

IBM

**Field Engineering Education
Supplementary Course Material**

SYSTEM/370

**Model 145
Installation Instructions**

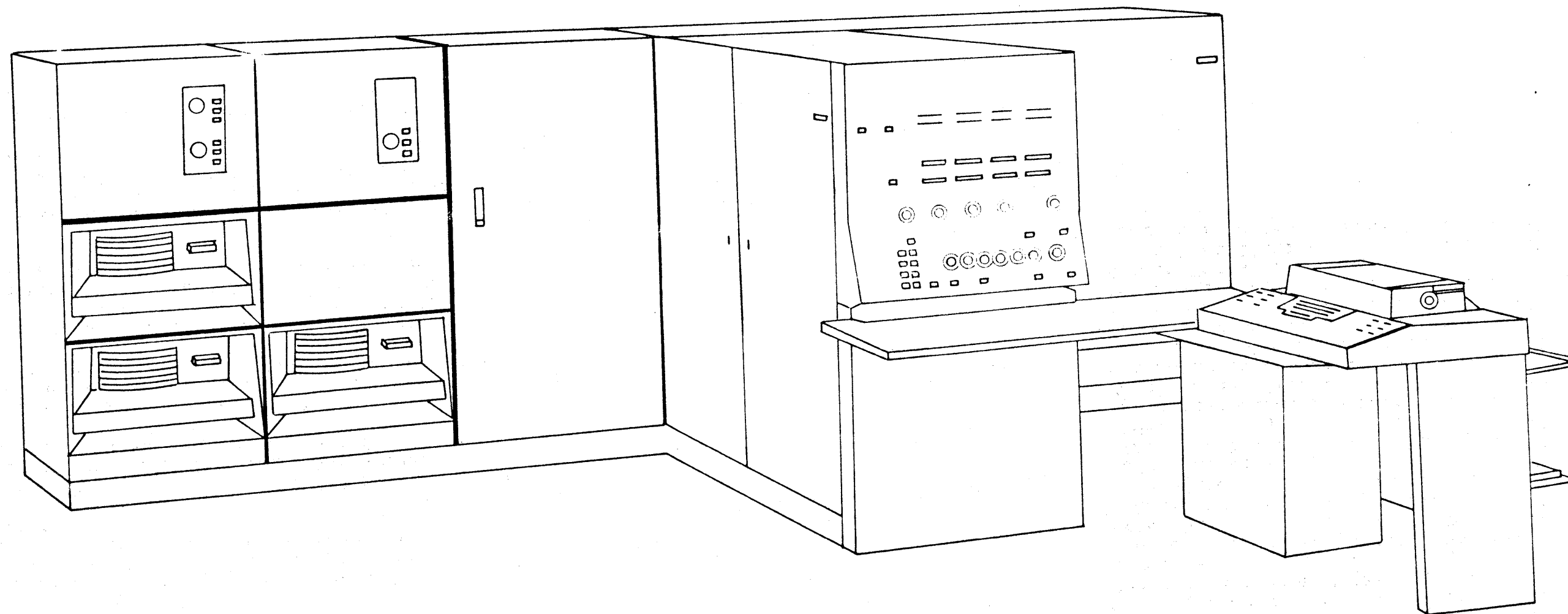
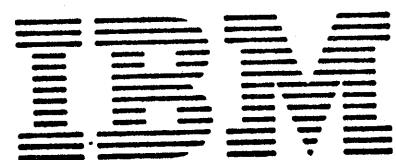
PREFACE

This publication is primarily intended for use by
FE customer engineers enrolled in course 10150.

PRELIMINARY EDITION (July 1971)

This publication has been printed in a preliminary format so that it would be available to the intended users in time for training on this course. This preliminary manual may contain typographical errors that would normally be corrected before publication. This edition is not eligible for suggestion awards, however, your comments will be appreciated.

Address any comments concerning the contents of this publication to:
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**System/370 Model 145
Installation Instructions**

PREFACE

CONTENTS

This manual is intended for trained service personnel involved in installation and maintenance of the system/370 Model 145 and contains instructions for installing the following units.

- 3145 Central Processing Unit
- 3145 Power Frame
- 2319 Integrated File Attachment
- 3345 Main Storage Frame
- 3210 Console Printer Keyboard Model I
- 3215 Console Printer Keyboard Model I
- 23FD Console File

Installation instructions for other I/O units connected to the system are covered in the individual installation manuals for these units.

This installation manual is divided into two parts: general information, and actual installation and check-out procedures.

The general section covers safety precautions, equipment required, and general information for before and after system arrival.

The installation section covers installation and check-out procedures. Also included in this section is an after installation check list and a diagnostic program package check list.

In addition to this installation manual, the following manual is required for voltage adjustment procedure and for the 2319 VFO adjustment:

- 3145 Processing Unit Theory-Maintenance Manual.

GENERAL

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INSTALLATION

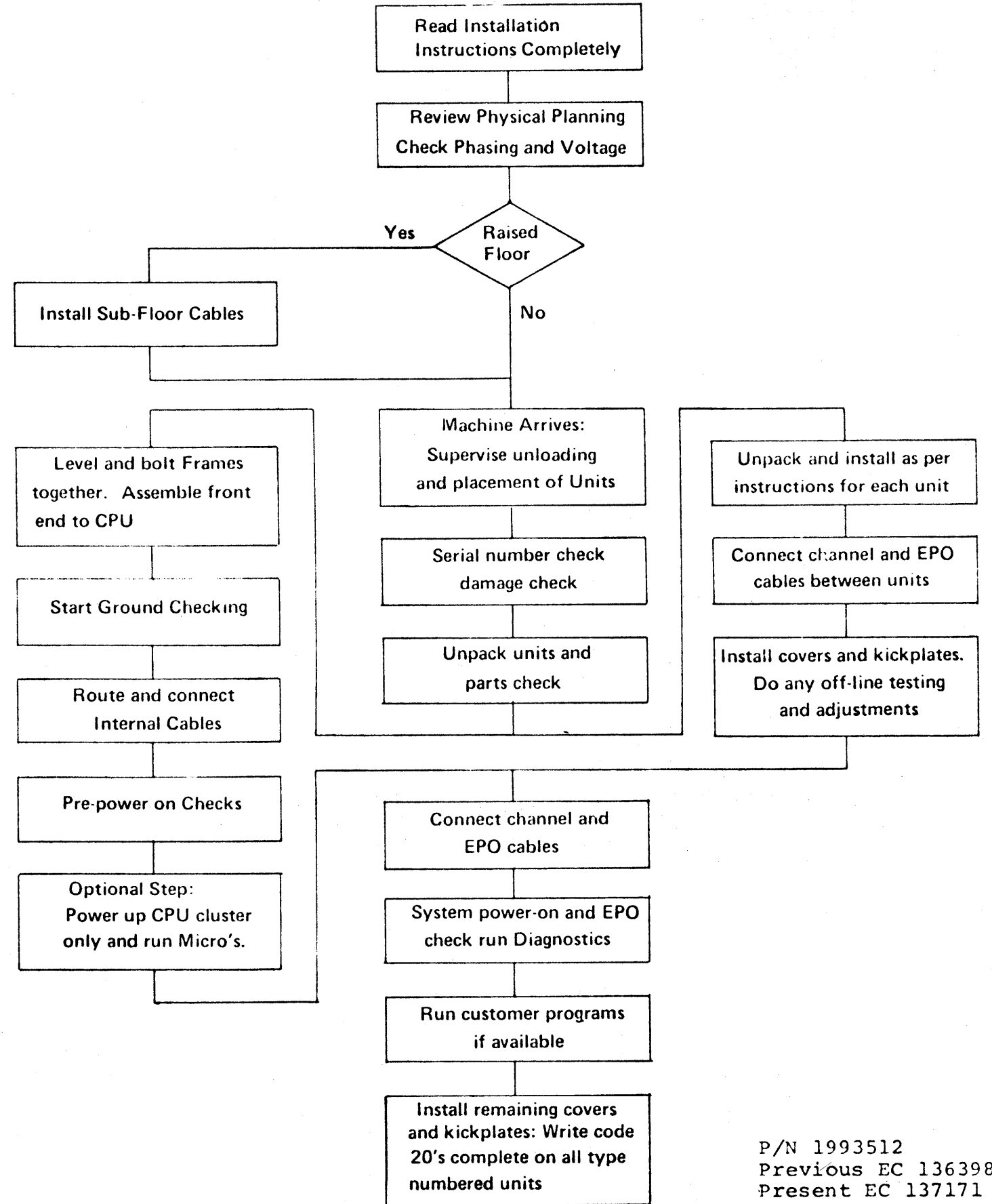
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GENERAL INFORMATION

1 SAFETY

- The POWER OFF key does not remove power from the convenience outlets, EPO connectors, or transformer T3. Turn off the wall switch to remove these voltages.
- Do not work alone when power is on.
- Wear safety glasses.
- Make sure fire extinguishers are available. Use the C02 type recommended for electrical fires.
- Discharge capacitors before working on dc supplies.
- Turn off power before replacing fuses.
- Replace safety covers, before going to another step.
- Attach signs reading DO NOT TURN ON POWER to each wall box supplying machine or unit power. Keep these in place until you are ready to apply power.

Guard your safety as well as the safety of those around you by practicing the precautions listed in the CE Safety Practices, Form 229-1264.



2 SPECIAL EQUIPMENT

- Digitec* voltmeter capable of measuring to .001 volt.
- 454 Tektronix scope or equivalent.
- Simpson 260 or equivalent; use the x1 scale.
- Leveling device (spirit or water).
- Weston 904 AC meter.
- MG Test Adapter Box *P/N 2637491*
- 10 inch Adjustable Wrench.
- Wrench P/N 856481 (1403 B.O. Tool) or any 3/4" box or open end wrench.

* Trade mark of United Systems Corporation

3 INTRODUCTION

Read this manual before proceeding so that full understanding of the information and sequence is achieved.

