

IBM Maintenance Information Manual

Volume 2

Section 17	Theory of Operation
Section 18	Printer Wiring Diagrams
Section 19	Reserved
Section 20	Tools
Section 21	Parts Catalog
Section 22	Abbreviations, Glossary, and Index

3262 Printer Models 1 and 11 Maintenance Information

SECTION 17. THEORY OF OPERATION

SECTION CONTENTS

Introduction	17-010	Band Synchronization	17-120
Print Band	17-010	Print Band Drive Pulley	17-120
Horizontal Line Spacing	17-020	Print Band Idler Pulley	17-120
Vertical Spacing	17-020	Error Checking	17-120
System Attachment	17-030	Universal Character Set Buffer	17-120
Data Transfer	17-030	Print Band Life	17-120
Printer Commands	17-030	Ribbon Motors and Drive	17-130
Printer Operation	17-030	Ribbon Life	17-130
Printer Status	17-030	Ribbon Start, Run, and Stop Conditions	17-130
Printer Buffers	17-030	Ribbon Motor Motion Detection	17-130
Forms Control Buffer	17-030	Ribbon Reversing Condition (Printer Busy)	17-130
Print Line Buffer	17-030	Ribbon Motor Detent Current	17-130
Universal Character Set Buffer	17-030	Ribbon Checks	17-130
Overview	17-040	Hammer Unit	17-140
Printing Method	17-050	Hammer Coils	17-140
Functional Units and Data Flow	17-050	Cooling (Models 1, 2, 3)	17-140
Band Motor and Drive	17-050	Cooling (Models 11, 12, 13)	17-140
Print Subscan and Home Pulses	17-050	Hammer Firing Control	17-140
Front Unit	17-050	Hammer Fire Limiting	17-140
Hammer Unit	17-050	Hammer Current Detection	17-140
Ribbon Motors and Drive	17-050	Carriage	17-150
Paper Clamp	17-050	Forms Path	17-160
Carriage Motor and Drive	17-050	Forms Loading	17-160
Operator Panel	17-070	Forms Size	17-160
Power Supply	17-070	Forms Alignment	17-160
Operator Panel Description	17-070	Forms Control Buffer	17-160
Operational Mode	17-070	Forms Thickness Control	17-160
Operational Indicators	17-080	Forms Movement	17-160
Operational Keys	17-090	Carriage Emitter	17-160
Test Mode	17-090	Paper Clamp	17-160
Diagnostic Indicators	17-090	End-of-Forms	17-160
Status Indicator	17-090	Forms Control Indicators	17-160
Keys	17-090	Stacker	17-180
Band Image Select Switches	17-100	Stacker Capacity	17-180
Manual Controls	17-100	Static Control	17-180
Print Band Release Lever	17-100	Power	17-190
Forms Thickness Control	17-100	3262 Voltages	17-190
Front Unit Release	17-100	Power On Sequence	17-190
Lower Forms Guides	17-100	Power Off Sequence	17-190
Forms Advance Knob	17-100	Power Check Circuits	17-190
Vernier (Vertical) Forms Control	17-100		
Tractor Release Levers	17-100		
Stacker Tray	17-110		
Upper Forms Guide	17-110		
Front Unit	17-120		
Print Band Drive Motor	17-120		
Print Band	17-120		

INTRODUCTION

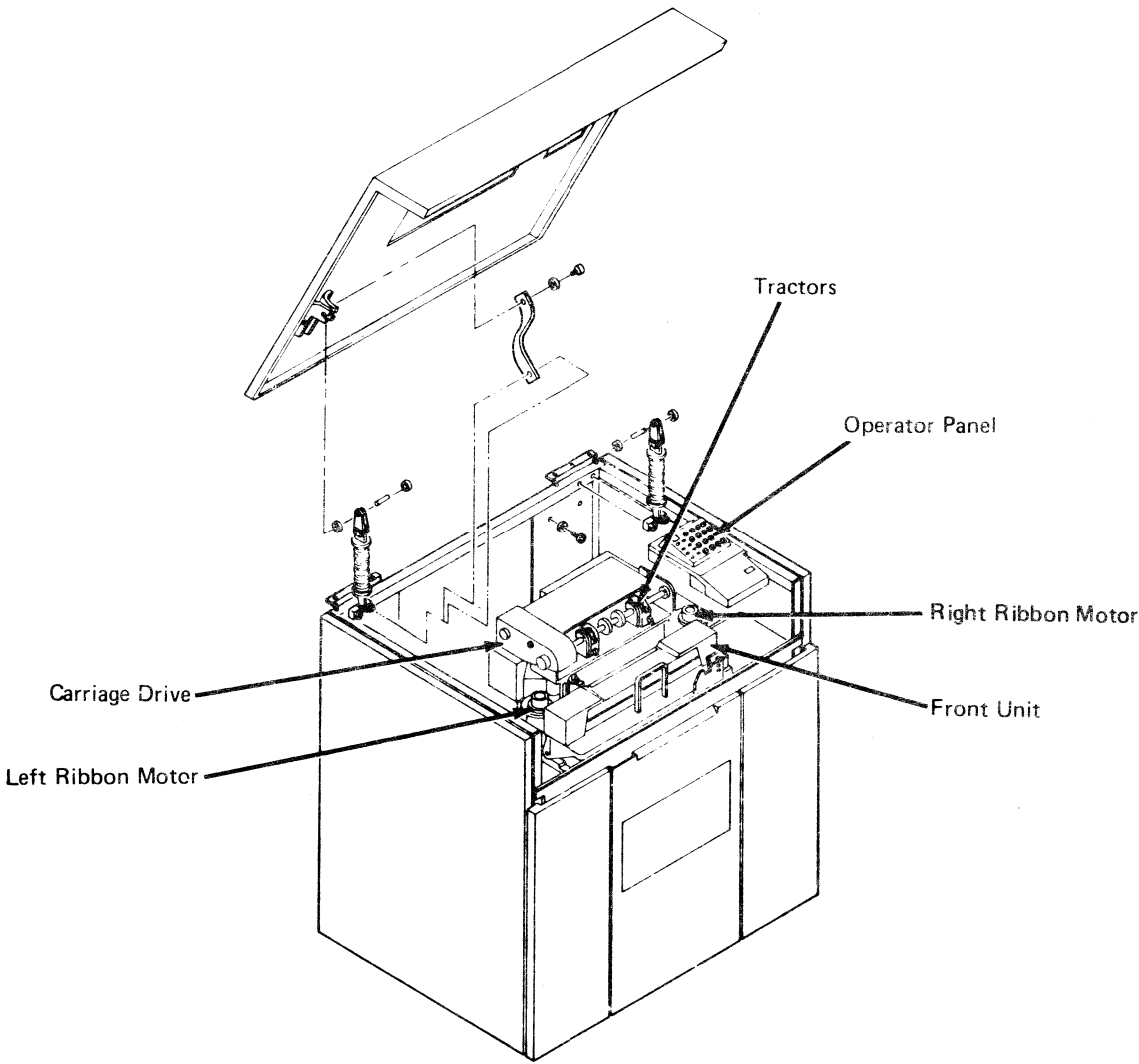
The 3262 Printers Models 1 and 11 are line printers that operate at 650 and 325 lines per minute, respectively. The printer uses print bands containing a maximum of 288 characters. The print bands can be removed and replaced by another one. The replacement print band may have the same or different character sets.

The printer has 132 print positions (132 hammers) with a program-controlled pin feed carriage. The pin feed carriage is tapeless; it uses a storage area (Forms Control Buffer) that is loaded by the 4331 system program. The Forms Control Buffer controls carriage movement. The carriage spaces at either six or eight lines per inch.

The band image that matches the characters of the band being used in the printer is stored in a buffer. This storage area (Universal Character Set Buffer) is loaded by the 4331 system program. The image of the band is synchronized to timing marks on the print band to fire the hammers and print on the form.

The printer contains all the functions necessary to control the transfer of information between the printer and the 4331 processor. The printer also controls the printing mechanisms, and responds to signals from its sensors and switches.

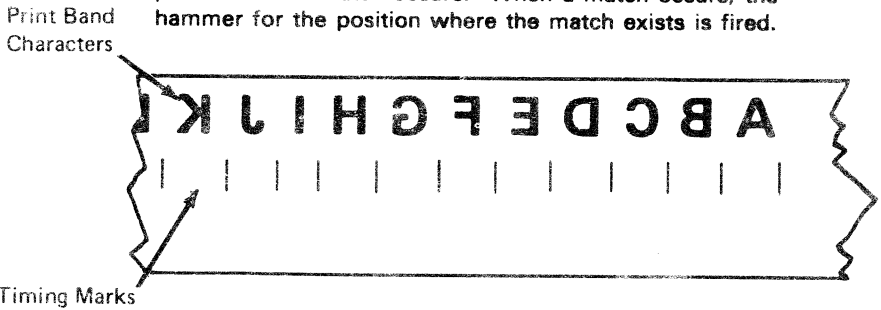
The printer also contains diagnostic tests and routines that permit checkout and analysis of the printer.



Print Band

The print band is a 1219-mm (48-in) endless steel band. The band contains a maximum of 288 characters spaced 4.23 mm (0.1667 in) center-to-center. The band is driven at a speed of 2794 mm per second (110 in per second) for the Model 1, and at 1397 mm per second (55 in per second) for the Model 11.

As the band is driven by the print band drive, each character on the band passes each print position. The image of the band is compared to the character to be printed until a match occurs. When a match occurs, the hammer for the position where the match exists is fired.



The band is placed in the printer with the characters of the print band above the timing marks. The timing marks provide the synchronizing pulses to fire the hammers. During the print operation, the characters of the band wear because the hammers press the form against the print band character. When the image is worn to the condition that a new band is required, the customer replaces the band. A spare print band is shipped with the printer; the customer orders a replacement band. The Marketing Representative assists the customer when he orders the band.

The correlation of some of the common character sets and printing speed is shown in the following table:

Characters per Character Set	Character per Band	Print Speed (lpm)
48	6	325
64	4	230
96*	3	180
116/128	2	125
63	Optimized by character usage	310 max

* 94 are printable characters

Horizontal Line Spacing

The maximum length of the print line is 132 characters (132 hammers). The printed line is approximately 335.28 mm (13.2 in) long. The character spacing is 2.54 mm (0.1 in) center-to-center (10 characters per 25.4 mm or 10 characters per in).

Vertical Spacing

The vertical spacing between lines of print is controlled by the 4331 system. The system program specifies whether the spacing is six or eight lines per inch. The forms are moved at a maximum of 508 mm per second (20 in per second).

System Attachment

The printer attaches to the 4331 processor by a coaxial cable. The cable connects to the connector for the Display Printer Adapter in the 4331 system, and to the connector for the Common Printer Adapter in the printer.

Data Transfer

The data transfer from the processor to the printer, or from the printer to the processor, is in 12-bit serialized format. Three bits are added to the original data to control the transfer of the serialized data. The original data contains eight data bits plus its associated parity bit. The data transfer in the 4331 processor and the 3262 printer is parallel, eight bits and a parity bit. The data that is transferred across the coaxial cable is serialized at the Display Printer Adapter (the data is changed to serial). (The data transferred to the printer is one to 288 bytes.) The Common Printer Adapter deserializes (changes to parallel data). The data transfer from the printer to the 4331 processor is the same, except that the Common Printer Adapter serializes the data for transfer to the 4331, and the Display Printer Adapter deserializes the data from the printer.

Printer Commands

The 4331 processor transfers command codes to the printer, where they are decoded. The commands cause the printer to perform carriage movement, printing, diagnostics, and initialization (checkout and ready the printer for printing). The 4331 processor also loads the forms image (the vertical format) of 256 bytes. The forms image information is loaded into the Forms Control Buffer (FCB). The band image is loaded into the Universal Character Set Buffer (UCSB).

Printer Operation

After these printer buffers are loaded, printing begins by loading one line of formatted data, maximum of 132 bytes, into the Print Line Buffer (PLB). When the data is loaded, the printing of the line begins, and normally, carriage movement follows the printing of the line.

Printer Status

Printer status and sense information that indicates the operational condition of the printer is logged at the printer. Some of this information is transferred to the 4331 processor when an error occurs. When an error occurs, status codes indicating the failure are displayed in the Status indicator. If the printer is successful in printing a line, the printer repeats the operation by printing another line. If the printer is unsuccessful in printing a line, the printer transfers the status information to the 4331, and the system displays a message to be used for error recovery information for the operator and, if necessary, by the Customer Engineer (CE).

Printer Buffers

Forms Control Buffer (FCB)

The FCB provides carriage control information for vertical format of the printed output. The information contained in the buffer determines the location of the first and last print lines of the form. The buffer also contains the location of each the printer channel (point(s) where skipping stops). Each byte of the buffer corresponds to one line of the form. The buffer is loaded by the system command LOAD FCB.

Print Line Buffer (PLB)

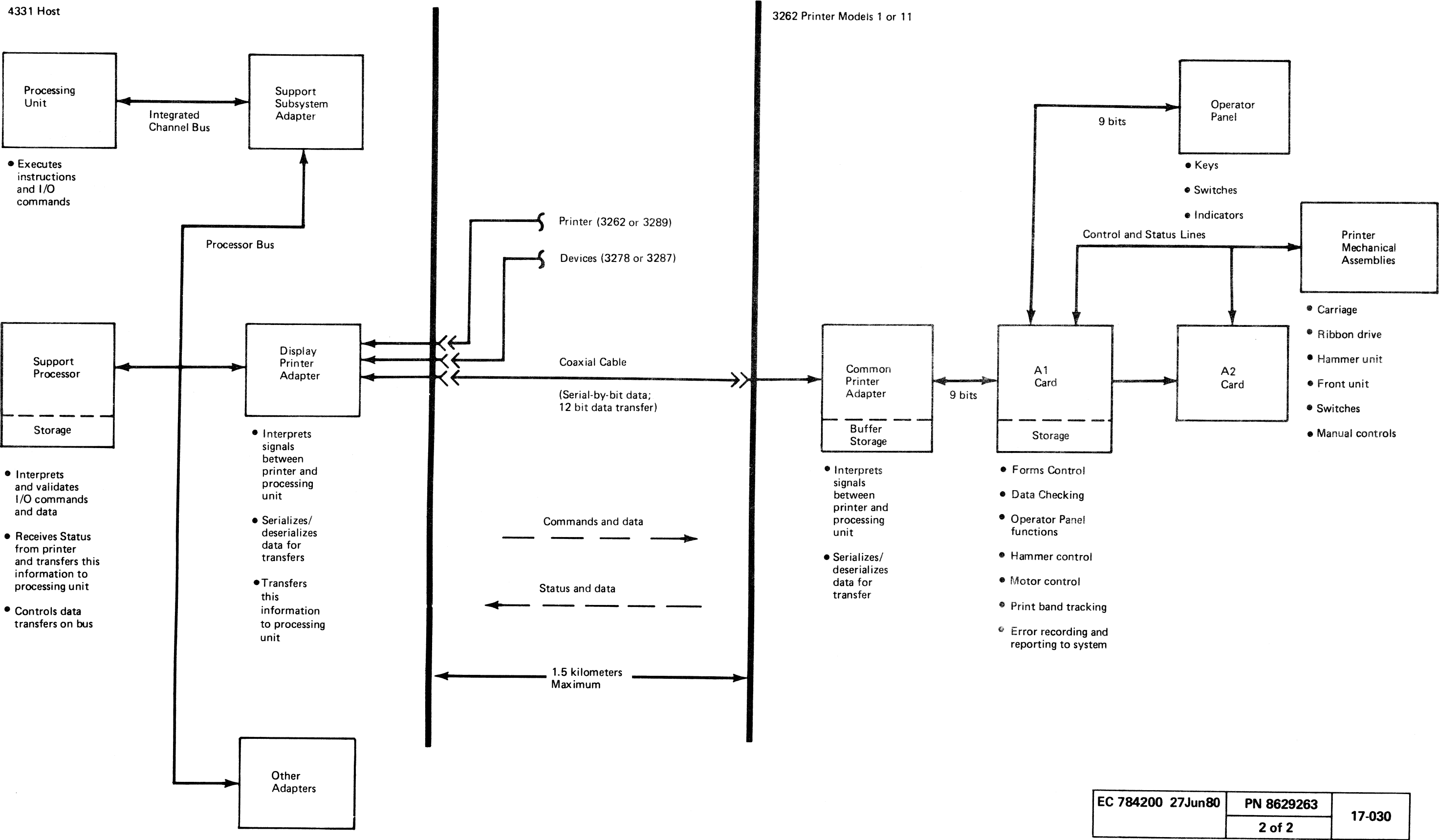
The PLB contains 132 bytes of storage, corresponding to the maximum length of a print line. Each byte contains on character to be printed on the *current* print line. A print command loads the buffer with each new line of information to be printed. Each byte contains the hexadecimal value of the character to be printed. Characters that cannot be printed cause data checks, because there is no match between the data in the PLB and that of the UCSB. The data check can be prevented if the system program issues a Block Data Check command. The unprintable characters become blanks in the printed line.

Universal Character Set Buffer (UCSB)

The UCSB contains 288 hexadecimal codes, corresponding to each character of the print band. This buffer must be loaded each time a *different* print band is installed in the printer, or after a Power On Reset (POR). The buffer is loaded by the system command LOAD UCSB.

Note: A maximum of 192 characters can be loaded into the buffer.

OVERVIEW

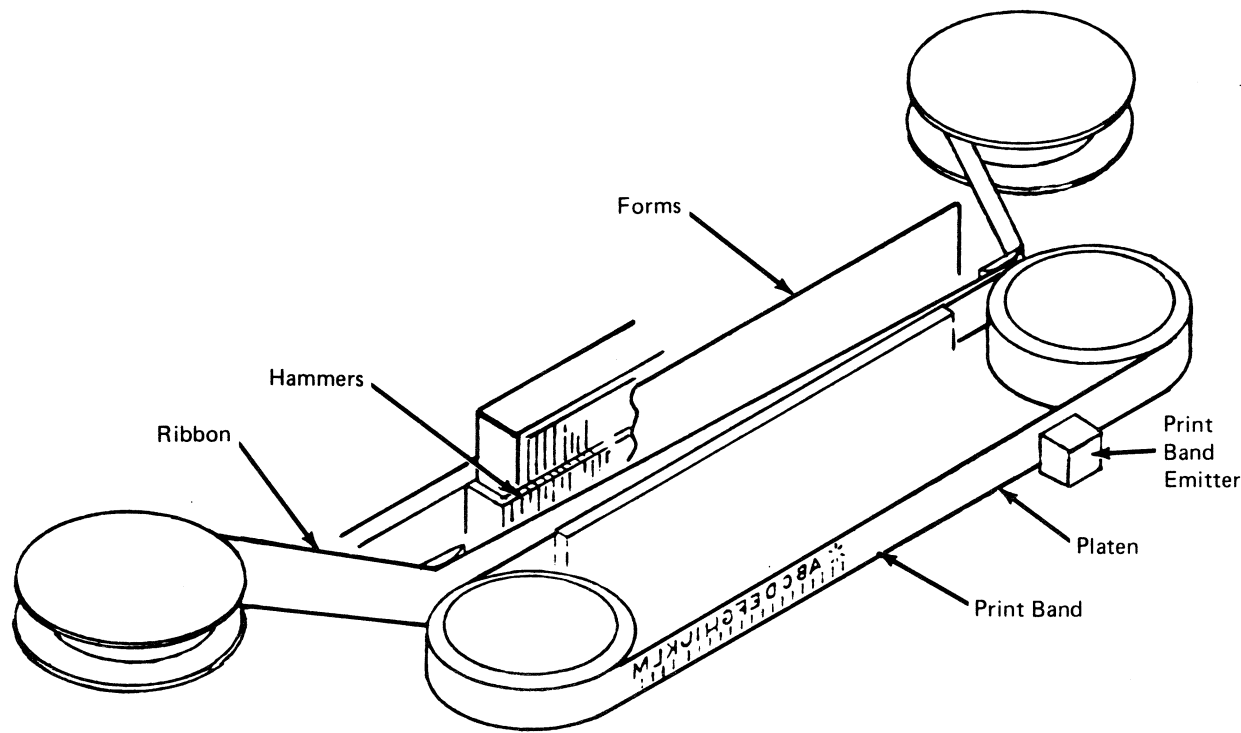


PRINTING METHOD

The print band travels in front of the hammers, forms, and ribbon. As the band moves, each character on the band passes in front of each print position, in front of each hammer. The image of the band is stored in the UCSB.

The actual data to be printed is stored in the PLB.

When the data in the two buffers matches, the hammer for the print position is fired. The hammer presses the forms against the ribbon and the band character. The band is forced against the platen and the shape of the character is printed on the form.



FUNCTIONAL UNITS AND DATA FLOW

Band Motor and Drive

The band drive includes the band motor, print band, band pulleys, band emitter, and control logic (microcode). The drive moves the band in front of the hammers at a near-constant speed. The band motor begins turning when contactor K2 is energized. The motor accelerates up to speed. When the band is up to speed, home and print subscan pulses are generated from the band timing marks, and the signal 'Band Up to Speed' is developed.

Print Subscan (PSS) and Home Pulses

These pulses are developed from the timing marks on the print band as the print band passes the band emitter. Four PSS pulses are generated from each timing mark. Home position on the band is established by one missing timing mark on the band. When the emitter circuits detect the missing timing mark, a Home pulse is generated. When the band is up to speed, the home and PSS pulses synchronize the band characters with the data for the line to be printed.

Front Unit

The front unit includes the print band drive, platen, and forms thickness control. The front unit physically positions the band and platen in front of the ribbon and hammers. The forms thickness control is mounted at the front of the front unit. This control adjusts the physical position of the front unit in relation to the hammer unit. It also actuates the impression control switches that change the duration of the hammer fire pulses. The forms thickness control allows one- to six-part forms to be used in the printer.

Hammer Unit

The hammer unit consists of the 132 hammers mounted on the hammer unit casting. Each hammer unit casting contains six hammer blocks; each hammer block contains 22 hammers.

Ribbon Motors and Drive

The ribbon drive includes the ribbon motors (left and right), ribbon spools, ribbon reversing switches, and the control logic. The ribbon drive moves the ribbon across the forms. The ribbon moves during both printing and carriage operations. The ribbon is driven by the left or the right drive motor, and is controlled by the ribbon microcode. Grommets near each end of the ribbon actuate a reversing switch. The microcode monitors the condition of the reversing switches, and causes the direction of the ribbon to change. A small current, called the ribbon drag current, is applied to the non-driving (driven) motor to provide tension on the ribbon as it is being wound. The non-driving motor circuit windings generate a small signal that is detected and used to indicate the speed of the ribbon as it is unwinding.

Paper Clamp

The paper clamp, located under the front unit, has a solenoid that operates a clamp shaft (paper brake). The clamp, when actuated, serves two purposes:

1. Slow the forms motion when stopping the forms movement, and
2. Prevent horizontal movement of the forms during printing.

The microcode activates the paper clamp before and during printing, and then deactivates the clamp before the carriage moves.

Carriage Motor and Drive

The carriage drive includes the carriage motor, carriage emitter, tractors, and control logic. The carriage moves the forms vertically through the printer, and is controlled by the microcode. After the paper clamp releases the forms, microcode activates the 'Carriage Go' signal. The printer control logic generates the first carriage advance pulse to start the carriage. After the motor starts turning, feedback pulses from the carriage emitter are detected and cause additional carriage advance pulses to continue to turn the motor. The forms motion detection circuits detect the movement of the forms through the tractors. The advance pulses are counted by the control logic to determine how far the carriage has moved. When the carriage moves the amount specified by the forms command, the 'Carriage Go' signal is deactivated. The control logic generates three pulses to slow the carriage motor to stop the carriage at the correct position. When the carriage has stopped, detent current is used to keep the carriage at its location.

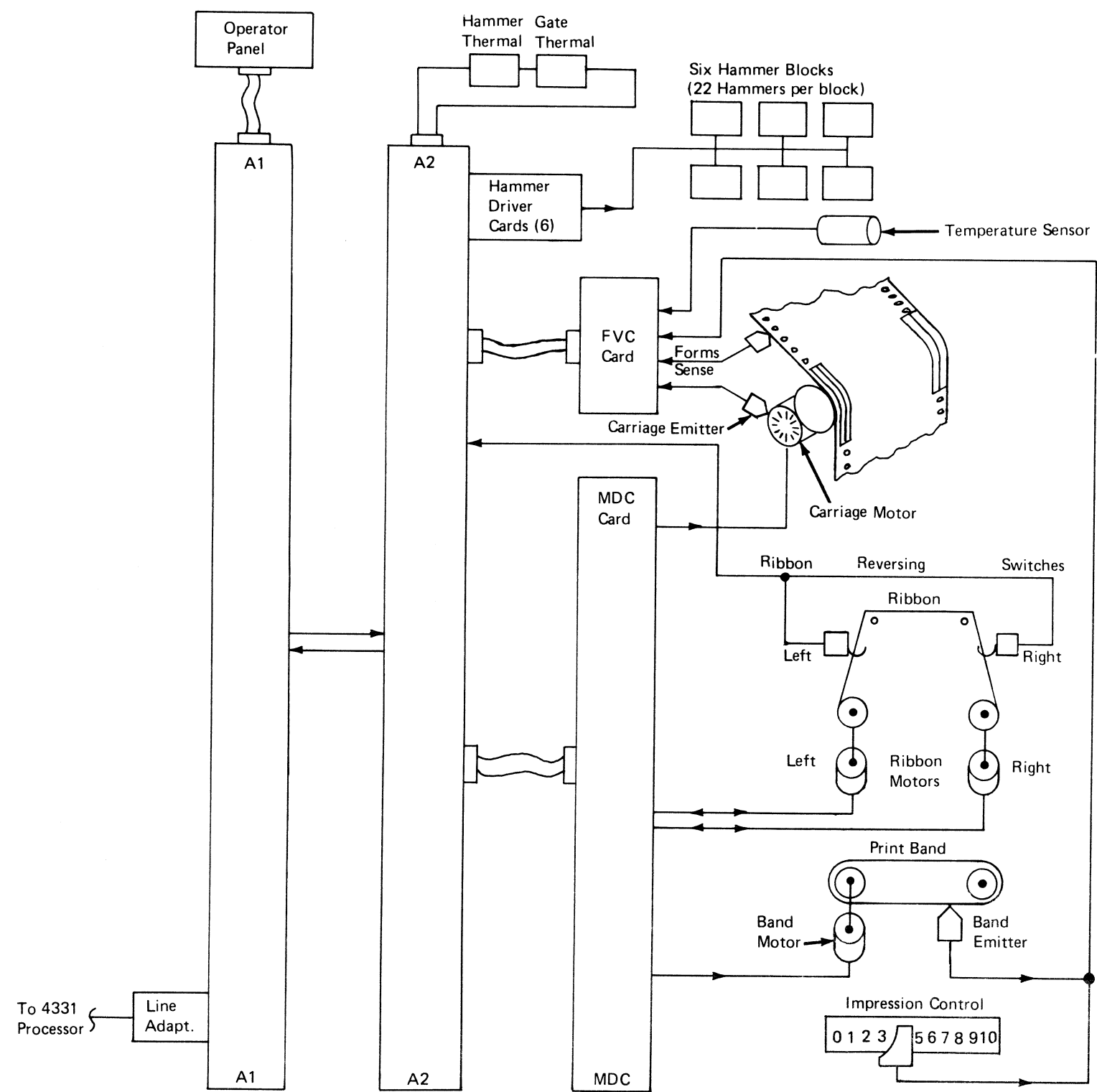
Operator Panel

The operator panel allows the operator to control the printer operation and display the condition of the printer. The operator panel includes the Status indicator (a two-position display), eight LEDs (light-emitting diodes), 16 keys, and rocker-type switches. The Status indicator displays status codes that indicate the condition of the printer that require operator intervention, or printer errors that must be corrected. The eight LEDs are printer status and check lights. The 16 keys control printer operation, and are used by the CE for diagnostic testing of the printer. The rocker-type switches at the bottom of the operator panel are used during printer diagnostic testing to indicate the size of the character set of the band mounted in the printer. The Status indicator and the eight LEDs are turned on and off by the printer microcode.

Power Supply

The power supply converts the ac line voltage to dc voltages that supply the printer. The dc voltages are distributed to the card and sensor circuits to control and detect printer functions and operations. The printer is plugged, or connected, to the customer ac power. The ac power in the printer is controlled by the Unit Power Switch. The printer convenience outlet power is controlled by a separate switch mounted on the power supply. The power supply also contains a transformer to change the ac line voltage to 230 Vac. The 230 volts is distributed in the printer as single-phase ac for the gate fan, and as three-phase ac for the band motor and the hammer blower (Models 1, 2, and 3).

FUNCTIONAL UNIT OVERVIEW



OPERATOR PANEL DESCRIPTION

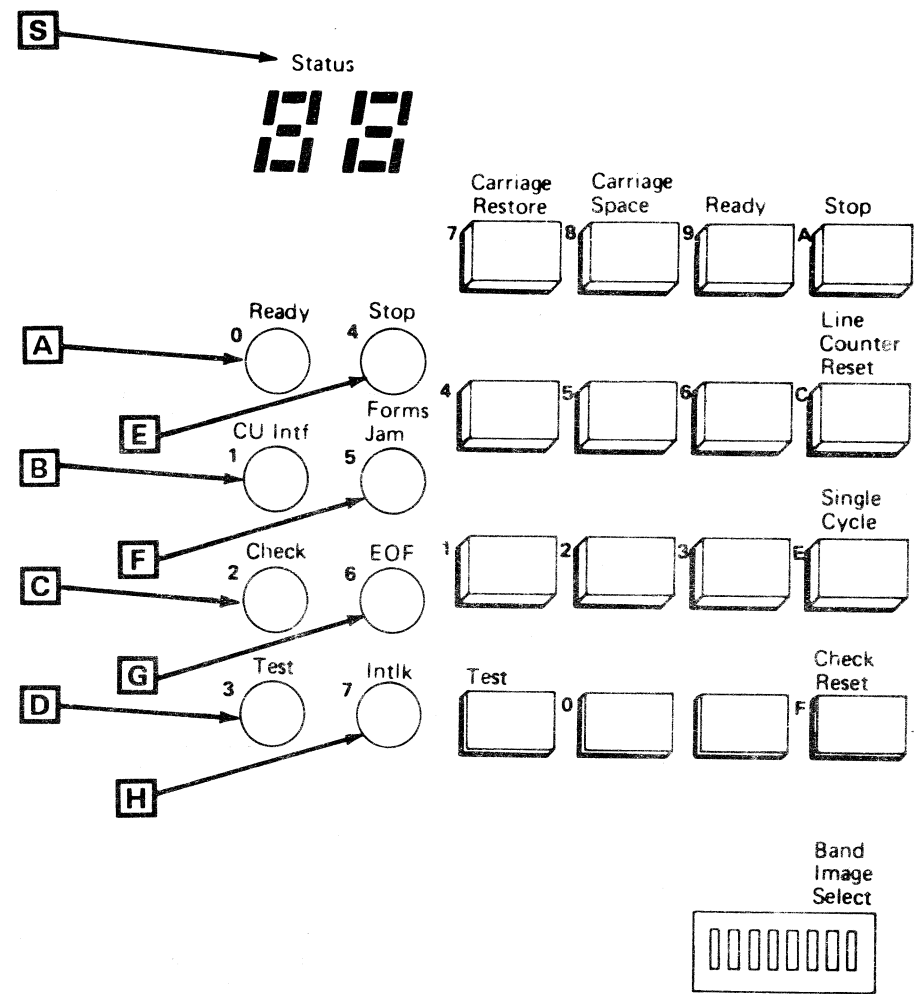
The indicators and keys on the operator panel are dual-purpose. They are assigned both names and numbers.

In operational mode, the names are used; in test mode, the numbers are used.

Operational Mode

Operational Indicators (LEDs)

- Ready **A**
Pressing the Ready key turns on the Ready indicator, and the printer is ready to print.
This indicator is reset by pressing the Stop or Test keys, or if an error occurs.
- CU Intf **B**
This indicator turns on when the coaxial cable (printer to host system) is operational.
- Check **C**
This indicator turns on when an error occurs. The error code is displayed in the Status indicator.
This indicator is reset when the problem is resolved and the Check Reset key is pressed. It is also possible for the Forms Jam or the EOF (End-of-File) indicators to be on when the Check indicator is on.

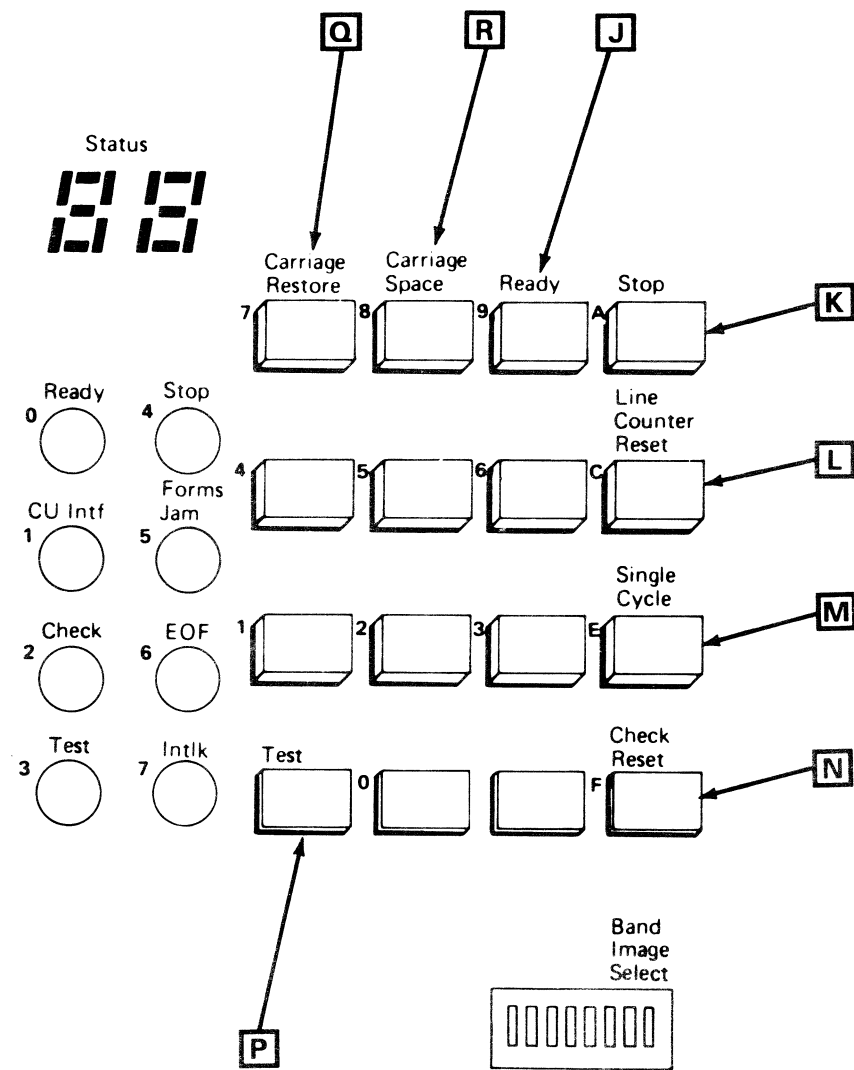


- Test **D**
This indicator is turned on when the printer is in Test Mode.
It is reset when the Basic Assurance Tests have been rerun.
- Status Indicator **S**
Two seven-segment LEDs display the status of the printer. When a status code is displayed, operational indicators may also be on.
- Stop **E**
This indicator is turned on when the Stop key is pressed or if an error occurs. This indicator is turned off when the Ready key is pressed.
- Forms Jam **F**
This indicator is turned on when either a forms jam or torn forms is sensed. Status code '02' is displayed in the Status indicator, and manual intervention is required.
This indicator is turned off when the problem has been corrected and the Check Reset key is pressed.
- EOF (End of Forms) **G**
This indicator is turned on when end-of-forms is detected. Status code '01' is displayed in the Status indicator, and manual intervention is required.
This indicator is turned off when forms have been installed and the Check Reset key is pressed.
- Intlk **H**
This indicator is turned on when the front unit is opened, and is turned off when the front unit is closed.

Operational Keys

The keys are not active unless the printer is in Stop mode. The exceptions are the Check Reset, Test, and Stop keys, which are active when power is on.

- Ready **J**
When this key is pressed, the Ready indicator turns on and the printer is ready for printing.
- Stop **K**
When this key is pressed, the printer completes the current print operation and the Stop indicator is turned on.
- Line Counter Reset **L**
When this key is pressed, the FCB is reset to line 1 without moving the forms.
- Single Cycle **M**
When this key is pressed, the printer prints one line of data and then stops. A print operation occurs each time the Single Cycle key is pressed.
This key is active in stop mode only.



- Check Reset **N**
When this key is pressed, the Status indicator is reset, the Check indicator is turned off, and the printer returns to normal operation when the Ready key is pressed.
- Test **P**
When this key is pressed, the current print operation is cancelled, the printer is put in offline mode, and the Basic Assurance Tests are executed.
- Carriage Restore **Q**
Pressing this key causes the forms to move to line 1 as determined by the Forms Control Buffer.
The key is active only upon completion of the Basic Assurance Test. If Status indicator 'd0' is on, a test is in process and the key is not active.
- Carriage Space **R**
When this key is pressed, the carriage advances the forms one space (with no printing occurring). The forms control pointer is incremented each time the key is pressed.

Test Mode

Diagnostic and printer exercisers are selected and executed by using the keys on the Operator Panel. See Section 15 for detailed instructions to select a test or exerciser and the use of the Diagnostic Indicators during execution of each test.

Diagnostic Indicators T

The Diagnostic Indicators (DI) 0-7 are used when the printer is in Test Mode. DI 3 is on when running printer diagnostics and Basic Assurance Tests.

When doing a storage display, DI 3 turns on and off depending on the data being displayed. For Diagnostic Indicator usage, see Section 15.

Status Indicator

Two seven-segment LEDs are used to display the status code, Error Log, Routine ID number, specific writeable storage area, or failing print position(s).

The decimal point of the left display is lit to identify numbers greater than 99. The decimal point represents 100, and is used in routine ID 61.

When the decimal point is lit, the display is read as *one hundred* plus the *value* in the two digits.

Keys

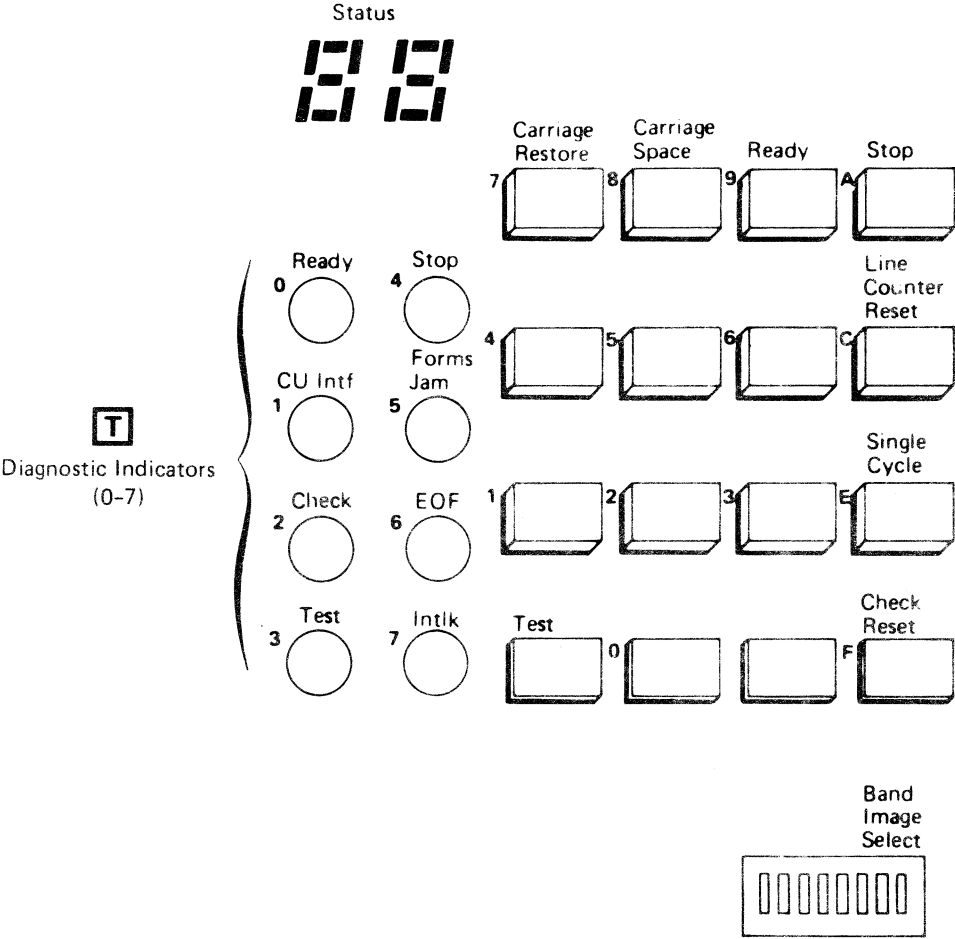
When the Test key is held active, keys 0 through 9 are used for routine ID selection, and all keys are used for data entry.

Key 'A' is also used to terminate a test or routine, and key 'F' is used for advancing when doing a display routine.

Band Image Select Switches

These switches identify the print band being used. Switches 1 through 4 are not used; switches 5 through 8 identify the Band Image.

ARRAY SIZE	BAND IMAGE SELECT SWITCHES		
	6	7	8
48	OFF	OFF	OFF
52	OFF	OFF	ON
63 Preferred	OFF	ON	OFF
64	OFF	ON	ON
96	ON	OFF	OFF
116	ON	OFF	ON
128 Text	ON	ON	OFF
128	ON	ON	ON



MANUAL CONTROLS

The manual controls are used to load and stack forms, to move the forms in the tractors, and to remove or replace the print band.

Forms Advance Knob

This control moves the forms through the tractors and the forms path.

The printer power must be on to keep the carriage (tractors) detented and the forms in place.

Vernier (Vertical) Forms Control

This control positions the line of print on the form.

This control is part of the Forms Advance Knob. Push the knob to the right for the vernier function to operate. Turn the knob to position the form to the desired location.

Tractor Release Levers

Squeezing the levers releases the tractor for repositioning. Reposition the tractors to the holes at each edge of the form.

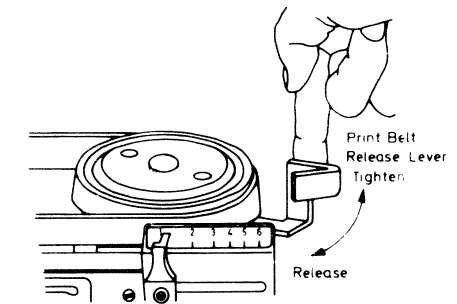
Lower Forms Guides

These two guides align the forms entering the forms path. Use these guides to align the form so that it enters the tractor without curling.

Adjust these guides after placing forms in tractors and closing the tractor covers.

Print Band Release Lever

This control releases tension on the print band to remove or install a print band.



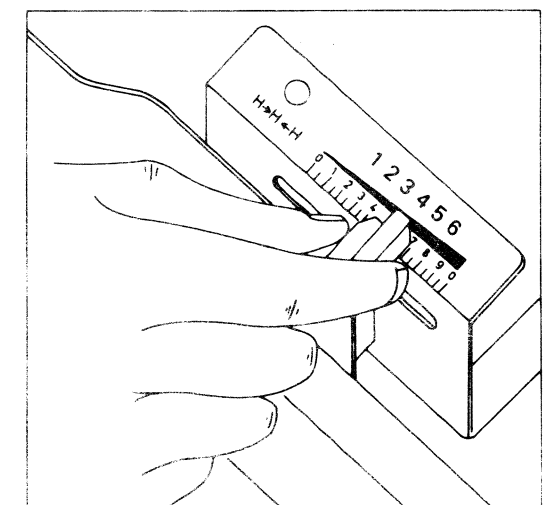
Front Unit Release

This handle, which projects through the top of the front unit, opens and closes the front unit latch to install or remove forms, ribbons, or print bands.

Forms Thickness Control

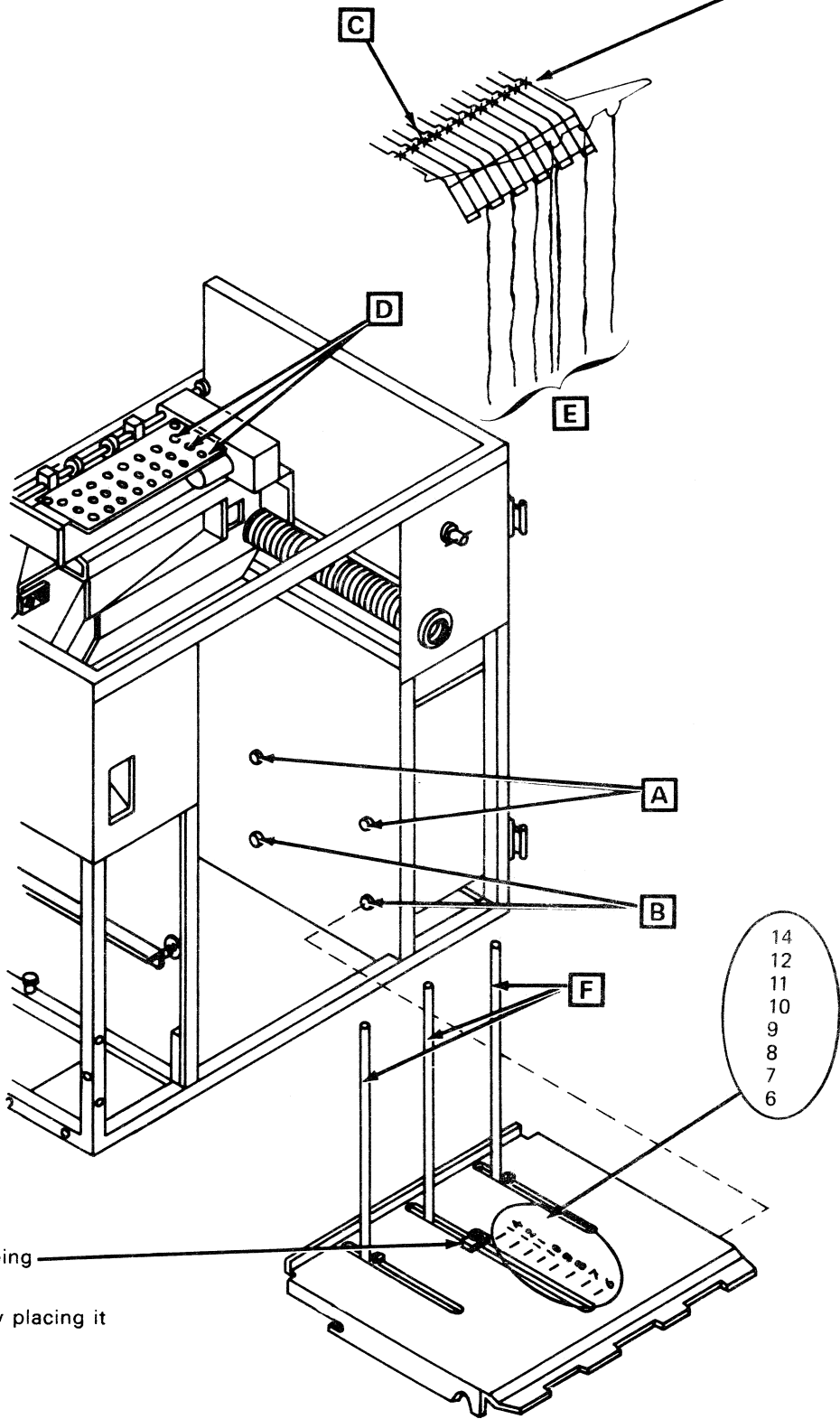
(Impression Control)

This control adjusts the forms thickness by changing the opening between the front unit and the hammers. It provides impression control switches that vary the hammer pulse duration.



Upper Forms Guide

This guide adjusts to the length of the forms being stacked. The ends **C** of the guide are placed in one of the rows **D**. The chains **E** remove static electricity from the forms.



Stacker Tray

Slide the posts **F** to the size of the forms being stacked.
The height of the tray is raised or lowered by placing it on pins **A** or **B**.

