws that secure the Control Panel CCA and the Operator's Guide pocket to the control panel base.



3

Figure 3-93A. Control Panel Removal/Installation

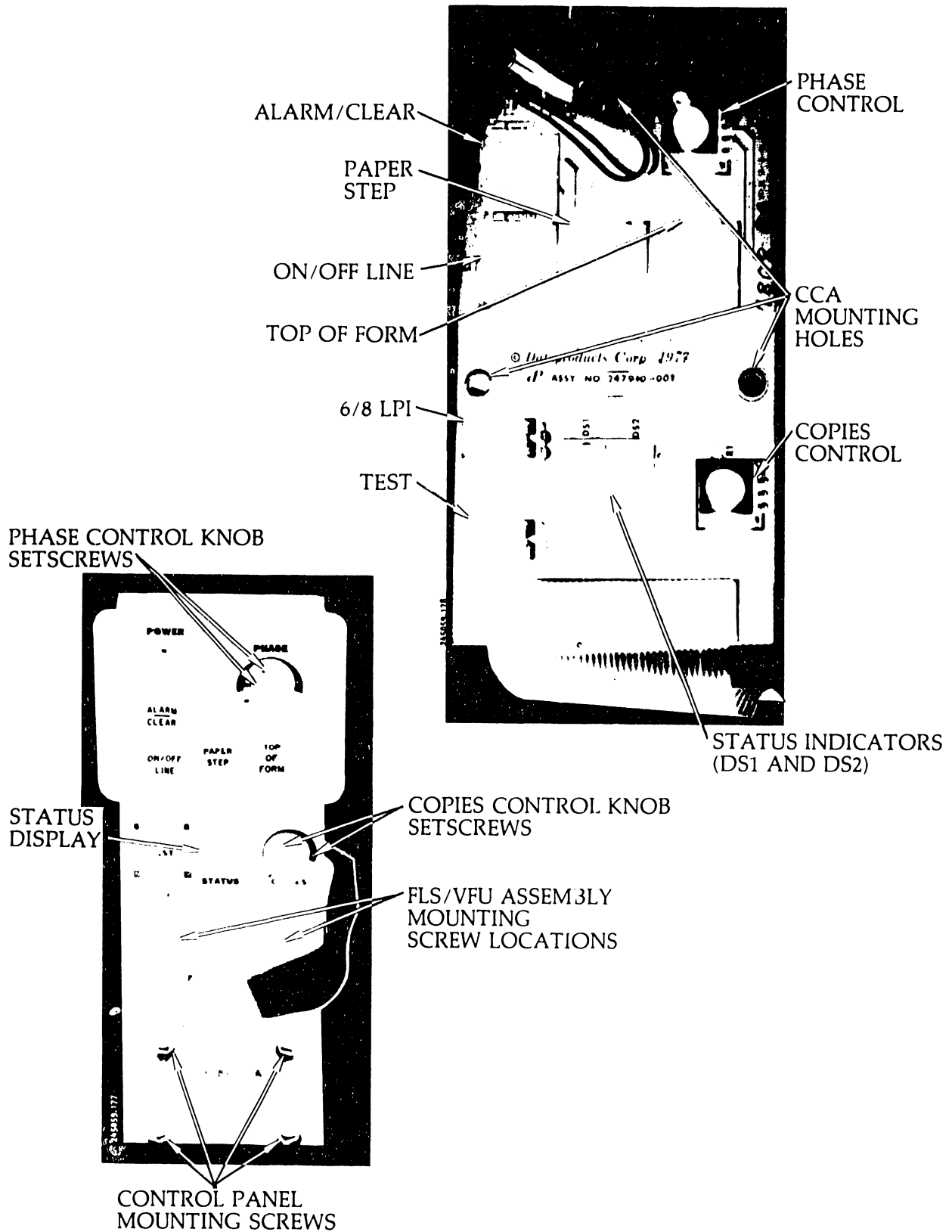


Figure 3-93B. Control Panel Circuit Card Assembly Removal/Installation

- j. Remove the Operator's Guide pocket and set aside. If the FLS Switch Assembly is installed, return to step e.
- k. Remove the Control Panel CCA and its cable.
- l. Remove the STATUS indicators DS1 and DS2 by unplugging them from the Circuit Card Assembly.

Installation

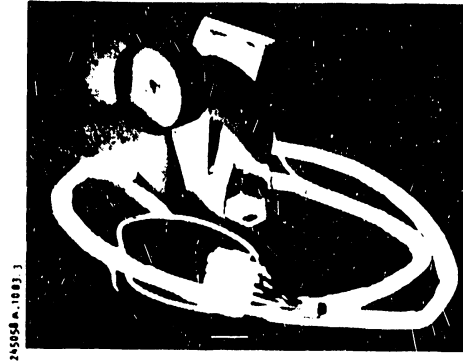
- a. Use an 8 mm nut driver to mount the Control Panel Assembly without the CCA to the printer base.
- b. Use an 8 mm nut driver to mount the optional FLS Switch Assembly, if installed.
- c. Position the Control Panel CCA and the Operator's Guide pocket, and secure the three screws removed in step i with a 5.5 mm nut driver.
- d. Plug STATUS indicators DS1 and DS2 into the Control Panel CCA (see figure 3-93B).
- e. Replace the four switch caps removed in step h.
- f. Replace the COPIES and PHASE control knobs, adjust to correct positions, and secure them with the setscrews loosened in the removal procedure.
- g. Connect the control panel cable to plug P4 on the Interface CCA.
- h. Replace the electronics card cage cover.
- i. Install the printer cover as described in paragraph 3.3.
- j. Plug the AC power cord into the power source.

3.7.25 Fan Assembly Removal/Installation (Figure 3-94)

Replacement Part

Fan Assembly

P/N 257633-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power plug from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the two card cage cover fasteners and remove the cover.
- d. Free the ribbon cables clipped to the fan shroud.
- e. Use an 8 mm nut driver to remove the two fan shroud mounting screws and the fan shroud.
- f. Use the 8 mm nut driver to remove the nut securing the AC ground wire (green wire) to the fan motor ground terminal.
- g. Disconnect the two push-on terminals from the fan motor pins.
- h. Use the 8 mm nut driver to remove the two fan assembly mounting screws and remove the fan assembly.

Installation

- a. Place the fan assembly on the printer base as shown in figure 3-94.
- b. Connect the two push-on terminals to the fan motor pins.

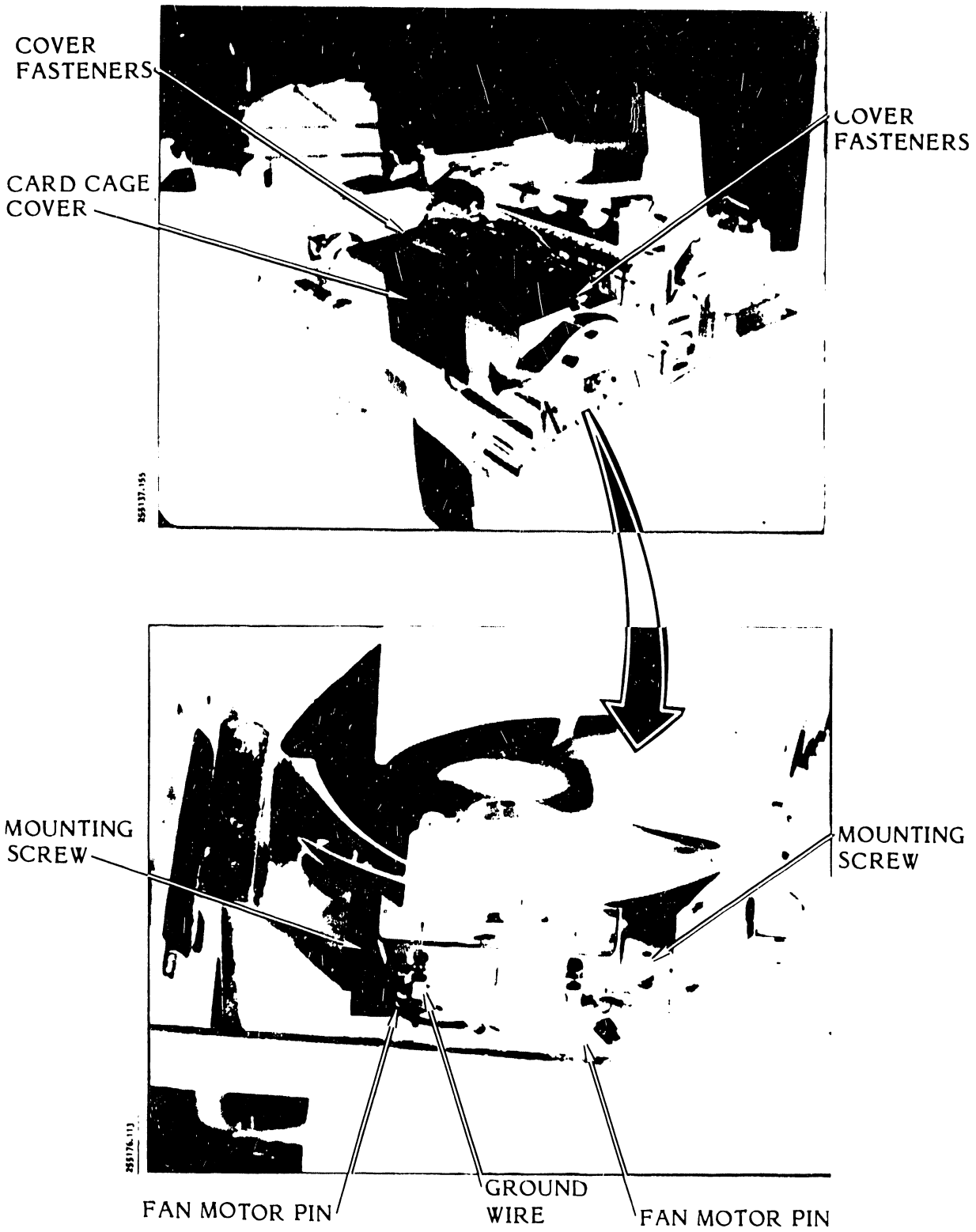


Figure 3-94. Fan Assembly Removal/Installation

- c. Use the 8 mm nut driver to connect the green ground wire to the fan motor ground terminal (see figure 3-94).
- d. Use the 8 mm nut driver and mounting screws to secure the fan assembly to the printer base.
- e. Use the 8 mm nut driver and mounting screws to secure the fan shroud to the printer base.
- f. Insert the flat ribbon cable into the clips located on the fan shroud.
- g. Install the card cage cover.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug the AC power cord into the power source.

3.7.26 Fan Motor Cable Removal/Installation (Figure 3-95)

Replacement Parts

Fan Motor Cable
Without Electrical
Terminal Nipples P/N 257632-001

Fan Motor Cable
With Electrical
Terminal Nipples P/N 257632-002



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.

- c. Remove the paper guide shield located behind the paper feed assembly.
- d. Use an 8 mm nut driver to remove the mounting nut and green wire lead from terminal E1 of the fan motor.
- e. Disconnect the push-on plugs from the fan motor terminals.

NOTE

The cable is routed along the capacitor bank mounting base between the hammer bank and the capacitor bank. The other end of the cable is plugged into the edge connector of the Rectifier CCA next to the power supply transformer.

- f. Cut the cable tie securing the cable to the transformer harness that is next to cable plug A11P2.
- g. Use an 8 mm nut driver to remove the mounting nut, washer, and ground wire that is secured to the power supply chassis between the preload resistor and transformer.
- h. Disconnect cable plug A11P2 from the Rectifier CCA connector A9J4 (see figure 3-95).

NOTE

Reach under the power supply cover between the preload resistor and transformer to remove the cable plug.

- i. Remove the cable from the printer.

Installation

- a. Feed the cable assembly between the capacitor bank and the hammer bank to rest on the capacitor bank mounting plate.
- b. Connect cable plug A11P2 into the Rectifier CCA next to the power supply transformer.

NOTE

Cable plug A11P2 will be located on the power supply side of the printer.

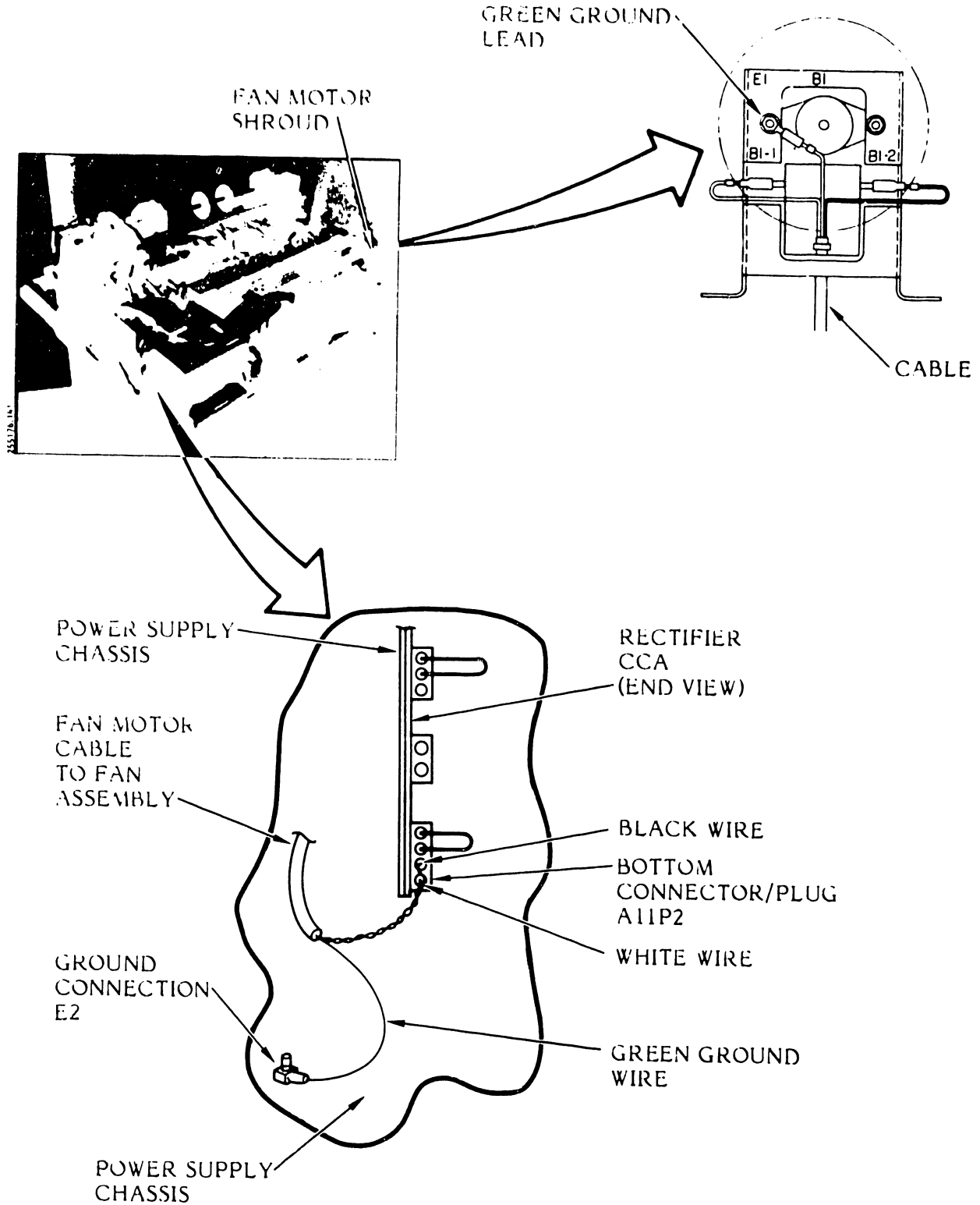


Figure 3-95. Fan Motor Cable Removal/Installation

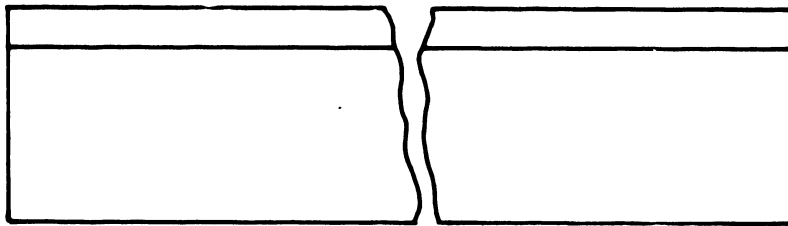
- c. Use an 8 mm nut driver to secure the cable's green ground lead to the power supply chassis between the transformer and preload resistor.
- d. Install the push-on plug on the fan motor terminals at the fan motor end of the cable.
- e. Use the 8 mm nut driver and mounting hardware to secure the green ground lead to the fan motor stud E1.
- f. Secure the motor cable to the transformer harness with a new cable tie at the Rectifier CCA end of the cable.
- g. Install the paper guide shield behind the paper feed assembly.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug the AC power cord into the power source.

3.7.27 Forms Compressor Removal/Installation (Figure 3-96)

Replacement Part (600 LPM Printer Only)

Forms Compressor

P/N 256332-001



CAUTION

In the following procedure, be careful not to stress the paper form at its sprocket holes.

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Open the printer cover door.
- c. Open the hammer bank and remove the two screws which secure the hammer bank mask.

- d. Use an 8 mm nut driver to remove the hammer bank mask (see figure 3-96).

WARNING

When replacing the forms compressor, it is recommended that a replacement hammer bank mask and forms compressor be temporarily installed in the printer. The removed hammer bank mask should then be taken out of the operating area into a safe, well-ventilated area for cleaning.

- e. Install a temporary hammer bank mask with a good forms compressor and tighten the two mounting screws.
- f. Move the hammer bank mask to a well-ventilated work area (preferably a hooded blower-exhaust work station). Turn the blower or fan on.
- g. Peel the old forms compressor from the hammer bank mask.

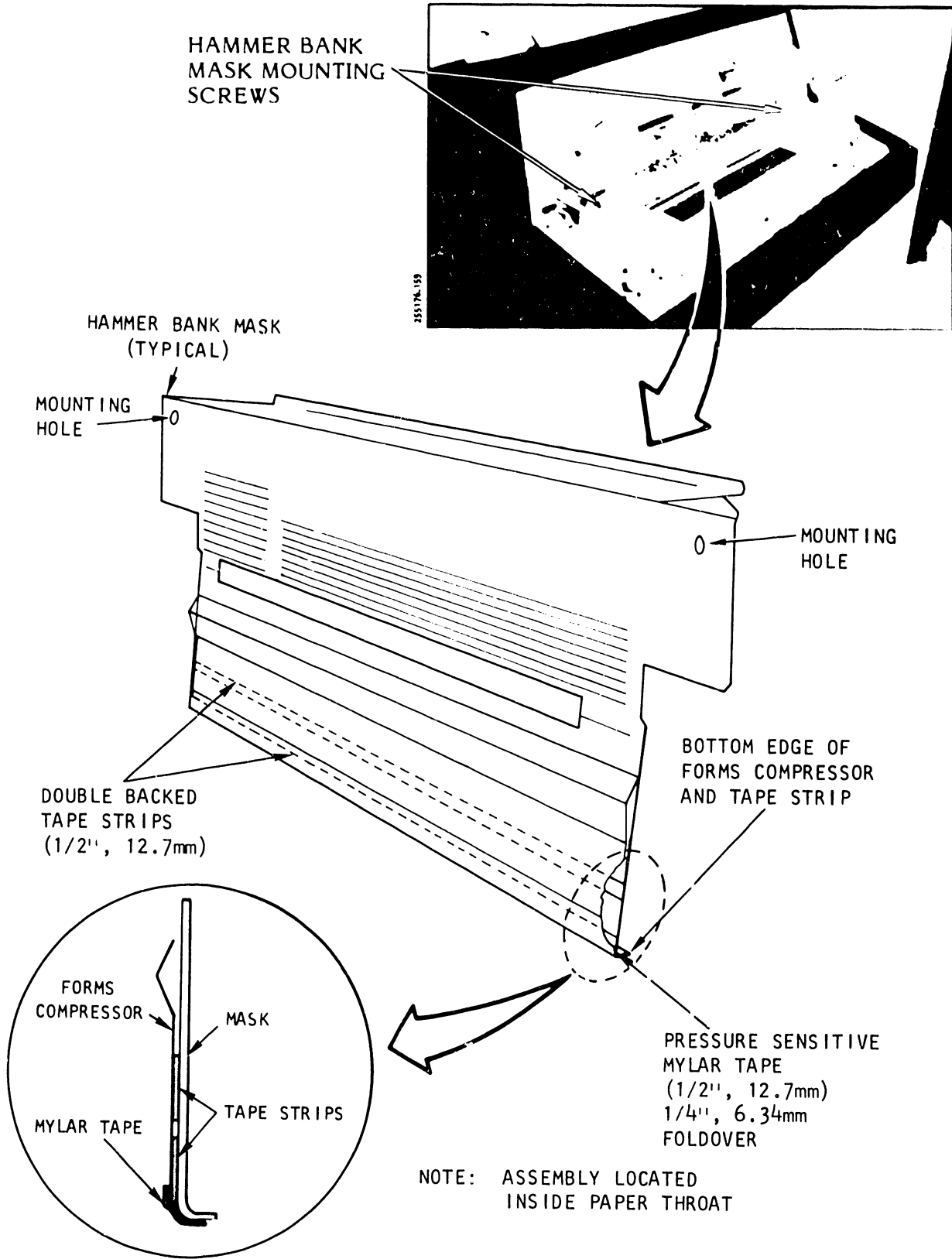
WARNING

It is necessary to use methylethylketone in the following procedures. Proper precautions should be observed during its use.

- h. Cover your hands with chemical resistant latex gloves and wear a respirator over nose and mouth.
- i. Saturate the forms compressor area of the hammer bank mask with methylethylketone.
- j. Use a wood spatula to scrape the adhesive residue from the forms compressor area of the hammer bank mask.
- k. Use a soft cloth saturated with methylethylketone to remove all adhesive that could not be scraped off by the wooden spatula.

NOTE

The above step may have to be repeated several times in order to **completely** remove the adhesive residue from the forms compressor area.



3

Figure 3-96. Forms Compressor Removal/Installation

MAINTENANCE

- l. Cover the methylethylketone container and store in a safe place.
- m. Allow the hammer bank mask to dry, and remove the respirator and latex gloves.

Installation

- a. Cut two strips of double backed tape equal to the width of the hammer bank mask.

NOTE

Do not remove paper covering from the tape strips.

- b. Peel the covering from only one side of a tape strip. Lay the exposed side of the tape strip parallel to the bottom of the hammer bank mask, one-eighth of an inch from the edge.
- c. Carefully rub the paper covering of the tape strip from one side to the other to ensure adhesion to the mask.
- d. Peel the covering from only one side of the second tape strip. Lay the exposed side of the tape strip on the mask parallel to the first tape segment, allowing one-eighth of an inch between strips.
- e. Carefully rub the paper covering of the tape strip from one end to the other to ensure adhesion to the mask.
- f. Remove the paper coverings from the tape strips.

CAUTION

Perform the next **two** steps carefully to avoid creases and bumps in the application of the forms compressor to the adhesive tape strips.

- g. Carefully position the new forms compressor to fit exactly at the **bottom edge** of the mask and to be lined up at its edges with the sides of the mask.
- h. Start at one side of the mask and press the forms compressor to the tape strips by moving your thumb (or a small roller) along the tape strips to the other side.

- i. Observe that the forms compressor is now positioned evenly in the mask and that no creases or bumps are evident.

NOTE

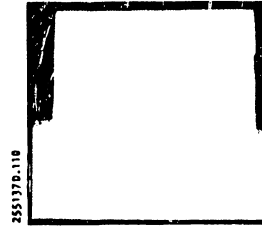
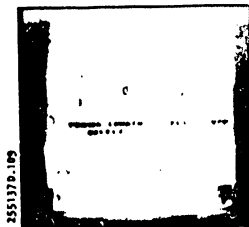
There will be a slight space between the top of the forms compressor and the hammer bank mask.

- j. Place a strip of the mylar pressure-sensitive tape along the bottom edge of the hammer bank mask so that one-half (1/4 inch) (6.34 mm) lies on the bend edge of the mask and the other half runs along the bottom of the mask.
- k. Reinstall the hammer bank mask and tighten the two mounting screws.
- l. Close the hammer bank.
- m. Close the operator door and plug the AC power cord into the power source.

3.7.28 Forms Length Select (FLS) Switch Circuit Card Assembly Removal/Installation (Figure 3-97)

Replacement Parts

Forms Length Select Switch CCA With VFU	P/N 256385-001
Forms Length Select Switch CCA Without VFU	P/N 256385-002



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.

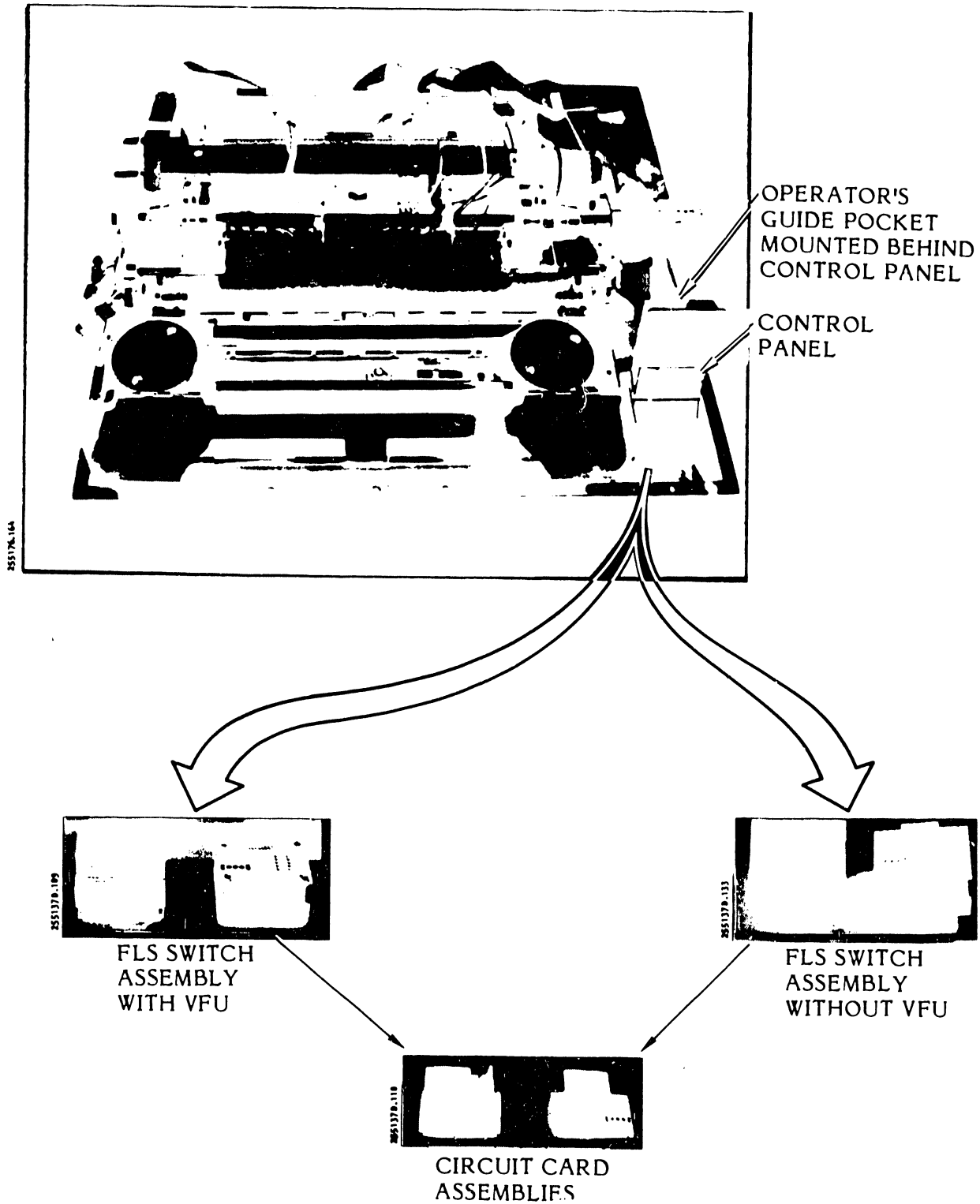


Figure 3-97. Forms Length Select Switch Circuit Card Assembly Removal/Installation

- c. Use a 5.5 mm nut driver to remove the three Operator's Guide pocket screws and the Operator's Guide pocket.
- d. Unplug the ribbon cable at the Forms Length Select (FLS) switch circuit card.

NOTE

The ribbon cable will be the smaller of the two cables at the control panel bracket.

- e. Use the 5.5 mm nut driver to remove the two FLS bracket mounting screws from the rear of the control panel bracket and remove the FLS bracket.
- f. Use the 5.5 mm nut driver to remove the four FLS circuit card mounting screws and remove the FLS circuit card from the bracket.

Installation

- a. Mount the FLS circuit card assembly on the FLS bracket standoffs.

NOTE

The assembly should fit easily into the bracket cutout(s):

- b. Use the 5 mm nut driver and mounting screws to secure the CCA to the standoffs.
- c. Use the 5 mm nut driver and mounting screws to secure the FLS switch assembly to the control panel bracket.
- d. Plug the FLS switch ribbon cable into the FLS CCA connector.

NOTE

The ribbon cable is marked as P1 (A2J3).

- e. Use the 5 mm nut driver and three mounting screws to secure the Operator's Guide pocket to rear of the control panel bracket.

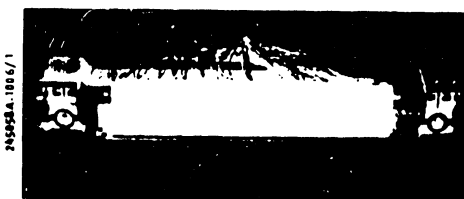
- f. Install the printer cover as described in paragraph 3.3.
- g. Plug the AC power cord into power source.

3.7.29 Hammer Bank Assembly Removal/Installation (Figures 3-98, 3-99 and 3-100)

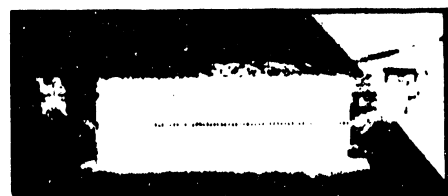
Replacement Parts

300 LPM Printer
Hammer Bank Assembly P/N 244444-002

600 LPM Printer
Hammer Bank Assembly P/N 248023-001



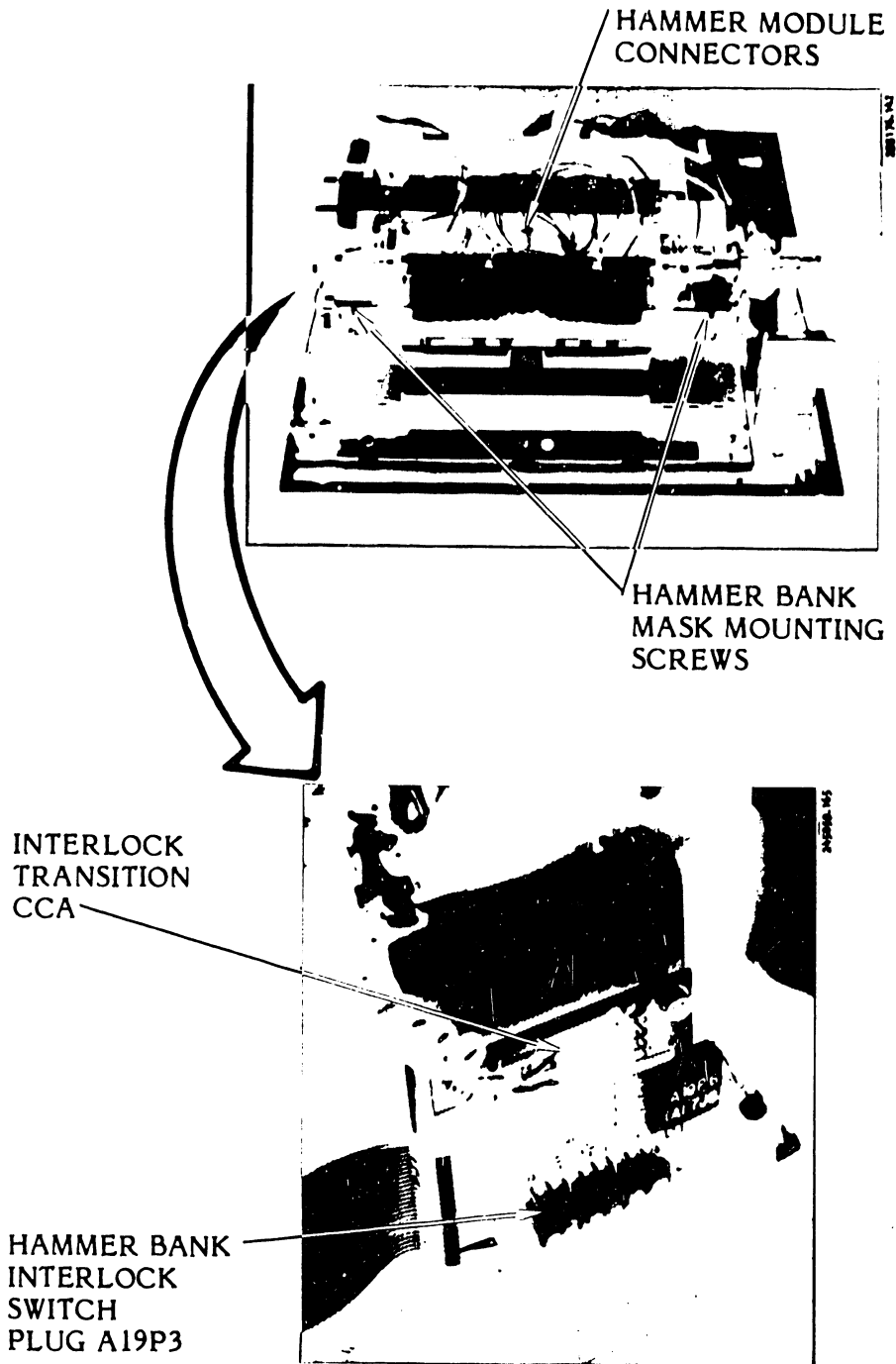
300 LPM



600 LPM

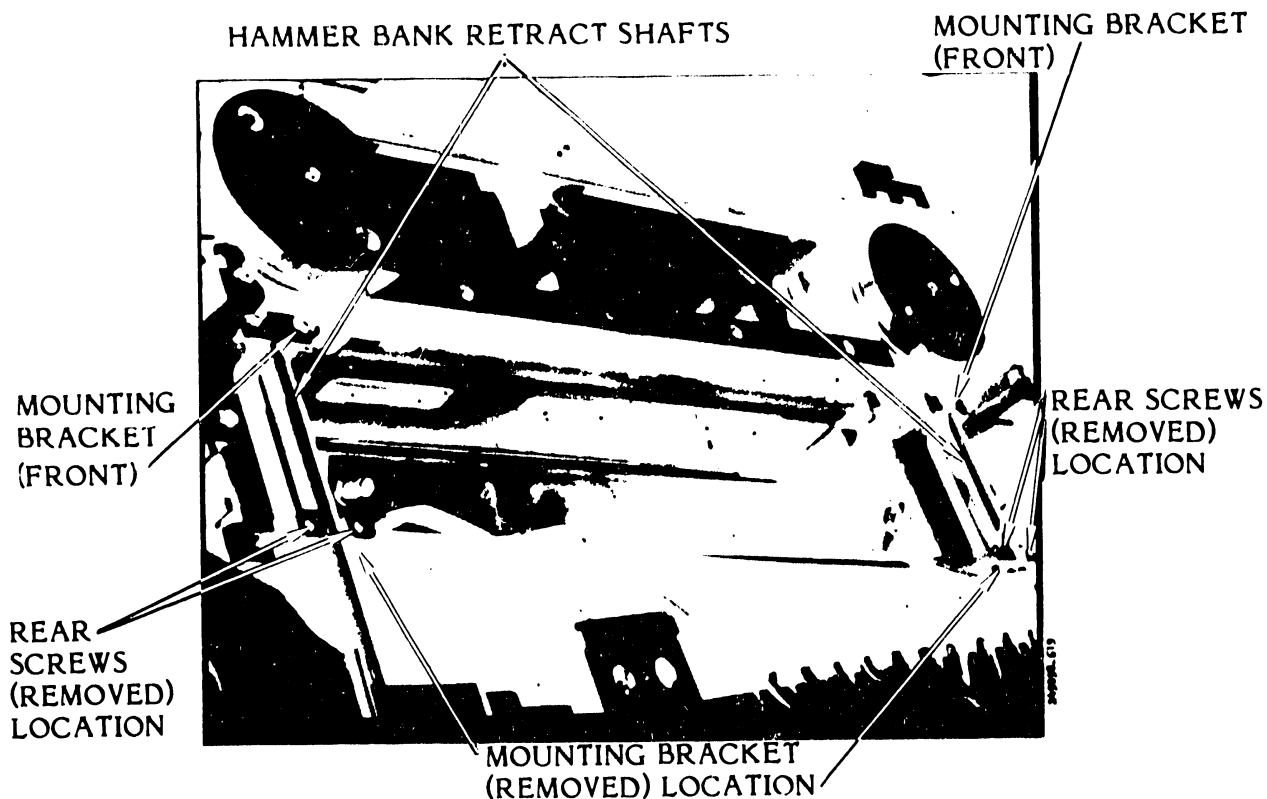
Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the Paper Feed Assembly as described in this section (see table 3-10).
- d. Remove the hammer bank interlock switch plug A19P3 from the Interlock Transition CCA (see figure 3-98).
- e. Cut and remove the cable tie which holds the interlock switch cable to the top of the Hammer Bank Assembly.
- f. Open the hammer bank.
- g. Use an 8 mm nut driver to remove the two screws that secure the hammer bank mask and remove the mask.
- h. Unplug all the hammer module connectors from the Hammer Drive CCA(s).
- i. Disconnect the paper clamp solenoid cable plugs P3A and P3B from the Power Board CCA.



3

Figure 3-98. Hammer Bank Interlock Switch Plug Location



**Figure 3-99. Hammer Bank Assembly Removal/Installation
(Older 300 LPM Model Shown)**

- j. Use a 7 mm nut driver to remove the four front and four rear hammer bank mounting screws and the four guide shaft hold down clamps.
- k. Lift the Hammer Bank Assembly carefully and remove it from the printer.
- l. Remove the hammer bank guide shafts.
- m. Use a 4 mm hex driver to loosen the two screws that mount the Paper Clamp Solenoid Assembly to the hammer bank and slide the solenoid assembly from its mounting bracket on the hammer bank.

Installation

- a. If removed, attach the Paper Clamp Solenoid Assembly or Pressure Plate Assembly to the Hammer Bank Assembly with the two screws loosened earlier.
- b. Place the hammer bank guide shafts into position.

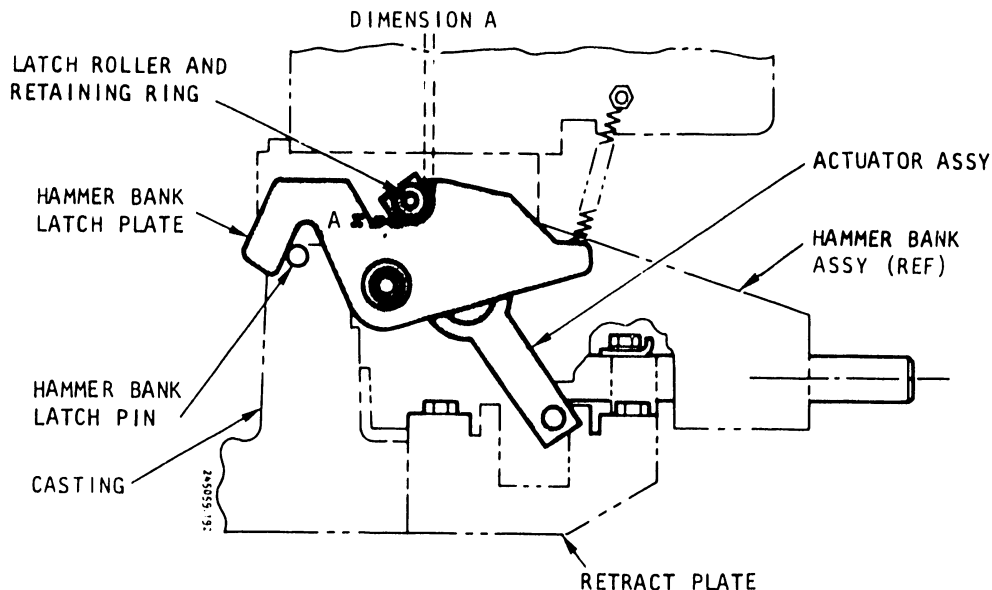


Figure 3-100. Hammer Bank Actuator Assembly Position

- c. Carefully position the hammer bank in the printer base, ensuring that the actuator assembly is properly positioned in the retract plate.
- d. Install the two front and two rear guide shaft mounting brackets with their mounting screws. Ensure that the hammer bank guide shafts are pushed firmly against the front clamp stops.
- e. Slide the hammer bank forward and backward to ensure smooth operation, and tighten the right side mounting clamp screws in the following order: left rear, right rear, left front and right front.
- f. Perform the same procedure to tighten the left side mounting clamp screws.
- g. Verify that the hammer bank moves freely. Readjust if necessary.
- h. Install the hammer bank interlock switch plug A19P3 on the Interlock Transition CCA (see figure 3-98).

3

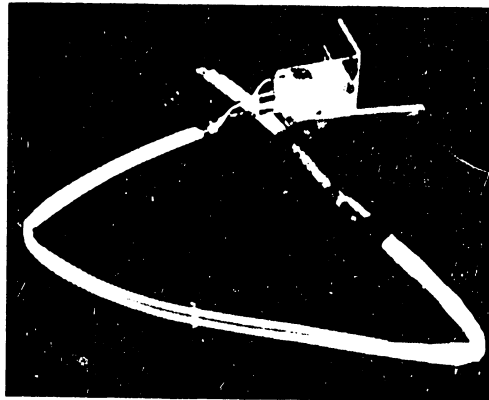
- i. Use a cable tie to remount the hammer bank interlock switch cable to the bracket on the top of the hammer bank.
- j. Reconnect the hammer module connectors to the Hammer Driver CCA.
- k. Use a 4 mm nut driver to mount the Paper Feed Assembly loosely with the four screws that secure it to the hammer bank.
- l. Perform the Paper Feed Assembly adjustment procedure as described in the Adjustments part of this section (see table 3-9).
- m. Install the printer cover as described in paragraph 3.3.
- n. Plug the AC power cord into the power source.

3.7.30 Hammer Bank Interlock Switch Removal/Installation (Figure 3-101)

Replacement Part

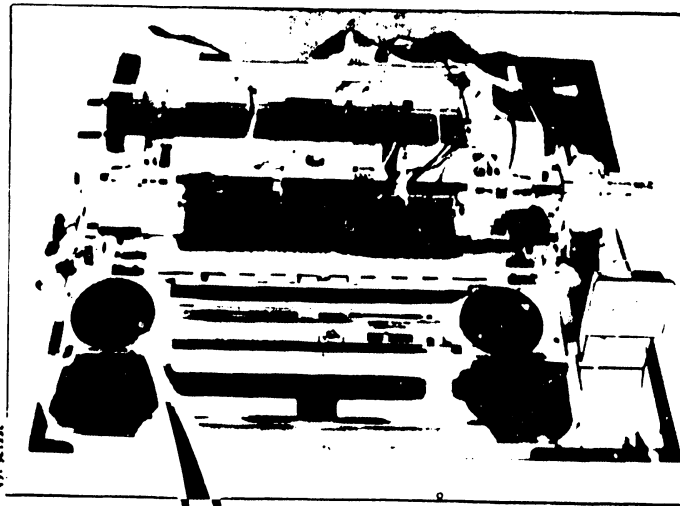
Switch, Snap, Miniature
SPDT, 15A

P/N 800679-003

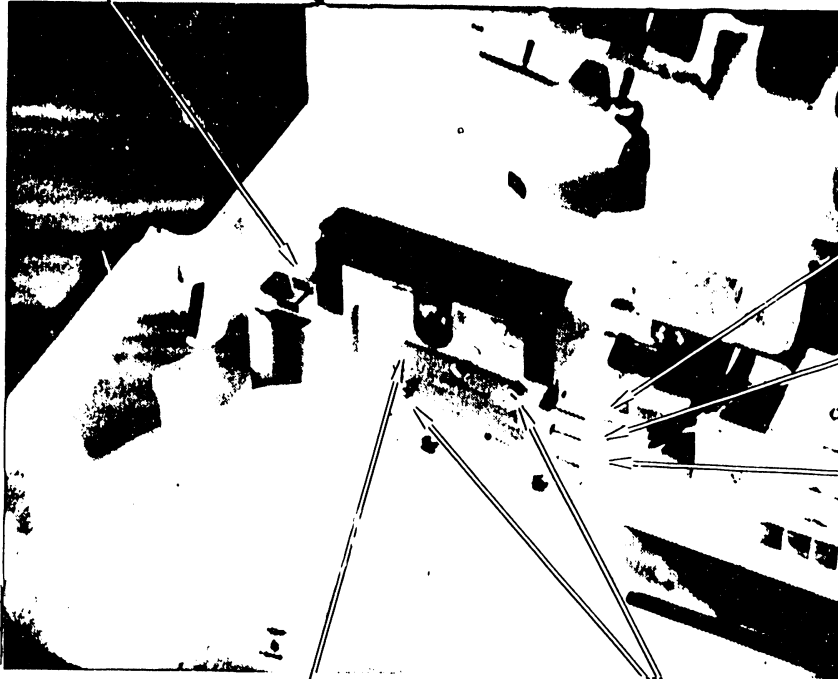


Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Open the printer cover door.
- c. Use an 8 mm nut driver to remove the two mounting screws which secure the hammer bank mask and remove the mask from the paper throat area.



SWITCH
ARM



RED WIRE
(NO)

WHITE WIRE
(NC)

BLACK WIRE
(C)

INTERLOCK
SWITCH

INTERLOCK
SWITCH
MOUNTING
SCREWS

3

Figure 3-101. Hammer Bank Interlock Switch Removal/Installation

CAUTION

Do not drop the nut plate behind the hammer bank interlock switch.

- d. Hold the nut plate behind the hammer bank interlock switch to prevent it from falling, and remove the two switch mounting screws.
- e. Disconnect the switch wiring.

Installation

- a. Connect the switch wiring disconnected during the removal steps.
- b. Attach the hammer bank interlock switch loosely with the two mounting screws.
- c. Perform the Hammer Bank Interlock Switch adjustment procedure as directed in the Adjustments part of this section (see table 3-9).
- d. Use the 8 mm nut driver to install the hammer bank mask.
- e. Close the printer cover door.
- f. Plug the AC power cord into the power source.

3.7.31 Hammer Module (300 LPM Printer) Removal/Installation
(Figure 3-102)

Replacement Part

Hammer Module Kit

P/N 251704-001

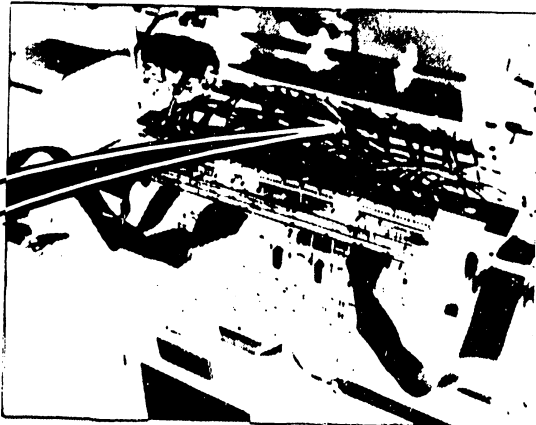


NOTE

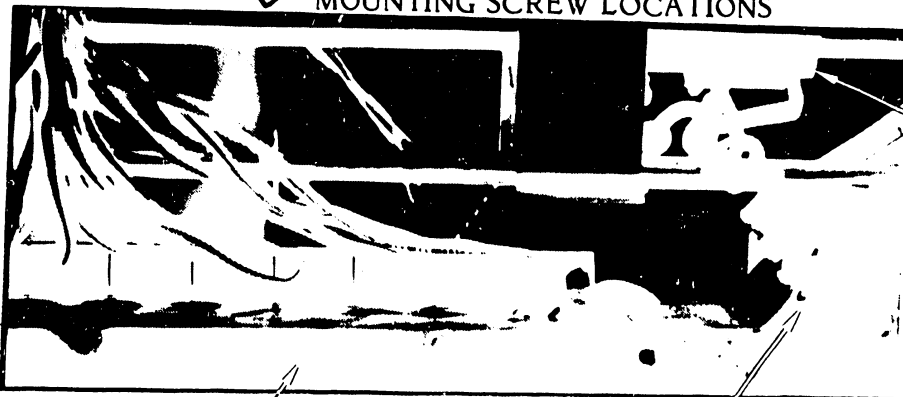
The total quantity of hammer bank module kits that can be installed is 17.

Removal

- a. Set the AC power switch to off and unplug the AC power cord from the power source.



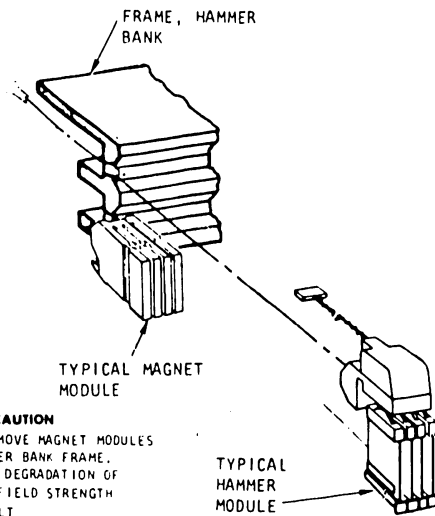
300 LPM PRINTER
MOUNTING SCREW LOCATIONS



PAPER MOTION
SENSOR

HAMMER
MODULE
MOUNTING
SCREW

PAPER
MOTION
SENSOR
CABLE



CAUTION
DO NOT REMOVE MAGNET MODULES
FROM HAMMER BANK FRAME.
PERMANENT DEGRADATION OF
MAGNETIC FIELD STRENGTH
WILL RESULT

TYPICAL
HAMMER
MODULE

3

Figure 3-102. Hammer Module (300 LPM Printer)
Removal/Installation

- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the two screws securing the hammer bank mask and remove the mask.
- d. Unplug the connector(s) from the Hammer Driver CCA for the hammer module(s) to be replaced.

CAUTION

Do not remove magnet modules from the hammer bank frame or permanent degradation of strength will occur.

- e. Remove the hammer module mounting screw with a shortened 5 mm allen wrench.
- f. Open the hammer bank and gently slide the hammer module into the throat area.

Installation

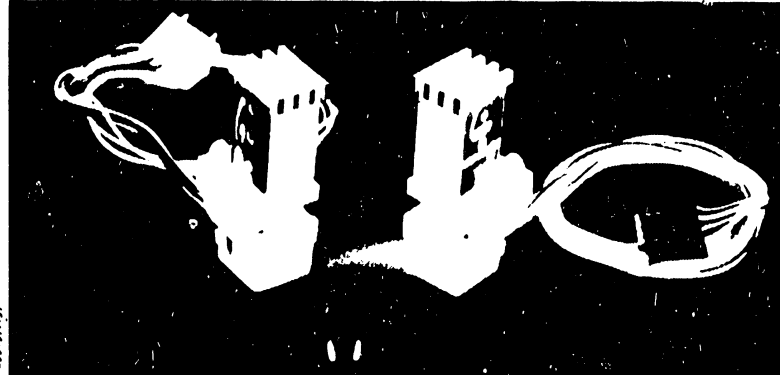
- a. Gently insert the hammer module into position from the throat area.
- b. Close the hammer bank.
- c. Secure the hammer module finger-tight with the mounting screw.
- d. Use the allen wrench to tighten the hammer module mounting screw.
- e. Connect the hammer module plug to the Hammer Driver CCA.
- f. Install the hammer bank mask.
- g. Power up the printer as described in the Operator's Guide.
- h. Check the printer's print quality by performing the Registration Adjustments procedure provided in the Operator's Guide.
- i. Perform the Hammer Bank Flight Time adjustment procedure provided in the Adjustments part of this section as needed (see table 3-9).
- j. Set the power switch to OFF.

k. Install the printer cover as described in paragraph 3.3.

3.7.32 Hammer Module (600 LPM Printer) Removal/Installation
(Figure 3-103)

Replacement Parts

Upper Hammer Module Kit (White Connector)	P/N 251704-015
Lower Hammer Module Kit (Blue Connector)	P/N 251704-016



Removal

Removal of an upper hammer module requires a single procedure. However, removal of a lower hammer module may involve up to three levels of effort as follows:

- Level one - Removal of the hammer bank mask only, and removal of the selected module.
 - Level two - Removal of the hammer bank mask and retract bumpers.
 - Level three - Removal of the hammer bank mask, paper feed assembly, and hammer bank assembly.
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
 - b. Remove the printer cover as described in paragraph 3.3.
 - c. Use an 8 mm nut driver to remove the two screws on the hammer bank mask and remove the mask.
 - d. Use the following tools to remove the upper and lower modules:
 - Upper Modules - 7/64 inch allen wrench with a shaft length of 1-1/2 to 2-1/2 inches

3

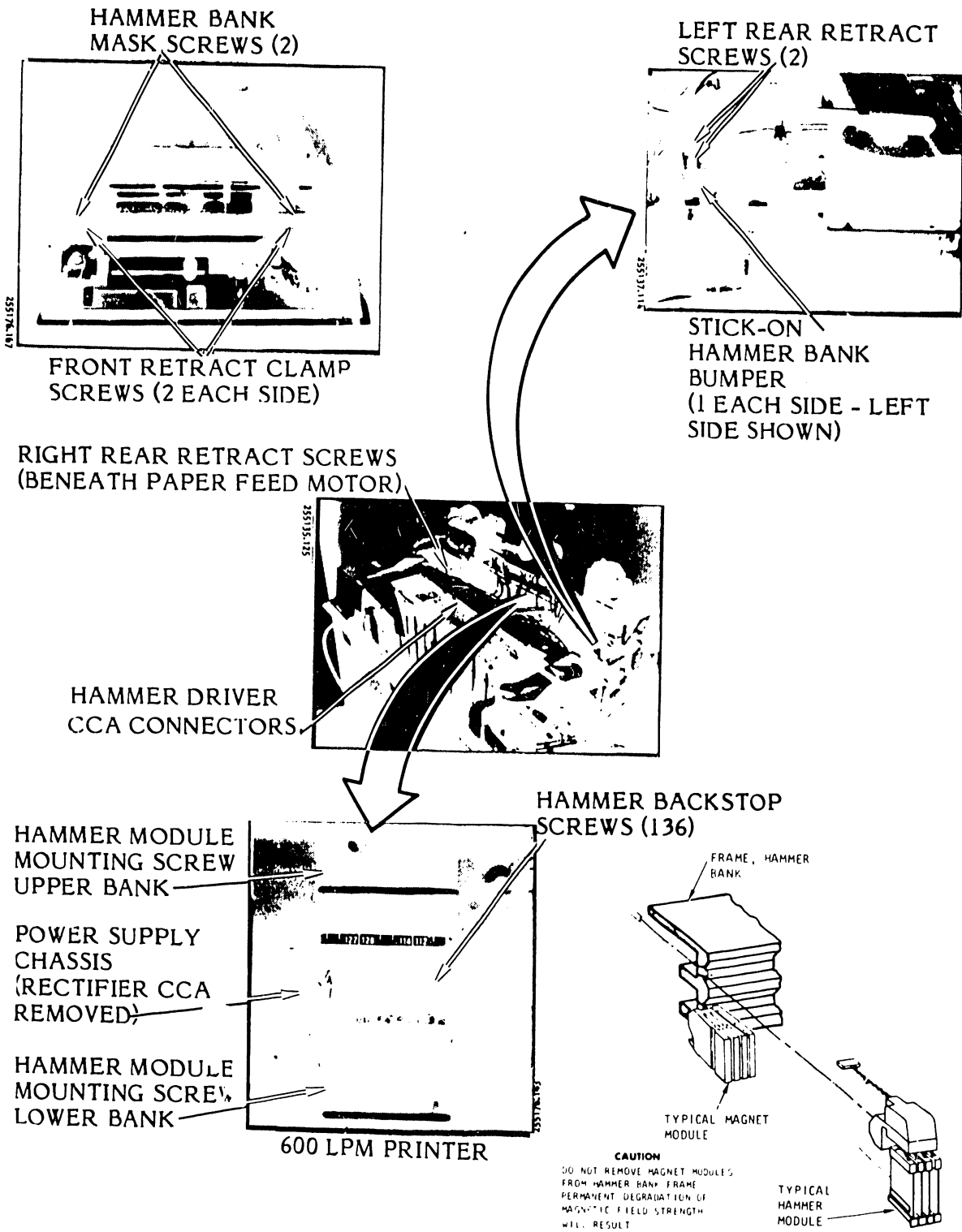


Figure 3-103. Hammer Module (600 LPM Printer) Removal/Installation

- Lower Modules - 7/64-inch allen wrench with a shaft length of 1 inch to 2 inches
- e. Remove the cable plug of the selected hammer module from the Hammer Driver CCA; then remove the module, using the following procedure:

Upper Hammer Module Removal

- a. Close the hammer bank assembly and, using the upper module allen wrench, remove the module mounting screw (see figure 3-103).
- b. Open the hammer bank assembly and gently remove the module from its position in the hammer bank.

Lower Hammer Module Removal - Level One

- a. Close the hammer bank assembly and, using the lower module allen wrench, remove the module mounting screw (see figure 3-102).
- b. Open the hammer bank assembly and gently remove the module from the front side of the hammer bank.
- c. If the module cannot easily be removed in this way, proceed to the level two module removal steps; otherwise, proceed to the installation instructions.

Lower Hammer Module Removal - Level Two

- a. Remove the gray stick-on hammer bank bumpers attached to the mechanics frame below the hammer bank retract shafts.
- b. Open the hammer bank and hold it to its maximum open position. Remove the selected module with the other hand.
- c. If there still is not enough room to remove the module, proceed to the level three module removal steps; otherwise, proceed to the installation instructions.

Lower Hammer Module Removal - Level Three

- a. Use an 8 mm offset wrench to remove the two retract clamp screws located beneath the paper feed motor.

NOTE

It will be necessary to remove the paper feed assembly if the right rear hold down bracket screws cannot be reached (see Paper Feed Assembly Removal/Installation in table 3-10).

- b. Use an 8 mm nut driver to remove the left rear retract clamp and the two front retract clamps.
- c. Place the hammer bank, with the module/CCA wires attached, on the printer to expose the modules.
- d. Use the lower module allen wrench to remove the module.

Upper Hammer Module Installation

- a. Insert the module into position in its magnet module, close the hammer bank, then insert and tighten the module mounting screw using the upper module allen wrench.
- b. Connect the new hammer module cable plug to its appropriate Hammer Driver CCA connector.

Lower Hammer Module Installation - Levels One and Two

- a. Insert the module into position in its magnet module, hold it in position with a nonmetallic flat stick, and close the hammer bank.
- b. Install and tighten the hammer module mounting screw.
- c. Connect the new hammer module cable plug to its appropriate Hammer Driver CCA connector.
- d. Reinstall the hammer bank mask.
- e. If necessary, reinstall the two retract bumpers with a dab of contact cement on each.

Lower Hammer Module Installation - Level Three

- a. Insert the new hammer module into position in its magnet module on the hammer bank.
- b. Install and tighten the hammer module mounting screw.

- c. Connect the new hammer module cable plug to its appropriate location on the Hammer Driver CCA and then place the hammer bank assembly on its mounts in the mechanics frame.
- d. Place the four retract shaft clamps over the shafts and loosely install the mounting screws.
- e. Grasp the hammer bank in the center and slide it forward until it is fully closed. Maintain pressure to keep it closed.
- f. Fully tighten the front right mounting screws and slightly tighten the left front mounting screws.
- g. Fully tighten both sets (left/right) of rear mounting screws.
- h. Fully tighten the left front mounting screws.
- i. Release your grasp of the hammer bank.
- j. Operate the hammer bank latch handle to ensure that the hammer bank slides freely (back and forth) on its retract shafts.

NOTE

If the hammer bank movement appears restricted, loosen the front and rear mounting screws and repeat steps e through i.

- k. Replace the hammer bank mask.
- l. Plug the AC power cord into the power source.
- m. Install the printer cover as described in paragraph 3.3.
- n. Power up the printer as described in the Operator's Guide and check the print quality of the replaced hammers.

NOTE

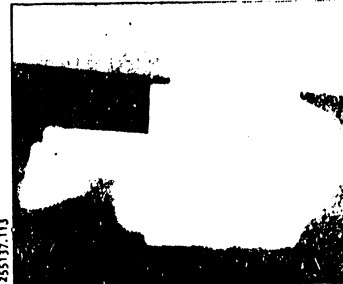
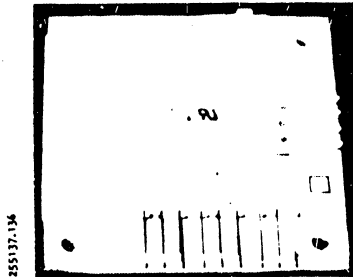
See Registration Adjustments in the Operator's Guide.

3.7.33 Interlock Transition Circuit Card Assembly Removal/Installation
(Figure 3-104)

Replacement Part

Interlock Transition CCA

P/N 256440-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Disconnect all the plugs from the Interlock Transition CCA.
- d. Use a 7 mm nut driver to remove the two screws that secure the Interlock Transition CCA mounting plate to the printer casting.

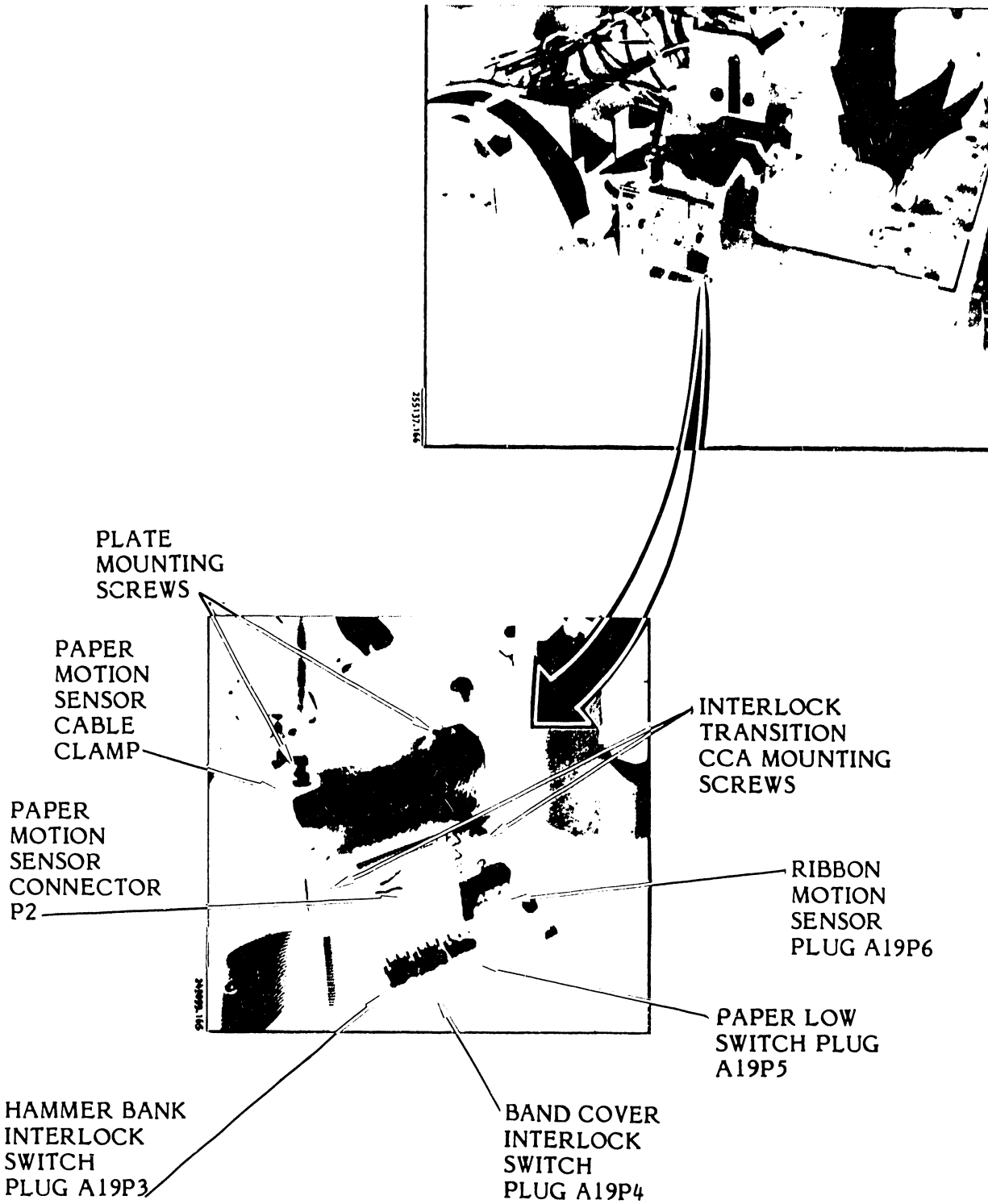
NOTE

The clamp for the paper motion sensor cable is also removed at this time.

- e. Remove the Interlock Transition CCA and plate assembly.
- f. Use a 7 mm nut driver to remove the two screws which secure the Interlock Transition CCA to its mounting plate, and remove the CCA.

Installation

- a. Mount the Interlock Transition CCA to its mounting plate with the two screws removed earlier (see figure 3-104).
- b. Secure the Interlock Transition CCA and the paper motion sensor cable clamp to the printer casting with the two screws removed earlier.



3

Figure 3-104. Interlock Transition Circuit Card Assembly Removal/Installation

- c. Reconnect all plugs disconnected earlier.
- d. Install the printer cover as described in paragraph 3.3.
- e. Plug the AC power cord into the power source.

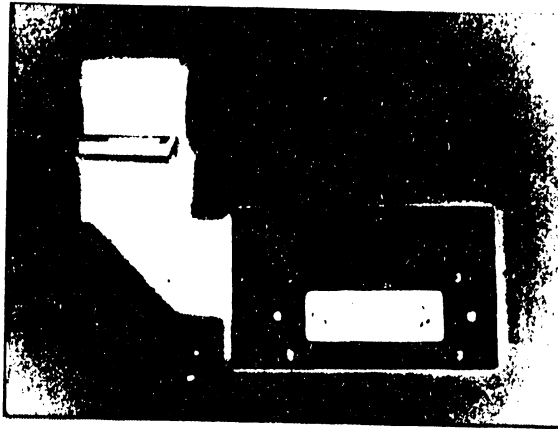
3.7.34 Input/Output Harness Assembly Removal/Installation
Figure 3-105)

Replacement Parts

I/O Harness Assembly:

Short Line, AMP Connector	P/N 257340-xxx*
Short Line, Winchester Connector	P/N 257343-xxx*
Long Line, AMP Connector	P/N 257342-001
Long Line, Winchester Connector	P/N 257341-001
Centronics-Compatible	P/N 257344-001
Serial Interface	P/N 256275-002

*See table 3-11



(TYPICAL)

NOTE

The Short Line Interface I/O Harness Assembly only may be configured for a number of resistor configurations as shown in table 3-11.

TABLE 3-11. SHORT LINE INTERFACE CCA I/O
HARNESS RESISTOR CONFIGURATION

Short Line - AMP Connector		Short Line - Winchester Connector	
Assembly No.	Resistor Configuration	Assembly No.	Resistor Configuration
257340-001	No Resistors	257343-001	No Resistors
257340-002	470 Ohm Pull Up/ Pull Down	257343-002	470 Ohm Pull Up/ Pull Down
257340-003	220 Ohm Pull Up/ 330 Ohm Pull Down	257343-003	220 Ohm Pull Up/ 330 Ohm Pull Down
257340-004	150 Ohm Pull Up/ 330 Ohm Pull Down	257343-004	150 Ohm Pull Up/ 330 Ohm Pull Down
257340-005	100 Ohm Pull Up	257343-005	100 Ohm Pull Up
257340-006	680 Ohm Pull Up	257343-006	680 Ohm Pull Up
257340-007	330 Ohm Pull Up/ 470 Ohm Pull Down	257343-007	330 Ohm Pull Up/ 470 Ohm Pull Down
257340-008	1000 Ohm Pull Up	257343-008	1000 Ohm Pull Up
257340-009	1000 Ohm Pull Up/ 330 Ohm Pull Down	257343-009	1000 Ohm Pull Up/ 330 Ohm Pull Down
257340-010	220 Ohm Pull Up/ Pull Down	257343-010	220 Ohm Pull Up/ Pull Down

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fasteners and remove the cover.
- d. Lift up on the Interface CCA ejector keys and raise the Interface CCA.

NOTE

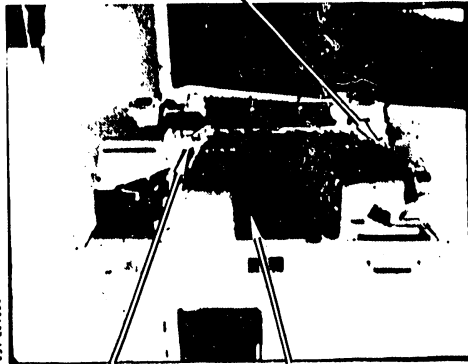
It is not necessary to remove the cable plugs connected at the top of the Interface CCA.

- e. Locate the Input/Output (I/O) Harness plug A18P5 at the Interface CCA lower center connector A2J5.
- f. Remove the harness plug.
- g. Use an 8 mm nut driver to remove the two I/O Harness Assembly mounting screws from the printer base (see figure 3-105).
- h. Remove the I/O Harness Assembly.
- i. Use a 7 mm nut driver to remove the four screws which secure the I/O Harness CCA to its mounting bracket if it is necessary to replace the I/O Harness CCA.

Installation

- a. Use a 7 mm nut driver and four mounting screws to secure the I/O Harness CCA to the mounting bracket.
- b. Place the I/O Harness bracket and connector in the printer base cut out as shown in figure 3-105.
- c. Use the 8 mm nut driver and mounting screws to secure the bracket to the printer base.
- d. Raise the Interface CCA and connect the harness plug A18P5 to the CCA connector A2J5.
- e. Insert the Interface CCA firmly into the Mother Board CCA.

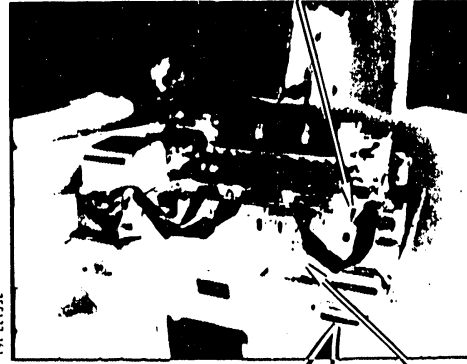
COVER FASTENER



COVER FASTENER

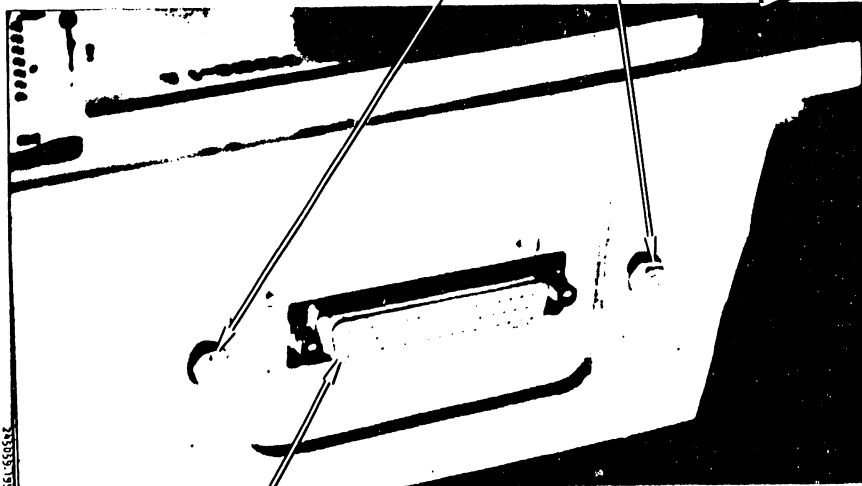
CARD CAGE COVER

CCA EJECTOR KEY

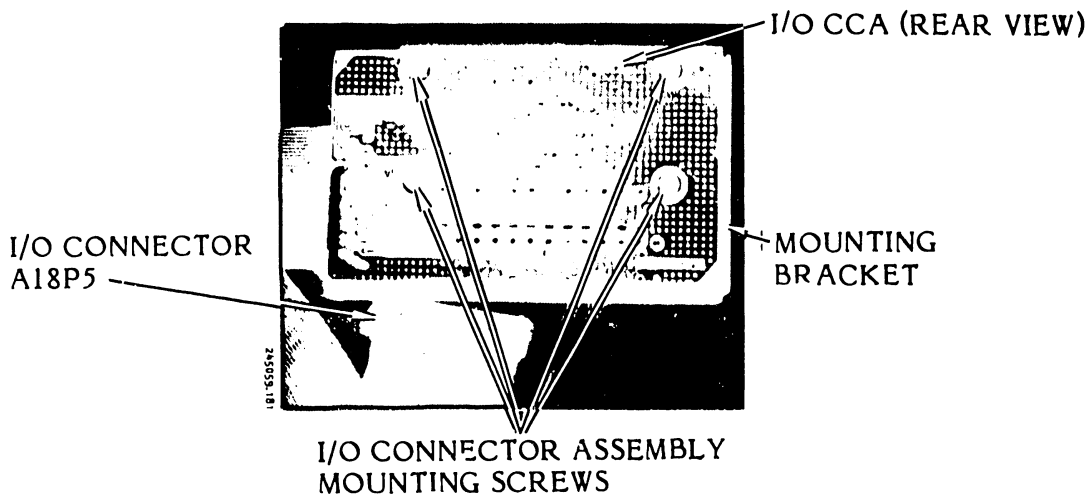


I/O CCA MOUNTING SCREWS

INTERFACE CCA



I/O CONNECTOR



I/O CONNECTOR A18P5

I/O CCA (REAR VIEW)

MOUNTING BRACKET

I/O CONNECTOR ASSEMBLY MOUNTING SCREWS

3

Figure 3-105. Input/Output (I/O) Harness Assembly Removal/Installation

NOTE

After the Interface CCA is located in the Mother Board CCA connectors, push on the CCA ejector keys to properly seat the Interface CCA.

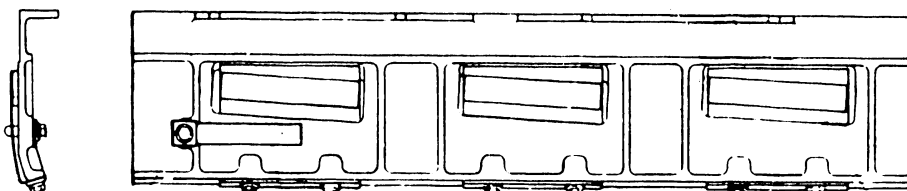
- f. Install the card cage cover.
- g. Install the printer cover as described in paragraph 3.3.
- h. Plug the AC power cord into the power source.

3.7.35 Paper Clamp Armature Assembly (300 LPM Printer) Removal/Installation (Figure 3-106)

The paper clamp armature assembly is located beneath the platen but is secured separately to the band casting. Its mounting screws are reached through four access holes in the platen. The platen does not have to be removed for this procedure. Your printer may be equipped with either a thin platen or a thick platen. Therefore, this procedure is in two parts to handle either configuration. Follow the procedure that describes your printer platen configuration.

Replacement Part

Paper Clamp Armature Assembly P/N 257212-001



Thin Platen Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Open the band cover and open the hammer bank.
- d. Remove the ribbon cartridge and character band as described in the Operator's Guide.
- e. If the printer has the press fit character alignment decal, lift it free and out of the printer. If the printer has the screw mounted ribbon guide, pierce the alignment decal at column locations 30 and 92.

- f. Use a 5 mm hex driver to remove the ribbon guide mounting screws and ribbon guide.

NOTE

Do not loosen the three screws that mount the platen to the band casting (see figure 3-106).

- g. Use a 3 mm hex driver to loosen the four screws that secure the Paper Clamp Armature Assembly to the band casting.
- h. Slide the Paper Clamp Armature Assembly from under the platen and remove it from the printer.

Thin Platen Installation

- a. Slide the armature assembly under the platen.
- b. Use the 3 mm hex driver to secure the Paper Clamp Armature Assembly loosely to the band casting.
- c. Perform the Paper Clamp Armature Assembly adjustment procedure provided in the Adjustments part of this section (see table 3-9).
- d. If the printer has the press fit character alignment decal, install it by firmly pressing it into the two mounting holes on the platen and proceed to step k. If the printer has the ribbon guide, go to the next step.
- e. Use the 5 mm nut driver and mounting screws to loosely attach the ribbon guide to the platen.
- f. Close and latch the hammer bank.
- g. Insert a 0.028 inch feeler gauge between the ribbon guide and hammer bank at one end.
- h. Push the ribbon guide toward the hammer bank to press firmly against the feeler gauge while you move the feeler gauge the entire length of the ribbon guide.
- i. Use the 5 mm nut driver to tighten the two mounting screws.
- j. Install a new character alignment scale decal on the ribbon guide as directed earlier in this section (Character Alignment Scale Decal Removal/Installation).

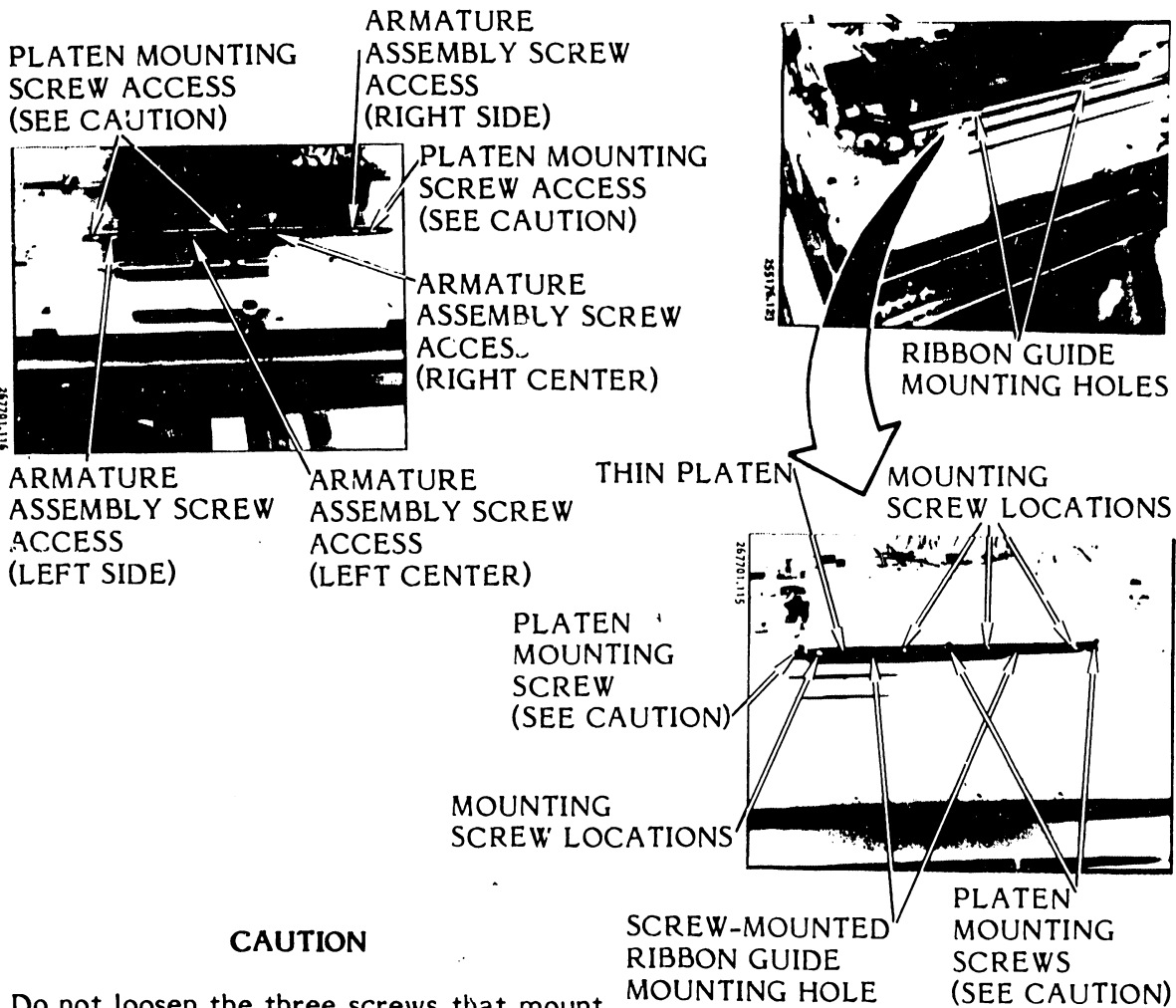
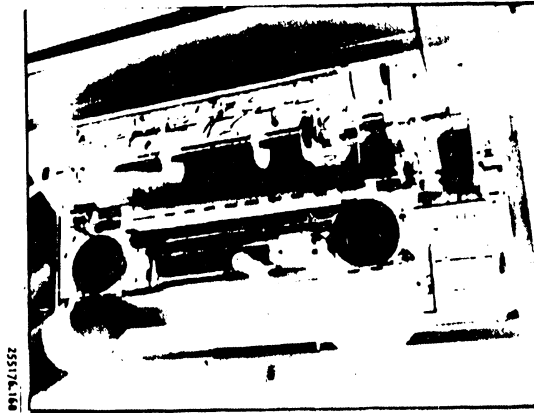


Figure 3-106. Paper Clamp Armature Assembly (300 LPM Printer) Removal/Installation

NOTE

The remaining steps for this installation are provided in the Character Alignment Scale Decal Removal/Installation procedure (see table 3-10).

- k. For the press fit character alignment scale assembly, proceed as follows:
1. Install the ribbon cartridge and the character band as described in the Operator's Guide.
 2. Plug the AC power cord into the power source.

Thick Platen Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Raise the band cover and open the hammer bank.
- d. Remove the ribbon cartridge and character band as described in the Operator's Guide.
- e. Pierce the alignment scale decal at column locations 5, 42, 80, and 115.

NOTE

Do not loosen the three screws that mount the platen to the band casting.

- f. Using a 3 mm hex driver, loosen **only** the four screws that secure the Paper Clamp Armature Assembly to the band casting (see figure 3-106).
- g. Slide the Paper Clamp Armature Assembly from under the platen and remove it from the printer.

Thick Platen Installation

- a. Slide the armature assembly under the platen.
- b. Use the 3 mm hex driver to secure the Paper Clamp Armature Assembly loosely to the band casting.

- c. Perform the Paper Clamp Armature Assembly adjustment procedure provided in the Adjustments part of this section (see table 3-9).
- d. Install a new character alignment scale decal as described earlier in this section (see table 3-10).

NOTE

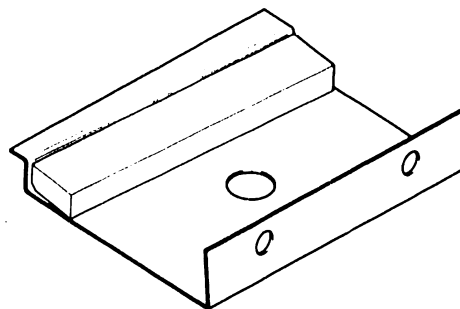
The remaining steps for this installation are provided in the Character Alignment Scale Decal Removal/Installation procedure.

3.7.36 Paper Clamp Armature (300 LPM Printer) Removal/Installation (Figure 3-107)

Replacement Part

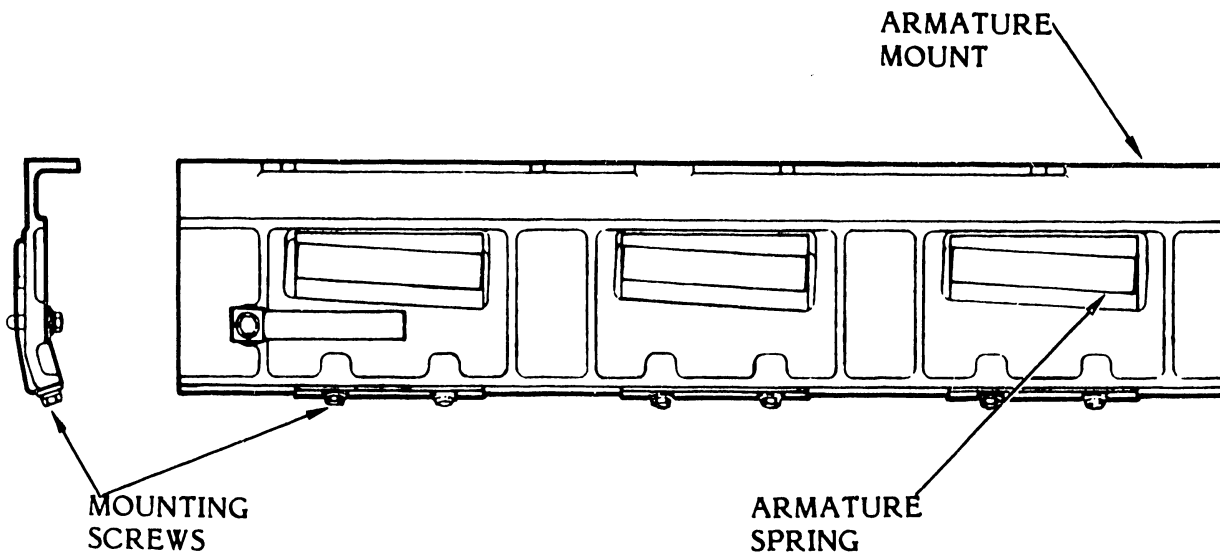
Armature Spring Assembly

P/N 257430-001



Removal

- a. Perform the preceding Paper Clamp Armature Assembly (300 LPM Printer) Removal Procedure.
- b. Use a number 2 phillips screwdriver to remove the two screws that secure the mounting clamp and the Armature Spring Assembly to the armature mount. Repeat the procedure for each of the other spring assemblies, if necessary.
- c. Pull the armature away from the double-faced tape which secures it to the armature spring.
- d. Remove the double-faced tape from the spring.



**Figure 3-107. Paper Clamp Armature (300 LPM Printer)
Removal/Installation**

Installation

- a. Clean all dirt or adhesive residue from the bonding surfaces of the armature spring and the armature.
- b. Install the armature on the armature spring with 0.5 inch polyester double-faced tape. Ensure that the tape does not protrude over the edges of the armature spring.
- c. Position the armature spring assembly and the armature clamp on the armature mount. The armature spring should not protrude beyond the lower inside edge of the armature mount.
- d. While holding the assembly in place, use a torque screwdriver with a number 2 phillips attachment to secure the armature spring assembly with the two armature mounting screws.
- e. Tighten the armature mounting screws to 5 in/lb torque.
- f. Repeat the procedure for each Armature Spring Assembly removed.
- g. Install the Paper Clamp Armature Assembly as described in the Paper Clamp Armature Assembly Installation Procedure (see table 3-10).

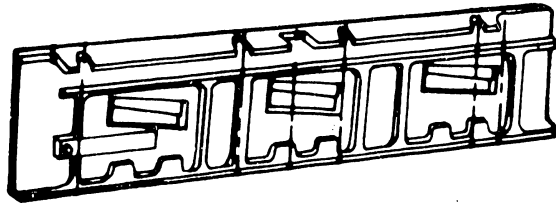
3

3.7.37 Paper Clamp Armature Assembly (600 LPM Printer) Removal/Installation (Figure 3-108)

The paper clamp armature assembly is located beneath the platen but is secured separately to the band casting. Its mounting screws are reached through four access holes in the platen. The platen does not have to be removed for this procedure. Your printer may be equipped with either a thin platen or a thick platen. Therefore, this procedure is in two parts to handle either configuration. Follow the procedure that describes your printer platen configuration.