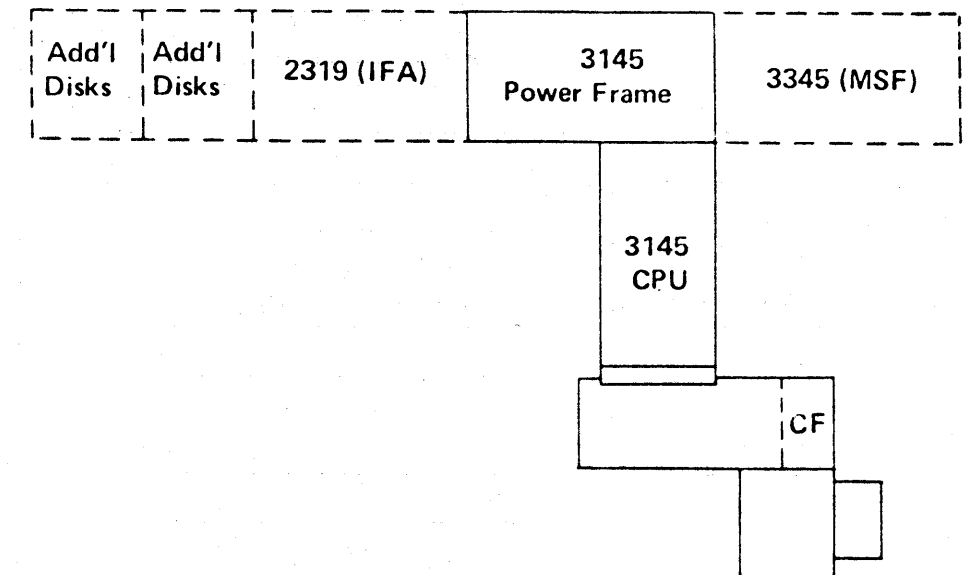
- Do not open gates or remove covers unless specified to aid in the installation. Store any covers removed out of the way to prevent damage.
- Follow each installation step in sequence; check off installation steps when completed to aid in communication between shifts and provide a record of the steps completed.
- Installation and off line testing of I/O units can be done concurrently with installation of the CPU frames if sufficient manpower is available.

4 BEFORE SYSTEM UNITS ARRIVE

- Review the physical planning documents for the installation and compare with the actual facilities provided. Last minute changes to the system layout should not affect I/O cable lengths or location of power connectors. Check power for proper voltage, phasing, and grounding. See Pre-Power-On for the procedure.
- Check cable lengths to ensure that the correct length cables were received.
- If a raised floor is provided, sub-floor cables can be installed.

5 WHEN SYSTEM UNITS ARRIVE

- Supervise the unloading and check that the correct machines were delivered.
- Have the movers place each unit at or near its final installation position.
- Refer to the unpacking/packing instructions and unpack each unit.
- Check all materials received against individual unit parts list or packaged BMs; retain parts identification.
- Verify the diagnostic program package (Section 23).
- Check each unit for external shipping damage. Report unit damage as required by the branch office manual.



INSTALLATION AND TESTING

6 GROUNDING CHECK

DC ground is connected to frame ground by a wire from terminal 9 on the CPU mixer-board laminar-bus (just behind console) to the frame.

- Disconnect this wire from the frame and place an ohmmeter between the wire or terminal 9 and the frame. An open condition (about 15K ohms) should exist.

Keep an eye on this meter for any substantial reduction in the resistance as the frames are bolted together and the interframe cabling is plugged. Any shorts must be eliminated before power is brought up. If the meter is checked as frames are attached, any shorts are in the last frame connected. After the frames and cables are connected, the wire from terminal 9 must be reconnected to the frame. Remove the meter before applying power.

7 CONSOLE INDICATOR PANEL

- Install knobs on the roller switches. The knobs are taped inside the console door.

- Skip these steps when the console indicator panel is in place.

- Replug any console light or switch cables that have been disconnected from the mixer board. Each paddle connector has its correct mixer board location printed on the connector.

- Install cable clamp on console indicator panel cables. Loop slack in power cable and tie back to signal cables.

8 LEVELERS

- Remove rear doors from CPU and necessary doors from the PF, MSF, and IFA to facilitate leveling and fastening of frames.

- With the CPU and PF in their approximate positions but still about a foot apart, route the ac cables for the console file and console printer from the power frame into the rear of the CPU. Also start the 3 CPU to PF cables (refer to cable chart in section 13) into the power frame. If IFA is being installed, start the 96 tri-lead into the PF.

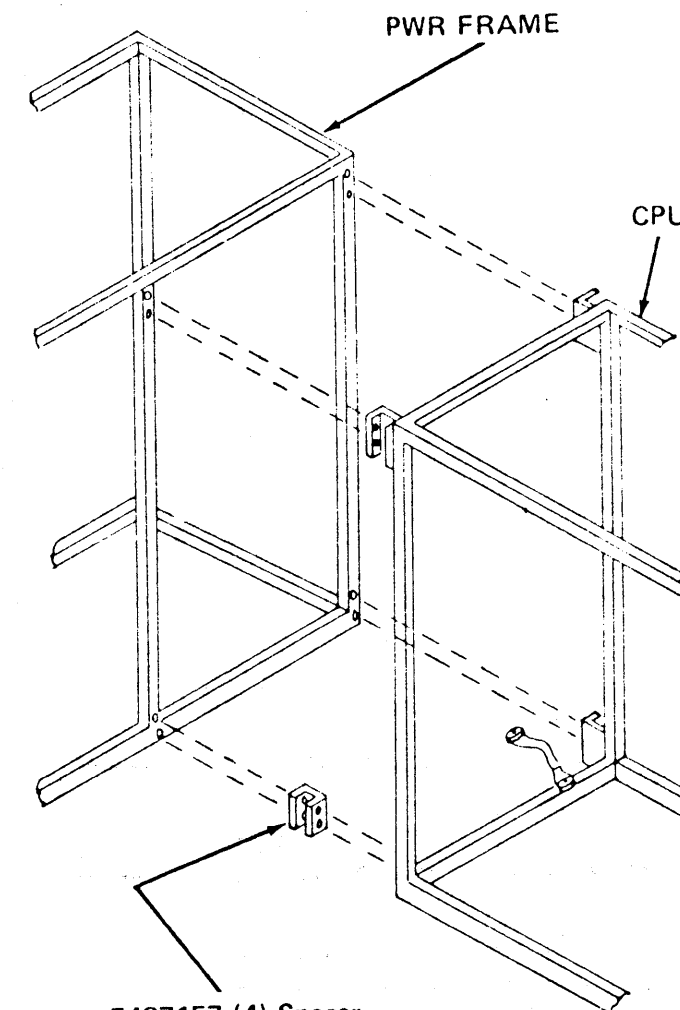
- Fasten frames together using screws P/N 5257231 and spacers already mounted on the CPU.

- With the frames accurately located, install and adjust the leveling pads so that the machine weight is fully on the pads. Refer to the Unpack/Pack instructions for location of pads for shipping.

- Each leveler must support its share of the weight. Use the leveling device on the frame members (not on the covers) to level the frames.

- Tighten the screws.

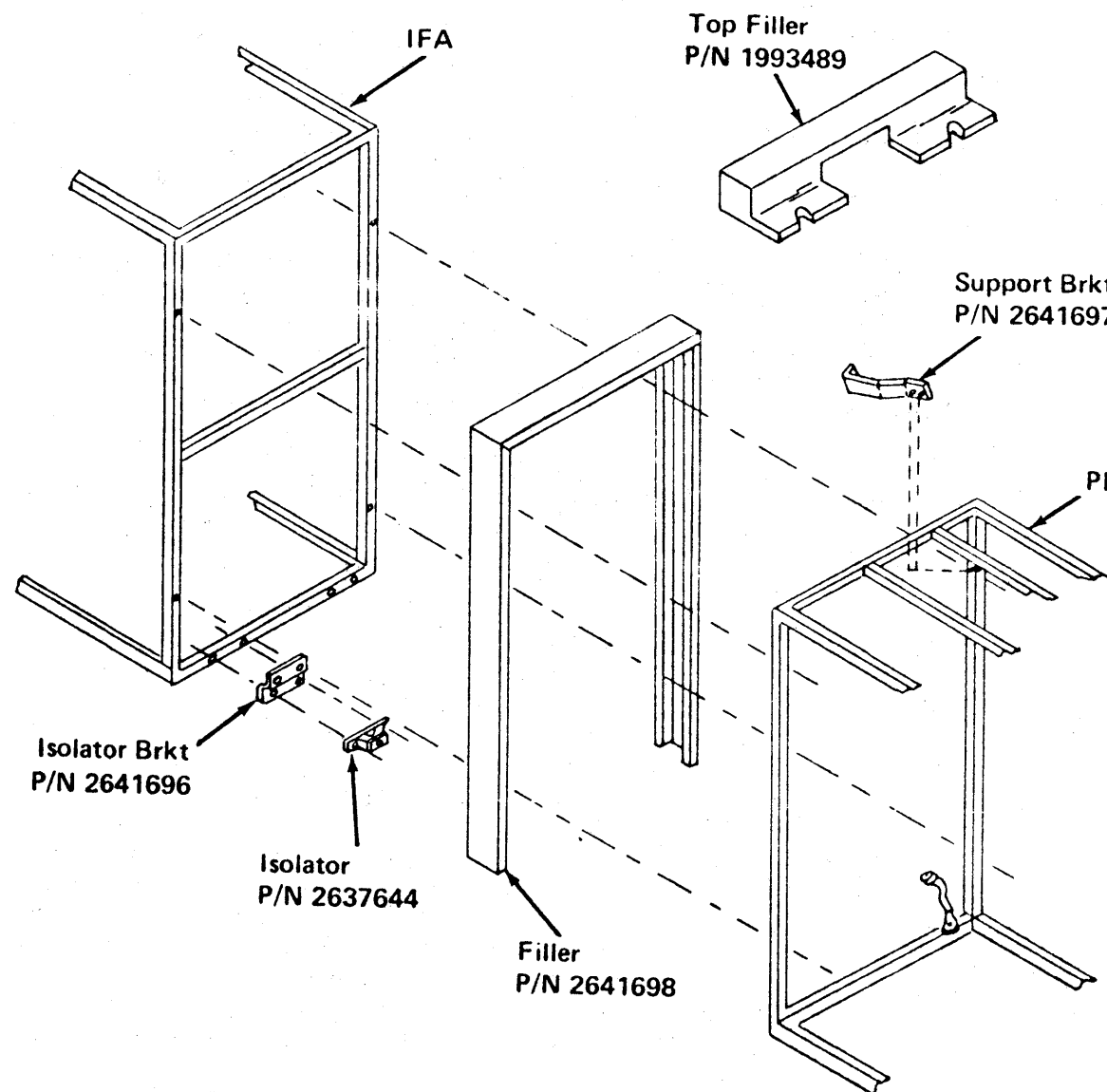
- Connect the interframe ground strap.



5487157 (4) Spacer
5257231 (16) Screw

- Skip these steps if the IFA is not being installed.

