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UNIT VARIATIONS	
VAR	TITLE
KC780-AA	KC780 CONSOLE ASSY 115V 60 HZ
KC780-AB	KC780 CONSOLE ASSY 230V 50 HZ
KC780-AC	KC780 CONSOLE ASSY 115V 50 HZ

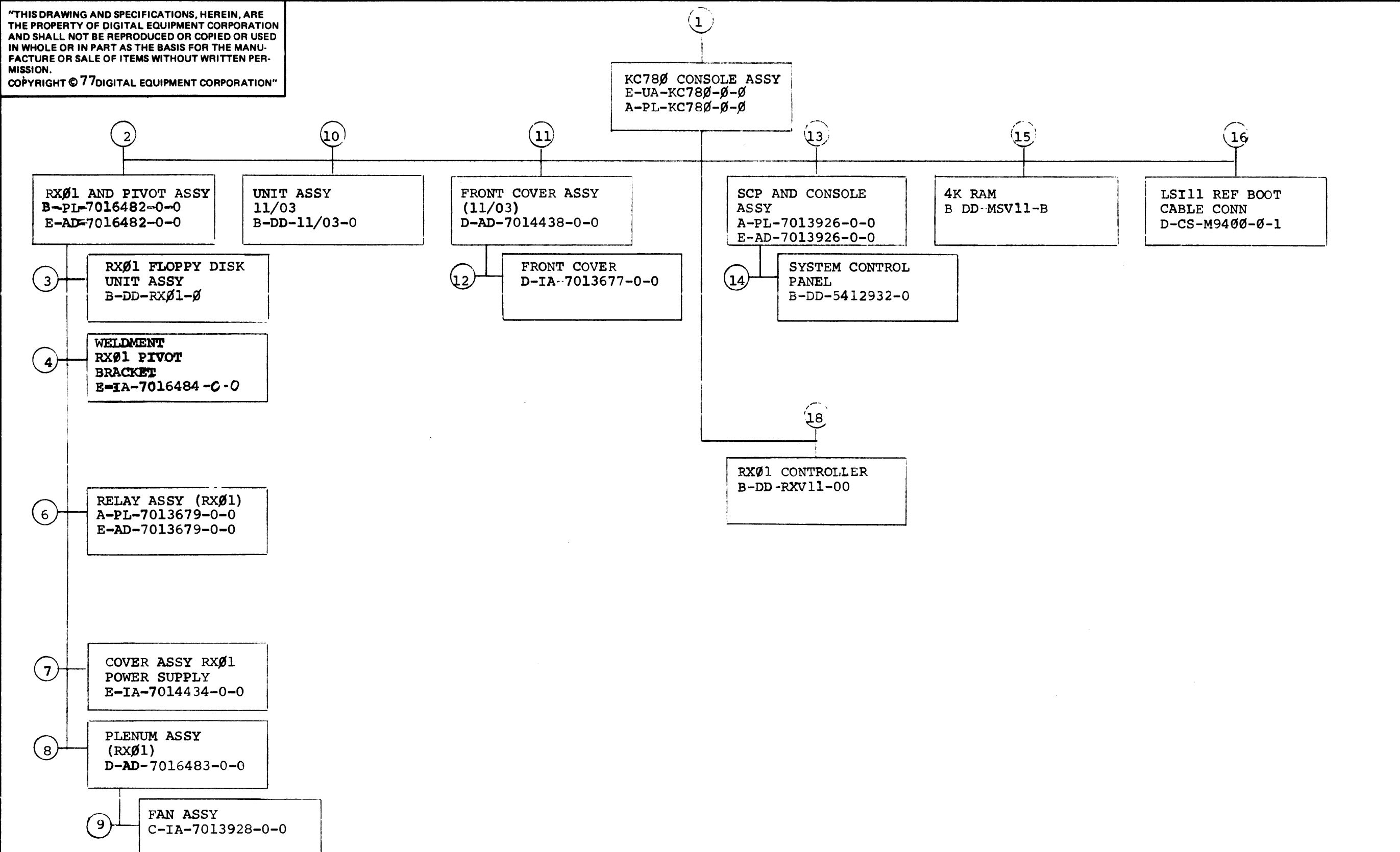
REVISIONS	
CHK	CHANGE NO.
	KC780-1
	KC780-2

REV.
A
B


USED ON OPTION/MODEL	DRN.	DATE	TITLE
11780	P. BOUDREAU	SEP 77	KC780 CONSOLE ASSY
	CHK'D.	DATE	
	D. HEALY	NOV 77	SIZE CODE NUMBER REV B DD KC780-0 B
	PROJ. ENG.	DATE	
	PROD.	DATE	
SHEET 1 OF 4	Grant Lee	11/17/77	DIST.

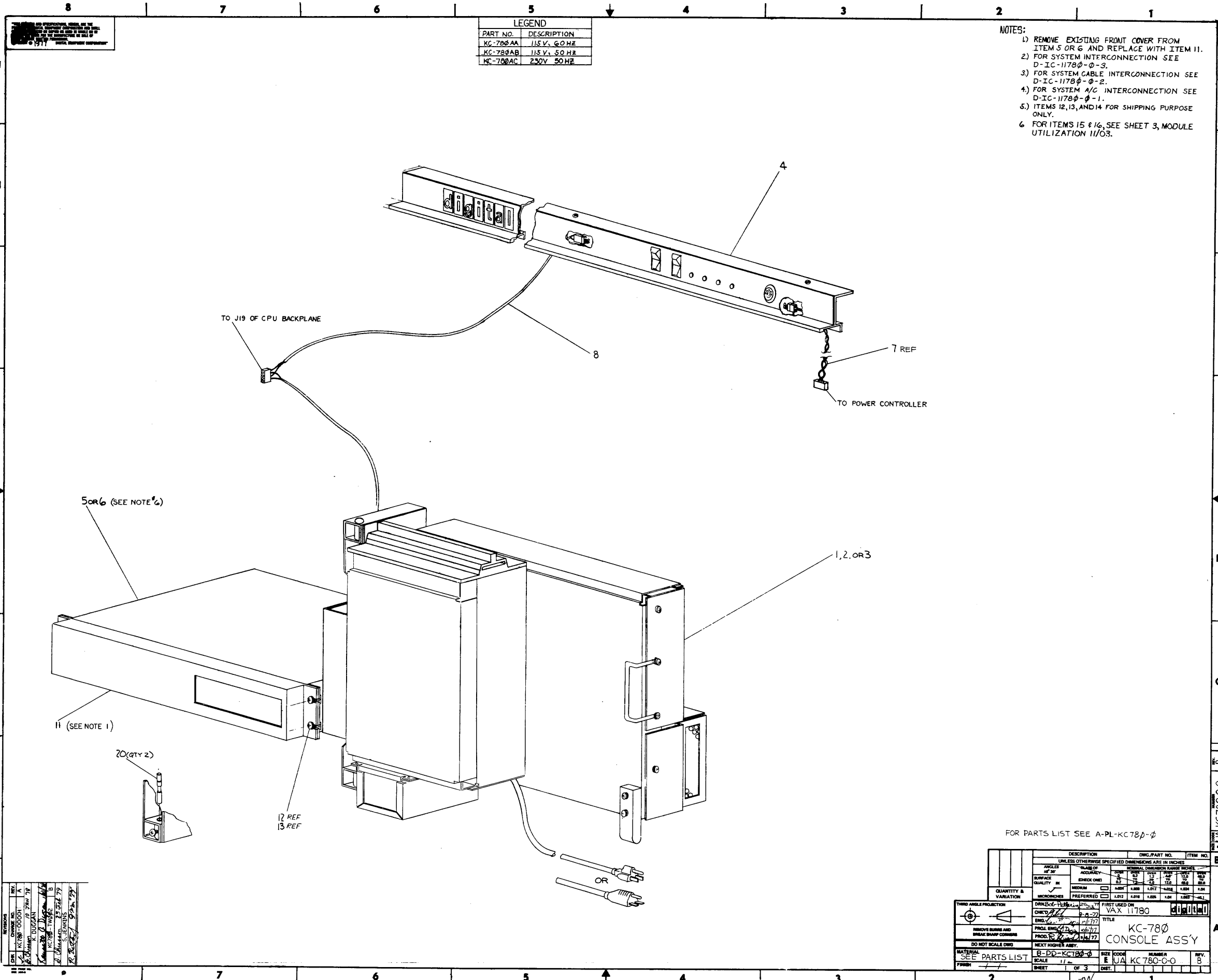


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TITLE	KC780 CONSOLE ASSY	SIZE	CODE	NUMBER	REV
			B DD	KC780-0	B
SHEET 2 OF 4					

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE								
1	MP00534	KC780 CONSOLE ASSY (MP)	-		D-IA-7417858-0-0	BACK PLATE	M								
	B-TC-KC780-0-1	KC780 CONSOLE ASSY (TC)	-		B-IA-7014449-0-0	CABLE, RELAY CONTROL	E/M								
	E-UA-KC780-0-0	KC780 CONSOLE ASSY	E/M												
	A-PL-KC780-0-0	KC780 CONSOLE ASSY (PL)	E/M												
	C-IA-7014242-0-0	POWER CONTROL CABLE	E/M												
	C-IA-7014243-0-0	FLOPPY RELAY SCP POWER CABLE	E/M												
	B-MD-7414928-0-0	PIN, PIVOT	M	7	E-IA-7014434-0-0	COVER ASSY RX01 POWER SUPPLY	M								
	D-UA-BC05L-0-0	CABLE, JUMPER	E/M		E-MD-7418113-0-0	COVER, RX01 POWER SUPPLY	M								
					C-MD-7419283-0-0	SCREEN, POWER SUPPLY COVER	M								
				8	D AD-7016483-0-0	PLENUM ASSY (RX01)	M								
					D IA-7422398-0 0	PLENUM (RX01)	M								
					B-MD-7422399 0-0	TRAY PLENUM FILTER	M								
					D-IA 7422400-0 0	BRACKET, FAN AND PLENUM MTG.	M								
2	E-AD-7016482-0-0	RX01 AND PIVOT ASSY	M												
	B-PL-7016482-0-0	RX01 AND PIVOT ASSY (PL)	M												
	D-MD-7417863-0-0	COVER, RELAY (RX01)	M												
	B-MD-7418129-0-0	ARM, LOCKING (RX01)	M												
	C-MD-7418150-0-0	HANDLE (RX01)	M												
				9	C-IA-7013928-0-0	FAN ASSY	F/M								
					C-IA-7014951-0-0	POWER CORD, FAN	E/M								
3	B-DD-RX01-0	RX01 FLOPPY DISK UNIT ASSY	E/M												
				10	B-DD-11/03-0	UNIT ASSY 11/03	E/M								
4	E-IA-7016484-0-0	WELDMENT RX01 PIVOT BRACKET	M												
	B-MD-7417959-0-0	SLEEVE	M												
	D-IA-7422403-0-0	BRACKET, RX01 SUPPORT	M	11	D-AD-7014438-0-0	FRONT COVER ASSY (11/03)	M								
	D-IA-7422404-0-0	BRACKET, RX01 PIVOT ENCLOSURE	M												
				12	D-IA-7013677-0-0	FRONT COVER	M								
					D-MD-7418959-0-0	COVER, FRONT	M								
					C-MD-7418960-0-0	RETAINER, FILTER	M								
6	E-AD-7013679-0-0	RELAY ASSY (RX01)	E/M	13	E-AD-7013926-0-0	SCP AND CONSOLE ASSY	M								
	A-PL-7013679-0-0	RELAY ASSY (RX01) (PL)	E/M		A-PL-7013926-0-0	SCP AND CONSOLE ASSY (PL)	M								
					D-MD-7418102-0-0	COVER PROTECTIVE (COMPONENT BOARD)	M								
TYPE: E ELECTRICAL M MECHANICAL E/M ELECTRO/MECHANICAL						TITLE KC780 CONSOLE ASSY		SHEET 3 OF 4		SIZE CODE B DD		NUMBER KC780-0		REV B	



LEGEND	
PART NO.	DESCRIPTION
KC-780AA	115V, 60HZ
KC-780AB	115V, 50HZ
KC-780AC	230V, 50HZ

- NOTES:
- 1) REMOVE EXISTING FRONT COVER FROM ITEM 5 OR 6 AND REPLACE WITH ITEM 11.
 - 2) FOR SYSTEM INTERCONNECTION SEE D-IC-11780-0-3.
 - 3) FOR SYSTEM CABLE INTERCONNECTION SEE D-IC-11780-0-2.
 - 4) FOR SYSTEM A/G INTERCONNECTION SEE D-IC-11780-0-1.
 - 5) ITEMS 12, 13, AND 14 FOR SHIPPING PURPOSE ONLY.
 - 6) FOR ITEMS 15 & 16, SEE SHEET 3, MODULE UTILIZATION 11/03.

REV.	DATE	BY	CHKD.	DESCRIPTION
1	10/27/77	...	...	...
2	11/14/77	...	...	...
3	11/14/77	...	...	...
4	11/14/77	...	...	...

FOR PARTS LIST SEE A-PL-KC780-0

DESCRIPTION	DWG. PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
ANGLES	UNLESS OTHERWISE SPECIFIED	
SURFACE QUALITY	FINISH	
QUANTITY & VARIATION		
THIRD ANGLE PROJECTION		
DATE	2-9-77	
ENGR.		
PROJ. ENGR.		
PROC. ENGR.		
NEXT HIGHER AUTH.		
SCALE	11/16"	
SHEET	2	3

TITLE: KC-780 CONSOLE ASS'Y

SIZE: 100MM

NUMBER: B-DD-KC780-0

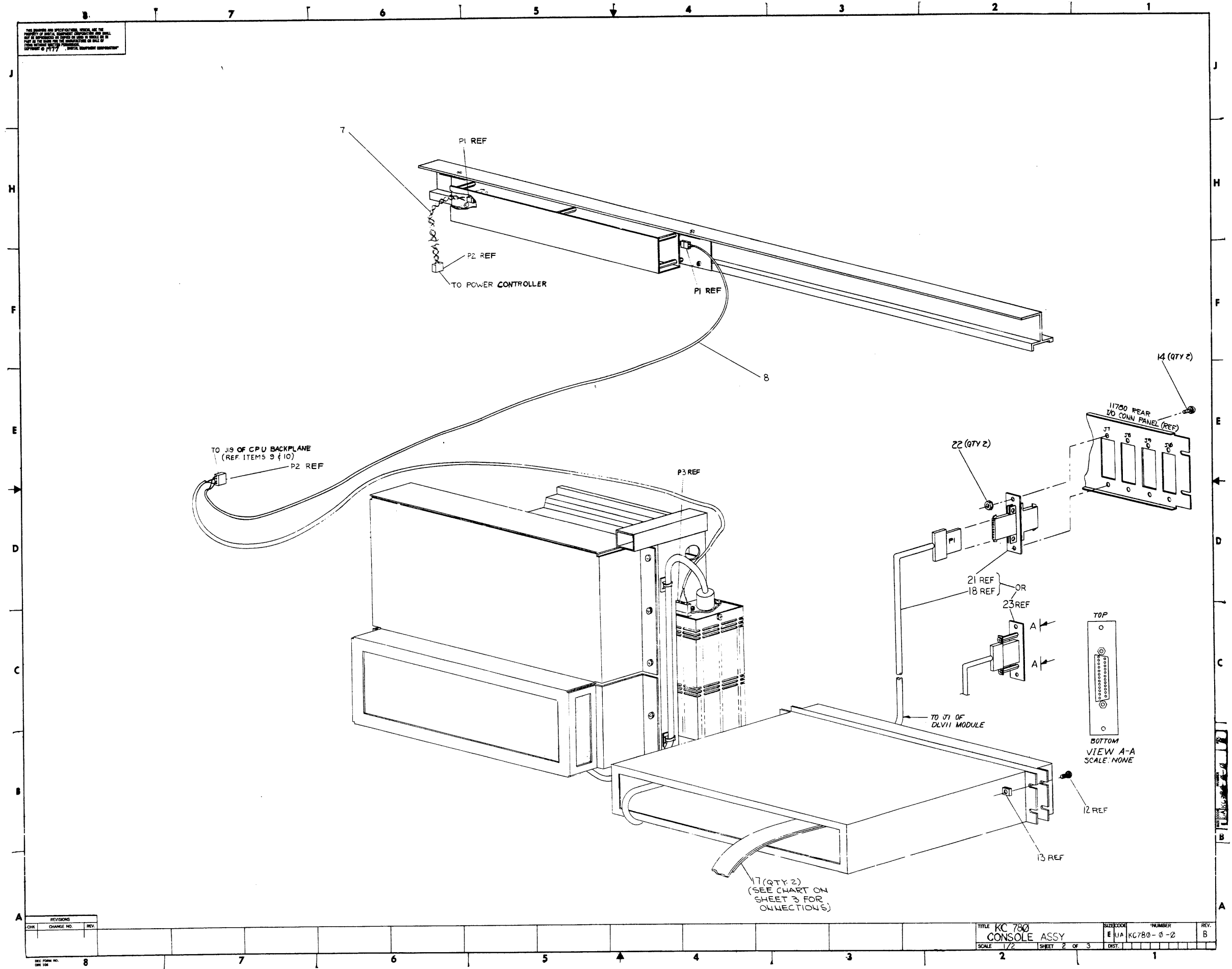
REV. B

SCALE: 11/16"

SHEET: 2 OF 3

DIST. 1

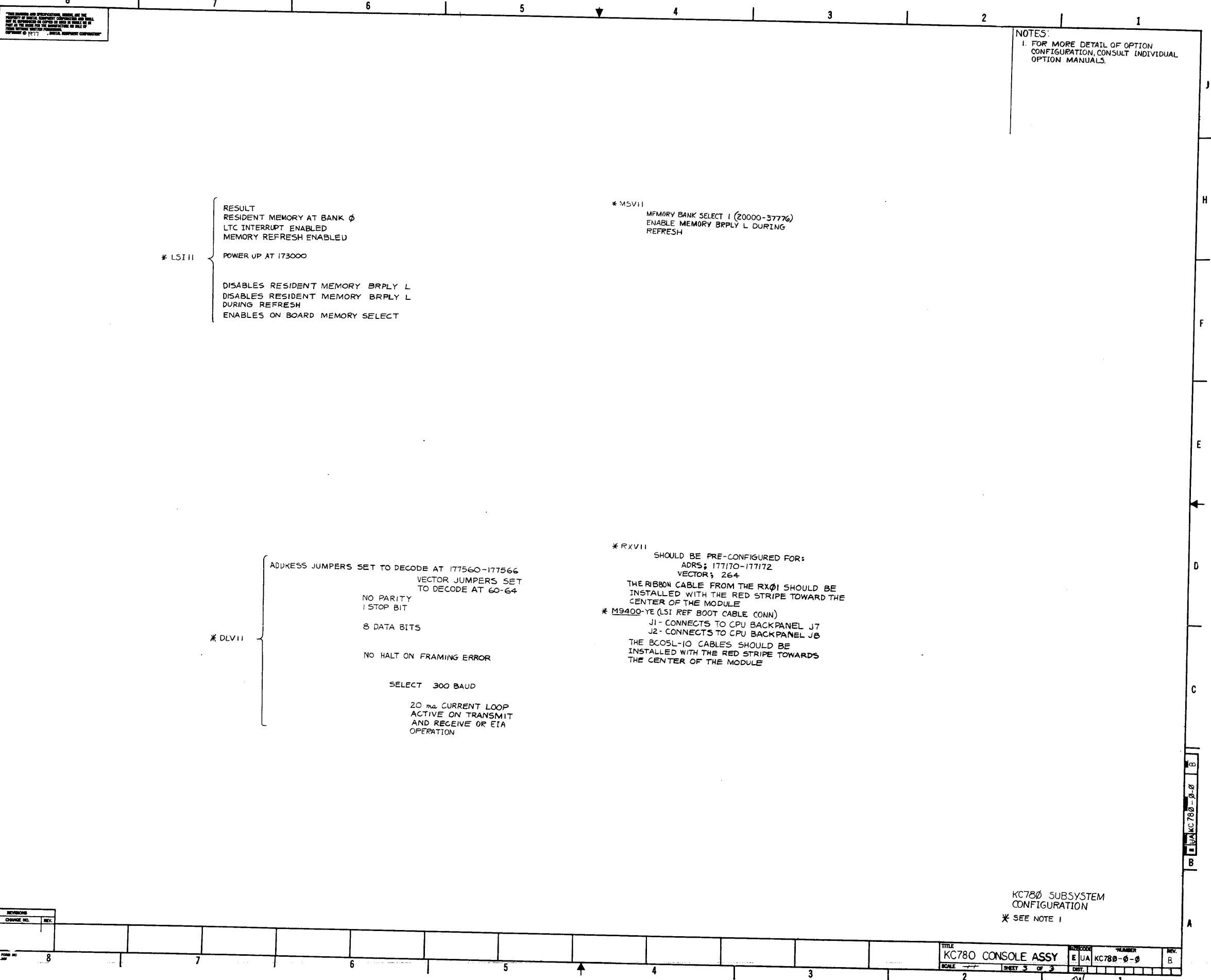
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REVISIONS		
CHK.	CHANGE NO.	REV.

SEC FORM NO. 104 8

TITLE	KC 780 CONSOLE ASSY	SIZE CODE	E 1/4	NUMBER	KC780-0-2	REV.	B
SCALE	1/2	SHEET	2	OF	3	DIST.	



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NOTES:
1. FOR MORE DETAIL OF OPTION CONFIGURATION, CONSULT INDIVIDUAL OPTION MANUALS.

* LSI II

- RESULT
RESIDENT MEMORY AT BANK 0
LTC INTERRUPT ENABLED
MEMORY REFRESH ENABLED
- POWER UP AT 173000
- DISABLES RESIDENT MEMORY BRPLY L
DISABLES RESIDENT MEMORY BRPLY L
DURING REFRESH
ENABLES ON BOARD MEMORY SELECT

* MSVII
MEMORY BANK SELECT 1 (20000-37776)
ENABLE MEMORY BRPLY L DURING
REFRESH

* DLVII

- ADDRESS JUMPERS SET TO DECODE AT 177560-177566
VECTOR JUMPERS SET
TO DECODE AT 60-64
- NO PARITY
1 STOP BIT
- 8 DATA BITS
- NO HALT ON FRAMING ERROR
- SELECT 300 BAUD
- 20 ma CURRENT LOOP
ACTIVE ON TRANSMIT
AND RECEIVE OR EIA
OPERATION

* RXVII SHOULD BE PRE-CONFIGURED FOR:
ADRS; 177170-177172
VECTOR; 264
THE RIBBON CABLE FROM THE RX01 SHOULD BE
INSTALLED WITH THE RED STRIPE TOWARD THE
CENTER OF THE MODULE
* M9400-YE (LSI REF BOOT CABLE CONN)
J1- CONNECTS TO CPU BACKPANEL J7
J2- CONNECTS TO CPU BACKPANEL J8
THE BC05L-10 CABLES SHOULD BE
INSTALLED WITH THE RED STRIPE TOWARDS
THE CENTER OF THE MODULE

KC780 SUBSYSTEM
CONFIGURATION
* SEE NOTE 1

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	NUMBER	REV.
KC780 CONSOLE ASSY	E UA KC780-0-0	B
SCALE	SHEET 3 OF 3	DIST.
2	1W	1

DIGITAL EQUIPMENT CORPORATION PARTS LIST

QUANTITY / VARIATION

NOTES:

MADE BY DATE	P. BOUDREAU 3-AUG-77	CHECKED DATE	R.J. RILEY 9-12-77	SECTION 1
ENG DATE	K. DUGGAN 10-NOV-77	PROD DATE	R. GIRARD 11-4-77	ISSUED SECTION 1

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	KC780-AA	KC780-AB	KC780-AC	QUANTITY / VARIATION										REF DESIGNATION	
1	E-AD-7016482-0-0	7016482-01	RX01 AND PIVOT ASSY	1	-	-												
2	E-AD-7016482-0-0	7016482-02	RX01 AND PIVOT ASSY	-	1	-												
3	E-AD-7016482-0-0	7016482-03	RX01 AND PIVOT ASSY	-	-	1												
4	E-AD-7013926-0-0		SCP AND CONSOLE ASSY	1	1	1												
5	E-UA-1103-0-0	1103-AA	UNIT ASSY 1103	1	-	1												
6	E-UA-1103-0-0	1103-AB	UNIT ASSY 1103	-	1	-												
7	C-IA-7014242-0-0	7014242-08	POWER CONTROL HARNESS	1	1	1												
8	C-IA-7014243-0-0	7014243-21	FLOPPY RELAY SCP POWER HARNESS	1	1	1												
9	E-UA-M8236-0-0		C.I.B.	REF	REF	REF												
10	E-IA-7013628-0-0		BACKPLANE ASSY	REF	REF	REF												
11	D-AD-7014438-0-0		FRONT COVER ASSY	1	1	1												
12		9009700-00	SCREW SEMS P.H. TRUSS 10-32x.50	REF	REF	REF												
13		9007786-00	RETAINER "U" NUT #10-32	REF	REF	REF												
14		9009701-00	SCREW SEMS P.H. HD. 6-32x.31	2	2	2												
15	B-DD-MSV11-0		4K RAM	1	1	1												
16	E-UA-M9400-YE-0		LSI REF BOOT CABLE CONN.	1	1	1												
17	D-UA-BC05L-0-0	BC05L-10	CABLE BC05L	2	2	2												
18	D-IA-7016503-0-0	7016503-04	TERMINAL ADAPTER CABLE (H7005)	REF	REF	REF												
19	B-DD-RXV11-00		RX01 CONTROLLER	1	1	1												
20	B-MD-7414928-0-0		PIN, PIVOT	2	2	2												

E.C.O. NO. TW002

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	SHEET 1 OF 2		INSERTION PARTS LIST DATA BASE REV			

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:							
MADE BY DATE	P. BOUDREAU 3-AUG-77	CHECKED DATE	R.J. RILEY 9-12-77	SECTION	1																
ENG DATE	K. DUGGAN 10-NOV-77	PROD DATE	R. GIRARD 11-4-77	ISSUED SECTION	1																
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	KC780-AA	KC780-AB	KC780-AC															REF DESIGNATION
21	A-PL-H7005-0-0		H7005 FILTER CONNECTOR	REF	REF	REF															
22		9006560-00	NUT, KEPS #6-32	2	2	2															
23	D-UA-BC03L-0-0	BC03L-05	FILTERED CABLE ASSY BC03L	REF	REF	REF															

E.C.O. NO.

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TITLE
KC780 CONSOLE ASSY

ASSY NO.
E-UA-KC780-0-0

SIZE
B

CODE
PL

NUMBER
KC780-0-0

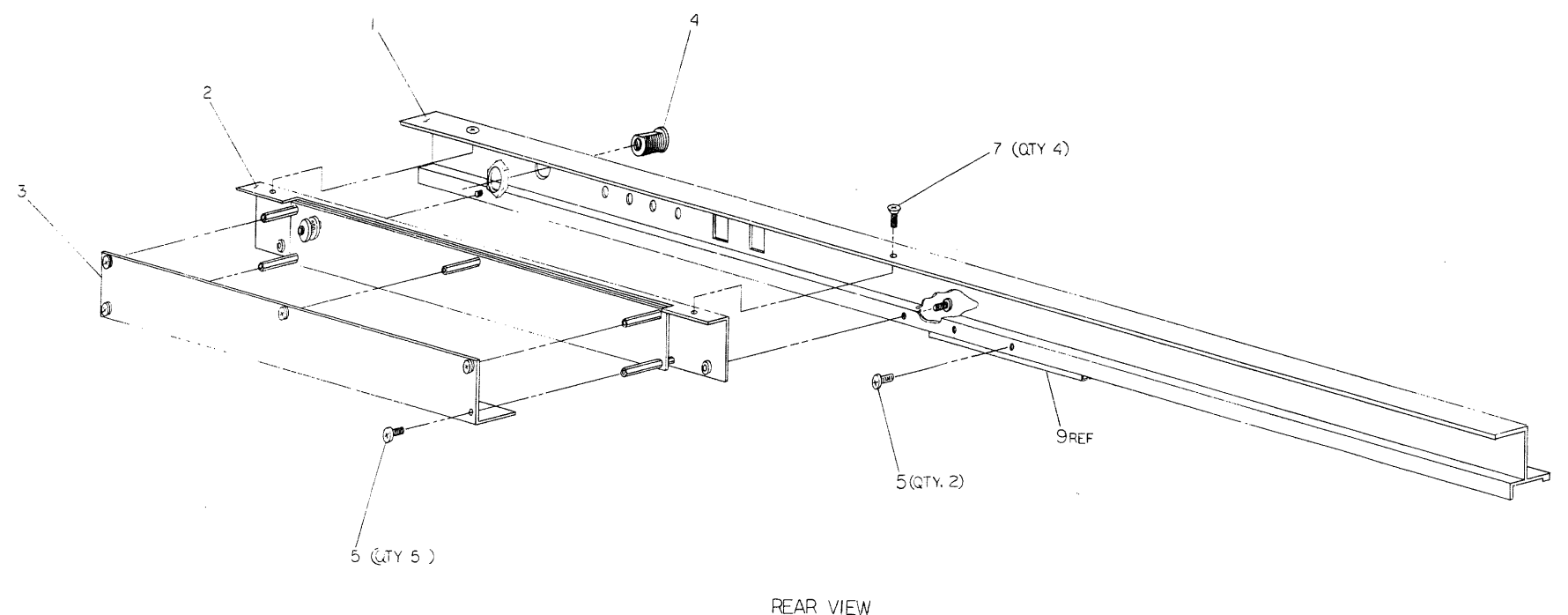
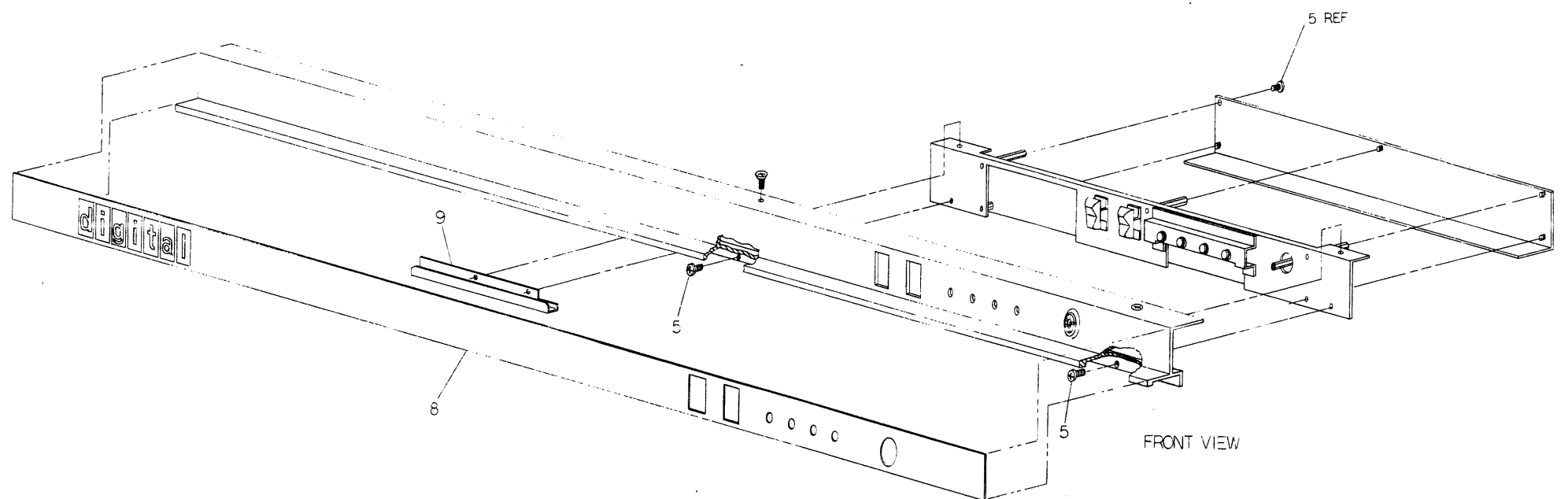
REV.
B

SHEET 2 OF 2

INSERTION PARTS LIST DATA BASE REV

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NOTES:
 1. REMOVE PEEL-OFF LINER OF ITEM # 8 AND ASSEMBLE TO ITEM #1 AFTER #4 & 2 HAVE BEEN ASSEMBLED TO ITEM #1.



REV.	CHANGE NO.

FOR PARTS LIST SEE A PL 7013926 0-0

DESCRIPTION	DWG. PART NO.	ITF. NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
ANGLES	CLOSURE	NOMINAL DIMENSION RANGE INCH
10° 30'	ACCURACY	2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50 10.00
SURFACE	FINISH	1.00 1.00 1.01 1.02 1.03 1.04 1.05 1.06 1.07 1.08 1.09 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20
QUALITY	IN	1.00 1.00 1.01 1.02 1.03 1.04 1.05 1.06 1.07 1.08 1.09 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20
QUANTITY & VARIATION	PREFERRED	1.01 1.01 1.02 1.03 1.04 1.05 1.06 1.07 1.08 1.09 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20
THIRD ANGLE PROJECTION	DRN. REVISE	DATE
REMOVE BURRS AND BREAK SHARP CORNERS	CHKD	DATE
DO NOT SCALE DWG	ENG	DATE
MATERIAL	PROJ. ENGR.	DATE
SEE PARTS LIST	PROD.	DATE
FINISH	NEXT HIGHER ASSY.	

