

**Installation and Packaging for  
Data General Corporation Peripherals**



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## **PREFACE**

*THIS MANUAL REPRESENTS A COMPILATION OF INSTALLATION DATA SHEETS FOR FCC-COMPLIANT DATA GENERAL CORPORATION PERIPHERALS. THE DATA SHEETS APPLICABLE TO YOUR EQUIPMENT WERE ALSO SUPPLIED TO YOU IN THE DOCUMENTATION PACKAGE ACCOMPANYING YOUR SHIPMENT. WE RECOMMEND THAT YOU REFER TO THE SHEETS SUPPLIED WITH YOUR EQUIPMENT IF POSSIBLE, AS THE INFORMATION THEY CONTAIN MAY BE MORE CURRENT THAN THE INFORMATION INCLUDED IN THIS MANUAL.*

*FOR FURTHER INFORMATION ON PROCESSORS AND PACKAGED SYSTEMS SEE "INSTALLATION AND PACKAGING FOR DATA GENERAL PROCESSORS AND PACKAGED SYSTEMS" (014-000729-00), ALSO FOR EARLIER MODEL EQUIPMENT SEE "INSTALLATION AND PACKAGING FOR EARLIER MODEL DATA GENERAL CORPORATION PROCESSORS AND PACKAGED SYSTEMS" (014-000731-00), AND "INSTALLATION AND PACKAGING FOR EARLIER MODEL DATA GENERAL CORPORATION PERIPHERALS" (014-000968).*

*FOR INFORMATION ON EXTERNAL CABLING, SEE "EXTERNAL CABLING FOR DATA GENERAL CORPORATION PRODUCTS" (014-000784).*

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# **CONFIGURATION RULES**





## DCH CONFIGURATION RULES

### 1.0 SCOPE

THE PURPOSE OF THIS INSTALLATION DATA SHEET IS TO ESTABLISH A UNIFORM STANDARD FOR ASSIGNING PERIPHERAL CONTROLLER BOARDS TO POSITIONS IN A CPU CHASSIS, WITH REGARD TO DATA CHANNEL LATENCY, I/O BUS LOADING.

### 2.0 PROCEDURE

BEFORE ASSIGNING A PERIPHERAL CONTROLLER TO A SPECIFIC SLOT IN A CPU CHASSIS, YOU MUST CONSIDER SEVERAL FACTORS, SUCH AS DATA CHANNEL LATENCY, I/O BUS LOADING, D.C. POWER REQUIREMENTS, AND CABINET POWER REQUIREMENTS. THESE CONSIDERATIONS ARE COMMON TO ALL FAMILIES OF CPU'S AND THE MOST IMPORTANT OF THEM ARE DISCUSSED IN THIS PROCEDURE.

THERE ARE OTHER FACTORS WHICH MUST ALSO BE CONSIDERED IN CONFIGURING A COMPLETE SYSTEM. THESE INCLUDE PRIORITY WIRING, FUSE RATINGS, ALLOWABLE I/O CABLE LENGTHS, MECHANICAL RESTRICTIONS, CABINET POWER DISSIPATION, ETC. THIS PROCEDURE DOES NOT COVER ALL OF THE VARIABLES WHICH DETERMINE SYSTEMS CONFIGURATION; REFER TO THE APPROPRIATE CONFIGURATION GUIDE FOR EACH PROCESSOR FAMILY FOR THESE OTHER CONSIDERATIONS.

THE TABLES WHICH FOLLOW PRESENT INFORMATION NECESSARY FOR ASSIGNING A SLOT IN THE CPU BOARDS WHICH HAVE THE HIGHEST DEGREE OF PRIORITY SHOULD BE ASSIGNED SLOTS CLOSEST TO THE CPU BOARDS (010, 020, 030, ETC.) IN PREPARING THESE TABLES. THE FACTORS WHICH WERE CONSIDERED WERE:

1. DATA CHANNEL LATENCY
2. BUS LOADING

THESE FACTORS ARE DEFINED BELOW:

1. DATA CHANNEL LATENCY - DEFINED AS THE TIME WHEN A PERIPHERAL DEVICE REQUESTS ACCESS TO MEMORY AND THE WORST CASE TIME THAT THE TRANSFER MUST BE ANSWERED  
IN OTHER WORDS, THE TIME CONSISTS OF TWO ITEMS:

- 1) THE TIME THE PERIPHERAL REQUESTS MEMORY ACCESS VS. THE NEXT DATA CHANNEL BREAK:

AND:

- 2) THE TIME REQUIRED TO COMPLETE DATA CHANNEL TRANSFER TO/FROM ANY HIGHER PRIORITY PERIPHERALS THAT ARE ALSO REQUESTING MEMORY ACCESS
2. BUS LOADING - THE TOTAL NUMBER OF THE LOADS ON THE I/O BUS WHICH THE CPU MUST DRIVE.

THIS CAN BE DETERMINED BY ADDING UP THE INDIVIDUAL BUS LOADS OF THE PERIPHERAL CONTROLLERS USED IN THE SYSTEM. THE MAXIMUM NUMBER OF LOADS WHICH A PROCESSOR CAN DRIVE, WITHOUT USING AN I/O BUS REPEATER, IS TEN (10) LOADS, NOT INCLUDING THE MAP BOARD. NOTE THAT MEMORY BOARDS, WHICH DO NOT SHARE THE I/O BUS, DO NOT NEED TO BE CONSIDERED IN BUS LOADING.

3. CPU'S WITH BMC CAPABILITY HAVE MANDATORY BMC PRIORITY IF DEVICE IS CONFIGURED FOR BMC OPERATION. DISREGARD DCH CONFIGURATION AND SEE PAGE 3 OF THIS DOCUMENT FOR BMC CONFIGURATION.

PRIORITY	MODEL NO.	DESCRIPTION	DATA CHANNEL CONTROLLER	PROG I/O	WORST CASE DATA CHANNEL LATENCY	BUS LOADING	EXPANSION CHASSIS
005	4330-33	A/D, D/A CONVERTER	X		10 μs	1	Y
010	4196	P.E. TAPE DRIVE (45 IPS)	X		10 μs	1	Y
020	4030 6020,6021	MAG TAPE DRIVE (75 IPS)	X		12.5μs	1	Y
030	4046	MOVING HEAD DISK (2.5 MBYTES)	X		12.8μs	1	Y
040	6045/6051 6046 6047 6048	DIABLO 44 OR 10MB DISC 20MB 30MB 40MB	X		12.8μs	1	Y
050	4055	ANALOG/DIGITAL (ANALOG CO)	X		13.3 μs	1	Y
060	6063,-64,-65,-66 *** 6063H,-64H,-65H,-66H	FIXED HEAD DISK	X, BMC SEE NOTE 4		18 μs	2	Y
070	4231 6060,-61/6067 *** 6060H,-61H	50, 100, 200 MB MHD CONTROLLER	X, BMC SEE NOTE 4		19.8μs	2	Y
080	6098 6100	12.5MB CONTROLLER (WITH QUAD DISKETTE) 25MB CONTROLLER WITH QUAD	X		50μs	1	Y
087	6231, 6225C, 6227C	1/4- INCH CARTRIDGE DRIVE	X		57μs	1	N
090	6026 6027	MAG TAPE 800/1600 BP1 DMT 9 TRK NRZI DRIVE	X X		60 PE 250 NRZI	1	Y
095	***4307	GCR TAPE	X, BMC SEE NOTE 4		96μs	1	Y
100	6030,6031	FLOPPY DISK	X		128μs	1	Y
102	6125	MAG TAPE	X		160μs	1	Y
108	4250 4254	DCU 50 DCU 200	X		DEPENDS ON SPECIFIC DEVICE	1	Y
112	*** 6160,6161	SMD DISC CONTROLLER SEE NOTE 6	X, BMC SEE NOTE 4		949.2 μs	1	N

\*\*\* RUNS WITH BMC (also)

NOTES:

1. 8315 - I/O BUS REPEATER
  - a.) USED TO DRIVE COMM CHASSIS OR DG/DAC: GETS DCU PRIORITY (110).
  - b.) USED TO BOOST I/O LOADS:
    - 8315-M - SLOT 28 OF M600
    - HIGHEST I/O SLOT OF C150/S130
    - SLOT 12 OF N3/12
    - SLOT 17 OF N800/N1200
2. WHEN 4079 OR 4008 IS ORDERED IT SHOULD BE INSTALLED IN PRIMARY I/O SLOT.

PRIORITY	MODEL NO.	DESCRIPTION	DATA CHANNEL CONTROLLER	PROG I/O	WORST CASE DATA CHANNEL LATENCY	BUS LOADING	EXPANSION CHASSIS
116	6070 (B, C, D, E)	20 MBYTE DISC	X		1.08ms	1	Y
120	6099/6103	DISK CONTROLLER (W/O DISKETTE)			1.2ms	1	Y
124	4380	ISC	X		125μs	1	Y
128	4357, 4358	IAC/8, IAC/16	X		10/R (R=HIGHEST) BAUD RATE (5) NOTE 6. 200μs	1	Y
132	4460	NBS	X		(7)	1	N
140	4038/4206	MCA	X		(7)	1	Y
145	8020/8539	DATA CHANNEL FPU - NOVA	X			1	Y
150	4100/4112	1000 LINE MUX CONTROLLER	X		n/a	1	Y
160	4015	HI-SPEED COMM CONTROLLER-SYNC	X		—	1	Y
180	4240	IPB		X	n/a	1	Y
190	4025	IBM INTERFACE	X		—	2	N
191	4349	BSI-4		X	n/a	1	Y
192	4348	BSI-1		X	n/a	1	Y
193	4345	CSI-2		X	n/a	1	Y
194	4346	CSI-1		X	n/a	1	Y
195	4342	ATI-16		X	n/a	1	Y
196	4340	AMI-8		X	n/a	1	Y
200	4242	1-LINE MUX (SYNC)		X	n/a	1	Y
210	4215/4216,4218,4219, 4244,4245,6088,6089	DATA CHANNEL LINE PRINTER	X		n/a	1	Y

3. BMC1 JUMPERS FOR 8 WORDS/ 16 WORDS.
4. FOR BMC CONFIGURATION, SEE PAGE 3 OF THIS DOCUMENT.
5. FOR LINES CONNECTED TO "PACING" DEVICES (SUCH AS STANDARD DG TERMINALS), USE R + c), REGARDLESS OF ACTUAL BAUD RATE.
6. MUST BE PLACED IN I/O ONLY SLOT, OTHERWISE DAMAGE TO OTHER BOARDS WILL RESULT.
7. FLOW CONTROLLED DEVICE.

DCH CONFIGURATION RULES (CONT)

PRIORITY	MODEL NO.	DESCRIPTION	DATA CHANNEL CONTROLLER	PROG I/O	WORST CASE DATA CHANNEL LATENCY	BUS LOADING	EXPANSION CHASSIS
215	4241/4241A 4243	4-LINE EIA/20MA MUX (ASYNC) 4-LINE ASYNC, 1-LINE SYNC MUX EIA & 20 MA		X		1	Y
220	4073	4-LINE MUX (SYNC)		X		1	Y
230	4074	1-LINE MUX (SYNC)		X		1	Y
240	4063	4-LINE EIA MUX		X		4	Y
250	4062	4-LINE EIA MUX (ASYNC)		X		4	Y
260	4060	4-LINE 20MA MUX (ASYNC)		X		4	Y
270	4061	4-LINE 20MA (ASYNC)		X		4	Y
280	4065,-66,-67,-68 4191	DIGITAL I/O		X		1	Y
290	4036 4016	CARD READER CONTROLLER		X		1	Y
300	4306	BUFFERED CARD READER CONTROLLER		X		1	Y
310	4014,4017,4034 4193 6086,-87	LINE PRINTER CONTROLLER		X		1	Y
320	4075,-77,-78,-79 6080,-81,-82,-84,-85	CASSETTE I/O SEE NOTE 2		X		1	Y
330	4007,-08 4010,-11,-12 4023,-29	BASIC I/O SEE NOTE 2		X		1	Y
340	4040 4190	G.P. BOARDS		X		1	Y
350	4181	D/A DIGITAL TP ANALOG CONVERTER		X		1	Y
360	4120-4180	A/D ANALOG DATA SUBSYSTEM		X		1	Y

NOTES:

1. 8315 - I/O BUS REPEATER
  - a.) USED TO DRIVE COMM CHASSIS OR DG/DAC: GETS DCU PRIORITY (110).
  - b.) USED TO BOOST I/O LOADS:
    - 8315-M - SLOT 28 OF M600
    - HIGHEST I/O SLOT OF C150/S130
    - SLOT 12 OF N3/12
    - SLOT 17 OF N800/N1200
2. WHEN 4079 OR 4008 IS ORDERED IT SHOULD BE INSTALLED IN PRIMARY I/O SLOT.
3. BMCI JUMPERS FOR 8 WORDS/ 16 WORDS.
4. FOR BMC CONFIGURATION, SEE PAGE 3 OF THIS DOCUMENT.
5. FOR LINES CONNECTED TO "PACING" DEVICES (SUCH AS STANDARD DG TERMINALS), USE R + c), REGARDLESS OF ACTUAL BAUD RATE.
6. MUST BE PLACED IN I/O ONLY SLOT, OTHERWISE DAMAGE TO OTHER BOARDS WILL RESULT.

## BMC CONFIGURATION RULES

### 1.0 SCOPE

THE PURPOSE OF THIS INSTALLATION DATA SHEET IS TO ESTABLISH A UNIFORM STANDARD FOR ASSIGNING PERIPHERAL CONTROLLER BOARDS USING BMC A PRIORITY BETWEEN BMCI DEVICES WITHIN A SYSTEM, WITH REGARD TO CHARACTERISTIC DIFFERENCES BETWEEN DEVICES.

### 2.0 PROCEDURE

BEFORE ASSIGNING A BMCI PERIPHERAL CONTROLLER A PRIORITY ON THE BMC BUS, AS WELL AS A SPECIFIC SLOT IN THE CPU CHASSIS, YOU MUST CONSIDER SEVERAL FACTORS. THESE CONSIDERATIONS, SUCH AS MAXIMUM ALLOWABLE LATENCY OF THE DEVICE, I/O BUS LOADING, D.C. POWER REQUIREMENTS, CABINET POWER REQUIREMENTS, AND INTERNAL AND EXTERNAL CABLE REQUIREMENTS, ARE COMMON TO ALL FAMILIES OF CPU'S. THE MOST IMPORTANT OF THESE ARE DISCUSSED IN THIS PROCEDURE.

THERE ARE OTHER FACTORS WHICH MUST ALSO BE CONSIDERED IN CONFIGURING A COMPLETE SYSTEM. THESE INCLUDE: PRIORITY JUMPERING OF THE BMCI DEVICE, FUSE RATINGS, BMC CABLE TYPES AND LENGTHS, MECHANICAL AND ELECTRICAL RESTRICTIONS, CABINET POWER DISSIPATION, ETC. THIS PROCEDURE DOES NOT COVER ALL OF THESE VARIABLES WHICH DETERMINE SYSTEM CONFIGURATIONS; REFER TO THE APPROPRIATE CONFIGURATION GUIDE FOR EACH PROCESSOR FAMILY FOR THESE OTHER CONSIDERATIONS.

### 2.1 ASSIGNING PRIORITIES

EACH INDIVIDUAL BMCI DEVICE IS RESPONSIBLE FOR CONFIGURATION OF ITS PRIORITY ON THE BMC BUS, AS WELL RECOGNITION OF ITS PRIORITY ON THE BMC BUS. EACH DEVICE ON THE BMC BUS HAS THE CAPABILITY OF REQUESTING SERVICE FROM THE BMC CHANNEL THROUGH ONE OF EIGHT REQUEST LINES HSCR 0 - HSCR 7. EACH DEVICE ON THE BMC BUS WILL HAVE AN ASSIGNED REQUEST NUMBER, EACH NUMBER HAVING

DIFFERENT PRIORITY, (HSCR 7 HAVING THE HIGHEST PRIORITY AND HSCR 0 HAVING THE LOWEST PRIORITY), AS WELL AS A REQUEST FOR BMC SERVICE. THE EIGHT REQUEST LINES RUN PARALLEL TO ALL CONTROLLERS SO THAT EACH CONTROLLER CAN SEE WHICH OTHER DEVICES ON THE BMC BUS ARE REQUESTING SERVICE DURING ANY BMC CYCLE. THE CONTROLLERS WILL THEN ARBITRATE WHICH DEVICE HAS PRIORITY BY LOOKING AT THESE REQUEST LINES.

FOR THE CONFIGURATION OF REQUEST NUMBERS ON EACH CONTROLLER THAT IS CONNECTED TO THE BMC BUS, REFER TO THE INDIVIDUAL CONTROLLERS INSTALLATION DATA SHEET, FOR JUMPER CONFIGURATIONS AND INDIVIDUAL REQUIREMENTS.

### 2.2 PRIORITY FACTOR

BECAUSE OF THE MANY TYPES AND CONFIGURATIONS OF BUFFERS AND FIFO'S IN THE CONTROLLERS ON THE BMC BUS, AS WELL AS THE DIFFERENT SPEEDS AT WHICH THE CONTROLLERS REQUIRE SERVICE FROM THE BMC, EACH CONTROLLER WILL BE ASSIGNED A PRIORITY FACTOR NUMBER FOR USE IN DETERMINING ITS PRIORITY ON THE BMC BUS. THE LOWER THE PRIORITY FACTOR NUMBER, THE HIGHER THE PRIORITY THE CONTROLLER REQUIRES. HSCR 7 HAS THE HIGHEST PRIORITY OF THE DEVICES ON THE BMC BUS.

TO DETERMINE THE PRIORITY FACTOR NUMBER A NUMBER OF FACTORS HAVE TO BE CONSIDERED. THERE ARE:

1. THE SIZE AND TYPE OF BUFFERS IN THE CONTROLLER, AND HOW THEY ARE USED.
2. THE MAXIMUM LENGTH OF TIME THE CONTROLLER CAN OPERATE WITHOUT SERVICE FROM THE BMC WITHOUT ENCOUNTERING A DATA LATE CONDITION.
3. THE AVERAGE SIZE OF A BURST THAT THE CONTROLLER REQUESTS FROM THE BMC, IN A BURST CYCLE.

TO FIND THE PRIORITY FACTOR OF A CONTROLLER MULTIPLY THE WORD RATE IN MICRO SECONDS, TIMES THE STANDBY BUFFER SIZE. (THE STANDBY BUFFER SIZE IN THE CASE OF A TWO RAM BUFFER CONTROLLER, WOULD BE ONE HALF OF THE TOTAL BUFFER, IN A FIFO BUFFER IT WOULD BE THE FULL SIZE OF THE FIFO.) TAKE THAT PRODUCT AND ADD TO THE TOTAL MAXIMUM ALLOWABLE LATENCY IN MICRO SECONDS AND DIVIDE BY TWO. THIS IS THE PRIORITY FACTOR.

THE PRIORITY FACTOR DOES NOT TAKE IN ALL POSSIBLE CONDITIONS, BUT IS A BASIC WAY TO DETERMINE THE PRIORITY OF A CONTROLLER BY A SIMPLE MEANS.

### 3.0 BUS LOADING

BUS LOADING IS THE TOTAL NUMBER OF THE LOADS ON THE BUS WHICH THE CPU MSUT DRIVE AND IS DETERMINED BY ADDING UP THE INDIVIDUAL BUS LOADS OF THE PERIPHERAL CONTROLLERS USED IN THE SYSTEM. THE MAXIMUM NUMBER OF LOADS WHICH A PROCESSOR CAN DRIVE, WITHOUT USING A BUS REPEATER, IS TEN (10) LOADS, NOT INCLUDING THE MAP BOARD. NOTE THAT MEMORY BOARDS, WHICH DO NOT SHARE THE I/O BUS, DO NOT NEED TO BE CONSIDERED IN BUS LOADING.

THE BMC IS CAPABLE OF RUNNING EIGHT (8) CONTROLLERS, BUT SOME CPU AND SOFTWARE CONSTRAINTS MAY APPLY. REFER TO INDIVIDUAL CPU CONFIGURATION SHEETS FOR THESE RESTRICTIONS.

### 4.0 CABLING & TERMINATING

THE BMC BUS CABLES ARE RIBBON TYPE WITH 40 PIN CONNECTORS. THEY ARE DAISY-CHAINED FROM P1 AND P4 OF THE BMC TO P1 AND P4 OF EACH BMC DEVICE ON THE BUS. A TERMINATOR SHORTING STRIP (IDGC NO. 005-013419) ON P2 OF THE LAST DEVICE ON THE BUS. FOR MORE DETAILED INFORMATION REFER TO INDIVIDUAL INSTALLATION DATA SHEETS FOR THE PARTICULAR CPU AND DEVICE TO BE INSTALLED.

ORDER OF PRIORITY	PRIORITY FACTOR	MODEL NO.	DESCRIPTION	MAX ALLOWABLE LATENCY	WORD RATE / BUFFER SIZE	MEM I/O SLOT	I/O ONLY SLOT	BUS LOADING	NOTES
100	13.2	6122	MHD 277 MB	13.2 us	1.6us/ 16	YES	YES	2	1, 3, 5
200	18	6063H-64H	FHD 1, 2 MB	18 us	2.3us/ 16	YES	YES	2	2, 3
300	19.8	6060H-61H 67H	MHD 50, 96, 190 MB	19.8 us	2.48us/ 16	YES	YES	2	3
350	96	4307	GCR TAPE	96us	2us/48	YES	YES	1	3, 6
400	442.1	6160-61	MHD 73, 147MB	474.6 us	1.6us/512	NO	YES	1	3, 4
		6214 (NOTE 1)	MHD 602MB						
1200	1208.32	B6236 E6236	MHD 360 MB	1.2MS	1.18us/2K	YES	YES	1	1,7

#### NOTES:

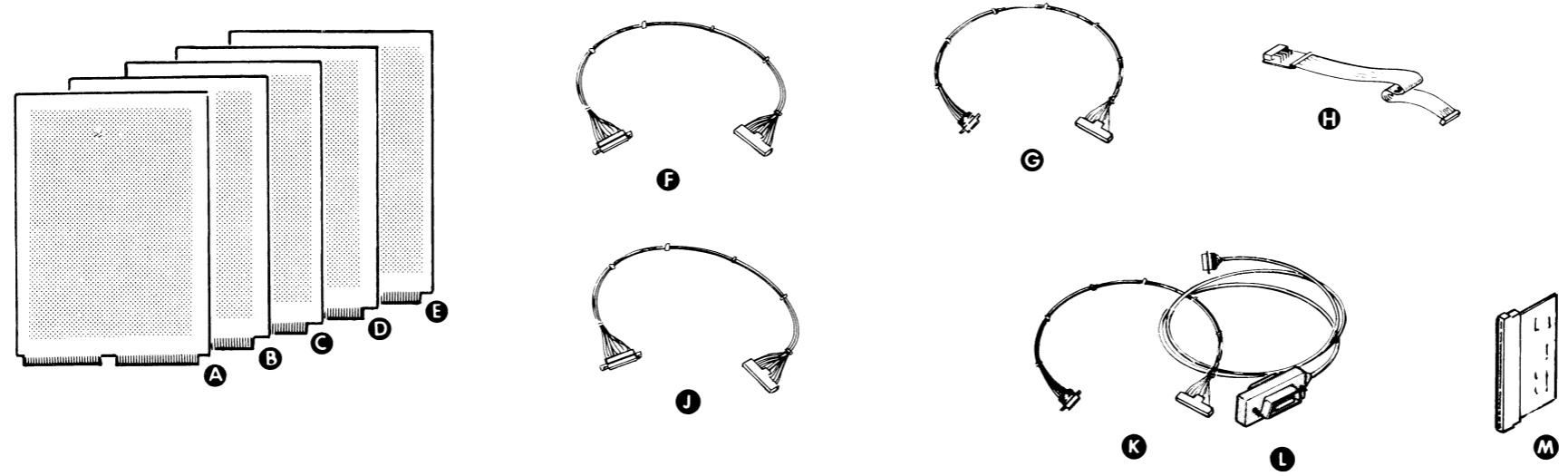
1. RUNS ONLY WITH BMC
2. REQUIRES DCH PRIORITY
3. JUMPER SELECTABLE WORD BURSTS ON BMC. SEE INSTALLATION DATA SHEETS THIS PRODUCT.
4. WILL RUN ONLY IN I/O ONLY SLOT. SEE INSTALLATION DATA SHEETS THIS PRODUCT.
5. TWO RAM BUFFER
6. FIFO BUFFER
7. RAM/FIFO COMBINATION



# **microPRODUCTS LINE**



### INSTALLATION SPECIFICATIONS



**MAJOR COMPONENTS**

ITEM	COMPONENT	MOUNTING LOCATION
A	A/D CONVERTER	ANY I/O SLOT
B	D/A CONVERTER	ANY I/O SLOT
C	DIGITAL I/O INTERFACE	ANY I/O SLOT
D	MICROPRODUCTS ANALOG SUBSYSTEM	ANY I/O SLOT (MP/100 AND MP/200 ONLY)
E	I.E.E.E. 488 BUS INTERFACE	ANY I/O SLOT

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	DC CURRENT DRAW (AMPS)				
				5V	-5V	12V	15V	-12V
A	A/D CONVERTER	9-18 SLOT ONLY	1	1.90	0.03	—	0.07	—
		8 SLOT ONLY	1	1.90	0.03	0.07	—	—
B	D/A CONVERTER	9-18 SLOT ONLY	1	2.00	0.03	—	0.07	—
		8 SLOT ONLY	1	2.00	0.03	0.07	—	—
C	DIGITAL I/O INTERFACE	9-18 SLOT ONLY	1	0.80	—	—	0.08	—
		8 SLOT ONLY	1	0.80	—	0.08	—	—
D	MICROPRODUCTS ANALOG SUBSYSTEM	8 SLOT ONLY	1	1.80	.003	0.05	—	0.075
E	I.E.E.E. 488 BUS INTERFACE	9-18 SLOT ONLY	1	2.40	0.276	0.15	—	—
		8 SLOT ONLY	1	2.40	0.276	0.15	—	—

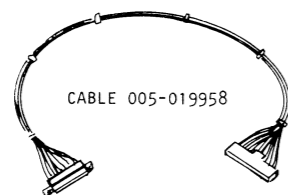
**CABLES**

ITEM	COMPONENT	CONNECTING	LENGTH		NOTES
			FT	M	
F	A/D CONVERTER CABLE				005-019958
G	D/A CONVERTER CABLE				005-019959
H	DIGITAL I/O CABLE				005-019961
J	MPRODUCTS ANALOG CABLE				005-019960
K	IEEE 488 INT CABLE				005-019057
L	IEEE 488 EXT CABLE				005-019997
M	MICROPRODUCTS ANALOG SUBSYSTEM LOOP-BACK CONNECTOR	DIGITAL OUTPUTS TO DIGITAL INPUTS AND ANALOG OUTPUTS TO ANALOG INPUTS			005-014910

**TAILORING  
JUMPERING**

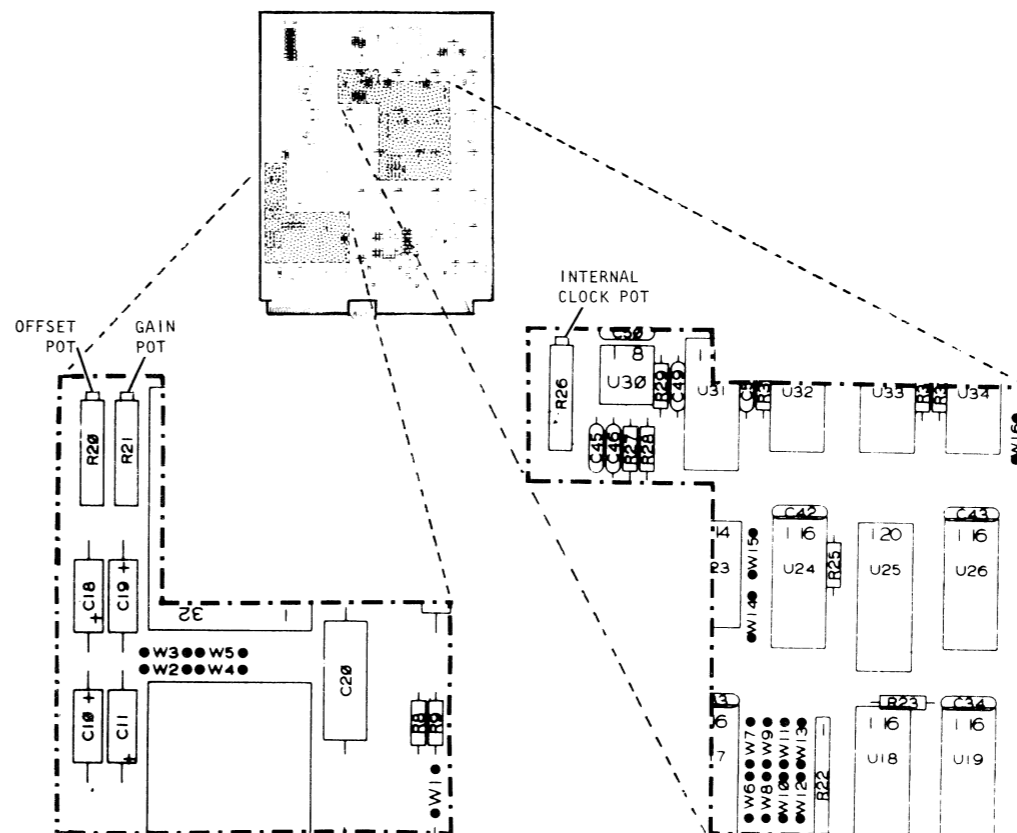
A/D CONVERTER  
4223

Ref DGC Dwg No 107-000847 Rev 02



NO CABLE PROVIDED ON UNHARDENED CHASSIS. USE 50-PIN EDGE CONNECTOR.

"A" CARD CONN	EDGE CARD CONN No	SIGNAL	SUB D CONNECTOR PIN No
1	1	INTERNAL CLOCK	1
2	A	INTERNAL CLOCK RET	2
3	2	EXTERNAL CLOCK	3
4	B	EXTERNAL CLOCK RET	4
5	3	EXT INT REQ	5
6	C	EXT INT REQ RET	6
7	4	ADC READY	19
8	D	ADC READY RET	20
9	5	ADC CLOCK	21
10	E	ADC CLOCK RET	22
11	6	ADC SERIAL DATA	35
12	F	ADC SERIAL DATA RET	36
13	7	ADC CR PLT TEST	18
14	H		
15	8	ANALOG GND	23
16	J		
17	9	ANALOG GND	7
18	K		
19	10	ANA7 SE RET	39(DRAIN)
20	L	ANA15 SE RET	8(DRAIN)
21	11	ANA7	40
22	M	ANA15	9
23	12	ANA6 SE RET	24(DRAIN)
24	N	ANA14 SE RET	41(DRAIN)
25	13	ANA6	25
26	P	ANA14	42
27	14	ANA5 SE RET	10(DRAIN)
28	R	ANA13 SE RET	26(DRAIN)
29	15	ANA5	11
30	S	ANA13	27
31	16	ANA4 SE RET	43(DRAIN)
32	T	ANA12 SE RET	12(DRAIN)
33	17	ANA4	44
34	U	ANA12	13
35	18	ANA3 SE RET	28(DRAIN)
36	V	ANA11 SE RET	45(DRAIN)
37	19	ANA3	29
38	W	ANA11	46
39	20	ANA2 SE RET	14(DRAIN)
40	X	ANA10 SE RET	30(DRAIN)
41	21	ANA2	15
42	Y	ANA10	31
43	22	ANA1 SE RET	47(DRAIN)
44	Z	ANA9 SE RET	17(DRAIN)
45	23	ANA1	48
46	a	ANA9	16
47	24	ANA0 SE RET	32(DRAIN)
48	b	ANA8 SE RET	49(DRAIN)
49	25	ANA0	33
50	c	ANA8	50



VOLTAGE RANGE SELECTION JUMPERS					CODE SELECTION JUMPERS				
SELECT	JUMPER	W2	W3	W4	W5	SELECT	JUMPER	W6	W7
±10V		OUT	IN	IN	OUT	2'S COMPLEMENT		IN	OUT
±5V		IN	OUT	IN	OUT	OFFSET BINARY		OUT	IN
0-5V		IN	OUT	OUT	IN				
0-10V		IN	OUT	OUT	OUT				
DEVICE CODE JUMPERS									
BIT POSITION OF DEVICE CODE		0	1	2	3	4	5		
INSERT JUMPER TO SPECIFY 1		W10	W11	W9	W12	W13	W8		
POLARITY SELECT A/D CONVERTER READY					CLOCK OVERRUN SIGNAL SELECT				
JUMPER		W14	W15		JUMPER		W16		
SELECT					SET DONE				
TRUE WHEN HIGH		OUT	IN		YES				IN
TRUE WHEN LOW		IN	OUT		NO				OUT

**NOTICE:**

USE OF UNSHIELDED OR IMPROPERLY SHIELDED EXTERNAL CABLES MAY AFFECT THE COMPLIANCE WITH FCC REGULATIONS FOR RF EMISSIONS.

SUGGESTIONS ON CABLE CONSTRUCTION (TO MEET FCC REGULATIONS):

1. SHIELDED SHOULD CONSIST OF BOTH FOIL AND BRAID.
2. THE SHIELDS SHOULD BE GROUNDED TO THE CHASSIS AT BOTH ENDS VIA THE CONNECTOR CASES.

TESTING OF CABLE FOR COMPLIANCE IS RECOMMENDED.

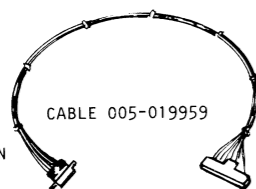
W1 IS IN ONLY FOR CALIBRATION CROSS PLOT TEST  
W17 AND W18 ARE IN FOR +15Vdc, AND OUT FOR +12Vdc.  
STANDARD DEVICE CODE IS 218.



# TAILORING (CONT)

## JUMPERING

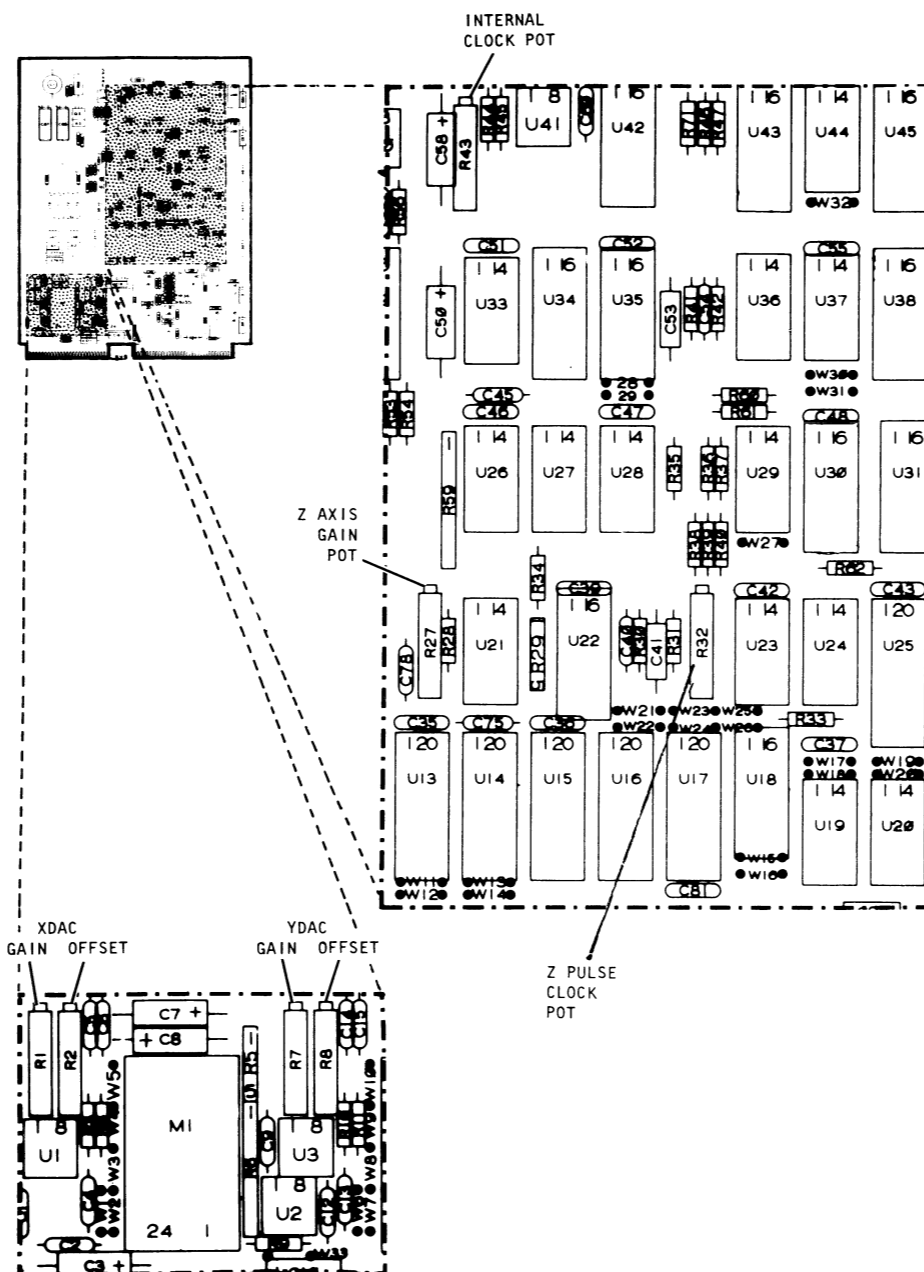
### D/A CONVERTER 4224



NO CABLE PROVIDED ON UNHARDENED CHASSIS. USE 50-PIN EDGE CONNECTOR.

Ref DGC Dwg 107-000848 Rev 01

"A" CARD CONN	EDGE CARD CONN No	SIGNAL	SUB D CONNECTOR PIN No
1	1	EXTERNAL CLOCK	1
2	A	EXT CLOCK RET	2
3	2	EXT INT REQ	14
4	B	EXT INT REQ RET	15
5	3	DAC DATA READY	3
6	C	DAC DATA READY RET	4
7	4	DAC DATA VALID	16
8	D	DAC DATA VALID RET	17
9	5	NON STORE	5
10	E	NON STORE RET	6
11	6	WRITE THROUGHALL	18
12	F	WR THROUGH RET	19
13	7	ERASE	7
14	H	ERASE RET	8
15	8	EXT ERASE INPUT	20
16	J	EXT INT RET	21
17	9	INTERNAL CLOCK	9
18	K	INT CLOCK RET	10
19	10	ANALOG GND	22
20	L	ANALOG GND	
21	11	ANALOG GND	
22	M	ANALOG GND	
23	12	ANALOG GND	
24	N	ANALOG GND	
25	13	Z AXIS OUT	12
26	P	Z AXIS RET	11(DRAIN)
27	14		
28	R		
29	15	DAC Y OUT	24
30	S	DAC Y RET	23(DRAIN)
31	16		
32	T		
33	17		
34	U		
35	18		
36	V		
37	19		
38	W		
39	20		
40	X		
41	21		
42	Y		
43	22		
44	Z		
45	23		
46	a		
47	24		
48	b		
49	25	DAC X OUT	25
50	c	DAC X RET	13(DRAIN)



DEVICE CODE JUMPERS							
BIT POSITIONS OF DEVICE CODE	0-9	10	11	12	13	14	15
INSERT JUMPER TO SPECIFY	0	W19	W20	W15	W16	W17	W18
VOLTAGE RANGE SELECTION JUMPERS							
JUMPER	X DAC						
RANGE	W1	W2	W3	W4	W5		
±10V	OUT	IN	OUT	IN	OUT		
±5V	OUT	IN	OUT	OUT	IN		
0-5V	IN	OUT	IN	OUT	IN		
0-10V	IN	OUT	OUT	OUT	IN		
JUMPER	Y DAC						
RANGE	W6	W7	W8	W9	W10		
±10V	OUT	IN	OUT	IN	OUT		
±5V	OUT	IN	OUT	OUT	IN		
0-5V	IN	OUT	IN	OUT	IN		
0-10V	IN	OUT	OUT	OUT	IN		
CODE SELECTION JUMPERS							
JUMPER	X DAC			Y DAC			
CODE	W11	W12	W13	W14			
OFFSET BINARY	IN	OUT	IN	OUT			
2'S COMPLEMENT	OUT	IN	OUT	IN			
Z AXIS PULSE JUMPERS							
CAUSE PULSE WHEN LOADING DATA				COUPLING			
JUMPER	W21	W22			JUMPER	W33	
SELECT					SELECT		
Y DAC	IN	OUT			DC COUPLING	IN	
X DAC	OUT	IN			AC COUPLING	OUT	
PULSE BRIGHTNESS SOURCE							
JUMPER							
SOURCE	W23	W24	W25	W26			
X DAC	IN	IN	OUT	OUT			
Y DAC	OUT	OUT	IN	IN			
MAXIMUM	OUT	OUT	OUT	OUT			
Z-AXIS TRANSITION							
JUMPER							
SELECT	W27						
POSITIVE GOING	IN						
NEGATIVE GOING	OUT						
POLARITY SELECTION JUMPERS				LATE CONVERSION SIGNAL SELECT			
DAC DATA VALID		DAC DATA READY		JUMPER		W32	
JUMPER	W28	W29	JUMPER	W30	W31	SELECT DONE	
TRUE HIGH	IN	OUT	TRUE HIGH	IN	OUT	YES	IN
TRUE LOW	OUT	IN	TRUE LOW	OUT	IN	NO	OUT

INSERT JUMPERS W34 AND W35 FOR +15Vdc.  
REMOVE JUMPERS W34 AND W35 FOR +12VDC.  
STANDARD DEVICE CODE IS 238.

NOTICE:  
USE OF UNSHIELDED OR IMPROPERLY SHIELDED EXTERNAL CABLES MAY AFFECT THE COMPLIANCE WITH FCC REGULATIONS FOR RF EMISSIONS.  
SUGGESTIONS ON CABLE CONSTRUCTION (TO MEET FCC REGULATIONS):  
1. SHIELDING SHOULD CONSIST OF BOTH FOIL AND BRAID  
2. THE SHIELDS SHOULD BE GROUNDED TO THE CHASSIS AT BOTH ENDS VIA THE CONNECTOR CASES.  
TESTING CABLE FOR COMPLIANCE IS RECOMMENDED.

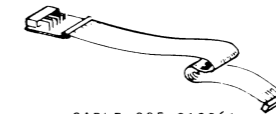
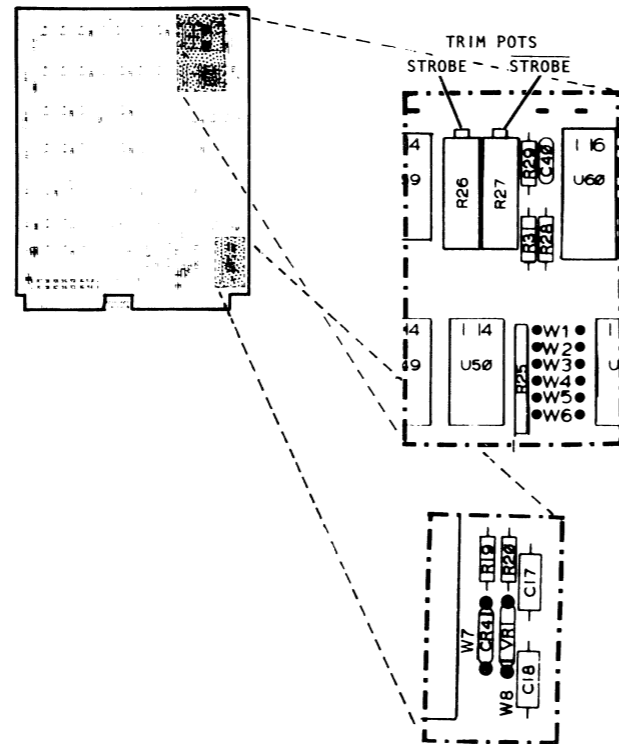
TAILORING (CONT)

JUMPERING

DIGITAL I/O INTERFACE

4222

Ref DGC Dwg No 107-000874 Rev 02



CABLE 005-019961

NO CABLE PROVIDED ON UNHARDENED CHASSIS. USE 50-PIN EDGE CONNECTOR.

"A" CONN CARD	EDGE CARD CONN No	SIGNAL	SUB D CONNECTOR PIN No
1	1	DVCC	1
2	2	DREAD	34
3	3	DSTROBE1	10
4	4	OSTROBE0	2
5	5	GND	35
6	6	GND	19
7	7	ID0	3
8	8	DD15	36
9	9	ID1	20
10	10	DD14	4
11	11	ID2	07
12	12	DD13	21
13	13	ID3	5
14	14	DD12	30
15	15	GND	22
16	16	GND	6
17	17	ID4	33
18	18	DD11	20
19	19	ID5	7
20	20	DD10	40
21	21	ID6	24
22	22	DD9	0
23	23	ID7	41
24	24	DD8	25
25	25	GND	0
26	26	GND	40
27	27	ID8	26
28	28	DD7	10
29	29	ID9	43
30	30	DD6	27
31	31	ID10	11
32	32	DD5	44
33	33	ID11	28
34	34	DD4	12
35	35	GND	45
36	36	GND	29
37	37	ID12	13
38	38	DD3	46
39	39	ID13	30
40	40	DD2	14
41	41	ID14	47
42	42	DD1	31
43	43	ID15	15
44	44	DD0	48
45	45	GND	32
46	46	GND	16
47	47	STROBE	49
48	48	GND THRU 300 OHM	33
49	49	GND THRU 300 OHM	17
50	50		50

DEVICE CODE JUMPERS							
BIT POSITIONS OF DEVICE CODE	0-9	10	11	12	13	14	15
INSERT JUMPER TO SPECIFY 1	0	W0	W1	W2	W3	W4	W5

INSERT JUMPERS W7 AND W8 FOR +15Vdc.  
 REMOVE JUMPERS W7 AND W8 FOR +12Vdc.  
 STANDARD DEVICE CODE IS 428.

NOTICE:

USE OF UNSHIELDED OR IMPROPERLY SHIELDED EXTERNAL CABLES MAY AFFECT THE COMPLIANCE WITH FCC REGULATIONS FOR RF EMISSIONS.

SUGGESTIONS ON CABLE CONSTRUCTION (TO MEET FCC REGULATIONS):

- SHIELDING SHOULD CONSIST OF BOTH FOIL AND BRAID.
- THE SHIELDS SHOULD BE GROUNDED TO THE CHASSIS AT BOTH ENDS VIA THE CONNECTOR CASES.

TESTING CABLE FOR COMPLIANCE IS RECOMMENDED.

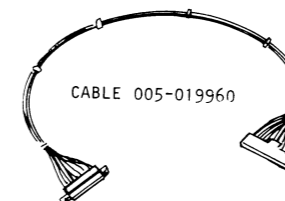
# TAILORING (CONT)

## JUMPERING

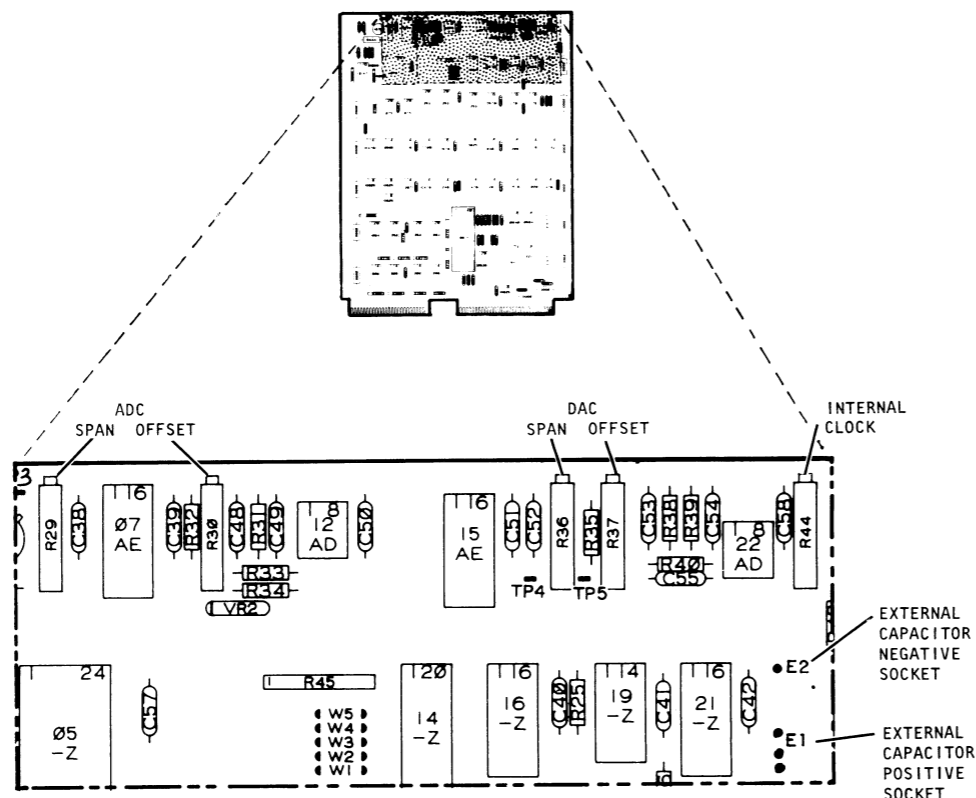
MICROPRODUCTS ANALOG SUBSYSTEM

4335

Ref DGC Dwg No 107-001375 Rev 00



NO CABLE PROVIDED ON UNHARDENED CHASSIS. USE 50-PIN EDGE CONNECTOR.



DEVICE CODE							
BIT POSITION	0-9	10	11	12	13	14	15
INSERT JUMPER TO SPECIFY	0	W5	W4	W3	W2	W1	0
0. LEAVE JUMPER OUT TO SPECIFY 1.							

NOTE: ONLY EVEN NUMBER DEVICE CODE ALLOWED.

STANDARD DEVICE CODE IS 40<sub>8</sub>.

**NOTICE:**

USE OF UNSHIELDED OR IMPROPERLY SHIELDED EXTERNAL CABLES MAY AFFECT THE COMPLIANCE WITH FCC REGULATIONS FOR RF EMISSIONS.

**SUGGESTIONS ON CABLE CONSTRUCTION (TO MEET FCC REGULATIONS):**

- SHIELDING SHOULD CONSIST OF BOTH FOIL AND BRAID.
- THE SHIELDS SHOULD BE GROUNDED TO THE CHASSIS AT BOTH ENDS VIA THE CONNECTOR CASES.

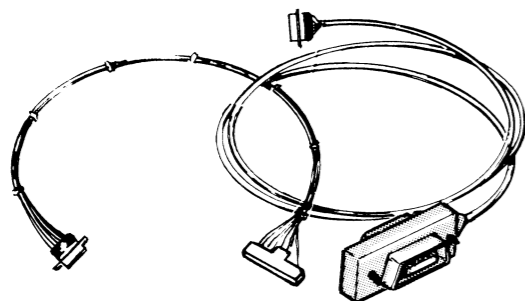
TESTING CABLE FOR COMPLIANCE IS RECOMMENDED.

'A' CARD CONN	EDGE CARD CONN No	SIGNAL	SUB D CONNECTOR PIN #
1	1	DO 0	1
2	A	DI 0	23
3	2	DO 1	2
4	B	DI 1	24
5	3	DO 2	3
6	C	DI 2	25
7	4	DO 3	4
8	D	DI 3	26
9	5	DO 4	5
10	E	DI 4	27
11	6	DO 5	6
12	F	DI 5	34
13	7	DO 6	7
14	H	DI 6	35
15	8	DO 7	8
16	J	DI 7	36
17	9	DO 8	9
18	K	DI 8	37
19	10	DO 9	10
20	L	DI 9	38
21	11	DO 10	11
22	M	DI 10	39
23	12	DO 11	18
24	N	DI 11	40
25	13	DO 12	19
26	P	DI 12	41
27	14	DO 13	20
28	R	DI 13	42
29	15	DO 14	21
30	S	DI 14	43
31	16	DO 15	22
32	T	DI 15	44
33	17	DOP STATUS	12
34	U	DIP STATUS	28
35	18	DGND 1	14
36	V	DGND 2	31
37	19	DAC STATUS	19
38	W	BD STATUS	13
39	20	DATA VALID	29
40	X	CONV STATUS	46
41	21	DAC OUT	33
42	Y	RESULT STATUS	30
43	22	DAC ANALOG END	32 (DRAIN)
44	Z	DGND 3	47
45	23	A1 0	16
46	a	A1 1	17
47	24	A/D GND	15 (DRAIN)
48	b	A/D GND	48 (DRAIN)
49	25	A1 2	49
50	c	A1 3	50

**TAILORING (Cont)  
JUMPERING**

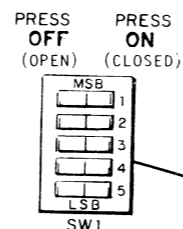
**microNOVA IEEE-488 DATA CHANNEL INTERFACE**

INSTALL IN ANY I/O SLOT



CABLE: A-CONNECTOR TO IEEE-488 BUS

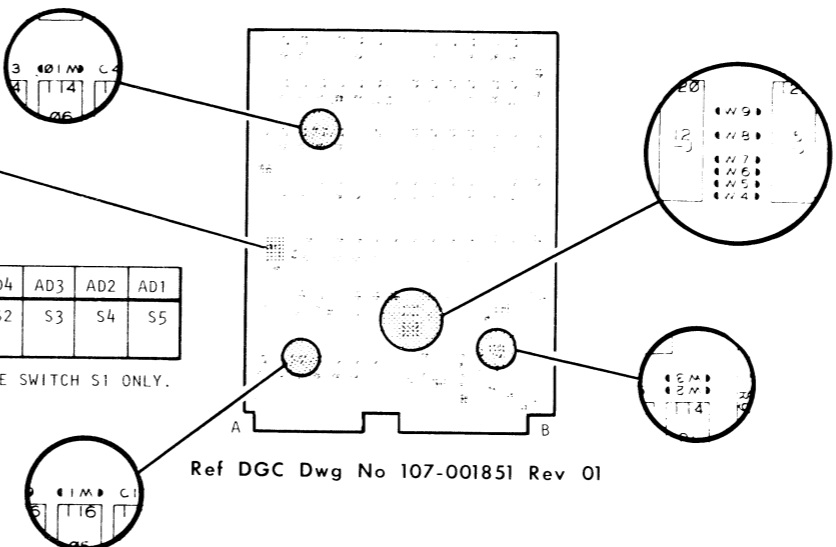
INTERNAL CABLE 005-019057  
EXTERNAL CABLE 005-019997



IEEE 488 BUS DEVICE CODE SWITCHES

SWITCH POSITION	AD5	AD4	AD3	AD2	AD1
PUSH SWITCH TO ON FOR 0	S1	S2	S3	S4	S5
PUSH SWITCH TO OFF FOR 1					

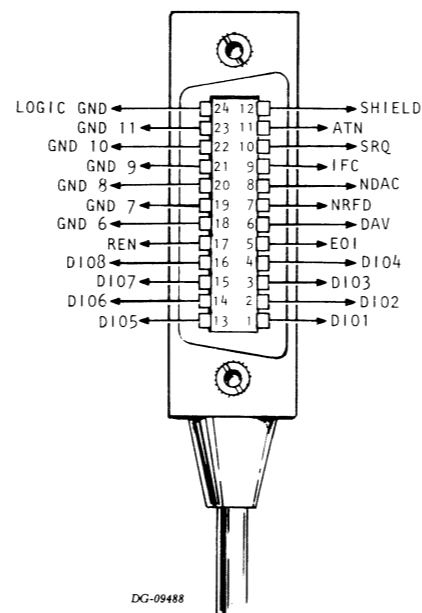
EXAMPLE: FOR BUS ADDRESS 17<sub>8</sub>, CLOSE SWITCH S1 ONLY.



NOTE: IF THIS BOARD IS THE SYSTEM CONTROLLER, INSERT W10 FOR SYSTEM CONTROLLER AND W1 FOR BUS SHIELD GROUND.

A-CONNECTOR PIN ASSIGNMENTS

EVEN	SIGNAL NAMES	ODD
2		1
4		3
6		5
8		7
10		9
12		11
14		13
16		15
18		17
20		19
22	D102	D101
24	D104	D103
26	DAV	E01
28	NDAC	NRFD
30	SRQ	IFC
32	SHIELD	ATN
34	D106	D105
36	D108	D107
38	GND	REN
40	GND	GND
42	GND	GND
44	GND	GND
46		45
48		47
50		49



I/O BUS DEVICE CODE

BIT POSITION	0-9	10	11	12	13	14	15
INSERT JUMPER TO SPECIFY 1. REMOVE JUMPER TO SPECIFY 0	0	W4	W5	W6	W7	W8	W9

NOTE: FOR A STANDARD DEVICE CODE OF 41<sub>8</sub> WITH MNEMONIC TLC, INSERT ONLY JUMPERS W4 AND W9.

PRIORITY MASK BIT SELECT

BIT POSITION	JUMPERS W2	W3
4	OUT	IN
11	IN	OUT

THE IEEE-488 DCH INTERFACE REQUIRES:

+5V : 2.4A (TYPICAL +20%),  
-5V : 0.276A (TYPICAL + 20%), AND  
+12V : 0.15A (MAX)

TOTAL MAXIMUM POWER DISSIPATION IS 15.46W (TYPICAL +20%) (52.7 BTU)

# **COMMUNICATIONS DEVICES**

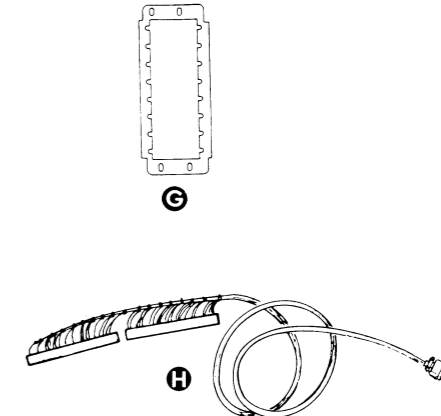
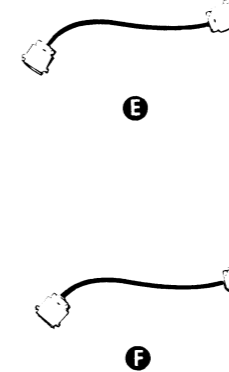
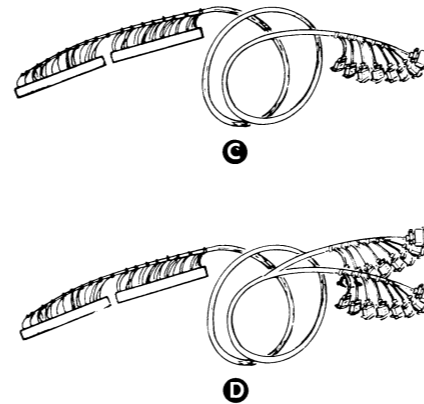
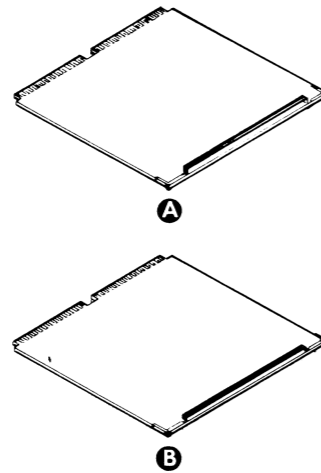


**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. As temporarily permitted by regulation it has not been tested for compliance with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

### INSTALLATION SPECIFICATIONS

**CAUTION**

IAC's MUST BE PLACED IN AN I/O ONLY SLOT. IF THEY ARE PLACED IN A MEMORY/IO SLOT, DAMAGE TO OTHER BOARDS WILL RESULT.



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	IAC/8 - MODEL 4357	I/O ONLY SLOT*	BOARD WITH HIGHEST BAUD RATE SHOULD BE ASSIGNED TO LOWEST SLOT NUMBER
B	IAC/16 - MODEL 4358	I/O ONLY SLOT*	
G	EIA CONNECTOR PANEL	RACK	005-14210 IAC/8 COMES WITH 1; IAC/16 COMES WITH 2 (005-16002 MOUNTING KIT ALSO SUPPLIED WHEN IAC IS TO BE INSTALLED ON A NOVA/4) SCREW-LOCK ASSEMBLIES (111-22) ARE SUPPLIED IN SUFFICIENT QUANTITY TO ALLOW ALL EXTERNAL CABLES TO BE SECURELY FASTENED TO THE INTERNAL CABLE AT THE CONNECTOR PANEL.

\*NOT A MEM/I/O SLOT

**INTERNAL CABLES**

ITEM	Cable	Connecting	Notes
C	IAC/8	IAC AND EIA CONN PANEL IAC AND CHASSIS CONN PANEL (HARDENED CPUS)	005-014115 005-019397
D	IAC/16	IAC AND EIA CONN PANEL IAC AND CHASSIS CONN PANEL (HARDENED CPUS)	005-014111 005-019398
H	IAC/8	IAC AND CHASSIS CONN PANEL (FOR 4371 AND 4384 CONN PANELS)	005-019058
	IAC/16	IAC AND CHASSIS CONN PANEL (FOR 4372 AND 4384 CONN PANELS)	005-019059

**SPECIFICATIONS**

Component	Chassis	Slots Required	Controller's Maximum Current Draw
IAC/8	MAIN OR EXPANSION	1	+5V -- 8 A -5V -- 20 mA +12V - 400 mA
IAC/16	MAIN OR EXPANSION	1	+5V -- 8 A -5V -- 360 mA +12V - 900 mA

**STORAGE**

Temperature Range	Relative Humidity (non-condensing)	Maximum Altitude	Maximum Period
-40C TO +70C (-40F TO +160F)	0% - 90%	25000 FT (27.5 MM OF HG)	90 DAYS

**OPERATING**

Temperature Range	Relative Humidity (non-condensing)	Maximum Altitude	Maximum Period
0C TO +55C (32F TO +131F)	0% - 90%	8000 FT (563 MM OF HG)	90 DAYS

**TEST PLUGS**

Item	Test Plugs	Location	Notes
E	IAC/16 TEST PLUG	EIA CONNECTOR PANEL	005-13424
F	IAC/8 TEST PLUG	EIA CONNECTOR PANEL	005-13450

NOTE:

BE CAREFUL WHEN INSTALLING IACs - REFER TO THE INSTALLATION DATA SHEETS OF THE CHASSIS TO ENSURE THAT YOU DO NOT OVERLOAD A SLOT GROUPING (GROUP OF SLOTS CONTROLLED BY A SINGLE FUSE/BREAKER).

**FOR PACKING PROCEDURE, SEE 010-000262**

INTERNAL CABLING

IAC/8

SIGNAL NAME	BACKPANEL PIN NUMBER	SIGNAL NAME	BACKPANEL PIN NUMBER
GND	A001	GND	B001
GND	A002	GND	B002
+5V	A003	+5V	B003
+5V	A004	+5V	B004
-5V	A006	RING4	B011
+15V	A010	RING5	B012
RING0	A012	DCD4	B013
DCD0	A016	DCD5	B014
DTR0	A018	DTR4	B015
RING1	A019	DTR5	B016
DSR0	A020	DCHM0	B017
DCD1	A021	DSR5	B018
CTS0	A022	DSR4	B019
DTR1	A023	CTS5	B020
RTS0	A026	RTS5	B022
DSR1	A027	CTS4	B023
REC DATA0	A028	REC DATA5	B024
CTS1	A029	RTS4	B025
XMIT DATA0	A032	XMIT DATA5	B026
GND	A033	REC DATA4	B027
GND	A034	RING6	B028
RTS1	A035	INTR	B029
MSK0	A038	DCD6	B030
REC DATA1	A039	XMIT DATA4	B031
INTA	A040	DTR6	B032
DS3	A046	DCH0	B033
DATOC	A048	GND	B034
XMIT DATA1	A049	DCHR	B035
CLR	A050	DSR6	B036
STRT	A052	DCHT	B037
DATOB	A056	CTS6	B038
RING2	A057	RTS6	B040
DATOA	A058	RQENB	B041
DCD2	A059	REC DATA6	B042
DCHA	A060	XMIT DATA6	B044
DTR2	A061	RING7	B047
DS4	A062	DCD7	B049
GND	A063	DTR7	B051
DS5	A064	GND	B053
DSR2	A065	DATA 7	B055
DS2	A066	DATA 14	B056
CTS2	A067	DATA 5	B057
DS1	A068	DATA 11	B058
IORST	A070	DATA 12	B059
RTS2	A071	DATA 8	B060
DS0	A072	DATA 4	B061
REC DATA2	A073	DATA 0	B062
IOPLS	A074	DATA 9	B063
DCD3	A076	DATA 13	B064
XMIT DATA2	A077	DATA 1	B065
GND	A078	DATA 15	B066
SELD	A080	DSR7	B067
SELB	A082	CTS7	B069
RING3	A083	RTS7	B071
DSR3	A084	DATA 3	B073
DTR3	A085	EXT DCH	B074
CTS3	A086	DATA 10	B075
RTS3	A088	REC DATA7	B077
REC DATA3	A090	XMIT DATA7	B079
XMIT DATA3	A092	-5V	B081
DCHPOUT	A093	DATA 2	B082
DCHP IN	A094	+12V	B087
INTPOUT	A095	+12V	B088
INTP IN	A096	DATA 6	B095
+5V	A097	+5V	B097
+5V	A098	+5V	B098
GND	A099	GND	B099
GND	A100	GND	B100

IAC/8

SIGNAL NAME#	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 0	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7
XDAT-n	2	A-32	A-49	A-77	A-92	B-31	B-26	B-44	B-79
RDAT-n	3	A-28	A-39	A-73	A-90	B-27	B-24	B-42	B-77
RTS-n	4	A-26	A-35	A-71	A-88	B-25	B-22	B-40	B-71
CTS-n	5	A-22	A-29	A-67	A-86	B-23	B-20	B-38	B-69
DSR-n	6	A-20	A-27	A-65	A-84	B-19	B-18	B-36	B-67
DTR-n	20	A-18	A-23	A-61	A-85	B-15	B-16	B-32	B-61
CD-n	8	A-16	A-21	A-59	A-76	B-13	B-14	B-30	B-64
RI-n	22	A-12	A-19	A-57	A-83	B-11	B-12	B-28	B-67
GND-n	1, 7	A-34	A-33	A-63	A-78	B-1	B-2	B-24	B-53

\* NOTE: THE "n" IN THE SIGNAL NAME REFERS TO THE LINE NUMBER. THUS THE SIGNAL GOING TO EIA CONNECTOR PIN 2 FOR LINE 0 IS XDAT-0; FOR LINE 1, XDAT-1; AND SO ON.

NOTE: EIA SIGNAL CD MUST BE ASSERTED IN ORDER FOR THE IAC/8 TO CORRECTLY RECEIVE DATA. IF CONNECTED TO A STANDARD BELL - TYPE MODEM, THE MODEM WILL SUPPLY THIS SIGNAL; IF CONNECTED TO A TERMINAL THROUGH STANDARD DG EXTERNAL CABLING, THE CABLING WILL SUPPLY THIS SIGNAL.

IAC/16

SIGNAL NAME#	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 0	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7
XDAT-n	2	A-27	A-24	A-47	A-36	A-61	A-73	A-85	A-90
RDAT-n	3	A-23	A-22	A-39	A-32	A-59	A-71	A-83	A-88
+V-n	11	A-21	A-20	A-35	A-30	A-57	A-69	A-81	A-86
-V-n	18	A-13	A-16	A-31	A-28	A-53	A-65	A-77	A-78
+5V-n	4,20	A-11	A-12	A-29	A-26	A-49	A-63	A-75	A-76
GND-n	1,7	A-19	A-18	A-33	A-34	A-55	A-67	A-79	A-84

SIGNAL NAME#	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15
XDAT-n	2	B-19	B-18	B-30	B-34	B-48	B-54	B-71	B-86
RDAT-n	3	B-15	B-16	B-28	B-32	B-44	B-52	B-70	B-72
+V-n	11	B-13	B-14	B-26	B-31	B-42	B-49	B-53	B-85
-V-n	18	B-11	B-12	B-22	B-25	B-38	B-47	B-67	B-79
+5V-n	4,20	B-5	B-6	B-20	B-23	B-36	B-43	B-51	B-77
GND-n	1,7	B-1	B-2	B-24	B-27	B-40	B-50	B-69	B-89

\* NOTE: THE "n" IN THE SIGNAL NAME REFERS TO THE LINE NUMBER. THUS THE SIGNAL GOING TO EIA CONNECTOR PIN 2 FOR LINE 0 IS XDAT-0; FOR LINE 1, XDAT-1; AND SO ON.

IAC/16

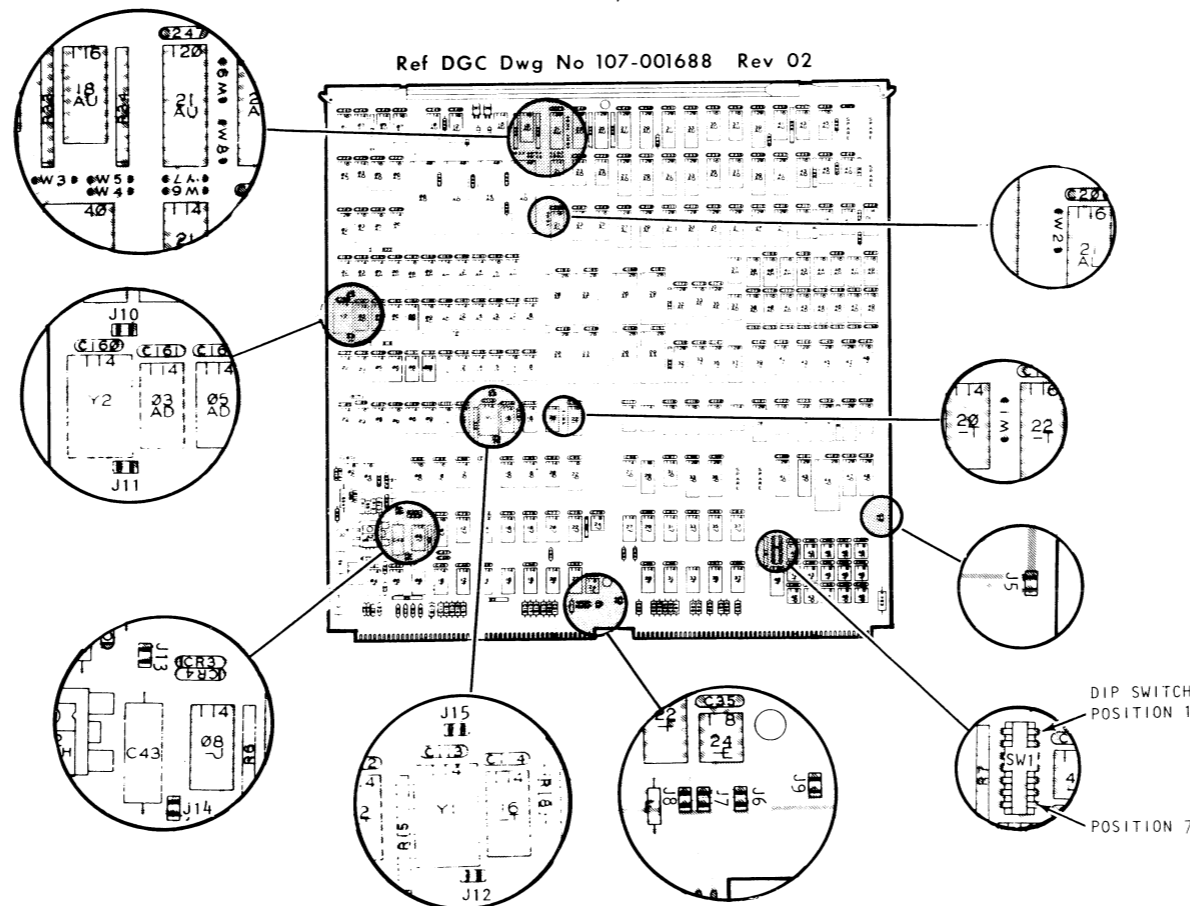
SIGNAL NAME	BACKPANEL PIN NUMBER	SIGNAL NAME	BACKPANEL PIN NUMBER
GND	A001	GND	B001
GND	A002	GND	B002
+5V	A003	+5V	B003
+5V	A004	+5V	B004
-5V	A006	+5V--8	B005
+15V	A010	+5V--9	B006
+5V--0	A011	RX DATA RTN 8	B011
+5V--1	A012	RX DATA RTN 9	B012
RX DATA RTN 0	A013	TX DATA RTN 8	B013
RX DATA RTN 1	A016	TX DATA RTN 9	B014
GND	A018	RX DATA 8	B015
GND	A019	RX DATA 9	B016
TX DATA RTN 1	A020	DCHM0	B017
TX DATA RTN 0	A021	TX DATA 9	B018
RX DATA 1	A022	TX DATA 8	B019
RX DATA 0	A023	+5V--10	B020
TX DATA 1	A024	RX DATA RTN 10	B022
+5V--3	A026	+5V--11	B023
TX DATA 0	A027	GND	B024
RX DATA RTN 3	A028	RX DATA RTN 11	B025
+5V--2	A029	TX DATA RTN 10	B026
TX DATA RTN 3	A030	GND	B027
RX DATA RTN 2	A031	RX DATA 10	B028
RX DATA 3	A032	INTR	B029
GND	A033	TX DATA 10	B030
GND	A034	TX DATA RTN 11	B031
TX DATA RTN 2	A035	RX DATA 11	B032
TX DATA 3	A036	DCH0	B033
MSK0	A038	TX DATA 11	B034
RX DATA 2	A039	DCHR	B035
INTA	A040	+5V--12	B036
DS3	A046	DCHI	B037
TX DATA 2	A047	RX DATA RTN 12	B038
DATOC	A048	GND	B040
+5V--4	A049	RQENB	B041
CLR	A050	TX DATA RTN 12	B042
STRT	A052	+5V--13	B043
RX DATA RTN 4	A053	RX DATA 12	B044
GND	A055	RX DATA RTN 13	B047
DATOB	A056	TX DATA 12	B048
TX DATA RTN 4	A057	TX DATA RTN 13	B049
DATOA	A058	GND	B050
RX DATA 4	A059	+5V--14	B051
DCHA	A060	RX DATA 13	B052
TX DATA 4	A061	TX DATA RTN 14	B053
DS4	A062	TX DATA 13	B054
+5V--5	A063	DATA 7	B055
DS5	A064	DATA 14	B056
RX DATA RTN 5	A065	DATA 5	B057
DS2	A066	DATA 11	B058
GND	A067	DATA 12	B059
DS1	A068	DATA 8	B060
TX DATA RTN 5	A069	DATA 4	B061
IORST	A070	DATA 0	B062
RX DATA 5	A071	DATA 9	B063
DS0	A072	DATA 13	B064
TX DATA 5	A073	DATA 1	B065
IOPLS	A074	DATA 15	B066
+5V--6	A075	RX DATA RTN 14	B067
+5V--7	A076	GND	B069
RX DATA RTN 6	A077	RX DATA 14	B070
RX DATA RTN 7	A078	TX DATA 14	B071
GND	A079	RX DATA 15	B072
SELD	A080	DATA 3	B073
TX DATA RTN 6	A081	EXT DCH	B074
SELB	A082	DATA 10	B075
RX DATA 6	A083	+5V--15	B077
GND	A084	RX DATA RTN 15	B079
TX DATA 6	A085	-5V	B081
TX DATA RTN 7	A086	DATA 2	B082
RX DATA 7	A088	TX DATA RTN 15	B085
TX DATA 7	A090	TX DATA 15	B086
DCHPOUT	A093	+12V	B087
DCHP IN	A094	+12V	B088
INTPOUT	A095	GND	B089
INTP IN	A096	GND	B092
+5V	A097	DATA 6	B095
+5V	A098	+5V	B097
GND	A099	+5V	B098
GND	A100	GND	B099
GND		GND	B100



# TAILORING JUMPERING

IAC/8

Ref DGC Dwg No 107-001688 Rev 02



**MANDATORY JUMPERS:**

JUMPER	POSITION	DESCRIPTION
W1	OUT	IN TO ALLOW SOFTWARE CONTROL OF REFRESH
W2	OUT	IN FOR FREE-RUN
W4	OUT	IN TO FORCE CONTINUOUS FETCH
W5	OUT	IN TO BYPASS CONFIDENCE TEST ON IORST
W6	OUT	IN FOR FREE-RUN
W7	OUT	IN FOR FREE-RUN
W8	OUT	IN FOR FREE-RUN
W9	OUT	IN FOR FREE-RUN
J5	IN	IF J5 IS IN AND J14 IS OUT, +12V WILL BE CONSUMED; IF J5 IS OUT AND J14 IS IN, +15V WILL BE CONSUMED NO LONGER USED - MAY NOT BE PRESENT
J6	OUT	NO LONGER USED - MAY NOT BE PRESENT
J10	IN	IN TO PROVIDE POWER TO OSCILLATOR Y2
J11	IN	IN TO ENABLE OUTPUT OF OSCILLATOR Y2
J12	IN	IN TO ENABLE OUTPUT OF OSCILLATOR Y1
J13	IN	IN TO ENABLE OUTPUT OF -12V GENERATOR CIRCUIT
J14	OUT	IF J5 IS IN AND J14 IS OUT, +12V WILL BE CONSUMED; IF J5 IS OUT AND J14 IS IN, +15V WILL BE CONSUMED
J15	IN	IN TO PROVIDE POWER TO OSCILLATOR Y1

**SOFTWARE-DEPENDENT JUMPERS:**

JUMPER POSITIONS FOR MV/4000, MV/6000, MV/8000, MV/10000 MODEL SERIES 9600 (IN ADDITION TO MANDATORY JUMPERS LISTED ELSEWHERE) (IAC/8)

JUMPER	DESCRIPTION	DIAG & AOS/V5 POSITION
W3	IN TO ALLOW INDIVISIBLE DCH READ-MODIFY-WRITES	IN
J7	IN GIVES THE IAC THE CAPABILITY TO LOAD DCH MAP SLOTS IN THE HOST AND TO PERFORM INDIVISIBLE DCH READ-MODIFY-WRITES	IN J
J8	IN TO ENABLE ONE OF THE TWO EXTENDED DCH MAP BITS	IN
J9	IN TO ENABLE THE OTHER EXTENDED DCH MAP BIT	IN

POSITIONS FOR USER-PROVIDED SOFTWARE MUST BE DETERMINED BY THE USER

**DIP SWITCH SW1**

POSITION	DESCRIPTION
1	LSB DEVICE CODE IN BINARY ON IS A 1 MSB RTC INTERNAL -- ON FOR 107ms; OFF FOR 417us MUST BE ON FOR DIAG & AOS/V5
2	
3	
4	
5	
6	
7	

NOTE THAT THE DEVICE CODE RUNS IN BINARY FROM POSITION 6 (MSB) TO POSITION 1 (LSB) - THE REVERSE OF THE IAC/16.

JUMPER POSITIONS FOR NOVA/4, S/120, S/140, S/280, MV/8000 MODEL SERIES 9300 (IN ADDITION TO MANDATORY JUMPERS LISTED ELSEWHERE) (IAC/8)

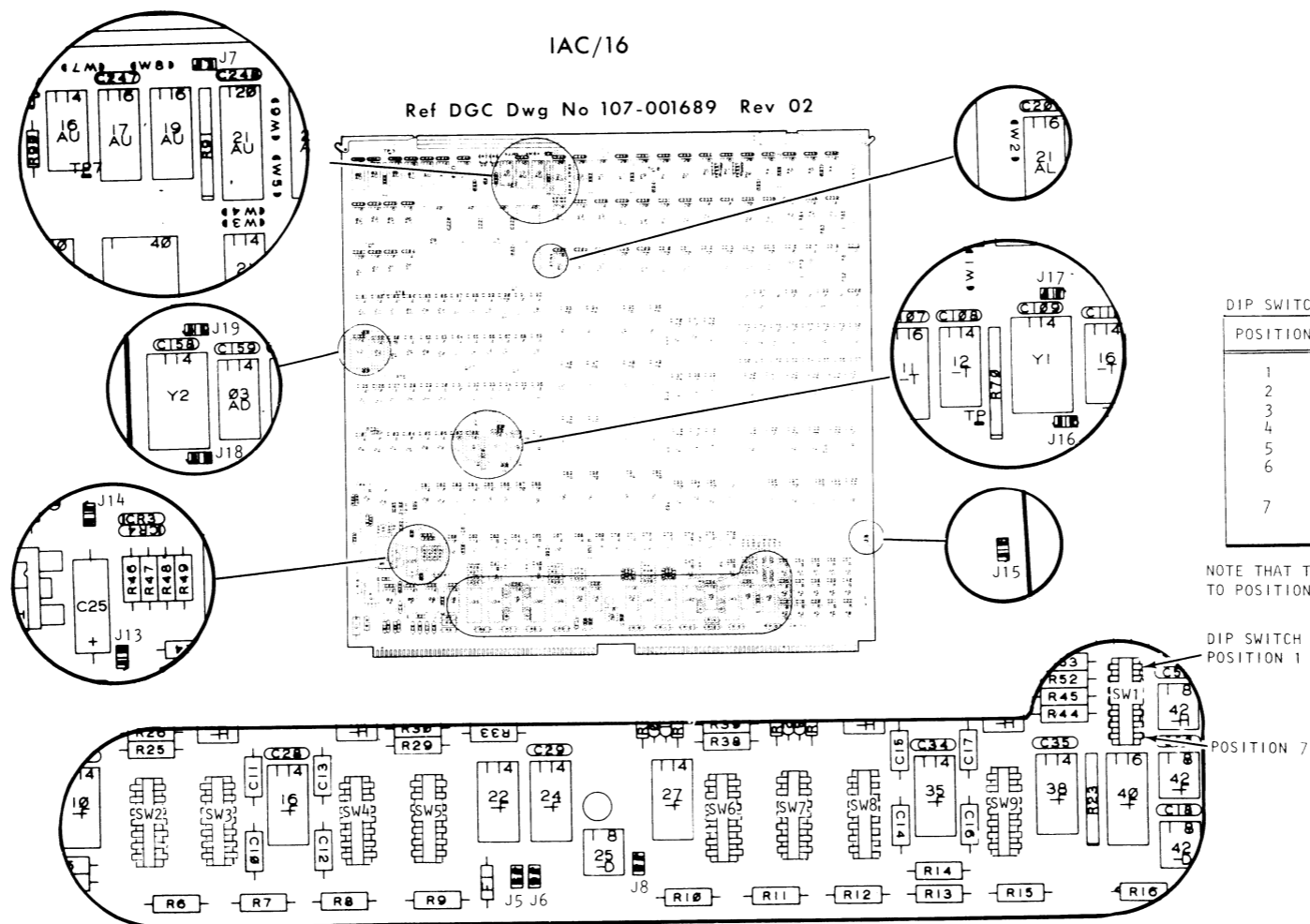
JUMPER	POSITION	DESCRIPTION
W3	OUT	OUT TO DISALLOW INDIVISIBLE DCH READ-MODIFY WRITES
J7	OUT	OUT TO DISABLE DCH MAP LOADS FROM THE IAC AND DISABLE INDIVISIBLE DCH READ-MODIFY-WRITES
J8	OUT	OUT TO DISABLE ONE OF THE TWO EXTENDED MAP BITS
J9	OUT	OUT TO DISABLE THE OTHER EXTENDED MAP BIT

**TAILORING (CONT)**

**JUMPERING**

IAC/16

Ref DGC Dwg No 107-001689 Rev 02



INTERFACE STANDARDS	
IAC/8	EIA RS-232-C
IAC/16	EIA RS-232-C 20 MA CURRENT LOOP
DETERMINED BY THE POSITION OF DIP SWITCHES.	
EACH DIP SWITCH CONTROLS TWO LINES.	

POSITION	DESCRIPTION
1	MSB — — — — — — LSB
2	
3	
4	
5	
6	
7	RTC INTERVAL -- ON FOR 107ms; OFF FOR 417us MUST BE ON FOR DIAG & AOS/V5

NOTE THAT THE DEVICE CODE RUNS IN BINARY FROM POSITION 1 (MSB) TO POSITION 6 (LSB) - THE REVERSE OF THE IAC/8.

SWITCH POSITION	1	2	3	4	5	6	7
EIA RS 232 C	OFF	OFF	OFF	OFF	ON	ON	DON'T
20MA CURRENT LOOP	ON	ON	ON	ON	OFF	OFF	CARE

CHANNELS	DIP SWITCH
0-1	SW2
2-3	SW3
4-5	SW4
6-7	SW5
8-9	SW6
10-11	SW7
12-13	SW8
14-15	SW9

**MANDATORY JUMPERS:**

JUMPER	POSITION	DESCRIPTION
W1	OUT	IN TO BYPASS CONFIDENCE TEST ON IORST
W2	OUT	IN FOR FREE-RUN
W3	OUT	IN FOR FREE-RUN
W4	OUT	IN FOR FREE-RUN
W5	OUT	IN FOR FREE-RUN
W6	OUT	IN FOR FREE-RUN
W7	OUT	IN TO ALLOW SOFTWARE CONTROL OF REFRESH
W8	OUT	IN TO FORCE CONTINUOUS FETCH
J13	OUT	IF J13 IS OUT AND J15 IS IN, +12V WILL BE CONSUMED; IF J13 IS IN AND J15 IS OUT, +15V WILL BE CONSUMED
J14	IN	IN TO ENABLE OUTPUT OF -12V GENERATOR CIRCUIT
J15	IN	IF J13 IS OUT AND J15 IS IN, +12V WILL BE CONSUMED; IF J13 IS IN AND J15 IS OUT, +15V WILL BE CONSUMED
J16	IN	IN TO ENABLE OUTPUT OF OSCILLATOR Y1
J17	IN	IN TO PROVIDE POWER TO OSCILLATOR Y1
J18	IN	IN TO ENABLE OUTPUT OF OSCILLATOR Y2
J19	IN	IN TO PROVIDE POWER TO OSCILLATOR Y2

JUMPER POSITIONS FOR NOVA/4, S/120, S/140, S/280, MV/8000 MODEL SERIES 9300 (IN ADDITION TO MANDATORY JUMPERS LISTED ELSEWHERE) ( IAC/16 )

JUMPER	POSITION	DESCRIPTION
J5	OUT	OUT TO DISABLE ONE OF THE TWO EXTENDED MAP BITS
J6	OUT	OUT TO DISABLE DCH MAP LOADS FROM THE IAC AND DISABLE INDIVISIBLE DCH READ-MODIFY-WRITES
J7	OUT	OUT TO DISALLOW INDIVISIBLE DCH READ-MODIFY-WRITES
J8	OUT	OUT TO DISABLE THE OTHER EXTENDED MAP BIT

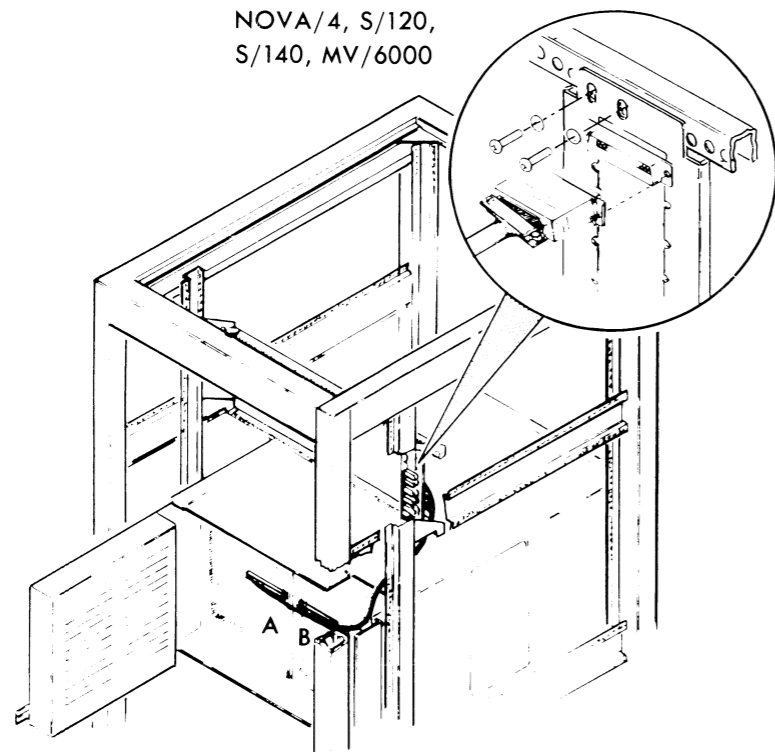
JUMPER POSITION FOR THE MV/4000, MV/6000, MV/8000, MV/10000 MODEL SERIES 9600 (IN ADDITION TO MANDATORY JUMPERS LISTED ELSEWHERE)

JUMPER	DESCRIPTION	DIAG & AOS/V5 POSITION
J5	IN TO ENABLE ONE OF THE TWO EXTENDED DCH MAP BITS	IN
J6	IN GIVES THE IAC THE CAPABILITY TO LOAD DCH MAP SLOTS IN THE HOST AND TO PERFORM INDIVISIBLE DCH READ-MODIFY-WRITES	IN
J7	IN TO ALLOW INDIVISIBLE DCH READ-MODIFY-WRITES	IN
J8	IN TO ENABLE THE OTHER EXTENDED DCH MAP BIT	IN

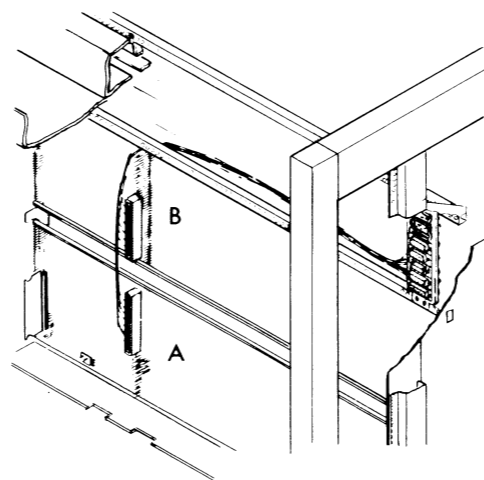
POSITIONS FOR USER-PROVIDED SOFTWARE MUST BE DETERMINED BY THE USER

### INTERNAL CABLING

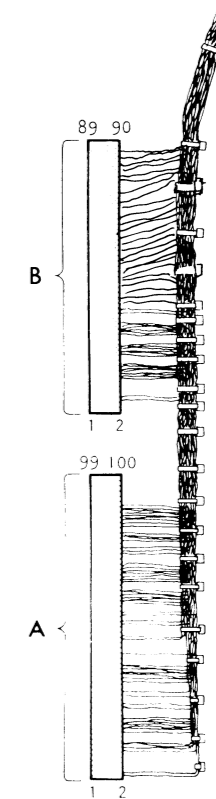
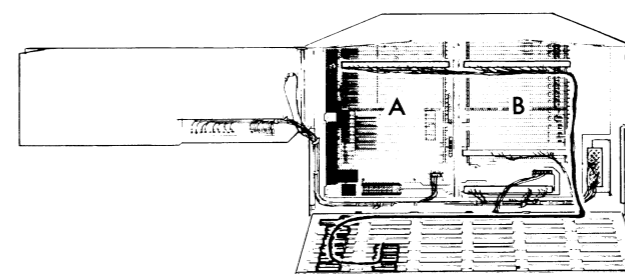
NOVA/4, S/120,  
S/140, MV/6000



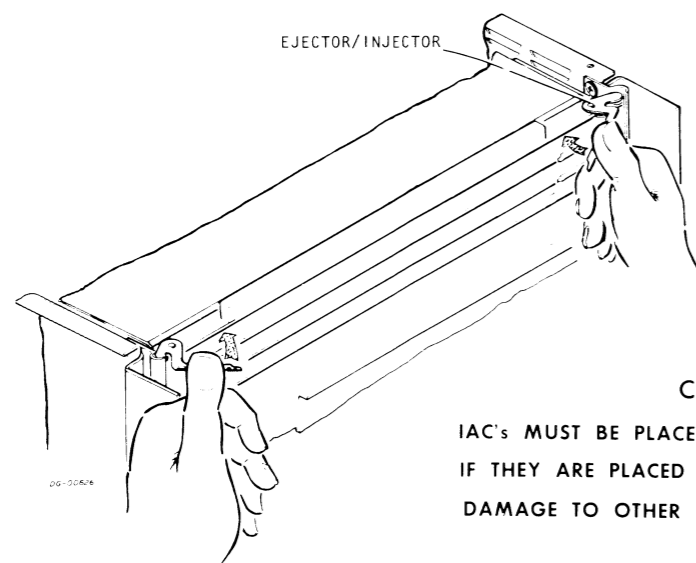
MV/8000



MV/4000, S/280

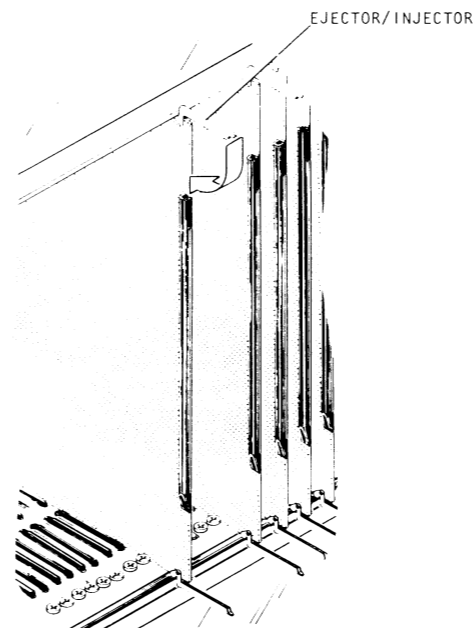


#### PC BOARD PLACEMENT IN SLOTS



#### CAUTION

IAC's MUST BE PLACED IN AN I/O ONLY SLOT.  
IF THEY ARE PLACED IN A MEMORY/IO SLOT,  
DAMAGE TO OTHER BOARDS WILL RESULT.

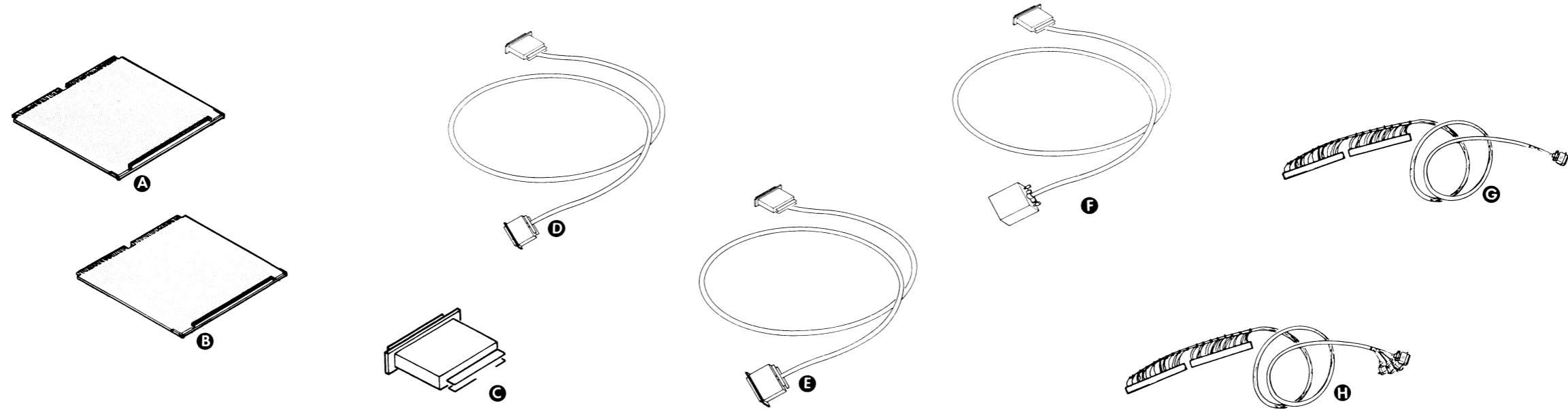


#### CAUTION

BE SURE IAC BOARD COVERS ARE IN  
PLACE WHEN INSTALLING AN IAC.

CABLE	I/O SLOT BACKPANEL PINS
IAC INTERNAL	
A	1 - 100
B	1 - 90

INSTALLATION SPECIFICATIONS



MAJOR COMPONENT

Item	Component	Model Number	Mounting Location	Notes
A	BSI-1	4348	I/O ONLY SLOT	BOARD WITH HIGHEST BAUD RATE SHOULD BE ASSIGNED TO LOWEST SLOT NUMBER.
B	BSI-4	4349	I/O ONLY SLOT	

Item	Terminator	Location	Notes
C	EIA TEST CONNECTOR (LOOPBACK PLUG)	EIA CONNECTOR PANEL	005-016512

CABLES

Item	Cable	Connecting	Max Length		Notes
			Ft	M	
NOTE 1	D	JUNCTION PANEL TO MODEM	50	15.3	RS-232-C SEE 010-381 FOR CABLE DESCRIPTIONS
	E		50	15.3	SEE 010-381 FOR CABLE DESCRIPTIONS
	F		50	15.3	CCITT V.35 SEE 010-381 FOR CABLE DESCRIPTIONS
NOTE 2	G	BSI-1 TO JUNCTION PANEL			SEE 010-381 FOR CABLE DESCRIPTIONS
	H	BSI-4 TO JUNCTION PANEL			

NOTE 1: EXTERNAL CABLES  
 NOTE 2: 4349 BSI/4 - 4 RS-232C LINES OR 2RS-232C LINES AND 2 RS449/423 LINES OR 2 RS-232C LINES AND 2 CCITT V.35 LINES OR 2 RS-232C LINES AND 1 RS-449/423 LINE AND 1 CCITT V.35 LINE.

WARNING

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE INTERFERENCE TO RADIO COMMUNICATIONS. AS TEMPORARILY PERMITTED BY REGULATION IT HAS NOT BEEN TESTED FOR COMPLIANCE WITH THE LIMITS FOR CLASS A COMPUTING DEVICES PURSUANT TO SUBPART J OF PART 15 OF FCC RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER AT HIS OWN EXPENSE WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

SPECIFICATIONS

Component	Chassis	Slots Required	Maximum Allowable PIO Latency	Controller's Current Draw
BSI-1	MAIN OR EXPANSION	1	N-1/2 CLOCK PERIODS*	+5V -- 2.8 AMPS -5V -- 100 MA +12V -- 175 MA
BSI-4	MAIN OR EXPANSION	1	N-1/2 CLOCK PERIODS*	+5V -- 4.0 AMPS -5V -- 100 MA +12V -- 250 MA

\*N IS THE NUMBER OF BITS PER CHARACTER, AND A CLOCK PERIOD IN SECONDS IS THE INVERSE BIT RATE

**SHIPPING**

FOR PACKING PROCEDURE,  
SEE 010-000262

**INTERNAL CABLING**

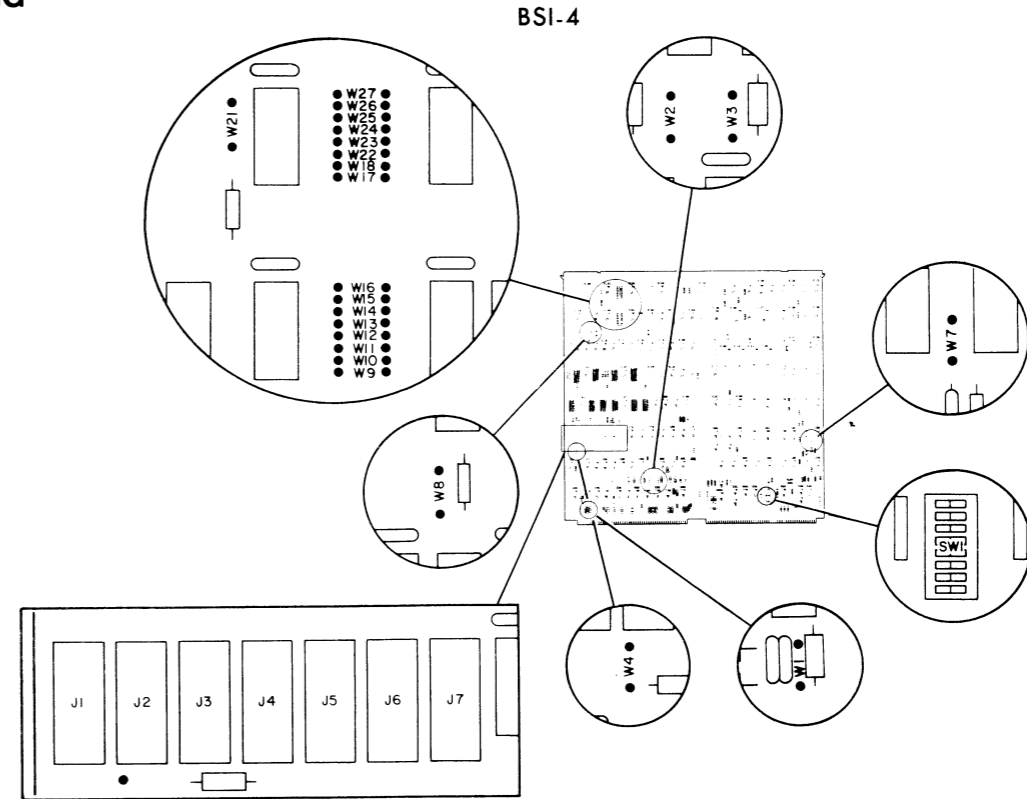
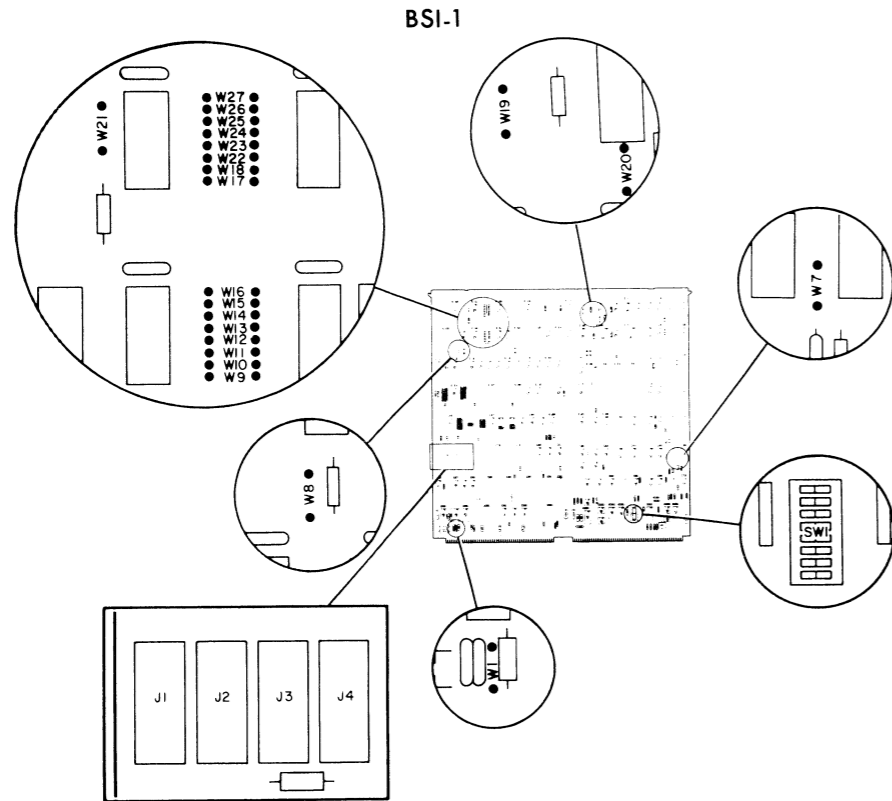
SIGNAL NAMES

BS1	
SIGNAL NAME	BACKPANEL PIN NUMBER
GND	A001
GND	A002
ICLK0	A011
ICLK1	A012
RC0	A013
RC1	A016
XMIT CLOCK0	A018
XMIT DATA0	A019
XMIT CLOCK1	A020
XMIT DATA1	A021
XMIT DATA1	A022
XMIT CLOCK0	A023
XMIT DATA1	A024
XMIT CLOCK1	A026
RING0	A027
RING1	A028
CARRIER DET0	A029
CARRIER DET1	A030
DTR0	A031
DTR1	A032
GND	A035
GND	A036
CTS0	A039
CTS1	A047
DSR0	A049
DSR1	A053
LOCAL LOOP0	A055
LOCAL LOOP1	A057
REC DATA0	A059
REC DATA0	A061
REC DATA1	A063
REC DATA1	A065
REMOTE LOOP1	A067
REMOTE LOOP0	A069
RTS0	A071
RTS1	A073
SIG QUAL0	A075
RATE INDO	A076
SIG QUAL1	A077
RATE IND1	A078
SEL STBY0	A079
SEL STBY1	A081
XMIT CLOCK2	A083
XMIT CLOCK3	A084
XMIT DATA2	A085
XMIT DATA3	A086
REC CLOCK0	A087
REC CLOCK1	A088
REC CLOCK0	A089
REC CLOCK1	A090
STNDBY INDO	A091
STNDBY IND1	A092
GND	A099
GND	A100

SIGNAL NAME	BACKPANEL PIN NUMBER
GND	B001
GND	B002
CARRIER DET2	B005
CARRIER DET3	B006
DTR2	B011
DTR3	B012
CTS2	B013
CTS3	B014
DSR2	B015
DSR3	B016
GND	B018
SPA2	B019
SPA3	B020
ICLK2	B022
SPB2	B023
SPB3	B024
REC DATA2	B025
REC DATA3	B026
RTS2	B027
RTS3	B028
ICLK3	B030
REC CLOCK2	B031
REC CLOCK3	B032
GND	B034
RING2	B036
RING3	B038
GND	B099
GND	B100

SIGNAL NAME	EIA CONNECTOR PIN
ICLK	(0-1) 24
RC	(0-1) 19
XMIT CLOCK	(0-1) 16
XMIT DATA	(0-1) 21
XMIT CLOCK	(0-3) 15
XMIT DATA	(0-3) 2
RING	(0-3) 22
CD	(0-3) 8
DTR	(0-3) 20
CTS	(0-3) 5
DSR	(0-3) 6
SPA	(2-3) 14
GND	7
SPB	(2-3) 23
REC DATA	(0-3) 3
RTS	(0-3) 4
REC CLOCK	(0-3) 17
REC DATA	(0-1) 25
REC CLOCK	(0-1) 18
SIG QUAL	(0-1) 13
RATE IND	(0-1) 12
SEL STBY	(0-1) 9
STNDBY IND	(0-1) 10

**TAILORING  
JUMPERING**



**BSI-1 ADDRESSING**

THE LINE CAN BE ANY ADDRESS FROM 0 TO 255. POSITIONS 1-8 OF THE DIP SWITCH REPRESENT THE ADDRESS IN BINARY.

POSITION 8 IS THE LEAST SIGNIFICANT BIT, AND POSITION 1 IS THE MOST SIGNIFICANT BIT.

THE ON POSITION REPRESENTS A 0, AND THE OFF POSITION REPRESENTS A 1. JUMPERS W19 AND W20 MUST REFLECT THE SETTINGS OF DIP SWITCH POSITIONS 8 AND 7 RESPECTIVELY.

DIP SWITCH POSITION		W19	W20
DIP 8	ON	IN	--
	OFF	OUT	--
DIP 7	ON	--	IN
	OFF	--	OUT

DEVICE CODE	W7
34	IN
44	OUT

NRZI OPTION	W8
YES	IN
NO	OUT

TEST JUMPERS	W21
NORMAL OPERATION	IN

**BSI-4 ADDRESSING**

THE 4 LINES MUST BELONG TO ONE OF A GROUP OF 4 ADDRESSES. THE GROUPS ARE 0-3, 4-7, ..., 249-251, 252-255. THERE ARE 64 SUCH GROUPS. THE GROUP NUMBER VARIES FROM 0 TO 63. 0-3 IS GROUP 0; 4-7 IS GROUP 1; AND SO ON UNTIL 252-255 WHICH IS GROUP 63. THE GROUP NUMBER IS DETERMINED BY THE 6 POSITION DIP SWITCH.

POSITION 1-6 OF THE DIP SWITCH REPRESENT THE GROUP NUMBER IN BINARY. POSITION 6 IS THE LEAST SIGNIFICANT BIT: POSITION 1 IS THE MOST SIGNIFICANT BIT.

THE ON POSITION REPRESENTS A 0, AND THE OFF POSITION REPRESENTS A 1. POSITIONS 7 AND 8 MUST BE OFF.

JUMPERS W19, AND W20 DO NOT EXIST ON BSI-4

LINE OPTIONS	PLUG
<b>LINE 0</b>	
RS-449/423	J1
CCITT V.35	J2
RS-232-C	J4
<b>LINE 1</b>	
RS-449/423	J5
CCITT V.35	J6
RS-232-C	J7

INTERNAL CLOCK SUPPLIED TO LINE				
LINE	W1	W2	W3	W4
0	IN	OUT	OUT	OUT
1	OUT	OUT	OUT	IN
2	OUT	IN	OUT	OUT
3	OUT	OUT	IN	OUT

JUMPERS W2, W3, AND W4, DO NOT EXIST ON BSI-1

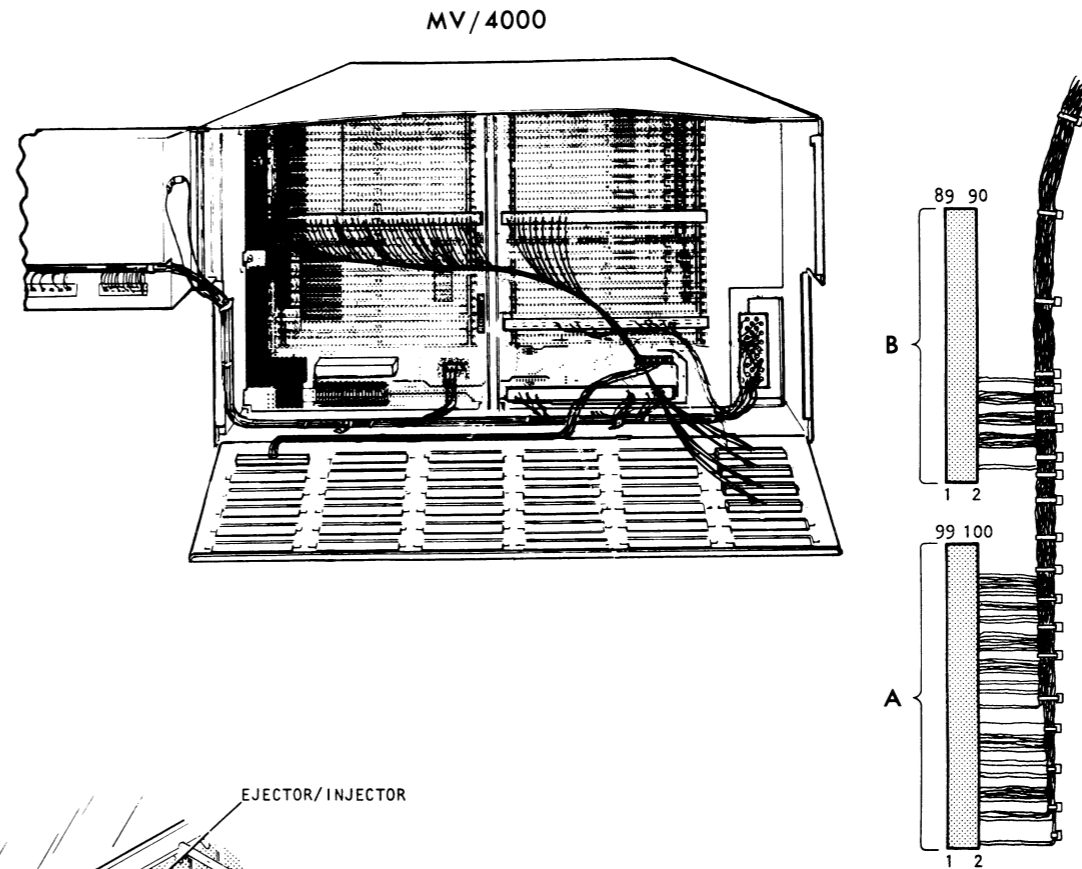
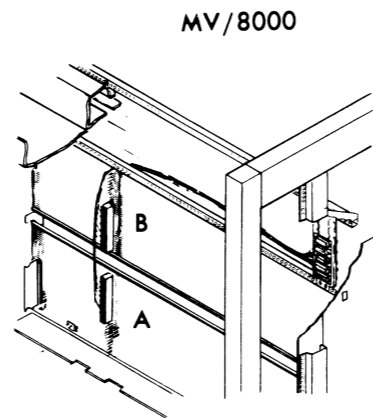
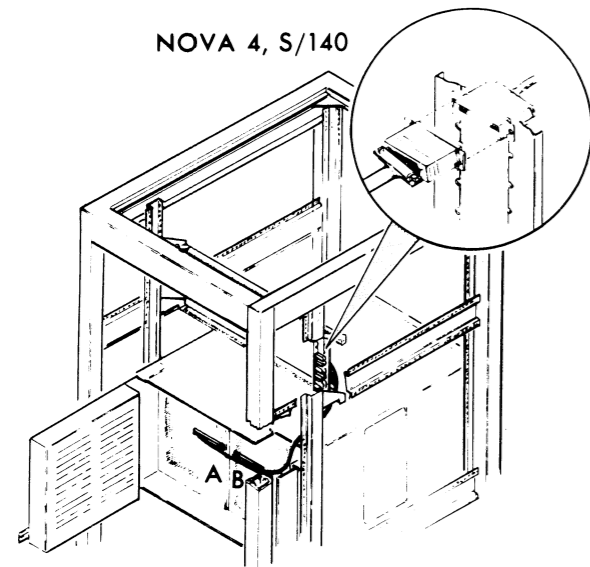
NRZI CLOCK RATE*	W9	W10	W11	W12	W13	W14	W15	W16
600	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT
1200	OUT	IN	OUT	OUT	OUT	OUT	OUT	OUT
2400	OUT	OUT	IN	OUT	OUT	OUT	OUT	OUT
4800	OUT	OUT	OUT	IN	OUT	OUT	OUT	OUT
9600	OUT	OUT	OUT	OUT	IN	OUT	OUT	OUT
19.2K	OUT	OUT	OUT	OUT	OUT	IN	OUT	OUT
38.4K	OUT	OUT	OUT	OUT	OUT	OUT	IN	OUT
76.8K	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN

\*IF THE NRZI OPTION IS NOT CHOSEN (W8) THESE JUMPERS ARE IRRELEVANT.

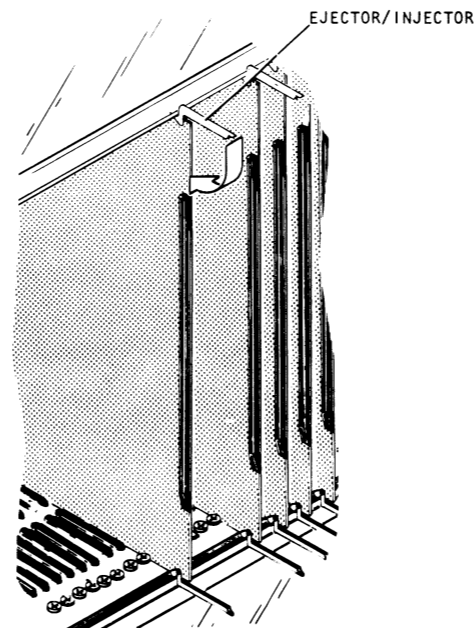
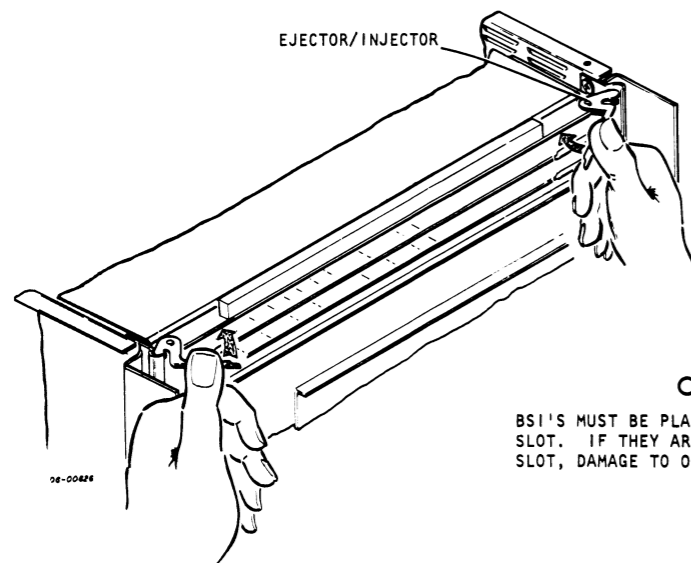
INTERNAL CLOCK RATE*	W17	W18	W22	W23	W24	W25	W26	W27
300	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT
600	OUT	IN	OUT	OUT	OUT	OUT	OUT	OUT
1200	OUT	OUT	IN	OUT	OUT	OUT	OUT	OUT
2400	OUT	OUT	OUT	IN	OUT	OUT	OUT	OUT
4800	OUT	OUT	OUT	OUT	IN	OUT	OUT	OUT
9600	OUT	OUT	OUT	OUT	OUT	IN	OUT	OUT
19.2K	OUT	OUT	OUT	OUT	OUT	OUT	IN	OUT
38.4K	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN

\*IF NO LINE USES THE INTERNAL CLOCK, THESE JUMPERS ARE IRRELEVANT.

### INTERNAL CABLING



#### PC BOARD PLACEMENT IN SLOTS



#### CAUTION

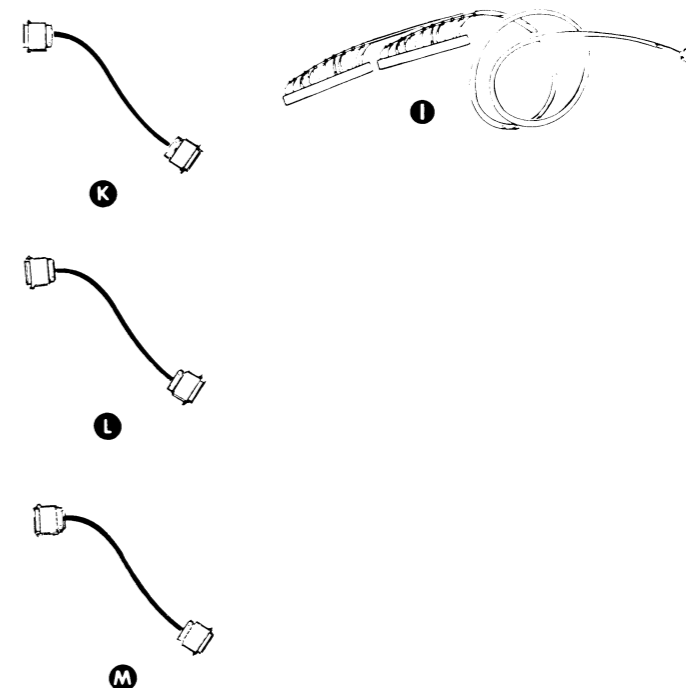
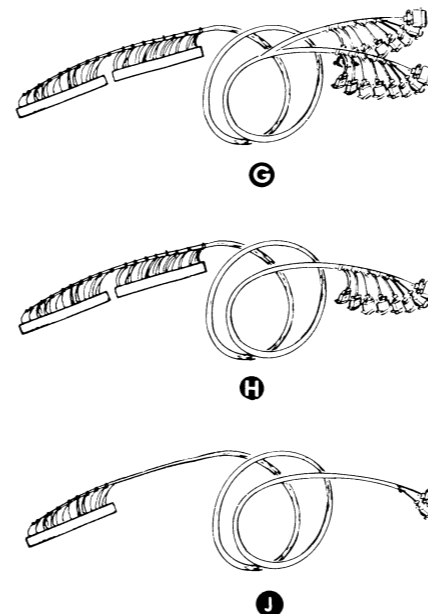
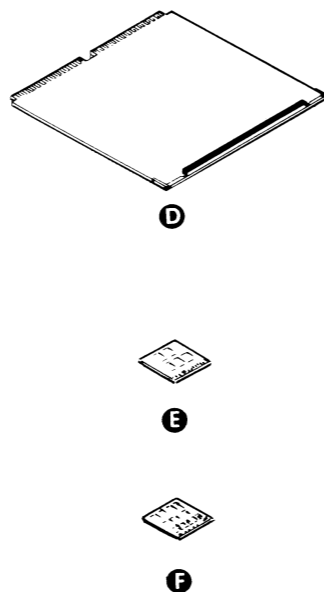
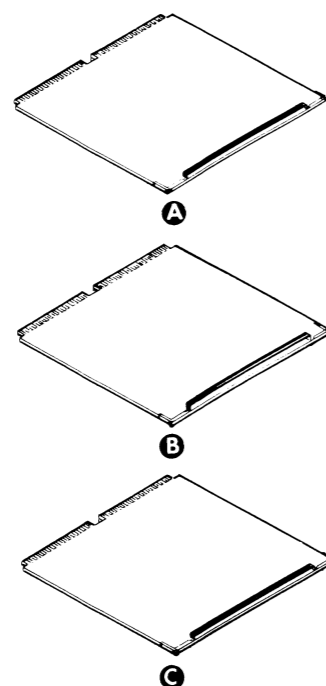
BSI'S MUST BE PLACED IN AN I/O ONLY SLOT. IF THEY ARE PLACED IN AN I/O MEMORY SLOT, DAMAGE TO OTHER BOARDS MAY OCCUR.

CABLE	I/O SLOT BACKPANEL PINS
BSI INTERNAL	
A	1 - 100
B	1 - 90

NOTE: FOR NOVA 4 AND S/140, WIRE WRAP AS FOLLOWS ON BACKPANEL-

1. JUMPER PIN B96 OF EACH SLOT CONTAINING A BSI BOARD TOGETHER.
2. JUMPER PIN B91 OF EACH SLOT CONTAINING A BSI BOARD TOGETHER.
3. JUMPER PIN B94 OF EACH SLOT TO PIN B93 OF THE PREVIOUS SLOT.

INSTALLATION SPECIFICATIONS



MAJOR COMPONENT

ITEM	COMPONENT	COMPONENT NUMBER	MOUNTING LOCATION	NOTES
A	ATI-16 (1)	4342	I/O SLOT ONLY	BOARD WITH HIGHEST BAUD RATE LINES SHOULD BE ASSIGNED TO LOWEST SLOT.
B	AMI-8 (2)	4340	I/O SLOT ONLY	
C	CSI-2 (3)	4345	I/O SLOT ONLY	
D	CSI-1	4346	I/O SLOT ONLY	
E	FOUR LINE EIA INTERFACE MODULE	4261	ATI-16	THE ATI-16 REQUIRES ONE OF THESE MODULE FOR EACH FOUR LINES USED.
F	FOUR LINE 20 MA INTERFACE MODULE	4344	ATI-16	

- (1) ASYNCHRONOUS TERMINAL INTERFACE WITHOUT MODEM CONTROL.
- (2) ASYNCHRONOUS MODEM INTERFACE WITH MODEM CONTROL.
- (3) CHARACTER SYNCHRONOUS INTERFACE.

SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

ITEM	COMPONENT	CHASSIS	SLOTS REQ.	MAX. ALLOWABLE PROGRAMMED I/O LATENCY *	CONTROLLER'S +5 VOLT CURRENT DRAW (AMPS)
A	ATI-16 (1)	MAIN OR EXPANSION	1		3.4
B	AMI-8 (1)	MAIN OR EXPANSION	1		3.0
C	CSI-2	MAIN OR EXPANSION	1		4.0
D	CSI-1	MAIN OR EXPANSION	1		4.0

NOTE: DATA CHANNEL NOT APPLICABLE. THE MAXIMUM ALLOWABLE PROGRAMMED I/O LATENCY IS ONE CHARACTER TIME.

(1) WHEN INSTALLING MORE THAN ONE BOARD WITH THE SAME DEVICE CODE MAKE SURE THAT THE BOARD CONTAINING LINE 0 IS ALWAYS CLOSEST TO THE PROCESSOR (CPU OR DC!).

TERMINATOR

ITEM	TERMINATOR	LOCATION	NOTES
K	ATI-16 TEST PLUG	EIA CONNECTOR PANEL	
L	AMI-8 TEST PLUG	EIA CONNECTOR PANEL	
M	CSI-2/CSI-1 TEST PLUG	EIA CONNECTOR PANEL	

INTERNAL CABLES

ITEM	CABLE	CONNECTING	NOTES
G	AMI/8	AMI AND EIA CONN PANEL AMI AND CHASSIS CONN PANEL (HARDENED CPUS)	005-014115 005-019397
H	ATI/16	ATI AND EIA CONN PANEL ATI AND CHASSIS CONN PANEL (HARDENED CPUS)	005-014111 005-019398
I	AMI/8	AMI AND CHASSIS CONN PANEL (FOR 4371 AND 4384 CONN PANELS)	005-019058
	ATI/16	ATI AND CHASSIS CONN PANEL (FOR 4372 AND 4384 CONN PANELS)	005-019059
J	CSI/1 CSI/2	CSI AND EIA CONN PANEL CSI AND CHASSIS CONN PANEL (HARDENED CHASSIS)	005-014105 005-021104



## PACKAGING

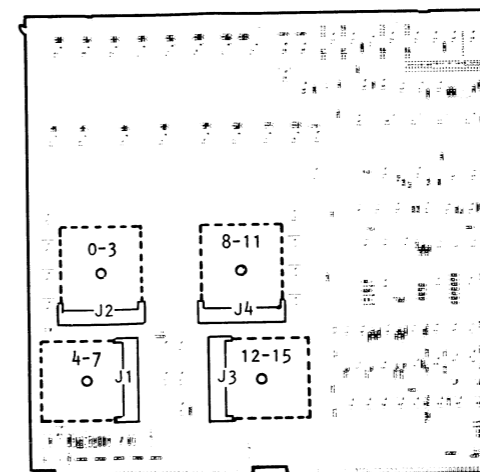
FOR PACKING PROCEDURE,  
SEE 010-000262/263

## ATI DAUGHTER BOARDS

### ATI-16

Ref DGC 003-001352-01

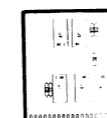
DAUGHTER  
BOARD  
LOCATIONS



FEMALE  
EDGE  
CONNECTORS

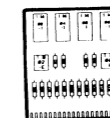
### DAUGHTER BOARDS

EIA



Ref DGC 003-000489-01

20mA

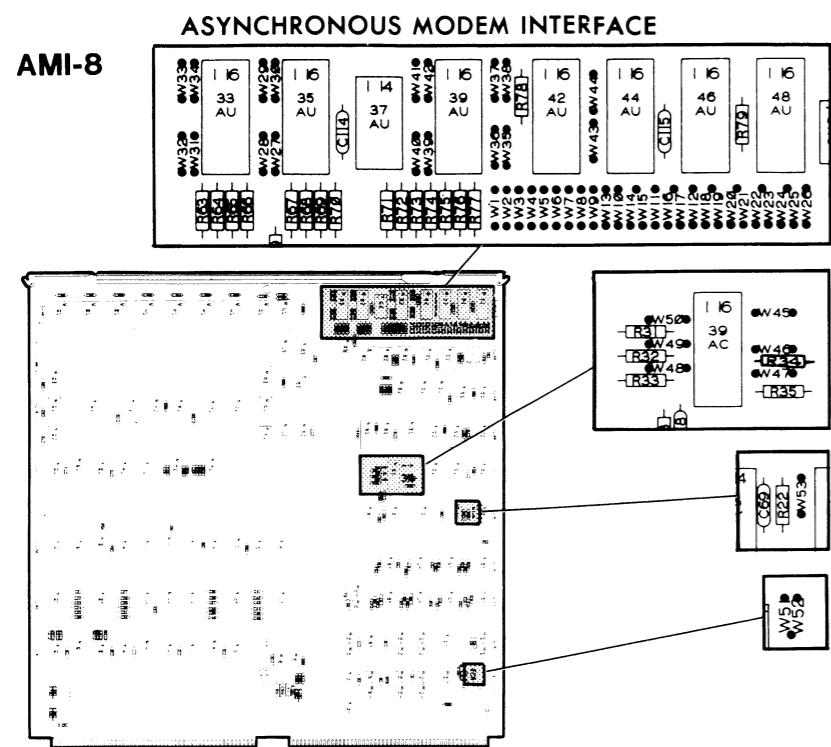


Ref DGC 003-001346-01

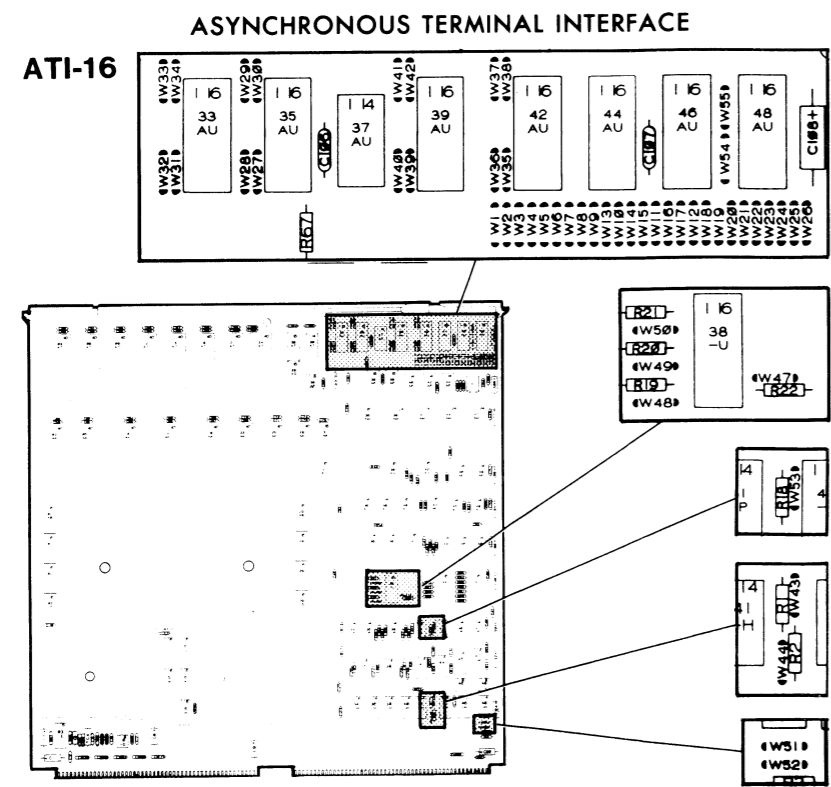
THE FIGURE SHOWS THE LOCATIONS OF THE FEMALE EDGE CONNECTORS ON AN ATI-16 BOARD AND THE LINE NUMBERS TO WHICH THE CONNECTORS CORRESPOND.

THE EIA AND 20mA INTERFACE MODULES ARE DAUGHTER BOARDS THAT PLUG INTO THE ATI-16 BOARD. TO INSTALL THE DAUGHTER BOARDS, PLUG THEM INTO THE APPROPRIATE EDGE CONNECTOR. MAKE SURE THAT THE BOARDS ARE SEATED PROPERLY, THEN SECURE THEM WITH A SCREW INSERTED THRU AN INSULATING WASHER AND THE HOLE IN THE CENTER OF THE DAUGHTER BOARD.

### TAILORING JUMPERING



Ref DGC Dwg No 003-001339 Rev 01



Ref DGC Dwg No 003-001352 Rev 01

#### CLOCK FREQUENCY JUMPERS

CLOCK 0			CLOCK 1		
DESIRED BAUD RATE	AMI-8 INSERT JUMPER	ATI-16 INSERT JUMPER	DESIRED BAUD RATE	AMI-8 INSERT JUMPER	ATI-16 INSERT JUMPER
19200	W43	W54	9600	W44	W55
9600	W13	W13	4800	W14	W14
4800	W15	W15	2400	W16	W16
2400	W17	W17	1200	W18	W18
1200	W19	W17	600	W20	W20
600	W21	W21	300	W22	W22
300	W23	W23	150	W24	W24
150	W25	W25	75	W26	W26

#### CLOCK 2

BAUD RATE RANGE	INSERT JUMPER	RESULTING SOURCE FREQUENCY
34.42690 TO 74.85380	W8	9,600
74.85380 TO 149.7076	W6	19,200
149.7076 TO 299.4152	W4	38,400
299.4152 TO 598.8304	W2	76,800
598.8304 TO 4800	W1	153,600

JUMPERS TO SELECT SOURCE FREQUENCY DIVISOR MINUS 1		
BIT POSITION	INSERT JUMPER TO SPECIFY A 1	NOTES
0	W27	THE INSERTED JUMPERS SPECIFY A BINARY NUMBER. TO FIND THE SOURCE FREQUENCY DIVISOR, ADD ONE TO THE NUMBER SPECIFIED BY THE JUMPERS. TO FIND THE BAUD RATE, DIVIDE THE SOURCE FREQUENCY (SEE TABLE ABOVE) BY THE DECIMAL VALUE OF THE FREQUENCY DIVISOR.
1	W28	
2	W29	
3	W30	
4	W31	
5	W32	
6	W33	
7	W34	

#### CLOCK 3

BAUD RATE RANGE	INSERT JUMPER	RESULTING SOURCE FREQUENCY
4.678363 TO 9.356725	W12	1,200
9.356725 TO 18.71345	W11	2,400
18.71345 TO 37.42690	W10	4,800
37.42690 TO 74.85380	W9	9,600
74.85380 TO 149.7076	W7	19,200
149.7076 TO 299.4152	W5	38,400
299.4152 TO 2400	W3	76,800

JUMPERS TO SELECT SOURCE FREQUENCY DIVISOR MINUS 1		
BIT POSITION	JUMPER TO INSERT TO SPECIFY A 1	NOTES
0	W35	THE INSERTED JUMPERS SPECIFY A BINARY NUMBER. TO FIND THE SOURCE FREQUENCY DIVISOR, ADD ONE TO THE NUMBER SPECIFIED BY THE JUMPERS. TO FIND THE BAUD RATE, DIVIDE THE SOURCE FREQUENCY (SEE TABLE ABOVE) BY THE DECIMAL VALUE OF THE SOURCE FREQUENCY DIVISOR.
1	W36	
2	W37	
3	W38	
4	W39	
5	W40	
6	W41	
7	W42	

#### JUMPERS FOR COMMONLY USED CLOCK FREQUENCIES

##### CLOCK 2

BAUD RATE	OCTAL VALUE OF SOURCE FREQUENCY DIVISOR MINUS 1	INSERT	
		SOURCE FREQUENCY CLOCK JUMPERS	SOURCE FREQUENCY DIVISOR MINUS ONE JUMPERS
4800	37	W1	W30-W34
3600	52	W1	W29, W31, W33
2400	77	W1	W29-W34
1800	124	W1	W28, W30, W32
1200	177	W1	W28-W34
600	377	W1	W27-W34
300	377	W2	W27-W34
150	377	W4	W27-W34
110	256	W6	W27, W29, W31-W33
75	377	W6	W27-W34

##### CLOCK 3

BAUD RATE	OCTAL VALUE OF SOURCE FREQUENCY DIVISOR MINUS 1	INSERT	
		SOURCE FREQUENCY CLOCK JUMPERS	SOURCE FREQUENCY DIVISOR MINUS ONE JUMPERS
2400	37	W3	W38-W42
1800	52	W3	W37, W39, W41
1200	77	W3	W37-W42
600	177	W3	W36-W42
300	377	W3	W35-W42
150	377	W5	W35-W42
110	256	W7	W35, W37, W39-W41
75	377	W7	W35-W42

#### DEVICE CODE JUMPERS

DEVICE CODE	INSERT JUMPER
34 (MUX)	W51
44 (MUX)	W52

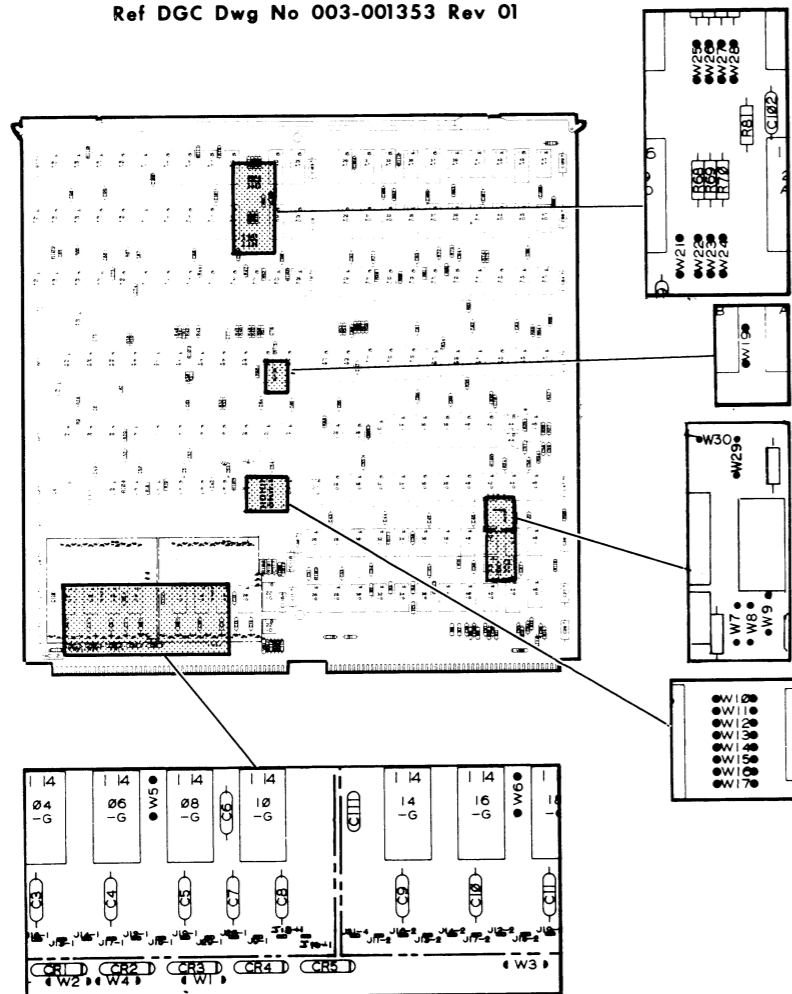
#### LINE ADDRESS GROUP JUMPERS

COMPONENT	BIT POSITIONS OF LINE ADDRESS IN DIA OR DOA INSTRUCTIONS (INSERTED JUMPER SPECIFIES AN 0)							
	7	8	9	10	11	12	13	14
8-LINE ASYNCHRONOUS WITH MODEM CONTROL	W50	W49	W48	W47	W46			
16-LINE ASYNCHRONOUS WITHOUT MODEM CONTROL	W50	W49	W48	W47				

## TAILORING (CONT)

### CHARACTER SYNCHRONOUS INTERFACE

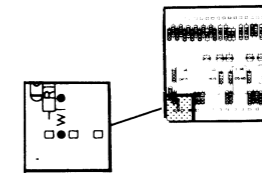
Ref DGC Dwg No 003-001353 Rev 01



### DEVICE CODE JUMPERS

DEVICE CODE	INSERT JUMPER
34/35 (MUX/CRC)	W8
44/45 (MUX/CRC)	W7

### 303 MODEM INTERFACE (Daughter Board) Ref DGC Dwg No 003-001589 Rev 00



### LINE ADDRESS GROUP JUMPERS

COMPONENT	BIT POSITIONS OF LINE ADDRESS IN DIA OR DOA INSTRUCTIONS (INSERTED JUMPER SPECIFIES AN 0)							
	7	8	9	10	11	12	13	14
2-LINE SYNCHRONOUS	W27	W26	W25	W28	W23	W24	W22	
1-LINE SYNCHRONOUS	W27	W26	W25	W28	W23	W24	W22	W21 W19

### SYNCHRONOUS INTERNAL CLOCK JUMPERS

LINE USING INTERNAL CLOCK	INSERT JUMPER
EIA LINE 0	W5
EIA LINE 1	W6
303 LINE	W1 ON DAUGHTER BOARD

### CLOCK FREQUENCY JUMPERS

BAUD RATE	JUMPER TO INSERT
38,400	W14
19,200	W15
9,600	W16
4,800	W17
2,400	W10
1,200	W11
600	W12
300	W13

### CRC JUMPERS

FUNCTION	INSERT JUMPER
DISABLE CRC	W30
ENABLE CRC	W29

### SPARE MODEM JUMPERS

MODEM DRIVER	INSERT JUMPER
SPARE A TO LINE 0	W1
SPARE B TO LINE 0	W2
SPARE A TO LINE 1	W3
SPARE B TO LINE 1	W4

INTERNAL CABLING (CONT)

ATI-16

SIGNAL NAME*	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 0	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7
XDAT-n	2	A-27	A-24	A-47	A-36	A-61	A-73	A-85	A-90
RDAT-n	3	A-23	A-22	A-39	A-32	A-59	A-71	A-83	A-88
+V-n	11	A-21	A-20	A-35	A-30	A-57	A-69	A-81	A-86
-V-n	18	A-13	A-16	A-31	A-28	A-53	A-65	A-77	A-78
+5V-n	4,20	A-11	A-12	A-29	A-26	A-49	A-63	A-75	A-76
GND-n	1,7	A-19	A-18	A-33	A-34	A-55	A-67	A-79	A-84

SIGNAL NAME*	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15
XDAT-n	2	B-19	B-18	B-30	B-34	B-48	B-54	B-71	B-86
RDAT-n	3	B-15	B-16	B-28	B-32	B-44	B-52	B-70	B-72
+V-n	11	B-13	B-14	B-26	B-31	B-42	B-49	B-53	B-85
-V-n	18	B-11	B-12	B-22	B-25	B-38	B-47	B-67	B-79
+5V-n	4,20	B-5	B-6	B-20	B-23	B-36	B-43	B-51	B-77
GND-n	1,7	B-1	B-2	B-24	B-27	B-40	B-50	B-69	B-89

\* NOTE: THE "n" IN THE SIGNAL NAME REFERS TO THE LINE NUMBER. THUS THE SIGNAL GOING TO EIA CONNECTOR PIN 2 FOR LINE 0 IS XDAT-0; FOR LINE 1, XDAT-1; AND SO ON.

AMI-8

SIGNAL NAME*	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER							
		LINE 0	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7
XDAT-n	2	A-32	A-49	A-77	A-92	B-31	B-26	B-44	B-79
RDAT-n	3	A-28	A-39	A-73	A-90	B-27	B-24	B-42	B-77
RTS-n	4	A-26	A-35	A-71	A-88	B-25	B-22	B-40	B-71
CTS-n	5	A-22	A-29	A-67	A-86	B-23	B-20	B-38	B-69
DSR-n	6	A-20	A-27	A-65	A-84	B-19	B-18	B-36	B-67
DTR-n	20	A-18	A-23	A-61	A-85	B-15	B-16	B-32	B-51
CD-n	8	A-16	A-21	A-59	A-76	B-13	B-14	B-30	B-49
RI-n	22	A-12	A-19	A-57	A-83	B-11	B-12	B-28	B-47
GND-n	1, 7	A-34	A-33	A-63	A-78	B-1	B-2	B-24	B-53

\* NOTE: THE "n" IN THE SIGNAL NAME REFERS TO THE LINE NUMBER. THUS THE SIGNAL GOING TO EIA CONNECTOR PIN 2 FOR LINE 0 IS XDAT-0; FOR LINE 1, XDAT-1; AND SO ON.

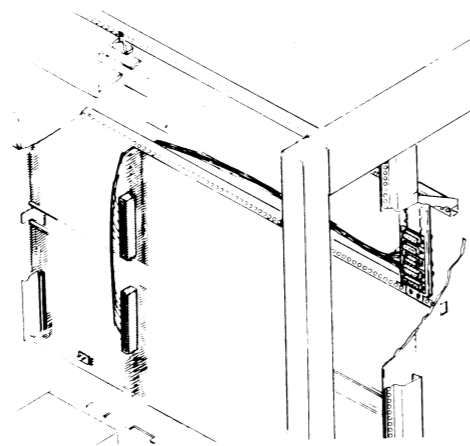
CSI-1

SIGNAL NAME*	EIA CONNECTOR PIN	BACKPANEL PIN NUMBER	
		LINE 0	LINE 1
SPA-n	14	A-36	A-53
XDAT-n	2	A-32	A-49
XCLK-n	15	A-30	A-47
RDAT-n	3	A-28	A-39
RTS-n	4	A-26	A-35
RCLK-n	17	A-24	A-31
CTS-n	5	A-22	A-29
DSR-n	6	A-20	A-27
DTR-n	20	A-18	A-23
CD-n	8	A-16	A-21
RI-n	22	A-12	A-19
SPB-n	23	A-11	A-13
GND-n	1, 7	A-34	A-33

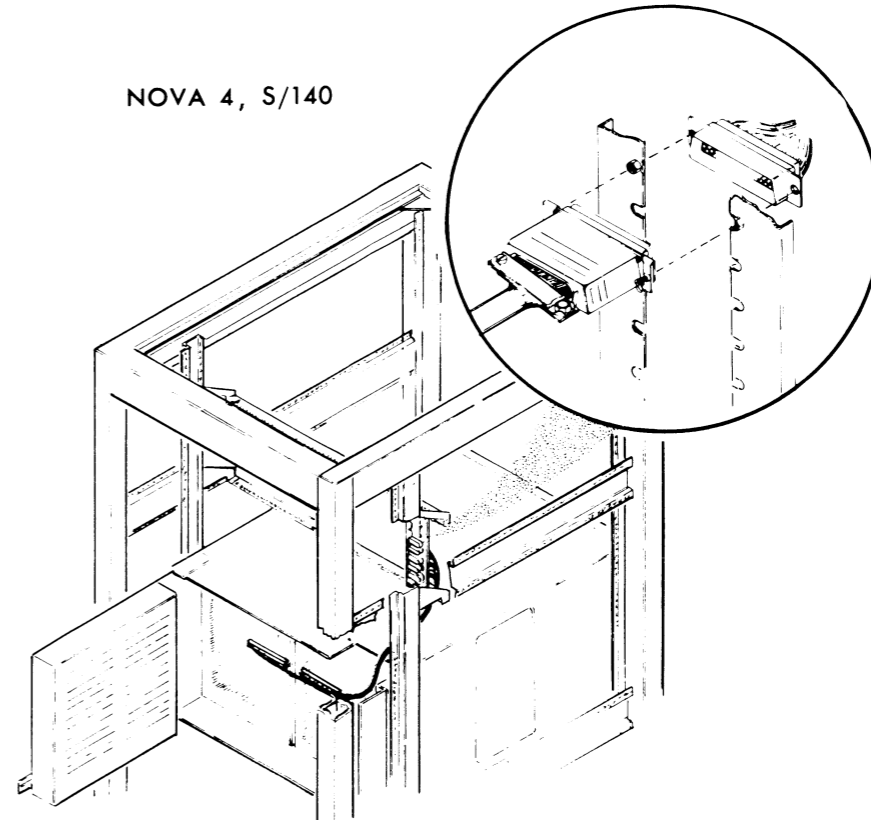
\* NOTE: THE "n" IN THE SIGNAL NAME REFERS TO THE LINE NUMBER. THUS THE SIGNAL GOING TO THE EIA CONNECTOR PIN 2 FOR LINE 0 IS XDAT-0; FOR LINE 1, XDAT-1; AND SO ON.

### CABLE PLACEMENT

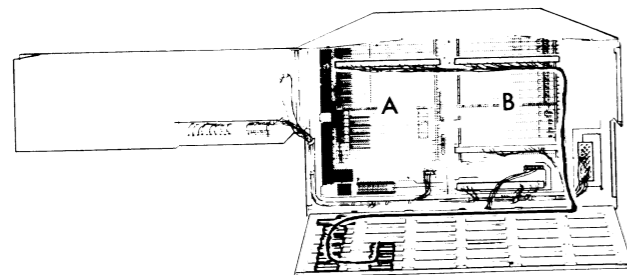
MV/8000



NOVA 4, S/140

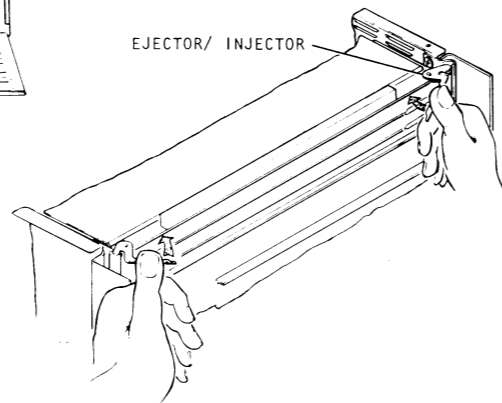


MV/4000, S/280

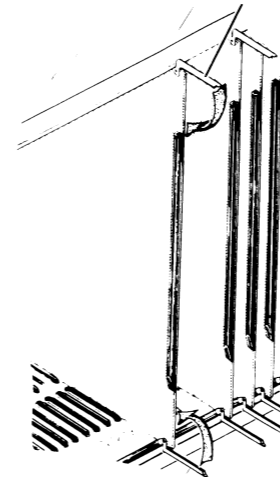


#### PC BOARD PLACEMENT IN SLOTS

EJECTOR/ INJECTOR



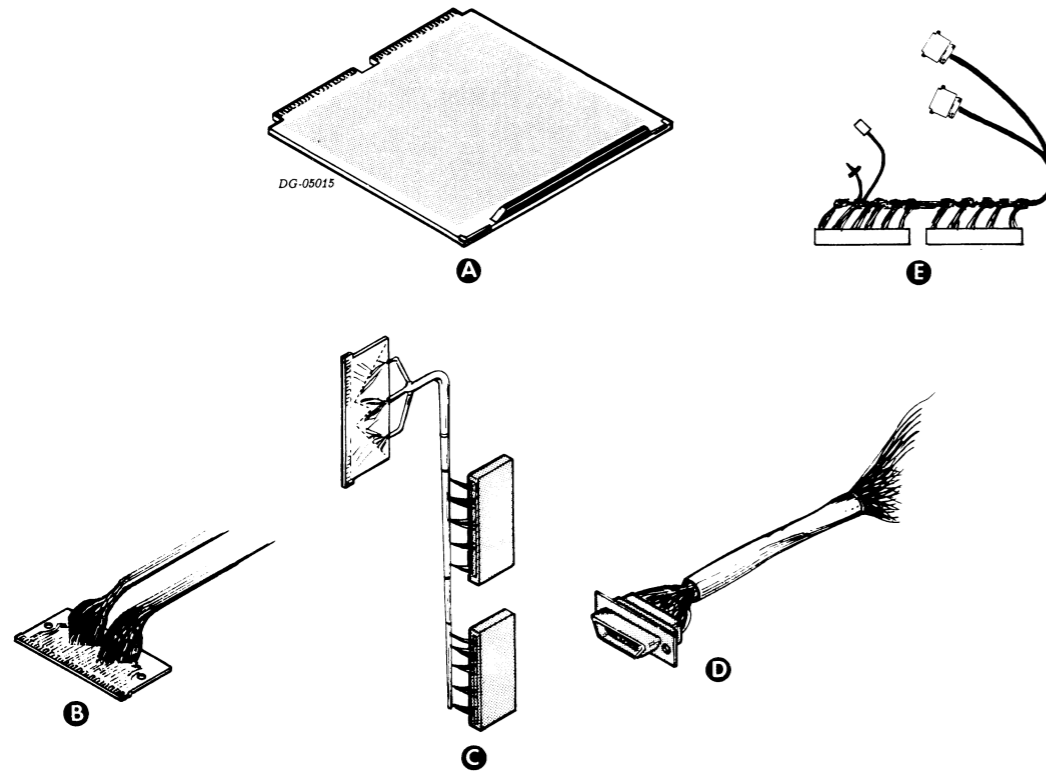
EJECTOR/INJECTOR



THESE BOARDS MUST BE PLACED IN AN I/O ONLY SLOT. IF THEY ARE PLACED IN AN I/O MEMORY SLOT, DAMAGE TO OTHER BOARDS MAY OCCUR.

- NOTE: FOR NOVA 4 AND S/140, WIRE WRAP AS FOLLOWS ON BACKPANEL -
1. JUMPER PIN B96 OF EACH SLOT CONTAINING AN ICM BOARD TOGETHER.
  2. JUMPER PIN B91 OF EACH SLOT CONTAINING AN ICM BOARD TOGETHER.
  3. JUMPER PIN B94 OF EACH SLOT TO PIN B93 OF THE PREVIOUS SLOT SO THAT IT RESEMBLES THE JUMPERING FOR INTERRUPT AND DCH PRIORITY.
  4. IF BOARDS HAVE DIFFERENT DEVICE CODES, UMCPIN (B94) SHOULD NOT BE JUMPED TO UMCPOUT (B93). RXDN (B96) SHOULD NOT BE JUMPED BETWEEN BOARDS OF DIFFERENT DEVICE CODES.

**SUBSYSTEM COMPONENT BREAKDOWN**



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	DATA CONTROL UNIT (DCU)	COMPUTER CHASSIS	

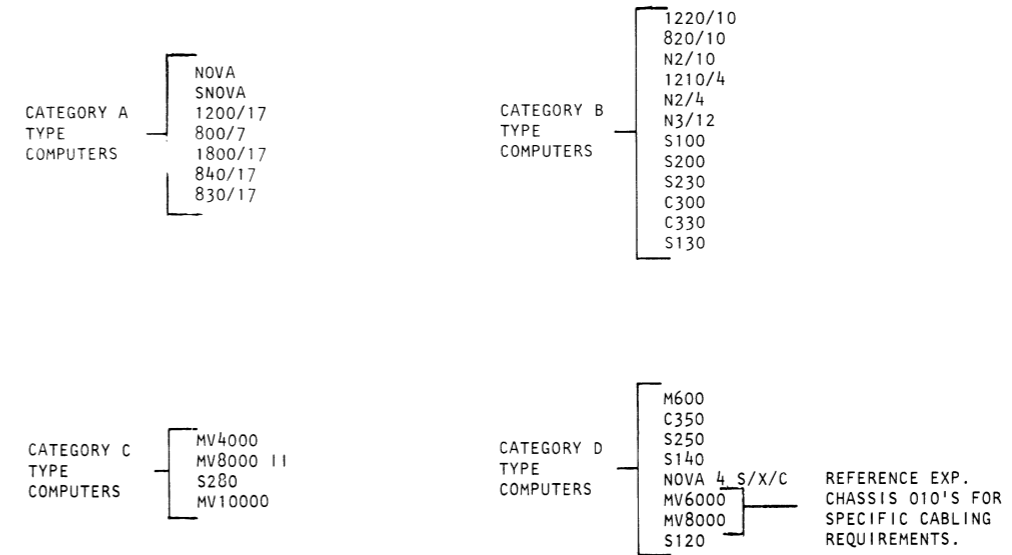
**CABLE**

Item	Cable	Connecting	Max Allowed Lg		Notes
			ft	m	
B	005-006135 INTERNAL	DCU and EXTERNAL I/O BUS	2	.6	50 PIN EDGE CONNECTOR NOVA 2, 3, ECLIPSES CATEGORY B
C	005-012590 INTERNAL	DCU and EXTERNAL I/O BUS	2	.6	M/600, C/350, S/250 CATEGORY D
D	005-006136 INTERNAL	DCU and EXTERNAL I/O BUS	2	.6	CANNON CONNECTOR CATEGORY A
E	005-020295 INTERNAL	DCU and EXTERNAL I/O BUS	2	.6	(2) CANNON CONNECTORS CATEGORY C

**SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS**

Item	Component	Chassis	Slots Required	Max Allowable Data Channel Latency (μ sec)	Type of Data Channel Service Desired		Max Allowable Programmed I/O Latency +	Controller's +5 Volt Current Draw (Amps)
					High Speed	Standard		
A	DCU	COMPUTER	1	—	X	X	—	8.0

DG-01912



### SHIPPING

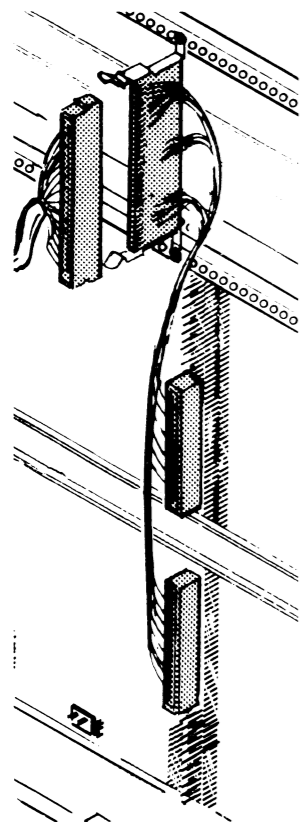
FOR PACKING PROCEDURE,  
SEE 010-000262

SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
°F -40 to +150	(Non-condensing) 0%/80%	50,000ft. 15,200m	°F -40 to +150	(Non-condensing) 0%/80%	90 days
°C -40 to +65			°C -40 to +65		

#### CATEGORY D

##### EDGE CONNECTOR

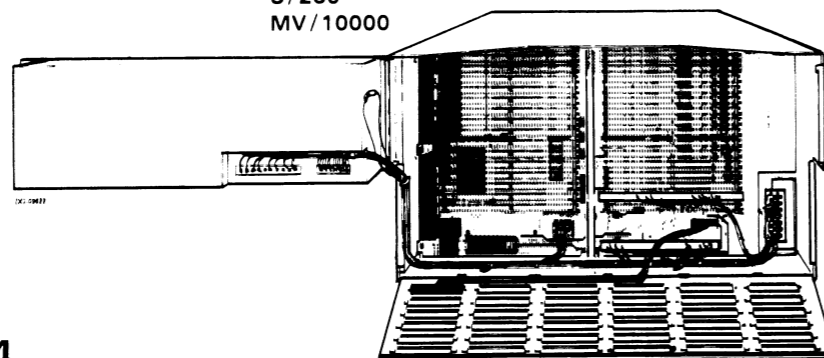
S/250,C/350,M/600



#### CATEGORY C

##### EDGE CONNECTOR

MV/4000  
MV/8000II  
S/280  
MV/10000



DCU/200 SERIES 4254

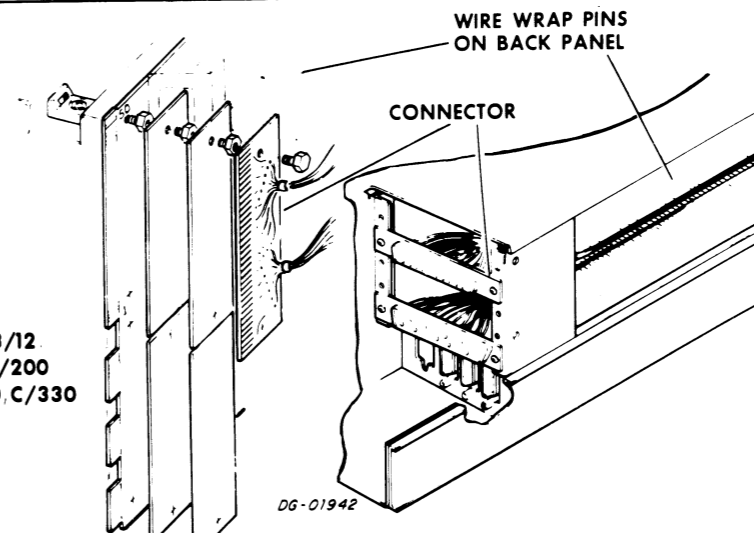
### INTERNAL CABLING

I/O BUS INTERNAL CABLE CONNECTION FOR DATA CONTROL UNIT				
Signal Names	Back Panel Pin Numbers	005-6135, 005-12590 Edge Connectors Pin Numbers	005-6136 Socket Connector Pin Numbers	005-20295 CANNON CONN. PIN NUMBERS
GND	GND	A	50	J2-2, J2-18 J2-16
PWR ON	A3	B	49	N/A
MSKO	B67	C	43	J1-23
INTA	B54	D	38	J1-4
DATIB	B53	E	20	J1-3
DATIA	B52	F	19	J1-5
DS3	B51	H	35	J1-14
DATOC	B49	J	24	J1-6
CLR	B48	K	2	J1-18
STRT	B40	L	48	J1-19
DATIC	B38	M	21	J1-21
DATOB	B36	N	23	J1-22
DATOA	B34	P	22	J1-2
ASYEN	B31	R	25	J2-4
DS4	B27	S	36	J1-13
DS5	B25	T	37	J1-16
DS2	B23	U	34	J1-15
DS1	B19	V	33	J1-31
IORST	B15	W	42	J1-37
DS0	B13	X	32	J1-32
IOPLS	B11	Y	41	J1-38
SELD	B6	Z	47	J1-8
SELB	A90	a	46	J1-7
INTP OUT	A87	c	39	J1-36
BIR7	A88	d	27	J2-17
BLIO	A85	e	28	J2-20
INTR	A86	f	40	J1-25
RQENB	A49	m	45	J1-29
DATA7	A47	n	10	J1-45
DATA14	A57	p	17	J1-46
DATA5	A59	r	8	J1-47
DATA11	A61	s	14	J1-30
DATA12	A63	t	15	J1-12
DATA8	A65	u	11	J1-48
DATA4	A67	v	7	J1-49
DATA0	A69	w	3	J1-26
DATA9	A71	x	12	J1-10
DATA13	A73	y	16	J1-11
DATA1	A75	z	4	J1-27
DATA15	A76	AA	18	J1-28
DATA3	A77	AB	6	J1-33
DATA10	A78	AC	13	J1-43
DATA2	A91	AD	5	J1-44
DATA6	A92	AE	9	J1-50, J1-42, J1-9
GND	GND	AF	1	J1-34, J1-17, J1-1
50/60 Hz	A84	N/A	N/A	N/A

#### CATEGORY B

##### EDGE CONNECTOR

1220/10, 820/10  
NOVA 2/10, 1210/4  
NOVA 2/4, NOVA 3/12  
NOVA 3/4, S/100, S/200  
S/130, S/230, C/300, C/330



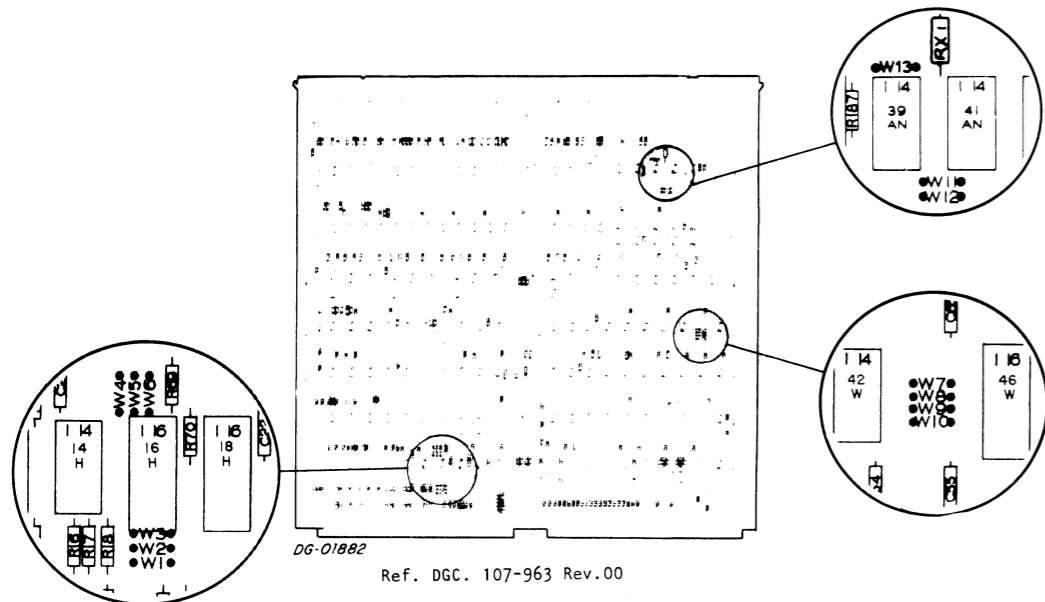
#### CATEGORY A

##### CANNON CONNECTOR

NOVA, SNOVA, 1200/17  
800/7, 1200/7, 800/17  
840/17, 830/17

**TAILORING**

**COMPUTER CHASSIS BACKPANEL JUMPERING**



Signal	on Pin	to Signal	on Pin
INTP IN	A96	INTP OUT	A95
DCHP IN	A94	DCHP OUT	A93

DG-01745

Type of Computer	Pin Number for Line Frequency Source	Pin Number for Data Control Unit Slot
NOVA LINE SUPERNOVA, NOVA 3/12 S/100, S130, C/150 S/200, S/230, C/300, C/330 S/250, C/350 M/600	B6 of SLOT 3 B6 of SLOT 4 B6 of SLOT 5 B6 of SLOT 7 B6 of SLOT 6	xxA84 xxA84 xxA84
S280 MV4000	SINGLE MALE PIN CONNECTOR (PART OF VNR CABLE ASSY, LOCATED NEAR C1 CONNECTOR)	A84**
MV6000	A17 SLOT 0	A84**
MV8000***	J1-37, J3-37, J5-37 B51 SLOT 27	A84**
MV8000 II	B51 SLOT 23	A84**
MV1000	B51 SLOT 37	A84**
N/E EXPANSION	A17 SLOT 0	A84**

\*\*NOTE: INTERNAL CABLES (005-12590 , 005-20295) HAVE 2 WIRES ON PIN A84 (1 WITH A MALE CONNECTOR, 1 WITH A FEMALE) TO FACILITATE MULTIPLE DCU CONFIGURATIONS

EX. THE DCU CLOSEST TO THE RTC SOURCE WILL USE THE FEMALE CONNECTOR TO ACQUIRE THE 50/60 Hz SIGNAL. THE MALE WILL THEN BE DAISY CHAINED TO THE FEMALE OF THE NEXT DCU ETC.

\*\*\*NOTE: THE 50/60 SIGNAL IS HARDWIRED TO THE DEDICATED DCU SLOT 44 PIN A84.

**DATA CHANNEL MAP SELECTION**

Data Channel Map Selection	Wire wrap jumpers on Computer Backpanel	
Type of Computer	DCU Slot Pins (XX=DCU Slot)	Destination
NOVA 3	XXA89	XXB62
S/130	XXA89 XXA79*	XXB62 Slot 3 pin A12
S/230, C/330	XXA89 XXA79*	XXB62 Slot 5 pin A12
S/250,C/350	XXA89 XXA79	XXB62 SLOT 12 PIN A12
M/600	XXA89 XXA79	XXB62 SLOT 18 PIN A12
* When DCU is used in S/130, S/230, C/330 Expansion chassis, only XXA89 to XXB62 wire can be installed. This limits the DCU to Maps A and B.		
TYPE OF COMPUTER	WIREWRAP JUMPERS ON B/P	
MV4000 S280 MV6000 MV8000 MV8000 II MV10000	NO WIRE WRAPS REQUIRED	

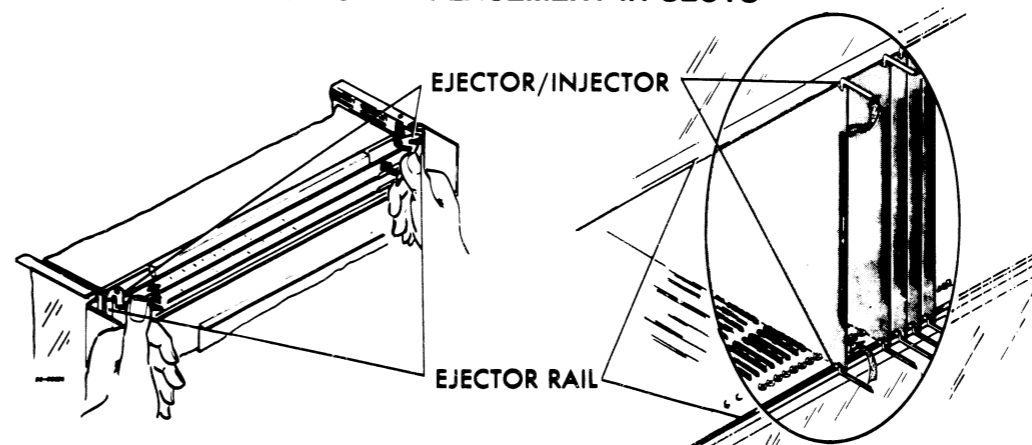
Bit Positions of Device Code	0	1	2	3	4	5
Insert Jumper to Specify 1	W6	W5	W4	W3	W2	W1

DG-01748

Location of addresses 0-7777	DCU memory	Host memory
Jumper inserted	W11	W12
Size of DCU memory	W13	in for 1K out for 4K

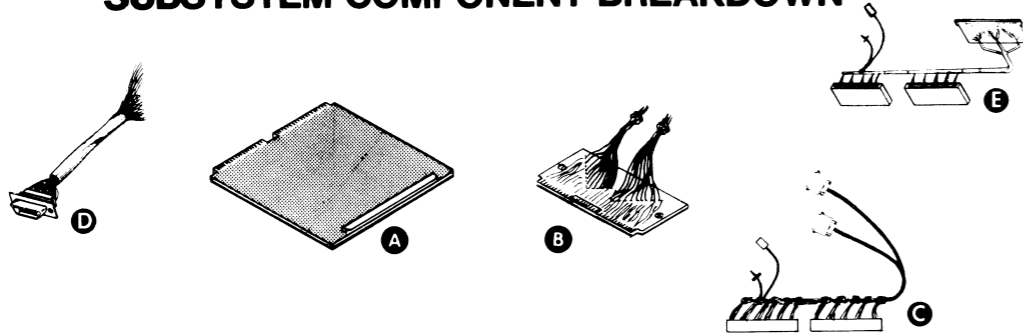
Jumper Configuration				Clock Period (in milliseconds)	
W10	W9	W8	W7	50Hz Line	60Hz Line
in	in	in	in	320.00	266.67
in	in	in	out	300.00	250.00
in	in	out	in	280.00	233.33
in	in	out	out	260.00	216.67
in	out	in	in	240.00	200.00
in	out	in	out	220.00	183.33
in	out	out	in	200.00	166.67
in	out	out	out	180.00	150.00
out	in	in	in	160.00	133.33
out	in	in	out	140.00	116.67
out	in	out	in	120.00	100.00
out	in	out	out	100.00	83.33
out	out	in	in	80.00	66.67
out	out	in	out	60.00	50.00
out	out	out	in	40.00	33.33
out	out	out	out	20.00	16.67

**PC BOARD PLACEMENT IN SLOTS**





### SUBSYSTEM COMPONENT BREAKDOWN



#### MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	DATA CONTROL UNIT (DCU)	COMPUTER CHASSIS	

DG-02672

#### CABLE

Item	Cable	Connecting	Max Allowed Lg		Notes
			ft	m	
B	DCU INTERNAL I/O BUS (005-006135)	DCU and EXTERNAL I/O BUS	2	.6	see note (CATEGORY B)
C	DCU INTERNAL I/O BUS (005-020295)	DCU and EXTERNAL I/O BUS	2	.6	see note (CATEGORY C)
D	DCU INTERNAL I/O BUS (005-006136)	DCU and EXTERNAL I/O BUS	2	.6	see note (CATEGORY A)
E	DCU INTERNAL I/O BUS (005-012590)	DCU and EXTERNAL I/O BUS	2	.6	see note (CATEGORY D)

### SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

Item	Component	Chassis	Slots Required	Max Allowable Data Channel Latency ( $\mu$ sec)	Type of Data Channel Service Desired		Max Allowable Programmed I/O Latency *	Controller's +5 Volt Current Draw (Amps)
					High Speed	Standard		
A	DCU	COMPUTER	1	—	x	x	—	3.0

DG-01912

NOTE: CABLES

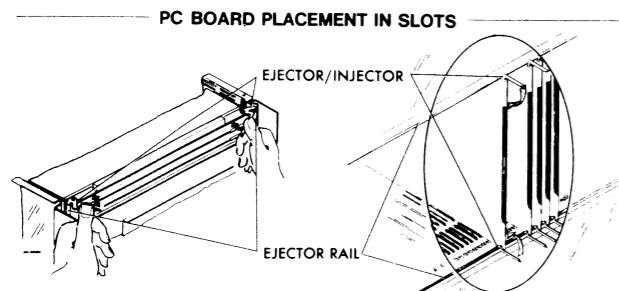
CATEGORY A TYPE COMPUTERS 005-006136	NOVA SNOVA 1200/17 800/7 1200/17 800/17 840/17 830/17	CATEGORY B TYPE COMPUTERS 005-006135	1220/10
			820/10
			N2/10
			1210/4
			N2/4
			N3/12
			N3/4
			S100
			S200
			S230
			C300
			C330

CATEGORY C TYPE COMPUTERS 005-020295	MV/4000 MV/8000 II (L19) S230 MV10000
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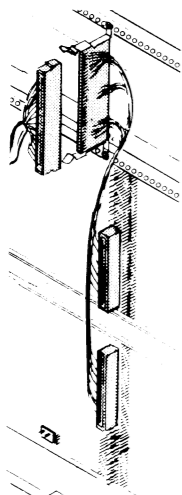
CATEGORY D TYPE COMPUTERS 005-012590	M600 C350 S250 S140 NOVA 4/S/C/X MV6000 MV8000 S120	REF. EXPANSION CHASSIS 010'S SPECIFIED CABLE REQUIREMENTS.
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**SHIPPING**

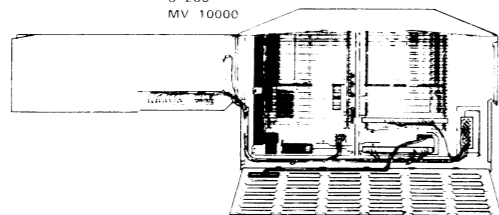
FOR PACKING PROCEDURE,  
SEE 010-000262



CATEGORY D  
EDGE CONNECTOR  
S/250,C/350,M/600



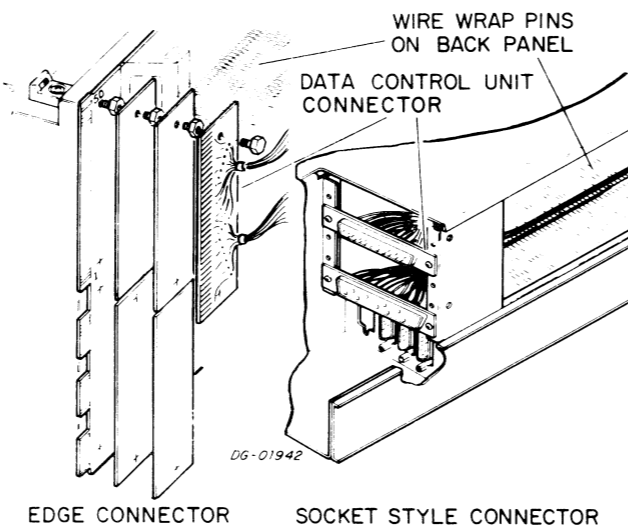
CATEGORY C  
EDGE CONNECTOR  
MV 4000  
MV 8000II  
S 280  
MV 10000



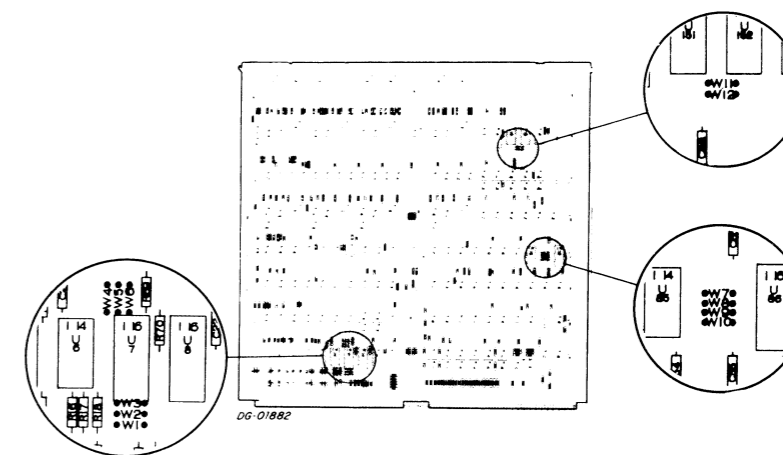
**INTERNAL CABLING**

I/O BUS INTERNAL CABLE CONNECTION FOR DATA CONTROL UNIT

Signal Names	Back Panel Pin Numbers	005-6135, 005-12590 Edge Connectors Pin Numbers	005-6136 Socket Connector Pin Numbers	005-20295 CANNON CONN. PIN NUMBERS
GND	GND	A	50	J2-2, J2-18 J2-16
PWR ON	A3	B	49	N/A
MSKO	B67	C	43	J1-23
INTA	B54	D	38	J1-4
DAT1B	B53	E	20	J1-3
DAT1A	B52	F	19	J1-5
DS3	B51	H	35	J1-14
DATOC	B49	J	24	J1-6
CLR	B48	K	2	J1-18
STR1	B40	L	48	J1-19
DAT1C	B38	M	21	J1-21
DATOB	B36	N	23	J1-22
DATOA	B34	P	22	J1-2
ASYEN	B31	R	25	J2-4
DS4	B27	S	36	J1-13
DS5	B25	T	37	J1-16
DS2	B23	U	34	J1-15
DS1	B19	V	33	J1-31
IORST	B15	W	42	J1-37
DS0	B13	X	32	J1-32
IOPLS	B11	Y	41	J1-38
SELD	B6	Z	47	J1-8
SELB	A90	a	46	J1-7
INTP OUT	A87	c	39	J1-36
BIR7	A88	d	27	J2-17
BLIO	A85	e	28	J2-20
INTR	A86	f	40	J1-25
RQENB	A49	m	45	J1-29
DATA7	A47	n	10	J1-45
DATA14	A57	p	17	J1-46
DATA5	A59	r	8	J1-47
DATA11	A61	s	14	J1-30
DATA12	A63	t	15	J1-12
DATA8	A65	u	11	J1-48
DATA4	A67	v	7	J1-49
DATA0	A69	w	3	J1-26
DATA9	A71	x	12	J1-10
DATA13	A73	y	16	J1-11
DATA1	A75	z	4	J1-27
DATA15	A76	AA	18	J1-28
DATA3	A77	AB	6	J1-33
DATA10	A78	AC	13	J1-43
DATA2	A91	AD	5	J1-44
DATA6	A92	AE	9	J1-50, J1-42, J1-9
GND	GND	AF	1	J1-34, J1-17, J1-1
50/60 Hz	A84	N/A	N/A	N/A



**TAILORING**



DEVICE CODE JUMPERS

Bit Positions of Device Code	0	1	2	3	4	5
Insert Jumper to Specify 1	W6	W5	W4	W3	W2	W1

DG-01748

MEMORY PARTITION JUMPERS

Location of addresses 0-1777	DCU memory	Host memory
Jumper inserted	W11	W12

DG-01749

REAL-TIME CLOCK JUMPERS

Jumper Configuration				Clock Period (in milliseconds)	
W10	W9	W8	W7	50Hz Line	60Hz Line
in	in	in	in	320.00	266.67
in	in	in	out	300.00	250.00
in	in	out	in	280.00	233.33
in	in	out	out	260.00	216.67
in	out	in	in	240.00	200.00
in	out	in	out	220.00	183.33
in	out	out	in	200.00	166.67
in	out	out	out	180.00	150.00
out	in	in	in	160.00	133.33
out	in	in	out	140.00	116.67
out	in	out	in	120.00	100.00
out	in	out	out	100.00	83.33
out	out	in	in	80.00	66.67
out	out	in	out	60.00	50.00
out	out	out	in	40.00	33.33
out	out	out	out	20.00	16.67

DG-01750

## TAILORING (Cont.)

### COMPUTER CHASSIS BACKPANEL JUMPERING

JUMPER CONNECTIONS FOR AN EMPTY I/O SLOT			
Signal on Pin		to Signal on Pin	
INTP IN	A96	INTP OUT	A95
DCHP IN	A94	DCHP OUT	A93

DG-01745

REAL-TIME CLOCK JUMPER WIRE		
Type of Computer	Pin Number for Line Frequency Source	Pin Number for Data Control Unit Slot
NOVA line computer	B6 of slot 3	A84
SUPERNOVA computer	B6 of slot 4	A84
ECLIPSE S/100 computer	B6 of slot 5	A84
ECLIPSE S/200, S/230, C/300 and C/330 computers	B6 of slot 6	A84
S/130, C/150	B6 of slot 7	A84
NOVA 3/4 computer	B6 of slot 3	A84
NOVA 3/12 computer	B6 of slot 4	A84
NOVA 4 computer	A88 of slot 1	A84
E250/350 computer*	B25 of slot 16	A84
M600 computer*	B25 of slot 22	A84
S280 MV4000	SINGLE MALE PIN CONNECTOR (PART OF VNR CABLE ASSY, LOCATED NEAR CI CONNECTOR)	A84**
MV6000	A17 SLOT 0	A84**
MV8000***	J1-37, J3-37, J5-37 B51 SLOT 27	A84**
MV8000 II	B51 SLOT 23	A84**
MV1000	B51 SLOT 37	A84**
N/E EXPANSION	A17 SLOT 0	A94**

\*NOTE: THIS WIRE RUNS FROM MAIN CHASSIS TO EXPANSION CHASSIS WHEN DCU RESIDES IN EXPANSION CHASSIS.

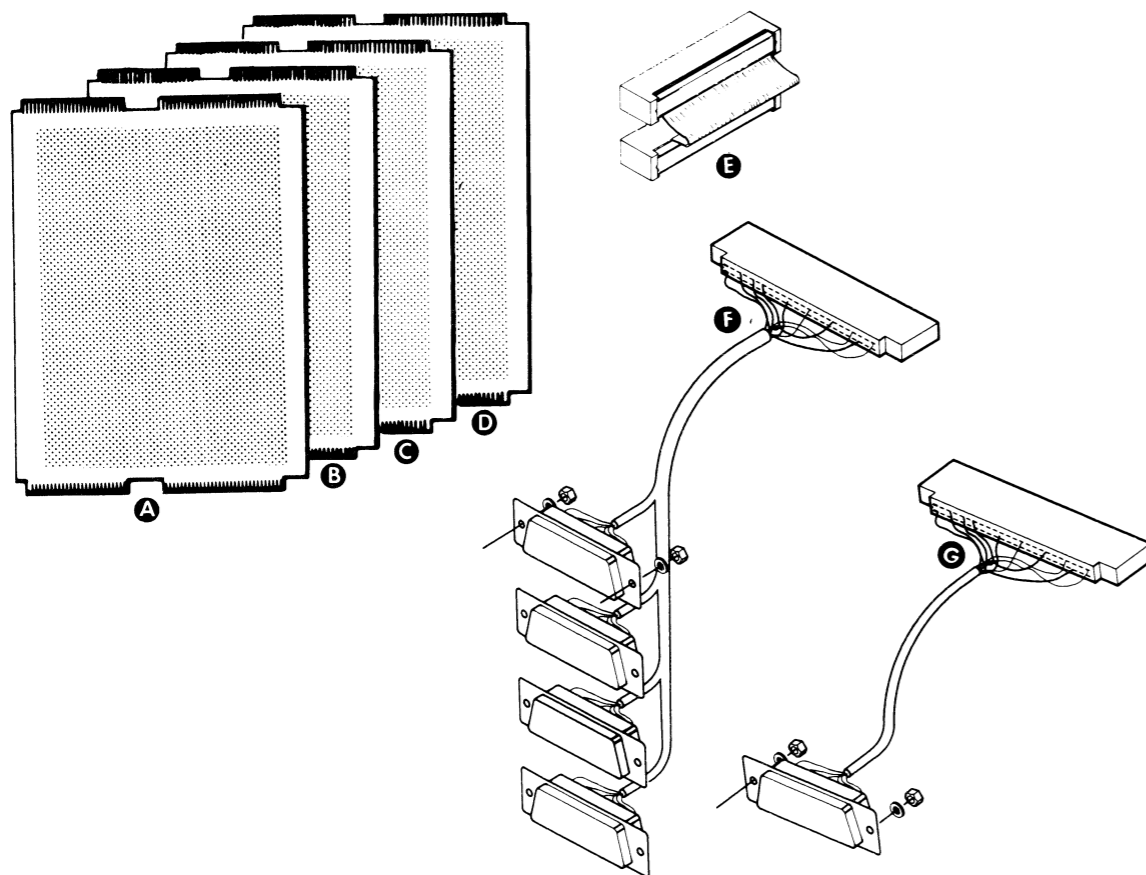
\*\*NOTE: INTERNAL CABLES (005-12590, 005-20295) HAVE 2 WIRES ON PIN A84 (1 WITH A MALE CONNECTOR, 1 WITH A FEMALE) TO FACILITATE MULTIPLE DCU CONFIGURATIONS

EX. THE DCU CLOSEST TO THE RTC SOURCE WILL USE THE FEMALE CONNECTOR TO ACQUIRE THE 50/60 Hz SIGNAL. THE MALE WILL THEN BE DAISY CHAINED TO THE FEMALE OF THE NEXT DCU ETC.

\*\*\*NOTE: THE 50/60 SIGNAL IS HARDWIRED TO THE DEDICATED DCU SLOT 44 PIN A84.

DATA CHANNEL MAP SELECTION	WIRE WRAP JUMPERS ON COMPUTER BACKPANEL	
TYPE OF COMPUTER	DCU SLOT PINS (XX = DCU SLOT)	DESTINATION
S/200 C/300 NOVA 3	XX A89	XX B62
S/130, C/150	XX A89 XX A79*	XX B62 SLOT 3 PIN A12
S/230 C/330	XX A89 XX A79*	XX B62 SLOT 5 PIN A12
S/250 C/350	XX A89 XX A79	XX B62 SLOT 12 PIN A12
M/600	XX A89 XX A79	XX B62 SLOT 18 PIN A12
*NOTE: When DCU is used in S/130, S/230, C/330 Expansion Chassis, only XX A89 to XX B62 wire can be installed. This limits the DCU to maps A and B.		
TYPE OF COMPUTER	WIRE WRAP JUMPERS ON COMPUTER B/P	
MV4000 S280 MV6000 MV8000 MV8000II(L19) MV10000	NO WIRE WRAPS REQUIRED	

### SUBSYSTEM COMPONENT BREAKDOWN



#### MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	COMMUNICATIONS CONTROLLER	CONSECUTIVE I/O SLOTS	MAXIMUM OF 4 INTERFACE BOARDS IN ANY COMBINATION CONTROLLER IN LOWEST SLOT, SYNC BOARD(S) NEXT, ASYNC BOARD(S) NEXT, AND CRC BOARD IN LAST (HIGHEST) SLOT SEE SHEET 2 - INTERNAL CABLING
B	4-LINE ASYNCHRONOUS INTERFACE*	2-9 (9-SLOT)	
C	1-LINE SYNCHRONOUS INTERFACE*	2-18 (18-SLOT)	
D	CRC		

#### CABLE

Item	Cable	Connecting	Max Allowed Lg		Notes
			ft	m	
E	INTERNAL BUS CABLE	LOWEST SUB-SYSTEM BOARD and NEXT SUB-SYSTEM BOARD	0.2	.06	ONE NEEDED FOR EACH INTERFACE BOARD OR CRC
F	4-LINE ASYNC CABLE	COMMUNICATIONS " ASYNCHRONOUS LINES (4) INTERFACE	1.0	.3	ONE PER ASYNCHRONOUS INTERFACE BOARD
G	SYNCHRONOUS CABLE	COMMUNICATIONS " SYNCHRONOUS LINE INTERFACE	1.0	.3	ONE PER SYNCHRONOUS INTERFACE BOARD

### SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

Item	Component	Chassis	Slots Required	Max Allowable Data Channel Latency ( $\mu$ sec)	Type of Data Channel Service Desired		Max Allowable Programmed I/O Latency +	Controller's +5 Volt Current Draw (Amps)	Notes:
					High Speed	Standard			
A	COMM. CONTROLLER	COMPUTER	1				.12 $\mu$ S	1.9	+15V -0.15 -5V -0.05
B	4-LINE ASYNC. INT.	COMPUTER	1				.12 $\mu$ S	1.7	+15V -0.035 -5V -0.17
C	SYNC INTERFACE	COMPUTER	1				.12 $\mu$ S	1.5	+15V -0.035
D	CRC	COMPUTER	1				.12 $\mu$ S	0.7	+15V -0.15 -5V -0.03

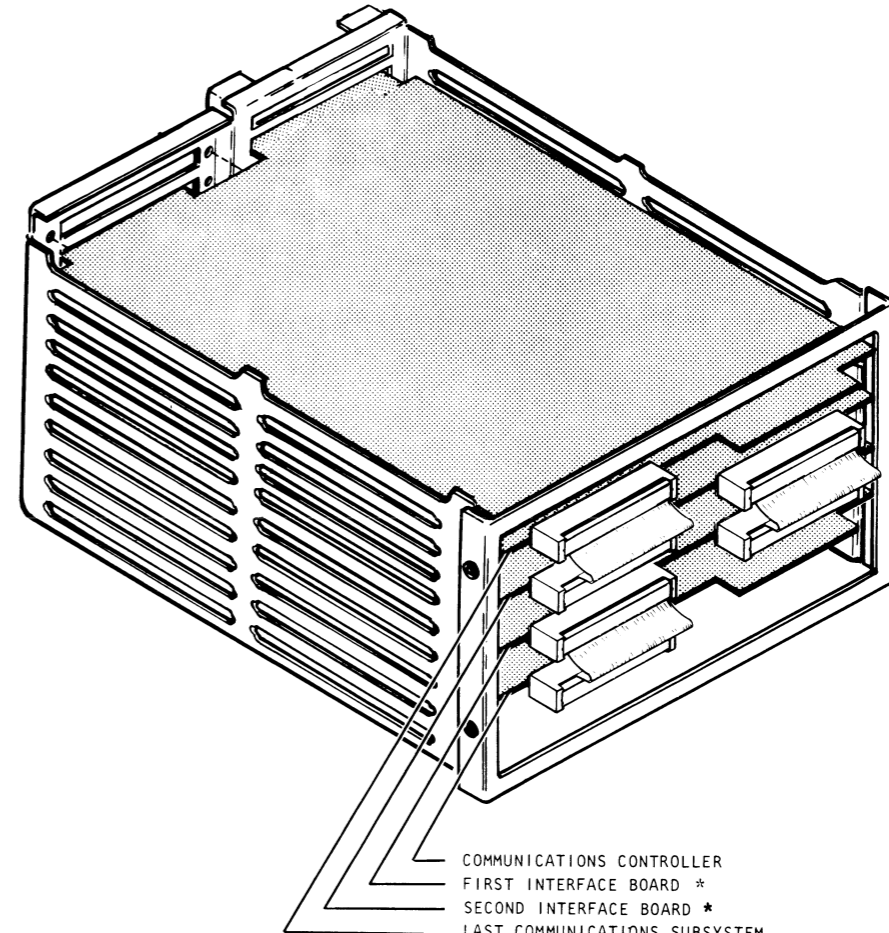
### SHIPPING

FOR PACKING PROCEDURE,  
SEE 010-000262

SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)		$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)	
-40 to +160 -40 to +71	0% / 80%	50,000ft. 15,200m	-40 to +160 -40 to +71	0% / 80%	90 days

06-03224

### INTERNAL CABLING



COMMUNICATIONS CONTROLLER  
FIRST INTERFACE BOARD \*  
SECOND INTERFACE BOARD \*  
LAST COMMUNICATIONS SUBSYSTEM BOARD

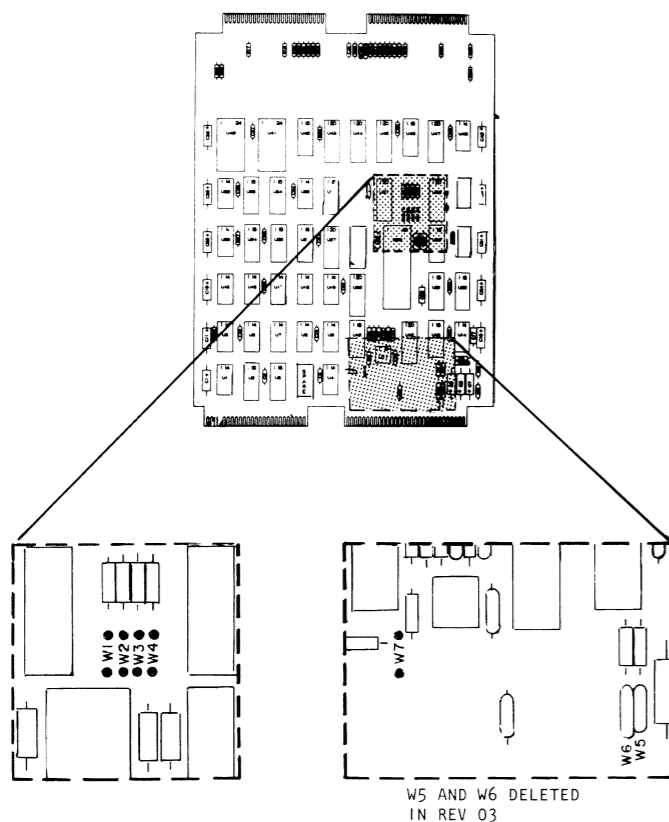
\* UP TO 4 INTERFACE BOARDS MAY BE CONFIGURED IN EACH SYSTEM.

# TAILORING

## JUMPERING

### COMMUNICATIONS CONTROLLER

Ref. DGC 107-000871-02



ASYNC INITIALIZATION BAUD RATE SELECTION JUMPERS

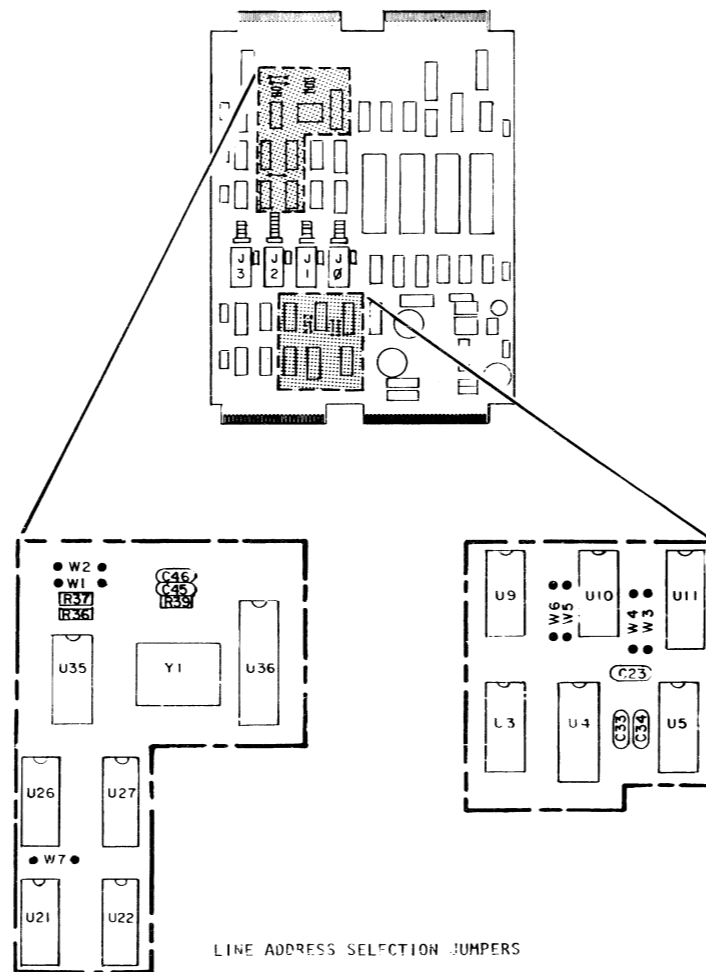
BAUD RATE	W3	W1	W2	W4
50	IN	IN	OUT	IN
75	IN	IN	OUT	OUT
110	OUT	OUT	OUT	OUT
134.5	IN	OUT	IN	IN
150	OUT	OUT	OUT	IN
200	IN	OUT	IN	OUT
300	OUT	OUT	IN	OUT
600	IN	OUT	OUT	IN
1200	OUT	IN	OUT	OUT
1800	OUT	IN	OUT	IN
2400	OUT	OUT	IN	IN
4800	OUT	IN	IN	OUT
9600	OUT	IN	IN	IN
19,200	IN	IN	IN	OUT

NOTE: INSERT JUMPER W7 TO SELECT THE SECONDARY DEVICE CODE 44<sub>8</sub>. REMOVE JUMPER W7 TO SELECT THE PRIMARY DEVICE CODE 34<sub>8</sub>.

NOTE: INSERT JUMPERS W5 AND W6 TO SELECT +12V POWER SUPPLY. REMOVE JUMPERS W5 AND W6 WHEN USING THE +15V POWER SUPPLY.

### 4-LINE ASYNCHRONOUS INTERFACE

Ref. DGC 107-000872-02



LINE ADDRESS SELECTION JUMPERS

LINE ADDRESS	W1	W2
0-8 <sub>8</sub>	IN	IN
4-8 <sub>8</sub>	IN	OUT
10-13 <sub>8</sub>	OUT	IN
14-17 <sub>8</sub>	OUT	OUT

WHEN IN, JUMPER W7 DISABLES SOFTWARE BAUD-RATE SELECTION. IT MUST BE OUT FOR DIAGNOSTIC TEST.

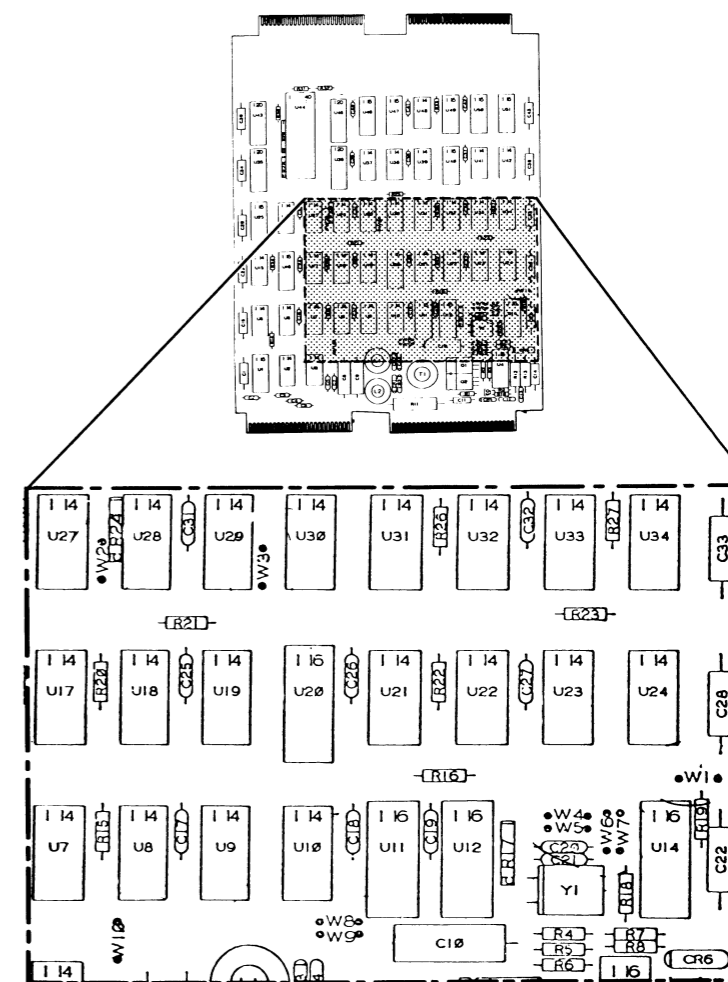
WHEN A MODEM IS NOT USED WITH THE ASYNCHRONOUS INTERFACE, CLEAR TO SEND MUST BE FORCED ON THE FOLLOWING JUMPERS.

LINE	W3	W4	W5	W6
FIRST	IN			
SECOND		IN		
THIRD			IN	
FOURTH				IN

JUMPER BLOCKS J0 - J3 CONFIGURE LINES 0 - 3 AS FOLLOWS:  
EIA RS-232C SELECTED WHEN PIN 1 OF BLOCK IS IN PIN 1 OF SOCKET 20 mA CURRENT LOOP SELECTED WHEN PIN 11 OF BLOCK IS IN PIN 1 OF SOCKET.

### 1-LINE SYNCHRONOUS INTERFACE

Ref. DGC 107-000870-00



INTERNAL BAUD RATE SELECTION JUMPERS (ONLY USED WHEN W10 IS INSERTED FOR DIAGNOSTIC PURPOSES)

BAUD RATE	W4	W5	W6	W7	W8	W9
300	OUT	IN	OUT	OUT	OUT	IN
600	IN	OUT	OUT	IN	OUT	IN
1200	OUT	OUT	IN	OUT	OUT	IN
2400	OUT	OUT	OUT	IN	OUT	IN
4800	OUT	IN	IN	OUT	OUT	IN
9600	IN	IN	IN	OUT	OUT	IN
19,200	OUT	OUT	IN	OUT	IN	OUT

LINE ADDRESS SELECTION JUMPERS

JUMPERS SELECT	W2	W3
00 <sub>8</sub>	IN	IN
04 <sub>8</sub>	OUT	IN
10 <sub>8</sub>	IN	OUT
14 <sub>8</sub>	OUT	OUT

W1 WHEN INSERTED, FORCES CLEAR TO SEND WHEN NO MODEM IS USED.

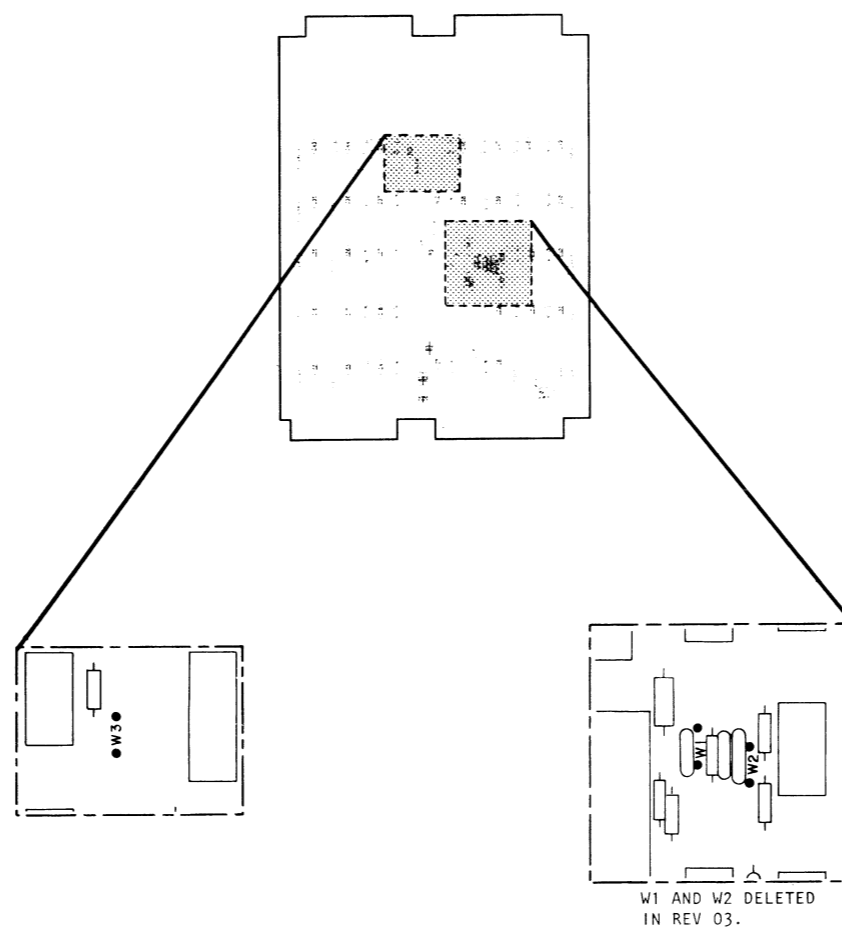
W10 WHEN INSERTED, PROVIDES BAUD RATE CLOCK FROM THE BOARD TO THE MODEM. USED WHEN THE MODEM HAS NO INTERNAL CLOCK.

# TAILORING (CONT)

## JUMPERING

### CRC GENERATOR

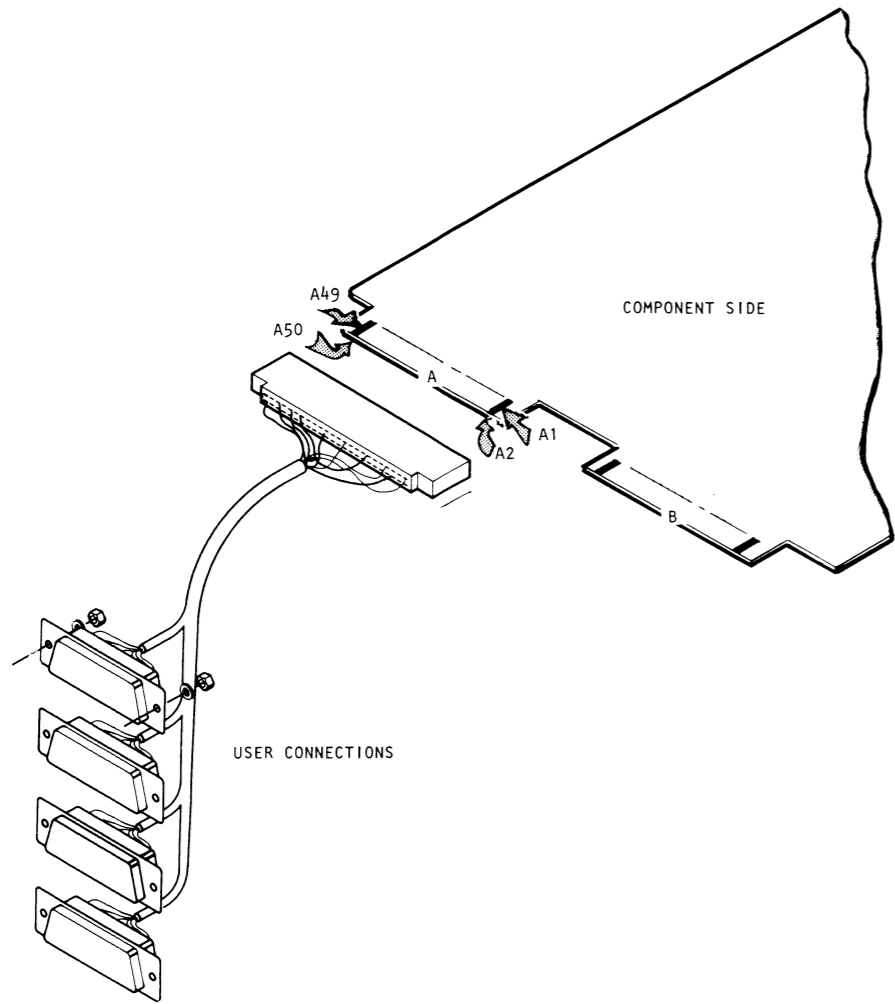
Ref. DGC 107-000873-02



DEVICE CODE	W3
PRIMARY 35 <sub>8</sub>	OUT
SECONDARY 45 <sub>8</sub>	IN

NOTE: INSERT W1 AND W2 FOR +15V SUPPLY.  
REMOVE W1 AND W2 FOR +12V SUPPLY.

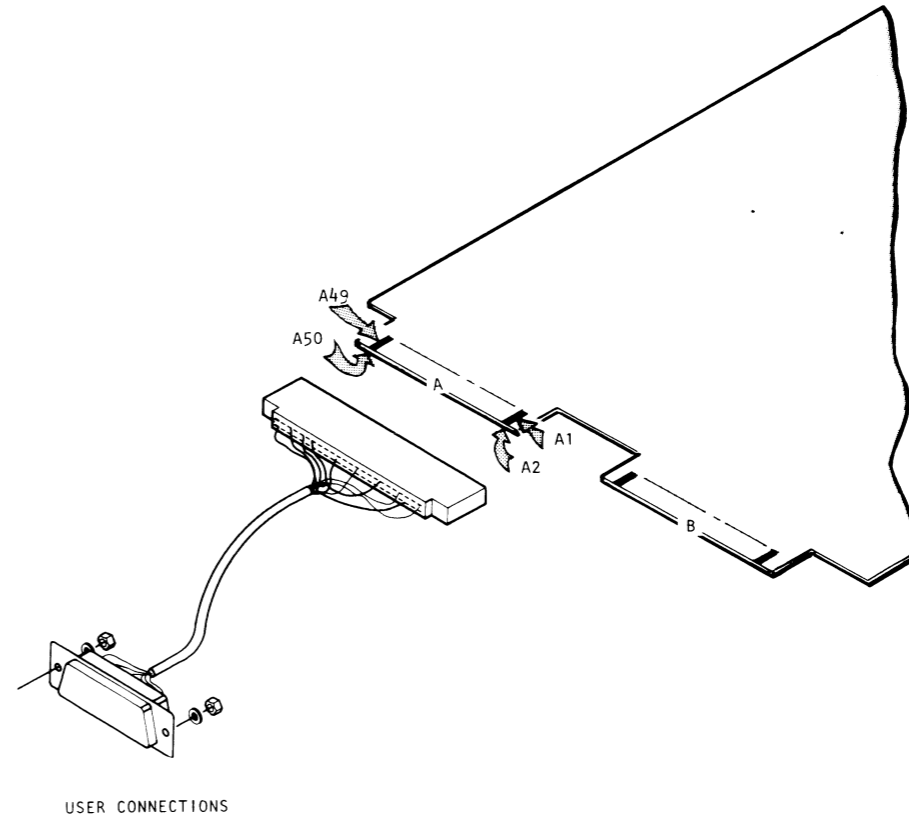
INTERNAL/EXTERNAL CABLING



4 LINE ASYNCHRONOUS INTERFACE CONNECTOR SIGNAL

USER	BOARD	B SIGNAL	USER	BOARD	SIGNAL
J1-11	A1	XDATA-RTN 0	J3-11	A27	XDATA-RTN 2
J1-2	A2	XMT-DATA 0	J3-2	A28	XMT-DATA 2
J1-22	A3	RING IND 0	J3-22	A29	RING IND 2
J1-8	A4	RDR-RTN/CD 0	J3-8	A30	RDR-RTN/CD 2
J1-20	A5	DTR 0	J3-20	A31	DTR 2
J1-5	A6	CTS 0	J3-5	A32	CTS 2
J1-6	A7	DSR 0	J3-6	A33	DSR 2
J1-25	A8	RDR RUN 0	J3-25	A34	RDR RUN 2
J1-7	A9	GND	J3-7	A35	GND
J1-3	A10	RCV-DATA 0	J3-3	A36	RCV-DATA 2
J1-4, 18	A11	RDATA-RTN/RTS 0	J3-4, 18	A37	RDATA-RTN/RTS 2
	A12			A38	
	A13			A39	
J2-11	A14	XDATA-RTN 1	J4-11	A40	XDATA-RTN 3
J2-2	A15	XMT-DATA 1	J4-2	A41	XMT-DATA 3
J2-22	A16	RING IND 1	J4-22	A42	RING IND 3
J2-8	A17	RDR-RTN/CD 1	J4-8	A43	RDR-RTN/CD 3
J2-20	A18	DTR 1	J4-20	A44	DTR 3
J2-5	A19	CTS 1	J4-5	A45	CTS 3
J2-6	A20	DSR 1	J4-6	A46	DSR 3
J2-25	A21	RDR RUN 1	J4-25	A47	RDR RUN 3
J2-7	A22	GND	J4-7	A48	GND
J2-3	A23	RCV-DATA 1	J4-3	A49	RCV-DATA 3
J2-4, 18	A24	RDATA-RTN/RTS 1	J4-4, 18	A50	RDATA-RTN/RTS 3
	A25				
	A26				

INTERNAL/EXTERNAL CABLING

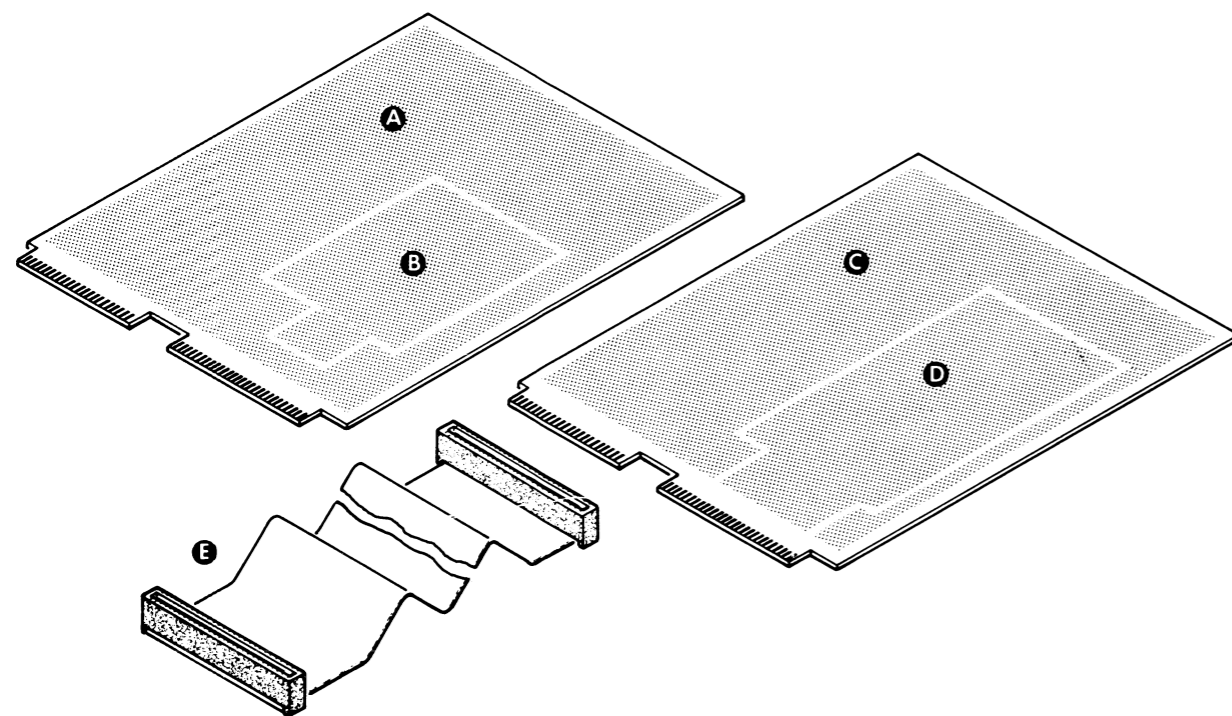


SYNCHRONOUS INTERFACE CONNECTOR SIGNALS 005-019972

USER	BOARD	SIGNAL	USER	BOARD	SIGNAL	USER	BOARD	SIGNAL
	A1			A19		6	A37	DSR
	2			20			38	
	3			21		5	39	CTS
	4			22			40	
	5			23		20	41	DTR
	6			24			42	
	7		17	25	RCVR CLK	8	43	CD
	8			26			44	
	9		4	27	RTS	22	45	RING IND
	10			28			46	
	11		3	29	R.D.	2	47	TD
	12			30			48	
	13		23	31	SPARE B	15	49	XMT CLK
	14			32			50	
	15		7	33	GND			
	16			34				
	17		14	35	SPARE A			
	18			36				



### SUBSYSTEM COMPONENT BREAKDOWN



#### MAJOR COMPONENTS

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ASYNCHRONOUS INTERFACE BOARD	SLOTS 2-18 (9 AND 18 SLOT CHASSIS) SLOTS 2-8 (8 SLOT CHASSIS)	
B	CONSOLE DEBUG OPTION	ASYNCHRONOUS INTERFACE BOARD	CANNOT BE USED WITH HAND HELD CONSOLE OR AUTO PROGRAM LOAD BOARD
C	REMOTE RESTART INTERFACE	SLOTS 2-18 (9 AND 18 SLOT CHASSIS) SLOTS 2-8 (8 SLOT CHASSIS)	NOT SUPPORTED BY MP/200
D	DOWN-LINE LOAD OPTION	REMOTE RESTART INTERFACE	

#### CABLE

ITEM	CABLE	CONNECTING	MAX LGTH		NOTES
			FT	M	
E	REMOTE RESTART INTERFACE	REMOTE RESTART INTERFACE TO REMOTE RESTART INTERFACE	1000	305	MODEL 1191A
	MODEM	REMOTE RESTART INTERFACE TO MODEM	50	15.24	MODEL 1191B
	NOVA/ECLIPSE ALM	REMOTE RESTART INTERFACE TO NOVA/ECLIPSE ALM	50	15.24	MODEL 1191C (EIA ONLY)
	MICROPRODUCTS CS OR NOVA/ECLIPSE ULM	REMOTE RESTART INTERFACE TO MPCS OR ULM	1000	305	MODEL 1191D
	ASYNCHRONOUS INTERFACE	ASYNC. INTERFACE TO COMMUNICATIONS LINE	1	0.3	005-7506

### SPECIFICATIONS OF CHASSIS-MOUNTED COMPONENTS

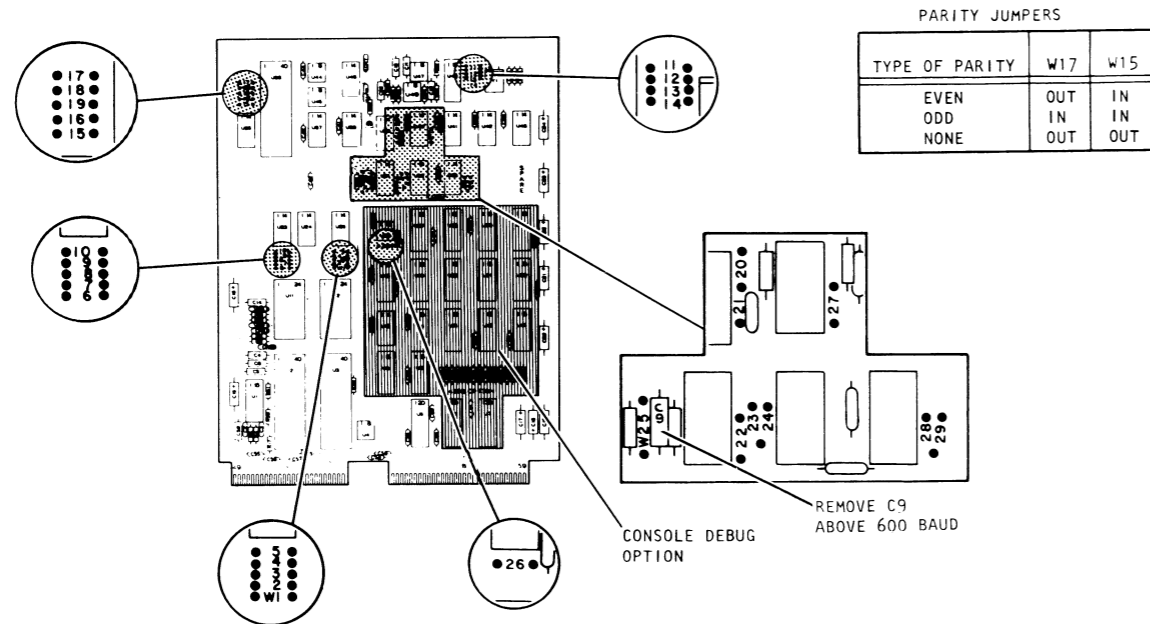
ITEM	COMPONENT	NO. OF SLOTS REQUIRED	CURRENT DRAW			
			+5V	-5V	+12V	+15V
A	ASYNCHRONOUS INTERFACE BOARD	1	0.7A	0.03A	0.25A (4207-S)	0.21A (4207)
B	CONSOLE DEBUG OPTION	NONE	1.1A	—	— (4208)	— (4208)
C	REMOTE RESTART INTERFACE	1	.96A	0.03A	0.25A (4230-S)	0.21A (4230)
D	DOWN-LINE LOAD OPTION	NONE	0.3A	—	— (4233)	— (4233)

FOR OTHER MICROPRODUCTS COMMUNICATIONS RELATED DOCUMENTS SEE: 010-000190  
010-000191

FOR PACKING PROCEDURE,  
SEE 010-000262

## TAILORING ASYNCHRONOUS INTERFACE

REF: DGC 107-000648-03, 04, AND 05



PARITY JUMPERS

TYPE OF PARITY	W17	W15
EVEN	OUT	IN
ODD	IN	IN
NONE	OUT	OUT

4207 ASYNCHRONOUS INTERFACE TO COMMUNICATIONS LINE CABLE 005-019971.

SIGNAL NAME	PRINTED CIRCUIT BOARD PIN #	-TO-	CABLE PIN #	-TO-	CABLE PIN #
RECEIVE DATA	A1		1		3
RECEIVE DATA RETURN	A3		2		18
GROUND	A7		4		7
READER RUN	A17		9		25
TRANSMIT DATA	A21		11		2
TRANSMIT DATA RETURN	A23		12		11
CLEAR TO SEND	A2		A		5
CARRIER DETECT	A4		B		8
DATA SET READY	A6		C		6
RING INDICATOR	A8		D		22
DATA TERMINAL READY	A10		E		20
REQUEST TO SEND	A12		F		4

DEVICE CODE JUMPERS

BIT POSITIONS OF DEVICE CODE (INSERT JUMPER TO SPECIFY)	D10	D11	D12	D13	D14	D15
RECEIVER	W1	W2	W3	W4	W5	0*
TRANSMITTER	W6	W7	W8	W9	W10	1*

\*THE LOW-ORDER BIT OF THE DEVICE CODE OF THE RECEIVER IS 0, AND THE LOW-ORDER BIT OF THE DEVICE CODE OF THE TRANSMITTER IS 1.