- Complete unpacking and installation instructions for these units.
- Locate the 2319 disk drive unit and any additional drives. The 2319 fastens to the left end of the main power frame.
- Install 2 isolator brackets P/N 2641696 on IFA frame using 4 screws P/N 38686 and 4 washers P/N 3550.
- Using 4 screws P/N 38686 and 4 washers P/N 3550, mount the 2 isolators on the brackets.
- Install filler strip P/N 2641698. Use 4 screws P/N 36112, 4 lockwashers P/N 6735, and 4 nuts P/N 3960.
- Position units and fasten with 2 screws P/N 25894 and 2 washers P/N 45740. Install the screws through the power frame members into the 2 isolators.
- Install the 2 support brackets P/N 2641697 on the power frame using 4 screws P/N 438622.
- Connect interframe ground strap.
- Install top filler P/N 1993489 on power frame using 2 screws P/N 34512.



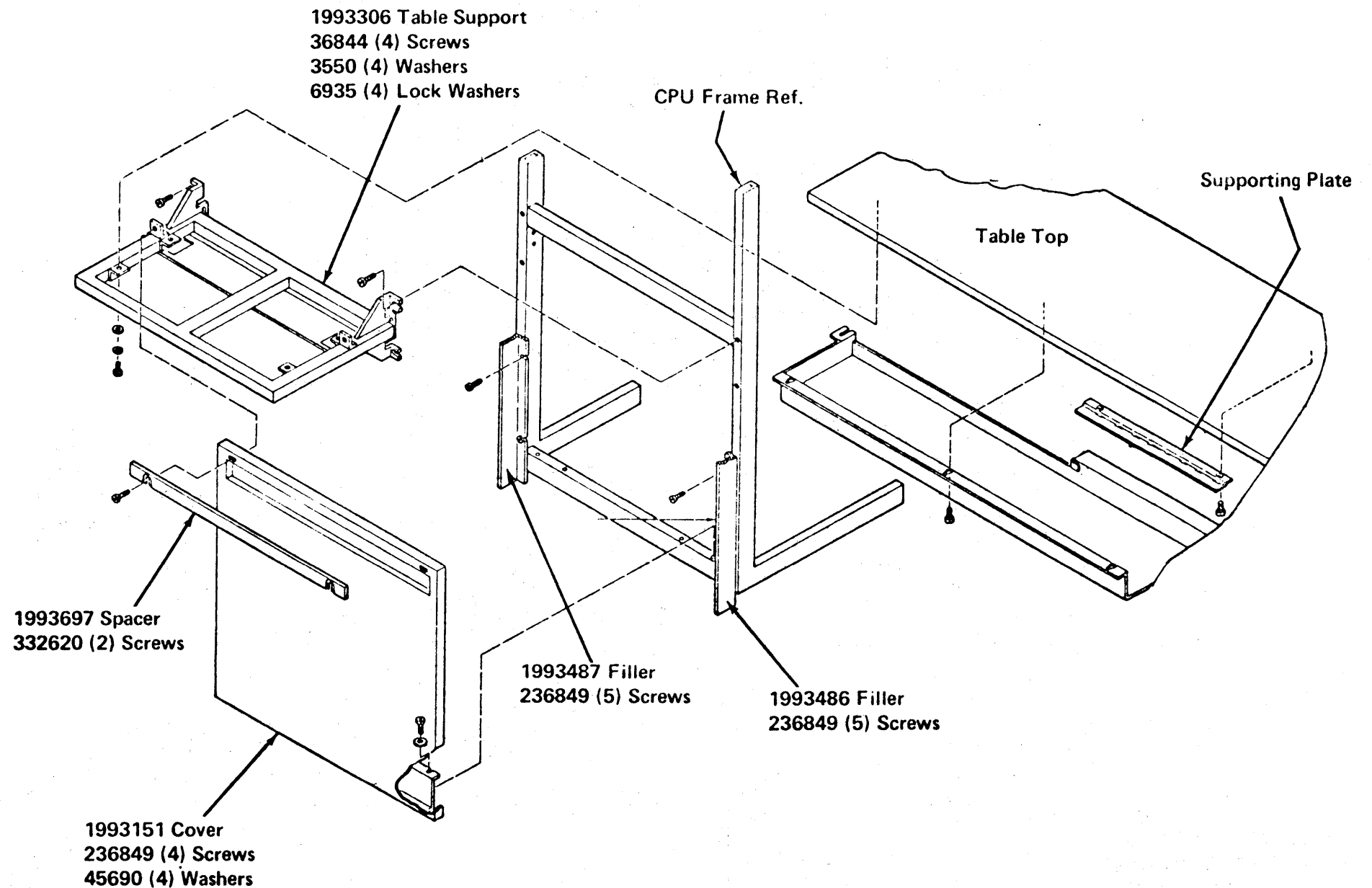
- Skip these steps if the MSF is not being installed
- The 3345 installation requires concurrent installation of the 3046 additional power frame.
- Locate main storage frame. It fastens to the right end of the main power frame.
- Fasten frames together using screws P/N 5257231 and spacers already mounted. Do not tighten the screws.
- Install and adjust leveler's. Check that the 3345 is level and each leveler is supporting its share of the machine weight.
- Connect the interframe ground strap.
- Tighten the screws.

9 CPU LOWER COVER AND TABLE SUPPORT BRACKET

----- Install right filler PN 1993486 to the right front of CPU frame with 5 screws PN 236849. Install left filler PN 1993487 to the left front of CPU frame with 5 screws PN 236849.

----- Install table support PN 1993306 to the front frame using 4 screws PN 36844, 4 washers PN 3550, and 4 lockwashers PN 6935.

----- Slide lower front CPU cover PN 1993151 over the table support and push back to stop ears. Place spacer PN 1993697 in front of the cover and insert two screws PN 332620 through the spacer, cover, and into the threaded holes in the bracket. Use 4 screws PN 236849 and 4 washers PN 45690 to fasten the lower part of the cover to the frame. Adjust the cover and tighten the screws.



10 FRONT END

- The front end assembly can be either a right or a left hand configuration. The right hand assembly has the console printer to the right of the console.

----- Unpack the front end assembly.

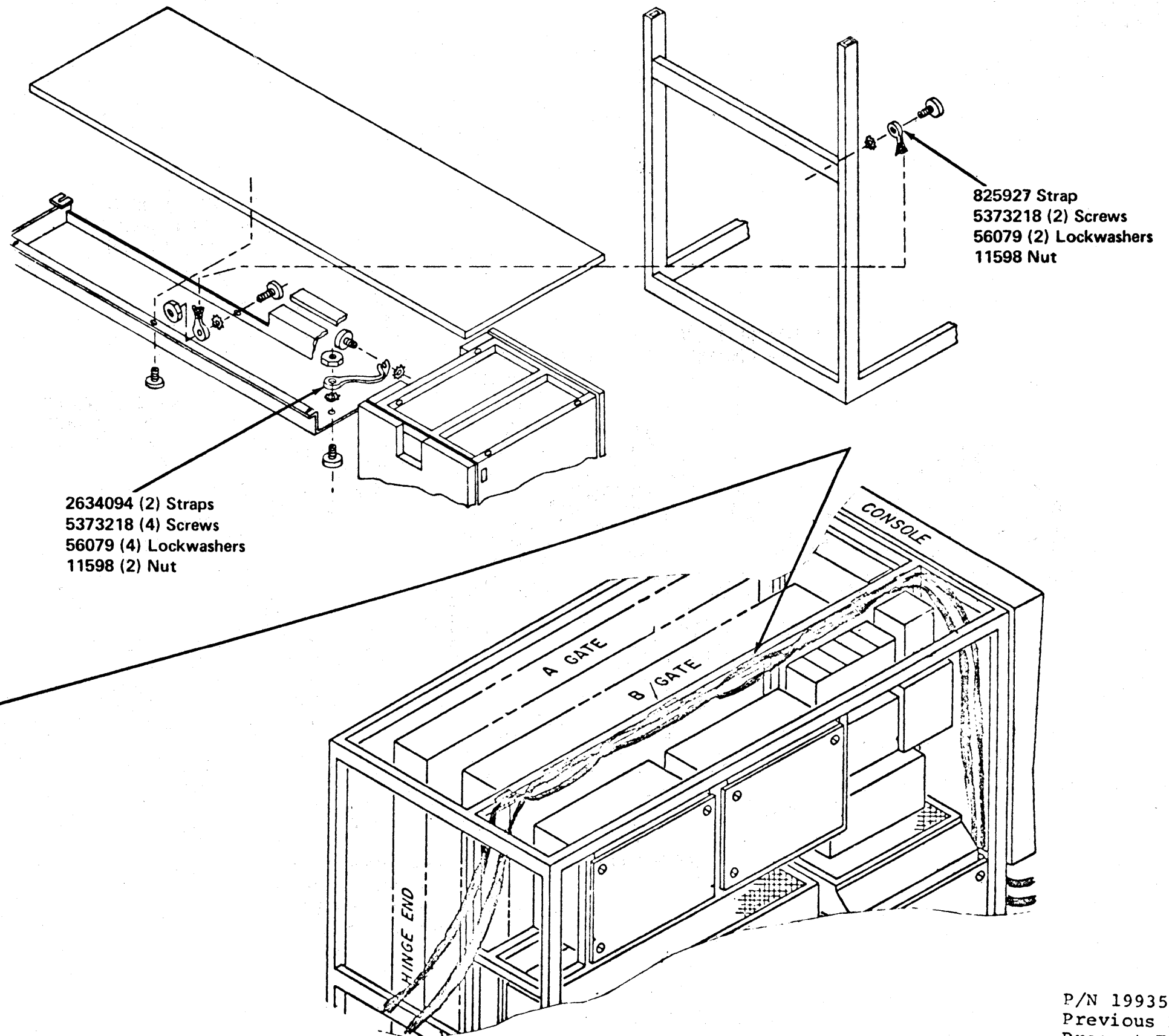
----- Loosen the screws holding the cable trough and the supporting plate. Drop the left end of the cable trough and rest it on the floor. (it is not necessary to remove the 2 ESD straps from the base unit)

----- Place the table top across the table top support. Fasten the table top to the table top support with 4 screws PN 36844, 4 washers PN 3550, and 4 lockwashers PN 6935.

----- Unwrap the console printer and console file cables and route through the front of the CPU and along the raceway on the underside of the console table. Route the console file cables into the console file base and the console printer cables to the printer stand. The ac cables for the console printer and console file are coiled in the power frame. Route these as shown to their units. Secure in 6 clamps (3 for each cable) already mounted across upper power area backplate.

----- Connect the ESD ground strap from the CPU to the cable trough using screw P/N 5373218, lockwasher P/N 56079, and nut P/N 11598.

----- Install the cable trough with the rear lip hooked over the supporting plate. Tighten the 4 screws supporting the trough and the two screws in the supporting plate.