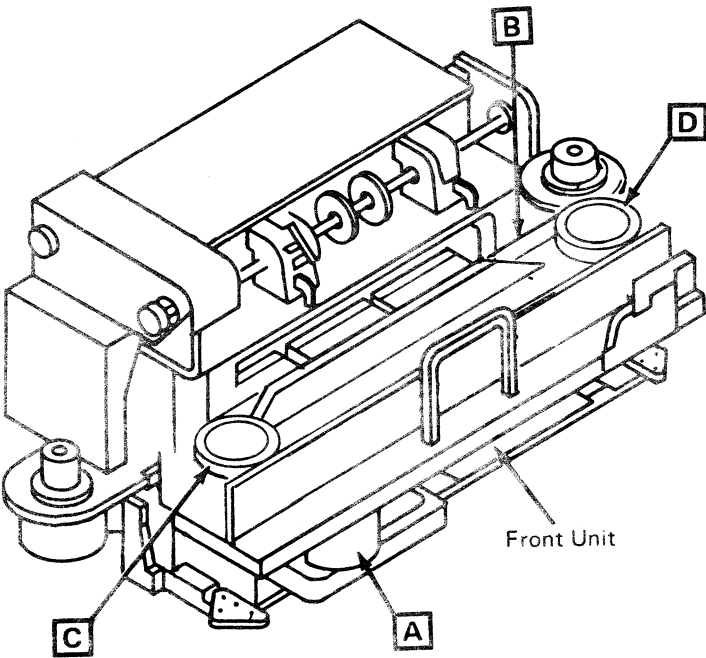
FRONT UNIT

Print Band Drive Motor [A]

The print band drive motor is a 220-Vac synchronous motor. It is constructed with the rotor (rotating member of the motor) as the outer member.

Caution: When working with the band motor running, avoid contact with motor. The outside of the motor is NOT FIXED (or stationary); it rotates.

The print band drive starts when contactor K1 is energized. The drive accelerates up to speed, and maintains the speed during printing or carriage movement. The motor continues to run until K1 is de-energized. When K1 de-energizes, the motor coasts to a stop.



Print Band [B]

The print band for the printer is a steel band with the character set and timing marks embossed on it. The standard band has six sets, of 48 characters each, of the standard 1403-style type. There are 288 characters per band. Other character sets are available through the IBM Marketing Representative.

Band Synchronization

Synchronization of the print hammers with the band characters is controlled by timing pulses from the band emitter. The characters of the band (UCSB) are compared to the information to be printed (PLB). When a match occurs, the corresponding hammer is fired to print the character. The emitter circuits detect each timing mark embossed on the band. The circuits also detect home pulse (the absence of one timing mark). Home pulse is 1.5 subscans ahead of the first character of the first array at print position 1. A complete print scan, consisting of five subscans, is processed by microcode. The print scan occurs during the time a character moves from one print position to the next. 1440 subscans are processed during each revolution of the print band.

Print Band Drive Pulley [C]

The print band drive pulley is driven by the belt connected to the print band drive motor. The print band drive motor causes the print band to rotate counter-clockwise in front of the hammers. The drive pulley is free to move, vertically, on its drive shaft to permit correct vertical band alignment.

Print Band Idler Pulley [D]

The idler pulley is driven by the rotation of the print band. The idler pulley mechanism has spring tension applied to it such that the band is physically kept in place. The force on the idler pulley is applied to the right, so that the band contacts the surfaces of both the drive and idler pulleys. Tension on the band is released by pulling forward on the Print Band Release Lever. Pulling the lever toward the front of the printer releases the tension and allows the band to become slack (loose from the pulleys). The band may then be removed for replacement, or exchanged for a band with a different character set.

Error Checking

Errors caused by print band alignment, speed, or synchronization are monitored by microcode. If an error occurs, a status code is displayed in the Status indicator. In some cases, the failure may be a visual or audible indication that may be corrected by operator intervention or repaired by a CE. The Problem Determination Procedure (PDP) cards at the front of the Operator Panel assist the operator to determine what action is required. If the operator corrects the failure, the printer can be made Ready. If the operator is not able to correct the failure, repair of the printer by a CE is required. If the band breaks, loses speed, or is misaligned; if the support bearings wear; if timing marks are damaged; or if the band emitter fails; a status code is displayed in the Status indicator and the Ready light turns off.

Universal Character Set Buffer (UCSB)

The UCSB is loaded with hexadecimal information representing the character order on the print band. When a print band is installed that has a different character set from the band previously in the printer, the UCSB must be reloaded from the host system to allow proper printing. **Note** Some diagnostic tests load the buffer as part of their execution.

Print Band Life

Print band life depends on many factors:

- The number of copies printed
- The quality of the paper used in the forms
- The type of ribbon used
- The number of characters printed

However, the average life of a 48-character set print band printing single-part forms using IBM ribbon (part 7819690) and printing an average of 40 characters per line is approximately 40 million lines. Print band life is based on the print quality of the most-used character.

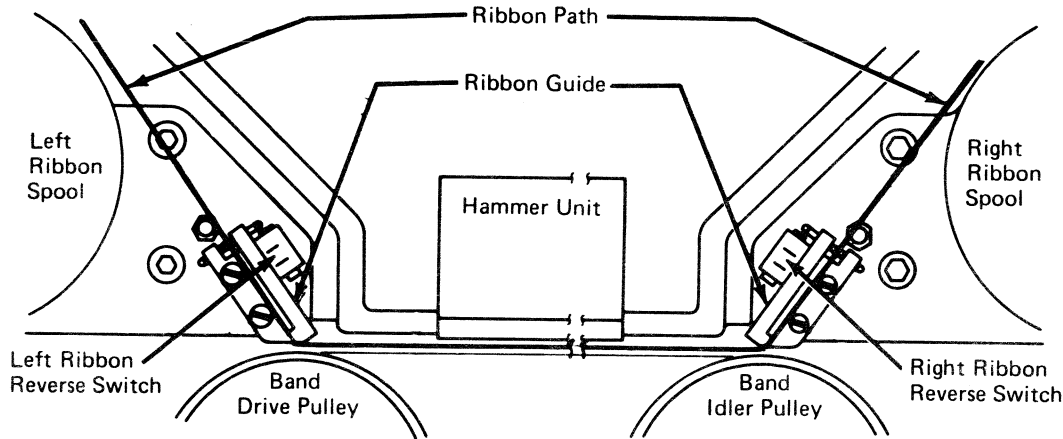
Note: Good print quality cannot be guaranteed if printing is done within 12.7 mm (0.5 in) of a perforation or the right or left margin, or within 50.8 mm (2.0 in) of the end of the last sheet of a stack of forms. (The last 50.8 mm (2.0 in) of the forms are beyond the grip of the paper clamp.)

RIBBON MOTORS AND DRIVE

The ribbon drive consists of two stepper motors. One motor is located to the left of the hammer unit; the other motor is located to the right of the hammer unit. While one motor is pulling (winding) the ribbon, the other motor (unwinding the ribbon) has half current applied to its windings to create drag for proper ribbon tension.

A sensing circuit uses the output of the motor that is unwinding ribbon. The sensing circuit, in conjunction with the microcode, monitors the interval between these pulses.

The microcode varies the duration of the pulses to the driving motor to maintain the ribbon speed.



Ribbon Life

Normal ribbon life for IBM ribbon (part 7819690) at an average of 40 characters per line on single-part paper is approximately 625,000 lines.

Ribbon Start, Run, and Stop Conditions

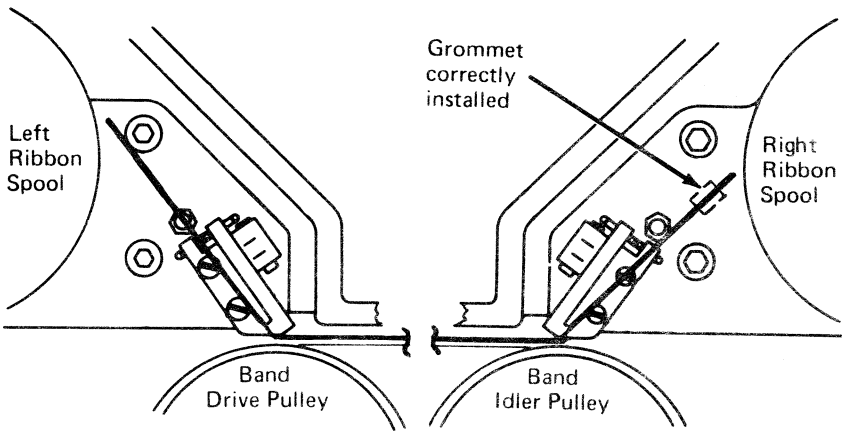
- A 180-Hz starting signal is selected for one second.
- After the first second, a signal with a frequency of between 140 Hz and 220 Hz is selected by microcode. The signal frequency is determine by the feedback pulses from the motor.
- The speed is checked every seven seconds, and the stepper motor drive frequency is adjusted to maintain proper ribbon speed.
- The ribbon motor drive pulses (stepper motor drive) continue for one second after printing is completed.

Ribbon Motor Motion Detection

The motor that is unwinding ribbon acts as a *generator* as the ribbon causes it to turn. The signals 'Left Ribbon Motion' or 'Right Ribbon Motion' are fed to the A2 card from the motor driver card to detect ribbon failure.

The ribbon reverses when one of the reversing switches is actuated by a grommet. (A grommet is located near both ends of the ribbon.)

Note: The ribbon grommet is installed between its spool and the reversing switch nearest the spool. If a reversing switch fails to transfer and the ribbon stalls, the ribbon microcode reverses the ribbon direction.



Ribbon Reversing Condition (Printer Busy)

The ribbon reverses when a grommet actuates either the left or right reversing switch. 'Printer Busy' remains active while the right or left ribbon reversing switch is actuated. 'Printer Busy' becomes inactive when the first feedback pulse is detected from the motor that is unwinding ribbon.

During Printer Busy status, a ribbon start frequency is selected, and printing is prevented by microcode.

Ribbon Motor Detent Current

Full Detent Current: occurs when two motor drivers of a motor conduct their rated current.

Before starting, stopping, or reversing the ribbon motors, both motors are fully detented. This decelerates the motors and then stops them from oscillating.

Reduced Detent Current: occurs when the current in the winding is *chopped*, electronically, 25 percent of the pulse interval.

This current flows in two of the motor windings while the ribbon is stopped.

Ribbon Motor Drag Current: occurs when the ribbon is running; the motor of the unwinding spool provides tension on the ribbon to prevent smudging or ribbon lifting.

All four windings of the driven stepper motor (unwinding spool) receive full current, chopped to 25 percent of the pulse interval. This creates a torque in the driven motor that is less than the torque of the motor that is winding the ribbon.

Ribbon Checks

Ribbon checks cause status codes to be displayed in the Status indicator. Ribbon checks include:

- Drive circuit failure
- 32V contactor failed
- Printer Busy timeout
- Wrong reversing switch actuates

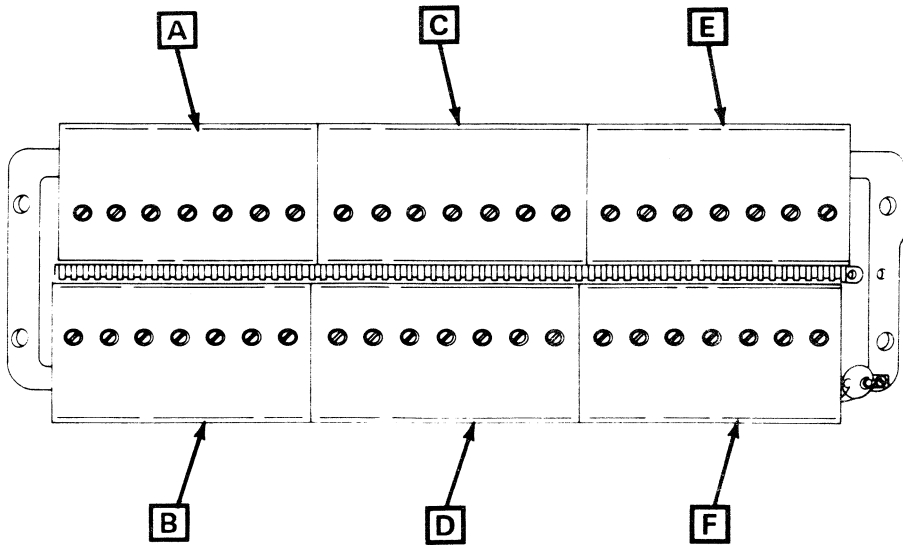
HAMMER UNIT

The hammer unit is mounted on the rear of the main printer casting. 132 hammers are mounted on the hammer unit, one hammer for each print position along the print line.

The hammers are spaced ten per 25.4 mm (1.0 in). The 132 hammers are divided into groups of 22 hammers.

Each group of 22 hammers is mounted on a hammer block. There are six hammer blocks; three blocks are mounted on the hammer unit above the print line, and three blocks are mounted below the print line. The hammer unit and hammer blocks are mounted on the printer casting, with the hammers located at the print line. The hammers are aligned, vertically, to the characters of the print band. For cabling and control purposes the hammer blocks are divided into six groups. The odd-numbered hammers are located in the hammer blocks that are mounted above the print line. The even-numbered hammers are located in the hammer blocks that are mounted below the print line. Viewing the hammer blocks at the front of the printer, the hammer blocks are arranged as follows:

- Odd hammers 01-43; left hammer block **A**
- Even hammers 02-44; left hammer block **B**
- Odd hammers 45-87; middle hammer block **C**
- Even hammers 46-88; middle hammer block **D**
- Odd hammers 89-131; right hammer block **E**
- Even hammers 90-132; right hammer block **F**



Hammer Coils

The coils are constructed with the winding along the axis of the coil. The coils are mounted in the hammer block so that when the hammer is fired, the armature of the hammer is magnetically attracted into the coil.

The hammer is returned by springs pressing against the hammer armature.

Cooling (Models 1, 2, 3)

The hammer unit is cooled by a fan that has an air intake filter to help keep the hammer unit clean.

Cooling (Models 11, 12, 13)

The hammer unit is cooled by convection (normal air circulation; no fan or blower). A perforated cover allows air to circulate around the hammer coils.

Hammer Firing Control

Hammer firing is controlled by microcode. The characters on the band are spaced farther apart than the print positions, so that the microcode has time to read the PLB and select the hammers that will be fired.

As the characters on the band pass the hammers, the hammers are fired to print the character in the UCSB.

The timing of hammer firing is controlled by print scans and subscans. The hammer microcode controls the print scans and subscans of the hammer selection and firing sequence.

The total number of scans and subscans required depends on the number of characters in each array on the band. For a 48-character band, 48 print scans and 240 subscans are required for each line of print.

Hammer Fire Limiting

There is always a possibility that a unique print line might require 26 hammers to fire on one subscan. This would overload the hammer voltage power supply. To prevent this, microcode allows a maximum of six hammers to fire on one subscan.

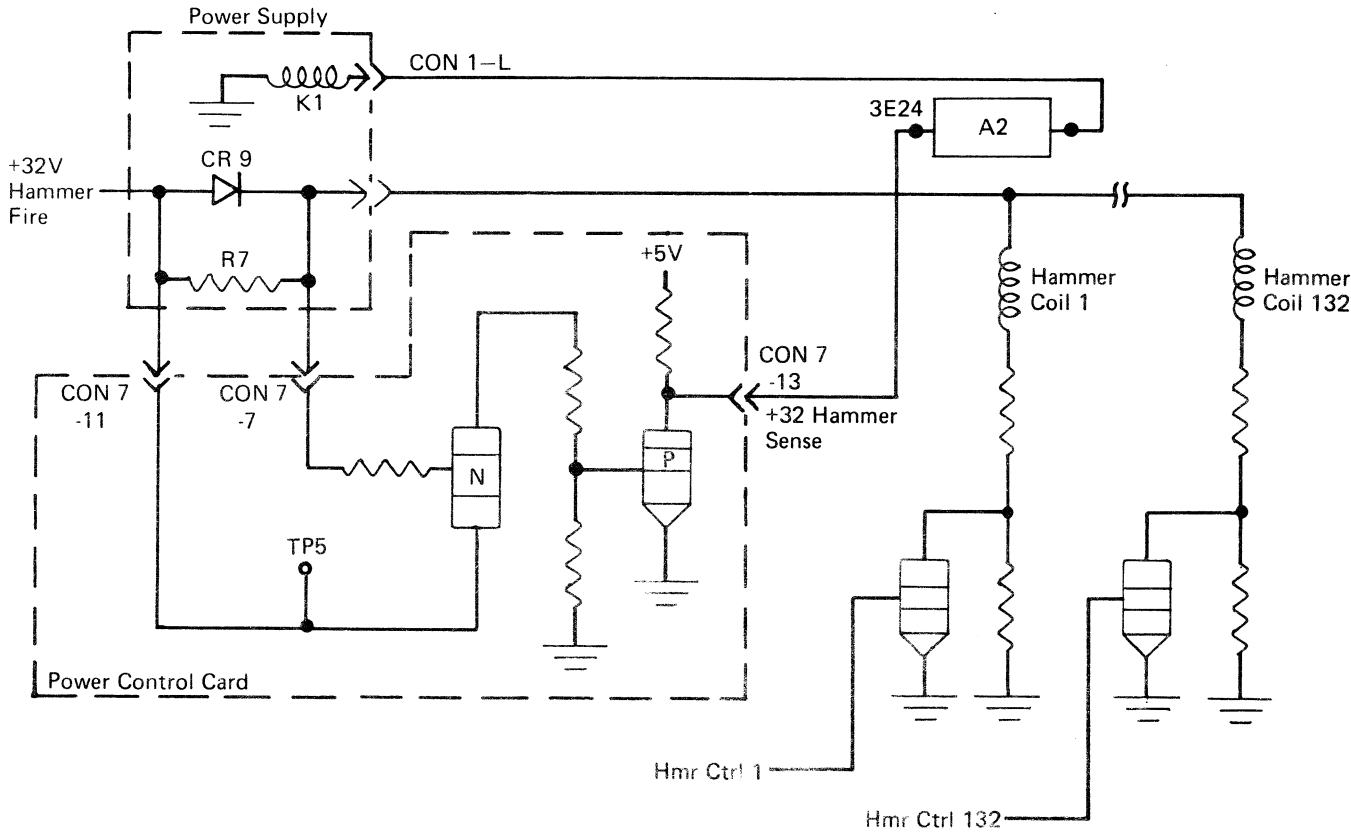
Hammer Current Detection

Hammer current is detected by a power supply circuit that checks hammer circuits for two conditions:

1. One (or more) hammers fired during the print cycle, and
2. No hammers fired when no printing is being done (during non-printing part of cycle).

If any hammer draws current when printing is not in progress, K1 drops, removing the +32 volts to the hammers.

A separate parity check of each of the six hammer groups is done, and when a failure occurs, an appropriate status code ('C1' through 'C6') is displayed in the Status indicator.



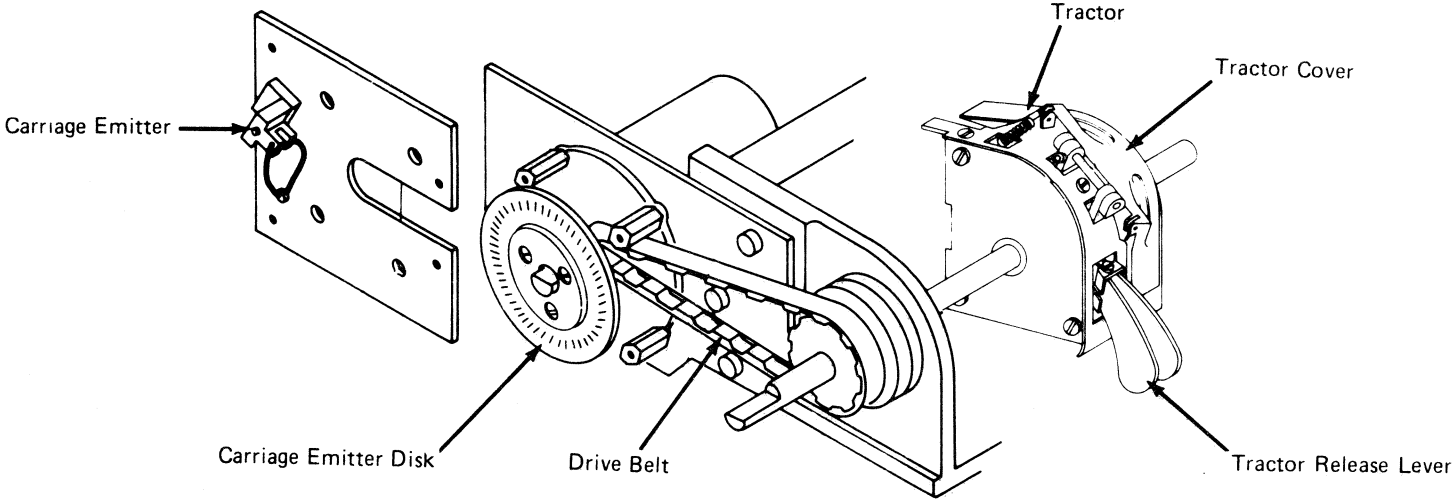
CARRIAGE

The carriage has two tractors that are adjusted, manually, to the holes located at the edges of the forms.

The tractor assemblies are mounted on a round shaft which has a machined flat surface. The tractor shaft is driven by a stepper motor and drive belt.

Each tractor has a pin feed wheel that moves the forms. The cover for the tractor is spring-loaded to open and permit loading forms. When the cover is closed, the spring applies tension to keep the cover closed and the forms located on the tractor pins.

Each tractor has a release lever on the front side that adjusts the tractors to the width of the forms.



FORMS PATH

Forms Loading

The loading compartment holds a stack (or box) of fan-fold forms of up to 304.8 mm (12 in) high. The forms are loaded at the front of the printer, up between the hammers and the front unit, under the tractor covers, over the top of the printer, and down onto the stacker at the rear of the printer. The forms are inserted between the chains that hang over the stacker tray. These chains contact the surface of the forms; they remove static that might build up, and guide the forms onto the stacker tray. While printing, keep the front door closed for better forms feeding, and also for reduced printer noise.

Forms Size

Printing is done on one- to six-part forms. For a print job that requires five- or six-part forms, test for satisfactory printing of the output before starting the job. (Refer to "Forms Design Reference Guide for Printers," GA24-3488, for forms design requirements and printing limitations.) Some forms limitations are:

- 1- to 6-part forms
- Length Minimum 76mm (3.0 in)
 Maximum 356mm (14.0 in)
- Minimum length for fan-fold forms is 152mm (6.0 in)
- Width Minimum 89mm (3.5 in)
 Maximum 406mm (16.0 in)

Forms Alignment

A vertical scale behind the forms, on the forms tractor, assists the operator in aligning the forms to the print line. The forms advance knob manually adjusts the forms vertically. For vernier action, press in on the knob and turn. Forms should always be realigned after power on reset.

Forms Control Buffer

Such functions as page length, heading locations (carriage channels), and skipping are controlled by microcode. These functions are loaded from the system program into the FCB. The FCB is loaded by the user program to match the requirements of each job and of the forms being used.

Forms Thickness Control

The forms thickness control on the front unit provides impression control for carbon copies (multiple-part forms).

Forms Movement

Forms movement is detected by sensing the holes along the left margin (left edge) of the forms.

Note: *The under-side of the forms along the left edge of the form must not be dark-colored. There must be a light and dark contrast between the holes and the paper of the form to allow correct forms motion detection.*

Carriage Emitter

The carriage emitter disk is mounted on the carriage stepper motor shaft. Light passing through the holes of the disk cause the carriage emitter assembly to develop timing pulses that control carriage motion. There are 48 emitter pulses per 25.4 mm (1.0 in) of forms movement. Carriage emitter pulses are counted by microcode to control forms movement. The carriage movement must match the forms movement specified in the command from the host system. Line spacing, skipping, and carriage detenting are controlled by the carriage stepper motor microcode.

Paper Clamp

The paper clamp mechanism consists of a clamp solenoid and mechanical linkage to a shaft. There are seven steel *fingers* attached to the shaft. The fingers contact the surface of the forms that are moving, vertically, up through the forms path. The solenoid is energized to brake (slow) the forms during carriage deceleration, and to keep the form in position during printing. When the solenoid is de-energized, the clamp is pivoted away from the forms by a spring in the solenoid assembly.

End-of-Forms

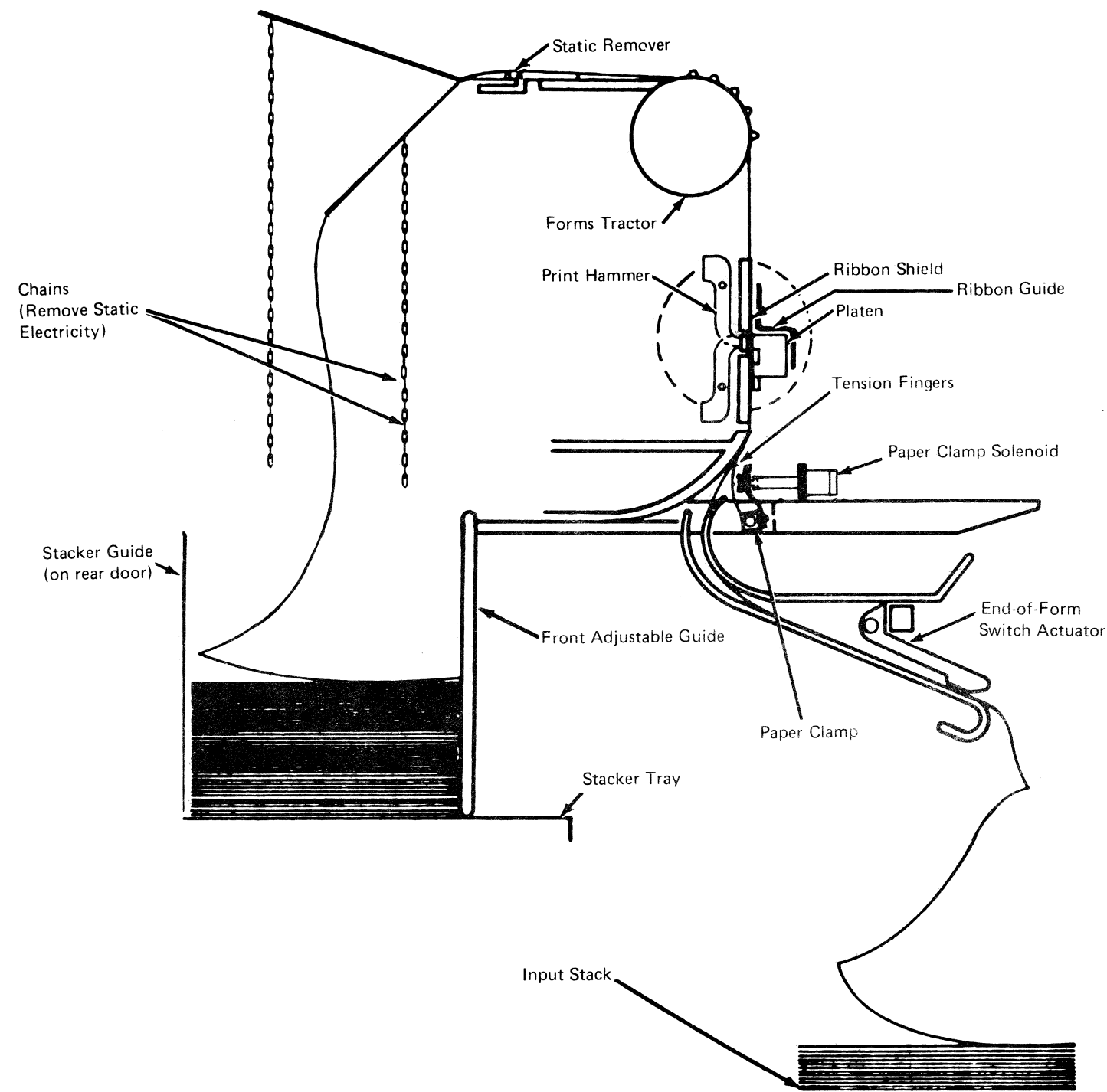
End-of-Forms (EOF) is sensed by a mechanical lever and switch. The EOF switch is at the front of the printer, under the front unit. The EOF switch operates when there are less than 406.4 mm (16 in) of forms between the *current* print line and the end of the last sheet of the forms. The switch is actuated when forms are under the switch actuator. When the last form passes the actuator, the actuator drops down, the switch transfers, and the EOF indicator lights.

Forms Control Indicators

When status code '01' is displayed in the Status indicator after an EOF condition, the Check Reset key, and then the Ready key must be pressed to continue printing. Results vary, as follows:

- If forms are added by splicing (taping last form to beginning of next) or a similar method, the EOF switch is activated, and printing continues normally.
- If no more forms are added, the print lines are counted to find the end of the paper, and printing continues at a slower line-per-minute rate under the following conditions:
 - If the 'End of Page' in the FCB is reached before the 'End of Forms', the printer stops with another EOF and status code '01'. Pressing the Check Reset and the Ready keys causes printing to continue to the next 'End of Page' or 'End of Forms', whichever comes first. When 'End of Forms' (the end of the sheet) is finally reached, all printing is suspended until more paper is loaded.
 - If the 'End of Forms' is reached before 'End of Sheet', all printing is suspended until more forms are added.

FORMS PATH



STACKER

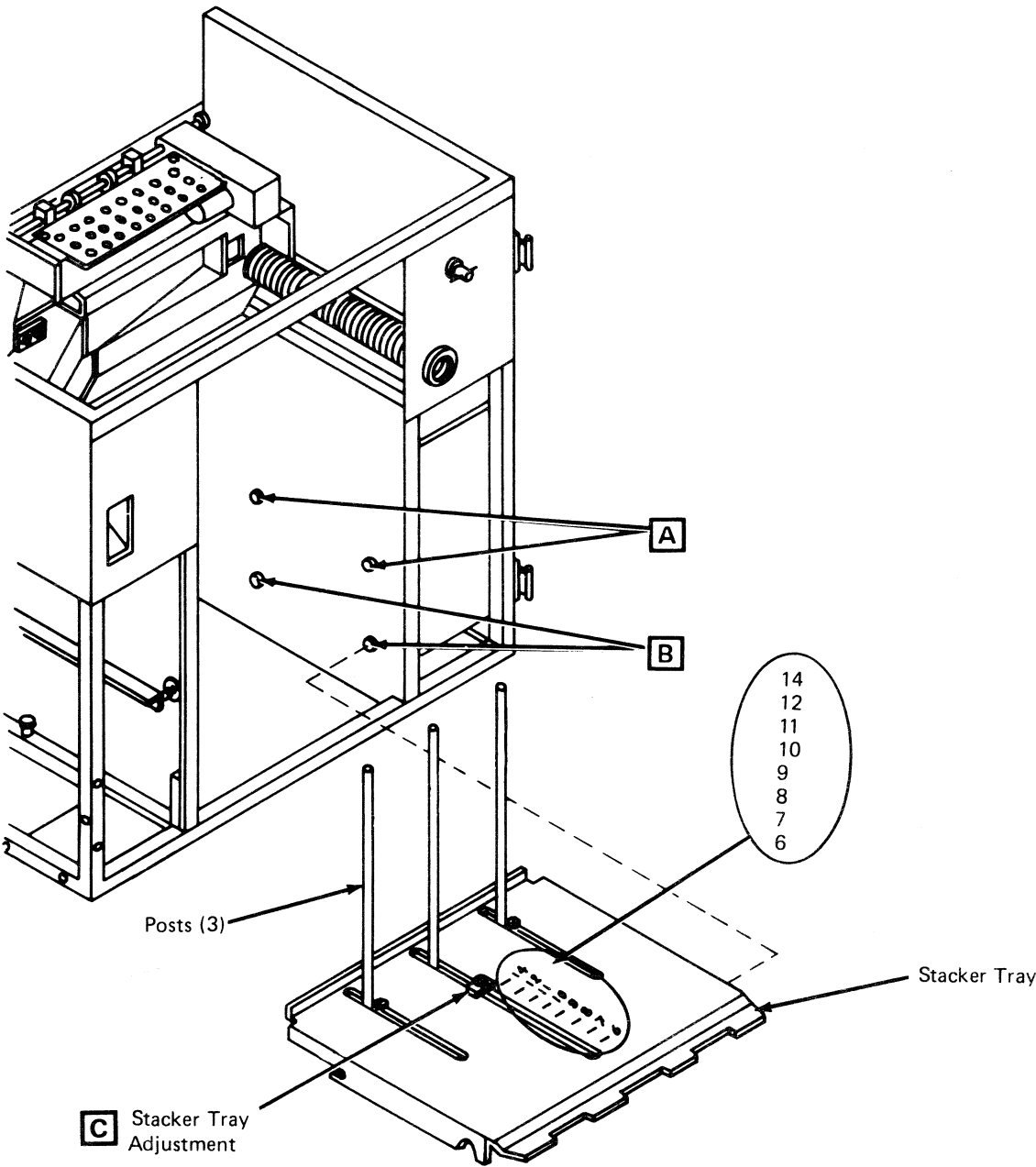
Stacker Capacity

The stacker can stack forms to a maximum height of 304.8 mm (12 in). If the height of the stack is more than 254 mm (10 in), operator assistance may be required to ensure proper stacking of forms. This assistance may be necessary up to the maximum stacking height of 304.8 mm (12 in).

The stacker tray can be set to two heights **A** or **B**.
The Stacker Tray Adjustment is moved toward the front or rear of the printer to slide the three posts along the tray. The adjustment is positioned to the number that corresponds to the length of the forms being stacked on the tray.

Static Control

When loading paper or emptying the stacker, be sure that the static elimination chains are in place.
The chains remove any static electricity that may be in the forms. They also guide the forms onto the stacking tray.



POWER

3262 Voltages

Power for the 3262 printer is developed from a ferro-resonant transformer and its output voltages. The secondary windings of this transformer produce:

- 220 Vac for the band motor, hammer fan, and gate fan.
- 5 volt winding for the +5 V power.
- 8.5 volt winding for the +8.5 V power. The -5 V power is developed from the +8.5 V supply.
- 32 volt winding for the +32 V power. The +12 V power is developed from the +32 V supply.
- The +15 V and the -15 V power is developed on the power control card by Zener diodes fed by the +32 V supply.
- The -5 V and the +12 V supplies are on the power control card.

Power On Sequence

The components of the power supply are designed so that the -5 V power supply output raises to the 50 percent level approximately 30 milliseconds before the +5 V supply reaches its 50 percent level.

Power Off Sequence

When the Power On/Off switch is turned off, all power in the printer drops except power to the convenience outlet. The +5 V power supply output drops to the 50 percent level before the -5 V power supply output drops. When K1 drops, the 'Power Check' and the 'Power Complete' signals drop to ground level.

Power Check Circuits

The check circuits that monitor the output of the power supplies are on the power control card. The +5 V, -5 V, and +12 V supply outputs are ANDed together to control the pick of relay K1. Until this relay is picked, the sense lines 'Power Check' and 'Power Complete' are at ground level. These sense lines are monitored by the microcode. The +32 V supply is not checked in the power supply. The verification of that output is done by the '+32 V Sense' circuit from the hammer unit and the '+32 V Motor Sensed' lines.

SECTION 18. PRINTER WIRING DIAGRAMS

SECTION CONTENTS

Operator Panel Control Lines 18-010

Print Band Relay and Paper Clamp Solenoid Circuit . . . 18-020

Band Emitter Control and Impression Control 18-030

Front Unit Interlock and End-of-Forms Circuits . . . 18-040

Forms Jam Sensing 18-050

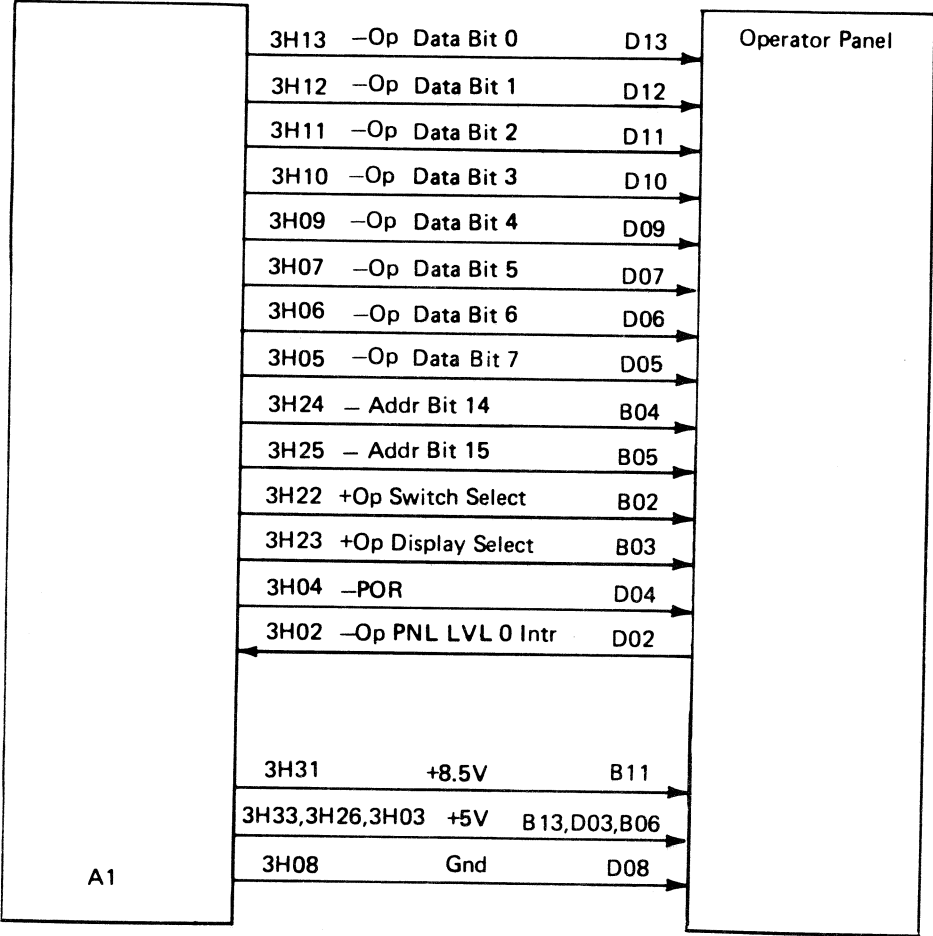
Ribbon Control Circuit 18-060

Ribbon Motor Circuit 18-070

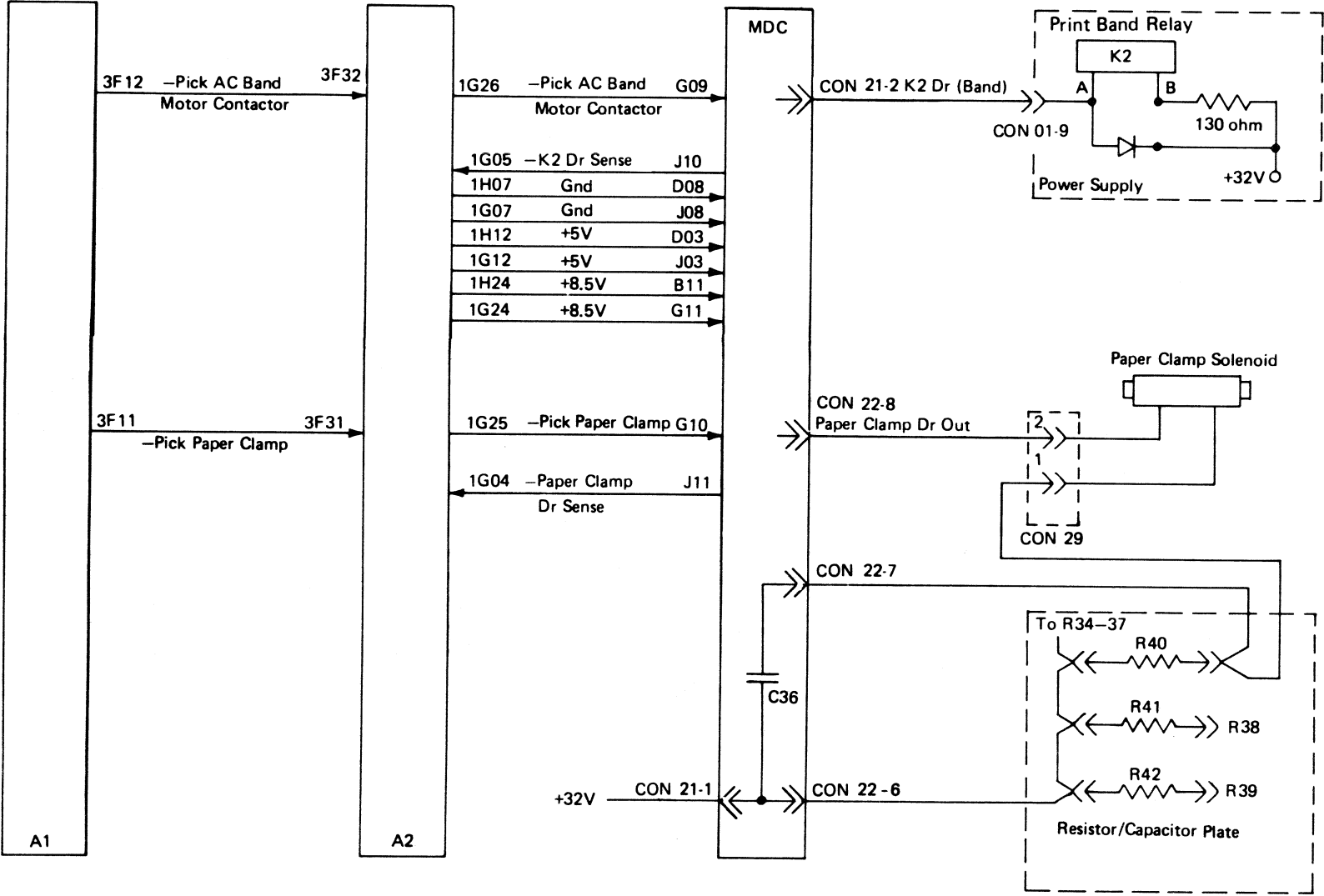
Carriage Control Circuit 18-080

Carriage Motor Circuit 18-090

OPERATOR PANEL CONTROL LINES

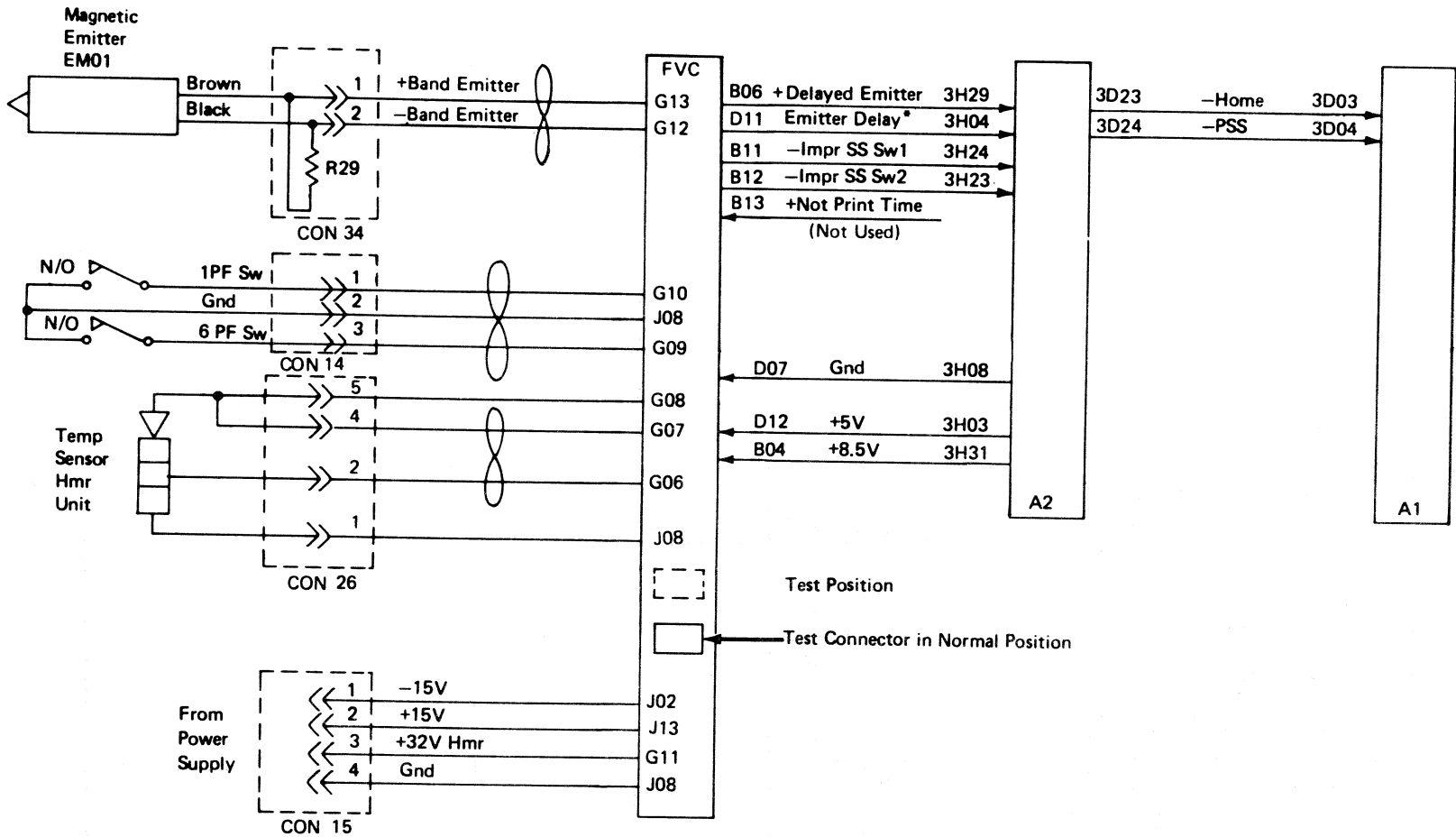


PRINT BAND RELAY AND PAPER CLAMP
SOLENOID CIRCUIT



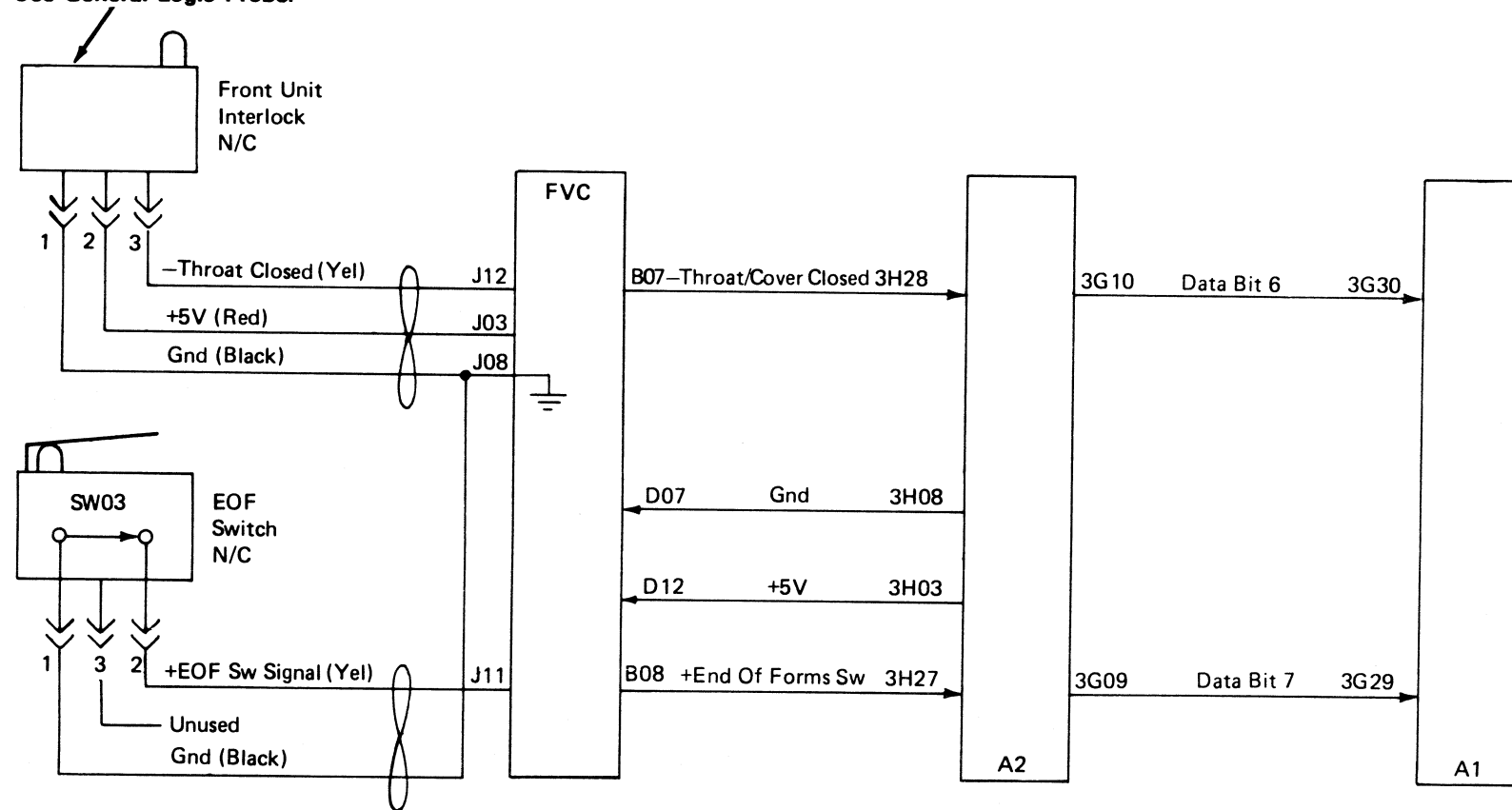
BAND EMITTER CONTROL AND IMPRESSION CONTROL

