

digital

ICS-8

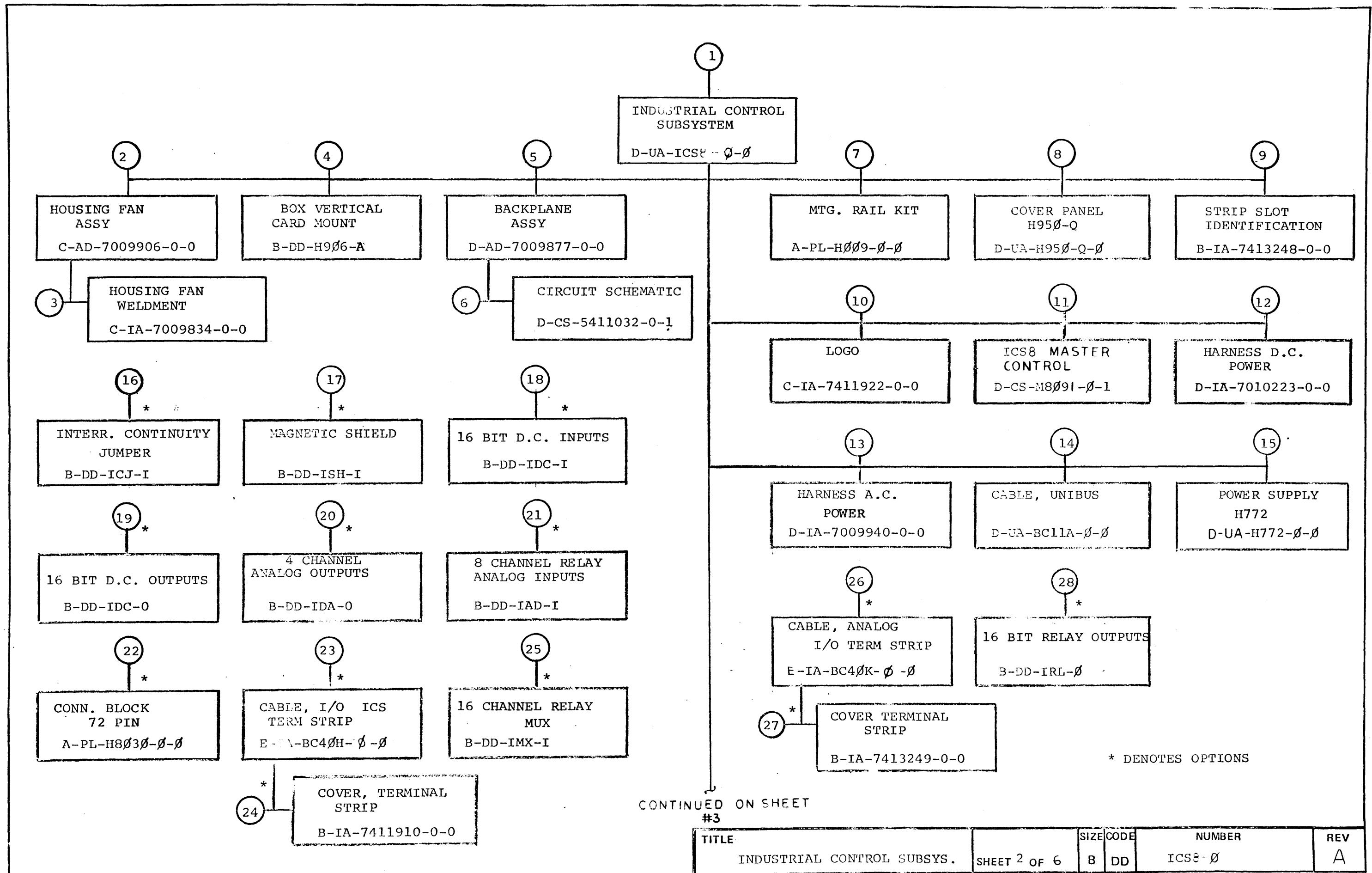
Engineering Drawings

Digital Equipment Corporation

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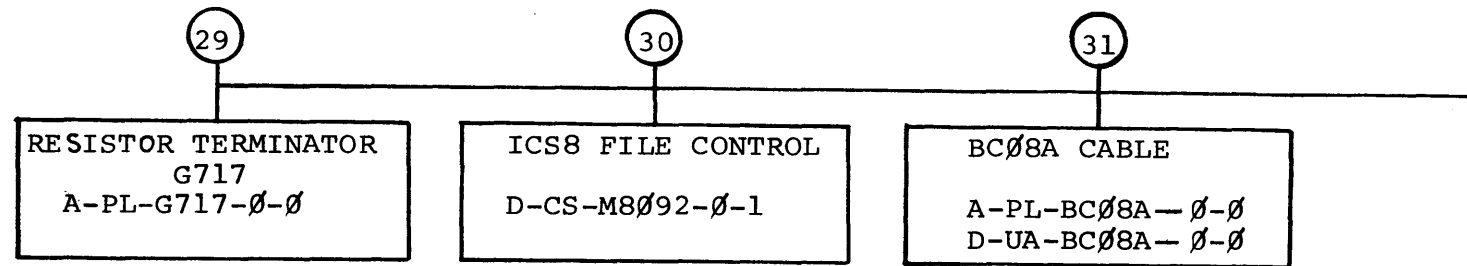


CONTINUED ON SHEET #3

* DENOTES OPTIONS

TITLE	SIZE	CODE	NUMBER	REV
INDUSTRIAL CONTROL SUBSYS.	B	DD	ICS8-0	A

CONTINUED FROM
SHEET #2



TITLE INDUSTRIAL CONTROL SUBSYSTEM	SHEET 3 OF 6	SIZE CODE B DD	NUMBER ICS8-Ø	REV A
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CUSTOMER PRINT SET				ELECTRICAL					CUSTOMER PRINT SET				ELECTRICAL						
			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE				MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
	X	X		1	D-UA-ICS8-0-0	A	2	INDUSTRIAL CONTROL SUBSYSTEM			X	X		12	D-IA-7010223-0-0		1	HARNESS, D.C. POWER	
	X	X			A-PL-ICS8-0-0	A	2	INDUSTRIAL CONTROL SUBSYSTEM											
	X	X			D-AR-ICS11-M-1		3	ICS ARRANGEMENT DRAWING											
	X	X			A-PL-ICS8-0-3		1	SHIPPING LIST											
					A-SP-ICS8-0-4	A	26	ICS8 ENG. SPEC.											
	X	X			A-SP-ICS8-0-5	A	22	ICS8 FIELD ACCEPTANCE			X	X		13	D-IA-7009940-0-0		1	HARNESS, A.C. POWER	
					A-SP-ICS11-M-6		10	FILE BOX TEST PROCEDURE											
					B-DD-7010327-0			ICS11 MODULE TESTER											
					B-DD-7010596-0			ICS11 SYSTEM TESTER											
											X			14	D-UA-BC11A-0-0		1	CABLE, UNIBUS	
											X	X		15	D-UA-H772-0-0		2	POWER SUPPLY (UA & CS)	
															C-PC-H772-0-2		1	H772 Etch BD.	
															A-SP-H772-0-3			H772 P.S. TEST PROCEDURE	
															D-SP-H772-0-4		1	H772 TRANSFORMERS	
															C-AH-H772-0-5		1	H772 FAB. DWG. P.C. BOARD	
															A-PS-H772-0-6		12	H772	
	X	X		2	C-AD-7009906-0-0		1	HOUSING, FAN ASSY											
	X	X		5	D-AD-7009877-0-0		2	BACKPLANE ASSY											
					A-WT-7009877-0		1	ETCH WIRE LIST											
	X	X		6	D-CS-5411032-0-1		2	CIRCUIT SCHEMATIC											
					K-CO-5411032-0-4		1	X-Y COORDINATE HOLE LOCATION											
					E-AH-5411032-0-5		1	ASSY/DRILLING HOLE LAYOUT											
					B-MH-5411032-0-6		1	MODULE ECO HISTORY											
	X	X			K-WL-5411032-0-8		1	WIRE LIST											
					K-WL-5411032-0-9		1	WIRE LIST FOR AWT ONLY											
					D-IA-5011031-0-0		1	BOARD ICS BACKPLANE											
	X			11	D-CS-M8091-0-1		7	ICS8 MASTER CONTROL											
					D-AH-M8091-0-5		1	ASSY/DRILLING HOLE LAYOUT											
					K-CO-M8091-0-4		1	X-Y COORDINATE HOLE LOCATION											
					B-MH-M8091-0-6		1	MODULE ECO HISTORY											
CUSTOMER PRINT SET CODES	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED									TITLE	INDUSTRIAL CONTROL SUBSYSTEM			SIZE	CODE	NUMBER	REV		
											SHEET 4 OF 6			B	DD	ICS8-0	A		

CUSTOMER PRINT SET				MECHANICAL					CUSTOMER PRINT SET				MECHANICAL						
			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE				MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			2 1	8	D-UA-H950-Q-0		1	H950-Q COVER PANEL						22	A-PL-H8030-0-0		1	CONN. BLOCK 72 PIN	
					E-SC-1209225-0-0		1	10.5 SNAP ON BEZEL											
					C-SC-1209176-0-0		1	INLAY											
				9	B-IA-7413248-0-0		1	STRIP SLOT IDENTIFICATION						23	E-IA-BC40H-0-0		1	CABLE, I/O ICS TERM STRIP	
					A-SS-7413248-0-1		1	SILK SCREEN							C-MD-7411920-0-0		1	CONN. BLOCK 72 PIN	
															D-MD-7411869-0-0		1	BRACKET, TERMINAL STRIP	
				10	C-IA-7411922-0-0		1	LOGO						24	B-IA-7411910-0-0		1	COVER, TERMINAL STRIP	
					A-SS-7411922-0-1		1	SILK SCREEN							C-SS-7411910-0-1		1	SILK SCREEN	
					A-SS-7411922-0-2		1	SILK SCREEN											
					A-SS-7411922-0-3		1	SILK SCREEN											
					A-SS-7411922-0-4		1	SILK SCREEN											
				12	D-IA-7010223-0-0		1	HARNESS, D.C. POWER						26	E-IA-BC40K-0-0		1	CABLE, ANALOG I/O TERM STRIP	
															C-MD-7411920-0-0		1	CONN BLOCK 72 PIN	
															D-MD-7411869-0-0		1	BRACKET, TERMINAL STRIP	
				13	D-UA-7009940-0-0		1	HARNESS, A.C. POWER						27	B-IA-7413249-0-0		1	COVER TERMINAL STRIP	
															C-SS-7413249-0-1		1	SILK SCREEN	
				14	D-UA-BC11A-0-0		1	CABLE, UNIBUS											
				15	D-UA-H772-0-0		2	POWER SUPPLY (UA & CS)						31	D-UA-BC08A-0-0		1	BC08A-CABLE	
					D-MD-H772-0-1		2	CHASSIS							A-PL-BC08A-0-0		1	BC08A CABLE (PL)	
					A-PS-H772-0-6		12	H772											
				17	B-DD-ISH-I			MAGNETIC SHIELD											

CUSTOMER PRINT SET CODES
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE
INDUSTRIAL CONTROL SUBSYSTEMS
SHEET 6 OF 6
SIZE CODE
B DD
NUMBER
ICS8-0
REV
A

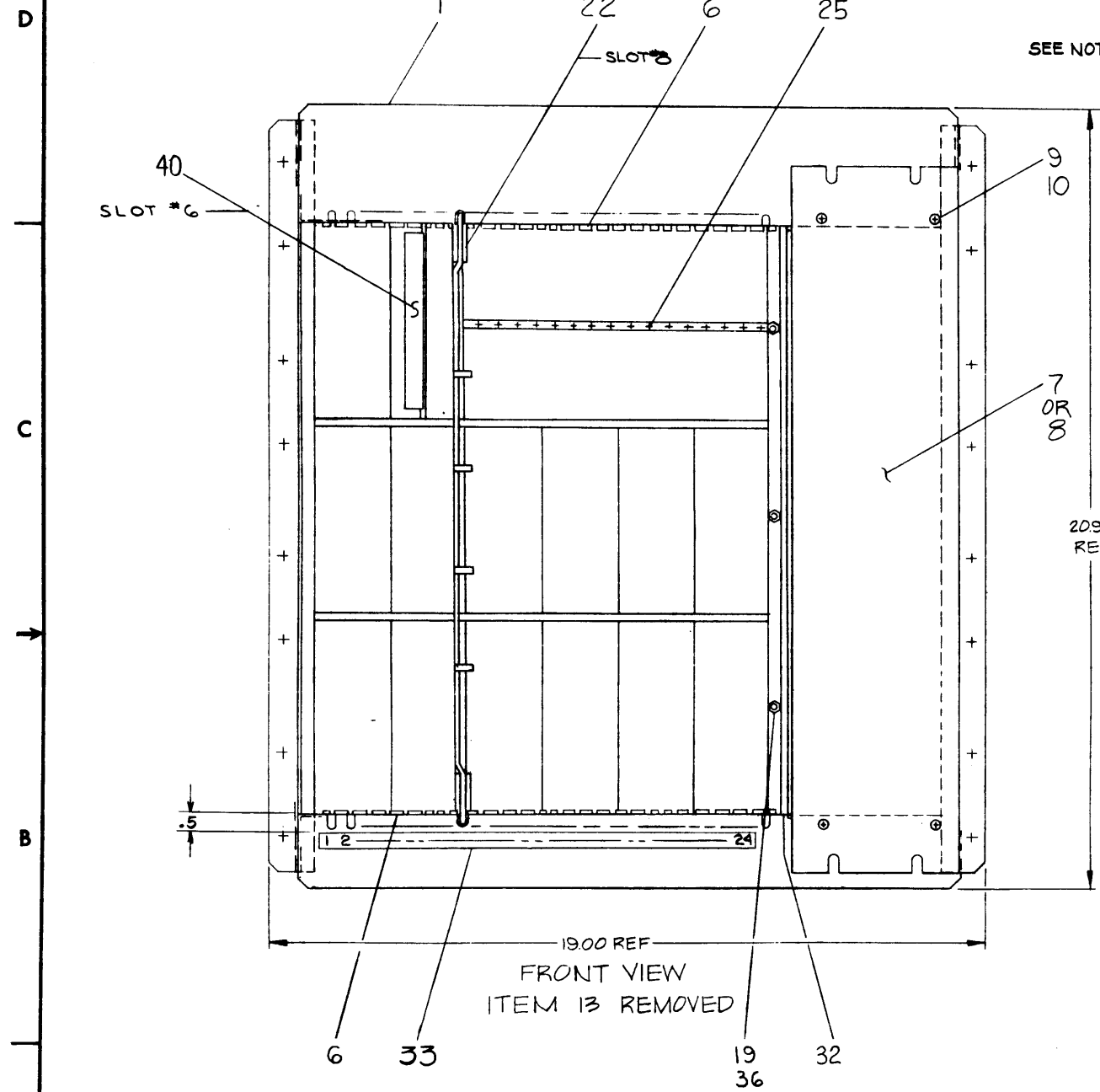
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY / VARIATION												
PARTS LIST				ICS8-MA	ICS8-MB	ICS8-XA	ICS8-XB									
MADE BY	DATE	CHECKED	DATE													
ENG	DATE	PROD	DATE	ISSUED SECT.												
Neil Slavin		<i>Sid Roberts</i>	4-2-75													
<i>Neil Slavin</i>	4/2/75	R. X. Allen	4-2-75													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION		ICS8-MA	ICS8-MB	ICS8-XA	ICS8-XB									
1	ICS8-MA	Industrial Control Subsystem 110V 60HZ		1	-	-	-									
2	ICS8-MB	Industrial Control Subsystem 220V 50HZ		-	1	-	-									
3	ICS8-XA	Industrial Control Subsystem Exp. 110V 60HZ		-	-	1	-									
4	ICS8-XB	Ind. Cont. Subsystem Exp. 220V 50HZ		-	-	-	1									
5	MP-ICS8-1	Print Set # 1		1	1	-	-									
6	MP-ICS8-2	Print Set # 2		-	-	1	1									
7	BC11A-06	Cable Unibus (Part of ICS8-X)		-	-	1	1									
8	BC08A-10	Cable		See note 5												
9	EK-ICS8-MM-001	Maintenance Manual		1	1	1	1									
10	ZF221-RB	ICS8 Field Test Program/Listing		1	1	1	1									
TITLE				ASSY NO.		SIZE CODE		NUMBER				REV.		ECO NO.		
SHIPPING LIST				B-DD-ICS8-0		A PL		ICS8-0-3								
SHEET 1 OF 1				DIST.												

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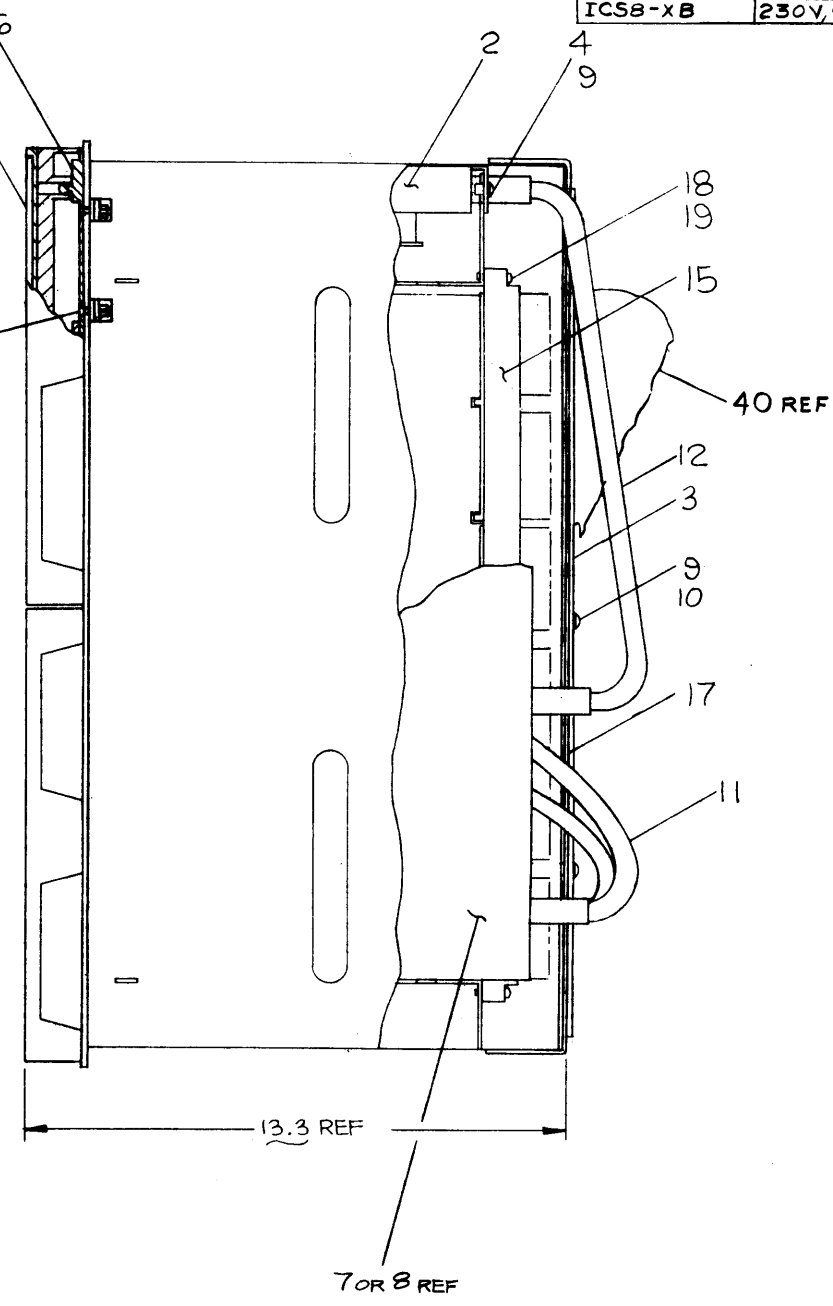
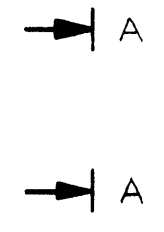
V 0-0-8501 MID 2

LEGEND	
NUMBER	VARIATION
ICSB-MA	115V, 60HZ
ICSB-MB	230V, 50HZ
ICSB-XA	115V, 60HZ
ICSB-XB	230V, 50HZ

- NOTES:
- ITEM NO. 23 IS INSTALLED IN ITEM NO. 1, SLOTS 27 & 33 (TOP & BOTTOM).
 - INSTALL LOGO (ITEM NO. 14) TO ITEM 13 (USING FIXTURE NO. D-9411846-1)
 - ITEM NO. 13 IS INSTALLED AFTER THE BALANCE OF THE ICSB HAS BEEN MOUNTED IN CABINET.
 - AN EXTERNALLY MOUNTED 7 TERMINAL BARRIER STRIP IS PROVIDED FOR AC INPUT LINE CONNECTIONS ON REAR OF POWER SUPPLIES. SEE CONNECTION BELOW.
- | NEUT | | CONNECTIONS | | | | | |
|----------------------|------------------|------------------|------------------|----------|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VOLTS | | 115V | 230V | ITEM NO. | | | |
| INPUT | 1-LINE
2-NEUT | 1-LINE
2-NEUT | 1-LINE
2-NEUT | 29/30 | | | |
| TERMINAL CONNECTIONS | 3 TO 5
4 TO 6 | 4 TO 5 | 35 (2" LENGTHS) | | | | |
| CHASSIS GROUND | 7 | 7 | 29/30 | | | | |
- FIRST PERIPHERAL ON POS I/O BUS WILL USE 3-BC08J WHICH ARE SUPPLIED WITH KABE OPTION. ANY OTHER PERIPHERAL WILL USE 3-BC08A WHICH MUST BE SUPPLIED. LAST PERIPHERAL ON POS I/O BUS 1-G717 TERMINATOR SLOT 005 ONLY (FOR ICSB-MA & ICSB-MB ONLY)
 - BC11A UNIBUS CABLE (ITEM 40) SUPPLIED WITH ICSB-XA & ICSB-XB VARIATIONS ONLY.



SEE NOTES 2 & 3



REV.	CHANGE NO.	DATE	BY	CHK
A	0001	8-11-75	N. SLAVIN	
		8-12-75		

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
ICSB					
PARTS LIST					
DIMENSIONAL TOLERANCE		DBN. DATE 4-17-74 CHK. DATE 1-27-75 ENR. DATE 1/29/75 PROD. DATE 2/27/75 PROD. DATE 2-22-75			
DIMENSIONS ARE UNLESS OTHERWISE SPECIFIED					
MILLIMETERS	INCHES	ANGLES	TITLE		
XXX = ±0.10	XXX = ±.008	90° 30'	INDUSTRIAL CONTROL SUBSYSTEM		
XX = ±0.5	XX = ±.02		SIZE CODE		
X = ±.2	X = ±.1		NUMBER		
THIRD ANGLE PROJECTION		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.	
MATERIAL SEE PARTS LIST		B-DD-ICSB-0		DUA	
FINISH		SCALE 1/2		ICSB-0-0	
		SHEET OF 2		REV. A	

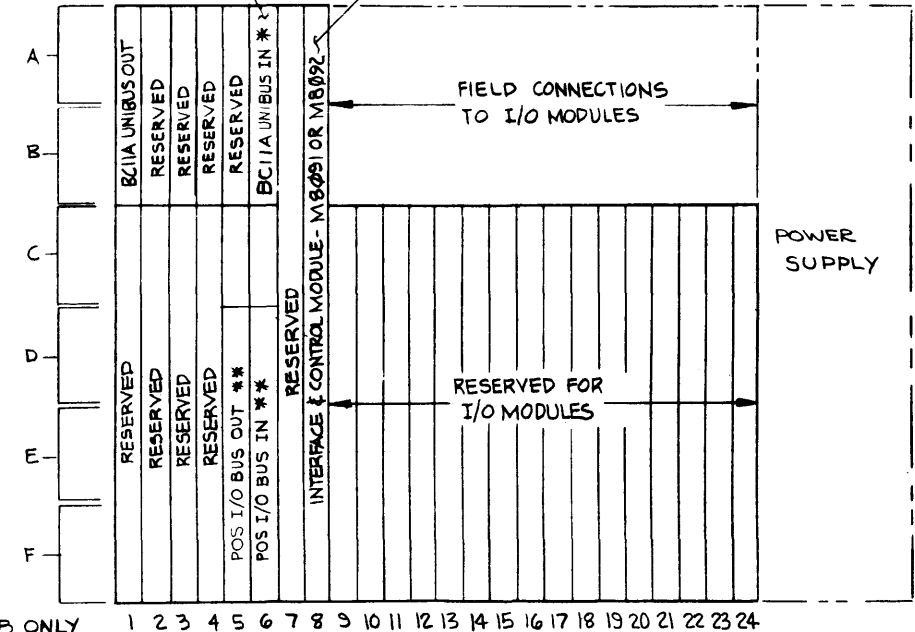
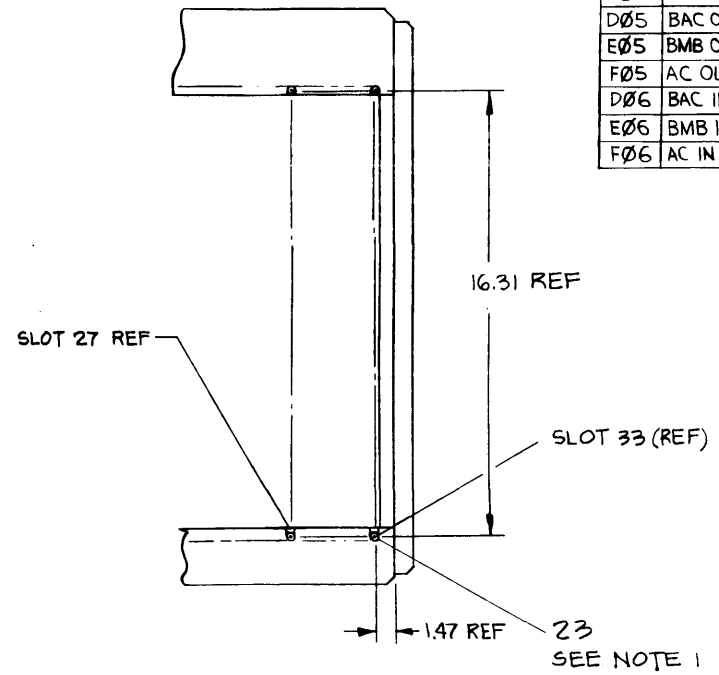
REV. A
NUMBER ICSB-0-0
SIZE CODE DUA