11 CONSOLE PRINTER KEYBOARD

----- Complete the unpacking instructions received with whichever unit you have (3210 Model I, or 3215 Model I). Use appropriate instructions.

3210 Model I

----- Swing the hinged top cover open 90° from the base pan. Have someone hold the assembly. Mount the pan to the base unit using 6 screws.

----- Install 2 screws P/N 34512 in holes labeled 1 and 6

----- Fasten stay arms to base pan using 4 screws P/N 332620.

----- Start 2 screws P/N 34512 in holes 2 and 5.

----- At holes 3 and 4, insert a lockwasher P/N 55901 and a ground strap P/N 2634094 under each screw P/N 54312 orienting the ground straps as shown.

----- Tighten screws.

----- Mount the printer keyboard on its rails at the rear, slide back onto the shock mounts, and lower the front over the locating studs. Lock in place with the locking lever on the left front locating stud.

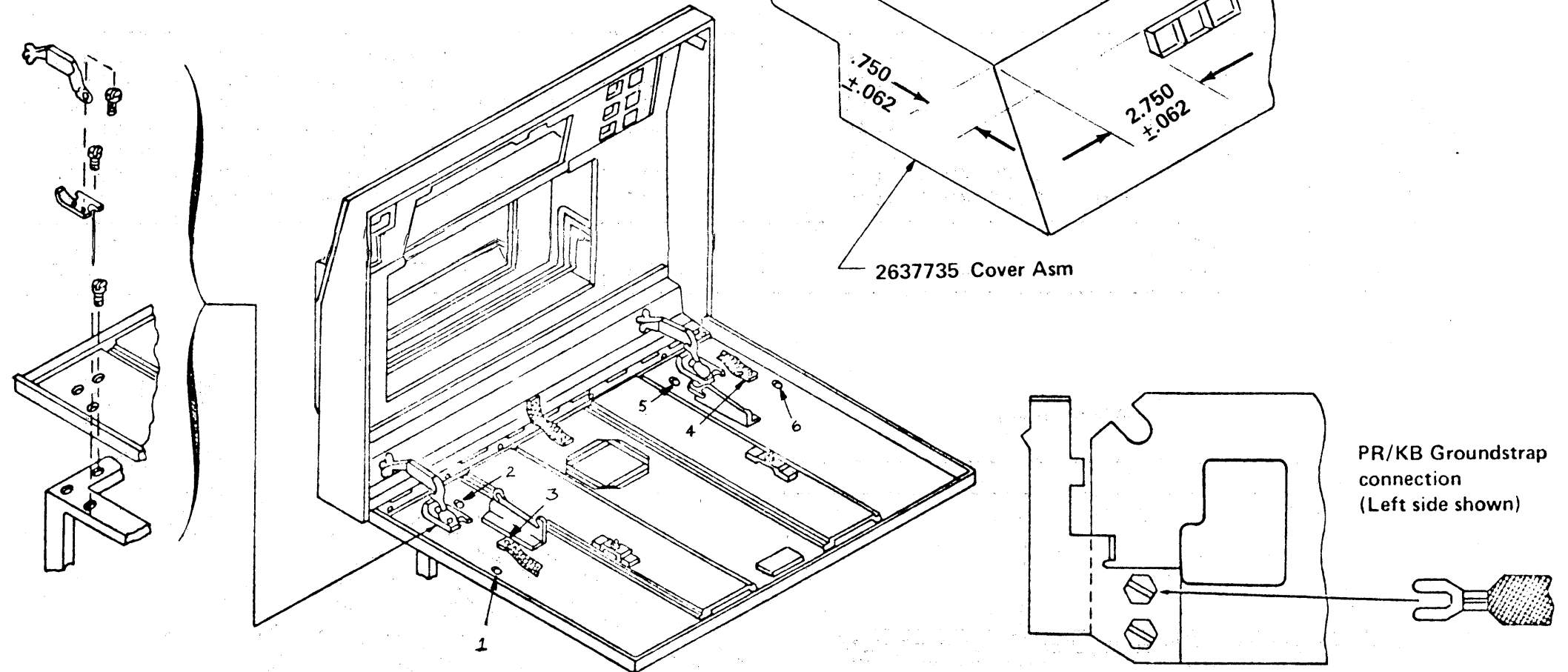
----- Drop the printer and keyboard cables down through the square access hole and connect to the CPU cables.

----- Connect the braided ground strap on each side of the printer as shown.

----- Install the paper rack using 4 screws P/N 228307.

● A device address label holder and a set of labels are provided and should be installed only if the customer desires.

----- Install the label holder assembly P/N 5756348 on the small hinged top cover as shown.



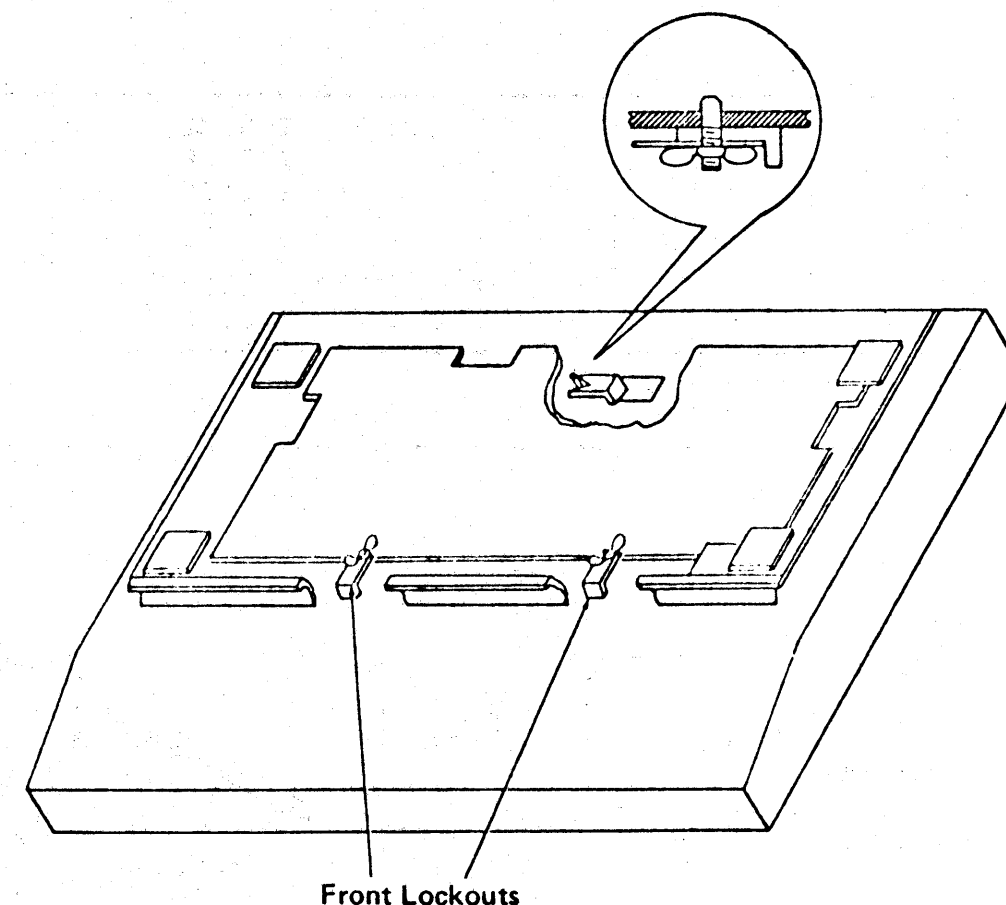
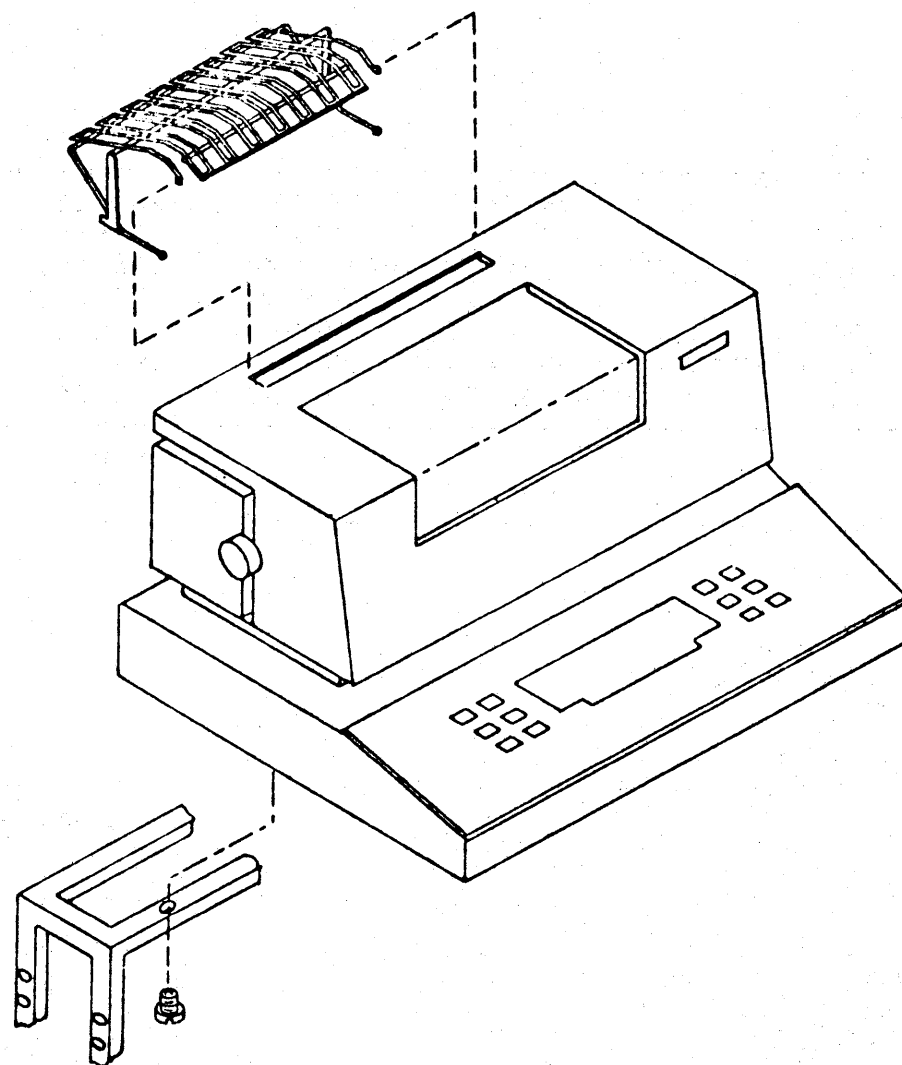
PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
2637218	AC to Console Printer	PF	3210 I or 3215 I J60	1	Basic
1994531	Sig to lights and switches	CPU	3210 I or 3215 I	1	Basic
1985645	Signal to 3210 I	CPU	3210 I	2	3210 I
1993989	DC to 3215 I	CPU	3215 I	1	3215 I
1993761	Amplifier signal to 3215 I	CPU	3215 I	1	3215 I
1993763	Signal to 3215 I	CPU	3215 I	1	3215 I
1993765	Signal to keyboard	CPU	3215 I	1	3215 I

3215 Printer

- Two men are required for installation of the 3215 printer.