Replacement Part

Paper Clamp Armature Assembly P/N 257587-001

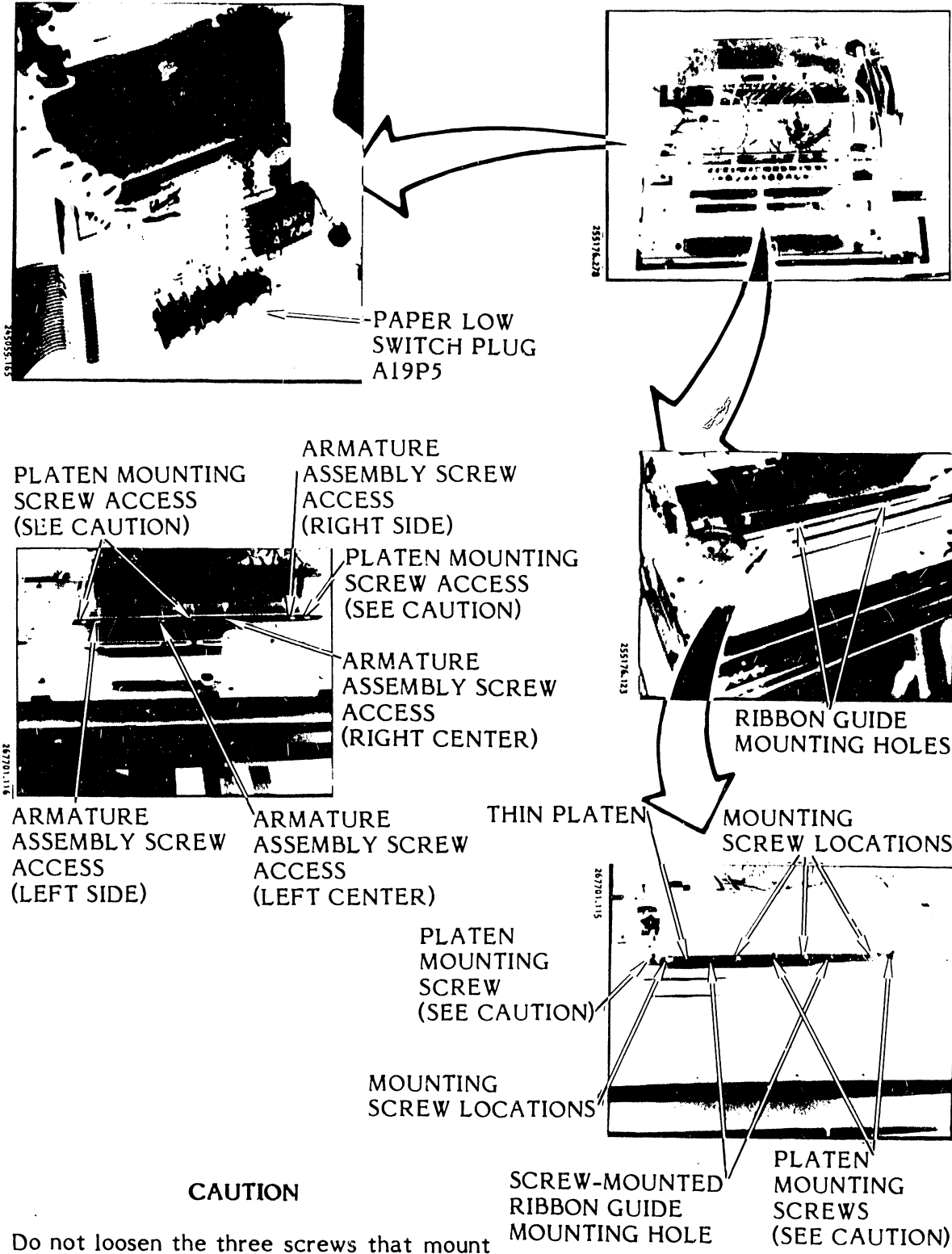


Thin Platen Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Unload the paper.
- c. Remove the ribbon cartridge and character band as described in the Operator's Guide.
- d. Remove the printer cover as described in paragraph 3.4.
- e. Open the character band cover and hammer b.
- f. If the printer has the press fit character alignment decal, lift it free and out of the printer. If the printer has the screw mounted ribbon guide, pierce the alignment decal at column locations 30 and 92.
- g. Use a 5 mm hex driver to remove the ribbon guide mounting screws and the ribbon guide.

NOTE

Do not loosen the three screws that mount the platen to the band casting (see figure 3-108).



3

Figure 3-108. Paper Clamp Armature Assembly (600 LPM Printer) Removal/Installation

- h. Unplug the paper low switch cable (A19P5) from the Interlock Transition CCA (see figure 3-108).
- i. Use a 3 mm hex driver to loosen the four screws that secure the Paper Clamp Armature Assembly to the band casting.
- j. Slide the Paper Clamp Armature Assembly from under the platen and remove it from the printer.

Thin Platen Installation

- a. Slide the armature assembly under the platen.
- b. Use the 3 mm hex driver to secure the Paper Clamp Armature assembly loosely to the band casting.
- c. Feed the paper low switch cable along the bottom of the printer base and plug it into the Interlock Transition CCA at A19J5 (see figure 3-108).
- d. Perform the Paper Clamp Armature Assembly adjustment procedure provided in the Adjustments part of this section (see table 3-9).
- e. If the printer has the press fit character alignment decal, install it by firmly pressing it into the two mounting holes on the platen and proceed to step l. If the printer has the ribbon guide, go to the next step.
- f. Use the 5 mm nut driver and mounting screws to loosely attach the ribbon guide to the platen.
- g. Close and latch the hammer bank.
- h. Insert a 0.028 inch feeler gauge between the ribbon guide and hammer bank at one end.
- i. Push the ribbon guide firmly against the feeler gauge while you move the feeler gauge the entire length of the ribbon guide.
- j. Use the 5 mm nut driver to tighten the two mounting screws.
- k. Install a new character alignment scale decal on the ribbon guide as described earlier in this section (Character Alignment Scale Decal Removal/Installation).

NOTE

The remaining steps for this installation are provided in the Character Alignment Scale Decal Removal/Installation procedure (see table 3-10).

1. For the press fit character alignment scale assembly, proceed as follows:
 1. Install the printer cover as described in paragraph 3.3.
 2. Plug the AC power cord into the power source.

Thick Platen Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Unload the paper.
- c. Remove the ribbon cartridge and character band as described in the Operator's Guide.
- d. Remove the printer cover as described in paragraph 3.3.
- e. Open the character band cover and hammer bank.
- f. Unplug the paper low switch cable (A19P5) from the Interlock Transition CCA (see figure 3-108).

NOTE

Do not loosen the three screws that mount the platen to the band casting.

- g. Pierce the alignment scale decal at column locations 5, 42, 80, and 115.
- h. Use a 3 mm hex driver to loosen **only** the four screws that secure the Paper Clamp Armature Assembly to the band casting (see figure 3-108).
- i. Slide the Paper Clamp Armature Assembly from under the platen and remove it from the platen.

Thick Platen Installation

- a. Slide the armature assembly under the platen.
- b. Use the 3 mm hex driver to secure the paper clamp armature assembly loosely to the band casting.
- c. Perform the Paper Clamp Armature Assembly adjustment procedure provided in the Adjustments part of this section (see table 3-9).
- d. Install a new character alignment scale decal as described earlier in this section (see table 3-10).

NOTE

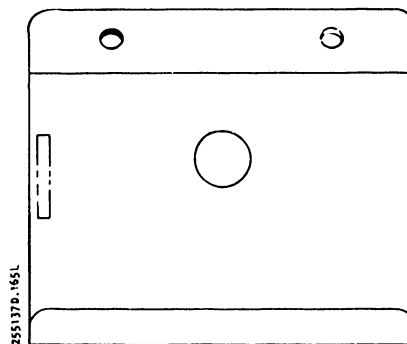
The remaining steps for this installation are provided in the Character Alignment Scale Decal Removal/Installation procedure.

3.7.38 Paper Clamp Armature (600 LPM Printer) Removal/Installation (Figure 3-109)

Replacement Part

Armature Spring

P/N 257586-001

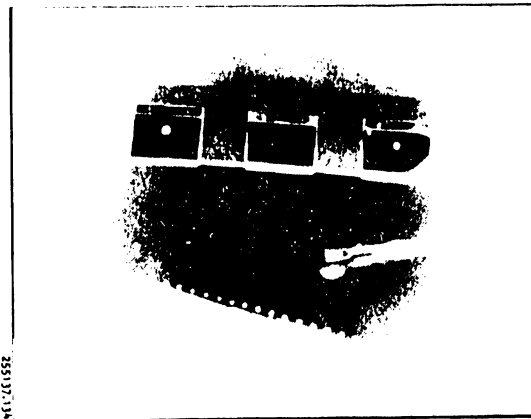


Removal

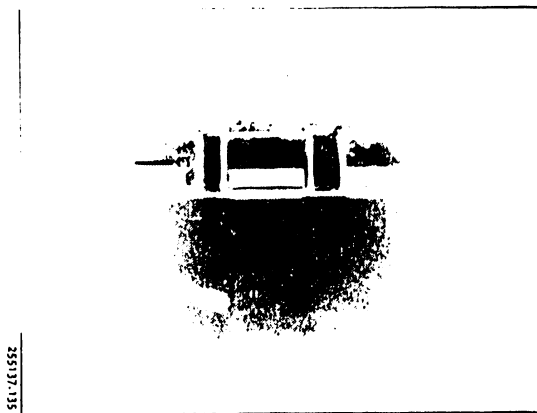
- a. Perform the preceding Paper Clamp Armature Assembly (600 LPM Printer) Removal Procedure.
- b. Use a number 2 phillips screwdriver to remove the two screws that secure the mounting clamp and armature spring to the armature mount. Repeat the procedure for each of the other spring assemblies, if necessary.

Installation

- a. Use a torque screwdriver with a number 2 phillips attachment and the two armature mounting screws to secure the armature spring and mounting plate to the armature (see figure 3-109).
- b. Tighten the armature mounting screws to 5 in/lb torque.
- c. Repeat the procedure for each Armature Spring Assembly removed.
- d. Install the Paper Clamp Armature Assembly as described in the Paper Clamp Armature Assembly Installation procedure (see table 3-10).



FRONT VIEW



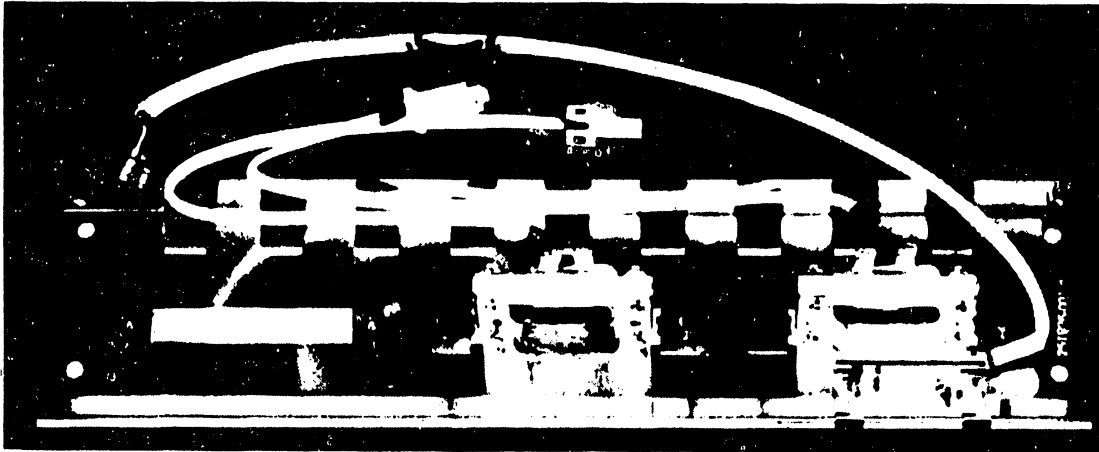
BACK VIEW

**Figure 3-109. Paper Clamp Armature (600 LPM Printer)
Removal/Installation**

3.7.39 Paper Clamp Solenoid Assembly Removal/Installation
(Figure 3-110)

Replacement Parts

300 LPM Printer Paper Clamp Solenoid Assembly	P/N 263404-001
600 LPM Printer Paper Clamp Solenoid Assembly	P/N 251045-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Open the hammer bank.
- d. Use an 8 mm nut driver to remove the two hammer bank mask mounting screws and remove the mask (see figure 3-110).
- e. Remove connector P2 from the paper motion sensor at the Interlock Transition CCA.
- f. Remove the screw holding the paper motion sensor cable clamp to the Interlock Transition CCA mounting plate.
- g. Remove the paper feed motor cable at the Power Board CCA.
- h. Remove the hammer bank latch springs at the left and right sides of the paper feed assembly.
- i. Remove the four screws that mount the paper feed assembly to the hammer bank assembly.

3

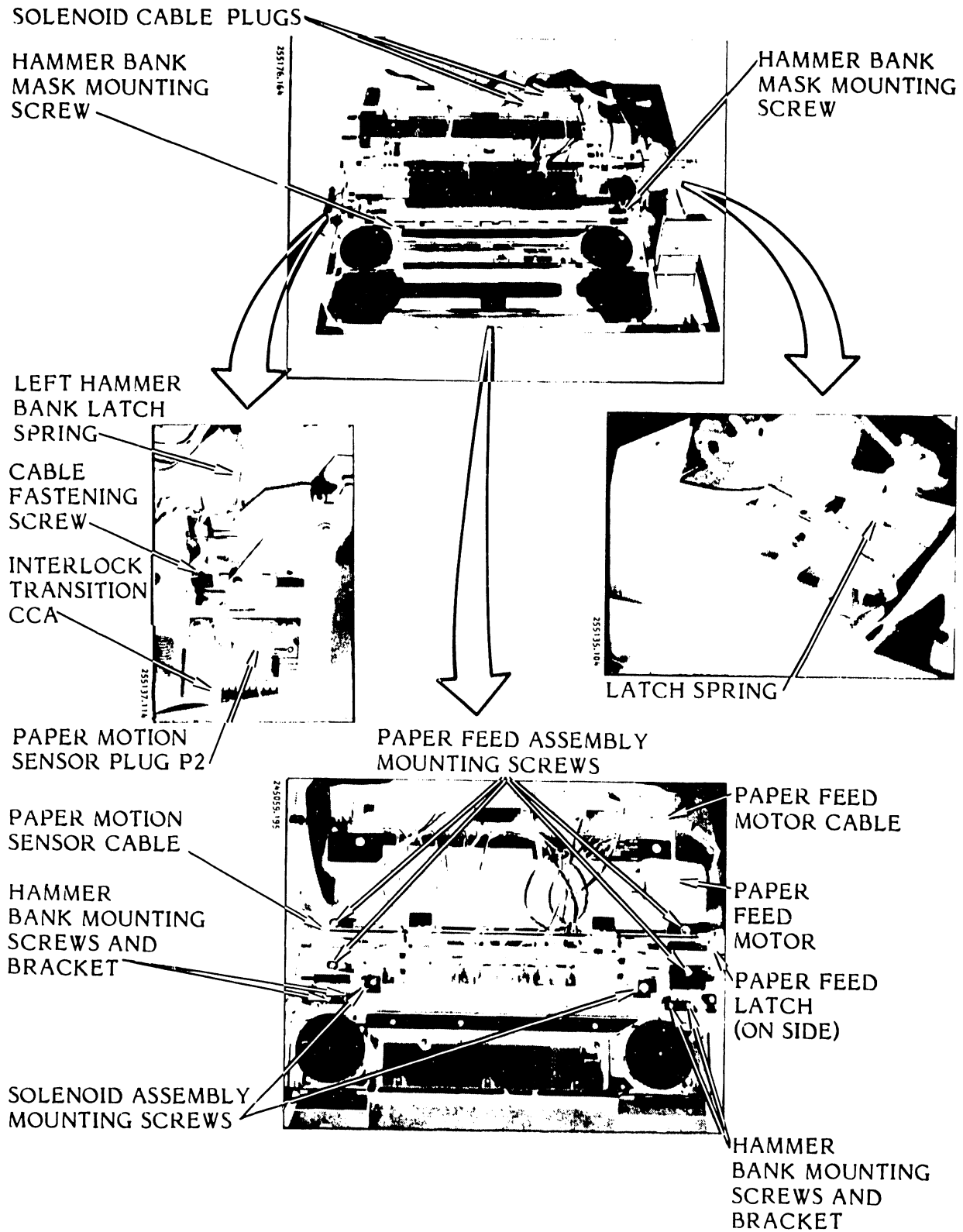


Figure 3-110. Paper Clamp Solenoid Assembly Removal/Installation

MAINTENANCE

- j. Remove the paper feed assembly.
- k. Loosen the four front hammer bank mounting screws and remove the four rear hammer bank mounting screws and two guide pin hold down brackets.
- l. Loosen the two solenoid assembly mounting screws.
- m. Disconnect the solenoid cables from the Power Board CCA.
- n. For the 300 LPM Printer, disconnect the paper low switch cable connected at A19J5 at the Interlock Transition CCA.
- o. Move the hammer bank guide pins approximately one inch to the rear.
- p. Lift the hammer bank assembly carefully and slide out the paper clamp solenoid assembly.

Installation

- a. Loosely attach the paper clamp solenoid assembly to the hammer bank assembly. Ensure that the washers used with the attaching screws are between the head of the screws and the mounting bracket.
- b. Install the hammer bank assembly.
- c. Be sure that the hammer bank latch is positioned properly during assembly and push the hammer bank guide pins against the stop.
- d. Apply a light film of oil to the guide pins.
- e. Install the two guide pin hold down brackets and the four mounting screws.
- f. Tighten all eight mounting screws slightly.
- g. While tightening the right side hold down brackets, slide the hammer bank forward and backward to ensure smooth operation. Repeat the same procedure while tightening the left side hold down brackets.
- h. Verify that the hammer bank moves freely in both directions. Readjust, if necessary.
- i. Position the paper feed assembly with the four mounting screws.

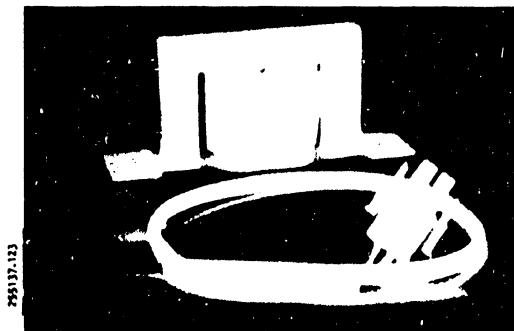
- j. Position the paper feed assembly flush with the guiding edge of the hammer bank and to the right or left so that 0.7 ± 0.5 mm (0.03 ± 0.02 inch) gap exists between the edge of the paper and the edge guide bearing. (See the Paper Feed Assembly Adjustment procedure, table 3-9.)
- k. Tighten the four paper feed assembly mounting screws.
- l. Connect the paper feed motor cable, the paper low switch cable (300 LPM Printer only), and the paper motion sensor cable P2 and cable clamp.
- m. Hook up the hammer bank latch springs.
- n. For the 300 LPM Printer only, adjust the solenoid assembly with a 1.0 mm feeler gauge for a gap of 1.0 mm - $0.00 + 0.03$ (0.040 inch - 0.000 , $+ 0.012$), with the hammer bank in its closed position. Check the gap at both ends and between each solenoid.
- o. Tighten the two solenoid assembly mounting screws. (See Paper Clamp Solenoid adjustment procedure, table 3-9.)
- p. For the 600 LPM Printer, move the solenoid assembly by pushing from the rear until it lightly contacts the armature spring. Use a three-inch strip of single part paper to ensure that the contact between the armature assembly and the solenoid assembly provides even tension a cross the throat gap.
- q. Install and secure the hammer bank mask.
- r. Install the printer cover as described in paragraph 3.3.
- s. Plug the AC power cord into the power source.

3.7.40 Paper Clamp Solenoid (300 LPM Printer) Removal/Installation
(Figure 3-111)

Replacement Part

Electromagnet Assembly

P/N 257380-001



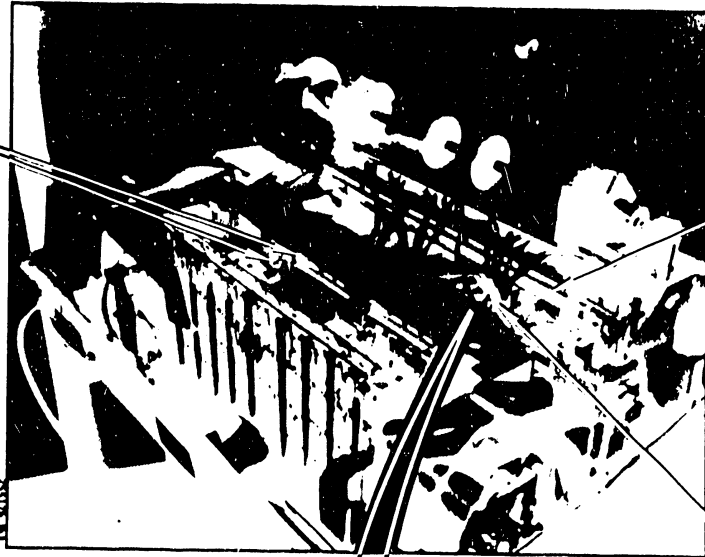
Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the paper guide shield.
- d. Close the hammer bank.
- e. Unplug the solenoid cable from the Power Board CCA (see figure 3-111).
- f. Locate the solenoid mounting nuts between the capacitor bank and the hammer bank.
- g. Use a 7 mm nut driver to remove the solenoid mounting nuts and the solenoid.

Installation

- a. Place the new solenoid in position on the mounting assembly studs.
- b. Use the 7 mm nut driver and mounting hardware to secure the solenoid to the mounting assembly.
- c. Plug the solenoid cable into the Power Board CCA connector (A5J3B or A5J3C).
- d. Install the paper guide shield behind the paper feed assembly.
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

SOLENOID CABLE PLUGS



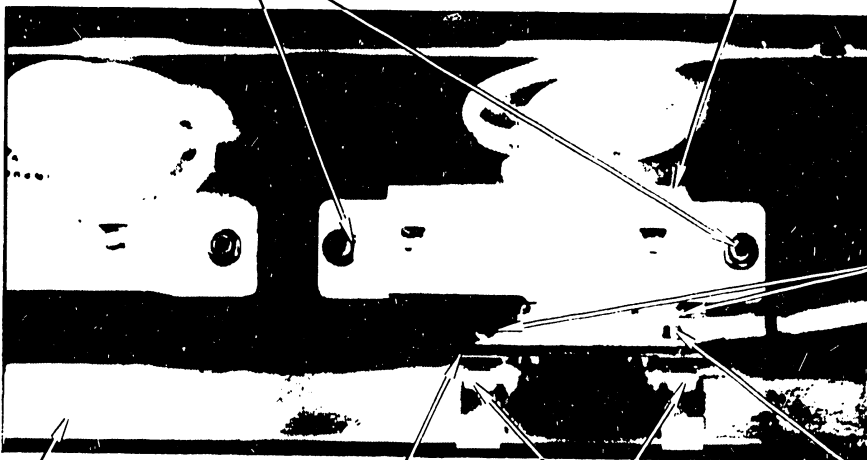
HAMMER BANK

CAPACITOR BANK



SOLENOID (1 OF 2)

SOLENOID MOUNTING NUTS/WASHERS



SWITCH MOUNTING BRACKETS

SOLENOID ASSEMBLY

SWITCH MOUNTING PLATE

PAPER LOW SWITCH ADJUSTMENT SCREWS

PAPER LOW SWITCH (PLUNGER)

3

Figure 3-111. Paper Clamp Solenoid (300 LPM Printer) Removal/Installation

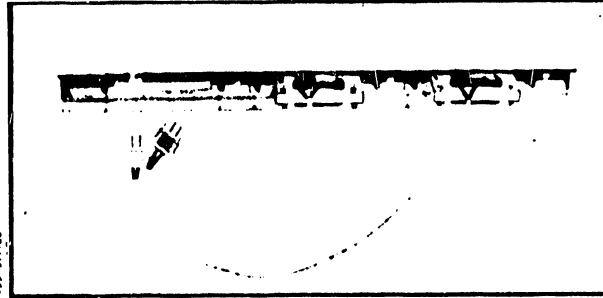
3.7.41 Paper Clamp Solenoid (600 LPM Printer) Removal/Installation (Figure 3-112)

The solenoid assembly electromagnets can be reached and removed with a short shaft nut driver and ratchet.

Replacement Part

Electromagnet Assembly

P/N 257380-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the paper guide shield from behind the paper feed assembly.
- d. Use your finger to locate the electromagnet mounting stud under the rear of the hammer bank.
- e. Use a 7 mm nut driver attachment and a ratchet driver to remove the two mounting nuts and electromagnet from the solenoid mounting plate (see figure 3-112).
- f. Unplug the electromagnet cable from the Power Board CCA and remove the electromagnet assembly.

Installation

- a. Place the electromagnet assembly in position on the solenoid mounting plate.
- b. Use the 7 mm nut driver and ratchet driver and mounting hardware to secure the electromagnet to the mounting plate.
- c. Plug the electromagnet assembly cable into the Power Board CCA connector at A5J3B or A5J3C.

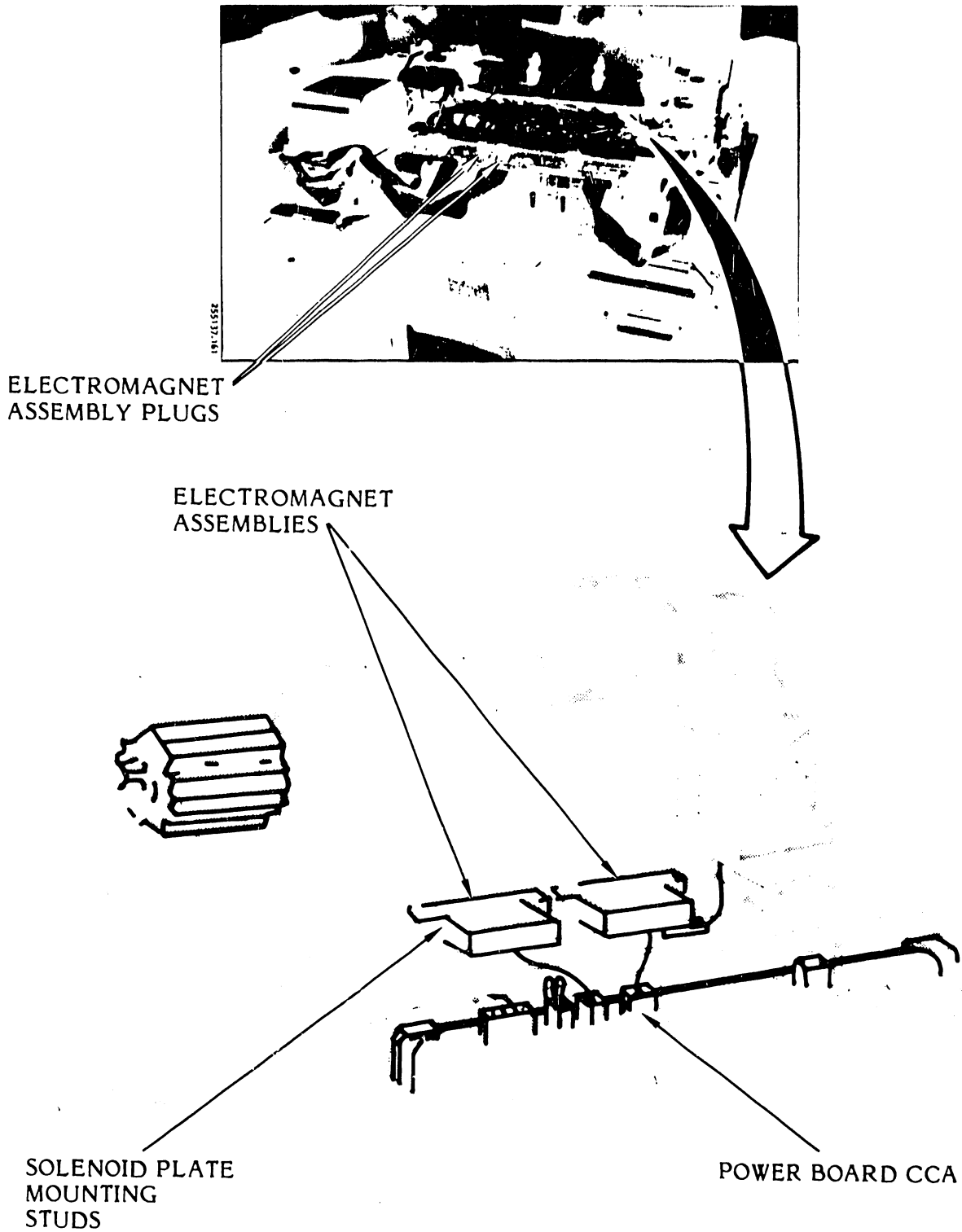


Figure 3-112. Paper Clamp Solenoid (600 LPM Printer) Removal/Installation

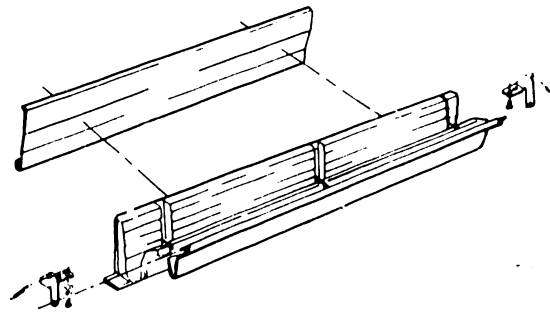
- d. Install the paper guide shield behind the paper feed assembly.
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

3.7.42 Paper Entrance Cover Assembly Removal/Installation (Figure 3-113)

Removal/Installation of this assembly is done from the underside of the printer base.

Replacement Part

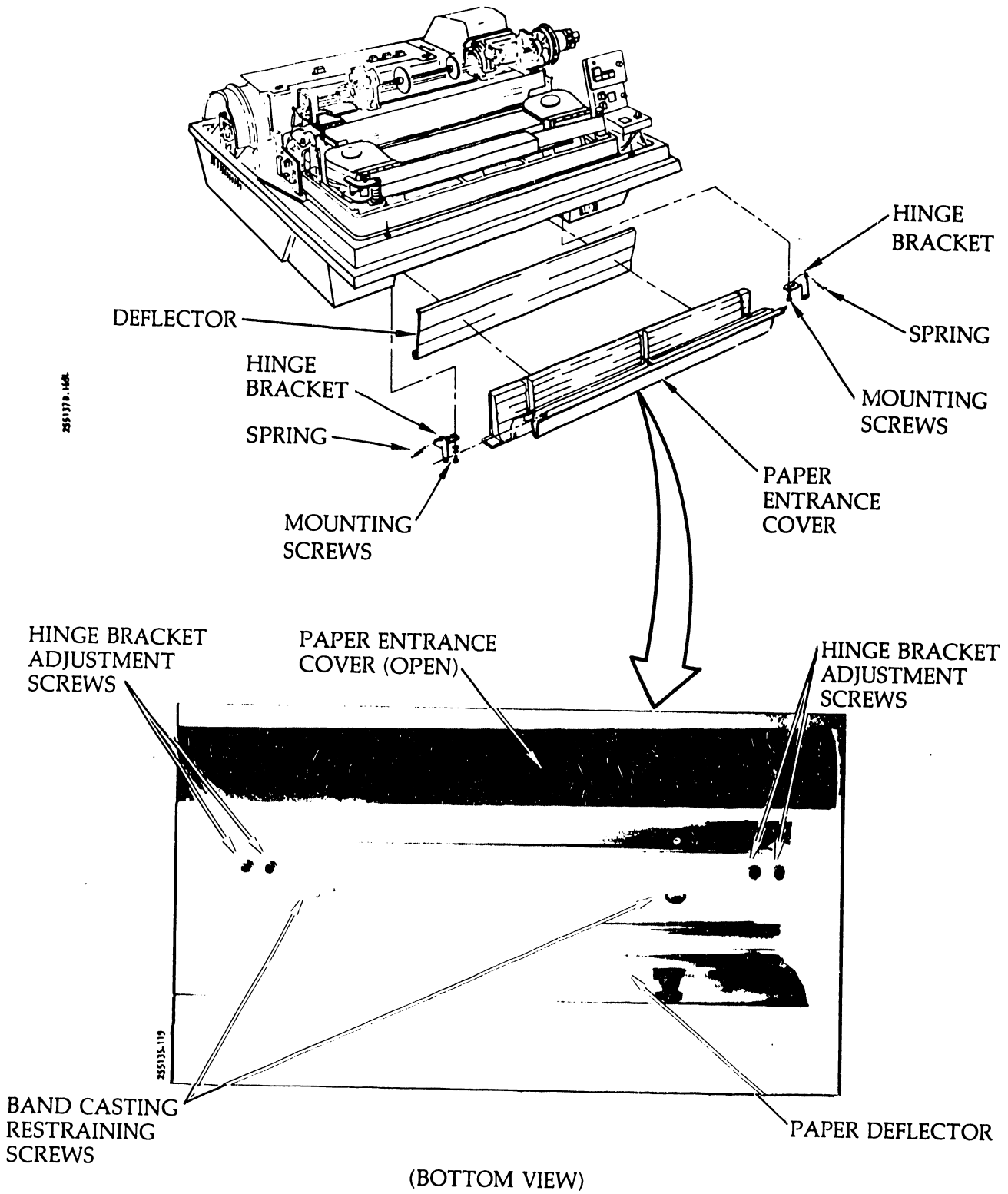
Paper Entrance Cover Assembly Kit P/N 257249-001



2551370-169-

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Open the paper entrance cover.
- c. Use an 8 mm nut driver to loosen the four hinge bracket adjustment screws.
- d. Close the paper entrance cover.
- e. Slip the end hooks of the two end springs from their corresponding hooks on the hinge brackets.
- f. Carefully unhook the paper entrance cover from the two hinge brackets.



3

Figure 3-113. Paper Entrance Cover Assembly Removal/Installation

Installation

- a. Hook the paper entrance cover onto the two hinge brackets.
- b. Close the paper entrance cover.
- c. Pull on the two end springs and slip their end hooks on the hinge brackets.
- d. Perform the Paper Entrance Cover Assembly adjustment procedure as described in the Adjustments part of this section (see table 3-9).

NOTE

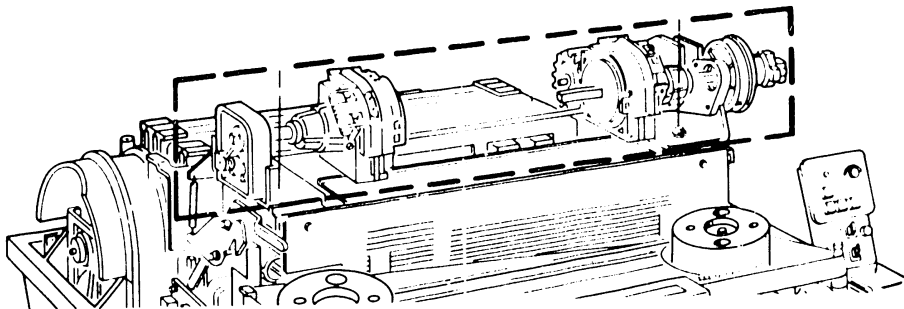
The remainder of this procedure will be finished in the Paper Entrance Cover Assembly adjustment procedure.

3.7.43 Paper Feed Assembly Removal/Installation (Figure 3-114)

Replacement Part

Paper Feed Assembly

P/N 246282-002



Removal

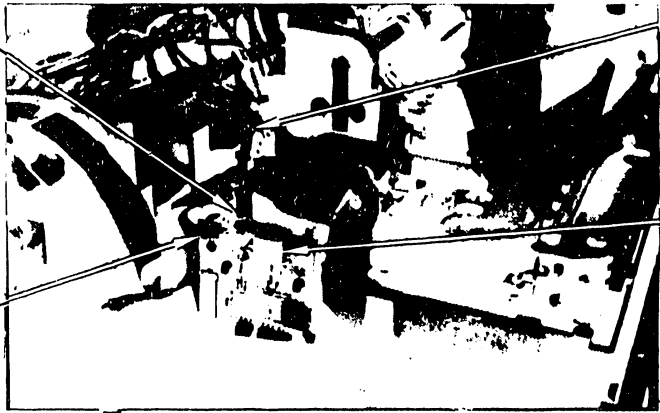
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Unplug the paper motion sensor cable from the Interlock Transition CCA at A19J2 (see figure 3-114).
- d. Use a 7 mm nut driver to remove the screw holding the paper motion sensor cable clamp to the assembly mounting bracket.
- e. Unplug paper feed motor cable A15P4 from the Power Board CCA at A5J4.

PAPER MOTION
SENSOR CABLE
CLAMP

HAMMER BANK
LATCH SPRING

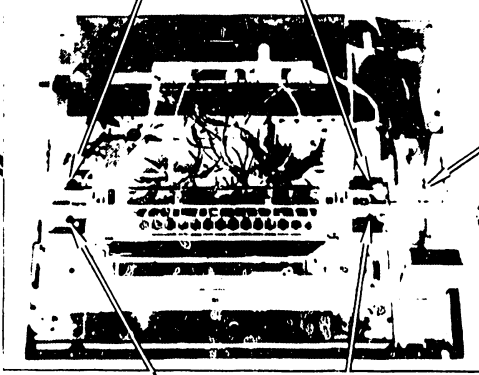
INTERLOCK
TRANSITION
CCA

PAPER MOTION
SENSOR CABLE
PLUG

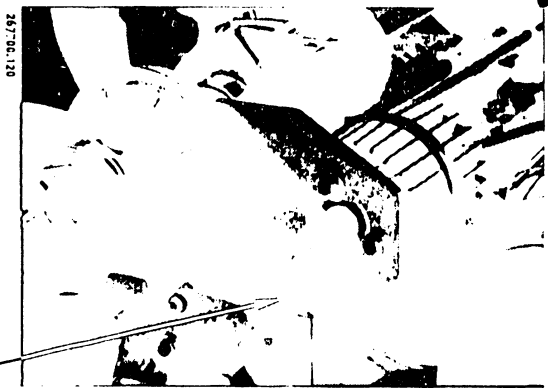


MOUNTING
SCREWS

PAPER FEED
ASSEMBLY



MOUNTING
SCREWS



HAMMER BANK
LATCH SPRING

3

Figure 3-114. Paper Feed Assembly Removal/Installation

- f. Remove the right and left side hammer bank latch springs (see figure 3-114).
- g. Use an 8 mm nut driver to remove the assembly's four mounting screws.
- h. Remove the paper feed assembly.

Installation

- a. Place the paper feed assembly over the hammer bank casting mounting holes (see figure 3-114).
- b. Use the 8 mm nut driver and four mounting screws to secure the paper feed assembly loosely to the casting.
- c. Plug the paper feed motor cable A15P4 into the Power Board CCA at A5J4.
- d. Plug the paper motion sensor cable into the Interlock Transition CCA at A19J2.
- e. Perform the Paper Feed Assembly adjustment procedure as described in the Adjustments part of this section (see table 3-9), as applicable.

NOTE

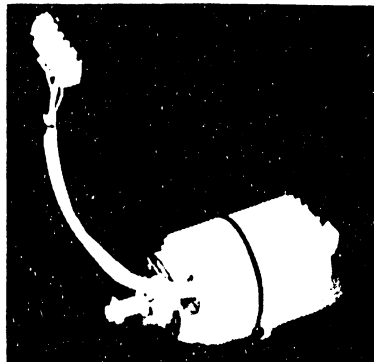
This procedure is to be completed as part of the Paper Feed Adjustment procedure.

3.7.44 Paper Feed Motor Removal/Installation (Figure 3-115)

Replacement Part

Paper Feed Motor Assembly

P/N 246200-004



Removal

- a. Set the AC power switch to OFF and unplug the power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Remove the paper guide shield.
- d. Unplug paper feed motor cable plug A13P4 from the Power Board CCA.
- e. Disconnect the hammer bank latch spring at the motor mounting screw end.
- f. Use a 1/4-inch open end wrench to remove the stand-off type mounting screw.
- g. Use a 7 mm nut driver to loosen the two hex head mounting screws.
- h. Slide the paper feed motor forward and remove the timing belt from the motor pulley.
- i. Use the 7 mm nut driver to remove the two hex head mounting screws and the motor.

Installation

- a. Position the paper feed motor to have its wiring cable facing the Power Board CCA.
- b. Insert the stand off type mounting screw in the bottom left hole and tighten it a few turns.
- c. Insert the two hex head mounting screws in the remaining two holes and tighten them a few turns.
- d. Plug cable connector A13P4 into Power Board CCA connector A5J4 located on the far left side of the CCA.
- e. Place the timing belt over the motor pulley.
- f. Place a spring scale (3.2 ± 0.2 kg) as shown in figure 3-115.
- g. Pull the spring scale away from the timing belt to a force reading of 31.4 ± 2.2 nm (7.0 ± 0.5 lb). Hold it at that tension and, at the same time, tighten the two hex head mounting screws using the 7 mm nut driver.
- h. Remove the spring scale.

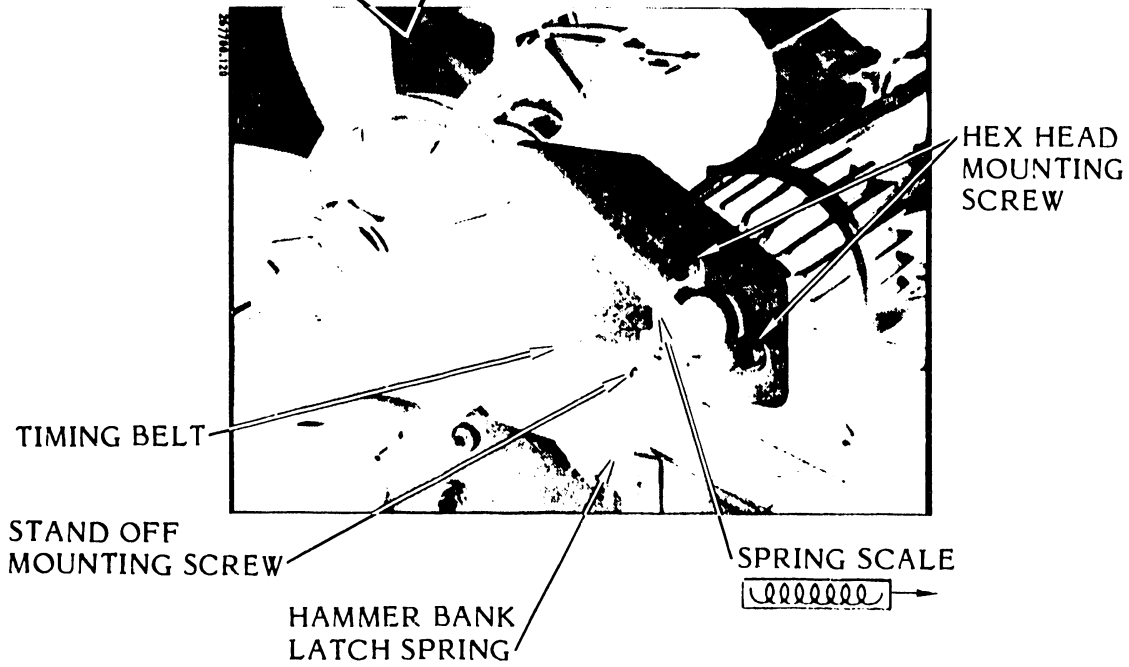
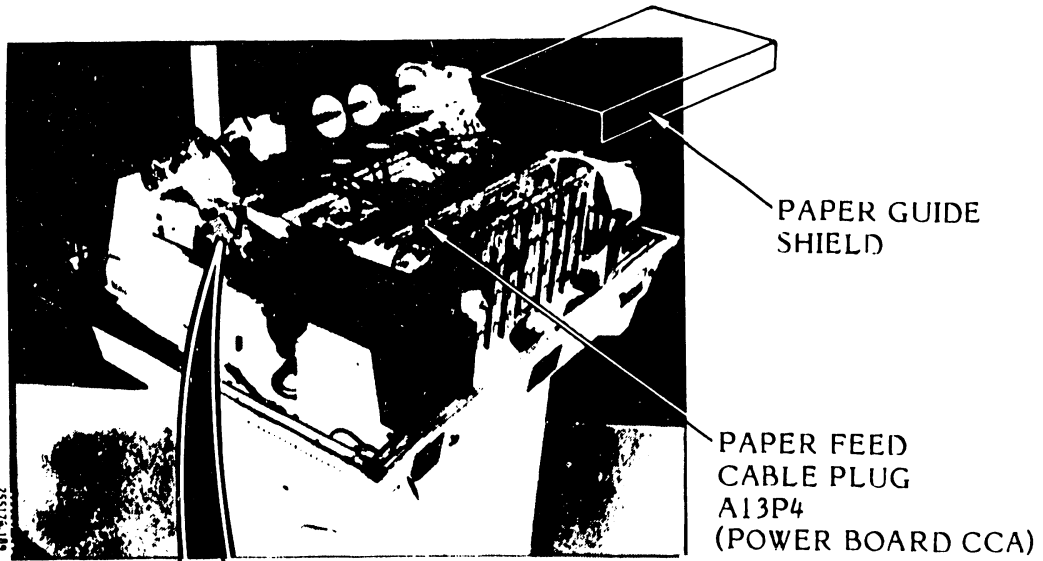


Figure 3-115. Paper Feed Motor Removal/Installation

- i. Use the 1/4 inch open end wrench to tighten the stand off type mounting screw.
- j. Connect the hammer bank latch spring to the stand off mounting screw.
- k. Install the paper guide shield.
- l. Install the printer cover as described in paragraph 3.3.
- m. Plug the AC power cord into the power source.

3.7.45 Paper Feed Motor Drive Belt Removal/Installation (Figure 3-116)

Replacement Part

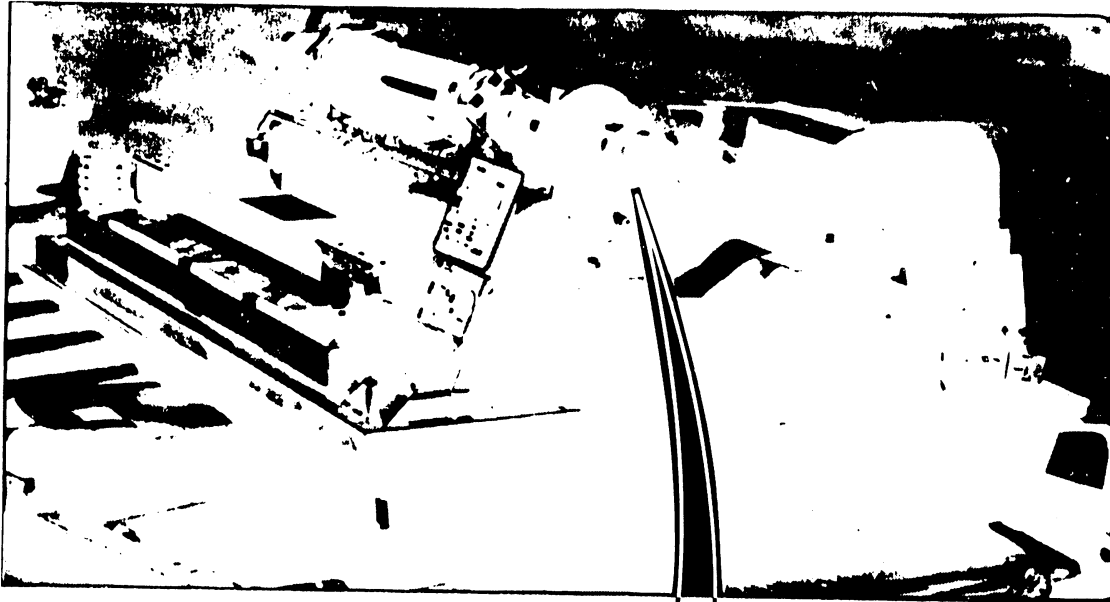
Paper Feed Drive Belt

P/N 801669-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Use a 2.5 mm hex driver to remove the hammer bank latch spring mounting screw and also the spring.
- d. Use a 1/4-inch nut driver to loosen the hex stand off type mounting screw.
- e. Use a 7 mm nut driver to loosen the two hex head mounting screws.
- f. Slide the motor assembly to the left to free the drive belt.
- g. Remove the drive belt.

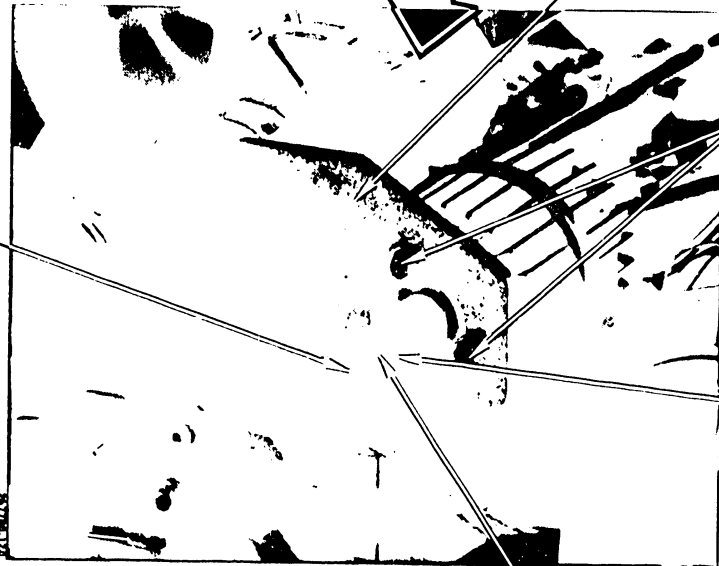



ELI-121538

MOTOR MOUNTING
PLATE

HAMMER BANK
LATCH SPRING
AND MOUNTING
SCREW

HEX HEAD
MOUNTING
SCREWS




SPRING
SCALE

STAND OFF TYPE
MOUNTING SCREW

3

Figure 3-116. Paper I Motor Drive Belt Removal/Installation

Installation

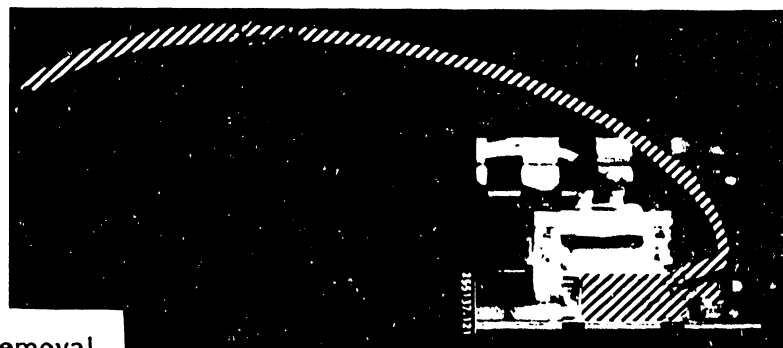
- a. Place the new paper feed drive belt over the paper feed assembly pulley and paper feed motor pulley.
- b. Connect a spring scale to the motor shaft between the mounting plate and the paper feed motor pulley (see figure 3-116).
- c. Pull the spring scale to the right to a force of 31.4 ± 2.2 nm (7.0 ± 0.5 lb). Hold it at that tension and, at the same time, tighten the two hex head mounting screws using the 7 mm nut driver.
- d. Use the 1/4-inch nut driver to tighten the stand off type mounting screw.
- e. Remove the spring scale.
- f. Use the 2.5 mm hex driver to mount the allen screw and hammer bank latch spring to the stand off type mounting screw.
- g. Install the printer cover as described in paragraph 3.3.
- h. Plug the AC power cord into the power source.

3.7.46 Paper Low Switch Assembly (300 LPM Printer) Removal/Installation (Figure 3-117)

Replacement Part

Paper Low Switch Assembly

P/N 246381-002



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Unload the paper as described in the Operator's Guide.

- c. Remove the printer cover as described in paragraph 3.3.
- d. Unplug paper low switch cable A19PS from the Interlock Transition CCA.
- e. Close the hammer bank.
- f. Swing the paper entrance cover open at the bottom front of the printer and find the two slot openings to the paper low switch adjustment screws (see figure 3-117).
- g. Use a 3 mm hex driver to remove the two paper low switch adjustment screws through the slot openings.
- h. Reach from behind the hammer bank and under the paper clamp solenoid and remove the switch assembly.
- i. Use a 4 mm nut driver to remove the switch from the switch plate.

Installation

- a. Use a 4 mm nut driver and mounting screws to secure the switch to the switch place.
- b. Place the switch plate on the solenoid mounting plate brackets reached from the rear of the hammer bank.
- c. Open the paper entrance cover under the front of the printer base.
- d. Use one hand to keep the plate in position on the solenoid assembly bracket.
- e. Use the 3 mm hex driver to insert the mounting screws through the slot under the printer base and loosely secure the switch plate to the solenoid assembly mounting brackets.
- f. Perform the Paper Low Switch adjustment procedure as described in the Adjustments part of this section (see table 3-9).

NOTE

Performance of the Paper Low Switch adjustment procedure will complete this procedure.

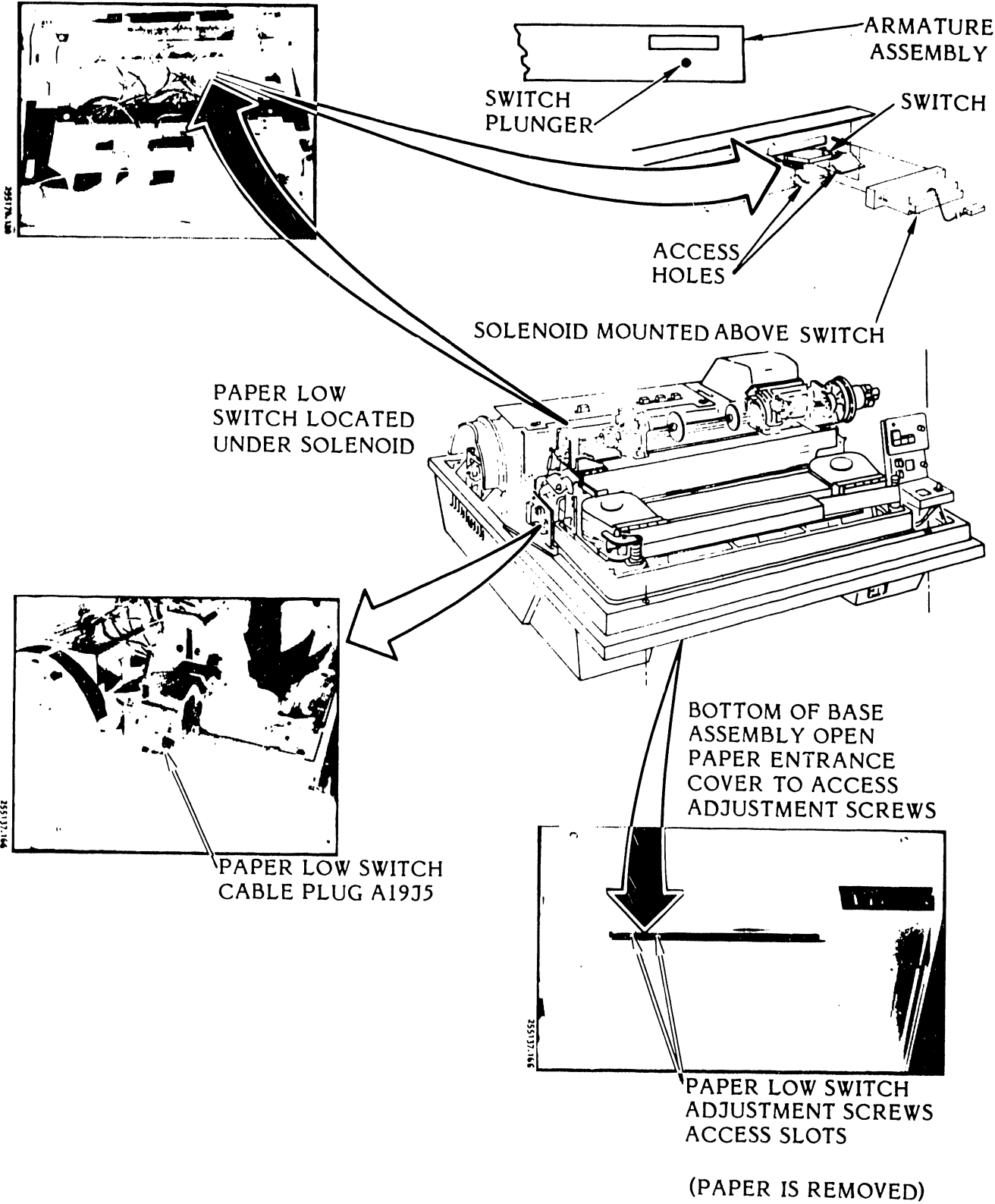
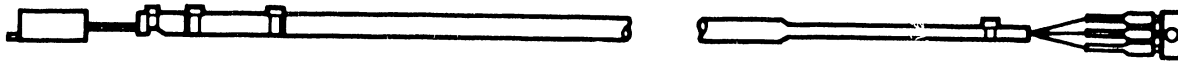


Figure 3-117. Paper Low Switch Assembly (300 LPM Printer) Removal/Installation

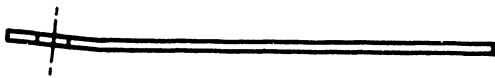
3.7.47 Paper Low Switch Assembly (600 LPM Printer) Removal/Installation (Figure 3-118)

Replacement Parts

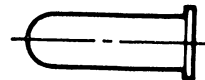
Paper Out Switch Cable	P/N 251127-002
Paper Out Switch Actuator	P/N 257453-001
Switch Actuator Lever	P/N 257451-001



CABLE



LEVER



ACTUATOR

Removal

- Set the AC power switch to OFF and unplug the AC power cord from the power source.
- Unload the paper as described in the Operator's Guide.
- Remove the printer cover as described in paragraph 3.3.
- Perform the Paper Clamp Armature Assembly removal procedure provided in this section (see table 3-10).
- See figure 3-118 for the location of the switch assembly on the armature assembly.

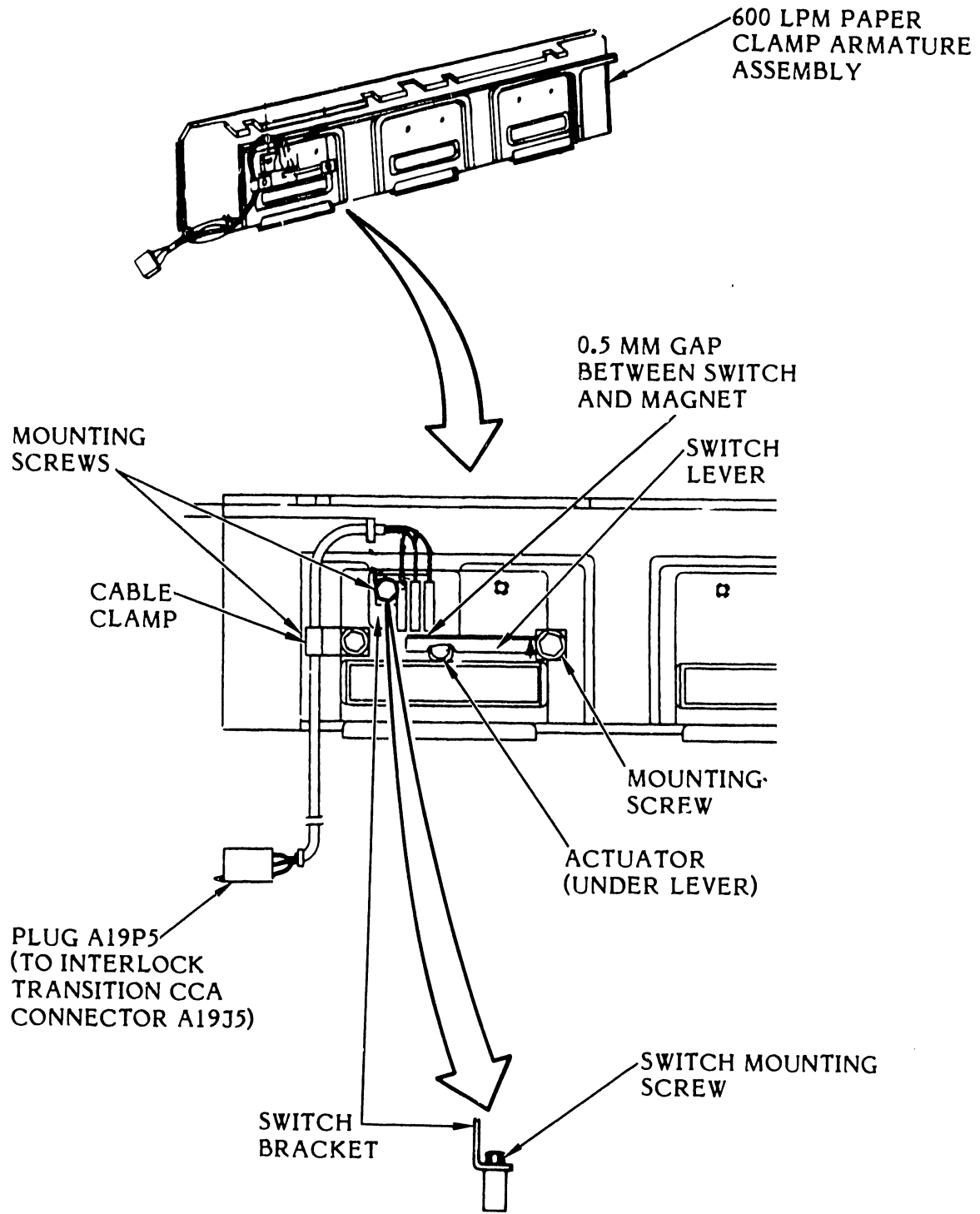
NOTE

Do not bend the paper low switch actuator lever.

- Use a 5.5 mm nut driver to remove the three assembly mounting screws as shown in figure 3-118.

NOTE

The switch actuator will be free to fall out of the armature plate.



3

Figure 3-118. Paper Low Switch Assembly (600 LPM Printer) Removal, installation

- g. Remove the assembly parts from the armature plate.
- h. Use a number two phillips screwdriver to remove the mounting screw and switch cable from the switch bracket.

Installation

- a. Use the number two phillips screwdriver and mounting screw/washer to secure the switch to the switch bracket.
- b. Place the armature plate face down between two blocks to have it raised about an inch.
- c. Place the switch actuator in the armature plate hole.
- d. Place the switch lever and the switch bracket and cable in position as shown in figure 3-118.
- e. Use the 5.5 mm nut driver to secure the assembly parts and cable clamp loosely to the armature plate.
- f. Using a feeler gauge, make sure that a 0.5 mm gap exists between the magnet on the switch actuator lever and the switch.
- g. Tighten the three mounting screws.
- h. Perform the Paper Clamp Armature Assembly (600 LPM Printer) installation procedure provided in this section (see table 3-10).

NOTE

Performance of the Paper Clamp Armature (600 LPM) Assembly installation procedure will complete this section.

3.7.48 Paper Motion Sensor Assembly Removal/Installation (Figure 3-119)

Replacement Part

Paper Motion Sensor Assembly

P/N 251941-001



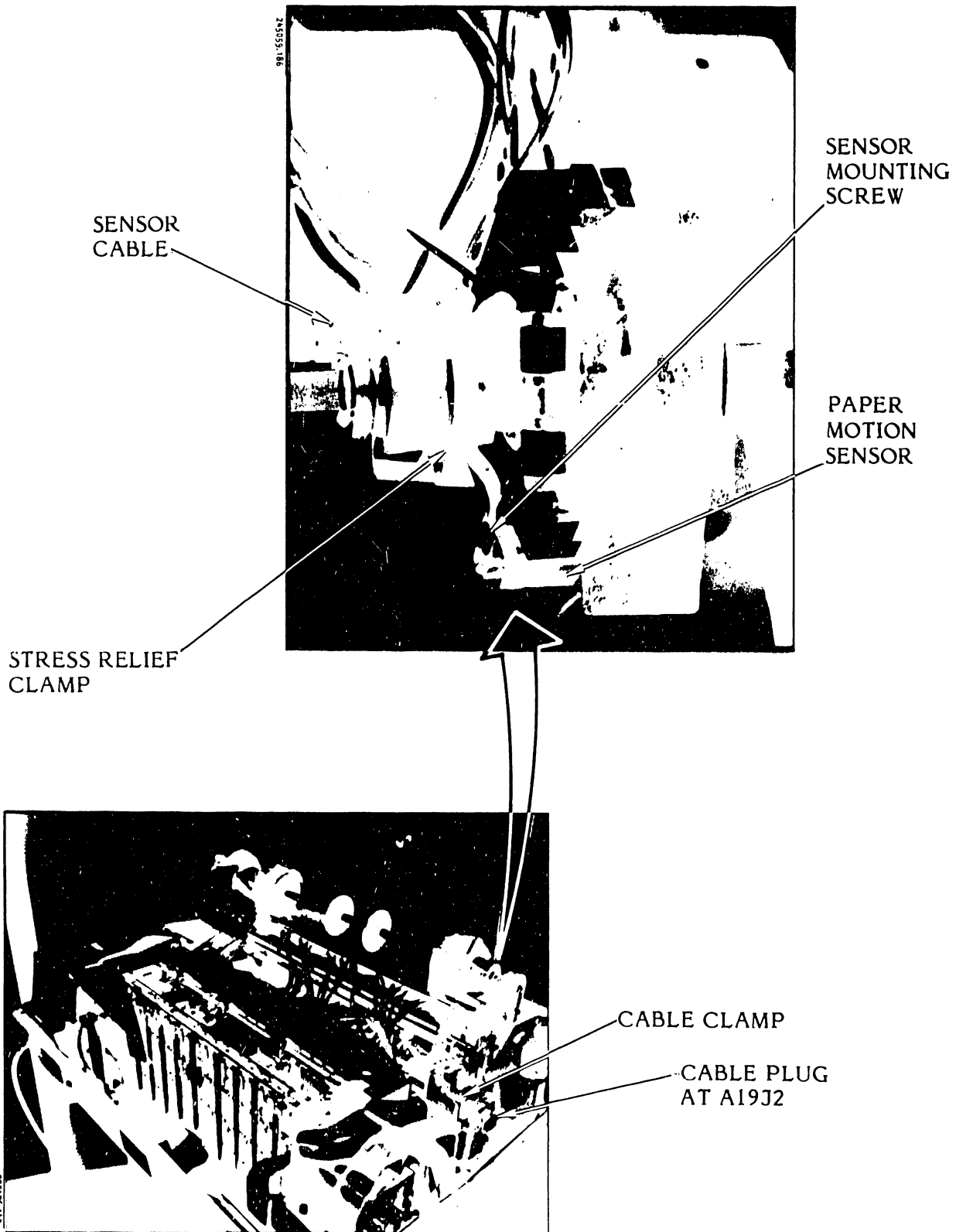


Figure 3-119. Paper Motion Sensor Assembly Removal/Installation

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Unload the paper as described in the Operator's Guide.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Unplug the paper motion sensor cable from the Interlock Transition CCA at A19J2 (see figure 3-119).
- e. Use a 7 mm nut driver to remove the sensor cable clamp screw on the CCA mounting bracket.
- f. Slide the left Paper Feed Tractor Assembly toward the right.
- g. Use a 4.5 mm nut driver to remove the stress relief clamp screw and sensor mounting screw (see figure 3-119).
- h. Remove the assembly.

Installation

- a. Use the 4.5 mm nut driver to secure the sensor and stress relief cable clamp to the paper feed tractor.
- b. Move the paper feed tractor to the far left.
- c. Plug the motion sensor cable into the Interlock Transition CCA at A19J2.
- d. Use the 7 mm nut driver and mounting screw to secure the second cable clamp to the Interlock Transition CCA mounting bracket.
- e. Install the printer cover as described in paragraph 3.3.
- f. Plug the AC power cord into the power source.

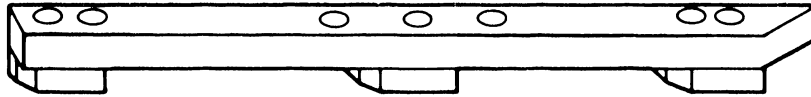
3.7.49 Platen Removal/Installation (Figures 3-120 and 3-121)

The platen is not normally a field-replaceable component. Once set, the platen should not need resetting.

Replacement Part

Platen Kit

P/N 263522-001



Removal

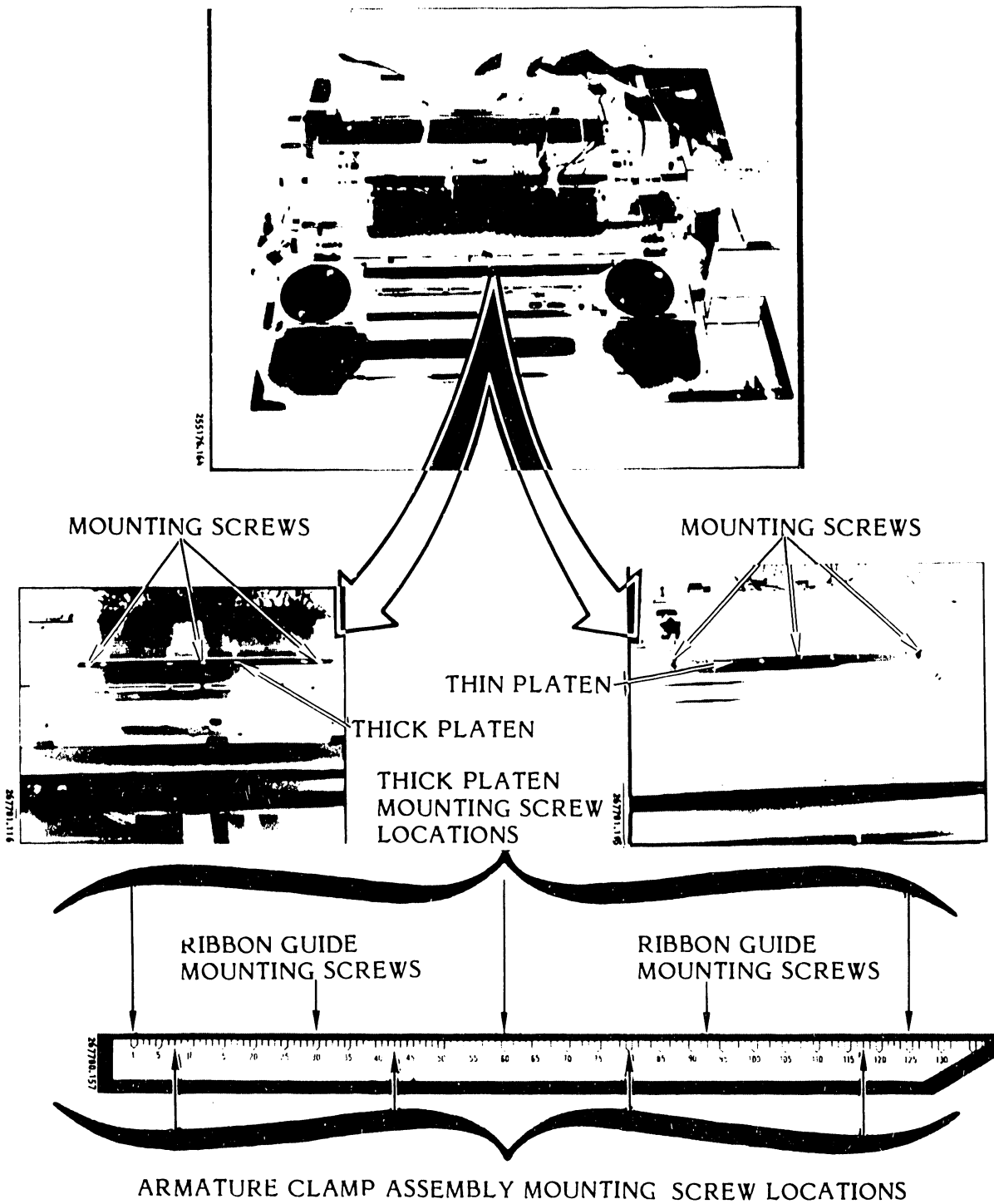
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Unload the paper.
- d. Remove the ribbon cartridge and character band as described in the Operator's Guide.

NOTE

The thick platen is no longer available and is replaced by the thin platen kit (P/N 263522-001).

- e. If the thick platen is to be removed, perform the following steps; otherwise, proceed to step f.
 1. Pierce the character alignment scale decal at column locations 1, 60, and 125.
 2. Use a 4 mm hex driver to remove the three platen mounting screws at locations 1, 60, and 125.
 3. Remove the platen.
- f. Remove the thin platen as follows:
 1. If the press fit alignment scale is used, lift it free using moderate force.
 2. If the ribbon guide is installed, use a 5 mm hex driver, puncture the alignment scale at locations 30 and 92, and remove the mounting screws and the ribbon guide.
- g. Use an 8 mm nut driver to remove the three platen mounting screws and the platen.

3



MOUNTING SCREW LOCATIONS UNDER CHARACTER ALIGNMENT DECAL

Figure 3-120. Platen Removal/Installation

Installation

- a. Place the platen spacers in position on the armature assembly as shown in figure 3-121.
- b. Place the platen in position over the spacers.
- c. Insert the three mounting screws with lock washers through the platen and spacers.
- d. Turn the mounting screws a few turns to loosely secure the platen to the band casting.
- e. Perform Thin Platen adjustment procedure, as applicable, provided in the Adjustments part of this section (see table 3-9).

NOTE

This procedure will be completed when you perform the Thin Platen adjustment Procedure.

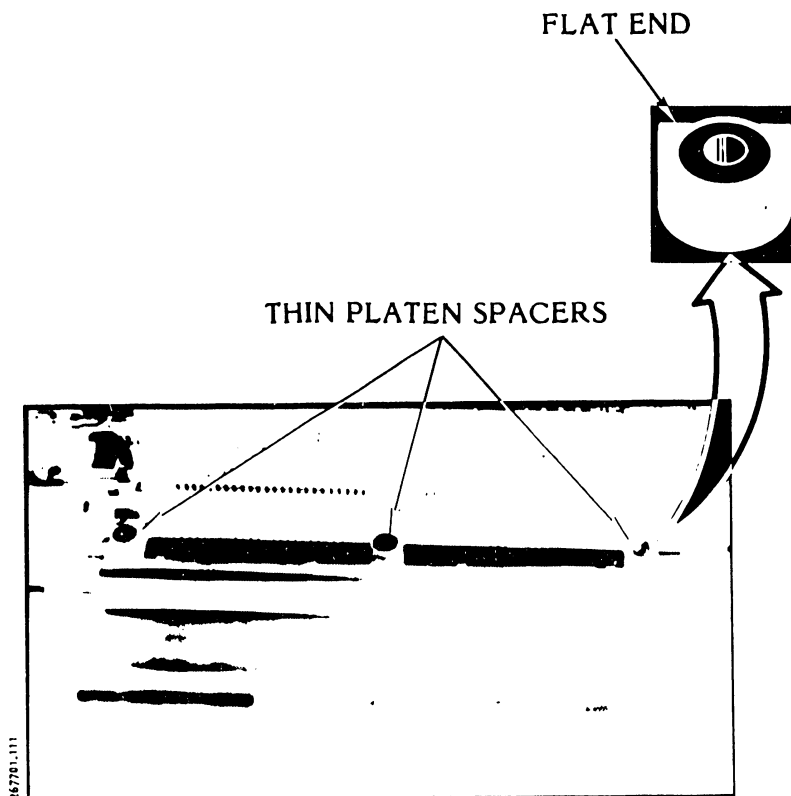


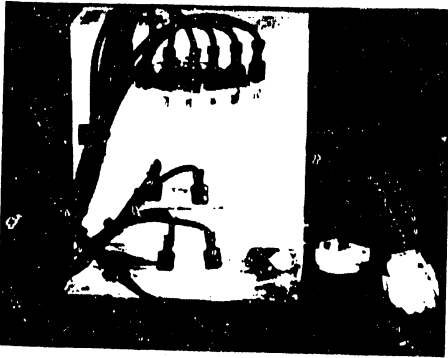
Figure 3-121. Platen With Thin Platen Spacers

3.7.50 Power Supply Components Removal/Installation (Figure 3-122)

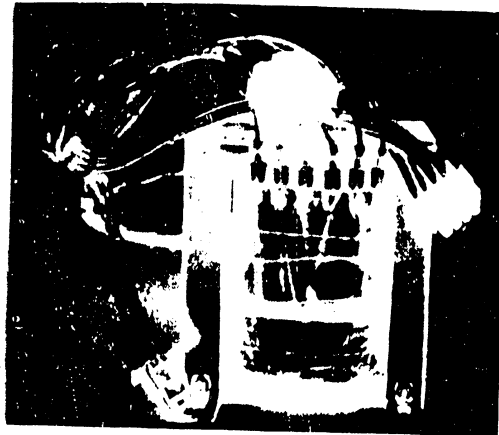
Replacement Parts

Transformer	
Standard 60 Hz	P/N 247950-001
Universal 50/60 Hz	P/N 247951-001
Resonant Capacitor	
Standard or Universal	P/N 801760-405
Power Resistor	
Standard 60 Hz	P/N 263052-001
Universal 50/60 Hz	P/N 263053-001
Line Filter Assembly	P/N 267467-002

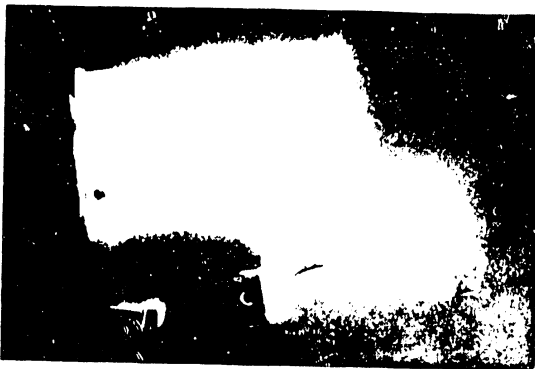
TRANSFORMER



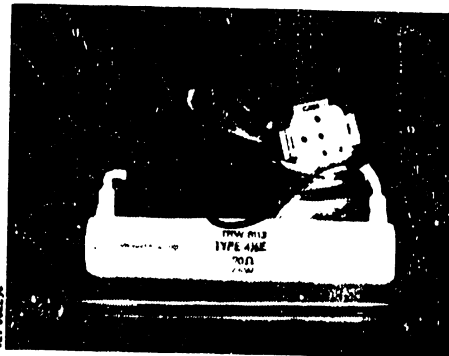
115 VAC 60 HZ



UNIVERSAL



RESONANT
CAPACITOR



PRE-LOAD
RESISTOR

3

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Use an 8 mm nut driver to remove the three power supply cover mounting screws.
- d. If the auxiliary capacitor bank is not mounted on the power supply cover, free the ribbon cables and lift the power supply out. If the auxiliary capacitor bank is mounted to the power supply cover, free the ribbon cables from the ribbon clips and set the assembly on the card cage cover. Go to the next steps as needed.
- e. Remove the transformer as follows:
 1. Use a 5 mm hex driver to remove the four transformer mounting screws.
 2. Unplug the transformer wiring harness from the Rectifier CCA and the resonant capacitor (see figure 3-122).
 3. Cut the cable ties around the transformer harness.
 4. Remove the transformer assembly.
- f. Remove the resonant capacitor as follows:
 1. Unplug the transformer harness from the capacitor.
 2. Use a 3 mm hex driver to remove the mounting screws, clamp, and resonant capacitor.
- g. Remove the line filter as follows:
 1. Use an 8 mm nut driver to remove the two filter bracket mounting screws.
 2. Unplug the four quick-disconnect connectors close to the filter.
 3. Remove the assembly.

3

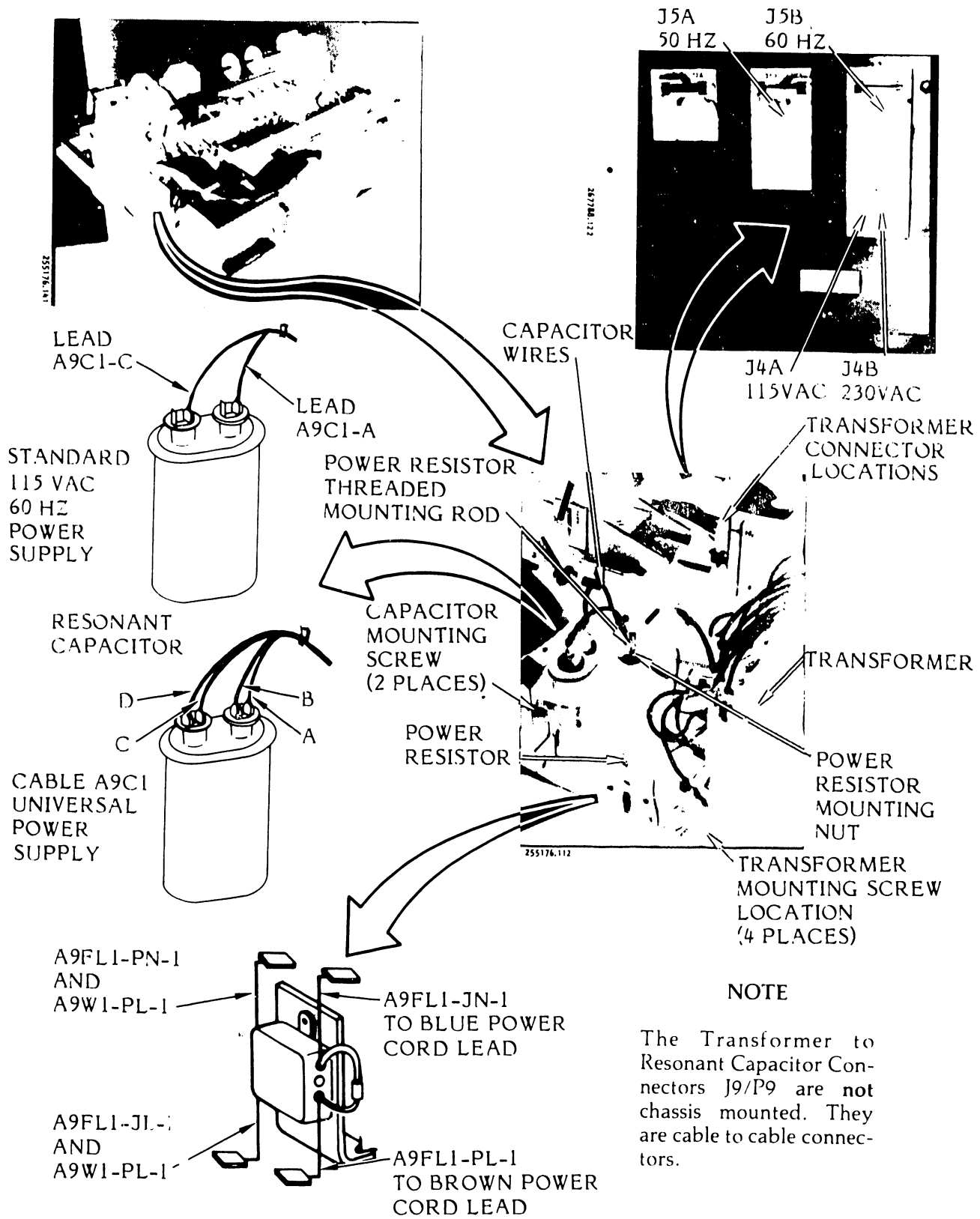


Figure 3-122. Power Supply Components Removal/Installation

- h. Remove the power resistor assembly as follows:
 1. Unplug the assembly cable from the Rectifier CCA at A9J6.
 2. Use an 11 mm nut driver to remove the nut and washer from the assembly mounting rod.
 3. Lift the resistor assembly off the mounting rod.

Installation

- a. Install the transformer as follows:
 1. Place the transformer in position on the power supply chassis.
 2. Use the 5 mm hex driver and mounting hardware to secure the transformer to the power supply chassis and printer base.
 3. Plug the transformer cable into the appropriate connectors of the Rectifier CCA (see figure 3-122 and table 3-12).
 4. Connect the transformer harness push-on terminals to the resonant capacitor (see figure 3-122).
 5. Secure the harness to the cable bundle with cable ties.
 6. Go to steps b, c, d, or e, as needed.

3

TABLE 3-12. UNIVERSAL TRANSFORMER HARNESS PLUG CONNECTIONS

Input Voltage/ Frequency	Transformer Harness Plug		
	A9P4 Connects to Rectifier CCA Connector	A9P5 Connects to Rectifier CCA Connector	A9P9 Connects to Resonant Transformer Harness Connector
115 VAC/50 Hz	J4A/115 VAC	J5A/50 Hz	J9A/50 Hz
115 VAC/60 Hz	J4A/115 VAC	J5B/60 Hz	J9B/60 Hz
230 VAC/50 Hz	J4B/230 VAC	J5A/50 Hz	J9A/50 Hz
230 VAC/60 Hz	J4B/230 VAC	J5B/60 Hz	J9B/60 Hz

- b. Install the resonant capacitor as follows:
 - 1. Use the 3 mm hex driver, bracket, and mounting hardware to secure the capacitor to the power supply chassis.
 - 2. Connect the transformer harness push-on plugs to the capacitor terminals (see figure 3-122).
 - 3. Go to steps c, d, or e, as needed.
- c. Install the power resistor assembly as follows:
 - 1. Slide the power resistor over the threaded mounting rod.
 - 2. Feed the assembly wiring cable along the bottom of the power supply chassis and plug it into the Rectifier CCA at A9J6 (see figure 3-122).
 - 3. Use the 11 mm nut driver and nut washer to secure the resistor to the mounting rod.
- d. Install the line filter assembly as follows:
 - 1. Connect the assembly wire leads to the AC power leads (see figure 3-122).
 - 2. Place the assembly over the power supply chassis mounting holes.
 - 3. Use an 8 mm nut driver and mounting hardware to secure the assembly to the power supply chassis.
- e. Place the power supply cover (with or without the auxiliary capacitor bank) over the transformer assembly on the power supply chassis.
- f. Use the 8 mm nut driver and mounting hardware to secure the power supply cover to the power supply chassis.
- g. Place the ribbon cables in the clips located on the power supply cover, as needed.
- h. Install the printer cover as described in paragraph 3.3.
- i. Plug the AC power cord into the power source.

3.7.51 Ribbon Drive (Posidrive) Slip Clutch Removal/Installation
(Figure 3-123)

The posidrive slip clutch consists of two finger washers mounted on a pulley and motor shaft hub.

Replacement Parts

Ribbon Drive Pulley Clutch Assembly	P/N 273485-001
Ribbon Drive Pulley	P/N 273484-001
Pulley Hub	P/N 273461-001
Spring Washer	P/N 800295-019

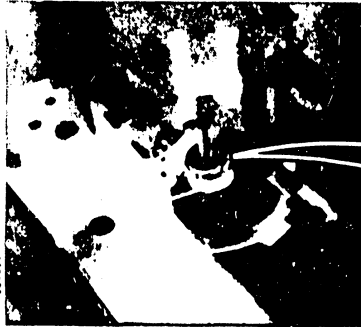
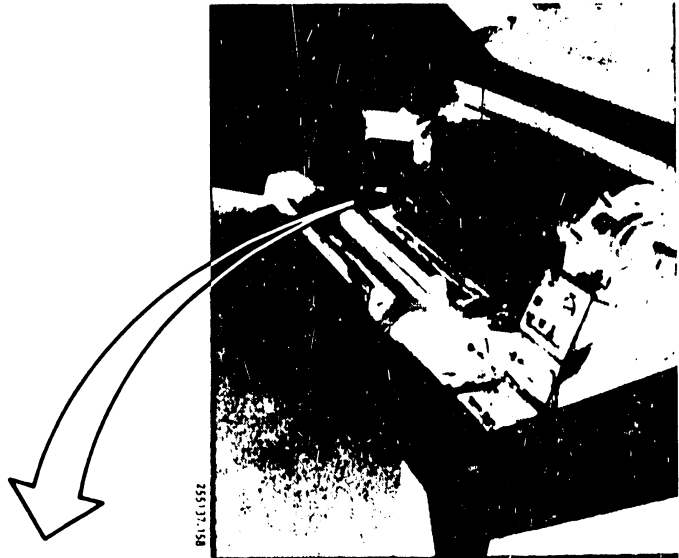


- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door and remove the character band as described in the Operator's Guide.
- c. Use an 8 mm nut driver to remove the band drive mounting screws.
- d. Tap the band drive pulley firmly with a nonmetallic hammer to free the pulley and then remove the pulley.
- e. Remove the two spring washers from the band motor shaft.