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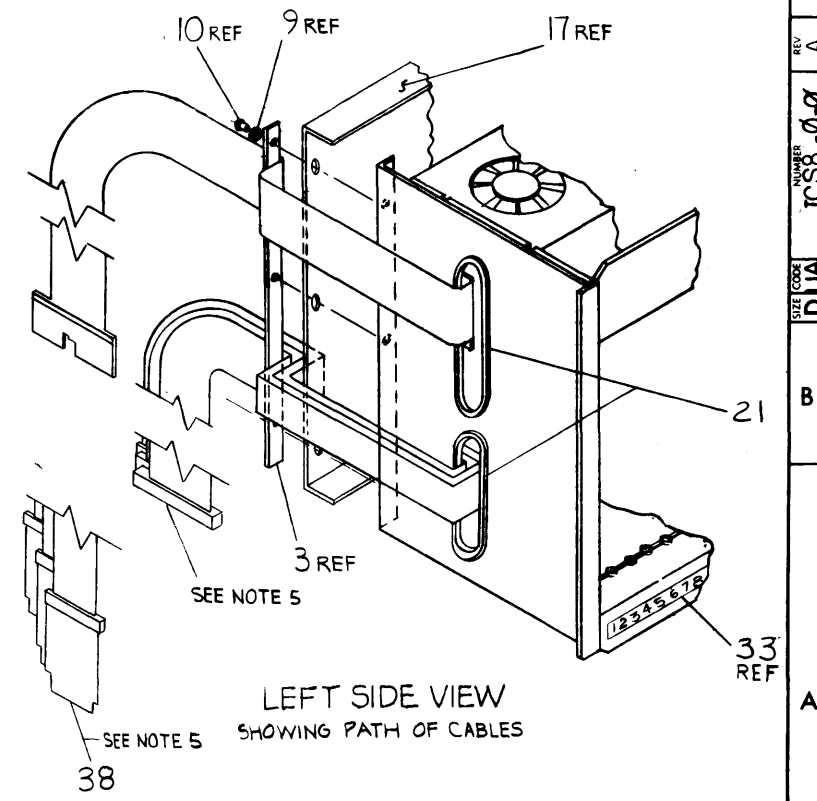
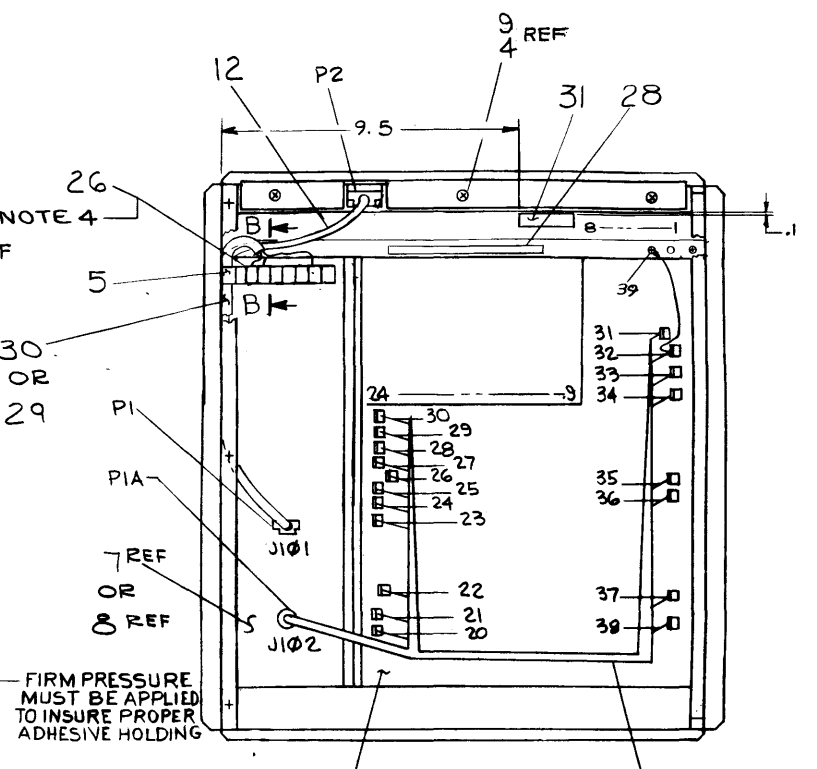
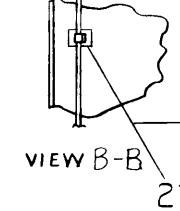
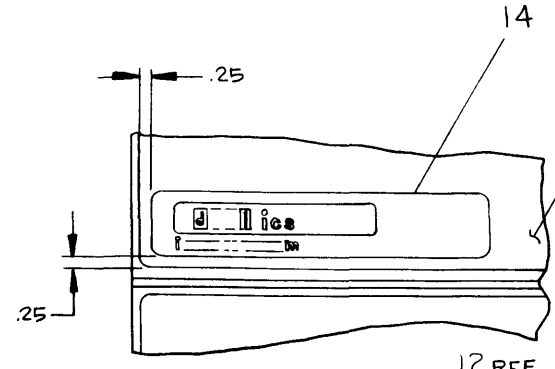
HARNESS WIRE TABLE

ITEM NO.	AWG	COLOR	FROM	TO HARNESS PT.	TO UNIT LOCATION
11	22	BRN	PIA-21	20	ITEM 15-LTC
	18	BLK	2	21	GN
	TWP	RED	6	22	+5
	18	BRN	37	23	CM
	TW	GRN	33	24	-21
		ORN	30	25	+21
	18	RED	5	26	+5
	TWP	BLK	1	27	GN
		BRN	34	28	CM
	18	GRN	32	29	-21
	TW	ORN	29	30	+21
	18	RED	9	31	+5
	TWP	BLK	14	32	GN
	22	VIO	17	33	DCLO
	22	YEL	19	34	ACLO
	18	RED	8	35	+5
	TWP	BLK	4	36	GN
	18	RED	7	37	+5
	TWP	BLK	PIA-3	38	ITEM 15 -GN
	-	-	PIA	-	ITEM 7 OR 8 - J102
11	18	BLK	32	39	ITEM 15 -GN
12	-	-	P2	-	ITEM 2
12	-	-	P1	-	ITEM 7 OR 8 J101

POS I/O BUS TABLE ICSB-MA & ICSB-MB ONLY	
SLOT	FUNCTION
D05	BAC OUT OR G117 (NOTE 5)
E05	BMB OUT
F05	AC OUT
D06	BAC IN
E06	BMB IN
F06	AC IN



BACK PANEL WIRE WRAP			
SIGNAL NAME	FROM	TO	REMARKS
B FILE INH L	B7 E2	B7 E1	30 AWG WIRE-WRAP WIRE
B ADDR 01 H	B7 B1	B7 D1	TO BE DONE AT FINAL ASSY. TIME
B ADDR 00 H	B7 A1	B7 B2	REV. B BACKPLANES ONLY
GND	A7 V1	A7 S1	9107540-66



REVISIONS		
CHK	CHANGE NO.	REV.

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY/VARIATION																	
MADE BY <i>Sid Roberts</i>		CHECKED <i>Sid Roberts</i>		SECTION	IC58-MA	IC58-MB	IC58-XA	IC58-XB														
DATE <i>1-29-75</i>		DATE <i>1-24-75</i>																				
ENG <i>James G. Hibel</i>		PROD <i>R. X. Allen</i>		ISSUED SECT.																		
DATE <i>1/24/75</i>		DATE <i>2-24-75</i>																				
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																				
1	D-IA-H906-A-0	Box, Vertical Card Mount			1	1	1	1														
2	C-AD-7009906-1-0	Housing, Fan Assy			1	1	1	1														
3	C-IA-7412021-1-0	Strain Relief			1	1	1	1														
4	9006021-1	Scr, Phl Pan HD #6-32 X .31LG			3	3	3	3														
5	9007082	CLAMP CABLE			1	1	1	1														
6	D-PS-1211630-0-0	Card Guide			24	24	24	24														
7	A-PS-H772-A-0	Power Supply (60Hz)			1	-	1	-														
8	A-PS-H772-B-0	Power Supply (50Hz)			-	1	-	1														
9	9006633	Wash, #6 Int. Tooth Lock			12	12	12	12														
10	9006024-1	Scr, Phl Pan HD #6-32 x .50LG			9	9	9	9														
11	D-IA-7010223-0-0	Harness, DC Power			1	1	1	1														
12	D-IA-7009940-0-0	AC Harness			1	1	1	1														
13	D-UA-H950-QB-0	H950-Q Cover Panel			2	2	2	2														
14	C-IA-7411922-0-0	Logo			1	1	1	1														
15	D-AD-7009877-0-0	Back Plane Assy			1	1	1	1														
16	1209224	Latch Molding			8	8	8	8														
17	D-IA-7412720-0-0	Cover, Rear			1	1	1	1														
18	9009613-01	Scr, Self Tapping #8-32 x 1.00LG			4	4	4	4														
19	9006634	Wash, #8 Int Tooth Lock			6	6	6	6														
20	9007786	Speed Nut #10-32			16	16	16	16														
21	9007035	Grommet 12.25 Inches Long			2	2	2	2														
22	M8091-0-1	ICS8 Master Control			1	1	-	+														
TITLE INDUSTRIAL CONTROL SUBSYSTEM				ASSY NO. D-UA-ICS8-0-0	SIZE A	CODE PL	NUMBER ICS8-0-0				REV. A	ECO NO. ICS8-00001										
SHEET 1 OF 2				DIST.																		

DEC FORM DEC 16 (325)-1031-N870

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY/VARIATION																		
MADE BY <i>Sid Roberts</i>		CHECKED <i>Sid Roberts</i>		SECTION	IC58-MA	IC58-MB	IC58-XA	IC58-XB															
DATE <i>1-29-75</i>		DATE <i>1-24-75</i>																					
ENG <i>James G. Hibel</i>		PROD <i>R. X. Allen</i>		ISSUED SECT.																			
DATE <i>1/24/75</i>		DATE <i>2-24-75</i>																					
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																					
23	9007884	Riv Nut #6-32			4	4	4	4															
24	9006073-2	Scr, Phl Flat HD #10-32 x .62LG			16	16	16	16															
25	9007846-1	Scr, Phl Pan HD #8-32 x .69LG			16	16	16	16															
26	9007929-0	Conn, Solderless			7	5	7	5															
27	9008341	CABLE CLAMP			1	1	1	1															
28	A-DC-7413609-0-0	WARNING LABEL			1	1	1	1															
29	1700015-09	Power Cord (115V)			1	-	1	-															
30	1700016-09	Power Cord (230V)			-	1	-	1															
31	A-PS-9008141-01	Label, Aluminum, ADH			1	1	1	1															
32	D-MD-7413092-0-0	Shield			1	1	1	1															
33	B-IA-7413248-0-0	Strip, Slot Identification			1	1	1	1															
34	A-PL-H009-0-0	Mtg Rail Kit (not shown)			1	1	1	1															
35	9107360-33	Wire, #18 Swg orn 1 PVC			A/R	A/R	A/R	A/R															
36	9006846	SPACER, HEX #8-32X.25AFX.38LG			3	3	3	3															
37	A-PL-6717-0-0	RESISTOR TERMINATOR 6717 (SEE NOTE 5)			1	1	-	-															
38	D-UA-BC08A-10-0	BC08A Cable			NOTE 5	-	-	-															
39	M8092-0-1	ICS8 FILE CONTROL			-	-	1	1															
40	D-UA-BC11A-6-0	CABLE, UNIBUS			-	-	1	1															
TITLE INDUSTRIAL CONTROL SUBSYSTEM				ASSY NO. D-UA-ICS8-0-0	SIZE A	CODE PL	NUMBER ICS8-0-0				REV. A	ECO NO.											
SHEET 2 OF 2				DIST.																			

DEC FORM DEC 16 (325)-1031-N870
DRA 110

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- NOTES:
- USE HOLE AT NARROW END OF HØØ9 MOUNTING PLATE TO MOUNT RAILS FOR H912'S; USE HOLE NEARER CENTER OF HØØ9 MOUNTING PLATE TO MOUNT RAILS FOR BC4ØH.
 - MOUNT BC4ØH, BC4ØK, SCREW TERMINALS STARTING AT TOP REAR OF CABINET PROCEEDING IN ORDER DOWNWARD. INSTALL H912 BELOW BC4ØH, BC4ØK ASSEMBLIES.

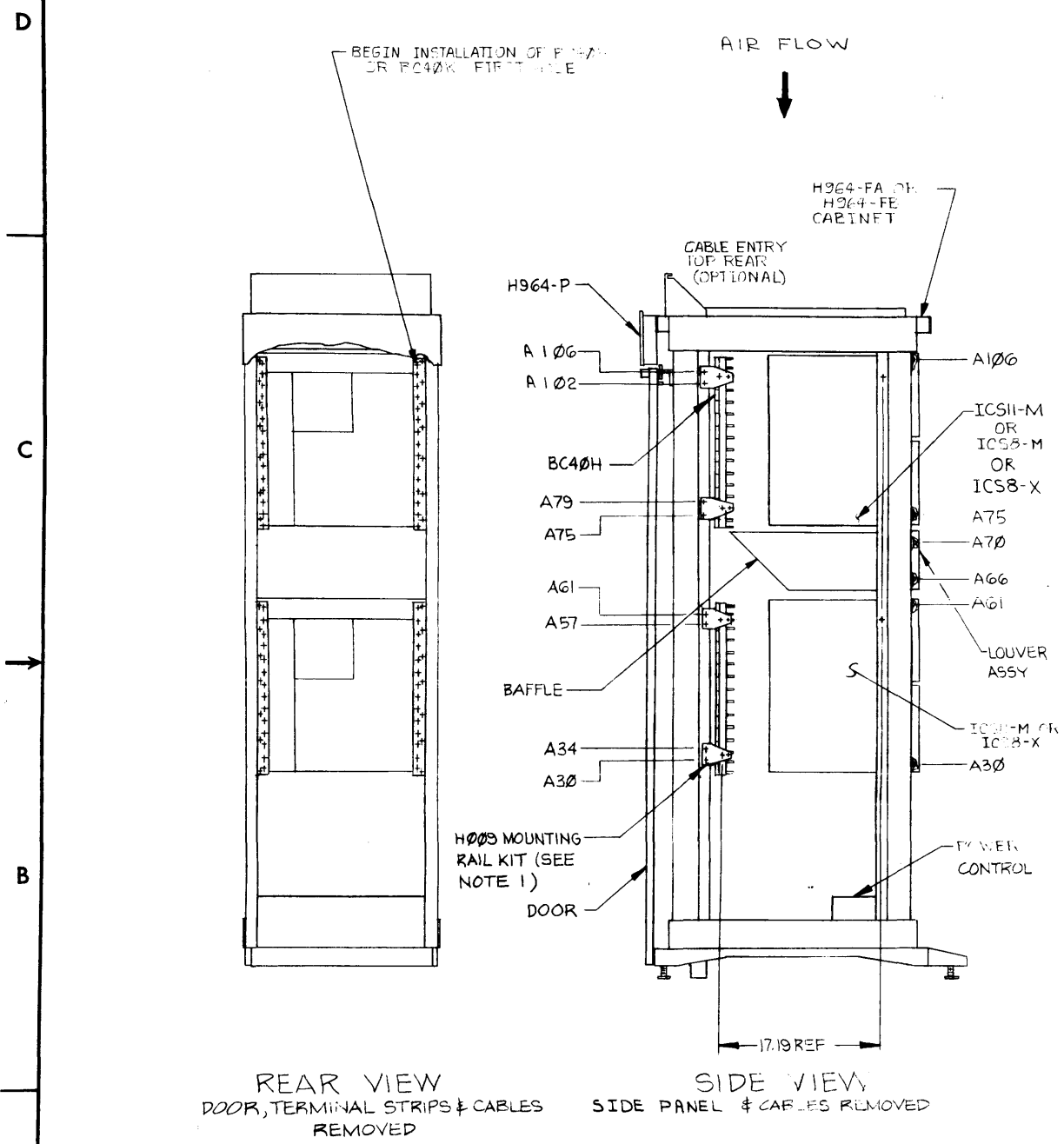


FIGURE 1

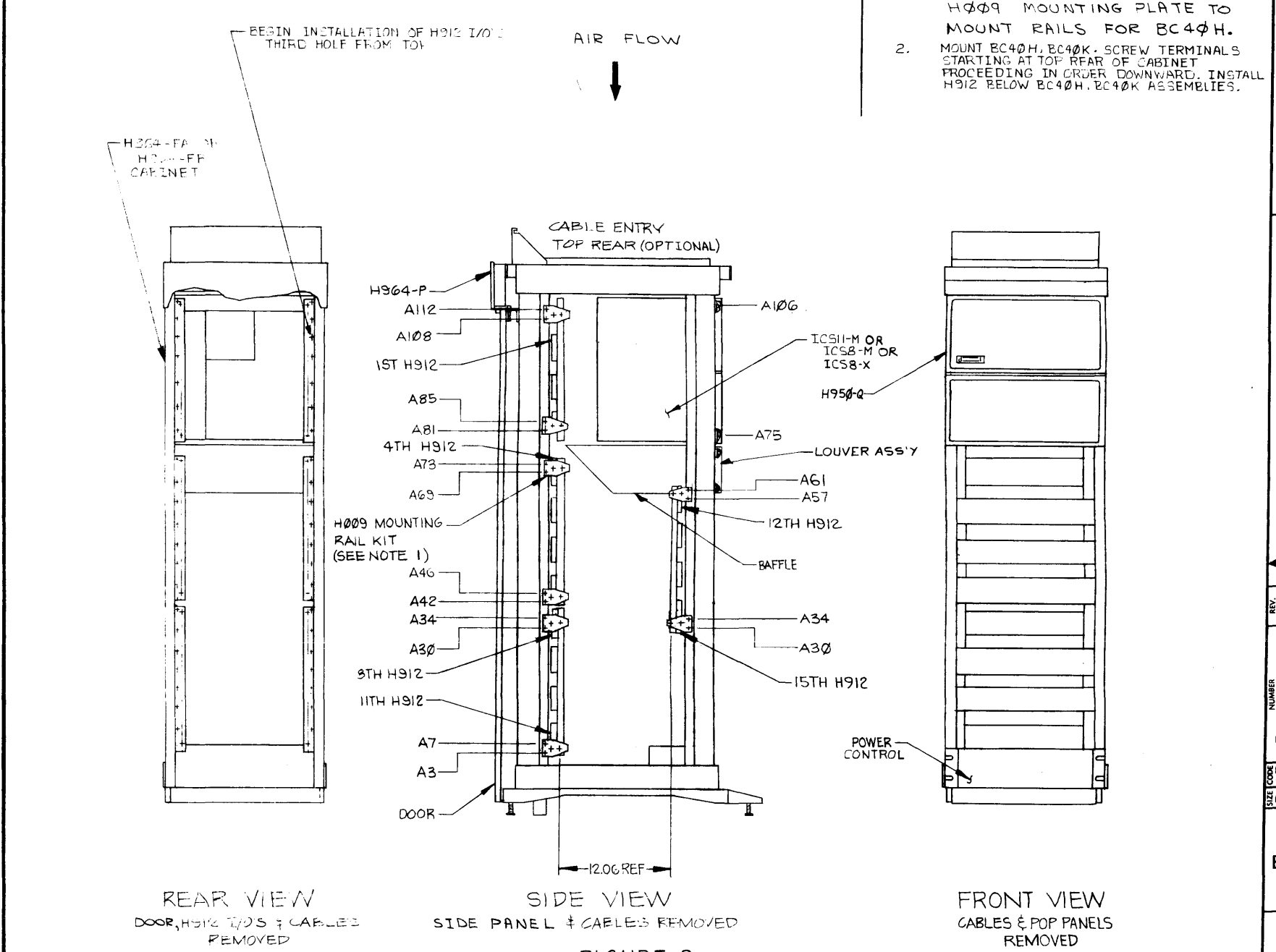


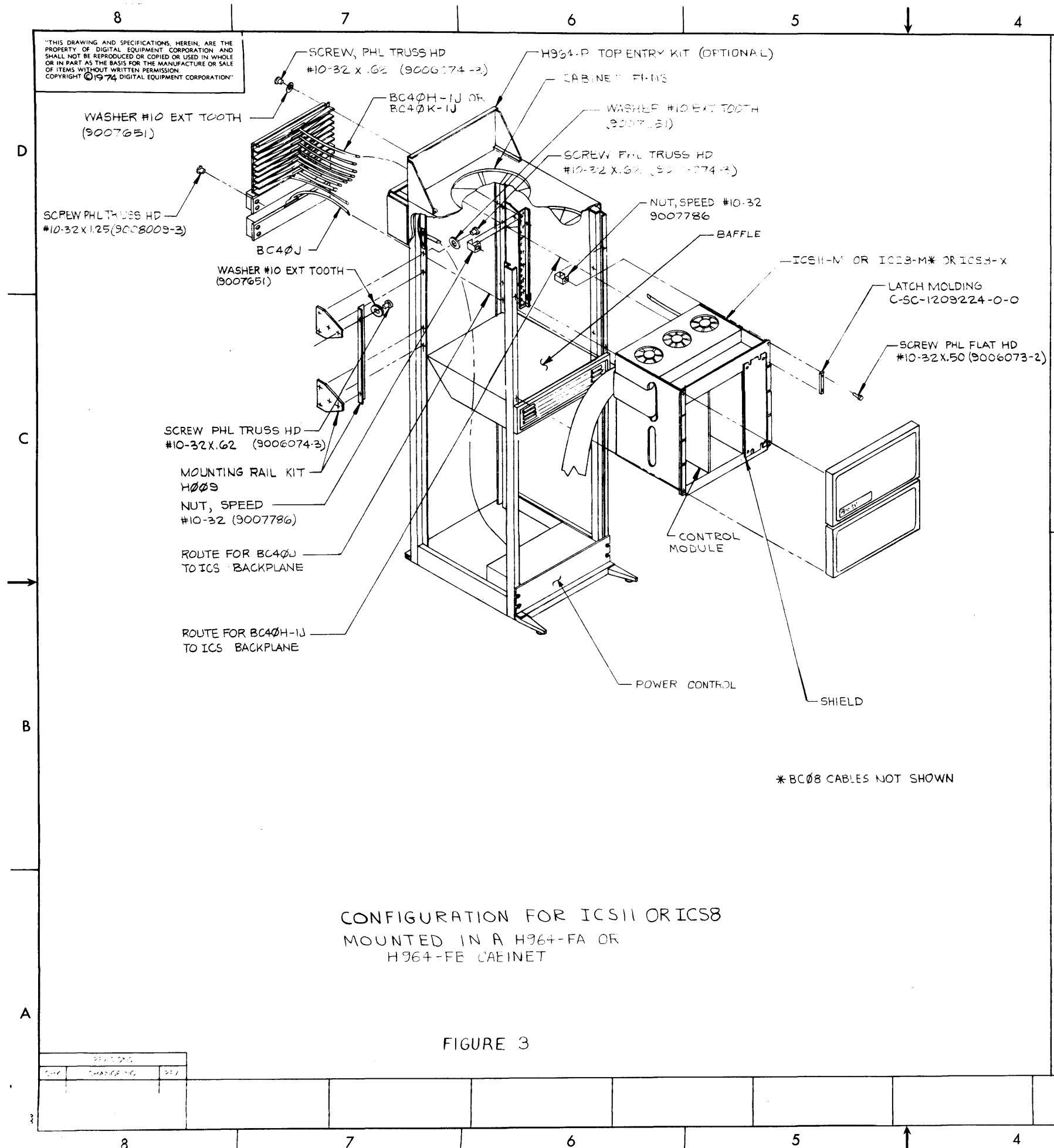
FIGURE 2

REV.	CHG.	NO.	DATE	BY
A		1	5-8-74	K. GULICK

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
ICS11-M					
DIMENSIONAL TOLERANCE		PARTS LIST			
DIMENSIONS ARE UNLESS OTHERWISE SPECIFIED		DRN.	DATE	digital	
		CHK'D.	DATE		
		ENG.	DATE		
		PROV'G.	DATE		
		PROD.	DATE		
THIRD ANGLE PROJECTION		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		TITLE	
		NEXT HIGHER ASSY.		ICS ARRANGEMENT DRAWING	
MATERIAL		B-DI-ICS11-M		SIZE CODE	NUMBER
FINISH		SCALE NONE		DAR	ICS11-M-1
		SHEET OF 3		DIST.	REV. A

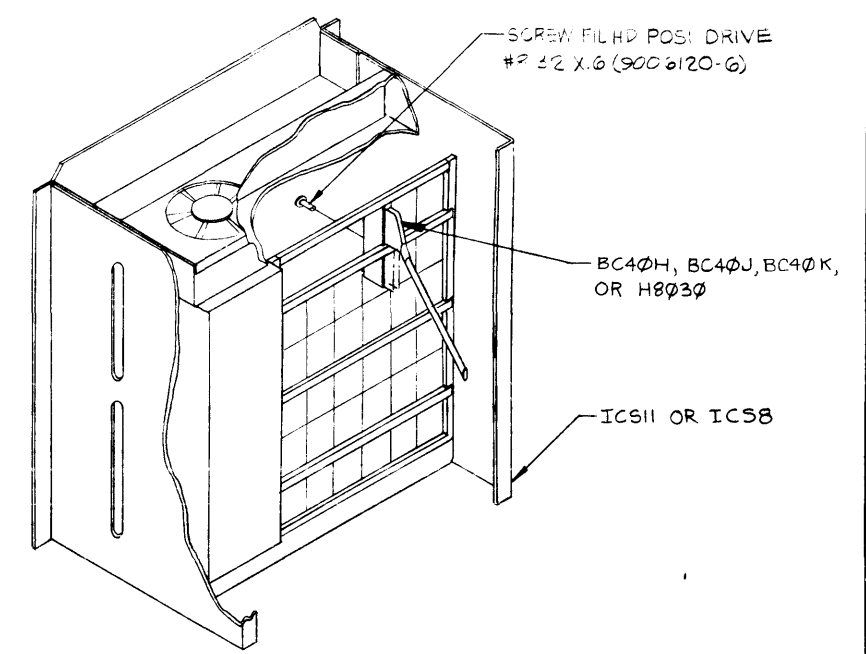
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1-W-HSOT DAR 2



CONFIGURATION FOR ICS11 OR ICS8 MOUNTED IN A H964-FA OR H964-FE CABINET

FIGURE 3



REAR VIEW OF ICS11 OR ICS8 SHOWING INSTALLATION OF I/O CABLES FIGURE 4

THE FOLLOWING MODULE SEQUENCE MUST BE USED BY MANUFACTURING IN CONFIGURING ICS11'S OR ICS8'S

SEQUENCE	OPTION	MODULE
1.	IAD-IA	AØØ5
2.	IMX-IA (7 MAX)	AØØ7
3.	IAD-IA	AØØ5
4.	IMX-IA (7 MAX)	AØØ7
5.	ISH-IA*(IF REQUIRED)	A9Ø7
6.	IDC-IA	W741Ø
7.	IAC-IA	W7411
8.	IDC-ID	W7411
9.	IDC-IC **	W744Ø
10.	IDC-IB	W743Ø
11.	IAC-IB	W7431
12.	IDC-IE	W7431
13.	IDA-OA (12 MAX)	A633Ø
14.	IDC-OB	M687Ø
15.	IAC-OB	M687Ø
16.	IDC-OA	M685Ø
17.	IAC-OA	M685Ø
18.	IRL-OA	M8Ø3Ø
19.	IRL-OB	M8Ø5Ø

* REQUIRED WHEN AN AØØ5, AØØ7 IS MOUNTED WITHIN 4 SLOTS OF AN M8Ø3Ø, M8Ø5Ø.
 ** W744Ø COUNTER MODULES MUST NEVER BE MOUNTED IN SLOT 9 OF AN ICS11 OR ICS8

NOTE: AN ICJ-IA CONTINUITY JUMPER CARD MUST BE INSTALLED IN THE 'F' CONNECTOR OF ALL OPEN SLOTS BETWEEN THE FIRST AND LAST INTERRUPTING MODULE OF A FILE.