- Unpack according to unpack instructions shipped with the printer.
- Check for broken or loose parts resulting from shipment. Check SLT sockets for loose cards or loose cable connectors.
- Place the Keyboard Console Printer on the I/O frame.
- Using 4 screws P/N 5488998 from shipping group, attach printer to the I/O frame.
- Remove 2 front lock-outs and rear wing bolt and store in base module.
- Feed cables through opening in bottom pan and connect to CPU cables in the distribution box under the console on the I/O frame.
- Install margin switch cover P/N 256798 with 2 screws P/N 186759.
- Fill the print head oil reservoir with IBM #6 to approximately 1/16 (1,6) below top.
- Install the ribbon according to the diagram on the right margin stop guard plate. DO NOT use Selectric ribbon. It will not work.

- Before turning power on, turn the lead screw over by hand to ensure that the transducer tips clear the emitter wheels.



PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
2637218	AC to Console Printer	PF	3210 I or 3215 I J60	1	Basic
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1985645	Signal to 3210 I	CPU	3210 I	2	3210 I
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1993761	Amplifier signal to 3215 I	CPU	3215 I	1	3215 I
1993763	Signal to 3215 I	CPU	3215 I	1	3215 I
1993765	Signal to keyboard	CPU	3215 I	1	3215 I

12 CONSOLE FILE

----- Complete unpacking instructions for the console file.

----- Pull the 3 console file cables from the CPU through and insert the a.c. and d.c. cables into the strain reliefs on the CF frame. Plug the console file cables into these cables.

----- Plug the signal cable. Install cable clamp on the signal cable.

- Maintenance information for the console file is found in the 23FD manual included in the shipping group.

PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
1993873	AC to CF	PF	CF J106	1	Basic
1993942	DC to CF	PF	CF J62	1	Basic
1998534	Signal to CF	MXR BRD	CF	1	Basic

PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
1993991	AC to CPU	CPU P58	PF	1	Basic
1993944	PWR Control	CPU J55,J56	PF	2	Basic
1993945	DC to Console	CPU J42,J43	PF	2	Basic

13 CPU-POWER FRAME CABLING

----- Route all cables from the CPU to the PF and connect. Use cable chart to aid in connections.

14 INTEGRATED FILE ATTACHMENT (IFA)

----- The 96 tri-lead cable is coiled in the CPU. Route the cable into the PF and along the top frame member over the dc supplies. Secure in plastic fasteners. Route the cable into the IFA down the left side of the gates, across the middle of the two gates and plug on the back panel of the 2319 mixer board. Each connector is labeled with its proper location.

----- Route the remaining IFA cables and connect. Use cable charts to aid in connections.

* Note: The VFO must be adjusted. See section 21.

PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
2285958	DC for interface board	2319	PF IFA	1	IFA
1993875	DC for Drives (1 for each)	2319	PF DRA-DRH	1	IFA
1993968	AC to 2319	PF	2319 J63	1	IFA
1993963	AC to 2319 (50hz)	PF	2319 J63	1	IFA
1993870	IFA Conv Outlet	PF	2319		IFA
1993895	IFA Conv Outlet (50hz)	PF	2319		IFA
2630097	96 Tri-lead harness	CPU 01-A-B1	2319 Mixer board	17	IFA
1993694	Read/Write coax	PF	2319	2	IFA
	Ground strap	2319	PF	1	IFA

PART NUMBER	CABLE	FROM	TO	NO. OF CONN	FEATURE
1993958	AC to MSF	PF	3345 P59		MSF
1993954	IND. LIGHTS	PF	3345 J64		MSF
N/A	TRI LEAD	CPU	3345		MSF
N/A	400HZ to MSF	3046	3345		MSF
N/A	CONTROL	3046	PF		MSF

15 MAIN STORAGE FRAME (MSF)

----- Route MSF cables and connect. Use cable chart to aid in connections.

16 PRE-POWER-ON CHECKS

- Inspect the CPU frames for internal shipping damage. Visually check for loose cards, cables, and damaged cable connectors. Be sure the green and yellow ground connections are securely connected to their frame connections. Check that all interframe ground straps are connected.
- Check all terminal board screws for good tight connections.
- Make final ground check between any CPU ground pin and the frame (15K ohms) to see that no shorts have appeared.
- Reconnect the wire from terminal 9 on the mixer-board laminar-bus to the frame. This wire was removed from the frame under the step Grounding Check.

Caution:

Do not connect I/O equipment until phasing is correct.

- Turn on wall power.
- Check power phasing on all three-phase power receptacles to ensure proper motor rotation within the machines. This can be done with an oscilloscope or with a phase meter.

Oscilloscope

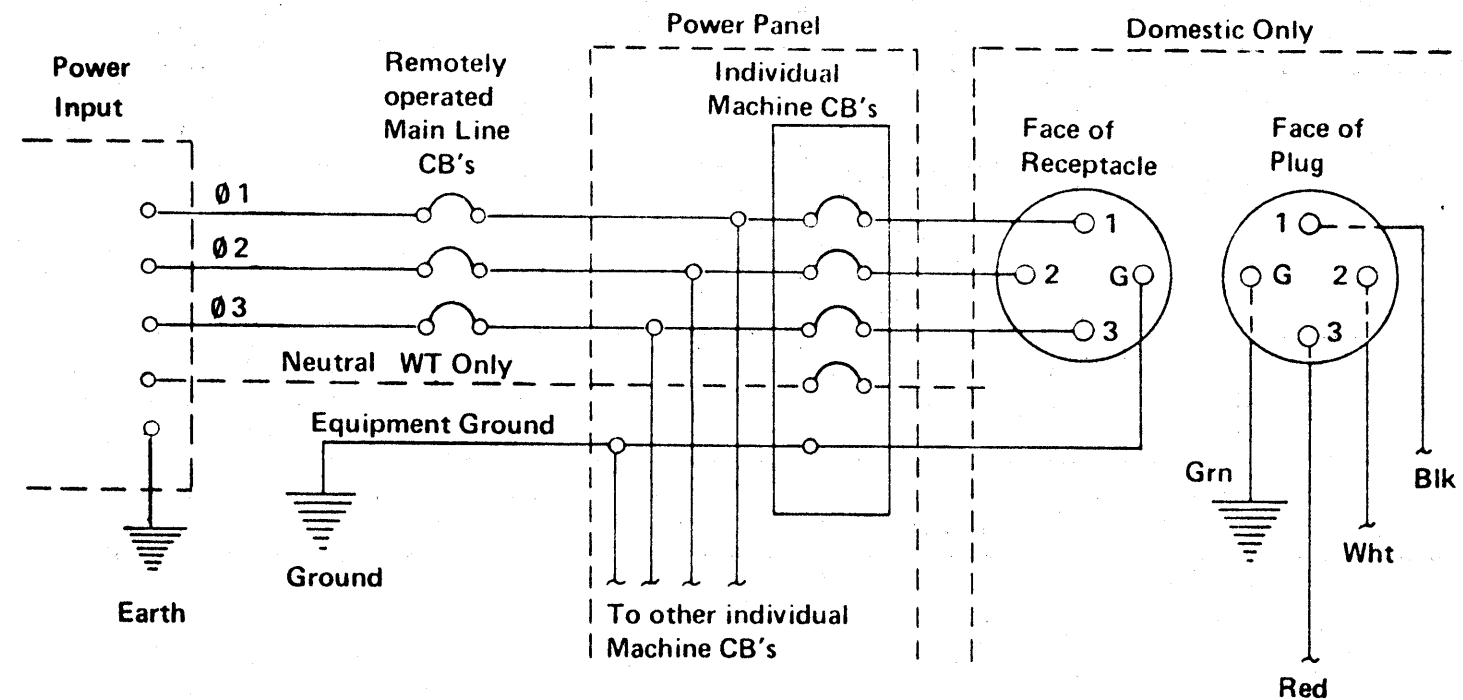
- Make certain the oscilloscope is grounded to the receptacle. Connect the sync lead to phase 1 pin and adjust the scope to display one complete cycle. Using the vertical input probe, observe the voltage at phase 2 pin. It should occur 120 degrees after phase 1. Observe phase 3 next. It should occur 120 degrees after phase 2 or 240 degrees after phase 1. If improper phasing does exist, the situation must be corrected by the customer before system installation.

Phase Meter

- Check the phase voltages at the receptacle pins.

For 50Hz installations the 5 wire line cord is wired directly to the customer's wall box. The chart gives the wire color coding.