*For Test Purposes Only

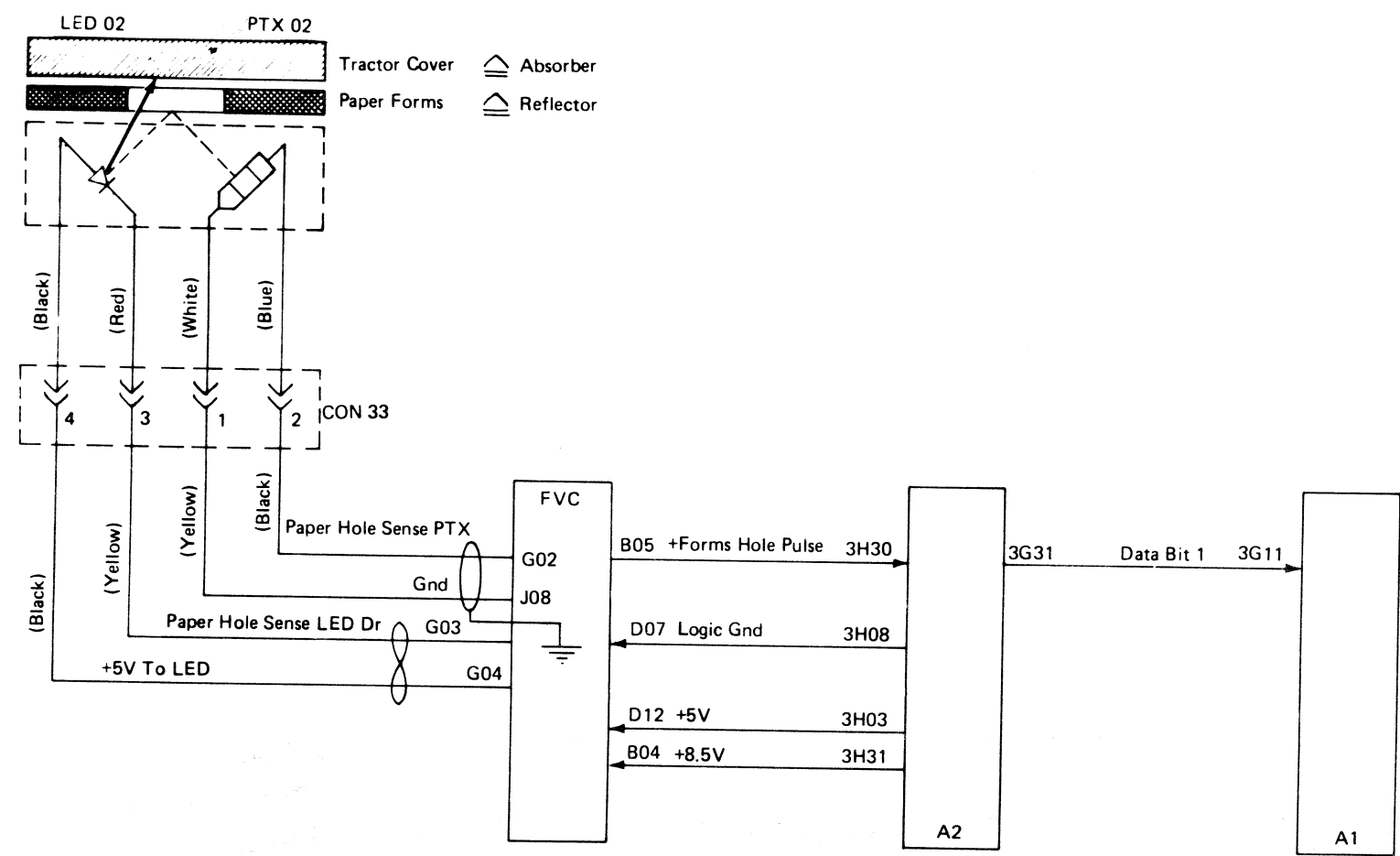


FRONT UNIT INTERLOCK AND END-OF-FORMS CIRCUITS

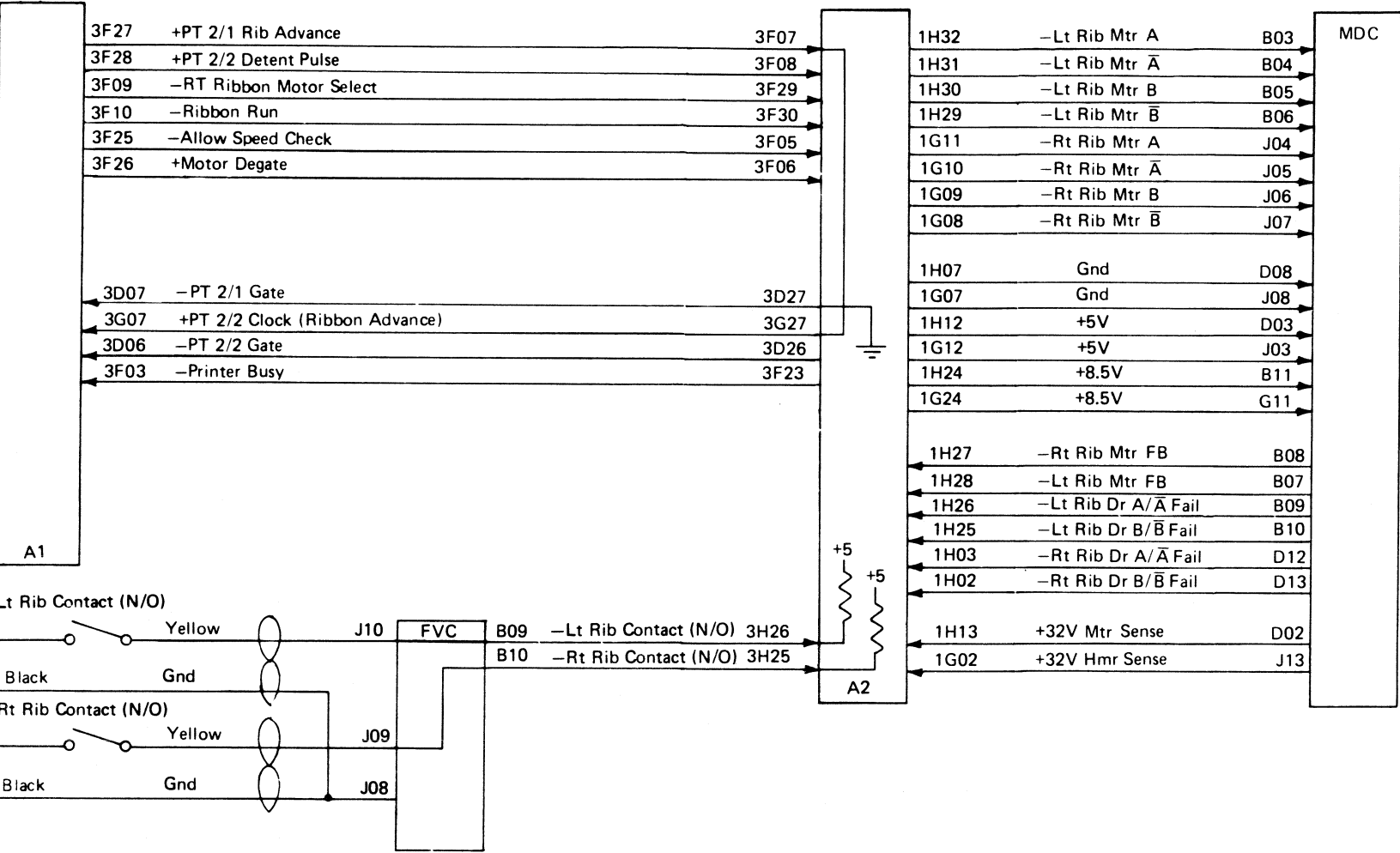
Caution: Hall switch. Do not check function with ohmmeter. The Hall switch may be damaged. Use General Logic Probe.



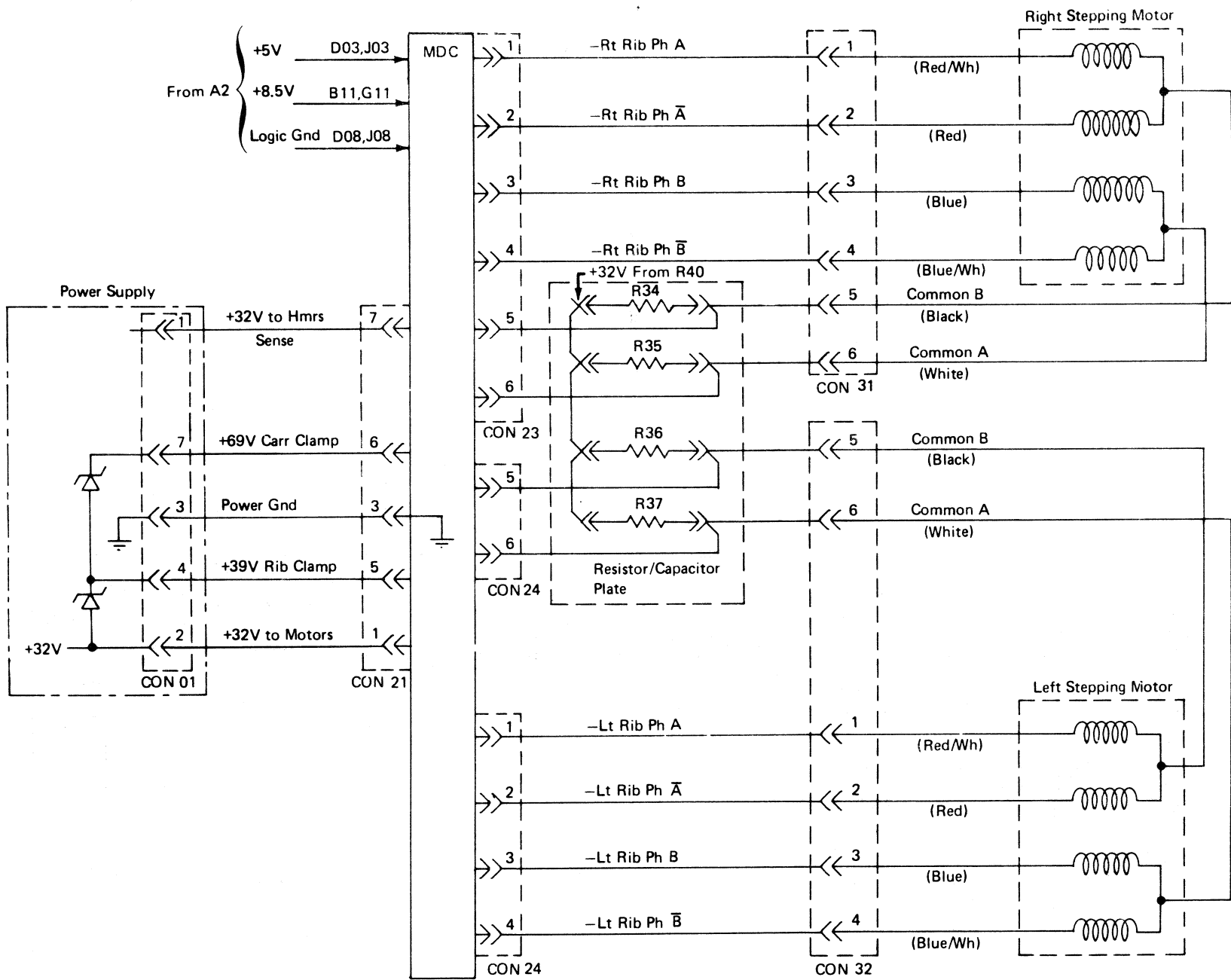
FORMS JAM SENSING



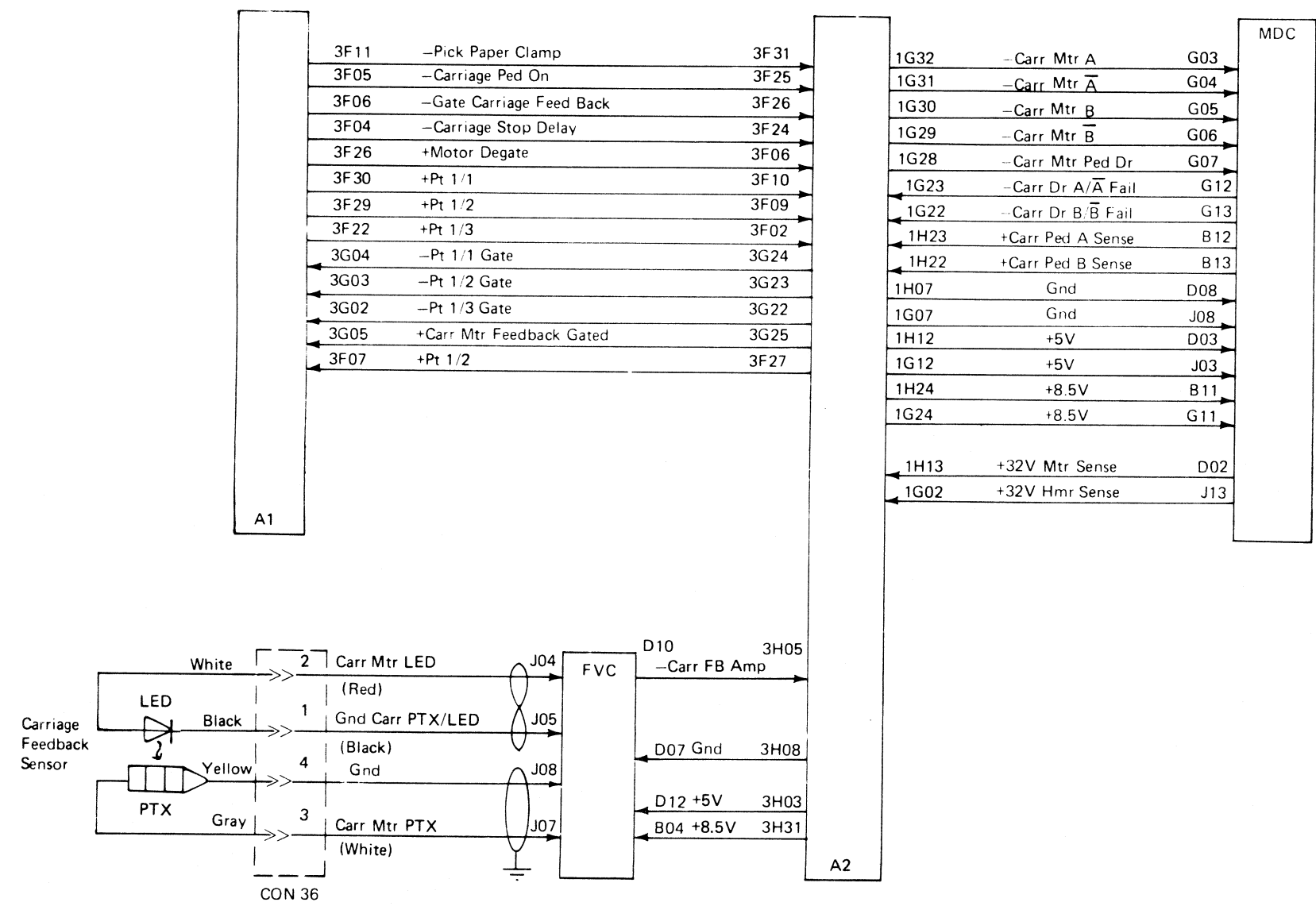
RIBBON CONTROL CIRCUIT



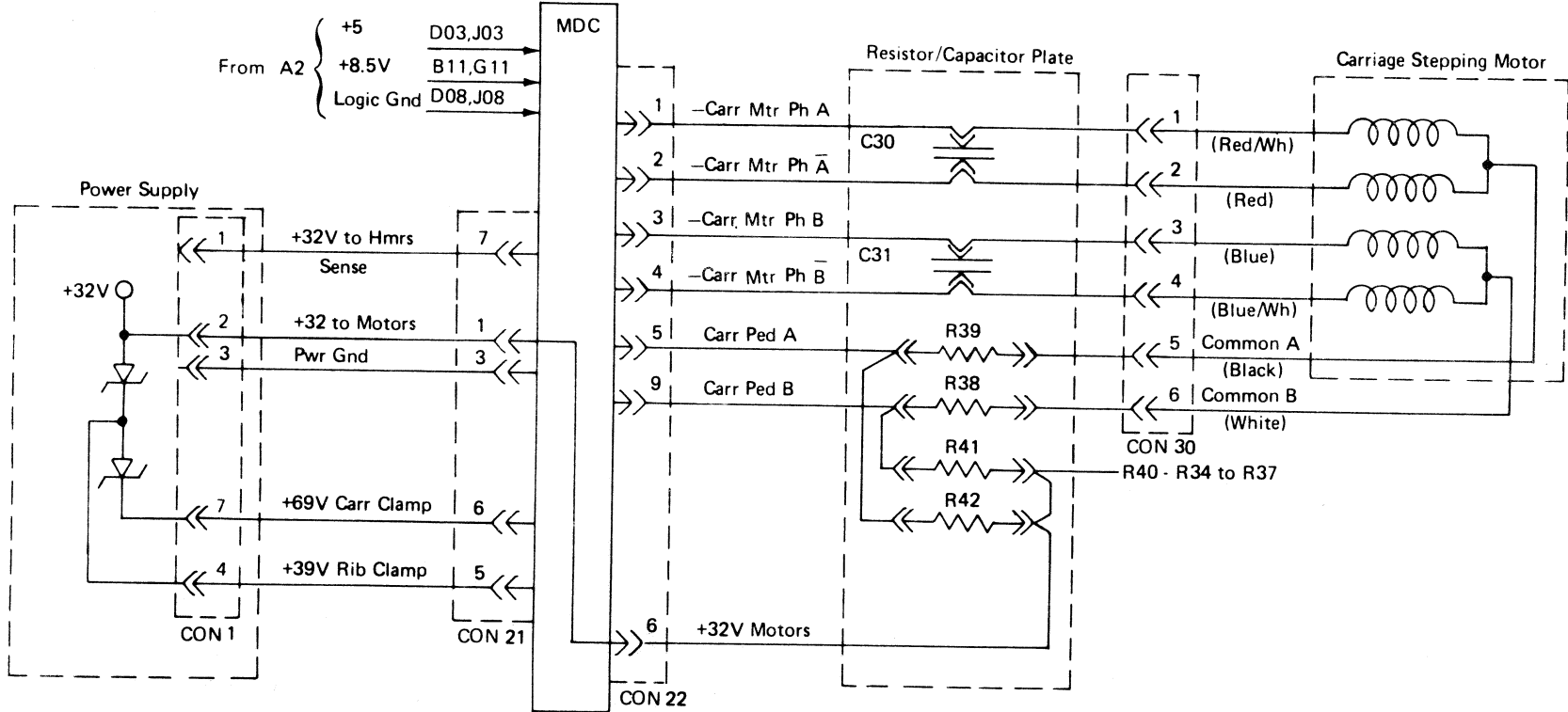
RIBBON MOTOR CIRCUIT



CARRIAGE CONTROL CIRCUIT



CARRIAGE MOTOR CIRCUIT



SECTION 19. RESERVED

SECTION 20. TOOLS

SECTION CONTENTS

IBM General Logic Probe 20-010

Operation 20-010

Ground Lead 20-010

Indicator Lights 20-010

Power Leads 20-010

Test Terminal 20-010

Extender 20-010

TECHNOLOGY (Logic) Switch 20-010

Multi 20-010

LATCH Switch 20-010

Up 20-010

None 20-010

Down 20-010

GATE REF (Voltage) Switch 20-010

GATING Terminals 20-010

Front Unit Gauge 20-020

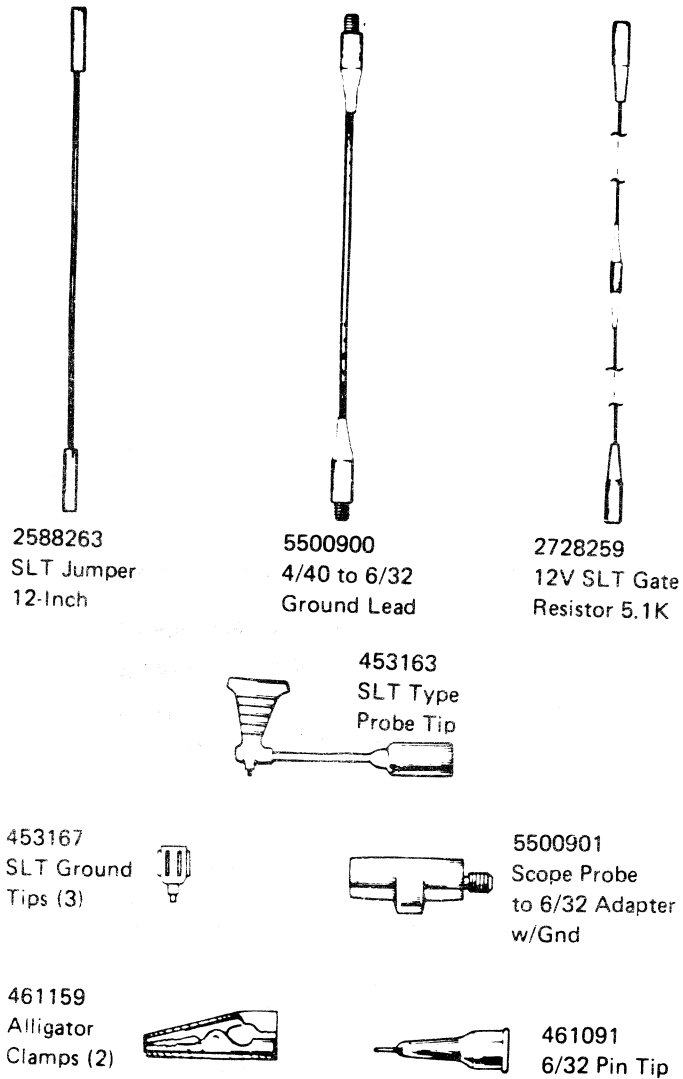
24-Pin Module Removal Tool 20-020

CE Print Band 20-020

IBM GENERAL LOGIC PROBE (GLP)

The IBM General Logic Probe II (part 459212) is a small, hand-held unit used by the Customer Engineer to detect logic signals for several logic technologies. It is a tool to help maintain the printer.

The following accessories are supplied with the probe:



Operation

Ground Lead **A**

Connect this lead to signal ground near the probe point.

Caution: Wrong indications result when this lead is not connected to signal ground.

Indicator Lights **B**

The UP light on indicates an up level (+). The DOWN light indicates a down level (-). Both lights on indicate a pulsing line.

Both lights are off if the line level is between +1 and +2 Vdc when the TECHNOLOGY switch is set to the MULTI setting.

The safe operating range of each TECHNOLOGY switch setting is:

- MULTI +60.0 Vdc (maximum)
- MST 2/4 +14.0 Vdc (maximum)
- MST 1 +14.0 Vdc (maximum)

Caution: Voltages greater than the above will damage the General Logic Probe (GLP).

The UP and DOWN lights momentarily flash on during power on if the probe is connected to the machine power source. Ignore the lights during power on.

Power Leads **C**

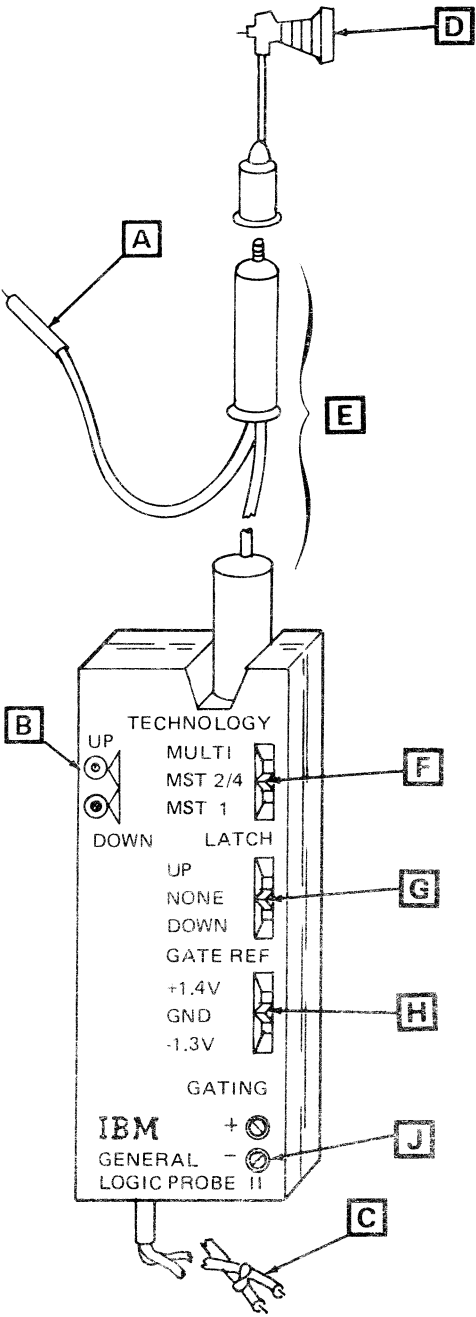
Caution: Wrong connection of the power leads may damage the General Logic Probe (GLP).

Power for the GLP is obtained from pin A1-3E22. Connect the black power lead (-) to A1-3E27; connect the other lead (+) to A1-3E22. A voltage difference of 4 to 12 Vdc is needed to power the probe, with the black lead always the more negative voltage.

To check the GLP, probe A1-3E28 (ground) and the DOWN light should be lit. Probe A1-3E23 (+5 Vdc) and the UP light should be lit.

Test Terminal **D**

The line being probed is connected to this terminal. Various probes may be attached, other than the one shown, to aid in probing.



Extender **E**

The extender (part 453605) is a 60-cm (24-in) long probe that permits more convenient use of the GLP. The extender is ordered as a separate item.

TECHNOLOGY (Logic) Switch **F**

This switch selects the type of logic to be probed.

MULTI

Only the MULTI setting is used on the 3262 Printer.

LATCH Switch **G**

UP

In this position, the UP light is latched on when a positive-going pulse is probed.

NONE

This position is used for most probing. It resets the lights and prevents any latching action.

DOWN

In this position, the DOWN light is latched on when a negative-going pulse is probed.

The UP and DOWN positions may be used to wait for an intermittent error condition to occur, or to verify that a pulse occurred.

GATE REF (Voltage) Switch **H**

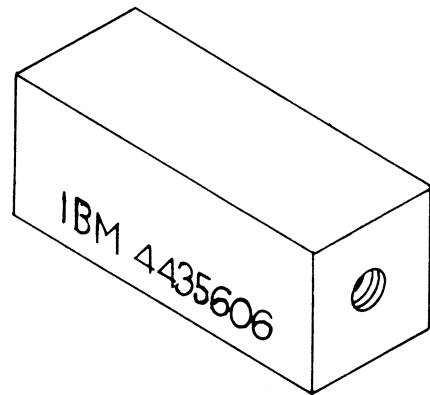
This switch is normally not used when probing, and affects only the GATING terminals. It should be set to GND unless a MAP instructs you to use a different setting.

GATING Terminals **J**

These terminals are not normally used when probing. Use these terminals only when a MAP instructs you to use them.

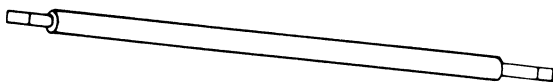
FRONT UNIT GAUGE

The Front Unit Gauge is a Branch Office tool that is used to make the "Inspection Screw Adjustment," Section 05.

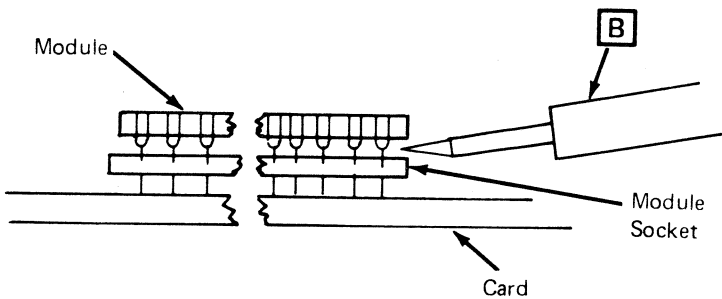


24-PIN MODULE REMOVAL TOOL

The tool **B** is inserted under the edge of the module to raise the module one end at a time.



The 24-Pin Module Removal Tool is a Branch Office tool. This tool (part 460811) is used to remove the Band Character Image ROS module from the A1 card, or a selected module from the Storage Expansion Card(s). Refer to Section 14 for the location and procedure to remove the module using this tool.



CE PRINT BAND

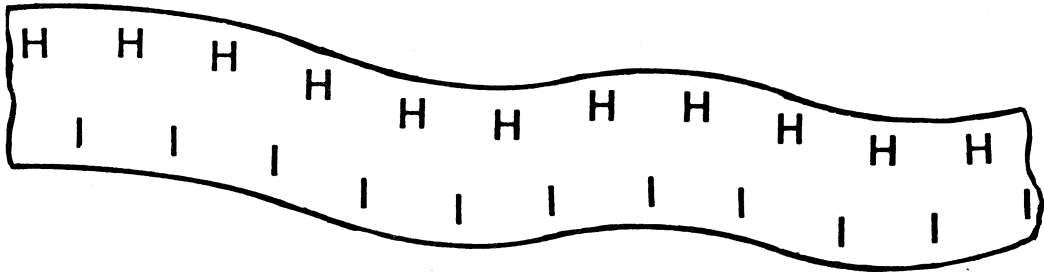
The CE Print Band (part 8281348) is a Branch Office tool. This tool may be used with the printer diagnostics to print lines of Hs. The printed lines are used to analyze printer problems.

Follow the MAP instructions for using this print band.

Caution:

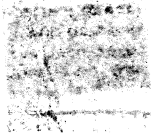
- Always install the print band with the type characters above the timing marks.
- To make checks or adjustments, ensure that the characters and timing marks are not worn or damaged. Be sure that the band is in good physical condition (not worn or damaged).

To remove or replace a print band, refer to "Print Band Removal and Print Band Replacement" in Section 05.



CATALOG SECTION

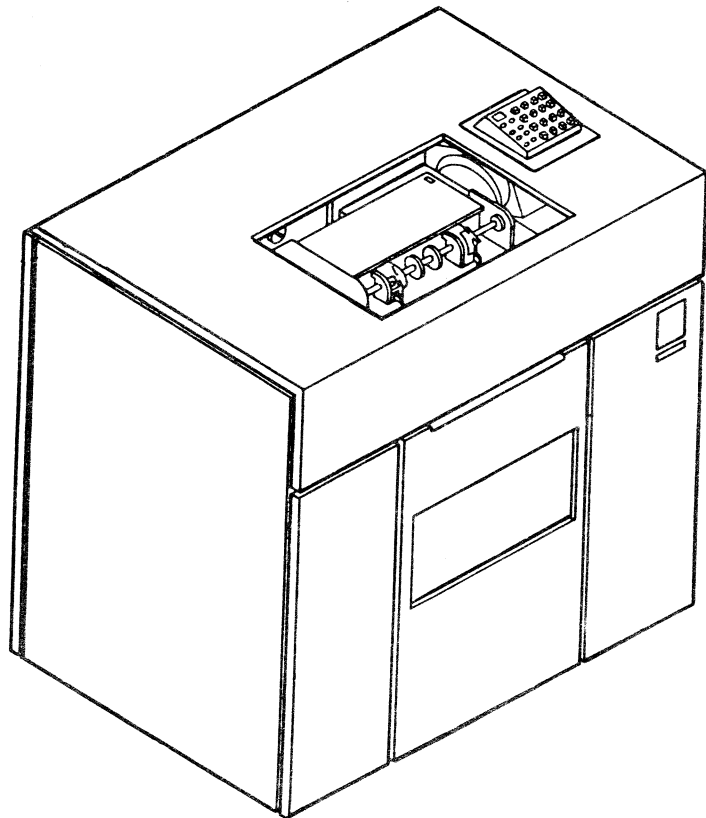
4436125 PN 5 QTY ISSUED
Ribbonshield QTY REQ 1
0005654140 SM COUNTRY OF ORIGIN
ORDER NO 4724DE9M16 EXPORT



3262

Printer
Parts Catalog

EC 784200 27Jun80	PN 8629183	21-010
	1 of 2	



To find a part in:

3262 PRINTER go to Visual Index pages 21 030 and 21 040.

LOCATE THE ILLUSTRATION ON THE VISUAL INDEX PAGE CONTAINING THE PART THAT YOU ARE INTERESTED IN. THEN GO TO THE FIGURE AND PAGE INDICATED FOR THE SPECIFIC PART NUMBER.

For additional information on catalog structure, see GLOSSARY.

For Cable Assemblies and Component Parts, see pages 21-340 thru 21-360.

For NUMERICAL LISTING of all part numbers, see pages 21-370 thru 21-390.

- 1

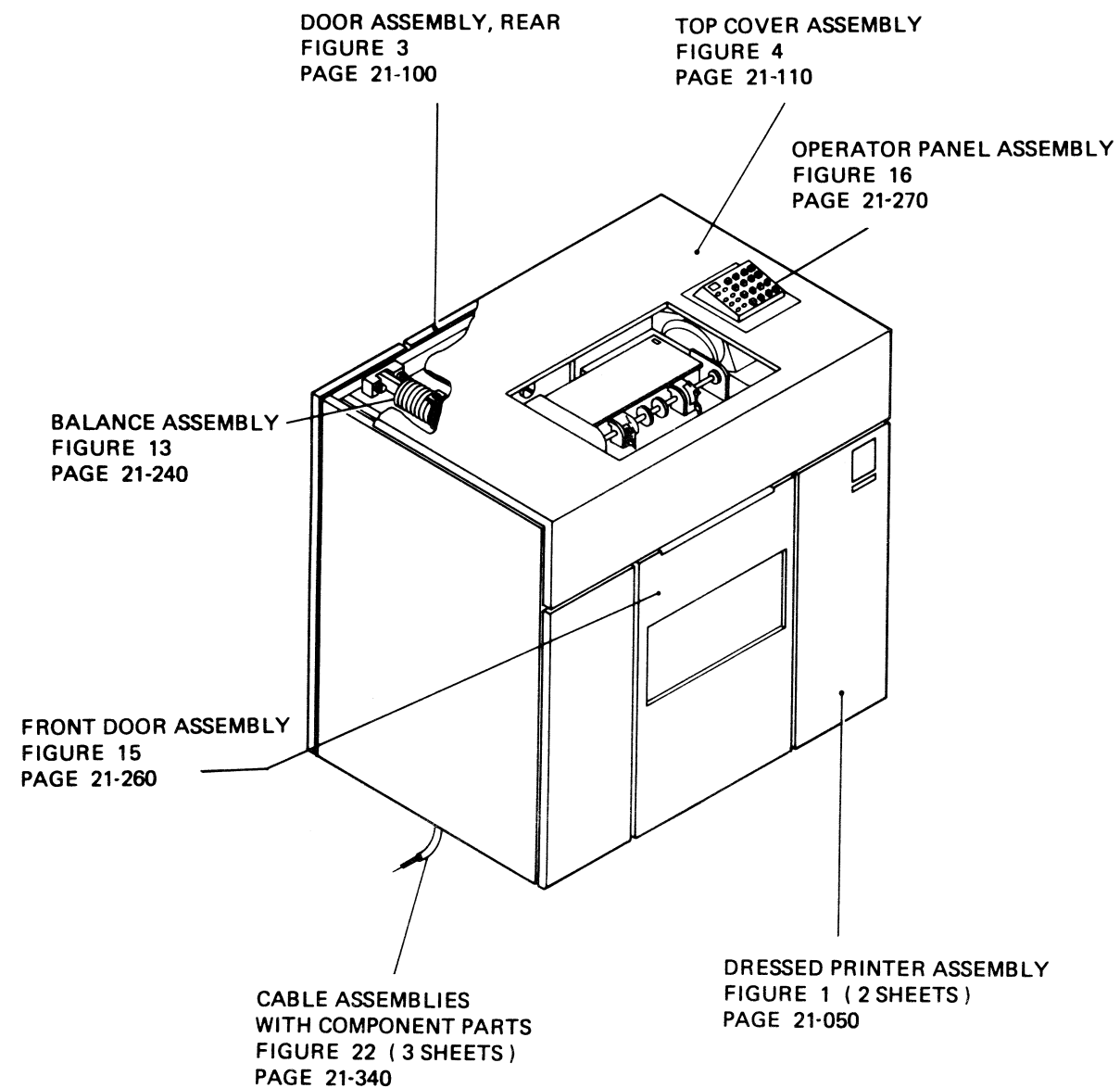
INDENTURE The indentation of items under the numerals 1 through 4 at the head of the Description column shows the relationship between assemblies, subassemblies and detail parts. For example:

(No dot)	MAIN ASSEMBLY
(One dot)	• Detail parts of main assembly
(One dot)	• Assembly within main assembly
(Two dot)	• • Detail part of one dot assembly
(Two dot)	• • Assembly within one dot assembly
(Three dot)	• • • Detail parts of two dot assembly
- 2

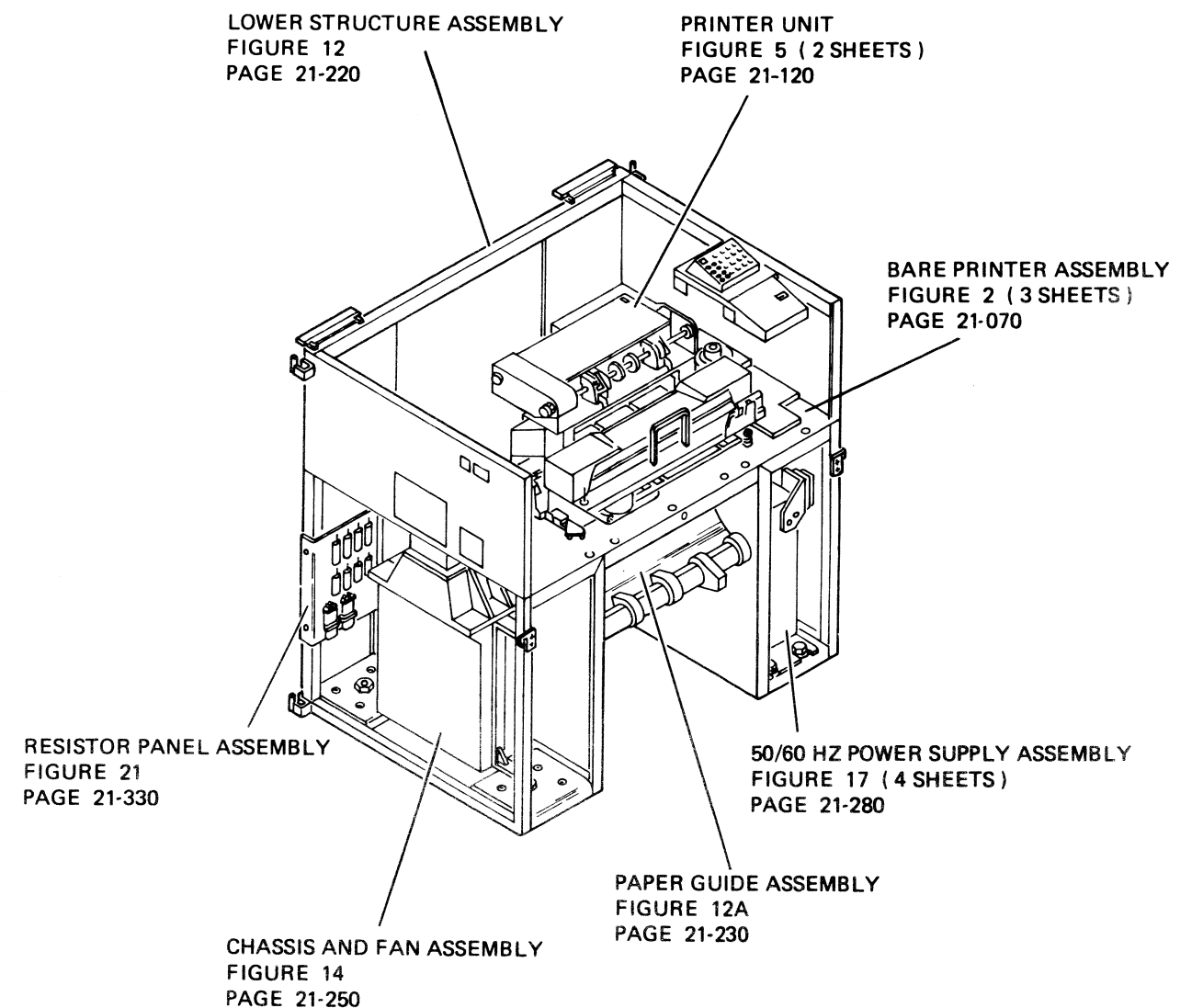
AR The notation AR in the Units Per Asm column indicates that the quantity of the part is used as required.
- 3

SIMILAR ASSEMBLIES If two or more assemblies contain a majority of identical parts, they are combined in the same listing. Parts common to assemblies are illustrated and listed by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by a descriptive trailer line.