\*\*FIRST CONTROLLER DEVICE CODE =  $10_8/11_8$

CHARACTER LENGTH JUMPERS

LENGTH OF CHARACTER	W18	W19
5 BITS	IN	IN
6 BITS	OUT	IN
7 BITS	IN	OUT
8 BITS	OUT	OUT

BAUD RATE JUMPERS

BAUD RATE	W14	W13	W12	W11	DGC MODELS
50	IN	IN	OUT	IN	ALL
75	IN	IN	OUT	OUT	ALL
110	OUT	OUT	OUT	OUT	4010A-F
134.5	IN	OUT	IN	IN	ALL
150	OUT	OUT	OUT	IN	ALL
200	IN	OUT	IN	OUT	ALL
300	OUT	OUT	IN	OUT	6042-6043
600	IN	OUT	OUT	IN	6040-6041
1200	OUT	IN	OUT	OUT	ALL
1800	OUT	IN	OUT	IN	ALL
2400	OUT	OUT	IN	IN	ALL
4800	OUT	IN	IN	OUT	6012H
9600	OUT	IN	IN	IN	ALL
19,200	IN	IN	IN	OUT	ALL

TYPE OF TRANSMISSION JUMPERS

TYPE OF TRANSMISSION	INSERT JUMPERS	DGC MODELS
20mA CURRENT LOOP	W20, W22, W23, W25	4010A-F
EIA RS232-C	W21, W24	OTHERS

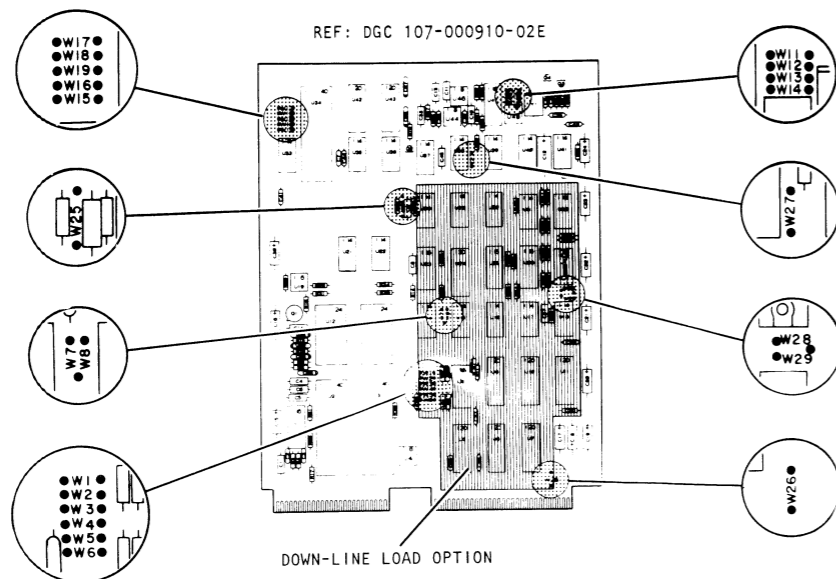
OTHER JUMPERS

JUMPER	FUNCTION	DGC MODELS
W26	INSERT JUMPER TO ENABLE THE CONSOLE DEBUG OPTION (ODT) MEMORY.	ALL
W27	INSERT TO DISABLE THE MODEM STATUS LINE CLEAR TO SEND.	ALL BUT 6040, 6041
W28	INSERT FOR CONSOLE DEBUG ADDRESS SPACE = 77400-77777.	ALL
W29	INSERT FOR CONSOLE DEBUG ADDRESS SPACE = 77000-77377.	ALL

STOP BIT JUMPERS

NUMBER OF STOP BITS	W16	DGC MODELS
2	OUT	4010A-F
1	IN	OTHERS

## TAILORING (CONT) REMOTE RESTART INTERFACE



DOWN-LINE LOAD OPTION  
ROM ADDRESS JUMPERS

BIT POSITION OF ADDRESS CODE	0	1	2	3	4	5	6	7-15
INSERT JUMPER TO SPECIFY 0	—	W1	W4	W5	W6	W3	W2	—
LEAVE JUMPER OUT TO SPECIFY 1	—	—	—	—	—	—	—	—

BMAP JUMPERS

TOTAL MEMORY SPACE	W7	W8
UP TO 32K	IN	OUT
MORE THAN 32K	OUT	IN

CHARACTER LENGTH JUMPERS

LENGTH OF CHARACTER	W18	W19
5 BITS	IN	IN
6 BITS	OUT	IN
7 BITS	IN	OUT
8 BITS	OUT	OUT

BAUD RATE JUMPERS

BAUD RATE	W14	W13	W12	W11
50	IN	IN	OUT	IN
75	IN	IN	OUT	OUT
110	OUT	OUT	OUT	OUT
134.5	IN	OUT	IN	IN
150	OUT	OUT	OUT	IN
200	IN	OUT	IN	OUT
300	OUT	OUT	IN	OUT
600	IN	OUT	OUT	IN
1200	OUT	IN	OUT	OUT
1800	OUT	IN	OUT	IN
2400	OUT	OUT	IN	IN
4800	OUT	IN	IN	OUT
9600	OUT	IN	IN	IN

TYPE OF TRANSMISSION JUMPER

TYPE OF TRANSMISSION	W25
20MA CURRENT LOOP	IN
EIA RS232-C	OUT

BOTEN SIGNAL JUMPER

BOTEN SIGNAL	W26
BOTEN = 0	IN
BOTEN = 1	OUT

CLEAR TO SEND ASSERTION JUMPER

W27	INSERT JUMPER TO ASSERT THE SIGNAL CLEAR TO SEND

DOWN LINE LOAD SEQUENCE SELECTION JUMPERS

CHARACTER SELECTION	W28	W29
FIRST 16 CHARACTERS	IN	OUT
SECOND 16 CHARACTERS	OUT	IN

STOP BIT JUMPERS

NUMBER OF STOP BITS	W16
1	IN
2	OUT

PARITY JUMPERS

TYPE OF PARITY	W17	W15
EVEN	OUT	IN
ODD	IN	IN
NONE	OUT	OUT

REMOTE RESTART INTERFACE TO REMOTE RESTART INTERFACE CABLE 1191A

SIGNAL NAME	PRINTED CIRCUIT BOARD PIN #	- TO -	CABLE PIN #	- TO -	CABLE PIN #	CONNECTOR ON CABLE (USER END)
TRANSMIT DATA	A15		8		1	AMP 1-583717-1
TRANSMIT DATA RETURN	A16		J		2	
RECEIVE DATA	A1		1		8	
RECEIVE DATA RETURN	A3		2		J	

REMOTE RESTART INTERFACE TO MODEM CABLE 1191B

SIGNAL NAME	PRINTED CIRCUIT BOARD PIN #	- TO -	CABLE PIN #	- TO -	CABLE PIN #	CONNECTOR ON CABLE (USER END)
TRANSMIT DATA	A21		11		2	13 POS SINGLE ROW MOD IV DG# 111-147
RING INDICATOR	A8		D		3	
CARRIER DETECT	A4		B		4	
DATA TERMINAL READY	A10		E		5	
CLEAR TO SEND	A2		A		6	
DATA SET READY	A6		C		7	
GROUND	A7		4		9	
RECEIVE DATA	A1		1		11	
REQUEST TO SEND	A12		F		12	

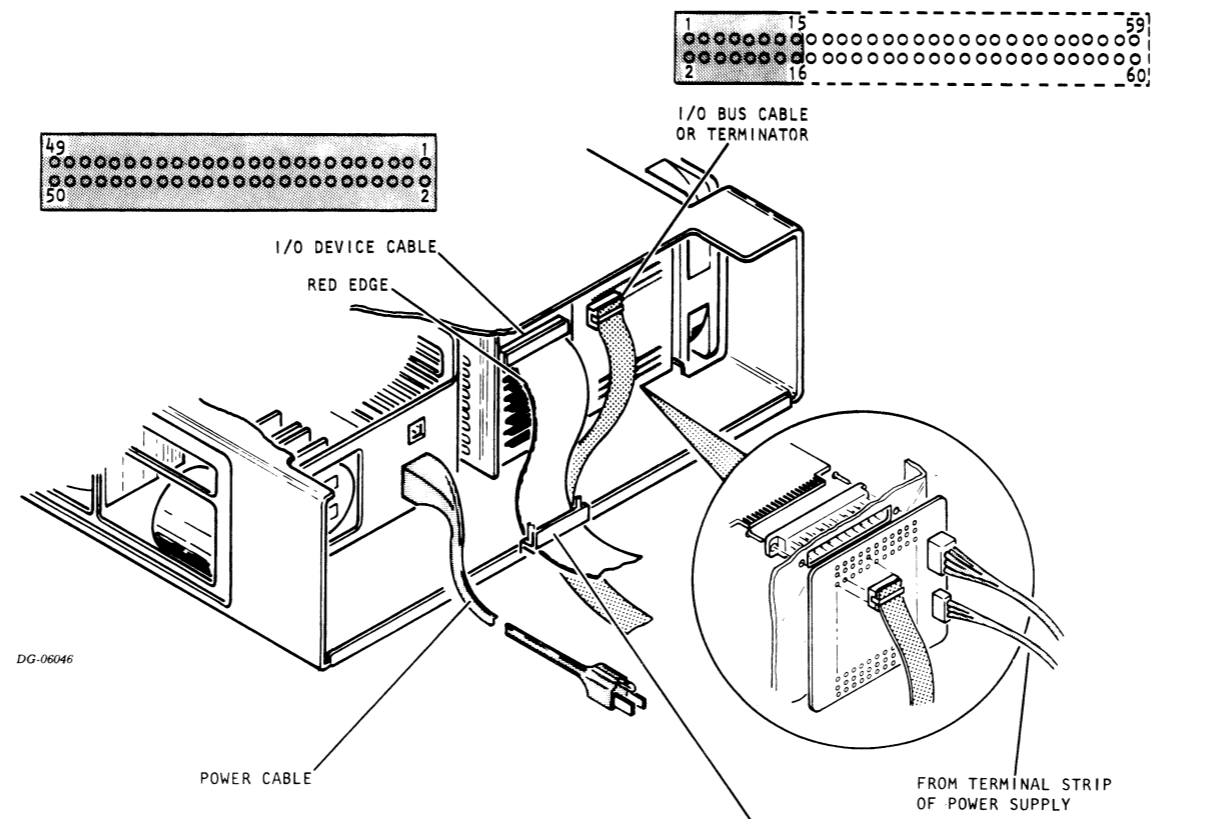
REMOTE RESTART INTERFACE TO NOVA/ECLIPSE ULM CABLE 1191C

SIGNAL NAME	PRINTED CIRCUIT BOARD PIN #	- TO -	CABLE PIN #	- TO -	CABLE PIN #	CONNECTOR ON CABLE (USER END)
RECEIVE DATA	A1		1		1	AMP 86402-1
TRANSMIT DATA	A15		11		2	
GROUND	A7		4		4	

REMOTE RESTART INTERFACE CABLE TO MICROPRODUCT COMMUNICATIONS SUBSYSTEM OR NOVA/ECLIPSE ULM CABLE 1191D

SIGNAL NAME	PRINTED CIRCUIT BOARD PIN #	- TO -	CABLE PIN #	- TO -	CABLE PIN #	CONNECTOR ON CABLE (USER END)
RECEIVE DATA	A1		1		2	13 POS SINGLE ROW MOD IV DG# 111-147
GROUND	A7		4		9	
TRANSMIT DATA	A15		8		11	
TRANSMIT DATA RETURN	A16		J		12	

### EXTERNAL/INTERNAL CABLING



MODEL NO.	POWER CABLE ASSY
1118G	100V
1118D	120V
1118E	220V
1118F	240V

- (1) U-BOLT; 002-005374
- (1) BRACKET; 002-005375
- (1) RETAINER; 002-005376
- (2) WASHER, FLAT, #8; 106-000264
- (2) KEPS NUT, #8-32; 106-000255

NOTE: SYSTEM RELIABILITY MAY SUFFER IF THE AC POWER LINES DO NOT MEET MIL-STD-462 METHOD CS06 FOR A LEVEL 250 VOLT PULSE FOR A 10 MICROSECOND DURATION. IF YOUR AC POWER DOES NOT MEET THIS SPECIFICATION, SPECIAL FILTERING IS REQUIRED.

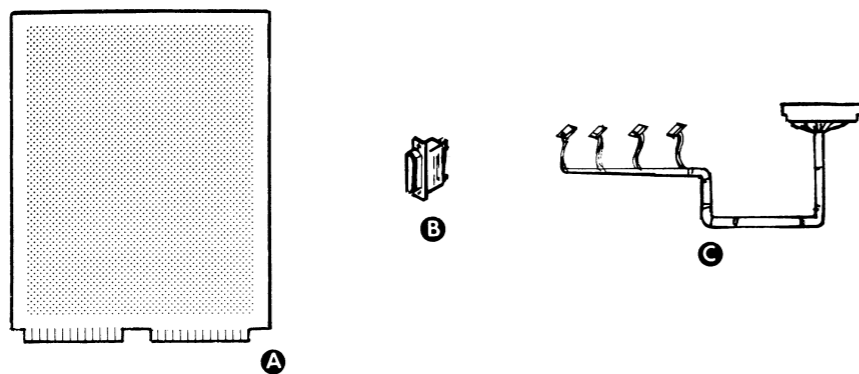
DATA GENERAL CORPORATION SUGGESTS ONE FILTER TO USE IS A TOPAZ ULTRA-ISOLATION TRANSFORMER WITH AN EFFECTIVE COUPLING CAPACITANCE OF .001PF. DATA GENERAL CORPORATION HAS MADE ARRANGEMENTS WITH TOPAZ ELECTRONICS FOR SPECIAL PRICES FOR OUR CUSTOMERS. REFER TO BLANKET QUOTATION PCS-1060 ON YOUR PURCHASE ORDER. ORDERS SHOULD BE SENT TO:

TOPAZ ELECTRONICS  
 3855 RUFFIN ROAD  
 SAN DIEGO, CALIFORNIA 92123  
 TELEPHONE 1-714-279-0111

### INSTALLATION SPECIFICATIONS

### SHIPPING

FOR PACKING PROCEDURE,  
SEE 010-000262



#### MAJOR COMPONENTS

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ASLM 4-LINE ASYNCHRONOUS / SYNCHRONOUS LINE MULTIPLEXOR OR 4-LINE ASYNCHRONOUS LINE MULTIPLEXOR	ANY CHASSIS I/O SLOT	
B	ASLM LOOPBACK CONNECTOR	CHASSIS BACKPLATE TERMINAL SLOTS	

#### CABLE

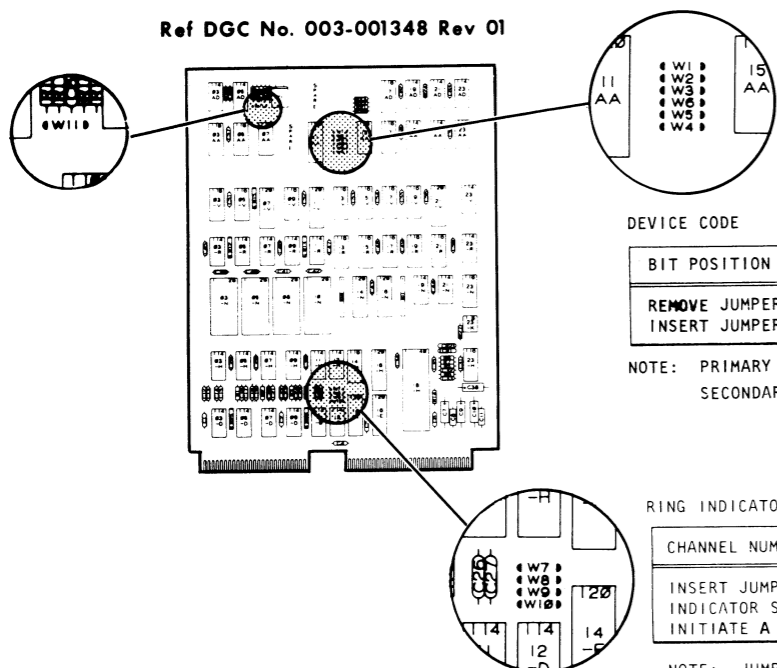
ITEM	CABLE	CONNECTING	MAX LENGTH		NOTES
			FT	M	
C	ASLM TO BACKPLATE CABLE	ASLM A EDGE CONNECTOR TO 4 TERMINAL CABLES ON CHASSIS BACKPLATE	2	0.62	

#### POWER REQUIREMENTS

	SUPPLY VOLTAGE (Volts)			
	+5.0	-5.0	+12.0	-12.0
CURRENT DRAW (Amps.)	1.620	0.024	0.176	0.176

**TAILORING**

Ref DGC No. 003-001348 Rev 01



**DEVICE CODE**

BIT POSITION	10	11	12	13	14	15
REMOVE JUMPER TO SELECT 0	W1	W2	W3	W4	W5	W6
INSERT JUMPER TO SELECT 1						

NOTE: PRIMARY DEVICE CODE OF 348.  
SECONDARY DEVICE CODE OF 748.

**RING INDICATOR**

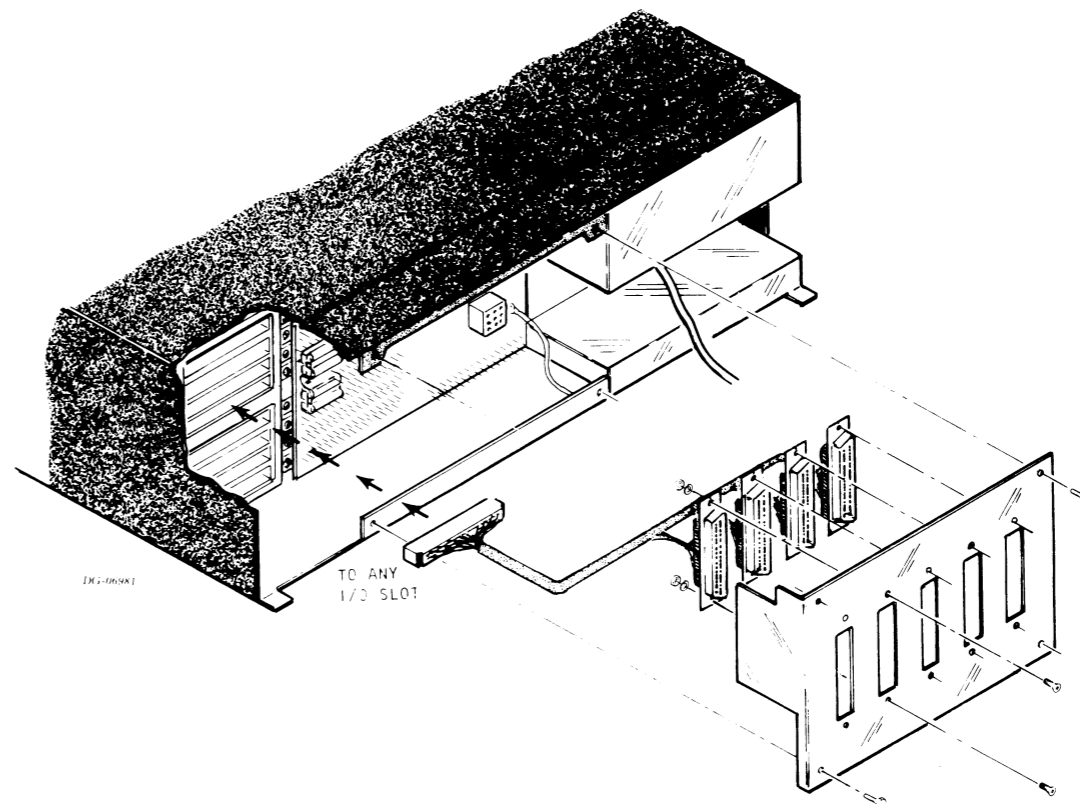
CHANNEL NUMBER	0	1	2	3
INSERT JUMPER TO ENABLE THE RING INDICATOR SIGNAL FROM A MODEM TO INITIATE A PROGRAM INTERRUPT REQUEST	W7	W8	W9	W10

NOTE: JUMPER W11 IS NORMALLY INSERTED. JUMPER W11 IS THE BOARD CLOCK TEST POINT.

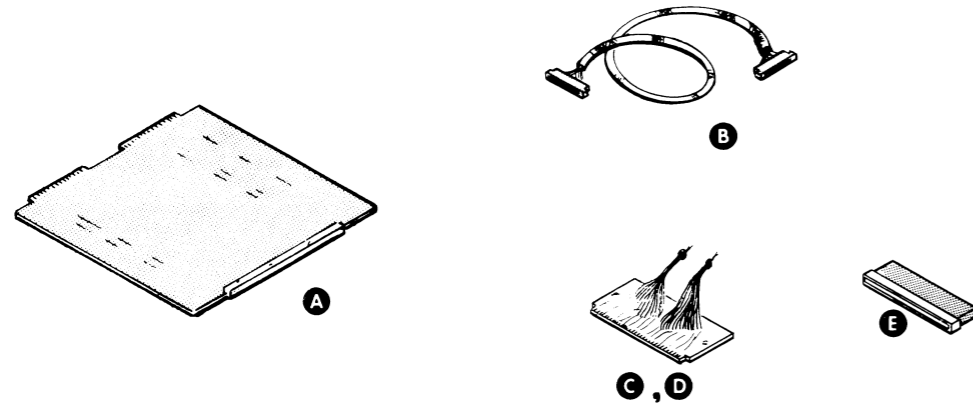
**THE "A" EDGE CONNECTOR**

2	TDATA0	RETO	1
4	DCDO	R10	3
6	CTS0	DTR0	5
8	TETIN0	DSRO	7
10	RDATA0	GND	9
12	TETOUT0	RTS0	11
14	TETIN1	RET1	13
16	R11	TDATA1	15
18	DTR1	DCD1	17
20	DSR1	CTS1	19
22	GND	TETOUT1	21
24	RTS1	RDATA1	23
26	TETIN2	RET2	25
28	TDATA2	TETOUT2	27
30	DCD2	R12	29
32	CTS2	DTR2	31
34	SPARE	DSR2	33
36	RDATA2	GND	35
38	SPARE	RTS2	37
40	TETIN3	RET3	39
42	R13	TDATA3	41
44	DTR3	DCD3	43
46	DSR3	CTS3	45
48	GND	TETOUT3	47
50	RTS3	RDATA3	49

**EXTERNAL CABLING**



### SUBSYSTEM COMPONENT BREAKDOWN



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	MCA 4206	COMPUTER CHASSIS	

DG-02672

**CABLE**

Item	Cable	Connecting	Max Allowed Lg		Notes
			ft	m	
B	EXT COMM BUS 1106F	IN PORT CONNECTOR " OUT PORT CONNECTOR	140	42.7	
C	IN PORT INTERNAL	MCA " IN PORT CONNECTOR	2	.6	SHOWN FOR PADDLE BOARD TYPE COMPUTER
D	OUT PORT INTERNAL	MCA " OUT PORT CONNECTOR	2	.6	

DG-02673

**TERMINATOR**

Item	Terminator	Location	Notes
E	COMMUNICATIONS BUS TERMINATOR	IN PORT OR OUT PORT CONNECTOR	

DG-02674

CONFIGURATION RULES

- In normal mode, up to 15 DGC NOVA and/or ECLIPSE computers may be interconnected with one 4206 adapter for each computer.
- In fast mode, up to four DGC NOVA and/or ECLIPSE computers may be interconnected with one 4206 adapter for each computer.
- The MCA board requires one slot per computer.
- The distance between a non-operating "left most" CPU and a functioning CPU is 20 feet maximum.
- The maximum total MCA-bus length is 140 feet for normal mode operation.
- The maximum total MCA-bus length is 40 feet for fast mode operation.
- 4038 and 4206 MCA's cannot be intermixed on the same MCA bus.
- MCA 4206 is a data channel device.
- MCA's other than the "left most" and "right most" in a configuration must have their pull-out terminators removed.
- When interconnecting computers with 4206 adapter's only one 1106 AH or one 1106 BH cable may be used.

### SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

Item	Component	Chassis	Slots Required	Max Allowable Data Channel Latency (μ sec)	Type of Data Channel Service Desired		Max Allowable Programmed I/O Latency †	Controller's +5 Volt Current Draw (Amps)
					High Speed	Standard		
A	MCA	COMPUTER	1	∞	✓	✓	∞	3.5

DG-01912

**FOR PACKING PROCEDURE, SEE 010-000262**

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

TAILORING

Jumper Locations:

THE ILLUSTRATION SHOWS THE LOCATION OF THE VARIOUS JUMPERS ON THE MCA BOARD.

SERVICE SELECT JUMPERS

JUMPERS ARE USED TO SELECT THE DEVICE CODES FOR THE MCA. DEVICE CODES 6 AND 7 ARE USED FOR THE FIRST MCA A COMPUTER. THE SECONDARY DEVICE CODES 48 AND 47 ARE USED WHEN A SECOND MCA IS INSTALLED IN THE COMPUTER. INSERT THE JUMPERS AS FOLLOWS.

DEVICE CODE JUMPERS

DEVICE CODE	INSERT JUMPERS
6/7 (MCAT/MCAR)	W1
46/47 (MCAT1/MCAR)	W2, W17

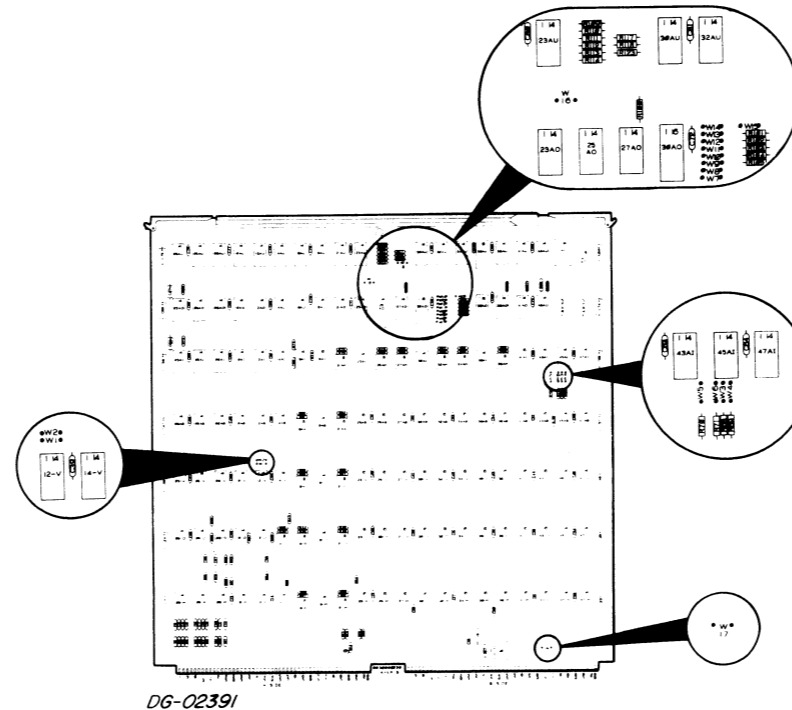
Identifying Number Jumpers:

JUMPERS ARE USED TO SELECT THE IDENTIFYING NUMBER WHICH IS USED TO DISTINGUISH THIS MCA AND ASSOCIATED COMPUTER IN COMMUNICATIONS WITH OTHER COMPUTERS IN MCA NETWORK. FOUR JUMPERS ARE USED TO SPECIFY THE BINARY REPRESENTATION OF THE SELECTED IDENTIFYING NUMBER. INSERT THE JUMPERS AS FOLLOWS:

IDENTIFYING NUMBERS

BIT POSITIONS OF IDENTIFYING NUMBER	0	1	2	3
INSERT JUMPER TO SPECIFY 1	W5	W6	W3	W4

NOTE: ALTHOUGH 0 IS A VALID IDENTIFYING NUMBER WITHIN AN MCA NETWORK, 0 IS NOT VALID IDENTIFYING NUMBER WITH DATA GENERAL'S REAL TIME DISC OPERATING SYSTEM.



Operating Mode Jumpers

JUMPERS ON THE "LEFTMOST" ADAPTER ARE USED TO SELECT WHETHER THE MCA NETWORK OPERATION IN NORMAL MODE WITH A MAXIMUM DATA TRANSFER RATE OF 312,500 WORDS PER SECOND OR IN FAST MODE WITH A MAXIMUM DATA TRANSFER RATE OF 500,000 WORDS PER SECOND. AN MCA NETWORK OPERATING IN FAST MODE CAN CONTAIN A MAXIMUM OF FOUR COMPUTERS. THE OPERATING MODE JUMPERS ON ALL BUT THE "LEFTMOST" ADAPTERS ARE USED TO SELECT THE OPERATING MODE OF THE ADAPTER WHEN IT IS REMOVED FROM THE MCA NETWORK AND PLACED IN DIAGNOSTIC MODE. INSERT THE JUMPERS AS FOLLOWS:

MODE OF OPERATION	INSERT JUMPERS
NORMAL MODE	W8, W10, W12, W14, W15
FAST MODE	W7, W9, W11, W13

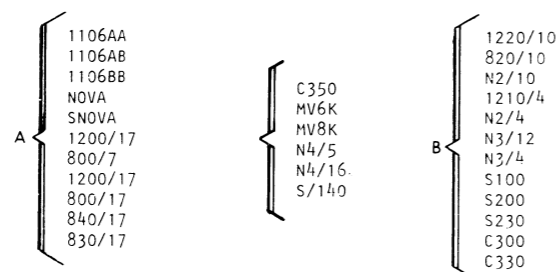
"Leftmost" Processor Jumper

THE "LEFTMOST" PROCESSOR JUMPER, W16 DISABLES THE INTERNAL CLOCKS OF THE MCA. INSERT JUMPER W16 IN ALL THE ADAPTERS IN THE NETWORK EXCEPT THE "LEFTMOST" ADAPTER. OMIT THE W16 ON THE "LEFTMOST" ADAPTER.



## EXTERNAL CABLING

Model Number	Description
4206	Multiprocessor communications adapter board with appropriate internal cables (specify CPU). One per CPU. (Note that there is no 4206A; all 4206 MCAs have terminators.)
	External cable for MCA. The MCA cable(s) ordered depend on the MCA configuration as indicated below:



A 1106AA is used to interconnect computers in Category A.

A 1106BB is used to interconnect computers in Category B.

A 1106AB is used to interconnect a computer in Category A to a computer in Category B.

## NOTES:

- USE 005-019484 INTERNAL CABLE FOR CATEGORY "H".
- USE MCA TERMINATOR 005-007067 FOR CATEGORY "A".
- USE MCA TERMINATOR 005-007072 FOR CATEGORY "B".
- USE MCA TERMINATOR 005-020329 FOR CATEGORY "H".
- 1106CC - USE 005-018617 (10FT.) OR 005-019276 (40 FT.) OR 005-019485 (140 FT.) EXTERNAL CABLE TO INTERCONNECT A COMPUTER IN CATEGORY "H" TO A COMPUTER IN CATEGORY "H". REF. 018-1190, 005-019421 (20 FT.), 005-020131.
- 1106 BC - USE 005-019498 (10 FT.) OR 005-019263 (40 FT.) OR 005-019487 (40 FT.) EXTERNAL CABLE TO INTERCONNECT A COMPUTER IN CATEGORY "H" TO A COMPUTER IN CATEGORY "B". REF. 001-3315 AND 018-1550, 005-020130 (20 FT.), 005-020129 (75 FT.)
- 1106 AC - USE 005-019483 (10 FT.) OR 005-019482 (40 FT.) OR 005-019486 (140 FT.) EXTERNAL CABLE TO INTERCONNECT A COMPUTER IN CATEGORY "H" TO A COMPUTER IN CATEGORY "A". REF. 001-3316 AND 018-1560, 005-020128 (20 FT.), 005-020127 (75 FT.).

The MCA bus is time-division multiplexed among MCAs. The priority on the bus proceeds from the leftmost CPU to the rightmost CPU along the MCA bus. If, for example, (Figure 2) MCA #1 has the bus, MCA #3 has next priority. However, assuming MCA #3 does not need the bus and MCA #4 does, MCA #4 will get the bus. MCA #3 will not have an opportunity to get the MCA bus again until MCA #2 and MCA #1 have had opportunity to get the bus.

A further description of the theory of operation of the MCA 4206 can be found in technical reference manual 014-000072.

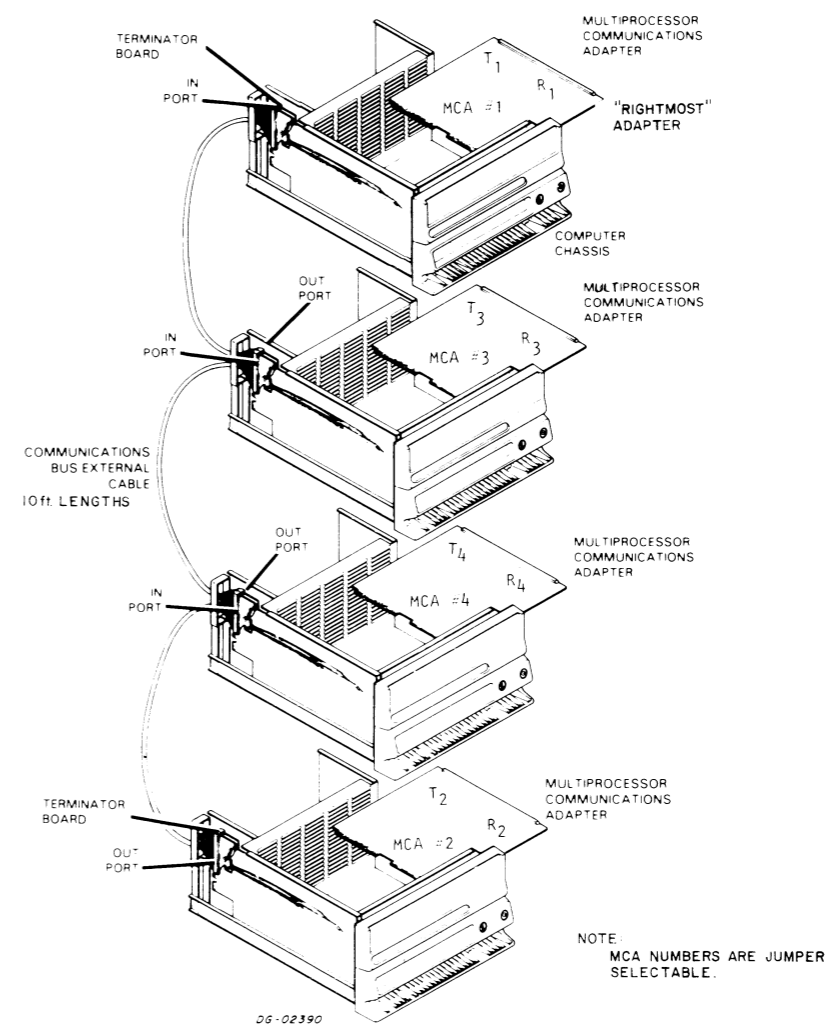
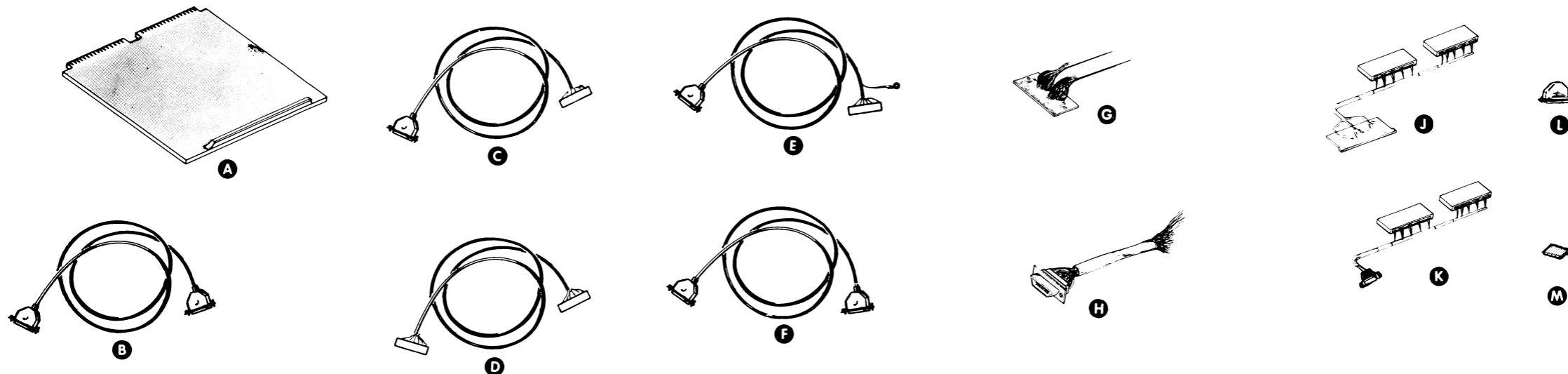


FIGURE-2

INSTALLATION SPECIFICATIONS



MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	PC BOARD	COMPUTER CHASSIS (ANY I/O SLOT)	TWO PC BOARDS ARE REQUIRED FOR OPERATION, ONE INSTALLED IN EACH PROCESSOR IN IPB SYSTEM.

TERMINATOR

ITEM	TERMINATOR	LOCATION	NOTES
L	TEST PLUG	INTERNAL CABLE CONNECTOR	REQUIRED TO RUN DIAGNOSTICS ON GROUP A AND H PROCESSORS (1)
M	TEST PLUG	INTERNAL CONNECTOR	REQUIRED TO RUN DIAGNOSTICS ON GROUP B PROCESSORS (1)

CABLES

ITEM	CABLE	CONNECTING	MAX LENGTH		NOTES
			FT	M	
B	1065A IPB EXTERNAL	INT CABLE IN 1st CPU and INT CABLE IN 2nd CPU	15	4.5	CONNECTING GROUP A TO A PROCESSORS (1)
C	1065B IPB EXTERNAL	INT CABLE IN 1st CPU and INT CABLE IN 2nd CPU	15	4.5	CONNECTING GROUP A TO B PROCESSORS (1)
D	1065C IPB EXTERNAL	INT CABLE IN 1st CPU and INT CABLE IN 2nd CPU	15	4.5	CONNECTING GROUP B TO B PROCESSORS (1)
E	1065D IPB	INT CABLE IN 1st CPU and INT CABLE IN 2nd CPU	15	4.5	CONNECTING GROUP H TO H CPU (1)
F	1065E IPB	INT CABLE IN 1st CPU and INT CABLE IN 2nd CPU	15	4.5	CONNECTING GROUP B TO H CPU (1)
G	INTERNAL	4240 PCB and IPB EXTERNAL	-	-	CABLE FOR N820, N1210, N1220 CABLE FOR N2 AND ECLIPSE
H	INTERNAL	4240 PCB and IPB EXTERNAL	-	-	CABLE FOR N800, N830, N840, N1200
J	INTERNAL	4240 PCB and IPB EXTERNAL	-	-	CABLE FOR NOVA 4 (NON-COMPLIANT), S/120 (NON-COMPLIANT), S/140 (NON-COMPLIANT), MV/6000, MV/8000
K	INTERNAL	4240 PCB and IPB EXTERNAL	-	-	CABLE FOR NOVA 4 (FCC COMPLIANT), S/120 (FCC COMPLIANT), S/140 (FCC COMPLIANT), S/280, MV/4000, MV/10000

NOTE:

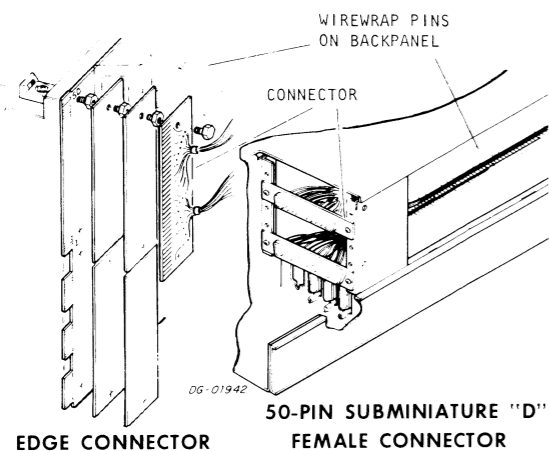
- GROUP A PROCESSORS UTILIZE 50-PIN SUBMINIATURE "D" CONNECTORS.  
GROUP B PROCESSORS UTILIZE 100-POSITION PADDLEBOARDS.  
GROUP H PROCESSORS ARE FCC COMPLIANT AND UTILIZE 50-PIN SUBMINIATURE "D" CONNECTORS.

SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	MAX ALLOWABLE DATA CHANNEL LATENCY (μs)	MAX ALLOWABLE PROGRAMMED I/O LATENCY +	CONTROLLER'S +5V CURRENT DRAW (AMPS)
A	4240 PCB	CPU	1	N/A	36.2 μs	2.5 A

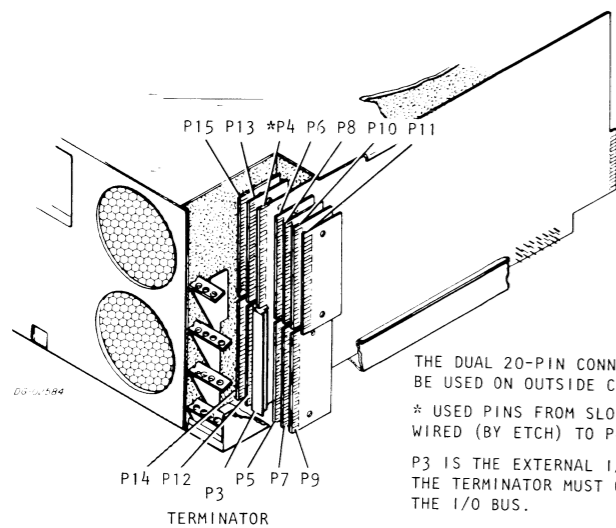
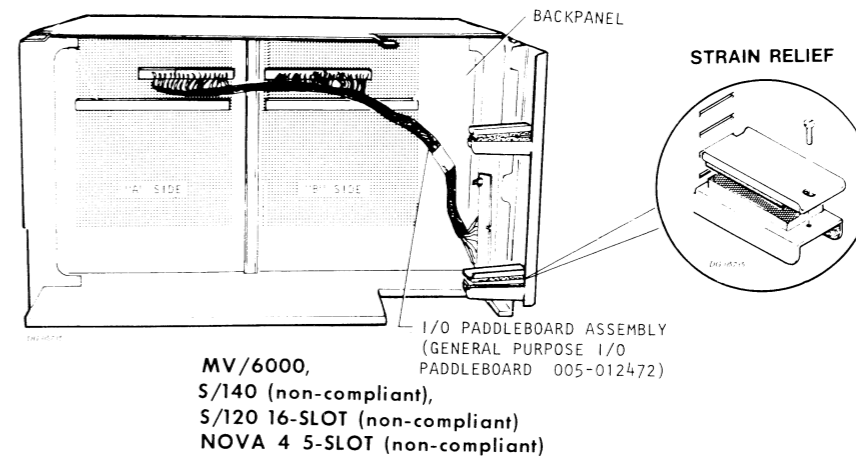
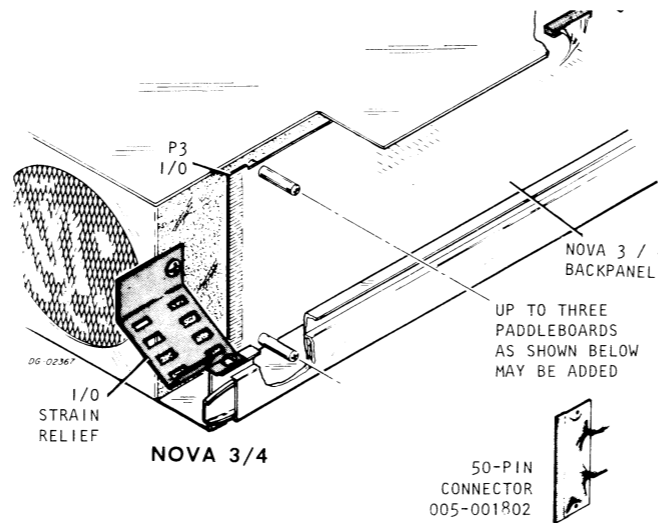
FOR PACKING PROCEDURE, SEE 010-000262

### INTERNAL CABLING



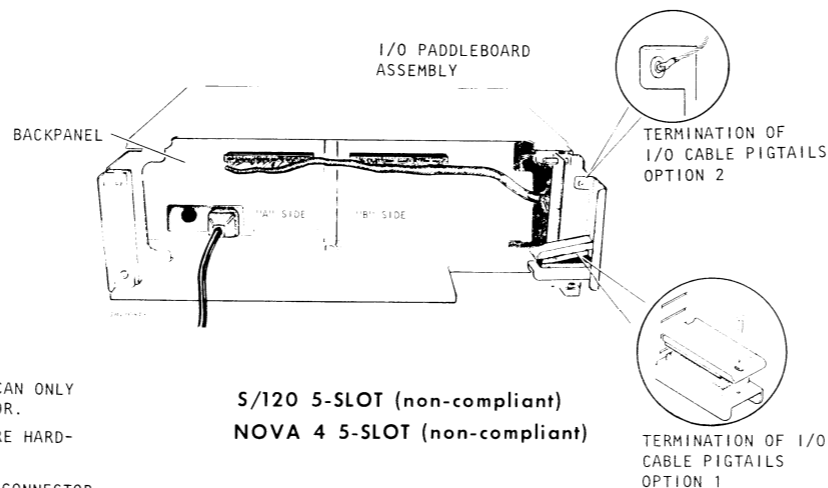
NOVA 2  
NOVA 3  
NOVA 820  
NOVA 1210  
NOVA 1220

NOVA  
SUPERNOVA  
NOVA 800  
NOVA 830  
NOVA 840  
NOVA 1200  
NOVA 1230

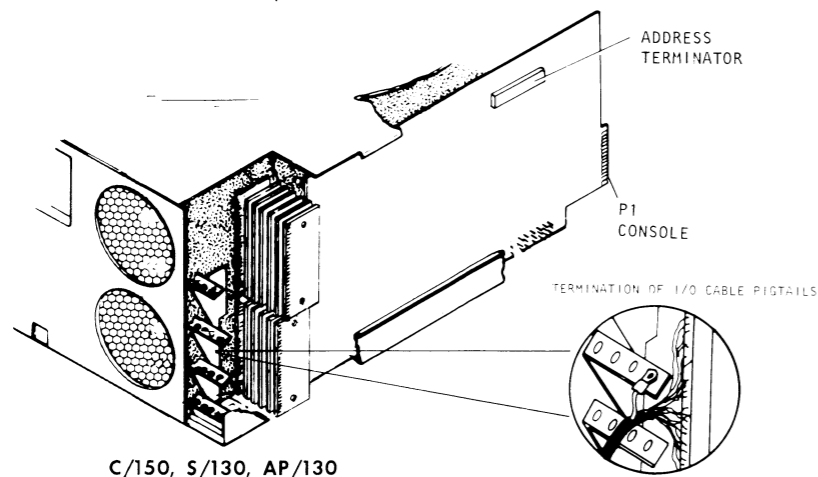
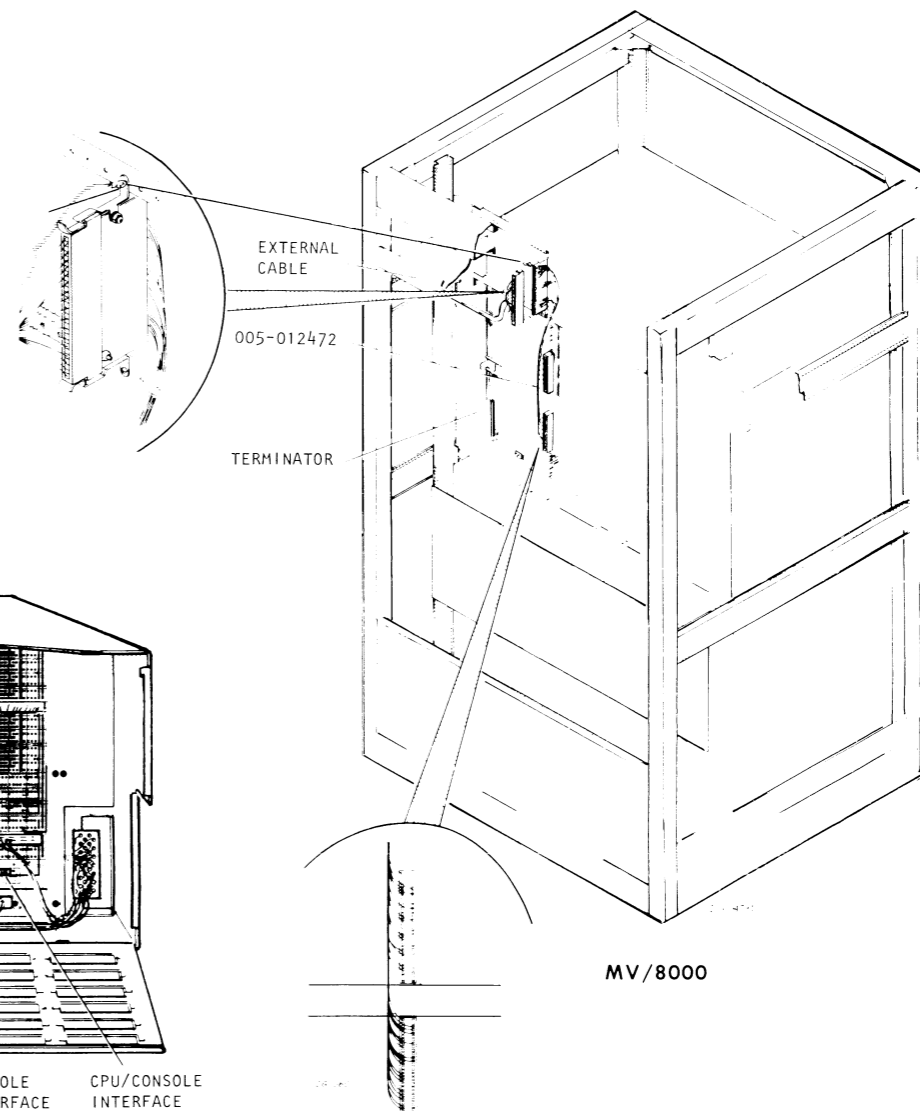


THE DUAL 20-PIN CONNECTOR CAN ONLY BE USED ON OUTSIDE CONNECTOR.  
\* USED PINS FROM SLOT 10 ARE HARDWIRED (BY ETCH) TO P4.  
P3 IS THE EXTERNAL I/O BUS CONNECTOR. THE TERMINATOR MUST GO ON THE END OF THE I/O BUS.

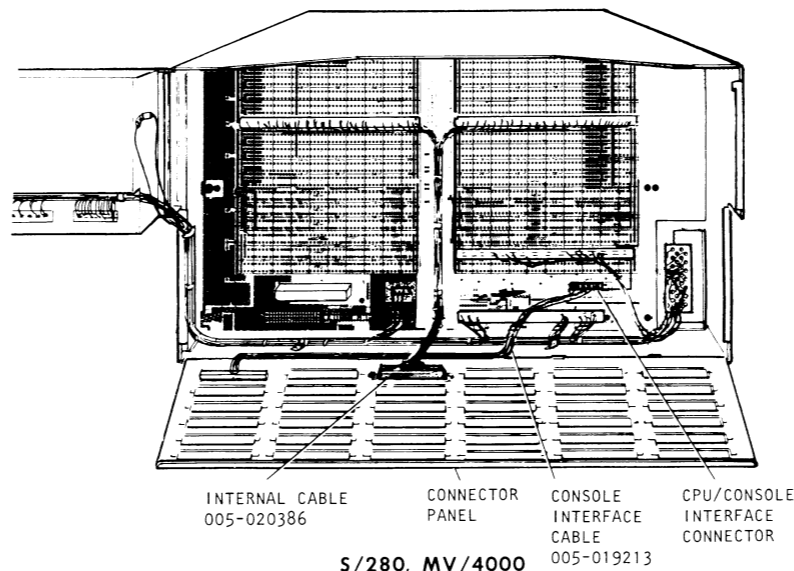
NOVA 3/12



S/120 5-SLOT (non-compliant)  
NOVA 4 5-SLOT (non-compliant)



C/150, S/130, AP/130



S/280, MV/4000

### INTERPROCESSOR BUS, SERIES 4240

INTERNAL / EXTERNAL CABLING

THE FOLLOWING IS THE WIRE LIST OF THE IPB INTERNAL CABLES:

INTERNAL CABLES		
SIGNAL NAME	PIN	EXTERNAL PIN 50-PIN "D" OR PADDLEBOARD
GROUND	A1	1
-CPB0	A92	2
-CPB1	A91	3
-CPB2	A78	4
-CPB3	A77	5
-CPB4	A76	6
-CPB5	A75	7
-CPB6	A73	8
-CPB7	A71	9
-CPB8	A69	10
-CPB9	A67	11
-CPB10	A65	12
-CPB11	A63	13
-CPB12	A61	14
-CPB13	A59	15
-CPB14	A57	16
-CPB15	A47	17
-DS036	A49	18
-DS037	A79	19
-DS040	A81	20
-DS041	A84	21
STRT 0	A83	22
DOA 0	A86	23
DIA 0	A85	24
IP 0	A88	25
DIB 0	A87	26
IORST 0	A89	27
-36 BUSY 0	A90	28
-41 BUSY 0	B6	29
CLR 0	B11	30
SCO 40	B13	31
-DS140	B15	32
-DS141	B19	33
-DS136	B23	34
-DS137	B25	35
DIA 1	B27	36
IP 1	B31	37
DIB 1	B34	38
-IORST 1	B36	39
-41 BUSY 1	B38	40
-36 BUSY 1	B40	41
-LEFTFINDER	B48	42
DOA 1	B49	43
STRT 1	B51	44
CLR 1	B52	45
SCI 40	B53	46
GROUND	B54	47
GROUND	B67	48
GROUND	B69	49
CHASSIS GND	N/A	50**
GROUND	A2	50***

INTERNAL CABLING	
ASSEMBLY	DESCRIPTION
005-001802	FOR NOVA 820, NOVA 1210, NOVA 1220, NOVA 2, NOVA 3, ECLIPSE SERIES, EXCEPT S/120, S/140, S/280
005-001965	FOR NOVA 800, NOVA 830, NOVA 840, NOVA 1200
005-012472	FOR NOVA 4 (NON-FCC COMPLIANT), S/120 (NON-FCC COMPLIANT), S/140 (NON-FCC COMPLIANT), S/250, C/350, M/600, MV/6000, MV/8000
005-020386	FOR NOVA 4 (FCC COMPLIANT) S/120 (FCC COMPLIANT) S/140 (FCC COMPLIANT) S/280, MV/4000, MV/10000

EXTERNAL CABLES	
ASSEMBLY	DESCRIPTION
005-001966	A TO A
005-001967	A TO B
005-001968	B TO B
005-020138	H TO H
005-020137	B TO H

GROUP "A" PROCESSORS UTILIZE 50-PIN SUBMINIATURE "D" CONNECTORS.  
 GROUP "B" PROCESSORS UTILIZE 100-POSITION EDGE CARD CONNECTORS.  
 GROUP "H" PROCESSORS ARE FCC COMPLIANT AND UTILIZE 50-PIN SUBMINIATURE "D" CONNECTORS.

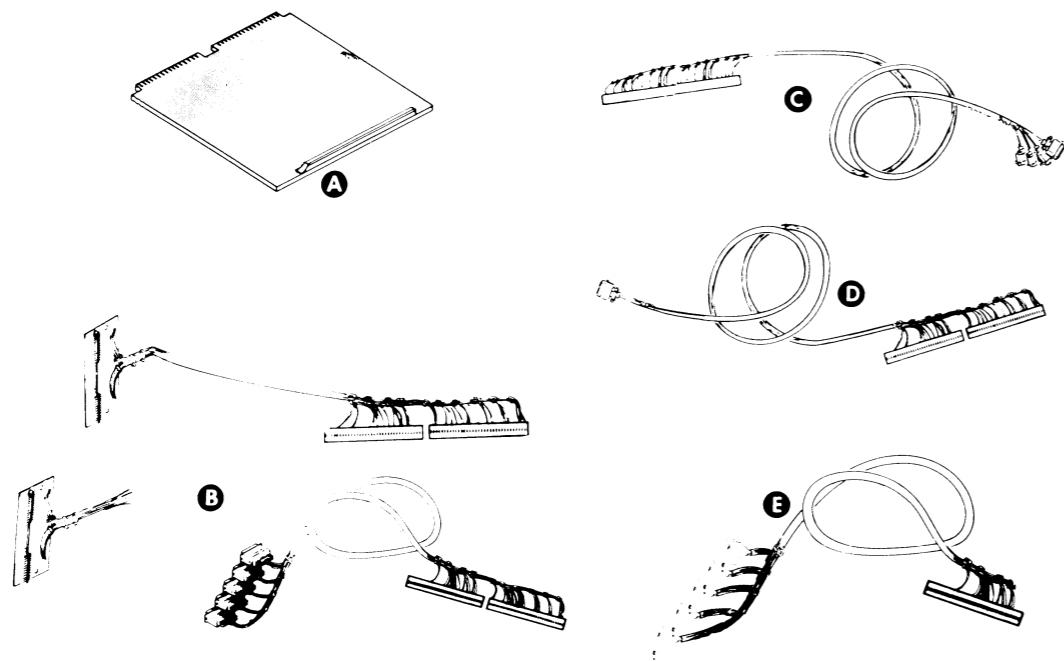
NOTES:

1. THE 005-020138 (H TO H) EXTERNAL CABLE HAS BEEN DESIGNED TO REPLACE THE EXISTING 005-001967 (A TO A) EXTERNAL CABLE.
2. THE 005-020137 (B TO H) EXTERNAL CABLE HAS BEEN DESIGNED TO REPLACE THE EXISTING 005-001967 (A TO B) EXTERNAL CABLE.
3. TO ACCOMPLISH THE REPLACEMENT IN NOTES 1 AND 2 ABOVE ON THE EXISTING IPB SYSTEMS, THE WIRE RUNNING TO PIN 50 OF 005-001965 ("A" TYPE INTERNAL CABLE) MUST BE CUT/REMOVED FROM ITS CONNECTION WITH THE BACKPANEL AND SOLDERED/WELDED TO THE CONNECTOR SHELL OF THE 50-PIN SUBMINIATURE "D" CONNECTOR. THIS WILL PREVENT SHORTING SIGNAL GROUND (ON OLD INTERNAL CABLE) TO CHASSIS GROUND (ON NEW EXTERNAL CABLES). IT IS VERY IMPORTANT THAT BEFORE REPLACING AN OLD EXTERNAL CABLE WITH ONE OF THE NEW "H"-TO-"H" AND "B"-TO-"H" CABLES THAT THE EXISTING 005-001965 INTERNAL CABLE BE CHECKED CAREFULLY TO INSURE THAT PIN 50 IS NOT CONNECTED TO THE BACKPANEL.
4. ON THOSE EXTERNAL CABLES CONNECTING MACHINES WITH DIFFERENT CONNECTORS, i.e. "A"-TO-"B" AND "B"-TO-"H", THE CABLE IS DESIGNED SUCH THAT THE "B" MACHINE IS ALWAYS THE SLAVE PROCESSOR AND THE "A" OR "H" MACHINE, RESPECTIVELY, IS ALWAYS THE MASTER PROCESSOR.
5. ON THOSE EXTERNAL CABLES CONNECTING MACHINES WITH THE SAME TYPE OF CONNECTORS, i.e. "A"-TO-"A", "B"-TO-"B", AND "H"-TO-"H", SLAVE OR MASTER IS DETERMINED BY WHICH WAY THE CABLE IS INSTALLED BETWEEN THE TWO MACHINES, i.e. ONE END IS JUMPED INTERNALLY ON THE CABLE TO MAKE THE PROCESSOR IT PLUGS INTO THE MASTER PROCESSOR.
6. IT IS NOT NECESSARY TO KNOW WHICH PROCESSOR IS THE MASTER OR SLAVE AS THE SOFTWARE WILL DETECT THIS AS IT RUNS. THERE IS NO SIGNIFICANT DIFFERENCE IN OVERHEAD RUNNING AS THE MASTER OR THE SLAVE PROCESSOR.

NOTES:

- \*\* THIS PIN APPLIES ONLY TO THE INTERNAL CABLE, 005-020386. IT IS SOLDERED/WELDED TO THE METAL SHELL OF THE CONNECTOR TO MAKE CONNECTION TO THE CHASSIS GROUND.
- \*\*\* THIS PIN APPLIES ONLY TO THE INTERNAL CABLE, 005-001965. SEE NOTE 3 THIS PAGE FOR USE OF THIS INTERNAL CABLE WITH EXTERNAL CABLES, 005-020137 AND 005-020138.

### SUBSYSTEM COMPONENT BREAKDOWN



#### MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	SYNC/ASYNC CONTROLLER (MODELS 4241, 2, 3)	COMPUTER CHASSIS	MAX 2 PCB'S PER SUBSYSTEM MAX 4 PCB'S PER SYSTEM

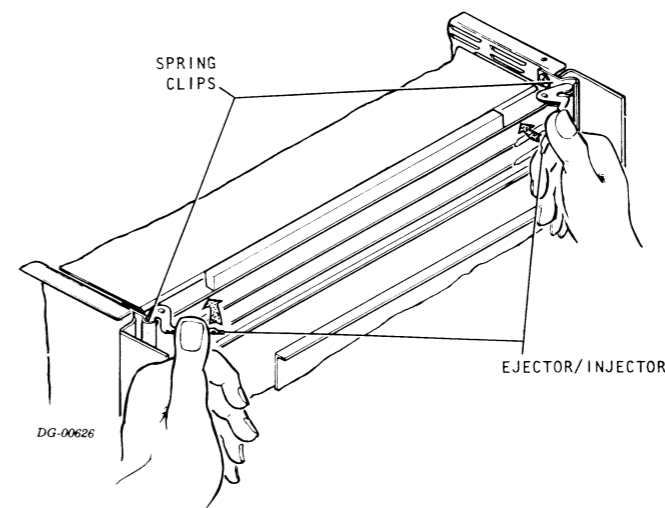
#### CABLE

Item	Cable	Connecting	Max Allowed Lg ft / m	Notes
B	INTERNAL COMM. BUS	SYNC/ASYNC CONTROLLER and EXTERNAL COMM DEVICE " CABLE	2 / 0.6	ULM/5 PADDLEBOARD

### SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

Item	Component	Chassis	Slots Required	Max Allowable Data Channel Latency (μ sec)	Type of Data Channel Service Desired		Max Allowable Programmed I/O Latency +	Current Draw (Amps)		
					High Speed	Standard		+5	+15	-5
A (MODEL 4242)	SYNC/ASYNC CONTROLLER (SYNC ONLY)	CPU	1	N/A	N/A	N/A	1 CHARACTER	2.85	0.243	0
A (MODEL 4241)	SYNC/ASYNC CONTROLLER (ASYNC ONLY)	CPU	1	N/A	N/A	N/A	1 CHARACTER	2.43	0.345	0.19
A (MODEL 4243)	SYNC/ASYNC CONTROLLER (ASYNC AND SYNC)	CPU	1	N/A	N/A	N/A	1 CHARACTER	3.25	0.425	0.19

### INSERTING PC BOARDS



### SHIPPING

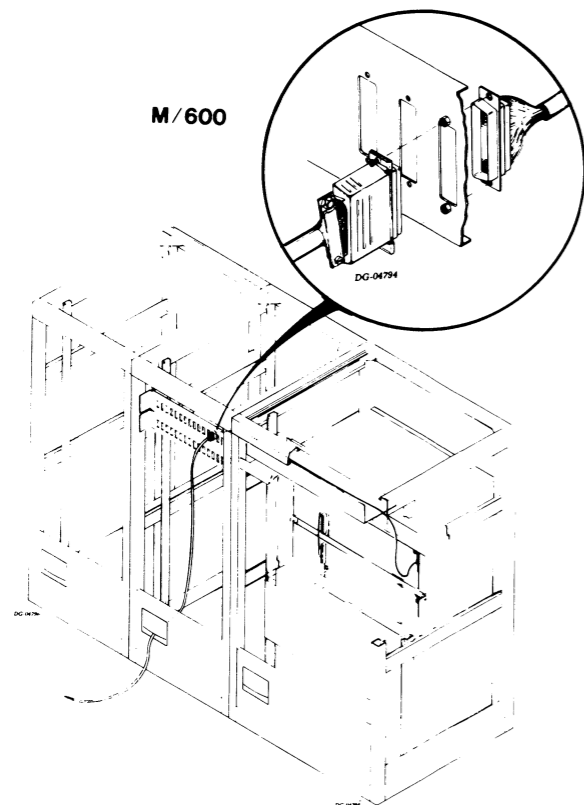
FOR PACKING PROCEDURE, SEE 010-000262

SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
°F / °C	(Non-condensing)		°F / °C	(Non-condensing)	
-40 to +160 -40 to +71	0%/80%	50,000ft. 15,200m	-40 to +160 -40 to +71	0%/30%	90 days

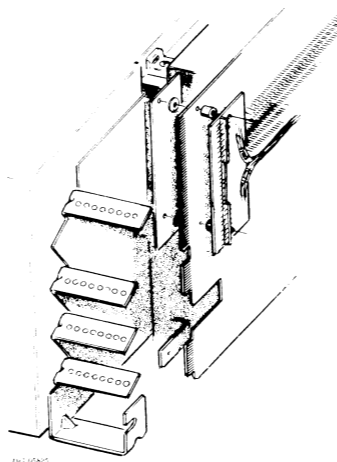
DG-03224

INTERNAL CABLING

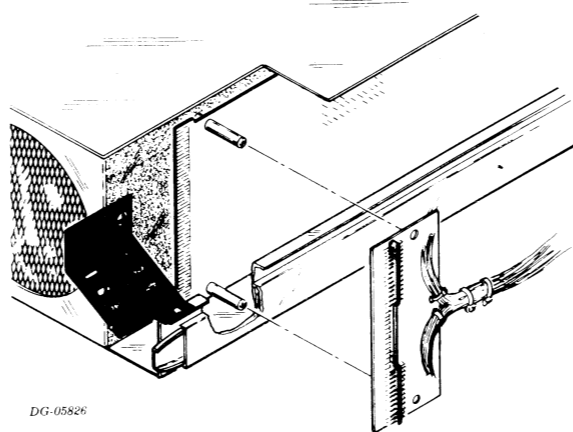
M/600



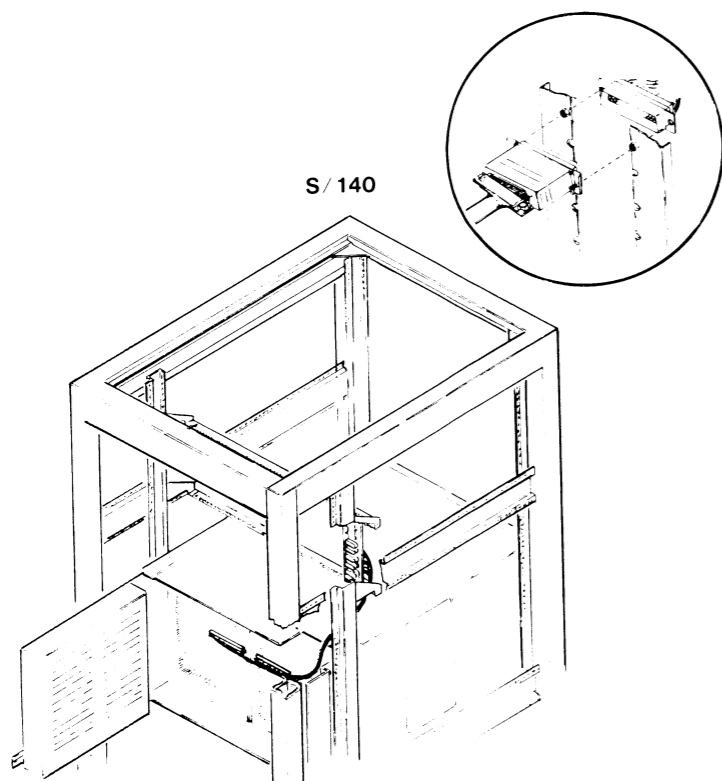
NOVA 2/10, 820, 1220



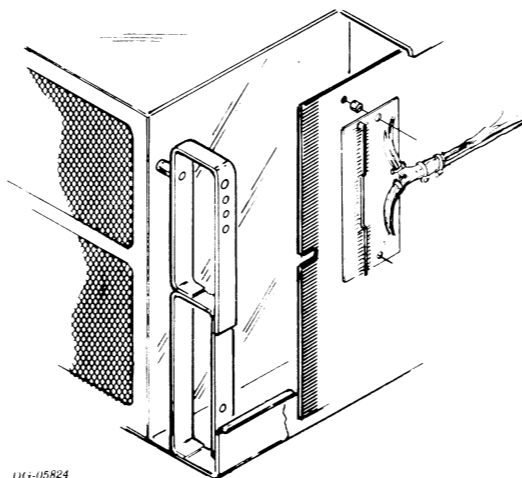
NOVA 3/4, 3/12



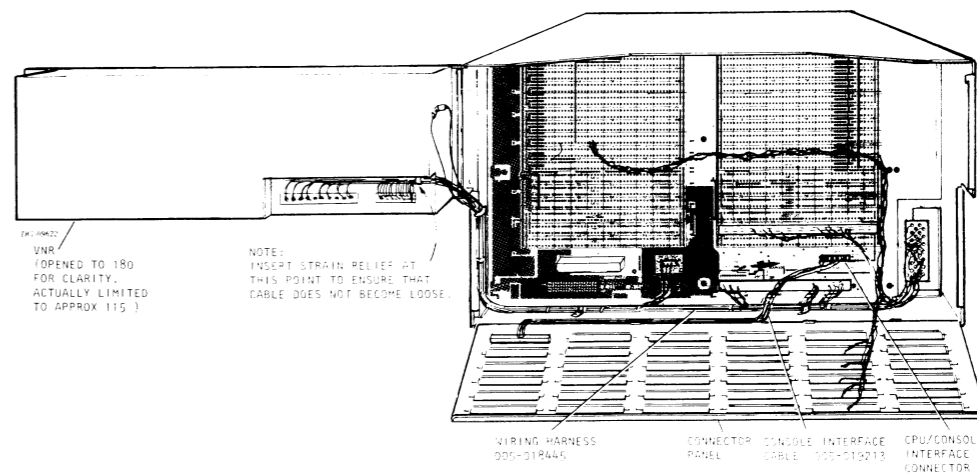
S/140



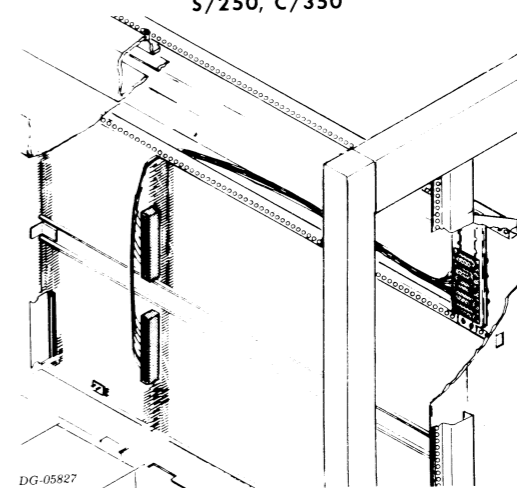
ECLIPSE S/200



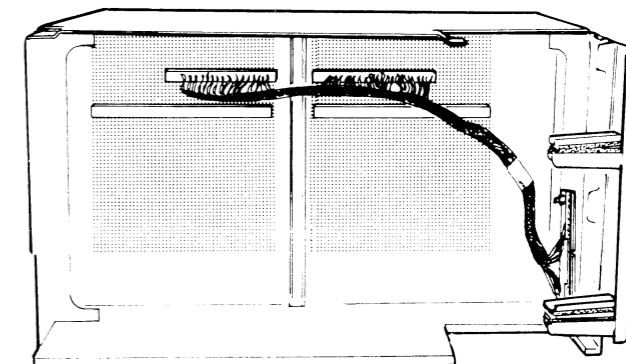
MV/4000 S/280 CPU BACKPANEL



S/250, C/350



NOVA 4



## INTERNAL CABLING (CONT)

MACHINE	CABLE NAME/	ULM MODEL#	005 #
NOVA 820 NOVA 1220 NOVA 2 NOVA 3 ECLIPSE S/100 ECLIPSE S/130 ECLIPSE S/150 ECLIPSE S/200 ECLIPSE C/230 ECLIPSE C/300 ECLIPSE C/330	ULM/5 PADDLEBOARD	4241, 2, 3	12790
NOVA 4	ULM/5 PADDLEBOARD	4241, 2, 3	12765
S/250 S/140 C/350	ULM/5 SYNC/ASYNCR INTERNAL TO EIA PANEL	4243	13529
S/250 S/140 C/350	ULM/5 ASYNCR ONLY INTERNAL TO EIA PANEL	4241, 1A	13524
S/250 S/140 C/350	ULM/5 SYNC ONLY INTERNAL TO EIA PANEL	4242	13702
M/600	ULM/5 SYNC ONLY INTERNAL TO EIA PANEL	4242	10709
S/280 MV/4000	ULM/5 SYNC/ASYNCR INTERNAL TO JUNCTION PANEL	4243 4241, 1A	19565
S/280 MV/4000	ULM/5 SYNC ONLY INTERNAL TO JUNCTION PANEL	4242	19564

NOTES:

- ONLY ULM/5 SYNC ONLY VERSION WILL BE CONFIGURED WITH THE M/600.
- IF TWO ULM/5 BOARDS OF THE SAME DEVICE CODE ARE INSTALLED, IT IS NECESSARY TO WIRE PIN 86 OF BOARD 1 TO PIN B6 OF BOARD 2 AND PIN A91 OF BOARD 1 TO PIN A91 OF BOARD 2.
- 005-019564 AND 005-019565 CABLES ARE IN COMPLIANCE WITH FCC EMI REGULATIONS. 005-019565 WILL BE USED FOR APPLICATIONS REQUIRING EITHER ONE(1) SYNC AND FOUR (4) ASYNCR LINES OR FOR JUST FOUR (4) ASYNCR LINES ONLY, IN WHICH CASE THAT PART OF THE CABLE DESIGNED FOR USE WITH A SYNC LINE WILL NOT BE USED.

THE FOLLOWING IS A CROSS REFERENCE LIST TO REFERENCE LOGICAL LINE NUMBERS TO CONNECTOR NUMBERS ON THE ULM/5 PADDLEBOARD.

BOARD NUMBER	LOGICAL LINE NUMBER	CONN. NUMBER
BOARD #1	LINE #0	CONN. #1
	LINE #1	CONN. #2
	LINE #2	CONN. #3
	LINE #3	CONN. #4
	LINE #8	CONN. #5
BOARD #2	LINE #4	CONN. #1
	LINE #5	CONN. #2
	LINE #6	CONN. #3
	LINE #7	CONN. #4
	LINE #12	CONN. #5

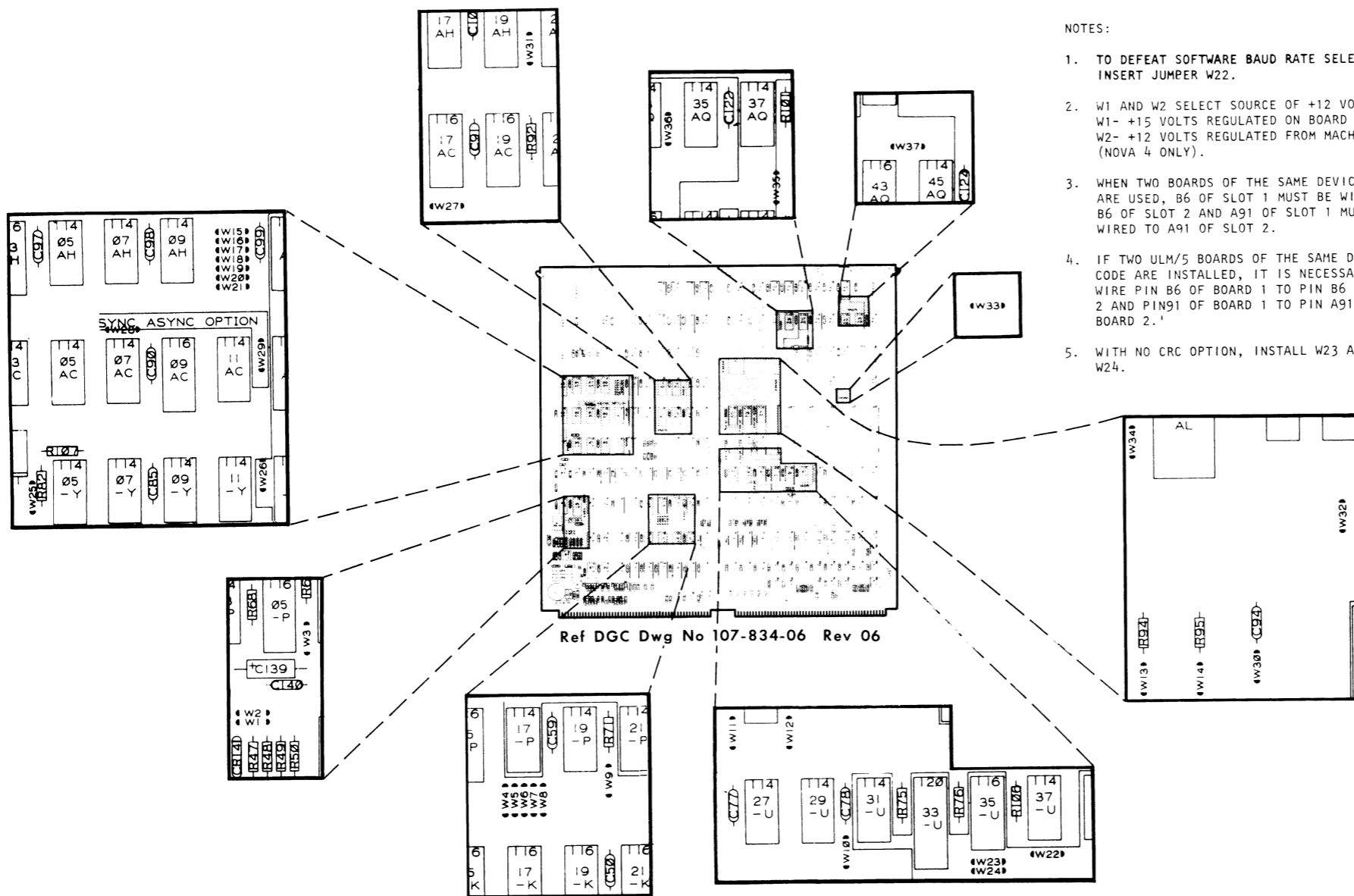
THE FOLLOWING IS THE WIRE LIST OF THE ULM/5 INTERNAL CABLES:

SIGNAL NAME	BACKPANEL PIN PIN	PADDLEBOARD	EXTERNAL PIN EIA PANEL	JUNCTION PANEL
SPARE A 8	B67	N/A	5-14	5-14
SPARE B8	B69	N/A	5-23	5-23
XMTR CLOCK 8	B48	5-1	5-15	5-15
-XMTR DATA 8	B53	5-2	5-2	5-2
RING 8	A65	5-3	5-22	5-22
CARRIER DET 8	A92	5-4	5-8	5-8
DATA TERM RDY 8	A47	5-5	5-20	5-20
CLEAR TO SEND	A-71	5-6	5-5	5-5
DATA SET RDY 8	A86	5-7	5-6	5-6
GROUND	A1	5-9	5-7	N/A
GROUND	B1	N/A	N/A	5-7
-REC DATA 8	B49	5-11	5-3	5-3
REQ TO SEND 8	A63	5-12	5-4	5-4
REC CLOCK 8	B51	5-13	5-17	5-17
V+ O/XDAT RTN	A69	1-1	1-11	1-11
-XMTR DATA 0	B38	1-2	1-2	1-2
RING 0	A69	1-3	1-22	1-22
CAR DET/RDR RN 0	A81	1-4	1-8	1-8
DATA TERM RDY 0	A59	1-5	1-20	1-20
CLEAR TO SEND 0	A85	1-6	1-5	1-5
DATA SET RDY 0	A87	1-7	1-6	1-6
FUSED +5	B34	1-8	1-25	1-25
GROUND	A1	1-9	1-7	N/A
GROUND	A33	N/A	N/A	1-7
-REC DATA 0	B23	1-11	1-3	1-3
REC TO SEND/V-0	B11	1-12	1-4 & 1-18	1-4 & 1-18
V+ 1	A76	2-1	2-11	2-11
-XMTR DATA 1	B40	2-2	2-2	2-2
RING 1	A76	2-3	2-22	2-22
CAR DET/RDR RN 1	A83	2-4	2-8	2-8
DATA TERM RDY 1	A57	2-5	2-20	2-20
CLEAR TO SEND 1	A84	2-6	2-5	2-5
DATA SET RDY 1	A90	2-7	2-6	2-6
FUSED +5	B34	2-8	2-25	2-25
GROUND	A1	2-9	2-7	N/A
GROUND	A34	N/A	N/A	2-7
-REC DATA 1	B25	2-11	2-3	2-3
REQ TO SEND/V -1	B13	2-12	2-4 & 2-18	2-4 & 2-18
V +2	A78	3-1	3-11	3-11
-XMTR DATA 2	B52	3-2	3-2	3-2
RING 2	A78	3-3	3-22	3-22
CAR DET/RDR RN 2	A77	3-4	3-8	3-8
DATA TERM RDY 2	A49	3-5	3-20	3-20
CLEAR TO SEND	A75	3-6	3-5	3-5
DATA SET RDY 2	A89	3-7	3-6	3-6
FUSED +5	B34	3-8	3-25	N/A
FUSED +5	B36	N/A	N/A	3-25
GROUND	A1	3-9	3-7	N/A
GROUND	A99	N/A	N/A	3-7
-REC DATA 2	B27	3-11	3-3	3-3
REQ TO SEND/V -2	B15	3-12	3-4 & 3-18	3-4 & 3-18
V +3	A67	4-1	4-11	4-11
-XMTR DATA 3	B54	4-2	4-2	4-2
RING 3	A67	4-3	4-22	4-22
CAR DET/RDR RN 3	A79	4-4	4-8	4-8
DATA TERM RDY 3	A61	4-5	4-20	4-20
CLEAR TO SEND 3	A73	4-6	4-5	4-5
DATA SET RDY 3	A88	4-7	4-6	4-6
FUSED +5	B34	4-8	4-25	N/A
FUSED +5	B36	N/A	N/A	4-25
GROUND	A1	4-9	4-7	N/A
GROUND	A100	N/A	N/A	4-7
-REC DATA 3	B31	4-11	4-3	4-3
REQ TO SEND/V -3	B19	4-12	4-4 & 4-18	4-4 & 4-18

NOTES:

- THE INTERNAL CABLE RUNNING TO THE EIA PANEL APPLIES ONLY TO THE SYNC/ASYNCR CABLE. FOR THE ASYNCR ONLY CABLE DELETE WIRES GOING TO EIA CONNECTOR #5, AND FOR THE SYNC ONLY VERSION DELETE WIRES GOING TO EIA CONNECTORS #1 THRU #4.
- THE NOTE APPLYING TO THE EIA PANEL INTERNAL CABLE ABOVE APPLIES TO THE JUNCTION PANEL CABLE EXCEPT THAT THERE IS NOT ASYNCR ONLY CABLE. IN APPLICATIONS REQUIRING AN ASYNCR ONLY CABLE THE SYNC/ASYNCR CABLE WILL BE USED.

### TAILORING JUMPERING



Ref DGC Dwg No 107-834-06 Rev 06

- NOTES:
1. TO DEFEAT SOFTWARE BAUD RATE SELECTION, INSERT JUMPER W22.
  2. W1 AND W2 SELECT SOURCE OF +12 VOLTS  
W1- +15 VOLTS REGULATED ON BOARD  
W2- +12 VOLTS REGULATED FROM MACHINE (NOVA 4 ONLY).
  3. WHEN TWO BOARDS OF THE SAME DEVICE CODE ARE USED, B6 OF SLOT 1 MUST BE WIRED TO B6 OF SLOT 2 AND A91 OF SLOT 1 MUST BE WIRED TO A91 OF SLOT 2.
  4. IF TWO ULM/5 BOARDS OF THE SAME DEVICE CODE ARE INSTALLED, IT IS NECESSARY TO WIRE WIRE PIN B6 OF BOARD 1 TO PIN B6 OF BOARD 2 AND PIN91 OF BOARD 1 TO PIN A91 OF BOARD 2.
  5. WITH NO CRC OPTION, INSTALL W23 AND REMOVE W24.

DEVICE CODE JUMPER

DEVICE ADDRESS	JUMPER
34/35	W3 IN
44/45	W3 OUT
SAC BOARD NUMBER	
BOARD NO.	JUMPER
ONLY BOARD IN SUBSYSTEM OR 1ST BOARD IN 2 BOARD SUBSYSTEM	W9 OUT
2ND BOARD IN SUBSYSTEM	W9 IN
SYNCHRONOUS INTERNAL CLOCK FREQUENCY	
CLOCK FREQ. (KILOBAUD)	JUMPER
38.4	W15 IN
19.2	W20 IN
9.6	W21 IN
4.8	W16 IN
2.4	W17 IN
1.2	W18 IN
0.6	W19 IN
SYNCHRONOUS INTERNAL/EXTERNAL CLOCK	
FUNCTION	JUMPER
ACCEPTS EXTERNAL CLOCK FROM PIN B48	W10 OUT
SUPPLIES INTERNAL CLOCK TO SYNC XMITTER AND PIN B48	W10 IN

ASYNCHRONOUS CLOCK FREQUENCY

BAUD RATE	JUMPER			
	W11	W12	W13	14
0	IN	IN	IN	IN
50	IN	OUT	IN	IN
75	OUT	OUT	IN	IN
110	OUT	OUT	OUT	OUT
134.5	IN	IN	OUT	IN
150	IN	OUT	OUT	OUT
200	OUT	IN	OUT	IN
300	OUT	IN	OUT	OUT
600	IN	OUT	OUT	IN
1,200	OUT	OUT	IN	OUT
1,800	IN	OUT	IN	OUT
**2,400	IN	IN	OUT	OUT
**2,400	OUT	OUT	OUT	IN
4,800	OUT	IN	IN	OUT
9,600	IN	IN	IN	OUT
19,200	OUT	IN	IN	IN

\*\* EITHER CONFIGURATION WILL GIVE 2,400 BAUD.

SYNC ONLY	ASYNCH ONLY	SYNC/ASYNCH
THE FOLLOWING JUMPERS MUST ALWAYS BE IN:	THE FOLLOWING JUMPERS MUST ALWAYS BE IN:	THE FOLLOWING JUMPERS MUST ALWAYS BE IN:
W25 THRU W28, W30 THRU W37	W25, W27, W28, W30, W31, W38	W25 W27 THRU W37

FORCE CLEAR TO SEND

FUNCTION	JUMPER				
	LINE 8,12	LINE 0,4	LINE 1,5	LINE 2,6	LINE 3,7
FORCE CLEAR TO SEND TO "ON" STATE *	W4 IN	W5 IN	W6 IN	W7 IN	W8 IN
ALLOW MODEM TO CONTROL CLEAR TO SEND	W4 OUT	W5 OUT	W6 OUT	W7 OUT	W8 OUT

\*AUTOMATICALLY FORCED IN 20MA CONFIGURATION

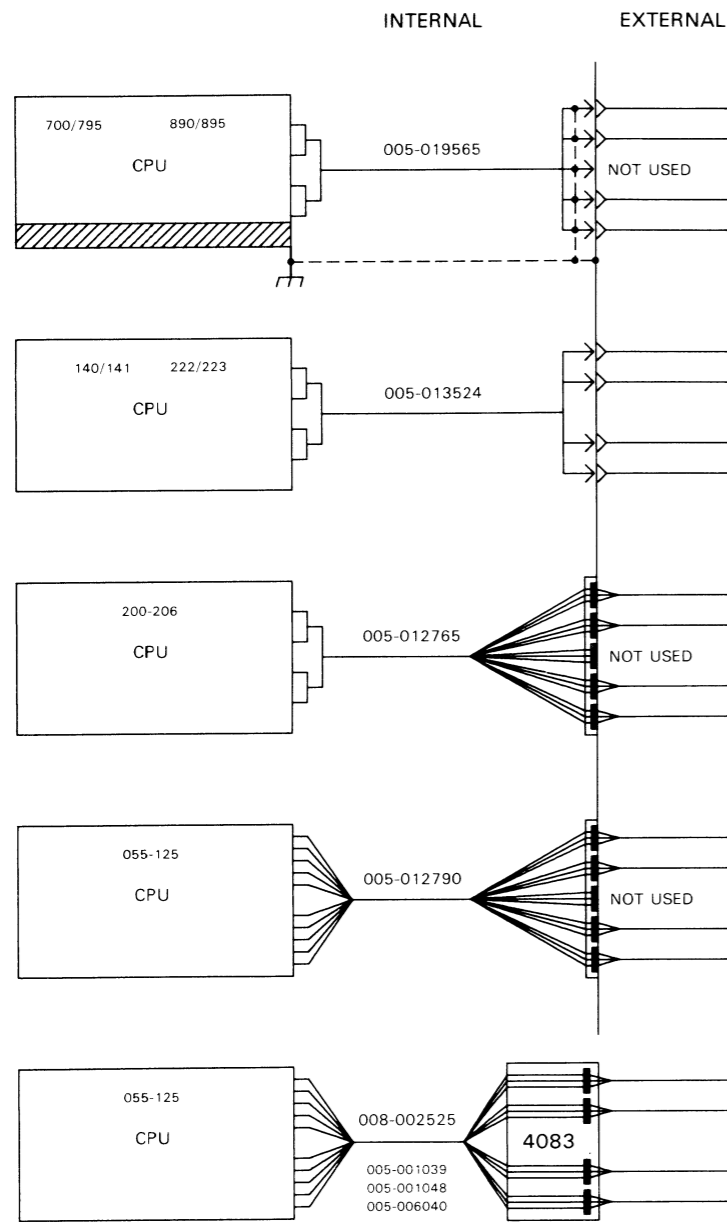
SELECT EIA/20 MA INTERFACE

FUNCTION	PLACE JUMPER DIP IN SOCKET
LINE 0/4 EIA	J1
LINE 0/4 20MA	J5
LINE 1/5 EIA	J2
LINE 1/5 20MA	J6
LINE 2/6 EIA	J3
LINE 2/6 20MA	J7
LINE 3/7 EIA	J4
LINE 3/7 20MA	J8



### INTERNAL CABLING

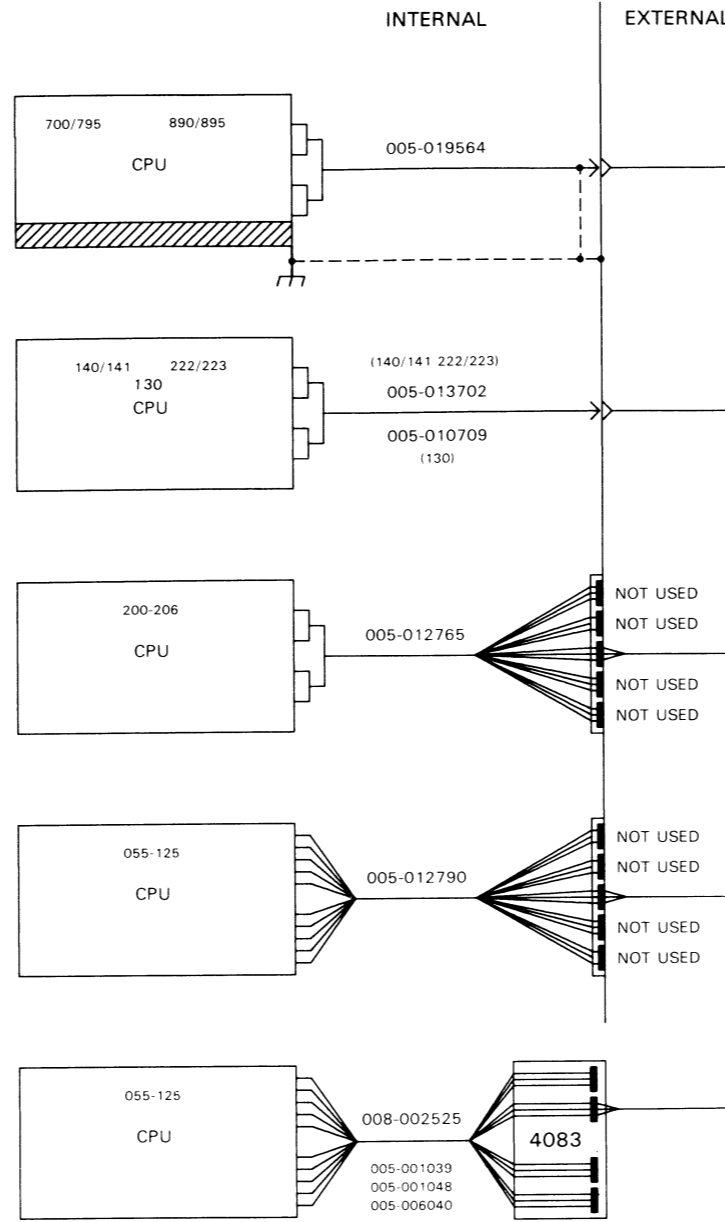
4241, 4241-A (ASYNC ONLY)



ID-00566

NOTE: 4083 IS A CATEGORY 2 PRODUCT.  
STILL SUPPLIED ON DEMAND.

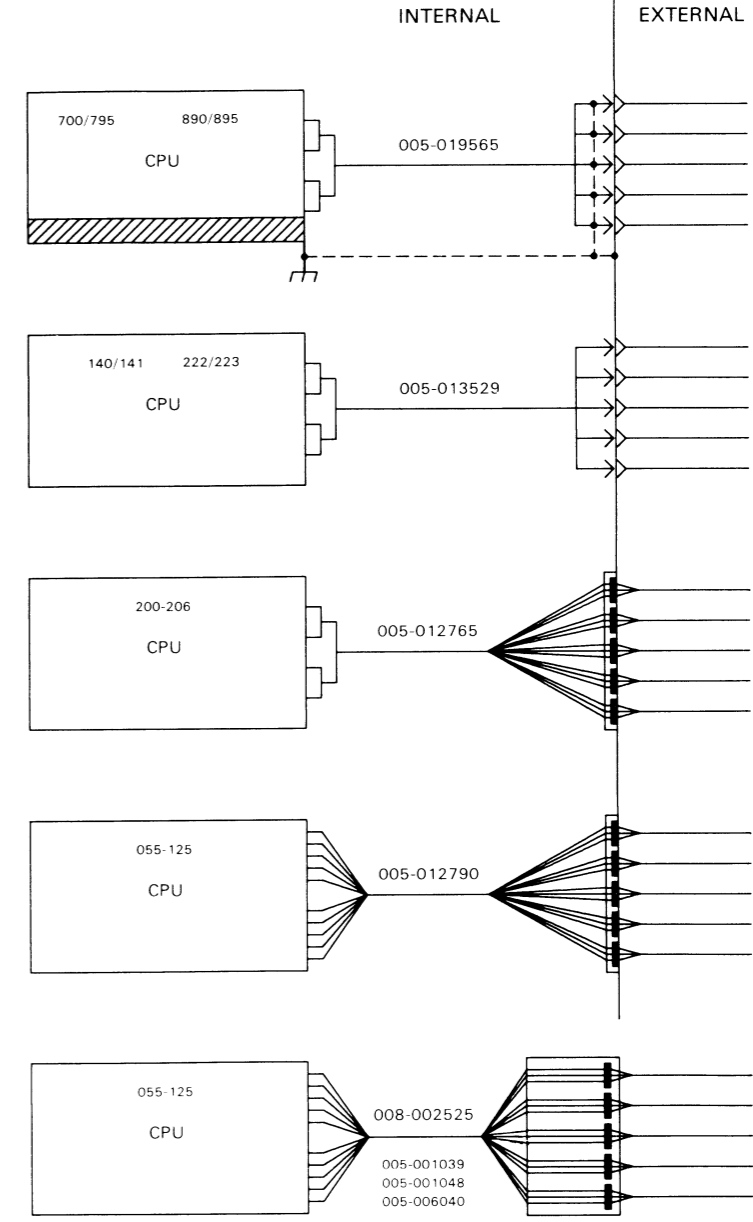
4242 (SYNC ONLY)



ID-00567

NOTE: 4083 IS A CATEGORY 2 PRODUCT.  
STILL SUPPLIED ON DEMAND.

4243 (ASYNC/SYNC)



ID-00568

NOTE: 4083 IS A CATEGORY 2 PRODUCT.  
STILL SUPPLIED ON DEMAND.

4083

INSTALLATION SPECIFICATIONS

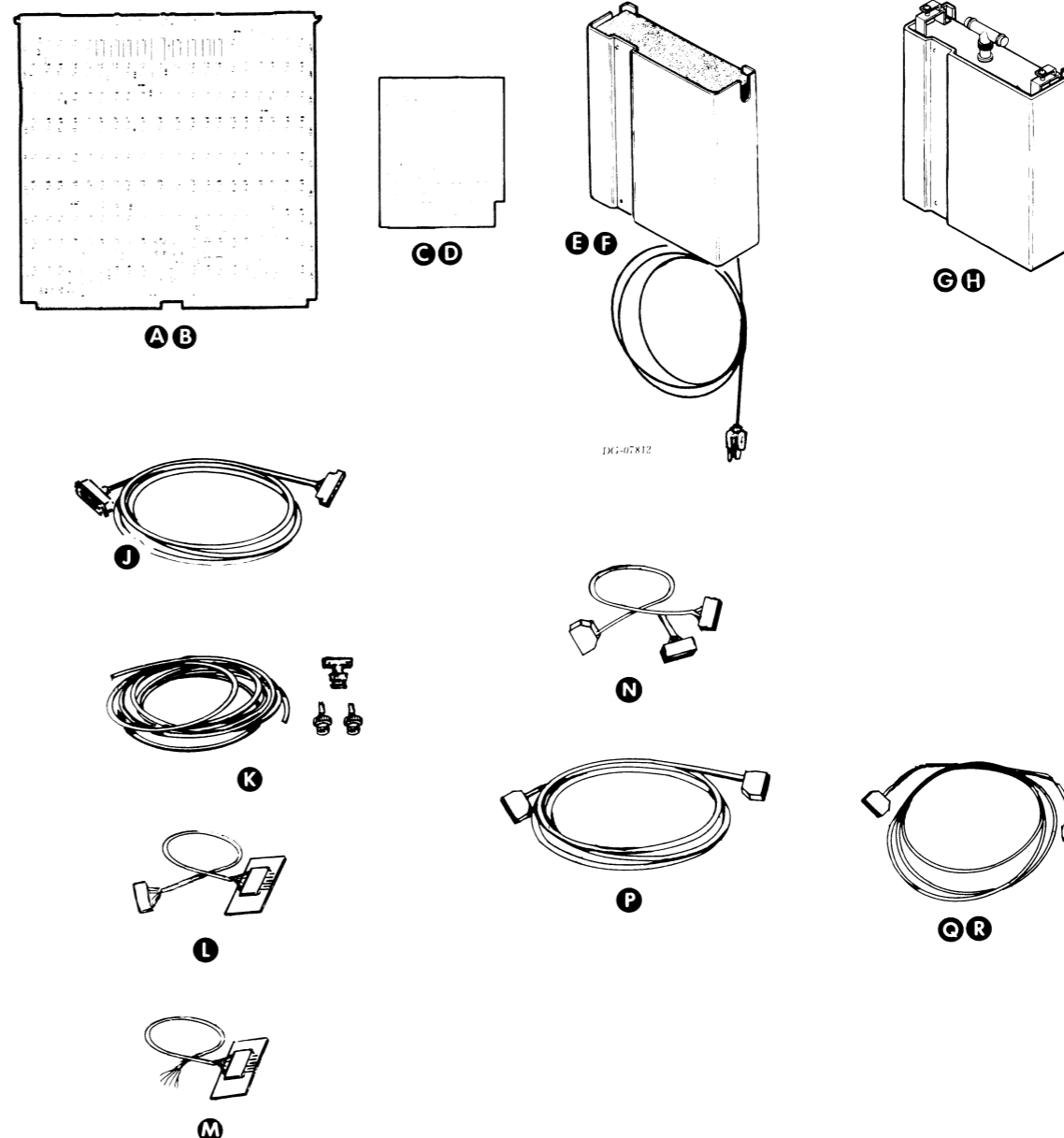
MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	NBS NON-FCC COMPLIANT	CPU CHASSIS	005-014785
B	NBS FCC COMPLIANT	CPU CHASSIS	005-020304
C	READ/WRITE CIRCUITS [NON-FCC COMPLIANT]	NON-FCC COMPLIANT WALL-BOX	005-017435
D	READ/WRITE CIRCUITS [FCC COMPLIANT]	FCC COMPLIANT WALL-BOX	005-020281
E	WALL-BOX [100/120V] [NON-FCC COMPLIANT]	FREE STANDING (WALL MOUNTABLE)	005-014746
F	WALL-BOX [220/240V] [NON-FCC COMPLIANT]	FREE STANDING (WALL MOUNTABLE)	005-016829
G	WALL-BOX [100/120V] [FCC COMPLIANT]	FREE STANDING (WALL MOUNTABLE)	005-020320
H	WALL-BOX [220/240V] [FCC COMPLIANT]	FREE STANDING (WALL MOUNTABLE)	005-020321

CABLES

Item	Cable	Connects	Max Lgth FT/M	Notes
J	TRANSCEIVER	WALL-BOX + NBS CNTRL	50 / 15.2	SEE 010-385 FOR COMPLETE DESCRIPTIONS OF ALL NBS CABLES
K	NETWORK BUS	WALL-BOX + WALL-BOX	1000 / 305	
L	INTERNAL CABLE	WALL-BOX CABLE + ECLIPSE BACKPANEL	2.6 / 1.8	
M	INTERNAL CABLE	WALL-BOX CABLE + S130, S230, C150, C330	2.6 / 1.8	
N	INTERNAL CABLE (FCC COMPLIANT)	INTERNAL CABLE + EXTERNAL CABLE "P"	2.9 / 1.9	
P	EXTERNAL CABLE (FCC COMPLIANT)	FCC COMPLIANT WALL-BOX + ECLIPSE/MV SYS	50 / 15.2	
Q	CORDSET [100/120V]	FCC COMPLIANT WALL-BOX + AC OUTLET	7.5 / 2.3	
R	CORDSET [220/240V]	FCC COMPLIANT WALL-BOX + AC OUTLET	8 / 2.4	

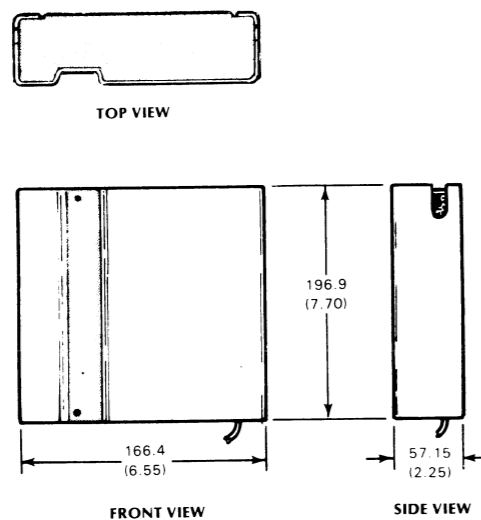
Item	Component	Slots Req'd	Max Allowable DCH Latency	Type DCH Service Desired	- 5V Current
A	NBS	1	∞	N.A.	5.2A



**Warning:** This computer was designed for use with shielded cables in order to meet FCC specifications. Although use with cables which are not shielded is permitted, such use may cause interference with radio or television transmissions, and as before, the user is responsible to correct such interference.

### INSTALLATION SPECIFICATIONS

#### WALL-BOX SPECIFICATIONS NON-COMPLIANT



DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE

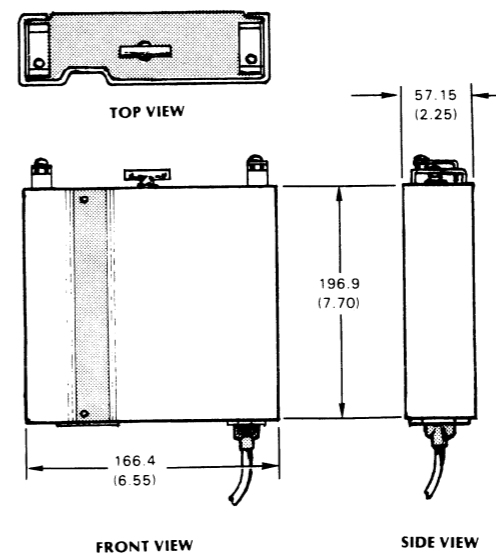
DIMENSIONS:	Width	Depth	Height
Millimeters	166.4	57.15	196.9
Inches	6.55	2.25	7.75

WEIGHT:	
Kilograms	1.3
Pounds	2lbs, 13.9oz.

OPERATING ENVRIRONMENT (Wall-box only):	
Temperature	50-100°F (10-38°C)
Relative Humidity	20-80% non-condensing

POWER REQUIREMENTS:	
(Domestic)	
Voltage	120V <sup>+10%</sup> <sub>-15%</sub>
Hz	60 ± 1%
Amp per Phase	0.2A SLO-BLO
(Export)	
Voltage	240V <sup>+10%</sup> <sub>-15%</sub>
Hz	50 ± 1%
Amp per Phase	0.1A SLO-BLO
CABLES:	
Primary Power	2.4m (8 ft.) -220/240V 2.3m (7.5ft) -100/120V

#### FCC COMPLIANT WALL-BOX



DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE

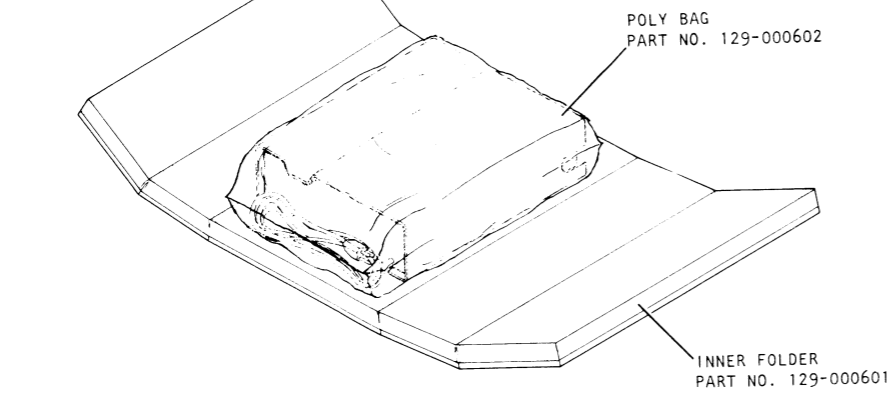
DIMENSIONS:	Width	Depth	Height
Millimeters	166.4	57.15	196.9
Inches	6.55	2.25	7.75

WEIGHT:	
Kilograms	1.3
Pounds	2lbs, 13.9oz.

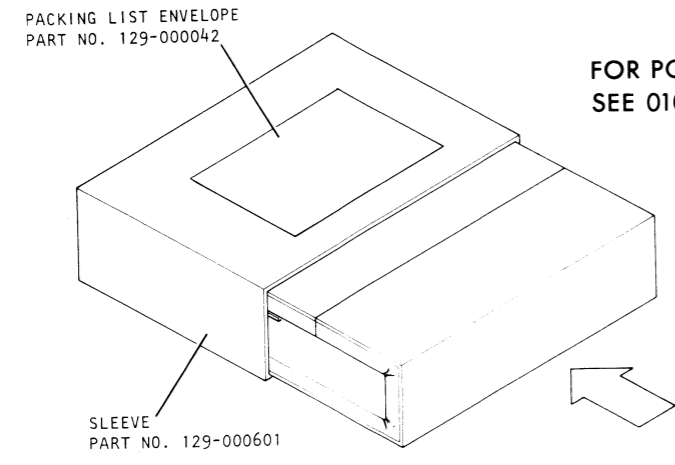
OPERATING ENVRIRONMENT (Wall-box only):	
Temperature	50-100°F (10-38°C)
Relative Humidity	20-80% non-condensing

POWER REQUIREMENTS:	
(Domestic)	
Voltage	120V <sup>+10%</sup> <sub>-15%</sub>
Hz	60 ± 1%
Amp per Phase	0.2A SLO-BLO
(Export)	
Voltage	240V <sup>+10%</sup> <sub>-15%</sub>
Hz	50 ± 1%
Amp per Phase	0.1A SLO-BLO
CABLES:	
Primary Power	2.4m (8 ft.) -220/240V 2.3m (7.5ft) -100/120V

**SHIPPING**

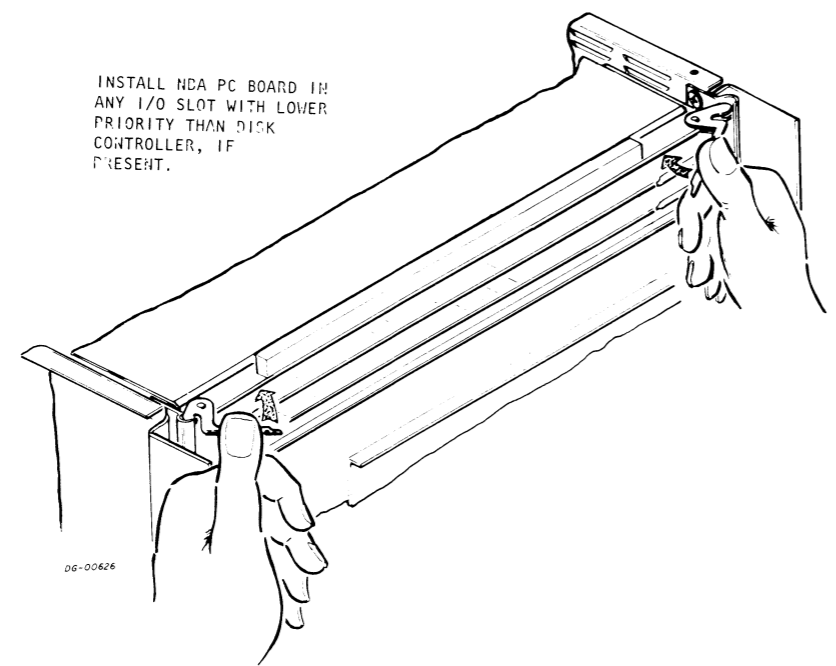


FOR PCB PACKING PROCEDURE,  
SEE 010-000262

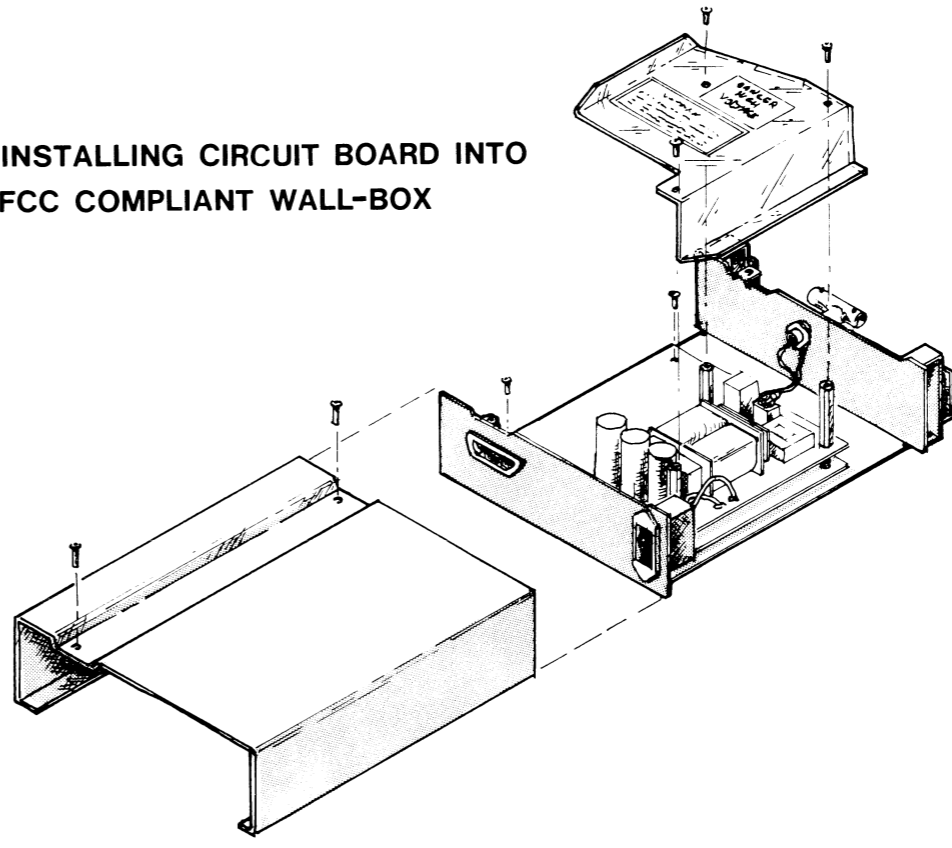


**INSERTING NBS CONTROLLER BOARD**

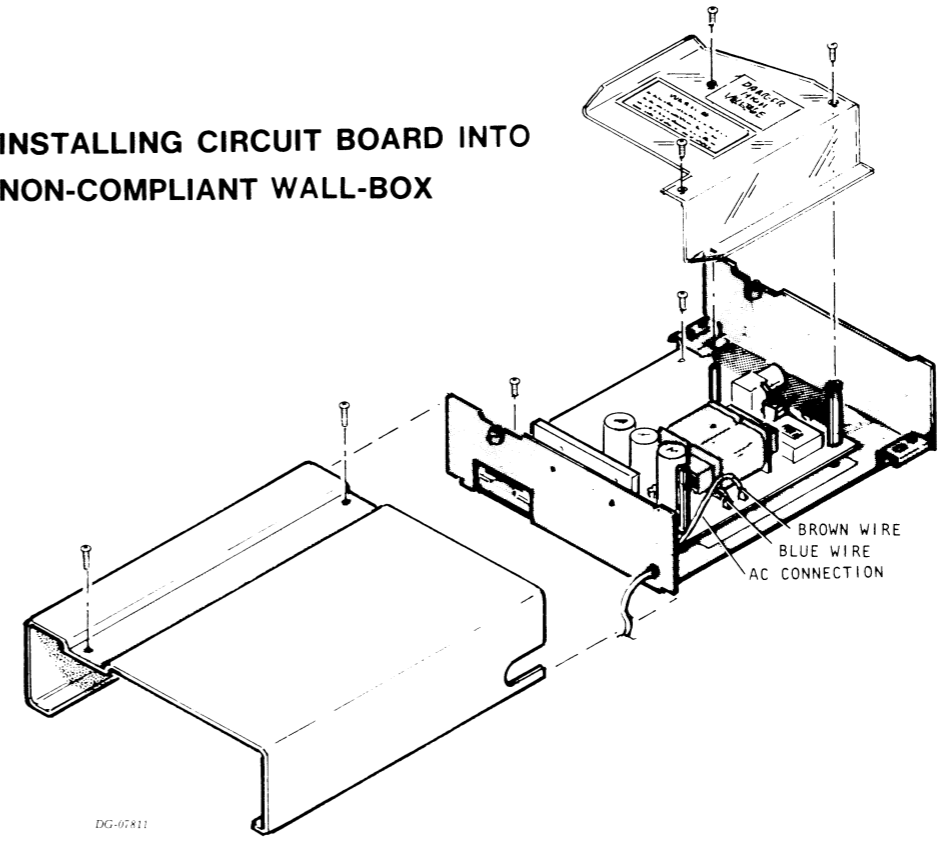
INSTALL NCA PC BOARD IN  
ANY I/O SLOT WITH LOWER  
PRIORITY THAN DISK  
CONTROLLER, IF  
PRESENT.



**INSTALLING CIRCUIT BOARD INTO  
FCC COMPLIANT WALL-BOX**



**INSTALLING CIRCUIT BOARD INTO  
NON-COMPLIANT WALL-BOX**

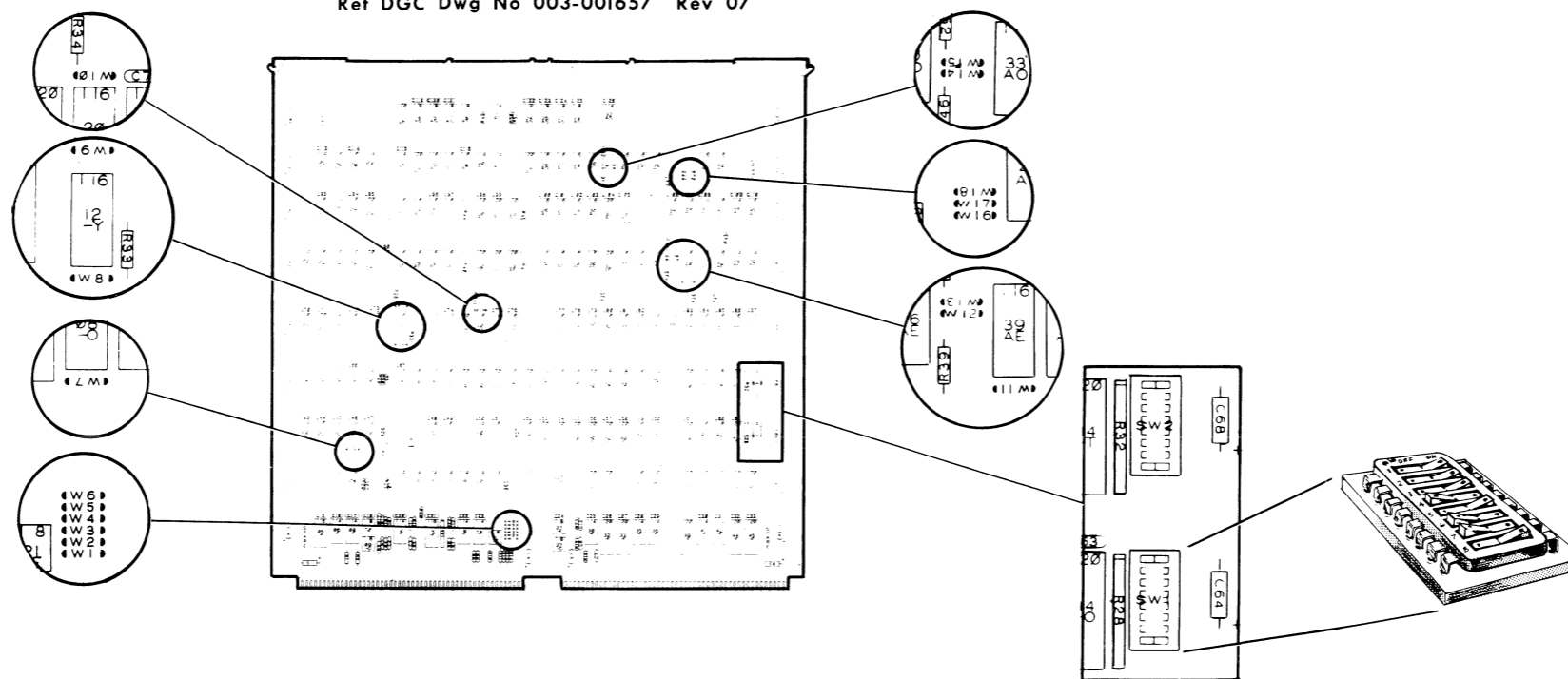


# TAILORING

## JUMPERING

### NON-COMPLIANT NETWORK BUS SYSTEM CONTROLLER

Ref DGC Dwg No 003-001657 Rev 07



JUMPER	FUNCTION
W6	DEVICE SELECT CODE BIT 0 (MSB)
W5	DS1
W4	DS2
W3	DS3
W2	DS4
W1	DS5 (LSB)

IN =1, OUT =0

EXAMPLE:

DEVICE CODE 30<sub>8</sub>

W6	W5	W4	W3	W2	W1
OUT	IN	IN	OUT	OUT	OUT

JUMPER	POSITION
W7	IN*
W8	IN*
W9	OUT
W10	IN
W11	IN*
W12	IN*
W13	IN*
W14	IN*
W15	IN*
W16	OUT
W17	OUT
W18	OUT

\* OUT FOR MANUFACTURING TEST PURPOSES ONLY

SWITCH	FUNCTION
SW2-1	NBA ADDRESS BIT 0 (MSB) (ON=0, OFF=1)
2	" 1 "
3	" 2 "
4	" 3 "
5	" 4 "
6	" 5 "
7	" 6 "
8	" 7 "
SW1-1	" 8 "
2	" 9 "
3	" 10 "
4	" 11 "
5	" 12 "
6	" 13 "
7	" 14 "
8	" 15 (LSB) "

NOTE: EACH NBS CONTROLLER IN A SYSTEM HAS A SEPARATE ADDRESS.

EXAMPLE: NBA ADDRESS = 26<sub>8</sub>

SW2: 1 2 3 4 5 6 7 8  
ON ON ON ON ON ON ON ON

SW1: 1 2 3 4 5 6 7 8  
ON ON ON OFF ON OFF OFF ON

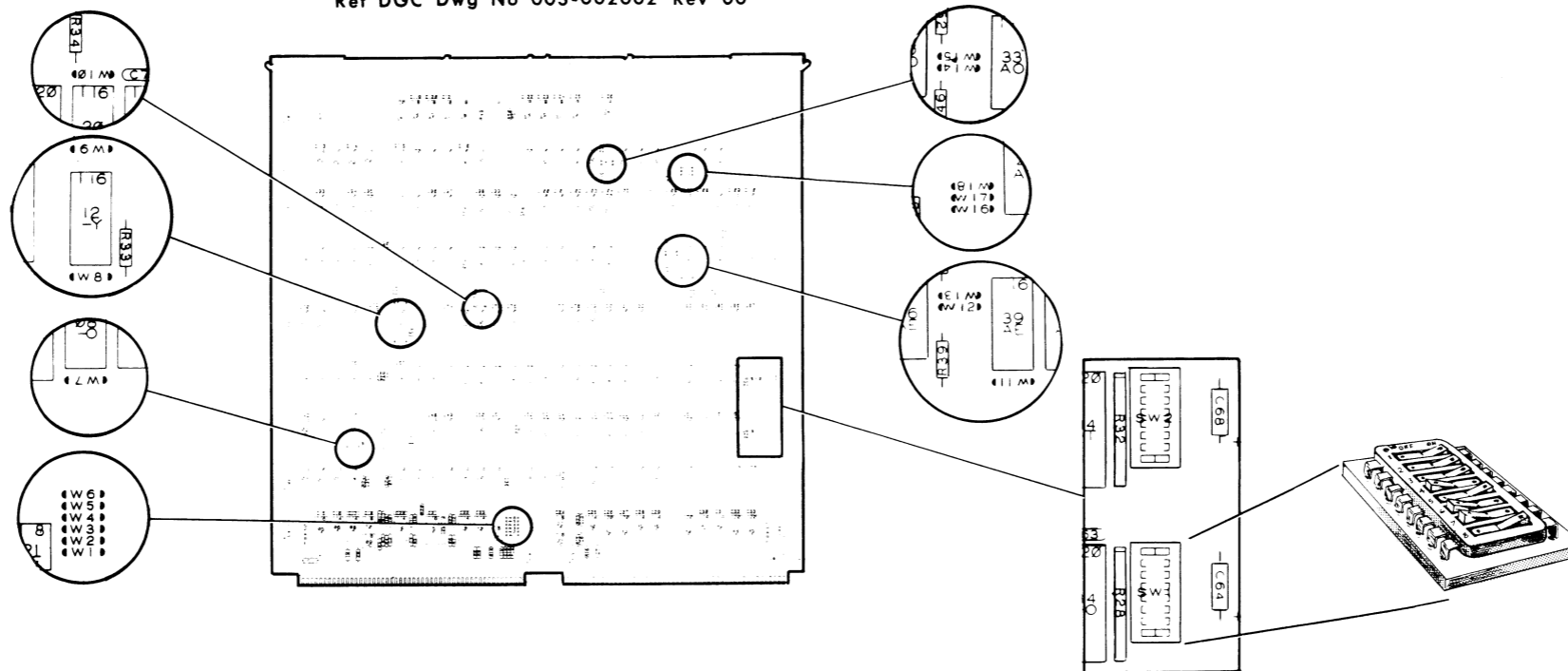
BIT 0 - 5 = NET ADDRESS  
BIT 6 - 15 = NODE ADDRESS

**TAILORING**

**JUMPERING**

**FCC COMPLIANT  
NETWORK BUS CONTROLLER SYSTEM**

Ref DGC Dwg No 003-002002 Rev 00



JUMPER	FUNCTION
W6	DEVICE SELECT CODE BIT 0 (MSB)
W5	DS1
W4	DS2
W3	DS3
W2	DS4
W1	DS5 (LSB)

IN =1, OUT =0

EXAMPLE:

DEVICE CODE 30<sub>8</sub>

W6	W5	W4	W3	W2	W1
OUT	IN	IN	OUT	OUT	OUT

JUMPER	POSITION
W7	IN*
W8	IN*
W9	OUT
W10	IN
W11	IN*
W12	IN*
W13	IN*
W14	IN*
W15	IN*
W16	OUT
W17	OUT
W18	OUT

\* OUT FOR MANUFACTURING TEST PURPOSES ONLY

SWITCH	FUNCTION
SW2-1	NBA ADDRESS BIT 0 (MSB) (ON=0, OFF=1)
2	" 1 "
3	" 2 "
4	" 3 "
5	" 4 "
6	" 5 "
7	" 6 "
8	" 7 "
SW1-1	" 8 "
2	" 9 "
3	" 10 "
4	" 11 "
5	" 12 "
6	" 13 "
7	" 14 "
8	" 15 (LSB) "

NOTE: EACH NBS CONTROLLER IN A SYSTEM HAS A SEPARATE ADDRESS.

EXAMPLE: NBA ADDRESS = 26<sub>8</sub>

SW2:	1	2	3	4	5	6	7	8
	ON	ON	ON	ON	ON	ON	ON	ON

SW1:	1	2	3	4	5	6	7	8
	ON	ON	ON	OFF	ON	OFF	OFF	ON

BIT 0 - 5 = NET ADDRESS  
BIT 6 - 15 = NODE ADDRESS

## TAILORING (CONT)

### JUMPERS AND SWITCHES

W1	CIRCUIT GROUND
IN	COAXIAL SHIELD TIED TO CHASSIS GROUND
OUT	COAXIAL SHIELD NOT TIED TO CHASSIS GROUND

CIRCUIT GROUND SHOULD BE TIED TO CHASSIS GROUND AT THE LOWEST NUMBERED END NODE'S WALL BOX.

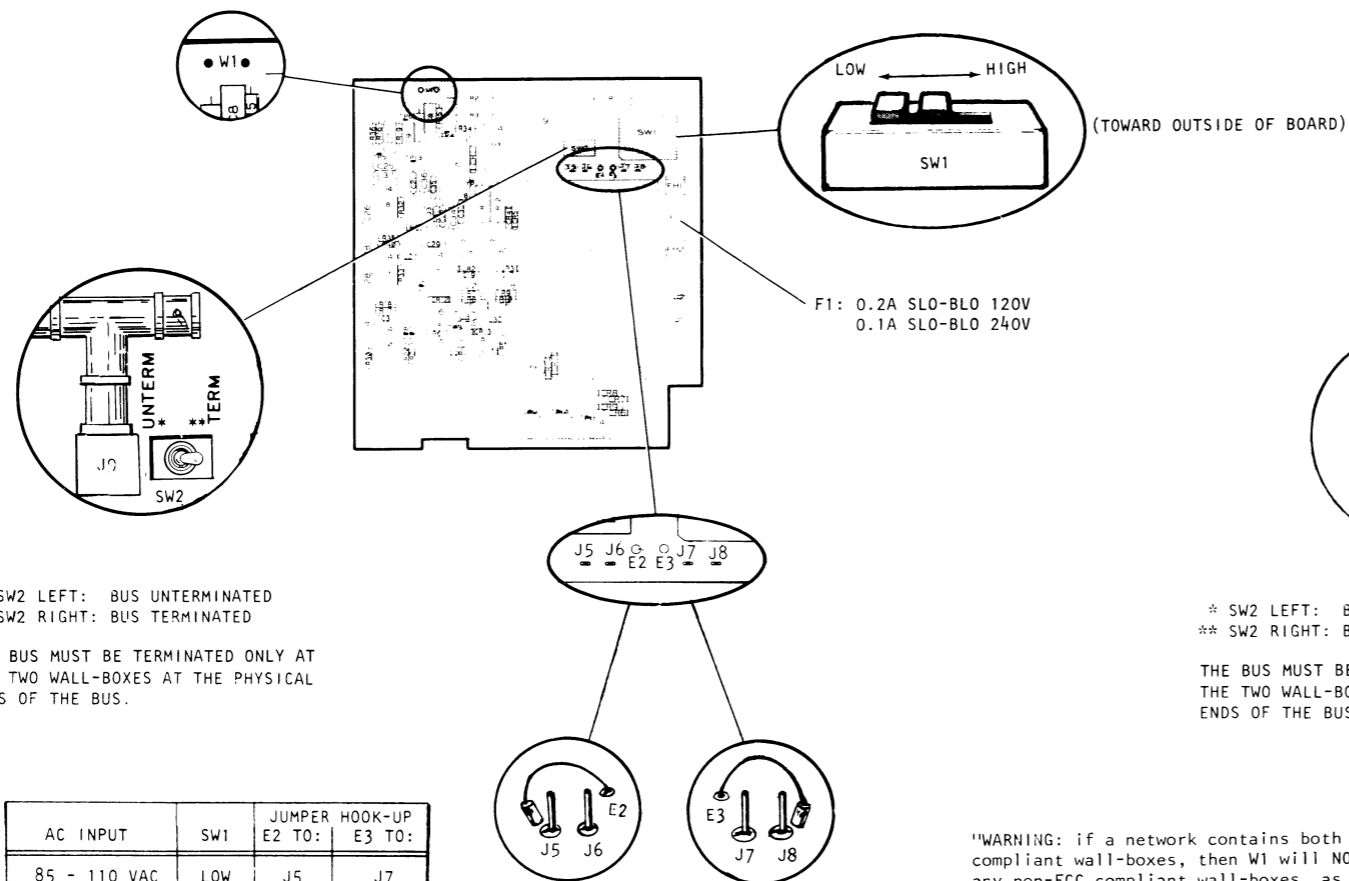
WARNING  
TO AVOID SHOCK HAZARD WHEN SERVICING, DISCONNECT POWER, WAIT 5 MINUTES. REASSEMBLE UNIT BEFORE APPLYING POWER.

#### WALL-BOX NON-COMPLIANT

Ref DGC Dwg No 003-001763 Rev 01

#### WALL-BOX FCC COMPLIANT

Ref DGC Dwg No 003-001976 Rev 00



\* SW2 LEFT: BUS UNTERMINATED  
\*\* SW2 RIGHT: BUS TERMINATED

THE BUS MUST BE TERMINATED ONLY AT THE TWO WALL-BOXES AT THE PHYSICAL ENDS OF THE BUS.

AC INPUT	SW1	JUMPER HOOK-UP E2 TO:	HOOK-UP E3 TO:
85 - 110 VAC	LOW	J5	J7
102 - 132 VAC	LOW	J6	J8
170 - 220 VAC	HIGH	J5	J7
187 - 242 VAC	HIGH	J6	J7
204 - 262 VAC	HIGH	J6	J8

(TOWARD OUTSIDE OF BOARD) = HIGH  
LEFT = LOW

\* SW2 LEFT: BUS UNTERMINATED  
\*\* SW2 RIGHT: BUS TERMINATED

THE BUS MUST BE TERMINATED ONLY AT THE TWO WALL-BOXES AT THE PHYSICAL ENDS OF THE BUS.

AC INPUT	R39, R42	R40	R41	R43, R44
85 - 110 VAC	OUT	OUT	OUT	IN
102 - 132 VAC	IN	OUT	OUT	OUT
170 - 220 VAC	OUT	IN	OUT	OUT
204 - 262 VAC	OUT	OUT	IN	OUT

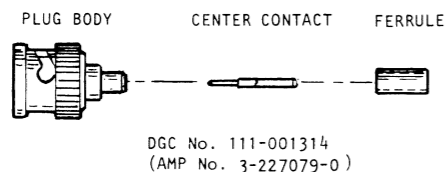
"WARNING: if a network contains both non-FCC and FCC compliant wall-boxes, then W1 will NOT be installed in any non-FCC compliant wall-boxes, as the coaxial shield is tied to chassis ground at every FCC compliant wall-box."

### INSTALLING CONNECTORS

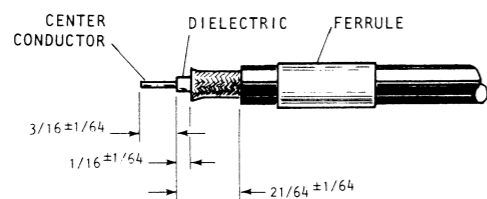
**NOTE: FOR FULL CONNECTOR INSTALLATION INSTRUCTIONS, SEE NETWORK BUS INSTALLATION HANDBOOK, 045-000221**

(THIS PROCEDURE FOR AMP® TOOLS AND CONNECTORS ONLY)

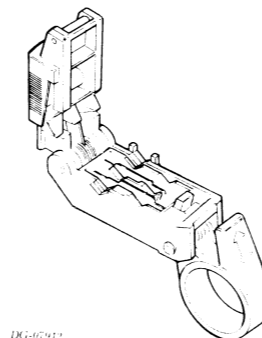
#### CONNECTOR ASSEMBLY



#### CABLE PREPARATION



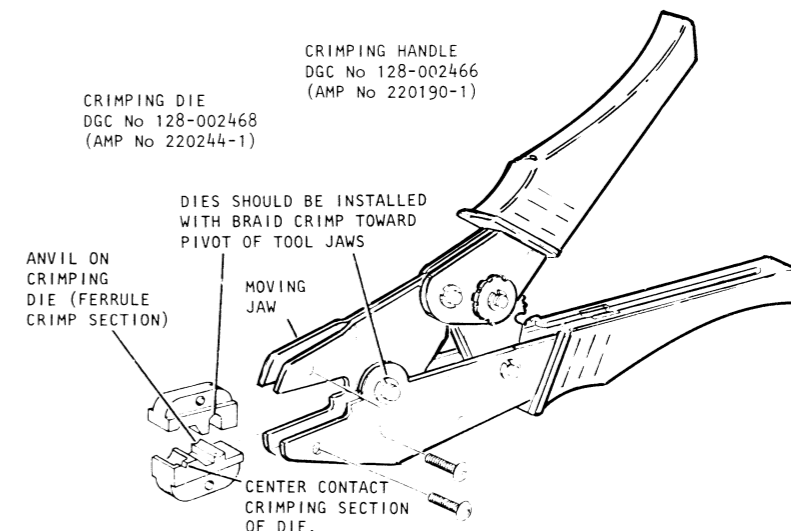
COAX CABLE STRIPPER  
DGC No. 128-002467  
(AMP No. 603995-2)



#### TOOLS

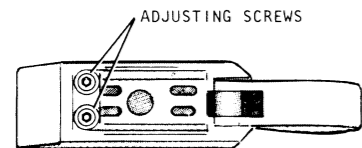
CRIMPING HANDLE  
DGC No 128-002466  
(AMP No 220190-1)

CRIMPING DIE  
DGC No 128-002468  
(AMP No 220244-1)

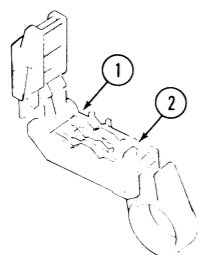


1 STRIP CABLE AS SHOWN, USING DGC No. 128-002467 (AMP No. 603995-2)

#### ADJUSTING THE CABLE STRIPPER

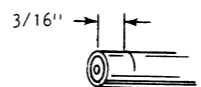


IF STRIPPING TOOL IS NOT STRIPPING CABLE CLEANLY, THE BLADES CAN BE ADJUSTED WITH A SMALL HEX KEY. IF BLADE IS NOT CUTTING THROUGH. TURN KEY CLOCKWISE AND TEST. IF BLADE IS CUTTING TOO DEEPLY, TURN KEY COUNTERCLOCKWISE AND TEST.

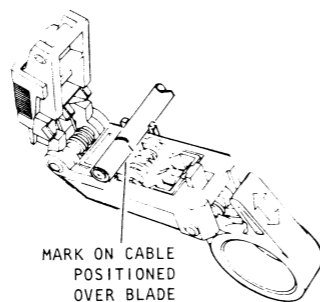


WHEN BLADES BECOME DULL, ROTATE BLADE CASSETTE. ALWAYS ROTATE SO THAT THE NEXT HIGHER NUMERAL APPEARS TOWARD THE HINGE. FOR INSTANCE, IF THE NUMERAL "1" IS TOWARD THE HINGE, ROTATE THE CASSETTE SO NUMERAL "2" IS TOWARD THE HINGE.

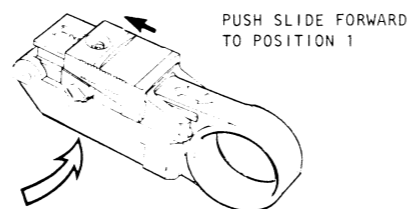
TEST AND ADJUST



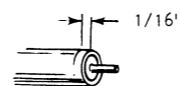
1. MARK JACKET OF CABLE  $3/16''$  BACK.



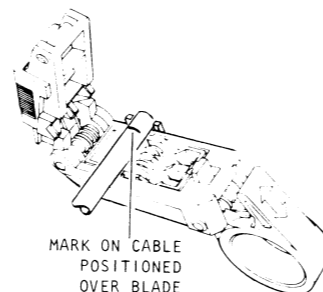
2. HOLD THE TOOL WITH THE RING TOWARD YOU AND BRING THE COAX IN FROM THE RIGHT. LAY THE COAX WITH THE MARK OVER THE RIGHT-HAND BLADE AND CLOSE THE TOOL.



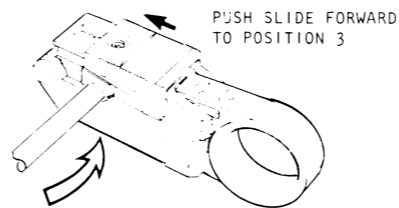
3. PUSH SLIDE TO POSITION 1 AND ROTATE TOOL AROUND COAX 5 OR 6 TIMES. PULL CABLE STRAIGHT OUT OF STRIPPING TOOL.



4. OPEN TOOL AND CLEAR OF BRAID AND INSULATION. MARK JACKET OF CABLE  $1/16''$  BACK FROM FIRST STRIP.



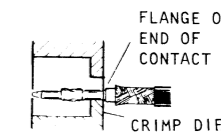
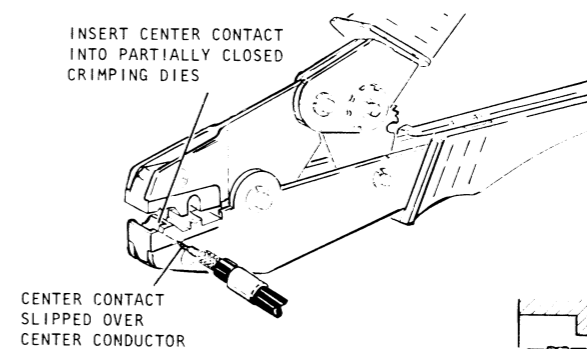
5. BRING THE COAX INTO THE TOOL FROM THE LEFT. LAY THE COAX WITH THE MARK OVER THE RIGHT-HAND BLADE AND CLOSE TOOL.



6. PUSH SLIDE NO FURTHER THAN POSITION 3. ROTATE TOOL AROUND COAX. PULL CABLE STRAIGHT OUT OF STRIPPING TOOL. OPEN TOOL AND CLEAR OF INSULATION.

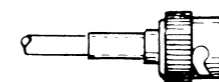
2 CRIMP CENTER CONTACT TO CENTER CONDUCTOR.

INSERT CENTER CONTACT INTO PARTIALLY CLOSED CRIMPING DIES

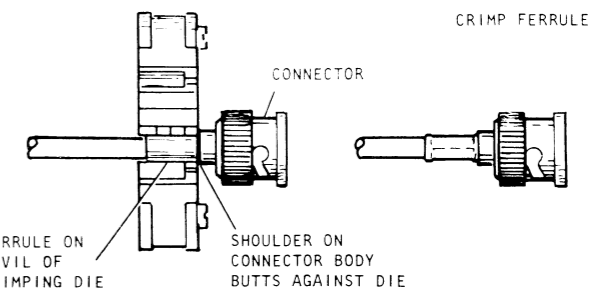


3 CRIMP CONNECTOR BODY TO CABLE. SUPPORT SLEEVE ON CONNECTOR MUST GO COMPLETELY UNDER BRAID AND FOIL.

SLIDE FERRULE FORWARD OVER BRAID AND SUPPORT SLEEVE

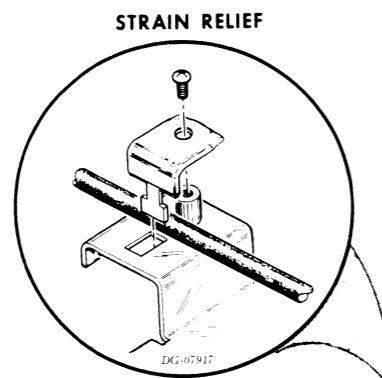


DG-07914

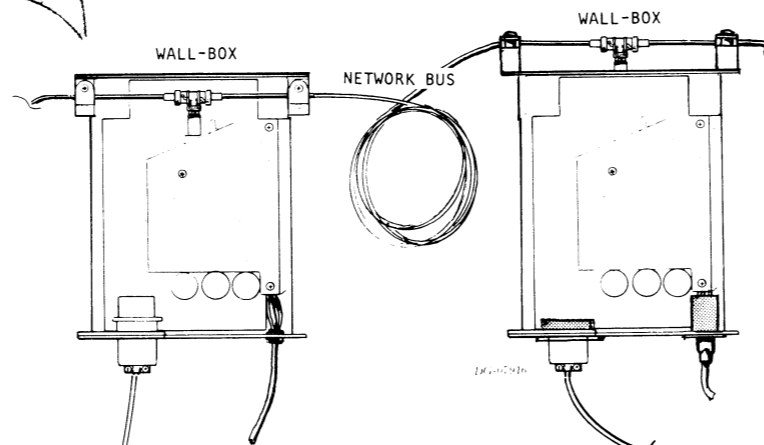




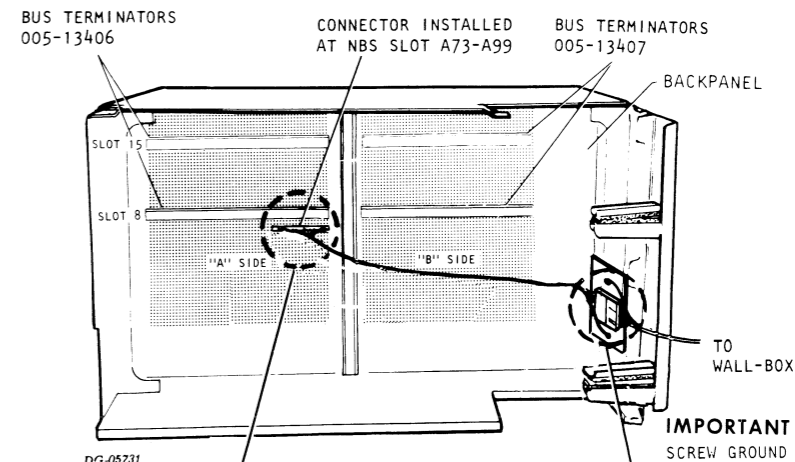
# EXTERNAL CABLING



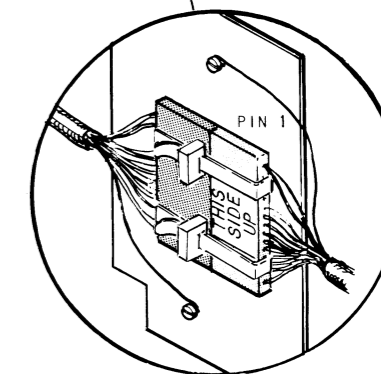
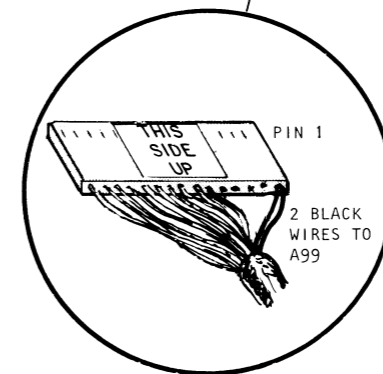
**NOTE:**  
NETWORK BUS CABLES MEET REQUIREMENTS OF ARTICLE 725-2(b) NATIONAL CODE, FOR USE IN DUCTS AND PLENUMS.



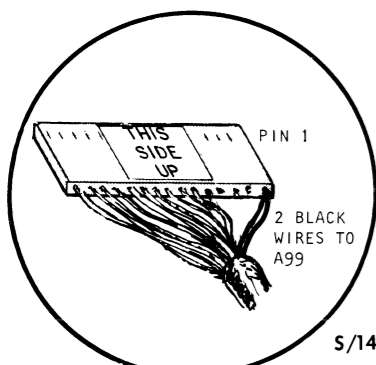
## S/120, S/140, MV/6000 EXPANSION CHASSIS



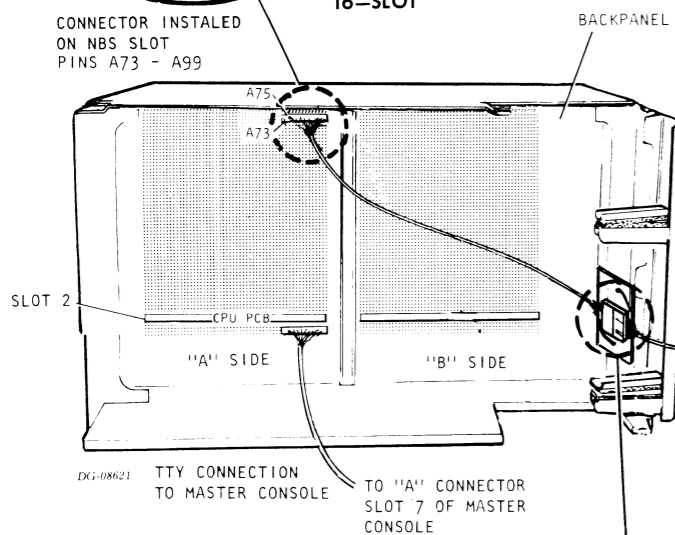
**IMPORTANT**  
SCREW GROUND WIRES TO OPPOSITE SIDES OF PADDLEBOARD VERIFY CONNECTIONS ARE GROUNDED TO CHASSIS (WITH A METER)



**NOTE:**  
6-SLOT SINGLE BUS CONFIGURATIONS DO NOT INCLUDE UPPER TERMINATORS.



CONNECTOR INSTALLED ON NBS SLOT PINS A73 - A99



DO NOT STRING NETWORK BUS NEAR POWER LINES, EQUIPMENT, OR ELECTRIC LIGHTS, INCANDESCENT OR FLOURESCENT. THE FOLLOWING TABLE GIVES MINIMUM SEPARATION BETWEEN NETWORK BUS AND POWER LINES, EQUIPMENT, OR LIGHTING OF GIVEN POWER.

POWER	SEPARATION
LESS THAN 2 kW	5 IN. (.13 METERS)
2 TO 5 kW	12 IN. (.3 METERS)
MORE THAN 5 kW	24 IN. (.6 METERS)

**NOTE:** IF EITHER POWER *or* COAXIAL CABLE ARE ENCLOSED IN GROUNDED METALLIC CONDUITS, SEPARATION DISTANCES MAY BE HALVED. IF BOTH POWER *and* COAXIAL CABLE ARE ENCLOSED IN SEPARATE GROUNDED METALLIC CONDUITS, SEPARATION DISTANCES MAY BE HALVED AGAIN.

TOTAL INSTALLED CABLE LENGTH CANNOT EXCEED ONE MILE.

10 FEET (3.05M) MIN  
5,280 FEET (1,610M) MAX  
INTERCONNECTING LENGTH BETWEEN WALL BOXES

FOR FULL CABLE INSTALLATION INSTRUCTIONS, SEE NETWORK BUS INSTALLATION HANDBOOK, 045-000221

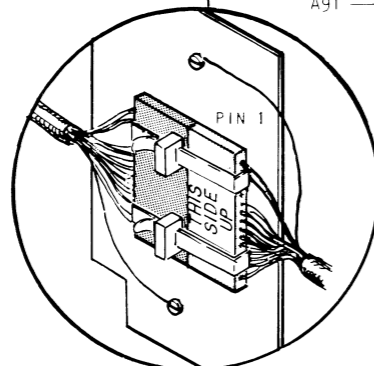
NBS / WALL-BOX CABLE

A77	RDTH-	P1-5
A79	RDTH+	P1-8
A81	RD-	P1-7
A83	RD+	P1-6
A85	POS CH+	P1-1
A87	CONN+	P1-12
A89	CONN-	P1-11
A91	NEG CH+	P1-3

**IMPORTANT**  
SCREW GROUND WIRES TO OPPOSITE SIDES OF PADDLEBOARD VERIFY CONNECTIONS ARE GROUNDED TO CHASSIS (WITH A METER)

**Note**  
"SEE 010-385 FOR NBS CABLE DESCRIPTIONS AND CONFIGURATIONS"

**NOTE:**  
TY-WRAP (123-000054) IS INCLUDED IN CABLE ADAPTER MOUNTING KIT FOR POSITIVE CONNECTOR CONTACT WITH INTERFACE CABLE.



EXTERNAL CABLING (CONT)

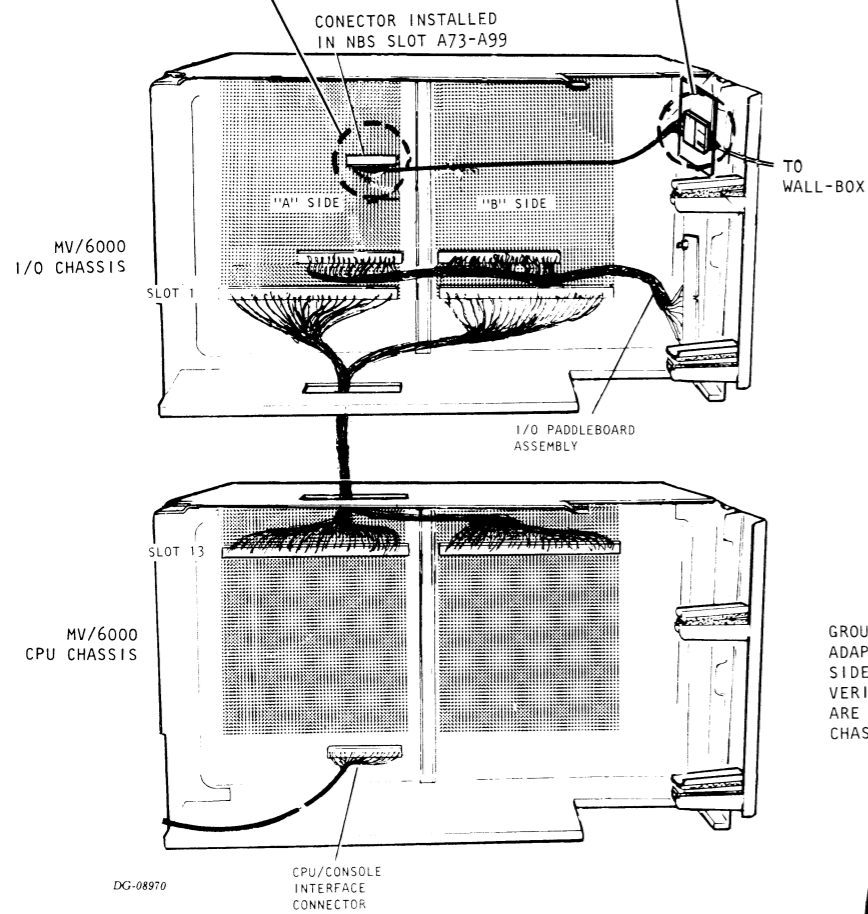
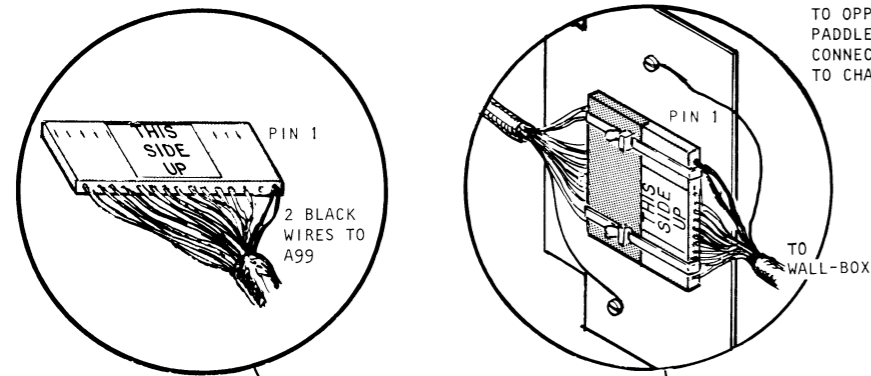
MV/6000

ECLIPSE, M/600, S/250, C/350, MV/8000

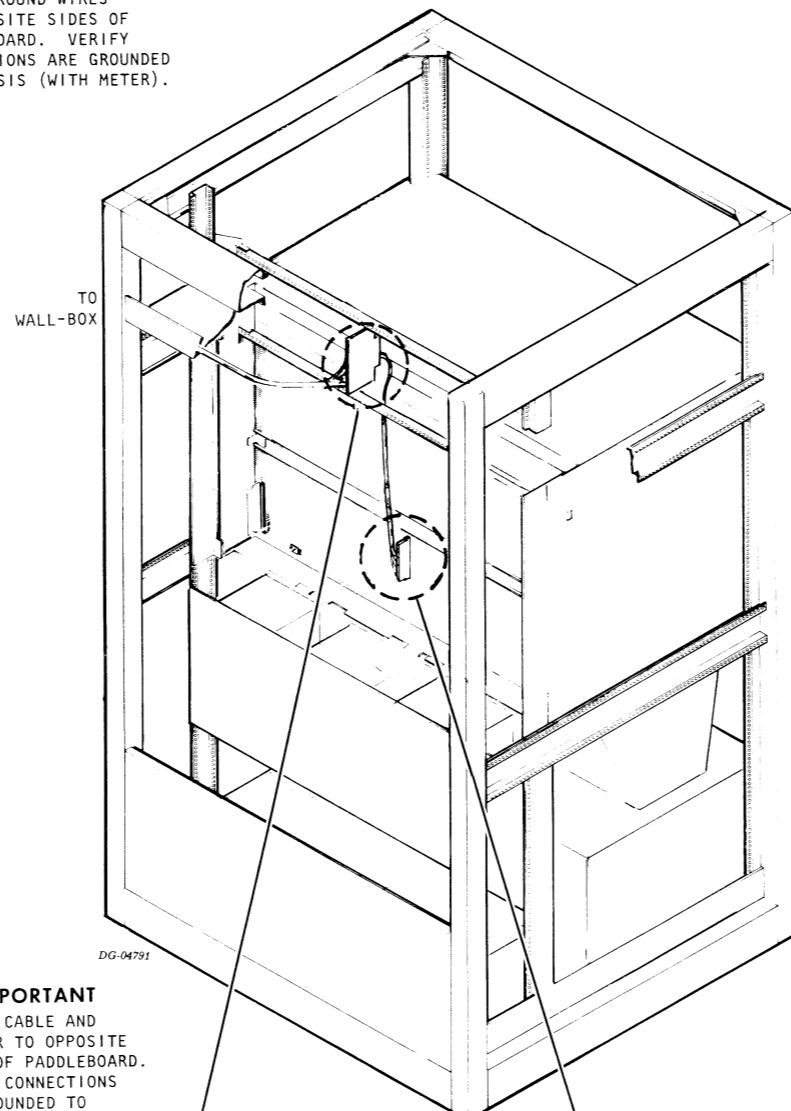
S/130, S/230, C/330, C/150 and EXPANSION CHASSIS

IMPORTANT

SCREW GROUND WIRES TO OPPOSITE SIDES OF PADDLEBOARD. VERIFY CONNECTIONS ARE GROUNDED TO CHASSIS (WITH METER).

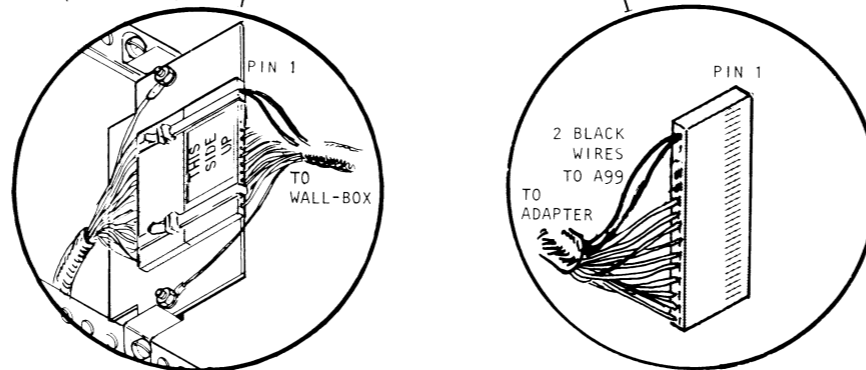


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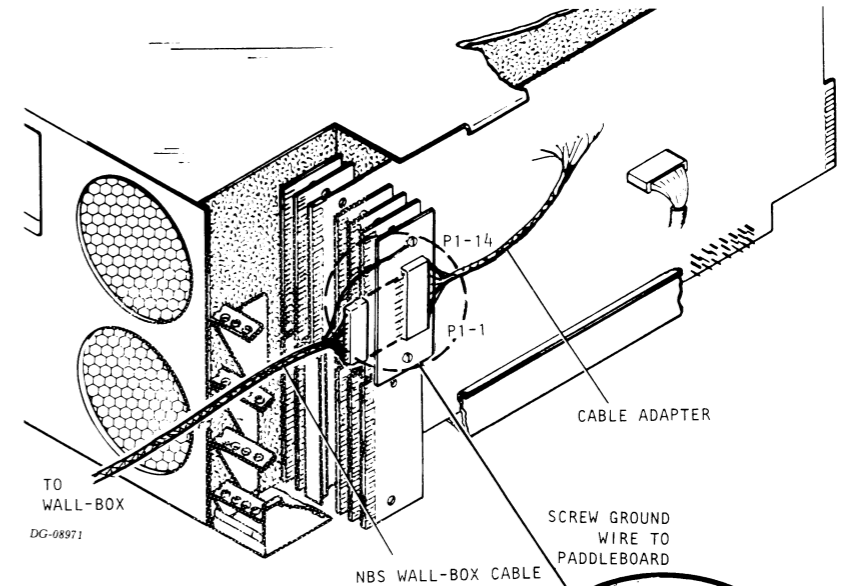


IMPORTANT

GROUND CABLE AND ADAPTER TO OPPOSITE SIDES OF PADDLEBOARD. VERIFY CONNECTIONS ARE GROUNDED TO CHASSIS (WITH METER).



(SHOWN FROM OPPOSITE SIDE)



C150 CABLE ADAPTER  
005-018270  
WIRE WRAP LIST

FROM	TO
P1-1	POS CH- / NEG CH- xA99
P1-5	NEG CH+ xA91
P1-6	CONN- xA89
P1-7	CONN+ xA87
P1-8	POS CH+ xA85
P1-9	RD+ xA83
P1-10	RD- xA81
P1-11	RDTH+ xA79
P1-12	RDTH- xA77

NBS IS IN SLOT X

S/130, C/330, S/230, S/250, C/350, C/150, M/600  
DATA CHANNEL MAP SELECTION

DATA CHANNEL MAP SELECTION	WIRE JUMPERS ON COMPUTER BACKPANEL	
TYPE OF COMPUTER	NBA SLOT PINS XX = NBA SLOT	DESTINATION
S/250, C/350	XXB74	SLOT 12, A12
S/150, C/150	XXB74	SLOT 3, A12
M/600	XXB74	SLOT 18, A12
S/230, C/330	XXB74	SLOT 5, A12

NOTE: CPU'S NOT LISTED REQUIRE NO JUMPERS

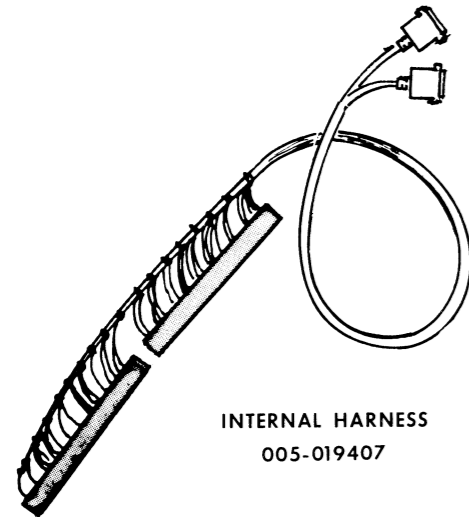
### INSTALLATION SPECIFICATIONS

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

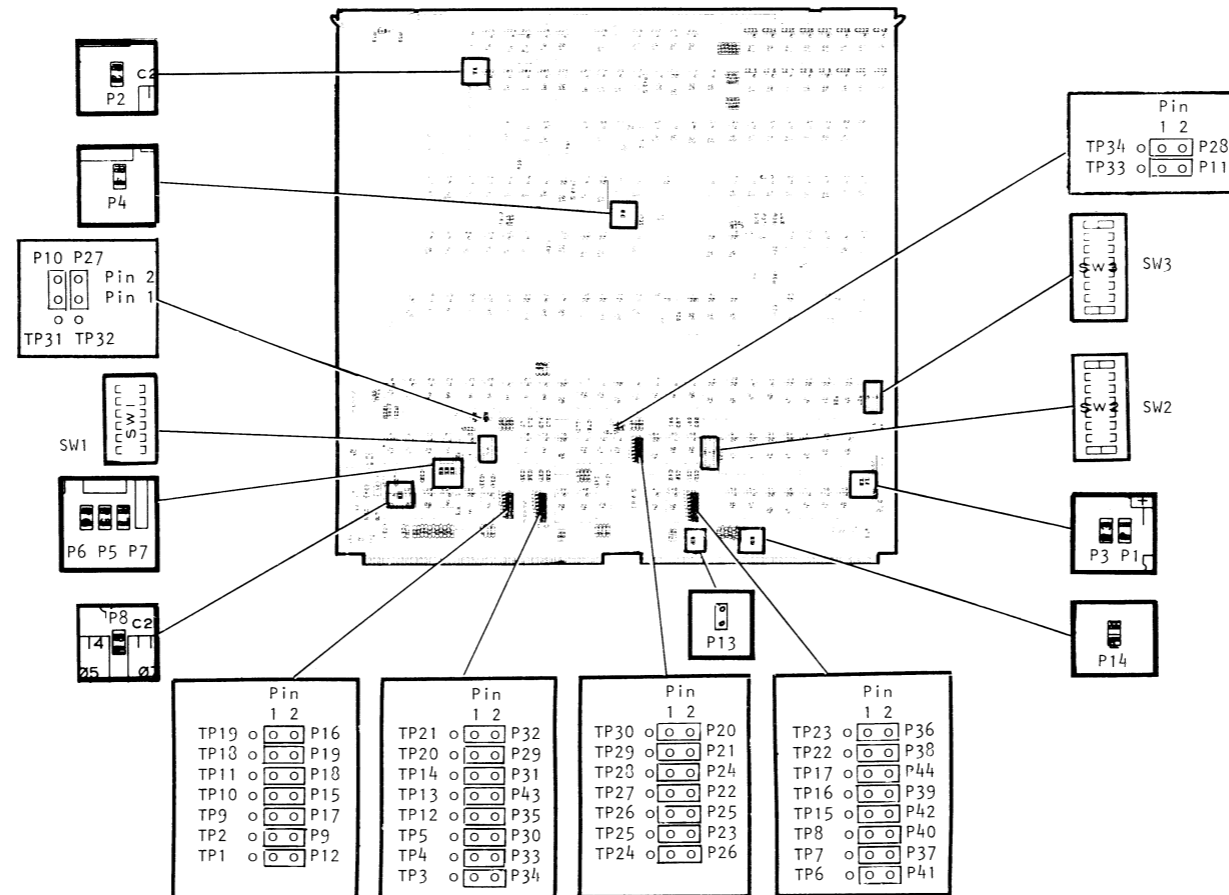
WARNING - USE OF A NON-COMPLIANT CABLE CAN INVALIDATE THE COMPLIANCE OF THIS PRODUCT WITH FCC RULES.

#### ISC PC BOARD

Ref DGC Dwg No 107-001897 Rev 01



INTERNAL HARNESS  
005-019407



#### MASK BIT INFORMATION

THE ISC IS ASSIGNED TO MASK BIT 4. THIS IS NOT A PROGRAMMABLE OR STRAPABLE ASSIGNMENT.

#### RECOMMENDED INSTALLATION PROCEDURE

THE FOLLOWING STEPS WILL INSURE THAT THE ISC IS PROPERLY INSTALLED ON ANY MACHINE FOR WHICH IT IS CURRENTLY RELEASED:

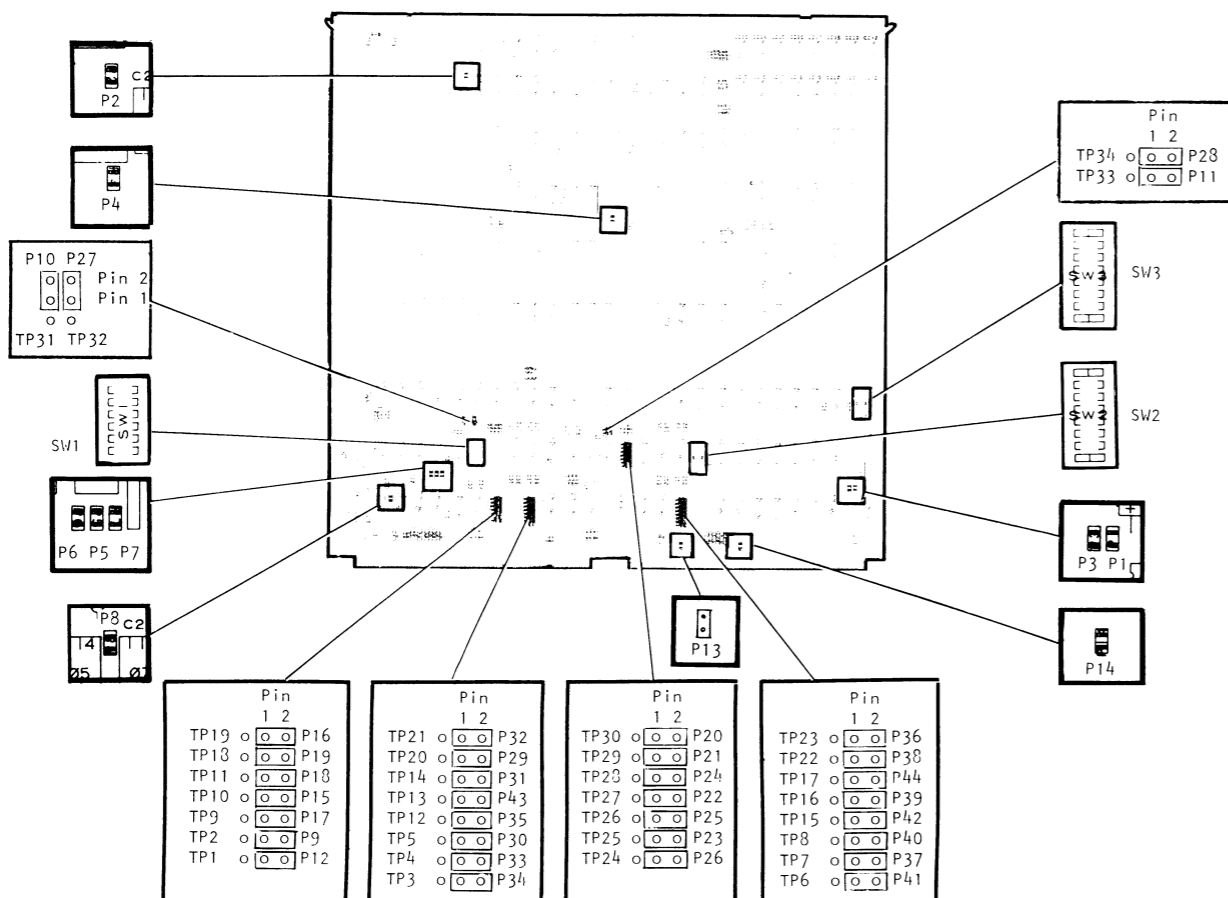
- 1) SET THE BOARD'S DEVICE CODE AS PER THE DEVICE CODE SELECTION TABLE (SHT 2).
- 2) INSURE THAT ALL JUMPERS ARE CONFIGURED PROPERLY.

- 3) SELECT THE DESIRED INTERFACE FOR CHANNEL A AND B AS DESCRIBED IN THE INTERFACE SELECTION TABLE (SHEET 2).
- 4) INSERT THE ISC INTO ITS ASSIGNED MEM/IO OR I/O ONLY SLOT.
- 5) INSTALL THE INTERNAL HARNESS (005-019407) TO THE A AND B BACKPANEL CONNECTORS ON THE ISC'S SLOT; INSTALL THE TWO 25-PIN INTERFACE CONNECTORS INTO THEIR ASSIGNED POSITIONS ON THE I/O PANEL.
- 6) INSURE THAT THE ISC WILL RECEIVE AND PASS ALONG (IF REQUIRED) THE INTERRUPT AND DATA CHANNEL PRIORITY SIGNALS.
- 7) CONNECT THE CORRECT EXTERNAL CABLE BETWEEN THE ISC'S I/O CONNECTOR(S) AND THE CUSTOMER'S EQUIPMENT AS FOLLOWS:

INTERFACE	COMPLIANT	NON-COMPLIANT
RS-232	005-019687	005-010711
RS-432	005-019536	005-016363

# JUMPERING

Ref DGC Dwg No 107-001897 Rev 01



### CLOCK JUMPERS

JUMPER	IN	OUT
P2	NORMAL OPERATION	TEST ONLY
P4	NORMAL OPERATION	TEST ONLY

### POWER SUPPLY JUMPER

JUMPER	IN	OUT
P8	NORMAL OPERATION	TEST ONLY

### POWER SUPPLY SELECTION

BACKPANEL SUPPLIED VOLTAGE	P1	P3
+15VDC ONLY	IN	OUT
+12VDC ONLY	OUT	IN
+12VDC AND +15VDC (NOTE 1)	OUT	IN

#### NOTES:

- IF BOTH VOLTAGES ARE AVAILABLE THE USER CAN CHOOSE TO BALANCE THE LOAD BY SELECTING THE +15VDC SUPPLY INSTEAD OF THE +12VDC SUPPLY. HOWEVER, THE ABOVE CONFIGURATION IS MORE DESIRABLE.
- NEVER HAVE BOTH P1 AND P3 INSERTED AT THE SAME TIME.

### DEVICE CODE SELECTION

SWITCH	OPEN (OFF)	CLOSED (ON)
(MSB) SW1-6	DS0=1	DS0=0
SW1-5	DS1=1	DS1=0
SW1-4	DS2=1	DS2=0
SW1-3	DS3=1	DS3=0
SW1-2	DS4=1	DS4=0
(LSB) SW1-1	DS5=1	DS5=0

### SW2 AND SW3 SELECTION

THESE SWITCHES ARE NOT CURRENTLY USED.

### POWERFAIL DETECT JUMPERING

JUMPER	IN	OUT
P13	ENABLES INTERRUPT UPON RECEIPT OF POWERFAIL SIGNAL	DISABLES POWERFAIL INTERRUPTS
P14	MUST NOT BE INSERTED	

### EXTENDED OPERATION DATA CHANNEL JUMPERS

JUMPER	IN	OUT
P5 P6, P7	ALLOWS UP-STREAM MAP LOADS ALLOWS ACCESS TO 512 SLOTS	NORMAL MAP OPERATION ALLOWS ACCESS TO 128 SLOTS ONLY

### INTERFACE SELECTION

CHANNEL	TO SELECT RS-232-C	TO SELECT RS-423	TO SELECT RS-422	
A	JUMPER TP-02 TO P09-1	JUMPER P09-1 TO P09-2	JUMPER P09-1 TO P09-2	
	JUMPER TP-01 TO P12-1	JUMPER P12-1 TO P12-2	JUMPER P12-1 TO P12-2	
	JUMPER TP-10 TO P15-1	JUMPER P15-1 TO P15-2	JUMPER P15-1 TO P15-2	
	JUMPER TP-11 TO P18-1	JUMPER P18-1 TO P18-2	JUMPER P18-1 TO P18-2	
	JUMPER TP-20 TO P29-1	JUMPER P29-1 TO P29-2	JUMPER P29-1 TO P29-2	
	JUMPER TP-05 TO P30-1	JUMPER P30-1 TO P30-2	JUMPER P30-1 TO P30-2	
	JUMPER TP-14 TO P31-1	JUMPER P31-1 TO P31-2	JUMPER P31-1 TO P31-2	
	JUMPER TP-21 TO P32-1	JUMPER P32-1 TO P32-2	JUMPER P32-1 TO P32-2	
	JUMPER TP-04 TO P33-1	JUMPER P33-1 TO P33-2	JUMPER P33-1 TO P33-2	
	JUMPER TP-03 TO P34-1	JUMPER P34-1 TO P34-2	JUMPER P34-1 TO P34-2	
	JUMPER TP-12 TO P35-1	JUMPER P35-1 TO P35-2	JUMPER P35-1 TO P35-2	
	JUMPER TP-13 TO P43-1	JUMPER P43-1 TO P43-2	JUMPER TP-13 TO P43-1	
	JUMPER TP-32 TO P27-1	JUMPER TP-32 TO P27-1	JUMPER TP-31 TO P10-1	
	JUMPER P10-1 TO P10-2	JUMPER P10-1 TO P10-2	JUMPER P27-1 TO P27-2	
	JUMPER TP-19 TO P16-1	JUMPER P16-1 TO P16-2	JUMPER P16-1 TO P16-2	
	JUMPER TP-9 TO P17-1	JUMPER P17-1 TO P17-2	JUMPER P17-1 TO P17-2	
	JUMPER TP-18 TO P19-1	JUMPER P19-1 TO P19-2	JUMPER P19-1 TO P19-2	
	B	JUMPER TP-30 TO P20-1	JUMPER P20-1 TO P20-2	JUMPER P20-1 TO P20-2
		JUMPER TP-29 TO P21-1	JUMPER P21-1 TO P21-2	JUMPER P21-1 TO P21-2
JUMPER TP-27 TO P22-1		JUMPER P22-1 TO P22-2	JUMPER P22-1 TO P22-2	
JUMPER TP-26 TO P25-1		JUMPER P25-1 TO P25-2	JUMPER P25-1 TO P25-2	
JUMPER TP-23 TO P36-1		JUMPER P36-1 TO P36-2	JUMPER P36-1 TO P36-2	
JUMPER TP-07 TO P37-1		JUMPER P37-1 TO P37-2	JUMPER P37-1 TO P37-2	
JUMPER TP-22 TO P38-1		JUMPER P38-1 TO P38-2	JUMPER P38-1 TO P38-2	
JUMPER TP-16 TO P39-1		JUMPER P39-1 TO P39-2	JUMPER P39-1 TO P39-2	
JUMPR TP-08 TO P40-1		JUMPER P40-1 TO P40-2	JUMPER P40-1 TO P40-2	
JUMPER TP-06 TO P41-1		JUMPER P41-1 TO P41-2	JUMPER P41-1 TO P41-2	
JUMPER TP-15 TO P42-1		JUMPER P42-1 TO P42-2	JUMPER P42-1 TO P42-2	
JUMPER TP-17 TO P44-1		JUMPER P44-1 TO P44-2	JUMPER TP-17 TO P44-1	
JUMPER TP-34 TO P28-1		JUMPER TP-34 TO P28-1	JUMPER TP-33 TO P11-1	
JUMPER P11-1 TO P11-2		JUMPER P11-1 TO P11-2	JUMPER P28-1 TO P28-2	
JUMPER TP-25 TO P23-1		JUMPER P23-1 TO P23-2	JUMPER P23-1 TO P23-2	
JUMPER TP-28 TO P24-1	JUMPER P24-1 TO P24-2	JUMPER P24-1 TO P24-2		
JUMPER TP-24 TO P26-1	JUMPER P26-1 TO P26-2	JUMPER P26-1 TO P26-2		

## PINOUTS

### ISC COMMUNICATION PINOUTS

THE FOLLOWING TABLE DESCRIBES THE ISC'S INTERNAL CABLE PIN ASSIGNMENT.

BUSS-PIN	SIGNAL NAME	DESCRIPTION	CONN PIN
A-85	TDOA	CHANNEL 0 TRANSMIT DATA	P0-2
A-87	RDOA	CHANNEL 0 RECEIVE DATA	P0-3
A-81	TCOA	CHANNEL 0 TRANSMIT CLOCK	P0-15
A-77	RCOA	CHANNEL 0 RECEIVE CLOCK	P0-17
A-79	ETOA	CHANNEL 0 EXTERNAL TRANSMIT CLOCK	P0-24
A-86	RTSOA	CHANNEL 0 REQUEST TO SEND (NOTE 5)	P0-4
A-71	CTSOA	CHANNEL 0 CLEAR TO SEND	P0-5
A-69	DSROA	CHANNEL 0 DATA SET READY	P0-6
A-67	DTR0A	CHANNEL 0 DATA TERMINAL READY	P0-20
A-65	DCDOA	CHANNEL 0 DATA CARRIER DETECT	P0-8
A-63	RIOA	CHANNEL 0 RING INDICATOR	P0-22
A-61	SPROOA	CHANNEL 0 SPARE OUTPUT 0 (NOTE 1)	P0-14
A-59	SPR10A	CHANNEL 0 SPARE OUTPUT 1 (NOTE 2)	P0-23
A-99	SIGGNDOA	CHANNEL 0 SIGNAL GROUND	P0-7
	PWRGNDOA	CHANNEL 0 SAFETY GROUND	P0-1
A-88	RDOANOT	CHANNEL 0 RECEIVE DATA INVERSE	P0-25
A-83	TCOMMONOA	CHANNEL 0 TRANSMIT COMMON (NOTE 3)	P0-11
A-75	RCOMMONOA	CHANNEL 0 RECEIVE COMMON (NOTE 3)	P0-19
B-51	TDOB	CHANNEL 1 TRANSMIT DATA	P1-2
B-53	RDOB	CHANNEL 1 RECEIVE DATA	P1-3
B-49	TCOB	CHANNEL 1 TRANSMIT CLOCK	P1-15
B-69	RCOB	CHANNEL 1 RECEIVE CLOCK	P1-17
B-67	ETOB	CHANNEL 1 EXTERNAL TRANSMIT CLOCK	P1-24
B-52	RTSOB	CHANNEL 1 REQUEST TO SEND (NOTE 5)	P1-4
B-27	CTSOB	CHANNEL 1 CLEAR TO SEND	P1-5
B-25	DSROB	CHANNEL 1 DATA SET READY	P1-6
B-23	DTR0B	CHANNEL 1 DATA TERMINAL READY	P1-20
B-19	DCDOB	CHANNEL 1 DATA CARRIER DETECT	P1-8
B-15	RIOB	CHANNEL 1 RING INDICATOR	P1-22
B-13	SPROOB	CHANNEL 1 SPARE OUTPUT 0 (NOTE 1)	P1-14
B-11	SPR10B	CHANNEL 1 SPARE OUTPUT 1 (NOTE 2)	P1-23
B-01	SIGGNDOB	CHANNEL 1 SIGNAL GROUND	P1-7
	PWRGNDOB	CHANNEL 1 SAFETY GROUND	P1-1
B-54	RDOBNOT	CHANNEL 1 RECEIVE DATA INVERSE	P1-25
B-31	TCOMMONOB	CHANNEL 1 TRANSMIT COMMON (NOTE 3)	P1-11
B-36	RCOMMONOB	CHANNEL 1 RECEIVE COMMON (NOTE 3)	P1-19
A-76	XTRA	CHANNEL 0 EXTRA INPUT (NOTE 4)	---
A-47	CONDOUT	CONSOLE DATA OUTPUT (NOTE 4)	---
A-49	CONDIN	CONSOLE DATA IN (NOTE 4)	---
B-48	PWROK	POWER SUPPLY STATUS (NOTE 4)	---
B-21	PWRFAIL	POWER SUPPLY STATUS (NOTE 4)	---

#### NOTES:

- THIS SIGNAL IS A SPARE OUTPUT FOR THE RS-232 INTERFACE AND THE LOCAL LOOPBACK CONTROL SIGNAL FOR THE RS-423 INTERFACE.
- THIS SIGNAL IS A SPARE OUTPUT FOR THE RS-232 INTERFACE AND THE REMOTE LOOPBACK CONTROL SIGNAL FOR THE RS-423 INTERFACE.
- THIS SIGNAL IS INCLUDED FOR RS-423/422 COMPATIBILITY AND IS NOT IMPLEMENTED IN THE RS-232 CABLE.
- SIGNAL IS PRESENT AT THE BACKPANEL BUT IS NOT INCLUDED IN THE I/O HARNESS.
- THIS SIGNAL IS ALSO THE INVERTED TRANSMIT DATA SIGNAL FOR THE CHANNEL'S RS-422 INTERFACE.

### BOARD PINOUTS

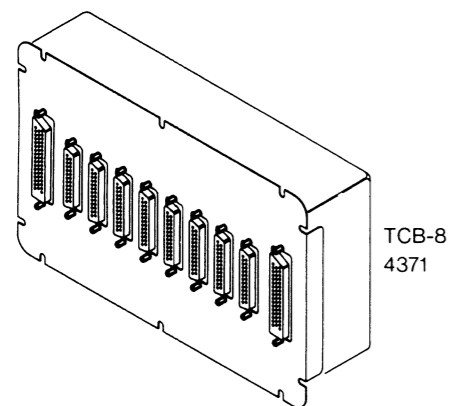
THE ISC CAN BE INSTALLED IN EITHER AN I/O ONLY OR MEM/I/O SLOT. IN THE FOLLOWING TABLE, AN ! DENOTES A LOW-TRUE SIGNAL.

PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION
A-1	GND	B-1	GND
A-2	GND	B-2	GND
A-3	+5VDC	B-3	+5VDC
A-4	+5VDC	B-4	+5VDC
A-6	-5VDC	B-11	SPR10B
A-38	!MSKO	B-13	SPROOB
A-40	INTA	B-15	RIOB
A-46	!DS3	B-17	!DCHMO
A-47	CONDOUT*	B-19	DCDOB
A-49	CONDIN*	B-21	!PWRFAIL
A-50	CLR	B-23	DTR0B
A-52	STRT	B-25	DSROB
A-59	SPR10A	B-27	CTSOB
A-60	!DCHA	B-29	!INTR
A-61	SPROOA	B-31	TCOMMONOB
A-62	!DS4	B-33	DCH0
A-63	RIOA	B-35	!DCHR
A-64	!SD5	B-37	DCHI
A-65	DCDOA	B-41	!RQENB
A-66	!DS2	B-48	PWROK
A-67	DTR0A	B-49	TCOB
A-68	!DS1	B-51	TDOB
A-69	DSROA	B-52	RTSOB/!TDOB
A-70	!ORST	B-53	RDOB
A-71	CTSOA	B-54	!RDOB
A-72	!DS0	B-55	!DATA7
A-74	!OPLS	B-56	!DATA14
A-75	RCOMMONOA	B-57	!DATA5
A-76	XTRA*	B-58	!DATA11
A-77	RCOA	B-59	!DATA12
A-79	ETOA	B-60	!DATA8
A-80	!SELD	B-61	!DATA4
A-81	TCOA	B-62	!DATA0
A-82	!SELB	B-63	!DATA9
A-83	TCOMMONOA	B-64	!DATA13
A-85	TDOA	B-65	!DATA1
A-86	RTSOA/!TDOA	B-66	!DATA15
A-87	RDOA	B-67	ETOB
A-88	!RDOA	B-69	RCOB
A-93	!DCHPOUT	B-73	!DATA3
A-94	!DCHPIN	B-74	!XDCH
A-95	!INTPOUT	B-75	!DATA10
A-96	!INTPIN	B-81	-5VDC
A-97	+5VDC	B-82	!DATA2
A-98	+5VDC	B-84	+15VDC
A-99	GND	B-88	+12VDC
A-100	GND	B-95	!DATA6
		B-97	+5VDC
		B-98	+5VDC
		B-99	GND
		B-100	GND

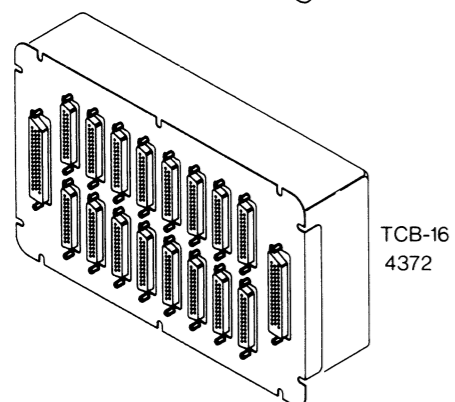
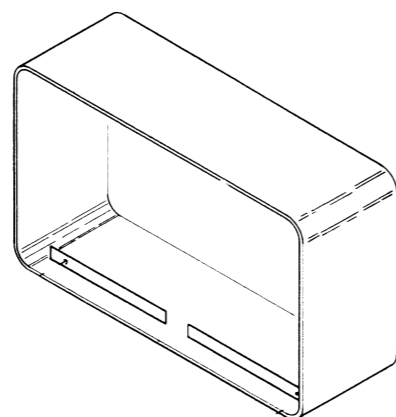
\* NOT USED

INSTALLATION SPECIFICATIONS

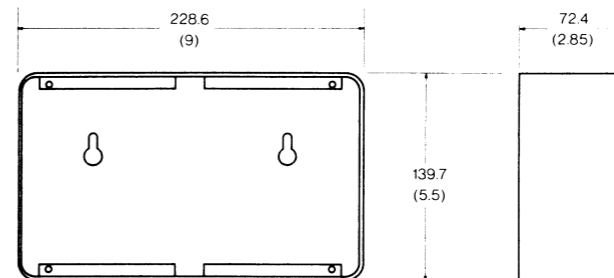
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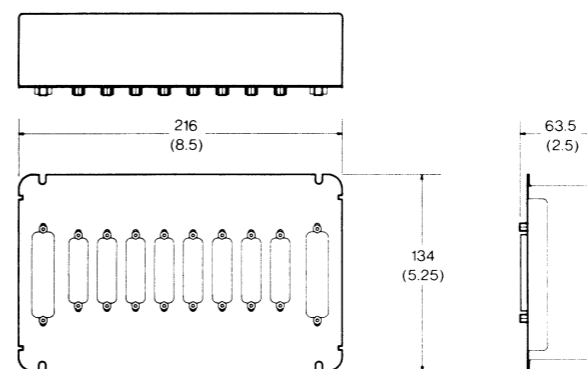
TCB-8  
4371



TCB-16  
4372



WALL MOUNT



MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TCB	WALL OR CABINET	
B	WALL MOUNT		P/O 005-019558

CABLE

ITEM	CABLE	CONNECTING	LENGTH		NOTES
			FT	M	
C	EXTERNAL I/O	TCB AND CONNECTOR PANEL	15	4.5	(2) 005-019396 FOR A, B, C MODELS (SEE NOTE)
D	EXTERNAL I/O	TCB AND CONNECTOR PANEL	25	7.6	(2) 005-019395 D MODEL ONLY

NOTES: MODELS 4371-B, 4372-B REQUIRE 2 CABLES PER UNIT  
DO NOT INSTALL MORE THAN 8 TERMINAL CONNECTOR BOXES IN ANY ONE CABINET.  
MODELS-A AND -B ONLY WILL HAVE A COLOR DESIGNATION PREFIX: "B" FOR BLUE FRONT PLATE, "E" FOR EARTH-TONE FRONT PLATE.

TCB/8

- 4371-A SINGLE 8 LINE RACK MOUNTING MODEL
- 4371-B DOUBLE 8 LINE RACK MOUNTING MODEL
- 4371-C SINGLE 8 LINE EXPANSION FOR 4371-A
- 4371-D SINGLE 8 LINE WALL MOUNTING MODEL

TCB/16

- 4372-A SINGLE 16 LINE RACK MOUNTING MODEL
- 4372-B DOUBLE 16 LINE RACK MOUNTING MODEL
- 4372-C SINGLE 16 LINE EXPANSION FOR 4372-A
- 4372-D SINGLE 16 LINE WALL MOUNTING MODEL

ENVIRONMENTAL AND SERVICE SPECIFICATIONS

DIMENSIONS:	Width	Depth	Height
	Millimeters	216	63.5
Inches	8.5	2.5	5.25

WEIGHT:	Wall Mount	Single Rack Mount	Double Rack Mount
	Kilograms	1.6	2.0
Pounds	3.5	4.5	6.5

**OPERATING ENVIRONMENT:**

Temperature Range	0 - 55°C (32 - 131°F)
Relative Humidity Range	10 - 90%
Altitude Range	-305 to 2438 m (-1000 to 8000 ft)

**POWER REQUIREMENTS:**

None

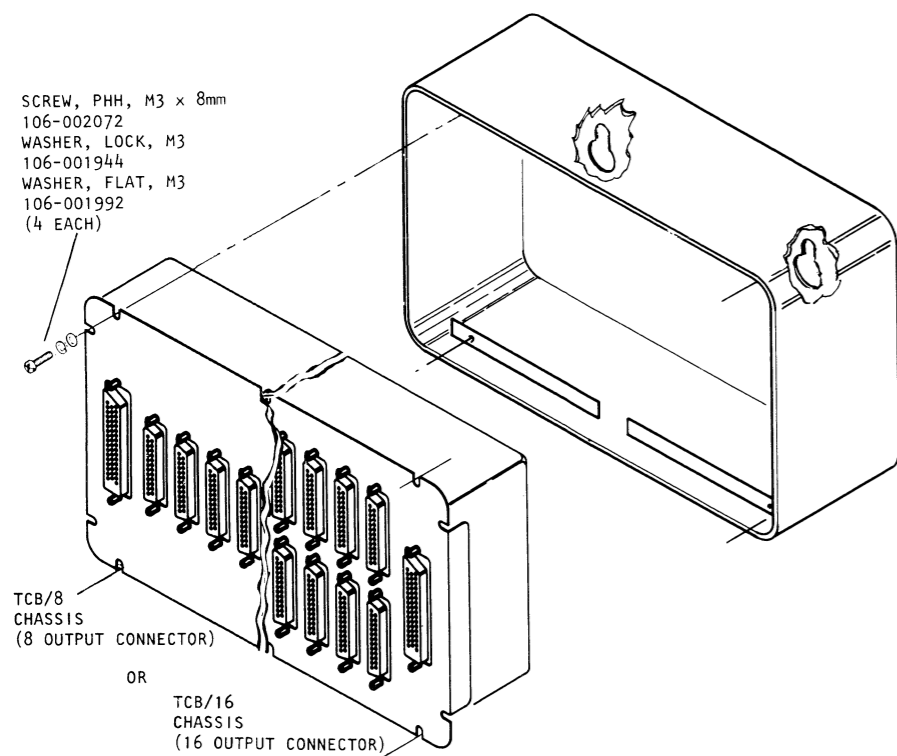
**STORAGE ENVIRONMENT:**

Temperature Range	-40 to 65°C (-40 to 149°F)
Humidity Range	10 - 90%
Altitude Range	0 to 7620 m (0 - 25000 ft)

# MOUNTING

## WALL MOUNTING MOUNTING KIT 005-019558

- SCREW, PHH, M3 x 8mm  
106-002072
- WASHER, LOCK, M3  
106-001944
- WASHER, FLAT, M3  
106-001992  
(4 EACH)



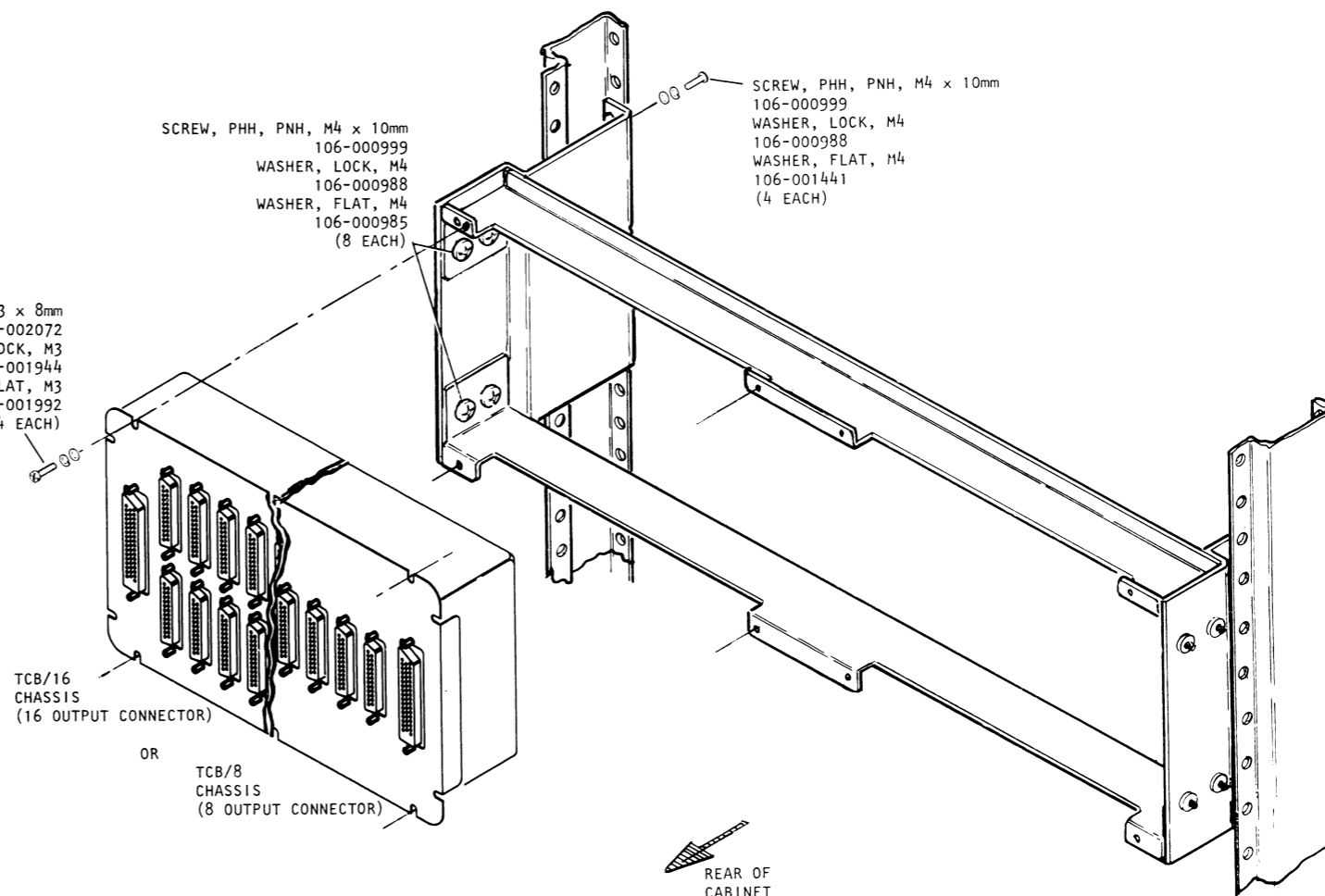
- 1 MOUNT TCB COVER TO WALL.
- 2 SECURE FIRMLY
- 3 INSERT TCB INTO COVER
- 4 TIGHTEN SCREWS

## RACK MOUNTING MOUNTING KIT 005-019508

- SCREW, PHH, PNH, M4 x 10mm  
106-000999
- WASHER, LOCK, M4  
106-000988
- WASHER, FLAT, M4  
106-000985  
(8 EACH)

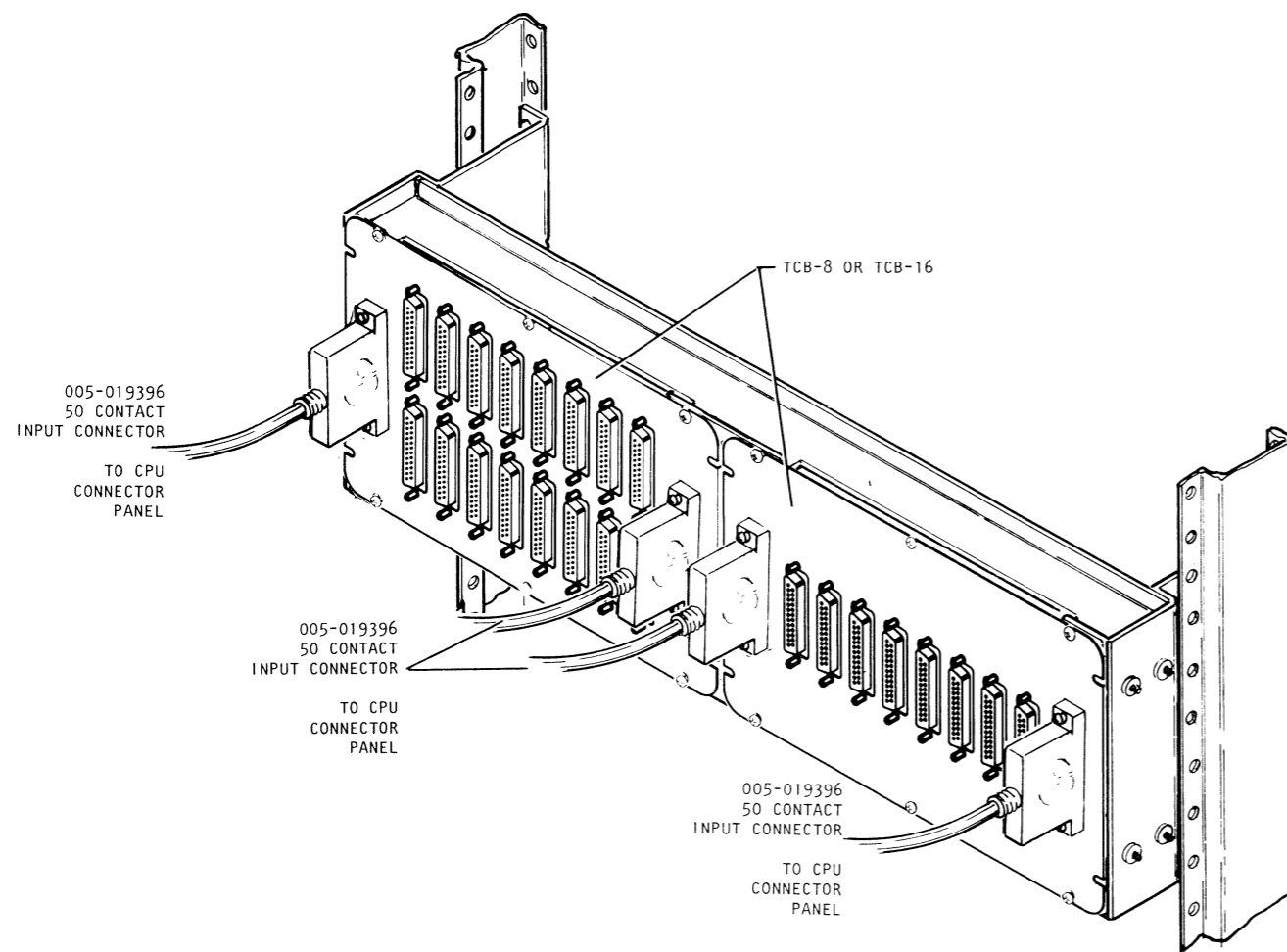
- SCREW, PHH, M3 x 8mm  
106-002072
- WASHER, LOCK, M3  
106-001944
- WASHER, FLAT, M3  
106-001992  
(4 EACH)

- SCREW, PHH, PNH, M4 x 10mm  
106-000999
- WASHER, LOCK, M4  
106-000988
- WASHER, FLAT, M4  
106-001441  
(4 EACH)

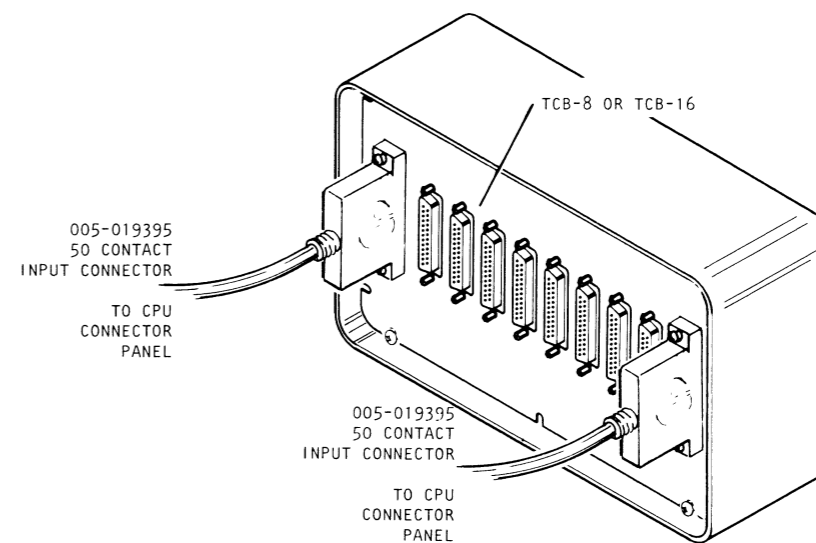


### CABLING

RACK MOUNTED  
4371 or 4372-A, B, C  
(SEE SHT 1 THIS IDS)



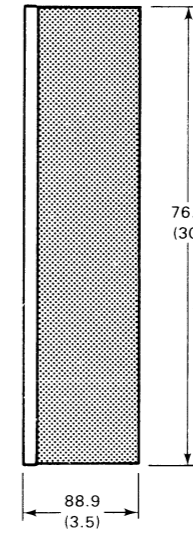
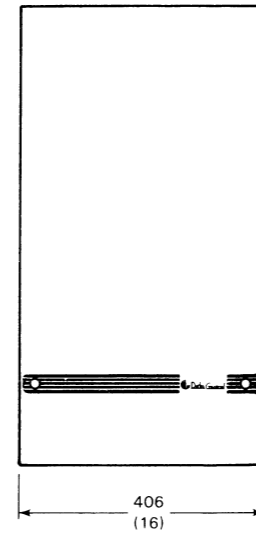
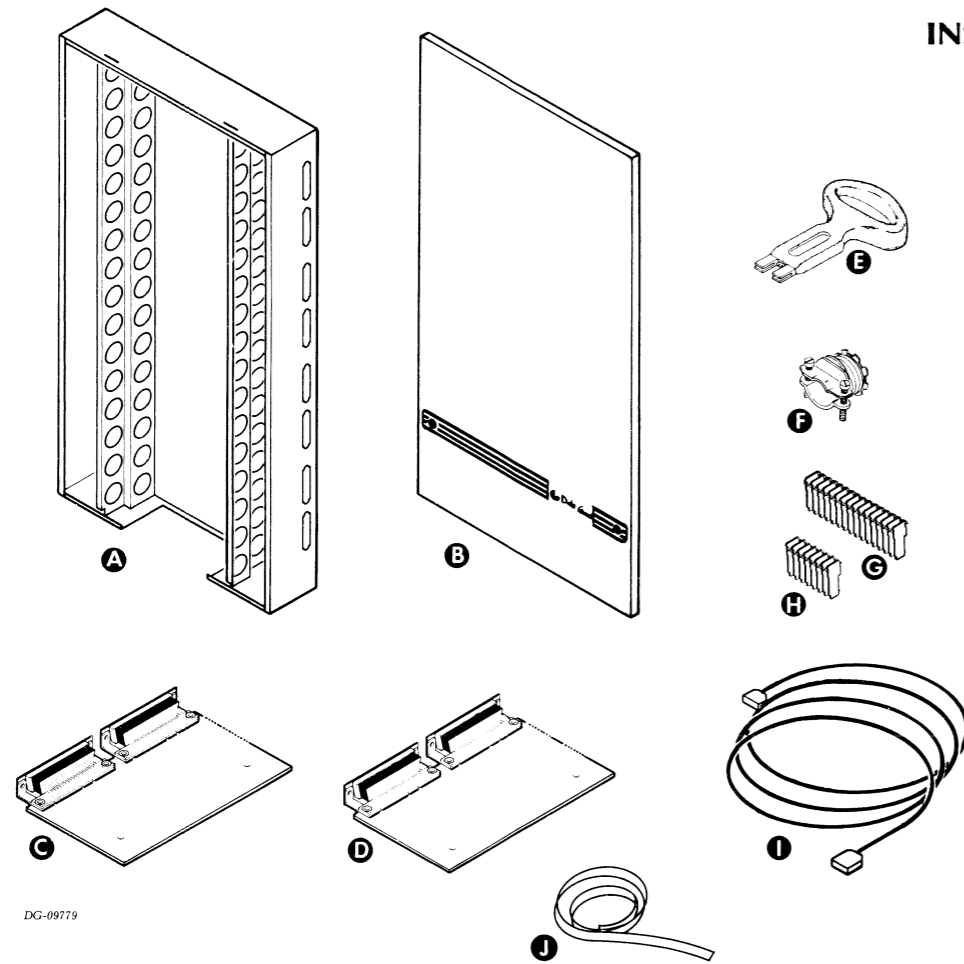
WALL MOUNTED  
4371 or 4372-D  
(SEE SHEET 1 THIS IDS)





### INSTALLATION SPECIFICATIONS

DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE



DG-09779

DG-09780

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TCHU CHASSIS	WALL	002-020555
B	TCHU COVER	CHASSIS	022-020558
C	TCHB/8	CHASSIS	005-021096
D	TCHB/16	CHASSIS	005-021097
E	HAND TOOL	COVER	123-001976
F	STRAIN RELIEF	CHASSIS	123-000573
G	16-PIN IDC	TCHB/8	111-001759
H	8-PIN IDC	TCHB/16	111-001760
J	COPPER FOIL TAPE		120-001021

**CABLE**

ITEM	CABLE	CONNECTING	LENGTH		NOTES
			FT	M	
I	EXTERNAL I/O	TCHU AND CPU	25	7.6	005-019395

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	406	88.9	76.2
Inches	16	3.5	3.0

**SERVICE CLEARANCES:**

	Front	Left	Right	Bottom	Top
Millimeters	914	305	305	457	50
Inches	36	12	12	18	2

**WEIGHT:**

	Empty
Kilograms	10
Pounds	22

**OPERATING ENVIRONMENT:**

Temperature Range	0° TO 55°C	(32° TO 113°F)
Relative Humidity Range	10-90%	
Maximum Altitude	8000ft	2438m

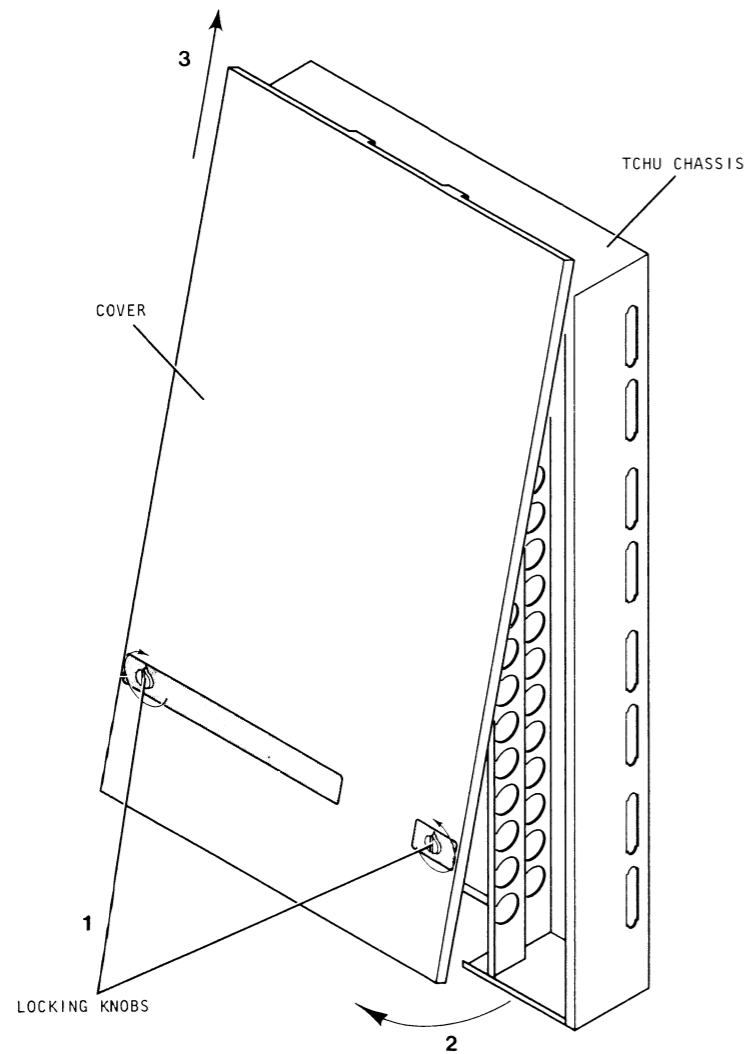
**POWER REQUIREMENTS:**

None

**CABLES:**

External I/O	7.6 m	(25')
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### COVER REMOVAL



ID-00550

1. TURN LOCKING KNOBS 90° (LEFT KNOB CLOCKWISE, RIGHT KNOB COUNTER-CLOCKWISE).
2. SWING COVER OUT FROM BOTTOM
3. LIFT COVER OFF FROM CHASSIS

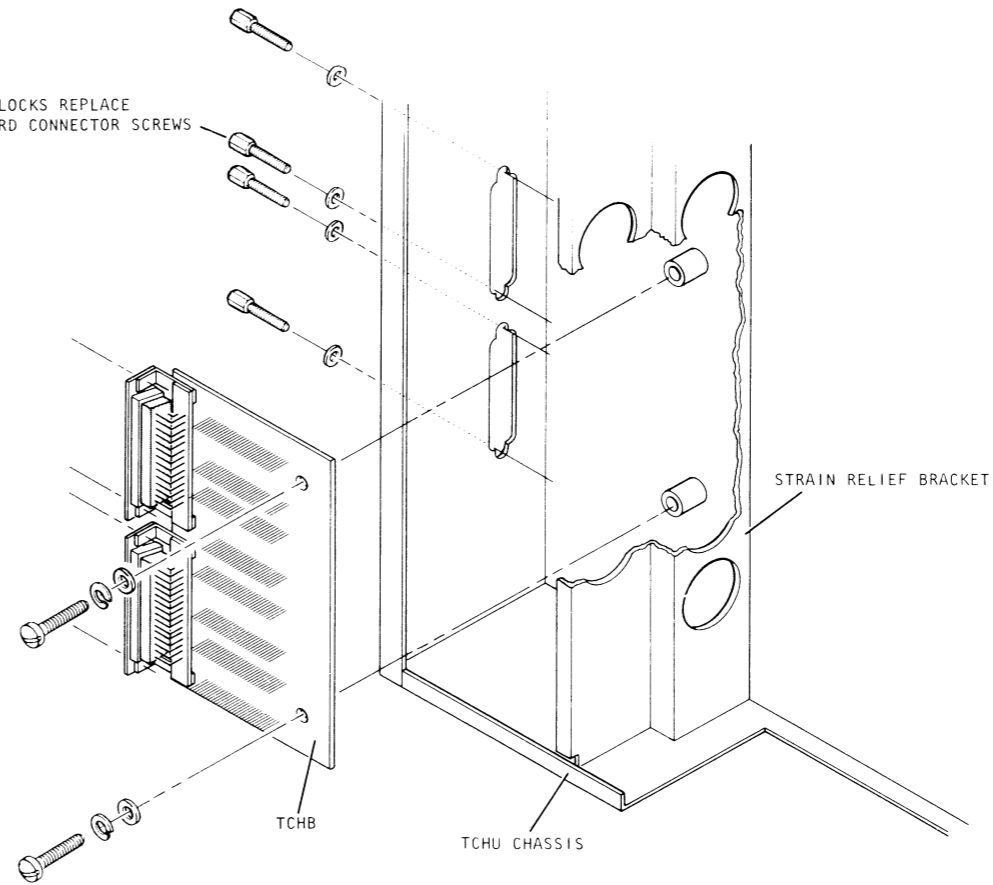
### INSTALLING TCHB

NOTE: THE METAL SEALS COVERING THE CONNECTOR CUTOUTS ON THE SIDES OF THE TCHU GUARANTEE THAT THE TCHU IS FCC COMPLIANT. DO NOT REMOVE SEALS UNLESS YOU ARE INSTALLING A TCHB IN THE APPLICABLE CONNECTOR CUTOUTS.

STORE REMOVED SEALS AT BOTTOM OF TCHU CHASSIS FOR FUTURE USE.

TCHB/8 MOUNTING SHOWN,  
TCHB/16 MOUNTING IS IDENTICAL.

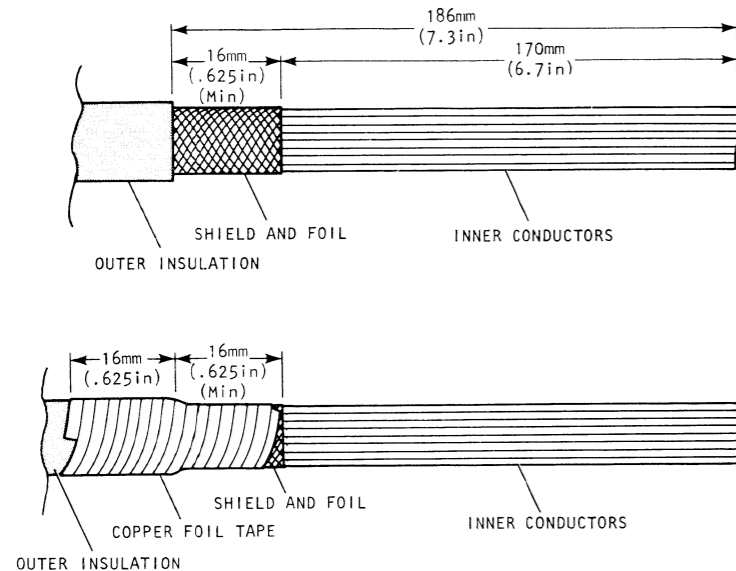
NOTE: SCREW LOCKS REPLACE  
STANDARD CONNECTOR SCREWS



DG-09781

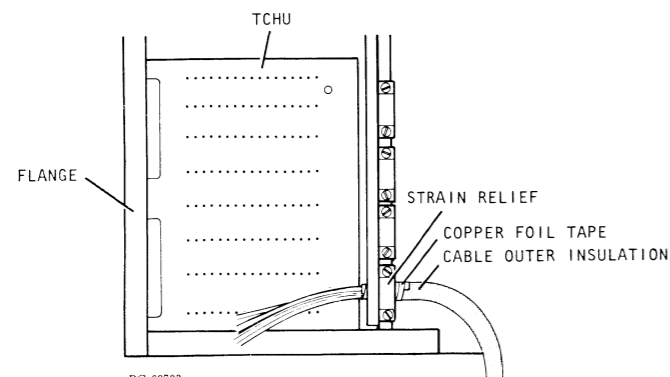
TCHB/8 MOUNTING KIT 005-021098  
TCHB/16 MOUNTING KIT 005-021099

### STRIPPING AND CABLE WRAPPING



DG-09782

### CABLE CLAMPING



DG-09783

#### IDC/16

Signal Name IDC Pin Sub-D Pin	XDAT-n 1 2	XDAT RTN-n 2 11	RDAT-n 3 3	RDAT RTN-n 4 18	GND-n 5 1	GND-n 6 7	+5v-n 7 4	+5v-n 8 20
Cable Assembly								
005-013258	ORN	N/C	RED	N/C	N/C	BRN	N/C	N/C
005-013260	RED	ORN	GRN	BRN	N/C	N/C	N/C	N/C
005-014689	ORN	YEL	RED	BRN	N/C	N/C	N/C	N/C
005-014694	ORN	N/C	RED	N/C	N/C	BRN	N/C	N/C
005-018249	ORN	N/C	RED	N/C	N/C	BRN	N/C	N/C

NOTE: N/C MEANS NO CONNECTION.

#### IDC/8

Signal Name IDC Pin Sub-D Pin	XDAT-n 1 2	RDAT-n 2 3	GND-n 3 1	GND-n 4 7	RTS-n 5,6*	CTS-n 7,8*	CD-n 9,10*	DSR-n 11,12*	DTR-n 13,14*	RT-n 15,16*
Cable Assembly										
005-010711	RED	ORN	BRN	VIO	YEL	GRN	GRY	BLU	WHT/RED	WHT/ORN
005-013258	ORN	RED	N/C	BRN	NOTE 1	YEL	NOTE 1	NOTE 1	N/C	N/C
005-014694	ORN	RED	N/C	BRN	NOTE 1	YEL	NOTE 1	NOTE 1	N/C	N/C
005-018249	ORN	RED	N/C	BRN	NOTE 1	YEL	NOTE 1	NOTE 1	N/C	N/C
005-019687	RED	ORN	BRN	VIO	YEL	GRN	GRY	BLU	WHT/RED	WHT/ORN

\* THESE TWO PINS ARE CONNECTED ON THE IDC.

NOTES: 1. USE TWO-INCH LENGTHS OF 26 AWG WIRE TO JUMPER PIN 5 (RTS-n) TO PIN 9 (CD-n), AND PIN 10 (CD-n) TO PIN 11 (DSR-n).  
2. N/C MEANS NO CONNECTION

### INSERTING CONDUCTORS

1. USE TABLE 1 OR TABLE 2 TO LOCATE THE DESIRED TERMINAL CABLE. EACH TABLE IDENTIFIES THE CABLE CONDUCTORS ACCORDING TO COLOR, AND LISTS THEM WITH THE IDC PINS IN WHICH THEY MUST BE INSERTED. FOR EXAMPLE, TABLE 1 SHOWS THAT CABLE ASSEMBLY 005-013258 HAS:

AN ORANGE WIRE THAT IS TO BE INSERTED IN IDC PIN 1,  
A RED WIRE THAT IS TO BE INSERTED IN IDC PIN 3,  
AND A BROWN WIRE THAT IS TO BE INSERTED IN IDC PIN 6

THE TABLE ALSO SHOWS THE NAME OF THE SIGNAL THAT IS CARRIED ON THE CONDUCTOR (WHERE 'n' REFERS TO THE LINE NUMBER), AND THE NUMBER OF THE SUB-D CONNECTOR PIN TO WHICH THE CONDUCTOR WAS ORIGINALLY CONNECTED.

2. ASSUME THAT YOU ARE INSTALLING CABLE 005-013258 IN A TCHB/16. GATHER TOGETHER THE THREE CONDUCTORS LISTED IN STEP 1. CUT ALL OTHER CONDUCTORS, LEAVING A 5 mm (ABOUT 1/4-INCH) LENGTH OF EACH CONDUCTOR EMERGING FROM THE SHIELDING BRAID.

3. TAKE AN IDC (P/N 111-001760 FOR THE TCHB/16) FROM THE MOUNTING KIT.

#### CAUTION

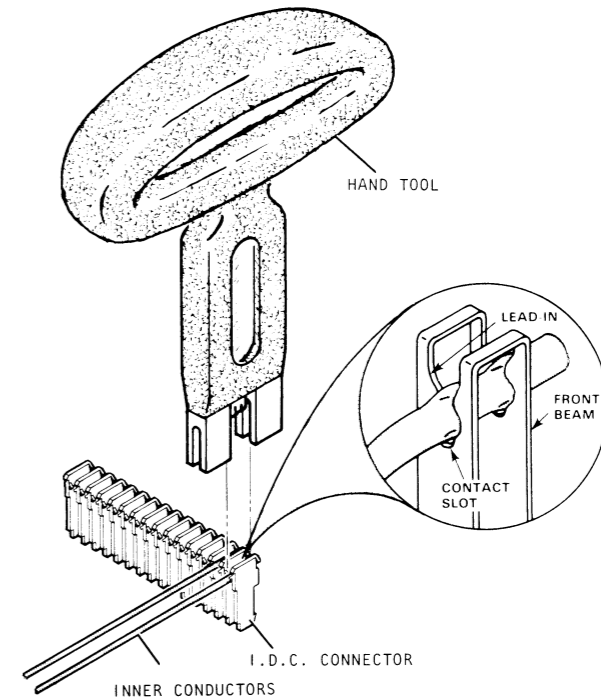
DON'T INSERT CONDUCTORS IN AN IDC WHILE THE CONNECTOR IS MOUNTED ON THE TCHB - YOU'LL DAMAGE THE TCHB.