TABLE 5

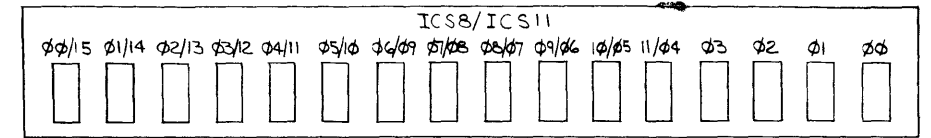
TITLE	ICS ARRANGEMENT DRAWING	SIZE/CODE	DAR	NUMBER	ICS11-M-1	REV.	A
SCALE	NONE	SHEET	2	OF	3	DIST.	

REV. A NUMBER ICS11-M-1 SIZE CODE DAR

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OPTION LIST			
OPTION	MODULE	CONVERTER	
		VARIATION	QUANTITY
IAC-IA	W7411 *	H1501	1 THRU 16
IAC-IB	W7431 *	H1501	1 THRU 16
IAC-OA	M6850 *	H1601	1 THRU 16
IAC-OB	M6870 *	H1601	1 THRU 16

* INSTALL JUMPER W1



ICS8 ICS11

H912 P.C. BOARD FOR REFERENCE ONLY

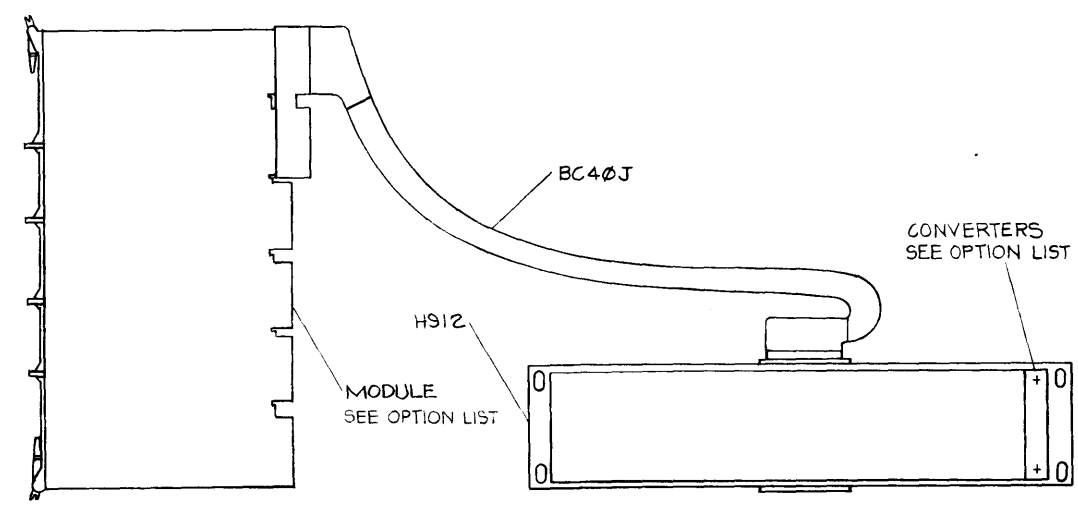


FIGURE 6

OPTIONAL MODULE & CABLE CONFIGURATIONS

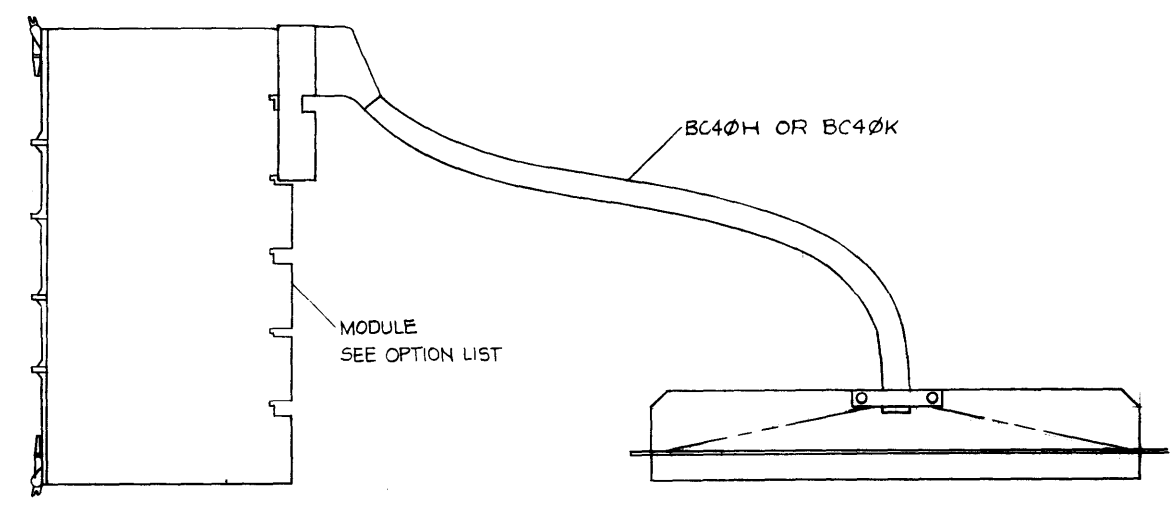
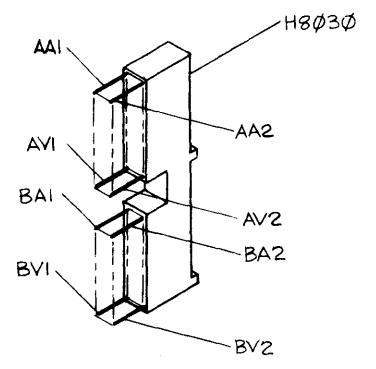
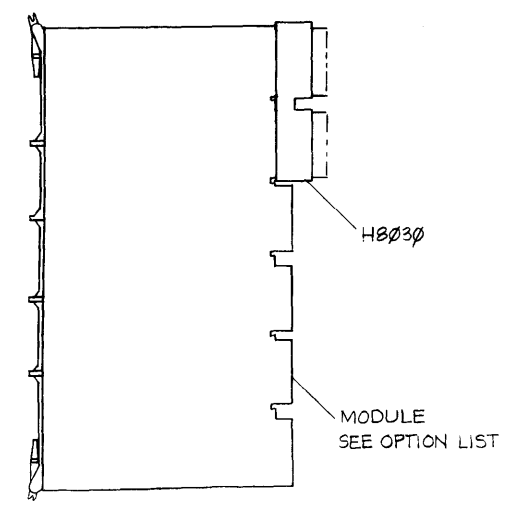


FIGURE 7

OPTION LIST	
OPTION	MODULE
IDC-IA	W7410
↑ -IB	W7430
-IC	W7440
-ID	W7411
-IE	W7431
↓ -OA	M6850
IDC-OB	M6870
IRL-OA	M8030
IRL-OB	M8050
IAD-IA	A005
IMX-IA	A007
IDA-OA	A6330



MODULE OPTIONS

FIGURE 8

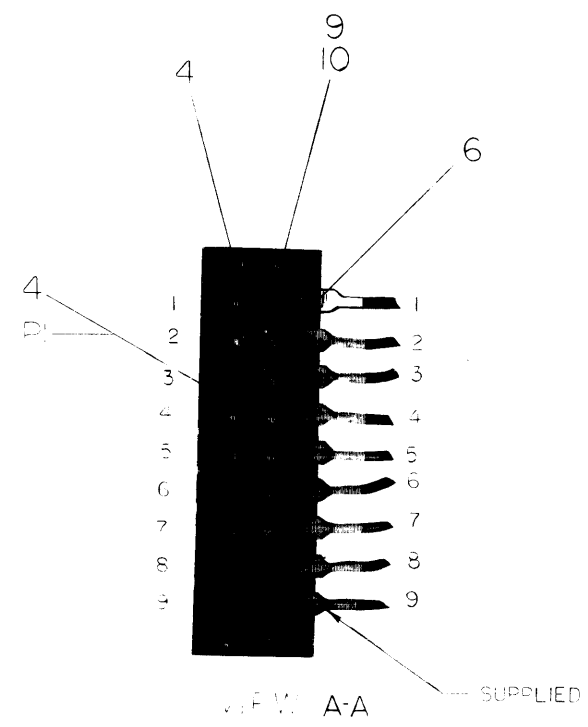
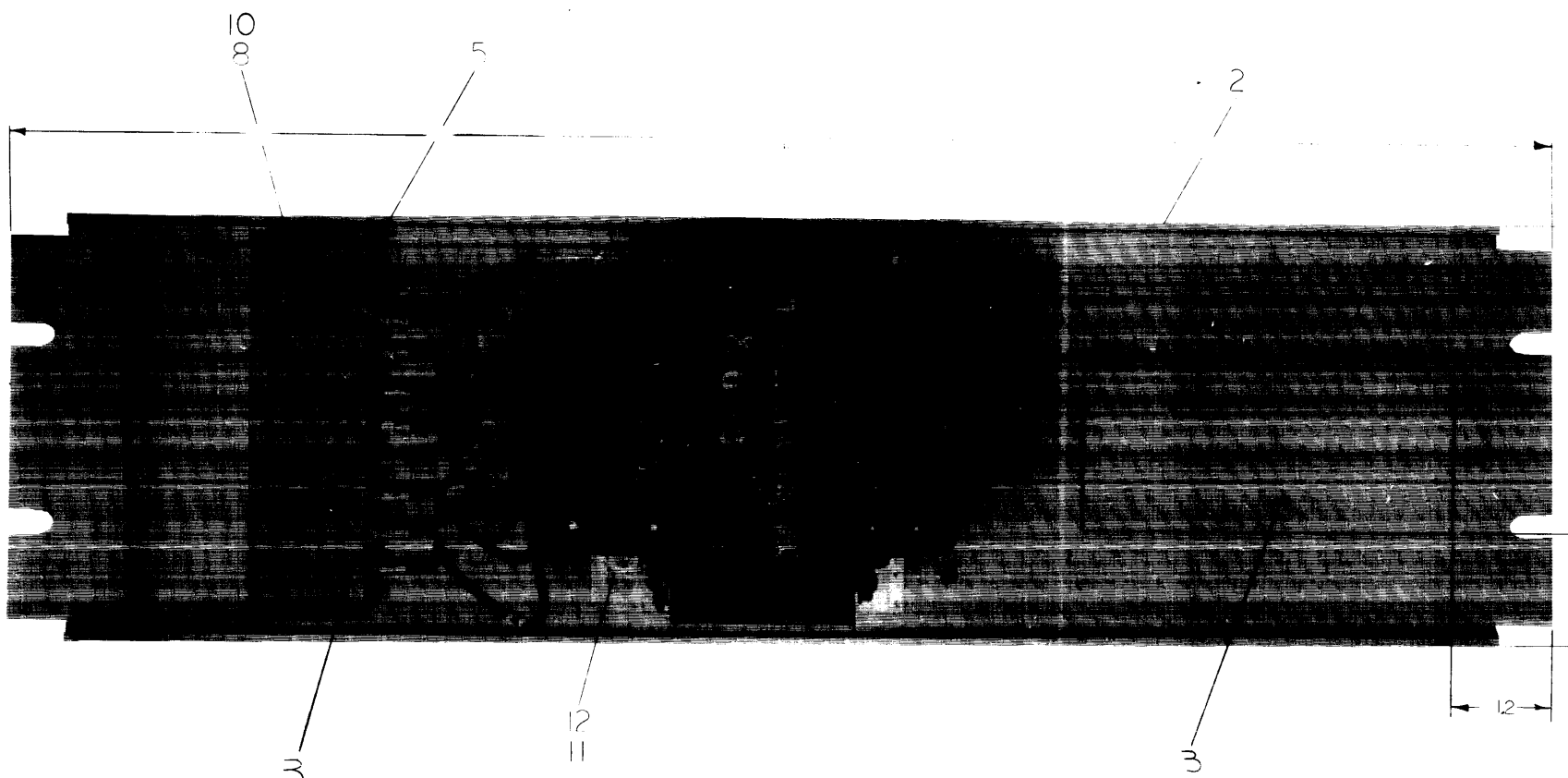
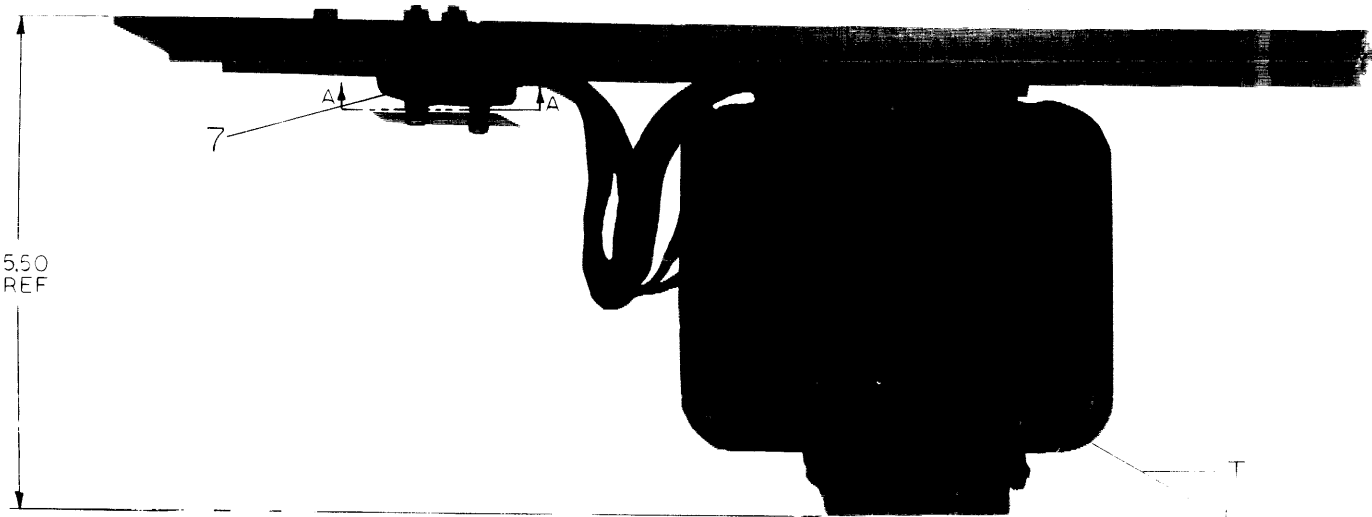
REVISIONS		
CHK	CHANGE NO	REV

REV. A ICSII-M-I DAR ICSII-M-I

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WIRE TABLE				
ITEM NO.	DESCRIPTION	FRONT CONNECTION	ITEM	PLACEMENT
1	GRAY	T1-1		PI-1
2	GRAY	T1-2		PI-2
3	WHITE	T1-3		PI-3
4	WHITE	T1-4		PI-4
5	FLASH	T1-5		PI-5
6	RED	T1-6		PI-6
7	BROWN	T1-7		PI-7
8	YELLOW	T1-8		PI-8
9	GREEN	T1-9		PI-9

NOTE 1:
 1. NUMBER DESIGNATIONS IN VIEW A-A FOR WIRE TABLE ONLY. FOR DECAL PLACEMENT SEE ITEM #3 (DECAL) ON ITEM #5 (PROTECTION COVER).



REV.	CHANGE NO.	DATE
A	H722-00002	4/19/72
B	4-3-72	4/19/72

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED		DRN.	DATE	
DIMENSION IN INCHES		DATE	DATE	
TOLERANCES		DATE	DATE	
DECIMALS	FRACTIONS	ANGLES	DATE	
± .005	± 1/64	± 0°30'	DATE	
FINAL SURFACE QUALITY		PROJ. ENG.	DATE	
REMOVE BURRS AND BREAK "SHARP" CORNERS		DATE	DATE	
MATERIAL		PROD.	DATE	
FINISH		DATE	DATE	
SCALE		TITLE		
SHEET		H722 STEPDOWN TR-NS.		
OF 1		SIZE CODE NUMBER REV.		
		DUA H722-0-0		
		DIST.		

REV. A
 NUMBER H722-0-0
 SIZE CODE DUA

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DIGITAL EQUIPMENT CORPORATION						
MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION					DATE 3-26-75	
TITLE ICS8 FIELD ACCEPTANCE						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	ICS8-00001	N. SLAVIN	8-11-75	<i>[Signature]</i>	4-2-75

ENG <i>[Signature]</i>	APPD <i>[Signature]</i> 4/2/75	SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION	digital	CONTINUATION SHEET																																				
TITLE ICS8 FIELD ACCEPTANCE																																						
<p>Scope: This document provides the procedures and guidelines required to successfully perform Field Acceptance on an ICS8 and its options.</p> <p>I. Shipping Hardware</p> <p style="margin-left: 20px;">A. Minimum Configuration</p> <p style="margin-left: 40px;">1. ICS8-MA or MB - includes M8091 module, H772 power supply, H009 screw terminal mounting rails, 3 BC08A-10 Cables, G717 Terminator.</p> <p style="margin-left: 20px;">B. Expansion Options</p> <p style="margin-left: 40px;">1. Functional I/O modules -</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Opt. Desig.</th> <th style="text-align: left; border-bottom: 1px solid black;">Name</th> <th style="text-align: left; border-bottom: 1px solid black;">Items</th> </tr> </thead> <tbody> <tr> <td>IAC-IA</td> <td>A.C. Sense</td> <td>W7411, H912, BC40J-06</td> </tr> <tr> <td>IAC-IB</td> <td>A.C. Interrupt</td> <td>W7431, H912, BC40J-06</td> </tr> <tr> <td>IAC-OA</td> <td>A.C. Output Driver</td> <td>M6850, H912, BC40J-06</td> </tr> <tr> <td>IAC-OB</td> <td>A.C. Single Shot Driver</td> <td>M6870, H912, BC40J-06</td> </tr> <tr> <td>IAD-IA</td> <td>A/D, 8 Channel Analog Input</td> <td>A005</td> </tr> <tr> <td>IMX-IA</td> <td>Multiplexer, 16 Channel</td> <td>A007</td> </tr> <tr> <td>IDA-OA</td> <td>D/A, 4 Channel Analog Output</td> <td>A6330, 4-500Ω.1% resistors, DEC 13-03208-08 (when BC40H is shipped with A6330).</td> </tr> <tr> <td>IDC-IA</td> <td>Isolated DC Sense</td> <td>W7410</td> </tr> <tr> <td>IDC-IB</td> <td>Isolated DC Interrupt</td> <td>W7430</td> </tr> <tr> <td>IDC-IC</td> <td>I/O Counter</td> <td>W7440</td> </tr> <tr> <td>IDC-ID</td> <td>Non-isolated DC Sense</td> <td>W7411</td> </tr> </tbody> </table>			Opt. Desig.	Name	Items	IAC-IA	A.C. Sense	W7411, H912, BC40J-06	IAC-IB	A.C. Interrupt	W7431, H912, BC40J-06	IAC-OA	A.C. Output Driver	M6850, H912, BC40J-06	IAC-OB	A.C. Single Shot Driver	M6870, H912, BC40J-06	IAD-IA	A/D, 8 Channel Analog Input	A005	IMX-IA	Multiplexer, 16 Channel	A007	IDA-OA	D/A, 4 Channel Analog Output	A6330, 4-500 Ω .1% resistors, DEC 13-03208-08 (when BC40H is shipped with A6330).	IDC-IA	Isolated DC Sense	W7410	IDC-IB	Isolated DC Interrupt	W7430	IDC-IC	I/O Counter	W7440	IDC-ID	Non-isolated DC Sense	W7411
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		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">SIZE A</td> <td style="width: 15%;">CODE SP</td> <td style="width: 20%;">NUMBER ICS8-0-5</td> <td style="width: 50%;">REV A</td> </tr> </table>	SIZE A	CODE SP	NUMBER ICS8-0-5	REV A																																
SIZE A	CODE SP	NUMBER ICS8-0-5	REV A																																			

ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

- I. Shipping Hardware (cont.)
 - B. Expansion options (cont.)
 - 1. Functional I/O modules (cont.)

IDC-IE	Non-isolated DC Interrupt	W7431
IDC-OA	DC Flip Flop Driver	M6850
IDC-OB	DC Single Shot Driver	M6870
IRL-OA	Latching Relay Output	M8030
IRL-OB	Flip Flop Relay Output	M8050

 - 2. Screw Terminals - BC40H, BC40K
 - 3. Blank Connector Block - H8030
 - 4. A.C. I/O cubes - H1501, H1601
 - 5. Expander File - ICS8-X includes M8092, H772, BC11A-06, terminal mounting rails H009.
 - C. System configuration - ensure the system components agree with the key sheet.
- II. Shipping documentation and software
 - A. Prints - Customer Print set - B-DD-ICS8-0
 - B. Diagnostic Software
 - 1. MAINDEC-08-DHICA - Tape and document
 - C. Maintenance Manual - EK-ICS8-MM001
- III. Test Hardware
 - A. UDC/ICS Field Tester
 - B. Tektronix scope - model 465 or equivalent
 - C. EDC voltage source - model MV105G or equivalent.
 - D. Quad extender module - W984.
 - E. Digital Voltmeter (Data Precision 3500 DVM or equivalent) 100 MV resolution .01% accuracy.

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

- IV. Test Software
 - A. MAINDEC-08-DHICA - Tape and Document
- V. Acceptance Procedures
 - A. Preliminary Checks
 - 1. Cables - Ensure all cables are installed properly and seated firmly.
 - 2. Modules - Ensure that all logic modules in the ICS file are inserted into the proper locations, (Ref. D-UA-ICS8-0-0) and that all interrupting modules (W7430, W7431, W7440, A005) have the ICS8 interrupt jumper installed.
 - 3. Power - check power on the front of the H772 power supply for +5.1V ± .15V and the presence of +21V and -21V.
 - B. Testing Procedures - The testing is divided into sections according to the category of the I/O modules. The following table lists the category of module and what section to proceed to for the test procedure.

<u>Category</u>	<u>I/O Modules</u>	<u>Section</u>
Input Modules	W7410, W7411, W7430, W7431	V.B.1
Output Modules	M6850, M6870, M8030, M8050	V.B.2
Counter	W7440	V.B.3
A/D	A005, A007	V.B.4
D/A	A6330	V.B.5

NOTE: Temporarily remove the +5 volt field power jumper before testing ICS modules used with AC I/O. The AC I/O panels and I/O cubes will not be tested during normal acceptance.

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. Testing Procedures (cont.)

1. Input modules W7410, W7411, W7430, W7431 - Ensure that you know what voltage the signal conditioning area of the W7410, W7430 are set for, i.e., 6V, 24V, 48V. This is determined by the jumper arrangement on the two input resistors for each bit. Ref. ICS8 Maintenance Manual.

NOTE: When testing W7411, W7431 modules make sure that output modules are not being checked at the same time (testing both at the same time).

- a. Isolated D.C. Sense (W7410) non-isolated D.C. Sense (W7411) - This test will read the data from the selected address and types out the data when a change occurs.
 - 1) Remove the module to be tested from the backplane, insert a quad-extender module into the slot then place the module into the extender.
 - 2) Connect cable #3 to connectors P6, P7, P8, P9 on the test box and to one end of cable ICS #2. Insert the other end of ICS#2 into the berg connector on the module being tested.
 - 3) On the tester, turn on the AC power switch then the DC power switch (rotary sw. in the OFF position). For this test, turn the rotary switch to select the input voltage which

SIZE A	CODE SP	NUMBER ICS8-Ø-5	REV A
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ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 1. a. 3) (cont.)

corresponds to the jumper selection on the W7410 module. Run the W7411 with SELECT OFF. Place the ICS/UDC switch to ICS.

- 4) Start the system exerciser at location 0200; the program will respond with (operator response underlined; "CR" is carriage return):

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO. ? Ø "C.R."
TEST Ø - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR ? 1 "C.R."
6.5 OUTPUT MODULE ADDR ? "C.R."

- 5) The test is now running; on the tester place row of switches (one at a time) to the "1" position and monitor the printout after each switch is thrown. The printout should reflect the switches in the "1" position. See sample printout; place them to the "Ø" position, one at a time while observing the printout.
- 6) Repeat steps a.1) through a.5) for all W7410, W7411 modules to be checked.

SIZE A	CODE SP	NUMBER ICS8-Ø-5	REV A
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 1. a. 6) (cont.)

6.3 TEST NO.? \emptyset
 TEST \emptyset - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR? 1

6.5 OUTPUT MODULE ADDR?

ADDR	DATA	GENERIC CODE (IF INTERRUPT)
0001	0000	
0001	4000	
0001	6000	
0001	7000	
0001	7400	
0001	7600	
0001	7700	
0001	7740	
0001	7760	
0001	7770	
0001	7774	
0001	7776	
0001	7777	
0001	7776	
0001	7774	
0001	7770	
0001	7760	
0001	7600	
0001	7400	
0001	7000	
0001	6000	
0001	4000	
0001	0000	

b. Isolated D.C. interrupt (W7430), non-isolated interrupt (W7431) - The test waits for an interrupt to be generated by the Tester then prints out the information (address, data, generic code) obtained from the module.

1) Remove the module to be tested from the back-plane, insert a quad-extender module into

SIZE A	CODE SP	NUMBER ICS8- \emptyset -5	REV A
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 1. b. 1) (cont.)

the slot then place the module onto the extender.

- 2) Connect cable #3 to connectors P6, P7, P8, P9 on the test box and to one end of ICS #2. Insert the other end of ICS #2 into the berg connector on the module being tested.
- 3) On the tester, turn on the A.C. power switch then the D.C. power switch (rotary sw. in OFF position) for this test, turn rotary switch to select the input voltage which corresponds to the jumper selection on the W7430 module. For the W7431 module select OFF. Place ICS/UDC switch to ICS.
- 4) Start the system exerciser at location 0200; the program will respond with (operator response underlined, "C.R." is carriage return):

MD-08-DHICA
 ICS8 FIELD TEST

6.3 TEST NO.? \emptyset
 TEST \emptyset - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR? 10 "C.R."

6.5 OUTPUT MODULE ADDR? "C.R."

5) The test is running; on the tester place the row of switches (one at a time) to the "1" position and monitor the printout after

SIZE A	CODE SP	NUMBER ICS8- \emptyset -5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 1. b. 5) (cont.)

each switch is thrown. The printout should give the address, data (switches) and generic code. See sample printout below. After all the switches are in the "1" position, place them to the "0" position one at a time while observing the printout.