DESCRIPTION: VAX 11/780
 TITLE: SCP AND CONSOLE ASSY.
 MATERIAL: E-1A-KC780-0
 SCALE: 1/2
 SHEET: 1 OF 1
 DIST.:

**DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST**

MADE BY E. TAYLOR	CHECKED <i>[Signature]</i>	SECTION
DATE 3 AUG 77	DATE 9-12-77	
ENG <i>[Signature]</i>	PROD <i>[Signature]</i>	ISSUED SECT.
DATE 10-18-77	DATE 10/18/77	

QUANTITY VARIATION

7013926-0-0																			
1																			
1																			
1																			
1																			
9																			
2																			
1																			
1																			

ITEM NO.	DWG NO./PART NO.	DESCRIPTION
1	E-MD-7418167-0-0	FRONT PANEL REWORK
2	D-UA-5412932-0-0	SYSTEM CONTROL PANEL
3	D-MD-7418102-0-0	COVER, PROTECTIVE (COMPONENT BOARD)
4	1213283-0-0	KEY LOCKS 5 POSITION
5	9009701-00	SCR, PAN HD. PHL. SEMS #6 - 32 x 5/16
7	9006021-02	SCR. FLAT COUNTERSUNK HD. PH.6-32 x .31
8	3614611-0-0	DECAL
9	C-IA-7418969-0-0	STRIKE PLATE

TITLE SCP AND CONSOLE ASSEMBLY	ASSY NO. E-AD-7013926-0-0	SIZE A	CODE PL	NUMBER 7013926-0-0	REV	FCO NO.
	SHEET 1 OF 1	DIST				

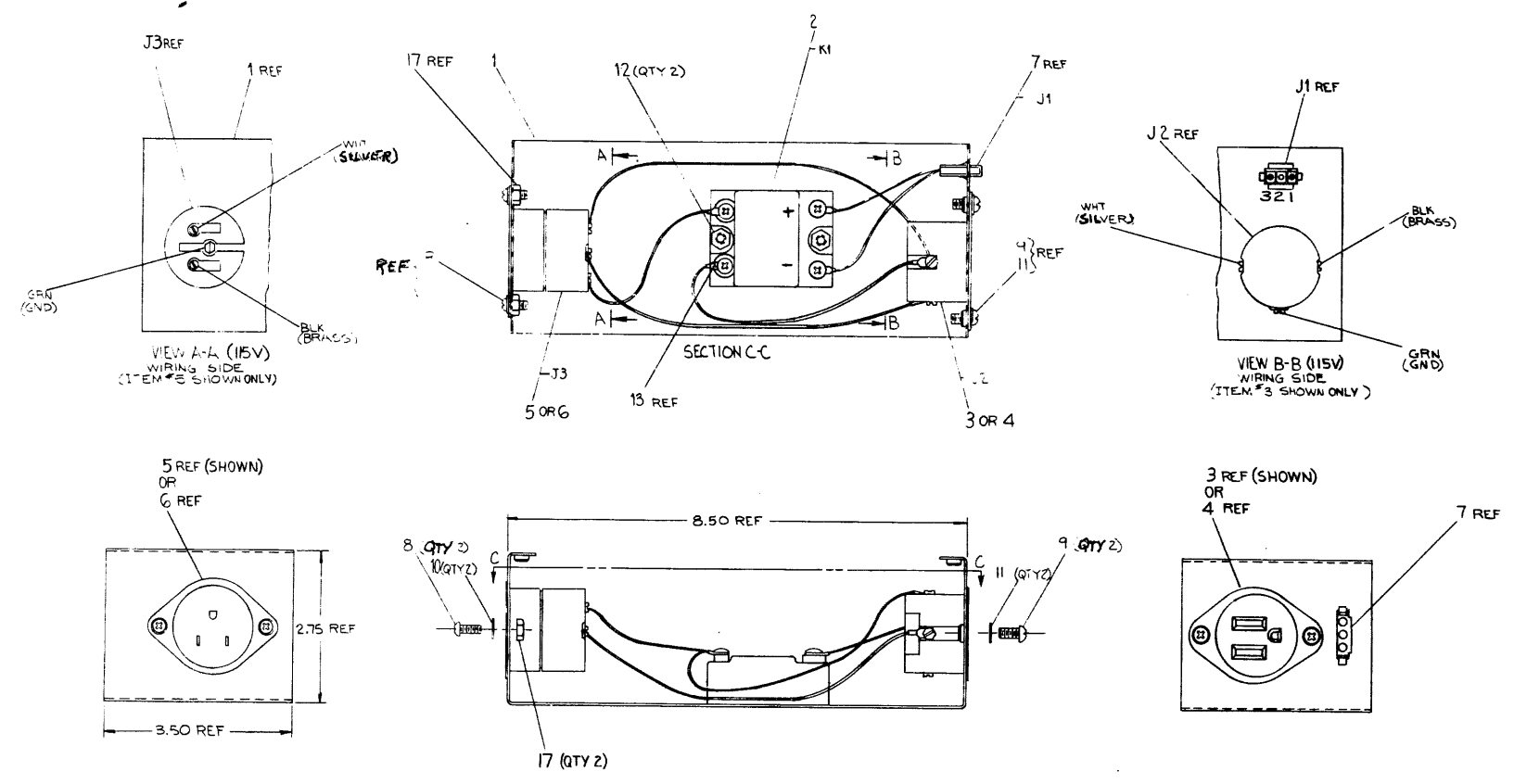
DEC FORM
DRA 110

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WIRE TABLE 115V & 230V					
ITEM NO	DESCRIPTION	FROM	WITH	CONN	TO
14	18 BLK	J3-BLU	ITEM 13	K1 TOP	ITEM 18
15	GRN	J3-GRN-YEL	↑	J2-GRN	↑
16	WHT	J3-BRN	↑	J2-WHT	↑
14	BLK	K1 BOTTOM	ITEM 13	J2-BLK	ITEM 18
7	18 BLK	J1-1	---	K1(-)	---
	WHT	J1-3	---	K1(+)	---

NOTE: WIRING INFO SAME FOR 115V & 230V

LEGEND		
ASSY NUMBER	VARIATION	REMARKS
7013679-00	USING ITEMS 3 & 5	115V OPERATION
7013679-01	USING ITEMS 4 & 6	230V OPERATION



FOR PARTS LIST SEE A-PL-7013679-0-0

QUANTITY & VARIATION	DESCRIPTION	ENGL PART NO.	ITEM NO.
1	RELAY ASSY 115V AND 230V	7013679-00	A
1	RELAY ASSY 115V AND 230V	7013679-01	A

DWN: [Signature] DATE: 11/77 FIRST USED ON: [Signature] AX 11780
 CHN: [Signature] DATE: 11/77
 PROJ. ENGR: [Signature] DATE: 11/77
 PROD. ENGR: [Signature] DATE: 11/77
 NEXT HIGHER ASSEMBLY: [Signature]
 E-AD 7013679-00
 SCALE: 1/1
 SHEET: 1 OF 1

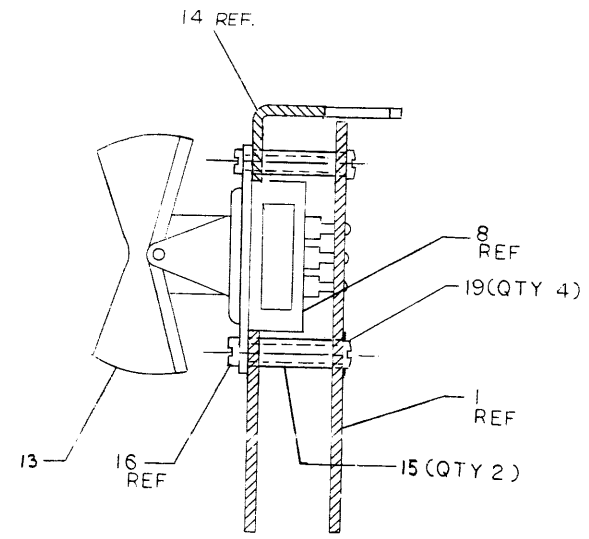
CHANGE NO. [Signature]
 7013679-00001 A
 21/8/77
 B. HALL
 28/10/77

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QUANTITY VARIATION																
MADE BY	MARK CHOINIERE	CHECKED	D. HEALY	SECTION																
DATE	11 JUNE 77	DATE	13 JUNE 77	1																
ENG	<i>Ronald Duggan</i>	PROD	<i>R. Healy</i>	ISSUED SECT.																
DATE	7/21/79	DATE	8-4-77	1																
ITEM NO.	DWG NO./PART NO.	DESCRIPTION		7013679-00	7013679-01															
1	D-IA-7417858-0-0	BACK PLATE (RELAY ASSY)		1	1															
2	1214417-00	RELAY, SOLID STATE		1	1															
3	1210203-00	RECEP., PWR 15A, 125V AC/DC FEMALE		1	-															
4	1210202-00	RECEP., PWR 15A, 250V AC/DC FEMALE		-	1															
5	1209983-00	CONN. POWER 15A, 125V AC/DC MALE		1	-															
6	9008854-00	CONN. POWER 15A, 250V AC/DC MALE		-	1															
7	B-IA-7014449-0-0	CABLE, RELAY CONTROL		1	1															
8	9006022-01	SCREW, PHL, HD. PAN, #6 - 32 x .38		2	2															
9	9006037-01	SCREW, PHL, HD. PAN #8 - 32 x .38		2	2															
10	9006633-00	WASHER, INT. TOOTH LOCK #6		2	2															
11	9006634-00	WASHER, INT. TOOTH LOCK #8		2	2															
12	9006560-00	NUT, KEPS #6 - 32		2	2															
13	9007929-00	RING TERMINAL, RED #22-16 WIRE		8	8															
14	9107360-66	WIRE, STRND, 18 AWG (BLU)		A	RA/R															
15	9107410-54	WIRE, STRND, 18 AWG (GRN-YEL)		A	RA/R															
16	9107360-11	WIRE, STRND, 18 AWG (BRN)		A	RA/R															
17	9006558	NUT, HEX		2	2															
TITLE				ASSY NO.	SIZE	CODE	NUMBER			REV	ECO NO.									
RELAY ASSY 115V & 230V				E-IA-7013679-0-0	A	PL	7013679-0-0			A	7013679-00001									
SHEET 1 OF 1				DIST																

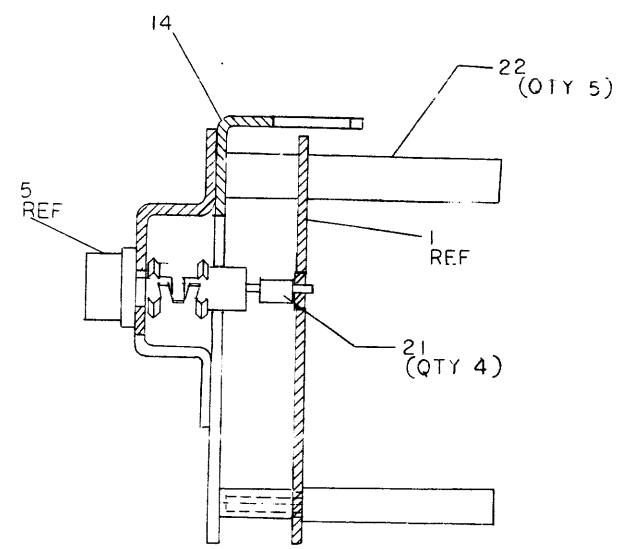
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REV. 2
 DUA 5412932-00
 BDDG 0316

COMPONENT SIDE VIEW



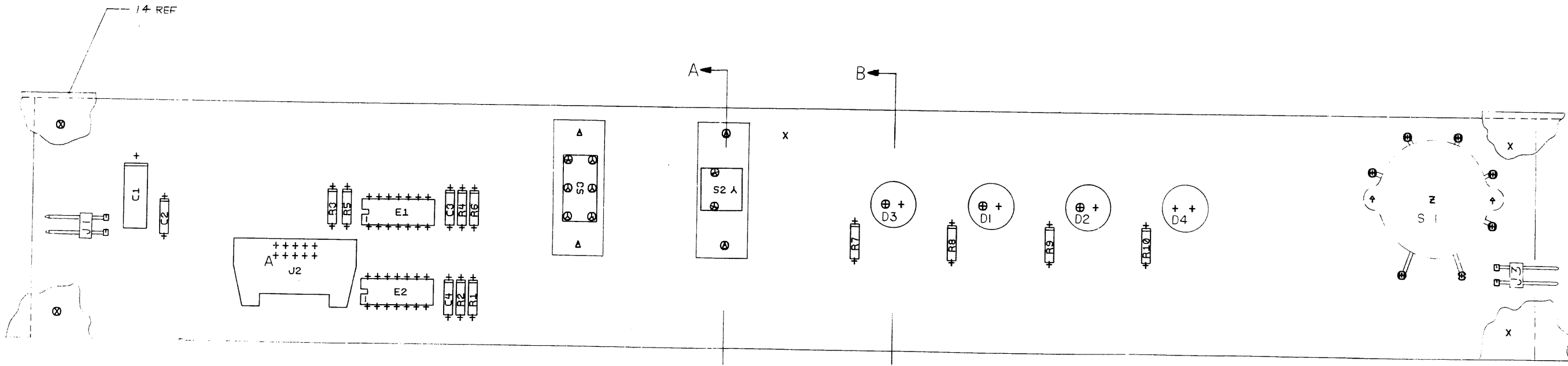
SECTION A-A
 SCALE: 2/1



SECTION B-B
 SCALE: 2/1

SCP ASSEMBLY NOTES

- 1 ASSEMBLE ITEMS 2,3,6,9,10,11,12, AND 20 IN THEIR APPROPRIATE LOCATIONS TO ITEM 1.
- 2 ASSEMBLE ITEM 21 TO THE SHORT LEAD OF ITEMS 4 AND 5. REMOVE CLIP NUTS FROM DIODES.
- 3 ASSEMBLE ITEMS 15 TO ITEMS 1 USING ITEM 16 (SEE SECTION A-A) FOUR PLACES.
- 4 INSERT L.E.D.'S THROUGH ITEM 14 WITH RED LED AT BOTH OUTSIDE POSITIONS. THE L.E.D.'S WILL BE INSTALLED IN THE P.C. BOARD WITH THE SHORT SOCKETED LEAD TO THE RIGHT AS VIEWED FROM THE COMPONENT SIDE OF THE BOARD. REPLACE THE CLIP NUTS, MAKE SNUG AGAINST ITEM 14
- 5 INSERT ITEMS 7 AND 8 THROUGH ITEM 14. MAKE ALIGNMENT TO P.T.H.'S AND THEN TO ITEM 15. FASTEN ITEMS 7 AND 8 USING ITEM 16.
- 6 FROM P.C. BOARD SIDE, FASTEN ITEMS 22 TO ITEMS 14 THROUGH ITEM 1.
- 7 SOLDER ALL L.E.D.'S AND ROCKER SWITCHES.



NOTES:

CHK	CHANGE NO	REV	DATE	BY
REV	5412932-1	B	12/17/77	K. DUGGAN

ETCH REV. b
P.C. DESIGN DATA BASE REV. 6

SIGNATURES	DATE	digital
DRN.	2/1/77	
CHK'D	2/1/77	TITLE SYSTEM CONTROL PANEL
ENG.	2/3/77	
PROJ. ENG.	2/3/77	
PROD.	2/5/77	
SCALE 2-1	SIZE CODE	NUMBER
SHT. 1 OF 3	DUA	54-12932-00 B
NEXT HIGHER ASSY. B DD 54 129322 0-0		

REV. 2
 DUA 5412932-00
 BDDG 0316

8

7

6

5

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3

2

1

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8 0-0-2932 79 17 D 2

5412932 5012931B

digital

CS*ABCDEF

SIDE 1

+5V
J1
GND

J2

J3

5412932 5012931B

digital

CS*ABCDEF

SIDE 1

+5V
J1
GND

J2

J3

5412932 5012931B

digital

CS*ABCDEF

SIDE 1

+5V
J1
GND

J2

J3

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	S.C.P.	SIZE CODE	D UA	NUMBER	54 12932-C 0	REV.	B
SCALE	2 - 1	SHEET	2 OF 3	DIST.			

8

7

6

5

4

3

2

1

8

7

6

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4

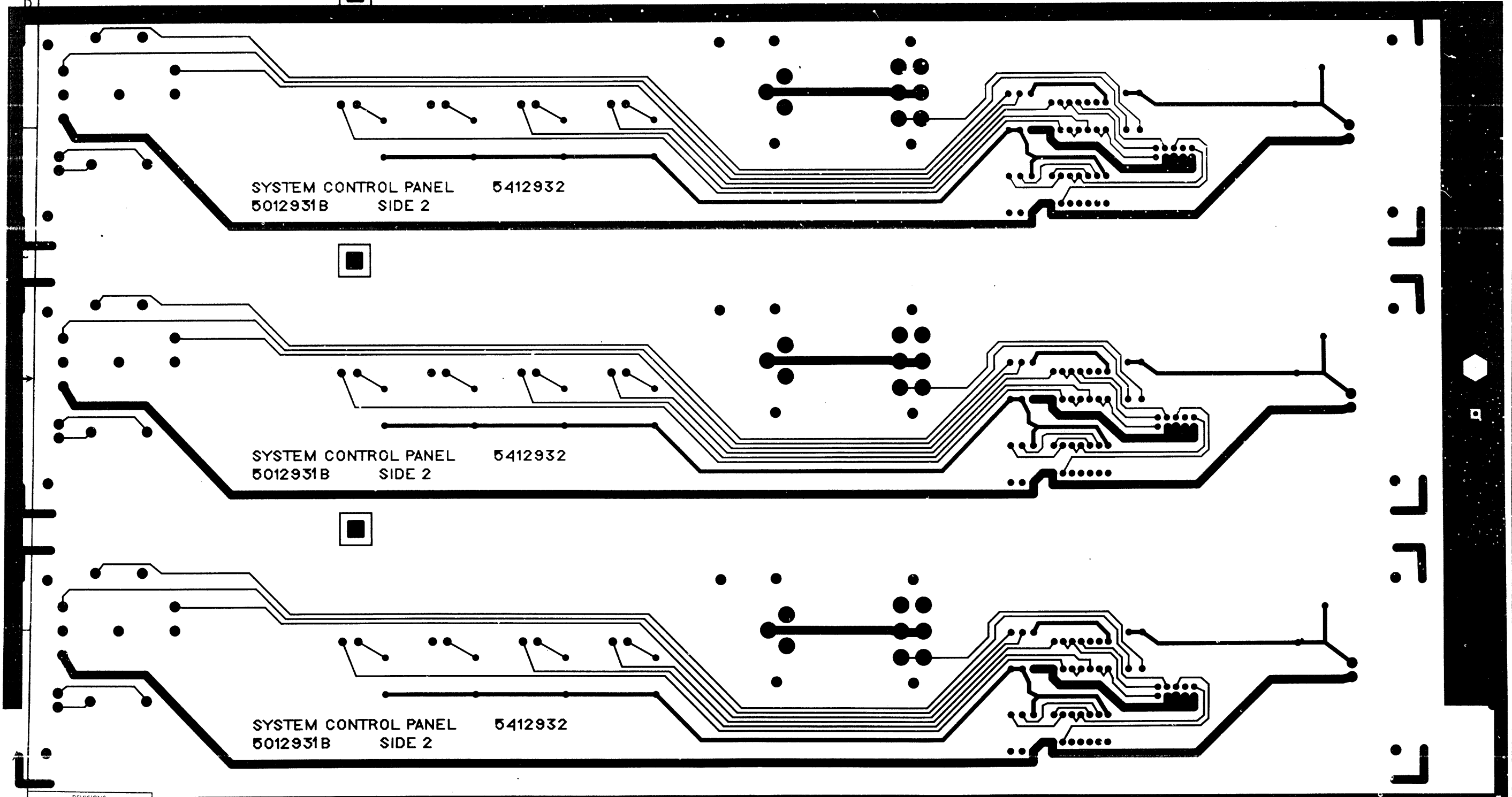
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2

1

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0-0 7-0 9-0 7-0 7-0 12-1



SYSTEM CONTROL PANEL 5012931B SIDE 2 5412932

SYSTEM CONTROL PANEL 5012931B SIDE 2 5412932

SYSTEM CONTROL PANEL 5012931B SIDE 2 5412932

D

C

B

A

CHK	CHANGE NO	REV

TITLE	S. C. F.	SIZE CODE	D UA	NUMBER	5412932-0-C	REV.	B
SCALE	2 - 1	SHEET	3 OF 3	DIST			

8

7

6

5

4

3

2

1

DIGITAL EQUIPMENT CORPORATION PARTS LIST

MADE BY DATE	M. FUNARO 26 APR 77	CHECKED DATE	G. GIDDINGS 6 MAY 77
ENG DATE	<i>Kenneth J. Desjardins</i> 7/30/77	PROD DATE	<i>Mike Tenella</i> 10-5-77

SECTION	ISSUED SECTION
---------	----------------

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION										REF DESIGNATION			
21		1214819-00	SOCKET, LEAD	4													D1,D2,D3,D4 short lead
22		9000001-06	SPACER, #6 - 32 M/F x 1 3/8	5													

E.C.O. NO.

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TITLE
SYSTEM CONTROL PANEL

ASSY NO.
D-UA-5412932-0--0

SIZE
B

CODE
PL

NUMBER
5412932-0-0

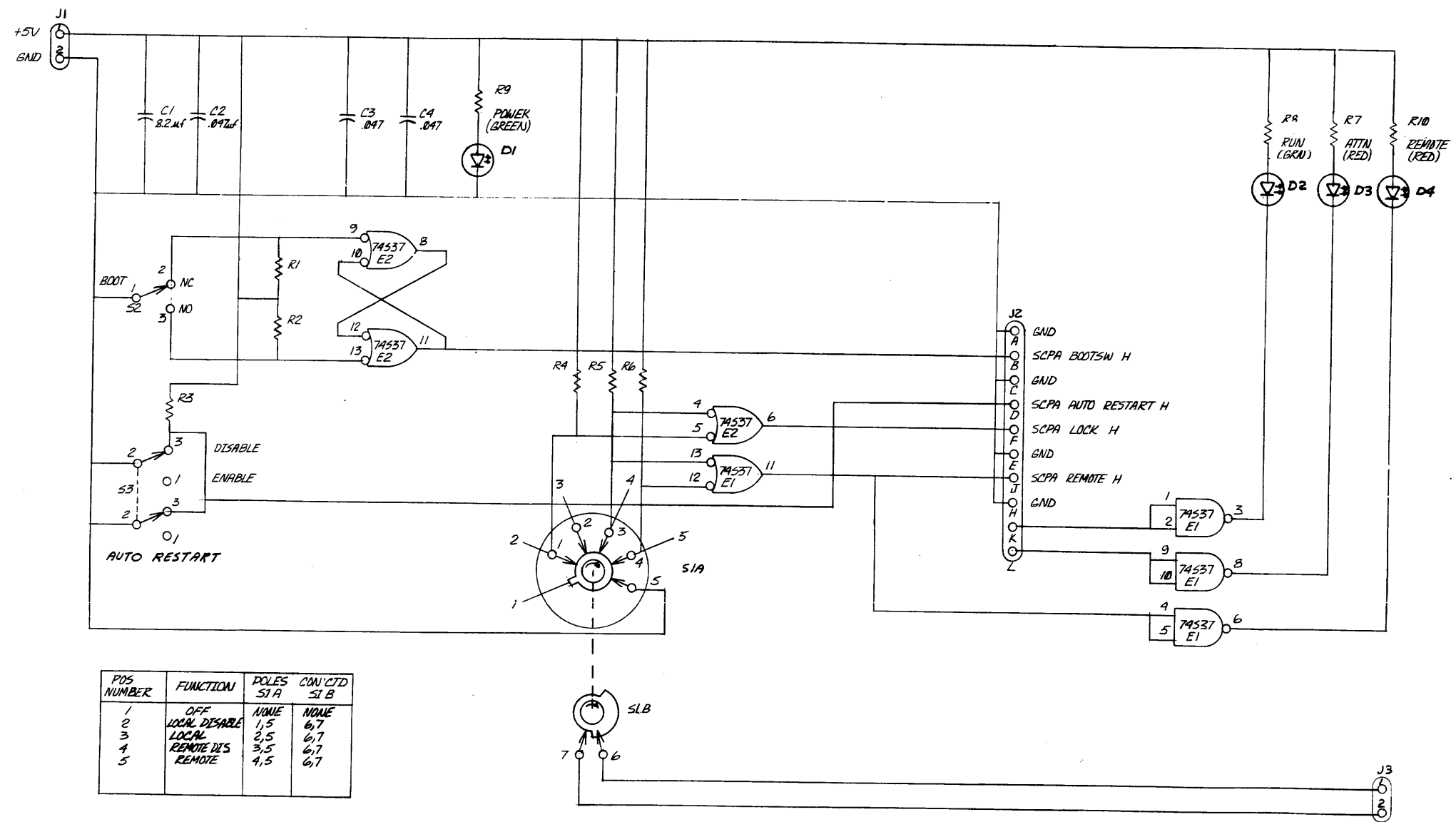
REV.
B

SHEET 2 OF 2

INSERTION PARTS LIST DATA BASE REV

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REV. A
 DCS 5412932-01



POS NUMBER	FUNCTION	POLES S1A	CON'CTD S1B
1	OFF	NONE	NONE
2	LOCAL DISABLE	1,5	6,7
3	LOCAL	2,5	6,7
4	REMOTE DIS	3,5	6,7
5	REMOTE	4,5	6,7

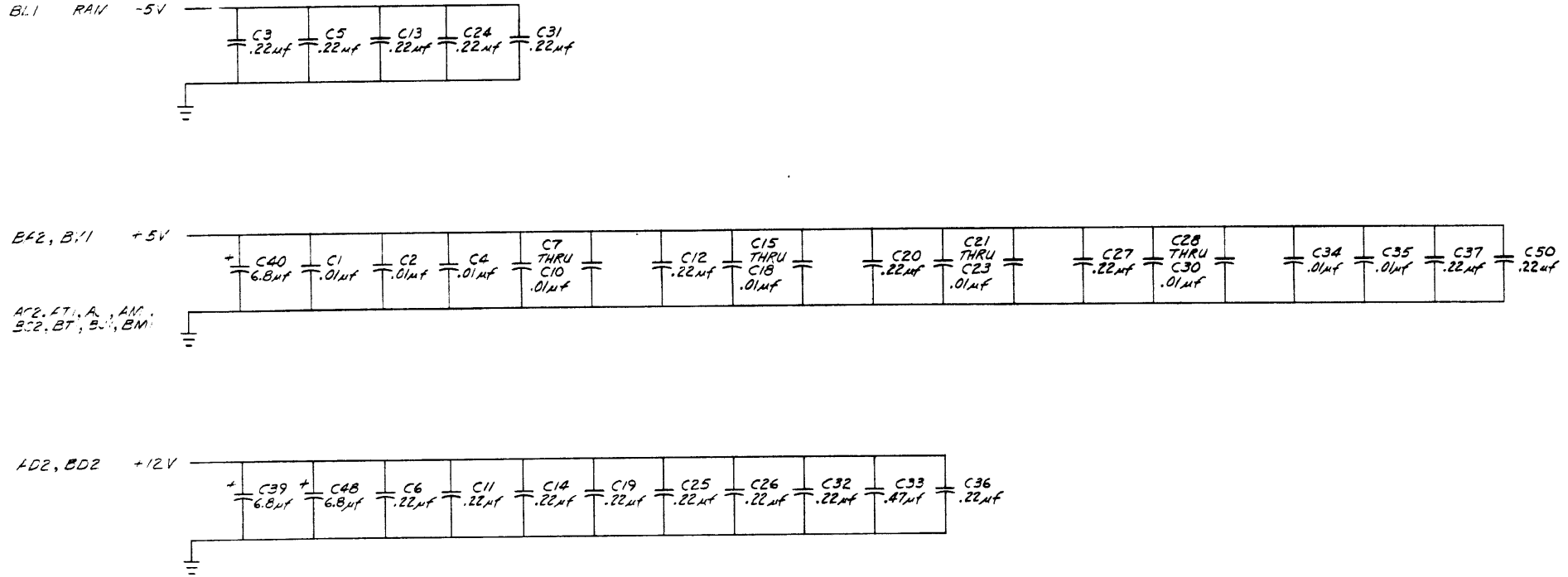
NOTES:
 1. ALL RESISTORS ARE 1K 1/4W 5% CC. EXCEPT THOSE WITH LED INDICATORS WHICH ARE 150, 1/4W, 5%

REV.	
CHG	
CHK	
REV.	

DRN. E. THOMAS (8-5)	FIRST USED ON	digital
CHK'D. [Signature]		
ENG. [Signature]	TITLE	SYSTEM CONTROL PANEL
PROV. ENG. [Signature]		
PROD. [Signature]		
NEXT HIGHER ASSY.		
SCALE	SIZE CODE	NUMBER
SHEET 1 OF 1	D CS	5412932-01
	DIST.	

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NOTES:
1. W4 IS A CUSTOMER OPTION NOT TO BE INSERTED




IC TYPE	GND	+5V	+12	-5	-9	-5 RAM
4K RAM	16	9	8			
I.C. M40G26C	3		6			
I.C. DEC 75107	7	14		13		
I.C. DEC 74123	8	16				
I.C. DEC 864	8	16				
I.C. DEC 745257	8	16				
I.C. DEC 7475	12	5				

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

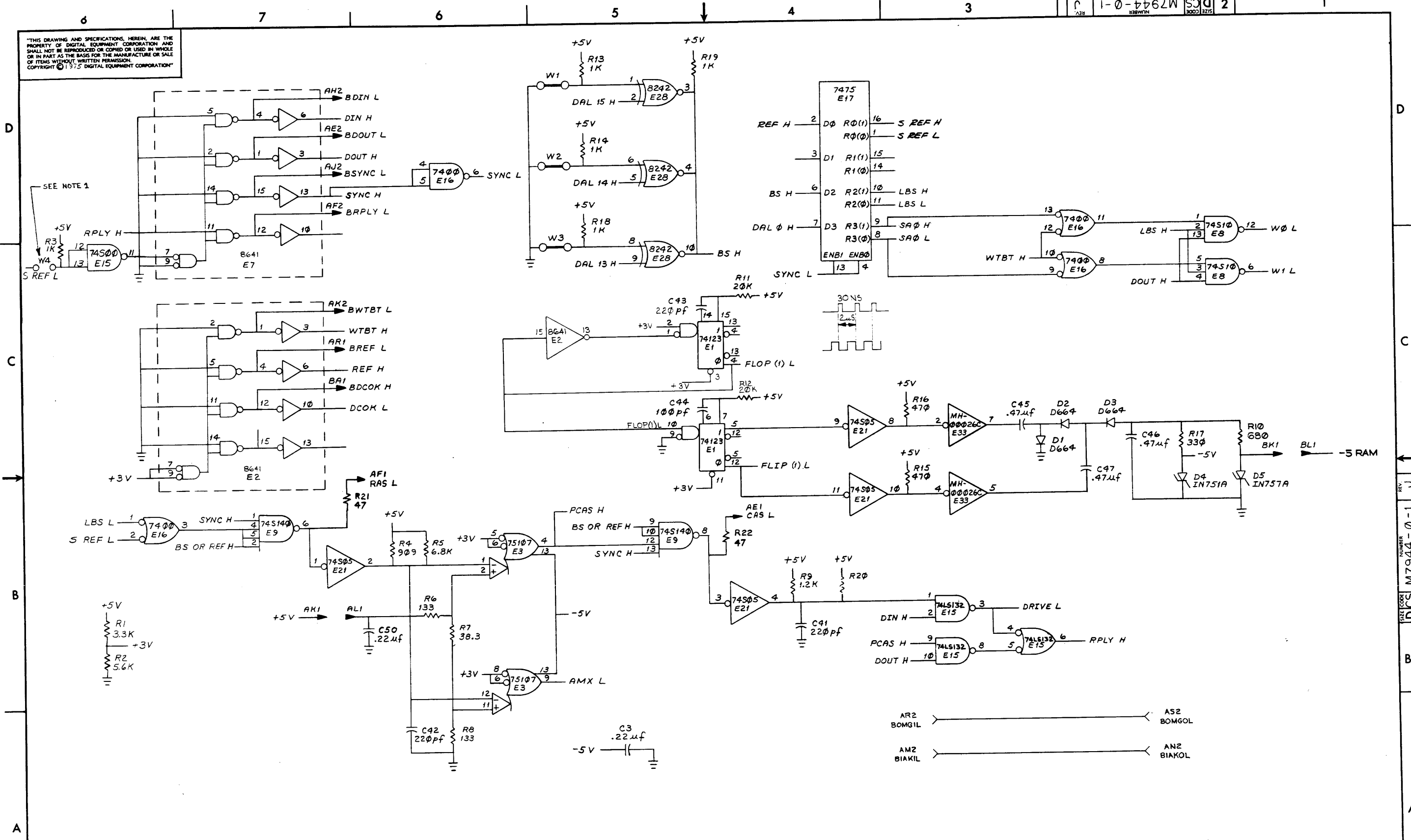
SEE OFF SHEET PARTS LIST

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
	LSI II	ETCH BOARD REV. C		

DRN. <i>D. Bennett</i>	DATE 3/16/77	 TITLE 4K RAM
CHK'D. <i>Bob Bennett</i>	DATE 12/13/77	
ENG. <i>D. Bennett</i>	DATE 10/11/77	
PROJ. ENG. <i>Bob Bennett</i>	DATE 10/11/77	
PROD. <i>Bob Bennett</i>	DATE 10/11/77	
NEXT HIGHER ASSY MSVII-B		
SCALE _____	SHEET 1 OF 4	

DEC NO.	EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART	SIZE CODE DCS	NUMBER M7944-0-1	REV. J

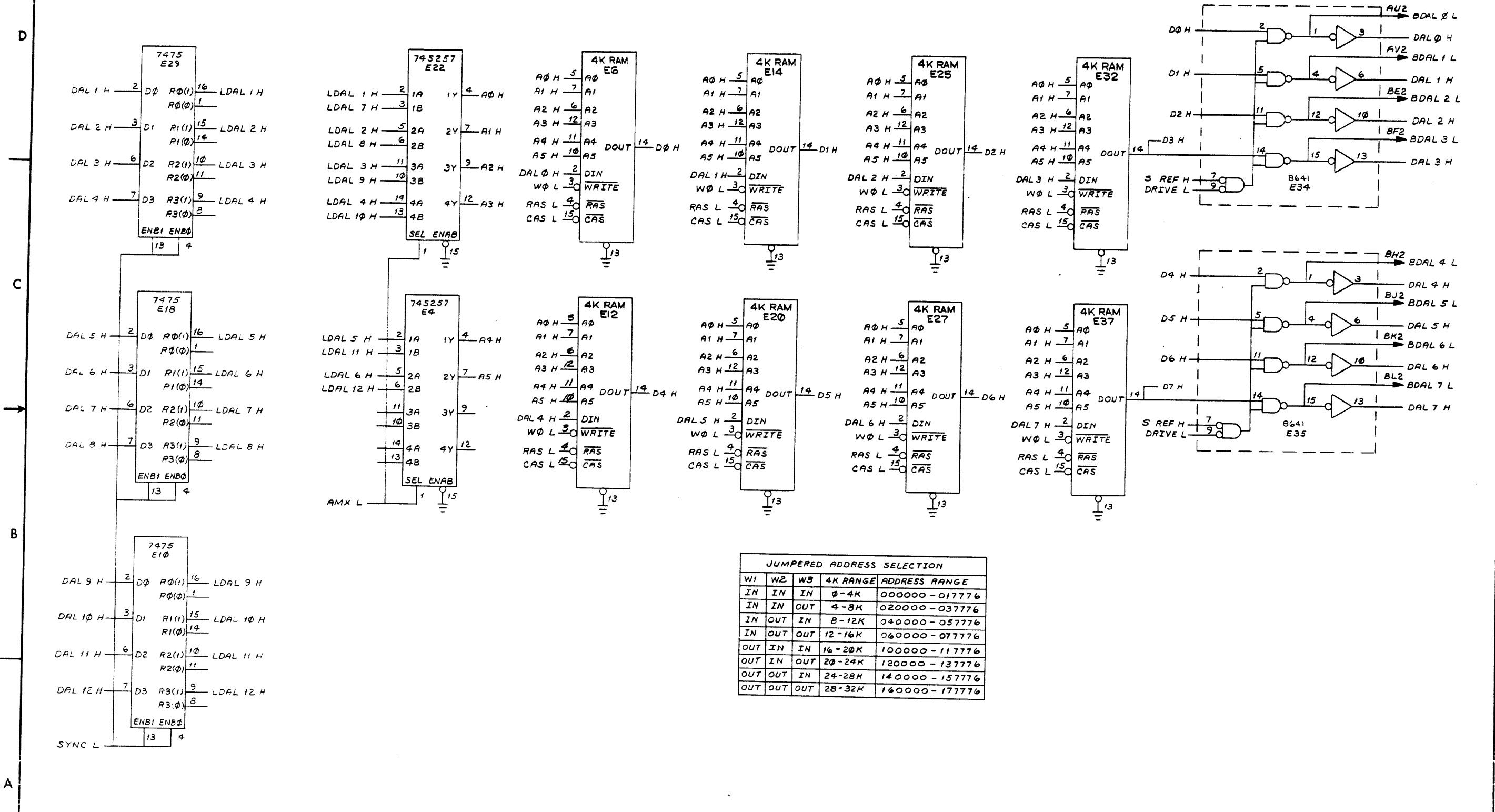
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(TIMING GENERATOR & CHARGE PUMP)

REVISIONS			TITLE	SIZE CODE	NUMBER	REV.
CHK	CHANGE NO.	REV.	4K RAM	DCS	M7944-0-1	J
			SCALE	SHEET	2 OF 4	DIST.