CAUTION

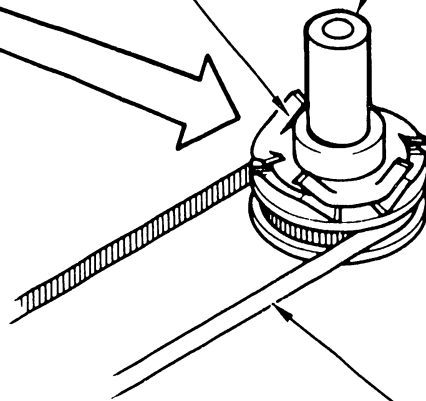
Make sure the spring washers fit completely over the band motor shaft hub. Bad positioning of the washers will cause wrong operation of the slip clutch.

- f. Install the two spring washers, flat side to flat side, over the band drive motor shaft and hub (see figure 3-123).
- g. Use the 8 mm nut driver and mounting nut to install the band drive pulley on the motor shaft.
- h. Install the character band as described in the Operator's Guide.

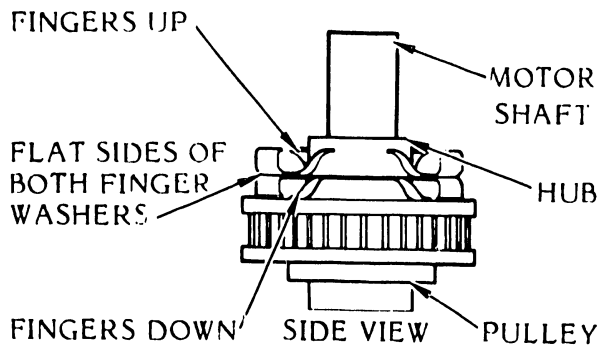


MOTOR DRIVE
SHAFT HUB

MOTOR
DRIVE SHAFT



TIMING BELT



FINGERS UP

FLAT SIDES OF
BOTH FINGER
WASHERS

FINGERS DOWN

SIDE VIEW

MOTOR
SHAFT

HUB

PULLEY

Figure 3-123. Ribbon Drive (Posidrive) Slip Clutch Removal/Installation

3

- i. Close the band cover.
- j. Plug the AC power cord into the power source.

3.7.52 Ribbon Drive (O-Ring System) Assembly Removal/Installation
(Figure 3-124)

Replacement Part

Ribbon Drive Assembly

P/N 251705-001



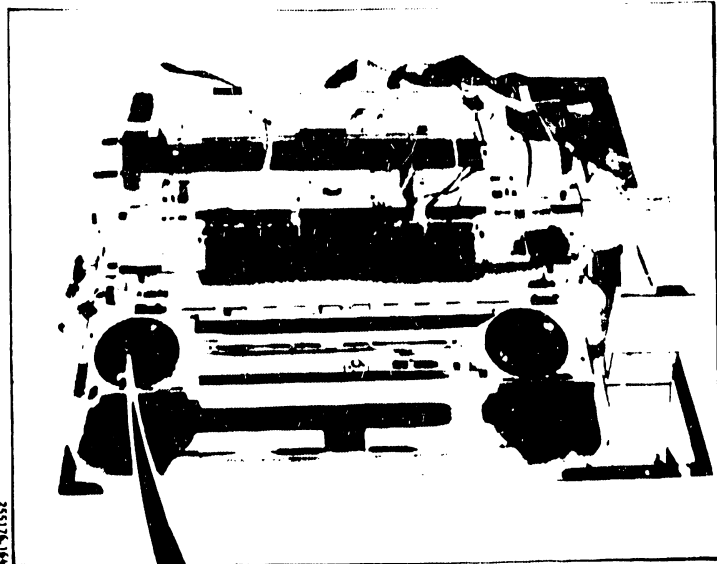
Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the ribbon cartridge as described in the Operator's Guide.
- d. Remove the character band cover mounting screw and the two ribbon cartridge mounting buttons, and lift off the character band cover.
- e. Swing the ribbon pivot arm open.

CAUTION

Perform the next step carefully to avoid stretching the ribbon drive belt. If stretched, the belt will slip and will have to be replaced.

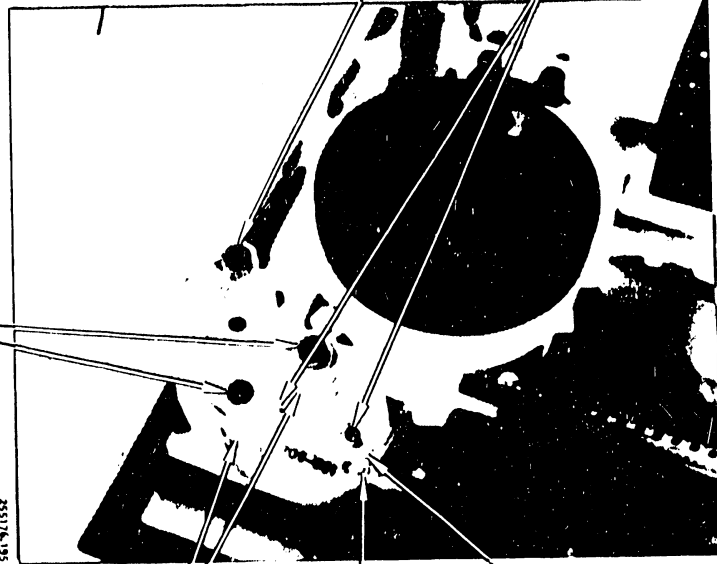
- f. Slowly rotate the ribbon drive pulley and carefully move the ribbon drive belt off the pulley to remain on the band casting.



PIVOT ARM ASSEMBLY
PIVOT ARM ASSEMBLY MOUNTING SCREW
RIBBON ASSEMBLY MOUNTING SCREWS

3

RIBBON DRIVE ROLLER MOUNTING SCREWS



RIBBON DRIVE ROLLERS
O-RING DRIVE BELT
RIBBON DRIVE ASSEMBLY

Figure 3-124. Ribbon Drive (O-Ring System) Assembly Removal/Installation

- g. Use a 2.5 mm hex driver to remove the two ribbon drive assembly mounting screws.
- h. Lift out the ribbon drive assembly.

Installation

- a. Place the ribbon drive assembly into position.
- b. Use the 2.5 mm hex driver and the two mounting screws.
- c. Ensure that the ribbon drive belt (O-Ring) is correctly seated on the band motor shaft ribbon pulley.

CAUTION

Perform the next step carefully to avoid stretching the ribbon drive belt. If stretched, the belt will slip and will have to be replaced.

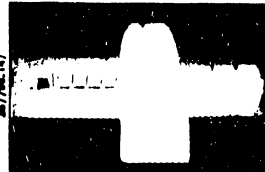
- d. Slowly rotate the ribbon drive pulley and carefully roll the ribbon drive belt onto the pulley.
- e. Close the ribbon pivot arm.
- f. Position the band cover assembly and secure loosely with the two ribbon cartridge locating buttons and the mounting screw.
- g. Perform the Band Cover Assembly Adjustment procedure as described in the Adjustments part of this section (see table 3-9)
- h. Tighten the mounting screw and the two ribbon cartridge locating buttons.
- i. Install the ribbon cartridge as described in the Operator's Guide.
- j. Close the printer cover door.
- k. Plug the AC power plug into the power source.

3.7.53 Ribbon Drive (Posidrive) Assembly Removal/Installation
(Figure 3-125)

Replacement Part

Ribbon Drive Assembly

P/N 263455-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Raise the printer cover door.
- d. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- e. Use a blade screwdriver to remove the two cartridge locating buttons on the band cover bracket assembly.
- f. Use a 7 mm nut driver to remove the mounting screw on the band cover bracket assembly and the band cover assembly.
- g. Use an 8 mm nut driver to remove the band drive pulley mounting screws.
- h. Tap the pulley firmly with a nonmetallic mallet to loosen it and remove the pulley.
- i. Use a 5.5 mm nut driver to loosen the pivot arm assembly mounting screw.
- j. Lift up the pivot arm assembly and swing it out of the way.

NOTE

The pivot arm tension spring will free itself. The pivot arm will still be held captive by its harness assembly.

- k. Use a 2.5 mm hex driver to remove the ribbon drive assembly mounting screws.

- l. Slide off the ribbon drive belt.
- m. Lift out the ribbon drive assembly.

Installation

- a. Place the ribbon drive assembly into position.
- b. Use the 2.5 mm hex driver to secure the ribbon drive assembly with the two socket head mounting screws.
- c. Place the ribbon drive belt around the ribbon drive pulley and around the band motor ribbon pulley between the pulley and roller arm (see figure 3-125).
- d. Connect the pivot arm tension spring between the printer base and pivot arm.
- e. Swing the pivot arm assembly to the closed position while making sure the tension spring is connected.
- f. Use the 5.5 mm nut driver to tighten the pivot arm mounting screw.
- g. If the band motor shaft contains a slip clutch, make sure it is properly installed as follows:
 - 1. The flat sides of the finger washers should be facing each other.
 - 2. Each spring washer should fit completely over the motor shaft hub.
 - 3. The spring segments of each washer should be aligned as shown in figure 3-125.
- h. Use the 8 mm nut driver and mounting screw to secure the band drive pulley to the motor shaft.
- i. Use the two button screws and one hex head screw to loosely secure the band cover to the band casting.
- j. Perform the Band Cover Adjustment procedure as described in the Adjustments part of this section (see table 3-9).

NOTE

This procedure will be completed when you perform the Band Cover Adjustment procedure.

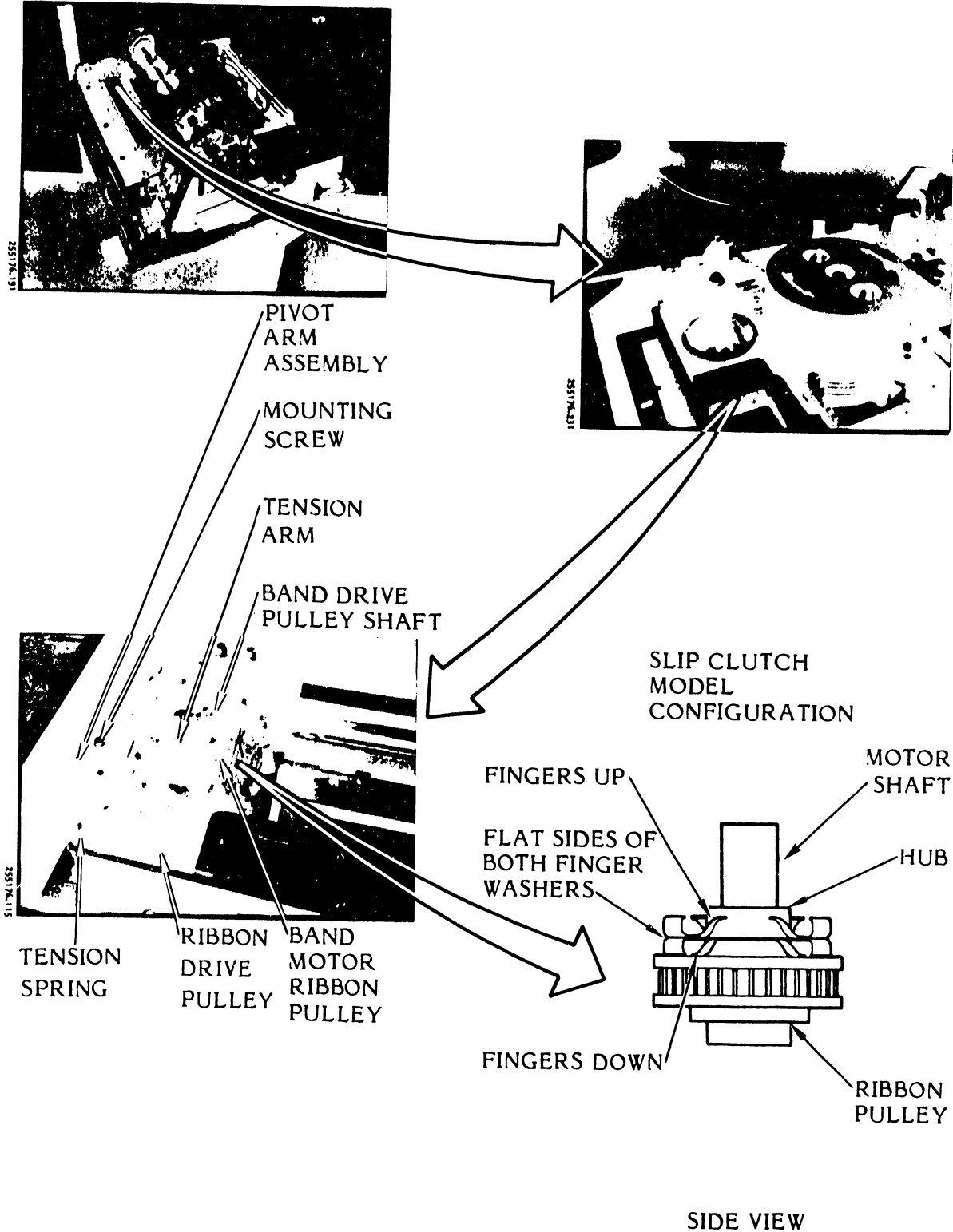


Figure 3-125. Ribbon Drive (Posidrive) Assembly Removal/Installation

3.7.54 Ribbon Guide Assembly Removal/Installation (Figure 3-126)

Replacement Part

Ribbon Guide Assembly

P/N 267234-001

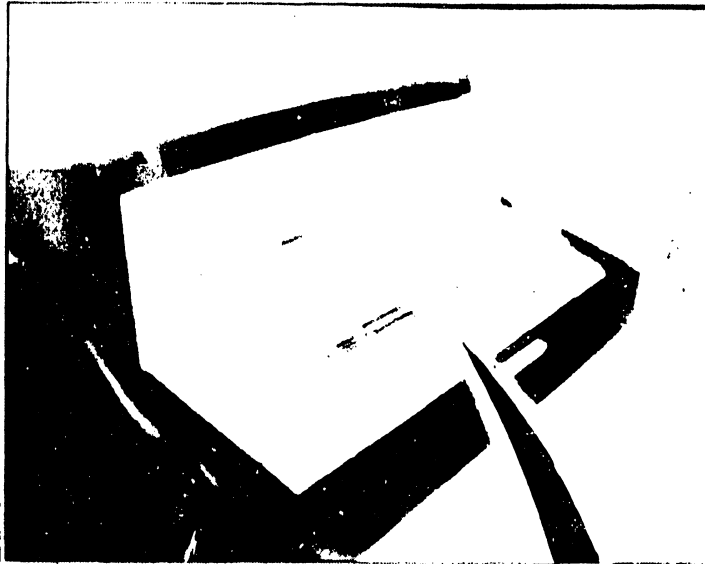


Removal

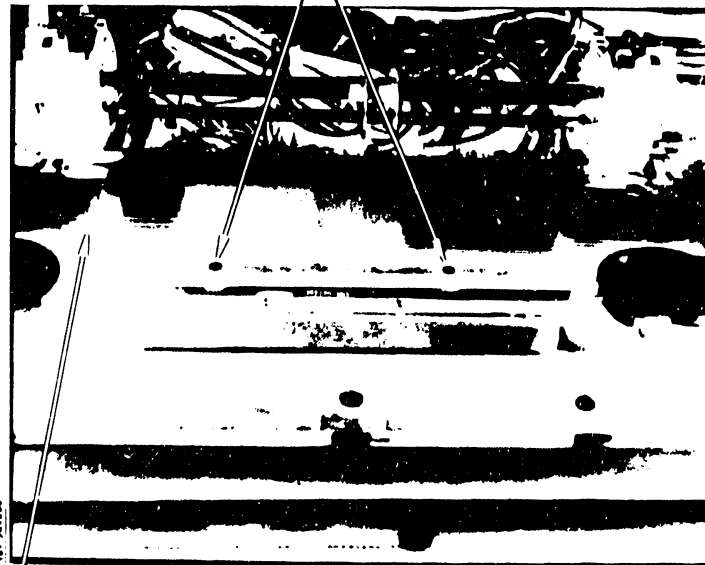
- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Open the character band cover.
- d. Remove the character band, ribbon cartridge, and paper as described in the Operator's Guide.
- e. Pierce the character alignment scale decal at column locations 30 and 92.
- f. Use a 5 mm nut driver to remove the two ribbon guide mounting screws and ribbon guide.

Installation

- a. Place the ribbon guide in position over the platen.
- b. Use the 5 mm nut driver and mounting hardware to secure the ribbon guide loosely to the platen.
- c. Place a 0.028 inch feeler gauge at one end between the ribbon guide and hammer bank mask.
- d. Close the hammer bank.
- e. Press the ribbon guide firmly against the feeler gauge and hammer bank.
- f. Maintain the pressure and slide the feeler gauge across the full length of the ribbon guide.
- g. Use the 5 mm nut driver and torque attachment to tighten the ribbon guide mounting screws to 1.24 to 1.35 nm (11 to 12 in/lbs).



RIBBON GUIDE
MOUNTING
SCREWS



HAMMER
BANK
MASK

Figure 3-126. Ribbon Guide Assembly Removal/Installation

- h. Open and close the hammer bank with the feeler gauge still at one end of the ribbon guide.
- i. Slide the feeler gauge against the full length of the ribbon guide to make sure the 0.028 inch gap is maintained.

NOTE

The feeler gauge should produce a slight drag when it is moved across the ribbon guide/hammer bank gap.

- j. If the gap is too small or too large, loosen the mounting screws and repeat the adjustment.
- k. Perform the Character Alignment Scale Decal Removal/Installation procedure as described in this section (see table 3-10).

NOTE

This procedure will be completed when you perform the applicable steps of the Character Alignment Scale Decal Removal/Installation procedure.

3.7.55 Ribbon Mask Removal/Installation (Figure 3-127)

Replacement Parts

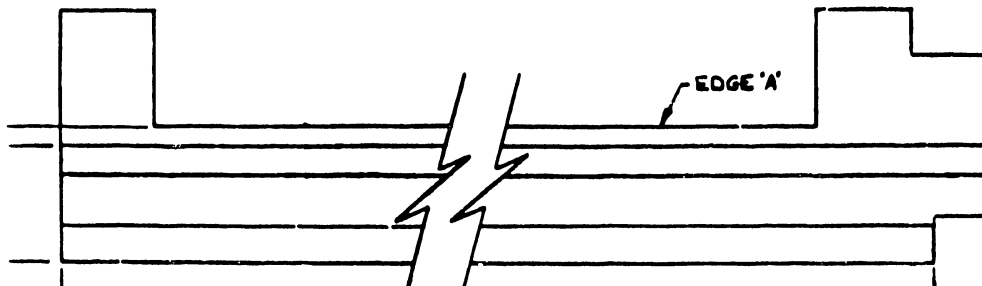
Ribbon Mask Assembly

132 Column

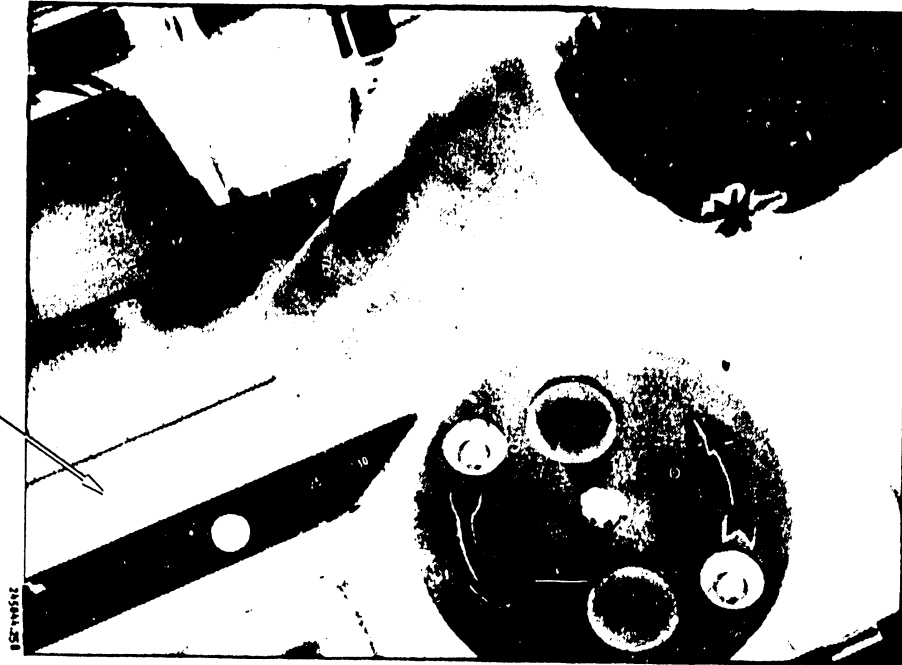
136 Column (option)

P/N 257251-001

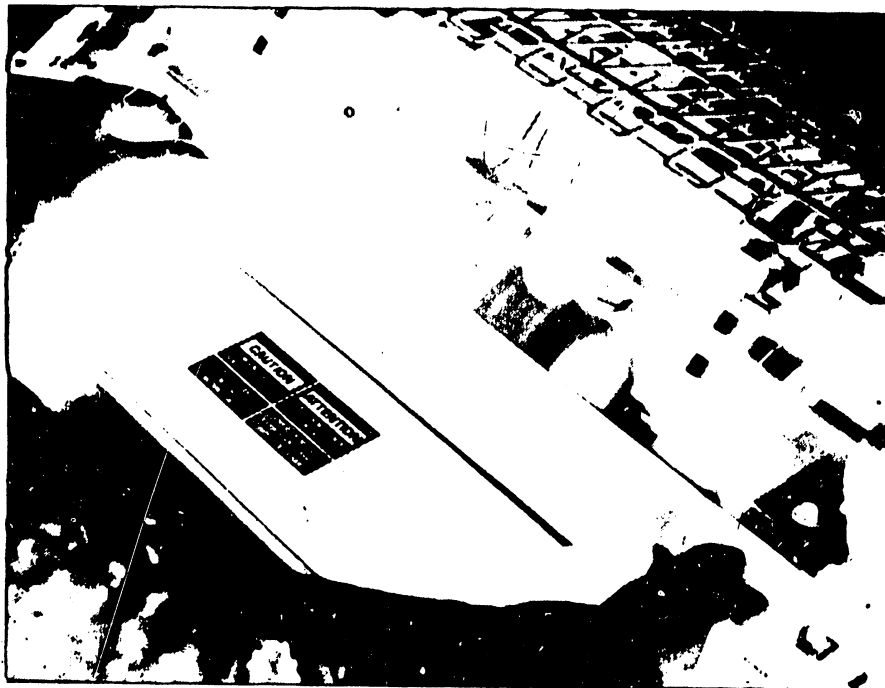
P/N 257251-002



RIBBON MASK



STEP A



STEP B

Figure 3-127. Ribbon Mask Removal/Installation

Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the character band and ribbon cartridge as described in the Operator's Guide.
- d. Open the hammer bank.
- e. Remove the ribbon mask by pushing out and away at the bottom edge (see figure 3-127, step A).

Installation

- a. Clean the ribbon mask mounting area on the paper clamp armature free of all dirt and adhesive residue.
- b. Place the ribbon mask on a flat surface and remove the protective backing from the adhesive strip.
- c. Position the ribbon mask in the paper throat with the open portion facing up and the adhesive strip facing the operator.
- d. Lower the mask into the throat area until the bottom edge rests on the alignment ledge of the paper clamp armature assembly (see figure 3-127, step B).
- e. Press the ribbon mask firmly in place.
- f. Replace the character band and ribbon cartridge as described in the Operator's Guide.
- g. Close the hammer bank.
- h. Close the printer cover door.
- i. Plug the AC power cord into the power source.

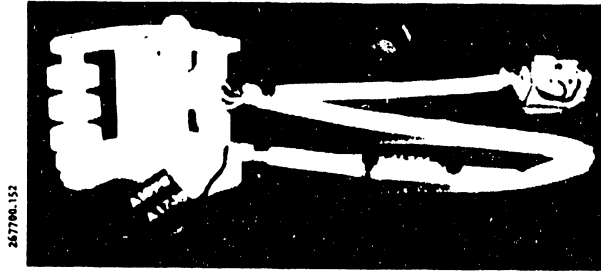
3.7.56 Ribbon Pivot Arm Assembly Removal/Installation (Figure 3-128)

The ribbon pivot arm assembly includes the ribbon sensing system harness. Replacement of the ribbon sensing system is at the ribbon pivot arm assembly level.

Replacement Part

Ribbon Pivot Arm Assembly

P/N 267373-001



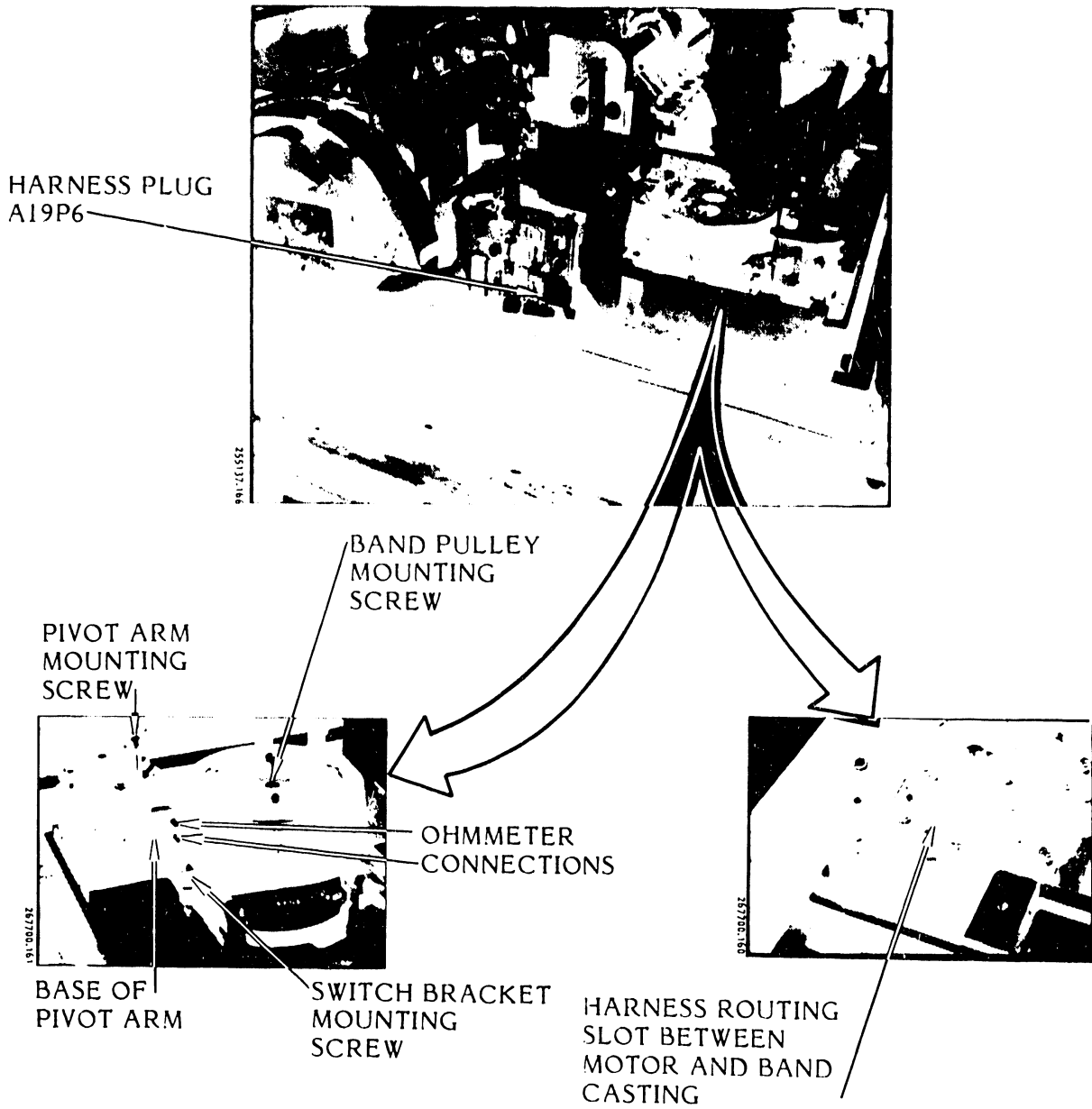
Removal

- a. Set the AC power switch to OFF and unplug the power cord from the power source.
- b. Remove paper, character band, and ribbon as described in the Operator's Guide.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Use an 8 mm nut driver to remove the driver pulley mounting screw.
- e. Tap the driver pulley in with a soft hammer to free it and remove the pulley.
- f. Cut the cable tie securing the harness to the band casting.
- g. Use a 5 mm nut driver to remove the pivot arm mounting screw.
- h. Use an 8 mm nut driver to remove the jam detector bracket mounting screw.
- i. Unplug harness connector A19P6 from the Interlock Transition CCA.

CAUTION

Use care in moving the harness plug through the opening between the motor mount and the band casting.

- j. Lift the harness away from the character band casting.



3

Figure 3-128. Ribbon Pivot Arm Assembly Removal/Installation

Installation

- a. Feed the plug end of the harness through the opening of the casting up to the Interlock Transition CCA.
- b. Plug the harness into connector A17J6 of the Interlock Transition CCA.
- c. Use the 5 mm nut driver and mounting screw to secure the assembly pivot arm to the band casting.
- d. Use the 8 mm nut driver to secure the jam detector (microswitch) bracket loosely to the band casting.
- e. Connect the ohmmeter leads across the wired terminals of the jam detector switch.
- f. Set the ohmmeter scale to Rx1.
- g. Swing the pivot arm to the closed position.
- h. Move the jam detector switch toward the pivot arm base until the ohmmeter registers a shorted (zero ohms) condition.
- i. Hold the switch in position and swing the pivot arm open. The ohmmeter should then register an open condition (maximum ohms). Repeat this step until the ohmmeter shows the correct reading.
- j. Use the 8 mm nut driver to tighten the jam detector bracket mounting screw.
- k. Remove the ohmmeter leads.
- l. Secure the ribbon sensing harness to the casting wall with a new cable tie.
- m. Use the 8 mm nut driver to install the band drive pulley.
- n. Install the printer cover as described in paragraph 3.3.

3.7.57 Ribbon Rollers Removal/Installation (Figure 3-129)

Replacement Part

Ribbon Roller Assembly

P/N 251704-005



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Raise the printer cover door.
- c. Remove the ribbon cartridge as described in the Operator's Guide.
- d. Open the character band cover.
- e. Use a 5.5 mm nut driver to remove the ribbon roller mounting screws and rollers.

NOTE

The pivot arm drive roller has a left hand thread.

Installation

- a. Place the ribbon rollers in position as shown in figure 3-129.
- b. Use the 5.5 mm nut driver and mounting screws to secure the rollers to the pivot arm assembly and the ribbon drive assembly.
- c. Install the ribbon cartridge as described in the Operator's Guide.
- d. Close the printer cover door.
- e. Plug the AC power cord into the power source.

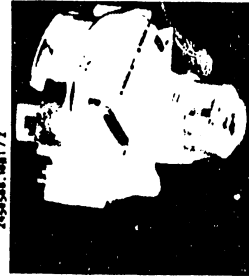
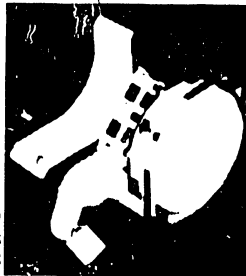


Figure 3-129. Ribbon Rollers Removal/Installation

3.7.58 Sprockets and Shaft/Clutch Assemblies Removal/Installation
(Figure 3-130)

Replacement Parts

Right Hand Sprocket Assembly	P/N 246267-001
Left Hand Sprocket Assembly	P/N 246290-002
Clutch Assembly with Drive Shaft	P/N 242454-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Unload the paper as described in the Operator's Guide.
- c. Remove the printer cover as described in paragraph 3.3.
- d. Unplug the paper motion sensor cable at connector P2 of the Interlock Transition CCA.
- e. Remove the screw holding the paper motion sensor cable clamp to the Interlock Transition mounting plate.
- f. Remove the hammer bank latch spring attached to the paper feed motor mounting screw.
- g. Remove paper feed motor power cable plug P4 from the Power Board CCA.
- h. Remove the right side paper feed clutch assembly mounting screws.
- i. Remove the left side retaining ring from the shaft assembly.
- j. Move the clutch assembly to the right, allowing the drive shaft and support shaft to slide out of the bushing mount.

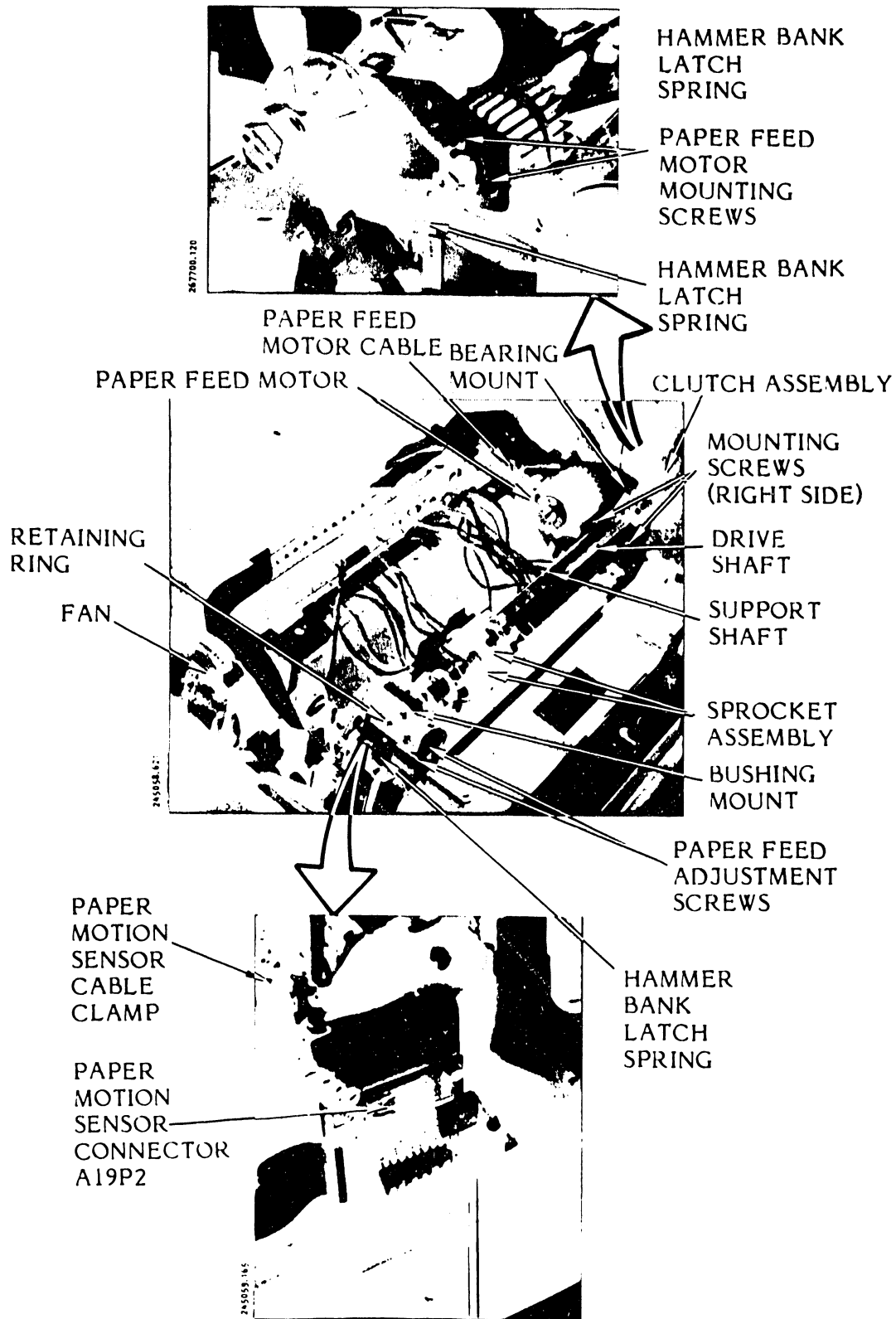


Figure 3-130. Sprockets and Shaft/Clutch Assemblies Removal/Installation

CAUTION

Handle the sprocket assemblies with care. Tensioned springs are used in the two assemblies.

- k. Squeeze the release knob of the left-hand sprocket and slide it off the drive shaft.
- l. Slide the two paper guides off the drive shaft.
- m. Squeeze the right-hand sprocket release knob, and slide the sprocket off the drive shaft.
- n. Remove the three paper feed motor mounting screws.
- o. Remove the paper feed motor and the timing belt.

Installation

- a. Position the paper feed motor timing belt and loosely mount the paper feed motor with the three mounting screws.
- b. Squeeze the right side sprocket release knob, and slide it on the drive shaft.
- c. Slide the two paper guides onto the drive shaft.
- d. Squeeze the left side sprocket release knob and slide it onto the drive shaft.
- e. Install the drive shaft and support shaft into the bushing mount. Ensure that the shaft does not protrude more than 1/16 inch out from the bushing mount.
- f. Secure the clutch/shaft assembly with the two mounting screws and retaining ring.
- g. Install the paper feed motor timing belt.
- h. Connect the paper feed motor power cable plug to the Power Board CCA.
- i. Perform the paper feed motor timing belt tension adjustment procedure provided in the Adjustments part of this section (see table 3-9).
- j. Tighten the three motor mounting screws.

CAUTION

Handle the sprocket assemblies with care. Tension springs are used in the two assemblies.

- k. Replace the spring stand-off mount in the paper feed motor mounting screw.
- l. Connect the hammer bank latch spring to the stand-off mount.
- m. Replace the screw which secures the paper motion sensor cable to the Interlock CCA.
- n. Connect paper motion sensor plug P2 to the Interlock Transition CCA.
- o. Replace the inter cover as described in paragraph 3.3.
- p. Plug the AC power cord into the power source.

3.7.59 TCVFU Assembly Removal/Installation (Figure 3-131)

Replacement Part

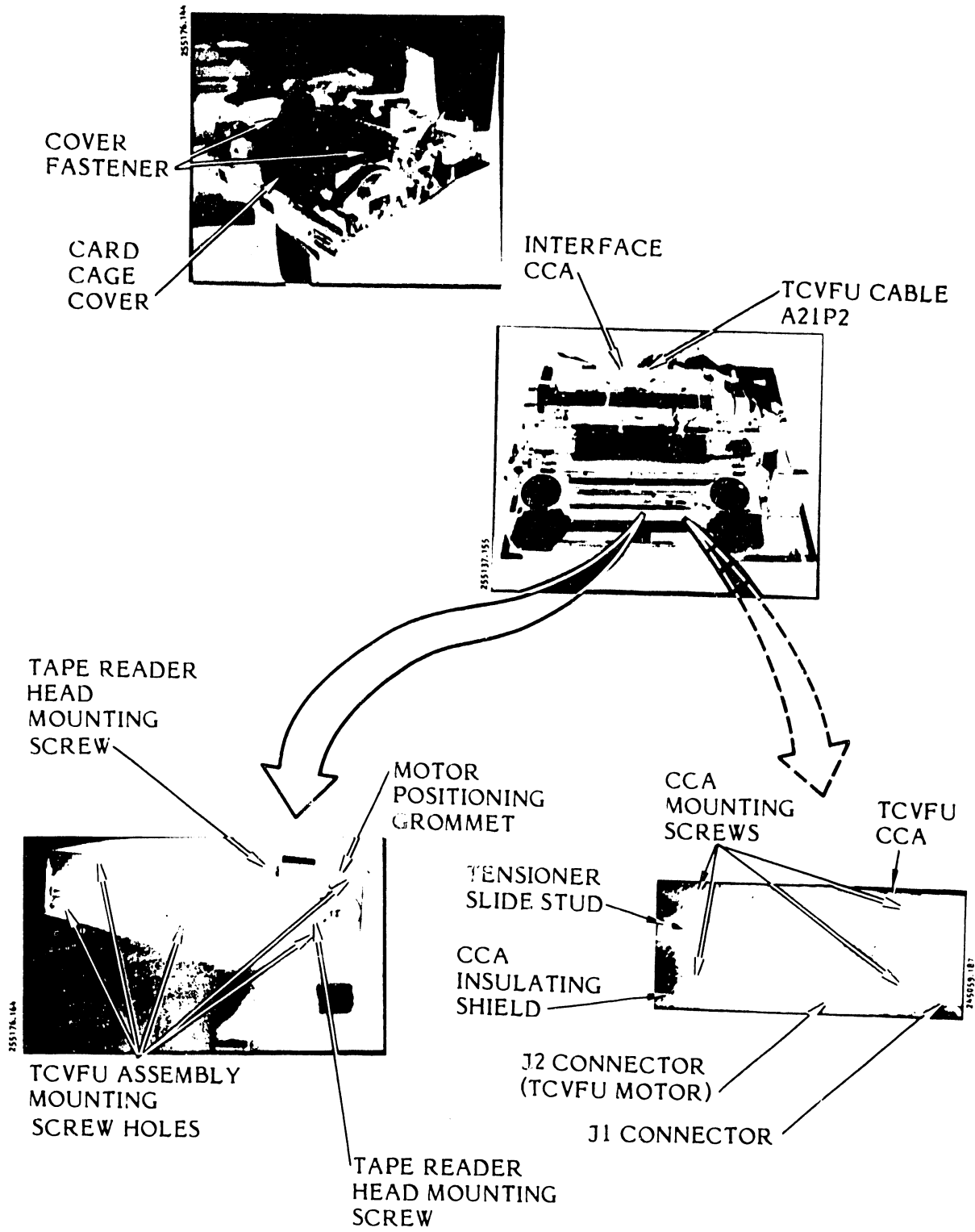
TCVFU Assembly

P/N 257594-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fastener and remove the cover.
- d. Remove TCVFU cable plug A21P2 from the Interface CCA.
- e. Open the band cover.



3

Figure 3-131. TCVFU Assembly Removal/Installation

NOTE

One of the TCVFU mounting screws affords a ground connection for the motor assembly. Observe this connection for replacement of the ground lead.

- f. Remove the five screws which mount the TCVFU assembly to the printer base casting.
- g. Lift up and remove the TCVFU assembly and cable from the printer.

Installation

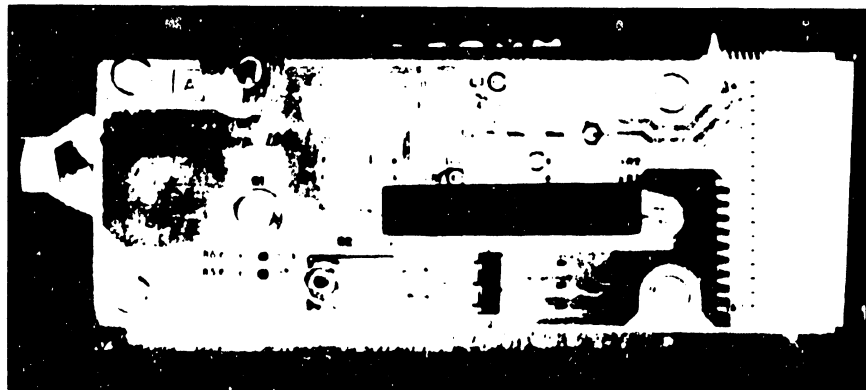
- a. Place the TCVFU assembly and cable back into the printer.
- b. Install the five mounting screws. Ensure that the motor ground lead is connected to its base mounting screw.
- c. Close the band cover.
- d. Connect TCVFU cable plug A21P2 to the Interface CCA.
- e. Install the card cage cover.
- f. Install the printer cover as described in paragraph 3.3.
- g. Plug the AC power cord into the power source.

3.7.60 TCVFU CCA Removal/Installation (Figures 3-131 and 3-132)

Replacement Part

TCVFU CCA

P/N 247930-001



Removal

- a. Perform the TCVFU Assembly removal procedure as described in paragraph 3.7.59.

CAUTION

Do not drop the insulator shield and its four retaining spacers which are on the underside of the TCVFU CCA.

- b. Use a 5.5 mm nut driver to remove the four screws which secure the TCVFU circuit card assembly to the mounting plate.
- c. Unplug cable connector P1 which comes from the tape reader head and the Interface CCA to TCVFU CCA connector J1.

Installation

- a. Connect TCVFU cable connector P1 to TCVFU CCA connector J1.
- b. Use the 5.5 mm nut driver and mounting screws to secure the TCVFU CCA to the assembly plate as follows:
 1. Install the spacers.
 2. Install the insulating shield.
 3. Install the TCVFU CCA.
 4. Install the mounting screws/washers.
- c. Plug TCVFU motor connector P2 into TCVFU CCA connector J2.
- d. Install the TCVFU Assembly as described in paragraph 3.7.59.

3.7.61 TCVFU Motor and Tape Sprocket Removal/Installation
(Figures 3-131 and 3-132)

Replacement Parts

Tape Sprocket
TCVFU Motor Assembly

P/N 251751-001
P/N 246380-001



Removal

- a. Perform the TCVFU assembly removal procedure as described in paragraph 3.7.59.
- b. Unplug TCVFU motor connector P2 from TCVFU motor connector J2.
- c. Use a 2 mm allen wrench to loosen the sprocket set screw and remove the sprocket and motor assembly.

Installation

- a. Make sure that the TCVFU motor locating stud is positioned in the grommet mounted on the sprocket post (see figure 3-131).
- b. Place the sprocket on the motor shaft and use the 2 mm allen wrench to secure the sprocket to the shaft.
- c. Plug connector P2 back into TCVFU motor connector J2.
- d. Install the TCVFU motor assembly as described in paragraph 3.7.59.

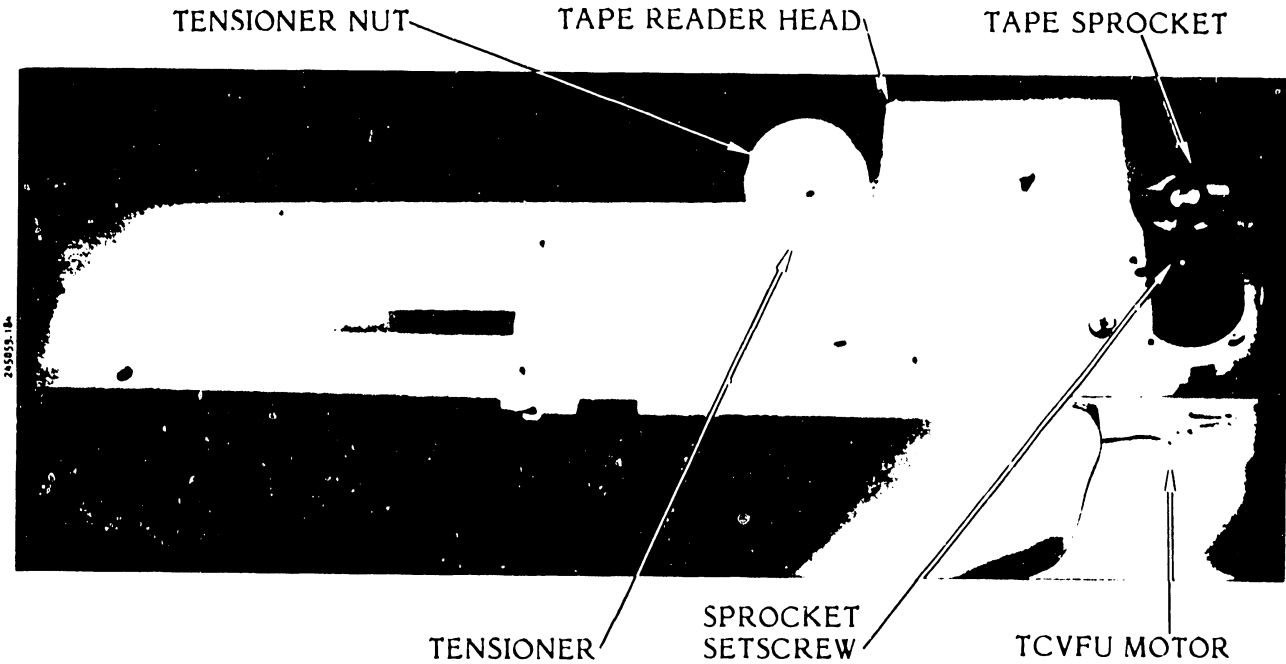


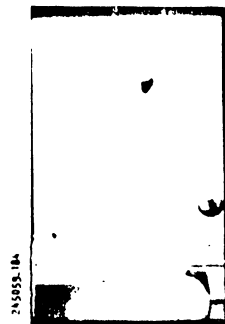
Figure 3-132. TCVFU Motor and Tape Sprocket Assembly Removal/Installation

3.7.62 TCVFU Tape Reader Head Removal/Installation (Figures 3-131 and 3-132)

Replacement Part

Tape Reader Head, 13 channels

P/N 801649-001



Removal

- a. Perform the TCVFU assembly removal procedure as described in paragraph 3.7.59.

3

- b. Remove the TCVFU CCA as described in paragraph 3.7.60.
- c. Use a 5.5 mm nut driver to remove the two tape reader head mounting screws.
- d. Remove the tape reader head and TCVFU cable.

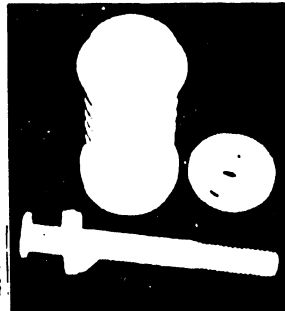
Installation

- a. Feed the TCVFU cable through the TCVFU assembly plate cut out.
- b. Use the 5.5 mm nut driver and mounting screws/washers to secure the tape reader head to the assembly plate.
- c. Install the TCVFU CCA as described in paragraph 3.7.60.
- d. Direct the TCVFU cable from CCA connector J1 to the tape reader head. Tuck the excess cable under the TCVFU CCA.
- e. Plug the cable into TCVFU CCA connector J1.
- f. Install the TCVFU assembly as described in paragraph 3.7.59.

3.7.63 TCVFU Slide Tensioner Removal/Installation

Replacement Parts

Tensioner Spool	P/N 251816-001
Tensioner Nut	P/N 246299-002
Stud Slide	P/N 251818-001
Spool Stud	P/N 251749-001



Removal

- a. Remove the TCVFU assembly as described in paragraph 3.7.59.
- b. Hold the assembly at the tensioner nut and stud slide.
- c. Loosen the tensioner nut and remove the tensioner assembly.

Installation

- a. Place the spool stud and stud slide through the bottom of the TCVFU assembly plate.
- b. Slide the tensioner spool over the stud and secure it with the tensioner nut.
- c. Install the TCVFU assembly as described in paragraph 3.7.59.

3.7.64 Transducer Assembly Removal/Installation (Figure 3-133)

Replacement Part

Transducer Assembly

P/N 251704-004



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Remove the printer cover as described in paragraph 3.3.
- c. Loosen the card cage cover fasteners and remove the cover.
- d. Unplug transducer cable plug P1 from the Timing and Status CCA.
- e. Use an 8 mm nut driver to loosen the transducer clamp screw.
- f. Place a flat blade screwdriver in the clamp gap and twist gently to open the transducer bracket.
- g. Pull the transducer free of the bracket and away from the printer.

3

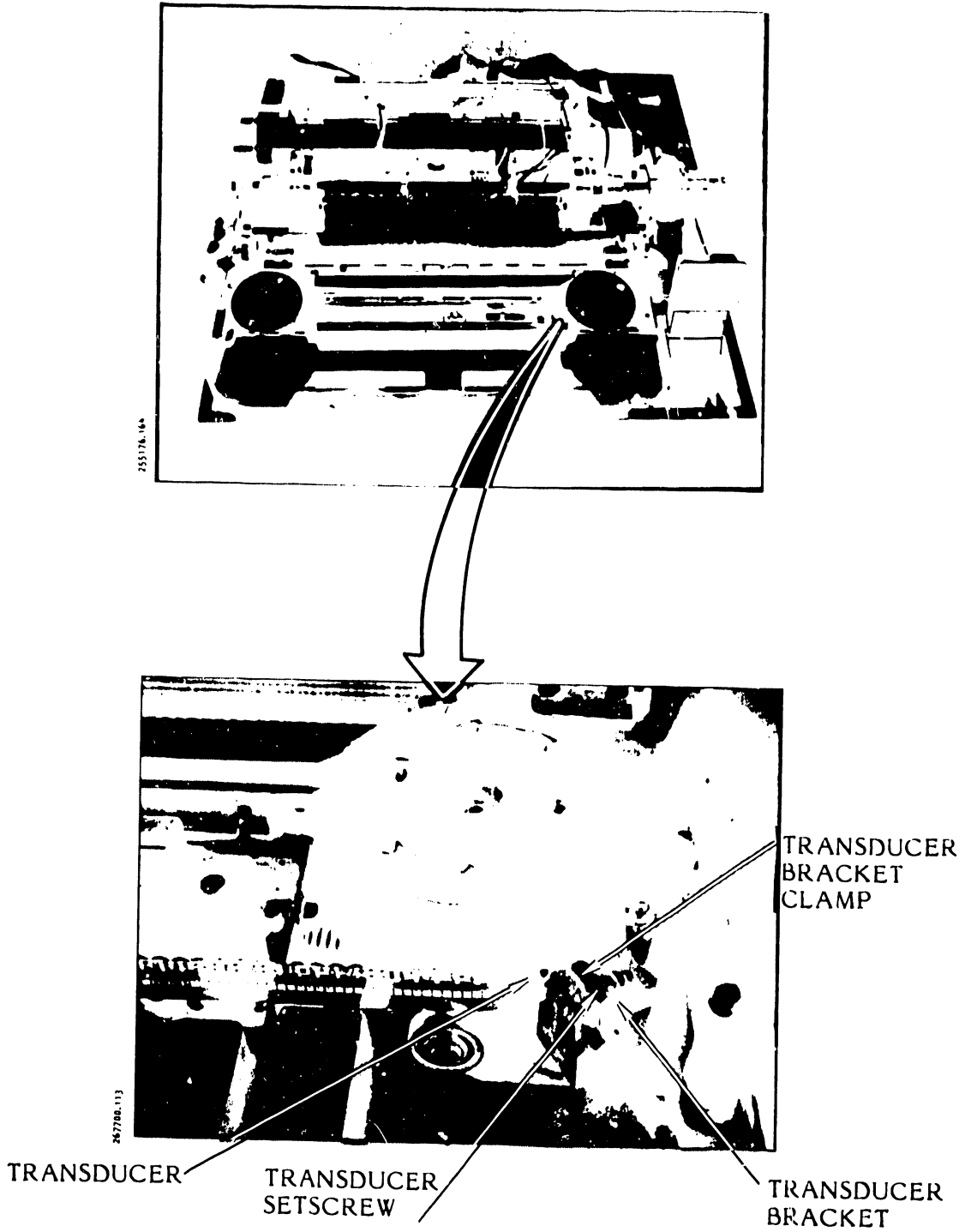


Figure 3-133. Transducer Assembly Removal/Installation

Installation

- a. Insert the transducer into the bracket.
- b. Feed the transducer cable down and along the bottom of the printer base to the Timing and Status CCA.
- c. Plug the transducer cable into the Timing and Status CCA at connector J1.
- d. Perform the Transducer Gap and Transducer Phasing Adjustment procedures as described in the Adjustments part of this section (see table 3-9).

NOTE

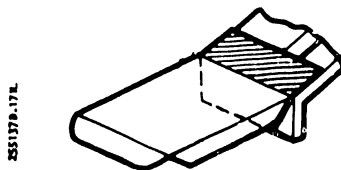
This procedure will be completed when you perform the applicable steps of the Transducer Gap and Transducer Phasing Adjustment procedures.

3.7.65 Bottom of Form (BOF) Guide Removal/Installation (Figure 3-134)

Replacement Part

Bottom of Form Guide

P/N 257454-001



Removal

- a. Set the AC power switch to OFF and unplug the AC power cord from the power source.
- b. Open the printer cover door.
- c. Raise the hammer bank latch handle to open the hammer bank.

- d. Open the left paper feed sprocket cover, and pull the bottom of form guide off the cover.

WARNING

Isopropyl alcohol is combustible. Do not use near open flame.

- e. Dampen a clean cloth with isopropyl alcohol.
- f. Clean any adhesive residue from the sprocket.

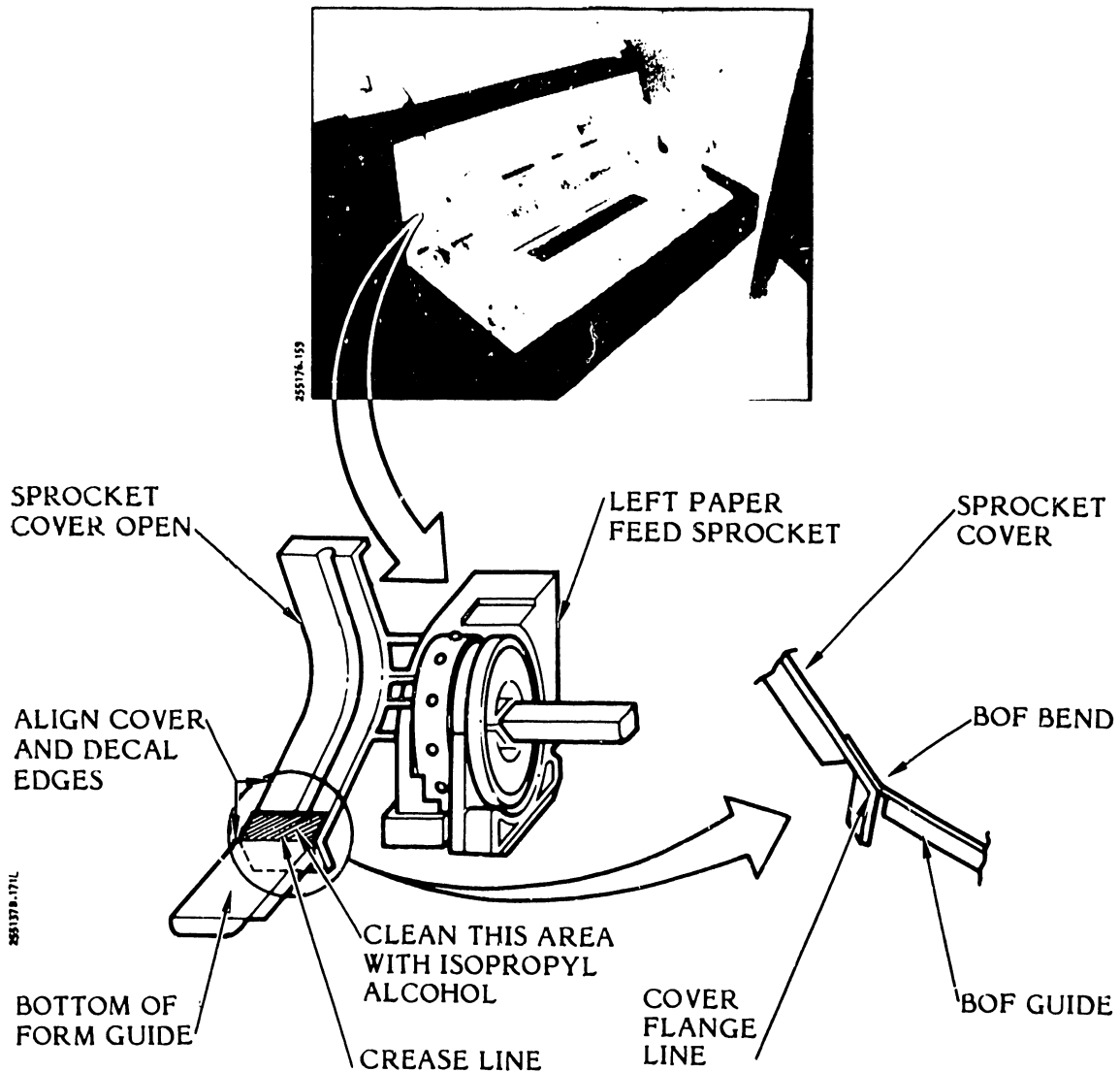


Figure 3-134. Bottom of Form (BOF) Guide Removal/Installation

Installation

- a. Be sure the area on the left sprocket is clean.
- b. Remove the backing from the bottom of form guide.
- c. Position the guide so that the edge is aligned with the left (outside) edge of the sprocket cover as shown in figure 3-134.
- d. Align the guide's crease line with the flange line on the cover.
- e. Press the guide firmly in place.
- f. Lower the hammer bank latch handle to close the hammer bank.
- g. Close the printer cover door.
- h. Plug the AC power cord into the power source.

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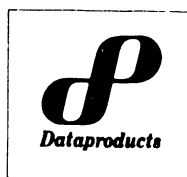
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Maintenance Guide

VOLUME II

300 LPM/ 600 LPM LINE PRINTERS

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WOODLAND HILLS, CALIFORNIA 91365

MARCH, 1984

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36	Status Indication 48 "Transducer Fault"	4-52
37	Status Indication 49 "Band Current Fault"	4-53
38	Status Indication 50 "System Status Fault"	4-54
39	Status Indication P "Power Fault"	4-55
40	Status Indication H "Hot Condition"	4-56
41	Status Indication C "Clock Fault"	4-57
42	Undefined Fault - Printer Operating With No Status Indication ...	4-58
43	Power-Up Failure (Sheet 1 of 5)	4-59
43A	Power-Up Failure (Sheet 2 of 5)	4-60
43B	Power-Up Failure (Sheet 3 of 5)	4-61
43C	Power-Up Failure (Sheet 4 of 5)	4-62
43D	Power-Up Failure (Sheet 5 of 5)	4-63
44	Fuse/Circuit Breaker Locator	4-64
45	Circuit Card Assembly (CCA) Fault(s)	4-65
45A	Circuit Card Assembly (CCA) Fault(s)	4-66
46	Poor Print Quality	4-67

SECTION

IV

**TROUBLE-
SHOOTING**

SECTION IV

TROUBLESHOOTING

4.1 INTRODUCTION

This section provides information and procedures for isolating and correcting operating problems in the B-Series 300 LPM and 600 LPM Non-Acoustic Cabinet Line Printers. This information is in the form of simplified flow charts called Troubleshooting Sheets. An example of a Troubleshooting Sheet is shown in figure 4-1.

The Troubleshooting Sheets are divided into two parts. The first part (sheets 1 to 41) contains procedures for isolating and correcting faults diagnosed by the printer and identified by a status code on the control panel. The second part (sheets 42 to 46) contains procedures for isolating and correcting faults when no status indication is given.

Table 4-1 is an index of topics covered in this section.

Section III (Maintenance) of this maintenance guide provides the procedures required by the instruction blocks of the troubleshooting sheets. These include various test procedures, adjustment procedures, and removal/installation procedures.

TABLE 4-1. SECTION CONTENTS

Topic	Reference
How To Use The Troubleshooting Sheets	Paragraph 4.2, Figure 4-1
Power Switch Location	Paragraph 4.3, Figure 4-2
Control Panel Switches	Paragraph 4.4, Figure 4-3
Removing the Printer Cover	Paragraph 4.5, Figures 4-3, 4-4
Fault Correction Using Status Indicator Display	Paragraph 4.6, Troubleshooting Sheets 1-41
Fault Diagnosis without the Aid of Status Indicator Display	Paragraph 4.7
Undefined Fault - Printer Operating with no Status Indicator Display	Sheet 42
Power-up Failure	Sheets 43-43D

TROUBLESHOOTING

TABLE 4-1. SECTION CONTENTS (Cont'd)

Topic	Reference
Fuse/Circuit Breaker Locator	Sheet 44
Circuit Card Assembly (CCA) Faults	Sheet 45
Poor Print Quality	Sheet 46

4.2 HOW TO USE THE TROUBLESHOOTING SHEETS

Each troubleshooting procedure is a simplified flow chart. Figure 4-1 is a sample.

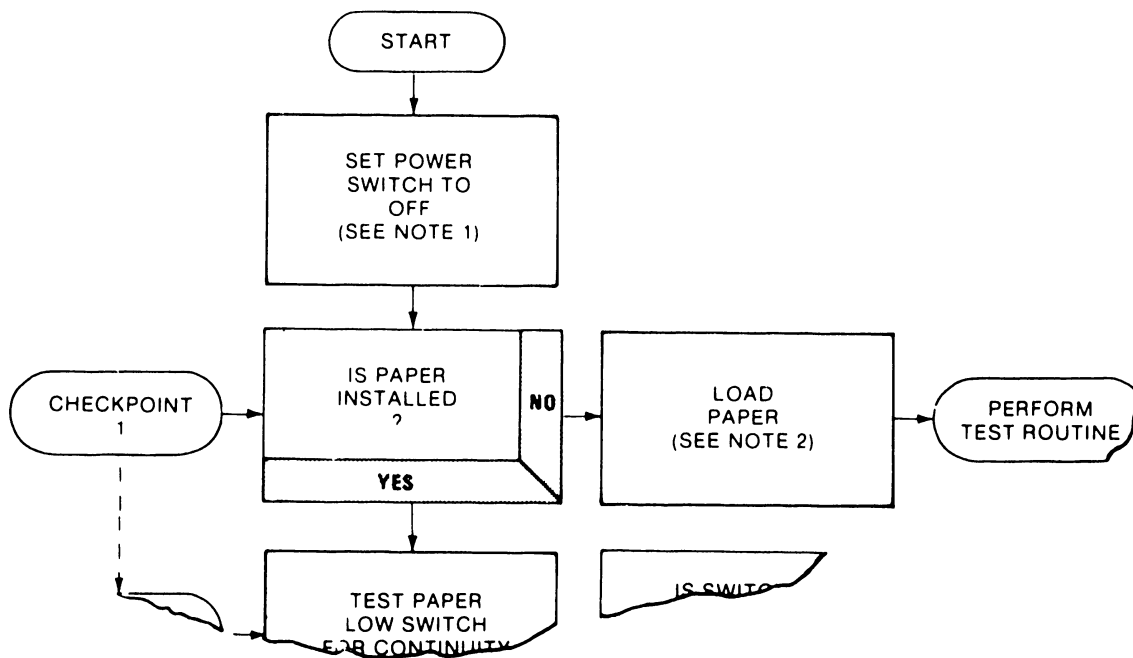


Figure 4-1. Format of Troubleshooting Sheets

Each CHECKPOINT looks at one possible source of the problem. Each block to the right is a step to remedy that problem. The last step for most checkpoints is PERFORM TEST ROUTINE.

The PERFORM TEST ROUTINE appears in a box at the right side of the sheet. The test routine tells you to power-up the printer and put it on-line to see if the fault has been cleared. If the fault has cleared, normal operation can be resumed.

If the fault has not cleared, the test routine tells you to turn off the power and go to the next CHECKPOINT to look for another possible cause of the problem. The "flow" of each procedure is first across the page through the steps of a CHECKPOINT; then down the page from one CHECKPOINT to the next.

The first CHECKPOINT looks for the most likely cause of the problem. The next CHECKPOINT looks for the next likely cause, and so on, until the last possible field-service level of troubleshooting is reached.

Since circuit card assembly testing is the last CHECKPOINT in many procedures, it is on a separate troubleshooting sheet (Sheet 45). Contact the service support facility or manufacturer for additional troubleshooting support if a fault still remains after changing circuit card assemblies.

TROUBLESHOOTING

4.3 POWER SWITCH LOCATION (Figure 4-2)

In most troubleshooting procedures, the **POWER** switch must be set to **OFF**. Sometimes, the first troubleshooting step is to set the **POWER** switch to **OFF** and then to **ON**. Figure 4-2 shows the location of the **POWER** switch in all B-Series 300 LPM and 600 LPM Non-Acoustic Cabinet printers.

NOTE

Be sure to check the status code on the control panel before setting the **POWER** switch to **OFF**. The **STATUS** display goes blank when the power is turned off.

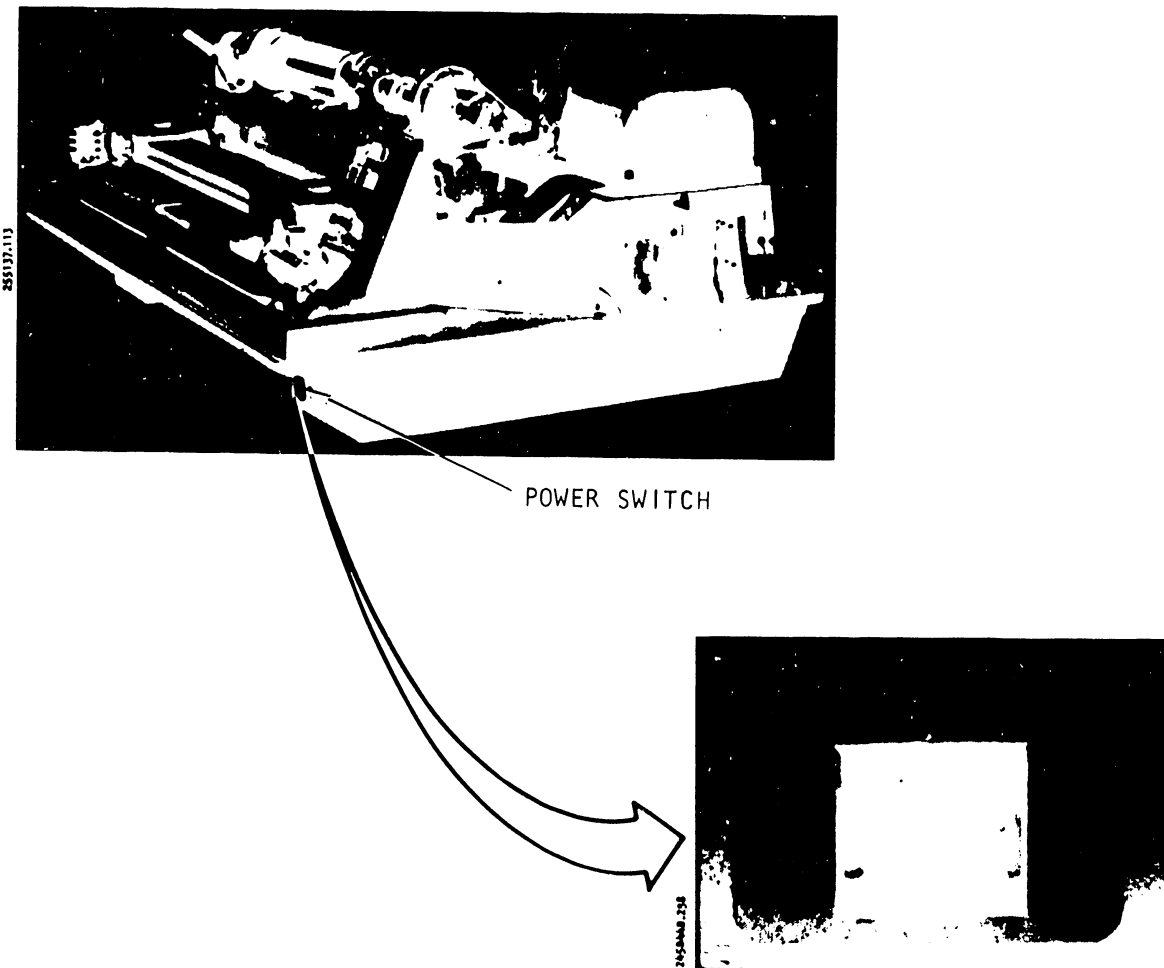


Figure 4-2. Power Switch Location

4.4 CONTROL PANEL SWITCHES (Figure 4-3)

Two control panel switches are often used in the troubleshooting procedures: **ON/OFF LINE** and **ALARM/CLEAR**. Figure 4-3 shows the control panel switches and the location of the **STATUS** display.

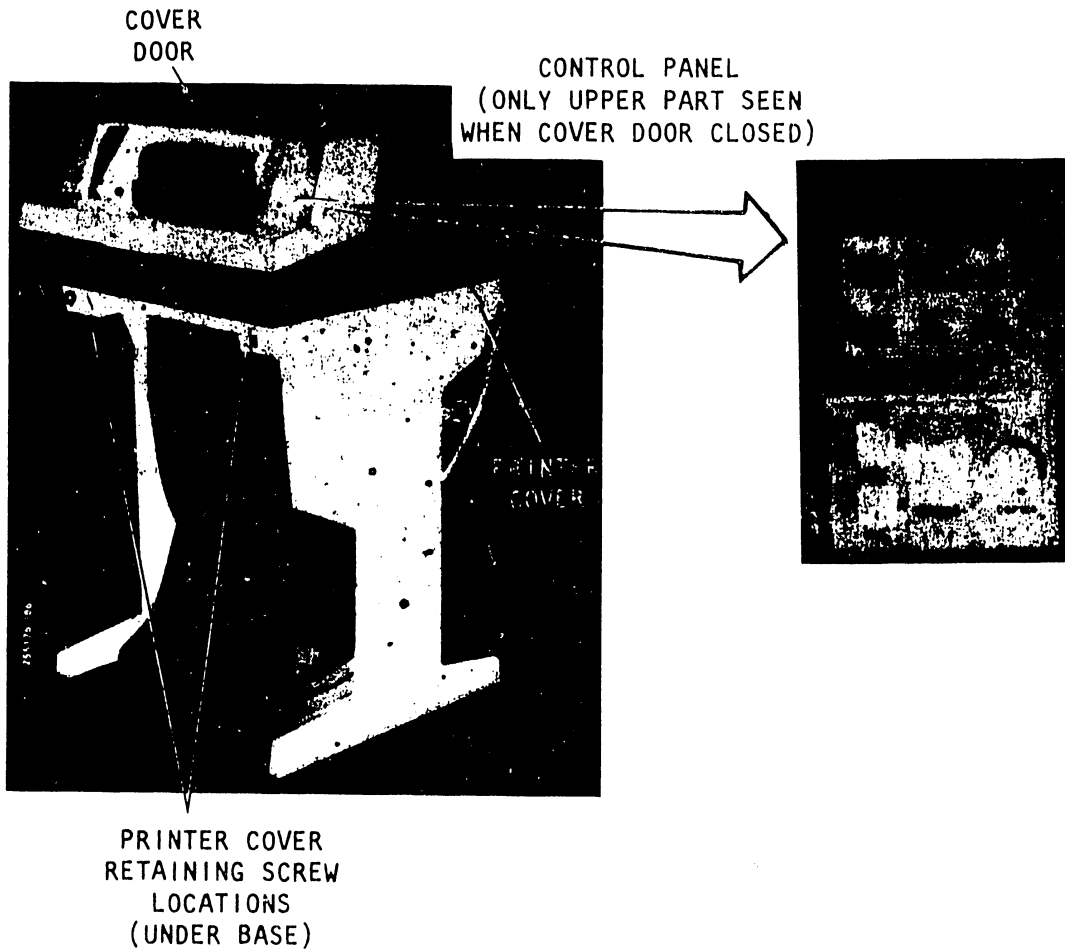


Figure 4-3. Control Panel Switches

4.5 REMOVING THE PRINTER COVER (Figures 4-3 and 4-4)

A cover door in the printer cover allows easy access to the print area. Many of the steps in the troubleshooting procedures can be performed with only this cover door raised. For other steps, especially removal of assemblies, it is necessary to remove the printer cover. In this case, the Printer Cover Removal/Installation Procedure given below should be followed.

WARNING

The cover is heavy. Injury can result from careless handling.

4.5.1 Printer Cover Removal/Installation (Figures 4-3 and 4-4)

Removal

- a. Set the **POWER** switch to **OFF**.
- b. Disconnect the AC power plug from the power source.
- c. Remove the paper from the printer.
- d. Remove the two retaining screws that secure the printer cover to the printer base. See figure 4-3 for the location of the screws.
- e. Unlatch the cover door and lift it enough to clear the control panel switch caps.
- f. Lift the front of the printer cover slightly and move it back slightly to unhook the cover hinge from the printer base. See figure 4-4 for the location of the cover hinge.
- g. Lift the cover up and off the printer base.

Installation

- a. Position the printer cover over the printer base.
- b. Tilt the front of the cover upward and hook the rear bracket under the lip at the back of the printer base. See figure 4-4 for locations.
- c. Raise the cover door, and lower the front part of the printer cover to its fully seated position.
- d. Lower the cover door.
- e. Install the two retaining screws. See figure 4-3 for the location of the screws.

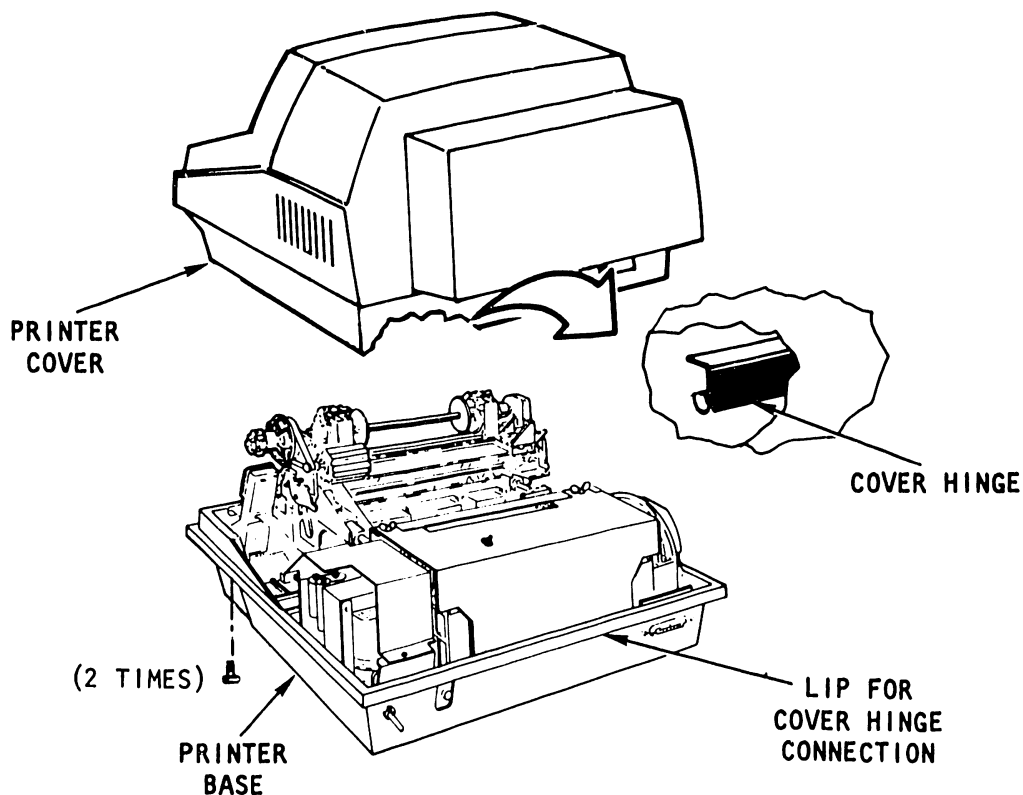


Figure 4-4. Printer Cover Removal/Installation

4.6 FAULT CORRECTION USING STATUS INDICATOR DISPLAY

The operating program regularly directs the processor to check the system status. The processor reports this status by displaying a code number on the control panel status indicator. About forty status code numbers are now being used.

Several of the forty status codes are not fault codes, but show normal printer operation. For example, some status codes signal that an interlock sensor or switch has been activated and the printer needs operator attention. The operator should then close the band cover or load paper.

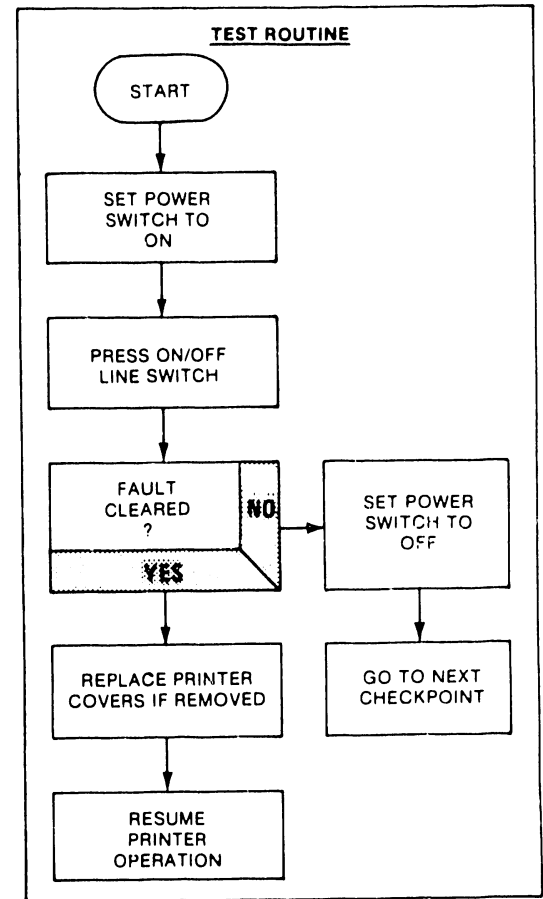
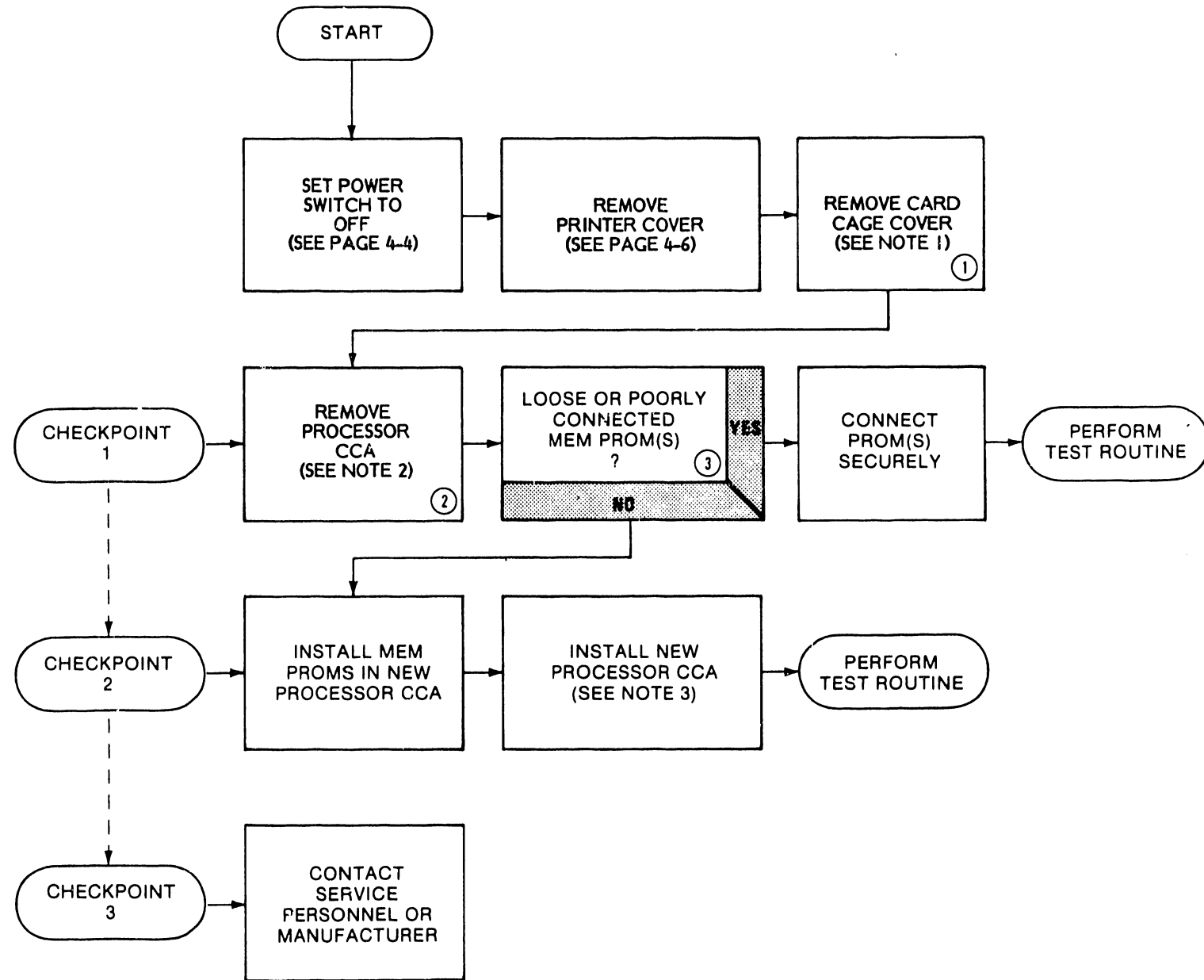
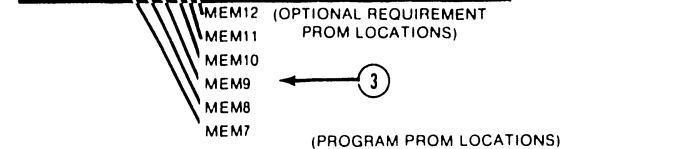
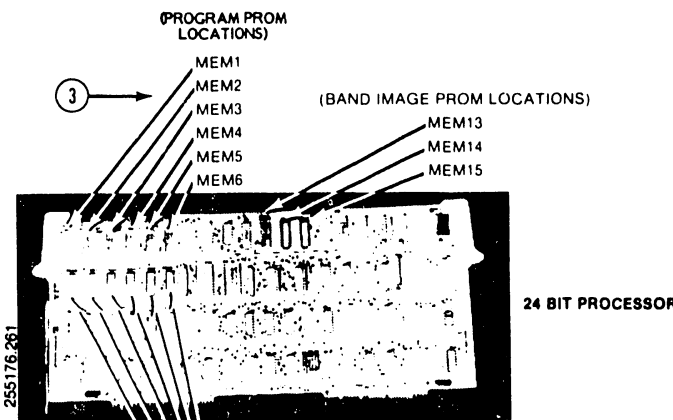
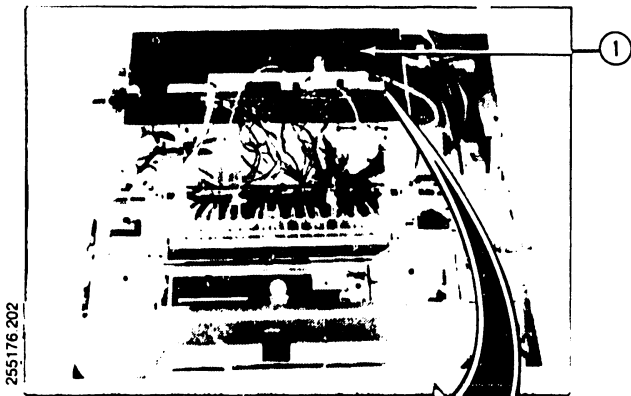
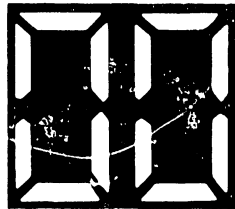
The rest of the status codes are for functioning faults that require special steps for correction. Any condition hindering normal printer operation causes the printer to go off-line and wait for the operator to correct the problem.

Troubleshooting Sheets 1 to 41 are arranged in numerical order by status code number. Each sheet has the status code number printed in the top outside corner. A "Reason for This Status Indication" block and "Possible Causes" list is included for each status code. Paragraph 4-2 explains how to use the troubleshooting sheets.

4.7 FAULT DIAGNOSIS WITHOUT THE AID OF STATUS INDICATOR DISPLAY

Troubleshooting Sheets 42 to 46 provide information for use in locating and correcting faults or malfunctions when no status indication is shown on the control panel. These conditions are defined as power-up failure, undefined fault, and poor print quality. A fuse/circuit breaker location drawing is provided as an additional aid to support the troubleshooting flow charts.