6) Repeat steps b.1) through b.5) for all W7430, W7431 modules.

6.3 TEST NO. ? Ø
TEST Ø - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR ? 1

6.5 OUTPUT MODULE ADDR ?

ADDR	DATA	GENERIC CODE (IF INTERRUPT)
0001	0000	0003
0001	4000	0003
0001	6000	0003
0001	7000	0003
0001	7400	0003
0001	7600	0003
0001	7700	0003
0001	7740	0003
0001	7760	0003
0001	7770	0003
0001	7774	0003
0001	7776	0003
0001	7777	0003
0001	7776	0003
0001	7774	0003
0001	7770	0003
0001	7760	0003
0001	7740	0003
0001	7700	0003

SIZE A CODE SP NUMBER ICS8-Ø-5 REV A



TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 1. b. 6) (cont.)

0001	7600	0003
0001	7400	0003
0001	7000	0003
0001	6000	0003
0001	4000	0003
0001	0000	0003

2. Output Modules - M6850, M6870, M8030, M8050

a. Flip Flop Driver, Single Shot Driver Modules - M6850, M6870 - This test will output the selected pattern to the output address selected.

- 1) Remove the module to be tested from the backplane and install a quad-extender in its place. Place the module into the extender module.
- 2) Connect cable #2 to connectors P3, P4, and P5 On the testbox and connect the other end to cable ICS#1, insert the other end of ICS #1 into the berg connector on the module being tested.
- 3) On the tester, turn on the A.C. power switch, then the D.C. power switch (rotary sw. in OFF position). For this test the rotary sw. will remain in the OFF position.
- 4) Start the system exerciser at location 0200; the program will respond with (operator response underlined; "C.R." is carriage return):

SIZE A CODE SP NUMBER ICS8-Ø-5 REV A

ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 2. a. 4) (cont.)

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO.? 0
TEST 0 - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR? "C.R."

6.5 OUTPUT MODULE ADDR? 30 "C.R."

6.10 PATTERN MODIFIER, PATTERN? 7,0000 "C.R."

6.9 DELAY TIME (IN MILLISEC)? 50 "C.R."

NOTE: lines 6.10 and 6.9 - the proper numbers to use will be found in the sample printout below.

5) The program is now operating. Observe the lights on the tester and ensure each bit is operating.

6) Repeat steps a.1) through a.5) for all other M6850, M6870 modules to be checked.

6.3 TEST NO.? 0
TEST 0 - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR?

6.5 OUTPUT MODULE ADDR? 30

6.10 PATTERN MODIFIER, PATTERN? 7,0

6.9 DELAY TIME (IN MILLISEC)? 12

b. Relay output modules - M8030, M8050 - This test will output the selected pattern to the indicated address.

1) Remove the module to be tested from the back-plane and install a quad-extender in its place.

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 2. b. (cont.)

Place the module into the extender module.

2) Connect cable #1 to connector P1, P2 on the test box and connect the other end to cable ICS #2, insert the other end of ICS #2 into the berg connector on the module being tested.

3) On the tester, turn on the A.C. power switch, then the D.C. power switch (rotary sw. in OFF position). For this test the rotary sw. will remain in the OFF position.

4) Start the system exerciser at location 0200; the program will respond with (operator response underlined; "C.R." is carriage return);

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO.? 0

TEST 0 - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR? "C.R."

6.5 OUTPUT MODULE ADDR? 16 "C.R."

6.10 PATTERN MODIFIER, PATTERN? 7,0 "C.R."

6.9 DELAY TIME (IN MILLISEC)? 400 "C.R."

5) The program is now operating. Observe the lights on the tester and ensure each bit is operating.

6) Repeat steps b.1) through b.5) for all other M8030, M8050 modules to be checked.

Sample printout M8030, M8050;

6.3 TEST NO.? 0

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 2. b. 6) (cont.)

TEST 0 - INPUT AND OUTPUT MODULE EXERCISER

6.4 INPUT MODULE ADDR?

6.5 OUTPUT MODULE ADDR? 16

6.10 PATTERN MODIFIER, PATTERN? 7,0

6.9 DELAY TIME (IN MILLISEC)? 400

3. Counter Module - W7440

a. Test set up -

- 1) Remove module to be tested from backplane and install a quad-extender in its place. Place the module to be checked into the extender module.
- 2) On the module to be tested, connect a jumper between TP 3 and TP 4. This provides a standard setup on the module for test purposes.
- 3) Start the system exerciser at 0200; the program will respond with (operator response underlined "C.R." is carriage return):

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO.? 4 "C.R."
TEST 4 - COUNTER MODULE TEST

6.6 COUNTER MODULE ADDR? 16 "C.R."
END PASS
END PASS

- 4) Allow program to make 2 passes.

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 4. Analog to Digital Converter/Multiplexer

The Analog Input system consists of the A005 (A/D converter with 8 channels) module and an optional A007 (16 channel multiplexer) module. The A005 can be placed in any I/O slot in the ICS. All A007 modules (for a given A005) must be inserted to the right of the A005 in the same ICS box without leaving any slot vacant. A jumper on the A005 should be cut out depending on the type of ICS used (8 or 11). Cut jumper W108 for ICS11. Cut jumper W111 for ICS8. A jumper on the A007 should be cut out in the prescribed way to ensure proper multiplexer selection.

A007	#1	#2	#3	#4	#5	#6	#7
Cut jumper	W21	W22	W23	W24	W25	W26	W27

- a. Turn the EDC on, set it to 0MV and let the A005 warm up for 30 minutes.
- b. Load and start the field test program at 0200; the program will respond with:

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO.?

c. Logic Test

- 1) User, computer response (user response is underlined, "C.R." is a carriage return):

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

digit 31

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 4. c. (cont.)

6.3 TEST NO.? 5 "C.R."
TEST 5 - A/D LOGIC TEST

6.8 A005 ADDR? 06 "C.R."

NOTE: The response to "6.8 A005 ADDR?" is the number of the I/O slot in which the A005 module being tested resides.

- 2) At the end of a successful run, the program types:

END PASS
END PASS

Let it pass twice; the second pass takes longer than the first.

- 3) After 2 passes type Ctrl C to get out of the logic test.
- 4) If an error was detected, a self-explanatory error message is typed; refer to the program write-up for details.

d. Calibration - Although calibration was performed at the factory, it should be checked.

- 1) Follow the printout below to get into the calibrating routine.

6.3 TEST NO.? 6 "C.R."
TEST 6 - A/D CALIBRATION

6.8 A005 ADDR? 06 "C.R."
6.12 UNIPOLAR OR BIPOLAR ("U"OR"B")? B

NOTE: The response to "unipolar or bipolar" is B-bipolar, unless the customer requires the system to work in

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

digit 31

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

b. 4. d. (cont.)

unipolar mode. If unipolar is desired, the A005 module should be modified by cutting out jumpers W9, W12, W14 and inserting jumpers W10, W11, W13. For the remainder of the procedure any number in parenthesis pertains to unipolar.

- 2) A/D Offset Adjustment - connect EDC common to T.P.G. and EDC output to T.P. A3. Set switch S3 to dot not showing. Switch EDC voltage to -9.9976V (+0.0012V). Adjust the converter offset CO pot R39 so that the typeout (get a printout by typing "T") or MQ lights change between 4000 and 4001 (0000 and 0001).
- 3) A/D gain adjustment - switch EDC voltage to +9.9927 (+9.9963) volts. Adjust the converter gain CG pot R38 so that the typeout or lights change between 3776 and 3777.
- 4) Amplifier 2 offset adjustment set gain to 1000 (type G1000 "C.R.") set slide switch S3 to white dot showing. Set slide S2 to white dot not showing. Adjust pot 2 O (R89) until the typeout or lights equal 0000.
- 5) Amplifier 1 offset adjustment -
Set EDC to +OMV
Leave the gain at 1000

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 4. d. 5) (cont.)

Connect EDC to CH00 on screw terminal, + to +, - to -.

Set switch S2 to white dot showing, adjust pot 1 O (R69) and/or pot 1 F (R71) until the typeout or lights equal 0000.

6) When completed type Ctrl C.

e. Repeatability, accuracy, linearity test.

NOTE: On the A005 the 8 channels will respond to addresses 0-7 and 10-17; if address 0 is selected, the same channel will be selected as if address 10 is selected. The channels on the first A007 will have addresses 20-37. *For steps e.1) through e.6) refer to table at the end of this section. Ensure EDC is connected to CH00 and set to voltage listed in calibration table.

1) Respond to typeout as follows:

6.3 TEST NO.? 7"C.R."
TEST 7- A/D REPEATIBILITY

6.8 A005 ADDR? 06 "C.R."

6.13 GAIN? 1000 "C.R."

6.14 CHANS (SC, EC)? 10 "C.R." (from table)

6.15 EXPECTED AVERAGE? 2000 "C.R." (from table)

6.16 TOLERANCE? 5 "C.R." (from table)

NOTE: The response to "6.8 A005 ADDR?" is the address of the I/O slot in which the A005 module is located. Because of dielectric absorption, if you applied high

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 4. e. 1) cont.

voltage to the input channel, you will have to wait for the imprint of that voltage to discharge before trying to get an accurate reading of a low voltage at a high gain. Hence, always check the high gain/low input voltage part of the table first.

2) A good pass is indicated by a program printout "repeat". Wait for "repeat" to be printed twice. After the printout the program will begin the same test again. To terminate the test type Ctrl C. The program will respond:
6.3 TEST NO.?

3) If the test fails an error message is typed:
REPEATIBILITY ERROR.

	CHAN	GAIN	LOW	AVER	HIGH								
	0010	1000	2005	2006	2007								
LO	-5	-4	-3	-2	-1	AV	+1	+2	+3	+4	+5	HI	
000	000	000	000	000	041	200	015	000	000	000	000	000	000

This error printout shows 200 samples were at 2006, 41 samples were 2005 and 15 samples were at 2007.

The error was detected because the expected average was 2000 and the allowed tolerance was ± 5 counts. (see input data under section e.1).

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

CALIBRATION TABLE

EDC Output	A005 Channel		A007 Channel		Average		Tolerance	
	Bipolar	Unipolar	Gain	10	Bipolar	Unipolar	Bipolar	Unipolar
+0MV	+0MV	1000	10	0000	0000	0000	+4	+6
+0MV	+0MV	200	10	0000	0000	0000	+2	+3
+0MV	+0MV	100	10	0000	0000	0000	+2	+3
+0MV	+0MV	50	10	0000	0000	0000	+2	+3
+5MV	+5MV	1000	10	*	2000	4000	+5	+8
-5MV	---	1000	10	6000	---	---	+5	---
+9MV	+9MV	1000	10	3463	7146	7146	+5	+10
-9MV	---	1000	10	4315	---	---	+5	---
+25MV	+25MV	200	10	2000	4000	4000	+3	+5
+90MV	+90MV	100	10	3463	7146	7146	+3	+6
+100MV	+100MV	50	10	2000	4000	4000	+2	+4

EDC Volt Output		A005 Channel		A007 Channel		Average		Tolerance	
Bipolar	Unipolar	Gain	10	Bipolar	Unipolar	Bipolar	Unipolar	Bipolar	Unipolar
+0V	+0	20	10	0000	0000	0000	0000	+2	+3
+0V	+0	10	10	0000	0000	0000	0000	+2	+3
+0V	+0	2	10	0000	0000	0000	0000	+2	+3
+0V	+0	1	10	0000	0000	0000	0000	+2	+3
+.45V	+.45V	20	10	3463	7146	7146	7146	+3	+5
+.5V	+.5V	10	10	2000	4000	4000	4000	+2	+4
+4.5V	+4.5V	2	10	3463	7146	7146	7146	+3	+5
+5V	+5V	1	10	2000	4000	4000	4000	+2	+4
+9.9609V	+9.9609V	1	10	3770	7760	7760	7760	+3	+5
-9.9804V	---	1	10	4007	---	---	---	+3	+5
-5V	---	1	10	6000	---	---	---	+2	+1

*Channel to be used for each A007:

A007 #	1	2	3	4	5	6	7
Channel	21	42	63	84	105	126	147

SIZE **A** CODE SP NUMBER ICS8-0-5 REV **A**

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 4. e.

NOTE: 1) 3 readings out of every 1000 samples are allowed to be out of tolerance.
 2) Channel to Channel Offset specification says that: The readings taken on the A007 cards at a gain of 1000 are allowed an added inaccuracy of +3 counts besides the tolerance in the table. This inaccuracy is that the average read on the A007 can be +3 counts away from the average read on the A005.

f. Options - install options only after passing all the previous tests, only if the customer asks for them.

5. Digital to Analog Converter - A6330

a. Start the system exerciser at location 000200; the program will respond with (operator response is underlined, "C.R." is carriage return):

MD-08-DHICA
ICS8 FIELD TEST

6.3 TEST NO? 2 "C.R."
TEST 2 - DAC CALIBRATION

6.7 DAC ADDR? 0 "C.R."

WORKING.

b. The program will set the voltage on all channels in response to keyboard input -CTRL SXXXX "C.R.", where XXXX is octal value.

NOTE: 500-ohm resistors must be installed on the current

SIZE **A** CODE SP NUMBER ICS8-0-5 REV **A**

TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 5. b. (cont.)

outputs. Follow the table below while measuring the outputs on all 4 channels.

Keyboard <u>CTRLS</u> COMMAND	Voltage Outputs Voltage Across the 500 Ω	
0000	0.0000	+10mv
0001	0.0098	"
0002	0.0195	"
0004	0.0391	"
0010	0.0781	"
0020	0.1562	"
0040	0.3125	"
0100	0.6250	"
0200	1.2500	"
0400	2.5000	"
1000	5.0000	"
1777	9.9902	"

c. The voltage outputs can be touched up by typing CTRLS1777 "C.R." and adjusting pot D/A (X) X=channel number (0,1,2,3) to +9.9902V \pm .1mv. Current output must be checked and readjusted after the voltage output is adjusted. Type CTRL S0000 "C.R." Adjust OFF (X) (X=0,1,2,3) pot to 0.0000V \pm .1mv. Then type CTRL S1777 "C.R." and adjust GAIN(X) (X=0,1,2,3) pot to +9.9902V \pm .1mv.

d. Type Ctrl C when completed.

e. Perform the DAC interaction test -

6.3 TEST NO.? 3 "C.R."
TEST 3 - DAC INTERACTION

6.7 DAC ADDR? 0 "C.R."
WORKING.

f. Look at all four ramp outputs, the voltage and current outputs will be in phase and each channel must be

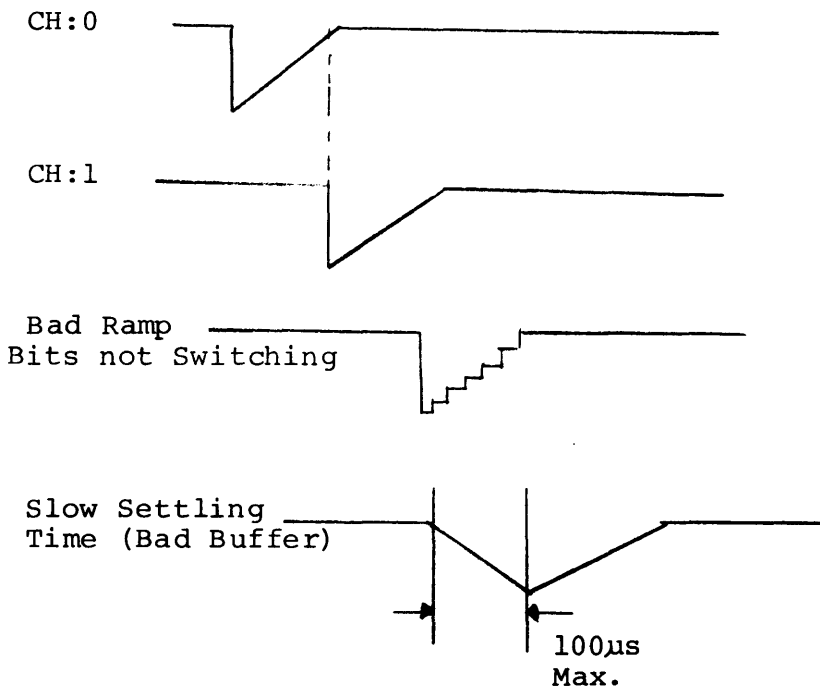
SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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TITLE ICS8 FIELD ACCEPTANCE

V. Acceptance Procedures (cont.)

B. 5. f. (cont.)

offset by the ramp of the previous channel.



g. Look at the DC level of the other channel during the ramp for excessive crosstalk. The crosstalk should not be measurable.

NOTE: Remove the 500 Ω resistors before the customer's loads are attached.

h. Type Ctrl C.

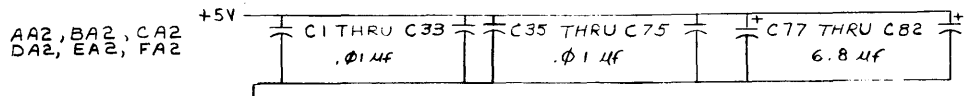
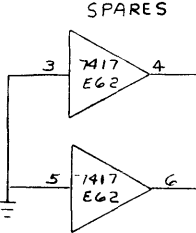
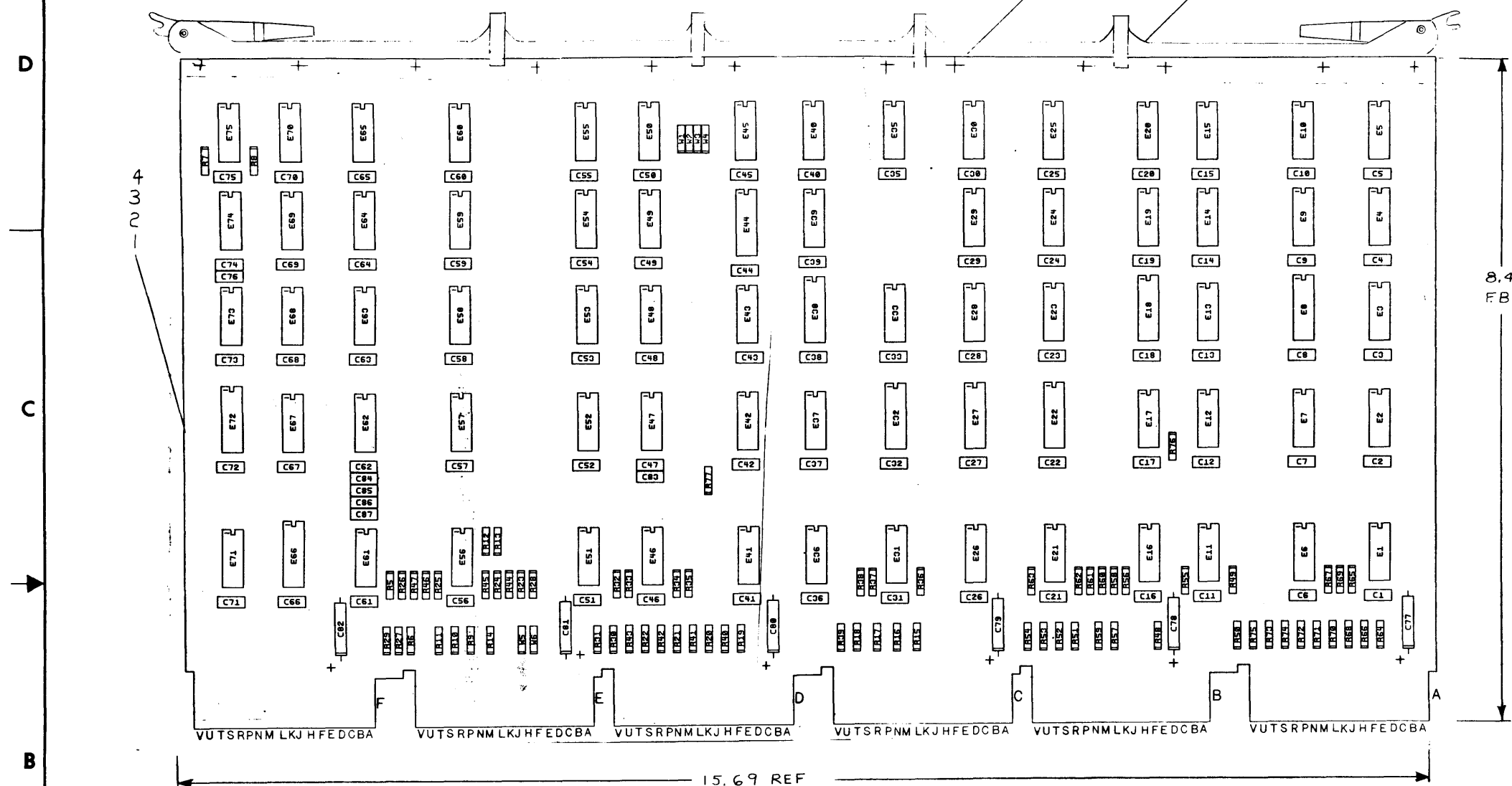
i. This concludes Field Acceptance of the ICS8.

SIZE A	CODE SP	NUMBER ICS8-0-5	REV A
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NOTES:

1-0-1089-150 2 1



AA2, BA2, CA2, DA2, EA2, FA2
 AB2 AC2 AN1 AT1 AV2 E11, DA1
 BC2 AP1 BT1 BV2 E12, DF1
 CC2 AR1 CT1 E13, DK1
 DD2 AS1 DT1 BV1 EN1
 EE2 AV1 ET1
 FF2
 FJ2, FK2, FL2, FM2, FN2, FP2, FR2, FS2

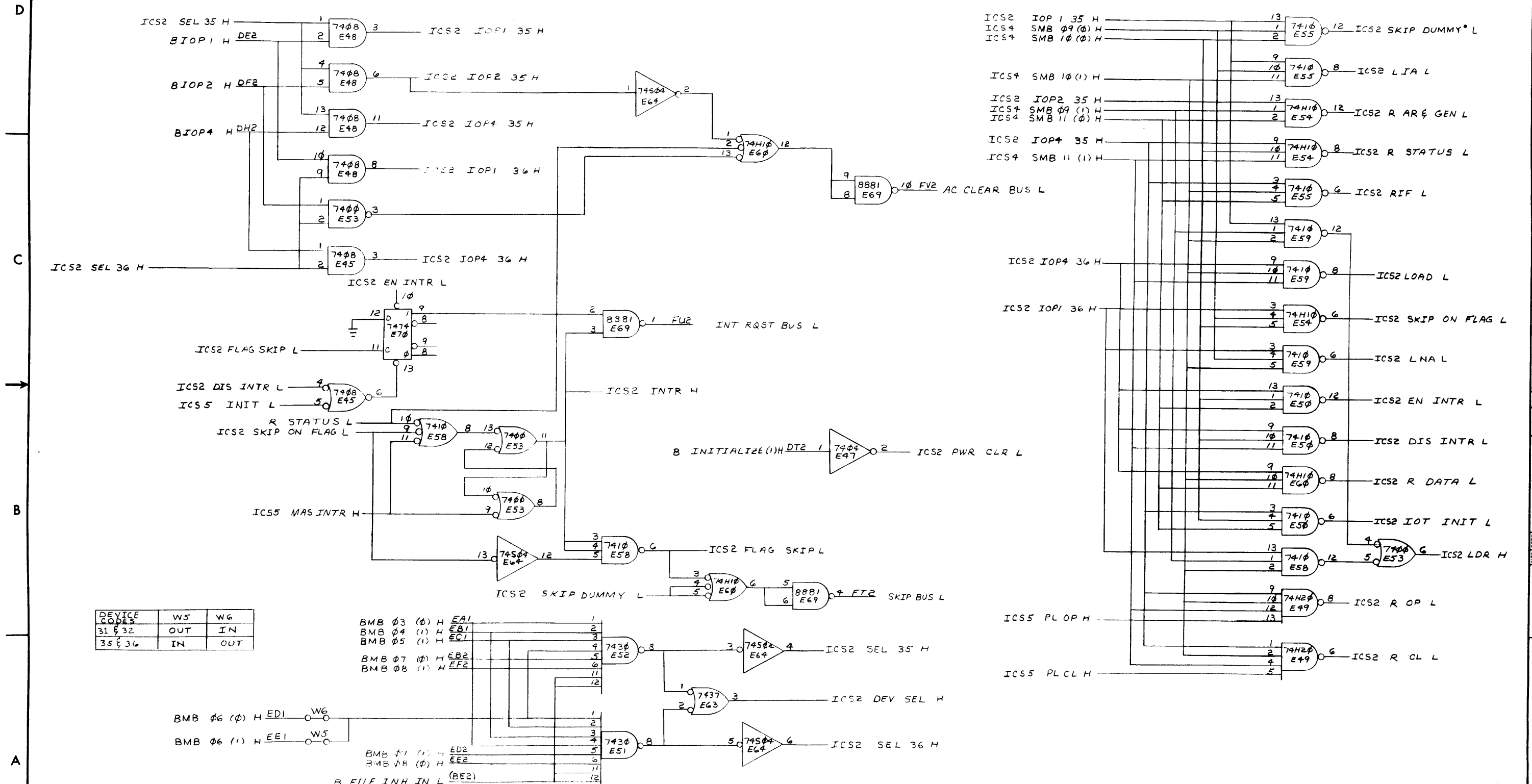
DEC 74157	8	16
DEC 74175	8	16
DEC 7442	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REF	X-Y COORDINATE HOLE LOCATION	KICCO-M8091-44
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M8091-1-5
REF	MODULE ECO HISTORY	B-MH-M8091-1-2
1	ETCHED CIRCUIT BOARD	5011140
28	R49 THRU R76	RES. 47Ω, 1/4W, 5% 1300316
44	R5 THRU R48	RES. 1K, 1/4W, 5% 1300365
2	C76, C83	CAP 1000PF, 250V, 20% DISC 1000043
74	C1 THRU C33, C35 THRU C75	CAP .01 uF, 100V, 20% DISC 1001610-01
6	C77 THRU C82	CAP 6.8 uF, 35V, 10% S.TANT 1005306
2	E53, E56	IC DEC 7400 1905575
3	E13, E14, E19	IC DEC 7402 1909004
7	E6, E11, E26, E31, E47, E71, E73	IC DEC 7404 1909686
1	E64	IC DEC 7404 1910534
8	E4, E9, E36, E41, E42, E43, E45, E48	IC DEC 7408 1910155
4	E50, E55, E58, E59	IC DEC 7410 1905576
2	E54, E60	IC DEC 74110 1909057
1	E49	IC DEC 74H20 1905635
2	E51, E52	IC DEC 7430 1905578
8	E2, E3, E7, E17, E37, E40, E57, E63	IC DEC 7437 1910091
2	E66, E72	IC DEC 7442 1910046
6	E1, E12, E16, E21, E46, E62	IC DEC 7417 1909929
12	E5, E10, E15, E20, E23 THRU E25, E28 THRU E30, E33, E35	IC DEC 74H52 1909061
1	E70	IC DEC 7474 1905547
1	E39	IC DEC 7486 1910011
5	E8, E18, E22, E38, E44	IC DEC 74175 1910651
2	E27, E32	IC DEC 74157 1910655
1	E74	IC DEC 8815 1909713
6	E75, E61, E65, E67, E68, E69	IC DEC 8881 1909705
6	W1 THRU W6	INSULATED JUMPERS 9009185
12	EYELET HANDLE	9006732
1	HANDLE ASSY	1210711-2
4	C84 THRU C87	CAP 470PF, 100V, 5% MICA 1000024
1	R77	RES 100Ω, 1/4W, 5% 1300229