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JUMPED ADDRESS SELECTION

W1	W2	W3	4K RANGE	ADDRESS RANGE
IN	IN	IN	0-4K	000000-017776
IN	IN	OUT	4-8K	020000-037776
IN	OUT	IN	8-12K	040000-057776
OUT	IN	IN	12-16K	060000-077776
OUT	IN	OUT	16-20K	100000-117776
OUT	OUT	IN	20-24K	120000-137776
OUT	OUT	OUT	24-28K	140000-157776
OUT	OUT	OUT	28-32K	160000-177776

(RAM & DRIVER)

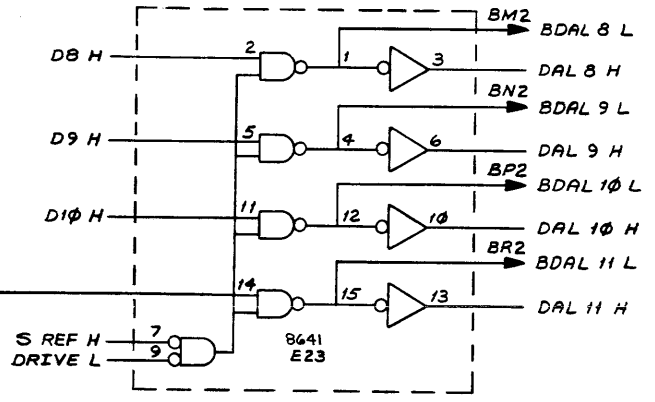
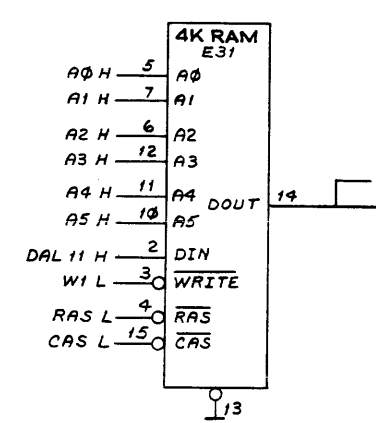
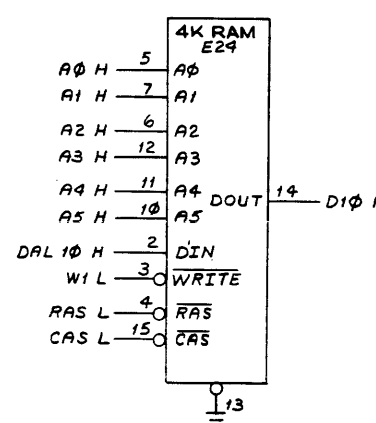
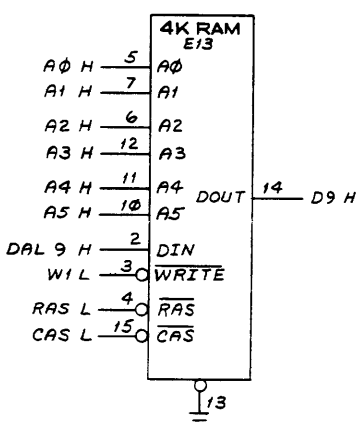
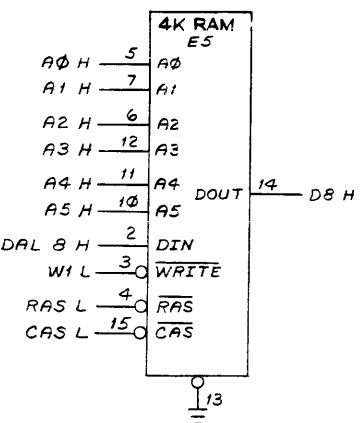
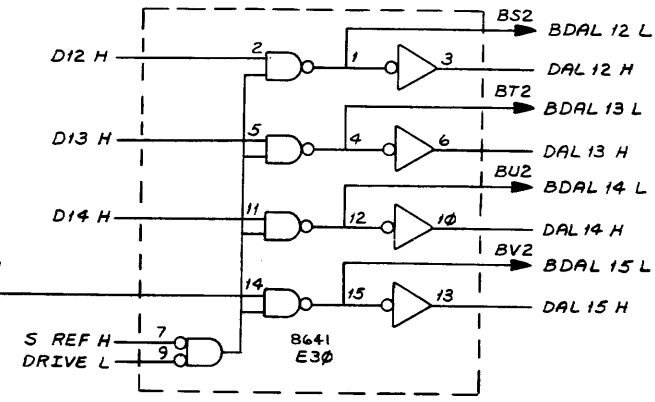
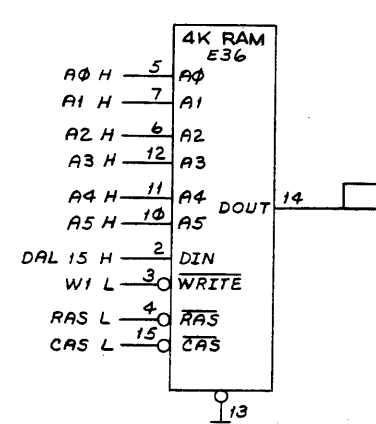
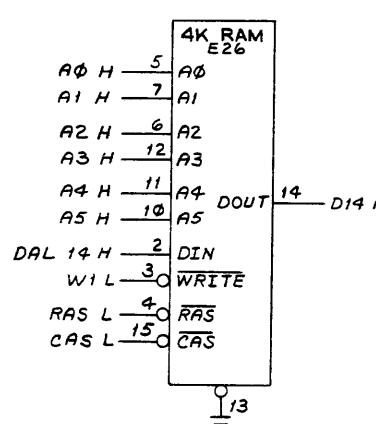
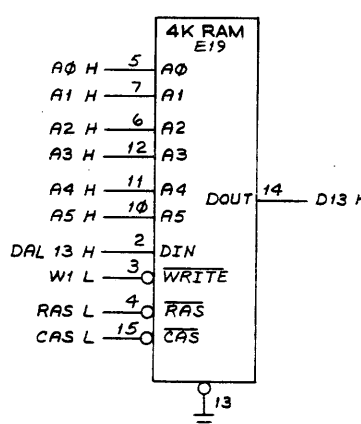
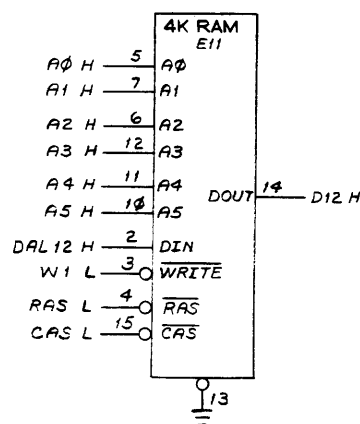
REVISIONS

CHK	CHANGE NO.	REV.

REV. 1-0-47462W SCS 2

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1-0-07462W SC 2



REVISIONS		
CHK	CHANGE NO.	REV.

(RAM & DRIVER)

TITLE	4K RAM	SIZE CODE	D CS	NUMBER	M7944-0-1	REV.	J
SCALE	1:1	SHEET	4 OF 4	DIST.			

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NOTES:
 1. BD INIT L AND INIT H ARE SIGNALS GENERATED BY THIS MODULE THAT ARE USED ON THIS MODULE.
 2. A STANDARD ROM STARTING LOCATION FOR THE FOLLOWING BOOTSTRAPS HAS BEEN ESTABLISHED. ALL FUTURE REV II-X'S THAT INCLUDE ANY OF THESE BOOTSTRAPS SHOULD USE THE SAME STARTING LOCATIONS. IF A NEW BOOTSTRAP IS ESTABLISHED, PLEASE ECO THIS NOTE TO INCLUDE THE DEVICE AND STARTING LOCATION.

- * PERTAINS TO REV II-AC AND J ONLY.
- ** PERTAINS TO REV II-HK AND L ONLY.
- *** PERTAINS TO REV II-N ONLY.

BOOTSTRAP	STARTING LOCATION
*.RX01	165242
*.ABSOLUTE LOADER	165406
*.RK05	165650
*.CPU DIAGNOSTIC (MEMORY ADDIFYING)	173302
*.CPU DIAGNOSTIC (NON-MEMORY MODIFYING)	173000
*.MEMORY DIAGNOSTIC	173626
*.ODT	
***.REMOTE-II	173000
***.REMOTE-II SECONDARY DOWNLINE LOAD	173006
***.RX01	173700
***.RX02	173000

3. ADJUST R16 SO THAT THE DMA REFRESH FREQUENCY MEASURED AT E15 PIN8 IS AS FOLLOWS:
 MAX. FREQUENCY SETTING; 33.6 KHZ (29.76 μ s)
 NOM. FREQUENCY SETTING; 33.3 KHZ (30.03 μ s)
 MIN. FREQUENCY SETTING; 33.0 KHZ (30.30 μ s)
 THIS FREQUENCY IS PRE-SET AT THE FACTORY AND SHOULD NOT BE ALTERED.


4. FOR -YN VARIATION SUBSTITUTE THE FOLLOWING I.C.'S :
 E19, P/N 23871A9-00
 E22, P/N 23872A9-00
 E25, P/N 23873A9-00
 E29, P/N 23874A9-00

IC TYPE	GND	+5V
IC 5264	8	16
IC 8136	8	16
IC 74174	8	16
IC 8556	8	16
IC 8641	8	16
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIIONS ARE STATED ABOVE

IC PIN LOCATIONS

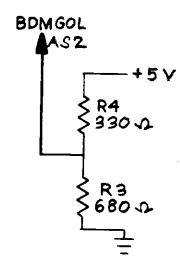
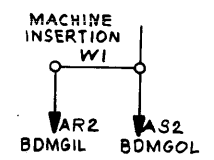
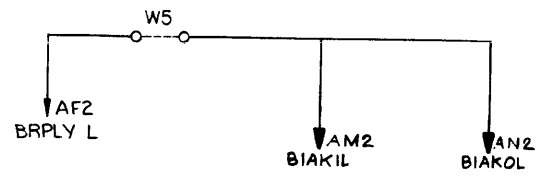
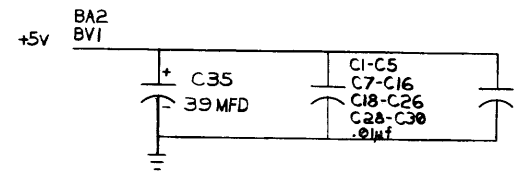
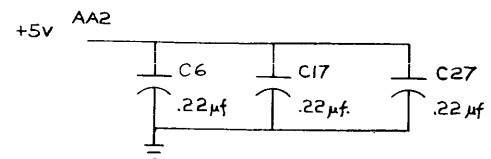
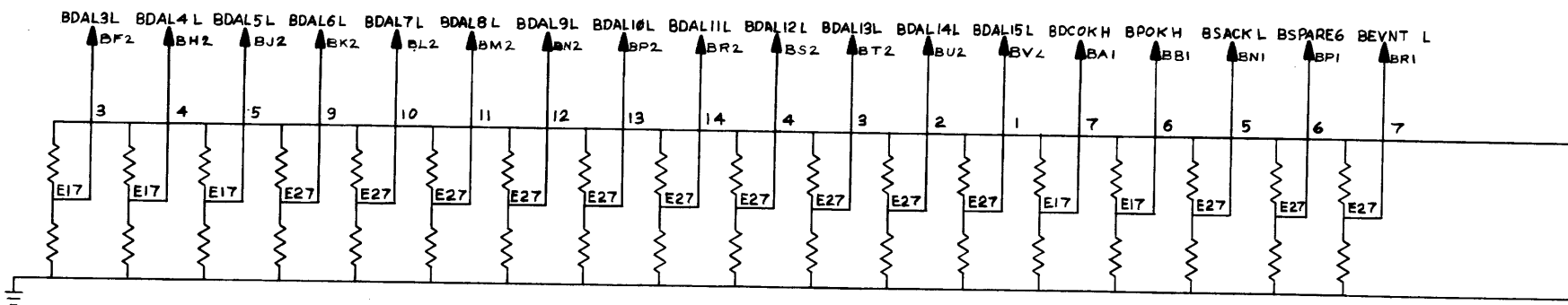
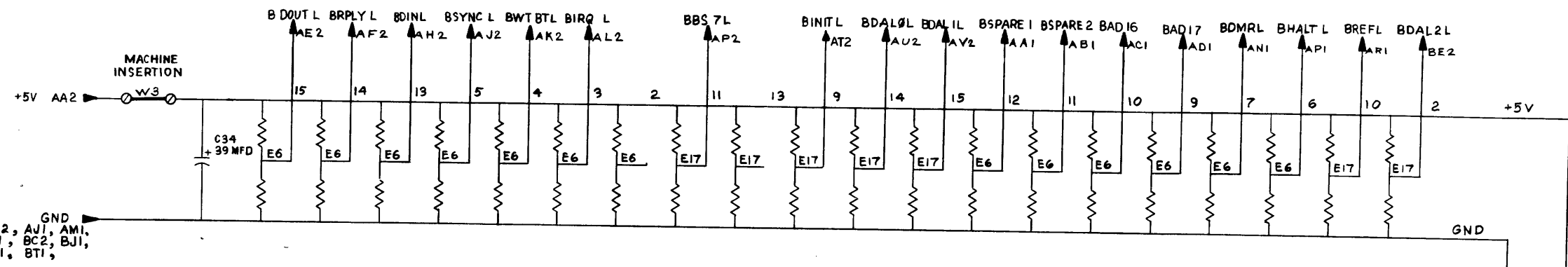
5/13/78
 J. CURTIS
 M9400 - ABO10 L
 D. H. Bennett
 DICK BENNET
 D. Dingleton
 M9400-0000828A K

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
FIRST USED ON OPTION MODEL				
ETCH BOARD REV. D-PI				
PARTS LIST				
DRN. D. Dingleton		DATE 5/13/78	 TITLE LSI REF. BOOT CONN.	
CHK'D. J. Curtis		DATE 3/30/78		
ENG. P. Bennett		DATE 12-20-78		
PROJ. ENG. P. Bennett		DATE 12-20-78		
PRD. P. Bennett		DATE 12-20-78		
NEXT HIGHER ASSY				
DEC NO.	EIA NO.	DEC NO.	EIA NO.	
SEMICONDUCTOR CONVERSION CHART				
SCALE		SIZE CODE DCS		NUMBER M9400-0-1
SHEET 1		OF 5		REV. L

REV. L
 NUMBER M9400-0-1
 SIZE CODE DCS

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DCS M9400-0-1



NOTE:
GROUND IS ON PIN 8
+5V IS ON PIN 16 OF EACH
RESISTOR PACK.

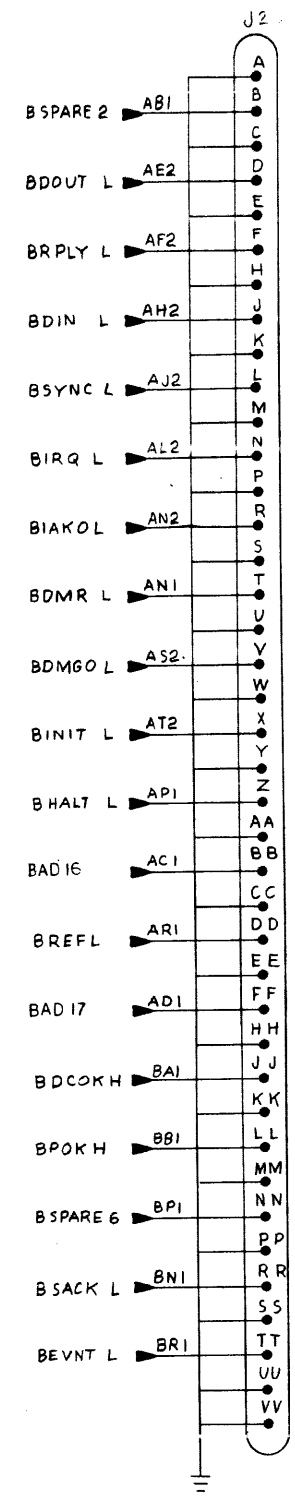
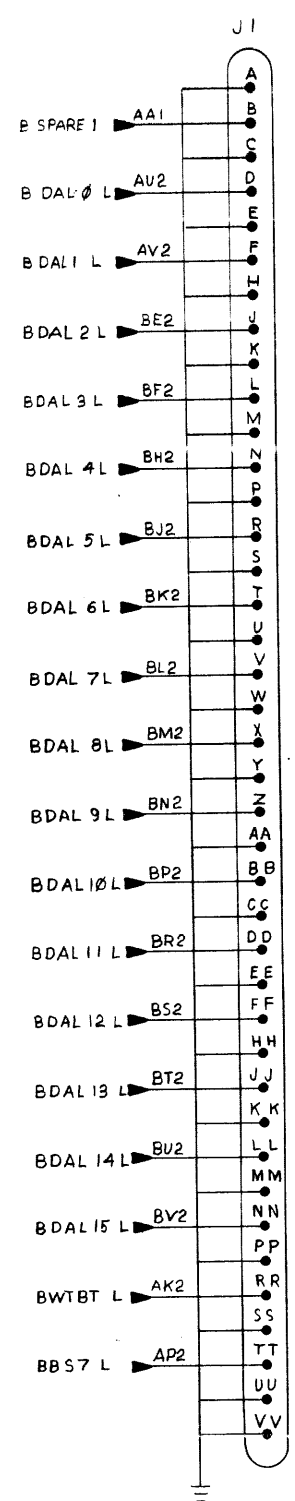
REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. DED 138

TITLE		SIZE CODE	NUMBER	REV.
LSI REF BOOT CABLE CONN		D	M9400-0-1	L
SCALE	SHEET	OF	DIST.	
	2	5		

PN 1

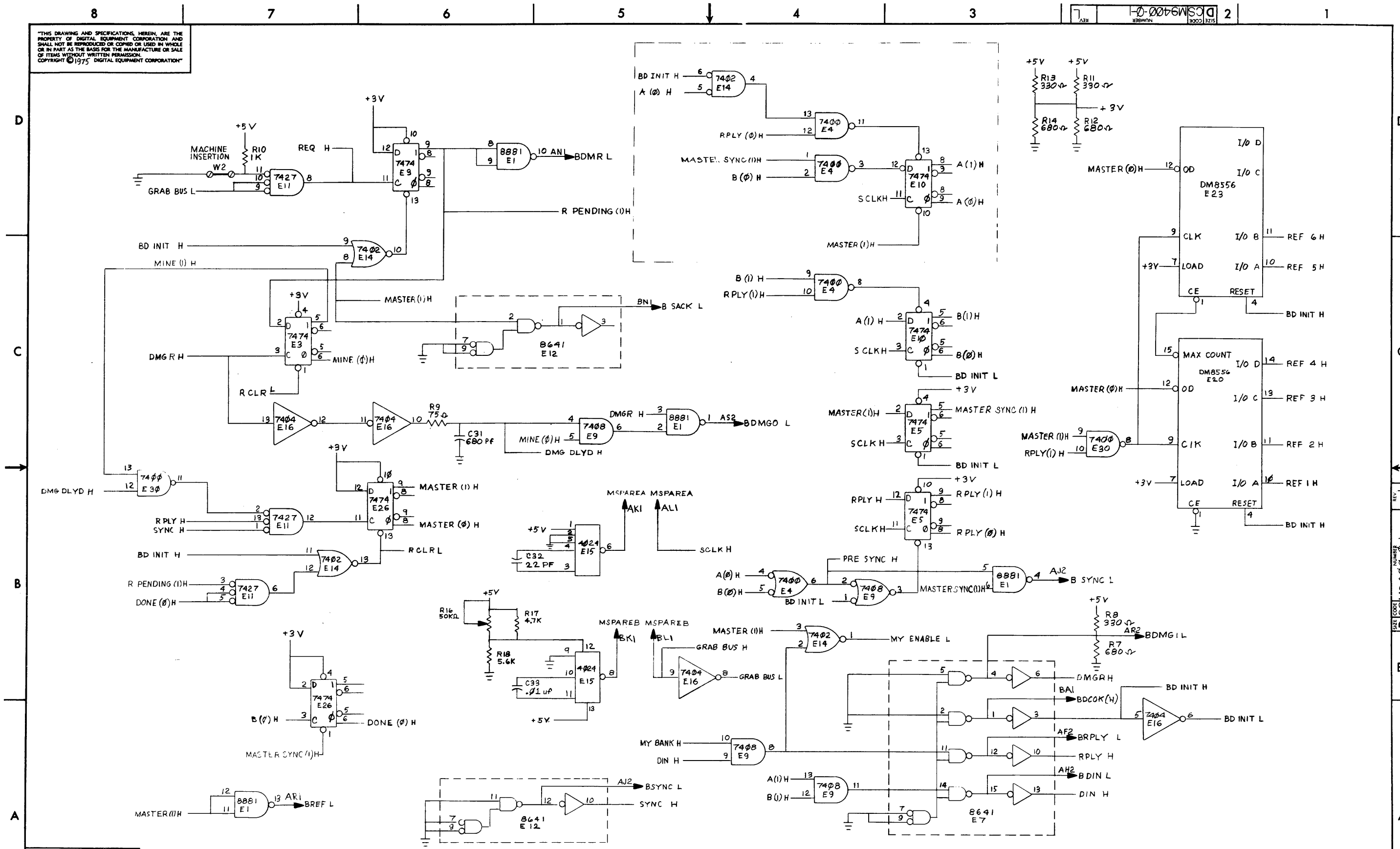
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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	LSI REF BOOT CABLE CONN	SIZE CODE	D	NUMBER	CSM9400-0-1	REV.	L
SCALE	1/1	SHEET	3	OF	5	DIST.	

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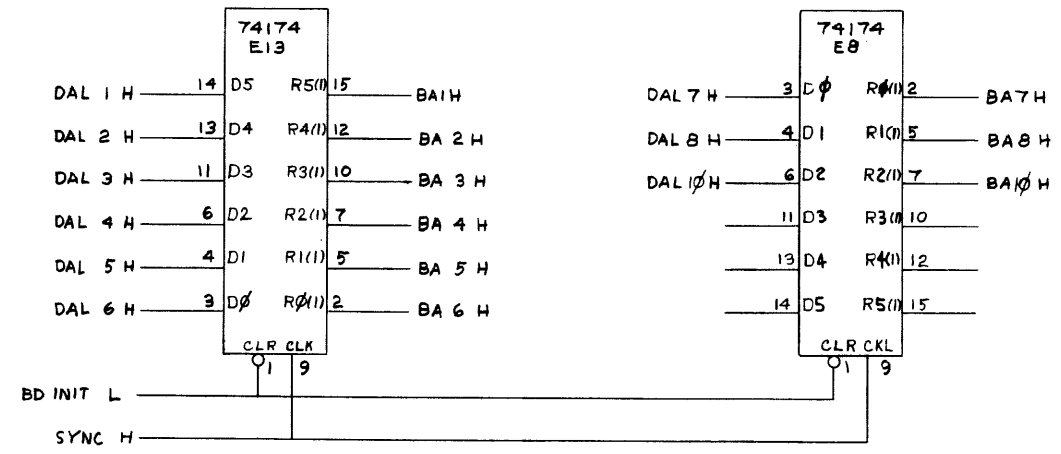
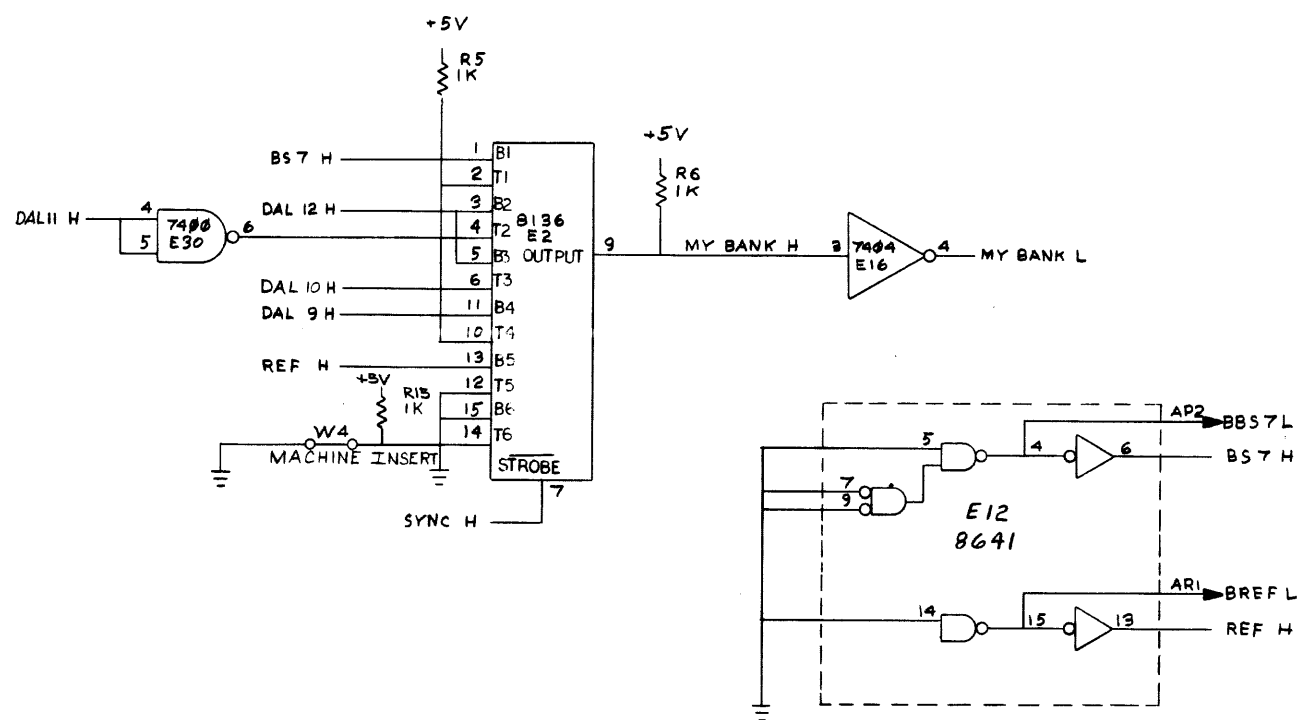
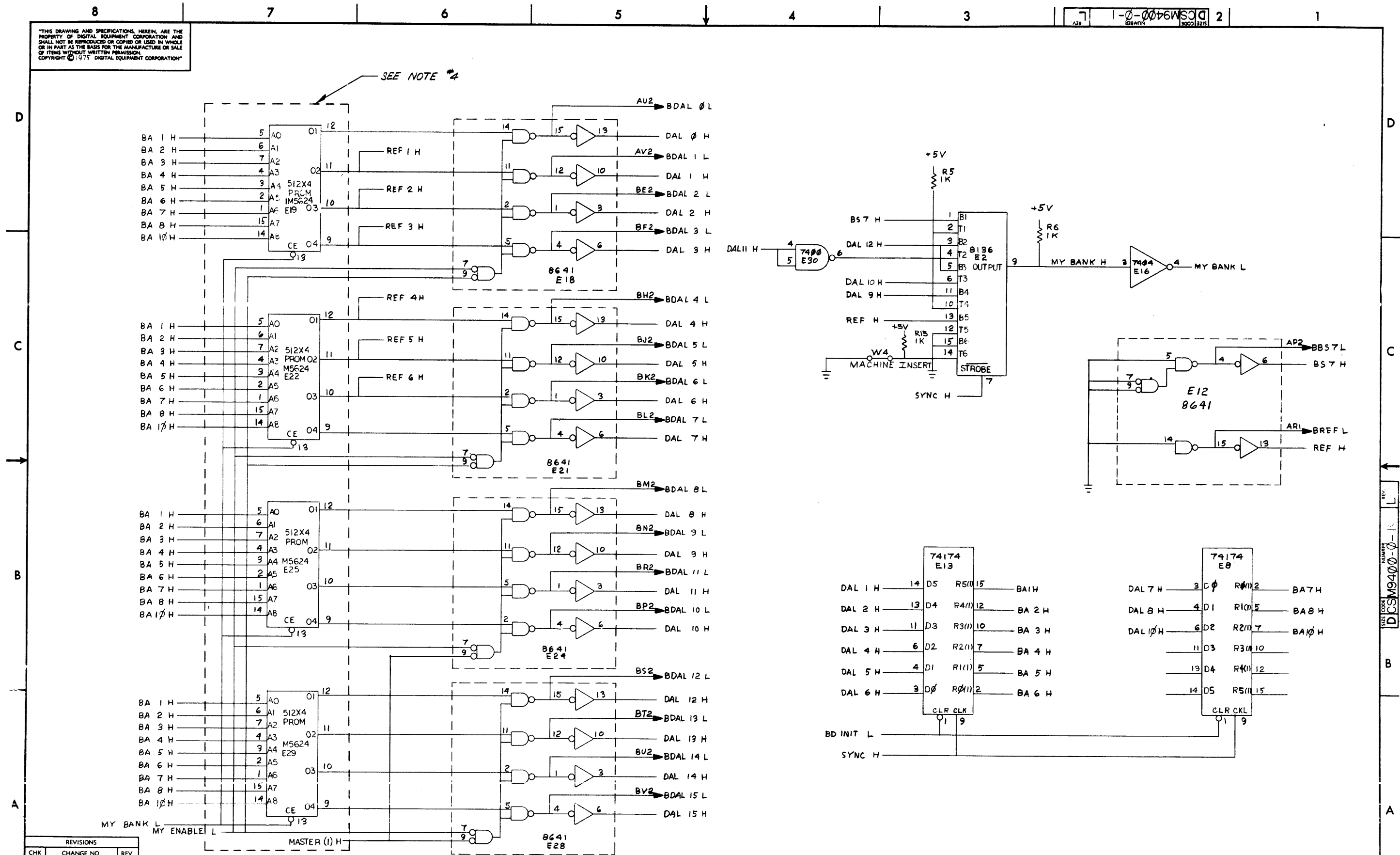
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	LSI RE-BOOT CABLE CONN	SIZE CODE	DCSM9400-0-1	NUMBER		REV.	L
SCALE		SHEET	4 OF 5	DIST.			

REV. L
NUMBER DCSM9400-0-1

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1-0-0076MSD 2



REVISIONS		
CHK	CHANGE NO.	REV.

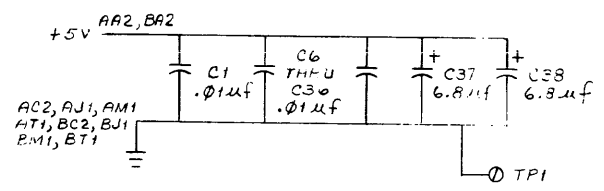
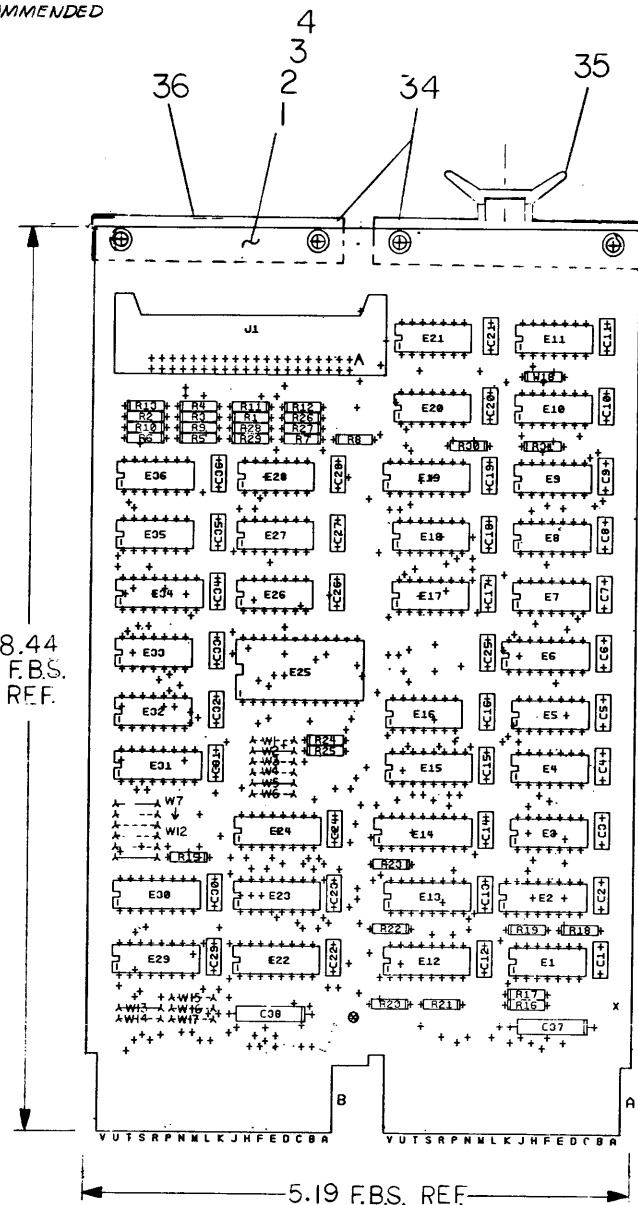
TITLE: LSI REFBOOT CABLE CONN
 SCALE: 1/1
 SHEET 5 OF 5
 NUMBER: DCSM9400-0-1
 REV: L

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NOTES:

- 1.) JUMPER REMOVED EQUALS ASSERTION.
- 2.) REFERENCE DESIGNATIONS C2-C5 AND E2-E5 ARE NOT USED.
- 3.) JUMPERS ARE TO BE IMPLEMENTED USING 30 AWG WIRE-WRAP WIRE. SEE THE LOGIC HANDBOOK FOR RECOMMENDED TOOLS.