4. LAY EACH CONDUCTOR IN ITS ASSIGNED IDC PIN SLOT (THE PINS ARE NUMBERED ON THE SIDE OF THE IDC - THE END OF EACH CONDUCTOR SHOULD EXTEND ABOUT 10 mm (ABOUT 3/8-INCH) OUT OF THE SLOT.

5. BRACE THE IDC AGAINST THE FLANGE ON THE SIDE OF THE TCHU. (CABLE CLAMPING FIGURE SHOWS THE FLANGE ON THE LEFT SIDE OF THE TCHU.) TAKE THE HAND TOOL AND USE IT TO SEAT THE CONDUCTORS FIRMLY ON THE CONNECTOR PINS. VISUALLY INSPECT CONDUCTORS AFTER INSERTION AND TRIM ENDS FLUSH TO THE IDC CONNECTOR.

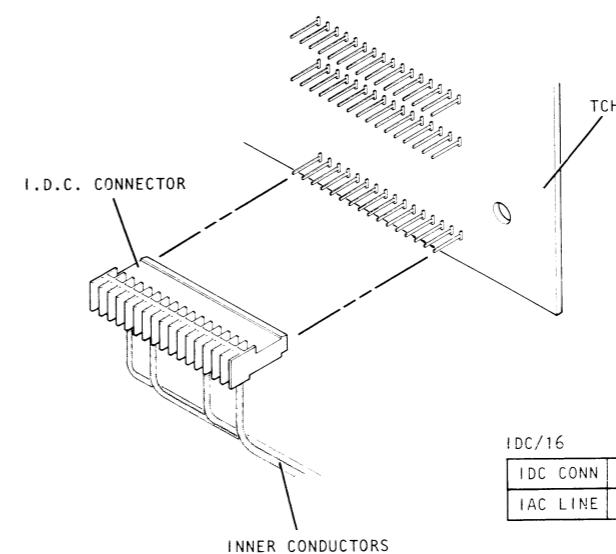
6. FIT THE IDC ONTO THE PINS ON THE TCHB, MAKING SURE THAT YOU MATCH THE IDC PIN NUMBERS WITH THE TCHB PIN NUMBERS; BE CAREFUL, THE PINS ARE FRAGILE AND BEND EASILY. ALTHOUGH ITS NOT NECESSARY, YOU'LL FIND IT ADVANTAGEOUS TO PUT LINE 1 ON TCUB CONNECTOR J3, LINE 2 ON TCUB CONNECTOR J4, AND SO FORTH.

7. USE 5" FOIL TAPE (120-001021) ON SHIELDED CABLE ONLY, 005-013258, 005-013260, 005-019687



DG-09784

### CONNECTING IDC



ID-00554

#### IDC/16

IDC CONN	J3	J4	J5	J6	J7	J8	J9	J10	J11
IAC LINE	0	1	2	3	8	9	10	11	4

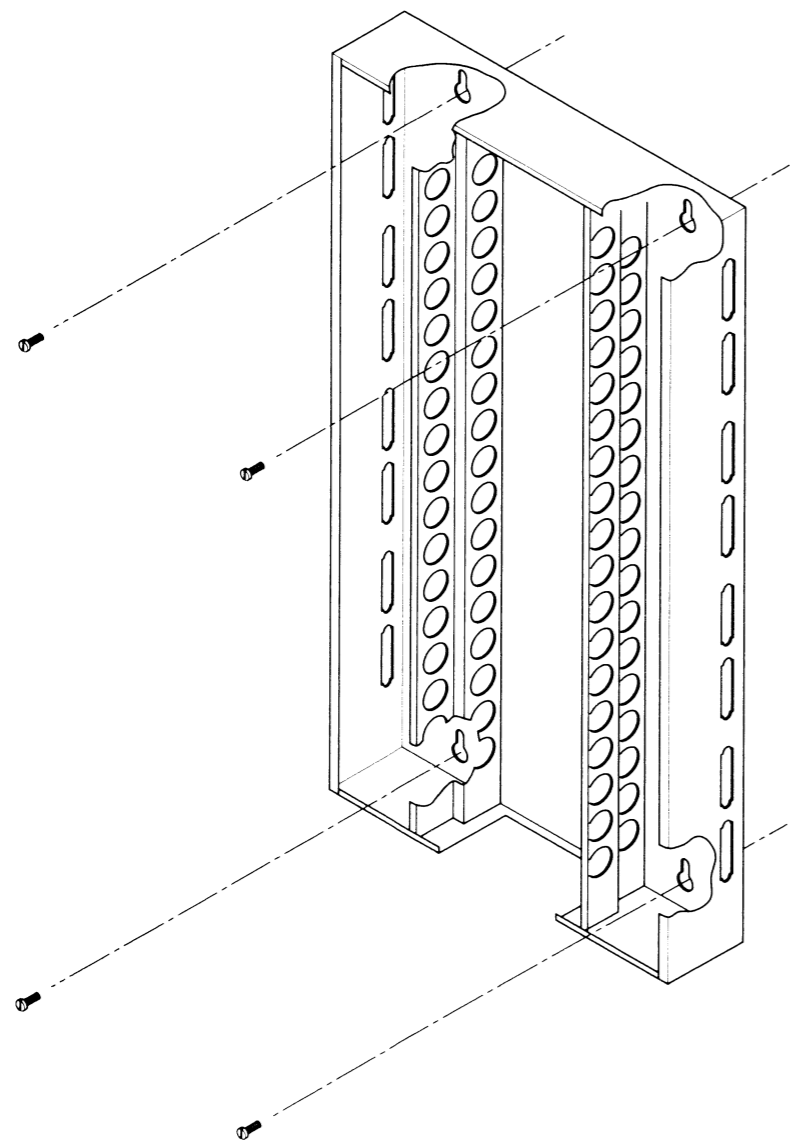
J12	J13	J14	J15	J16	J17	J18
5	6	7	12	13	14	15

#### IDC/8

IDC CONN	J3	J4	J5	J6	J7	J8	J9	J10
	0	1	2	3	4	5	6	7

### WALL MOUNTING

THE TCHU IS WALL MOUNTED USING APPROPRIATE CUSTOMER SUPPLIED HARDWARE.

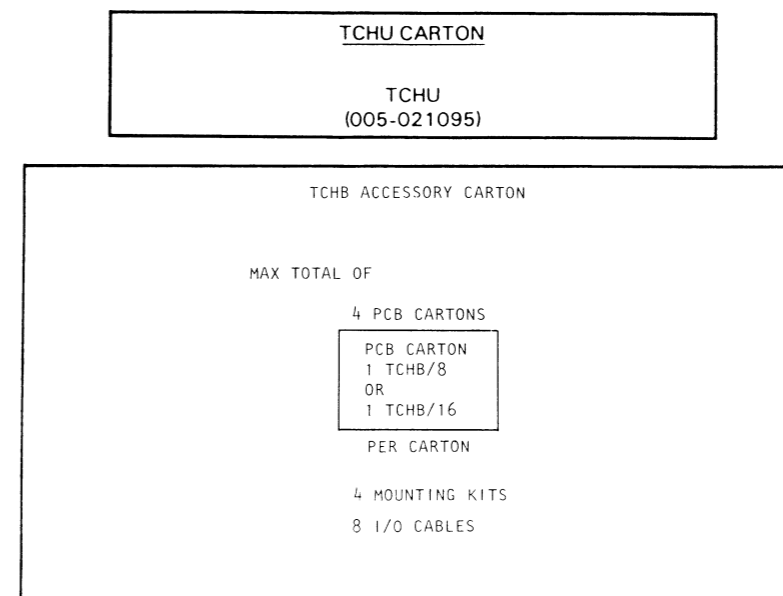


ID-00531

### EXTERNAL CABLING

REFER TO APPROPRIATE INSTALLATION DATA SHEET FOR EXTERNAL CABLE CONNECTIONS.

### PACKAGING



# UNIVERSAL SYNCHRONOUS/ASYNCHRONOUS MULTIPLEXOR

THE FOLLOWING TABLES TELL HOW TO CONFIGURE THE USAM PCB. SET ITS ADDRESS, AND ENABLE THE RING INDICATOR SIGNAL, IF DESIRED.

## DEVICE CODE SELECTION

6-POSITION DIPSWITCH SW7					
SW7-1 (MSB)	SW7-2	SW7-3	SW7-4	SW7-5	SW7-6 (LSB)
0	1	1	1	0	0

DEVICE CODE SHOWN = 34 (STANDARD DEVICE CODE)

1 INDICATES SWITCH ON  
0 INDICATES SWITCH OFF

## RING INDICATOR ENABLING

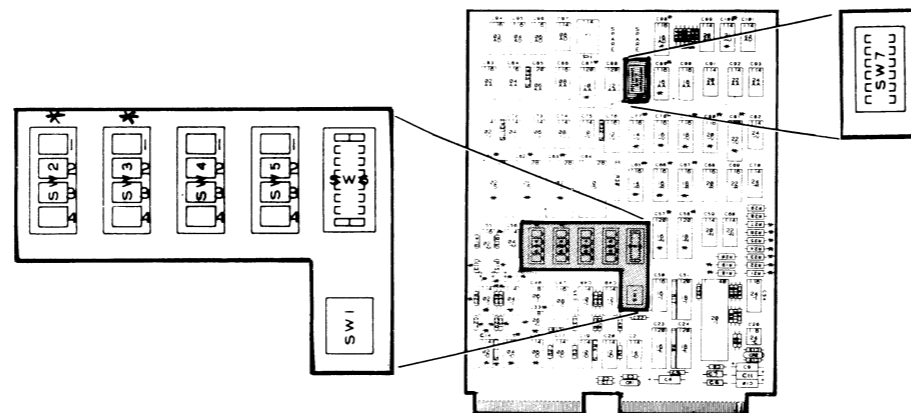
	4-POSITION DIPSWITCH SW1			
	LINE 0 SW-1	LINE 1 SW1-2	LINE 2 SW1-3	LINE 3 SW1-4
ENABLED	ON	ON	ON	ON
DISABLE	OFF	OFF	OFF	OFF

NOTE: DISABLE ALL UNUSED LINES.

## INTERFACE SELECTION

CHANNEL	SWITCHES USED	INTERFACE SELECTIONS		
		RS-232-C	RS-422-A	20 mA
LINE 0	SW6-1	ON	OFF	OFF
	SW6-2	ON	OFF	ON
	SW4-1	OFF	OFF	ON
	SW4-2	OFF	OFF	ON
	SW5-1	OFF	ON	OFF
LINE 1	SW6-3	ON	OFF	OFF
	SW6-4	ON	OFF	ON
	SW4-3	OFF	OFF	ON
	SW4-4	OFF	OFF	ON
	SW5-3	OFF	ON	OFF
LINE 2	SW6-5	ON	OFF	OFF
	SW6-6	ON	OFF	ON
	SW3-1	OFF	OFF	ON
	SW3-2	OFF	OFF	ON
	SW2-1	OFF	ON	OFF
LINE 3	SW6-7	ON	OFF	OFF
	SW6-8	ON	OFF	ON
	SW3-3	OFF	OFF	ON
	SW3-4	OFF	OFF	ON
	SW2-2	OFF	ON	OFF

\* NOTE: DIPSWITCHES SW2 AND SW3 ARE NOT ON THE ONE-LINE VERSION OF THE BOARD.



Ref DGC Dwg No 107-001950 Rev 00

THE FOLLOWING LIST DESCRIBES THE micro-NOVA BUS INTERFACE FOR THE USAM BOARD.

PIN NUMBER	SIGNAL NAME
B-1	MCLOCK
B-2	!MCLOCK
B-3	GROUND
B-4	BI/ODATA1
B-5	!BI/ODATA1
B-6	!CLEAR
B-8	!BEXTINT
B-11	GROUND
B-12	!BI/ODATA2
B-13	BI/ODATA2
B-14	GROUND
B-15	!BI/OCLOCK
B-16	BI/OCLOCK
B-19	INTPOUT
B-20	INTPIN
B-21	DCHPOUT
B-22	DCHPIN
B-36	GROUND
B-39	-12VDC
B-53	GROUND
B-54	GROUND
B-55	+12VDC
B-56	+12VDC
B-57	+5VDC
B-58	-5VDC
B-59	+5VDC
B-60	+5VDC

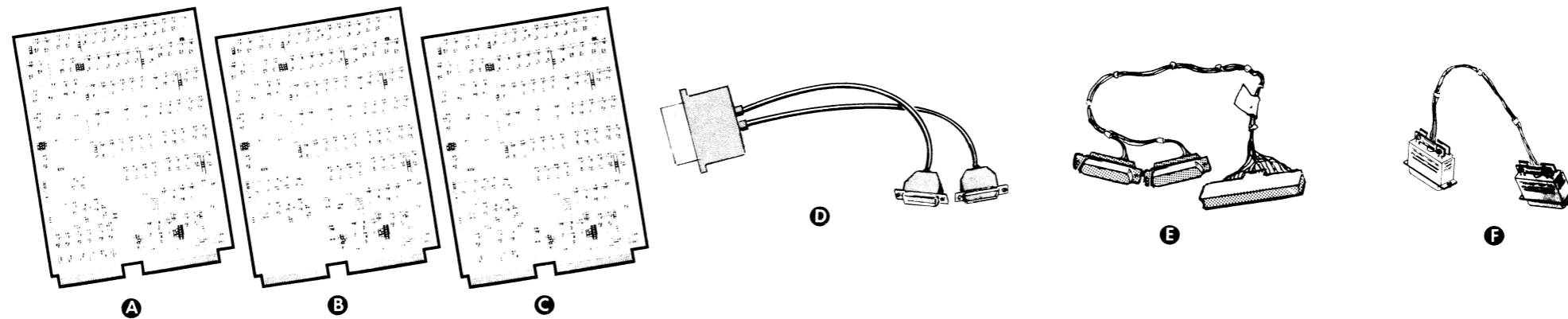
NOTE: A ! DENOTES A LOW-TRUE SIGNAL.

THE FOLLOWING LIST DEFINES THE COMMUNICATION PINOUTS FOR THE USAM PCBs AND FOR THE PROPOSED INTERNAL CABLE/HARNESS.

BOARD PIN	SIGNAL NAME	BACKPANEL PIN	I/O CONN-PIN	NOTES
A-01	TDATA0	1	P0-02	SYNC/ASYNC 4-CHAN and 1-CHAN PCBs
A-02	TDORTN	A	P0-11	
A-03	RDATA0	2	P0-03	4-CHAN and 1-CHAN PCBs
A-04	RDATAN	B	P0-18	
A-05	GND	3	P0-07	4-CHAN and 1-CHAN PCBs
A-06	CTSO	C	P0-05	
A-07	RTSO	4	P0-04	4-CHAN and 1-CHAN PCBs
A-08	DCDO	D	P0-08	
A-09	DTRO	5	P0-20	4-CHAN and 1-CHAN PCBs
A-10	DSRO	E	P0-06	
A-11	RIO	6	P0-22	4-CHAN and 1-CHAN PCBs
A-12	TETOUTO	F	P0-24	
A-13	TETINO	7	P0-15	4-CHAN and 1-CHAN PCBs
A-14	RETO	H	P0-17	
A-15	TDATA1	8	P1-02	4-CHAN PCB ONLY
A-16	TD1RTN	J	P1-11	
A-17	RDATA1	9	P1-03	4-CHAN PCB ONLY
A-18	RDIRTN	K	P1-18	
A-19	GND	10	P1-07	4-CHAN PCB ONLY
A-20	CTS1	L	P1-05	
A-21	RTS1	11	P1-04	4-CHAN PCB ONLY
A-22	DCD1	M	P1-08	
A-23	DTR1	12	P1-20	4-CHAN PCB ONLY
A-24	DSR1	N	P1-06	
A-25	RI1	13	P1-22	4-CHAN PCB ONLY
A-26	TETOUT1	P	P1-24	
A-27	TETIN1	14	P1-15	4-CHAN PCB ONLY
A-28	RET1	R	P1-17	
A-29	TDATA2	15	P2-02	4-CHAN PCB ONLY
A-30	TD2RTN	S	P2-11	
A-31	RDATA2	16	P2-03	4-CHAN PCB ONLY
A-32	RD2RTN	T	P2-18	
A-33	GND	17	P2-07	4-CHAN PCB ONLY
A-34	CTS2	U	P2-05	
A-35	RTS2	18	P2-04	4-CHAN PCB ONLY
A-36	DCD2	V	P2-08	
A-37	DTR2	19	P2-20	4-CHAN PCB ONLY
A-38	DSR2	W	P2-06	
A-39	RI2	20	P2-22	4-CHAN PCB ONLY
A-40	TDATA3	X	P3-02	
A-41	TD3RTN	21	P3-11	4-CHAN PCB ONLY
A-42	RDATA3	Y	P3-03	
A-43	RD3RTN	22	P3-18	4-CHAN PCB ONLY
A-44	GND	Z	P3-07	
A-45	CTS3	23	P3-05	4-CHAN PCB ONLY
A-46	RTS3	a	P3-04	
A-47	DCD3	24	P3-08	4-CHAN PCB ONLY
A-48	DTR3	b	P3-20	
A-49	DSR3	25	P3-06	4-CHAN PCB ONLY
A-50	RI3	c	P3-22	

### INSTALLATION SPECIFICATIONS

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.



**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	CONTROLLER RS-232	ANY I/O SLOT	
B	CONTROLLER RS-449/423	ANY I/O SLOT	
C	CONTROLLER MIXED	ANY I/O SLOT	

Model No	PCB Assy	Harness
4530-TA	005020865	005020872
4530-TB	005020867	005020872
4530-TC	005020866	005020872
4530-CA	005020865	005020873
4530-CB	005020867	005020873
4530-CC	005020866	005020873

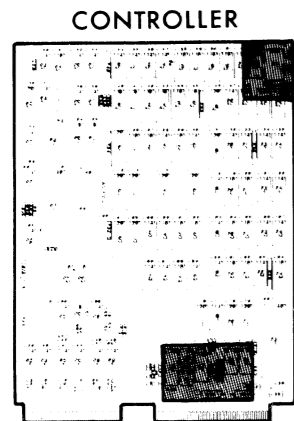
**CABLE**

ITEM	CABLE	CONNECTING	NOTES
D	HARNESS	USED WITH DESKTOP GENERATION	005020872
E	HARNESS	USED WITH ALL NON-DESKTOP SUPPORTED MACHINES	005020873
F	LOOPBACK CABLE	ALL MODEL NUMBERS	005020875

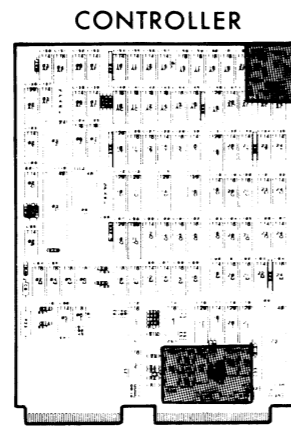
**Current Draw**

+5V	3.5A
+12V	0.2A
-12V	0.2A
-5V	0.2A

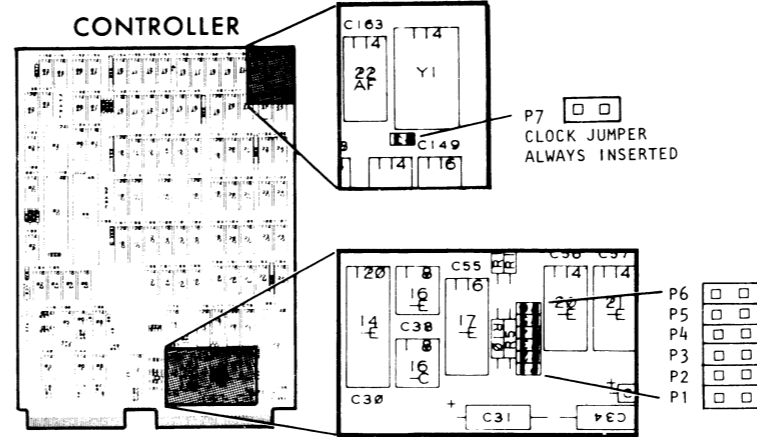
### TAILORING JUMPERING



Ref DGC Dwg 003-002015 Rev 00



Ref DGC Dwg 003-002016 Rev 00



Ref DGC Dwg 003-002017 Rev 00

DEVICE CODE SELECTION

INSERT JUMPER FOR LOGIC 1  
REMOVE JUMPER FOR LOGIC 0

- (MSB) P6
- P5
- P4
- P3
- P2
- (LSB) P1

NOTE:  
JUMPER LOCATIONS  
IDENTICAL ON ALL  
THREE BOARDS

RS-232 - Both channels

PIN NO	SIGNAL NAME	SIGNAL NAME	PIN NO
2	CON RTS *	CON CTS *	1
4	GND *	CON DATA IN *	3
6	RTSB	CON DATA OUT*	5
8	TDATB	SIGGNDA	7
10	EXT CLKB	DTRA	9
12		EXT CLKA	11
14	DTRB		13
16	SIGGNDB	RTSA	15
18	XTRA **	TDATA	17
20	SPARE1B	SPARE1A	19
22	SPARE0B	SPARE0A	21
24			23
26	DCDB	TCLKA	25
28			27
30	DSRB	RCLKA	29
32			31
34	RDATB	CTSA	33
36	RINGB		35
38			37
40		RDATA	39
42	RCLKB	RINGA	41
44			43
46	CTSB	DSRA	45
48			47
50	TCLKB	DCDA	49

\* SEE NOTES 6 AND 7.  
\*\* SEE NOTE 8.

RS-449/423 - Both channels

PIN NO	SIGNAL NAME	SIGNAL NAME	PIN NO
2	CON RTS *	CON CTS *	1
4	GND *	CON DATA IN *	3
6	RTSB	CON DATA OUT*	5
8	TDATB	SIGGNDA	7
10	EXT CLKB	DTRA	9
12	TCOMMONB	EXT CLKA	11
14	DTRB	TCOMMONA	13
16	SIGGNDB	RTSA	15
18	XTRA **	TDATA	17
20	SPARE1B	SPARE1A	19
22	SPARE0B	SPARE0A	21
24	DCDB	TCLKA	23
26	DCDB	TCLKA	25
28	DSRB	RCLKA	27
30	DSRB	RCLKA	29
32	RDATB	CTSA	31
34	RDATB	CTSA	33
36	RINGB	RCOMMONA	35
38	RCOMMONB	RDATA	37
40	RCLKB	RDATA	39
42	RCLKB	RINGA	41
44	CTSB	DSRA	43
46	CTSB	DSRA	45
48	TCLKB	DCDA	47
50	TCLKB	DCDA	49

\* SEE NOTES 6 AND 7.  
\*\* SEE NOTE 8.

RS-232 - Channel A,  
RS-449/423 - Channel B

PIN NO	SIGNAL NAME	SIGNAL NAME	PIN NO
2	CON RTS *	CON CTS *	1
4	GND *	CON DATA IN *	3
6	RTSB	CON DATA OUT*	5
8	TDATB	SIGGNDA	7
10	EXT CLKB	DTRA	9
12	TCOMMONB	EXT CLKA	11
14	DTRB		13
16	SIGGNDB	RTSA	15
18	XTRA **	TDATA	17
20	SPARE1B	SPARE1A	19
22	SPARE0B	SPARE0A	21
24	DCDB		23
26	DCDB	TCLKA	25
28	DSRB	RCLKA	27
30	DSRB	RCLKA	29
32	RDATB		31
34	RDATB	CTSA	33
36	RINGB		35
38	RCOMMONB		37
40	RCLKB	RDATA	39
42	RCLKB	RINGA	41
44	CTSB		43
46	CTSB	DSRA	45
48	TCLKB		47
50	TCLKB	DCDA	49

\* SEE NOTES 6 AND 7.  
\*\* SEE NOTE 8.

MISCELLANEOUS COMMUNICATION PINOUTS

CARD PIN	SIGNAL NAME	CONN PIN
A-17	TDATA	J1-2
A-39	RDATA	J1-3
A-15	RTSA	J1-4
A-33	CTSA	J1-5
A-45	DSRA	J1-6
A-7	SIGGNDA	J1-7
A-49	DCDA	J1-8
A-31	CTSA	J1-9 (NOTE 1)
A-43	DSRA	J1-10 (NOTE 1)
A-47	DCDA	J1-11 (NOTE 1)
A-35	RCOMMONA	J1-13 (NOTE 1)
A-21	SPARE0A	J1-14 (NOTE 2)
A-25	TCLKA	J1-15
A-23	TCLKA	J1-16 (NOTE 1)
A-29	RCLKA	J1-17
A-37	RDATA	J1-18 (NOTE 1)
A-27	RCLKA	J1-19 (NOTE 1)
A-9	DTRA	J1-20
A-41	RINGA	J1-22
A-19	SPARE1A	J1-23 (NOTE 3)
A-11	EXT CLKA	J1-24
A-13	TCOMMONA	J1-12 (NOTE 1)
---	EXT CLKA	J1-25 (NOTE 1; NOTE 4)
---	RTSA	J1-21 (NOTE 1; NOTE 4)
---	TDATA	J1-1 (NOTE 1; NOTE 4)
---	DTRA	---
A-8	TDATB	J2-2
A-34	RDATB	J2-3
A-6	RTSB	J2-4
A-46	CTSB	J2-5
A-30	DSRB	J2-6
A-16	SIGGNDB	J2-7
A-26	DCDB	J2-8
A-44	CTSB	J2-9 (NOTE 1)
A-28	DSRB	J2-10 (NOTE 1)
A-24	DCDB	J2-11 (NOTE 1)
A-38	RCOMMONB	J2-13 (NOTE 1)
A-22	SPARE0B	J2-14 (NOTE 2)
A-50	TCLKB	J2-15
A-48	TCLKB	J2-16 (NOTE 1)
A-42	RCLKB	J2-17
A-32	RDATB	J2-18 (NOTE 1)
A-40	RCLKB	J2-19 (NOTE 1)
A-14	DTRB	J2-20
A-36	RINGB	J2-22
A-20	SPARE1B	J2-23 (NOTE 3)
A-10	EXT CLKB	J2-24
A-12	TCOMMONB	J2-12 (NOTE 1)
---	EXT CLKB	J2-25 (NOTE 1; NOTE 4)
---	RTSB	J2-21 (NOTE 1; NOTE 4)
---	TDATB	J2-1 (NOTE 1; NOTE 4)
---	DTRB	---
A-1	CON CTS	---
A-2	CONRTS	---
A-3	CON DATA IN	---
A-4	GND	---
A-5	CON DATA OUT	---
A-18	XTRA	---

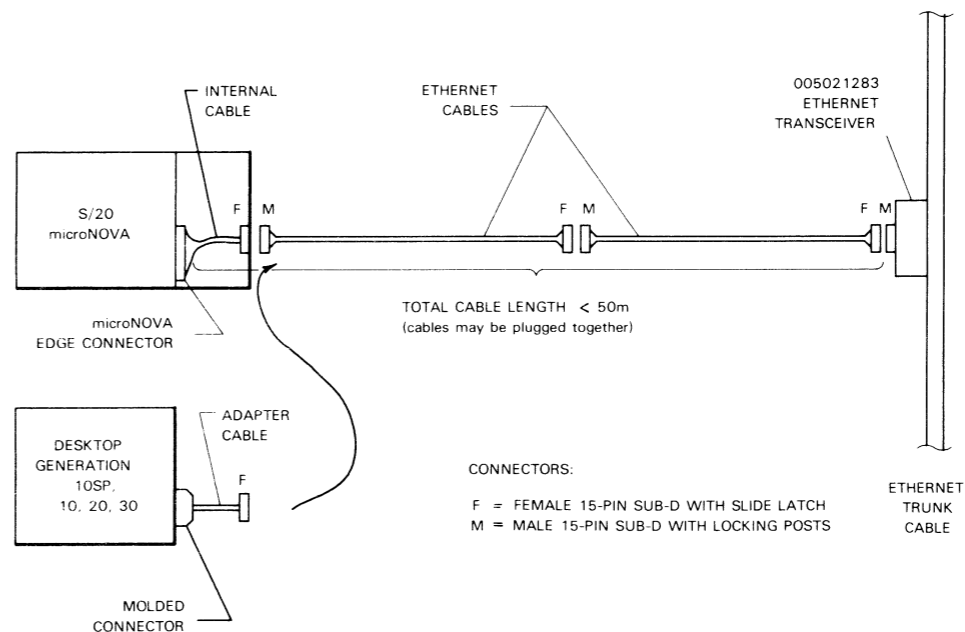
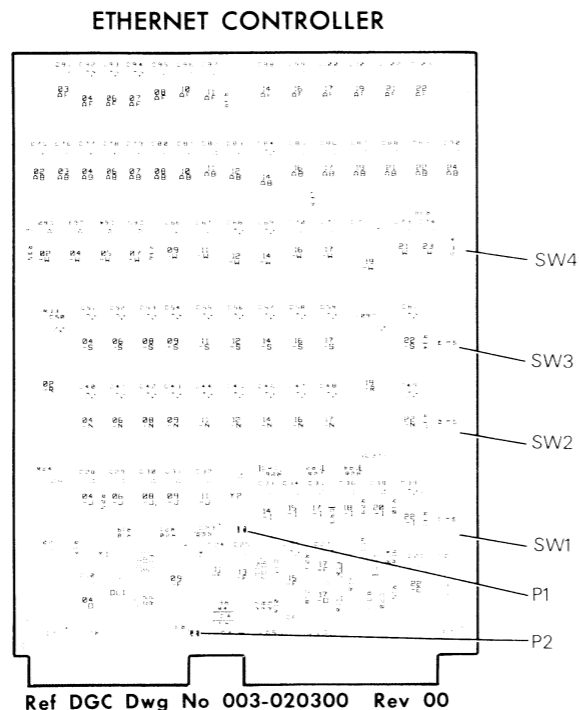
NOTES:

- THIS SIGNAL IS INCLUDED FOR RS-449 COMPATIBILITY, AND IS NOT INCLUDED IN THE RS-232 INTERFACE.
- THIS SIGNAL IS A SPARE OUTPUT FOR THE RS-232 INTERFACE, AND LOCAL LOOPBACK CONTROL FOR THE RS-449 INTERFACE.
- THIS SIGNAL IS A SPARE OUTPUT FOR THE RS-232 INTERFACE, AND REMOTE LOOPBACK CONTROL FOR THE RS-449 INTERFACE.
- THIS SIGNAL IS TIED TO TCOMMON IN THE HARNESS.
- THIS SIGNAL IS TIED TO TCOMMON IN THE RS-449 MODEM CABLE (005020874).
- "CON RTS" MUST BE TIED TO "CON CTS" IN THE HARNESS.
- "CON DATA OUT" IS TIED TO "CON DATA IN" IN THE HARNESS.
- THIS SIGNAL IS AT THE CARD EDGE, BUT IS NOT CARRIED IN THE HARNESS.

INSTALLATION SPECIFICATIONS

SEE DGC Dwg 010-001213 FOR CABLE INFORMATION

SEE DGC Dwg 010-001219 FOR DC CURRENT DRAW



CONNECTORS:  
 F = FEMALE 15-PIN SUB-D WITH SLIDE LATCH  
 M = MALE 15-PIN SUB-D WITH LOCKING POSTS

ID-00949  
 010-001212

DEVICE CODE (SW4)  
 (1 = ON 0 = OFF)

SWITCH POS'N	DEVICE CODE BIT NUMBER
1	DS0 (MOST SIG)
2	DS1
3	DS2
4	DS3
5	DS4
6	DS5 (LEAST SIG)

SWITCHES SW1, SW2 AND SW3  
 1 = OFF(UP) 0 = ON(DOWN)

SWITCHES SW1, SW2 AND SW3 ARE USED TO SET THE D-E-F OCTETS, RESPECTIVELY, OF THE CONTROLLER'S ETHERNET PHYSICAL ADDRESS. THIS IS A 24 BIT NUMBER REPRESENTED AS THREE GROUPS OF TWO HEXADECIMAL DIGITS (HH-HH-HH), AND IS USED TO UNIQUELY IDENTIFY THE CONTROLLER ON THE NETWORK.

IF YOUR CONTROLLER'S ETHERNET PHYSICAL ADDRESS WAS ASSIGNED BY DATA GENERAL BUT NOT SET ON THE THREE SWITCHES, YOU MUST SET THE SWITCHES BEFORE CONNECTING THE CONTROLLER TO THE NETWORK.

IF YOUR CONTROLLER'S ETHERNET PHYSICAL ADDRESS OCTETS D-E-F ARE NOT SUPPLIED WITH THE BOARD, YOU MAY SET SWITCHES SW1, SW2 AND SW3 TO ANY NUMBER PROVIDED THAT NO OTHER DATA GENERAL CONTROLLER ON YOUR NETWORK HAS THE SAME ETHERNET PHYSICAL ADDRESS.

SWITCH POS'N	OCTET BIT	ETHERNET PHYSICAL ADDRESS OCTET	SWITCH NUMBER
1	7 (MOST SIGNIFICANT BIT)		
2	6		
3	5	D	SW1 (MOST SIG.)
4	4	E	SW2
5	3	F	SW3 (LEAST SIG.)
6	2		
7	1		
8	0 (LEAST SIGNIFICANT BIT)		

EXAMPLE:

YOUR CONTROLLER'S COMPLETE ASSIGNED ETHERNET PHYSICAL ADDRESS IS 08-00-1B-50-5A-53. THE FIRST THREE OCTETS (08-00-1B) INDICATE THAT THE CONTROLLER IS MANUFACTURED BY DATA GENERAL. THESE ARE SUPPLIED BY THE SOFTWARE AND ARE NOT ENCODED ON THE CONTROLLER HARDWARE.

THE NEXT THREE OCTETS (50-5A-53) UNIQUELY IDENTIFY YOUR CONTROLLER AMONG ALL CONTROLLERS MANUFACTURED BY DATA GENERAL. THESE ARE THE THREE OCTETS YOU MUST ENTER INTO SW1, SW2 AND SW3.

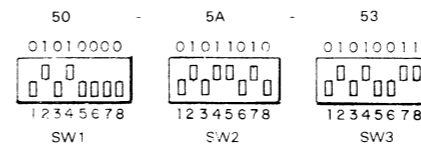
BEGIN BY CONVERTING THE SIX HEXADECIMAL DIGITS TO BINARY USING THE TABLE BELOW. WORK FROM LEFT TO RIGHT, WRITING DOWN THE BINARY NUMBERS NEXT TO EACH OTHER, UNDERNEATH THE HEX DIGITS.

HEX. DIGIT	BINARY NUMBER	HEX. DIGIT	BINARY NUMBER
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

YOU WOULD WRITE:

5 0 - 5 A - 5 3  
 0101 0000 0101 1010 0101 0011

NOW, WORKING FROM LEFT TO RIGHT, SET THE BINARY NUMBERS ONTO THE SWITCH POSITIONS. STARTING WITH SW1, POSITION 1 AND WORKING TOWARDS THE RIGHT. YOUR SWITCHES SHOULD LOOK LIKE THOSE BELOW WHEN YOU ARE DONE.

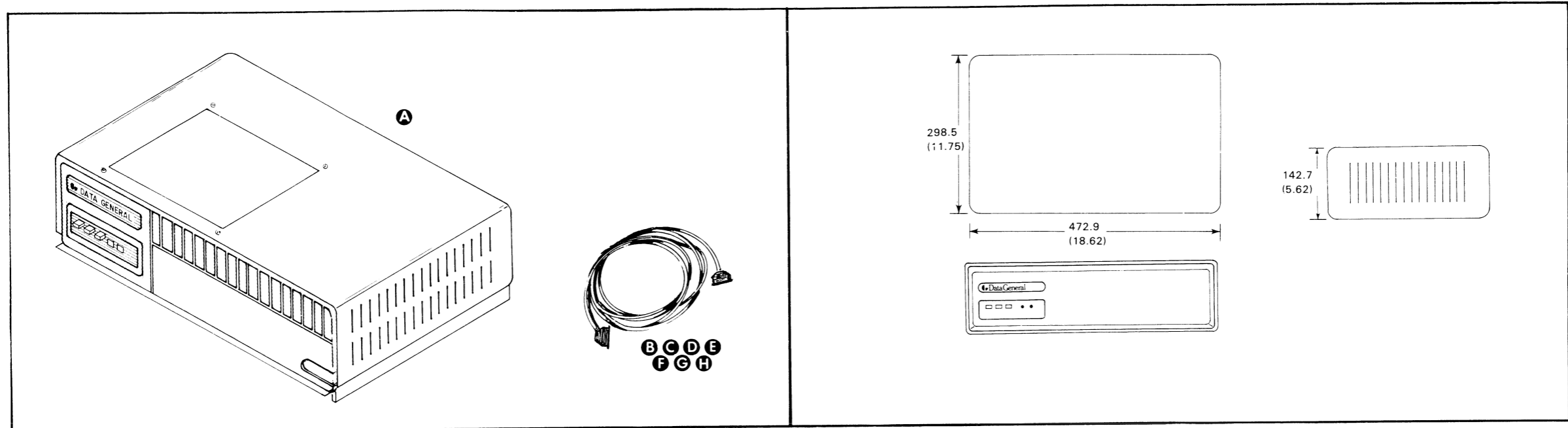


JUMPERS

JUMPER	NORMAL STATE	USED FOR
P1	IN	CONNECTS MASTER CLOCK TO LOGIC CIRCUITS.
P2	IN	CONNECTS +12V TO PIN A5 (TRANSCIEVER POWER)



### INSTALLATION SPECIFICATIONS MODEL 4397 REMOTE ASSISTANCE SUBSYSTEM



**MAJOR COMPONENT**

ITEM	COMPONENT	MTG. LOG.	NOTES
A	R.A.S.S.	TABLE TOP	CONNECTS BETWEEN SYSTEM CONSOLE & CPU TTY PORT

**MANDATORY CABLES**

ITEM	CABLE	CONNECTING	LENGTH
B	20 MA	R.A.S.S. & TERM	25 FT.
C	EIA RS232C	R.A.S.S. & TERM	25 FT.

**OPTIONAL CABLES**

ITEM	CABLE	CONNECTING	LENGTH
D	20MA	R.A.S.S. & CPU TTY PORT	25 FT. **
E	EIA RS232C	R.A.S.S. & CPU TTY PORT	25 FT. **
F	MODEM	R.A.S.S. & MODEM	25 FT.
G	20MA	R.A.S.S. & ASYNC PORT*	25 FT.
H	EIA RS232C	R.A.S.S. & ASYNC PORT*	25 FT.

\*OPTIONAL CONNECTION

\*\* NOT REQUIRED IF EXISTING SYSTEM CONSOLE CABLE IS 25 PIN "D" TYPE CONNECTION.

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	472.9	298.5	142.7
Inches	18.62	11.75	5.62

**WEIGHT:**

Kilograms	6.8
Pounds	15.2

**HEAT OUTPUT:**

Watts	BTU/hr
16	55

**RADIATION:**  
FCC Part 15, Subpart J (Class A)  
VDE 0871 (Class A)

**NON-OPERATING ENVIRONMENT:**

Temperature	-40 to 65°C (-40 to 149°F)
Relative Humidity	10 - 90% non-condensing
Altitude (max)	15240m (50,000 ft)

**OPERATING ENVIRONMENT:**

Temperature	10 - 38°C (50 - 100°F)
Relative Humidity	20 - 80 (non-condensing)
Altitude	2,438m (8,000 ft.)

**CABLES:**  
Primary Power

	Length	Conn	Mating Conn
Domestic 60Hz	6'	5-15P	5-15R
Export 50Hz	Not supplied		
EIA Cable (max)	50'		50'
Current Loop Cable (max)		300'	300'
Modem Cable (max)	50'		50'

**POWER REQUIREMENTS:**

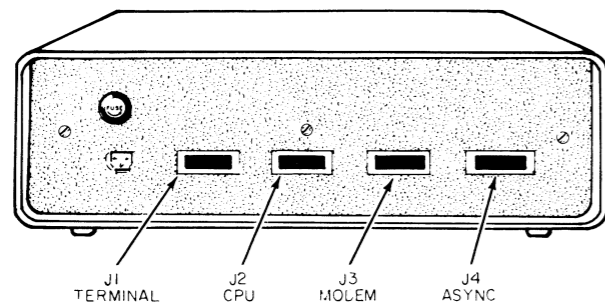
Voltage	90 to 264 Vac	
Hz	47 to 63	
Amp per Phase	0.2A (120V),	0.11A (240V)
Phase	1	
Startup Surge per Phase	4A Pk for 2 cycles	

Note: The combined length of the cables used on the CPU and local terminal ports cannot exceed the maximum.

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

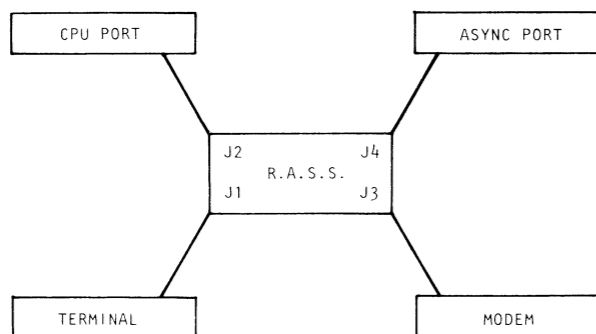
CABLING

REAR PANEL CONNECTORS



1. J1 - TERMINAL CONNECTOR - RASS TO TERMINAL  
 E1A - MODEL #1340 - 005-13258  
 CL - MODEL #1341 - 005-13260
2. J2 - CPU CONNECTOR - RASS TO SYSTEM TTY PORT  
 E1A - MODEL #1340 - 005-13258  
 CL - MODEL #1341 - 005-13260
3. J3 - MODEM CONNECTOR - RASS TO MODEM  
 E1A - MODEL #1338 - 005-13266
4. J4 - ASYNC CONNECTOR - RASS TO ASYNC PORT (OPTIONAL)  
 E1A - MODEL #1340 - 005-13258  
 CL - MODEL #1341 - 005-13260

INTERCONNECTION DIAGRAM

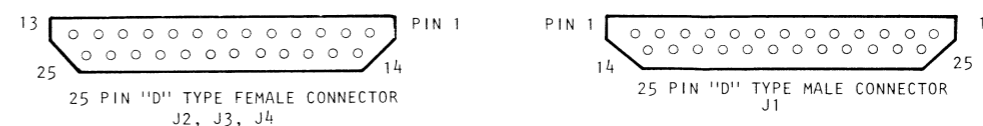


CABLE ADAPTERS

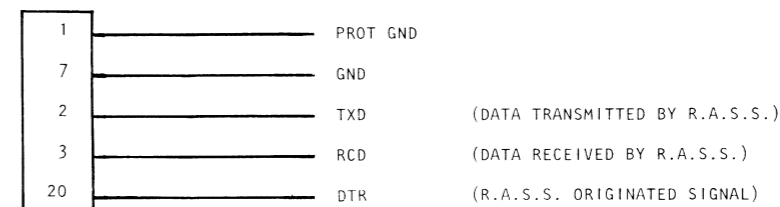
MODEL NO.	005-XXXX	DESCRIPTION
1241	13270	EIA RS-232C HOST END ADAPTER (25 PIN D / 13 PIN AMP)
1242	13272	20ma HOST END ADAPTOR (25 PIN D / 12 PIN AMP)
1243	13271	EIA RS-232C HOST END ADAPTER (25 PIN D / 12 PIN AMP)

REQUIRED TO CONNECT NON-EMI HARDENED EQUIPMENT TO R.A.S.S. USING SUPPLIED CABLE.

CONNECTOR PINOUTS

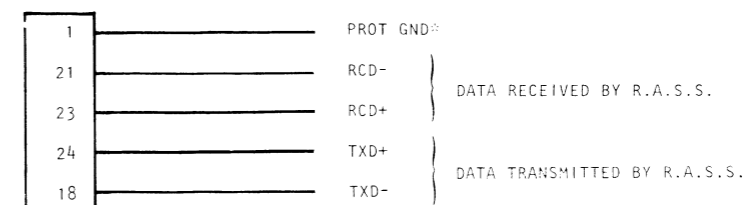


USE THE FOLLOWING CONFIGURATION WHEN INTERFACING WITH HOST (CPU, ASYNC) IN EIA MODE R.A.S.S. J2, J4



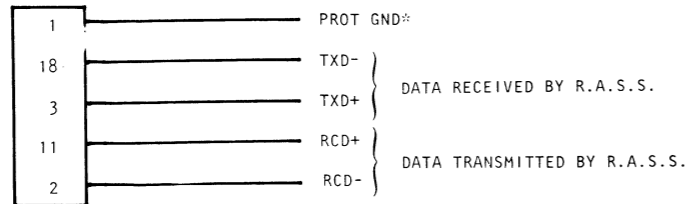
\*USER SUPPLIED CABLES SHOULD TERMINATE TO PIN 1 OR CONNECTOR BODY.

USE THE FOLLOWING CONFIGURATION WHEN INTERFACING WITH HOST (CPU, ASYNC) IN CURRENT LOOP MODE. R.A.S.S. HAS PASSIVE CURRENT LOOP CIRCUITRY ON J2 AND J4. R.A.S.S. J2, J4

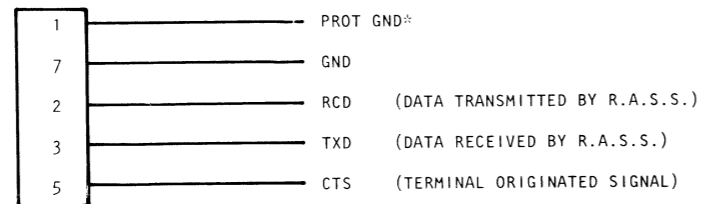


### CABLING (Cont.)

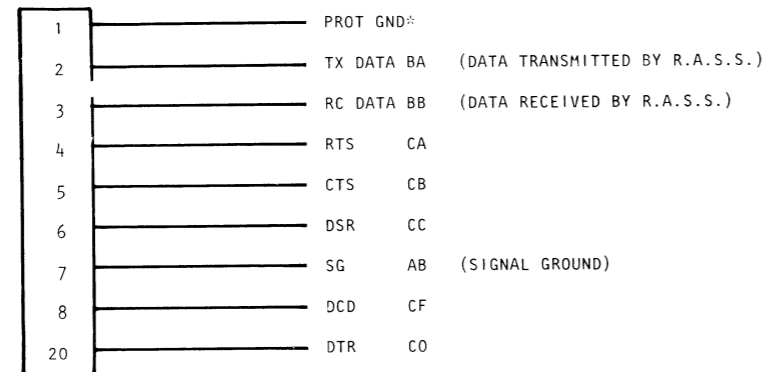
USE THE FOLLOWING CONFIGURATION WHEN INTERFACING TO A CURRENT LOOP TERMINAL:  
R.A.S.S. J1



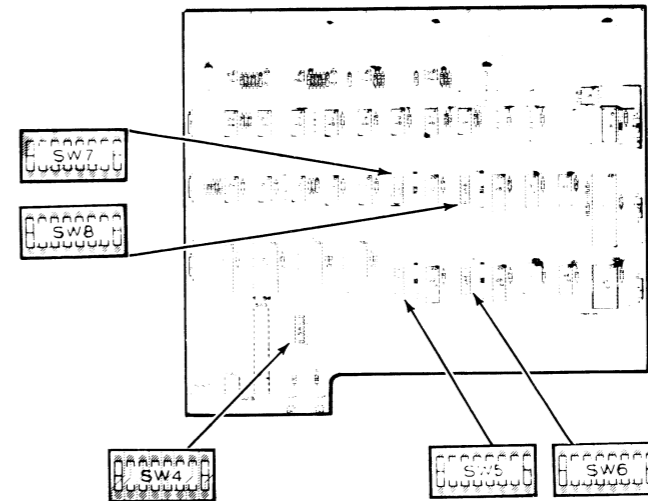
USE THE FOLLOWING CONFIGURATION WHEN INTERFACING TO AN EIA TERMINAL  
R.A.S.S. J1



USE THE FOLLOWING CONFIGURATION WHEN INTERFACING TO A BELL 103/113 OR  
212 COMPATIBLE FULL DUPLEX MODEM.  
R.A.S.S. J3



### TAILORING



REMOVE THE 4 SCREWS HOLDING THE TOP HATCH AND  
CONFIGURE SWITCHES AS PER BELOW:

SW7 ASYNC PORT	SW6 MODEM PORT	SW8 LOCAL TERM/ CPU PORTS	FUNCTION
12345678	12345678	12345678	
xxxx1111	xxxx1111	xxxx1111	19200
..xxx1110	xxxx1110	..xxx1110	9600
xxx1101	xxx1101	xxx1101	4800
xxx1100	xxx1100	xxx1100	2400
xxx1010	xxx1010	xxx1010	1800
xxx1001	..xxx1001	xxx1001	1200
xxx0111	xxx0111	xxx0111	600
xxx0110	xxx0110	xxx0110	300
xxx0100	xxx0100	xxx0100	150
xxx0010	xxx0010	xxx0010	110
..xxx1xxxx	..xxx1xxxx	..xxx1xxxx	NO PAR
xx00xxxx	xx00xxxx	xx00xxxx	EVEN PAR
xx10xxxx	xx10xxxx	xx10xxxx	ODD PAR
x0xxxxxx	x0xxxxxx	x0xxxxxx	2 STOP
..x1xxxxxx	..x1xxxxxx	..x1xxxxxx	1 STOP
..0xxxxxxx	..0xxxxxxx	..0xxxxxxx	8 DATA
1xxxxxxx	1xxxxxxx	1xxxxxxx	7 DATA

R.A.S.S.  
DIPSWITCH SETTINGS

1 = ON  
0 = OFF  
x = DON'T CARE  
.. =FACTORY SET

SW5  
HARDWARE/SOFTWARE  
BUSY SELECT

12345678  
..0xx0xx0x HDBZ CPU  
1xx0xx1x SFBZ CPU  
x0x0xxx0 HDBZ ALM  
..x1x0xxx1 SFBZ ALM

SW4  
EIA/CURRENT LOOP  
SELECT

12345678  
00001111 CURRENT LOOP  
..11110000 EIA

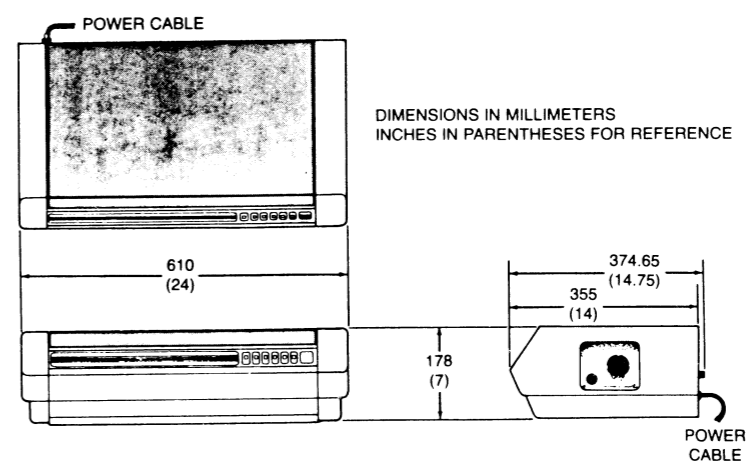
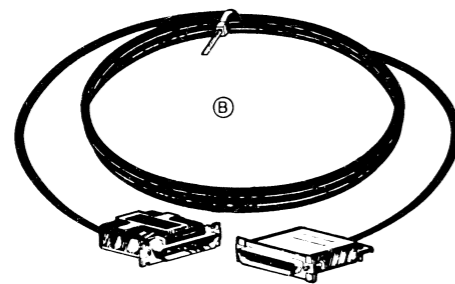
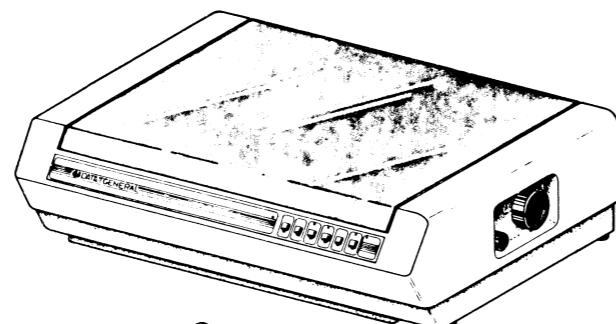
NOTE: THE CPU AND LOCAL TERMINAL PORTS ARE BOTH TAILORED USING SW8



**HARD COPY**



# INSTALLATION SPECIFICATIONS



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	610	355	178
Inches	24	14	7

**WEIGHT:**

Kilograms	15.9
Pounds	35

**HEAT OUTPUT (MAX):**

	Watts	BTU/hr
	216.2	737.3

**OPERATING ENVIRONMENT:**

Temperature (max)	10°C-38°C (50°-100°F)
Relative Humidity (max)	20%-80% non-condensing

**POWER REQUIREMENTS:**

(Domestic)

Voltage	120V + 10-15%
Hz	60 ± 1%
Amp per Phase	1.8
Phase	1
Startup Surge per Phase	13 amps peak for 2 cycles

(Export)

Voltage	220V/240V +10 -15%
Hz	50 ± 1%
Amp per Phase	.9
Phase	1
Startup Surge per Phase	13 amps peak for 2 cycles (120V) 7 amps peak for 2 cycles (220V/240V)

**CABLES:**

	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	7.5ft.(2.25m)	5-15P	5-15R
Export 50Hz	NONE		

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	PRINTER	DESKTOP	MODEL 4433

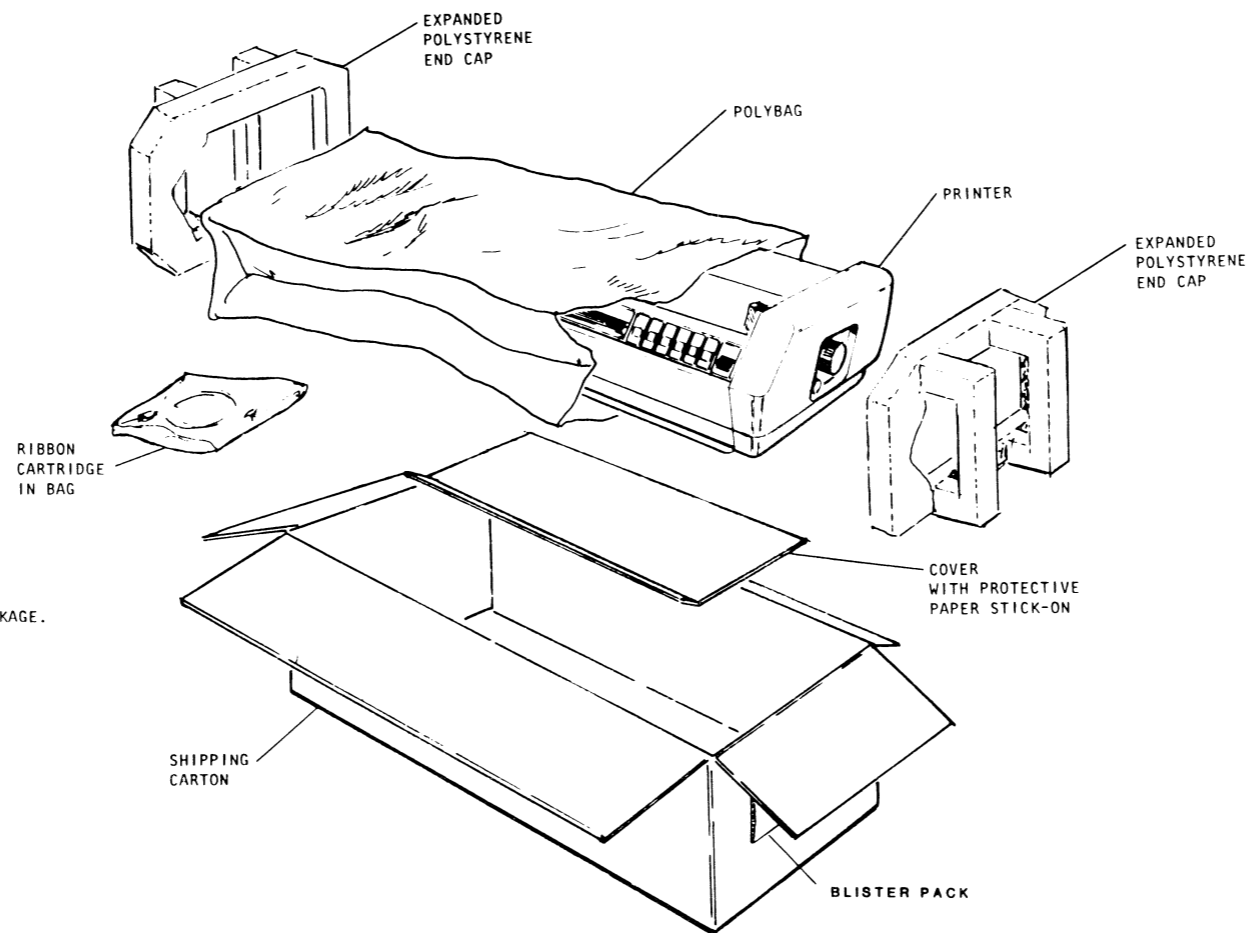
**CABLE**

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
B	DEVICE CABLE (EIA)	PRINTER AND COMMUNICATIONS INTERFACE	25	7.5	

**Warning:**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

### SHIPPING

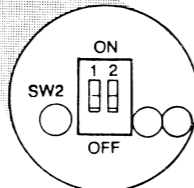
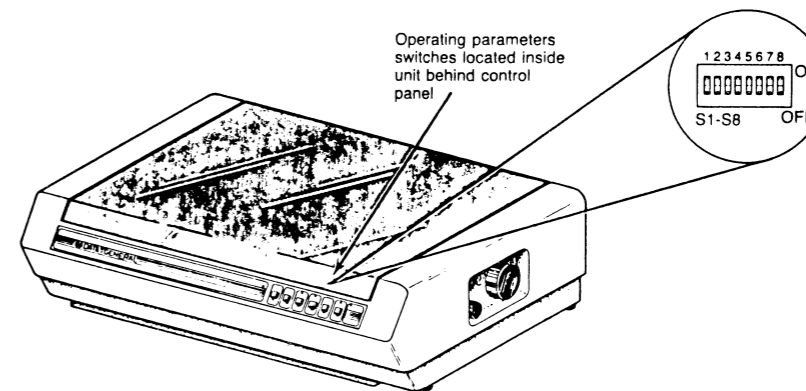
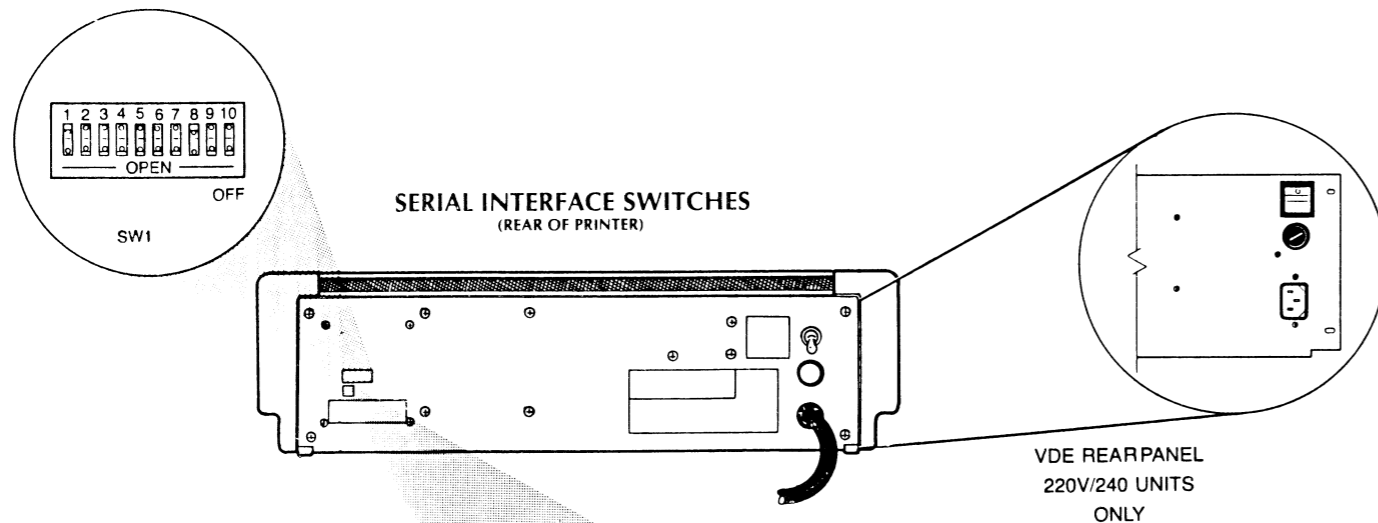


NOTE:  
CABLE IS SHIPPED IN SEPARATE PACKAGE.

\*Remove model # tag/label from the blister pack. Affix the tag/label in the center of the back panel.



## PRINTER CONFIGURATION TAILORING



### SW1 SWITCH BIT SETTINGS

SWITCH	SETTING	FUNCTION
SW1-1 thru SW1-4	See table	Baud rate select
SW1-5, SW1-6	See Table	Parity Select
SW1-7	ON	8-bit code format
	OFF	7-bit code format
SW1-8*	ON	Software busy enabled
	OFF	Hardware busy enabled
SW1-9, SW1-10	See table	Fault mode select

\*SEE NOTE 1

### BAUD RATE SELECT

SWITCH				SELECTED BAUD RATE
SW1-1	SW1-2	SW1-3	SW1-4	
OFF	OFF	OFF	OFF	19,200
OFF	OFF	OFF	ON	9600
OFF	OFF	ON	OFF	7200
OFF	OFF	ON	ON	4800
OFF	ON	OFF	OFF	3600
OFF	ON	OFF	ON	2400
OFF	ON	ON	OFF	1800
OFF	ON	ON	ON	1200
ON	OFF	OFF	OFF	600
ON	OFF	OFF	ON	300
ON	OFF	ON	OFF	150
ON	OFF	ON	ON	135
ON	ON	OFF	OFF	110
ON	ON	OFF	ON	75
ON	ON	ON	OFF	50
ON	ON	ON	ON	Interface Self Test (See note)

NOTE: Self-test causes the printer to generate an 80 character rotating pattern that is printed out as if it had been received at the interface. The printer must be on-line for this test.

### SW2 SWITCH SETTINGS

COMMUNICATION TYPE	SW2-1	SW2-2
HARDWARE BUSY	OFF	OFF
SOFTWARE BUSY W/O MODEM	ON	OFF
SOFTWARE BUSY WITH NORMAL MODEM OPERATION ONLY	OFF	OFF
SOFTWARE BUSY WITH NORMAL MODEM OPERATION, PLUS CALLS WILL DISCONNECT IF THE PRINTER GOES OFF LINE FOR 30 SECONDS OR DOES NOT RECEIVE DATA FOR 30 SECONDS. (WRONG NUMBER TERMINATE)	OFF	ON

NOTE 1: IF SW1-8 IS OFF (HARDWARE BUSY SELECTED) THEN SW2-1 MUST BE OFF.

### PARITY SELECT

SWITCH SETTING		PARITY TYPE
SW1-5	SW1-6	
OFF	OFF	Even
OFF	ON	Mark
ON	OFF	Odd
ON	ON	None

### FAULT MODE SELECT

SWITCH SETTING		ERROR HANDLING PROCEDURE
SW1-9	SW1-10	
ON	ON	Ignore faults, drop bad character
ON	OFF	Substitute space for bad character
OFF	ON	Substitute ? for bad character
OFF	OFF	Treat all communication errors as fatal

NOTE: SWITCH IN OPEN POSITION IS OFF. ON denotes CLOSED POSITION.

### OPERATING PARAMETERS SWITCHES SETTINGS

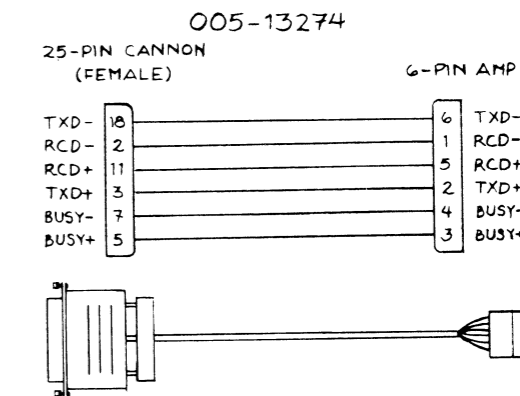
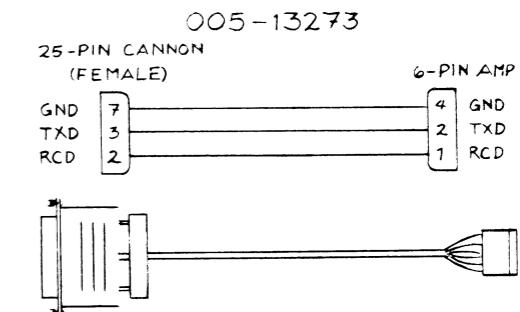
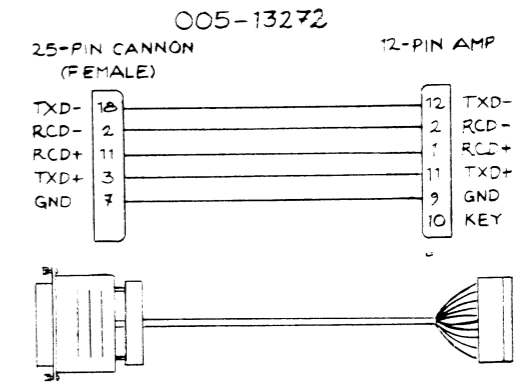
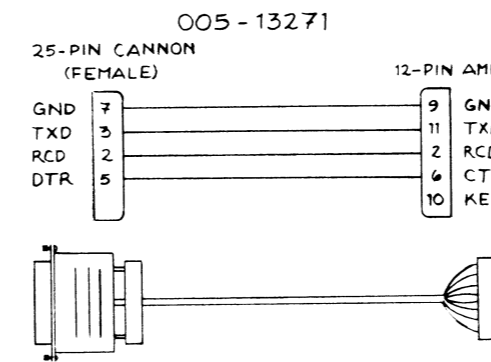
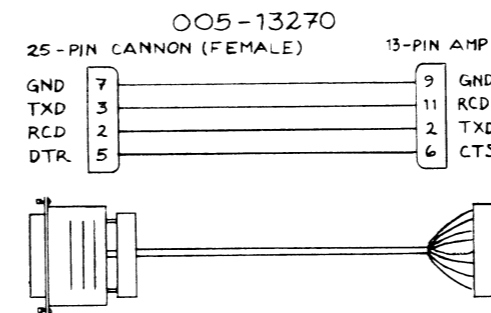
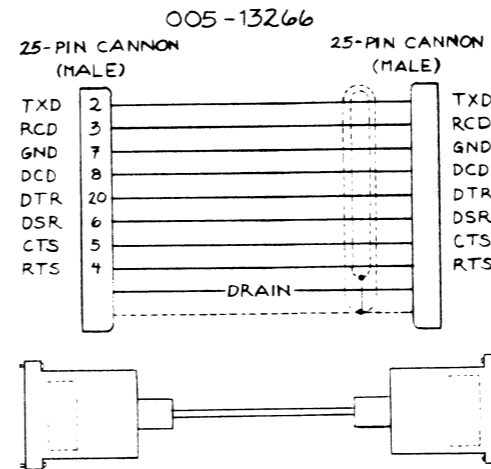
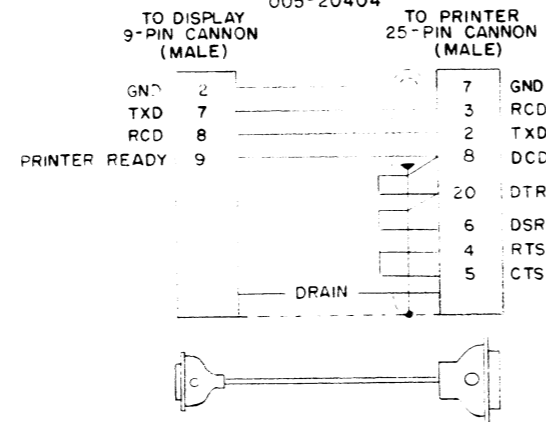
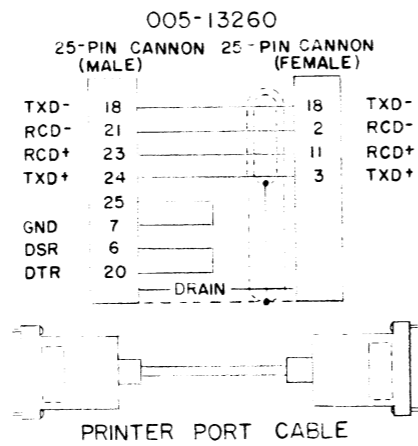
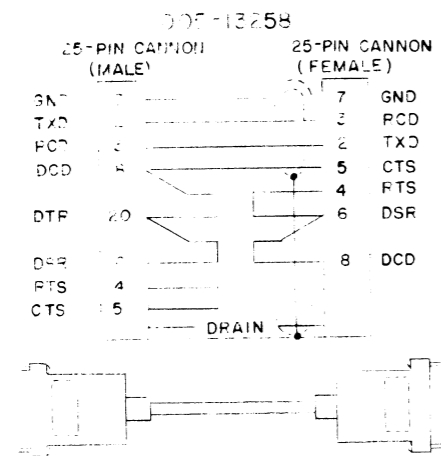
SWITCH	SETTING	FUNCTION
S1, S2, S5	See table	Character set select
S3	ON	Auto line feed after CR feature disabled
	OFF	Auto line feed after CR enabled
S4	ON	Serial interface
	OFF	Not a valid setting
S6	ON	Perforation skipover at bottom of page (1 inch)
	OFF	Perforation skipover disabled
S7	ON	Condensed print format is selected
	OFF	Normal print format selected
S8	—	Not used

### CHARACTER SET SELECT

SWITCH SETTING			SELECTED CHARACTER SET
S1	S2	S5	
OFF	OFF	OFF	U.S. ASCII set
OFF	OFF	ON	Swedish/Finnish
OFF	ON	OFF	Danish/Norwegian
OFF	ON	ON	German
ON	OFF	OFF	British
ON	OFF	ON	Italian
ON	ON	OFF	French
ON	ON	ON	Spanish

CONTROLLER	EIA, S/W BUSY	CURRENT LOOP	EIA, H/W BUSY	CABLE SUFFICES		
				EIA S/W BUSY	CURRENT LOOP	EIA H/W BUSY
AC 8	005-13258	---	---	N	---	---
AC 16	005-13258	005-13260	---	N	M	---
AMI 8	005-13258	---	005-13258	N	---	N
AMI 16**	005-13258	005-13260	---	N	M	---
ALM 8	005-13258+005-13270 005-13258	---	005-13258+005-13270 005-13258	E	---	E
ALM 16	005-13258+005-13273 005-13258	005-13260+005-13274 005-13260	---	B	F	---
ALM 5	005-13258+005-13271 005-13258	005-13260+005-13272 005-13260	005-13258*+005-13271 005-13258	A	D	E
4224-S	005-13258	---	---	N	---	---
4224-AS	005-13258	---	---	N	---	---
4227	005-13258+005-13271	005-13260+005-13272	005-13258*+005-13270	A	D	E
4227-C	005-13258+005-13271	005-13260+005-13272	005-13258*+005-13270	A	D	E
4227*	005-13258+005-13271	005-13260***+005-13272	005-13258*+005-13270	A	D	E
4227-S	005-13258+005-13271	005-13260***+005-13272	005-13258*+005-13270	A	D	E
MODEM CABLE	005-13266	---	---	J	---	---
4463-W	005-13258 (MODEL #1340)(1)+20688	---	---	---	---	---
4463-Z	005-13258 (MODEL #1340)(1)+21041	---	---	---	---	---
PTR PRT CBL	005-020404****	---	005-20404****	---	---	---

\* CLEAR TO SEND SIGNAL MUST BE ENABLED WITH APPROPRIATE CABLE  
 \*\* DAUGHTER PCB FOR 20mA PREPARATION IS 005-014464  
 \*\*\* DAUGHTER PCB FOR EIA OPERATION IS 005-005464  
 \*\*\*\* CAPACITOR MUST BE REMOVED FOR 20mA CURRENT LOOP OPERATION  
 \*\*\*\*\* SEE MODEL NUMBER TABLE FOR CABLE INFORMATION (SHEET 3)



NOTE:  
 1. SEE CABLE MODEL NUMBER CHART FOR CABLES LISTED IN THE CABLE MATRIX.

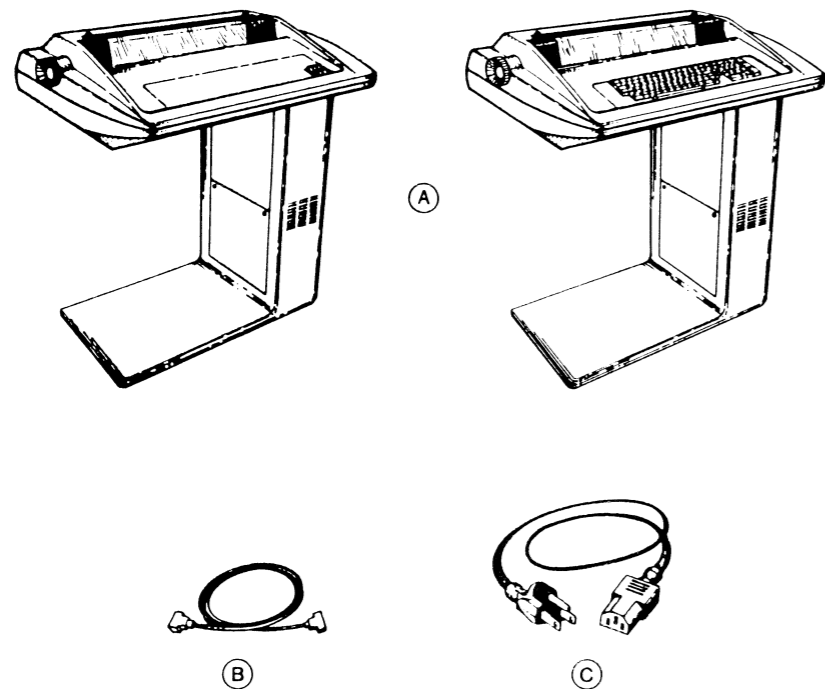
CABLE MODEL NO. CHART

MODEL NO.	LENGTH	PART NO.
1340	25'	005-013258
1340-A	50'	005-013321
1340-S	5'	005-013325
1340-T	15'	005-013315
1341	25'	005-013260
1341-A	50'	005-013282
1341-B	100'	005-013283
1341-C	300'	005-013285
1341-D	500'	005-013284
1338	25'	005-013266
1241	1.5'	005-013270
1243	1.5'	005-013271
1242	1.5'	005-013272
1254	1.5'	005-013273
1255	1.5'	005-013274

PRINTER/PORT MODEL NO. TABLE

MODEL NO.	LENGTH	PART NO.
1342R	2'	007-002417
1342	5'	005-020404
1342T	15'	007-002418
1342U	25'	007-002419
1342-A	50'	005-020407

SUBSYSTEM COMPONENT BREAKDOWN



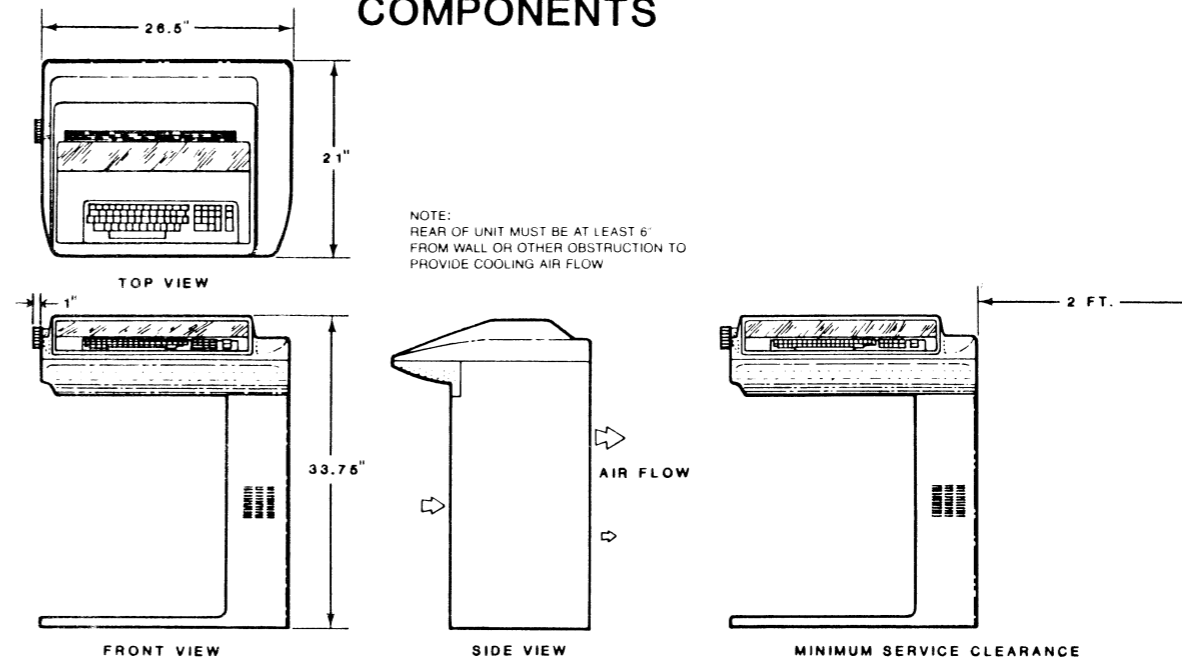
MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	180CPS RO SERIAL PRINTER	FREE STANDING	
	OR 180CPS KSR TERMINAL	FREE STANDING	

CABLE

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
B	DEVICE CABLE (20MA)	20MA INTERFACE CONNECTOR and PRINTER/TERMINAL	1000	305	DEV CABLE VARIES WITH
	DEVICE CABLE (EIA)	EIA INTERFACE CONNECTOR " PRINTER/TERMINAL	50	152	1) COMPUTER
	DEVICE CABLE (MODEM)	MODEM CONNECTOR CABLE " PRINTER/TERMINAL	50	152	2) INTERFACE
C	POWER	PRINTER TO PRIMARY POWER	7.5	2.3	

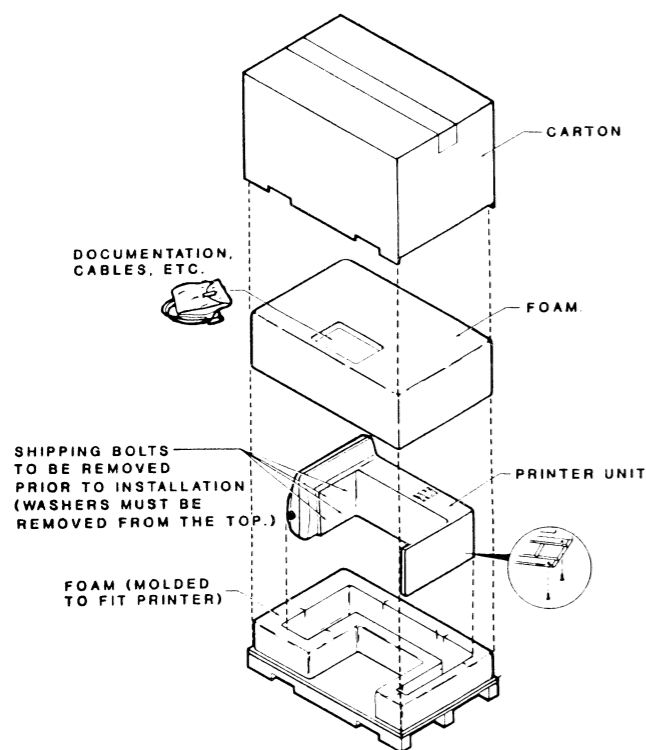
SPECIFICATIONS OF FREE-STANDING COMPONENTS



SPECIFICATIONS

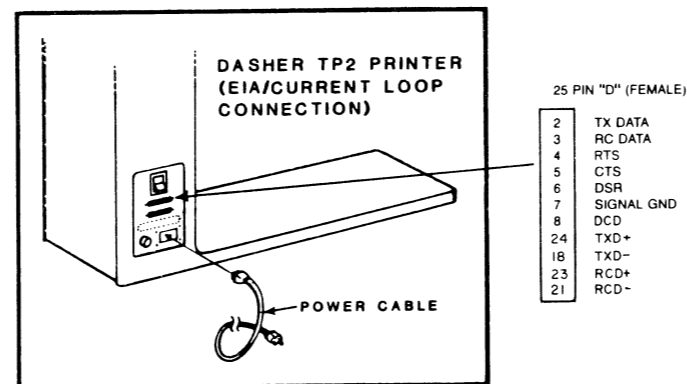
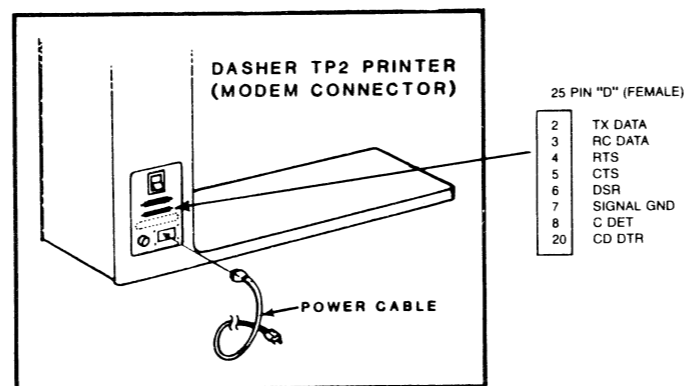
DIMENSIONS:	WIDTH	DEPTH	HEIGHT	POWER REQUIREMENTS:
CENTIMETERS	67.31	53.34	85.73	(DOMESTIC)
INCHES	26.50	21.00	33.75	VOLTAGE (47-63Hz)
SERVICE CLEARANCES:	REAR	RIGHT		120
CENTIMETERS	30.48	60.96		HZ
INCHES	12	24		MAX AMP PER PHASE
				2.5
				PHASE
				1
WEIGHT:				(EXPORT)
KILOGRAMS	36.3			VOLTAGE (47-63Hz)
POUNDS	80			220/240
				HZ
				47-63
				MAX AMP PER PHASE
				1.41.3
				PHASE
				1
HEAT OUTPUT:	300 WATTS (1023BTU/HR)			
OPERATING ENVIRONMENT:				
TEMPERATURE (MIN)	10 DEGC (50 DEGF)			
TEMPERATURE (MAX)	40 DEGC (104 DEGF)			
RELATIVE HUMIDITY (MAX)	90%			
CABLES:				
PRIMARY POWER		CONN	MATING	
DOMESTIC	2.3M (7.5')	5-15P	CONN	5-15R

### SHIPPING

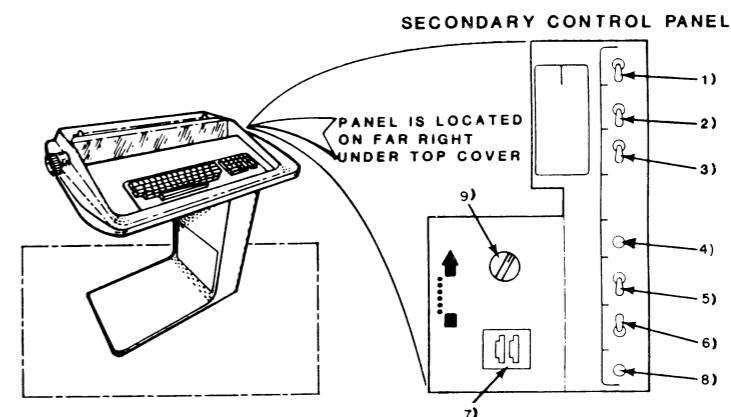


SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight	Volume	Density
Length	Width	Depth	(Gross)		
in.	in.	in.	lbs	cu ft	lbs/cu ft
cm	cm	cm	kg	cu m	kg/cu m
40.5	31.50	30.75	123	22.7	5.4
1029	800	781	55	6	87.6
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
°F	% (Non-condensing)	ft	°F	% (Non-condensing)	days
40 - 160	0% - 80%	50,000 ft	40 - 160	0% - 80%	90 days
49 - 71		15,200 m	40 - 71		

### EXTERNAL CABLING SERIAL INTERFACE CONNECTIONS



### TAILORING SWITCHES



#### SECONDARY CONTROL PANEL SWITCHES

- 1) COMP/NORM - SET TO NORMAL OR COMPRESSED WIDTH CHARACTERS.
- 2) LPI - SET TO 6 OR 8 LINES PER INCH.
- 3) SELF TEST/ESC DISABLE - SET IN THE MIDDLE POSITION IF THE PRINTER SHOULD RESPOND TO ESCAPE SEQUENCES. SET IN THE ESC DISABLE POSITION IF THE PRINTER SHOULD IGNORE ESCAPE SEQUENCES.
- 4) MASTER RESET
- 5) CHAR SET - SET TO STANDARD OR ALTERNATE CHARACTER SET.
- 6) PERF SKIP - SET ON OR OFF FOR PERFORATION SKIPOVER
- 7) LINE COUNT - SET LINE COUNT CORRESPONDING TO THE FORM LENGTH. LINE COUNT = FORM LENGTH (INCHES) x 6 OR 8 LINES PER INCH.
- 8) TOF - MOVE THE PAPER TO THE TOP OF FORM AND PRESS TOF TO INITIATE THE LINE COUNTER.
- 9) BAUD RATE - SET ROTARY SWITCH TO THE DESIRED DATA TRANSFER RATE.

# COMPLIANT TP2 TAILORING GUIDELINES (MAIN CONTROL PCB 005-016362) DIP SWITCH SETTINGS

CONFIGURATION SWITCH DEFINITION			
SWITCH	NO	SETTING	DESCRIPTION
SW1	1 - 3	See Table 1	Standard Character Set Select
	4 - 6		Alternate Character Set Select
	7	See Table 2	Alignment Switch Settings
8			
SW2	1	See Table 4	Parity Configuration
	2		
	3	On	Parity Fault Disabled
	4		
	5	On	8 Data Bits
	6	On	7 Data Bits
	7	On	1 Stop Bit
	8	On	2 Stop Bits
SW3	1	On	HW Busy Low
	2	On	HW Busy High
	3	On	HW Busy Enable
	4	On	SW Busy Enable
	5	On	Current Loop Mode
	6	On	EIA/Modem
	7	On	EIA/Modem Current Loop Mode
	8	On	Not Used

TABLE 1

CHARACTER SET SELECT (SW1, BITS 1-6)						
STANDARD SET			ALTERNATE SET			SELECTED
SW1 BITS			SW1 BITS			CHARACTER SET
1	2	3	4	5	6	
ON	ON	ON	ON	ON	ON	American
ON	ON	OFF	ON	ON	OFF	British
ON	OFF	ON	ON	OFF	ON	German
ON	OFF	OFF	ON	OFF	OFF	Spanish
OFF	ON	ON	OFF	ON	ON	French
OFF	ON	OFF	OFF	ON	OFF	Danish
OFF	OFF	ON	OFF	OFF	ON	Swedish
OFF	OFF	OFF	OFF	OFF	OFF	Optional**

\*\*American set if no optional character set has been installed.

TABLE 2

ALIGNMENT SWITCH SETTINGS

SW1-7	SW1-8	SW2-1	ALIGNMENT INCREMENTS SHIFTED	
			REGULAR	COMPRESSED
ON	ON	ON	0	0
ON	ON	OFF	0	1
ON	OFF	ON	1	2
ON	OFF	OFF	1	3
OFF	ON	ON	2	3
OFF	ON	OFF	2	4
OFF	OFF	ON	3	5
OFF	OFF	OFF	3	6

CHARACTER LENGTH	
SW 2 BIT 5	LENGTH
OFF	7 Data Bits <sup>1</sup>
ON	8 Data Bits <sup>2</sup>

NOTES: 1 Normal Configuration: 7 Data Bits, selectable parity and selectable stop bits  
2 DLL Configuration: 8 Data Bits, no parity and 1 stop bit.

TABLE 3

INTERFACE OPTIONS			
HARDWARE BUSY CONFIGURATION			
SW2	7	ON	HW Busy Low
SW2	8	ON	HW Busy Enabled
SW3	3	ON	Busy to RTS
SW3	4	OFF	RTS Enabled
SOFTWARE BUSY CONFIGURATION			
SW2	7	ON	HW Busy Low
SW2	8	OFF	SW Busy Enabled
SW3	3	OFF	Busy to RTS
SW3	4	ON	RTS Enabled
EIA CONFIGURATION			
SW3	1	OFF	EIA Modem
SW3	8	ON	EIA Modem
SW3	6	OFF	EIA Modem
SW3	7	ON	EIA Modem
20 MIL CURRENT LOOP			
SW3	1	ON	Curr. Loop Mod.
SW3	8	OFF	Curr. Loop Mod.
SW3	6	ON	Curr. Loop Mod.
SW3	7	OFF	Curr. Loop Mod.

TABLE 4

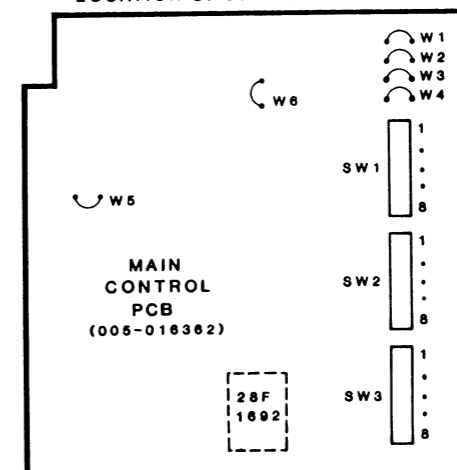
PARITY CONFIGURATIONS

SW2 BIT POSITIONS		SELECTED PARITY
2	3	
OFF	OFF	NO PARITY
ON	OFF	MARKED PARITY
OFF	ON	EVEN PARITY
ON	ON	ODD PARITY

STOP BIT CONFIGURATIONS

SW2 BIT 6	NO. STOP BITS
ON	One Stop Bit
OFF	Two Stop Bits

LOCATION OF JUMPERS/SWITCHES



NOTE: IC 100-1692 is installed for TP2 Board (PN 005-20666 through 005-20671, 005-23433, 005-20434)

TP2 JUMPER WIRE INSTALLATION

JUMPER	IN/OUT	DESCRIPTION
W1	OUT	Serial Interface
W2	IN	Power Failure Recovery Enabled
W3	OUT	SA Disabled
W4	OUT	APL Disabled
W5	IN	Clock Enabled
W6	NM	—

## EXTERNAL CABLING SERIAL INTERFACE CONFIGURATIONS

COMPLIANT HOST TO COMPLIANT TP2 CABLE LIST

CPU DESIGNATOR	SYSTEM	CONTROLLER	INTERNAL CABLE	EXTERNAL CABLE MODELS		
				EIARS-232-C S/W BUSY	CURRENT LOOP	EIA RS-232-C HOW BUSY
70 - 89	MV 10000 MV 8000 II MV 4000	005016650 = IAC-16 005014460 = ATI-16 **	005019059 W/O J-BOX 005019398 W J-BOX	1340	1341	—
		005016746 = IAC-8 005017342 = AMI-8 PRIMARY CONSOLE	005019397 W/O J-BOX 005019058 W J-BOX —	1340	—	—
		005016650 = IAC-16 005014460 = ATI-16**	005019059 W/O J-BOX 005019398 W J-BOX	1340	1341	—
		005016746 = IAC-8 005017342 = AMI-8 005017346 = ULM-5 PRIMARY CONSOLE	005019397 W/O J-BOX 005019058 W J-BOX 005019565 —	1340	1341	1340***
	S 280	005016650 = IAC-16 005014460 = ATI-16**	005019059 W/O J-BOX 005019398 W J-BOX	1340	1341	—
		005016746 = IAC-8 005017342 = AMI-8 005017346 = ULM-5 PRIMARY CONSOLE	005019397 W/O J-BOX 005019058 W J-BOX 005019565 —	1340	1341	1340***
		005016650 = IAC-16 005014460 = ATI-16**	005019059 W/O J-BOX 005019398 W J-BOX	1340	1341	—
		005016746 = IAC-8 005017342 = AMI-8 005017346 = ULM-5 PRIMARY CONSOLE	005019397 W/O J-BOX 005019058 W J-BOX 005019565 —	1340	1341	1340***
	S 120 S 140 CS 200A CS 200B NOVA 4	005016650 = IAC-16 005014460 = ATI-16**	005019059 W/O J-BOX 005019398 W J-BOX	1340	1341	—
		005016746 = IAC-8 005017342 = AMI-8 005017346 = ULM-5 PRIMARY CONSOLE	005019397 W/O J-BOX 005019058 W J-BOX 005019565 —	1340	1341	1340***
		005014418 = 4336-S 005015522 = 4336-AS	005019985	1340	—	—
		005009656 = 4227 005014485 = 4227-S 005007105 = 4207 * 005013951 = 4207-S * PRIMARY CONSOLE	005019984 005019971 — — —	1340	1341	1340***
—	MODEM	—	—	1338	—	—

EXTERNAL CABLE MODEL NUMBERS

MODEL NUMBER	ASSEMBLY	WIRE LIST	LENGTH	DESCRIPTION	NOTES
1241	005-13270	018-648	18'	25 PIN "D" TO 13 PIN AMP	HOST END ADAPTER CABLE, EIA RS-232-C
1242	005-13272	018-650	18'	25 PIN "D" TO 12 PIN AMP	HOST END ADAPTER CABLE, 20 MA CURRENT LOOP
1243	005-13271	018-649	18'		HOST END ADAPTER CABLE, EIA RS-232-C
1244	005-13273	018-651	18'	25 PIN "D" TO 6 PIN AMP	HOST END ADAPTER CABLE, EIA RS-232-C
1245	005-13274	018-652	18'		HOST END ADAPTER CABLE, 20 MA CURRENT LOOP
1257	005-13389	018-690	18'	25 PIN "D" TO 13 PIN AMP	HOST END ADAPTER CABLE, EIA RS-232-C
1338	005-13266	018-643	25'	25 PIN "D" MOLDED TO 25 PIN "D" MOLDED	MODEM CABLE, EIA RS-232-C
1340	005-13258	018-660	25'		STANDARD CABLE, EIA RS-232-C
1340-A	005-13321	018-660	50'		STANDARD CABLE, EIA RS-232-C
1340-S	005-13325	018-660	5'		STANDARD CABLE, EIA RS-232-C
1340-T	005-13315	018-660	15'		STANDARD CABLE, EIA RS-232-C
1341	005-13260	018-637	25'		STANDARD CABLE, 20 MA CURRENT LOOP
1341-A	005-13282	018-670	50'		THESE ARE EXTENSION CABLES FOR MODEL 1341. THEY ARE ATTACHED TO 1341 TO EXTEND IT BY THE SPECIFIED LENGTH. THE CABLES CAN BE ATTACHED TO EACH OTHER TO OBTAIN LENGTHS LONGER THAN 500 FEET.
1341-B	005-13283	018-670	100'		
1341-C	005-13285	018-670	300'		
1341-D	005-13284	018-670	500'		
1342	005-20404	018-1800	5'	25 PIN "D" MOLDED TO 9 PIN "D" MOLDED	SLAVE PRINTER CABLE
1342-A	005-20407	018-1800	50'		
1342-R	005-20403	018-1800	2'		
1342-T	005-20405	018-1800	15'		
1342-U	005-20406	018-1800	25'		

- \* C9 (CAPACITOR) MUST BE REMOVED FROM 4207 AND 4207-S FOR CURRENT LOOP OPERATION
- \*\* DAUGHTER BOARD FOR ATI-16 RS-232-C OPERATION IS 005-5464  
DAUGHTER BOARD FOR ATI-16 CURRENT LOOP OPERATION IS 005-14464
- \*\*\* CLEAR TO SEND SIGNAL MUST BE ENABLED WITH APPROPRIATE JUMPER(S)

NON-COMPLIANT HOST TO COMPLIANT TP2 EXTERNAL CABLE LIST

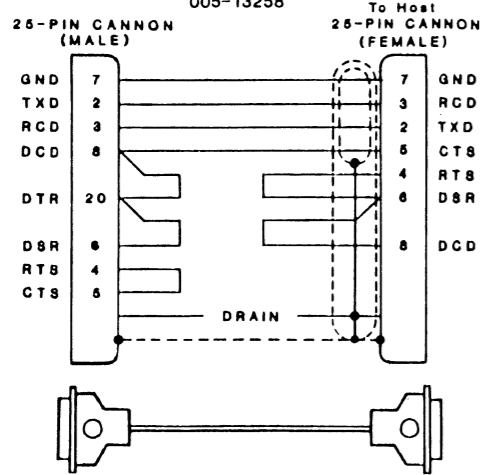
CPU DESIGNATOR	SYSTEM	CONTROLLER	INTERNAL CABLE	EXTERNAL CABLE MODEL (3) REQUIRED			
				EIA RS-232-C S/W BUSY	CURRENT LOOP	EIA RS-232-C H/W BUSY	
13 - 14 20 - 22	MV 8000 MV 6000	005016764 = IAC-8	005014115	1340	—	—	
		005016650 = IAC-16	005014111	1340	1341	—	
		005017342 = AMI-8	005014115	1340	—	1340***	
		005014460 = ATI-16*	005014111	1340	1341	—	
	M/600 C/350 S/250 S/140 S/120 CS/200A CS/200B NOVA/4	PRIMARY CONSOLE	—	—	1340	1341	1340
		005005458 = ALM-8	NO INTERNAL CABLE	1241 AND 1340	—	—	1241 & 1340
			005013703 OR 005010710	1340	—	—	1340
		005005460 = ALM-16	NO INTERNAL CABLE	1244 AND 1340	1245 AND 1341	—	—
			005013704 OR 005010708	1340	1341	—	—
		005017346 = ULM-5	005012765	1243 AND 1340	1242 AND 1341	1241 & 1340	—
S 140, S/120 CS/200A CS/200B NOVA/4	005014460 = ATI-16*	005014111	1340	1341	—	—	
	005017432 = AMI-8	005014115	1340	—	—	1340	
40 - 41	MP/200 MP/100 CS/100 S/20	005014418 = 4336-S	005014416	1340	—	—	
		005015522 = 4336-AS	005014416	1340	—	—	
		005009656 = 4227	005009654	1243 AND 1340	1242 AND 1341	1241 & 1340	—
		005014485 = 4227-S	—	—	—	—	—
		005007105 = 4207 *	005007506	1243 AND 1340	1242 AND 1341	1241 & 1340	—
		005013951 = 4207-S **	—	—	—	—	—
05 - 12 20 - 22	NOVA 2,3,4 1210, 1220 S/100, S/200 S/230, C/300 C/330, S/130 S/140, C/150 AP/130	PRIMARY CONSOLE	—	1257 AND 1340	—	1257 & 1340	
		—	—	—	—	—	
42	CS-10 C3	—	—	1340	1341	1340	
—	MODEM	—	—	1338	—	—	

- \* DAUGHTER PCB FOR CURRENT LOOP OPERATION IS 005014464  
DAUGHTER PCB FOR RS-232-C OPERATION IS 005005464
- \*\* C9 (CAPACITOR) MUST BE REMOVED FOR CURRENT LOOP OPERATION
- \*\*\* CLEAR TO SEND SIGNAL MUST BE ENABLED WITH APPROPRIATE JUMPER(S)

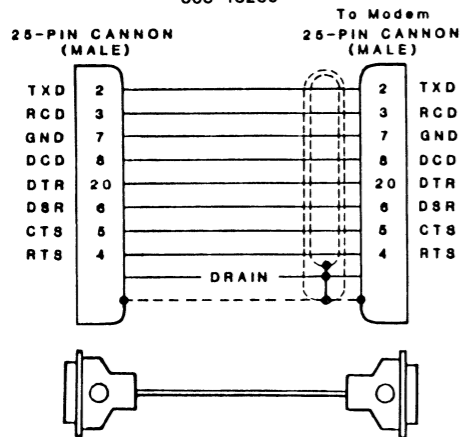
### EXTERNAL CABLING (Continued) SERIAL INTERFACE CABLES

**STANDARD EIA RS-232C CABLE**

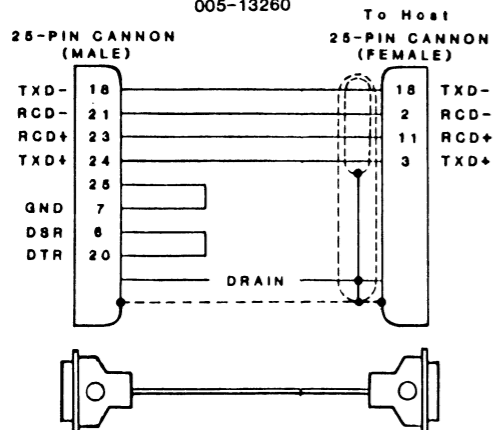
005-13321  
005-13325  
005-13315  
005-13258



**MODEM CABLE**  
005-13266

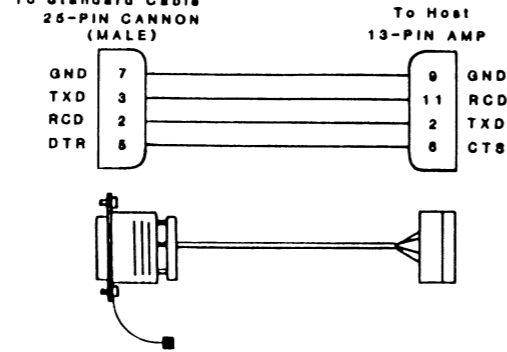


**STANDARD CURRENT LOOP CABLE**  
005-13260

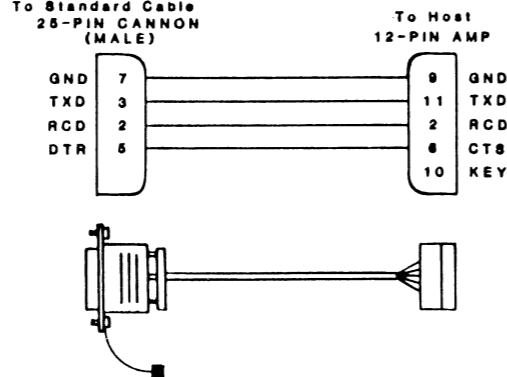


**EIA HOST-END ADAPTER CABLES**

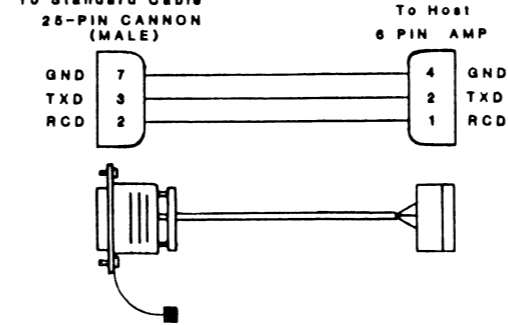
To Standard Cable 005-13270



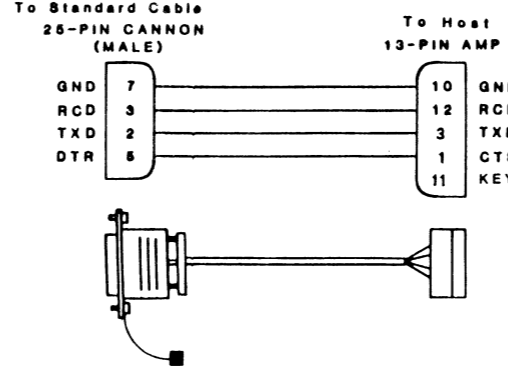
To Standard Cable 005-13271



To Standard Cable 005-13273

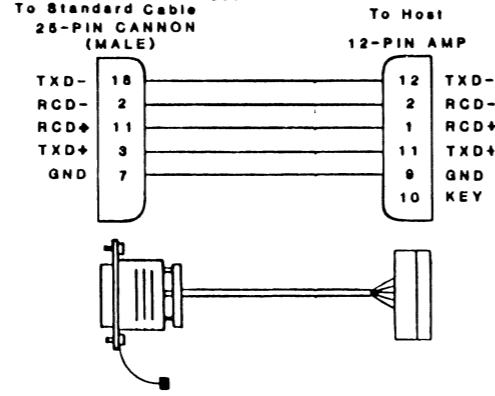


To Standard Cable 005-13389

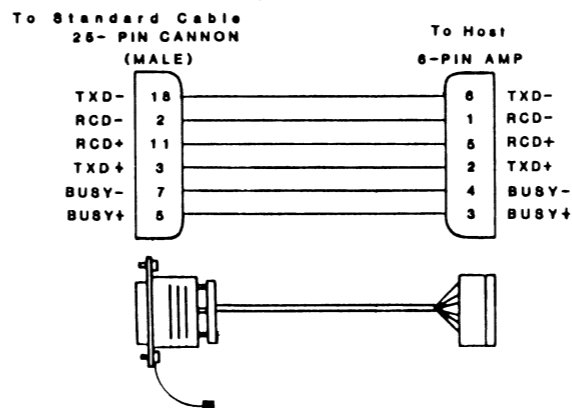


**CURRENT LOOP HOST END ADAPTER CABLES**

To Standard Cable 005-13272

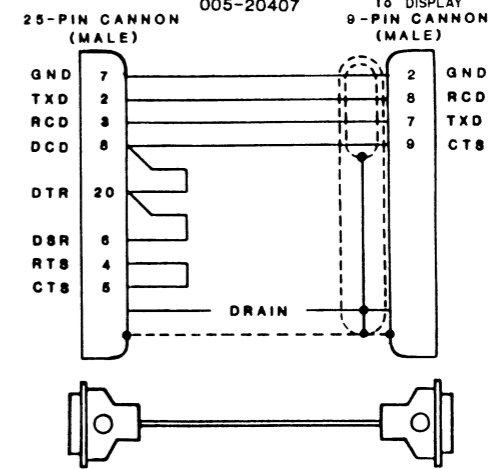


To Standard Cable 005-13274



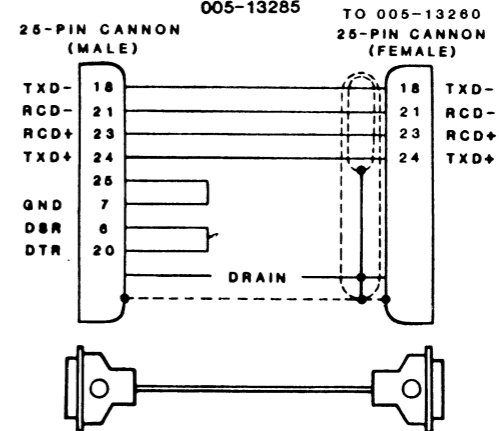
**SLAVE PRINTER CABLE**

005-20403  
005-20404  
005-20405  
005-20406  
005-20407



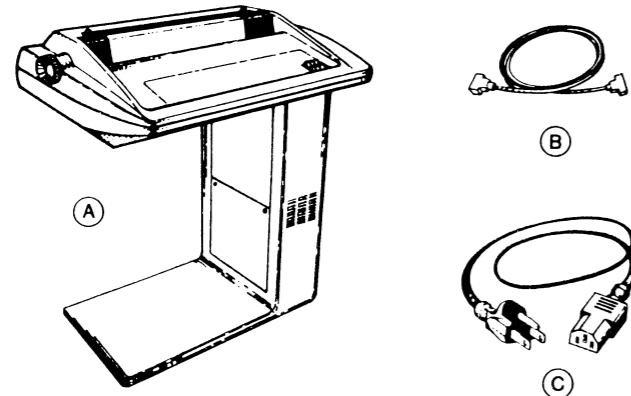
**CURRENT LOOP EXTENSION CABLES**  
FOR 005-13260

005-13282  
005-13283  
005-13284  
005-13285





# INSTALLATION SPECIFICATIONS

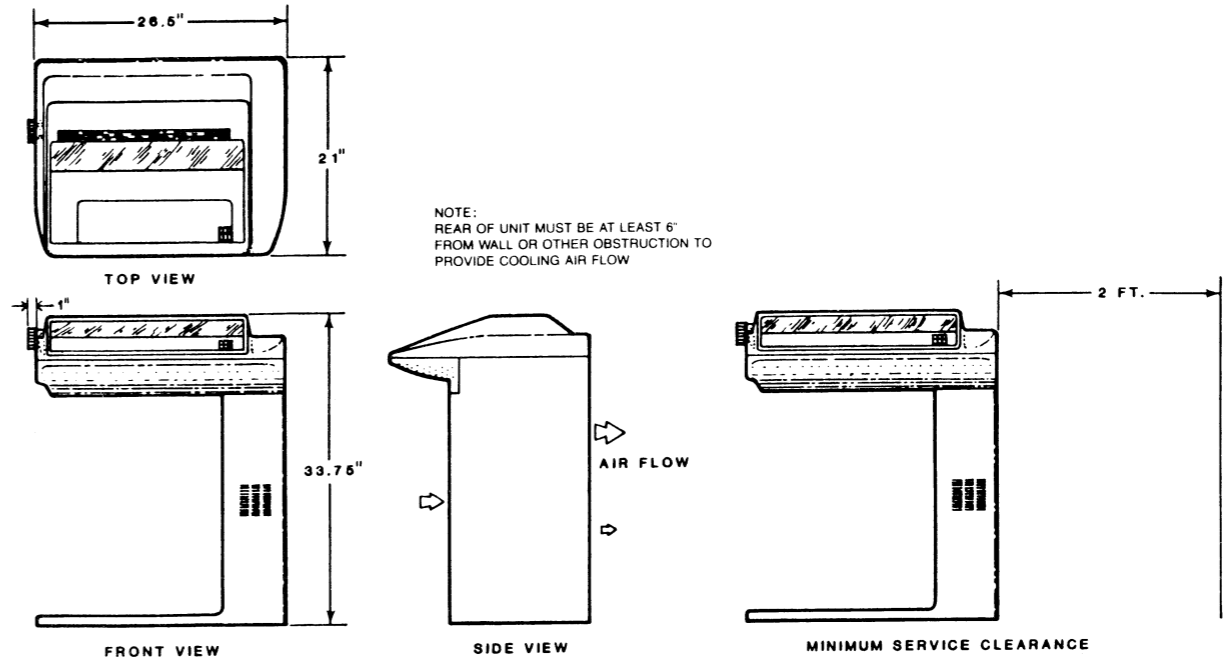


MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	DATA PRINTER	FREE-STANDING	PLUG-COMPATIBLE WITH PARALLEL INTERFACE CONTROLLERS

CABLE

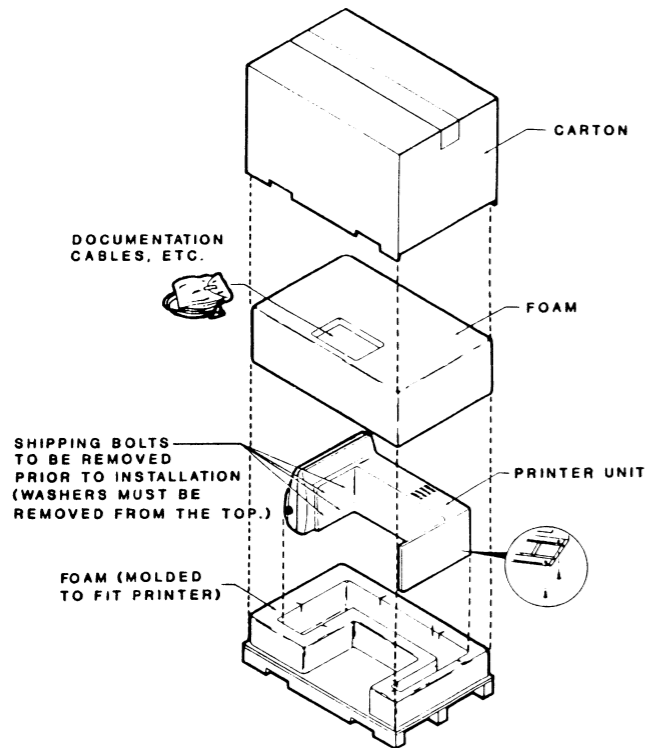
ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
B	DEVICE CABLE	PARALLEL AND MATRIX INTERFACE PRINTER	25	7.4	DEVICE CABLE VARIES WITH INTERFACE
C	POWER	PRINTER TO PRIMARY POWER	7.5	2.3	



**SPECIFICATIONS**

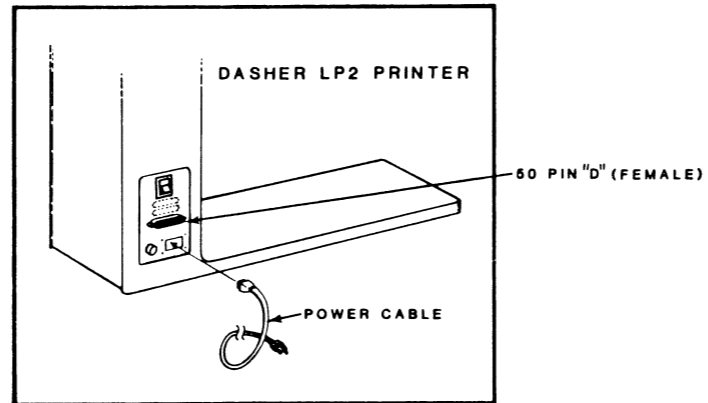
<b>DIMENSIONS:</b>	<b>WIDTH</b>	<b>DEPTH</b>	<b>HEIGHT</b>	<b>POWER REQUIREMENTS:</b>
CENTIMETERS	67.31	53.34	85.73	(DOMESTIC)
INCHES	26.50	21.00	33.75	VOLTAGE (47-63Hz)
				120
<b>SERVICE CLEARANCES:</b>	<b>REAR</b>	<b>RIGHT</b>		HZ
CENTIMETERS	30.48	60.96		47-63
INCHES	12	24		MAX AMP PER PHASE
				2.5
				PHASE
				1
<b>WEIGHT:</b>				(EXPORT)
KILOGRAMS	36.3			VOLTAGE (47-63Hz)
POUNDS	80			220/240
				HZ
				47-63
				MAX AMP PER PHASE
				1.4/1.3
<b>HEAT OUTPUT:</b>	300 WATTS (1023BTU/HR)			PHASE
				1
<b>OPERATING ENVIRONMENT:</b>				
TEMPERATURE (MIN)	10 DEGC (50 DEGF)			
TEMPERATURE (MAX)	40 DEGC (104 DEGF)			
RELATIVE HUMIDITY (MAX)	90%			
<b>CABLES:</b>				
PRIMARY POWER		CONN	MATING	
DOMESTIC	2.3M (7.5')	5-15P	CONN	
			5-15R	

### SHIPPING

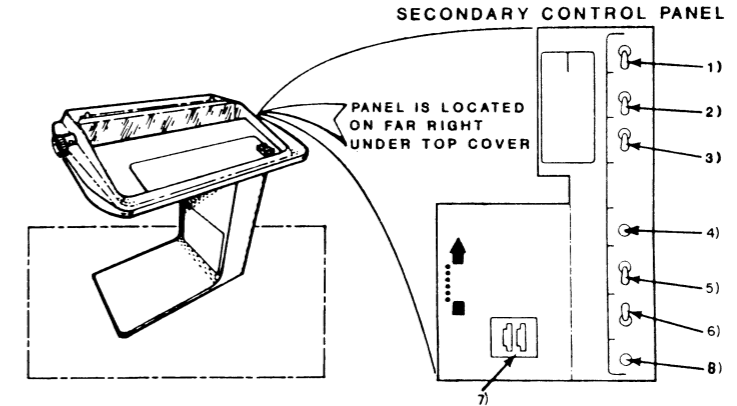


SHIPPING AND PACKAGE DATA						
Outside Dimensions			Weight	Volume	Density	
Length	Width	Depth	(Gross)			
in	in	in	lbs	cu. ft	lbs/cu. ft	
cm	cm	cm	kg	cu. m	kg/cu. m	
40.5	31.50	30.75	123	22.7	5.4	
102.9	80.0	78.1	55	6	87.8	
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS			
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period	
F	% (Non-condensing)		F	% (Non-condensing)		
40 + 160	0%-80%	50,000 ft 15,200 m	40 + 160	0%-80%	90 days	
49 + 71			40 - 71			

### EXTERNAL CABLING PARALLEL INTERFACE CONNECTION

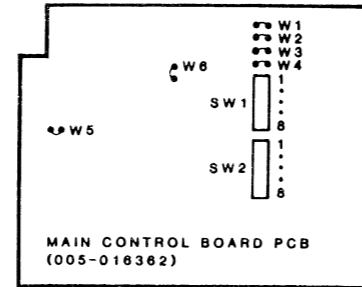


### TAILORING SWITCHES



- SECONDARY CONTROL PANEL SWITCHES**
- 1) COMP/NORM - SET TO NORMAL OR COMPRESSED WIDTH CHARACTERS.
  - 2) LPI - SET TO 6 OR 8 LINES PER INCH.
  - 3) SELF TEST/ESC DISABLE - SET IN THE MIDDLE POSITION IF THE PRINTER SHOULD RESPOND TO ESCAPE SEQUENCES. SET IN THE ESC DISABLE POSITION IF THE PRINTER SHOULD IGNORE ESCAPE SEQUENCES.
  - 4) MASTER RESET
  - 5) CHAR SET - SET TO STANDARD OR ALTERNATE CHARACTER SET.
  - 6) PERF SKIP - SET ON OR OFF FOR PERFORATION SKIPOVER.
  - 7) LINE COUNT - SET LINE COUNT CORRESPONDING TO THE FORM LENGTH. LINE COUNT = FORM LENGTH (INCHES) x 6 OR 8 LINES PER INCH.
  - 8) TOF - MOVE THE PAPER TO THE TOP OF FORM AND PRESS TOF TO INITIATE THE LINE COUNTER.

## TAILORING (Continued) SWITCHES/JUMPERS ON MAIN CONTROL PCB



### JUMPER WIRE INSTALLATION

JUMPER	IN/OUT	DESCRIPTION
W1	IN	Parallel I/F
W2	IN	Power Failure Recovery Enabled
W3	OUT	SA Disabled
W4	OUT	APL Disabled
W5	IN	Clock Enabled
W6	IN	8-Bit Interface (OUT = 7 Bit I/F)

### ALIGNMENT SWITCH SETTINGS

SW1-7	SW1-8	SW2-1	ALIGNMENT INCREMENTS SHIFTED	
			REGULAR	COMPRESSED
ON	ON	ON	0	0
ON	ON	OFF	0	1
ON	OFF	ON	1	2
ON	OFF	OFF	1	3
OFF	ON	ON	2	3
OFF	ON	OFF	2	4
OFF	OFF	ON	3	5
OFF	OFF	OFF	3	6

### LP2 SWITCH BIT SETTINGS

SWITCH	BIT	SETTING	DESCRIPTION	
SW1	1	See Table	Standard character set select	
	2	Table		
	3	At Right		
	SW2	4	See Table	Alternate character set select
		5	Table	
		6	At Right	
		7	See Table	
SW2	8	Table On	Alignment Switches	
	1	Right		

STANDARD Set			ALTERNATE Set			SELECTED Set
SW1 Bits			SW1 Bits			
1	2	3	4	5	6	
ON	ON	ON	ON	ON	ON	American
ON	ON	OFF	ON	ON	OFF	British
ON	OFF	ON	ON	OFF	ON	German
ON	OFF	OFF	ON	OFF	OFF	Spanish
OFF	ON	ON	OFF	ON	ON	French
OFF	ON	OFF	OFF	ON	OFF	Danish
OFF	OFF	ON	OFF	OFF	ON	Swedish
OFF	OFF	OFF	OFF	OFF	OFF	Optional**

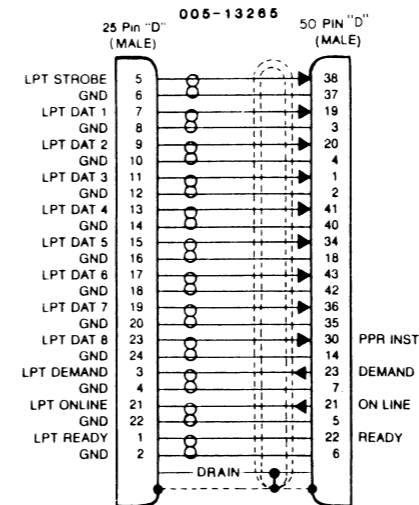
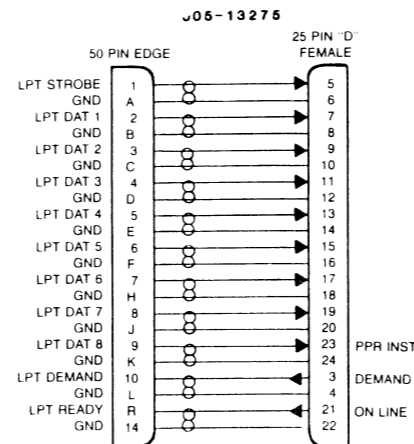
\*\*American set if no optional character set has been installed

NOTE: Standard and Alternate font Selection is normally performed at the customer's site during initial installation

### CABLING

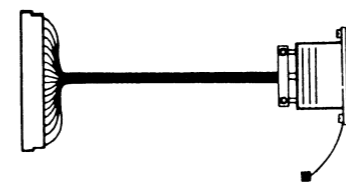
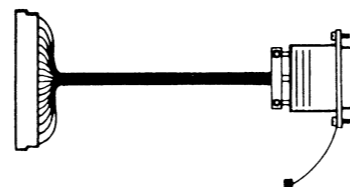
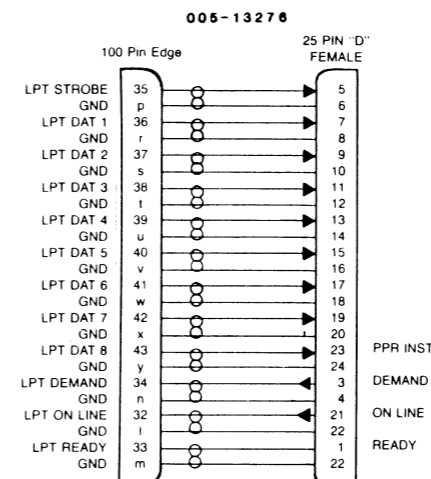
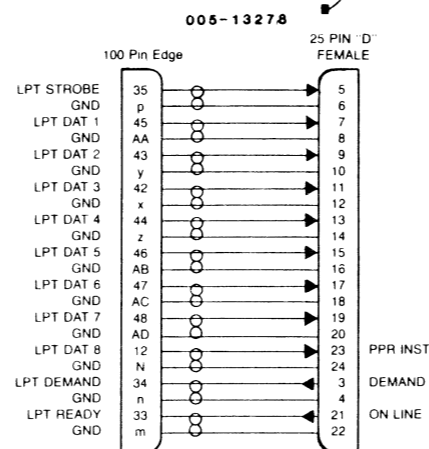
FCC COMPLIANT HOST TO FCC COMPLIANT LP2

CPU DESIGNATOR	SYSTEM	I/O CABLE
70-89	MV/10000 MV/4000 MV8000 II	005-13265 (PIO or DCH)
	S/140 S/120 CS/200A CS/200B NOVA/4	
50-69	MP/200 MP/100 CS/100 S/20	005-13265 (PIO)



FCC NON-COMPLIANT HOST TO FCC COMPLIANT LP2

CPU DESIGNATOR	SYSTEM	HOST/END ADAPTER	I/O CABLE
5-14 20-22	MV/8000 MV/6000	005-013276 (DCH)	005-013265
	M600 C/350 S/250 C/150 S/140	005-013276 (DCH)	
40-41	S/130 AP/130 NOVA/3 NOVA/4	005-013278 (PIO)	005-013265
	CS/40 CS/50 CS/60 CS/70	005-013276 (DCH)	
22	CS/200A CS/200B		
40-41	CS/100 MP/100 MP/200	005-013275 (PIO)	005-013265

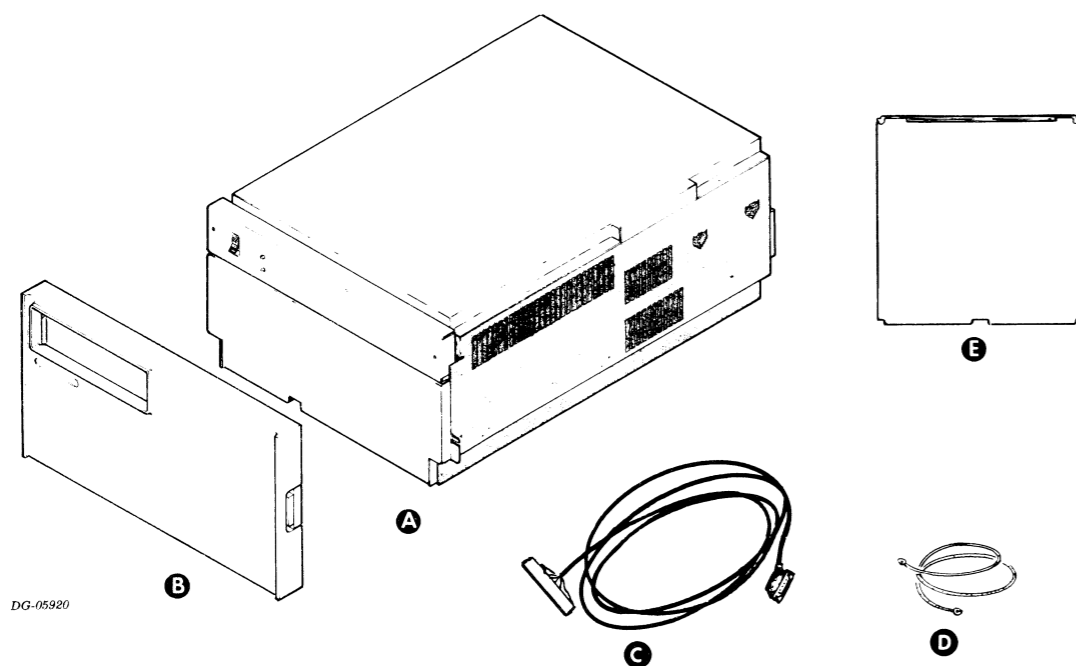


MODEL NUMBER	ASSEMBLY	WIRE LIST	LENGTH	DESCRIPTION	NOTES
	005-13265	018-642	30 FT	25 PIN MOLDED "D" TO 50 PIN MOLDED "D"	PARALLEL CABLE
	005-13275	018-681	18"	25 PIN "D" TO 50 PIN EDGE	HOST END ADAPTER PIO
	005-13276	018-680	18"	25 PIN "D" TO 100 PIN EDGE	HOST END ADAPTER DCH
	005-13278	018-651	18"	25 PIN "D" TO 100 PIN EDGE	HOST END ADAPTER PIO

# **DISK STORAGE**



### INSTALLATION SPECIFICATIONS



DG-05920

**MAJOR COMPONENT**

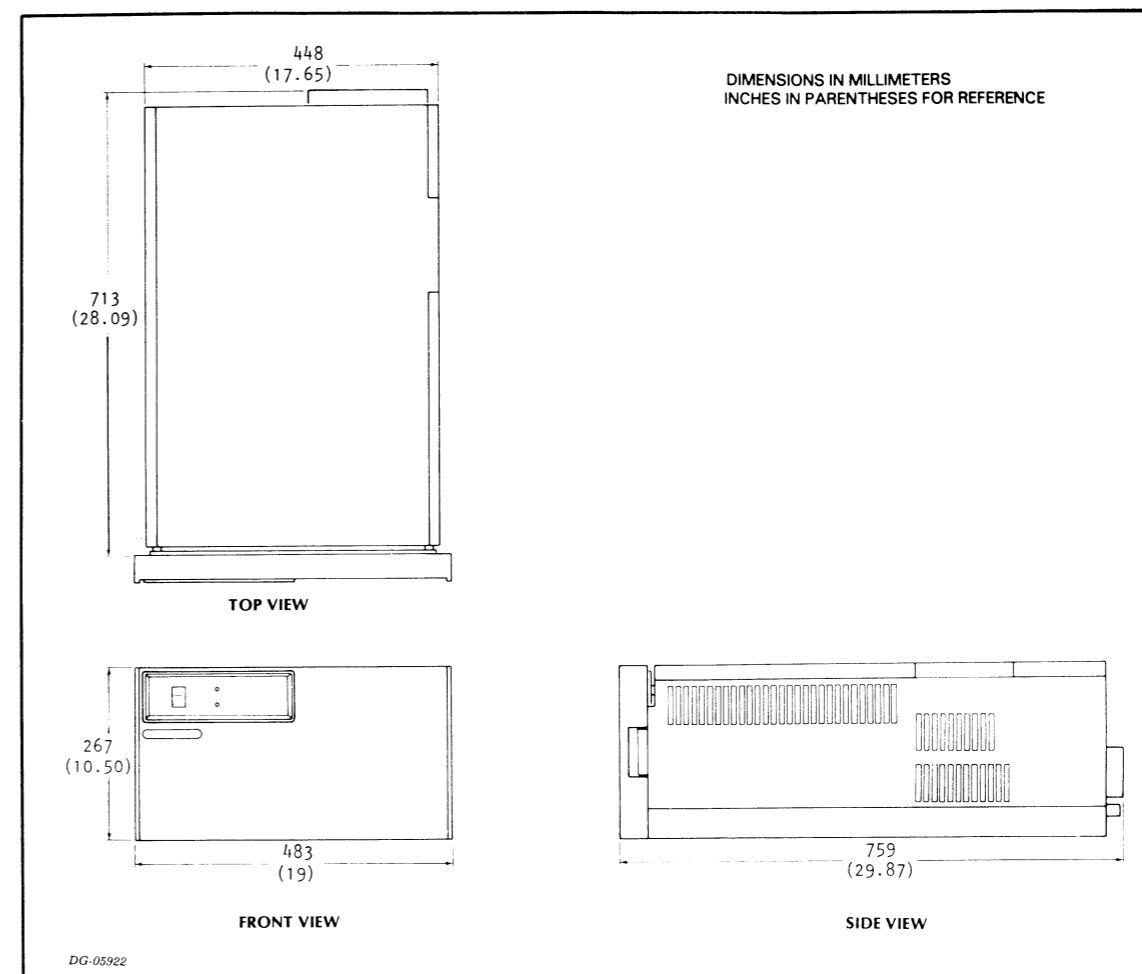
ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	RIGID DISK DRIVE	CABINET	
B	FRONT PANEL	CABINET	

**CABLE**

ITEM	CABLE	CONNECTING	LENGTH		NOTES
			FT	M	
C	I/O CABLE	CONTROLLER AND RIGID DISK DRIVE	10	3	005-017587
D	GROUND BRAID	CPU TO RIGID DISK CHASSIS	10	3	005-008356

ITEM	COMPONENT	CHASSIS	MAX DATA CHANNEL LATENCY (uS) *	+5V CURRENT DRAW (AMPS)
E	CONTROLLER PCB	CPU	INFINITE	4.0

\* 160 μs w/6096-CX FLEX DISKETTE



<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>
Millimeters	483	759	267
Inches	19	29.87	10.5

<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Bottom</b>
Millimeters	686	203
Inches	27.5	8

<b>WEIGHT:</b>	<b>Kilograms</b>	34
	<b>Pounds</b>	75

<b>HEAT OUTPUT</b>	<b>Watts</b>	<b>BTU/hr</b>
100V	320	1092
120V	312	1065
220V	308	1051
240V	312	1065

<b>OPERATING ENVIRONMENT:</b>		
Temperature (max)		
Room	32°C	90°F
Cabinet	43°C	109°F
Relative Humidity (max) 80%		
Altitude 3048m(10,000')		

<b>POWER REQUIREMENTS:</b>			
(Domestic)			
Voltage	120 (+10%, -15%)		
Hz	60 ± 1%		
Amp per Phase	2.6		
Startup Surge per Phase	10A for 10 seconds		
(Export)			
Voltage	100 (+10%)	100 (+10%)	220 (+10%, -15%) 240 (+10%, -15%)
Hz	50 ± 1%	60 ± 1%	50 ± 1% 50 ± 1%
Amp per Phase	3.2	3.2	1.4 1.3
Startup Surge per Phase	12A	12A	5.5A 5A
	for 10 seconds		
<b>CABLES:</b>			
Primary Power			Mating
	Length	Conn	Conn
Domestic 60Hz	1.8m(6')	5-15P	5-15R
Export 50Hz	1.8m(6')	6-15P	6-15R

**SHIPPING**

**FOR PACKING PROCEDURE,  
SEE 010-000262/263**

**INTERNAL CABLING**

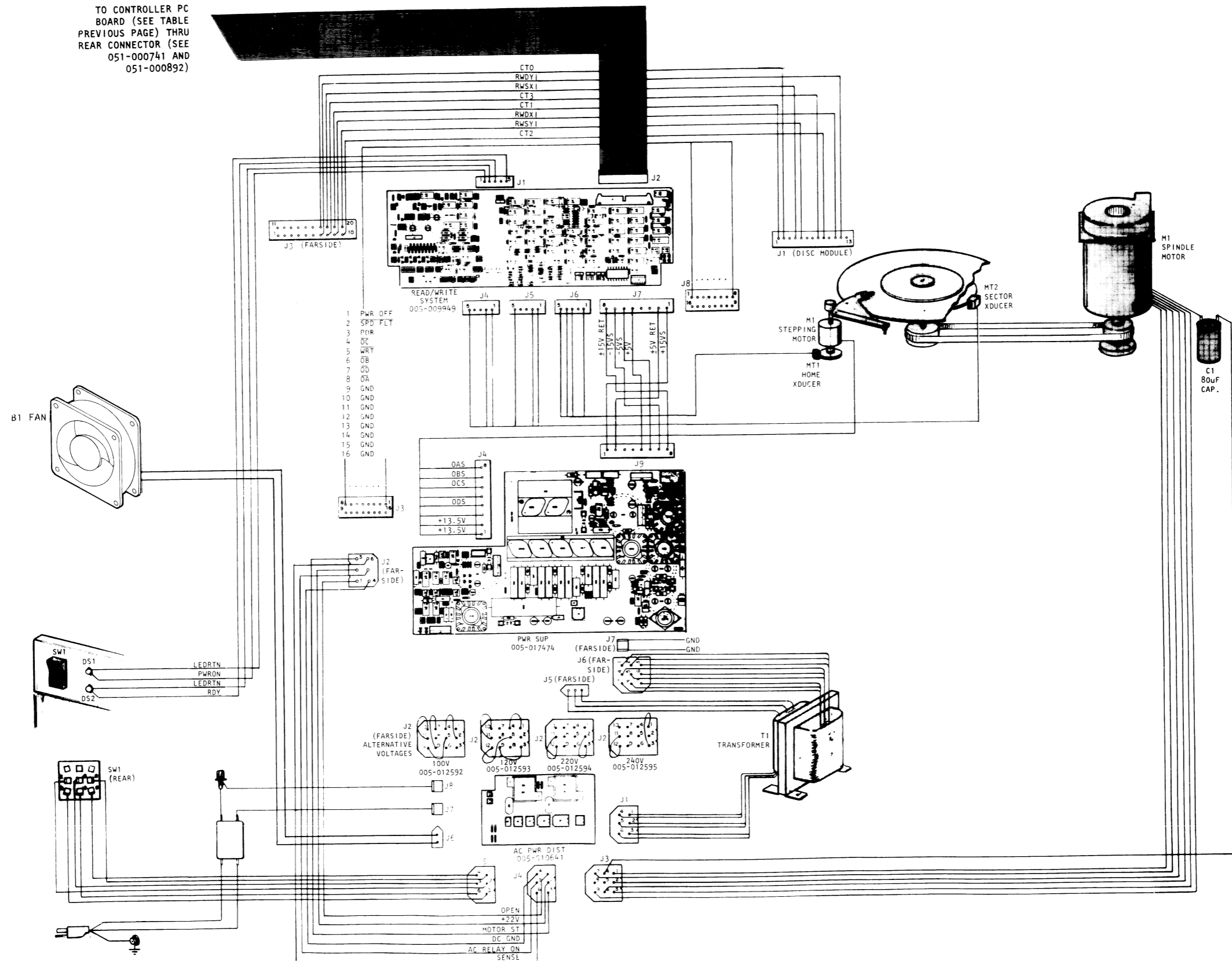
INTERNAL CABLE WIRE LIST			RIGID DISK
SIGNAL NAME	BACK PANEL PIN NUMBER	PADDLE CONNECTOR 100 PIN	SOCKET CONNECTOR 50 PIN P1
GND	A-1	U	1
XPOR	A-47	17	34
GND		V	18
X PWR OFF	A-49	18	2
GND		W	35
HOME	A-79	19	19
GND		X	3
QD	A-81	20	36
QC	A-84	21	20
QB	A-83	22	4
QA	A-86	23	37
GND		a	21
HDSELO	A-35	24	5
HDSEL1	A-88	25	38
HDSEL2	A-87	26	22
GND		d	6
RDGATE	A-89	27	39
GND		e	23
WRGATE	A-90	28	7
GND		f	40
PREAMBLE	B-6	29	24
GND		h	8
XSC4	B-11	30	41
XSC3	B-13	31	25
XSC2	B-15	32	9
XSC1	B-19	33	42
XSCO	B-23	34	26
GND		n	10
XSCTR PLS	B-25	35	43
GND		p	27
XSCNTVALID	B-27	36	11
GND		r	44
XSC5	B-31	37	28
WRT PRO	B-69	49	12
HDSEL3	B-34	38	45
GND		s	29
DRV FLT	B-36	39	13
SPARE	B-38	40	46
GND		t	30
DIS CLK+	B-40	41	14
DIS CLK-	B-48	42	47
GND		w	31
RDY	B-49	43	15
SWAP	B-51	44	48
GND		x	32
DAT-	B-52	45	16
DAT+	B-53	46	49
GND		AB	33
CLK-	B-54	47	17
CLK+	B-67	48	50
+DRAIN		AD	SHELL

NOVA 3 SERIES COMPUTERS	}	005-001802
NOVA 2, ECLIPSE SERIES COMPUTERS		005-001802
NOVA 820, 1210 AND 1220 COMPUTERS		005-017587
ECLIPSE M/600		
NOVA 4		



### INTERNAL CABLING (CONT) INTERCONNECTION DIAGRAM

TO CONTROLLER PC BOARD (SEE TABLE PREVIOUS PAGE) THRU REAR CONNECTOR (SEE 051-000741 AND 051-000892)

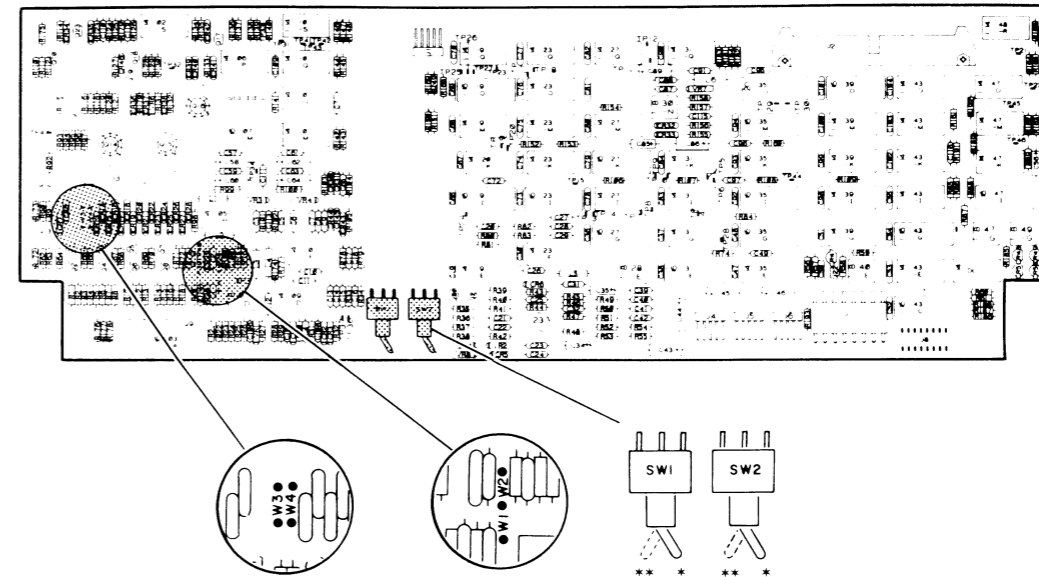
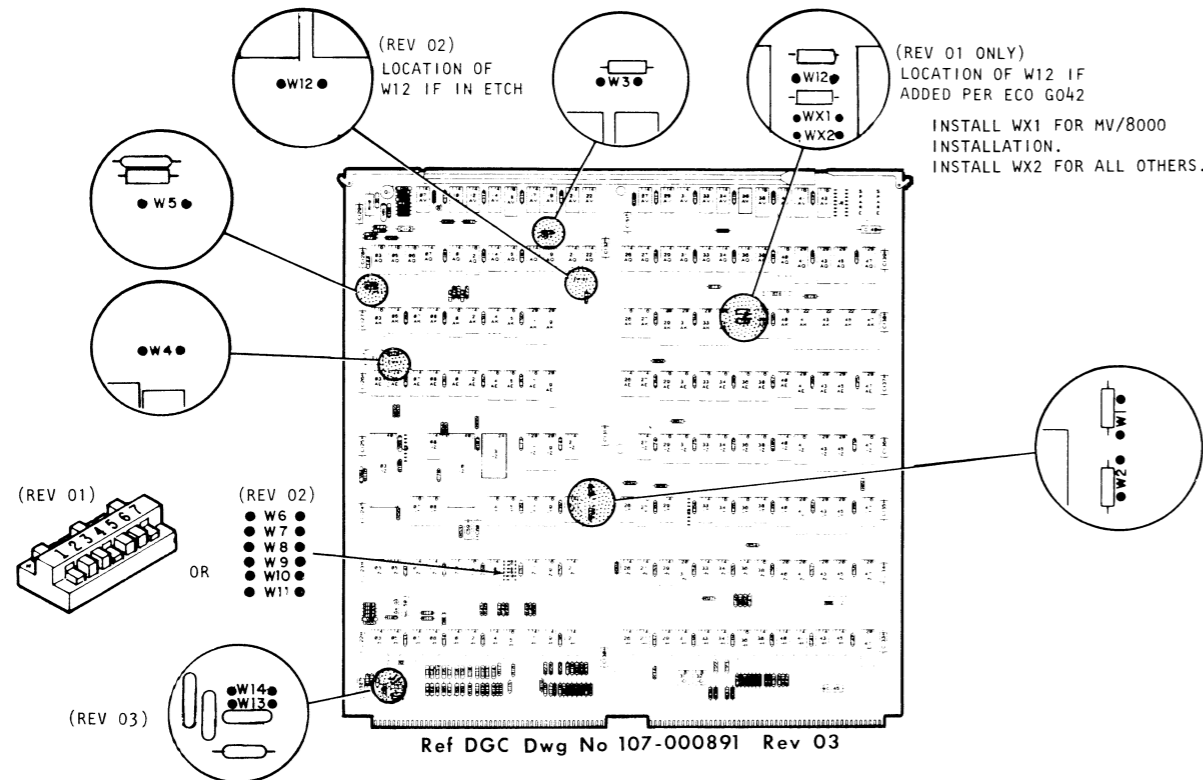


DG-06009

TAILORING

CONTROLLER BOARD

R/W LOGIC BOARD



Ref DGC Dwg No 107-000891 Rev 03

FOR CONTROLLERS WITH SWITCH MODULE (REV 01 ONLY)

CONTROLLER DEVICE CODE SELECT		
SWITCH NUMBER	DEVICE CODE 33	DEVICE CODE 73
1	OFF	ON
2	ON	ON
3	ON	ON
4	OFF	OFF
5	ON	ON
6	ON	ON
7	OFF *	OFF **

\* THIS SWITCH NOT USED

FOR CONTROLLERS WITH JUMPERS (REV 02)

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 33	DEVICE CODE 73
W6	OUT	IN
W7	IN	IN
W8	IN	IN
W9	OUT	OUT
W10	IN	IN
W11	IN	IN

CONTROLLER JUMPER SELECTION	
JUMPER	
W1	JUMPER REMOVED
W3	JUMPER REMOVED
W4	JUMPER INSERTED
W5**	JUMPER INSERTED

\*\* NOT IN FIRST VERSION OF CONTROLLER

W2 SELECTS RIGID DISK CAPACITY AS FOLLOWS:

W2 JUMPER	CAPACITY
INSERTED	12.5MB
REMOVED	25MB

CPU SELECTION JUMPER

CPU TYPE	W12
NOVA 4/C	IN
ALL OTHERS	OUT

W13 IN FOR MV/8000 SYSTEMS  
OUT FOR ALL OTHERS

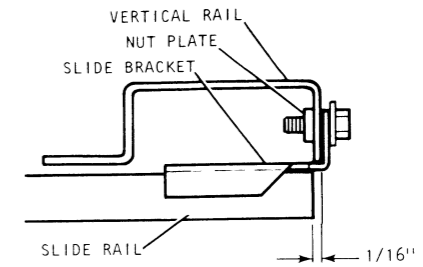
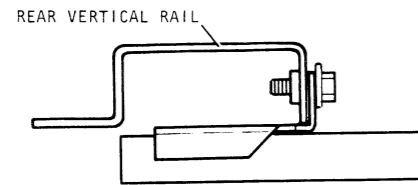
W14 OUT FOR MV/8000 SYSTEMS  
IN FOR ALL OTHERS

R/W LOGIC JUMPER SELECTION	
JUMPER	
W1	JUMPER INSERTED
W2**	JUMPER REMOVED
W3**	JUMPER REMOVED
W4**	JUMPER REMOVED

\* INSERTED FOR FACTORY USE ONLY.  
\*\* INSERTED FOR 25MBYTE

SWITCH SETTINGS	
SWITCH	*OPEN
SW-1	RIGID DISK = UNIT 0
SW-2	FLEXIBLE DISK = UNIT 1
	RIGID DISK NOT WRITE PROTECTED
	**CLOSED
SW-1	RIGID DISK = UNIT 1
SW-2	FLEXIBLE DISK = UNIT 0
	RIGID DISK WRITE PROTECTED

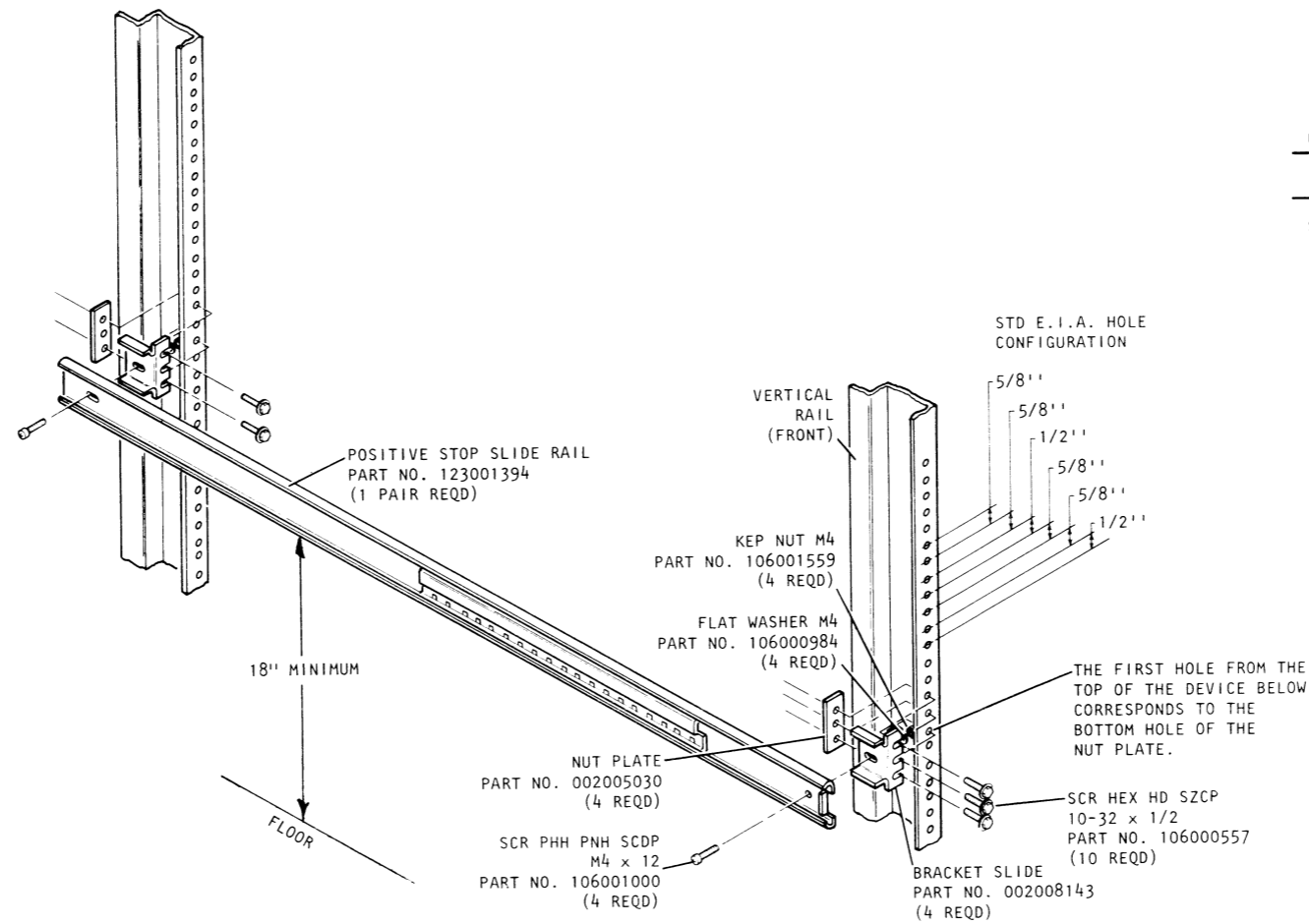
### CABINET MOUNTING



SLIDE BRACKET IN FRONT OF RAIL

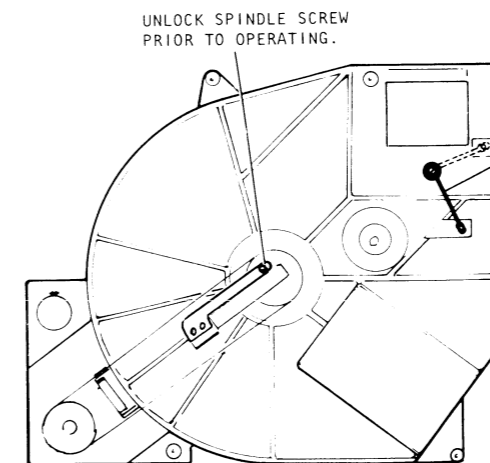
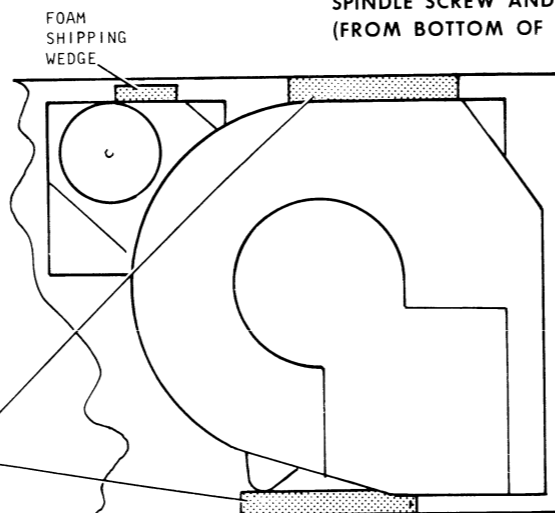
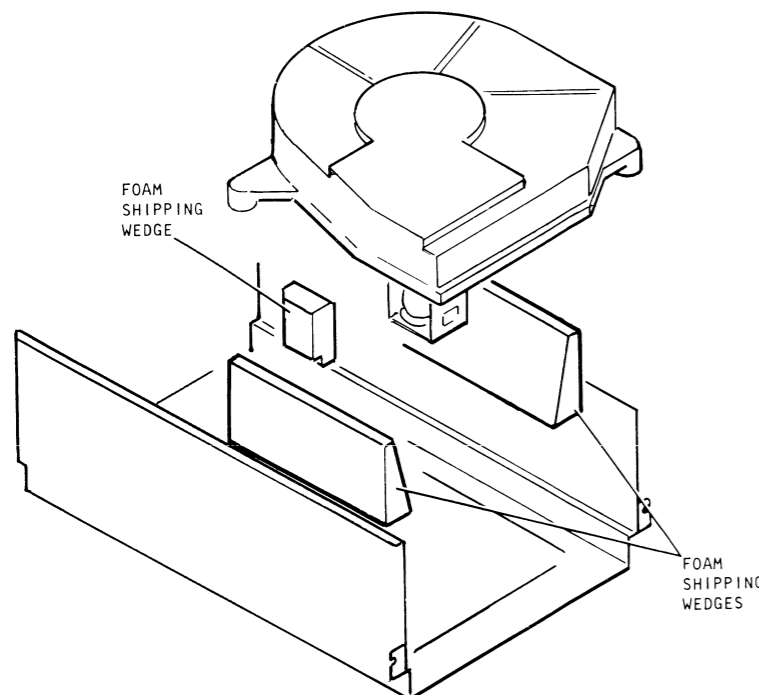
HARDWARE MOUNTING KIT 005-019126

TORQUE REQUIREMENTS		
SCREW NO	IN/LB	N/M
M4	13.27-15.04	1.5-1.70
8-32	14.5-15.5	1.63-1.75
10-32	33-35	3.7-3.95



### SHIPPING RESTRAINTS

IMPORTANT: BEFORE OPERATING DISK, REMOVE FOAM SHIPPING WEDGES, UNLOCK SPINDLE SCREW AND UNLOCK ARM (FROM BOTTOM OF DRIVE).



BOTTOM VIEW

DG-06034

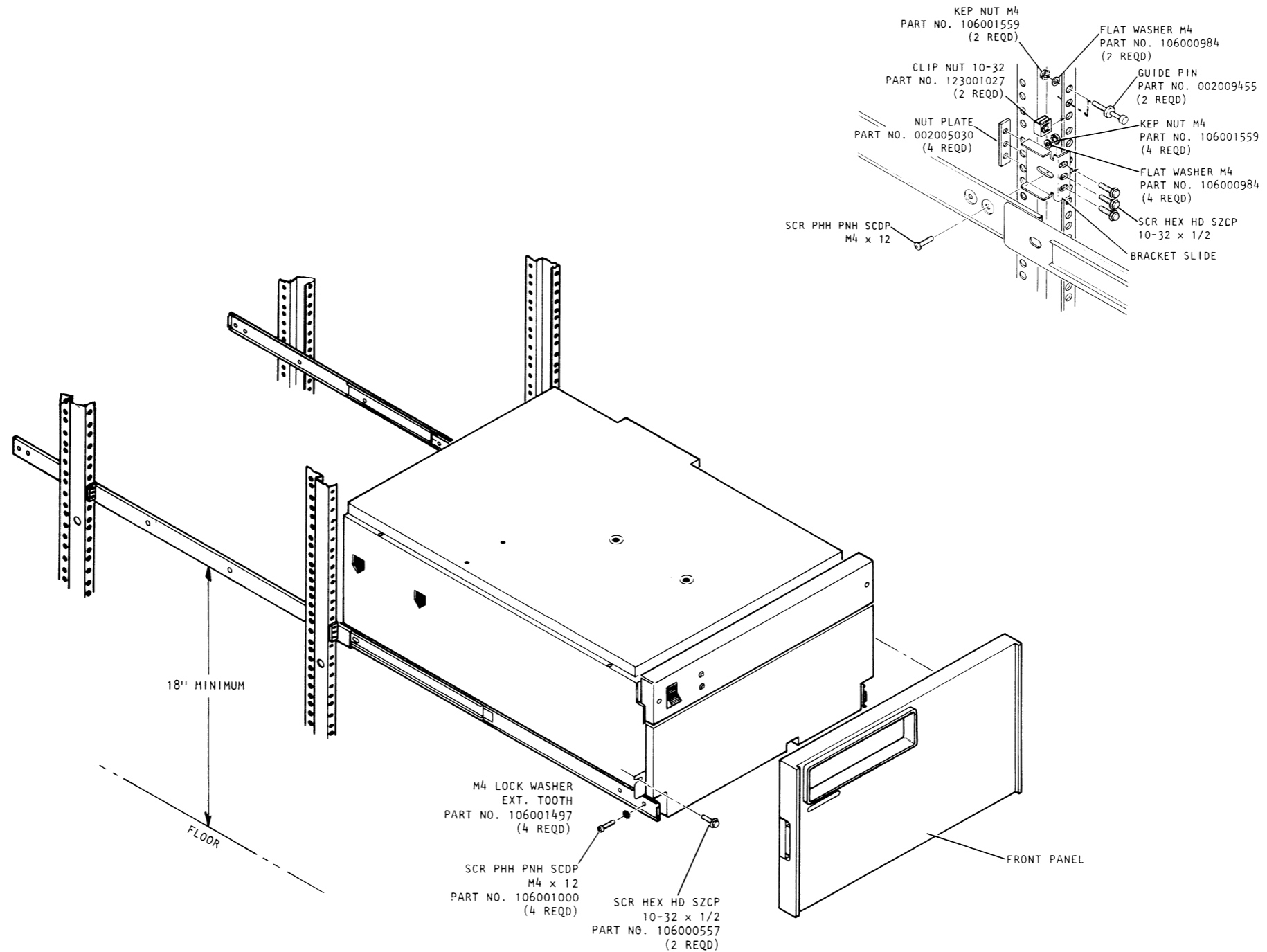
NOTE TO FIELD ENGINEERING:

WHEN RETURNING A MODULE TO THE MANUFACTURING FACILITY, PERFORM THE FOLLOWING TASKS.

1. MOVE POSITIONER STOP TO LOCK POSITION.
2. LOCK SPINDLE BY ENGAGING CAPTIVE SCREW.

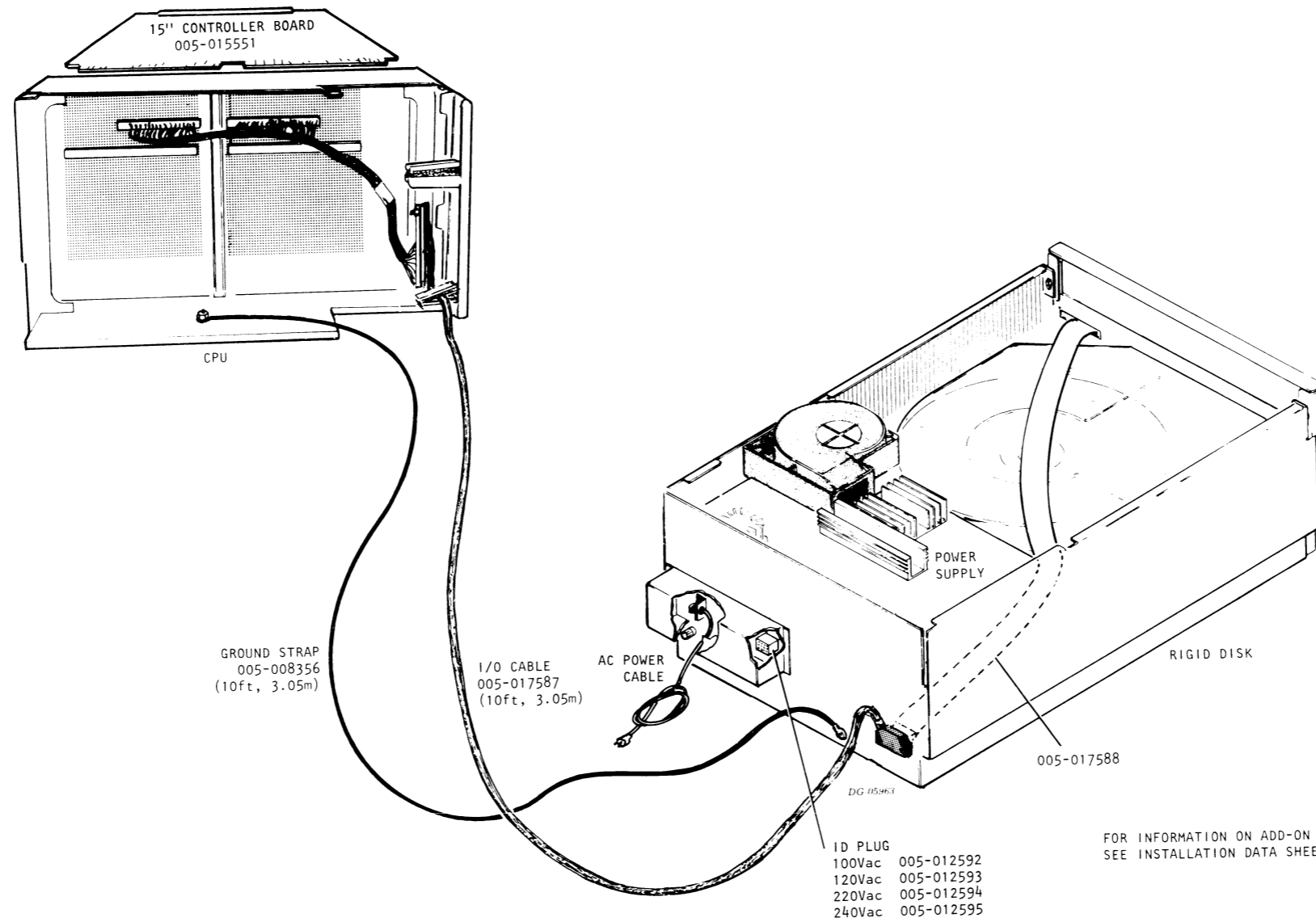
MODULES RETURNED TO THE MANUFACTURING FACILITY WITHOUT BEING PROPERLY SECURED CAN VOID THE WARRANTY.

CABINET MOUNTING (CONT)

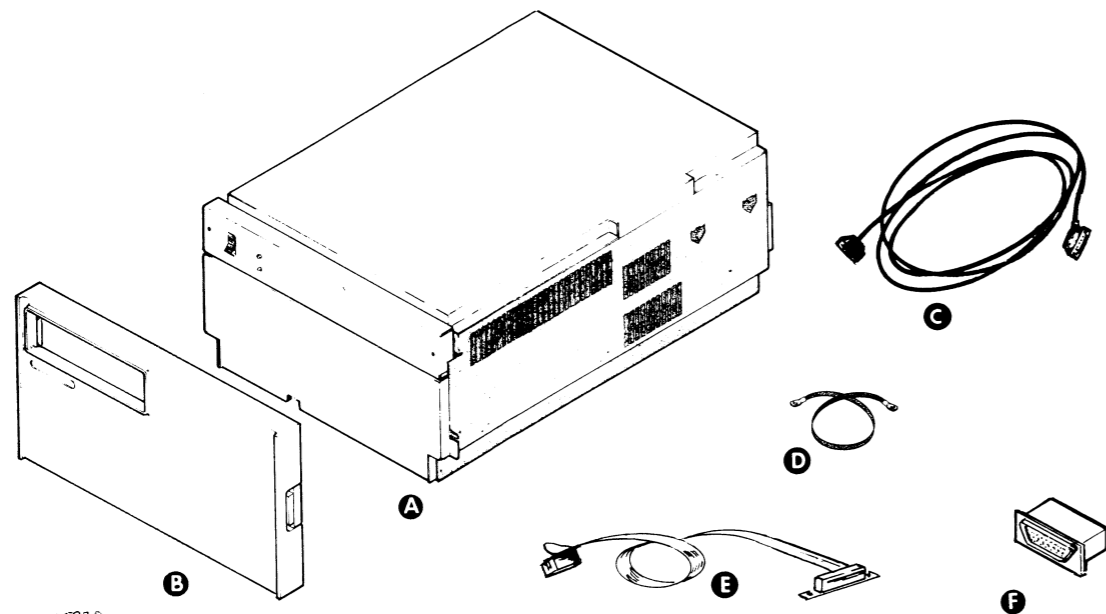


TORQUE REQUIREMENTS		
SCREW NO	IN/LB	N/M
M4	13.27-15.04	1.5-1.70
8-32	14.5-15.5	1.63-1.75
10-32	33-35	3.7-3.95

### EXTERNAL CABLING



INSTALLATION SPECIFICATIONS



DG-05920

MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	RIGID DISK DRIVE	CABINET	
B	FRONT PANEL	CABINET	

CABLE

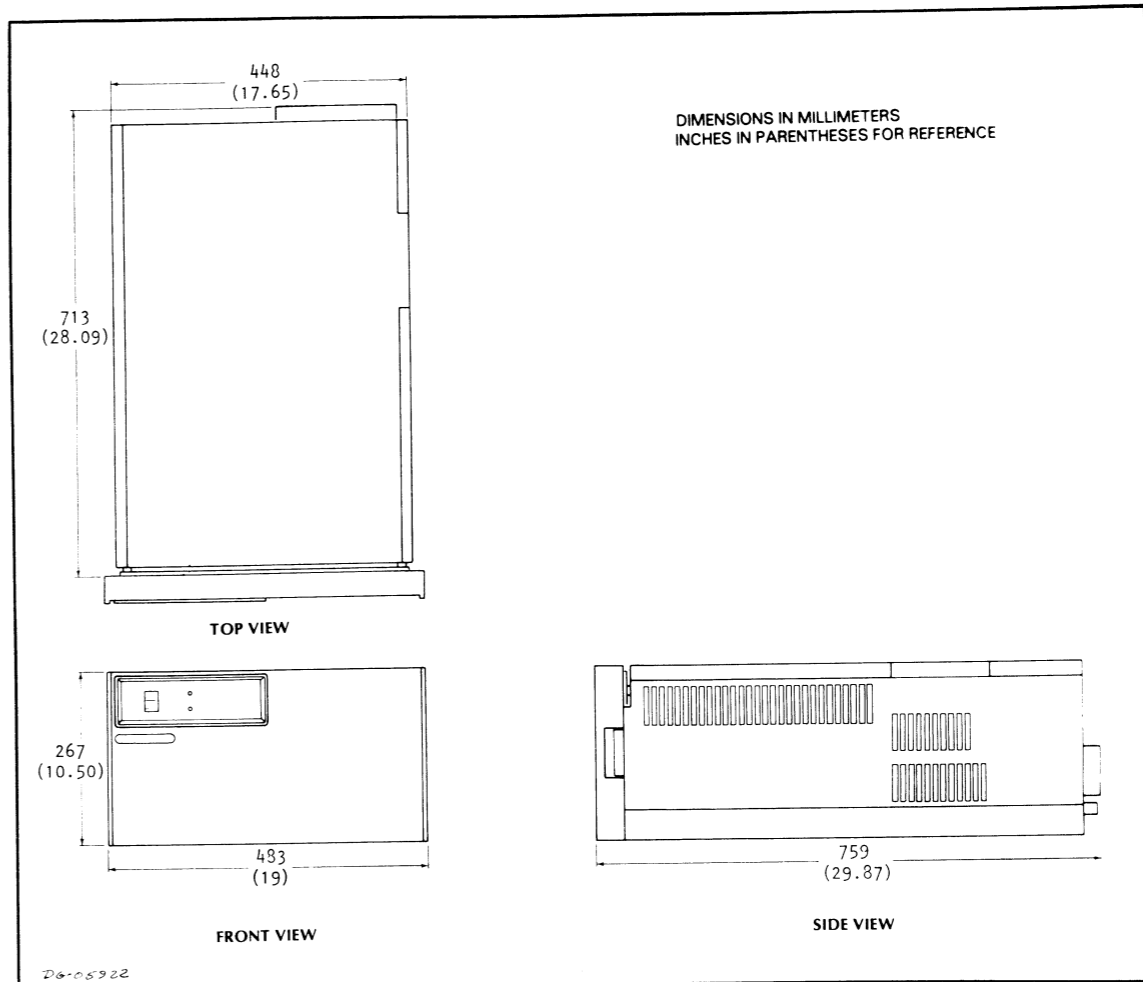
ITEM	CABLE	CONNECTING	LENGTH		NOTES
			FT	M	
C	I/O CABLE	CONTROLLER AND microNOVA REAR PANEL			
D	GROUND BRAID	CPU TO RIGID DISK CHASSIS			
E	INT I/O CABLE	microNOVA BACKPANEL AND REAR PANEL			

FOR OTHER OPTIONS, SEE SHEET 8 THIS 010

TERMINATOR

ITEM	TERMINATOR	LOCATION	NOTES
F	TERMINATOR	REAR PANEL	005-018508

MAXIMUM ACCUMULATIVE BUSS LENGTH IS 100 FT. /30M  
SEE 010-000344 FOR CONFIGURATION AND 005# S.



DG-05922

<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>	<b>POWER REQUIREMENTS:</b>
Millimeters	483	759	267	(Domestic)
Inches	19	29.87	10.5	Voltage
				120 +10% -15%
<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Bottom</b>		Hz
Millimeters	686	203		60 ± 1%
Inches	27.5	8		Amp per Phase
				2.8
				Startup Surge per Phase
				10A for 10 seconds
<b>WEIGHT:</b>				(Export)
Kilograms	34			Voltage
Pounds	75			100 +10% -15%
				100 +10% -15%
				220 +10% -15%
				240 +10% -15%
				Hz
				50 ±1%
				60 ±1%
				50 ±1%
				50 ±1%
				Amp per Phase
				3.4
				3.4
				1.5
				1.4
				Startup Surge per Phase
				12A
				12A
				5.5A
				5A for 10 seconds
<b>HEAT OUTPUT (MAX)</b>	<b>Watts</b>	<b>BTU/hr</b>		<b>CABLES:</b>
100V	340	1160		Primary Power
120V	336	1146		Length Conn Mating
220V	330	1126		1.8m(6') 5-15P 5-15R
240V	336	1147		1.8m(6') 6-15P 6-15R
				Domestic 60Hz
				Export 50Hz
<b>OPERATING ENVIRONMENT:</b>				
Temperature (max)				
Room	32°C	90°F		
Cabinet	43°C	109°F		
Relative Humidity (max)	80%			
Altitude	3048m(10,000')			

## SHIPPING

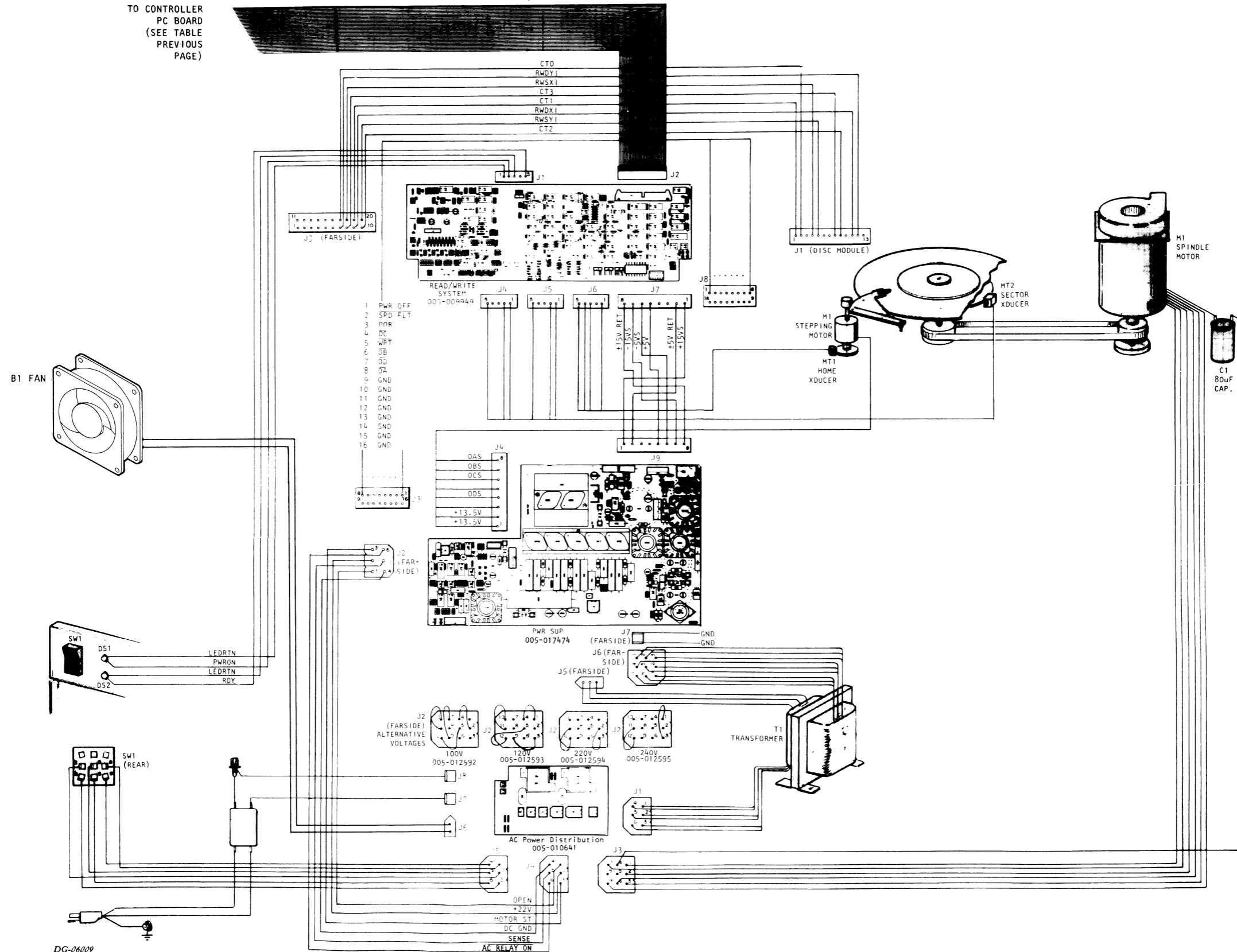
FOR PACKING PROCEDURE,  
SEE 010-000263

## INTERNAL CABLING

INTERNAL CABLE WIRE LIST

SIGNAL NAME	RIGID DISK
	SOCKET CONNECTOR 50 PIN P1
GND	1
XPOR	2
GND	3
X PWR OFF	4
GND	5
HOME	6
GND	7
QD	8
QC	9
QB	10
QA	11
GND	12
HT	13
H2	14
H4	15
GND	16
RDGATE	17
GND	18
WRGATE	19
GND	20
PREAMBLE	21
GND	22
XSC16	23
XSC8	24
XSC4	25
XSC2	26
XSC1	27
GND	28
XSCTR PLS	29
GND	30
XSCNTVALID	31
GND	32
RDY	33
SWAP 01	34
WRPRO	35
GND	36
R/W FLT	37
SPD FLT	38
GND	39
WR CLK RTN-	40
WR CLK RTN +	41
GND	42
WR OSC RTN-	43
WR OSC RTN+	44
GND	45
NRZ DAT-	46
NRZ DAT+	47
GND	48
R/W CLK-	49
R/W CLK+	50

### INTERNAL CABLING (CONT) INTERCONNECTION DIAGRAM

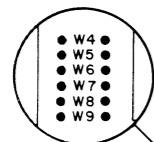




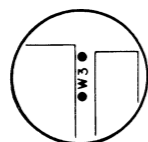
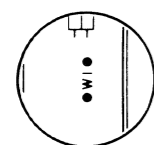
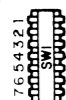
### TAILORING

#### CONTROLLER BOARD

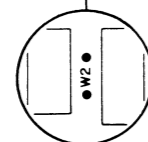
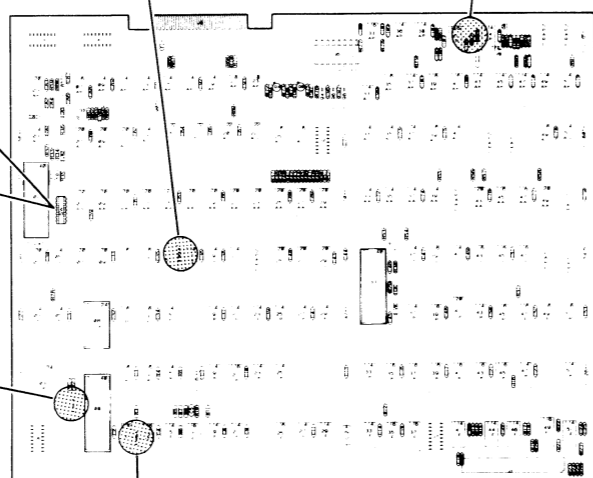
USE FOR 107-1341-01 AND LATER ARTWORKS



USE FOR 107-1341 REV 00 ARTWORK ONLY



NOT AVAILABLE ON REV. 00 ARTWORK

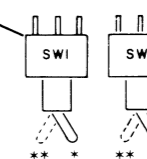
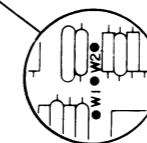
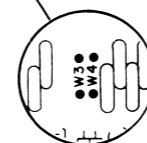
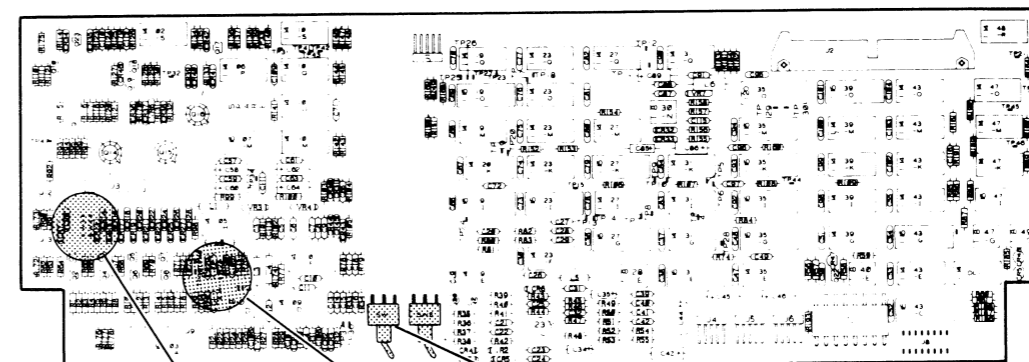


CONTROLLER DEVICE CODE SELECT			
JUMPER NUMBER	SWITCH NUMBER	DEVICE CODE 26	DEVICE CODE 66
N/A	1	OFF*	OFF*
W4	2	OFF/OUT	ON/IN
W5	3	ON/IN	ON/IN
W6	4	OFF/OUT	OFF/OUT
W7	5	ON/IN	ON/IN
W8	6	ON/IN	ON/IN
W9	7	OFF/OUT	OFF/OUT

\*THIS SWITCH NOT USED

CONTROLLER JUMPER SELECTION			
12.5 MBYTE		25 MBYTE	
JUMPER		JUMPER	
W1	OUT	W1	OUT
W2	IN	W2	OUT
W3	IN	W3	IN
W4	IN	W4	IN

#### R/W LOGIC BOARD

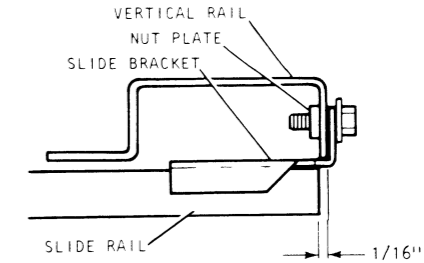
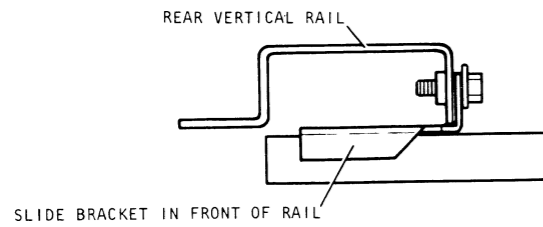


R/W JUMPER SELECTION			
12.5 MBYTE		25 MBYTE	
JUMPER		JUMPER	
W1	IN	W1	IN
W2*	OUT	W2*	OUT
W3	OUT	W3	IN
W4	OUT	W4	IN

\* INSERTED FOR FACTORY USE ONLY

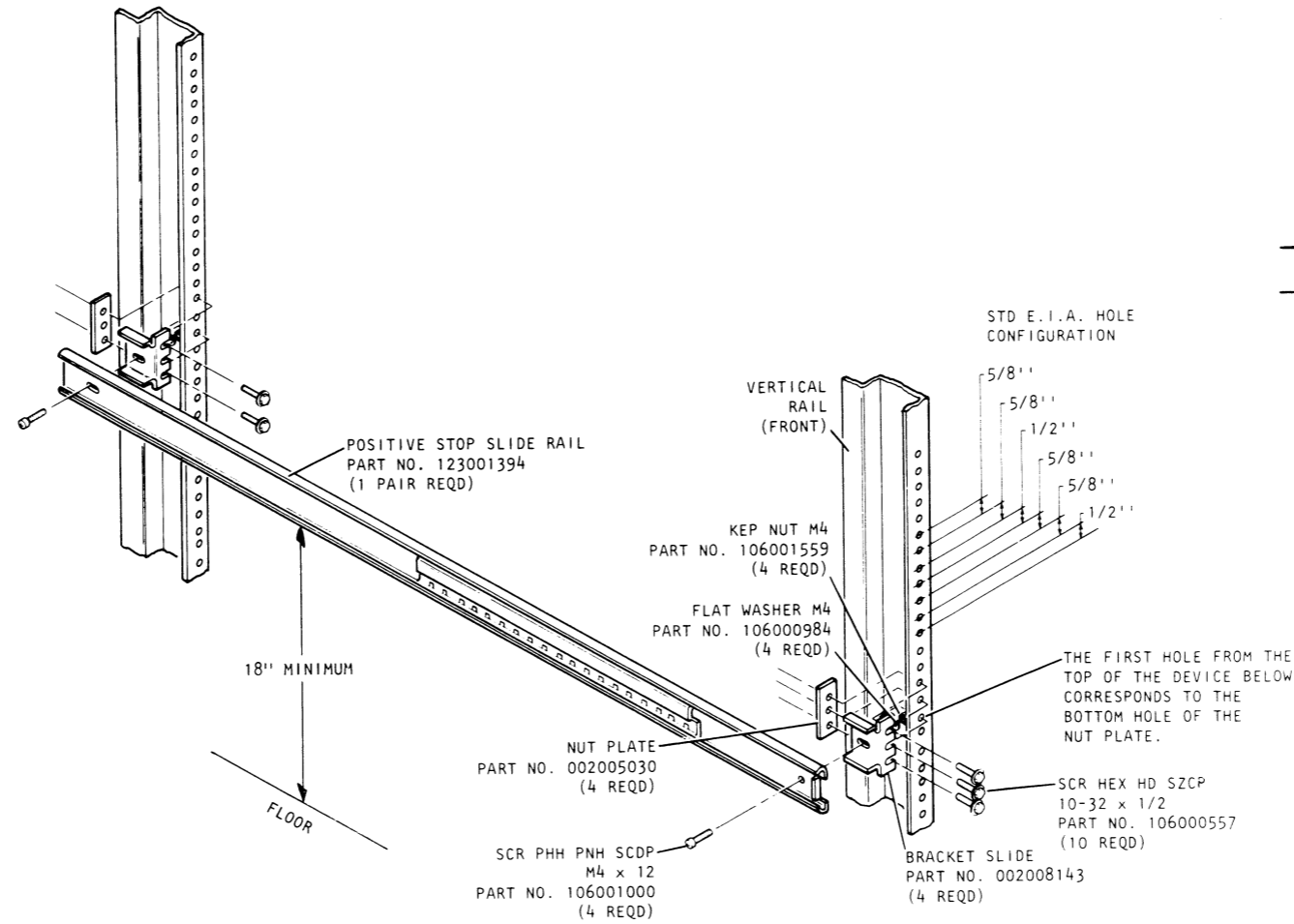
SWITCH SETTINGS	
SWITCH	*RIGHT
SW-1	RIGID DISK NOT WRITE PROTECTED
SW-2	RIGID DISC = UNIT 0 FLEXIBLE DISK = UNIT 1
** LEFT	
SW-1 SW-2	RIGID DISK WRITE PROTECTED RIGID DISK = UNIT 1 FLEXIBLE DISK = UNIT 0

### CABINET MOUNTING



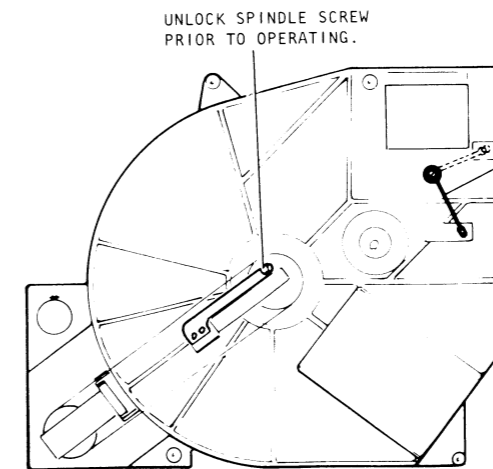
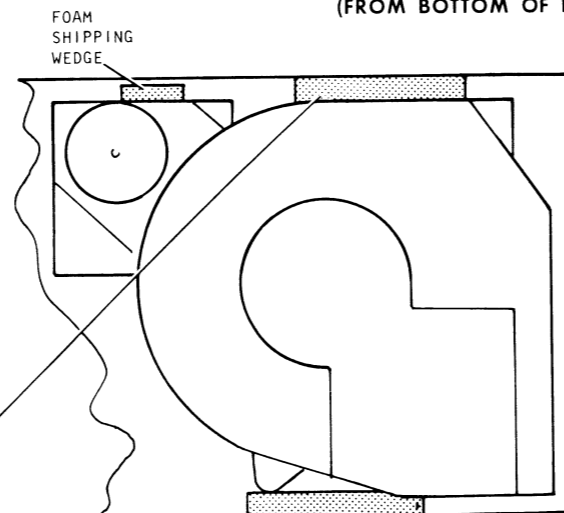
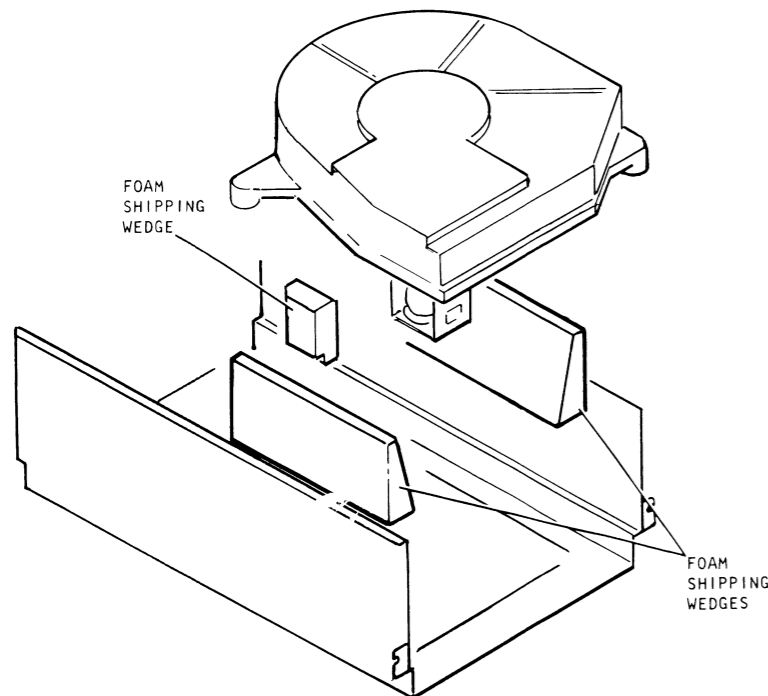
HARDWARE MOUNTING KIT 005-019126

TORQUE REQUIREMENTS		
SCREW NO	IN/LB	N/M
M4	13.27-15.04	1.5-1.70
8-32	14.5-15.5	1.63-1.75
10-32	33-35	3.7-3.95



### SHIPPING RESTRAINTS

**IMPORTANT: BEFORE OPERATING DISK, REMOVE FOAM SHIPPING WEDGES, UNLOCK SPINDLE SCREW AND UNLOCK ARM (FROM BOTTOM OF DRIVE).**



NOTE TO FIELD ENGINEERING:

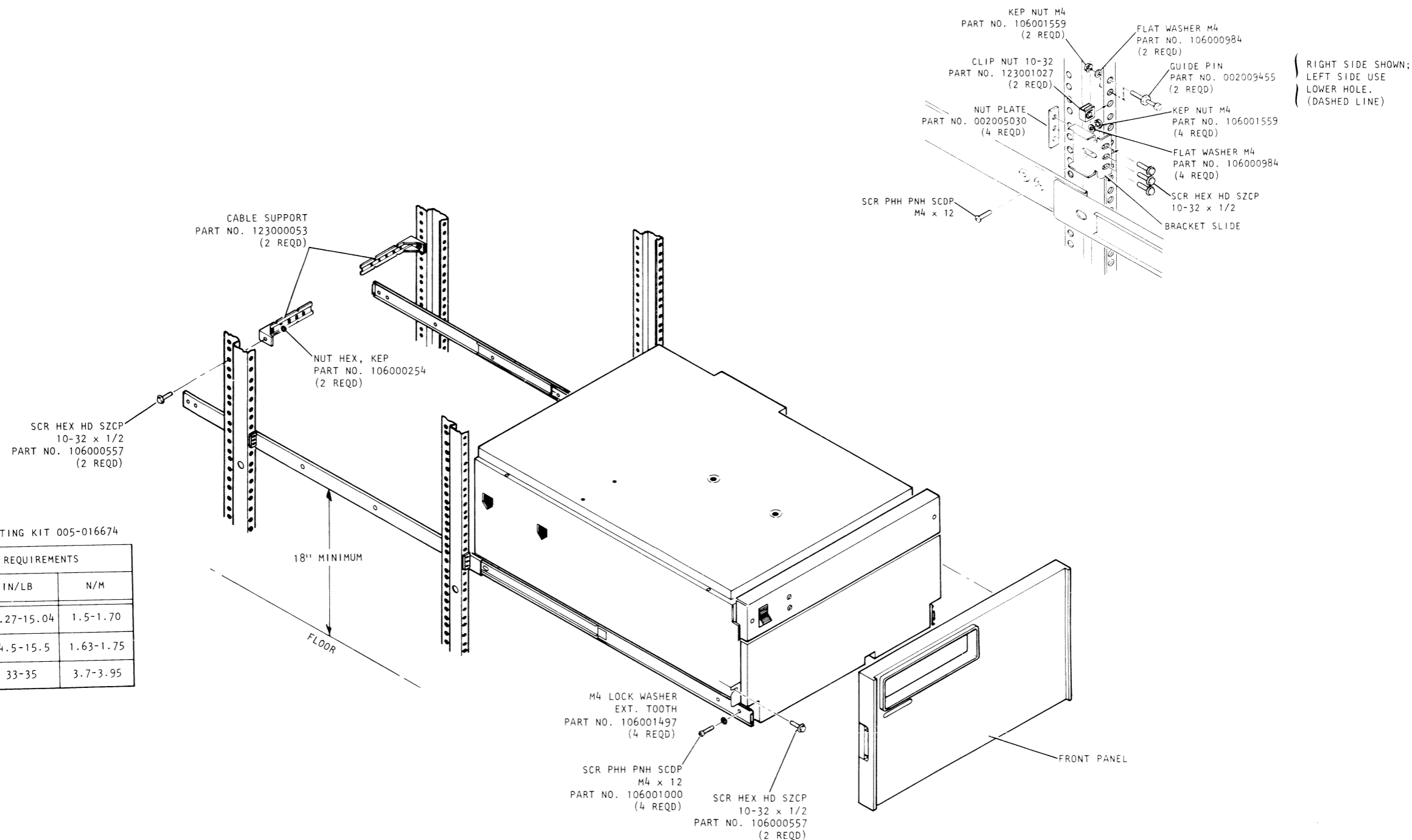
WHEN RETURNING A MODULE TO THE MANUFACTURING FACILITY, PERFORM THE FOLLOWING TASKS.

1. MOVE POSITIONER STOP TO LOCK POSITION.
2. LOCK SPINDLE BY ENGAGING CAPTIVE SCREW.

MODULES RETURNED TO THE MANUFACTURING FACILITY WITHOUT BEING PROPERLY SECURED CAN VOID THE WARRANTY.

DG-06034

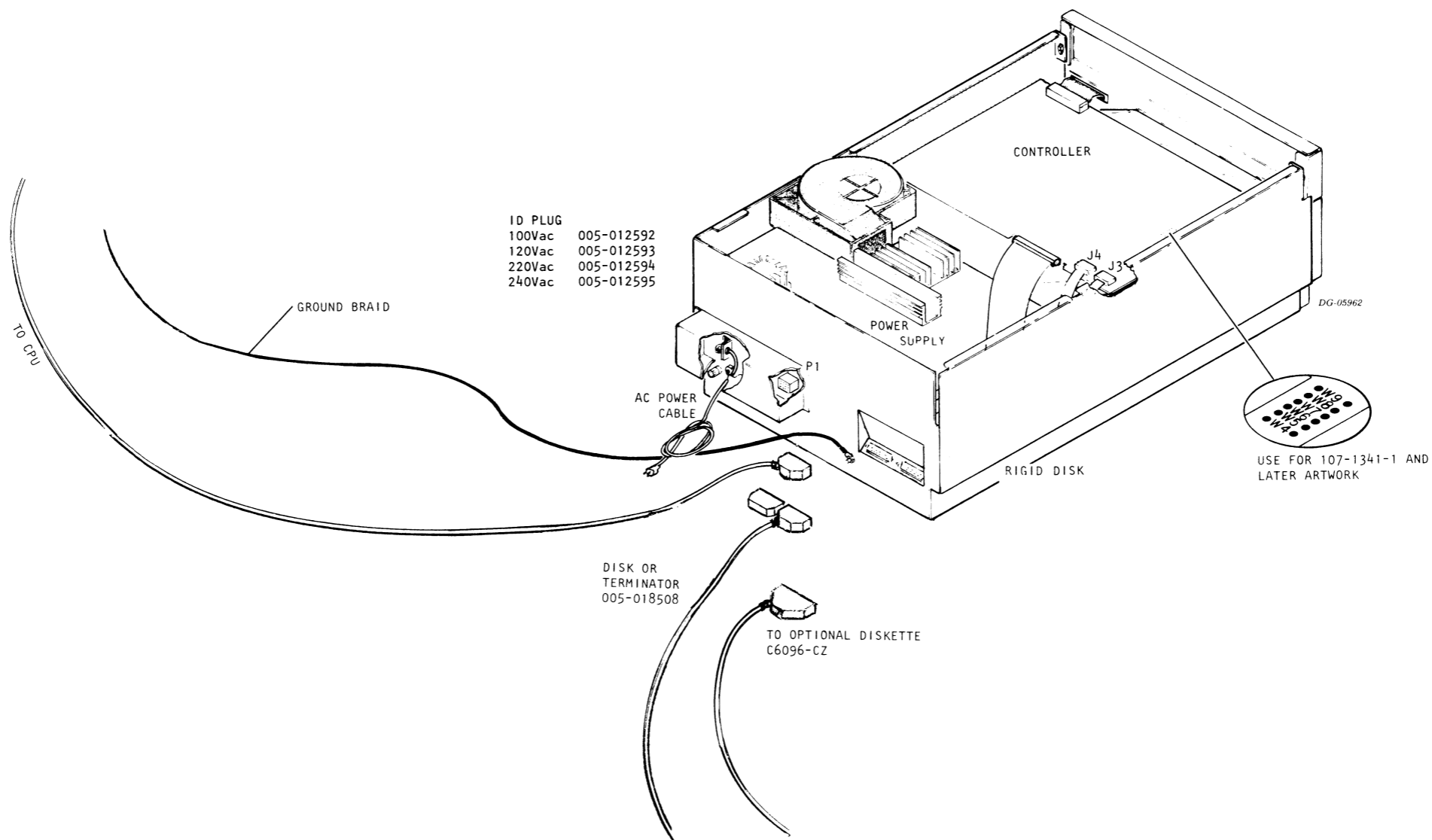
### CABINET MOUNTING (CONT)



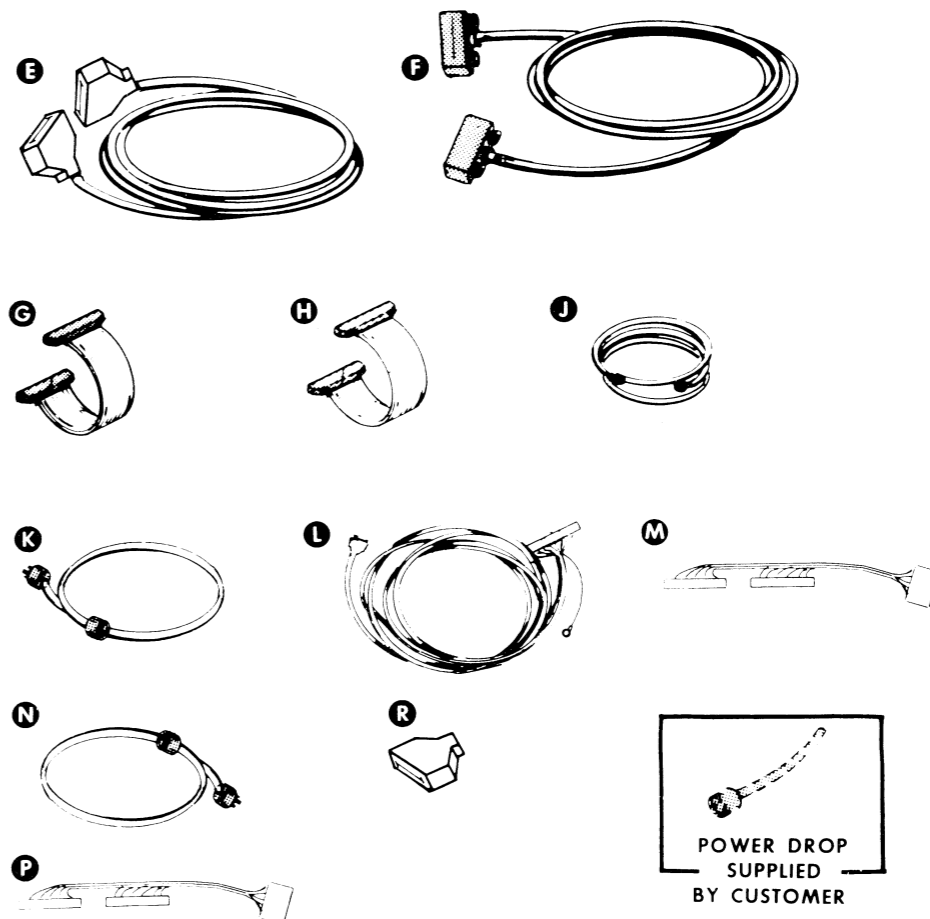
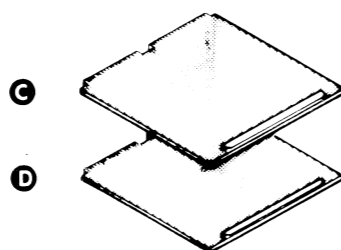
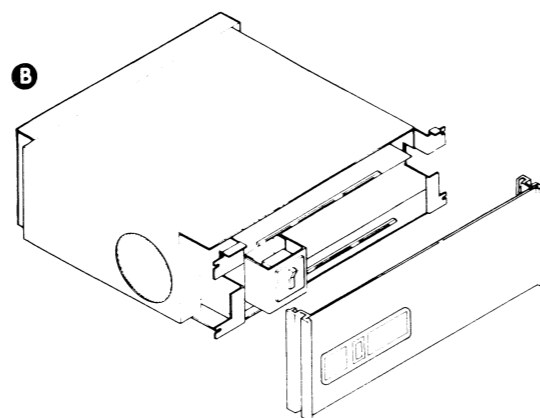
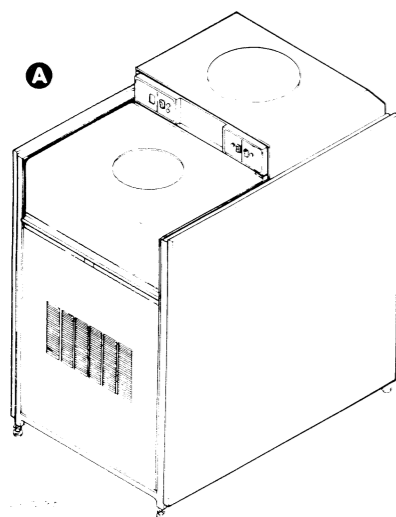
HARDWARE MOUNTING KIT 005-016674

TORQUE REQUIREMENTS		
SCREW NO	IN/LB	N/M
M4	13.27-15.04	1.5-1.70
8-32	14.5-15.5	1.63-1.75
10-32	33-35	3.7-3.95

### EXTERNAL CABLING



### SUBSYSTEM COMPONENT BREAKDOWN



REFER TO DISK PRODUCT  
 MASTER 010-0331 FOR  
 CONFIGURATION AND CABLE 005 NUMBERS

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	100-200 M-BYTE DRIVE	FREE STANDING	SEE CABLE LENGTH RESTRICTIONS
B	ADAPTER	EQUIPMENT CABINET	SEE CABLE LENGTH RESTRICTIONS
C	CONTROLLER	COMPUTER CHASSIS (1-SLOT)	
D	BURST MULTIPLEXOR CHANNEL INTERFACE	COMPUTER CHASSIS (1-SLOT)	DIRECTLY BESIDE CONTROLLER

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	CONTROLLER'S +5 VOLT CURRENT DRAW (AMPS)
C	CONTROLLER	COMPUTER	1	4.0
D	BMC INTERFACE	COMPUTER	1*	5.3

\*DIRECTLY BESIDE CONTROLLER

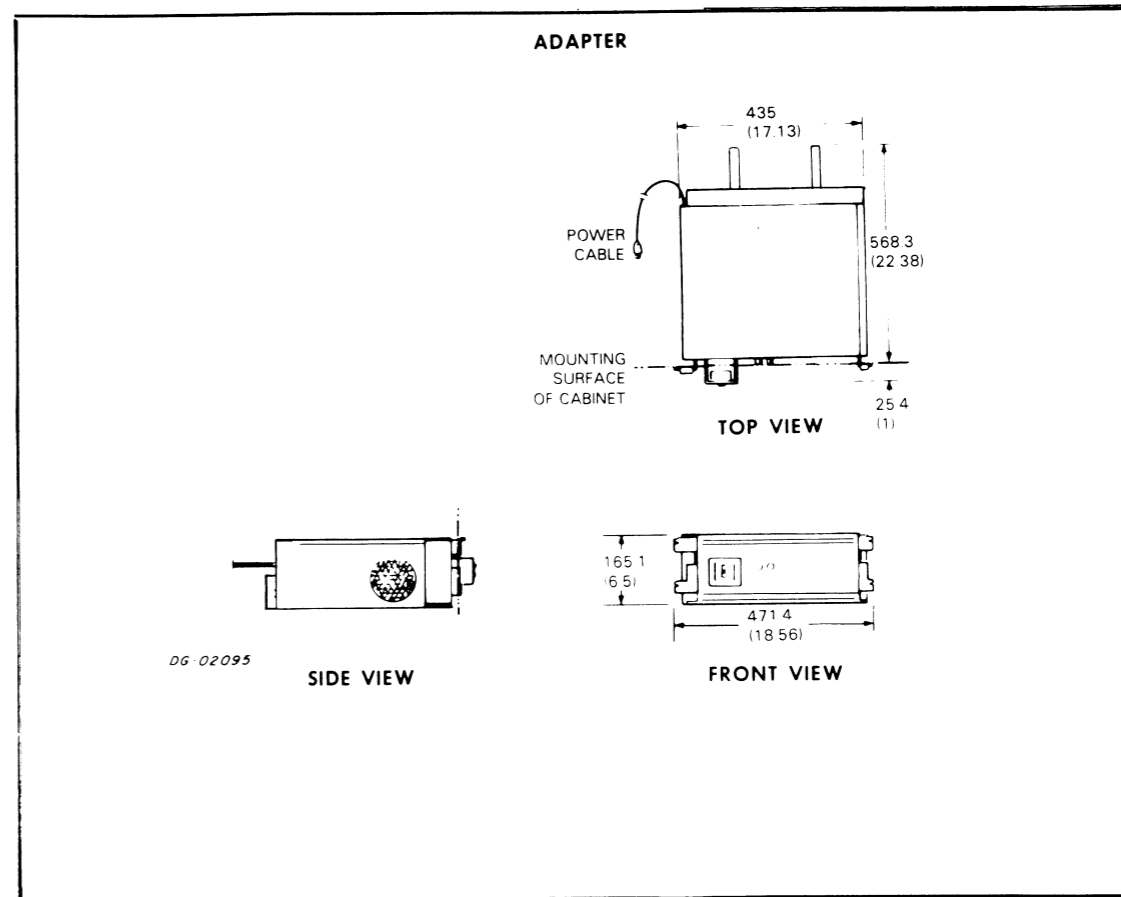
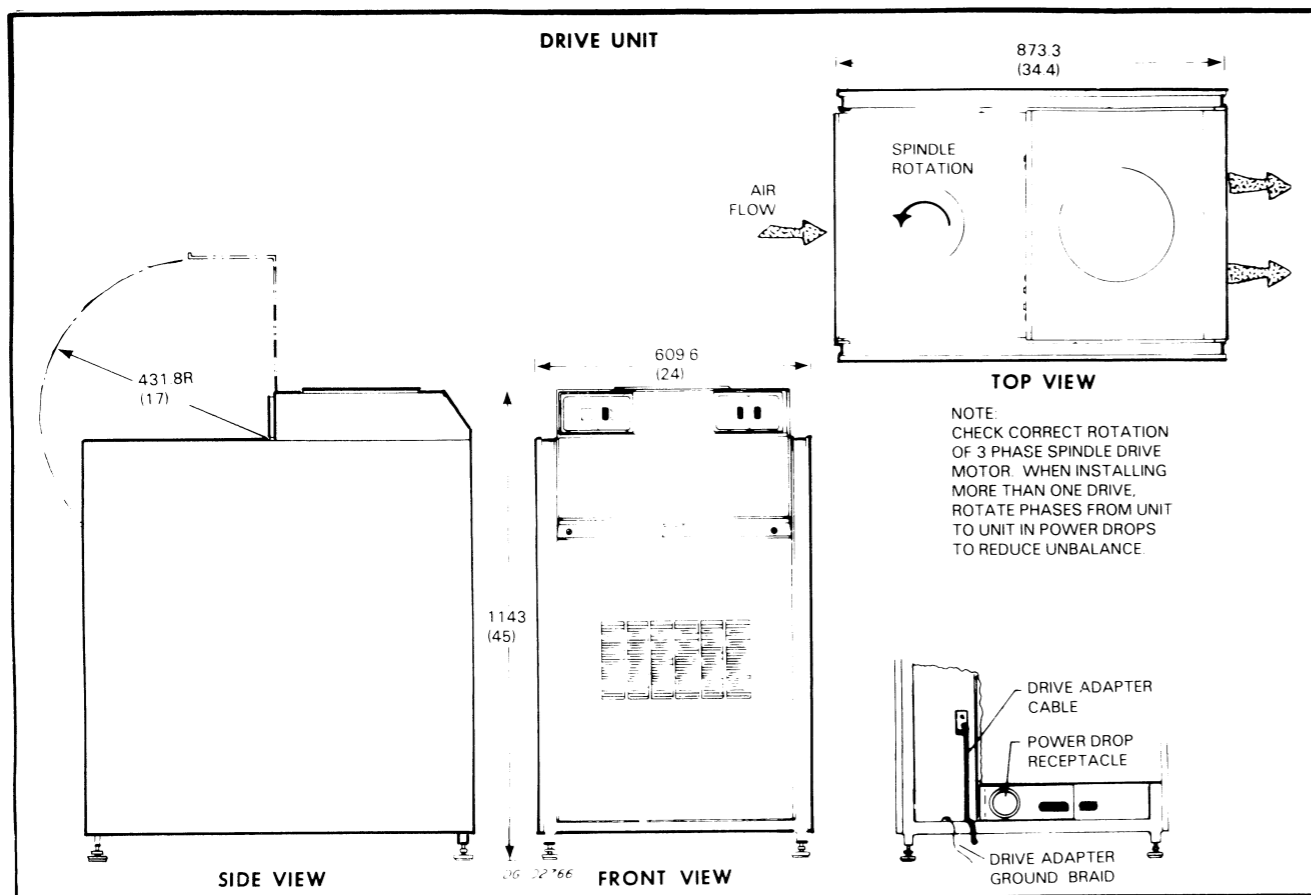
**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

**POWER DROP SUPPLIED BY CUSTOMER**

ITEM	CABLE	CONNECTING			MAX. LGTH		NOTES
					FT	M	
E	DEVICE CA (ADAPTER)	COMPLIANT CPU	AND	ADAPTER	15	4.6	1 PER SUBSYSTEM
F	DEVICE CA (DRIVE)	ADAPTER	AND	DRIVE UNIT	50	15.3	1 PER DRIVE UNIT
G	CONTROLLER RIBBON CA	CONTROLLER	AND	BMC INTERFACE			BTW RIBBON CONN @HDL END OF BDS
H	ADAPTER RIBBON CA	ADAPTER BD #1	AND	ADAPTER BD#2			BTW RIBBON CONN @HANDLE END. OF BDS
J	GROUND BRAID	ADAPTER CHASSIS	AND	DRIVE CHASSIS	50	15.3	1 PER DRIVE UNIT
K	EXTERNAL POWER	DRIVE CHASSES	AND	WALL RECEPTACLE	10	3	1 PER DRIVE UNIT
L	DEVICE CABLE ADAPTER	NON-COMPLIANT CPU	AND	ADAPTER	15	4.6	1 PER SUBSYSTEM
M	COMPLIANT CPU INT CBL	B P CTRLLR SLOT	AND	DEVICE CA CONNECTOR	N/A	N/A	
N	EXTERNAL POWER	ADAPTER CHASSIS	AND	WALL RECEPT.	6	18	1 PER ADAPTER UNIT
P	INTERNAL CABLE	NON-COMPLIANT CPU	AND	ADAPTER			

ITEM	TERMINATOR	LOCATION	NOTES
R	SIGNAL BUS TERMINATOR	"B" CONNECTOR, ADAPTER	NOT NEEDED IN DUAL CPU SYSTEM

INSTALLATION SPECIFICATIONS



DRIVE UNIT

<b>DIMENSIONS:</b>	Width	Depth	Height
Millimeters	609.6	873.3	1143
Inches	24	34.4	45
<b>SERVICE CLEARANCES:</b>	Front	Rear	Top
Millimeters	609.6	304.8	431.8
Inches	24	12	17
<b>WEIGHT:</b>			
Kilograms	26.1		
Pounds	57.5		
<b>HEAT OUTPUT:</b>	Watts	BTU/hr	
	1800	6140	
<b>OPERATING ENVIRONMENT:</b>			
Temperature (max)	32°C	90°F	
Relative Humidity	20 TO 80%		
Altitude	1830m (6000')		

POWER REQUIREMENTS:

(Domestic)				
Voltage	208/120			
Hz	60			
Max Amp per Phase	8			
Phase	3			
Startup Surge per Phase	30A for 12 seconds			
(Export)				
Voltage	380/220	415/240	220	200
Hz	50	50	50	50
Max Amp per Phase	5	4	8	8
Phase	3	3	3	3
Startup Surge per Phase	30A for 12 seconds			
<b>CABLES:</b>	Length	Conn	Mating	
Primary Power		(Hubbell)	Conn	
Domestic 60Hz	3m(10')	2515	2513 (user-supplied)	
Export 50Hz	3m(10')	----	----	

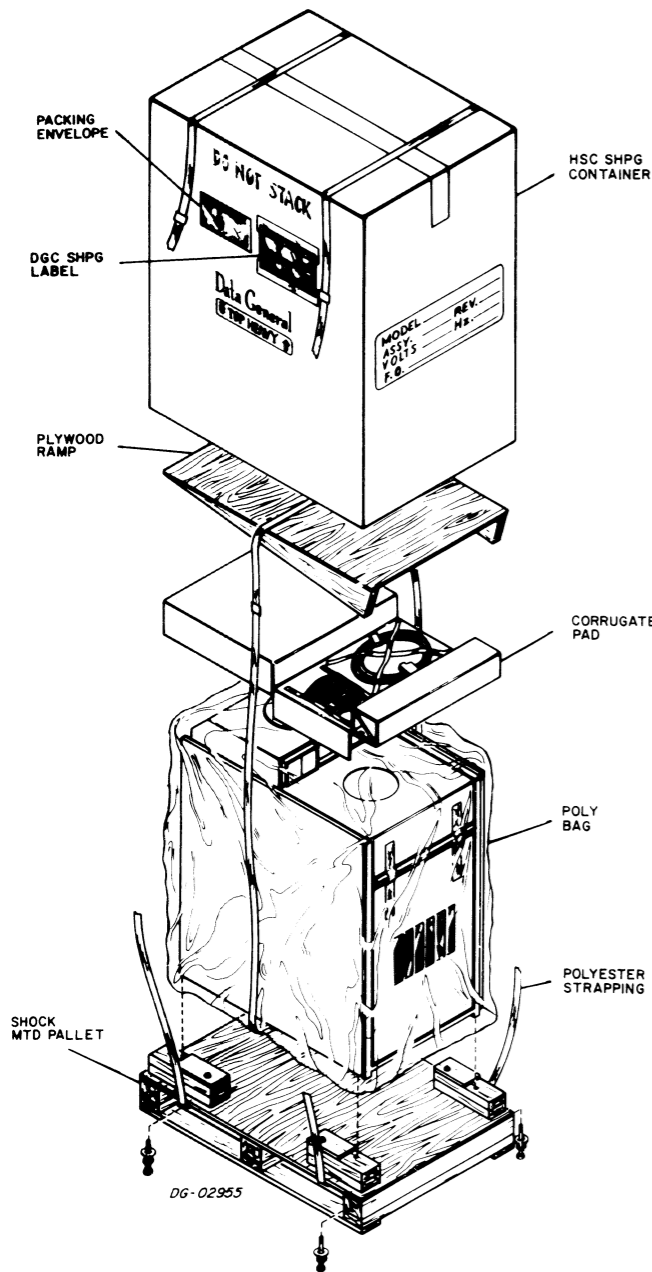
ADAPTER

<b>DIMENSIONS:</b>	Width	Depth	Height
Millimeters	471.4	593.9	175.3
Inches	18.56	23.38	6.90
<b>WEIGHT:</b>			
Kilograms	13.6		
Pounds	30		
<b>HEAT OUTPUT:</b>	Watts	BTU/hr	
	180	613.8	
<b>OPERATING ENVIRONMENT:</b>			
Temperature (max)	55°C	131°F	
Relative Humidity (max)	80%		

POWER REQUIREMENTS:

(Domestic)			
Voltage	120		
Hz	60		
Max Amp per Phase	1.5		
Phase	1		
(Export)			
Voltage	100	220	240
Hz	50	50	50
Max Amp per Phase	1.8	0.8	0.75
Phase	1	1	1
<b>CABLES:</b>	Length	Conn	Mating
Primary Power			Conn
Domestic 60Hz	1.8m(6')	5-15P	5-15R
Export 50Hz	1.8m(6')	6-15P	6-15R

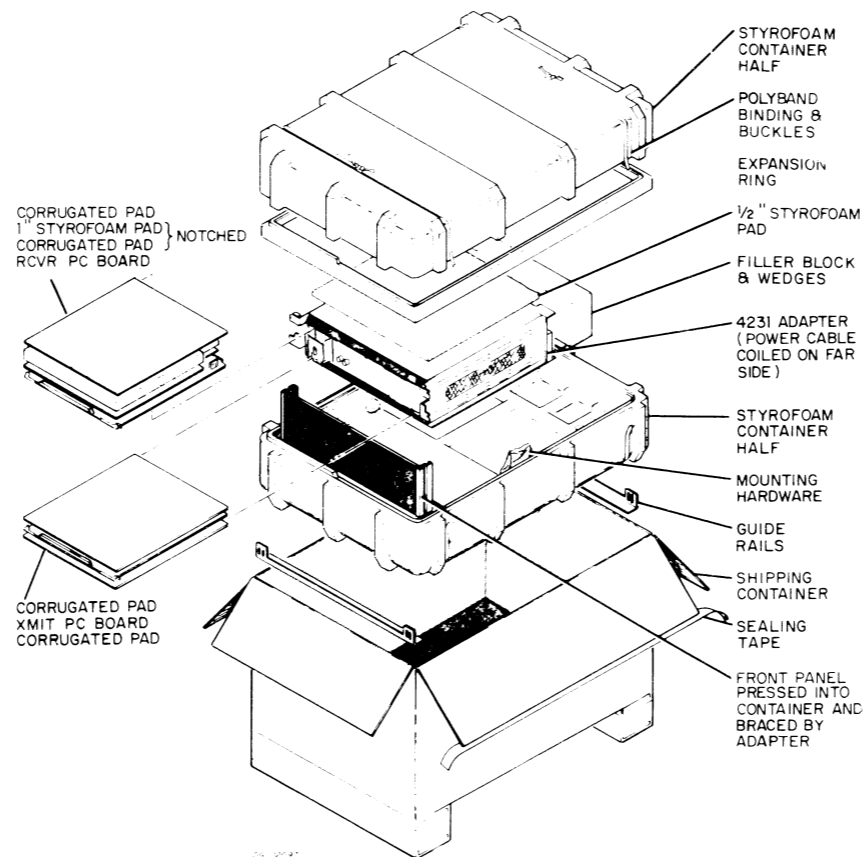
### THE DISC DRIVE PACKING KIT



SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth	lbs	cu ft	lbs/cu ft
in	in	in	kg	cu m	kg/cu m
49	124	29 1/4	653	3.5	19
	74	42 1/4	296	1	296
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity (Non-condensing)	Maximum Altitude	Temperature Range	Relative Humidity (Non-condensing)	Maximum Period
-40 to +160 -40 to +71	0%/80%	50,000ft. 15,200m	-40 to +160 -40 to +71	0%/80%	90 days

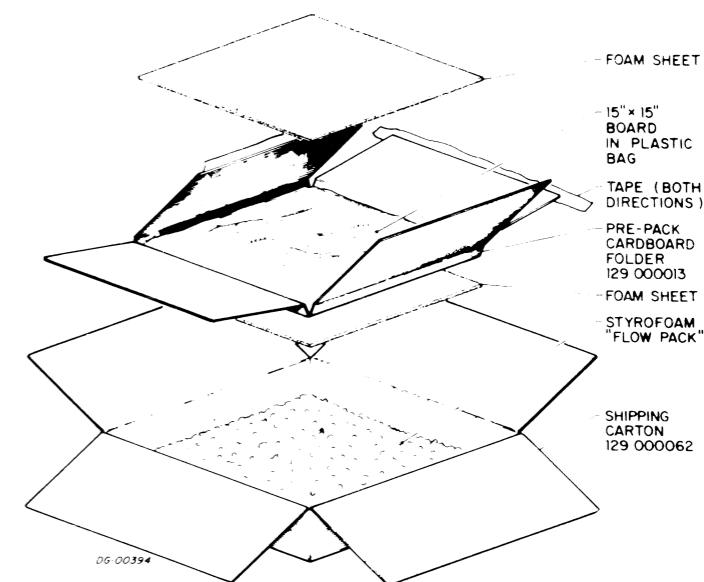
### SHIPPING

### THE ADAPTER PACKING KIT



SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth	lbs	cu ft	lbs/cu ft
in	in	in	kg	cu m	kg/cu m
30	24.3	18	62	7.6	8.2
	76.2	61.7	28.1	.21	133.8
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity (Non-condensing)	Maximum Altitude	Temperature Range	Relative Humidity (Non-condensing)	Maximum Period
-40 to +160 -40 to +71	0%/80%	50,000ft. 15,200m	-40 to +160 -40 to +71	0%/80%	90 days

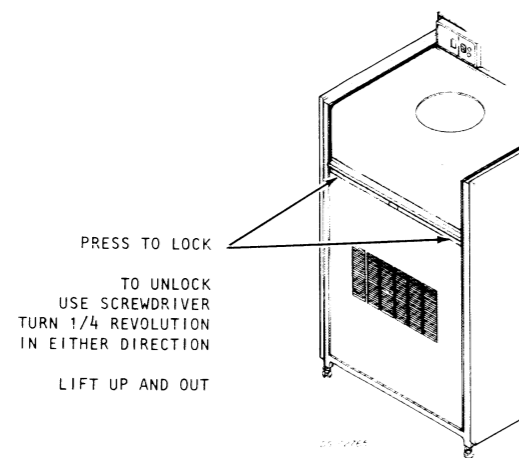
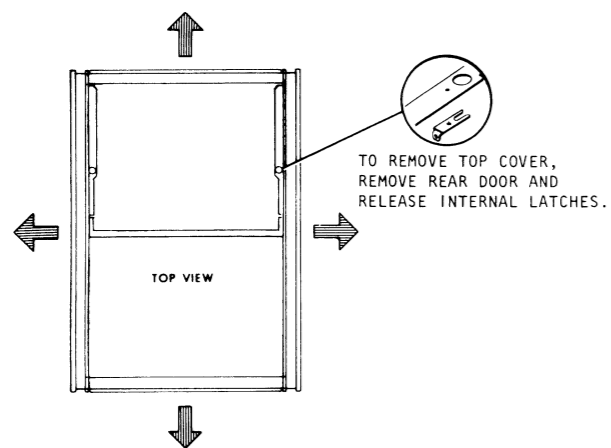
### THE CONTROLLER PACKING KIT



SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth	lbs	cu ft	lbs/cu ft
in	in	in	kg	cu m	kg/cu m
18	18	4	8	.75	10.7
	45	45	3.6	.02	180
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity (Non-condensing)	Maximum Altitude	Temperature Range	Relative Humidity (Non-condensing)	Maximum Period
-40 to +160 -40 to +71	0%/80%	50,000ft. 15,200m	-40 to +160 -40 to +71	0%/80%	90 days

## PHYSICAL ACCESS

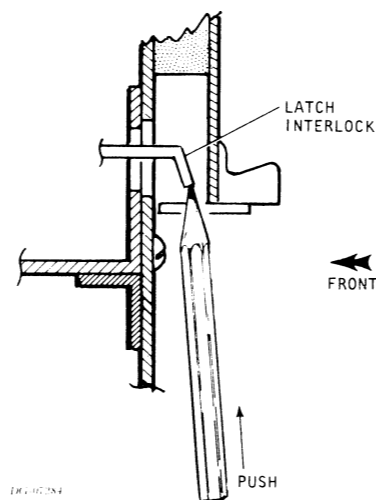
### REMOVING COVERS



CONNECT 5 GROUND STRAPS WHEN INSTALLING COVERS

### DOOR LOCK ASSEMBLY OVERRIDE

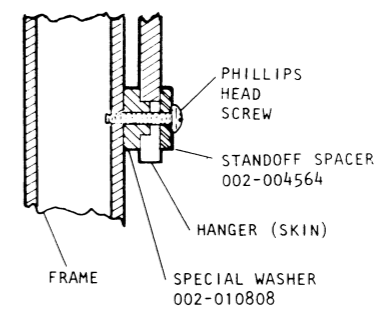
THE DOOR LOCK ASSEMBLY IS INTENDED TO LIMIT THE OPENING OF THE SHROUD COVER WHILE THE DISC PACK IS ROTATING AND/OR POWER TO THE DRIVE IS OFF. COVER MAY BE OPENED ONLY WHEN PACK IS COMPLETELY STOPPED AND DC POWER IS ON.