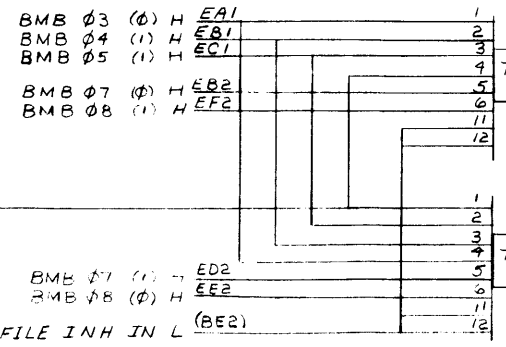
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
IC58				
ETCH BOARD REV. B				
DRN	E. Wilson	DATE	8/27/74	 TITLE IC58 MASTER CONTROL D-UA-IC58-1-1 SCALE NONE SHEET 1 OF 7 DIST.
CHKD	R. Wilson	DATE	1/15/79	
ENGR	R. Wilson	DATE	1/15/74	
PROJ/ENG	R. Wilson	DATE	1/15/74	
PRDD.	R. Wilson	DATE	1/15/74	
NEXT HIGHER ASSY				
D-UA-IC58-1-1				
DEC NO.	EIA NO.	DEC NO.	EIA NO.	REV.
SEMICONDUCTOR CONVERSION CHART				

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+5V
R48
1K
BE2 B FILE INH IN L



DEVICE CODES	W5	W6
31 & 32	OUT	IN
35 & 36	IN	OUT

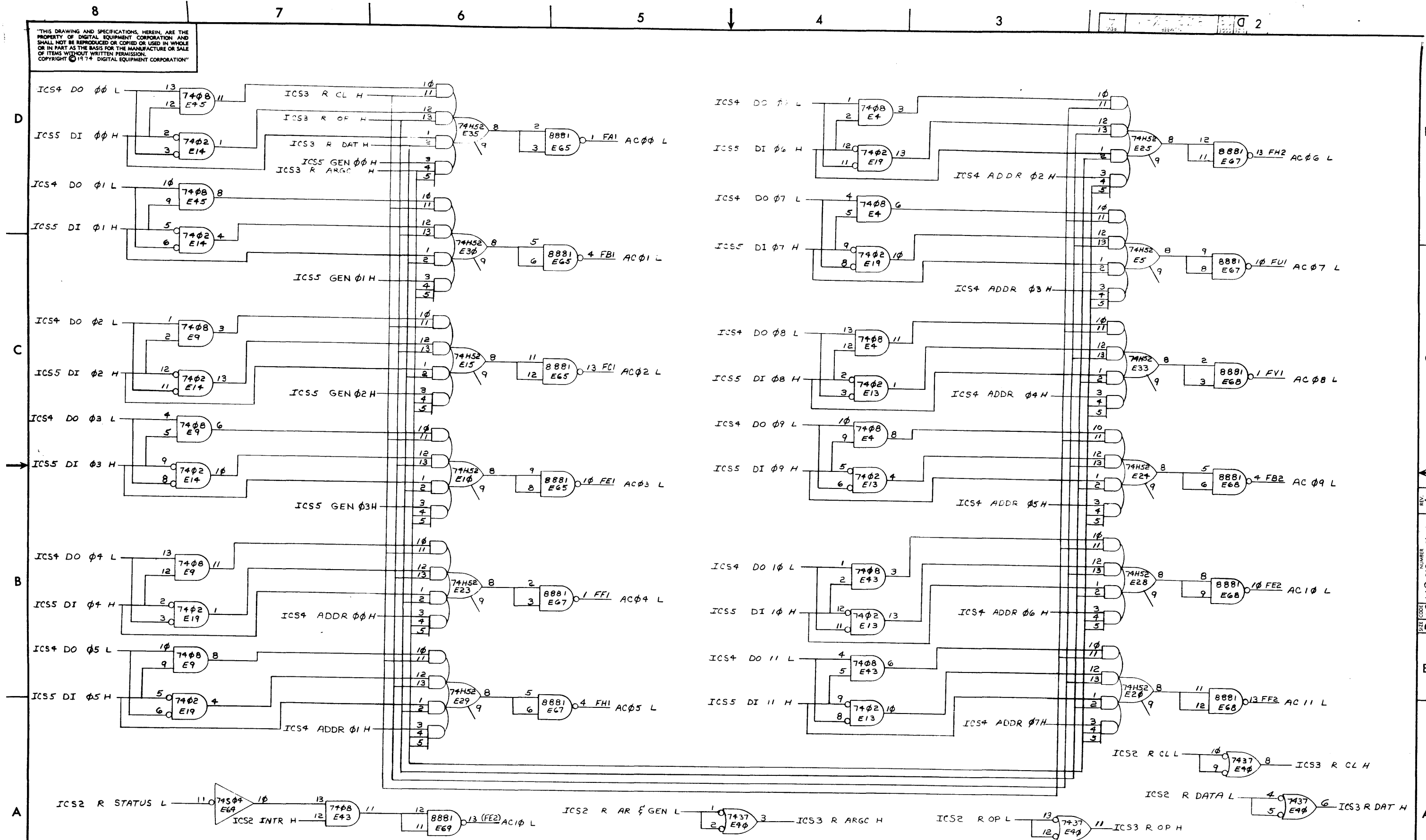


REVISIONS		
CHK	CHANGE NO.	REV.

(DEV SEL & INTERRUPT)		TITLE	SIZE CODE	NUMBER	REV.
		ICS6 MASTER CONTROL (ICS2)	D	CSM8091-0-1	A
SCALE	SHEET 2 OF 7	DIST.			

REV. A
NUMBER DCSM8091-0-1
SIZE CODE D

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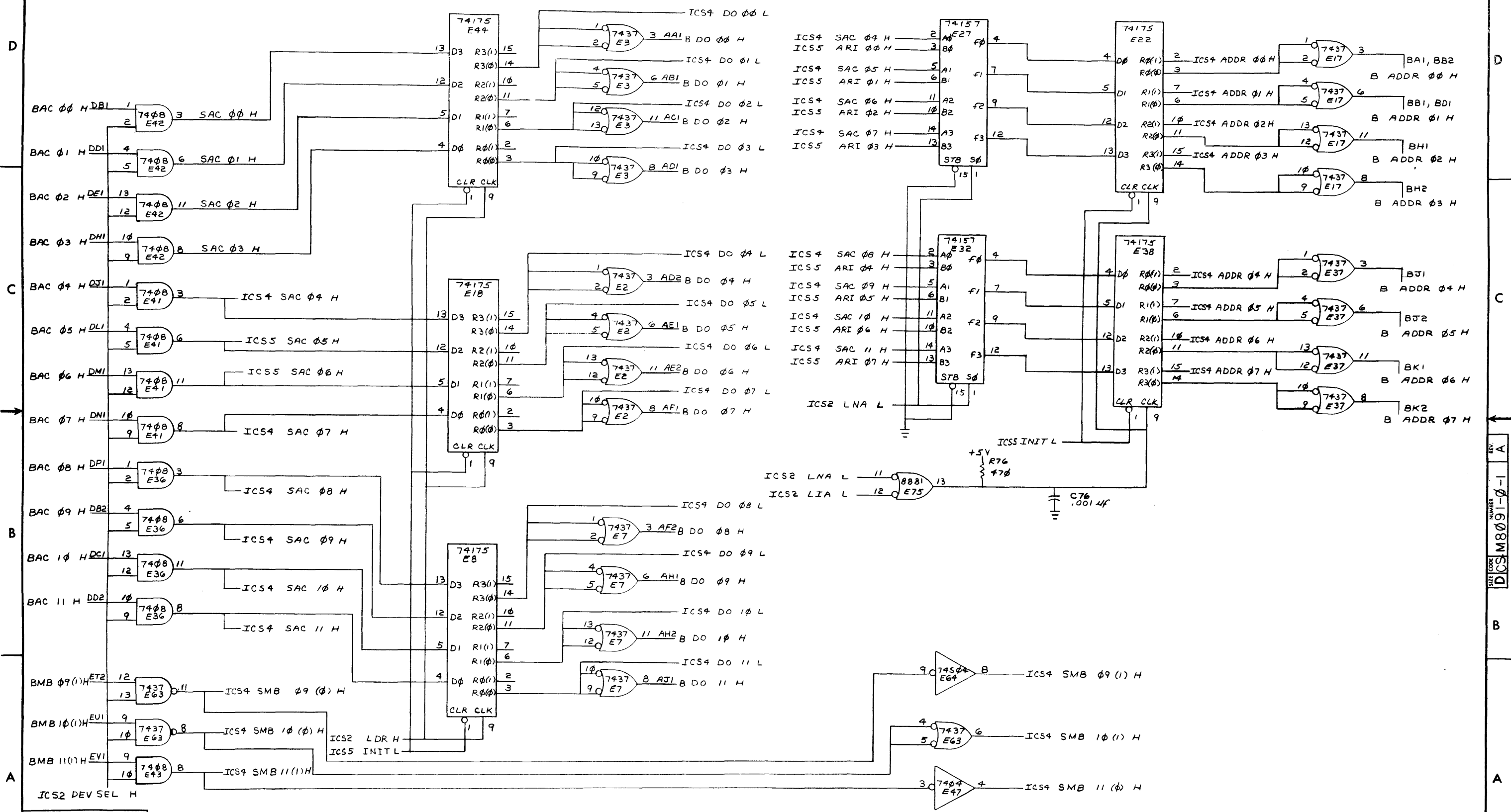


REVISIONS		
CHK	CHANGE NO.	REV.

(COS AND INPUT)		TITLE	SIZE CODE	NUMBER	REV.
		ICS6 MASTER CONTROL (ICS3)	D	CS M8091-0-1	A
SCALE	SHEET	OF	DIST.		
	3	7			

SIZE CODE NUMBER REV. A
 DCS M8091-0-1

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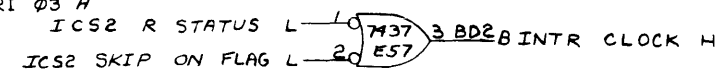
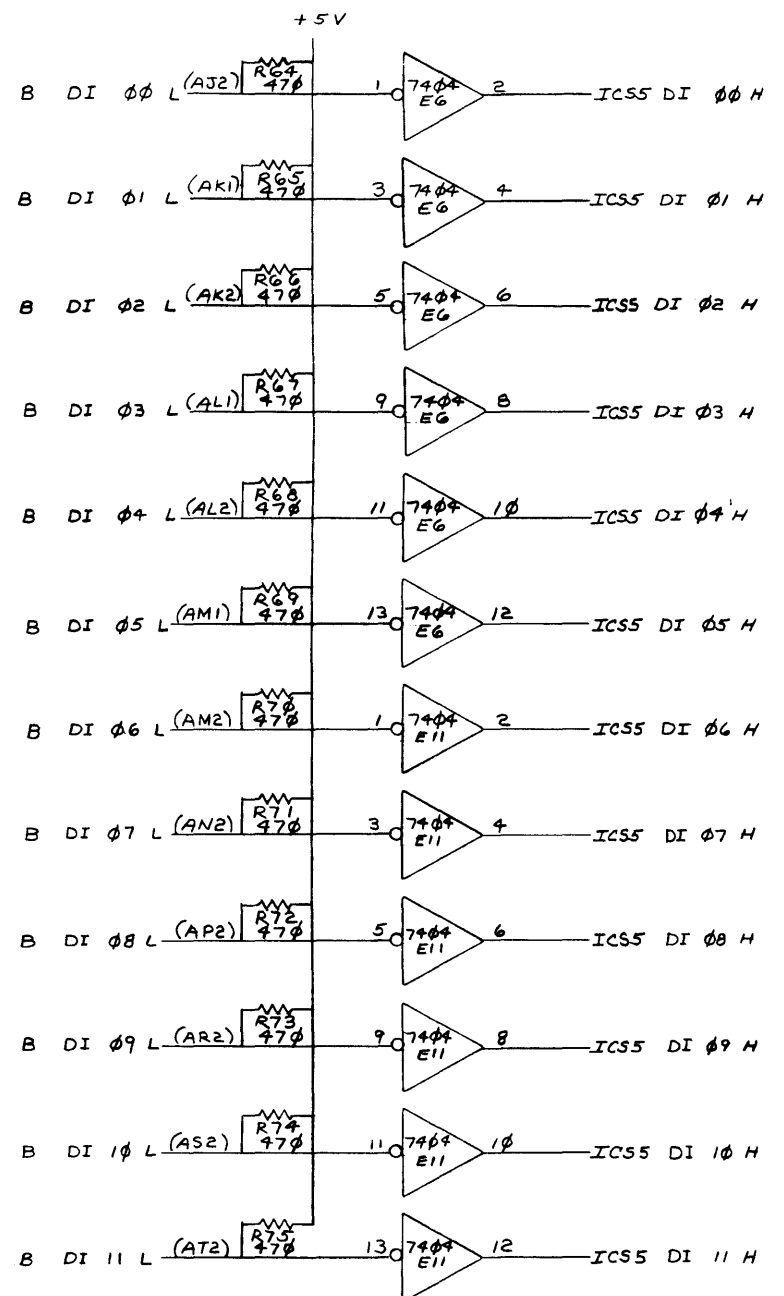
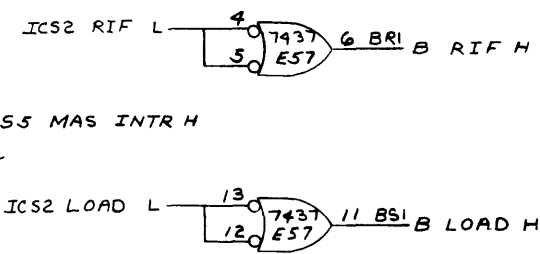
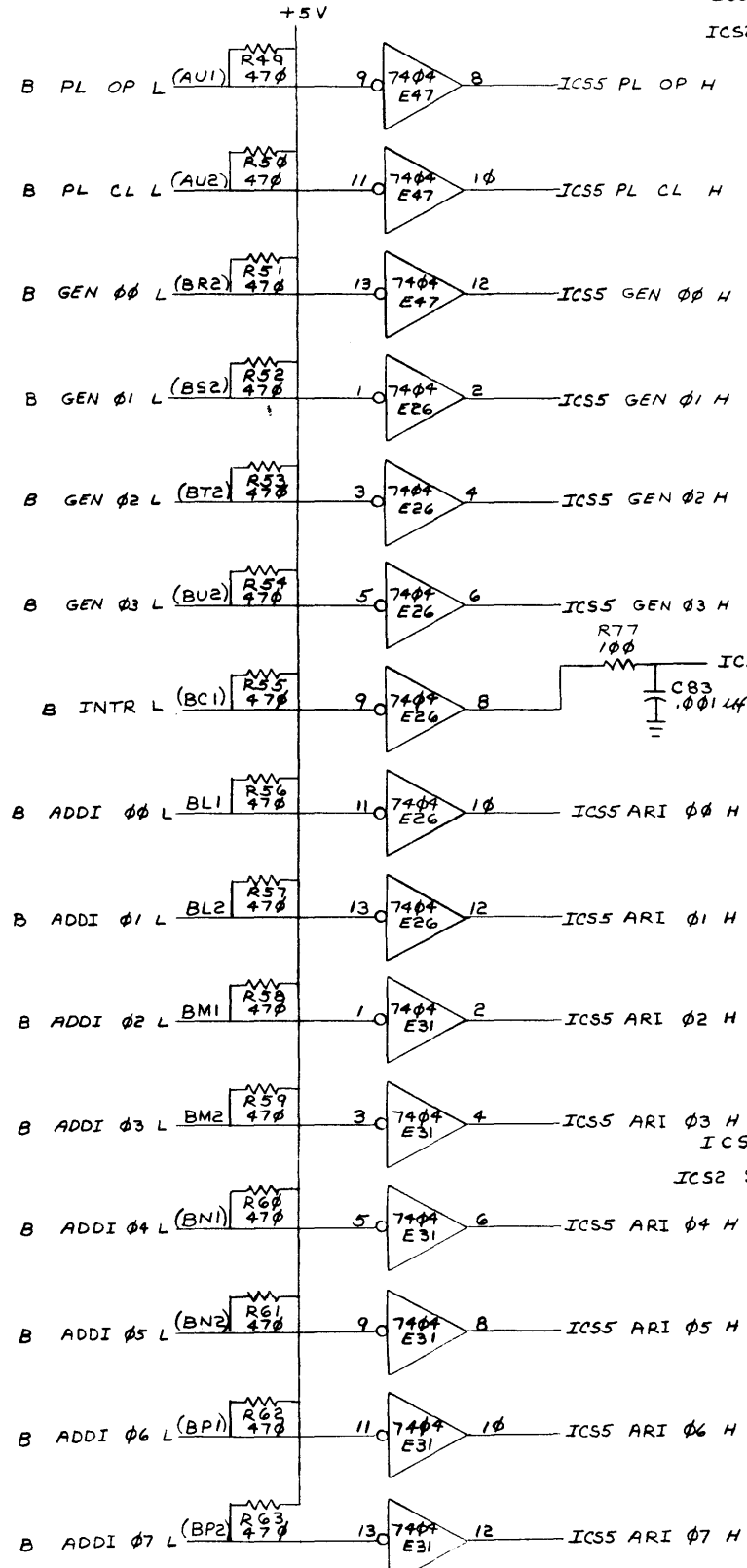
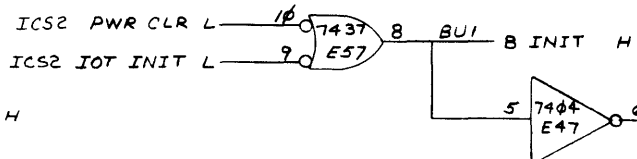


REVISIONS		
CHK	CHANGE NO.	REV.

(REGISTERS)	TITLE	SIZE CODE	NUMBER	REV.
	ICS8 MASTER CONTROL (ICS4)	D	CSM8091-0-1	A
SCALE	SHEET 4 OF 7	DIST.		

SIZE CODE NUMBER DCSM8091-0-1 REV. A

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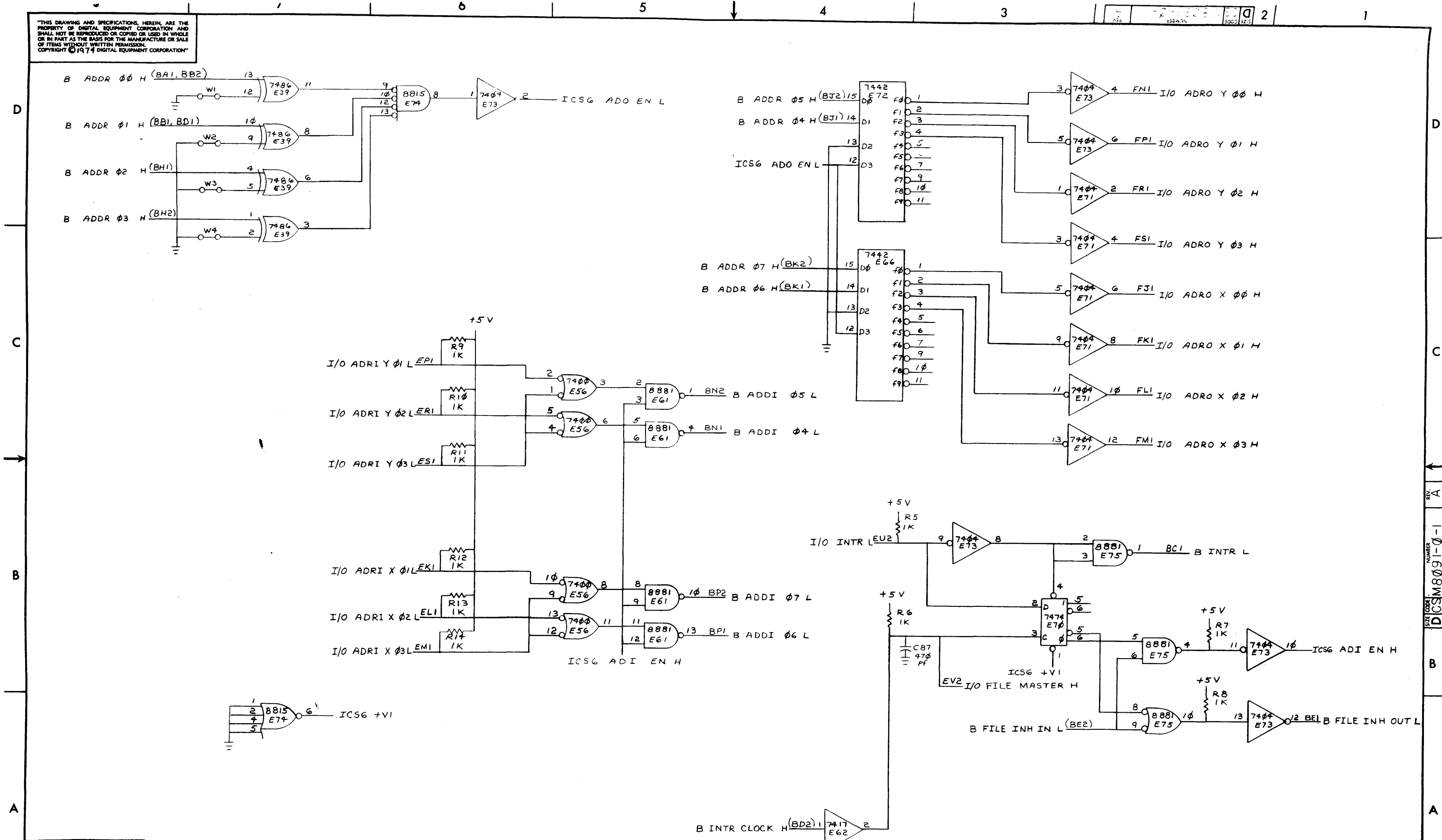
D
C
B
A

D
C
B
A

REVISIONS		
CHK	CHANGE NO.	REV.

(EXPANDER BUS INTER-FACE)		TITLE	SIZE CODE	NUMBER	REV.
		ICS5 MASTER CONTROL (ICS5)	D	CSM8091-0-1	A
SCALE	SHEET 5 OF 7	DIST.			

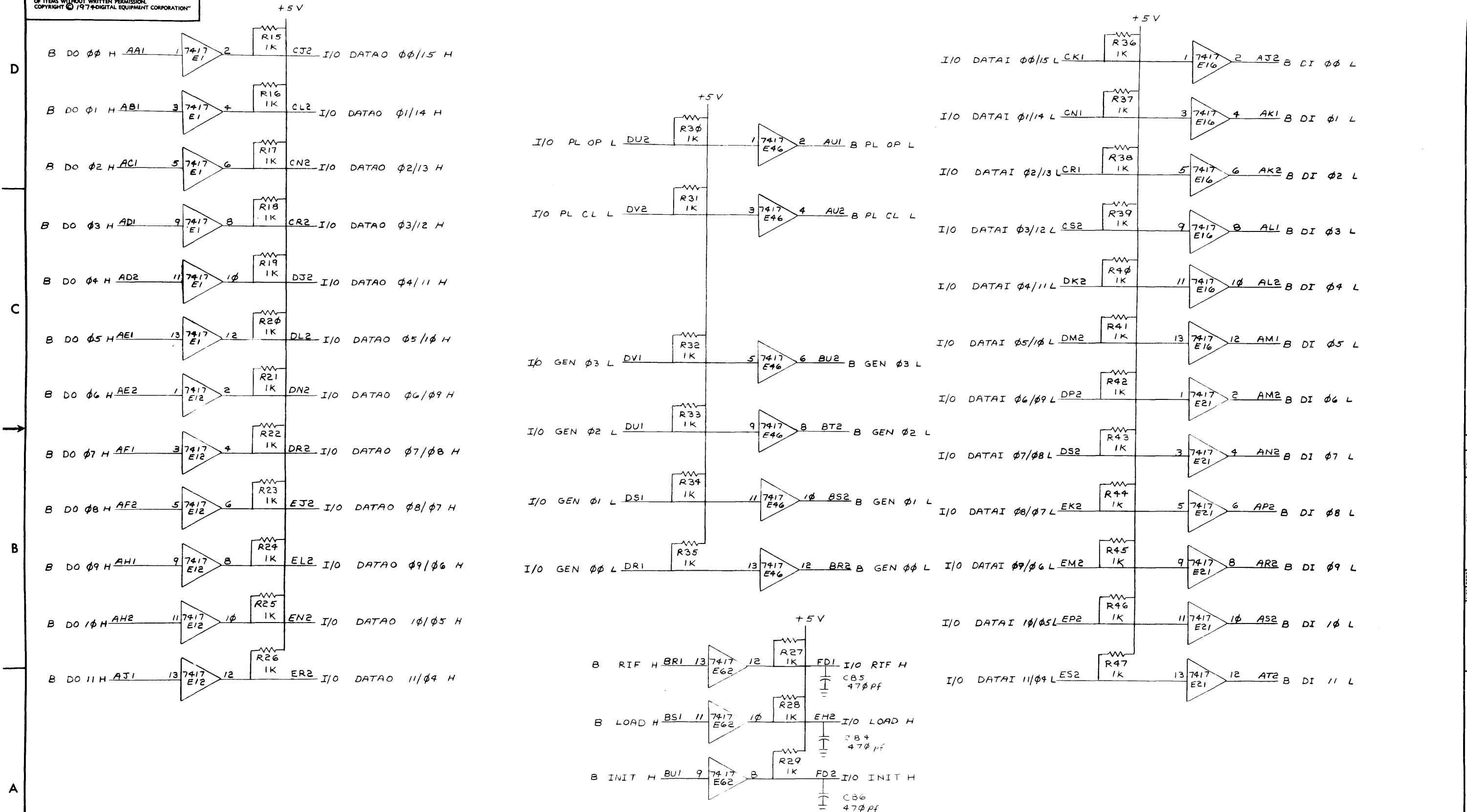
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REVISIONS		
CHK	CHANGE NO.	REV.

(FILE ADDRESS AND INTERRUPT ARBITRATION)		TITLE	SIZE CODE	NUMBER	REV.
		ICS6 MASTER CONTROL (ICS6)	D	CSM8091-0-1	
SCALE	SHEET 6 OF 7	DIST.			

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REVISIONS		
CHK	CHANGE NO.	REV.