D
C
B
A



ALTERNATE PARTS LIST

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
32	C1, C6 THRU C36	CAP. .01uf	10016.0-01	5A

REF	DESCRIPTION	PART NO.	ITEM NO.	
REF	X-Y COORDINATE HOLE LOCATION	K-CO-M7946-0-4	1	
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M7946-0-5	2	
REF	MODULE ECO HISTORY	B-MH-M7946-0-6	3	
1	ETCHED CIRCUIT BOARD	5011791	4	
32	C1, C6 THRU C36	CAPACITOR, .01, 100V, 20%	1001610	5
2	C37, C38	CAPACITOR, 6.8, 35V, 10%	1005306	6
1	J1	CONNECTOR, BERG, 40 PIN	1209941-02	7
2	R16, R18	RESISTOR, 330 OHM, 1/4W, 5%	1300295	8
9	R2, R4, R6, R8, R10, R12, R27, R29, R31	RESISTOR, 390 OHM, 1/4W, 5%	1300309	9
9	R1, R3, R5, R7, R9, R11, R26, R28, R30	RESISTOR, 180 OHM, 1/4W, 5%	1301322	10
2	R17, R19	RESISTOR, 680 OHM, 1/4W, 5%	1301424	11
7	R15, R20, R21, R22, R23, R24, R25	RESISTOR, 1K OHM, 1/4W, 5%	1300365	12
1	E31	RESISTOR, DPR	1311003-02	13
1	R13	RESISTOR, 120 OHM, 1/4W, 5%	1300247	14
1	E9	I.C. DEC 7474	1905547	15
2	E10, E11	I.C. DEC 7400	1905575	16
2	E8, E26	I.C. DEC 7402	1909004	17
1	E21	I.C. DEC 74H11	1909267	18
1	E35	I.C. DEC 8281	1909490	19
2	E17, E28	I.C. DEC 7404	1909686	20
2	E18, E20	I.C. DEC 7450	1905580	21
1	E27	I.C. DEC 8881	1909705	22
3	E7, E16, E33	I.C. DEC 7409	1910155	23
1	E19	I.C. DEC 74H106	1910408	24
1	E6	I.C. DEC 74175	1910651	25
3	E12, E15, E24	I.C. DEC 74157	1910655	26
1	E25	I.C. DEC 74199	1910842	27
3	E1, E32, E36	I.C. DEC 8640	1911469	28
4	E13, E22, E23, E34	I.C. DEC 8641	1911579	29
2	E29, E30	I.C. DEC 8136	1912395	30
1	E14	I.C. DEC DC883	1912730	31
1	TP1	SPLIT LUG	9006735	32
1	W18	JUMPERS	9009185	33
4		EYELETS	9006732	34
1		HANDLE, FLIP-CHIP MAGENTA	9008337-6	35
1		SPACER MAGENTA	9009781	36
34		PINS, STAKING	90-09149	37
A/R	W2, W5, W7, W12, W13	WIRE-WRAP WIRE	91-05740-55	38

IC TYPE	GND	+5V
I.C. DEC DC883	9	18
I.C. DEC 74139	12	24
I.C. DEC 74H106	13	5
I.C. DEC 74175	8	16
I.C. DEC 74157	5	16
I.C. DEC 8640	1	8
I.C. DEC 8641	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.

ETCH BOARD REV. C

DRN. J. Vincent DATE 10-31-75
 CHK'D. DATE
 ENG. DATE
 PROJ. ENG. DATE
 PROD. DATE
 NEXT HIGHER ASSY

digital

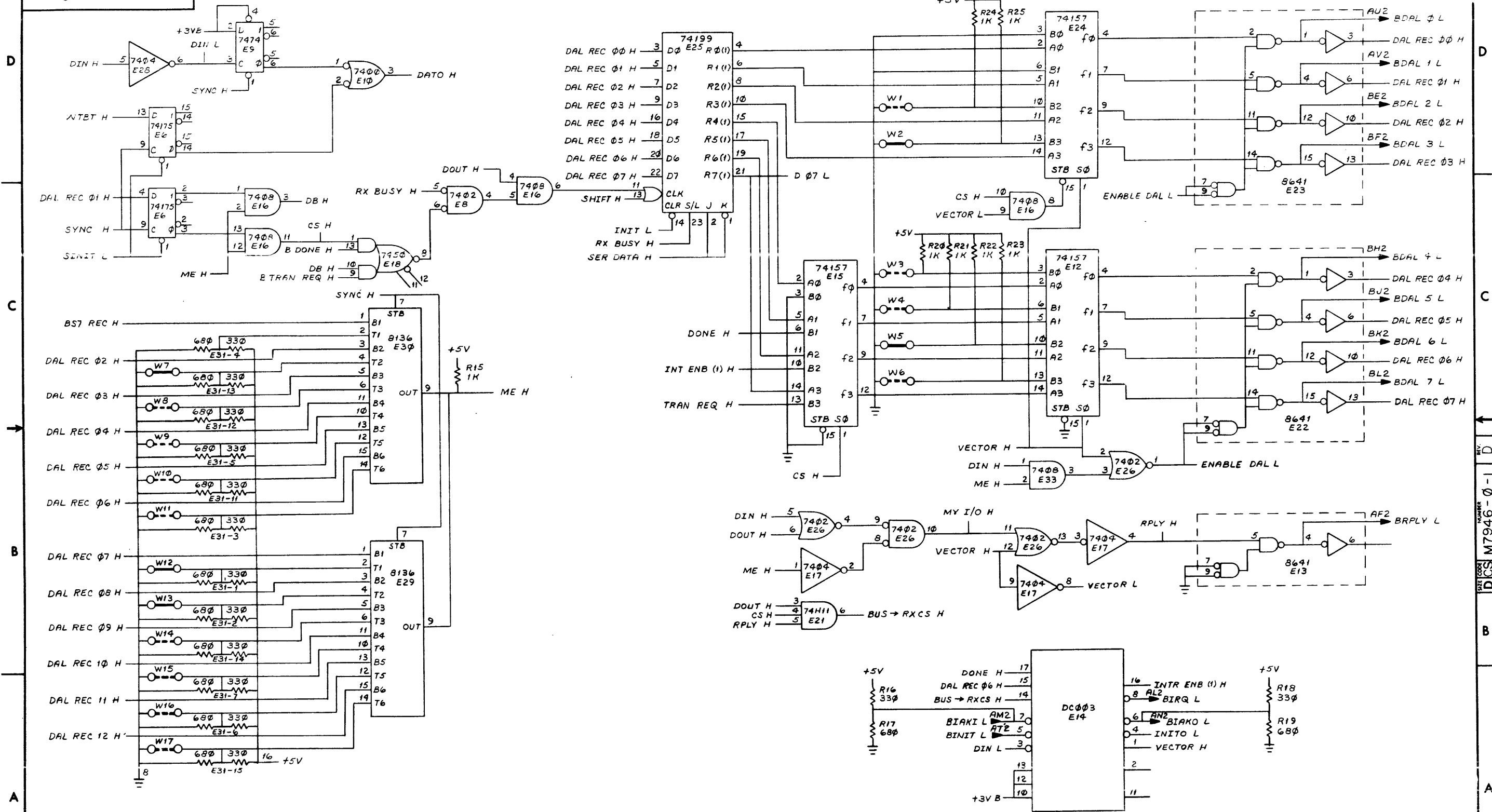
TITLE: RXV11 LSI 11 INTERFACE

SIZE CODE: D CS M7946-0-1
 NUMBER: 1
 REV. D

SCALE: 1 OF 3
 SHEET: 1

REV. D
 NUMBER M7946-0-1
 SIZE CODE D CS

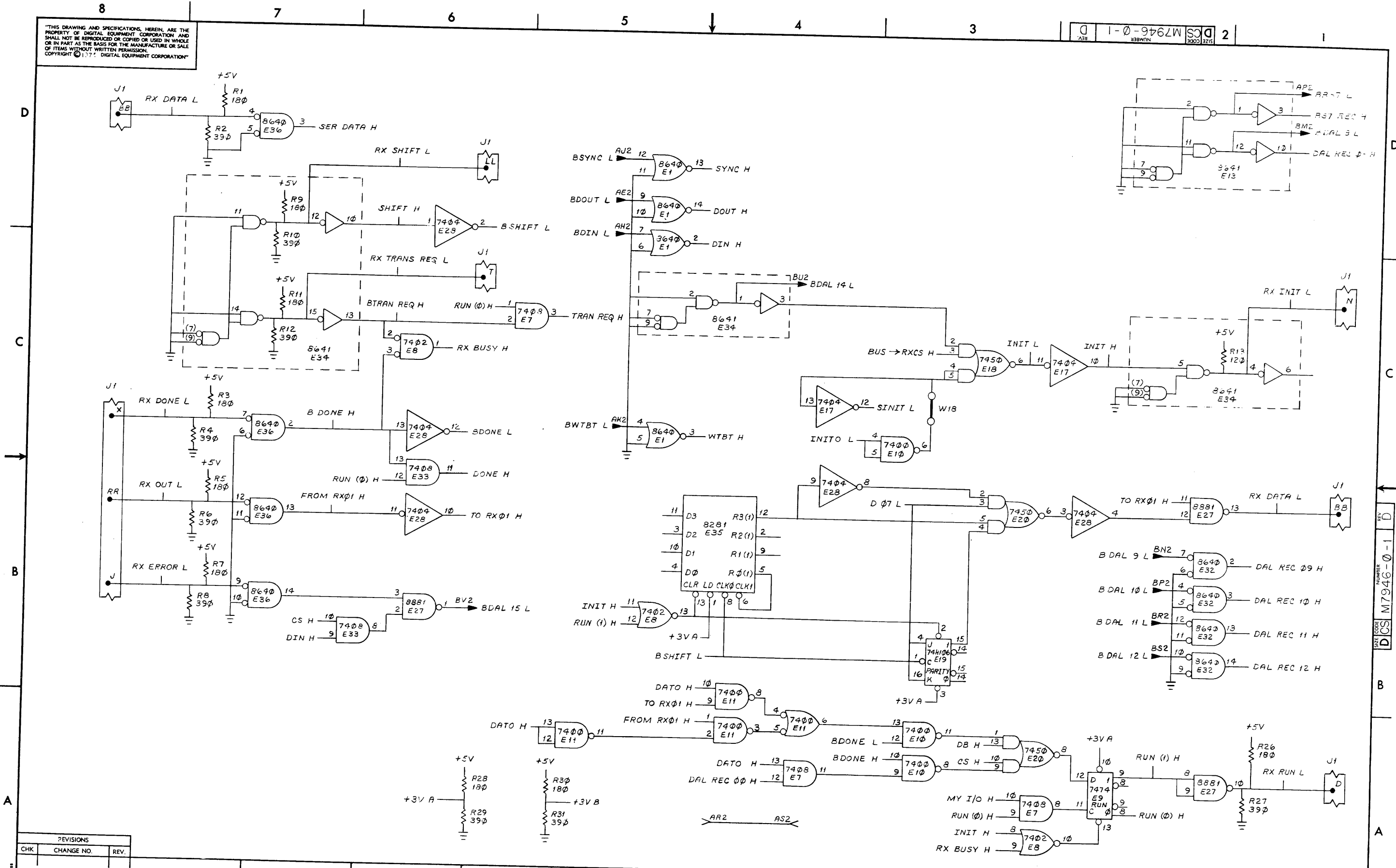
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REVISIONS table with columns for CHK, CHANGE NO., and REV.

Metadata block containing: TITLE: RXVII LSI II INTERFACE; SIZE CODE: DCS; NUMBER: M7946-0-1; REV: D; SHEET: 2 OF 3; SCALE: 1:1; DIST.:

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REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. DRD 138

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

RX01 FLOPPY DISK DRIVE
FLOPPY DISK CONTROL BOARD
RX01 FIRMWARE LISTING
READ/WRITE CONTROL BOARD
H771 POWER SUPPLY
PLENUM/FAN ASSY. (OLD STYLE)
PLENUM/FAN ASSY. (NEW STYLE)

SEQUENCE

B-DD-RX01-0
D-CS-M7726-0-1
K-SP-RX01-0-2
D-CS-M7727-0-1
B-DD-H771-0
B-DD-7013503-0
B-DD-7015622-0

SEQUENCE

THIS IS PRINT SET

UNIT VARIATIONS		PRINT SET	
VAR	TITLE		
RX01-AA	SINGLE FLOPPY DISK, 115V, 60 HZ	X	
RX01-AC	SINGLE FLOPPY DISK, LOW V, 50HZ	X	
RX01-AD	SINGLE FLOPPY DISK, HIGH V, 50HZ	X	
RX01-BA	DUAL FLOPPY DISK, 115V, 60 HZ	X	
RX01-BC	DUAL FLOPPY DISK, LOW V, 50HZ	X	
RX01-BD	DUAL FLOPPY DISK, HIGH V, 50HZ	X	
RX01-CA	ONE REPLACE DRIVE, 60 HZ	X	
RX01-CC	ONE REPLACE DRIVE, 50 HZ	X	
RX01-DA	RX01-BA W/O BEZEL ASSY	X	
RX01-DC	RX01-BC W/O BEZEL ASSY	X	
RX01-DD	RX01-BD W/O BEZEL ASSY	X	
RX01-FA	RX01-AA W/O PLENUM ASSY	X	
RX01-FC	RX01-AC W/O PLENUM ASSY	X	
RX01-FD	RX01-AD W/O PLENUM ASSY	X	
RX01-HA	RX01-BA W/O PLENUM ASSY	X	
RX01-HC	RX01-BC W/O PLENUM ASSY	X	
RX01-HD	RX01-BD W/O PLENUM ASSY	X	
RX01-JA	RX01-DA W/O PLENUM ASSY	X	
RX01-JC	RX01-DC W/O PLENUM ASSY	X	
RX01-JD	RX01-DD W/O PLENUM ASSY	X	
RX01-LA	RX01-BA FOR VX78 (BC80D)	X	
RX01-LC	RX01-BC FOR VX78 (BC80D)	X	
RX01-LD	RX01-BD FOR VX78 (BC80D)	X	
RX01-VA	RX01 SINGLE FOR KC780 115, 60HZ	X	
RX01-VC	RX01 SINGLE FOR KC780 LOW V, 50HZ	X	
RX01-VD	RX01 SINGLE FOR KC780 HIGH V, 50HZ	X	

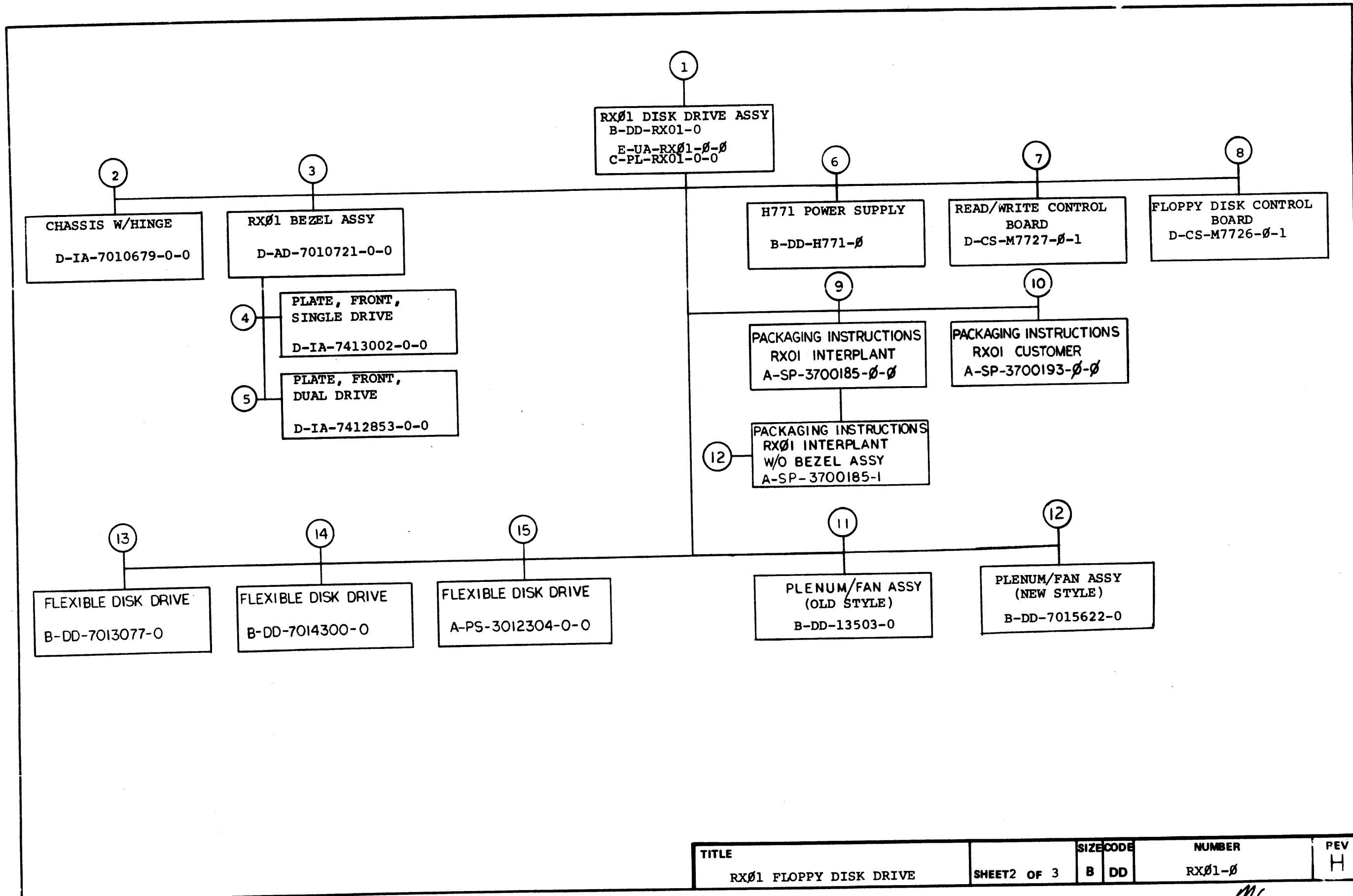
DEC 16 (3251-1062-1A-R) 972

DATE	CHG. NO.	REV
6-76	RX01-2	A
7-76	RX01-3	B
12-76	RX01-6	C
5-77	RX01-8	D
12-77	RX01-12	E
6-78	RX01-13	F
7-78	RX01-ML13	H

DRB 106

USED ON OPTION/MODEL	DRN. W. McCarthy	DATE 2/3/75	TITLE RX01 FLOPPY DISK DRIVE			
RX8	CHK'D. McCarthy	DATE 5/29/75				
RX11	PROJ. ENG. [Signature]	DATE				
LS11	PROD. [Signature]	DATE 6/3/75	SIZE	CODE	NUMBER	REV
	FIELD/SERV. [Signature]	DATE 6/12/75	B	DD	RX01-0	H
SHEET 1 OF 3			DIST			

mc



TITLE	SIZE CODE	NUMBER	REV
RX01 FLOPPY DISK DRIVE	B DD	RX01-0	H
SHEET 2 OF 3			

ML

CUSTOMER PRINT SET		MECHANICAL					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
	1	E-UA-RX01-0-0		5	RX01 FLOPPY DISK DRIVE ASSY		X						
		B-PL-RX01-0-0			RX01 FLOPPY DISK DRIVE ASSY (PI)			1	B-DD-RX01-0	#	3	RX01 FLOPPY DISK DRIVE	
		E-IA-7412666-0-0		1	COVER, TOP				1	C-MD-7413350-0-0	1	SHIPPING BRACKET	
		D-IA-7010646-0-0		1	CABLE, EXTENSION, RX01								
		C-IA-7008612-0-0		1	CABLE, KEYBOARD								
		D-UA-BC05L-0-0		1	CABLE, JUMPER	C			A-SP-RX01-0-1		34	RX01 ENGINEERING SPECIFICATION	
		D-IA-7010696-0-0		1	HARNES, VOLTAGE VARIATION				K-SP-RX01-0-2			RX01 FIRMWARE LISTING	
				1	BRACKET, SHIPPING, RX01								
		C-MD-7409479-0-0		1	PLATE, PRESSURE			12	A-SP-3700185-1			PACK INSTR W/O BEZEL	
		C-MD-5509081-0-0		1	PANEL, LIGHT (RX01)				A-PS-9905183			LAMINATED BUILDUP	
									A-PS-9905710-0-0			REGULAR SLOTTED CARTON	
									A-PS-9905712-0-0			PLYWOOD SUPPORT FIXTURE	
	2	D-IA-7010679-0-0		1	CHASSIS W/HINGE				A-PS-9905713-0-0			SCORED SHEET	
		E-IA-7412665-0-0		1	CHASSIS, FLEXIBLE DISK DRIVE				A-PS-9905729-0-0			CARTON SEALING TAPE	
		C-MD-7413236-0-0		1	HINGE, LOGIC								
	3	D-AD-7010721-0-0		1	RX01 BEZEL ASSY								
		E-MD-7414506-0-0		1	BEZEL, RX01	X		7	D-CS-M7727-0-1	#	6	READ/WRITE CONTROL BOARD	
		A-PS-3612317-0-0		1	LOGO, RX01				D-IA-5011370-0-0		1	ETCHED CIRCUIT BOARD (M7727)	
	4	D-IA-7413002-0-0		1	PLATE, FRONT, SINGLE DRIVE								
		C-SS-7413002-0-1		1	SILK SCREEN, SINGLE DRIVE	X		8	D-CS-M7726-0-1	#	9	FLOPPY DISK CONTROL BOARD	
									A-SP-M7726-0-7		3	ACCEPTANCE TEST PROCEDURE	
	5	D-IA-7412853-0-0		1	PLATE, FRONT, DUAL DRIVES								
		C-SS-7412853-0-1		1	SILK SCREEN, DUAL DRIVE								
C	6	B-DD-H771-0	*	3	H771 POWER SUPPLY			9	A-SP-3700185-0-0			PACKAGING INST, INTERPLANT	
		C-MD-7413350-0-0							A-PS-9905710-0-0			REGULAR SLOTTED CARTON	
									A-PS-9905711-0-0			ONE PIECE FOLDER	
									A-PS-9905712-0-0			PLYWOOD SUPPORT FIXTURE	
									A-PS-9905713-0-0			SCORED SHEET	
X	11	B-DD-7013503-0-0		3	PLENUM/FAN ASSY (OLD STYLE)				A-PS-9905729-0-0			CARTON SEALING TAPE	
	13	B-DD-7013077-0		3	FLEXIBLE DISK DRIVE			10	A-SP-3700193-0-0			PACKAGING INST, CUSTOMER	
									A-PS-9905741-0-0			FULL TELESCOPE CAP	
									A-PS-9905740-0-0			FOAM PAD	
									A-PS-9905739-0-0			LAMINATED BUILDUP	
	15	A-PS-3012304-0-0		14	FLEXIBLE DISK DRIVE				A-PS-9905734-0-0			PLASTIC STRAPPING	
	16	B-DD-7015622-0-0		2	PLENUM/FAN ASSY NEW STYLE								

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
RX01 FLOPPY DISK DRIVE

SHEET ³ OF ³ B DD NUMBER RX01-0 REV H

DRB 108

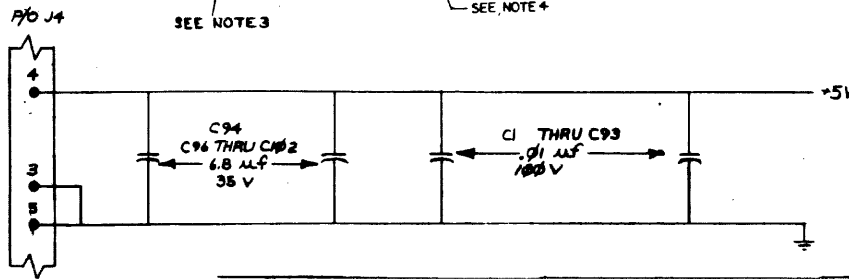
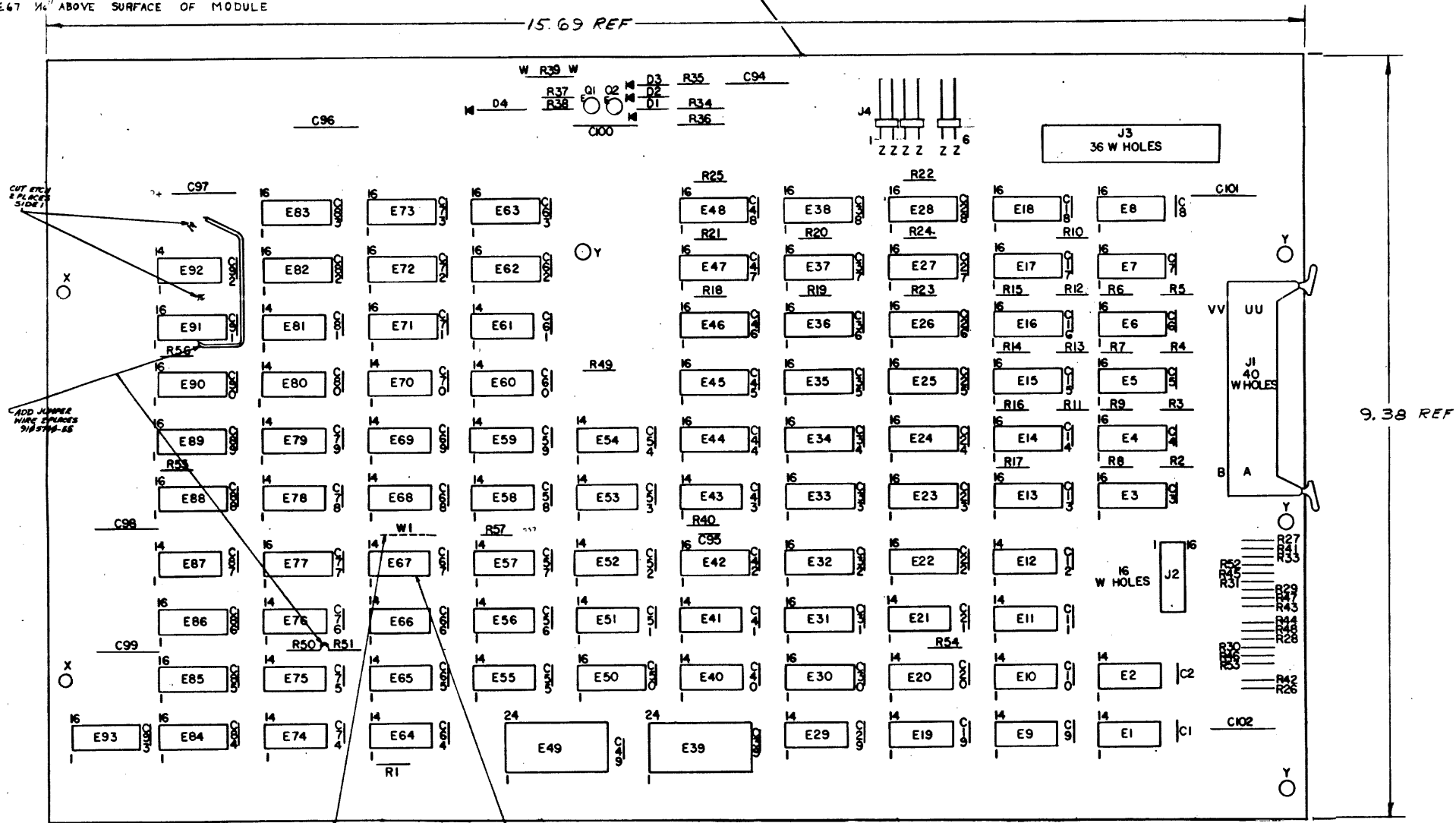
DEC 16 (1975)-1062-20-R072

ML

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NOTES:

1. \odot REPRESENTS A $\frac{1}{8}$ DIA PAD LOCATED ON SIDE 2 UNLESS OTHERWISE SPECIFIED
2. A. ALL RESISTORS ARE $\frac{1}{4}$ W, $\pm 5\%$
 B. ALL UNUSED PINS FOR J1 ARE TIED TO GND
3. INSTALL JUMPER W1 AFTER MODULE TEST
4. MOUNT E47 $\frac{1}{8}$ " ABOVE SURFACE OF MODULE



23-XXXA2	8	16
2102	9	10
8640	1	8
74175	8	16
74174	8	16
74161	8	16
74194	8	16
74123	8	16
74H103	11	4
74H106	13	5
7489	8	16
74150	12	24
7442	8	16
8266	8	16
74193	8	16
74154	12	24
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

Handwritten notes and signatures:
 H. DRAB
 H. DRAB
 29 MAR 77
 M7726-00006
 C. YOUSE
 3-31-76
 M7726-00005 F
 Charles Youse
 Charles Youse
 M7726-00004 E
 M7726-00003 D
 M7726-00003 D
 P. KOTSCHENTHER
 P. KOTSCHENTHER
 M7726-00002 C
 P. KOTSCHENTHER
 M7726-00001 B

FIRST USED ON OPTION MODEL M7726		QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST						
ETCH BOARD REV. B						
digital						
TITLE FLOPPY DISK CONTROLLER						
DATE 11/27/74 DATE 11/9/75 DATE 1/2/76 DATE 1/2/75 DATE 1/2/75						
NEXT HIGHER ASSY						
SEMICONDUCTOR CONVERSION CHART		DEC NO.		EIA NO.		REV. J
SCALE 1 OF 9						
SIZE CODE DCS NUMBER M7726-0-1						

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PARTS LIST

Table with columns: QTY, REF DESIGNATION, DESCRIPTION, PART NO., ITEM. Includes parts like X-Y COORDINATE HOLE LOCATION, ASSY/DRILLING HOLE LAYOUT, MODULE ECO HISTORY, ETCHED CIRCUIT BOARD, etc.

PARTS LIST

Table with columns: REF DESIGNATION, DESCRIPTION, PART NO., ITEM. Includes parts like I.C. 74194, I.C. 74161, I.C. 74174, I.C. 7427, etc.

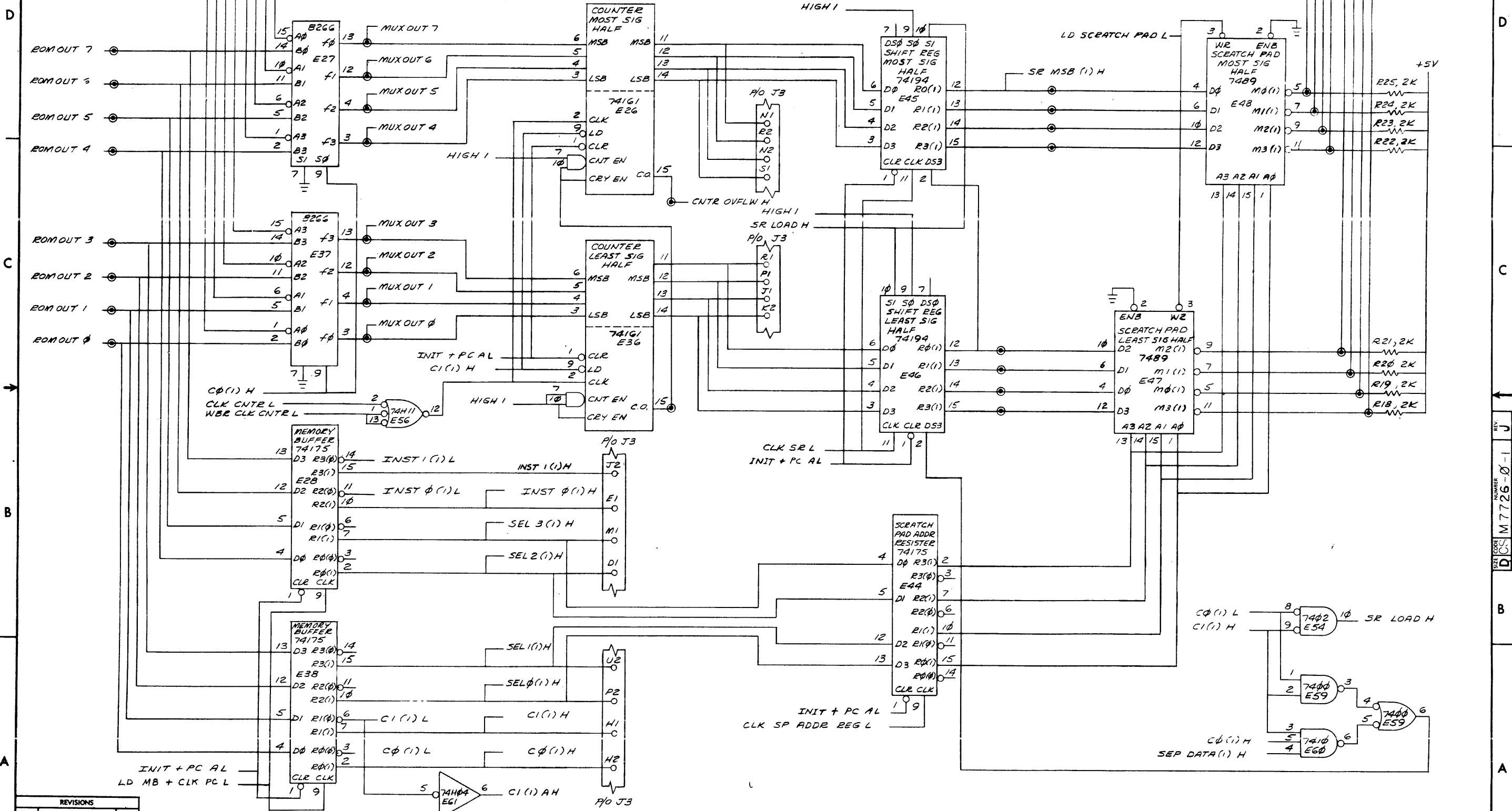
Table titled 'SAME I.C. GATES' with columns: TYPE, LOCATION, PINS, DESCRIPTION. Lists various gate types like 74H04, 7404, 7408, etc.

Table titled 'ALLOWABLE SUBSTITUTIONS' with columns: TYPE, ITEM #, P.N., TYPE, P.N. Lists preferred and replacement part numbers.

REVISIONS table with columns: CHK, CHANGE NO., REV.