IN THE EVENT OF POWER FAILURE AND/OR DRIVE OFF AND ACCESS MUST BE GAINED TO THE DISC PACK OR SHROUD, THE FOLLOWING PROCEDURE CAN BE USED:

- STEP 1. REMOVE FRONT DOOR.
- STEP 2. USING A PEN OR PENCIL, PUSH (PIVOT) THE LATCH INTERLOCK OUT-OF-ENGAGEMENT WITH THE BRACKET DETENT.
- STEP 3. WHILE LATCH INTERLOCK IS PIVOTED, LIFT COVER OPEN BY DOOR LATCH.

### REMOVING SKINS

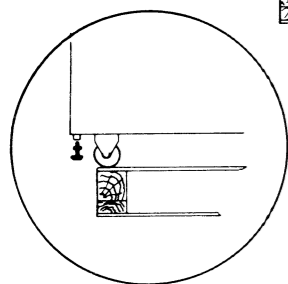
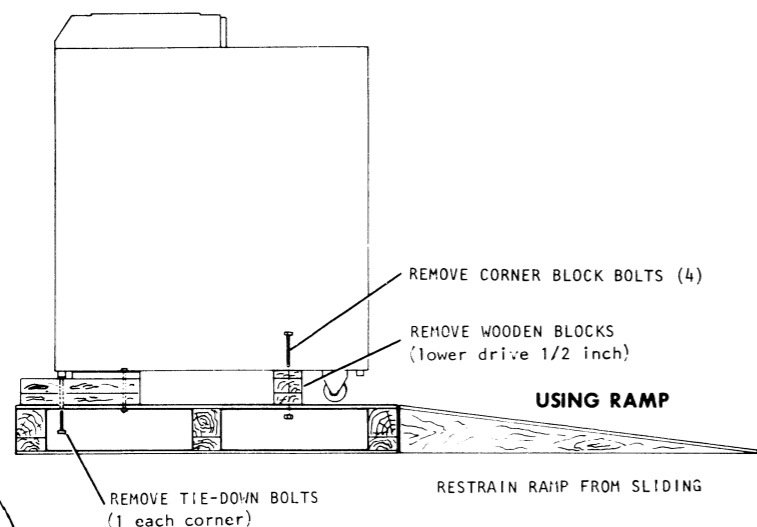


IN OPERATION, TIGHTENING THE SCREW SQUEEZES THE HANGER BETWEEN STANDOFF SPACER 002-4564 AND SPECIAL WASHER 002-10808 LOCKING SKIN IN PLACE. TO REMOVE SKIN, LOOSEN SCREW.



## HANDLING PRECAUTIONS UNPACKING CONSIDERATIONS (Save Materials)

### REMOVING DRIVE FROM PALLET

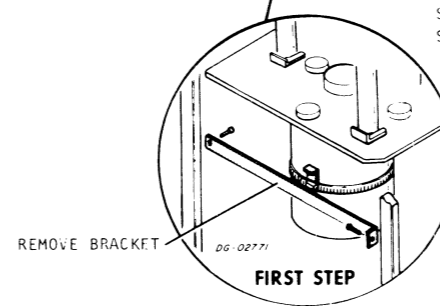
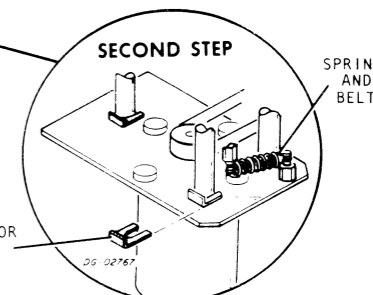
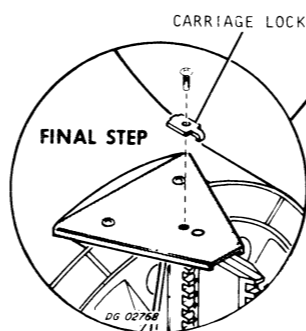
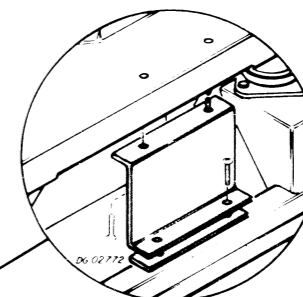
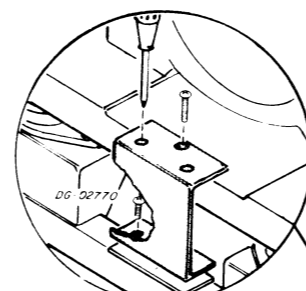


#### INSTALL LEVELLING LEGS

(MOVE DRIVE TO OVERHANG PALLET EDGE SCREW LEVELLING LEGS AS FAR IN AS THEY WILL GO TO AVOID BENDING THEM GOING ON AND OFF RAMP)

NOTE: THE READ/WRITE HEADS ARE CAREFULLY ALIGNED AT THE FACTORY, AND THE EQUIPMENT IS PACKED IN PROTECTIVE CONTAINERS TO PREVENT DAMAGE DURING SHIPMENT. HOWEVER, ROUGH HANDLING MAY MOVE THE HEADS, SO THAT RE-ALIGNMENT ON-SITE MAY BE REQUIRED. IF THE HEADS DO REQUIRE ALIGNMENT, REFER TO THE PROCEDURE INCLUDED IN THE DOCUMENTATION SUPPLIED WITH THE EQUIPMENT.

### MOVE DRIVE CAREFULLY AFTER REMOVING CARRIAGE LOCK TO AVOID HEAD DAMAGE

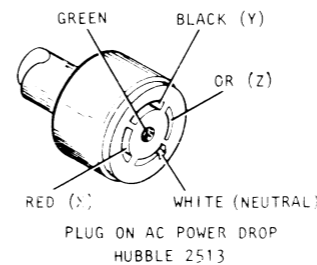
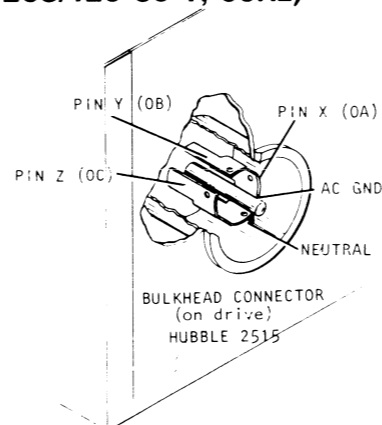
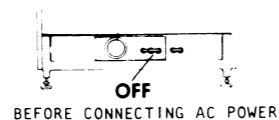


### AC POWER WIRING (208/120 30 Y, 60Hz)

#### CAUTION

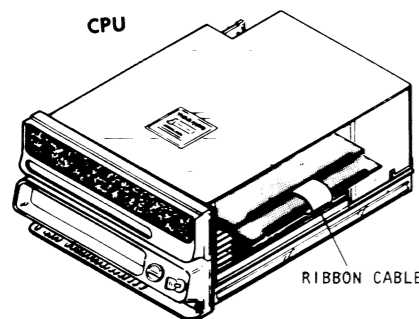
CHECK SPINDLE DRIVE ROTATION DURING BRIEF FIRST POWER UP. SPINDLE MUST TURN CCW (VIEWED FROM ABOVE DRIVE). SPINDLE DRIVE BELT MAY SLIDE OFF ITS PULLEY IF MOTOR ROTATES IN REVERSE DIRECTION.

IN MULTIDRIVE SYSTEMS, ROTATE PHASES IN AC DROPS TO EQUALIZE PHASE-TO-PHASE LOADS.



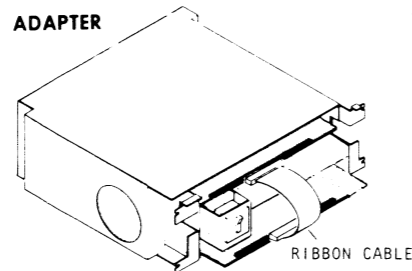
**INTERNAL CABLING**

INTERNAL CABLE WIRE LIST			
SIGNAL NAME	Back Panel Pin Number	Paddle Connector Pin Number	Compliant CPU "D" Type Int. Cbl.
BUSY 0	B27	36	36
BUSY 1	B31	37	37
BUSY 2	B34	38	38
BUSY 3	B36	39	39
TRESS'D	B13	31	31
RESERVED	B15	32	32
COM STROBE	A91	3	3
ADAPT RESET	A87	26	26
REQ/RES	A89	27	27
COM CH BUSY	B11	30	30
COMD 2	A76	6	6
COMD 1	A77	5	5
COMD 0	A78	4	4
D 1	A85	24	24
D 0	A86	23	23
CYL1	A75	7	7
CYL2	A73	8	8
CYL4	A71	9	11
CYL8	A63	13	13
CYL16	A61	14	14
CYL32	A59	15	15
CYL64	A57	16	16
CYL128	A47	17	28
CYL256	A49	18	18
CYL512	A79	19	19
READY 0	A81	20	20
READY 1	A84	21	21
READY 2	A83	22	22
READY 3	B25	35	47
BUS 0	B69	49	29
BUS 1	B40	41	41
BUS 2	B48	42	25
BUS 3	B49	43	43
BUS 4	B51	44	44
BUS 5	B53	46	46
BUS 6	B54	47	47
BUS 7	B67	48	48
A RD/WR BYTE	B19	33	33
ADAPT PARITY	B38	40	40
RD/WR START'	B23	34	12
NOVA 3 Series Computers		005-1802	
NOVA 2, ECLIPSE Series Computers		005-1802	
NOVA 820, 1210 and 1220 Computers		005-901	
NOVA 840, 1200 and 800 Jumbo Computers		005-386	
NOVA 800, 830 and 1200 Computers		005-386	
NOVA, SUPERNOVA Computers		005-386	
COMPLIANT CPU		005-018382	



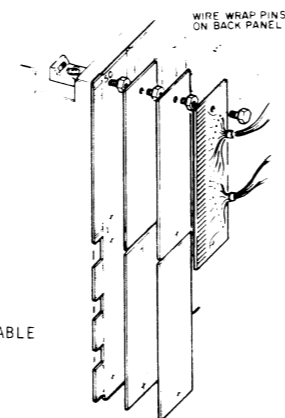
DG-02588

SLOT FOR CONTROL BOARD IS THE SLOT TO BE WIRE-WAPPED IN THE PROCESSOR.



DG-01949

EDGE CONNECTOR

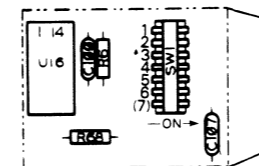


WIRE WRAP PINS ON BACK PANEL

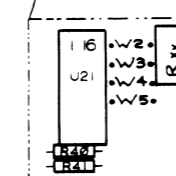
**TAILORING**

DEVICE CODE	"ON"
27	2,4,5,6
67	1,2,4,5,6,
SINGLE PROCESSOR	7

**CONTROLLER BOARD SWITCH**

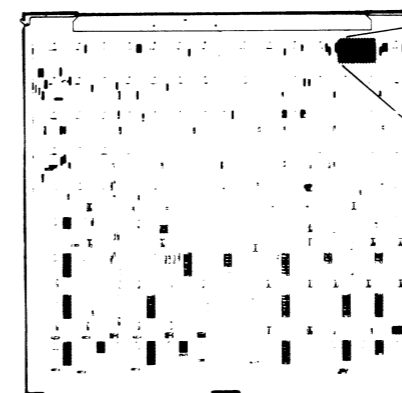


REF DGC 005-013602 REV 02

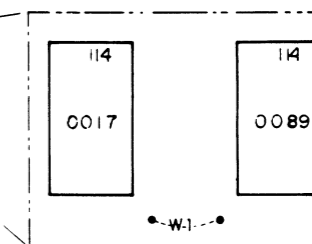


JUMPERS W2-5 IN FOR 6122 DISCS  
OUT FOR 6060, 6061, AND 6067 DISCS  
W2-DRIVE 0  
W3-DRIVE 1  
W4-DRIVE 2  
W5-DRIVE 3

**ADAPTOR BOARD #1 JUMPER**

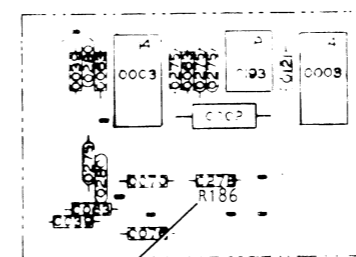


REF DGC 005-006139 REV 02

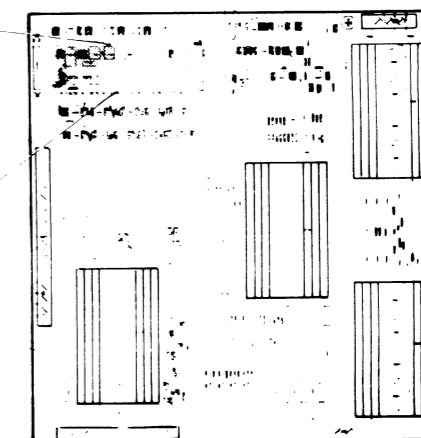


JUMPER IN FOR SINGLE PROCESSOR MODE OF OPERATION

**DC POWER CONTROL BOARD**



REMOVE DUMMY RESISTOR TO PREVENT AUTO-RESTART FOLLOWING POWER FAIL. (REDUCES POWER SURGE IN MULTI-DRIVE INSTALLATION).



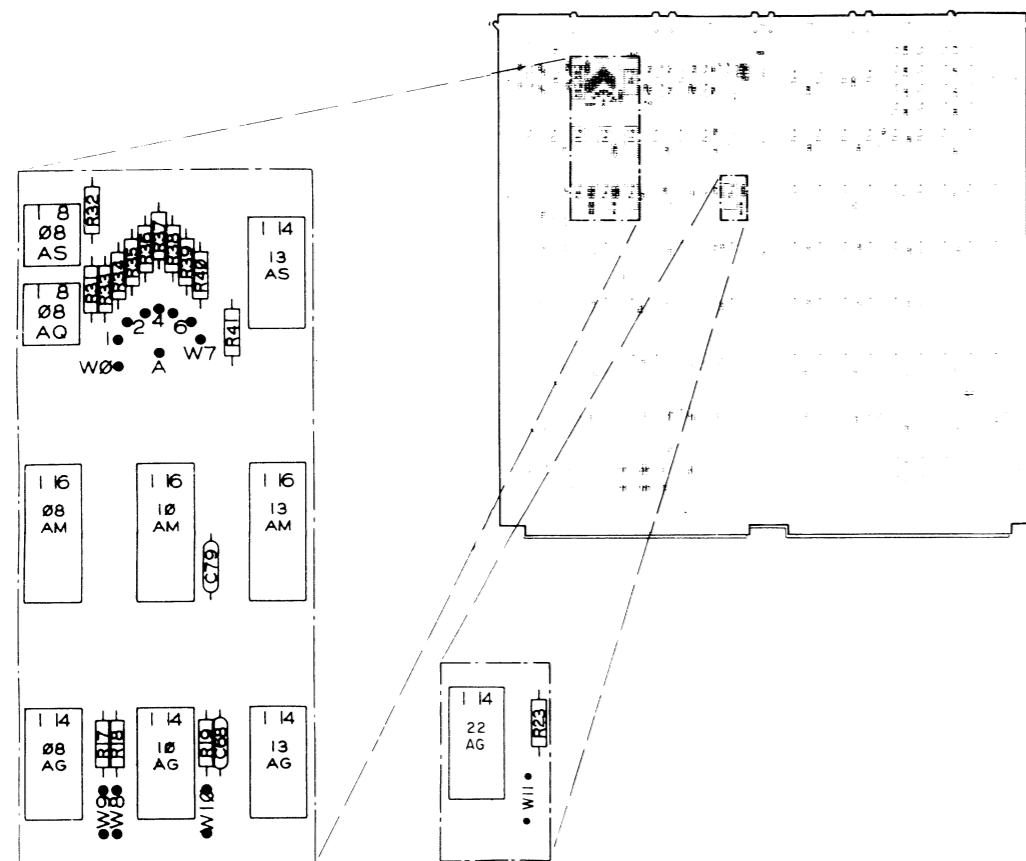
REF DGC 005-005792 REV 03

# TAILORING (Cont)

## JUMPERS

### BURST MULTIPLEXOR INTERFACE

Ref. DGC 005-008502-00

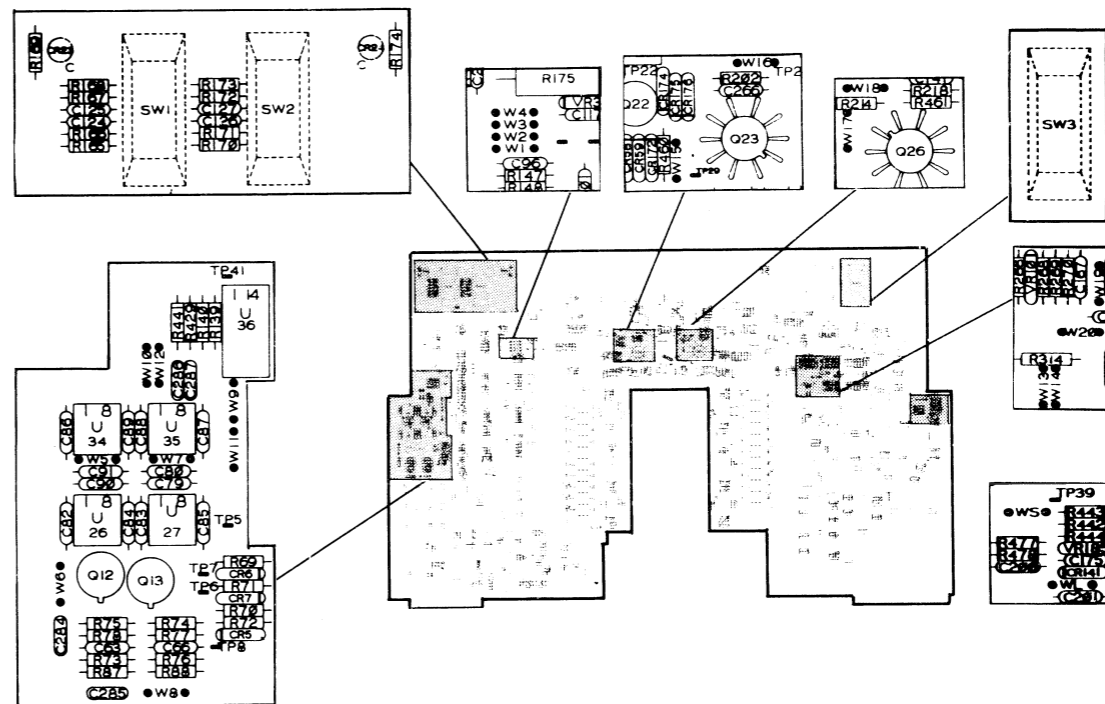


BMC INTERFACE PRIORITY	INSTALL JUMPERS
7 (HIGHEST)	W7, W8, W9, W10
6	W6, W8, W9
5	W5, W8, W10
4	W4, W9
3	W3, W9, W10
2	W2, W9
1	W1, W10
0 (LOWEST)	W0
BUFFER SIZE	JUMPERS
8 WORDS	W11 OUT
16 WORDS	W11 IN

LATENCY: 8 WORD BUFFER, 20 μsec  
16 WORD BUFFER, 40 μsec

### HEAD ANALOG

Ref DGC Dwg No 003-001366 Rev 10



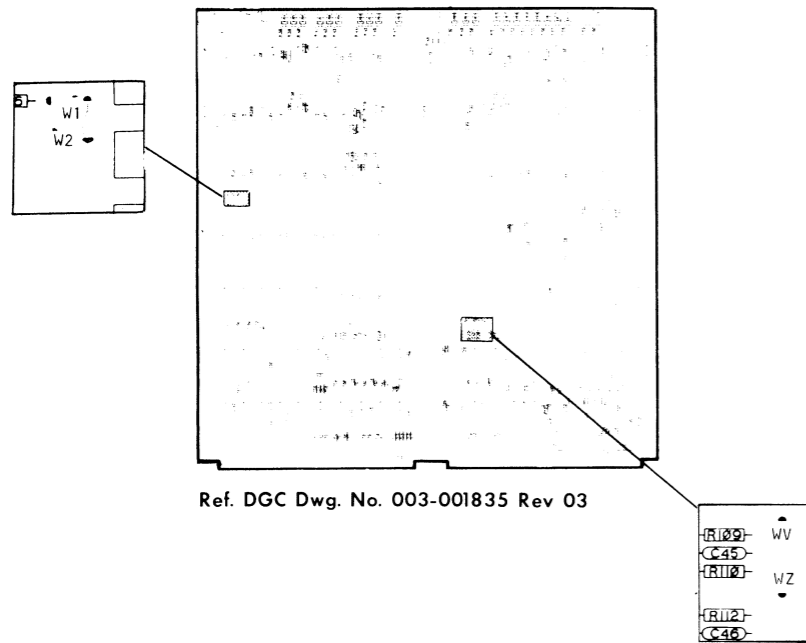
JUMPERS	MODEL			
	6067 50 MBYTE 005-008143	6060 96 MBYTE 005-006143*	6061 192 MBYTE 005-008143	6122 277 MBYTE 005-012884
	005-009326	005-009326	005-009326	005-012884
W1	0	X	0	X
2	X	0	X	X
3	0	X	0	0
4	X	0	X	X
5	0	X	0	0
6	X	0	X	X
7	0	X	0	0
8	X	0	X	X
9	0	X	0	0
10	X	0	X	X
11	0	X	0	0
12	X	0	X	X
13	0	X	0	0
14	X	0	X	X
15	0	X	0	0
16	X	0	X	X
17	0	X	0	0
18	X	0	X	X
19	0	X	0	0
20	X	0	X	X
L	0	X	X	X
S	X	0	0	0

X = ON                      0 = OFF

\*Board 005-006143 Has one jumper W1, which is on ON.

TAILORING (CONT)

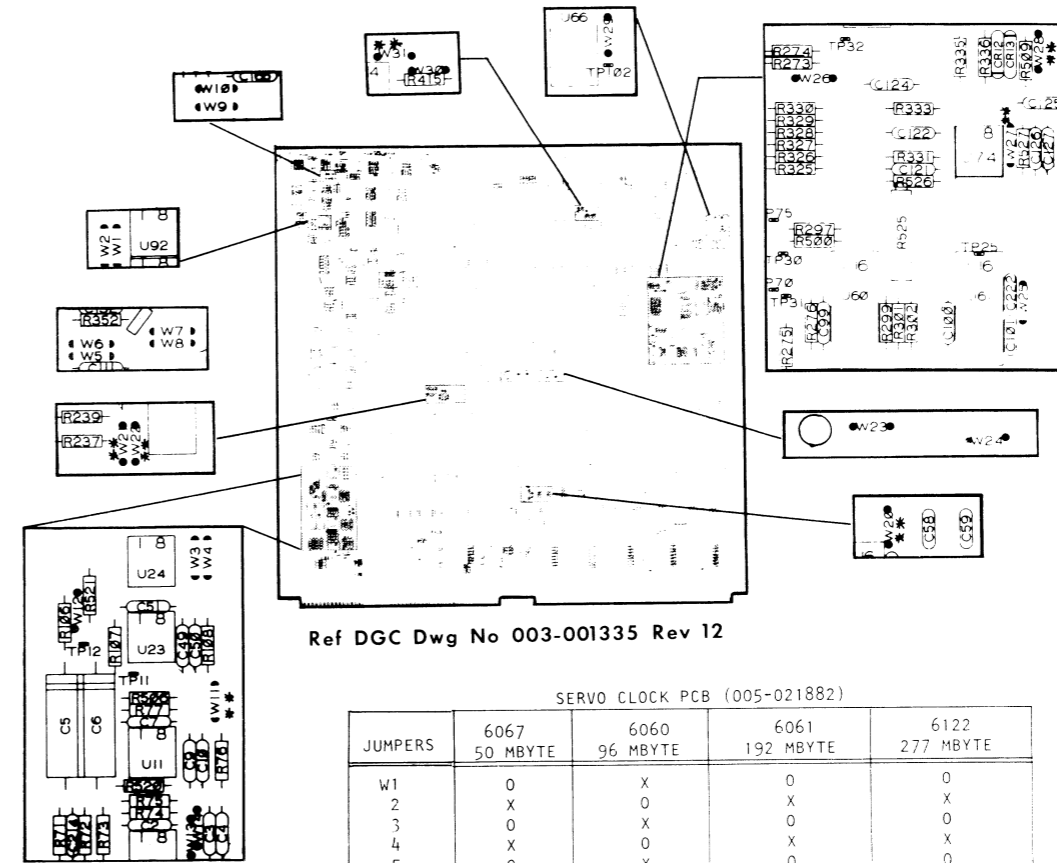
DRIVE LOGIC



JUMPER	6067	6060	6061	6122
	50 MBYTE 005-008145*/ 005-012886	96 MBYTE 005-008145*/ 005-012886	192 MBYTE 005-008145*/ 005-012886	277 MBYTE 005-008145*/ 005-012886
W1	0	X	0	0
W2	X	0	X	X
WZ	X	X	X	0
WV	0	0	0	X

\*Board 005-018558 replaces 005-008145 in drive where the drive brush assembly has been removed.

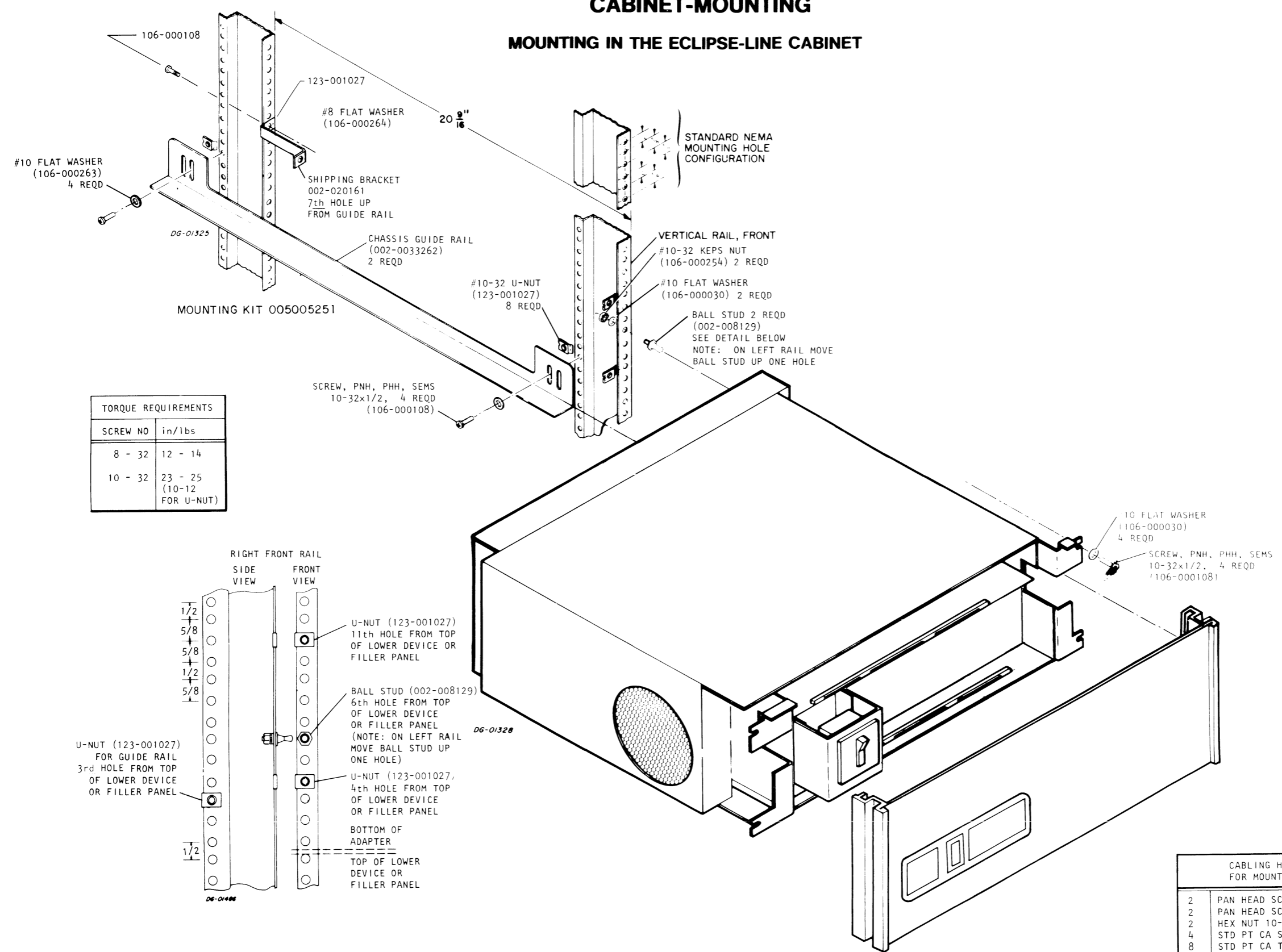
SERVO CLOCK



SERVO CLOCK PCB (005-021882)

JUMPERS	6067 50 MBYTE	6060 96 MBYTE	6061 192 MBYTE	6122 277 MBYTE
W1	0	X	0	0
2	X	0	X	0
3	0	X	0	0
4	X	0	X	X
5	0	X	0	0
6	X	0	X	X
7	0	X	0	0
8	X	X	X	X
9	0	X	X	X
10	X	0	0	0
11	0	X	X	X
12	X	0	0	0
13	0	X	X	X
14	X	0	0	0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
20	X	X	X	0
21	X	X	X	0
22	0	0	0	X
23	X	X	X	0
24	0	0	0	X
25	X	X	X	0
26	X	X	X	X
27	0	0	0	X
28	X	X	X	0
29	0	0	0	0
30	X	X	X	0
31	0	0	0	X

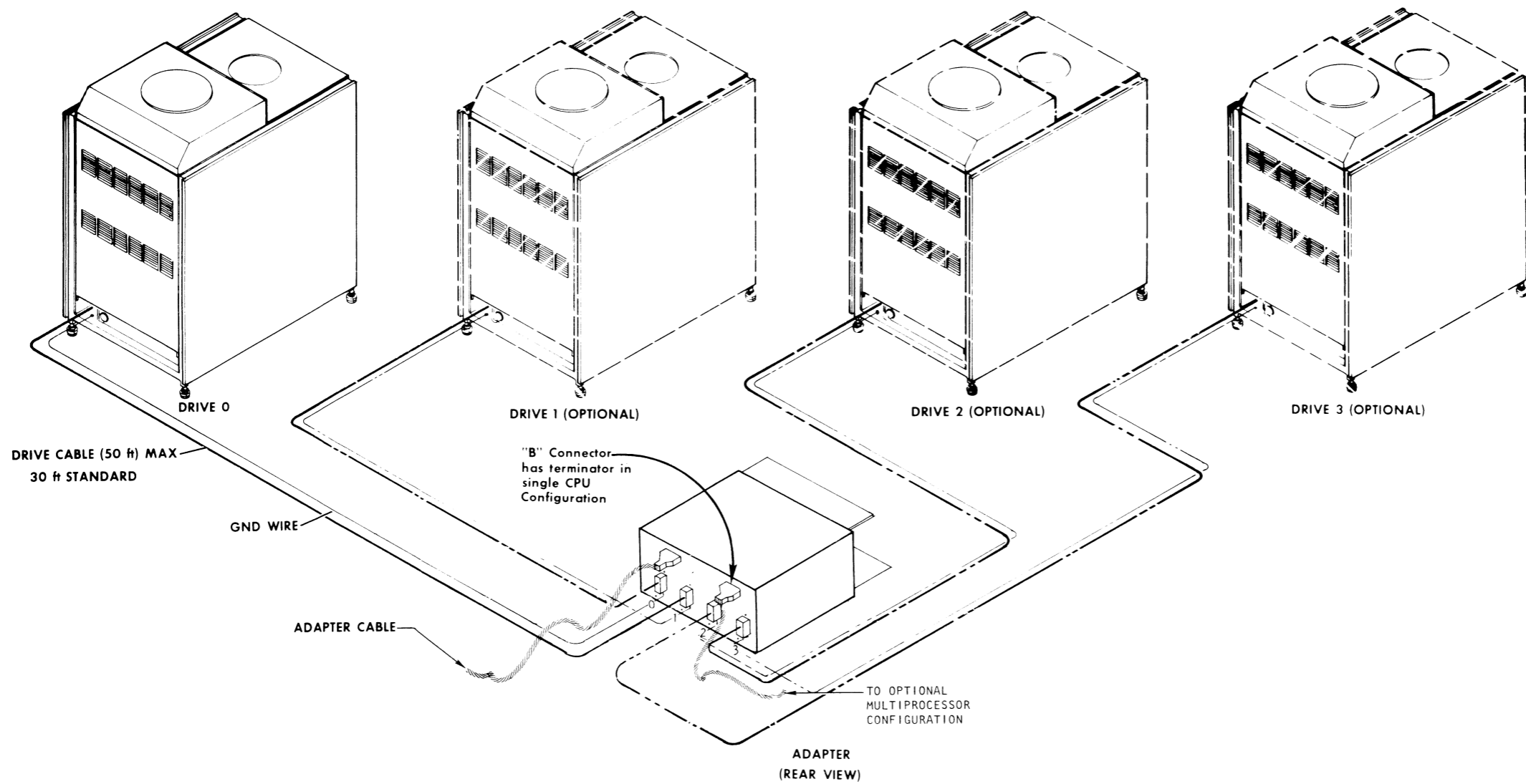
### CABINET-MOUNTING MOUNTING IN THE ECLIPSE-LINE CABINET



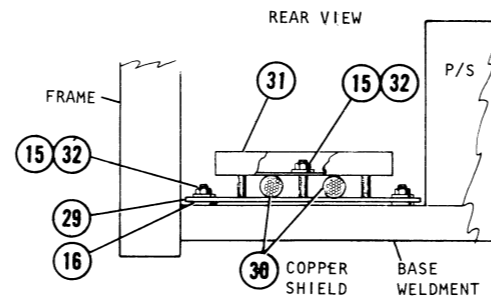
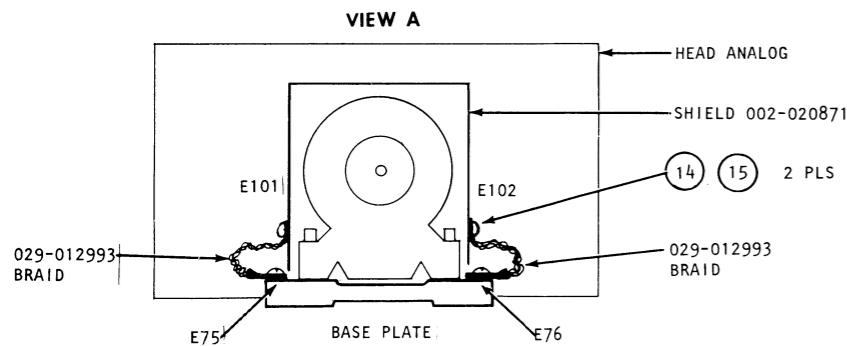
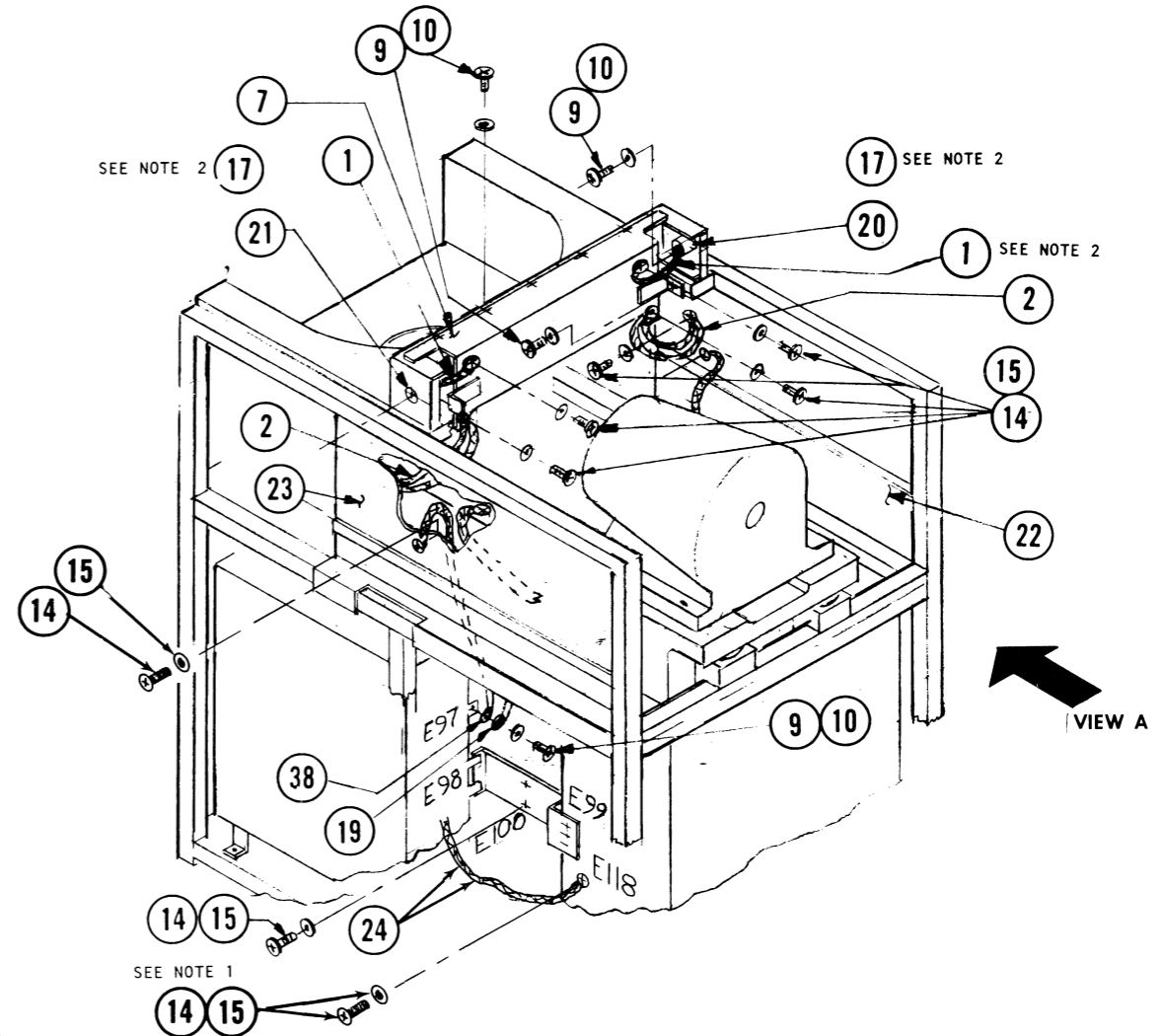
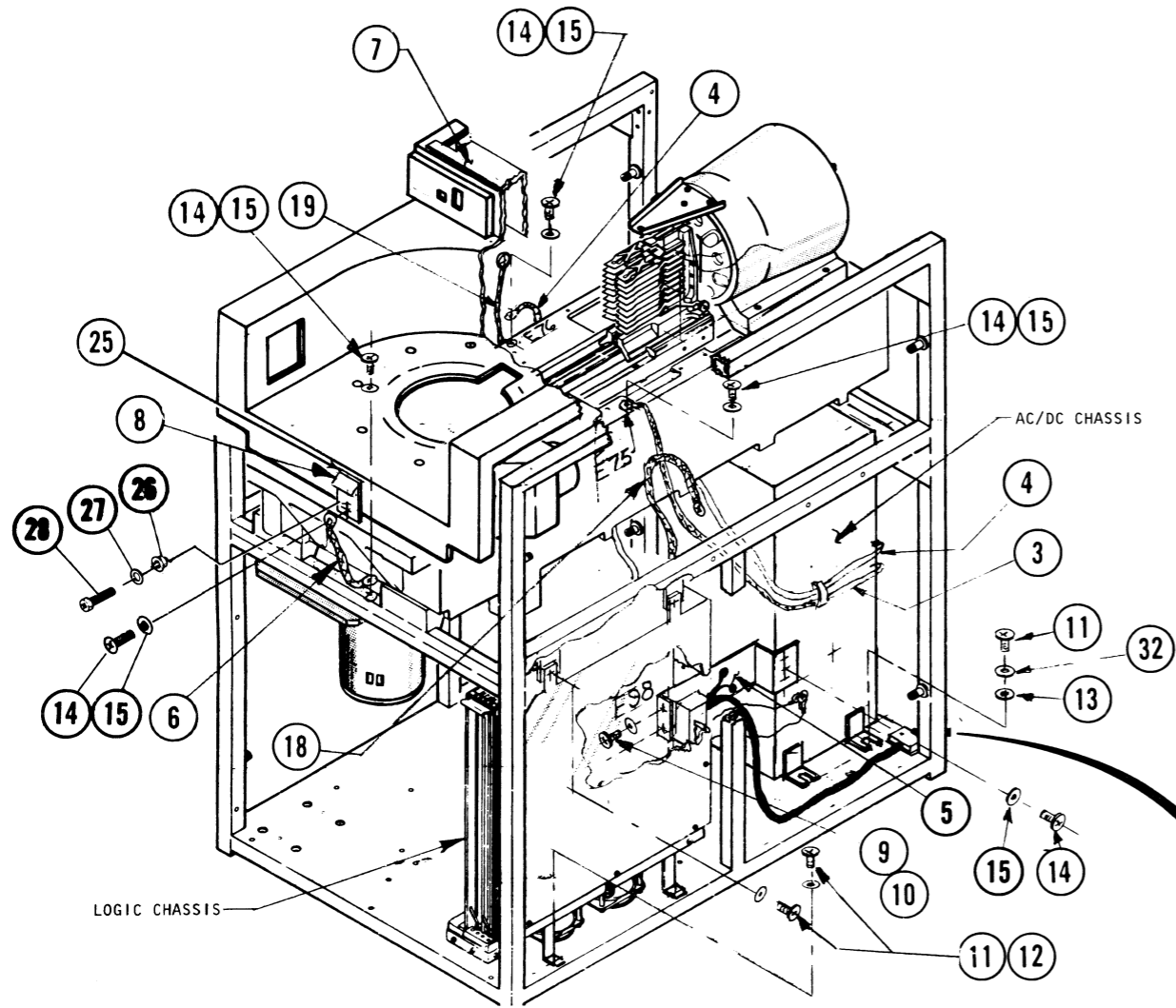
TORQUE REQUIREMENTS	
SCREW NO	in/lbs
8 - 32	12 - 14
10 - 32	23 - 25 (10-12 FOR U-NUT)

CABLING HARDWARE NOT SHOWN FOR MOUNTING KIT 005-005251		
QTY	ITEM	PART NO.
2	PAN HEAD SCREW 8-32x7/17	106-000086
2	PAN HEAD SCREW 10-32x1/2	106-000108
2	HEX NUT 10-32	106-000254
4	STD PT CA SUPT PP2S/S10-X	123-000053
8	STD PT CA TIE	123-000272

### EXTERNAL CABLING



REFER TO DISC  
PRODUCT MASTER  
010-0331 FOR  
CONFIGURATION  
AND CABLE 005's

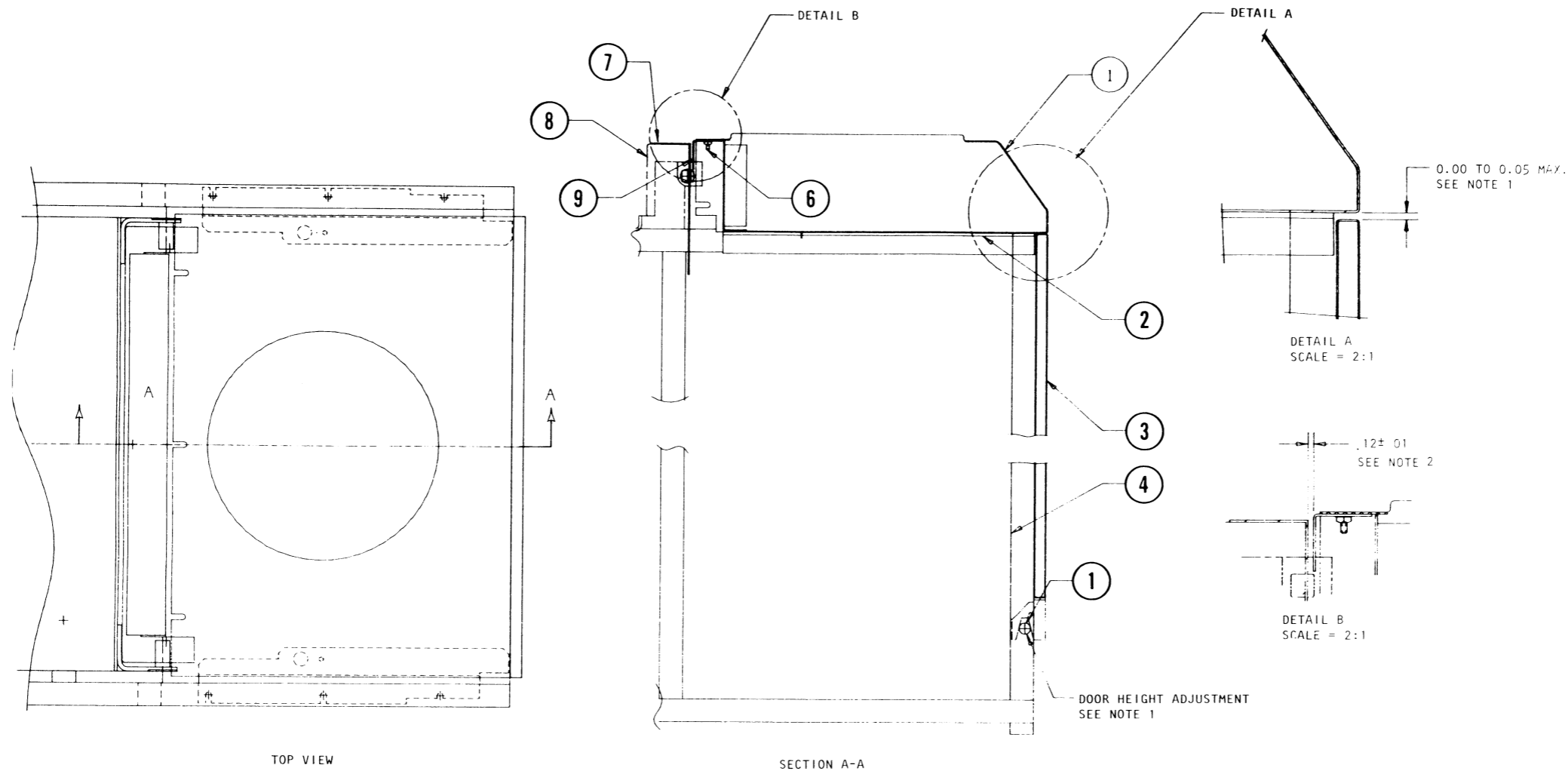


- NOTES:
- FOR SYSTEM INSTALLATION GND BRAID FROM I/O CABLE.
  - INSTALL ITEM 17 BETWEEN THE TERMINAL OF ITEM 1 AND ITEM 20 AND ITEM 21. INSTALL ITEM 16 BETWEEN THE TERMINAL OF ITEM 1 AND 7.
  - TORQUE SCREWS AS FOLLOWS:  
 ITEM 9: 7.3 TO 7.8 IN.-LB.  
 ITEM 11: 17.0 TO 18.0 IN.-LB.  
 ITEM 14: 14.5 TO 15.5 IN.-LB.

ITEM	QTY	DESCRIPTION	PART NO.
32	10	KEPS NUT	106-000255
31	1	I/O GRD CLAMP	002-025253
30	1	I/O CABLE	A/R
29	1	GRD BRKT I/O	002-025251
28	2	ALLEN SCREW #6	106-001951
27	2	FLAT WASHER #6	106-001953
26	2	FIBER SHOULDER WASHER #6	106-002101
25	1	STRIKE COVER - INSULATOR	002-020811
24	2	GND BRAID LOGIC PCB TO P/S FRAME	029-012919

23	REF	BAFFLE ASSY 'A' SIDE	002-020863
22	REF	BAFFLE ASSY 'B' SIDE	002-020861
21	REF	STUD SPRING 'A' SIDE	PART OF SHROUD
20	REF	STUD SPRING 'B' SIDE	ASSY. 005-021183
19	1	GND BRAID SIGNAL HARNESS ASSY 'B' SIDE FROM E97 TO ITEM 23	005-021182
18	1	GND BRAID SIGNAL HARNESS ASSY 'A' SIDE FROM E97 TO ITEM 22	005-021181
17	2	HDW. WSHR. EXT. TOOTH #6	106-000509
16	6	HDW. WSHR. EXT. TOOTH #8	106-001487
15	30	HDW. WASHER FLAT #8	106-000687
14	17	HDW. SCR. SEMS 8-32 X.38	106-001531
13	4	HDW. WASHER EXT. TOOTH #10	106-000518
12	8	HDW. WASHER FLAT #10	106-000688
11	8	HDW. SCR SEMS 10-32 X.38	106-000106
10	10	HDW. WASHER FLAT #6	106-000686
9	10	HDW. SCR SEMS 6-32 X .31	106-000480
8	1	STRIKE, COVER	002-020812
7	1	EMI SHIELD ASSY	002-020883
6	1	GROUND BRAID FROM ITEM 8 TO FRAME.	029-011579
5	1	GROUND STRAP FROM LOGIC CHAS TO P/C CHAS	002-020873
4	1	GROUND BRAID (38") FROM E76 TO P/S	029-011582
3	1	GROUND BRAID (27") FROM E75 TO P/S	029-011578
2	4	GROUND BRAID FROM ITEM 7 TO ITEMS 22,23	029-011581
1	2	GROUND BRAID FROM ITEMS 20,21 TO ITEM 7	029-011580
ITEM	QTY	DESCRIPTION	PART NO.

DG/DISK STORAGE SUBSYSTEM, SERIES 6060, 6061



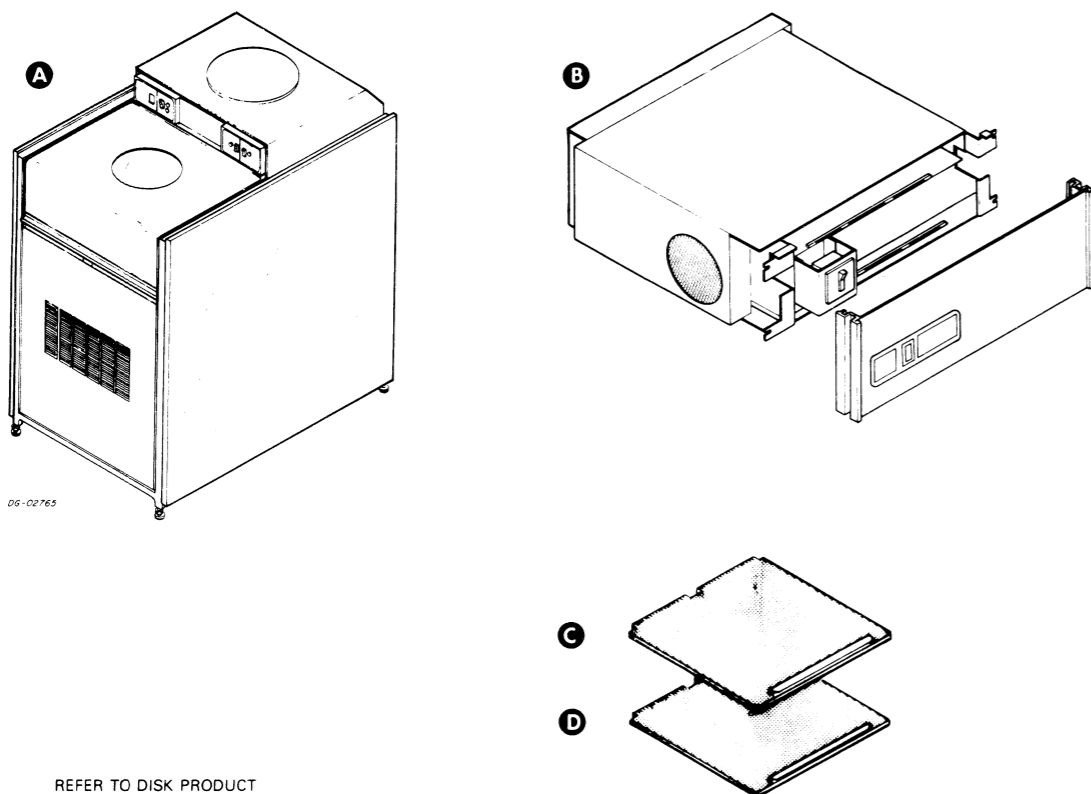
NOTES:

1. DOOR HEIGHT TO BE ADJUSTED TO OBTAIN THE 0.00 TO .05 ALIGNMENT OF TOP SURFACES OF ITEMS 2 AND 3.
2. WITH ITEM 1 PROPERLY SECURED TO ITEM 2, ADJUST ITEM 9 TO SET THE .12 DIM TO ITEM 7. TIGHTEN ITEM 6 TO 8.0-8.5 IN.-LBS.

9	1	FINGER BRACKET	002-020891
8	1	SHROUD ASSY	005-021183
7	1	EMI SHIELD	002-020883
6	5	NUT 6-32	106-000256
5	2	STANDOFF	002-003244
4	1	FRAME WELDMENT	002-020850
3	1	REAR DOOR PANEL ASSY	002-020856
2	1	SNAPSLIDE BRACKET "B"	002-020870
	1	SNAPSLIDE BRACKET "A"	002-020868
1	1	TOP PANEL	002-020887
ITEM	QTY	DESCRIPTION	PART NO.



### SUBSYSTEM COMPONENT BREAKDOWN



DG-02765

REFER TO DISK PRODUCT

MASTER 010-0331 FOR CONFIGURATION AND CABLE 005 NUMBERS

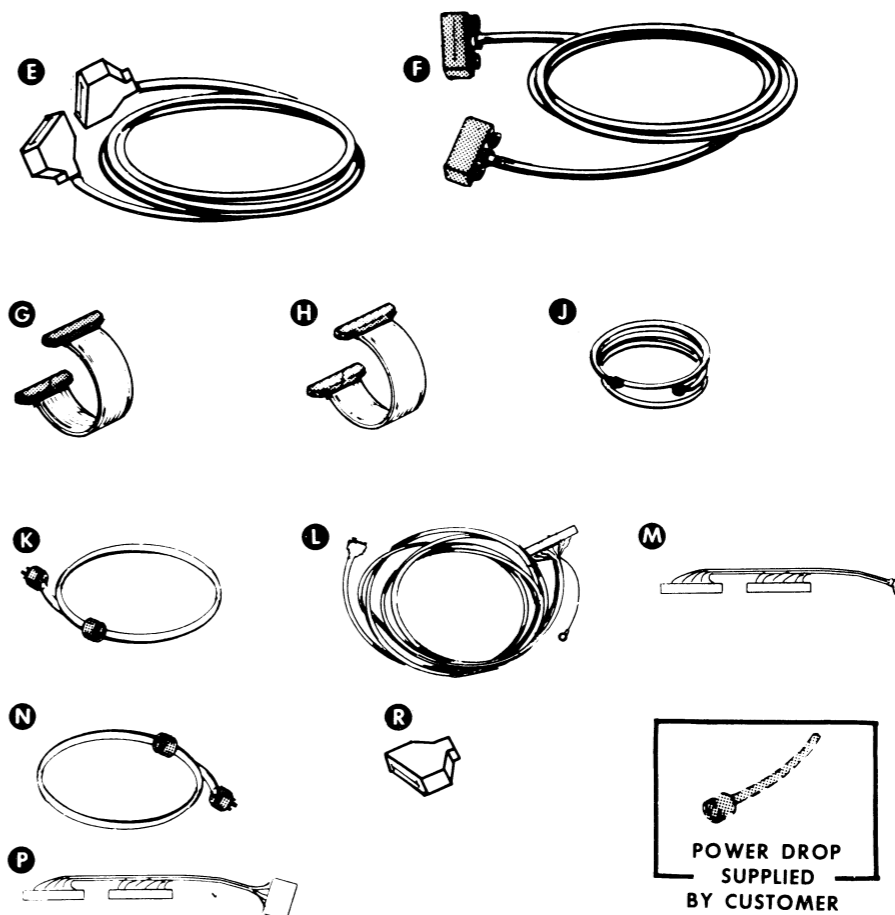
**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	277 M-BYTE DRIVE UNIT	FREE STANDING	SEE CABLE LENGTH RESTRICTIONS
B	ADAPTER	EQUIPMENT CABINET	SEE CABLE LENGTH RESTRICTIONS
C	CONTROLLER	COMPUTER CHASSIS (1-SLOT)	
D	BURST MULTIPLEXOR CHANNEL INTERFACE	COMPUTER CHASSIS (1-SLOT)	DIRECTLY BESIDE CONTROLLER

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	CONTROLLER'S +5 VOLT CURRENT DRAW (AMPS)
C	CONTROLLER	COMPUTER	1	4.0
D	BMC INTERFACE	COMPUTER	1*	5.3

\*(DIRECTLY BESIDE CONTROLLER)

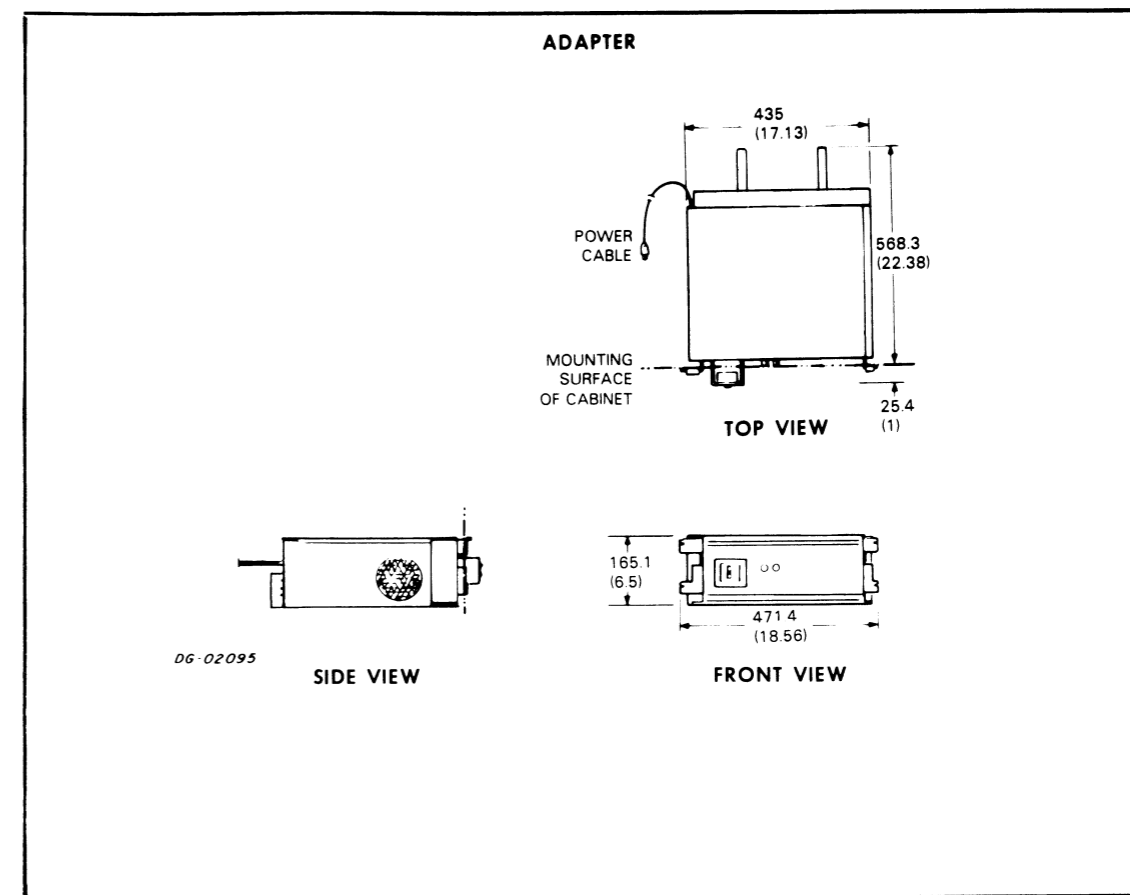
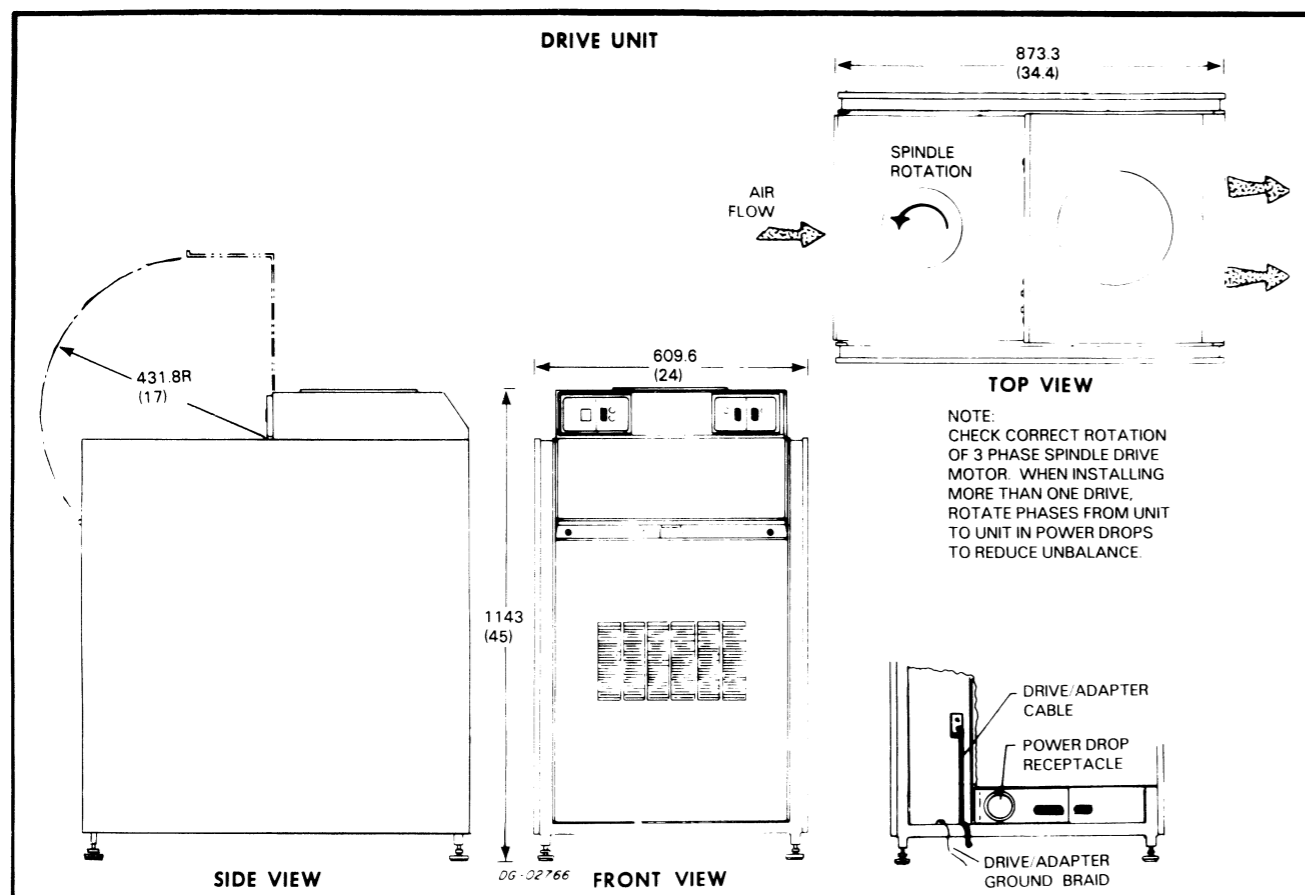
**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.



ITEM	CABLE	CONNECTING		MAX. LGTH		NOTES
		FT	M			
E	DEVICE CA (ADAPTER)	COMPLIANT CPU	AND ADAPTER	15	4.6	1 PER SUBSYSTEM
F	DEVICE CA (DRIVE)	ADAPTER	AND DRIVE UNIT	50	15.3	1 PER DRIVE UNIT
G	CONTROLLER RIBBON CA	CONTROLLER	AND BMC INTERFACE			BTW RIBBON CONN @HDL END OF BDS
H	ADAPTER RIBBON CA	ADAPTER BD #1	AND ADAPTER BD#2			BTW RIBBON CONN @HANDLE END, OF BDS
J	GROUND BRAID	ADAPTER CHASSIS	AND DRIVE CHASSIS	50	15.3	1 PER DRIVE UNIT
K	EXTERNAL POWER	DRIVE CHASSES	AND WALL RECEPTACLE	10	3	1 PER DRIVE UNIT
L	DEVICE CABLE ADAPTER	NON-COMPLIANT CPU	AND ADAPTER	15	4.6	1 PER SUBSYSTEM
M	COMPLIANT CPU INT. CBL	B/P CTRLLR SLOT	AND DEVICE CA CONNECTOR	N/A	N/A	
N	EXTERNAL POWER	ADAPTER CHASSIS	AND WALL RECEPT.	6	18	1 PER ADAPTER UNIT
P	INTERNAL CABLE	NON-COMPLIANT CPU	AND COMP. ADAPTER			

ITEM	TERMINATOR	LOCATION	NOTES
R	SIGNAL BUS TERMINATOR	"B" CONNECTOR, ADAPTER	NOT NEEDED IN DUAL CPU SYSTEM

INSTALLATION SPECIFICATIONS



**DRIVE UNIT**

DIMENSIONS:	Width	Depth	Height
Millimeters	609.6	873.3	1143
Inches	24	34.4	45

SERVICE CLEARANCES:	Front	Rear	Top
Millimeters	609.6	304.8	431.8
Inches	24	12	17

**WEIGHT:**

Kilograms	26.2
Pounds	57.5

**HEAT OUTPUT:**

Watts	BTU/hr
1800	6140

**OPERATING ENVIRONMENT:**

Temperature (max)	32°C	90°F
Relative Humidity	20 TO 80%	
Altitude	1830m (6000')	

**POWER REQUIREMENTS:**

(Domestic)				
Voltage	208/120			
Hz	60			
Max Amp per Phase	8			
Phase	3			
Startup Surge per Phase	30A for 12 seconds			
(Export)				
Voltage	380/220	415/240	220	200
Hz	50	50	50	50
Max Amp per Phase	5	4	8	8
Phase	3	3	3	3
Startup Surge per Phase	30A for 12 seconds			

**CABLES:**

	Length	Conn (Hubbell)	Mating Conn
Primary Power			
Domestic 60Hz	3m(10')	2515	2513 (user-supplied)
Export 50Hz	3m(10')	----	----

**ADAPTER**

DIMENSIONS:	Width	Depth	Height
Millimeters	471.4	593.9	175.3
Inches	18.56	23.38	6.90

**WEIGHT:**

Kilograms	13.6
Pounds	30

**HEAT OUTPUT:**

Watts	BTU/hr
180	613.8

**OPERATING ENVIRONMENT:**

Temperature (max)	55°C	131°F
Relative Humidity (max)	80%	

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	120		
Hz	60		
Max Amp per Phase	1.5		
Phase	1		
(Export)			
Voltage	100	220	240
Hz	50	50	50
Max Amp per Phase	1.8	0.8	0.75
Phase	1	1	1

**CABLES:**

Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	1.8m(6')	5-15P	5-15R
Export 50Hz	1.8m(6')	6-15P	6-15R

### SHIPPING

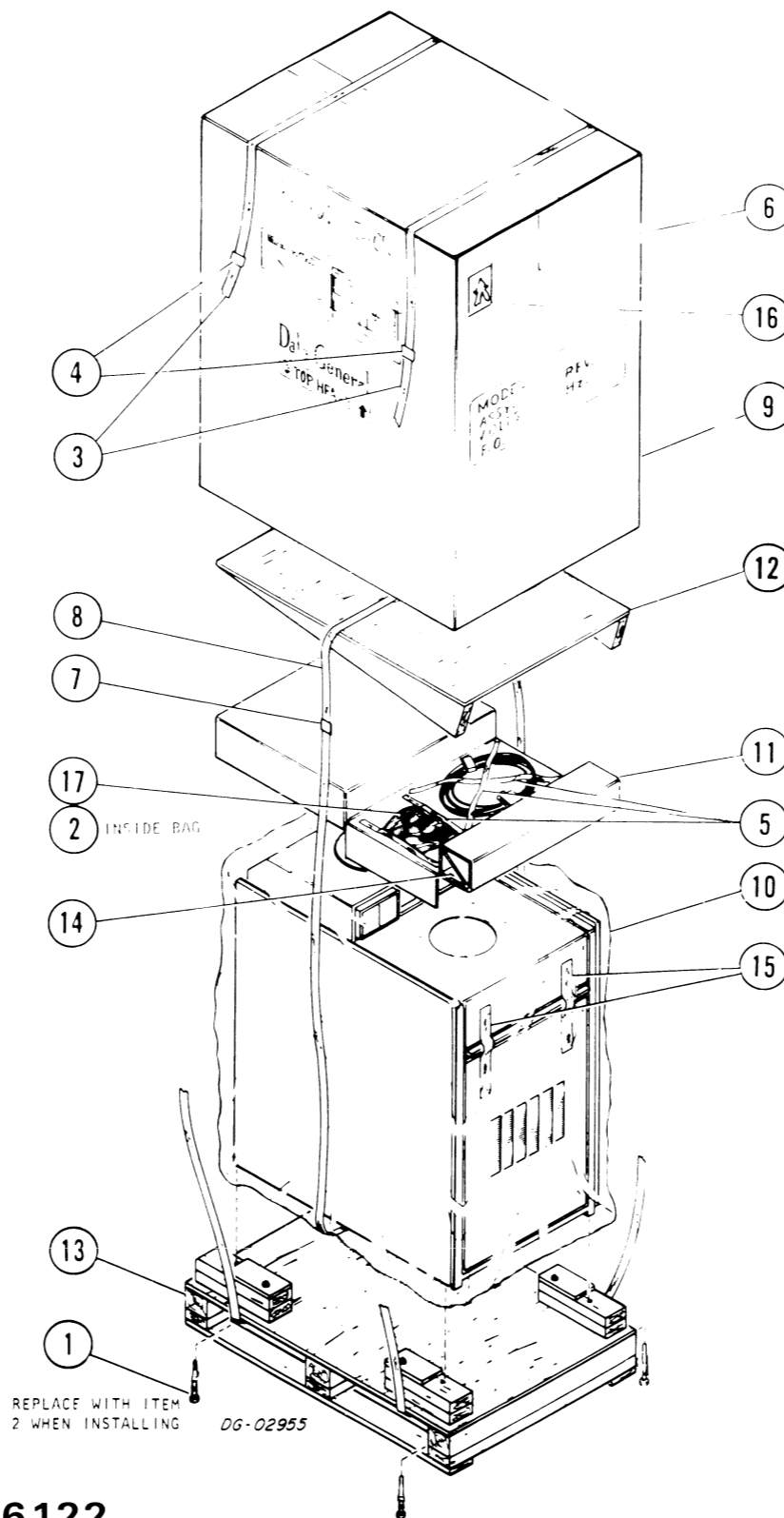
#### THE DISC DRIVE PACKING KIT

#### THE CONTROLLER PACKING KIT

FOR PACKING PROCEDURE,  
SEE 010-000262

#### THE ADAPTER PACKING KIT

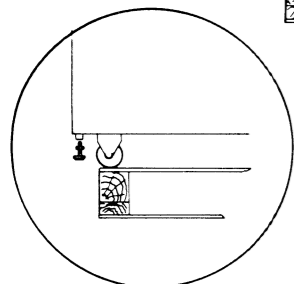
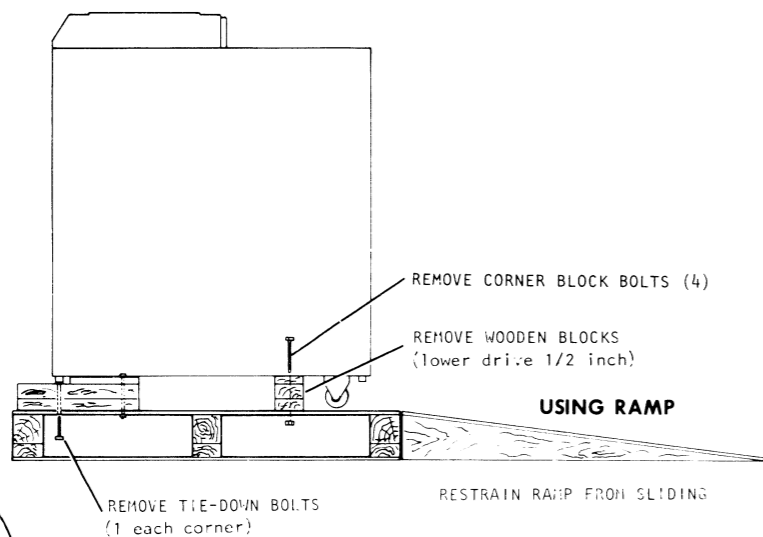
FOR PACKING PROCEDURE,  
SEE 010-000263



17	1	PLASTIC BAG 305 x 305 (3 MIL)	136-000335
16	2	TIP-N-TEL INDICATOR	129-000469
15	2 FT	FILAMENT TAPE 2" P-166	129-000370
14	2	9/16" LEG CROWN STAPLE	129-000223
13	1	SHOCK-MOUNTED PALLET	129-000211
12	1	PLYWOOD RAMP	129-000210
11	1	CORRUGATED PAD	129-000209
10	1	POLY BAG, 3 MIL, 36 x 26 x 54	129-000208
9	1	HSC 40.75 x 27.5 x 43.75 TRIWALL	129-000207
8	24 FT	4020 PET, 1/2 x .020" POLYESTER	129-000147
7	2 FT	STRAPPING SEAL	129-000124
6	9 FT	REINFORCED SEALING TAPE 3"	129-000027
5	6 FT	PERMACEL GLASS TAPE	129-000026
4	2	BUCKLE, AVB-4	129-000025
3	12 FT	POLY BAND #420	129-000024
2	4	LEVELER SCREW, FB4444	123-000774
1	4	NUT, HEX, SCDP, 1/2-13	106-000724
ITEM	QTY	DESCRIPTION	PART NO.

### HANDLING PRECAUTIONS UNPACKING CONSIDERATIONS (Save Materials)

#### REMOVING DRIVE FROM PALLET

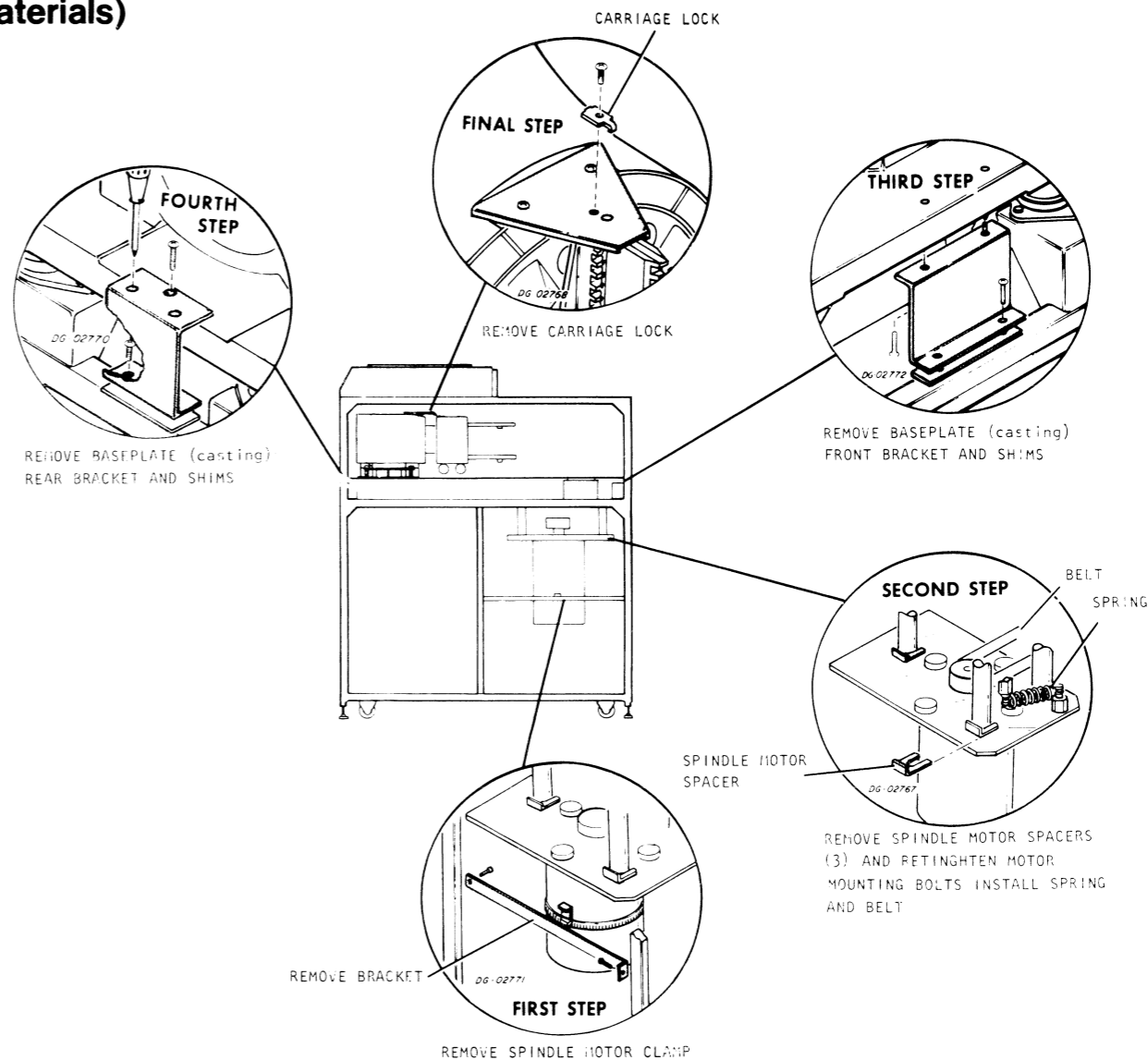


#### INSTALL LEVELLING LEGS

(MOVE DRIVE TO OVERHANG PALLET EDGE  
SCREW LEVELLING LEGS AS FAR IN AS THEY  
WILL GO TO AVOID BENDING THEM GOING ON  
AND OFF RAMP)

NOTE: THE READ/WRITE HEADS ARE CAREFULLY ALIGNED AT THE FACTORY, AND THE EQUIPMENT IS PACKED IN PROTECTIVE CONTAINERS TO PREVENT DAMAGE DURING SHIPMENT. HOWEVER, ROUGH HANDLING MAY MOVE THE HEADS, SO THAT RE-ALIGNMENT ON-SITE MAY BE REQUIRED. IF THE HEADS DO REQUIRE ALIGNMENT, REFER TO THE PROCEDURE INCLUDED IN THE DOCUMENTATION SUPPLIED WITH THE EQUIPMENT.

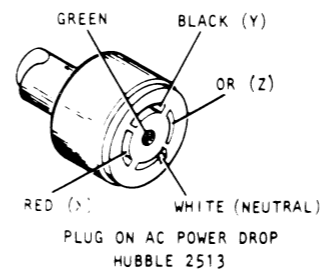
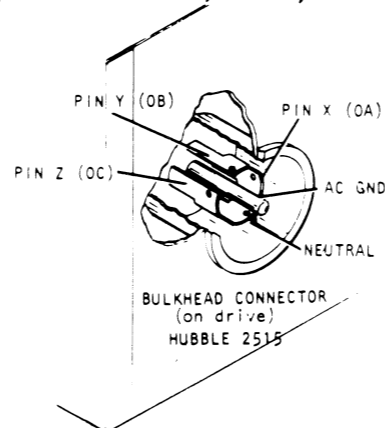
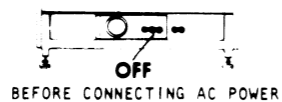
MOVE DRIVE CAREFULLY AFTER REMOVING  
CARRIAGE LOCK TO AVOID HEAD DAMAGE



#### AC POWER WIRING (208/120 30 Y, 60Hz)

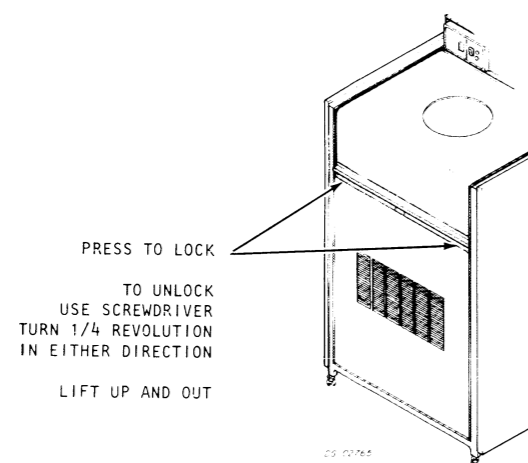
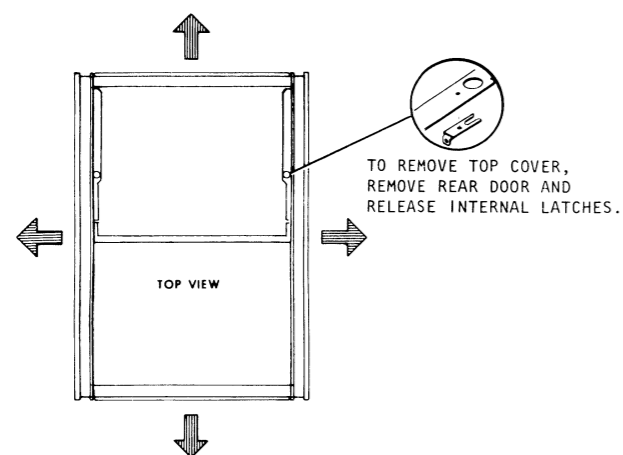
#### CAUTION

CHECK SPINDLE DRIVE ROTATION DURING BRIEF FIRST POWER UP. SPINDLE MUST TURN CCW (VIEWED FROM ABOVE DRIVE) SPINDLE DRIVE BELT MAY SLIDE OFF ITS PULLEY IF MOTOR ROTATES IN REVERSE DIRECTION. IN MULTIDRIVE SYSTEMS, ROTATE PHASES IN AC DROPS TO EQUALIZE PHASE TO PHASE LOADS.



## PHYSICAL ACCESS

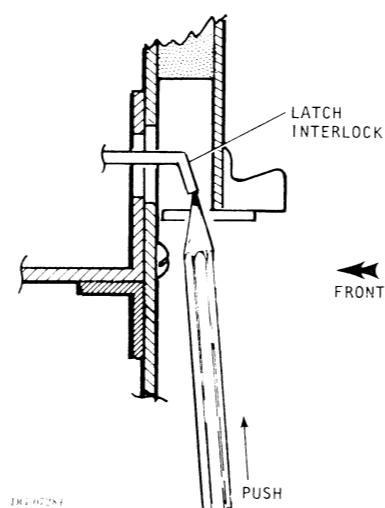
### REMOVING COVERS



CONNECT 5 GROUND STRAPS WHEN INSTALLING COVERS

### DOOR LOCK ASSEMBLY OVERRIDE

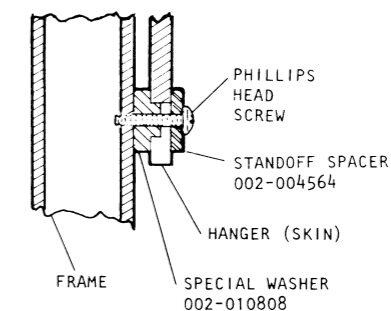
THE DOOR LOCK ASSEMBLY IS INTENDED TO LIMIT THE OPENING OF THE SHROUD COVER WHILE THE DISC PACK IS ROTATING AND/OR POWER TO THE DRIVE IS OFF. COVER MAY BE OPENED ONLY WHEN PACK IS COMPLETELY STOPPED AND DC POWER IS ON.



IN THE EVENT OF POWER FAILURE AND/OR DRIVE OFF AND ACCESS MUST BE GAINED TO THE DISC PACK OR SHROUD, THE FOLLOWING PROCEDURE CAN BE USED:

- STEP 1. REMOVE FRONT DOOR.
- STEP 2. USING A PEN OR PENCIL, PUSH (PIVOT) THE LATCH INTERLOCK OUT-OF-ENGAGEMENT WITH THE BRACKET DETENT.
- STEP 3. WHILE LATCH INTERLOCK IS PIVOTED, LIFT COVER OPEN BY DOOR LATCH.

### REMOVING SKINS



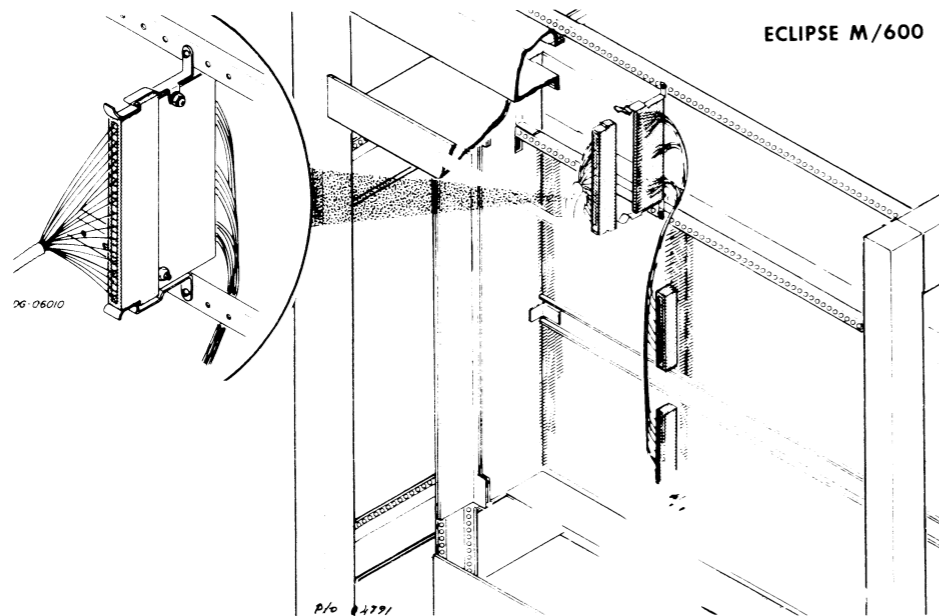
1K1-0226

IN OPERATION, TIGHTENING THE SCREW SQUEEZES THE HANGER BETWEEN STANDOFF SPACER 002-4564 AND SPECIAL WASHER 002-10808 LOCKING SKIN IN PLACE. TO REMOVE SKIN, LOOSEN SCREW.

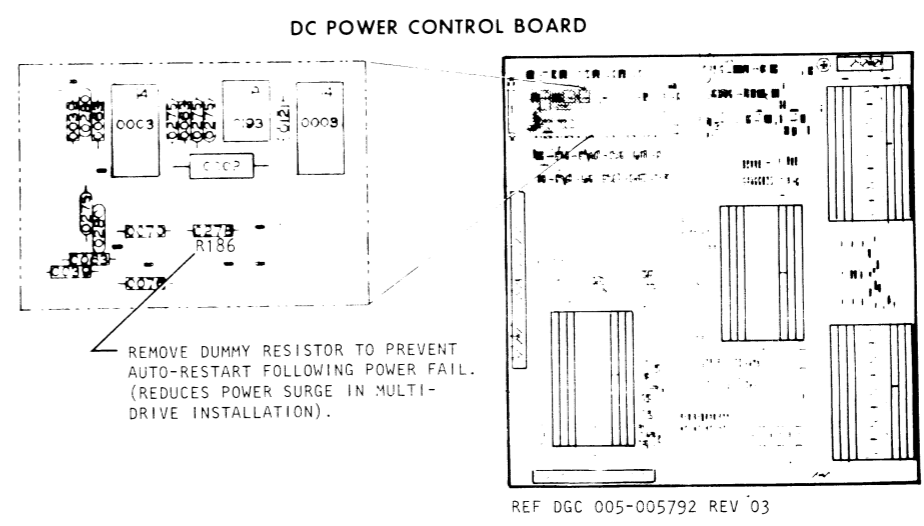
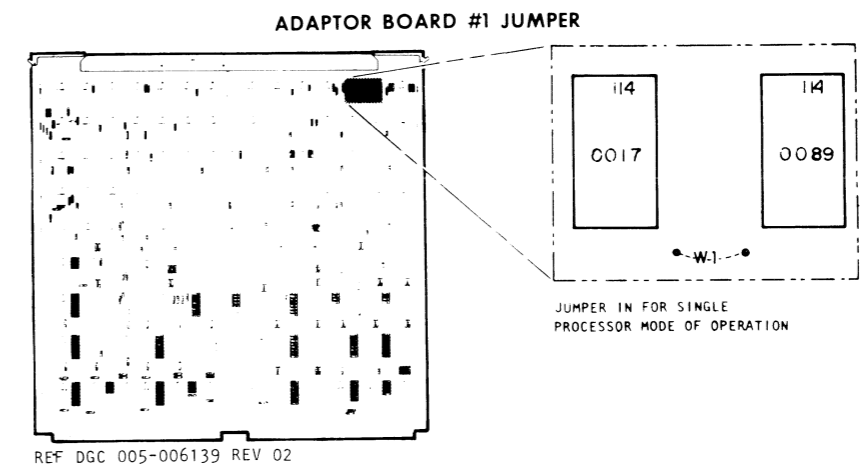
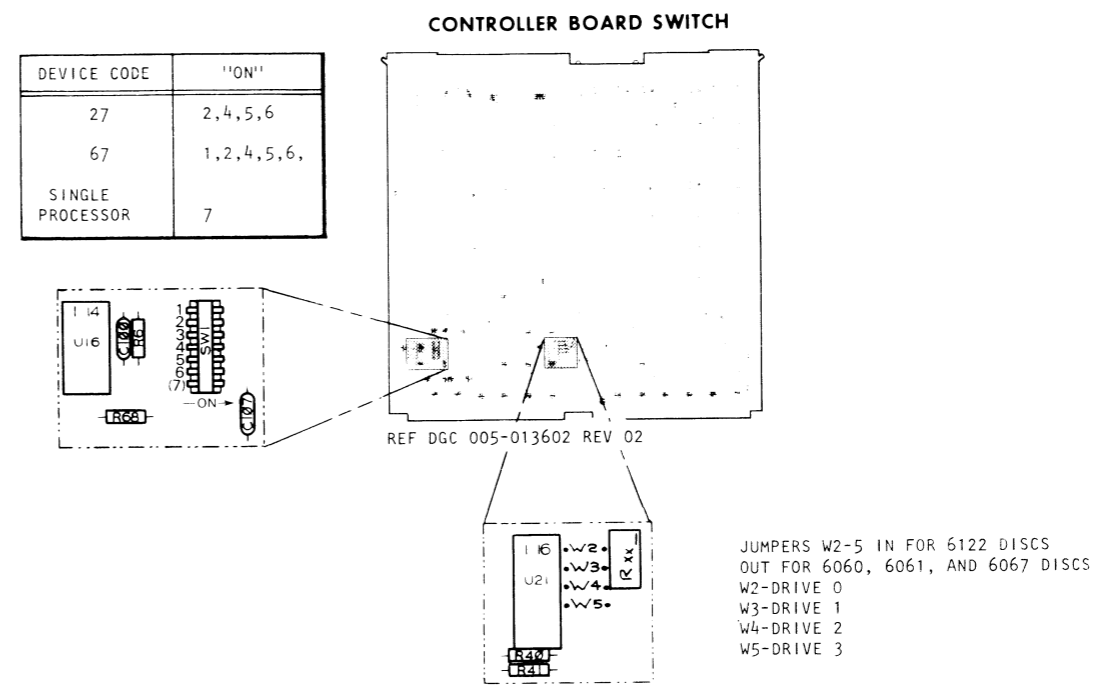
**INTERNAL CABLING**

SIGNAL NAME	BACK PANEL PIN NUMBER	PADDLE CONNECTOR PIN NUMBER	COMPLIANT CPU "D" TYPE INTERNAL CABLE
BUSY 0	B27	36	36
BUSY 1	B31	37	37
BUSY 2	B34	38	38
BUSY 3	B36	39	39
TRESS'D	B13	31	31
RESERVED	B15	32	32
COM STROBE	A91	3	3
ADAPT RESET	A87	26	26
REQ/RES	A89	27	27
COM CH BUSY	B11	30	30
COMD 2	A76	6	6
COMD 1	A77	5	5
COMD 0	A78	4	4
D 1	A85	24	24
D 0	A86	23	23
CYL1	A75	7	7
CYL2	A73	8	8
CYL4	A71	9	11
CYL8	A63	13	13
CYL16	A61	14	14
CYL32	A59	15	15
CYL64	A57	16	16
CYL128	A47	17	28
CYL256	A49	18	18
CYL512	A79	19	19
READY 0	A81	20	20
READY 1	A84	21	21
READY 2	A83	22	22
READY 3	B25	25	47
BUS 0	B69	49	29
BUS 1	B40	41	41
BUS 2	B48	42	25
BUS 3	B49	43	43
BUS 4	B51	44	44
BUS 5	B53	46	
BUS 6	B54	47	47
BUS 7	B67	48	48
A RD/WR BYTE	B19	33	33
ADAPT PARITY	B38	40	40
RD/WR START'	B23	34	12

ECLIPSE S/250, C/350 AND M/600 AND COMPLIANT CPU'S



**TAILORING**

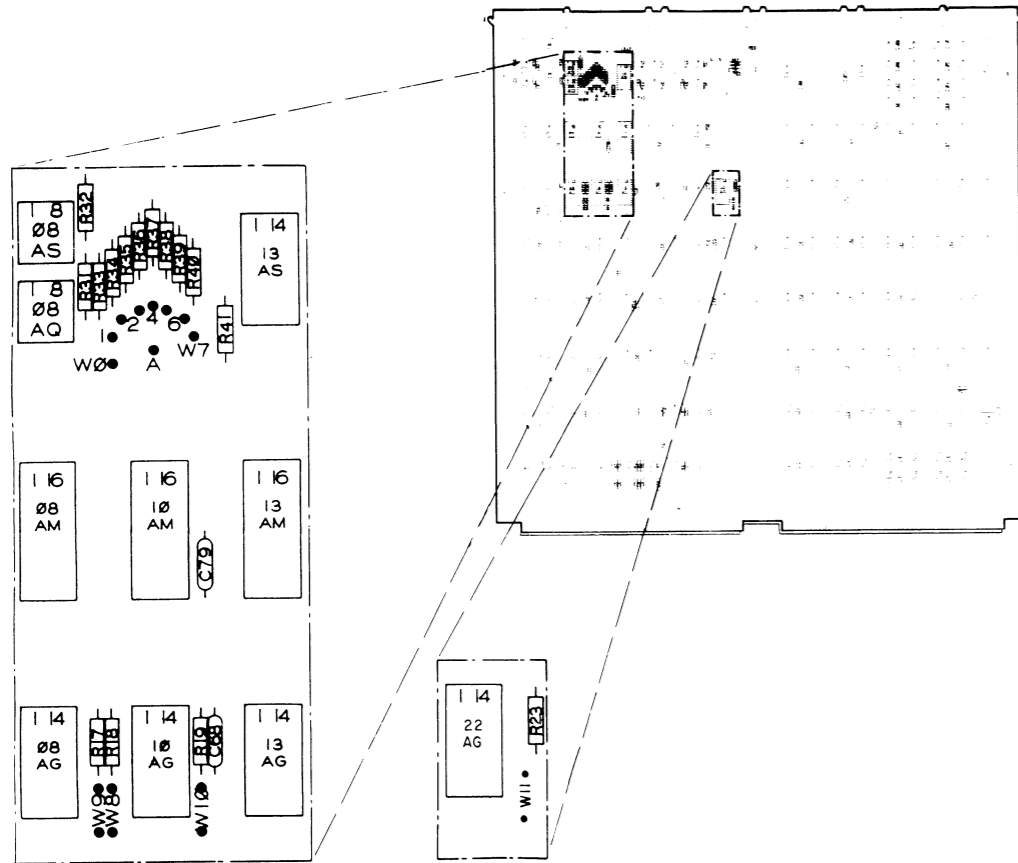


### TAILORING (Cont)

#### JUMPERS

#### BURST MULTIPLEXOR INTERFACE PCB

Ref DGC Dwg No 005-008502 Rev 00

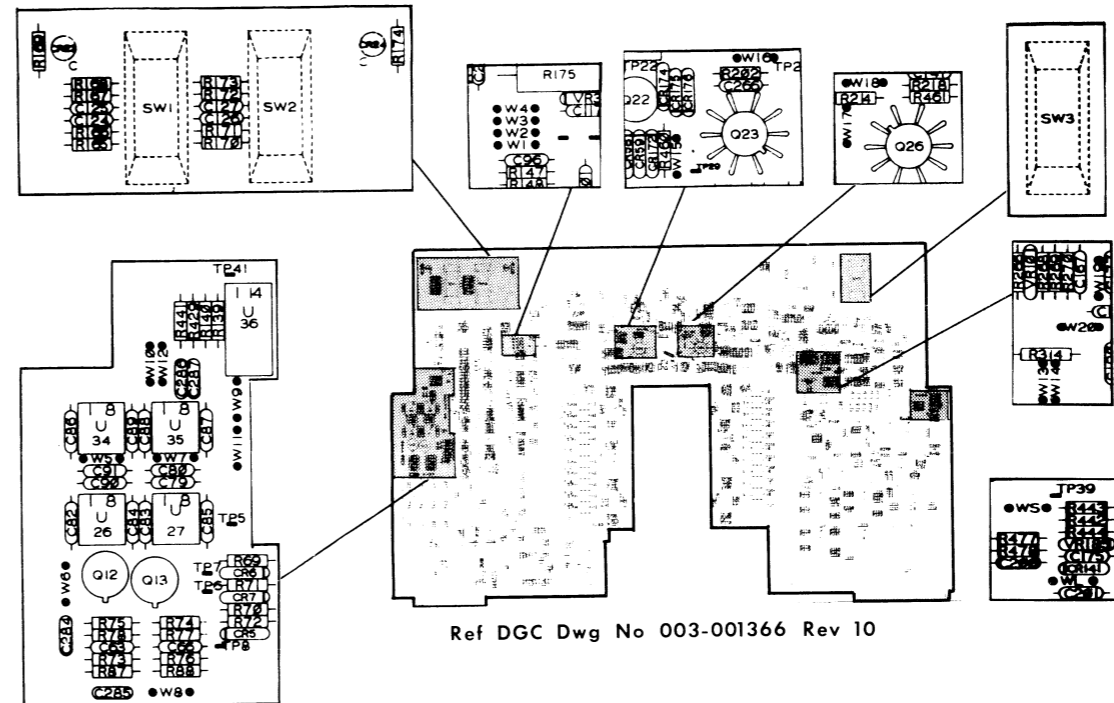


BMC INTERFACE PRIORITY	INSTALL JUMPERS
7 (HIGHEST)	W7, W8, W9, W10
6	W6, W8, W9
5	W5, W8, W10
4	W4, W9
3	W3, W9, W10
2	W2, W9
1	W1, W10
0 (LOWEST)	W0
BUFFER SIZE	JUMPERS
8 WORDS	W11 OUT
16 WORDS	W11 IN

LATENCY: 8 WORD BUFFER, 20 μsec  
16 WORD BUFFER, 40 μsec

#### HEAD ANALOG PCB

Ref DGC Dwg No 003-001366 Rev 10

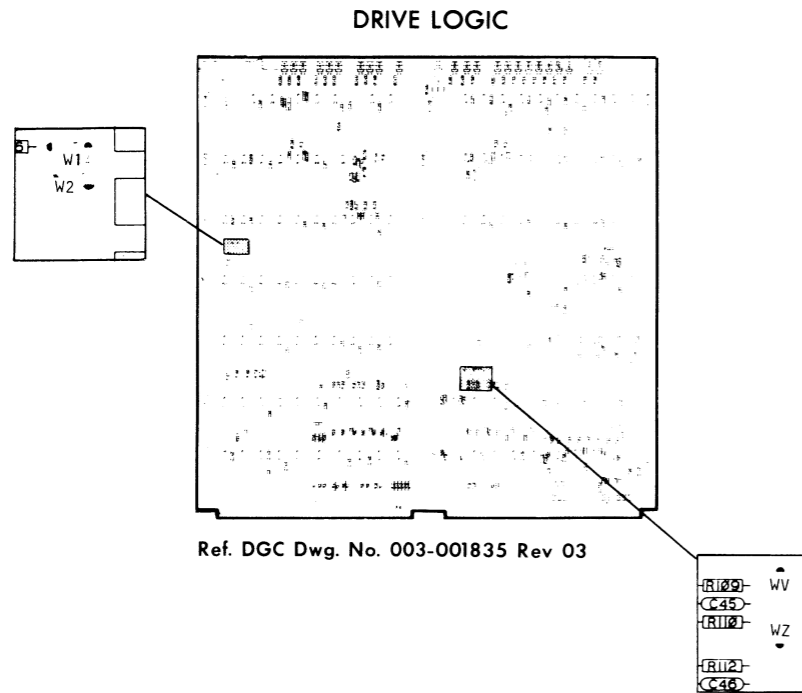


JUMPERS	MODEL			
	6067 50 MBYTE 005-008143 005-009326	6060 96 MBYTE 005-006143* 005-008143 005-009326	6061 192 MBYTE 005-008143 005-009326	6122 277 MBYTE 005-012884
W1	0	X	0	X
2	X	0	X	X
3	0	X	0	0
4	X	0	X	X
5	0	X	0	0
6	X	0	X	X
7	0	X	0	0
8	X	0	X	X
9	0	X	0	0
10	X	0	X	X
11	0	X	0	0
12	X	0	X	X
13	0	X	0	0
14	X	0	X	X
15	0	X	0	0
16	X	0	X	X
17	0	X	0	0
18	X	0	X	X
19	0	X	0	0
20	X	0	X	X
L	0	X	X	X
S	X	0	0	0

X = ON      0 = OFF

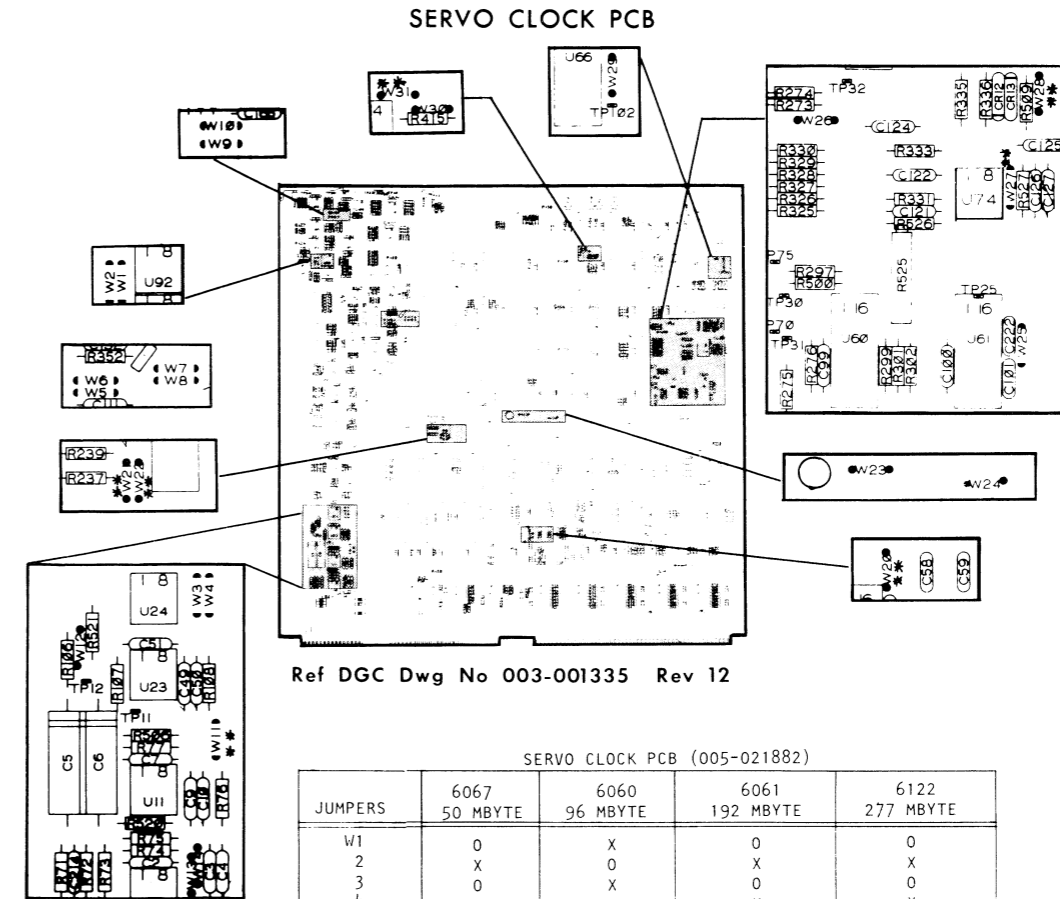
\*BOARD 005-006143 HAS ONE JUMPER W1, WHICH IS ON 'ON'.

TAILORING (Cont)



JUMPER	6067	6060	6061	6122
	50 MBYTE 005-008145*/ 005-012886	96 MBYTE 005-008145*/ 005-012886	192 MBYTE 005-008145*/ 005-012886	277 MBYTE 005-008145*/ 005-012886
W1	0	X	0	0
W2	X	0	X	X
WZ	X	X	X	0
WV	0	0	0	X

\*Board 005-018558 replaces 005-008145 in drive where the drive brush assembly has been removed.

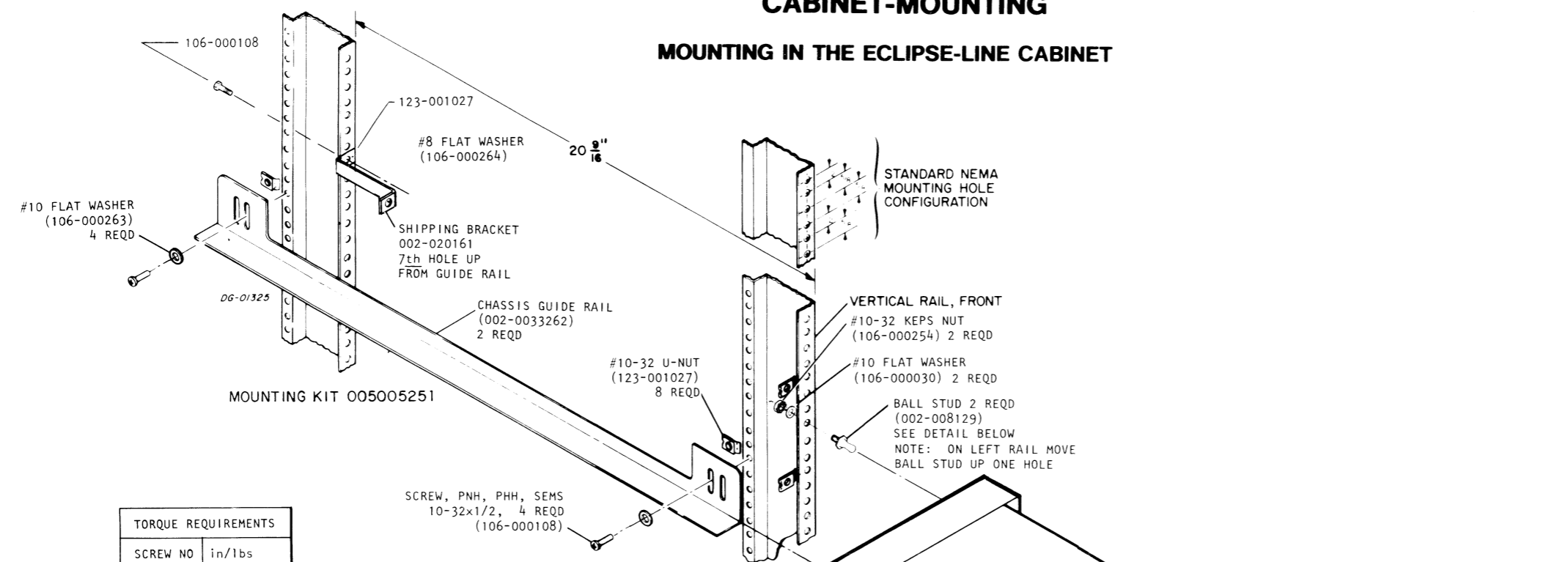


SERVO CLOCK PCB (005-021882)

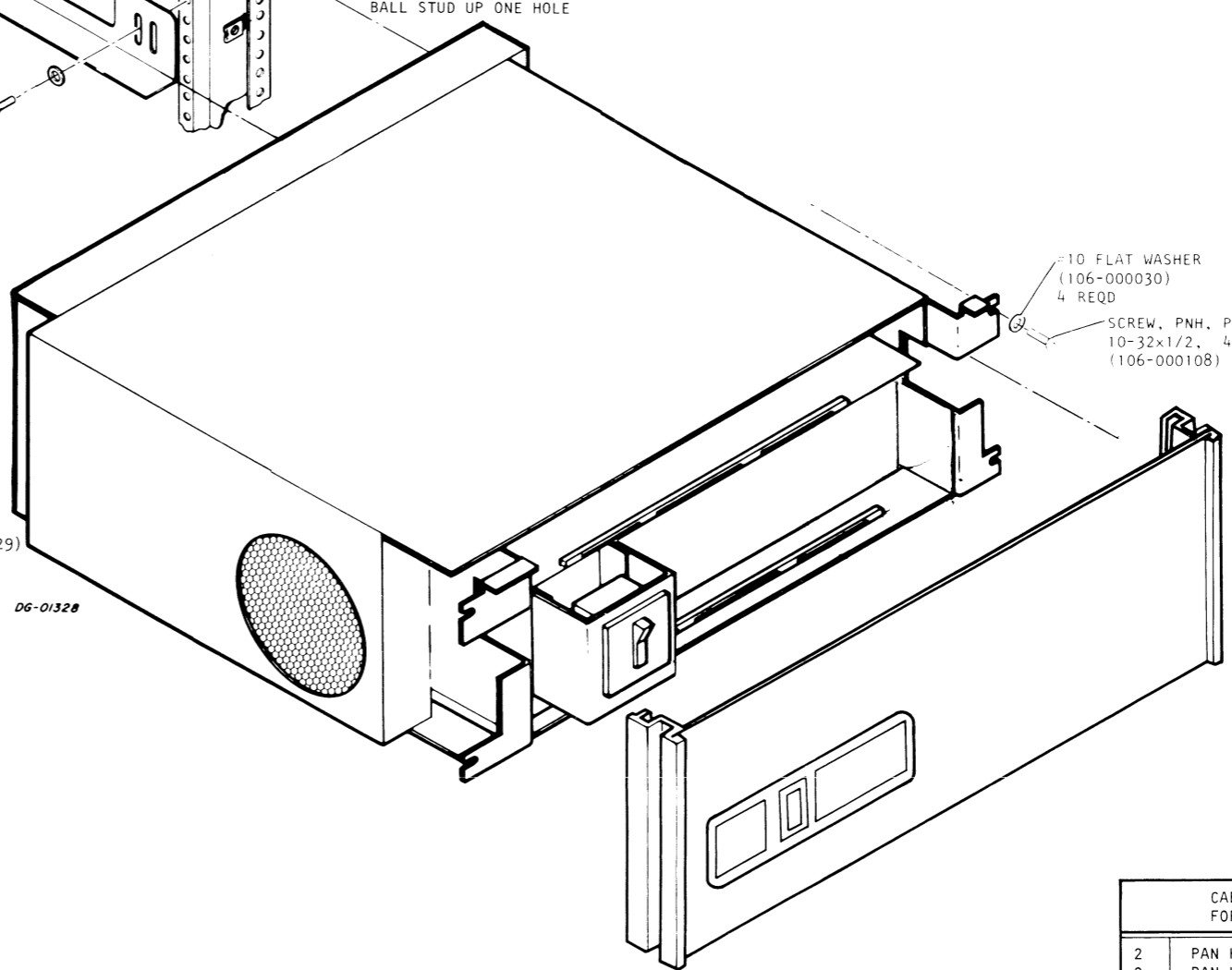
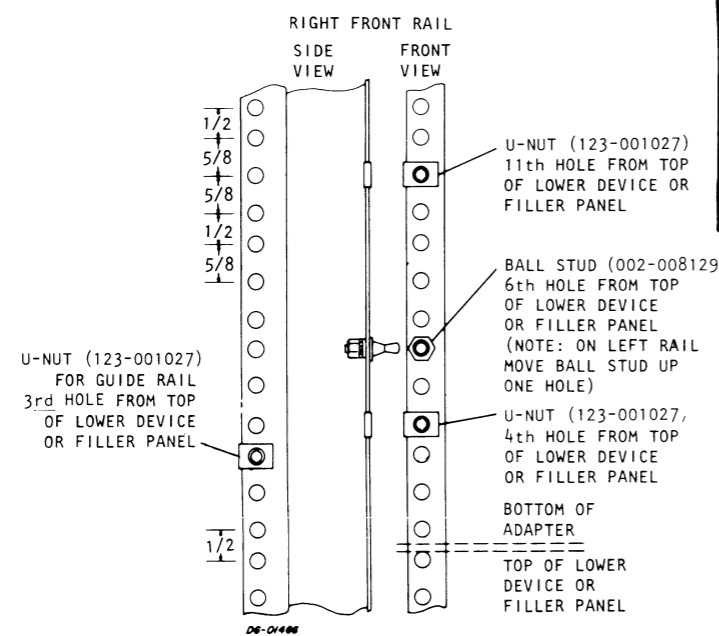
JUMPERS	6067 50 MBYTE	6060 96 MBYTE	6061 192 MBYTE	6122 277 MBYTE
W1	0	X	0	0
2	X	X	X	X
3	0	X	0	0
4	X	0	X	X
5	0	X	0	0
6	X	0	X	X
7	0	X	0	0
8	X	X	X	X
9	0	X	X	X
10	X	0	0	0
11	0	X	X	X
12	X	0	0	0
13	0	X	X	X
14	X	0	0	0
15	-	-	-	-
16	-	-	-	-
17	-	-	-	-
18	-	-	-	-
19	-	-	-	-
20	X	X	X	0
21	X	X	X	0
22	0	0	0	X
23	X	X	X	0
24	0	0	0	X
25	X	X	X	0
26	X	X	X	X
27	0	X	0	X
28	X	X	X	0
29	0	0	0	0
30	X	X	X	0
31	0	0	0	X



### CABINET-MOUNTING MOUNTING IN THE ECLIPSE-LINE CABINET

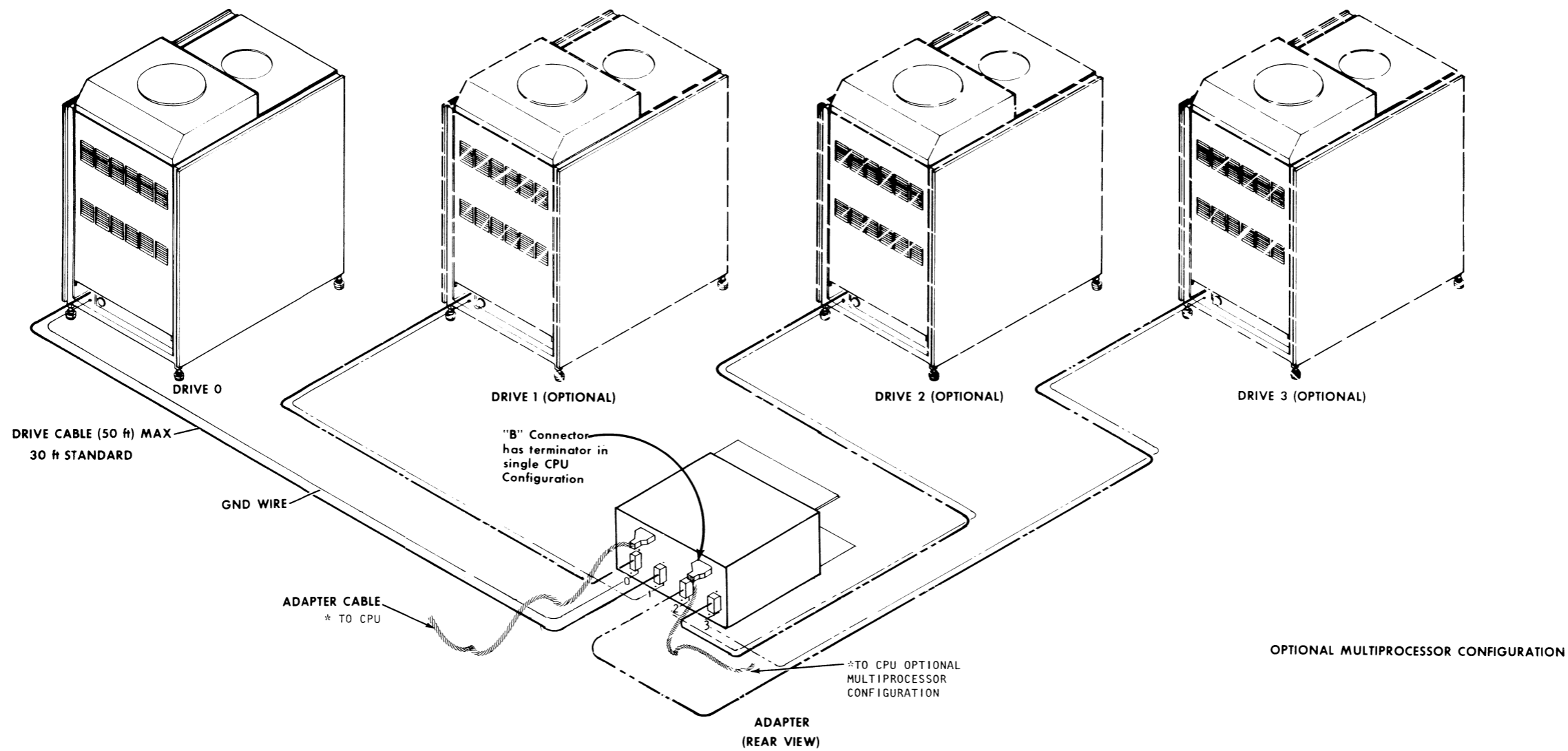


TORQUE REQUIREMENTS	
SCREW NO	in/lbs
8 - 32	12 - 14
10 - 32	23 - 25 (10-12 FOR U-NUT)

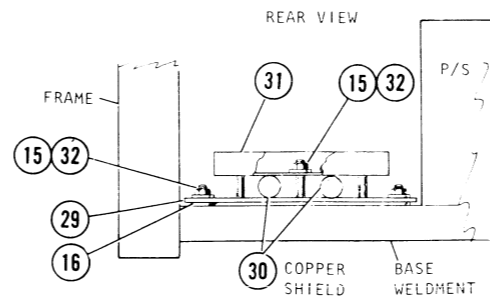
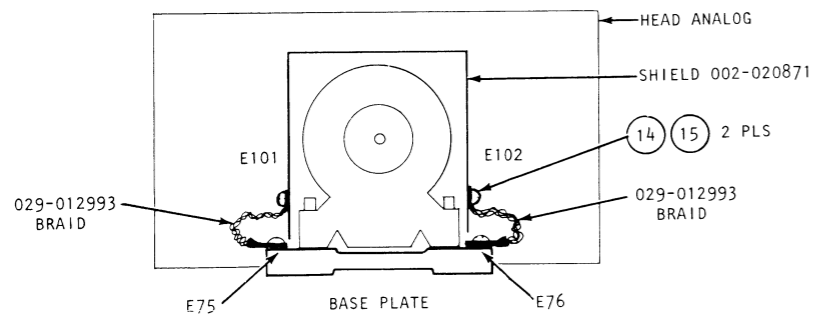
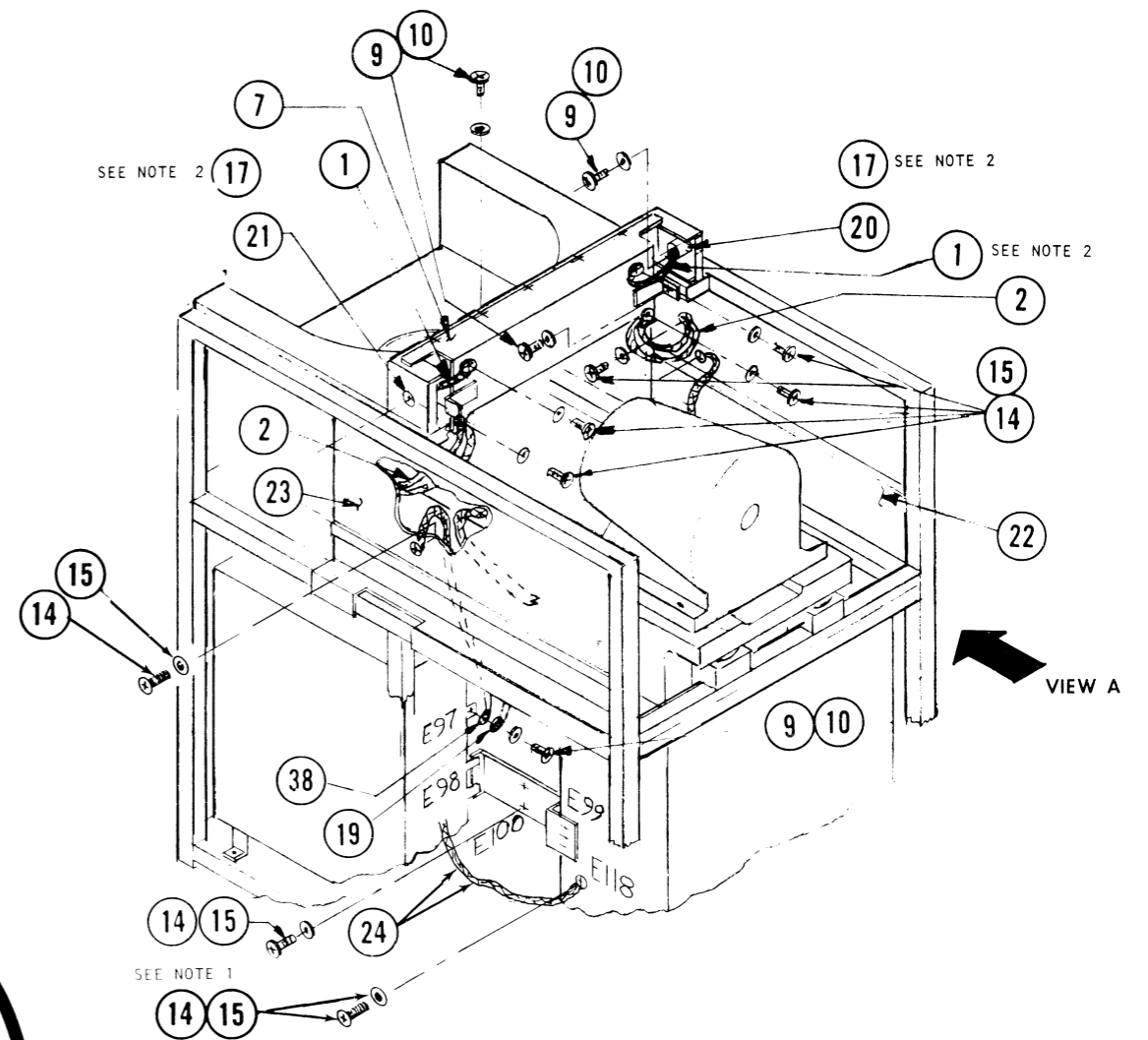
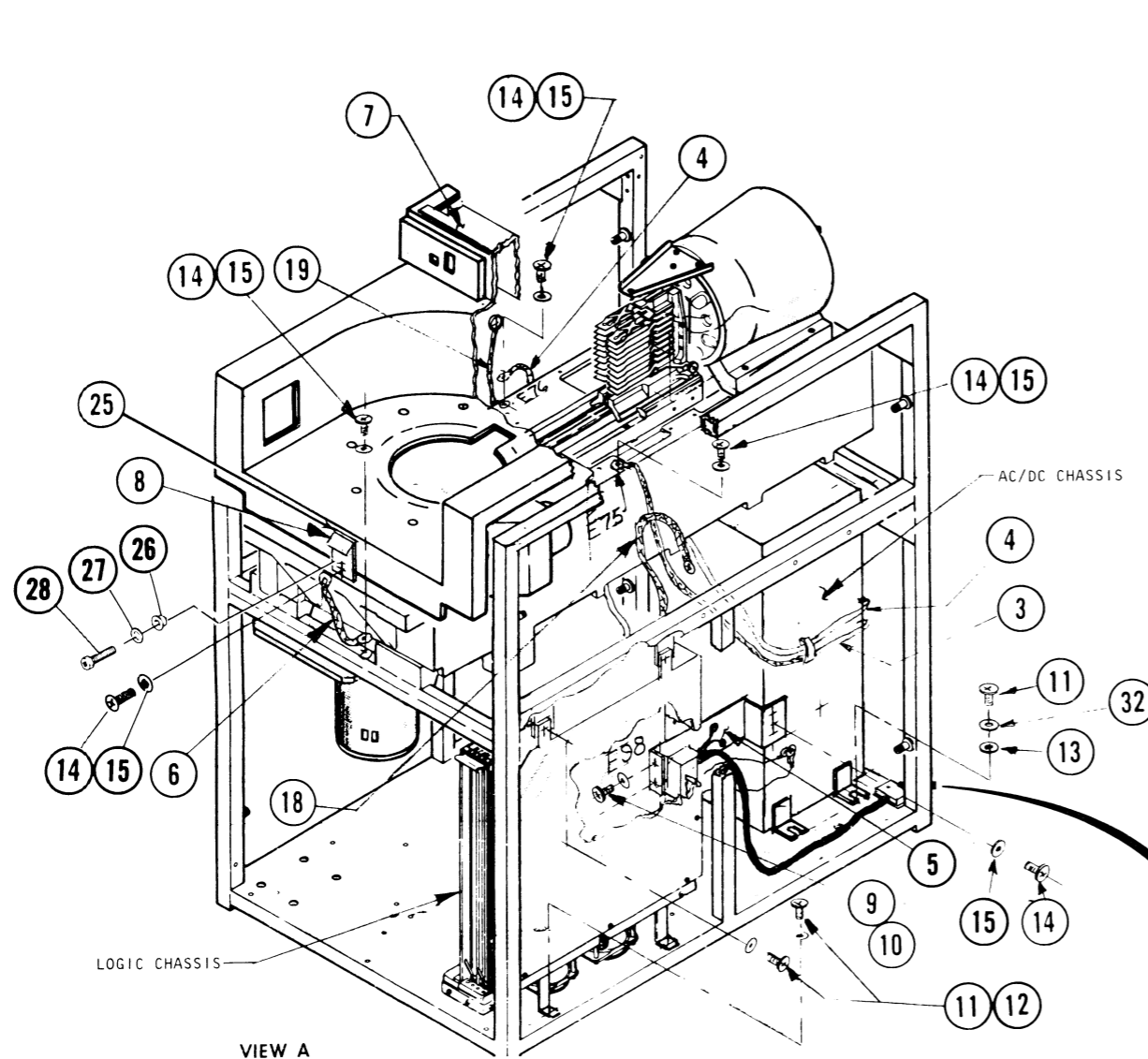


CABLING HARDWARE NOT SHOWN FOR MOUNTING KIT 0005-005251		
QTY	ITEM	PART NO.
2	PAN HEAD SCREW 8-32x7/16	106-000086
2	PAN HEAD SEREW 10-32x1/2	106-000108
2	HEX NUT 10-32	106-000254
4	STB PT CA SUPT PP25/S10xM	123-000053
8	STD PT CA TIE	123-000272

### EXTERNAL CABLING



\* REFER TO DISC  
PRODUCT MASTER  
010-0331 FOR  
CONFIGURATION  
AND CABLE 005#s

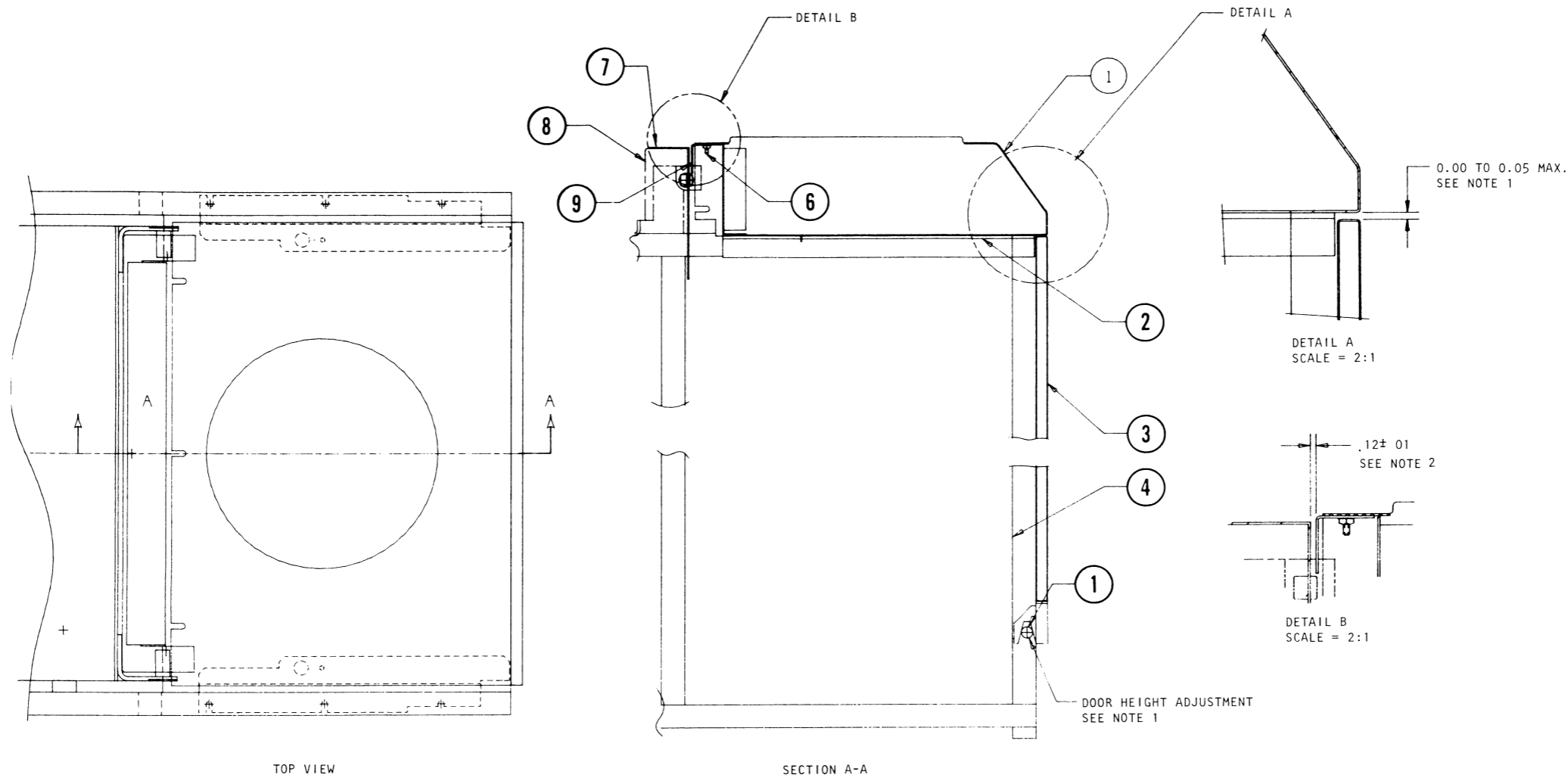


- NOTES:
- FOR SYSTEM INSTALLATION GND BRAID FROM I/O CABLE.
  - INSTALL ITEM 17 BETWEEN THE TERMINAL OF ITEM 1 AND ITEM 20 AND ITEM 21. INSTALL ITEM 16 BETWEEN THE TERMINAL OF ITEM 1 AND 7.
  - TORQUE SCREWS AS FOLLOWS:  
 ITEM 9: 7.3 TO 7.8 IN.-LB.  
 ITEM 11: 17.0 TO 18.0 IN.-LB.  
 ITEM 14: 14.5 TO 15.5 IN.-LB.

ITEM	QTY	DESCRIPTION	PART NO.
32	10	KEPS NUT	106-000255
31	1	I/O GRD CLAMP	002-025253
30	1	I/O CABLE	A/R
29	1	GRD BRKT I/O	002-025251
28	2	ALLEN SCREW #6	106-001951
27	2	FLAT WASHER #6	106-001953
26	2	FIBER SHOULDER WASHER #6	106-002101
25	1	STRIKE COVER - INSULATOR	002-020811
24	2	GND BRAID LOGIC PCB TO P/S FRAME	029-012919

ITEM	QTY	DESCRIPTION	PART NO.
23	REF	BAFFLE ASSY 'A' SIDE	002-020863
22	REF	BAFFLE ASSY 'B' SIDE	002-020861
21	REF	STUD SPRING 'A' SIDE	PART OF SHROUD
20	REF	STUD SPRING 'B' SIDE	ASSY. 005-021183
19	1	GND BRAID SIGNAL HARN ASSY 'B' SIDE FROM E97 TO ITEM 23	005-021182
18	1	GND BRAID SIGNAL HARN ASSY 'A' SIDE FROM E97 TO ITEM 22	005-021181
17	2	HDW. WSHR EXT. TOOTH #6	106-000509
16	6	HDW. WSHR. EXT. TOOTH #8	106-001487
15	30	HDW. WASHER FLAT #8	106-000687
14	17	HDW. SCR. SEMS 8-32 X.38	106-001531
13	4	HDW WASHER EXT. TOOTH #10	106-000518
12	8	HDW WASHER FLAT #10	106-000688
11	8	HDW SCR SEMS 10-32 X.38	106-000106
10	10	HDW WASHER FLAT #6	106-000686
9	10	HDW SCR SEMS 6-32 X .31	106-000480
8	1	STRIKE, COVER	002-020812
7	1	EMI SHIELD ASSY	002-020883
6	1	GROUND BRAID FROM ITEM 8 TO FRAME.	029-011579
5	1	GROUND STRAP FROM LOGIC CHAS TO P/C CHAS	002-020873
4	1	GROUND BRAID (38") FROM E76 TO P/S	029-011582
3	1	GROUND BRAID (27") FROM E75 TO P/S	029-011578
2	4	GROUND BRAID FROM ITEM 7 TO ITEMS 22,23	029-011581
1	2	GROUND BRAID FROM ITEMS 20,21 TO ITEM 7	029-011580

DG/DISK STORAGE SUBSYSTEM, MODEL 6122

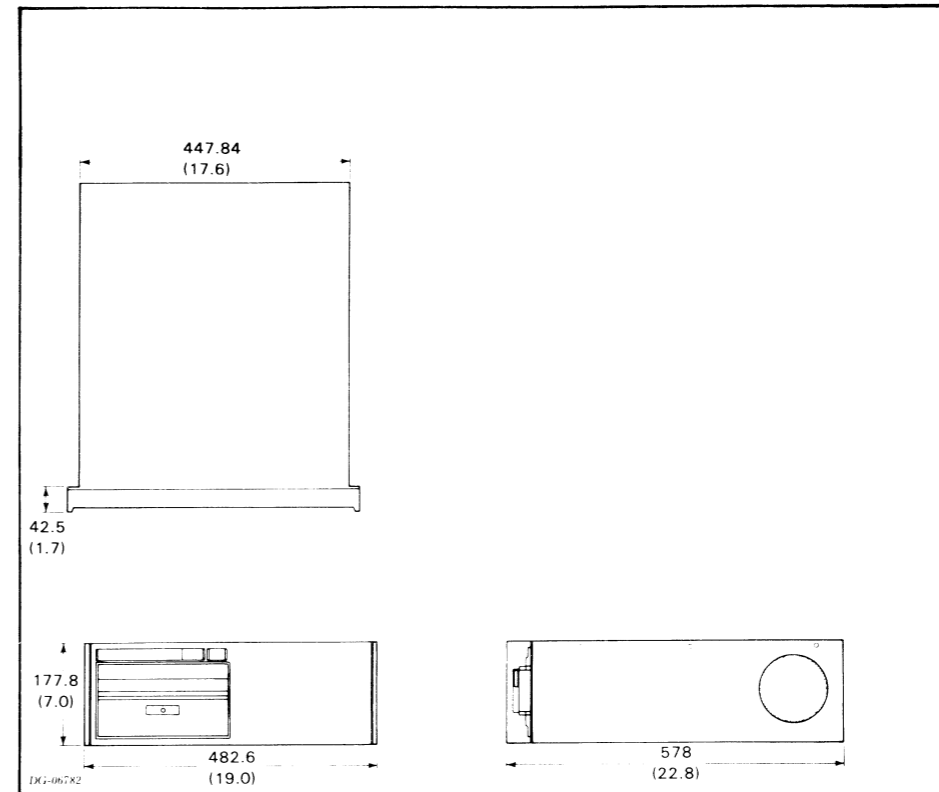
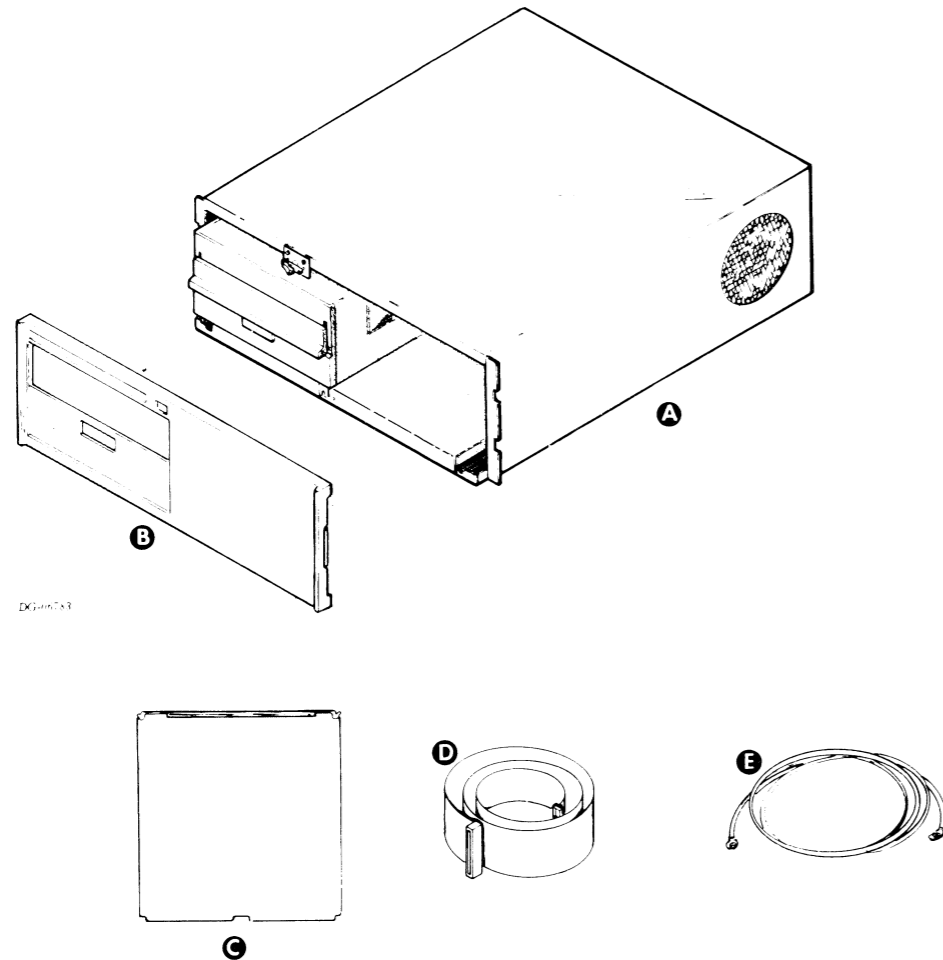


NOTES:

1. DOOR HEIGHT TO BE ADJUSTED TO OBTAIN THE 0.00 TO .05 ALIGNMENT OF TOP SURFACES OF ITEMS 2 AND 3.
2. WITH ITEM 1 PROPERLY SECURED TO ITEM 2, ADJUST ITEM 9 TO SET THE .12 DIM TO ITEM 7. TIGHTEN ITEM 6 TO 8.0-8.5 IN.-LBS.

9	1	FINGER BRACKET	002-020891
8	1	SHROUD ASSY	005-021183
7	1	EMI SHIELD	002-020883
6	5	NUT 6-32	106-000256
5	2	STANDOFF	002-003244
4	1	FRAME WELDMENT	002-020850
3	1	REAR DOOR PANEL ASSY	002-020856
2	1	SNAPSLIDE BRACKET "B"	002-020870
	1	SNAPSLIDE BRACKET "A"	002-020868
1	1	TOP PANEL	002-020887
ITEM	QTY	DESCRIPTION	PART NO.

### INSTALLATION SPECIFICATIONS



**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ENCLOSURE W ONE DRIVE	CABINET	
B	FRONT PANEL	CABINET	
C	CONTROLLER PCB	CPU	

**CABLE (SEE PAGE 5)**

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
D	I/O CABLE	COMPLIANT CPU FLOPPY	10	3	
E	GROUND CABLE	CPU AND DRIVE	10	3	

NOTE: REFER TO GENERAL PURPOSE 010-344 FOR MICRO-NOVA TO DETERMINE CABLE PART NUMBERS FOR SPECIFIC PRODUCT CONFIGURATIONS.

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482.6	578	177.8
Inches	(19.0)	(22.8)	(7.0)

**SERVICE CLEARANCES:**

	Front
Millimeters	914.4
Inches	(36)

**WEIGHT:**

Kilograms	22.7
Pounds	50

**HEAT OUTPUT:**

	Watts	BTU/hr
	80	273.2

**OPERATING ENVIRONMENT:**

Temperature (max)	43°C	109°F
Relative Humidity (max)	85°F Wet bulb	
Altitude	3048m (10,000ft)	

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	120V		
Hz	60		
Max Amp per Phase	67A		
Phase	1		
Startup Surge per Phase	1 1A		
(Export)			
Voltage	100V	220V	240V
Hz	50	50	50
Max Amp per Phase	80A	36A	33A
Phase	1	1	1
Startup Surge per Phase	94A	42A	39A

**CABLES:**

Primary Power

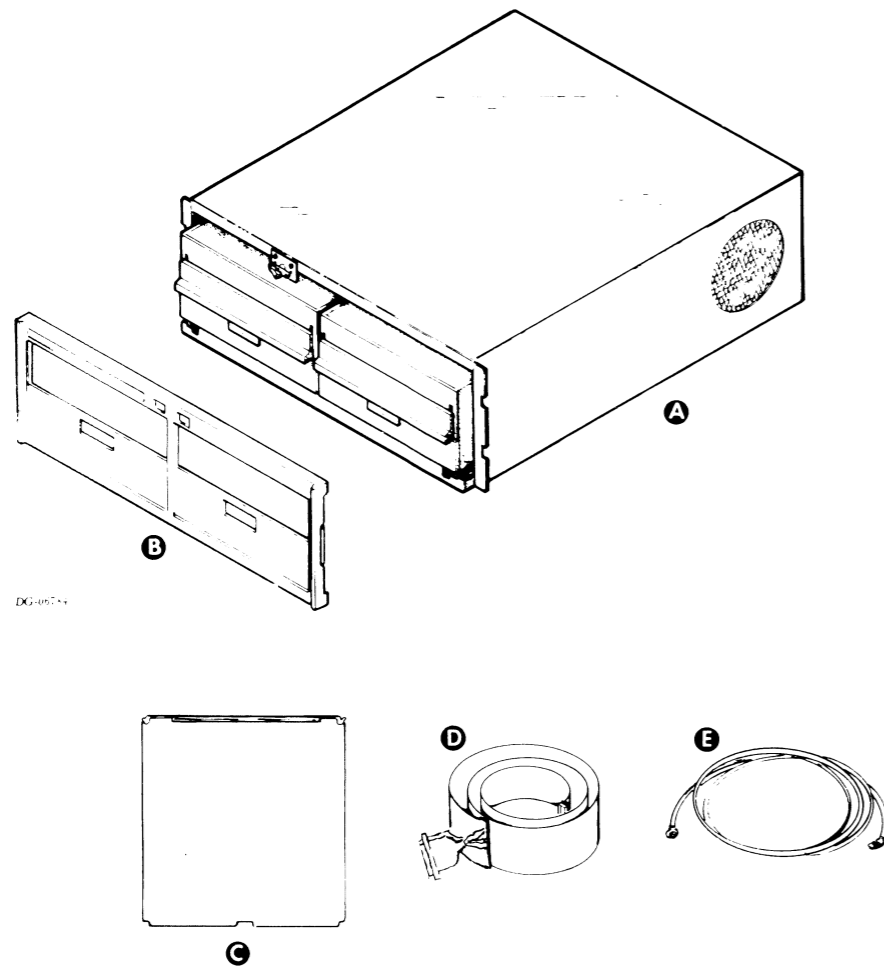
Domestic 60Hz	Length	DGC Cable No
120V	1.8m(6')	109-719
Export 50Hz		
100V	1.8m(6')	109-719
220V	1.8m(6')	109-681
240V	1.8m(6')	109-681

**POWER CONFIGURATION:**

100 V - GRN JUMPER  
 120 V - BLUE JUMPER  
 220 V - YELLOW JUMPER  
 240 V - RED JUMPER

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

INSTALLATION SPECIFICATIONS



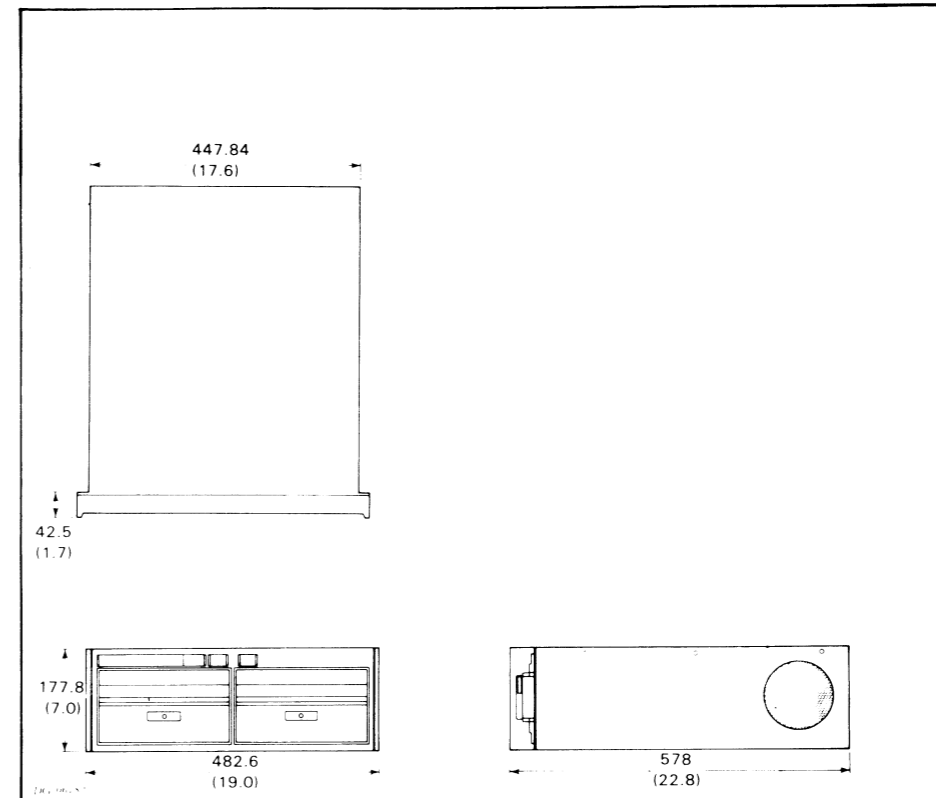
MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ENCLOSURE W ONE DRIVE	CABINET	
B	FRONT PANEL	CABINET	
C	CONTROLLER PCB	CPU	

CABLE (SEE PAGE 5)

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
D	I/O CABLE	COMPLIANT CPU/FLOPPY	10	3	
E	GROUND CABLE	CPU AND DRIVE	10	3	

NOTE: REFER TO DISK PRODUCT 010-344 FOR CONFIGURATION AND 005 NUMBERS



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482	578	177.8
Inches	(19.0)	(22.8)	(7.0)

**SERVICE CLEARANCES:**

	Front
Millimeters	444.5
Inches	(17.5)

**WEIGHT:**

Kilograms	29.5
Pounds	65

**HEAT OUTPUT:**

	Watts	BTU/hr
	140	478.1

**OPERATING ENVIRONMENT:**

Temperature (max)	46 C (115 F)
Relative Humidity (max)	85° Wet Bulb
Altitude	3048m (10,000ft)

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	120V		
Hz	60		
Max Amp per Phase	1.2A		
Phase	1		
Startup Surge per Phase	1.4A		
(Export)			
Voltage	100V	220V	240V
Hz	50	50	50
Max Amp per Phase	1.4A	.64A	.58A
Phase	1	1	1
Startup Surge per Phase	1.6A	.75A	.68A

**CABLES:**

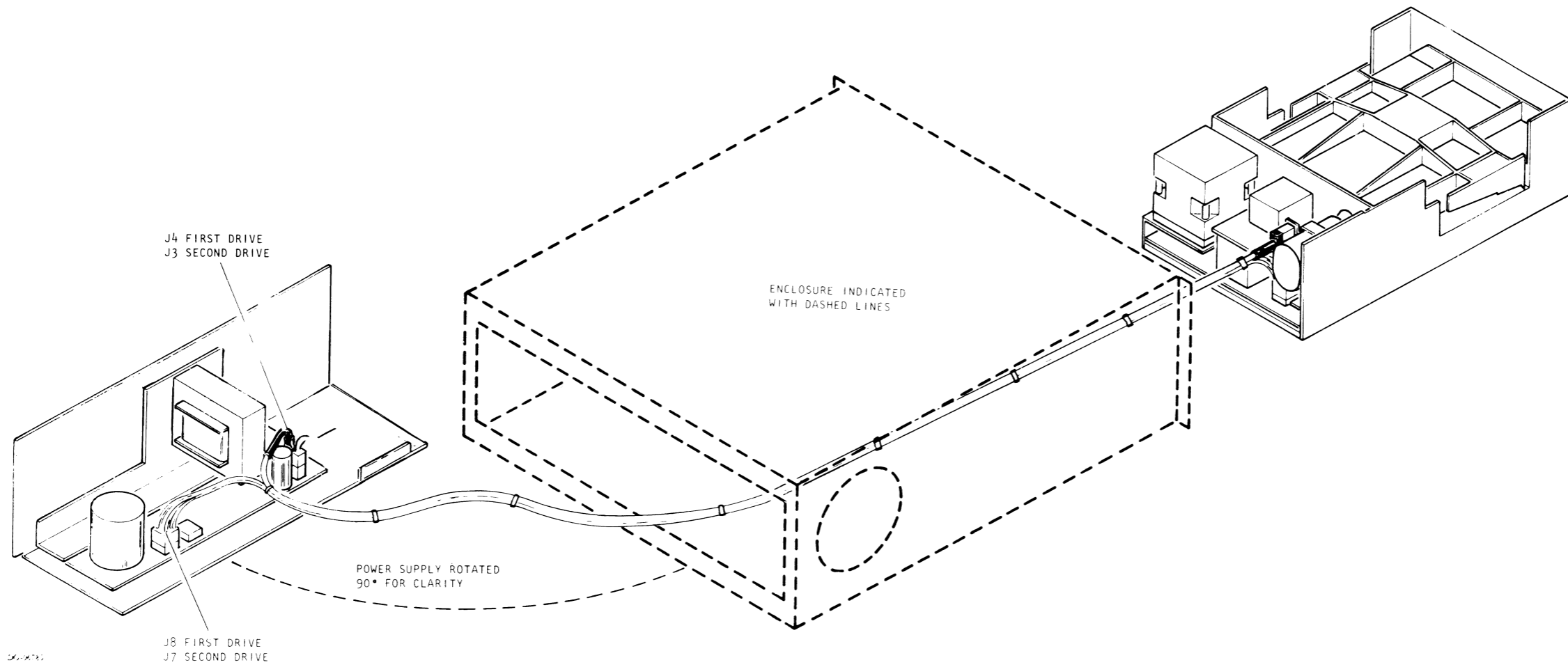
Primary Power		
Domestic 60Hz	Length	DGC Cable No
120V	1.8m(6')	109-719
Export 50Hz		
100V	1.8m(6')	109-719
220V	1.8m(6')	109-681
240V	1.8m(6')	109-681

**POWER CONFIGURATION:**

100 V - GRN JUMPER
120 V - BLUE JUMPER
220 V - YELLOW JUMPER
240 V - RED JUMPER

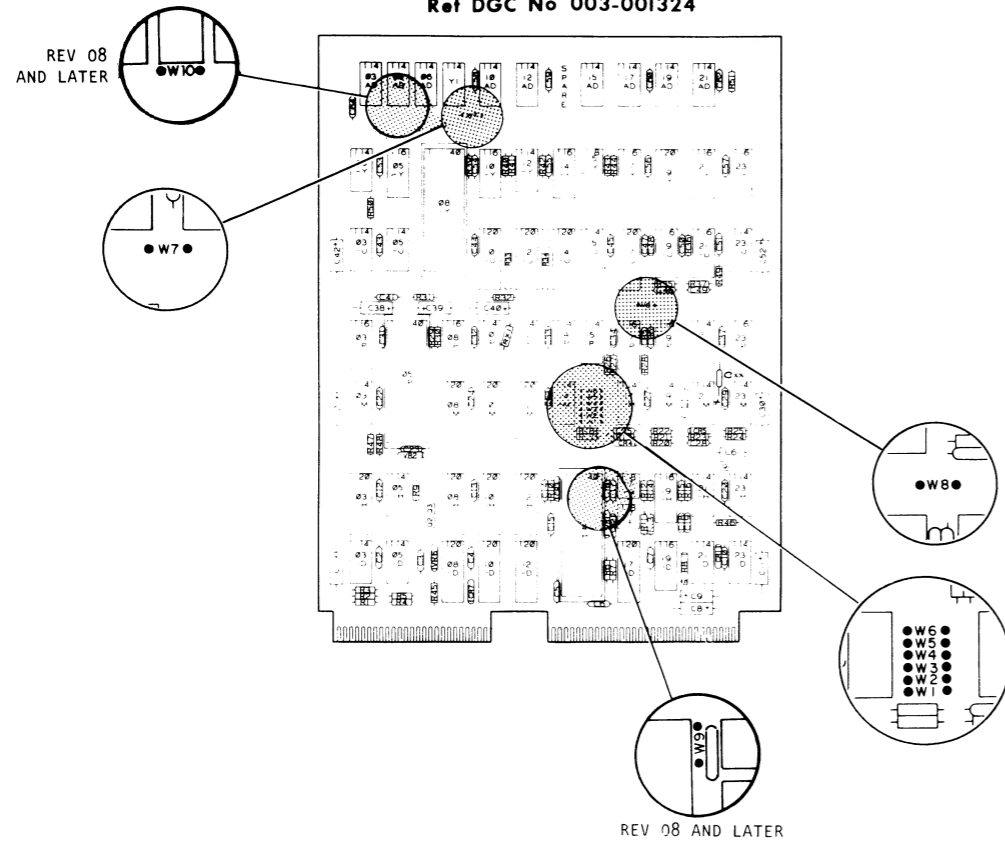
FOR PACKING PROCEDURE,  
SEE 010-000262/263

### INTERNAL CABLING



### TAILORING JUMPERING

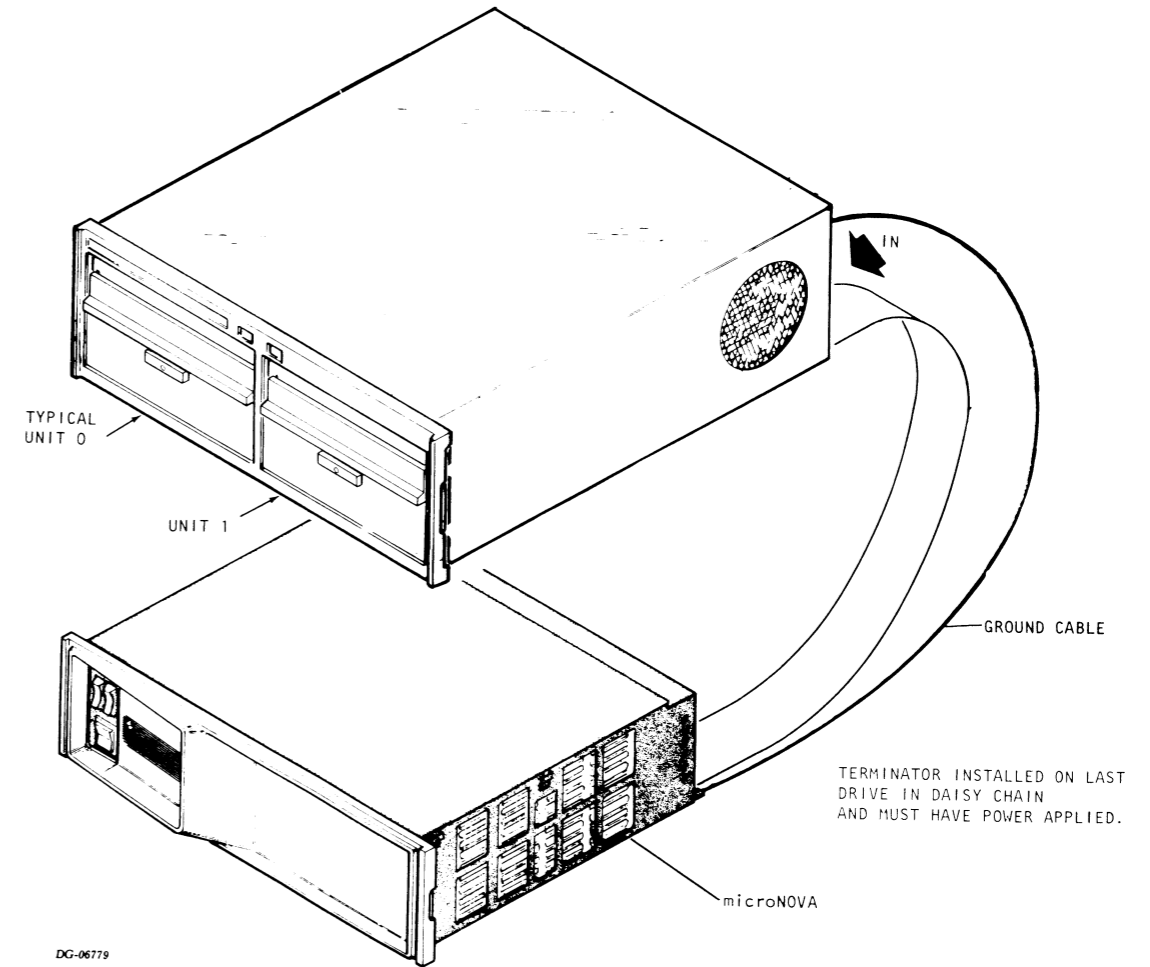
Ref DGC No 003-001324



	DEVICE CODE	
	26	66
DS0 — W6	OUT	IN
DS1 — W5	IN	IN
DS2 — W4	OUT	OUT
DS3 — W3	IN	IN
DS4 — W2	IN	IN
DS5 — W1	OUT	OUT

NOTE: W7, W8 AND W10 MUST ALWAYS BE INSTALLED, W9 IS INSERTED WHEN CONTROLLER IS INSTALLED IN +12V CHASSIS (MP/100 AND MP/200), AND REMOVED WHEN IN +15V CHASSIS (9 / 18 SLOT μN601 microNOVA).

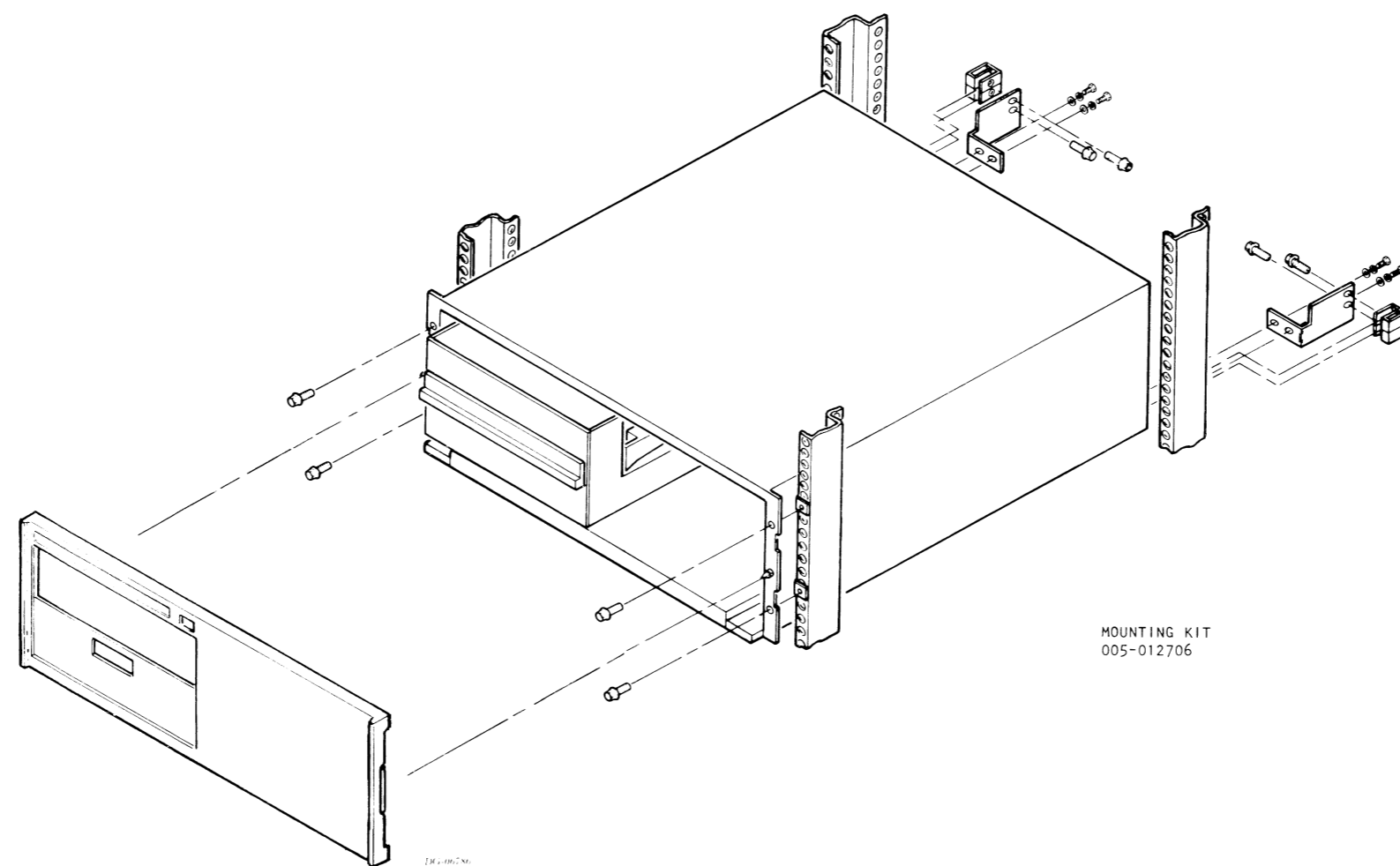
### SYSTEM CONFIGURATION



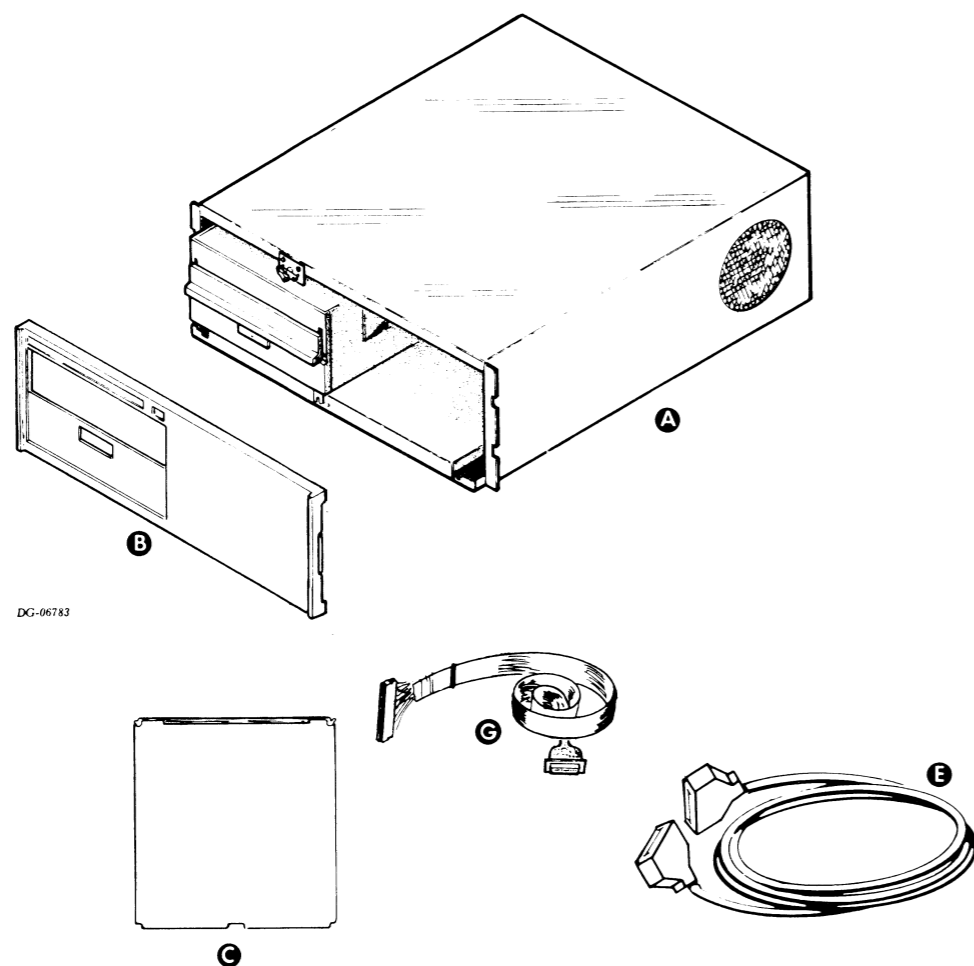
NOTE: ATTACH GROUND CABLE TO ANY SCREW ON BACK OF 6096.



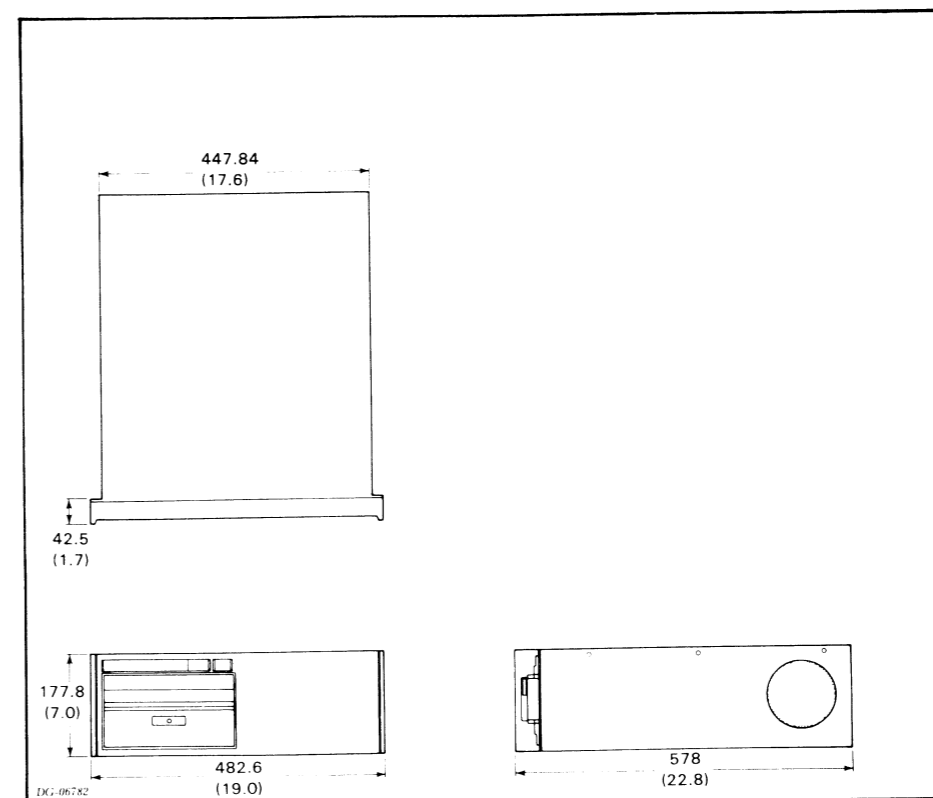
### CABINET MOUNTING



INSTALLATION SPECIFICATIONS



DG-06783



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482.6	578	177.8
Inches	(19.0)	(22.8)	(7.0)

**SERVICE CLEARANCES:**

	Front
Millimeters	914.4
Inches	(36)

**WEIGHT:**

	Kilograms	Pounds
	22.7	50

**HEAT OUTPUT:**

	Watts	BTU/hr
	80	273.2

**OPERATING ENVIRONMENT:**

Temperature (max)	43°C	109°F
Relative Humidity (max)	85°F Wet bulb	
Altitude	3048m (10,000ft)	

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	120V		
Hz	60		
Max Amp per Phase	67A		
Phase	1		
Startup Surge per Phase	1.1A		
(Export)			
Voltage	100V	220V	240V
Hz	50	50	50
Max Amp per Phase	.80A	36A	33A
Phase	1	1	1
Startup Surge per Phase	94A	42A	39A

**CABLES:**

Primary Power		
Domestic 60Hz	Length	DGC Cable No
120V	1.8m(6')	109-719
Export 50Hz		
100V	1.8m(6')	109-719
220V	1.8m(6')	109-681
240V	1.8m(6')	109-681

MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ENCLOSURE W/ ONE DRIVE	CABINET	
B	FRONT PANEL	CABINET	
C	CONTROLLER PCB	CPU	

CABLE (SEE PAGE 5)

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
D	I/O CABLE	COMPLIANT CPU/FLOPPY	10	3	
E	I/O CABLE	CONTROLLER AND DRIVE	10	3	

ITEM	COMPONENT	CHASSIS	MAX DATA CHANNEL LATENCY (uS)	+5V CURRENT DRAW (AMPS)
C	CONTROLLER PCB	CPU	50	4.0

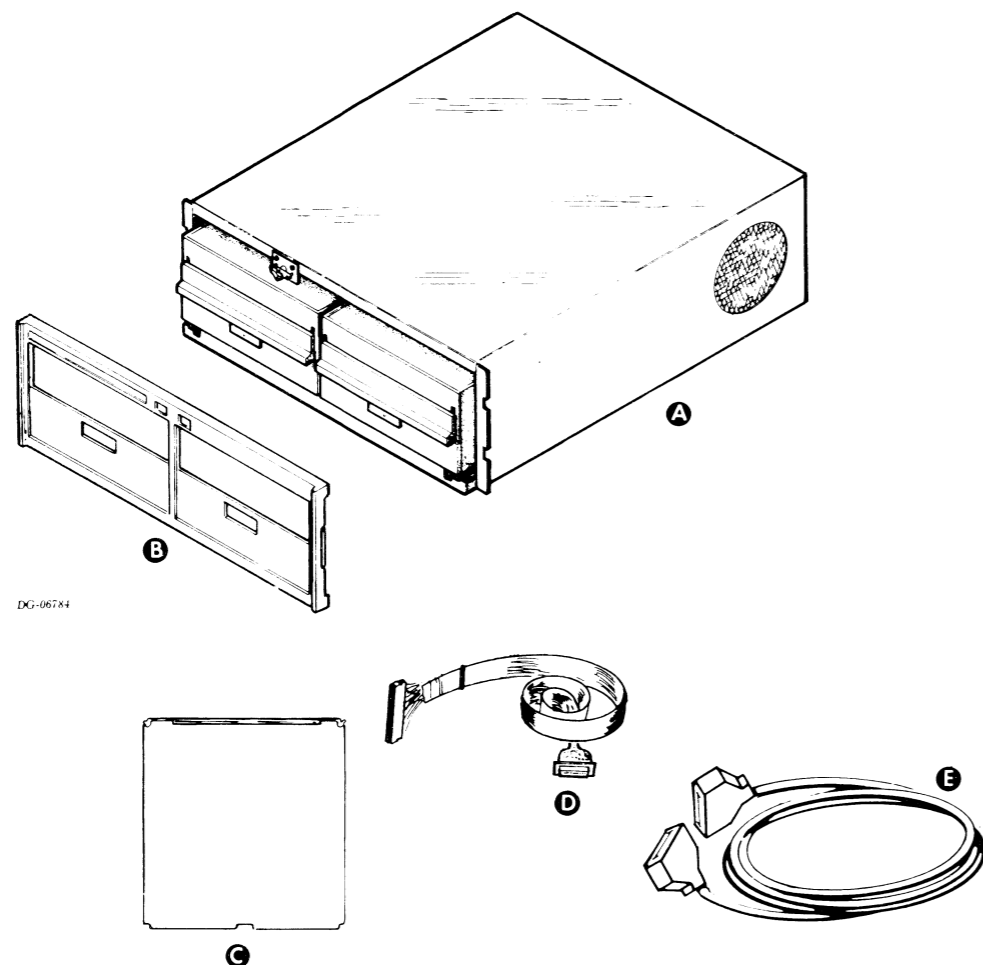
NOTE: REFER TO GENERAL PURPOSE 010-331 FOR NOVA CONFIGURATION TO DETERMINE CABLE NUMBER AND SPECIFIC PRODUCT CONFIGURATIONS.

**Warning:** This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

**POWER CONFIGURATION:**

- 100 V - GRN JUMPER
- 120 V - BLUE JUMPER
- 220 V - YELLOW JUMPER
- 240 V - RED JUMPER

### INSTALLATION SPECIFICATIONS



DG-06784

**MAJOR COMPONENT**

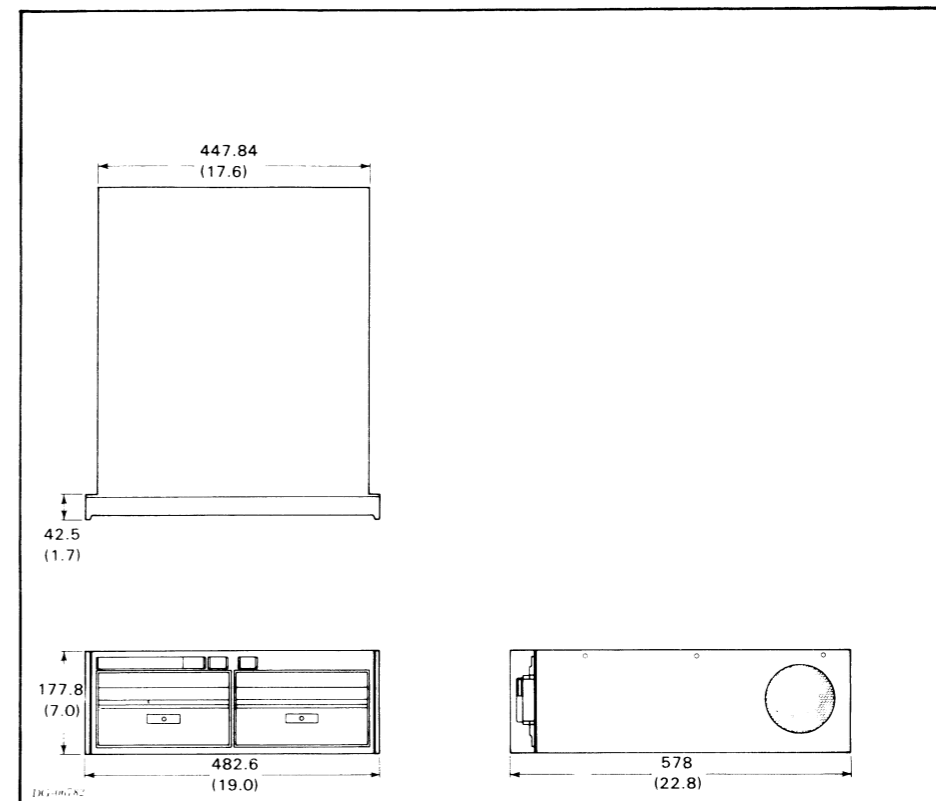
ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	ENCLOSURE W ONE DRIVE	CABINET	
B	FRONT PANEL	CABINET	
C	CONTROLLER PCB	CPU	

**CABLE (SEE PAGE 5)**

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
D	I/O CABLE	COMPLIANT CPU/FLOPPY	10	3	
E	I/O CABLE	CONTROLLER AND DRIVE	10	3	

ITEM	COMPONENT	CHASSIS	MAX DATA CHANNEL LATENCY (μS)	+5V CURRENT DRAW (AMPS)
C	CONTROLLER PCB	CPU	50	4.0

NOTE: REFER TO GENERAL PURPOSE 010-331 FOR NOVA CONFIGURATION TO DETERMINE CABLE NUMBER AND SPECIFIC PRODUCT CONFIGURATIONS.



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482	578	177.8
Inches	(19.0)	(22.8)	(7.0)

**SERVICE CLEARANCES:**

	Front
Millimeters	444.5
Inches	(17.5)

**WEIGHT:**

Kilograms	29.5
Pounds	65

**HEAT OUTPUT:**

	Watts	BTU/hr
	140	478.1

**OPERATING ENVIRONMENT:**

Temperature (max)	46 C (115 F)
Relative Humidity (max)	85° Wet Bulb
Altitude	3048m (10,000ft)

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	120V		
Hz	60		
Max Amp per Phase	1.2A		
Phase	1		
Startup Surge per Phase	1.4A		
(Export)			
Voltage	100V	220V	240V
Hz	50	50	50
Max Amp per Phase	1.4A	.64A	.58A
Phase	1	1	1
Startup Surge per Phase	1.6A	.75A	.68A

**CABLES:**

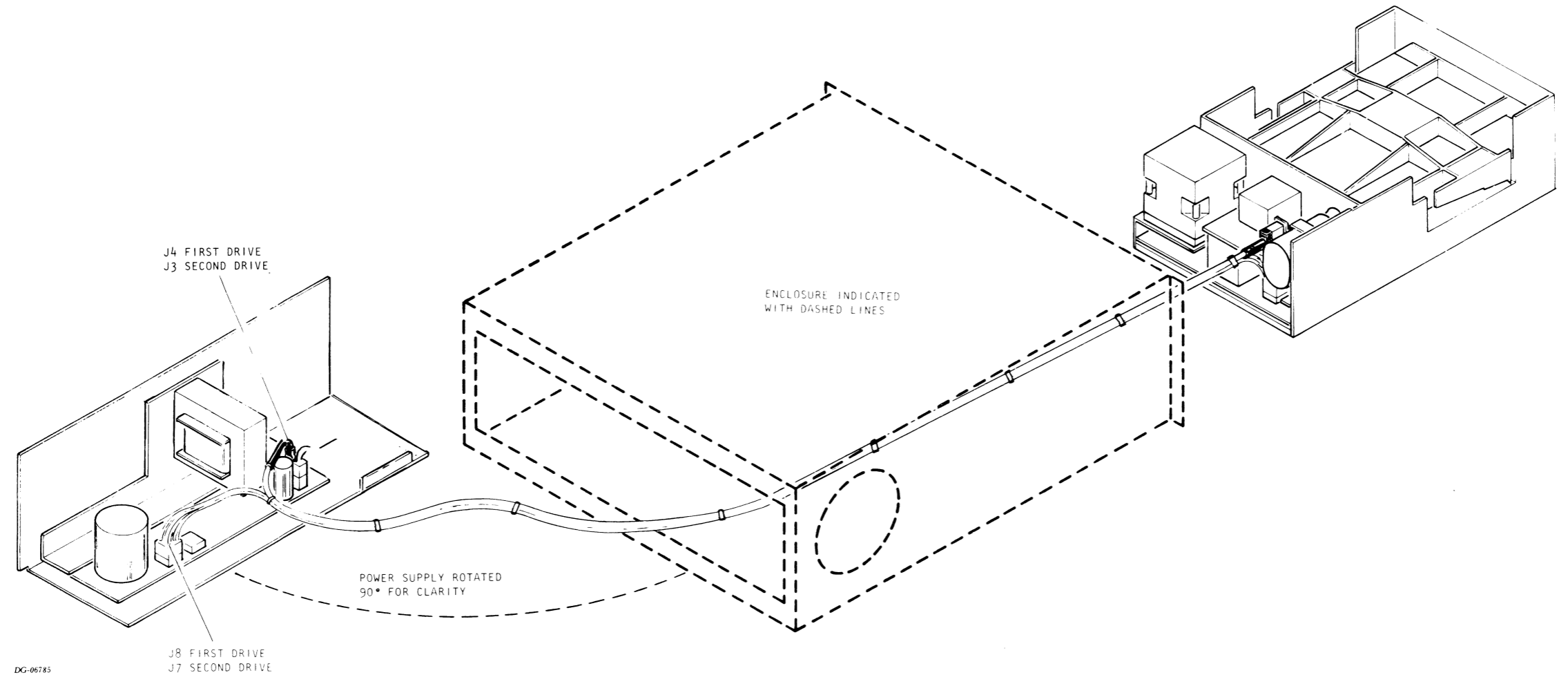
Primary Power		
Domestic 60Hz	Length	DGC Cable No
120V	1.8m(6')	109-719
Export 50Hz		
100V	1.8m(6')	109-719
220V	1.8m(6')	109-681
240V	1.8m(6')	109-681

**POWER CONFIGURATION:**

- 100 V - GRN JUMPER
- 120 V - BLUE JUMPER
- 220 V - YELLOW JUMPER
- 240 V - RED JUMPER

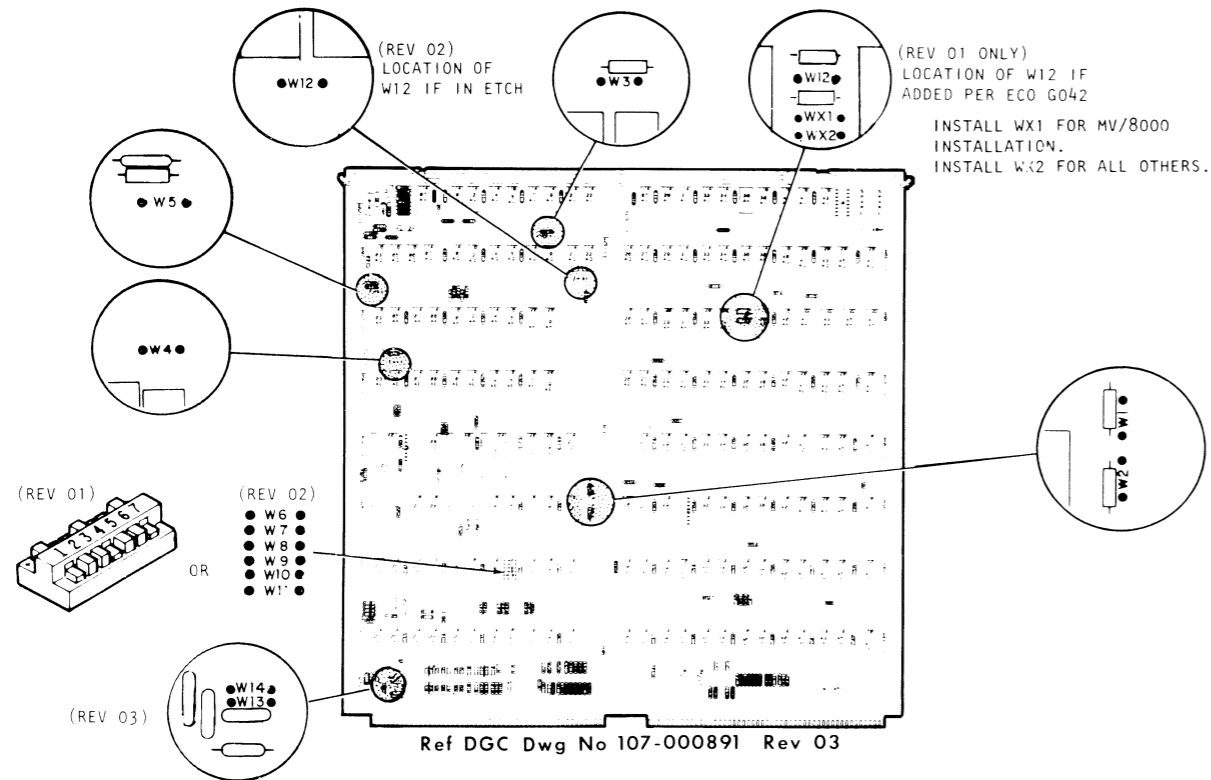
**FOR PACKING PROCEDURE,  
SEE 010-000262/263**

### INTERNAL CABLING



DG-06785

## TAILORING JUMPERING CONTROLLER BOARD



FOR CONTROLLERS WITH SWITCH MODULE  
(REV 01 ONLY)

CONTROLLER DEVICE CODE SELECT		
SWITCH NUMBER	DEVICE CODE 33	DEVICE CODE 73
1	OFF	ON
2	ON	ON
3	ON	ON
4	OFF	OFF
5	ON	ON
6	ON	ON
7	OFF*	OFF*

\* THIS SWITCH NOT USED

FOR CONTROLLERS WITH JUMPERS  
(REV 02)

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 33	DEVICE CODE 73
W6	OUT	IN
W7	IN	IN
W8	IN	IN
W9	OUT	OUT
W10	IN	IN
W11	IN	IN

CPU SELECTION JUMPER

CPU TYPE	W12
NOVA 4/C	IN
ALL OTHERS	OUT

W13 IN FOR MV/8000 SYSTEMS  
OUT FOR ALL OTHERS

W14 OUT FOR MV/8000 SYSTEMS  
IN FOR ALL OTHERS

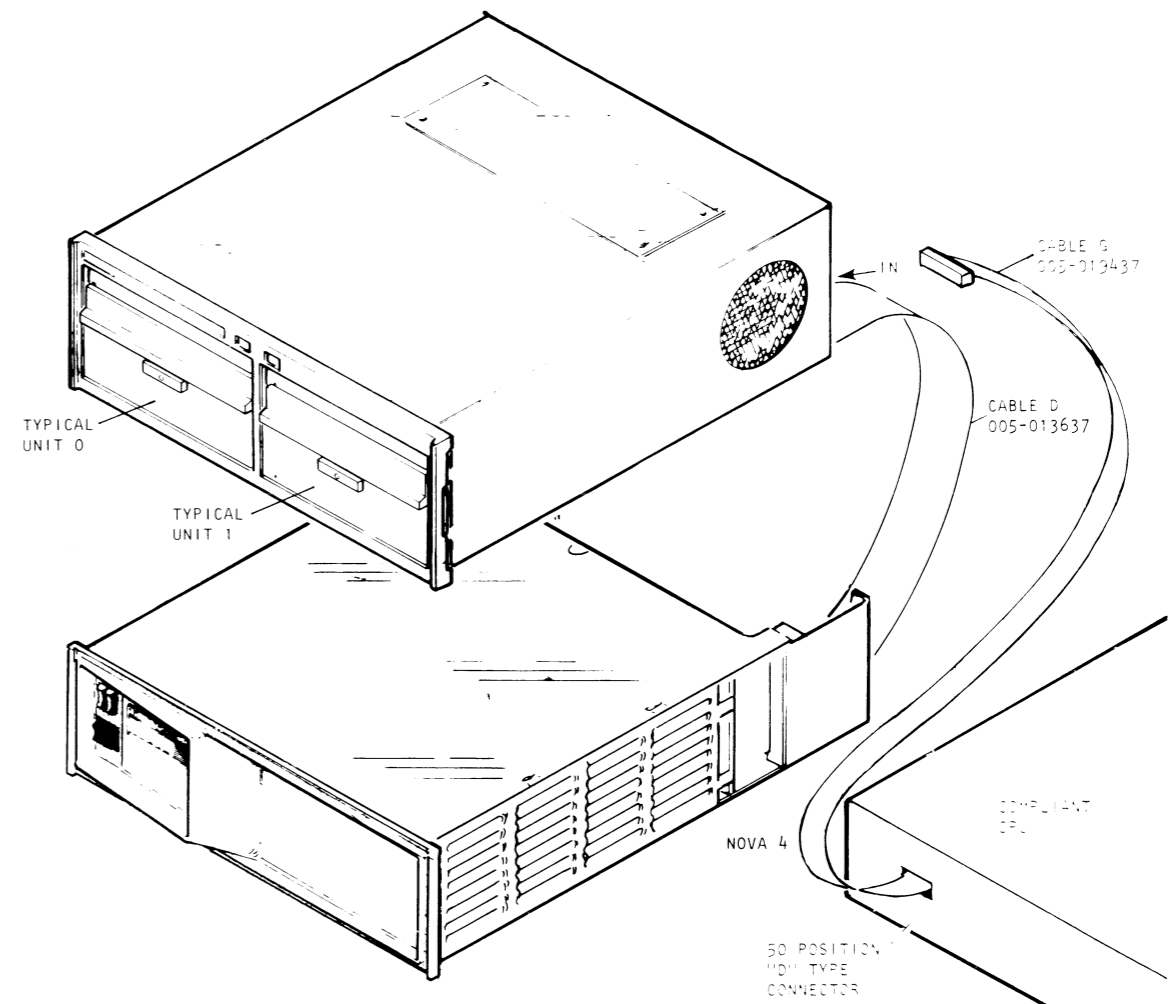
CONTROLLER JUMPER SELECTION	
JUMPER	
W1	JUMPER REMOVED
W3	JUMPER REMOVED
W4	JUMPER INSERTED
W5*	JUMPER INSERTED

\* NOT IN FIRST VERSION OF CONTROLLER

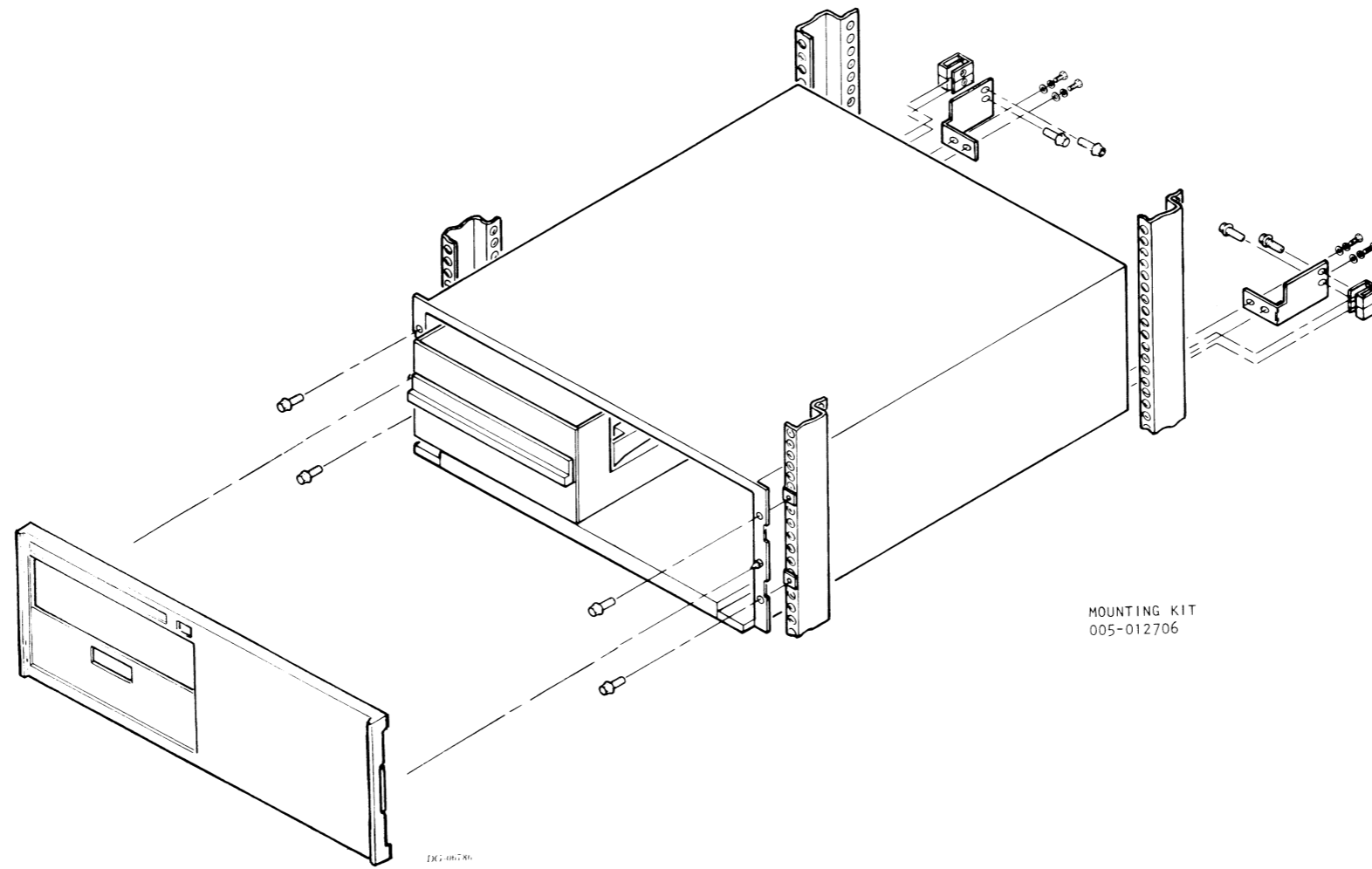
W2 SELECTS RIGID DISK  
CAPACITY AS FOLLOWS:

W2 JUMPER	CAPACITY
INSERTED	12.5MB
REMOVED	25MB

## SYSTEM CONFIGURATION

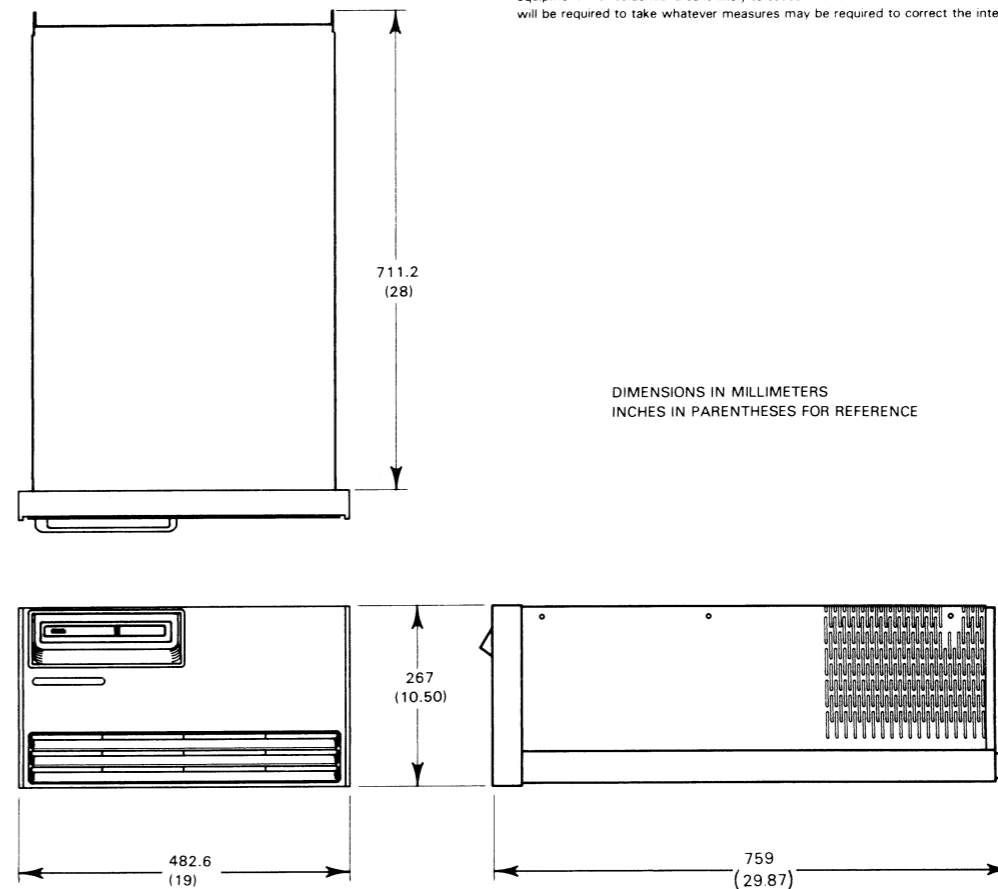
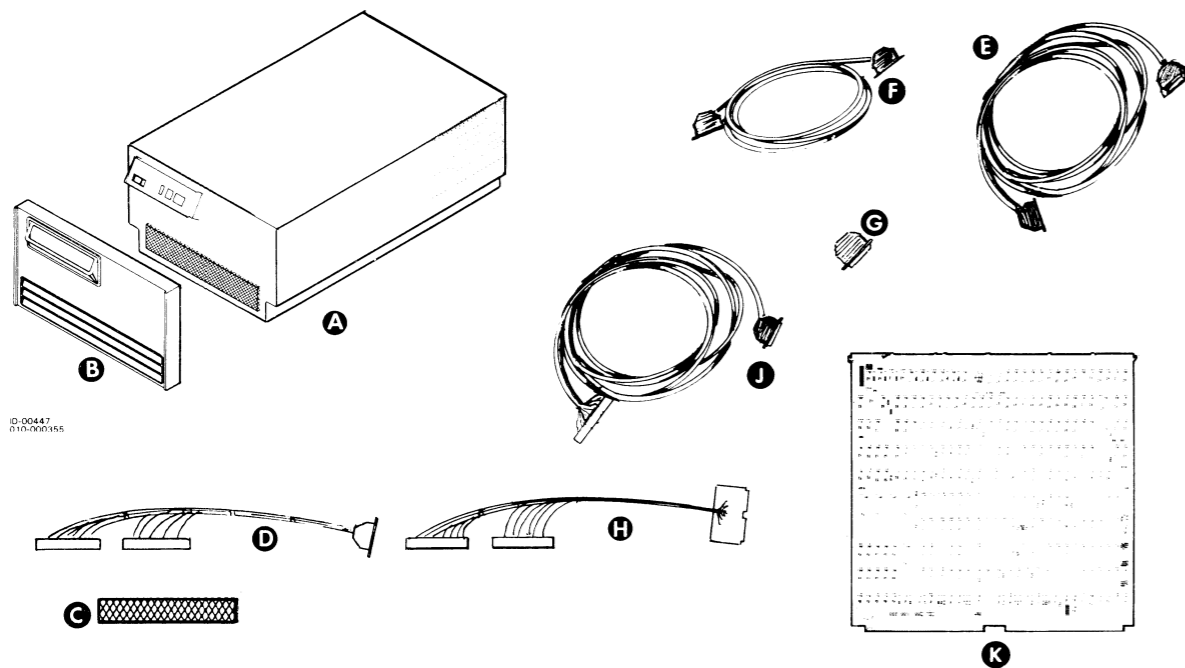


### CABINET MOUNTING



## INSTALLATION SPECIFICATIONS MODEL 6236

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.



DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE

ID-00447  
010-000355

ID-00446

**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	RIGID DISK DRIVE	CABINET	
B	FRONT PANEL	CABINET	
C	AIR FILTER	CABINET	002-011044

**CABLE**

Item	Cable	Connecting	Max Lgth.		Notes
			ft	m	
D	CPU INTERNAL CABLE	CPU BACKPANEL TO CPU BULKHEAD	N/A		SEE SHEET 10, 11
E	EXT I/O CABLE	CPU BULKHEAD TO DISK DRIVE	50	15.2	SEE SHEET 10, 11
F	DRIVE DAISY CHAIN CABLE	DISK DRIVE TO DISK DRIVE FOR MULTIPLE DRIVE SYSTEMS	20	6.1	005-20186
G	DRIVE TERMINATOR	PLUGS INTO DISK DRIVE			005-20105 2 REQ'D DUAL PORT CONFIG.
H	NON COMP CPU INT				
J	NON COMP EXT I/O				

Item	Component	Chassis	+5V Current Draw (AMPS)
K	CONTROLLER PCB 005-14278	CPU	13.5

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482.6	759	267
Inches	19	29.87	10.5

**SERVICE CLEARANCES:**

	Front	Rear
Millimeters	1020	760
Inches	40	30

**WEIGHT:**

	Kilograms	Pounds
	58.5	130

**HEAT OUTPUT (MAX)**

	Watts	BTU/hr
100V	600	2050
120V	600	2050
220V	600	2050
240V	600	2050

**OPERATING ENVIRONMENT:**

Temperature	Room	10 to 38°C (50 to 100°F)
	Cabinet (max)	47°C 117°F
	Change Rate	10°C (18°F) 1 Hour
	Relative Humidity	20% to 80% non-condensing
	Change Rate	10°C/hour
Altitude		-304.8 to 2438m (-1000 to 8000 ft)

**STORAGE ENVIRONMENT**

Temperature	-40 to 65°C (-40 to 149°F)
Relative Humidity	10% to 90% non condensing
Altitude	-304.8 to 7620m (-1000 to 25,000 ft)

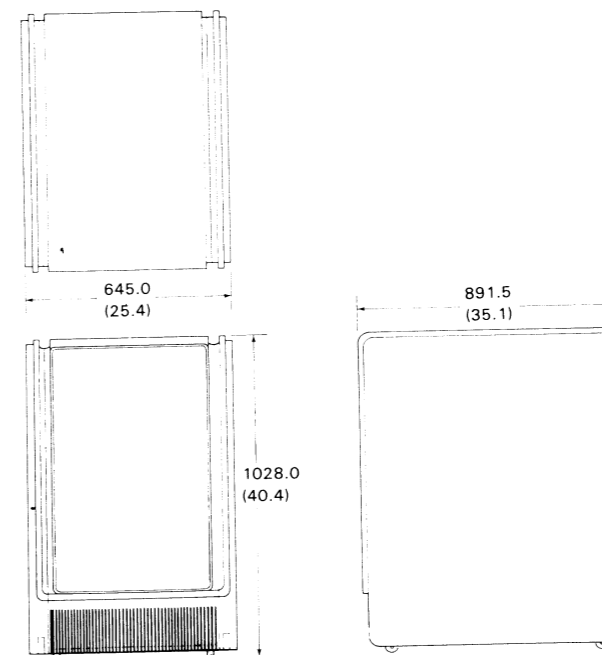
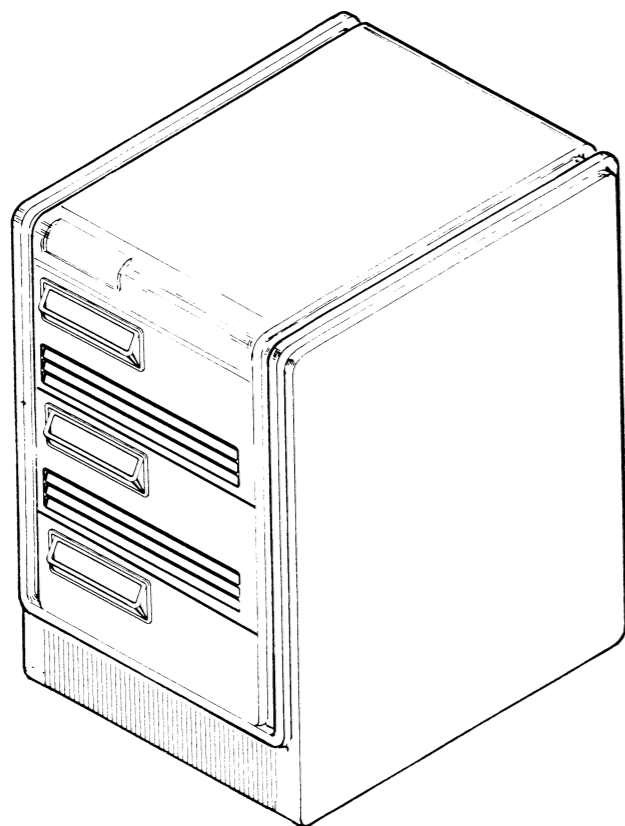
**POWER REQUIREMENTS:**

	(6236)	(6236-1)	(6236-5)	(6236-2)	(6236-4)
(Domestic)					
Voltage	120 <sup>+10%</sup> <sub>-15%</sub>				
Hz	60 ± 1%				
Amp per Phase	5.0				
Startup Surge per Phase	8.0 for 35 sec				
(Export)					
Voltage	100 ± 10%	100 ± 10%	220 <sup>+10%</sup> <sub>-15%</sub>	240 <sup>+10%</sup> <sub>-15%</sub>	
Hz	50 ± 1%	60 ± 1%	50 ± 1%	50 ± 1%	
Amp per Phase	6.0	6.0	2.75	2.5	
Startup Surge per Phase	9.6	9.6	4.4	4.0	
	for 35 sec.				

**CABLES:**  
Primary Power Configuration: see sheet 8, this I.D.S.

NOTE: REFER TO DISK PRODUCT MASTER INSTALLATION DATA SHEET 010-331 FOR CONFIGURATION AND CABLE 005'S.

### INSTALLATION SPECIFICATIONS MODEL 6237



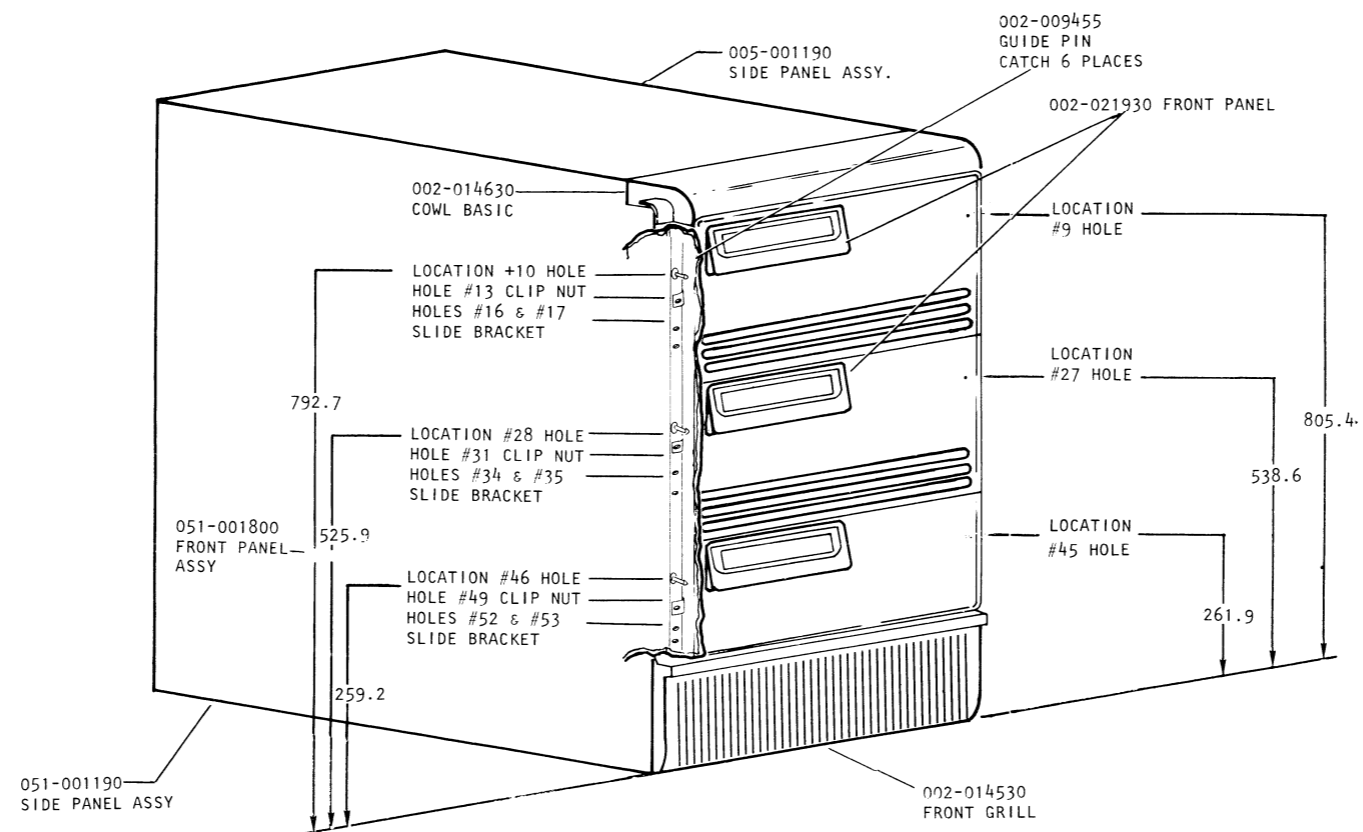
**MODEL #'S**

E6237-B	240V CT Domestic 2ph (W 120/60 drives)
E6237-B1	100/200 CT Domestic 2ph (W 100/50 drives)
E6237-B5	100/200 CT Domestic 2ph (W 100/60 drives)
E6237-D2	220/380 3ph Export (W 220/50 drives)
E6237-D4	240, 415 3ph Export (W 240/50 drives)
E6237-C	120/208 3ph Domestic (W 120/60 drives)

<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>	<b>POWER REQUIREMENTS:</b>						
Millimeters	645.0	891.0	1028.0	<b>Model #6237:</b>	<b>-B</b>	<b>-B1</b>	<b>-B5</b>	<b>B-C</b>	<b>-D2</b>	<b>-D4</b>
Inches	25.4	35.1	40.4	6236 Config.	3/6236	3/6236-1	3/6236-5	3/6236	3/6236-2	3/6236-4
				Voltage	240	100/200	100/200	120/208	220/380	240/415
<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Rear</b>		Amps	15	18	18	15	8.25	7.5
Millimeters	1020	762.0		Startup/Surge (35 Sec)	24	29	29	24	13	12
Inches	40	30		Phase	2	2	2	3	3-WYE	3-WYE
				Hz	60	50	60	60	50	50
<b>WEIGHT:</b>				<b>CABLES:</b>	<b>2 Phase</b>	<b>3 Phase</b>				
Kilograms	227			A/C						
Pounds	500			2.9 m (9.5 ft)	005-14760	005-14372				
				Connector Type						
<b>HEAT OUTPUT:</b>	<b>Watts</b>	<b>BTU/hr</b>		Wall (NEMA)	L14-30R	L21-30R				
	6150	1800		Drop (NEMA)	L14-30P	L21-30P				
<b>OPERATING ENVIRONMENT:</b>				<b>STORAGE ENVIRONMENT:</b>						
Temperature				Temperature	- 40 to 65°C (- 40 to 149°F)					
Room	10 to 38°C (50 to 100°F)			Relative Humidity	10% to 90% non condensing					
Cabinet (max)	47°C 117°F			Altitude	- 304.8 to 7620m (- 1000 to 25,000 ft)					
Change Rate	10°C (18°F)/hour									



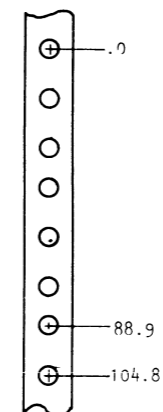
# RACK MOUNTING



**CAUTION:**

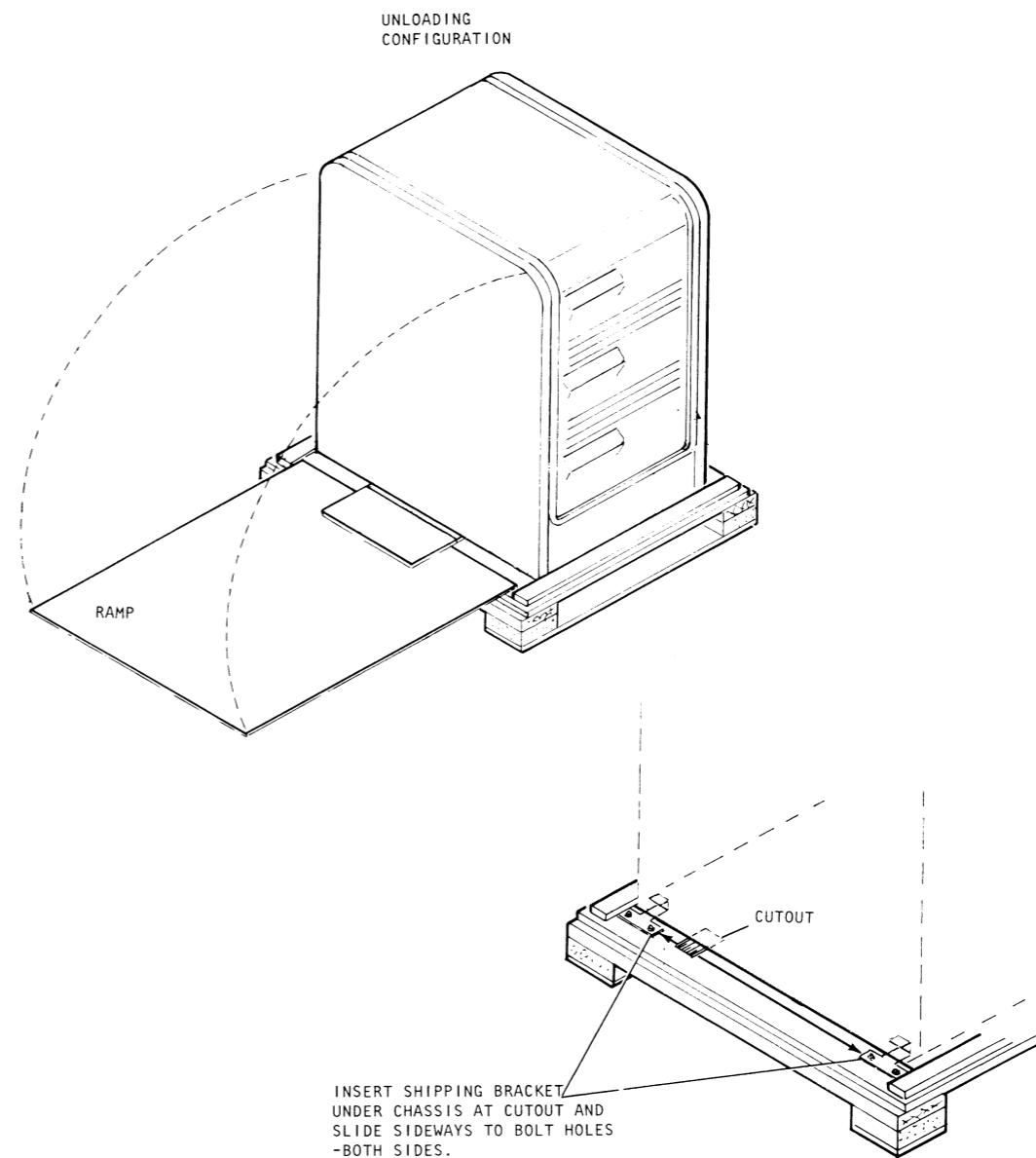
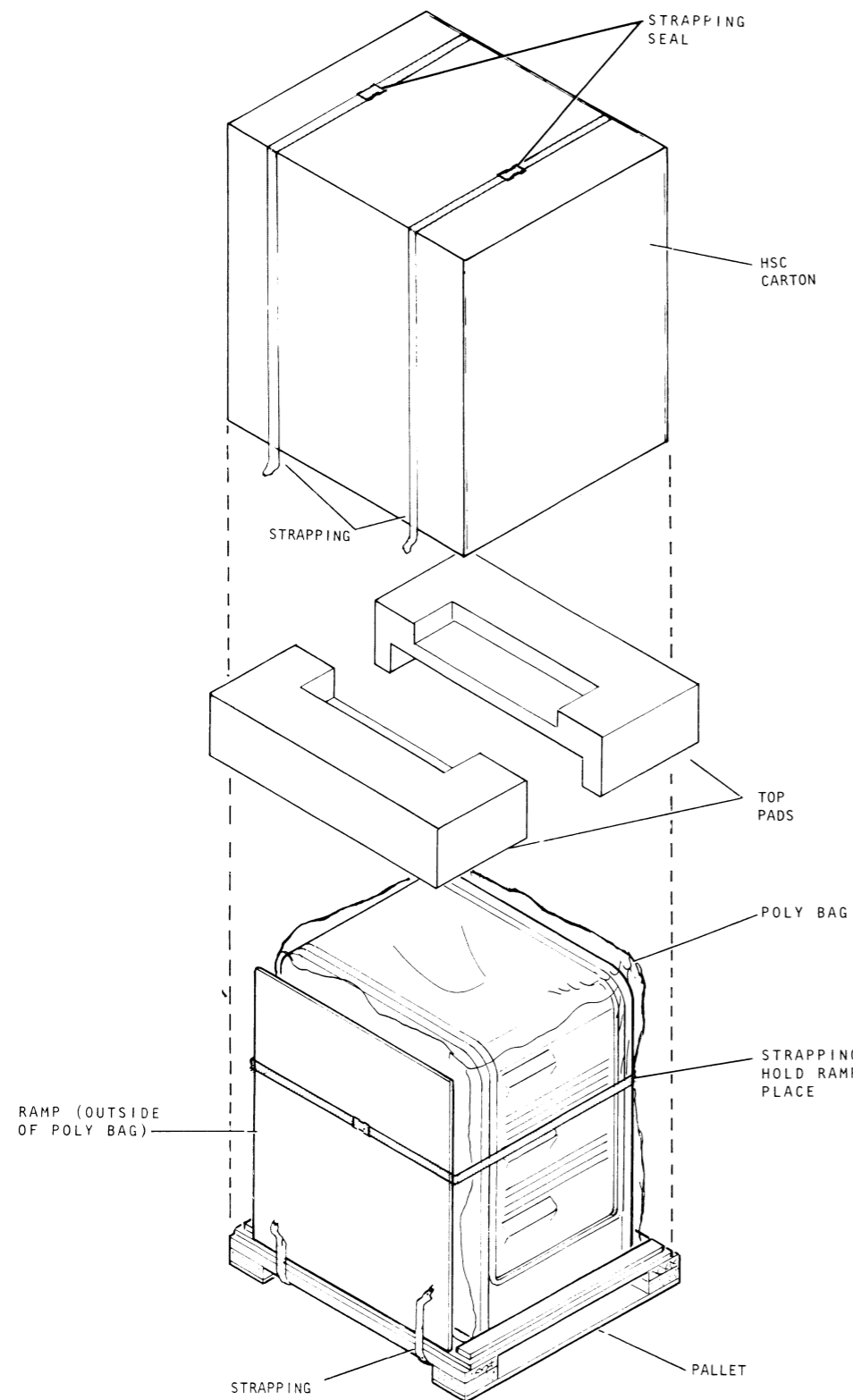
DISK SHOULD NOT BE POWERED UP UNTIL STEPS GIVEN ON SHEET 5 OF THIS INSTALLATION DATA SHEET ARE COMPLETED.