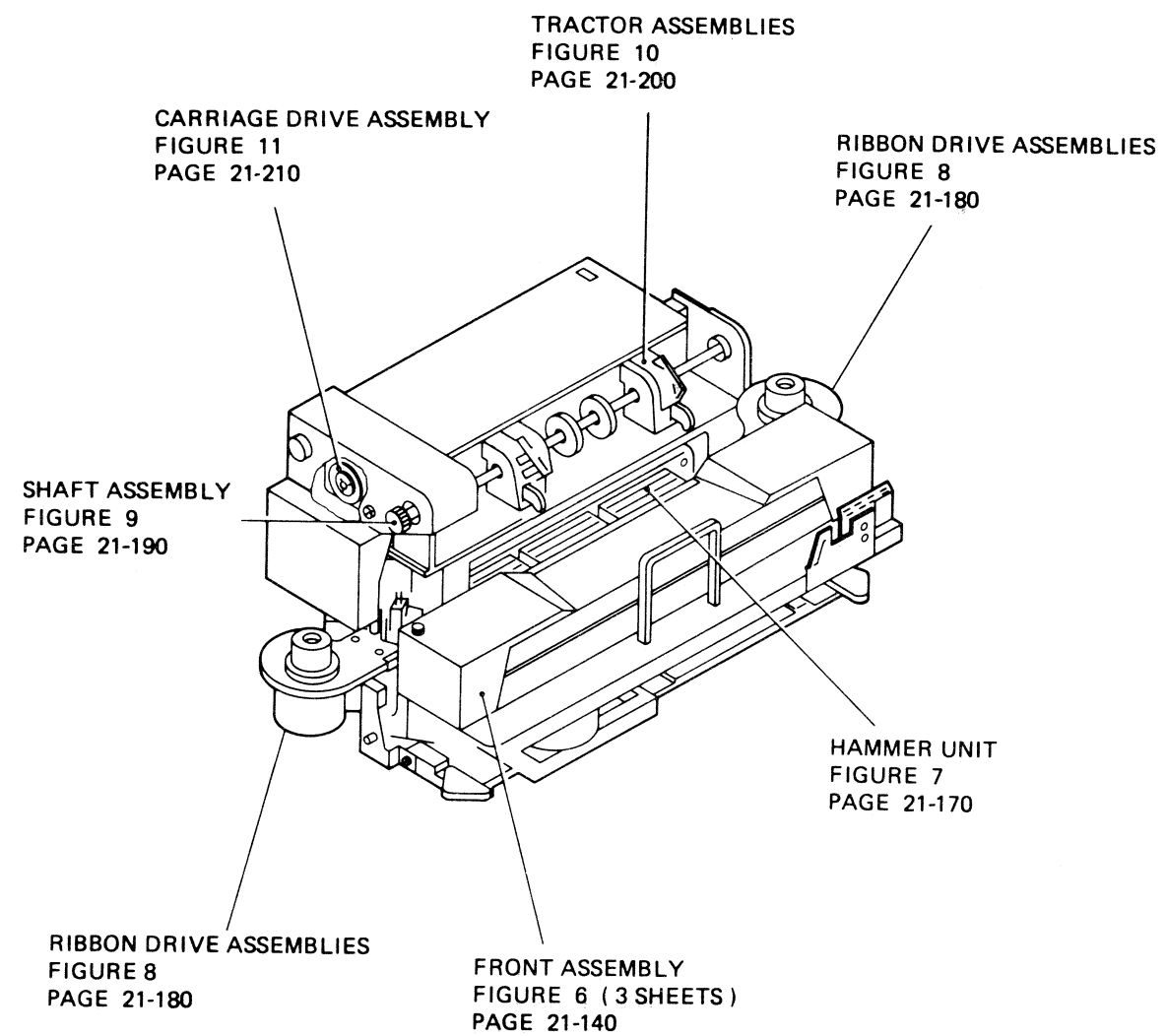
FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
22 -			TRANSPORT AND VACUUM ASM			
			THIS ASSEMBLY CANNOT BE ORDERED FOR REPLACEMENT,SEE LIST 2-252 FOR NEXT HIGHER ASM			
- 1	1846187	1	•	DOOR ASSEMBLY,VACUUM COLUMN		
- 1	1846188	1	•	DOOR ASSEMBLY,VACUUM COLUMN		
				USED ON MODELS 6 AND 8		
				USED ON MODEL 4		
- 2	55918	5	•	SCREW,MACH BD HD- 10-32 X 0.625 LG		
- 3	45690	5	•	WASHER,FL- 0.203 ID X 0.408 OD		
- 4	2512946	AR	•	SHIM,DOOR VAC COLUMN 0.015 THK		
- 4	2512948	AR	•	SHIM,DOOR VAC COLUMN 0.030 THK		
- 5		AR	•	PNEUMATIC HOSES TRANSPORT ASM		
				SEE LIST 24 FOR DETAIL BREAKDOWN		
- 9	2523727	1	•	DISC,DECORATIVE		
- 10	1767707	1	•	COVER		
- 11	322562	3	•	SCREW,BD HD- 10-32 X 2.000 INCHES LG		
- 12	1767705	1	•	CAM		
- 13	1766920	1	•	SPRING,COMP 1.190 OD X 2.750 LG		
- 14	1767720	1	•	HUB ASSEMBLY		
- 15	356742	3	• •	CLAMP,0.375 ID X 0.173 MTG HOLE		
- 16	5489002	3	• •	SCREW,MACH BD HD- 6-32 X 0.250 LG		
- 17	1090873	6	• •	LOCKWASHER,SPLIT- 0.168 ID X 0.296 OD		
- 18	1767703	3	• •	ROLLER,TRIPLE		
- 19	1767711	3	• •	ROLLER,SINGLE		



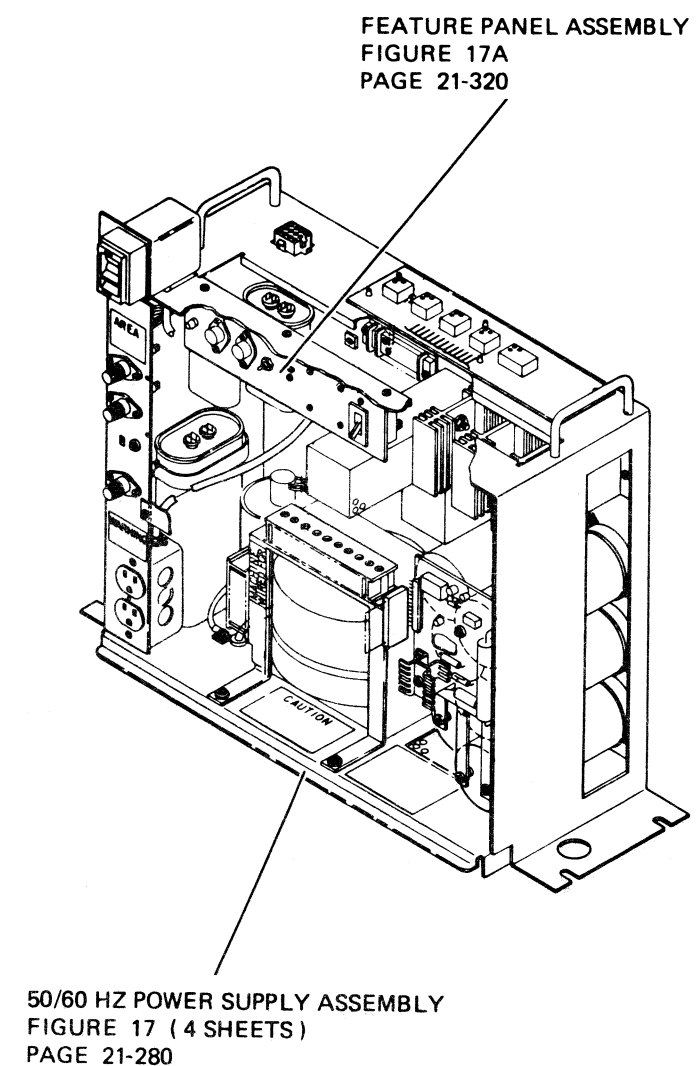
VISUAL CONTENTS I : COVER ASSEMBLY



VISUAL CONTENTS II : FINAL ASSEMBLY

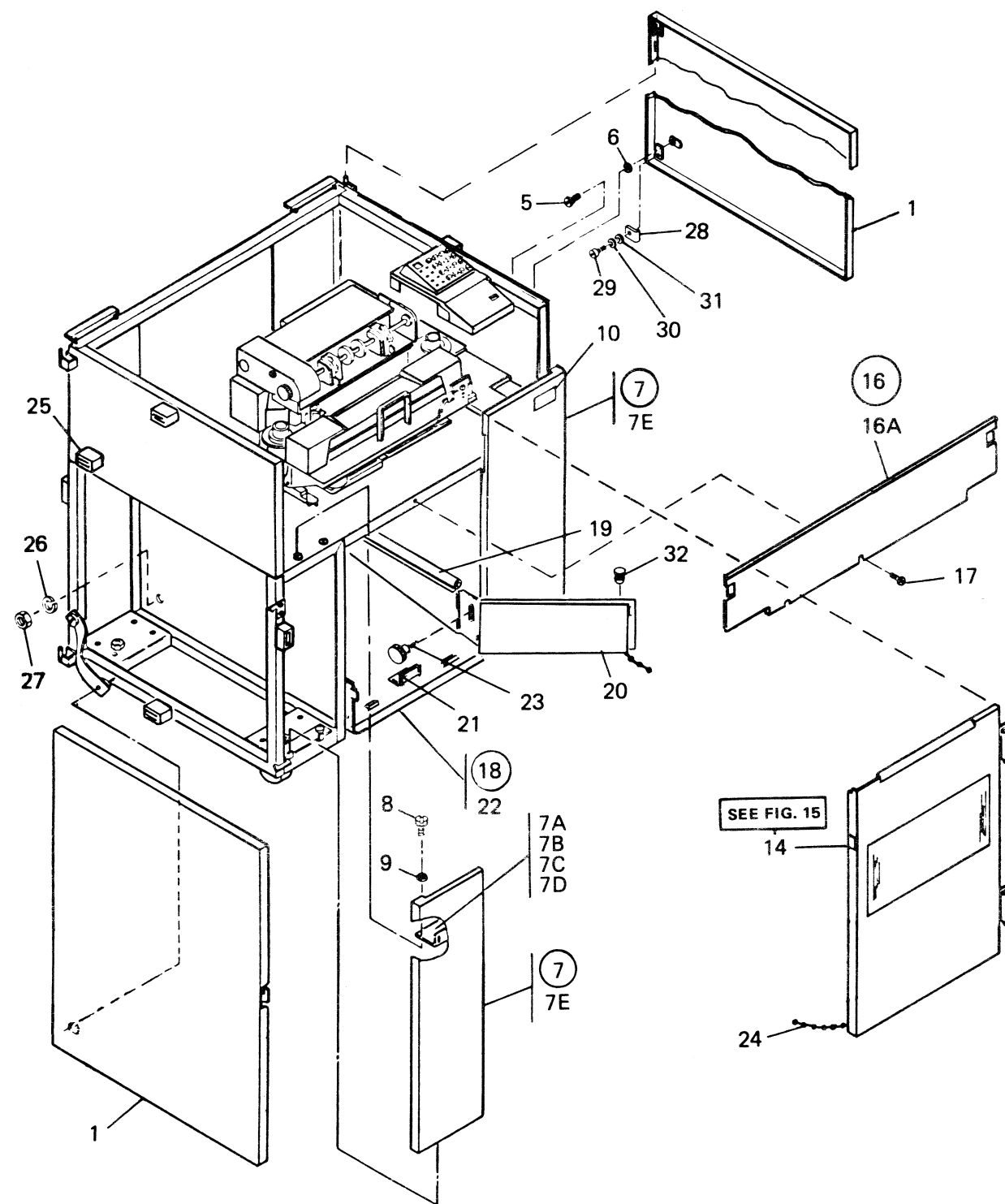


VISUAL CONTENTS III : PRINTER ASSEMBLY



VISUAL CONTENTS IV : POWER SUPPLY ASSEMBLY

EC 784200 27Jun80	PN 8629184	21-040
	2 of 2	



DRESSED PRINTER ASSEMBLY						
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
1 -	4704760	NP	DRESSED PRINTER ASM, 60HZ 325 LPM			
-	4704761	NP	DRESSED PRINTER ASM, 50HZ 325 LPM			
-	4704762	NP	DRESSED PRINTER ASM, 60HZ 650 LPM			
-	4704763	NP	DRESSED PRINTER ASM, 50HZ 650 LPM			
			FOR ILLUSTRATION,SEE FIGURE 1			
- 1	4704893	1	COVER ASM,RIGHT-GRAY			
- 1	4704894	1	COVER ASM,RIGHT-WILLOW GREEN			
- 1	4704895	1	COVER ASM,RIGHT-CHARCOAL BROWN			
- 1	4704896	1	COVER ASM,RIGHT-SUNRISE YELLOW			
- 1	4704897	1	COVER ASM,RIGHT-GARNET ROSE			
- 1	4704898	1	COVER ASM,RIGHT-CLASSIC BLUE			
			SPECIFY COLOR WHEN ORDERING			
- 1	4704843	1	COVER ASM,LEFT-GRAY			
- 1	4704844	1	COVER ASM,LEFT-WILLOW GREEN			
- 1	4704845	1	COVER ASM,LEFT-CHARCOAL BROWN			
- 1	4704846	1	COVER ASM,LEFT-SUNRISE YELLOW			
- 1	4704847	1	COVER ASM,LEFT-GARNET ROSE			
- 1	4704842	1	COVER ASM,LEFT-CLASSIC BLUE			
			SPECIFY COLOR WHEN ORDERING			
- 5	236849	1	SCREW			
- 6	56079	1	LOCKWASHER			
- 7	4704808	1	COVER ASM,FRONT RIGHT			
- 7	4704809	1	COVER ASM,FRONT LEFT			
- 7A	4704943	1	BRACKET			
- 7B	11598	2	NUT.			
- 7C	9092	2	LWSR.			
- 7D	1940	2	WSR.			
- 7E	4704853	1	COVER-FRONT RIGHT			
- 7E	4704854	1	COVER-FRONT LEFT			
- 8	7362553	2	SCREW,BD HD- 10-32 X 0.375 LG			
- 9	210681	2	SPACER			
- 10	4704770	1	NAMEPLATE			
- 14	4704807	1	DOOR ASM,FRONT			
			FOR DETAIL BREAKDOWN,SEE FIGURE 15			
- 16	4704528	1	PLATE,FRONT			
- 16A	4704849	AR	SEAL			
- 17	2360244	1	SCREW,SCM			
- 18	4704947	1	PAN ASM,PAPER			
- 19	4704849	2	SEAL			
- 20	4704563	1	PAD-FRONT			
- 20	4704918	1	PAD-REAR			
- 21	4704906	1	HANDLE			
- 22	4704968	1	PAN			
- 23	2704798	2	SCREW,CAP HD- 10-32			
- 23	4704904	2	SCREW,KNURLED			
- 24	4704628	1	CHAIN,BEAD- 127 MM			
- 25	4704625	9	STOP ASM,COVER			
- 26	9092	2	LOCKWASHER,SPLIT- 0.194 ID X 0.337 OD			
- 27	11598	2	NUT,HEX- 10-32			
- 28	4704516	2	BRACKET			
- 29	1673984	2	SCREW			
- 30	1622347	2	LOCKWASHER			
- 31	1622305	2	WASHER			
- 32	208529	1	GROMMET			

FIGURE 1. DRESSED PRINTER ASSEMBLY. SHEET 1 OF 2. INDEX NOS. 1-32. SEE LIST 1.

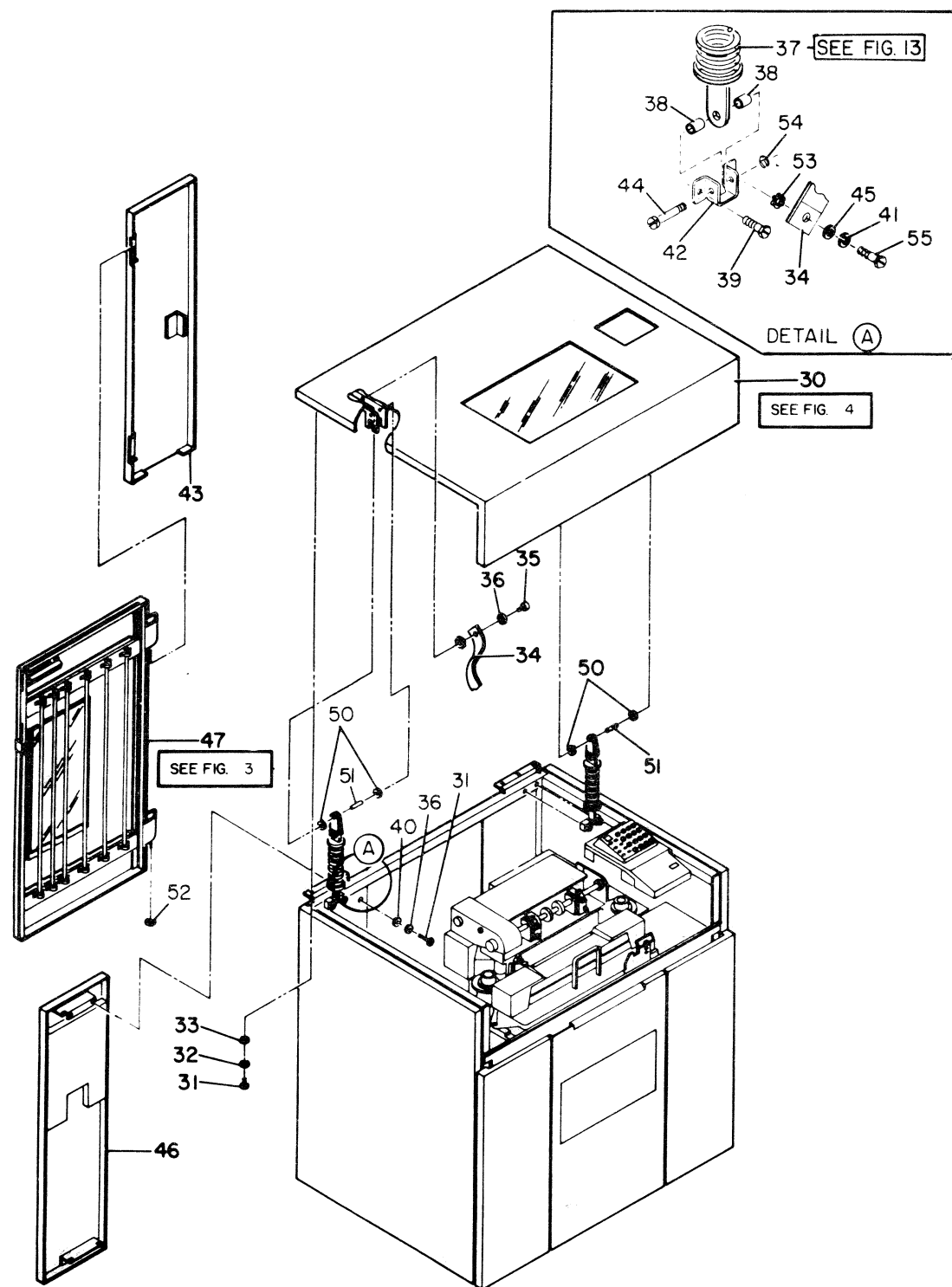
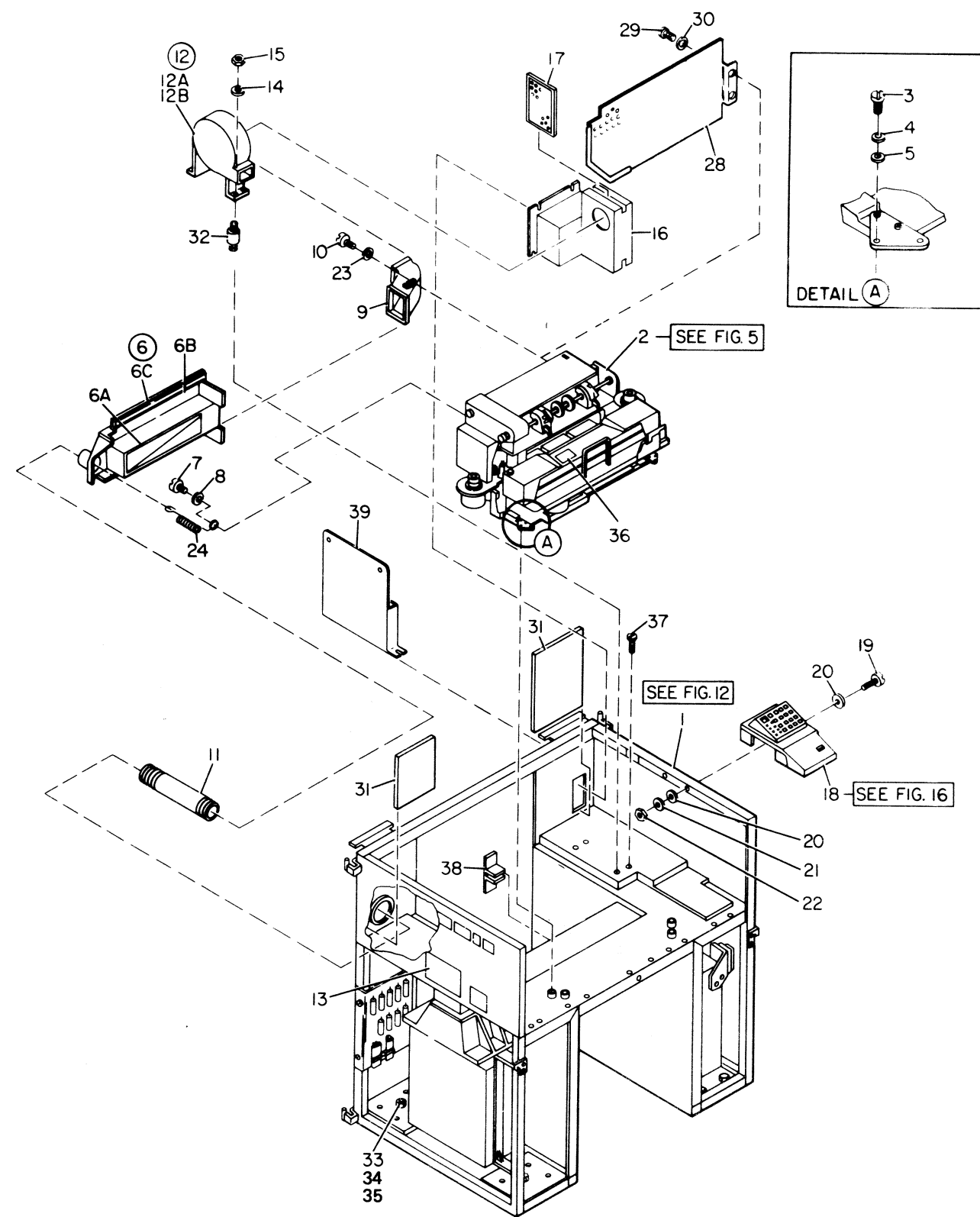


FIGURE 1. DRESSED PRINTER ASSEMBLY. SHEET 2 OF 2. INDEX NOS. 30-55. SEE LIST 1.

DRESSED PRINTER ASSEMBLY						
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
1 - 30	4704810	1	. COVER ASM, TOP FOR DETAIL BREAKDOWN, SEE FIGURE 4			
- 31	7362553	6	. SCREW, M5			
- 32	1622305	7	. WASHER, M5			
- 33	1622319	6	. LOCKWASHER, M5			
- 34	2101089	1	. JUMPER, GROUND			
- 35	1621197	1	. SCREW, M4			
- 36	1622347	1	. LOCKWASHER			
- 37	4704806	2	. BALANCE ASM FOR DETAIL BREAKDOWN, SEE FIGURE 13			
- 38	2674570	2	. PIN, STRAIGHT DOWEL			
- 39	652280	3	. SCREW			
- 40	210681	4	. WASHER			
- 41	9092	1	. LOCKWASHER, M5			
- 42	5576633	2	. BRACKET			
- 43	4704812	1	. COVER, REAR-RIGHT			
- 44	7362553	2	. SCREW, M5			
- 45	1940	4	. WASHER, M6			
- 46	4704811	1	. COVER, REAR-LEFT			
- 47	4704813	1	. DOOR ASM-REAR FOR DETAIL BREAKDOWN, SEE FIGURE 3			
- 48	56079	1	. LOCKWASHER			
- 49	4253332	2	. PIN			
- 50	1693503	2	. RING, RETAINING			
- 51	4704822	1	. PIN			
- 52	4704595	1	. CLIP			
- 53	1622347	3	. WASHER, LCK, EXT ST, 5.3MM ID, 10MM OD			
- 54	257982	2	. CLIP, RETAINING			
- 55	55711	1	. SCREW			



BARE PRINTER ASSEMBLIES				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
2 -	4704621			PRINTER ASM, 50HZ 325 LPM
-	4704620			PRINTER ASM, 60HZ 325 LPM
-	4704514			PRINTER ASM, 50HZ 650 LPM
-	4704507			PRINTER ASM, 60HZ 650 LPM
- 1	4704617	1		. LOWER STRUCTURE ASM, 50HZ 325 LPM
- 1	4704616	1		. LOWER STRUCTURE ASM, 60HZ 325 LPM
- 1	4704515	1		. LOWER STRUCTURE ASM, 50HZ 650 LPM
- 1	4704508	1		. LOWER STRUCTURE ASM, 60HZ 650 LPM
				FOR DETAIL BREAKDOWN, SEE FIGURE 12
- 2	4704666	1		. PRINTER UNIT, 60HZ 325 LPM
- 2	4704676	1		. PRINTER UNIT, 50HZ 325 LPM
- 2	4704660	1		. PRINTER UNIT, 50HZ 650 LPM
- 2	4704650	1		. PRINTER UNIT, 60HZ 650 LPM
				FOR DETAIL BREAKDOWN, SEE FIGURE 5
- 3	36844	6		. SCREW, HEX HD- 0.250-20 X 0.625 LG
- 4	6935	6		. LOCKWASHER, SPLIT- 0.250 ID X 0.493 OD
- 5	3550	6		. WASHER, FL- 0.265 ID X 0.562 OD
- 6	4435302	1		. CHANNEL ASM (650 LPM ONLY)
- 6A	4436031	4		. . SEAL, CHANNEL-RIGHT, LEFT, UPPER, LOWER
- 6B	4435296	2		. . SEAL
- 6C	4435324	1		. . CHANNEL, AIR
- 7	1621210	1		. SCREW, MACH, PAN HD, M5, 10MM LG
- 8	1622305	1		. WASHER, FL, 5.5MM ID, 10MM OD, 1MM THK
- 9	7820060	1		. CHANNEL (650 LPM ONLY)
- 10	1621210	2		. SCREW, MACH, PAN HD, M5, 10MM LG
- 11	7820095	1		. HOSE, AIR (650 LPM ONLY)
- 12	7819280	1		. BLOWER ASM (650 LPM ONLY)
				FOR COMPONENT PARTS SEE FIGURE 22
- 12A	4120527	1		. . BLOWER
- 12B	4435626	1		. . SEAL, 400MM LG
- 13	2648906	1		. LABEL, GATE
- 14	22478	4		. WASHER, FL, 0.17 ID, 0.375 OD, 0.032 THK
- 15	257189	4		. NUT, PLAIN, HEX, 8-32, 0.344 FL W
- 16	4704783	1		. SUCTION DUCT (650 LPM ONLY)
- 17	821614	1		. FILTER (650 LPM ONLY)
- 18	4704888	1		. OPERATOR PANEL ASM
				FOR DETAIL BREAKDOWN, SEE FIGURE 16
- 19	36112	2		. SCREW, MACH, HEX HD, 0.250-20, 1.5 LG
- 20	3550	4		. WASHER, FL, 0.265 ID, 0.562 OD, 0.05 THK
- 21	6935	2		. WASHER, LCK, SPLIT RING, 0.25 ID, 0.493 OD
- 22	36109	2		. NUT, PLAIN, HEX, 0.250-20, 0.437 FL W
- 23	150390	2		. WASHER, FL, 0.25 ID, 0.625 OD, 0.062 THK
- 24	4435298	1		. SPRING (650 LPM ONLY)
- 28	4704543	1		. SHIELD ASM (USED ON 325 LPM ONLY)
- 29	1621210	2		. SCREW, PAN HD- M5, 10MM LG
- 30	150390	2		. WASHER, FL- 0.250 ID X 0.625 OD
- 31	4704863	2		. SEAL (USED ON 325 LPM ONLY)
- 32	632644	4		. SHOCKMOUNT (USED ON 650 LPM ONLY)
- 33	209564	4		. CASTER
- 34	185950	4		. NUT, HEX- 8-32 THD
- 35	130987	4		. LOCKWASHER, SPLIT- 0.500 ID X 0.879 OD
- 36	4704635	1		. LABEL, BRAZIL/PORTUGAL
- 36	5593447	1		. LABEL, ENGLISH-JAPANESE
- 36	4703263	1		. LABEL, ITALIAN
- 36	4703265	1		. LABEL, GERMANY
- 36	6808537	1		. LABEL, FRENCH
- 36	4703262	1		. LABEL, FRENCH-CANADIAN
- 36	4703264	1		. LABEL, SPANISH
- 37	58207	4		. SCREW (USED ON 325 LPM ONLY)
- 38	4704858	AR		. RETAINER

FIGURE 2. BARE PRINTER ASSEMBLIES. SHEET 1 OF 3. INDEX NOS. 1-38. SEE LIST 2.

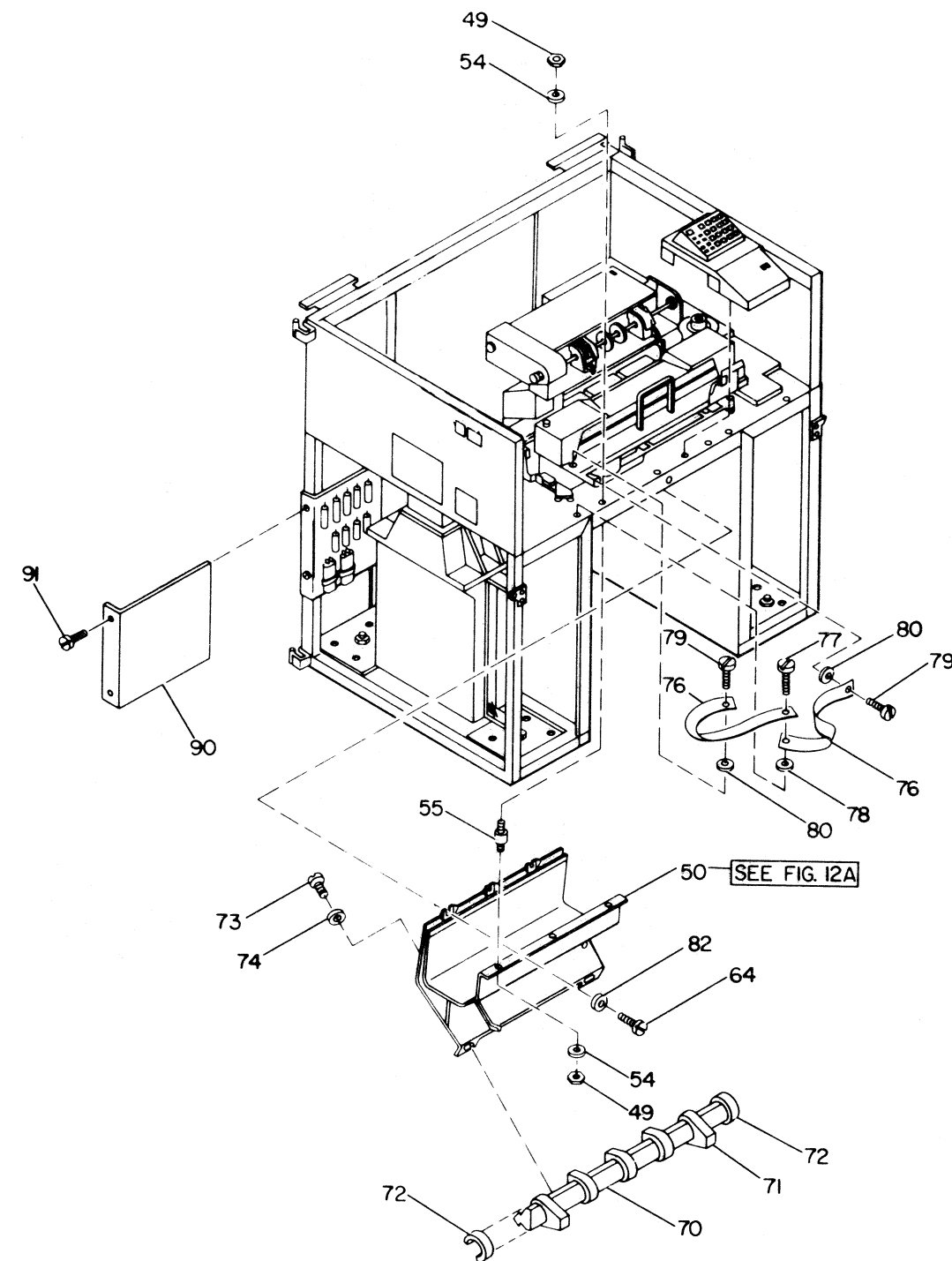


FIGURE 2. BARE PRINTER ASSEMBLIES. SHEET 2 OF 3. INDEX NOS. 49-91. SEE LIST 2.

BARE PRINTER ASSEMBLIES				
FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
2 - 49	257189	6		. NUT,HEX,8-32, 0.344 FL W
- 50	4436062	1		. GUIDE ASM,PAPER,NEW VERSION FOR DETAIL BREAKDOWN,SEE FIGURE 12A
- 54	22478	6		. WASHER,FL,0.17 ID,0.375 GD,0.032 THK
- 55	283608	3		. SHOCKMOUNT
- 64	1621170	3		. SCREW,MACH,PAN HD,M3, 6MM LG
- 70	4435646	1		. GUIDE
- 71	4435647	5		. GUIDE, FORMS
- 72	1794804	2		. CLIP
- 73	1621171	2		. SCREW,MACH,PAN HD,M3, 8MM LG
- 74	1622302	2		. WASHER,FL,3.2MM ID,7MM OD,0.5MM THK
- 76	2101089	2		. JUMPER ASM
- 77	32042	1		. SCREW,MACH,BIND HD,10-32, 0.375 LG
- 78	56079	1		. WASHER,LCK,EXT TEETH,0.195 ID,0.41 OD
- 79	1621210	2		. SCREW,MACH,PAN HD,M5, 10MM LG
- 80	1622347	2		. WASHER,LCK,EXT ST,5.3MM ID,10MM OD
- 82	1622344	3		. WASHER,LCK,EXT ST,3.2MM ID,6MM OD
- 90	4704804	1		. COVER
- 91	1621850	2		. SCREW

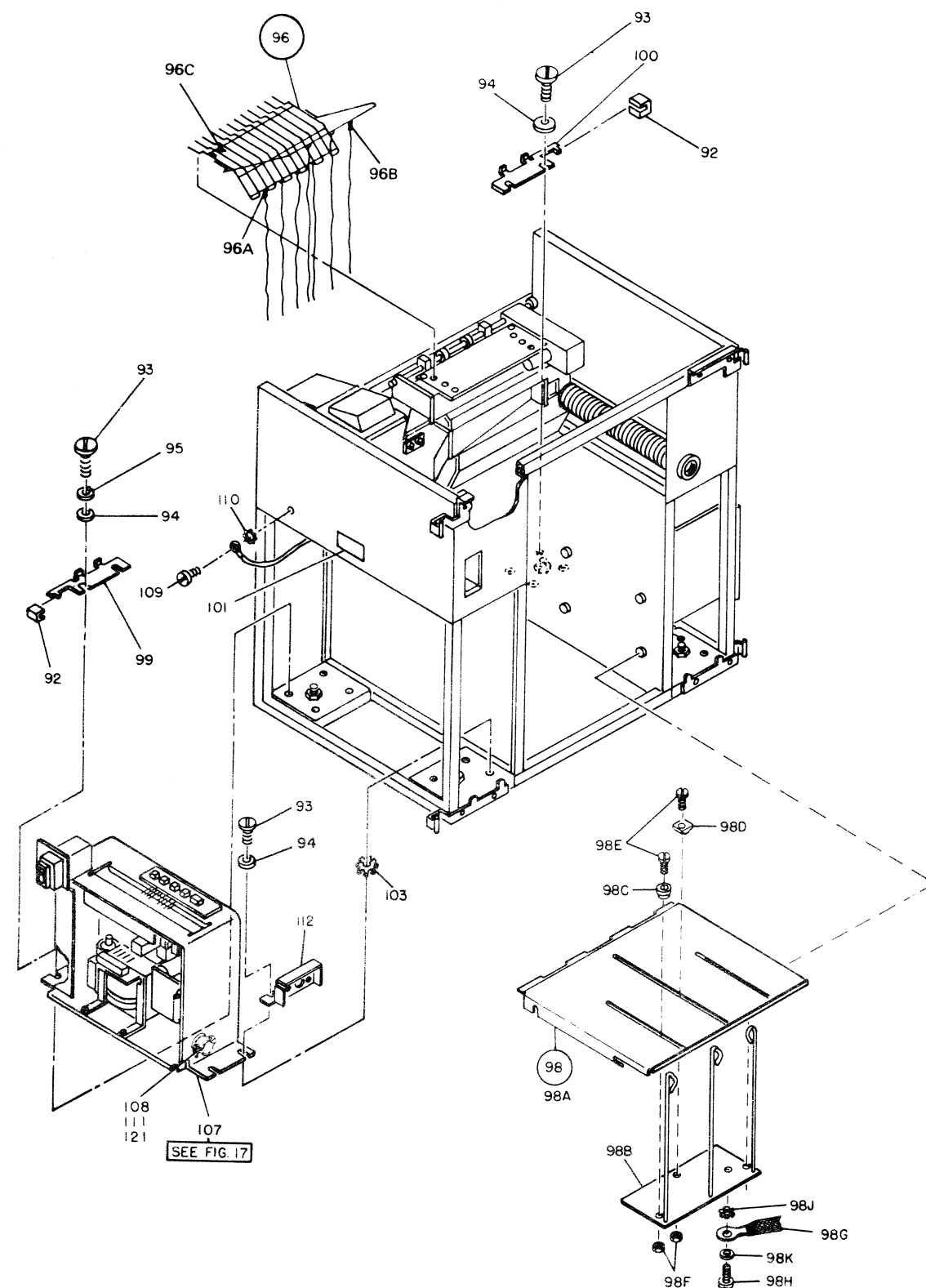


FIGURE 2. BARE PRINTER ASSEMBLIES. SHEET 3 OF 3. INDEX NOS. 92-121. SEE LIST 2.
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BARE PRINTER ASSEMBLIES				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
2 -	92	4704824	2	. STOP
-	93	36844	6	. SCREW,CAP SLOT HD- 1/4-20 X 0.500 LG
-	94	1622306	6	. WASHER,FLAT,M6- 12.5 OD X 2 THK
-	95	37073	4	. LOCKWASHER
-	96	7819625	1	. GUIDE ASM,STACKER-UPPER
-	96A	7819609	4	. . CHAIN,BRASS 446MM LG
-	96B	7819610	4	. . CHAIN,BRASS 600MM LG
-	96C	850248	1	. . ELIMINATOR,STATIC
-	98	4435247	1	. TRAY ASM
-	98A	4435236	1	. . TRAY
-	98B	4435237	1	. . GUIDE ASM
-	98C	4435241	2	. . BUSHING
-	98D	4435242	1	. . KNOB
-	98E	1621172	3	. . SCREW,PAN HD- M3 X 10MM LG
-	98F	1622401	3	. . NUT,HEX- M3 X 5.5MM FL WIDTH
-	98G	825927	1	. . JUMPER
-	98H	1621190	1	. . SCREW
-	98J	1622346	1	. . LOCKWASHER
-	98K	1622304	1	. . WASHER
-	99	4704937	1	. BRACKET,LOWER LEFT FRONT
-	100	4704938	1	. BRACKET,LOWER RIGHT FRONT
-	101	369207	2	. LABEL,HAZARDOUS AREA-ENGLISH
-	103	76574	1	. LOCKWASHER
-	107	4704531	1	. POWER ASM 50HZ
-	107	4704530	1	. POWER ASM 60HZ
FOR DETAIL BREAKDOWN,SEE FIGURE 17				
-	108	8330341	1	. CLAMP (USED ON 50HZ ONLY)
-	108	2100264	1	. CLAMP (USED ON 60HZ ONLY)
-	109	1621197	1	. SCREW
-	110	1622346	1	. LOCKWASHER,EXT STAR- M4, 8 OD X .5
-	111	8330340	1	. NUT
-	112	4704916	1	. BRACKET
-	121	4704564	1	. CORD TWIST LOCK 60HZ USA
-	121	4704565	1	. LINE CORD SCREW ON USA
-	121	4704567	1	. LINE CORD TWIST LOCK CHICAGO
-	121	4704568	1	. LINE CORD SCREW ON CHICAGO
-	121	4704571	1	. LINE CORD - JAPAN
-	121	4704833	1	. POWER CORD ASM,EUROPE 4.6M LONG (15 FEET)
-	121	4704835	1	. POWER CORD ASM,ISRAEL 4.6M LONG (15 FEET)
-	121	4704836	1	. POWER CORD ASM,SWITZERLAND 4.6M LONG (15 FEET)
-	121	4704837	1	. POWER CORD ASM,UK/IRELAND 4.6M LONG (15 FEET)
-	121	4704839	1	. POWER CORD ASM,SOUTH AFRICA 4.6M LONG (15 FEET)
-	121	4704840	1	. POWER CORD ASM,DENMARK 4.6M LONG (15 FEET)
-	121	4704841	1	. POWER CORD ASM,ITALY 4.6M LONG (15 FEET)
-	121	4704826	1	. POWER CORD ASM,ISRAEL 2.75M LONG (9 FEET)
-	121	4704827	1	. POWER CORD ASM,SWITZERLAND 2.75M LONG (9 FEET)
-	121	4704828	1	. POWER CORD ASM,UK/IRELAND 2.75M LONG (9 FEET)
-	121	4704829	1	. POWER CORD ASM,SWEDEN/NETHERLANDS 2.75M (9 FEET)
-	121	4704830	1	. POWER CORD ASM,SOUTH AFRICA 2.75M LONG (9 FEET)
-	121	4704831	1	. POWER CORD ASM,DENMARK 2.75M LONG (9 FEET)
-	121	4704832	1	. POWER CORD ASM,ITALY 2.75M LONG (9 FEET)
FOR COMPONENT PARTS,SEE FIGURE 22				

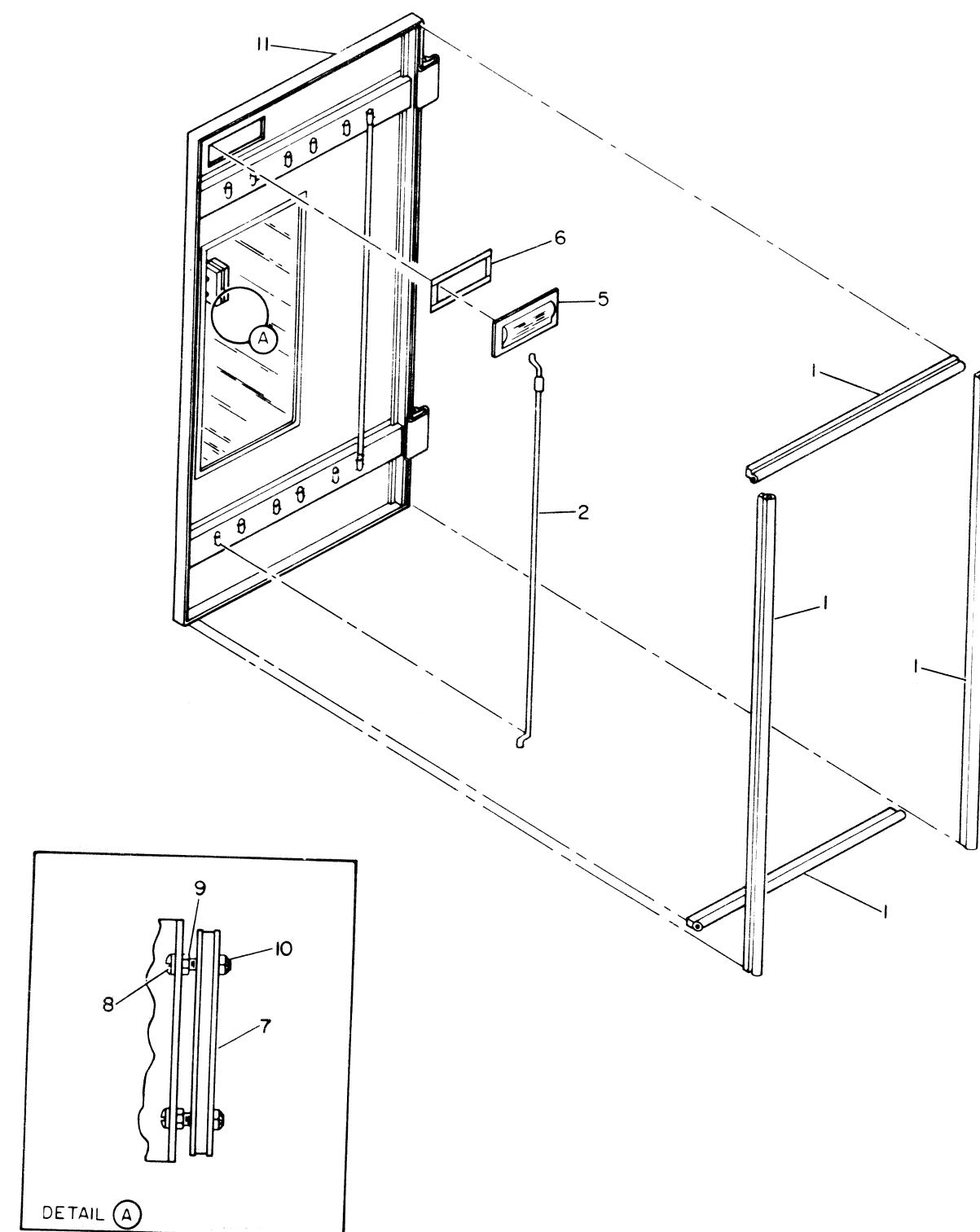


FIGURE 3. REAR DOOR ASSEMBLY. SEE LIST 3.

REAR DOOR ASSEMBLY				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	
3 -	4704813	REF	DOOR ASM-REAR	
- 1	4704849	AR	FOR NEXT HIGHER ASM, SEE FIGURE 1-47	
- 2	4704779	6	AND FOR ILLUSTRATION, SEE FIGURE 3	
- 5	4704509	1	SEAL (SPECIFY LENGTH WHEN ORDERING)	
- 6	4704851	AR	GUIDE	
- 7	4704852	2	HANDLE	
- 8	4704954	1	SEAL	
- 9	4704955	1	PLATE	
- 10	4704860	1	MAGNET	
			CLAMP	
			DOOR	

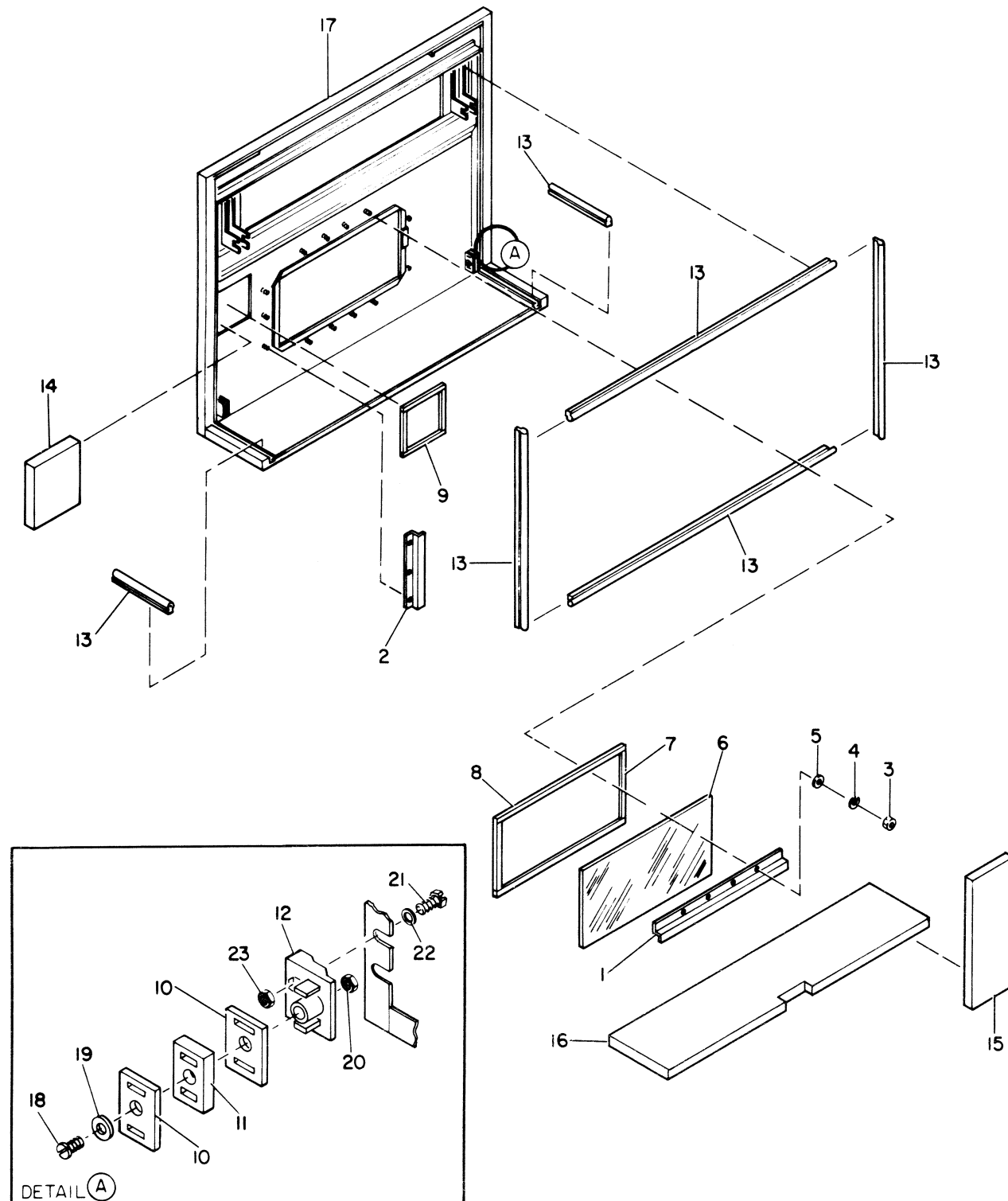


FIGURE 4. TOP COVER ASSEMBLY. SEE LIST 4.