(FILE INTERFACE)		TITLE	SIZE CODE	NUMBER	REV
		IC88 FILE CONTROL	D	CSM8092-0-1	Δ
SCALE	SHEET	OF	DIST.		
	3	3			

REV. A
NUMBER 0-1
SIZE CODE DCS M8092-0-1

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY/VARIATION

MADE BY <i>M. Muller</i>	CHECKED <i>M. Muller</i>	SECTION
DATE <i>8-13-68</i>	DATE <i>8-14-68</i>	
ENG <i>J. T. ...</i>	PROD <i>J. T. ...</i>	ISSUED SECT.
DATE <i>9/4/68</i>	DATE <i>11/4/68</i>	

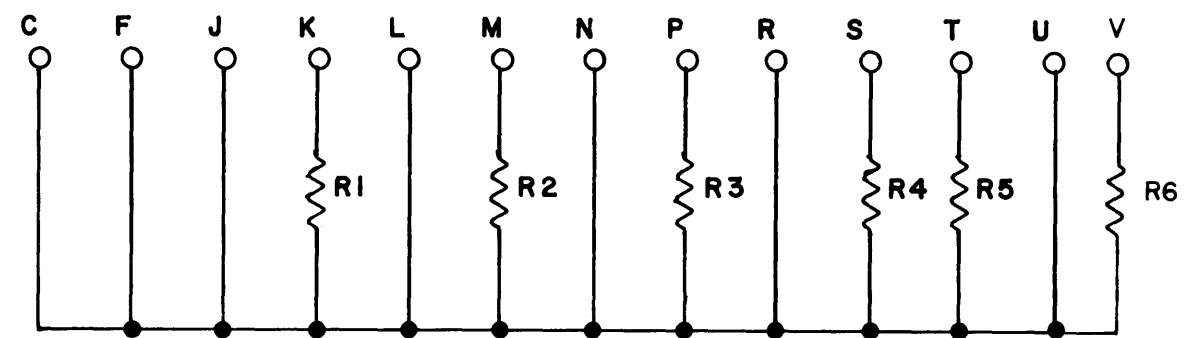
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY/VARIATION									
	B-CS-G717-0-1	CIRCUIT SCHEMATIC										
	K-CO-G717-0-4	X-Y COORDINATE HOLE LOCATION										
	C-AH-G717-0-5	ASSY/DRILLING HOLE LAYOUT										
	5008076	ETCHED CKT. BD.	1									
	1300229	RES. 100 $\frac{1}{2}$ W 5% CC	6									
	1202258	HANDLE, FLIP CHIP _ GREEN	1									
	9006732	EYELETS #GS4-7 E.B. STIMPSON	2									

TITLE RESISTOR TERMINATOR G717	ASSY NO.	SIZE A	CODE PL	NUMBER G717-0-0	REV. A	ECO NO. 00001
SHEET 1 OF 1		DIST. 325 434 435				



REV. A	NUMBER 1-0-2129	CS	SIZE B
--------	-----------------	----	--------

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 < 8 9 0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z >

R1 - R6	RES. 100 1/4W 5% CC	1300229
	PARTS LIST	A-PL-6717-0-0
REFERENCE DESIGNATION	DESCRIPTION	PART NO.

PARTS LIST

REVISIONS	CHK	CHG NO.	REV.
	2.5	00001	A

DRN.	DATE
<i>M. Waller</i>	8-12-68
CHK'D	DATE
<i>N. Waller</i>	8-13-68
ENG.	DATE
<i>APD</i>	9/4/68
PROD.	DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA



TITLE				RESISTOR TERMINATOR G717			
SIZE	CODE	NUMBER		REV.			
B	CS	G717-0-1		A			
PRINTED CIRCUIT REV.							B



(4) PINK

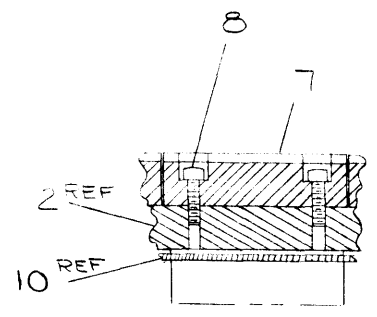
DIST. 324 434 435

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0-0-28600 DAD 2

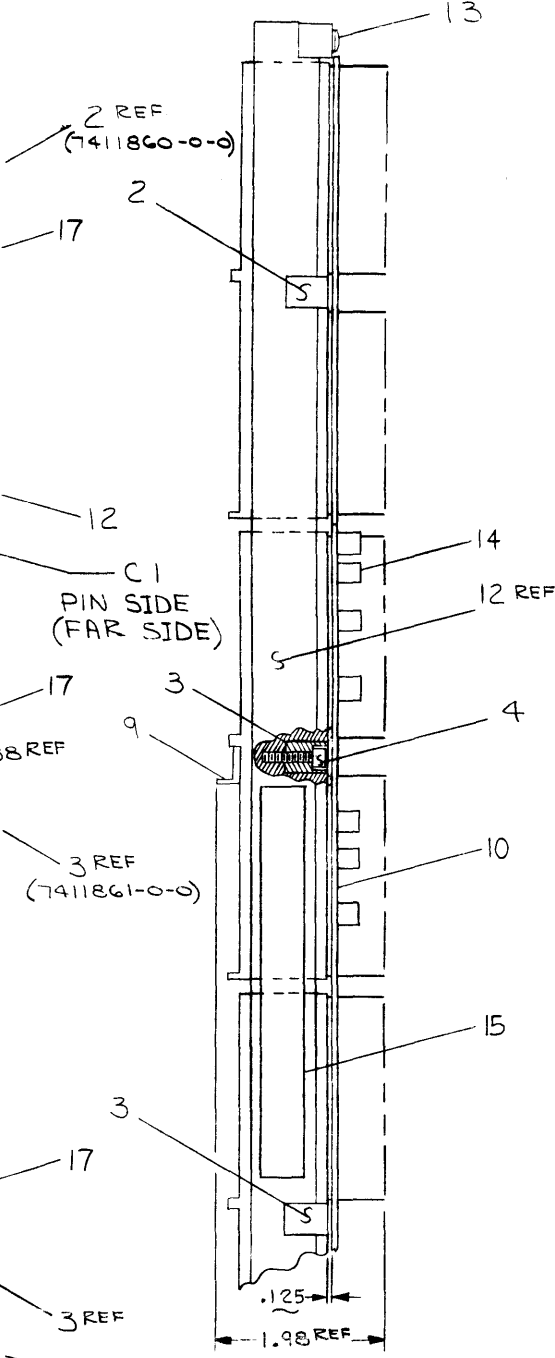
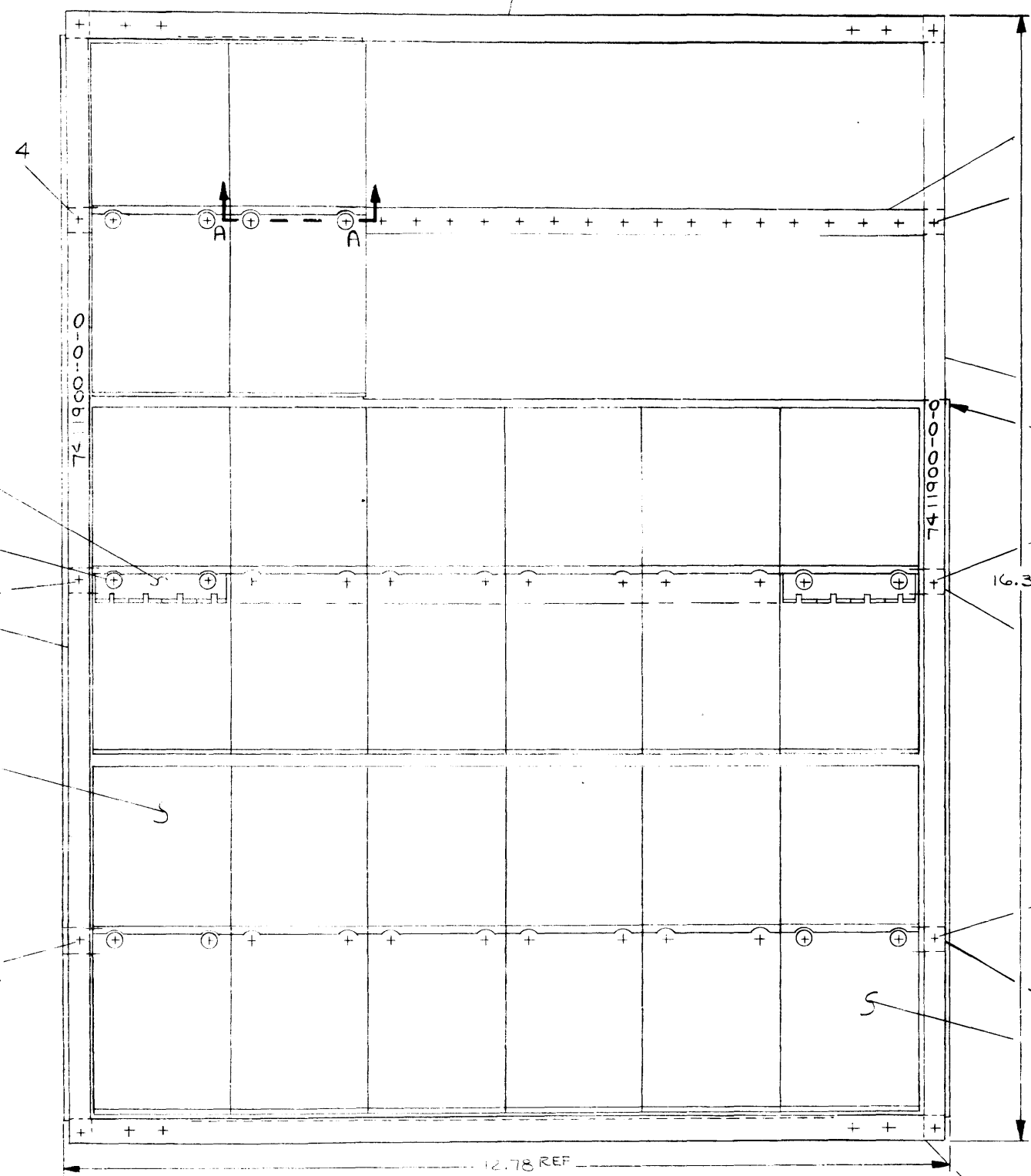
(7411899-0-0)

- NOTES:
1. AFTER LOGIC FRAME ASSEMBLY HAS GONE THROUGH FINAL TRICHLOROETHYLENE BATH, REMOVE EXISTING MOUNTING SCREWS (ITEM#8) FROM CENTER ROW OF SIX 288 PIN CONNECTOR BLOCKS (ITEM#7) AND RETURN THESE SCREWS TO STOCK.
 2. ITEM #9 (CENTER CARD GUIDE) TO BE BROKEN AT NOTCH TO ALLOW MOUNTING TO SINGLE FOUR SLOTTED 288 PIN CONNECTOR BLOCK (ITEM#7)
 3. ASSEMBLE CENTER CARD GUIDE (ITEM#9) ON CENTER ROW OF CONNECTOR BLOCKS (ITEM#7) ONLY USING SCREWS (ITEM#5) TO HOLD IN PLACE.
 4. ATTACH ITEM NO.14 (FASTABS) TO SIDE #2 OF ETCH BOARD THEN SOLDER FROM SIDE #1 BEFORE ETCH BOARD AND BLOCKS ARE ASSEMBLED.
 5. WHEN ASSEMBLING USE .093 DIA. SST. RODS TO SPACE BOARD FROM BLOCKS.



SECTION A-A

SEE NOTES #1, #2, #3



SLOTTED SIDE CONNECTOR BLOCK

QTY.	DESCRIPTION	PART NO.	ITEM NO.
3	SCR SOCKET HD #8-32X1"	9007988-8	17
REF	ETCH WIRE LIST AWT REV	A-WT-7009877-0	16
1	DECAL, LOGIC ASSY. REV.	A-DC-7411881-0-0	15
20	FASTABS	9008219	14
4	SCR PHL. HD PAN #8-32X.62	9006040-1	13
2	BAR, SIDE SUPPORT (ALT)	D-MD-7411900-0-0	12
20	EYELETS	9009000	11
1	CIRCUIT SCHEMATIC	D-CS-5411032-0-1	10
6	GUIDE, CARD CENTER	1210698	9
28	SCR FIL HD POSI DR. #8-32X.6	9006120-6	8
14	CONNECTOR BLOCK 288PIN	1210258	7
A/R	#30 AWG WIRE WRAP, YELLOW	9105740-49	6
12	SCR TYPE CW SHD 8-32X.81	9009070-2	5
3	SCR SOCKET HD 8-32X.62	9006339-8	4
2	BRACKET, LOWER MTG.	GMD-7411861-0-0	3
1	BRACKET, UPPER MTG.	GMD-7411860-0-0	2
2	BAR, HORIZ. SUPPORT (ALT)	D-MD-7411899-0-0	1

FIRST USED ON OPTION/MODEL		PARTS LIST	
ICS11-M			
DIMENSIONAL TOLERANCE		DRN. <i>K. S. Davis</i>	DATE 3-20-74
DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED		CHK'D. <i>R. J. Anderson</i>	DATE 10/29/74
MILLIMETERS	INCHES	ANGLES	DATE
X,XX = ±0.10	.XXX = ±.005	40° 30'	DATE
X,X = ±0.5	.XX = ±.02		DATE
X = ±2.	.X = ±.1		DATE
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. <i>R. K. S. Davis</i>	DATE 11/12/74
		PROD. <i>R. K. S. Davis</i>	DATE 11/12/74
		NEXT HIGHER ASSY.	
MATERIAL	DUR ICS11-M-0	SIZE CODE	NUMBER
FINISH		DAD	7009877-0-0
	SCALE 1/1	DIST.	REV. B
	SHEET OF 2		

REV.	CHANGE NO.	CHK.	DATE
A	7009877-00001	K. GULICK	1/24/74
B	7009877-00002	R. GAGNE	7-16-75

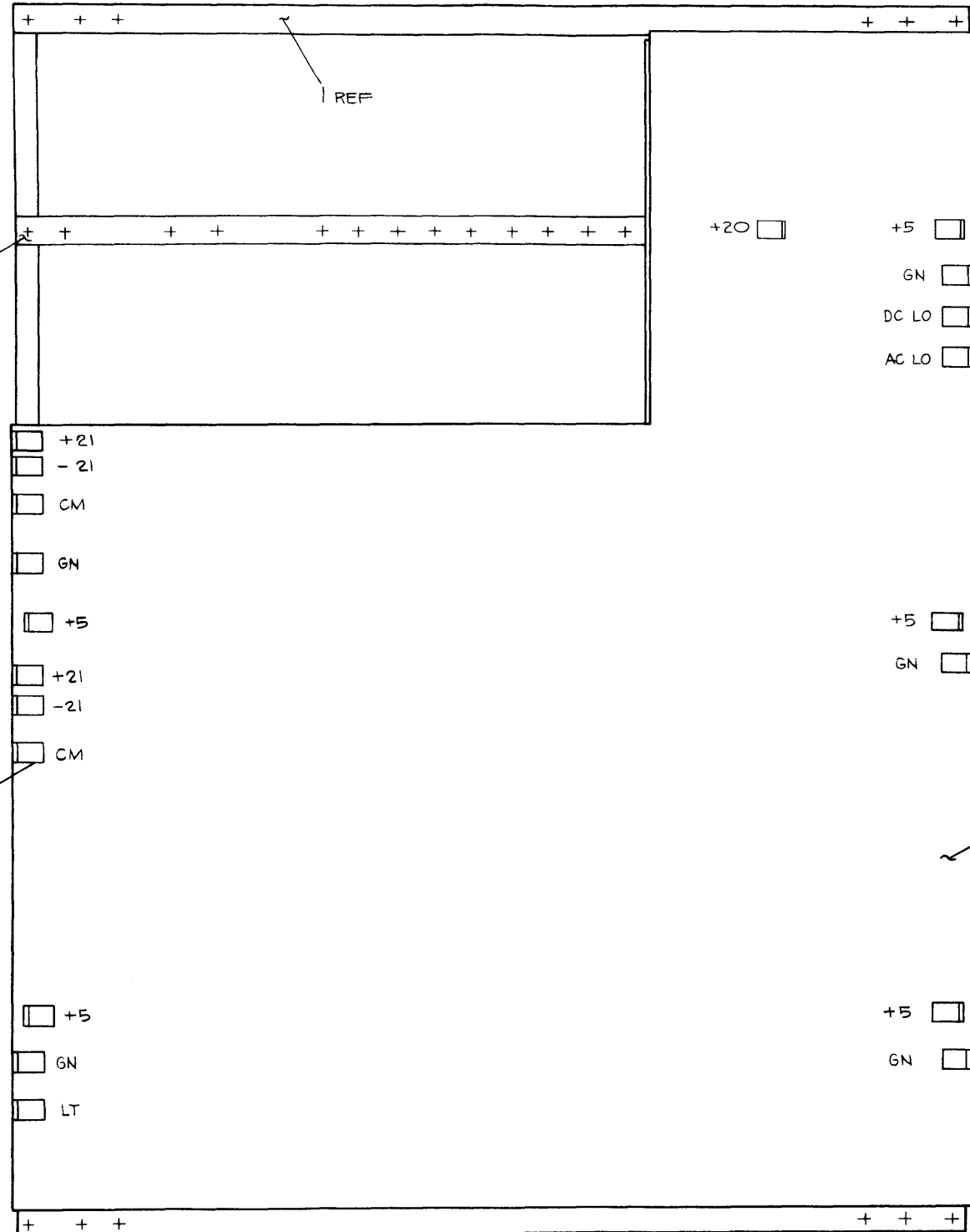
DEC FORM NO. DAD 100-B

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FOR MFG. USE ONLY

ITEM NO	DESCRIPTION	FROM		TO		
		AWG	COLOR	CONNECTION	WITH	CONNECTION
6	30	YEL	A24 U2	---	A23 U2	---
↑	↑	↑	A23 U2	---	A22 U2	---
			A22 U2	---	A21 U2	---
			A21 U2	---	A2φ U2	---
			A2φ U2	---	A19 U2	---
			A19 U2	---	A18 U2	---
			A18 U2	---	A17 U2	---
			B24 V1	---	B23 V1	---
			B23 V1	---	B22 V1	---
			B22 V1	---	B21 V1	---
			B21 V1	---	B2φ V1	---
			B2φ V1	---	B19 V1	---
			E19 T2	---	E18 U1	---
			E18 U1	---	E17 U1	---
			E19 H1	---	E18 A1	---
			E18 A1	---	E17 A1	---
			E19 H2	---	E18 B2	---
			E18 B2	---	E17 B2	---
↓	↓	↓	F18 T2	---	F17 T2	---
6	30	YEL	B17 C2	---	B17 T1	---

10 REF
REFER TO ECO 0001 FOR REWORK INSTRUCTIONS TO REV A ASSY. ONLY



VIEW B-B

2 REF

14

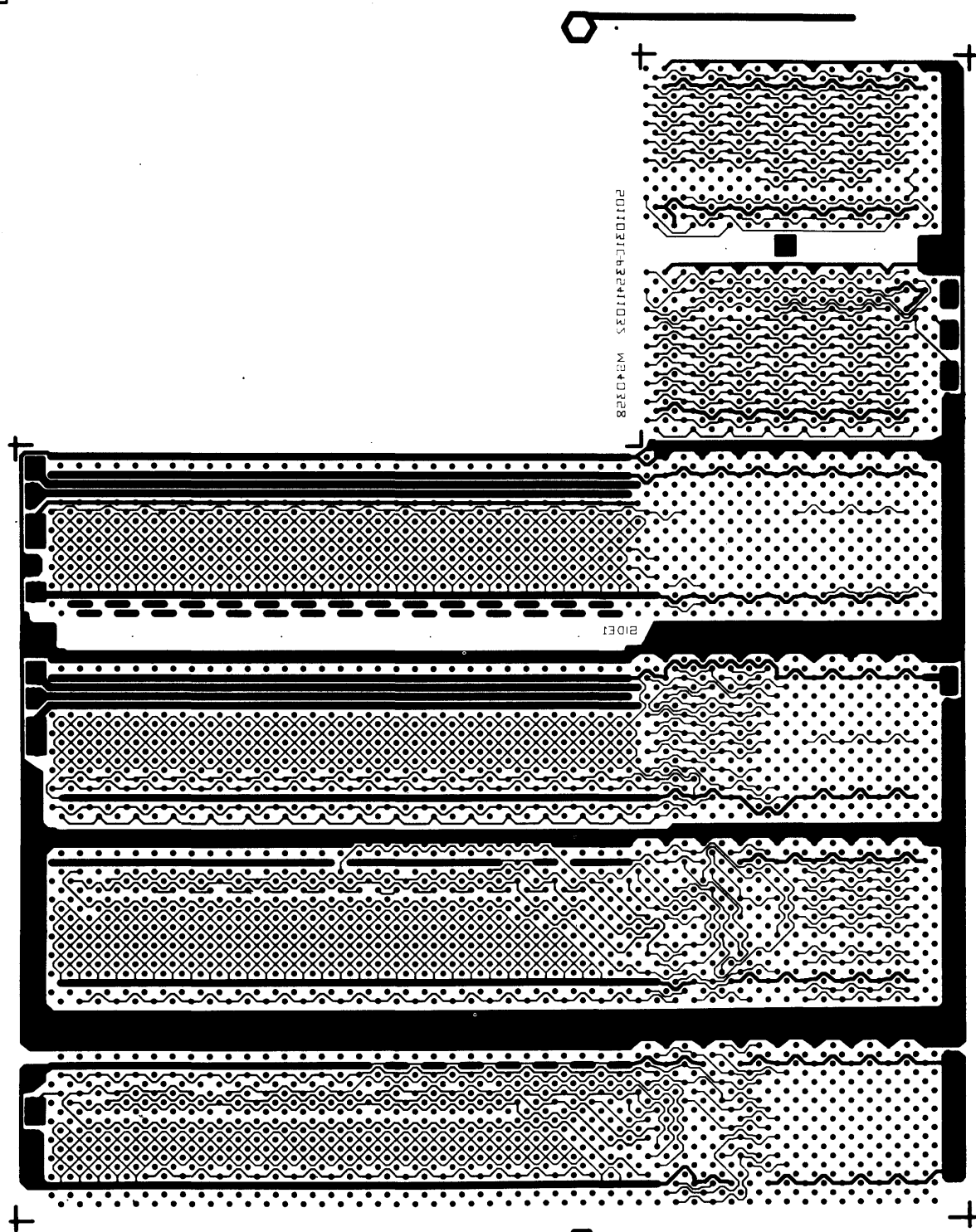
REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE/CODE	NUMBER	REV.
BACK PLANE ASSY	D AD	7009877-0-0	B
SCALE 1/1	SHEET 2 OF 2	DIST	

DAD 7009877-0-0 B

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D CS 5411032-0-1 B 2 1



REF	ETCH WIRE LIST	K-WL-5411032-0-0
1	ETCHED CIRCUIT BD.	D-1A-5011031-0-0
REF	MODULE ECO HISTORY	B-MH-5411032-6
REF	ASSY. DRILL/HOLE LOCATION	C-AH-5411032-5
REF	X/Y COORDINATE HOLE LOCATION	K-CO-5411032-4
QTY.	DESCRIPTION	PART NO. ITEM NO.

ETCH BD. REV. C		PARTS LIST	
DRN	DATE		
CHK'D	DATE		
ENG.	DATE		
PROJ. ENG.	DATE		
PROD.	DATE		
NEXT HIGHER ASSY.			
D-AD-7009877-0-0			

R.GAGNE
7/13/75
7/2/75
5411032-0-1B
CHG CHANGE NO. REV

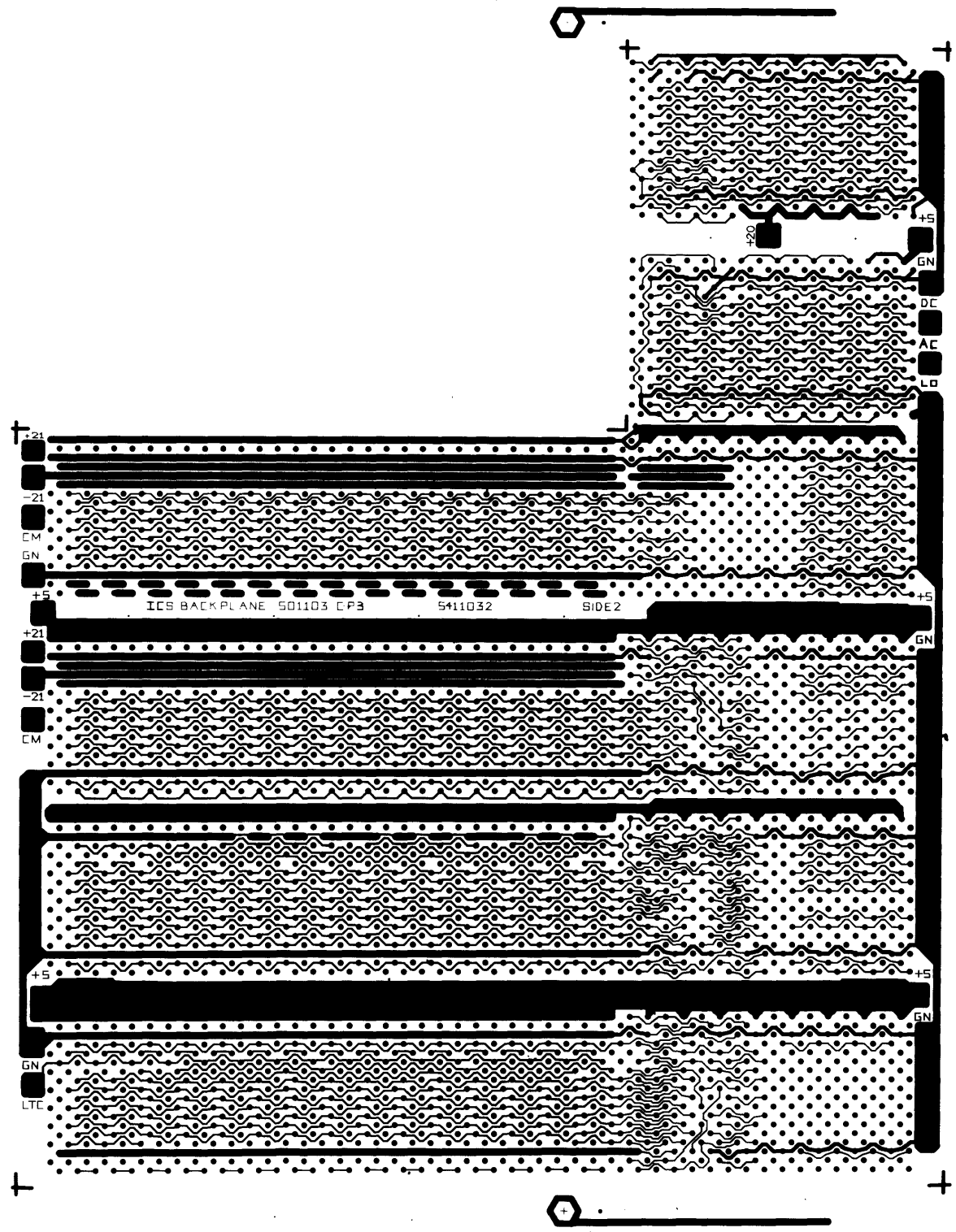
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
IC'S BACKPLANE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	IC'S BACKPLANE	SIZE CODE	D CS 5411032-0-1	NUMBER	B	REV.	B
SCALE	SHEET 1 OF 2	DIST.					