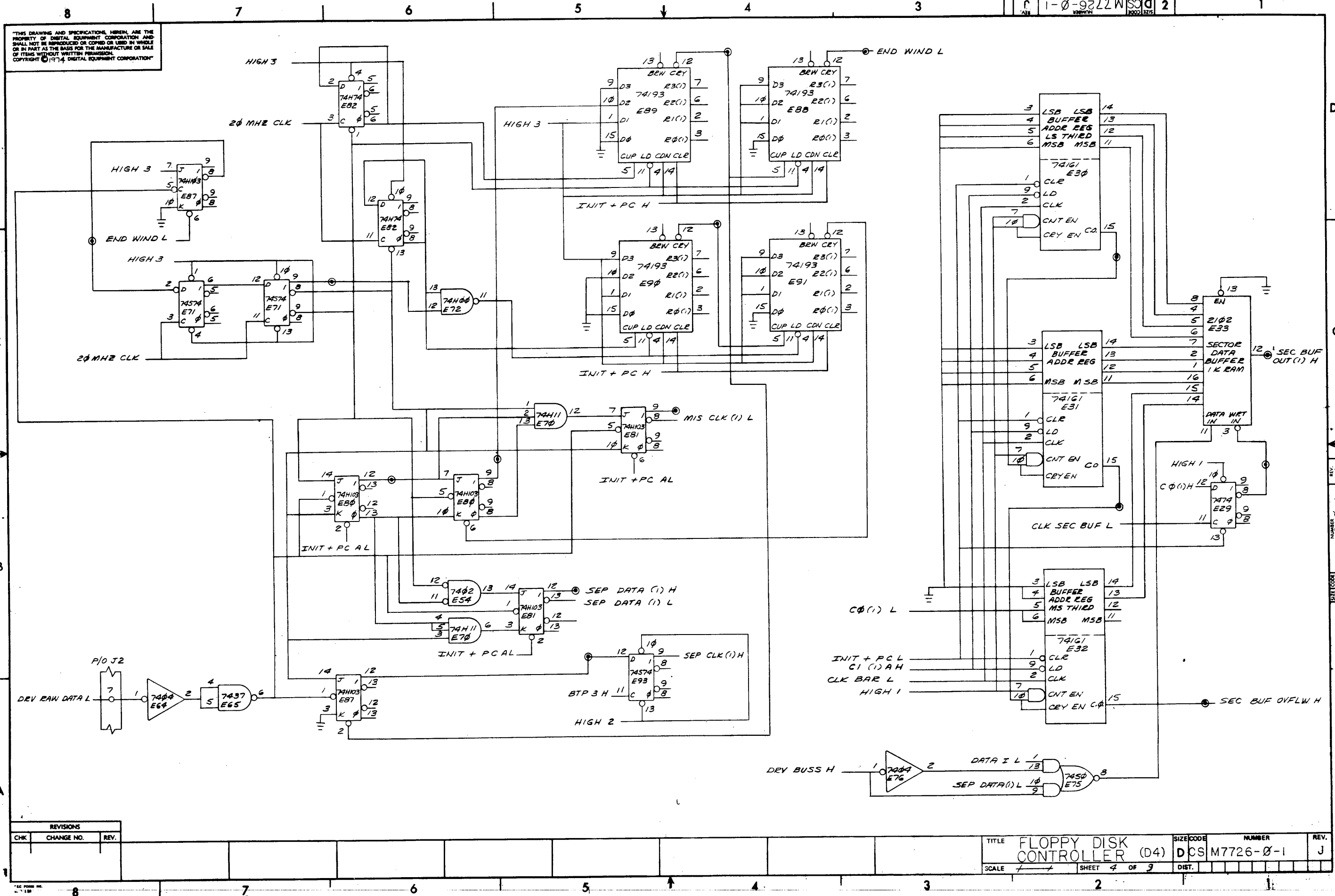
Form with fields: TITLE (FLOPPY DISK CONTROLLER), SIZE CODE (DCS M7726-01), NUMBER, REV. (J), SCALE, SHEET 2 OF 9, DIST.

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REVISIONS		
CHK	CHANGE NO.	REV.

REV. J NUMBER M7726-0-1 SIZE CODE D CS

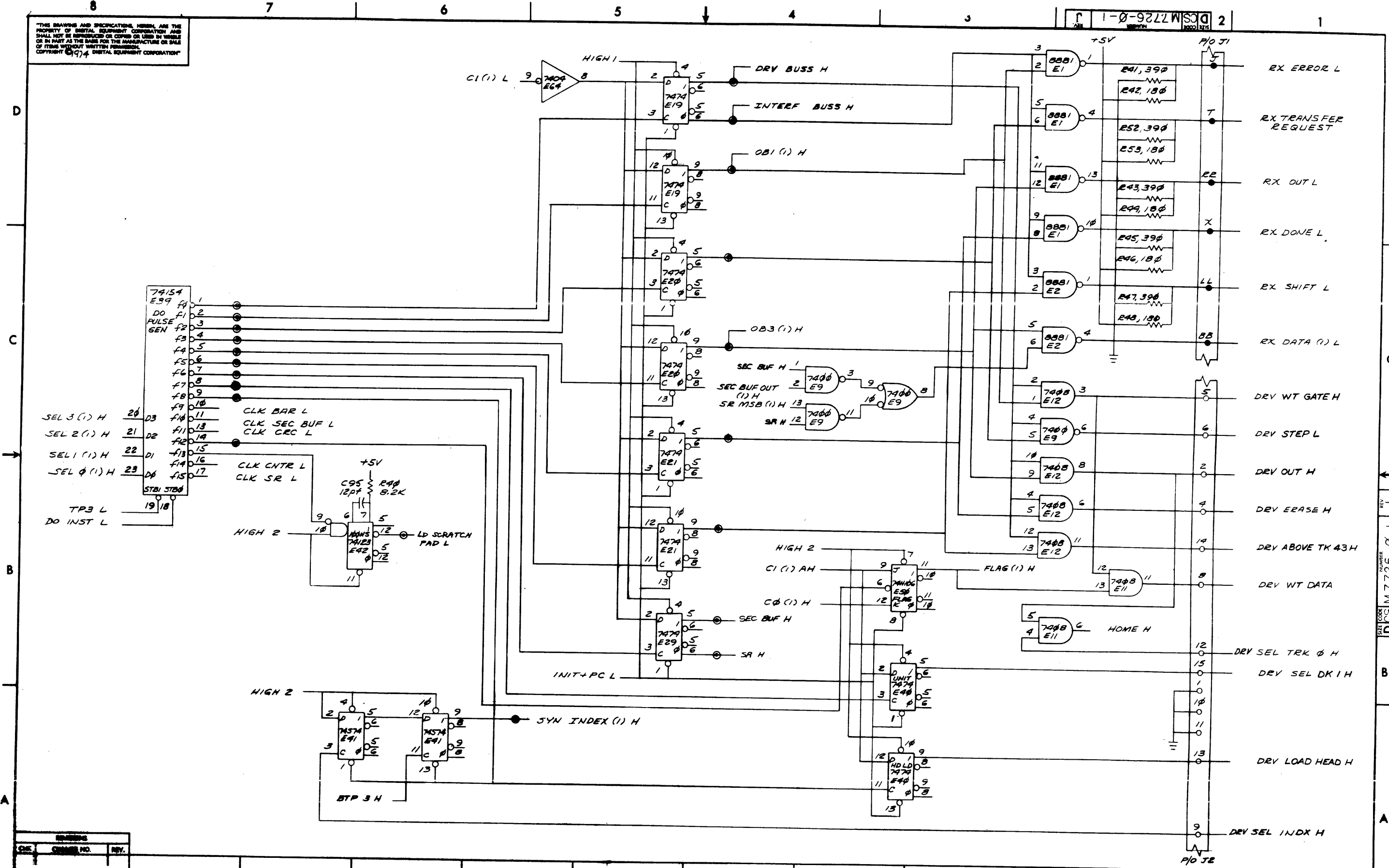


REVISIONS		
CHK	CHANGE NO.	REV.

DCS M7726-0-1 REV. J

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1-0-9222W DCS M7726-0-1

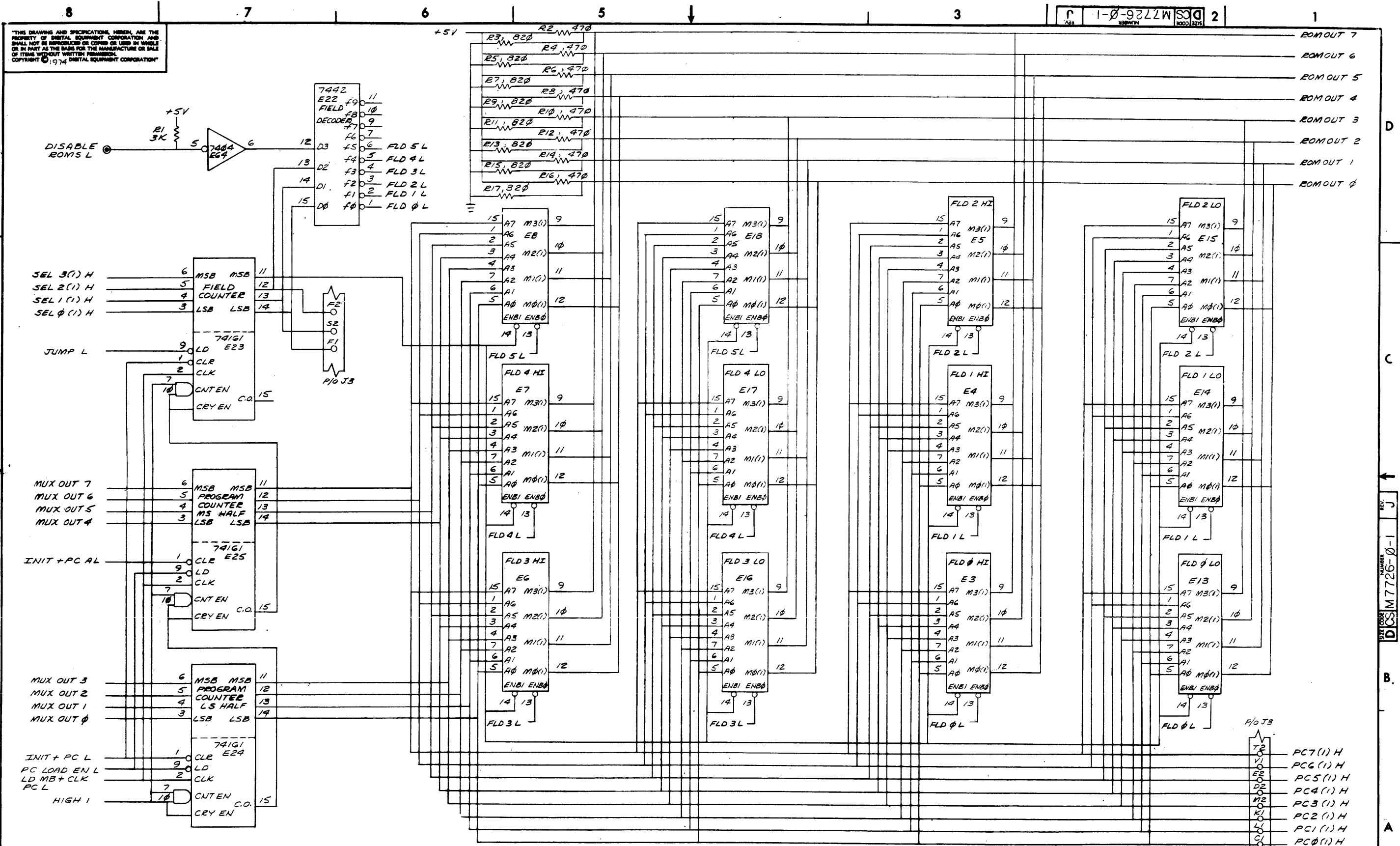


REV.	CHG.	CHG. NO.	REV.

TITLE FLOPPY DISK CONTROLLER (D5) SIZE CODE NUMBER DCS M7726-0-1 REV. J
 SCALE 1:1 SHEET 5 OF 5 DWT.

REV. J 1-0-9222W DCS M7726-0-1

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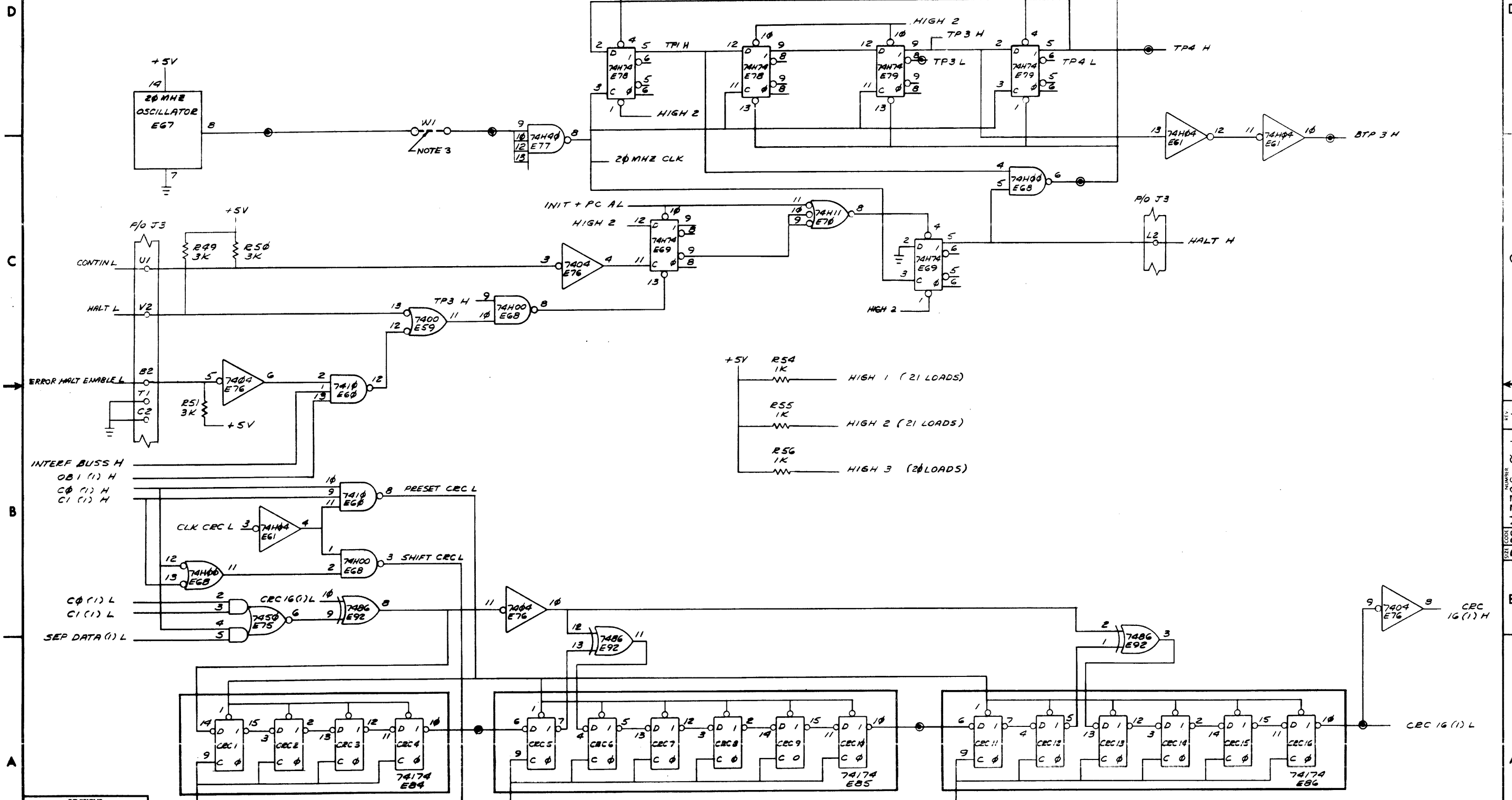


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE FLOPPY DISK CONTROLLER (D6) SIZE CODE NUMBER REV. DCS M7726-0-1 J

SCALE SHEET 6 OF 9 DIST.

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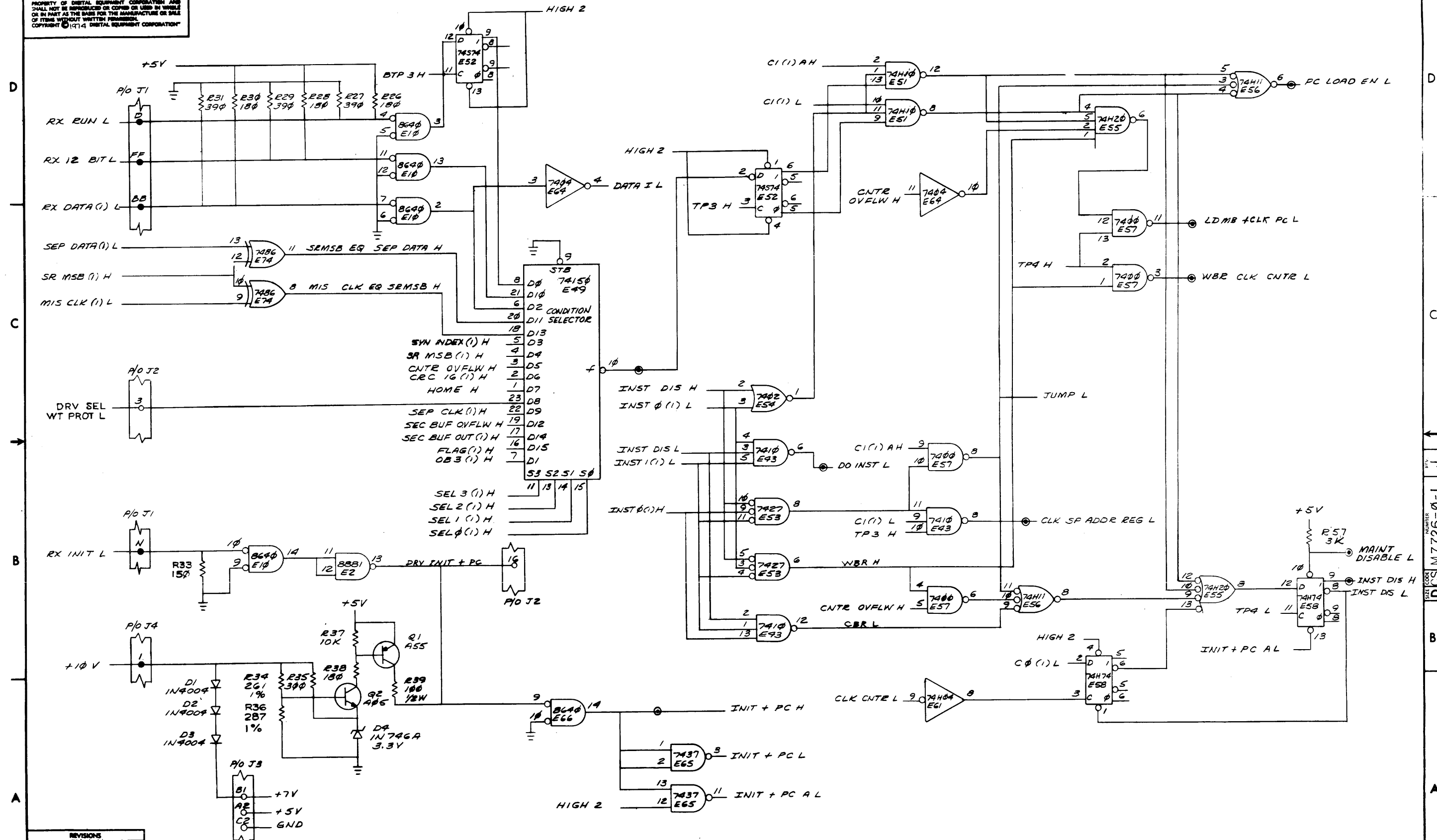


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	FLOPPY DISK CONTROLLER (D7)	SIZE CODE	DCS M7726-0-1	NUMBER	J	REV.	J
SCALE		SHEET	7 OF 9	DIST.			

DCS M7726-0-1

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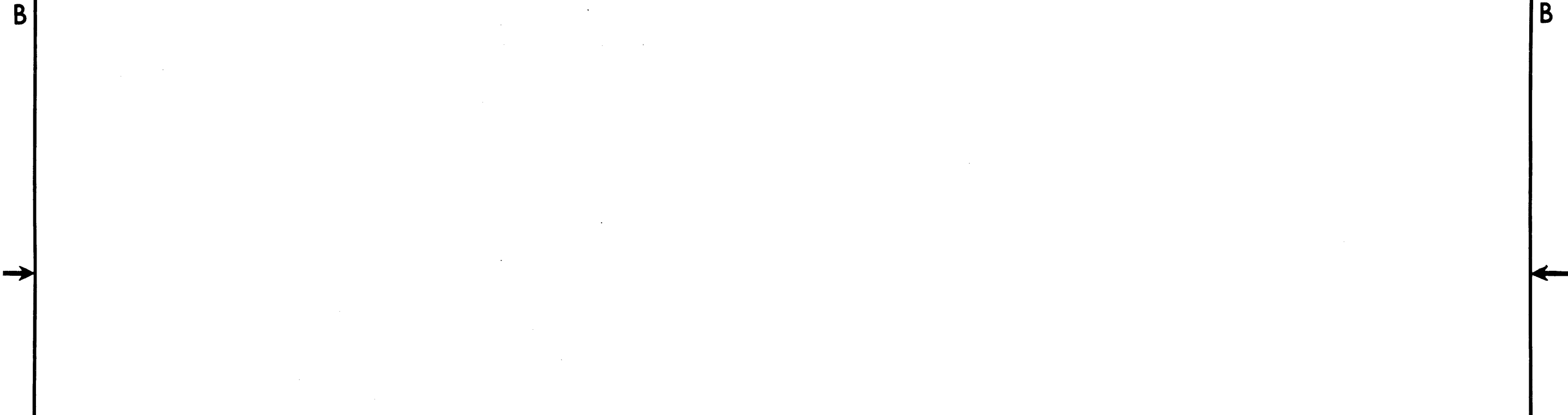


REVISIONS		
CHK	CHANGE NO.	REV.

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REV. NUMBER SIZE CODE
 2 | K SP | RXØ1-Ø-2



FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RXØ1				
PARTS LIST				
DRN. <i>[Signature]</i>	DATE 19 FEB. 76	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE FLOPPY CONTROLLER FIRMWARE		
CHK'D <i>[Signature]</i>	DATE 19 FEB. 76			
ENG. <i>[Signature]</i>	DATE 2/19/76			
PROJ. ENG. <i>[Signature]</i>	DATE 2/23/76			
PROD. <i>[Signature]</i>	DATE 2/23/76			
NEXT HIGHER ASSEMBLY				
SCALE		SIZE CODE	NUMBER	REV.
		K SP	RXØ1-Ø-2	
SHEET 1 OF 1		DIST.		

REV.	
CHANGE NO.	
CHK	

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/RX01 FLOPPY CONTROLLER FIRMWARE

/THIS SYMBOL TABLE REPLACES THE NORMAL PAL SYMBOL TABLE AND DEFINES
/THE INSTRUCTIONS POSSIBLE BY THE RX01 CONTROLLER

/DO INSTRUCTIONS

0002	SET=2	
0000	CLR=0	
0002	ONE=2	
0000	ZERO=0	
0000	IOB0=0	/INTERFACE-DISK BUSS OUTPUT BUFFER
0004	IOB1=4	
0010	IOB2=10	
0014	IOB3=14	
0020	IOB4=20	
0024	IOB5=24	
0030	IOB6=30	
0000	INTERF=CLR IOB0	/IOB0 SELECTS EITHER INTERFACE OR DISK BUSS. CLR= INTERFACE
0002	DISK=SET IOB0	/SET=DISK
0004	ERR=IOB1	/INTERFACE BUFFER DEFINITIONS
0010	XREQ=IOB2	/SET TO INDICATE THAT AN RX01 ERROR HAS OCCURED
0014	IOOUT=IOB3	/SET TO REQUEST AN RX01 WORD TRANSFER
0020	DONE=IOB4	/DIRECTION FOR DATA LINE. SET=TO INTERFACE
0024	SHIFT=IOB5	/SET TO INDICATE RX01 READINESS TO ACCEPT A COMMAND
0030	SECDAT=IOB6	/SHIFT FOR DATA LINE
		/SELECTS SOURCE FOR DATA OUT OF CONTROLLER ON DATA LINE
		/SET=SECTOR BUFFER CLR=SHIFT REGISTER MOST SIG BIT
0004	WGATE=IOB1	/DISK BUFFER DEFINITIONS
0010	STPHD=IOB2	/WRITE CURRENT ENABLE WHEN SET
0014	HDOUT=IOB3	/HEAD STEP. TWO PULSES REQUIRED FOR EACH TRACK
0020	EGATE=IOB4	/DIRECTION OF HEAD MOTION
0024	LOWCUR=IOB5	/ERASE CURRENT ENABLE
		/SPECIFIES WRITE CURRENT LEVEL
0034	UNIT=34	/SELECTS ONE OF TWO DRIVES. UNIT (ZERO)(ONE)
0040	UNHD=40	/DEACTIVATES HEAD LOAD SOLOINOID OF SELECTED DRIVE
0042	LHD=42	/ACTIVATES HEAD LOAD SOLOINOID OF SELECTED DRIVE
0044	BAR=44	/SECTOR BUFFER ADDRESS REGISTER CONTROL
0001	LONG=1	/FORMAT: CLR BAR (SHORT)(LONG)
0000	SHORT=0	/SHORT PRESETS FOR COUNT OF 1024
0002	INCR=2	/LONG PRESETS FOR COUNT OF 4096
		/FORMAT: INCR BAR INCREMENT THE BUFFER ADDRESS REG.

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0050	WRTBUF=50	/SECTOR BUFFER WRITE CLOCK
0003	START=3	/FORMAT: (STRAT)(FIN) WRTBUF
0000	FIN=0	/A 750NS MINIMUM PULSE IS REQUIRED
0054	CRC=54	/CRC REGISTER CONTROL
		/FORMAT: CRC (ONE)(ZERO) SPECIFIES DATA TO
		/BE JAMMED INTO CRC GENERATOR/CHECKER
0057	PRECRC=57	/PRESETS CRC REG TO ALL ONES
0055	DATCRC=55	/SHIFTS SEPERATED DATA INTO CRC CIRCUIT
0060	FLAG=60	/GENERAL PURPOSE FLAG CONTROL
0002	ON=2	/FORMAT: FLAG (ON)(OFF)(TOG)
0001	OFF=1	/SET FLAG
0003	TOG=3	/CLR FLAG
		/TOGGLE FLAG
0064	LSP=64	/LOAD OPEN SCRATCHPAD REG WITH CONTENTS OF SHIFT REG
0070	LCT=70	/LOAD COUNTER WITH CONTENTS OF NEXT ROM LOCATION
0071	ESP=71	/LOAD COUNTER WITH CONTENTS OF OPEN SCRATCHPAD
0073	ICT=73	/INCREMENT COUNTER
0074	ROTATE=74	/SHIFT REGISTER CONTROL
		/FORMAT: ROTATE(ONE)(ZERO)
		/SHIFTS SHIFT REG TOWARDS MOST SIGNIFICANT BIT
		/WHILE INSERTING A ONE OR ZERO INTO THE LEAST
		/SIGNIFICANT BIT
0075	LSR=75	/LOAD SHIFT REGISTER WITH CONTENTS OF COUNTER
0077	DATSR=77	/SHIFT REG TOWARDS MSB WHILE INSERTING SEPERATED
		/DATA INTO LSR

```

87
88
89          /BRANCH INSTRUCTIONS AND CONDITIONS
90
91
92          0100   BR=100          /FORMAT: BR COND (T)(F)(ONE)(ZERO)
93          /IF CONDITION IS MET, A BRANCH IS MADE WITHIN
94          /THE CURRENT FIELD USING THE CONTENTS OF THE
95          /NEXT ROM LOCATION AS THE BRANCH ADDRESS
96          /IF THE CONDITION IS NOT MET, THE NEXT ROM LOCATION
97          /IS IGNORED AND THE FOLLOWING INSTRUCTION IS EXECUTED
98          0300   WBR=300        /FORMAT: WBR COND (T)(ONE)
99          /THE COUNTER IS INCREMENTED WITH EVERY EXECUTION OF
100         /THIS INSTRUCTION. THE WBR IS REPEATEDLY
101         /EXECUTED UNTILL EITHER THE COUNTER OVERFLOWS OR
102         /THE CONDITION IS MET. IF THE CONDITION IS MET
103         /THE BRANCH IS MADE. IF THE COUNTER OVERFLOWS
104         /THE BRANCH ADDRESS IS IGNORED AND THE NEXT INSTRUCTION
105         /IS EXECUTED
106         0000   F=ZERO          /REQUIRES THE CONDITION TO BE FALSE
107         0002   T=ONE           /REQUIRES THE CONDITION TO BE TRUE
108         0001   IND=1           /IF APPENDED TO THE JUMP, BR OR WBR INSTRUCTION,
109         /CAUSES THE BRANCH ADDRESS TO BE TAKEN FROM THE
110         /OPEN SCRATCHPAD RATHER THAN FROM THE NEXT ROM LOCATION
111
112         0000   RUN=0           /WHEN ASSERTED INDICATES THAT THE INTERFACE HAS
113         /SERVICED A TRANSFER REQUEST, OR THAT A COMMAND
114         /IS PENDING
115         0004   IOB30T=4        /INTERF/DISK OUTPUT BUFFER BIT 3
116         0010   DATAIN=10      /BIDIRECTIONAL DATA LINE BETWEEN INTERFACE AND CONTROLLER
117         0014   INDX=14         /DRIVE INDEX LATCH
118         0020   SR7=20          /SHIFT REGISTER MOST SIGNIFICANT BIT
119         0024   COFL=24         /OVERFLOW (ALL ONES) OF THE COUNTER
120         0030   CRC16=30        /BIT 16 OF CRC GENERATOR/CHECKER
121         0034   HOME=34        /TRACK ZERO OF SELECTED DRIVE ANDED WITH HEAD
122         /DIRECTION BEING OUT
123         0040   WRTEN=40        /WRITE ENABLED STATUS OF THE SELECTED DRIVE
124         0044   SEPCLK=44       /SEPERATED CLOCK FROM DISK DATA
125         0050   XIIBIT=50      /ASSERTED IF INTERFACE TRANSFERS ARE TO BE AS
126         /12 BIT WORDS RATHER THAN 8 BIT BYTES
127         0054   DEQSR7=54      /SEPERATED DATA EQUAL TO SHIFT REG BIT 7
128         0060   BAROFL=60      /OVERFLOW CONDITION (ALL ONES) OF THE SECTOR BUFFER
129         /ADDRESS REGISTER
130         0064   MCEQSR=64      /MISSING CLOCK EQUAL TO SHIFT REG BIT 7
131         0070   BDATA0=70      /OUTPUT OF SECTOR BUFFER
132         0074   FLAGO=74       /STATE OF GENERAL PURPOSE FLAG

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133
134          /SCRATCHPAD REGISTER SELECTION
135
136          0200   OPEN=200       /FORMAT: OPEN X WHERE X IS ONE OF THE SCRATCHPAD REG
137          /THIS INSTRUCTION MAKES THE NAMED SCRATCHPAD
138          /ACCESSABLE VIA THE LSP AND ESP COMMANDS
139
140          0000   R0=0           /DEFINITIONS OF SCRATCHPADS BY R#
141          0004   R1=4
142          0010   R2=10
143          0014   R3=14
144          0020   R4=20
145          0024   R5=24
146          0030   R6=30
147          0034   R7=34
148          0040   R8=40
149          0044   R9=44
150          0050   R10=50
151          0054   R11=54
152          0060   R12=60
153          0064   R13=64
154          0070   R14=70
155          0074   R15=74
156
157          0000   CURTK0=R0      /DEFINITION OF SCRATCHPADS BY PNEUMONICS
158          0004   CURTK1=R1      /CURRENT TRACK ADDRESS OF DRIVE 0
159          0010   ERREG=R2       /CURRENT TRACK ADDRESS OF DRIVE 1
160          0014   STAT=R3        /DEFINITIVE ERROR CODE IF ANY
161          0020   TARTRK=R4      /STATUS WORD OF RX01
162          0024   TARSEC=R5      /TARGET TRACK OF CURRENT DISK ACCESS
163          0030   TEMPB=R6       /TARGET SECTOR OF CURRENT DISK ACCESS
164          0034   TEMPA=R7       /TEMPORARY STORAGE
165          0040   TEMPC=R8       /TEMPORARY STORAGE
166          0044   TEMPD=R9       /TEMPORARY STORAGE
167          0050   TEMPE=R10      /BIT 7 IS UNIT SELECT BIT. 0 MEANS UNIT 1
168          0054   TEMPF=R11      /BIT 7 IS HEAD LOADED BIT. 1 MEANS HEAD LOADED
169          0060   TEMPG=R12      /TEMPORARY STORAGE
170          0064   RTNB=R13       /TEMPORARY STORAGE
171          0070   RTNA=R14       /RETURN ADDRESS FOR 3RD LEVEL NESTED SUBROUTINES
172          0074   RTN=R15       /RETURN ADDRESS FOR 2ND LEVEL NESTED SUBROUTINES
173          /RETURN ADDRESS FOR 1ST LEVEL SUBROUTINES
174

```



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175          /JUMP INSTRUCTION AND JUMP FIELD DEFINITIONS
176
177          0202      JUMP=202          /FORMAT: JUMP FX (IND)
178                                     /CAUSES A BRANCH TO ONE OF SIX ROM FIELDS (0-5)
179                                     /SPECIFIED BY X. THE BRANCH ADDRESS IS TAKEN FROM
180                                     /THE ROM LOCATION FOLLOWING THE JUMP INSTRUCTION.
181                                     /IF IND IS APPENDED, THE BRANCH ADDRESS
182                                     /IS TAKEN FROM THE OPEN SCRATCH PAD
183
184          0000      F0=0
185          0004      F1=4
186          0010      F2=10
187          0014      F3=14
188          0020      F4=20
189          0024      F5=24
    
```

```

190
191
192
193
194
195
196
197
198          /TABLE OF DEFINITIVE ERROR CODES
199
200          0010      KNXDV0=10          /DRIVE 0 FAILED TO SEE HOME ON INITIALIZE
201          0020      KNXDV1=20          /DRIVE 1 FAILED TO SEE HOME ON INITIALIZE, DOES NOT CAUSE ERROR
202          0030      KWRONG=30          /FOUND HOME WHEN STEPPING IN 10 TRACKS FOR INIT
203          0040      KTRK=40           /TRIED TO ACCESS A TRACK GREATER THAN 76
204          0050      KHOMERR=50        /HOME WAS FOUND BEFORE DESIRED TRACK WAS REACHED
205          0060      KSELFERR=60       /SELF DIAGNOSTIC ERR
206          0070      KNXHDR=70        /DESIRED SECTOR COULD NOT BE FOUND AFTER LOOKING
207                                     /AT 52 HEADERS
208          0100      KWRPROT=100        /WRITE FUNCTION ATTEMPTED ON A WRITE PROTECTED DISK
209          0110      KTIMERR=110       /MORE THAN 40 MICROSECONDS AND NO SEPCLOCK SEEN
210          0120      KNXPAM=120       /A PREAMBLE COULD NOT BE FOUND
211          0130      KNXIDAM=130      /PREAMBLE FOUND BUT NO ID MARK FOUND WITHIN ALLOWABLE TIME
212          0140      KHRCER=140       /CRC ERROR ON WHAT APPEARED TO BE A HEADER, ERROR IS NOT ASSERTED
213          0150      KTKSKER=150      /THE TRACK ADDRESS OF A GOOD HEADER DOES NOT COMPARE
214                                     /WITH THE DESIRED TRACK
215          0160      KXSTRYS=160       /TOO MANY TRIES FOR AN IDAM
216          0170      KNODAM=170       /DATA AM NOT FOUND IN ALLOTTED TIME
217          0200      KDCRCER=200      /CRC ERROR ON READING THE SECTOR FROM THE DISK
218          0210      KPARER=210       /PARITY ERROR ON SOME WORD FROM THE INTERFACE
219
    