REASON FOR THIS STATUS INDICATION
 IF A PROCESSOR CCA MEM PROM IS NOT PROPERLY CONNECTED IN ITS CIRCUIT CARD SOCKET, THE OUTPUT OF PROGRAM INSTRUCTION WORDS IS DISRUPTED, PRINTER OPERATION HALTS, AND STATUS CODE 00 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



NOTES:

1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
2. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES, REMOVAL/INSTALLATION."

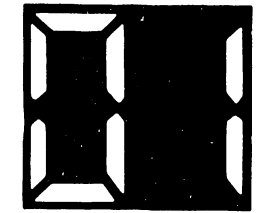
TROUBLESHOOTING SHEET 1
STATUS INDICATION 00
"PROCESSOR CCA MEM PROM NOT CONNECTED"

POSSIBLE CAUSES

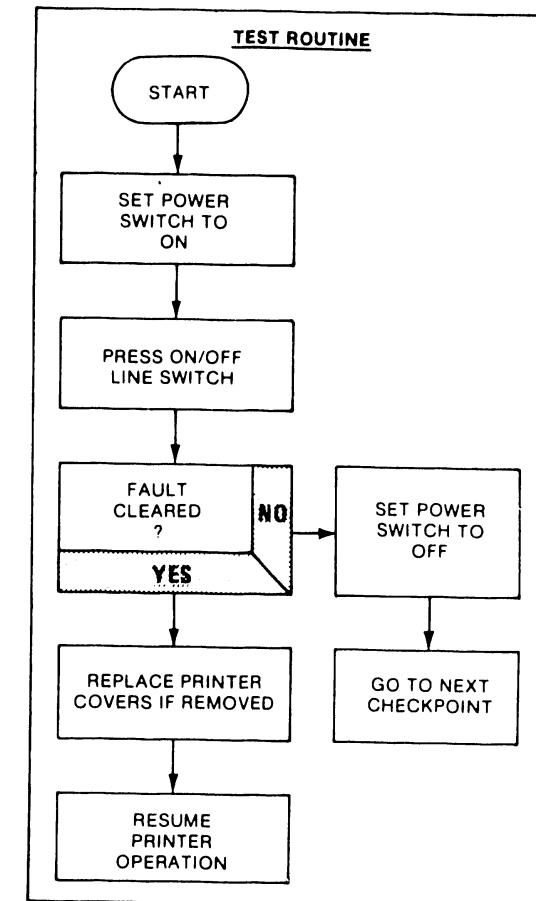
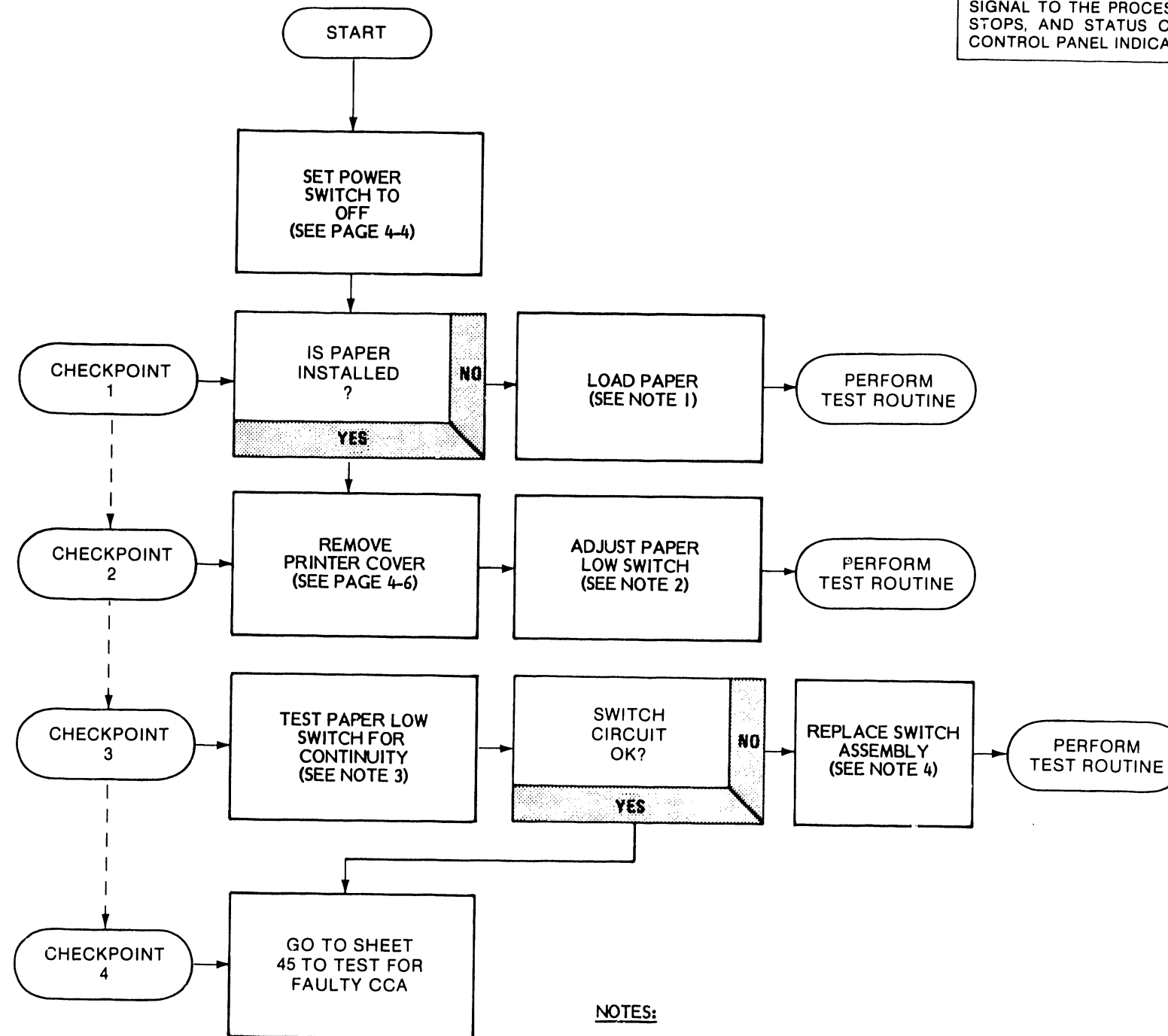
1. PAPER NOT LOADED OR SUPPLY EXHAUSTED.
2. PAPER LOW SWITCH FAULTY OR MISADJUSTED.
3. FAULTY CCA.

**REASON FOR THIS STATUS INDICATION
(300 LPM PRINTERS)**

THE PAPER LOW SWITCH, MOUNTED BELOW THE HAMMER BANK, PROVIDES A MEANS OF DETECTING WHEN THE PRINTER RUNS OUT OF PAPER. WHEN PAPER IS INSTALLED, THIS SWITCH IS HELD IN AN ENERGIZED POSITION. LOSS OF PAPER IN FRONT OF THE SWITCH ALLOWS ITS CONTACTS TO CLOSE, SENDING AN INTERLOCK INTERRUPT SIGNAL TO THE PROCESSOR CCA. PRINTER OPERATION STOPS, AND STATUS CODE 01 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



300 LPM PRINTERS



NOTES:

1. "SEE OPERATOR'S GUIDE: "PAPER LOADING."
2. SEE ALPHABETICAL INDEX: "300 LPM PAPER LOW SWITCH ADJUSTMENTS."
3. SEE ALPHABETICAL INDEX: "PAPER LOW SWITCH CONTINUITY TEST."
4. SEE ALPHABETICAL INDEX: "300 LPM PAPER LOW SWITCH REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 2

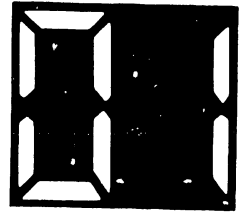
**STATUS INDICATION 01
"PAPER SUPPLY LOW"
(300 LPM PRINTERS)**

POSSIBLE CAUSES

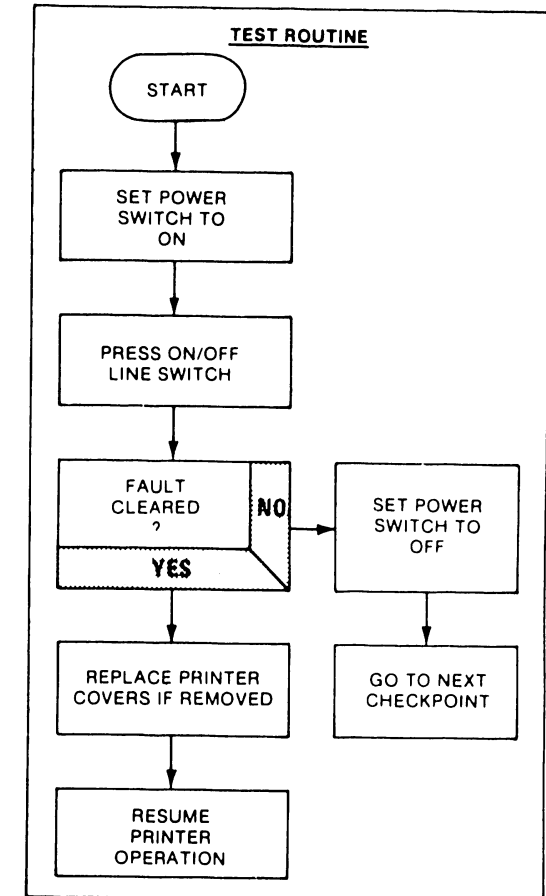
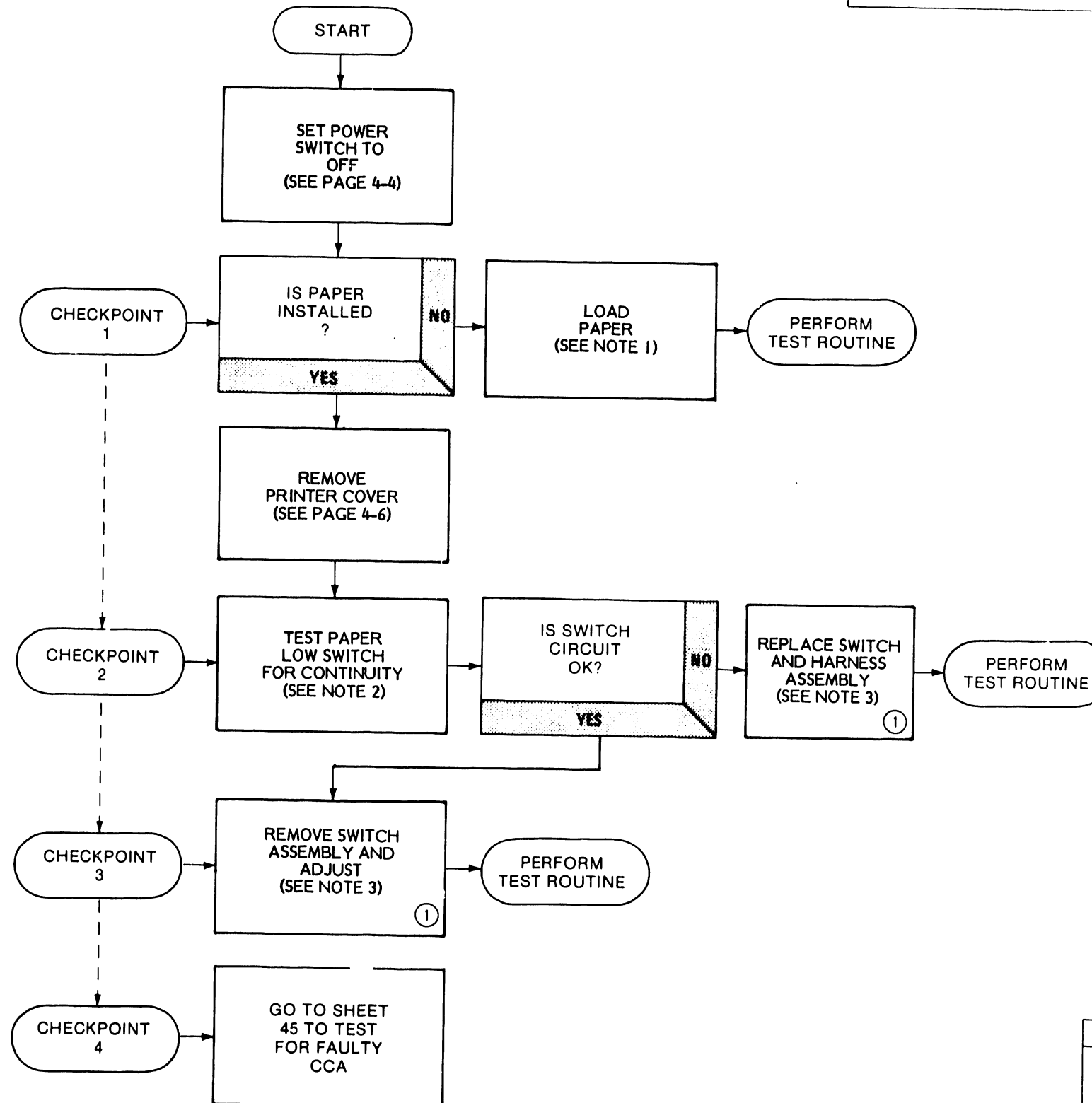
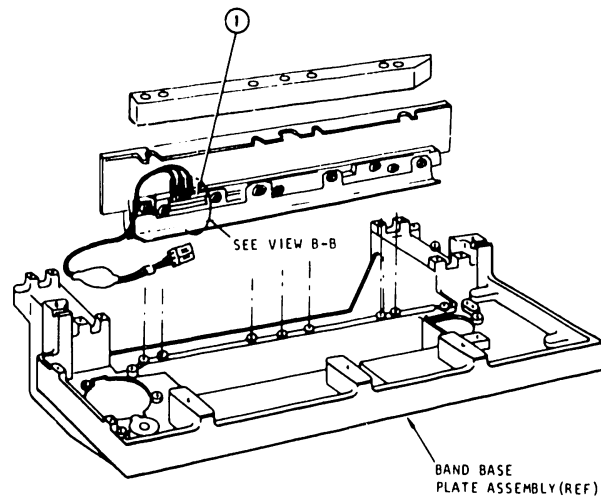
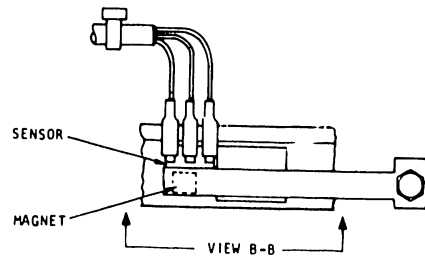
1. PAPER NOT LOADED OR SUPPLY EXHAUSTED.
2. PAPER LOW SWITCH FAULTY OR MISADJUSTED.
3. FAULTY CCA.

**REASON FOR THIS STATUS INDICATION
(600 LPM PRINTERS)**

THE PAPER-LOW SWITCH, MOUNTED BELOW THE HAMMER BANK, PROVIDES A MEANS OF DETECTING WHEN THE PRINTER RUNS OUT OF PAPER. WHEN PAPER IS INSTALLED, THIS SWITCH IS HELD IN AN ENERGIZED POSITION. LOSS OF PAPER IN THE PAPER THROAT ACTIVATES THE SWITCH, SENDING AN INTERLOCK INTERRUPT SIGNAL TO THE PROCESSOR CCA. PRINTER OPERATION STOPS, AND STATUS CODE 01 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



600 LPM PRINTERS



NOTES:

1. SEE OPERATOR'S GUIDE: "PAPER LOADING."
2. SEE ALPHABETICAL INDEX: "PAPER LOW SWITCH CONTINUITY TEST."
3. SEE ALPHABETICAL INDEX: "600 LPM PAPER LOW SWITCH REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 2A

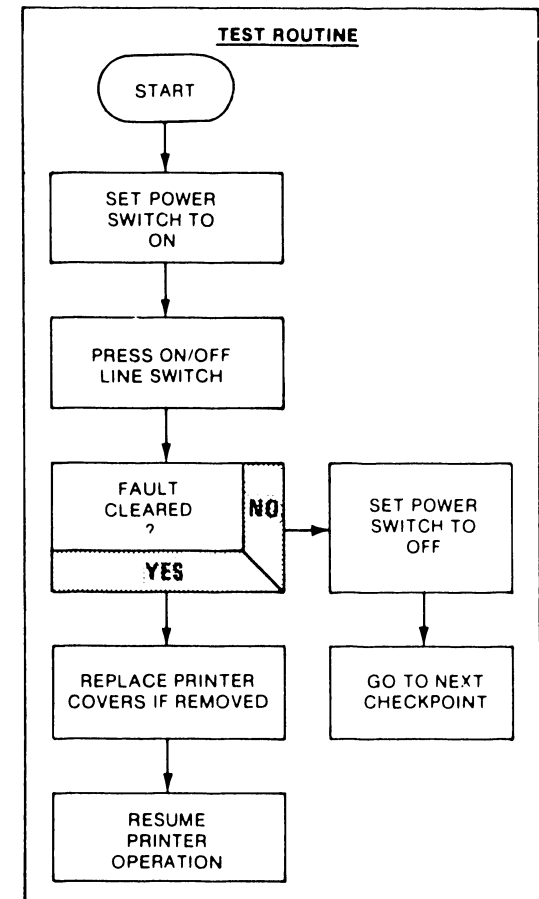
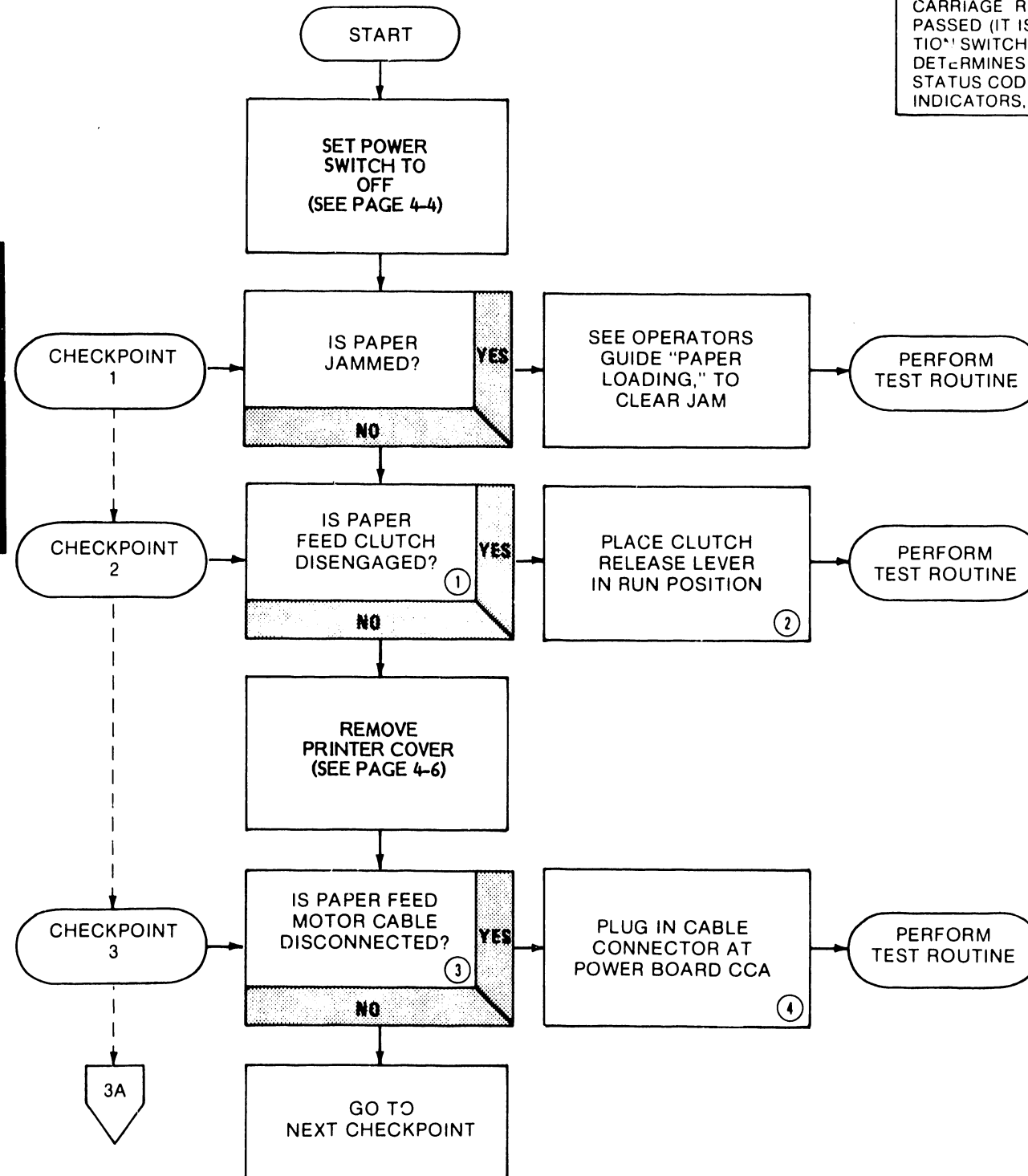
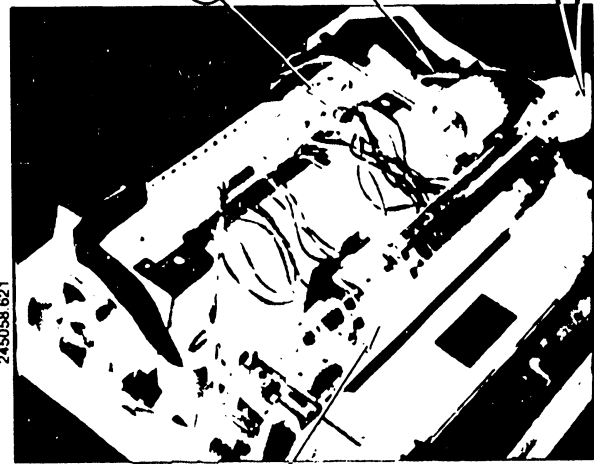
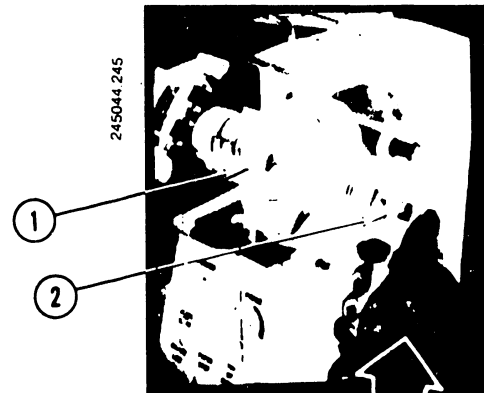
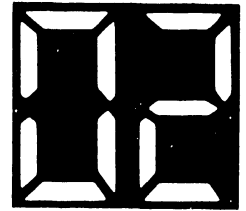
**STATUS INDICATION 01
"PAPER SUPPLY LOW"
(600 LPM PRINTERS)**

POSSIBLE CAUSES

1. PAPER JAMMED.
2. PAPER FEED CLUTCH DISENGAGED.
3. PAPER FEED MOTOR CABLE DISCONNECTED.
4. PAPER FEED MOTOR BELT DEFECTIVE.
5. PAPER MOTION SENSOR DISCONNECTED OR DEFECTIVE.
6. DEFECTIVE CIRCUIT CARD ASSEMBLY OR ASSEMBLIES.

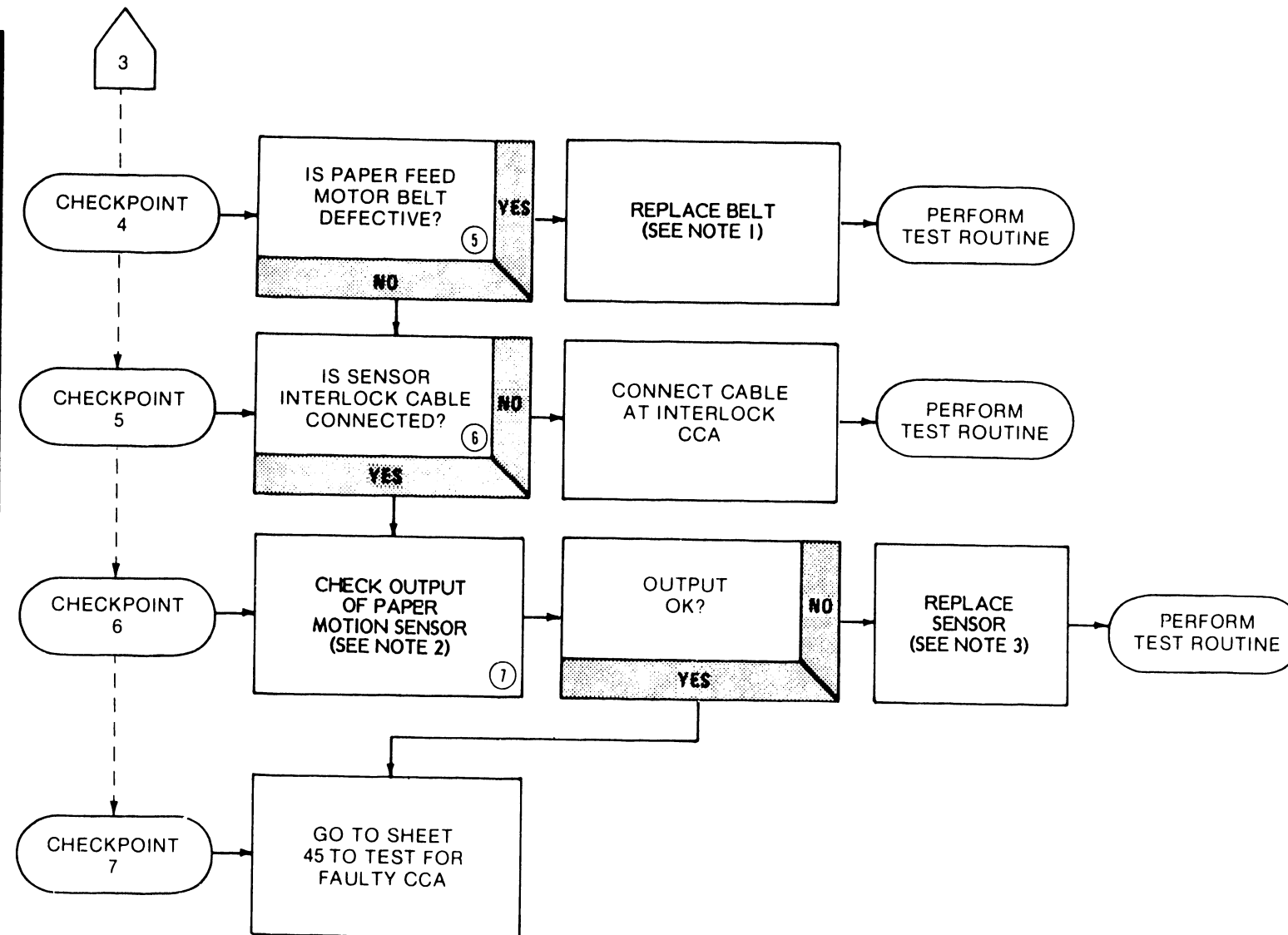
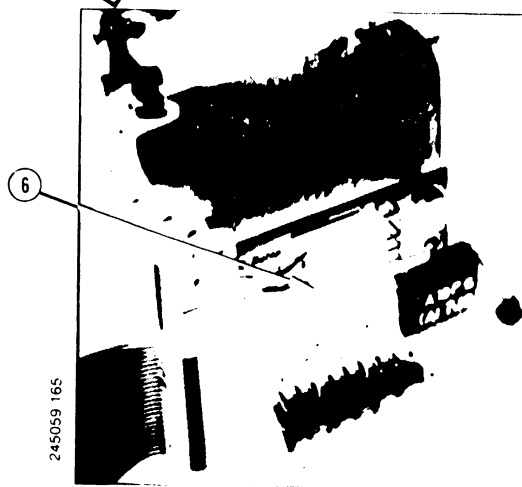
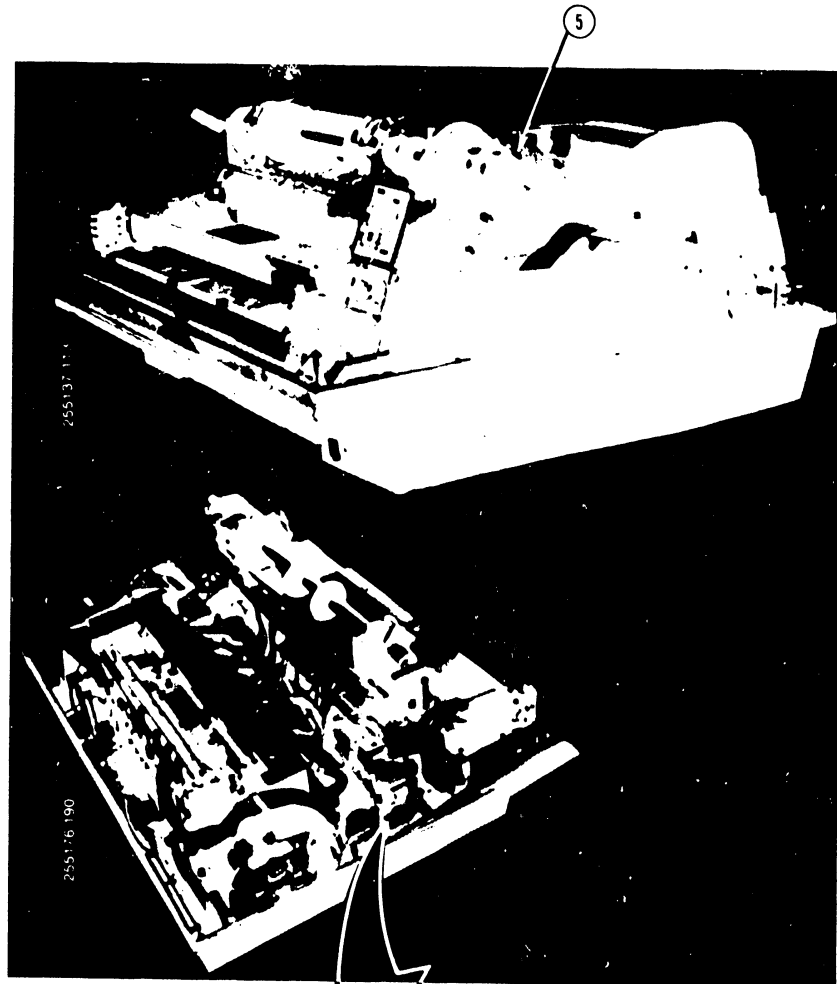
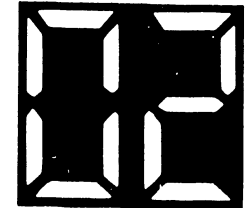
REASON FOR THIS STATUS INDICATION

A LIGHT SENSOR LOCATED IN THE LEFT SPROCKET ASSEMBLY (SEE ① BELOW) IS USED TO DETECT PAPER MOTION. EACH TIME ONE OF THE SPROCKET HOLES IN THE FORM PASSES OVER THE SENSOR, A SIGNAL IS TRIGGERED AND TRANSMITTED TO THE PROCESSOR CCA. THE PROCESSOR MONITORS THE SIGNAL TO ENSURE THAT THE PAPER CONTINUES TO ADVANCE DURING PRINTING. IF THE SENSOR'S OUTPUT IS INTERRUPTED, THE PROCESSOR FIRST WAITS FOR AN ALLOWED NUMBER (8 OR 140) OF CARRIAGE RETURNS TO OCCUR. ONCE THIS LIMIT IS PASSED (IT IS BASED ON THE SETTINGS OF CONFIGURATION SWITCHES ON THE INTERFACE CCA) THE PROCESSOR DETERMINES THAT THERE IS A PAPER MOTION FAULT. STATUS CODE 02 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTER OPERATION HALTS.



TROUBLESHOOTING SHEET 3

**STATUS INDICATION 02
"PAPER MOTION FAULT"**



NOTES:

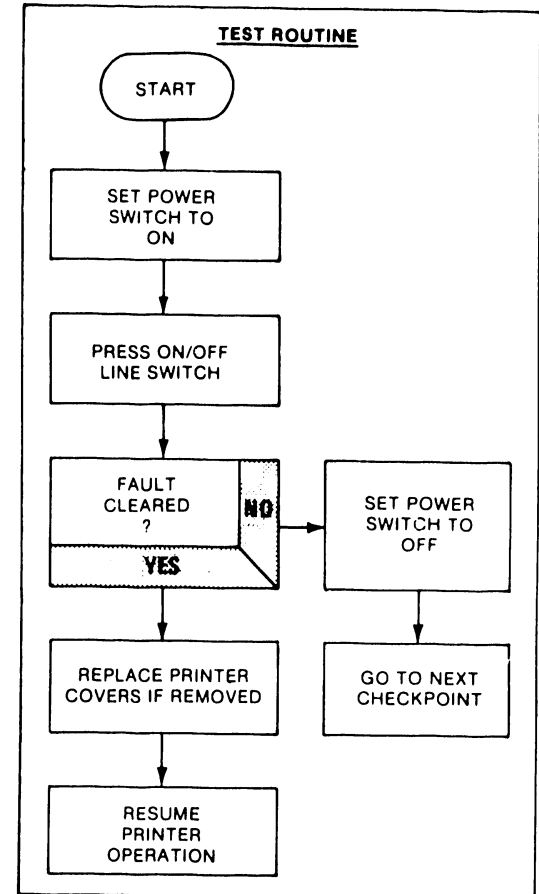
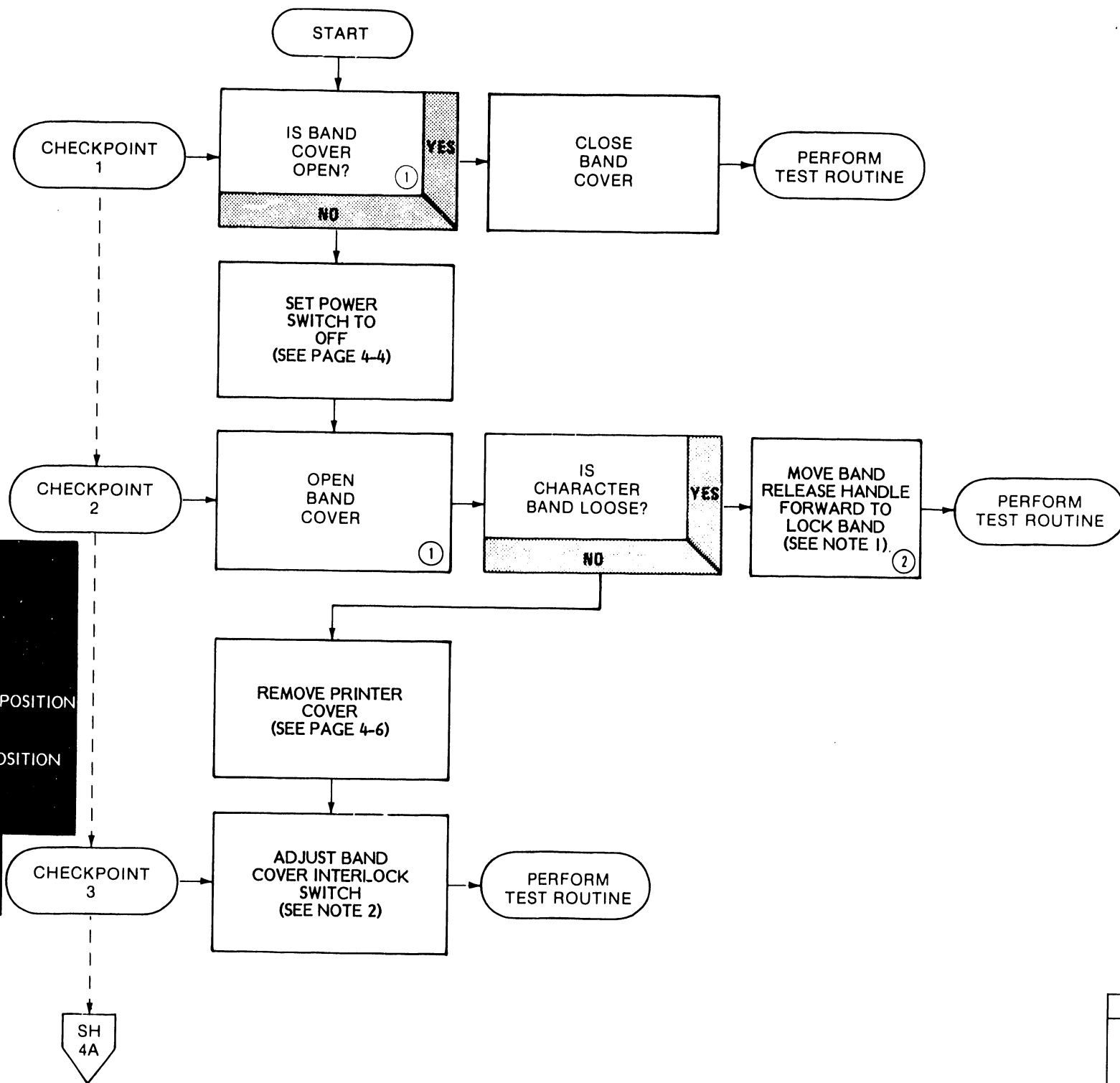
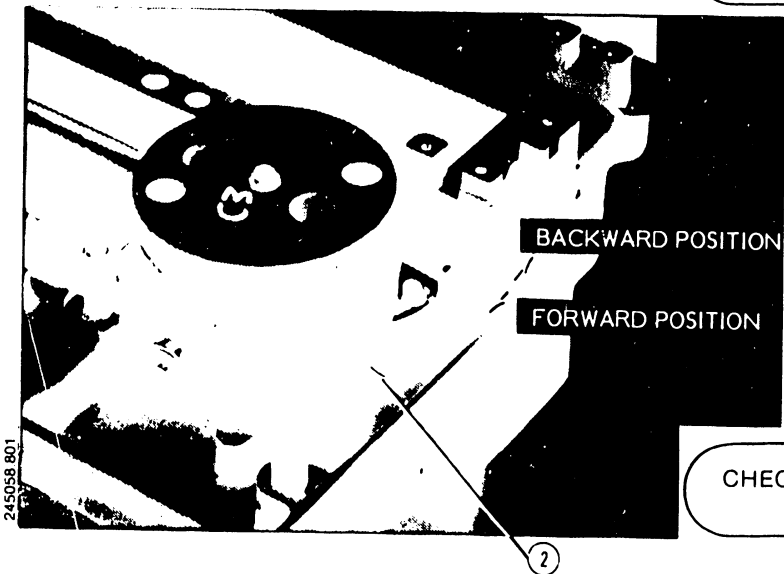
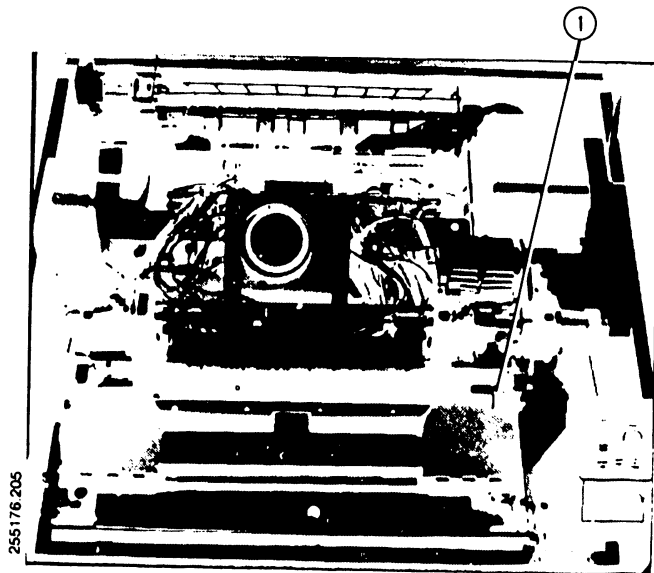
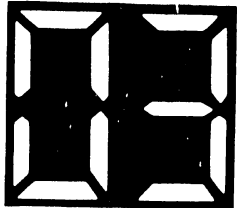
1. SEE ALPHABETICAL INDEX: "PAPER FEED MOTOR DRIVE BELT TENSION ADJUSTMENT."
2. SEE ALPHABETICAL INDEX: "PAPER MOTION SENSOR TEST."
3. SEE ALPHABETICAL INDEX: "PAPER MOTION SENSOR REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 3A.

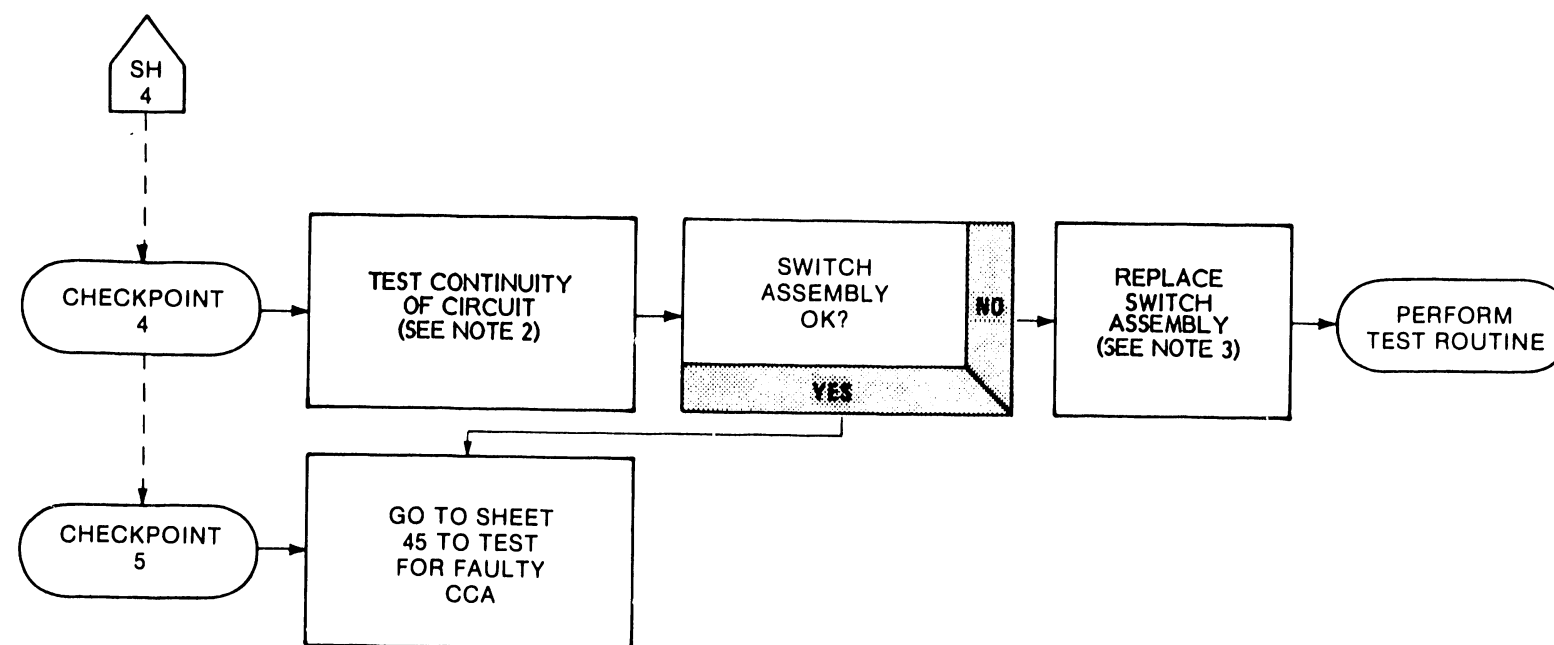
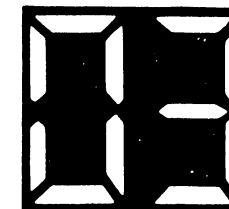
STATUS INDICATION 02
"PAPER MOTION FAULT"

- POSSIBLE CAUSES**
1. BAND COVER OPEN.
 2. CHARACTER BAND RELEASE HANDLE PREVENTING BAND COVER FROM CLOSING COMPLETELY.
 3. BAND COVER INTERLOCK CABLE NOT CONNECTED.
 4. INTERLOCK SWITCH MISADJUSTED OR DEFECTIVE.
 5. DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION
 IF THE BAND COVER IS OPEN, OR IF THE BAND RELEASE HANDLE IS IN ITS OPEN POSITION AND SO PREVENTS THE BAND COVER FROM CLOSING COMPLETELY, AN INTERLOCK SWITCH IS ACTIVATED TO SIGNAL THE FAULT TO THE PROCESSOR. FAULT CODE 03 APPEARS ON THE STATUS INDICATOR DISPLAY AND PRINTER OPERATION HALTS.



TROUBLESHOOTING SHEET 4
STATUS INDICATION 03
"BAND COVER OPEN"



NOTES:

1. SEE OPERATOR'S GUIDE: "CHARACTER BAND REMOVAL/INSTALLATION."
2. SEE ALPHABETICAL INDEX: "BAND COVER INTER-LOCK SWITCH ADJUSTMENT."
3. SEE ALPHABETICAL INDEX: "BAND COVER INTER-LOCK SWITCH REMOVAL/INSTALLATION."

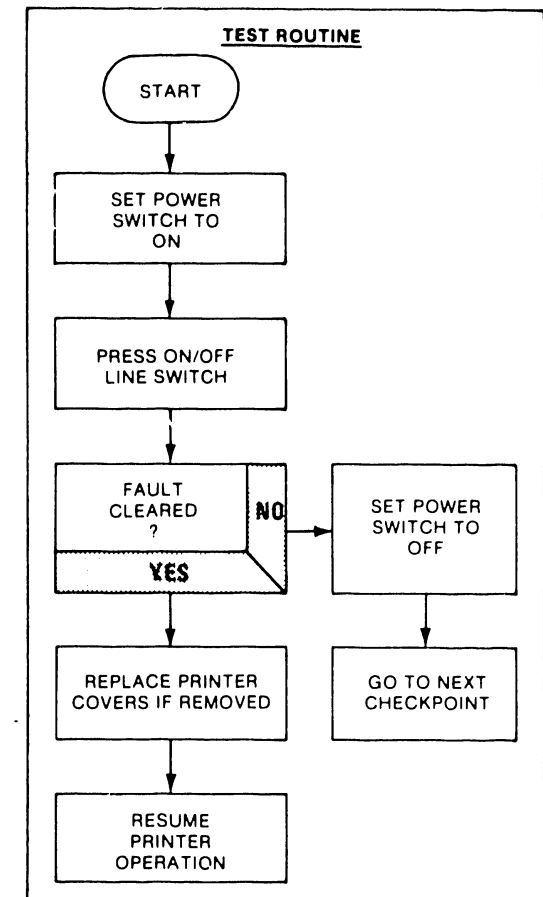
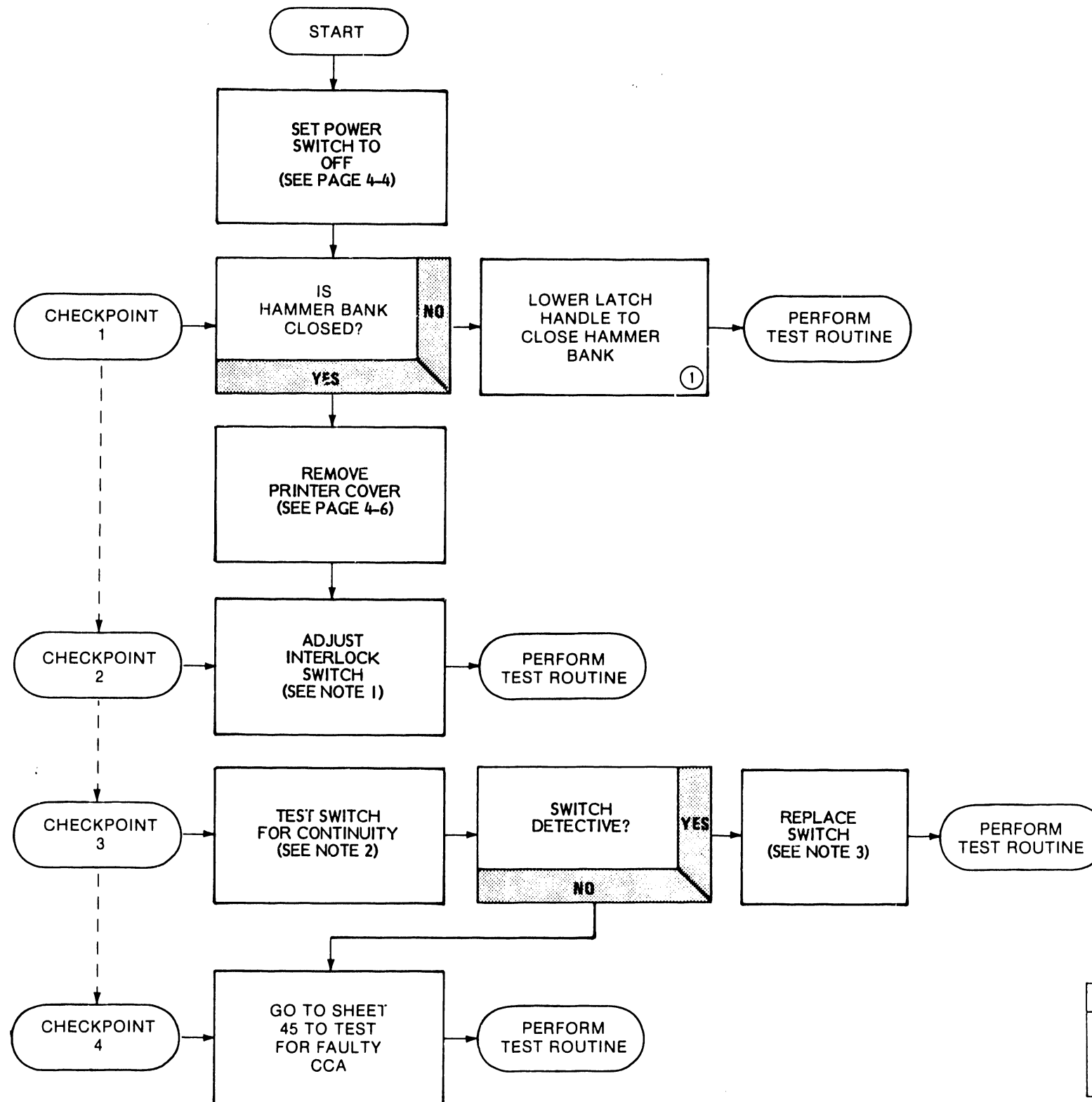
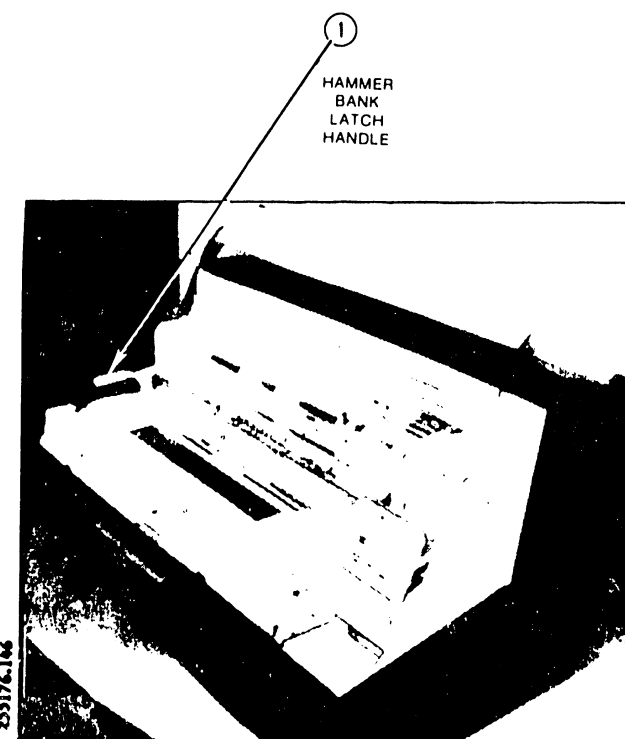
TROUBLESHOOTING SHEET 4A
STATUS INDICATION 03 "BAND COVER OPEN"

POSSIBLE CAUSES

1. HAMMER BANK LATCH NOT LOCKED.
2. HAMMER BANK INTERLOCK SWITCH MISADJUSTED.
3. HAMMER BANK INTERLOCK SWITCH OR HARNESS DEFECTIVE.
4. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

IF THE HAMMER BANK LATCH HANDLE IS NOT IN THE FULLY CLOSED POSITION WHEN THE PRINTER IS ON LINE, AN INTERLOCK SWITCH OPENS AND SIGNALS THE PROCESSOR CCA THAT A FAULT EXISTS. FAULT CODE 04 APPEARS ON THE STATUS INDICATORS AND PRINTER OPERATION HALTS.



NOTES:

1. SEE ALPHABETICAL INDEX: "HAMMER BANK INTERLOCK SWITCH ADJUSTMENT."
2. SEE ALPHABETICAL INDEX: "HAMMER BANK INTERLOCK CONTINUITY TEST AND ADJUSTMENT."
3. SEE ALPHABETICAL INDEX: "HAMMER BANK INTERLOCK SWITCH REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 5

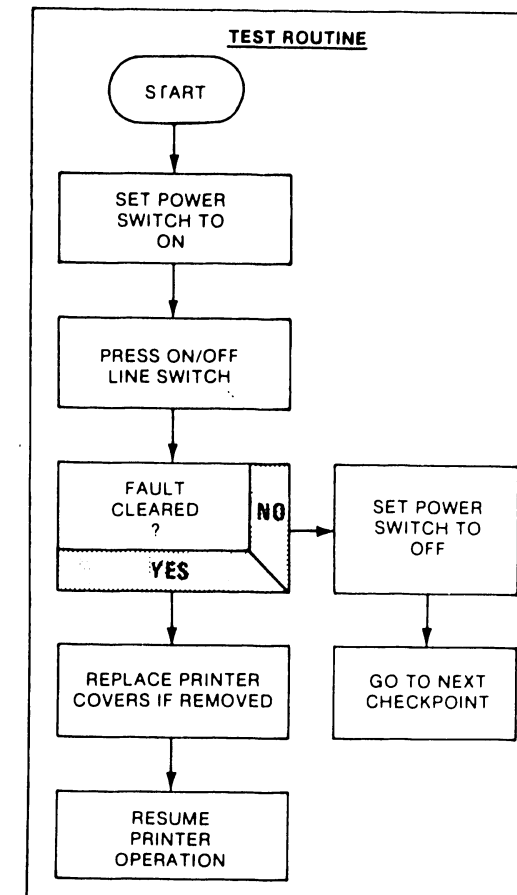
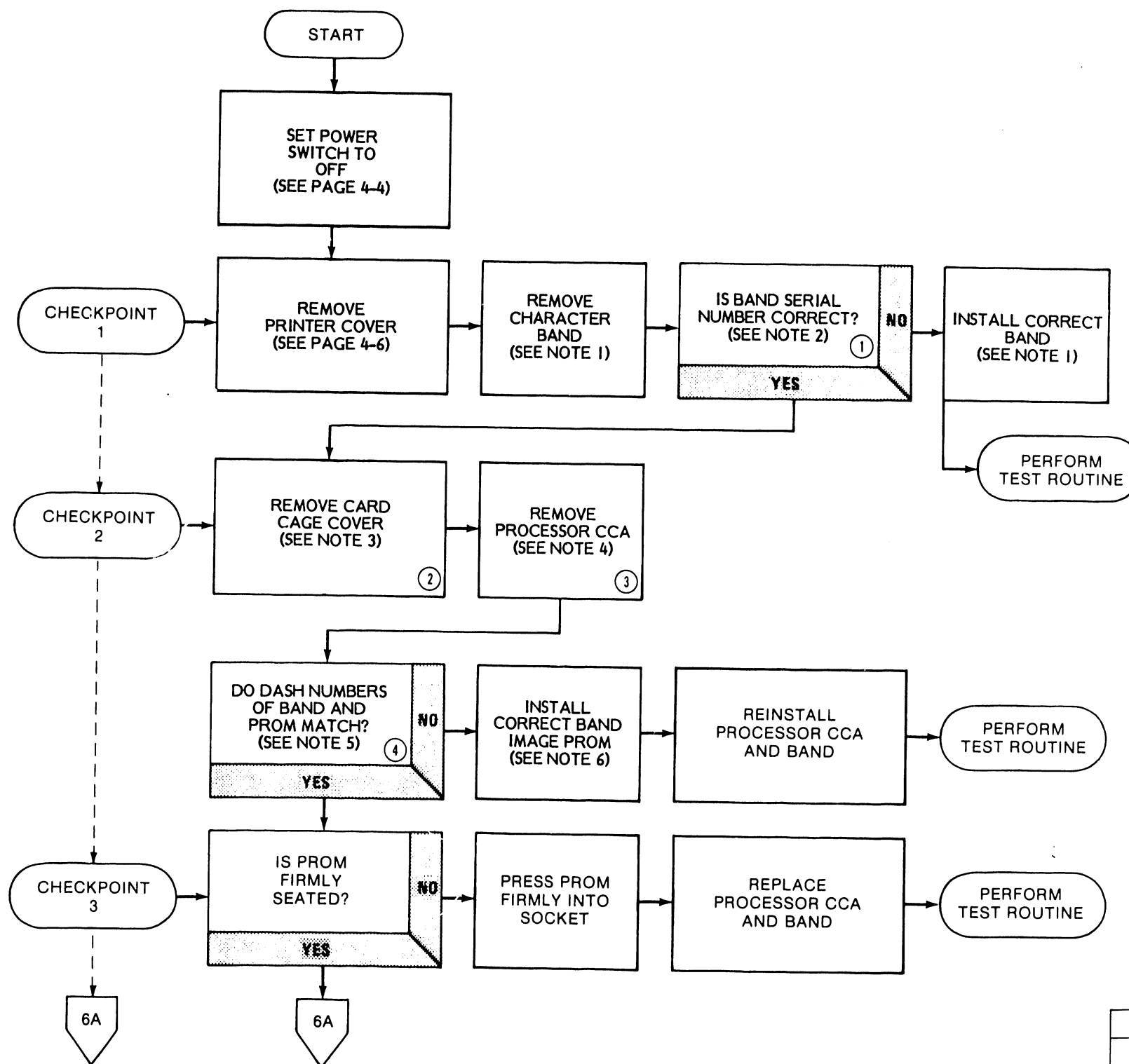
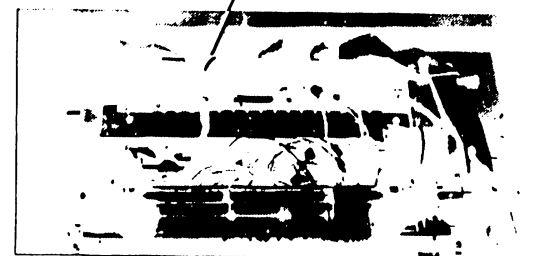
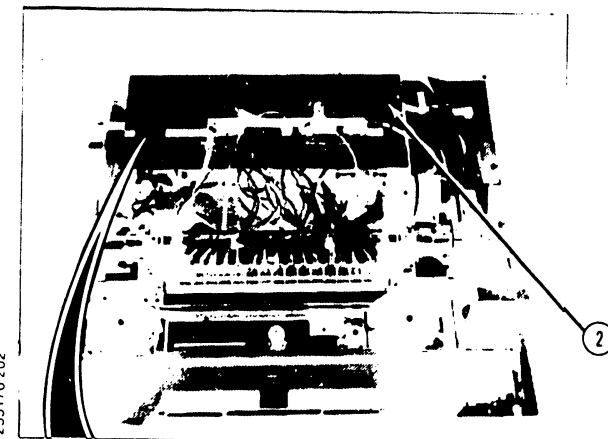
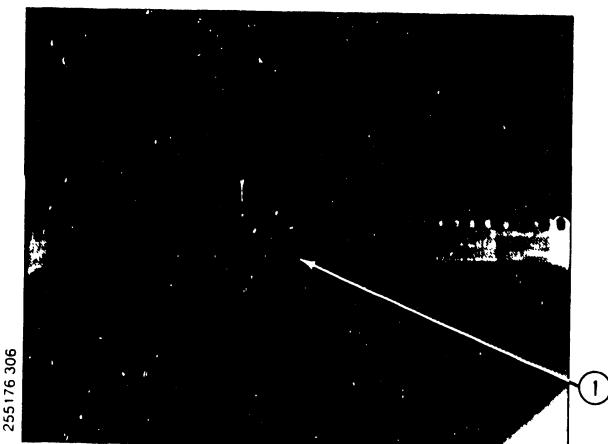
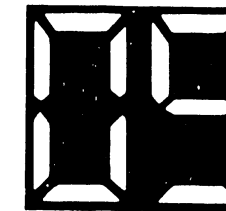
**STATUS INDICATION 04
"HAMMER BANK NOT
CLOSED"**

POSSIBLE CAUSES

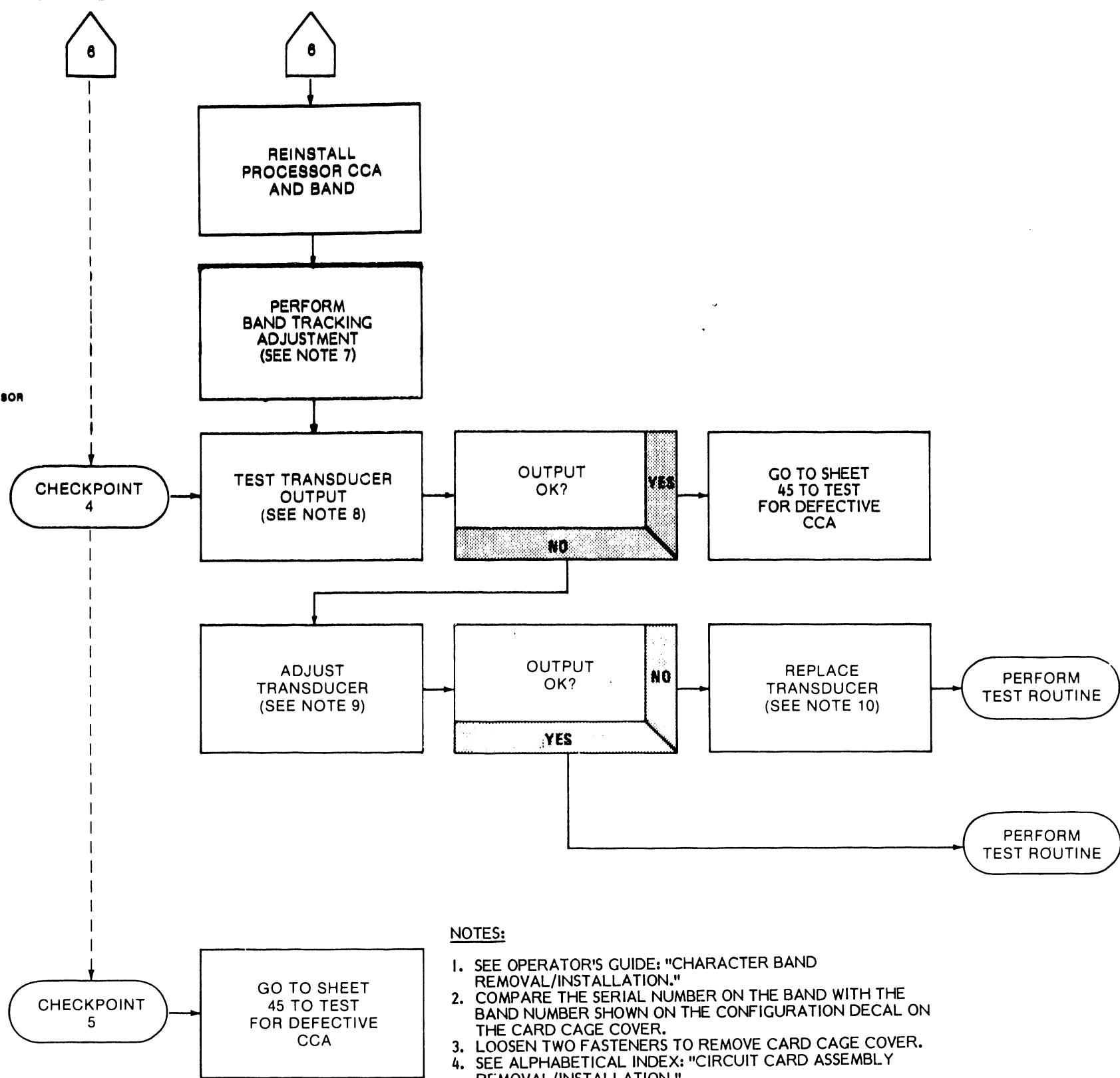
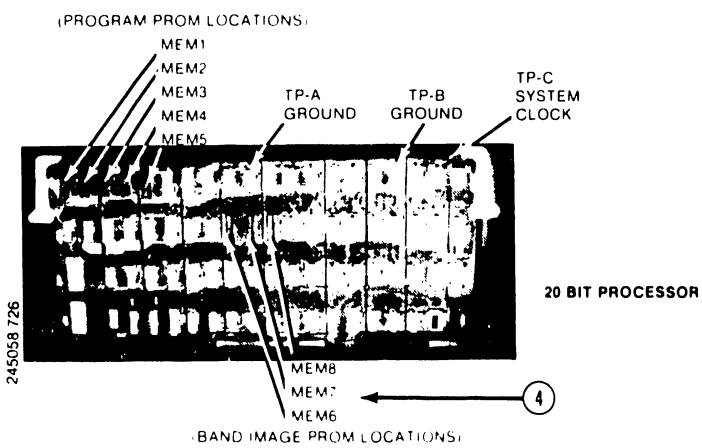
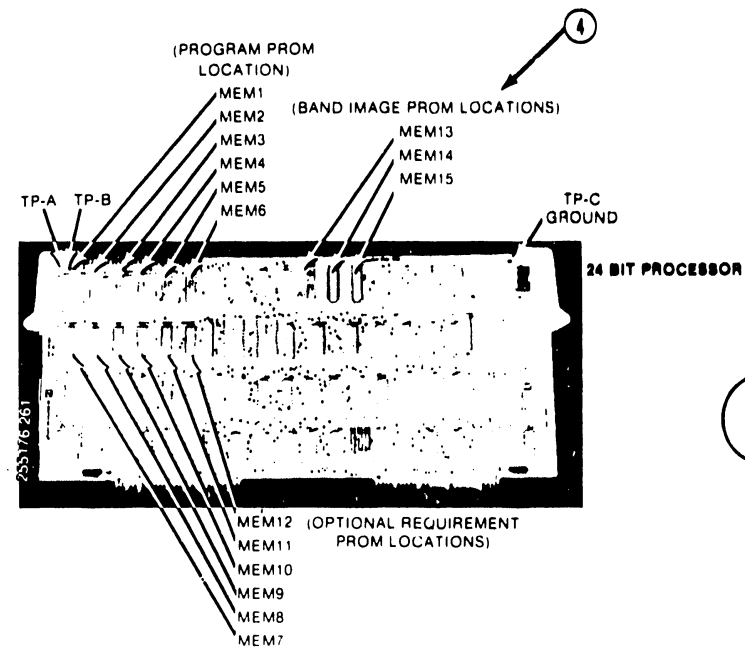
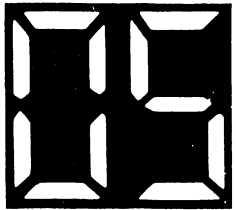
1. WRONG BAND INSTALLED.
2. WRONG BAND IMAGE PROM OR PROMs.
3. BAND IMAGE PROM NOT SEATED.
4. MISADJUSTED OR FAULTY TRANSDUCER.
5. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

THE PROCESSOR CHECKS THE CHARACTER BAND INSTALLED IN THE PRINTER AGAINST THE BAND IMAGE PROMs TO ENSURE THAT THE BAND AND ONE OF THE PROMs PROVIDE THE SAME CHARACTER SEQUENCE. IF THE BAND'S I.D. CODE MATCHES THAT OF NONE OF THE PROMs, PRINTER OPERATION HALTS AND STATUS CODE 05 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



TROUBLESHOOTING SHEET 6
STATUS INDICATION 05
"UNDEFINED CHARACTER BAND"



NOTES:

1. SEE OPERATOR'S GUIDE: "CHARACTER BAND REMOVAL/INSTALLATION."
2. COMPARE THE SERIAL NUMBER ON THE BAND WITH THE BAND NUMBER SHOWN ON THE CONFIGURATION DECAL ON THE CARD CAGE COVER.
3. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
4. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLY REMOVAL/INSTALLATION."
5. ONLY THE THREE NUMBERS FOLLOWING THE DASH MUST MATCH FOR COMPATIBILITY.
6. CONTACT DPC SALES ADMINISTRATOR IF CORRECT PROM IS DAMAGED OR NOT AVAILABLE.
7. SEE ALPHABETICAL INDEX: "BAND TRACKING ADJUSTMENT."
8. SEE ALPHABETICAL INDEX: "CCA TEST POINTS AND REFERENCES."
9. SEE ALPHABETICAL INDEX: "TRANSDUCER GAP ADJUSTMENT."
10. SEE ALPHABETICAL INDEX: "TRANSDUCER REMOVAL/INSTALLATION."

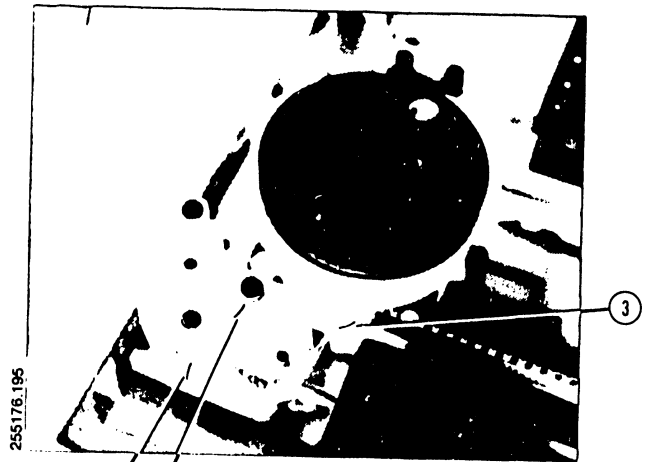
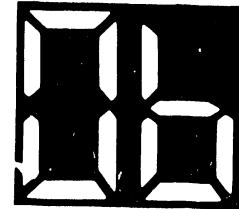
TROUBLESHOOTING SHEET 6A

**STATUS INDICATION 05
"UNDEFINED CHARACTER BAND"**

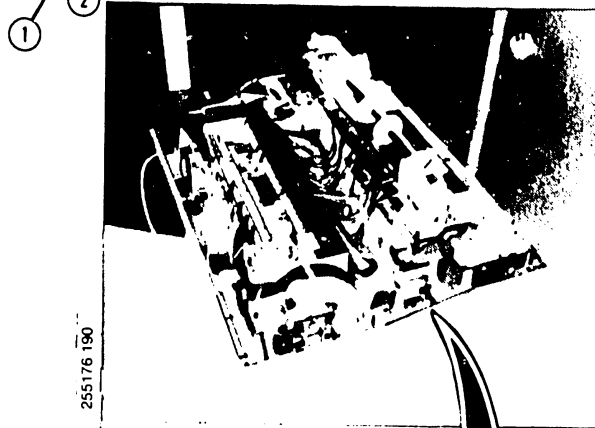
- POSSIBLE CAUSES**
1. RIBBON JAMMED AT PIVOT ARM.
 2. RIBBON MOTION SENSOR DIRTY.
 3. RIBBON DRIVE BELT WORN.
 4. RIBBON SENSING CABLE DISCONNECTED.
 5. FUSE 1 ON INTERFACE CCA OPEN.
 6. DEFECTIVE CIRCUIT CARD ASSEMBLY.

REASON FOR THIS STATUS INDICATION

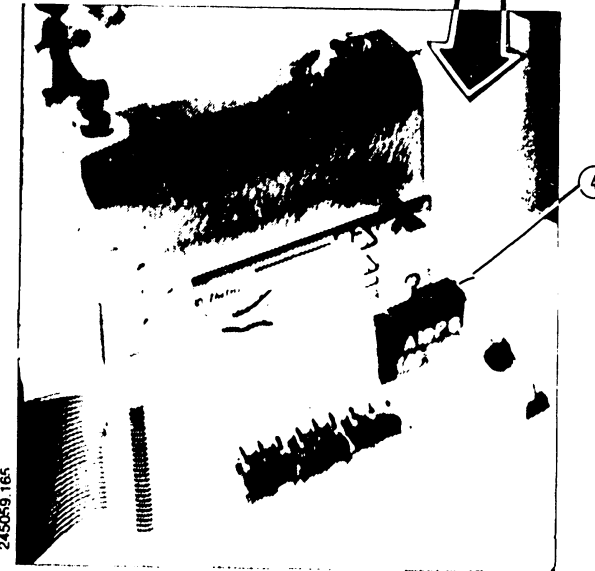
A RIBBON MOTION SENSOR IN THE PIVOT ARM MONITORS RIBBON MOTION DURING PRINTING. IF THE RIBBON DOES NOT MOVE THROUGH THE ROLLER ASSEMBLY OR INTO THE RIBBON CARTRIDGE PROPERLY, THE SENSOR SIGNALS THE PROCESSOR OF THE FAULT. FAULT CODE 06 IS DISPLAYED ON THE STATUS INDICATORS, AND PRINTER OPERATION HALTS.



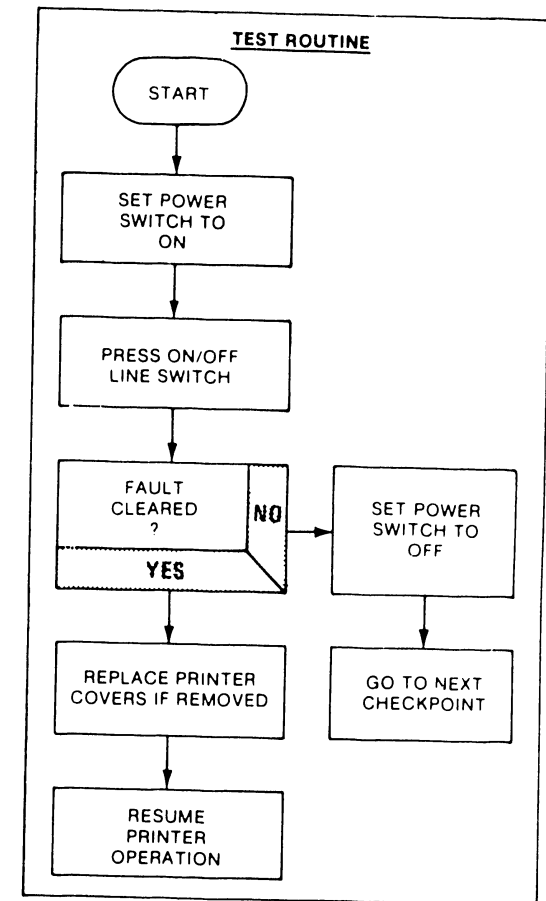
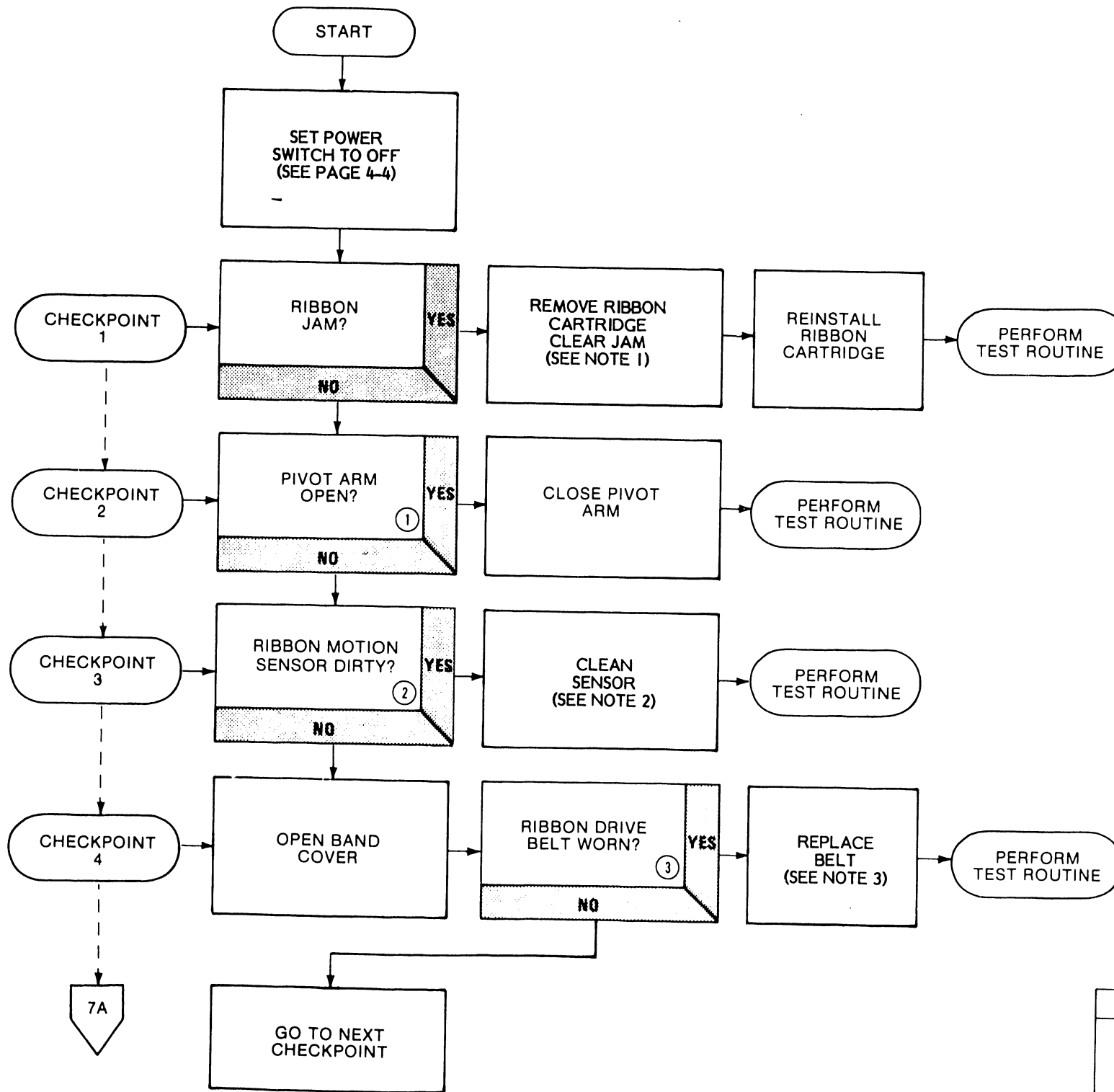
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255176.190

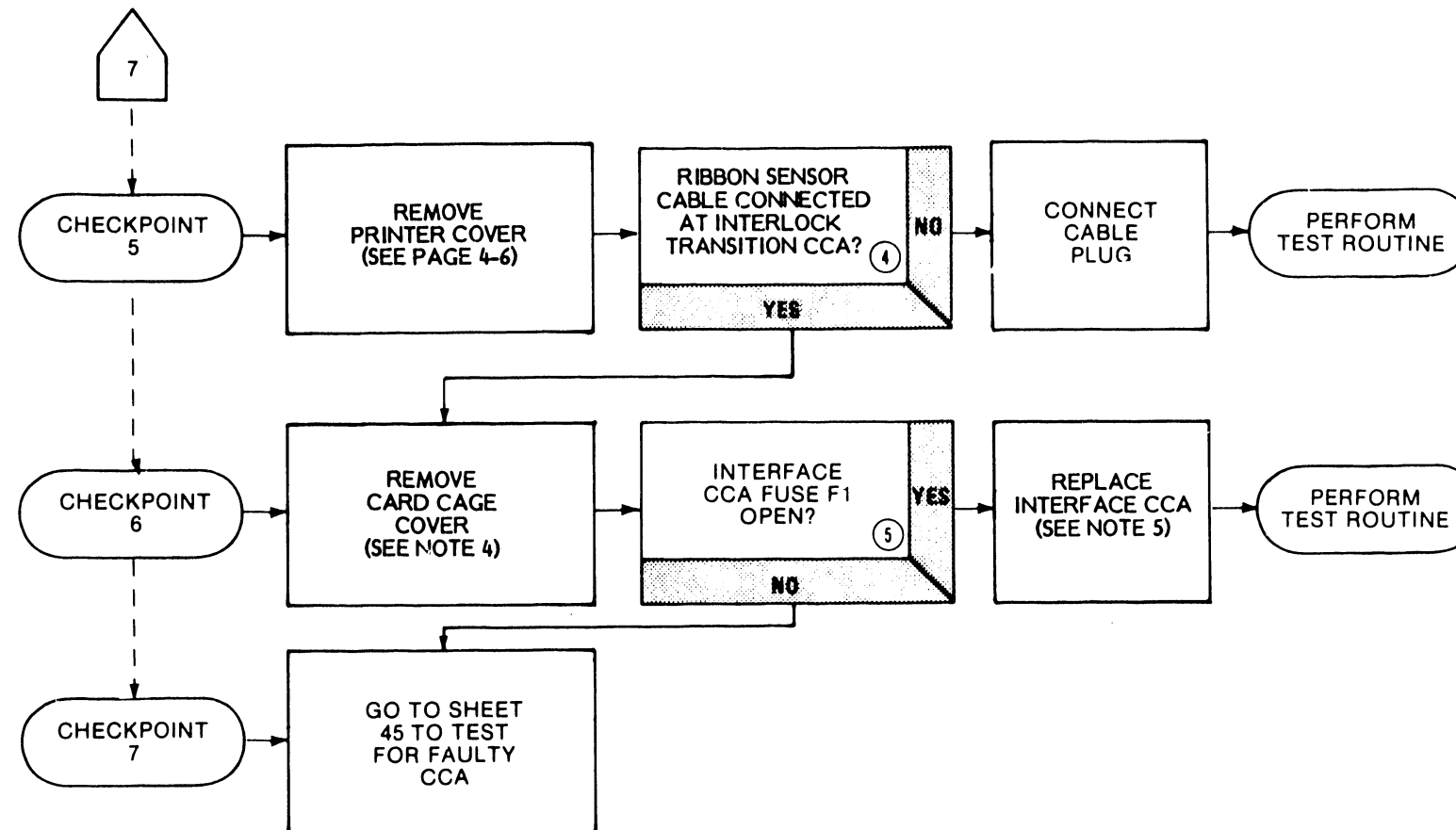
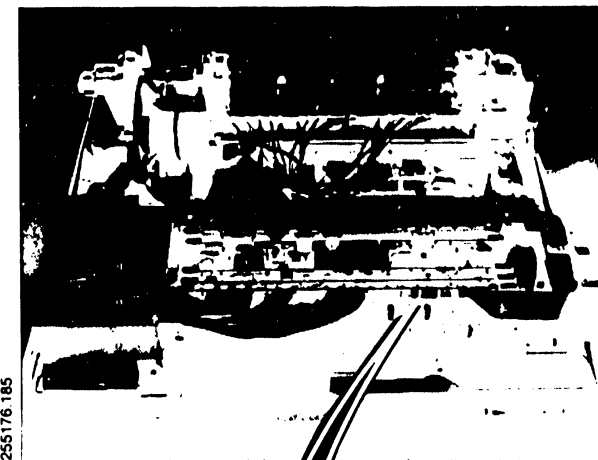
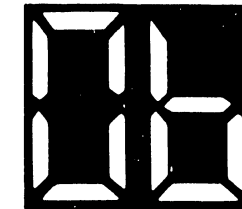


245069.165



TROUBLESHOOTING SHEET 7

STATUS INDICATION 06
"RIBBON MOTION FAULT"

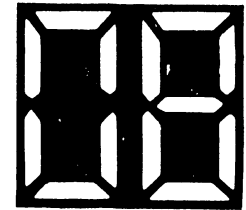


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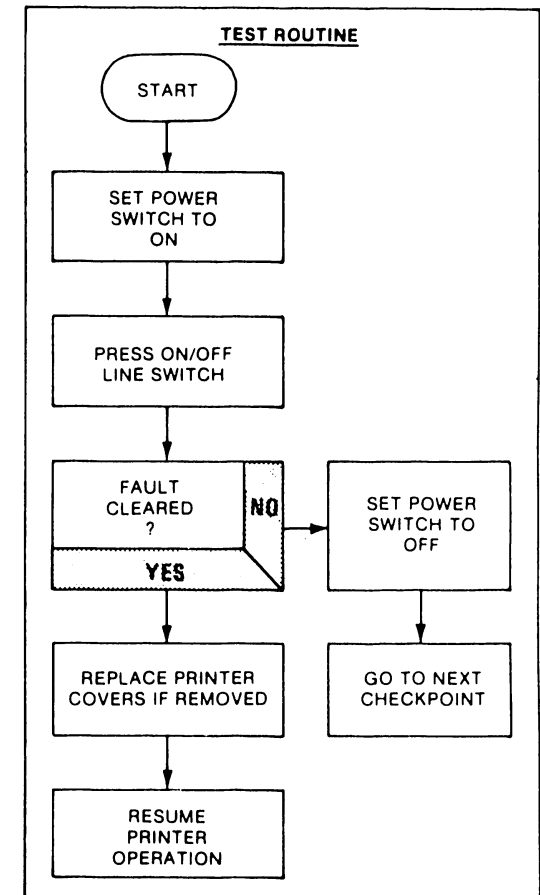
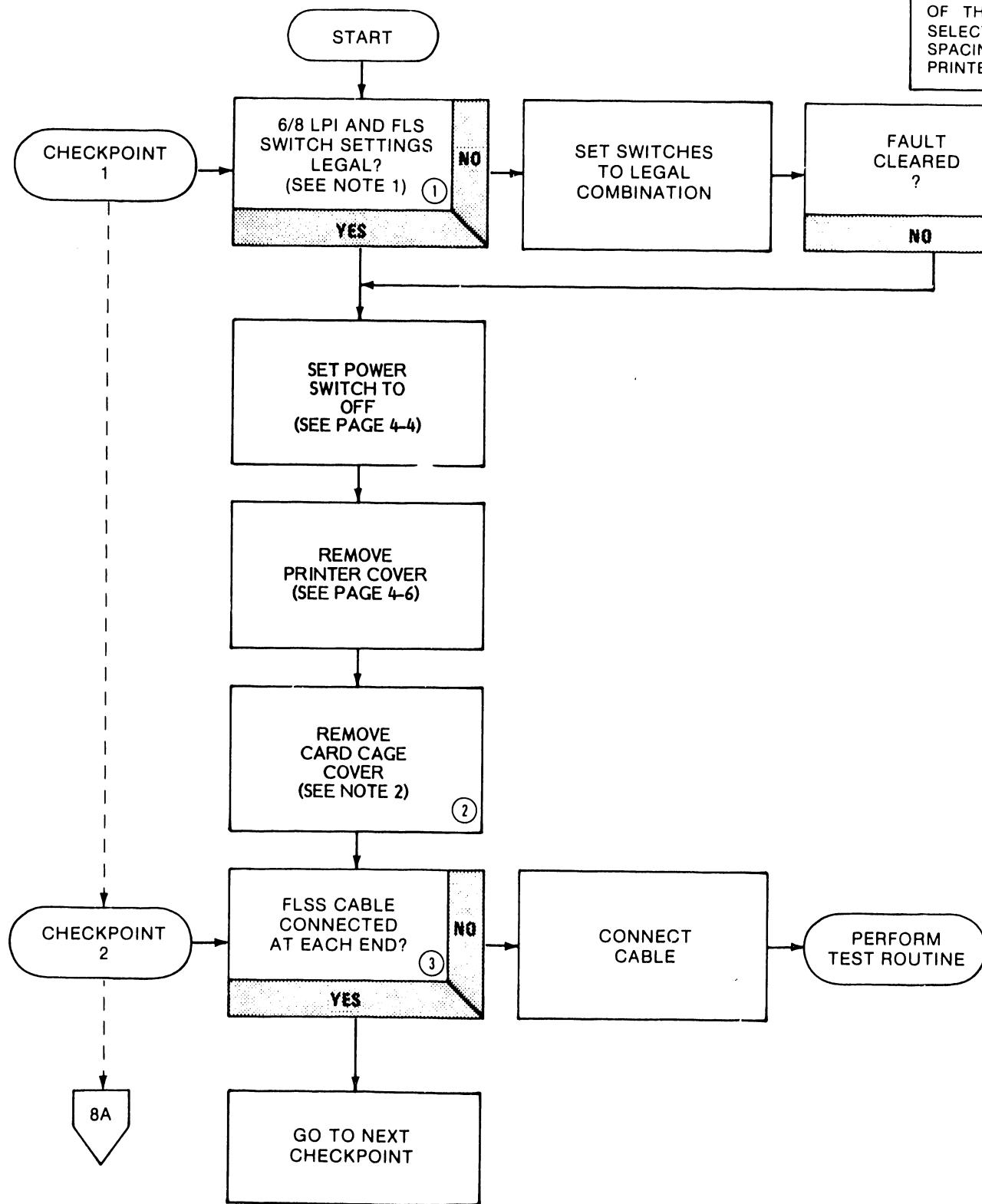
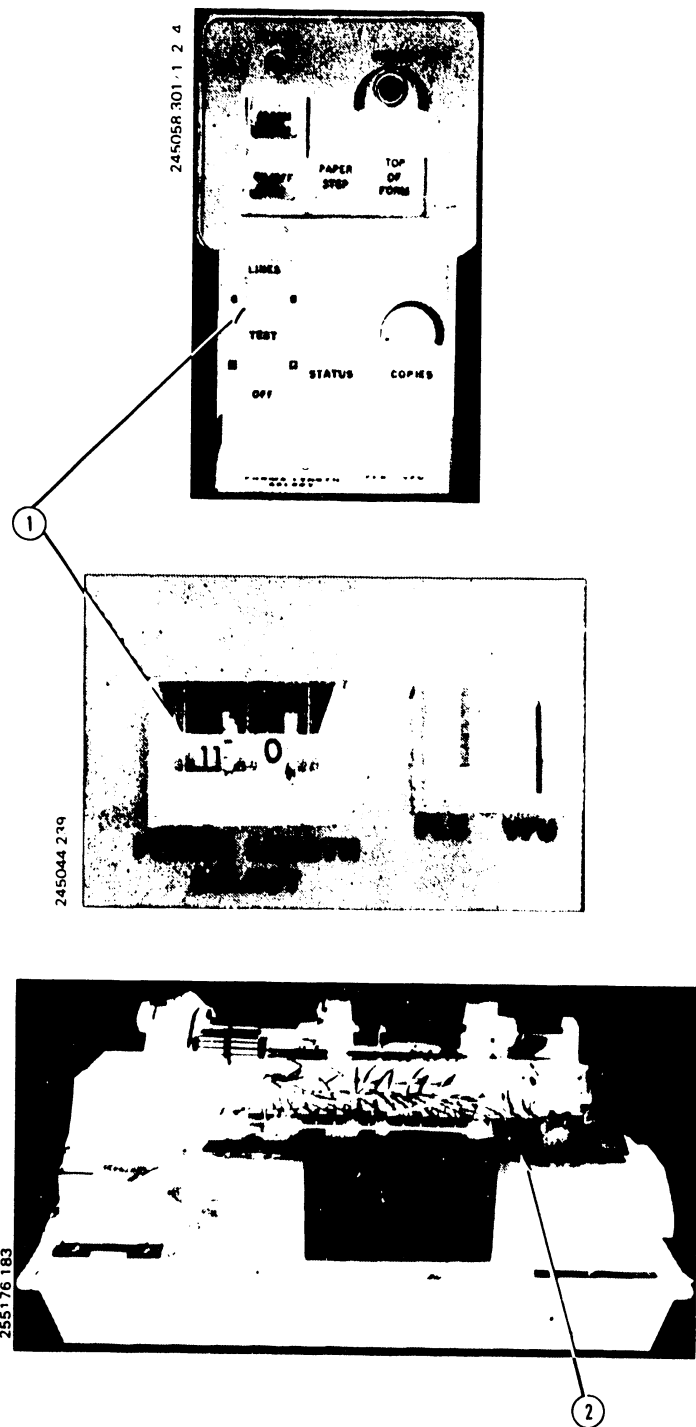
1. SEE OPERATOR'S GUIDE: "RIBBON CARTRIDGE REMOVAL/INSTALLATION."
2. SEE ALPHABETICAL INDEX: "CLEANING PROCEDURE."
3. SEE ALPHABETICAL INDEX: "PERIODIC BELT REMOVAL/INSTALLATION."
4. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
5. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLY REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 7A

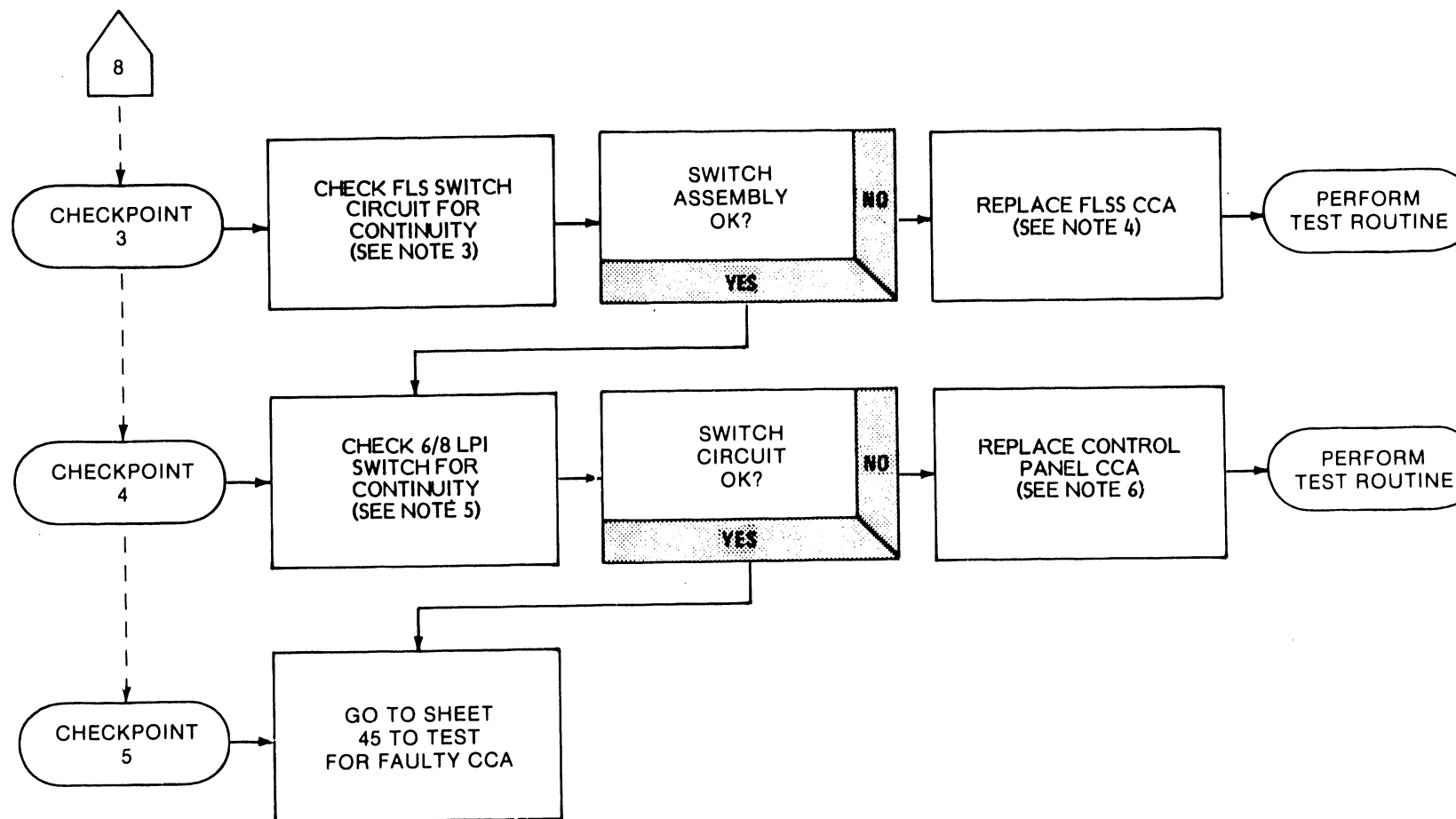
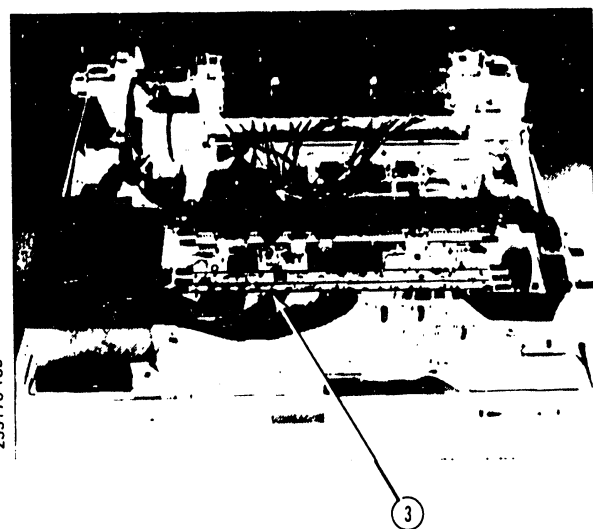
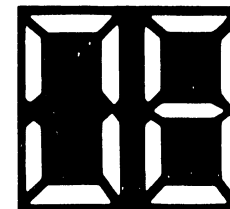
STATUS INDICATION 06
"RIBBON MOTION FAULT"



REASON FOR THIS STATUS INDICATION
 THE PROCESSOR CHECKS THE SETTINGS OF THE FORMS LENGTH SELECT AND 6/8 LPI SWITCHES WHEN PREPARING TO ADVANCE THE PAPER. IF THE SWITCH SETTINGS INDICATE A FORMAT THAT CANNOT BE EXECUTED, PRINTER OPERATION HALTS AND 08 APPEARS ON THE CONTROL PANEL DISPLAY. TWO KINDS OF SWITCH SETTINGS ARE ILLEGAL. FIRST, THE LENGTH SELECTED MAY NOT BE GREATER THAN 14 INCHES. SECOND, ANY FRACTIONAL VALUE SELECTED ON THE FLS THUMBWHEELS MUST BE COMPATIBLE WITH THE VALUE OF THE SELECTED LINE SPACING. FOR EXAMPLE, A SELECTED LENGTH OF 12-1/3" WITH 8 LINES PER INCH SPACING IS ILLEGAL BECAUSE THE EIGHT LINES TO BE PRINTED IN AN INCH CANNOT BE DIVIDED INTO THIRDS.