	PH1	PH2	PH3	Neutral	Ground
50Hz United K.	Red	Wht	Blu	Blk	Grn or Grn/Yel
50Hz Japan	Blk	Wht	Rcd	---	Grn or Grn/Yel
50Hz All other	Brn	Blk	Blk	Blu	Grn/Yel
60Hz Japan	Blk	Wht	Rcd	---	Grn or Grn/Yel
60Hz Domestic	Blk	Wht	Rcd	---	Grn or Grn/Yel



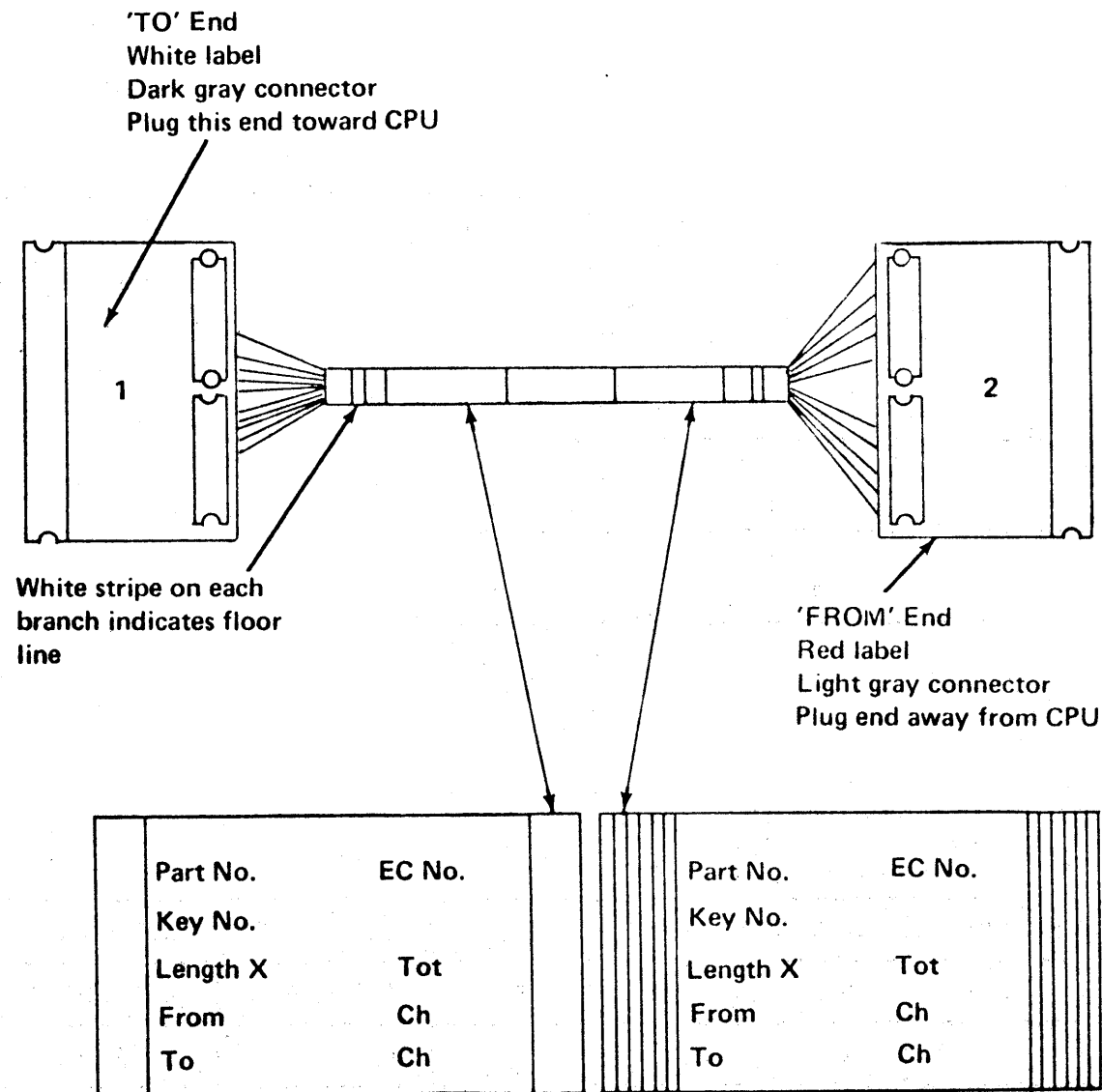
17 EXTERNAL CABLE INSTALLATION

- The microdiagnostics can be run before the external cables are installed. The dummy EPO plug must be plugged into position J1 of the EPO panel. If you elect to run the micros, skip to section 18 and perform sections 18, 19, and 20. The EPO check should be performed again after the external cables and units are installed.

NOTE: If 3210 Model II is installed, the cables must be installed and power on the 3210 II for the microdiagnostics to run properly.

- Separate, as far as practical, all power cords and signal cables.
- Treat EPO cables as power cords. They should not parallel other power cords, signal cables, or conduit.
- Signal cables should be placed in an orderly fashion between interconnecting system units. Parallel signal cables between units should pass thru a minimum of metal structural elements and should follow the same routing.
- Cables must not be laid out with closed loops or coils, but should be routed in a way to avoid this condition.
- Avoid inter-twining of signal cables in parallel runs.
- Each external cable is labeled at each end. A red label is used on the "from" end and a white label is used on the "to" end. The "from" end is the cable end away from the processor and the "to" end is the end toward the processor.
- As a check on interface cable hookup be sure that the light gray/dark gray connectors are always connected light to dark and dark to light.

----- Mark "BUS" and "TAG" on all unlabeled interface cables before installation.



Exceptions:
 Chanel
 Channel to Channel
 Direct Control
 Multi-system EPO

----- If cable lengths were not checked before the system arrived, check them now.

----- Route all cables to the proper cutouts for each unit and replace floor panels. For non-raised floor installations, cables are routed under the frames and into the connecting area. Make sure all cables are dressed to the rear of the processor to avoid damage to the cables.

----- Be sure each unit is installed and checked out in accordance with the individual installation procedure including a ground check of the units.

----- Pull cables through the openings in the control units and connect as per installation instructions for the individual unit.

----- Plug the terminator cards shipped in the I/O connector rack sockets into the appropriate positions in the last control unit on each channel. Refer to the Installation Manual for each control unit to determine the terminator location.

----- Plug channel cables into the appropriate positions of the I/O connector rack.

----- Route the EPO cables to the EPO panel in the power frame. The cables are plugged in sequence starting with J1, J2, etc.

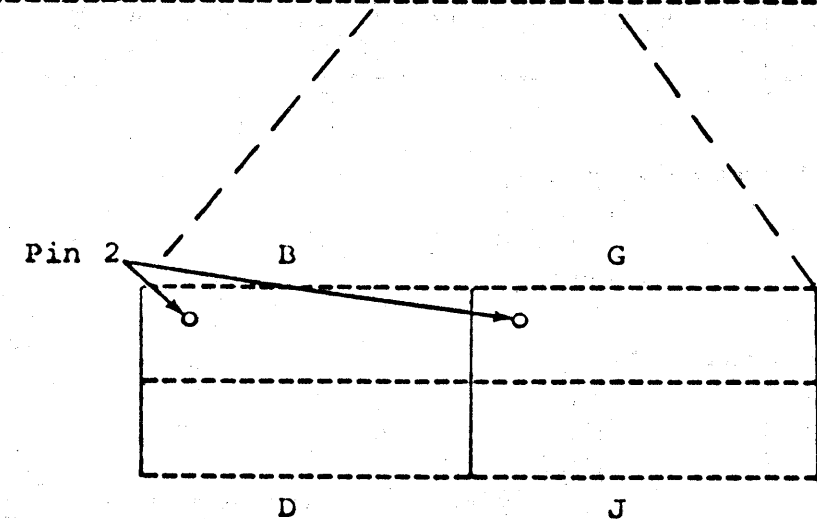
----- Install the dummy EPO plug in the position following the last EPO cable.

----- Check that an EPO jumper is installed in the multi-system EPO connector, J41, located behind the EPO panel on the logic gate mounting bracket.

Location example: (FR) (GATE) (LOC) (PIN)
01 - E - CC E4 - B02

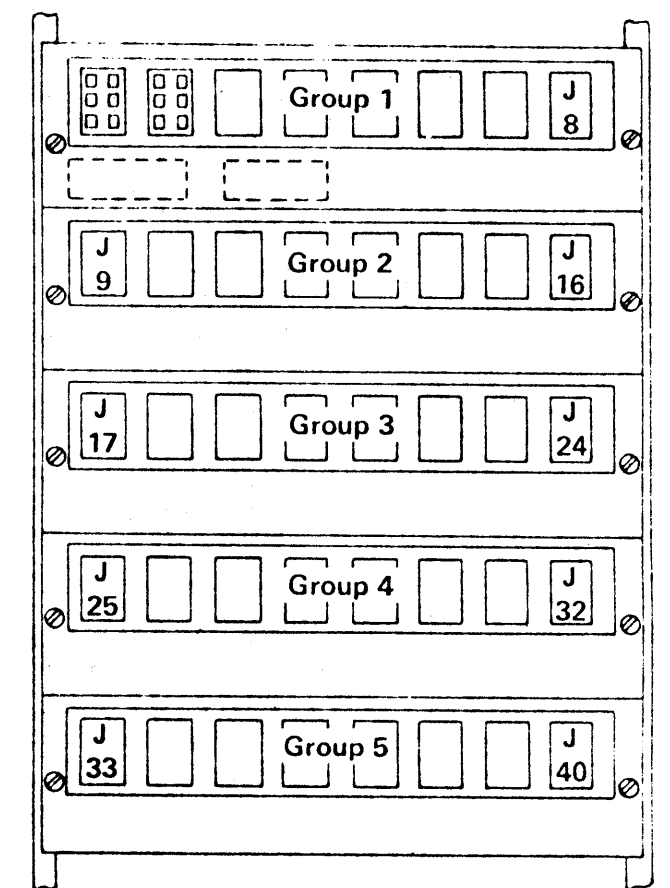
← Cable Connector

Loc	A	B	C	D	E	F	G	H	J
2	DC IN	DC OUT							
3	X BUS IN	X BUS OUT	Y BUS IN	Y BUS OUT	MPX BUS	SX1 BUS	SX2 BUS	SX3 BUS	SX4 BUS
4	X TAG IN	X TAG OUT	Y TAG IN	Y TAG OUT	MPX TAG	SX1 TAG	SX2 TAG	SX3 TAG	SX4 TAG



DC = Direct Control

Channel-to-channel feature uses positions A3, A4, B3, B4, C3, C4, D3, and D4.



18 POWER-ON TESTING

----- With the CPU power cord plugged and the wall box turned on, turn on the main line circuit breaker (CB1).

----- Press the POWER ON key; power should come up on all units.

If power fails to come up, sequentially substitute an EPO jumper plug for each EPO cable. If a faulty cable is found, a jumper plug can be substituted for the cable and the unit brought up in local to complete the system checkout. Repair the cable as soon as possible.

----- Check all blowers in the CPU, PF, MSF, and IFA. Air should flow out of the top of the gates, power towers, and storage units.