TOP COVER ASSEMBLY						
FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
4 -	4704810	REF	COVER ASM			
			FOR ILLUSTRATION SEE FIGURE 4			
- 1	7819968	2	.	CLAMP		
- 2	7819969	2	.	CLAMP		
- 3	11598	14	.	NUT,HEX- 10-32		
- 4	9092	14	.	LOCKWASHER,SPLIT- 0.194 ID X 0.337 OD		
- 5	45690	14	.	WASHER,FL- 0.203 ID X 0.438 OD		
- 6	4435172	1	.	PAN GLASS		
- 7	4138391	AR	.	SEAL		
- 8	4704851	AR	.	SEAL		
- 9	1815424	AR	.	SEAL		
- 10	4704852	4	.	PLATE		
- 11	4704954	2	.	MAGNET		
- 12	4704733	2	.	HOLDER		
- 13	4704849	AR	.	SEAL		
- 14	4704805	1	.	MAT		
- 15	4704624	1	.	MAT		
- 16	7819961	1	.	MAT		
- 17	4704855	1	.	COVER		
- 18	1621174	1	.	SCREW,PAN HD-M3 X 16 LG		
- 19	10610	1	.	WASHER,FL- 0.126 ID X 0.375 OD 0.031 THK		
- 20	1622401	1	.	NUT,DBL CHAMFERED HEX M3 X 2.4 THK		
- 21	1621615	2	.	SCREW		
- 22	1622302	2	.	WASHER,FL-M3 7 OD X 0.5 THK		
- 23	1622401	2	.	NUT,DBL CHAMFERED HEX M3 X 2.4 THK		

PRINTER UNIT

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
5 -	4704676	REF	PRINTER UNIT, 50HZ 325 LPM			
-	4704666	REF	PRINTER UNIT, 60HZ 325 LPM			
-	4704660	REF	PRINTER UNIT, 50HZ 650 LPM			
-	4704650	REF	PRINTER UNIT, 60HZ 650 LPM			
			FOR NEXT HIGHER ASM,SEE FIGURE 2-2			
			AND FOR ILLUSTRATION,SEE FIGURE 5			
- 1	4704653	NP	1	. PRINTER ASM		
- 1A	7819278		1	. . CASTING BASE		
- 2	7819630		1	. . LATCH ASM		
- 2A	5616034		1	. . . SWITCH		
- 2B	1621174		2	. . . SCREW-MACH PAN HD,M3 X 16 LG		
- 2C	7819602		1	. . . LATCH		
- 3	1622306		1	. . . WASHER,FLAT,M6- 12.5 OD X 2 THK		
- 4	1621534		1	. . . SCREW,CAP SOC HD-M6 X 12MM LG		
- 5	7819204		1	. . RIBBON DRIVE ASSEMBLY-LH		
				FOR DETAIL BREAKDOWN SEE FIGURE 8		
- 6	1621534		2	. . SCREW,CAP SOC HD-M6 X 12MM LG		
- 7	1622306		2	. . WASHER,FLAT,M6- 12.5 OD X 2 THK		
- 8	1814637		1	. . KNOB ASM		
- 9	4435381		1	. . SHAFT ASM		
				FOR DETAIL BREAKDOWN SEE FIGURE 9		
- 10	7819267		1	. . TRACTOR ASM,LH		
				FOR DETAIL BREAKDOWN SEE FIGURE 10		
- 11	1794534		2	. . DISC ASM		
- 12	7819268		1	. . TRACTOR ASM,RH		
				FOR DETAIL BREAKDOWN SEE FIGURE 10		
- 13	1814634		1	. . BEARING ASM		
- 14	1621184		2	. . SCREW,PAN HEAD-M3.5 X 12 LG		
- 15	1814601		1	. . ECCENTRIC		
- 16	1621185		1	. . SCREW, MACH-PAN HD		
- 17	1812294		1	. . WASHER,SPRING- 0.531 ID		
- 18	1814603		1	. . SPACER		
- 19	839379		2	. . RING,RETAINER- 0.460 ID		
- 20	7820189		1	. . CARRIAGE DRIVE ASM		
				FOR DETAIL BREAKDOWN SEE FIGURE 11		
- 22	1621534		3	. . SCREW,CAP SOC HD-M6 X 12MM LG		
- 23	1622320		3	. . LOCKWASHER,SPLIT- M6,11.8 OD X 1.6 THK		
- 24	1622306		3	. . WASHER,FLAT,M6- 12.5 OD X 2 THK		
- 25	7819893		1	. . BELT		
- 27	1621190		2	. . SCREW,PAN HD- M4 X 8 LG		
- 28	4435315		2	. . CLAMP		
- 29	850248		1	. . ELIMINATOR		
- 47	4435313		1	. . COVER ASM		
- 47A	4435320		1	. . . LABEL		
- 47B	4435312		1	. . . COVER		
- 48	168037		1	. . PLUG		
- 49	7819604		2	. . SCREW,SOC HD-M4 X 25MM LG		

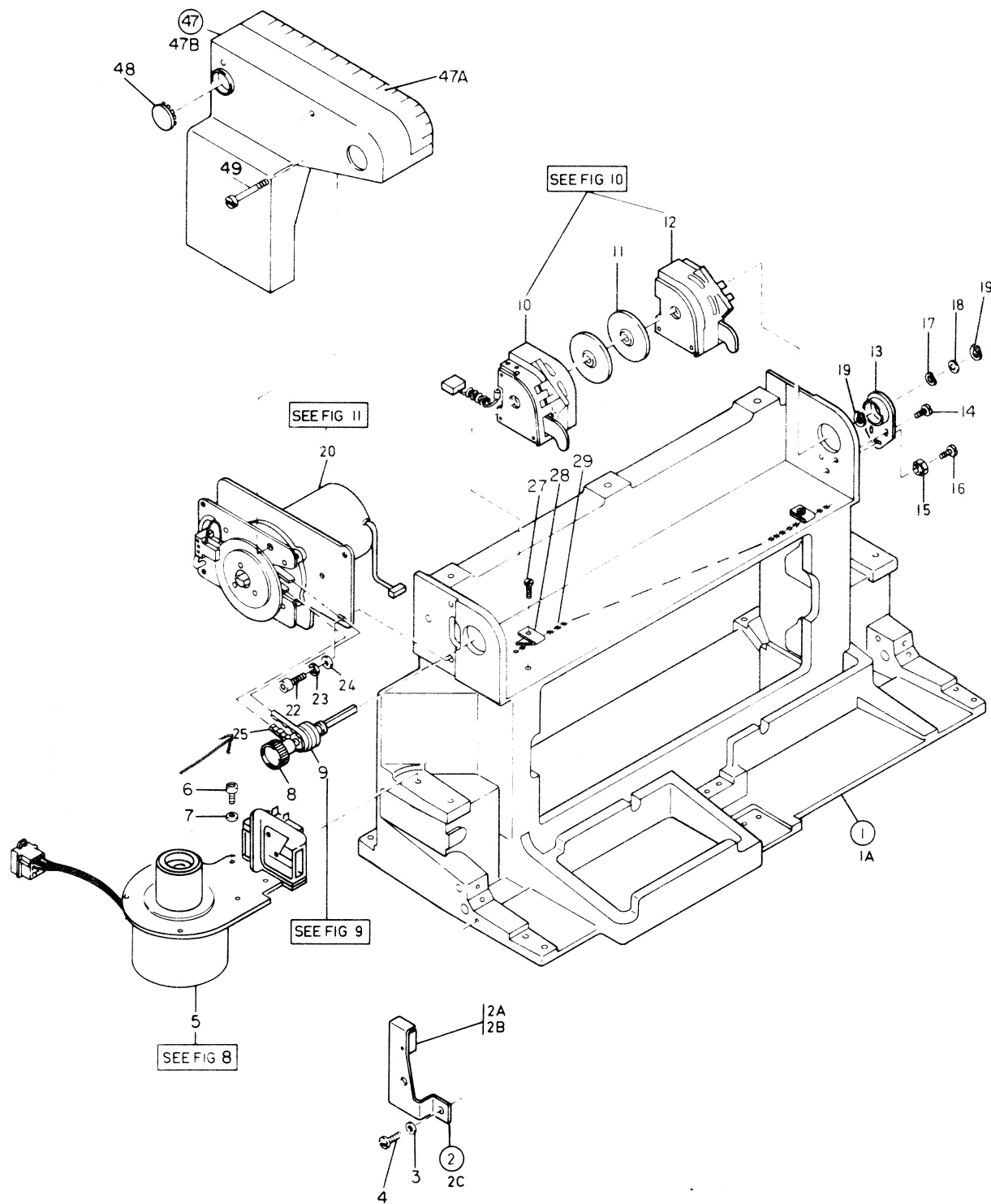
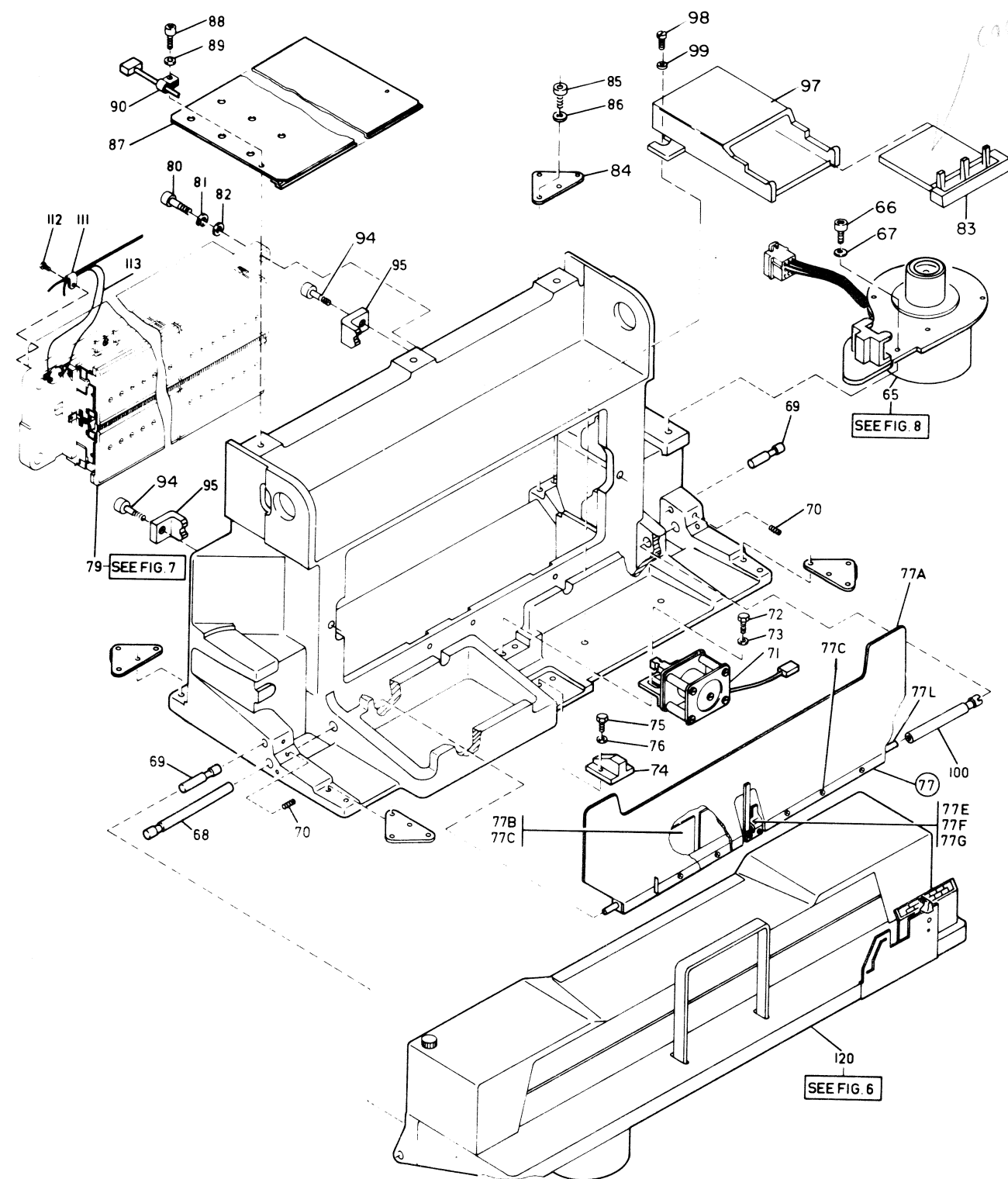


FIGURE 5. PRINTER UNIT. SHEET 1 OF 2. INDEX NOS. 1-49. SEE LIST 5.

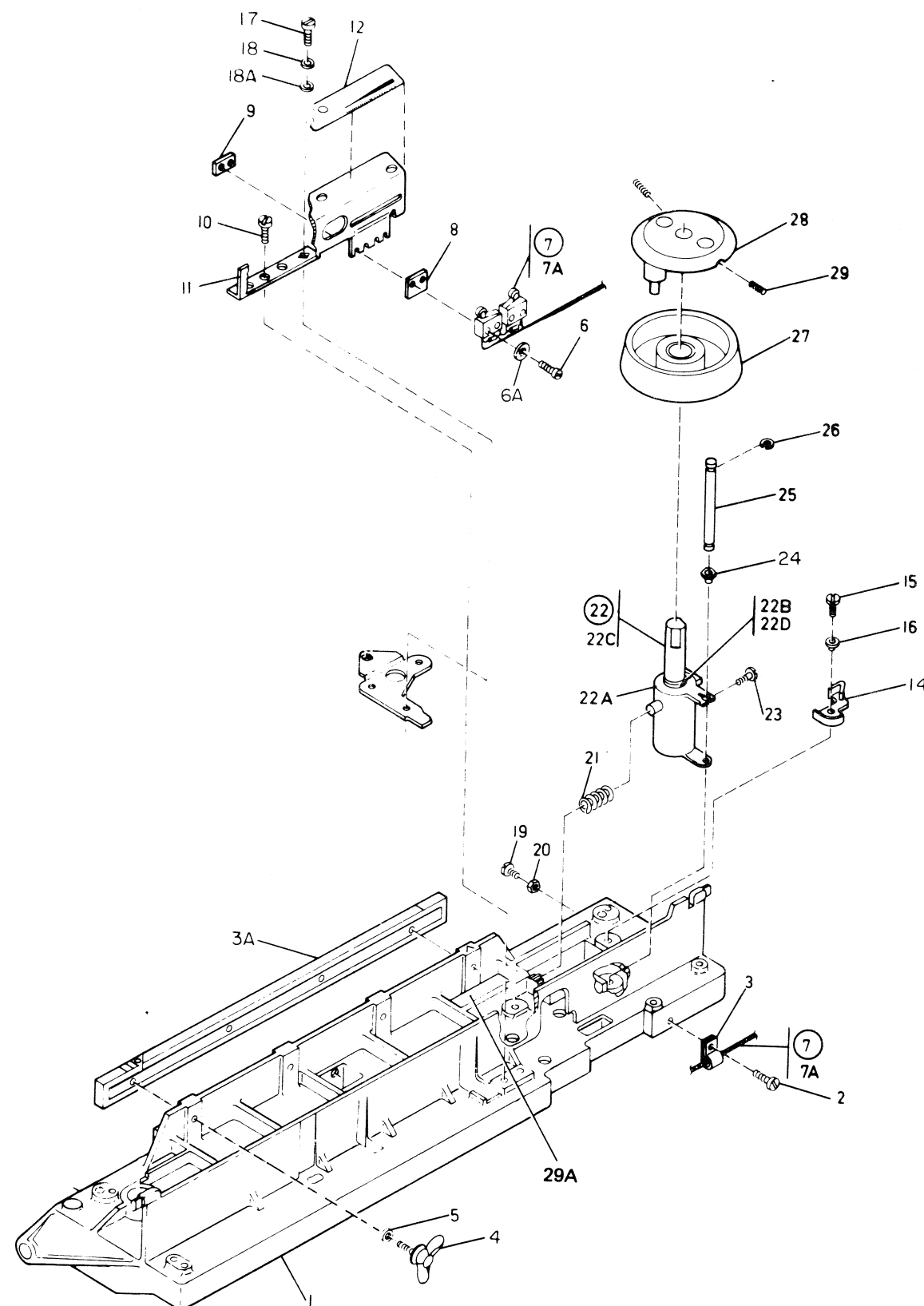


PRINTER UNIT

FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
5 - 65	7819205	1	. . RIBBON DRIVE ASSEMBLY-RH FOR DETAIL BREAKDOWN SEE FIGURE 8			
- 66	1621534	2	. . SCREW,CAP SOC HD-M6 X 12MM LG			
- 67	1622306	2	. . WASHER,FLAT,M6- 12.5 OD X 2 THK			
- 68	7819519	1	. . BOLT ASM-LH			
- 69	7819586	2	. . PIVOT			
- 70	1621731	4	. . SETSCREW,HEX SOC-M6 X 10MM LG			
- 71	7819491*	1	. . SOLENOID ASM			
- 72	1621191	2	. . SCREW,PAN HD- M4 X 10 LG			
- 73	1622304	2	. . WASHER,FL- M4 9 OD X 0.8 THK			
- 74	4435390	1	. . BLOCK			
- 75	1621510	2	. . SCREW,SOC HD-M4 X 10MM LG			
- 76	1622304	2	. . WASHER,FL- M4 9 OD X 0.8 THK			
- 77	4436107	1	. . BRAKE ASM			
- 77A	7819764	1	. . RIBBON SHIELD			
- 77B	7819498	1	. . BRAKE			
- 77C	7819669	12	. . SCREW,PAN HD-M3 X 4MM LG			
- 77E	7819949	1	. . BRACKET			
- 77F	7819934	1	. . SPRING			
- 77G	1621171	2	. . SCREW,PAN HD- M3 X 8 LG			
- 77L	7819763	1	. . BAR			
- 79	7819207	1	. . HAMMER UNIT FOR DETAIL BREAKDOWN SEE FIGURE 7			
- 80	1621529	4	. . SCREW,SOC HD-M6 X 20MM LG			
- 81	1622320	4	. . LOCKWASHER,SPLIT- M6,11.8 OD X 1.6 THK			
- 82	1622306	4	. . WASHER,FLAT,M6- 12.5 OD X 2 THK			
- 83	8709736	1	. . CARD ASM,FVC			
- 84	7819563	4	. . PLATE			
- 85	1621534	8	. . SCREW,CAP SOC HD-M6 X 12MM LG			
- 86	1622306	8	. . WASHER,FLAT,M6- 12.5 OD X 2 THK			
- 87	4436012	1	. . PLATE-TOP			
- 88	1621191	3	. . SCREW,PAN HD- M4 X 10 LG			
- 89	1622304	2	. . WASHER,FL- M4 9 OD X 0.8 THK			
- 90	5213276	1	. . CLAMP			
- 94	1621172	2	. . SCREW,PAN HD- M3 X 10 LG			
- 95	7819888	2	. . BRACKET			
- 97	4704661	1	. . HOUSING,CARD ASM			
- 98	1621191	2	. . SCREW,PAN HD- M4 X 10 LG			
- 99	1622304	2	. . WASHER,FL- M4 9 OD X 0.8 THK			
-100	7819799	1	. . BOLT ASM,RH			
-111	5213276	1	. . CLAMP			
-112	1621060	1	. . SCREW,CHEESE HD- M4 X 8 LG			
-113	7820185	1	. . CABLE ASM,THERMAL SWITCH FOR COMPONENT PARTS SEE FIGURE 22 -8J, -25,-68			
-120	4704664	1	. . FRONT ASM, 50HZ 650 LPM			
-120	4704674	1	. . FRONT ASM, 60HZ 650 LPM			
-120	4704694	1	. . FRONT ASM, 50HZ 325 LPM			
-120	4704684	1	. . FRONT ASM, 60HZ 325 LPM FOR DETAIL BREAKDOWN SEE FIGURE 6			

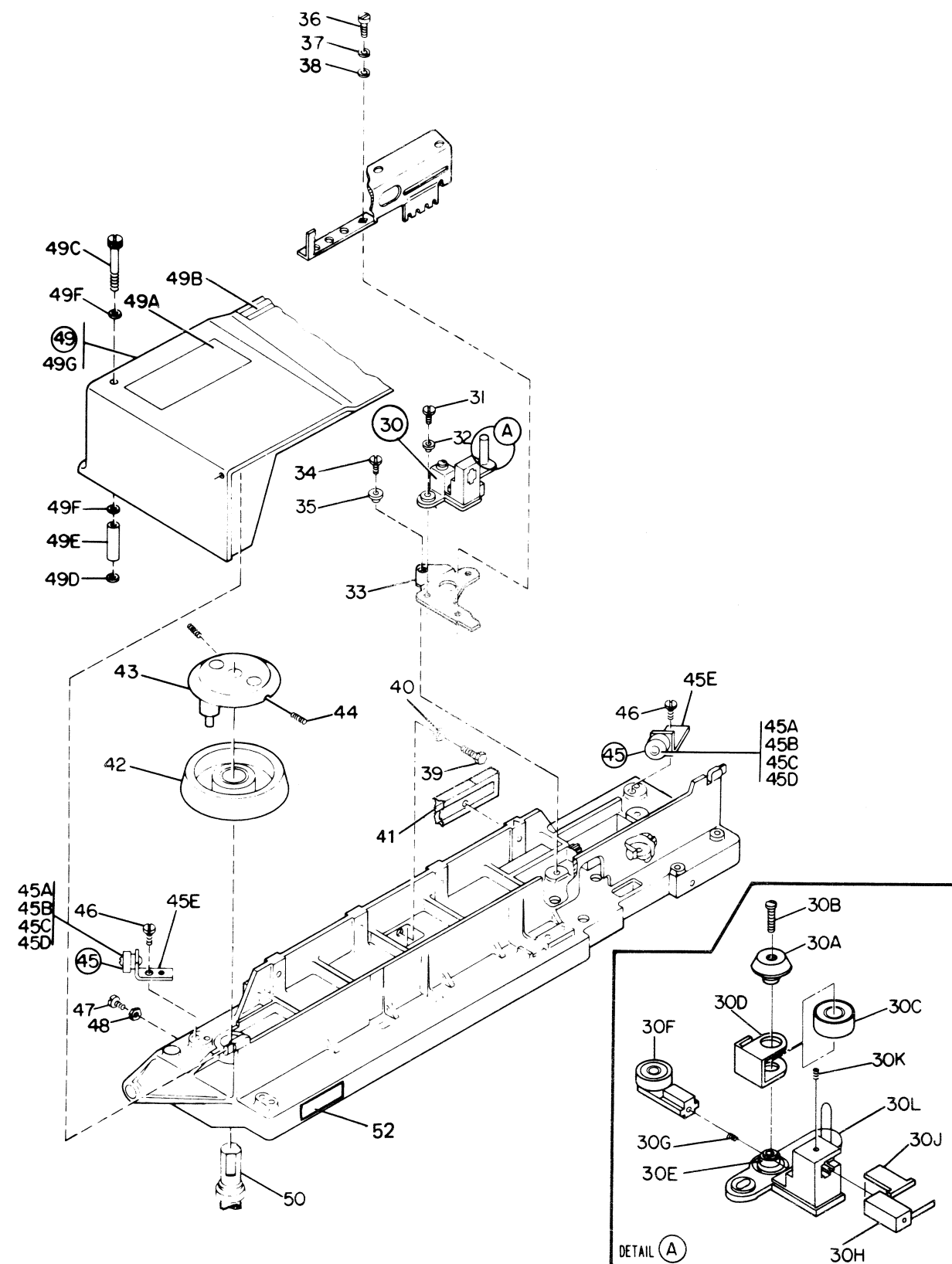
* 810990

FIGURE 5. PRINTER UNIT. SHEET 2 OF 2. INDEX NOS. 65-120. SEE LIST 5.



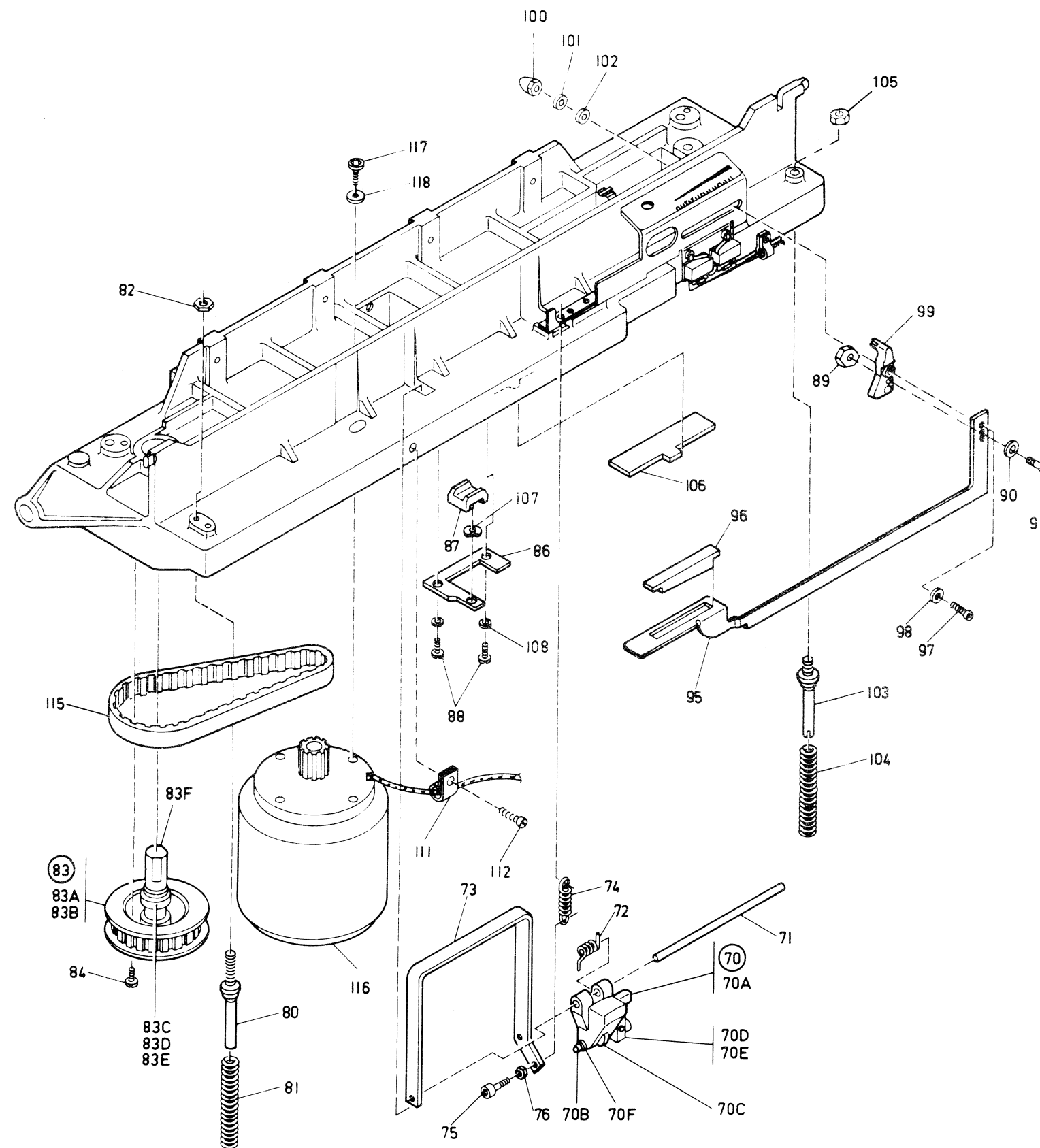
FRONT ASSEMBLY				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
6 -	4704664	REF		FRONT ASM, 50HZ 650 LPM
-	4704674	REF		FRONT ASM, 60HZ 650 LPM
-	4704694	REF		FRONT ASM, 50HZ 325 LPM
-	4704684	REF		FRONT ASM, 60HZ 325 LPM
				FOR NEXT HIGHER ASM, SEE FIGURE 5-120 AND FOR ILLUSTRATION SEE FIGURE 6
- 1	7820026	1		. CASTING ASM (USED ON 650 LPM)
- 1	4704523	1		. CASTING ASM (USED ON 325 LPM)
- 2	1621190	1		. SCREW, MACH, PAN HD, M4, 8MM LG
- 3	5213276	1		. CLAMP, LOOP, 0.125 ID, 0.167 DIA MTG HOLE
- 3A	4435158	1		. PLATEN
- 4	7819792	4		. SCREW, WING HD, M5, 16MM LG
- 5	1622319	4		. WASHER, LCK, SPRING, 5.1MM ID, 9.2MM OD
- 6	1621004	4		. SCREW, MACH, FIL HD, M2, 12MM LG
- 6A	1622300	4		. WASHER, FL- 2.2MM ID X 5MM OD
- 7	4704522	1		. CABLE ASM, IMPRESSION CONTROL
				FOR COMPONENT PARTS SEE FIGURE 22
- 7A	1187461	2		. . MICROSWITCH, SPDT
- 8	4435245	2		. INSULATOR PLATE
- 9	7819948	2		. PLATE
- 10	1621210	3		. SCREW, MACH, PAN HD, M5, 10MM LG
- 11	7819913	1		. BRACKET
- 12	4435148	1		. LABEL
- 14	5576636	1		. LEVER
- 15	1621210	1		. SCREW, MACH, PAN HD, M5, 10MM LG
- 16	7820056	1		. SPACER
- 17	1621170	1		. SCREW, PAN HD- M3 X 6MM LG
- 18	1622316	1		. LOCKWASHER, SPRING- 3.1MM ID X 6.2MM OD
- 18A	1164219	1		. WASHER, FL- 2.2MM ID X 8MM OD
- 19	7819991	1		. SCREW, MACH, CAP, HEX HD, M6, 20MM LG
- 20	1622405	1		. NUT, HEX, M6, 10MM FL W
- 21	7819560	1		. SPRING
- 22	7820014	1		. PIVOT ASM
- 22A	1812465	1		. . BLOCK, PIVOT
- 22B	156231	2		. . BEARING
- 22C	7820012	1		. . SHAFT
- 22D	251227	2		. . CLIP
- 23	186929	1		. SCREW, CAP, FLUT SOC HD, 6-32, 0.875 LG
- 24	1794808	1		. ECCENTRIC
- 25	1794809	1		. SHAFT
- 26	257982	2		. CLIP, RETAINING, E TYPE, 0.188 DIA GROOVE
- 27	1815993	1		. PULLEY ASM
- 28	7820196	1		. FLYWHEEL ASM
- 29	1621784	2		. SETSCREW, HEX SOC, FL PT, M6, 25MM LG
- 29A	4435145	1		. LABEL, PLATEN POSITIONING

FIGURE 6. FRONT ASSEMBLY. SHEET 1 OF 3. INDEX NOS. 1-29A. SEE LIST 6.



FRONT ASSEMBLY						
FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
6 - 30	8268636	1	.	EMITTER ASM		
- 30A	1816032	1	.	SUPPORT		
- 30B	438587	1	.	SCREW,BD HD- 8-32 X 1.125 LG		
- 30C	1816030	1	.	BEARING		
- 30D	1794759	1	.	CLEANER		
- 30E	1794701	1	.	SUPPORT		
- 30F	4136964	1	.	SLIDE ASM		
- 30G	1105514	1	.	SPRING		
- 30H	1794705	1	.	EMITTER ASM		
- 30J	8268637	1	.	SPACER		
- 30K	257958	1	.	SETSCREW		
- 30L	1794839	1	.	BRACKET		
- 31	1621192	2	.	SCREW,MACH,PAN HD,M4, 12MM LG		
- 32	7820008	2	.	SPACER		
- 33	7819777	1	.	CARRIER,USED ON 650 LPM		
- 33	4704669	1	.	CARRIER,USED ON 300 LPM		
- 34	1621210	1	.	SCREW,MACH,PAN HD,M5, 10MM LG		
- 35	7820007	1	.	SPACER		
- 36	1621170	1	.	SCREW,MACH,PAN HD,M3, 6MM LG		
- 37	1622316	1	.	WASHER,LCK,SPRING,3.1MM ID,6.2MM OD		
- 38	1164219	1	.	WASHER,FL,3.2MM ID,8MM OD,1MM THK		
- 39	4435649	1	.	SCREW,CAP,HEX HD,M6, 25MM LG		
- 40	1622405	1	.	NUT,HEX,M6, 10MM FL W		
- 41	4435158	1	.	PLATEN		
- 42	1815993	1	.	PULLEY ASM		
- 43	7820196	1	.	FLYWHEEL ASM		
- 44	1621784	2	.	SETSCREW,HEX SOC,FL PT,M6, 25MM LG		
- 45	7819562	2	.	BELT SUPPORT ASM		
- 45A	7819391	1	.	BEARING		
- 45B	7819561	1	.	RING		
- 45C	7819389	1	.	STUD		
- 45D	48594	2	.	SCREW,MACH,BIND HD,4-40, 0.125 LG		
- 45E	7819388	1	.	BRACKET		
- 46	1621210	2	.	SCREW,MACH,PAN HD,M5, 10MM LG		
- 47	7819991	1	.	SCREW,MACH,CAP,HEX HD,M6, 20MM LG		
- 48	1622405	1	.	NUT,HEX,M6, 10MM FL W		
- 49	4435323	1	.	COVER ASM		
- 49A	4435234	1	.	LABEL,RIBBON		
- 49B	1794806	1	.	SCALE TAB		
- 49C	4435294	1	.	STUD		
- 49D	1092125	1	.	CLIP		
- 49E	4435295	1	.	SPACER		
- 49F	1622305	2	.	WASHER,FL,5.5MM ID,10MM OD,1MM THK		
- 49G	4435322	1	.	COVER		
- 50	7820015	1	.	DRIVE SHAFT ASM		
- 52	804455	1	.	LABEL, WARNING		

FIGURE 6. FRONT ASSEMBLY. SHEET 2 OF 3. INDEX NOS. 30-52. SEE LIST 6.



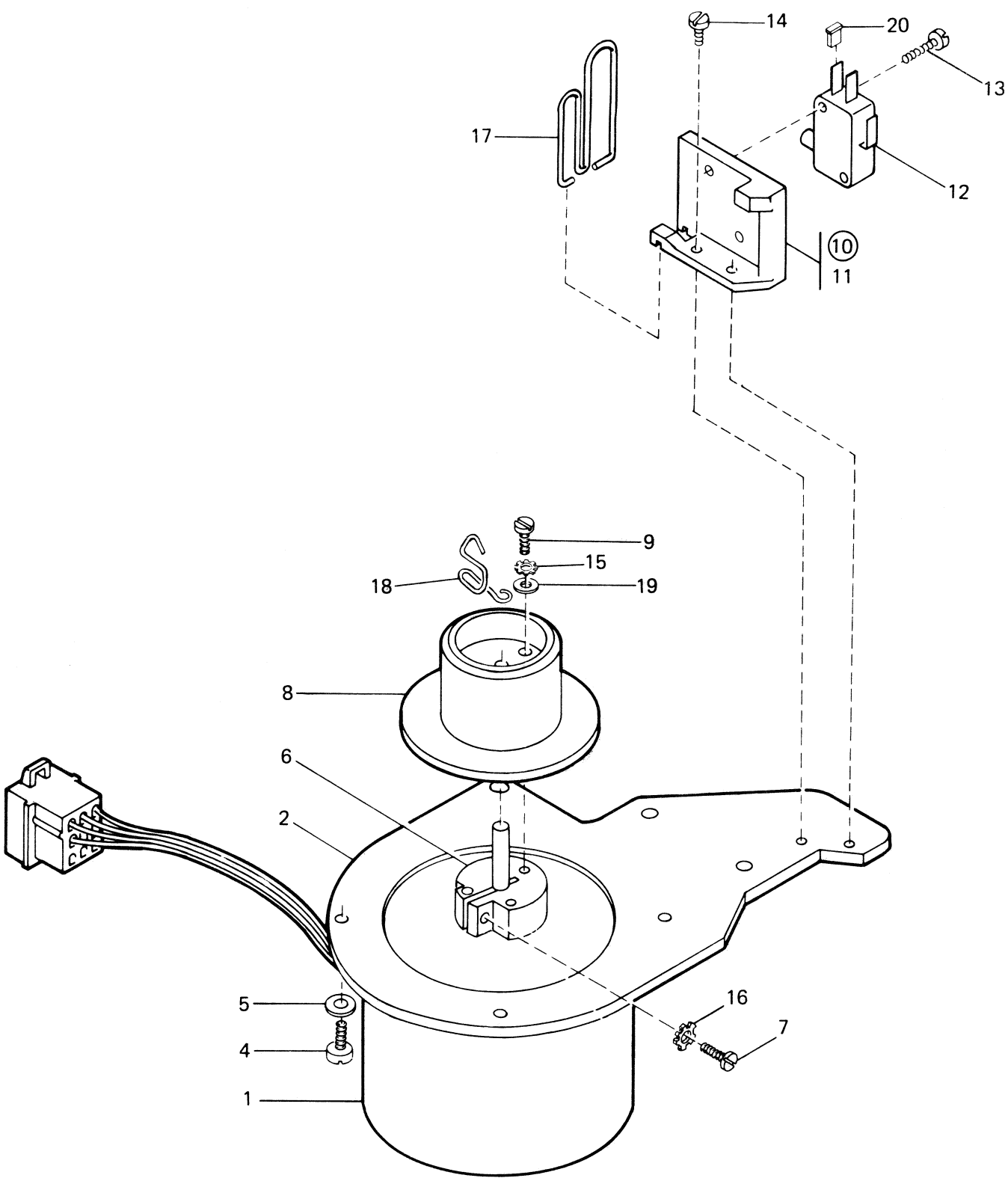
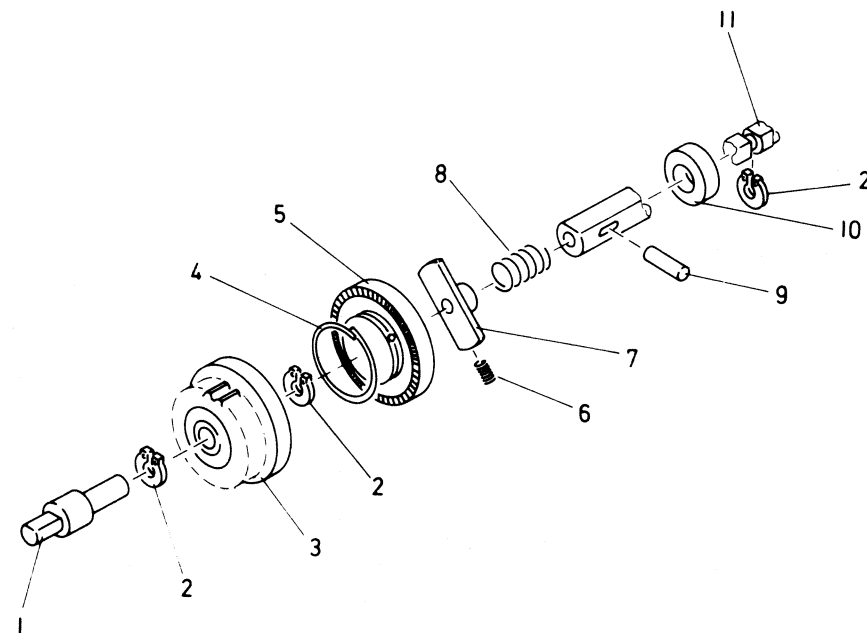


FIGURE 8. RIBBON DRIVE ASSEMBLIES. SEE LIST 8.

RIBBON DRIVE ASSEMBLIES				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION	
			1	2 3 4
8 -	7819204	REF	RIBBON DRIVE ASSEMBLY-LH	
-	7819205	REF	RIBBON DRIVE ASSEMBLY-RH	
			FOR NEXT HIGHER ASSEMBLY, SEE FIGURE 5-5 AND 5-65 AND FOR ILLUSTRATION SEE FIGURE 8	
- 1	4432280	1	. MOTOR ASM	
- 2	4435196	1	. PLATE	
- 4	1621210	4	. SCREW,PAN HD- M5 X 10 LG	
- 5	1622305	4	. WASHER,FL- M5 10 OD X 1 THK	
- 6	7819259	1	. CLAMP	
- 7	1621512	1	. SCREW	
- 8	4435586	1	. HUB	
- 9	1621173	3	. SCREW,PAN HD-M3 X 12 LG	
- 10	7820173	1	. GUIDE ASM-RIGHT	
- 10	7820174	1	. GUIDE ASM-LEFT	
- 11	7819937	1	. . GUIDE-RIGHT	
- 11	7819938	1	. . GUIDE-LEFT	
- 12	5576617	1	. . SWITCH	
- 13	1621174	2	. . SCREW-MACH PAN HD,M3 X 16 LG	
- 14	1621170	2	. SCREW,PAN HD- M3 X L 6-	
- 15	1622344	3	. LOCKWASHER,EXT STAR- M3 X 294 THK	
- 16	1622318	1	. WASHER,SPRING-M4 9.2 OD X 1.2 THK	
- 17	7819514	1	. ACTUATOR	
- 18	4435587	1	. SPRING	
- 19	1622302	3	. WASHER,FL-M3 7 OD X 0.5 THK	
- 20	1249237	1	. CAP	



SHAFT ASSEMBLY				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
9 -	4435381	REF		SHAFT ASM FOR NEXT HIGHER ASM SEE FIGURE 5-9 FOR ILLUSTRATION, SEE FIGURE 9
- 1	4435377	1		. PUSH ROD
- 2	839379	3		. RING, RETAINER- 0.460 ID
- 3	4435380	1		. GEAR
- 4	1802014	1		. RING, RETAINER
- 5	1812645	1		. CLUTCH
- 6	1621715	1		. SETSCREW, SOC-M3.5 X 5MM LG
- 7	7819917	1		. DRIVER
- 8	1812291	1		. SPRING, COMPRESSION
- 9	1815380	1		. PIN, DOWEL
- 10	156231	1		. BEARING, BALL-0.500 ID X 1.125 OD
- 11	4435382	1		. SHAFT

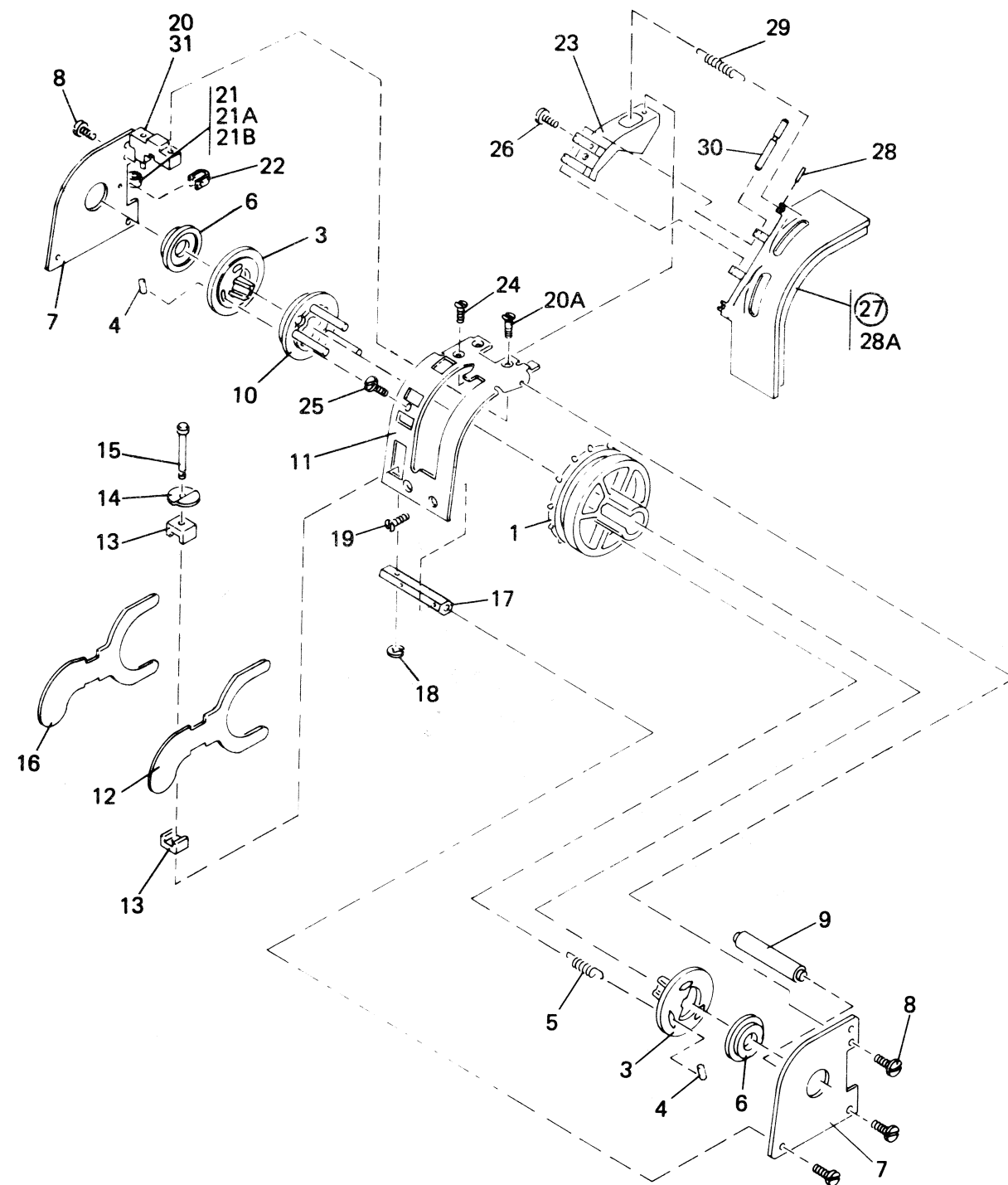
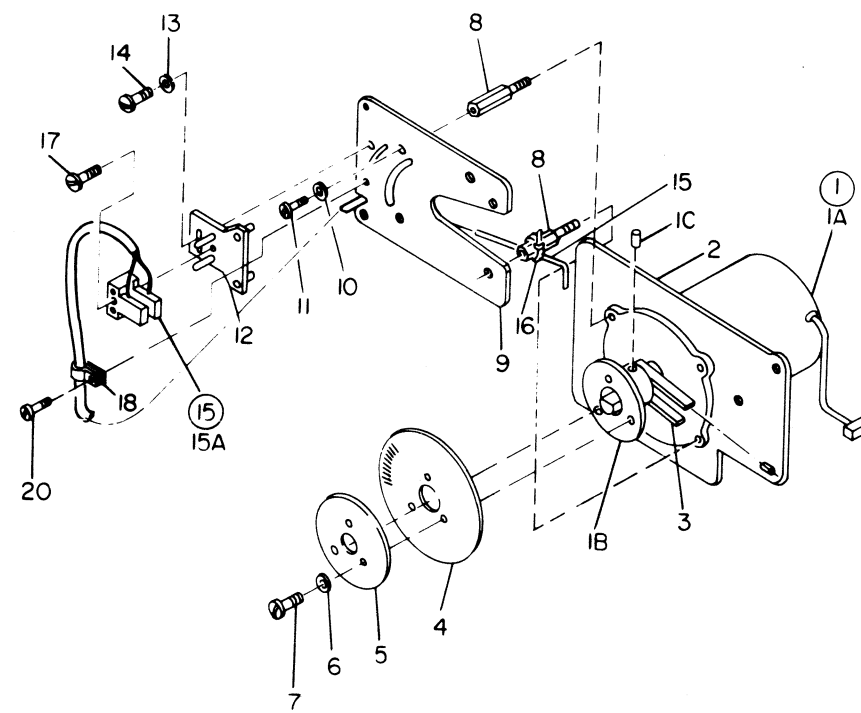


FIGURE 10. TRACTOR ASSEMBLIES. SEE LIST 10.