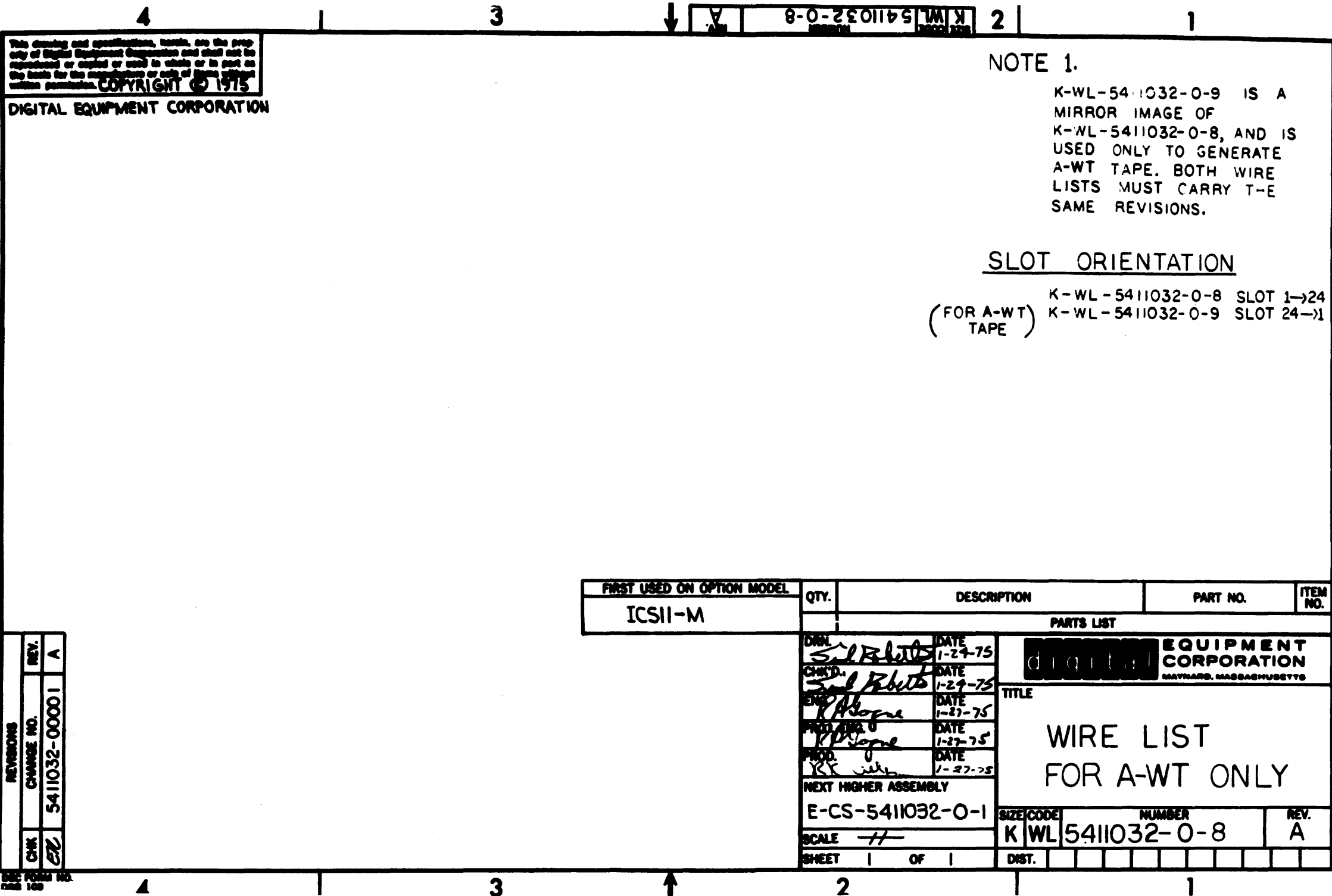
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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
ICS BACKPLANE	D CS	5411032-0-1	B
SCALE	SHEET 2	OF 2	DIST.

D CS 5411032-0-1 B



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DIGITAL EQUIPMENT CORPORATION

NOTE 1.

K-WL-5411032-0-9 IS A MIRROR IMAGE OF K-WL-5411032-0-8, AND IS USED ONLY TO GENERATE A-WT TAPE. BOTH WIRE LISTS MUST CARRY THE SAME REVISIONS.

SLOT ORIENTATION

(FOR A-WT TAPE) K-WL-5411032-0-8 SLOT 1-24
K-WL-5411032-0-9 SLOT 24-1

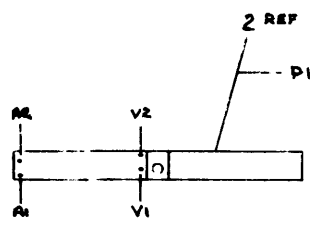
FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
ICSII-M				
PARTS LIST				
DRAWN <i>S. J. White</i>	DATE 1-27-75	 DIGITAL EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>		
CHECKED <i>S. J. White</i>	DATE 1-27-75			
ENG. <i>R. Abogne</i>	DATE 1-27-75			
PROJ. ENG. <i>R. Abogne</i>	DATE 1-27-75			
PROD. <i>R. Abogne</i>	DATE 1-27-75			
NEXT HIGHER ASSEMBLY		TITLE		
E-CS-5411032-0-1		WIRE LIST FOR A-WT ONLY		
SCALE 1/1	SIZE CODE KWL	NUMBER 5411032-0-8	REV. A	
SHEET	OF	DIST.		

REV.	CHANGE NO.	CHK.
A	5411032-00001	ETC

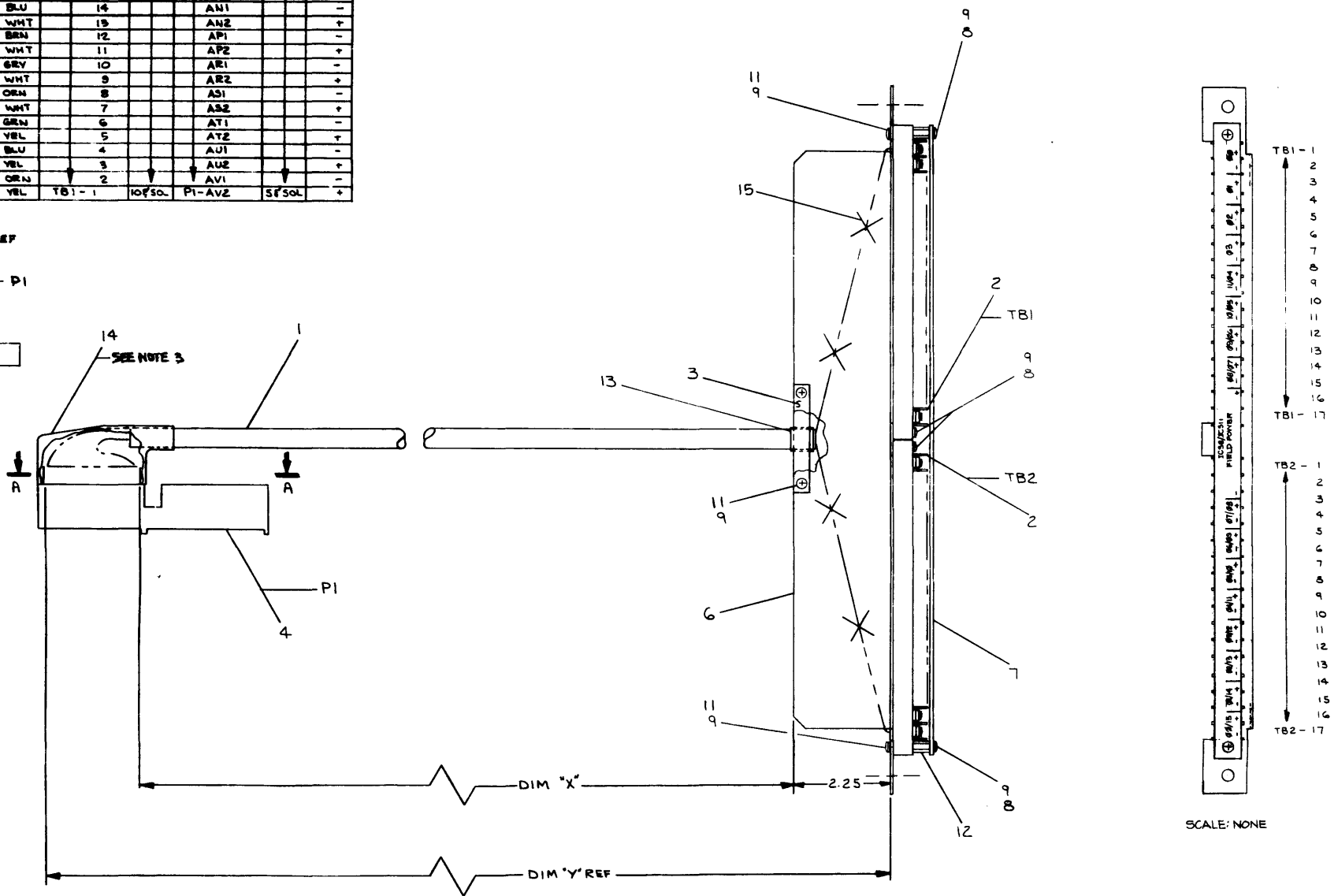
WIRE TABLE								
NO	HWG	COLOR	CONNECTION FROM	WITH	CONNECTION TO	WITH	SIGNAL NAME	
1	24	TWP	ORN	TB2-17	1075OL	P1-A11	SFSOL	-
			RED	18		A1E		+
			GRN	18		A1B		-
			RED	14		A1E		+
			BLU	18		A1C		-
			RED	12		A1E		+
			GRY	11		A1D		-
			RED	10		A1E		+
			BRN	9		A1E		-
			RED	8		A1E		+
			GRN	7		A1E		-
			BLK	6		A1E		+
			GRN	5		A1E		-
			BLK	4		A1E		+
			BLU	3		A1E		-
			BLK	2		A1E		+
			BRN	TB2-1		A1E		PWR-
			BLK	TB1-17		A1E		PWR+
			GRN	16		A1E		-
			WHT	15		A1E		+
			BLU	14		A1E		-
			WHT	13		A1E		+
			BRN	12		A1E		-
			WHT	11		A1E		+
			GRY	10		A1E		-
			WHT	9		A1E		+
			GRN	8		A1E		-
			WHT	7		A1E		+
			GRN	6		A1E		-
			YEL	5		A1E		+
			BLU	4		A1E		-
			YEL	3		A1E		+
1	24	TWP	YEL	TB1-1	1075OL	P1-AV2	SFSOL	+

LEGEND		
NUMBER	DIA. IN.	DIMY REF.
BC40H-1J	22 ± .1"	31.5 ± .1"

- NOTES:
- BEFORE SHRINKING BOOT (ITEM NO.14) A CONTINUITY CHECK MUST BE MADE.
 - IF CABLE ITEM NO.1 (9107700-01) IS NOT AVAILABLE, CABLE PART NO.9107700-00 MAY BE USED.
 - WHEN INSTALLED, BOOT (ITEM 14) SHOULD SIT ON TERMINAL BLOCK (ITEM 2) AND SHOULD NOT SLIP AROUND BLOCK.



VIEW A-A
(REAR VIEW)
BOOT (ITEM 14)
REMOVED FOR
CLARITY OF
VIEW



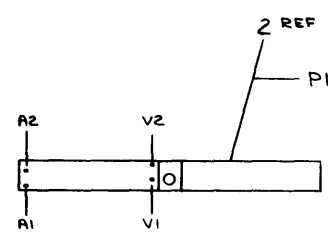
QTY.	DESCRIPTION	PART NO.	REF.
4	TIE WRAP	9007031	15
1	BOOT	1211954	14
15	DOUBLE SIDED POINTY TYP. SOW	9007654	13
2	HEX SPACER #6-32 x .7504	9006859	12
4	SCR PHL HD PWN #32x.50	9006024-1	11
34	SOLDER SLEEVE	1212052-00	10
8	LOCKWASHER INT. TOOTH	9006633	9
4	SCR PHL HD PWN #32x.31	9006021-1	8
1	TERMINAL STRIP COVER	B-28-7411910-0-0	7
1	BRKT. TERMINAL STRIP	D-40-7411841-0-0	6
36	SOLDER SLEEVE	1212052-01	5
1	CONNECTOR BLOCK TOP	C-MP-7411920-00	4
1	CABLE CLAMP	1202790-01	3
2	TERMINAL BLOCK	1211750	2
34	CABLE 18 FB 24 HWG	SEE NOTE 2	1

FIRST USED OR OPTION MODEL		DATE	
IC5 11-M		4-2-74	
DIMENSIONAL TOLERANCE		SCALE	
UNLESS OTHERWISE SPECIFIED		1/1	
MATERIAL		FINISH	
D-FE-IC511-0-1		EJA	
DRAWN		CHECKED	
DATE		DATE	
4-2-74		4-2-74	
TITLE		REV.	
CABLE, I/O		EJA	
IC5/TERM STRIP		BC40H-0-0	
PARTS LIST		PART NO.	
DESCRIPTION		REV.	
BC40H-0-0		1	

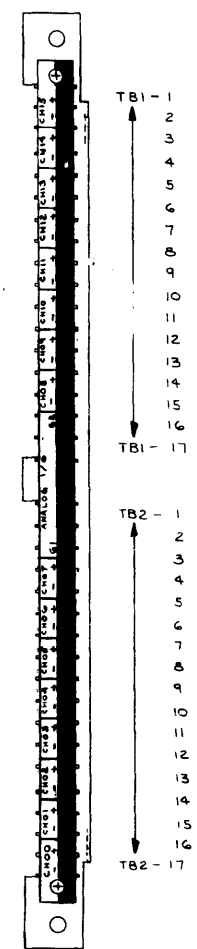
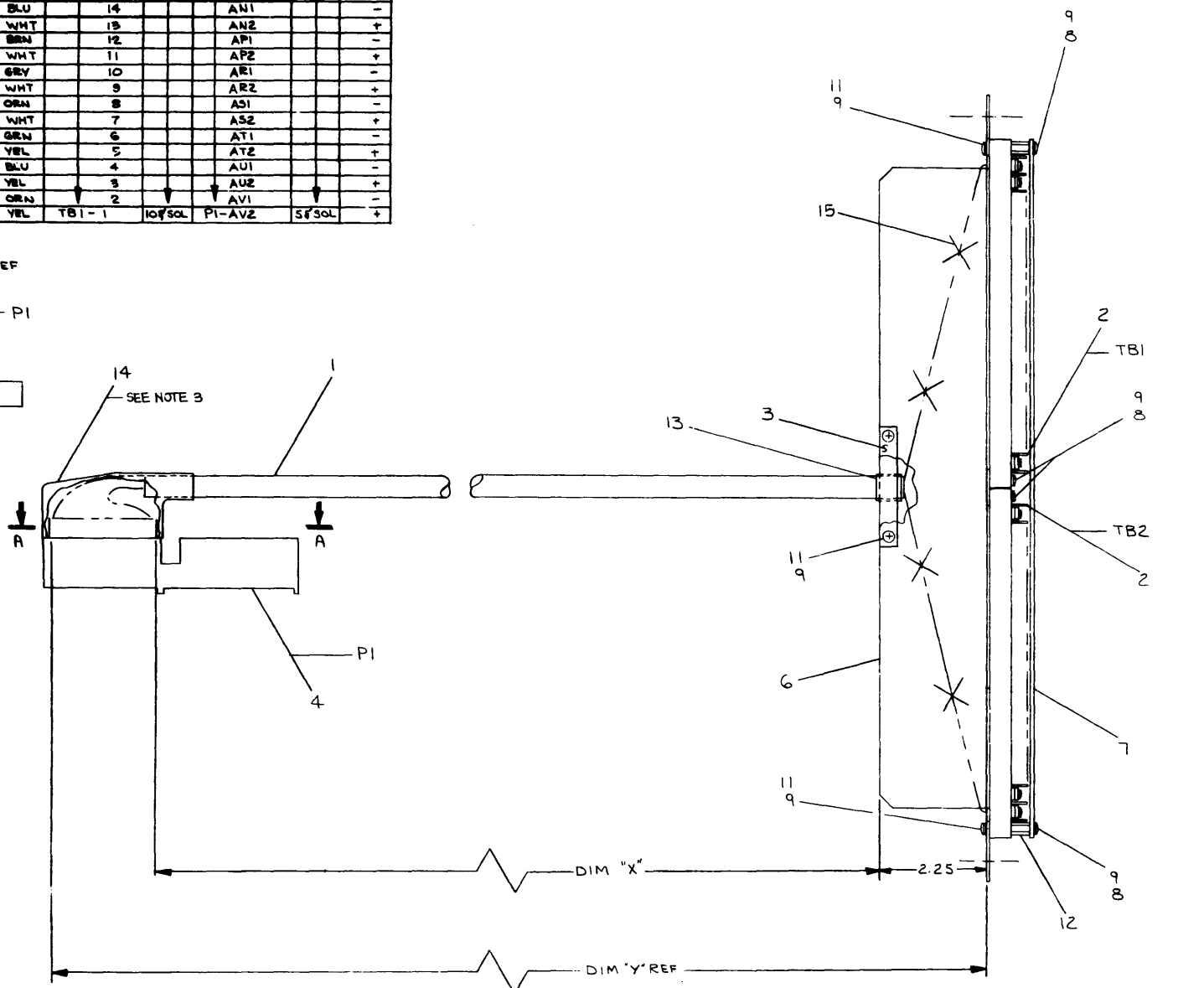
WIRE TABLE							
NO	DESCRIPTION	FROM	TO	SIGNAL			
NO	AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH	SIGNAL
1	24	TWP	TB2-17	10/30L	P1-A11	5/30L	-
		RED	16		AA2		+
		GRN	15		AB		-
		RED	14		AB2		+
		BLU	13		AC1		-
		RED	12		AC2		+
		GRY	11		AD1		-
		RED	10		AD2		+
		BRN	9		AE1		-
		RED	8		AE2		+
		GRN	7		AF1		-
		BLK	6		AF2		+
		ORN	5		AG1		-
		BLK	4		AG2		+
		BLU	3		AJ1		-
		BLK	2		AJ2		+
		BRN	TB2-1		AK1		PWR-
		BLK	TB1-17		AL1		PWR+
		GRY			AK2		
		BLK			AL2		
		GRN	16		AM1		-
		WHT	15		AM2		+
		BLU	14		AN1		-
		WHT	13		AN2		+
		BRN	12		AP1		-
		WHT	11		AP2		+
		GRY	10		AR1		-
		WHT	9		AR2		+
		ORN	8		AS1		-
		WHT	7		AS2		+
		GRN	6		AT1		-
		VEL	5		AT2		+
		BLU	4		AU1		-
		VEL	3		AU2		+
1	24	TWP	TB1-1	10/30L	P1-AV2	5/30L	+

LEGEND		
NUMBER	DIM "X"	DIM "Y" REF
BC40K-1J	22" ± 1"	31.5" ± 1"

- NOTES:
- BEFORE SHRINKING BOOT (ITEM NO.14) A CONTINUITY CHECK MUST BE MADE.
 - IF CABLE ITEM NO.1 (9107700-01) IS NOT AVAILABLE, CABLE PART NO.9107700-00 MAY BE USED.
 - WHEN INSTALLED, BOOT (ITEM 14) SHOULD SIT ON TERMINAL BLOCK (ITEM 2) AND SHOULD NOT SLIP AROUND BLOCK.



VIEW A-A (REAR VIEW) BOOT (ITEM #14) REMOVED FOR CLARITY OF VIEW



SCALE: NONE

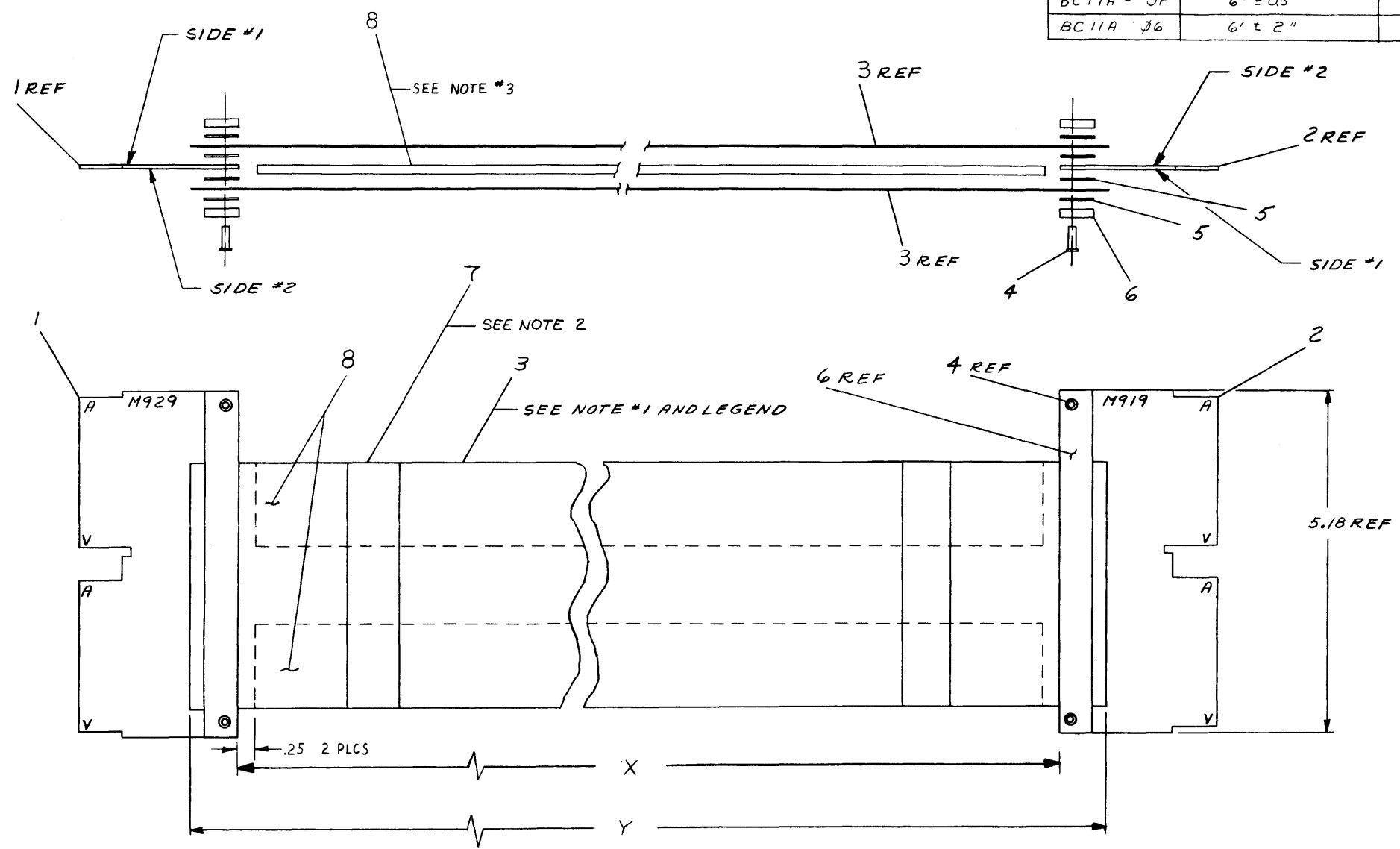
QTY.	DESCRIPTION	PART NO.	ITEM NO.
4	TIE WRAP	9007031	15
1	BOOT	1211934	14
15	DOUBLE SIDED FORM TWP.50W	9007834	13
2	HEX SPACER #6-32 X .7504	9006857	12
4	SCR PHL HD PAN #6-32Y.50	9006024-1	11
34	SOLDER SLEEVE	1212052-00	10
8	LOCK WASHBR #INT TOOTH	9006633	9
4	SCR PHL HD PAN #6-32Y.21	9006021-1	8
1	TERMINAL STRIP COVER	B-18-7413249-0-0	7
1	BRK, "EXP"IAL STRIP	D-ND-7411849-0-0	6
36	SOLDER SLEEVE	1212052-01	5
1	CONNECTOR BLOCK 70PR	C-ND-7411920-00	4
1	CABLE CLAMP	1202790-01	3
2	TERMINAL BLOCK	1211730	2
34.5	CABLE 18 PR 24 AWG	SEE NOTE 2	1

FIRST USED ON OPTION/MODEL		DATE	
ICSI11-M		1/77	
DIMENSIONAL TOLERANCE		DATE	
UNLESS OTHERWISE SPECIFIED		1/77	
MILLIMETER		INCH	
THIRD ANGLE PROJECTION		NEXT HIGHER ASBY.	
MATERIAL		D-NEICSI11-0-1	
FINISH		SCALE 1/1	
TITLE		CABLE, ANALOG I/O TERM STRIP	
NUMBER		EJA BC40K-0-0	
REV.		1	

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LEGEND		
NUMBER	DIM "X" VARIATION	DIM "Y" (PRECUT) REF
BC11A-02	2' ± .5"	2'1.5"
BC11A-03	3' ± 1"	3'1.5"
BC11A-04	4' ± 1"	4'1.5"
BC11A-05	5' ± 1"	5'1.5"
BC11A-0F	8'6" ± 2"	6'7.5"
BC11A-10	10' ± 2"	10'1.5"
BC11A-15	15' ± 3"	15'1.5"
BC11A-25	25' ± 3"	25'1.5"
BC11A-0F	6" ± .05"	7.5"
BC11A-06	6' ± 2"	6'1.5"

NOTES:
 1. VARIATIONS AND LENGTHS SHOWN IN LEGEND ARE STANDARD. OTHER THAN STANDARD VARIATIONS WILL BE SPECIFIED BY ALPHANUMERIC DESIGNATION. FOR LENGTHS OTHER THAN FOOT INCREMENTS FROM ONE (1) FOOT THRU NINE (9) FEET, ELEVEN (11) INCHES.
 A=1" G=7"
 B=2" H=8"
 C=3" J=9"
 D=4" K=10"
 E=5" L=11"
 F=6"
 EXAMPLE: BC11A-3D=3'4". LENGTHS WILL BE IN FOOT INCREMENTS FROM TEN (10) FEET ON, AND WILL BE SPECIFIED BY THE CORRESPONDING NUMERICAL DESIGNATION. EXAMPLE: BC11A-11=11 FEET. THE TOLERANCE ON DIMENSION "A" WILL BE 2% OF THE FOOT INCREMENT.
 2. FLEXPRINTS TO BE BOUND TOGETHER BY WRAPPING WITH BLACK ELECTRICAL TAPE (ITEM 7) EVERY 18 INCHES.
 3. INSTALL 2 PIECES OF FOAM TAPE (ITEM 8) BETWEEN FLEX PRINT CABLES AS SHOWN.