ASSEMBLY GUIDE PIN



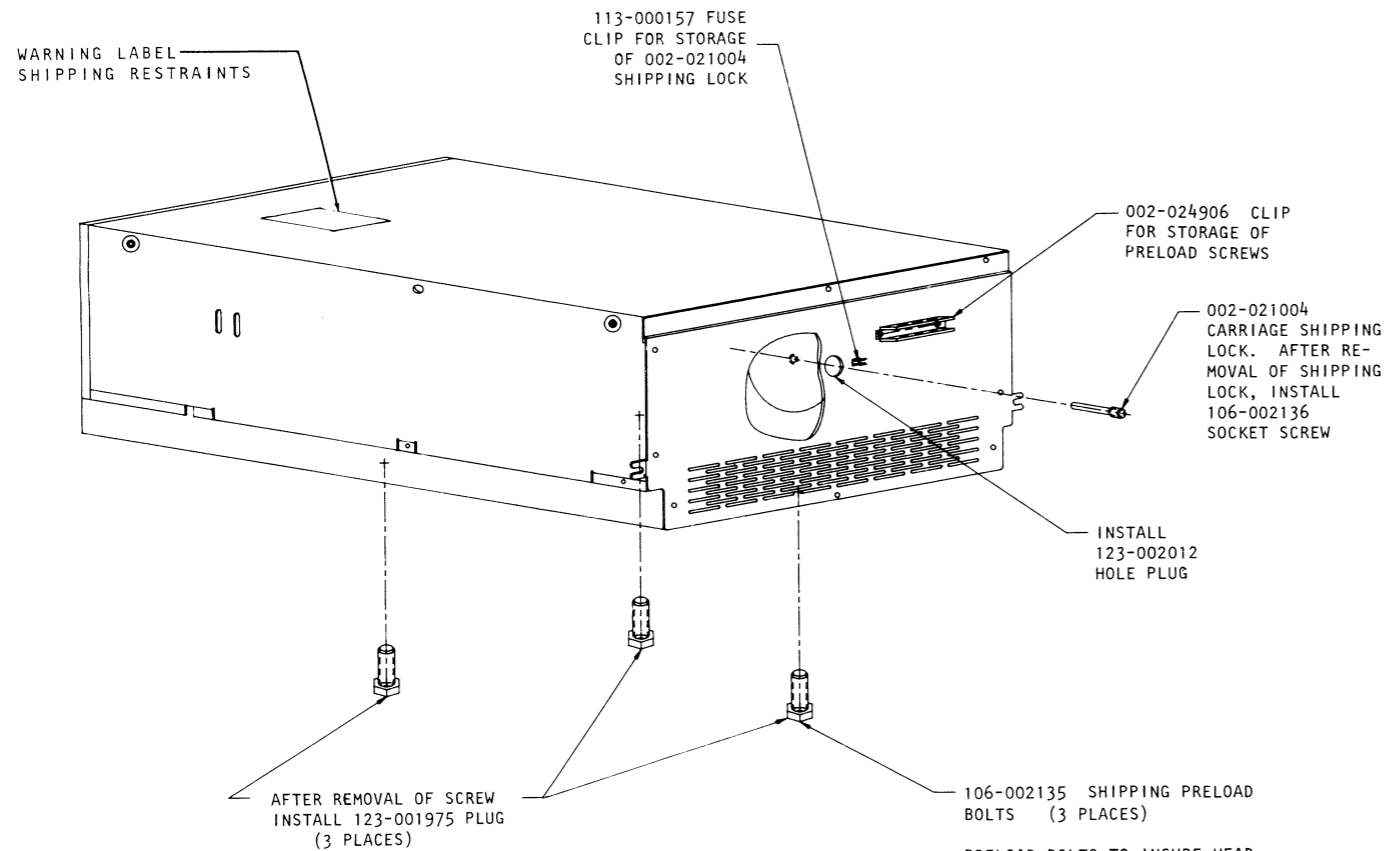
TYPICAL HOLE PATTERN FOR ASSEMBLY OF 123-001963 SLIDE ASSY TO 002-014580 SIDE FRAME WELDMENT

### SHIPPING AND UNLOADING CABINET



# SHIPPING

## SHIPPING RESTRAINTS



**CAUTION:**  
DISK DRIVE SHOULD NOT BE POWERED UP UNTIL THE FOLLOWING STEPS ARE TAKEN:

1. DRIVE HAS STABILIZED TO ROOM TEMPERATURE. ALLOW DG/DISK SUBSYSTEM TO TEMPERATURE STABILIZE FOR 24 HOURS PRIOR TO POWER ON. LEVELING AND CABLING CAN BE PERFORMED DURING THIS STABILIZING PERIOD. IF THE INSTALLATION TIME DELAY IS CRITICAL, ALLOW THE FOLLOWING MINIMUM TIMES FOR THE HDA TO WARM TO 22 C (72 F) WITH A SITE AMBIENT TEMPERATURE OF 24 C (75 F) AND 80% RELATIVE HUMIDITY.

INITIAL TEMPERATURE	WAITING TIME
-40 C (-40 F)	23 HOURS
-23 C (-10 F)	21 HOURS
-7 C (+20 F)	19 HOURS
+10 C (+50 F)	14 HOURS

2. REMOVAL OF (3) 106-002135 SHIPPING PRELOAD BOLTS. BOLTS TO BE STORED IN 002-024906 CLIP.

3. REMOVAL OF CARRIAGE SHIPPING LOCK 002-021004, (REFER TO STEP 2 OF "PREPARATION FOR TRANSPORTATION") AND INSTALLATION OF 106-002136 SOCKET SCREW FITTED WITH "O" RING.

4. INSTALLATION OF (3) 123-001975 PLUGS. INSTALLATION OF 123-002012 PLUG IN FRONT PANEL.

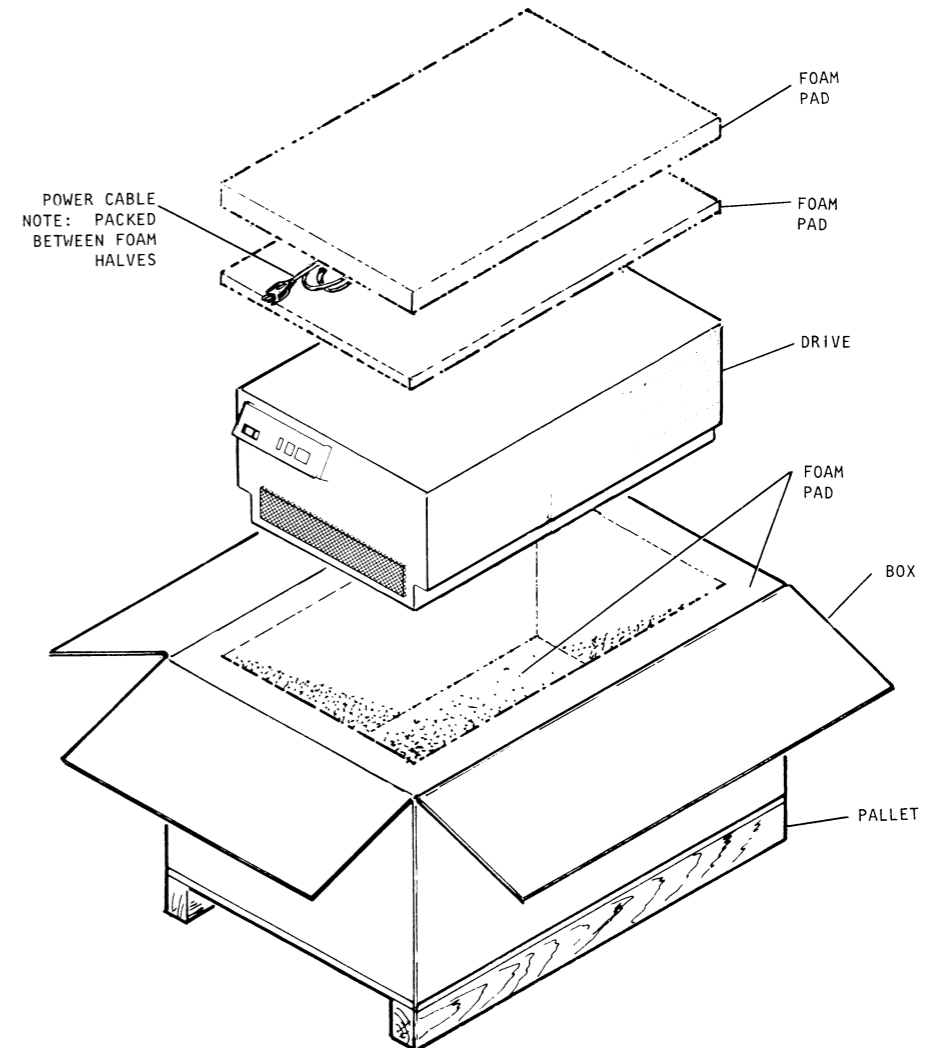
PRELOAD BOLTS TO INSURE HEAD OF BOLT IS IN CONTACT WITH CHASSIS.

### PREPARATION FOR TRANSPORTATION AFTER CABINET INSTALLATION

1. REMOVE POWER FROM DRIVE AND FRONT PANEL.
2. REMOVE HOLE PLUG 123-002012 AND INSTALL CARRIAGE SHIPPING LOCK 002-021004.
  - a. REMOVE SOCKET SCREW (106-002136) FROM LINEAR MOTOR HOUSING (CCW).
  - b. INSERT CARRIAGE SHIPPING LOCK (002-021004) INTO HOLE PROVIDED UNTIL IT STOPS.
  - c. WITH A FLAT HEAD SCREWDRIVER, TURN CARRIAGE LOCK IN A CW DIRECTION UNTIL YOU FEEL A SLIGHT RESISTANCE.
  - d. TURN CARRIAGE LOCK SCREW AN EXTRA FULL TURN IN A CW DIRECTION. CARRIAGE LOCK IS NOW CORRECTLY ENGAGED.
  - e. TO REMOVE SAME, REVERSE ABOVE PROCEDURE.
3. REMOVE PLUG 123-001975 (3 PLACES) AND INSTALL SHIPPING PRELOAD BOLTS (3 PLACES). STORE PLUGS IN STORAGE CLIP.
4. UNIT MUST BE SHIPPED IN DG APPROVED SHIPPING PACKAGE ONLY.

**CAUTION**  
DO NOT ATTEMPT TO MOVE DRIVE UNTIL ABOVE STEPS ARE TAKEN.

## PACKING



### TAILORING JUMPERING

HIGH DENSITY FILE INTERFACE PCB  
CPU RESIDENT

Ref DGC Dwg No 003-001578 Rev 00

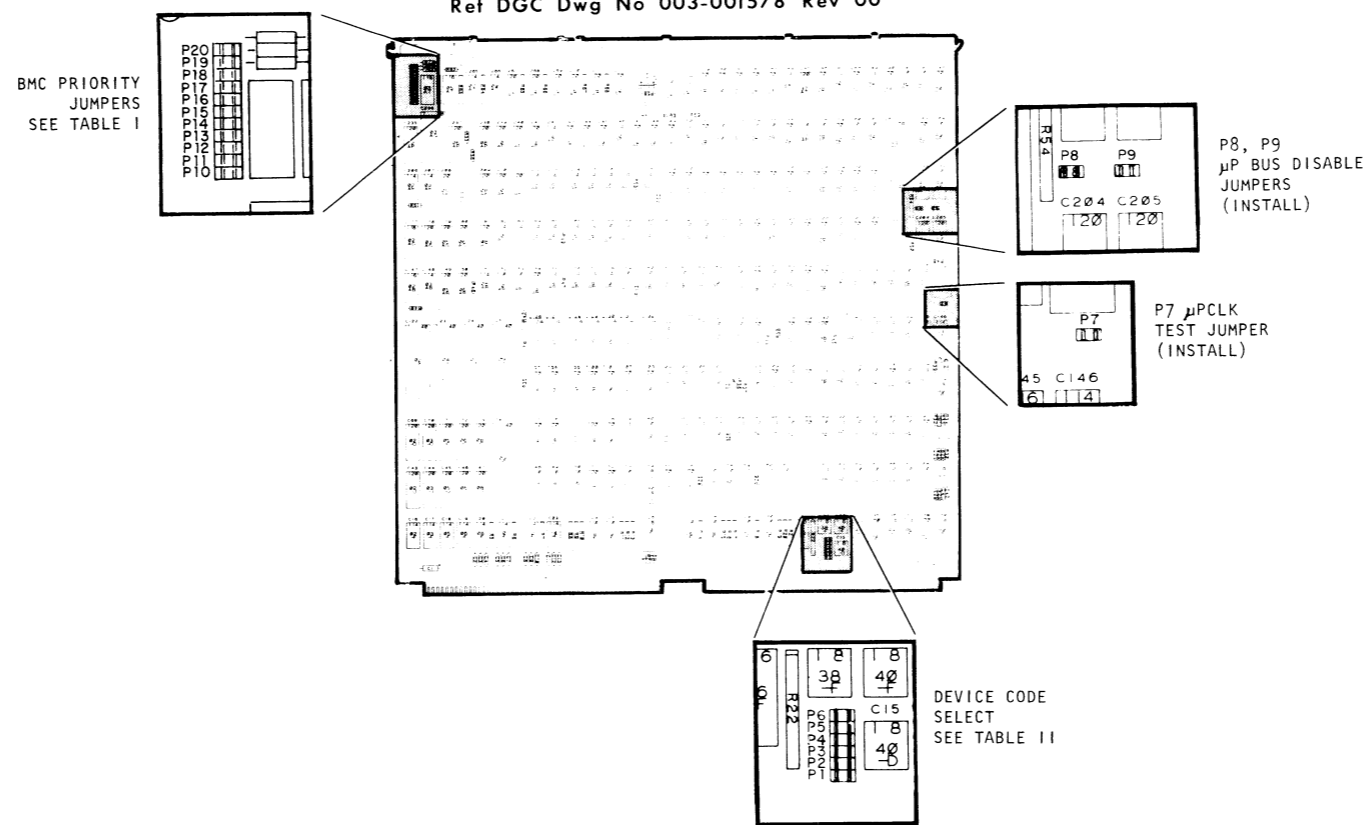


TABLE I BUS PRIORITY JUMPERS

PRIORITY	INSTALLED JUMPERS
(HIGHEST)	
HSCR 7	P17 P18 P19 P20
HSCR 6	P16 P18 P19
HSCR 5	P15 P18 P20
HSCR 4	P14 P18
HSCR 3	P13 P19 P20
HSCR 2	P12 P19
HSCR 1	P11 P20
(LOWEST)	HSCR 0 P10

TABLE II DEVICE CODE SELECT JUMPERS  
(JUMPER IN = 1, OUT = 0)

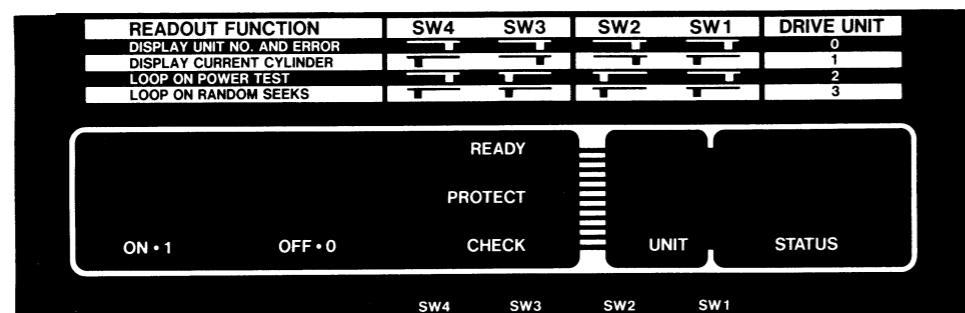
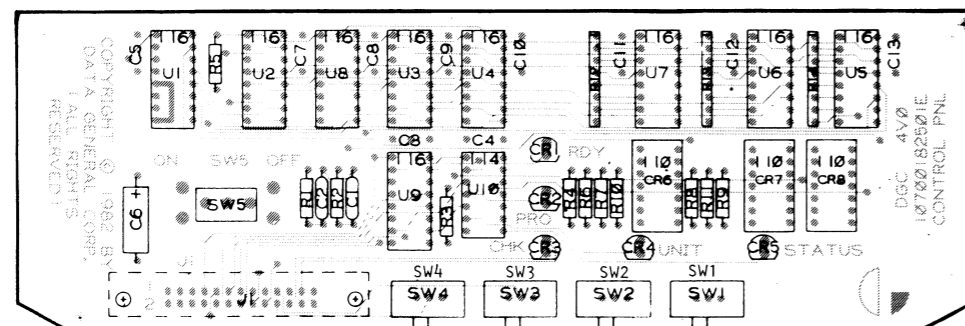
DEVICE CODE	MSB			LSB		
	P1	P2	P3	P4	P5	P6
PRIMARY = 24	0	1	0	1	0	0
SECONDARY = 64	1	1	0	1	0	0

OTHER DEVICE CODES ASSIGNED PER OCTAL ARRANGEMENT OF P1 → P6.

### TAILORING (CONT)

#### CONTROL PANEL

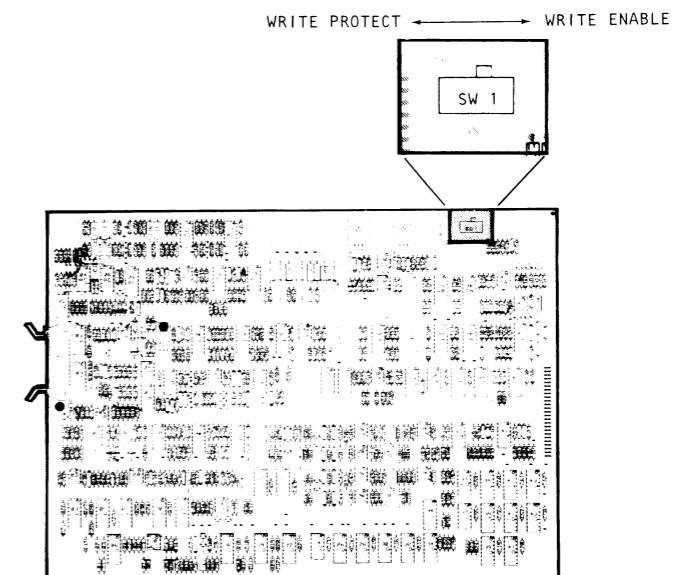
Ref DGC Dwg No 003-001825 Rev 01



READ OUT FUNCTIONALITY OF SWITCHES OBSERVED WITH FRONT PANEL REMOVED.  
 SELECT DISPLAY READOUT/FUNCTION PER SW4, SW3 SELECT UNIT NUMBER PER SW1, SW2.

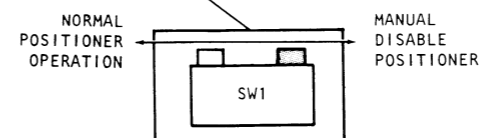
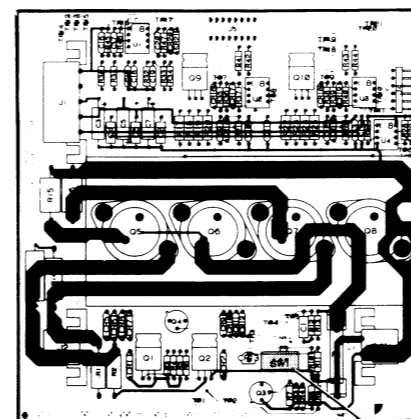
#### READ/WRITE

Ref DGC Dwg No 003-001821 Rev 02



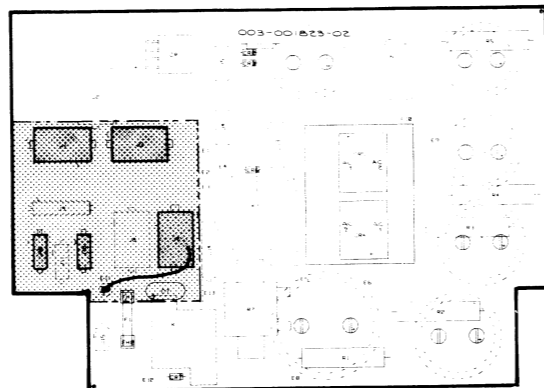
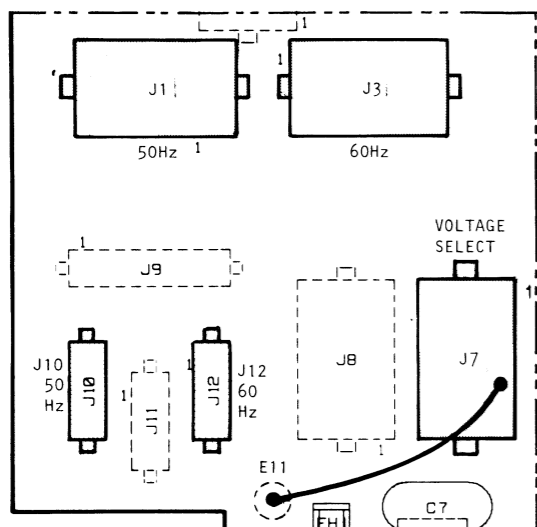
#### POWER AMPLIFIER

Ref DGC Dwg No 003-001827 Rev 01

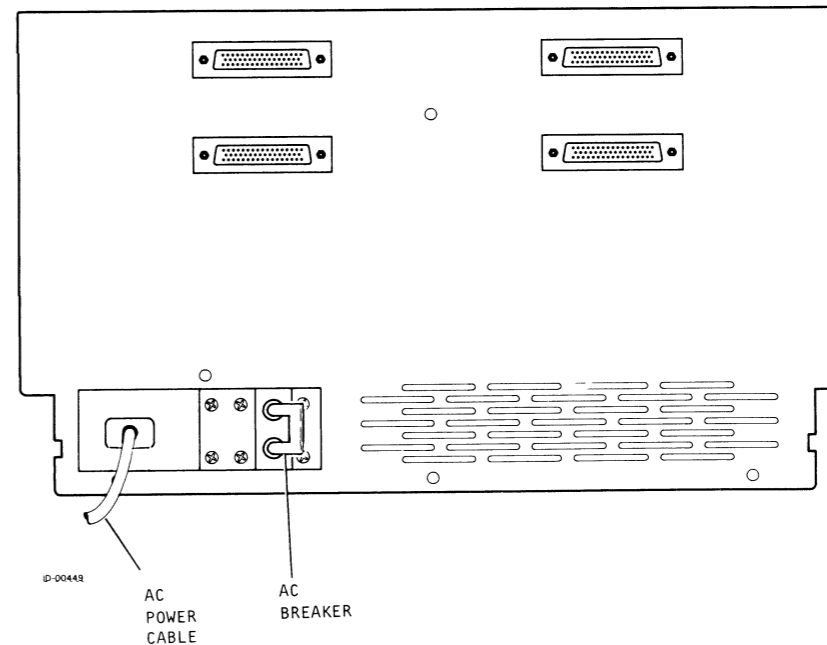


**TAILORING (CONT)**  
**JUMPERING**

**CHASSIS POWER**  
Ref DGC Dwg No 003-001823 Rev 02



**CHASSIS REAR VIEW**



**VOLTAGE / FREQUENCY TAILORING**

VOLTAGE SYSTEM	AC BRKR PART NO.	VOLTAGE JUMPER PLUG ASSY	LINE CORD P/N	FREQ STUNT PLUG (005-020121) POSITIONS ON 003-001823
240V/50Hz	113-000291	005-020194	109-000681	J1, J10
220V/50Hz	113-000291	005-020195	109-000681	J1, J10
100V/50Hz	113-000113	005-020197	109-000719	J1, J10
100V/60Hz	113-000113	005-020198	109-000719	J3, J12
120V/60Hz	113-000113	005-020196	109-000719	J3, J12
		NOTE 1		NOTE 2

NOTE 1: ON ALL JUMPER PLUG ASSEMBLIES, RING TONGUE PIGTAIL CONNECTS TO E11 ON 107-001823 PCB.

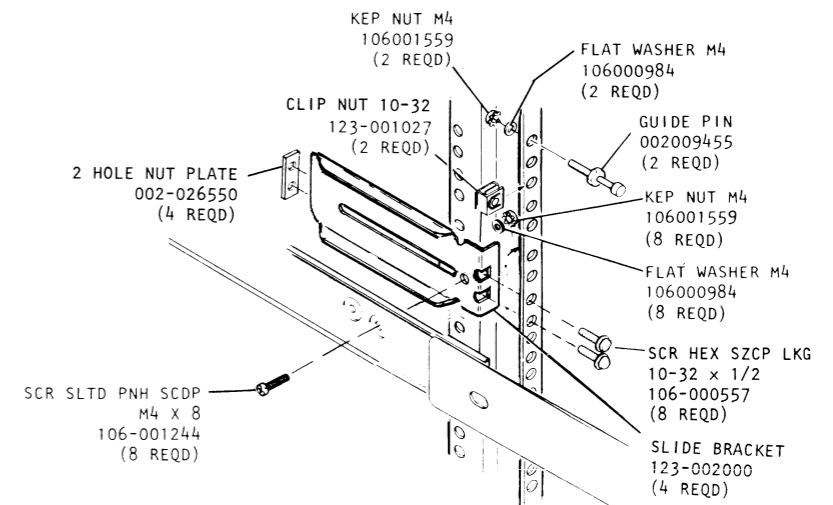
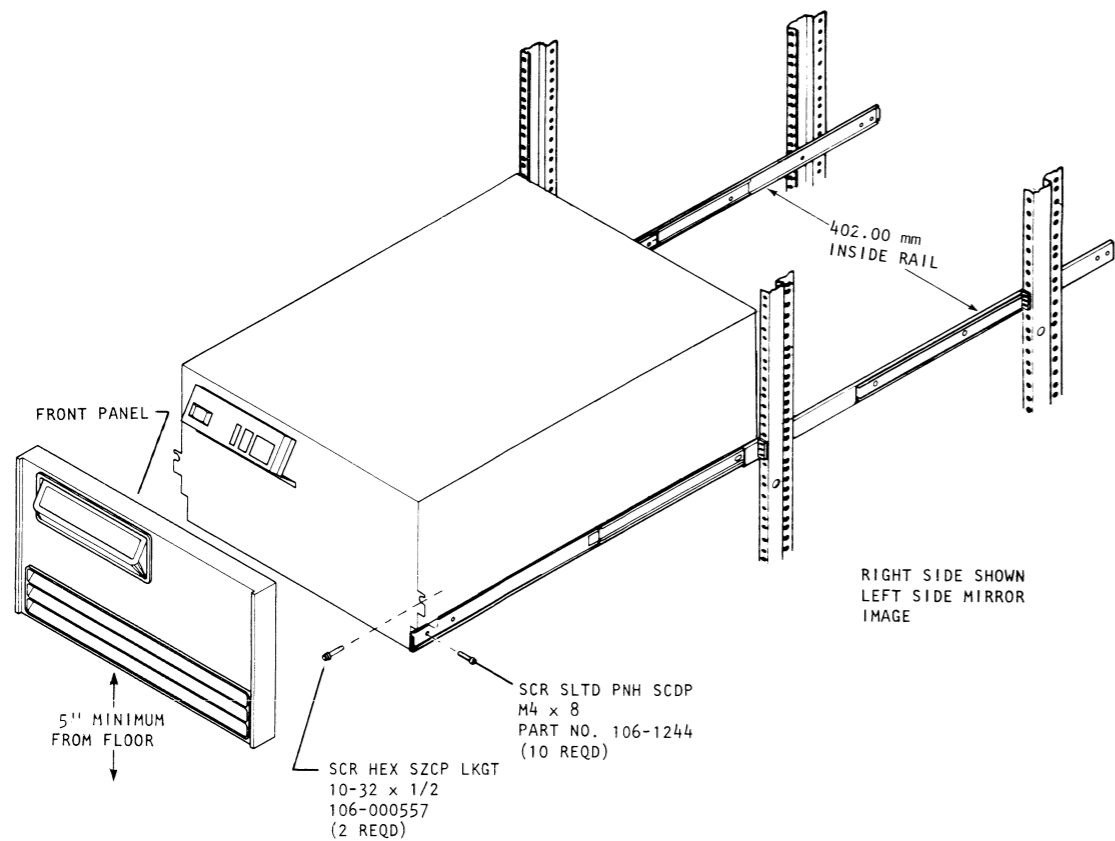
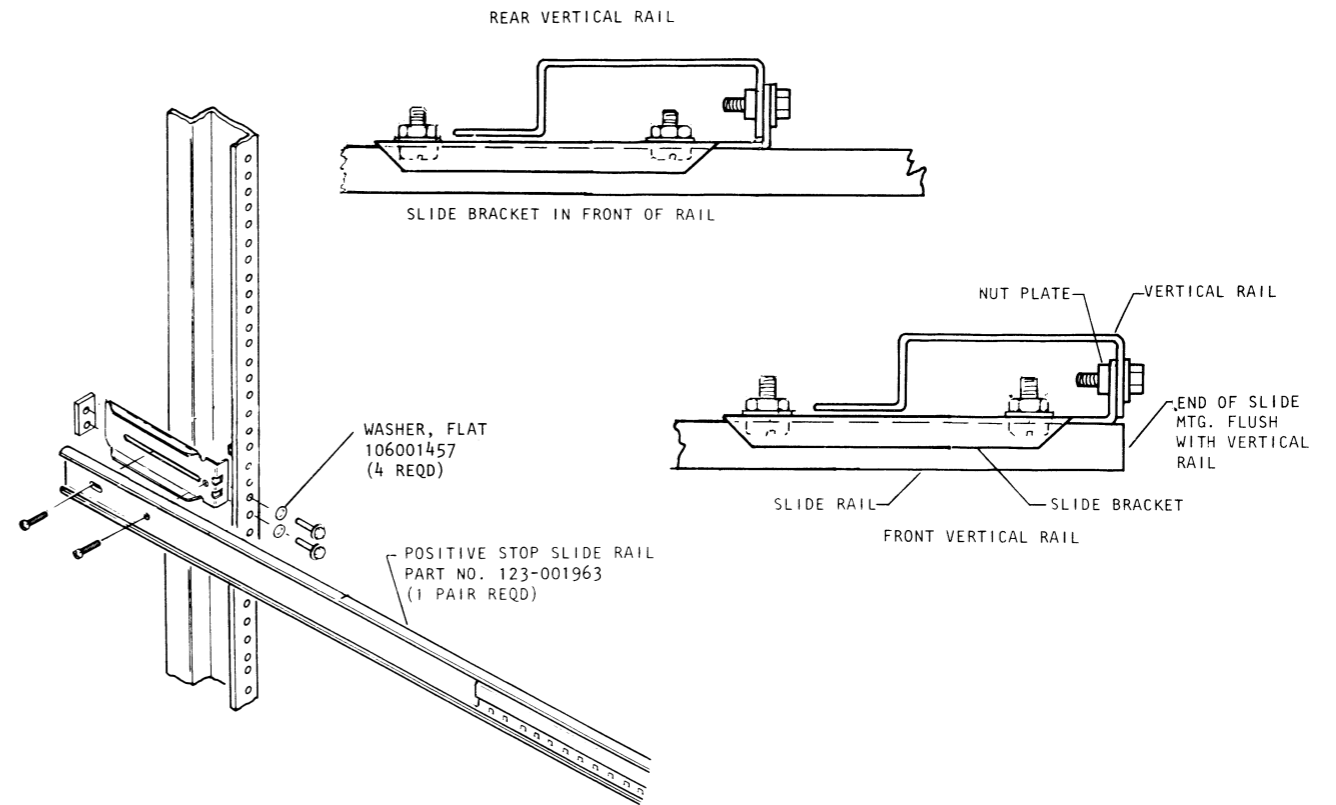
NOTE 2: FREQ STUNT PLUG ASSY 005-020121 CONSISTS OF TWO PLUGS, A 3-PIN AND A 15-PIN. THEY ARE ALWAYS ON THE PCB, AND THEIR POSITIONS CHANGE AS SHOWN FOR 50 OR 60 Hz.

# CABINET MOUNTING

HARDWARE MOUNTING KIT 005-017817

TORQUE REQUIREMENTS		
SCREW NO.	IN-LB	N-M
M4	13.27-15.04	1.5-1.70
10-32		40-45

**CAUTION**  
 TO REDUCE THE RISK OF PERSONAL INJURY AND DAMAGE TO EQUIPMENT, ACTIVATE STABILIZER BARS BEFORE EXTENDING EQUIPMENT FROM WITHIN CABINET.



RIGHT SIDE SHOWN;  
 LEFT SIDE MIRROR  
 IMAGE.

# SYSTEM INTERCONNECTIONS

6236

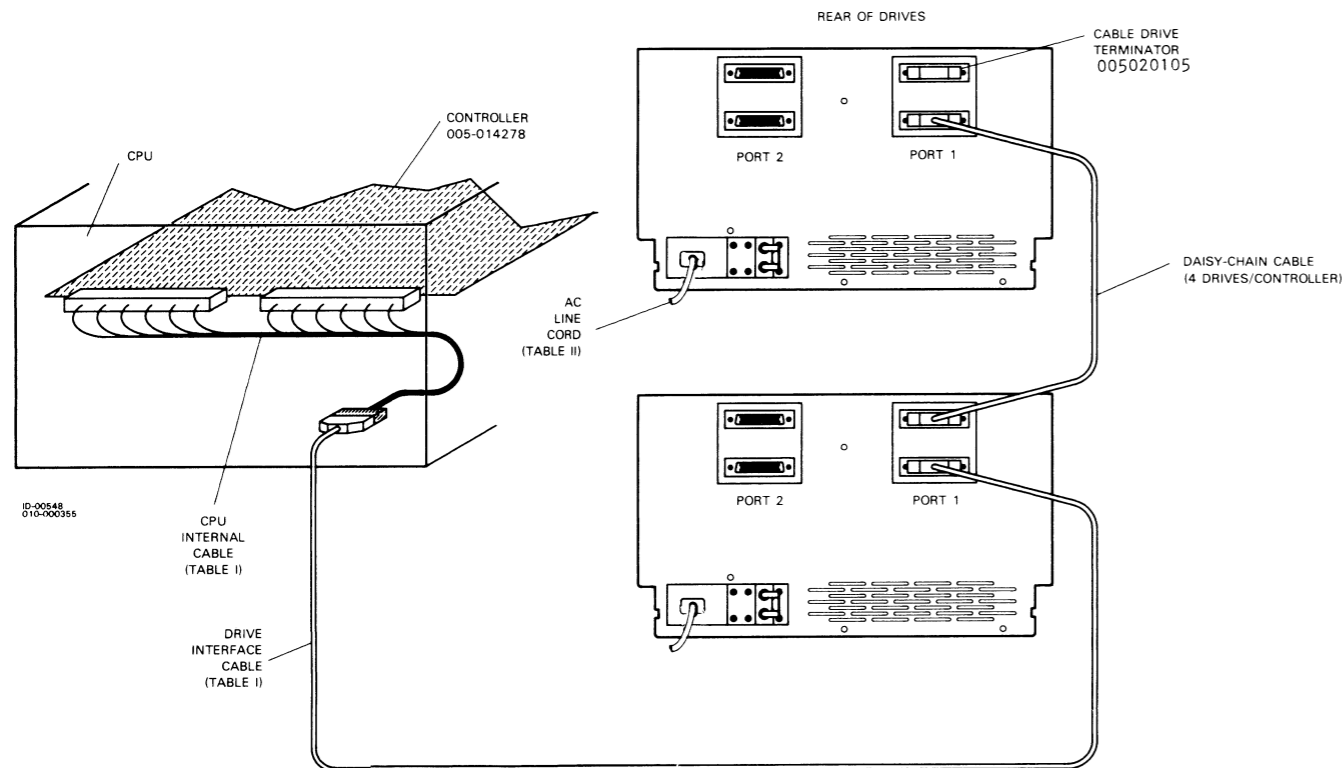
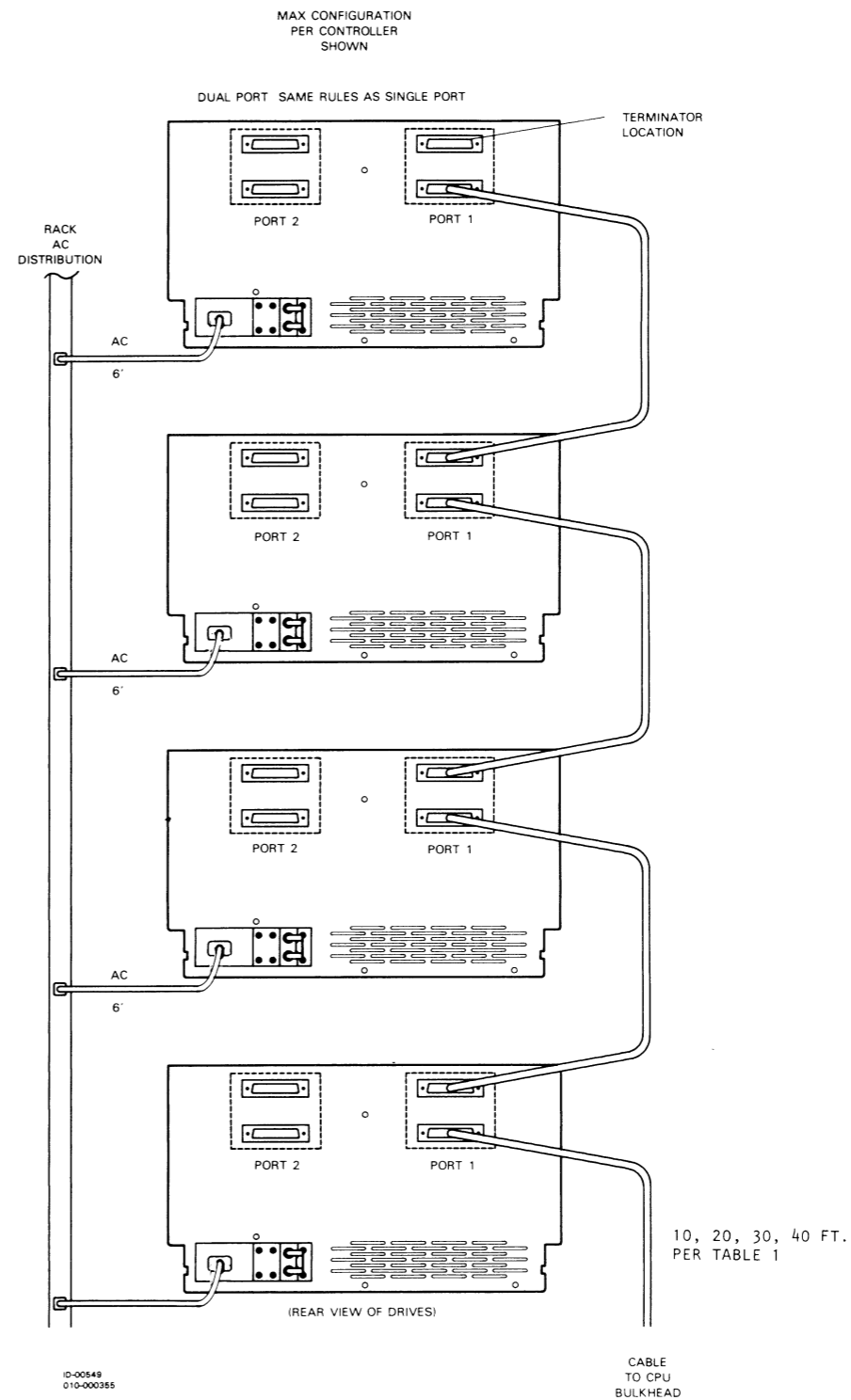


TABLE II - AC LINE CORD

100V/50 HZ	}	109-000719
100V/60 HZ		
120V/60 HZ		
220V/50 HZ	}	109-000681
240V/50 HZ		



- NOTES:
- SUM OF DEVICE AND INTERDEVICE CABLES NOT TO EXCEED 50 FT FOR EACH PORT.



# SYSTEM INTERCONNECTIONS

6237

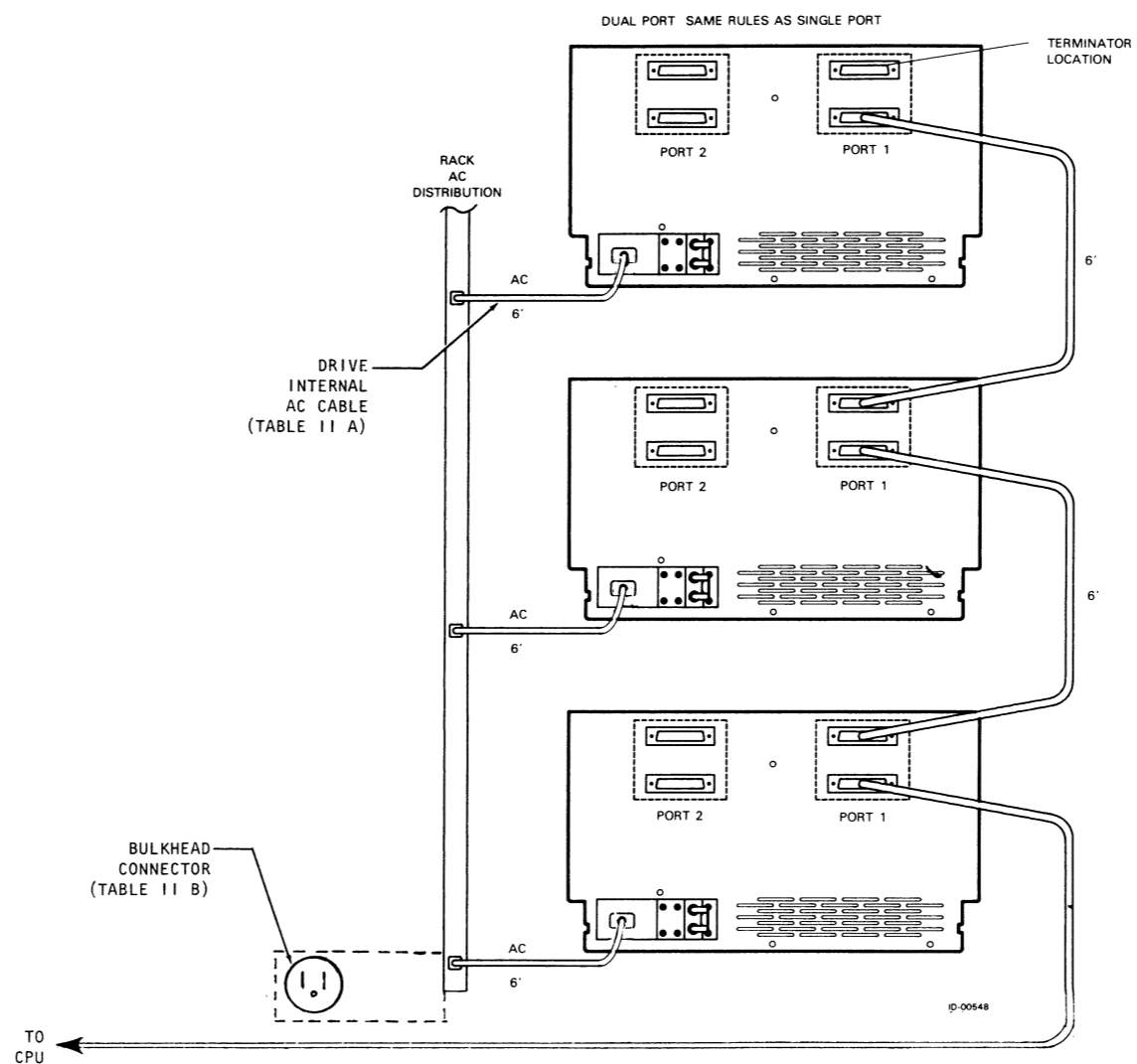


TABLE II A AC LINE CORD FOR INTERNAL ARGUS DRIVE

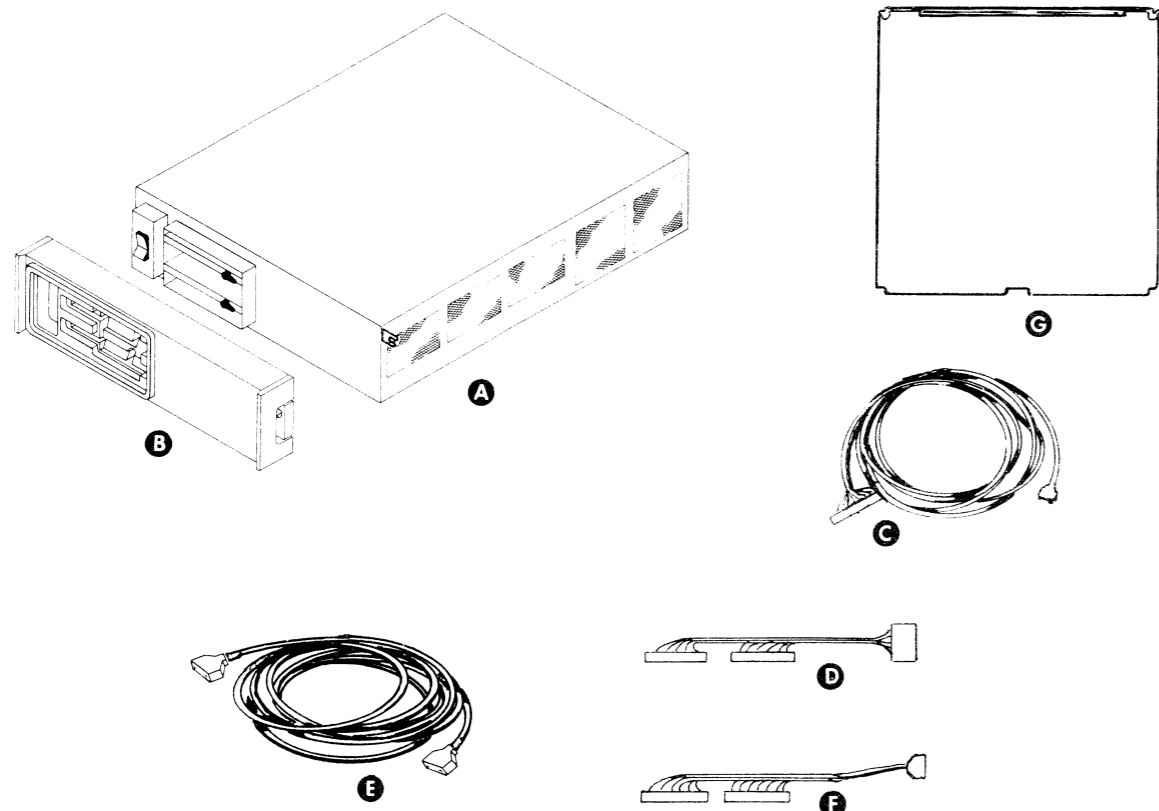
100V/50 HZ	} 109-000719
100V/60 HZ	
120V/60 HZ	
220V/50 HZ	} 109-000681
240V/50 HZ	

TABLE II B (EXTERNAL MATING CONNECTOR TYPE)

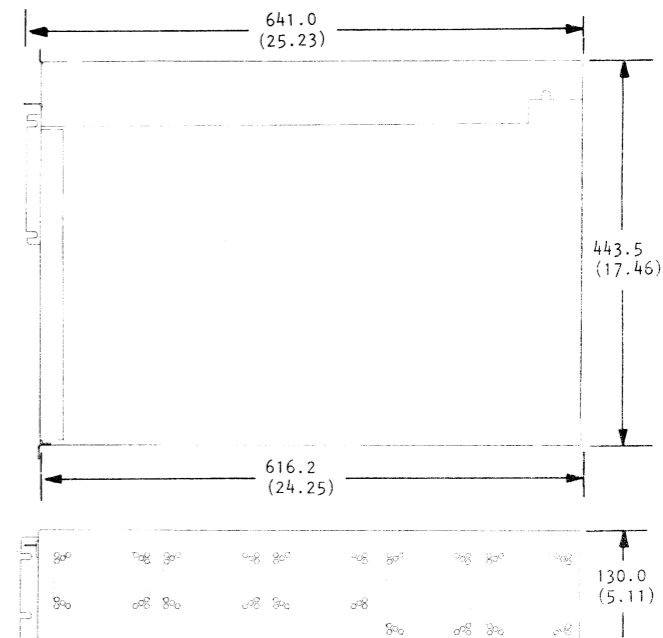
	2PH	3PH
WALL (NEMA)	L14-30R	L21-30R
DROP (NEMA)	L14-30P	L21-30P

NOTE:  
SUM OF DEVICE AND INTERDEVICE CABLES  
CANNOT EXCEED 50 FT FOR EACH PORT.

### INSTALLATION SPECIFICATIONS NOVA ECLIPSE - 4514



DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE



<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>
Millimeters	443.5	616.2	130.0
Inches	17.46	24.25	5.11

<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Rear</b>
Millimeters	133.3	133.3
inches	5.25	5.25

<b>WEIGHT:</b>	<b>Kilograms</b>	17.2
	<b>Pounds</b>	38.0

<b>HEAT OUTPUT:</b>	<b>Watts</b>	<b>BTU/hr</b>
	228	778.6

<b>OPERATING ENVIRONMENT:</b>	
Temperature (max)	Room 32°C 90°F Cabinet 43°C 109°F
Relative Humidity (max)	80% non-condensing
Altitude	304 to 2438 m (1000 to 8000 ft)

<b>STORAGE ENVIRONMENT:</b>	
Temperature Range	-40 TO 65°C (-40 TO 149°F)
Relative Humidity Range	20-BOX non-condensing
Altitude Range	7600 m (25,000 ft.)

<b>POWER REQUIREMENTS:</b>	
(Domestic)	
Voltage	120
Hz	60
Amp per Phase	.750
Phase	1
Startup Surge per Phase	15A
(Export)	
Voltage	100 100 220 240
Hz	60 50 50 50
Amp per Phase	.90 .90 .41 .38
Phase	1 1 1 1
Startup Surge per Phase	18 18 8.2 7.5

<b>CABLES:</b>			
Primary Power	<b>Length</b>	<b>Conn</b>	<b>Mating Conn</b>
Domestic 60Hz	2.3m (7.5 ft)	5-15P	5-15R
Export 50Hz	2.3m (7.5 ft)	6-15P	6-15P

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	RIGID DISK DRIVE	CABINET	
B	FRONT PANEL	CABINET	005-020695 BLU / 005-020696 BRN

**CABLE**

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
C	I/O CABLE	NON-COMPLIANT CPU CONTROLLER TO RIGID DISK DRIVE	10	254	
D	INTERNAL CABLE	NON-COMPLIANT CPU CONTROLLER TO DEVICE CONN			

**COMPLIANT CABLES**

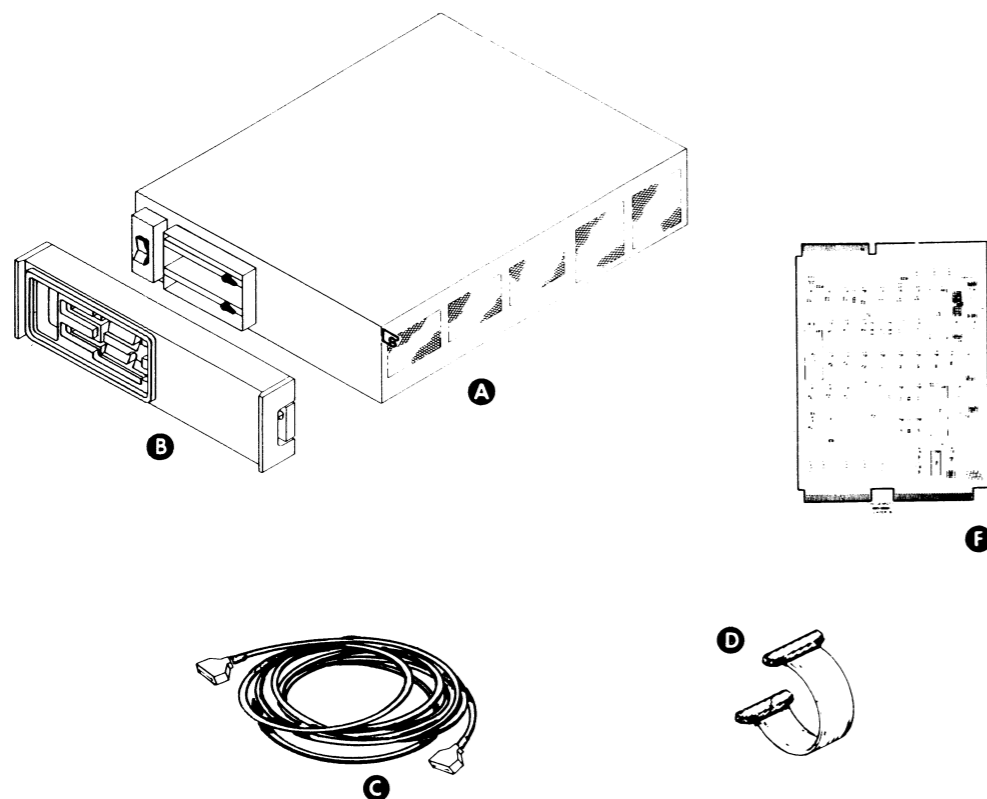
ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
E	I/O CABLE	COMPLIANT CPU TO DISK DRIVE	10	254	
F	INTERNAL CABLE	COMPLIANT CPU CONTROLLER TO DEVICE CONN			

ITEM	COMPONENT	CHASSIS	MAX DATA CHANNEL LATENCY (μS)	+5V CURRENT DRAW (AMPS)
G	CONTROLLER PCB	CPU	INFINITE	MAX

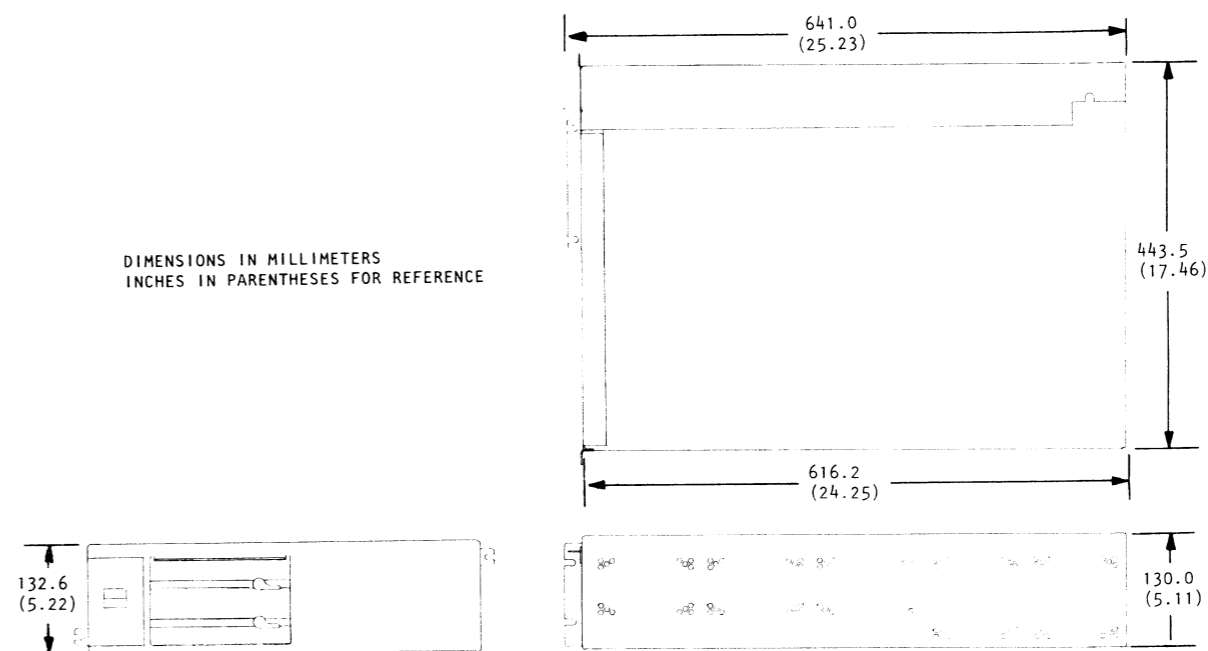
REFER TO DISK PRODUCT MASTER  
010-000331 FOR CONFIGURATION  
AND CABLE 005- NUMBERS.

# INSTALLATION SPECIFICATIONS

microNOVA - 4513



DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES FOR REFERENCE



**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	RIGID DISK DRIVE	CABINET	
B	FRONT PANEL	CABINET	005-020695 BLU / 005-020696 BRN

**CABLE**

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
C	I/O CABLE	COMP CPU TO DISK DRIVE	10	254	

**COMPLIANT CABLES**

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
D	INTERNAL CABLE	COMPLIANT CPU CONTROLLER TO DEVICE CONN			

ITEM	COMPONENT	CHASSIS	MAX DATA CHANNEL LATENCY (μS)	+5V CURRENT DRAW (AMPS)
E	CONTROLLER PCB	CPU	INFINITE	MAX

REFER TO DISK PRODUCT MASTER  
010-000344 FOR CONFIGURATION  
AND CABLE 005- NUMBERS.

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	443.5	616.2	130.0
Inches	17.46	24.25	5.11

**SERVICE CLEARANCES:**

	Front	Rear
Millimeters	133.3	133.3
Inches	5.25	5.25

**WEIGHT:**

Kilograms	17.2
Pounds	38.0

**HEAT OUTPUT:**

	Watts	BTU/hr
	228	778.6

**OPERATING ENVIRONMENT:**

Temperature (max)		
Room	32°C	90°F
Cabinet	43°C	109°F
Relative Humidity (max)	80% non-condensing	
Altitude	304 to 2438 m (1000 to 8000 ft)	

**STORAGE ENVIRONMENT:**

Temperature Range	-40 TO 65°C (-40 TO 149°F)	
Relative Humidity Range	20-BOX non-condensing	
Altitude Range	7600 m (25,000 ft.)	

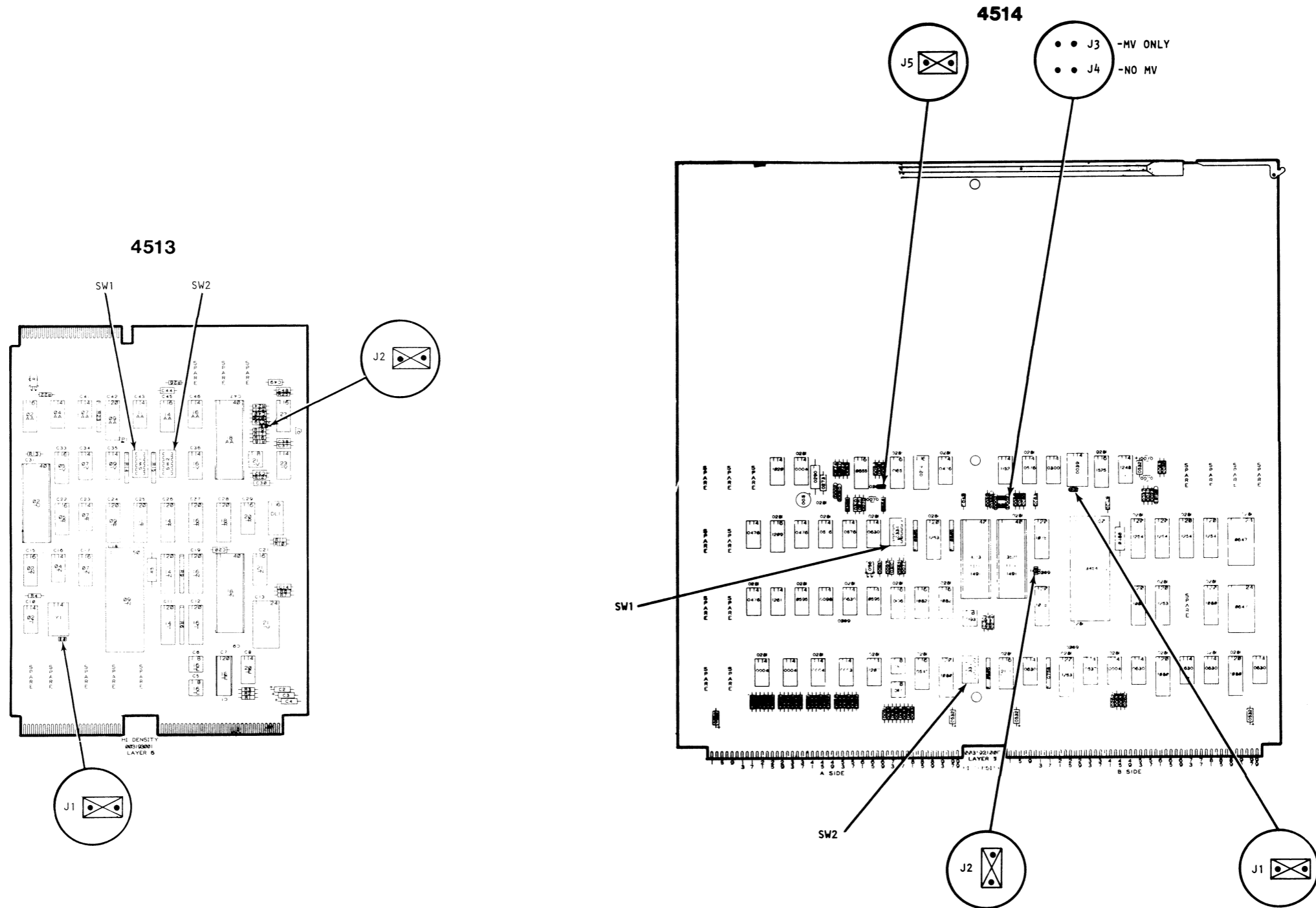
**POWER REQUIREMENTS:**

<b>(Domestic)</b>				
Voltage	120			
Hz	60			
Amp per Phase	.750			
Phase	1			
Startup Surge per Phase	15A			
<b>(Export)</b>				
Voltage	100	100	220	240
Hz	60	50	50	50
Amp per Phase	.90	.90	.41	.38
Phase	1	1	1	1
Startup Surge per Phase	18	18	8.2	7.5

**CABLES:**

Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	2.3m (7.5 ft)	5-15P	5-15R
Export 50Hz	2.3m (7.5 ft)	6-15P	6-15P

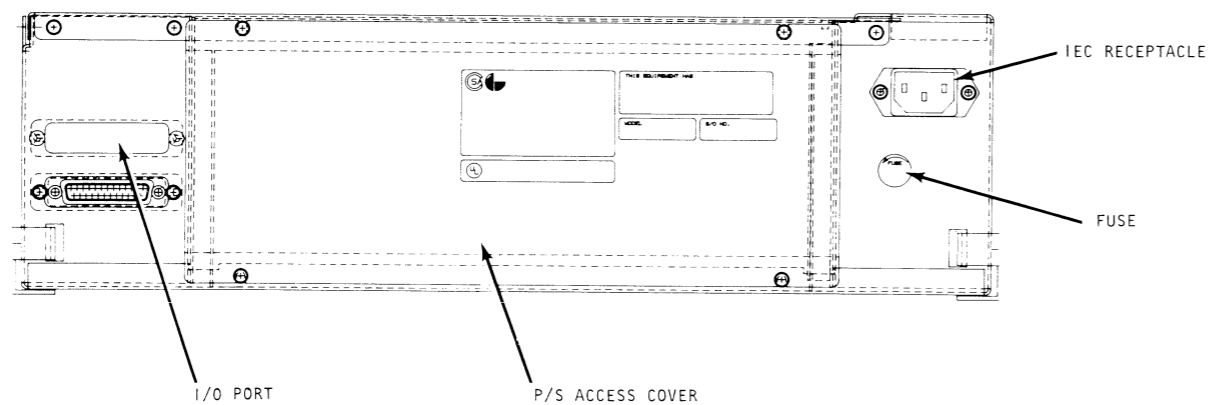
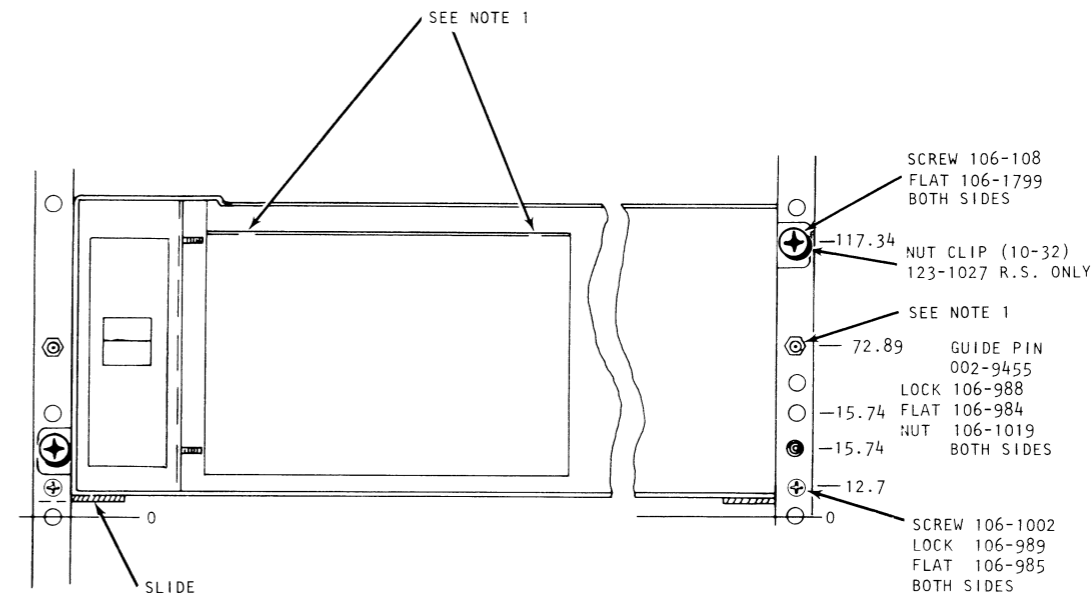
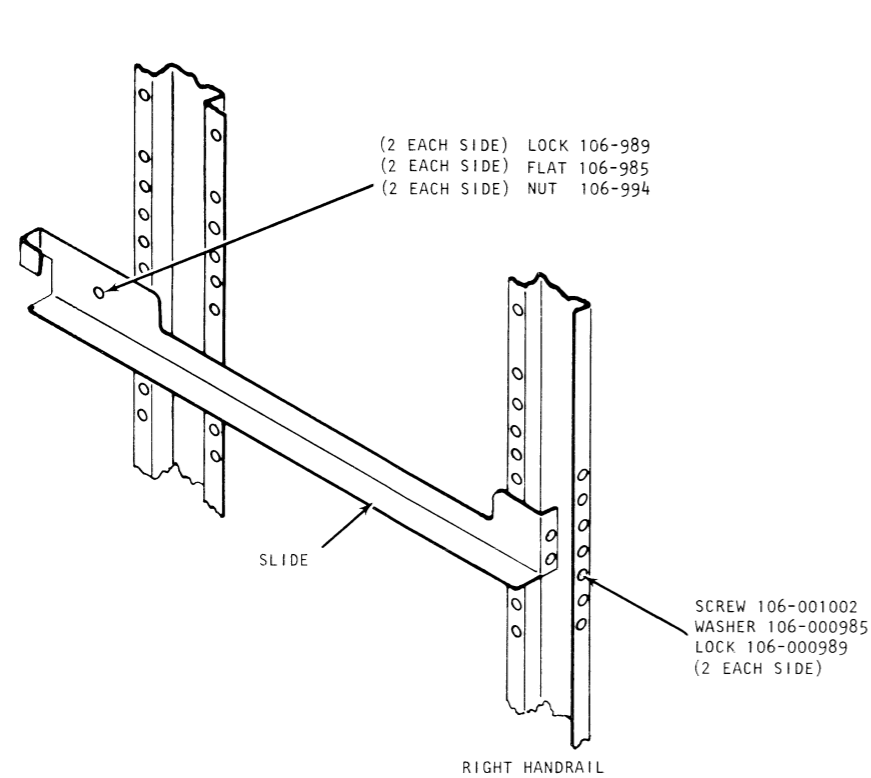
### TAILORING JUMPERING



FOR 003/1921 DEVICE CODE SELECTION - 20

P#	SW1	SW2
1	OFF	OFF
2	OFF	ON
3	OFF	OFF
4	OFF	OFF
5	OFF	OFF
6	OFF	OFF

### CABINET MOUNTING



NOTE:

1. PANEL ALIGNMENT:

AFTER UNIT HAS BEEN COMPLETELY ASSEMBLED TO RACK, INSERT FRONT PANEL CAREFULLY OVER FLOPPY LOAD LEVERS (LEVERS MUST BE IN VERTICAL POSITION). IF INTERFERENCE IS ENCOUNTERED, ADJUSTMENT OF DRIVE MODULE OR PANEL GUIDE PINS SHOULD BE MADE. DRIVE MODULE CAN MOVE IN AND OUT WITH RESPECT TO FRONT OF RACK. THIS MUST BE DONE SO THAT FLOPPY LOAD LOCK LEVERS CLEAR FRONT PANEL WHEN LEVERS ARE ROTATED TO HORIZONTAL POSITION. PANEL GUIDE PINS CAN BE ADJUSTED HORIZONTALLY AND VERTICALLY TO SUIT PANEL INTERFACE.

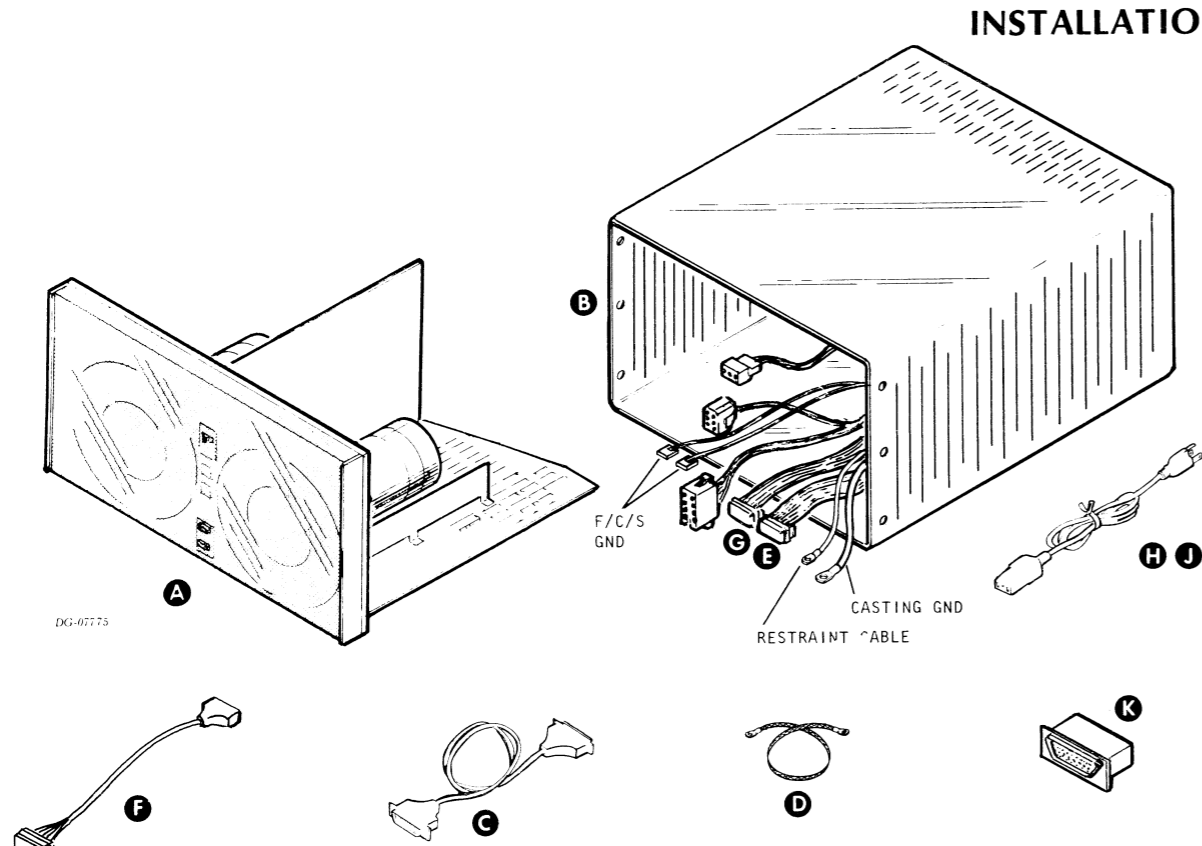


# **MAGNETIC TAPE STORAGE**





### INSTALLATION SPECIFICATIONS



\* MICRO/NOVA I/O CABLE LENGTHS VS RADIATED CHARACTERISTICS:  
 IN ORDER TO MAINTAIN THE SHIELDING EFFECTIVENESS OF THE MICRO/NOVA BUSS, IT IS RECOMMENDED THAT THE TOTAL BUSS LENGTH BE NO LONGER THAN 15 FEET BETWEEN DEVICES. THE CABLE MUST BE WELL GROUNDED AT BOTH ENDS.

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TAPE TRANSPORT	CABINET	005-018550 005-018546
B	ENCLOSURE ASSY	CABINET	005-018553

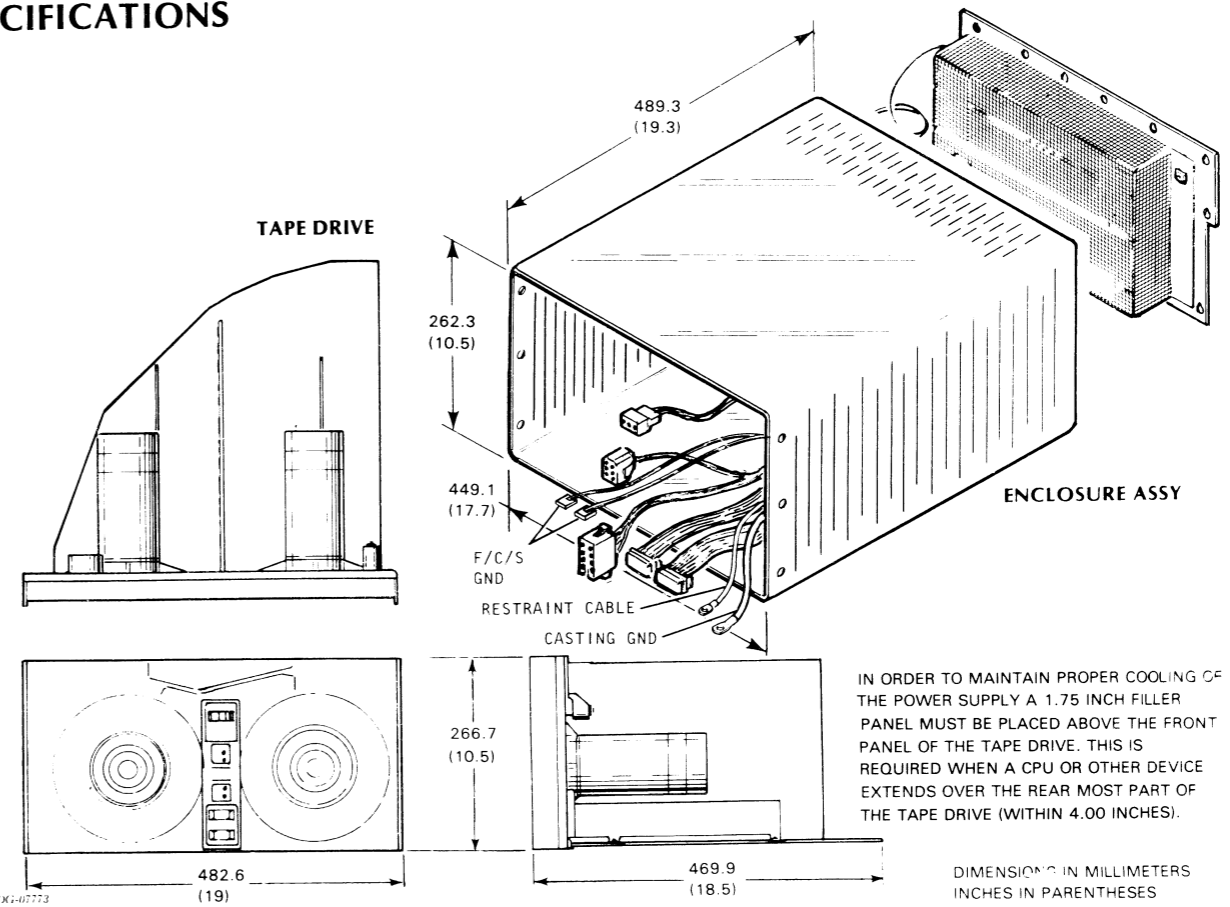
**CABLES**

ITEM	COMPONENT	CONNECTING	MAX LENGTH		NOTES
			FT	M	
* C	MICRONOVA I/O CABLE	CPU AND TRANSPORT	/	/	
D	GROUND BRAID	CPU AND POWER SUPPLY	/	/	
E	I/O INT. CABLE	TRANSPORT F/C/S PCB AND ENCLOSURE I/O IN	/	/	
F	MICRONOVA I/O CABLE	CPU AND BACKPANEL	/	/	

MAXIMUM ACCUMULATIVE BUSS LENGTH IS 100 FT. /30M  
 SEE 010-000344 FOR CONFIGURATION AND 005# S.

**TERMINATOR**

ITEM	COMPONENT	LOCATION	NOTES
G	I/O INT. DAISY CHAIN	TRANSPORT F/C/S PCB	
H	AC CORD SET LOW PWR	ENCLOSURE, REAR	109-000719
J	AC CORD SET HI PWR	ENCLOSURE, REAR	109-000681
K	TERMINATOR	ENCLOSURE, REAR	005-018508



IN ORDER TO MAINTAIN PROPER COOLING OF THE POWER SUPPLY A 1.75 INCH FILLER PANEL MUST BE PLACED ABOVE THE FRONT PANEL OF THE TAPE DRIVE. THIS IS REQUIRED WHEN A CPU OR OTHER DEVICE EXTENDS OVER THE REAR MOST PART OF THE TAPE DRIVE (WITHIN 4.00 INCHES).

DIMENSIONS IN MILLIMETERS  
 INCHES IN PARENTHESES

DIMENSIONS:	Width	Depth	Height
	Enclosure		
Millimeters	449.1	489.3	262.2
Inches	17.7	19.3	10.3
Drive			
Millimeters	482.6	469.9	266.7
Inches	19	18.5	10.5
<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Right</b>	<b>Left</b>
Millimeters	1219.2	482.6	482.6
Inches	48	19	19
<b>WEIGHT:</b>	<b>Enclosure assy</b>		<b>Drive</b>
Kilograms	8.2		12.7
Pounds	18		28
<b>HEAT OUTPUT:</b>	<b>Watts</b>	<b>BTU/hr</b>	
	144/220	491/750 AVE PEAK	

POWER REQUIREMENTS:	
(Domestic)	
Voltage	100/120
Hz	50/60
Max Amp per Phase	2
Phase	1
Startup Surge per Phase (Export)	35.0
Voltage	220/240
Hz	50/60
Max Amp per Phase	1.5
Phase	1
Startup Surge per Phase	35.0

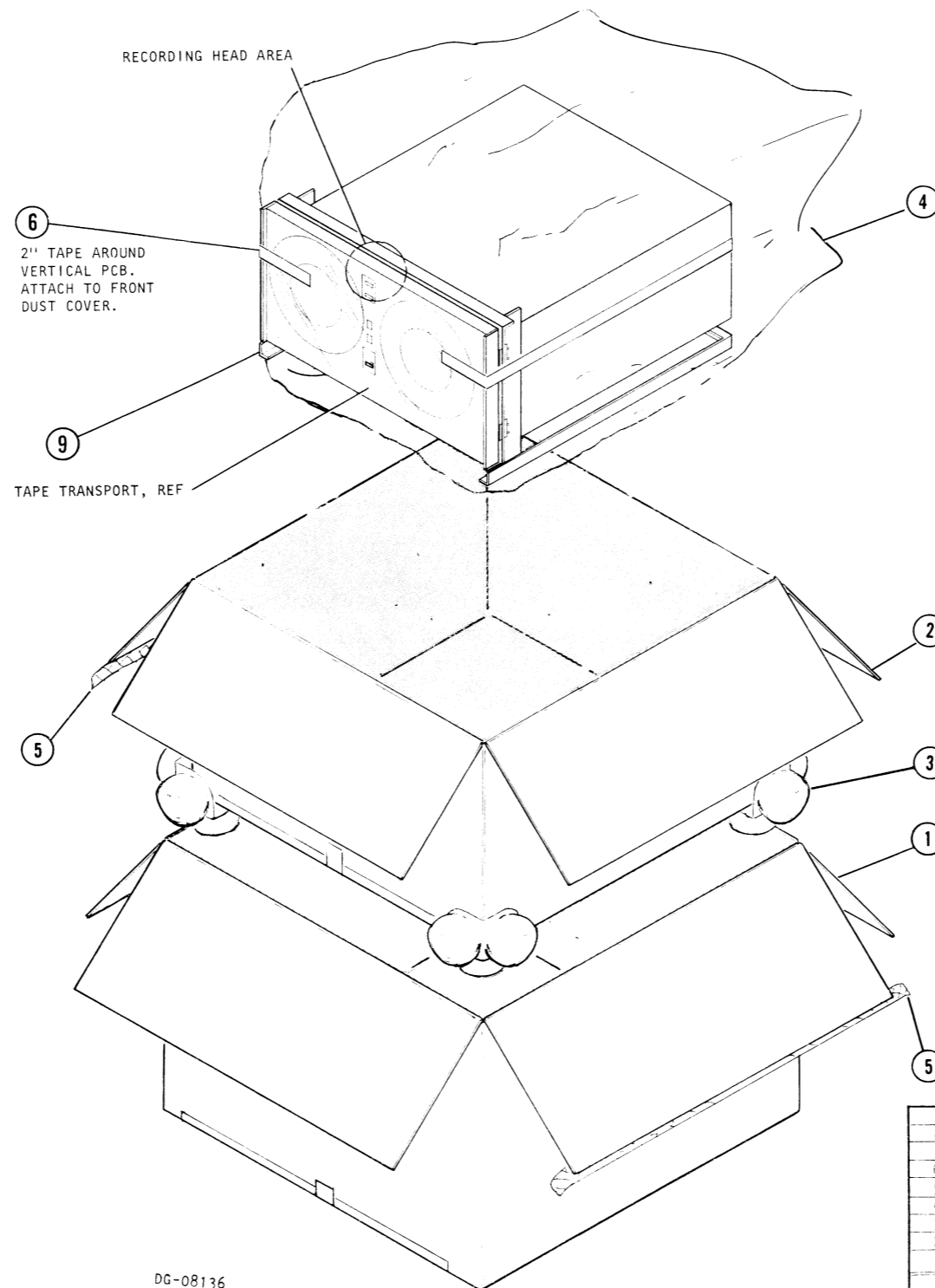
CABLES:			
Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	2.3 (7.5)	5-15P	5-15R
Export 50Hz	2.3 (7.5)	6-15P	6-15R

OPERATING ENVIRONMENT:	
Temperature (max)	
Internal cabinet temp	43°C 109.4°F
Relative Humidity (max)	30% to 80% non-condensing
Altitude	-463 to +3048m (-1500 to +10000ft)
External Ambient 38°C (100°F) max	

**PREFERRED LOCATION:**  
 Middle of cabinet 10-20  
 Short cabinet - Top

**PACKAGING**

**CAUTION**  
 WHEN REMOVING ASSEMBLY FROM SHIPPING/PACKAGING  
 CONTAINER, DO NOT HANDLE ASSEMBLY BY OR NEAR THE  
 RECORDING HEAD AREA.



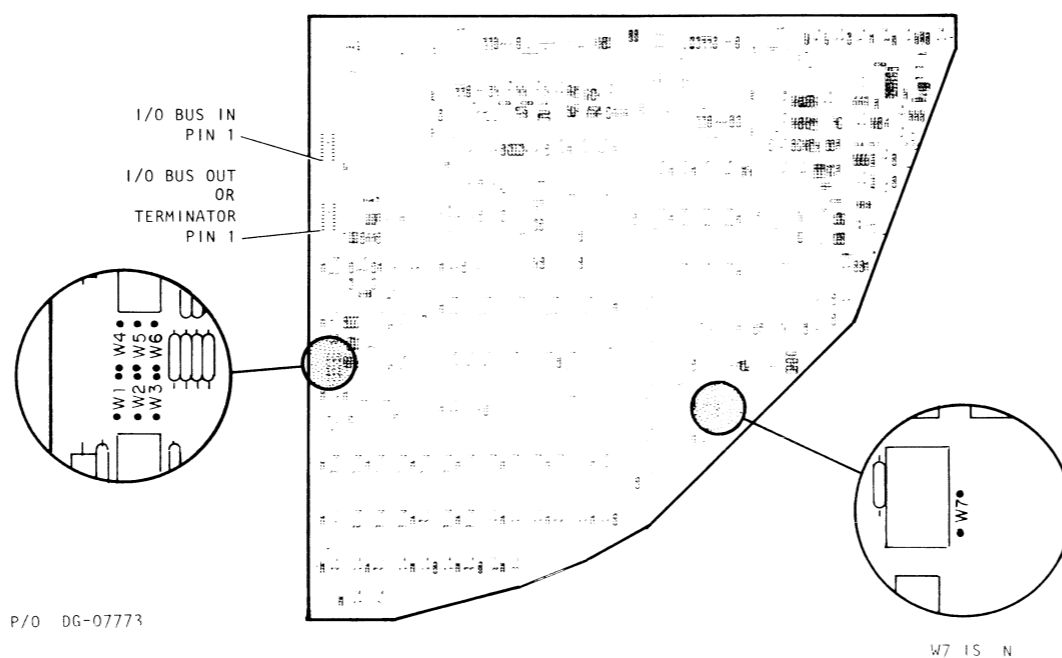
DG-08136

9	1	TAPE DRIVE FCC BUILD/SHIP FRAME	002-022939
8	1	DGC SHIPPING LABEL	129-000030
7	1	ENVELOPE, PACKING LIST, C-16	129-000043
6	3 FT	2" SEALING TAPE, P-166	129-000370
5	24 FT	3" SEALING TAPE	129-000027
4	1	POLY BAG 24.5 x 24.5 x 44.5	129-000611
3	8	CORNER CUSHIONS	129-000609
2	1	RSC 28.25 x 28.25 x 24.5	129-000608
1	1	RSC 24 x 24 x 20 FOL TOP	129-000607
ITEM	QTY	DESCRIPTION	PART NUMBER

# TAILORING

## FORMATTER/CONTROLLER/SERVO PCB

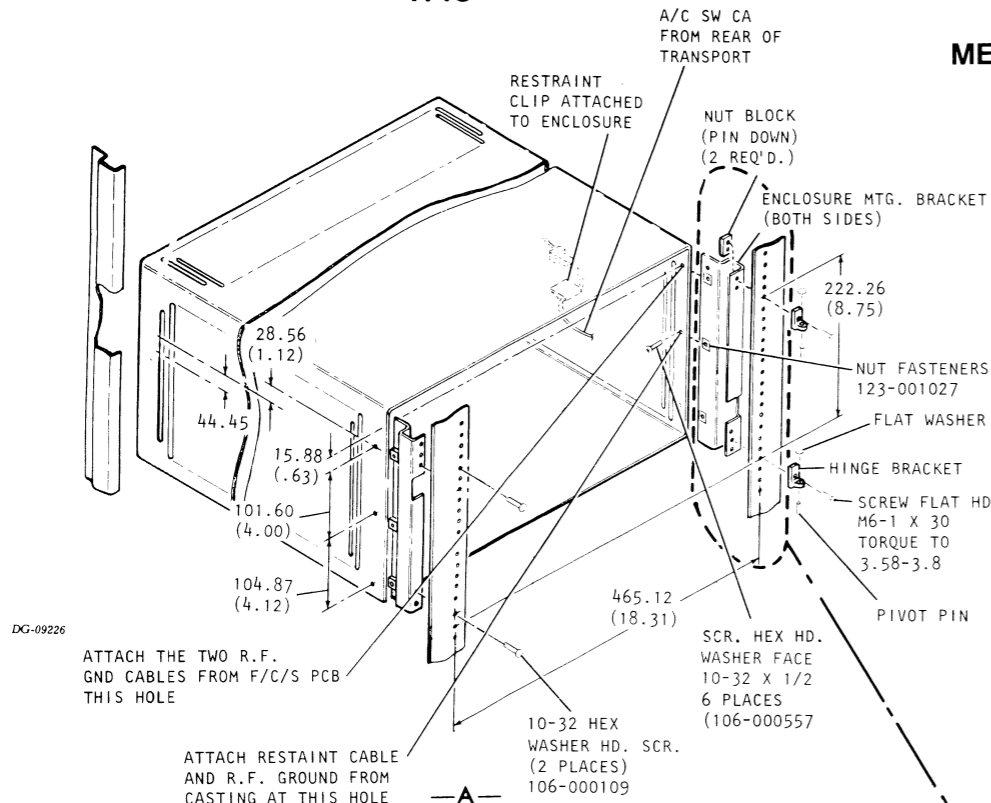
Ref DGC Dwg No 003-001621 Rev 00



DEVICE SELECT JUMPERS		DEVICE CODE 22	DEVICE CODE 62
W4	MSB	OUT	IN
W5		IN	IN
W6		OUT	OUT
W1		OUT	OUT
W2		IN	IN
W3	LSB	OUT	OUT

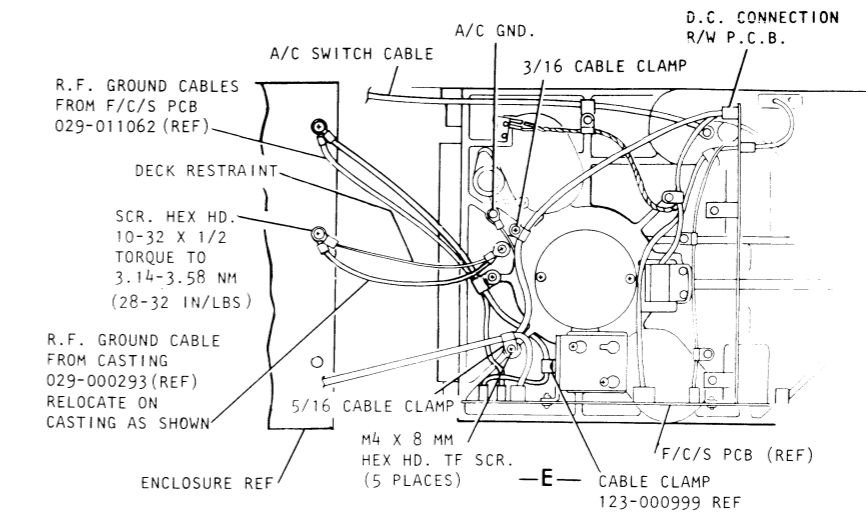
**RACK MOUNTING  
STANDARD CABINET 1144  
HALF BAY CABINET 1144  
METER-HIGH CABINET 1605, 1606**

**1148**



- TOOLS REQUIRED**
1. 12" SCALE
  2. HEX DRIVER, BALL TYPE, 3mm
  3. DYKES
  4. PLIERS
  5. HEX DRIVER, 4mm
  6. FLAT BLADE SCREW DRIVER
  7. 5/16 SOCKET
  8. TORQUE WRENCH

**CAUTION**  
**DO NOT HANDLE TAPE DECK BY OR NEAR THE RECORDING HEAD AREA WHEN INSTALLING TAPE DECK ONTO PIVOT PINS.**

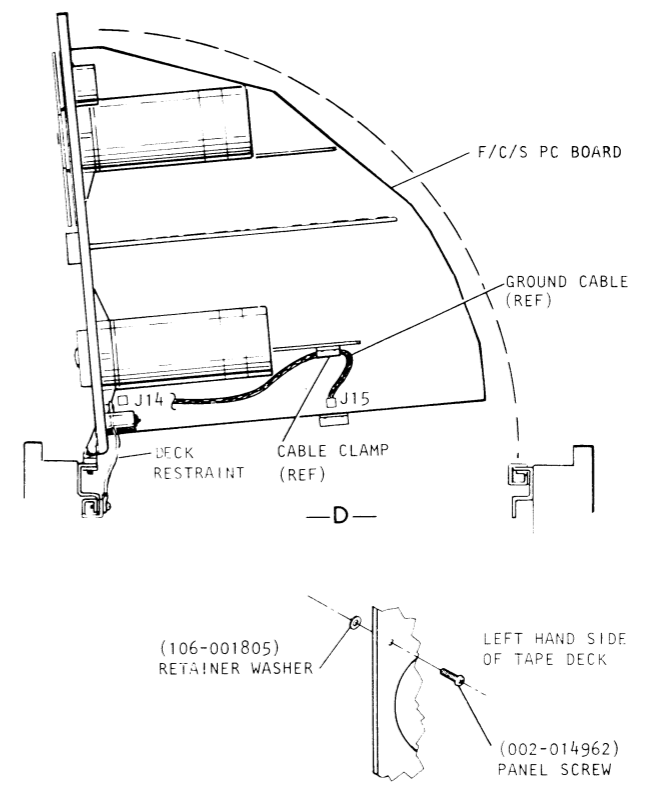
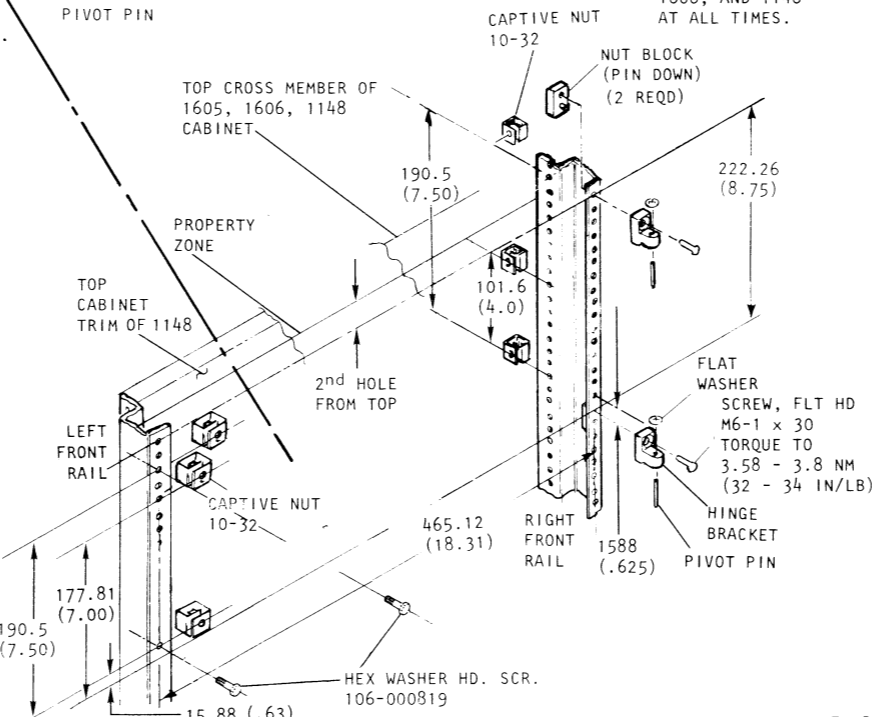
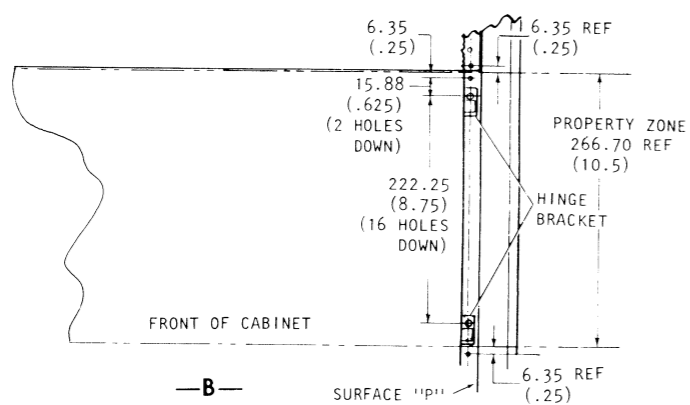


TAPE DRIVE MUST BE MOUNTED IN UPPERMOST PORTION OF CABINETS 1605, 1606, AND 1148 AT ALL TIMES.

DG-09226

ATTACH THE TWO R.F. GND CABLES FROM F/C/S PCB THIS HOLE

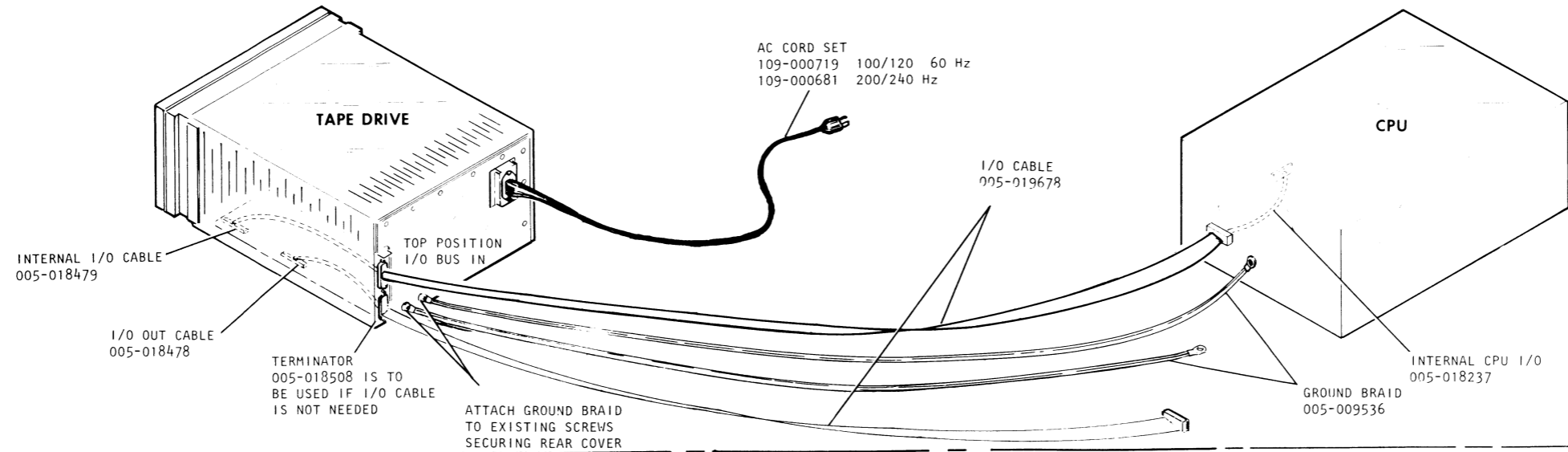
ATTACH RESTRAINT CABLE AND R.F. GROUND FROM CASTING AT THIS HOLE



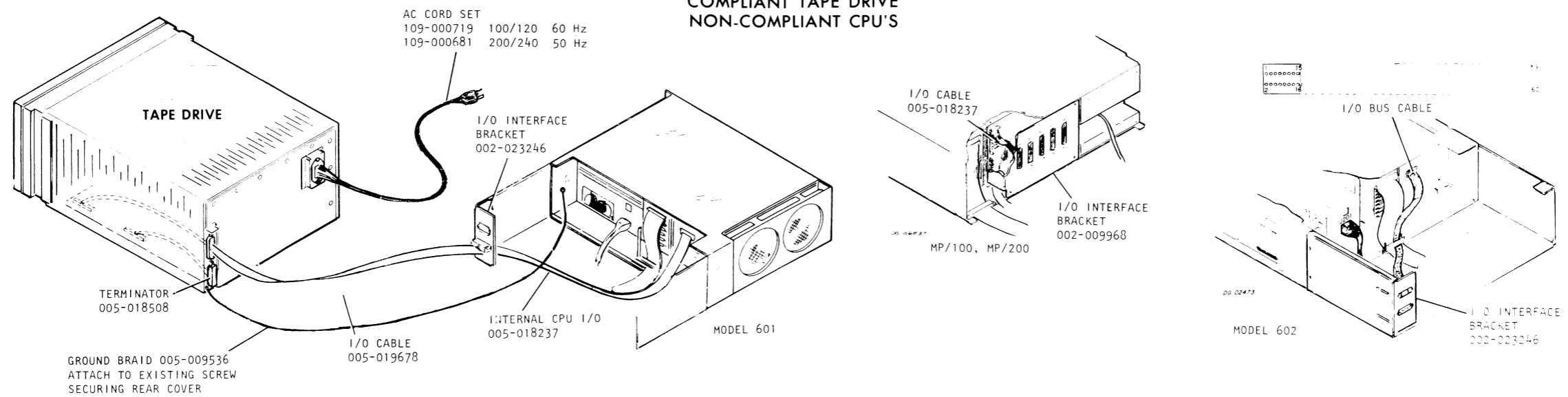
**PROCEDURE**

1. REMOVE HARDWARE MOUNTING KIT FROM SHIPPING CONTAINER.
- 2A. PROCEDURE FOR LOW BAY 1148 AND METER HIGH 1065 & 1066 CABINETS: INSTALL BRACKET MOUNTING ENCLOSURE (002-022916) TWO PLACES IN FRONT RAILS OF CABINET. ATTACH BRACKET TO LEFT HAND SIDE OF CABINET USING HEX HEAD WASHER SCREWS (106-000819) AND NUT FASTENERS (7 PLS) (123-001027). ATTACH BRACKET TO RIGHT HAND SIDE OF CABINET USING NUT PLATE ASSY (002-012993), HINGE BRACKET (002-011335) AND FLAT HEAD SCREWS (106-001800), TORQUE TO 3.58-3.8 N/M (31.63 IN/LBS). ATTACH NUT FASTENERS (123-001027) SIX PLACES TO BRACKET MOUNTING ENCLOSURE AND ONE PLACE TO FRONT LEFT HAND RAIL OF CABINET. CONTINUE TO NO. 3 FOR FURTHER INSTRUCTIONS.
- 2B. PROCEDURE FOR 1144 CABINET (DISCARD BRACKET MOUNTING ENCLOSURE 002-022916). INSTALL NUT FASTENERS (123-001027) ONTO RAILS IN CABINET 7 PLACES. INSTALL HINGE BRACKET (002-011335) ONTO RIGHT SIDE RAILS OF CABINET USING NUT BLOCK ASSY (002-012993) AND FLAT HEAD SCREW (106-001800) TORQUE TO 3.58-3.80 NEWTON METERS, (31.68-33.63 IN/LBS). INSTALL HEX WASHER HEAD SCREW (106-000819), FLAT WASHER (106-000688), LOCK WASHER (106-000629) AND 10-32 NUT (106-000259) TO LEFT HAND RAIL OF CABINET. TORQUE TO 3.58-3.80 NEWTON METERS, (31.68-33.63 IN/LBS).
3. SLIDE ENCLOSURE ASSY INTO POSITION. INSTALL SIX 10-32 HEX WASHER HEAD SCREWS (106-000557) IN FRONT MOUNTING HOLES, AND TIGHTEN SLIGHTLY. SLIDE ENCLOSURE ASSY TOWARDS FRONT UNTIL 10-32 SCREWS STOP FORWARD MOVEMENT. LEVEL BACK OF ENCLOSURE TO ENSURE THAT IT FALLS WITHIN THE 266.7 (10.5") PROPERTY ZONE. TIGHTEN ALL SCREWS TO (28-32 IN/LBS), 3.14-3.58 N/M.
4. INSTALL PIVOT PIN (002-011619) INTO LOWER RIGHT HINGE BRACKET FOR ABOUT 1/8" OF THREAD ENGAGEMENT. INSTALL WASHER (106-001441) ONTO PIVOT PIN.
5. ASSEMBLE TAPE DECK ONTO PIVOT PIN. (TAPE DECK MUST BE ORIENTED AS SHOWN IN DETAIL -D-. SWING TAPE DECK INTO CLOSED POSITION, SECURE TAPE DECK TO LEFT SIDE OF CABINET USING PANEL SCREW AND INSTALL WASHER 106-1805. SLIDE WASHER (106-000141) BETWEEN CASTING AND HINGE BRACKET TOP RIGHT AND INSTALL PIVOT PIN TO HINGE BRACKET. ADJUST TOP RIGHT AND BOTTOM RIGHT PIVOT PINS SO THERE IS ADEQUATE CLEARANCE ON EITHER EQUIPMENT OR FILLER PANELS BELOW THE CASTING OR FILLER PANELS ABOVE THE CASTING.
6. ATTACH RESTRAINT CABLE AND R.F. GROUND CABLE FROM CASTING, USING MAX 8MM SCREW AND 10-32 SCREW, TO CAPTIVE NUT LOCATED AT TOP OF ENCLOSURE AND FRONT RAIL ASSY (DETAIL -E-).
7. PLUG D.C. CABLE INTO R/W PCB AND F/C/S PCB (SEE DETAIL -D & E-) ATTACH CABLE TO CASTING (JUST ABOVE F/C/S CONNECTOR) USING 5/16 CABLE CLAMP AND A M4 X 8MM SCREW. ATTACH CABLE LEADING TO R/W PCB CABLE CLAMP AND M4 X 8MM SCREW. ATTACH R.F. GND CABLES TO F/C/S PCB AT J14 & 15 AND TO CAPTIVE NUT AT TOP RIGHT SIDE OF ENCLOSURE (DETAIL -E-).
8. CONNECT A/C SWITCH CABLE TO CABLE CONNECTION LOCATED AT TOP OF ENCLOSURE ASSY. SEE FIGURE -A-.
9. INSTALL CABLES AS SHOWN AND DRESS ACCORDINGLY SO FORMATTER/CONTROLLER/SERVO PCB WILL SWING FREELY AND NOT CATCH OR BIND WHEN TAPE DECK IS SWUNG OPEN.
10. A/C AND R/F GROUND MUST BE INSTALLED PRIOR TO STARTING UP OF TAPE DECK UNIT. NOTE: ALWAYS DISCONNECT CASTING RESTRAINT CABLE & R.F. GROUND CABLE AT ENCLOSURE END TO AVOID STRIPPING THREADS ON CASTING. (DETAIL -E-)
11. REPLACE FILLER PANEL ABOVE TAPE DECK. ADJUST PIVOT PINS USING 3MM BALL POINT DRIVER SO THERE IS MINIMUM CLEARANCE BETWEEN TOP OF TAPE DECK & BOTTOM OF FILLER PANEL (APPROX 1/8").
12. REPLACE BOTTOM FILLER PANEL.

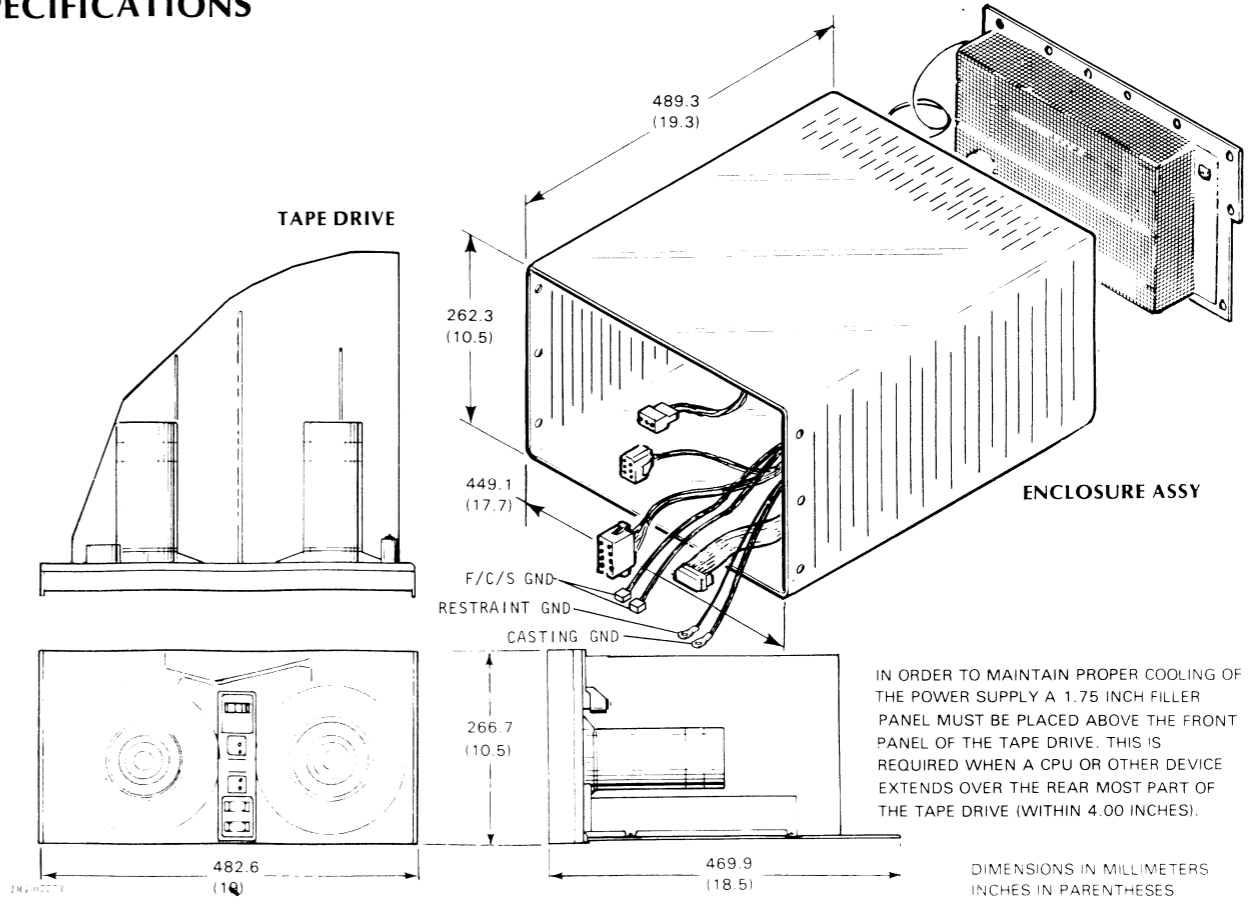
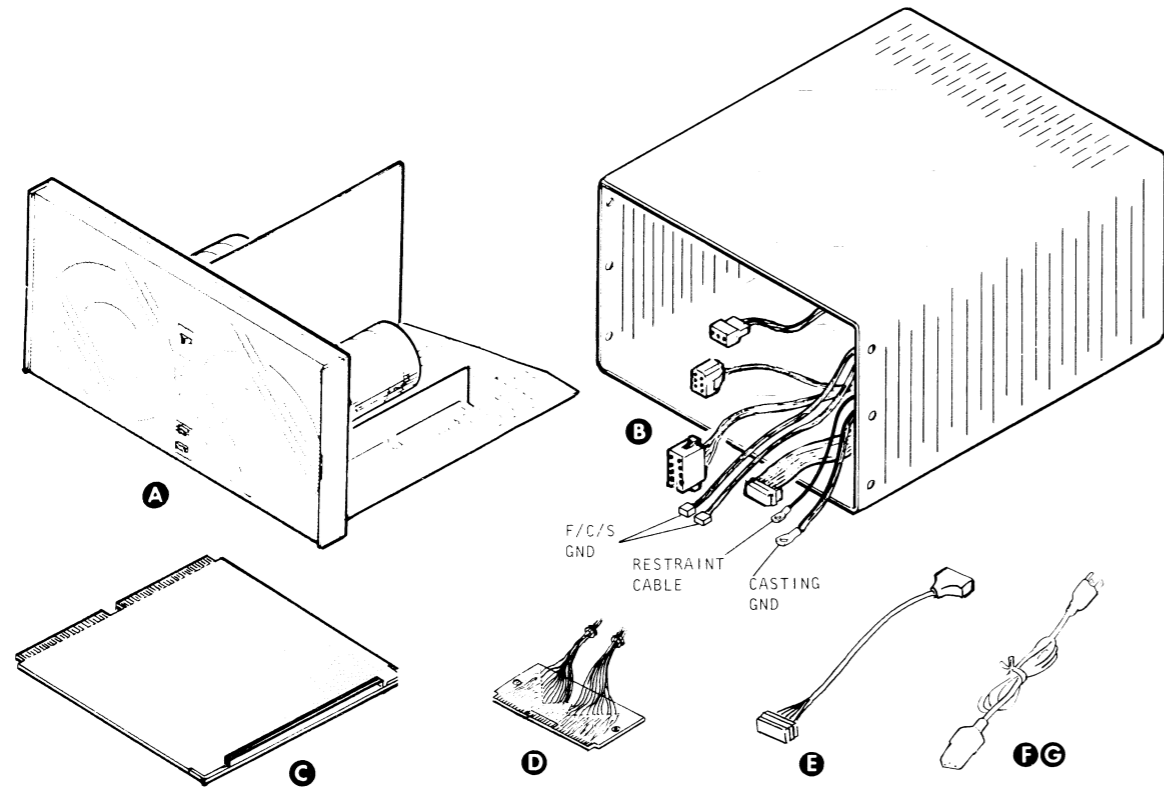
COMPLIANT CONFIGURATION



COMPLIANT TAPE DRIVE  
NON-COMPLIANT CPU'S



INSTALLATION SPECIFICATIONS



IN ORDER TO MAINTAIN PROPER COOLING OF THE POWER SUPPLY A 1.75 INCH FILLER PANEL MUST BE PLACED ABOVE THE FRONT PANEL OF THE TAPE DRIVE. THIS IS REQUIRED WHEN A CPU OR OTHER DEVICE EXTENDS OVER THE REAR MOST PART OF THE TAPE DRIVE (WITHIN 4.00 INCHES).

DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESES

MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TAPE TRANSPORT	CABINET	005-018552 005-018548
B	ENCLOSURE ASS'Y.	CABINET	005-018788
C	TAPE CONTROLLER	COMPUTER CHASSIS	005-015289

CABLES

ITEM	COMPONENT	CONNECTING	MAX LENGTH		NOTES
			FT	M	
D	CONTROLLER INT CABLE	BACKPANEL AND DEVICE CONNECTOR	10	3	REFER TO 010-319 FOR CONFIGURATION AND CABLE 005 NUMBERS
E	DEVICE CABLE	DEVICE CONNECTOR AND TRANSPORT	10	3	
F	AC CORD SET LOW PWR	ENCLOSURE, REAR			109-000719
G	AC CORD SET HIGH PWR	ENCLOSURE, REAR			109-000681

ITEM	COMPONENT	CHASSIS	MAX ALLOWABLE DATA CHANNEL LATENCY (μ SEC)	TYPE OF DCH SERVICE DESIRED		CONTROLLER +5V CURR DRAW (amp)
				HIGH SP	STAN	
C	CONTROLLER	COMPUTER	160 (1600 BPI)	X	X	1.35

DIMENSIONS: Width Depth Height

Enclosure			
Millimeters	449.1	489.3	262.2
Inches	17.7	19.3	10.3

Drive			
Millimeters	482.6	469.9	266.7
Inches	19	18.5	10.5

SERVICE CLEARANCES:	Front	Right	Left
Millimeters	1219.2	482.6	482.6
Inches	48	19	19

WEIGHT:	Enclosure assy	Drive
Kilograms	8.2	12.7
Pounds	18	28

HEAT OUTPUT:	Watts	BTU/hr
	144 220	491 750 AVE PEAK

OPERATING ENVIRONMENT:

Temperature (max)		
Internal cabinet temp	43°C	109.4 F
Relative Humidity (max)	30% to 80	non condensing
Altitude	-463 to +3048m	(-1500 to +10000ft)

External Ambient 38°C (100°F) max

POWER REQUIREMENTS:

(Domestic)		
Voltage	100	120
Hz	50	60
Max Amp per Phase	2	
Phase	1	
Startup Surge per Phase	35	0

(Export)		
Voltage	220	240
Hz	50	60
Max Amp per Phase	1.5	
Phase	1	
Startup Surge per Phase	35	0

CABLES:

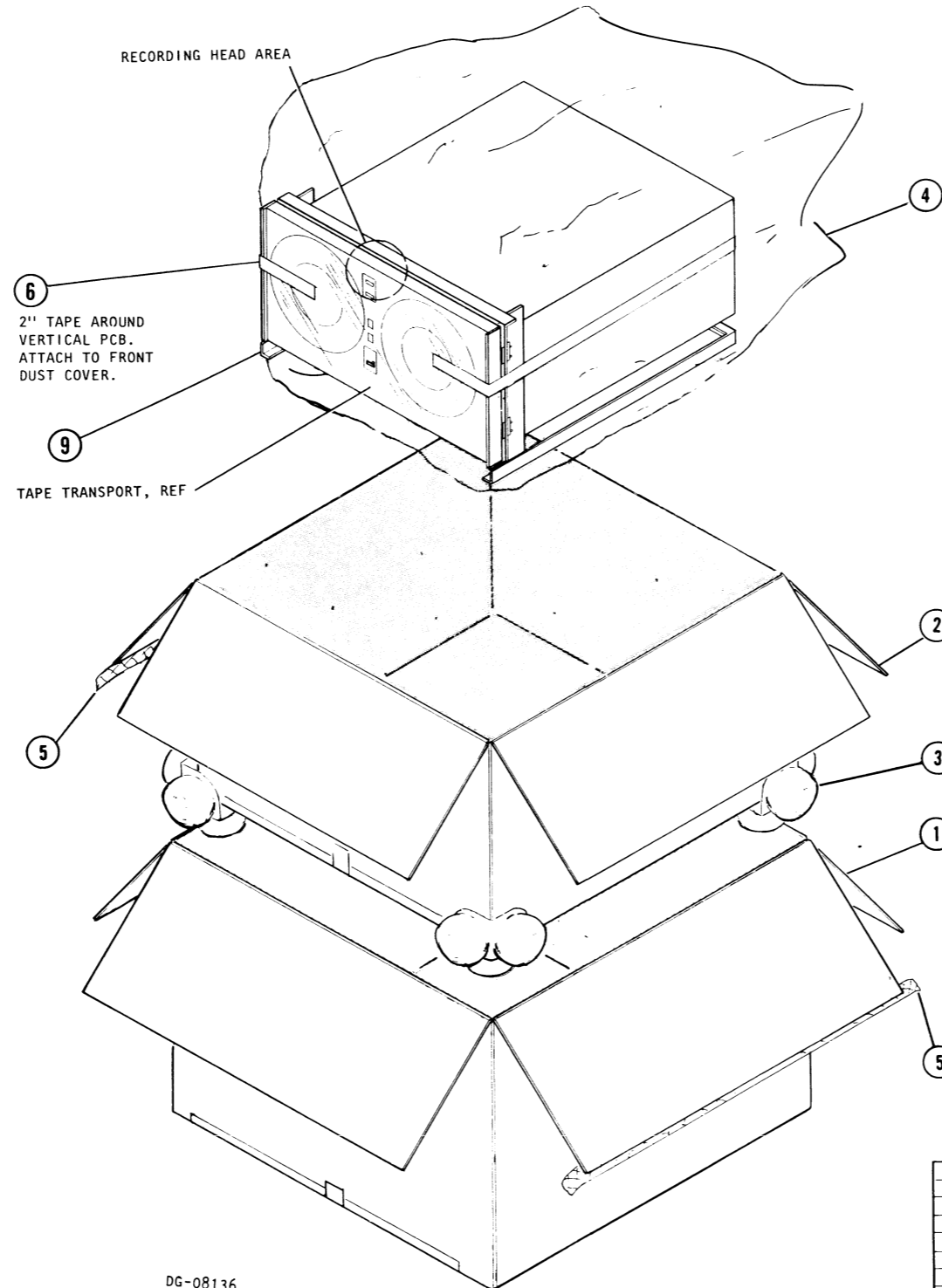
Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	2.3 (7.5)	5-15P	5-15R
Export 50Hz	2.3 (7.5)	6-15P	6-15R

PREFERRED LOCATION:

Middle of cabinet 10-20  
Short cabinet - Top

### PACKAGING

**CAUTION**  
 WHEN REMOVING ASSEMBLY FROM SHIPPING/PACKAGING  
 CONTAINER, DO NOT HANDLE ASSEMBLY BY OR NEAR THE  
 RECORDING HEAD AREA.



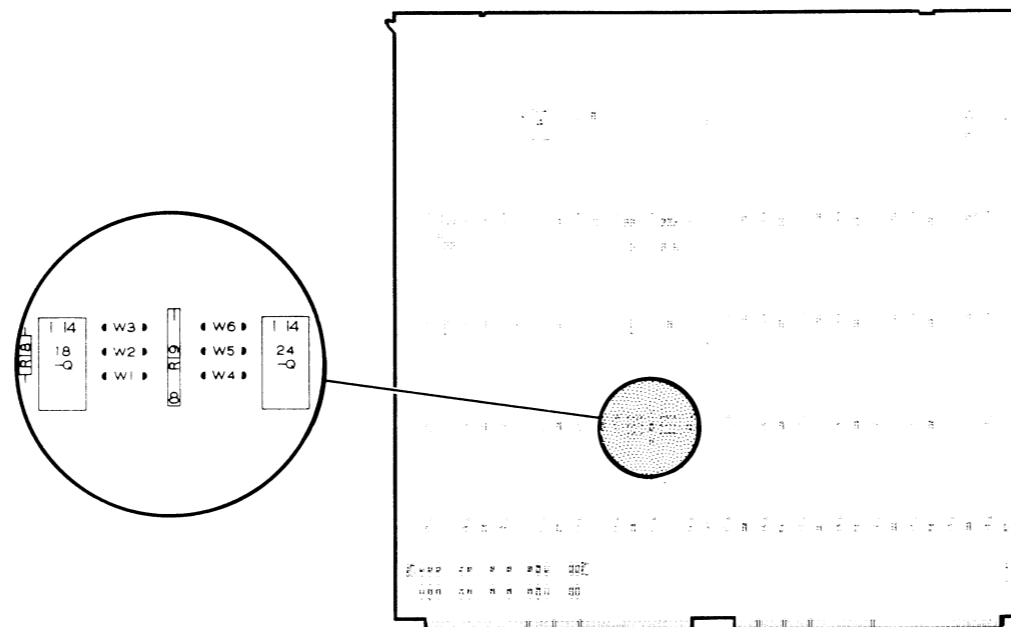
DG-08136

9	1	TAPE DRIVE FCC BUILD/SHIP FRAME	002-022939
8	1	DGC SHIPPING LABEL	129-000030
7	1	ENVELOPE, PACKING LIST, C-16	129-000043
6	3 FT	2" SEALING TAPE, P-166	129-000370
5	24 FT	3" SEALING TAPE	129-000027
4	1	POLY BAG 24.5 x 24.5 x 44.5	129-000611
3	8	CORNER CUSHIONS	129-000609
2	1	RSC 28.25 x 28.25 x 24.5	129-000608
1	1	RSC 24 x 24 x 20 FOL TOP	129-000607
ITEM	QTY	DESCRIPTION	PART NUMBER

# TAILORING

## MAG TAPE INTERFACE

Ref DGC Dwg 003-001564 Rev 02

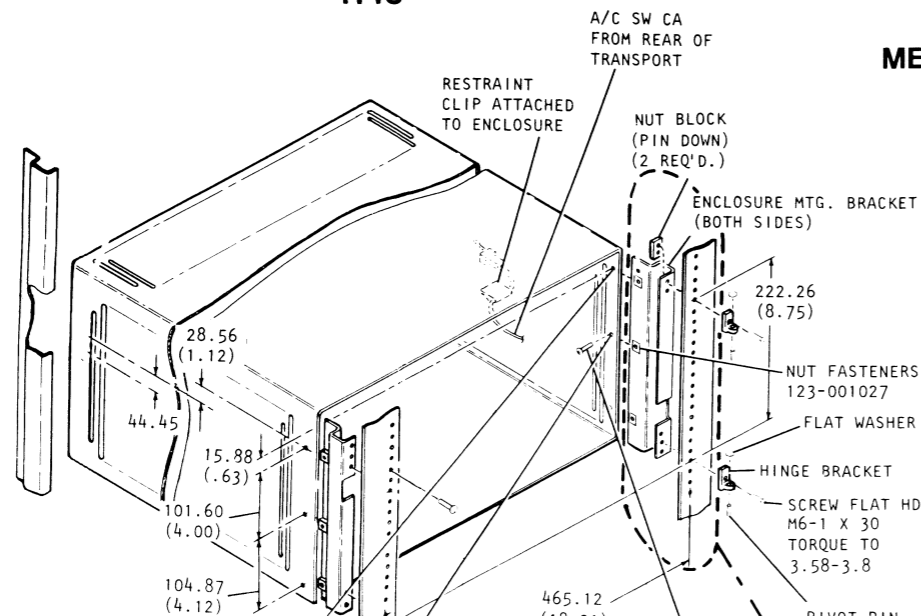


DEVICE SELECT JUMPERS		
REV 01	REV 02	(OF BOARD ARTWORK)
W2	W0	MSB
W3	W1	
W1	W2	
W4	W3	
W6	W4	
W5	W5	LSB



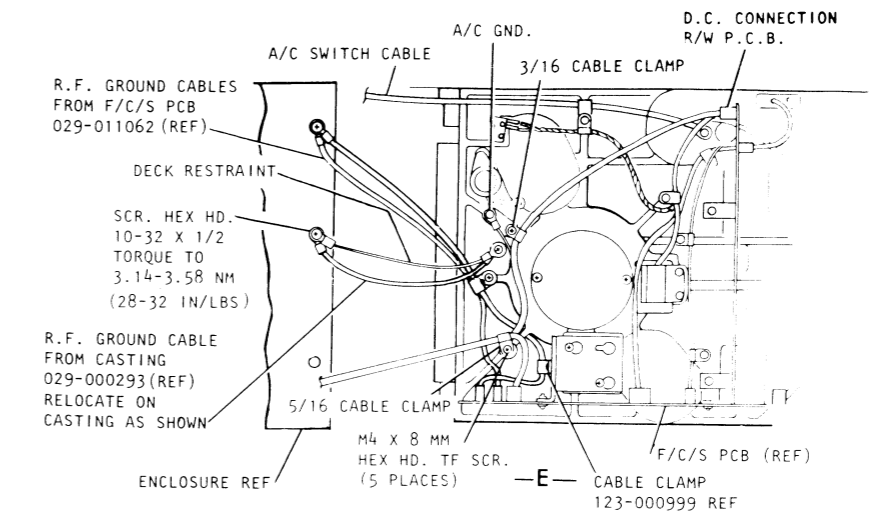
# RACK MOUNTING STANDARD CABINET 1144 HALF BAY CABINET 1144 METER-HIGH CABINET 1605, 1606

1148



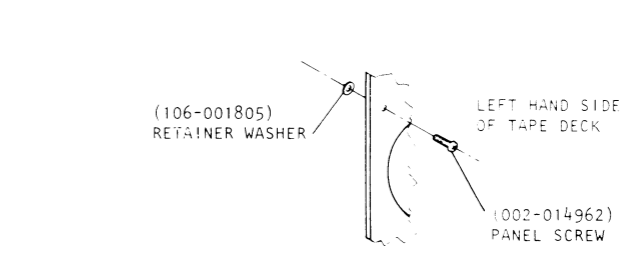
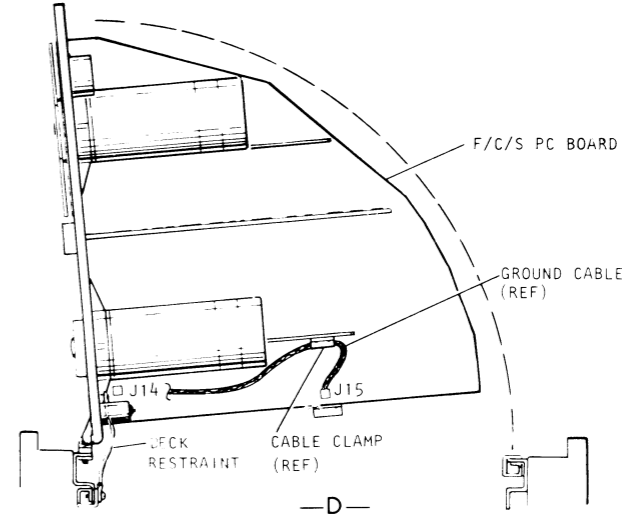
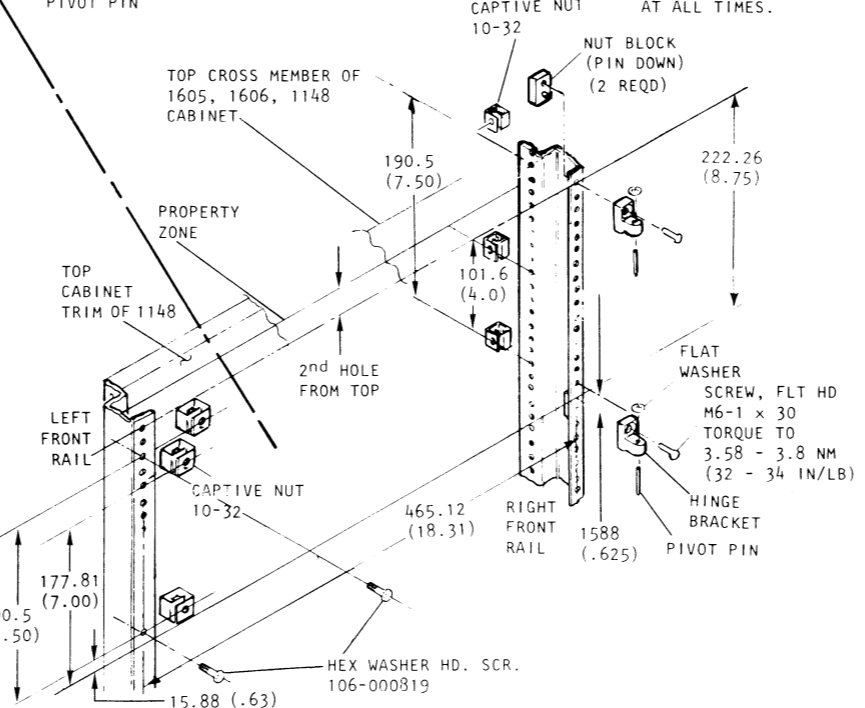
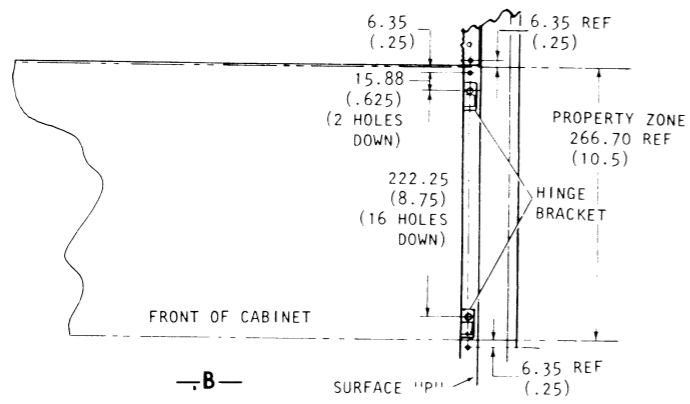
- TOOLS REQUIRED**
1. 12" SCALE
  2. HEX DRIVER, BALL TYPE, 3mm
  3. DYKES
  4. PLIERS
  5. HEX DRIVER, 4mm
  6. FLAT BLADE SCREW DRIVER
  7. 5/16 SOCKET
  8. TORQUE WRENCH

**CAUTION**  
DO NOT HANDLE TAPE DECK BY OR NEAR THE RECORDING HEAD AREA WHEN INSTALLING TAPE DECK ONTO PIVOT PINS.



ATTACH THE TWO R.F. GND CABLES FROM F/C/S PCB THIS HOLE

ATTACH RESTRAINT CABLE AND R.F. GROUND FROM CASTING AT THIS HOLE



**PROCEDURE**

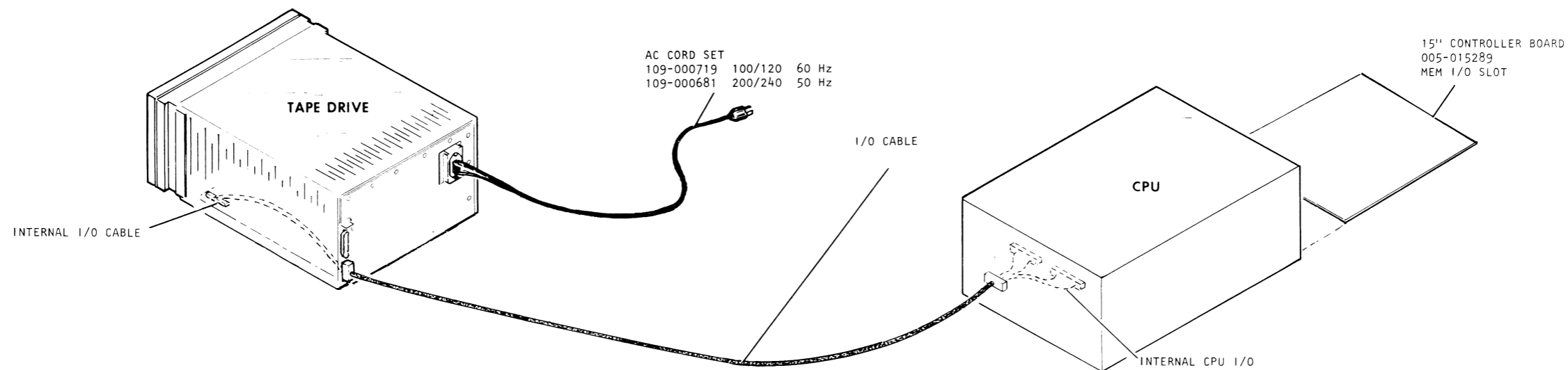
1. REMOVE HARDWARE MOUNTING KIT FROM SHIPPING CONTAINER.
- 2A. PROCEDURE FOR LOW BAY 1148 AND METER HIGH 1065 & 1066 CABINETS: INSTALL BRACKET MOUNTING ENCLOSURE (002-022916) TWO PLACES IN FRONT RAILS OF CABINET. ATTACH BRACKET TO LEFT HAND SIDE OF CABINET USING HEX HEAD WASHER SCREWS (106-000819) AND NUT FASTENERS (7 PLS) (123-001027). ATTACH BRACKET TO RIGHT HAND SIDE OF CABINET USING NUT PLATE ASSY (002-012993), HINGE BRACKET (002-011335) AND FLAT HEAD SCREWS (106-001800), TORQUE TO 3.58-3.8 N/M (31.63 IN/LBS). ATTACH NUT FASTENERS (123-001027) SIX PLACES TO BRACKET MOUNTING ENCLOSURE AND ONE PLACE TO FRONT LEFT HAND RAIL OF CABINET. CONTINUE TO NO. 3 FOR FURTHER INSTRUCTIONS.
- 2B. PROCEDURE FOR 1144 CABINET (DISCARD BRACKET MOUNTING ENCLOSURE 002-022916). INSTALL NUT FASTENERS (123-001027) ONTO RAILS IN CABINET 7 PLACES. INSTALL HINGE BRACKET (002-011335) ONTO RIGHT SIDE RAILS OF CABINET USING NUT BLOCK ASSY (002-012993) AND FLAT HEAD SCREW (106-001800) TORQUE TO 3.58-3.80 NEWTON METERS, (31.68-33.63 IN/LBS). INSTALL HEX WASHER HEAD SCREW (106-000819), FLAT WASHER (106-000688), LOCK WASHER (106-000629) AND 10-32 NUT (106-000259) TO LEFT HAND RAIL OF CABINET. TORQUE TO 3.58-3.80 NEWTON METERS, (31.68-33.63 IN/LBS).

3. SLIDE ENCLOSURE ASSY INTO POSITION. INSTALL SIX 10-32 HEX WASHER HEAD SCREWS (106-000557) IN FRONT MOUNTING HOLES, AND TIGHTEN SLIGHTLY. SLIDE ENCLOSURE ASSY TOWARDS FRONT UNTIL 10-32 SCREWS STOP FORWARD MOVEMENT. LEVEL BACK OF ENCLOSURE TO ENSURE THAT IT FALLS WITHIN THE 266.7 (10.5") PROPERTY ZONE. TIGHTEN ALL SCREWS TO (28-32 IN/LBS), 3.14-3.58 N/M.
4. INSTALL PIVOT PIN (002-011619) INTO LOWER RIGHT HINGE BRACKET FOR ABOUT 1/8" OF THREAD ENGAGEMENT. INSTALL WASHER (106-001441) ONTO PIVOT PIN.
5. ASSEMBLE TAPE DECK ONTO PIVOT PIN. (TAPE DECK MUST BE ORIENTED AS SHOWN IN DETAIL -D-. SWING TAPE DECK INTO CLOSED POSITION, SECURE TAPE DECK TO LEFT SIDE OF CABINET USING PANEL SCREW AND INSTALL WASHER 106-1805. SLIDE WASHER (106-000141) BETWEEN CASTING AND HINGE BRACKET TOP RIGHT AND INSTALL PIVOT PIN TO HINGE BRACKET. ADJUST TOP RIGHT AND BOTTOM RIGHT PIVOT PINS SO THERE IS ADEQUATE CLEARANCE ON EITHER EQUIPMENT OR FILLER PANELS BELOW THE CASTING OR FILLER PANELS ABOVE THE CASTING.
6. ATTACH RESTRAINT CABLE AND R.F. GROUND CABLE FROM CASTING, USING MAX 8MM SCREW AND 10-32 SCREW, TO CAPTIVE NUT LOCATED AT TOP OF ENCLOSURE AND FRONT RAIL ASSY (DETAIL -E-).

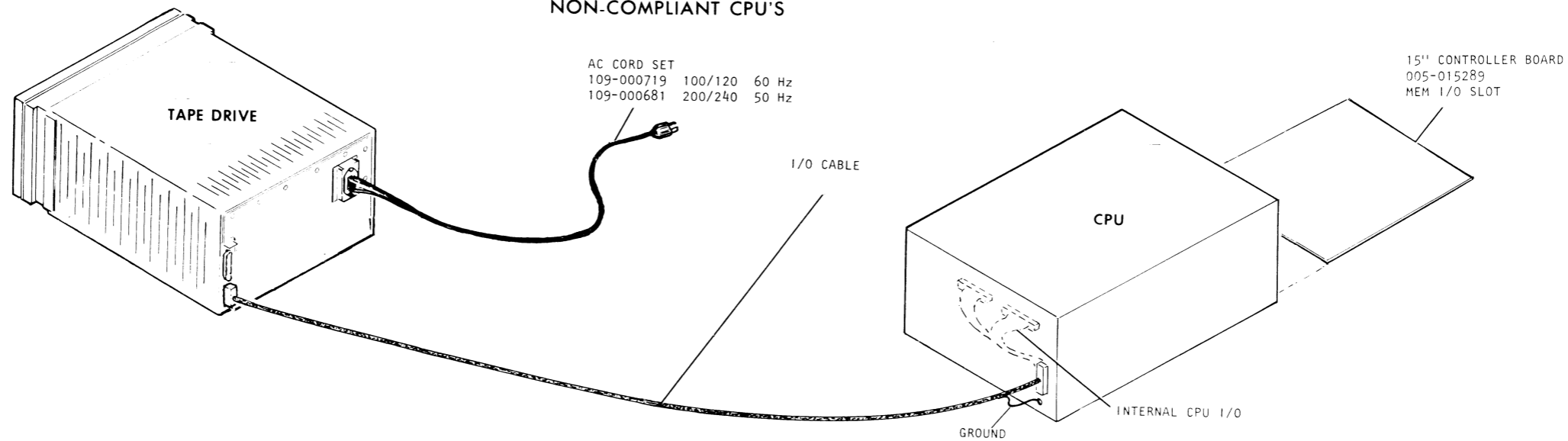
7. PLUG D.C. CABLE INTO R/W PCB AND F/C/S PCB (SET DETAIL -D & E-) ATTACH CABLE TO CASTING (JUST ABOVE F/C/S CONNECTOR) USING 5/16 CABLE CLAMP AND A M4 X 8MM SCREW. ATTACH CABLE LEADING TO R/W PCB CABLE CLAMP AND M4 X 8MM SCREW. ATTACH R.F. GND CABLES TO F/C/S PCB AT J14 & 15 AND TO CAPTIVE NUT AT TOP RIGHT SIDE OF ENCLOSURE (DETAIL -E-).
8. CONNECT A/C SWITCH CABLE TO CABLE CONNECTION LOCATED AT TOP OF ENCLOSURE ASSY LOOP A/C CA THRU CABLE CLIP LOCATED AT TOP OF ENCLOSURE. SEE FIGURE -A-.
9. INSTALL CABLES AS SHOWN AND DRESS ACCORDINGLY SO FORMATTER/CONTROLLER/SERVO PCB WILL SWING FREELY AND NOT CATCH OR BIND WHEN TAPE DECK IS SWUNG OPEN.
10. A/C AND R/F GROUND MUST BE INSTALLED PRIOR TO STARTING UP OF TAPE DECK UNIT. NOTE: ALWAYS DISCONNECT CASTING RESTRAINT CABLE & R.F. GROUND CABLE AT ENCLOSURE END TO AVOID STRIPPING THREADS ON CASTING. (DETAIL -E-)
11. REPLACE FILLER PANEL ABOVE TAPE DECK. ADJUST PIVOT PINS USING 3MM BALL POINT DRIVER SO THERE IS MINIMUM CLEARANCE BETWEEN TOP OF TAPE DECK & BOTTOM OF FILLER PANEL (APPROX 1/8").
12. REPLACE BOTTOM FILLER PANEL.

## TAPE TRANSPORT, MODEL 6125 (NOVA/ECLIPSE)

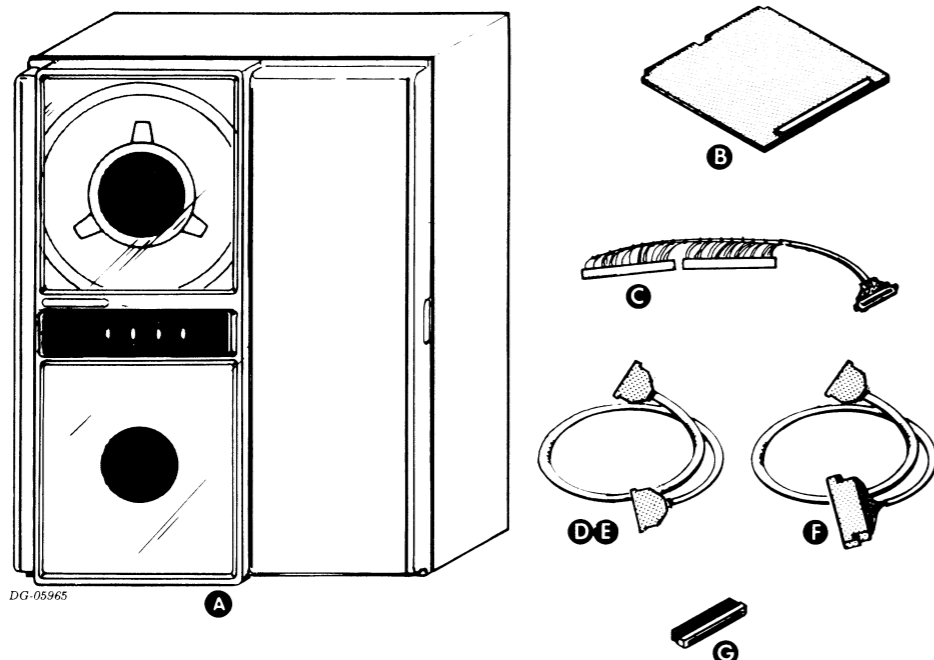
COMPLIANT CONFIGURATION



COMPLIANT TAPE DRIVE  
NON-COMPLIANT CPU'S



### INSTALLATION SPECIFICATIONS



MAJOR COMPONENT

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TAPE TRANSPORT	CABINET	
B	TAPE CONTROLLER	COMPUTER CHASSIS	

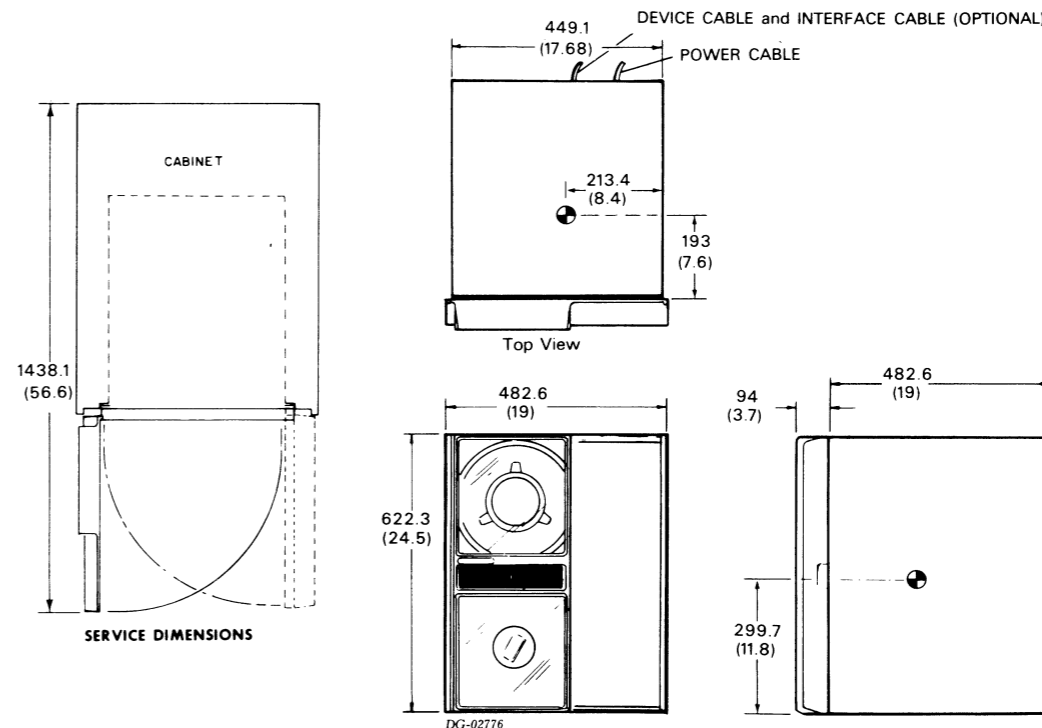
CABLE (CABLE CONFIGURATION: SEE DGC DWG NO. 010-000319)

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
C	INTERNAL CABLE 005-018382	B/P AND DEVICE CONNECTOR			
D	DEVICE CABLE 005-018764	DEVICE CONNECTOR AND TRANSPORT	7 *	2.1	* SUM OF DEVICE AND INTERDEVICE CANNOT EXCEED 50 FT (15.2 M)
E	INTERDEVICE CABLE 005-018763	TRANSPORT AND TRANSPORT	4 *	1.2	
F	DEVICE CABLE 005-018765	DEVICE TRANSPORT AND TRANSPORT	10 *	3	CONNECTS NON-COMPLIANT TO COMPLIANT PRODUCTS
	INTERNAL CABLE	PCB AND TRANSPORT BACK	3 *	.9	REF SHT 4

TERMINATOR

ITEM	TERMINATOR	LOCATION	NOTES
G	DUAL MODE TERMINATOR	LAST DRIVE	SEE TABLE

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	MAX ALLOWABLE DATA CHANNEL LATENCY (μSEC)	TYPE OF DATA CHANNEL SERVICE DESIRED	CONTROLLER'S +5 V CURRENT DRAW (AMPS)
B	CONTROLLER	COMPUTER	1	PE-60 S NRZI-250 S	X X	7



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482.6	576.6	622.3
Inches	19.0	22.7	24.5

**SERVICE CLEARANCES:**

	Front	Rear	Right	Left
Millimeters	914.4	914.4	609.6	609.6
Inches	36	36	24	24

**WEIGHT:**

Kilograms	68
Pounds	150

**HEAT OUTPUT:**

800/1100	2728/3751
Watts	BTU/hr

**OPERATING ENVIRONMENT:**

Temperature (max)	43.3 C	110 F
Relative Humidity (max)	20-80%	
Altitude (see note)	2438 m (8000 ft)	

**POWER REQUIREMENTS:**

(Domestic)

Voltage	102-132		
Hz	60+1%		
Max Amp per Phase	5.5		
Phase			
Startup Surge per Phase (Export)			
Voltage	90-110	187-242	204-264
Hz	50+1%	50+1%	50+1%
Max Amp per Phase	5.5	4	4
Phase			
Startup Surge per Phase			

**CABLES:**

Primary Power	Length	Mating Conn
Domestic 60Hz	1.8m(6')	5-15R
109-000719		
Export 50Hz	1.8m(6')	6-15R
109-000681		

**PREFERRED LOCATION:** TOP OF CABINET  
17-30"

NOTE: THE VACUUM ON THIS UNIT HAS BEEN SET FOR OPERATION AT LOW ALTITUDE AT THE FACTORY. READJUSTMENT FOR HIGH ALTITUDE IS REQUIRED.

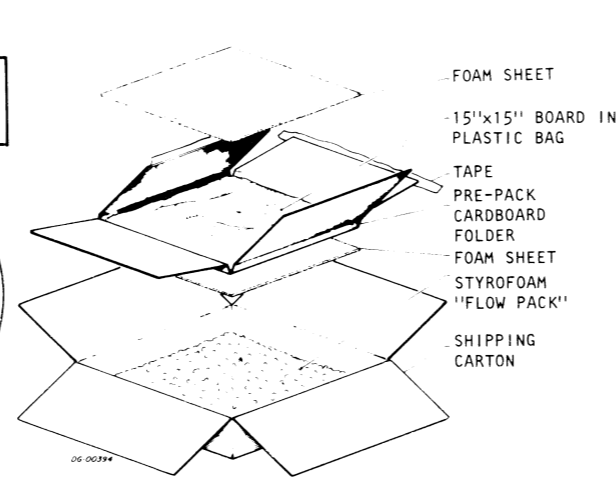
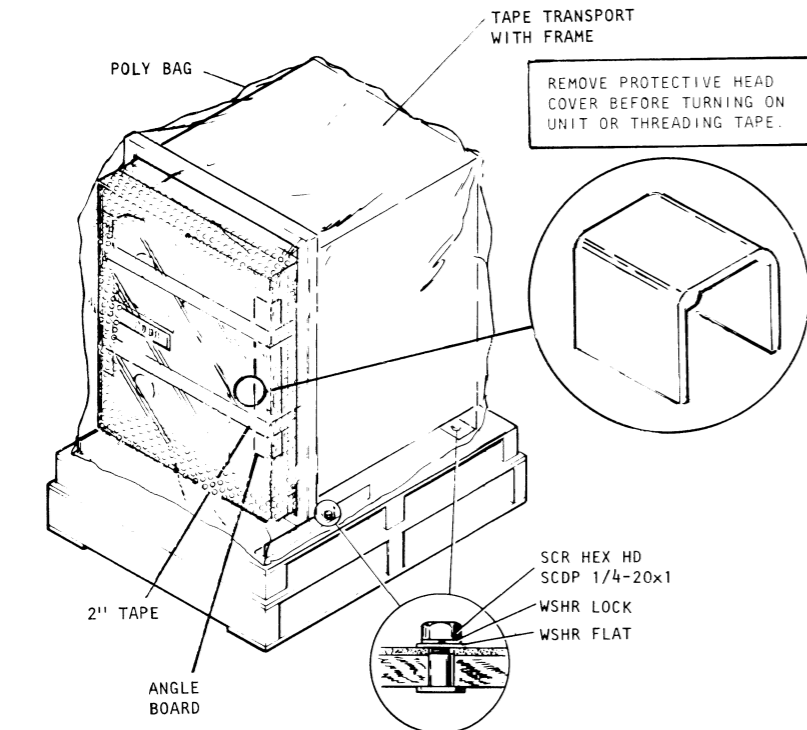
\*WHENEVER POSSIBLE LEAVE A 1/8" FILLER PANEL DIRECTLY BELOW THE MTT

**SHIPPING**

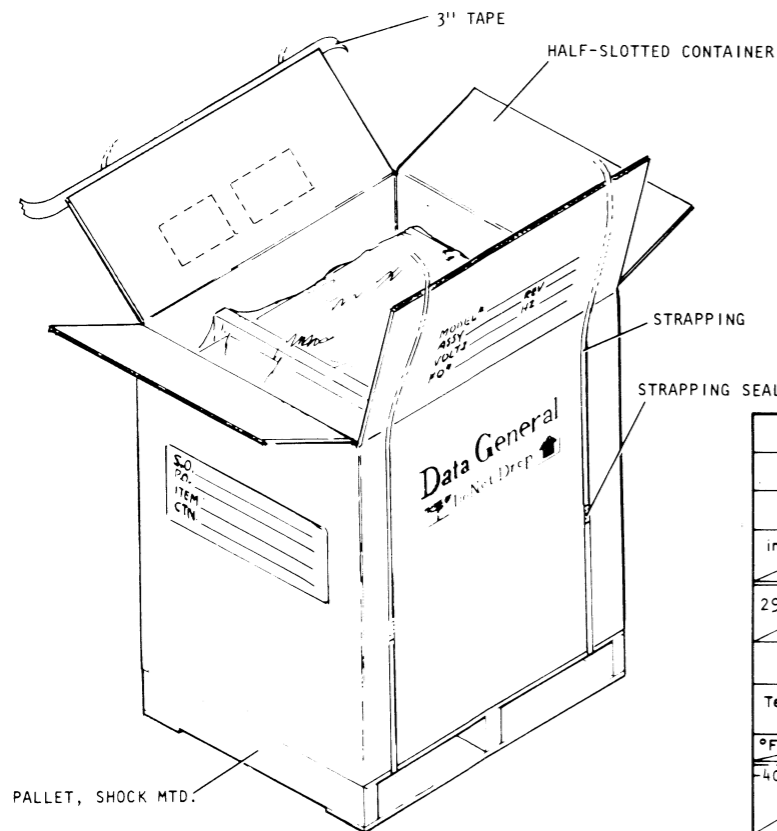
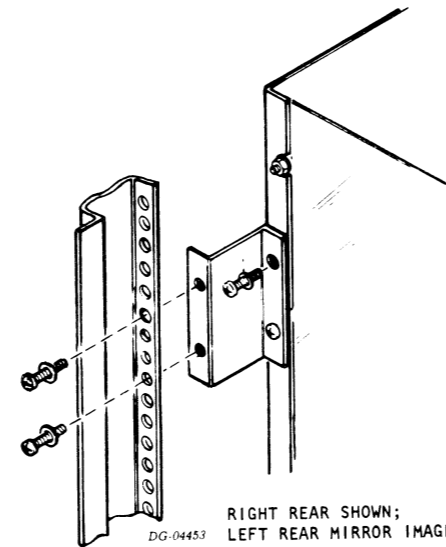
**INTERNAL CABLES**

**TAPE TRANSPORT**

**CONTROLLER**



**MOUNTING SHIPPING BRACKET TO CHASSIS AND RAILS**



SHIPPING AND PACKAGE DATA						
Outside Dimensions			Weight (Gross)	Volume	Density	
Length	Width	Depth			lbs/cu ft	kg/cu m
in.	in.	in.	lbs.	cu ft.	lbs/cu ft	
cm	cm	cm	kg	cu m	kg/cu m	
29.38	23.88	37.50	196	15.23	12.87	
74.62	60.65	95.25	88.90	.43	206.74	
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS			
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period	
°F	(Non-condensing)		°F	(Non-condensing)		
-40 to +160	10%-90%	50,000ft.	-40 to +160	10%-90%	90 days	
-40 to +71		15,200m	-40 to +71			

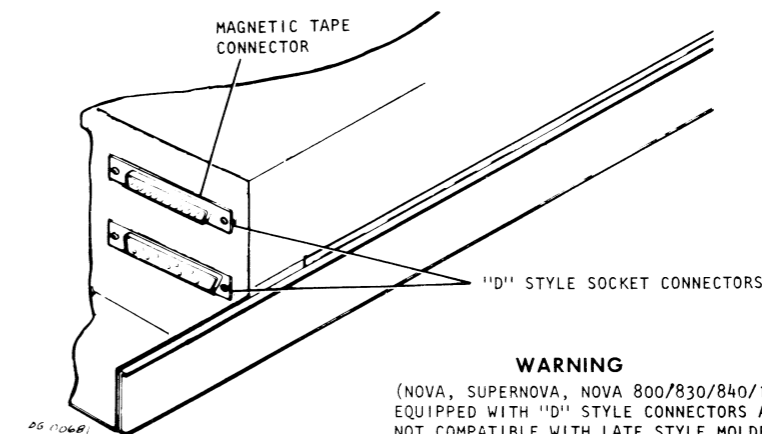
**INTERNAL CABLE CONNECTION FOR MAG TAPE SUBSYSTEMS**

SIGNAL NAMES	PADDLEBOARD EDGE CONNECTOR PIN NUMBERS	DESTINATION PINS ON COMPUTER BACKPANEL			COMPLIANT CPU "D" TYPE INTERNAL CABLE
		NOVA 2 & 3	ECLIPSE NOVA 820 1210 & 1220	NOVA 800 & 1200	
GND				B2	SHELL
GND	1		A-1		
9 CHANNEL	9		A-71		11
REWIND T	49		B-69		29
RUN	8		A-73		8
WRITE RESET	16		A-57		16
SEL 1	7		A-75		7
WRITE STROBE	5		A-77		5
RD EN	6		A-76		6
WRITE T	14		A-61		14
WBP	15		A-59		15
WB6	38		B-34		38
WB4	3		A-91		3
WB3	21		A-84		21
WB2	27		A-89		27
RB1	41		B-40		41
RB2	35		B-25		35
REWINDING	30		B-11		30
BOT	46		B-53		46
IRG	17		A-47		28
SEND CLOCK	13		A-63		13
FOR/REV	48		B-67		48
TUR	47		B-54		47
SEL 2	4		A-78		4
SEL 4	19		A-79		19
WRITE LOCK	39		B-36		39
READ STROBE	18		A-49		18
RBP	40		B-38		40
EOT	42		B-48		25
HI DENSITY	43		B-49		43
DLY 1	20		A-81		20
RB5	32		B-15		32
WB7	22		A-83		22
WB5	23		A-86		23
RB4	31		B-13		31
RB6	33		B-19		33
RB7	34		B-23		12
RB0	37		B-31		37
RB3	36		B-27		36
WB1	24		A-85		24
WB0	26		A-87		26
	44		B-51		44
	2		A-92		2
	10		A-69		10
	11		A-67		43
	12		A-65		25
	25		A-88		47
	28		A-90		46
	29		B-6		49
	45		B-52		45
	50		A-3		

COMPUTER INTERNAL CABLE PART NUMBERS

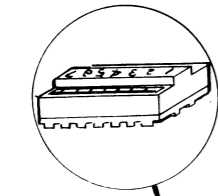
NOVA 2, 3 AND ECLIPSE COMPUTERS 005-001802  
 NOVA 820, 1210 AND 1220 005-001802  
 COMPLIANT CPU 005-018382\*

\* INTERNAL CABLE NOTE:  
 [A 88] 90] 65] 67] INTERCONNECT  
 [B 54] 53] 48] 49]

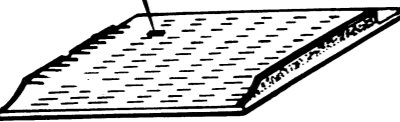


**WARNING**  
 (NOVA, SUPERNOVA, NOVA 800/830/840/1200) EQUIPPED WITH "D" STYLE CONNECTORS ARE NOT COMPATIBLE WITH LATE STYLE MOLDED "D" EXTERNAL CABLES.

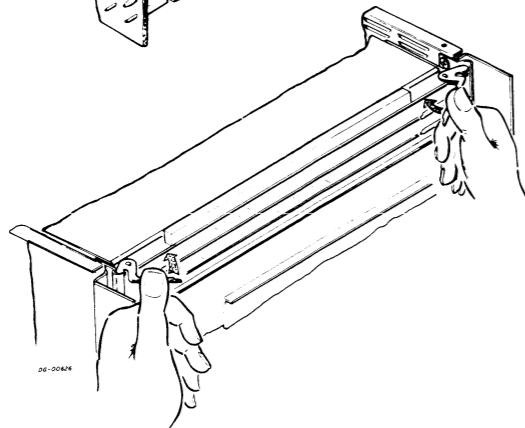
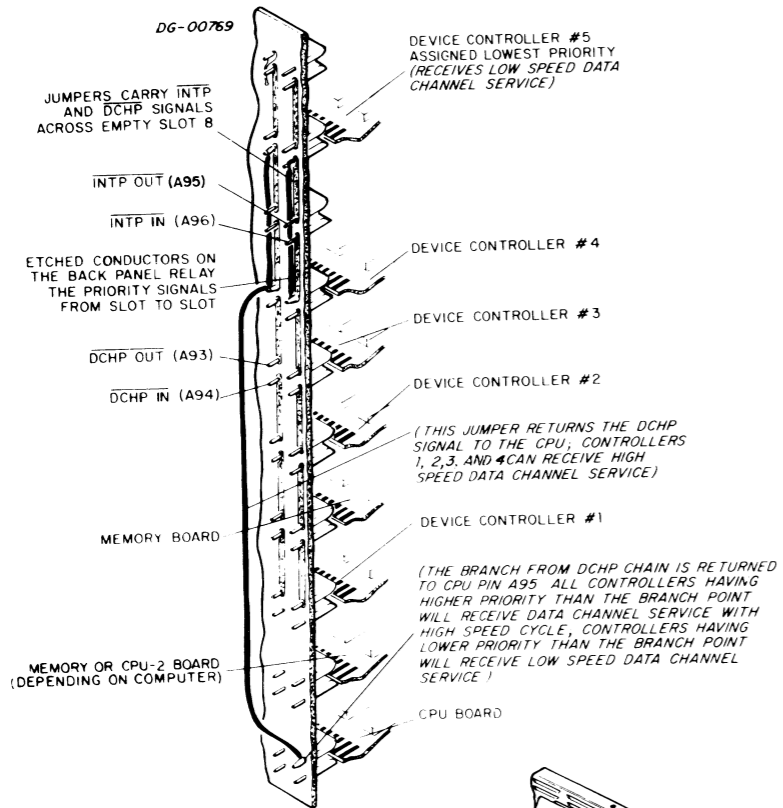
### TAILORING



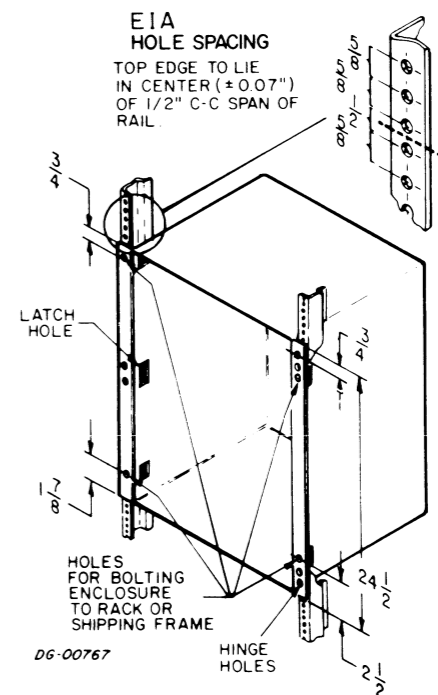
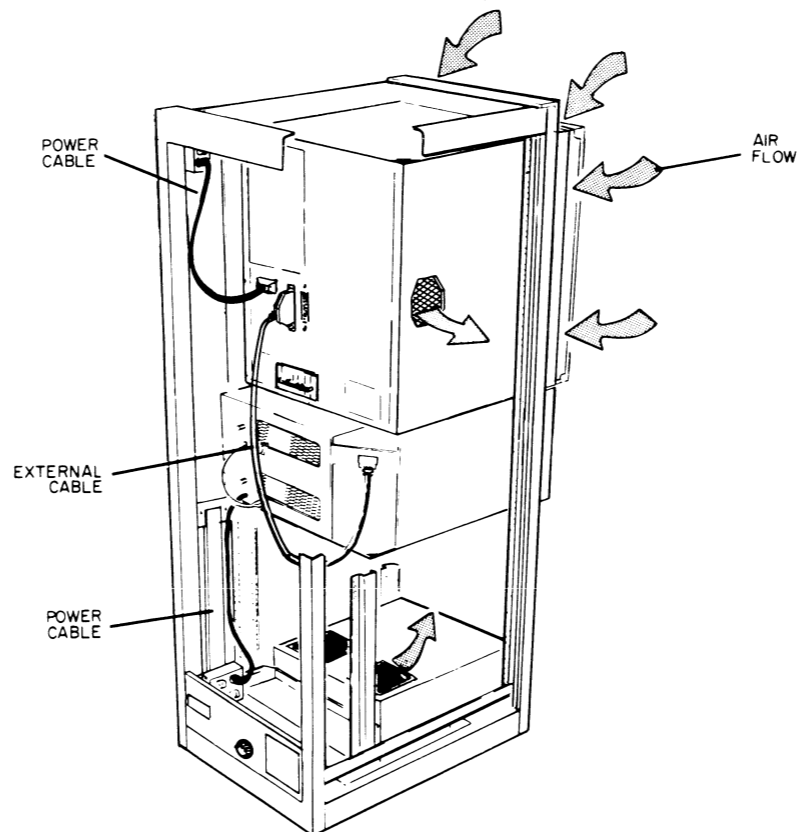
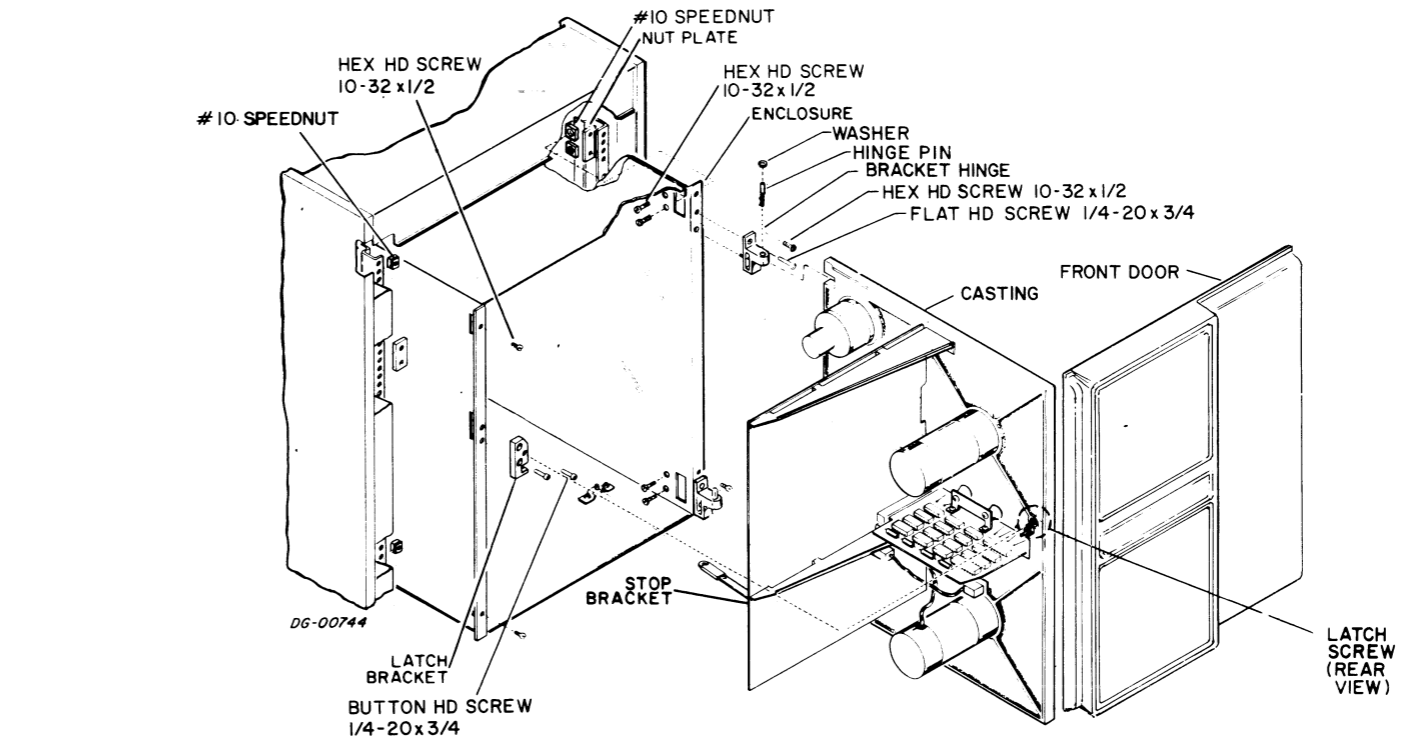
JUMPERS WX1 - WX3 ARE USED FOR FACTORY TEST ONLY. THEY MUST BE IN FOR NORMAL OPERATION.



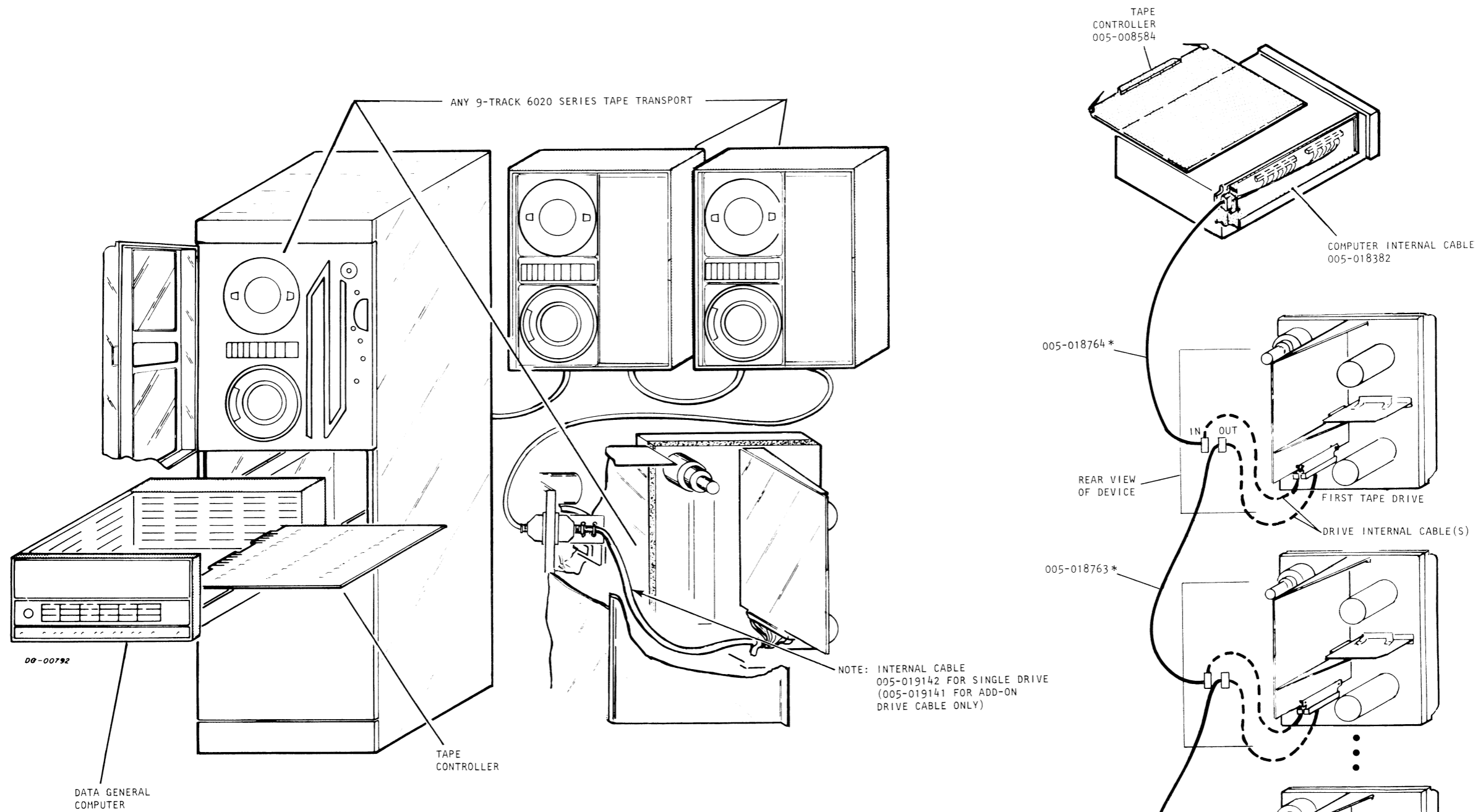
DEVICE CODE 22<sub>B</sub> (SWITCH No. 2 & 5) = DS1 & DS4.  
 DEVICE CODE 62<sub>B</sub> (SWITCH No. 1, 2 & 5) = DS0, DS1, & DS4.



### CABINET INSTALLATION



EXTERNAL CABLING

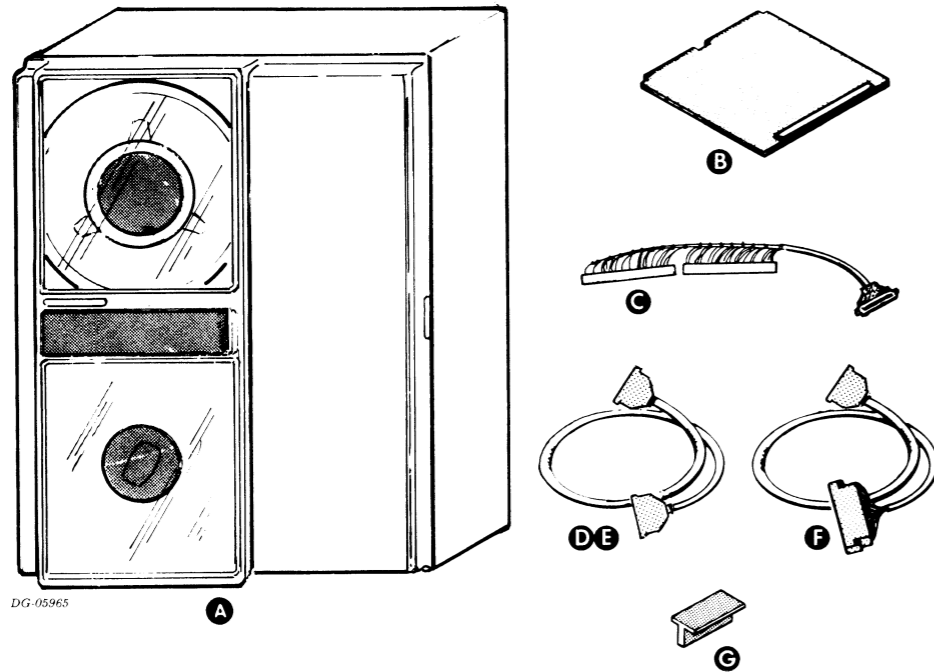


NOTE: INTERNAL CABLE  
005-019142 FOR SINGLE DRIVE  
(005-019141 FOR ADD-ON  
DRIVE CABLE ONLY)

\* CABLE 005-018765 MAY REPLACE  
005-018763 TO INTERCONNECT  
COMPLIANT TO NON-COMPLIANT  
DEVICES AND TRANSPORTS.

DRIVE CONFIGURATION	LAST DRIVE	TERMINATOR
ALL 6027 AND "C" SERIES	N/A	005-002398
ALL 6026 AND "C" SERIES	N/A	005-008672
MIXTURE 6027, 6026	6026	005-008672

### INSTALLATION SPECIFICATIONS



DG-05965

**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	TAPE TRANSPORT	CABINET	
B	TAPE CONTROLLER	COMPUTER CHASSIS	

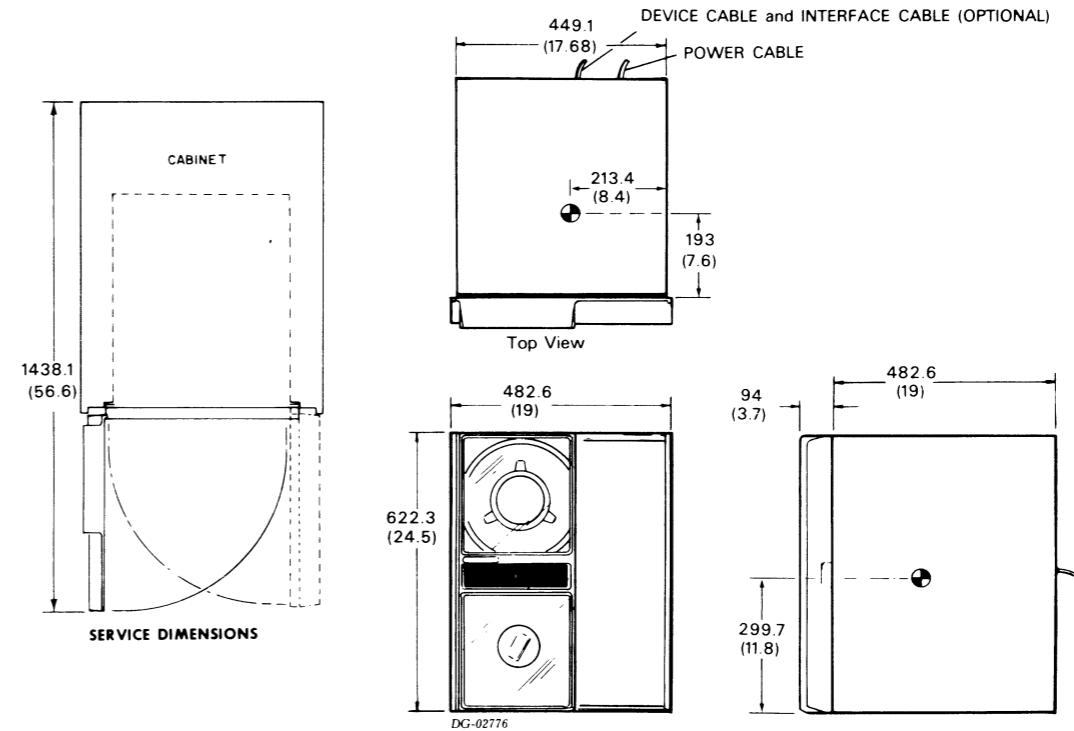
**CABLE (CABLE CONFIGURATION: SEE DGC DWG NO. 010-000319)**

ITEM	CABLE	CONNECTING	MAX ALLOWED LG		NOTES
			FT	M	
C	INTERNAL CABLE 005-018382	B/P AND DEVICE CONNECTOR			
D	DEVICE CABLE 005-018764	DEVICE CONNECTOR AND TRANSPORT	7 *	2.1	* SUM OF DEVICE AND INTERDEVICE CANNOT EXCEED 50 FT (15.2 M)
E	INTERDEVICE CABLE 005-018763	TRANSPORT AND TRANSPORT	4 *	1.2	
F	DEVICE CABLE 005-018765	DEVICE AND TRANSPORT AND TRANSPORT	10 *	3	CONNECTS NON-COMPLIANT TO COMPLIANT PRODUCTS
	INTERNAL CABLE	PCB AND TRANSPORT BACK	3 *	.9	REF SHT 4

**TERMINATOR**

ITEM	TERMINATOR	LOCATION	NOTES
G	NRZI TERMINATOR	LAST DRIVE	

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	MAX ALLOWABLE DATA CHANNEL LATENCY (μSEC)	TYPE OF DATA CHANNEL SERVICE DESIRED	CONTROLLER'S +5 V CURRENT DRAW (AMPS)
B	CONTROLLER	COMPUTER	1	12.5	X X	3



**DIMENSIONS:**

	Width	Depth	Height
Millimeters	482.6	576.6	622.3
Inches	19.0	22.7	24.5

**SERVICE CLEARANCES:**

	Front	Rear	Right	Left
Millimeters	914.4	914.4	609.6	609.6
Inches	36	36	24	24

**WEIGHT:**

Kilograms	68
Pounds	150

**HEAT OUTPUT:**

800	1100	2728	3751
Watts		BTU	hr

**OPERATING ENVIRONMENT:**

Temperature (max)	43.3 C	110 F
Relative Humidity (max)	20-80%	
Altitude (see note)	2438 m (8000 ft)	

**POWER REQUIREMENTS:**

(Domestic)			
Voltage	102-132		
Hz	60+1%		
Max Amp per Phase	5.5		
Phase			
Startup Surge per Phase			
(Export)			
Voltage	90-110	187-242	204-264
Hz	50+1%	50+1%	50+1%
Max Amp per Phase	5.5	4	4
Phase			
Startup Surge per Phase			

**CABLES:**

Primary Power	Length	Mating Conn
Domestic 60Hz	1.8m(6')	5-15R
109-000719		
Export 50Hz	1.8m(6')	6-15R
109-000681		

**PREFERRED LOCATION:** TOP OF CABINET  
17-30"

NOTE: THE VACUUM ON THIS UNIT HAS BEEN SET FOR OPERATION AT LOW ALTITUDE AT THE FACTORY. READJUSTMENT FOR HIGH ALTITUDE IS REQUIRED.

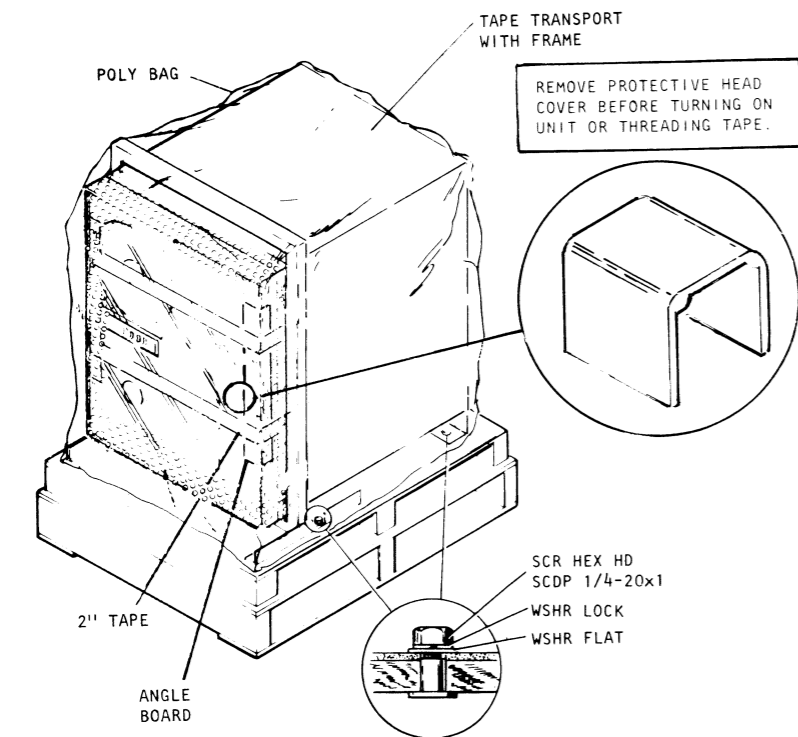
WHENEVER POSSIBLE LEAVE A 1/8" FILLER PANEL DIRECTLY BELOW THE MIT

SHIPPING

CONTROLLER

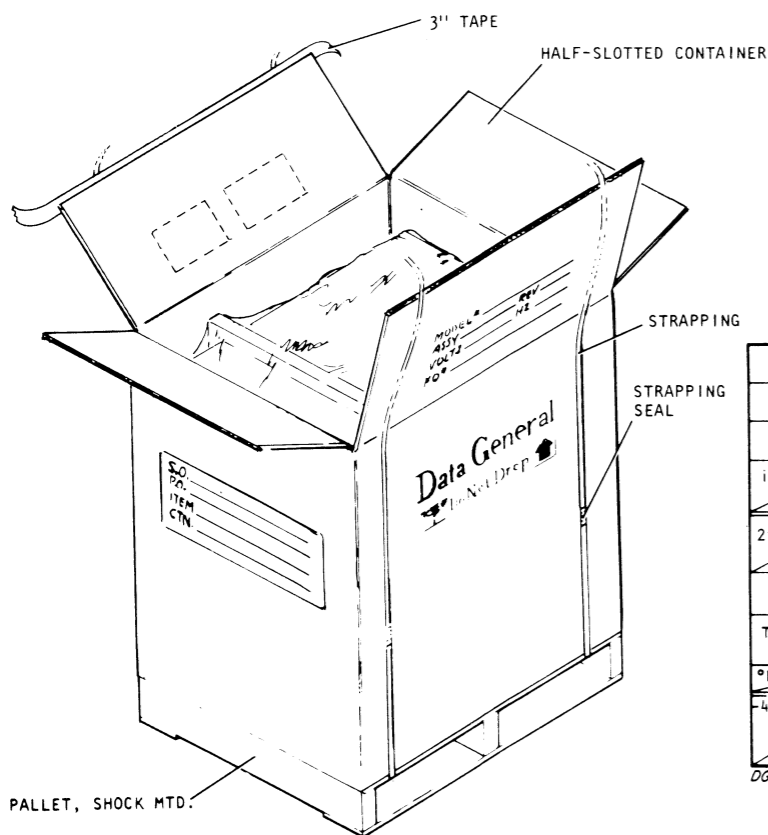
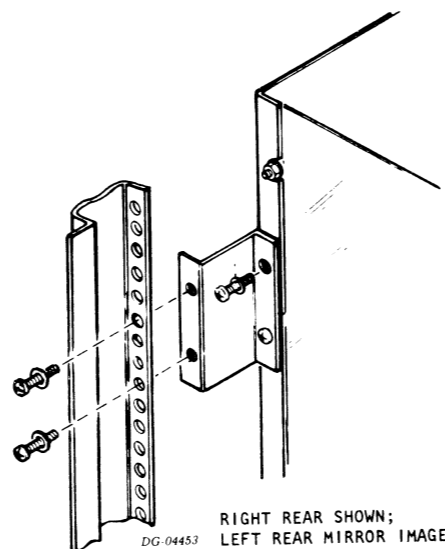
INTERNAL CABLES

TAPE TRANSPORT



FOR PACKING PROCEDURE, SEE 010-000262

MOUNTING SHIPPING BRACKET TO CHASSIS AND RAILS



SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth			
in.	in.	in.	lbs.	cu ft.	lbs/cu ft.
cm	cm	cm	kg	cu m	kg/cu m
29.38	23.88	37.50	196	15.23	12.87
74.62	60.65	95.25	88.90	.43	206.74
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
°F	(Non-condensing)		°F	(Non-condensing)	
°C			°C		
-40 to +160	10%-90%	*50,000ft. 15,200m	-40 to +160	10%-90%	90 days
-40 to +71			-40 to +71		

DG-03224

INTERNAL CABLE CONNECTION FOR MAG TAPE SUBSYSTEMS

SIGNAL NAMES	PADDLEBOARD EDGE CONNECTOR PIN NUMBERS	DESTINATION PINS ON COMPUTER BACKPANEL			COMPLIANT CPU "D" TYPE INTERNAL CABLE
		NOVA 2 & 3	ECLIPSE NOVA 820 1210 & 1220	NOVA 800 & 1200	
GND				B2	SHELL
GND	1		A-1		
9 CHANNEL	9		A-71		11
REWIND T	49		B-69		29
RUN	8		A-73		8
WRITE RESET	16		A-57		16
SEL 1	7		A-75		7
WRITE STROBE	5		A-77		5
RD EN	6		A-76		6
WRITE T	14		A-61		14
WBP	15		A-59		15
WB6	38		B-34		38
WB4	3		A-91		3
WB3	21		A-84		21
WB2	27		A-89		27
RB1	41		B-40		41
RB2	35		B-25		35
REWINDING	30		B-11		30
BOT	46		B-53		46
IRG	17		A-47		28
SEND CLOCK	13		A-63		13
FOR/REV	48		B-67		48
TUR	47		B-54		47
SEL 2	4		A-78		4
SEL 4	19		A-79		19
WRITE LOCK	39		B-36		39
READ STROBE	18		A-49		18
RBP	40		B-38		40
EOT	42		B-48		25
HI DENSITY	43		B-49		43
DLY 1	20		A-81		20
RB5	32		B-15		32
WB7	22		A-83		22
WB5	23		A-86		23
RB4	31		B-13		31
RB6	33		B-19		33
RB7	34		B-23		12
RB0	37		B-31		37
RB3	36		B-27		36
WB1	24		A-85		24
WB0	26		A-87		26
	44		B-51		44
	2		A-92		2
	10		A-69		10
	11		A-67		43
	12		A-65		25
	25		A-88		47
	28		A-90		46
	29		B-6		49
	45		B-52		45
	50		A-3		45

COMPUTER INTERNAL CABLE PART NUMBERS

NOVA 2, 3 AND ECLIPSE COMPUTERS 005-001802

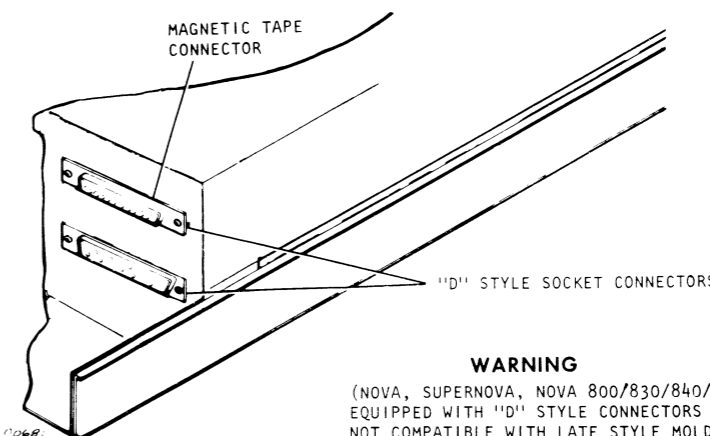
NOVA 820, 1210 AND 1220 005-001802

COMPLIANT CPU 005-018382\*

\* INTERNAL CABLE NOTE:

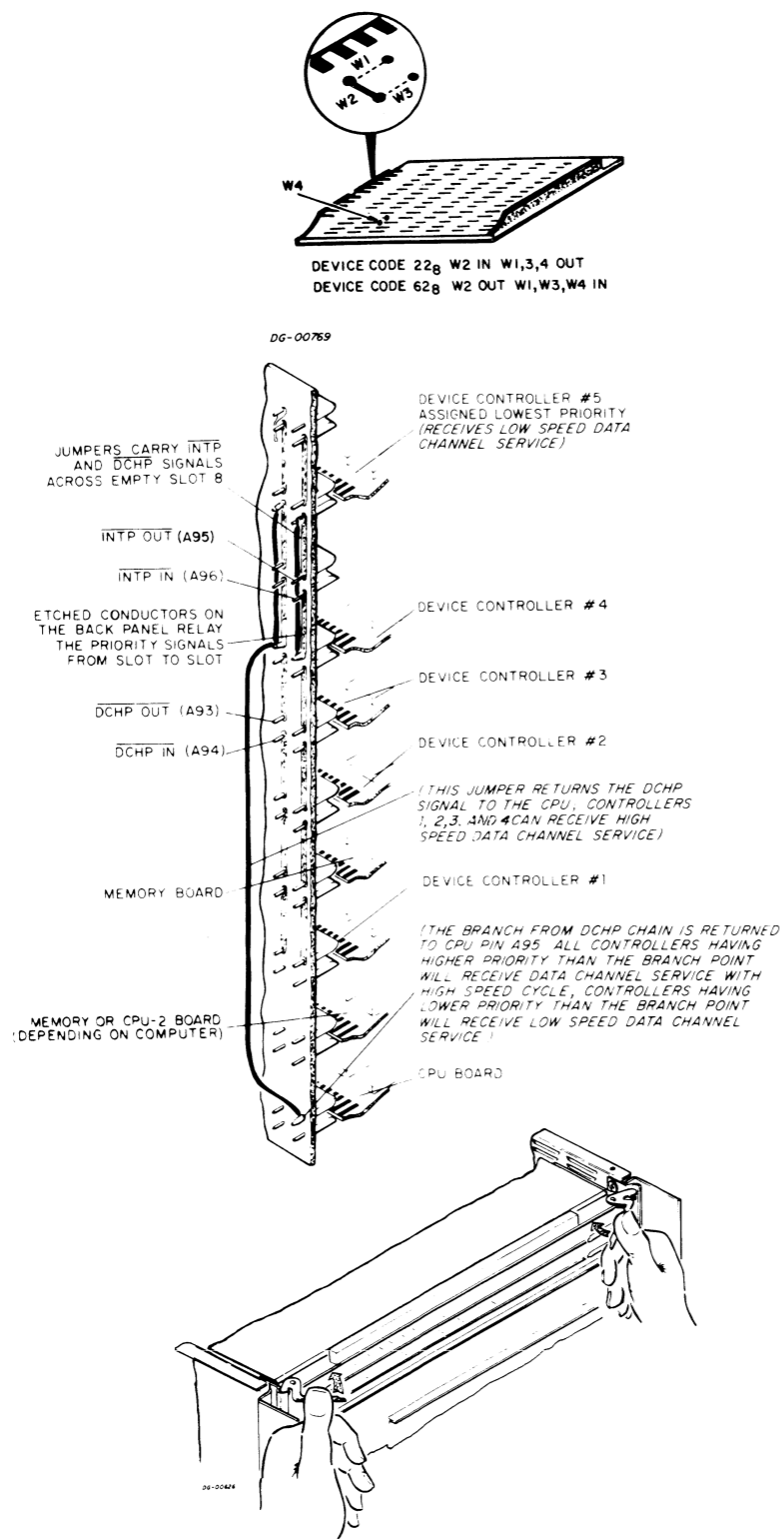
[A 88] 90] 65] 67] INTERCONNECT

[B 54] 53] 48] 49]

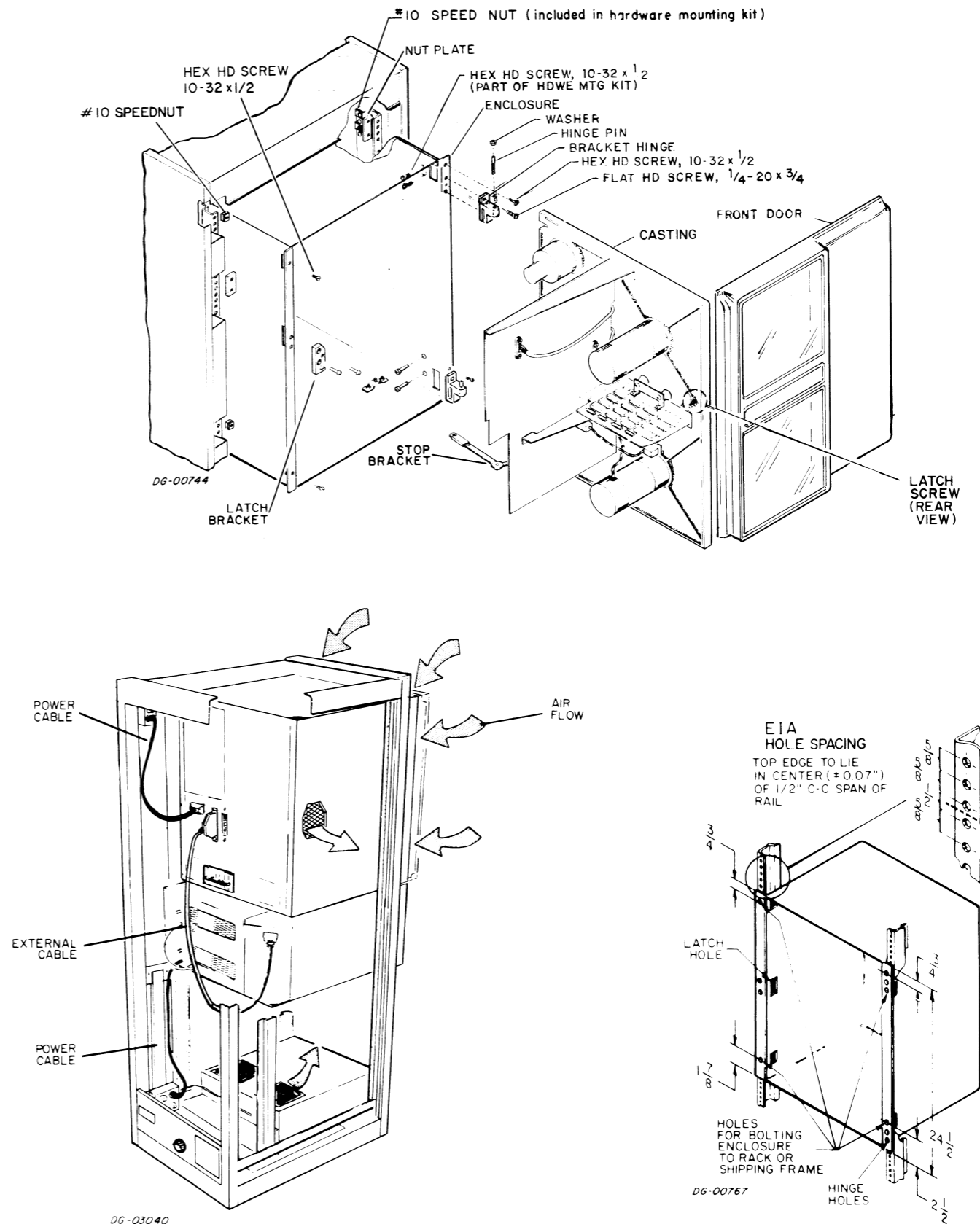




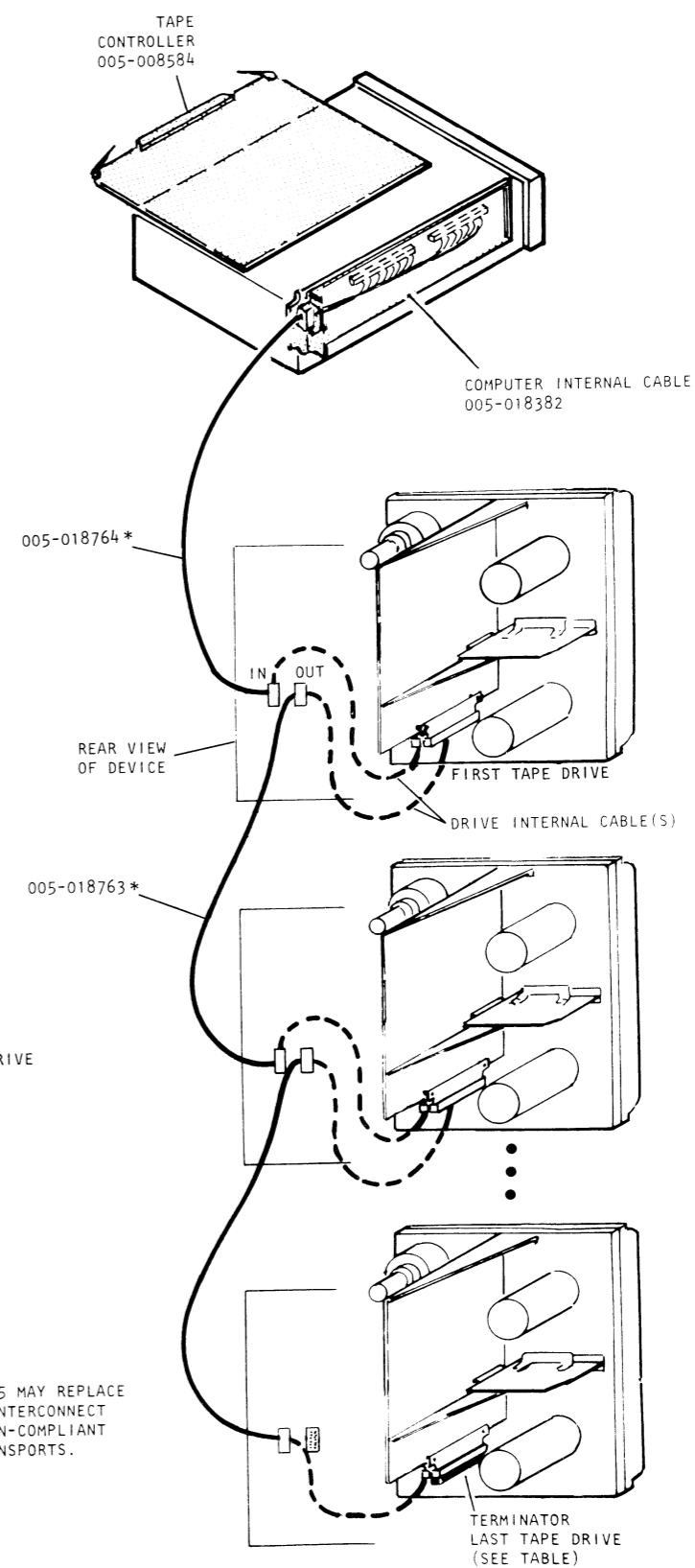
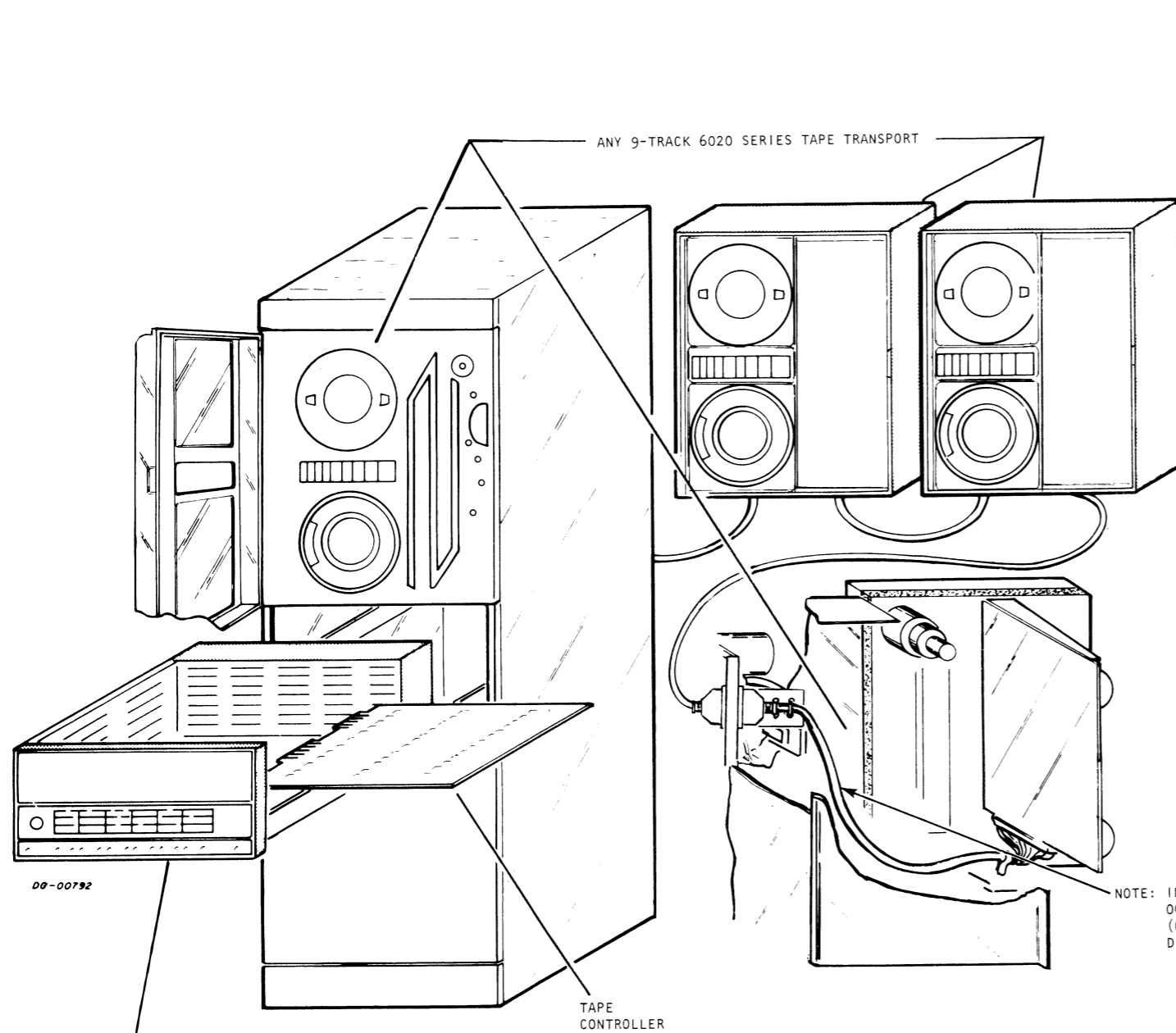
### TAILORING



### CABINET INSTALLATION



EXTERNAL CABLING



NOTE: INTERNAL CABLE  
005-019142 FOR SINGLE DRIVE  
(005-019141 FOR ADD-ON  
DRIVE CABLE ONLY)

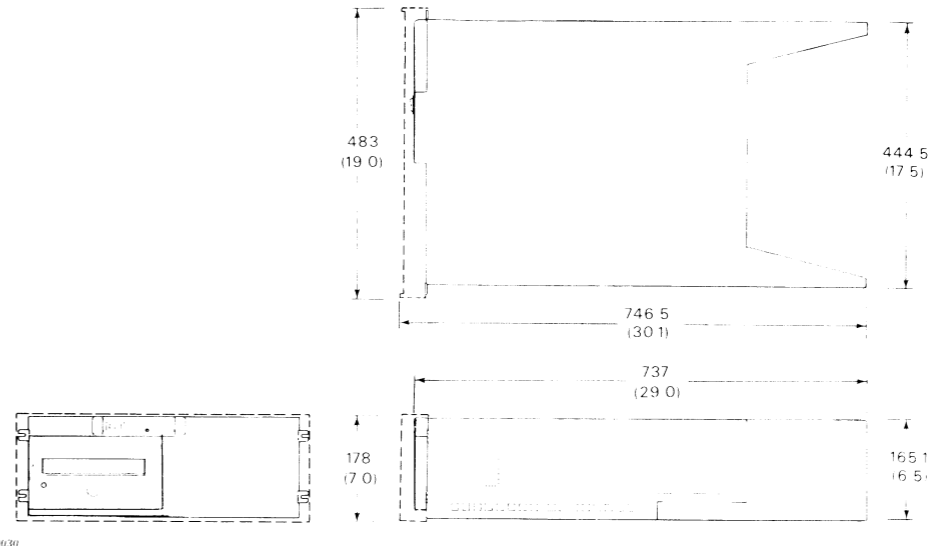
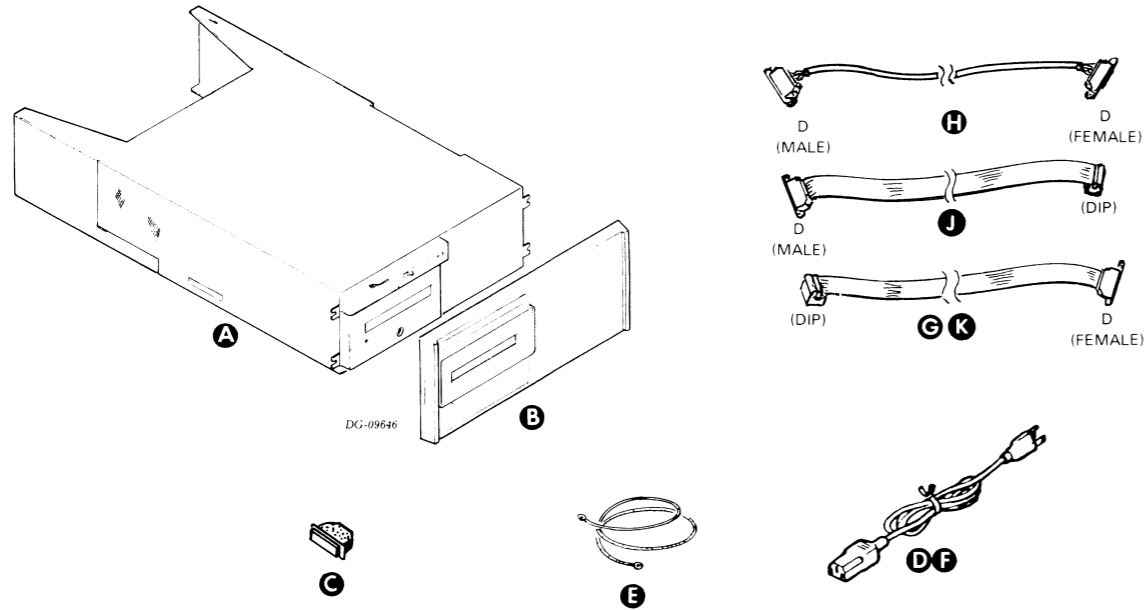
\* CABLE 005-018765 MAY REPLACE  
005-018763 TO INTERCONNECT  
COMPLIANT TO NON-COMPLIANT  
DEVICES AND TRANSPORTS.

DRIVE CONFIGURATION	LAST DRIVE	TERMINATOR
ALL 6027 AND "C" SERIES	N/A	005-002398
ALL 6026 AND "C" SERIES	N/A	005-008672
MIXTURE 6027, 6026	6026	005-008672

## INSTALLATION SPECIFICATIONS

### microNOVA CARTRIDGE TAPE DRIVE

Model 6230 (15MB)  
(6220-C, 6222-C) See note \*



**MAJOR COMPONENT**

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	CTG TAPE DRIVE	CABINET	
B	FRONT PANEL	CABINET	005-019066 BRN -OR- 005-019567 BLU
C	TERMINATOR	REAR OF CHASSIS	005-018508

**CABLE**

ITEM	CABLE	CONNECTING	LENGTH		NOTES
			FT	M	
D	A/C CORD SET LOW PWR	REAR OF CHASSIS-A/C OUTLET	7.5	2.3	109-000719
E	GROUND BRAID	RIGID DRIVE/COMPUTER			
F	A/C CORD SET HIGH PWR	REAR OF CHASSIS-A/C OUTLET	7.5	2.3	
G	INT CPU I/O CABLE	COMPLIANT CPU BACKPANEL TO CPU BULKHEAD (OUT, FEMALE)			
H	I/O CABLE D-D (CONN)	COMPLIANT CPU /PERIPHERAL (OUT, MALE) -TO- COMPLIANT PERIPHERAL (IN, FEMALE)			
J	I/O CABLE D-DIP (CONN)	COMPLIANT PERIPHERAL (OUT, MALE) TO NON-COMPLIANT PERIPHERAL (DIP)			
K	I/O CABLE DIP-D (CONN)	NON-COMPLIANT CPU /PERIPHERAL (OUT, DIP) -TO- COMPLIANT PERIPHERAL (IN, FEMALE)			

MAXIMUM ACCUMULATIVE BUSS LENGTH IS 100 FT. /30M  
SEE 010-000344 FOR CONFIGURATION AND 005#S.

**NOTE:**

\* FOR SPECIFIC INFORMATION REFER TO 010-000303.

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	483	737	178
Inches	19	29	7

**SERVICE CLEARANCES:**

	Front	Rear
Millimeters	711	586
Inches	28.0	23.0

**WEIGHT:**

Kilograms	15.3
Pounds	34

**HEAT OUTPUT:**

	Watts	BTU/hr
100V	64	218
120V	64	218
220V	63	215
240V	68	232

**OPERATING ENVIRONMENT:**

Temperature (max)		
Room	38°C	100°F
Cabinet	43°C	109°F
Relative Humidity (max) 80% non-condensing		
Altitude 305 to 2438m (1000 to 8000 ft.)		

**STORAGE ENVIRONMENT:**

TEMPERATURE	-40 to 65°C (-40 to 149°F)
HUMIDITY	10-90% non-condensing
ALTITUDE	7600 m (25,000 ft.)

**MEDIA ENVIRONMENT:**

IF THE ENVIRONMENTAL TEMPERATURE RELATIVE HUMIDITY LIMITS OF THIS SUBSYSTEM ARE EXCEEDED (IN PARTICULAR, THE MAXIMUM WET BULB TEMPERATURE OF 26°C) DEGRADED PERFORMANCE CHARACTERISTICS OF THE MEDIA WITH RESPECTS TO DATA ERROR RATES AND TAPE MEDIA WEAR LIFE CAN BE EXPECTED.

**POWER REQUIREMENTS:**

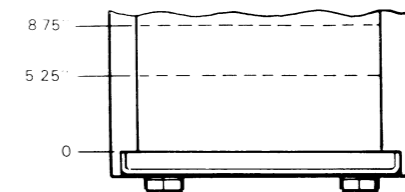
(Domestic)				
Voltage	120	120	220	240
Hz	60 ± 3	60 ± 3	50 ± 3	50 ± 3
Amp per Phase	0.56	0.56	0.3	0.3
Phase	1	1	1	1
Startup Surge per Phase	15A	17	9	9
Surge is	10 μs	10 μs		
(Export)				
Voltage	100	120	220	240
Amp per Phase	50 ± 3	60 ± 3	50 ± 3	50 ± 3
Phase	1	1	1	1
Startup Surge per Phase	17	17	9	9
Surge is	10 μs			

**CABLES:**

Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	2.3m (7.5 ft.)	5-15P	5-15R
Export 50Hz	2.3m (7.5 ft.)	6-15P	6-15R

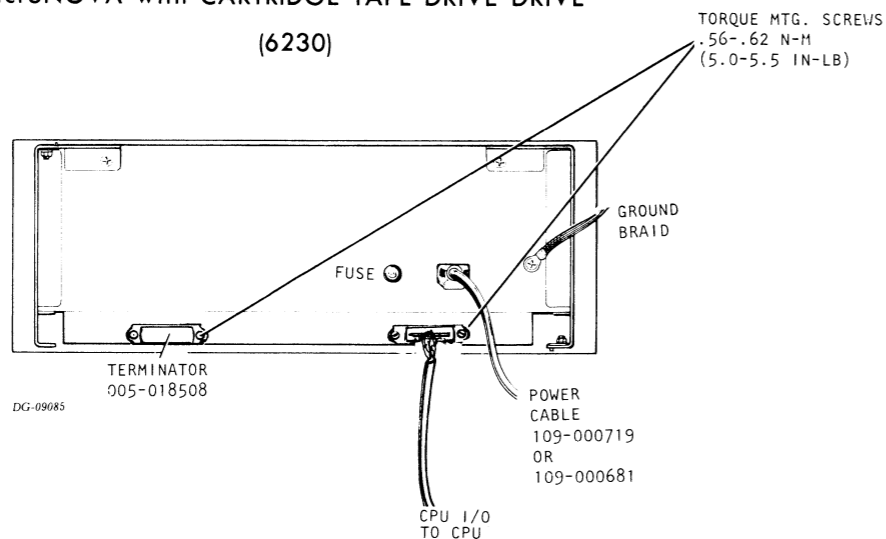
**PREFERRED LOCATION:**

Model 1148 cabinets (see detail) Preferred 8.75 in  
Minimum 5.25 in  
All other cabinets - No preferred location



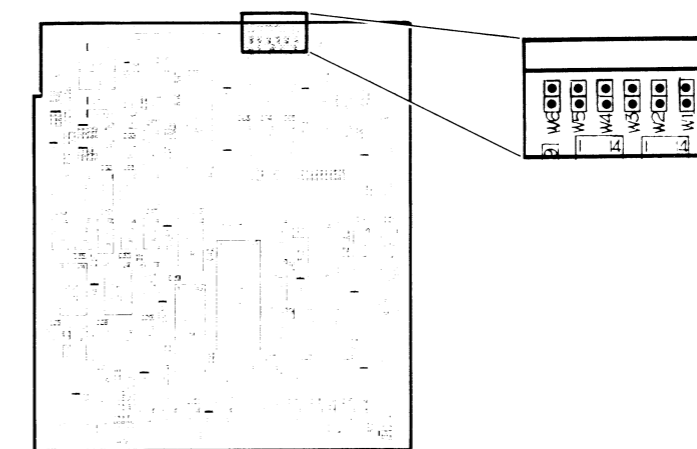
**EXTERNAL CABLING**

microNOVA with CARTRIDGE TAPE DRIVE DRIVE  
(6230)



**TAILORING  
JUMPERING**

TAPE CONTROLLER  
(for microNOVA system) (6230)



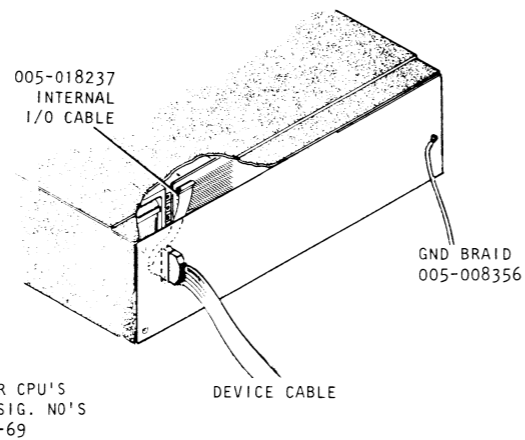
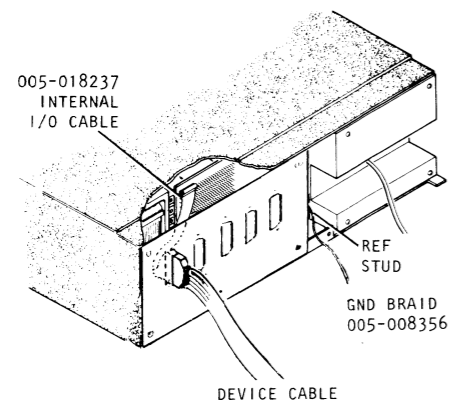
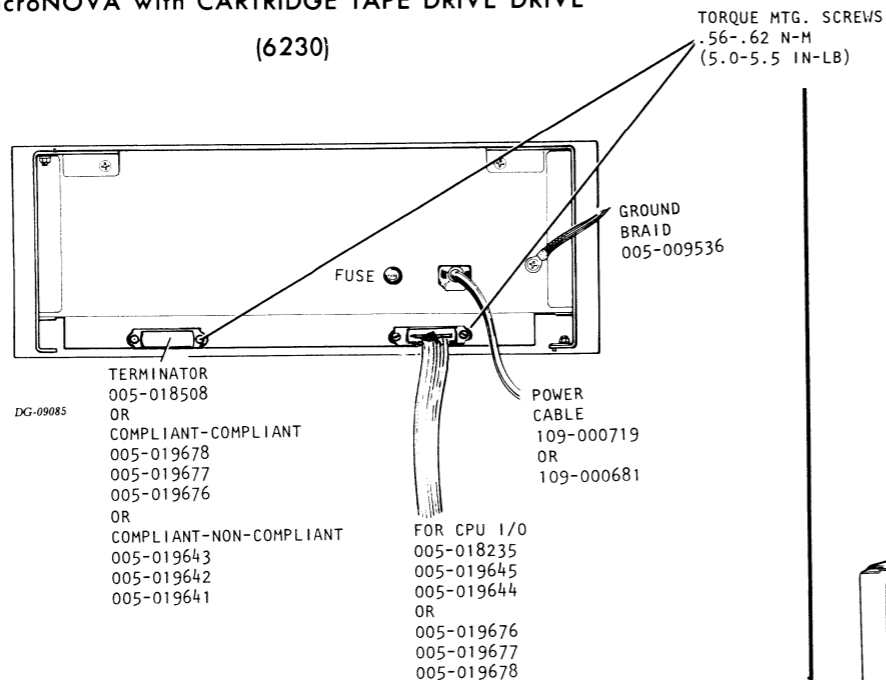
Ref DGC Dwg No 107-001879 Rev 01

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 22	DEVICE CODE 62
1	OUT	IN
2	IN	IN
3	OUT	OUT
4	OUT	OUT
5	IN	IN
6	OUT	OUT

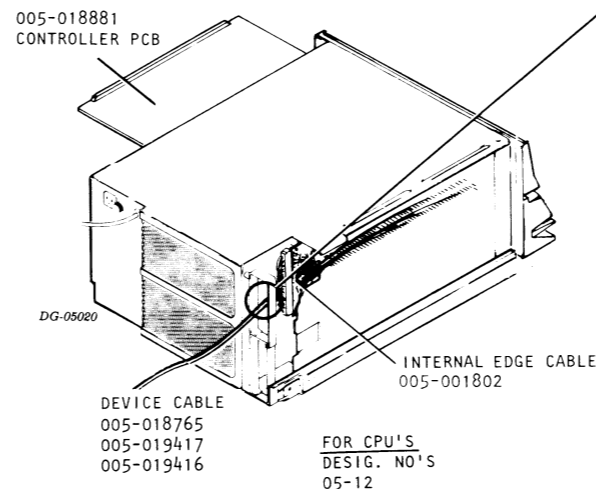
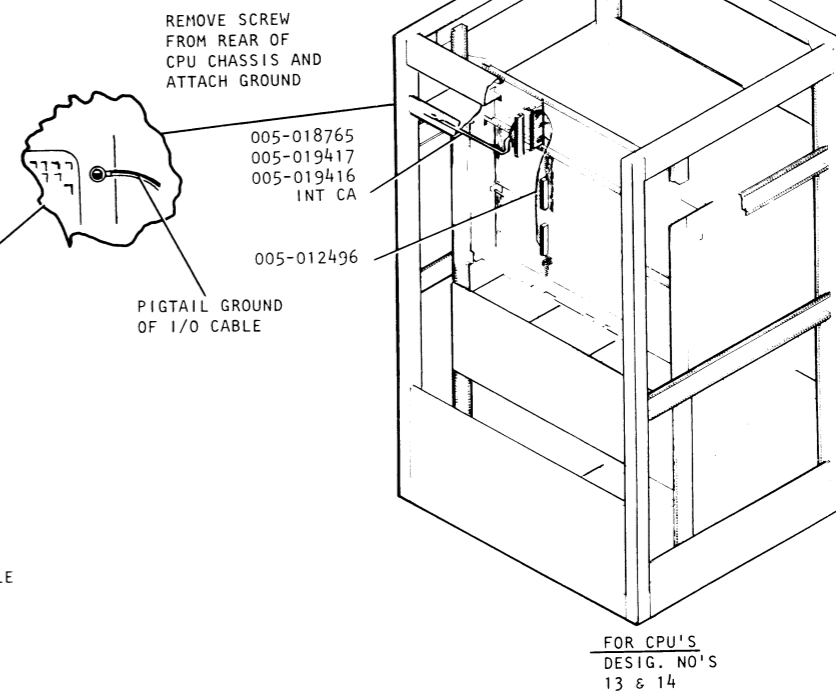
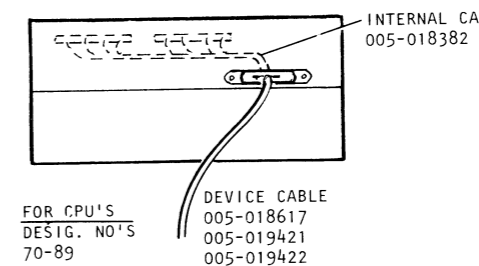
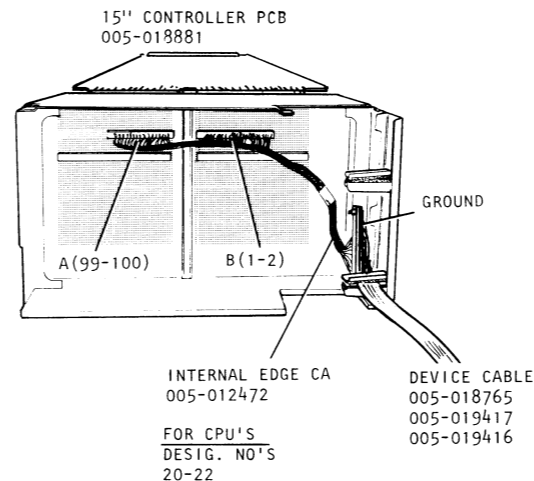
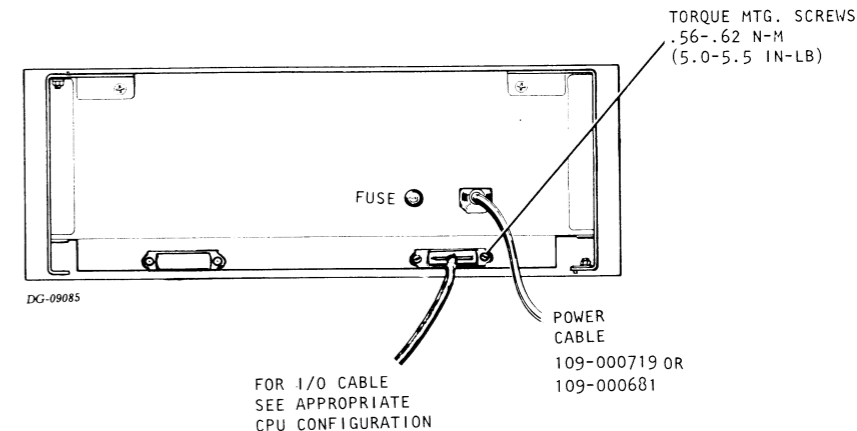
FOR MODEL #6220-C, 6222-C REFER TO 010-000303 FOR  
DISK CONTROLLER INFORMATION.