TRACTOR ASSEMBLIES

FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	DESCRIPTION
10 -	7819267	REF		TRACTOR ASM, LH
-	7819268	REF		TRACTOR ASM, RH
				FOR NEXT HIGHER ASM, SEE FIGURE 5-10 AND 5-12 AND FOR ILLUSTRATION, SEE FIGURE 10
- 1	4435175	1		. TRACTOR
- 3	1812255	2		. WEDGE
- 4	1812325	6		. PIN-0.062 OD X 0.330 LG
- 5	7820054	3		. SPRING
- 6	7820057	2		. BUSHING
- 7	1812260	2		. SIDEPLATE
- 8	438548	6		. SCREW, BD HD- 4-40 X 0.188 LG
- 9	1812261	1		. SUPPORT, SIDEPLATE
- 10	1812256	1		. RING
- 11	1812266	1		. SHIELD, TRACTOR LEFT
- 11	1812267	1		. SHIELD, TRACTOR RIGHT
- 12	1814632	1		. YOKE, CLAMP RIGHT
- 13	1812265	2		. RETAINER, YOKE
- 14	1103744	1		. WASHER
- 15	1812264	1		. PIN, YOKE
- 16	1814631	1		. YOKE, CLAMP LEFT
- 17	1812262	1		. SUPPORT, LEFT SIDEPLATE
- 17	1812328	1		. SUPPORT-RH
- 18	1073418	1		. RETAINER, CRANK
- 19	38433	2		. SCREW, FL HD- 4-40 X 0.250 LG
- 20	7819926	1		. DETECTOR ASM
- 20A	38433	2		. SCREW, FL HD- 4-40 X 0.250 LG
- 21	5213276	1		. CLAMP
- 21A	81693	1		. SCREW, BD HD- 6-32 X 0.375 LG
- 21B	22478	1		. WASHER, FL- 0.170 ID X 0.375 OD
- 22	336628	1		. CLIP
- 23	7819660	1		. PIVOT
- 24	236529	1		. SCREW, SELF TAP- 4-40 X 0.375 LG
- 25	438548	1		. SCREW, BD HD- 4-40 X 0.188 LG
- 26	186927	1		. SCREW, SOC HD- 6-32 X 0.250 LG
- 27	7820052	1		. COVER ASM
- 28	264998	2		. ROLL PIN- 0.250 LG
- 28A	7819985	1		. COVER
- 29	1812272	1		. SPRING, EXTENSION
- 30	1812271	1		. PIVOT, COVER
- 31	7819925	1		. CABLE ASM, JAM DETECTOR
				FOR COMPONENT PARTS SEE FIG. 22 -8E, -28



CARRIAGE DRIVE ASSEMBLY						
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
11 -	7820189	REF	CARRIAGE DRIVE ASM			
			FOR NEXT HIGHER ASM,SEE FIGURE 5-20			
			AND FOR ILLUSTRATION,SEE FIGURE 11			
- 1	7819919	1	. MOTOR ASM			
- 1A	4432279	1	. . MOTOR			
			FOR COMPONENT PARTS SEE FIG. 22 -8D,-50			
- 1B	7819760	1	. . PULLEY			
- 1C	1611063	1	. . ROLLPIN			
- 2	4435231	1	. BRACKET ASM			
- 3	7819893	1	. BELT			
- 4	8330372	1	. DISC			
- 5	8330373	1	. STIFFENER,DISC			
- 6	1622300	3	. WASHER,FLAT,M2- 5 OD X 0.3 THK			
- 7	1621000	3	. SCREW-MACH CHEESE HD,M2 X 4 LG			
- 8	7819484	4	. STUD			
- 9	4435232	1	. SUPPORT			
- 10	1622305	4	. WASHER,FL- M5 10 OD X 1 THK			
- 11	1621518	4	. SCREW,HEX SOC HD- M5 X 10 LG			
- 12	7820187	1	. BLOCK ASM			
- 13	437076	1	. WASHER			
- 14	1621510	1	. SCREW,SOC HD-M4 X 10MM LG			
- 15	7819835	1	. EMITTER ASM			
			FOR COMPONENT PARTS SEE FIG. 22 -8,-25A			
- 15A	5615497	1	. . TRANSDUCER ASM			
- 16	524519	1	. TIE,CABLE			
- 17	1621496	1	. SCREW,SOC HD-M3 X 16MM LG			
- 18	5213276	1	. CLAMP			
- 20	1621190	1	. SCREW,PAN HD- M4 X 8 LG			

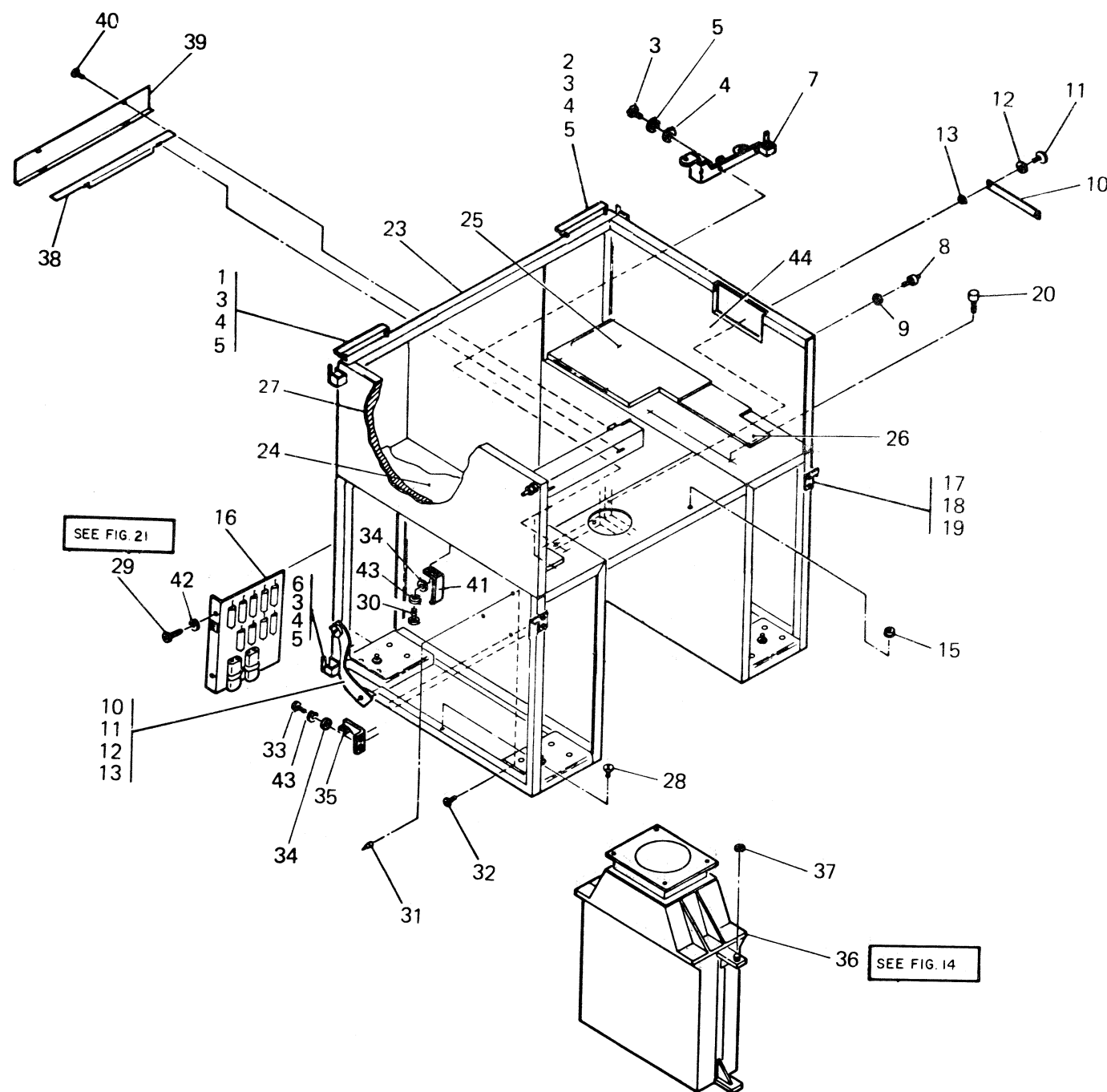
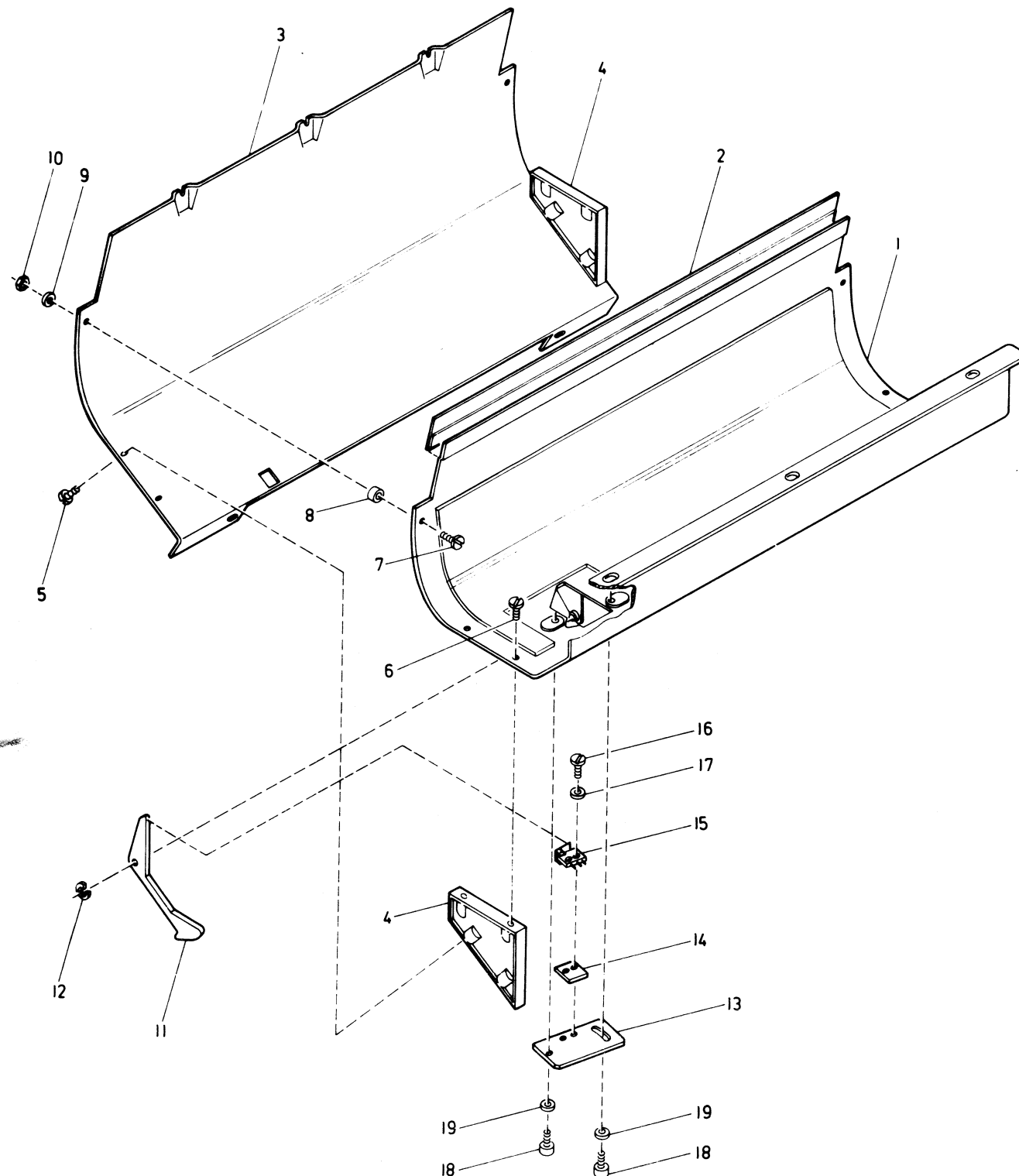


FIGURE 12. LOWER STRUCTURE ASSEMBLY. SEE LIST 12.

LOWER STRUCTURE ASSEMBLY

FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
12 -	4704802	REF	BASIC LOWER STRUCTURE ASM FOR NEXT HIGHER ASM, SEE FIGURE 2-1 AND FOR ILLUSTRATION, SEE FIGURE 12			
- 1	4704935	1	BRACKET			
- 2	4704915	1	BRACKET			
- 3	1621595	8	SCREW			
- 4	210681	8	WASHER			
- 5	1622320	8	LOCKWASHER			
- 6	4704941	1	BRACKET			
- 7	4704914	1	BRACKET			
- 8	255939	2	SCREW ASM, DOOR			
- 9	3960	2	NUT, HEX- 1/4-20			
- 10	2101089	2	JUMPER			
- 11	1621190	2	SCREW			
- 12	1622304	2	WASHER			
- 13	1622347	2	LOCKWASHER			
- 15	317227	1	GROMMET			
- 16	4704801	1	RESISTOR PANEL ASM FOR DETAIL BREAKDOWN, SEE FIGURE 21			
- 17	4704952	2	LATCH			
- 18	4704953	4	SLEEVE			
- 19	1621190	4	SCREW			
- 20	1800685	8	SHOCKMOUNT			
- 23	4704800	1	FRAME			
- 24	4704754	1	PAD			
- 25	7820061	1	PAD, RIGHT SIDE			
- 26	7819693	1	PAD, RIGHT SIDE FRONT			
- 27	7819636	1	PAD			
- 28	1673784	1	SCREW			
- 29	1673984	2	SCREW			
- 30	1621197	2	SCREW			
- 31	4704879	4	SUPPORT			
- 32	1138973	4	SCREW			
- 33	1621190	2	SCREW			
- 34	1622304	4	WASHER			
- 35	4704874	1	BRACKET			
- 36	4704815	1	CHASSIS ASM FOR DETAIL BREAKDOWN, SEE FIGURE 14			
- 37	4704967	1	RING, RETAINING			
- 38	4704965	1	SHELF			
- 39	4704966	1	COVER			
- 40	1621850	2	SCREW			
- 41	4704732	1	LATCH, PLANAR			
- 42	1622319	2	LOCKWASHER			
- 43	1622318	4	LOCKWASHER			
- 44	4704882	1	PAD			



PAPER GUIDE ASSEMBLY

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
12A-	4435360	REF	GUIDE ASM,PAPER FOR NEXT HIGHER ASM SEE FIGURE 2-50 AND FOR ILLUSTRATION,SEE FIGURE 12A
- 1	4435362	1	. GUIDE,UPPER
- 2	7820092	1	. SHIELD
- 3	4435361	1	. GUIDE,LOWER
- 4	4435363	2	. SPACER
- 5	1621852	4	. SCREW,SELF TAP PAN HD-M4 X 10 LG
- 6	1621852	4	. SCREW,SELF TAP PAN HD-M4 X 10 LG
- 7	1621193	2	. SCREW,PAN HD- M4 X 16LG
- 8	4435366	2	. SPACER
- 9	1622304	2	. WASHER,FL- M4 9 OD X 0.8 THK
- 10	1622403	2	. NUT,DBL CHAMFERED HEX M4 X 3.2 THK
- 11	4435364	1	. ACTUATOR
- 12	1092125	1	. CLIP
- 13	4435365	1	. BRACKET
- 14	4435367	1	. INSULATOR
- 15	2426455	1	. SWITCH,MICRO
- 16	1621004	2	. SCREW-MACH CHEESE HD,M2 X 12 LG
- 17	1622300	2	. WASHER,FLAT,M2- 5 OD X 0.3 THK
- 18	1621509	2	. SCREW,CAP SOC HD-M4 X 8MM LG
- 19	1622304	2	. WASHER,FL- M4 9 OD X 0.8 THK

FIGURE 12A. PAPER GUIDE ASSEMBLY. SEE LIST 12A.

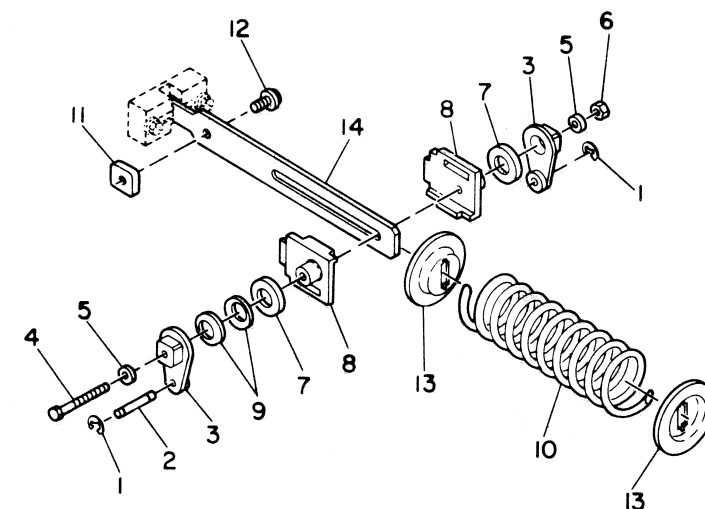
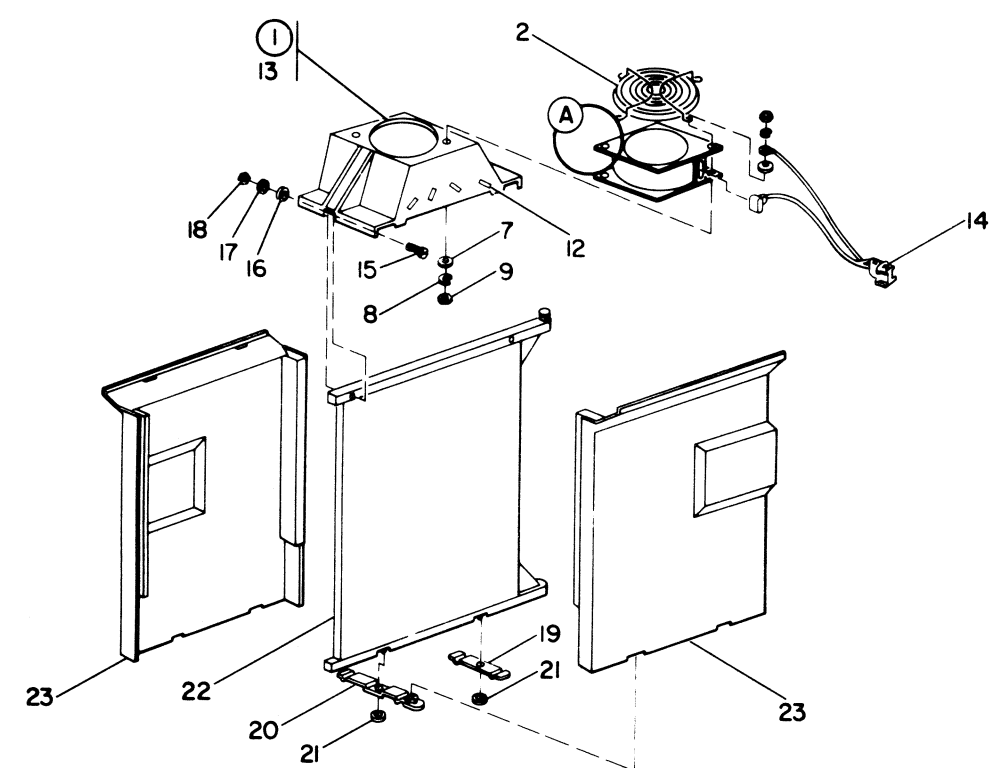


FIGURE 13. BALANCE ASSEMBLY. SEE LIST 13.

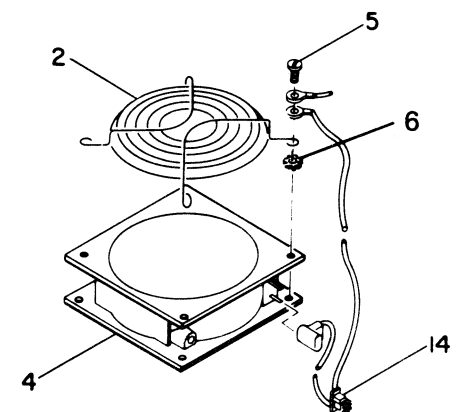
BALANCE ASSEMBLY				
FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	1 2 3 4	
13 -	4704806	REF	BALANCE ASSEMBLY FOR NEXT HIGHER ASM, SEE FIGURE 1-37 AND FOR ILLUSTRATION SEE FIGURE 13	
- 1	1138543	2	. RING, RETAINING	
- 2	1611139	1	. PIN	
- 3	4704865	2	. BEARING	
- 4	438590	1	. SCREW, MACH-UNDRCT BIND HD 8-32 X 1.75 LG	
- 5	22478	2	. WASHER, FL- 0.170 ID X 0.375 OD	
- 6	72828	1	. NUT, STOP ELASTIC HEX- 8-32	
- 7	130985	2	. WASHER, FL- 0.531 ID X 1.062 OD	
- 8	4704864	2	. BRAKE	
- 9	4704892	2	. WASHER	
- 10	4704856	1	. SPRING	
- 11	4704834	1	. BLOCK	
- 12	825939	1	. SCREW, SEMS HEX HD 8-32 X .312 LG	
- 13	4704866	2	. GUIDE	
- 14	4704867	1	. SHAFT	



CHASSIS ASSEMBLY

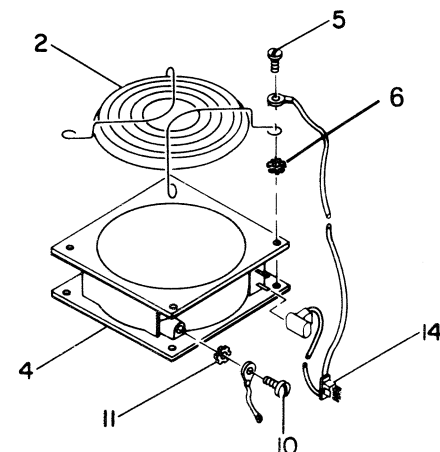
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
14 -	4704815	REF	CHASSIS ASM FOR NEXT HIGHER ASM,SEE FIGURE 13 AND FOR ILLUSTRATION,SEE FIGURE 14
- 1	4704873	1	. PLENUM ASM
- 2	2172166	1	. . GUARD
- 4	4120186	1	. . FAN ASM USED ON MACHINES BUILT IN SWEDEN
- 4	5562358	1	. . FAN ASM USED ON MACHINES BUILT IN US AND JAPAN
- 5	438572	4	. . SCREW
- 6	1622346	1	. . LOCKWASHER
- 7	257986	4	. . WASHER
- 8	6364	4	. . LOCKWASHER
- 9	257187	4	. . NUT
- 10	5526638	1	. . SCREW
- 11	56079	1	. . LOCKWASHER
- 12	4704871	4	. . FIN
- 13	4704870	1	. . PLENUM
- 14	8330691	1	. . CABLE ASM
- 15	1621196	2	. SCREW
- 16	1622304	2	. WASHER
- 17	1622318	2	. LOCKWASHER
- 18	1622403	2	. NUT,DBL CHAMFERED HEX M4 X 3.2 THK
- 19	4704875	1	. RETAINER
- 20	4704877	1	. LATCH
- 21	310974	2	. NUT,SPEED
- 22	4704869	1	. STIFFENER
- 23	4704872	2	COVER

COVER NOT PART OF CHASSIS ASM
ORDER P/N 4704872 SEPARATELY.



HARDWARE ASSEMBLED IN THIS POSITION ON
PLENUM ASSEMBLIES BUILT IN U.S. AND JAPAN
USING FAN P/N 5562358

DETAIL (A)



HARDWARE ASSEMBLED IN THIS POSITION ON
PLENUM ASSEMBLIES BUILT IN SWEDEN
USING FAN P/N 4120186

FIGURE 14. CHASSIS ASSEMBLY. SEE LIST 14.

FRONT DOOR ASSEMBLY

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4

15 -	4704807		FRONT DOOR ASSEMBLY FOR NEXT HIGHER ASM, SEE FIGURE 1-14 AND FOR ILLUSTRATION SEE FIGURE 15			
- 4	4704849	1	. SEAL (SPECIFY LENGTH)			
- 5	4704733	1	. HOLDER			
- 6	1621615	2	. SCREW			
- 7	1622302	2	. WASHER, FL-M3 7 OD X 0.5 THK			
- 8	1622401	2	. NUT, DBL CHAMFERED HEX M3 X 2.4 THK			
- 9	4704954	1	. MAGNET			
- 10	4704852	2	. PLATE			
- 11	1621174	1	. SCREW-MACH PAN HD, M3 X 16 LG			
- 12	10610	1	. WASHER, FL- 0.126 ID X 0.375 OD 0.031 THK			
- 13	1622401	1	. NUT, DBL CHAMFERED HEX M3 X 2.4 THK			
- 16	4704848	1	. DOOR			

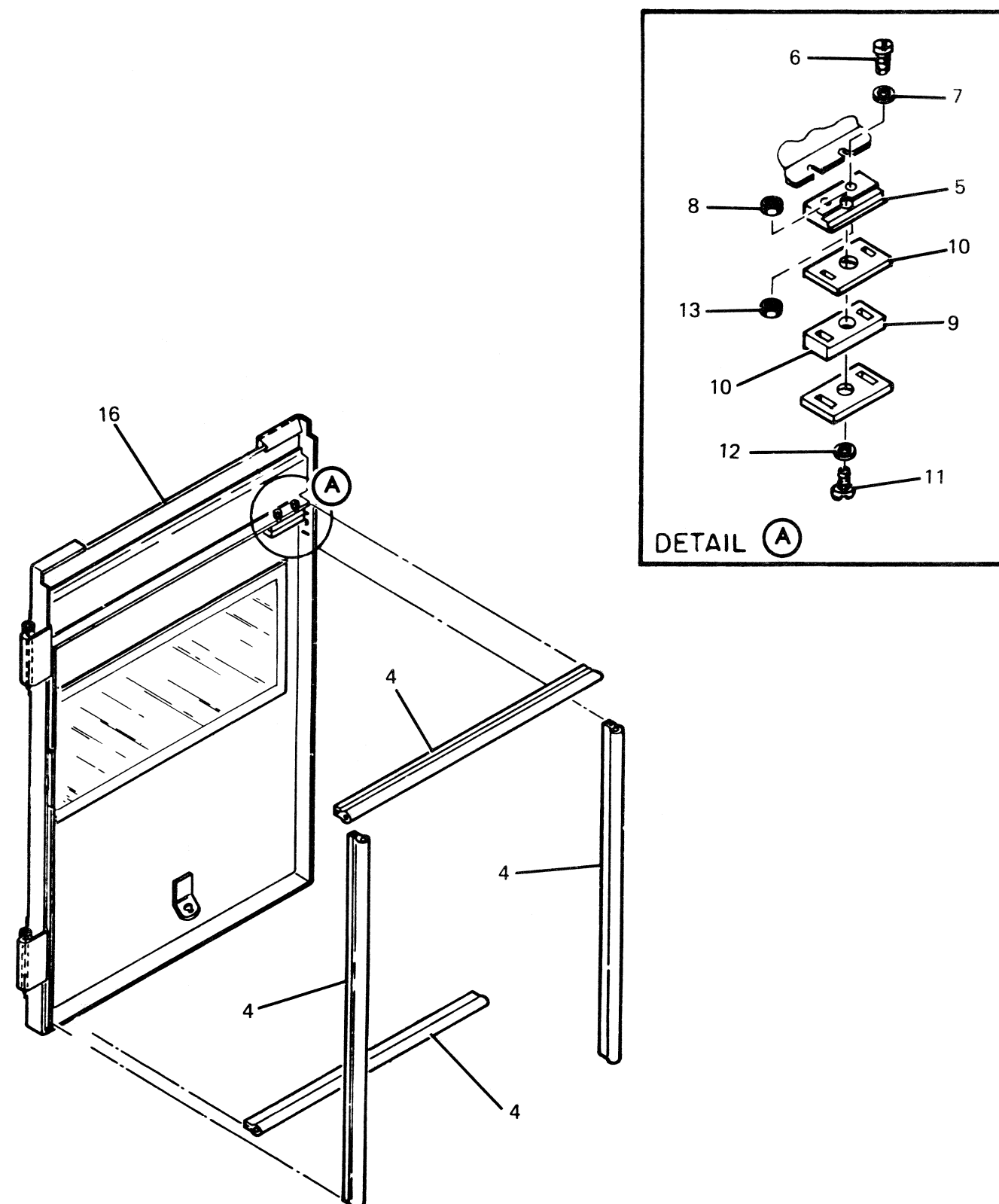


FIGURE 15. FRONT DOOR ASSEMBLY. SEE LIST 15.

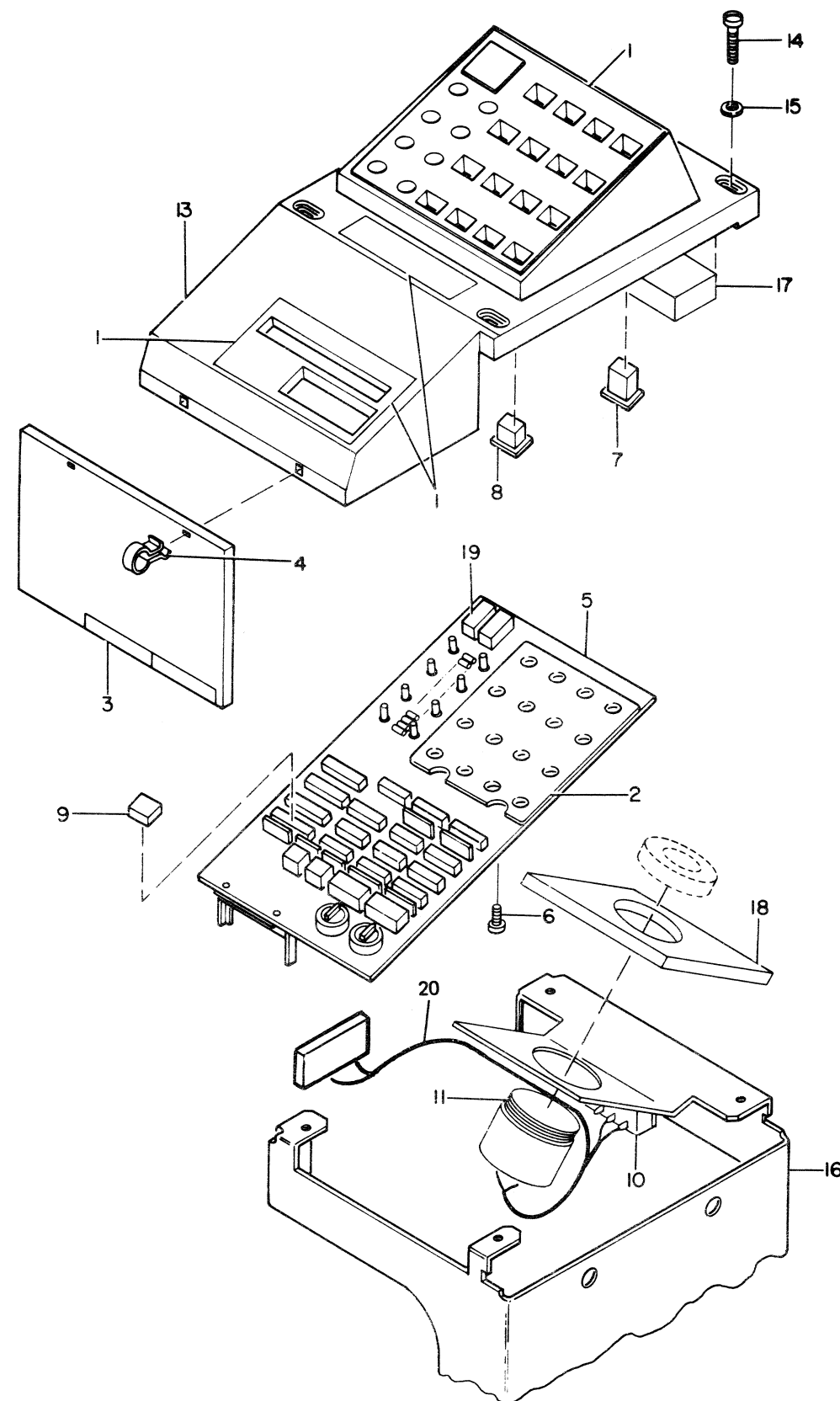
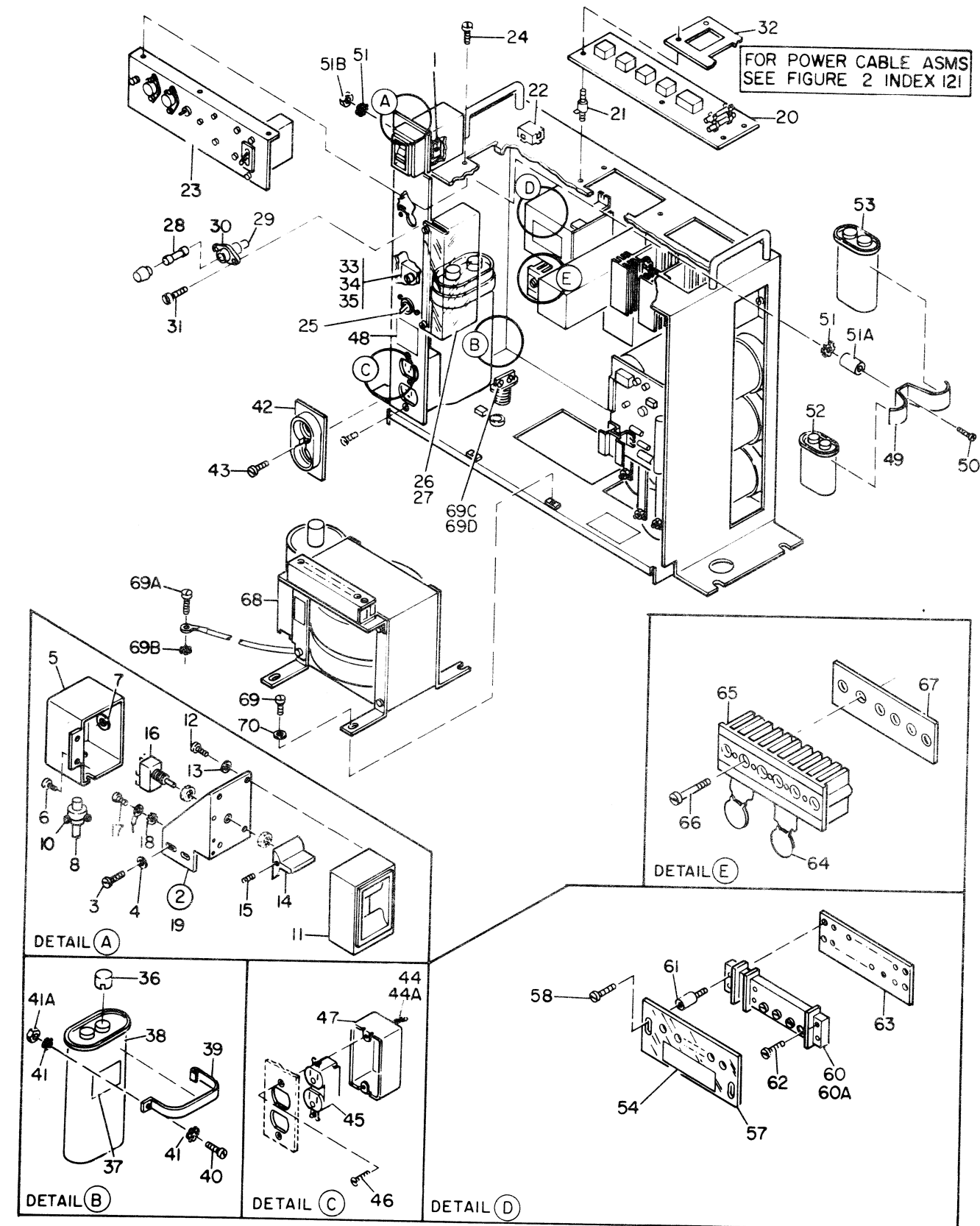


FIGURE 16. OPERATOR PANEL ASSEMBLY. SEE LIST 16.

OPERATOR PANEL ASSEMBLY				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION	
			1	2 3 4
16 -	4704888	REF	OVERLAY-GERMAN MODELS 2 AND 12	
			FOR DETAIL BREAKDOWN SEE FIGURE 16	
- 1	4704980	1	. OVERLAY-ENGLISH MODELS 1 AND 11	
- 1	4704986	1	. OVERLAY-ENGLISH MODELS 2 AND 12	
- 1	4704992	1	. OVERLAY-ENGLISH MODELS 3 AND 13	
- 1	4704982	1	. OVERLAY-FRENCH MODELS 1 AND 11	
- 1	4704987	1	. OVERLAY-FRENCH MODELS 2 AND 12	
- 1	4704993	1	. OVERLAY-FRENCH MODELS 3 AND 13	
- 1	4704981	1	. OVERLAY-GERMAN MODELS 1 AND 11	
- 1	4704988	1	. OVERLAY-GERMAN MODELS 2 AND 12	
- 1	4704994	1	. OVERLAY-GERMAN MODELS 3 AND 13	
- 1	4704983	1	. OVERLAY-ITALIAN MODELS 1 AND 11	
- 1	4704989	1	. OVERLAY-ITALIAN MODELS 2 AND 12	
- 1	4704995	1	. OVERLAY-ITALIAN MODELS 3 AND 13	
- 1	4704984	1	. OVERLAY-SPANISH MODELS 1 AND 11	
- 1	4704990	1	. OVERLAY-SPANISH MODELS 2 AND 12	
- 1	4704996	1	. OVERLAY-SPANISH MODELS 3 AND 13	
- 1	4704985	1	. OVERLAY-CANADIAN/FRENCH MODELS 1 AND 11	
- 1	4704991	1	. OVERLAY-CANADIAN/FRENCH MODELS 2 AND 12	
- 1	4704997	1	. OVERLAY-CANADIAN/FRENCH MODELS 3 AND 13	
- 1	4704969	1	. OVERLAY-BRAZIL/PORTUGAL MODELS 1 AND 11	
- 1	4704971	1	. OVERLAY-BRAZIL/PORTUGAL MODELS 2 AND 12	
- 1	4704973	1	. OVERLAY-BRAZIL/PORTUGAL MODELS 3 AND 13	
- 1	4704970	1	. OVERLAY-JAPANESE MODELS 1 AND 11	
- 1	4704972	1	. OVERLAY-JAPANESE MODELS 2 AND 12	
- 1	4704974	1	. OVERLAY-JAPANESE MODELS 3 AND 13	
OVERLAYS NOT PART OF 4704888 ASM ORDER SEPARATELY.				
- 2	4704963	1	. CUSHION	
- 3	GA24-3750	1	. CARD ASM,OPERATING INSTRUCTIONS MODELS 1	
- 3	GA24-3751	1	. CARD ASM,OPERATING INSTRUCTIONS MODELS 2	
- 3	GA24-3752	1	. CARD ASM,OPERATING INSTRUCTIONS MODELS 3	
INSTRUCTION CARDS NOT PART OF 4704888 ASM ORDER SEPARATELY.				
- 4	4704931	2	. CLIP	
- 5	4704923	1	. CARD ASM,MODELS 1 AND 11	
- 5	4704924	1	. CARD ASM,MODELS 2 AND 12	
- 5	4704925	1	. CARD ASM,MODELS 3 AND 13	
CARD ASMS NOT PART OF 4704888 ASM ORDER SEPARATELY.				
- 6	1611347	3	. SCREW	
- 7	8544304	14	. KEYBUTTON	
- 8	4704926	2	. KEYBUTTON	
- 9	1982676	1	. COVER	
USED ON MODEL 2 & 12 ONLY				
- 10	738826	1	. SWITCH-MODEL 2,12,3 AND 13 ONLY	
- 11	2197244	1	. ALARM ASM	
USED ON MODELS 2,12,3,13 ONLY				
- 13	4704959	1	. HOUSING	
- 14	1621024	4	. SCREW-MACH CHEESE HD,M3 X 16 LG	
- 15	1622302	4	. WASHER,FL-M3 7 OD X 0.5 THK	
- 16	4704964	1	. BRACKET	
- 17	4704921	1	. SEAL	
- 18	4704974	1	. SEAL, MODELS 1 AND 11 ONLY	
- 18	4704977	1	. SEAL, MODELS 2,3,12 AND 13 ONLY	
- 19	1582715	AR	. MODULE,DISPLAY	
- 20	4704623	1	. CABLE ASM	



300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY				
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION	
			1	2 3 4
17 -	4704530	REF	POWER SUPPLY ASM 60HZ	
-	4704531	REF	USED ON 60HZ ONLY	
-			POWER SUPPLY ASM 50HZ	
-			USED ON 50HZ ONLY	
-			FOR ILLUSTRATION SEE FIGURE 17	
- 1	4704643	2	NUT	
- 2	4704544	1	SWITCH ASM	
- 3	36844	2	SCREW, HEX HD	
- 4	1622307	2	WASHER, FLAT	
- 5	737804	1	SHIELD, MAINLINE SWITCH	
- 6	10170	2	SCREW, BD HD- 6-32 X 0.250 LG	
- 7	723804	1	PLUG	
- 8	4230935	1	CABLE ASM, CONVENIENCE OUTLET	
- 10	151598	1	CLAMP	
- 11	482193	1	FRAME, MAINLINE SW	
- 12	338238	4	SCREW, BD HD- 4-40 X 0.312 LG	
- 13	257984	4	LOCKWASHER, SPLIT- 0.115 ID X 0.212 OD	
- 14	482194	1	BAT, MAINLINE SWITCH	
- 15	257960	1	SCREW, SET, FLATPOINT-4-40 X 0.250 LG	
- 16	731506	1	SWITCH, TOGGLE, DPST	
- 17	10170	1	SCREW, BD HD- 6-32 X 0.250 LG	
- 18	56722	1	LOCKWASHER, EXT TEETH NO. 6	
- 19	4704951	1	BRACKET	
- 20	4230946	1	CABLE ASM	
- 21	8267331	6	SPACER	
- 22	4230945	1	CABLE ASM, AC1	
- 23	4704641	1	PANEL ASM	
- 24	1621852	3	FOR DETAIL BREAKDOWN, SEE FIGURE 17A	
- 25	421497	1	SCREW, SELF TAP PAN HD-M4 X 10 LG	
- 26	4704950	1	SWITCH	
- 27	1621852	3	COVER	
- 28	107666	1	SCREW, SELF TAP PAN HD-M4 X 10 LG	
- 28	115971	1	FUSE, CTRGE 15 AMP	
- 28	107663	1	USED WITH F6	
- 29	8544812	3	FUSE	
- 30	92752	3	USED WITH F4	
- 31	186758	6	FUSE F5	
- 32	4230911	1	USED WITH F5	
- 33	2242321	1	BOOT	
- 34	81693	1	HOLDER	
- 35	56722	1	SCREW, BD HD- 8-32 X 0.437 LG	
- 36	526378	6	COVER	
- 37	2582954	1	RELAY	
- 38	8279052	1	SCREW, BD HD- 6-32 X 0.375 LG	
- 39	4230922	1	LOCKWASHER, EXT TEETH NO. 6	
- 40	321483	1	INSULATOR	
- 41	55901	2	LABEL, SAFETY-FRENCH/CANADIAN FRENCH	
- 41A	257189	1	CAPACITOR	
- 42	2502115	1	CLAMP	
- 43	81693	1	SCREW, BD HD- 8-32 X 1.00 LG	
- 44	151598	1	LOCKWASHER, EXT TEETH- 0.176 ID X .381 OD	
- 44A	4230934	1	NUT, HEX- 8-32	
- 45	418835	1	SHROUD-WORLD TRADE	
- 45	357995	1	SCREW, BD HD- 6-32 X 0.375 LG	
- 45			CLAMP	
- 45			CABLE ASM, VOLTAGE DISTRIBUTION	
- 45			OUTLET, CONVENIENCE 220V 50 CY	
- 45			USED ON 50HZ	
- 45			OUTLET, CONV 115V 60 HZ	
- 45			USED ON 60HZ	

FIGURE 17. 300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY. SHEET 1 OF 4. INDEX NOS. 1-45. SEE LIST 17.

300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY

FIGURE INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
17 - 46	38235	2	. SCREW,BD HD- 6-32 X 0.312 LG			
- 47	194355	1	. OUTLET BOX			
- 48	4152771	1	. LABEL,WARNING			
- 49	7819876	1	. CLAMP(USED ON 50HZ ONLY)			
- 50	1621196	1	. SCREW-MACH PAN HD,M4 X 30 LG			
- 51	1622346	2	. LOCKWASHER,EXT STAR- M4, 8 OD X .5			
- 51A	109287	1	. SPACER			
- 51B	1622403	1	. NUT,DBL CHAMFERED HEX M4 X 3.2 THK			
- 52	5252805	1	. CAPACITOR			
- 53	5252811	1	. CAPACITOR(USED ON 650 LPM)			
- 53	5252805	1	. CAPACITOR(USED ON 325 LPM)			
- 54	138755	1	. LABEL-ENGLISH/PORTUGUESE			
- 54	6812832	AR	. LABEL-GERMAN			
- 54	6812829	AR	. LABEL-SPANISH			
- 54	6812828	AR	. LABEL-FRENCH			
- 54	6812830	AR	. LABEL-ITALIAN			
- 54	6812831	AR	. LABEL-CANADIAN FRENCH			
- 54	6825840	AR	. LABEL-JAPANESE			
- 54	5685243	AR	. LABEL-BELGIUM			
- 54	5562398	AR	. LABEL-FINLAND			
- 54	8551903	AR	. LABEL-SWEDEN			
- 57	350977	1	. COVER			
- 58	10170	2	. SCREW,BD HD- 6-32 X 0.250 LG			
- 60	317145	1	. BLOCK,TERMINAL			
- 60A	367115	3	. JUMPER, BRASS			
- 61	210957	2	. STUD			
- 62	5528	2	. SCREW,BD HD- 8-32 X 0.625 LG			
- 63	360339	1	. STRIP,MARKER			
- 64	7819550	2	. RC ASM			
- 65	1726309	1	. BLOCK ASM,TERMINAL			
- 66	438589	2	. SCREW,BD HD- 8-32 X 1.500 LG			
- 67	1726311	1	. INSULATOR			
- 67A	345762	1	. LABEL, WIRED FOR			
- 68	4704548	1	. FERRO ASM 50HZ			
- 68	4704537	1	. FERRO ASM 60HZ			
- 69	36844	2	. SCREW,CAP SLOT HD- 1/4-20 X 0.500 LG			
- 69A	1621197	4	. SCREW			
- 69B	1622346	4	. LOCKWASHER			
- 69C	2100264	AR	. CONNECTOR (USED ON 60HZ ONLY)			
- 69D	8330343	1	. NUT,CABLE CLAMP			
- 70	1622320	2	. LOCKWASHER			

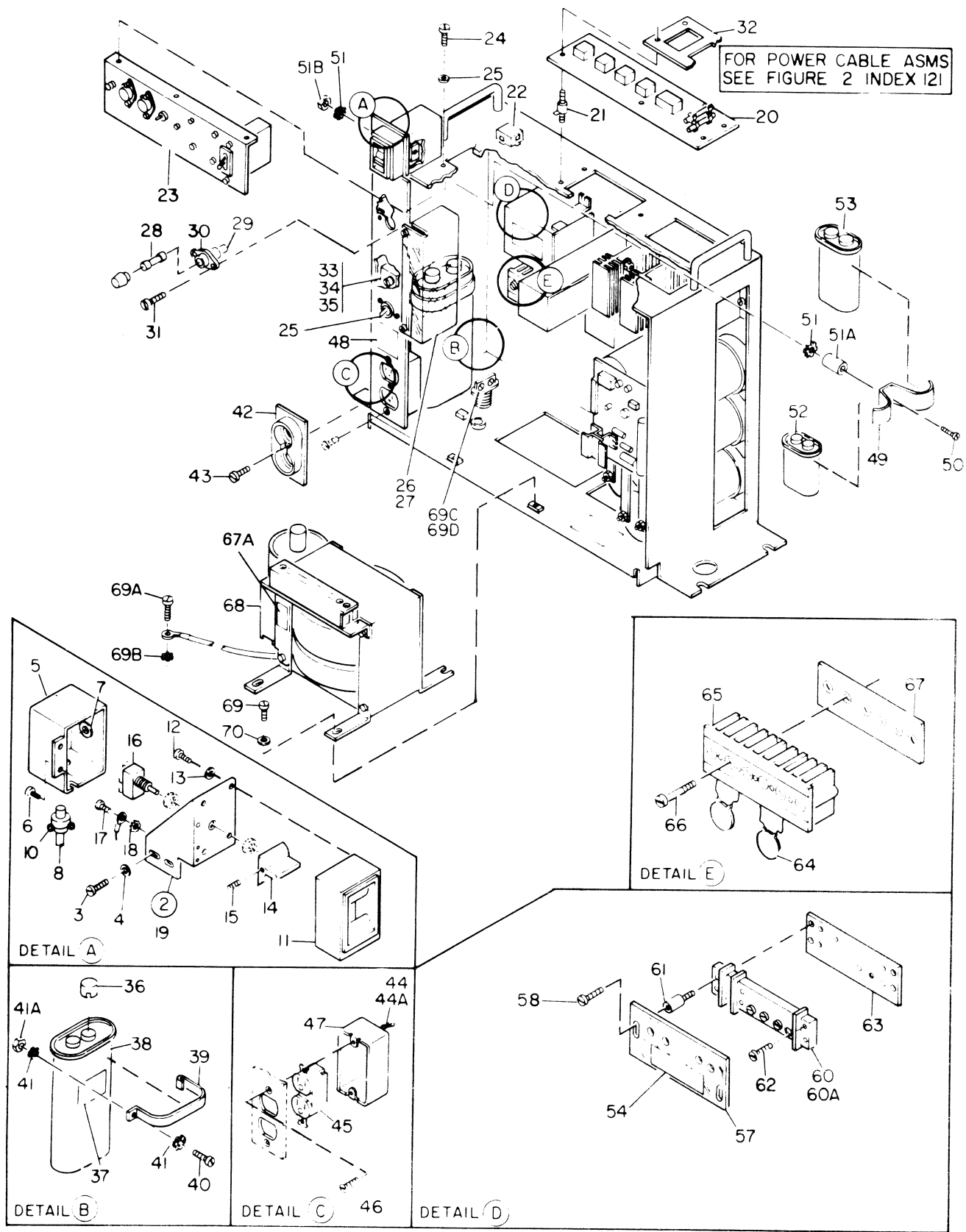


FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
17 - 71	4704638	1	COVER
- 72	34512	2	SCREW,BD HD- 8-32 X 0.375 LG
- 73	1622304	2	WASHER,FL- M4 9 OD X 0.8 THK
- 74	317318	1	RESISTOR
- 75	322023	1	SCREW,RD HD 10-32 X 7.000 LG
- 76	600395	1	WASHER,0.203 ID
- 77	529691	1	WASHER,FL- 0.261 ID X 0.750 OD
- 78	502281	1	NUT
- 79	8493182	2	RESISTOR
- 80	438592	2	SCREW,BD HD- 8-32 X 2.250 LG
- 81	22478	2	WASHER,FL- 0.170 ID X 0.375 OD
- 82	442959	2	INSULATOR
- 83	2392055	1	RESISTOR, FIXED- 75 OHMS P/M 5 20W
- 84	438593	1	SCREW,BD HD- 8-32 X 2.500 LG
- 85	510468	1	WASHER,CUP
- 86	529691	1	WASHER,FL- 0.261 ID X 0.750 OD
- 87	4230925	1	RECTIFIER ASM
- 88	34512	4	SCREW,BD HD- 8-32 X 0.375 LG
- 89	1622304	4	WASHER,FL- M4 9 OD X 0.8 THK
- 90	5615478	4	RECTIFIER
- 91	5615477	2	RECTIFIER
- 92	8482098	4	HEATSINK
- 93	1621060	8	SCREW,CHEESE HD- M4 X 8 LG
- 94	442959	8	INSULATOR
- 94A	1622304	3	WASHER,FL- M4 9 OD X 0.8 THK
- 94B	4230929	1	RESISTOR ASM
- 95	2156037	8	BUSHING
- 96	4230924	1	BRACKET
- 97	8709770	1	CARD ASM
- 98	438602	2	SCREW,BD HD- 10-32 X 1.500 LG
- 99	1622335	2	LOCKWASHER
-100	731948	2	SPACER
-101	4704539	2	STRAP
-102	32617	4	SCREW,BD HD- 10-32 X 0.437 LG
-103	1622335	8	LOCKWASHER,INT STAR- M5, 10 OD X .6
-104	4704542	2	STRAP
-105	1621197	6	SCREW,PAN HD-M4 X 6 LG
-106	32617	4	SCREW,BD HD- 10-32 X 0.437 LG
-107	1622335	6	LOCKWASHER,INT STAR- M5, 10 OD X .6
-108	1622334	4	LOCKWASHER
-109	631769	6	SHIELD,CAPACITOR
-110	5615515	1	CAPACITOR
-111	1646686	2	CAPACITOR
-112	5617163	3	CAPACITOR
-113	2156757	6	BRACKET
-114	34512	12	SCREW,BD HD- 8-32 X 0.375 LG
-116	4230957	1	LABEL
-116A	8483134	1	LABEL, VOLTAGE
-116B	369207	1	LABEL, HAZARDOUS AREA
-117	4704643	2	NUT
-118	2495631	25	NUT,SPEED
-120	4124121	2	HANDLE
-121	1621190	4	SCREW,PAN HD- M4 X 8 LONG
-122	1622318	4	WASHER,SPRING-M4 9.2 OD X 1.2 THK
-123	1622304	4	WASHER,FL- M4 9 OD X 0.8 THK

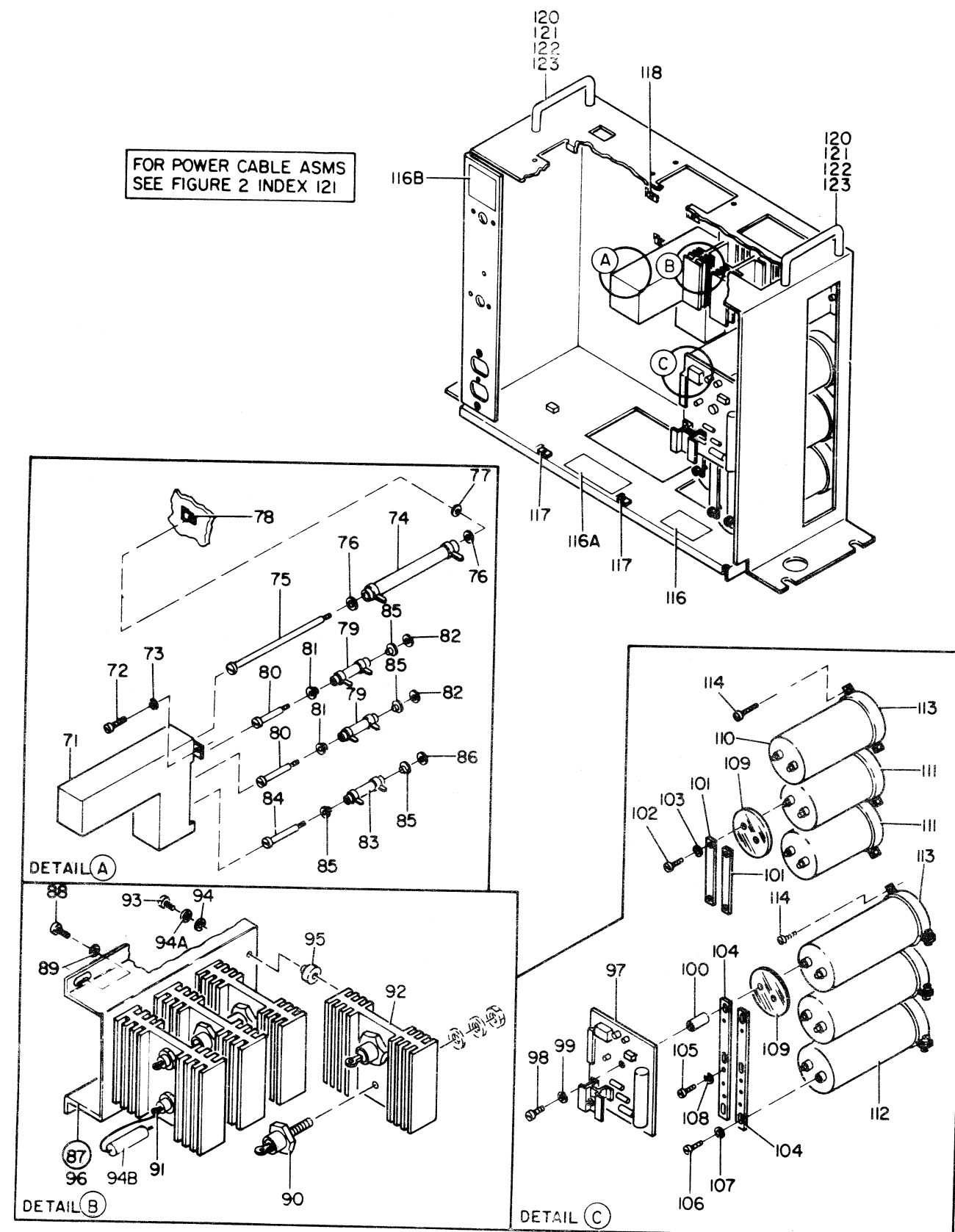


FIGURE 17. 300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY. SHEET 3 OF 4. INDEX NOS. 71-123. SEE LIST 17.