```

```

220 /ROUTINE: INITIALIZE] IF A HOST PROCESSOR INITIALIZE OR AN
221 /RX01 POWER LOW IS DETECTED, THE PC IS CLEARED AND THE RX01 TIMING
222 /STOPS. UPON THE NEGATION OF INITIALIZE, TIMING RESUMES AND A SELF TEST OF
223 /INTERNAL DATA PATHS IS MADE. IF AN ERROR OCCURS HERE, ERROR AND
224 /DONE ARE SET, BUT ERREG IS NOT ALTERED. THEN IF NO ERROR HAS OCCURRED AN ATTEMPT
225 /IS MADE TO RECALIBRATE DRIVE 1 THEN DRIVE 0. IF DRIVE 0 FAILS TO RECALIBRATE,
226 /THE ERROR CODE IS LOADED INTO ERREG AND ERROR IS SET. IF DRIVE
227 /0 RECALIBRATES AND IS READY (DISK LOADED) SECTOR ONE OF TRACK ONE
228 /IS READ INTO THE SECTOR BUFFER. IT IS POSSIBLE FOR A READ ERROR
229 /TO OCCUR WHILE READING THIS SECTOR.
230
231
232          0000      *0000
233          DECIMAL
234
235          0000 0210      OPEN ERREG      /CLEAR ERROR REGISTER
236          0001 0064      LSP
237
238          0002 0232      JUMP F4          /GO DO THE INITIALIZE DIAGNOSTIC ROUTINE
239          0003 2352      TEST
240
241          0004 0070      TSTRTN, LCT      /RETURN FROM SUCCESSFUL DIAGNOSTIC ROUTINE
242          OCTAL
243          0005 0004      4
244          DECIMAL
245          0006 0075      LSR          /SET THE INIT DONE BIT OF STAT
246          0007 0214      OPEN STAT
247          0010 0064      LSP
248
249          0011 0070      LCT          /SET UP SOME SCRATCHPAD REGISTERS
250          0012 0377      -1
251          0013 0075      LSR
252          0014 0244      OPEN TEMPD     /UNIT 0 TO SOFT UNIT BIT
253          0015 0064      LSP
254          0016 0200      OPEN CURTK0    /NEG ZERO TO ROTH CURRENT TRACK ADDRESSES
255          0017 0064      LSP
256          0020 0204      OPEN CURTK1
257          0021 0064      LSP
258
259          0022 0074      ROTATE ZERO     /NEG ONE TO TARGET SECTOR
260          0023 0224      OPEN TARSEC
261          0024 0064      LSP
262          0025 0220      OPEN TARTRK    /NEG ONE TO TARGET TRACK FOR INITIALIZE BOOTSTRAP
263          0026 0064      LSP
264
265          0027 0002      DISK          /SELECT DISK RUSS
266
267          0030 0070      LCT          /CALL SUBROUTINE TO LOAD HEAD AND WAIT 25 MS
268          0031 0034      RECAL1        /TO ALLOW POWER UP DRIVE SETTLE TIME
269          0032 0222      JUMP F4
270          0033 2145      DLY25
271
272          0034 0036      RECAL1, UNIT ONE /SELECT UNIT ONE FOR RECALIBRATE
273
274          0035 0014      RECAL0, CLR HDOUT /STEP HEAD IN 17 TRACKS TO ASSURE IT IS NOT BEHIND TRACK 0

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```

275          0036 0070      LCT
276          0037 0365      -10-1
277          0040 0075      LSR
278          0041 0070      LCT
279          0042 0045      IN10
280          0043 0222      JUMP F4
281          0044 2100      STEPHD
282
283          0045 0226      IN10, JUMP F5     /ERROR. HOME WAS SEEN WHILE STEPPING IN.
284          0046 2621      WRONG
285
286          0047 0016      SET HDOUT      /STEP OUT AS MANY AS 80 TRACKS IN SEARCH OF HOME
287          0050 0070      LCT
288          0051 0257      -80-1
289          0052 0075      LSR
290          0053 0070      LCT
291          0054 0060      RCALOK
292          0055 0040      UNHD
293          0056 0222      JUMP F4
294          0057 2100      STEPHD
295
296          0060 0202      RCALOK, JUMP F0    /HOME WAS FOUND OK
297          0061 0075      WHCHDR
298
299          0062 0174      BR FLAG0 F      /IF FLAG=0 RECALIBRATE WAS ON DRIVE 1
300          0063 0070      NXDRV1
301
302          0064 0070      NXDRV0, LCT      /RECALABRATE FAILURE WAS ON DRV 0
303          0065 0010      KNXDV0
304          0066 0226      JUMP F5
305          0067 2610      GOERDN
306
307          0070 0070      NXDRV1, LCT      /RECAL FAILURE WAS ON DRV 1, LOG ERROR
308          0071 0020      KNXDV1      /AND CONTINUE RECALIBRATION
309          0072 0075      LSR
310          0073 0210      OPEN ERREG
311          0074 0064      LSP
312
313          0075 0176      WHCHDR, BR FLAG0 T /IF FLAG=1 BOTH DRIVES HAVE BEEN RECALIBRATED
314          0076 0372      PDNRCL
315
316          0077 0062      FLAG ON      /SET FLAG TO INDICATE DRV 0 IS BEING RECALIBRATED
317
318          0100 0034      UNIT ZERO
319
320          0101 0202      JUMP F0          /GO BACK AND RECALIBRATE DRV0
321          0102 0035      RECAL0

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322
323 /([SUBROUTINE; FINDTRACK]
324 /THIS SUBROUTINE IS USED TO LOCATE A SPECIFIED SECTOR, IT PICKS
325 /UP THE TRACK AND SECTOR ADDRESS FROM THE INTERFACE, CHECKS THAT
326 /THE TRACK ADDRESS IS LEGAL (NOT GREATER THAN 114 OCTAL.), MOVES THE
327 /HEAD OF THE SELECTED DRIVE TO THE SPECIFIED TRACK, VERIFIES
328 /TRACK POSITION, AND LOCATES THE CORRECT SECTOR, EXIT FROM
329 /THIS SUBROUTINE OCCURS AT WRITE TURN ON TIME OF THE SELECTED,
330 /SECTOR, ENTRANCE IS MADE WITH THE RETURN ADDRESS IN THE COUNTER
331
332
333
334
335 0103 0075 FINDTR, LSR /SAVE THE RETURN ADDRESS
336 0104 0274 OPEN RTN
337 0105 0064 LSP
338
339 0106 0070 LCT /CLEAR THE ERROR REGISTER
340 0107 0000 0
341 0110 0075 LSR
342 0111 0210 OPEN ERREG
343 0112 0064 LSP
344
345 0113 0244 OPEN TEMPD /SOFT UNIT BIT TO SR
346 0114 0071 ESP
347 0115 0075 LSR
348
349 0116 0122 BR SR7 ONE /IF SR=1 DRIVE 0 IS CURRENTLY SELECTED
350 0117 0127 UZERO
351
352 0120 0174 UONE, BR FLAG0 ZERO /IF FLAG=0 DRIVE 1 IS DESIRED AND ALREADY SELECTED
353 0121 0141 USAME
354
355 0122 0034 UNIT ZERO /DRIVE 0 IS DESIRED AND DRIVE1 WAS SELECTED, SELECT 0
356
357 0123 0070 LCT /SET UP SOFT UNIT SELECT AS DRIVE 0
358 0CTAL
359 0124 0200 200
360 0DECIMAL
361
362 0125 0202 JUMP F0 /GO STORE SOFT UNIT BIT
363 0126 0134 UDIF
364
365 0127 0176 UZERO, BR FLAG0 ONE /IF FLAG=1 DRIVE 0 IS DESIRED AND ALREADY SELECTED
366 0130 0141 USAME
367
368
369 0131 0036 UNIT ONE /DRIVE 1 IS DESIRED BUT DRIVE0 IS SELECTED, SELECT DRIVE 1
370 0132 0070 LCT /SET UP SOFT UNIT SELECT BIT AS DRIVE 1
371 0133 0000 0
372
373 0134 0075 UDIF, LSR /STORE SOFT UNIT SELECT BIT
374 0135 0064 LSP
375
376 0136 0074 ROTATE ZERO /CLR SOFT HD LOAD BIT BECAUSE UNITS CHANGED

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```

377 0137 0250 OPEN TEMPE
378 0140 0064 LSP
379
380 0141 0070 USAME, LCT /CALL GETWORD SUBROUTINE FOR THE SECTOR ADDRESS
381 0142 0145 PUTSEC
382 0143 0222 JUMP F4
383 0144 2000 GETWRD
384
385
386 0145 0070 PUTSEC, LCT /MAKE FIRST BIT OF COMPLIMENTED SECTOR ADDRESS A 1 REGARDLESS OF DATA
387 0146 0370 -7-1
388 0147 0076 ROTATE ONE
389 0150 0126 BR COFL T
390 0151 0160 .+7
391 0152 0073 ICT
392 0153 0122 BR SR7 T
393 0154 0147 .-5
394 0155 0074 ROTATE ZERO
395 0156 0202 JUMP F0
396 0157 0150 .-7
397
398 0160 0224 OPEN TARSEC /PUT THE TARGET SECTOR AWAY
399 0161 0064 LSP
400
401 0162 0070 LCT /CALL GETWRD SUBROUTINE FOR TRACK ADDRESS
402 0163 0166 PUTTRK
403 0164 0222 JUMP F4
404 0165 2000 GETWRD
405
406
407 0166 0220 PUTTRK, OPEN TARTRK /STASH THE TRACK ADDRESS
408 0167 0064 LSP
409
410 0170 0254 OPEN TEMPF /START SETUP FOR COMPARING THE
411 0171 0064 LSP /TARGET TRACK AND TRACK 76
412 0172 0260 OPEN TEMPG /F= TARGET TRACK
413 0173 0070 LCT /G= 77
414 0174 0262 -77-1
415 0175 0075 LSR
416 0176 0264 LSP
417
418 0177 0070 LCT /CALL SUBR MAGCOM TO SEE IF TARGET TRACK
419 0200 0206 ILTRK /IS GREATER THAN 114 OCTAL, 76 DECIMAL.
420 0201 0075 LSR
421 0202 0270 OPEN RTNA
422 0203 0064 LSP
423 0204 0226 JUMP F5
424 0205 2400 MAGCOM
425
426
427 0206 0202 ILTRK, JUMP F0 /TARGET TRACK IS 77, ILLEGAL ADDRESS
428 0207 0242 ERTRK /GO, REPORT THE ERROR
429 0210 0202 JUMP F0 /TARGET TRACK IS GREATER THAN 77
430 0211 0242 ERTRK /GO, REPORT THE ERROR
431

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/RX01 FLOPPY CONTROLLER FIRMWARE      PAL10  V142A  9-FEB-76      9:17  PAGE 7-2

432  0212  0244      OPEN TEMPD      /TARGET TRACK IS OK, GET THE DRIVE
433  0213  0071      ESP              /SELECT FROM TEMPD
434  0214  0075      LSR
435
436  0215  0200      OPEN CURTK0     /PRESELECT UNIT 0
437
438  0216  0002      DISK            /SELECT DISK BUSS
439
440  0217  0122      BR SR7 ONE     /WHICH UNIT SFLECTED? BIT7=0 MEANS UNIT ONE
441  0220  0222      .+2            /ZERO, SKIP UNIT 1 SETUP
442  0221  0204      OPEN CURTK1
443
444  0222  0071      ESP              /PASS SELECTED CURRENT TRACK TO MAGCOM SUBR
445  0223  0075      LSR
446  0224  0260      OPEN TEMPG
447  0225  0064      LSP
448
449  0226  0220      OPEN TARTRK    /PASS TARGET TRACK TO MAGCOM SUBROUTINE
450  0227  0071      ESP
451  0230  0075      LSR
452  0231  0254      OPEN TEMPF
453  0232  0064      LSP
454  0233  0070      LCT              /CALL SUBROUTINE MAGCOM TO SEE IF TARGET
455  0234  0246      TRKEQ          /IS SAME AS CURRENT TRACK, F=TARGET, G=CURRENT
456  0235  0075      LSR
457  0236  0270      OPEN RTNA
458  0237  0064      LSP
459  0240  0226      JUMP F5
460  0241  2400      MAGCOM
461
462
463  0242  0070      ERTRK, LCT
464  0243  0040      KERTRK
465  0244  0226      JUMP F5        /TRIED TO ACCESS A TRACK GREATER THAN 76 DECIMAL
466  0245  2610      GOERDN
467
468
469  0246  0202      TRKEQ, JUMP F0  /TARGET EQUALS THE CURRENT TRACK, NO
470  0247  0357      NOSTPS        /STEPS ARE REQUIRED
471  0250  0270      OPEN RTNA     /NOOP; TARGET > ACTUAL RETURN
472  0251  0270      OPEN RTNA     /NOOP
473
474  0252  0270      BOOT, OPEN RTNA /TARGET IS LESS THAN ACTUAL, STEPS NEEDED ALSO START OF
475  0253  0070      LCT           /OF BOOT SUBROUTINE. SET UP RETURN FROM DIF SUBR
476  0254  0275      STPOUT
477  0255  0075      LSR
478  0256  0064      LSP
479
480  0257  0244      OPEN TEMPD    /SOFT UNIT SELECT BIT TO SR7
481  0260  0071      ESP
482  0261  0075      LSR
483
484  0262  0204      OPEN CURTK1   /PRESELECT UNIT 1
485
486  0263  0120      BR SR7 ZERO   /SR7=0 MEANS UNIT ONE

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/RX01 FLOPPY CONTROLLER FIRMWARE      PAL10  V142A  9-FEB-76      9:17  PAGE 7-3

487  0264  0266      .+2
488  0265  0200      OPEN CURTK0
489
490  0266  0071      ESP              /PASS SELECTED CURRENT TRACK TO DIFF SUBR VIA SR
491  0267  0075      LSR
492
493  0270  0220      OPEN TARTRK    /PASS TARGET TRACK TO DIF VIA CNTR
494  0271  0071      ESP
495
496  0272  0016      SET HDOUT      /ASSUME A STEP OUT
497
498  0273  0226      JUMP F5        /GO TO THE SUBROUTINE DIF TO CALCULATE THE STEPS NEEDED
499  0274  2462      DIF
500
501
502  0275  0202      STPOUT, JUMP F0 /TARGET TRACK IS LESS THAN
503  0276  0300      .+2           /THE ACTUAL, MOVE OUT IS NECESSARY
504
505  0277  0014      CLR HDOUT      /TARGET IS GREATER THAN ACTUAL. STEPS IN NEEDED
506
507  0300  0070      LCT              /COMPLEMENT OF STEPS REQUIRED IS IN THE
508  0301  0305      DUNSTP         /SHIFT REG. SET UP RETURN FROM STPHD SUBR
509
510  0302  0040      UNHD           /UNLOAD HEAD BEFORE MOVING
511
512  0303  0222      JUMP F4        /CALL SUBROUTINE STPHD
513  0304  2100      STEPHD
514
515
516  0305  0226      DUNSTP, JUMP F5 /HOME FOUND BEFORE LAST STEP TAKEN
517  0306  2456      HOMERR
518
519  0307  0244      OPEN TEMPD    /SOFT UNIT BIT TO SR7
520  0310  0071      ESP
521  0311  0075      LSR
522  0312  0220      OPEN TARTRK    /GET READY TO PASS TARGET TRK TO PROPER
523  0313  0071      ESP           /CURRENT TRACK
524
525  0314  0200      OPEN CURTK0    /OPEN PROPER CURRENT TRACK REGISTER
526  0315  0122      BR SR7 ONE     /BIT7=0 MEANS UNIT ONE
527  0316  0320      .+2
528  0317  0204      OPEN CURTK1
529
530  0320  0075      LSR
531  0321  0064      LSP           /UPDATE THE CURRENT TRACK ADDRESS
532
533
534  0322  0220      HDSETL, OPEN TARTRK /HEAD IS SETTLED DETERMINE IF ABOVE TPACK 43 DECIMAL
535  0323  0071      ESP           /PASS TARGET TO MAGCOM VIA TEMPF
536  0324  0075      LSR
537  0325  0254      OPEN TEMPF
538  0326  0064      LSP
539
540  0327  0070      LCT
541  0330  0323      =44=1        /PASS 44 TO MAGCOM VIA TEMPG

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542 0331 0075 LSR
543 0332 0260 OPEN TEMPG
544 0333 0064 LSP
545
546 0334 0026 SET LONCUR /ASSUME TARGET GREATER THAN 43
547
548 0335 0070 LCT /CALL MAGCOM SUBROUTINE
549 0336 0340 ABV43 /RETURN ADDRESS
550 0337 0075 LSR
551 0340 0270 OPEN RTNA
552 0341 0064 LSP
553 0342 0226 JUMP F5
554 0343 2400 MAGCOM
555
556
557 0344 0202 ABV43, JUMP F0 /NOOP F=6 RETURN, ABOVE TRK 43
558 0345 0346 .+1 /NOOP
559
560 0346 0202 JUMP F0 /F<G; ABOVE TRACK 43
561 0347 0351 .+2
562
563 0350 0024 CLR LONCUR /F>G; BELOW TRACK 43, WRITE WITH HIGH CURRENT
564
565 0351 0070 CFINSE, LCT /CALL FINDSEC SUBROUTINE TO LOCATE THE DESIRED SECTOR
566 0352 0355 RFINTR
567 0353 0206 JUMP F1
568 0354 0714 FINDSE
569
570 0355 0274 RFINTR, OPEN RTN /RETURN FROM FINDTR SUBROUTINE
571 0356 0207 JUMP F1 IND
572
573
574 0357 0250 NOSTPS, OPEN TEMPE /NO STEPS REQUIRED
575 0360 0071 ESP /SOFT HEAD LOAD BIT TO SR7
576 0361 0075 LSR
577
578 0362 0122 BR SR7 ONE /IS HEAD LOADED?
579 0363 0322 HDSETL /YES, GO UPDATE CURRENT CONTROL
580
581 0364 0070 LCT /NO, GO LOAD HEAD AND WAIT FOR 20MS SETTLE TIME
582 0365 0322 HDSETL /RETURN ADDR FROM DLY25 SUBROUTINE
583 0366 0222 JUMP F4
584 0367 2145 DLY25
585
586
587 0370 0212 PFUNCT, JUMP F2 /POINTER FROM GETWORD SUBROUTINE TO
588 0371 1036 FUNCT /FUNCTION DECODE
589
590 0372 0226 PDNRCL, JUMP F5 /POINTER TO DRV CHECK DONE AFTER RECALIBRATE
591 0373 2625 DNRCAL
592
593 0374 0000 0 /SPARE LOCATIONS
594 0375 0000 0 /OPEN
595 0376 0000 0 /OPEN
596 0377 0000 0 /OPEN

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```

597 /ROUTINE: WRITE SECTOR]
598 /THIS ROUTINE TURNS ON WRITE GATE AT WRITE TURN ON TIME,
599 /WRITES A PREAMBLE OF 6 BYTES OF ZEROES, A DATA OR DELETED DATA MARK,
600 /THEN TURNS ON ERASE GATE, ENTER WITH CNTR=100 IF
601 /DELETED DATA, CNTR=0 IF NORMAL DATA MARK. THE DATA MARK, DATA FIELD, CRC
602 /AND ONE BYTE POSTAMBLE ARE WRITTEN. WRITE CURRENT IS TURNED OFF,
603 /511 MICRO SECONDS LATER ERASE CURRENT IS TURNED OFF. A HEADER MUST
604 /THEN BE READ TO INSURE DISK IS STILL UP TO SPEED BEFORE THE WRITE
605 /SECTOR FUNCTION IS COMPLETE.
606
607
608
609
610 0400 0214 WRTSEC, OPEN STAT /DEL DATA BIT TO STAT6
611 0401 0075 LSR
612 0402 0064 LSP
613
614 0403 0070 LCT /CALL SUBROUTINE TO FIND DESIRED TRACK AND SECTOR
615 0404 0407 SWGATE
616 0405 0202 JUMP F0
617 0406 0103 FINDTR
618
619 0407 0061 SWGATE, FLAG OFF /ALWAYS START WRITING WITH WRITE FLOP CLEARED
620
621 0410 0140 BR WRTE F /GO REPORT ERROR IF NO WRITE ENABLE
622 0411 0503 PRTErr
623
624 0412 0214 OPEN STAT /DEL DATA BIT TO SR7 AND ENABLE WRT CURRENT
625 0413 0071 ESP
626 0414 0006 SET WGATE
627 0415 0075 LSR
628 0416 0074 ROTATE ZERO
629
630 0417 0234 OPEN TEMPB /USE TEMPB FOR SECOND HALF DATA AM PATTERN
631
632 0420 0057 PRECRC /JAM THE CRC GENERATOR WITH FIRST 6 BITS OF DATA AM
633 0421 0056 CRC ONE
634 0422 0056 CRC ONE
635 0423 0056 CRC ONE
636 0424 0056 CRC ONE
637 0425 0056 CRC ONE
638 0426 0054 CRC ZERO
639
640 0427 0120 BR SR7 ZERO /DELETED DATA?
641 0430 0460 DAMSUP /NO, REGULAR DATA MARK
642
643 0431 0070 LCT /YES, SECOND HALF OF DELETED DATA MARK TO CNTR
644 OCTAL
645 0432 0325 325 /FLUX PATTERN
646 DECIMAL
647
648 0433 0054 CRC ZERO /JAM LAST 2 BITS OF DELETED DATA MARK TO CRC GEN.
649 0434 0054 CRC ZERO
650 0435 0002 DISK /NOOP
651 0436 0002 DISK /NOOP

```

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652
653 C437 0063 STASH, TOG FLAG /END OF THE FIRST 8 BIT
654
655 C449 0075 LSR /PUT SECOND HALF OF THE DESIRED MARK IN THE TEMPB
656 C441 0068 LSR
657
658 C442 0078 LCT /SET UP RETURN FROM WRITE ZEROS SUBROUTINE
659 C443 0066 HLFCLV
660 C448 0075 LSR
661
662 C445 0072 LCT /STALL 1.0 MICRO SECONDS
663 C446 0074 -3-1
664 C447 0073 ICT
665 C450 0124 BR COPL F
666 C451 0447 .-2
667 C452 0002 DISK /NOOP
668
669 C453 0078 LCT /SPECIFY 22 ZEROS TO BE WRITTEN BY WRTOS SUBROUTINE
670 C454 0351 -22-1
671
672 C455 0063 TOG FLAG /WRITE SECOND CLOCK TRANSITION
673
674 C456 0212 JUMP F2 /CALL WRITE ZEROS SUBROUTINE
675 C457 1322 WRTOS
676
677 C460 0078 DAMBUP, LCT /LOAD SECOND HALF OF NORMAL DATA MARK
678 C461 0337 OCTAL
679 C461 0337 337
680 C461 0337 DECIMAL
681
682 C462 0056 CRC ONE /JAM LAST 2 BYTS OF DATA MARK TO CRC GENERATOR
683 C463 0056 CRC ONE
684
685 C464 0206 JUMP F1 /GO PUT AWAY THE SECOND HALF OF THE DATA MARK
686 C465 0437 STASH
687
688 C466 0002 HLFCLV, DISK /NOOP
689
690 C467 0078 LCT
691 C470 0514 WRTDAM
692 C471 0075 LSR /SET UP RETURN FROM WRITE ZEROS SUBROUTINE
693
694 C472 0078 LCT /NOOP WASTE .8 MICRO SECONDS
695 C473 0351 -22-1 /NOOP
696 C474 0078 LCT /NOOP
697 C475 0351 -22-1 /NOOP
698
699 C476 0078 LCT /SPECIFY 22 BITS TO BE WRITTEN BY WRTOS SUBROUTINE
700 C477 0351 -22-1
701
702 C500 0063 TOG FLAG /WRITE THE 25TH CLOCK TRANSITION
703
704 C501 0212 JUMP F2 /CALL WRTOS SUBROUTINE
705 C502 1322 WRTOS
706

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707 C503 0078 PRERR, LCT /SET WRITE PROTECT BIT OF STAT BECAUSE A WRITE FUNCTION WAS ATTEMPTED ON
708 C503 0078 /ON A WRITE PROTECTED DISKETTE
709 C503 0078 OCTAL
710 C504 0010 10
711 C504 0010 DECIMAL
712 C505 0075 LSR
713 C506 0214 OPEN STAT
714 C507 0064 LSP
715
716 C510 0078 LCT /ERROR CODE FOR WRT PROTECT ERROR
717 C511 0100 KWPROT
718 C512 0226 JUMP F5
719 C513 2610 GOERDN
720
721
722
723 /THIS ROUTINE WILL WRITE EITHER A DATA MARK OR A
724 /DELETED DATA MARK. THE FIRST HALF OF BOTH MARKS ARE
725 /IDENTICAL. THE SECOND HALF IS SPECIFIED BEFORE ENTRY BY
726 /PUTTING THE SECOND HALF BIT PATTERN IN TEMPB
727
728
729 C514 0078 WRTDAM, LCT /WASTE 2.0 MICRO SECONDS
730 C515 0375 -2-1
731 C516 0073 ICT
732 C517 0075 LSR
733 C520 0124 BR COPL F
734 C521 0516 .-3
735
736 C522 0063 TOG FLAG /WRITE A CLOCK BIT AS END OF 40TH ZERO
737
738 C523 0078 LCT /FIRST HALF OF DATA MARK PATTERN TO CR
739 C523 0078 OCTAL
740 C524 0352 352
741 C524 0352 DECIMAL
742 C525 0075 LSR
743
744 C526 0270 LCT /SET TRANSITION LOOP COUNTER FOR 0 LCCPS
745 C527 0378 -7-1
746 C530 0282 DISK /NOOP
747
748
749 C531 0120 AGAIN, BR SR7 ZERO /WHAT'S THE BIT?
750 C532 0502 A /ZERO, NO TRANSITION
751
752 C533 0344 CLR DAR /GAE, RESET THE CUFFER ACCR REG TO 0
753
754 C534 0063 TOG FLAG /WRITE FLUX TRANSITION
755
756 C535 0124 ABACK, BR COPL T /CHECK TRANSITION LOOP COUNT
757 C536 0303 SECHLF /GO GET SECOND HALF
758
759 C537 0078 ROTATE /SHIFT NEXT TRANSITION TO CR7
760
761 C540 0273 ICT /BUMP TRANSITION LOOP COUNTER

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762 0541 0206 JUMP F1 /DO ANOTHER LOOP
763 0542 0531 AGAIN
764
765 0543 0234 SECHLF, OPEN TEMPB /SECOND HALF OF DATA MARK TO SR
766 0544 0071 ESP
767 0545 0075 LSR
768
769 0546 0070 LCT /SET TRANSITION LOOP COUNTER FOR 8 LOOPS
770 0547 0370 -7-1
771
772
773 0550 0120 AGAIN1, BR SR7 ZERO /SHALL WE WRITE A TRANSITION?
774 0551 0564 B /NO
775
776 0552 0063 TOG FLAG /YES
777 0553 0002 DISK /NOOP
778
779 0554 0126 BBACK, BR COFL T /DONE DATA MARK?
780 0555 0566 WRTDAT /YES, GO WRITE DATA
781
782 0556 0073 ICT /NO, BUMP THE LOOP COUNTER
783
784 0557 0074 ROTATE /BRING UP NEXT HALF BIT TO SR7
785
786 0560 0206 JUMP F1 /DO ANOTHER LOOP
787 0561 0550 AGAIN1
788
789 0562 0206 A, JUMP F1 /WASTE 2 CYCLES TO SKIP FLUX TRANSITION
790 0563 0535 ABACK
791
792 0564 0206 B, JUMP F1 /WASTE 2 CYCLES TO SKIP FLUX TRANSITION
793 0565 0554 BBACK
794
795
796
797
798 /THIS ROUTINE WRITES THE CONTENTS OF THE SECTOR BUFFER,
799
800
801 0566 0022 WRTDAT, SET EGATE /TURN ON ERASE CURRENT AT START OF DATA FIELD
802 0567 0073 ICT /NOOP; WASTE 2 CYCLES
803 0570 0073 ICT /NOOP
804
805 0571 0170 DATA, BR BDATA0 ZERO /WHAT'S THE DATA BIT?
806 0572 0615 C /ZERO, GO WRITE NOTHING
807
808 0573 0056 CRC ONE /ONE, UPDATE THE CRC WITH 1
809
810 0574 0063 TOG FLAG /WRITE A DATA TRANSITION
811 0575 0073 ICT /NOOP FOR BIT CELL TIMING
812
813 0576 0162 CBACK, BR BAROFL T /DONE ENTIRE SECTOR?
814 0577 0624 WRTCRC /YES, GO WRITE THE CRC
815
816 0600 0046 INCR BAR /NO, BRING UP NEXT DATA BIT FROM SEC BUFFER

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817
818 0601 0070 LCT /NOOP - WASTE 5 CYCLES WITH
819 0602 0376 -2 /NOOP - A SELF TEST OF THE COUNTER
820 0603 0073 ICT /NOOP
821 0604 0124 BR COFL F /NOOP
822 0605 0620 SELFER /NOOP
823
824 0606 0063 TOG FLAG /WRITE A CLOCK TRANSITION
825
826 0607 0070 LCT /NOOP - WASTE 4 CYCLES WITH
827 0610 0377 -1 /NOOP - A SELF TEST OF THE COUNTER
828 0611 0124 BR COFL F /NOOP
829 0612 0620 SELFER /NOOP
830
831 0613 0206 JUMP F1 /GO WRITE ANOTHER DATA BIT
832 0614 0571 DATA
833
834 0615 0054 C, CRC ZERO /UPDATE CRC WITH 0 AND SKIP DATA TRANSITION
835 0616 0206 JUMP F1
836 0617 0576 CBACK
837
838
839 0620 0070 SELFER, LCT /A SELF DIAGNOLTIC HAS FAILED
840 0621 0060 KSELFER
841 0622 0226 JUMP F5
842 0623 2610 GOERDN
843
844
845 /THIS ROUTINE WRITES THE 16 BIT CRC GENERATED FOR THE
846 /PRECEEDING DATA FIELD.
847
848
849 0624 0070 WRTCRC, LCT /PRESET BIT COUNTER FOR 16 BITS
850 0625 0357 -16-1
851
852 0626 0075 LSR /NOOP WASTE 4 CYCLES AND SELF TEST THE SR
853 0627 0002 DISK /NOOP
854 0630 0120 BR SR7 ZERO /NOOP
855 0631 0620 SELFER /NOOP
856
857 0632 0063 TOG FLAG /WRITE A CLOCK TRANSITION
858
859 0633 0076 ROTATE ONE /NOOP WASTE 6 CYCLES WITH MORE SELFTEST
860 0634 0076 ROTATE ONE /NOOP
861 0635 0076 ROTATE ONE /NOOP
862 0636 0076 ROTATE ONE /NOOP
863 0637 0120 BR SR7 ZERO /NOOP
864 0640 0620 SELFER /NOOP
865
866 0641 0130 BR CRC16 ZERO /WHAT IS THE CRC BIT
867 0642 0653 D /ZERO, DO NOT WRITE ANYTHING
868
869 0643 0056 CRC ONE /ONE, BRING UP THE NEXT BIT
870
871 0644 0063 TOG FLAG /WRITE A DATA TRANSITION

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872 0645 0076 ROTATE ONE /NOOP
873
874 0646 0073 DBACK, ICT /BUMP THE BIT COUNTER
875
876 0647 0126 BR COFL Y /DONE CRC YET?
877 0650 0656 WRT08 /YES, GO WRITE A POSTAMBLE
878
879 0651 0206 JUMP F1 /NO, GO WRITE ANOTHER CRC BIT
880 0652 0627 E
881
882 0653 0054 D, CRC ZERO /BRING UP NEXT CRC BIT AND SKIP DATA TRANSITION
883 0654 0206 JUMP F1
884 0655 0646 DBACK
885
886
887 /THIS ROUTINE WRITES THE ONE BYTE POSTAMBLE, TURNS OFF
888 /WRITE CURRENT, DELAYS 511 MICRO SEC AND TURNS OFF ERASE
889 /CURRENT, IT UTILIZES THE WRITE ZEROES SUBROUTINE.
890
891
892
893 0656 0070 WRT08, LCT /SETUP TO CALL WRT08 TO WRITE 8 BITS OF ZEROES
894 0657 0666 CWGATE
895 0660 0075 LSR
896 0661 0070 LCT
897 0662 0367 -8-1
898
899 0663 0063 TOG FLAG /WRITE LAST CLOCK TRANSITION OF THE CRC FIELD
900
901 0664 0212 JUMP F2 /CALL THE SUBROUTINE WRITE ZEROES
902 0665 1322 WRT08
903
904
905 0666 0004 CWGATE, CLR WGATE /DISABLE WRITE CURRENT
906
907 0667 0070 LCT /CALL WRT08 FOR 127 BITS (511.2 MICRO SEC)
908 0670 0676 CEGATE /DELAY TO ERASE TURN OFF
909 0671 0075 LSR
910 0672 0070 LCT
911 0673 0200 -127-1
912 0674 0212 JUMP F2
913 0675 1322 WRT08
914
915
916 0676 0020 CEGATE, CLR EGATE /DISABLE ERASE CURRENT
917
918 0677 0070 LCT /CALL WRT08 FOR 25 BIT (101 MICRO SEC) DELAY
919 0700 0706 READOK /BEFORE TRYING TO READ
920 0701 0075 LSR
921 0702 0070 LCT
922 0703 0346 -25-1
923 0704 0212 JUMP F2
924 0705 1322 WRT08
925
926 0706 0070 READOK, LCT /CALL FIND HEADER ROUTINE TO INSURE

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927 0707 0712 GODONE /THAT THE DISK IS STILL MOVING
928 0710 0216 JUMP F3
929 0711 1400 FINDHD
930
931 0712 0212 GODONE, JUMP F2 /WRITE SECTOR FUNCTION IS COMPLETE
932 0713 1006 OKDONE
933
934
935 /([SUBROUTINE: FINDSECTOR])
936 /SUBROUTINE TO FIND A SPECIFIC SECTOR, ENTER WITH RETURN ADDRESS
937 /IN CNTR, DESIRED TRACK ADDRESS IN TARTRK AND DESIRED SECTOR ADDRESS
938 /IN TARSEC, THIS SUBROUTINE ASSUMES THAT THE TARGET TRACK HAS ALREADY
939 /BEEN REACHED.
940
941
942 0714 0270 FINDSE, OPEN RTNA /SAVE RETURN ADDRESS
943 0715 0075 LSR
944 0716 0064 LSP
945
946 0717 0260 OPEN TEMPG /PRESET SECTOR TRY COUNT TO 52 TRIES
947 0720 0070 LCT
948 0721 0313 -52-1
949
950 0722 0075 AGAIN2, LSR /STORE SECTOR TRY COUNT
951 0723 0064 LSP
952
953 0724 0070 LCT /CALL SUBROUTINE TO FIND A HEADER
954 0725 0730 CHKSEC
955 0726 0216 JUMP F3
956 0727 1400 FINDHD
957
958 0730 0174 CHKSEC, BR FLAG0 ZERO /CORRECT SECTOR? FLAG=1 IF NO
959 0731 0743 WAIT /YES, GO WAIT FOR PREAMBLE
960
961 0732 0260 OPEN TEMPG /NO, RECALL SECTOR TRY COUNT AND INCREMENT IT
962 0733 0071 ESP
963 0734 0073 ICT
964
965 0735 0124 BR COFL F /52 TRIES MADE FOR SECTOR YET?
966 0736 0722 AGAIN2 /NO, TRY ANOTHER SECTOR
967
968 0737 0070 NXHDR, LCT /YES, CANN'T FIND THE SECTOR
969 0740 0070 KNXHDR
970 0741 0226 JUMP F5
971 0742 2610 GOERDN
972
973 0743 0070 WAIT, LCT /STALL 323,2 MICRO SECONDS TO WAIT FOR DATA PREAMBLE
974 0744 0345 -26-1
975 0745 0073 ICT
976 0746 0124 BR COFL F
977 0747 0745 -2
978 0750 0073 ICT
979 0751 0124 BR COFL F
980 0752 0750 -2
981 0753 0073 ICT

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982 0754 0124 BR COFL F
983 0755 0753 .-2
984
985 0756 0270 OPEN RTNA /RETURN FROM THIS SUBROUTINE AT WRITE TURN ON TIME
986 0757 0203 JUMP F0 IND /OF THE DESIRED SECTOR
987
988
989
990 /([ROUTINE: READ SECTOR])
991
992 0760 0074 RDSEC, ROTATE ZERO /ZERO THE STAT
993 0761 0074 ROTATE ZERO
994 0762 0214 OPEN STAT
995 0763 0064 LSP
996
997 0764 0070 LCT /CALL THE FIND TRACK SUBROUTINE TO LOCATE DESIRED SECTOR
998 0765 0770 GOREAD
999 0766 0202 JUMP F0
1000 0767 0103 FINDTR
1001
1002 0770 0222 GOREAD, JUMP F4 /GO READ THE DATA FIELD
1003 0771 2167 READ
1004
1005
1006 0772 0000 0 /OPEN FREE LOCATIONS
1007 0773 0000 0 /OPEN
1008 0774 0000 0 /OPEN
1009 0775 0000 0 /OPEN
1010 0776 0000 0 /OPEN
1011 0777 0000 0 /OPEN