# EXTERNAL CABLING

microNOVA with CARTRIDGE TAPE DRIVE DRIVE  
(6230)



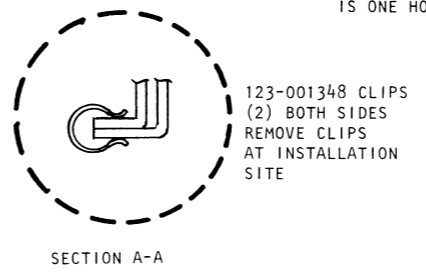
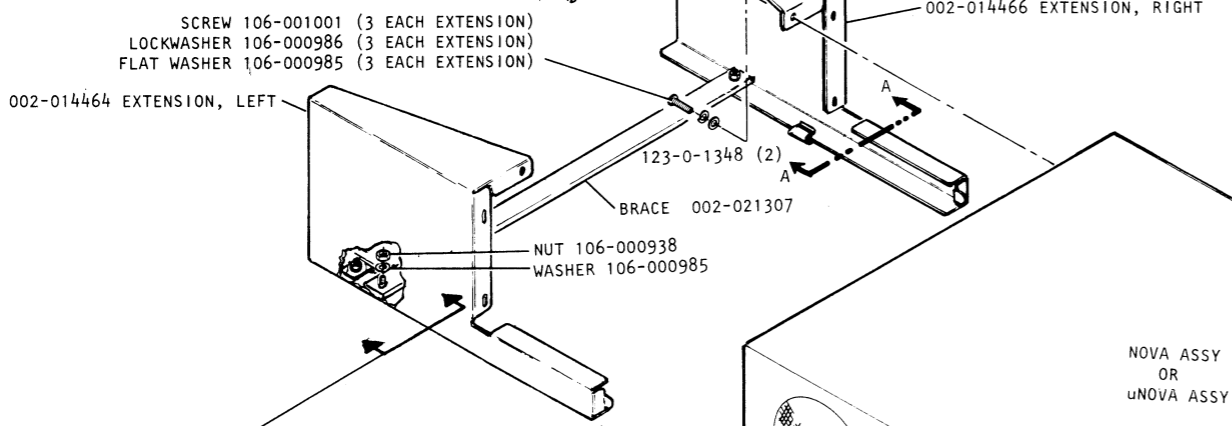
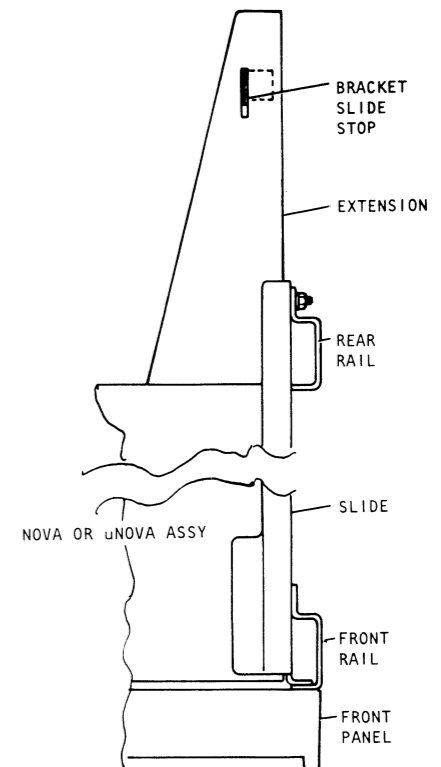
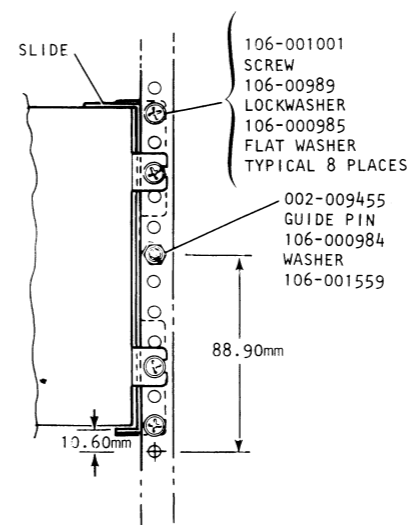
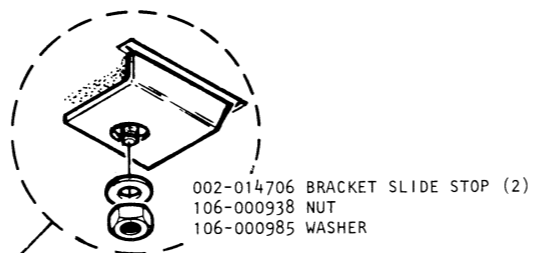
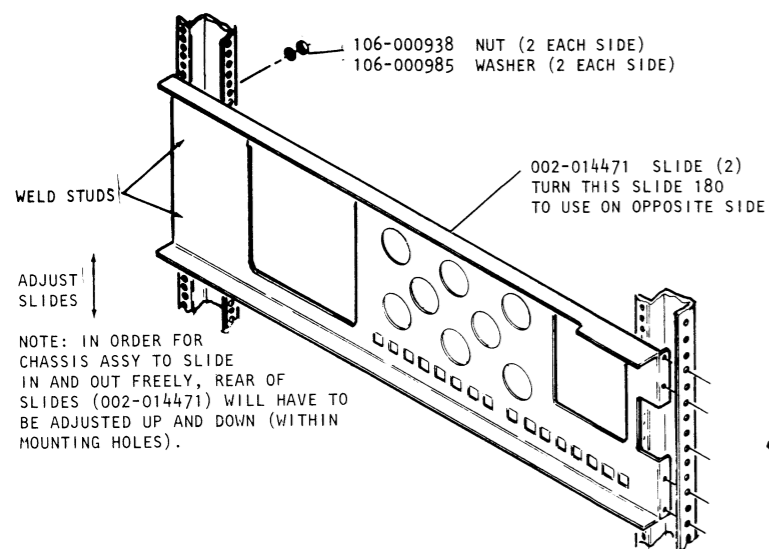
NOVA/ECLIPSE with CARTRIDGE TAPE DRIVE  
(6231)



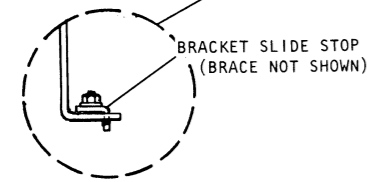
**CABINET MOUNTING**

HARDWARE MOUNTING KIT 005-016346

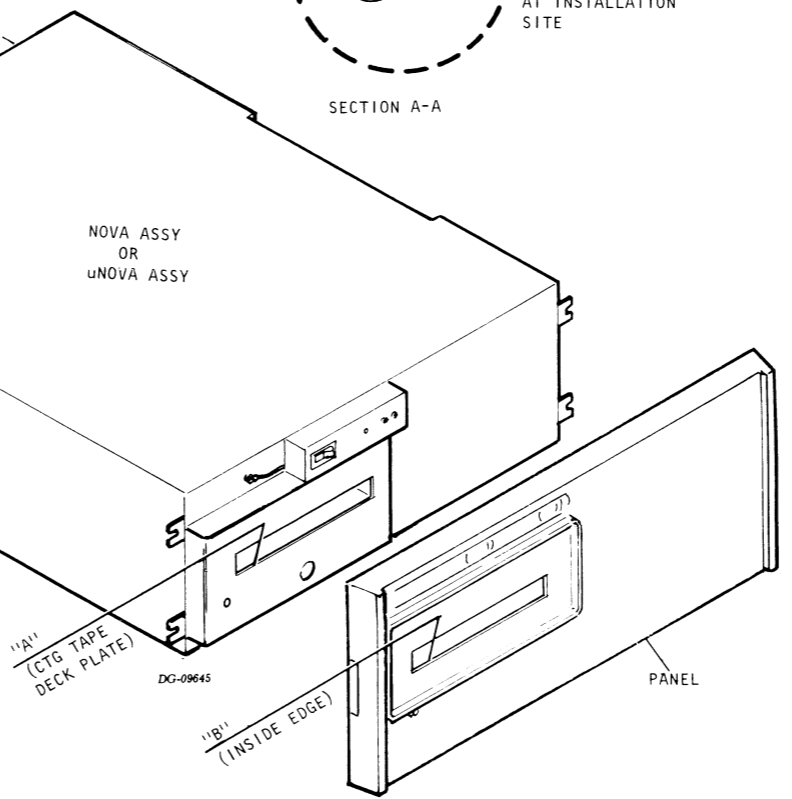
M4 HARDWARE TO BE TORQUED TO 2.14 - 2.32 NM  
M5 HARDWARE TO BE TORQUED TO 4.41 - 4.69 NM.



TOP VIEW

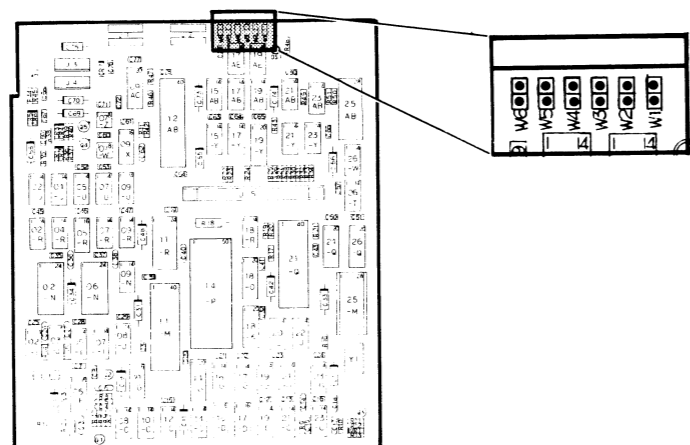


**TAPE CARTRIDGE INSERTION CLEARANCE**  
THE CHASSIS ASSEMBLY (SURFACE "A" OF CARTRIDGE TAPE DECK PLATE) MUST BE ALIGNED WITH THE PANEL ASSEMBLY (SURFACE "B", INSIDE EDGE). THIS CAN BE ACHIEVED BY FIRST ASSEMBLING CHASSIS ASSEMBLY AND FRONT PANEL TO RACK AS SHOWN, THEN INSERTING A TAPE CARTRIDGE 118-001742/001743 THRU THE PANEL OPENING. IF CARTRIDGE CLEARANCE AROUND FRONT PANEL IS TOO CLOSE OR CAUSES INTERFERENCE, ALIGN SURFACE "A" AND "B" BY REMOVING PANEL AND SHIFTING CHASSIS ASSEMBLY UP OR DOWN TO DESIRED POSITION.



## TAILORING JUMPERING

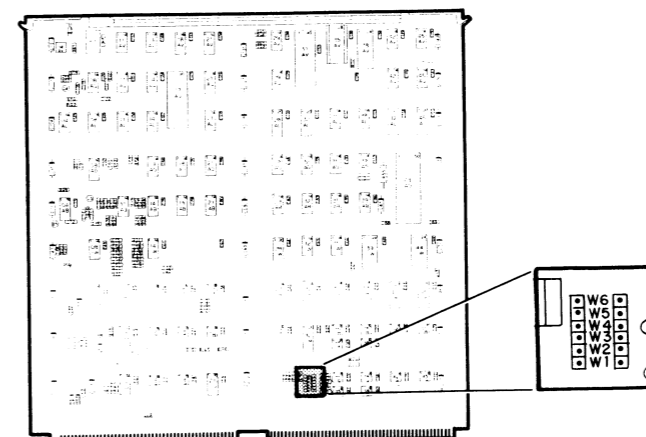
**CONTROLLER**  
(for microNOVA system)



Ref DGC Dwg No 107-001879 Rev 01

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 22	DEVICE CODE 62
1	OUT	IN
2	IN	IN
3	OUT	OUT
4	OUT	OUT
5	IN	IN
6	OUT	OUT

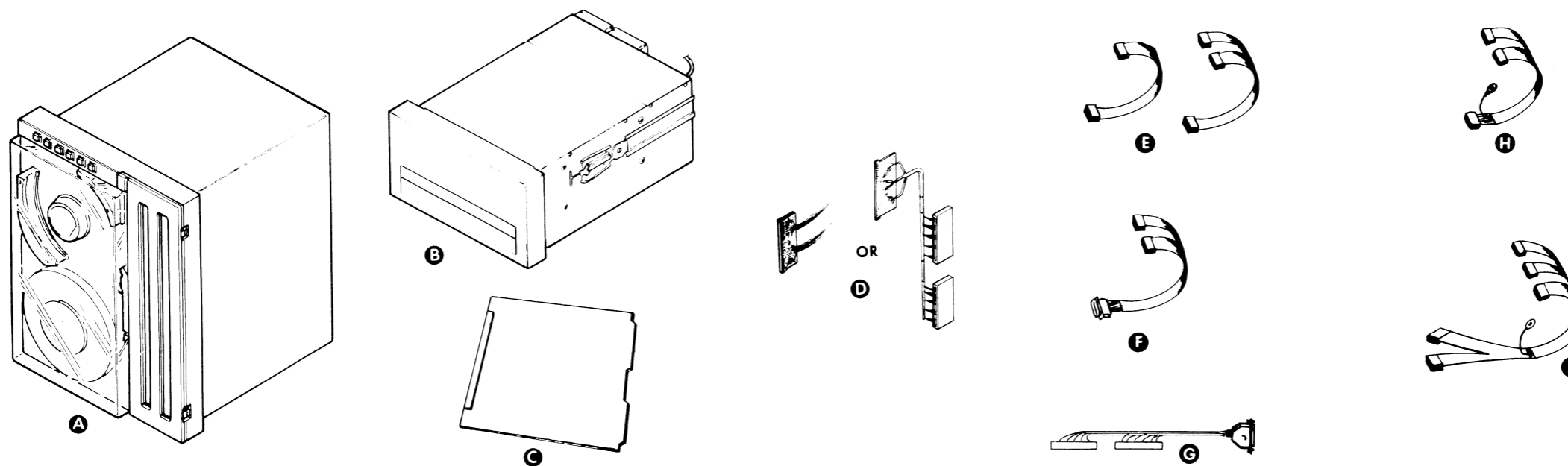
**CONTROLLER**  
(for NOVA/ECLIPSE systems)



Ref DGC Dwg No 107-001878 Rev 01

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 22	DEVICE CODE 62
1	OUT	IN
2	IN	IN
3	OUT	OUT
4	OUT	OUT
5	IN	IN
6	OUT	OUT

INSTALLATION SPECIFICATIONS



MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	TAPE TRANSPORT	CABINET	118-001130, 118-001275, 118-001276, 118-001277, 118-001278, 118-001279
B	FORMATTER	CABINET 1344A SERIES 1244A	ACCOMMODATES UP TO FOUR TAPE TRANSPORTS 118001131
C	TAPE CONTROLLER	COMPUTER CHASSIS	005-017433

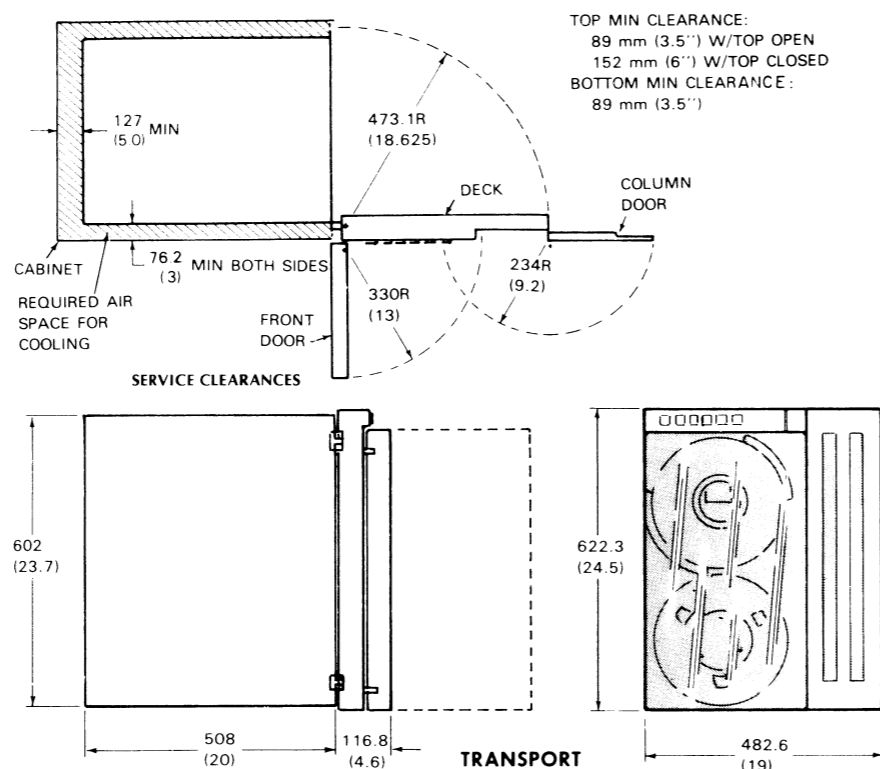
CABLE

Item	Cable	Connect	Max Lg		Notes
			ft	m	
D	NON COMP INT CABLE	BACKPANEL (CONTROLLER) BACK OF CPU CHASSIS	N/A	N/A	REFER TO 010-319 FOR CONFIGURATION AND CABLE 005#S
E	NON COMP DEVICE CABLES	COMP FORMATTER TAPE TRANSPORT	20	6	
F	COMP CPU TO COMP FMTR CBL	BACK OF CPU CHASSIS COMP FORMATTER	20	6	
G	COMP CPU INTERNAL CBL	BACKPANEL (CONTROLLER) BACK OF CPU CHASSIS	N/A	N/A	
H	NON COMP CPU TO COMP FMTR CBL	BACK OF CPU CHASSIS COMP FORMATTER	20	6	
J	COMP/NON-COMP FMTR TO COMP DRIVE	COMP/NON-COMP FMTR CHASSIS COMP TAPE DRIVE	20	6	
K	BMC CABLES	CONTROLLER AND BMC			

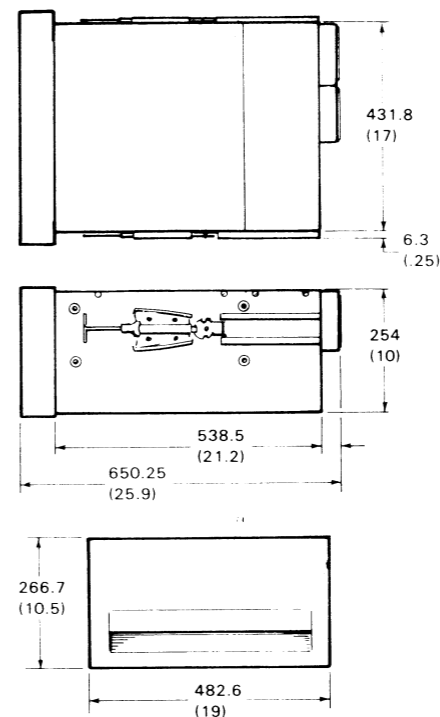
**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.



### INSTALLATION SPECIFICATIONS



TOP MIN CLEARANCE:  
89 mm (3.5") W/TOP OPEN  
152 mm (6") W/TOP CLOSED  
BOTTOM MIN CLEARANCE:  
89 mm (3.5")



#### FORMATTER

DIMENSIONS IN MILLIMETERS  
INCHES IN PARENTHESIS FOR REFERENCE

#### TRANSPORT

<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>
Millimeters	482.6	624.8	622.3
Inches	19	24.6	24.5
<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Right</b>	<b>Left</b>
Millimeters	762	76.2	330
Inches	30	3	13
<b>WEIGHT:</b>			
Kilograms	77		
Pounds	170		
<b>HEAT OUTPUT:</b>	<b>Watts</b>	<b>BTU/hr</b>	
	800	2728	
<b>OPERATING ENVIRONMENT:</b>			
Temperature (max)	32°C (90°F)		
Relative Humidity	25 - 60%		
Altitude	Standard	4307-S	
	-305m to 762m (-1000 to 2500 ft.)	762m to 1982m (2500 to 6500 ft.)	
<b>POWER REQUIREMENTS:</b>			
(Domestic)			
Voltage	120V ± 10% - 15%		
Hz	60		
Amp per Phase	6		
Phase	1		
Startup Surge	21A for 1.5s		
(Export)			
Voltage	220 + 10% - 15%	240 + 10% - 15%	
Hz	50	50	
Amp per Phase	3	3	
Phase	1	1	
Startup Surge	10.5A for 1.5s	10.5A for 1.5s	
<b>CABLES:</b>	<b>Length</b>	<b>Conn</b>	<b>Mating Conn</b>
Primary Power			
Domestic 60Hz	1.37m(4.5')	5-15P	5-15R
Export 50Hz	1.37m(4.5')		

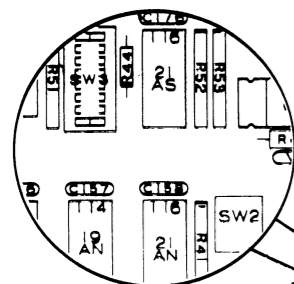
#### FORMATTER

<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>
Millimeters	482.6	650.25	266.7
Inches	19	25.6	10.5
<b>SERVICE CLEARANCES:</b>	<b>Front</b>		
Millimeters	610		
Inches	24		
<b>WEIGHT:</b>			
Kilograms	34		
Pounds	75		
<b>HEAT OUTPUT:</b>	<b>Watts</b>	<b>BTU/hr</b>	
	702	2400	
<b>OPERATING ENVIRONMENT:</b>			
Temperature (max)	35°C (95°F)		
Relative Humidity	10 - 80%		
Altitude	3000m (10,000')		
<b>POWER REQUIREMENTS:</b>			
(Domestic)			
Voltage	120 ± 10% - 15%		
Hz	60		
Amp per Phase	6		
Phase	1		
(Export)			
Voltage	220 + 10% - 15%	240 ± 10% - 15%	
Hz	50	50	
Amp per Phase	3	3	
Phase	1	1	
<b>CABLES:</b>	<b>Length</b>	<b>Conn</b>	<b>Mating Conn</b>
Primary Power			
Domestic 60Hz	1.37m(4.5')	6-15P	6-15R
Export 50Hz	1.37m(4.5')		

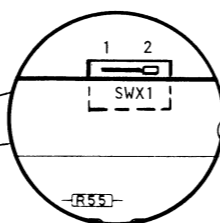
#### CONTROLLER

<b>POWER:</b>	5 AMPS @ 5Vdc
<b>SPACE REQ:</b>	1 CPU slot
<b>DATA CHANNEL REQ:</b>	High speed
<b>MAX CHANNEL LATENCY:</b>	
Read	PF 700 us GCR 180 us
Write	780 us 196 us

# TAILORING JUMPERING



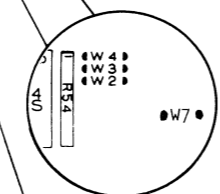
**CONTROLLER**  
Ref DGC Dwg No. 003-001767 Rev 07



SWX1 SWITCH POSITION

DIAGNOSTIC	1
NORMAL OPERATION	2

SWX1 ADDED REV. 06



W7 ADDED ON REV 07

DEVICE CODE	SW1
DC0	S1 MSB
DC1	S3
DC2	S5
DC3	S7
DC4	S4
DC5	S2 CSB
DISABLE	S6

DEVICE CODE 22 IS S3 & S4.  
DEVICE CODE 62 IS S1 & S3 & S4.

PRIORITY SELECT	SW3	SW2			
HSCR 7	S4	S4	S3	S2	S1
HSCR 6	S3	S4	-	S2	S1
HSCR 5	S2	S4	S3	-	S1
HSCR 4	S1	S4	-	-	S1
HSCR 3	S5	S4	S3	S2	-
HSCR 2	S6	S4	-	S2	-
HSCR 1	S7	S4	S3	-	-
HSCR 0	S8	S4	-	-	-

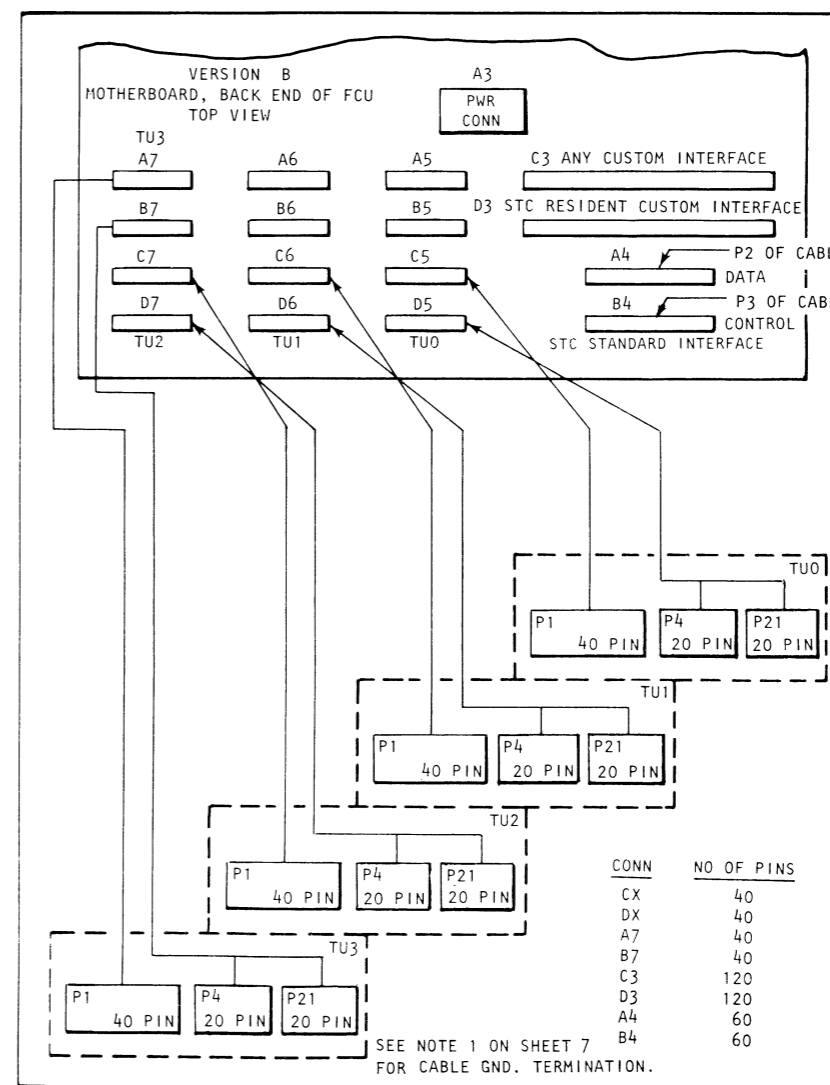
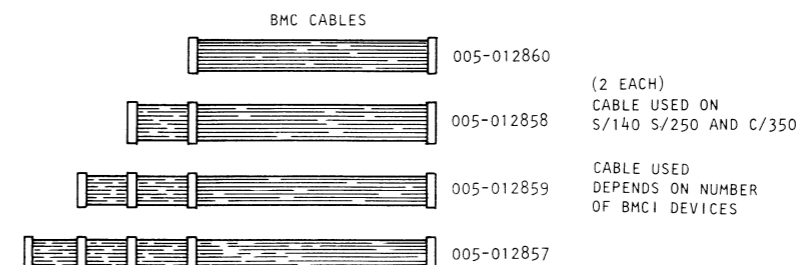
S4 ON SW2 MUST BE ON FOR BMC CHANNEL  
S4 ON SW2 MUST BE OFF FOR STANDARD CHANNEL

BMC ONLY

WORDS PER BURST	JUMPERS IN		
2	-	-	-
4	W2	-	-
6	-	W3	-
8	W2	W3	-

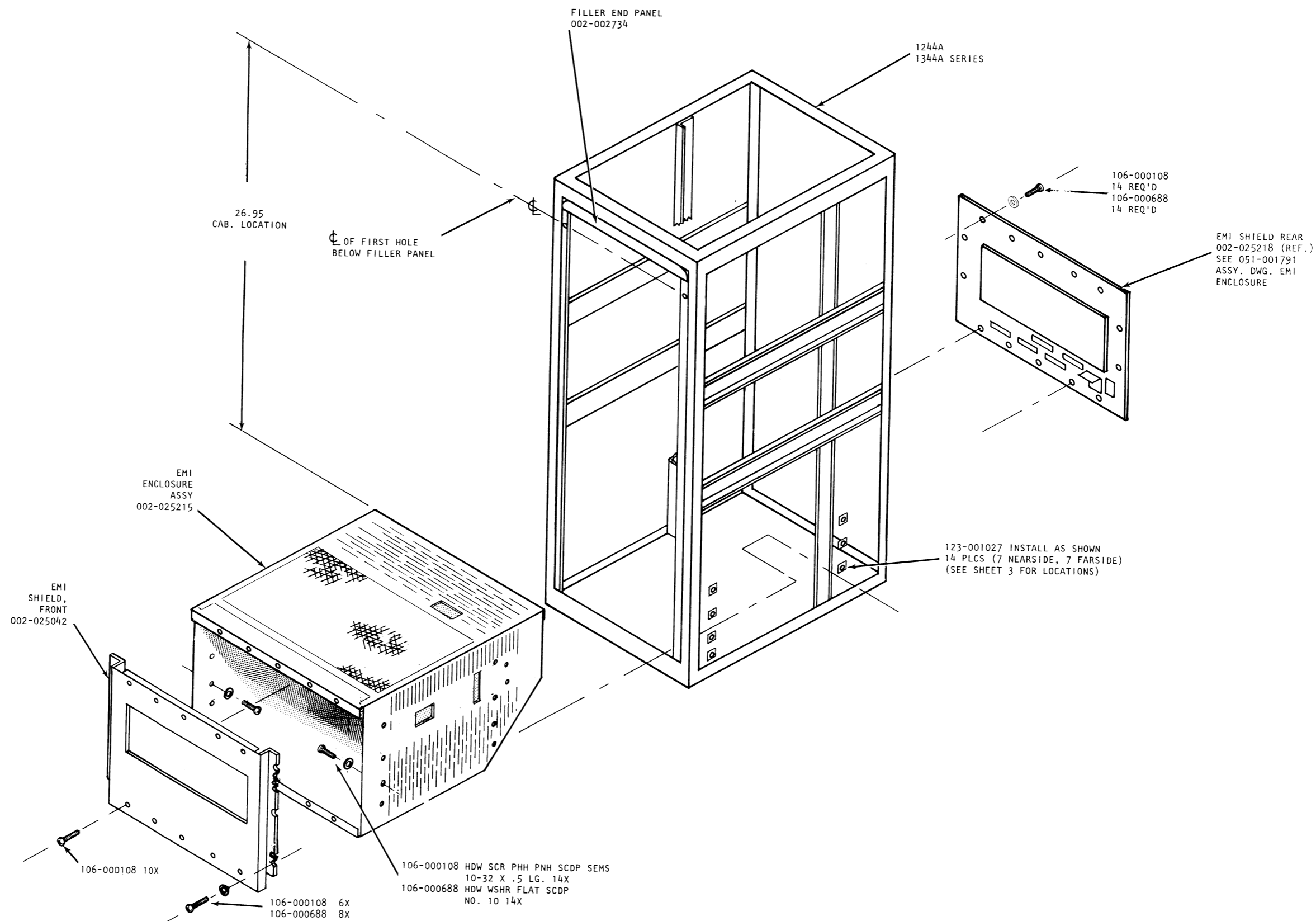
W4 FOR FUTURE USE ONLY.

W7	DIAGNOSTIC TEST ONLY (ALWAYS IN)
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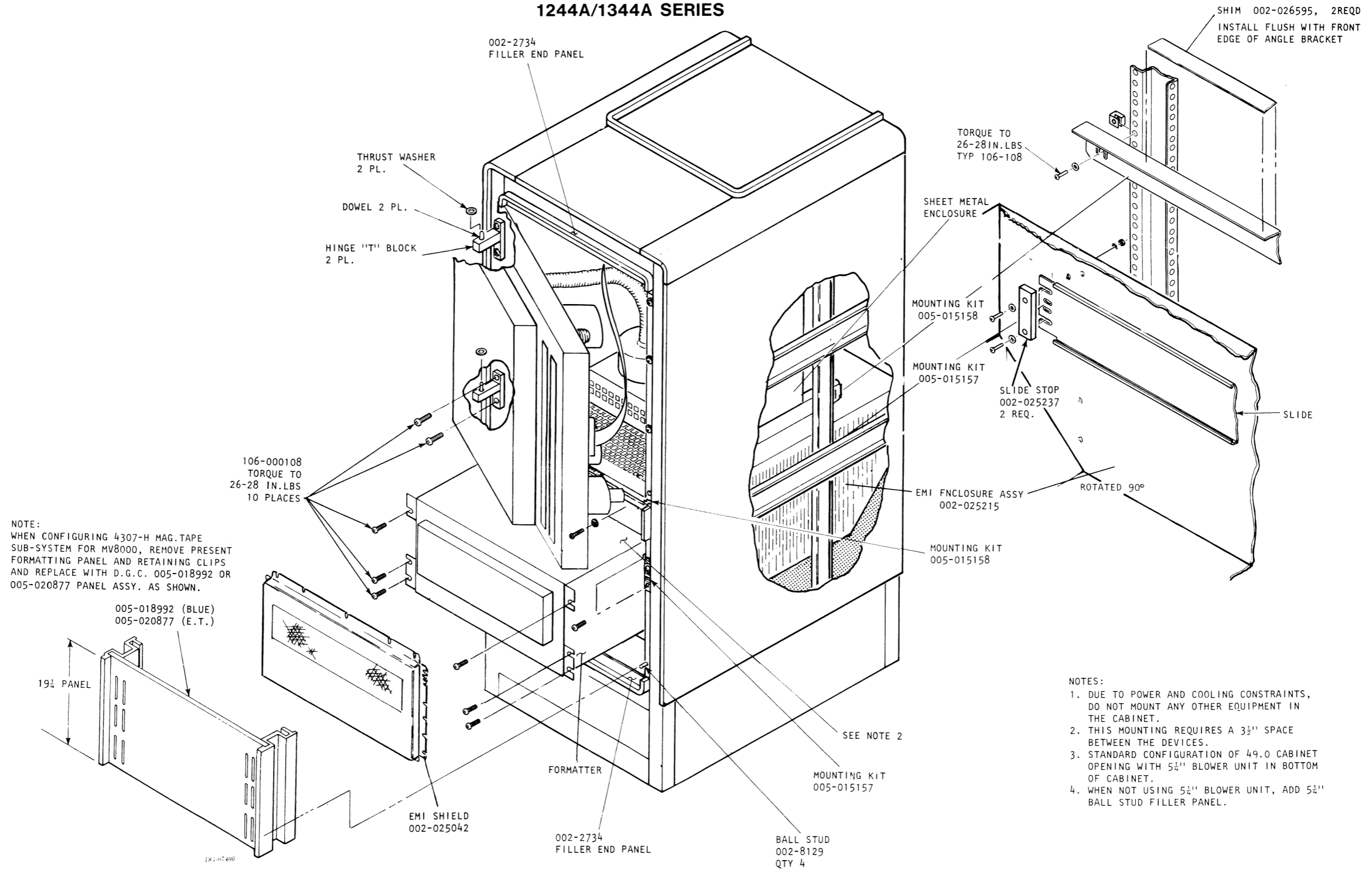


J OR H PAGE 1  
J OR H PAGE 1

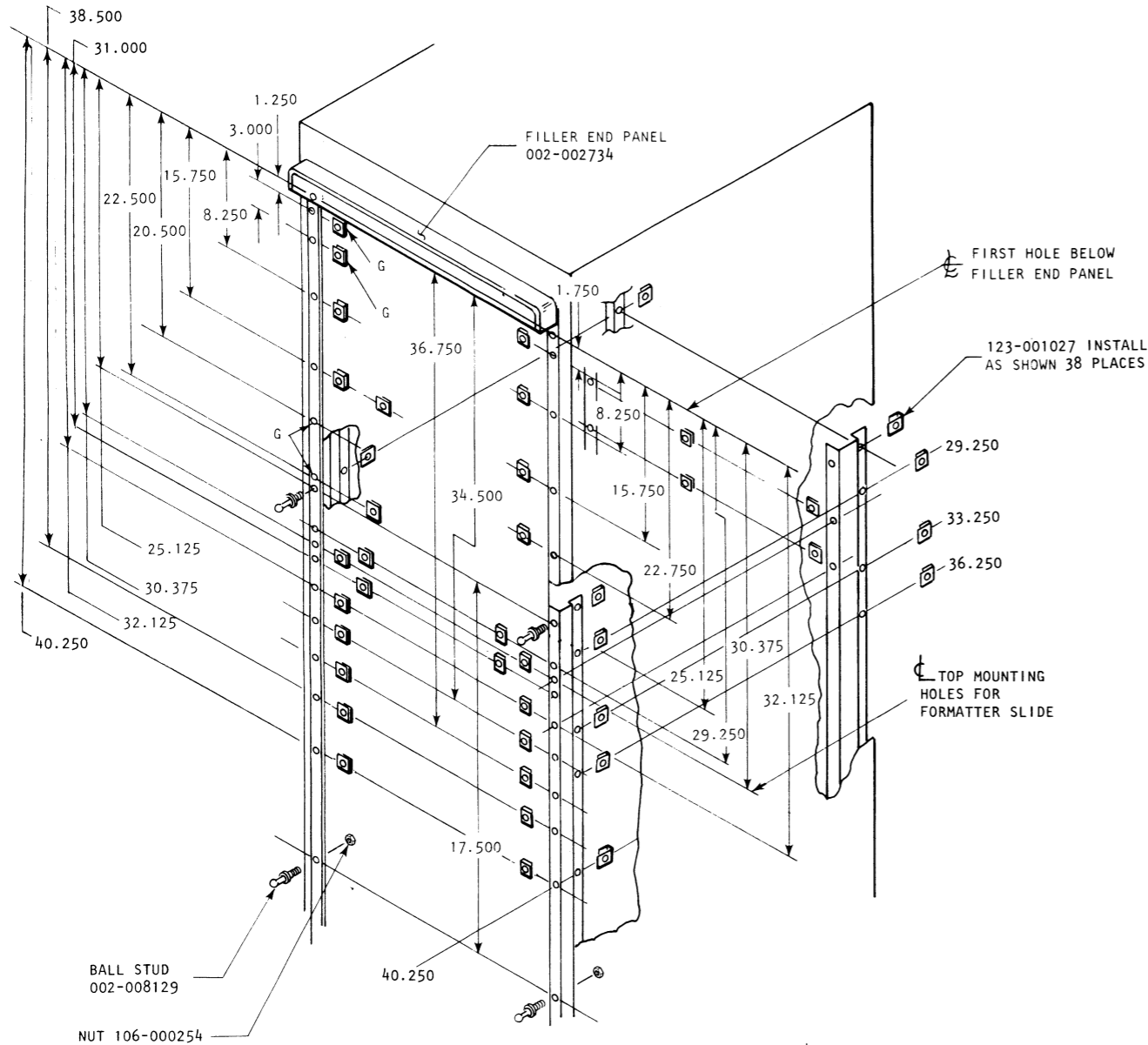
### CABINET MOUNTING



### CABINET MOUNTING (CONT) 1244A/1344A SERIES

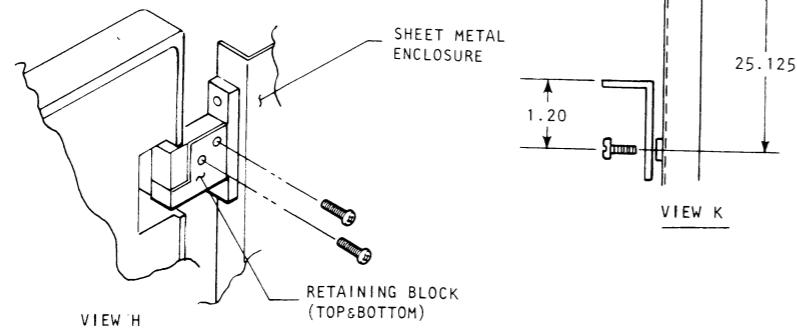


### CABINET MOUNTING (CONT)

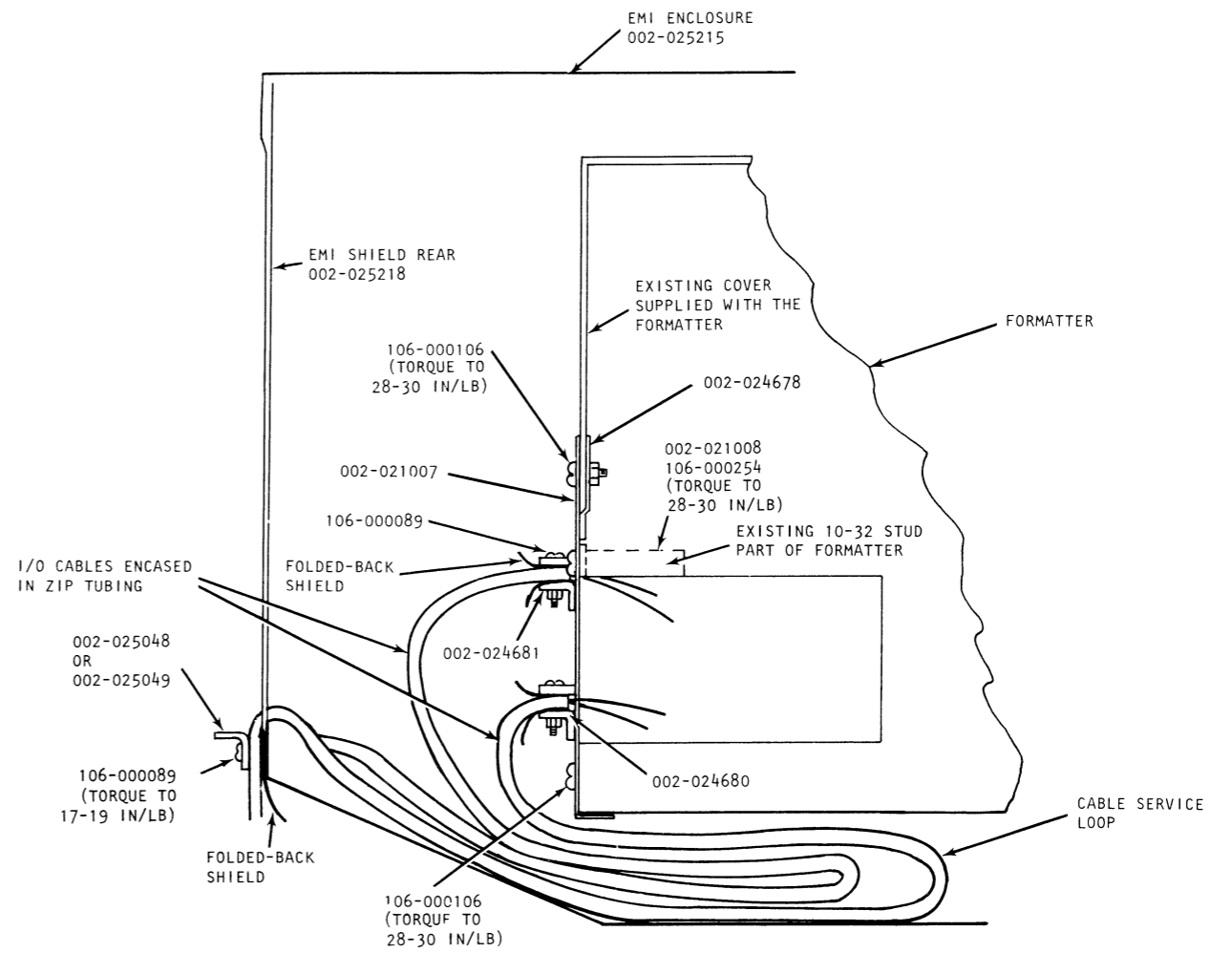
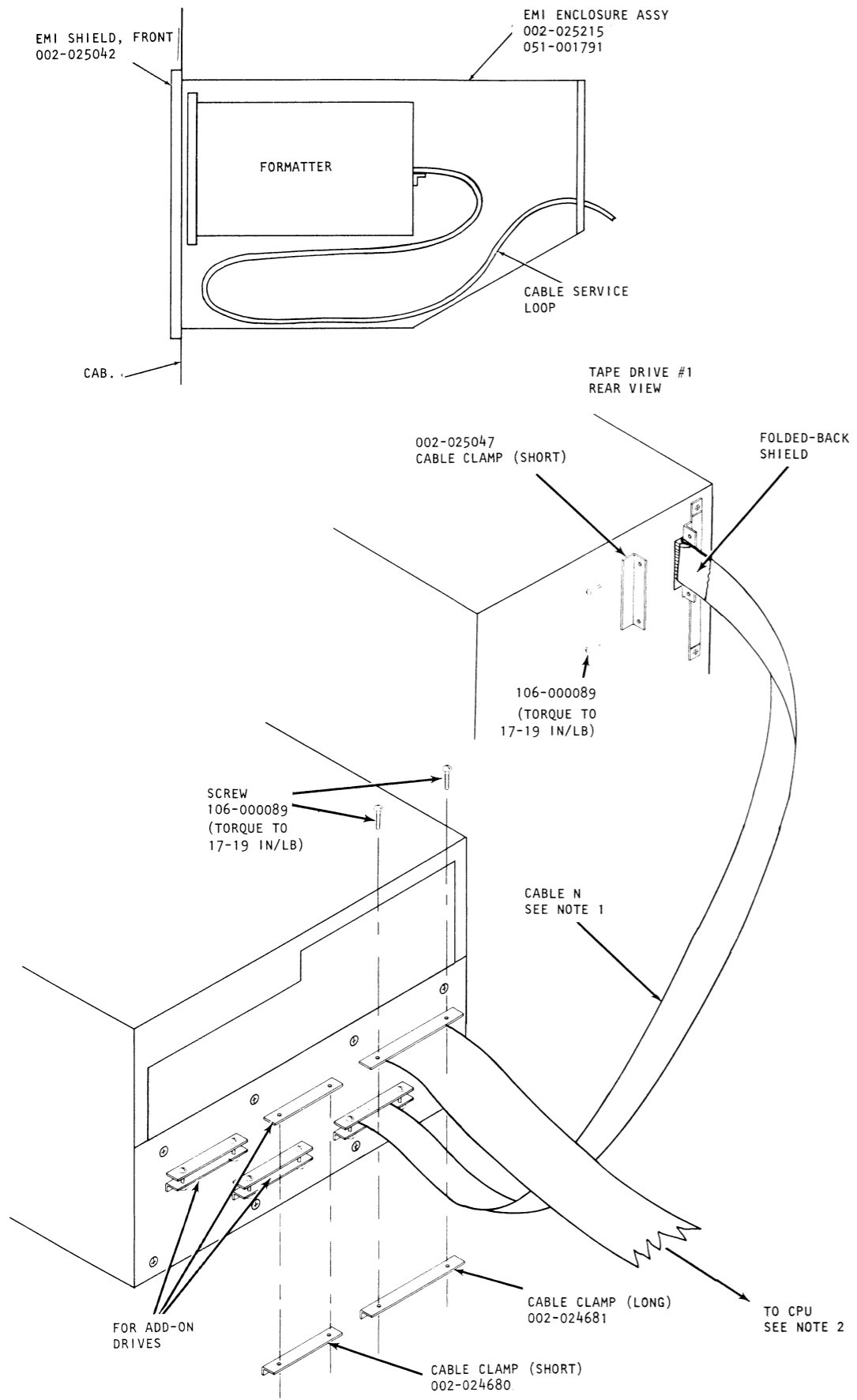


#### INSTALLATION PROCEDURE

1. REMOVE 123-001027 (NUT CLIPS) FROM MOUNTING KITS 005-015157 AND 005-015158, AND INSTALL ONTO CABINET RAILS PER THE DIMENSIONS AS SHOWN.
2. INSTALL 002-025215 (EMI ENCLOSURE) ONTO VERTICAL RAILS USING (14) 106-000108 (10-32 X 1/2 PAN HEAD PHILLIPS HEAD SCREW SEMS) AND (14) 106-000688 (#10 FLAT WASHER). SEE SHEET 4 FOR LOCATION IN CABINET.
3. INSTALL 002-000177 (CHASSIS GUIDE) ONTO INSIDES OF CABINET USING 106-000108 (10-32 X 1/2 PAN HEAD PHILLIPS HEAD SCREW SEMS). INSTALL TO APPROXIMATE DIMENSIONS AS SHOWN. (THESE GUIDES AID IN INSTALLING SHEET METAL TAPE DRIVE ENCLOSURE ONTO VERTICAL RAILS IN CABINET. (SEE VIEW K)
4. TWO PEOPLE SHOULD BE USED WHEN ITEM 3 IS PERFORMED. INSTALLATION OF TAPE DECK INTO CABINET.
  - A. UNFASTEN AIR HOSES FROM DECK CASTING (2 PL)
  - B. DISCONNECT NECESSARY GROUND STRAPS & CABLES FROM DECK CASTING (APPROX. 13 CONNECTIONS).
  - C. REMOVE RETAINING BLOCKS FROM SHEET METAL ENCLOSURE (2 PL) SEE VIEW H.
  - D. LIFT DECK CASTING & PLASTIC DOOR OFF OF HINGE "T" BLOCKS AND PLACE IN A SECURE PLACE SO AS NOT TO SCRATCH OR DAMAGE PLASTIC FRONT DOOR.
  - E. INSTALL SHEET METAL ENCLOSURE ONTO FRONT RAILS OF CABINET & FASTEN SECURELY.
  - F. INSTALL THE 2 HINGE "T" BLOCKS (SEE VIEW H) ONTO ENCLOSURE, WHICH IS NOW MOUNTED INTO CABINET AT LOCATIONS G.
  - G. INSTALL DECK CASTING ONTO HINGE "T" BLOCKS & ADJUST USING BLOCK, MOUNTED ON BACK SIDE OF DECK CASTING. ADD RETAINING BLOCKS.
  - H. REATTACH AIR HOSES, GROUND STRAPS, AND CABLES TO DECK PLATE.
  - I. INSTALL CABLE CLAMP AS SHOWN ON SHEET 7.
5. INSTALL 002-008129 (BALL STUD) ONTO CABINET AS INDICATED (4 PL) AND HAND TIGHTEN 106-000254 (NUTS)
6. SNAP FRONT PANEL (051-001009) ONTO BALL STUDS AND ADJUST FRONT PANEL TOP EDGE TO ALIGN WITH PROPERTY ZONE UNDER TAPE DECK.
7. FASTEN SECURELY 106-000254 AND REMOVE FRONT PANEL 051-001009 AND 002-025237 (SLIDE STOP).
8. INSTALL SLIDE BRACKETS AND 002-025237 SLIDE STOP ONTO VERTICAL RAILS IN REAR OF CABINET. INSTALL SLIDES ONTO FRONT RAILS & ONTO SLIDE BRACKETS IN BACK. IF NECESSARY ADJUST SO THAT SLIDES MOVE FREELY.
9. INSTALL 002-025218 (EMI SHIELD REAR) USING 18 106-000108 (10-32 X 1/2 SCREW) AND 8 106-000688 (#10 FLAT WASHER).
10. INSTALL FORMATTER INTO RACK
11. INSTALL 1/0 CABLES THROUGH 002-025218 (EMI SHIELD REAR) AND THROUGH 002-021007 (PANEL REAR CONN) OF FORMATTER. CLAMP FOLDED-BACK SHIELD AS SHOWN ON SHEET 7.
12. SECURE FORMATTER INTO RACK BY USING (6) 106-000108 SCREWS.
13. INSTALL 002-025042 (EMI SHIELD FRONT) USING 18 106-000108 (10-32) X 1/2 SCREW) AND 8 106-000688 (#10 FLAT WASHER).
14. INSTALL 19 1/2" PANEL ONTO FRONT OF CABINET, SO THAT SLOTS IN PANEL WILL BE IN FRONT OF FORMATTER BLACK FILTER.



CABLING



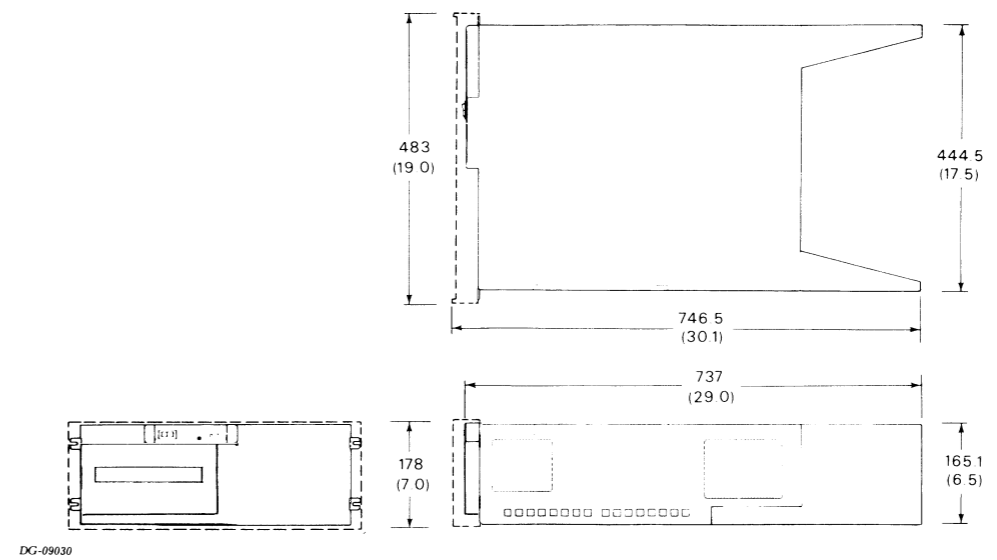
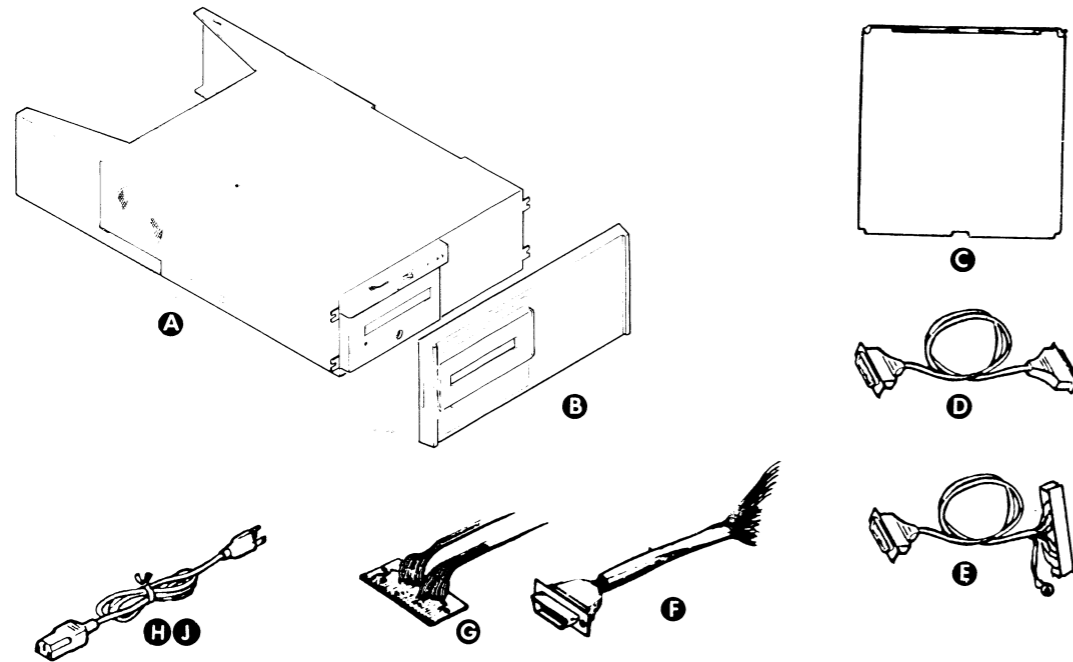
NOTES:

1. CABLE "N" IS EQUIPPED WITH BOTH FOLDED-BACK SHIELD AND GROUND FOR USE WITH OR WITHOUT CABLE SHIELD CLAMP, AND MUST BE PROPERLY TERMINATED AS FOLLOWS:  
CUT OFF THE GROUND BRAID AT THE ZIPPER TUBING AND CLAMP THE FOLDED-BACK SHIELD AS SHOWN.
2. REFER TO TAPE PRODUCT MASTER 010-000319 FOR CONFIGURATION AND CABLE 005 NUMBERS.

### INSTALLATION SPECIFICATIONS

#### NOVA CARTRIDGE TAPE DRIVE

Model 6231 (15MB)  
(Model 6225-C, 6227-C)\*



\* REFER TO 010-000303 FOR SPECIFIC INFORMATION

MAJOR COMPONENT SEE 010-000319 FOR SPECIFIC CONFIGURATIONS AND 005 NUMBERS

ITEM	COMPONENT	MOUNTING LOCATION	NOTES
A	CTG TAPE DRIVE	CABINET	
B	FRONT PANEL	CABINET	005-019066 BRN -OR- 005-019567 BLU
C	CONTROLLER PCB	CPU CHASSIS	005-018881

CABLE

ITEM	CABLE	CONNECTING	MAX LG		NOTES
			FT	M	
D	I/O CABLE D-D (CONN)	COMPLIANT CPU -TO- COMPLIANT PERIPHERAL	/	/	
E	I/O CABLE D-EDGE (CONN)	COMPLIANT PERIPHERAL (D-CONN) -TO- NON-COMPLIANT CPU (EDGE CONN)	20	6	
F	INT CPU I/O CABLE	COMPLIANT CPU BACKPANEL -TO- CPU BULKHEAD (D-CONN)	/	/	
G	INT CPU I/O CABLE	NON-COMPLIANT CPU BACKPANEL WIREWRAP/100 PIN BP CONN -TO- PADDLEBOARD	/	/	
H	A/C CORD SET LOW PWR	REAR OF CHASSIS TO A/C OUTLET	7.5	2.3	109-000719
J	A/C CORD SET HIGH PWR	REAR OF CHASSIS TO A/C OUTLET	7.5	2.3	109-000681

\*\* PRODUCT SPECIFICATION 118-001744 DOES NOT ALLOW I/O CABLES TO BE ANY LONGER THAN 6 m (20 ft).

**DIMENSIONS:**

	Width	Depth	Height
Millimeters	483	737	178
Inches	19	29	7

**SERVICE CLEARANCES:**

	Front	Rear
Millimeters	711	586
Inches	28.0	23.0

**WEIGHT:**

Kilograms	16.2
Pounds	36

**HEAT OUTPUT:**

	Watts	BTU/hr
100V	57	194
120V	57	194
220V	57	194
240V	57	194

**OPERATING ENVIRONMENT:**

Temperature (max)	Room 32°C 90°F	Cabinet 43°C 109°F
Relative Humidity (max)	80% non-condensing	
Altitude	-305 to 2438m (-1000 to 8000 ft)	

**STORAGE ENVIRONMENT:**

Temperature	-40 to 65°C (-40 to 149°F)
Relative Humidity	10-90% non-condensing
Altitude	7600 m (25,000 ft.)

**POWER REQUIREMENTS:**

(Domestic)				
Voltage	120	+10% -15%		
Hz	60 ± 3			
Amp per Phase	0.5			
Phase				
Startup Surge per Phase	15A			
Surge is	10 μs			
(Export)				
Voltage	100	120	220	240
	+10% -15%	+10% -15%	+10% -15%	+10% -15%
Hz	50 ± 3	60 ± 3	50 ± 3	50 ± 3
Amp per Phase	0.6	0.6	0.27	0.25
Phase				
Startup Surge per Phase	17	17	9	9
Surge is	10 μs			

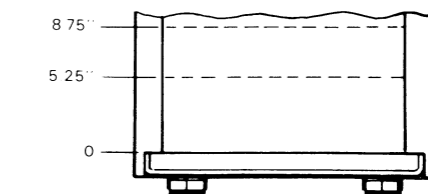
**CABLES:**

Primary Power	Length	Conn	Mating Conn
Domestic 60Hz	2.3m (7.5 ft)	5-15P	5-15R
Export 50Hz	2.3m (7.5 ft)	6-15P	6-15R

**PREFERRED LOCATION:**

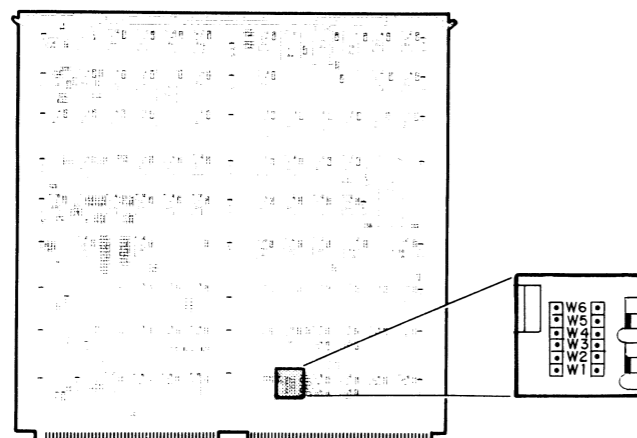
Model 1148 cabinets (see detail) Preferred 8.75 in  
Minimum 5.25 in

All other cabinets - No preferred location



**TAILORING  
JUMPERING**

**TAPE CONTROLLER**  
(for NOVA/ECLIPSE systems 6231)



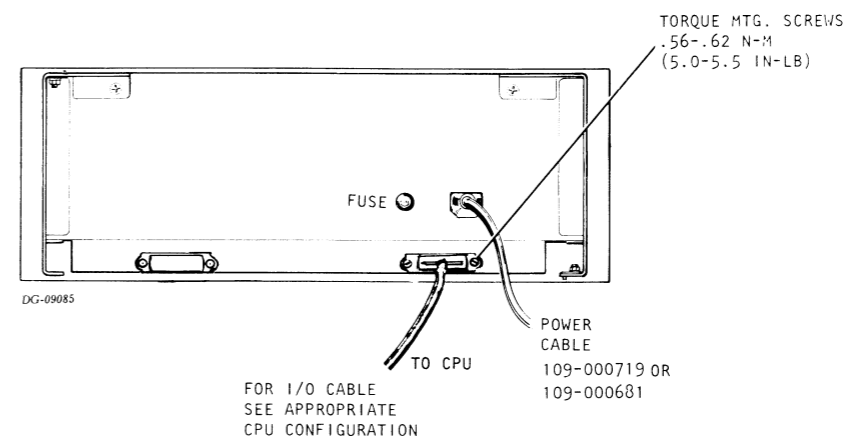
Ref DGC Dwg No 107-001878 Rev 01

CONTROLLER DEVICE CODE SELECT		
JUMPER NUMBER	DEVICE CODE 22	DEVICE CODE 62
1	OUT	IN
2	IN	IN
3	OUT	OUT
4	OUT	OUT
5	IN	IN
6	OUT	OUT

FOR MODEL 6225-C AND 6227-C  
REFER TO 010-000303 FOR DISK  
CONTROLLER INFORMATION.

**EXTERNAL CABLING**

**NOVA/ECLIPSE**



FOR I/O CABLE  
SEE APPROPRIATE  
CPU CONFIGURATION



# CABINET MOUNTING

HARDWARE MOUNTING KIT 005-016346

M4 HARDWARE TO BE TORQUED TO 2.14 - 2.32 NM  
M5 HARDWARE TO BE TORQUED TO 4.41 - 4.69 NM.

106-000938 NUT (2 EACH SIDE)  
106-000985 WASHER (2 EACH SIDE)

002-014471 SLIDE (2)  
TURN THIS SLIDE 180  
TO USE ON OPPOSITE SIDE

WELD STUDS

ADJUST  
SLIDES

NOTE: IN ORDER FOR  
CHASSIS ASSY TO SLIDE  
IN AND OUT FREELY, REAR OF  
SLIDES (002-014471) WILL HAVE TO  
BE ADJUSTED UP AND DOWN (WITHIN  
MOUNTING HOLES).

002-014706 BRACKET SLIDE STOP (2)  
106-000938 NUT  
106-000985 WASHER

ASSEMBLED AS SHOWN (POINTING UP)  
FOR RIGHT SIDE.  
FOR LEFT SIDE, POINT DOWN.

TO BE ASSEMBLED AFTER EXTENSION IN  
PLACE. MUST BE REMOVED BEFORE RE-  
MOVING EXTENSIONS FROM CABINET.

SLIDE

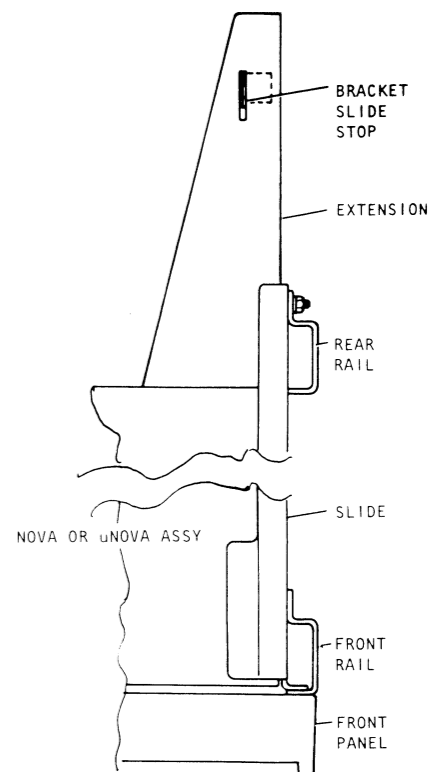
106-001001 SCREW  
106-00989 LOCKWASHER  
106-000985 FLAT WASHER  
TYPICAL 8 PLACES

002-009455 GUIDE PIN  
106-000984 WASHER  
106-001559

88.90mm

10.60mm

RIGHT RAIL  
(LEFT RAIL GUIDE PIN  
IS ONE HOLE LOWER).



TOP VIEW

SCREW 106-001001 (3 EACH EXTENSION)  
LOCKWASHER 106-000986 (3 EACH EXTENSION)  
FLAT WASHER 106-000985 (3 EACH EXTENSION)

002-014464 EXTENSION, LEFT

002-014466 EXTENSION, RIGHT

123-00-1348 (2)  
BRACE 002-021307

NUT 106-000938  
WASHER 106-000985

123-001348 CLIPS  
(2) BOTH SIDES  
REMOVE CLIPS  
AT INSTALLATION  
SITE

SECTION A-A

NOVA ASSY  
OR  
UNOVA ASSY

BRACKET SLIDE STOP  
(BRACE NOT SHOWN)

### TAPE CARTRIDGE INSERTION CLEARANCE

THE CHASSIS ASSEMBLY (SURFACE "A" OF  
CARTRIDGE TAPE DECK PLATE) MUST BE  
ALIGNED WITH THE PANEL ASSEMBLY  
(SURFACE "B", INSIDE EDGE). THIS CAN  
BE ACHIEVED BY FIRST ASSEMBLING CHASSIS  
ASSEMBLY AND FRONT PANEL TO RACK AS  
SHOWN, THEN INSERTING A TAPE CARTRIDGE  
118-001742/001743 THRU THE PANEL OPEN-  
ING. IF CARTRIDGE CLEARANCE AROUND  
FRONT PANEL IS TOO CLOSE OR CAUSES  
INTERFERENCE, ALIGN SURFACE "A" AND  
"B" BY REMOVING PANEL AND SHIFTING  
CHASSIS ASSEMBLY UP OR DOWN TO  
DESIRED POSITION.

"A"  
(CTG TAPE  
DECK PLATE)

DG-09645

"B"  
(INSIDE EDGE)

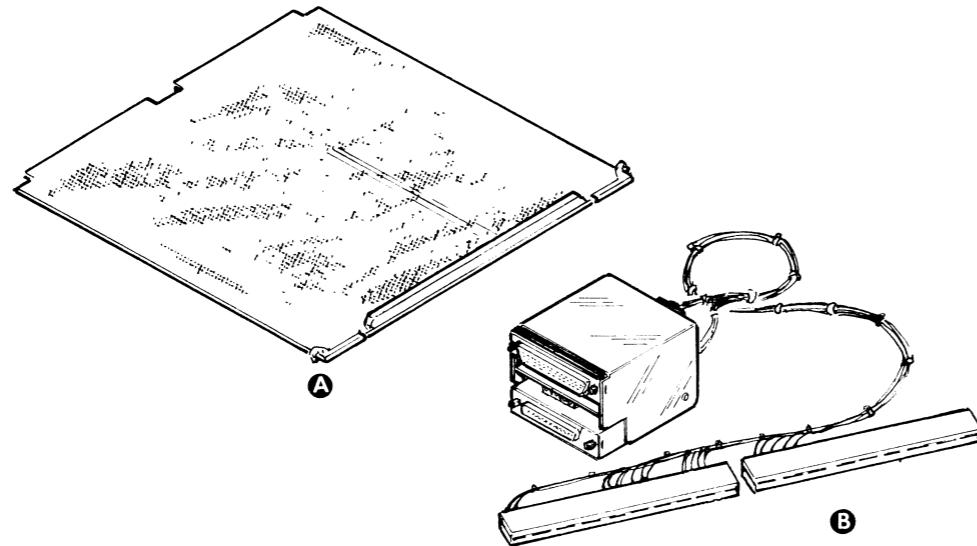
PANEL



# **NOVA/ECLIPSE SENSOR I/O**



### INSTALLATION SPECIFICATIONS



**SIZE:** ONE 15 INCH SQUARE BOARD

**OPERATING ENVIRONMENT:**  
 Temperature: 0° to +55°C 32° to 131°F  
 Humidity: 95%, non-condensing  
 Altitude: 2440 m 8000 ft

**POWER:** 5.2 amps @ 5VDC

**INPUT LOADING:**  
 A/D: 50 Meg min.  
 Digital: 1 TTL load max.

**OUTPUT DRIVE:**  
 D/A: 5 mA max.  
 Digital: 2 TTL loads max.

**DATA CHANNEL LATENCY (MAX.):**  
 A/D: 45 uS  
 D/A: 10 uS

**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	MAIN BOARD	CPU CHASSIS	HI-PRIORITY I/O SLOT (NEAR CPU)

**CABLE**

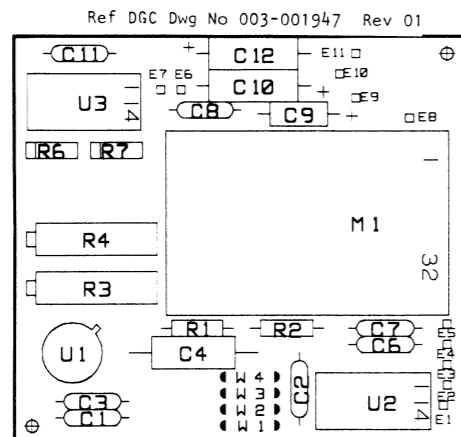
Item	Cable	Connecting	Max Lgth		Notes
			ft	m	
B	INTERNAL CABLE	BACKPANEL AND A/D ASSEMBLY	3.5	1.07	

**FOR PACKING PROCEDURE, SEE 010-000262**

SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
°F / °C	(Non-condensing)		°F / °C	(Non-condensing)	
-13 TO +185 -25 TO +85	0 - 95%	50,000 ft 15,200m	-13 TO +185 -25 TO +85	0 - 95%	90 DAYS

**TAILORING  
JUMPERING**

**A/D BOARD**

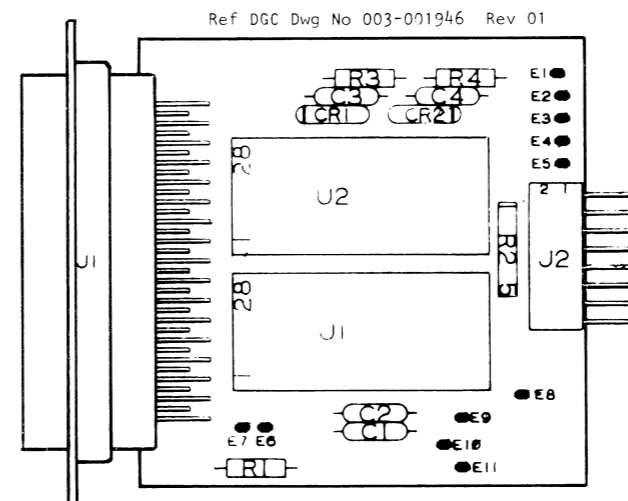


A/D VOLTAGE RANGE SELECT JUMPERS

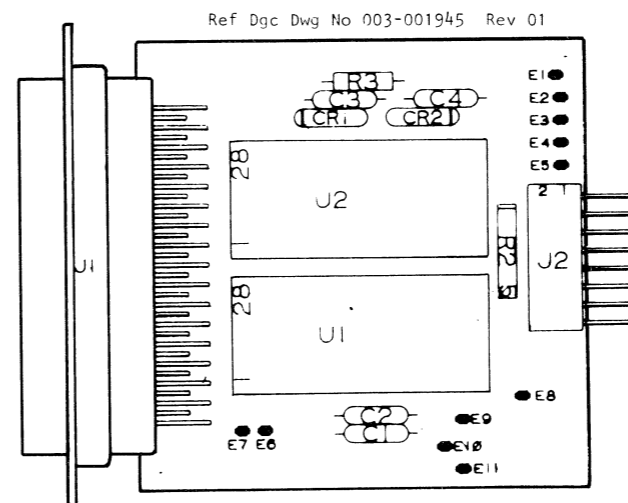
VOLTAGE RANGE	W4	W3	W2	W1
0 TO +5	OUT	IN	OUT	IN
0 TO +10	OUT	IN	OUT	OUT
-5 TO +5	OUT	IN	IN	OUT
-10 TO +10	IN	OUT	IN	OUT

NOTE: VOLTAGE RANGE IS FACTORY SET.  
RE-CALIBRATION IS REQUIRED IF  
ALTERED.

**MULTIPLEXOR  
SINGLE-ENDED**

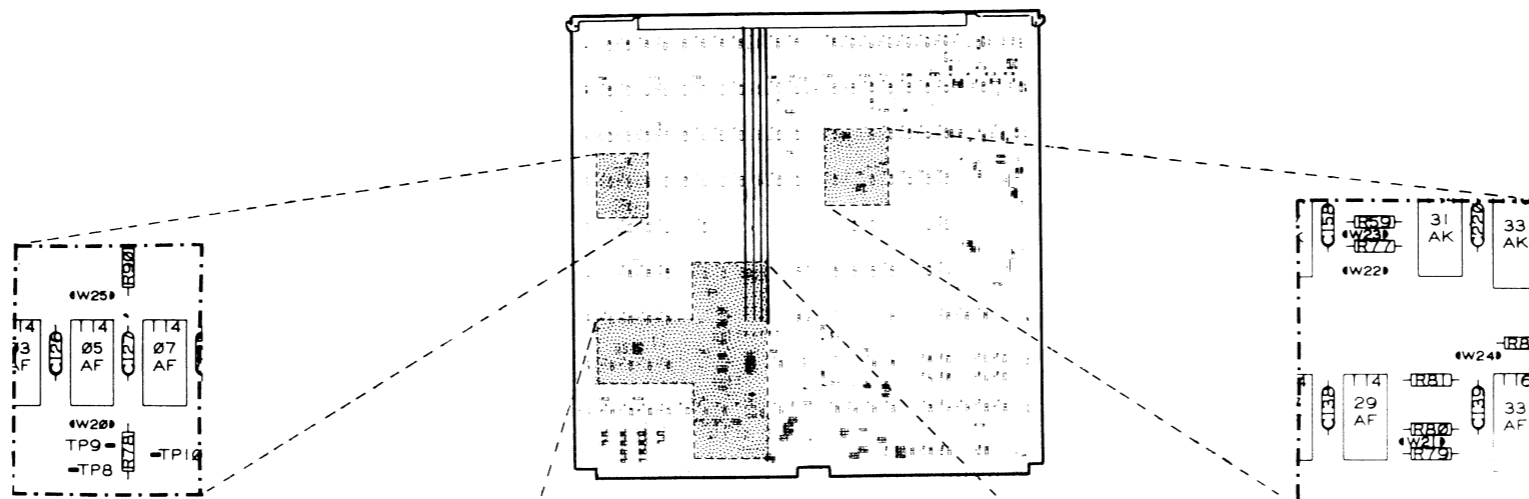


**MULTIPLEXOR  
DIFFERENTIAL**

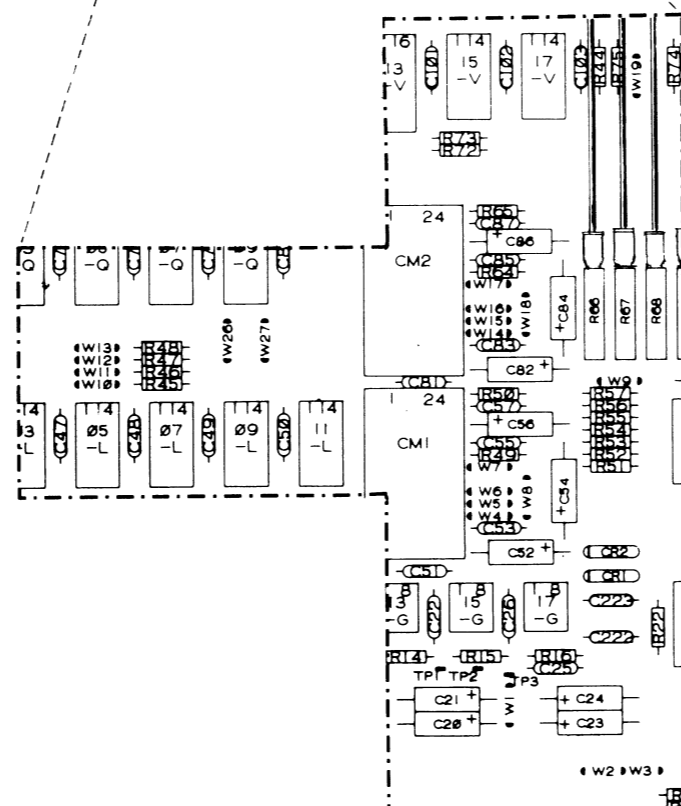


## TAILORING (Cont) JUMPERING

A/D, D/A CONVERTER  
Ref DGC No 003-001319



JUMPER	IN/OUT	NORMAL FUNCTION	IN/OUT	ALTERNATE FUNCTION
W1	IN	Z-PULSE DC COUPLED	OUT	Z-PULSE AC COUPLED
W2	IN	A/D PADDLEBOARD NORMAL	OUT	A/D PADDLEBOARD BYPASSED
W3	OUT		IN	
W9	IN	Z-PULSE NEGATIVE	OUT	Z-PULSE POSITIVE
W19	OUT	D/A DATA UNSIGNED	IN	D/A DATA TWO'S COMP
W20	OUT	CLOCK OVERRUN DOES NOT SET DONE	IN	CLOCK OVERRUN SETS DONE
W21	OUT	A/D DATA UNSIGNED	IN	A/D DATA TWO'S COMP
W22	OUT	RESERVED	IN	RESERVED
W23	IN	32 CHANNEL/SINGLE-ENDED	OUT	16 CHANNEL/DIFFERENTIAL
W24	IN		OUT	
W25	OUT	LATE CONVERSION DOES NOT SET DONE	IN	LATE CONVERSION SETS DONE
W26	OUT	116-311 TYPE A/D CONVERTER	IN	RESERVED
W27	IN		OUT	



DEVICE SELECT CODE JUMPERS

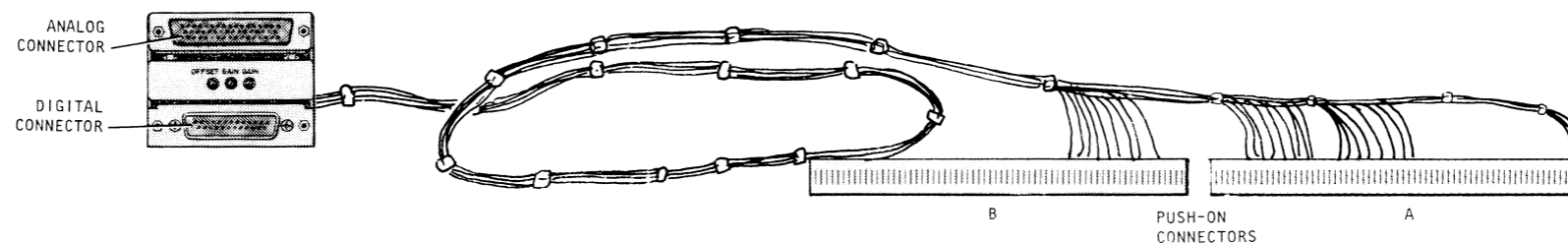
DEVICE CODE	A/D	D/A	W10	W11	W12	W13
FIRST DEVICE:	5	7	OUT	IN	OUT	OUT
	15	17	IN	IN	OUT	OUT
	21	23	OUT	OUT	IN	OUT
	25	27	OUT	IN	IN	OUT
SECOND DEVICE:	31	33	IN	OUT	IN	OUT
	35	37	IN	IN	IN	OUT
	41	43	OUT	OUT	OUT	IN
	45	47	OUT	IN	OUT	IN
	51	53	IN	OUT	OUT	IN
SECOND DEVICE:	55	57	IN	IN	OUT	IN
	61	63	OUT	OUT	IN	IN
	65	67	OUT	IN	IN	IN
	71	73	IN	OUT	IN	IN

D/A VOLTAGE RANGE SELECT JUMPERS

VOLTAGE RANGE	"Y" OUTPUT					"X" OUTPUT				
	W4	W5	W6	W7	W8	W14	W15	W16	W17	W18
0 TO +5	IN	OUT	IN	IN	OUT	IN	OUT	IN	IN	OUT
0 TO +10	IN	OUT	IN	OUT	OUT	IN	OUT	IN	OUT	OUT
-5 TO +5	IN	OUT	OUT	OUT	IN	IN	OUT	OUT	OUT	IN
-10 TO +10	OUT	IN	OUT	OUT	IN	OUT	IN	OUT	OUT	IN

NOTE: VOLTAGE RANGE IS FACTORY SET. RE-CALIBRATION IS REQUIRED IF ALTERED.

INTERNAL CABLING (CONT)



ANALOG SIGNALS AT BULKHEAD

50 PIN SUB D PIN #'s	SIGNAL NAMES	50 PIN SUB D PIN #'s	SIGNAL NAMES
19	ANALOG 0 ANALOG 0H	31	ANALOG 20 ANALOG 12H
20	ANALOG 1 ANALOG 1H	32	ANALOG 21 ANALOG 13H
21	ANALOG 2 ANALOG 2H	17	ANALOG 22 ANALOG 14H
22	ANALOG 3 ANALOG 3H	16	ANALOG 23 ANALOG 15H
23	ANALOG 4 ANALOG 4H	10	ANALOG 24 ANALOG 8L
24	ANALOG 5 ANALOG 5H	11	ANALOG 25 ANALOG 9L
25	ANALOG 6 ANALOG 6H	12	ANALOG 26 ANALOG 10L
9	ANALOG 7 ANALOG 7H	13	ANALOG 27 ANALOG 11L
2	ANALOG 8 ANALOG 0L	14	ANALOG 28 ANALOG 12L
3	ANALOG 9 ANALOG 1L	15	ANALOG 29 ANALOG 13L
4	ANALOG 10 ANALOG 2L	50	ANALOG 30 ANALOG 14L
5	ANALOG 11 ANALOG 3L	33	ANALOG 31 ANALOG 15L
6	ANALOG 12 ANALOG 4L	1, 18	COMMON
7	ANALOG 13 ANALOG 5L	38, 39, 40, 41, 42, 43, 44, 45, 46, 47	SHIELDS
3	ANALOG 14 ANALOG 6L	48	DAC X OUT
26	ANALOG 15 ANALOG 7L	49	DAC X RET
27	ANALOG 16 ANALOG 8H	35	DAC Y OUT
28	ANALOG 17 ANALOG 9H	34	DAC Y RET
29	ANALOG 18 ANALOG 10H	37	Z-PULSE OUT
30	ANALOG 19 ANALOG 11H	36	Z-PULSE RET

DIGITAL SIGNALS AT BULKHEAD

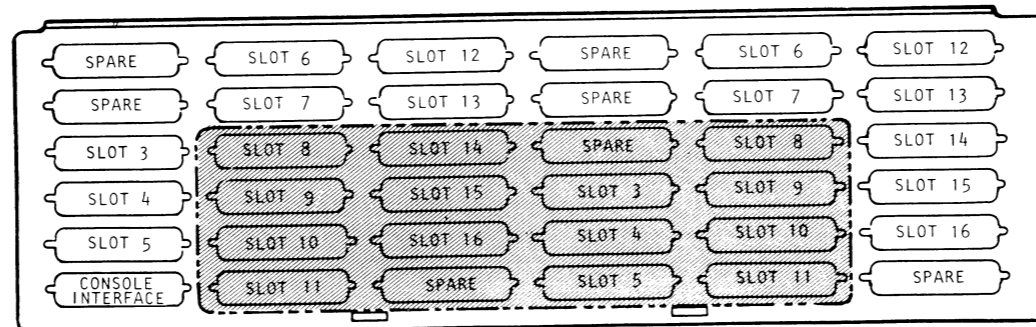
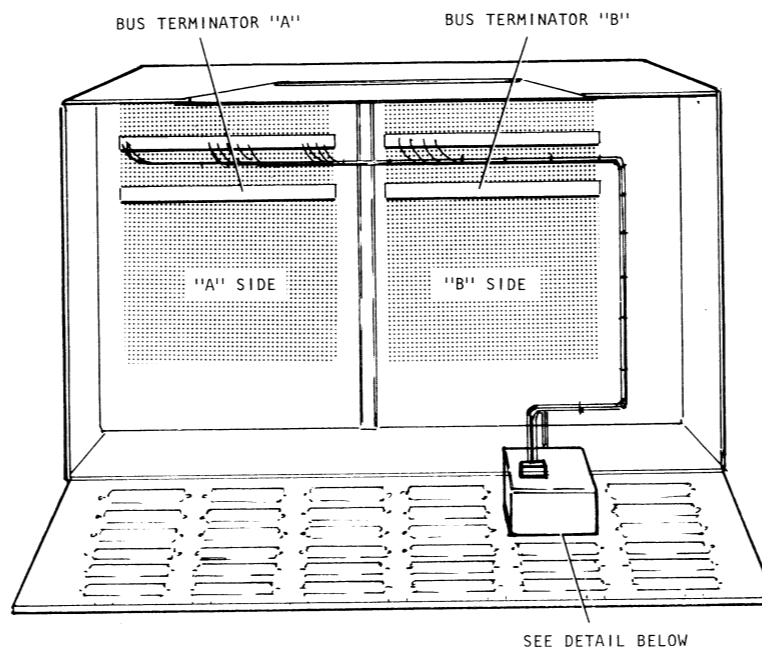
25 PIN SUB D	SIGNAL NAMES
4	EXT INT RQ A
2	EXT CLOCK A
3	INT CLOCK A
7	ADC READY
5	ADC SERIAL DATA
6	ADC CLOCK
10	EXT INT RQ D
11	EXT CLOCK D
12	INT CLOCK D
19	DAC OUT VALID
20	DAC DATA READY
21	EXT ERASE INPUT
9	ERASE
8	NON-STORE
18	WRITE THROUGH
1	GND
13	GND



# INTERNAL CABLING (CONT)

## BACKPANEL CONNECTOR PLACEMENT

NOTE: REFER TO APPROPRIATE CPU INSTALLATION DATA SHEETS FOR MOUNTING INSTRUCTIONS FOR OTHER CPU'S.



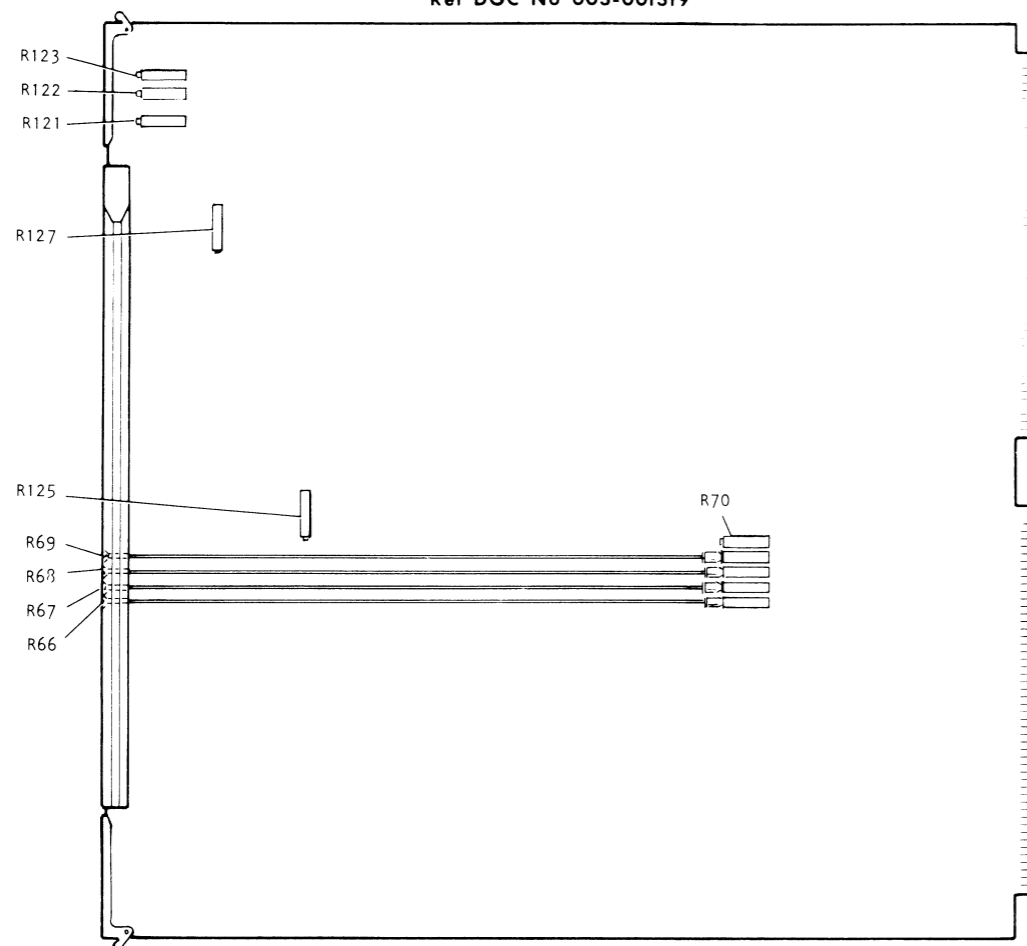
DC-09564

SHADED AREA DENOTES PERMISSIBLE THREE-SLOT LOCATIONS FOR BULKHEAD CONNECTOR.

### TRIMPOT ADJUSTMENTS

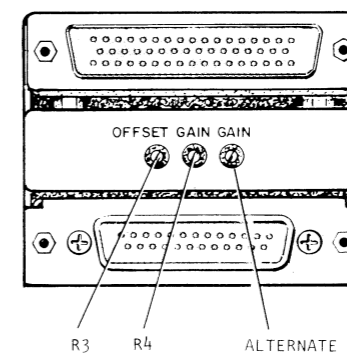
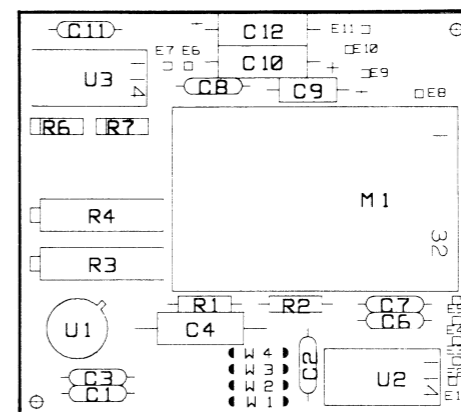
#### MAIN BOARD

Ref DGC No 003-001319



POTENTIOMETER	FUNCTION	NOTE
R66	DAC X OFFSET	CALIBRATION
R67	DAC X GAIN	CALIBRATION
R68	DAC Y OFFSET	CALIBRATION
R69	DAC Y GAIN	CALIBRATION
R70	Z OUT OFFSET	USER ADJUSTMENT - INITIALLY 0 VOLTS
R121	Z OUT PULSE WIDTH	USER ADJUSTMENT - INITIALLY 7.6 $\mu$ S
R122	D/A CLOCK PERIOD	USER ADJUSTMENT - INITIALLY 60 kHz
R123	A/D CLOCK PERIOD	USER ADJUSTMENT - INITIALLY 22 kHz
R125	A/D SETTling TIME	FACTORY ADJUSTMENT - INITIALLY 16 $\mu$ S
R127	D/A SETTling TIME	FACTORY ADJUSTMENT - INITIALLY 8 $\mu$ S

Ref DGC Dwg No 003-001947 Rev 01



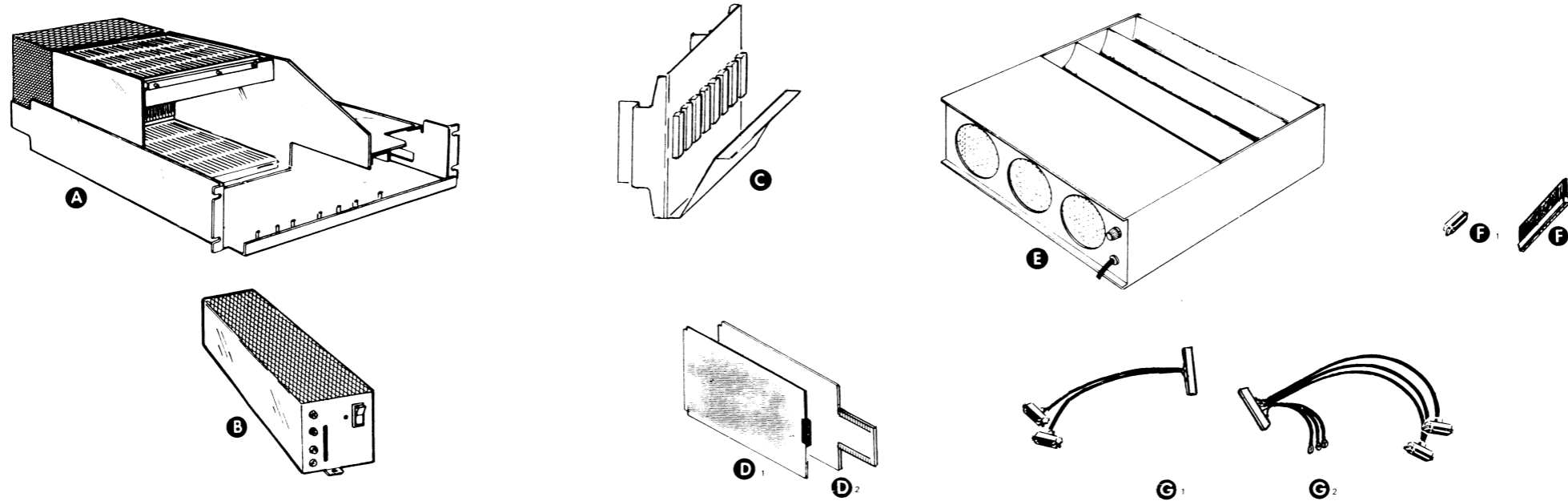
NOTE: SOME UNITS MAY HAVE GAIN ADJUSTMENT POTENTIOMETER IN ALTERNATE ACCESS HOLE.

POTENTIOMETER	FUNCTION	NOTE
R3	A/D OFFSET	CALIBRATION
R4	A/D GAIN	CALIBRATION

TEST ADAPTER IS 005-020305

## SUBSYSTEM COMPONENT BREAKDOWN

### SENSOR I/O SUBSYSTEM



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	4300 CHASSIS	CABINET	
B	POWER SUPPLY	CHASSIS	MOUNTS RIGHT SIDE OF CARD CAGE
C	TERMINAL PANEL	CABINET	MAX 4 PER CABINET
D <sub>1</sub>	MPDAC CONTROL CARD	CHASSIS, SLOT 17	
D <sub>2</sub>	NEDAC CONTROL CARD	CHASSIS, SLOT 17	SLOT 16 ONLY USE FOR 2nd CONTROLLER
E	BLOWER UNIT	CHASSIS 6, 1	4269 REQUIRED WHEN NOT DIRECTLY ABOVE CABINET BLOWER
F <sub>1</sub>	TERMINATOR	CHASSIS, MPDAC	MOUNTS ON BULKHEAD
F <sub>2</sub>	TERMINATOR	CHASSIS, NEDAC	MOUNTS ON CONTROL CARD

**CABLE**

Item	Cable	Connecting	Notes
G <sub>1</sub>	MPDAC I/O CABLE	CONTROL CARD AND I/O BUS	
G <sub>2</sub>	NEDAC I/O CABLE	CONTROL CARD AND I/O BUS	

AL X P/S REQUIRES MTG KIT 005-007234

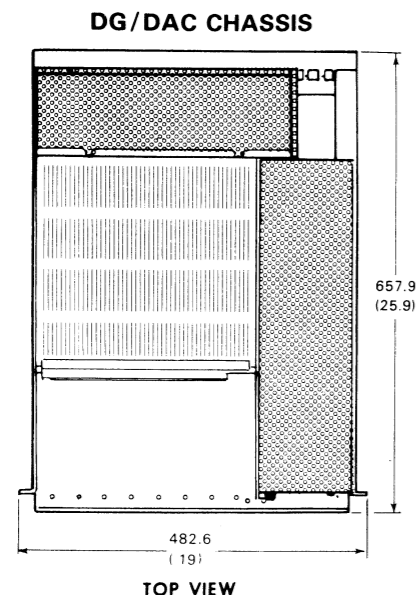
BLOWER UNIT REQUIRES MTG KIT 005-020265

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

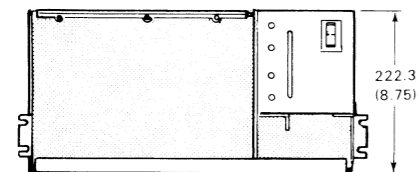
Slot	Allowed (Slot chart)	Assigned	Current Draw		
			+5V	+24V	±21V
0	} MODULES				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16	NEDAC CONTROL CARD (OPTIONAL)				
17	MPDAC OR NEDAC CONTROL CARD		*		*
<b>Total Current Draw</b>					
<b>Max Current Available</b>			12A	3A	2A
<b>Current Surplus</b>					

\* NEDAC CONTROL CARD: 3A @ +5V  
 MPDAC CONTROL CARD: 1.6A @ +5V  
 .05A @ ±12V

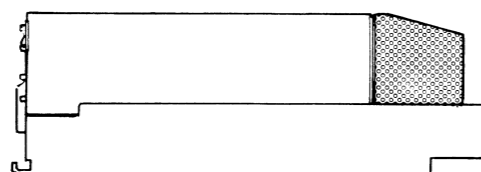
INSTALLATION SPECIFICATIONS



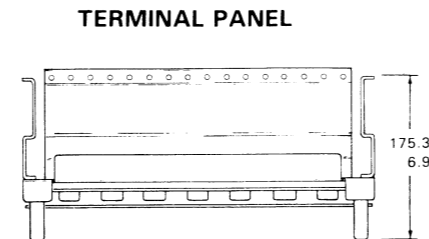
TOP VIEW



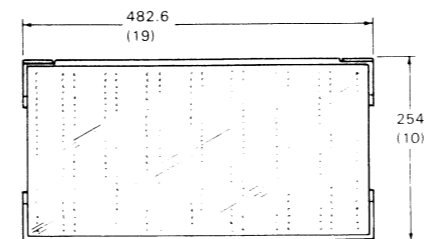
FRONT VIEW



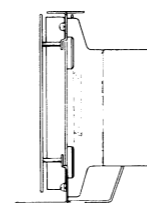
SIDE VIEW



TOP VIEW

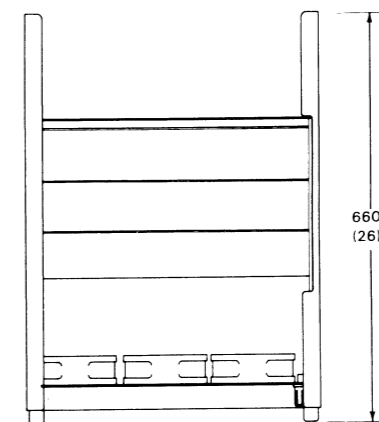


FRONT VIEW

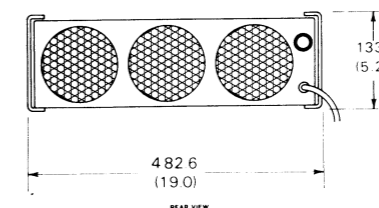


SIDE VIEW

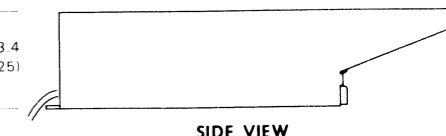
BLOWER CHASSIS



TOP VIEW



REAR VIEW



SIDE VIEW

DG/DAC CHASSIS

DIMENSIONS:	Width	Depth	Height
Millimeters	482.6	657.9	222.3
Inches	19	25.9	8.75

POWER SUPPLY	Width	Depth	Height
Millimeters	139.7	508	133.4
Inches	5.5	20.0	5.25

WEIGHT:	Weight
Power supply:	33 lbs 15 kg
Chassis & backpanel (empty)	55 lbs 24.9 kg
NEDAC (with cards)	113 lbs 51.3 kg
MPDAC (with cards)	106 lbs 48.1 kg
Terminal board:	10 lbs 4.5 kg

**HEAT DISSIPATION:**  
2300 Btu/hr (700 watts) max  
IDAC must receive forced air from either the fan module mounted directly below it or a rack blower (with vertically directed air flow no more than 1 foot below)

ENVIRONMENT	Operating	Storage
Temperature	0 to 55°C (32 to 131°F)	-40 to +70°C (-40 to +185°F)

Relative Humidity Range	Operating	Storage
	10% to 90% noncondensing with no multiplexer boards	10% to 85% noncondensing with multiplexer boards
	10% to 90% noncondensing	

Altitude	Operating	Storage
	0 - 2450 m (0 - 8,000 ft)	0 - 7620 m (0 - 25,000 ft)

SLOTS AVAILABLE	I/O cards	Controller
	16	2 (slot 16 is empty in MPDAC)

**DEVICE CODE**  
Jumperable from 40 to 76 on controller card

POWER REQUIREMENTS	(Domestic)		
Voltage	120V <sup>(+10%, -15%)</sup>		
Hz	50/60		
Amp per Phase	5		
Phase	1		
Startup Surge per Phase	100A for 8.3 ms		
	(Export)		
Voltage	100V <sup>(±10%)</sup>	220V <sup>(+10%, -15%)</sup>	240V <sup>(+10%, -15%)</sup>
Hz	50/60	50/60	50/60
Amp per Phase	6	2.8	2.5
Phase	1	1	1
Startup Surge per Phase	100A for 10 ms		

CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m (6')	5-15P	5-15R
Export 50Hz	1.8m (6')	6-15P	6-15R

POWER SUPPLY OUTPUTS	Voltage	Current
- 12V	1.5A max	
- 5V	20A max	
- 5V	0.8A max	
- 12V	0.8A max	
+ 24V	3A max	
- 21.5V	2A max	
- 21.5V	2A max	

**TERMINAL BOARD**  
Accepts 8 cables - 50 screw terminals per cable (accepts 4 isolated mux cables)  
Protective plastic covers  
Accepts up to 14 AWG wire  
Front or rear mount

BLOWER CHASSIS (with rails)

DIMENSIONS:	Width	Depth	Height
Millimeters	482.6	660.4	133.4
Inches	19	26	5.25

WEIGHT:	Weight
Kilograms	7.0
Pounds	15.5

HEAT OUTPUT:	Watts	BTU/hr
	60	204.6

OPERATING ENVIRONMENT:	Operating	Storage
Temperature (max)	55°C (131°F)	
Relative Humidity (max)	90% non-condensing	
Altitude	3048m (10,000')	

POWER REQUIREMENTS:	(Domestic)		
Voltage	120V <sup>(+10%, -15%)</sup>		
Hz	60		
Amp per Phase	0.6		
Phase	1		
Startup Surge per Phase	100A		
	(Export)		
Voltage	100V <sup>(±10%)</sup>	220V <sup>(+10%, -15%)</sup>	240V <sup>(+10%, -15%)</sup>
Hz	50	50	50
Amp per Phase	0.72A	0.25A	
Phase	1		
Startup Surge per Phase	100A		

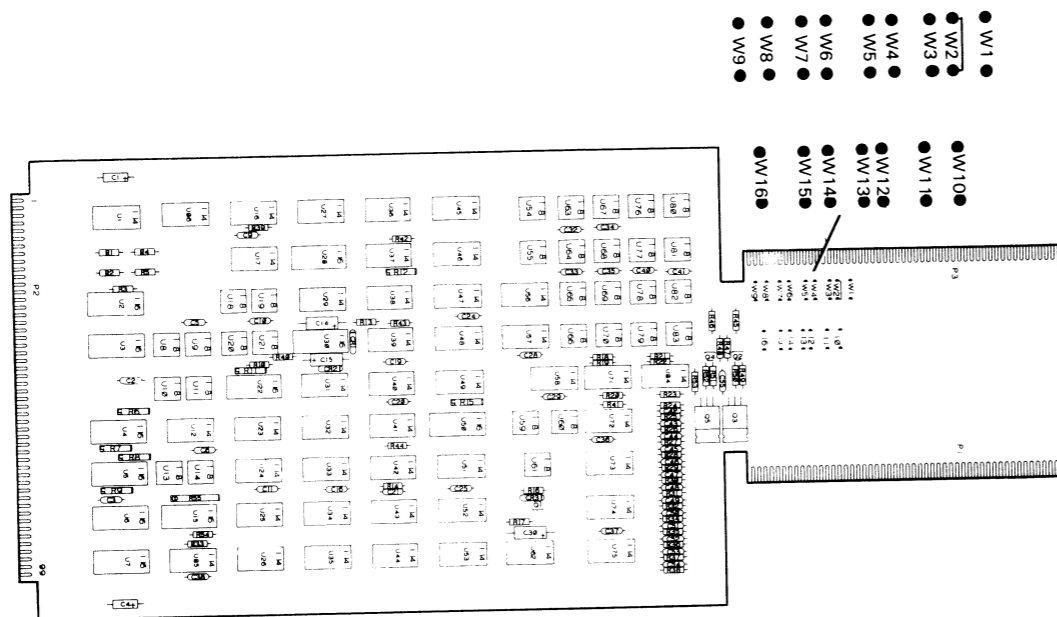
CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m (6')	5-15P	5-15R
Export 50Hz	1.8m (6')	6-15P	6-15R

**LOCATION:**  
Mounts to bottom of chassis

# TAILORING JUMPERING

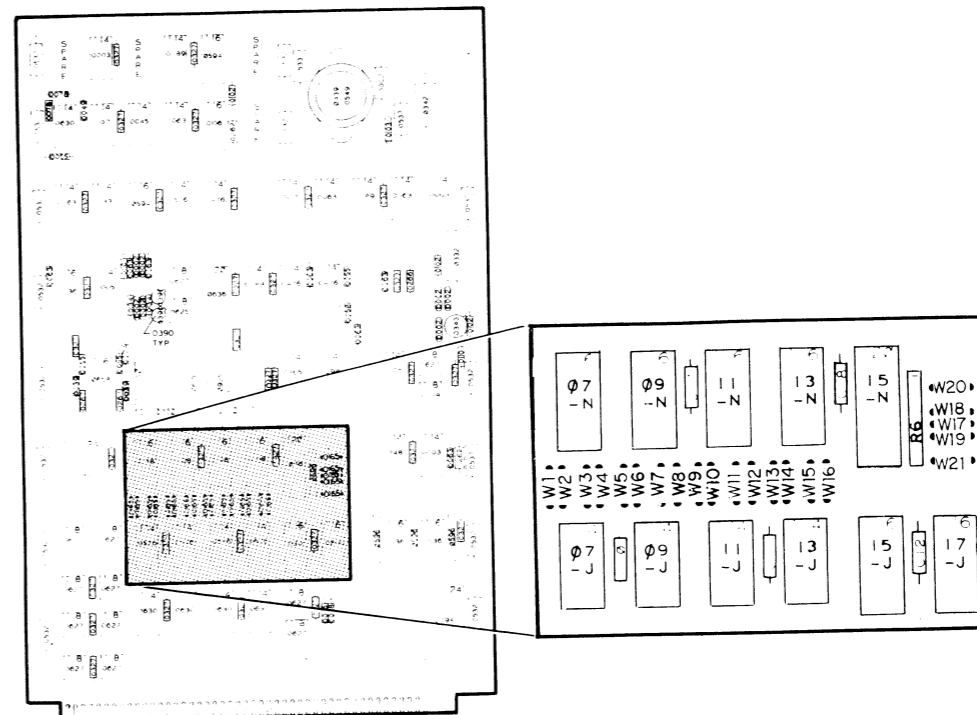
## NEDAC CONTROLLER

Ref DGC Dwg No 107-000626 Rev 03



## MPDAC CONTROLLER

Ref DGC Dwg 003-001548 Rev 01

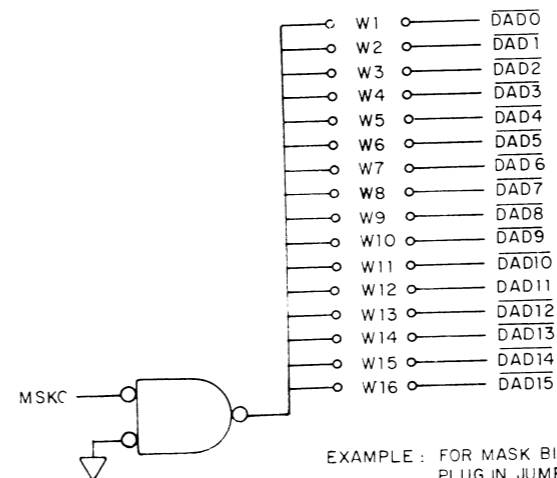


### MASK BIT SELECTION

BIT	0	1	2	3	4	5	6	7
JUMPER	W12	W6	W16	W7	W5	W2	W9	W1
BIT	8	9	10	11	12	13	14	15
JUMPER	W4	W13	W8	W3	W11	W14	W10	W15

\* JUMPER IN SELECTS BIT: FOR EXAMPLE, INSERT W6 TO SELECT MASK BIT 1.

### MASK OUT JUMPERS

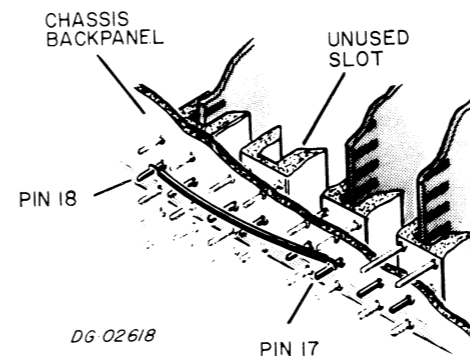
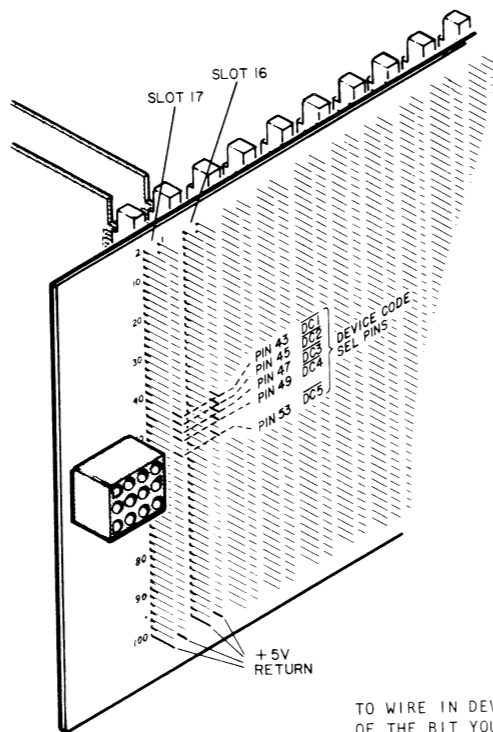


### DEVICE CODE JUMPERS

HARD WIRED	DS0	MSP
○ W17 ○	DS1	
○ W18 ○	DS2	
○ W19 ○	DS3	
○ W20 ○	DS4	
○ W21 ○	DS5	

DEVICE CODE IS 40 AS SHOWN. CAN BE JUMPERED UP TO 76.

**TAILORING**  
**NEDAC**  
**LOGIC BACKPANEL JUMPERING**



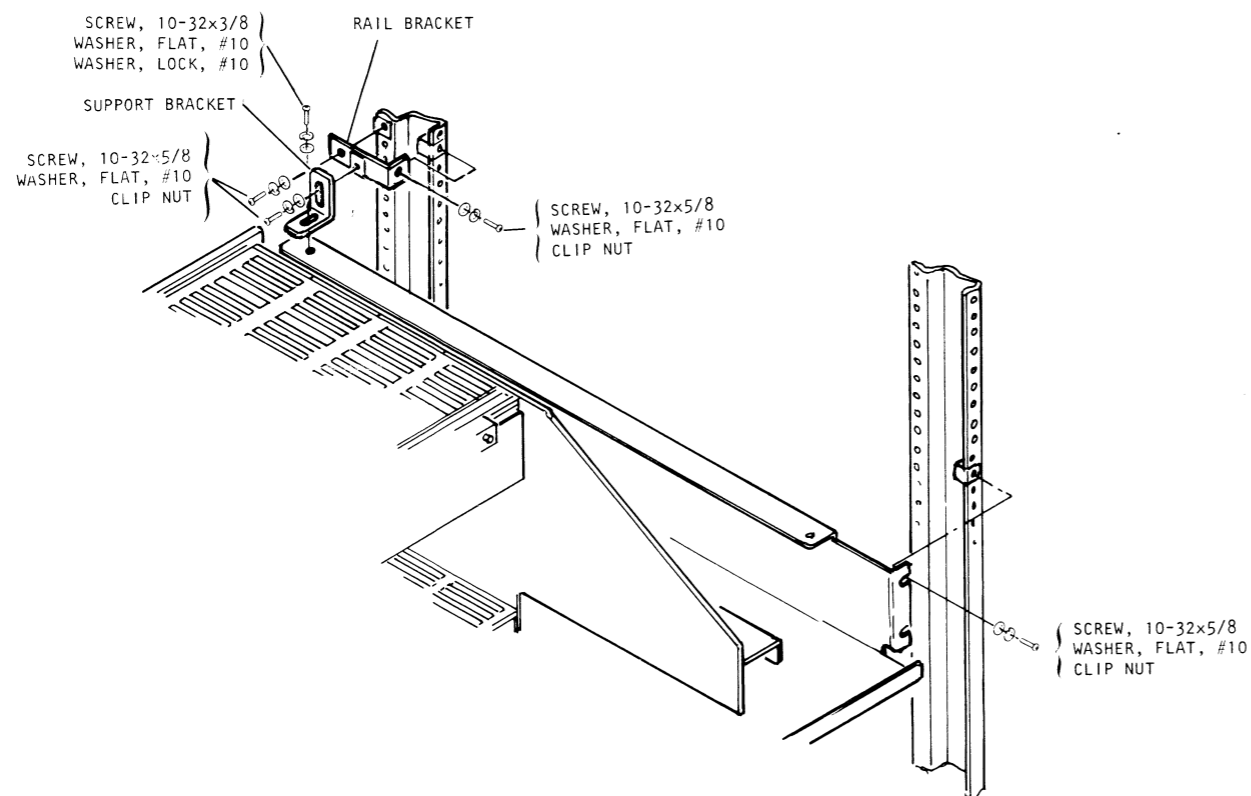
NOTE:  
DC0 IS PERMANENTLY ASSERTED ON EACH CONTROL BOARD. AS A RESULT, THE DEVICE CODE IS ALWAYS 40 OR GREATER.

TO WIRE IN DEVICE CODE, JUMPER THE RESPECTIVE PIN OF THE BIT YOU WANT TO ASSERT "1" TO THE +5V RETURN.

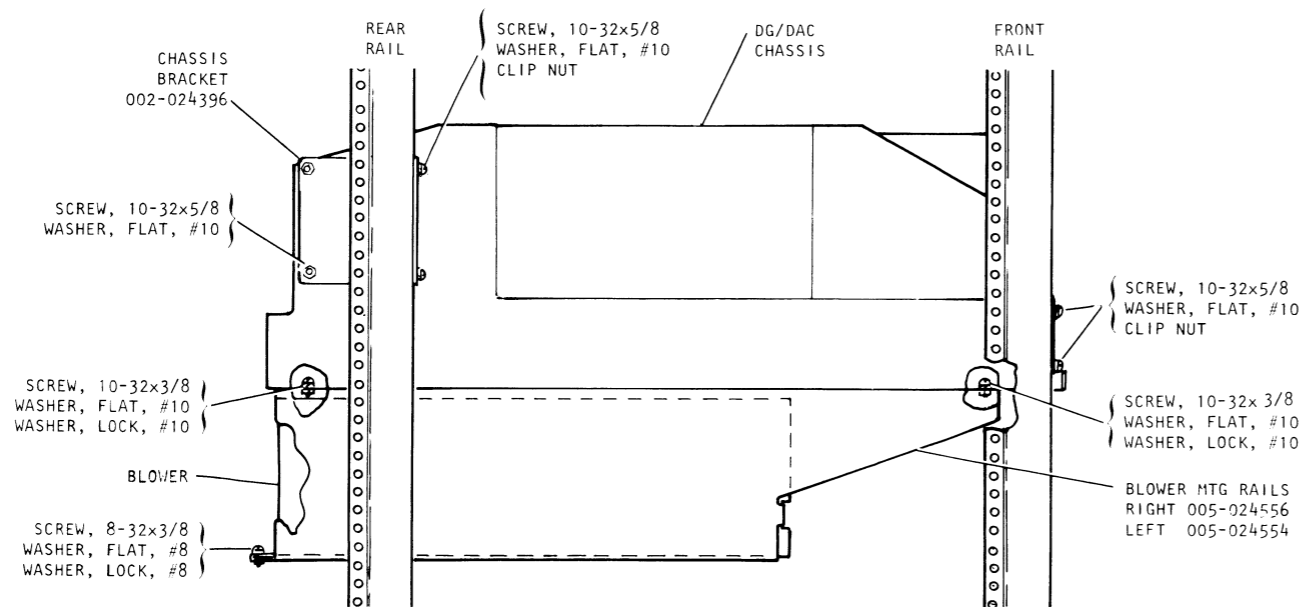
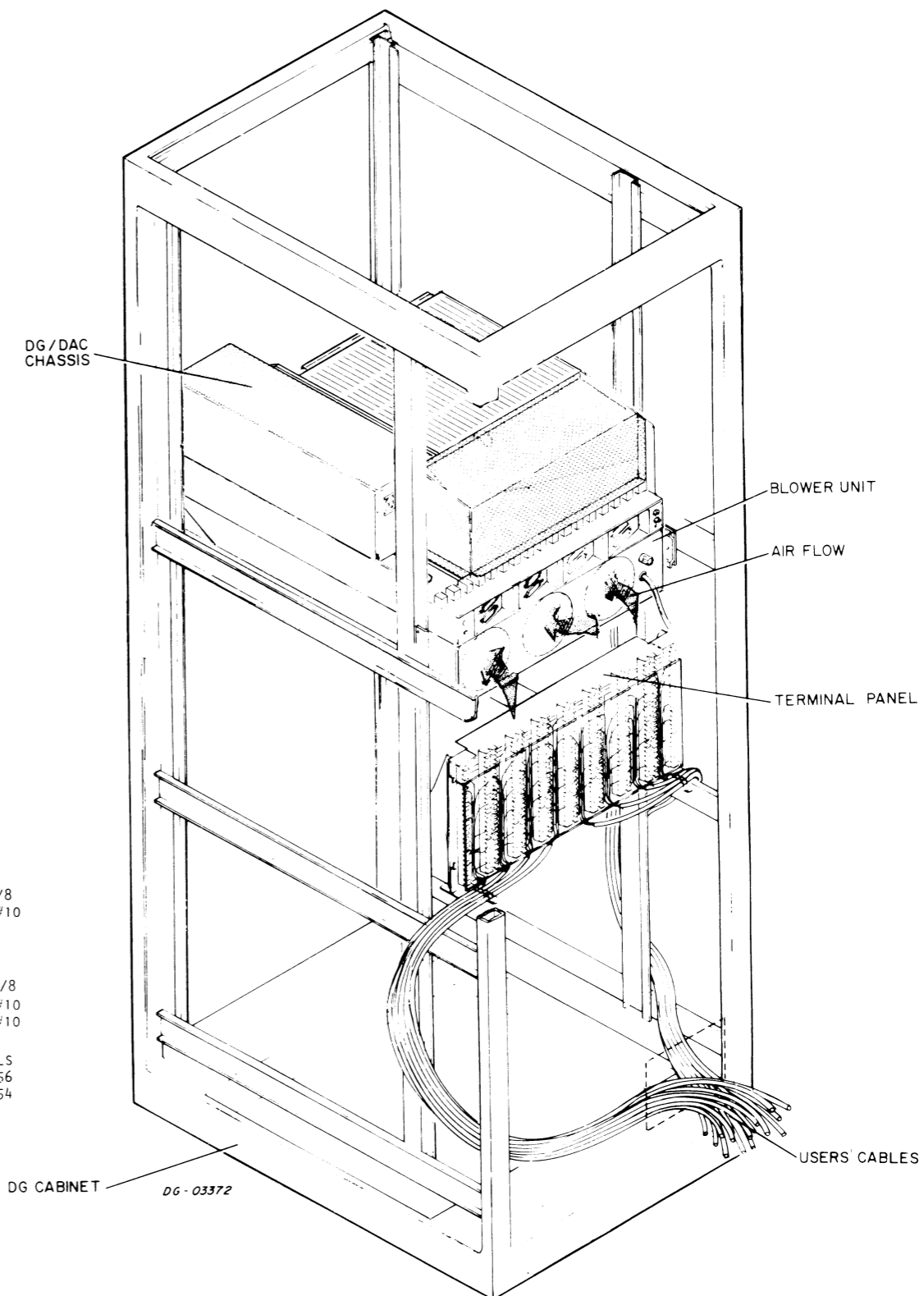
EXAMPLE:  
TO SET UP CONTROLLER SLOT 17 FOR DEVICE CODE 42 JUMPER PIN 49 SLOT 17 TO PIN 99 SLOT 17.

# CABINET MOUNTING

## MOUNTING THE CHASSIS



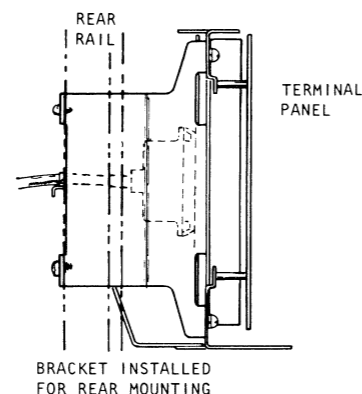
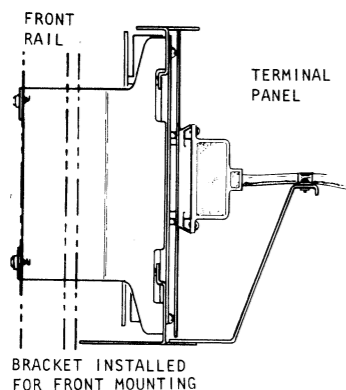
## REAR VIEW OF CABINET AIR FLOW



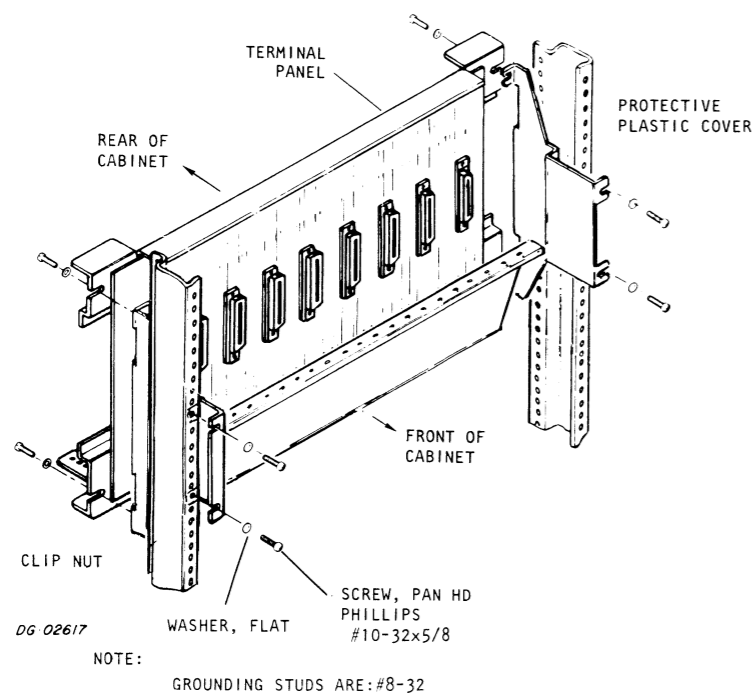
**EXTERNAL CABLING**

**CABLE ROUTING**

1. ACCESS TO CABLES PLUGGED INTO TERMINAL PANELS IS LIMITED WHEN TERMINAL PANELS ARE MOUNTED BOTH FRONT AND REAR IN THE SAME VERTICAL LOCATION. AVOID MOUNTING BOTH FRONT AND REAR IF POSSIBLE. IN A 1605 (METER HIGH) CABINET, THE FRONT AND REAR MOUNTED TERMINAL PANELS SHOULD BE LOCATED AT THE TOP TO ALLOW ACCESS BY REMOVING THE TOP OF THE CABINET.



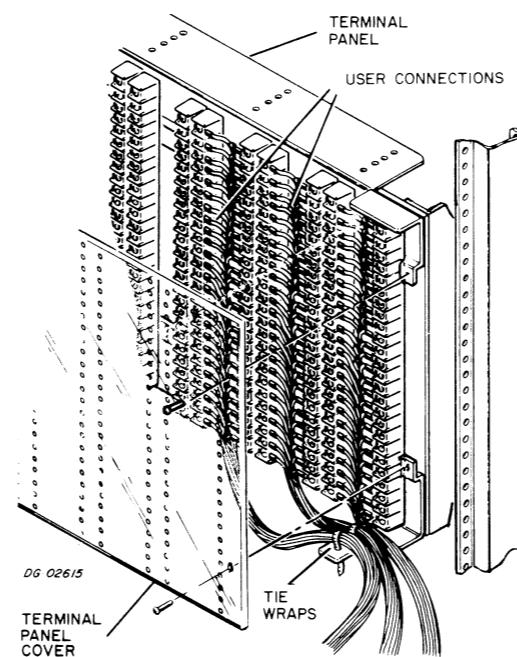
**MOUNTING THE TERMINAL PANEL**



**ORIENTATION IS IMPORTANT**

MAKE SURE WHEN INSTALLING THE TERMINAL PANEL THAT THE LETTERS ON THE TERMINAL SIDE OF THE PCB READ FROM "A" (LEFT) TO "H" (RIGHT)

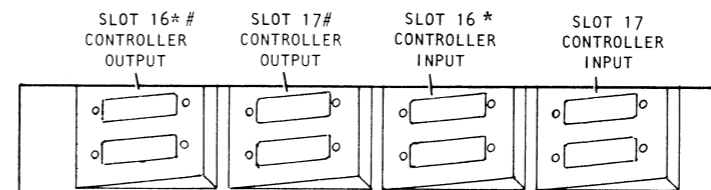
**USER CONNECTIONS**



IN A FULL CHASSIS THE CABLING IS VERY TIGHT. IT IS IMPORTANT THAT THE FOLLOWING INSTRUCTIONS BE FOLLOWED SO THAT ALL THE CABLES WILL FIT. BECAUSE CHASSIS ARE OFTEN UPGRADED LATER, IT IS IMPORTANT THAT THE CHASSIS BE CABLED AS THOUGH IT WERE A FULL CHASSIS. NEDAC IS THE TIGHTEST CONFIGURATION. FOR THE MPDAC CHASSIS IGNORE THE PARTS REFERRING TO THE NEDAC I/O BUS CABLES.

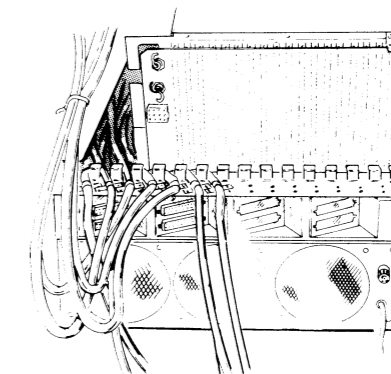
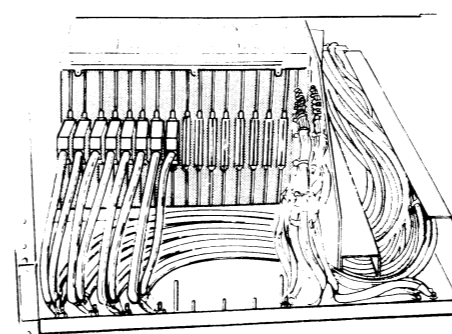
1. SUB-D CONNECTORS FOR THE I/O BUS CABLES SHOULD BE ASSIGNED AS FOLLOWS:

MPDAC - NO PREFERENCE  
NEDAC - LOCATE AS SHOWN



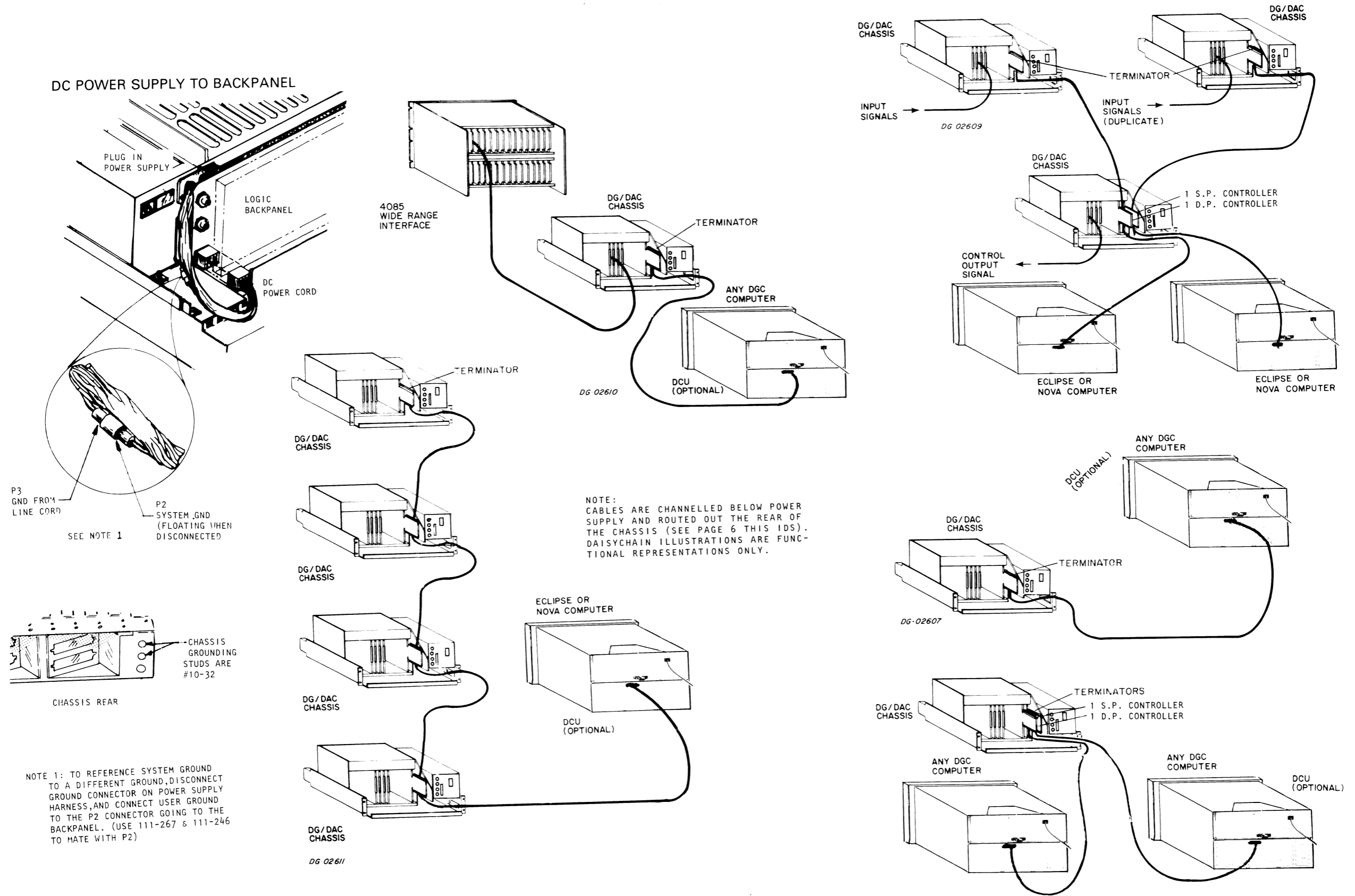
\* OPTIONAL - USED FOR DUAL PORTING  
# OPTIONAL - USED WHEN I/O BUS IS EXTENDED TO ANOTHER CHASSIS

2. INSTALL COVER PLATES IN ALL UNUSED LOCATIONS BEFORE MOUNTING SUB/D CONNECTORS. MOUNT ALL CABLES GOING TO BULKHEAD AND PLUG INTO BACKPANEL.
3. REMOVE SUPPORT BRACKET UNDER FRONT OF POWER SUPPLY WHILE CABLING.
4. ROUTE NEDAC I/O BUS CABLES SO THEY HUG THE OUTSIDE OF THE CABLE TROUGH. FORM NEDAC I/O BUS INPUT CABLES (BOTTOM CONNECTOR ON NEDAC CONTROL CARD) UP AND TO THE LEFT TO MAKE ROOM FOR SENSOR I/O CABLES TO BE ROUTED UNDERNEATH THEM. MOUNT INPUT I/O CABLES FIRST, THEN OUTPUT CABLES.
5. STARTING WITH SLOT 0, ROUTE CABLE AGAINST CARD CAGE, UNDER NEDAC I/O BUS CABLE, AGAINST THE I/O BUS CABLE IN TROUGH AND OUT THE REAR POSITION NEAREST THE POWER SUPPLY. DRESS THE CABLES FROM FRONT TO REAR IN SEQUENTIAL ORDER. THE DESIGN REQUIRES THE CABLES TO CROSS OVER OTHER CABLES. IT IS IMPORTANT THAT THE CROSSOVERS DO NOT ALL TAKE PLACE IN THE FRONT OR REAR, BUT ALL ALONG THE TROUGH, GIVING THE APPEARANCE THAT THE WHOLE BUNDLE IS TWISTED. AFTER THE FIRST TEN CABLES HAVE BEEN LAID IN, THE REMAINING SENSOR I/O CABLES FORM A SECOND ROW UNDER THE NEDAC CONTROLLER CARD CONNECTORS. REPLACE SUPPORT BRACKET.





### NEDAC I/O BUS CABLING



## CONFIGURATION RULES

DEFINITION: DG/DAC IS A GENERIC TERM REFERRING TO IDAC, NEDAC OR MPDAC.

### COOLING

ALL DG/DAC CHASSIS MUST HAVE THE AUXILLIARY BLOWER UNIT (MODEL 4269) PLACED DIRECTLY BENEATH THEM.

THE ONLY EXCEPTION TO THIS RULE IS WHEN A DG/DAC IS USED IN ANY 1012 SERIES CABINET. BECAUSE OF THE VERTICAL ORIENTATION OF THE AIR FLOW IN THIS CABINET, ANY DG/DAC CHASSIS MAY BE PLACED DIRECTLY ABOVE THE TERMINAL BOARD(S) WITHOUT USING THE 4269 BLOWER UNIT. ADDITIONAL DG/DAC FAMILY CHASSIS IN A 1012 SERIES CABINET MUST HAVE THE 4269 BLOWER UNIT.

### TERMINAL BOARDS

THE RULES WILL ALLOW A DG/DAC CHASSIS AND TWO TERMINAL BOARDS TO BE MOUNTED IN 21 INCHES OF SPACE, THUS MAKING IT POSSIBLE TO FIT A CPU (OR OTHER OPTION), A DISK, AND A DG/DAC CHASSIS WITH TWO TERMINAL BOARDS IN ONE FULL-BAY (1012) CABINET. THE CONFIGURATION IS SHOWN IN THE ACCOMPANYING ILLUSTRATION.

#### ONE TERMINAL BOARD:

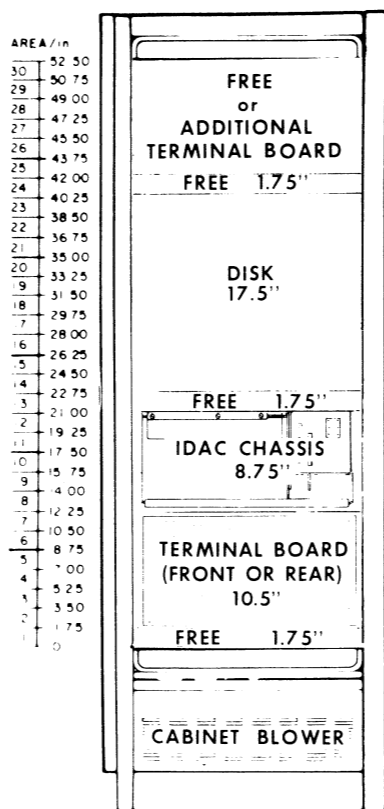
THIS TERMINAL BOARD WILL BE MOUNTED ON THE REAR OF THE CABINET IN THE LOWEST MOUNTING HOLES POSSIBLE (OR OTHER POSITION AS THE CASE MAY WARRANT).

THE EXCEPTION TO THIS RULE IS THE CASE WHERE A DG/DAC CHASSIS, AUXILLIARY BLOWER UNIT AND ONE TERMINAL BOARD ARE TO BE PLACED IN AN 1144 "LOW-BOY" CABINET. IN THIS CASE, THE DG/DAC CHASSIS IS MOUNTED IN THE HIGHEST RACK-MOUNTABLE POSITION, FOLLOWED BY THE AUXILLIARY BLOWER UNIT DIRECTLY BELOW IT. THE TERMINAL BOARD IS THEN MOUNTED ON THE FRONT IN THE HIGHEST POSITION POSSIBLE. WHEN MOUNTED CORRECTLY, IT WILL BUTT UP AGAINST THE RACK MOUNT RAILS OF THE BLOWER UNIT. THIS WILL LEAVE SPACE FOR USER WIRING TO PASS ABOVE AND BELOW THE TERMINAL BOARD.

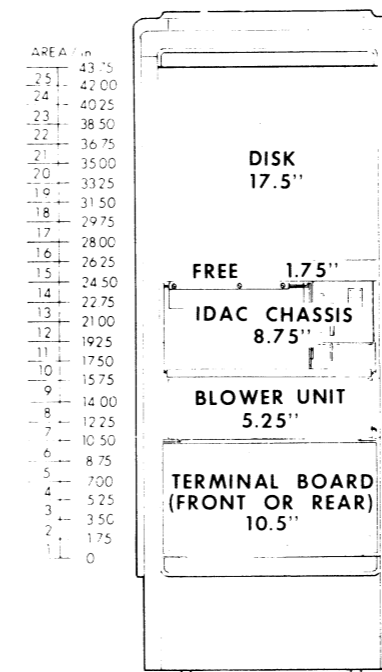
#### TWO TERMINAL BOARDS:

THESE TERMINAL BOARDS WILL BE MOUNTED OPPOSITE EACH OTHER, ONE ON THE FRONT, AND ONE ON THE REAR OF THE CABINET. IF AN AUXILLIARY BLOWER IS NOT BEING USED (1012 SERIES CABINET), THEY WILL BE MOUNTED 1.75" UP FROM THE LOWEST RACK-MOUNTABLE POSITION TO ALLOW FOR USER WIRING CLEARANCE. (USER WIRES WILL COME UNDER THE FRONT TERMINAL BOARD.) IF AN AUXILLIARY BLOWER IS BEING USED, THEY WILL BE MOUNTED IN THE LOWEST MOUNTING HOLES. (USER WIRING WILL PASS UNDER THE BLOWER AND OVER THE TOP OF THE TERMINAL BOARD.)

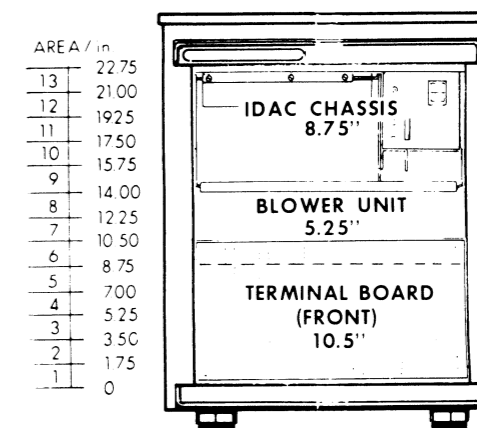
IF ENOUGH SPACE IS AVAILABLE, BOTH TERMINAL BOARDS MAY BE MOUNTED ON THE REAR OF THE CABINET; HOWEVER, COMPLETE REAR ACCESS MUST BE MAINTAINED FOR ALL RACK MOUNTED EQUIPMENT.



TYPICAL  
1012 CABINET  
CONFIGURATION



TYPICAL  
1144 CABINET  
CONFIGURATION

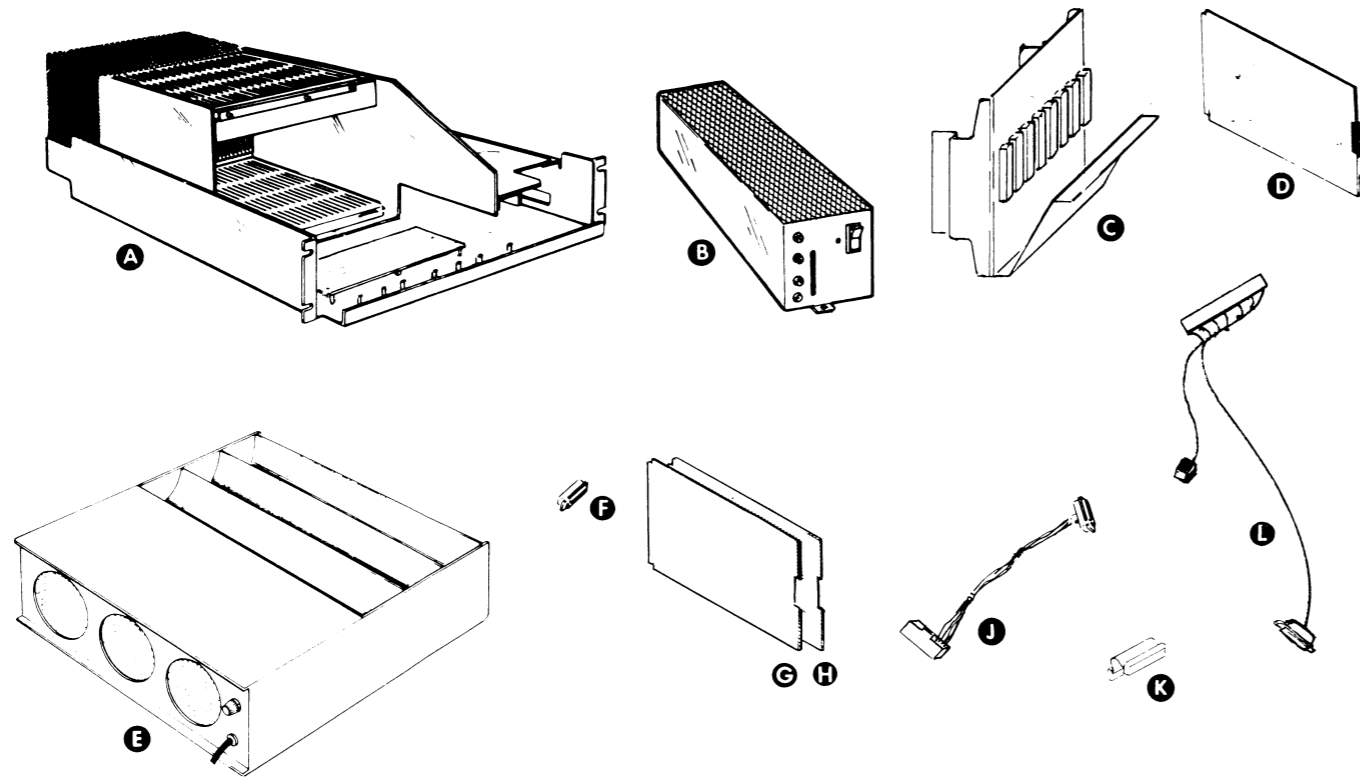


1148 CABINET  
"LOW-BOY"  
CONFIGURATION

NOTE:  
TERMINAL BOARD INVADERS  
BLOWER UNIT'S VERTICAL  
SPACE IN THE FRONT OF  
THE CABINET.

## SUBSYSTEM COMPONENT BREAKDOWN

### SENSOR I/O SUBSYSTEM



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	4308 CHASSIS	CABINET	
B	POWER SUPPLY	CHASSIS	MOUNTS RIGHT SIDE OF CARD CAGE
C	TERMINAL PANEL	CABINET	MAX 4 PER CABINET
D	CONTROL CARD	CHASSIS SLOT 12 ONLY	
E	BLOWER UNIT *	CABINET	4269 REQUIRED WHEN NOT DIRECTLY ABOVE CABINET BLOWER
F	TERMINATOR	CHASSIS	MOUNTS ON BULKHEAD IF I/O BUS IS NOT EXTENDED
G	MP100	CHASSIS SLOT 17	
H	MICRONOVA MEMORY	CHASSIS SLOTS 13-15	

**CABLE**

Item	Cable	Connecting	Notes
J	CONSOLE CABLE	MP 100 and BULKHEAD	
K	JUMPER CABLE	SLOTS 14-15	CONNECTS SLOTS 13, 14 WITH SLOTS 15, 16 AND 17
L	I/O BUS CABLE	CONTROLLER, CPU and BULKHEAD	

\* REQUIRES MTG KIT 005-020265

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. As temporarily permitted by regulation it has not been tested for compliance with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

### CHASSIS SLOT ASSIGNMENTS

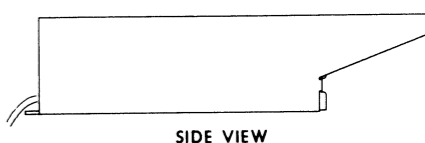
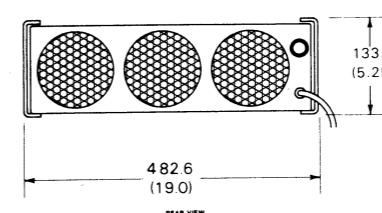
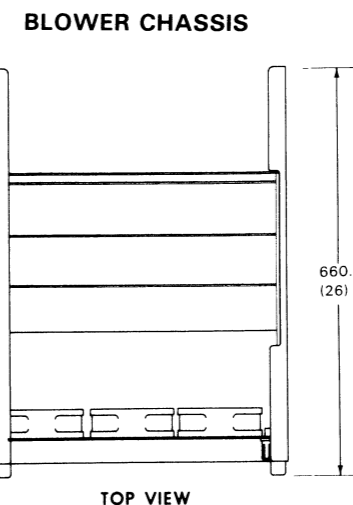
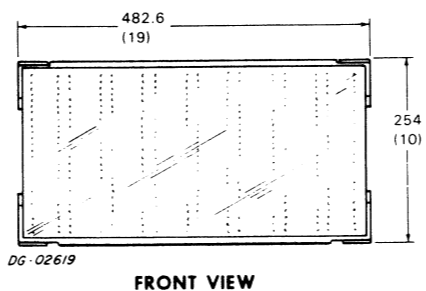
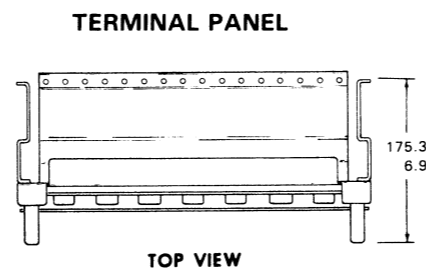
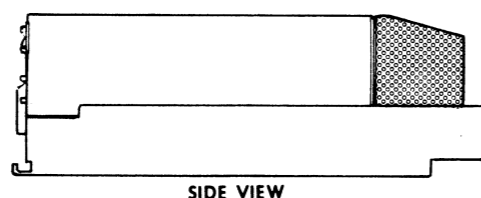
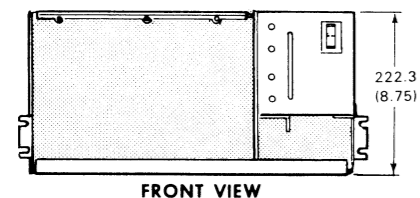
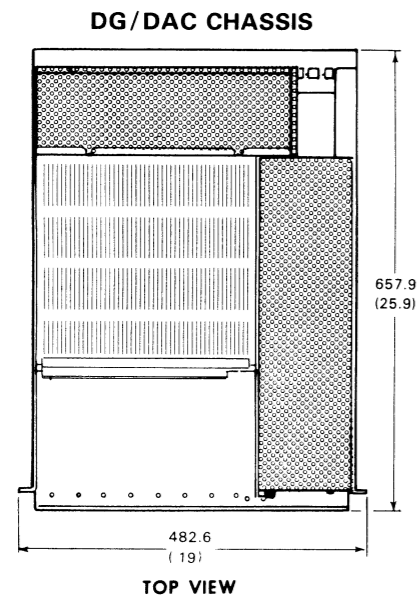
SLOT	BOARDS	+5V	-5V	+12V	-12V	±21V	+24V
0							
1							
2							
3							
4	M O D U L E S						
5							
6							
7							
8							
9							
10							
11							
12	CONTROLLER	1.6	-	-	-	.05	
13	MICRONOVA MEMORIES OR I/O						
14							
15							
16							
17	MP 100						
TOTAL CURRENT DRAW							
CURRENT AVAILABLE		20A	0.8A	1.8A	0.8A	2A	3A
MIN CURRENT DRAW		2.7	80mA	150mA	NOTE 1	0	0
SURPLUS CURRENT							

microNOVA  
BACKPANEL 2  
  
microNOVA  
BACKPANEL 1

**NOTES:**

1. MINIMUM CURRENT DRAWN FROM -5V AND -12V MUST TOTAL 150mA.

INSTALLATION SPECIFICATIONS



DG/DAC CHASSIS

DIMENSIONS:	Width	Depth	Height
Millimeters	482.6	657.9	222.3
Inches	19	25.9	8.75

POWER SUPPLY	Width	Depth	Height
Millimeters	139.7	508	133.4
Inches	5.5	20.0	5.25

WEIGHT:		
Power supply:	33 lbs	15 kg
Chassis & backpanel (empty)	55 lbs	24.9 kg
Chassis & backpanel (with cards)	98 lbs	44.5kg
Terminal board:	10 lbs	4.5 kg

**HEAT DISSIPATION:**  
2300 Btu/hr (700 watts) max  
IDAC must receive forced air from either the fan module mounted directly below it or a rack blower (with vertically directed air flow no more than 1 foot below)

**ENVIRONMENT**  
Temperature  
Operating: 0 to 55 °C (32 to 131 °F)  
Storage: -40 to +70 °C (-40 to +185 °F)

Relative Humidity Range  
Operating: 10% to 90% noncondensing with no multiplexer boards  
10% to 85% noncondensing with multiplexer boards  
Storage: 10% to 90% noncondensing

Altitude  
Operating: 0 - 2450 m (0 - 8,000 ft)  
Storage: 0 - 7620 m (0 - 25,000 ft)

**SLOTS AVAILABLE**

I/O cards: 12  
Micro NOVA cards: 5  
Controller: 1

**DEVICE CODE**

Jumperable from 40 to 76 on controller card

**POWER REQUIREMENTS**

(Domestic)			
Voltage	120V(+10, -15%)		
Hz	50/60		
Amp per Phase	5		
Phase	1		
Startup Surge per Phase	100A for 8.3 ms		
(Export)			
Voltage	100V(±10%)	220V(+10, -15%)	240V(+10, -15%)
Hz	50/60	50/60	50/60
Amp per Phase	6	2.8	2.5
Phase	1	1	1
Startup Surge per Phase	100A for 10 ms		

CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m (6')	5-15P	5-15R
Export 50Hz	1.8m (6')	6-15P	6-15R

**POWER SUPPLY OUTPUTS**

12V	1.5A max
5V	20A max
5V	0.8A max
12V	0.8A max
+24V	3A max
+21.5V	2A max
-21.5V	2A max

**TERMINAL BOARD**

Accepts 8 cables - 50 screw terminals per cable (accepts 4 isolated mux cables)  
Protective plastic covers  
Accepts up to 14 AWG wire  
Front or rear mount

**BLOWER CHASSIS (with rails)**

DIMENSIONS:	Width	Depth	Height
Millimeters	482.6	660.4	133.4
Inches	19	26	5.25

WEIGHT:	
Kilograms	7.0
Pounds	15.5

HEAT OUTPUT:	Watts	BTU/hr
	60	204.6

**OPERATING ENVIRONMENT:**  
Temperature (max) 55 °C (131 °F)  
Relative Humidity (max) 90% non-condensing  
Altitude 3048m (10,000')

**POWER REQUIREMENTS:**

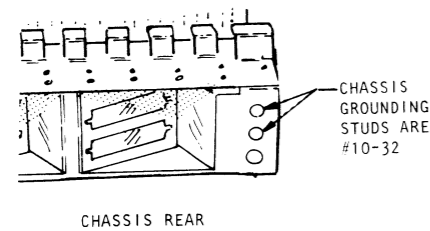
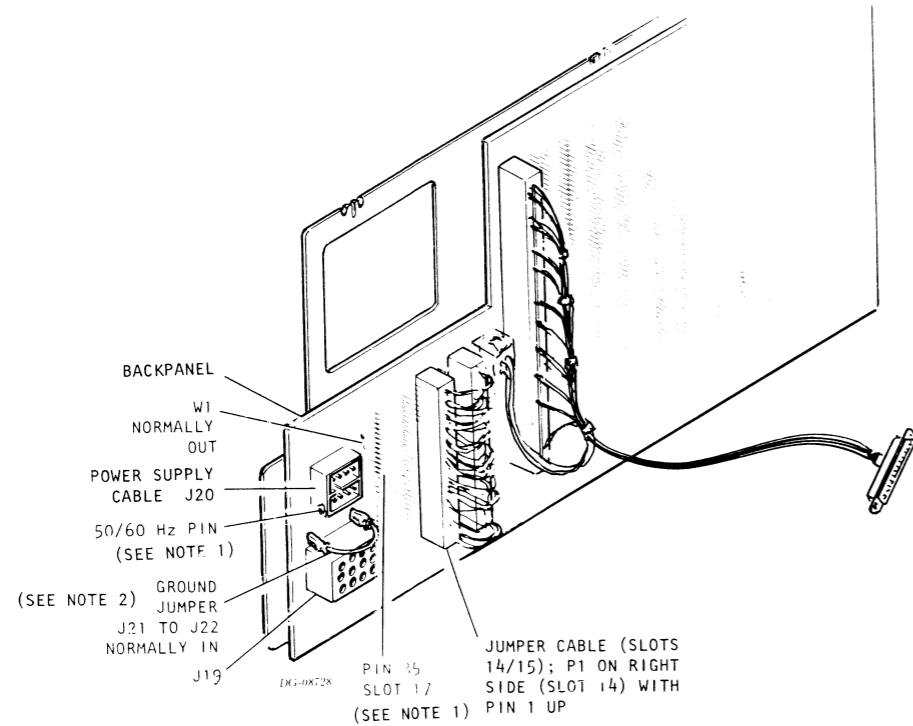
(Domestic)			
Voltage	120V(+10%, -15%)		
Hz	60		
Amp per Phase	0.6		
Phase	1		
Startup Surge per Phase	100A		
(Export)			
Voltage	100V(+10%)	240V(+10%, -15%)	
Hz	50	50	
Amp per Phase	0.72A	0.25A	
Phase	1		
Startup Surge per Phase	100A		

CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m (6')	5-15P	5-15R
Export 50Hz	1.8m (6')	6-15P	6-15R

**LOCATION:**  
Mounts to bottom of chassis

# TAILORING JUMPERING

## LOGIC BACKPANEL STANDARD SINGLE-CPU CONFIGURATION

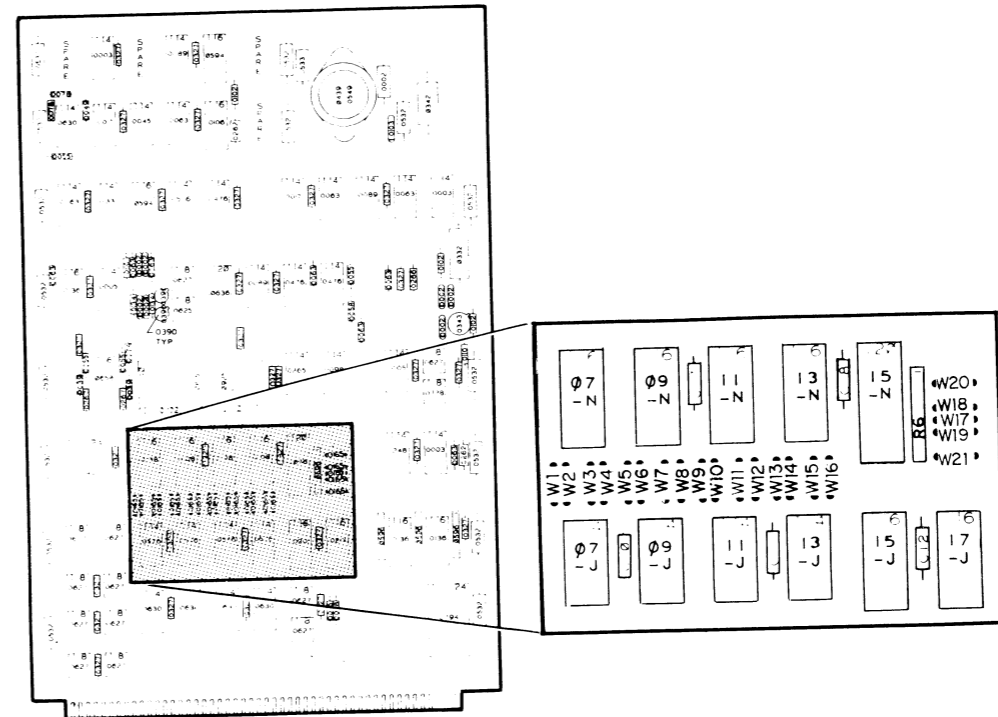


NOTE 1: WIRE WRAP 50/60Hz PIN TO PIN 35 OF SLOT 17 FOR SINGLE CPU IF LINE FREQUENCY USED AS REAL TIME CLOCK.

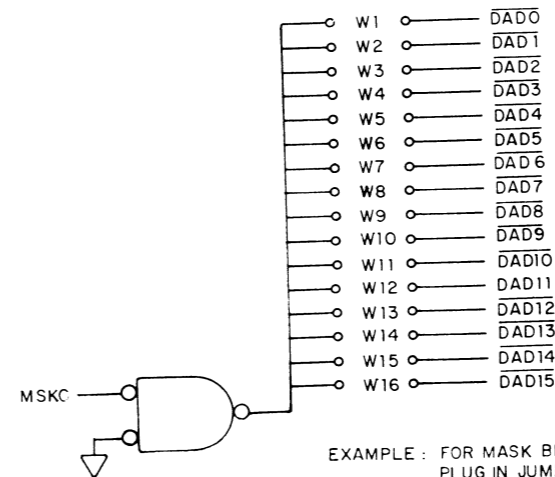
NOTE 2: SYSTEM GROUND IS CONNECTED TO CHASSIS GROUND VIA THE GROUNDING JUMPER ON THE BACKPANEL, TO REFERENCE THE SYSTEM GROUND TO A USER GROUND, DISCONNECT GROUND JUMPER FROM BOTH QUICK DISCONNECTS, AND CONNECT QUICK DISCONNECT (MALE) CLOSEST TO POWER SUPPLY TO USER GROUND.

## CONTROLLER

Ref DGC Dwg 003-001548 Rev 01



### MASK OUT JUMPERS



EXAMPLE: FOR MASK BIT OF 5, PLUG IN JUMPER W6.

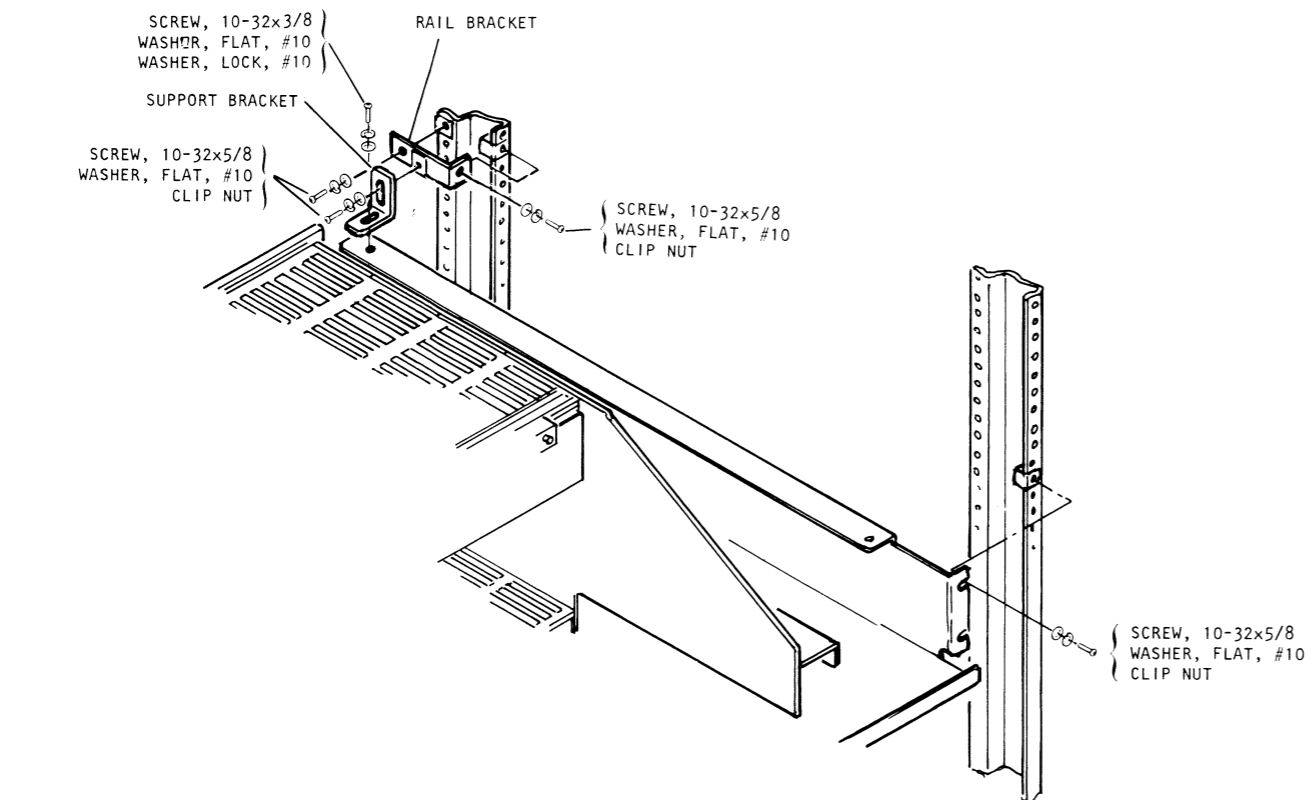
### DEVICE CODE JUMPERS

HARD WIRED	DSO	MSB
o W17 o	DS1	
o W18 o	DS2	
o W19 o	DS3	
o W20 o	DS4	
o W21 o	DS5	

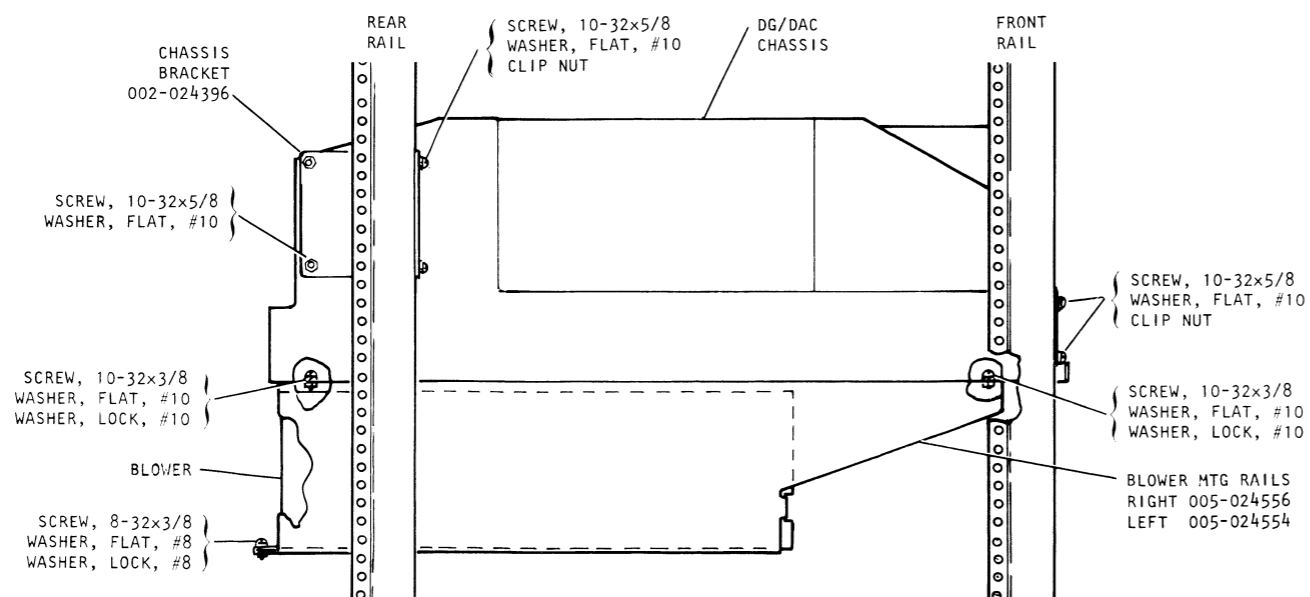
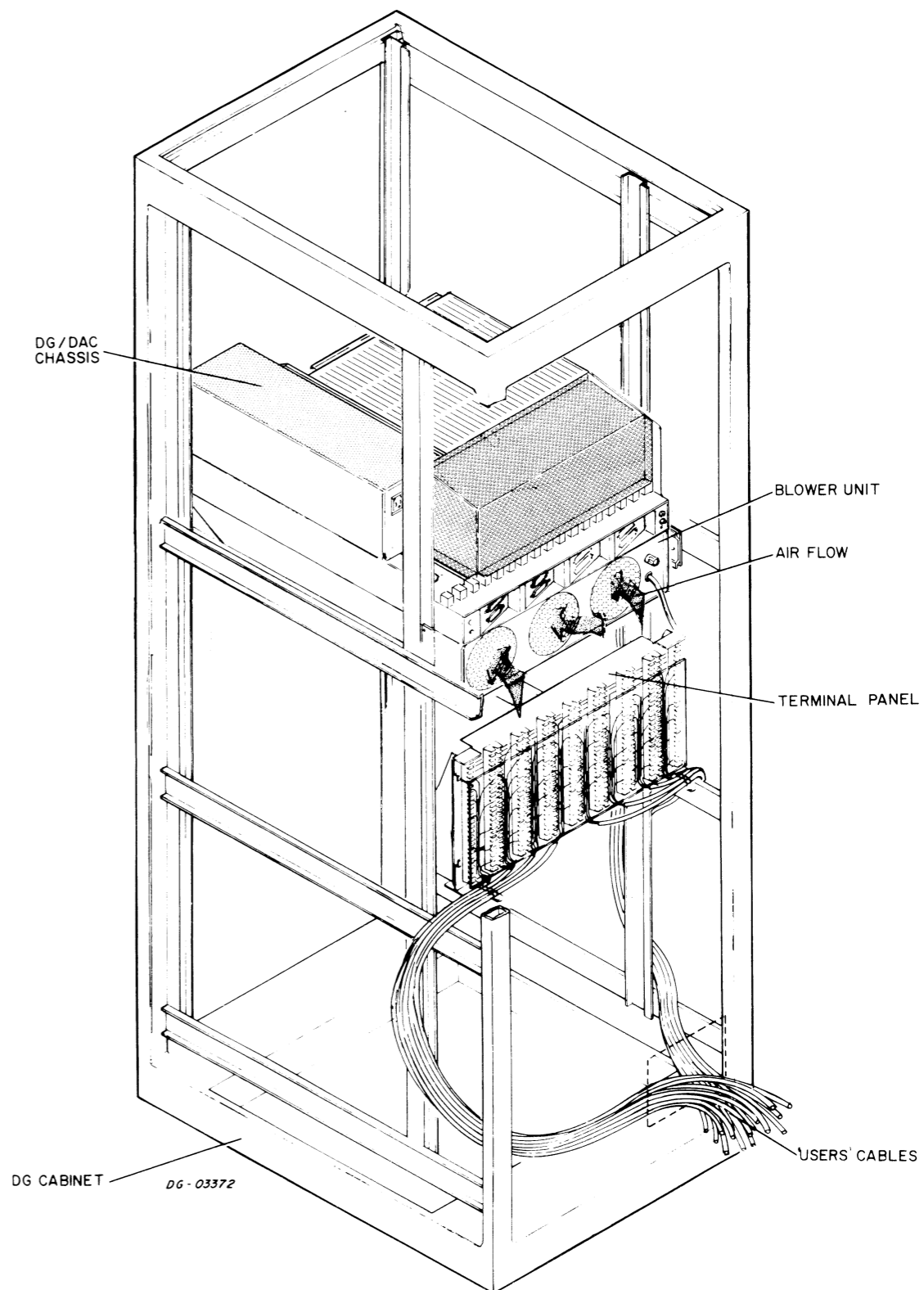
DEVICE CODE IS 4C AS SHOWN. CAN BE JUMPERED UP TO 76.

**CABINET MOUNTING**

**MOUNTING THE CHASSIS**



**REAR VIEW OF CABINET  
AIR FLOW**

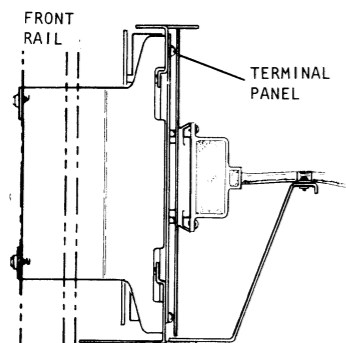


## EXTERNAL CABLING

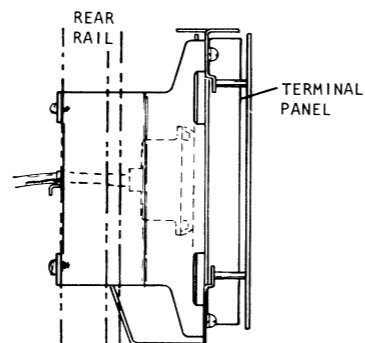
### CABLE ROUTING

#### CABLE CONFIGURATION RULES

1. ACCESS TO CABLES PLUGGED INTO TERMINAL PANELS IS LIMITED WHEN TERMINAL PANELS ARE MOUNTED BOTH FRONT AND REAR IN THE SAME VERTICAL LOCATION. AVOID MOUNTING BOTH FRONT AND REAR IF POSSIBLE. IN A 1605 (METER HIGH) CABINET, THE FRONT AND REAR MOUNTED TERMINAL PANELS SHOULD BE LOCATED AT THE TOP TO ALLOW ACCESS BY REMOVING THE TOP OF THE CABINET.



BRACKET INSTALLED FOR FRONT MOUNTING



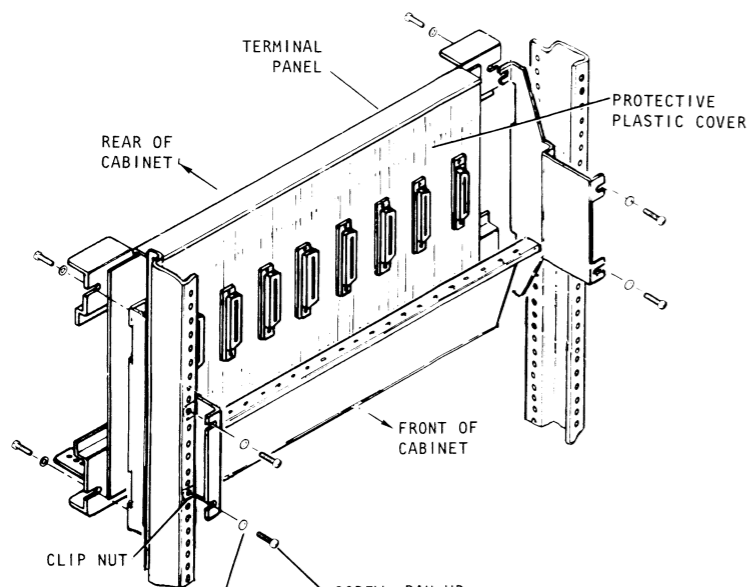
BRACKET INSTALLED FOR REAR MOUNTING

#### CABLE ROUTING INSTRUCTIONS

IN A FULL CHASSIS THE CABLING IS VERY TIGHT. IT IS IMPORTANT THAT THE FOLLOWING INSTRUCTIONS BE FOLLOWED SO THAT ALL THE CABLES WILL FIT. BECAUSE CHASSIS ARE OFTEN UPGRADED LATER, IT IS IMPORTANT THAT THE CHASSIS BE CABLED AS THOUGH IT WERE A FULL CHASSIS.

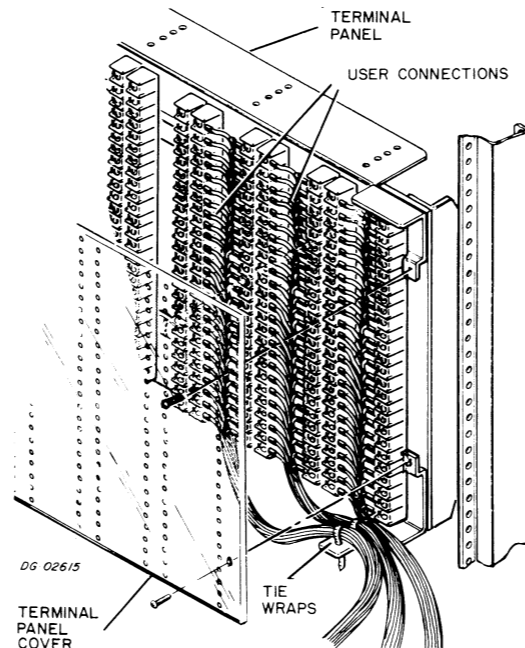
1. THERE IS NO PREFERENCE WHEN ASSIGNING SUB-D CONNECTOR POSITIONS ON THE BULKHEAD.
2. INSTALL COVER PLATES IN ALL UNUSED LOCATIONS BEFORE MOUNTING SUB-D CONNECTORS. MOUNT ALL CABLES GOING TO BULKHEAD AND PLUG INTO BACKPANEL.
3. REMOVE SUPPORT BRACKET UNDER FRONT OF POWER SUPPLY WHILE CABLING
4. STARTING WITH SLOT 0, ROUTE CABLE AGAINST THE FRONT OF THE CARD CAGE, AGAINST THE RIGHT WALL OF THE CABLE TROUGH AND OUT THE REAR POSITION NEAREST THE POWER SUPPLY. DRESS THE CABLES FROM FRONT TO REAR IN SEQUENTIAL ORDER. THE DESIGN REQUIRES THE CABLES TO CROSS OVER OTHER CABLES. IT IS IMPORTANT THAT THE CROSSOVERS DO NOT ALL TAKE PLACE IN THE FRONT OR REAR, BUT ALL ALONG THE TROUGH, GIVING THE APPEARANCE THAT THE WHOLE BUNDLE IS TWISTED. AFTER THE FIRST TEN CABLES HAVE BEEN LAID IN, THE REMAINING SENSOR I/O CABLES FORM A SECOND ROW BEFORE ENTERING THE CABLE TROUGH. REPLACE SUPPORT BRACKET.

#### MOUNTING THE TERMINAL PANEL



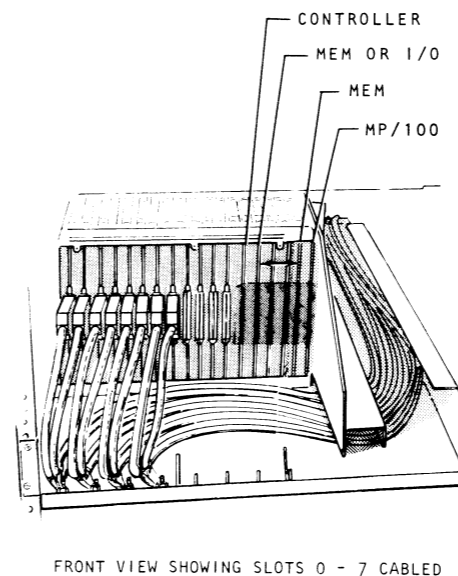
DG-02617  
NOTE: GROUNDING STUDS ARE:#8-32

#### USER CONNECTIONS

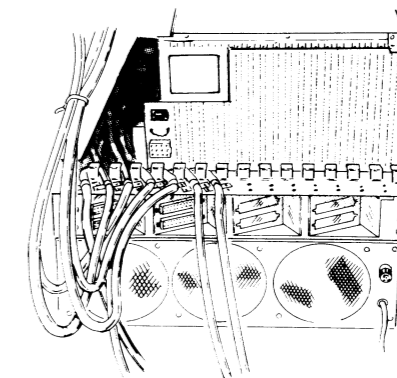


#### ORIENTATION IS IMPORTANT

MAKE SURE WHEN INSTALLING THE TERMINAL PANEL THAT THE LETTERS ON THE TERMINAL SIDE OF THE PCB READ FROM "A" (LEFT) TO "H" (RIGHT)



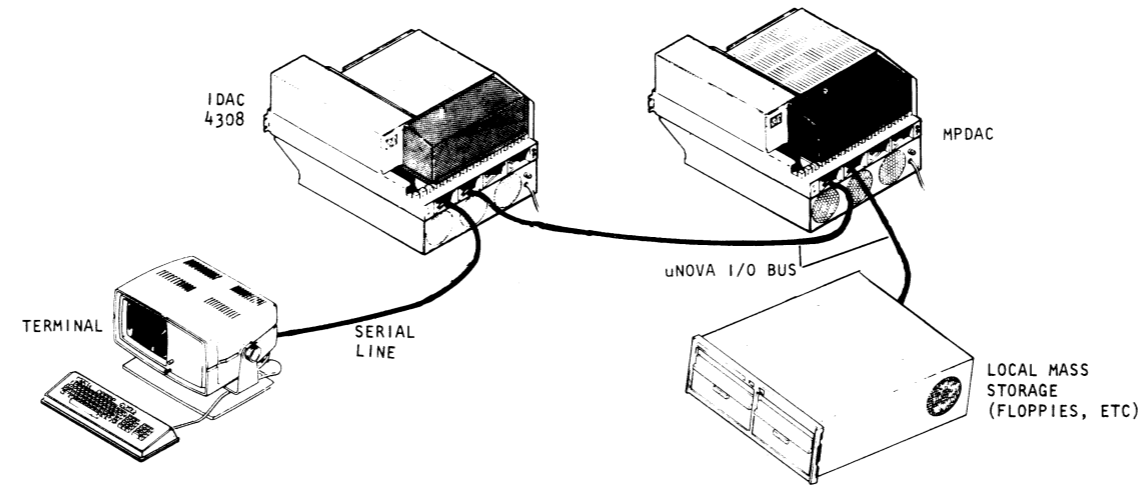
FRONT VIEW SHOWING SLOTS 0 - 7 CABLED



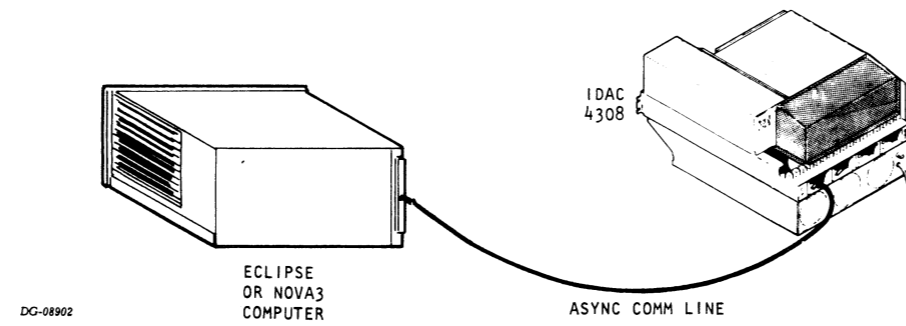
REAR VIEW SHOWING POSITIONS 0 - 3 OF BULKHEAD CONTAINING CONNECTORS AND SENSOR I/O CABLES DRESSED THRU STRAIN RELIEF WITH GROUNDING CLAMPS. EMI COVER NOT SHOWN.

### CONFIGURING A SYSTEM

Example 1 Slaved microNOVA DG/DAC



Example 2 Slaved IDAC downline loaded from NOVA or ECLIPSE





## CONFIGURATION RULES

DEFINITION: DG/DAC IS A GENERIC TERM REFERRING TO IDAC, NEDAC OR MPDAC.

### COOLING

ALL DG/DAC CHASSIS MUST HAVE THE AUXILLIARY BLOWER UNIT (MODEL 4269) PLACED DIRECTLY BENEATH THEM.

THE ONLY EXCEPTION TO THIS RULE IS WHEN A DG/DAC IS USED IN ANY 1012 SERIES CABINET. BECAUSE OF THE VERTICAL ORIENTATION OF THE AIR FLOW IN THIS CABINET, ANY DG/DAC CHASSIS MAY BE PLACED DIRECTLY ABOVE THE TERMINAL BOARD(S) WITHOUT USING THE 4269 BLOWER UNIT. ADDITIONAL DG/DAC FAMILY CHASSIS IN A 1012 SERIES CABINET MUST HAVE THE 4269 BLOWER UNIT.

### TERMINAL BOARDS

THE RULES WILL ALLOW A DG/DAC CHASSIS AND TWO TERMINAL BOARDS TO BE MOUNTED IN 21 INCHES OF SPACE, THUS MAKING IT POSSIBLE TO FIT A CPU (OR OTHER OPTION), A DISK, AND A DG/DAC CHASSIS WITH TWO TERMINAL BOARDS IN ONE FULL-BAY (1012) CABINET. THE CONFIGURATION IS SHOWN IN THE ACCOMPANYING ILLUSTRATION.

#### ONE TERMINAL BOARD:

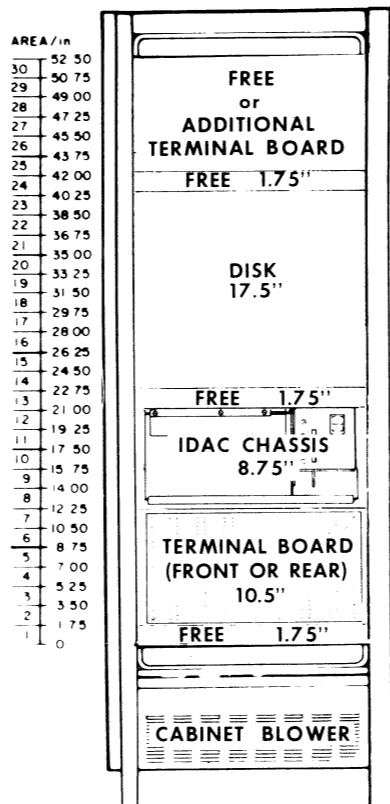
THIS TERMINAL BOARD WILL BE MOUNTED ON THE REAR OF THE CABINET IN THE LOWEST MOUNTING HOLES POSSIBLE (OR OTHER POSITION AS THE CASE MAY WARRANT).

THE EXCEPTION TO THIS RULE IS THE CASE WHERE A DG/DAC CHASSIS, AUXILLIARY BLOWER UNIT AND ONE TERMINAL BOARD ARE TO BE PLACED IN AN 1144 "LOW-BOY" CABINET. IN THIS CASE, THE DG/DAC CHASSIS IS MOUNTED IN THE HIGHEST RACK-MOUNTABLE POSITION, FOLLOWED BY THE AUXILLIARY BLOWER UNIT DIRECTLY BELOW IT. THE TERMINAL BOARD IS THEN MOUNTED ON THE FRONT IN THE HIGHEST POSITION POSSIBLE. WHEN MOUNTED CORRECTLY, IT WILL BUTT UP AGAINST THE RACK MOUNT RAILS OF THE BLOWER UNIT. THIS WILL LEAVE SPACE FOR USER WIRING TO PASS ABOVE AND BELOW THE TERMINAL BOARD.

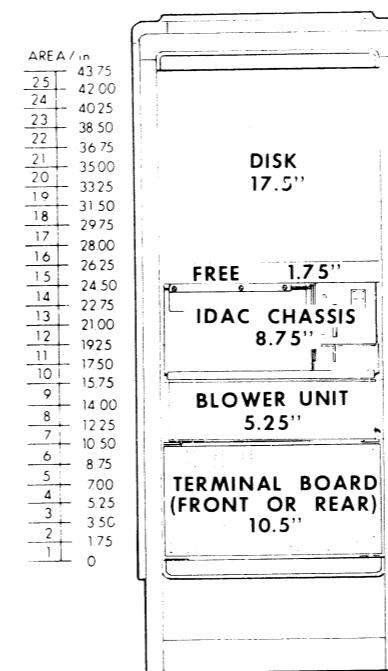
#### TWO TERMINAL BOARDS:

THESE TERMINAL BOARDS WILL BE MOUNTED OPPOSITE EACH OTHER, ONE ON THE FRONT, AND ONE ON THE REAR OF THE CABINET. IF AN AUXILLIARY BLOWER IS NOT BEING USED (1012 SERIES CABINET), THEY WILL BE MOUNTED 1.75" UP FROM THE LOWEST RACK-MOUNTABLE POSITION TO ALLOW FOR USER WIRING CLEARANCE. (USER WIRES WILL COME UNDER THE FRONT TERMINAL BOARD.) IF AN AUXILLIARY BLOWER IS BEING USED, THEY WILL BE MOUNTED IN THE LOWEST MOUNTING HOLES. (USER WIRING WILL PASS UNDER THE BLOWER AND OVER THE TOP OF THE TERMINAL BOARD.)

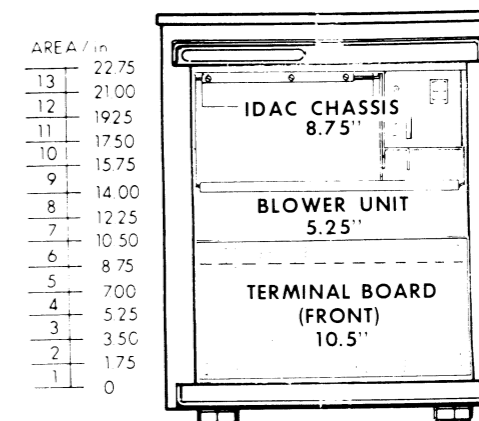
IF ENOUGH SPACE IS AVAILABLE, BOTH TERMINAL BOARDS MAY BE MOUNTED ON THE REAR OF THE CABINET; HOWEVER, COMPLETE REAR ACCESS MUST BE MAINTAINED FOR ALL RACK MOUNTED EQUIPMENT.



TYPICAL  
1012 CABINET  
CONFIGURATION



TYPICAL  
1144 CABINET  
CONFIGURATION

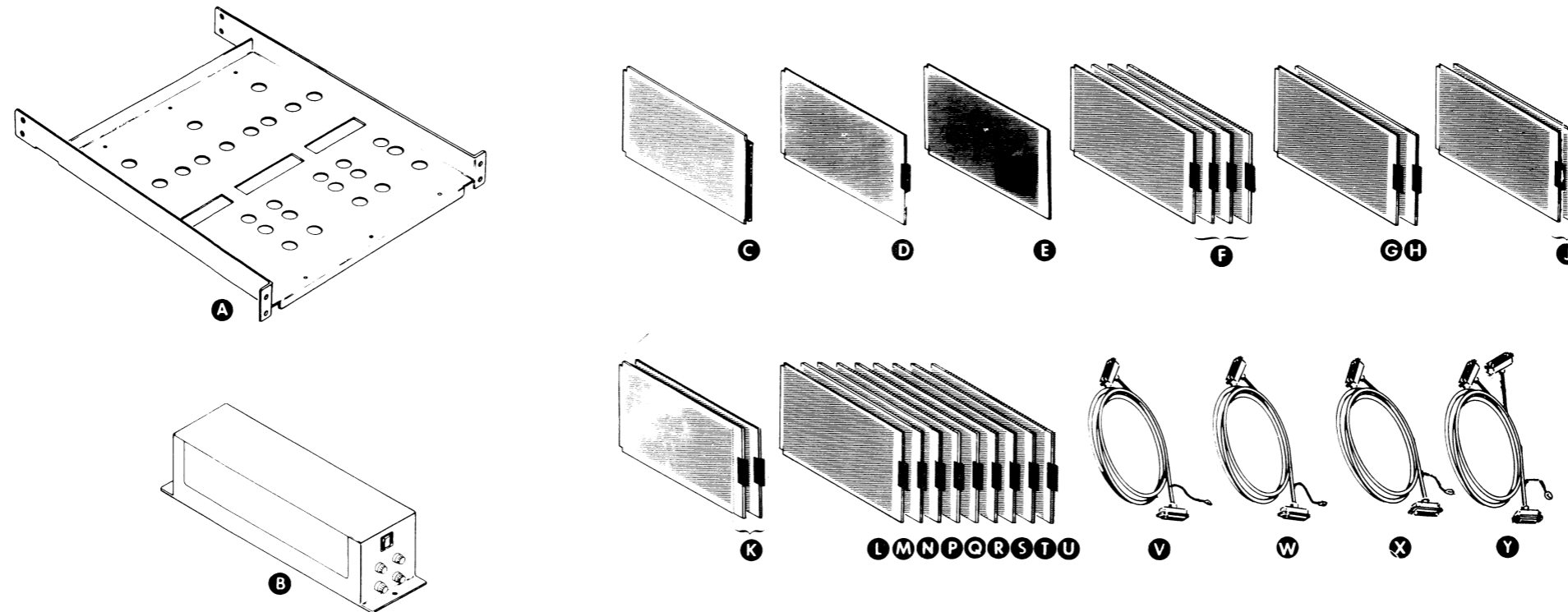


1148 CABINET  
"LOW-BOY"  
CONFIGURATION

NOTE:  
TERMINAL BOARD INVADERS  
BLOWER UNIT'S VERTICAL  
SPACE IN THE FRONT OF  
THE CABINET.

**SUBSYSTEM COMPONENT BREAKDOWN**

**SENSOR I/O SUBSYSTEM**



**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
A	AUX POWER SUPPLY FRAME	CABINET **	4267 OPTION HOLDS UP TO 3 AUX. POWER SUPPLIES
B	AUXILLIARY POWER SUPPLY *	CHASSIS (PS)	4268 OPTION
C	EXTENDER CARD	CHASSIS, SLOT 0 - 12 IDAC SLOT 0-17 MPDAC-NEDAC	4270-D FOR MAINTENANCE PURPOSES
D	GENERAL PURPOSE WIRING CARD	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	4271 OPTION
E	A/D CONVERTER	SLOT 0-10 IDAC SLOT 0-14 MPDAC-NEDAC	SEE NOTE 1 ± 10V, ± 5V, 0-10, 0-5V RANGES
F	DIF MUX	SLOT 1-11 IDAC SLOT 1-15 MPDAC-NEDAC	SEE NOTE 1 DIF VOLTAGE INPUT JUMPER SELECTABLE GAIN
	DIF MUX PROGRAMMABLE GAIN	SLOT 1-11 IDAC SLOT 1-15 MPDAC-NEDAC	SEE NOTE 1 DIF VOLTAGE INPUT PROGRAMMABLE GAIN
	CURRENT LOOP MUX	SLOT 1-11 IDAC SLOT 1-15 MPDAC-NEDAC	SEE NOTE 1 CURRENT INPUT JUMPER SELECTABLE GAIN
	SINGLE ENDED MUX	SLOT 1-11 IDAC SLOT 1-15 MPDAC-NEDAC	SEE NOTE 1 SINGLE ENDED INPUT
G	SET POINT MONITOR	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	
H	ISOLATED ANALOG INPUT MUX	CHASSIS, SLOT 1-11 IDAC SLOT 1-15	
I	ISOLATED D/A, VOLTAGE OUTPUT	CHASSIS, SLOT 0-11 IDAC SLOT 0-15 MPDAC-NEDAC	
	ISOLATED D/A, CURRENT OUTPUT	CHASSIS, SLOT 0-11 IDAC SLOT 0-15 MPDAC-NEDAC	
K	ANALOG VOLTAGE OUTPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	0-10V, 0-5V, ±10V, ±5V JUMPER SELECTABLE
	ANALOG CURRENT OUTPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	0-16mA or 4-20mA JUMPER SELECTABLE
L	GENERAL PURPOSE DIGITAL INPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE

\* REQUIRES MOUNTING KIT 005-007234.

\*\* AIRFLOW MUST BE PROVIDED BY ONE OF THE FOLLOWING METHODS:

- 1) MOUNT AUX. POWER SUPPLY ABOVE DG/DAC CHASSIS TO BE COOLED BY AIRFLOW FROM TOP OF DG/DAC CHASSIS.
- 2) MOUNT AUX. POWER SUPPLY ABOVE CABINET BLOWER (IN CABINETS WITH VERTICALLY DIRECTED AIR FLOW).

**MAJOR COMPONENT**

Item	Component	Mounting Location	Notes
M	TTL DIGITAL INPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
N	ISOLATED DC DIGITAL OUTPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
P	PULSE DC DIGITAL OUTPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
Q	ISOLATED AC DIGITAL OUTPUT	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE REQUIRES 2 SLOTS
R	MULTI-FUNCTION TIMER	CHASSIS, SLOT 0-11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
S	FORM "A" RELAY DIGITAL OUTPUT MODULE	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
T	FORM "C" REPLAY DIGITAL OUTPUT MODULE	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE
U	TTL DIGITAL OUTPUT MODULE	CHASSIS, SLOT 0 - 11 IDAC SLOT 0-15 MPDAC-NEDAC	DIGITAL MODULE

NOTE 1 ONE A/D CARD AND AT LEAST ONE MUX CARD ARE NEEDED FOR AN A/D SUBSYSTEM. ALL MUX CARDS ASSOCIATED WITH AN A/D CARD MUST BE PLACED IN ADJACENT CONSECUTIVE HIGHER NUMBERED CHASSIS SLOTS. FIRST A/D SHOULD GO IN SLOT 0.

**CABLE**

Item	Cable	Connecting	Notes
V	ANALOG I/O CABLE	MODULE AND TERMINAL PANEL	SEE TABLE NEXT PAGE
W	DIGITAL I/O CABLE	MODULE AND TERMINAL PANEL	SEE TABLE NEXT PAGE
X	ISOLATED D/A I/O CABLE	ISOLATED D/A CARD AND TERMINAL PANEL	SEE TABLE NEXT PAGE
Y	ISOLATED MUX I/O CABLE	ISOLATED MUX CARD AND TERMINAL PANEL	SEE TABLE NEXT PAGE

## INSTALLATION SPECIFICATIONS

### SPECIFICATIONS OF THE CHASSIS-MOUNTED COMPONENTS

Item	Component	No. of Slots Required	+5V Current Draw (Amps)	+24V Current Draw (Amps)	± 21V Current Draw (Amps)	Internal Power Dis (Watts)	External Power Dis (Watts)
4280, E 4280-A-C, F, G, H, K	A/D CONVERTER	1	1.1	-	.1	10.5	-
4281	DIF MUX	1	.3	-	.05	3.6	-
4281G	DIF MUX PROGRAMMABLE GAIN	1	.3	-	.05	3.6	-
F 4281C	CURRENT LOOP MUX	1	.3	-	.05	3.6	4 NOTE 2
4282	SINGLE-ENDED MUX	1	.3	-	.05	3.6	-
G 4283	SET POINT MONITOR	1	1.15	-	.04	8.0	-
H 4284	ISOLATED ANALOG INPUT MUX	1	.6	.1	.06	7.1	-
4287 A-B J	ISOLATED D/A VOLTAGE OUTPUT	1	.5	-	-	2.5	-
4287 C-F	ISOLATED D/A CURRENT OUTPUT	1	.5	-	-	2.5	8 NOTE 3
4288 K	ANALOG VOLTAGE OUTPUT	1	.8	-	.16	11.7	3
4289	ANALOG CURRENT OUTPUT	1	.8	.08 NOTE 1	.1	11.2	7 NOTE 3
L 4290	GENERAL PURPOSE DIGITAL INPUT	1	.85	-	-	4.25	32 NOTE 4
M 4291	TTL DIGITAL INPUT	1	.5	-	-	2.5	-
N 4292	ISOLATED DC DIGITAL OUTPUT	1	.6	-	-	3.0	60 NOTE 5
P 4293	PULSE DC DIGITAL OUTPUT	1	1	-	-	5.0	60 NOTE 5
Q 4294	ISOLATED AC DIGITAL OUTPUT (TRIAC OUTPUT)	2	.6	-	-	3.0	38 NOTE 6
R 4295	MULTI-FUNCTION TIMER	1	2.0	-	-	11.0	-
S 4296	FORM "A" RELAY DIGITAL OUTPUT MODULE	1	.3	.18	-	5.8	-
T 4297	FORM "C" RELAY DIGITAL OUTPUT MODULE	1	.3	.18	-	5.8	-
U 4299	TTL DIGITAL OUTPUT MODULE	1	.5	-	-	2.5	-

NOTES:

1. WHEN USED AS CURRENT SOURCE.
2. IF EXTERNAL CURRENT IS KNOWN USE:  $P = 200 \text{ ohms} \cdot I^2$
3. IF EXTERNAL VOLTAGE AND CURRENT ARE KNOWN USE:  $P = I \cdot V$
4. IF EXTERNAL VOLTAGE IS KNOWN USE:  $P = \frac{V^{1.6}}{1000 \text{ ohms} \cdot K}$  K = 1.1 for AC  
K = 0.6 for DC
5. IF EXTERNAL CURRENT IS KNOWN USE:  $P = 1V \cdot I + I^2 \cdot 1 \text{ ohm}$
6. IF EXTERNAL CURRENT IS KNOWN USE:  $P = 1.2V \cdot I$
7. IN ABOVE EQUATIONS I IS IN AMPS, V IS IN VOLTS.

ANALOG CLUSTER CONFIGURATION

AN ANALOG CLUSTER CONSISTS OF AN A/D BOARD AND ONE OR MORE MUX BOARDS IN CONSECUTIVELY HIGHER SLOTS. THE FIRST CLUSTER MUST START WITH SLOT 0. OTHER BOARDS MUST BE LOCATED TO THE RIGHT OF ALL ANALOG CLUSTERS (TO OPTIMIZE SHIELDING). DO NOT HAVE ANY EMPTY SLOTS BETWEEN ANALOG CLUSTERS, OTHERWISE DATA CHANNEL PRIORITY JUMPERS WILL BE REQUIRED.

### CABLE ASSIGNMENTS

MODEL NO	I/O CARD	7.5 FT CABLE NO. STRUCTURED	CABLE TYPE
4280	A/D CONVERTER	-	-
4281	DIFF MULTIPLEXOR	005-020172	ANALOG
4282	SE MULTIPLEXOR	005-020172	ANALOG
4283	SET POINT MONITOR	005-020172	ANALOG
4284	ISOLATED MULTIPLEXOR	005-020163	ISOLATED MULTIPLEXOR
4287	ISOLATED D/A	005-020166	ISOLATED D/A
4288	ANALOG VOLT OUTPUT	005-020172	ANALOG
4289	ANALOG CUR. OUTPUT	005-020172	ANALOG
4290	GENERAL PURPOSE DIGITAL INPUT	005-020169	DIGITAL
4291	TTL DIGITAL INPUT	005-020169	DIGITAL
4292	ISOLATED DIGITAL OUTPUT	005-020169	DIGITAL
4293	PULSE DC DIGITAL OUTPUT	005-020169	DIGITAL
4294	ISOLATED AC DIGITAL OUTPUT	005-020169	DIGITAL
4295	GENERAL PURPOSE TIMER	005-020169	DIGITAL
4296	FORM A RELAY	005-020169	DIGITAL
4297	FORM C RELAY	005-020169	DIGITAL
4299	TTL DIGITAL OUTPUT	005-020169	DIGITAL

### I/O CABLES FROM I/O CARDS

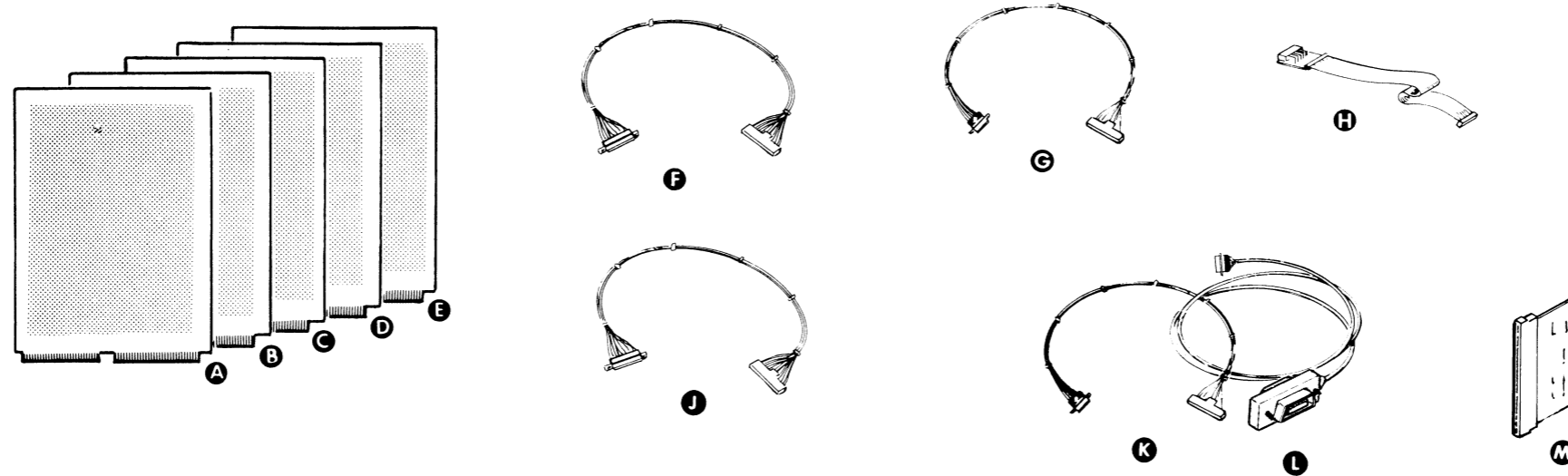
NEW 005 No	DESCRIPTION	LENGTH
005-020163	DG/DAC ISOLATED MULTIPLEXOR I/O CABLE	7.5 FT
005-020164	DG/DAC ISOLATED MULTIPLEXOR I/O CABLE	12 FT
005-020165	DG/DAC ISOLATED MULTIPLEXOR I/O CABLE	25 FT
005-020166	DG/DAC ISOLATED D/A I/O CABLE	7.5 FT
005-020167	DG/DAC ISOLATED D/A I/O CABLE	12 FT
005-020168	DG/DAC ISOLATED D/A I/O CABLE	25 FT
005-020169	DG/DAC DIGITAL I/O CABLE	7.5 FT
005-020170	DG/DAC DIGITAL I/O CABLE	12 FT
005-020171	DG/DAC DIGITAL I/O CABLE	25 FT
005-020172	DG/DAC ANALOG I/O CABLE	7.5 FT
005-020173	DG/DAC ANALOG I/O CABLE	12 FT
005-020174	DG/DAC ANALOG I/O CABLE	25 FT

FOR PACKING PROCEDURE,  
SEE 010-000262/263

**SUBSYSTEM COMPONENT BREAKDOWN (CONT)**

**OPTIONAL microNOVA I/O SENSOR BOARDS  
( IDAC ONLY )**

Ref DGC Dwg No 010-000362



**MAJOR COMPONENTS**

ITEM	COMPONENT	MOUNTING LOCATION
A	A/D CONVERTER	ANY I/O SLOT
B	D/A CONVERTER	ANY I/O SLOT
C	DIGITAL I/O INTERFACE	ANY I/O SLOT
D	MICROPRODUCTS ANALOG SUBSYSTEM	ANY I/O SLOT (MP/100 AND MP/200 ONLY)
E	I.E.E.E. 488 BUS INTERFACE	ANY I/O SLOT

ITEM	COMPONENT	CHASSIS	SLOTS REQUIRED	DC CURRENT DRAW (AMPS)				
				5V	-5V	12V	15V	-12V
A	A/D CONVERTER	9-18 SLOT ONLY	1	1.90	0.03	—	0.07	—
		8 SLOT ONLY	1	1.90	0.03	0.07	—	—
B	D/A CONVERTER	9-18 SLOT ONLY	1	2.00	0.03	—	0.07	—
		8 SLOT ONLY	1	2.00	0.03	0.07	—	—
C	DIGITAL I/O INTERFACE	9-18 SLOT ONLY	1	0.80	—	—	0.08	—
		8 SLOT ONLY	1	0.80	—	0.08	—	—
D	MICROPRODUCTS ANALOG SUBSYSTEM	8 SLOT ONLY	1	1.80	.003	0.05	—	0.075
E	I.E.E.E. 488 BUS INTERFACE	9-18 SLOT ONLY	1	2.40	0.276	0.15	—	—
		8 SLOT ONLY	1	2.40	0.276	0.15	—	—

**CABLES**

ITEM	COMPONENT	CONNECTING	LENGTH		NOTES
			FT	M	
F	A/D CONVERTER CABLE				005-019958
G	D/A CONVERTER CABLE				005-019959
H	DIGITAL I/O CABLE				005-019961
J	MPRODUCTS ANALOG CABLE				005-019960
K	IEEE 488 INT CABLE				005-019057
L	IEEE 488 EXT CABLE				005-019997
M	MICROPRODUCTS ANALOG SUBSYSTEM LOOP-BACK CONNECTOR	DIGITAL OUTPUTS TO DIGITAL INPUTS AND ANALOG OUTPUTS TO ANALOG INPUTS			005-014910

**FOR PACKING PROCEDURE,  
SEE 010-000262**

**Warning:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

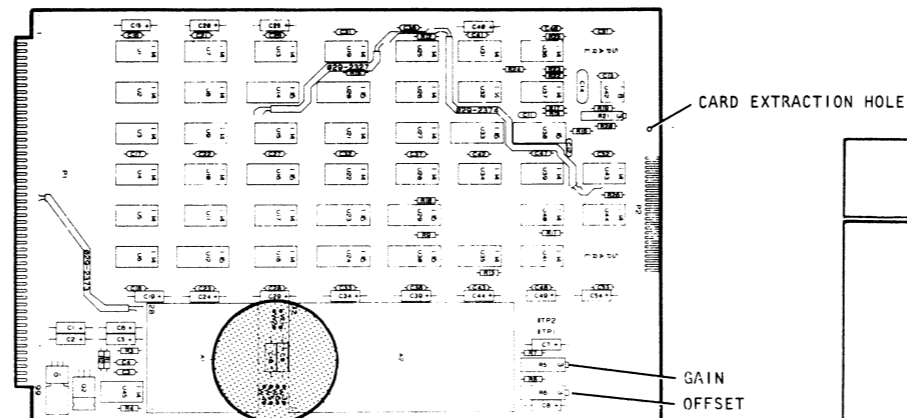
# I/O BOARDS

## A/D CONVERTER MODEL 4280 SERIES

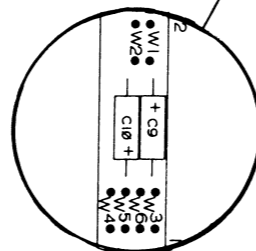
NO CABLE  
SLOTS 0-11

**JUMPERING**

CODING & RANGE SELECTION	JUMPERS
TWO'S COMPLEMENT	W2 IN, W1 OUT
STRAIGHT BINARY	W1 IN, W2 OUT
0-5V RANGE	W1, W5, W6 IN, W2-4 OUT
0-10V RANGE	W1, W5 IN, W2-4 & W6 OUT
± 5V RANGE	W2, 3 & W5 IN, W1, 4, 6 OUT
± 10V RANGE	W2-4 IN, W1, 5, 6 OUT



Ref DGC Dwg 003-000645 Rev 13



BIT	SELECTED OUTPUT RANGE	
	0-5V	0-10V
0	2 5000	5 0000
1	1 2500	2 5000
2	0 6250	1 2500
3	0 3125	0 6250
4	0 1563	0 3125
5	0 0781	0 1563
6	0 0391	0 0781
7	0 0195	0 0391
8	0 0098	0 0195
9	0 0049	0 0098
10	0 0024	0 0049
11	0 0012	0 0024
ALL 0'S	0 0000	0 0000
ALL 1'S	4 9988	9 9976
TOLERANCE	± 0 0006	± 0 0012

**SPECIFICATIONS**

INPUT VOLTAGE RANGE	± 10V (models 4280, 4280-F) ± 5V (models 4280-A, 4280-G) 0-10V (models 4280-B, 4280-H) 0-5V (models 4280-C, 4280-K)
RESOLUTION	12 BITS INCLUDING SIGN
CODING	2'S COMPLEMENT
ACCURACY	± 0 037 OF FULL SCALE
MAXIMUM CONVERSION TIME	20µSEC
MAXIMUM CONVERSION RATE	25KHz (models 4280, -A, -B, -C) 50KHz (models 4280-F, -G, -H, -K)
MAXIMUM ACQUISITION TIME	5µs
MAXIMUM INPUT VOLTAGE	±15V
INPUT RESISTANCE	50MΩ
NOISE	1mV MAX REFERRED TO INPUT
TEMPERATURE DRIFT	± 15ppm (f s) ± 25µV degC
OFFSET	± 5ppm degC
GAIN	± 25ppm degC
POWER REQUIREMENTS	5Vdc @ 1 1A +21Vdc @ 45mA -21Vdc @ 70mA
MAX POWER DISSIPATION	7 5W
EXT CLK	P58
RET	P60

**ANALOG CLUSTER NOTE:**

(SEE ALSO FOLLOWING TWO PAGES)

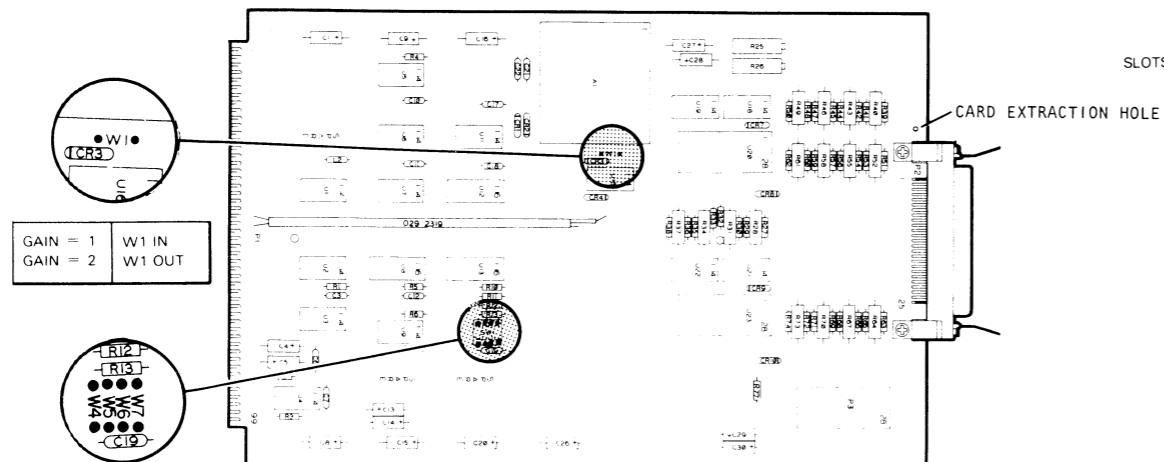
EACH A/D CONVERTER MAY HAVE UP TO 11 MUX CARDS ASSOCIATED WITH IT TO FORM AN "ANALOG CLUSTER". MUX'S WITHIN THE CLUSTER MUST HAVE THEIR MUX SELECT CODES SET UP CONTIGUOUSLY FROM 0 - 138.