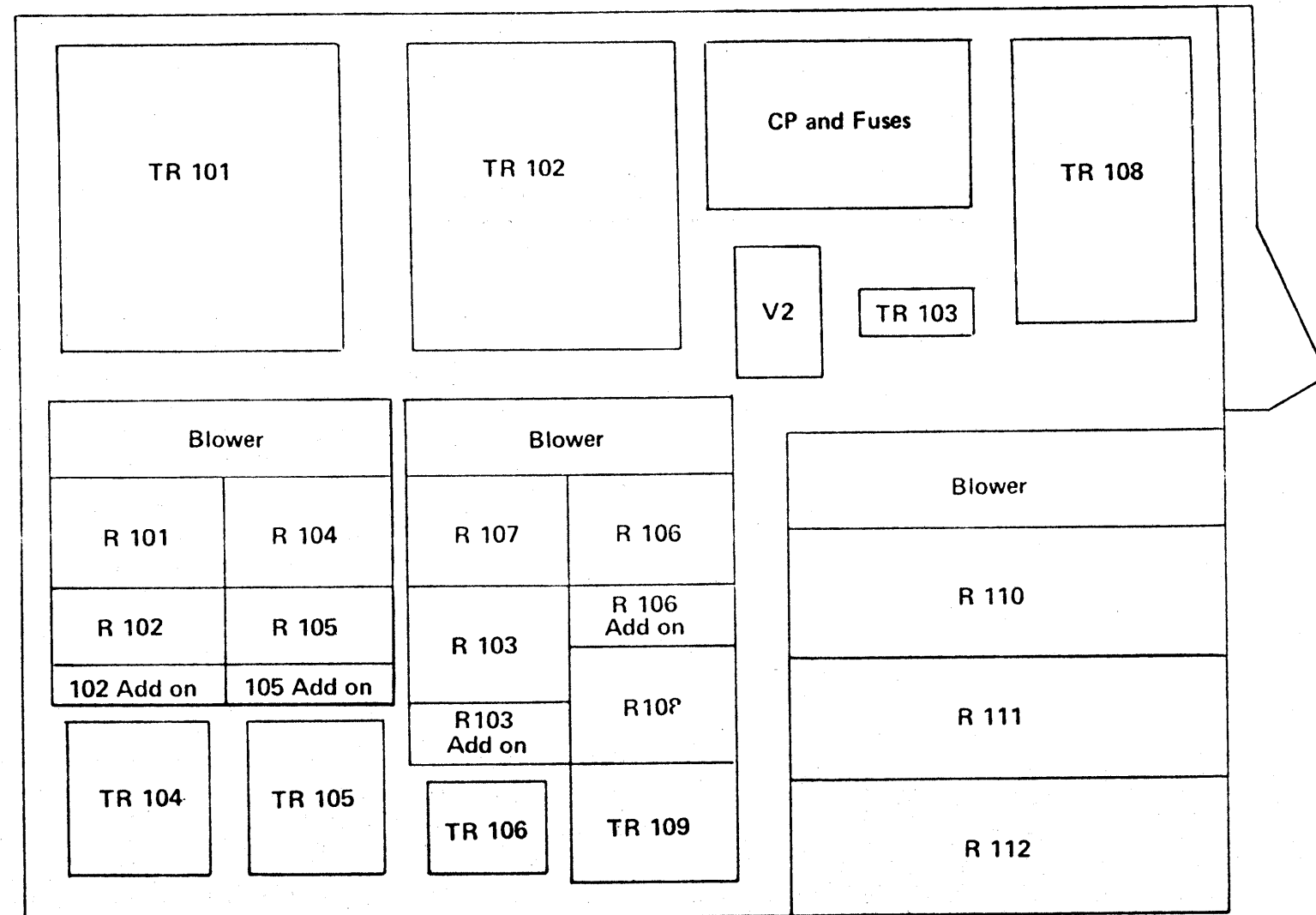
19 EPO CHECK

----- With power up, the EPO cables plugged, and the I/O units in remote, pull the EMERGENCY PULL switch. Power should drop on all units.

----- Press the console POWER ON key; power should not come up.

----- Reset the EMERGENCY PULL switch.

----- Press the POWER ON key. Power should come up on all units.



20 VOLTAGE CHECKS

----- Check MG output using the MG Test Adapter box P/N 2637491. Use the procedure in the 3145 Processing Unit Theory-Maintenance manual.

----- Check voltages at the points specified. Adjust voltages only if the setting is outside the range specified. Use the procedure in the 3145 Processing Unit Theory-Maintenance manual.

----- Check lamp test.

REGULATOR	LOGIC PAGE	RATING	TOLERANCE	TEST POINT					
				GATE	BOARDS	SOCKET	PIN	GND	FEATURE
102	YE310	+1.25v 69 amp	Note 1	A	A1,B1,C1	M4	D03	D08	Basic
		-3v 69 amp	Note 1	A	A1,B1,C1	M4	B06	D08	Basic
101	YE310	+1.25v 69 amp	Note 1	A	A3,B3,C3	M4	D03	D08	Basic
		-3v 69 amp	Note 1	A	A3,B3,C3	M4	B06	D08	Basic
104	YE300	+1.25v 69 amp	Note 1	A	A2,B2,C2	M4	D03	D08	Basic
		-3v 69 amp	Note 1	A	A2,B2,C2	M4	B06	D08	Basic
107	YE301	+1.25v 69 amp	Note 1	A	A4,B4,C4	M4	D03	D08	Basic
		-3v 69 amp	Note 1	A	A4,B4,C4,	M4	B06	D08	Basic
108	YE300	+6v 12 amp	+6.000v±6mv	A	*	TB101	5	6	Basic
109	YE303	+1.25v 69 amp	Note 1	B	A1;B1;C1	M4	D03	D08	SX4,CH-CH
		-3v 69 amp	Note 1	B	A1,B1,C1	M4	B06	D08	SX4,CH-CH

* Located on the hinged side of the A-gate.

Note 1:

Measure the voltage at the pin specified on all three boards. Compare the reading for boards B and A. The difference must not exceed ±12mv (1.25v supplies) or ±30mv (3v supplies).

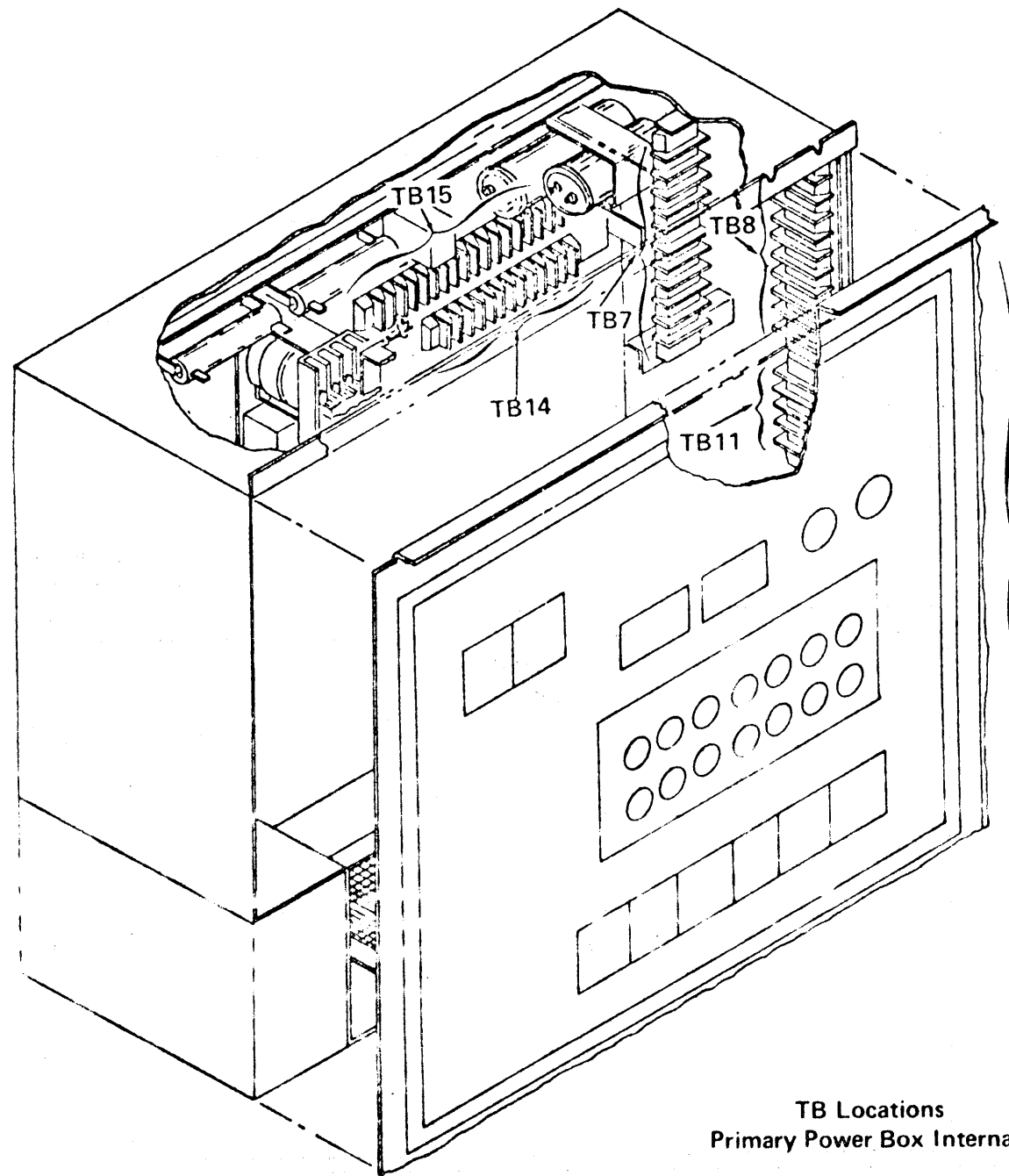
Compare the readings for boards B and C. The difference must not exceed ±12mv (1.25v supplies) or 30mv (3v supplies).

If a limit is exceeded adjust the supply using the procedure in the 3145 Processing Unit Theory-Maintenance manual.