TROUBLESHOOTING SHEET 8
STATUS INDICATION 08
"UNDEFINED FORM LENGTH"



NOTES:

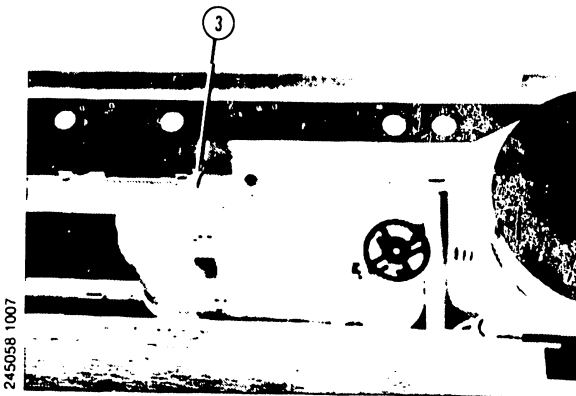
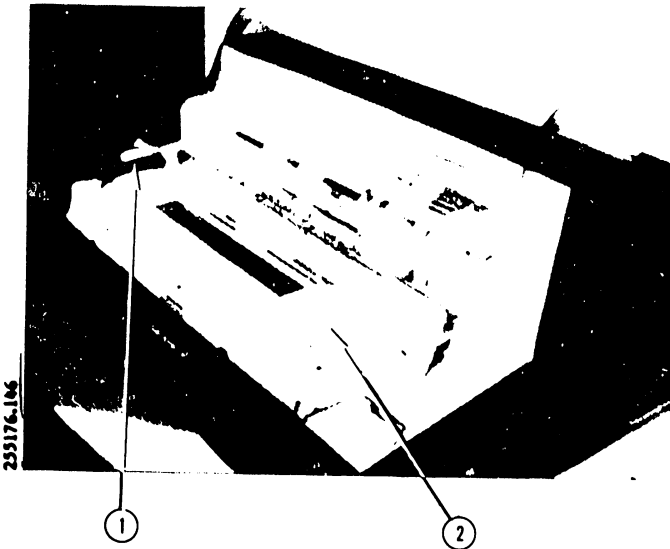
1. SEE: "REASON FOR THIS STATUS INDICATION," TROUBLESHOOTING SHEET 8.
2. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
3. SEE ALPHABETICAL INDEX: "FLS SWITCH CONTINUITY TEST."
4. SEE ALPHABETICAL INDEX: "FLS SWITCH CCA REMOVAL/INSTALLATION."
5. SEE ALPHABETICAL INDEX: "6/8 LPI SWITCH CONTINUITY TEST."
6. SEE ALPHABETICAL INDEX: "CONTROL PANEL CCA REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 8A

STATUS INDICATION 08
"UNDEFINED FORM LENGTH"

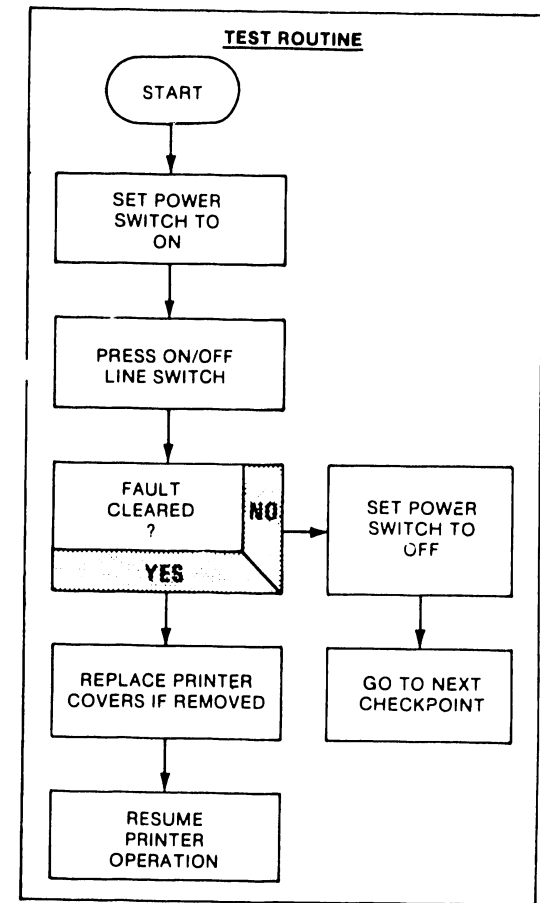
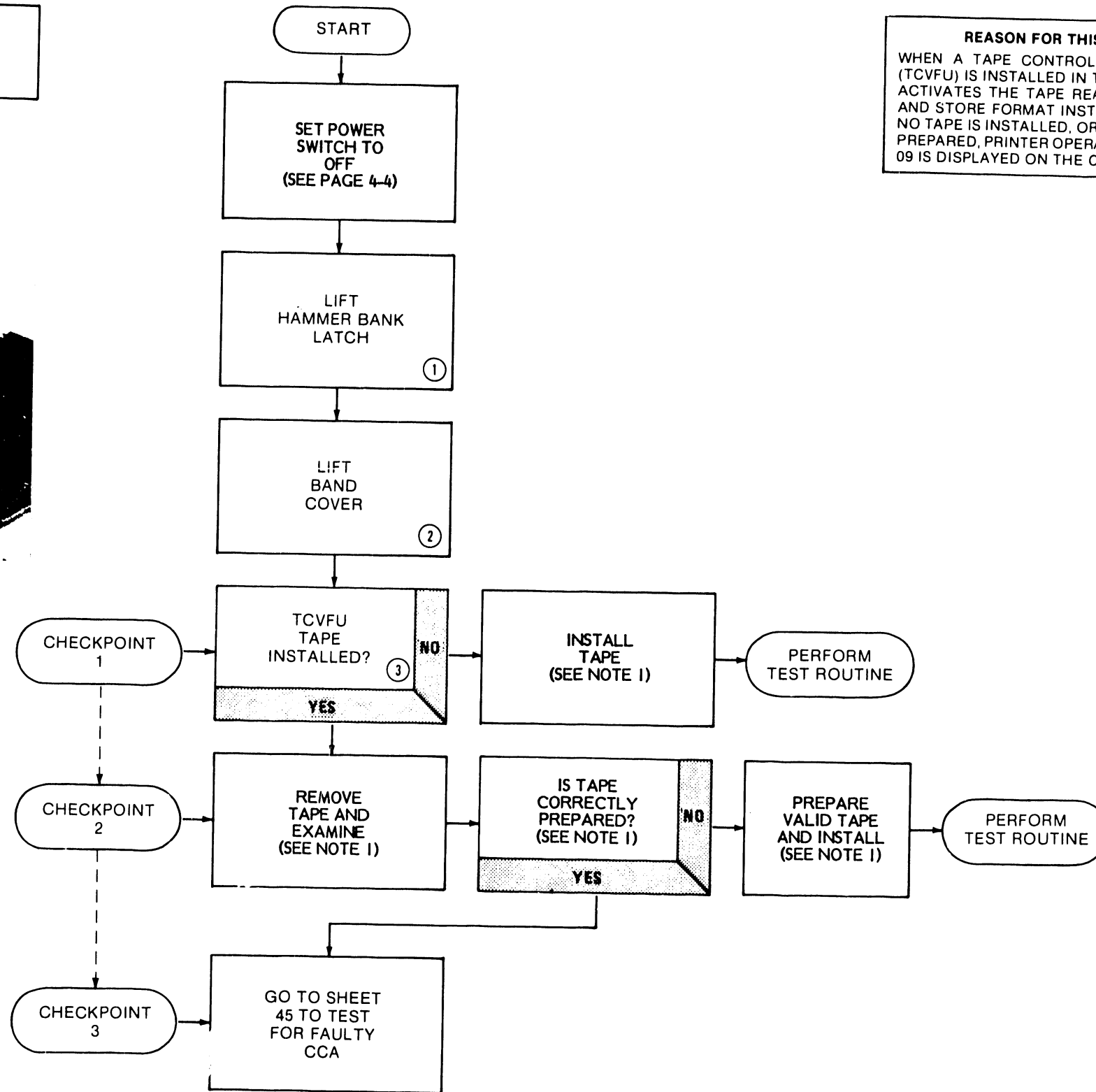
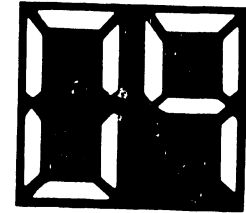
POSSIBLE CAUSES

1. NO TAPE INSTALLED.
2. TAPE IMPROPERLY PREPARED OR FAULTY.
3. DEFECTIVE CCA.



REASON FOR THIS STATUS INDICATION

WHEN A TAPE CONTROLLED VERTICAL FORMAT UNIT (TCVFU) IS INSTALLED IN THE PRINTER, THE PROCESSOR ACTIVATES THE TAPE READER ON POWER-UP TO READ AND STORE FORMAT INSTRUCTIONS FROM THE TAPE. IF NO TAPE IS INSTALLED, OR IF THE TAPE IS NOT PROPERLY PREPARED, PRINTER OPERATION HALTS AND FAULT CODE 09 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



NOTES:

1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."

TROUBLE SHOOTING SHEET 9

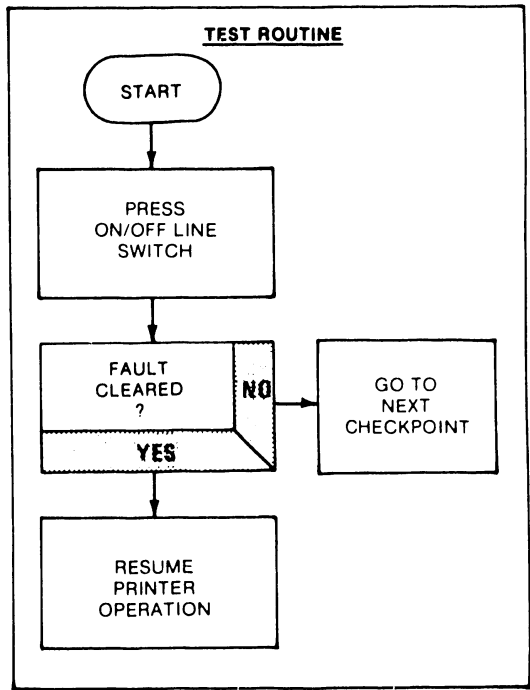
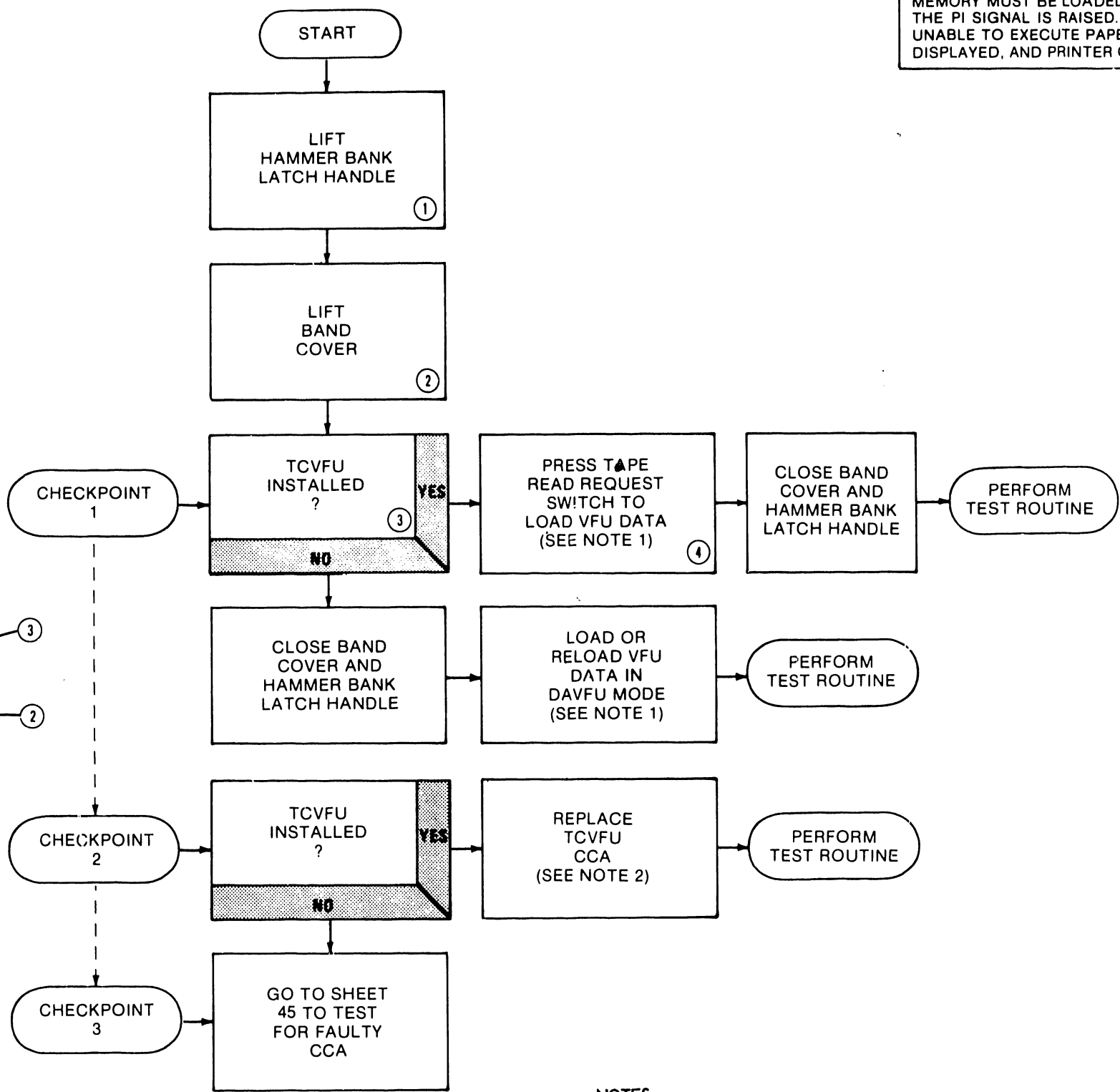
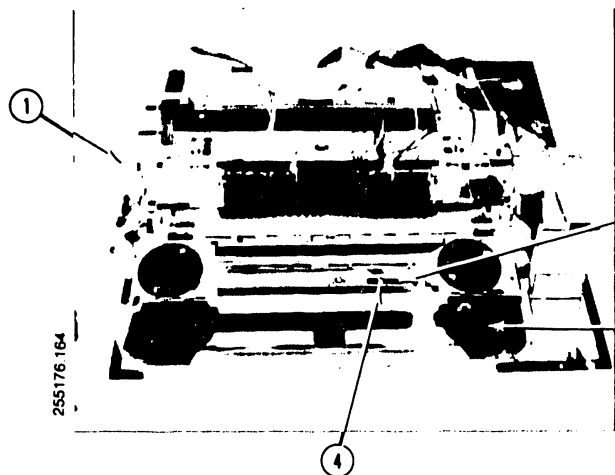
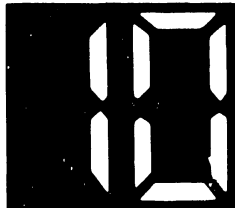
STATUS INDICATION 09
"NO TAPE IN TAPE READER"

POSSIBLE CAUSES

1. FAILURE TO LOAD VFU RAMs IN TCVFU OR DAVFU MODE.
2. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

THE USER SYSTEM SENDS A PAPER INSTRUCTION (PI) SIGNAL TO THE PRINTER WHEN PAPER MOTION RATHER THAN PRINTING IS REQUIRED. IN PRINTERS CONFIGURED FOR TCVFU OR DAVFU FORMAT CONTROL, THE VFU MEMORY MUST BE LOADED WITH FORMAT DATA BEFORE THE PI SIGNAL IS RAISED. OTHERWISE, THE PRINTER IS UNABLE TO EXECUTE PAPER MOTION. FAULT CODE 10 IS DISPLAYED, AND PRINTER OPERATION HALTS.



- NOTES:**
1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."
 2. SEE ALPHABETICAL INDEX: "TCVFU ASSEMBLY REMOVAL/INSTALLATION."

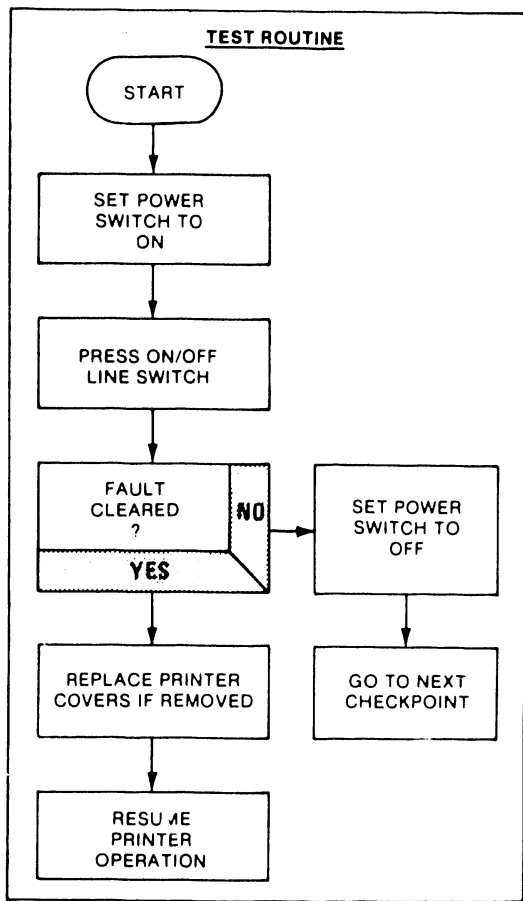
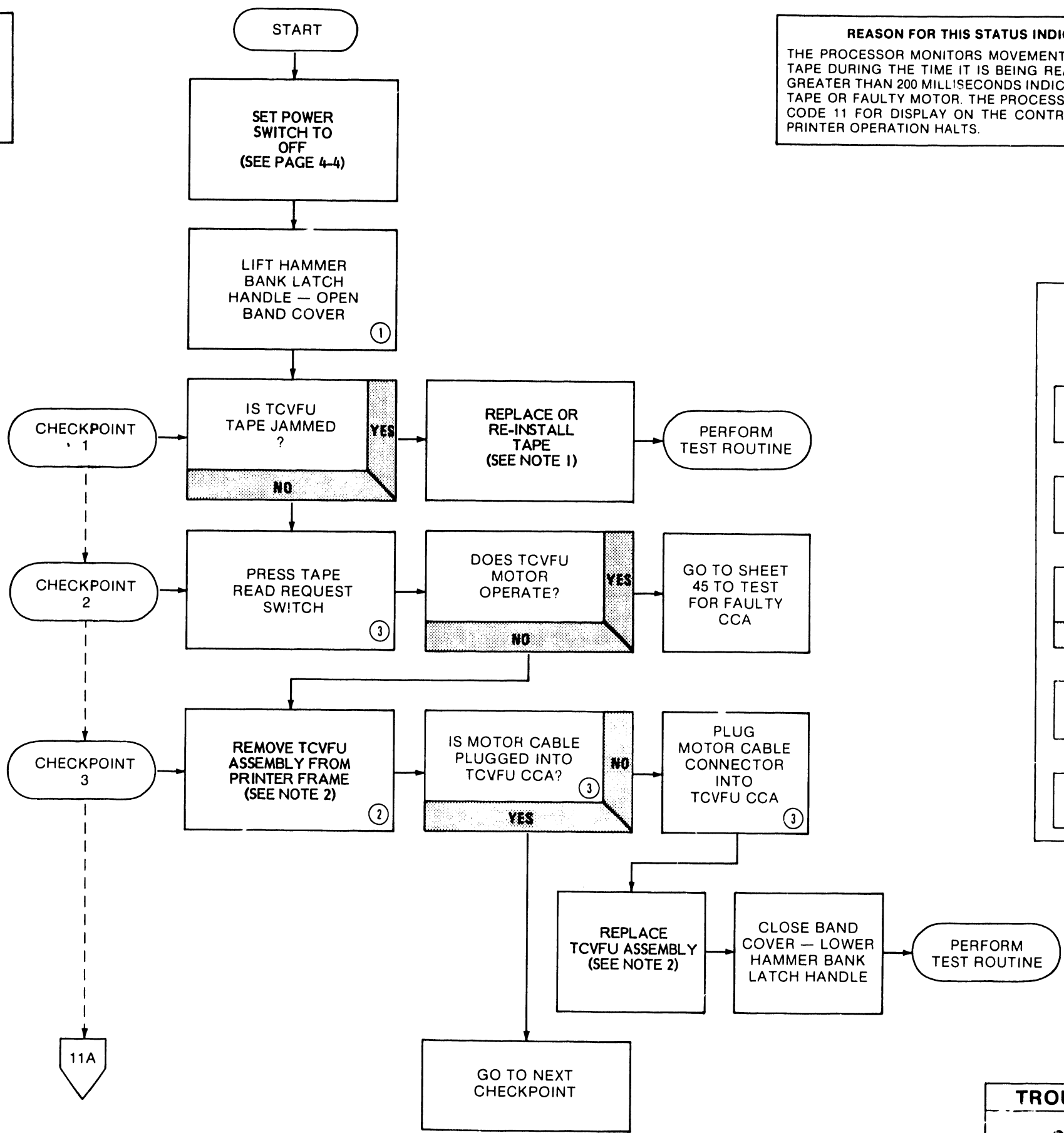
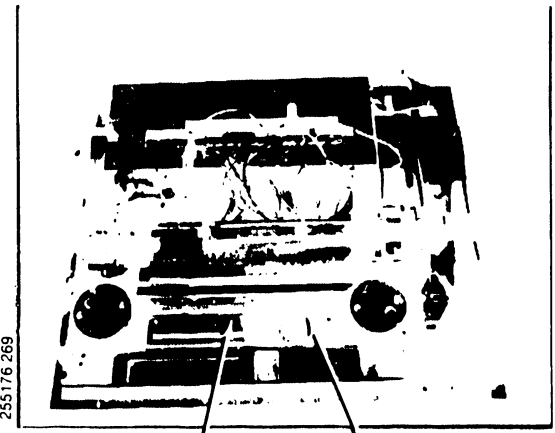
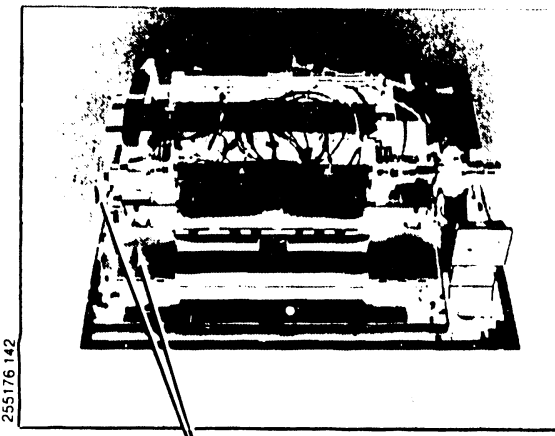
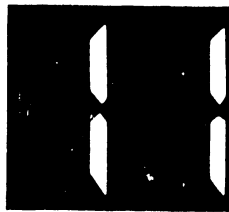
TROUBLESHOOTING SHEET 10

STATUS INDICATION 10
"VFU MEMORY NOT LOADED"

- POSSIBLE CAUSES**
1. JAMMED TCVFU TAPE.
 2. TCVFU MOTOR NOT PLUGGED IN.
 3. TAPE READER HEAD FAULTY.
 4. MOTOR DEFECTIVE.
 5. TCVFU CCA FAULTY.
 6. OTHER CCA DEFECTIVE.

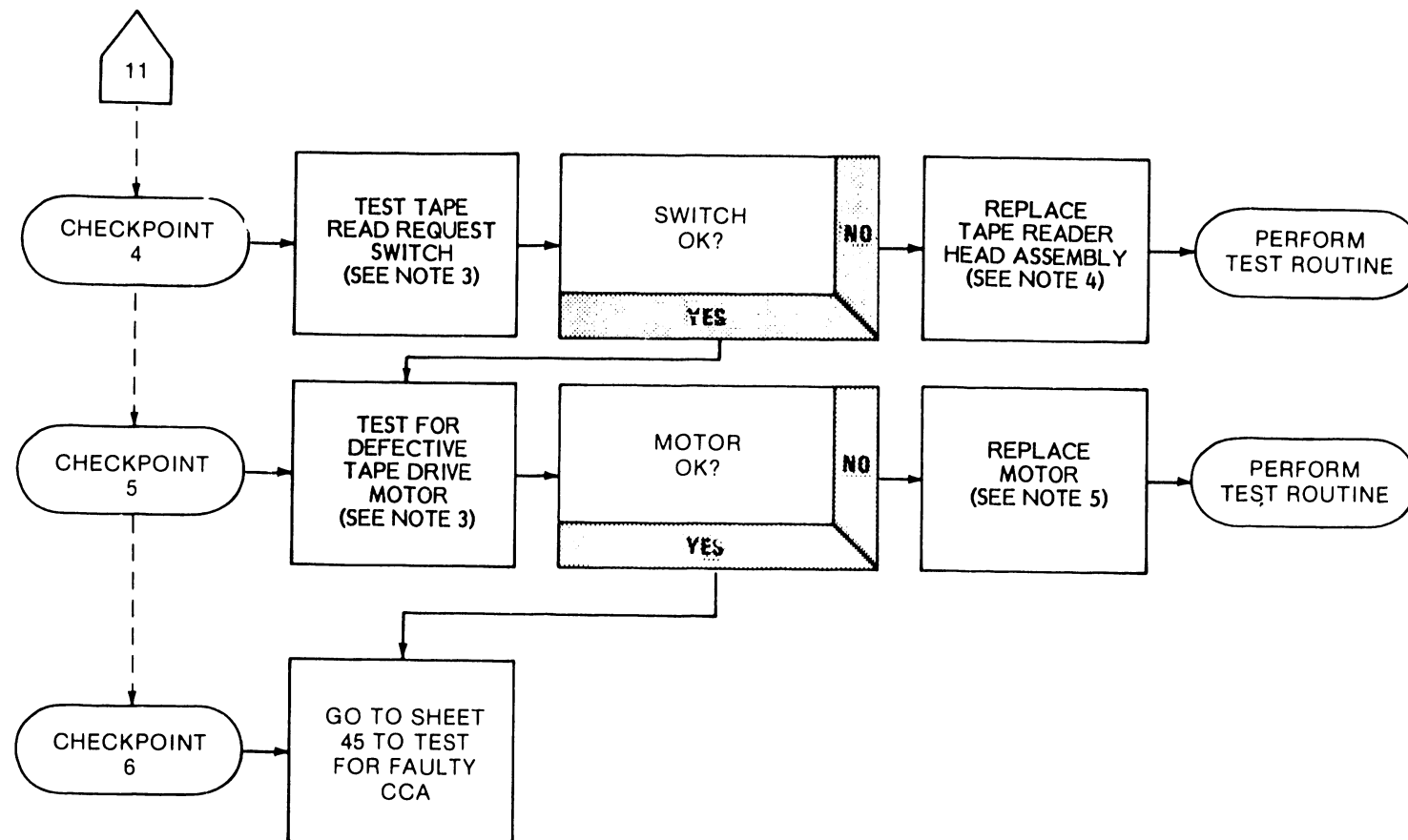
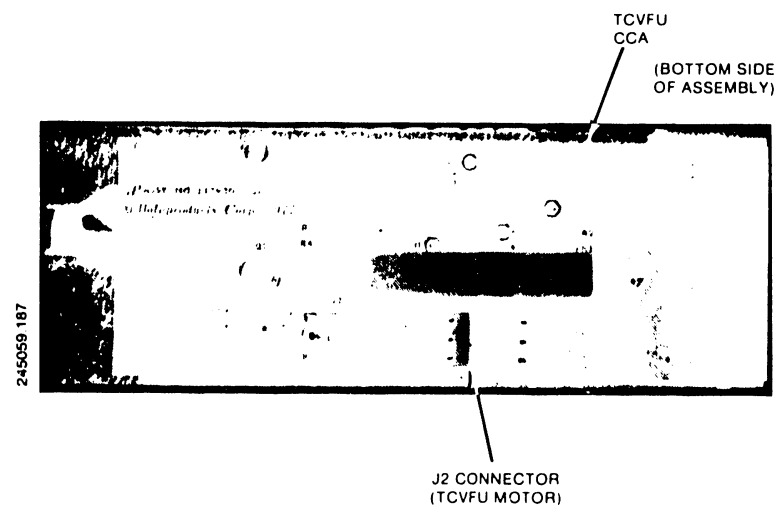
REASON FOR THIS STATUS INDICATION

THE PROCESSOR MONITORS MOVEMENT OF THE TCVFU TAPE DURING THE TIME IT IS BEING READ. A DELAY OF GREATER THAN 200 MILLISECONDS INDICATES A JAMMED TAPE OR FAULTY MOTOR. THE PROCESSOR SETS FAULT CODE 11 FOR DISPLAY ON THE CONTROL PANEL, AND PRINTER OPERATION HALTS.



TROUBLESHOOTING SHEET 11

STATUS INDICATION 11
"TAPE READER JAM"



NOTES:

1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."
2. SEE ALPHABETICAL INDEX: "TCVFU ASSEMBLY REMOVAL/INSTALLATION."
3. SEE ALPHABETICAL INDEX: "TAPE DRIVE MOTOR TEST."
4. SEE ALPHABETICAL INDEX: "TCVFU TAPE READER HEAD REMOVAL/INSTALLATION."
5. SEE ALPHABETICAL INDEX: "TCVFU MOTOR AND TAPE SPROCKET REMOVAL/INSTALLATION."

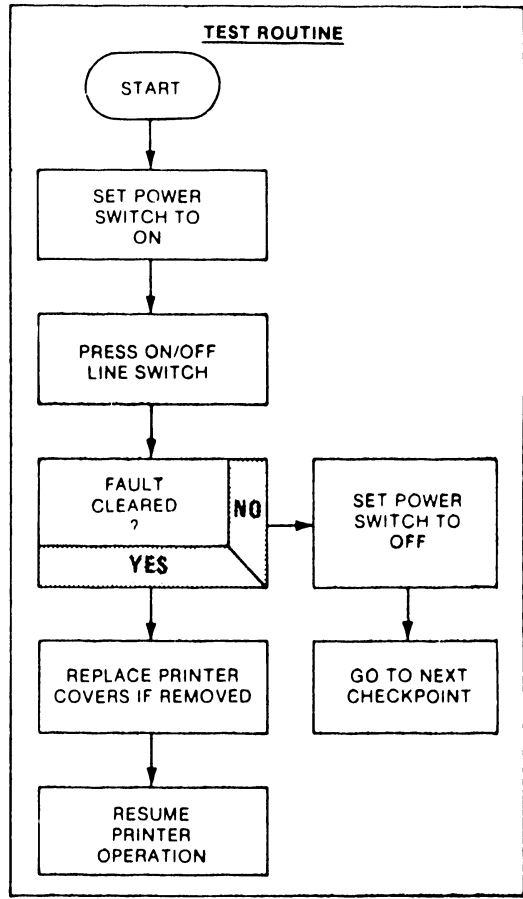
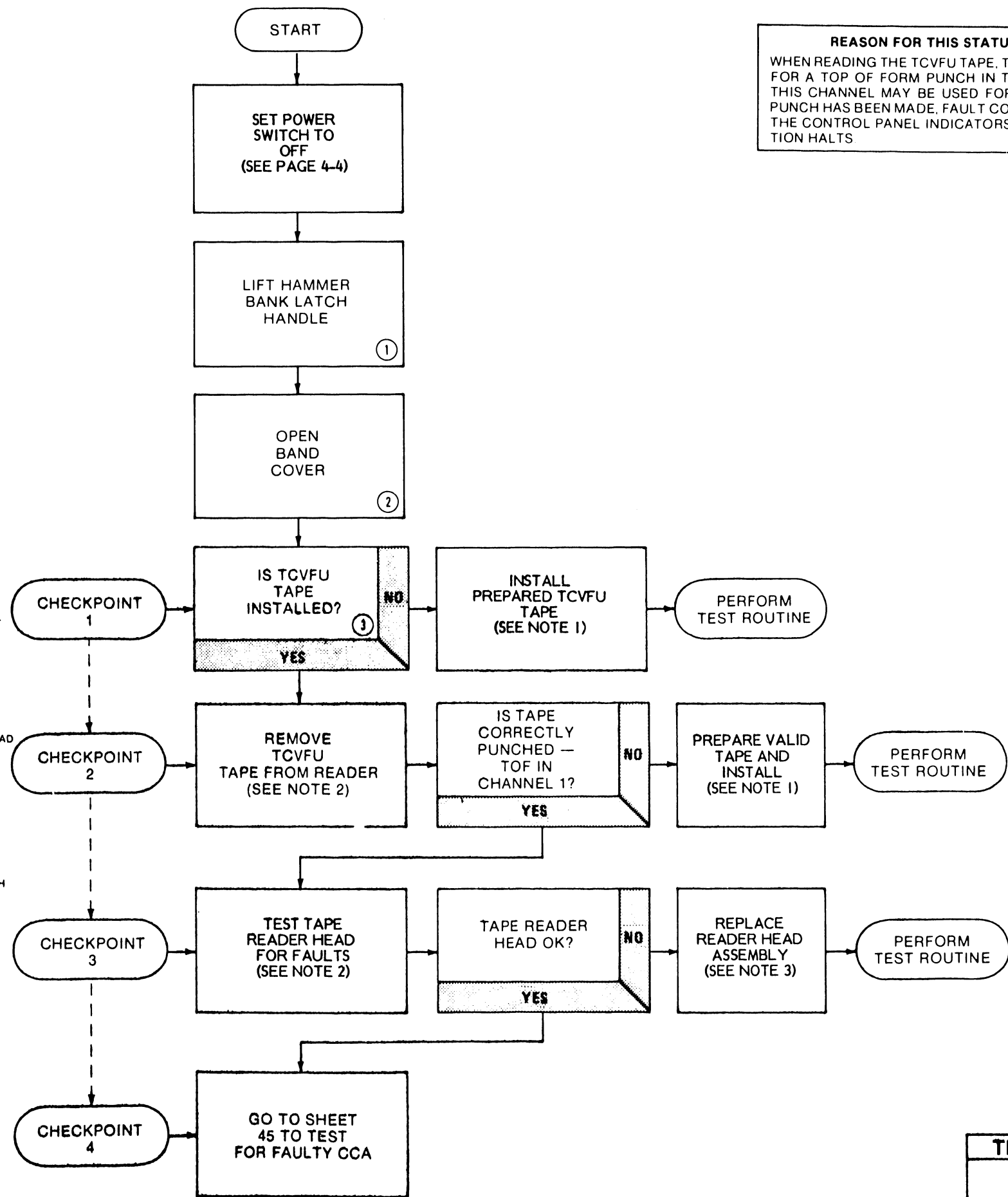
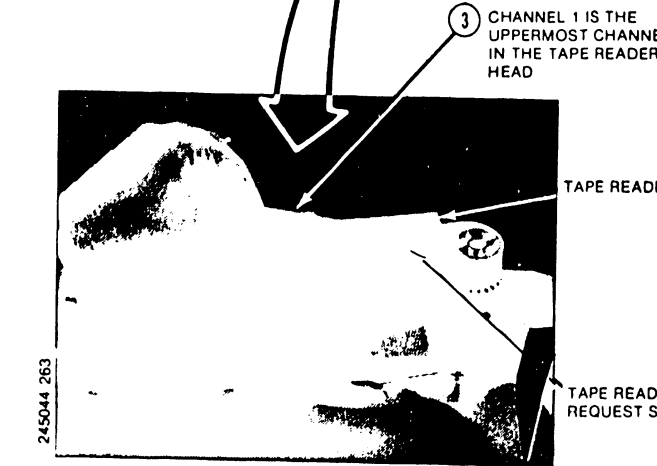
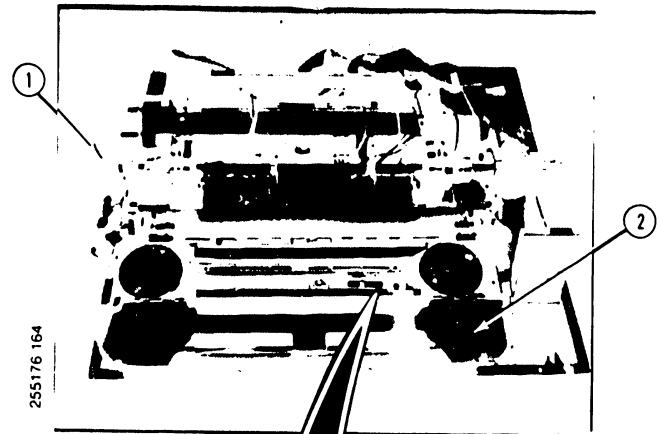
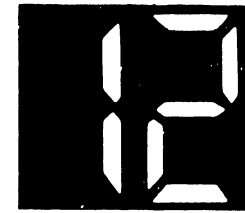
TROUBLESHOOTING SHEET 11A

STATUS INDICATION 11
"TAPE READER JAM"

- POSSIBLE CAUSES**
1. NO TOP OF FORM HOLE PUNCHED IN CHANNEL 1 OF TAPE.
 2. TAPE READER HEAD DEFECTIVE.
 3. TCVFU CCA DEFECTIVE.
 4. OTHER CCA DEFECTIVE.

REASON FOR THIS STATUS INDICATION

WHEN READING THE TCVFU TAPE, THE PROCESSOR LOOKS FOR A TOP OF FORM PUNCH IN TAPE CHANNEL 1 ONLY. THIS CHANNEL MAY BE USED FOR TOP OF FORM IF NO PUNCH HAS BEEN MADE. FAULT CODE 12 IS DISPLAYED ON THE CONTROL PANEL INDICATORS AND PRINTER OPERATION HALTS.



- NOTES:**
1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."
 2. SEE ALPHABETICAL INDEX: "TAPE READER HEAD TEST."
 3. SEE ALPHABETICAL INDEX: "TAPE READER HEAD REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 12

STATUS INDICATION 12
NO "TOP OF FORM IN TAPE"

POSSIBLE CAUSES
 1. TAPE TOO LONG.
 2. DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION
 THE PAPER TAPE USED IN THE TCVFU TAPE READER SHOULD BE AS LONG AS THE FORM IN USE, UP TO A MAXIMUM OF 144 LINES. WHEN THE TAPE IS READ, THE PROCESSOR CHECKS ITS LENGTH. IF A TAPE IS TOO LONG, THE PROCESSOR SETS FAULT CODE 13 FOR DISPLAY ON THE CONTROL PANEL, AND PRINTER OPERATION HALTS.

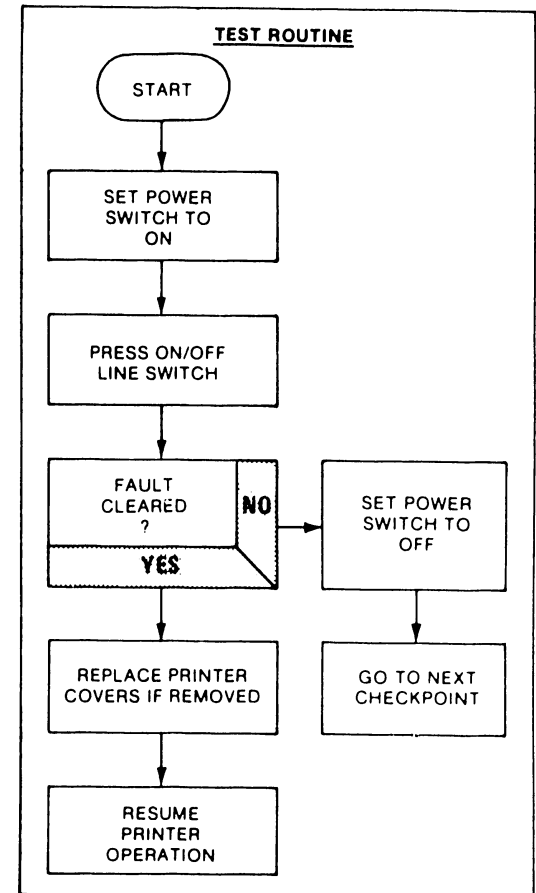
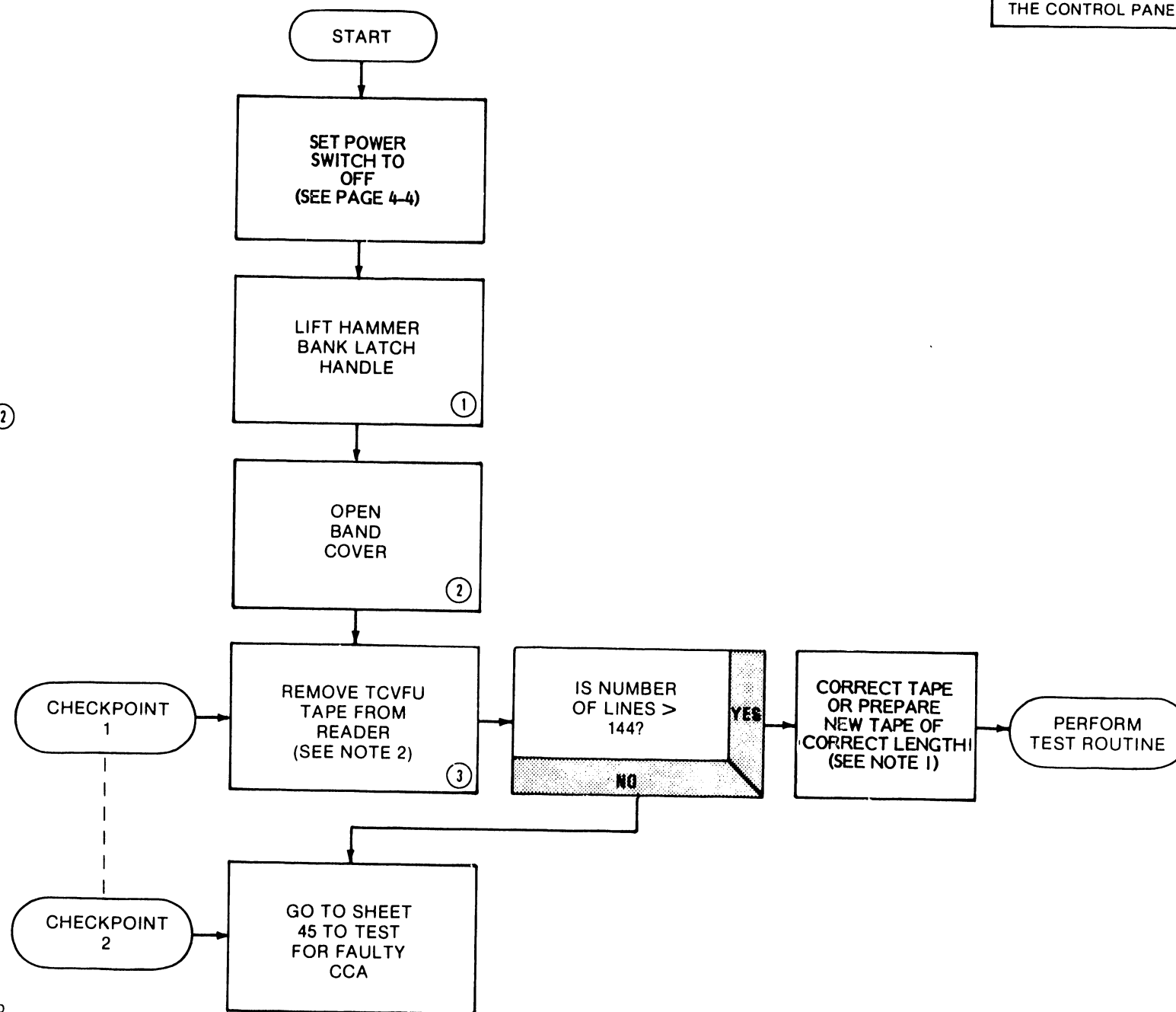


255176 164



245044 263

3 TAPE LINE COUNT SHOULD BE 144 OR LESS (NOT INCLUDING 3 HOLES USED IN SPLICING)

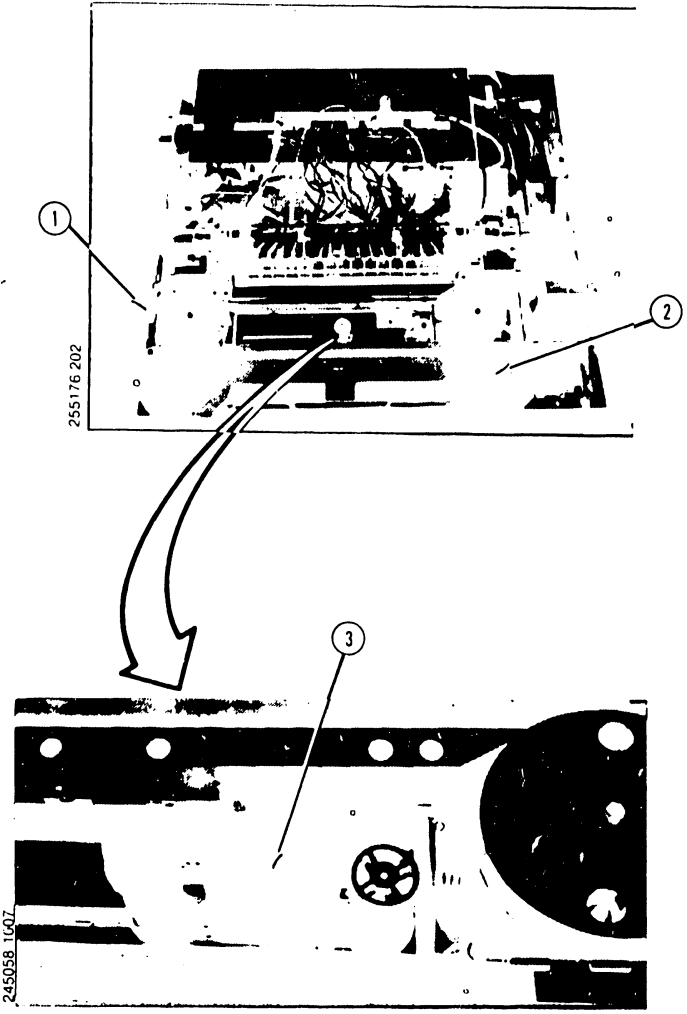


NOTES:

- 1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."

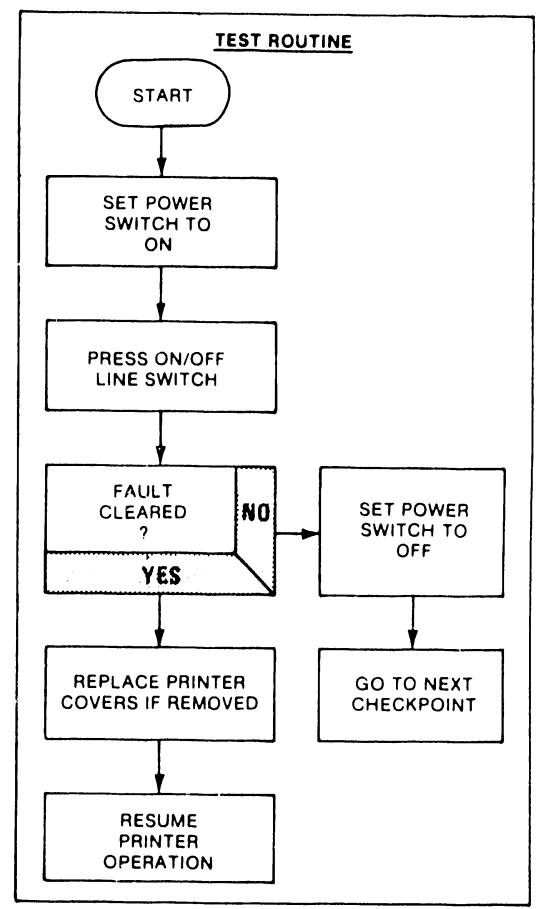
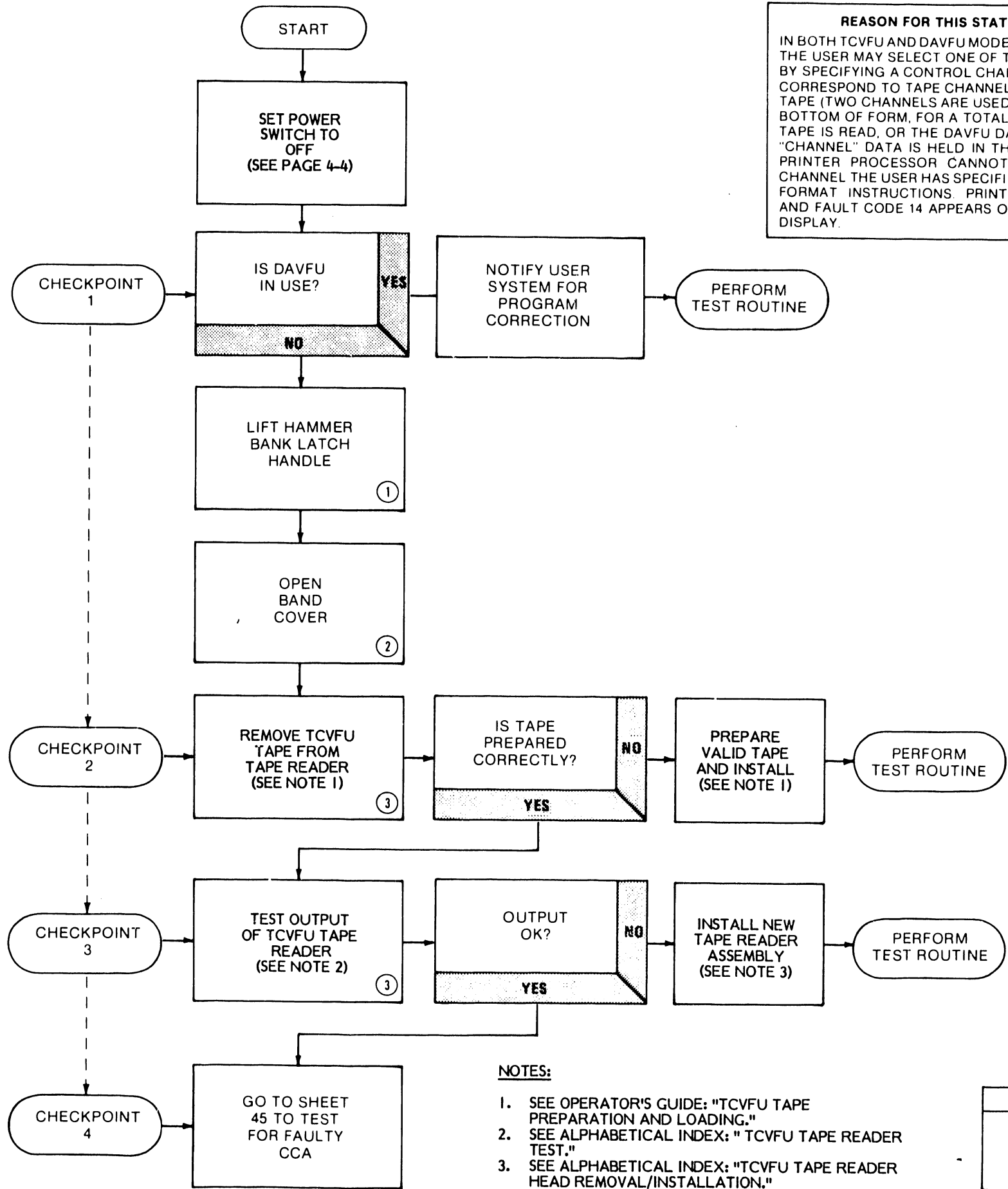
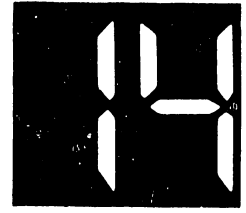
TROUBLESHOOTING SHEET 13
STATUS INDICATION 13
"TAPE TOO LONG"

- POSSIBLE CAUSES**
1. ERROR IN USER-SYSTEM CONTROL PROGRAM.
 2. INCORRECTLY PREPARED TAPE IN TCVFU READER.
 3. DEFECTIVE TAPE READER.
 4. FAULTY CCA.



REASON FOR THIS STATUS INDICATION

IN BOTH TCVFU AND DAVFU MODES OF FORMAT CONTROL, THE USER MAY SELECT ONE OF TEN FORMAT PROGRAMS BY SPECIFYING A CONTROL CHANNEL. THESE CHANNELS CORRESPOND TO TAPE CHANNELS ON THE TCVFU PAPER TAPE (TWO CHANNELS ARE USED FOR TOP OF FORM AND BOTTOM OF FORM, FOR A TOTAL OF TWELVE). ONCE THE TAPE IS READ, OR THE DAVFU DATA TRANSFERRED, THE "CHANNEL" DATA IS HELD IN THE VFU MEMORY. IF THE PRINTER PROCESSOR CANNOT FIND DATA FOR THE CHANNEL THE USER HAS SPECIFIED, IT CANNOT EXECUTE FORMAT INSTRUCTIONS. PRINTER OPERATION HALTS, AND FAULT CODE 14 APPEARS ON THE CONTROL PANEL DISPLAY.



- NOTES:**
1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."
 2. SEE ALPHABETICAL INDEX: "TCVFU TAPE READER TEST."
 3. SEE ALPHABETICAL INDEX: "TCVFU TAPE READER HEAD REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 14

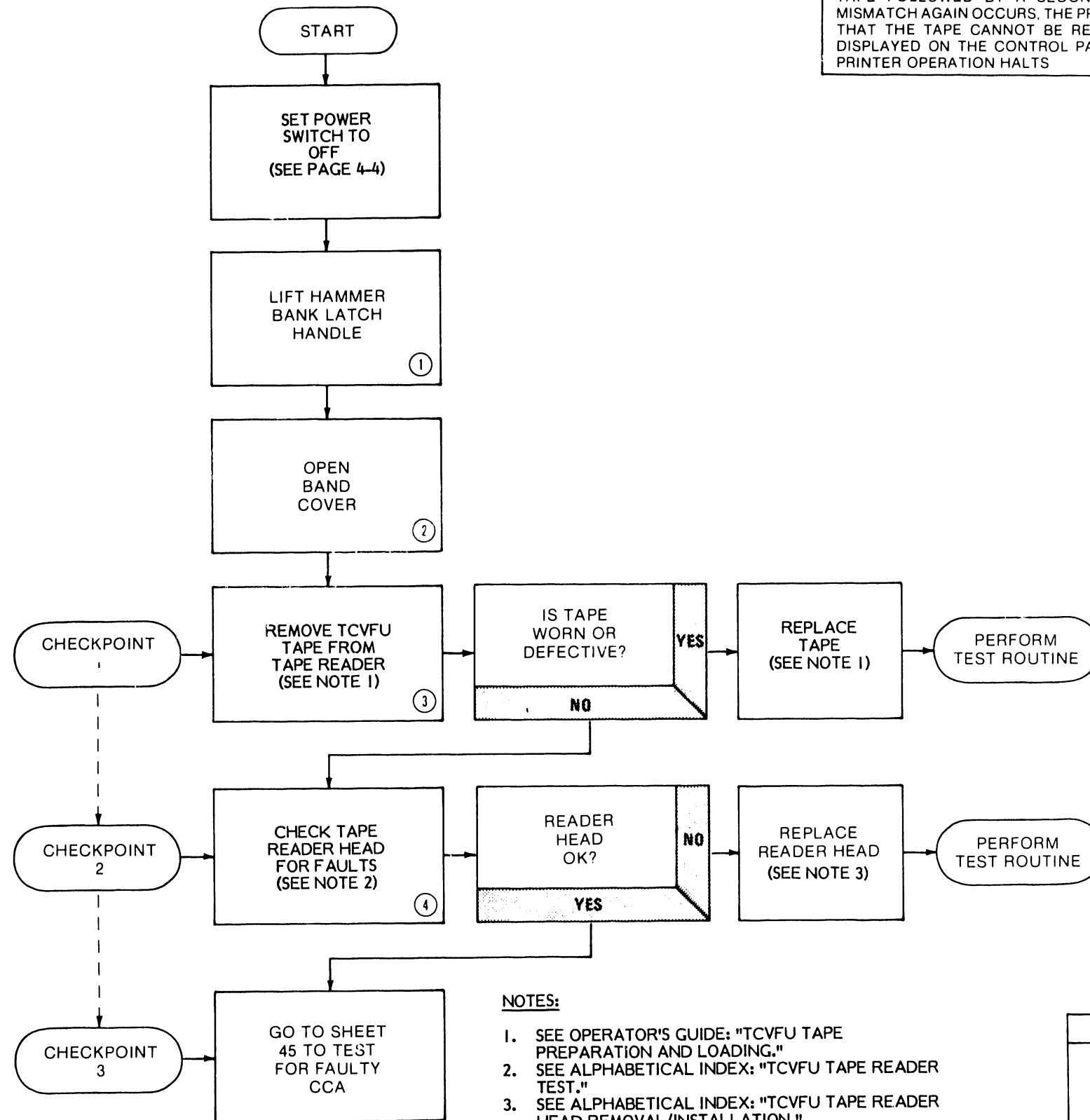
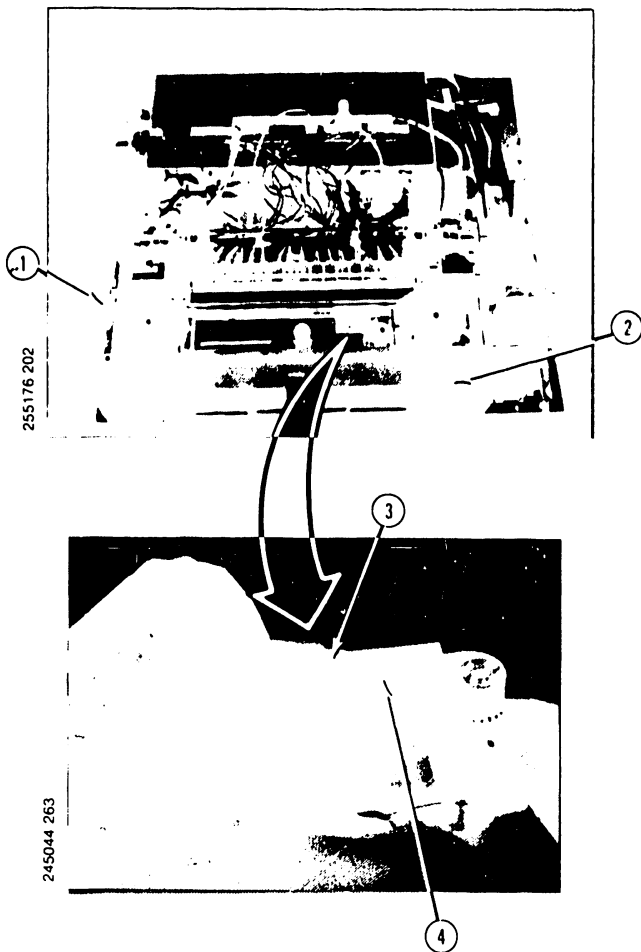
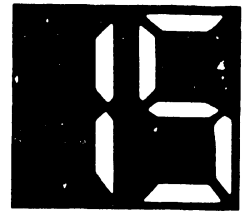
STATUS INDICATION 14
"CHANNEL NOT FOUND"

POSSIBLE CAUSES

1. TORN OR WORN TAPE.
2. FAULTY TCVFU READER HEAD.
3. FAULTY CCA.

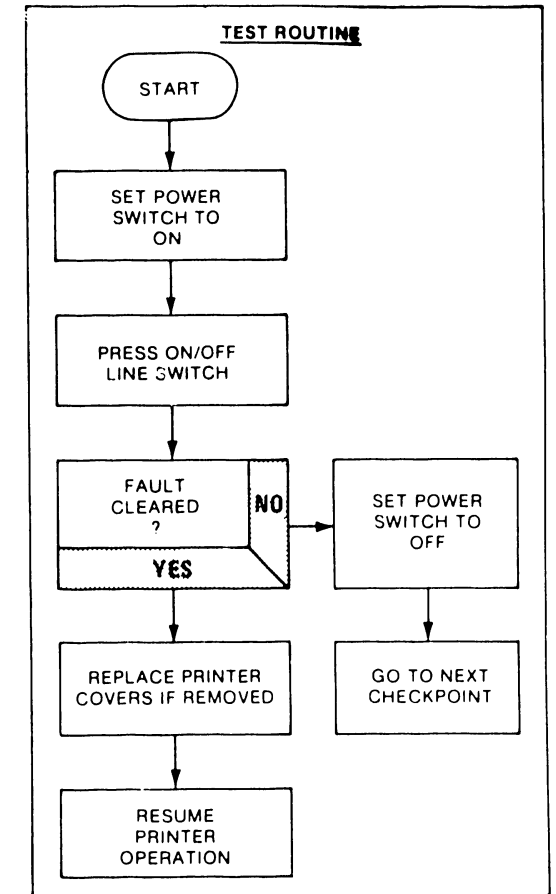
REASON FOR THIS STATUS INDICATION

EACH TIME THE TCVFU TAPE IS READ AND ITS DATA STORED IN THE VFU MEMORY, THE TAPE IS READ A SECOND TIME AND THE RESULTS OF THE TWO READINGS COMPARED. THIS IS TO ENSURE THAT THE TAPE DATA HAS BEEN READ ACCURATELY. IF THE COMPARISON OF RESULTS FINDS THAT THE TWO READINGS DIFFER THE OPERATION IS REPEATED: TWO MORE READINGS OF THE TAPE FOLLOWED BY A SECOND COMPARISON. IF A MISMATCH AGAIN OCCURS, THE PROCESSOR DETERMINES THAT THE TAPE CANNOT BE READ. FAULT CODE 15 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTER OPERATION HALTS



NOTES:

1. SEE OPERATOR'S GUIDE: "TCVFU TAPE PREPARATION AND LOADING."
2. SEE ALPHABETICAL INDEX: "TCVFU TAPE READER TEST."
3. SEE ALPHABETICAL INDEX: "TCVFU TAPE READER HEAD REMOVAL/INSTALLATION."



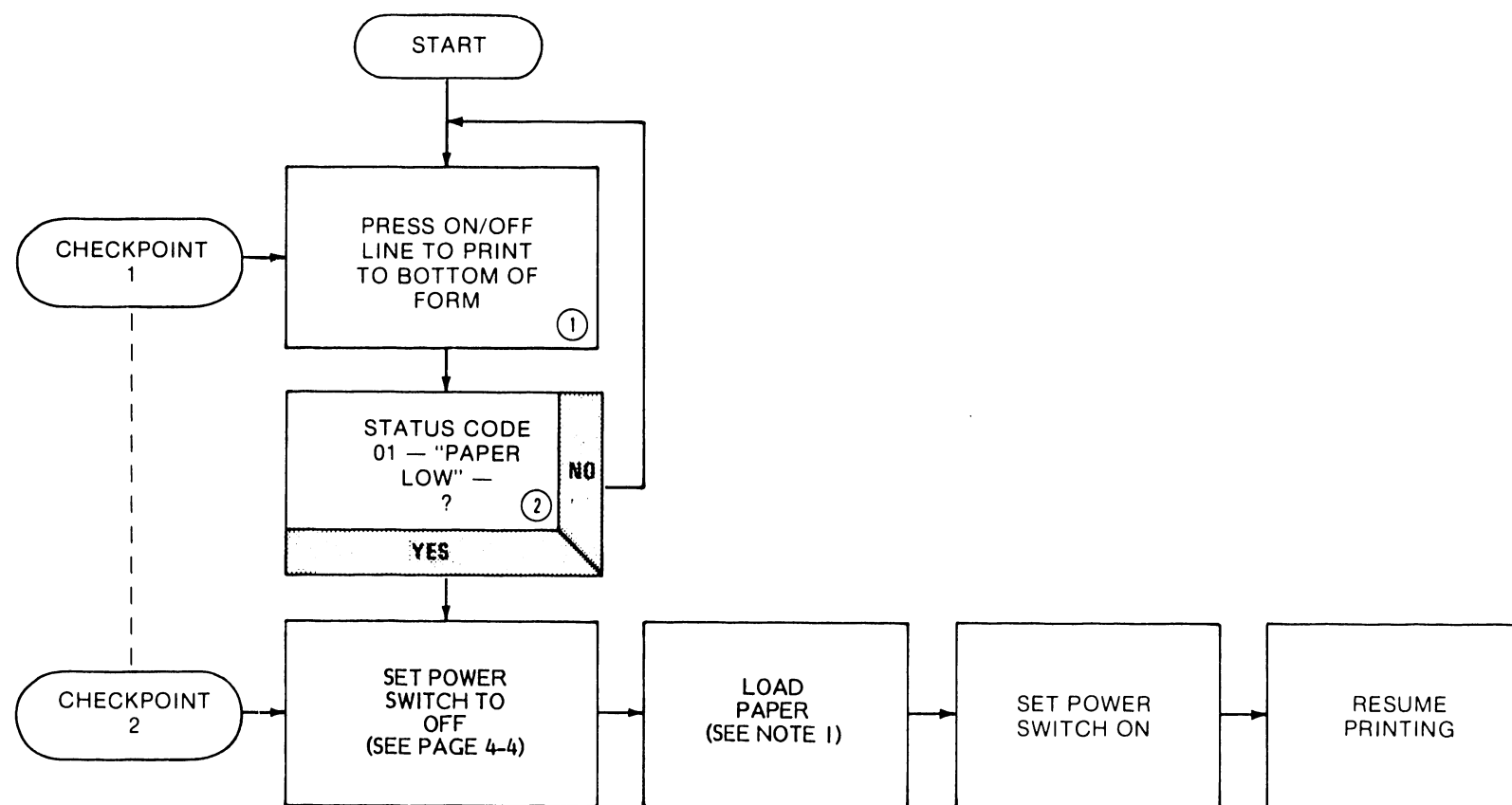
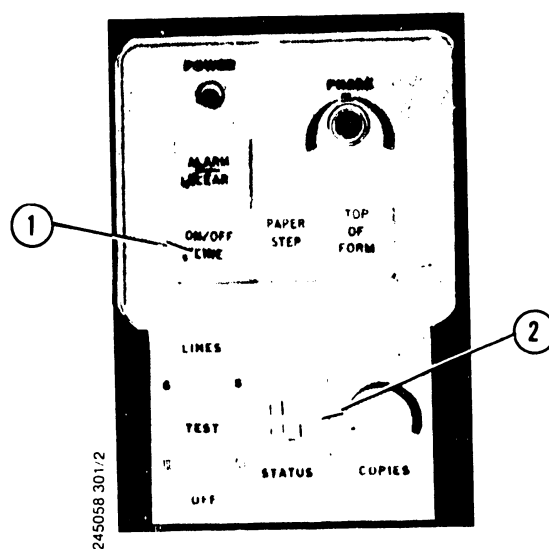
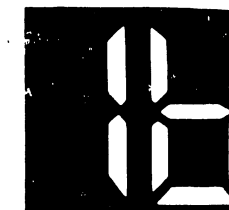
TROUBLESHOOTING SHEET 15
STATUS INDICATION 15
"UNABLE TO READ TAPE"

POSSIBLE CAUSES

NOT A FAULT CODE — INDICATES PRINTING MAY BE CONTINUED TO BOF IN SINGLE-STEPS AFTER PAPER LOW SWITCH IS ACTIVATED.

REASON FOR THIS STATUS INDICATION

STATUS CODE 16 IS DISPLAYED ONLY WHEN THE SINGLE-STEP MODE IS AVAILABLE AS PART OF THE PRINTER CONFIGURATION. THIS FEATURE IS SELECTED WHEN CONFIGURATION SWITCH 2-4 ON THE INTERFACE CCA IS ON. IN THE SINGLE-STEP MODE, PRINTING STOPS WHEN THE END OF THE FORM PASSES THE PAPER OUT SWITCH. THE OPERATOR MAY COMPLETE PRINTING TO THE BOTTOM OF THE FORM BY REPEATEDLY PRESSING THE ON/OFF LINE SWITCH. ONE LINE IS PRINTED EACH TIME THE SWITCH IS PRESSED UNTIL BOTTOM OF FORM IS REACHED.