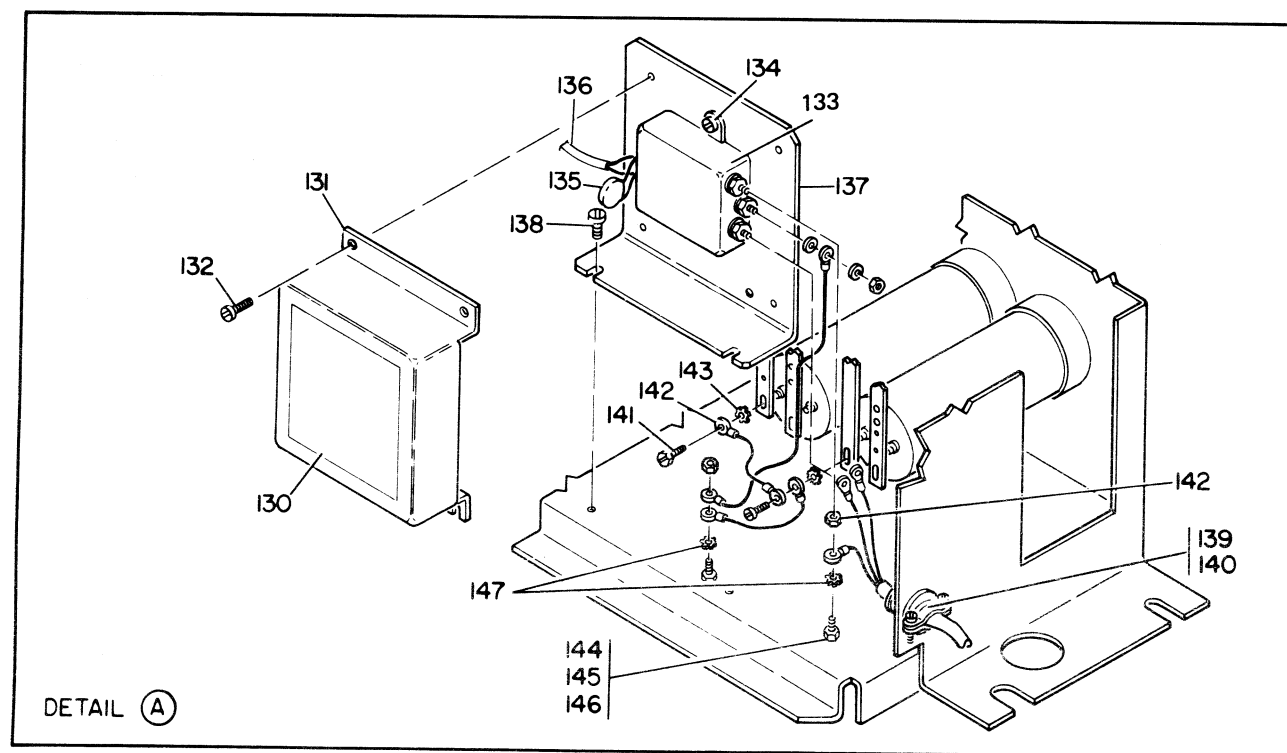
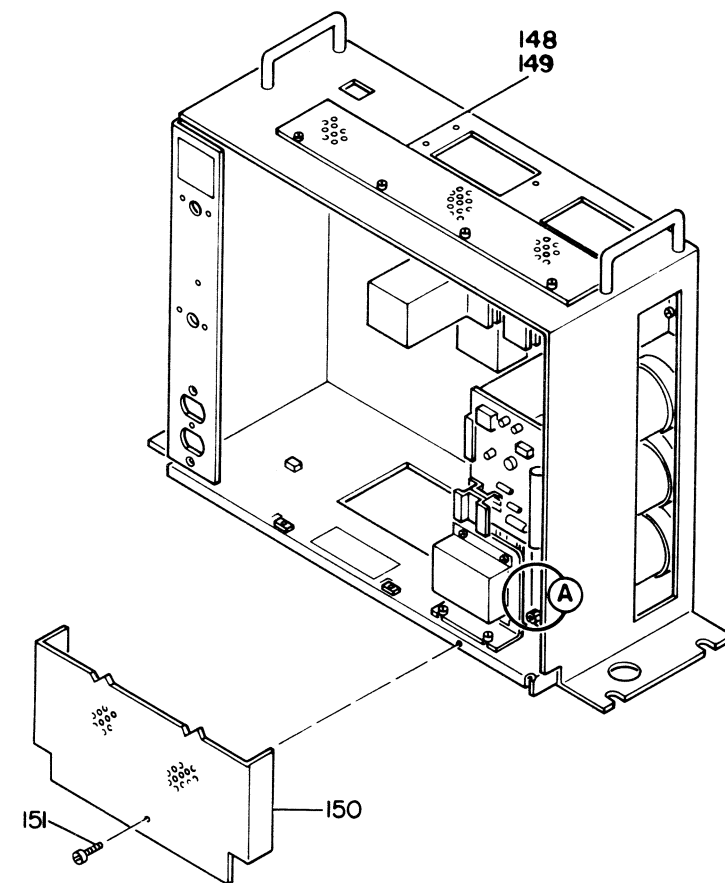


FIGURE 17. 300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY. SHEET 4 OF 4. INDEX NOS. 130-151. SEE LIST 17.
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300/650 LPM 50/60HZ POWER SUPPLY ASSEMBLY

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
17 -130	4230957	1	.	LABEL		
-131	4230914	1	.	COVER		
-132	1621190	4	.	SCREW,PAN HD- M4 X 8 LG		
-133	4230969	1	.	FILTER,LINE		
-134	1621190	2	.	SCREW,PAN HD- M4 X 8 LG		
-135	4230919	1	.	CAPACITOR ASM		
-136	4230959	1	.	UNITS SHIPPED TO FINLAND ONLY CABLE ASM,PRIMARY POWER FOR COMPONENT PARTS SEE FIGURE 22		
-137	4230913	1	.	BRACKET		
-138	1621190	2	.	SCREW,PAN HD- M4 X 8 LG		
-139	2100264	AR	.	CLAMP- 60HZ		
-139	8330341	AR	.	CLAMP- 50HZ		
-140	8330343	AR	.	NUT,CABLE CLAMP		
-141	32617	2	.	SCREW,BD HD- 10-32 X 0.437 LG		
-142	257189	2	.	NUT,HEX- 8-32		
-143	56079	2	.	LOCKWASHER,EXT TEETH- 0.204 ID X 0.410 O		
-144	5528	1	.	SCREW,BD HD- 8-32 X 0.625 LG		
-145	1090873	2	.	LOCKWASHER,SPLIT- 0.168 ID X 0.296 OD		
-146	257189	1	.	NUT,HEX- 8-32		
-147	55901	2	.	LOCKWASHER,EXT TEETH- 0.176 ID X .381 OD		
-148	4230910	1	.	COVER		
-149	1621852	4	.	SCREW,SELF TAP PAN HD-M4 X 10 LG		
-150	4230912	1	.	COVER		
-151	186758	3	.	SCREW,BD HD- 8-32 X 0.437 LG		

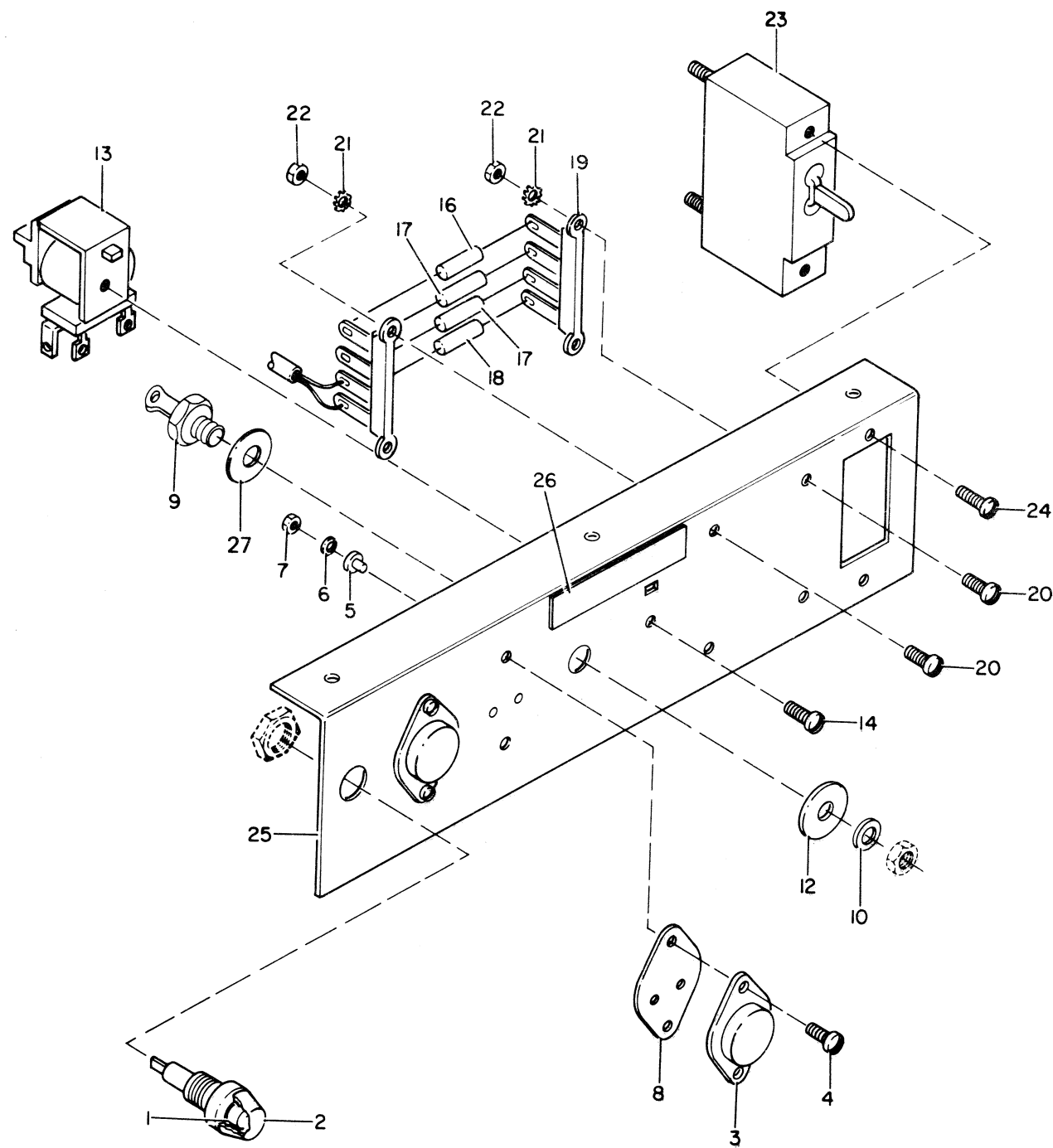
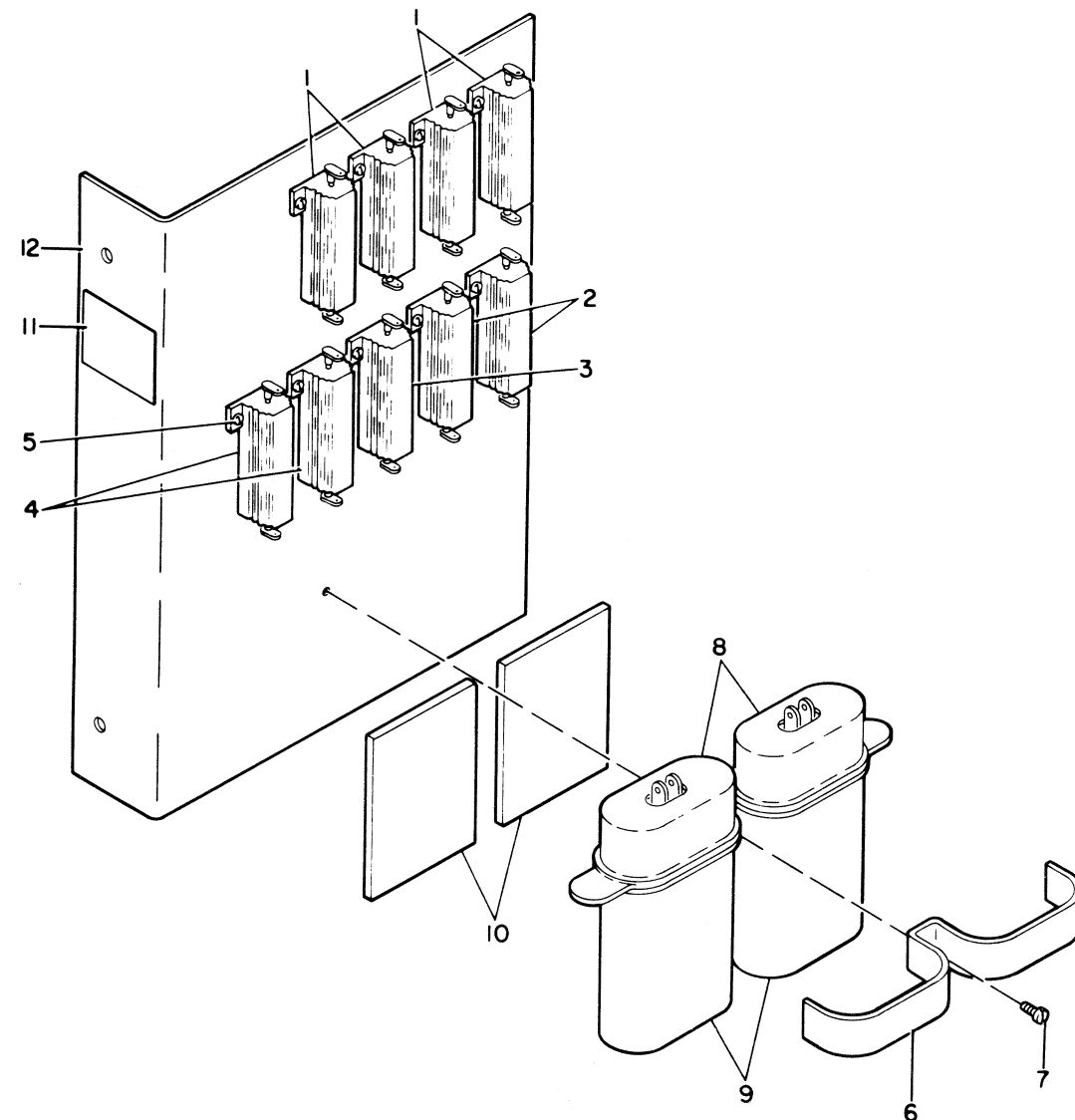


FIGURE 17A. FEATURE PANEL ASSEMBLY. SEE LIST 17A.

FEATURE PANEL ASSEMBLY			
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
			1 2 3 4
17A-	4704641	REF	PANEL ASM
			FOR NEXT HIGHER ASM, SEE FIGURE 17-23
			FOR ILLUSTRATION SEE FIGURE 17A
- 1	511063	1	. FUSE, CARTRIDGE, 6 AMP 250 VOLT
- 2	179946	1	. HOLDER, FUSE
- 3	369649	2	. SEMICONDUCTOR DEVICE, DIODE TYPE FN
- 4	81693	4	. SCREW, BD HD- 6-32 X 0.375 LG
- 5	2162632	4	. BUSHING
- 6	6364	4	. LOCKWASHER, SPLIT- 0.141 ID X 0.253 OD
- 7	257187	4	. NUT, HEX- 6-32
- 8	2361883	2	. INSULATOR
- 9	2391252	1	. DIODE
- 10	3550	1	. WASHER, FL- 0.250 ID X 0.562 OD
- 12	5312171	1	. WASHER, FL- 0.261 ID X 0.750 OD
- 13	6832319	1	. RELAY
- 14	38235	1	. SCREW, BD HD- 6-32 X 0.312 LG
- 15	4704646	1	. CABLE ASM, RELAY
- 16	322888	1	. RESISTOR
- 17	2111232	2	. DIODE, SEMICONDUCTOR TYPE AM
- 18	492448	1	. RESISTOR
- 19	317156	2	. STRIP
- 20	1621171	4	. SCREW, PAN HD- M3 X 8 LG
- 21	1622316	4	. WASHER, SPRING-M3 6.2 OD X 0.8 THK
- 22	1622432	4	. NUT
- 23	4432644	1	. PROTECTOR, CIRCUIT
- 24	38235	2	. SCREW, BD HD- 6-32 X 0.312 LG
- 25	4704541	1	. BRACKET, COMPONENT
- 26	369207	AR	. LABEL-ENGLISH
- 26	984122	AR	. LABEL-CANADIAN FRENCH
- 26	6815182	AR	. LABEL-FRENCH
- 26	6815193	AR	. LABEL-GERMAN
- 26	6815181	AR	. LABEL-ITALIAN
- 26	6815180	AR	. LABEL-SPANISH
- 26	6815183	AR	. LABEL-PORTUGUESE
- 26	8495787	AR	. LABEL-JAPANESE
- 27	5312172	1	. WASHER



RESISTOR PLATE ASSEMBLY						
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
21 -	4704801	REF	PLATE ASSEMBLY, RESISTOR FOR NEXT HIGHER ASM, SEE FIGURE 12-16 AND FOR ILLUSTRATION SEE FIGURE 21			
- 1	8493232	4	.	RESISTOR, 10 OHM		
- 2	8493124	1	.	RESISTOR, 18 OHM		
- 3	8493126	2	.	RESISTOR, 25 OHM		
- 4	8493122	2	.	RESISTOR, 5 OHM		
- 5	1621846	18	.	SCREW		
- 6	1811047	1	.	CLAMP		
- 7	1621846	1	.	SCREW		
- 8	363001	2	.	BOOT		
- 9	5252809	2	.	CAPACITOR		
- 10	4704857	2	.	PAD, INSULATOR		
- 11	1141554	1	.	LABEL, WARNING		
- 12	4704956	1	.	PLATE		

FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
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CABLE ASSEMBLY LISTING
FOR COMPONENT PARTS, SEE FIGURE 22.

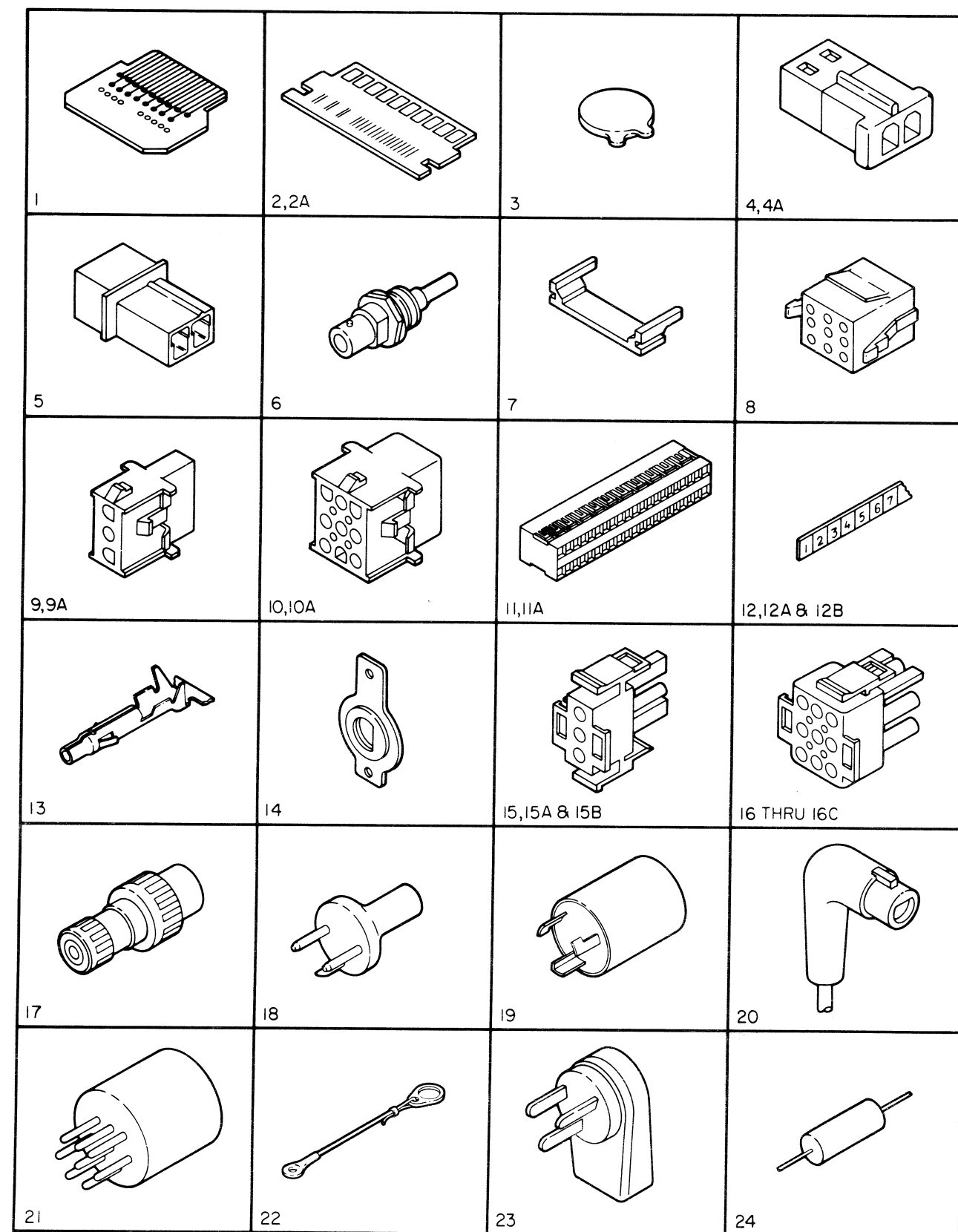
-	4230934	REF	CABLE ASM, CONVENIENCE OUTLET FOR COMPONENT PARTS SEE INDEX -37C,-38A -38B AND -48
-	4230935	REF	CABLE ASM, POWER SWITCH FOR COMPONENT PARTS SEE INDEX -12,-38A -36A AND -48
-	4230945	REF	CABLE ASM, AC 1 FOR COMPONENT PARTS SEE INDEX -10A,-12, -37C,-38E AND -41D
-	4230947	REF	CABLE ASM, VOLT. DIST. CARD- 300M LG FOR COMPONENT PARTS SEE INDEX -11,-37, -38D,-43 AND -48
-	4704522	REF	CABLE ASM, IMPRESSION CONTROL FOR COMPONENT PARTS SEE INDEX -15A,-34 AND -39C
-	4704645	REF	CABLE ASM, VOLT. DIST. CARD- 600M LG FOR COMPONENT PARTS SEE INDEX -12,-12A, -38C,-38F AND -48
-	4704646	REF	CABLE ASM, RELAY CABLE FOR COMPONENT PARTS SEE INDEX -12,-36, -37B AND -48
-	4704647	REF	CABLE ASM, FERRO DC OUTLET FOR COMPONENT PARTS SEE INDEX -12,-37A, -38F,-38G,-42 AND -48
-	4704648	REF	CABLE ASM, DC FOR COMPONENT PARTS SEE INDEX -12,-38E, -38F,-38G AND -48
-	4704649	REF	CABLE ASM, VOLT. DIST. CARD- 210M LG FOR COMPONENT PARTS SEE INDEX -12,-27, -37A AND -38E
-	4704786	REF	CABLE ASM, BNC CONNECTOR FOR COMPONENT PARTS SEE INDEX -2,-3,-6, -14,-24,-25,-26,-38E AND -45
-	4704787	REF	CABLE ASM, LOOP
-	4704788	REF	CABLE ASM, LOOP FOR COMPONENT PARTS SEE INDEX -2,-20, -21,-22,-26,-32 AND -38
-	4704901	REF	CABLE ASM, DC POWER FOR COMPONENT PARTS SEE INDEX -1,-7,-9A, 11A,-15,-16C,-28,-33,-36A,-38B, -39A,-39C,-41A,-41B,-42 AND -43
-	4704902	REF	CABLE ASM, DC MOTORS-INTERNAL FOR COMPONENT PARTS SEE INDEX -4A,-8, -16,-16A,-40,-41B AND -44
-	4704903	REF	CABLE ASM, SIGNAL FOR COMPONENT PARTS SEE INDEX -1,-4,-7, -9,-10,-15B,-28,-35,-38F,-41A,-41B, -41C,-44A AND -46
-	4704907	REF	CABLE ASM, AC POWER-INTERNAL FOR COMPONENT PARTS SEE INDEX -9A,-10, -16B,-39D,-39E AND -41
-	5802220	REF	CABLE ASM, 23 SIGNAL FOR COMPONENT PARTS SEE INDEX -2A,-12C, -29 AND -30
-	7819925	REF	CABLE ASM, JAM DETECTOR FOR COMPONENT PARTS SEE INDEX -5 AND -39
-	7820179	REF	CABLE ASM, HAMMER COIL CONN.-ODD
-	7820180	REF	CABLE ASM, HAMMER COIL CONN.-EVEN FOR COMPONENT PARTS SEE INDEX -2A,-12C, -29,-30,-31 AND -31A

FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION
-----------------------------	----------------	----------------------	-------------

CABLE ASSEMBLY LISTING
FOR COMPONENT PARTS, SEE FIGURE 22.

-	7820194	REF	CABLE ASM, TEMP. SENSE FOR COMPONENT PARTS SEE INDEX -16,-39B AND -47
-	8330691	REF	CABLE ASM, FAN FOR COMPONENT PARTS SEE INDEX -16,-38E AND -39A
-	4704564	REF	LINE CORD ASM, TWIST LOCK- 60HZ USA FOR COMPONENT PARTS SEE INDEX -19,-38B AND -38F
-	4704565	REF	LINE CORD ASM, SCREW ON- USA FOR COMPONENT PARTS SEE INDEX -17,-38B AND -38F
-	4704567	REF	LINE CORD ASM, TWIST LOCK- CHICAGO FOR COMPONENT PARTS SEE INDEX -19,-38B AND -38F
-	4704568	REF	LINE CORD ASM, SCREW ON- CHICAGO FOR COMPONENT PARTS SEE INDEX -17,-38B AND -38F
-	4704571	REF	LINE CORD ASM, JAPAN FOR COMPONENT PARTS SEE INDEX -38B AND -38F
-	4704826	REF	LINE CORD ASM, ISRAEL- 2.75M FOR COMPONENT PARTS SEE INDEX -23 AND -38B
-	4704827	REF	LINE CORD ASM, SWITZERLAND- 2.75M FOR COMPONENT PARTS SEE INDEX -38
-	4704828	REF	LINE CORD ASM, UK & IRELAND- 2.75M FOR COMPONENT PARTS SEE INDEX -12B AND -38B
-	4704829	REF	LINE CORD ASM, SWEDEN AND NETHERLANDS- 2.75M FOR COMPONENT PARTS SEE INDEX -38B
-	4704830	REF	LINE CORD ASM, SOUTH AFRICA- 2.75M FOR COMPONENT PARTS SEE INDEX -38B
-	4704831	REF	LINE CORD ASM, DENMARK- 2.75M FOR COMPONENT PARTS SEE INDEX -18 AND -38B
-	4704832	REF	LINE CORD ASM, ITALY- 2.75M FOR COMPONENT PARTS SEE INDEX -38
-	4704833	REF	LINE CORD ASM, EUROPE- 4.6M FOR COMPONENT PARTS SEE INDEX -38
-	4704835	REF	LINE CORD ASM, ISRAEL- 4.6M FOR COMPONENT PARTS SEE INDEX -23 AND -38B
-	4704836	REF	LINE CORD ASM, SWITZERLAND- 4.6M FOR COMPONENT PARTS SEE INDEX -38B
-	4704837	REF	LINE CORD ASM, UK & IRELAND- 4.6M FOR COMPONENT PARTS SEE INDEX -12B AND -38B
-	4704839	REF	LINE CORD ASM, SOUTH AFRICA- 4.6M FOR COMPONENT PARTS SEE INDEX -38B
-	4704840	REF	LINE CORD ASM, DENMARK- 4.6M
-	4704841	REF	LINE CORD ASM, ITALY- 4.6M FOR COMPONENT PARTS SEE INDEX -38B
-	4230959	REF	CABLE ASM, PRIMARY POWER FOR COMPONENT PARTS SEE INDEX -38B

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	2 of 2	



CABLE ASSEMBLY COMPONENT PARTS						
FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
22	- 1	5800634	AR	.	CARD ASM-TERMINATOR, TWISTED PR.	
	- 2	5800700	AR	.	CARD ASM-TOP CARD CONNECTOR ASM	
	- 2A	5863619	AR	.	CARD ASM	
	- 3	5213736	AR	.	CAPACITOR, CERAMIC, DISC 0.1 UF, 500VDC	
	- 4	1812491	AR	.	HOUSING, FEMALE CONTACTS	
	- 4A	5214572	AR	.	HOUSING, CONNECTOR-FEMALE	
	- 5	1812492	AR	.	HOUSING, CONNECTOR-MALE	
	- 6	5253661	AR	.	CONNECTOR	
	- 7	811802	AR	.	CARD GUIDE	
	- 8	1166498	AR	.	HOUSING	
	- 9	1847527	AR	.	CONNECTOR	
	- 9A	1847529	AR	.	HOUSING, UNIVERSAL- 4 CIRCUIT	
	- 10	1847531	AR	.	HOUSING, CONNECTOR 6 POS MALE	
	- 10A	1847535	AR	.	HOUSING, CONNECTOR 12 POS FEMALE	
	- 11	2731841	AR	.	BLOCK, CONN	
	- 11A	2731843	AR	.	BLOCK	
	- 12	317296	AR	.	LABEL	
	- 12A	598381	AR	.	LABEL	
	- 12B	6520037	AR	.	LABEL	
	- 12C	811825	AR	.	LABEL	
	- 13	1847522	AR	.	SOCKET	
	- 14	1715256	AR	.	PLATE	
	- 15	1847524	AR	.	PLUG	
	- 15A	1847526	AR	.	CONNECTOR	
	- 15B	1847528	AR	.	PLUG, UNIVERSAL- 4 CIRCUIT	
	- 16	1847530	AR	.	PLUG	
	- 16A	1847532	AR	.	CONNECTOR	
	- 16B	1847534	AR	.	PLUG	
	- 16C	1847536	AR	.	PLUG, UNIVERSAL-15 CIRCUIT	
	- 17	4409531	AR	.	CONNECTOR, PLUG 20 AMP 125V	
	- 18	4409574	AR	.	PLUG	
	- 19	624037	AR	.	CAP, CORD 15A 125V	
	- 20	1657272	AR	.	PLUG, AUDIO-RIGHT ANGLE	
	- 21	8546931	AR	.	PLUG, TEST	
	- 22	8546933	AR	.	ATTACHMENT ASM.	
	- 23	6814300	AR	.	PLUG, MALE	
	- 24	216468	AR	.	RESISTOR, 10K OHMS	

FIGURE 22. CABLE ASSEMBLIES WITH COMPONENT PARTS. SHEET 1 OF 2. INDEX NOS. 1-24. SEE LIST 22.
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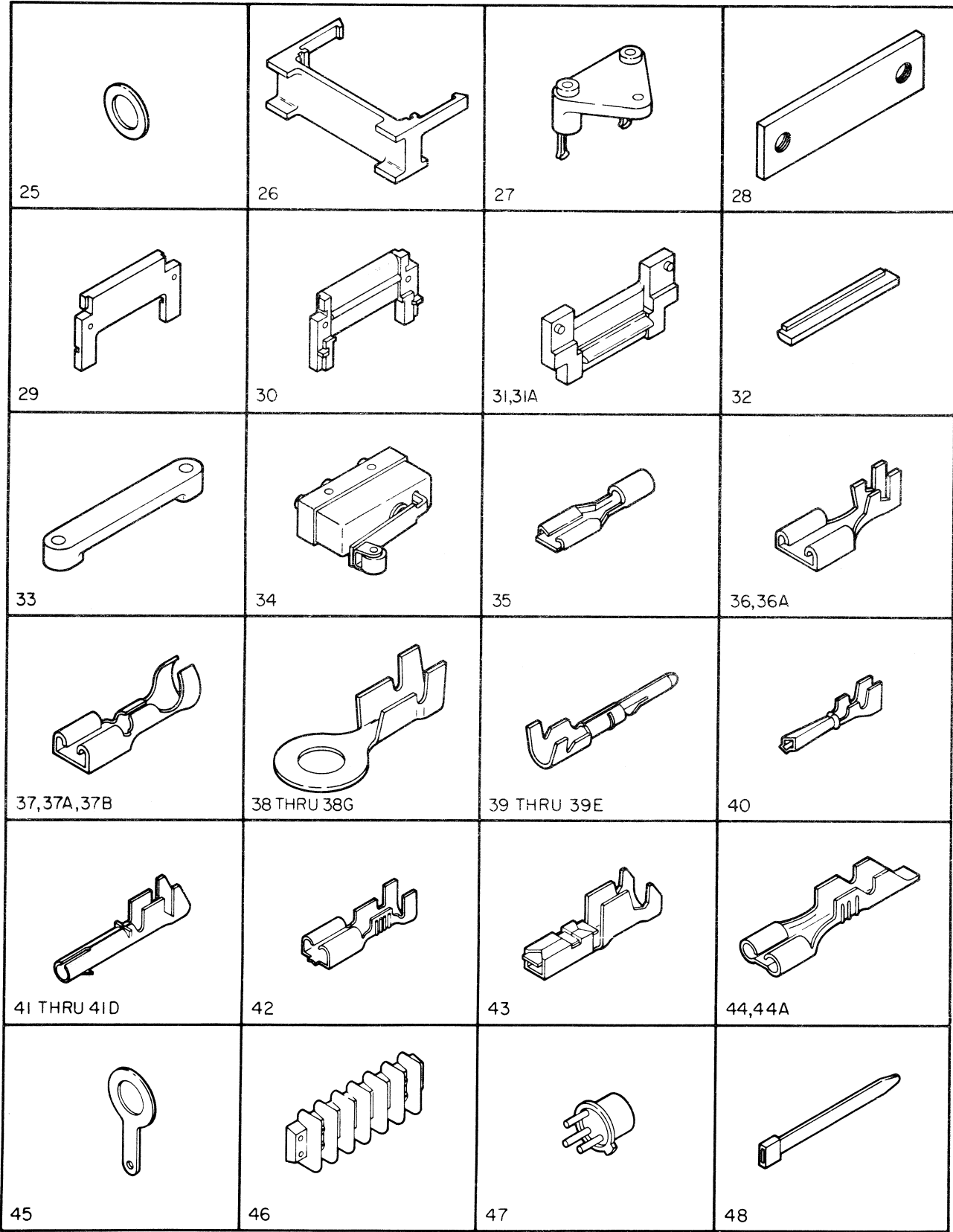


FIGURE - INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
22	- 25	1859384	AR	.	RETAINER, SPRING	
	- 26	4704876	AR	.	RETAINER, CONNECTOR	
	- 27	725506	AR	.	SOCKET, TRANSISTOR	
	- 28	740459	AR	.	STIFFENER	
	- 29	813803	AR	.	RELIEF	
	- 30	813804	AR	.	RELIEF	
	- 31	817952	AR	.	STRAIN, RELIEF	
	- 31A	817953	AR	.	STRAIN, RELIEF	
	- 32	2454975	AR	.	STRAIN RELIEF TOP CARD CONN	
	- 33	5353922	AR	.	STRAIN REL	
	- 34	1187461	AR	.	SWITCH	
	- 35	236916	AR	.	TERMINAL, CONTACT- FEMALE 24-22 AWG	
	- 36	430798	AR	.	TERMINAL, RECEPTACLE 20-18 AWG	
	- 36A	1127037	AR	.	TERMINAL, WIRE	
	- 37	430799	AR	.	RECEPTACLE-TERMINAL	
	- 37A	523267	AR	.	TERMINAL, QUICK DISCONNECT 14/18AWG	
	- 37B	5353852	AR	.	CONTACT, FEMALE	
	- 37C	1127037	AR	.	TERMINAL	
	- 38	483677	AR	.	TERMINAL, RING, NO.6 STUD, 18-20 AWG	
	- 38A	483678	AR	.	TERMINAL, RING, NO.6 STUD, 14-16 AWG	
	- 38B	483682	AR	.	TERMINAL, RING, NO.8 STUD, 14-16 AWG	
	- 38C	483683	AR	.	TERMINAL, RING, NO.8 STUD, 10-12 AWG	
	- 38D	483684	AR	.	TERMINAL	
	- 38E	483685	AR	.	TERMINAL, RING, NO.10 STUD, 18-20 AWG	
	- 38F	483686	AR	.	TERMINAL, RING, NO.10 STUD, 14-16 AWG	
	- 38G	483687	AR	.	TERMINAL, RING, NO. 10 STUD, 10-12 AWG	
	- 39	483999	AR	.	CONTACT, P/N MALE 22- 30 AWG	
	- 39A	1471027	AR	.	PIN, TERMINAL	
	- 39B	1635824	AR	.	PIN, SPLIT 0.785 LG	
	- 39C	1661131	AR	.	TERMINAL, SOCKET	
	- 39D	2451131	AR	.	PIN, UNIVERSAL 0.920 LG	
	- 39E	4123688	AR	.	TERMINAL, SOCKET	
	- 40	1166115	AR	.	SOCKET, TERMINAL- 22-18 AWG	
	- 41	1471028	AR	.	CONTACT	
	- 41A	1635821	AR	.	SOCKET, PIN 0.760 LG	
	- 41B	1661132	AR	.	TERMINAL, SOCKET	
	- 41C	2513254	AR	.	TERMINAL, SOCKET- 30-32 AWG	
	- 41D	4123689	AR	.	TERMINAL, PIN	
	- 42	2502307	AR	.	TERMINAL	
	- 43	2637682	AR	.	CONNECTOR, WIRE (22 26 AWG)	
	- 44	5351177	AR	.	TERMINAL RECEPTACLE- 18-22 AWG	
	- 44A	5412817	AR	.	TERMINAL	
	- 45	2565189	AR	.	TERMINAL	
	- 46	5213922	AR	.	BLOCK, TERMINAL 6 POS	
	- 47	2414877	AR	.	TRANSISTOR, PNP SILICON	
	- 48	1159913	AR	.	CLAMP, STRAP CAM STAY	

FIGURE 22. CABLE ASSEMBLIES WITH COMPONENT PARTS. SHEET 2 OF 2. INDEX NOS. 25-48. SEE LIST 22.