OCTAL REPRESENTATION (2'S COMPLEMENT)	SELECTED OUTPUT RANGE	
	± 5V *	± 10V *
100000	-5 0000	-10 0000
100020	-4 9976	-9 9951
100040	-4 9951	-9 9902
100100	-4 9902	-9 9805
100200	-4 9805	-9 9609
100400	-4 9609	-9 9219
101000	-4 9219	-9 8437
102000	-4 8437	-9 6875
104000	-4 6875	-9 3750
110000	-4 3750	-8 7500
120000	-3 7500	-7 5000
140000	-2 5000	-5 0000
177760	-0 0024	-0 0048
000000	0 0000	0 0000
000020	0 0024	0 0049
000040	0 0049	0 0098
000100	0 0098	0 0195
000200	0 0195	0 0391
000400	0 0391	0 0781
001000	0 0781	0 1563
002000	0 1563	0 3125
004000	0 3125	0 6250
010000	0 6250	1 2500
020000	1 2500	2 5000
040000	2 5000	5 0000
077760	4 9976	9 9951

I/O BOARDS (CONT)

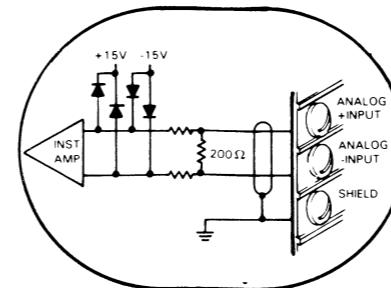
DIFFERENTIAL MULTIPLEXOR

MODEL 4281

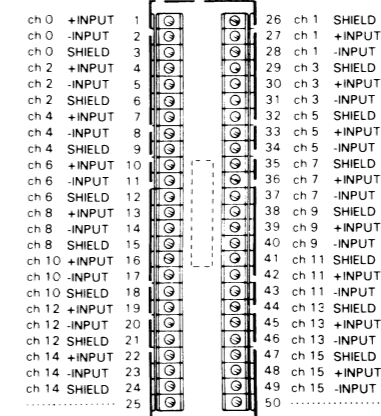
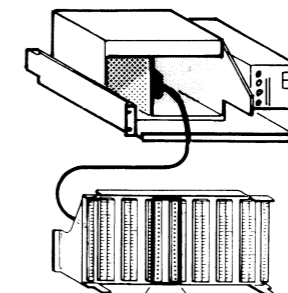


SLOTS 1-11

CARD EXTRACTION HOLE



EXTERNAL CONNECTIONS



MUX SELECT CODE

CODE	JUMPERS			
	W4	W5	W6	W7
0	IN	IN	IN	IN
1	OUT	IN	IN	IN
2	IN	OUT	IN	IN
.	.	.	.	.
13	OUT	IN	OUT	OUT
14	IN	OUT	OUT	OUT
15	OUT	OUT	OUT	OUT

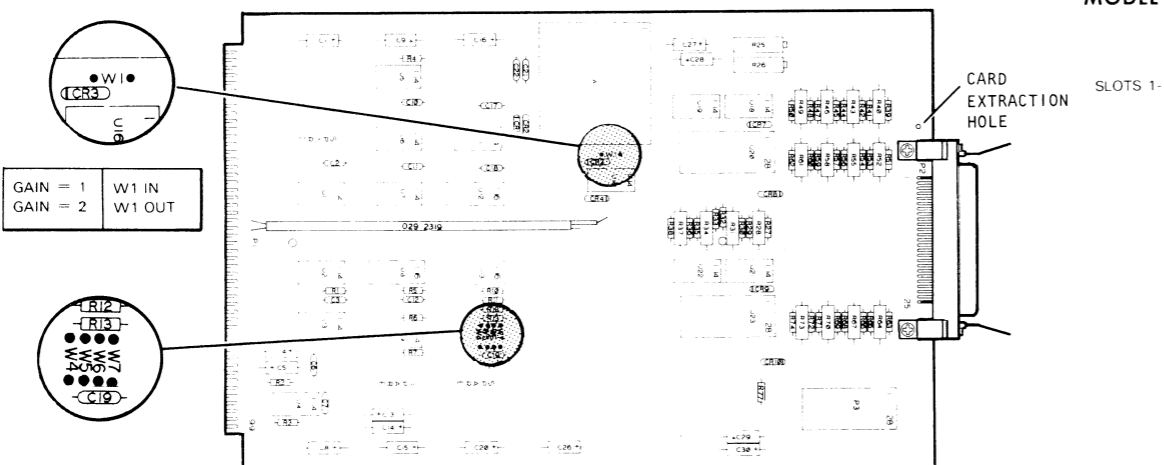
SPECIFICATIONS

NUMBER OF INPUT LINES 16 DIFFERENTIAL  
 MAXIMUM INPUT VOLTAGE ±15V  
 LINEAR INPUT VOLTAGE RANGE ±10V  
 SWITCHING AND SETTling TIME 10µs  
 GAIN JUMPER SELECTABLE TO 1 OR 2  
 INPUT IMPEDANCE 10MΩ SHUNTED BY 20pF  
 MAXIMUM BIAS CURRENT ±200nA  
 MAXIMUM OFFSET CURRENT ±25nA

NOISE 50µVrms 200µ Vp-p. 10Hz TO 10kHz  
 CMRR 70dB } TO 500Hz  
 CROSSTALK -70dB }  
 POWER REQUIREMENTS +5Vdc @ 0.3A  
 ±21Vdc @ 0.05A  
 MAX POWER DISSIPATION 3.6W

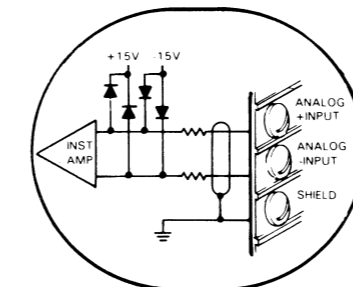
CURRENT-LOOP MULTIPLEXOR

MODEL 4281-C

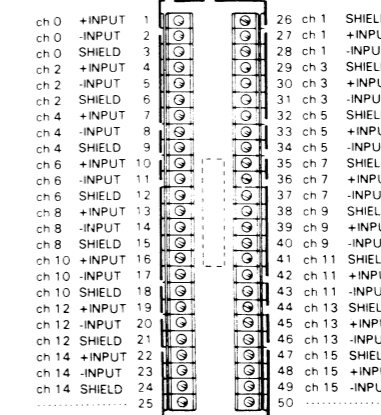
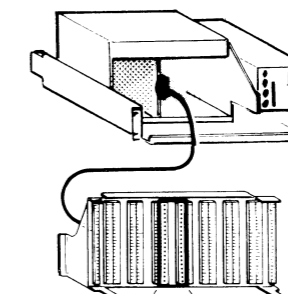


SLOTS 1-11

CARD EXTRACTION HOLE



EXTERNAL CONNECTIONS



MUX SELECT CODE

CODE	JUMPERS			
	W4	W5	W6	W7
0	IN	IN	IN	IN
1	OUT	IN	IN	IN
2	IN	OUT	IN	IN
.	.	.	.	.
13	OUT	IN	OUT	OUT
14	IN	OUT	OUT	OUT
15	OUT	OUT	OUT	OUT

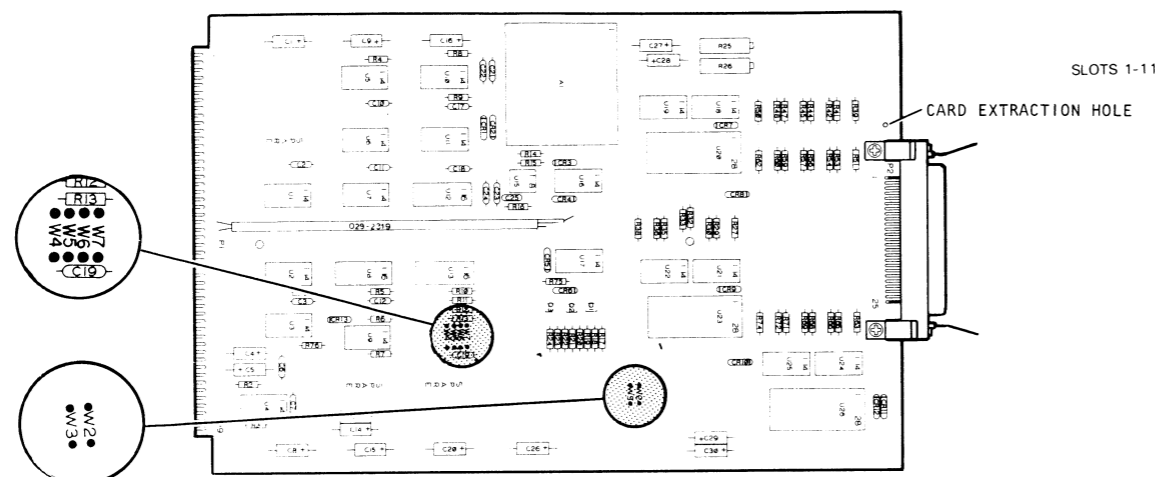
SPECIFICATIONS

NUMBER OF INPUT LINES 16 DIFFERENTIAL  
 MAXIMUM INPUT CURRENT ±75mA  
 LINEAR INPUT CURRENT RANGE ±50mA  
 SWITCHING AND SETTling TIME 10µs  
 GAIN JUMPER SELECTABLE 1 OR 2  
 INPUT IMPEDANCE 200Ω SHUNTED BY 10pF  
 MAXIMUM BIAS CURRENT 400nA  
 MAXIMUM OFFSET CURRENT ±25nA  
 NOISE 50µVrms 10Hz to 10kHz  
 CMRR 70dB } TO 500 Hz  
 CROSSTALK -70dB }

POWER REQUIREMENTS +5Vdc @ 0.3A  
 ±21Vdc @ 0.05A  
 MAX POWER DISSIPATION 7.6W  
 MAXIMUM COMMON MODE VOLTAGE (FOR LINEAR OPERATION) ±10V  
 MAXIMUM COMMON MODE VOLTAGE (ABSOLUTE) ±15V

## I/O BOARDS (CONT)

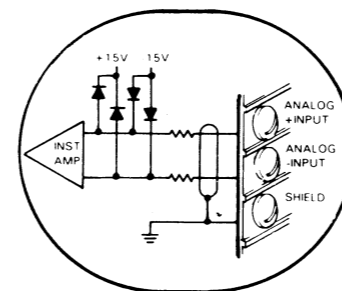
### DIFFERENTIAL MULTIPLEXOR, PROGRAMMABLE GAIN MODEL 4281-G



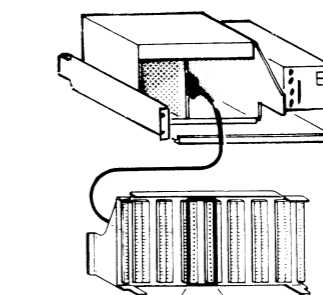
Ref DGC Dwg 003-000691 Rev 04

SLOTS 1-11

CARD EXTRACTION HOLE



#### EXTERNAL CONNECTIONS



ch 0	+INPUT	1	26	ch 1	SHIELD
ch 0	-INPUT	2	27	ch 1	+INPUT
ch 0	SHIELD	3	28	ch 1	-INPUT
ch 2	+INPUT	4	29	ch 3	SHIELD
ch 2	-INPUT	5	30	ch 3	+INPUT
ch 2	SHIELD	6	31	ch 3	-INPUT
ch 4	+INPUT	7	32	ch 5	SHIELD
ch 4	-INPUT	8	33	ch 5	+INPUT
ch 4	SHIELD	9	34	ch 5	-INPUT
ch 6	+INPUT	10	35	ch 7	SHIELD
ch 6	-INPUT	11	36	ch 7	+INPUT
ch 6	SHIELD	12	37	ch 7	-INPUT
ch 8	+INPUT	13	38	ch 9	SHIELD
ch 8	-INPUT	14	39	ch 9	+INPUT
ch 8	SHIELD	15	40	ch 9	-INPUT
ch 10	+INPUT	16	41	ch 11	SHIELD
ch 10	-INPUT	17	42	ch 11	+INPUT
ch 10	SHIELD	18	43	ch 11	-INPUT
ch 12	+INPUT	19	44	ch 13	SHIELD
ch 12	-INPUT	20	45	ch 13	+INPUT
ch 12	SHIELD	21	46	ch 13	-INPUT
ch 14	+INPUT	22	47	ch 15	SHIELD
ch 14	-INPUT	23	48	ch 15	+INPUT
ch 14	SHIELD	24	49	ch 15	-INPUT
		25	50		

#### MUX SELECT CODE

CODE (DECIMAL)	W4	W5	W6	W7
0	IN	IN	IN	IN
1	OUT	IN	IN	IN
2	IN	OUT	IN	IN
.	.	.	.	.
13	OUT	IN	OUT	OUT
14	IN	OUT	OUT	OUT
15	OUT	OUT	OUT	OUT

#### USER OPTION

W2 IN, W3 OUT - IF USER WANTS SELECTED INPUT SIGNAL SHIELD GROUNDED

W2 & W3 OUT - IF USER WANTS SELECTED SHIELD NOT CONNECTED TO IDAC GROUND

W2 OUT & W3 IN - IF USER WANTS SELECTED SHIELDS DRIVEN BY COMMON MODE SIGNAL

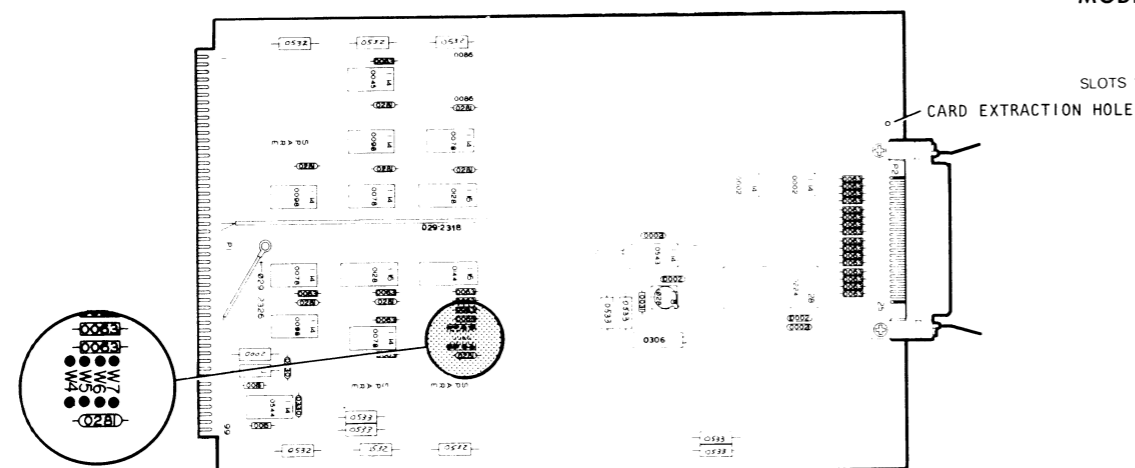
#### SPECIFICATIONS

NUMBER OF INPUT LINES	16 DIFFERENTIAL
MAXIMUM INPUT VOLTAGE	±15V
VOLTAGE RANGE	±10V
LINEAR INPUT VOLTAGE RANGE	±10V
SWITCHING AND SETTling TIME	10μs
GAIN	PROGRAMMABLE 1, 2, 4, 8
INPUT IMPEDANCE	10MΩ SHUNTED BY 20pf
MAXIMUM BIAS CURRENT	±200nA
MAXIMUM OFFSET CURRENT	±25nA
NOISE	50μVrms, 10Hz TO 10kHz

CMRR	70dB	TO 500Hz
CROSSTALK	-70dB	
POWER REQUIREMENTS	+5Vdc @ 0.3A	
	±21Vdc @ 0.05A	
MAX POWER DISSIPATION	3.6W	
XDUCER TEST CURRENT	110μA + 30μA	

### SINGLE-ENDED MULTIPLEXOR

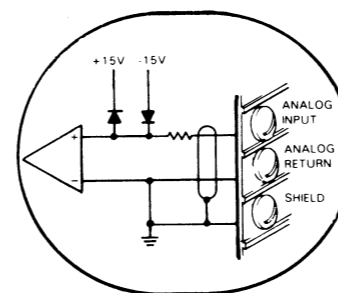
#### MODEL 4282



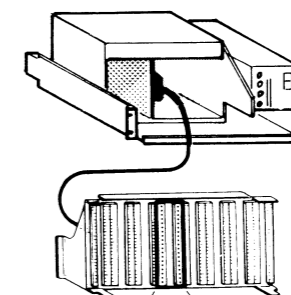
Ref DGC Dwg 003-000662 Rev 06

SLOTS 1-11

CARD EXTRACTION HOLE



#### EXTERNAL CONNECTIONS



ch 0 input	1	26	ch 1 shield
ch 0 return	2	27	ch 1 input
ch 0 shield	3	28	ch 1 return
ch 2 input	4	29	ch 3 shield
ch 2 return	5	30	ch 3 input
ch 2 shield	6	31	ch 3 return
ch 4 input	7	32	ch 5 shield
ch 4 return	8	33	ch 5 input
ch 4 shield	9	34	ch 5 return
ch 6 input	10	35	ch 7 shield
ch 6 return	11	36	ch 7 input
ch 6 shield	12	37	ch 7 return
ch 8 input	13	38	ch 9 shield
ch 8 return	14	39	ch 9 input
ch 8 shield	15	40	ch 9 return
ch 10 input	16	41	ch 11 shield
ch 10 return	17	42	ch 11 input
ch 10 shield	18	43	ch 11 return
ch 12 input	19	44	ch 13 shield
ch 12 return	20	45	ch 13 input
ch 12 shield	21	46	ch 13 return
ch 14 input	22	47	ch 15 shield
ch 14 return	23	48	ch 15 input
ch 14 shield	24	49	ch 15 return
	25	50	

#### MUX SELECT CODE

CODE (DECIMAL)	W4	W5	W6	W7
0	IN	IN	IN	IN
1	OUT	IN	IN	IN
2	IN	OUT	IN	IN
.	.	.	.	.
13	OUT	IN	OUT	OUT
14	IN	OUT	OUT	OUT
15	OUT	OUT	OUT	OUT

#### SPECIFICATIONS

NUMBER OF INPUT LINES	16
MAXIMUM INPUT VOLTAGE	±15V
VOLTAGE RANGE	±10V
LINEAR INPUT VOLTAGE RANGE	±10V
SWITCHING AND SETTling TIME	10μs
GAIN	x1
INPUT IMPEDANCE	10MΩ SHUNTED BY 10pf
MAXIMUM BIAS CURRENT	±200nA
NOISE	50μVrms, 10Hz TO 10kHz
CROSSTALK	-70dB TO 500Hz
POWER REQUIREMENT	+5Vdc @ 0.3A
	±21Vdc @ 0.05A
POWER DISSIPATION	3.6W

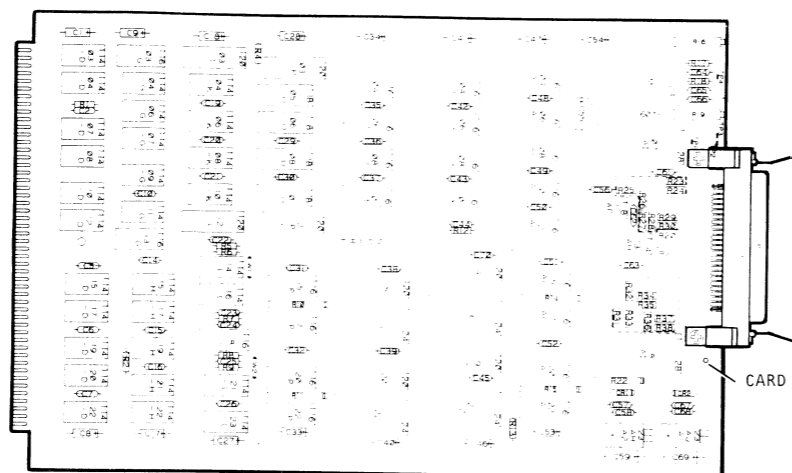
I/O BOARDS (CONT)

ANALOG SETPOINT MONITOR

MODEL 4283

SLOTS 0-11

JUMPERS NORMALLY IN.

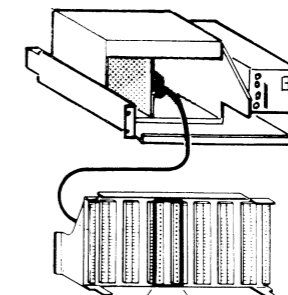


Ref DGC Dwg 003-001646 Rev 02

SPECIFICATIONS

NUMBER OF OUTPUT LINES	16 differential
MAX INPUT VOLTAGE	± 15 V
LINEAR INPUT VOLTAGE	± 5 V
SCAN TIME/SETPOINT LIMIT CHECK	12 µsec
INPUT IMPEDANCE	50 MΩ
BIAS CURRENT	
TYP @ 25 °C	20 nA
MAX @ 55 °C	500 nA
OFFSET CURRENT	
TYP @ 25 °C	20 nA
MAX @ 55 °C	500 nA
POWER REQUIREMENTS	
+5V	1 A typ
+2.1V	45 mA type
MAX POWER DISSIPATION	8.25 watts

EXTERNAL CONNECTIONS



ch 0 input	1	26	ch 1 shield
ch 0 return	2	27	ch 1 input
ch 0 shield	3	28	ch 1 return
ch 2 input	4	29	ch 3 shield
ch 2 return	5	30	ch 3 input
ch 2 shield	6	31	ch 3 return
ch 4 input	7	32	ch 5 shield
ch 4 return	8	33	ch 5 input
ch 4 shield	9	34	ch 5 return
ch 6 input	10	35	ch 7 shield
ch 6 return	11	36	ch 7 input
ch 6 shield	12	37	ch 7 return
ch 8 input	13	38	ch 9 shield
ch 8 return	14	39	ch 9 input
ch 8 shield	15	40	ch 9 return
ch 10 input	16	41	ch 11 shield
ch 10 return	17	42	ch 11 input
ch 10 shield	18	43	ch 11 return
ch 12 input	19	44	ch 13 shield
ch 12 return	20	45	ch 13 input
ch 12 shield	21	46	ch 13 return
ch 14 input	22	47	ch 15 shield
ch 14 return	23	48	ch 15 input
ch 14 shield	24	49	ch 15 return
.....	25	50	.....

Ref DGC Dwg No 003-001790 Rev 03

ISOLATED 16-CHANNEL ANALOG INPUT MUX

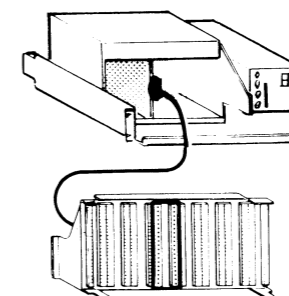
MODEL 4284 SERIES

CARD EXTRACTION HOLE

SPECIFICATIONS

ID CODE:	42 (OCTAL)
NUMBER OF INPUT LINES:	16 DIFFERENTIAL
ISOLATION VOLTAGE (MAX):	200 Vrms <sup>1</sup>
COMMON MODE INPUT VOLTAGE (MAX):	220 Vrms
MAXIMUM DIFFERENTIAL INPUT VOLTAGE:	36 Vrms
LINEAR INPUT VOLTAGE RANGE:	-5 VOLTS TO +5 VOLTS
GAIN:	2 (1, IF AN OPTIONAL JUMPER IS INSTALLED)
INPUT IMPEDANCE:	10 MEGOHM (MIN)
MAXIMUM SOURCE RESISTANCE:	500 OHMS
NOISE:	1 mV PEAK-TO-PEAK @ BAND-WIDTH OF 1 MHz
CMMR:	75 dB AT 60 Hz
CROSSTALK:	-90 dB AT 2 KHz
MAXIMUM POWER DISSIPATION:	4.4 WATTS
EXTERNAL CLOCK OUTPUT FREQUENCY:	200 Hz (+5%, -15%)
EXTERNAL CLOCK OUTPUT PULSE WIDTH:	2 µs
CARD AND CHANNEL SELECTION	
AUTO SCANNING SPEED:	220 CHANNEL/SEC
PROGRAM CONTROL CHANNEL SELECTION TIME:	20 ms
CARD ADDRESS CODING SWITCH:	4 BIT (16 UNIQUE ADDRESSES)

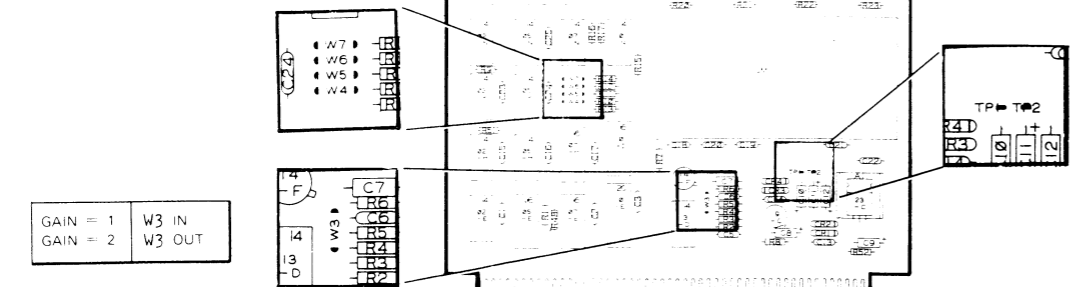
EXTERNAL CONNECTIONS



**WARNING: HIGH VOLTAGES**  
THE USER EQUIPMENT MUST BE POWERED DOWN OR THE CABLE UNPLUGGED FROM THE TERMINAL BOARD BEFORE UNPLUGGING THE CARD EDGE CONNECTOR. ALWAYS DISCONNECT I/O CABLE BEFORE EXTRACTING CARD.

MUX SELECT CODE

CODE (DECIMAL)	JUMPERS			
	W4	W5	W6	W7
0	IN	IN	IN	IN
1	OUT	IN	IN	IN
2	IN	OUT	IN	IN
...	...	...	...	...
13	OUT	IN	OUT	OUT
14	IN	OUT	OUT	OUT
15	OUT	OUT	OUT	OUT



P2 TERMINAL STRIP 1

CHAN 0H	1	26	CHAN 8H
CHAN 0L	2	27	CHAN 8L
3	28		
4	29		
5	30		
CHAN 1H	6	31	CHAN 9H
CHAN 1L	7	32	CHAN 9L
8	33		
9	34		
10	35		
CHAN 0 SHIELD	11	36	CHAN 8 SHIELD
CHAN 1 SHIELD	12	37	CHAN 9 SHIELD
CHAN 2 SHIELD	13	38	CHAN 10 SHIELD
CHAN 3 SHIELD	14	39	CHAN 11 SHIELD
15	40		
16	41		
17	42		
CHAN 2H	18	43	CHAN 10H
CHAN 2L	19	44	CHAN 10L
20	45		
21	46		
22	47		
CHAN 3H	23	48	CHAN 11H
CHAN 3L	24	49	CHAN 11L
25	50		

P3 TERMINAL STRIP 2

CHAN 4H	1	26	CHAN 12H
CHAN 4L	2	27	CHAN 12L
3	28		
4	29		
5	30		
CHAN 5H	6	31	CHAN 13H
CHAN 5L	7	32	CHAN 13L
8	33		
9	34		
10	35		
CHAN 4 SHIELD	11	36	CHAN 12 SHIELD
CHAN 5 SHIELD	12	37	CHAN 13 SHIELD
CHAN 6 SHIELD	13	38	CHAN 14 SHIELD
CHAN 7 SHIELD	14	39	CHAN 15 SHIELD
15	40		
16	41		
17	42		
CHAN 6H	18	43	CHAN 14H
CHAN 6L	19	44	CHAN 14L
20	45		
21	46		
22	47		
CHAN 7H	23	48	CHAN 15H
CHAN 7L	24	49	CHAN 15L
25	50		



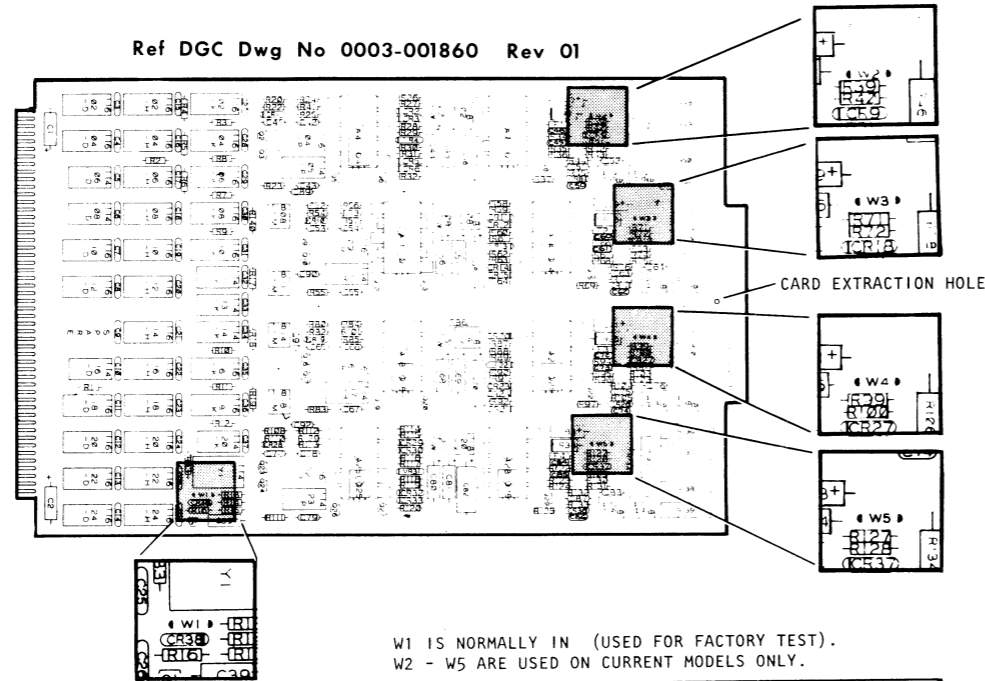
# I/O BOARDS

ISOLATED D/A , VOLTAGE OUTPUT  
MODEL 4287 A-B

ISOLATED D/A, CURRENT OUTPUT  
MODEL 4287 C-F

**WARNING**  
HIGH VOLTAGES MAY BE PRESENT.  
BEFORE REMOVING CONNECTOR OR CARD,  
CUSTOMER EQUIPMENT CONNECTED SHOULD  
BE POWERED DOWN WHEN POSSIBLE.  
ALWAYS DISCONNECT I/O CABLE BEFORE  
EXTRACTING CARD.

Ref DGC Dwg No 0003-001860 Rev 01

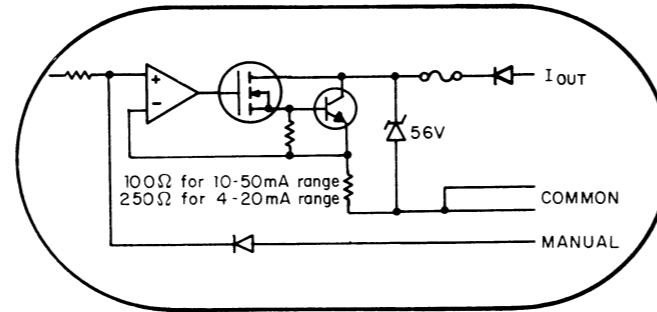
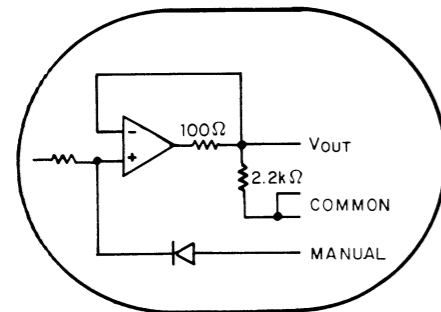
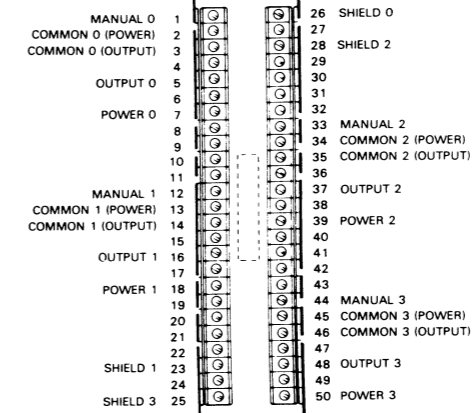
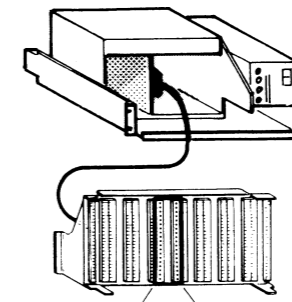


NOTE: ILLUSTRATION SHOWS ALL COMPONENTS. EACH MODEL HAS SOME PARTS DEPOPULATED.

W1 IS NORMALLY IN (USED FOR FACTORY TEST).  
W2 - W5 ARE USED ON CURRENT MODELS ONLY.

JUMPER	CHANNEL	4 - 20mA RANGE	10 - 50mA RANGE
W2	0	OUT	IN
W3	1	OUT	IN
W4	2	OUT	IN
W5	3	OUT	IN

## EXTERNAL CONNECTIONS

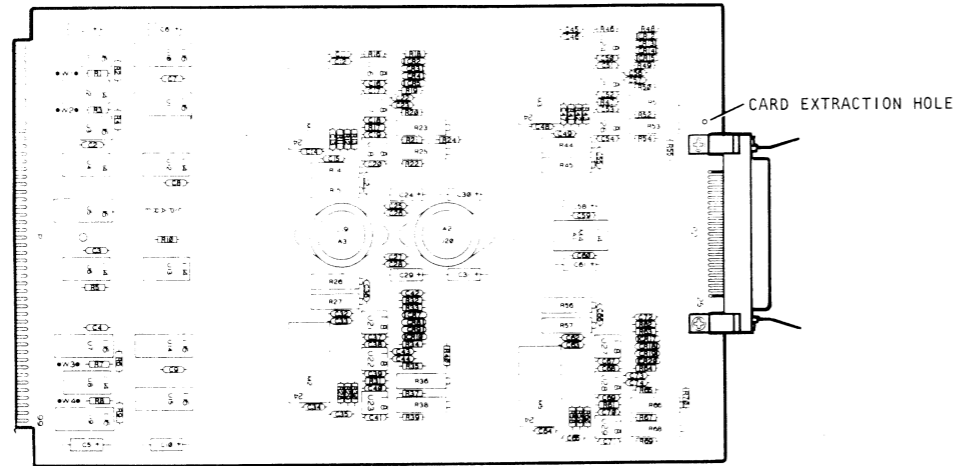


## SPECIFICATIONS

ID CODE: 44 (OCTAL)  
 NUMBER OF OUTPUT LINES: 4  
 ISOLATION VOLTAGE (MAX): 220 Vrms CONTINUOUS  
 550 V PEAK TRANSIENTS<sup>1</sup>  
 COMMON MODE VOLTAGE (MAX): 220 Vrms CONTINUOUS  
 550 V PEAK TRANSIENTS<sup>1</sup>  
 OUTPUTS  
 VOLTAGE OUTPUT MODELS  
 DRIVE: 1 mA SOURCING ONLY (MAX)  
 OUTPUT IMPEDANCE: 0.1 OHMS (MAX)  
 CURRENT OUTPUT MODELS  
 VOLTAGE APPLIED ACROSS OUTPUTS: 42 VOLTS (MAX)  
 LOAD: CAPACITIVE (NO LIMITS) OR RESISTIVE (NO MINIMUM)  
 10 MV TRANSIENTS (TYPICAL) PLUS RIPPLE  
 NOISE:  
 CMRR (MIN) = 80 dB @ 1 KHz  
 CROSSTALK (MAX) = -80dB @ 1 KHz  
 EXTERNAL POWER REQUIREMENTS (POWERS OUTPUT SECTIONS): 50 mA/CHANNEL FROM 16.5 TO 42 VOLT SOURCE  
<sup>1</sup>MEASURED FROM ANY PIN TO ANY OTHER PIN OR GROUND.

I/O BOARDS (CONT)

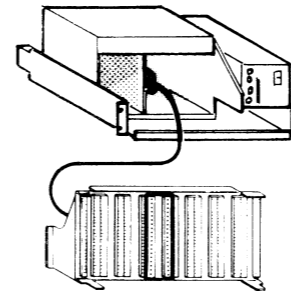
ANALOG OUTPUT - VOLTAGE  
MODEL 4288 SERIES



Ref DGC Dwg 003-000661 Rev 09

SLOTS 0-11

EXTERNAL CONNECTIONS



BIT	SELECTED OUTPUT RANGE	
	0-5V	0-10V
0	2 5000	5 0000
1	1 2500	2 5000
2	0 6250	1 2500
3	0 3125	0 6250
4	0 1563	0 3125
5	0 0781	0 1563
6	0 0391	0 0781
7	0 0195	0 0391
8	0 0098	0 0195
9	0 0049	0 0098
10	0 0024	0 0049
11	0 0012	0 0024
ALL 0'S	0 0000	0 0000
ALL 1'S	4 9988	9 9976
TOLERANCE	±0 0006	+0 0012

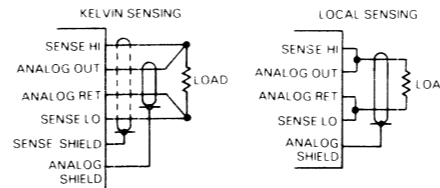
NOTE

THE 0-5V RANGE IS NOT A FACTORY WIRED AND TESTED OPTION, ALTHOUGH IT, AND THE ±2.5V RANGE MAY BE CUSTOMER SELECTED AND CALIBRATED BY JUMPER SELECTED ON THE CARD

SPECIFICATIONS

NUMBER OF OUTPUT LINES 4  
 OUTPUT VOLTAGE RANGE ±10V (model 4288), ±5V (model 4288-A), 0-10V (model 4288-B)  
 MAXIMUM OUTPUT CURRENT 10mA  
 RESOLUTION 12 BITS  
 ACCURACY ±1/2 LSB  
 SETTLING TIME 5 μs. 0 TO 10V (LOCAL SENSING)  
 NOISE 200 μVrms 10Hz TO 10kHz  
 TEMPERATURE DRIFT ±100ppm/degC  
 OUTPUT IMPEDANCE 10Ω  
 SENSE HI IMPEDANCE 10MΩ  
 SENSE LO IMPEDANCE 5KΩ

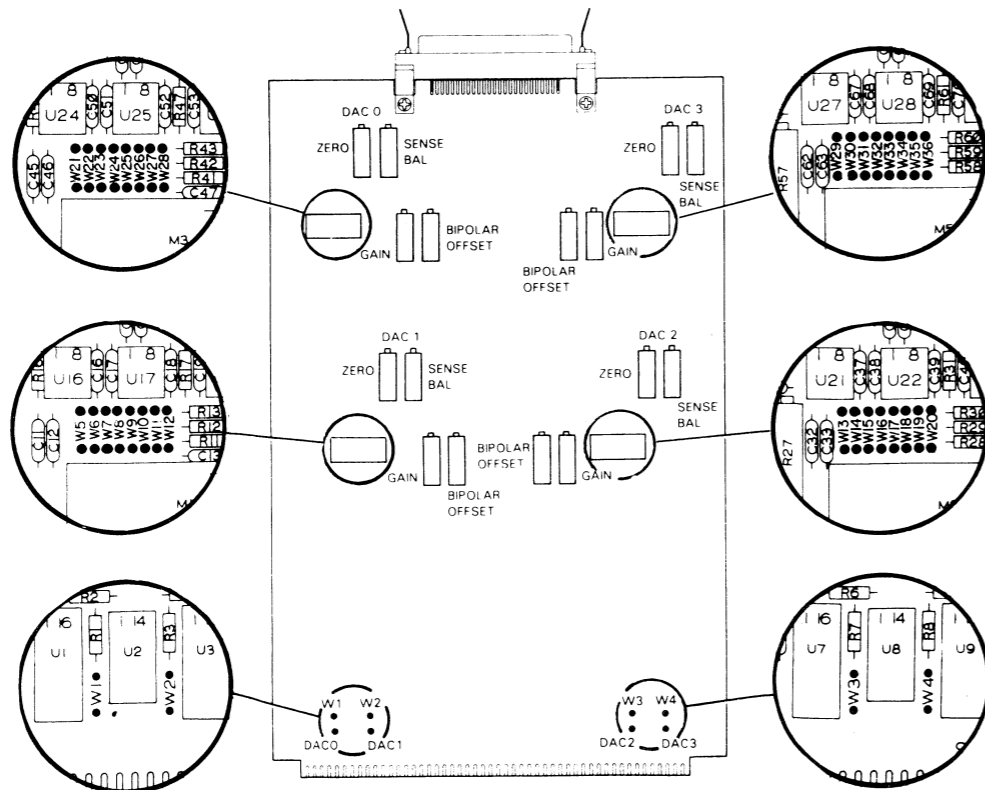
COMMON MODE VOLTAGE ±0.5V MAX  
 POWER REQUIREMENTS +5Vdc @ 0.8A  
 ±21Vdc @ 0.16A  
 MAX POWER DISSIPATION 12W  
 (INTERNAL AND EXTERNAL)



ANALOG OUT 0	1	26 SENSE SHIELD 0
ANALOG RET 0	2	27 SENSE HI 0
ANALOG SHIELD 0	3	28 SENSE LO 0
ANALOG OUT 1	4	29 SENSE SHIELD 1
ANALOG RET 1	5	30 SENSE HI 1
ANALOG SHIELD 1	6	31 SENSE LO 1
ANALOG OUT 2	7	32 SENSE SHIELD 2
ANALOG RET 2	8	33 SENSE HI 2
ANALOG SHIELD 2	9	34 SENSE LO 2
ANALOG OUT 3	10	35 SENSE SHIELD 3
ANALOG RET 3	11	36 SENSE HI 3
ANALOG SHIELD 3	12	37 SENSE LO 3
	13	
		38
		39

OCTAL REPRESENTATION (2'S COMPLEMENT)	SELECTED OUTPUT RANGE	
	±5V*	±10V*
100000	-5 0000	-10 0000
100020	-4 9976	-9 9951
100040	-4 9951	-9 9902
100100	-4 9902	-9 9805
100200	-4 9805	-9 9609
100400	-4 9609	-9 9219
101000	-4 9219	-9 8437
102000	-4 8437	-9 6875
104000	-4 6875	-9 3750
110000	-4 3750	-8 7500
120000	-3 7500	-7 5000
140000	-2 5000	-5 0000
177760	-0 0024	-0 0048
000000	0 0000	0 0000
000020	0 0024	0 0049
000040	0 0049	0 0098
000100	0 0098	0 0195
000200	0 0195	0 0391
000400	0 0391	0 0781
001000	0 0781	0 1563
002000	0 1563	0 3125
004000	0 3125	0 6250
010000	0 6250	1 2500
020000	1 2500	2 5000
040000	2 5000	5 0000
077760	4 9976	9 9951

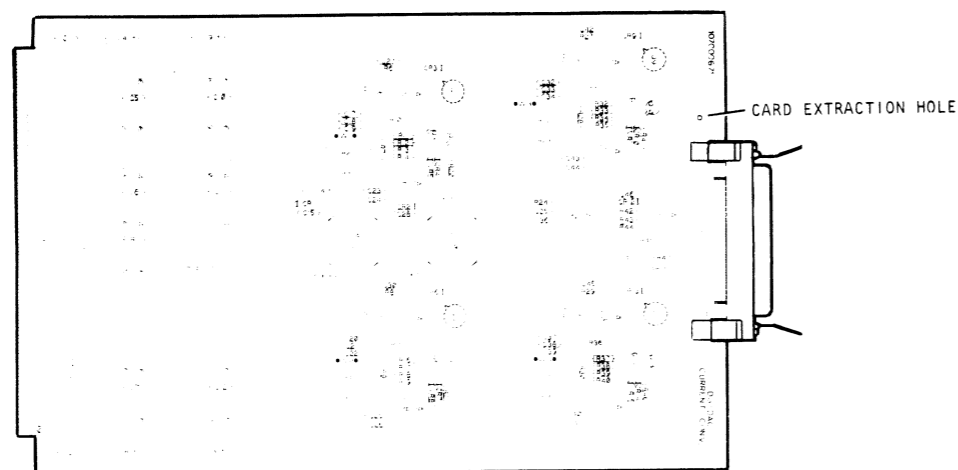
\*Tolerances: ±5V Range ±1.2mV ±10V Range ±2.1mV



RANGE	MODEL #	JUMPERS										OUTPUT
		W1	W21	W22	W23	W24	W25	W26	W27	W28	0	
		W2	W5	W6	W7	W8	W9	W10	W11	W12	1	
		W3	W13	W14	W15	W16	W17	W18	W19	W20	2	
		W4	W29	W30	W31	W32	W33	W34	W35	W36	3	
± 10V	4288	IN	OUT	IN	OUT	OUT	OUT	IN	OUT	OUT		
± 5V	4288-A	IN	OUT	OUT	IN	OUT	IN	OUT	IN	OUT		
± 2.5V	-	IN	OUT	OUT	IN	IN	IN	OUT	IN	IN		
0-10V	4288-B	OUT	OUT	OUT	IN	OUT	OUT	OUT	IN	OUT		
0-5V	-	OUT	OUT	OUT	IN	IN	OUT	OUT	IN	IN		

# I/O BOARDS (CONT)

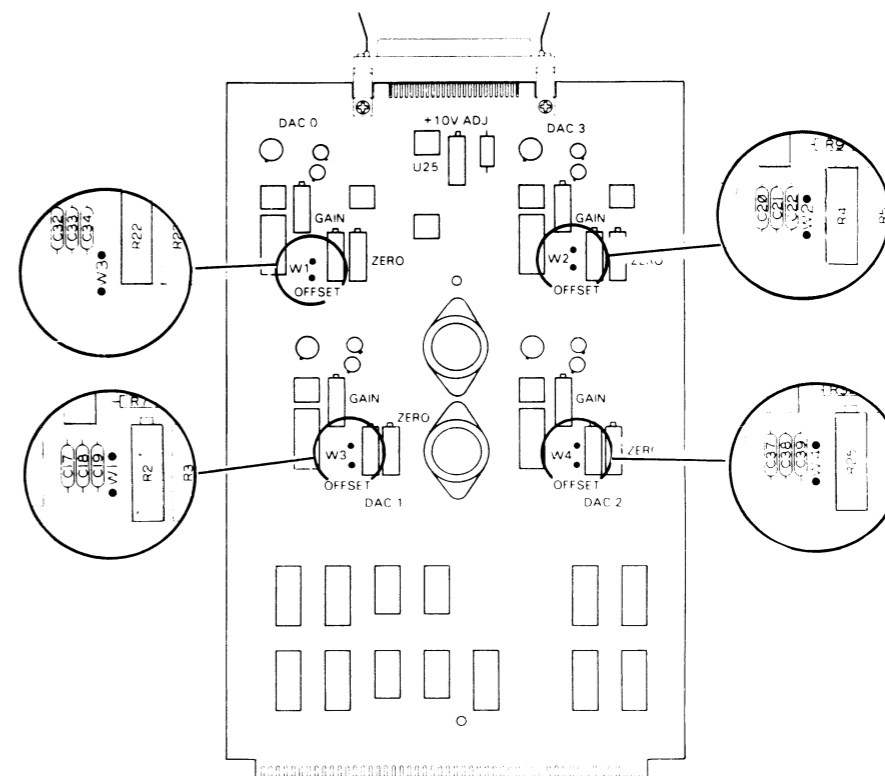
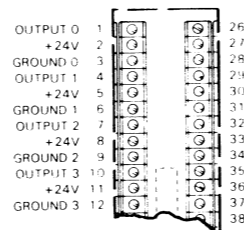
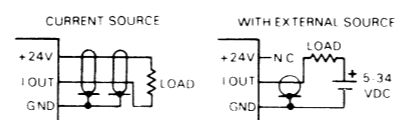
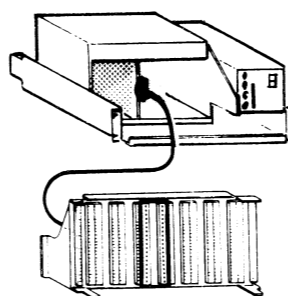
## ANALOG OUTPUT - CURRENT MODEL 4289



Ref DGC Dwg 003-000671 Rev 03

SLOTS 0-11

### EXTERNAL CONNECTIONS



INSERT JUMPERS W1 4  
FOR 4 20mA RANGE.

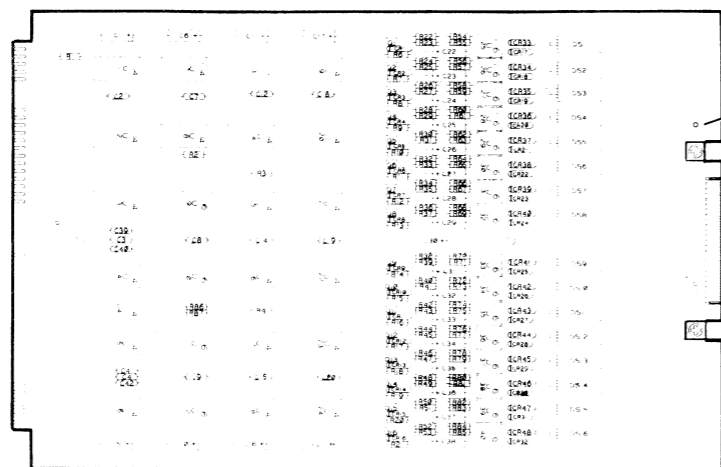
### SPECIFICATIONS

NUMBER OF OUTPUT LINES 4  
 OUTPUT CURRENT RANGE 0-16mA, 4-20mA, strappable  
 MAXIMUM APPLIED VOLTAGE 34V  
 RESOLUTION 10 BITS  
 ACCURACY ±1LSB  
 SETTLING TIME 50µs  
 NOISE ±10µArms, 10Hz TO 10kHz  
 TEMPERATURE DRIFT ±100ppm degC  
 OUTPUT ADMITTANCE 2 x 10<sup>-7</sup> MHO TO 200Hz MIN  
 POWER REQUIREMENTS +5Vdc @ 0.8A  
 +21Vdc @ 0.1A  
 +24Vdc @ 80mA  
 When used as source

MAX POWER DISSIPATION 12W  
 (INTERNAL AND EXTERNAL)  
 COMPLIANCE VOLTAGE +5V MIN +34V MAX

I/O BOARDS (CONT)

GENERAL PURPOSE INPUT  
MODEL 4290

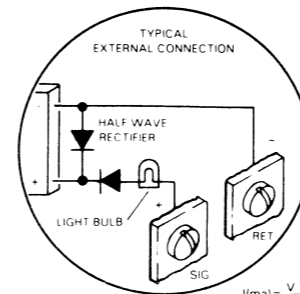


Ref DGC Dwg 003-000485 Rev 08

SPECIFICATIONS

NUMBER OF INPUT LINES	16	INTERNAL POWER REQUIREMENT	+5V @ 0.85A
LOGIC 1	5mA, 6Vdc, 15Vac MIN	MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	32W
LOGIC 0	200µA, 1V MAX		
MAX INPUT VOLTAGE	55Vdc, 120Vac		
MAX INPUT CURRENT	30mA		
MAX REVERSE INPUT VOLTAGE	200V		
ISOLATION VOLTAGE	2500V		
INPUT DELAY, TURN ON	15ms - 100ms		
INPUT DELAY, TURN OFF	30ms - 200ms		
INTERRUPT TRIGGER	STATE CHANGE OF ANY INPUT LINE		

SLOTS 0-11  
CARD EXTRACTION HOLE

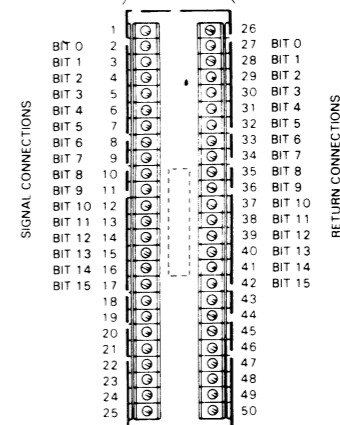
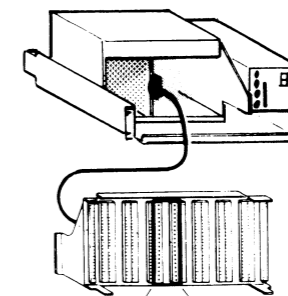


$$I(max) = \frac{V}{1.1} (AC)$$

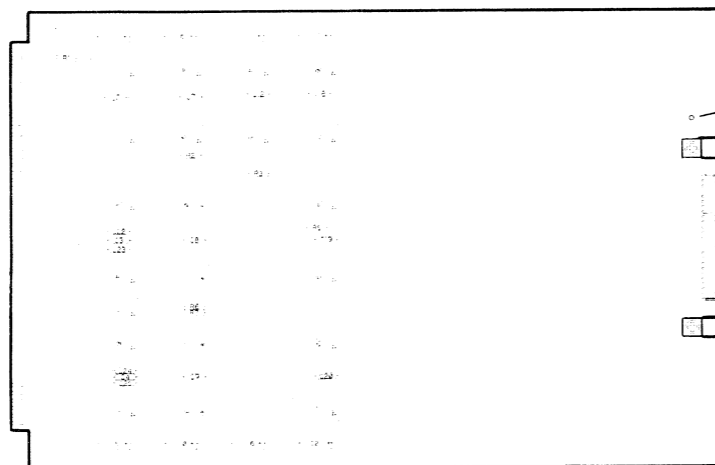
$$I(max) = \frac{V}{0.6} (DC)$$

WARNING  
HIGH VOLTAGES MAY BE PRESENT BEFORE REMOVING CONNECTOR OR CARD. CUSTOMER EQUIPMENT CONNECTED SHOULD BE POWERED DOWN WHEN POSSIBLE. ALWAYS DISCONNECT I/O CABLE BEFORE EXTRACTING CARD.

EXTERNAL CONNECTIONS



TTL INPUT  
MODEL 4291



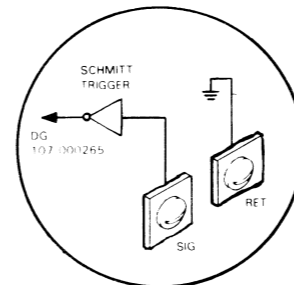
Ref DGC Dwg 003-000623 Rev 04

SPECIFICATIONS

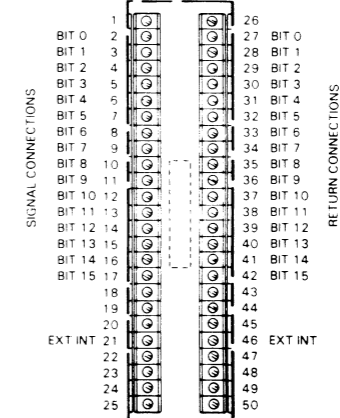
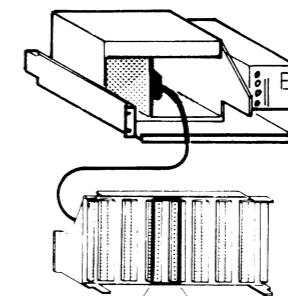
NUMBER OF INPUT LINES	16
LOGIC 1	2V MIN
LOGIC 0	0.6V MAX
HYSTERESIS	0.4V MAX
MAX INPUT CURRENTS	40µA - LOGIC 1 -2.0mA - LOGIC 0
INTERRUPT TRIGGER	LOW TO HIGH ON EXT INT LINE*
INTERNAL POWER REQUIREMENT	+5V @ 0.5A
MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	2.5W

\*EXT INT must be high or open ckt to enable non-interrupt operation of module.

SLOTS 0-11  
CARD EXTRACTION HOLE

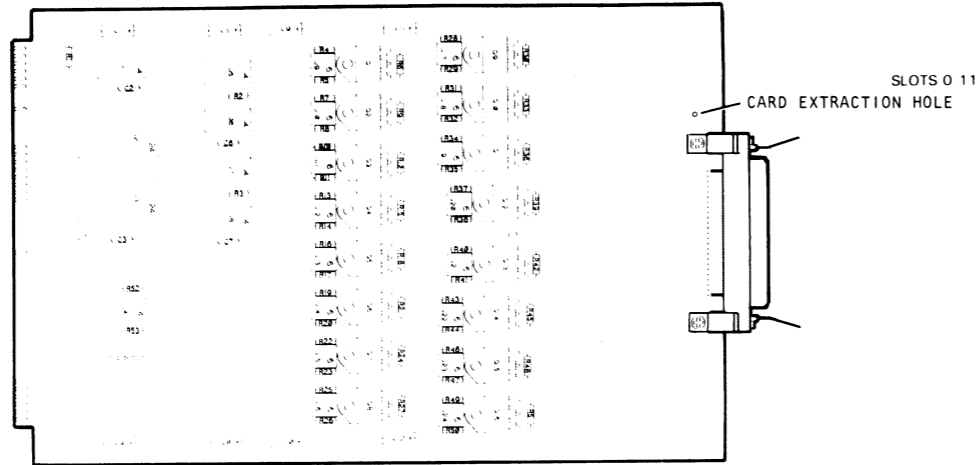


EXTERNAL CONNECTIONS



## I/O BOARDS (CONT)

### ISOLATED OUTPUT MODEL 4292

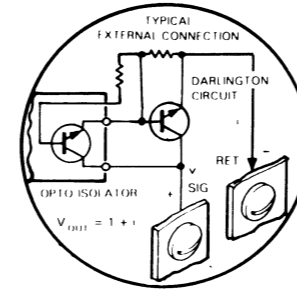


Ref DGC Dwg 003-000497 Rev 05

#### SPECIFICATIONS

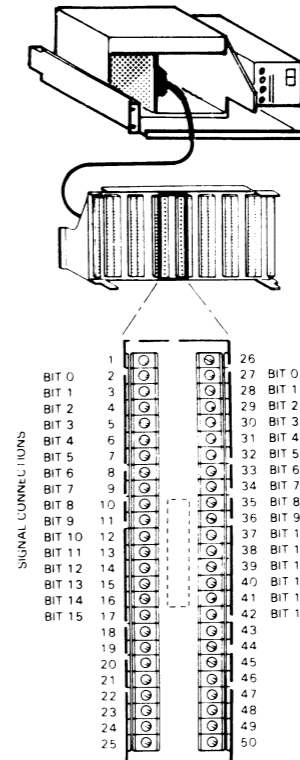
NUMBER OF OUTPUT LINES 16  
 LOGIC 1 2.5V MAX @ 1.5A  
 LOGIC 0 1mA MAX @ 55V  
 MAXIMUM APPLIED VOLTAGE +55V, -3V  
 MAXIMUM OUTPUT LINE CURRENT 1.5A  
 DUTY CYCLE 60% MAX @ 1.5A  
 TO 100% @ 1.0A

POWER REQUIREMENT +5V @ 0.6A  
 MAX POWER DISSIPATION 60W  
 (INTERNAL AND EXTERNAL)  
 MAXIMUM ON TIME 1sec

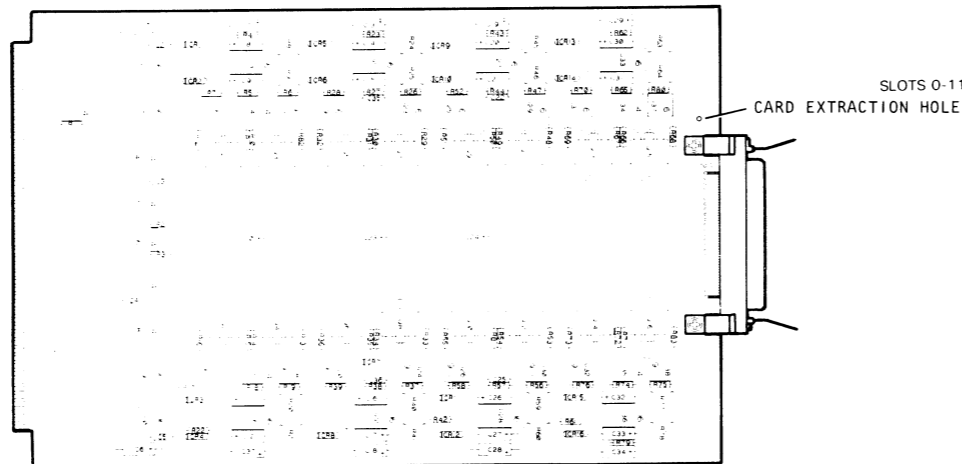


WARNING  
 HIGH VOLTAGES MAY BE PRESENT.  
 BEFORE REMOVING CONNECTOR OR CARD,  
 CUSTOMER EQUIPMENT CONNECTED SHOULD  
 BE POWERED DOWN WHEN POSSIBLE.  
 ALWAYS DISCONNECT I/O CABLE BEFORE  
 EXTRACTING CARD.

#### EXTERNAL CONNECTIONS



### PULSE OUTPUT MODEL 4293

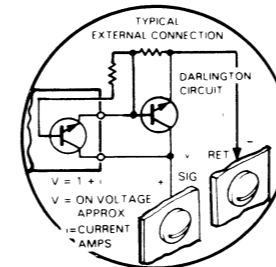


Ref DGC Dwg 003-000508 Rev 07

#### SPECIFICATIONS

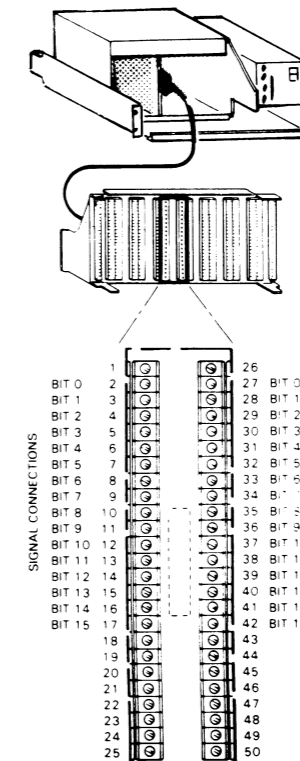
NUMBER OF OUTPUT LINES 16  
 LOGIC 1 2.5V MAX @ 1.5A  
 LOGIC 0 1mA MAX @ 55V  
 MAXIMUM APPLIED VOLTAGE +55V, -3V  
 MAXIMUM OUTPUT LINE CURRENT 1.5A  
 OUTPUT PULSE WIDTH 10ms - 100ms ADJUSTABLE  
 DUTY CYCLE 60% MAX @ 1.5A  
 TO 100% @ 1.0A

POWER REQUIREMENT +5V @ 1.0A  
 MAX POWER DISSIPATION 60W  
 (INTERNAL AND EXTERNAL)



WARNING  
 HIGH VOLTAGES MAY BE PRESENT.  
 BEFORE REMOVING CONNECTOR OR CARD,  
 CUSTOMER EQUIPMENT CONNECTED SHOULD  
 BE POWERED DOWN WHEN POSSIBLE.  
 ALWAYS DISCONNECT I/O CABLE BEFORE  
 EXTRACTING CARD.

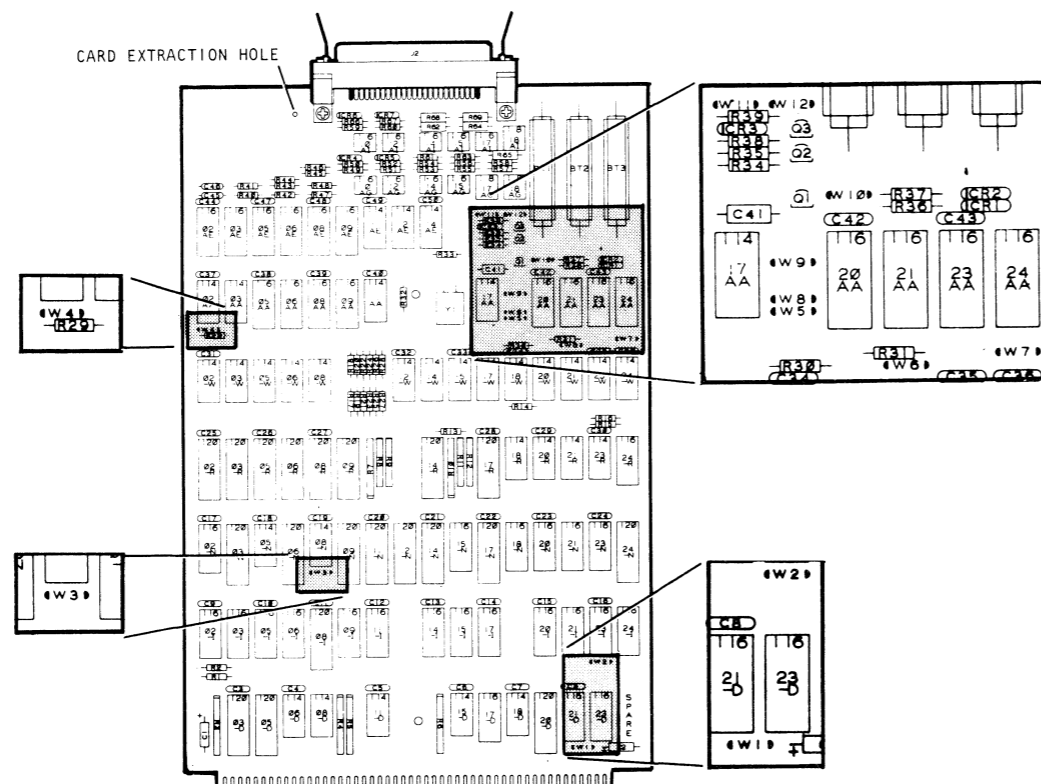
#### EXTERNAL CONNECTIONS



I/O BOARDS (CONT)

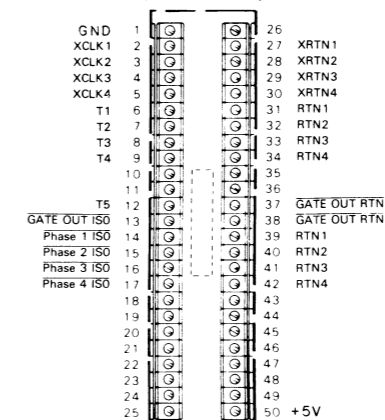
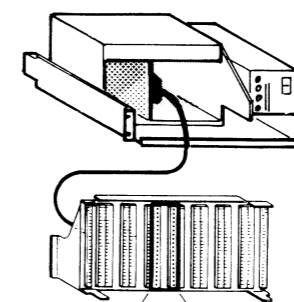
MULTI-FUNCTION TIMER  
MODEL 4295

TEST ADAPTER 005-018294



Ref DGC Dwg No 003-001696

EXTERNAL CONNECTIONS



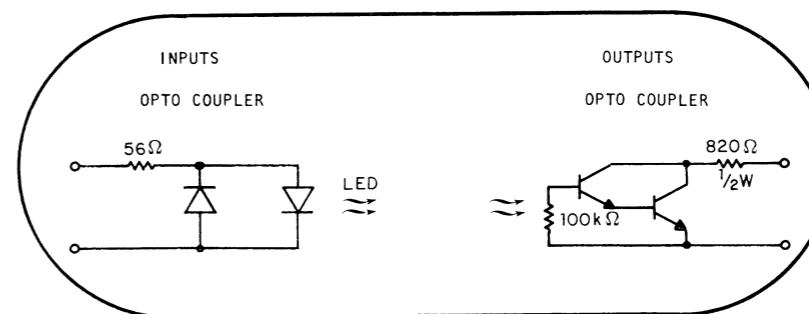
OUT	IN	FUNCTION
	W4	BATTERY ON BOARD
W4		NO BATTERY
W5	W8	FREE OSCILLATION
W8	W5	CONDITIONAL OSCILLATION
	W9	TEST AND USE
W9		SHIPPING
	W10	CONNECT BATTERY
W12	W11	NORMAL MODE
W11	W12	DEBUG MODE

W1, 2, 3, 6 & 7 ARE NORMALLY IN (USED FOR FACTORY TEST).

SPECIFICATIONS

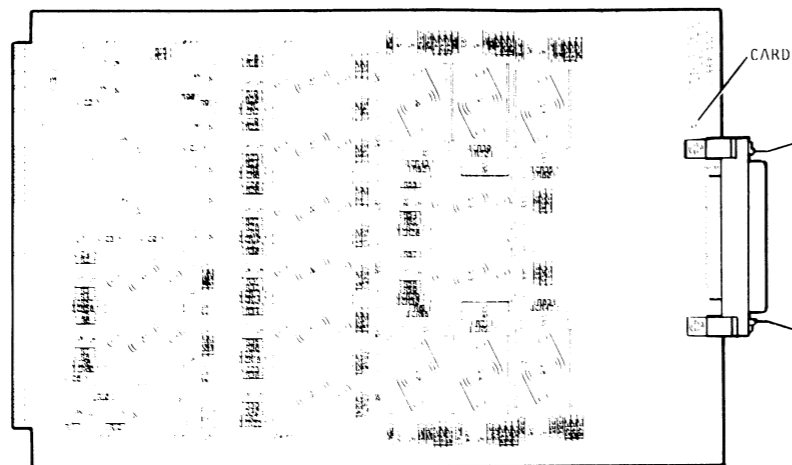
ID CODE: 22 (OCTAL)  
 MASTER CLOCK FREQUENCY: 800 KHz (CRYSTAL)  
 CLOCK ACCURACY TOLERANCE: 0.01%  
 MAXIMUM POWER DISSIPATION: 11 WATTS  
 MAXIMUM EXTERNAL INPUT FREQUENCY: 100 KHz  
 INPUT CURRENT-ISOLATED INPUTS (INTO 100 OHMS): 20 mA (MIN) TO 50 mA (MAX)  
 OUTPUT CURRENT-ISOLATED OUTPUTS (LOGIC 1): 50 mA (MAX)  
 ISOLATION VOLTAGE (MAX) = 42 Vdc<sup>1</sup>  
 BATTERY CHARGE TIME FROM FULL DISCHARGE: 15 HOURS (MAX)  
 TIME TO BATTERY DEPLETION UNDER POWER FAIL: 24 HOURS (MIN)  
 BATTERY SHELF LIFE: 3 YEARS  
 BATTERY STORAGE TIME TO SELF-DISCHARGE: 6 MONTHS

<sup>1</sup>MEASURED FROM ANY I/O PIN TO ANY OTHER I/O PIN OR GROUND.



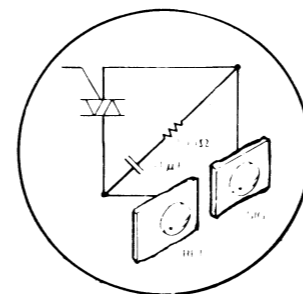
### I/O BOARDS (CONT)

#### TRIAC OUT MODEL 4294



CARD EXTRACTION HOLE

SLOTS 0-11  
REQUIRES TWO  
CHASSIS SLOTS



Ref DGC Dwg 003-000498 Rev 02

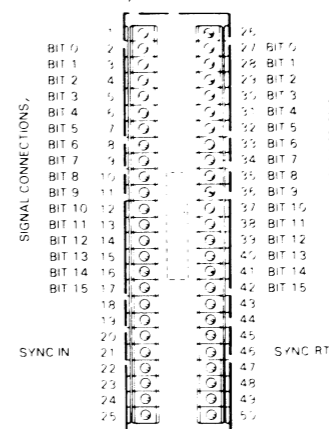
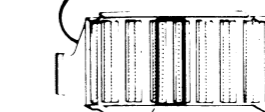
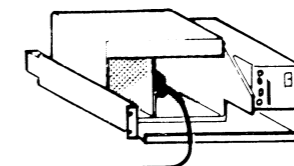
#### SPECIFICATIONS

NUMBER OF OUTPUT LINES	16
LOGIC 1	1.2V MAX @ 2A
LOGIC 0	1.5mA MAX @ 130Vac 60Hz
MAXIMUM APPLIED VOLTAGE	200V PEAK
MAXIMUM OUTPUT LINE CURRENT	2A
SYNC INPUT*	24Vac - 130Vac @ 60Hz Minimum Current 30mA
POWER REQUIREMENTS	+5Vdc @ 0.6A
MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	41W

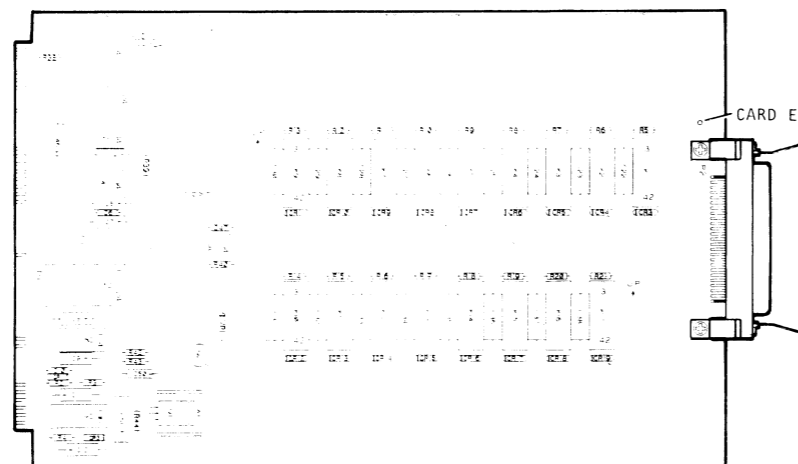
\*Zero crossing in sync with load supply zero crossing

**WARNING**  
HIGH VOLTAGES MAY BE PRESENT.  
BEFORE REMOVING CONNECTOR OR CARD,  
CUSTOMER EQUIPMENT CONNECTED SHOULD  
BE POWERED DOWN WHEN POSSIBLE.  
ALWAYS DISCONNECT I/O CABLE BEFORE  
EXTRACTING CARD.

#### EXTERNAL CONNECTIONS

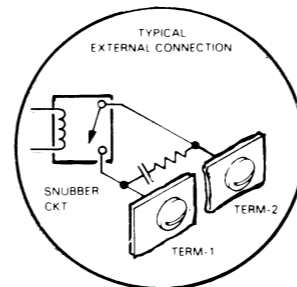


#### 16 RELAYS OUT FORM A MODEL 4296



CARD EXTRACTION HOLE

SLOTS 0-11



Ref DGC Dwg 003-000511 Rev 06

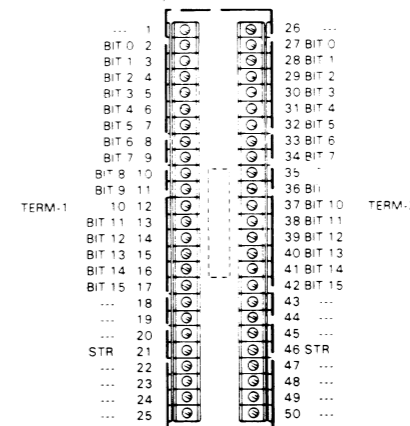
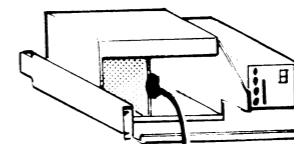
#### SPECIFICATIONS

NUMBER OF OUTPUT LINES	16
LOGIC 1	CONTACT CLOSED
LOGIC 0	CONTACT OPEN
	0.1mA @ 120Vac 60Hz THROUGH SNUBBER
MAXIMUM APPLIED VOLTAGE	125V
MAXIMUM OUTPUT LINE CURRENT	1.0A
RESPONSE TIME	1.0ms
START PULSE WIDTH	50ms
START PULSE DELAY	50ms
MAXIMUM POWER	28VA

ISOLATION VOLTAGE	500V
POWER REQUIREMENTS	5Vdc @ 0.3A 24V @ 0.18A
MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	11W

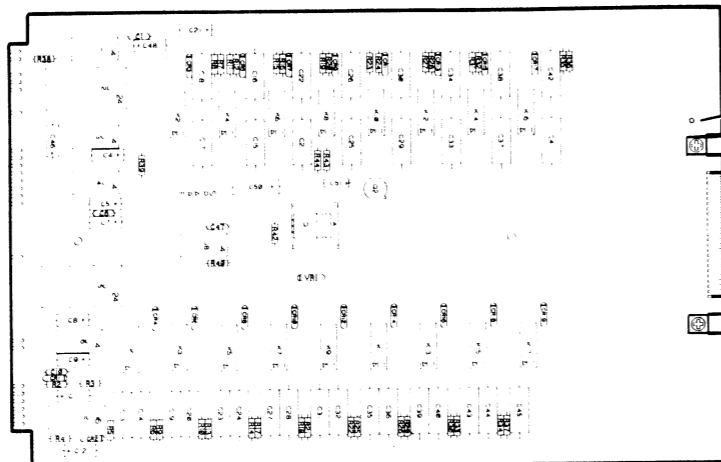
**WARNING**  
HIGH VOLTAGES MAY BE PRESENT.  
BEFORE REMOVING CONNECTOR OR CARD,  
CUSTOMER EQUIPMENT CONNECTED SHOULD  
BE POWERED DOWN WHEN POSSIBLE.  
ALWAYS DISCONNECT I/O CABLE BEFORE  
EXTRACTING CARD.

#### EXTERNAL CONNECTIONS



### I/O BOARDS (CONT)

16 RELAYS OUT FORM C  
MODEL 4297

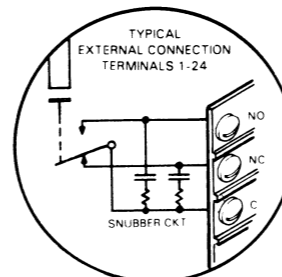


Ref DGCDwg 003-000513 Rev 07

**SPECIFICATIONS**

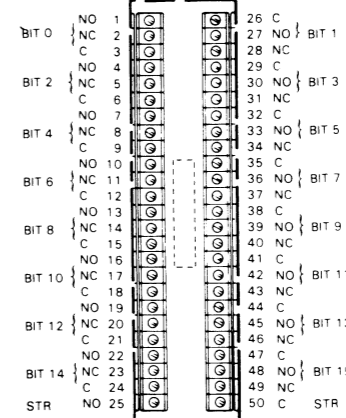
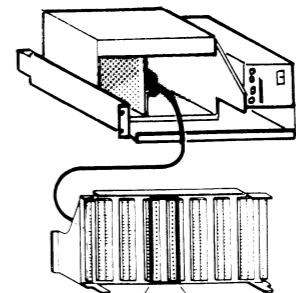
NUMBER OF OUTPUT LINES	16	RESPONSE TIME	1ms
LOGIC 1	N O CONTACT CLOSED N C CONTACT OPEN	START PULSE WIDTH	50ms
LOGIC 0	N O CONTACT OPEN N C CONTACT CLOSED	START PULSE DELAY	50ms
LEAKAGE CURRENT THROUGH OPEN CONTACT SNUBBER	0.1mA@120Vac. 60Hz	ISOLATION VOLTAGE	500V
MAXIMUM APPLIED VOLTAGE	100V	POWER REQUIREMENTS	5Vdc @ 0.3A 24Vdc @ 0.18A
MAXIMUM OUTPUT LINE CURRENT	0.25A	MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	11W
MAX POWER	8V A		

SLOTS 0-11  
CARD EXTRACTION HOLE

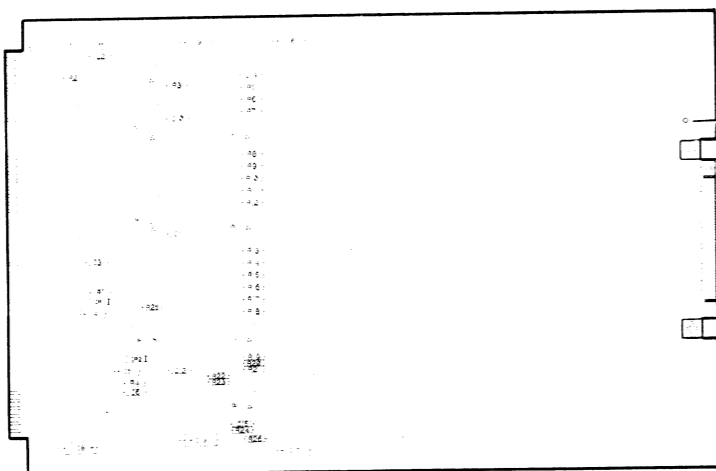


**WARNING**  
HIGH VOLTAGES MAY BE PRESENT.  
BEFORE REMOVING CONNECTOR OR CARD,  
CUSTOMER EQUIPMENT CONNECTED SHOULD  
BE POWERED DOWN WHEN POSSIBLE.  
ALWAYS DISCONNECT I/O CABLE BEFORE  
EXTRACTING CARD.

**EXTERNAL CONNECTIONS**



TTL OUTPUT  
MODEL 4299

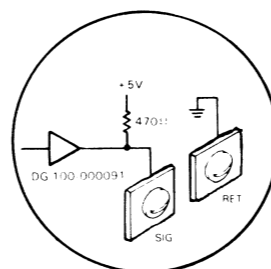


Ref DGC wg 003-000502 Rev 07

**SPECIFICATIONS**

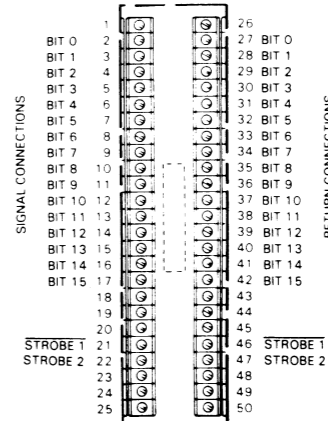
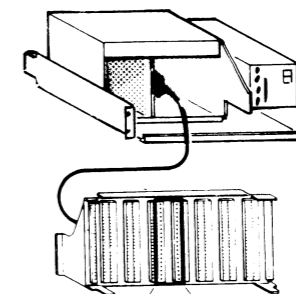
NUMBER OF OUTPUT LINES	16
LOGIC 1	5V THROUGH 470Ω
LOGIC 0	0.5V @ 20 mA
MAXIMUM APPLIED VOLTAGE	15V
STROBE PULSE WIDTH	7ms
POWER REQUIREMENTS	5Vdc @ 0.5A
MAX POWER DISSIPATION (INTERNAL AND EXTERNAL)	2.5W

SLOTS 0-11  
CARD EXTRACTION HOLE



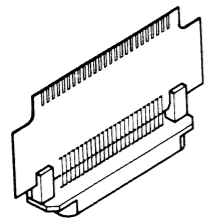
**WARNING**  
HIGH VOLTAGES MAY BE PRESENT.  
BEFORE REMOVING CONNECTOR OR CARD,  
CUSTOMER EQUIPMENT CONNECTED SHOULD  
BE POWERED DOWN WHEN POSSIBLE.  
ALWAYS DISCONNECT I/O CABLE BEFORE  
EXTRACTING CARD.

**EXTERNAL CONNECTIONS**

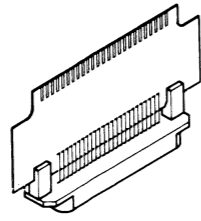




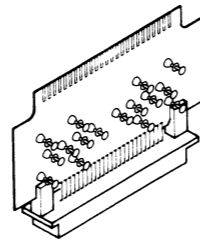
### TEST ADAPTERS



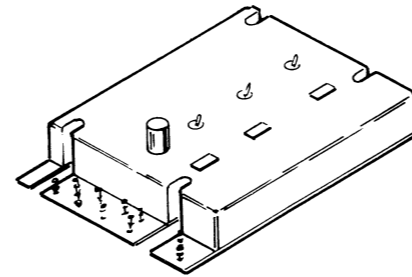
00712  
CONNECTOR  
ADAPTER  
005-021106  
107-001955



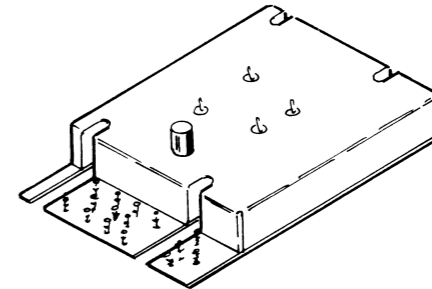
00712  
CONNECTOR  
ADAPTER  
005-021107  
107-001952



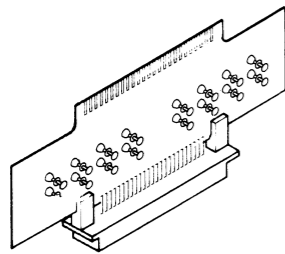
00713  
010-000373  
CONNECTOR  
ADAPTER  
005-021108  
107-001954



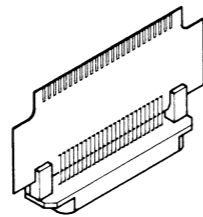
ISOLATED  
ANALOG  
VOLTAGE ADAPTER  
005-021079



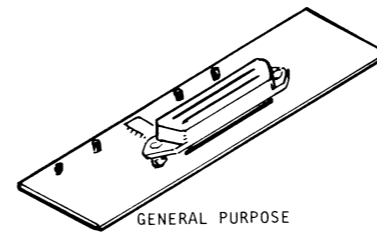
ISOLATED  
ANALOG  
CURRENT ADAPTER  
005-021145



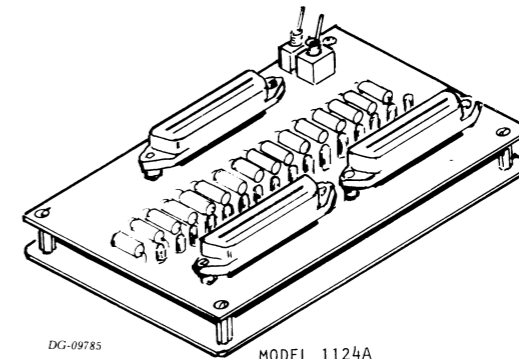
00714  
010-000373  
CONNECTOR  
ADAPTER  
005-021109  
107-001953



00712  
CONNECTOR  
ADAPTER  
005-021110  
107-001951



GENERAL PURPOSE  
TIMER  
TEST ADAPTER  
005-018294  
107-001766



DG-09785  
MODEL 1124A  
DIGITAL  
TEST ADAPTER  
005-006418

#### DESCRIPTION OF CONNECTOR ADAPTERS

CONNECTOR ADAPTER	FROM	TO
005-021106	STD MUX (VOLTAGE OR CURRENT)	ISO ADAPTER (VOLTAGE OR CURRENT)
005-021107	STD D/A (VOLTAGE)	ISO ADAPTER (VOLTAGE)
005-021108	ISO D/A (VOLTAGE OR CURRENT) ISO MUX (VOLTAGE)	ISO ADAPTER (VOLTAGE OR CURRENT) ISO ADAPTER (VOLTAGE)
005-021109	ISO MUX (VOLTAGE)	ISO ADAPTER (CURRENT)
005-021110	STD D/A (CURRENT)	ISO ADAPTER (CURRENT)

INPUT CARD		OUTPUT CARD		TEST ADAPTER	INPUT CONN ADAPT	OUTPUT CONN ADAPT
VOLTAGE	CURRENT	VOLTAGE	CURRENT			
ISO		ISO		005-021079	NONE	NONE
	ISO		ISO	005-021145	NONE	NONE
STD		ISO		005-021079	005-021106	005-021108
	STD		ISO	005-021145	005-021106	005-021108
ISO		STD		005-021079	005-021108	005-021107
ISO			STD	005-021145	005-021109	005-021110
ISO			ISO	005-021145	005-021109	005-021108
STD		STD		005-021079	005-021106	005-021107
	STD		STD	005-021145	005-021106	005-021110

AN INPUT CARD REFERS TO A MUX OR SETPOINT MONITOR CARD.

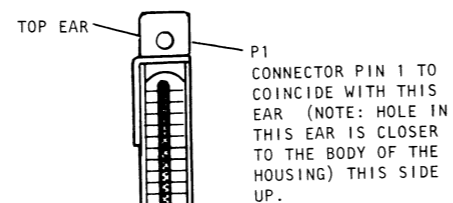
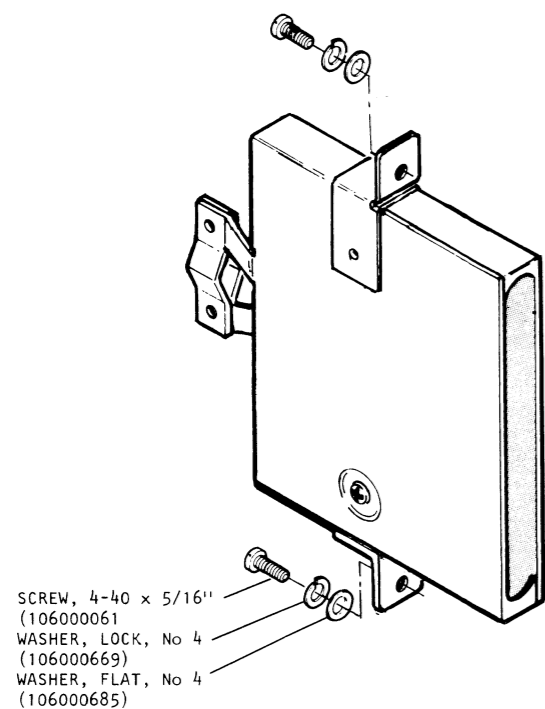
AN OUTPUT CARD REFERS TO A D/A CARD.

THE LAST 2 IN THE TABLE SHOW HOW THE ISOLATED TEST ADAPTERS CAN BE USED THE STANDARD TEST ADAPTERS (SHOWN IN THE FIRST 2 ENTRIES).

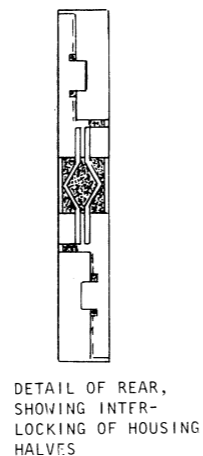
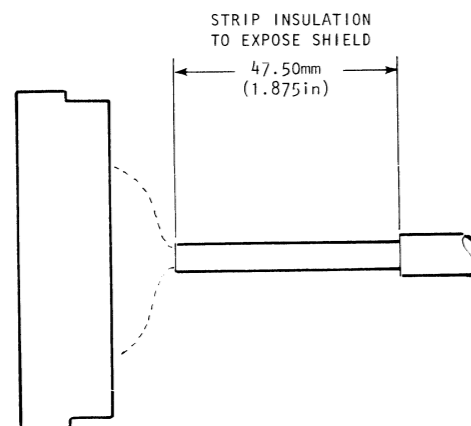
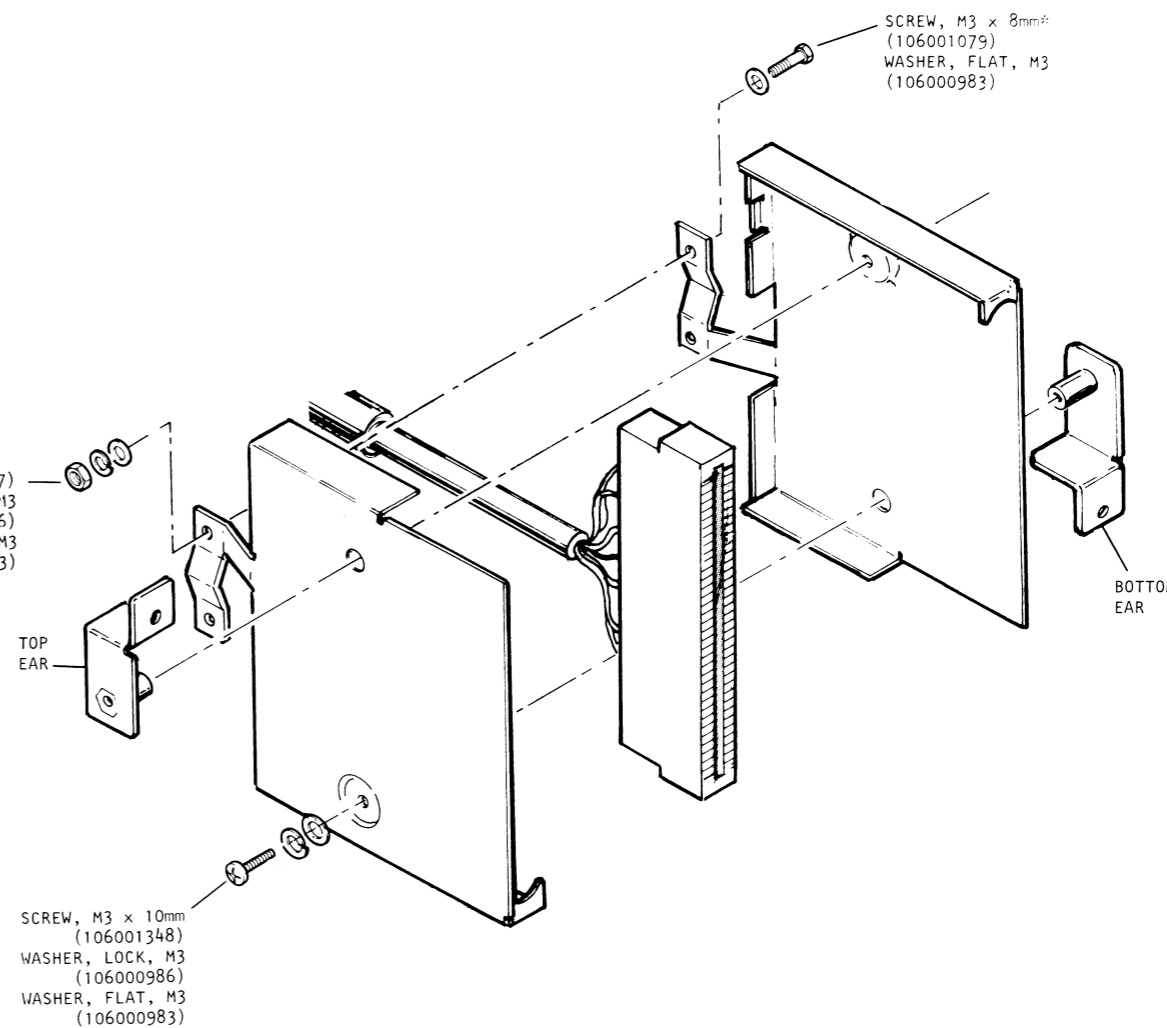
# INSTALLATION SPECIFICATIONS

005020387

\* WHEN CABLE DIA EXCEEDS 9.53mm (.375 in), USE SCREW, M3 x 12mm (106001020)



NUT, M3 (106001007)  
WASHER, LOCK, M3 (106000986)  
WASHER, FLAT, M3 (106000983)



HOUSING - 002025529  
TOP EAR - 002025582  
BOTTOM EAR - 002025583

NOTICE:  
USE OF UNSHIELDED OR IMPROPERLY SHIELDED EXTERNAL CABLES MAY AFFECT THE COMPLIANCE WITH FCC REGULATIONS FOR RF EMISSIONS.

- SUGGESTIONS ON CABLE CONSTRUCTION (TO MEET FCC REGULATIONS):
1. SHIELDING SHOULD CONSIST OF BOTH FOIL AND BRAID.
  2. THE SHIELDS SHOULD BE GROUNDED TO THE CHASSIS AT BOTH ENDS VIA THE CONNECTOR HOUSING.

TESTING OF CABLE FOR COMPLIANCE IS RECOMMENDED.

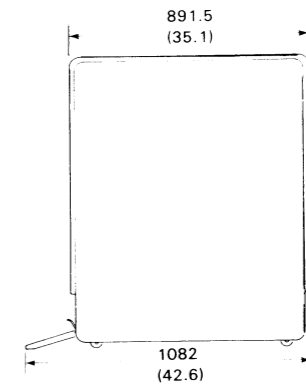
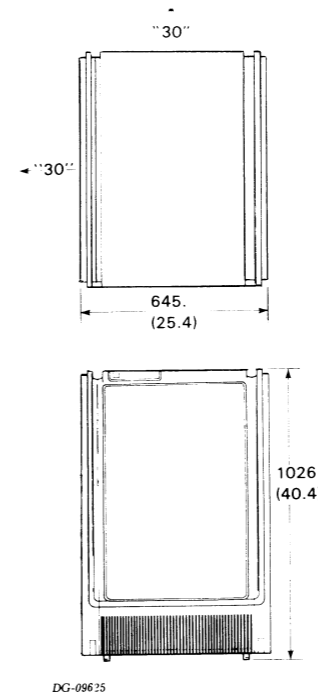
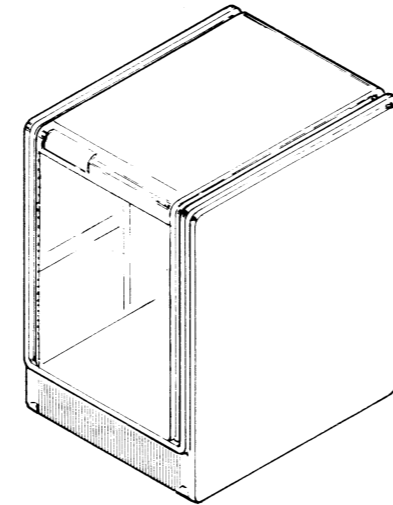
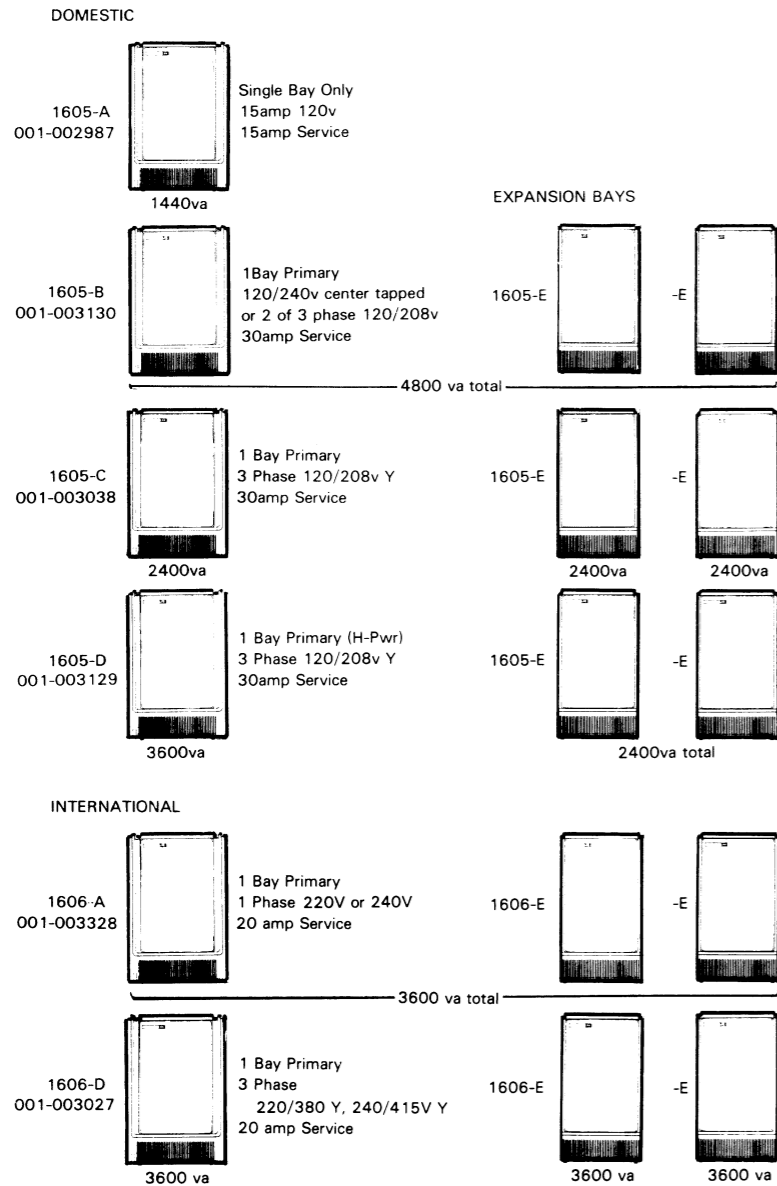
THE FOLLOWING CAN BE USED IN THIS HOUSING:

PC EDGE CONN 25 DUAL POS	AWG	CONTACT CRIMP	KEY
111000179	28-24	111000115	111000116 OR 111000531
	24-20	111000307 OR 111000343	

# **CABINETS**



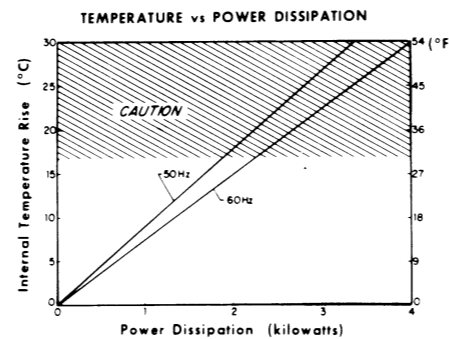
### INSTALLATION SPECIFICATIONS



<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>
Millimeters	645	892	1026
Inches	25.4	35.1	40.4
<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Rear</b>	<b>Left or Right</b>
Millimeters	762	762	762
Inches	30	30	30
<b>WEIGHT:</b>	<b>Empty</b>	<b>Fully Loaded</b>	
<b>Cabinet w/o side panels</b>			
Kilograms	36.3	192.8	
Pounds	80	425	
<b>Side panel kit</b>			
Kilograms	14.5		
Pounds	32		
<b>OPERATING ENVIRONMENT:</b>			
Temperature Range	0 - 55°C (32 - 131°F) See note (1)		
Relative Humidity Range	10 - 90%		
Altitude Range	-305 - 2,440m (-1000 - 8000ft)		

<b>POWER REQUIREMENTS:</b>	<b>See note (2)</b>
<b>Domestic</b>	(1605 - B only)
Voltage	120/240
Hz	47-63
Amp per Phase	30
Phase	1 or 2 phases off a 3 phase line
<b>Export</b>	(1606 - D only)
Voltage	220/208Y, 240/415Y
Hz	50
Amp per Phase	20
Phase	3
<b>CABLES:</b>	<b>See note (2)</b>
<b>COOLING UNITS</b>	<b>See note (1)</b>
<b>Domestic</b>	
Volts	115
Hz	60
Watts	150
Amp	1.5
<b>Export</b>	
Volts	220/240
Hz	50
Watts	150
Amp	0.7

#### STD CAPACITY BLOWER 0166



ALL PRIMARY UNITS WILL BE SHIPPED WITH SIDE PANEL KIT.  
 EXPANSION UNITS WILL BE SHIPPED WITHOUT SIDE PANEL KIT.  
 EXPANSION UNITS HAVE BUILT-IN 10 SECOND DELAY SEQUENCING.  
 SIDE PANEL KIT MAY BE DELETED BY ADDING (X) SUFFIX TO MODEL NUMBER.

**NOTES:**

- VOLT AMPS CALCULATED ON BASIS OF 120V X AMPS OR 240V X AMPS. FOR 100V OR 220V SERVICE COUNTRIES, VOLT AMPS SHOULD BE REDUCED ACCORDINGLY: AMPS REMAIN THE SAME
- AMPS = va/VOLTAGE — (120 OR 240)

**NOTES:**

- SPECS ARE FOR CABINET ONLY. SEE BLOWER CHART FOR TEMPERATURE RISE INSIDE CABINET AS YOU ADD EQUIPMENT. YOU MUST NOT EXCEED MAX ALLOWABLE TEMPERATURE INSIDE THE CABINET FOR ANY PIECE OF EQUIPMENT.
- FOR COMPLETE POWER REQUIREMENTS DISTRIBUTION IN EACH CABINET SEE 010-322 SHEETS 3, 4, 5 AND 6.

**SHIPPING**

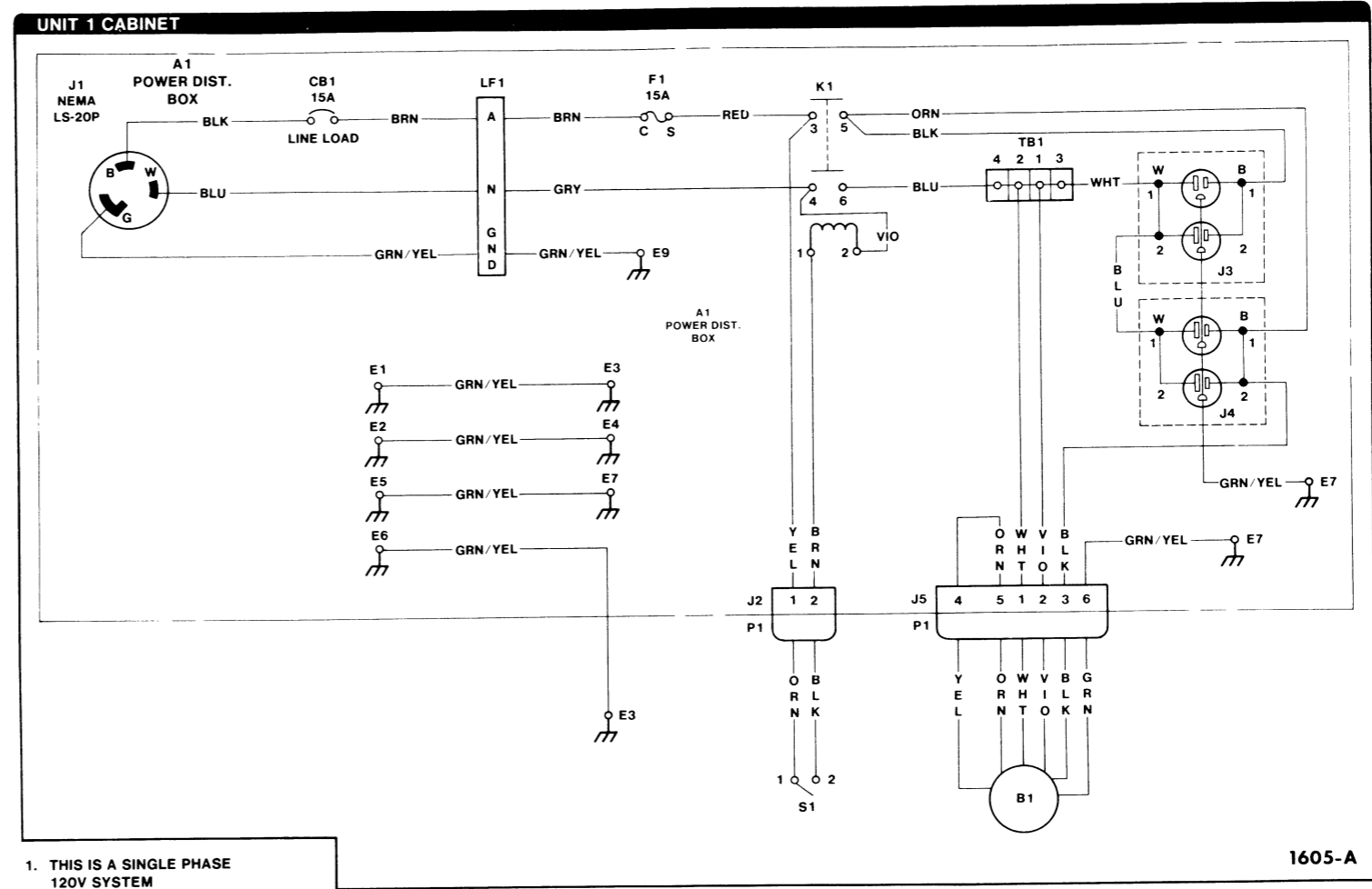
FOR PACKING 1-BAY CABINETS, SEE 010-000328

FOR PACKING 2-BAY CABINETS, SEE 010-000329

FOR PACKING 3-BAY CABINETS, SEE 010-000330

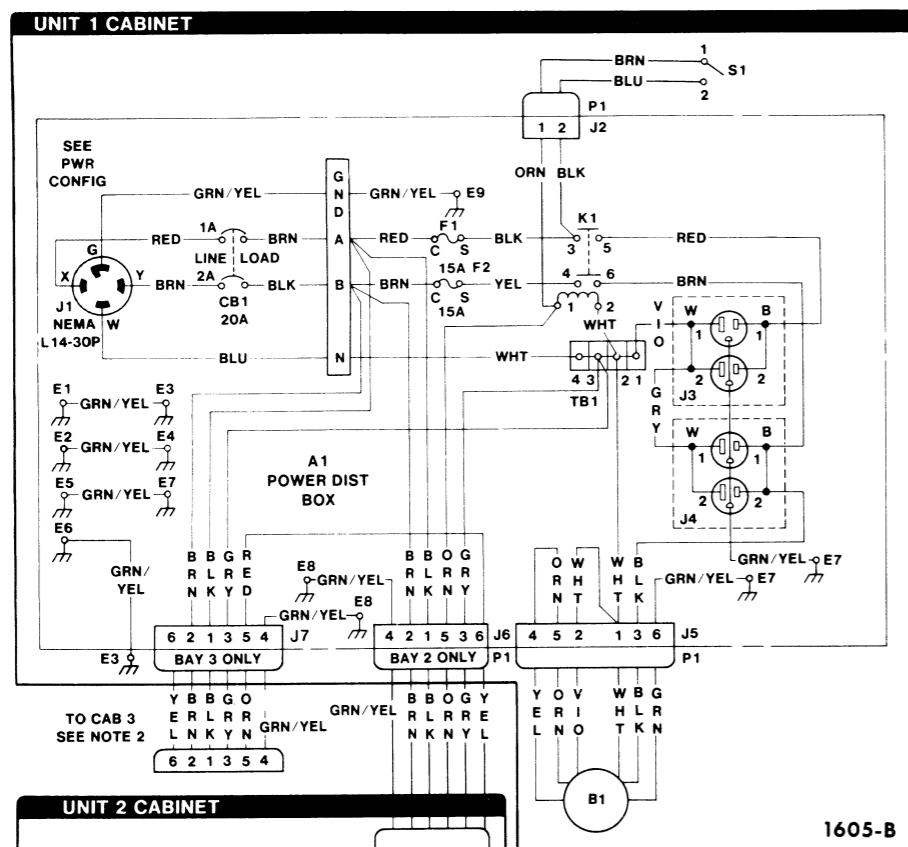
# INTERNAL CABLING

1605-A (DOMESTIC)  
NO EXPANSION



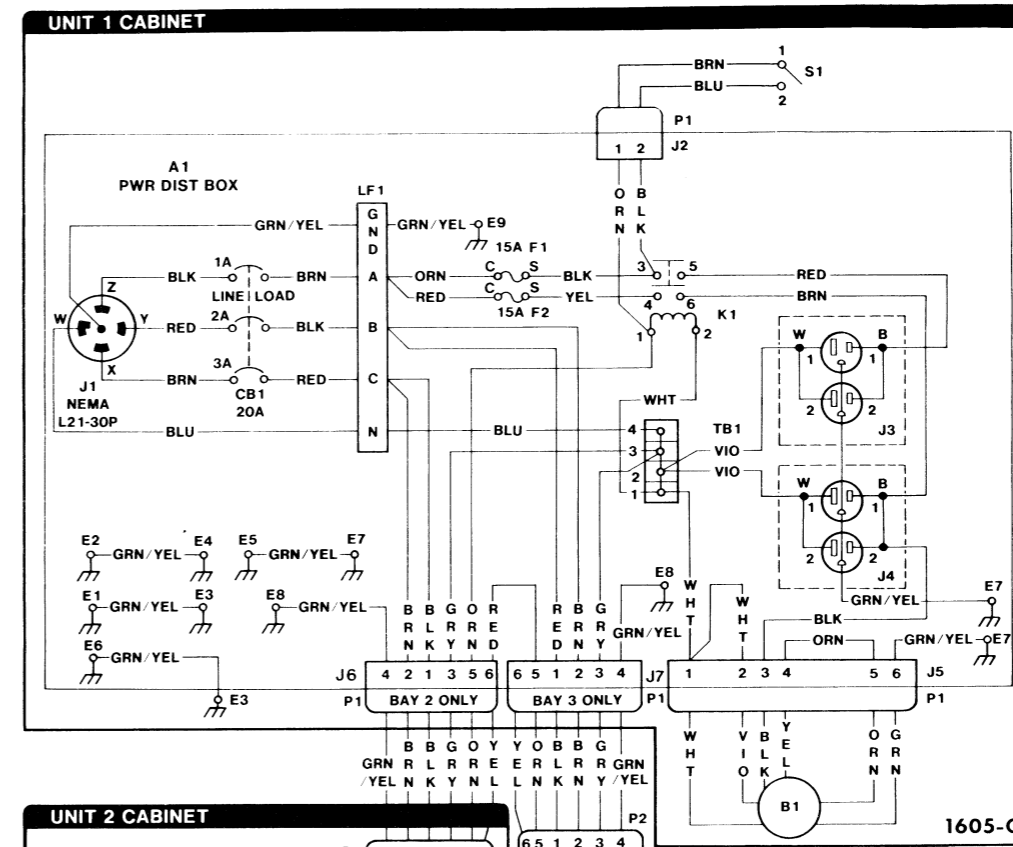
INTERNAL CABLING (CONT)

1605-B (DOMESTIC)  
WITH EXPANSION  
1605-E

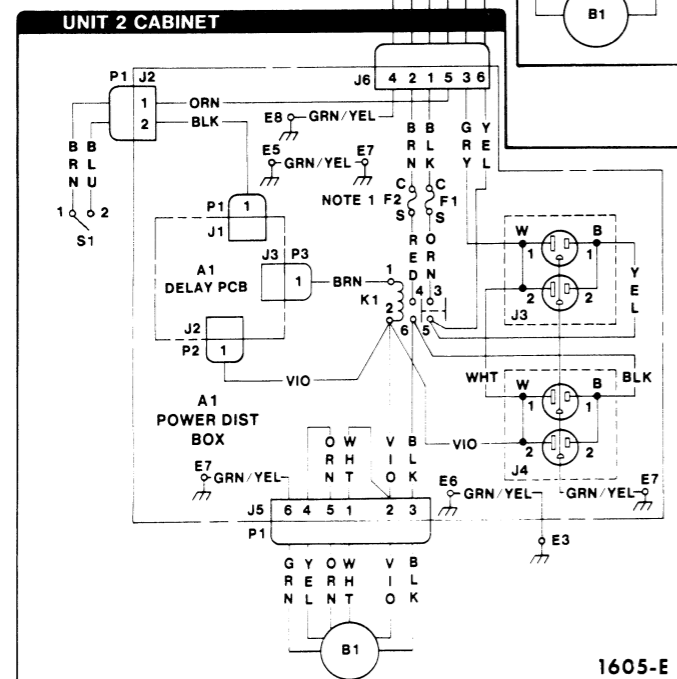


1605-B

1605-C (DOMESTIC)  
WITH EXPANSION  
1605-E

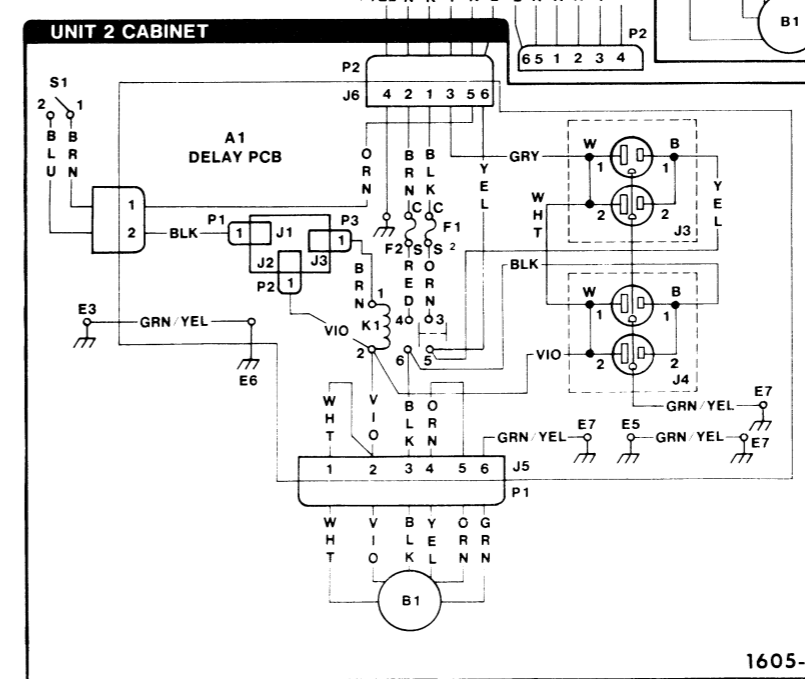


1605-C



1605-E

1. POWER CONFIGURATION  
FOR 2 PHASES OF A 3 PHASE CONFIGURATION
- J1 CONNECT  
W NEUTRAL  
X PHASE X  
Y PHASE Y  
G GND
- FOR 120/240 CENTER TAP CONFIG.
- J1 CONNECT  
W NEUTRAL  
X HOT 1  
Y HOT 2  
G GND
2. FOR POINT TO POINT WIRING  
SEE UNIT 2 CAB.



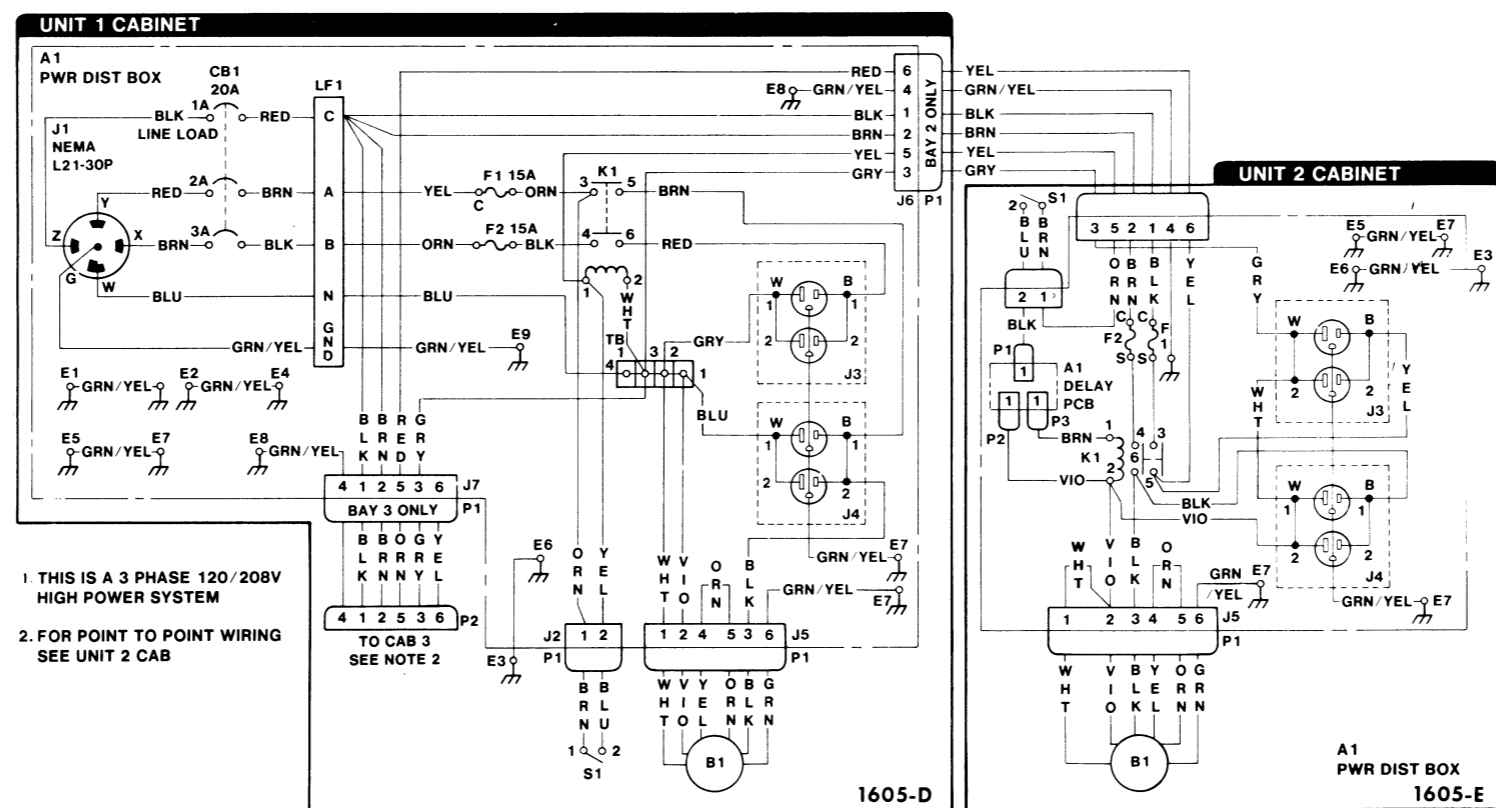
1605-E

1. THIS IS A 3 PHASE  
120/208V Y SYSTEM
2. FOR POINT TO POINT  
WIRING  
SEE UNIT 2 CABINET



# INTERNAL CABLING (CONT)

1605-D (DOMESTIC)  
WITH EXPANSION  
1605-E

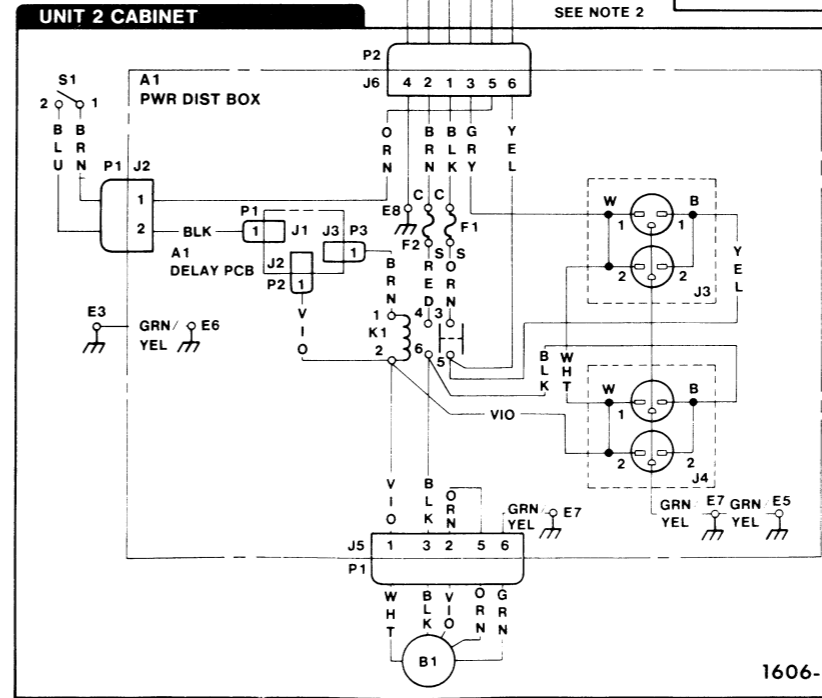
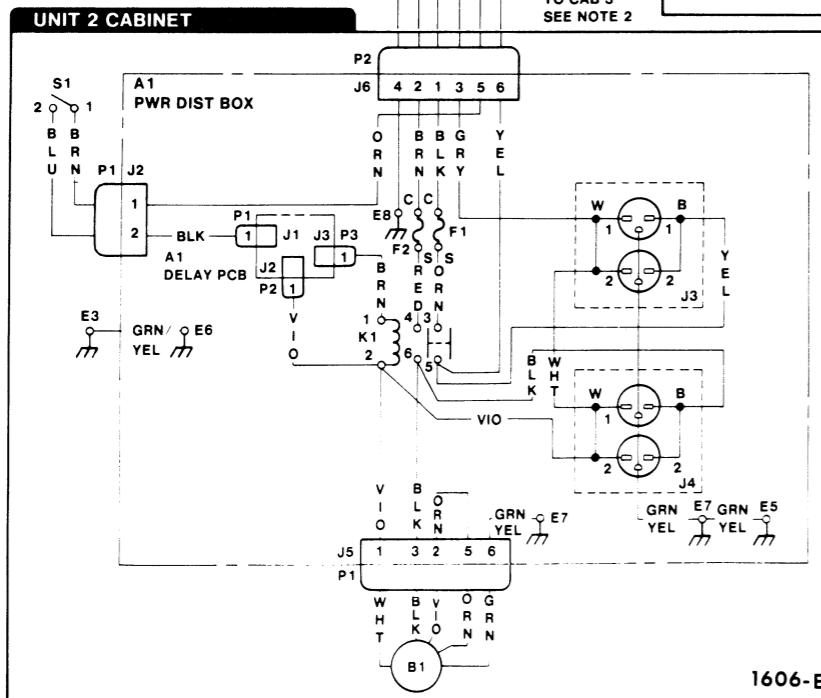
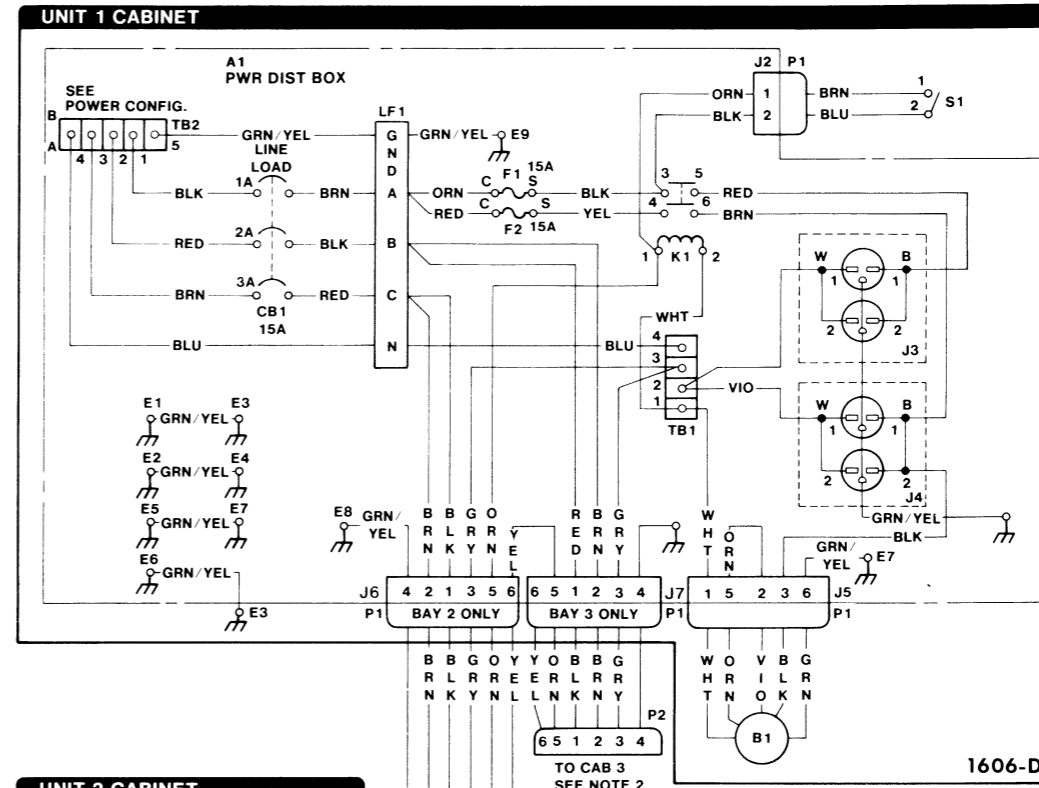
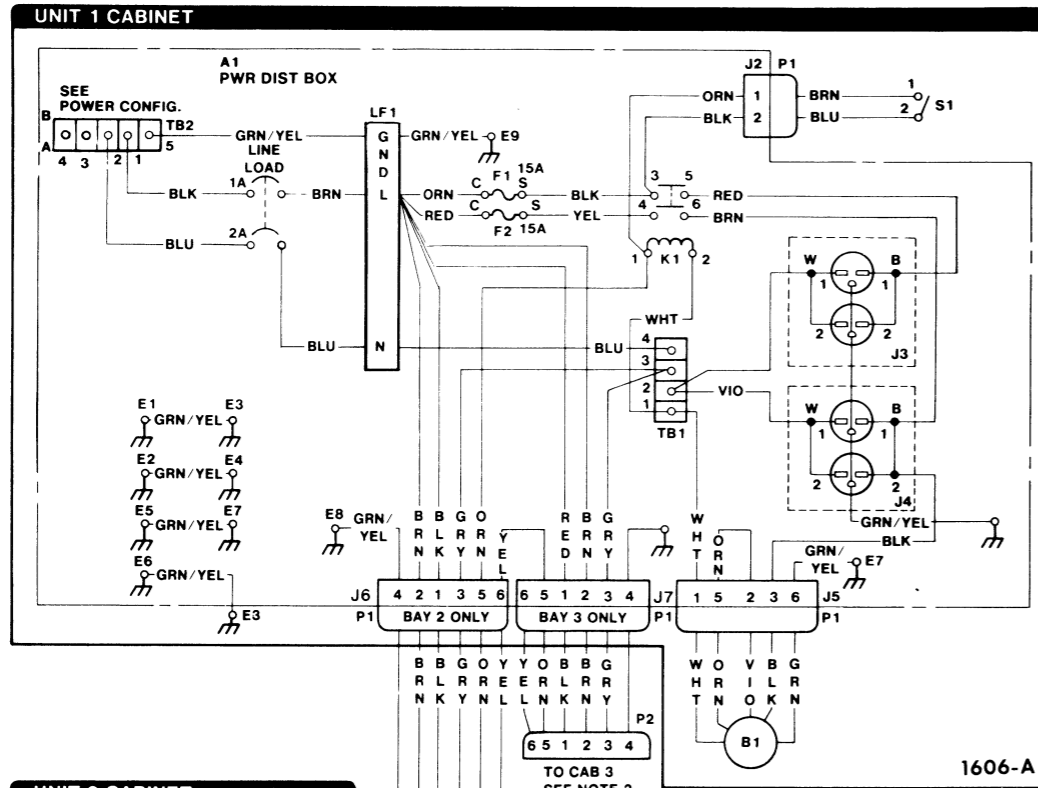


1. THIS IS A 3 PHASE 120/208V HIGH POWER SYSTEM
2. FOR POINT TO POINT WIRING SEE UNIT 2 CAB

INTERNAL CABLING (CONT)

1606-A (INTERNATIONAL)  
WITH EXPANSION  
1606-E

1606-D (INTERNATIONAL)  
WITH EXPANSION  
1606-E

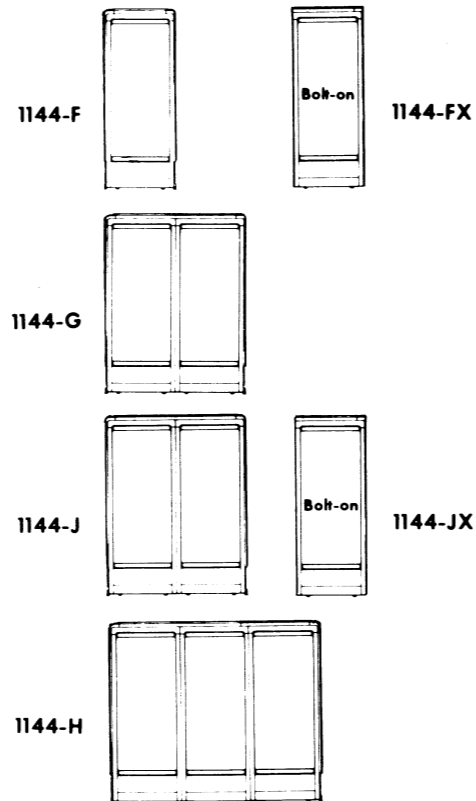
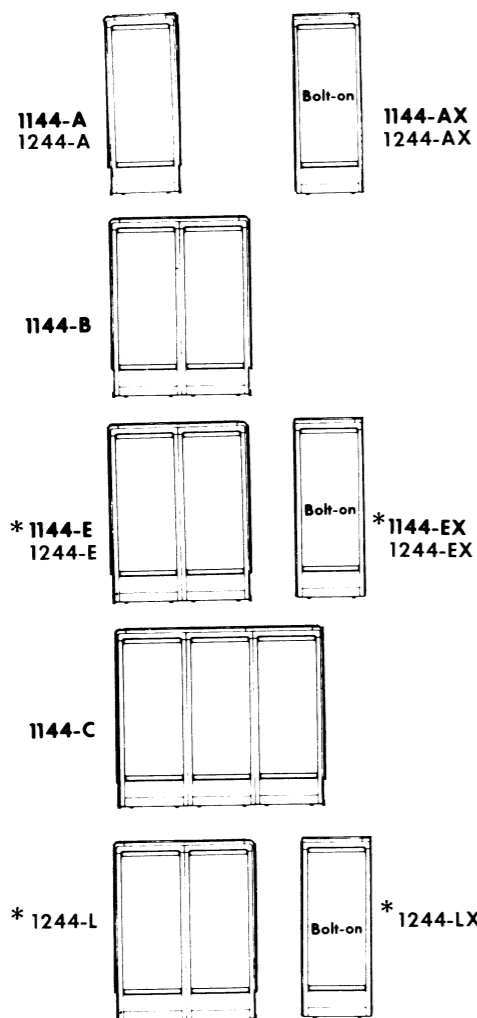


- POWER CONFIG.
- FOR 3 PHASE OPERATION 240 / 415Y
- TB2 CONNECT TO
- 1 - PHASE X
  - 2 - PHASE Z
  - 3 - PHASE Y
  - 4 - NEUTRAL-W
  - 5 - GND
- FOR POINT TO POINT WIRING SEE UNIT 2 CABINET

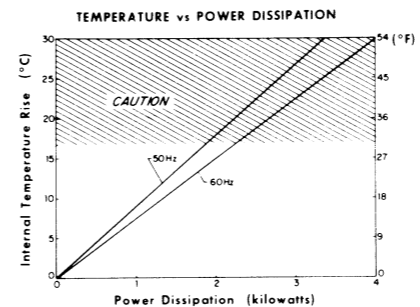
- POWER CONFIG.
- FOR 3 PHASE OPERATION 240 / 415Y
- TB2 CONNECT TO
- 1 - PHASE X
  - 2 - PHASE Z
  - 3 - PHASE Y
  - 4 - NEUTRAL-W
  - 5 - GND
- FOR POINT TO POINT WIRING SEE UNIT 2 CABINET

**HIGH CAPACITY BLOWER**

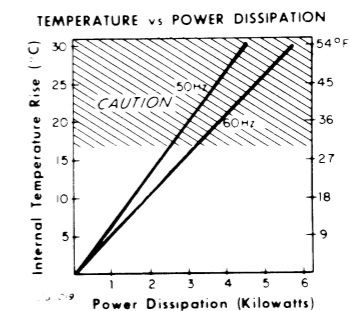
**STANDARD CAPACITY BLOWER  
(Low Noise)**



**STD CAPACITY BLOWER 0166**



**HIGH CAPACITY BLOWER 0142/3**



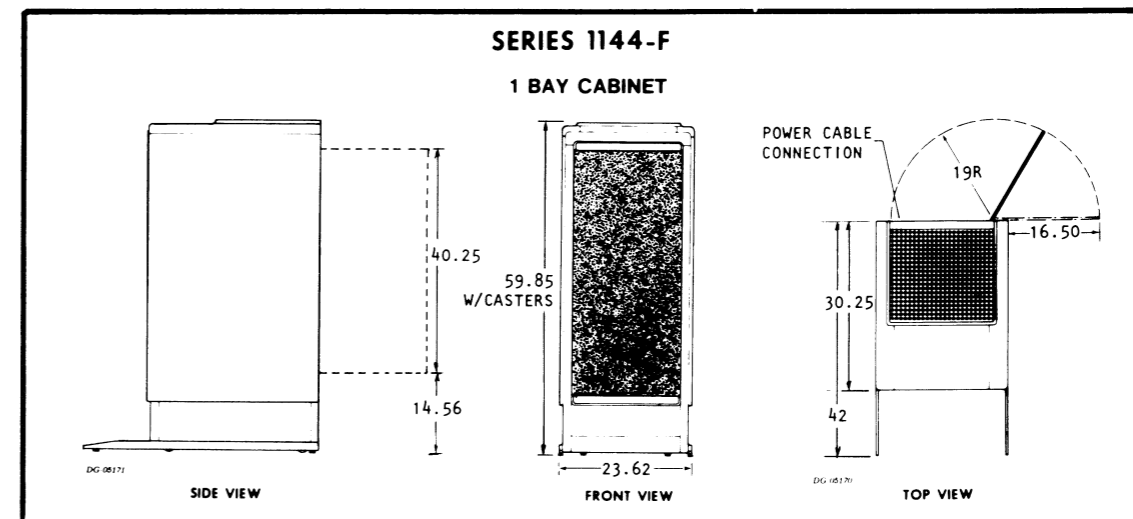
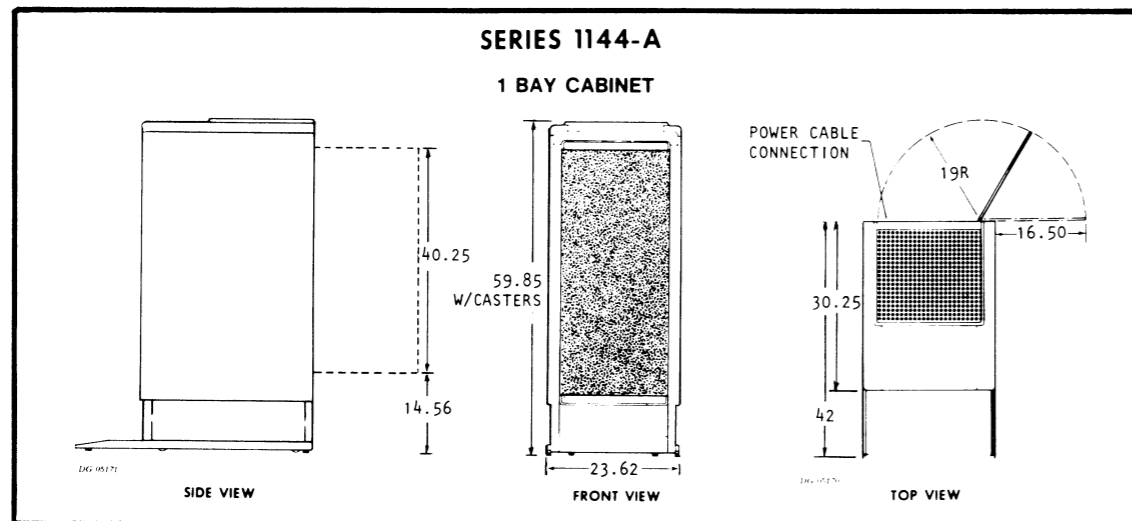
MODEL 1144-AX EXPANSION CABINET WILL EXPAND 1144-A TO 1144-B  
 MODEL 1144-AX2 WILL EXPAND 1144-A1/A2/A3/A4 TO 1144-B1/B2/B3/B4  
 MODEL 1144-EX EXPANSION CABINET WILL EXPAND 1144-E TO 1144-C  
 MODEL 1144-EX2 WILL EXPAND 1144-E1/E2/E3/E4 TO 1144-C1/C2/C3/C4  
 MODEL 1144-FX EXPANSION CABINET WILL EXPAND 1144-F TO 1144-G  
 MODEL 1144-FX2 WILL EXPAND 1144-F1/F2/F3/F4 TO 1144-G1/G2/G3/G4  
 MODEL 1144-JX EXPANSION CABINET WILL EXPAND 1144-J TO 1144-H  
 MODEL 1144-JX2 WILL EXPAND 1144-J1/J2/J3/J4 TO 1144-H1/H2/H3/H4

ALL 1244 SERIES THAT ARE ALSO AVAILABLE IN THE 1144 SERIES ARE PHYSICALLY IDENTICAL TO THEIR 1144 COUNTERPARTS EXCEPT IN COLOR.

\* 1144-E/EX AND 1244-E/EX HAVE ONE POWER DISTRIBUTION BOX SUPPLYING ALL BAYS.  
 1244-L/LX HAVE INDIVIDUAL POWER DISTRIBUTION BOXES SUPPLYING EACH BAY.

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L

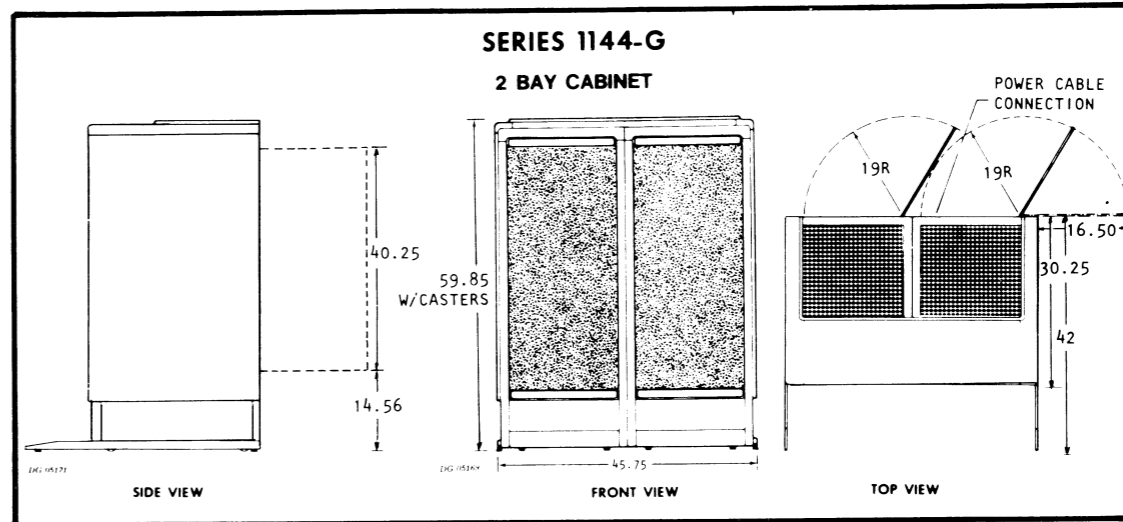
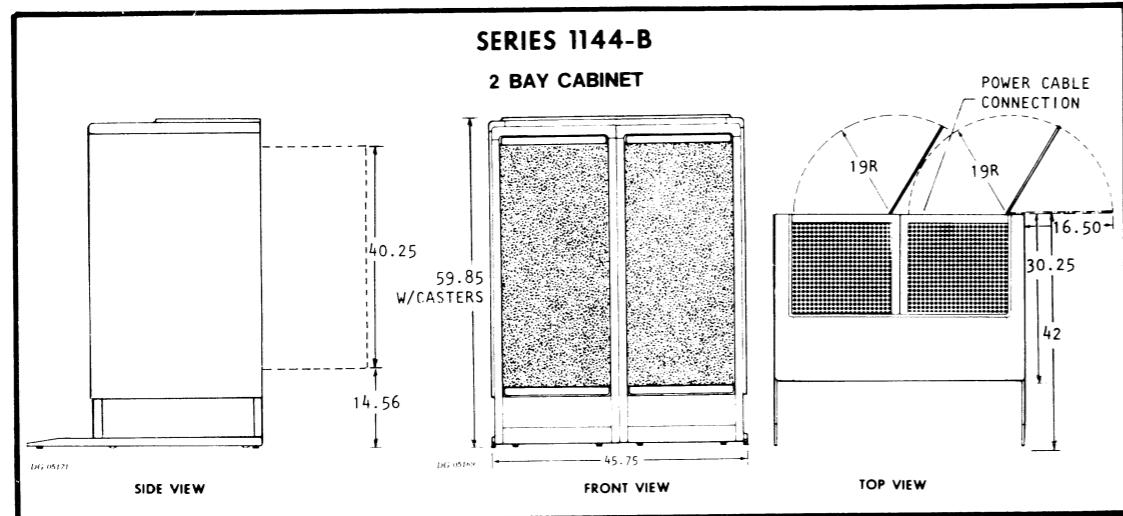


SPECIFICATIONS		1144-A/1244-A (DOMESTIC) HIGH CAPACITY BLOWER 1144-A1, A2, A3, A4/1244-A1, A2, A3, A4 (EXPORT)			
<b>DIMENSIONS:</b>		Width	Depth	Height	COOLING UNIT
Millimeters		600	1067	1520	HIGH CAPACITY 0143
Inches		23.62	42	59.85	(Domestic)
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right	Number
Millimeters		762	762	762	1
Inches		30	30	30	Volts
					115
					Hz
					50/60
					Watts
					220
					Amp
					2.5
<b>WEIGHT:</b>		Empty	Fully Loaded		(Export)
Kilograms		100	364		HIGH CAPACITY 0142
Pounds		220	800		Number
					1
					Volts
					200/220/240
					Hz
					50/60
					Watts
					220
					Amp
					1.2
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	
		25	43.75	111	
<b>POWER REQUIREMENTS:</b>				<b>CABLES:</b>	
(Domestic)				Primary Power (Supplied on Domestic only)	
Voltage	2 CKT 120V			Domestic	Export
Hz	60			L14-30P	L6-15P
Max Amp	20/CKT			Connector (Supplied on Export only)	
Phase				<b>POWER AVAILABLE</b>	
(Export)				Internal Receptacles	
Voltage	200/220/240	Each	Total (All bays, All recept)		
Hz	50	15	30.0		
Max Amp	15	15	13.8		
Phase	1				

SPECIFICATIONS		1144-F (Domestic) STD CAPACITY BLOWER (Low Noise) 1144-F1/F2/F3/F4 (Export)			
<b>DIMENSIONS:</b>		Width	Depth	Height	COOLING UNIT
Millimeters		600	1067	1520	STANDARD CAPACITY 0166
Inches		23.62	42	59.85	(Domestic)
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right	Number
Millimeters		762	762	762	1
Inches		30	30	30	Volts
					115
					Hz
					50/60
					Watts
					150
					Amp
					1.5
<b>WEIGHT:</b>		Empty	Fully Loaded		(Export)
Kilograms		100	364		Number
Pounds		220	800		1
					Volts
					170-264
					Hz
					50/60
					Watts
					150
					Amp
					.75
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	
		25	43.75	111	
<b>POWER REQUIREMENTS:</b>				<b>CABLES:</b>	
(Domestic)				Primary Power (Supplied on Domestic only)	
Voltage	2 CKT 120V			Domestic	Export
Hz	60			L14-30P	L6-15P
Max Amp	20/CKT			Connector (Supplied on Export only)	
Phase				<b>POWER AVAILABLE</b>	
(Export)				Internal Receptacles	
Voltage	200/220/240	Each	Total (All bays, All recept)		
Hz	50	15	30.0		
Max Amp	15	15	14.25		
Phase	1				

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L

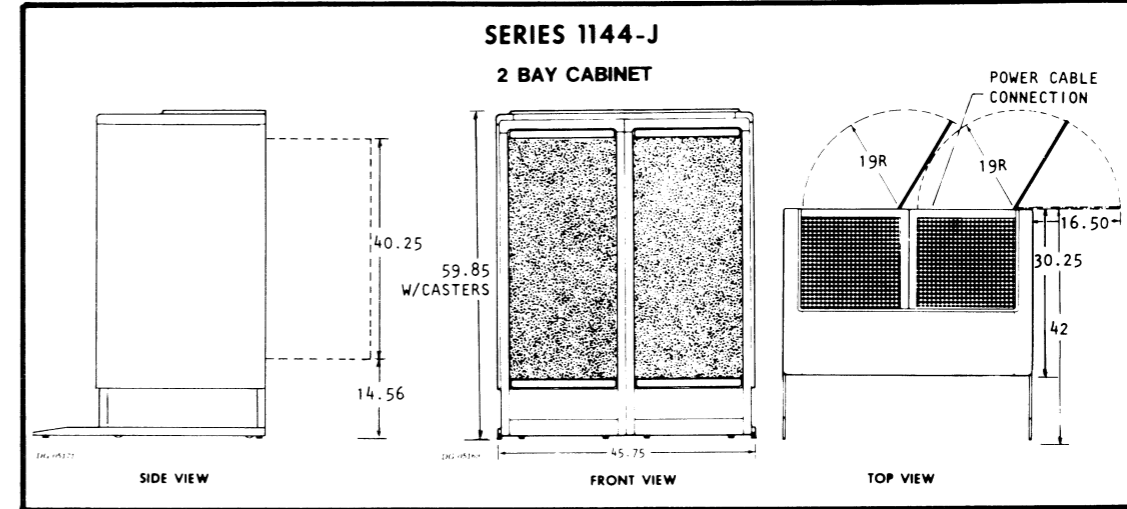
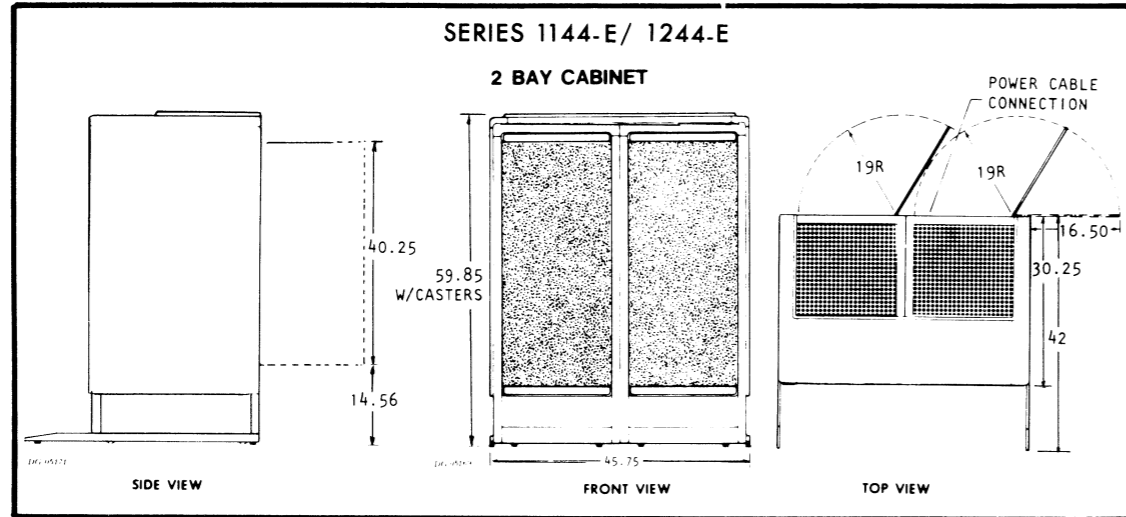


SPECIFICATIONS		1144-B (Domestic) HIGH CAPACITY BLOWER 1144-B1/B2/B3/B4 (Export)		COOLING UNIT		HIGH CAPACITY 0143	
<b>DIMENSIONS:</b>		Width	Depth	Height			
Millimeters	1162	1067	1520	(Domestic)			
Inches	45.75	42	59.85				
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right			
Millimeters	762	762	762	Number			
Inches	30	30	30	Volts			
				Hz			
				Watts			
				Amp			
<b>WEIGHT:</b>		Empty	Fully Loaded		(Export)		
Kilograms	168	728			Number		
Pounds	370	1600			Volts		
					Hz		
					Watts		
					Amp		
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	Watts		
		25	43.75	111	Amp		
<b>POWER REQUIREMENTS:</b>				<b>CABLES:</b>			
(Domestic)				Primary Power		Domestic	
Voltage	2 CKT 120V			(Supplied on Domestic only)		L14-30P	
Hz	60			(Supplied on Export only)		Export	
Max Amp	20/CKT					L6-15P	
Phase							
(Export)				<b>POWER AVAILABLE</b>			
Voltage	200/220/240			Internal Receptacles	Each	Total (All bays, All recept)	
Hz	50			Domestic 120V	15	35.0	
Max Amp	15			Export 200/220/240	15	12.6	
Phase	1						

SPECIFICATIONS		1144-G (Domestic) STD CAPACITY BLOWER (Low Noise) 1144-G1/G2/G3/G4 (Export)		COOLING UNIT		STD CAPACITY 0166	
<b>DIMENSIONS:</b>		Width	Depth	Height			
Millimeters	1162	1067	1520	(Domestic)			
Inches	45.75	42	59.85				
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right			
Millimeters	762	762	762	Number			
Inches	30	30	30	Volts			
				Hz			
				Watts			
				Amp			
<b>WEIGHT:</b>		Empty	Fully Loaded		(Export)		
Kilograms	168	728			Number		
Pounds	370	1600			Volts		
					Hz		
					Watts		
					Amp		
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	Watts		
		25	43.75	111	Amp		
<b>POWER REQUIREMENTS:</b>				<b>CABLES:</b>			
(Domestic)				Primary Power		Domestic	
Voltage	2 CKT 120V			(Supplied on Domestic only)		L14-30P	
Hz	60			(Supplied on Export only)		Export	
Max Amp	20/CKT					L6-15P	
Phase							
(Export)				<b>POWER AVAILABLE</b>			
Voltage	220/220/240			Internal Receptacles	Each	Total (All bays, All recept)	
Hz	50			Domestic 120V	15	37.0	
Max Amp	15			Export 200/220/240	15	13.5	
Phase	1						

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L



SPECIFICATIONS

1144-E/1244-E (DOMESTIC) HIGH CAPACITY BLOWER  
1144-E1, E2, E3, E4/1244-E1, E2, E3, E4 (EXPORT)

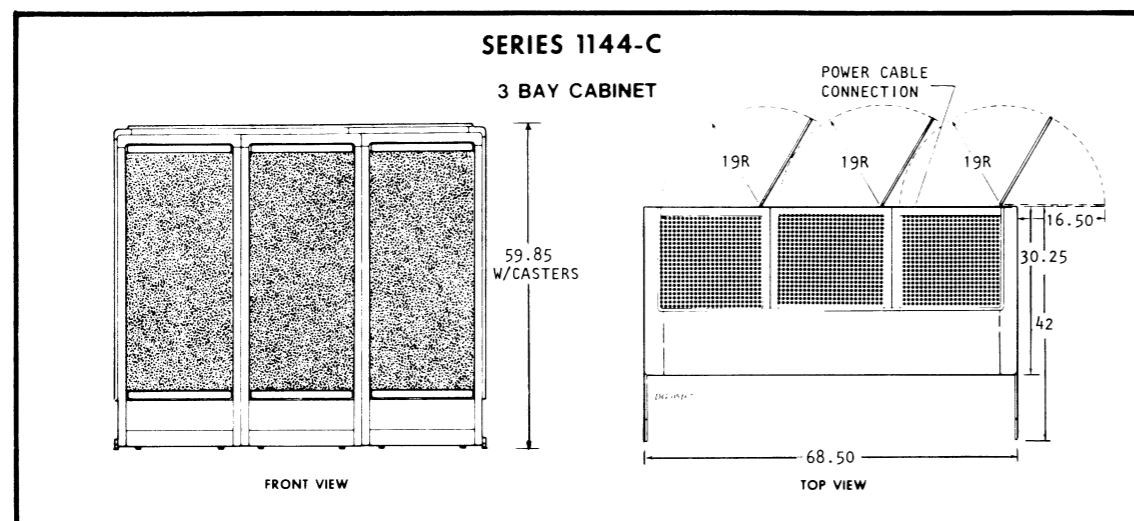
DIMENSIONS:	Width	Depth	Height	COOLING UNIT	HIGH CAPACITY 0143	
Millimeters	1162	1067	1520	(Domestic)		
Inches	45.75	42	59.85			
SERVICE CLEARANCES:	Front	Rear	Right	Number	2	
	Millimeters	762	762	Volts	115	
	Inches	30	30	Hz	50/60	
				Watts	220	
WEIGHT:	Empty	Fully Loaded	(Export)	Amp	2.5	
	Kilograms	168	728	Number	2	
	Pounds	370	1600	Volts	200/220/240	
USABLE VERTICAL RACK SPACE PER BAY	Areas	Inches	Cm.	Hz	50/60	
	25	43.75	111	Watts	220	
				Amp	1.2	
POWER REQUIREMENTS:	(Domestic)			CABLES:		
	Voltage	3 CKT 120V			Primary Power	Domestic
Hz	60			(Supplied on Domestic only)	L21-30P	
Max Amp	20/CKT			Connector	Export	
Phase				(Supplied on Export only)	L6-30P	
(Export)				POWER AVAILABLE		
	Voltage	200/220/240			Internal Receptacles	Each
	Hz	50				Total (All bays, All recpt)
	Max Amp	15			Domestic 120V	15
Phase	1			Export 200/220/240	15	

SPECIFICATIONS

1144-J (Domestic) STD CAPACITY BLOWER (Low Noise)  
1144-J1/J2/J3/J4 (Export)

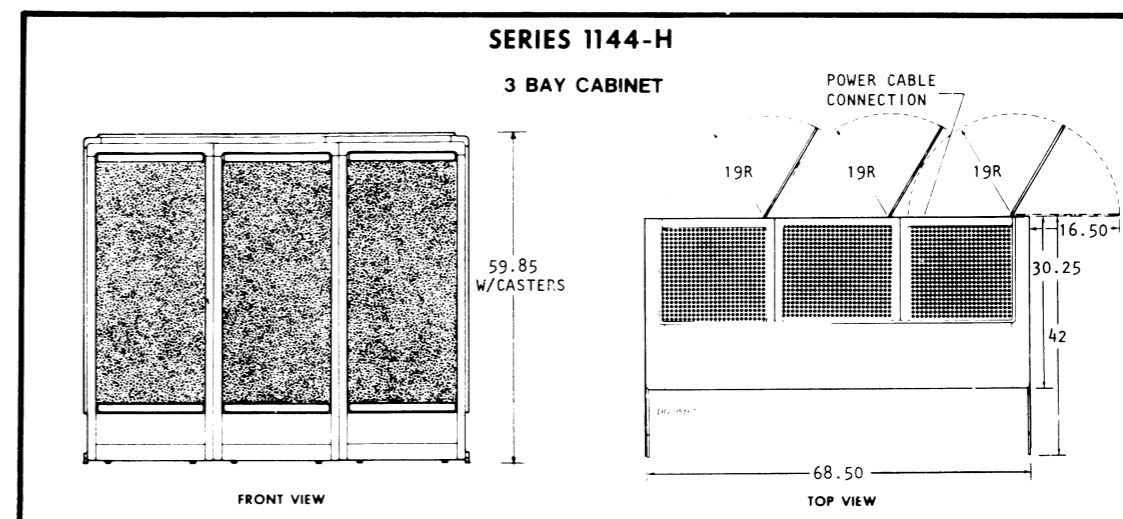
DIMENSIONS:	Width	Depth	Height	COOLING UNIT	STD CAPACITY 0166	
Millimeters	1162	1067	1520	(Domestic)		
Inches	45.75	42	59.85			
SERVICE CLEARANCES:	Front	Rear	Right	Number	2	
	Millimeters	762	762	Volts	115	
	Inches	30	30	Hz	50/60	
				Watts	150	
WEIGHT:	Empty	Fully Loaded	(Export)	Amp	1.5	
	Kilograms	168	728	Number	2	
	Pounds	370	1600	Volts	170-264	
USABLE VERTICAL RACK SPACE PER BAY	Areas	Inches	Cm.	Hz	50/60	
	25	43.75	111	Watts	150	
				Amp	.75	
POWER REQUIREMENTS:	(Domestic)			CABLES:		
	Voltage	3 CKT 120V			Primary Power	Domestic
Hz	60			(Supplied on Domestic only)	L21-30P	
Max Amp	20/CKT			Connector	Export	
Phase				(Supplied on Export only)	L6-30P	
(Export)				POWER AVAILABLE		
	Voltage	200/220/240			Internal Receptacles	Each
	Hz	50				Total (All bays, All recpt)
	Max Amp	15			Domestic 120V	15
Phase	1			Export 200/220/240	15	

DGC CABINETS  
 SERIES 1144-A thru L  
 SERIES 1244-A thru L



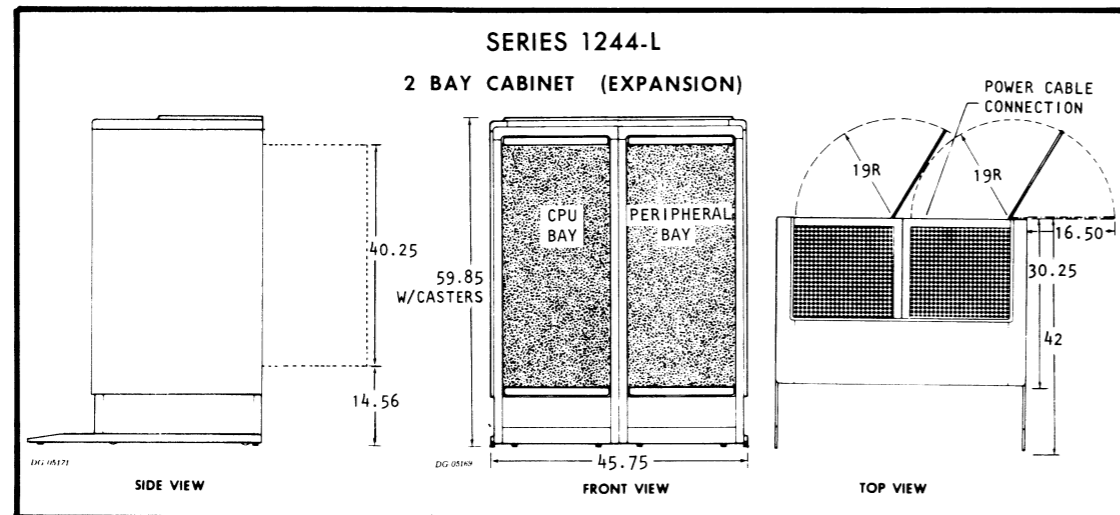
SPECIFICATIONS		1144-C (Domestic) HIGH CAPACITY BLOWER 1144-C1/C2/C3/C4 (Export)			
<b>DIMENSIONS:</b>		Width	Depth	Height	COOLING UNIT
Millimeters		1740	1067	1520	HIGH CAPACITY 0143 (Domestic)
Inches		68.50	42	59.85	
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right	Number
Millimeters		762	762	762	3
Inches		30	30	30	Volts 115
<b>WEIGHT:</b>		Empty	Fully Loaded		Hz 50/60
Kilograms		236	1092		Watts 220
Pounds		518	2400		Amp 2.5
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	(Export) HIGH CAPACITY 0142
		25	43.75	111	Number 3
<b>POWER REQUIREMENTS:</b>					Volts 200/220/240
(Domestic)					Hz 50/60
Voltage		3 CKT 120V			Watts 220
Hz		60			Amp 1.2
Max Amp		20/CKT			
Phase					
(Export)					
Voltage		200/220/240			
Hz		50			
Max Amp		15			
Phase		1			
<b>CABLES:</b>					
Primary Power (Supplied on Domestic only)		Domestic	Export		
Connector (Supplied on Export only)		L21-30P	L6-30P		
<b>POWER AVAILABLE</b>					
Internal Receptacles		Each	Total (All bays, All recpt)		
Domestic 120V		15	52.5		
Export 200/220/240		15	26.4		

DGC CABINETS  
 SERIES 1144-A thru L  
 SERIES 1244-A thru L



SPECIFICATIONS		1144-H (Domestic) STD CAPACITY BLOWER (Low Noise) 1144-H1/H2/H3/H4 (Export)			
<b>DIMENSIONS:</b>		Width	Depth	Height	COOLING UNIT
Millimeters		1740	1067	1520	STD CAPACITY 0166 (Domestic)
Inches		68.50	42	59.85	
<b>SERVICE CLEARANCES:</b>		Front	Rear	Right	Number
Millimeters		762	762	762	3
Inches		30	30	30	Volts 115
<b>WEIGHT:</b>		Empty	Fully Loaded		Hz 50/60
Kilograms		236	1092		Watts 150
Pounds		518	2400		Amp 1.5
<b>USABLE VERTICAL RACK SPACE PER BAY</b>		Areas	Inches	Cm.	(Export) STD CAPACITY 0166
		25	43.75	111	Number 3
<b>POWER REQUIREMENTS:</b>					Volts 107-264
(Domestic)					Hz 50/60
Voltage		3 CKT 120V			Watts 150
Hz		60			Amp .75
Max Amp		20/CKT			
Phase					
(Export)					
Voltage		200/220/240			
Hz		50			
Max Amp		15			
Phase		1			
<b>CABLES:</b>					
Primary Power (Supplied on Domestic only)		Domestic	Export		
Connector (Supplied on Export only)		L21-30P	L6-30P		
<b>POWER AVAILABLE</b>					
Internal Receptacles		Each	Total (All bays, All recpt)		
Domestic 120V		15	55.5		
Export 200/220/240		15	27.75		

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L



<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>	
	Millimeters	116.2	106.7	152
	Inches	45.75	42	59.85
<b>WEIGHT:</b>	<b>Empty</b>	<b>Fully Loaded</b>		
	kilograms/pounds	168	728	
	Pounds	370	1600	

<b>USABLE VERTICAL RACK SPACE PER BAY</b>	<b>Areas</b>	<b>Inches</b>	<b>Cm</b>
	25	43.75	111

**POWER REQUIREMENTS:**  
1 power line for each bay. Each line is as follows:

<b>(Domestic)</b>	
Voltage	2 CKT 120V
Hz	60
Max Amp per Phase	20/CKT
Phase	1
<b>(Export)</b>	
Voltage	220/240
Hz	50
Max Amp per Phase	15
Phase	1

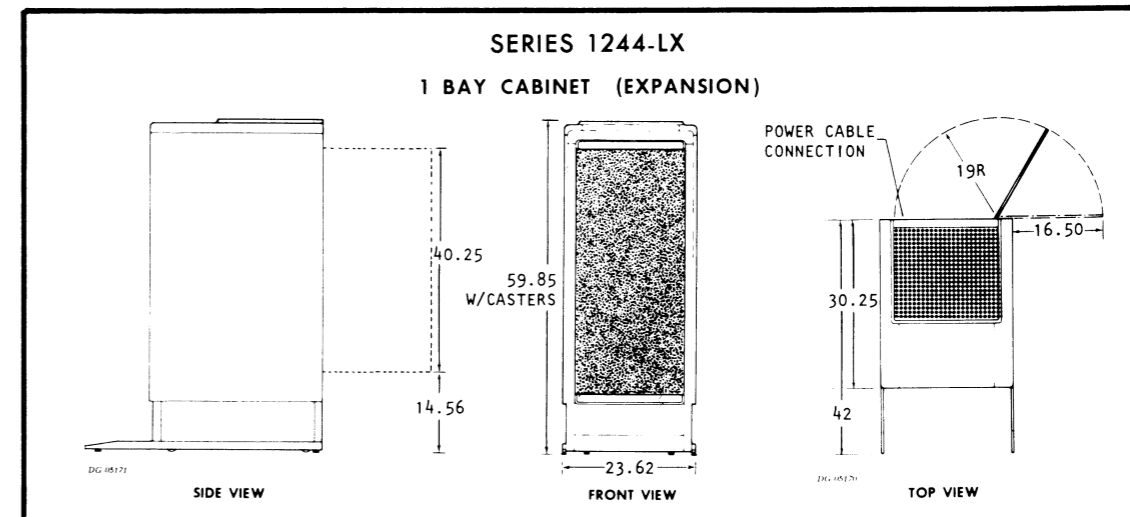
**CABLES:**

	Domestic	Export
Primary Power	L14-30P	L6-15P
(Supplied on Domestic only)		
Connector	(Supplied on Export only)	

**POWER AVAILABLE:**  
Each Peripheral Bay: See power distribution charts on sheet 14, this I.D.S.

<b>Internal Receptacles</b>	<b>Each</b>	<b>Total (All recpt)</b>
Domestic 120V	15	30.0
Export 200/220/240	15	14.25

DGC CABINETS  
SERIES 1144-A thru L  
SERIES 1244-A thru L



<b>DIMENSIONS:</b>	<b>Width</b>	<b>Depth</b>	<b>Height</b>	
	Millimeters	60	106.7	152
	Inches	23.62	42	59.85
<b>WEIGHT:</b>	<b>Empty</b>	<b>Fully Loaded</b>		
	kilograms	100	364	
	Pounds	220	800	

<b>SERVICE CLEARANCES:</b>	<b>Front</b>	<b>Rear</b>	<b>Right</b>
	Left		
Millimeters	76.2	48.3	76.2
Inches	30	19	30

**COOLING UNIT (Per bay)**  
**HIGH CAPACITY 0143**  
(Domestic)

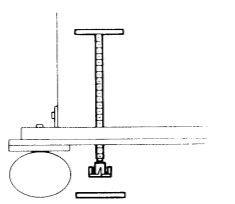
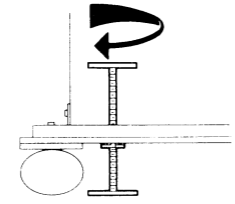
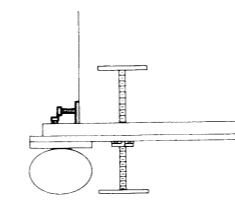
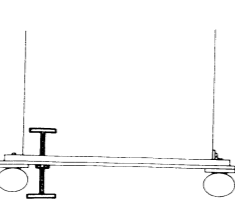
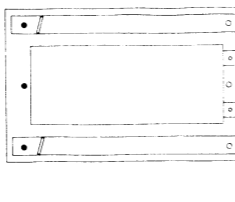
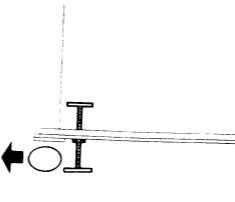
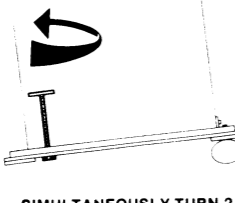
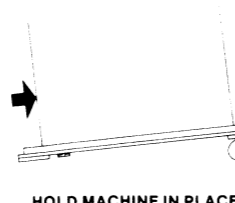
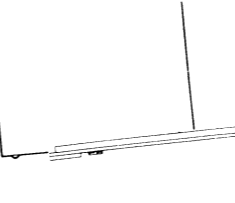
Volts	115
Hz	50/60
Watts	220
Amp	2.5
<b>(Export)</b>	
Volts	220/240
Hz	50/60
Watts	220
Amp	1.2



# SHIPPING

FOR PACKING 1-BAY CABINETS, SEE 010-000266;  
 FOR PACKING 2-BAY CABINETS, SEE 010-000267;  
 FOR PACKING 3-BAY CABINETS, SEE 010-000268

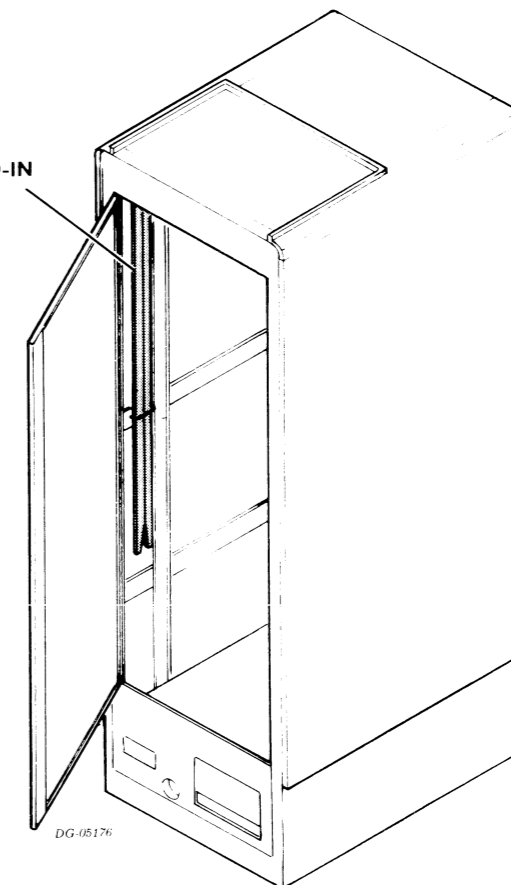
UNLOADING INSTRUCTIONS  
 IMPORTANT  
 THIS IS A TWO-MAN OPERATION

 <p><b>1</b> INSERT 2 JACK SCREWS THROUGH HOLES IN 2 X 4'S ON PALLET. SCREW INTO T-NUTS (BOTH SIDES).</p>	 <p><b>2</b> TURN JACK SCREWS INTO PADS ON FLOOR. HOLES IN PADS LINE UP WITH NIPPLES ON JACK SCREWS.</p>	 <p><b>3</b> REMOVE 2 SHIPPING BRACKETS FROM END OF MACHINE BEING JACKED.</p>
 <p><b>4</b> SIMULTANEOUSLY TURN 2 JACK SCREWS TO RAISE CUSHION MODULE FROM FLOOR.</p>	 <p><b>5</b> REMOVE 4 BOLTS FROM CUSHION MODULE.</p>	 <p><b>6</b> REMOVE CUSHION MODULE.</p>
 <p><b>7</b> SIMULTANEOUSLY TURN 2 JACK SCREWS TO LOWER END OF PALLET TO FLOOR.</p>	 <p><b>8</b> HOLD MACHINE IN PLACE AND REMOVE THE 2 REMAINING SHIPPING BRACKETS.</p>	 <p><b>9</b> EASE MACHINE OFF PALLET.</p>

76-08140

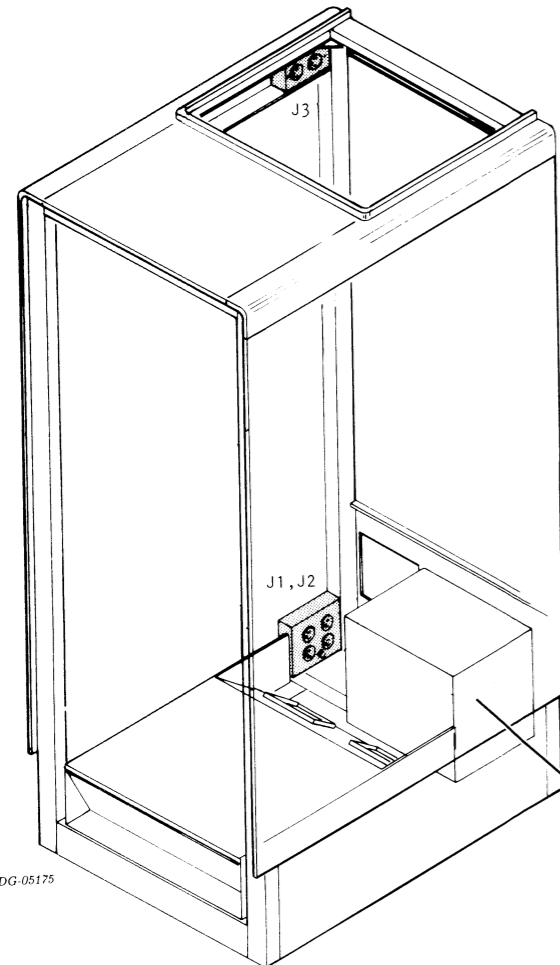
## ANTI-TIP BARS

ANTI-TIP BARS BOLTED-IN REAR OF CABINET



INTERNAL CABLING

1 BAY CABINET



DG-05175

DOMESTIC 1144-A/1244-A

DOMESTIC 1144-F

STD CAPACITY BLOWER 0166

POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS 200/220/240 Vac 50 Hz	J1	J2	EXP	BLOWER	J3	EXP
PER RECEPTACLE	15A*	15A*	15A	2.5A	15A*	15A
COMBINED OUTLETS	15A*		15A	2.5A	15A*	
TOTAL COMBINED	20A*			20A*		

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM

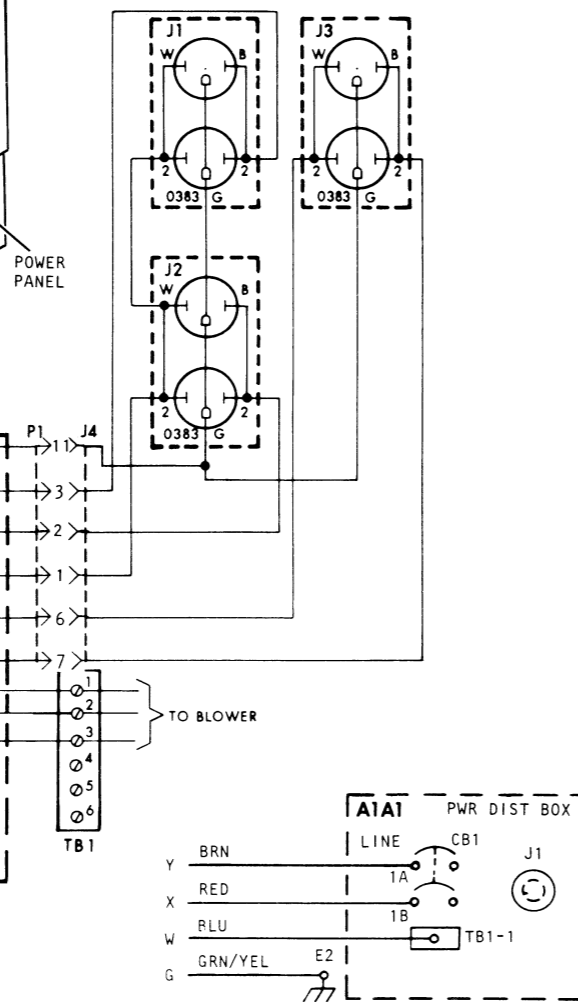
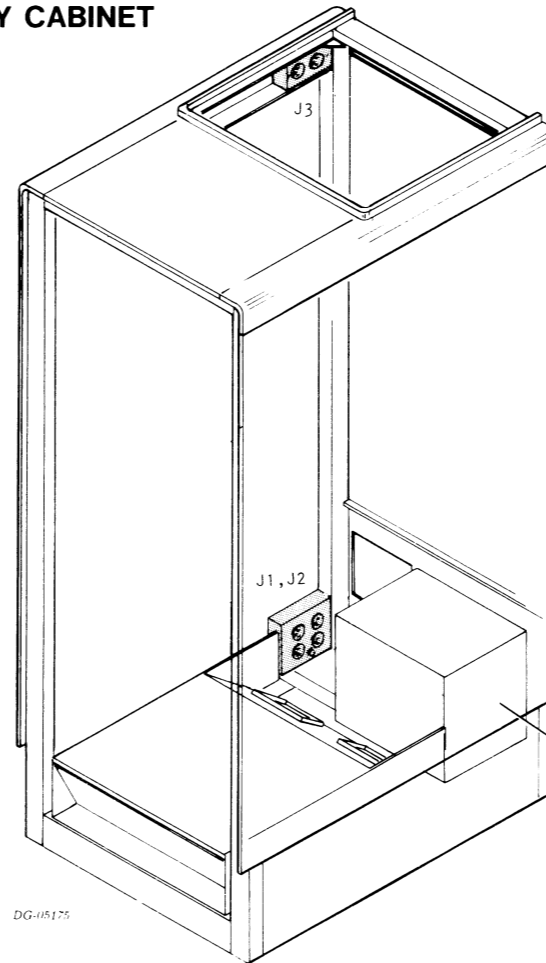


FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK THE HOLE.



DG-05175

EXPORT 1144-A1/A2/A3/A4

EXPORT 1244-A1/A2/A3/A4

HIGH CAPACITY BLOWER 0142

EXPORT 1144-F1/F2/F3/F4

STD CAPACITY BLOWER 0166

POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS @ 120 Vac 60 Hz	J1	J2	J3	EXP	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	15A	2.5A
COMBINED OUTLETS	15 A*			2.5A	
TOTAL COMBINED	15A*				

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM.

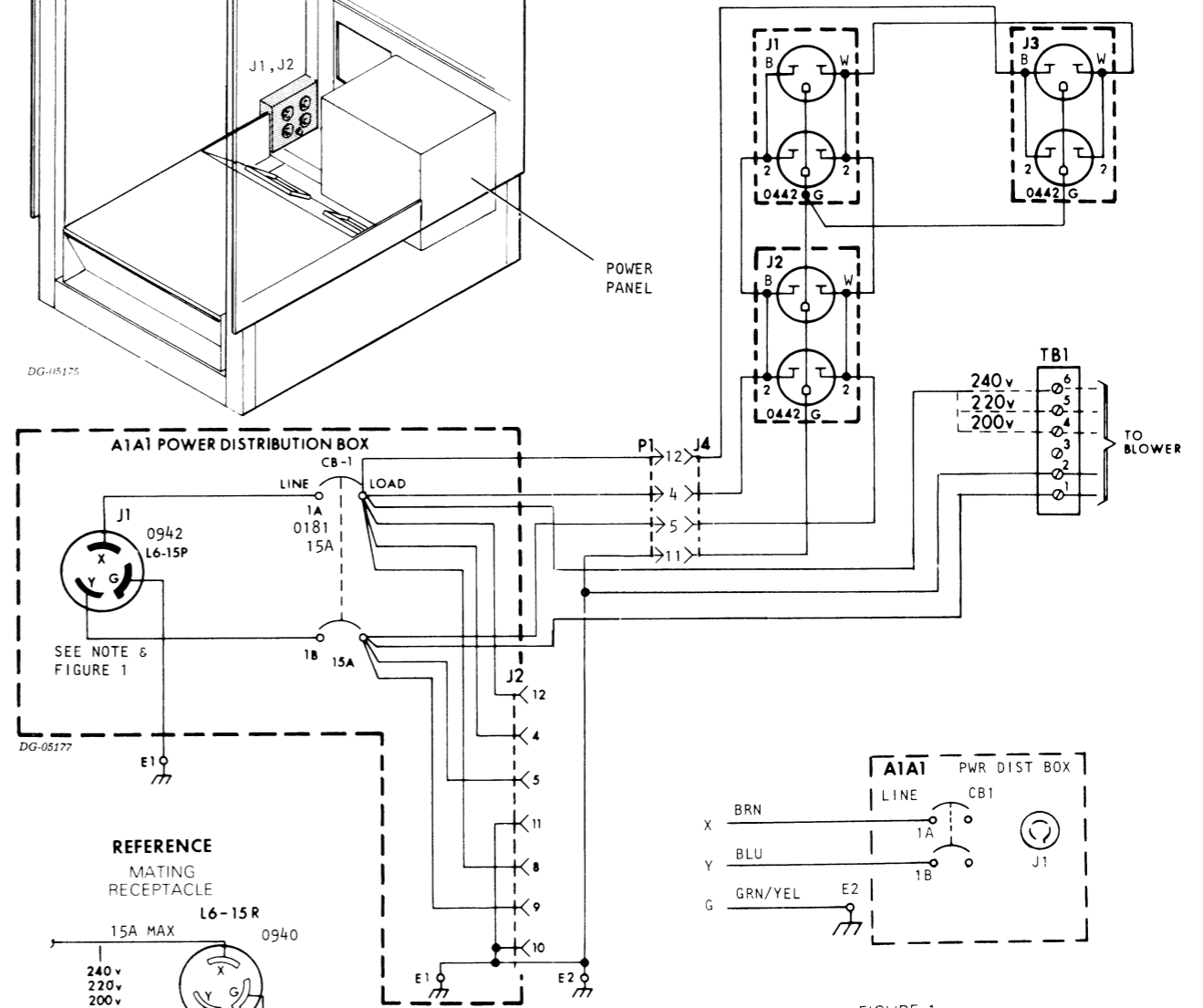
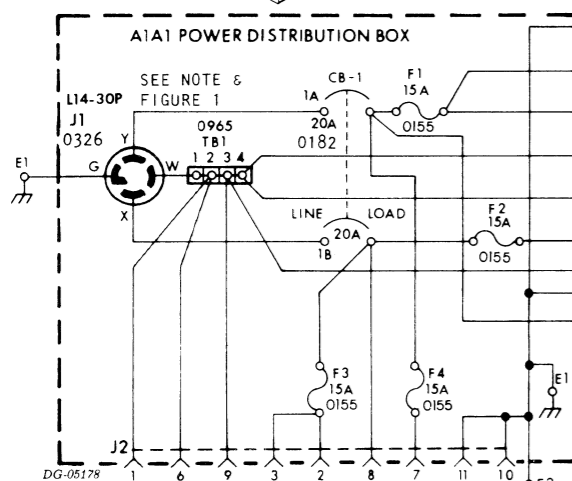


FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK THE HOLE.

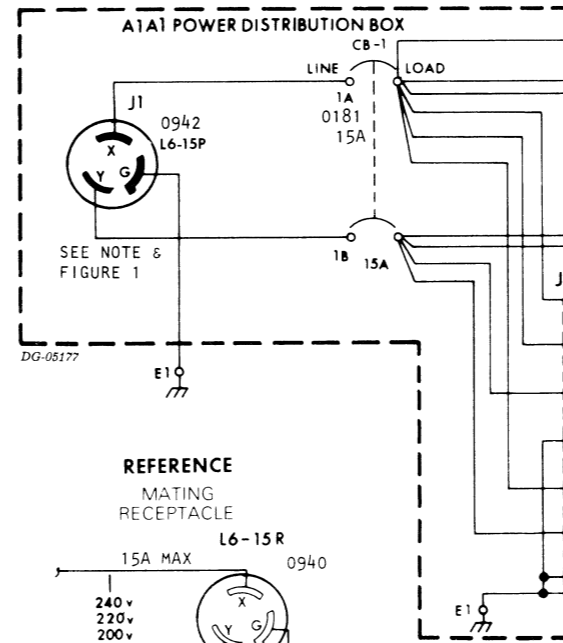
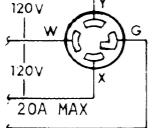


REFERENCE

MATING RECEPTACLE

L14-30R

0325

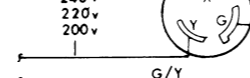


REFERENCE

MATING RECEPTACLE

L6-15R

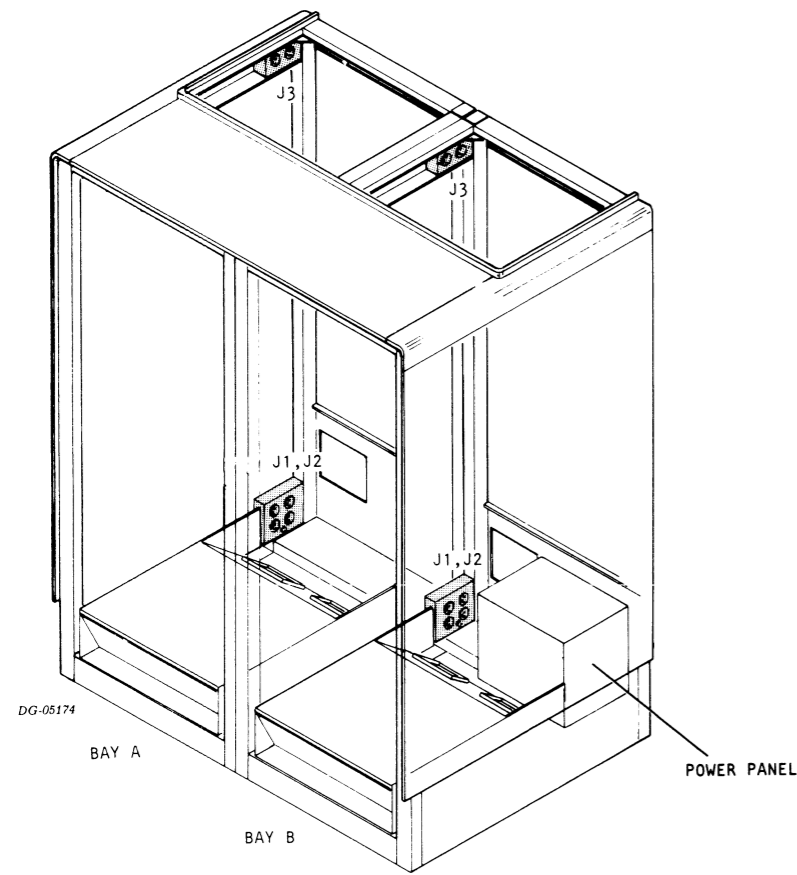
0940



# INTERNAL CABLING

## 2 BAY CABINET

**DOMESTIC 1144-B**  
HIGH CAPACITY BLOWER 0143  
**DOMESTIC 1144-G**  
STD CAPACITY BLOWER 0166



DG-05174

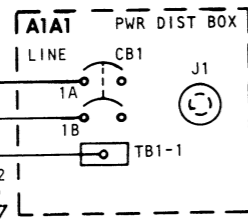
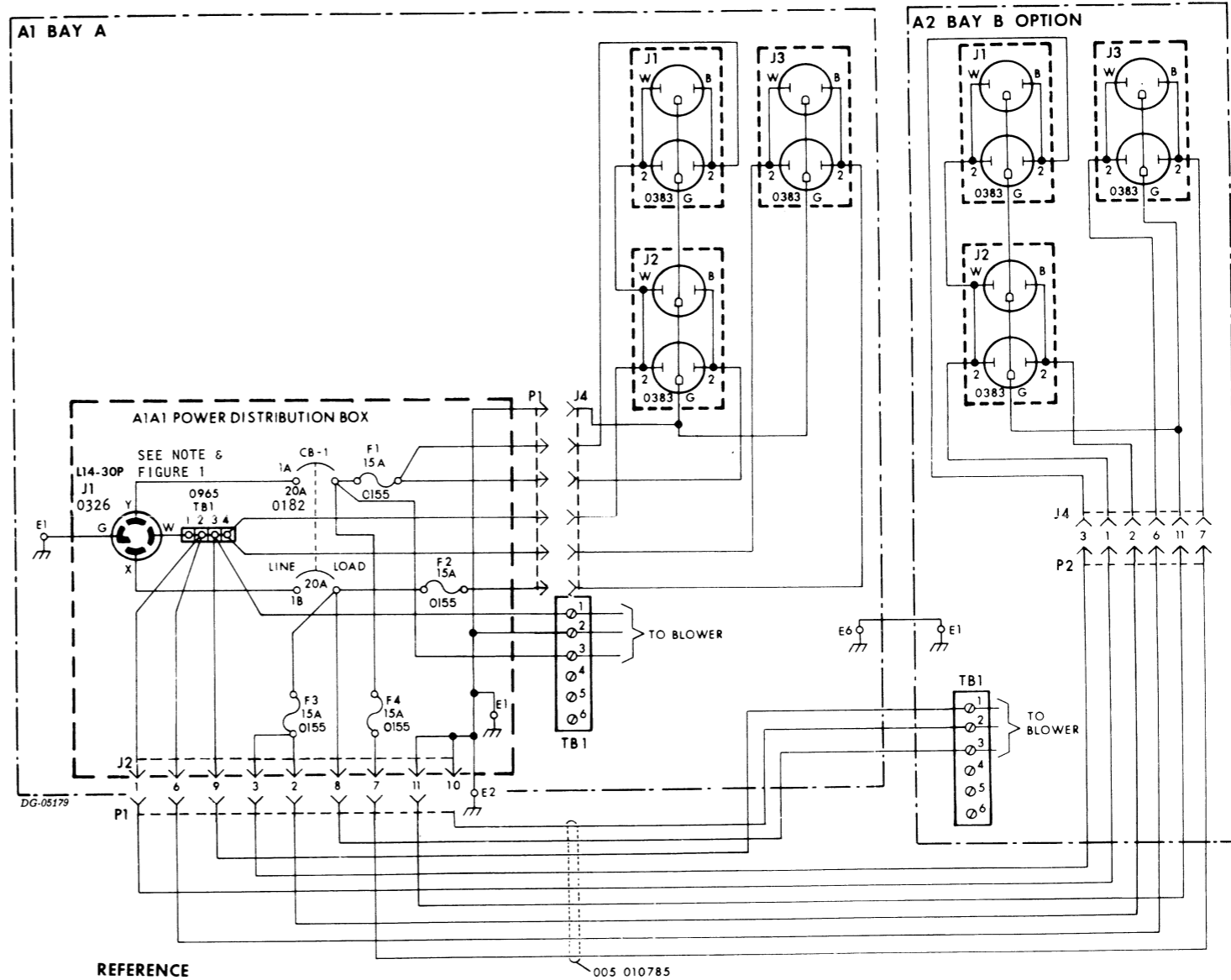


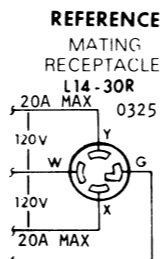
FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK THE HOLE.



DG-05179

005 010785



POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS @ 120 Vac 60 Hz	BAY A		BAY B		BAY A		BAY B	
	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A
COMBINED OUTLETS	15A*	15A*	2.5A		15A*	15A*	2.5A	
TOTAL COMBINED	20A*				20A*			

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM

INTERNAL CABLING (Cont)

2 BAY CABINET

EXPORT 1144-B1/B2/B3/B4  
HIGH CAPACITY BLOWER

EXPORT 1144-G1/G2/G3/G4  
STD CAPACITY BLOWER 0166

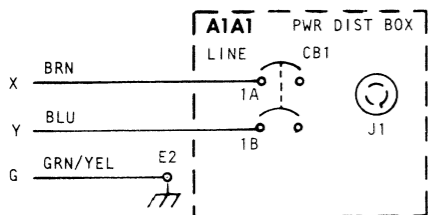
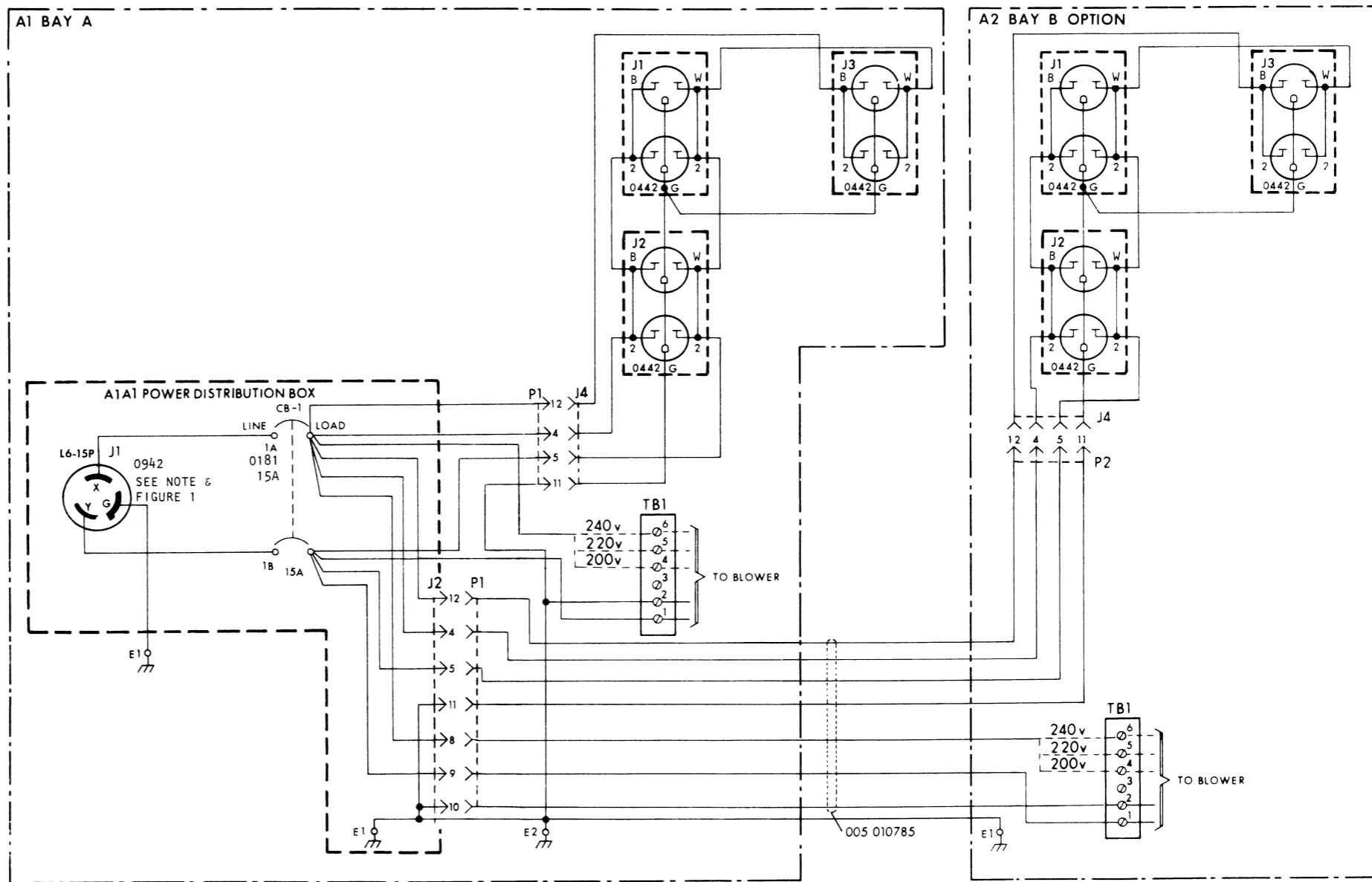
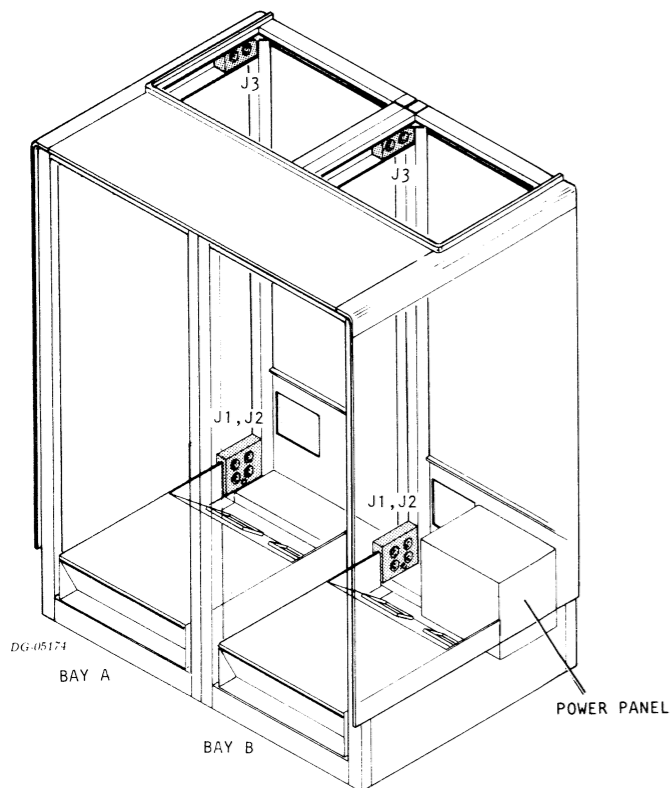
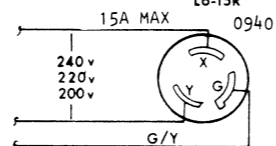


FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK HOLE.

REFERENCE  
MATING  
RECEPTACLE



POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS 200/220/240 Vac 50 Hz	BAY A				BAY B			
	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A
COMBINED OUTLETS	15A*							
TOTAL COMBINED	15A*							

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM.

# INTERNAL CABLING

## 2 BAY CABINET

DOMESTIC 1144-E/1244-E

HIGH CAPACITY BLOWER 0143

DOMESTIC 1144-J

STD CAPACITY BLOWER 0166

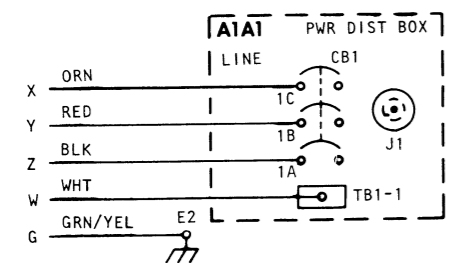
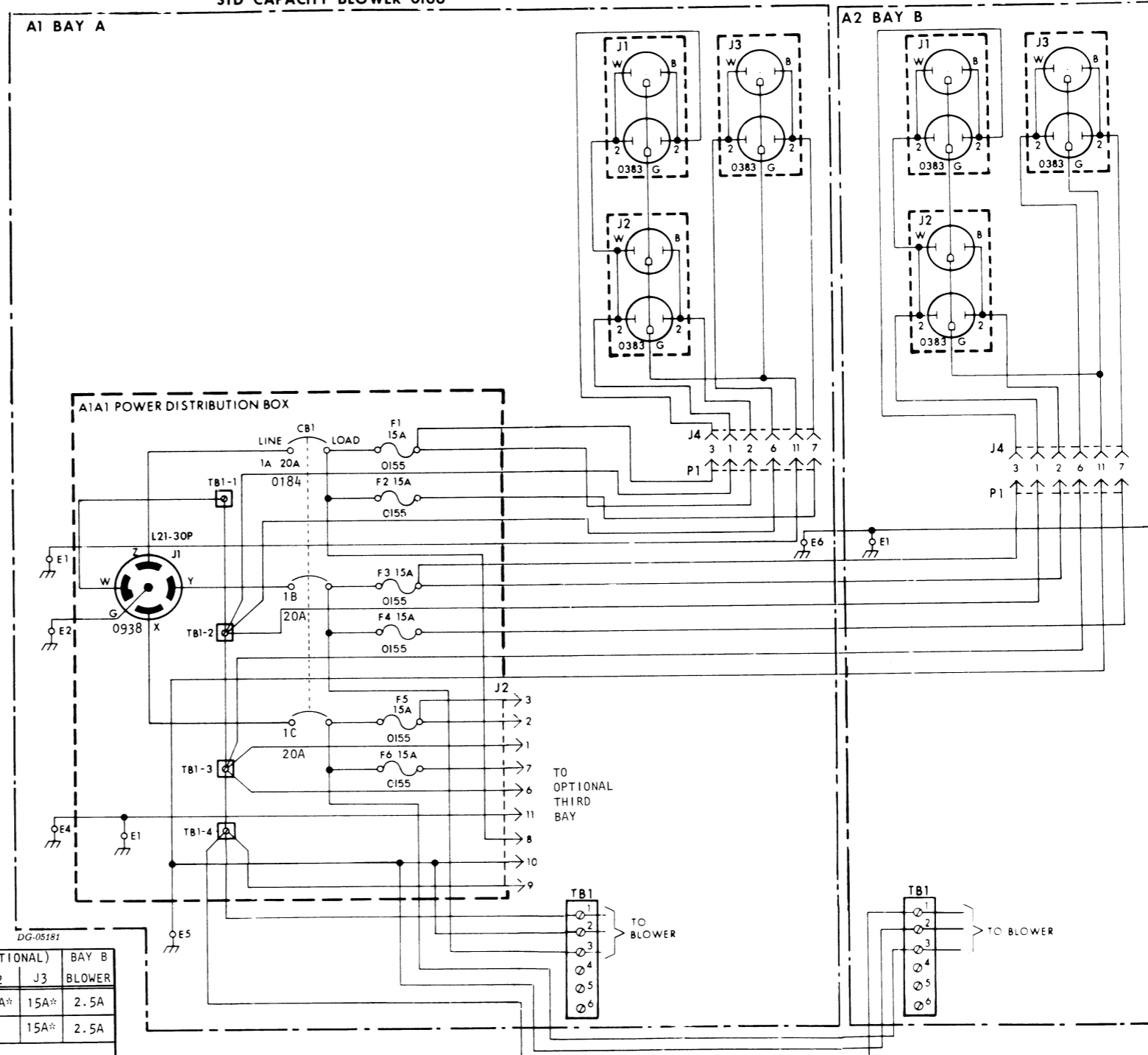
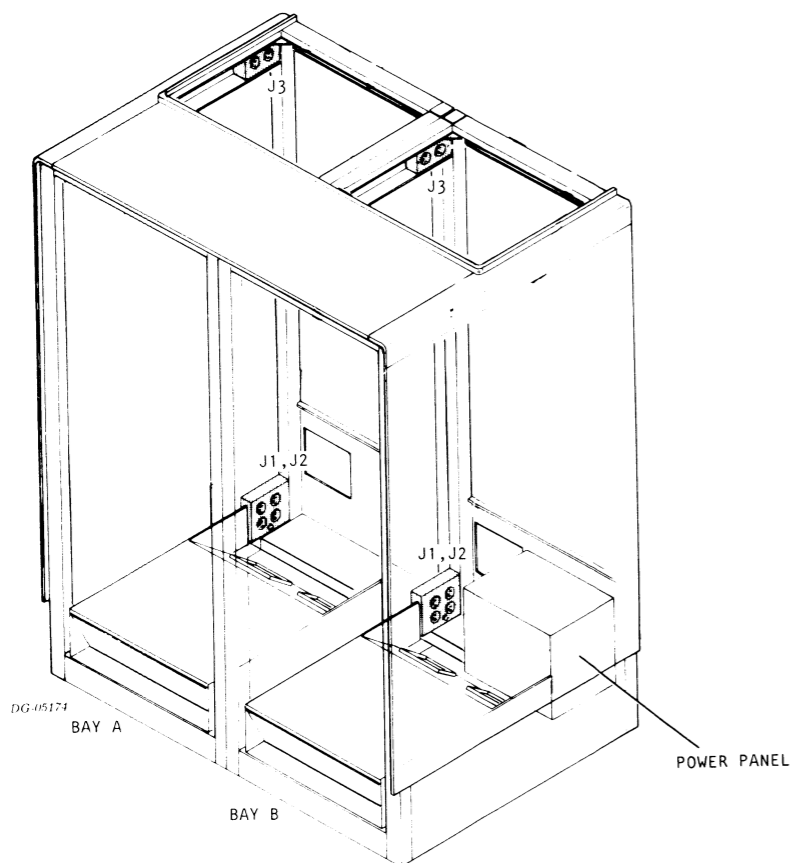


FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK HOLE.

POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS @ 120 Vac 60 Hz	BAY A			EXP BLOWER	BAY B			BAY A BLOWER	EXP (OPTIONAL) BAY B			BAY B BLOWER
	J1	J2	J3		J1	J2	J3		J1	J2	J3	
PER RECEPTACLE	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A
COMBINED OUTLETS	15A*		15A*	2.5A	15A*		15A*	2.5A	15A*		15A*	2.5A
TOTAL COMBINED	20A*				20A*				20A*			

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM.

INTERNAL CABLING (Cont)

2BAY CABINET

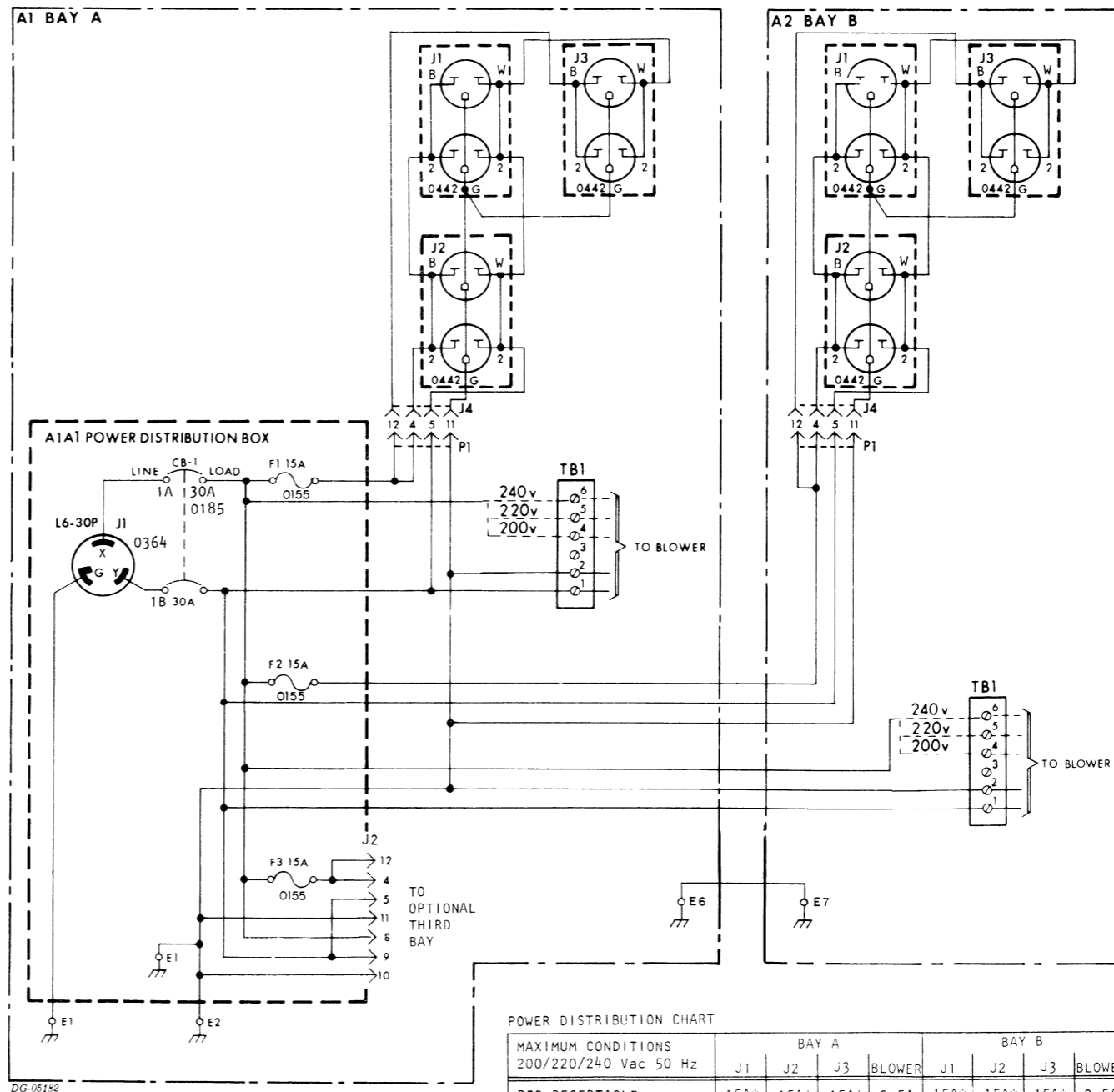
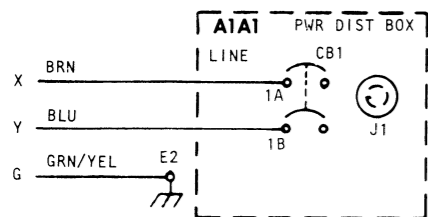
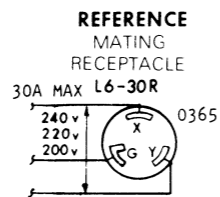
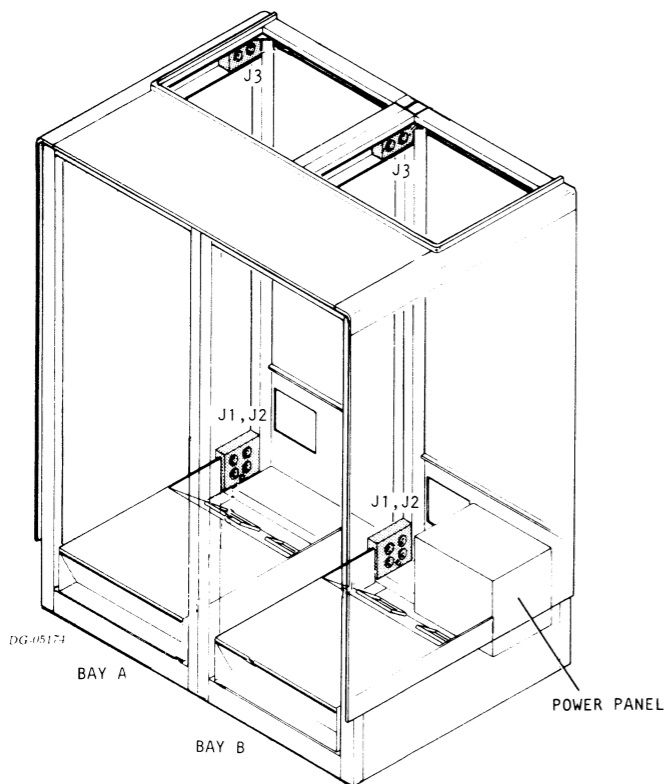
EXPORT 1244-E1/E2/E3/E4

EXPORT 1144-E1/E2/E3/E4

HIGH CAPACITY BLOWER 0142

EXPORT 1144-J1/J2/J3/J4

STD CAPACITY BLOWER 0166



POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS 200/220/240 Vac 50 Hz	BAY A				BAY B				EXP (OPTIONAL)			
	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER
PER RECEPTACLE	15A**	15A**	15A**	2.5A	15A**	15A**	15A**	2.5A	15A**	15A**	15A**	2.5A
COMBINED OUTLETS	15A**			2.5A	15A**			2.5A	15A**			2.5A
TOTAL COMBINED	30A**											

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK HOLE.

# INTERNAL CABLING (Cont)

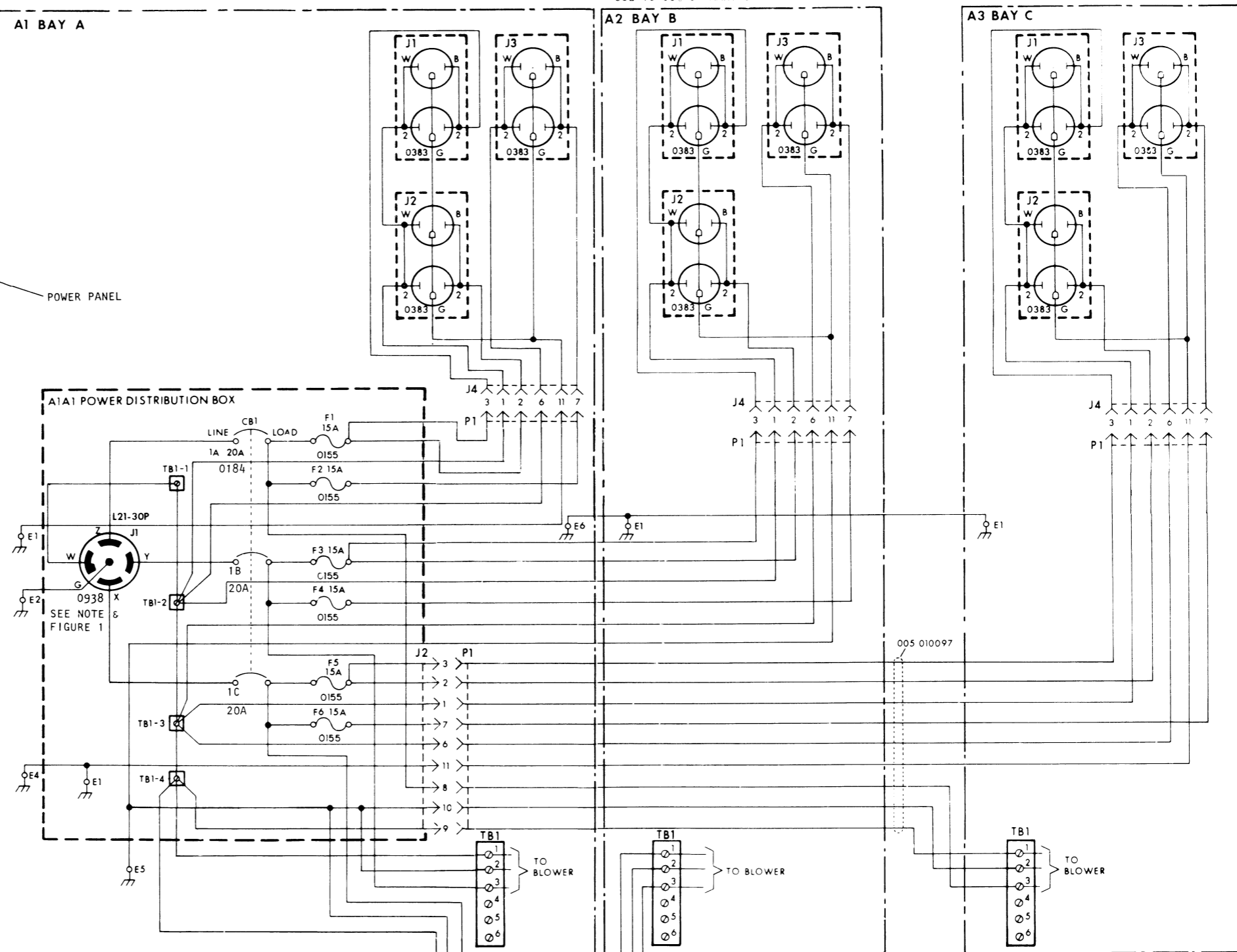
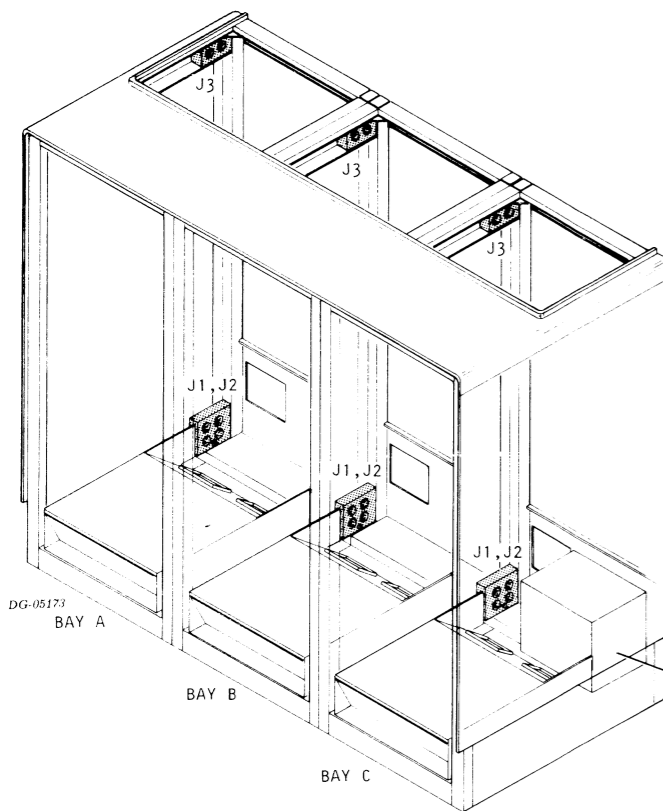
## 3 BAY CABINET

**DOMESTIC 1144-C**  
HIGH CAPACITY BLOWER 0143  
**DOMESTIC 1144-H**  
STD CAPACITY BLOWER 0166

POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS @ 120 Vac 60 Hz	BAY A				BAY B				BAY C			
	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A
COMBINED OUTLETS	15A*		15A*	2.5A	15A*		15A*	2.5A	15A*		15A*	2.5A
TOTAL COMBINED	20A*				20A*				20A*			

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM.



REFERENCE  
MATING  
RECEPTACLE  
L21-30R

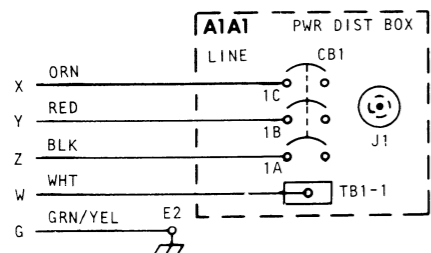
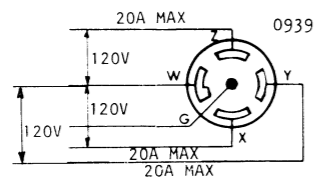


FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK HOLE.

INTERNAL CABLING (Cont)

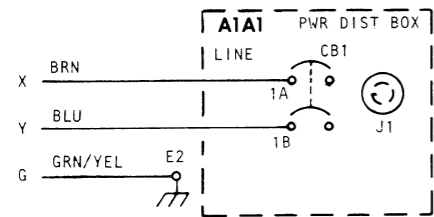
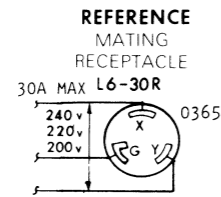
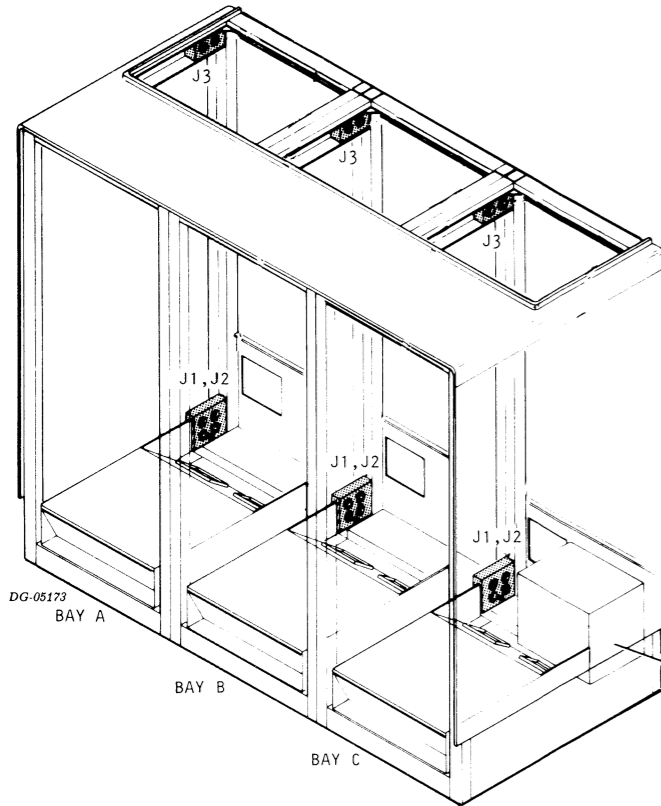
3 BAY CABINET

EXPORT 1144-C1/C2/C3/C4  
HIGH CAPACITY BLOWER 0142  
EXPORT 1144-H1/H2/H3/H4  
STD CAPACITY BLOWER 0166

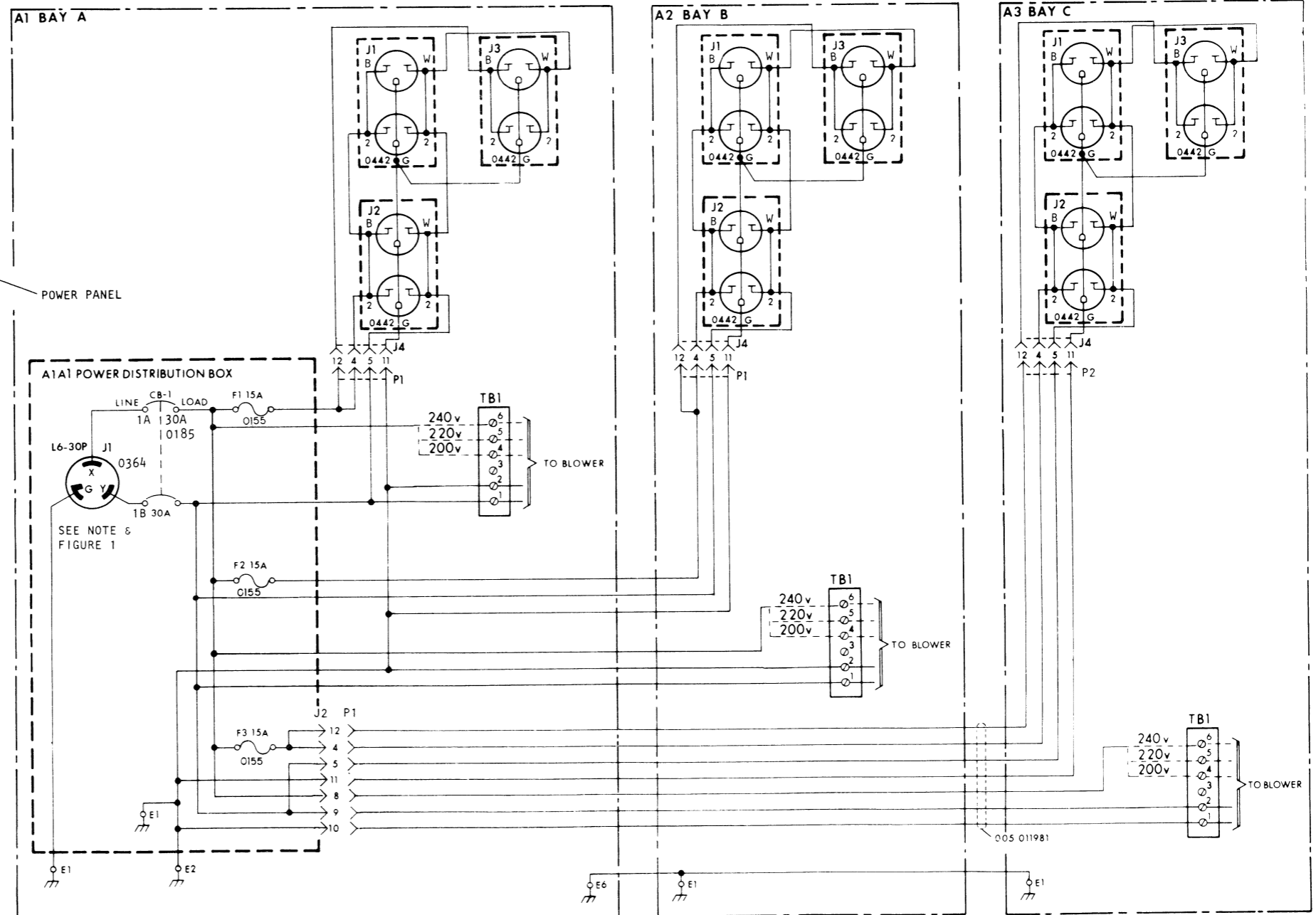
POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS 200/220/240 Vac 50 Hz	BAY A				BAY C			
	J1	J2	J3	BLOWER	J1	J2	J3	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	2.5A	15A*	15A*	15A*	2.5A
COMBINED OUTLETS	15A*			2.5A	15A*			2.5A
TOTAL COMBINED	30A*							

\* DERATE CURRENT DRAW FOR CONTINUOUS  
USE TO 80% OF MAXIMUM



FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP,  
SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1  
ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR  
IS LEFT IN TO BLOCK HOLE.



DG-05182

005 011981

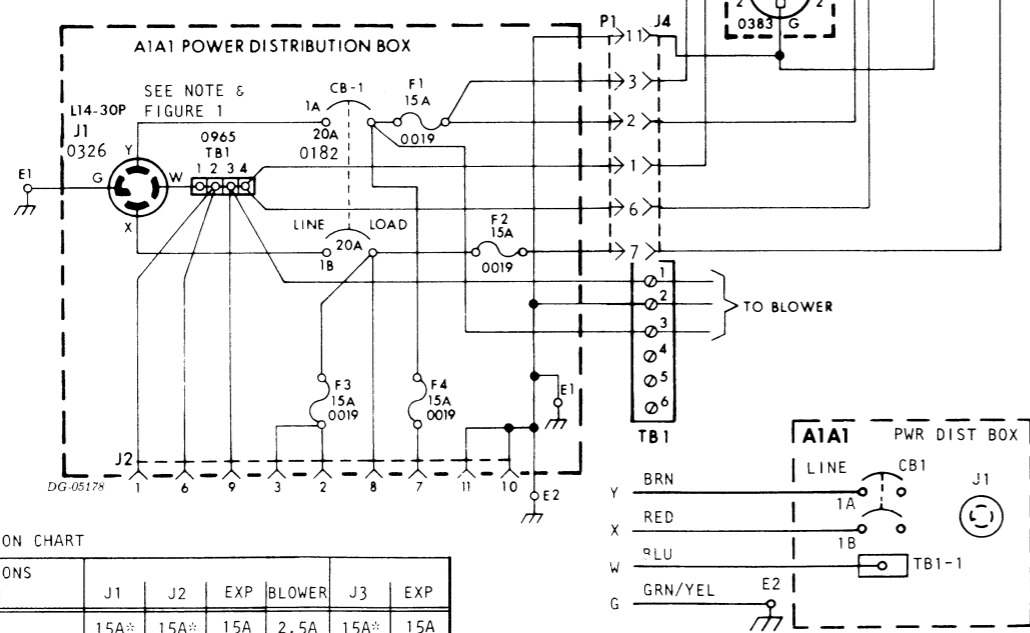
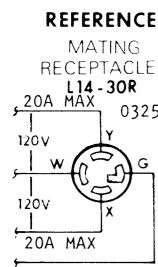
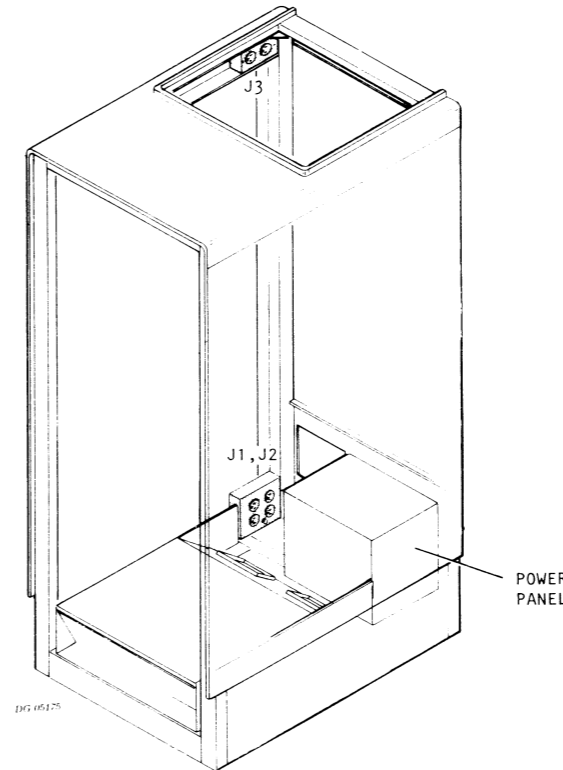
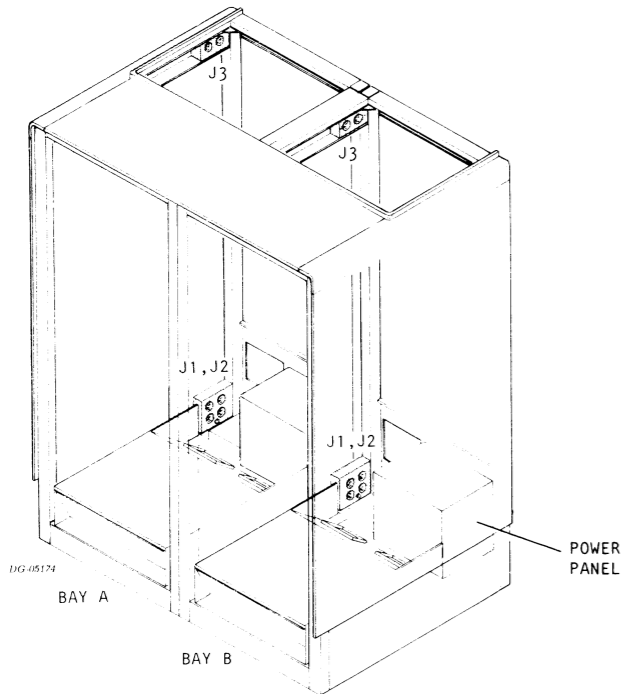


# INTERNAL CABLING (Cont)

## DOMESTIC 1244-L

## EXPORT 1244-LX

NOTE:  
POWER DISTRIBUTION CHART AND WIRING DIAGRAM INDICATE ONE BAY; WIRING AND POWER DISTRIBUTION ARE IDENTICAL FOR EACH EXISTING BAY. BOTH CABINETS ARE AVAILABLE IN DOMESTIC AND EXPORT MODELS.