```

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1012 /([ROUTINE: DONE AND ERROR DONE])
1013
1014
1015 1000 0020 ERDONE, CLR DONE
1016 1001 0010 CLR XREQ
1017
1018 1002 0000 INTERF /SELECT INTERFACE BUSS
1019
1020 1003 0006 SET ERR /ASSERT ERROR LINE
1021
1022 1004 0212 JUMP F2 /SKIP NEXT INSTRUCTION
1023 1005 1007 .+2
1024
1025 1006 0004 OKDONE, CLR ERR /NEGATE ERROR LINE
1026
1027 1007 0214 OPEN STAT /OPEN STAT TO MOVE TO INTERFACE
1028
1029 1010 0071 ESP /STAT OR ERREG TO SR
1030 1011 0075 LSR
1031
1032 1012 0024 CLR SHIFT /CLEAR INTERFACE OUTPUT BUFFER
1033 1013 0020 CLR DONE
1034 1014 0010 CLR XREQ
1035
1036 1015 0000 INTERF /SELECT INTERFACE OUTPUT BUSS
1037
1038 1016 0030 CLR SECDAT /SELECT SR AS DATA LINE SOURCE
1039
1040 1017 0016 SET IOOUT /DEFINE DATA DIRECTION AS OUT (TO INTERFACE)
1041
1042 1020 0070 LCT /MOVE SR TO INTERFACE SERIALY
1043 1021 0367 -8-1
1044 1022 0026 SET SHIFT
1045 1023 0024 CLR SHIFT
1046 1024 0073 ICT
1047 1025 0074 ROTATE ZERO
1048 1026 0124 BR COFL F
1049 1027 1022 .-5
1050
1051 1030 0014 CLR IOOUT /NEXT TRANSFER WILL BE FROM INTERFACE
1052
1053 1031 0022 STDONE, SET DONE /FUNCTION IS DONE
1054 1032 0070 LCT /CALL GET COMMAND SUBROUTINE TO GET NEXT FUNCTION
1055 1033 0370 PFUNCT
1056 1034 0222 JUMP F4
1057 1035 2001 GETCMD
1058
1059 1036 0074 FUNCT, ROTATE /MOVE UNIT SELECT BIT TO SR7
1060 1037 0074 ROTATE
1061 1040 0074 ROTATE
1062 1041 0122 BR SR7 ONE /FLAG IS ALREADY SET. SAVE UNIT IN FLAG, ON=UNIT 0
1063 1042 1044 .+2
1064 1043 0061 FLAG OFF
1065
1066 1044 0274 ROTATE /GET FIRST FUNCTION BIT TO SR7

```

1067				
1068	1045	0120	BR SR7 ZERO	
1069	1046	1066	FUNCT4	/FUNCTION 4 OR GREATER
1070				
1071	1047	0074	ROTATE	/GET 2ND FUNCTION BIT
1072				
1073	1050	0120	BR SR7 ZERO	
1074	1051	1057	FUNCT2	/FUNCTION CODE IS 2 OR 3
1075				
1076				
1077	1052	0074	ROTATE	/GET LAST FUNCTION BIT
1078				
1079	1053	0120	BR SR7 ZERO	
1080	1054	1107	EMPTYBUF	/FUNCTION CODE 1
1081				
1082	1055	0212	JUMP F2	/FUNCTION CODE 0
1083	1056	1110	FILLBUF	
1084				
1085	1057	0074	FUNCT2, ROTATE	/GET LAST FUNCTION BIT
1086				
1087	1060	0120	BR SR7 ZERO	
1088	1061	1105	PRDSEC	/FUNCTION CODE 3
1089				
1090	1062	0070	LCT	/CLR CNTR BIT6 TO INDICATE NORMAL DATA
1091	1063	0200	0	
1092	1064	0206	JUMP F1	/FUNCTION 2
1093	1065	0400	WRTSEC	
1094				
1095	1066	0074	FUNCT4, ROTATE	/GET 2ND FUNCTION BIT
1096				
1097	1067	0120	BR SR7 ZERO	
1098	1070	1076	FUNCT6	/FUNCTION CODE IS 6 OR GREATER
1099				
1100	1071	0074	ROTATE	/GET LAST FUNCTION BIT
1101				
1102	1072	0120	BR SR7 ZERO	
1103	1073	1224	RDSTAT	/FUNCTION 5
1104				
1105	1074	0212	JUMP F2	
1106	1075	1243	CLRID	/FUNCTION 4-UNUSED
1107				
1108	1076	0074	FUNCT6, ROTATE	/GET LAST FUNCTION BIT
1109				
1110	1077	0120	BR SR7 ZERO	
1111	1100	1275	RDREG	/FUNCTION 7
1112				
1113	1101	0070	LCT	/SET CNTR6 TO INDICATE DELETED DATA
1114			OCTAL	
1115	1102	0100	100	
1116			DECIMAL	
1117	1103	0206	JUMP F1	
1118	1104	0400	WRTSEC	/FUNCTION 6
1119				
1120	1105	0206	PRDSEC, JUMP F1	/POINTER TO READ SECTOR FUNCTION
1121	1106	0760	RDSEC	

1122				
1123				
1124				
1125				
1126				
1127				
1128				
1129				
1130				
1131				
1132	1107	0016	EMPTYBUF, SET IOOUT	/IOOUT IS CLEARED, SET IT TO INDICATE DATA IS /MOVING TO THE INTERFACE
1133				
1134				
1135	1110	0074	FILLBUF, ROTATE ZERO	/CLEAR STAT
1136	1111	0074	ROTATE ZERO	
1137	1112	0214	OPEN STAT	
1138	1113	0064	LSP	
1139				
1140	1114	0210	OPEN ERREG	/CLEAR ERREG
1141	1115	0064	LSP	
1142				
1143	1116	0061	FLAG OFF	/NOOP
1144				
1145	1117	0044	CLR BAR SHORT	/ADDRESS THE 1ST BIT OF SECTOR BUFFER
1146				
1147	1120	0070	LCT	/SET UP BYTE COUNT TO 128 (8 BIT) OR 64 (12 BIT)
1148	1121	0177	-128-1	
1149	1122	0150	BR XIIBIT F	
1150	1123	1126	,+3	
1151	1124	0070	LCT	
1152	1125	0277	-64-1	
1153	1126	0230	OPEN TEMPA	
1154				
1155	1127	0106	BR IOB30 T	/WHICH FUNCTION IS THIS?
1156	1130	1210	EMPTY1	/EMPTYBUF
1157				
1158	1131	0012	XFRQ, SET XREQ	/REQUEST DATA TRANSFER
1159				
1160	1132	0073	ICT	/INCREMENT BYTE COUNT AND RESTORE
1161	1133	0075	LSR	
1162	1134	0064	LSP	
1163				
1164	1135	0070	LCT	/CALL WAITRUN SUBR TO WAIT FOR DATA TRANSFER
1165	1136	1141	NEWORD	
1166	1137	0222	JUMP F4	
1167	1140	2312	WAITRN	
1168				
1169	1141	0230	NEWORD, OPEN TEMPA	/REOPEN THE BYTE COUNT REGISTER BECAUSE WAITRUN CLOED IT
1170	1142	0070	LCT	/SET UP BIT COUNT IN CNTR TO 8 BITS OR 12 BITS
1171	1143	0367	-8-1	
1172	1144	0150	BR XIIBIT F	
1173	1145	1150	,+3	
1174	1146	0070	LCT	
1175	1147	0363	-12-1	
1176				

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1177 1150 0104 BR IOB3OT F /WHICH FUNCTION IS THIS?
1178 1151 1175 FILL1 /FILLBUF
1179
1180
1181 1152 0026 BYTEOUT,SET SHIFT /EMPTYBUF, MOVE A BYTE FROM SECTOR BUFFER
1182 1153 0046 INCR BAR /TO INTERFACE SERIALY
1183 1154 0024 CLR SHIFT
1184 1155 0073 ICT
1185 1156 0124 BR COFL F
1186 1157 1152 BYTEOUT
1187
1188 1160 0071 ESP /CHECK BYTE COUNT
1189 1161 0124 BR COFL F
1190 1162 1131 XFRQ /NOT DONE, GO REQUEST A DATA TRANSFER
1191
1192 1163 0012 SET XREQ /DONE, REQUEST TRANSFER OF LAST BYTE
1193
1194 1164 0100 BR RUN F /WAIT FOR TRANSFER COMPLETION
1195 1165 1164 .-1
1196
1197 1166 0010 CLR XREQ
1198
1199 1167 0212 JUMP F2 /EMPTYBUF FUNCTION IS COMPLETE
1200 1170 1006 OKDONE
1201
1202 1171 0050 FIN WRTBUF /END SECTOR BUFR WRT PULSE (800 NS)
1203
1204 1172 0046 INCR BAR /ADDRESS NEXT CELL OF SECTOR BUFFER
1205
1206 1173 0026 SET SHIFT /SHIFT NEXT BIT FROM INTERFACE
1207 1174 0024 CLR SHIFT
1208
1209 1175 0053 FILL1, START WRTBUF /START SECTOR BUFR WRT PULSE
1210
1211 1176 0073 ICT /LAST BIT OF BYTE?
1212 1177 0124 BR COFL F
1213 1200 1171 .-7 /NO, DO ANOTHER BIT
1214
1215 1201 0050 FIN WRTBUF /LAST BIT, END SECTOR BUFR WRT PULSE
1216
1217 1202 0046 INCR BAR /ADDRESS NEXT CELL OF SECTOR BUFFER
1218
1219 1203 0071 ESP /CHECK BYTE COUNT
1220 1204 0124 BR COFL F
1221 1205 1131 XFRQ /NOT DONE, GO GET ANOTHER BYTE
1222
1223 1206 0212 JUMP F2 /DONE FILLBUF FUNCTION
1224 1207 1006 OKDONE
1225
1226 1210 0032 EMPTY1, SET SECCAT /SELECT SECTOR BUFR AS DATA LINE SOURCE
1227
1228 1211 0073 ICT /INCREMENT AND SAVE THE BYTE COUNT
1229 1212 0075 LSR
1230 1213 0064 LSP
1231

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1232 1214 0270 LCT /SET UP THE BIT COUNT TO 8 BITS OR 12 BITS
1233 1215 0367 -8-1
1234 1216 0150 BR XIIBIT F
1235 1217 1152 BYTEOUT
1236 1220 0070 LCT
1237 1221 0363 -12-1
1238
1239 1222 0212 JUMP F2 /GO MOVE A BYTE TO INTERFACE
1240 1223 1152 BYTEOUT
1241
1242
1243
1244 /([ROUTINE: READ STATUS])
1245
1246
1247 1224 0244 RDSTAT, OPEN TEMPD /SELECT THE SOFT UNIT SCRATCH PAD
1248
1249 1225 0036 UNIT ONE /PRESELECT UNIT ONE
1250 1226 0070 LCT
1251 1227 0000 0
1252
1253 1230 0174 BR FLAG0 ZERO /WHICH UNIT? FLAG0=UNIT 1
1254 1231 1235 .+4 /UNIT 1, SKIP UNIT 0 SETUP
1255
1256 1232 0034 UNIT ZERO /SELECT UNIT ZERO
1257 1233 0070 LCT
1258 OCTAL
1259 1234 0200 200
1260 DECIMAL
1261
1262 1235 0075 LSR /STORE SOFT UNIT BIT
1263 1236 0064 LSP
1264
1265 1237 0070 LCT /CALL CHECKRDY SUBROUTINE, RETURN TO CLRID
1266 1240 1765 PNTRDY
1267 1241 0226 JUMP F5
1268 1242 2640 CHKRDY
1269
1270
1271
1272 1243 0214 CLRID, OPEN STAT /CLEAR INIT DONE BIT OF STAT
1273 1244 0071 ESP /STATUS TO SHIFT REG
1274 1245 0075 LSR
1275
1276 1246 0061 FLAG OFF
1277 1247 0070 LCT /END AROUND SHIFT OF FIRST 5 BITS
1278 1250 0372 -5-1
1279 1251 0122 ROT, BR SR7 T
1280 1252 1256 .+4
1281 1253 0074 ROTATE ZERO
1282 1254 0212 JUMP F2
1283 1255 1257 .+2
1284 1256 0076 ROTATE ONE
1285 1257 0073 ICT
1286 1260 0124 BR COFL F

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1287 1261 1251 .-8
1288
1289 1262 0176 BR FLAGO T /IF FLAG IS SET THEN ROTATE IS DONE
1290 1263 1272 GODUN
1291
1292 1264 0062 FLAG ON /IF NOT, CLEAR INIT DONE AND FINISH ROTATE
1293 1265 0074 ROTATE ZERO
1294 1266 0070 LCT
1295 1267 0375 -2-1
1296 1270 0212 JUMP F2
1297 1271 1251 ROT
1298
1299
1300 1272 0064 GODUN, LSP /RESTORE STAT AND GO DONE
1301 1273 0212 JUMP F2
1302 1274 1006 OKDONE
1303
1304 /[ROUTINE: READ ERROR REGISTER]
1305
1306
1307
1308 1275 0210 RDEREG, OPEN ERREG
1309 1276 0212 JUMP F2
1310 1277 1010 OKDONE+2
1311
1312
1313 /[SUBROUTINE: DELAY], THIS SUBROUTINE PROVIDES DELAYS IN MULTIPLES
1314 /OF .1MS. ENTER WITH RETURN ADDRESS IN THE SHIFT REG,
1315 /AND MULTIPLIER IN THE COUNTER
1316
1317
1318 1300 0264 DELAY, OPEN RTNB /SAVE THE RETURN ADDRESS
1319 1301 0064 LSP
1320
1321 1302 0075 LSR /MULTIPLIER TO SHIFT REGISTER
1322
1323 1303 0070 LCT /DELAY 490 CYCLES (98 MICRO SECONDS)
1324 1304 0205 -122-1
1325 1305 0073 ICT
1326 1306 0264 OPEN RTNB
1327 1307 0124 BR COFL F
1328 1310 1305 .-3
1329
1330 1311 0071 ESP /MOVE MULTIPLIER TO CNTR VIA RTNB
1331 1312 0064 LSP
1332 1313 0075 LSR
1333 1314 0071 ESP
1334 1315 0064 LSP
1335
1336 1316 0073 ICT /INCREMENT THE MULTIPLIER
1337
1338 1317 0124 BR COFL F /ANY MORE .1MS LOOPS?
1339 1320 1301 DELAY+1 /YES, GO TO IT
1340
1341 1321 0223 JUMP F4 IND /NO, RETURN FROM SUBROUTINE

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1342
1343 /[SUBROUTINE: WRITE ZEROES]
1344 /THIS SUBROUTINE WRITES A SPECIFIED NUMBER OF ZEROS IF
1345 /WRITE GATE IS ON, IF WRITE GATE IS OFF IT ACTS AS A
1346 /DELAY OF N.5 BITS, ENTRANCE IS MADE WITH RETURN ADDRESS
1347 /IN THE SR, NUMBER OF BITS IN THE CNTR, AND A CLOCK
1348 /TRANSITION OCCURRING IMMEDIATELY PRIOR TO THE JUMP INTO
1349 /THIS SUBROUTINE.
1350
1351
1352 1322 0274 *RT0S, OPEN RTN /SAVE RETURN ADDRESS
1353 1323 0064 LSP
1354
1355 1324 0075 LSR /PUT BIT COUNTER IN SR
1356
1357 1325 0230 OPEN TEMPA /TEMPA IS THE PATH THROUGH THE SP
1358
1359 1326 0070 LOOP, LCT /STALL 2.6 MICRO SECONDS
1360 1327 0374 -3-1
1361 1330 0073 ICT
1362 1331 0124 BR COFL F
1363 1332 1330 .-2
1364 1333 0064 LSP /NOOP
1365 1334 0071 ESP /NOOP
1366
1367 1335 0263 TOG FLAG /WRITE A CLOCK TRANSITION IF WRT GATE IS SET
1368
1369 1336 0064 LSP /PUT BIT COUNT IN THE COUNTER
1370 1337 0071 ESP
1371
1372 1340 0073 ICT /INCREMENT BIT CCUNT
1373
1374 1341 0075 LSR /PUT UPDATED BIT CCUNT BACK IN SR
1375
1376 1342 0124 BR COFL F /DONE ALL BITS?
1377 1343 1326 LOOP /NO
1378
1379 1344 0274 OPEN RTN /YES, RETURN FROM SUBROUTINE
1380 1345 0207 JUMP IND F1
1381
1382
1383 1346 0222 PGOTIT, JUMP F4 /POINTER TO GETWORD FROM WAITRUN
1384 1347 0210 GOTIT
1385
1386
1387 /[ROUTINE: INITIALIZE CONT.]
1388
1389 1350 0061 TEST2, FLAG OFF /CLEAR FLAG TO INDICATE R10 IS BEING TESTED
1390
1391 1351 0070 TEST1, LCT /LOOP TO TEST THAT SR IS 252 AND THAT
1392 1352 0372 -5-1 /IT CAN BE SHIFTED.
1393 1353 0120 TSTAGN, BR SR7 ZERO
1394 1354 1374 INTER1 /TEST FAILURE
1395 1355 0076 ROTATE ONE
1396 1356 0122 BR SR7 ONE

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1397 1357 1374 INTER1 /TEST FAILURE
1398 1360 0274 ROTATE ZERO
1399 1361 0073 ICT
1400 1362 0124 BR COFL F
1401 1363 1353 TSTAGN
1402
1403 1364 0250 OPEN R10 /CONTENTS OF R10 TO SR, SHOULD BE 125
1404 1365 0071 ESP
1405 1366 0075 LSR
1406
1407 1367 0074 ROTATE ZERO /SHIFT SR ONCE TO CHANGE 125 TO 252
1408
1409 1370 0176 BR FLAGO ONE /HAS R10 BEEN TESTED ALREADY?
1410 1371 1350 TEST2 /NO
1411
1412 1372 0202 TESTDN, JUMP F0 /YES, RETURN TO REMAINING INITIALIZE ROUTINE
1413 1373 0004 TSTRTN
1414
1415 1374 0006 INTER1, SET ERR /SELF TEST ERROR, SET ERROR AND GO SET DONE
1416 1375 0212 JUMP F2
1417 1376 1031 STDONE
1418
1419 1377 0000 0 /OPEN

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1420 /[SUBROUTINE: FINDHEADER AND FIND DATA ADDRESS MARK]
1421 /SUBROUTINE TO LOCATE A LEGAL HEADER (CORRECT CRC AND TRACK #)
1422 /ENTER WITH THE RETURN ADDRESS IN CNTR, ALSO ROUTINE TO FIND A DATA MARK
1423 /OR DELETED DATA MARK.
1424
1425 /THIS ROUTINE LOCATES A SIX BYTE PREAMBLE OF ZEROES.
1426
1427
1428 1400 0264 FINDHD, OPEN RTNB /STORE RETURN ADDRESS
1429 1401 0075 LSR
1430 1402 0264 LSP
1431
1432 1403 0230 OPEN TEMPA /256 TO BAD START INNER COUNT
1433 1404 0070 LCT
1434 1405 0377 -1
1435 1406 0075 LSR
1436 1407 0064 LSP
1437
1438 1410 0234 OPEN TEMPB /3 TO CNTR FOR BAD START OUTER COUNT, 768 BAD STARTS ALLOWED
1439 1411 0070 LCT
1440 1412 0374 -3-1
1441
1442 1413 0075 TRYAGN, LSR /RESTORE BAD START COUNT
1443 1414 0064 LSP
1444
1445 1415 0045 CLR BAR LONG /RESET FOR A COUNT OF 4096 AS PREAMBLE FAILURE COUNT
1446
1447 1416 0240 OPEN TEMPC /24 TO CNTR AS ZERO BIT COUNT
1448 1417 0070 LCT
1449 1420 0347 -24-1
1450 1421 0075 MORE0S, LSR /RESTORE ZERO BIT COUNT
1451 1422 0064 LSP
1452
1453 1423 0070 LCT /PUT 0 IN SR7 FOR DATA COMPARISONS, ALSO CONSTANT FOR 40 MICRO SEC WAIT CRR:
1454 1424 0067 -200-1
1455 1425 0075 LSR
1456
1457 1426 0346 WBR SEPCLK T /WAIT 40 MICRO SECONDS FOR SEP CLK
1458 1427 1432 .+3
1459
1460 1430 0216 JUMP F3 /ERROR, NO SEP CLK
1461 1431 1667 TIMERR
1462
1463 1432 0154 BR DEQSR7 F /WHAT IS SEP DATA?
1464 1433 1746 NOZERO /ONE, GO CHECK PREAMBLE FAILURES
1465
1466 1434 0071 ESP /ZERO FOUND, CHECK ZERO COUNT
1467 1435 0073 ICT
1468 1436 0124 BR COFL F
1469 1437 1421 MORE0S /NEED MORE ZEROES FOR PREAMBLE
1470 1440 0061 FLAG OFF /FOUND PREAMBLE, CLR FLAG TO INDICATE SEARCH FOR IDAM
1471
1472 1441 0045 GETDAM, CLR BAR LONG /START SEARCH FOR IDAM OR DATA AM, BAR IS NOSTART COUNTER
1473
1474 1442 0070 LCT /WAIT 40 MICRO SEC FOR SEP CLK

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1475 1443 0067 -200-1
1476 1444 0346 WBR SEPCLK T
1477 1445 1450 .+3
1478 1446 0216 JUMP F3 /TIMING ERROR
1479 1447 1667 TIMERR
1480
1481 1450 0156 BR DEQSR7 T /WHAT IS SEP DATA?
1482 1451 1755 NOTYET /ZERO, GO DETERMINE IF TO MANY STARTS
1483
1484 1452 0164 BR MCEQSR F /ONE, MISSING CLOCK?
1485 1453 1673 BADSRT /YES, SHOULDN'T HAVE BEEN
1486
1487 1454 0057 PRECRC /JAM 1ST TWO BITS OF CRC
1488 1455 0056 CRC ONE
1489 1456 0056 CRC ONE
1490
1491 1457 0070 LCT /WAIT 40 MICRO SECONDS FOR SECOND CELL
1492 1460 0067 -200-1
1493 1461 0346 WBR SEPCLK T
1494 1462 1465 .+3
1495 1463 0216 JUMP F3
1496 1464 1667 TIMERR
1497
1498 1465 0156 BR DEQSR7 T /DATA SHOULD BE 1, MISSING CLK SHOULD BE T
1499 1466 1673 BADSRT
1500 1467 0166 BR MCEQSR T
1501 1472 1673 BADSRT
1502
1503 1471 0056 CRC ONE /JAM 3 MORE CRC BITS
1504 1472 0056 CRC ONE
1505 1473 0056 CRC ONE
1506
1507 1474 0070 LCT /WAIT FOR THIRDP BIT CELL
1508 1475 0067 -200-1
1509 1476 0346 WBR SEPCLK T
1510 1477 1502 .+3
1511 1500 0216 JUMP F3
1512 1501 1667 TIMERR
1513
1514 1502 0154 BR DEQSR7 F /DATA SHOULD BE 0, MISSING CLK SHOULD BE F
1515 1503 1673 BADSRT
1516 1504 0164 BR MCEQSR F
1517 1505 1673 BADSRT
1518
1519 1506 0070 LCT /CLEAR SR
1520 1507 0000 J
1521 1510 0075 LSR
1522
1523 1511 0070 LCT /WAIT FOR 4TH BIT CELL
1524 1512 0067 -200-1
1525 1513 0346 WBR SEPCLK T
1526 1514 1517 .+3
1527 1515 0216 JUMP F3
1528 1516 1667 TIMERR
1529
    
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1530 1517 0154 BR DEQSR7 F /DATA SHOULD BE 0, MISSING CLK SHOULD BE F
1531 1520 1673 BADSRT
1532 1521 0042 LDND /NOOP FOR LONG SEP CLOCK
1533 1522 0042 LDND /NOOP FOR LONG SEP CLOCK
1534 1523 0164 BR MCEQSR F
1535 1524 1673 BADSRT
1536
1537 1525 0070 LCT /WAIT FOR FIFTH BIT CELL
1538 1526 0067 -200-1
1539 1527 0346 WBR SEPCLK T
1540 1530 1533 .+3
1541 1531 0216 JUMP F3
1542 1532 1667 TIMERR
1543
1544 1533 0156 BR DEQSR7 T /DATA SHOULD BE 1
1545 1534 1673 BADSRT
1546
1547 1535 0176 BR FLAGO T /IF FLAG SET FINISH LOOKING FOR DATA AM
1548 1536 1675 DAM
1549
1550 1537 0164 BR MCEQSR F /FINISH IDAM, MISSING CLK SHOULD BE F
1551 1540 1673 BADSRT
1552
1553 1541 0056 CRC ONE /JAM 6TH CRC BIT OF IDAM
1554
1555 1542 0070 LCT /WAIT FOR SIXTH BIT CELL
1556 1543 0067 -200-1
1557 1544 0346 WBR SEPCLK T
1558 1545 1550 .+3
1559 1546 0216 JUMP F3
1560 1547 1667 TIMERR
1561
1562 1550 0156 BR DEQSR7 T /DATA SHOULD BE 1, MISSING CLK SHOULD BE F
1563 1551 1673 BADSRT
1564 1552 0164 BR MCEQSR F
1565 1553 1673 BADSRT
1566
1567 1554 0042 LDND /NOOP FOR LONG SEP CLOCK
1568
1569 1555 0056 CRC ONE /JAM 7TH CRC BIT OF IDAM
1570
1571 1556 0070 LCT /WAIT FOR SEVENTH BIT CELL
1572 1557 0067 -200-1
1573 1560 0346 WBR SEPCLK T
1574 1561 1564 .+3
1575 1562 0216 JUMP F3
1576 1563 1667 TIMERR
1577
1578 1564 0156 BR DEQSR7 T /DATA SHOULD BE 1, MISSING CLK SHOULD BE T
1579 1565 1673 BADSRT
1580 1566 0166 BR MCEQSR T
1581 1567 1673 BADSRT
1582
1583 1570 0054 CRC ZERO /IDAM FOUND, JAM LAST CRC BIT
1584
    
```

```

1585
1586
1587
1588
1589 /THIS ROUTINE COMPARES THE HEADER TRACK ADDRESS TO THE
1590 /DESIRED TRACK ADDRESS ON THE FLY. IT IS ENTERED AFTER
1591 /FINDING THE IDAM, ERREG BIT 0 IS SET IF AN ERROR IS DETECTED.
1592
1593
1594 1571 0220 HDRCOM, OPEN TARTRK /TARGET TRACK ADDRESS TO SR
1595 1572 0071 ESP
1596 1573 0075 LSR
1597
1598 1574 0070 LCT /SET BIT COUNTER TO 8
1599 1575 0367 -8-1
1600
1601 1576 0144 AGAIN3, BR SEPCLK F /WAIT FOR BIT CELL
1602 1577 1576 .-1
1603
1604 1600 0156 BR DEQSR7 T /SEP DATA EQUAL TO SR??
1605 1601 1605 .+4 /NO, TRACK COMPARE ERROR
1606
1607 1602 0074 ROTATE ZERO /YES, GET NEXT TRACK ADDRESS BIT
1608 1603 0216 JUMP F3
1609 1604 1610 .+4
1610
1611 1605 0210 OPEN ERREG /SET ERREG BIT 0 TO INDICATE TRACK ERROR
1612 1606 0076 ROTATE ONE
1613 1607 0064 LSP
1614
1615 1610 0055 DATCRC /UPDATE THE CRC
1616
1617 1611 0073 ICT /INCREMENT AND TEST THE BIT COUNTER
1618 1612 0124 BR COFL F
1619 1613 1576 AGAIN3 /GO DO NEXT BIT
1620
1621 1614 0070 LCT /TRACK COMPARED, SET UP BIT COUNTER FOR 0 BYTE
1622 1615 0367 -8-1
1623
1624 1616 0144 AGAIN4, BR SEPCLK F /WAIT FOR BIT
1625 1617 1616 .-1
1626
1627 1620 0061 FLAG OFF /CLEAR FLAG FOR NEXT ROUTINE
1628 1621 0061 FLAG OFF /NOOP FOR LONG SEP CLK
1629 1622 0061 FLAG OFF /NOOP FOR LONG SEP CLK
1630 1623 0061 FLAG OFF /NOOP FOR LONG SEP CLK
1631
1632 1624 0055 DATCRC /UPDATE CRC
1633
1634 1625 0073 ICT /INCREMENT AND TEST BIT COUNT
1635 1626 0124 BR COFL F
1636 1627 1616 AGAIN4 /GO DO ANOTHER BIT
1637 /CONTINUE
1638
1639

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1640 /THIS ROUTINE COMPARES THE HEADER SECTOR ADDRESS WITH THE
1641 /TARGET SECTOR ADDRESS ON THE FLY. IT IS ENTERED FROM
1642 /THE TRACK COMPARE ROUTINE. A MISMATCH WILL SET THE FLAG.
1643
1644
1645 1630 0224 OPEN TARSEC /TARGET SECTOR ADDRESS TO SR
1646 1631 0271 ESP
1647 1632 0075 LSR
1648
1649 1633 0070 LCT /SET UP BIT COUNTER FOR 8 BITS
1650 1634 0367 -8-1
1651
1652 1635 0144 AGAIN5, BR SEPCLK F /WAIT FOR A BIT
1653 1636 1635 .-1
1654
1655 1637 0156 BR DEQSR7 T /HOW DO THEY COMPARE?
1656 1640 1643 .+3 /BAD, GO SET THE FLAG
1657
1658 1641 0216 JUMP F3 /GOOD, SKIP THE ERROR FLAG.
1659 1642 1644 .+2
1660
1661 1643 0062 FLAG ON /SET FLAG TO INDICATE MISMATCH
1662
1663 1644 0074 ROTATE ZERO /BRING UP NEXT BIT
1664
1665 1645 0055 DATCRC /UPDATE THE CRC
1666 1646 0073 ICT /BUMP THE BIT COUNTER
1667 1647 0124 BR COFL F /ALL BITS COMPARED?
1668 1650 1635 AGAIN5 /NO, LOOP BACK
1669
1670 1651 0070 LCT /YES, SETUP TO WAIT FOR END OF
1671 1652 0347 -24-1 /CRC
1672
1673 1653 0144 AGAIN6, BR SEPCLK F /WAIT FOR BIT
1674 1654 1653 .-1
1675
1676 1655 0074 ROTATE ZERO /NOOP FOR LONG SEP CLK
1677 1656 0074 ROTATE ZERO /NOOP FOR LONG SEP CLK
1678 1657 0074 ROTATE ZERO /NOOP FOR LONG SEP CLK
1679 1660 0074 ROTATE ZERO /NOOP FOR LONG SEP CLK
1680
1681 1661 0055 DATCRC /UPDATE CRC
1682
1683 1662 0073 ICT /BUMP THE BIT COUNTER
1684 1663 0124 BR COFL F /ALL DONE?
1685 1664 1653 AGAIN6 /NO, LOOP BACK
1686
1687 1665 0226 JUMP F5 /YES, GO CHECK IF CRC IS ALL ZEROES
1688 1666 2515 CKHCRC
1689
1690
1691 1667 0070 TIMERR, LCT /40 MICROSEC PASSED AND NO SEP CLOCK WAS SEEN
1692 1670 0110 KTIMERR
1693 1671 0226 JUMP F5
1694 1672 2610 GOERDN

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1695
1696
1697      1673 0226      BADSRT, JUMP F5      /POINTER TO BADSTART ON IDAM OR DATA AM
1698      1674 2555      BDSRT
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708      1675 0166      DAM,   BR MCEQSR T      /MISSING CLK SHOULD BE T
1709      1676 1673      BADSRT
1710
1711      1677 0054      CRC ZERO      /JAM 6TH CRC BIT OF DATA AM
1712
1713      1700 0070      LCT          /WAIT FOR SIXTH BIT CELL
1714      1701 0067      -200-1
1715      1702 0346      WBR SEPCLK T
1716      1703 1706      .+3
1717      1704 0216      JUMP F3
1718      1705 1667      TIMERR
1719
1720      1706 0164      BR MCEQSR F      /MISSING CLK SHOULD BE F
1721      1707 1673      BADSRT
1722      1710 0042      LDHD        /NOOP FOR LONG SEP CLK
1723
1724      1711 0156      BR DEQSR7 T      /IF DATA=0 THEN LOOK FOR DELETED DATA AM
1725      1712 1727      DELDAT
1726
1727      1713 0056      CRC ONE      /JAM 7TH BIT OF DATA AM
1728
1729      1714 0070      LCT          /WAIT FOR SEVENTH BIT OF DATA AM
1730      1715 0067      -200-1
1731      1716 0346      WBR SEPCLK T
1732      1717 1722      .+3
1733      1720 0216      JUMP F3
1734      1721 1667      TIMERR
1735
1736      1722 0056      CRC ONE      /JAM LAST BIT OF DATA AM
1737
1738      1723 0154      BR DEQSR7 F      /DATA SHOULD BE 1
1739      1724 1742      ENDDAM      /FLAG IS SET TO INDICATE NORMAL DATA MARK
1740
1741      1725 0216      JUMP F3      /LAST DATA BIT WAS BAD
1742      1726 1673      BADSRT
1743
1744
1745      1727 0054      DELDAT, CRC ZERO      /JAM 7TH CRC BIT OF DEL DATA AM
1746
1747      1730 0070      LCT          /WAIT FOR 7TH CELL OF DEL DATA AM
1748      1731 0067      -200-1
1749      1732 0346      WBR SEPCLK T

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1750      1733 1736      .+3
1751      1734 0216      JUMP F3
1752      1735 1667      TIMERR
1753
1754      1736 0061      FLAG OFF      /CLR FLAG TO INDICATE DELETED DATA MARK
1755
1756      1737 0054      CRC ZERO      /JAM LAST CRC BIT OF DEL DATA AM
1757
1758      1740 0154      BR DEQSR7 F      /DATA SHOULD BE 0
1759      1741 1673      BADSRT
1760
1761      1742 0164      ENDDAM, BR MCEQSR F      /MISSING CLK SHOULD BE F FOR BOTH DATA AMS
1762      1743 1673      BADSRT
1763
1764      1744 0222      JUMP F4      /GO PICK UP DATA FIELD
1765      1745 2206      DATA
1766
1767
1768      1746 0046      NOZERO, INCR BAR      /INCREMENT AND TEST PREAMBLE FAILURE COUNT
1769      1747 0160      BR BAROFL F
1770      1750 1416      TRYAGN+3      /OK, TRY AGAIN FOR A PREAMBLE
1771
1772      1751 0070      NXPRAM, LCT      /TOO MANY BITS WITH NO ZEROES
1773      1752 0120      KNXPRAM
1774      1753 0226      JUMP F5
1775      1754 2610      GOERDN
1776
1777
1778      1755 0046      NOTYET, INCR BAR      /INCR AND TEST IDAM OR DATA AM START FAILURE COUNT
1779      1756 0042      LDHD        /NOOP FOR LONG SEP CLK
1780      1757 0160      BR BAROFL F
1781      1760 1442      GETDAM+1      /OK, TRY AGAIN
1782
1783      1761 0070      NXIDAM, LCT      /TOO MANY ZEROES WHILE LOOKING FOR START OF
1784      1762 0130      KNXIDAM      /IDAM OR DATA AM
1785      1763 0226      JUMP F5
1786      1764 2610      GOERDN
1787
1788
1789      1765 0212      PNTRDY, JUMP F2      /POINTERS FROM CHECKRDY SUBROUTINE TO ROSTAT ROUTINE
1790      1766 1243      CLRID
1791      1767 0212      PYSRDY, JUMP F2
1792      1770 1243      CLRID
1793
1794      1771 0212      PNORDY, JUMP F2      /POINTERS FROM CHECK RDY TO INITIALIZE ROUTINE
1795      1772 1006      OKDONE
1796      1773 0226      JUMP F5
1797      1774 2631      INTRDY
1798
1799      1775 0000      0          /OPEN
1800      1776 0000      0          /OPEN
1801      1777 0000      0          /OPEN
1802

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```

1803 /SUBROUTINES: GETWORD AND GETCOMMAND
1804 /SUBROUTINE TO GET AN EIGHT BIT WORD FROM THE INTERFACE.
1805 /IF TALKING TO A PDP8 INTERFACE IN 12 BIT MODE, THERE
1806 /WILL BE FOUR MEANINGLESS BITS PRECEDING THE DESIRED EIGHT
1807 /BIT WORD, ENTER THIS SUBROUTINE WITH THE RETURN ADDRESS
1808 /IN THE COUNTER, EXIT WITH THE ONES COMPLIMENT OF THE
1809 /DESIRED WORD IN THE SHIFT REGISTER, PARITY IS COMPUTED AND
1810 /CHECKED ON ALL WORDS.
1811
1812
1813 2000 0012 GETWRD, SET XREQ /REQUEST A WORD FROM INTERFACE
1814
1815 2001 0075 GETCMD, LSR /STASH THE RETURN ADDRESS
1816 2002 0270 OPEN RTNA
1817 2003 0064 LSP
1818
1819 2004 2070 LCT /CALL SUBR WAITRN TO WAIT FOR A WORD
1820 2005 1346 PGOTIT
1821 2006 0222 JUMP F4
1822 2007 2312 WAITRN
1823
1824 2010 0061 GOTIT, OFF FLAG /CLEAR FLAG FOR PARITY CHECK
1825
1826 2011 0004 CLR ERR /IN CASE RUN WAS A RESPONSE TO DONE
1827 2012 0020 CLR DONE
1828
1829 2013 0070 LCT /SET UP BIT COUNT IN CNTR, 8 BIT OR 12 BIT
1830 2014 0367 =8-1
1831 2015 0150 BR XIIBIT F
1832 2016 2021 .+3
1833 2017 0070 LCT
1834 2020 0363 =12-1
1835
1836 2021 0112 WATDAT, BR DATAIN ONE /WHAT IS THE DATA BIT?
1837 2022 2030 GOTONE /ITS A ONE, GO SAVE IT
1838
1839 2023 0126 BR COFL T /ITS A ZERO, WAS IT THE PARITY BIT (9TH BIT)?
1840 2024 2041 CHKPAR /YES, GO CHECK PARITY
1841
1842 2025 0076 ROTATE ONE /NO SAVE THE DATA BIT COMPLIMENTED IN SR
1843
1844 2026 0222 JUMP F4 /GO SHIFT UP ANOTHER BIT.
1845 2027 2034 NUTHER
1846
1847
1848
1849
1850 2030 0063 GOTONE, TOG FLAG /COMPLIMENT THE PARITY GENERATOR
1851
1852 2031 0126 BR COFL T /WAS IT THE PARITY BIT?
1853 2032 2041 CHKPAR /YES, GO CHECK PARITY
1854
1855 2033 0074 ROTATE ZERO /NO, SAVE THE COMPLIMENTED DATA BIT IN SR
1856
1857 2034 0026 NUTHER, SET SHIFT /SHIFT PULSE AND INCREMENT BIT COUNT

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1858 2035 0073 ICT
1859 2036 0024 CLR SHIFT
1860
1861 2037 0222 JUMP F4 /GO TEST THIS BIT.
1862 2040 2021 WATDAT
1863
1864
1865 2041 0176 CHKPAR, BR FLAGO ONE /WHERE THERE AN ODD NO. OF ONES?
1866 2042 2076 GOTWRD /YES, PARITY WAS GOOD
1867
1868 2043 0214 OPEN STAT /NO, STAT TO SR
1869 2044 0071 ESP
1870 2045 2075 LSR
1871
1872 2046 0070 LCT /END AROUND SHIFT OF UPPER 5 BITS OF STAT IN SR
1873 2047 0372 =5-1
1874 2050 0122 BR SR7 T
1875 2051 2055 .+4
1876 2052 0074 ROTATE ZERO
1877 2053 0222 JUMP F4
1878 2054 2056 .+2
1879 2055 0076 ROTATE ONE
1880 2056 0073 ICT
1881 2057 0124 BR COFL F
1882 2060 2050 =8
1883
1884 2061 0074 ROTATE ZERO /CLEAR INIT DONE
1885 2062 0076 ROTATE ONE /SET PARITY ERROR
1886
1887
1888 2063 0122 BR SR7 T /END AROUND SHIFT OF CRC ERROR BIT OF STAT IN SR
1889 2064 2070 .+4
1890 2065 0074 ROTATE ZERO
1891 2066 0222 JUMP F4
1892 2067 2071 .+2
1893 2068 2076 ROTATE ONE
1894
1895 2071 0064 LSP /RESTORE STAT TO SCRATCH PAD
1896
1897 2072 0070 LCT /ERRCODE FOR PARITY ERROR
1898 2073 0214 KPARER
1899 2074 0226 JUMP F5
1900 2075 2010 GOERDN
1901
1902 2076 0270 GOTWRD, OPEN RTNA /WORD WAS GOOD, EXIT FROM GETWRD, GETCMD
1903 2077 0203 JUMP F0 IND

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```

1903
1904      /([SUBROUTINE: STEPHEAD])
1905      /THIS SUBROUTINE WILL STEP THE SPECIFIED NUMBER OF TRACKS IN THE
1906      /SPECIFIED DIRECTION. DIRECTION IS DETERMINED BY THE HD DIR FLOP
1907
1908      /THE NUMBER OF STEPS IS IN THE SR. RETURN ADDRESS IS IN THE CNTR.
1909      /EXIT IS TO THE RETURN ADDRESS IF HOMP IS DETECTED. EXIT IS TO RETURN
1910      /PLUS 2 IF THE LAST STEP HAS BEEN TAKEN. AFTER THE LAST STEP IS TAKEN,
1911      /THE HEAD IS LOADED AND A 25MS DELAY IS EXECUTED FOR HEAD SETTLE TIME
1912
1913
1914
1915
1916      2100 0270      STEPHD, OPEN RTNA      /STORE RETURN ADDR AND MOVE STEP COUNT TO CNTR
1917      2101 0064      LSP
1918      2102 0075      LSR
1919      2103 0071      ESP
1920      2104 0064      LSP
1921
1922      2105 0136      CKHOME, BR HOME T      /IS THE HEAD HOME?
1923      2106 2150      OUT      /YES, GO EXIT
1924
1925      2107 0073      ICT      /NO, INCREMENT STEP COUNT AND STORE IN TEMPA
1926      2110 0075      LSR
1927      2111 0230      OPEN TEMPA
1928      2112 0064      LSP
1929
1930      2113 0270      LCT      /PASS 30 TO DELAY SUBR FOR 3MS DELAY
1931      2114 2124      SECPLS
1932      2115 0075      LSR
1933      2116 0270      LCT
1934      2117 0341      -30-1
1935
1936      2120 0012      SET STPHD      /ISSUE STEP PULSE
1937      2121 0010      CLR STPHD
1938
1939      2122 0212      JUMP F2      /CALL DELAY SUBR
1940      2123 1300      DELAY
1941
1942      2124 0012      SECPLS, SET STPHD      /ISSUE SECOND STEP PULSE
1943      2125 0010      CLR STPHD
1944
1945      2126 0270      LCT      /CALL DELAY FOR 3MS DELAY
1946      2127 2135      DONSTP
1947      2130 0075      LSR
1948      2131 0270      LCT
1949      2132 0341      -30-1
1950      2133 0212      JUMP F2
1951      2134 1300      DELAY
1952
1953      2135 0230      DONSTP, OPEN TEMPA      /CHECK STEP COUNT
1954      2136 0071      ESP
1955      2137 0124      BR COFL F
1956      2140 2105      CKHOME      /NOT DONE, GO CHECK IF HOME
1957

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1958      2141 0270      OPEN RTNA      /DONE STEPPING, INCREMENT RETURN ADDRESS BY 2
1959      2142 0071      ESP
1960      2143 0073      ICT
1961      2144 0073      ICT
1962
1963      2145 0270      DLY25, OPEN RTNA      /STORE RETURN ADDRESS ALSO START OF 25MS DELAY SUBROUTINE
1964      2146 0075      LSR
1965      2147 0064      LSP
1966
1967      2150 0042      OUT, LDHD      /LOAD HEAD
1968      2151 0250      OPEN TEMPE      /SET SOFT HD LOAD BIT
1969      2152 0070      LCT
1970      OCTAL
1971      2153 0200      200
1972      DECIMAL
1973      2154 0075      LSR
1974      2155 0064      LSP
1975
1976      2156 0270      LCT      /CALL DELAY SUBR FOR 25MS DELAY
1977      2157 2165      DONDLY
1978      2160 0075      LSR
1979      2161 0070      LCT
1980      2162 0000      -255-1
1981      2163 0212      JUMP F2
1982      2164 1300      DELAY
1983
1984      2165 0270      DONDLY, OPEN RTNA      /RETURN FROM STEP HEAD OR DELAY 25MS SUBROUTINE
1985      2166 0203      JUMP F0 IND
1986
1987
1988
1989
1990
1991
1992
1993      /([ROUTINE: READ SECTOR CONT.])
1994
1995      2167 0070      READ, LCT      /3 TO DATA MARK TRY COUNTER
1996      2170 0374      -3-1
1997      2171 0234      OPEN TEMPB
1998      2172 0075      LSR
1999      2173 0064      LSP
2000
2001      2174 0070      LCT      /STALL FOR 96 MICRO SEC (3 BYTES) TO AVOID WRT TURN ON SPLASH
2002      2175 0207      -120-1
2003      2176 0073      ICT
2004      2177 0062      FLAG ON      /SET THE FLAG TO SPECIFY DATA AM IN FIND AM ROUTINE
2005      2200 0124      BR COFL F
2006      2201 2176      -3
2007
2008      2202 0073      ICT      /CLR COUNTER AND SR
2009      2203 0075      LSR
2010
2011      2204 0216      JUMP F3      /GO TRY FIND THE ADDRESS MARK
2012      2205 1441      GETDAM

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2013
2014
2015 /THIS ROUTINE FOLLOWS THE DISCOVERY OF A DATA MARK OR
2016 /A DELETED DATA MARK. IT MOVES THE NEXT 1024 BITS
2017 /INTO THE SECTOR BUFFER, THEN PICKS UP AND CHECKS THE CRC.
2018
2019 2206 0044 DATA, CLR BAR /CLEAR THE BUFFR ADDRESS REGISTER
2020
2021 2207 0144 BR SEPCLK F /WAIT FOR CLOCK
2022 2210 2207 .-1
2023
2024 2211 0053 START WRTBUF /START THE WRITE PULSE FOR THIS BIT
2025
2026 2212 0055 DATCRC /UPDATE THE CRC WITH SEP DATA
2027
2028 2213 0162 BR BAROFL T /IS BUFFER FULL YET?
2029 2214 2221 GETCRC /YES, GO GET THE CRC
2030
2031 2215 0050 FIN WRTBUF /NO, END THE WRITE PULSE
2032
2033 2216 0046 INCR BAR /ADDRESS NEXT SECTOR BUFFER CELL
2034
2035 2217 0222 JUMP F4 /LOOP BACK FOR NEXT BIT
2036 2220 2207 DATA+1
2037
2038 2221 0050 GETCRC, FIN WRTBUF /END THE WRITE PULSE FOR THE LAST BIT
2039
2040 2222 0070 LCT /SET BIT COUNT TO 16 FOR 2 BYTE CRC
2041 2223 0357 -16-1
2042
2043 2224 0144 BR SEPCLK F /WAIT FOR NEXT BIT
2044 2225 2224 .-1
2045
2046 2226 0042 LDHD /4 NOOPS FOR LONG SEP CLOCK
2047 2227 0042 LDHD
2048 2230 0042 LDHD
2049 2231 0042 LDHD
2050
2051 2232 0055 DATCRC /PUT CRC BIT IN THE CRC GENERATOR
2052 2233 0073 ICT /INCREMENT AND TEST BIT COUNT
2053 2234 0124 BR COFL F
2054 2235 2224 .-9 /NOT DONE, GET ANOTHER
2055
2056 2236 0214 OPEN STAT /STATUS TO SHFT REG
2057 2237 0071 ESP
2058 2240 0075 LSR
2059
2060 2241 0122 BR SR7 T /END AROUND SHIFT OF DRV RDY BIT OF STAT IN SR
2061 2242 2246 .+4
2062 2243 0074 ROTATE ZERO
2063 2244 0222 JUMP F4
2064 2245 2247 .+2
2065 2246 0076 ROTATE ONE
2066
2067 2247 0176 BR FLAG0 T /SET DEL DATA BIT OF STAT IF FLAG=0

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2068 2250 2254 .+4
2069 2251 0076 ROTATE ONE
2070 2252 0222 JUMP F4
2071 2253 2255 .+2
2072 2254 0074 ROTATE ZERO
2073
2074 2255 0070 LCT /END AROUND SHIFT OF NEXT 5 BITS OF STAT IN SR
2075 2256 0372 -5-1
2076 2257 0122 BR SR7 T
2077 2260 2264 .+4
2078 2261 0074 ROTATE ZERO
2079 2262 0222 JUMP F4
2080 2263 2265 .+2
2081 2264 0076 ROTATE ONE
2082 2265 0073 ICT
2083 2266 0124 BR COFL F
2084 2267 2257 .-8
2085
2086 2270 0070 LCT /SET BIT COUNTER TO 16 FOR CRC TEST
2087 2271 0357 -16-1
2088
2089 2272 0132 BR CRC16 ONE /IS THIS CRC BIT OK
2090 2273 2304 DCR CER /NO, GO REPORT DATA CRC ERROR
2091
2092 2274 0054 CRC ZERO /YES, BRING UP NEXT CRC BIT
2093
2094 2275 0073 ICT /INCREMENT AND TEST BIT COUNTER
2095 2276 0124 BR COFL F
2096 2277 2272 .-5 /GO CHECK ANOTHER
2097
2098 2300 0074 ROTATE ZERO /CRC WAS GOOD, CLR CRC ERR BIT OF STAT IN SR
2099
2100 2301 0064 LSP /PUT THE STATUS WORD BACK IN SCRATCHPAD
2101
2102 2302 0212 JUMP F2 /EXIT TO DONE
2103 2303 1006 OKDONE
2104
2105 2304 0076 DCR CER, ROTATE ONE /INSERT 1 INTO CRC ERROR BIT
2106
2107 2305 0064 LSP /PUT THE STAT WORD BACK
2108
2109 2306 0070 LCT /ERROR CODE FOR CRC ERROR
2110 2307 0200 KDCR CER
2111 2310 0226 JUMP F5
2112 2311 2610 GOERON

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2113          /([SUBROUTINE: WAIT FOR RUN])
2114          /THIS SUBROUTINE WILL WAIT FOR RUN, IF 46MS ELAPSES, THE HEAD IS UNLOADED
2115          /AND THE ROUTINE CONTINUES WAITING FOR RUN, RETURN ADDRESS IS PASSED
2116          /VIA THE COUNTER
2117
2118
2119      2312 0264  WAITRN, OPEN RTNB  /STASH THE RETURN ADDRESS
2120          2313 0075          LSR
2121          2314 0064          LSP
2122
2123      2315 0102          BR RUN T  /GOT RUN?
2124          2316 2347          GOTRUN
2125
2126      2317 0240          OPEN TEMPC /PRESET LOOP COUNTER TO 0
2127          2320 0070          LCT
2128          2321 0000          R
2129
2130      2322 0075  BACK,  LSR  /RESTORE LOOP COUNT
2131          2323 0064          LSP
2132
2133      2324 0302          WBR RUN T /TIME WHILE WAITING FOR FUN
2134          2325 2347          GOTRUN
2135          2326 0302          WBR RUN T
2136          2327 2347          GOTRUN
2137          2328 0302          WBR RUN T
2138          2331 2347          GOTRUN
2139          2332 0302          WBR RUN T
2140          2333 2347          GOTRUN
2141
2142      2334 0071          ESP  /INCREMENT AND TEST LOOP COUNT
2143          2335 0073          ICT
2144          2336 0124          BR COFL F
2145          2337 2322          BACK  /46MS NOT ELAPSED YET
2146
2147      2340 0250          OPEN TEMPE /TIME IS EXPIRED (45.8 MS), CLEAR THE SOFT HDLD BIT AND UNLOAD THE HEAD
2148          2341 0273          ICT
2149          2342 0075          LSR
2150          2343 0064          LSP
2151          2344 0040          UNHD
2152
2153      2345 0100          BR RUN F  /WAIT FOR RUN, FOREVER IF NECESSARY
2154          2346 2345          .-1
2155
2156      2347 0010          GOTRUN, CLR XREQ /IF RUN WAS RESPONSE TO XFREQ
2157
2158          2350 0264          OPEN RTNB /RETURN FROM WAITRN SUBROUTINE
2159          2351 0213          JUMP IND F2
2160
2161