NUMERICAL INDEX

PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.
1940	1 - 7D	81693	10 - 21A	338238	17 - 12
3550	2 - 5		17 - 34	350977	17 - 57
	2 - 20		17 - 43	357995	17 - 45
3960	17A- 10	95752	17A- 4	360339	17 - 63
5528	12 - 9	104699	17 - 30	363001	21 - 8
	17 - 62	104710	7 - 2	367115	17 - 60A
6364	17 - 144	107663	1 - 38	369207	2 - 101
	14 - 8	107666	17 - 28		17 - 116B
6935	17A- 6	107666	17 - 28		17A- 26
	2 - 4	109287	17 - 51A	369649	17A- 3
	2 - 21	110129	6 - 70C	418835	17 - 45
9092	1 - 7C	115971	17 - 28	421497	17 - 25
	1 - 26	130985	13 - 7	430798	22 - 36
	4 - 4	130987	2 - 35	430799	22 - 37
	15 - 3	138755	17 - 54	437076	11 - 13
10170	17 - 6	150390	2 - 23	438543	7 - 11B
	17 - 17		2 - 30	438548	10 - 8
	17 - 58	151598	17 - 10		10 - 25
10610	4 - 19		17 - 44	438572	14 - 5
	15 - 12	156231	6 - 22B	438587	6 - 30B
11598	1 - 7B		6 - 83C	438589	17 - 66
	1 - 27		9 - 10	438590	13 - 4
	4 - 3	168037	5 - 48	438592	17 - 80
	15 - 2	179946	17A- 2	438593	17 - 84
22478	2 - 14	185950	2 - 34	438601	1 - 39
	2 - 54	186758	17 - 31	438602	17 - 98
	10 - 21B		17 - 151	442959	17 - 82
	13 - 5	186927	10 - 26		17 - 94
	17 - 81	186929	6 - 23	482193	17 - 11
26690	1 - 32	194355	17 - 47	482194	17 - 14
32042	1 - 8	209564	2 - 33	483677	22 - 38
	2 - 77	210957	17 - 61	483678	22 - 38A
32617	17 - 102	216468	22 - 24	483682	22 - 38B
	17 - 106	236529	10 - 24	483683	22 - 38C
	17 - 141	236849	1 - 2	483684	22 - 38D
34512	17 - 72		1 - 5	483685	22 - 38E
	17 - 88	236916	22 - 35	483686	22 - 38F
	17 - 114	251227	6 - 22D	483687	22 - 38G
36109	2 - 22		6 - 83E	483999	22 - 39
36112	2 - 19	255939	12 - 8	492448	17A- 18
36844	2 - 3	257187	14 - 9	502281	17 - 78
	2 - 93		17A- 7	510468	17 - 85
	17 - 3	257189	2 - 15	523267	22 - 37A
	17 - 69		2 - 49	524519	11 - 16
37073	2 - 95		17 - 41A	526378	17 - 36
38235	17 - 46		17 - 142	529691	17 - 77
	17A- 14		17 - 146		17 - 86
	17A- 24	257701	6 - 70F		17A- 12
38433	10 - 19	257958	6 - 30K	533289	6 - 111
	10 - 20A	257960	17 - 15	598381	22 - 12A
45690	1 - 40	257982	6 - 26	600395	17 - 76
	4 - 5	257984	17 - 13	624037	22 - 19
48594	6 - 45D	257986	14 - 7	631769	17 - 109
52523	7 - 19	264998	10 - 28	632644	2 - 32
55901	17 - 41	283608	2 - 55	637733	1 - 17
	17 - 147	310974	14 - 21	723804	17 - 7
56079	1 - 3	317145	17 - 60	725506	22 - 27
	1 - 6	317156	17A- 19	731506	17 - 16
	2 - 78	317227	12 - 15	731948	17 - 100
	14 - 11	317296	22 - 12	737804	17 - 5
	17 - 143	317318	17 - 74	738116	14 - 10
56722	17 - 18	321483	17 - 40	738826	16 - 10
	17 - 35	322023	17 - 75	740459	22 - 28
58207	2 - 37	322888	17A- 16	804455	6 - 52
72828	13 - 6	332560	7 - 7	811802	22 - 7
76574	2 - 103	336628	10 - 22	811825	22 - 12C

PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.
813803	22 - 29	1621171	2 - 73	1621595	12 - 3
813804	22 - 30		5 - 77G	1621615	4 - 21
817952	22 - 31		6 - 91		15 - 6
817953	22 - 31A	1621172	17A- 20	1621715	9 - 6
821614	2 - 17		2 - 98E	1621731	5 - 70
825927	2 - 98G		5 - 94	1621784	6 - 29
825939	13 - 12	1621173	8 - 9		6 - 44
839379	5 - 19	1621174	4 - 18	1621846	21 - 5
	9 - 2		5 - 2B		21 - 7
845762	17 - 67A		6 - 97	1621850	2 - 91
850248	2 - 96C		8 - 13		12 - 40
	5 - 29		15 - 11	1621852	12A- 5
984122	17A- 26	1621184	5 - 14		12A- 6
1073418	10 - 18	1621185	5 - 16		17 - 24
1090873	7 - 9	1621189	12 - 22		17 - 27
	17 - 145	1621190	2 - 98H		17 - 149
1092125	6 - 49D		5 - 27	1622300	6 - 6A
	12A- 12		6 - 2		7 - 10H
1103744	10 - 14		6 - 84		11 - 6
1105514	6 - 30G		11 - 20		12A- 17
1117437	7 - 8		12 - 11	1622302	2 - 74
1127037	22 - 36A		12 - 33		4 - 22
	22 - 37C		17 - 121		6 - 90
1132574	7 - 11C		17 - 132		8 - 19
1138543	1 - 50		17 - 134		15 - 7
	13 - 1		17 - 138		16 - 15
1138545	1 - 48	1621191	5 - 72	1622303	6 - 98
1138973	12 - 32		5 - 88	1622304	2 - 98K
1141554	21 - 11		5 - 98		5 - 73
1159913	22 - 48	1621192	6 - 31		5 - 76
1164219	6 - 18A	1621193	12A- 7		5 - 89
	6 - 38	1621196	14 - 15		5 - 99
1166115	22 - 40		17 - 50		12 - 12
1166498	22 - 8	1621197	1 - 35		12 - 34
1187461	6 - 7A		2 - 109		12A- 9
	22 - 34		6 - 112		12A- 19
1249237	8 - 20		12 - 30		14 - 16
1313000	16 - 3		17 - 69A		17 - 73
1313007	16 - 3		17 - 105		17 - 89
1313014	16 - 3	1621210	2 - 7		17 - 123
1471027	22 - 39A		2 - 10	1622305	1 - 32
1471028	22 - 41		2 - 29		2 - 8
1555864	7 - 5A		2 - 79		6 - 49F
1582715	16 - 19		6 - 10		8 - 5
1611063	6 - 83B		6 - 15		11 - 10
	6 - 116B		6 - 34	1622306	1 - 45
	11 - 1C		6 - 46		2 - 94
1611139	1 - 49		6 - 88		5 - 3
	1 - 51		8 - 4		5 - 7
	13 - 2	1621496	6 - 70E		5 - 24
1611347	16 - 6		11 - 17		5 - 67
1621000	11 - 7	1621509	12A- 18		5 - 82
1621002	7 - 10C	1621510	5 - 75		5 - 86
1621004	6 - 6		11 - 14		6 - 118
	12A- 16	1621512	8 - 7	1622307	12 - 4
1621024	16 - 14	1621518	11 - 11		17 - 4
1621060	5 - 112	1621524	6 - 75	1622316	6 - 18
	7 - 10D	1621529	5 - 80		6 - 37
1621170	17 - 93	1621533	6 - 117		17A- 21
	2 - 64	1621534	5 - 4	1622318	8 - 16
	6 - 17		5 - 6		14 - 17
	6 - 36		5 - 22		17 - 122
	7 - 10G		5 - 66	1622319	1 - 33
	8 - 14		5 - 85		6 - 5

PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.
1622319-CONT	6 -108	1811047	21 - 6	2392055	17 - 83	4435234	6 - 49A	4704539	17 -101	4704760	1 - REF
1622320	5 - 23	1812255	10 - 3	2414877	22 - 47	4435236	2 - 98A	4704540	17 - 96	4704761	1 - REF
	5 - 81	1812256	10 - 10	2426415	6 -116D	4435237	2 - 98B	4704541	17A- 25	4704762	1 - REF
	12 - 5	1812260	10 - 7	2426416	6 -116D	4435241	2 - 98C	4704542	17 -104	4704763	1 - REF
1622334	17 - 70	1812261	10 - 9	2426455	12A- 15	4435242	2 - 98D	4704543	2 - 28	4704770	1 - 10
	1 - 36	1812262	10 - 17	2451131	22 - 39D	4435243	15 - 1	4704544	17 - 2	4704779	3 - 2
1622335	17 -108	1812264	10 - 15	2454975	22 - 32	4435245	6 - 8	4704548	17 - 68	4704783	2 - 16
	1 - 41	1812265	10 - 13	2495631	17 -118	4435247	2 - 98	4704563	1 - 20	4704786	22 - REF
	17 - 99	1812266	10 - 11	2497303	6 -107	4435248	1 - 23	4704564	2 -121	4704787	22 - REF
	17 -103	1812267	10 - 11	2502115	17 - 42		1 - 32		22 - REF	4704788	22 - REF
1622344	17 -107	1812271	10 - 30	2502307	22 - 42	4435294	6 - 49C	4704565	2 -121	4704800	12 - 23
	2 - 82	1812272	10 - 29	2513254	22 - 41C	4435295	6 - 49E		22 - REF	4704801	12 - 16
1622346	8 - 15	1812291	9 - 8	2565189	22 - 45	4435296	2 - 6B	4704567	2 -121		21 - REF
	2 - 98J	1812294	5 - 17	2582954	17 - 37	4435298	2 - 24		22 - REF	4704802	12 - REF
	2 -110	1812325	10 - 4	2637682	22 - 43	4435302	2 - 6	4704568	2 -121	4704804	2 - 90
	14 - 6	1812328	10 - 17	2648906	2 - 13	4435312	5 - 47B		22 - REF	4704805	4 - 14
	17 - 51	1812465	6 - 22A	2704798	1 - 23	4435313	5 - 47	4704571	2 -121	4704806	1 - 37
1622347	17 - 69B	1812491	22 - 4	2731841	22 - 11	4435315	5 - 28		22 - REF		13 - REF
	2 - 80	1812492	22 - 5	2731843	22 - 11A	4435320	5 - 47A	4704593	12 - 42	4704807	1 - 14
1622401	12 - 13	1812645	9 - 5	4120186	14 - 3	4435322	6 - 49G	4704594	12 - 43		15 - REF
	2 - 98F	1814601	5 - 15	4120527	2 - 12A	4435323	6 - 49	4704595	1 - 52	4704808	1 - 7
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	4 - 23	1814631	10 - 16	4123689	22 - 41D	4435342	6 - 70D	4704617	2 - 1	4704810	1 - 30
	6 - 89	1814632	10 - 12	4124121	17 -120	4435345	6 - 70B	4704620	2 - REF		4 - REF
	15 - 8	1814634	5 - 13	4136964	6 - 30F	4435360	12A- REF	4704621	2 - REF	4704811	1 - 46
1622403	15 - 13	1814637	5 - 8	4138391	4 - 7	4435361	12A- 3	4704624	4 - 15	4704812	1 - 43
	12A- 10	1815359	7 - 20	4152771	17 - 48	4435362	12A- 1	4704625	1 - 25	4704813	1 - 47
	14 - 18	1815380	9 - 9	4230910	17 -148	4435363	12A- 4	4704628	1 - 24		3 - REF
1622404	17 - 51B	1815424	4 - 9	4230911	17 - 32	4435364	12A- 11	4704635	2 - 36	4704815	12 - 36
1622405	6 - 76	1815857	7 - 11G	4230912	17 -150	4435365	12A- 13	4704638	17 - 71		14 - REF
	6 - 20	1815932	7 - 4	4230913	17 -137	4435366	12A- 8	4704641	17 - 23	4704824	2 - 92
	6 - 40	1815993	6 - 27	4230914	17 -131	4435367	12A- 14		17A- REF	4704826	2 -121
	6 - 48		6 - 42	4230919	17 -135	4435377	9 - 1	4704642	17 - 87		22 - REF
	6 - 82	1816030	6 - 30C	4230922	17 - 39	4435380	9 - 3	4704643	17 - 1	4704827	2 -121
	6 -105	1816032	6 - 30A	4230934	17 - 44A	4435381	5 - 9		17 -117		22 - REF
1622415	6 -100	1821408	6 - 87		22 - REF		9 - REF	4704645	22 - REF	4704828	2 -121
1622432	17A- 22	1847522	22 - 13	4230935	17 - 8	4435382	9 - 11	4704646	17A- 15		22 - REF
1635821	22 - 41A	1847524	22 - 15		22 - REF	4435386	7 - 11F		22 - REF	4704829	2 -121
1635824	22 - 39B	1847526	22 - 15A	4230945	17 - 22	4435390	5 - 74	4704647	22 - REF		22 - REF
1646686	17 -111	1847527	22 - 9		22 - REF	4435586	8 - 8	4704648	22 - REF	4704830	2 -121
1657272	22 - 20	1847528	22 - 15B	4230946	17 - 20	4435587	8 - 18	4704649	22 - REF		22 - REF
1661131	22 - 39C	1847529	22 - 9A	4230947	22 - REF	4435626	2 - 12B	4704650	2 - 2	4704831	2 -121
1661132	22 - 41B	1847530	22 - 16	4230956	17 - 59	4435646	2 - 70		5 - REF		22 - REF
1673984	12 - 19	1847531	22 - 10	4230957	17 -116	4435647	2 - 71	4704653	5 - 1	4704832	2 -121
	12 - 28	1847532	22 - 16A		17 -130	4436012	5 - 87	4704660	2 - 2		22 - REF
1715256	12 - 29	1847534	22 - 16B	4230959	17 -136	4436031	2 - 6A		5 - REF	4704833	2 -121
1726309	22 - 14	1847535	22 - 10A		22 - REF	4436057	7 - 15	4704661	5 - 97		22 - REF
1726311	17 - 65	1847536	22 - 16C	4230969	17 -133	4436061	7 - 10J	4704664	5 -120	4704834	13 - 11
1794534	5 - 11	1859384	22 - 25	4253783	6 -101	4436062	2 - 50		6 - REF	4704835	2 -121
1794630	7 - 16	1982676	16 - 9	4409531	22 - 17	4703262	2 - 36	4704666	2 - 2		22 - REF
1794701	6 - 30E	2100264	2 -108	4409574	22 - 18	4703263	2 - 36		5 - REF	4704836	2 -121
1794705	6 - 30H		17 - 69C	4432279	11 - 1A	4703264	2 - 36	4704669	6 - 33		22 - REF
1794759	6 - 30D	2101089	1 - 34	4432280	8 - 1	4703265	2 - 36	4704674	5 -120	4704837	2 -121
1794804	2 - 72		2 - 76	4432281	7 - 18	4704507	2 - REF		6 - REF		22 - REF
1794806	6 - 49B		12 - 10	4432323	7 - 17	4704508	2 - 1	4704676	2 - 2	4704839	2 -121
1794808	6 - 24	2111232	17A- 17	4432644	17A- 23	4704514	2 - REF		5 - REF		22 - REF
1794809	6 - 25	2156037	17 - 95	4435139	6 - 99	4704515	2 - 1	4704684	5 -120	4704840	2 -121
1794815	7 - 14	2156757	17 -113	4435145	6 - 29A	4704522	6 - 7		6 - REF		22 - REF
1794839	6 - 30L	2162632	17A- 5	4435148	6 - 12		22 - REF	4704694	5 -120	4704841	2 -121
1800685	12 - 20	2172166	14 - 2	4435158	6 - 3A	4704523	6 - 1		6 - REF		22 - REF
1800703	7 - 11E	2197244	16 - 11	4435172	4 - 6	4704528	1 - 16	4704726	2 - 27	4704842	1 - 4
1800704	7 - 21	2242321	17 - 33	4435175	10 - 1	4704530	2 -107	4704732	12 - 41	4704843	1 - 4
1802014	9 - 4	2243197	7 - 5	4435196	8 - 2		17 - REF	4704733	4 - 12	4704844	1 - 4
1810966	6 -106	2361883	17A- 8	4435231	11 - 2	4704531	2 -107		15 - 5	4704845	1 - 4
1810968	6 - 70A	2391252	17A- 9	4435232	11 - 9	4704537	17 - REF	4704754	12 - 24	4704846	1 - 4

PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.	PART NO.	LIST AND INDEX NO.
4704847	1 - 4	4704943	1 - 7A	5353922	22 - 33	7819560	6 - 21	7820015	6 - 50		
4704848	15 - 16	4704947	1 - 18	5412817	22 - 44A	7819561	6 - 45B		6 - 83		
4704849	1 - 19	4704950	17 - 26	5562358	14 - 4	7819562	6 - 45	7820023	6 - 80		
	3 - 1	4704951	17 - 19	5562398	17 - 54	7819563	5 - 84		6 - 103		
	4 - 13	4704952	12 - 17	5576617	8 - 12	7819567	6 - 116C	7820026	6 - 1		
4704851	15 - 4	4704953	12 - 18	5576636	6 - 14	7819586	5 - 69	7820027	6 - 71		
	3 - 6	4704954	3 - 8	5593447	2 - 36	7819593	6 - 73	7820052	10 - 27		
	4 - 8		4 - 11	5615477	17 - 91	7819602	5 - 2C	7820054	10 - 5		
4704852	3 - 7		15 - 9	5615478	17 - 90	7819604	5 - 49	7820056	6 - 16		
	4 - 10	4704955	3 - 9	5615497	11 - 15A	7819606	6 - 116C	7820057	10 - 6		
	15 - 10	4704956	21 - 12	5615515	17 - 110	7819609	2 - 96A	7820060	2 - 9		
4704853	1 - 7E	4704957	6 - 116	5616034	5 - 2A	7819610	2 - 96B	7820061	12 - 25		
4704854	1 - 7E	4704958	6 - 116	5617163	17 - 112	7819625	2 - 96	7820092	12A - 2		
4704855	4 - 17	4704959	16 - 13	5685243	17 - 54	7819630	5 - 2	7820095	2 - 11		
4704856	13 - 10	4704963	16 - 2	5800634	22 - 1	7819651	6 - 116	7820116	6 - 74		
4704857	21 - 10	4704964	16 - 16	5800700	22 - 2	7819652	6 - 116	7820118	6 - 81		
4704858	2 - 38	4704965	12 - 38	5802220	22 - REF	7819660	10 - 23		6 - 104		
4704860	3 - 10	4704966	12 - 39	5863619	22 - 2A	7819669	5 - 77C	7820173	8 - 10		
4704861	3 - 5	4704967	12 - 37	6520037	22 - 12B	7819677	6 - 83A	7820174	8 - 10		
4704863	2 - 31	4704968	1 - 22	6808537	2 - 36	7819693	12 - 26	7820179	22 - REF		
4704864	13 - 8	4704969	16 - 1	6812828	17 - 54	7819760	11 - 1B	7820180	22 - REF		
4704865	13 - 3	4704970	16 - 1	6812829	17 - 54	7819762	5 - 77	7820185	5 - 113		
4704866	13 - 13	4704971	16 - 1	6812830	17 - 54	7819763	5 - 77L		7 - 10F		
4704867	13 - 14	4704972	16 - 1	6812831	17 - 54	7819764	5 - 77A	7820187	11 - 12		
4704868	1 - 42	4704973	16 - 1	6812832	17 - 54	7819777	6 - 33	7820189	5 - 20		
4704869	14 - 22	4704974	16 - 1	6814300	22 - 23	7819792	6 - 4		11 - REF		
4704870	14 - 13		16 - 18	6815180	17A - 26	7819799	5 - 100	7820194	7 - 22		
4704871	14 - 12	4704977	16 - 18	6815181	17A - 26	7819805	6 - 72		22 - REF		
4704872	14 - 23	4704980	16 - 1	6815182	17A - 26	7819835	11 - 15	7820196	6 - 28		
4704873	14 - 1	4704981	16 - 1	6815183	17A - 26	7819876	17 - 49		6 - 43		
4704874	12 - 35	4704982	16 - 1	6815193	17A - 26	7819888	5 - 95	8267331	17 - 21		
4704875	14 - 19	4704983	16 - 1	6825840	17 - 54	7819893	5 - 25	8268636	6 - 30		
4704876	22 - 26	4704984	16 - 1	6832319	17A - 13		11 - 3	8268637	6 - 30J		
4704877	14 - 20	4704985	16 - 1	7362553	1 - 31	7819898	6 - 39	8279052	17 - 38		
4704879	12 - 31	4704986	16 - 1		1 - 44	7819903	7 - 12	8330340	2 - 111		
4704882	12 - 27	4704987	16 - 1	7819204	5 - 5	7819913	6 - 11	8330341	2 - 108		
4704888	2 - 18	4704988	16 - 1		8 - REF	7819916	6 - 95		17 - 139		
	16 - REF	4704989	16 - 1	7819205	5 - 65	7819917	9 - 7	8330343	17 - 69D		
4704892	13 - 9	4704990	16 - 1		8 - REF	7819919	11 - 1		17 - 140		
4704893	1 - 1	4704991	16 - 1		5 - 79	7819923	6 - 102	8330372	11 - 4		
4704894	1 - 1	4704992	16 - 1	7819207	7 - REF	7819925	10 - 31	8330373	11 - 5		
4704895	1 - 1	4704993	16 - 1		8 - 6		22 - REF	8330691	14 - 14		
4704896	1 - 1	4704994	16 - 1	7819259	5 - 10		10 - 20		22 - REF		
4704897	1 - 1	4704995	16 - 1	7819267	10 - REF	7819926	5 - 77F	8482098	17 - 92		
4704898	1 - 1	4704996	16 - 1		5 - 12	7819934	8 - 11	8483134	17 - 116A		
4704901	22 - REF	4704997	16 - 1	7819268	10 - REF	7819937	8 - 11	8493122	21 - 4		
4704902	22 - REF	4704998	6 - 116D		5 - 1A	7819938	7 - 10	8493124	21 - 2		
4704903	22 - REF	4704999	6 - 116D	7819278	2 - 12	7819941	7 - 10A	8493126	21 - 3		
4704906	1 - 21	5213276	5 - 90	7819280	7 - 1	7819943	7 - 10B	8493182	17 - 79		
4704907	22 - REF		5 - 111	7819368	6 - 115	7819948	6 - 9	8493232	21 - 1		
4704914	12 - 7		6 - 3	7819387	6 - 45E	7819949	5 - 77E	8495787	17A - 26		
4704915	12 - 2		7 - 10E	7819388	6 - 45C	7819961	4 - 16	8544304	16 - 7		
4704916	2 - 112		10 - 21	7819389	6 - 45A	7819968	4 - 1	8544812	17 - 29		
4704918	1 - 20		11 - 18	7819391	6 - 83D	7819969	4 - 2	8546931	22 - 21		
4704921	16 - 17	5213736	22 - 3	7819399	7 - 3	7819985	10 - 28A	8546933	22 - 22		
4704923	16 - 5	5213922	22 - 46	7819425	6 - 116A	7819989	6 - 96	8551903	17 - 54		
4704924	16 - 5	5214456	17A - 1	7819441	6 - 116A	7819991	6 - 19	8709736	5 - 83		
4704925	16 - 5	5214572	22 - 4A	7819442	7 - 11		6 - 47	8709770	17 - 97		
4704926	16 - 8	5252805	17 - 52	7819461	7 - 11D		6 - 70				
4704931	16 - 4		17 - 53	7819462	7 - 11A	7819999	6 - 35				
4704932	6 - 116C	5252809	21 - 9	7819463	11 - 8	7820007	6 - 32				
4704933	6 - 116C	5252811	17 - 53	7819484	5 - 71	7820008	6 - 86				
4704935	12 - 1	5253661	22 - 6	7819491	5 - 77B	7820011	6 - 22C				
4704937	2 - 99	5349925	1 - 9	7819498	8 - 17	7820012	6 - 83F				
4704938	2 - 100	5351177	22 - 44	7819514	5 - 68		6 - 22				
4704941	12 - 6	5353852	22 - 37B	7819519	17 - 64	7820014					
				7819550							

SECTION 22. ABBREVIATIONS, GLOSSARY, AND INDEX

ABBREVIATIONS

A	Ampere	Kg	Kilogram
ac	Alternating Current	lb	Pound
Addr	Address	LED	Light-Emitting Diode
ADLC	Asynchronous Data Link Control	lpi	Lines-per-Inch
Amp	Amplifier	Lt	Left
ASCII	American Standards Code for Information Interchange	Lvl	Level
ASM	Assembly	MAP	Maintenance Analysis Procedure
BAT	Basic Assurance Test	MDC	Motor Driver Card
B/M	Bill of Materials	MIM	Maintenance Information Manual
C	Capacitor	mm	Millimeter
Carr	Carriage	Mod	Model
CB	Circuit Breaker	MPU	Microprocessor Unit
CE	Customer Engineer	Mtr	Motor
CEM	Customer Engineering Memorandum	N/C	Normally Closed
CON	Connector	N/O	Normally Open
CU Intf	Control Unit Interface	Op	Operator
CR	Diode	Ped	Pedestal
CRC	Cyclic Redundancy Check/Character	PIA	Peripheral Interface Adapter
dc	Direct Current	POR	Power On Reset
Dr	Driver	PROM	Programmable Read-Only Memory
DCA	Device Communication Adapter	PT	Programmable Timer
DEC	Decode	PTM	Programmable Timer
DI	Diagnostic Indicator	PTX	Phototransistor
EBCDIC	Extended Binary-Coded Decimal Interchange Code	Pwr	Power
EC	Engineering Change	R	Resistor
EOF	End-of-Forms	Ph	Phase
EPROM	Eraseable Programmable Read-Only Memory	Ribb	Ribbon
FB	Feedback	RMIO	Register-Mapped Input/Output
FRU	Field-Replaceable Unit	ROS	Read-Only Storage
F	Fuse	Rt	Right
FVC	Frequency and Voltage Compensation	RTN	Return
Gnd	Ground	SC	Status Code
grn	Green	Sel	Select
Hmr	Hammer	ss	Singleshot
Hz	Hertz (cycle-per-second)	SW	Switch
ID	Identifier	TB	Terminal Block
Impr	Impression	TEMP	Temperature
in	Inch	V	Volt
INTR	Interrupt	Vac	Volts - Alternating Current
INTLK	Interlock	Vdc	Volts - Direct Current
IPAR	Incident/Parts Activity Report	VR	Diode
IR	Incident Report	wh	White
K	Kilo	yel	Yellow
K	Relay		

GLOSSARY

Application program: is a system program that controls the operation of the printer. An application program controls the transfer of information to the printer from the system, or receives data from the printer.

Buffers: are electronic storage devices used to keep information. The information stored in the buffers may be changed by the application program as long as printer power is on. If printer power is turned off, the data in the buffers is lost.
The data may be the information to be printed or information to control the operation of the printer.

Coaxial cable: is the wire between the printer and the system. The wire transfers electronic signals between the system and the printer.

Coaxial cable connector: is the connection between the coaxial cable and either the printer or the host system.
The printer coaxial cable has two coaxial cable connectors. One connector is at the rear of the printer, and the other is at the host system.

Front unit: is the assembly located in the front of the printer. It contains the print band, platen, Front Unit Interlock switch, and Impression Control switch.

Ground: is the reference potential (zero volts) for dc voltages.

Impression Control: is the manual control at the right end of the front unit. It consists of a slide mechanism and two switches. The microcode uses the switch positions to select the duration of the hammer fire pulses. Changing the position of the Impression Control changes the duration of the hammer fire pulses. Varying the pulse duration changes the force with which the hammer strikes the form. The force of the hammer controls the amount of ink transferred from the ribbon to the form as each character is printed. By setting the control to the number of forms being printed, one- to six-part forms may be printed.

Segment: refers to the parts of the Status indicator. Each digit of the Status indicator consists of seven segments. These seven parts, or segments, display one character on the operator panel. Each part is lit by an associated LED. The left digit of the Status indicator also contains a *decimal point* that is turned on and off by some of the printer diagnostic programs.

Stepper motor: is a motor whose rotating member (rotor) turns in small increments. Digital pulses to the motor's driver circuits cause the motor to increment one pulse at a time. Printer microcode controls the pulses to the motor.
The printer has three stepper motors:

- Carriage drive motor
- Left ribbon drive motor
- Right ribbon drive motor

Tractors: are the assembly that moves the forms from the load compartment to the stacker.

INDEX

A

A key 17-080
AC 6 10-190, 12-100
AC 9 12-090
AC 21 12-100
AC 23 12-100
ac voltage distribution 10-140
adjustments
 balance mechanism 11-010
 band emitter gap 05-270
 band emitter timing 05-280
 carriage drive belt 09-050
 carriage emitter 09-060
 end-of-forms switch 08-100
 forms guide 08-140
 front unit 05-070
 hammer flight time 06-010
 impression control switch 05-340
 inspection screw 05-090
 interlock switch 05-130
 paper clamp
 and solenoid 08-040
 mechanical preload 08-030
 platen 05-050
 print band 05-020
 drive belt 05-150
 idler pulley bracket 05-210
 ribbon
 guides 07-020
 shield 08-160
 spool 07-030
 stacker 08-190
 stop screw 05-090
 tractor shaft 09-010
analysis, symptom (status codes) 02-010
artificial respiration
 general considerations 00-030
 rescue breathing 00-030
audible symptom summary 02-170
A1 card
 location 12-170
 replacement 14-030
A2 card
 location 12-180
 replacement 12-070

B

band image select switch service check 04-020
base and cover grounding 11-050
BAT termination 15-020
blower replacement (Models 1, 2, 3) 06-110

C

C key 17-080
cable
 duct location 12-070
 replacement, operator panel 04-040

cabling
 operator panel signal cable 04-040
 signal cable to system 12-220
capacitor panel location 12-080
capacitors (50 Hz)
 C1 10-200
 C2 10-200
 C3 10-200
 C4 10-200
 C5 10-200
 C6 10-200
 C8 10-200
 C10 10-200
capacitors (60 Hz)
 C1 10-200
 C2 10-200
 C3 10-200
 C4 10-200
 C5 10-200
 C6 10-200
 C7 10-200
 C8 10-200
 C10 10-200
card cover
 removal 14-010
 replacement 14-010
card replacements
 A1 card 14-030
 A2 card 14-070
 motor driver card 14-080
 operator panel 04-030
carriage
 control circuit 09-100
 drive belt
 adjustment 09-050
 replacement 09-070
 service check 09-050
 drive cover
 removal 09-020
 replacement 09-020
 drive motor replacement 09-070
 emitter
 assembly adjustment 09-060
 assembly replacement 09-080
 disk replacement 09-080
 motor circuit 09-090
 restore key 17-080
 space key 17-080
 speed service check 09-060
catalog, parts 21-010
CB1 (50 Hz) 10-200
CB1 (60 Hz) 10-200
CB2 (50 Hz) 10-200
CE
 print band 20-020
 safety practices 00-030
character set (samples) 13-010
check reset key 17-080
check (2) indicator 17-070
circuit breaker
 CB1 (50 Hz) 10-200
 CB1 (60 Hz) 10-200
 CB2 (50 Hz) 10-200

circuits
 band emitter and impression control 18-030
 band emitter control 18-030
 carriage control 18-080
 carriage motor 18-090
 connector-hammer driver cards 06-090
 end-of-forms 18-040
 forms jam 18-050
 sensing 18 050
 front unit interlock 18 040
 and end-of-forms 18-040
 impression control 18-030
 operator panel control lines 18-010
 paper clamp solenoid 18-020
 power on reset (POR) 10-210
 print band relay 18-020
 and paper clamp sol 18-020
 ribbon
 control circuit 18-060
 motor circuit 18-070
component index (locations) 12-010
 CON 1 12-100
 CON 2 12-100
 CON 3 12-100
 CON 4 12-100
 CON 5 12-100
 CON 7 10-190
 CON 14 12-090
 CON 15 12-090
 CON 21 12-190
 CON 22 12-190
 CON 23 12-190
 CON 24 12-190
 CON 26 12-100
 CON 29 12-090
 CON 30 12-100
 CON 31 12-090
 CON 32 12-090
 CON 33 12-100
 CON 34 12-090
 CON 36 12-100
 CON 41 12-100
 CON 42 12-100
 CON 43 12-100
 CON 44 12-100
 CON 45 12-100
 CON 46 12-100
 CON 51 12-110
 CON 52 12-110
 CON 53 12-110
 CON 54 12-110
 CON 55 12-110
 CON 56 12-110
connector
 locations 12-090
 pin arrangements 12-120
 pin assignments 12-120
 MDC 12-200
 numbering 12-120
connector pins 12-120
MDC 12-190

connectors
 AC6 10-190
 AC6 12-100
 AC9 12-090
 AC21 12-100
 AC23 12-100
 CON 1 12-100
 CON 2 12-100
 CON 3 12-100
 CON 4 12-100
 CON 5 12-100
 CON 7 10-190
 CON 14 12-090
 CON 15 12-090
 CON 21 12-190
 CON 22 12-190
 CON 23 12-190
 CON 24 12-190
 CON 26 12-100
 CON 29 12-090
 CON 30 12-100
 CON 31 12-090
 CON 32 12-090
 CON 33 12-100
 CON 34 12-090
 CON 36 12-100
 CON 41 12-100
 CON 42 12-100
 CON 43 12-100
 CON 44 12-100
 CON 45 12-100
 CON 46 12-100
 CON 51 12-110
 CON 52 12-110
 CON 53 12-110
 CON 54 12-110
 CON 55 12-110
 CON 56 12-110
 hammer driver cards 06-090
 hammer drivers 12-110
 hammers 12-100
 MDC 12-190
 motor driver card (MDC) 12-190
 pin arrangements 12-120
 power
 AC6 10-190
 CON 1 10-190
 CON 2 10-190
 CON 3 10-190
 CON 4 10-190
 CON 5 10-190
 CON 7 10-190
 supply 10-190
counter numbers, error log 02-190
CU Intf (1) indicator 17-070
C30 and C31 12-080

D

dc voltage returns 10-170

diagnostic

- indicators (DI) 17-090
- selection, printer exerciser 15-020

diagnostics

- introduction 15-010
- Basic Assurance Test 15-010
- inline 15-010
- printer exercisers 15-010
- special tests 15-010
- utilities 15-010
- operating instructions 15-020
- test summary table 15-010

diagrams

- band emitter
 - and impression control 18-030
 - control 18-030
 - ctrl and impression ctrl 05-320
- carriage
 - control 18-080
 - motor 18-090
- connector-hammer driver cards 06-090
- forms jam 18-050
 - sensing 18-050
- front unit interlock 18-040
 - and end-of-forms 05-140
 - and EOF 18-040
 - and EOF circuits 08-120
- impression control 18-030
- operator panel control lines 18-010
- paper clamp solenoid 18-020
- POR 10-210
- power on reset (POR) 10-210
- print band relay 18-020
 - and paper clamp solenoid 18-020
- ribbon
 - control circuit 18-060
 - motor circuit 18-070

diodes

- CR1 10-190
- CR2 10-190
- CR3 10-190
- CR4 10-190
- CR5 10-190
- CR6 10-190
- CR7 10-190
- CR8 10-190
- CR9 10-190

directory, print quality samples 02-050

DIs (0-7) 17-090

drive belt replacements

- print band drive belt 05-150
- carriage 09-070

E

earth (*see* ground)

end-of-forms switch 08-090

- adjustment 08-100
- replacement 08-110
- service check 08-090

EOF switch service check 08-090

EOF (6) indicator 17-070

equipment safety (*see* "Caution Notices," page 00-010)

EREP (sample) printout 16-110

error

- category 16-020
- log
 - counter chart 02-190
 - counters 02-190
 - ID 16-020
 - internal 16-090
 - printer 16-090
 - printout 16-090
- exception conditions 16-010

F

F key 17-080

failures 02-010

forms guide 08-130

- and plastic shield service check 08-130
- removal 08-140
- replacement 08-140
- service check 08-130

forms jam

- sensing assembly replacement 09-040
- sensing circuit 09-040
- sensing replacement 09-040
- indicator 17-070

forms quality 08-190

frame grounding 11-050

frequency and voltage compensation (FVC) card 05-360

- location 12-210

front unit

- and end-of-forms circuits 08-120
- assembly 05-060
- gauge 20-020
- inspection screw adjustment 05-090
- interlock
 - and end-of-forms circuits 05-140
 - switch adjustment 05-130
 - switch service check 05-130
- removal 05-110
- replacement 05-120
- stop screw adjustment 05-090
- to hammer unit gap adjustment 05-070
- to hammer unit gap service check 05-060

fuses (50 Hz)

- F1 10-200
- F2 10-200
- F3 10-200
- F5 10-200

fuses (60 Hz)

- F1 10-200
- F2 10-200
- F3 10-200
- F4 10-200
- F5 10-200
- F6 10-200

FVC card

- control card and temperature sensor 05-360
- input and output pin signals 05-380
- location 12-210

G

gate fan

- removal 10-180
- replacement 10-180

gauge, front unit 20-020

General Logic Probe 20-010

glossary, parts catalog 21-020

GLP 20-010

green/yellow wiring schematic 11-040

ground

- base and cover 11-050
- green/yellow wiring schematic 11-040
- safety schematic 11-040

ground schematic, safety 11-040

grounding notice 00-010

H

hammer

- coil charts
 - even 06-080
 - odd 06-080
- coil replacement 06-050
- driver card connectors 06-090
- failure reference tables
 - hammer +32V 06-100
 - hammer +5V 06-100
 - hammer +8.5V 06-100
 - hammer cable 06-100
 - hammer cable/driver 06-100
 - hammer driver 06-100
 - status codes 06-100
- plunger replacement 06-060
- spring replacement 06-060
- unit blower replacement (Models 1, 2, 3) 06-110

how to run

- diagnostics 15-020
- tests 15-020

how to use

- MAPs 01-010
- MIM 01-010
- status code directory 02-010
- this manual 01-010

I

identifying print quality problems 02-040

impression control 05-330

- switch adjustment 05-340
- switch service check 05-330

incident/part activity report

- failure reporting 01-020
- USA only 01-020
- use 01-020

incident reporting 01-020

index, component 12-010

indicators

- check (2) 17-070
- CU Intf (1) 17-070
- EOF (6) 17-070
- forms jam (5) 17-070
- Intlk (7) 17-070
- ready (0) 17-070
- status 17-070
- stop (4) 17-070
- test (3) 17-070

indicators (continued)

- 0 17-070
- 1 17-070
- 2 17-070
- 3 17-070
- 4 17-070
- 5 17-070
- 6 17-070
- 7 17-070

integrated parts catalog 21-010

intermittent

- failure analysis 02-190
- failure, repair procedures 02-190
- failures 02-190
- problems 02-190

intermittents 02-190

internal error log 16-090

interpreting error log 16-100

Intlk (7) indicator 17-070

IPAR

- codes 01-020
- failure reporting 01-020
- functional unit code guide (USA only) 01-020
- use 01-020

IR codes (*see* IPAR codes)

K

keys

- A 17-080
- C 17-080
- carriage restore (7) 17-080
- carriage space (8) 17-080
- check reset (F) 17-080
- E 17-080
- F 17-080
- line counter reset (C) 17-080
- ready (9) 17-080
- single cycle (E) 17-080
- stop (A) 17-080
- test 17-080
- 0 17-080
- 1 17-080
- 2 17-080
- 3 17-080
- 4 17-080
- 5 17-080
- 6 17-080
- 7 17-080
- 8 17-080
- 9 17-080
- K1 relay 10-200
- K2 relay 10-200

L

LED locations 12-150
 line counter reset key 17-080
 line filter 10-200
 line-powered equipment notice 00-010
 locations
 A1 card 12-080
 A1 card 12-170
 A2 card 12-080
 A2 card 12-180
 cable duct 12-070
 carriage drive 12-030
 component index 12-010
 CON 1 12-100
 CON 2 12-100
 CON 3 12-100
 CON 4 12-100
 CON 5 12-100
 CON 7 10-190
 CON 14 12-090
 CON 15 12-090
 CON 21 12-190
 CON 22 12-190
 CON 23 12-190
 CON 24 12-190
 CON 26 12-100
 CON 29 12-090
 CON 30 12-100
 CON 30 12-100
 CON 31 12-090
 CON 32 12-090
 CON 33 12-100
 CON 34 12-090
 CON 36 12-100
 CON 41 12-100
 CON 42 12-100
 CON 43 12-100
 CON 44 12-100
 CON 45 12-100
 CON 46 12-100
 CON 51 12-110
 CON 52 12-110
 CON 52 12-110
 CON 53 12-110
 CON 54 12-110
 CON 55 12-110
 CON 56 12-110
 connector pin arrangement 12-120
 connectors 12-090
 frequency and voltage compensation (FVC) card 12-210
 front unit 12-030
 FVC card 12-190
 FVC card 12-210
 gate fan 12-030
 hammer unit 12-070
 keys 17-080
 LEDs 12-150
 LEDS, phototransistor, transducer 12-150
 logic cards 12-080
 motor driver card 12-190
 motors 12-160
 phototransistor 12-150
 physical 12-030
 power (refer to Section 10)
 resistor-capacitor panel 12-080
 and cards 12-080
 signal cable to system 12-220
 switches 12-140
 transducer 12-150
 log counters 02-190

M

machine warning label notice 00-010
 maintenance information manual (MIM)
 organization 00-040
 major functional codes (IPAR) 01-020
 motor driver card
 location 12-190
 replacement 14-080
 motor locations 12-160

O

operating instructions (diagnostics) 15-020
 operation (using) general logic probe 20-010
 operator panel
 card replacement 04-030
 indicators 17-070
 service check 04-010
 signal cable replacement 04-040
 switches 17-080
 organization
 volume 1 00-040
 volume 2 00-040

P

paper clamp and solenoid 08-010
 adjustment 08-040
 removal 08-070
 replacement 08-070
 paper clamp
 electrical service check 08-010
 mechanical preload adjustment 08-030
 mechanical service check 08-020
 parts catalog 21-010
 glossary 21-020
 PCC 10-060
 test points 10-070
 PDC 10-190
 personal safety 00-010
 phototransistor location 12-150
 physical locations 12-030
 pin assignments,
 pin assignments, connector 12-120
 MDC 12-200
 pins, connector 12-120
 MDC 12-200
 plastic shield
 replacement 08-150
 service check 08-130
 platen 05-040
 replacement 05-050
 repositioning 05-040
 power connectors
 AC6 10-190
 CON 1 10-190
 CON 2 10-190
 CON 3 10-190
 CON 4 10-190
 CON 5 10-190
 CON 7 10-190
 power control card (PCC) 10-060
 test points 10-070
 circuit 10-090

power distribution

card (PDC) 10-190
 +12V 10-090
 +15V 10-090
 +32V hammer 10-130
 -15V 10-090
 -5V 10-090
 power on/off switch 10-200
 power supply locations (refer to Section 10)
 print band 05-010
 cover 05-030
 removal 05-030
 replacement 05-030
 drive 05-150
 belt replacement 05-150
 service check/adjustment 05-150
 motor replacement 05-150
 shaft removal 05-170
 shaft replacement 05-170
 emitter assembly 05-270
 emitter
 control and impression control 05-320
 gap check and adjustment 05-270
 replacement 05-310
 timing adjustment 05-280
 idler pulley
 bracket adjustment 05-210
 bracket removal 05-240
 bracket replacement 05-250
 replacement 05-180
 relay and paper clamp solenoid circuit 05-160
 removal 05-010
 replacement 05-020
 support bearing replacement 05-260
 tracking service check 05-190
 print
 exerciser selection 15-020
 position selection 15-020
 quality
 identification 02-040
 problems 02-040
 sample directory 02-050
 service check 02-040
 printer
 locations 12-030
 problems 02-010
 sound (see visual and audible symptom summary)
 symptom 02-170
 status multiplexer (PSM) 16-070
 symptoms 02-010
 printouts
 ERE sample 16-110
 error log sample 16-090

R

ready
 key 17-080
 (0) indicator 17-070
 (9) 17-080
 relays
 K1 10-200
 K2 10-200

removals

band emitter 05-310
 capacitor C10 10-050
 carriage
 disk 09-070
 drive belt 09-070
 drive cover 09-020
 drive emitter 09-070
 drive emitter assembly 09-070
 drive motor 09-070
 emitter assembly 09-070
 emitter disk 09-070
 vernier 09-030
 C10 10-050
 end-of-forms switch 08-110
 forms
 guide 08-140
 jam 09-040
 jam sensing 09-040
 front
 cover 11-030
 unit assembly 05-110
 FVC card 05-360
 gate fan 10-180
 gate thermal 10-180
 hammer 06-040
 block 06-030
 coil 06-050
 coil charts 06-080
 spring and plunger 06-060
 unit blower (Models 1, 2, 3) 06-110
 operator
 cable 04-040
 card assembly 04-030
 signal cable 04-040
 paper clamp and solenoid 08-070
 PCC 10-060
 power supply 10-010
 print band 05-010
 cover 05-030
 drive belt 05-150
 drive shaft 05-170
 idler pulley 05-180
 idler pulley bracket 05-240
 support bearings 05-260
 ribbon 07-010
 guide assembly 07-020
 motor 07-030
 shield 08-160
 status indicator 04-040
 LED 04-040
 temperature sensor 05-360
 thermal, gate 10-180
 top cover 11-020
 tractor
 drive shaft 09-010
 pin cover 09-020
 shaft 09-010
 transformer 10-040
 vernier 09-030

EC 784200 27Jun80	PN 8629277	22-003
	4 of 6	

replacements
band emitter 05-310
capacitor C10 10-050
carriage
disk 09-070
drive belt 09-070
drive cover 09-020
drive emitter 09-070
drive emitter assembly 09-070
drive motor 09-070
emitter assembly 09-070
emitter disk 09-070
vernier 09-030
C10 10-050
end-of-forms switch 08-110
forms
guide 08-140
jam 09-040
jam sensing 09-040
front
cover 11-030
unit 05-060
FVC card 05-360
gate
fan 10-180
thermal 10-180
hammer 06-040
block 06-030
coil 06-050
coil charts 06-080
spring and plunger 06-060
unit blower (Models 1, 2, 3) 06-110
operator panel
cable 04-040
card assembly 04-030
signal cable 04-040
paper clamp and solenoid 08-070
PCC 10-060
platen 05-050
power supply 10-010
print band 05-020
cover 05-030
drive belt 05-150
drive motor 05-150
drive shaft 05-170
idler pulley 05-190
idler pulley bracket 05-250
support bearings 05-260
ribbon 07-010
guide assembly 07-020
motor 07-030
shield 08-160
status indicator 04-040
LED 04-040
temperature sensor 05-360
thermal, gate 10-180
top cover 11-020
tractor
drive shaft 09-010
pin cover 09-020
shaft 09-010
transformer 10-040
vernier 09-030
resistor panel location 12-080
resistor-capacitor panel and logic card location 12-080
resistor-capacitor panel location 12-080

resistors
R1 10-190
R2 10-190
R3 10-190
R4 10-190
R5 10-190
R6 10-190
R7 10-190
R37 to R42 12-080
ribbon
control circuit diagram 07-060
guide
adjustment 07-020
replacement 07-020
motor
circuit diagram 07-050
replacement 07-030
replacement 07-010
shield 08-160
adjustment 08-160
shield replacement 08-160
spool adjustment 07-030
rules for MAP usage 01-010

S
safety 00-010
ground schematic 11-040
sample
character sets 13-010
optimized band character sets 13-020
print band character sets 13-010
of print quality (directory) 02-050
section descriptions 00-050
sense bytes 16-020
service checks
balance mechanism 11-010
band emitter gap 05-270
band image select switch 04-020
carriage drive belt 09-050
carriage speed 09-060
end-of-forms switch 08-090
forms guide 08-130
and plastic shield 08-130
front unit to hammer unit gap 05-060
impression control switch 05-330
interlock switch 05-130
operator panel 04-010
paper clamp
electrical 08-010
mechanical 08-020
plastic shield 08-130
print band
drive belt 05-150
tracking 05-190
print quality 02-040
ribbon
guides 07-020
spool 07-030
stacking 08-190
vernier 09-030
signal cable replacement, operator panel 04-040
single cycle key 17-080

spring and plunger replacement 06-060
stacker adjustments 08-190
stacking service check 08-190
start of call 01-060
status code
and exception chart 16-030
definition 16-020
directory 02-010
failure analysis 02-010
status
indicator 17-070
LED replacement 04-040
multiplexer 16-070
bits 16-070
stop key 17-080
stop (4) indicator 17-070
switch locations 12-140
switches
carriage restore 17-080
carriage space 17-080
check reset 17-080
line counter reset 17-080
power on/off 10-200
circuit 10-100
ready 17-080
single cycle 17-080
stop 17-080
switch 2 10-190
circuit 10-100
60 Hz 10-190
symbols 01-060
symptom analysis 02-010
status codes 02-010
symptom, printer 02-010
symptoms
audible 02-170
printer sound 02-170
status codes 02-010
visual 02-170
system error recording 16-110

T
TB1 10-200
TB2 10-200
TB3 10-200
TB4 10-200
temperature sensor removal and replacement 05-360
terminal blocks
TB1 10-200
TB2 10-200
TB3 10-200
TB4 10-200
test descriptions
carriage
run 15-070
skip 15-060
skip 2 15-060
skip 4 15-060
skip 8 15-060
stress 15-060
communication writeable storage print 15-060
communication wrap 15-030
delayed emitter 15-070
error log print 15-060

test descriptions (continued)
hammer error display 15-050
hammer fire 15-040
H-pattern 15-060
impression control SS measure 15-070
logic pick and drop 15-070
matrix print 15-060
MPU 1 15-030
ROS 15-030
writeable storage 15-030
MPU 2 15-030
MPU 2 ROS 15-030
writeable storage 15-030
operator panel 15-050
random ripple print 15-060
ribbon run 15-070
ripple print 15-060
special tests 15-070
test 11 15-030
test 12 15-030
test 13 15-030
test 15 15-050
test 21 15-030
test 22 15-030
test 23 15-030
test 30 15-030
test 60 15-040
test 61 15-050
test 62 15-060
test 64 15-060
test 65 15-060
test 66 15-060
test 67 15-060
test 68 15-060
test 69 15-060
test 70 15-060
test 77 15-060
test 78 15-060
test 79 15-060
test 80 15-070
test 81 15-070
test 83 15-070
test 85 15-070
test 86 15-070
timer A, B, or C 15-030
utilities 15-050
writeable storage display 15-050
writeable storage print 15-060
test
key 17-080
looping 15-020
selection 15-20
summary table (diagnostics) 15-010
(3) indicator 17-070
tests
Basic Assurance Test (BAT) 15-030
operating instructions 15-020
printer exercisers 15-060
special 15-070
utilities 15-050
11 15-030
12 15-030
13 15-030
15 15-050
21 15-030

tests (continued)

- 22 15-030
- 23 15-030
- 30 15-030
- 60 15-040
- 61 15-050
- 62 15-060
- 64 15-060
- 65 15-060
- 66 15-060
- 67 15-060
- 68 15-060
- 69 15-060
- 70 15-060
- 77 15-060
- 78 15-060
- 79 15-060
- 80 15-070
- 81 15-070
- 83 15-070
- 85 15-070
- 86 15-070

theory

- alignment 17-160
- carriage 17-150
 - emitter 17-160
- data
 - flow 17-060
 - transfer 17-030
- end-of-forms 17-160
- error checking 17-120
- forms
 - control buffer 17-160
 - control indicators 17-160
 - loading 17-160
 - movement 17-160
 - path 17-160
 - path diagram 17-170
 - size 17-160
- front unit 17-120
- functional unit overview 17-060
- functional units 17-050
- hammer
 - coils 17-140
 - cooling 17-140
 - current detection 17-140
 - fire control 17-140
 - fire limiting 17-140
- hammer unit 17-140
- introduction 17-010
- line spacing, horizontal 17-020
- line spacing, vertical 17-020
- manual controls 17-100
- operator panel 17-070
 - indicators 17-070
 - indicators (test mode) 17-070
 - keys 17-080
 - keys (test mode) 17-080
 - operational mode 17-070
 - test mode 17-090
- overview 17-030
- paper clamp 17-160
- power 17-190
 - check circuits 17-190
 - checks 17-190
 - off sequence 17-190
 - on (POR) sequence 17-190

theory (continued)

- print band 17-020
 - drive motor 17-120
 - drive pulley 17-120
 - idler pulley 17-120
 - synchronization 17-120
- printer buffers 17-030
 - forms control (FCB) 17-030
 - print line (PLB) 17-030
 - universal character set (UCSB) 17-030
- printer busy 17-130
 - checks 17-130
 - commands 17-030
 - operation 17-030
 - status 17-030
 - method 17-040
- ribbon
 - motion detection 17-130
 - motor detent current 17-130
 - motors and drive 17-130
 - reversing 17-130
 - run 17-130
 - start 17-130
 - stop 17-130
- stacker 17-180
 - capacity 17-180
 - static control 17-180
 - system attachment 17-030
 - thickness control 17-160
 - voltages 17-190
- thermal replacement, gate 10-180
- tools
 - CE print band 20-020
 - front unit gauge 20-020
 - general logic probe 20-010
 - 24-pin module removal tool 20-020
- torn feed holes 08-190
- tractor
 - cover replacement 09-020
 - drive shaft adjustment 09-010
 - drive shaft replacement 09-010
 - pin cover replacement 09-020
 - shaft adjustment 09-010
- transducer location 12-150

U

- using general logic probe 20-010

V

- vernier
 - replacement 09-030
 - service check 09-030
- visual
 - and audible symptom summary 02-170
 - symptom summary 02-170
 - symptoms 02-170
- voltage
 - return distribution 10-170
 - returns 10-170

Numerical

- 0 key 17-080
- 0/1 (power on/off) switch
 - circuit 10-100
 - location 10-200
- 1 key 17-080
- 2 key 17-080
- 24-pin module removal tool 20-020
- 3 key 17-080
- +32V hammer sense 10-140
 - circuit 10-140
- 3262 internal error log 16-090
- 4 key 17-080
- 5 key 17-080
- 6 key 17-080
- 7 key 17-080
- 8 key 17-080
- 9 key 17-080

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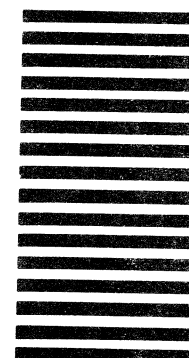
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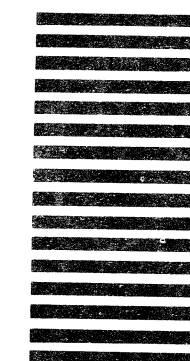
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