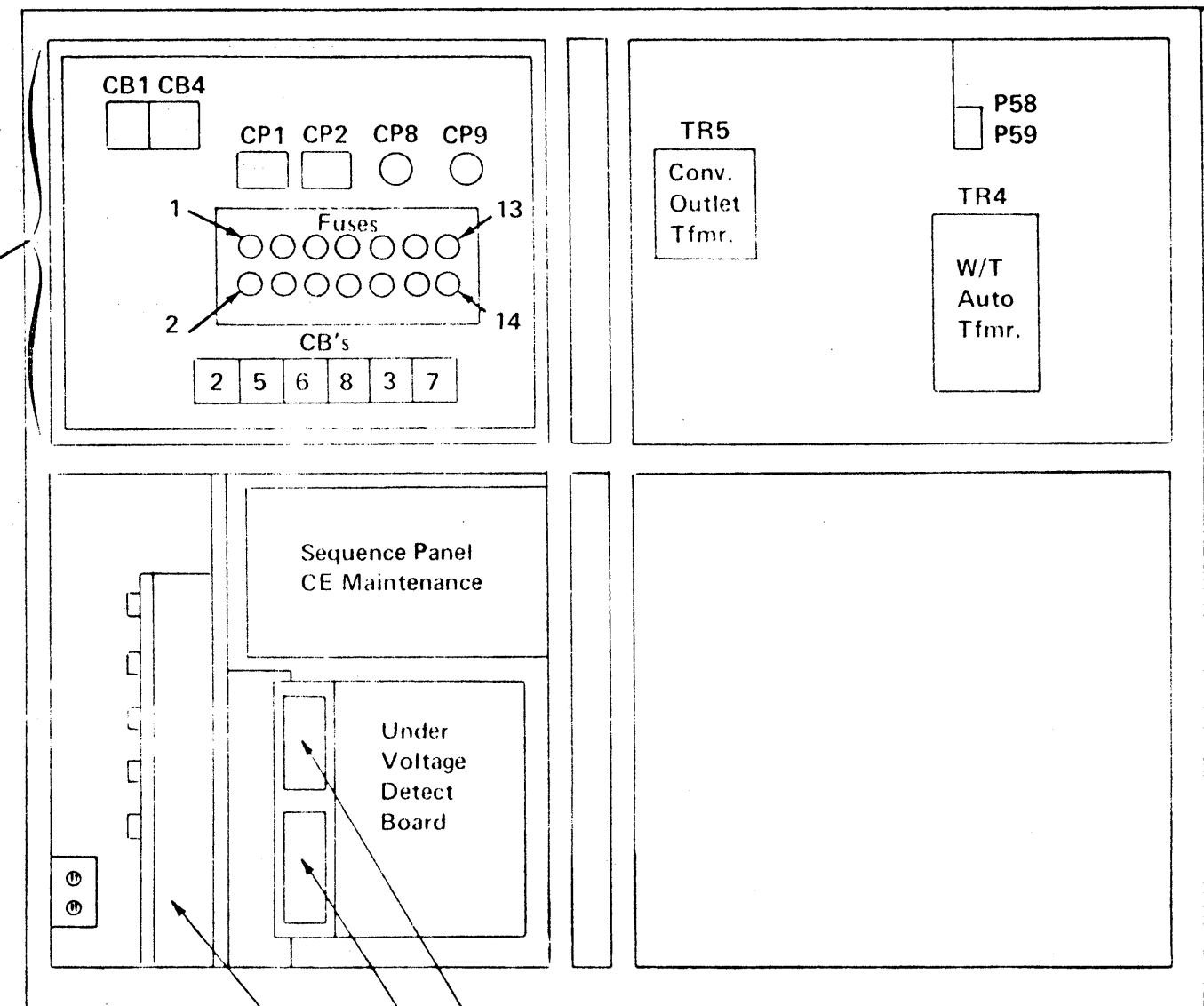
REGULATOR	LOGIC PAGE	RATING	TOLERANCE	TEST POINT					
				GATE	BOARDS	SOCKET	PIN	GND	FEATURE
103	YE300	+1.25v 69 amp	+1.272v±2mv	B	A2	K2	D03	D08	Basic
		-3v 69 amp	-3.027v±2mv	B	A2	K2	B06	D08	Basic
106	YE300	+7v 69 amp	+7.029±2mv	B	A2	K2	G09	D08	Basic
105	YE300	+1.25v 89 amp	+1.272v±2mv	B	A3	K2	D03	D08	Basic
		-3v 89 amp	-3.027v±2mv	B	A3	K2	B06	D08	Basic
110	YE302	+2v 250 amp	Note 1	B	A2/A4	K2	B04	D08	Basic
111	YE302	+2v 250 amp	Note 1	B	B2/B4	K2	B04	D08	Basic
112	YE302	+2v 250 amp	Note 1	B	C2/C4	K2	B04	D08	Basic

Note 1:

Measure the +2v level on both the upper and lower boards (A2/A4, B2/B4, C2/C4). Determine the average reading. The result should be between 2.140 and 2.144 volts. Adjust if required using the procedure in the 3145 Processing Unit Theory-Maintenance manual.



TB Locations
Primary Power Box Internal

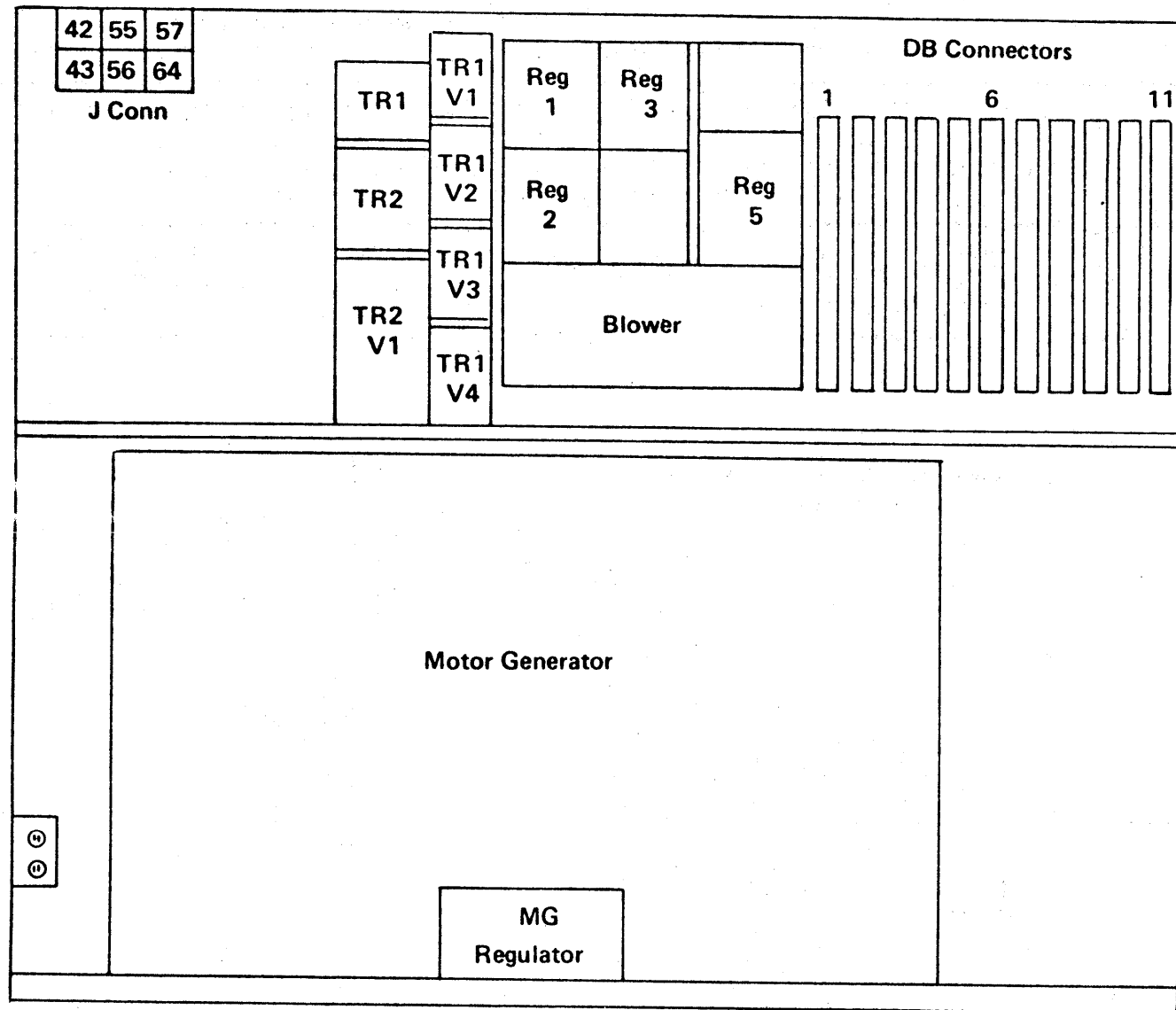


Power Frame
(Front view)

TB17
TB18

T/R	Logic Page	Rating	Nominal Volt Setting	Test Point (Power Frame)		Tolerance at Board Pins	Feature
				Plus	Grnd.		
2	YE310	36v 12 amp	Not Adjustable	DB1-9	DB2-9	32.40v to 39.60v	IFA
*3	YE310	24v 11 amp	Not Adjustable	TB14-7	TB14-8	21.60v to 26.40v	Basic
		12v 3 amp	Not Adjustable	C3(+)	C3(-)	10.80v to 13.20v	Basic
*108	YE155	12v 2.5 amp	12.0v±12mv	TB14-10	TB14-11	10.80v to 13.30v	Basic

NOTE: * Test Points for TR3 and TR108 located in primary power compartment.



Power Frame
(Rear view)

Regulator	Logic Page	Rating	Nominal Volt Setting	Test Point (Power Frame)		Tolerance at Board Pins	Feature
				Plus	Grnd		
1	YE310	36v 20 amp	-3.000±3mv	DB9-9	DB6-9	-2.88v to -3.12v	IFA
2	YE310	+3v 20 amp	+3.000±3mv	DB4-9	DB3-9	2.88v to 3.12v	IFA
3	YE310	-36v 2 amp	-36.0±36mv	DB11-9	DB6-9	-34.36v to -37.44v	IFA
5	YE310	+6v 16 amp	+6.000±6mv	DB7-9	DB3-9	4.76v to 6.2v	IFA

21 SYSTEM TESTS

- Check console functions.
- When IFA is installed, adjust the VFO. Use the procedure in the 3145 Processing Unit Theory-Maintenance manual.
- Run microdiagnostics and all applicable macrodiagnostics.
- Run ASCP and customer programs if available.

22 AFTER INSTALLATION

- Make sure the customer has the proper disks for each coreload applicable to the system.
- Insert reference material such as CE Manuals, Parts Catalogs, etc. in binders.
- Place installation instructions and unpack/pack instructions in binders provided for maintenance manuals and CE instruction manuals. The alternate location for these instructions is in the front of volume 1.
 - To order the latest level packing instructions and materials needed for shipment in case of field transfer, order the applicable BM from those listed in the unpack/pack instructions.
- Fill out and return all applicable forms. Report the installation complete.
- Logics are shipped in special containers that can be used as permanent storage devices. If the containers are not used, return as directed.
- Fill out the locator decal Form 120-1703 to identify the location of all maintenance aids.
- Store the IRs in an appropriate place.

Note:

If MINI-IRS were received for any I/O unit, please advise FETO, plant of control, immediately.
- Write a Code 20 complete IR for every type-numbered unit installed.

23 DIAGNOSTIC PROGRAM PACKAGE CHECK LIST

- Disks
 - BAS--Basic diagnostics
 - EX1--Extended diagnostics
 - EX2--Extended diagnostics
 - 370 Coreloads (2)
 - EX 3
- ASCP
 - STF1--ASCP Disk 1
 - STF2--ASCP Disk 2
 - ASCP Operators Guide
- SEREP
 - Card Deck
 - SEREP Description

SR25-5608-0

System/370 Model 145 Installation Instructions Supplementary Course Material Printed in U.S.A. SR25-5608-0

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