CHK	CHANGE NO.	REV.
1	BC11A-0001	A
2	BLASI	5-14-70
3	BC11A-0002	B
4	BLASI	5-11-71
5	BC11A-0003	C
6	BLASI	8-3-72
7	BC11A-0004	D
8	BLASI	6-2-73
9	BC11A-0005	E
10	BLASI	9-18-74

FIRST USED ON OPTION/MODEL
 PDPII

DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED	DIMENSION IN INCHES
TOLERANCES	
DECIMALS	FRACTIONS
± .005	± 1/64
	± .030
FINAL SURFACE QUALITY	
REMOVE BURRS AND BREAK SHARP CORNERS	
MATERIAL	
FINISH	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
A/R	GRAY FOAM	9008881	8
A/R	BLK ELECTRICAL TAPE	9009260	7
4	CLAMP, CABLE	C-5C-120776000	6
1/2	TAPE #4032 1/2W X 3 1/16 LB	9007834	5
4	EYELET 6S-9-11 STIMSON	9006750	4
2	CABLE, FLEXPRINT	1700002-01	3
1	EXT. BUS CONN	A-PL-M919-0-0	2
1	BUS CONN	A-PL-M929-0-0	1

PARTS LIST	
DRW	DATE
CHD	DATE
ENG	DATE
PROJ. ENG.	DATE
PROD.	DATE
NEXT HIGHER ASSY	
D-UA-11/20-0-0	SCALE 1/1
SHEET 1 OF 1	DIST. G

digital EQUIPMENT CORPORATION	
MAYNARD, MASSACHUSETTS	
TITLE	
CABLE ASSY (BC11A)	
SIZE CODE	NUMBER
D-UA-11/20-0-0	BC11A-0-0
REV.	
E	

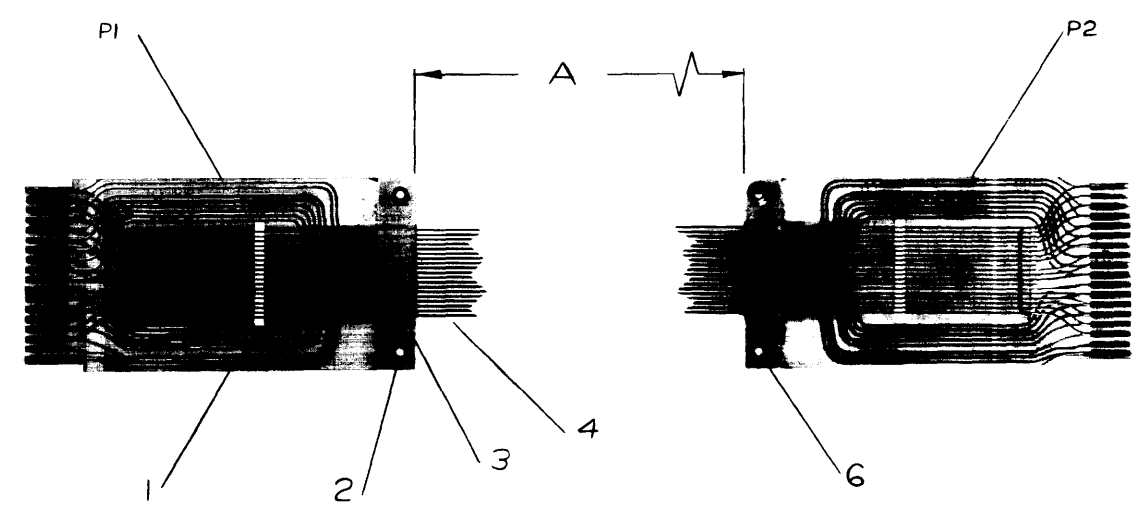
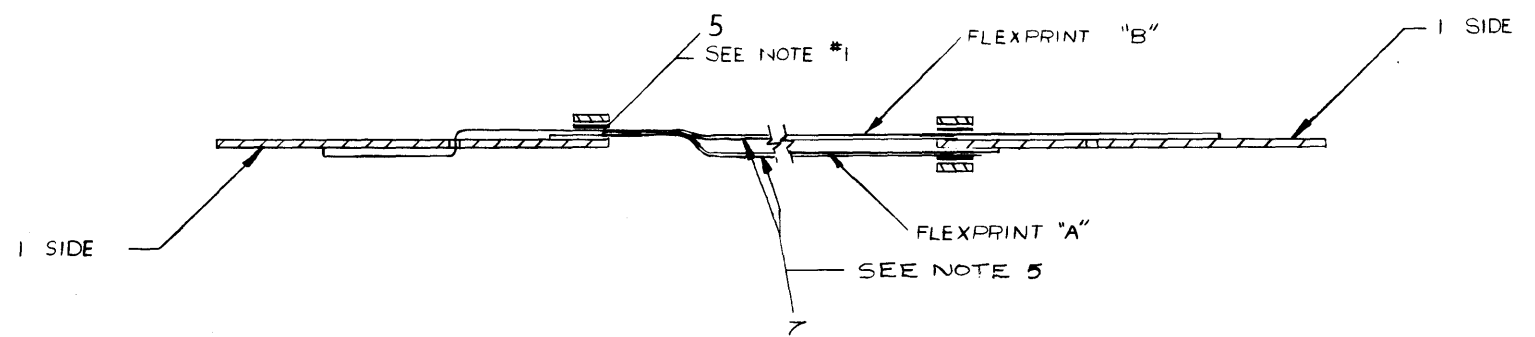
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8 7 6 5 4 3 2 1
 0-0-V808AVV 2
 12/15/65

PART NO.	DIM "A"
BC08A-1	1 FT
BC08A-2	2 FT
BC08A-3	3 FT
BC08A-4	4 FT
BC08A-5	5 FT
BC08A-6	6 FT
BC08A-7	7 FT
BC08A-8	8 FT
BC08A-9	9 FT
BC08A-10	10 FT
BC08A-3A	3 1/2 FT
BC08A-15	5 FT

SEE NOTE #2

- NOTES:
- ATTACH ITEM #5 (TAPE) TO ITEM #3 (FLEX PRINT CLAMP) THEN ASSEMBLE ITEM #3 TO ITEM #1 (FLIP CHIP) WITH ITEM #2 OR #6 (EYELETS).
 - FLEXPRINT IS TO BE CUT TO THE FOLLOWING LENGTHS, PRIOR TO FABRICATION:
 FLEXPRINT "A" - DIM "A" PLUS 1 3/4 INCHES
 FLEXPRINT "B" - DIM "A" PLUS 7-3/8"
 FLEXPRINT "C" - DIM "A" PLUS 1-1/4"
 - PI IS WIRED TO P2 ON THE SAME PINS, EXAMPLE: PI-A1 IS WIRED TO P2-A1 AND PI-B2 IS WIRED TO P2-B2 AND SO ON.
 - TOLERANCES: (STD. CABLE)
 0 TO 2 1/2 FT ± 1/2 INCH
 2 1/2 TO 5 FT ± 1 INCH
 5 FT TO 10 FT ± 2 INCHES
 GREATER THAN 10 FT ± 2%
 FLEXPRINT "C" (ITEM #7) IS NOT ELECTRICALLY CONNECTED.



REV.	CHG. NO.	DATE	BY
1	BC08A-00001	11/21/65	OLOUGHLIN
2	BC08A-00002	12/11/65	OLOUGHLIN
3	BC08A-00002	12/11/65	OLOUGHLIN
4	BC08A-00002	12/11/65	OLOUGHLIN
5	BC08A-00002	12/11/65	OLOUGHLIN
6	BC08A-00002	12/11/65	OLOUGHLIN
7	BC08A-00002	12/11/65	OLOUGHLIN
8	BC08A-00002	12/11/65	OLOUGHLIN

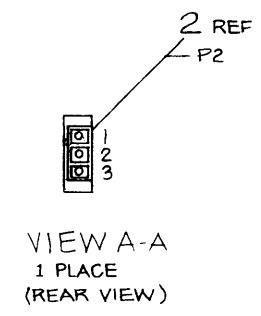
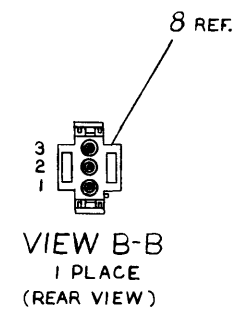
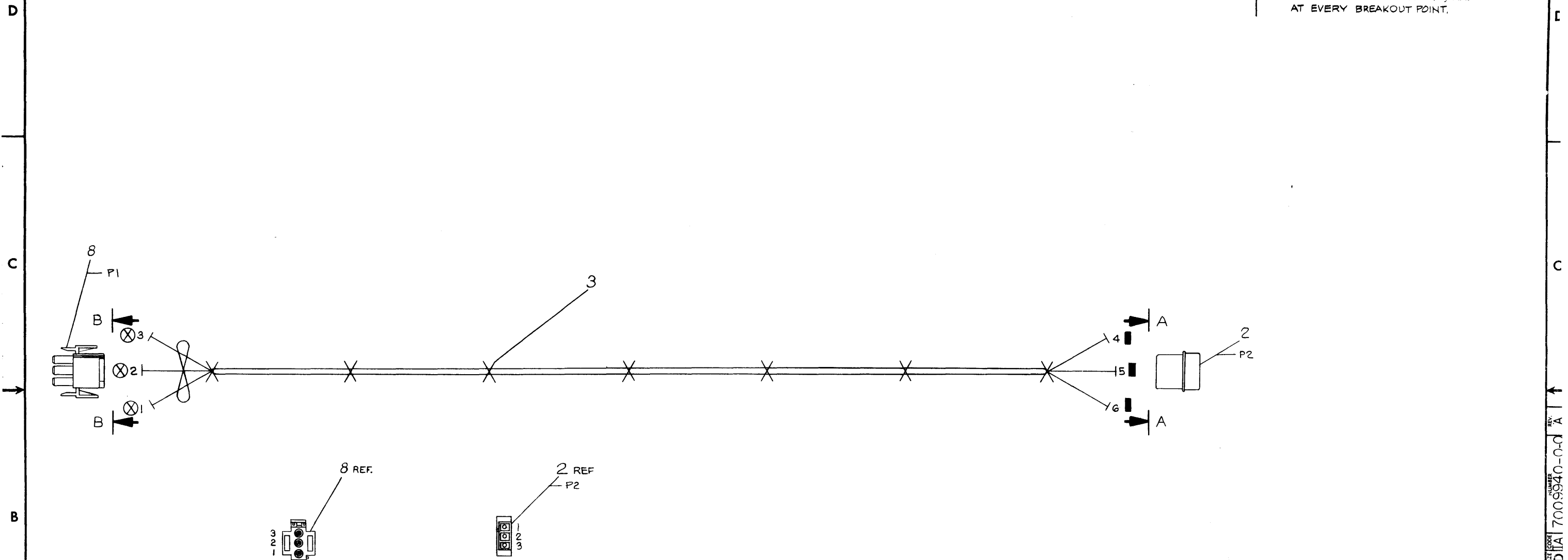
FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-8I				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DRN. DATE 7/27/65				
UNLESS OTHERWISE SPECIFIED CHK'D. DATE 12/03				
DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	FRACTIONS	ANGLES	DATE 10/13/67	
± .005	± 1/64	± 0°30'	DATE 11/15/66	
FINISH SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL				
NEXT HIGHER ASSY				
FINISH				
SCALE NONE				
SHEET 1 OF 1				
TITLE			SIZE CODE	NUMBER
BC08A CABLE			DUA	BC08A-0-0
			REV.	B

REV. B
 NUMBER
 DUA/BC08A-0-0

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WIRE TABLE									
ITEM NO	DESCRIPTION	FROM			TO				
		AWG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM
1			RED	3	PI-1	9	4	P2-1	4
6	18 SEE NOTE 1		WHT	1	PI-3	9	6	P2-3	4
5			GRN	2	PI-2	9	5	P2-2	4

NOTES:
 1. ITEM NUMBERS 1,6, & 5 TO BE TWISTED TOGETHER 1 TWIST PER INCH
 2. USE TIE WRAPS (X) ITEM #3 APPROXIMATELY EVERY THREE INCHES WHEN NECESSARY, AND AT EVERY BREAKOUT POINT.



DO NOT REDUCE
 SCALE 6 IN. = 12 IN.
 FOR MANUFACTURING PURPOSES ONLY

SYM	QTY.	DESCRIPTION	PART NO.	ITEM NO.
⊗	3	PINS (UNIVERSAL)	1212169	9
	1	PLUG	1212167	8
	1	TAG, HIGH VOLTAGE	3612091	7
	26'	WIRE, #18AWG WHT	9107360-99	6
	26'	WIRE, #18AWG GRN	9107360-55	5
	3	PIN (MALE)	1209378-00	4
X	7	TIE WRAP	3007031	3
	1	CONN.	1209351-03	2
	26'	WIRE, #18AWG RED	9107360-22	1

FIRST USED ON OPTION/MODEL	SYM.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
ICSI1-M					
DIMENSIONAL TOLERANCE			PARTS LIST		
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED			DRN. DATE 4-22-74 CHK. DATE 8-15-74 ENG. DATE 8-15-74 PROD. DATE 8-15-74 NEXT HIGHER ASSY.		
MILLIMETERS	INCHES	ANGLES	TITLE digital AC HARNESS		
X,XX ±0.10	XXX ±.005	±0° 30'	SIZE CODE D IA 7009940-0-0		
X,X ±0.5	XX ±.02		NUMBER 7009940-0-0		
X ±.2	X ±.1		REV. A		
THIRD ANGLE PROJECTION			MATERIAL SEE PARTS LIST		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓			FINISH //		
SHEET 1 OF 1			DIST.		

REV.	CHANGE NO.	DATE	BY	CHK
A	0001	11-8-74	K. GULICK	

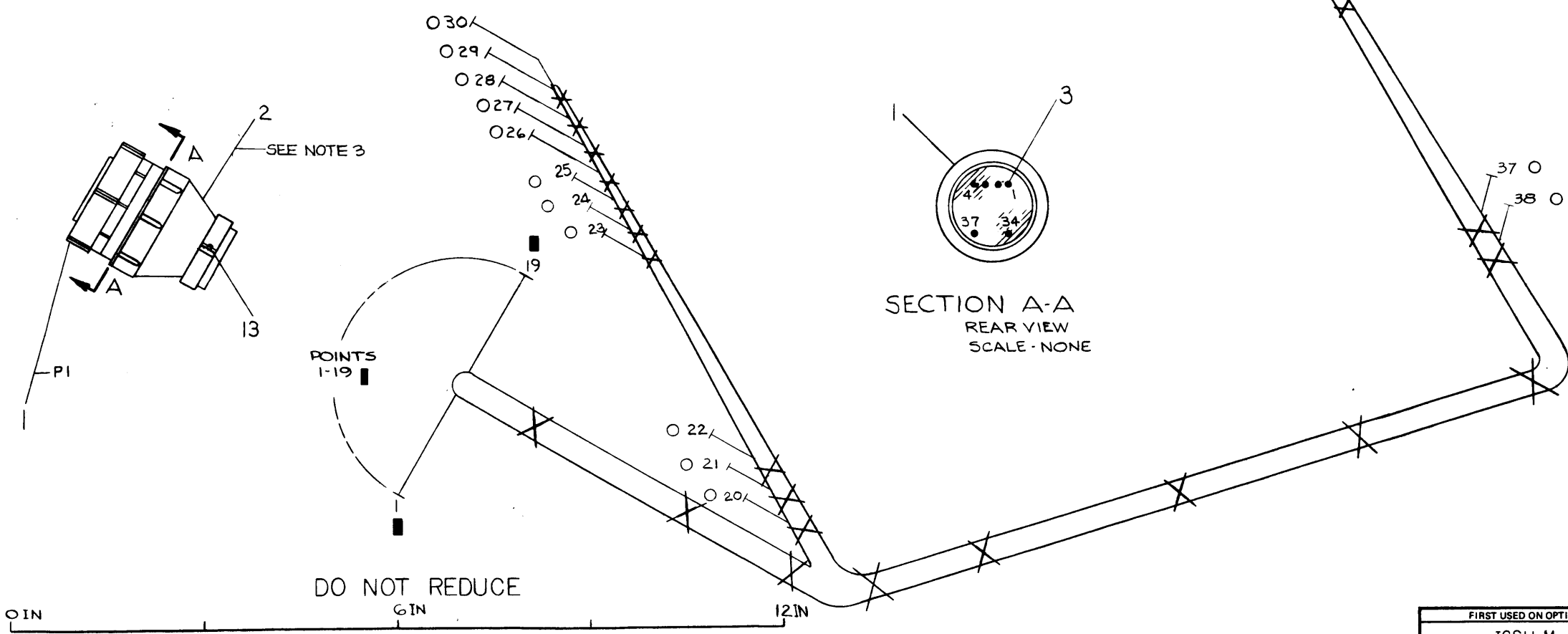
REV. 0-0-006600Z DIA 7009940-0-0

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WIRE TABLE

ITEM NO	DESCRIPTION			FROM			TO			SIGNAL NAME
	AWG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM		
7	22	BRN	1	PI-21	3	20		9	LTC	
4	18 TWP	BLK	2	PI-2		21			GND	
		RED	3	PI-6		22			+5V	
8	18	BRN	4	PI-37		23			COM	
12	18	GRN	5	PI-33		24			-21V	
11	18	ORN	6	PI-30		25			+21V	
4	18 TWP	RED	7	PI-5		26			+5V	
		BLK	8	PI-1		27			GND	
8	18	BRN	9	PI-34		28			COM	
12	18	GRN	10	PI-32		29			-21V	
11	18	ORN	11	PI-29		30			+21V	
4	18 TWP	RED	12	PI-9		31		9	+5V	
		BLK	13	PI-14		32		16	GND	
5	22	VIO	14	PI-17		33		9	DC LO	
6	22	YEL	15	PI-19		34			AC LO	
4	18 TWP	RED	16	PI-8		35			+5V	
		BLK	17	PI-4		36			GND	
4	18 TWP	RED	18	PI-7		37			+5V	
		BLK	19	PI-3	3	38		9	GND	
15	18	BLK	32		3	39		14	GND	

- NOTES:**
- USE TIE WRAPS (X) ITEM 10 APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY, AND AT EVERY BREAKOUT POINT
 - ITEM NUMBERS 9, 11, & 12 TO BE TWISTED TOGETHER - TWIST PER INCH
 - FOR PROPER STRAIN RELIEF, ATTACH CLAMP NO. 4 WHICH IS SUPPLIED WITH ITEM NO. 2 (STRAIN RELIEF).
 - WHEN ASSEMBLING PINS (ITEM #3), USE AMP HAND CRIMPER NO. 90293-1.



QTY	DESCRIPTION	PART NO.	ITEM NO.
1	FASTAB	9007969	16
A/R	WIRE #18IPVC BLK	9107360-00	15
1	TERM SOLDER	9006774	14
2	WASH 3/16 X.070X.130	9008435	13
A/R	WIRE #18STRD IPVC GRN	9107860-55	12
A/R	WIRE #18STRD IPVC ORN	9107860-33	11
X	25 TIE WRAP	9007031	10
18	FASTABS	9007970	9
A/R	WIRE #18STRD IPVC BRN	9107860-11	8
A/R	WIRE #22STRD IPVC BRN	9107350-11	7
A/R	WIRE #22STRD IPVC YEL	9107350-44	6
A/R	WIRE #22STRD IPVC VIO	9107350-77	5
A/R	WIRE #18IPVC TWP BLK/RED	9107430-02	4
19	PIN, MALE	1212001	3
1	STRAIN, RELIEF	1211427	2
1	HOUSING, FEMALE	1212055-00	1

FIRST USED ON OPTION/MODEL		SYM.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
ICSI1-M PARTS LIST						
DIMENSIONAL TOLERANCE		DRN	DATE 8-5-74			
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		CHK'D	DATE 9/18/74			
MILLIMETERS	INCHES	ANGLES	TITLE			
XXX ±0.10	.XXX ±.005	±0°30'	HARNES, DC POWER			
XX ±0.5	.XX ±.02		REV. B			
X ±.25	.X ±.1		SIZE CODE NUMBER			
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	NEXT HIGHER ASSY.	D-UA-ICSI1-M-0		7010223-0-0	
MATERIAL	SEE PARTS LIST	FINISH	SCALE		DIST.	
SHEET 1 OF 1		REV. B				

REV.	CHANGE NO.	REV.
A	7010223-00001	
B	7010223-00002	

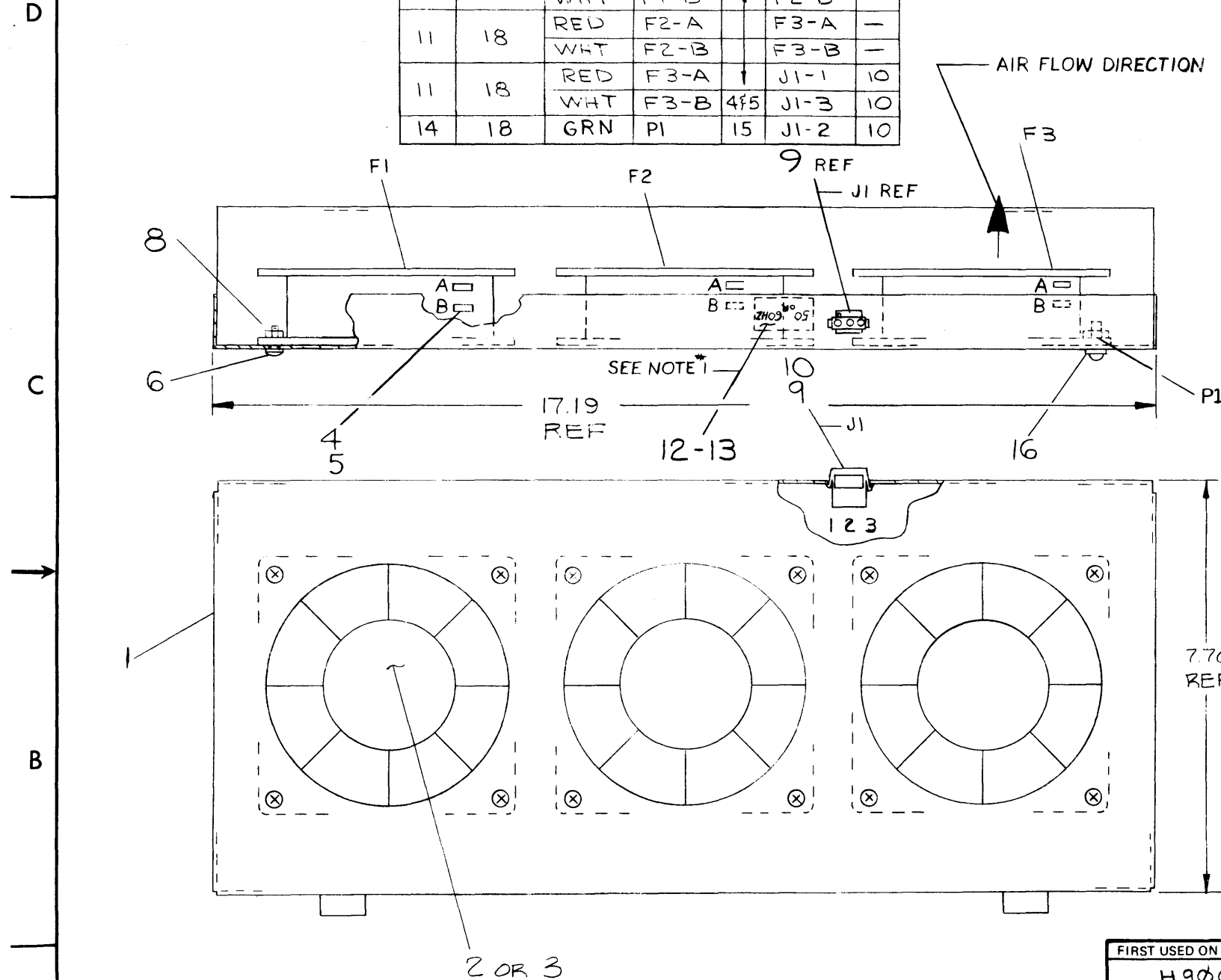
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WIRE TABLE						
ITEM NO.	DESCRIPTION	FROM	TO		WITH	WITH
			CONN	WITH		
11	18	RED	F1-A	4#5	F2-A	—
		WHT	F1-B	↑	F2-B	—
11	18	RED	F2-A	↑	F3-A	—
		WHT	F2-B	↑	F3-B	—
11	18	RED	F3-A	↑	J1-1	10
		WHT	F3-B	4#5	J1-3	10
14	18	GRN	P1	15	J1-2	10

LEGEND	
NUMBER	VARIATION
7009906-1	115V
7009906-2	230V

NOTES:

1. ITEMS NO. 12 & 13 (DECAL) ARE ON THE SAME SHEET. REMOVE THE APPROPRIATE LABEL AND PLACE AS SHOWN



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	WASH INT *6 HOLE	9006633	16
1	CONN SOLDERLESS	9007929-0	15
A/R	A/R WIRE *18 GA STRD IPVC (GRN)	9107360-55	14
1	DECAL 230VAC 50/60 HZ	A-DC-7408910-0-0	13
1	DECAL 115VAC 50/60 HZ	A-DC-7408910-0-0	12
A/R	A/R WIRE *18 GA STRD IPVC RED/WHT	9107430-29	11
3	SOCKET CONTACT	1212170	10
1	CONN. CAP	1212168	9
12	NUT, KEPS	9006560	8
12	WASHER FLAT	9006633	7
12	SCR, PHL PAN HD #6-32X.69	9007794-1	6
6	FASTAB	1210820-02	5
6	HOUSING SOCKET	1210820-1	4
3	FAN 230 V	1210930-1	3
3	FAN 115V	1209403-1	2
1	HOUSING, FAN WELDMT	G1A-7009834-0-0	1

REV.	CHANGE NO.	DATE	BY	APP.
A	7009906-00001	8-8-74	G. GRAHAM	
B	7009906-00002	8-27-74	G. GRAHAM	
C	7009906-00003	11-14-74	G. GRAHAM	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
H906-A				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES			
.xxx = .005	±0° 30'			
.xx = .02				
.x = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY V				
MATERIAL				
SEE PARTS LIST				
FINISH				
NEXT HIGHER ASSY.				
D-UA-ICS11-M-φ				
SCALE				
SHEET OF				
DIST.				

DRN. *[Signature]* DATE 4/3/79

CHK'D. *[Signature]* DATE 6/2/79

ENG. *[Signature]* DATE 6-21-79

PROV. ENG. *[Signature]* DATE 6-21-79

PROD. *[Signature]* DATE 6/24/79

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: HOUSING, FAN ASSY

SIZE CODE: C AD NUMBER: 7009906-0-0 REV. C

REV. C
NUMBER
CAD7009906-0-0