NOTES:

1. SEE OPERATOR'S GUIDE: "PAPER LOADING."

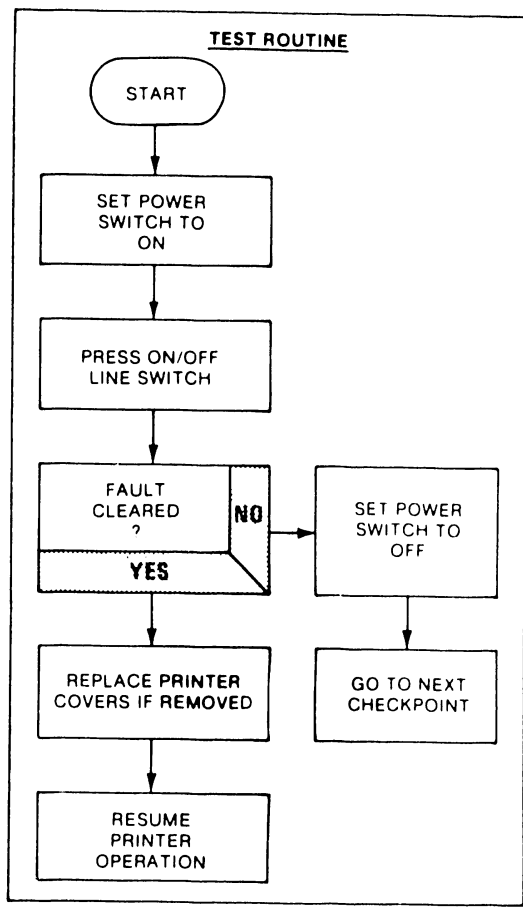
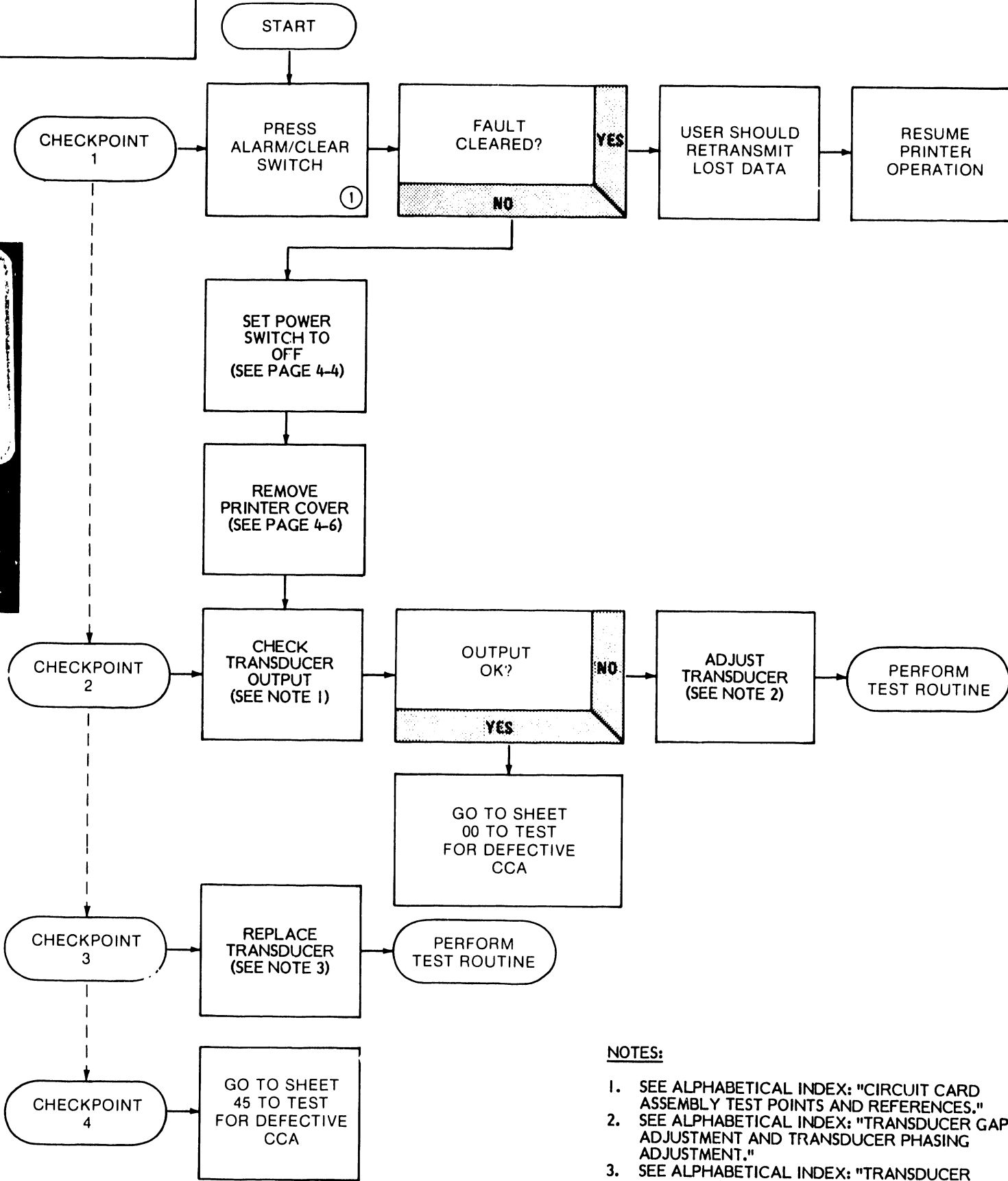
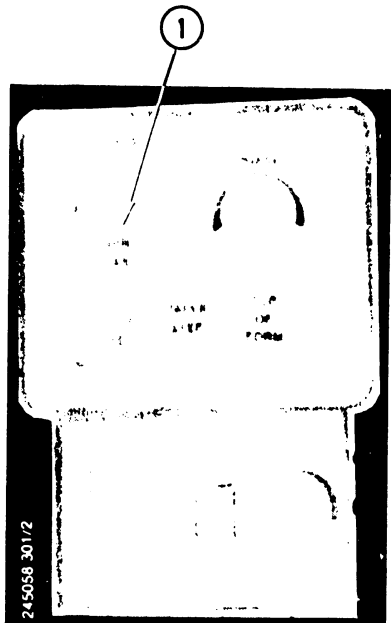
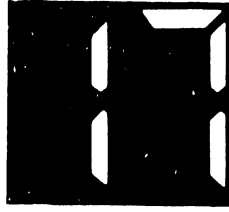
TROUBLESHOOTING SHEET 16

**STATUS INDICATION 16
"SINGLE STEP MODE"**

- POSSIBLE CAUSES**
1. ONE OF PROCESSOR'S COUNTERS FAILS TO REGISTER TIMING PULSE OR PULSES.
 2. MISADJUSTED TRANSDUCER.
 3. DEFECTIVE TRANSDUCER.
 4. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

THE MOVEMENT OF THE BAND AND TIMING OF HAMMER FIRE MUST BE SYNCHRONIZED FOR CORRECT PRINTING. WRONG TIMING CAN IMPAIR PRINT QUALITY OR CAUSE MISPRINTS. AT REGULAR INTERVALS WHILE EACH LINE IS BEING PRINTED, THE PROCESSOR CHECKS TWO INTERNAL COUNTERS TO ENSURE THAT BAND AND HAMMER TIMING ARE SYNCHRONIZED. IF A FAULT IS DETECTED, PRINTING STOPS, THE PRINTER GOES OFF LINE, AND STATUS CODE 17 IS DISPLAYED ON THE CONTROL PANEL INDICATORS



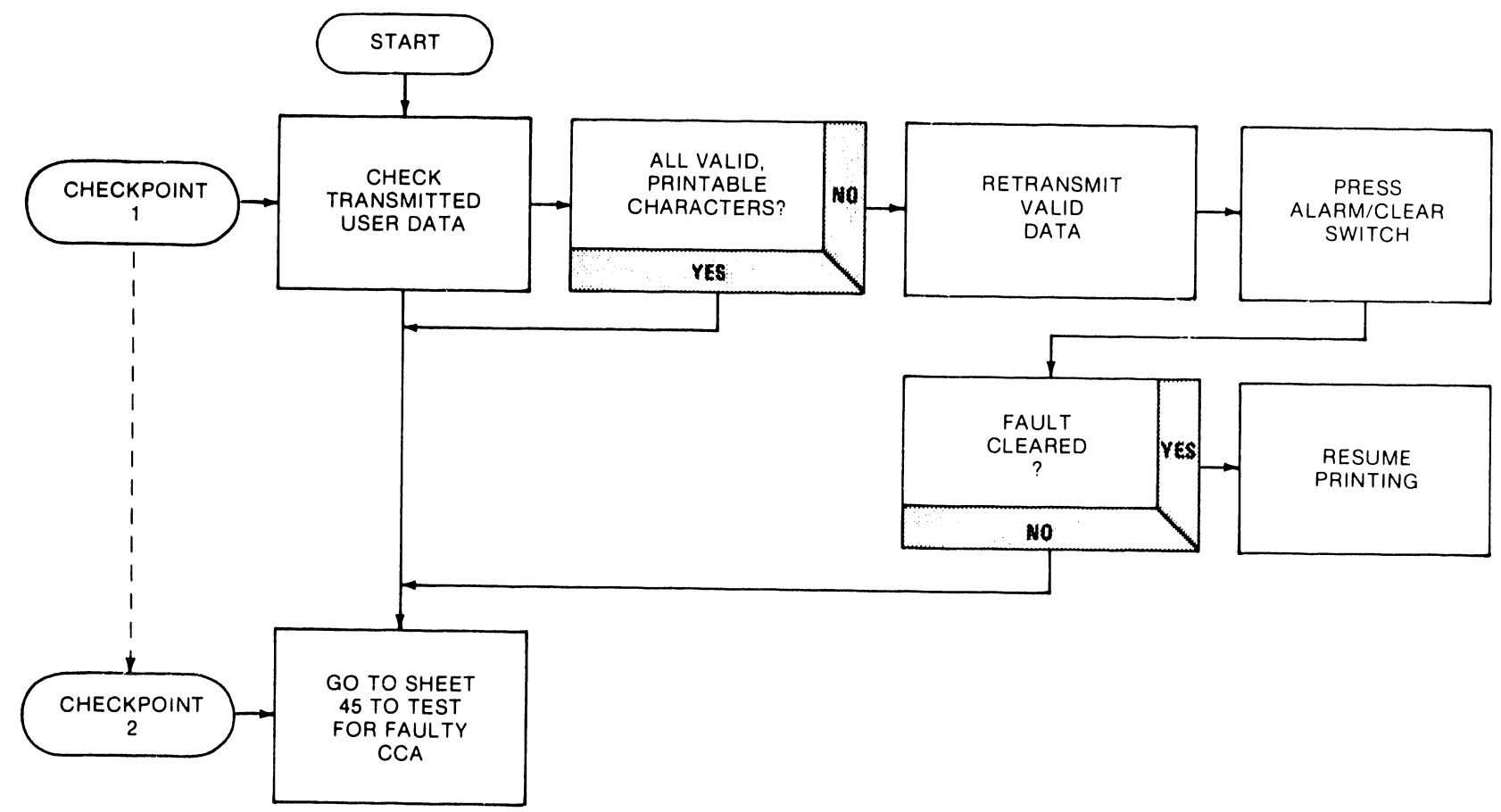
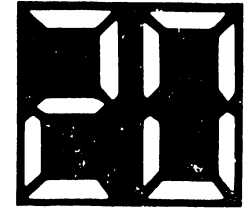
- NOTES:**
1. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLY TEST POINTS AND REFERENCES."
 2. SEE ALPHABETICAL INDEX: "TRANSDUCER GAP ADJUSTMENT AND TRANSDUCER PHASING ADJUSTMENT."
 3. SEE ALPHABETICAL INDEX: "TRANSDUCER REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 17

STATUS INDICATION 17
"LOSS OF PRINT SYNC"

POSSIBLE CAUSES
 1. TRANSMITTED USER CODE NOT PART OF ASCII SET IN USE IN PRINTER.
 2. DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION
 AS THE CONTENTS OF THE PRINTER'S LINE BUFFER ARE PROCESSED AND PRINTED, THE PROCESSOR KEEPS COUNT OF HOW MANY BUFFER LOCATIONS HAVE BEEN EMPTIED. NORMALLY, THE PROCESSOR IS ABLE TO MATCH EACH USER CODE WITH THE CODE FOR A CHARACTER ON THE BAND AND CLEAR ALL USER DATA FROM THE LINE BUFFER. PRINTING FOR THE LINE IS THEN COMPLETE BUT IF DATA REMAINS IN THE BUFFER THAT THE PROCESSOR CANNOT MATCH WITH ANY OF THE CODES FOR THE CHARACTER SET ON THE PRINT BAND, PROCESSING IS BLOCKED. FAULT CODE 20 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTING HALTS



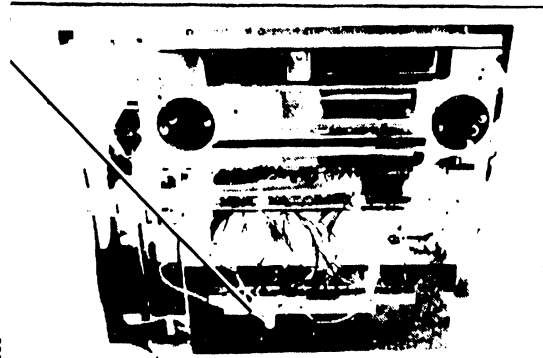
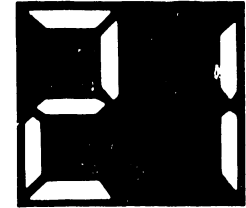
TROUBLESHOOTING SHEET 18
STATUS INDICATION 20
"NO DATA COMPARISON"

POSSIBLE CAUSES

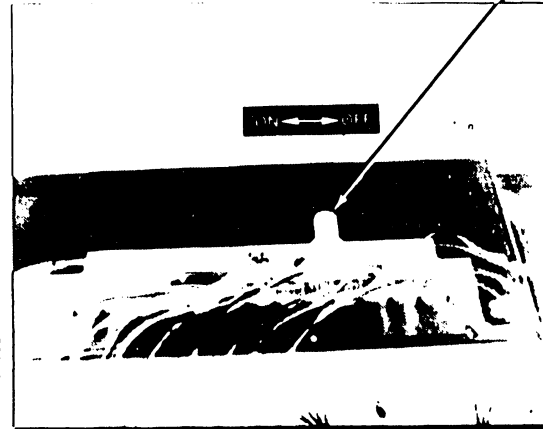
1. PRINT INHIBIT SWITCH ON.
2. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

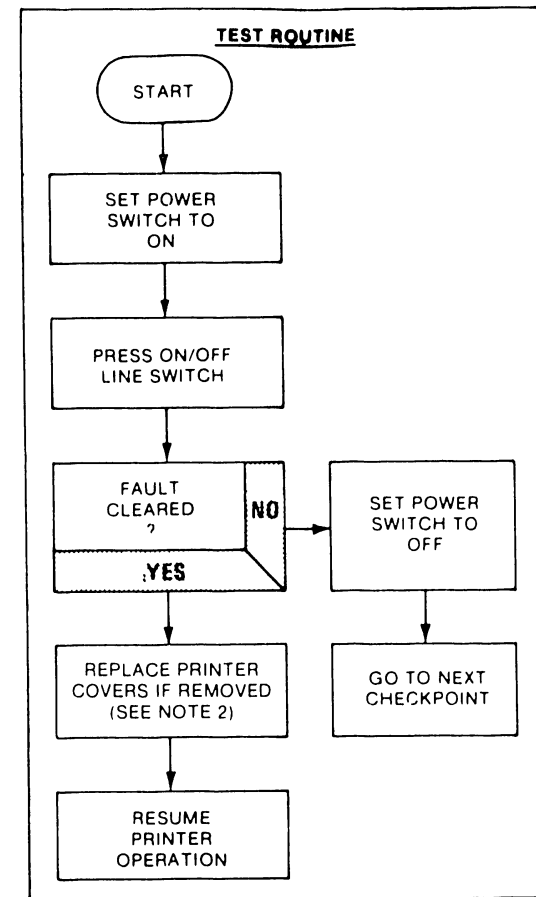
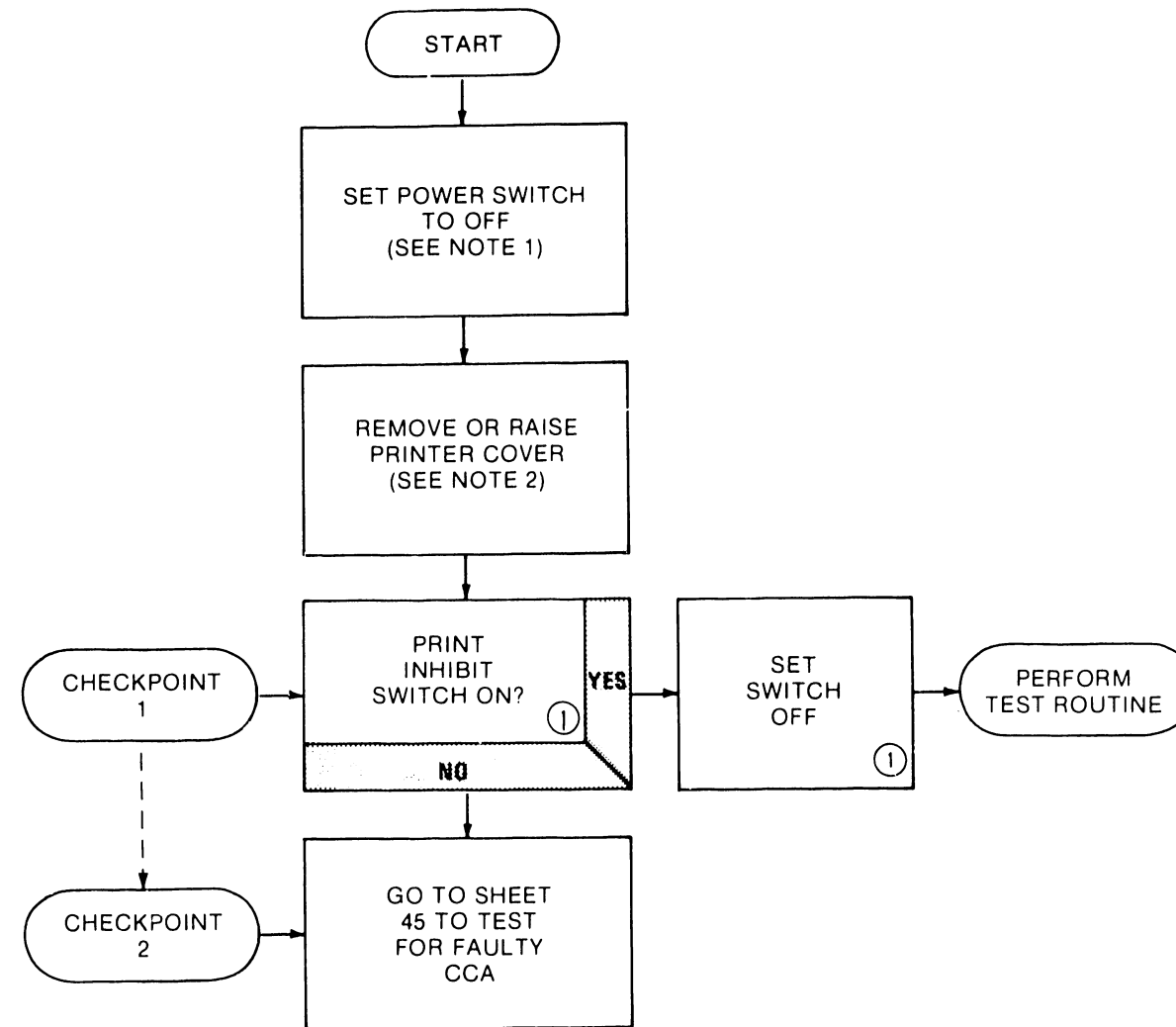
PRINT INHIBIT SWITCH, S1, LOCATED ON THE TIMING AND STATUS CCA (1), IS PROVIDED AS A MAINTENANCE AID TO ALLOW ALL NORMAL PRINTER FUNCTIONS TO OCCUR WHILE PREVENTING THE HAMMERS FROM FIRING THE SWITCH IS OPEN UNDER NORMAL OPERATING CONDITIONS. WHEN IT IS CLOSED, THE HAMMER DRIVER CIRCUITRY ON THE HAMMER DRIVER CCA IS DISABLED TO PREVENT HAMMER FIRE AND CAUSE A STATUS INDICATION 21 TO BE DISPLAYED. SETTING THE PRINT INHIBIT SWITCH TO THE OFF POSITION WILL RESTORE NORMAL PRINTER OPERATION.



255176 269



255176 305

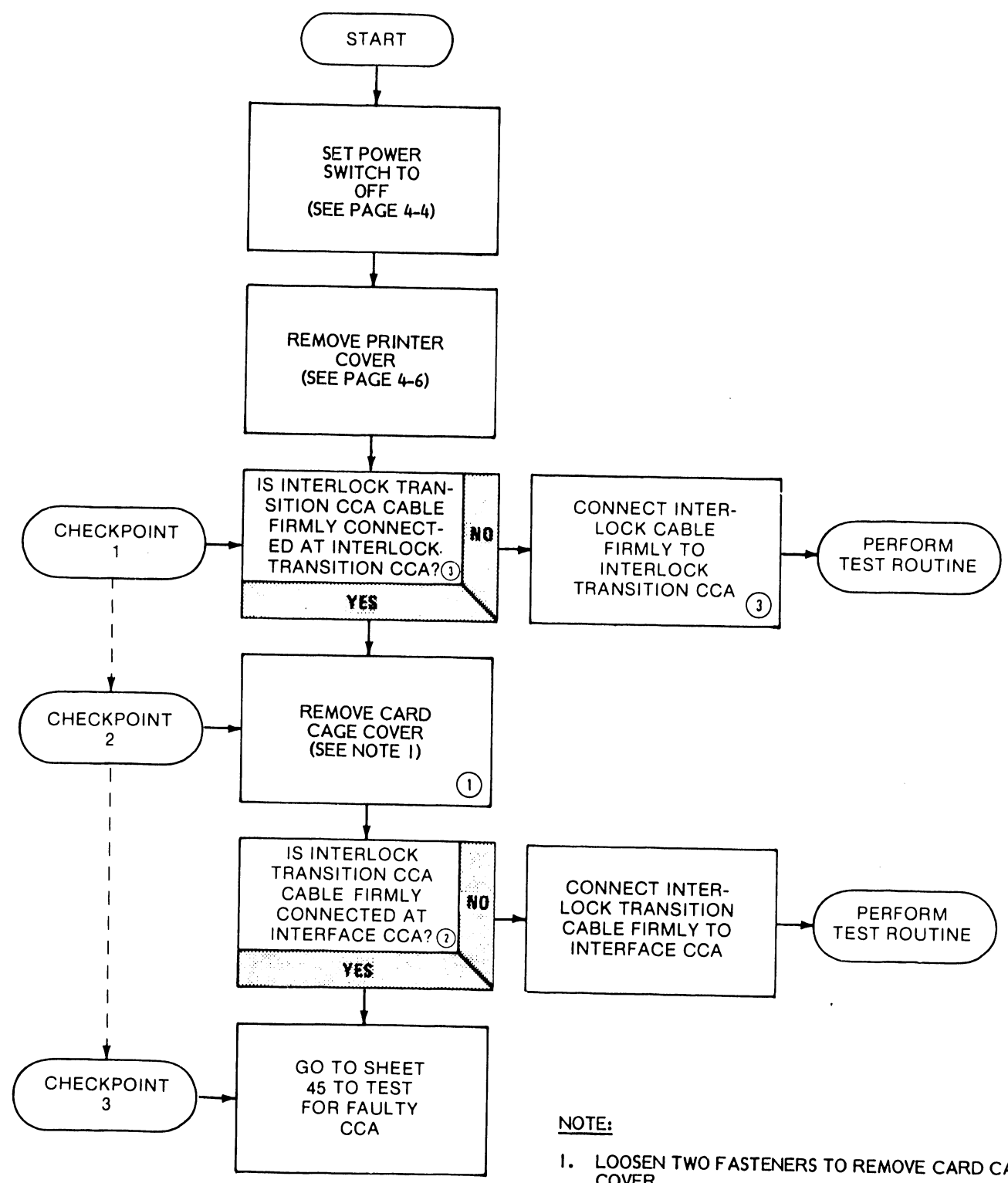
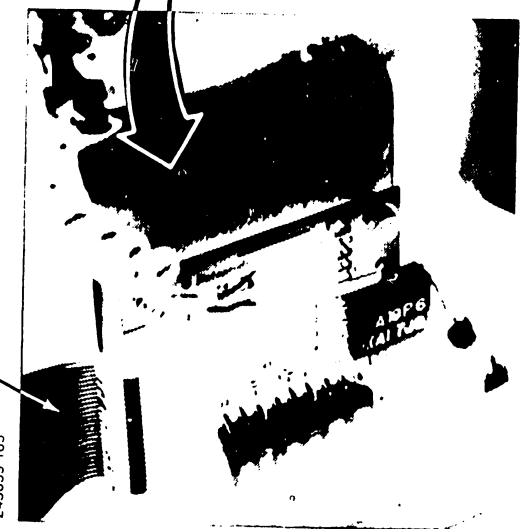
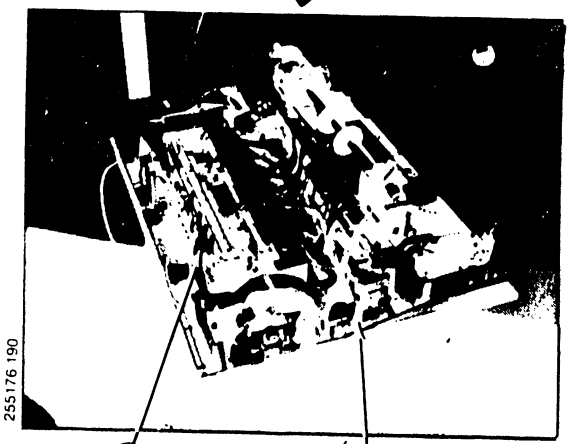
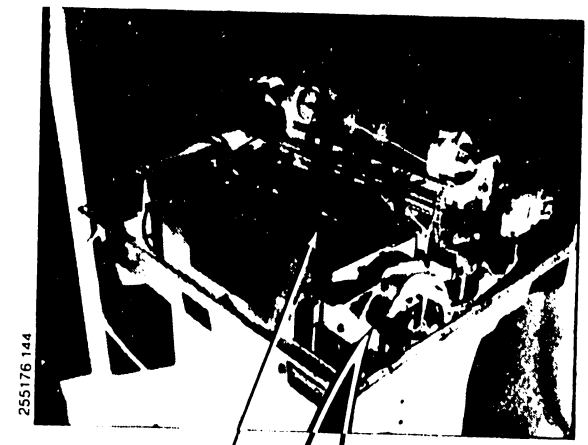
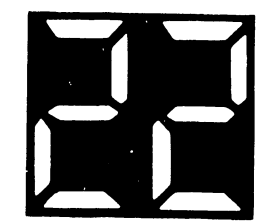


TROUBLESHOOTING SHEET 19

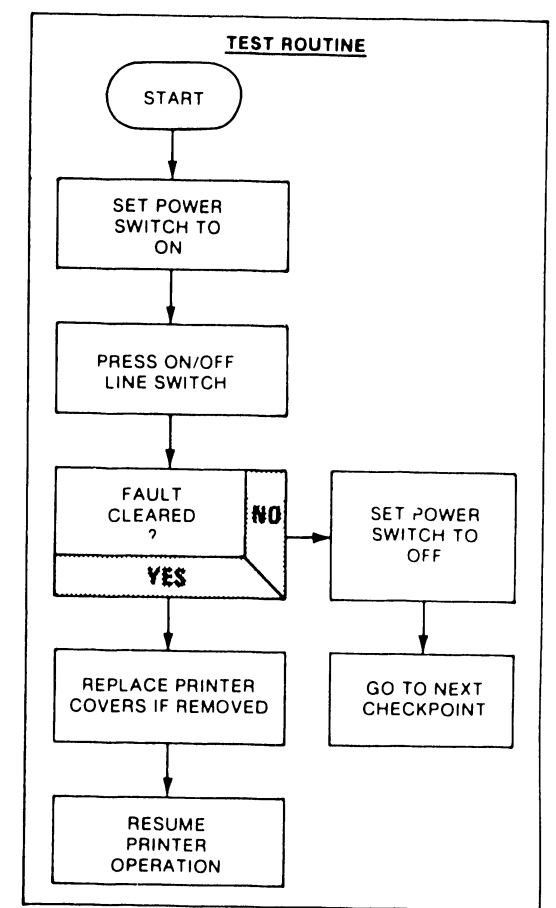
**STATUS INDICATION 21
"PRINT INHIBIT"**

POSSIBLE CAUSES
 1. INTERLOCK TRANSITION CCA CABLE CONNECTED POORLY OR DISCONNECTED.
 2. FAULTY CCA.

REASON FOR THIS STATUS INDICATION
 IF THE INTERLOCK TRANSITION CCA TO INTERFACE CCA CABLE ① IS DISCONNECTED, STATUS INDICATION 22 IS DISPLAYED AND PRINTER OPERATION HALTS



NOTE:
 1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.



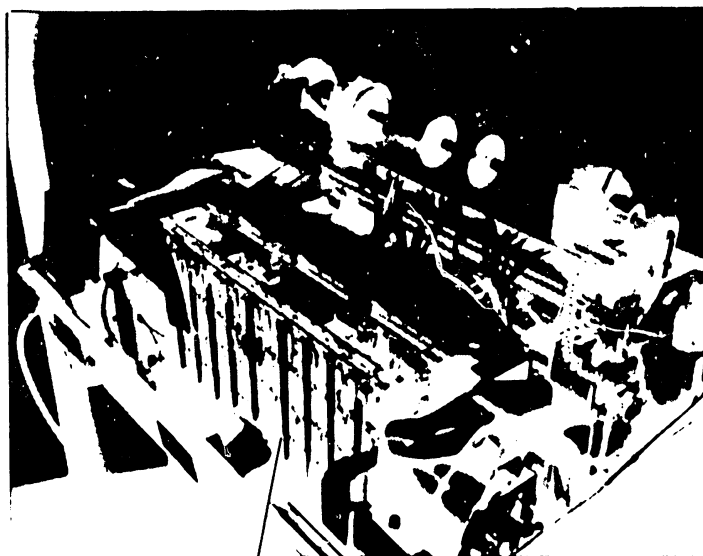
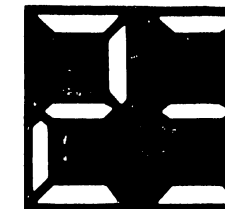
TROUBLESHOOTING SHEET 20
STATUS INDICATION 22
"INTERLOCK CABLE ERROR"

POSSIBLE CAUSES

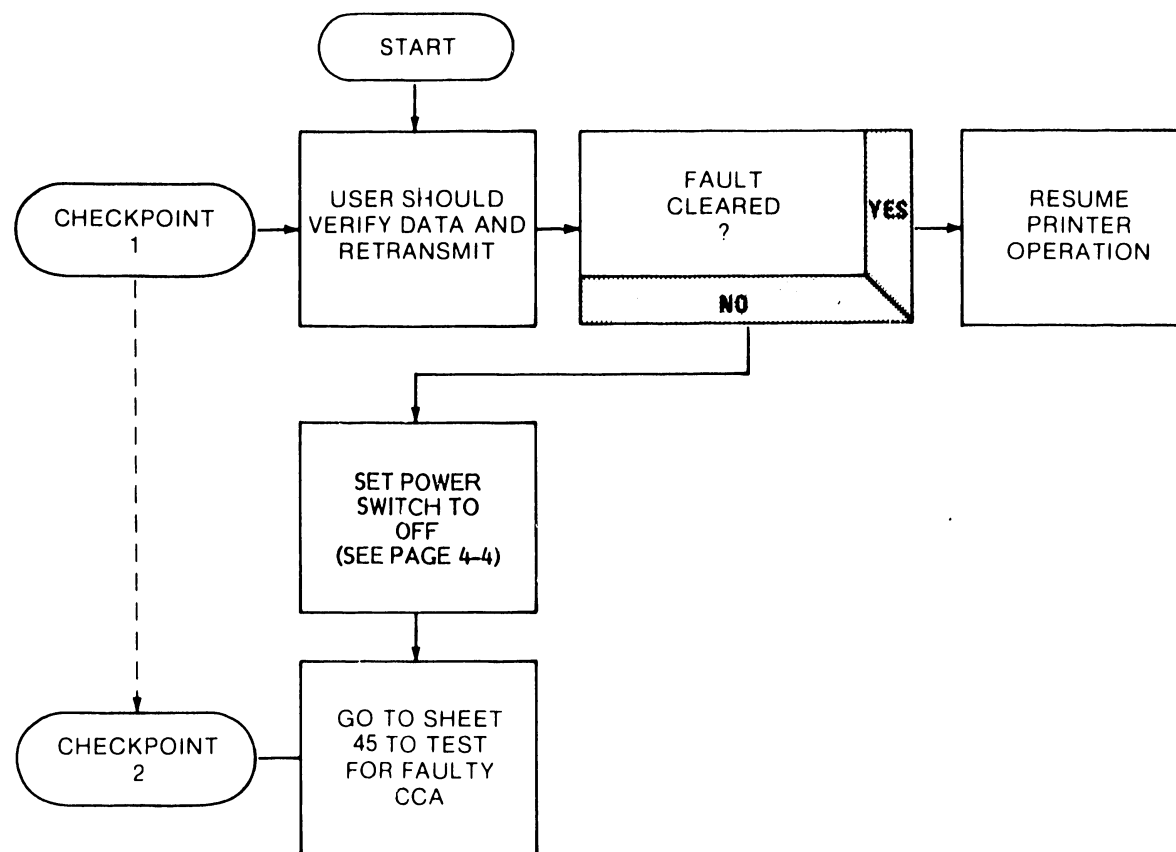
- 1. TRANSMISSION ERROR(S) BY USER.
- 2. DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION

AN OPTIONAL CONFIGURATION SWITCH SETTING ON THE INTERFACE CCA ① WILL ALLOW THE PRINTER TO PERFORM A PARITY CHECK. IF A PARITY ERROR IS DETECTED, STATUS INDICATION 23 IS DISPLAYED AND THE PRINTER INFORMS THE USER SYSTEM OF THE ERROR. THE USER CAN THEN RESPOND TO THE ERROR BY CLEARING THE PREVIOUSLY SENT DATA AND RETRANSMITTING THE CORRECT DATA. IF THERE IS NO USER RESPONSE, A SUBSTITUTE CHARACTER, USUALLY A SPACE, WILL BE PRINTED. PRINTING OF THE LINE WITH THE SUBSTITUTE CHARACTER OR A CORRECT RETRANSMISSION OF THE LINE CLEARS THE STATUS ERROR, AND PRINTER OPERATION CONTINUES.



① INTERFACE CCA



TROUBLESHOOTING SHEET 21

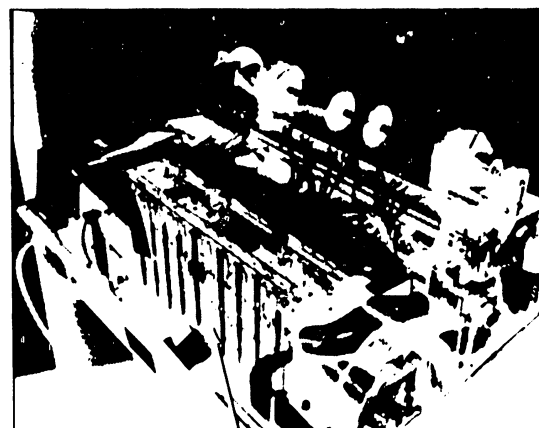
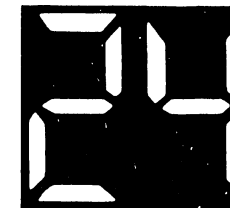
**STATUS INDICATION 23
"PARITY ERROR, DATA LOAD"**

POSSIBLE CAUSES

1. USER PROGRAM ERROR.
2. FAULTY CCA.

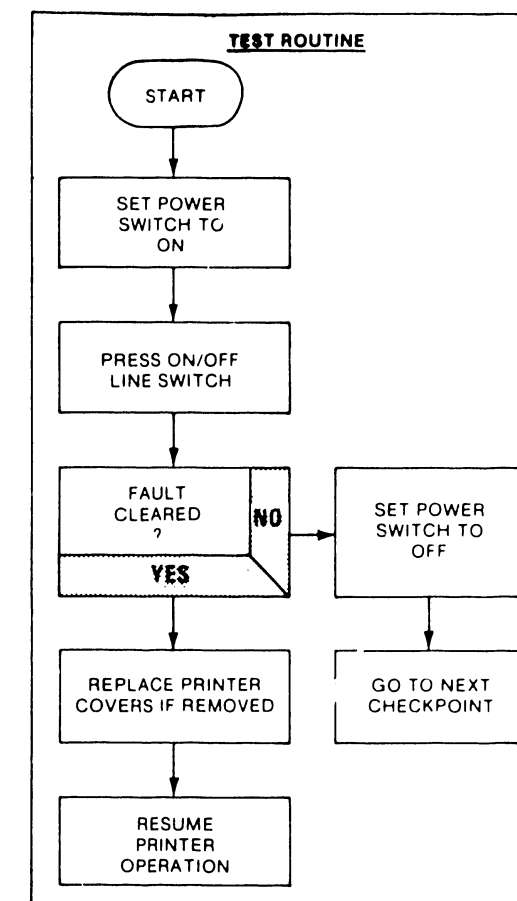
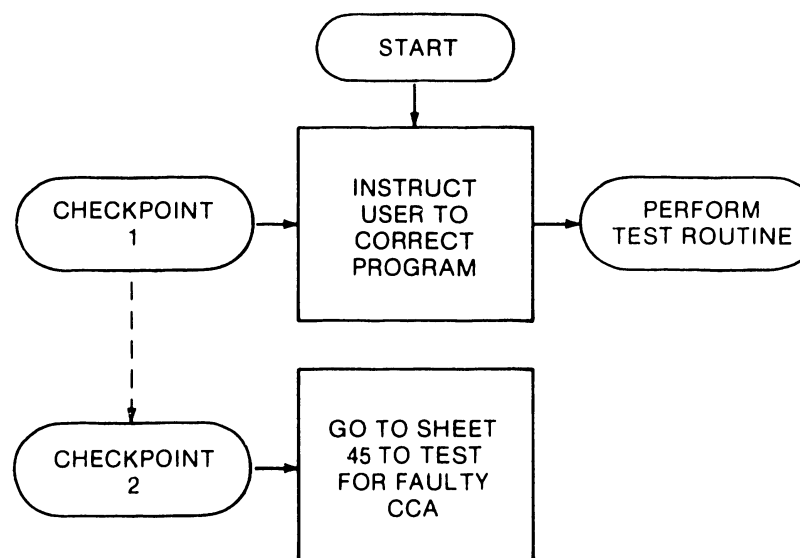
REASON FOR THIS STATUS INDICATION

THE PRINTER PROGRAM CHECKS THE PAPER FEED (MOVE PAPER) ROUTINE TO PREVENT CONTINUOUS CARRIAGE RETURNS AND OVERPRINTS DUE TO THE LACK OF A LINE FEED OR FORM FEED INSTRUCTION. A CONFIGURATION SWITCH LOCATED ON THE INTERFACE CCA (1) IS SET TO ALLOW EITHER EIGHT OR 140 CARRIAGE RETURNS THAT WILL PERMIT SEVEN OR 139 OVERPRINTS BEFORE THE PRINTER STOPS OPERATION. IF EIGHT OR 140 CARRIAGE RETURN COMMANDS ARE ALLOWED TO OCCUR WITHOUT A LINE FEED OR FORM FEED COMMAND, STATUS CODE 24 WILL BE DISPLAYED AND PRINTER OPERATION WILL BE HALTED.



255176 143

1 INTERFACE CCA

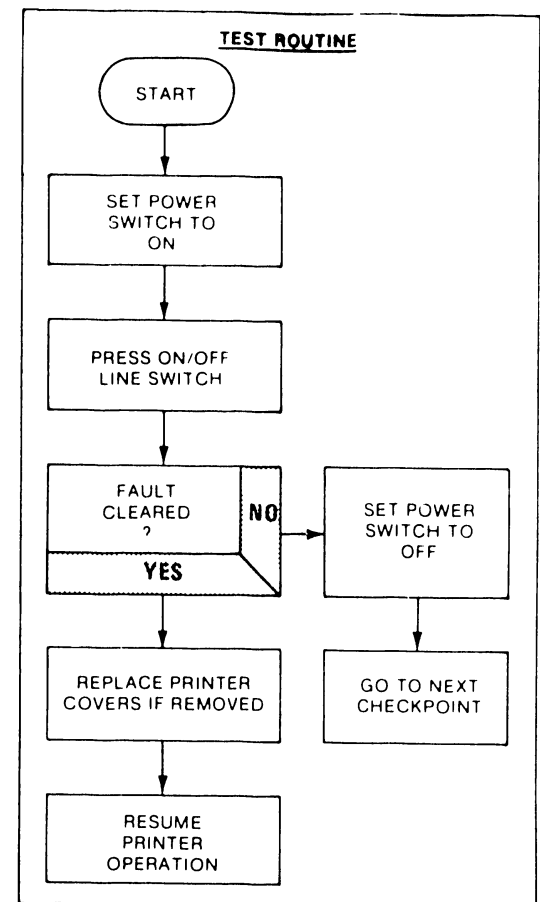
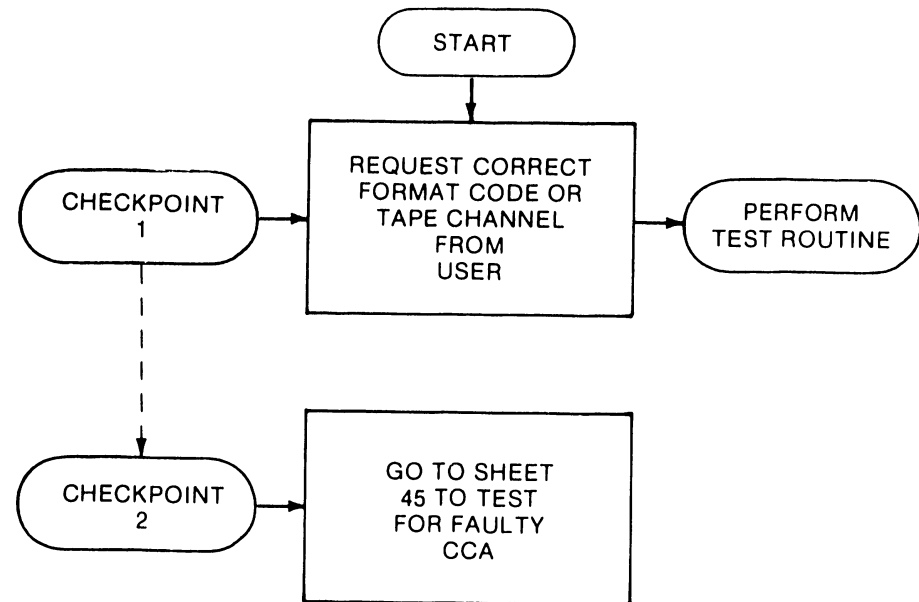
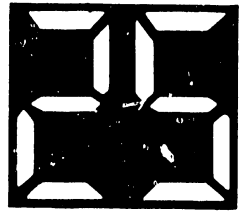


TROUBLESHOOTING SHEET 22

**STATUS INDICATION 24
"TOO MANY CONSECUTIVE
CARRIAGE RETURNS"**

POSSIBLE CAUSES
 1. ILLEGAL FORMAT CODE.
 2. TAPE CHANNEL SELECTION GREATER THAN TWELVE.

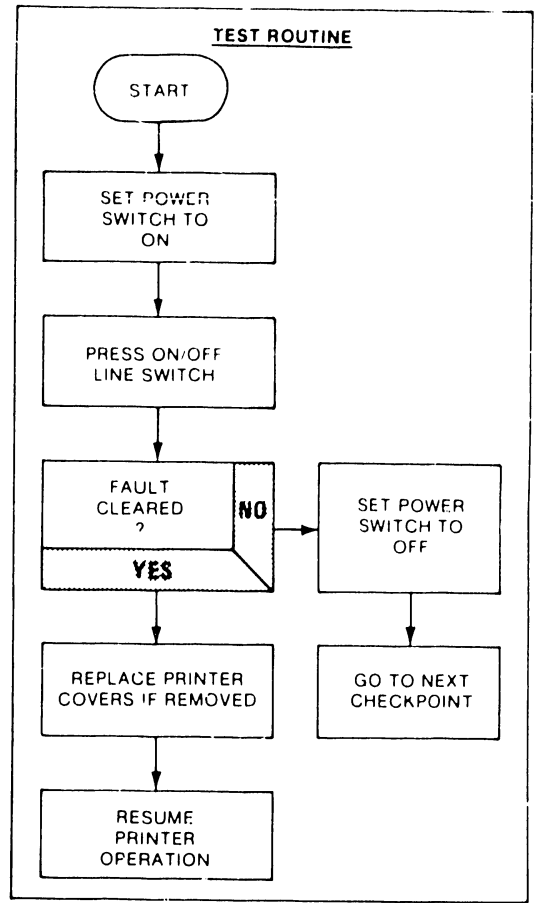
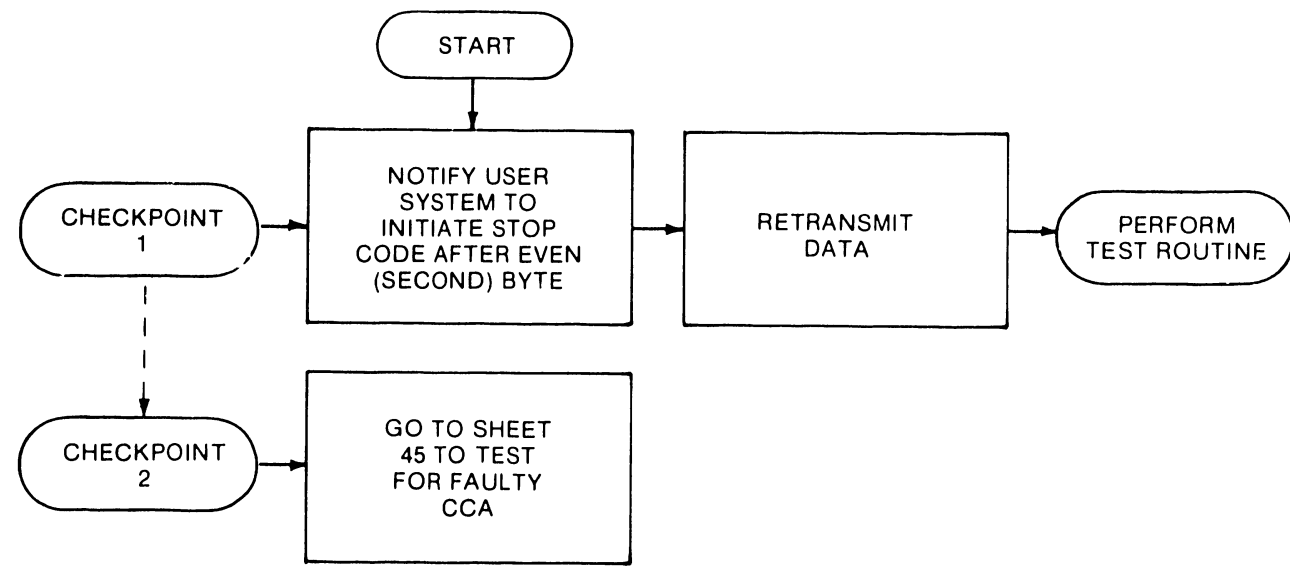
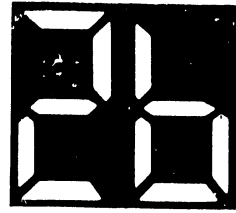
REASON FOR THIS STATUS INDICATION
 THE FORMAT CODES, CARRIAGE RETURN (CR), LINE FEED (LF), AND FORM FEED (FF), SENT TO THE PRINTER BY THE USER SYSTEM ARE CHECKED FOR VALIDITY BY THE PRINTER'S CONTROL PROGRAM. IF A USER-TRANSMITTED FORMAT CODE CANNOT BE RECOGNIZED BY THE PRINTER, STATUS CODE 25 WILL BE DISPLAYED AND PRINTER OPERATION WILL BE HALTED. IF THE PRINTER IS ALSO CONFIGURED TO RESPOND TO THE OPTIONAL VFU (VERTICAL FORMAT UNIT) CONTROL COMMANDS, A USER SELECTED TAPE CHANNEL GREATER THAN TWELVE WILL INITIATE A STATUS CODE DISPLAY OF 25 AND, AGAIN, PRINTER OPERATIONS WILL CEASE.



TROUBLESHOOTING SHEET 23
STATUS INDICATION 25
"FORMAT CODE NOT RECOGNIZED"

POSSIBLE CAUSES
 1. USER PROGRAM ERROR.
 2. FAULTY CCA.

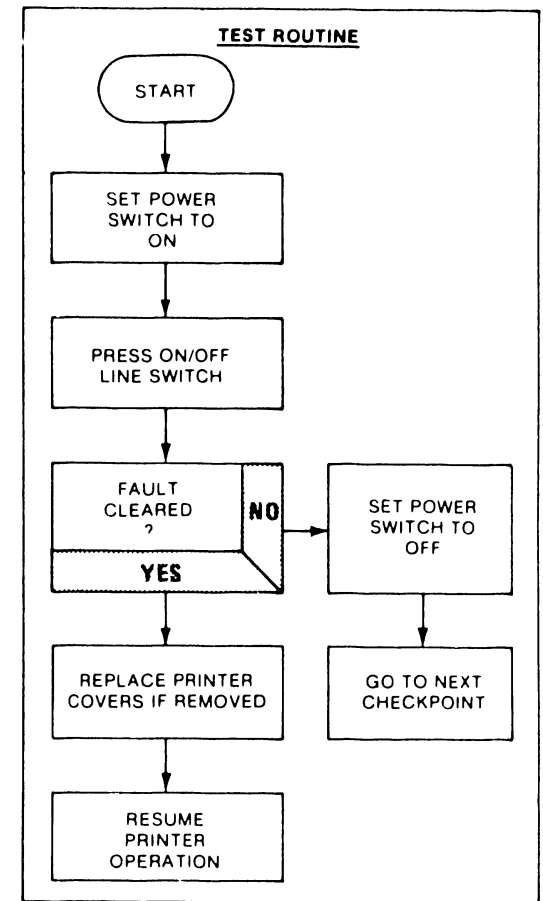
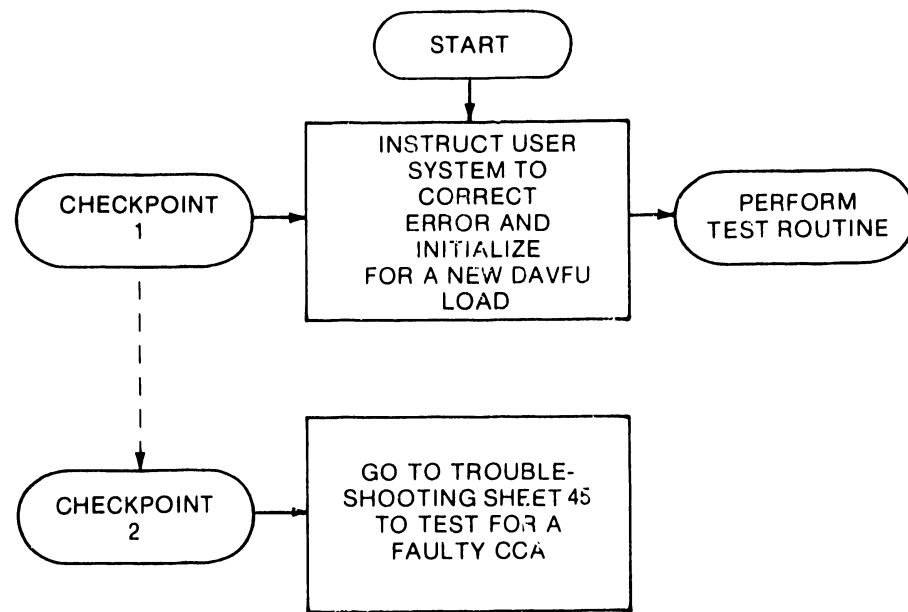
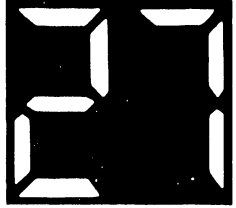
REASON FOR THIS STATUS INDICATION
 VERTICAL FORMAT UNIT (VFU) DATA CAN BE LOADED INTO THE PRINTER VFU MEMORY DIRECTLY FROM THE USER SYSTEM. A SINGLE LINE OF DIRECT ACCESS VERTICAL FORMAT UNIT (DAVFU) DATA LOADED IN THIS MANNER HAS TO BE TRANSMITTED IN TWO PARTS (BYTES) OF SIX DATA BITS EACH. TRANSMISSION OF THE DATA IS INITIATED BY THE USER START CODE AND TERMINATED BY THE USER STOP CODE. THE STOP CODE CAN BE TRANSMITTED AFTER A SINGLE LINE (2 BYTES/12 BITS) OF DATA OR AFTER AN ALLOWABLE MAXIMUM OF 143 LINES OF DATA. HOWEVER, IF THE STOP CODE IS TRANSMITTED AFTER A SINGLE ODD BYTE THE PRINTER WILL DISPLAY STATUS CODE 26, PRINT STORED USER DATA AND THEN HALT OPERATION.



TROUBLESHOOTING SHEET 24
STATUS INDICATION 26
"DAVFU STOP CODE ERROR"

POSSIBLE CAUSES
 1. USER PROGRAM ERROR.
 2. FAULTY CCA.

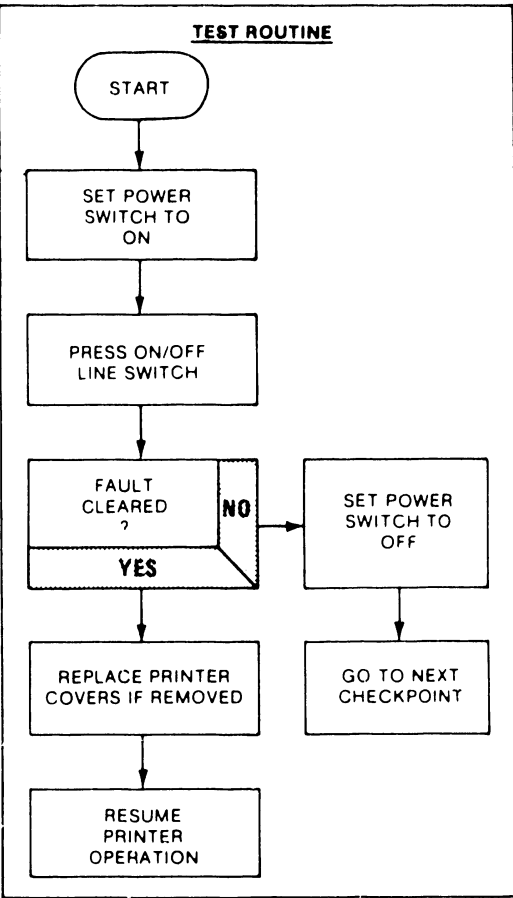
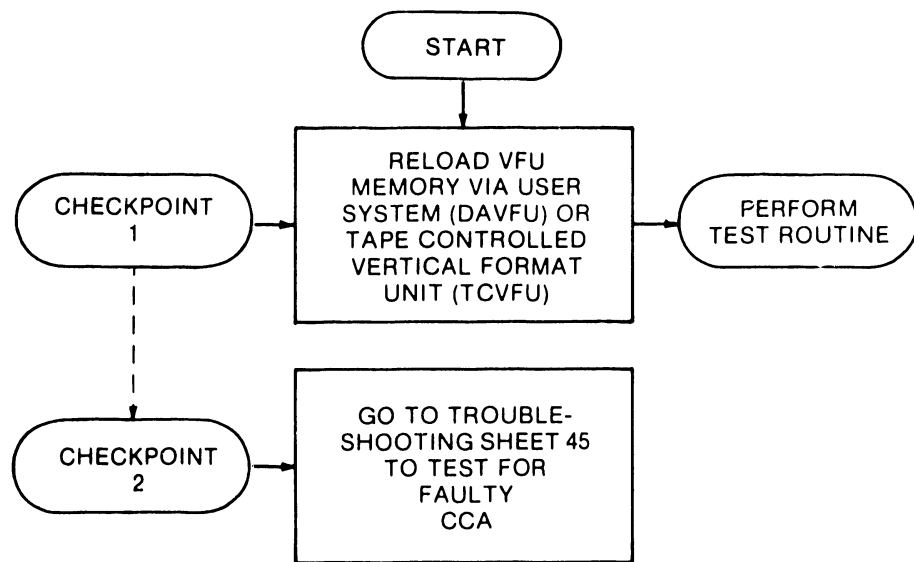
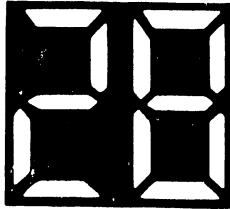
REASON FOR THIS STATUS INDICATION
 THE ATTEMPT BY THE USER TO SEND MORE THAN 143 LINES (DATA WORDS) OF VERTICAL FORMAT UNIT (VFU) DATA WILL RESULT IN AN ERROR CONDITION DURING THE DAVFU (DIRECT ACCESS VERTICAL FORMAT UNIT) LOAD ROUTINE. FOR EACH LINE OF VFU DATA TRANSMITTED BY THE USER, A CHECK IS MADE BY THE PRINTER PROCESSOR CCA TO DETERMINE THE PRESENCE OF A STOP CODE (SEE TROUBLESHOOTING SHEET 24). IF THE STOP CODE IS NOT DETECTED, A CHECK IS THEN MADE BY THE PROCESSOR CCA TO DETERMINE THAT THE VFU LINE COUNT HAS NOT EXCEEDED 143 AND THAT AN I/O PARITY ERROR DOES NOT EXIST (SEE TROUBLESHOOTING SHEET 21). IF THE LINE COUNT EXCEEDS 143 OR AN I/O PARITY ERROR EXISTS, STATUS CODE 27 WILL BE DISPLAYED AND PRINTER OPERATION WILL CEASE.



TROUBLESHOOTING SHEET 25
STATUS INDICATION 27
"DAVFU DATA TRANSFER
GREATER THAN 143"

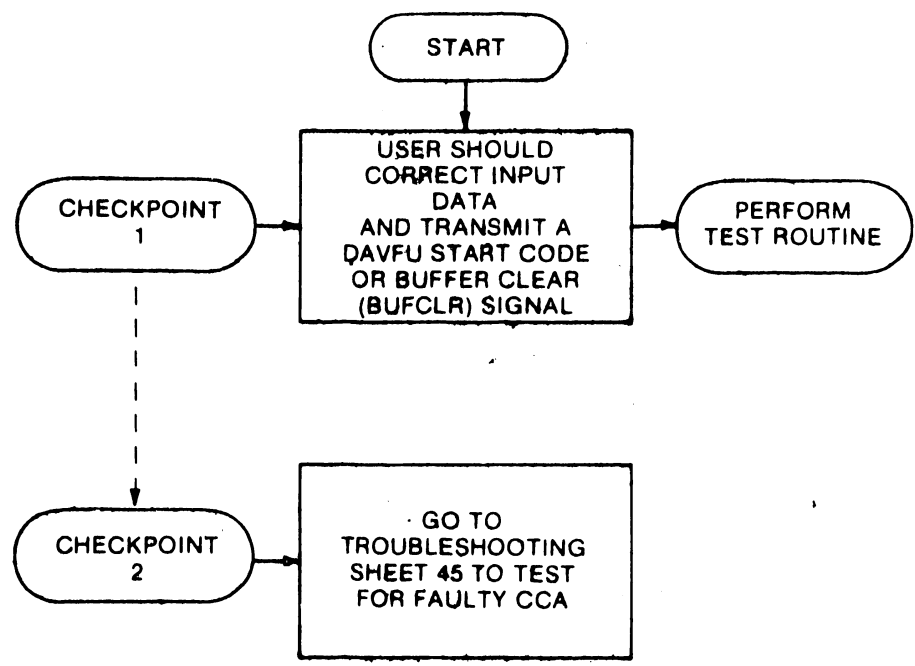
POSSIBLE CAUSES
 1. FAULTY VFU MEMORY.
 2. DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION
 UPON COMPLETION OF THE VFU DATA LOAD ROUTINE, THE PRINTER PROCESSOR DERIVES A BINARY SUM (CHECK SUM) OF THE DATA STORED IN VFU MEMORY LOCATIONS USED FOR THAT ROUTINE. THE CHECK SUM IS THEN STORED IN MEMORY FOR LATER REFERENCE. AFTER EACH PRINT ROUTINE THE BINARY SUM OF THE STORED VFU DATA IS AGAIN READ FROM VFU MEMORY AND COMPARED WITH THE ORIGINALLY DERIVED CHECK SUM. FAILURE OF THE TWO SUMS TO COMPARE CAUSES STATUS CODE 28 TO BE DISPLAYED AND PRINTER OPERATION HALTS.

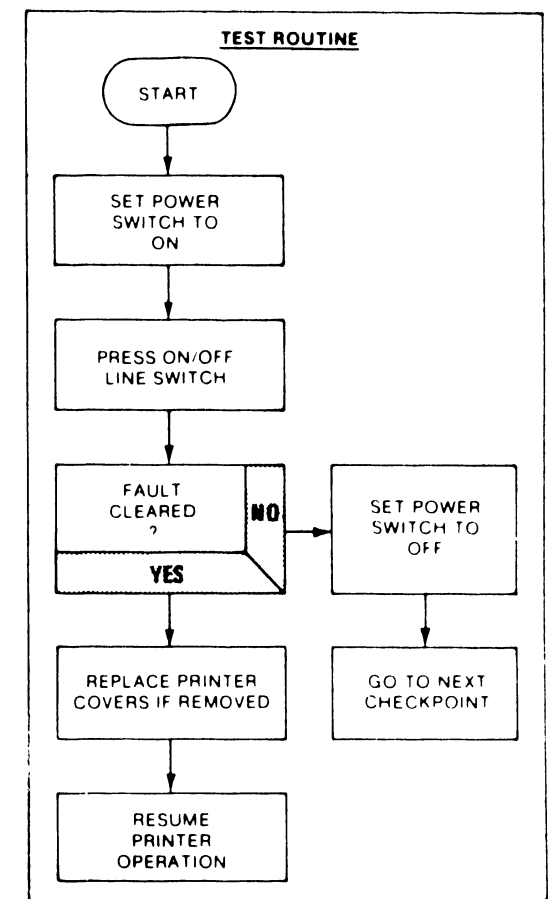
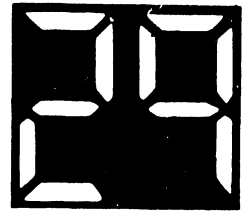


TROUBLESHOOTING SHEET 26
STATUS INDICATION 28
"VFU CHECK SUM ERROR"

POSSIBLE CAUSES
 1. DATA PARITY ERROR.
 2. FAULTY CCA.



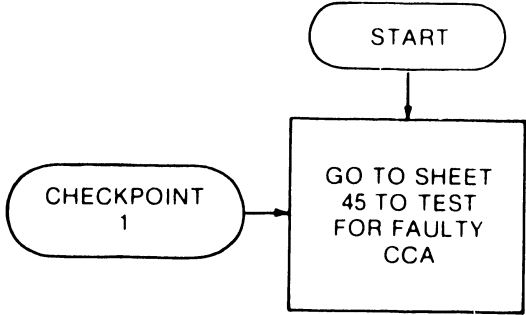
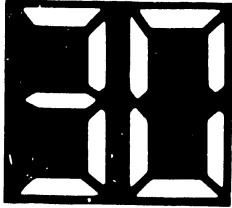
REASON FOR THIS STATUS INDICATION
 ALL DAVFU DATA LOADED INTO THE PRINTER SYSTEM IS CHECKED FOR CORRECT PARITY. IF ANY VFU DATA PATTERN (BYTE) RECEIVED HAS A PARITY ERROR, A PARITY ERROR SIGNAL (PARERR) IS SENT TO THE USER HOWEVER DATA CONTINUES TO BE RECEIVED AND LOADED THE USER CAN RESPOND BY SENDING A DAVFU START CODE, WHICH CLEARS THE VFU MEMORY AND RESTARTS THE VFU LOAD SEQUENCE. THE PARITY ERROR CAN ALSO BE CORRECTED BY ANOTHER SIGNAL, BUFCLR, WHICH CLEARS BOTH THE SYSTEM VFU MEMORY AND THE SYSTEM DATA BUFFER. IN THIS CASE PROGRAM CONTROL IS RETURNED TO THE NORMAL LOAD ROUTINE. IF THE USER DOES NOT TRANSMIT A DAVFU START CODE OR A BUFFER CLEAR (BUFCLR) SIGNAL, DATA CONTINUES TO BE LOADED UNTIL THE VFU MEMORY IS FULL. THE PRINTER THEN DISPLAYS STATUS CODE 29 AND CEASES OPERATION.



TROUBLESHOOTING SHEET 27
STATUS INDICATION 29
"I/O PARITY ERROR (DAVFU LOAD)"

POSSIBLE CAUSE
I. FAULTY MEMORY DEVICE ON INTERFACE CCA.

REASON FOR THIS STATUS INDICATION
DURING THE PRINTER POWER UP ROUTINE A TEST OF THE VERTICAL FORMAT UNIT (VFU) MEMORY IS MADE TO ENSURE THAT ALL MEMORY LOCATIONS CAN BE WRITTEN INTO AND READ FROM CORRECTLY. DATA PATTERNS ARE STORED IN MEMORY SEQUENTIALLY AND READ OUT AND COMPARED BY THE SYSTEM PROCESSOR. IF ANY OF THE TESTS FAIL STATUS CODE 30 IS DISPLAYED AND PRINTER OPERATION HALTS.



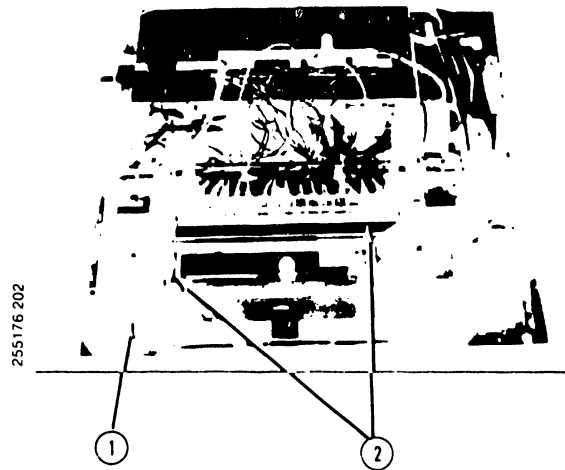
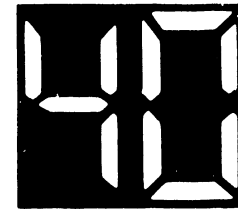
TROUBLESHOOTING SHEET 28
STATUS INDICATION 30
"BAD VFU MEMORY"

POSSIBLE CAUSES

1. BAND DRAGGING BECAUSE OF DIRTY BAND OR BAND AREA.
2. FORM IN USE TOO HEAVY
3. TRANSDUCER MISADJUSTED OR DEFECTIVE
4. FAULTY BAND MOTOR.
5. WRONG TIMING AND STATUS CCA HEADERS
6. INCORRECT SETTINGS OF BAND TIME-OUT SWITCH ON PROCESSOR CCA.
7. DEFECTIVE CCA.
8. FAULTY POWER SUPPLY COMPONENTS.

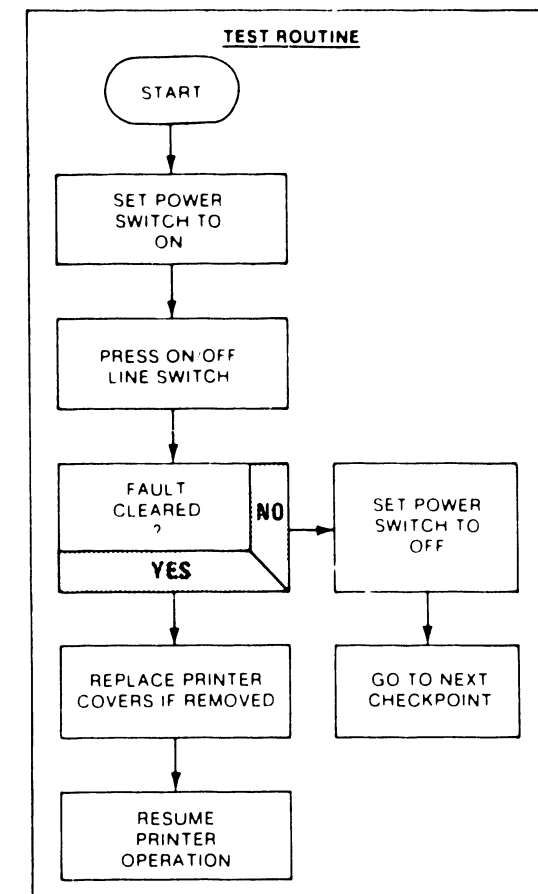
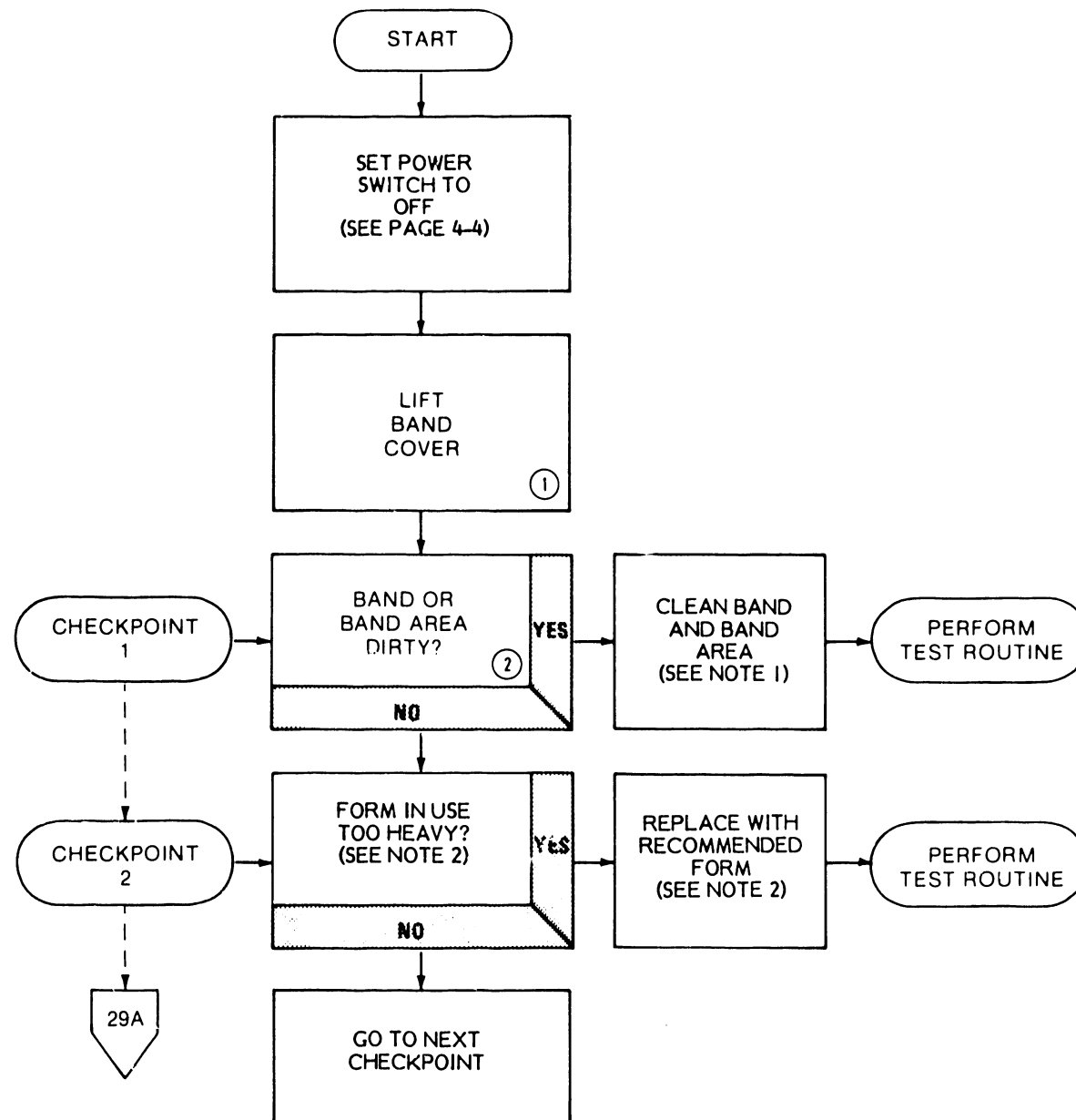
REASON FOR THIS STATUS INDICATION

THE PROCESSOR MONITORS THE SPEED OF THE CHARACTER BAND IF THE BAND BEGINS TO SPIN TOO FAST OR TOO SLOWLY. PRINTER OPERATION HALTS AND FAULT CODE 40 IS DISPLAYED ON THE CONTROL PANEL INDICATORS



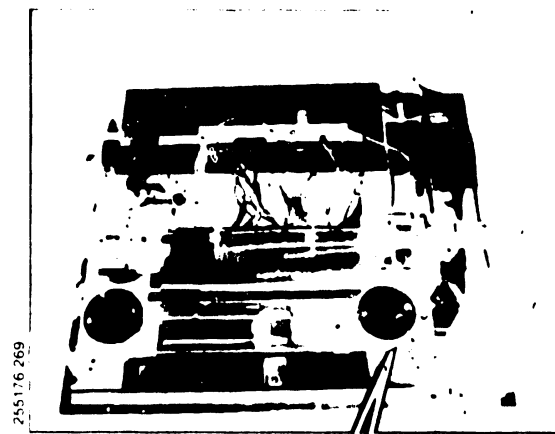
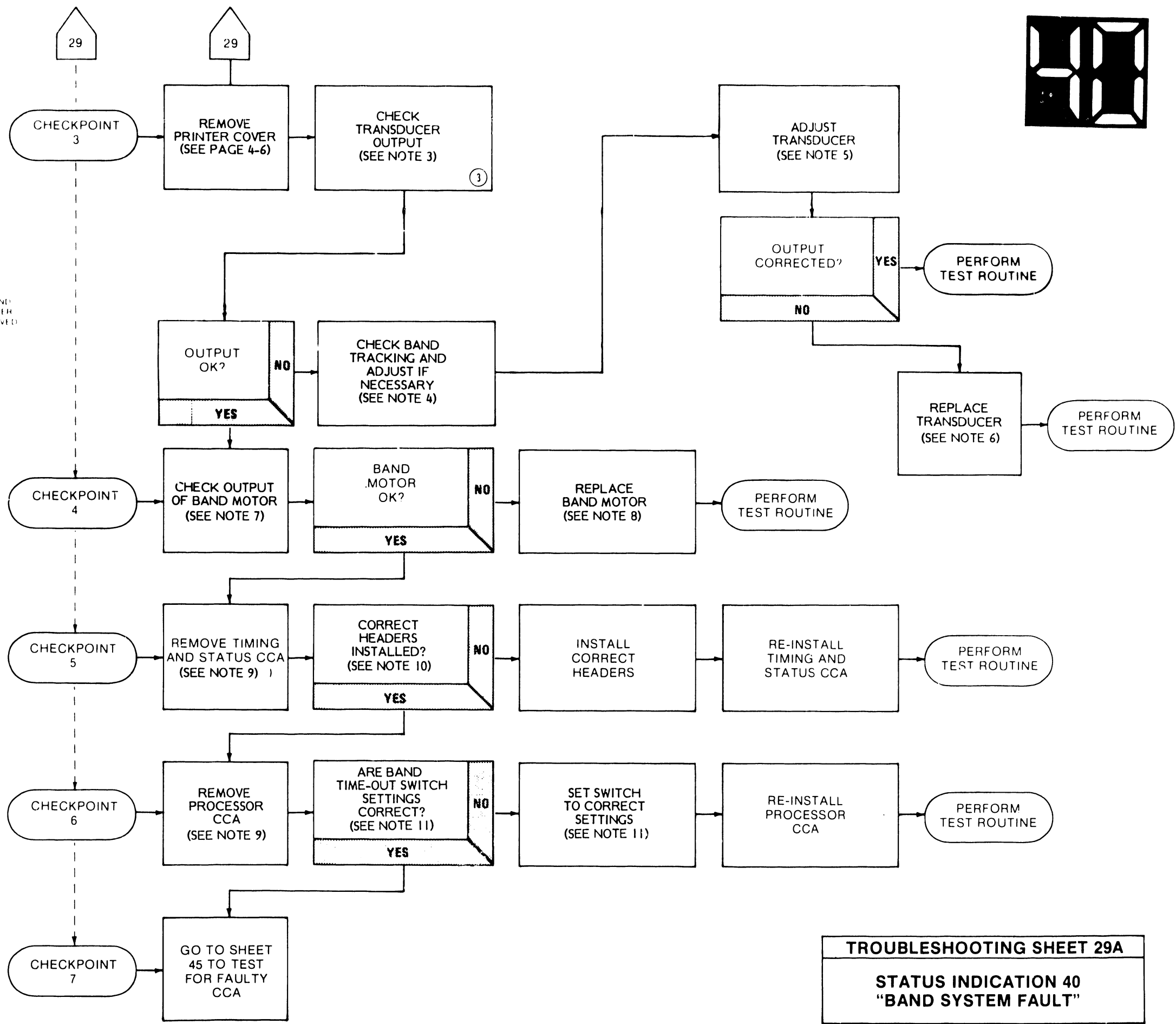
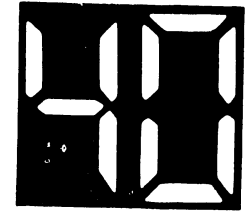
NOTES:

1. SEE ALPHABETICAL INDEX: "CLEANING PROCEDURES."
2. SEE OPERATOR'S GUIDE: "PAPER FORM CHARACTERISTICS."
3. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLY TEST POINT AND REFERENCES."
4. SEE ALPHABETICAL INDEX: "BAND TRACKING ADJUSTMENT."
5. SEE ALPHABETICAL INDEX: "TRANSDUCER GAP ADJUSTMENTS."
6. SEE ALPHABETICAL INDEX: "TRANSDUCER REMOVAL/INSTALLATION."
7. SEE ALPHABETICAL INDEX: "BAND DRIVE MOTOR TEST."
8. SEE ALPHABETICAL INDEX: "BAND MOTOR REMOVAL/INSTALLATION."
9. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES REMOVAL/INSTALLATION."
10. SEE CONFIGURATION DECAL ON PRINTER CARD CAGE COVER (REMOVE PRINTER COVER, PAGE 4-6).
11. SEE ALPHABETICAL INDEX: "BAND TIME-OUT SWITCH SETTINGS."

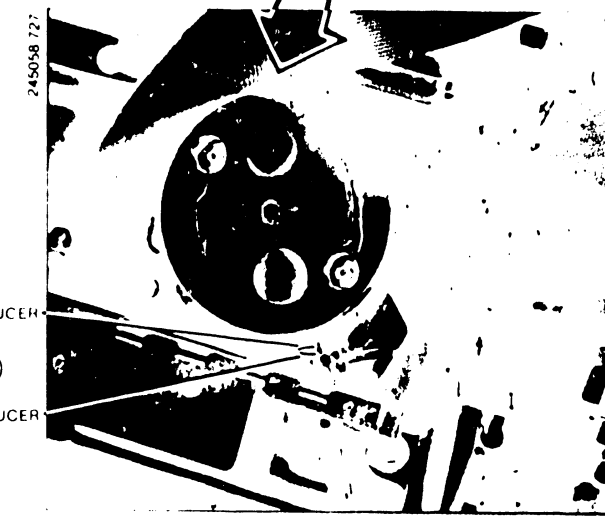


TROUBLESHOOTING SHEET 29

**STATUS INDICATION 40
"BAND SYSTEM FAULT"**



HAND COVER REMOVED



TROUBLESHOOTING SHEET 29A

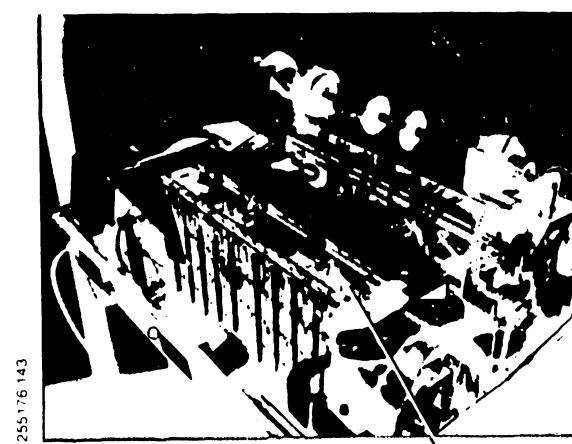
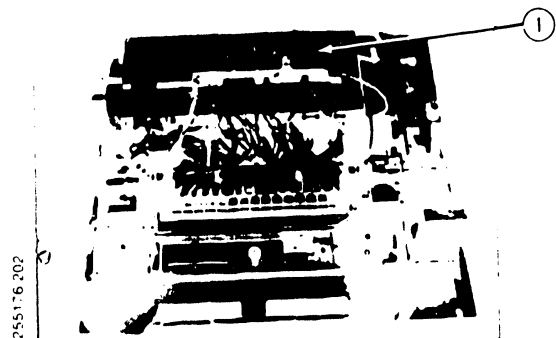
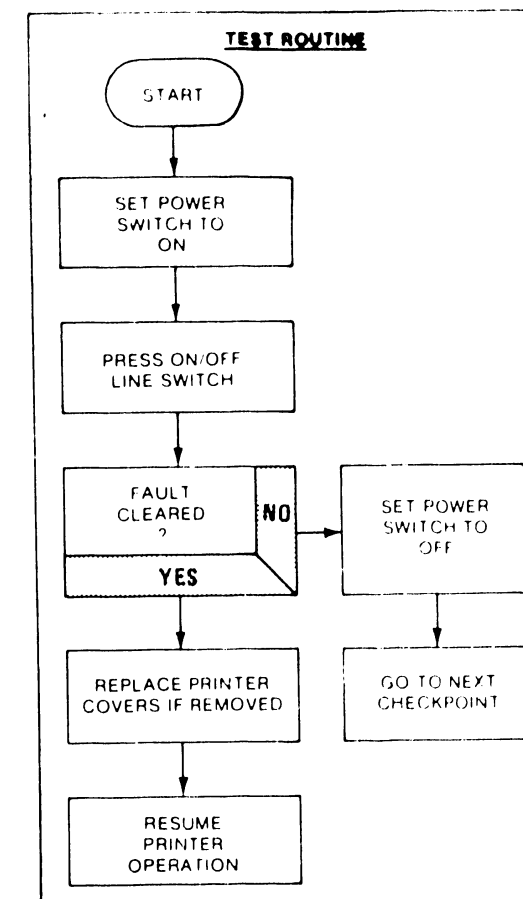
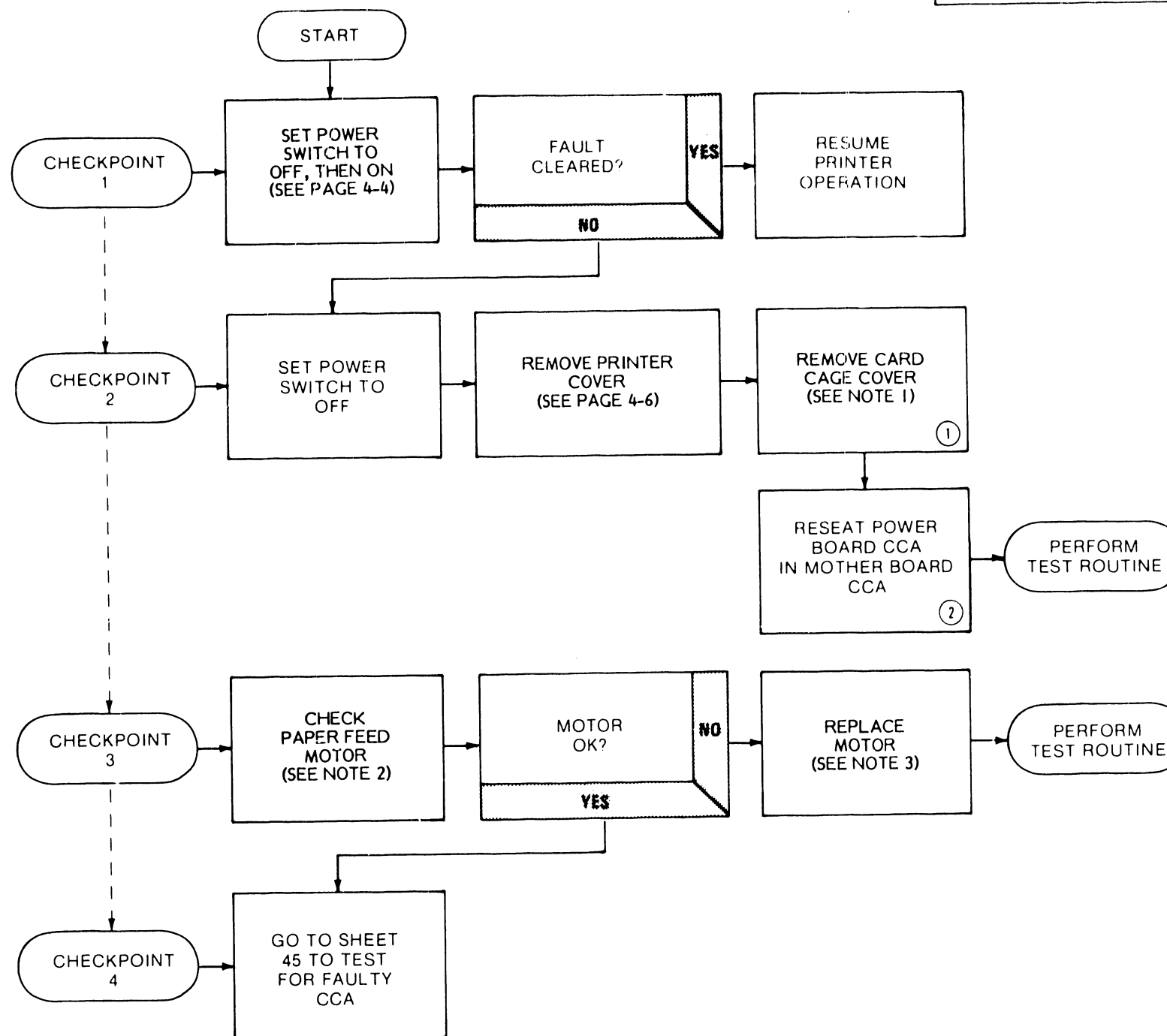
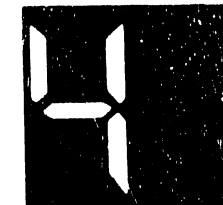
STATUS INDICATION 40
"BAND SYSTEM FAULT"

POSSIBLE CAUSES

- 1 POWER BOARD CCA NOT WELL SEATED IN MOTHER BOARD CCA
- 2 DEFECTIVE PAPER FEED MOTOR
- 3 FAULTY CCA

REASON FOR THIS STATUS INDICATION

THE PROCESSOR MONITORS THE PAPER DRIVE SYSTEM INCLUDING THE MOTOR AND CLAMPS FOR EXCESSIVE CURRENT AND FOR LACK OF CURRENT. FOR EITHER CONDITION STATUS CODE 41 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTER OPERATION HALTS



NOTES:

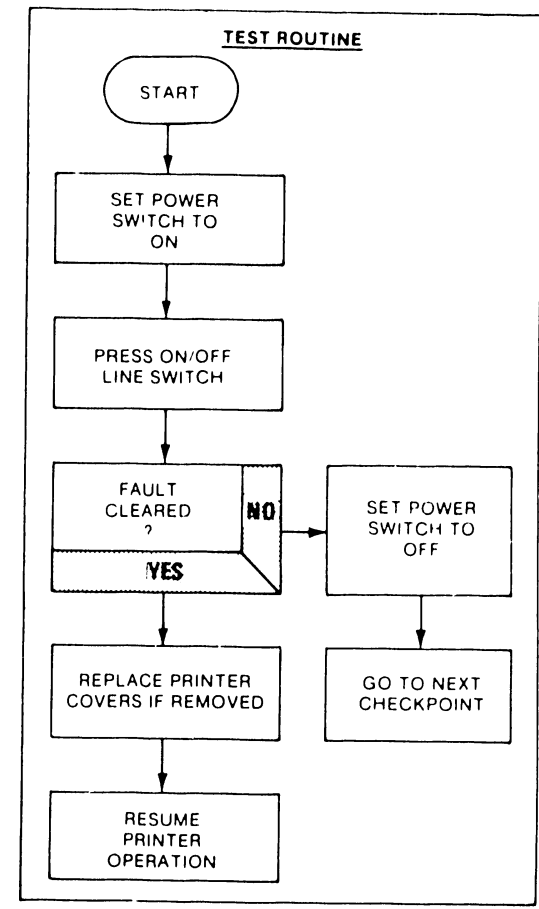
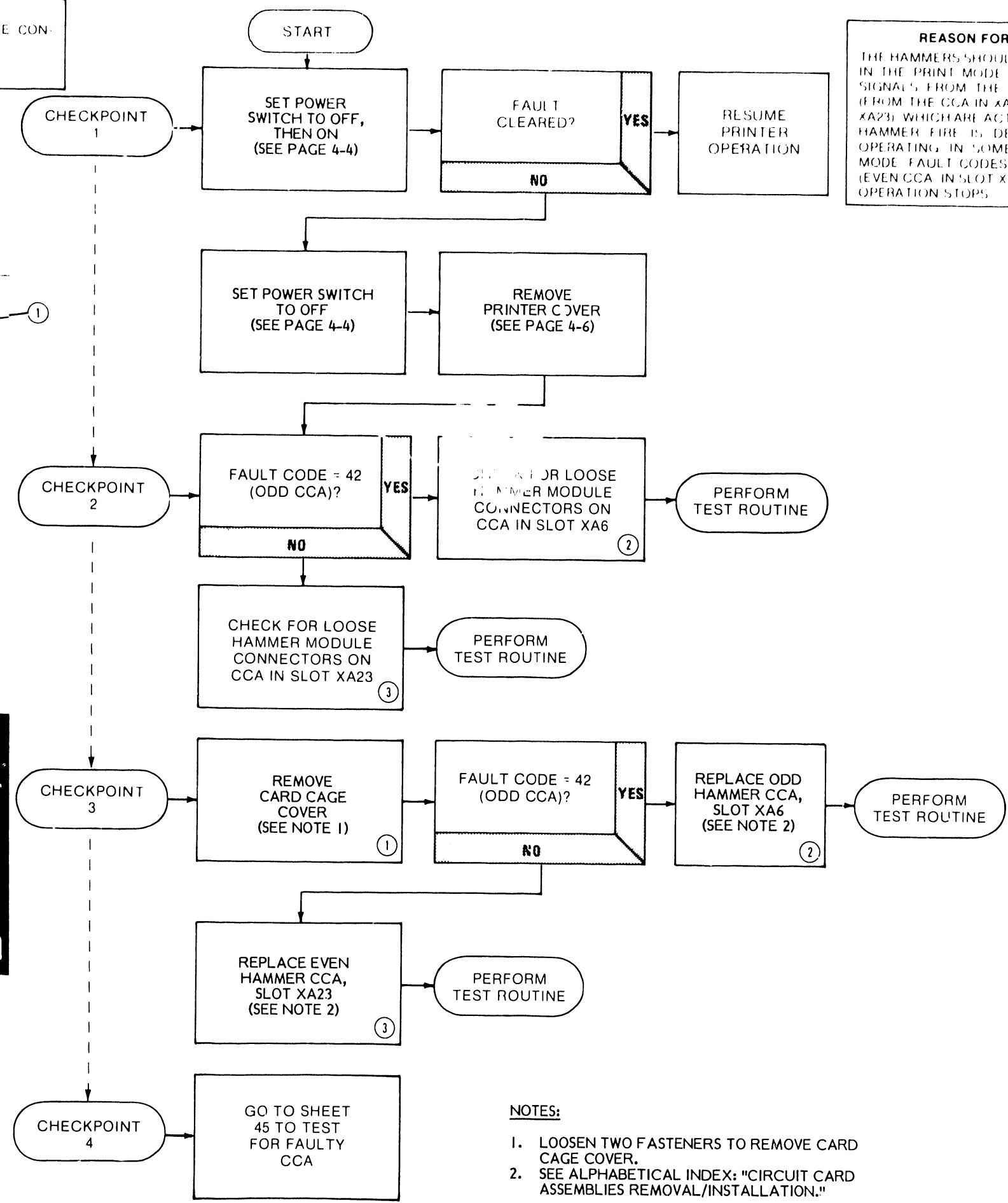
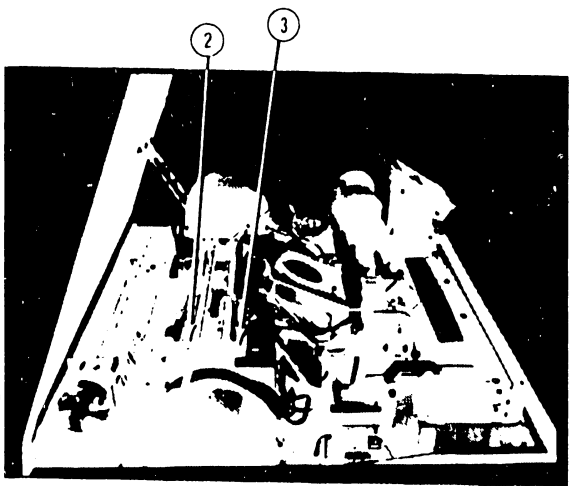
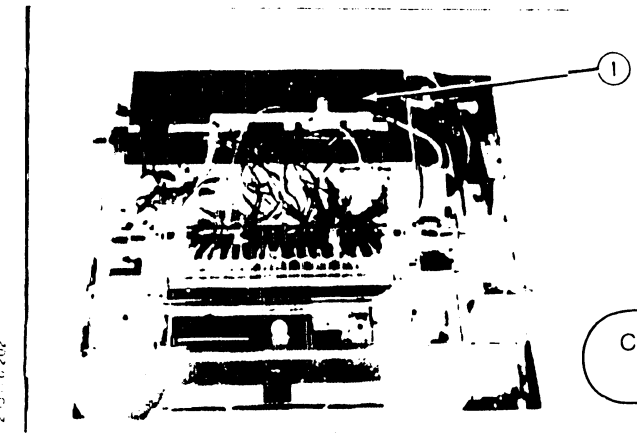
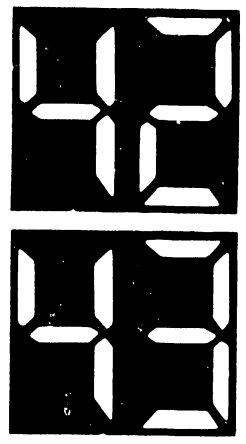
1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
2. SEE ALPHABETICAL INDEX: "PAPER FEED MOTOR TEST."
3. SEE ALPHABETICAL INDEX: "PAPER FEED MOTOR REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 30
STATUS INDICATION 41
"PAPER DRIVE SYSTEM FAULT"

- POSSIBLE CAUSES**
1. LOOSE OR DISCONNECTED HAMMER MODULE CONNECTOR
 2. FAULTY HAMMER DRIVER CCA(S)
 3. OTHER CCA DEFECTIVE

REASON FOR THIS STATUS INDICATION

THE HAMMERS SHOULD FIRE ONLY WHEN THE PRINTER IS IN THE PRINT MODE. THE PROCESSOR MONITORS TWO SIGNALS FROM THE HAMMER DRIVER CCA(S). HWAF01 (FROM THE CCA IN XA6) AND HWAF02 (FROM THE CCA IN XA23) WHICH ARE ACTIVE WHENEVER A HAMMER FIRES. IF HAMMER FIRE IS DETECTED WHILE THE PRINTER IS OPERATING IN SOME MODE OTHER THAN THE PRINT MODE, FAULT CODES 42 (ODD CCA IN SLOT XA6) OR 43 (EVEN CCA IN SLOT XA23) ARE GENERATED AND PRINTER OPERATION STOPS.