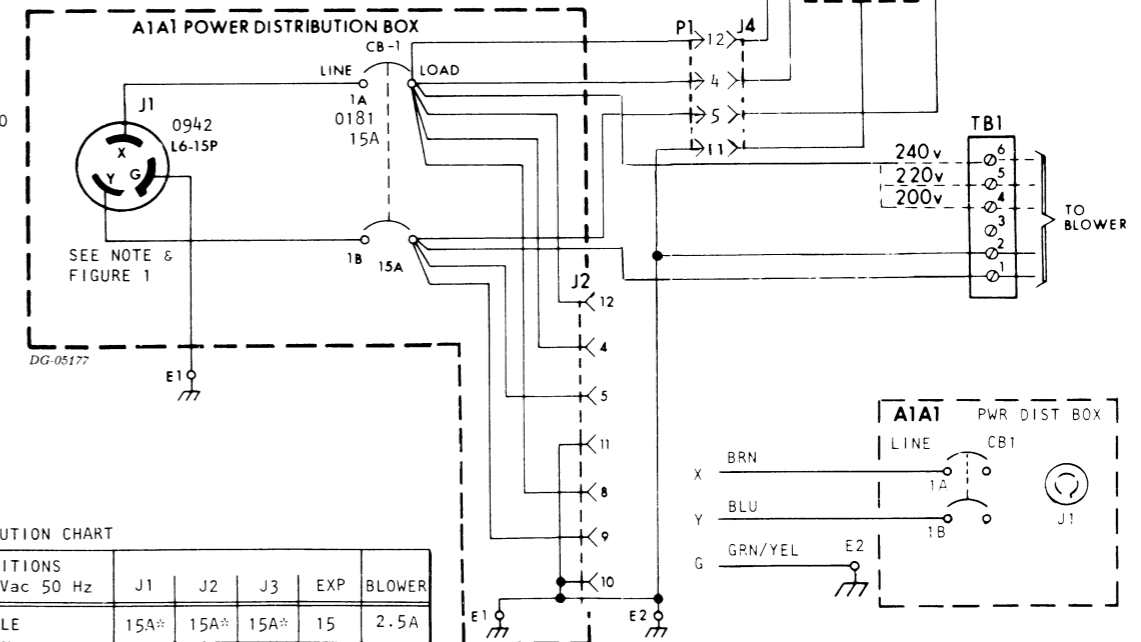
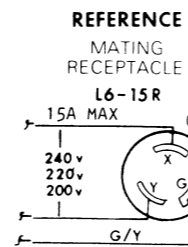
POWER DISTRIBUTION CHART

MAXIMUM CONDITIONS @ 120 Vac 60 Hz	J1	J2	EXP	BLOWER	J3	EXP
PER RECEPTACLE	15A*	15A*	15A	2.5A	15A*	15A
COMBINED OUTLETS	15A*		15A	2.5A	15A*	15A
TOTAL COMBINED	20A*				20A*	

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM.

FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK THE HOLE.



POWER DISTRIBUTION CHART

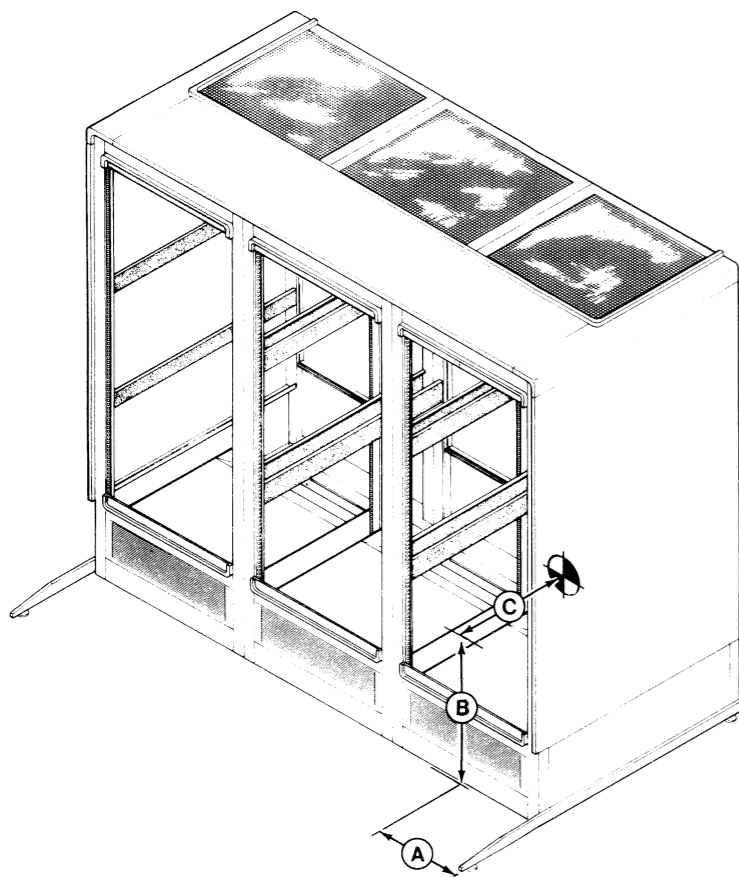
MAXIMUM CONDITIONS 200/220/240 Vac 50 Hz	J1	J2	J3	EXP	BLOWER
PER RECEPTACLE	15A*	15A*	15A*	15	2.5A
COMBINED OUTLETS	15A*				2.5A
TOTAL COMBINED	15A*				

\* DERATE CURRENT DRAW FOR CONTINUOUS USE TO 80% OF MAXIMUM

FIGURE 1

FOR OPTIONAL UNDERFLOOR POWER CORD HOOKUP, SEE FIGURE 1. JUMPERS ON NEMA CONNECTOR J1 ARE COMPLETELY REMOVED FROM UNIT. CONNECTOR IS LEFT IN TO BLOCK THE HOLE.

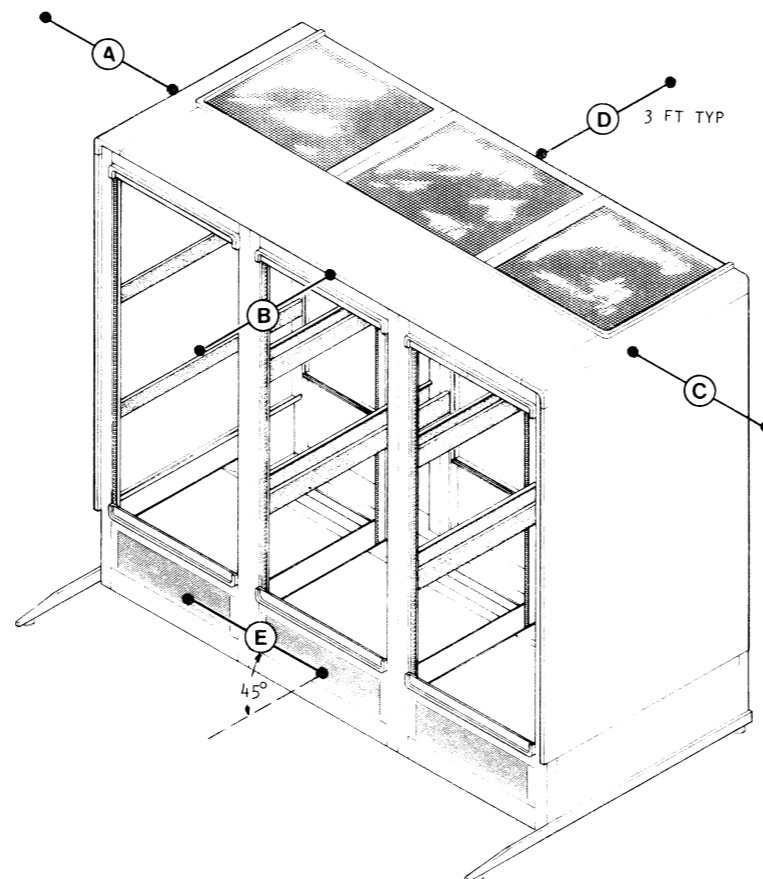
**CENTER OF GRAVITY**



	A	B	C
1BAY	11	19 3/4	15 1/2
2BAY	22	19 3/4	15 1/2
3BAY	33	19 3/4	15 1/2

DG-05185

**NOISE LEVEL**



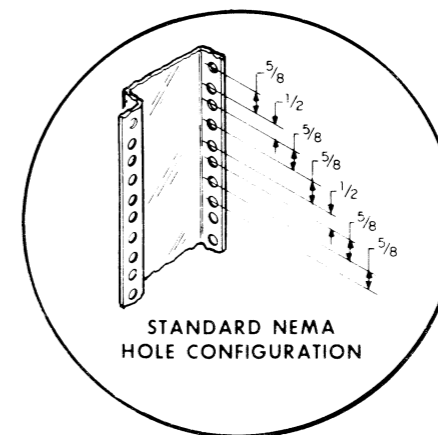
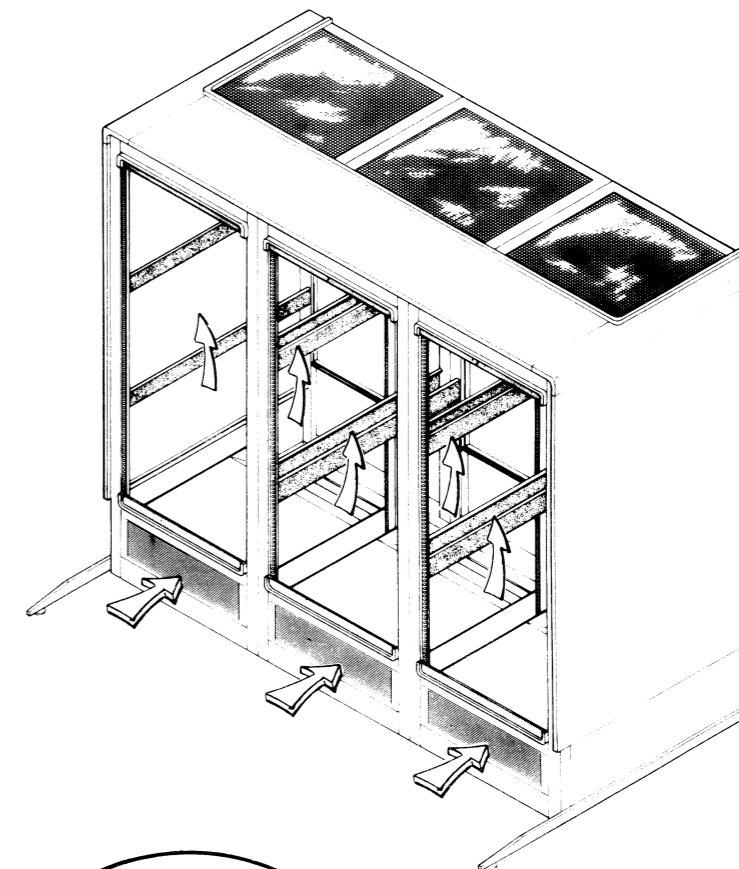
STD CAPACITY BLOWER  
APPROX NOISE LEVEL FOR  
CABINET COOLING ONLY

	AVERAGE OF READINGS A-E dB(A)	
	60HZ	50HZ
1 BAY	53	49.2
2 BAY	56	52.2
3 BAY	57.9	54.1

HIGH CAPACITY BLOWER  
APPROX NOISE LEVEL FOR  
CABINET COOLING ONLY

	AVERAGE OF READINGS A-E dB(A)	
	60HZ	50HZ
1 BAY	66.0	59.4
2 BAY	69.3	62.4
3 BAY	71.2	64.2

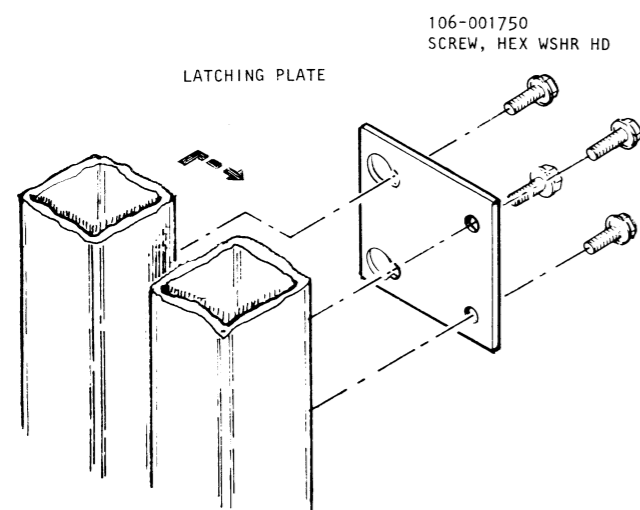
**AIR FLOW AND NEMA CONFIGURATION**



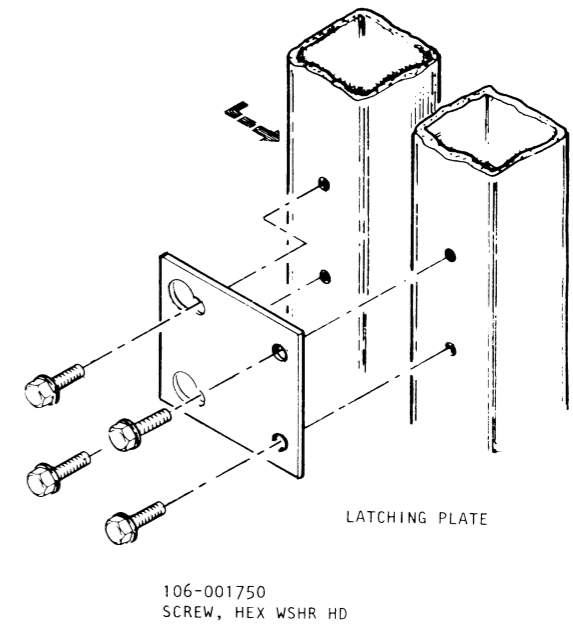
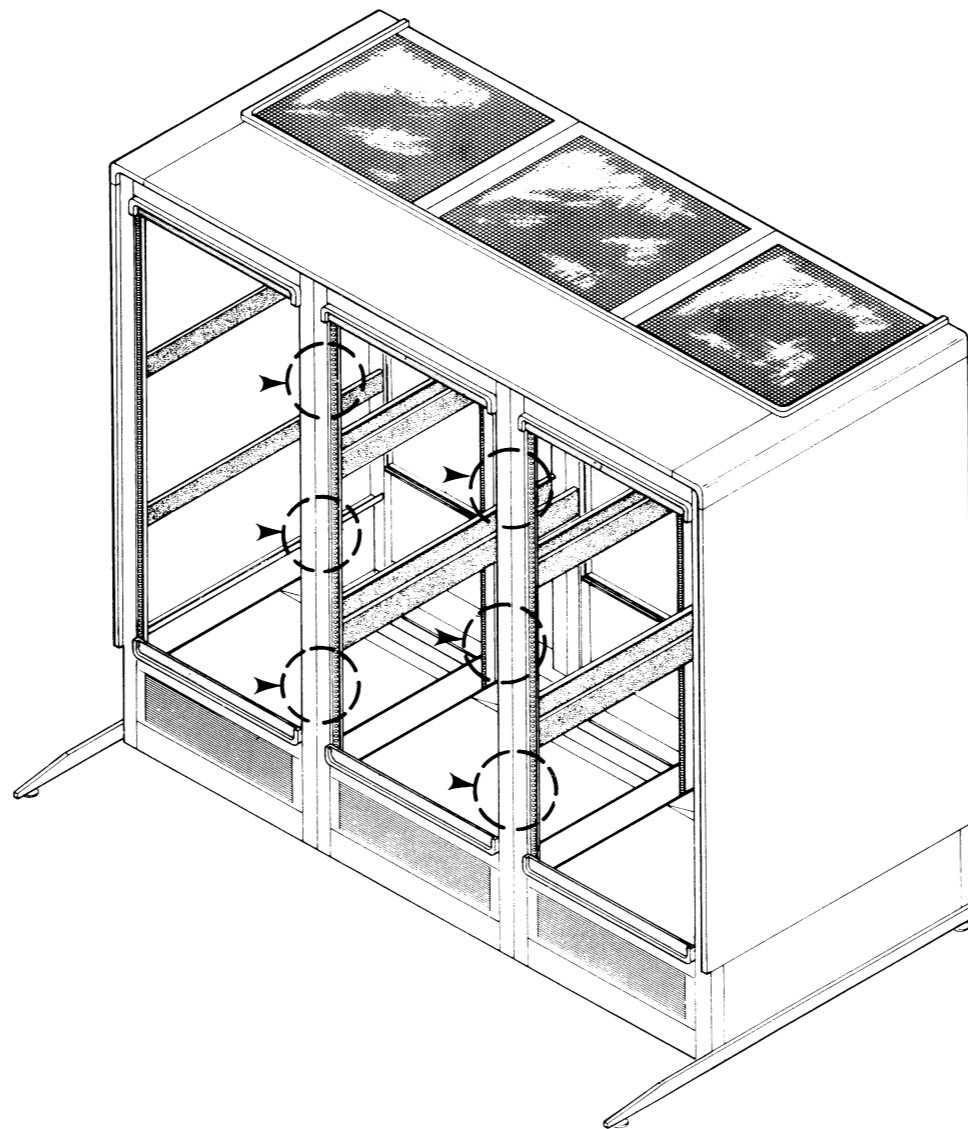
STANDARD NEMA  
HOLE CONFIGURATION

DG-05183

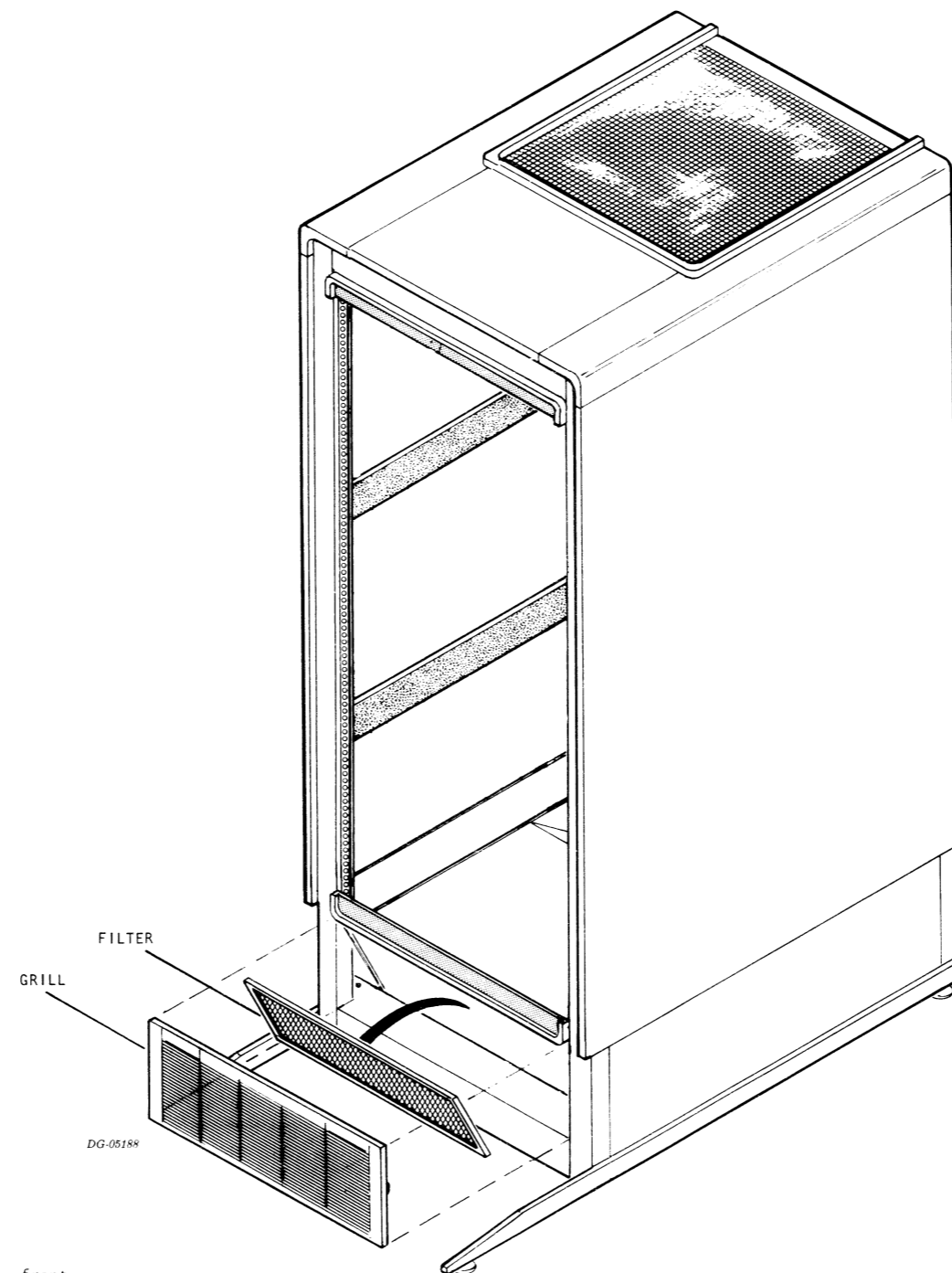
# LATCHING PLATE



DG-03104

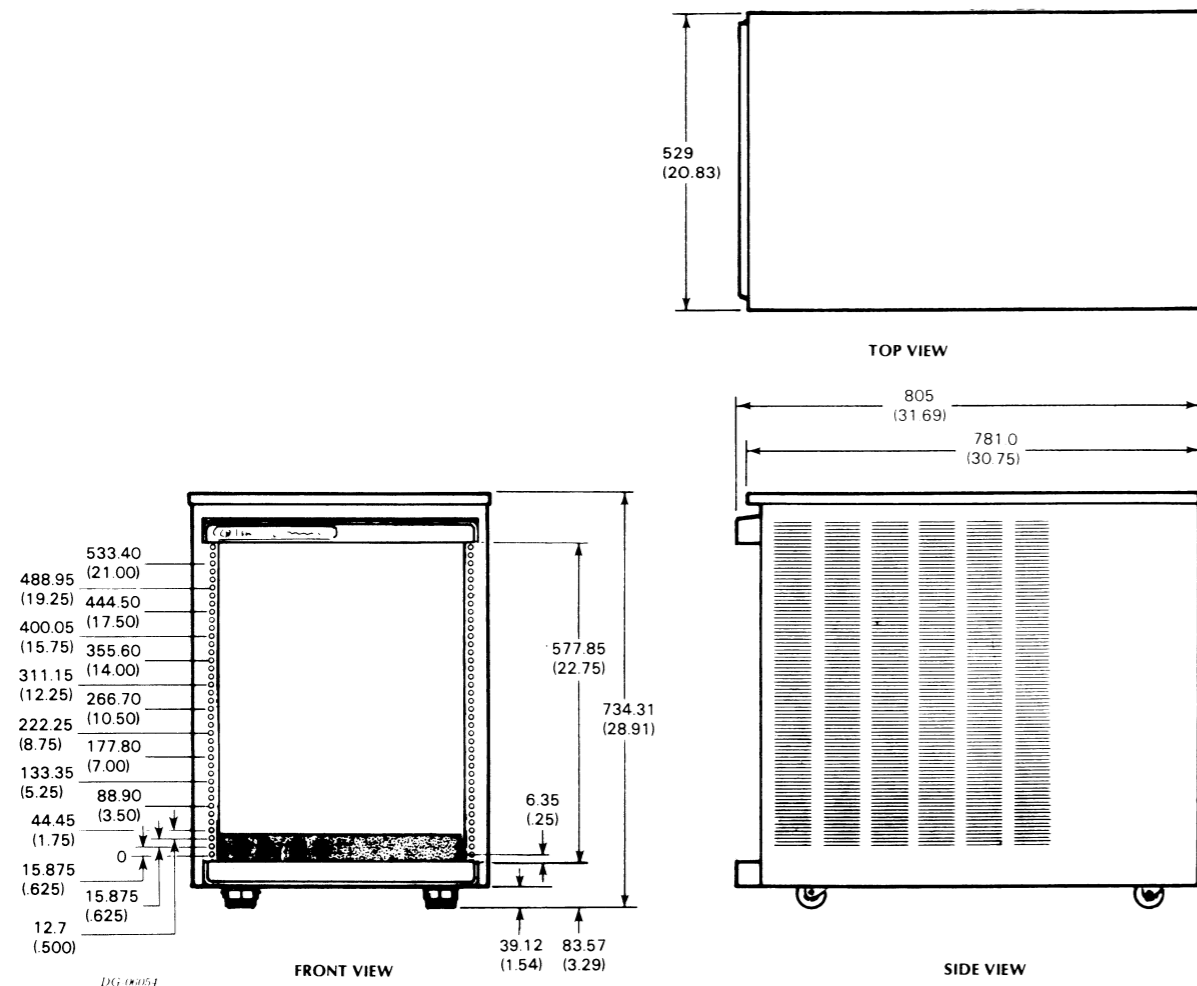


## FILTER SERVICING



A viscous impingement filter is located behind the grill in front of each cabinet blower. Adequate equipment cooling is partially dependent upon maintaining a reasonably clean filter. Recommend frequent visual checking of the filter and replacement or cleaning as situation dictates. To clean the filter flush with water, dry, spray with or dip in RP Super-Filter-Coat, allow excess to drain off and reinsert. Certain mild detergents may be used to remove hardened dirt during the cleaning process.

# INSTALLATION SPECIFICATIONS



1148-A

**CABINET WITH "BENCH" TOP**

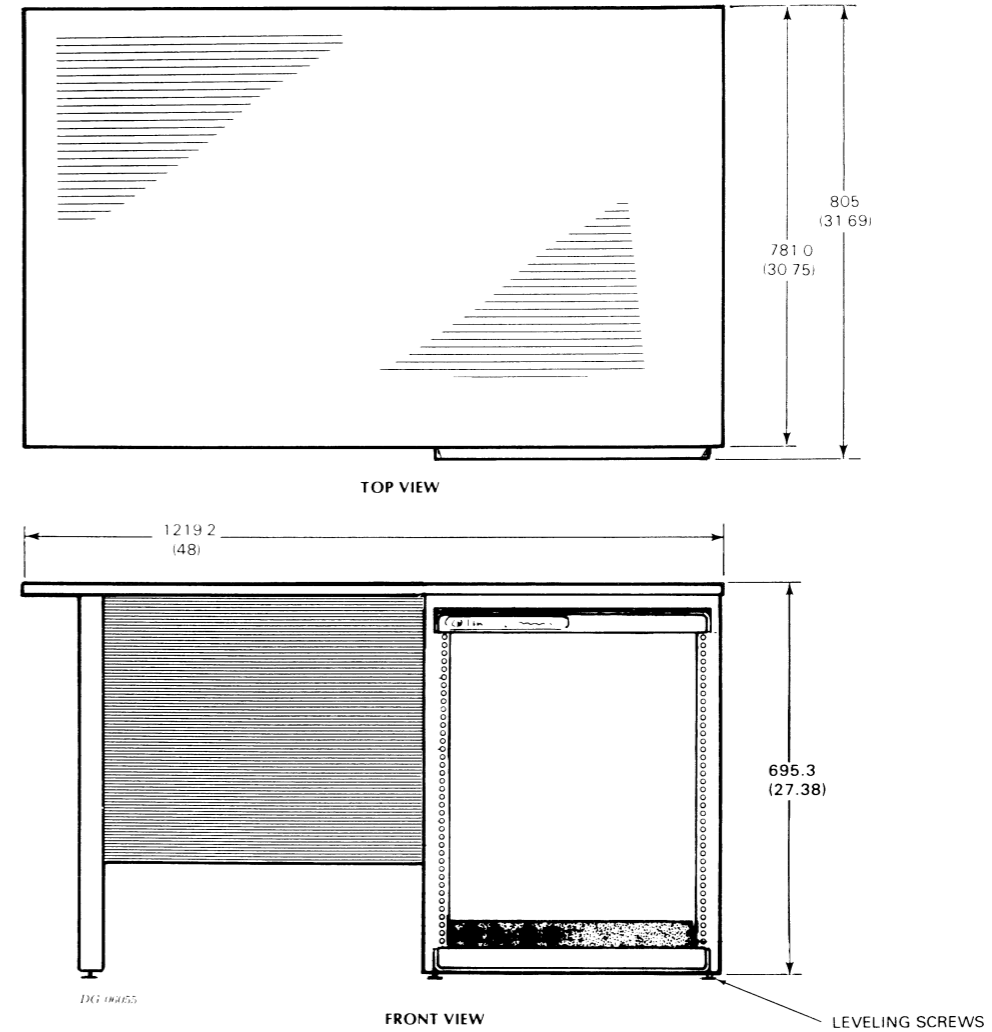
DIMENSIONS:	Width	Depth	Height
Millimeters	529	805	734.3
Inches	(20.8)	31.7	28.9

SERVICE CLEARANCES:	Front	Right	Left	Rear
Millimeters	800	152.4	152.4	609.6
Inches	31.5	6	6	24

WEIGHT:	Cabinet	Cab. Top	Anti-Tip Legs
Kilograms	30.8	6.35	4.54
Pounds	68	14	10

CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m(6')	5-15P	5-15R
Export 50Hz	1.8m(6')	6-15P	6-15R

**POWER AVAILABLE**  
 Internal Receptacles 12A (Limited by cable)



1148-B

**CABINET WITH "DESK" TOP**

DIMENSIONS:	Width	Depth	Height
Millimeters	1219.2	805	695.3
Inches	48	31.7	(27.38)

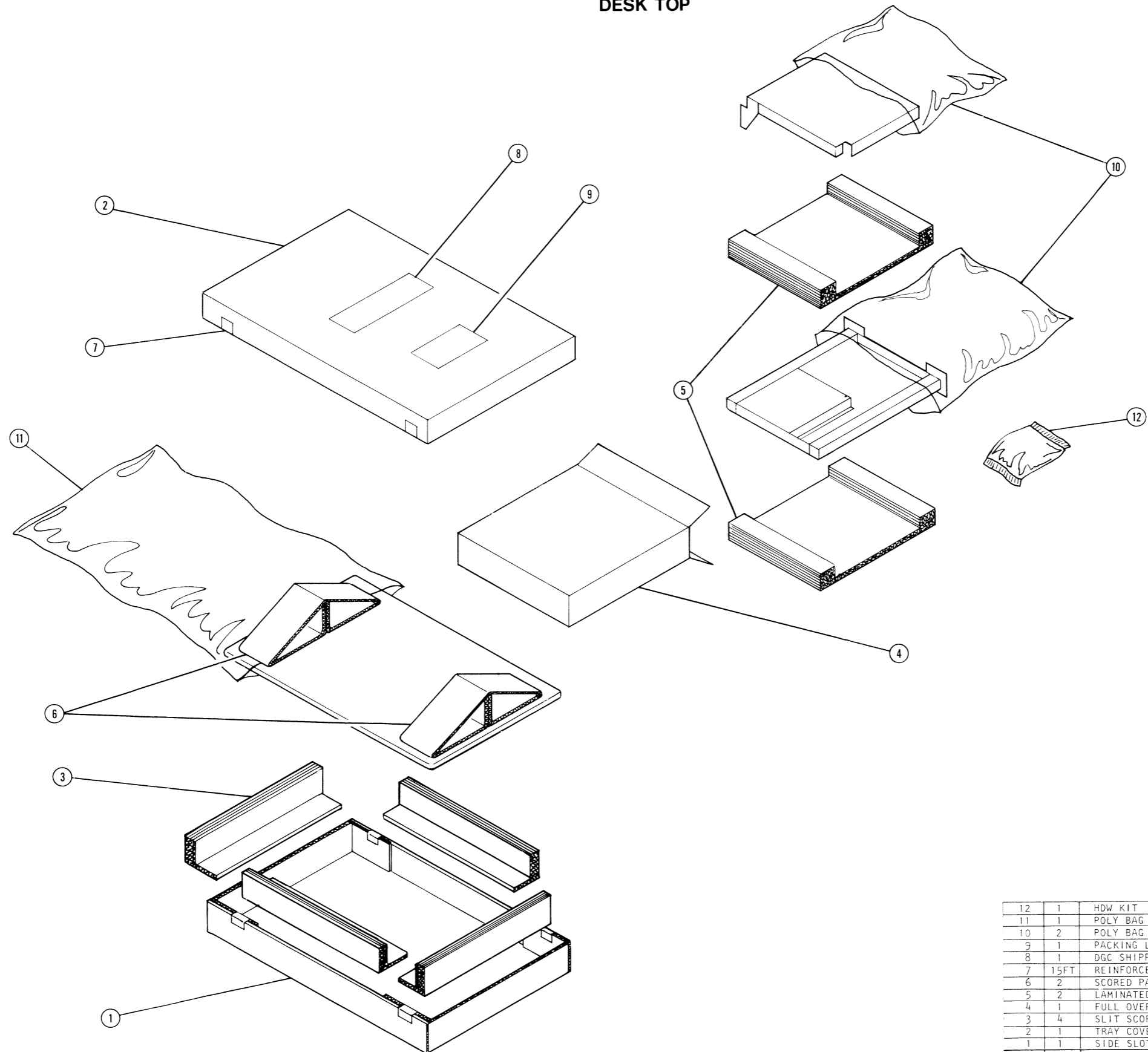
SERVICE CLEARANCES:	Front	Right	Rear
Millimeters	800	152.4	609.6
Inches	31.5	6	24

WEIGHT:	Cabinet	Cab. Top
Kilograms	30.8	19.5
Pounds	68	43

CABLES:	Length	Conn	Mating Conn
Primary Power			
Domestic 60Hz	1.8m(6')	5-15P	5-15R
Export 50Hz	1.8m(6')	6-15P	6-15R

**POWER AVAILABLE**  
 Internal Receptacles 12A (Limited by cable)

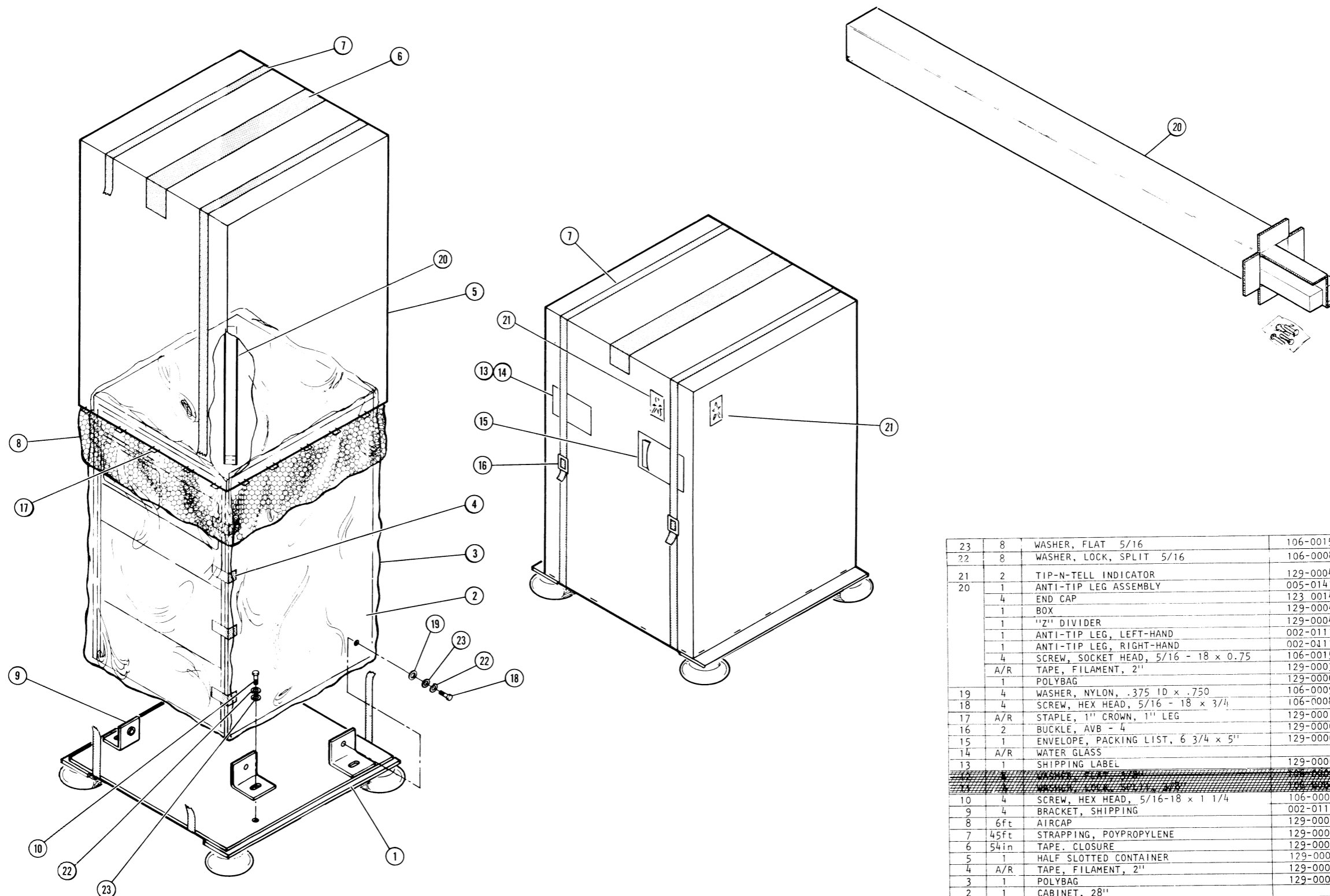
SHIPPING  
DESK TOP



12	1	HDW KIT	005-15437
11	1	POLY BAG FLAT	129-454
10	2	POLY BAG GUSSETED	129-456
9	1	PACKING LIST ENVELOPE	129-042
8	1	DGC SHIPPING LABEL	129-030
7	15FT	REINFORCED SEALING TAPE	129-027
6	2	SCORED PAD	129-849
5	2	LAMINATED PAD	129-848
4	1	FULL OVERLAP CONTAINER	129-847
3	4	SLIT SCORED PAD	129-846
2	1	TRAY COVER	129-845
1	1	SIDE SLOTTED TRAY	129-844
ITEM	QTY.	DESCRIPTION	PART NO.

# SHIPPING (CONT)

## CABINET



23	8	WASHER, FLAT 5/16	106-001566
22	8	WASHER, LOCK, SPLIT 5/16	106-000808
21	2	TIP-N-TELL INDICATOR	129-000469
20	1	ANTI-TIP LEG ASSEMBLY	005-014148
	4	END CAP	123 001490
	1	BOX	129-000442
	1	"Z" DIVIDER	129-000443
	1	ANTI-TIP LEG, LEFT-HAND	002-011159
	1	ANTI-TIP LEG, RIGHT-HAND	002-011156
	4	SCREW, SOCKET HEAD, 5/16 - 18 x 0.75	106-001567
	A/R	TAPE, FILAMENT, 2"	129-000370
	1	POLYBAG	129-000045
19	4	WASHER, NYLON, .375 ID x .750	106-000975
18	4	SCREW, HEX HEAD, 5/16 - 18 x 3/4	106-000806
17	A/R	STAPLE, 1" CROWN, 1" LEG	129-000165
16	2	BUCKLE, AVB - 4	129-000025
15	1	ENVELOPE, PACKING LIST, 6 3/4 x 5"	129-000042
14	A/R	WATER GLASS	
13	1	SHIPPING LABEL	129-000030
12	4	SCREW, HEX HEAD, 5/16-18 x 1 1/4	106-000807
11	4	BRACKET, SHIPPING	002-011328
10	4	SCREW, HEX HEAD, 5/16-18 x 1 1/4	106-000807
9	4	BRACKET, SHIPPING	002-011328
8	6ft	AIRCAP	129-000035
7	45ft	STRAPPING, POYPROPYLENE	129-000123
6	54in	TAPE, CLOSURE	129-000027
5	1	HALF SLOTTED CONTAINER	129-000515
4	A/R	TAPE, FILAMENT, 2"	129-000370
3	1	POLYBAG	129-000448
2	1	CABINET, 28"	
1	1	PALLET	129-513 OR 129-625
ITEM	QTY	DESCRIPTION	PART NO.

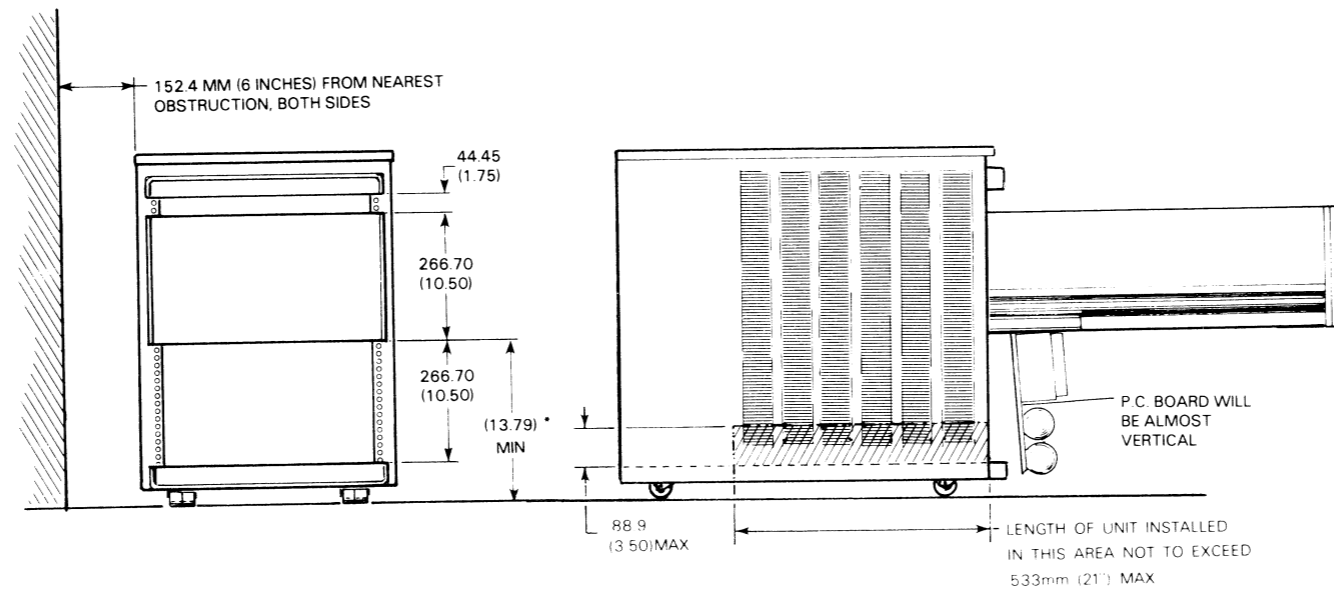
DG-08162

CABINET, SERIES 1148

## RACK MOUNTING

### SOME CONFIGURATION CONSTRAINTS

EXAMPLE: CARTRIDGE DISCS,  
SERIES 6045-6051 and 6070



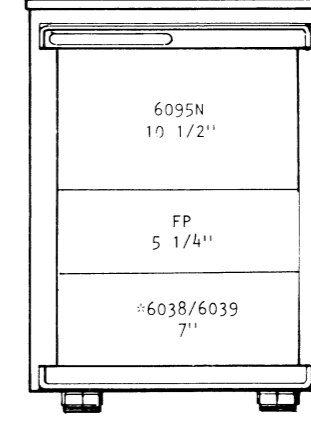
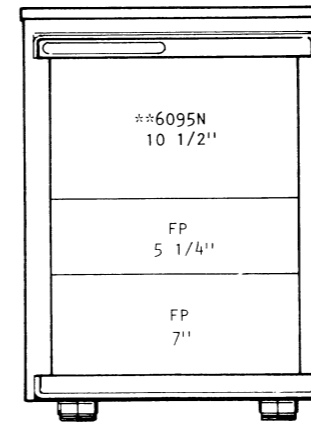
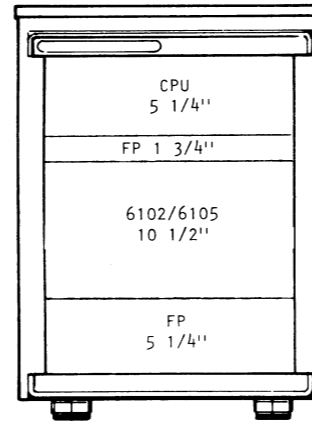
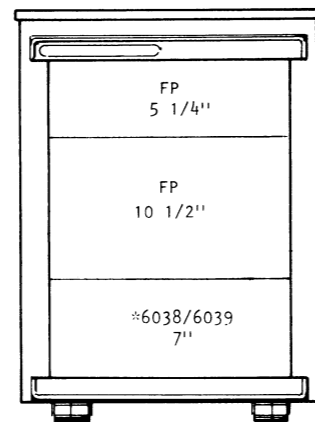
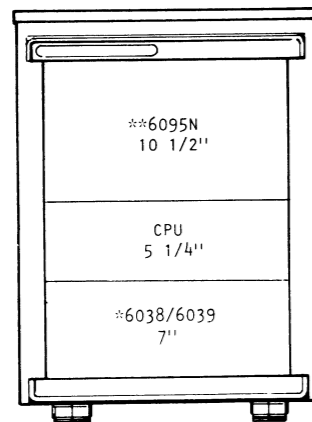
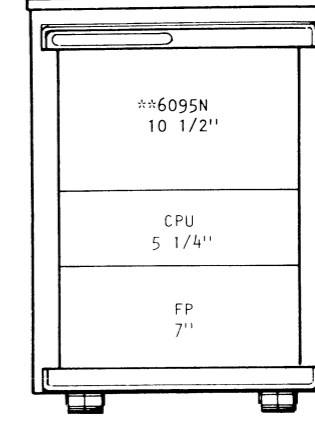
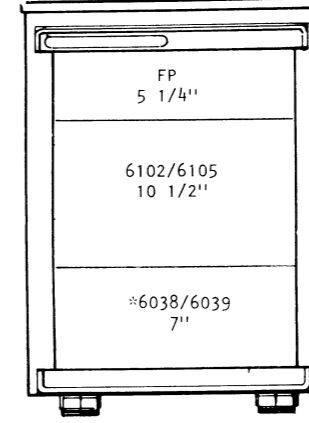
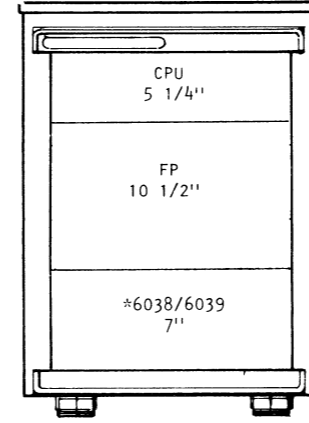
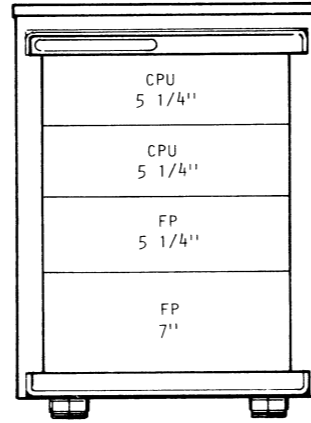
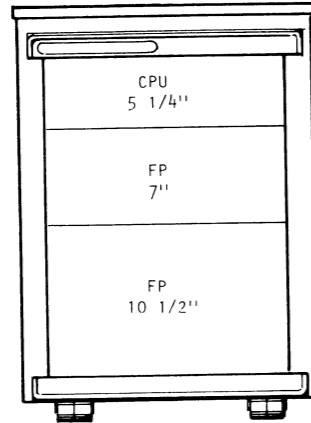
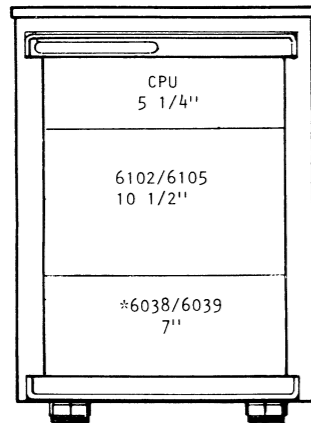
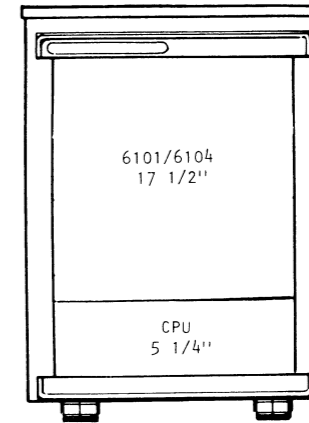
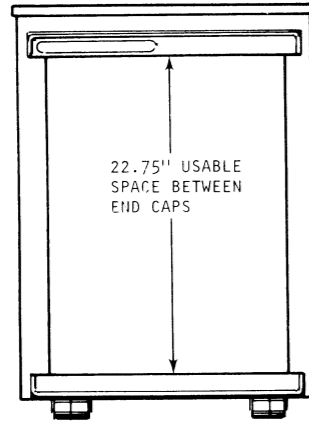
\* 13.79" FALLS BETWEEN THE HALF INCH SPACING REQUIRED BY NEMA STANDARDS. HOWEVER, DUE TO TOLERANCES THIS NUMBER IS ONLY AN APPROXIMATION.

DIMENSIONS ARE IN MILLIMETERS, DIMENSIONS IN PARENTHESES ARE INCHES FOR REFERENCE.



# RACK MOUNTING (CONT)

## ALLOWABLE CABINET CONFIGURATIONS 1148-A / 1148-A2 LOWBOY CABINET (MP/100 - MP/200)



ALL 1148-A/1148-A2 LOWBOY CABINET CONFIGURATIONS REQUIRE ANTI-TIP LEGS.

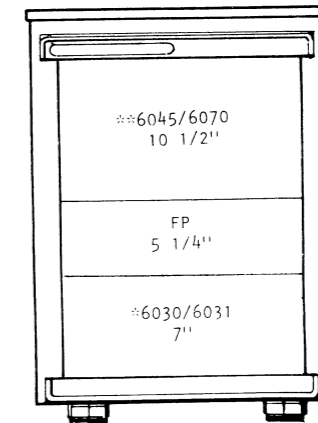
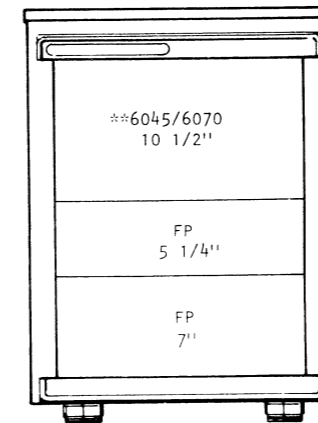
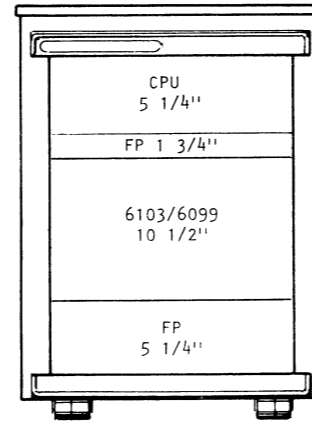
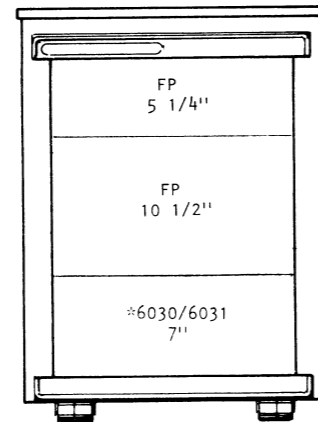
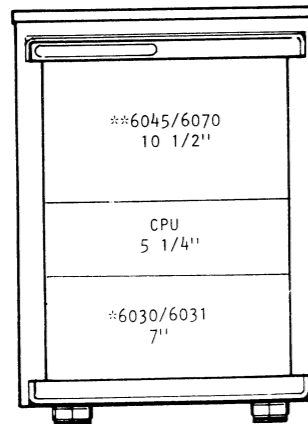
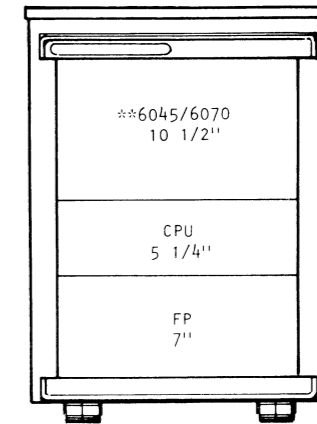
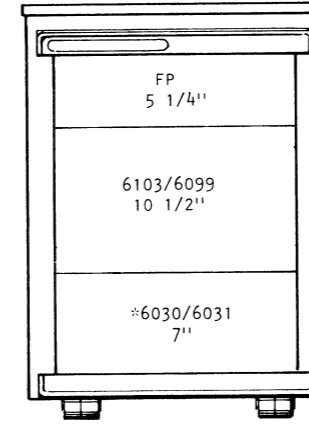
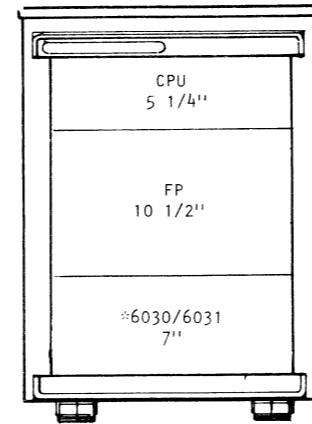
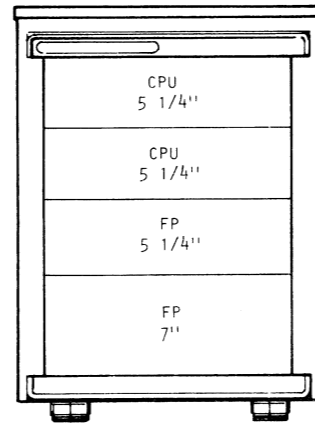
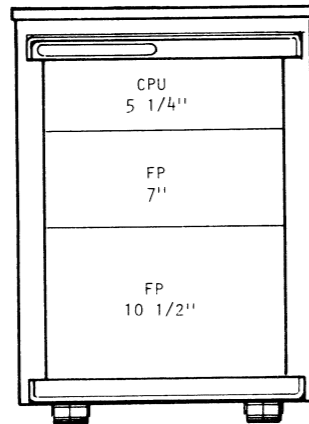
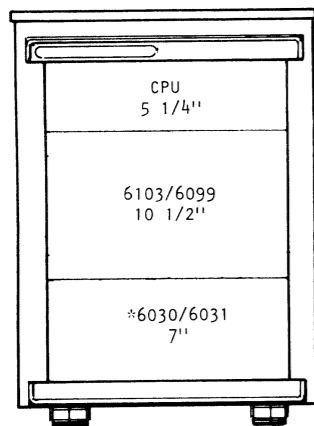
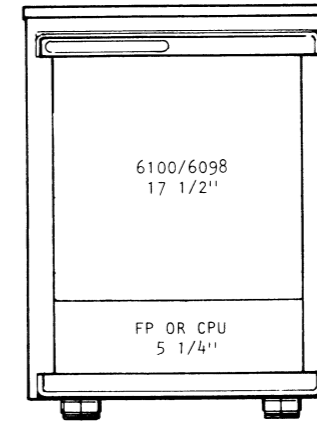
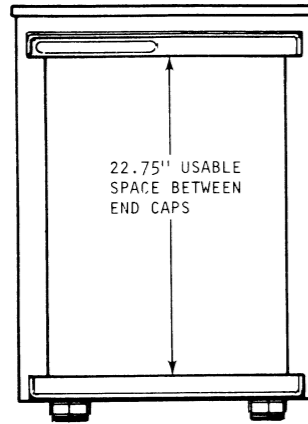
\* MAY USE PREFERRED 6096A/6096B. THIS UNIT MAY BE MOVED HIGHER IN CABINET PROVIDED HEAT GENERATING EQUIPMENT IS NOT PLACED UNDER IT.

\*\* CANNOT BE CONFIGURED IN DESK-TOP.

### RACK MOUNTING (CONT)

#### ALLOWABLE CABINET CONFIGURATIONS 1148-A / 1148-A2 LOWBOY CABINET

#### NOVA 4



ALL 1148-A/1148-A2 LOWBOY CABINET CONFIGURATIONS REQUIRE ANTI-TIP LEGS.

\* MAY USE PREFERRED 6096A/6096B. THIS UNIT MAY BE MOVED HIGHER IN CABINET PROVIDED HEAT GENERATING EQUIPMENT IS NOT PLACED UNDER IT.

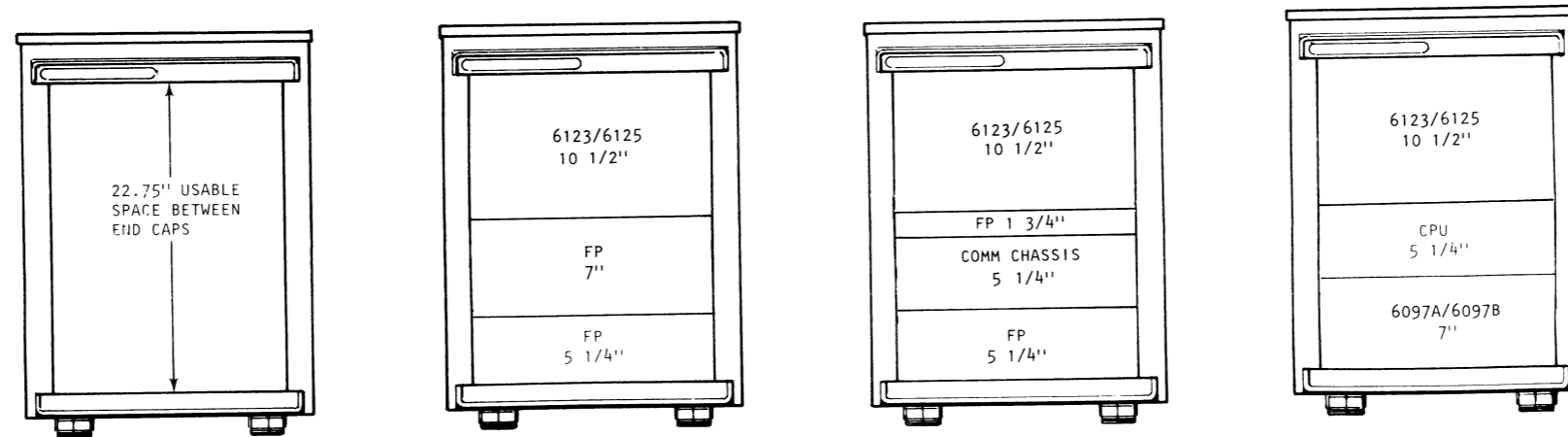
\*\* CANNOT BE CONFIGURED IN DESK-TOP.

# RACK MOUNTING (CONT)

## ALLOWABLE CABINET CONFIGURATIONS

### 1148-A / 1148-A2 LOWBOY CABINET

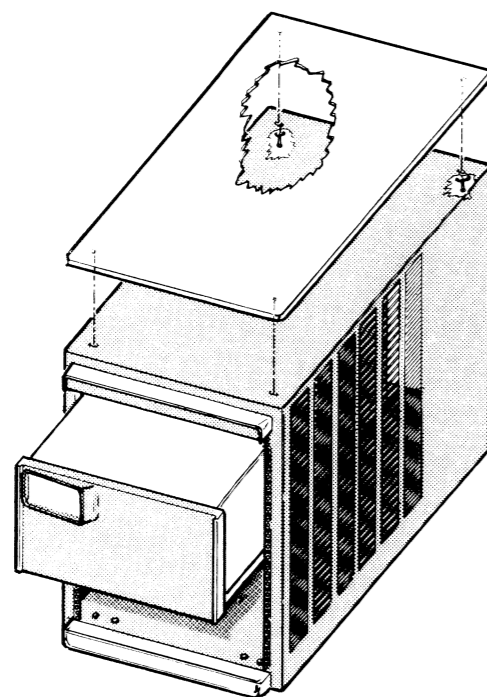
( 6123 / 6125 TAPE DRIVES )



ALL 1148-A/1148-A2 LOWBOY CABINET CONFIGURATIONS REQUIRE ANTI-TIP LEGS.

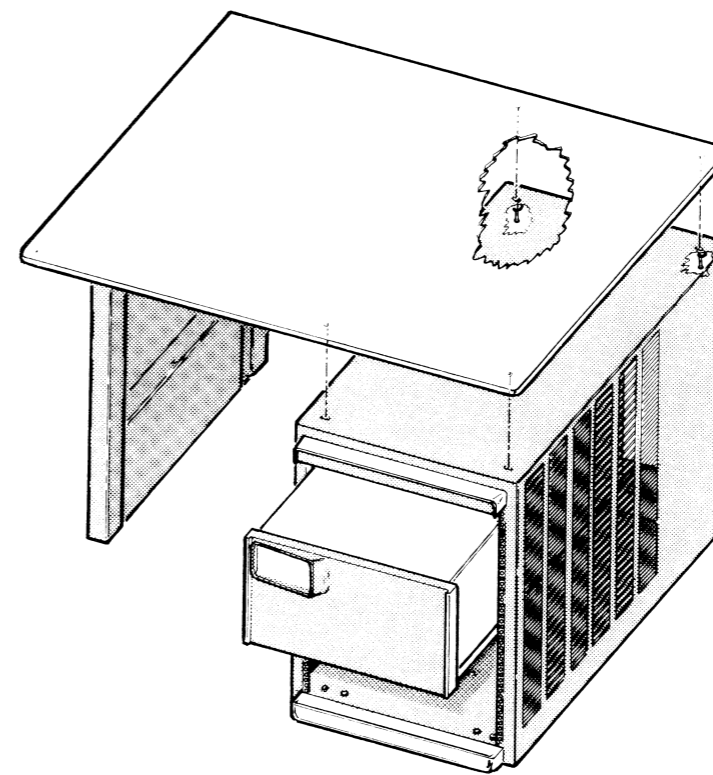
MOUNTING CABINET TOPS

"BENCH" TOP



FOR MOUNTING TOP:  
 SCREWS, 10 - 32 X 1/2  
 DGC 106-000353  
 QTY 4  
 WASHERS, FLAT, #10  
 DGC 106-000263  
 QTY 4

"DESK" or LARGE TABLE TOP

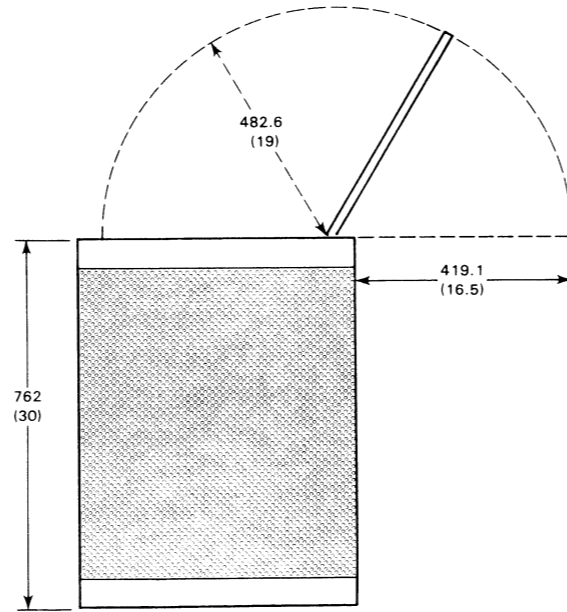


FOR ASSEMBLING AND  
 MOUNTING TOP:  
 SCREWS, 10 - 32 X 1/2  
 DGC 106-000353  
 QTY 10  
 WASHERS, FLAT, #10  
 DGC 106-000263  
 QTY 10

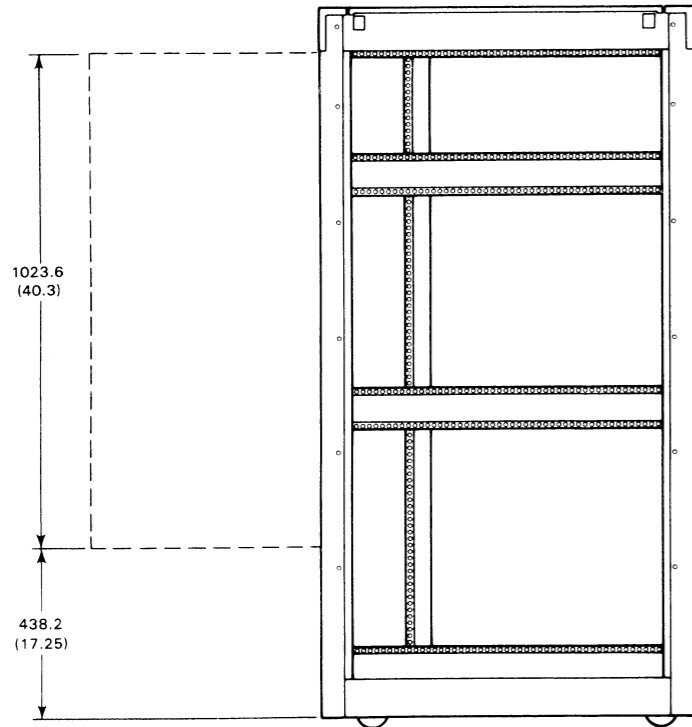
DG-06049

IT IS IMPERATIVE WHEN MOUNTING THE LARGE TABLE TOP THAT THE TWO REAR MOUNTING SCREWS BE INSERTED FIRST AND TIGHTENED. THEN SLIDE THE TOP CHASSIS OUT FULLY TO ACCESS THE FRONT MOUNTING LOCATIONS. INSERT TWO SCREWS AND TIGHTEN.

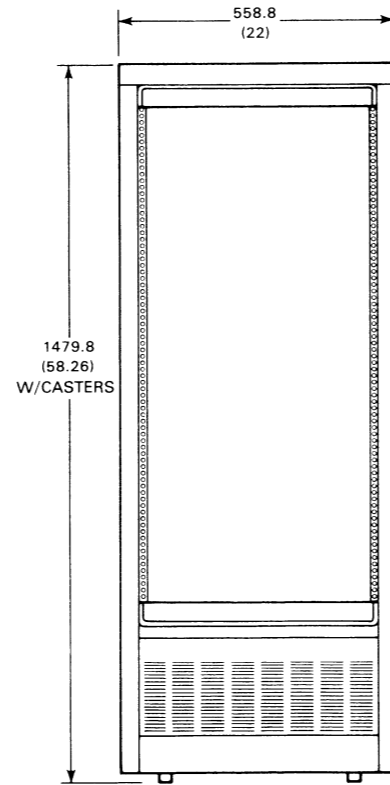
### INSTALLATION SPECIFICATIONS



TOP



SIDE



FRONT

DIMENSIONS:	Width	Depth	Height
Millimeters	558.8	762	1479.8
Inches	22	30	58.26
			(Including casters)

SERVICE CLEARANCES:	Front	Rear	Right	Left
Millimeters	762	482.6	419.1	419.1
Inches	30	19	16.5	16.5

WEIGHT:	Empty
Kilograms	100
Pounds	220

HEAT OUTPUT:	Watts	BTU/hr
	140	477.4

USABLE VERTICAL RACK SPACE PER BAY:	Areas	Inches	CM
	25	43.75	111

**POWER REQUIREMENTS:**

(Domestic)

Voltage 120V (2 CKT)

Hz 60

Max Amp per Phase 15A /CKT

Phase 1

(Export)

Voltage 200/220/240V

Hz 50

Max Amp per Phase 15

Phase 1

**Cooling Unit**

(Domestic)

Voltage 120V

Hz 60

Amp per Phase 1.5

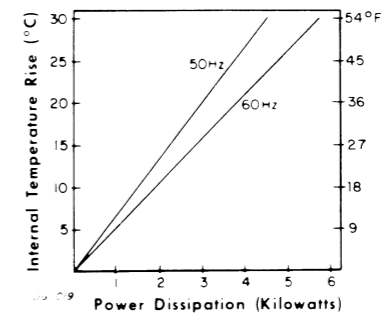
(Export)

Voltage 240V

Hz 50

Amp per Phase .75

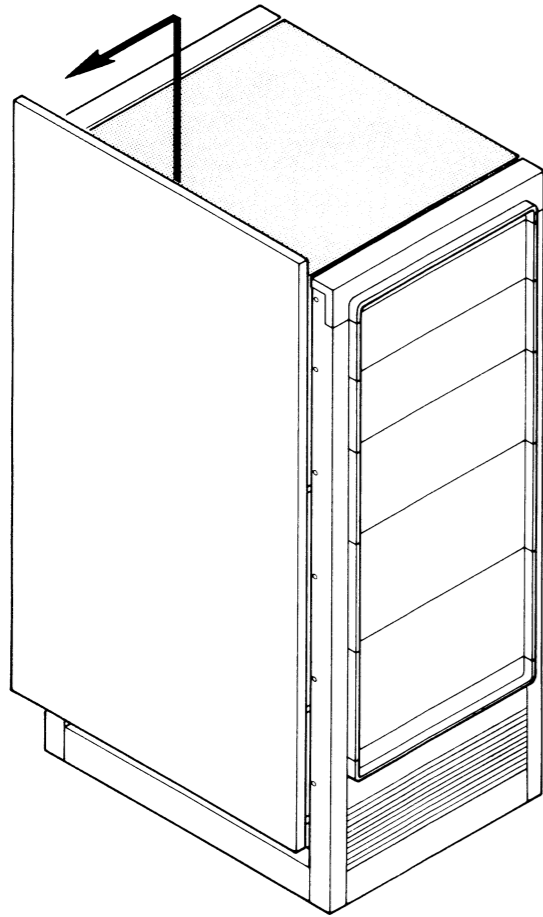
TEMPERATURE vs POWER DISSIPATION (DIRTY FILTER ASSUMED)



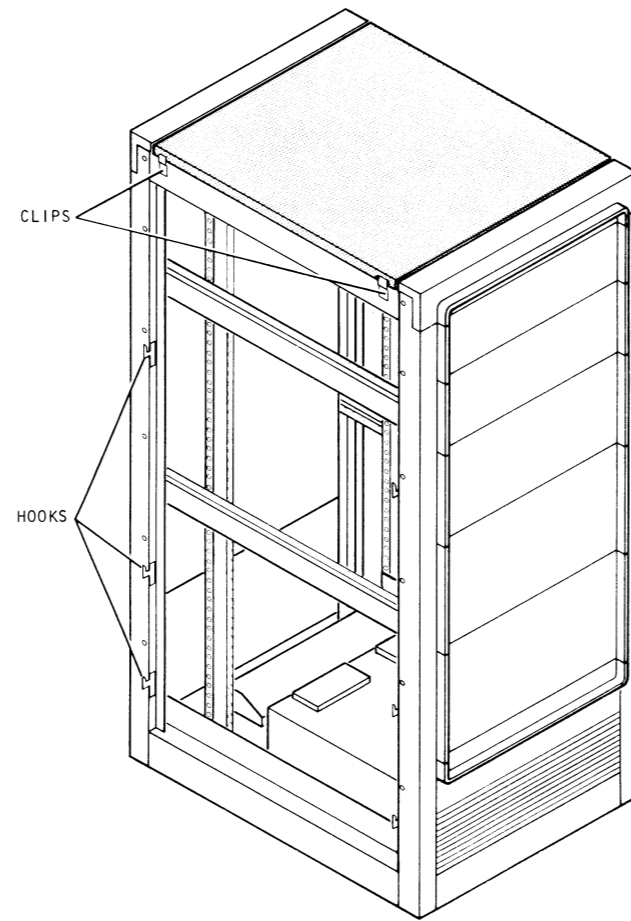
### SHIPPING

FOR PACKING PROCEDURE, SEE 010-000266

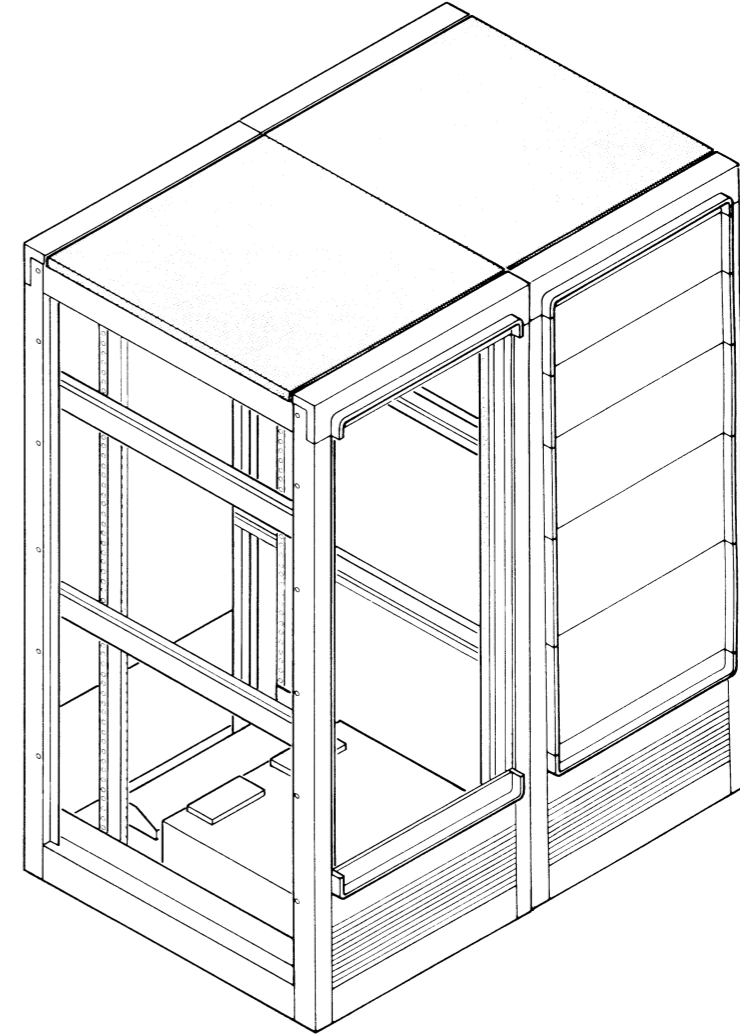
INSTALLING EXPANSION CABINET



1. LIFT UP AND REMOVE PANEL FROM LEFT SIDE OF EXISTING CABINET AND SAVE.

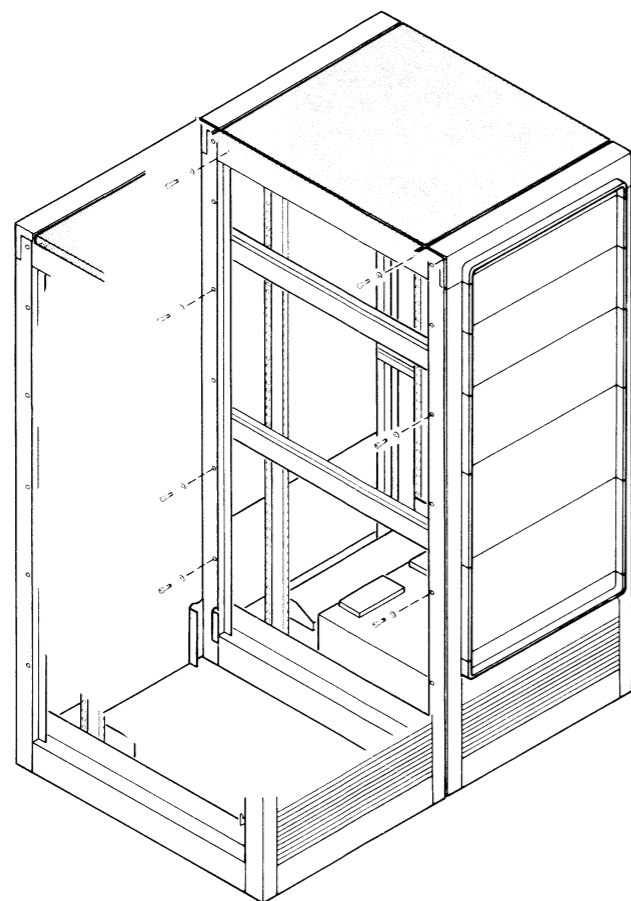


2. REMOVE SIDE PANEL HOOKS AND LIFT-UP CLIPS. SAVE ALL HARDWARE.

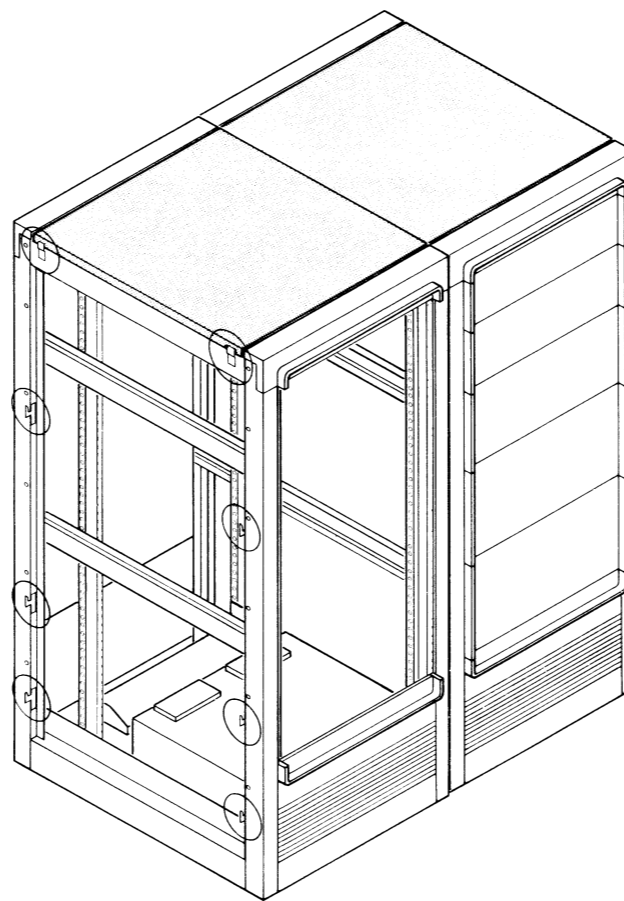


3. MOVE EMPTY EXPANSION CABINET INTO PLACE ON LEFT SIDE OF EXISTING CABINET.

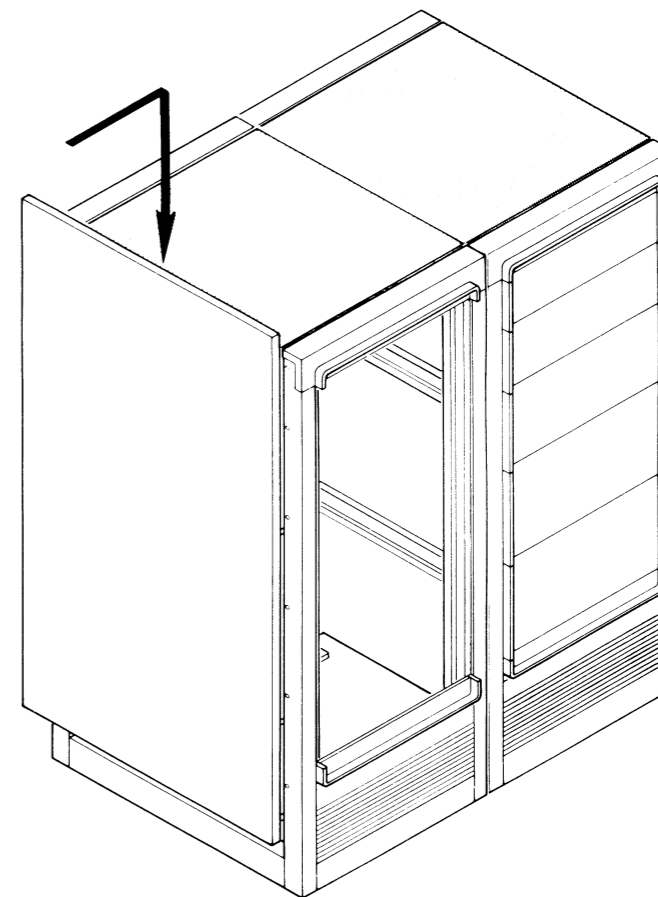
### INSTALLING EXPANSION CABINET (CONT)



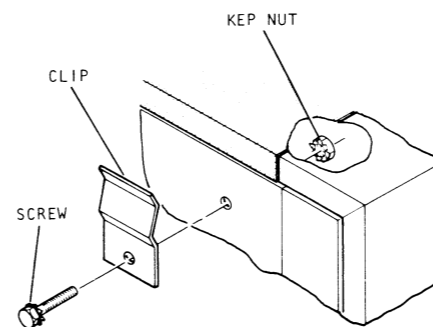
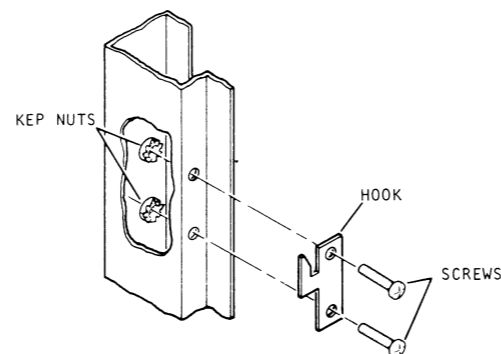
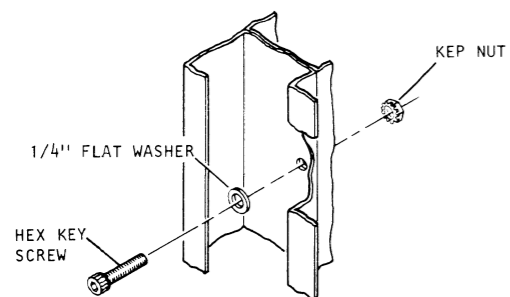
4. BOLT CABINETS TOGETHER AS SHOWN. HARDWARE IS INCLUDED WITH EXPANSION CABINET.



5. INSTALL SIDE PANEL HOOKS AND LIFT-UP CLIPS ON LEFT SIDE OF EXPANSION CABINET.

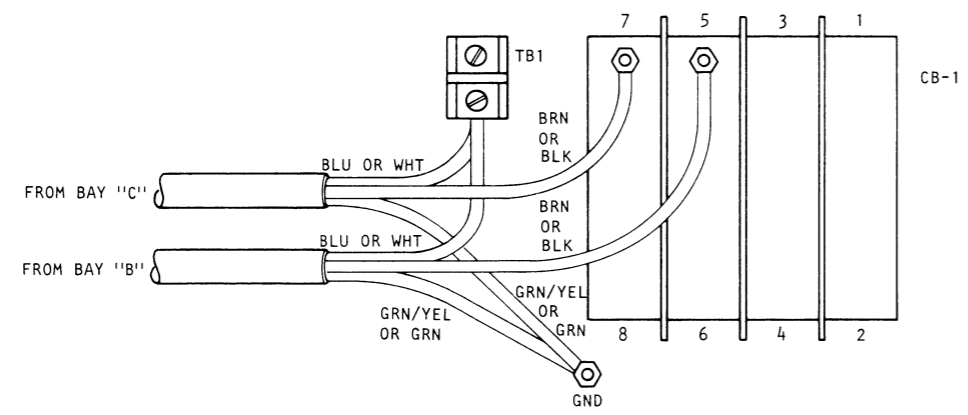


6. INSTALL SIDE PANEL ON LEFT SIDE OF EXPANSION CABINET.



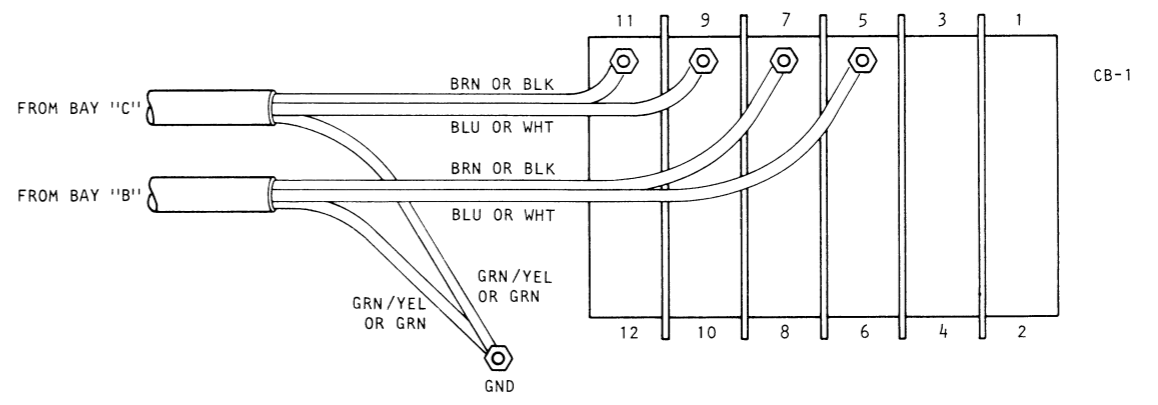
INTERNAL CABLING

(DOMESTIC)



WIRE EXPANSION CABINETS TO CIRCUIT BREAKER IN MAIN CABINET (BAY "A") AS SHOWN. WIRES FROM MAIN CABINET NOT SHOWN FOR CLARITY.

(EXPORT)

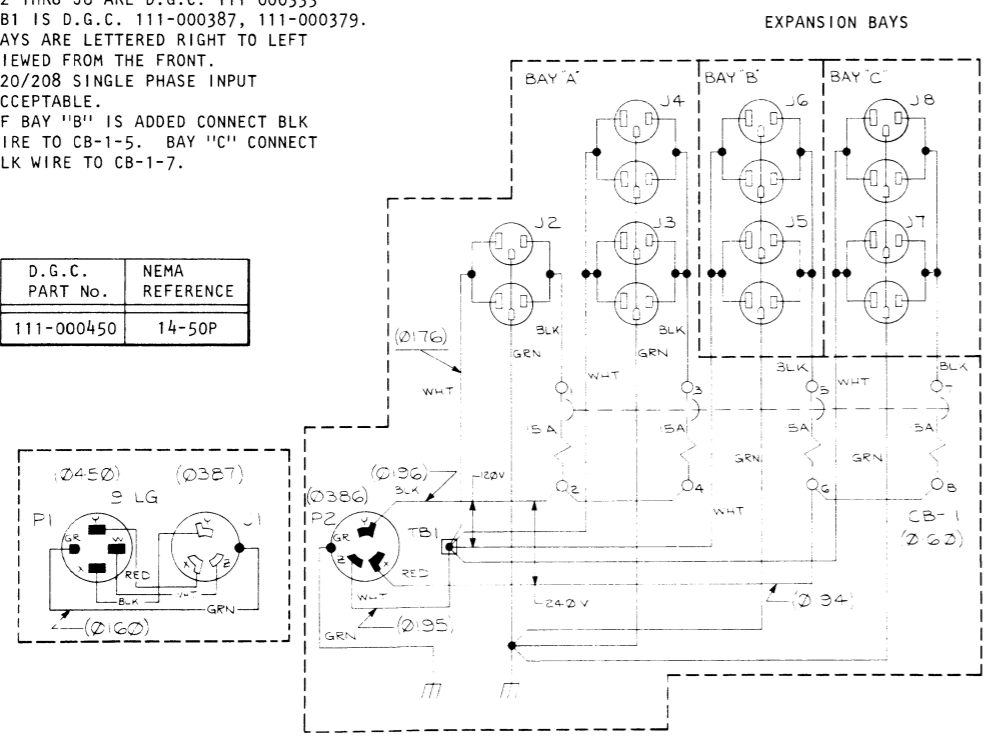


WIRE EXPANSION CABINETS TO CIRCUIT BREAKER IN MAIN CABINET (BAY "A") AS SHOWN. WIRES FROM MAIN CABINET NOT SHOWN FOR CLARITY.

NOTES:

1. J2 THRU J8 ARE D.G.C. 111-000333
2. TB1 IS D.G.C. 111-000387, 111-000379.
3. BAYS ARE LETTERED RIGHT TO LEFT VIEWED FROM THE FRONT.
4. 120/208 SINGLE PHASE INPUT ACCEPTABLE.
5. IF BAY "B" IS ADDED CONNECT BLK WIRE TO CB-1-5. BAY "C" CONNECT BLK WIRE TO CB-1-7.

D.G.C. PART No.	NEMA REFERENCE
111-000450	14-50P

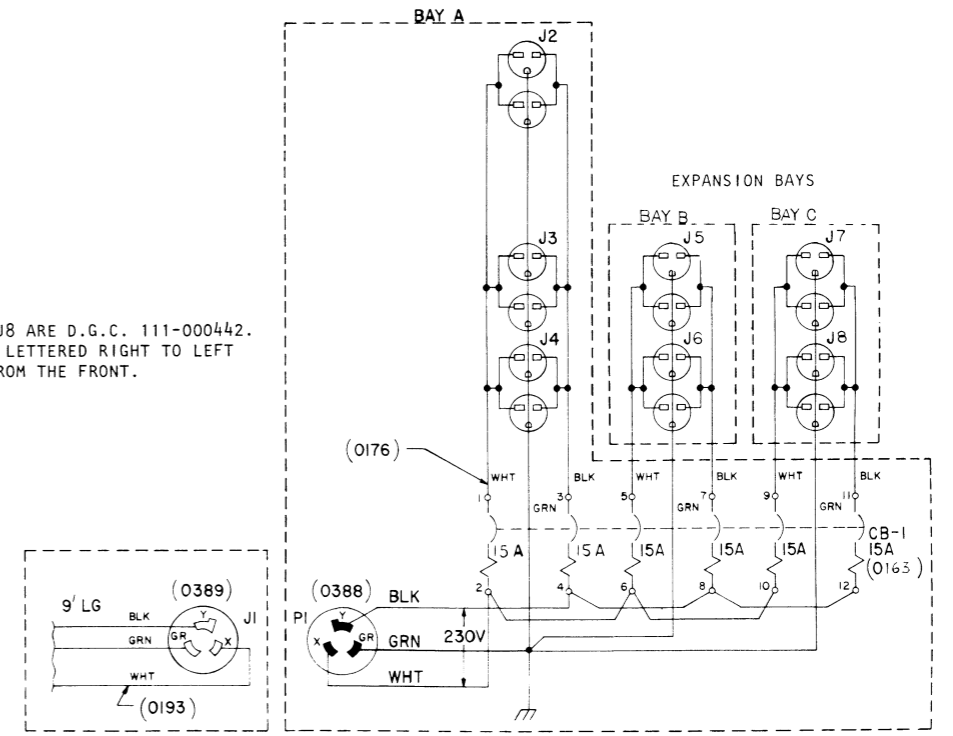


NOTE:

THERE ARE TWO WIRE COLOR CODES IN EFFECT. THE FOLLOWING COLORS ARE EQUIVALENT  
 BROWN ← BLACK  
 BLUE ← WHITE  
 GREEN W/ ← GREEN  
 YELLOW STRIPE

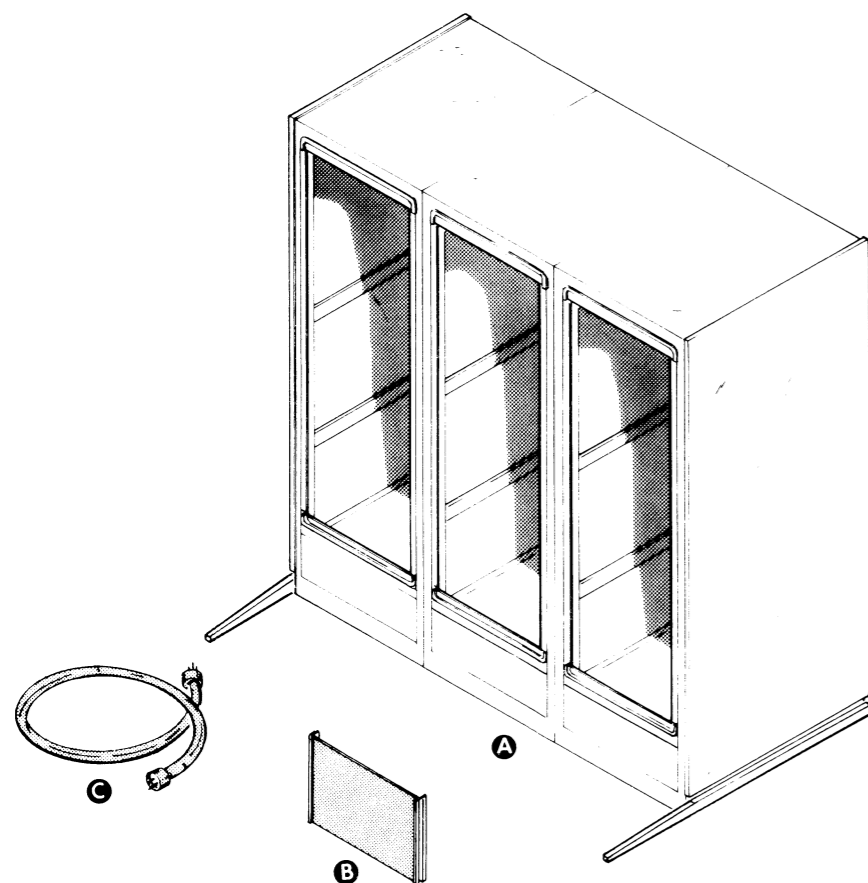
NOTES:

1. J2 THRU J8 ARE D.G.C. 111-000442.
2. BAYS ARE LETTERED RIGHT TO LEFT VIEWED FROM THE FRONT.





### SUBSYSTEM COMPONENT BREAKDOWN



#### MAJOR COMPONENT

Item	Component	Mounting Location	Notes
A	CABINET	FREE-STANDING	
B	FILLER PANEL	CABINET	1.75" = 005-3994 3.50" = 005-3992 5.25" = 005-3995 7.00" = 005-3996 8.75" = 005-3998 10.50" = 005-3997

#### CABLE

Item	Cable	Connecting	Max Allowed Lg	Notes
			ft. / m	
C	POWER CABLE	CABINET and AC POWER	8 / 2.7	

### CABINET SPECIFICATIONS

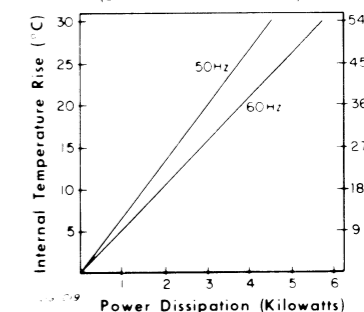
Item	Model	No Bays	SIZE			POWER AVAILABLE AT INTERNAL RECEPTACLES																		
			Usable Vertical Space Per Bay			BAY A				BAY B				BAY C				ALL BAYS COMBINED						
			Area	In	Cm	Volts	Hz	Amps (Max)	Receptacles Nema	Volts	Hz	Amps (Max)	Receptacles Nema	Volts	Hz	Amps (Max)	Receptacles Nema	Volts	Hz	Amps (Max)	Receptacles Nema			
A	1012K	1	30	52.5	133	120Vac	50/60	16	5-15R												120Vac	50/60	16	5-15R
	1012K-2	1	30	52.5	133	240/220Vac	50/60	20	6-15R												220/240Vac	50	20	6-15R
	1012L	2	30	52.5	133	120Vac	60	50	5-15R	120Vac	60	20	5-15R								120Vac	60	70	5-15R
	1012L-2	2	30	52.5	133	240/220Vac	50	20	6-15R	240/220Vac	50	15	6-15R								240/220Vac	50	35	6-15R
	1012M	3	30	52.5	133	120Vac	60	50	5-15R	120Vac	60	20	5-15R	120Vac	60	20	5-15R				240Vac	60	80	5-15R
	1012M-2	3	30	52.5	133	240Vac	50	20	6-15R	240Vac	50	15	6-15R	240Vac	50	15	6-15R				240Vac	50	40	6-15R
	1012N	1	11	19.25	49.2	120Vac	50/60	16	5-15R												120Vac	50/60	16	5-15R
	1012N-2	1	11	19.25	49.2	220/240Vac	50	20	6-15R												220/240Vac	50	20	6-15R
1012P	1	30	52.5	133	120Vac	60	44	5-15R												120Vac	60	44	5-15R	

\*VALUES FOR CURRENT ARE REDUCED 20% FROM CONNECTOR RATINGS TO CONFORM WITH UL STANDARDS.  
 \*\*FOR RECEPTACLE LAYOUT, SEE "INTERNAL CABLING" SECTION OF THESE DATA SHEETS.

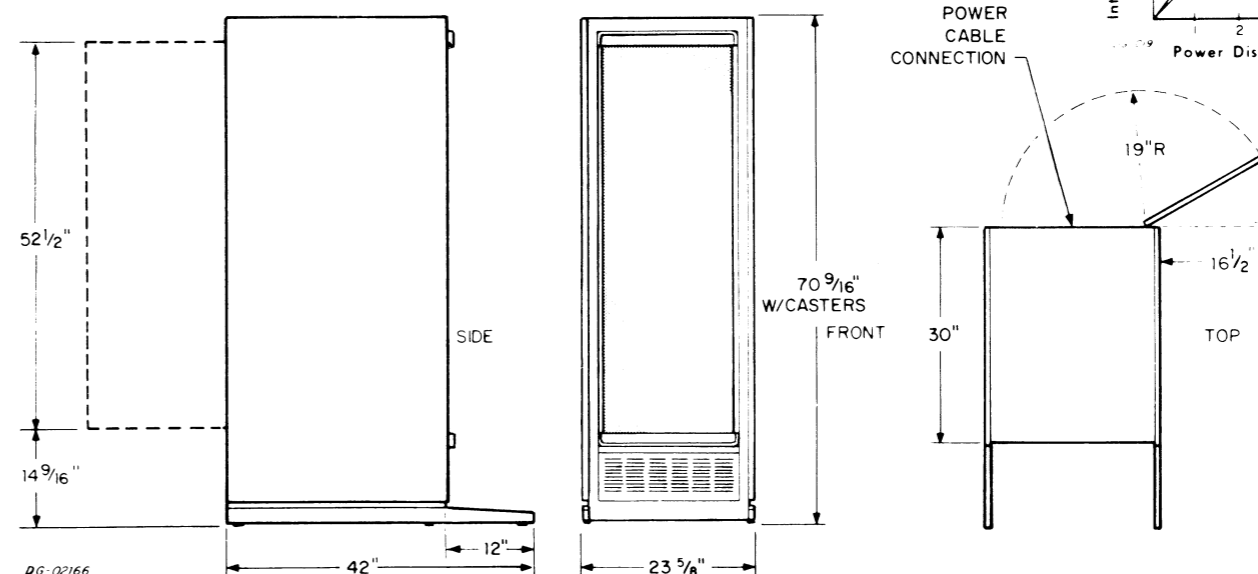
Item	Model	PRIMARY POWER REQUIRED FOR CABINET										WEIGHT				COOLING UNIT			
		POWER			CORD SUPPLIED		MATING RECEPTACLE REQ'D					EMPTY		GROSS, FULLY LOADED		No Units	POWER		
		Volts	Hz	Phase	Conductors	Amps	Cable Length ft/in	Cable Connector Nema	Power Drop Nema/Hubbel	Wall Receptacle Nema/Hubbel	Total lb/kg	Per Bay lb/kg	Total lb/kg	Per Bay lb/kg	Volts		Hz	Amp	Watts
A	1012K	120Vac	50/60	1	2 W/G	20	9/2.74	L5-20P	L5-20R/2313	L5-20R/2310	225/102	225/102	800/364	800/364	1	120	50/60	1.5	140
	1012K-2	240Vac	50	1	2 W/G	20	9/2.74	--	--	--	225/102	225/102	800/364	800/364	1	240	50	.75	140
	1012L	240Vac	60	1	3 W/G	40	9/2.74	14-50P	14-50R/	14-50R/9450	450/204	225/102	1600/728	800/364	2	120	60	1.5	140
	1012L-2	240Vac	50	1	2 W/G	35	9/2.74	--	--	--	450/240	225/102	1600/728	800/364	2	240	50	.75	140
	1012M	240Vac	60	1	3 W/G	40	9/2.74	14-50P	14-50R/	14-50R/9450	675/306	225/102	2400/1092	800/364	3	120	60	1.5	140
	1012M-2	240Vac	50	1	2 W/G	40	9/2.74	--	--	--	675/306	225/102	2400/1092	800/364	3	240	50	.75	140
	1012N	120Vac	50/60	1	2 W/G	16	9/2.74	L5-20P	L5-20R/2313	L5-20R/2310	152/69.1	152/69.1	800/364	800/364	1	120	60	1.5	140
	1012N-2	240Vac	50	1	2 W/G	20	9/2.74	--	--	--	152/69.1	152/69.1	800/364	800/364	1	240	50	.75	140
1012P	240Vac	60	1	3 W/G	24	9/2.74	L14-30P	L14-30R/2715	L14-30R/2710	225/102	225/102	800/364	800/364	1	120	60	1.5	140	

	SERVICE CLEARANCES	
	FRONT	REAR
MM	762	762
IN	30	30

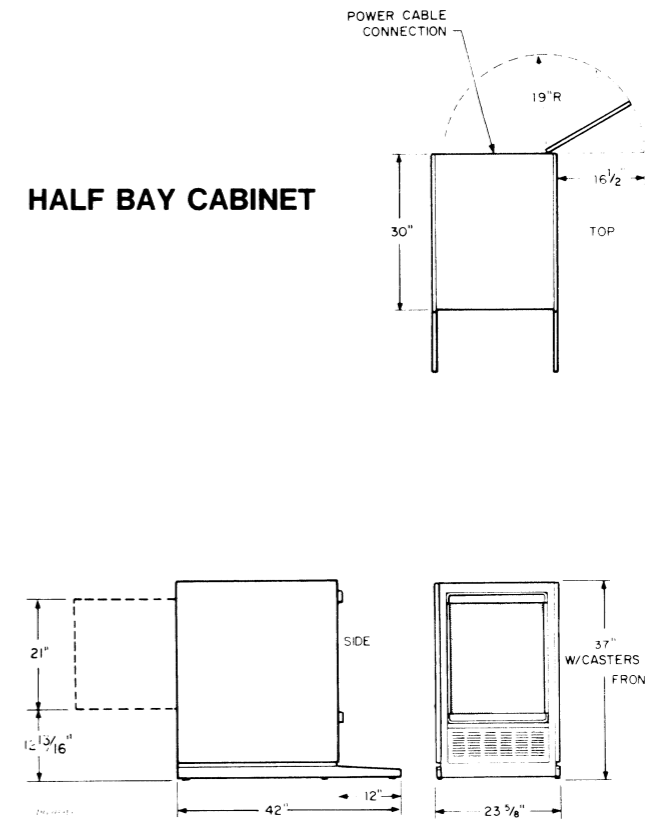
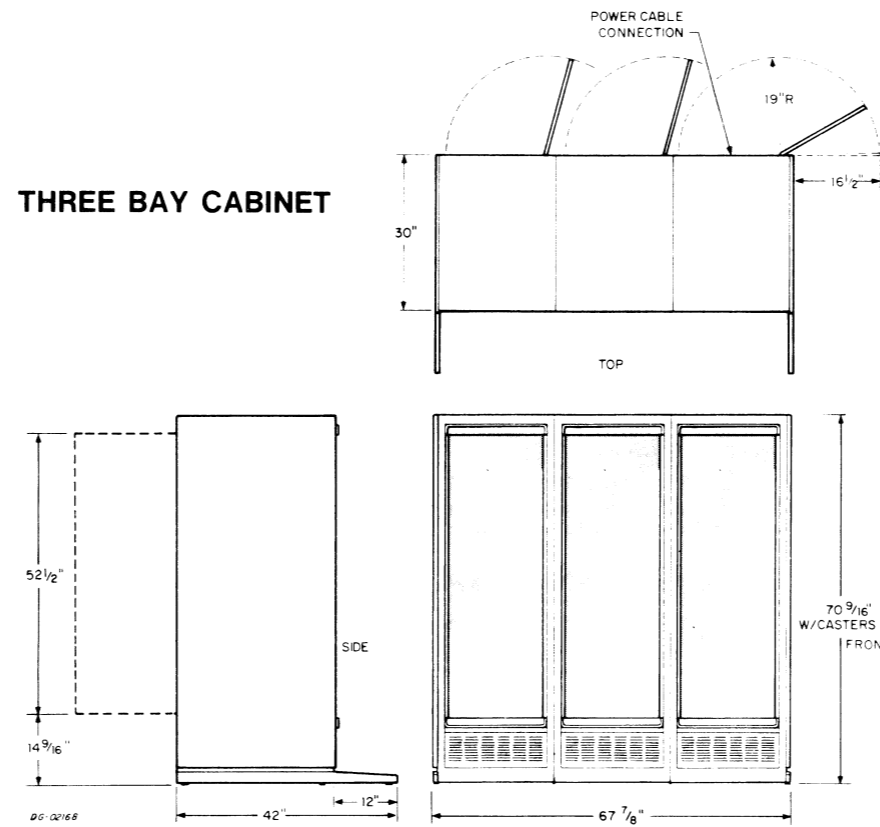
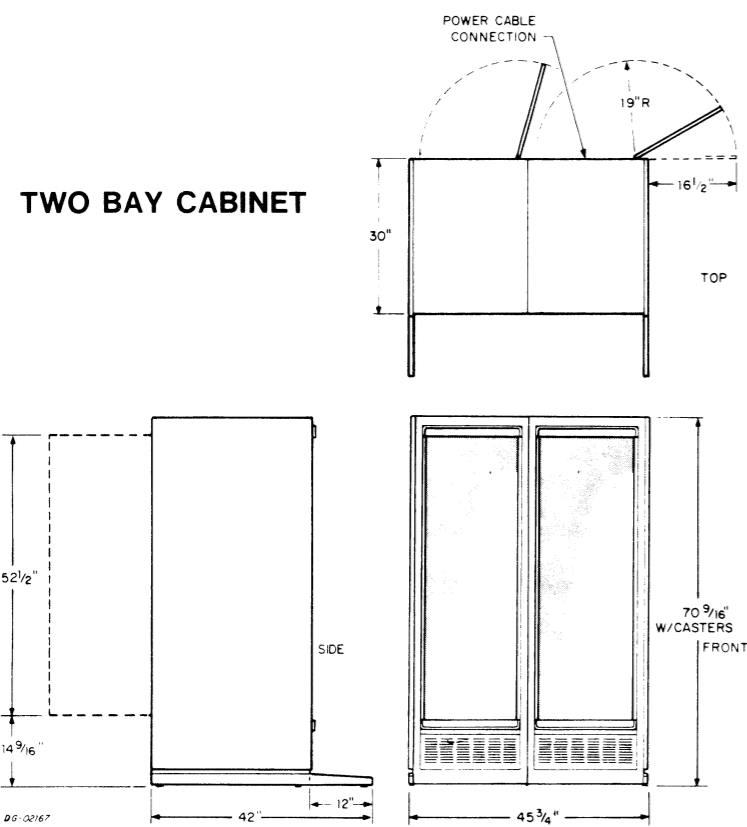
TEMPERATURE vs POWER DISSIPATION  
 1012K-1012P CABINETS  
 (DIRTY FILTER ASSUMED)



#### SINGLE BAY CABINET



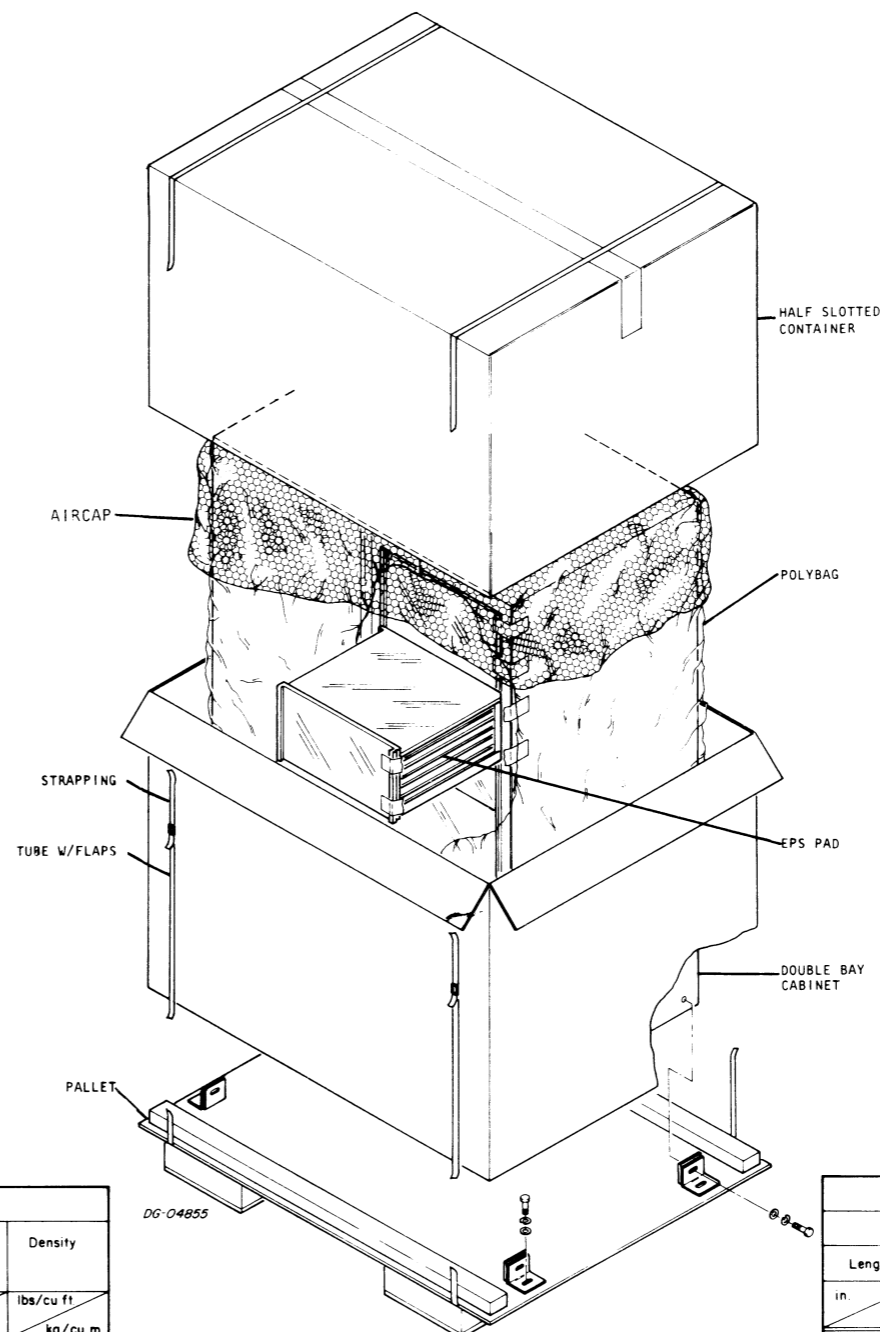
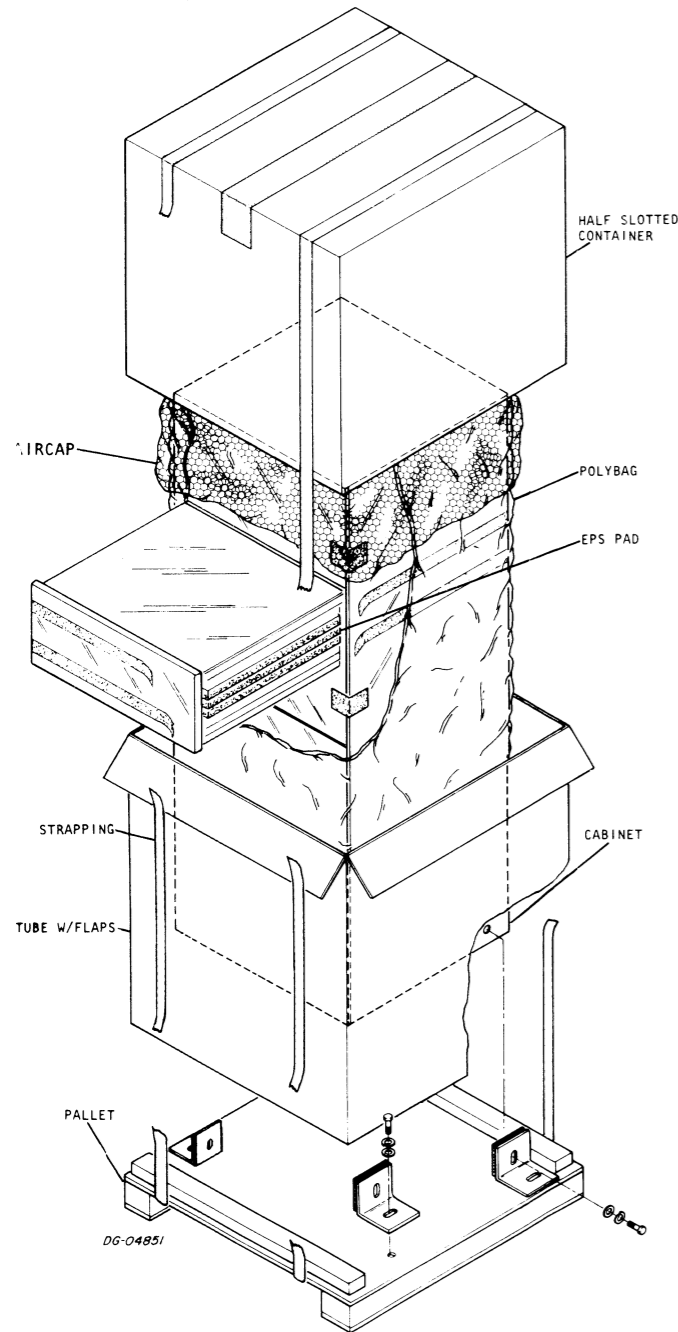
SPECIFICATIONS OF FREE-STANDING COMPONENT (Cont)



SHIPPING (Cont)

SINGLE BAY CABINET

TWO BAY CABINET

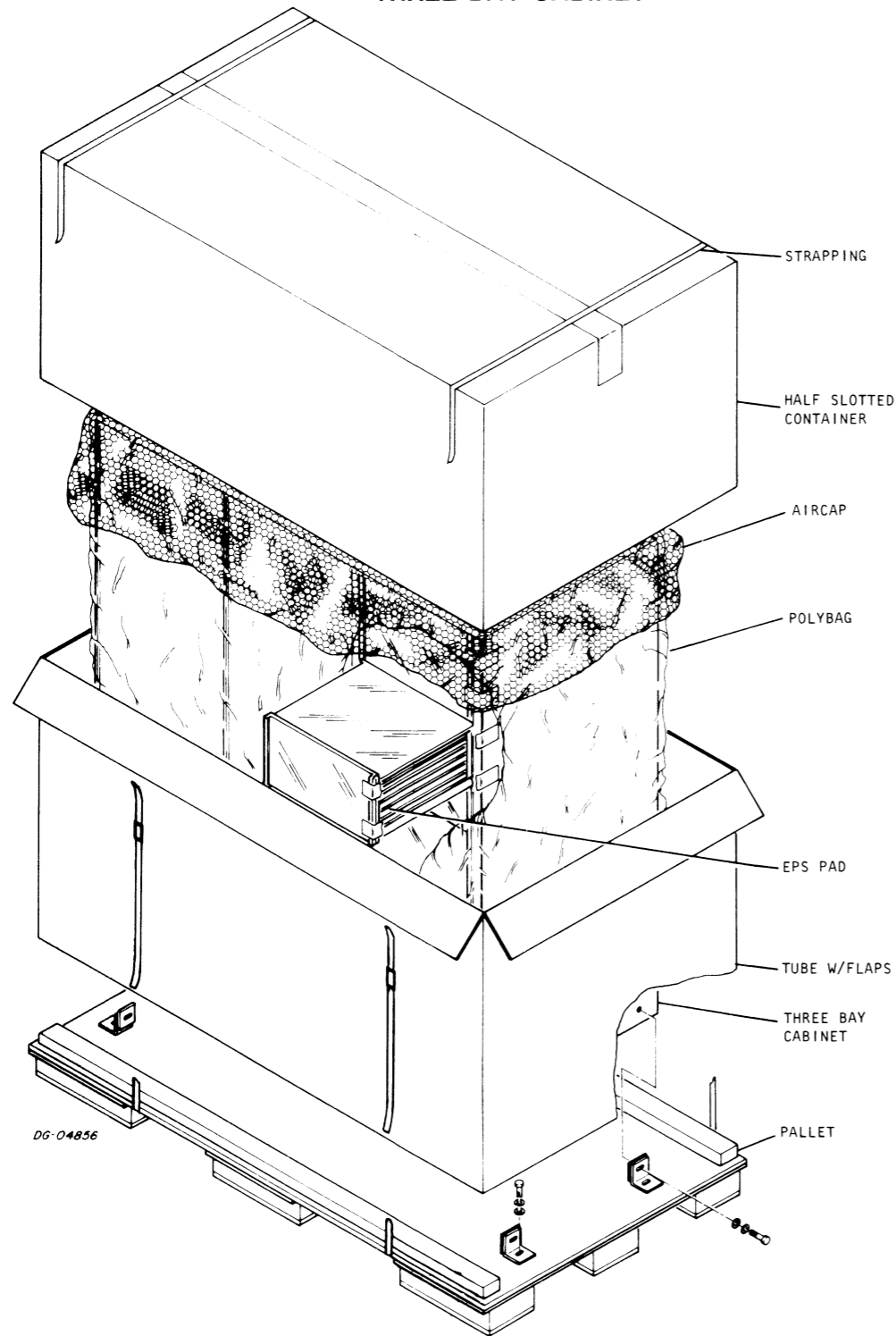


SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth			
in.	in.	in.	lbs.	cu ft	lbs/cu ft
cm	cm	cm	kg	cu m	kg/cu m
36	44.5	75.5	600	70	8.5
91	113	191	270	2.1	128.5
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)		$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)	
-40 to +160	0% / 80%	50,000ft. - 15,200m	-40 to +160	0% / 30%	90 days
-40 to +71			-40 to +71		

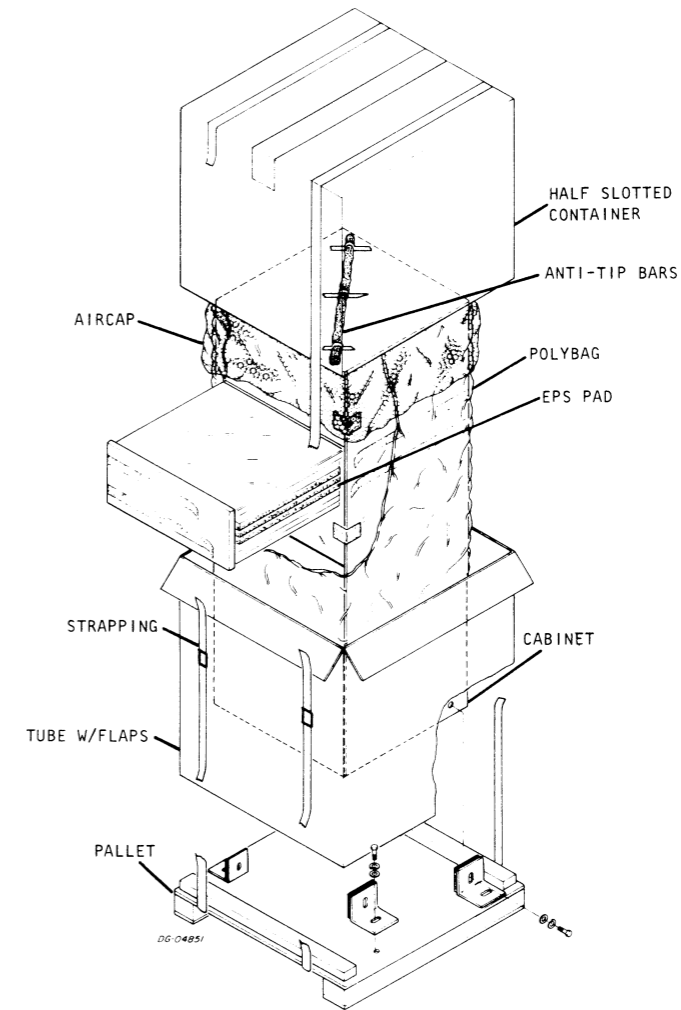
SHIPPING AND PACKAGE DATA					
Outside Dimensions			Weight (Gross)	Volume	Density
Length	Width	Depth			
in.	in.	in.	lbs.	cu ft	lbs/cu ft
cm	cm	cm	kg	cu m	kg/cu m
56	44.5	75.5	1000	107	9.34
142	113	191	450	3.21	140
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)		$^{\circ}\text{F}$ / $^{\circ}\text{C}$	(Non-condensing)	
-40 to +160	0% / 80%	50,000ft. - 15,200m	-40 to +160	0% / 30%	90 days
-40 to +71			-40 to +71		

SHIPPING (Cont)

THREE BAY CABINET



HALF BAY CABINET



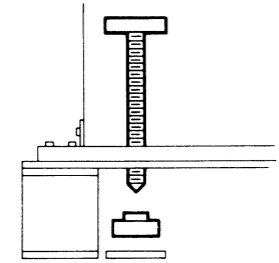
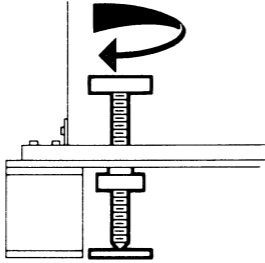
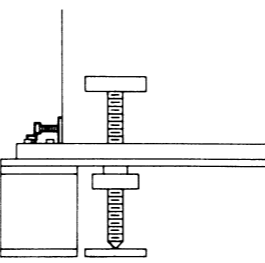
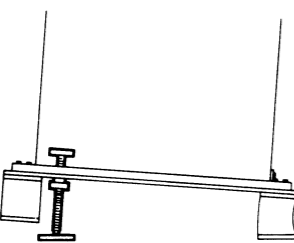
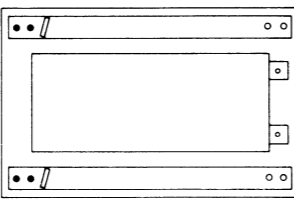
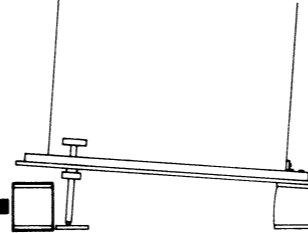
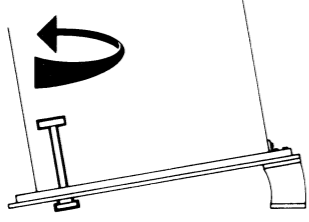
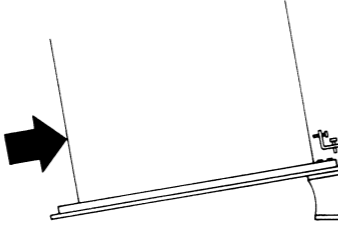
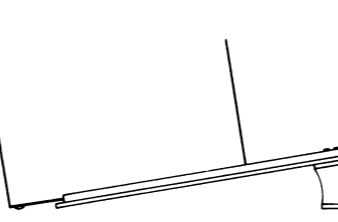
SHIPPING AND PACKAGE DATA								
Outside Dimensions						Weight (Gross)	Volume	Density
Length		Width		Depth		lbs	cu ft	lbs/cu ft
in	cm	in	cm	in	cm			
78	198	44.5	113	75.5	191	2000	151	13.25
						900	4.53	198

SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS		
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period
$^{\circ}\text{F}$	(Non-condensing)		$^{\circ}\text{F}$	(Non-condensing)	
$^{\circ}\text{C}$			$^{\circ}\text{C}$		
-40 to +160	0% / 80%	50,000 ft. / 15,200 m	-40 to +160	0% / 80%	90 days
-40 to +71			-40 to +71		

SHIPPING AND PACKAGE DATA								
Outside Dimensions						Weight (Gross)	Volume	Density
Length		Width		Depth		lbs	cu ft	lbs/cu ft
in	cm	in	cm	in	cm			
36.875	93.66	31.25	79.37	44.625	113.34	400	29.61	13.50
						180	0.8883	202.6
SHIPPING SPECIFICATIONS			STORAGE SPECIFICATIONS					
Temperature Range	Relative Humidity	Maximum Altitude	Temperature Range	Relative Humidity	Maximum Period			
$^{\circ}\text{F}$	(Non-condensing)		$^{\circ}\text{F}$	(Non-condensing)				
$^{\circ}\text{C}$			$^{\circ}\text{C}$					
-40 to +160	0% / 80%	50,000 ft. / 15,200 m	-40 to +160	0% / 80%	90 days			
-40 to +71			-40 to +71					

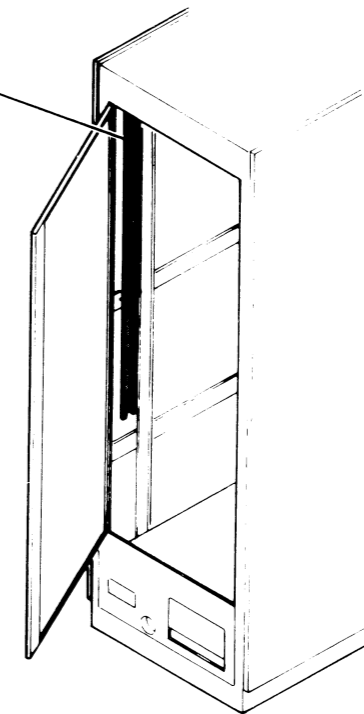
## SHIPPING (Cont)

### UNLOADING INSTRUCTIONS - A 2-MAN OPERATION

 <p><b>1</b> INSERT 2 JACK SCREWS THROUGH HOLES IN 2 X 4'S ON PALLET. SCREW INTO T-NUTS (BOTH SIDES).</p>	 <p><b>2</b> TURN JACK SCREWS INTO PADS ON FLOOR. HOLES IN PADS LINE UP WITH NIPPLES ON JACK SCREWS.</p>	 <p><b>3</b> REMOVE 2 SHIPPING BRACKETS FROM END OF MACHINE BEING JACKED.</p>
 <p><b>4</b> SIMULTANEOUSLY TURN 2 JACK SCREWS TO RAISE CUSHION MODULE FROM FLOOR.</p>	 <p><b>5</b> REMOVE 4 BOLTS FROM CUSHION MODULE.</p>	 <p><b>6</b> REMOVE CUSHION MODULE.</p>
 <p><b>7</b> SIMULTANEOUSLY TURN 2 JACK SCREWS TO LOWER END OF PALLET TO FLOOR.</p>	 <p><b>8</b> HOLD MACHINE IN PLACE AND REMOVE THE 2 REMAINING SHIPPING BRACKETS.</p>	 <p><b>9</b> EASE MACHINE OFF PALLET.</p>

### ANTI-TIP BARS

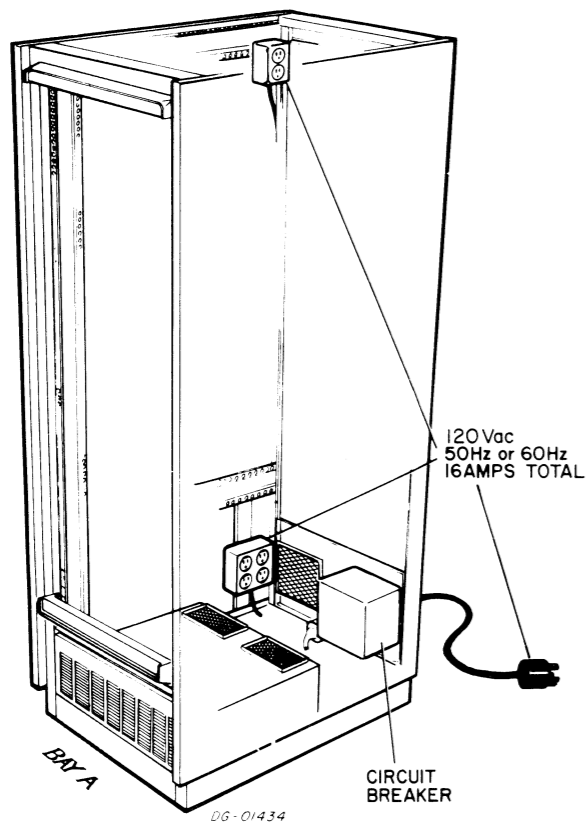
ANTI-TIP BARS BOLTED-IN REAR OF CABINET



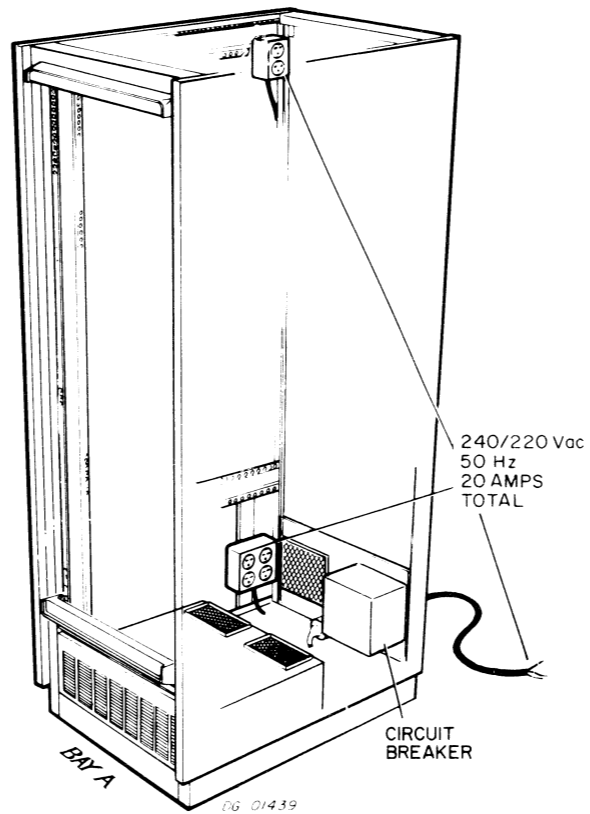
SHIPPING AND PACKAGE DATA						
Outside Dimensions			Weight (Gross)	Volume	Density	
Length	Width	Depth			lbs.	cu ft.
in.	in.	in.	lbs.	cu ft.	kg/cu m	kg/cu m
cm	cm	cm	kg			
32.25	5.25	50.75	50	4.77	10.48	
82	13	129	22.5	0.1431	157	

INTERNAL CABLING

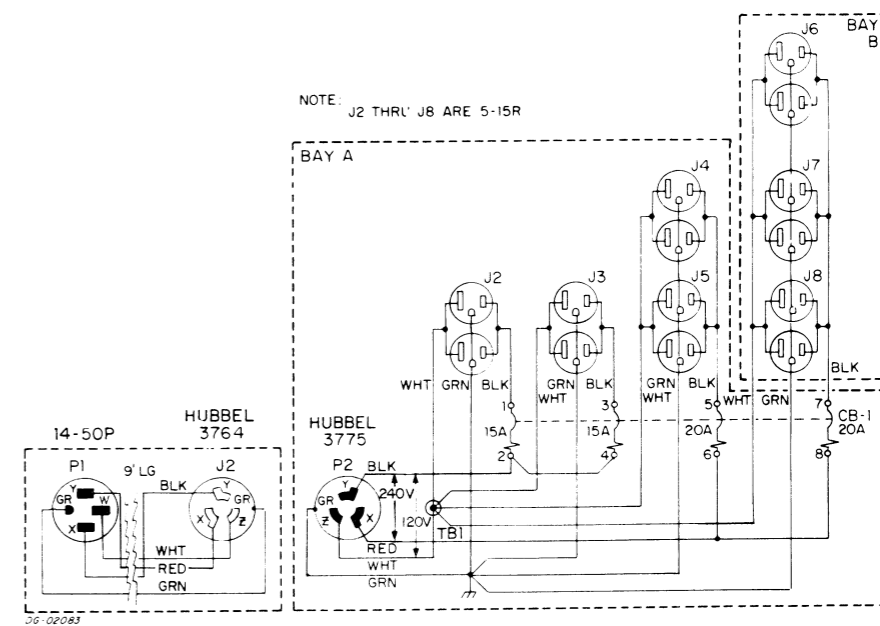
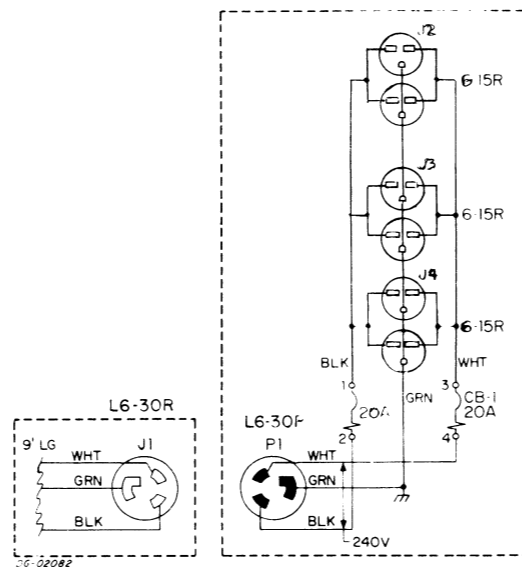
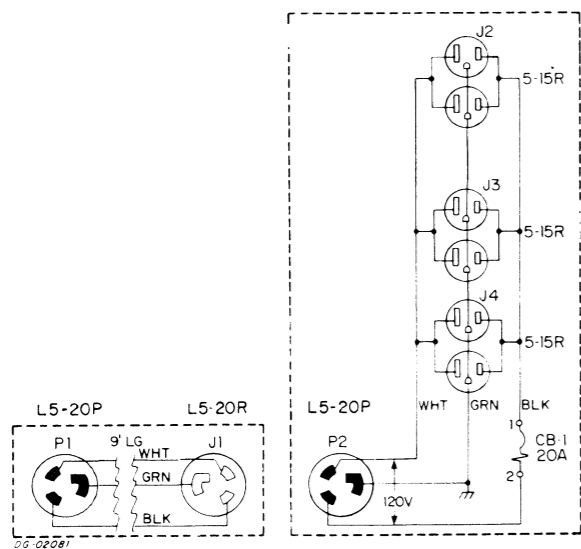
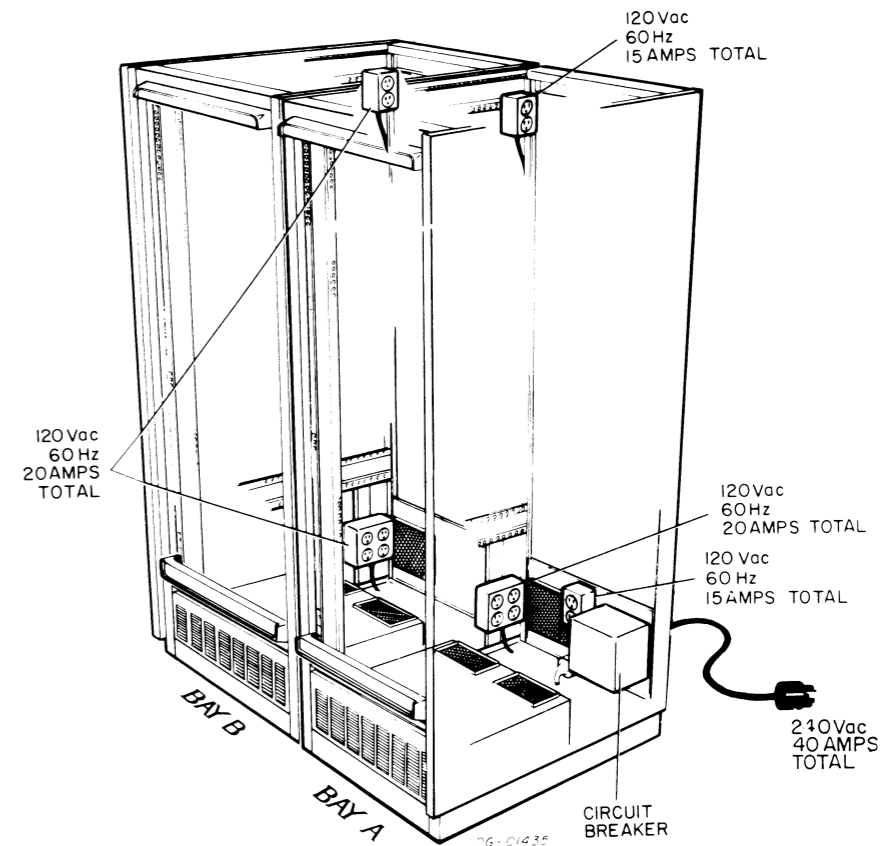
1012K



1012K-2

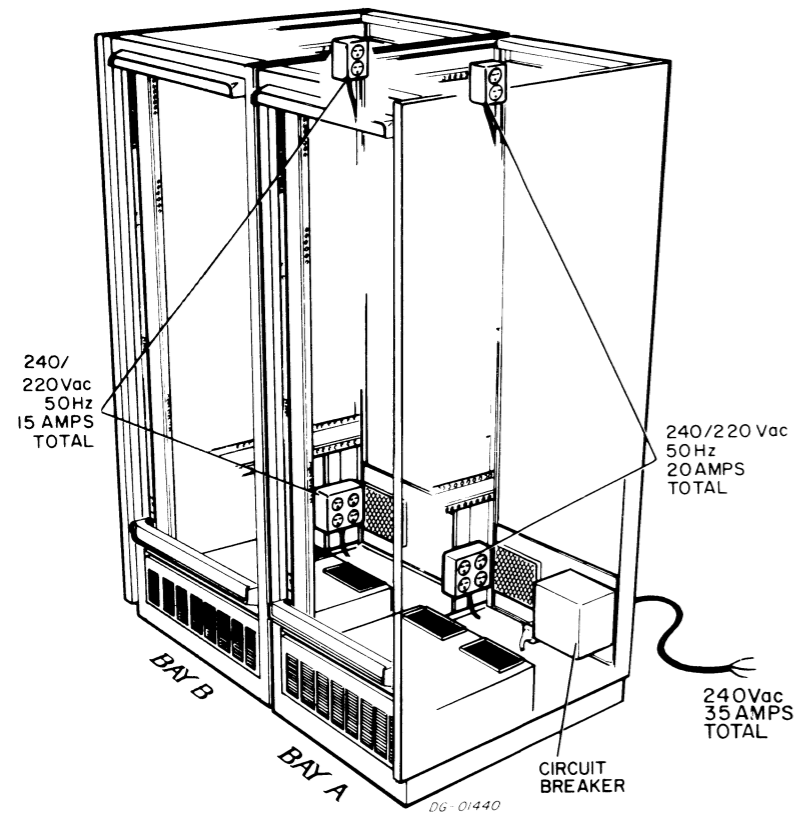


1012L

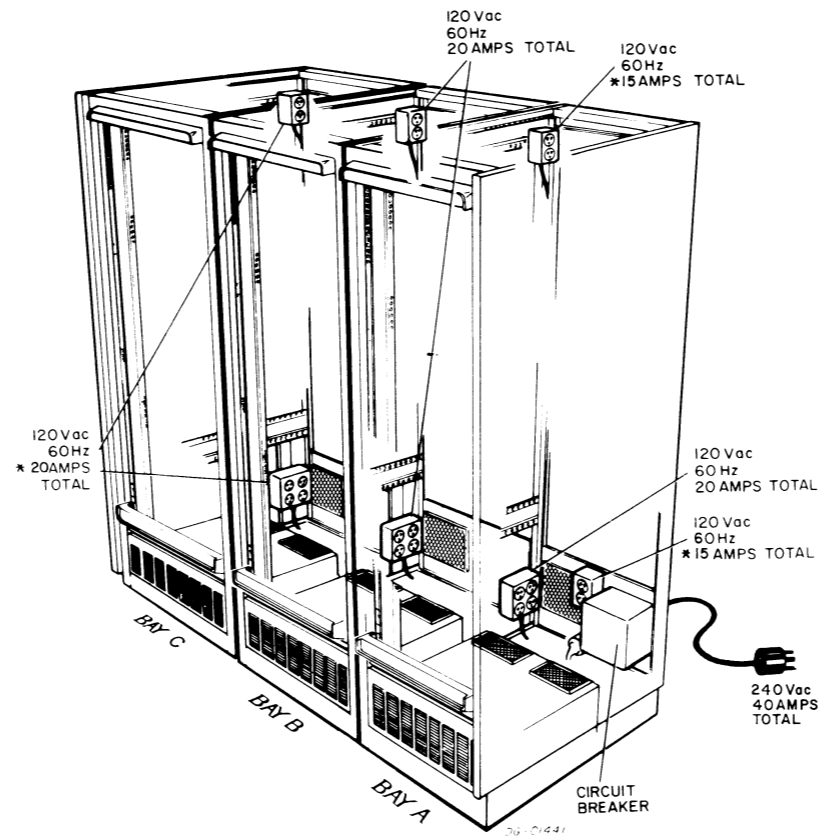


### INTERNAL CABLING (Cont)

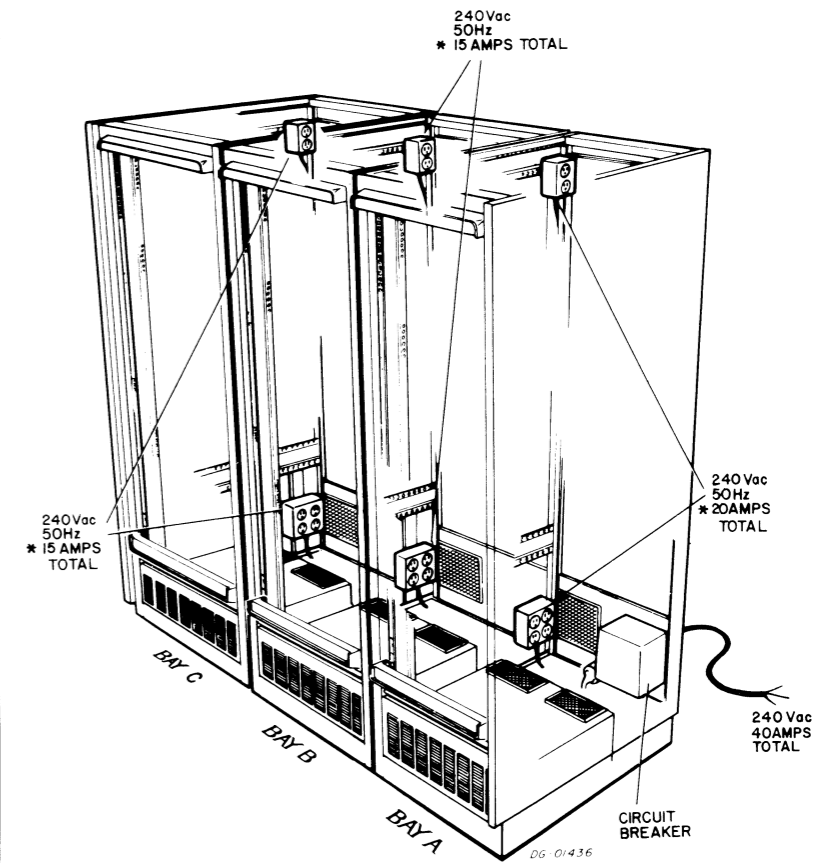
1012L-2



1012M

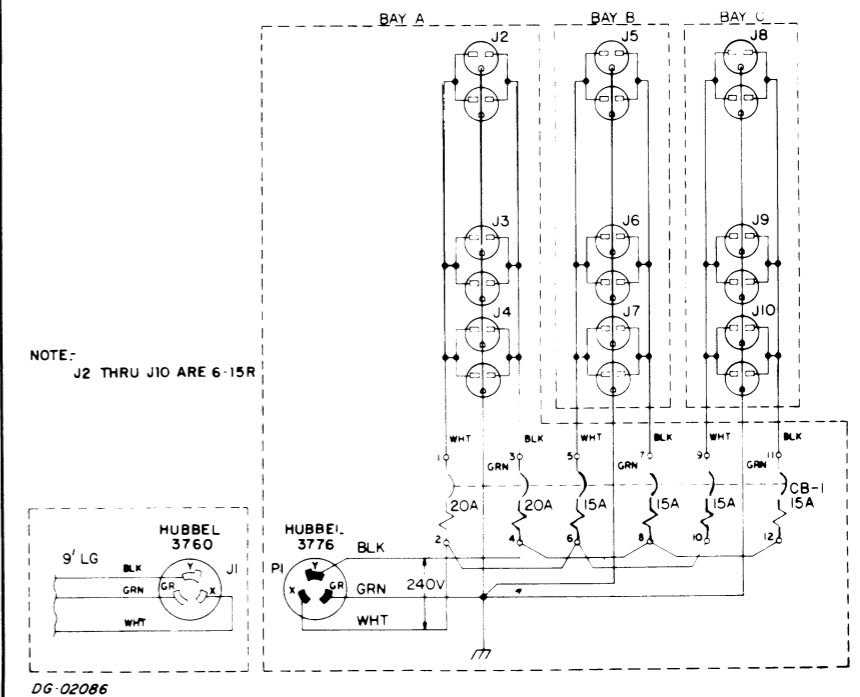
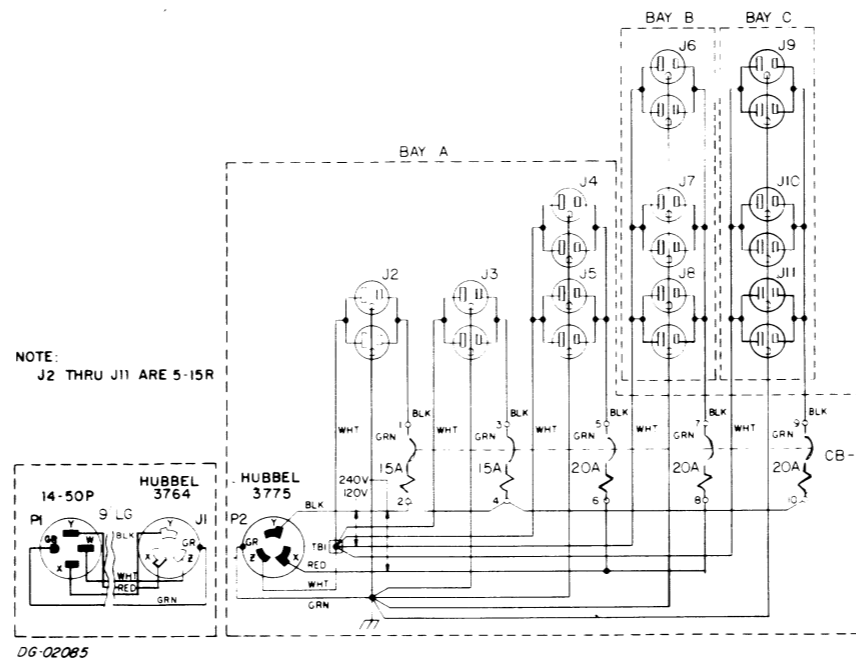
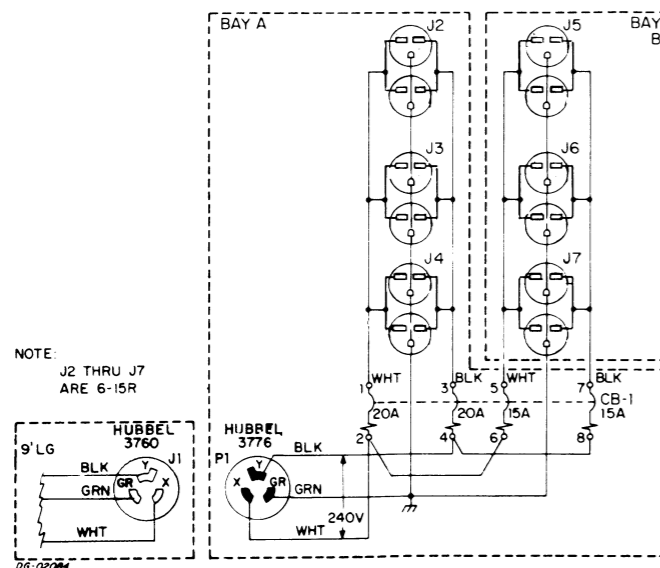


1012M-2



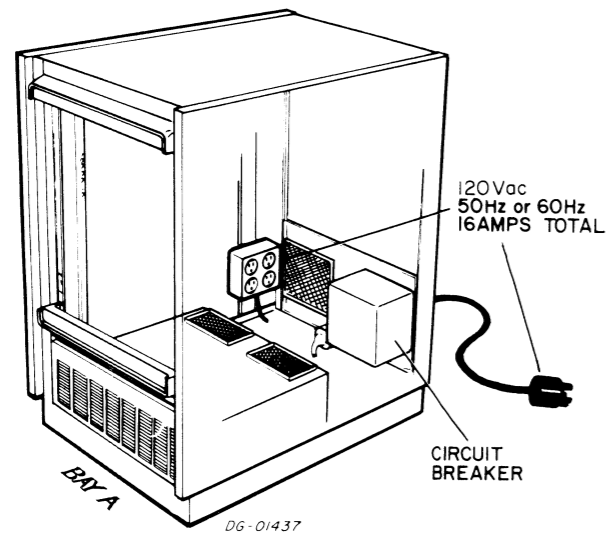
\* NOTE: COMBINED TOTAL OF THESE OUTLETS NOT TO EXCEED 40 AMPS.

\* NOTE: COMBINED TOTAL OF THESE OUTLET NOT TO EXCEED 40 AMPS.

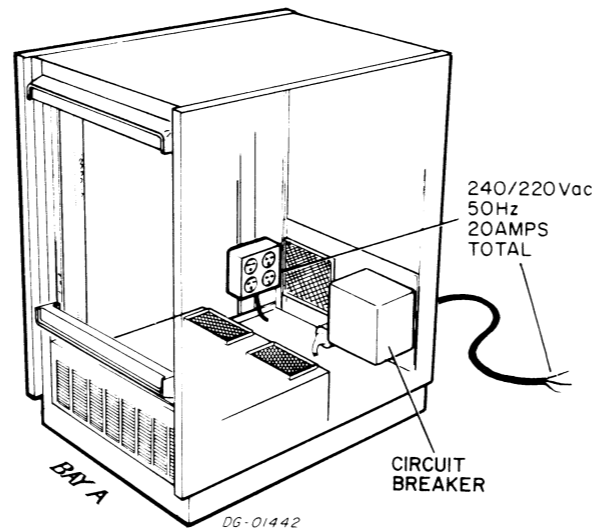


INTERNAL CABLING (Cont)

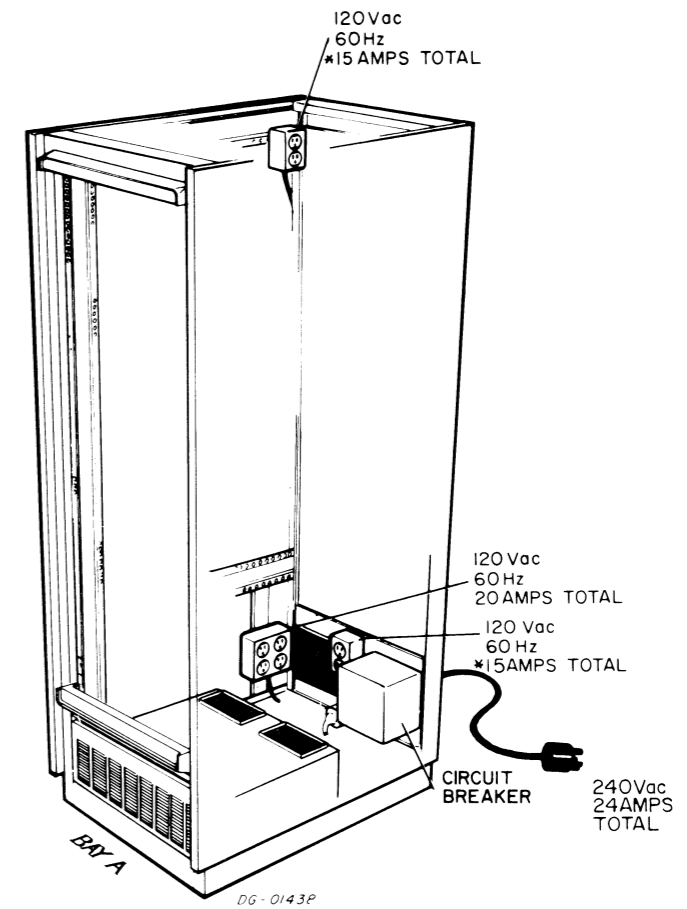
1012N



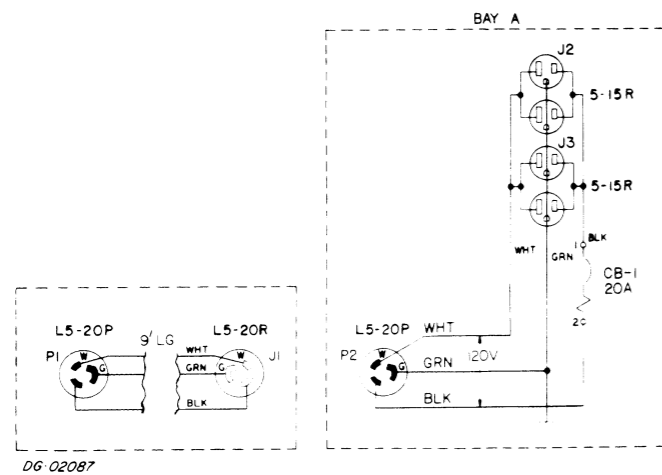
1012N-2



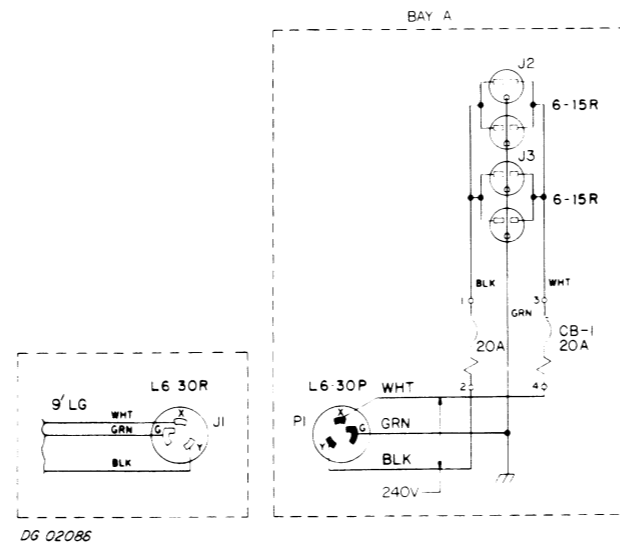
1012P



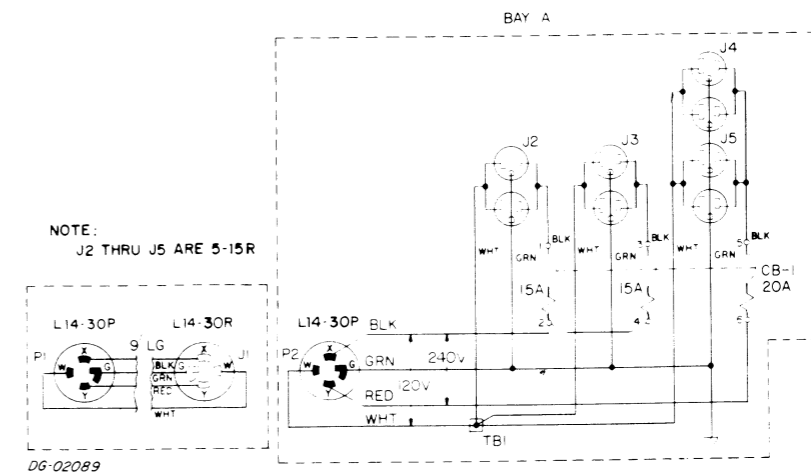
\* NOTE: COMBINED TOTAL OF THESE OUTLETS NOT TO EXCEED 24AMPS.



DG 02087



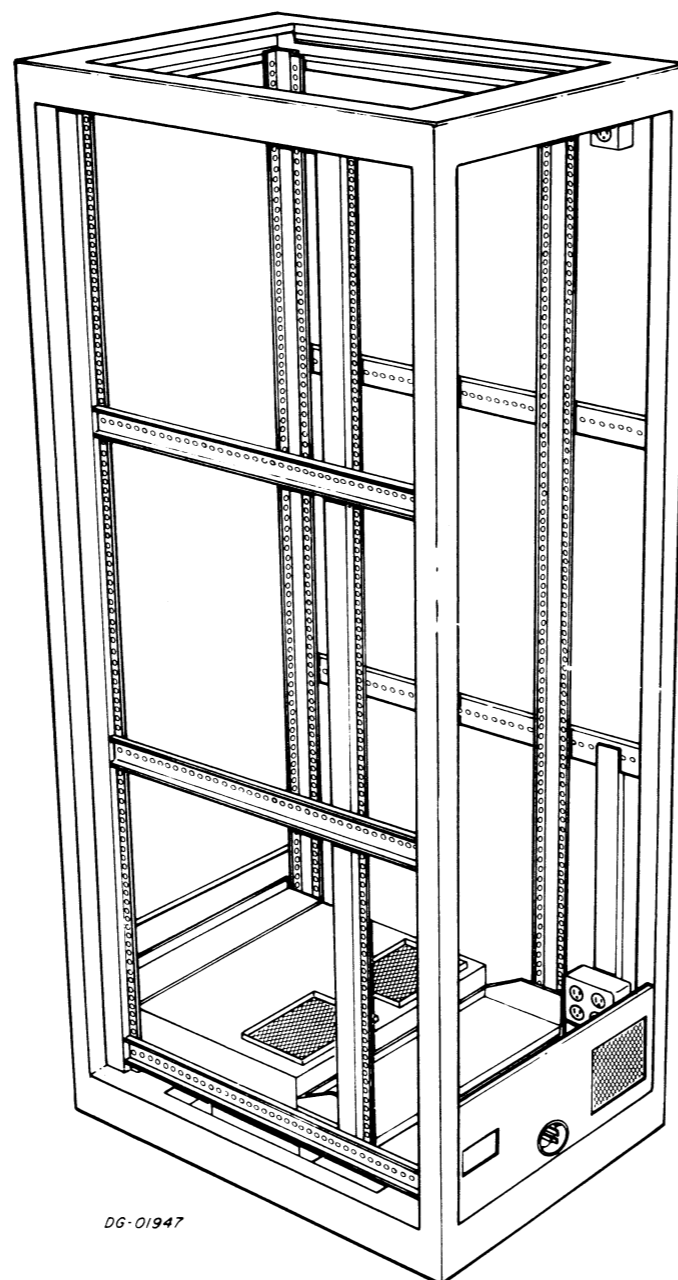
DG 02086



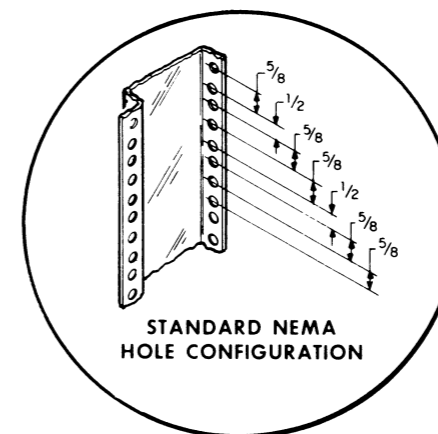
DG-02089



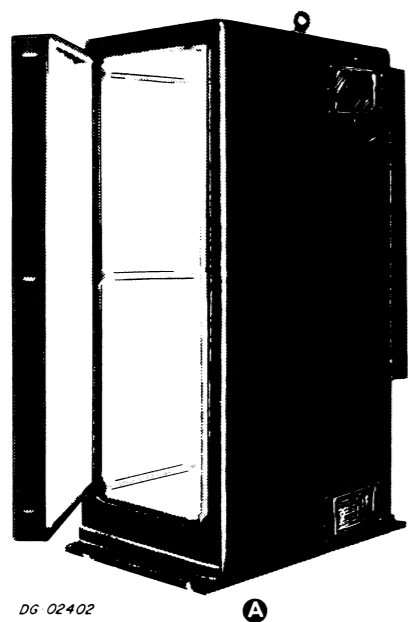
# CABINET MOUNTING



DG-01947



### SUBSYSTEM COMPONENT BREAKDOWN



DG 02402

A

MAJOR COMPONENT			
Item	Component	Mounting Location	Notes
A	CABINET	FREE-STANDING	

### CABINET SPECIFICATIONS

Item	Cabinet	No Bays	NEEDS			CAPACITIES							
			Current Draw (each Cooling Unit) Amps @ Line Voltage		Total Weight of Empty Cabinet		Power Dissipation (each Cooling Unit) in Watts	Maximum User Power	Vertical Area Available per Cabinet			Maximum Weight each Fully Loaded Cabinet/Bay	
					Lbs	Kg		Areas	Inches	Cm	Lbs	Kg	
A	1079A		4.5	240V, 60Hz	540	245	1050W	1.75 kVA	35	61 1/4	155.5	1590	725
	1079A-2		4.5	220V, 50Hz	540	245	1050W	1.46 kVA	35	61 1/4	155.5	1590	725
	1079B		2.5	240V, 60Hz	447	202	500W	1.55 kVA	35	61 1/4	155.5	1497	680
	1079B-2		2.5	220V, 50Hz	447	202	500W	1.30 kVA	35	61 1/4	155.5	1497	680

DG-02090

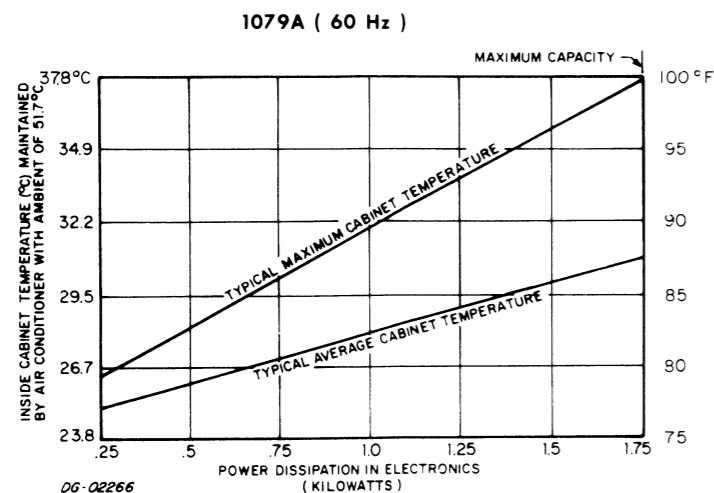
### SPECIFICATION OF FREE-STANDING COMPONENTS

SPECIFICATION OF FREE-STANDING COMPONENTS					
Item	Cabinet	Input Power	Input Power Connection	Cooling Unit	Maximum Ambient Temp
A	1079A	240/120V, Single Phase, 4-wire, 60Hz	Terminal Connection at Circuit Breaker	Air Conditioner	125°F * (51.7°C)
	1079A-2	240V, Single Phase, 3-wire, 50Hz	Terminal Connection at Circuit Breaker	Air Conditioner	125°F * (51.7°C)
	1079B	240/120V, Single Phase, 4-wire, 60Hz	Terminal Connection at Circuit Breaker	Heat Exchanger	100°F (37.8°C)
	1079B-2	240V, Single Phase, 3-wire, 50Hz	Terminal Connection at Circuit Breaker	Heat Exchanger	100°F (37.8°C)

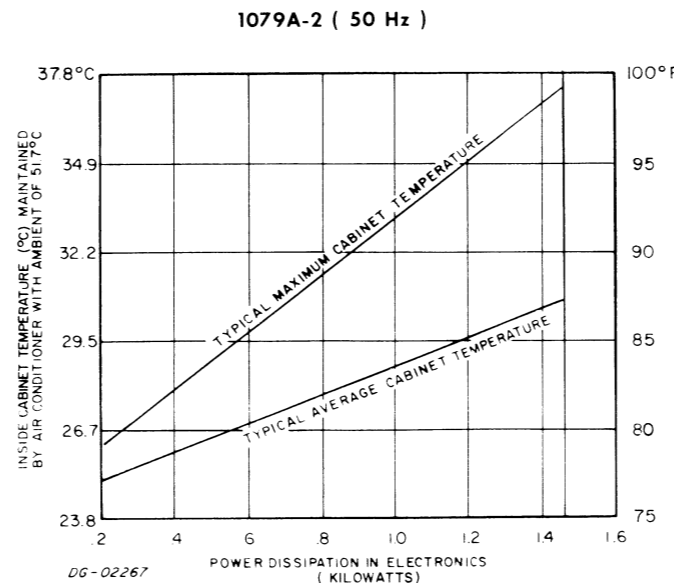
DG-02394

\* Decrease maximum operating ambient temperature linearly with altitude at the rate of 2°F per 1000ft (1.1°C per 304.8m)

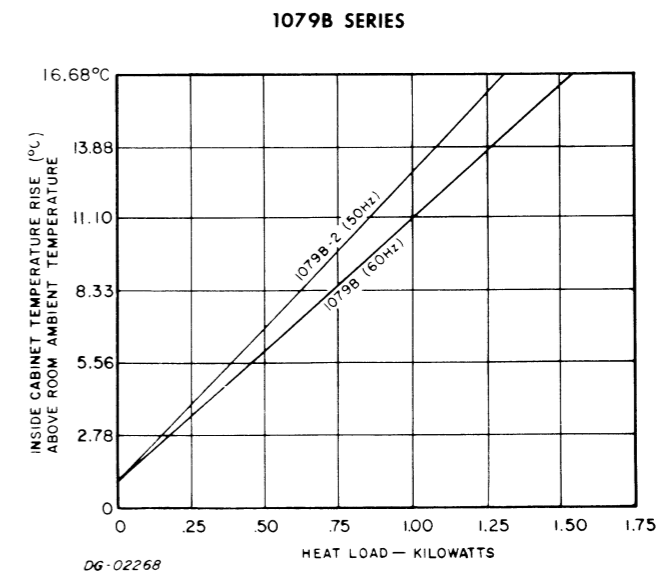
### COOLING PERFORMANCE - INTERNAL TEMPERATURE RISE vs. INTERNAL EQUIPMENT POWER DISSIPATION



DG-02266



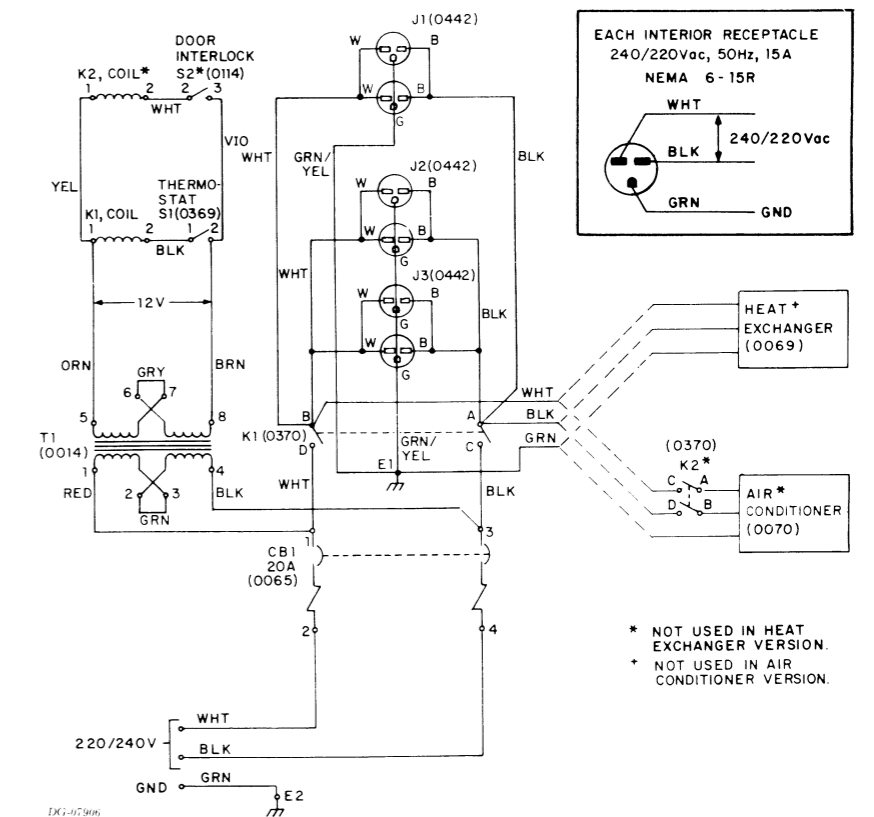
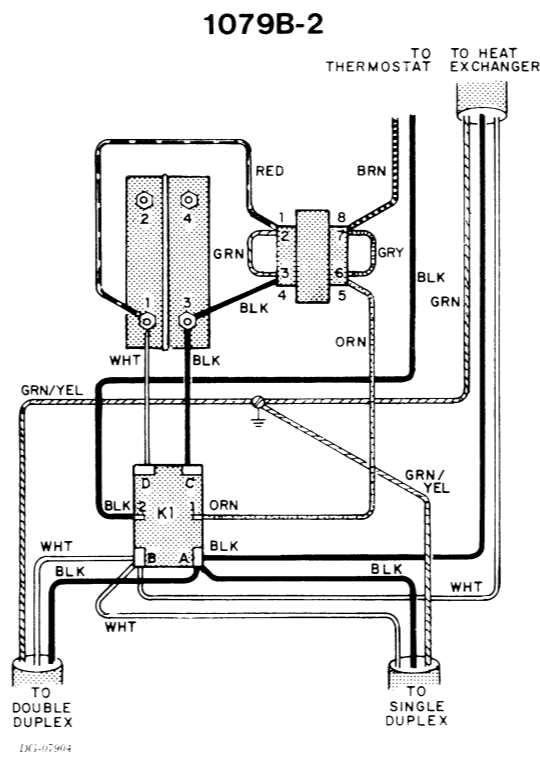
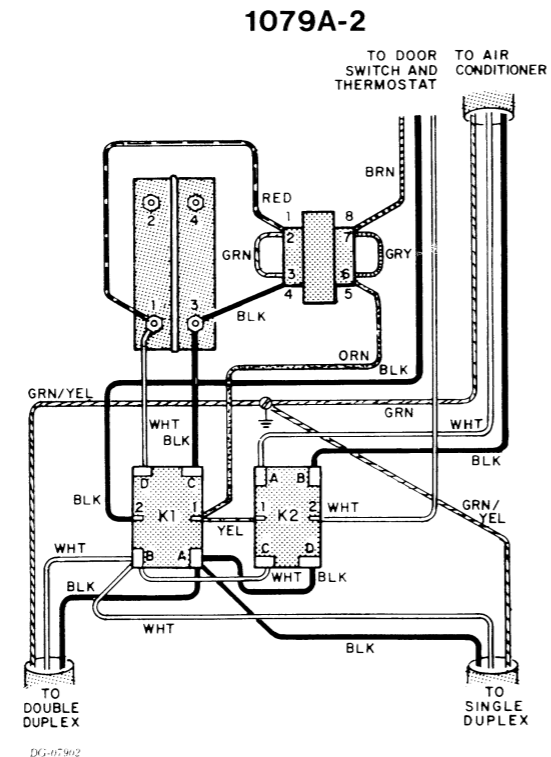
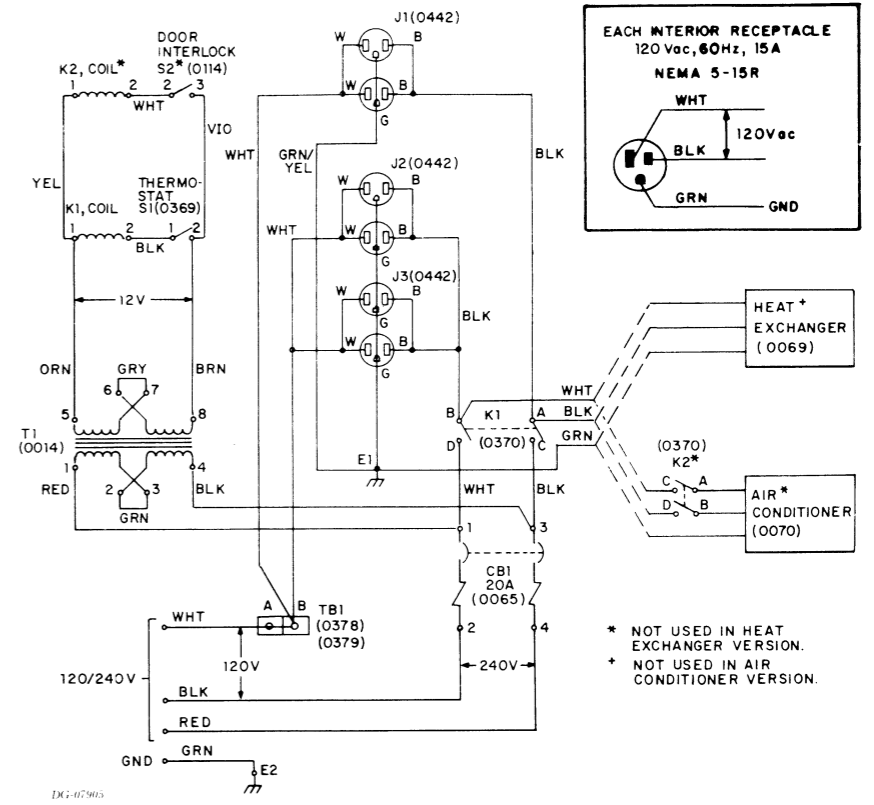
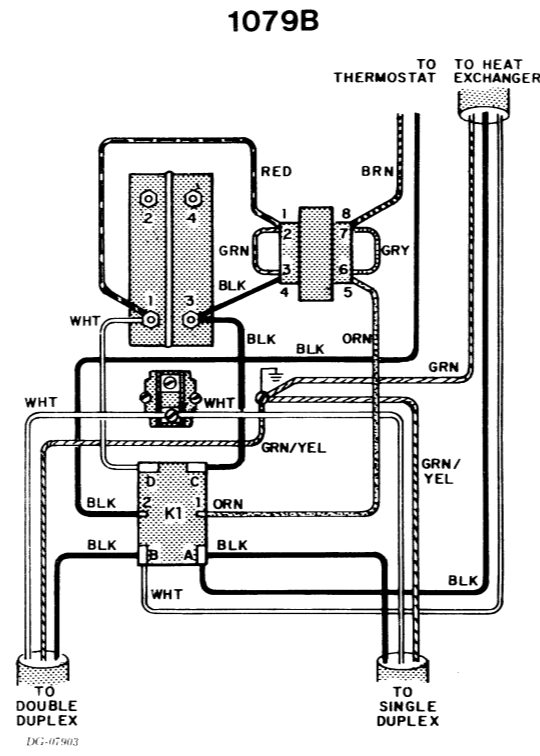
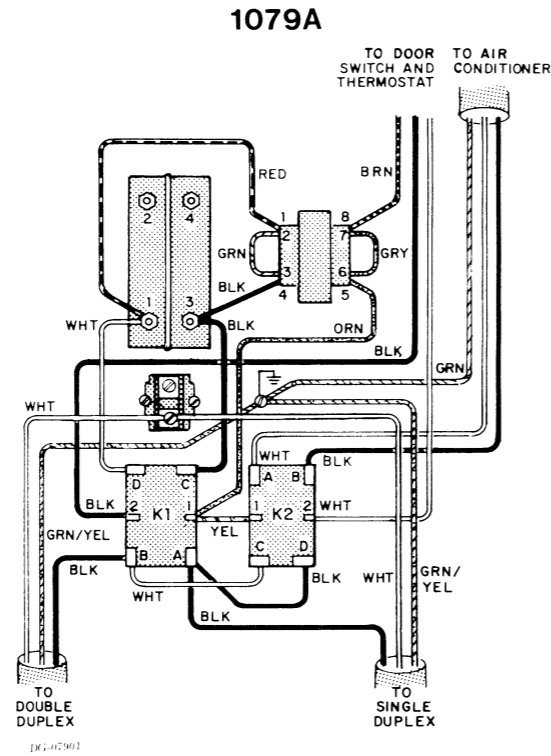
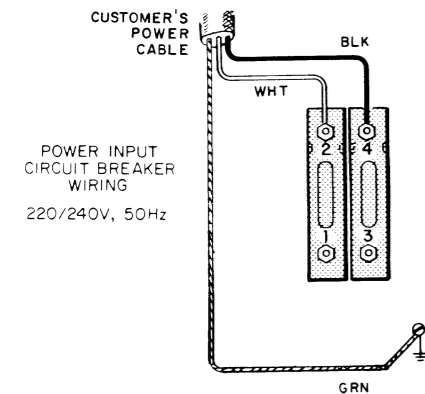
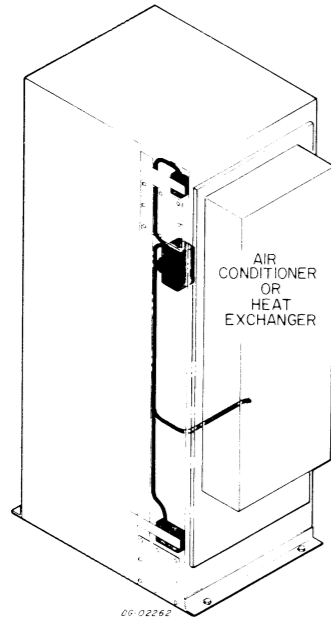
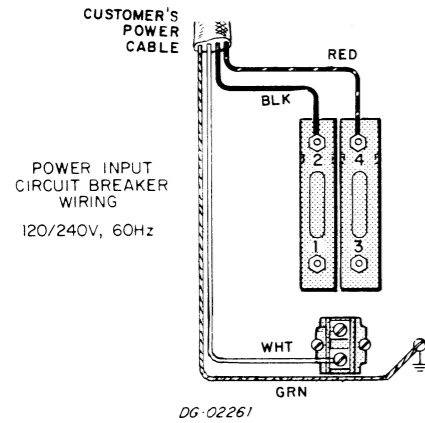
DG-02267



DG-02268

### ENCLOSURES, SERIES 1079

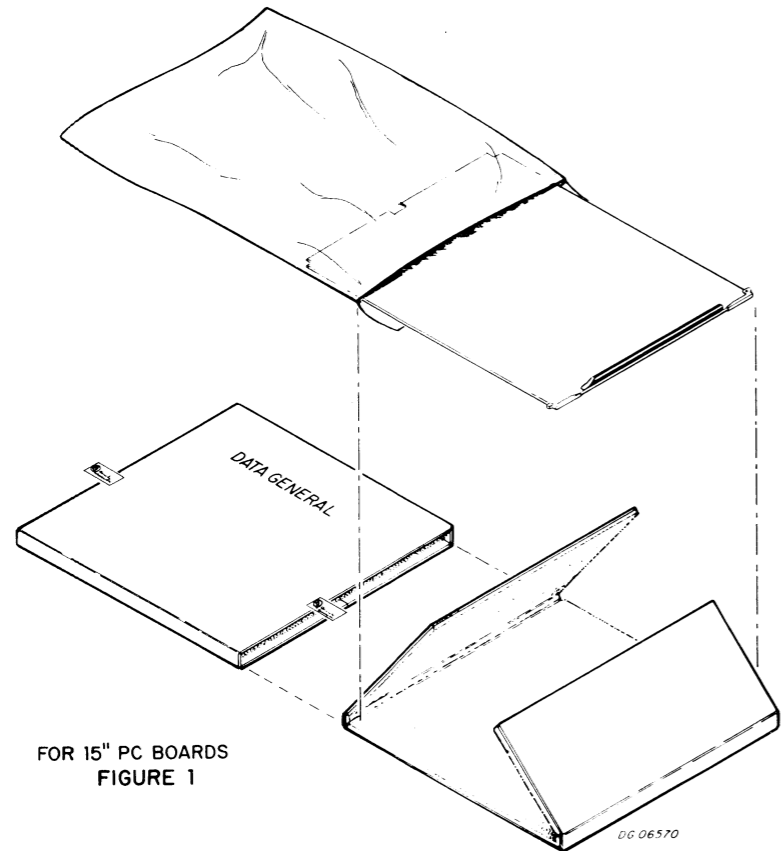
# INTERNAL AND EXTERNAL CABLING



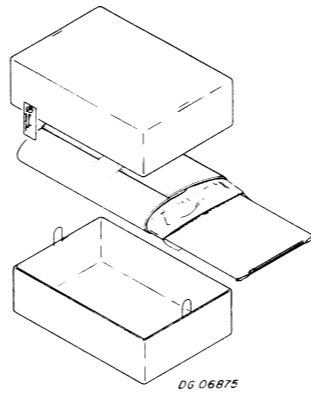


# **PACKAGING**

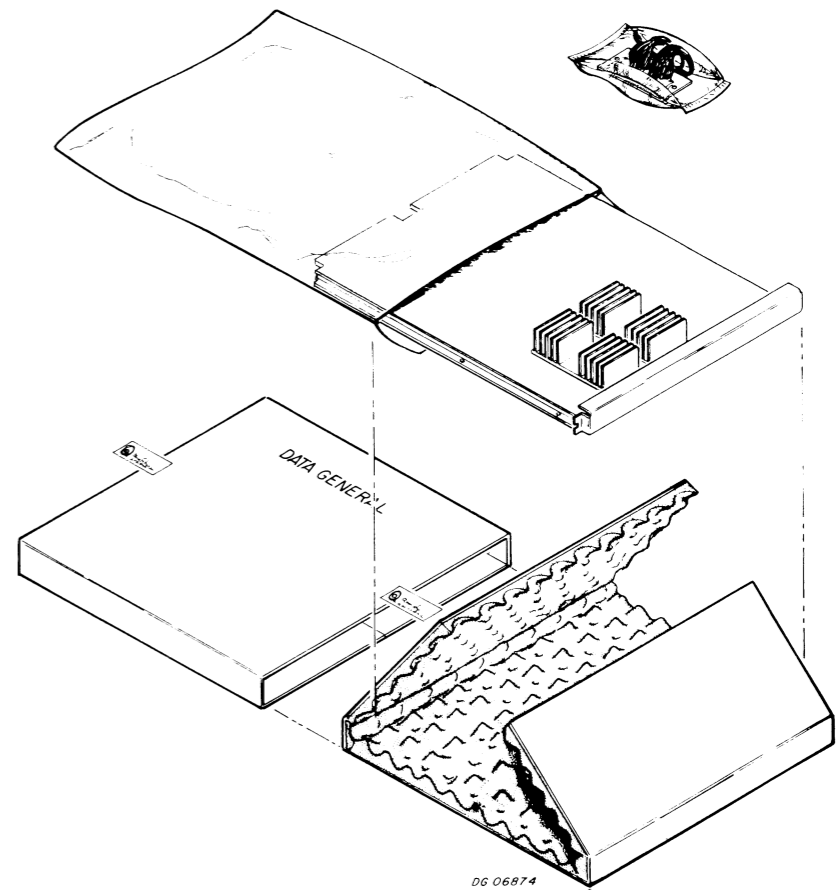




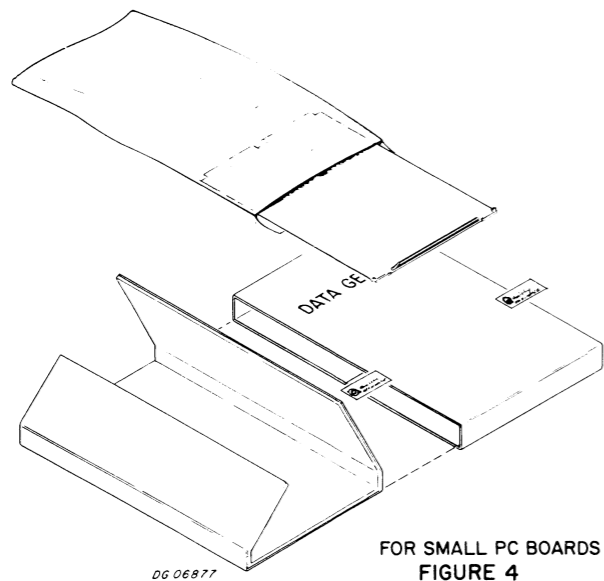
FOR 15" PC BOARDS  
FIGURE 1



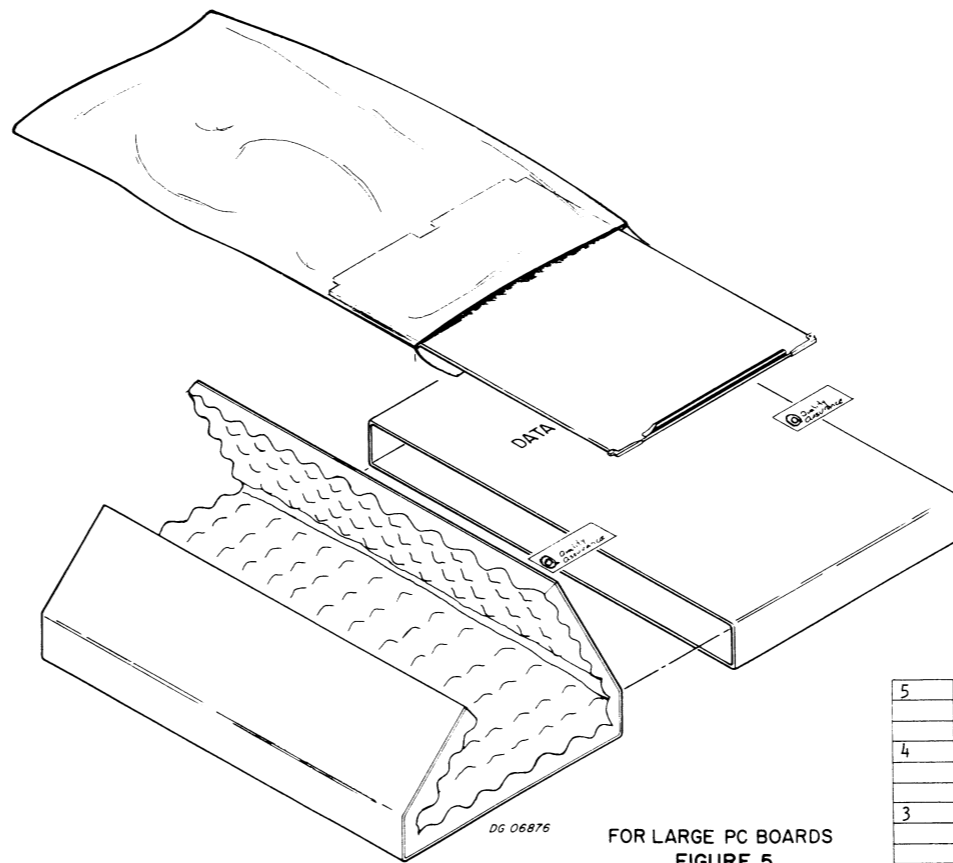
FOR SMALL PC BOARDS  
FIGURE 2



FOR 16" PC BOARDS  
FIGURE 3

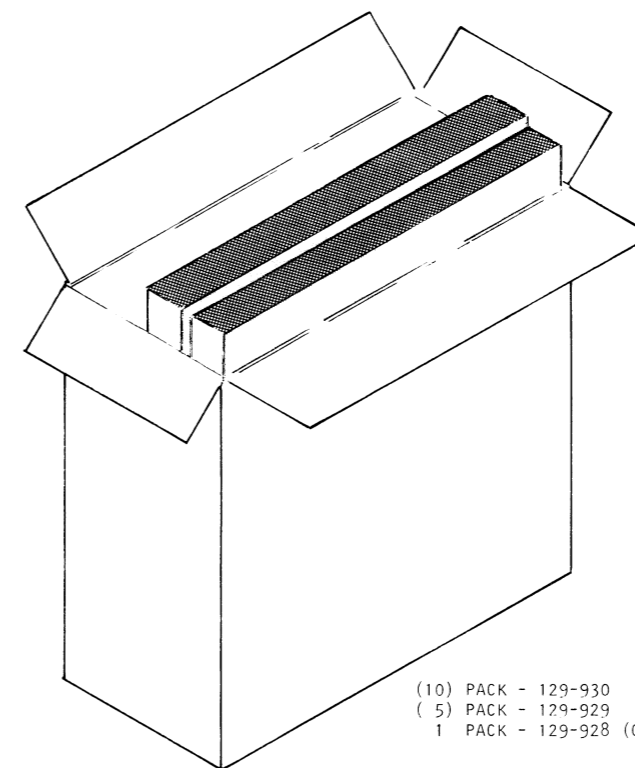
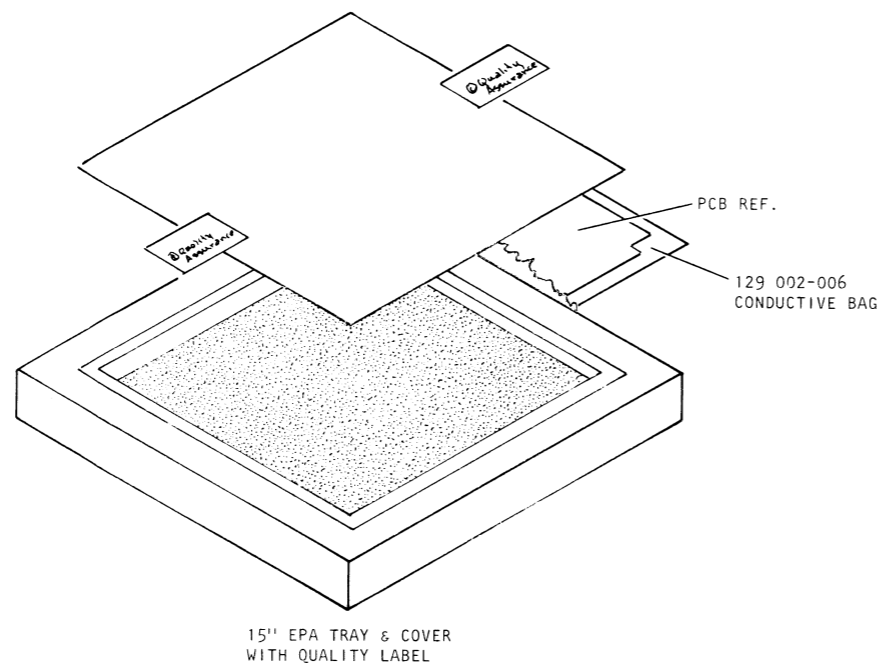


FOR SMALL PC BOARDS  
FIGURE 4



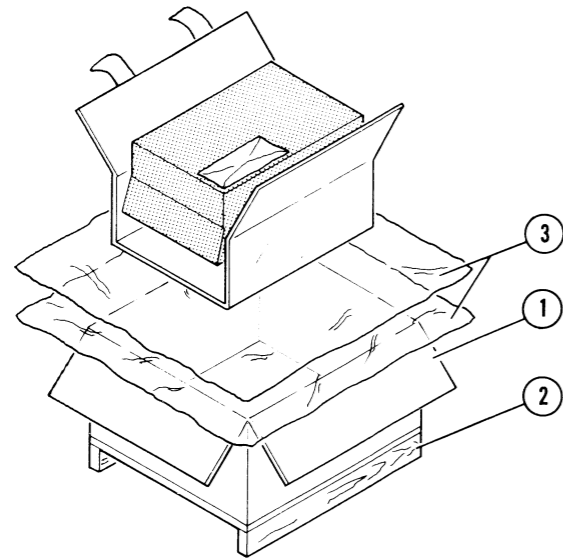
FOR LARGE PC BOARDS  
FIGURE 5

5	1	TWO PIECE FOLDER	136-000231
	1	PLASTIC BAG OR FILM	129-000315
	2	QUALITY ASSURANCE LABEL	119-000136
4	1	TWO PIECE FOLDER	136-000258
	1	PLASTIC BAG 6 X 12	129-000034
	2	QUALITY ASSURANCE LABEL	119-000136
3	1	TWO PIECE FOLDER	136-000259
	1	PLASTIC BAG 16 X 21	136-000315
	2	QUALITY ASSURANCE LABEL	119-000136
2	1	MASON MAILER P94	136-000233
	1	PLASTIC BAG 6 X 12	129-000034
	1	QUALITY ASSURANCE LABEL	119-000136
1	1	TWO PIECE FOLDER	129-000805
	1	PLASTIC BAG 16 X 21	136-000315
	2	QUALITY ASSURANCE LABEL	119-000136
ITEM	QTY	DESCRIPTION	PART NO.

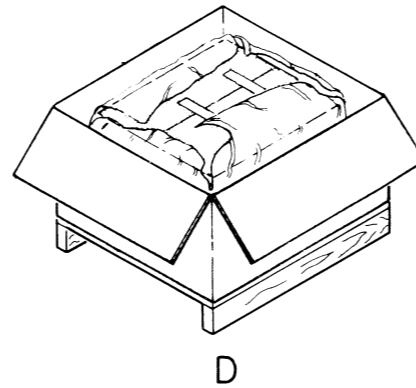


ITEM	CODE	DWG	NO.	DESCRIPTION	CIRCUIT REFERENCE	TOTAL QTY
REF	129	000	929	RSC (HOLDS 5 TRAYS)		A/R
7	129	000	136	QUALITY ASSURANCE LABEL		2
66	129	000	930	RSC (HOLDS 10 TRAYS)		1
5	129	000	927	COVER		1
4	129	000	839	15" EPA		*10
3	129	000	030	LABEL		1
2	129	000	027	SEALING TAPE		24"
1	129	002	006	CONDUCTIVE BAG 18"x18"	RELEASED ON ECO 15150	*10

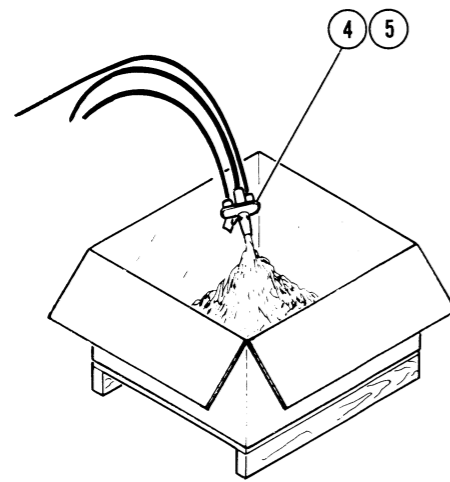




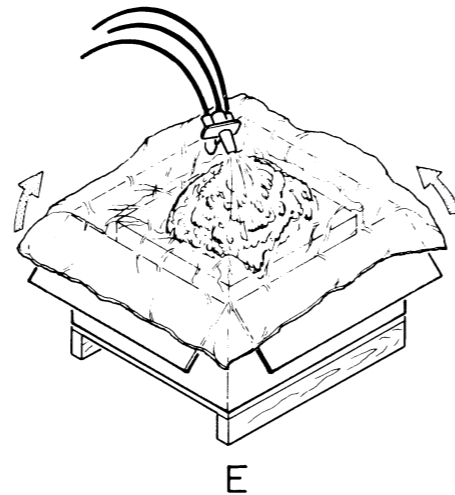
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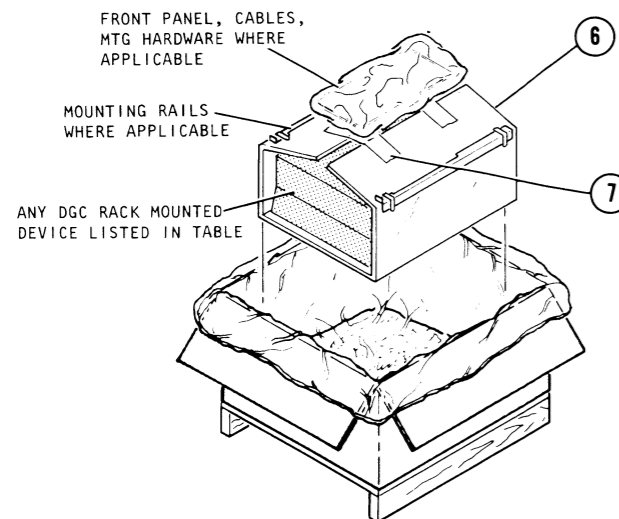
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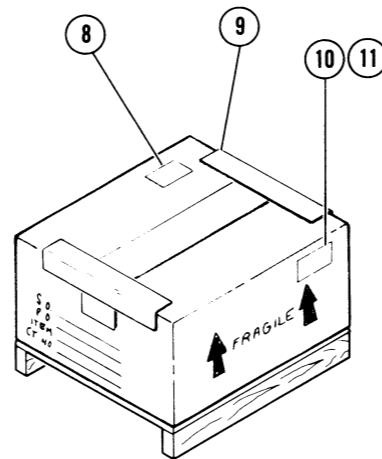
B



E

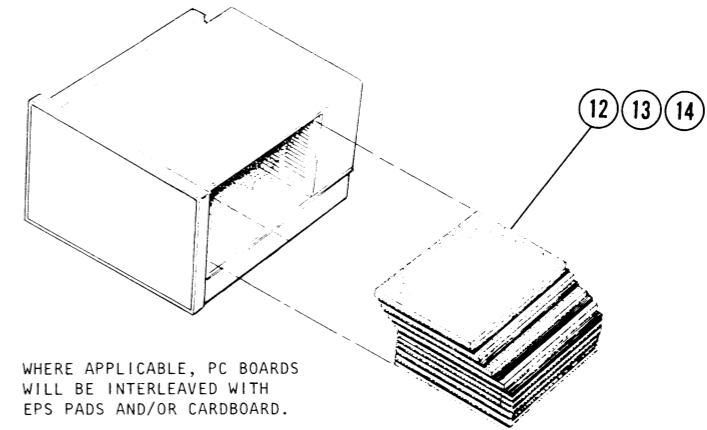


C



F

—DETAIL A—



WHERE APPLICABLE, PC BOARDS WILL BE INTERLEAVED WITH EPS PADS AND/OR CARDBOARD.

GENERAL PROCEDURE FOR FOAM-IN-PLACE PACKAGING

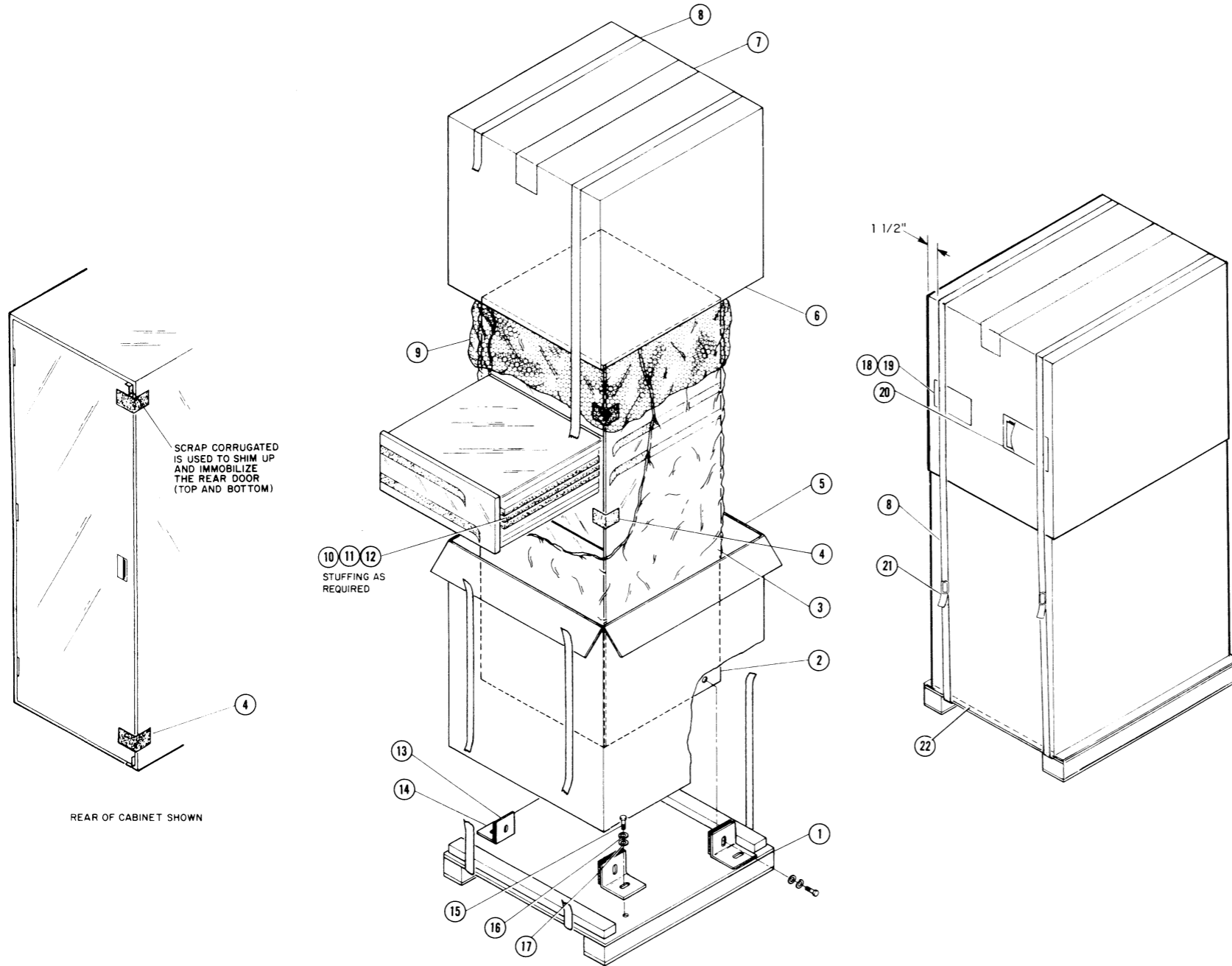
- A. SET UP CARTON.  
CUT 2 SHEETS OF POLYTHYLENE FILM 6 FEET LONG.  
WRAP PRODUCT IN SLEEVE AND CLOSE WITH PERMACEL TAPE.
- B. SPRAY FOAM INTO BOTTOM OF CARTON TO FORM 4-INCH THICK CUSHION.
- C. AS FOAM RISES, PLACE ONE SHEET OF POLYFILM OVER FOAM, AND PRODUCT OVER FILM.
- D. WRAP EXCESS FILM AROUND PRODUCT.
- E. PLACE THE SECOND SHEET OF FILM OVER THE PRODUCT.  
MAKE CERTAIN THAT THE FILM CONFORMS TO SPACES AROUND THE PRODUCT.  
SPRAY FOAM AROUND AND OVER THE PRODUCT. AS THE FOAM EXPANDS, FOLD THE FILM AND CARTON FLAPS OVER IT, FORMING A MOLDED CAP. OPEN AND INSPECT FOR VOIDS. FILL ANY VOIDS.
- F. CLOSE AND SEAL CARTON. APPLY LABEL AND COVER WITH CLEAR SCOTCH TAPE.

NOTE	RACK MOUNTED DEVICE	B.O.M.
SEE DETAIL A	21" RACK MOUNTS	044-000052
	5.25" RACK MOUNTS	044-000053
	10.5" RACK MOUNTS	044-000054
	14" RACK MOUNTS	044-000055
	8.75" RACK MOUNTS	044-000056
	7" RACK MOUNTS	044-000057

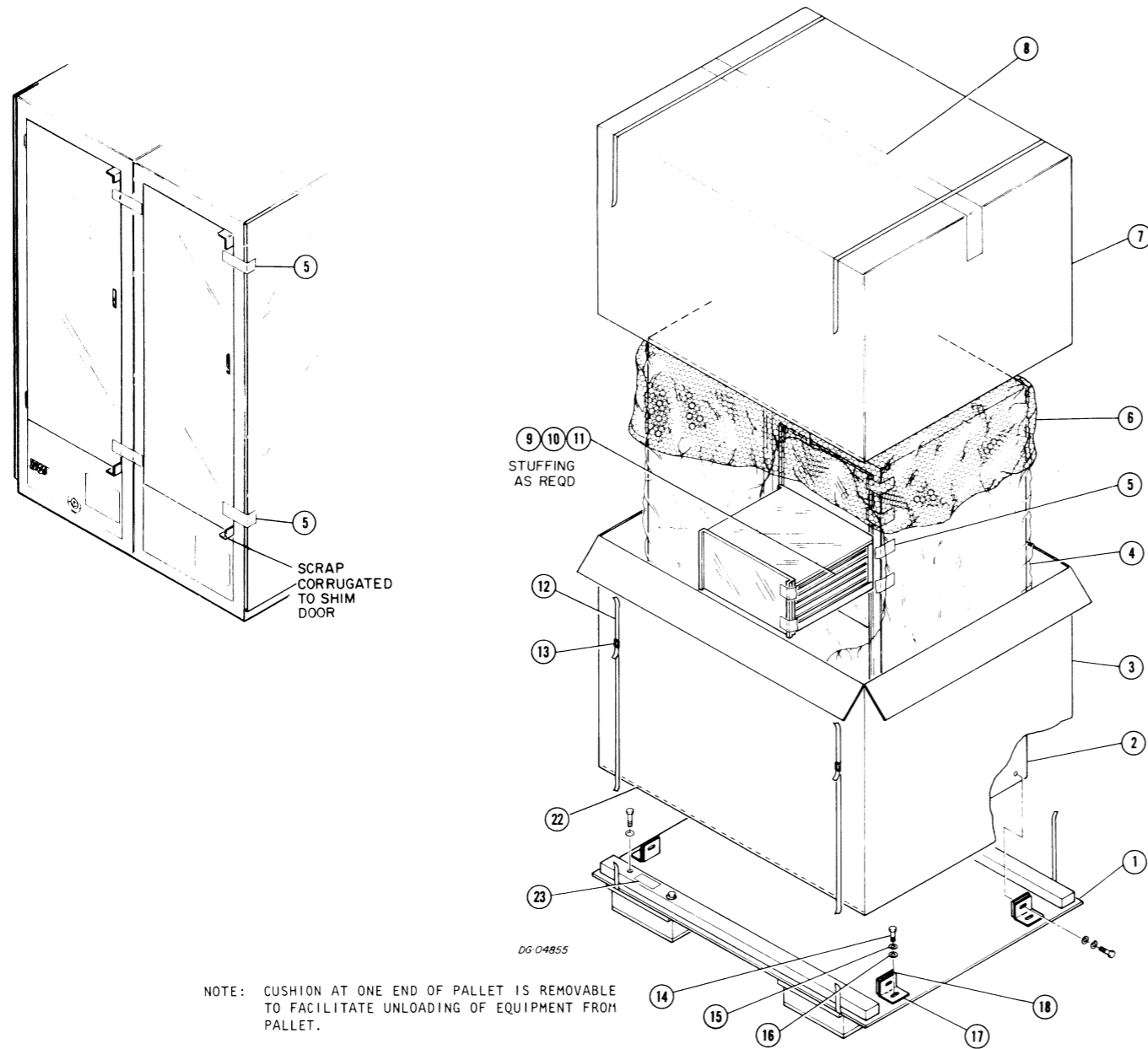
ELEMENTS OF SHIPPING PACKAGE (044)

ITEM	DESCRIPTION	PART NO.						
1	RSC 36 x 27 x 30	129-000325			1			1
	RSC 36 x 27 x 19.25	129-000318					1	1
2	PALLET 36 x 27	129-000316	1	1	1	1	1	1
3	POLYFILM 100"	129-000315	A/R	A/R	A/R	A/R	A/R	A/R
4	PART "A" FOAM IN PLACE (LB.)	129-000319	1.7	1.8	2.25	2	1.6	2.75
5	PART "B" FOAM IN PLACE (LB.)	129-000320	1.7	1.8	2.25	2	1.6	2.75
6	SLEEVE	129-000326			1			1
	SLEEVE	129-000321	1	1		1	1	
7	PERMACEL TAPE	129-000026	1FT	1FT	1FT	1FT	1FT	1FT
8	PKG LIST ENVELOPE	129-000042	1	1	1	1	1	1
9	TAPE	129-000027	A/R	A/R	A/R	A/R	A/R	A/R
10	DGC SHIPPING LABEL	129-000030	1	1	1	1	1	1
11	CLEAR SCOTCH TAPE	129-000051	2FT	2FT	2FT	2FT	2FT	2FT
12	CARDBOARD 14 1/2 x 14 1/2	129-000044	A/R	A/R	A/R	A/R	A/R	A/R
13	EPS PAD 1/2"	129-000052	A/R	A/R	A/R	A/R	A/R	A/R
14	EPS PAD 1"	129-000053	A/R	A/R	A/R	A/R	A/R	A/R

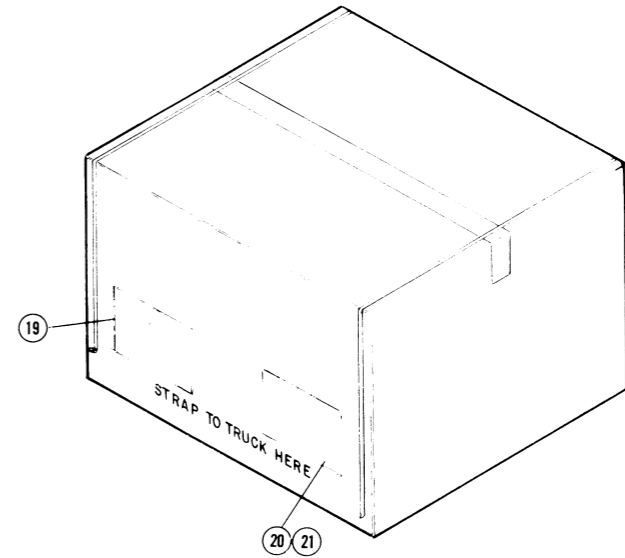
FOAM-IN-PLACE PROCEDURE



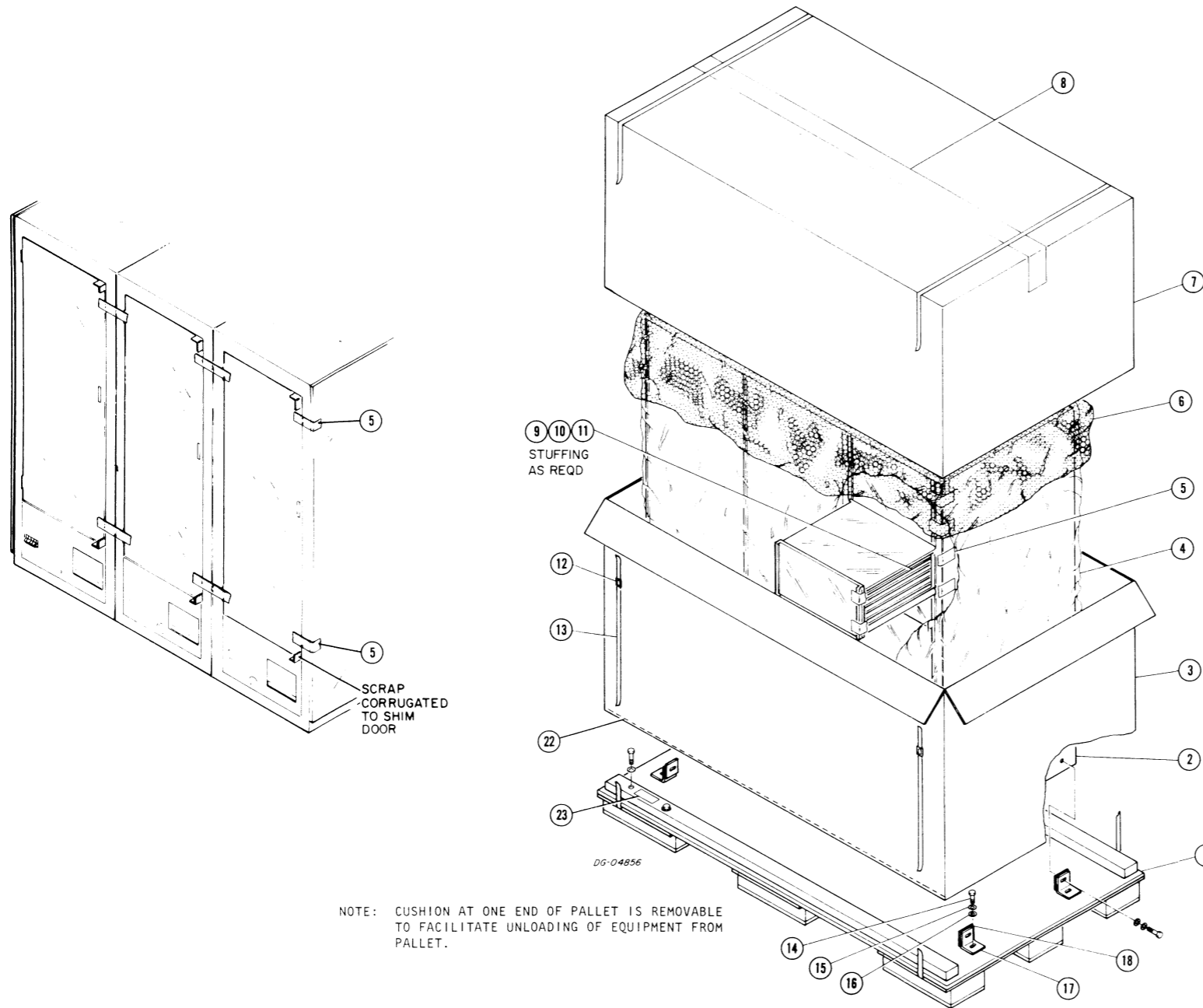
22	A/R	1" CROWN, 1" LEG STAPLE	129-000165
21	2	BUCKLE, AVB-4	129-000025
20	1	ENVELOPE, PACKING LIST 6 3/4 x 5	129-000042
19	A/R	WATER GLASS	
18	1	LABEL, SHIPPING	129-000030
17	8	WASHER, FLAT 3/8	106-000621
16	8	LOCK WASHER, SPLIT, 3/8	106-000622
15	8	BOLT, HEX.HD. 3/8-16 x 1	106-000618
14	4	BRACKET, SHIPPING	002-005294
13	4	D/C SEPARATOR	129-000206
12	A/R	14 1/2 x 14 1/2 "C" FLUTE CORR. PAD	129-000044
11	A/R	14 1/2 x 14 1/2 x 1 EPS PAD 1"	129-000053
10	A/R	14 1/2 x 14 1/2 x 1/2 EPS PAD 1"	129-000052
9	6 FT	AIRCAP	129-000035
8	45 FT	STRAPPING, POLYPROPYLENE	129-000123
7	54"	TAPE, CLOSURE	129-000027
6	1	HALF SLOTTED CONTAINER	129-000367
5	1	TUBE	129-000366
4	A/R	TAPE, FILAMENT, 2"	129-000370
3	1	POLYBAG	129-000133
2	1	CABINET, SINGLE BAY	
1	1	PALLET	129-000324
ITEM	QTY.	DESCRIPTION	PART NO.



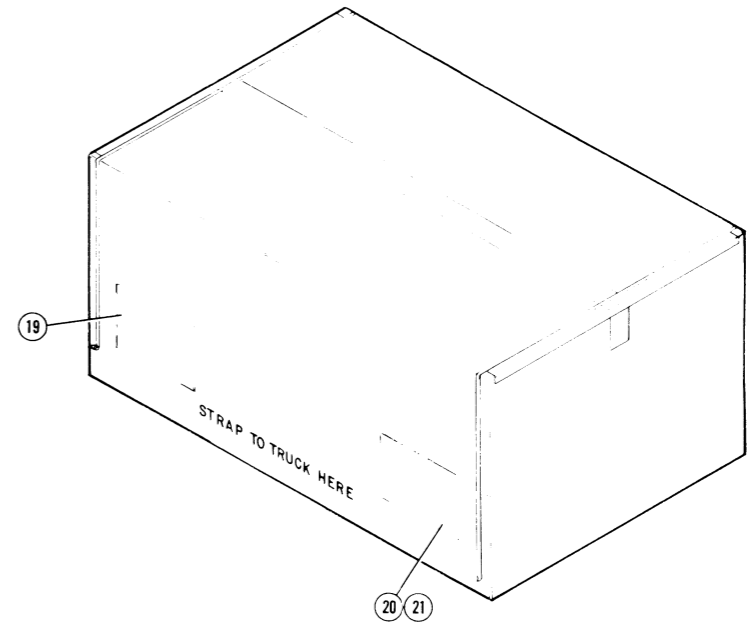
NOTE: CUSHION AT ONE END OF PALLET IS REMOVABLE TO FACILITATE UNLOADING OF EQUIPMENT FROM PALLET.



23	2	LABEL, UNLOADING INSTRUCTIONS	129-000380
22	A/R	1" CROWN, 1" LEG STAPLE	129-000165
21	2 FT	2" CLEAR SCOTCH TAPE	129-000051
20	1	PACKING LIST ENV. 6 3/4 x 5	129-000042
19	1	DGC SHIPPING LABEL	129-000030
18	4	D/C SEPARATOR	129-000206
17	4	BRACKET, SHIPPING	002-005294
16	8	WASHER, FLAT, 3/8	106-000621
15	8	LOCK WASHER, SPLIT, 3/8	106-000622
14	8	BOLT, HEX. HD. 3/8-16 x 1	106-000618
13	2	BUCKLE, AVB-4	129-000025
12	50 FT	POLYPROPYLENE STRAPPING	129-000123
11	A/R	14 1/2 x 14 1/2 x 1" EPS PAD	129-000053
10	A/R	14 1/2 x 14 1/2 x 1/2 EPS PAD	129-000052
9	A/R	14 1/2 x 14 1/2 "C" FLUTE CORE	129-000044
8	12 FT	CLOSURE TAPE	129-000027
7	1	HALF SLOTTED CONTAINER	129-000336
6	8 FT	AIRCAP	129-000035
5	A/R	2" FILAMENT TAPE	129-000370
4	1	POLYBAG 48 x 34 x 71 x 0.003	129-000170
3	1	TUBE	129-000334
2	1	CABINET, DOUBLE BAY	
1	1	PALLET	129-000323
ITEM	QTY.	DESCRIPTION	PART NO.



NOTE: CUSHION AT ONE END OF PALLET IS REMOVABLE TO FACILITATE UNLOADING OF EQUIPMENT FROM PALLET.



23	2	LABEL, UNLOADING INSTRUCTIONS	129-000380
22	A/R	1" CROWN, 1" LEG STAPLE	129-000165
21	2 FT	2" CLEAR SCOTCH TAPE	129-000051
20	1	PACKING LIST ENV. 6 3/4 x 5	129-000042
19	1	DGC SHIPPING LABEL	129-000030
18	4	D/C SEPARATOR	129-000206
17	4	BRACKET, SHIPPING	002-005294
16	8	WASHER, FLAT, 3/8	106-000621
15	8	LOCK WASHER, SPLIT, 3/8	106-000622
14	8	BOLT, HEX. HD 3/8-16 x 1	106-000618
13	50 FT	POLYPROPYLENE STRAPPING	129-000123
12	2	BUCKLE, AVB-4	129-000025
11	A/R	14 1/2 x 14 1/2 x 1 EPS PAD	129-000053
10	A/R	14 1/2 x 14 1/2 x 1/2 EPS PAD	129-000052
9	A/R	14 1/2 x 14 1/2 "C" FLUTE CORE	129-000044
8	14 FT	REINFORCED SEALING TAPE 3"	129-000027
7	1	HALF SLOTTED CONTAINER	129-000335
6	12 FT	AIRCAP	129-000035
5	A/R	2" FILAMENT TAPE	129-000370
4	1	POLYBAG 80 X 34 X 71	129-000368
3	1	TUBE	129-000333
2	1	CABINET, THREE BAY	
1	1	PALLET	129-000322
ITEM	QTY.	DESCRIPTION	PART NO.

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