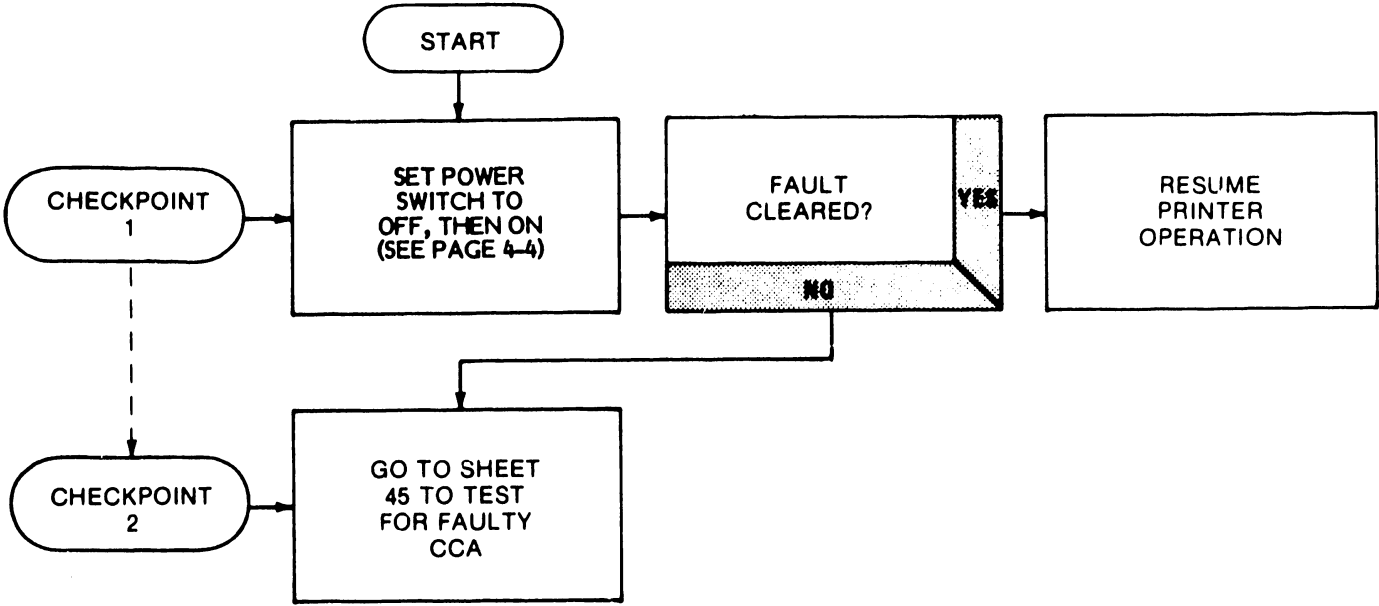
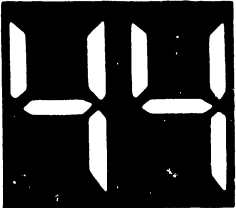
- NOTES:**
1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
 2. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 31

**STATUS INDICATION 42/43
"HAMMER SYSTEM FAULT"**

POSSIBLE CAUSES
1. FAULTY POWER BOARD CCA.
2. OTHER DEFECTIVE CCA.

REASON FOR THIS STATUS INDICATION
THE +12 VOLT SUPPLY IS CHECKED FOR OVER-VOLTAGE AND UNDER-VOLTAGE CONDITIONS. IF A FAULT IS DETECTED, STATUS CODE 44 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTER OPERATION STOPS



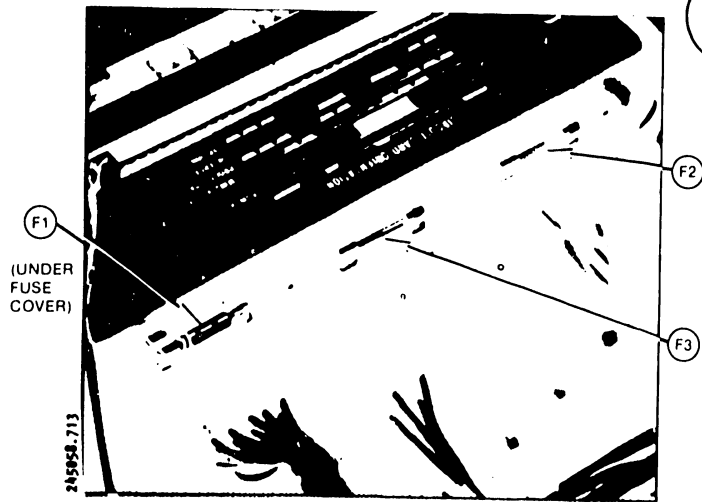
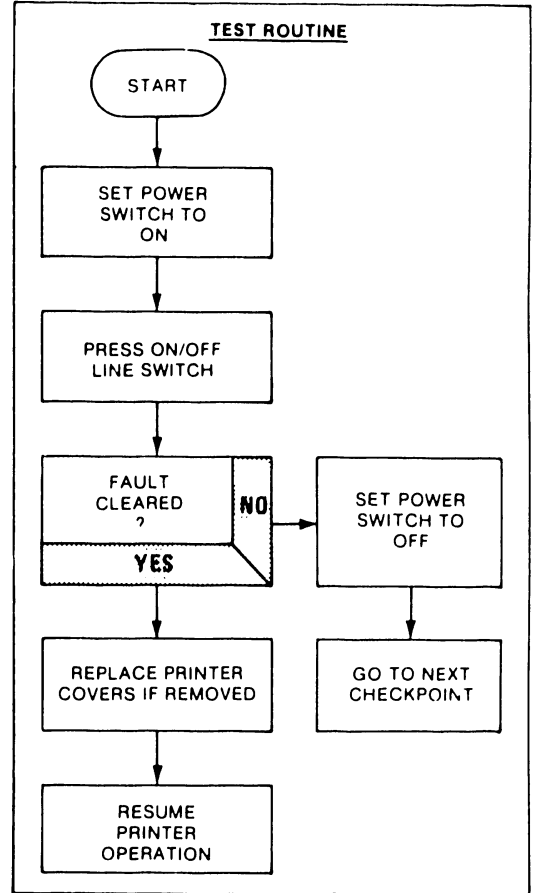
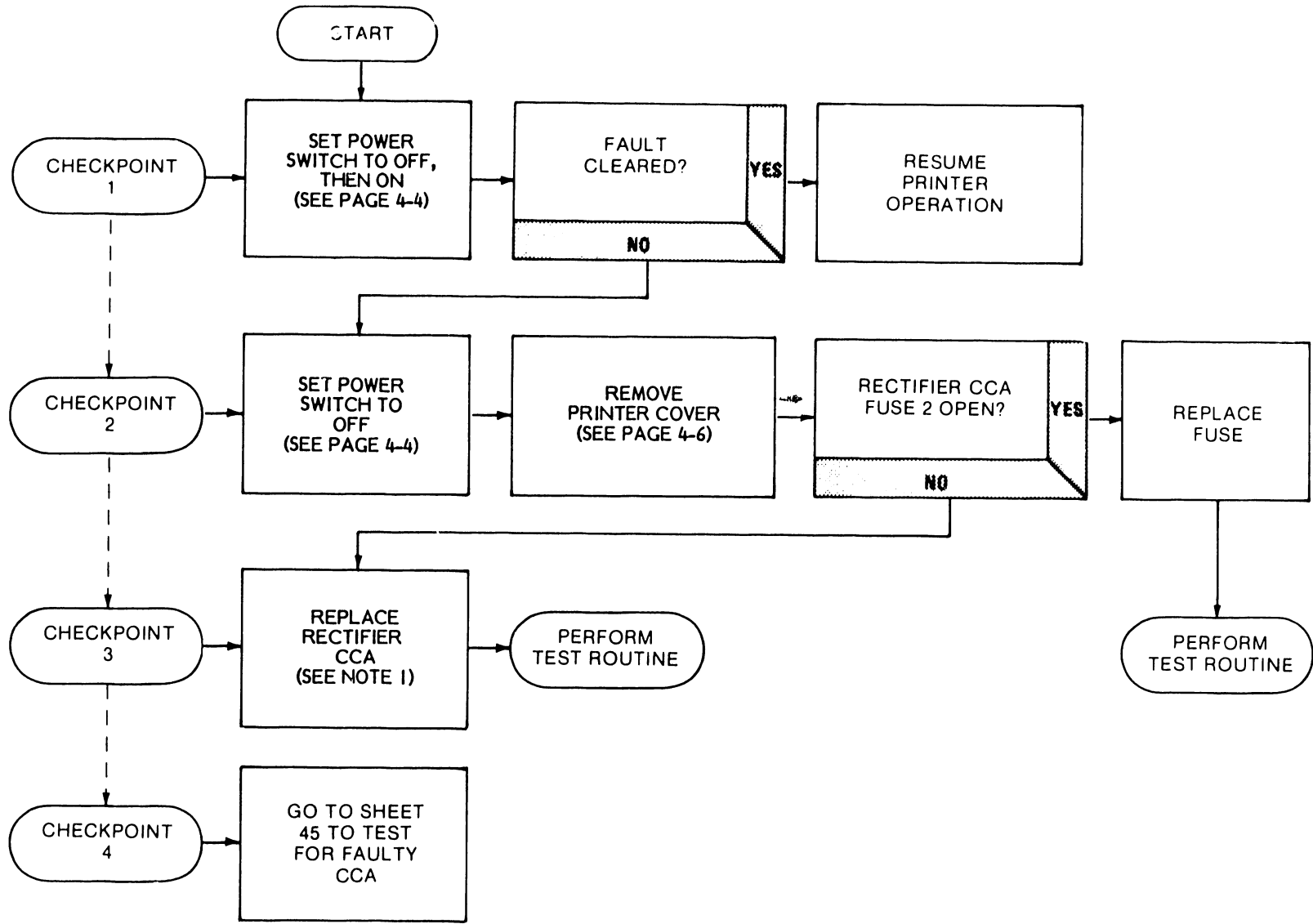
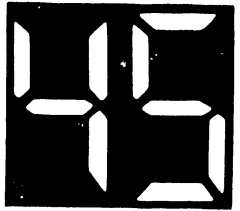
TROUBLESHOOTING SHEET 32
STATUS INDICATION 44
"12 VOLT FAULT"

POSSIBLE CAUSES

1. RECTIFIER CCA FUSE F2 OPEN
2. FAULTY RECTIFIER CCA
3. OTHER CCA DEFECTIVE

REASON FOR THIS STATUS INDICATION

THE PROCESSOR MONITORS THE -9 VOLT SUPPLY FOR ANY UNDER-VOLTAGE CONDITION. IF THIS FAULT IS DETECTED, THE +38 VOLTS AND VCC SUPPLY AND STEPPER CURRENT ARE DISABLED AND PRINTER OPERATION STOPS. FAULT CODE 45 IS DISPLAYED.



RECTIFIER CCA
(FUSE COVER NOT SHOWN)

NOTES:

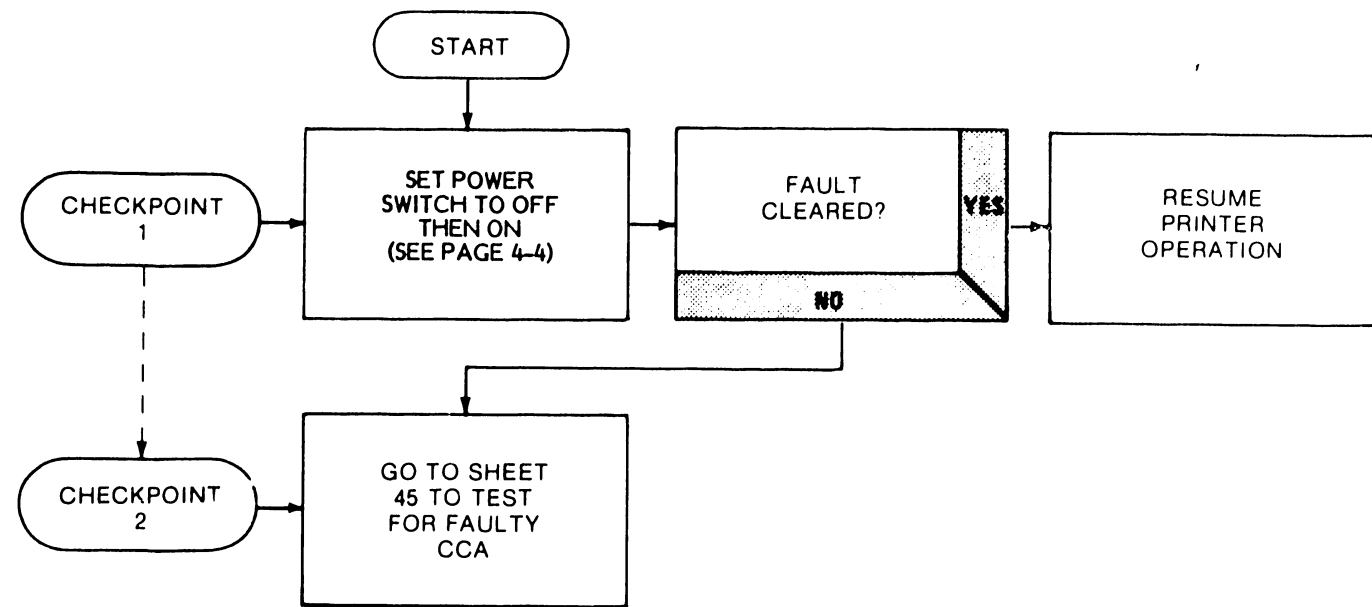
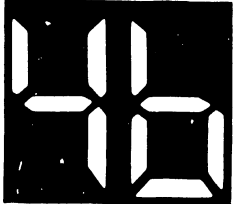
1. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 33

STATUS INDICATION 45
"-9 VOLT FAULT"

POSSIBLE CAUSES
1. FAULTY POWER BOARD CCA.
2. OTHER DEFECTIVE CCA.

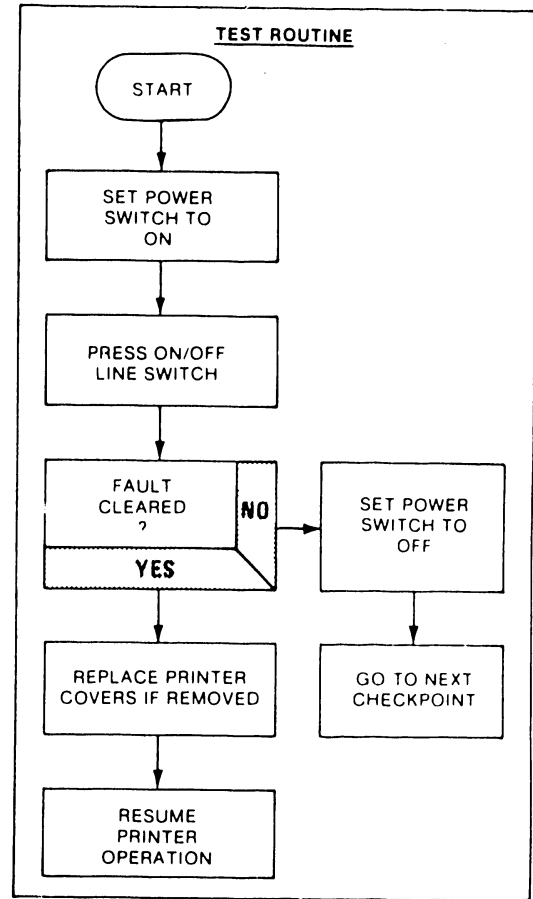
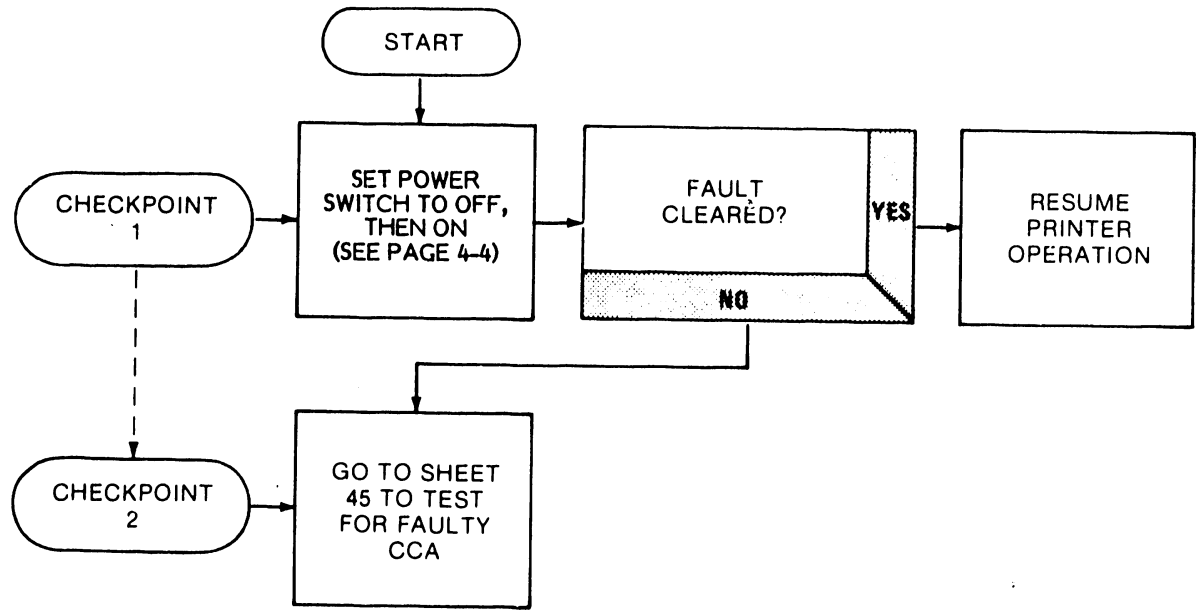
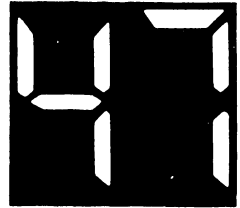
REASON FOR THIS STATUS INDICATION
THE PROCESSOR MONITORS THE VCL FOR AN UNDER-VOLTAGE CONDITION. A VCL SUPPLY LEVEL OF LESS THAN ONE VOLT (EXCEPT WHEN IN THE PRINT INHIBIT MODE) IS A FAULT CONDITION. STATUS CODE 46 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTER OPERATION STOPS.



TROUBLESHOOTING SHEET 34
STATUS INDICATION 46
"VCL FAULT"

POSSIBLE CAUSES
 1. FAULTY CCA.
 2. DEFECTIVE POWER SUPPLY.

REASON FOR THIS STATUS INDICATION
 THE PROCESSOR MONITORS THE +38 VOLT SUPPLY FOR OVER-VOLTAGE AND UNDER-VOLTAGE CONDITIONS. A DETECTED FAULT CAUSES PRINTER OPERATION TO STOP, AND STATUS CODE 47 IS DISPLAYED ON THE CONTROL PANEL INDICATORS.



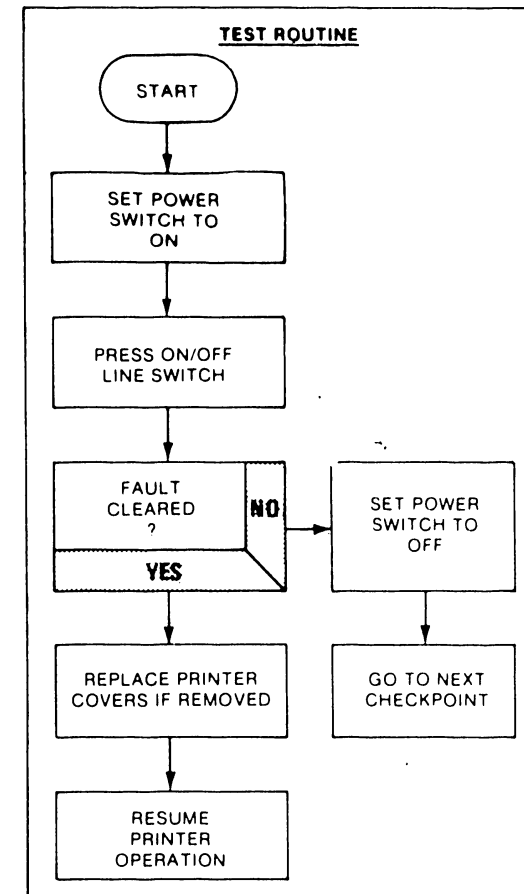
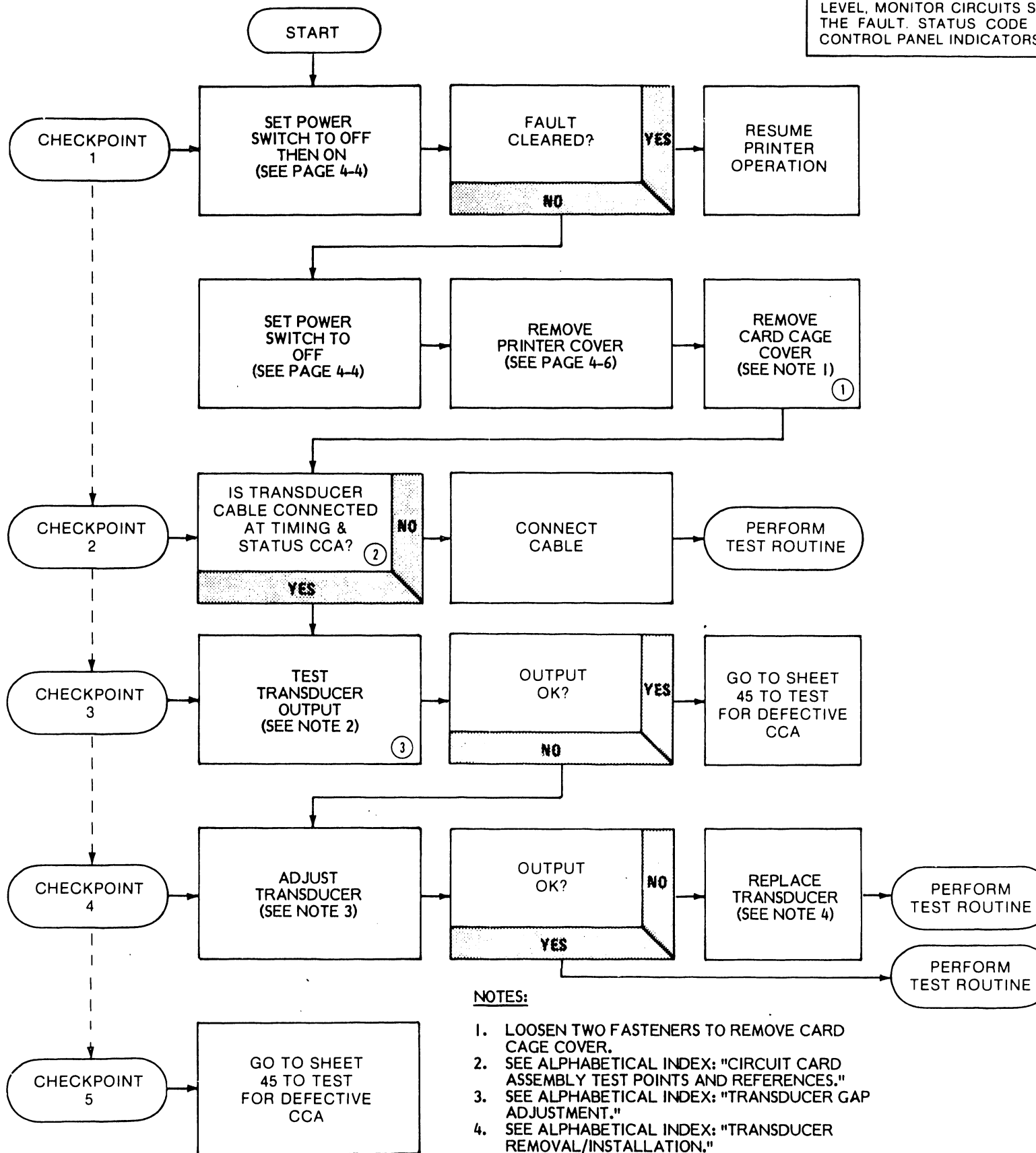
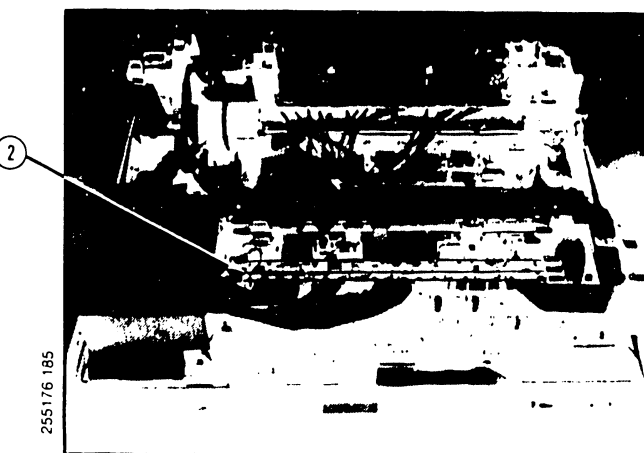
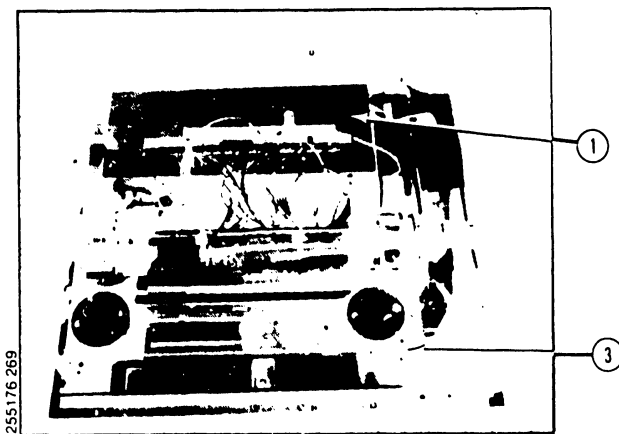
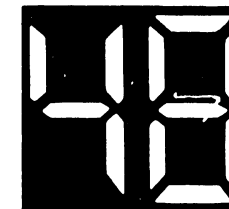
TROUBLESHOOTING SHEET 35
STATUS INDICATION 47
"+38 VOLT FAULT"

POSSIBLE CAUSES

1. TRANSDUCER CABLE LOOSE AT TIMING AND STATUS CCA.
2. TRANSDUCER MISADJUSTED OR FAULTY.
3. FAULTY CCA.

REASON FOR THE STATUS INDICATION

THE TRANSDUCER PICKUP RESPONDS TO TIMING MARKS ON THE MOVING CHARACTER BAND, AND ITS OUTPUT IS AN IMPORTANT PART OF SYSTEM TIMING. IF THE TRANSDUCER FAILS OR ITS OUTPUT FALLS BELOW THE REQUIRED LEVEL, MONITOR CIRCUITS SIGNAL THE PROCESSOR OF THE FAULT. STATUS CODE 48 IS DISPLAYED ON THE CONTROL PANEL INDICATORS, AND PRINTING STOPS



NOTES:

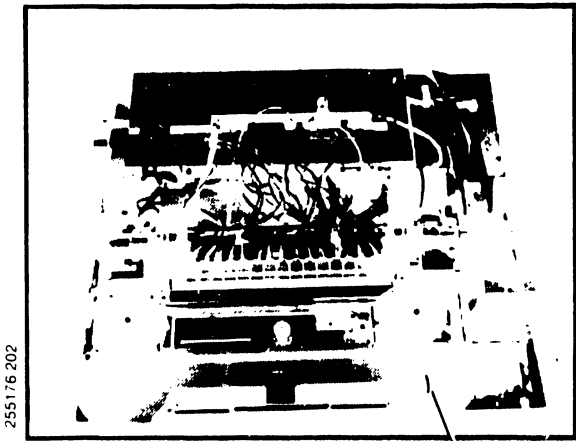
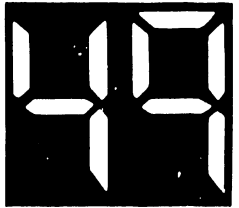
1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.
2. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLY TEST POINTS AND REFERENCES."
3. SEE ALPHABETICAL INDEX: "TRANSDUCER GAP ADJUSTMENT."
4. SEE ALPHABETICAL INDEX: "TRANSDUCER REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 36
STATUS INDICATION 48
"TRANSDUCER FAULT"

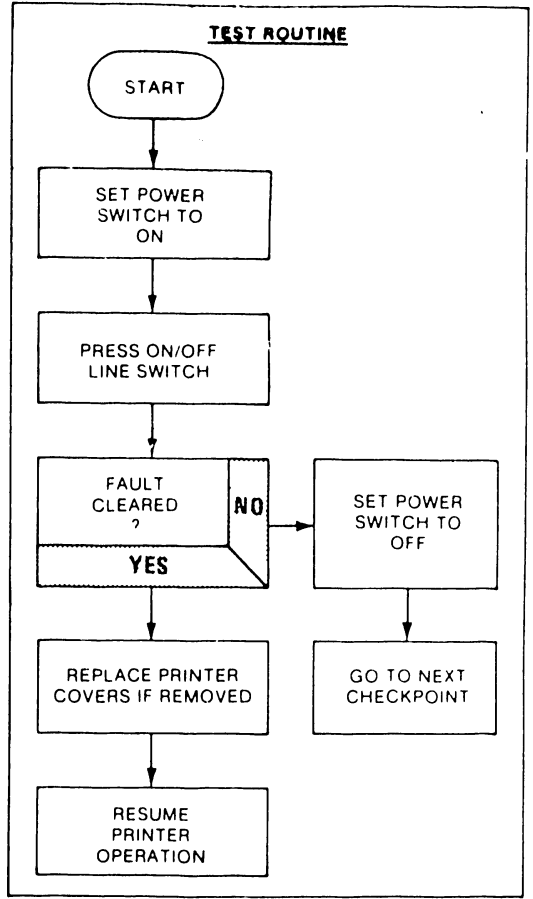
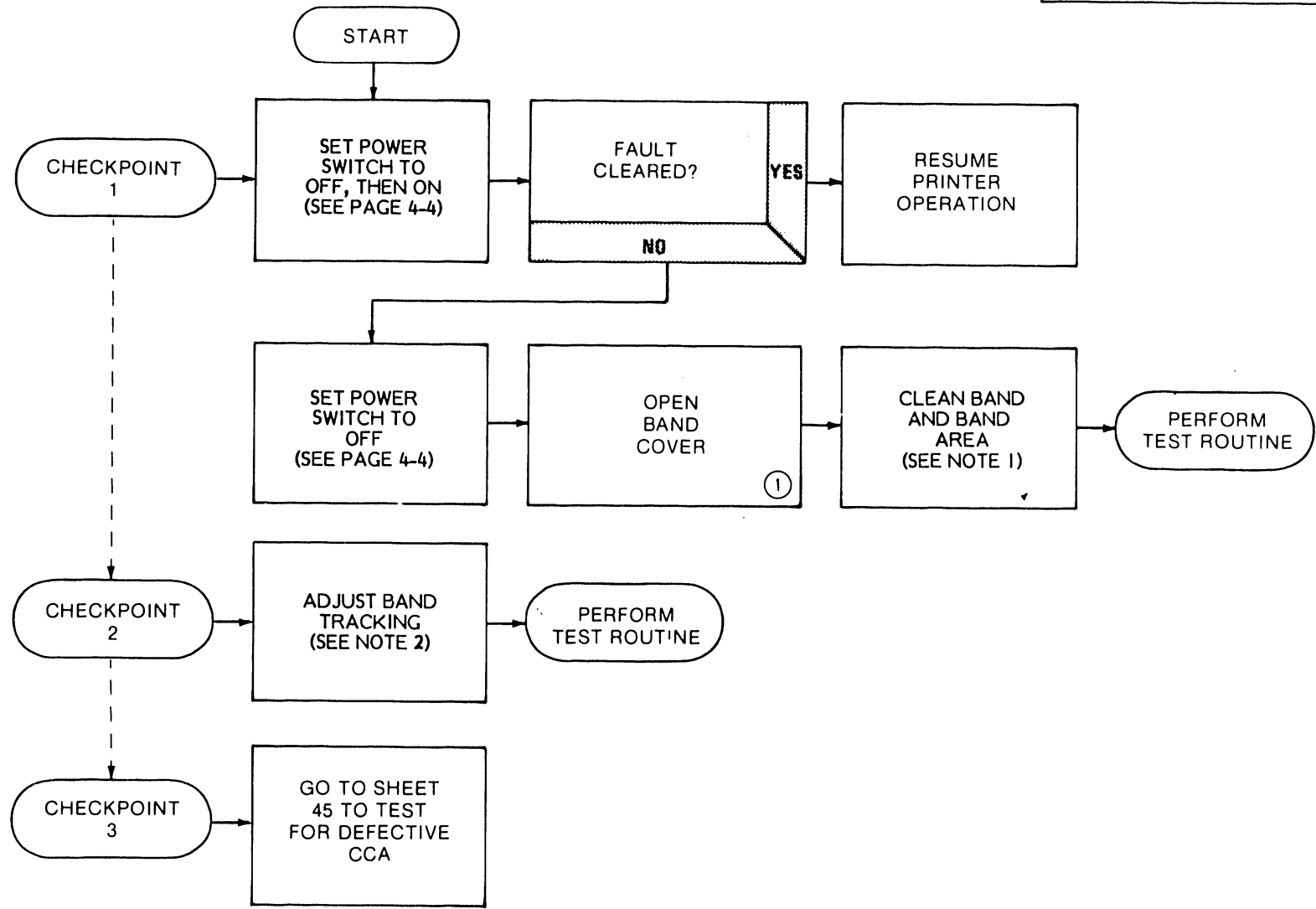
- POSSIBLE CAUSES**
1. DIRTY BAND OR BAND AREA.
 2. POOR BAND TRACKING ADJUSTMENT.
 3. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

DRIVE CURRENT TO THE BAND MOTOR IS MONITORED TO PROTECT AGAINST OVER-CURRENT CONDITIONS. CURRENT OF 3.8 AMPS OR MORE FOR FIVE SECONDS IS A FAULT, AS IS GREATER CURRENT OVER SHORTER PERIODS. SURGES OF LESS THAN HALF A SECOND ARE IGNORED. THIS FAULT CONDITION USUALLY RESULTS FROM MECHANICAL DRAG ON THE BAND MOTOR.



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NOTES:

1. SEE ALPHABETICAL INDEX: "CLEANING PROCEDURES."
2. SEE ALPHABETICAL INDEX: "BAND TRACKING ADJUSTMENT."

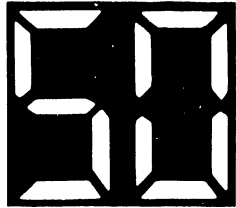
TROUBLESHOOTING SHEET 37

STATUS INDICATION 49
"BAND CURRENT FAULT"

- POSSIBLE CAUSES**
1. RANDOM NOISE SPIKES.
 2. CIRCUIT CARD ASSEMBLY NOT WELL SEATED.
 3. POOR GROUND CONNECTION.
 4. FAULTY CCA.

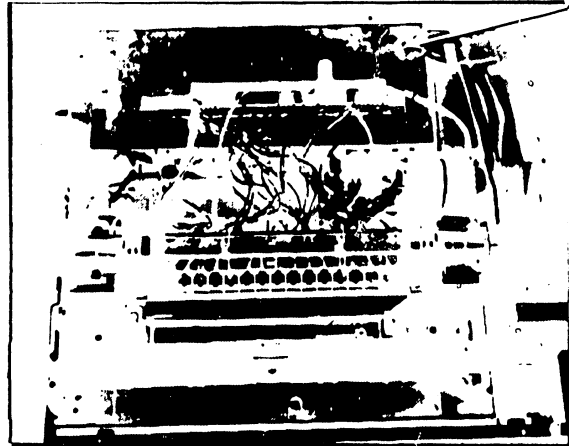
REASON FOR THIS STATUS INDICATION

THIS STATUS CODE APPEARS BY DEFAULT WHEN A CHANGE IN SYSTEM STATUS OCCURS BUT THE PROCESSOR IS UNABLE TO IDENTIFY ITS SOURCE. USUALLY THE FAULT IS CAUSED BY TRANSIENT CONDITIONS — FOR EXAMPLE, RANDOM NOISE SPIKES — AND CAN BE CLEARED BY TURNING THE POWER SWITCH OFF AND ON AGAIN TO RESET THE PRINTER SYSTEM.

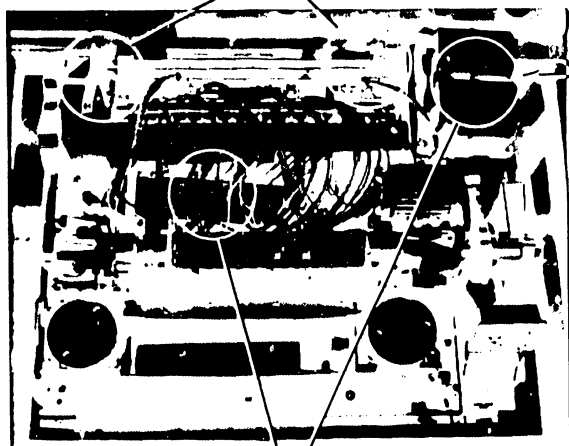


WARNING

ALLOW AT LEAST TWO MINUTES FOR CAPACITORS TO DISCHARGE BEFORE WORKING IN POWER SUPPLY AREA. USE ONLY A NON-METALLIC PROBE TO CHECK CONNECTIONS.

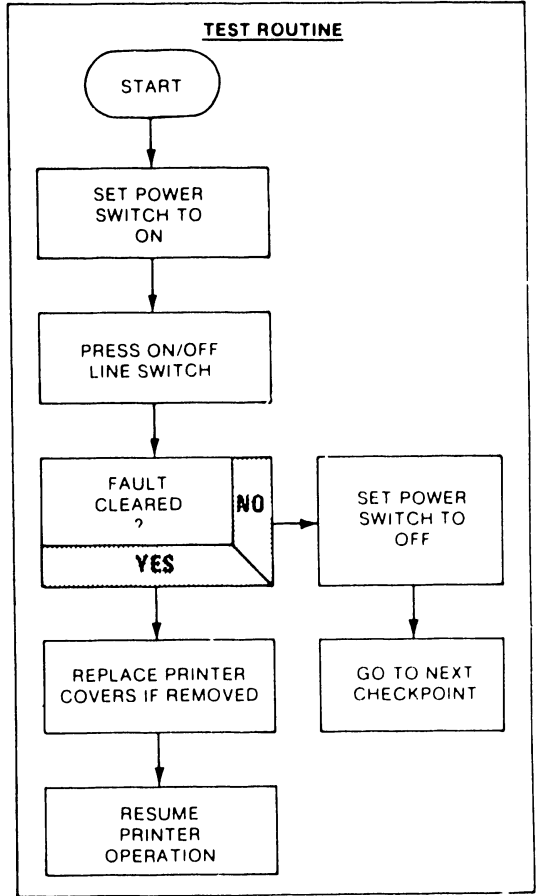
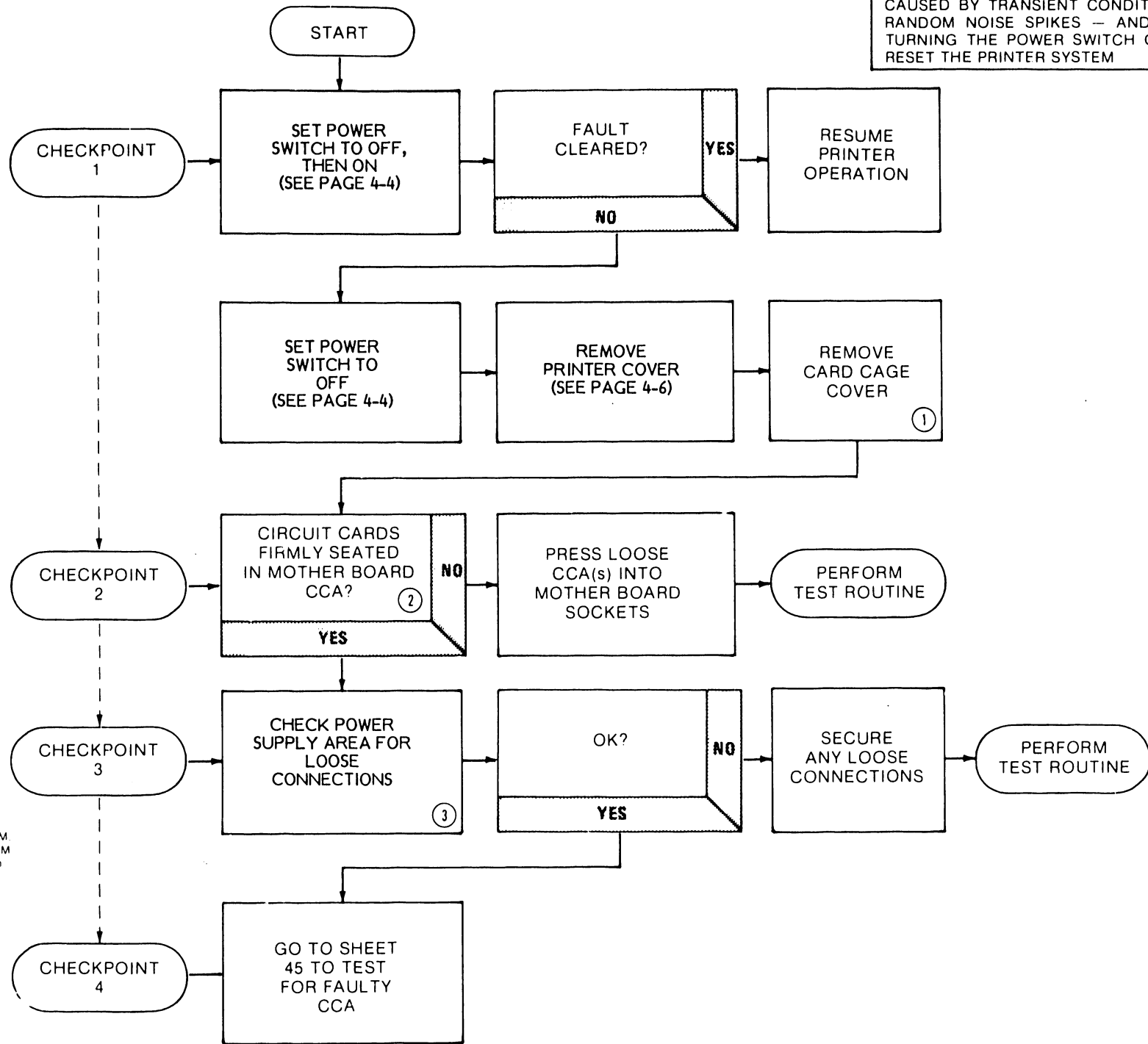


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255176 182

(1600 LPM
1000 LPM
ONLY)



TROUBLESHOOTING SHEET 38

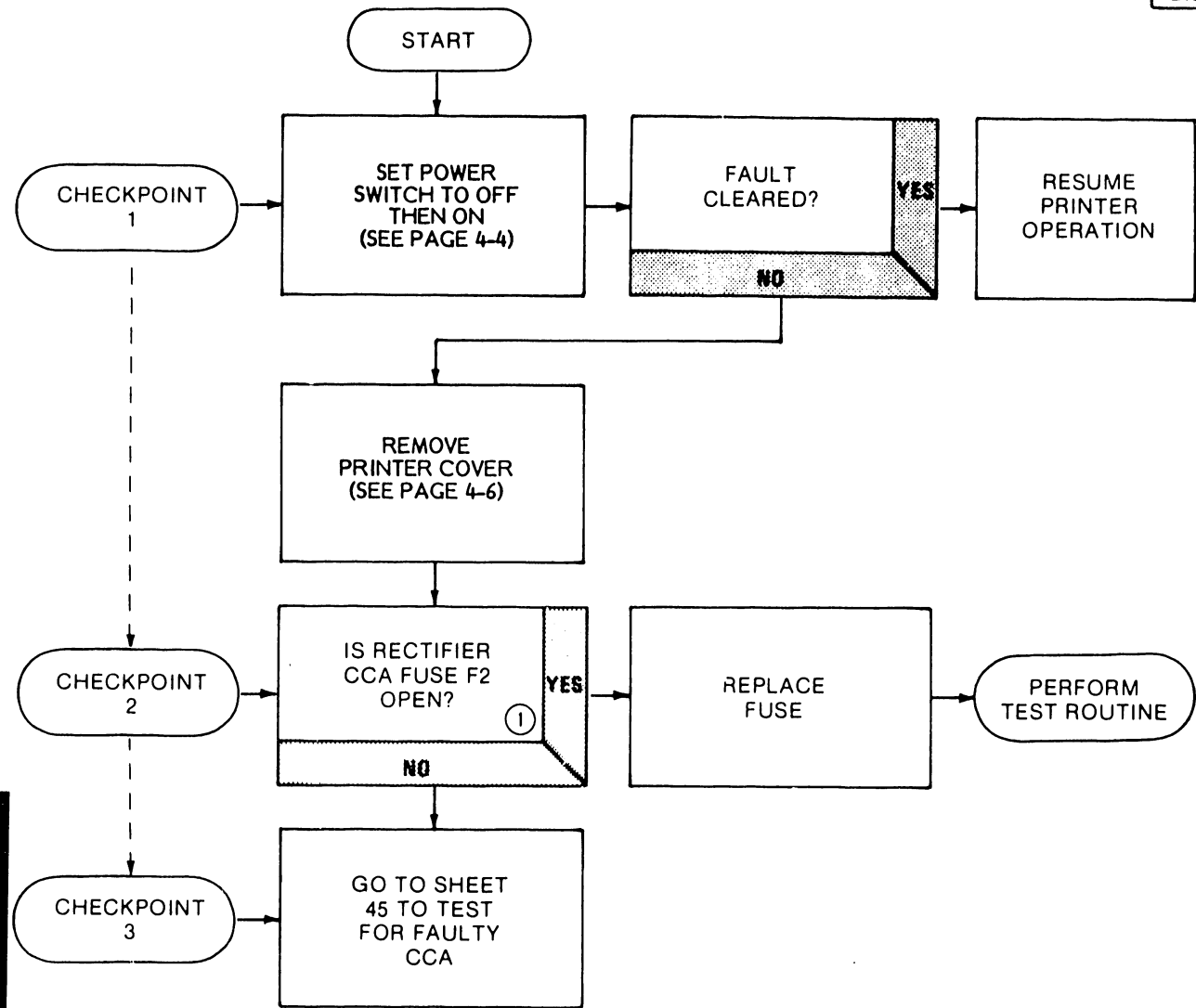
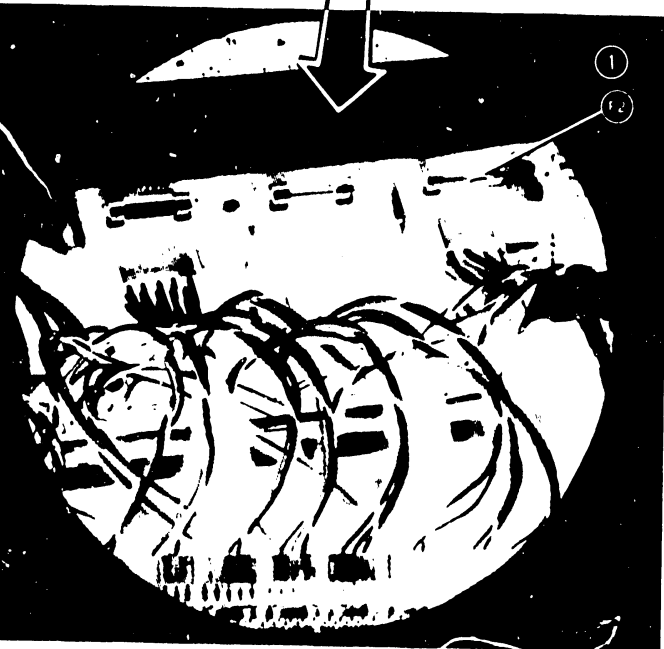
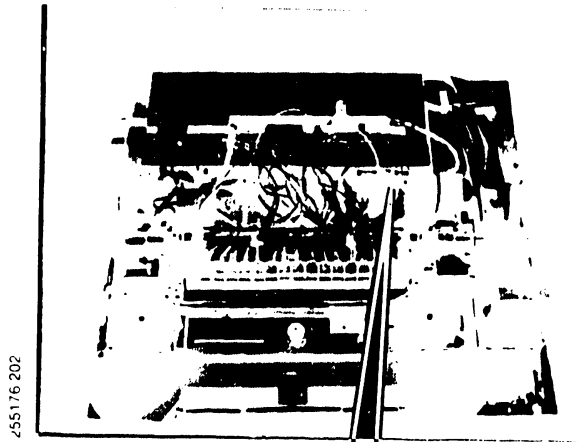
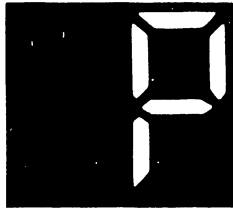
STATUS INDICATION 50
"SYSTEM STATUS FAULT"

POSSIBLE CAUSES

1. RECTIFIER CCA FUSE F2 OPEN.
2. FAULTY CCA

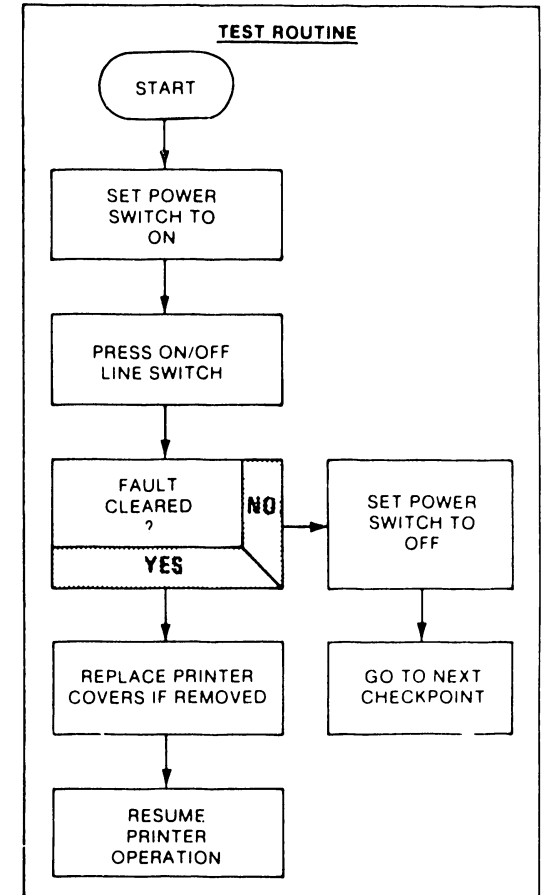
REASON FOR THIS STATUS INDICATION

THE POWER FAULT (P) STATUS INDICATION IS DISPLAYED WHEN AN UNDER-VOLTAGE OR OVER-VOLTAGE IS DETECTED ON THE +5 VOLT LINE. THE +5 VOLT SOURCE IS DERIVED FROM A REFERENCE VOLTAGE DEVELOPED FROM THE PRINTER POWER SUBSYSTEM REGULATED DC VOLTAGES. AN UNACCEPTABLE LEVEL CHANGE IN A REGULATED DC VOLTAGE OR IN THE +5 VOLT SOURCE WILL TRIGGER A POWER FAULT SIGNAL. STATUS INDICATION P WILL BE DISPLAYED AND PRINTER OPERATION WILL CEASE.



NOTE

IT MAY BE NECESSARY TO REPLACE FUSE F2 EACH TIME A CCA IS TESTED UNTIL THE FAULTY ASSEMBLY IS ISOLATED.



TROUBLESHOOTING SHEET 39

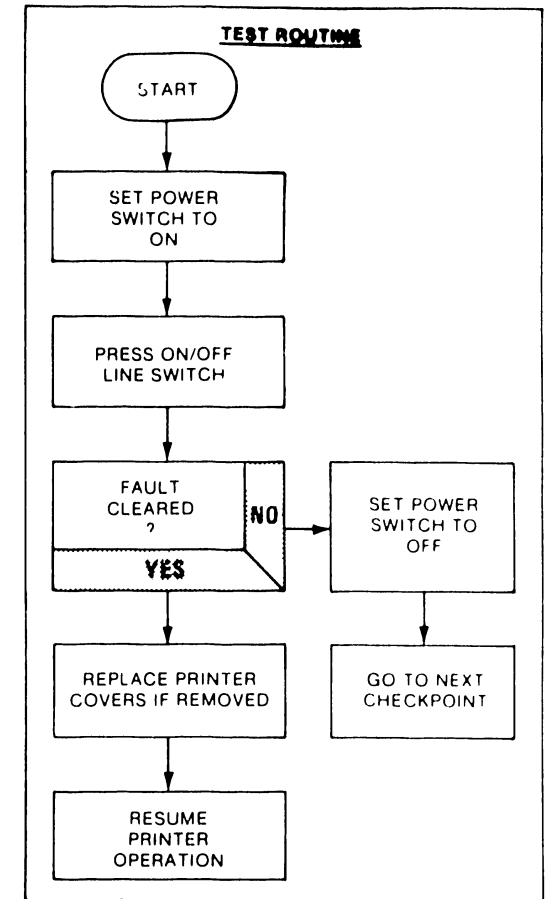
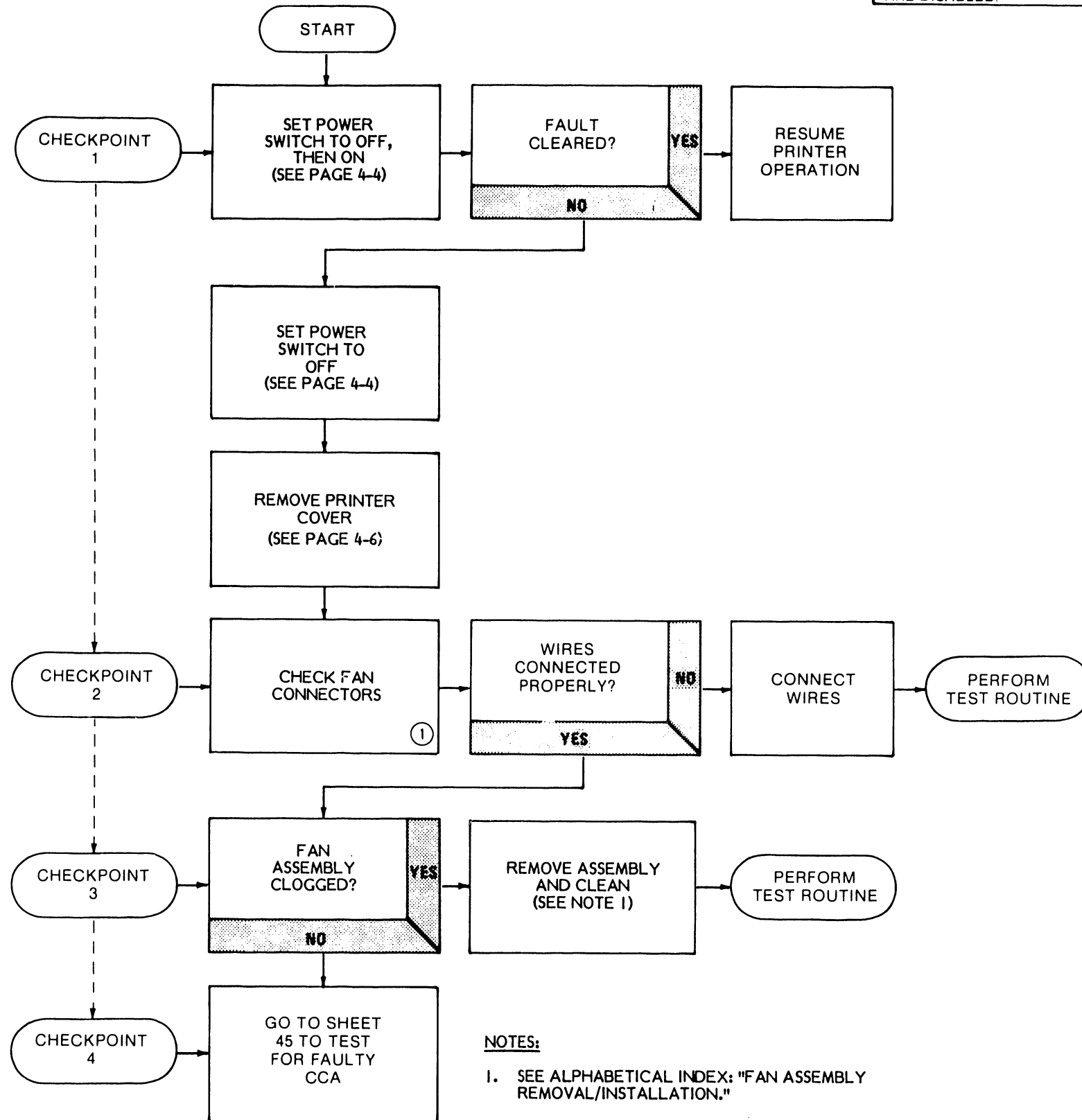
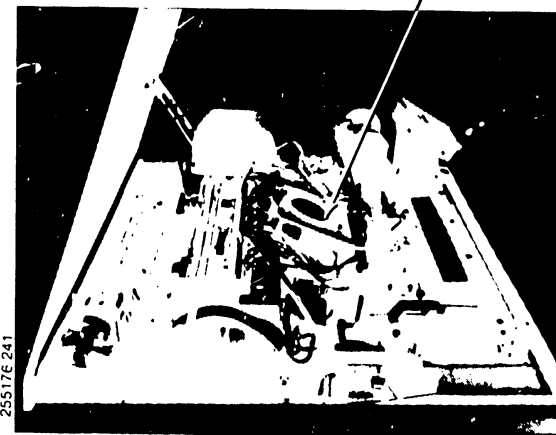
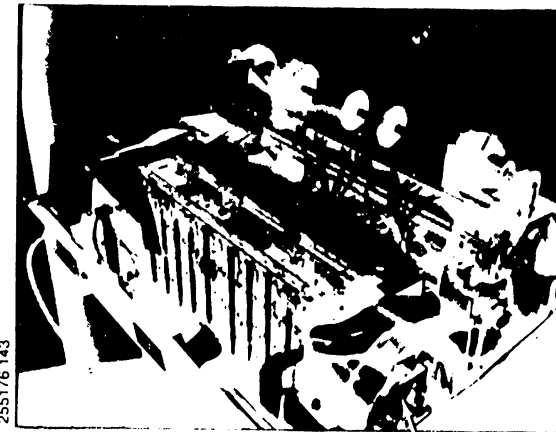
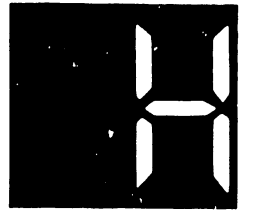
STATUS INDICATION P
"POWER FAULT"

POSSIBLE CAUSES

1. CARD CAGE FAN NOT OPERATING.
2. HAMMER BANK BLOWER NOT OPERATING
3. FAULTY CCA.

REASON FOR THIS STATUS INDICATION

AIR TEMPERATURE WITHIN THE PRINTER ELECTRONICS ASSEMBLY IS MONITORED BY A THERMAL SENSING CIRCUIT LOCATED ON THE POWER BOARD CCA. IF THE TEMPERATURE EXCEEDS THE ALLOWABLE LIMIT, THE SENSING CIRCUIT WILL GENERATE A SIGNAL TO EFFECT A REFLEX FAULT CONDITION. THIS REFLEX FAULT CAUSES AN IMMEDIATE POWER DOWN WITHOUT A COMMAND BY THE PROCESSOR CCA. STATUS INDICATION H IS THEN DISPLAYED AND THE PRINTER'S REGULATED VOLTAGES ARE DISABLED.

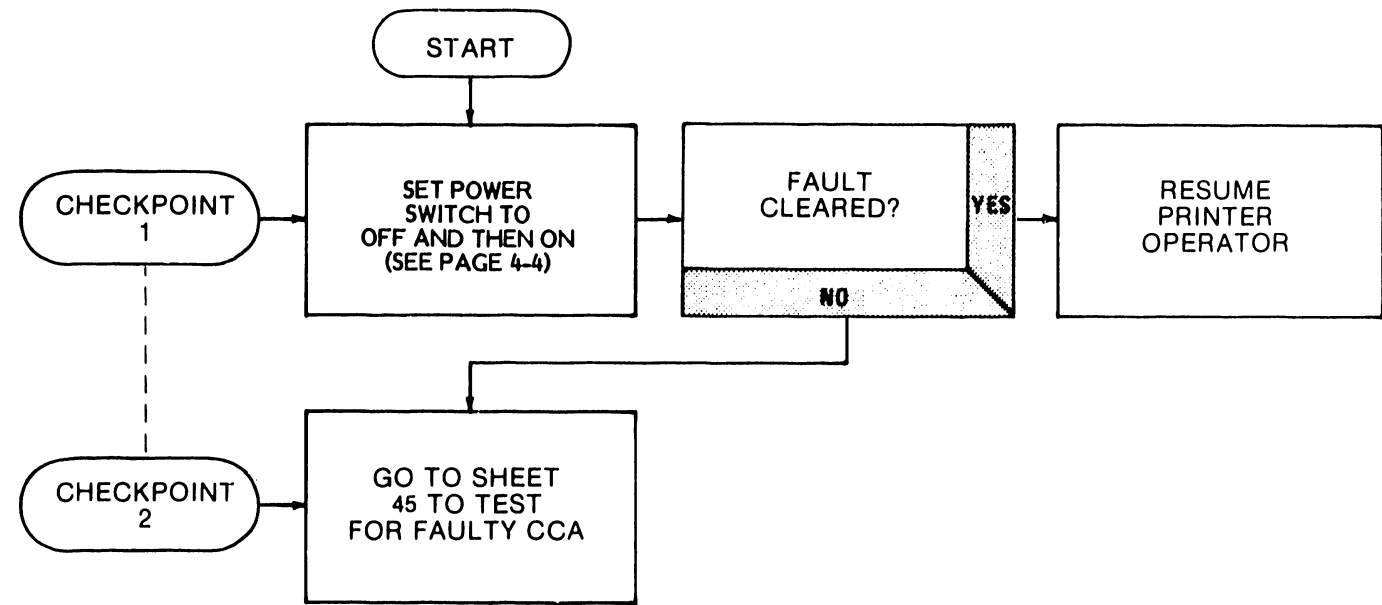


TROUBLESHOOTING SHEET 40

STATUS INDICATION H
"HOT CONDITION"

POSSIBLE CAUSE
1. DEFECTIVE CIRCUIT CARD ASSEMBLY.

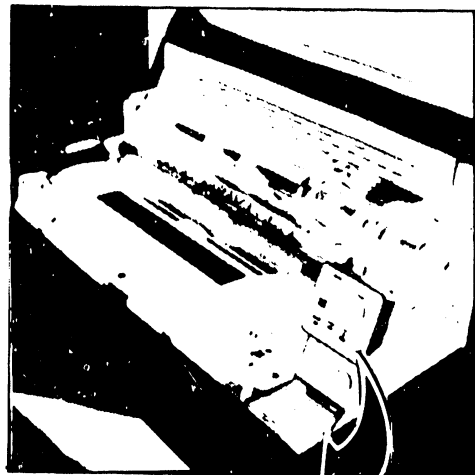
REASON FOR THIS STATUS INDICATION
FAILURE OF THE PRINTER SYSTEM CLOCK, LOCATED ON THE PROCESSOR CCA, TO OPERATE CORRECTLY WILL GENERATE A CLOCK FAULT CONDITION. AN UNACCEPTABLE CHANGE IN THE CLOCK SIGNAL IS DETECTED BY A COMPARATOR CIRCUIT LOCATED ON THE TIMING AND STATUS CCA. THE COMPARATOR CIRCUIT WILL THEN CAUSE A CLOCK FAULT SIGNAL TO BE GENERATED. STATUS INDICATION C WILL BE DISPLAYED AND PRINTER OPERATION WILL CEASE



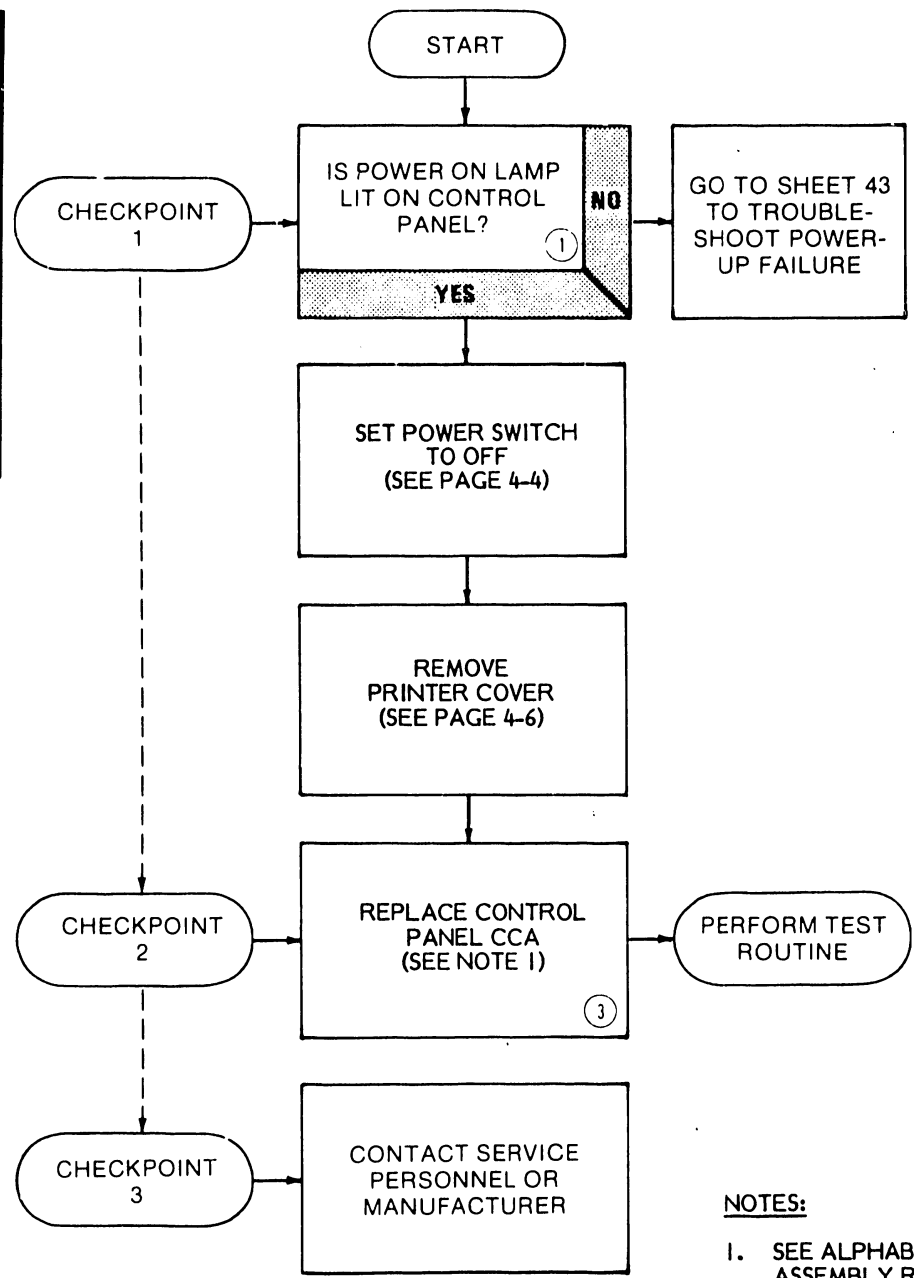
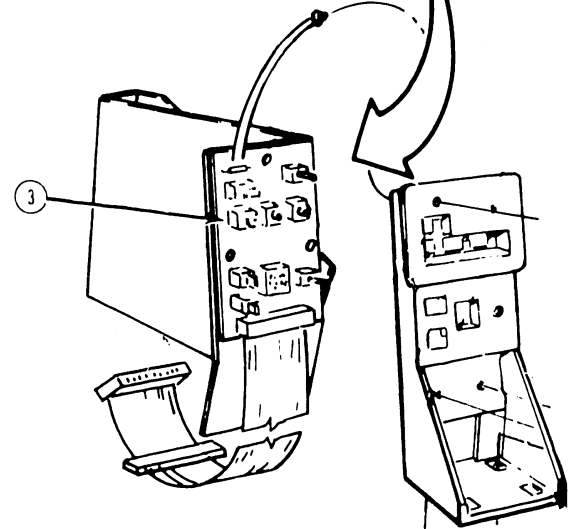
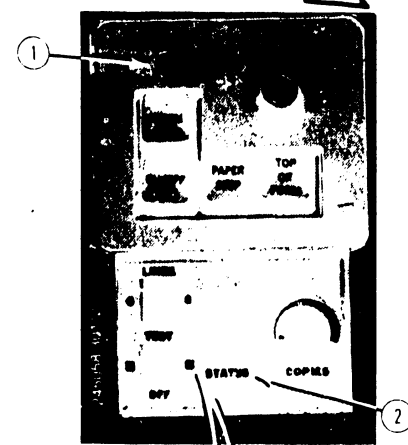
TROUBLESHOOTING SHEET 41
STATUS INDICATION C
"CLOCK FAULT"

REASON FOR THIS FAULT—NO STATUS INDICATION

AN UNDEFINED FAULT CAN DEVELOP WHEN THE +9VDC IS MISSING AT THE CONTROL PANEL STATUS INDICATORS OR IF ONE OR BOTH OF THE STATUS INDICATORS ARE DEFECTIVE. IF THE +9VDC IS MISSING, THE POWER ON LAMP 1 ALSO WILL BE OFF. IN THIS CASE, EFFORT SHOULD FIRST BE DIRECTED TO CORRECTING A POWER-UP FAILURE. THE PROCEDURE IS GIVEN ON TROUBLESHOOTING SHEET 43. IF THE POWER ON LAMP IS LIT, THE PROBLEM MOST LIKELY WILL BE LOCATED IN A DEFECTIVE CONTROL PANEL CIRCUIT CARD ASSEMBLY.

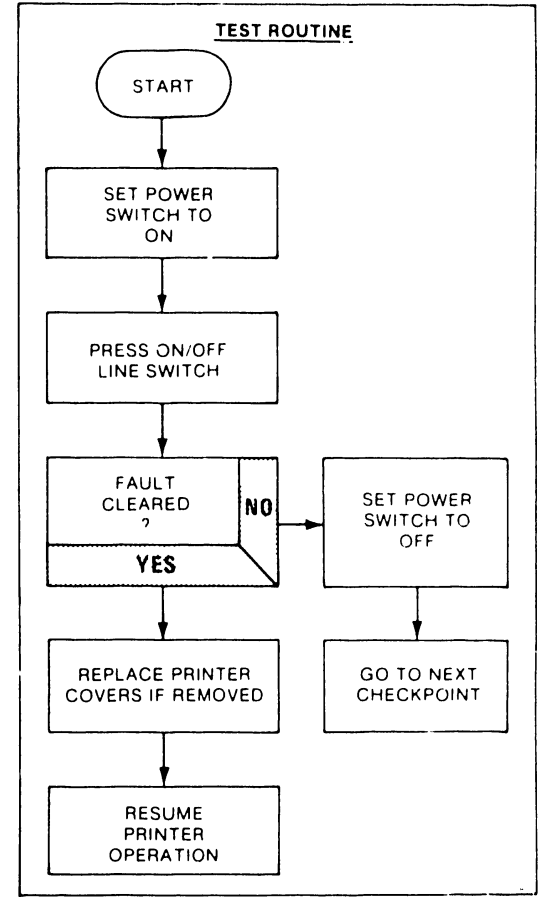


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NOTES:

1. SEE ALPHABETICAL INDEX: "CONTROL PANEL ASSEMBLY REMOVAL/INSTALLATION."



TROUBLESHOOTING SHEET 42

UNDEFINED FAULT—PRINTER OPERATING WITH NO STATUS INDICATION

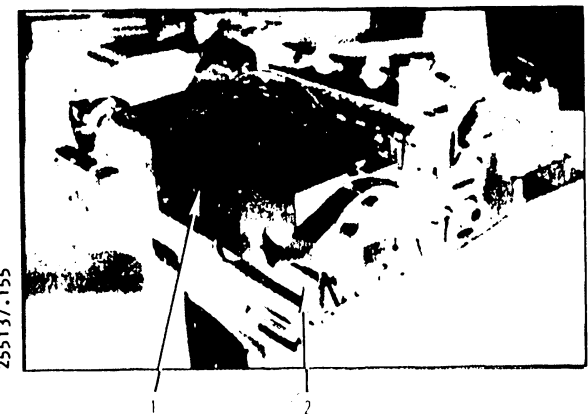
REASONS FOR POWER-UP FAILURE
 A POWER-UP FAILURE CAN OCCUR IN THREE AREAS OF THE PRINTER POWER SUB-SYSTEM: THE PRIMARY AC INPUT POWER INTERCONNECTIONS, THE UNREGULATED PORTION OF THE DC POWER SUPPLY, AND THE CIRCUIT ASSEMBLIES USING THE +9VDC GENERATED BY THE UNREGULATED DC SUPPLY. THIS FLOWCHART LEADS THROUGH THE THREE AREAS OF POSSIBLE FAULT, STARTING WITH THE AC POWER, THEN MOVING TO THE POWER SUPPLY AND THE +9VDC LOAD CIRCUITS. THE FLOWCHART IS CONTINUOUS, BUT IT MAY BE REGARDED AS HAVING THREE PARTS:

PHASE 1: PRIMARY AC POWER INTERCONNECTIONS
 CHECKPOINTS 1-4
 SHEETS 1 AND 2

PHASE 2: UNREGULATED DC POWER SUPPLY
 CHECKPOINTS 5-8
 SHEETS 2 AND 3

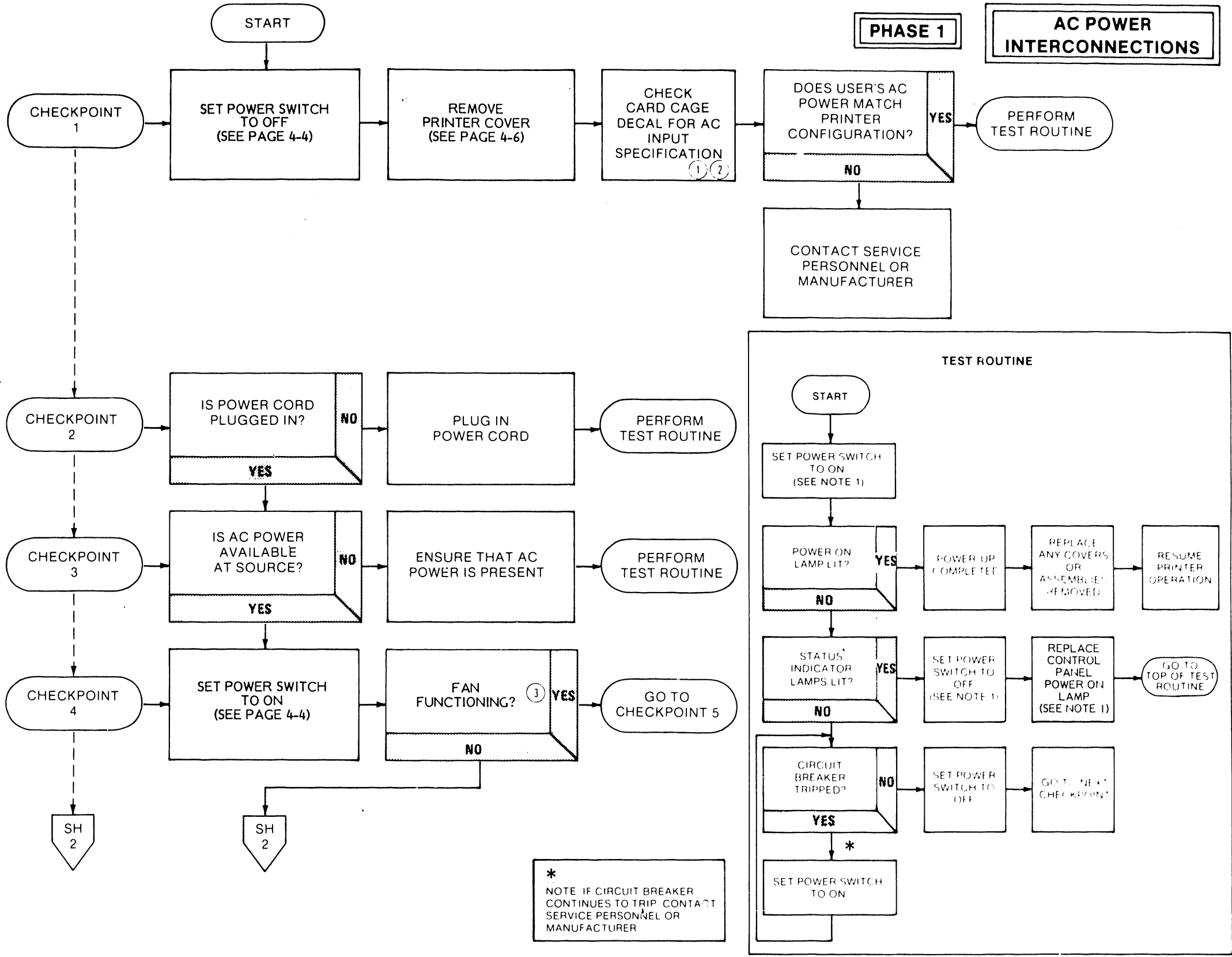
PHASE 3: +9VDC LOAD CIRCUITS
 CHECKPOINTS 9-16
 SHEETS 3, 4, AND 5

AS IN ALL THE TROUBLESHOOTING PROCEDURES IN THIS SECTION, EACH CHECKPOINT HERE GIVES STEPS FOR ONE APPROACH TO TRYING TO CORRECT THE FAULT. THE "TEST ROUTINE" IS SHOWN ON SHEET 1 OF 5.

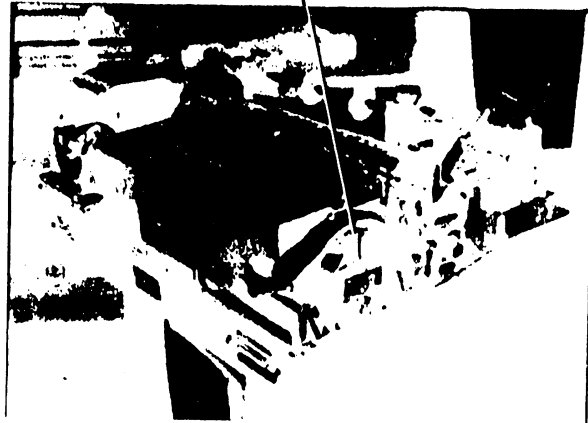


255137-155

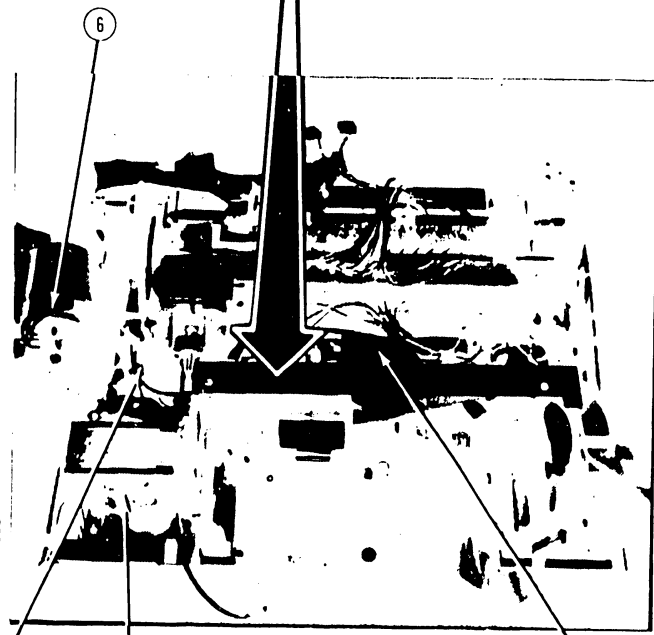
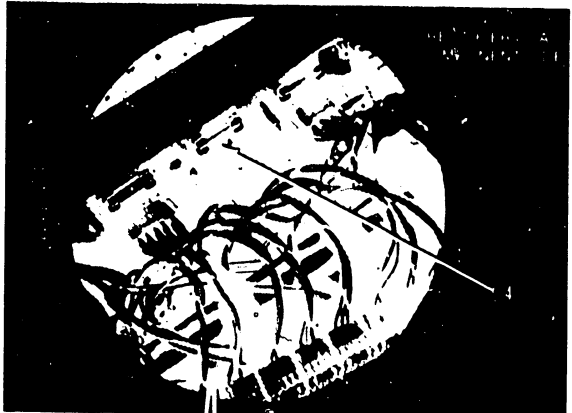
PHASE 1
AC POWER INTERCONNECTIONS



TRUBLESHOOTING SHEET 43
POWER-UP FAILURE
(SHEET 1 OF 5)

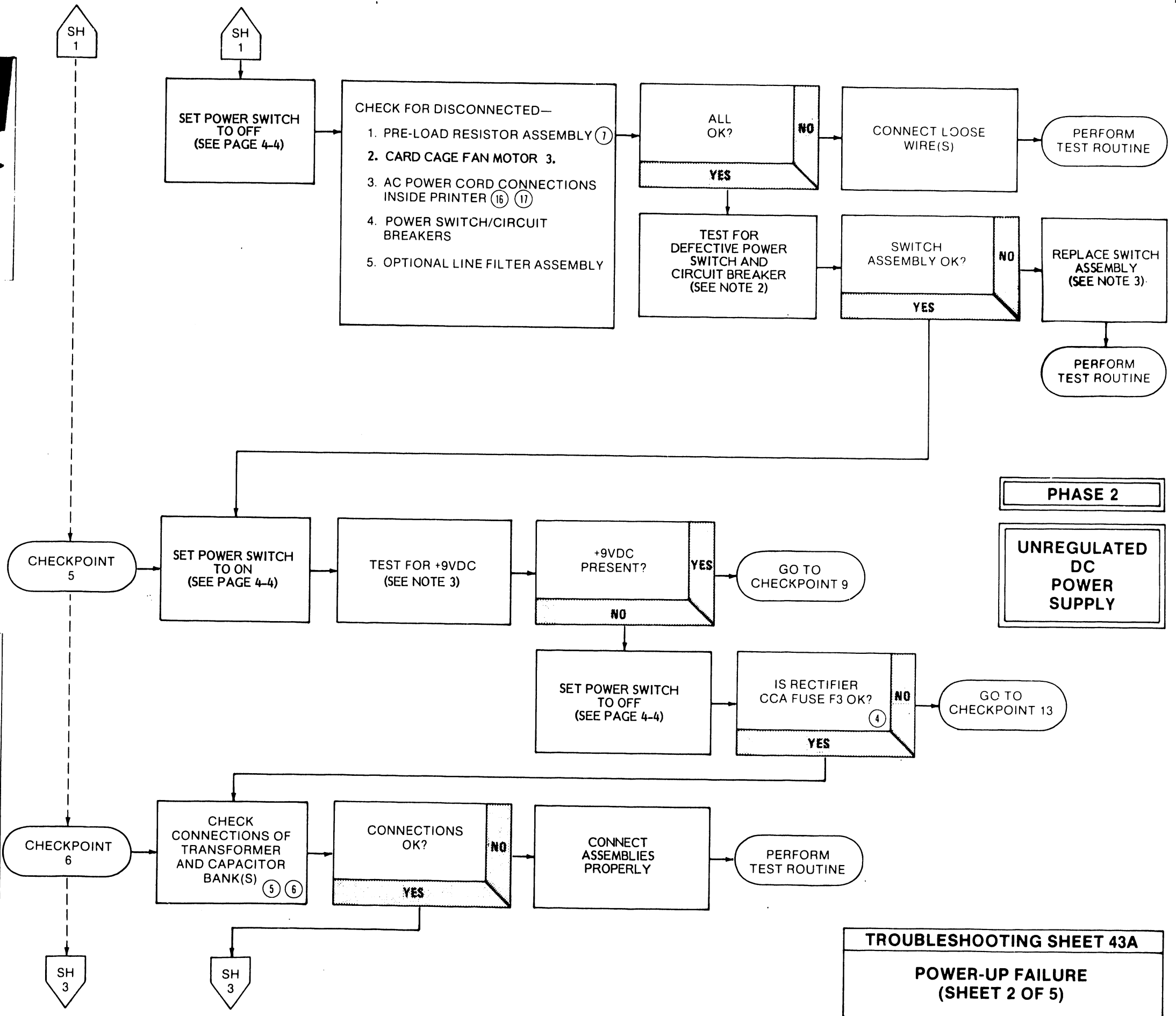


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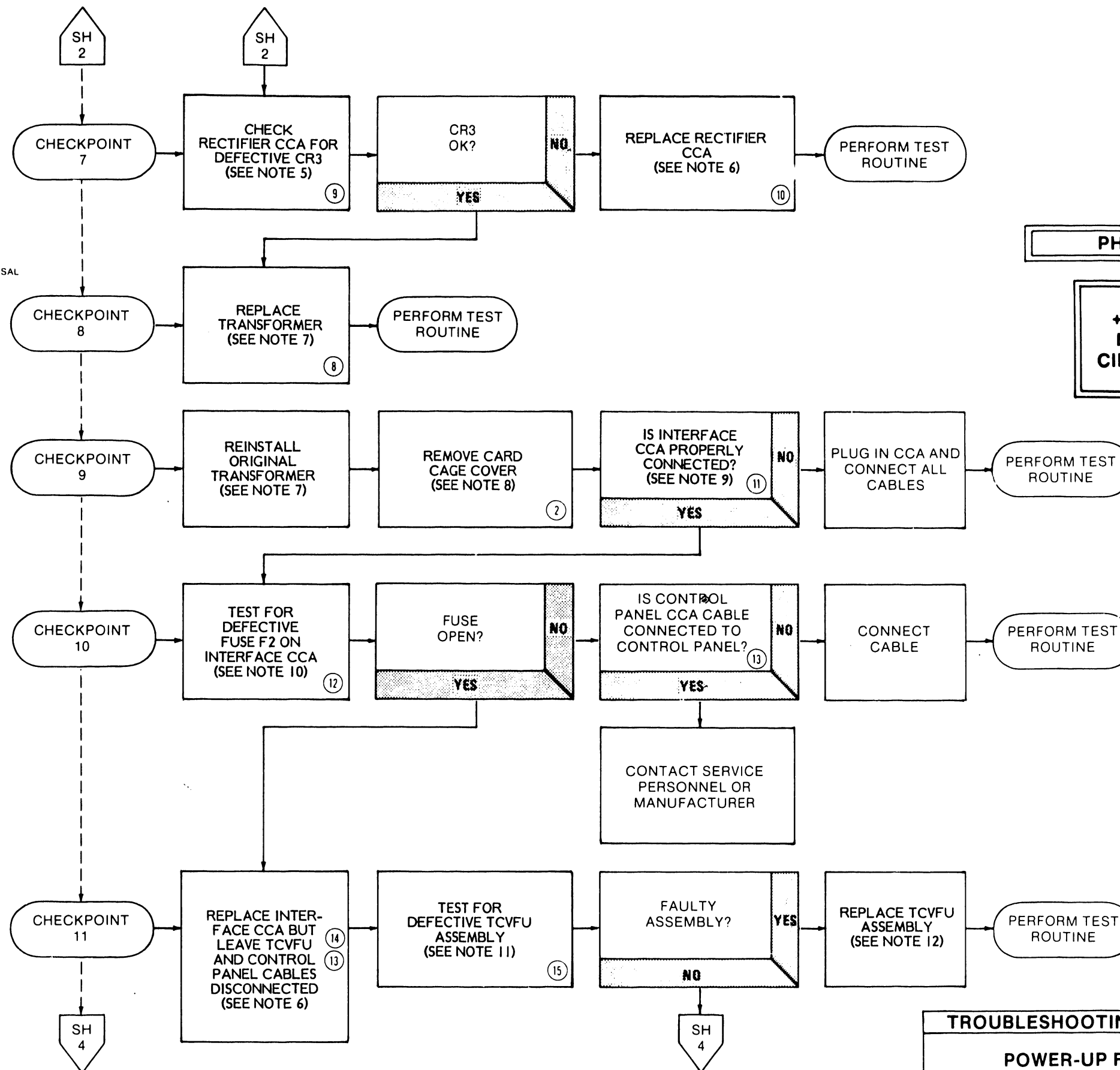
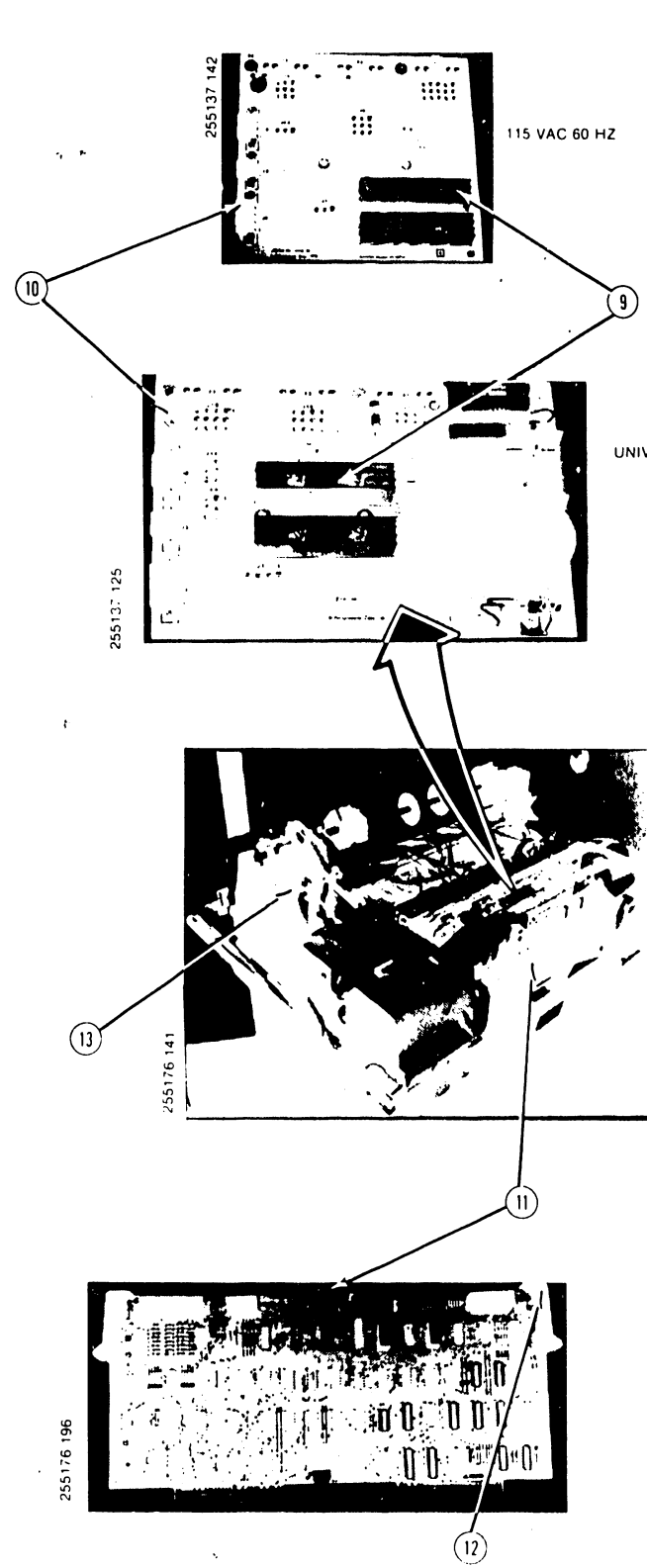
255176 309

9 (CIRCUIT CARDS REMOVED)



PHASE 2
UNREGULATED DC POWER SUPPLY

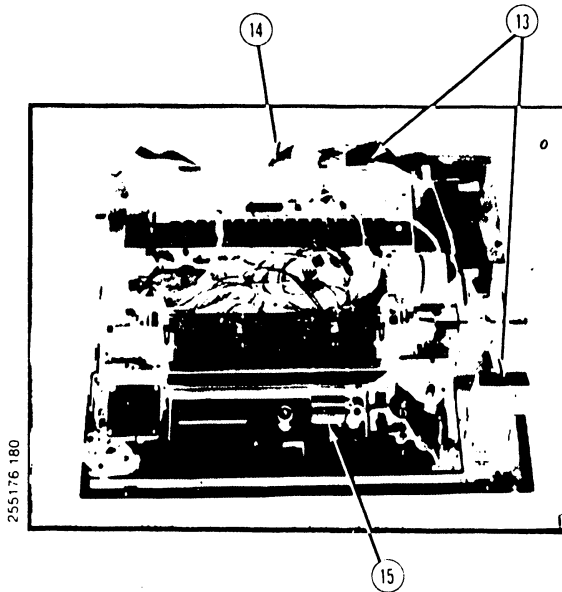
TROUBLESHOOTING SHEET 43A
POWER-UP FAILURE
(SHEET 2 OF 5)



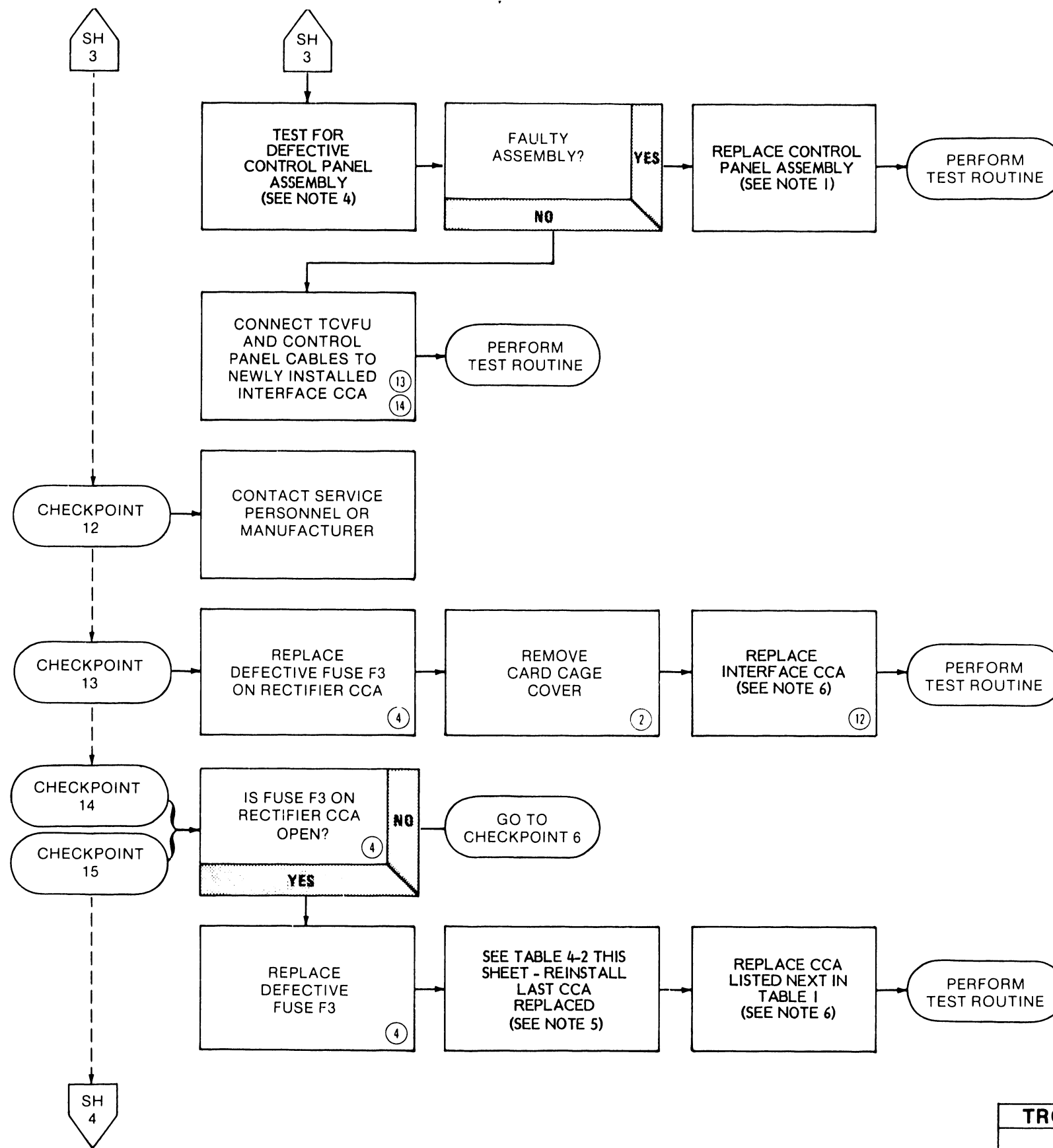
PHASE 3

+9VDC
LOAD
CIRCUITS

TROUBLESHOOTING SHEET 43B
POWER-UP FAILURE
(SHEET 3 OF 5)



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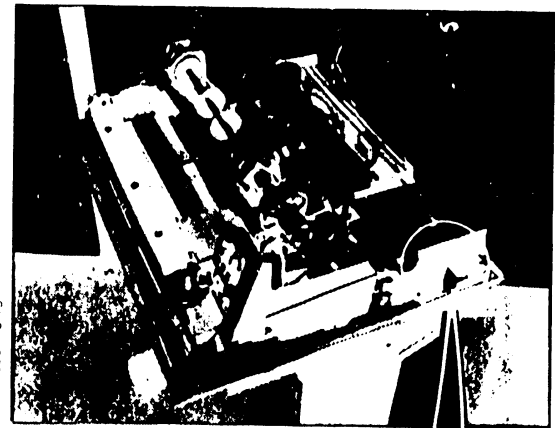


PHASE 3 CONT'D.

+ 9 VDC
LOAD
CIRCUITS

TABLE 4-2 CCA FAULT PROBABILITY	
CHECKPOINT	CCA
13	INTERFACE
14	TIMING AND STATUS
15	POWER BOARD

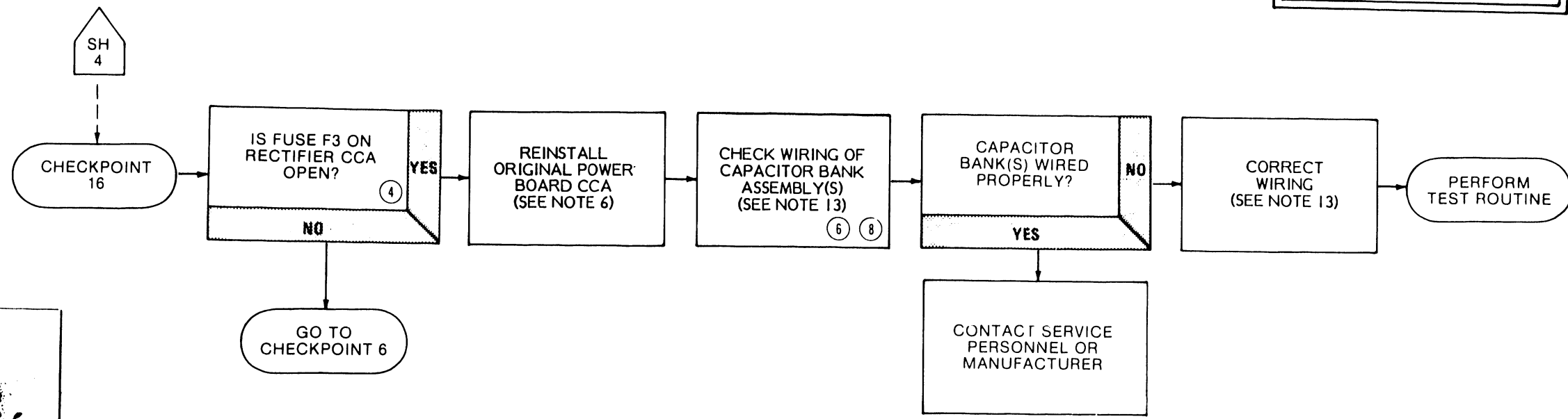
TROUBLESHOOTING SHEET 43C
POWER-UP FAILURE
(SHEET 4 OF 5)



255176 191

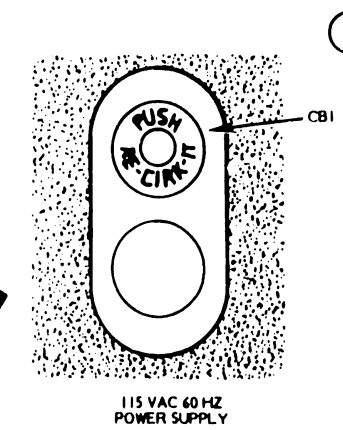
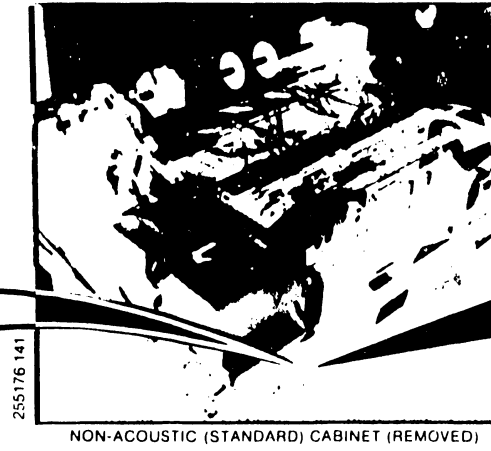
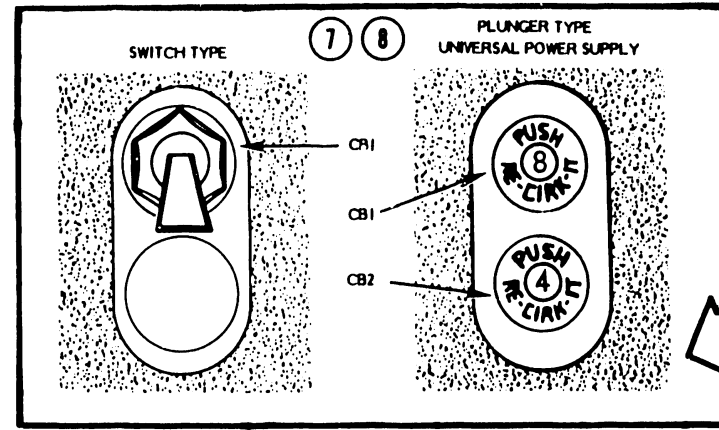
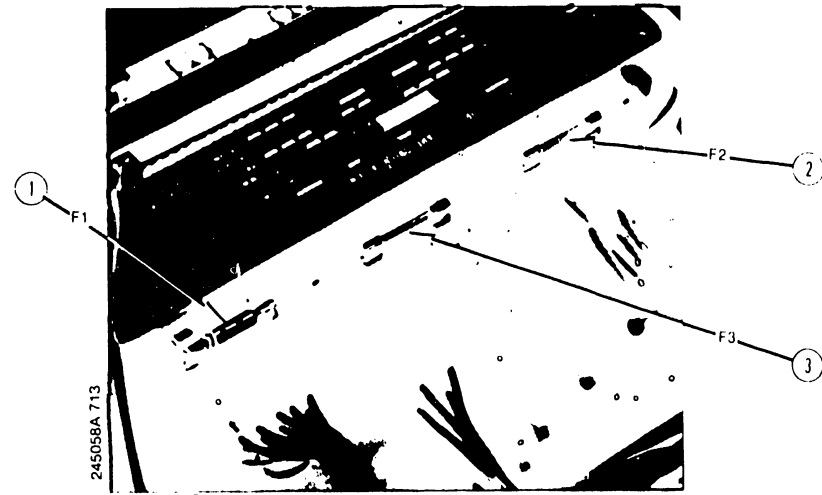


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NOTES:

1. SEE ALPHABETICAL INDEX: "CONTROL PANEL CCA REMOVAL/INSTALLATION."
2. SEE ALPHABETICAL INDEX: "POWER SWITCH AND CIRCUIT BREAKER TESTS."
3. SEE ALPHABETICAL INDEX: "CIRCUIT BREAKER REMOVAL/INSTALLATION" OR "AC POWER SWITCH REMOVAL/INSTALLATION."
4. SEE ALPHABETICAL INDEX: "CONTROL PANEL +9VDC SHORT TEST."
5. SEE ALPHABETICAL INDEX: "RECTIFIER CCA DIODE CR3 TEST."
6. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES REMOVAL/INSTALLATION."
7. SEE ALPHABETICAL INDEX: "POWER SUPPLY COMPONENTS REMOVAL/INSTALLATION."
8. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER. CHECK THAT THE CCA IS WELL SEATED IN THE MOTHER BOARD CCA AND THAT ALL CONNECTING CABLES ARE PLUGGED IN.
9. CHECK THAT THE CCA IS WELL SEATED IN THE MOTHER BOARD CCA AND THAT ALL CONNECTING CABLES ARE PLUGGED IN.
10. SEE TABLE 4-3 FOR INTERFACE CCA FUSE F2 LOCATION.
11. SEE ALPHABETICAL INDEX: "TCVFCU COMPONENTS TEST."
12. SEE ALPHABETICAL INDEX: "TCVFCU ASSEMBLY REMOVAL/INSTALLATION."
13. SEE ALPHABETICAL INDEX: "AUXILIARY CAPACITOR BANK REMOVAL/INSTALLATION" AND "CAPACITOR BANK REMOVAL/INSTALLATION" FOR CORRECT WIRING.



POWER BOARD CCA

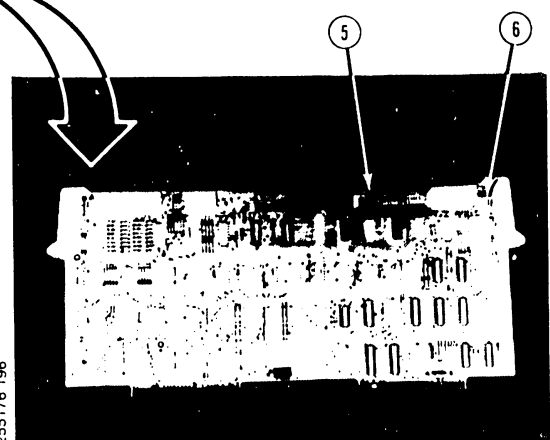
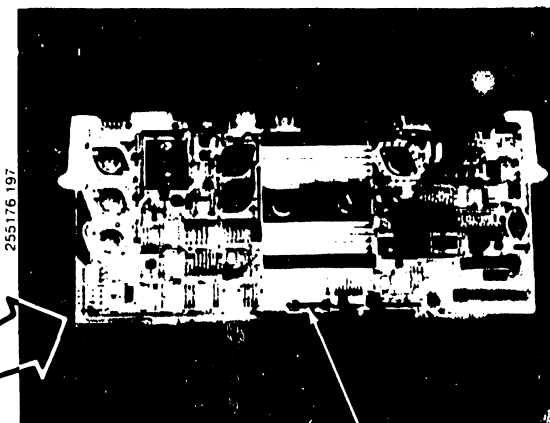


TABLE 4-3 — FUSE/CIRCUIT BREAKER LOCATOR

DEVICE	PROTECTS	LOCATION	VOLTAGE	TYPE	EFFECT WHEN OPEN	
					CONTROL PANEL STATUS INDICATION	TROUBLE-SHOOTING SHEET NO
F1	MOTORS/CLAMP AND TIMING & STATUS CCA	POWER SUPPLY RECTIFIER CCA ①	+38V	12A (3AB)	47	35
F2	TIMING & STATUS CCA	POWER SUPPLY RECTIFIER CCA ②	-9V	2A S/B (3AG)	45	33
F3	TIMING & STATUS CCA AND INTERFACE CCA	POWER SUPPLY RECTIFIER CCA ③	+9V	20A S/B (3AG)	DEAD DISPLAY	42
F1	BAND DRIVE AND PAPER FEED MOTOR	POWER BOARD CCA ④	+38V	6A (3AG)	40	29
F1	PRINTER 5V BUS	INTERFACE CCA ⑤	+5V	2A SUBMINIATURE	P	39
F2	CONTROL PANEL	INTERFACE CCA ⑥	+9V	2A SUBMINIATURE	DEAD DISPLAY	42
CB1	POWER SUPPLY/FAN	REAR OF PRINTER ⑦	AC INPUT	8A THERMAL	DEAD POWER INDICATOR	43
CB2	POWER SUPPLY/FAN	REAR OF PRINTER (OPTIONAL UNIVERSAL POWER SUPPLY) ⑧	AC INPUT	4A THERMAL	DEAD POWER INDICATOR	43

TRUBLESHOOTING SHEET 44

FUSE/CIRCUIT BREAKER LOCATOR

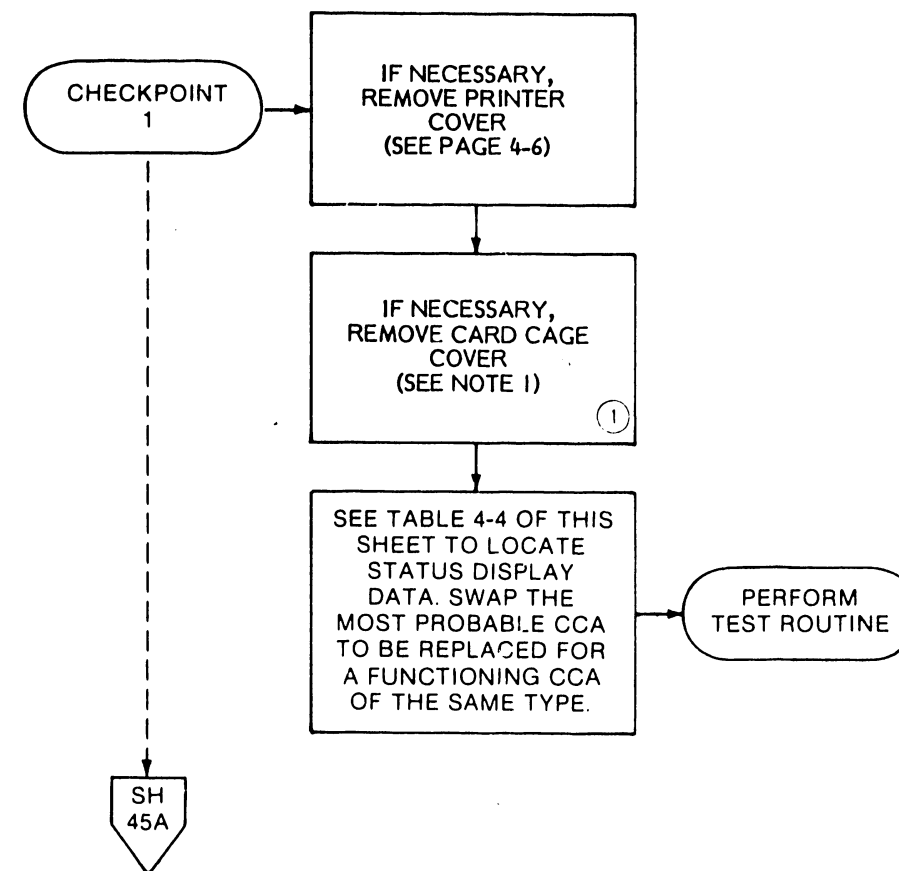
TROUBLESHOOTING FOR A DEFECTIVE CCA

THIS FLOWCHART DESCRIBES THE METHOD RECOMMENDED FOR LOCATING A POSSIBLE DEFECTIVE CIRCUIT CARD ASSEMBLY (CCA). TABLE 4-4 LISTS THE FAULT CODES AND THE ORDER OF PROBABLE CCA FAILURE FOR EACH FAULT. USE TABLE 4-4 TO ESTABLISH THE ORDER OF "BOARD SWAPPING" RECOMMENDED FOR EACH STATUS DISPLAY CODE. A NUMBER ONE (1) SIGNIFIES THE HIGHEST PROBABILITY OF CCA FAILURE.

TABLE 4-4. CIRCUIT CARD ASSEMBLY FAULT PROBABILITY

STATUS DISPLAY	DEFINITION	INTERFACE CCA (A2)	PROCESSOR CCA (A3) ①	TIMING & STATUS CCA (A4) ④	POWER BOARD CCA (A5) ③	HAMMER DRIVER CCA (A6) ⑥	TCVFU CCA
00	PROCESSOR CCA MEM PROM NOT CONNECTED	N/A	1	N/A	N/A	N/A	N/A
01	PAPER SUPPLY LOW	1	2	4	3	N/A	N/A
02	PAPER MOTION FAULT	1	2	4	3	N/A	N/A
03	BAND OR COVER NOT LOCKED	1	2	3	N/A	N/A	N/A
04	HAMMER BANK NOT CLOSED	1	2	3	N/A	N/A	N/A
05	UNDEFINED CHARACTER BAND LOADED	N/A	2	1	3	N/A	N/A
06	RIBBON MOTION FAULT	2	N/A	N/A	N/A	N/A	N/A
08	UNDEFINED FORM LENGTH SELECTED	1	2	3	N/A	N/A	N/A
09	NO TAPE IN READER	2	3	4	N/A	N/A	1
10	VFU MEMORY NOT LOADED	2	3	4	N/A	N/A	1
11	TAPE READER JAM	2	3	4	N/A	N/A	1
12	NO TOP OF FORM IN TAPE	2	3	4	N/A	N/A	1
13	TAPE TOO LONG	2	3	4	N/A	N/A	1
14	CHANNEL NOT FOUND	2	3	4	N/A	N/A	1
15	UNABLE TO READ TAPE	2	3	4	N/A	N/A	1
20	NO DATA COMPARISON	1	2	3	N/A	N/A	N/A
21	PRINT INHIBIT	N/A	N/A	1	2	3	N/A
22	INTERLOCK CABLE ERROR	1	2	3	N/A	N/A	N/A
23	I/O PARITY ERROR, DATA LOAD	1	2	3	N/A	N/A	N/A
24	NINE CONSECUTIVE CARRIAGE RETURNS	1	2	3	N/A	N/A	N/A
25	FORM CODE NOT RECOGNIZED	1	2	3	N/A	N/A	N/A
26	DAVFU STOP CODE ERROR	1	2	3	N/A	N/A	N/A
27	DAVFU DATA TRANSFER > 143	1	2	3	N/A	N/A	N/A
28	VFU CHECK SUM ERROR	1	2	3	N/A	N/A	N/A
29	I/O PARITY ERROR, DAVFU LOAD	1	2	3	N/A	N/A	N/A
30	BAD VFU MEMORY	1	2	3	N/A	N/A	N/A
40	BAND SYSTEM FAULT	N/A	2	1	3	N/A	N/A
41	PAPER DRIVE SYSTEM FAULT	4	3	2	1	N/A	N/A
42	HAMMER SYSTEM FAULT	N/A	3	4	2	1	N/A
44	12 VOLT FAULT	4	3	2	1	N/A	N/A
45	-9 VOLT FAULT	4	3	2	1	N/A	N/A
46	VCL FAULT	4	3	2	1	N/A	N/A
47	+38 VOLT FAULT	4	3	2	1	N/A	N/A
48	TRANSDUCER FAULT	N/A	2	1	3	N/A	N/A
49	BAND CURRENT FAULT	N/A	1	2	3	N/A	N/A
50	SYSTEM STATUS FAULT	4	1	2	3	N/A	N/A
P	POWER FAULT	3	N/A	2	1	N/A	N/A
H	HOT CONDITION	3	N/A	2	1	N/A	N/A
C	CLOCK FAULT	3	1	2	4	N/A	N/A
	CONTROL PANEL SWITCH INOPERATIVE	2	3	N/A	1	N/A	N/A

NOTE: THE CCA (OR ASSEMBLY) THAT MOST LIKELY WILL NEED TO BE REPLACED IS SIGNIFIED BY NUMBER 1, THAT LEAST LIKELY, BY THE NUMBER 4.

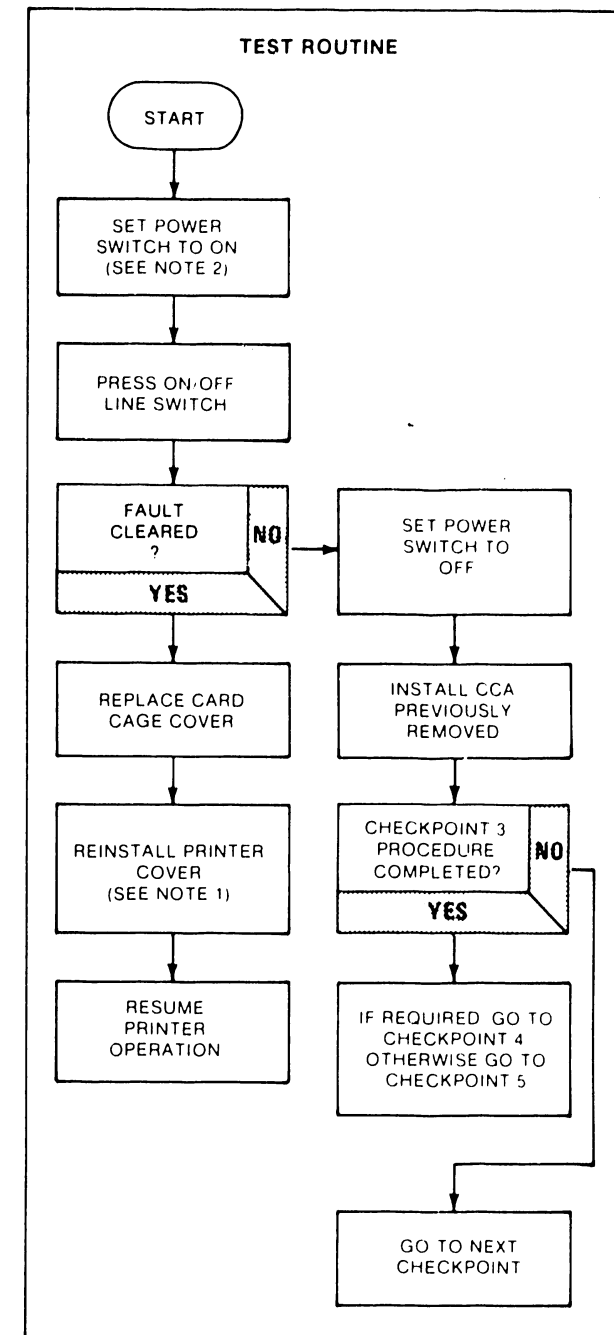
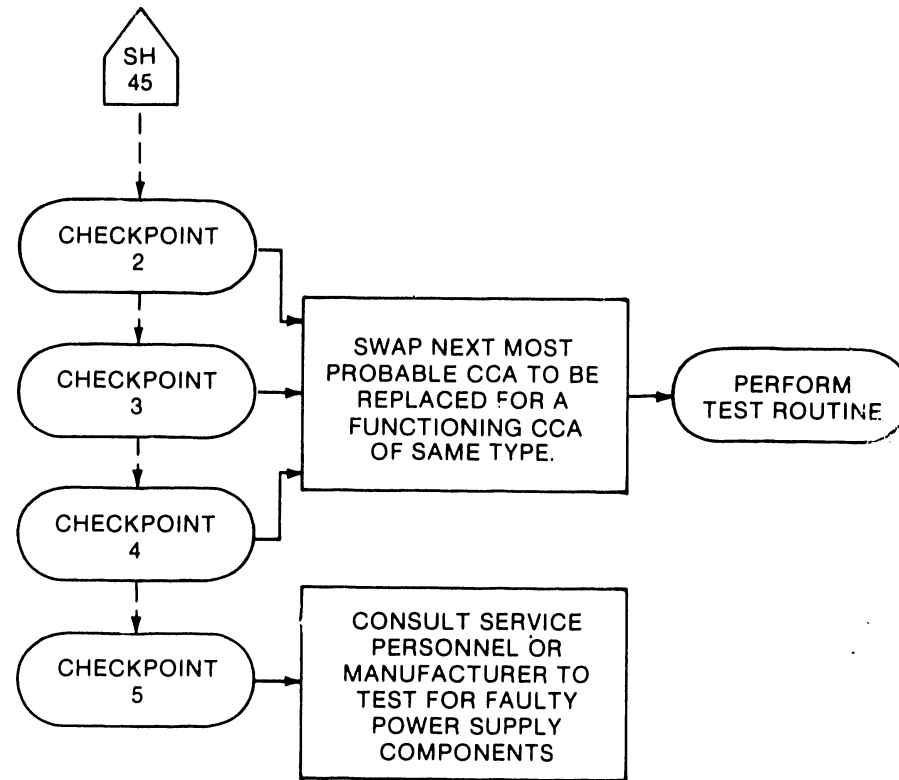
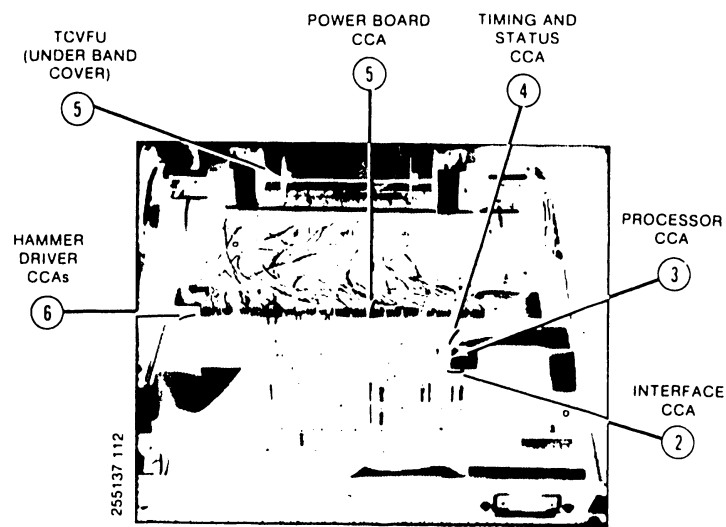
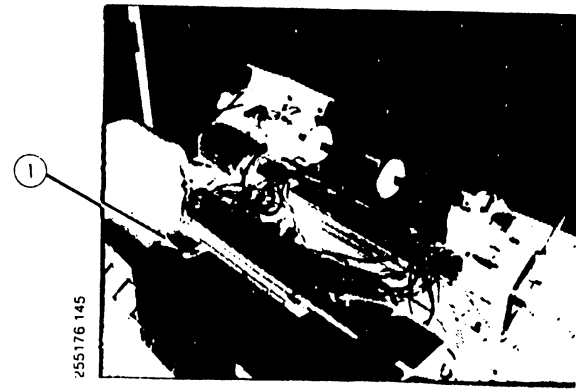


NOTE:

1. LOOSEN TWO FASTENERS TO REMOVE CARD CAGE COVER.

TROUBLESHOOTING SHEET 45

CIRCUIT CARD ASSEMBLY (CCA) FAULT(S)

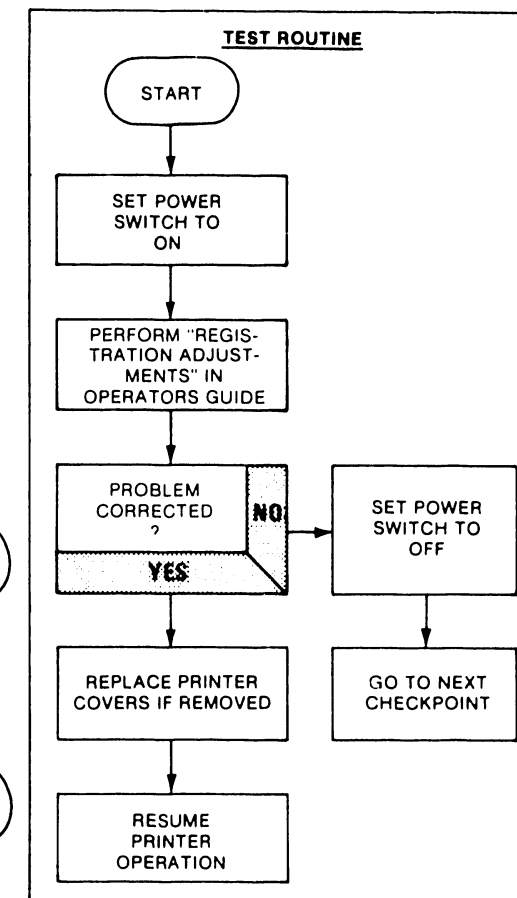
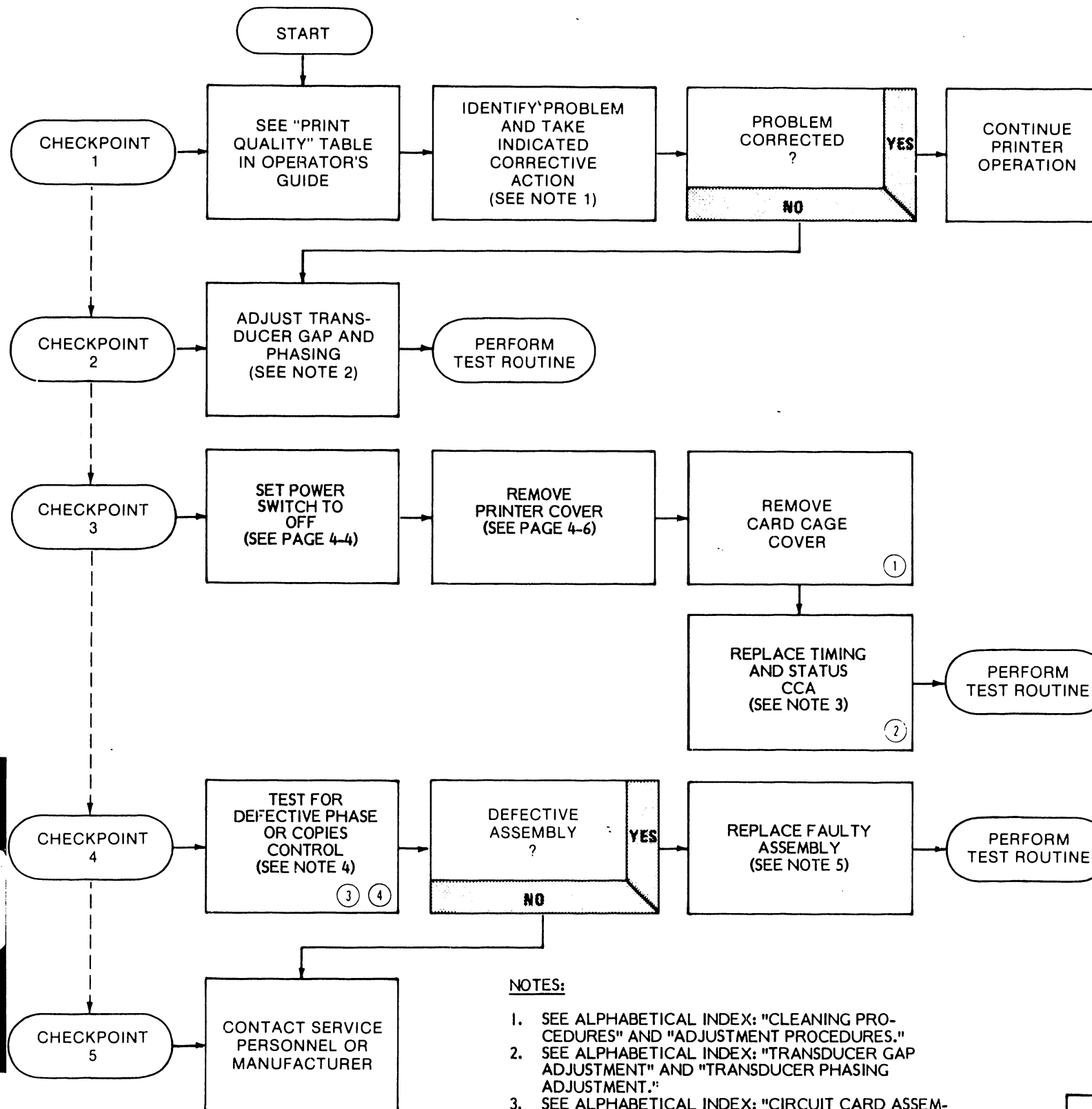
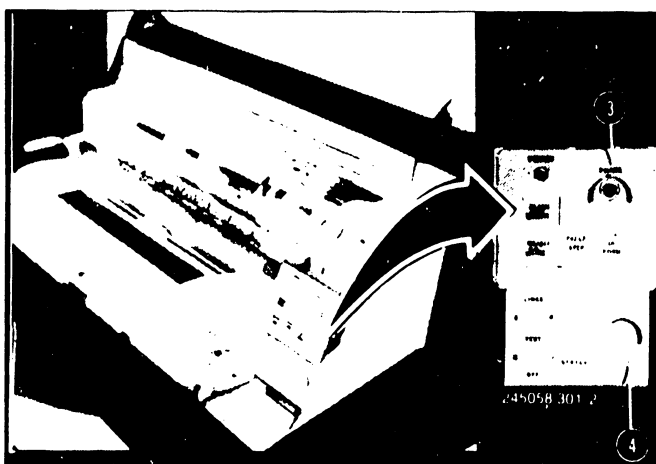
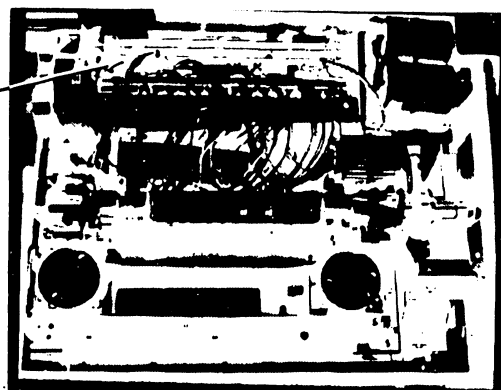
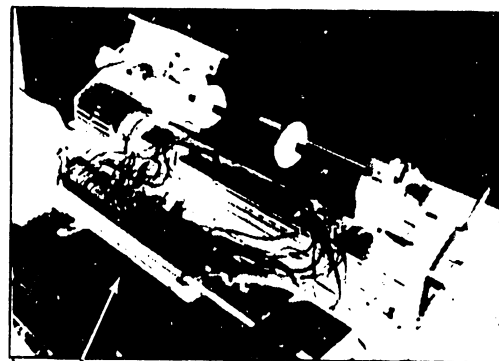


TROUBLESHOOTING SHEET 45A

CIRCUIT CARD ASSEMBLY (CCA) FAULT(S)

REASON FOR PRINT QUALITY PROBLEMS

MANY PRINT QUALITY PROBLEMS CAN BE ATTRIBUTED TO A LACK OF CLEANLINESS IN THE PRINTER, INCORRECT SELECTION OF RIBBON OR PAPER, INCORRECT SETTINGS OF THE PHASE OR COPIES CONTROLS ON THE CONTROL PANEL, OR FAILURE OF PERSONNEL TO PERFORM THE RECOMMENDED PREVENTIVE MAINTENANCE PROCEDURES LISTED IN THE MAINTENANCE GUIDE. MOST STEPS NEEDED TO CORRECT PRINT QUALITY PROBLEMS CAN BE PERFORMED BY OPERATING PERSONNEL AND ARE GIVEN IN THE "STATUS INDICATOR" SECTION OF THE OPERATOR'S GUIDE. THE FLOWCHART SHOWN HERE IDENTIFIES ADDITIONAL AREAS TO CHECK IF THOSE ACTIONS DO NOT CORRECT THE PROBLEM.



NOTES:

1. SEE ALPHABETICAL INDEX: "CLEANING PROCEDURES" AND "ADJUSTMENT PROCEDURES."
2. SEE ALPHABETICAL INDEX: "TRANSDUCER GAP ADJUSTMENT" AND "TRANSDUCER PHASING ADJUSTMENT."
3. SEE ALPHABETICAL INDEX: "CIRCUIT CARD ASSEMBLIES REMOVAL/INSTALLATION."
4. SEE ALPHABETICAL INDEX: "PHASE AND COPIES CONTROLS TEST."
5. SEE ALPHABETICAL INDEX: "CONTROL PANEL CCA ASSEMBLY REMOVAL/INSTALLATION."

TROUBLESHOOTING SHEET 46

POOR PRINT QUALITY

**ALPHA-
BETICAL
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NOTE: All references to sections 2 and 3 are found in Volume I.

**RECOMMENDED
SPARES LIST
BY WANG P/N**

The following tables provide conversion between Wang and DP part numbers.

Recommended Spares List by Wang P/N

WANG P/N	OEM P/N	DESCRIPTION
726-1100	249235-001	PNL CNTRL CCA CO
726-1101	251165-001	HAM'R DR CCA CO
726-1102	256440-001	INTLK TRANS CCA CO
726-1102-1	273340-001	INTERLOCK TRANSITION PCB
726-1103	251995-001	PCA MB
726-1104	257375-001	PWR BD
726-1105	257315-001	PROCESSOR CCA
726-1106	251725-001	RECT (STD) CCA
726-1107	257520-001	TIMING & STATUS CCA
726-1108	257265	I FACE CENTER CCA
726-1109	251985-001	REC UNIV CCA
726-1110	257290-001	DCDING PRM KT (OPT)
726-1111	247930-001	VFU CCA
726-1112	248008-001	SCRW BACKSTOP
726-1113	250005-002	BAND 64 EDD REPL BY 7262600
726-1114	251704-009	BRNG KIT
726-1115	251704-011	BRNG MT RIGHT
726-1116	242462-001	BUSHING MT LEFT
726-1117	251704-023	BELT RIB OR KIT
726-1118	801669-001	BELT TIMING
726-1119	801675-001	BTN ALARM CLEAR
726-1120	801675-002	BTN ON/OFF LINE
726-1121	801674-001	BTN PAPER STEP
726-1122	801674-002	BTN TOP OF FORM
726-1123	801743-003	CAP 27,000 VF 75V
726-1124	801743-001	CAP 83,000 UF 15V
726-1125	251035-001	CAP BANK ASSY
726-1126	801732-004	CKT BRKR
726-1127	257301-001	C PNL ASSY
726-1128	257385-001	DECAL CHAR ALIGN
726-1129	247967-001	DECAL C/PNL BOT
726-1130	247966-002	DECAL C/PNL TOP
726-1131	256472-001	DECAL RIB & STATUS
726-1132	801746-001	DISPLAY DIGITAL
726-1133	246039-001	FAN ASSY
726-1134	801379-002	IC HAMMER DR
726-1135	251704-001	HAM'R MOD KIT
726-1136	251704-014	HARDWARE PACK MIS
726-1137	246125-001	HARN ASSY
726-1138	242443-001	HARN ASSY CAPBANK
726-1139	249221-001	HARN ASSY
726-1140	256210-001	HARN ASSY I/O
726-1141	246381-002	HARN ASSY PAPER
726-1142	251072-001	HARN ASSY PS
726-1143	251830-001	IDLER SHAFT ASSY
726-1144	801655-001	KNOB
726-1145	801766-001	LED GREEN
726-1146	246164-002	MTR ASSY BAND
726-1147	246200-004	MTR ASY PAPER FEED
726-1148	251704-002	PLY PAPER FEED

WANG P/N	OEM P/N	DESCRIPTION
726-1149	251941-001	SEN PAPER MOTION
726-1150	251704-006	PIV ARM & SPR.(REPL BY 7261203)
726-1151	250503-002	PROM BND IMAGE 64
726-1152	249320-001	PRM KIT FLSSW/OVFU
726-1153	257294-001	PLY + DR ASSY
726-1154	800795-301	RELAY
726-1155	251071-001	RES ASSY PWR PRELD
726-1156	801850-002	RES VARI COPIES
726-1157	801850-001	RES VAR PHASE
726-1158	251705-002	RIB DR ASSY(REPL BY 7261182)
726-1159	257251-001	RIB MASK ASSY
726-1160	251704-005	RIB RLR KIT
726-1161	251704-012	SCRW/NUT/WA PACK
726-1162	251925-001	SOL ASSY
726-1163	251704-013	SPR RETAIN RING
726-1164	246290-001	SPROCKET ASSY L
726-1165	246267-001	SPROCKET ASSY R
726-1166	800129-004	SW BAND INTLK
726-1167	801767-001	SW BASE PBTN (REPL BY 3252456)
726-1168	801768-001	SW BASE PBTN
726-1169	800679-003	SW HAMR
726-1170	801899-001	SW PAPER LOW
726-1171	801704-001	SW G2 POS.
726-1172	801704-002	SW G3 POS
726-1173	251704-007	XFMR CV STD
726-1174	800018-001	XSTOR FOR PWR BD.
726-1175	810100-001	XSTOR FOR PWR BD
726-1176	251704-4	XDUCER (REPLACED BY 7261200)
726-1178	247968-001	OBS USE 7252591
726-1179	251025-001	PBS ISE 7252591
726-1180	247962-001	PAPR SUPPORT GUIDE
726-1181	242454-001	CLCH P-FEED W/SHAFT
726-1182	251705-001	RIB DR ASSY
726-1183	801732-003	CKT BRKR UNIV
726-1184	246380-001	MTR ASSY VFU
726-1186	801649-001	VFU HD READER ASSY
726-1187	251076-001	HARN PS
726-1188	251075-001	RES ASSY PWR PRELD
726-1189	251704-008	XFMR CV UNIV
726-1190	257315-001	HARN I/O W/TERM
726-1190	257315-001	HARN I/O W/TERM REPL BY 7261105
726-1191	256440-001	DUPL USE 7261102
726-1192	244444-002	HAM'R BANK ASSY
726-1193	801760-405	CAP RES'T 60HZ
726-1194	251704-005	RLR PINCH (REPLACED BY 7261160)
726-1195	251823-001	REPLACED BY 7261203
726-1199	251976-001	XDUCER HARN ASSY
726-1200	251704-004	XDUCER BRKT KIT
726-1201	801508-406	SCRW SET XDUCER
726-1202	251704-10	BUSH'G (PLAS) + RET
726-1203	251704-006	PIV AEM + SPR
726-1204	256511-001	SPR PIV ARM (REPL BY 7261206)
726-1205	247880-001	
726-1205	251165-001	PCA HAM'R DR
726-1206	256511-001	RIB SENCOR
726-1207	257290-001	PROM DECODE

WANG P/N	OEM P/N	DESCRIPTION
726-1208	251704-015	HAM'R MOD KIT 600LP
726-1209	251704-016	HAM'R MOD KIT 600LP
726-1210	248023	HAM'R BANK ASSY B6
726-1211	257435-001	HDER KIT B300
726-1212	257435-003	HDER KTI B300
726-1213	257436-001	HDER KIT B300
726-1214	257436-003	HDER KIT B600
726-1215	251190-001	MOTHERBOARD 600LP
726-1216	251926-001	CLAMP SOL MASK ASSY
726-1217	250531-001	PROM PRCSR 300LP REPL/7261221
726-1218	250581-999	PROM PRCESSR 600LP(RPL/7261222)
726-1219	257320-001	PWR BD 250LPM
726-1220	10K6	FLTR 10 AMP
726-1221	250584-999	PROM PROC
726-1221-1	273370-999	B300 PROCESSOR PROMS (KIT)
726-1222	250583-999	PROM PROC
726-1222-1	273372-999	B600. PROCESSOR PROMS (KIT)
726-1223	257435-004	HDR KIT T&S
726-1224	257436-004	HDR KIT HAMR DR
726-1225	247963-001	GUIDE CLIP
726-1226	257208-001	HINGE (L)
726-1227	257208-002	HINGE (R)
726-1228	257344-001	PCA TERM & HARN
726-1229	810447-001	TINSL STAT
726-1230	238840-001	BACKSTOP SCREW
726-1230	248008-001	
726-1231	800625-005	BEARING, DRUM
726-1232	801632-001	BELT, DRUM 96
726-1233	800299-013	BELT PAPER FEED
726-1234	800092-257	CAP, 71K VF, 2
726-1235	800092-407	CAP, 48K VF, 1
726-1236	800092-758	CAP, 30K, VF,
726-1237	242060-002	CAP PACK ASSY
726-1238	237600-001	CCA, B.P. M. DR,
726-1239	237595-001	CCA, B.P., M. DR
726-1240	251625-003	CCA, CONFIG, MICRO P
726-1241	237640-001	CCA, EMITTER, PF
726-1242	238005-001	CCA, HAMMER DR
726-1243	244535-	CCA, I/O
726-1244	236847-001	CCA, PWR DIST
726-1245	257715-001	CCA REGULATOR
726-1246	237635-001	CCA, SENSOR, PF
726-1247	237865-001	CCA, VDE HAMMER SUPP
726-1248	237865-001	CCA, VDE HAMMER SUPP
726-1249	800797-005	CKT/BRKR
726-1250	241523-001	CNTRL PNL ASSY
726-1251	243370-002	DRUM X-DUCER SPARES
726-1252	800316-080	FUSE, 8 AMP REGULATO
726-1253	800316-150	FUSE, 15 AMP REGULAT
726-1254	800917-151	FUSE, 15AM 50 H3, ST
726-1255	237851-171	HAMMER MODULE
726-1256	800163-006	LAMP, IND
726-1257	801082-001	LAMP, LED VISIBLE
726-1258	247568-001	LAT. ADJ. HOUSING KI
726-1259	801346-001	MTR, BLWR
726-1260	800954-001	MTR, DRUM
726-1261	801325-001	MTR, PAPER FEED

WANG P/N	OEM P/N	DESCRIPTION
726-1262	81002-001	MTR, RIB
726-1263	238039-002	PAPER TENSIONER
726-1264	243362-001	PRES. PLATE, TRACTOR
726-1265	243364-001	PRES. PLATE, TRACTOR
726-1266	801010-001	RELAY, 12V, OPOT
726-1267	247335-001	SPOOL RIB
726-1268	800502-010	SW., 6/8 LPI
726-1269	800129-001	SW., DG INT
726-1270	800502-011	SW., FORMS R
726-1271	237810-001	SW., PAPER OUT ASSY
726-1272	233585-005	SW., PAPER, TOP LEFT
726-1273	800129-007	SW., PLENUM
726-1274	243365-001	TRACTOR ASSY, RI
726-1275	243365-002	TRACTOR ASSY, LE
726-1276	801456-002	TRACTOR CHAIN, .151
726-1277	247526-001	TRACTOR SPR
726-1278	801139-001	XFORMER, PWR
726-1279	237950-001	CCA, CAM SENSOR
726-1280	237650-001	CCA, CNTRL
726-1281	237655-002	CCA, RIB SENSOR
726-1282	801150-001	MTR, AC
726-1283	800617-006	BELT
726-1284	247587-001	MTR ASSY
726-1285	240125-006	TAPE READER
726-1286	801680-001	STATIC ELIMINATOR BA
726-1287	237728-001	PAPER MOTION SENSOR
726-1288	801096-003	PWR PAK
726-1289	251407-017	CCA, CONFIGURED SOFT
726-1290	246714-001	ROLLER DR. ASSY
726-1291	246710-001	ROLLER PRES. ASSY
726-1292	257069-002	PROM, MICROPROCESSOR
726-1293	257069-002	PROM, MICROPROCESSOR
726-1294	257069-003	PROM, MICROPROCESSOR
726-1295	243348-001	PROM, VFU
726-1296	243348-002	PROM, VFU
726-1297	243348-003	PROM, VFU
726-1298	800316-120	FUSE, 12A, 250N
726-1299	800917-020	FUSE, 2A, 250V S/B
726-1507	268596-002	RIB SEN & CBL ASSY
726-1508	818009-001	CAR HOME SENSOR
726-1509	268792-001	CNTRL PNL
726-1510	268704-001	LOGIC PCB
726-1511	268866-001	ANALOG PCB
726-1512	268312-001	SERIAL INTRFC PCB
726-1513	268291-002	MOTHERBOARD
726-1514	268182-002	PWR SUPPLY
726-1515	268869-001	P/W MTR & XDUCER
726-1516	268899-001	PAPER GUIDE ASSY
726-1517	268501-001	PAPER OUT SW & CBL AS
726-1518	268352-004	PINCH ROLLER & SUPPORT ASSY
726-1519	818562-001	PWR SW
726-1520	268657-002	PRTR WHEEL HUB
726-1521	268598-002	RIB MTR & CBL ASSY
726-1522	268119-001	RIB DR BUSHING ASSY
726-1523	268884-001	SPR KIT
726-1524	818595-001	SW
726-1525	265234-001	HAMMER ASSY

WANG P/N	OEM P/N	DESCRIPTION
726-1526	268361-005	PLATEN ASSY
726-1527	268224-002	CBL ASSY
726-1528	268715-001	CBL ASSY
726-1529	268497-001	CBL ASSY
726-1530	268562-001	CBL ASSY
726-1531	268876-001	CAR INTCON BD
726-1532	268109-003	CHANNEL
726-1533	268850-001	FTA PLUNGER KIT
726-1534	268383-002	C/D MTR XDUCER
726-1535	265157-003	P/D MTR ASSY
726-1536	268843-001	BAIL ROLLERS
726-1537	268849-001	BAIL ARM KIT
726-1538	268848-001	PAPER RELEASE LEVER
726-1539	268746-001	C/D CBL KIT
726-1540	268278-001	P/D IDLER GEAR
726-1541	268847-001	C/D PLY
726-1542	268597-002	SOLENOID ASSY
726-1543	268765-003	PROM, LOGIC (U-2)
726-1544	269144-001	PROM KIT, SERIAL INTRFC
726-1545	818550-001	FAN
726-1546	818553-001	LINE FILTER
726-1547	269339-001	PAPER SHEILD
726-1548	268498-002	PWR MODULE
726-1549	818559-001	VOLTAGE SELECT
726-1550	800238-014	BELT RIBBON DRIVE
726-1551	904263-002	FIELD RIB SEN RETRO KIT W/MASK
726-1552	256332-001	FORMS COMPRESSOR B-600
726-1553	273920-001	STACKER PS-LOG PCB
726-1554	800295-019	CLUTCH ASSY RIBBON DR
726-1555	273888-001	COUPLING ASSY
726-1556	263725-001	TRANSFORMER ASSY
726-1557	269792-003	RS232 INTRF ASSY WITH FIRM WARE
726-1558	810762-002	DELICTOR PHOT COL. 136
726-1559	810817-001	SURGE RESISTOR ASSY (FCO 6651)
726-1560	277738-XXX	PROCESSOR PROM KIT (NEW)
726-1561	274290-001	T & S PROM
726-1562	274290-002	T & S PROM (NEW)
726-1563	277923-001	CAP PAD ASSY (NEW)
726-1564	800129-004	SWITCH COVER INTERLOCK
726-1700	800917-200	FUSE, 20A S/B
726-1701	263089-001	CVR LATCH N.S.(RPL BY 7261702)
726-1702	267451-001	LATCH AND KEEPER KIT
726-1703	800742-001	NPN XSISTOR
726-1704	801592-001	IC74S301N
726-1705	242580-001	HINGE ASSY LEFT(RPL BY 7261226)
726-1706	242580-002	HINGE AS RIGHT(RPL BY 7261227)
726-1707	800132-001	XSISTOR DPC 205
726-1708	800192-001	XSISTOR DPC 209
726-1709	800533-003	RES.5 PHM
726-1710	801749-001	DI IN3880
726-1711	801821-001	XTAL ODC BD
726-1712	801753-001	BUS BAR TWO COND.
726-1713	801713-001	IC RAM 256X4 mos
726-1714	2N3253	XSISTOR
726-1715	800210-205	RES 20HM 1%
726-1716	801592-001	IC RAM 256X1

WANG P/N	OEM P/N	DESCRIPTION
726-1717	246126-001	FLEXIBLE LINK(RPL BY 7261153)
726-1718	800133-001	XSISTOR DPC
726-1720	800084-382	RES 680 OHM 1&
726-1721	801737-040	CON. PCB HDER
726-1722	800917-200	FUSE 20A3AG(RPL BY 7261700)
726-1723	801634-001	IC1M370
726-1724	257380-001	PAPER CLAMP COIL
726-1725	800171-022	PLY GROUNDED 54 T
726-1726	257435-005	HDER KIT
726-1727	267372-001	RIB SENSE HARN
726-1728	263476-001	BAND DR MTR ASSY
726-1729	257570-001	BAND DR PLY
726-1730	801669-006	RIB DR BELT
726-1731	263455-001	RIB DR ASSY
726-1732	246381-002	PAPER OUT SW(RPL BY 7261141)
726-1733	810205-001	B-600 PAPER OUT FC
726-1734	251127-002	B-600 PAPER OUT FC A
726-1735	251086-001	B-600 AUX CAP PACK
726-1736	257454-001	BOTTOM OF FORM GUIDE
726-1737	263458-001	RIB DR PLY
726-1738	263006-001	IDLER ASSY POSI RIBB
726-1739	263477-001	TENSION ARM (RPL BY 7261728)
726-1740	263363-001	SPR TENSION RIBBO
726-1741	263388-201/25743	COVER PRTR W/FORM
726-1742	251120-200/25741	DOOR PRTR W/FORMA
726-1745	801580-001	BEARING, PAPER PULLE
726-1746	810538-001	BEARING, TRACTOR, FL
726-1747	810360-001	BELT, PAPER FEED
726-1748	801669-002	BELT, PAPER PULLER
726-1749	810728-001	BELT, TRACTOR
726-1750	800299-019	BELT, TRACTOR ADJ
726-1751	810468-001	CBL, TRACTOR
726-1752	248994-001	CAM, TILT IDLER
726-1753	801743-006	CAP, 37K UFO, 75V
726-1754	248789-001	CAP, PACK ASSY
726-1755	801760-156	CAP, X-FORMER 15MFD,
726-1756	267965-001	CCA, BAND GATE ELEC.
726-1757-1	274395-002	CCA HAMMER CONTROL
726-1758	267565-002	CCA, HAMMER DR (INVALID OEM #)
726-1759	267550-001	CCA, MOTHER BOARD
726-1760	270130-001	CCA, PAPER FEED
726-1762-1	270070-001	CCA PROCESSOR
726-1762-2	274490-001	CCA PROCESSOR
726-1763	270449-001	CCA, CNTRL PNL
726-1764	270310-001	CCA TIMING & STATUS
726-1764-1	277685-001	CCA TIMING AND STATUS
726-1765	800797-006	CKT/BRKR
726-1766	248625-001	CLUTCH ASSY, HORIZ P
726-1767	248469-001	SLIP CLUTCH ASS, PAP
726-1768	263865-001	DECAL, UPR CNTRL
726-1769	263866-001	DECAL, LWR CNTRL
726-1770	270188-001	DECAL, REAR CNTRL
726-1771	266607-001	FAN ASSY
726-1771-1	270457-002	FAN ASSY
726-1772	801086-003	LINE FILTER
726-1773	270118-003	HARDWARE PACK, KIT
726-1774	270077-001	HDER KIT

WANG P/N	OEM P/N	DESCRIPTION
726-1775	268045-001	HOSE, AIR
726-1776	263932-001	INDUCTOR ASSY, DISCH
726-1777	800669-002	KNOB, PAPER FEED
726-1778	810356-001	LAMP, CNTRL PNL
726-1779	267933-001	LATCH ASSY, BAND GAT
726-1780	266511-001	MTR, BAND DR
726-1780-1	274375-001	MTR, BAND DR
726-1781	266512-001	MTR, BAND POSITION
726-1781-1	274382-001	MTR, BAND POSITION
726-1782	248471-001	MTR, PAPER FEED
726-1783	810341-001	MTR, PAPER PULLER
726-1784	810351-001	MTR, RIB DESKEW
726-1785	810384-001	MTR, RIB DAIVE
726-1786	251941-001	PAPER MOTION SENSOR
726-1787	810422-001	POT, COPIES CNTRL
726-1788	248409-001	PLY, BAND DR
726-1789	248410-001	PLY, BAND IDLER
726-1790	248671-001	PLY, BELT/CBL
726-1791	248622-001	PLY, IDLER, TRACT
726-1792	266590-001	PLY, PAPER FO MOT
726-1793	248477-001	PLY, TRACTOR DR.
726-1794	270297-001	PLY, PULLER 84 TO
726-1795	248609-001	PLY, PULLER 30 TO
726-1796	810345-001	RELAY, RIB REVERS
726-1797	800795-302	RELAY, 55 VOLTS PHOT
726-1798	810391-001	RIB EDGE SENSOR
726-1799	810392-002	RIB EDGE SENSOR
726-1830	270118-004	SCREW/NUT WASHER PAC
726-1831	248349-001	SPOOL RIB DR
726-1832	270118-002	SPR KIT
726-1833	810496-001	GAS SPR, TOP COVE
726-1834	810548-001	SW, BAND GATE, I
726-1835	810205-002	SW, PAPER-OUT
726-1836	810748-001	SW, DESKEW (ON/N)
726-1837	800502-003	SW, TOGGLE (ON/O)
726-1838	800502-017	SW, TOGGLE (ON/O)
726-1839	800502-018	SW, TOGGLE
726-1840	810500-002	SW, REAR CNTRL
726-1841	270125-001	SHIELD, RIB
726-1846	268076-001	XDUCER ASSY
726-1847	810511-001	XFORMER, CVT
726-1848	801096-004	PWR SUPPLY, STATIC
726-1849	263668-001	LINE COUNTER KIT
726-1850	801669-005	BELT, STACKER
726-1851	810471-001	CBL, SENSOR, STACK
726-1852	810468-002	CBL, SHELF, STACKE
726-1853	263700-001	CCA, L.E.D. DR,
726-1854	270090-001	CCA, PHOTO PICKUP,S
726-1855	263705-001	CCA, PWR & LOGIC,
726-1856	800917-010	FUSE, 1A STACKER
726-1857	810645-001	MTR W/GEAR BOX, ST
726-1858	248958-001	PLY, CBL, STACK
726-1859	248966-001	PLY, STACKER
726-1860	248976-001	PLY, IDLER, STACK
726-1861	266618-001	PLY ASSY, MTR,
726-1862	810582-001	SW, CUT OFF, STA
726-1863	800931-001	SW, ROCKER ON/OF

WANG P/N	OEM P/N	DESCRIPTION
726-1864	810555-001	X-FORMER, STACKER
726-1865	270041-110	SKIN SET
726-1866	263966-201	TOP COVER (TOP HALF)
726-1867	263965-201	TOP COVER (BOTTOM HA)
726-1868	263970-200	BEZEL
726-1869	267990-201	HINGE GUARD
726-1870	263967-200	LEFT SIDE PNL
726-1871	263968-200	LEFT QUARTER PNL
726-1872	270043-200	RIGHT SIDE PNL
726-1873	270044-200	RIGHT QUARTER PNL
726-1874	263978-200	DOOR PNL ACCESS
726-1875	263971-200	REAR COVER
726-1876	270440-001	CCA INTERFACE
726-1877	244514001	IDLER ROLLER
726-1878	274196-001	PWR CBL SIBLINK
726-1879	270435-001	CBL ASSY INTERFACE
726-1880	268025-001	CCA, COLUMN INDICATOR

The following tables provide conversion between Wang and DP part

Recommended Spares List by Data Products P/N

OEM P/N	WANG P/N	DESCRIPTION
10K6	726-1220	FLTR 10 AMP
233585-005	726-1272	SW., PAPER, TOP LEFT
236847-001	726-1244	CCA, PWR DIST
237595-001	726-1239	CCA, B.P., M. DR
237600-001	726-1238	CCA, B.P. M. DR,
237635-001	726-1246	CCA, SENSOR, PF
237640-001	726-1241	CCA, EMITTER, PF
237650-001	726-1280	CCA, CNTRL
237655-002	726-1281	CCA, RIB SENSOR
237728-001	726-1287	PAPER MOTION SENSOR
237810-001	726-1271	SW., PAPER OUT ASSY
237851-171	726-1255	HAMMER MODULE
237865-001	726-1247	CCA, VDE HAMMER SUPP
237865-001	726-1248	CCA, VDE HAMMER SUPP
237950-001	726-1279	CCA, CAM SENSOR
238005-001	726-1242	CCA, HAMMER DR
238039-002	726-1263	PAPER TENSIONER
238840-001	726-1230	BACKSTOP SCREW
240125-006	726-1285	TAPE READER
241523-001	726-1250	CNTRL PNL ASSY
242060-002	726-1237	CAP PACK ASSY
242443-001	726-1138	HARN ASSY CAPBANK
242454-001	726-1181	CLCH P-FEED W/SHAFT
242462-001	726-1116	BUSHING MT LEFT
242580-001	726-1705	HINGE ASSY LEFT(RPL BY 7261226)
242580-002	726-1706	HINGE AS RIGHT(RPL BY 7261227)
243348-001	726-1295	PROM, VFU
243348-002	726-1296	PROM, VFU
243348-003	726-1297	PROM, VFU
243362-001	726-1264	PRES. PLATE, TRACTOR
243364-001	726-1265	PRES. PLATE, TRACTOR
243365-001	726-1274	TRACTOR ASSY, RI
243365-002	726-1275	TRACTOR ASSY, LE
243370-002	726-1251	DRUM X-DUCER SPARES
244444-002	726-1192	HAM'R BANK ASSY
244514001	726-1877	IDLER ROLLER
244535-	726-1243	CCA, I/O
246039-001	726-1133	FAN ASSY
246125-001	726-1137	HARN ASSY
246126-001	726-1717	FLEXIBLE LINK(RPL BY 7261153)
246164-002	726-1146	MTR ASSY BAND
246200-004	726-1147	MTR ASY PAPER FEED
246267-001	726-1165	SPROCKET ASSY R
246290-001	726-1164	SPROCKET ASSY L
246380-001	726-1184	MTR ASSY VFU
246381-002	726-1141	HARN ASSY PAPER
246381-002	726-1732	PAPER OUT SW(RPL BY 7261141)
246710-001	726-1291	ROLLER PRES. ASSY
246714-001	726-1290	ROLLER DR. ASSY
247335-001	726-1267	SPOOL RIB

OEM P/N	WANG P/N	DESCRIPTION
247526-001	726-1277	TRACTOR SPR
247568-001	726-1258	LAT. ADJ. HOUSING KI
247587-001	726-1284	MTR ASSY
247880-001	726-1205	
247930-001	726-1111	VFU CCA
247962-001	726-1180	PAPR SUPPORT GUIDE
247963-001	726-1225	GUIDE CLIP
247966-002	726-1130	DECAL C/PNL TOP
247967-001	726-1129	DECAL C/PNL BOT
247968-001	726-1178	OBS USE 7252591
248008-001	726-1112	SCRW BACKSTOP
248008-001	726-1230	
248023	726-1210	HAM'R BANK ASSY B6
248349-001	726-1831	SPOOL RIB DR
248409-001	726-1788	PLY, BAND DR
248410-001	726-1789	PLY, BAND IDLER
248469-001	726-1767	SLIP CLUTCH ASS, PAP
248471-001	726-1782	MTR, PAPER FEED
248477-001	726-1793	PLY, TRACTOR DR.
248609-001	726-1795	PLY, PULLER 30 TO
248622-001	726-1791	PLY, IDLER, TRACT
248625-001	726-1766	CLUTCH ASSY, HORIZ P
248671-001	726-1790	PLY, BELT/CBL
248789-001	726-1754	CAP, PACK ASSY
248958-001	726-1858	PLY, CBL, STACK
248966-001	726-1859	PLY, STACKER
248976-001	726-1860	PLY, IDLER, STACK
248994-001	726-1752	CAM, TILT IDLER
249221-001	726-1139	HARN ASSY
249235-001	726-1100	PNL CNTRL CCA CO
249320-001	726-1152	PRM KIT FLSSW/OVFU
250005-002	726-1113	BAND 64 EDD REPL BY 7262600
250503-002	726-1151	PROM BND IMAGE 64
250531-001	726-1217	PROM PRCSR 300LP REPL/7261221
250581-999	726-1218	PROM PRCESSR 600LP(RPL/7261222)
250583-999	726-1222	PROM PROC
250584-999	726-1221	PROM PROC
251025-001	726-1179	PBS ISE 7252591
251035-001	726-1125	CAP BANK ASSY
251071-001	726-1155	RES ASSY PWR PRELD
251072-001	726-1142	HARN ASSY PS
251075-001	726-1188	RES ASSY PWR PRELD
251076-001	726-1187	HARN PS
251086-001	726-1735	B-600 AUX CAP PACK
251120-200/25741	726-1742	DOOR PRTR W/FORMA
251127-002	726-1734	B-600 PAPER OUT FC A
251165-001	726-1101	HAM'R DR CCA CO
251165-001	726-1205	PCA HAM'R DR
251190-001	726-1215	MOTHERBOARD 600LP
251407-017	726-1289	CCA, CONFIGURED SOFT
251625-003	726-1240	CCA, CONFIG, MICRO P
251704-001	726-1135	HAM'R MOD KIT
251704-002	726-1148	PLY PAPER FEED
251704-004	726-1200	XDUCER BRKT KIT
251704-005	726-1160	RIB RLR KIT
251704-005	726-1194	RLR PINCH (REPLACED BY 7261160)
251704-006	726-1150	PIV ARM & SPR.(REPL BY 7261203)

OEM P/N	WANG P/N	DESCRIPTION
251704-006	726-1203	PIV AEM + SPR
251704-007	726-1173	XFMR CV STD
251704-008	726-1189	XFMR CV UNIV
251704-009	726-1114	BRNG KIT
251704-011	726-1115	BRNG MT RIGHT
251704-012	726-1161	SCRW/NUT/WA PACK
251704-013	726-1163	SPR RETAIN RING
251704-014	726-1136	HARDWARE PACK MIS
251704-015	726-1208	HAM'R MOD KIT 600LP
251704-016	726-1209	HAM'R MOD KIT 600LP
251704-023	726-1117	BELT RIB OR KIT
251704-10	726-1202	BUSH'G (PLAS) + RET
251704-4	726-1176	XDUCER (REPLACED BY 7261200)
251705-001	726-1182	RIB DR ASSY
251705-002	726-1158	RIB DR ASSY(REPL BY 7261182)
251725-001	726-1106	RECT (STD) CCA
251823-001	726-1195	REPLACED BY 7261203
251830-001	726-1143	IDLER SHAFT ASSY
251925-001	726-1162	SOL ASSY
251926-001	726-1216	CLAMP SOL MASK ASSY
251941-001	726-1149	SEN PAPER MOTION
251941-001	726-1786	PAPER MOTION SENSOR
251976-001	726-1199	XDUCER HARN ASSY
251985-001	726-1109	REC UNIV CCA
251995-001	726-1103	PCA MB
256210-001	726-1140	HARN ASSY I/O
256332-001	726-1552	FORMS COMPRESSOR B-600
256440-001	726-1102	INTLK TRANS CCA CO
256440-001	726-1191	DUPL USE 7261102
256472-001	726-1131	DECAL RIB & STATUS
256511-001	726-1204	SPR PIV ARM (REPL BY 7261206)
256511-001	726-1206	RIB SENCOR
257069-002	726-1292	PROM, MICROPROCESSOR
257069-002	726-1293	PROM, MICROPROCESSOR
257069-003	726-1294	PROM, MICROPROCESSOR
257208-001	726-1226	HINGE (L)
257208-002	726-1227	HINGE (R)
257251-001	726-1159	RIB MASK ASSY
257265	726-1108	I FACE CENTER CCA
257290-001	726-1110	DCDING PRM KT (OPT)
257290-001	726-1207	PROM DECODE
257294-001	726-1153	PLY + DR ASSY
257301-001	726-1127	C PNL ASSY
257315-001	726-1105	PROCESSOR CCA
257315-001	726-1190	HARN I/O W/TERM
257315-001	726-1190	HARN I/O W/TERM REPL BY 7261105
257320-001	726-1219	PWR BD 250LPM
257344-001	726-1228	PCA TERM & HARN
257375-001	726-1104	PWR BD
257380-001	726-1724	PAPER CLAMP COIL
257385-001	726-1128	DECAL CHAR ALIGN
257435-001	726-1211	HDER KIT B300
257435-003	726-1212	HDER KTI B300
257435-004	726-1223	HDR KIT T&S
257435-005	726-1726	HDER KIT
257436-001	726-1213	HDER KIT B300
257436-003	726-1214	HDER KIT B600

OEM P/N	WANG P/N	DESCRIPTION
257436-004	726-1224	HDR KIT HAMR DR
257454-001	726-1736	BOTTOM OF FORM GUIDE
257520-001	726-1107	TIMING & STATUS CCA
257570-001	726-1729	BAND DR PLY
257715-001	726-1245	CCA REGULATOR
263006-001	726-1738	IDLER ASSY POSI RIBB
263089-001	726-1701	CVR LATCH N.S.(RPL BY 7261702)
263363-001	726-1740	SPR TENSION RIBBO
263388-201/25743	726-1741	COVER PRTR W/FORM
263455-001	726-1731	RIB DR ASSY
263458-001	726-1737	RIB DR PLY
263476-001	726-1728	BAND DR MTR ASSY
263477-001	726-1739	TENSION ARM (RPL BY 7261728)
263668-001	726-1849	LINE COUNTER KIT
263700-001	726-1853	CCA, L.E.D. DR,
263705-001	726-1855	CCA, PWR & LOGIC,
263725-001	726-1556	TRANSFORMER ASSY
263865-001	726-1768	DECAL, UPR CNTRL
263866-001	726-1769	DECAL, LWR CNTRL
263932-001	726-1776	INDUCTOR ASSY, DISCH
263965-201	726-1867	TOP COVER (BOTTOM HA)
263966-201	726-1866	TOP COVER (TOP HALF)
263967-200	726-1870	LEFT SIDE PNL
263968-200	726-1871	LEFT QUARTER PNL
263970-200	726-1868	BEZEL
263971-200	726-1875	REAR COVER
263978-200	726-1874	DOOR PNL ACCESS
265157-003	726-1535	P/D MTR ASSY
265234-001	726-1525	HAMMER ASSY
266511-001	726-1780	MTR, BAND DR
266512-001	726-1781	MTR, BAND POSITION
266590-001	726-1792	PLY, PAPER FO MOT
266607-001	726-1771	FAN ASSY
266618-001	726-1861	PLY ASSY, MTR,
267372-001	726-1727	RIB SENSE HARN
267451-001	726-1702	LATCH AND KEEPER KIT
267550-001	726-1759	CCA, MOTHER BOARD
267565-002	726-1758	CCA, HAMMER DR (INVALID OEM #)
267933-001	726-1779	LATCH ASSY, BAND GAT
267965-001	726-1756	CCA, BAND GATE ELEC.
267990-201	726-1869	HINGE GUARD
268025-001	726-1880	CCA, COLUMN INDICATOR
268045-001	726-1775	HOSE, AIR
268076-001	726-1846	XDUCER ASSY
268109-003	726-1532	CHANNEL
268119-001	726-1522	RIB DR BUSHING ASSY
268182-002	726-1514	PWR SUPPLY
268224-002	726-1527	CBL ASSY
268278-001	726-1540	P/D IDLER GEAR
268291-002	726-1513	MOTHERBOARD
268312-001	726-1512	SERIAL INTRFC PCB
268352-004	726-1518	PINCH ROLLER & SUPPORT AS
268361-005	726-1526	PLATEN ASSY
268383-002	726-1534	C/D MTR XDUCER
268497-001	726-1529	CBL ASSY
268498-002	726-1548	PWR MODULE
268501-001	726-1517	PAPER OUT SW & CBL AS

OEM P/N	WANG P/N	DESCRIPTION
268562-001	726-1530	CBL ASSY
268596-002	726-1507	RIB SEN & CBL ASSY
268597-002	726-1542	SOLENOID ASSY
268598-002	726-1521	RIB MTR & CBL ASSY
268657-002	726-1520	PRTR WHEEL HUB
268704-001	726-1510	LOGIC PCB
268715-001	726-1528	CBL ASSY
268746-001	726-1539	C/D CBL KIT
268765-003	726-1543	PROM, LOGIC (U-2)
268792-001	726-1509	CNTRL PNL
268843-001	726-1536	BAIL ROLLERS
268847-001	726-1541	C/D PLY
268848-001	726-1538	PAPER RELEASE LEVER
268849-001	726-1537	BAIL ARM KIT
268850-001	726-1533	FTA PLUNGER KIT
268866-001	726-1511	ANALOG PCB
268869-001	726-1515	P/W MTR & XDUCER
268876-001	726-1531	CAR INTCON BD
268884-001	726-1523	SPR KIT
268899-001	726-1516	PAPER GUIDE ASSY
269144-001	726-1544	PROM KIT, SERIAL INTRFC
269339-001	726-1547	PAPER SHEILD
269792-003	726-1557	RS232 INTRF ASSY WITH FIRM WARE
270041-110	726-1865	SKIN SET
270043-200	726-1872	RIGHT SIDE PNL
270044-200	726-1873	RIGHT QUARTER PNL
270070-001	726-1762-1	CCA PROCESSOR
270077-001	726-1774	HDER KIT
270090-001	726-1854	CCA, PHOTO PICKUP,S
270118-002	726-1832	SPR KIT
270118-003	726-1773	HARDWARE PACK, KIT
270118-004	726-1830	SCREW/NUT WASHER PAC
270125-001	726-1841	SHIELD, RIB
270130-001	726-1760	CCA, PAPER FEED
270188-001	726-1770	DECAL, REAR CNTRL
270297-001	726-1794	PLY, PULLER 84 TO
270310-001	726-1764	CCA TIMING & STATUS
270435-001	726-1879	CBL ASSY INTERFACE
270440-001	726-1876	CCA INTERFACE
270449-001	726-1763	CCA, CNTRL PNL
270457-002	726-1771-1	FAN ASSY
273340-001	726-1102-1	INTERLOCK TRANSITION PCB
273370-999	726-1221-1	B300 PROCESSOR PROMS (KIT)
273372-999	726-1222-1	B600 PROCESSOR PROMS (KIT)
273888-001	726-1555	COUPLING ASSY
273920-001	726-1553	STACKER PS-LOG PCB
274196-001	726-1878	PWR CBL SIBLINK
274290-001	726-1561	T & S PROM
274290-002	726-1562	T & S PROM (NEW)
274375-001	726-1780-1	MTR, BAND DR
274382-001	726-1781-1	MTR, BAND POSITION
274395-002	726-1757-1	CCA HAMMER CONTROL
274490-001	726-1762-2	CCA PROCESSOR
277685-001	726-1764-1	CCA TIMING AND STATUS
277738-XXX	726-1560	PROCESSOR PROM KIT (NEW)
277923-001	726-1563	CAP PAD ASSY (NEW)
2N3253	726-1714	XSISTOR

OEM P/N	WANG P/N	DESCRIPTION
800018-001	726-1174	XSTOR FOR PWR BD.
800084-382	726-1720	RES 680 OHM 1&
800092-257	726-1234	CAP, 71K VF, 2
800092-407	726-1235	CAP, 48K VF, 1
800092-758	726-1236	CAP, 30K, VF,
800129-001	726-1269	SW., DG INT
800129-004	726-1166	SW BAND INILK
800129-004	726-1564	SWITCH COVER INTERLOCK
800129-007	726-1273	SW., PLENUM
800132-001	726-1707	XSISTOR DPC 205
800133-001	726-1718	XSISTOR DPC
800163-006	726-1256	LAMP, IND
800171-022	726-1725	PLY GROUNDED 54 T
800192-001	726-1708	XSISTOR DPC 209
800210-205	726-1715	RES 20HM 1%
800238-014	726-1550	BELT RIBBON DRIVE
800295-019	726-1554	CLUTCH ASSY RIBBON DR
800299-013	726-1233	BELT PAPER FEED
800299-019	726-1750	BELT, TRACTOR ADJ
800316-080	726-1252	FUSE, 8 AMP REGULATO
800316-120	726-1298	FUSE, 12A, 250N
800316-150	726-1253	FUSE, 15 AMP REGULAT
800502-003	726-1837	SW, TOGGLE (ON/O)
800502-010	726-1268	SW., 6/8 LPI
800502-011	726-1270	SW., FORMS R
800502-017	726-1838	SW, TOGGLE (ON/O)
800502-018	726-1839	SW, TOGGLE
800533-003	726-1709	RES.5 PHM
800617-006	726-1283	BELT
800625-005	726-1231	BEARING, DRUM
800669-002	726-1777	KNOB, PAPER FEED
800679-003	726-1169	SW HAMR
800742-001	726-1703	NPN XSISTOR
800795-301	726-1154	RELAY
800795-302	726-1797	RELAY, 55 VOLTS PHOT
800797-005	726-1249	CKT/BRKR
800797-006	726-1765	CKT/BRKR
800917-010	726-1856	FUSE, 1A STACKER
800917-020	726-1299	FUSE, 2A, 250V S/B
800917-151	726-1254	FUSE, 15AM 50 H3, ST
800917-200	726-1700	FUSE, 20A S/B
800917-200	726-1722	FUSE 20A3AG(RPL BY 7261700)
800931-001	726-1863	SW, ROCKER ON/OF
800954-001	726-1260	MTR, DRUM
801010-001	726-1266	RELAY, 12V, OPOT
801082-001	726-1257	LAMP, LED VISIBLE
801086-003	726-1772	LINE FILTER
801096-003	726-1288	PWR PAK
801096-004	726-1848	PWR SUPPLY, STATIC
801139-001	726-1278	XFORMER, PWR
801150-001	26-1282	MTR, AC
801325-001	726-1261	MTR, PAPER FEED
801346-001	726-1259	MTR, BLWR
801379-002	726-1134	IC HAMMER DR
801456-002	726-12762	TRACTOR CHAIN, .151
801508-406	726-1201	SCRW SET XDUCER

OEM P/N	WANG P/N	DESCRIPTION
801580-001	726-1745	BEARING, PAPER PULLE
801592-001	726-1704	IC74S301N
801592-001	726-1716	IC RAM 256X1
801632-001	726-1232	BELT, DRUM 96
801634-001	726-1723	IC1M370
801649-001	726-1186	VFU HD READER ASSY
801655-001	726-1144	KNOB
801669-001	726-1118	BELT TIMING
801669-002	726-1748	BELT, PAPER PULLER
801669-005	726-1850	BELT, STACKER
801669-006	726-1730	RIB DR BELT
801674-001	726-1121	BTN PAPER STEP
801674-002	726-1122	BTN TOP OF FORM
801675-001	726-1119	BTN ALARM CLEAR
801675-002	726-1120	BTN ON/OFF LINE
801680-001	726-1286	STATIC ELIMINATOR BA
801704-001	726-1171	SW G2 POS.
801704-002	726-1172	SW G3 POS
801713-001	726-1713	IC RAM 256X4 mos
801732-003	726-1183	CKT BRKR UNIV
801732-004	726-1126	CKT BRKR
801737-040	726-1721	CON. PCB HDR
801743-001	726-1124	CAP 83,000 UF 15V
801743-003	726-1123	CAP 27,000 VF 75V
801743-006	726-1753	CAP, 37K UFO, 75V
801746-001	726-1132	DISPLAY DIGITAL
801749-001	726-1710	DI IN3880
801753-001	726-1712	BUS BAR TWO COND.
801760-156	726-1755	CAP, X-FORMER 15MFD,
801760-405	726-1193	CAP RES'T 60HZ
801766-001	726-1145	LED GREEN
801767-001	726-1167	SW BASE PBTN (REPL BY 3252456)
801768-001	726-1168	SW BASE PBTN
801821-001	726-1711	XTAL ODC BD
801850-001	726-1157	RES VAR PHASE
801850-002	726-1156	RES VARI COPIES
801899-001	726-1170	SW PAPER LOW
81002-001	726-1262	MTR, RIB
810100-001	726-1175	XSTOR FOR PWR BD
810205-001	726-1733	B-600 PAPER OUT FC
810205-002	726-1835	SW, PAPER-OUT
810341-001	726-1783	MTR, PAPER PULLER
810345-001	726-1796	RELAY, RIB REVERS
810351-001	726-1784	MTR, RIB DESKEW
810356-001	726-1778	LAMP, CNTRL PNL
810360-001	726-1747	BELT, PAPER FEED
810384-001	726-1785	MTR, RIB DAIVE
810391-001	726-1798	RIB EDGE SENSOR
810392-002	726-1799	RIB EDGE SENSOR
810422-001	726-1787	POT, COPIES CNTRL
810447-001	726-1229	TINSL STAT
810468-001	726-1751	CBL, TRACTOR
810468-002	726-1852	CBL, SHELF, STACKE
810471-001	726-1851	CBL, SENSOR, STACK
810496-001	726-1833	GAS SPR, TOP COVE
810500-002	726-1840	SW, REAR CNTRL
810511-001	726-1847	XFORMER, CVT

OEM P/N	WANG P/N	DESCRIPTION
810538-001	726-1746	BEARING, TRACTOR, FL
810548-001	726-1834	SW, BAND GATE, I
810555-001	726-1864	X-FORMER, STACKER
810582-001	726-1862	SW, CUT OFF, STA
810645-001	726-1857	MTR W/GEAR BOX, ST
810728-001	726-1749	BELT, TRACTOR
810748-001	726-1836	SW, DESKEW (ON/N)
810762-002	726-1558	DELICTOR PHOT COL. 136
810817-001	726-1559	SURGE RESISTOR ASSY (FCO 6651)
818009-001	726-1508	CAR HOME SENSOR
818550-001	726-1545	FAN
818553-001	726-1546	LINE FILTER
818559-001	726-1549	VOLTAGE SELECT
818562-001	726-1519	PWR SW
818595-001	726-1524	SW
904263-002	726-1551	FIELD RIB SEN RETRO KIT W/MASK



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