```

```

2162          /([ROUTINE: INITIALIZE CONT.])
2163          /CONTINUATION OF THE INITIALIZE SELF TEST
2164
2165      2352 0070  TEST,  LCT  /LOAD R5 WITH TEST PATTERN 252
2166          2353 0252          OCTAL
2167          2353 0252          252
2168          2354 0075          DECIMAL
2169          2355 0224          LSR
2170          2356 0064          OPEN R5
2171          2356 0064          LSP
2172
2173      2357 0070          LCT  /LOAD R10 WITH TEST PATTERN 125
2174          2357 0070          OCTAL
2175          2360 0125          125
2176          2360 0125          DECIMAL
2177          2361 0075          LSR
2178          2362 0250          OPEN R10
2179          2363 0064          LSP
2180
2181      2364 0062          FLAG ON  /SET FLAG AND TEST IT
2182          2365 0170          BR FLAGO T
2183          2366 2371          .+3
2184          2367 0212          JUMP F2
2185          2370 1374          INTER1 /FLAG FAILURE
2186
2187      2371 0224          OPEN R5  /CONTENTS OF R5 TO SR, SHOULD BE 252
2188          2372 0071          ESP
2189          2373 0275          LSR
2190
2191      2374 0212          JUMP F2  /GO CONTINUE INIT TEST IN FLD 2
2192          2375 1351          TEST1
2193
2194          2376 0000          0
2195          2377 0000          0  /OPEN
2196

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```

2197 / [SUBROUTINE: MAGNITUDE COMPARISON]
2198 / THIS SUBROUTINE COMPARES THE EIGHT BIT NUMBERS IN REGISTERS F AND G
2199 / EXIT IS TO THE RETURN ADDRESS IF F=G, IF F<G, RETURN IS TO RTNA+2.
2200 / IF F>G, RETURN IS TO RTNA+4. CONTENTS OF F AND G ARE UNDEFINED AT
2201 / THE END OF THE SUBROUTINE
2202
2203
2204
2205
2206 2400 0230 MAGCOM, OPEN TEMP A /FOR BIT COUNT
2207
2208 2401 0070 LCT /BIT COUNT IS 8
2209 2402 0367 -8-1
2210
2211 2403 0075 LSR /RESTORE BIT COUNT
2212 2404 0064 LSP
2213
2214 2405 0254 OPEN TEMPF /F TO SR
2215 2406 0071 ESP
2216 2407 0075 LSR
2217
2218 2410 0120 BR SR7 ZERO /TEST F
2219 2411 2443 TSTG0 /ITS 0
2220
2221 2412 0076 ROTATE ONE /ITS 1, BRING UP NEXT BIT
2222
2223 2413 0064 LSP /RESTORE F
2224
2225 2414 0260 OPEN TEMPG /G TO SR
2226 2415 0071 ESP
2227 2416 0075 LSR
2228
2229 2417 0120 BR SR7 ZERO /TEST G
2230 2420 2432 GLESSF /ITS 0, G IS LESS THAN F
2231
2232 2421 0074 NEXTG, ROTATE ZERO /ITS 1, BRING UP NEXT G BIT
2233
2234 2422 0064 LSP /RESTORE G
2235
2236 2423 0230 OPEN TEMP A /INCREMENT AND TEST BIT COUNT
2237 2424 0071 ESP
2238 2425 0073 ICT
2239 2426 0124 BR COFL F
2240 2427 2403 MAGCOM+3 /GO COMPARE ANOTHER BIT
2241
2242 2430 0270 OPEN RTNA /ALL BITS COMPARED, NO DIFFERENCE
2243 2431 0203 JUMP F0 IND
2244
2245 2432 0270 GLESSF, OPEN RTNA /G IS LESS THAN F RETURN TO RTNA +4
2246 2433 0071 ESP
2247 2434 0073 ICT
2248 2435 0073 ICT
2249 2436 0073 ICT
2250 2437 0073 ICT
2251 2440 0075 LSR

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2252 2441 0064 LSP
2253 2442 0203 JUMP F0 IND
2254
2255 2443 0074 TSTG2, ROTATE ZERO /F HAS 0, BRING UP NEXT BIT
2256
2257 2444 0064 LSP /RESTORE F
2258
2259 2445 0260 OPEN TEMPG /G TO SR
2260 2446 0071 ESP
2261 2447 0275 LSR
2262
2263 2450 0120 BR SR7 ZERO /TEST G
2264 2451 2421 NEXTG /MATCHS F, GO BRING UP NEXT G BIT
2265
2266 2452 0270 OPEN RTNA /G IS LESS THAN F, RETURN TO RTNA +2
2267 2453 0271 ESP
2268 2454 0226 JUMP F5
2269 2455 2436 GLESSF+4
2270
2271
2272
2273 / [SUBROUTINE: FIND TRACK CONT.]
2274
2275 2456 0070 HOMERR, LCT /HOMER FOUND BEFORE LAST STEP TAKEN
2276 2457 0050 KHOMEERR
2277 2460 0226 JUMP F5
2278 2461 2610 GOERON
2279
2280
2281 / [SUBROUTINE: DIFFERENCE]
2282 / THIS SUBROUTINE COMPUTES THE DIFFERENCE BETWEEN TWO EIGHT BIT
2283 / NUMBERS. ENTER WITH THE RETURN ADDRESS IN RTN, A IN THE
2284 / COUNTER AND B IN THE SHIFT REGISTER. EXIT IS MADE WITH THE
2285 / COMPLIMENT OF THE DIFFERENCE IN THE SHIFT REGISTER.
2286 / EXIT IS TO RTN IF A>=B, EXIT IS TO RTN+2 IF A<B
2287
2288
2289
2290
2291 2462 0230 DIF, OPEN TEMP A /OPEN TEMPORARY PATH THRU THE SP
2292
2293 2463 0126 BR COFL T /HAS A REACHED ALL ONES YET?
2294 2464 2501 DIFB /YES, GO GET B FOR THE DIFFERENCE
2295
2296 2465 0064 LSP /NO, GET B
2297 2466 0075 LSR /A INTO SHIFT REG
2298 2467 0071 ESP /B INTO COUNTER
2299
2300 2470 0126 BR COFL T /HAS B REACHED ALL ONES YET?
2301 2471 2503 DIFA /YES, GO GET A FOR THE DIFFERENCE
2302
2303 2472 0073 ICT /INCREMENT B
2304 2473 0064 LSP /, BRING BACK A
2305 2474 0075 LSR /B INTO SHIFT REG
2306 2475 0071 ESP /A INTO COUNTER

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0
0  /RX01 FLOPPY CONTROLLER FIRMWARE          PAL10  V142A  9-FEB-76      9117  PAGE 15-2
0  2307  2476  0073          ICT          /INCREMENT A
0  2308  2477  0226          JUMP F5     /GO BACK TO TEST A AGAIN
0  2309  2502  2463          DIF+1
0  2310
0  2311
0  2312  2501  0273  DIFB,  OPEN RTNA     /B IS THE COMPLIMENT OF THE DIFFERENCE
0  2313  2502  0203          JUMP F0 IND /EXIT A>=9
0  2314
0  2315
0  2316  2503  0274  DIFA,  OPEN RTNA     /A IS THE COMPLIMENT OF THE DIFFERENCE
0  2317  2504  0071          ESP        /INCREMENT THE RETURN ADDRESS BY 2
0  2318  2505  0073          ICT
0  2319  2506  0073          ICT
0  2320
0  2321  2507  0064          LSP        /RESTORE RETURN ADDRESS TO SCRATCHPAD AND A TO CR
0  2322  2510  0075          LSR
0  2323  2511  0071          ESP
0  2324  2512  0064          LSP
0  2325  2513  0075          LSR
0  2326
0  2327  2514  0203          JUMP F0 IND /EXIT A<B
0  2328
0  2329
0  2330
0  2331          /ROUTINE: FIND HEADER CONT.1
0  2332          /THIS ROUTINE CHECKS THE CRC, AND THE RESULTS OF THE TRACK
0  2333          /AND SECTOR COMPARISONS.
0  2334
0  2335
0  2336
0  2337
0  2338  2515  0070  CKMCRC, LCT          /PRESET BIT COUNT TO 16 FOR CRC
0  2339  2516  0357          -16-1
0  2340
0  2341  2517  0132          BR CRC16 ONE /IS CRC ZERO
0  2342  2520  2546          MRCER      /NO, LOG ERROR AND TRY AGAIN
0  2343
0  2344  2521  0073          ICT        /YES, CRC GOOD SO FAR, BUMP BIT CNTR
0  2345
0  2346  2522  0054          CRC ZERO   /BRING UP NEXT CRC BIT
0  2347
0  2348  2523  0124          BR COFL F  /ALL BITS TESTED?
0  2349  2524  2517          .-5       /NO, BRANCH BACK
0  2350
0  2351  2525  0210          OPEN ERREG /YES, CRC WAS GOOD, CHECK TRK COMP
0  2352  2526  0071          ESP
0  2353  2527  0075          LSR
0  2354
0  2355  2530  0070          LCT        /ROTATE BIT 0 TO BIT 7
0  2356  2531  0370          -7-1
0  2357  2532  0074          ROTATE ZERO
0  2358  2533  0073          ICT
0  2359  2534  0124          BR COFL F  /DONE ROTATING?
0  2360  2535  2532          .-3       /NO
0  2361

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0
0  /RX01 FLOPPY CONTROLLER FIRMWARE          PAL10  V142A  9-FEB-76      9117  PAGE 15-3
0  2362  2536  0122          BR SR7 ONE /YES, WAS THERE A BAD COMPARE
0  2363  2537  2542          TSKER     /YES, GO REPORT A TRACK SEEK ERROR
0  2364
0  2365  2540  0264          OPEN RTNB  /CORRECT TRACK, EXIT FROM FIND HDR SUBR
0  2366  2541  0207          JUMP F1 IND
0  2367
0  2368
0  2369
0  2370
0  2371  2542  0070  TSKER, LCT          /HEADER CRC WAS GOOD BUT TRACK
0  2372  2543  0150          KTKSKER   /ADDRESS DID NOT COMPARE, MUST
0  2373  2544  0226          JUMP F5     /EXIT TO ERROR DONE
0  2374  2545  2610          GOERDN
0  2375
0  2376
0  2377  2546  0070  MRCER, LCT          /HEADER CRC WAS NOT CORRECT
0  2378  2547  0140          KMRCER
0  2379  2550  0075          LSR
0  2380  2551  0210          OPEN ERREG /LOG THE ERROR
0  2381  2552  0064          LSP
0  2382
0  2383  2553  0226          JUMP F5     /GO TRY ANOTHER HEADER
0  2384  2554  2557          BADHDR
0  2385
0  2386
0  2387
0  2388
0  2389  2555  0176  BDSRT, BR FLAGO T  /BAD START ON DATA AM OR IDAM?
0  2390  2556  2577          BADDAM
0  2391
0  2392  2557  0230  BADHDR, OPEN TEMPA /IDAM, INCREMENT AND TEST BAD START INNER CCUNT
0  2393  2560  0071          ESP
0  2394  2561  0073          ICT
0  2395  2562  0275          LSR
0  2396  2563  0064          LSP
0  2397  2564  0124          BR COFL F
0  2398  2565  2615          PTRYAG    /NO OVERFLOW, GO TRY ANOTHER HEADER
0  2399  2566  0230          OPEN TEMPB /INCREMENT AND TEST BAD START OUTER CCUNT
0  2400  2567  0071          ESP
0  2401  2570  0073          ICT
0  2402  2571  0124          BR COFL F
0  2403  2572  2615          PTRYAG    /NO OVERFLOW, GO TRY AGAIN
0  2404  2573  0070  XSTRYS, LCT        /TOO MANY TRIES FOR A HEADER
0  2405  2574  0160          KXSTRYS
0  2406  2575  0226          JUMP F5
0  2407  2576  2610          GOERDN
0  2408
0  2409
0  2410  2577  0230  BADDAM, OPEN TEMPB /BAD START ON DATA AM, INCREMENT AND TEST BAD START CCUNT
0  2411  2600  0071          ESP
0  2412  2601  0073          ICT
0  2413  2602  0075          LSR
0  2414  2603  0064          LSP
0  2415  2604  0124          BR COFL F
0  2416  2605  2617          PGETDA    /NO OVERFLOW GO TRY FOR DATA AM AGAIN

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2417 2626 0070 40DAM, LCT /TRIED 3 TIMES FOR DATA AM, GO FLAG THE ERROR
2418 2607 0170 KNODAM
2419 2610 0210 GOERON, OPEN ERREG
2420 2611 0075 LSR
2421 2612 0064 LSP
2422 2613 0212 JUMP F2
2423 2614 1000 ERDONE
2424
2425 2615 0216 PTRYAG, JUMP F3 /POINTER TO FIND AN IDAM
2426 2616 1413 TRYAGN
2427
2428
2429 2617 0216 PGETDA, JUMP F3 /POINTER TO FIND DATA AM
2430 2620 1441 GETDAM
2431
2432
2433
2434
2435 2621 0070 /([ROUTINE: INITIALIZE CONT.])
2436 2622 0030 WRONG, LCT /HOME WAS FOUND WHILE STEPPING OUT
2437 2623 0226 KARONG
2438 2624 2610 JUMP F5
2439 GOERDN
2440 2625 0070 DNRCAL, LCT /CALL CHECK READY SUBROUTINE
2441 2626 1771 PNORDY
2442 2627 0226 JUMP F5
2443 2630 2640 CHKRDY
2444
2445 2631 0070 INTRDY, LCT /DRV 0 IS READY CALL BOOT SUBROUTINE TO
2446 2632 0770 GOREAD /MOVE TO TRACK 1, THEN GO TO READ ROUTINE TO
2447 2633 0274 OPEN RTN /PICK UP SECTOR 1
2448 2634 0075 LSR
2449 2635 0064 LSP
2450 2636 0202 JUMP F0
2451 2637 0252 BOOT
2452
2453
2454
2455

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2456 /([SUBROUTINE: CHECKREADY])
2457
2458 /SUBROUTINE TO CHECK THE SELECTED DRIVE TO SEE IF THE
2459 /DISK IS INSERTED AND UP TO SPEED. THIS IS DONE BY CHECKING TO SEE IF
2460 /THE INTERVAL BETWEEN 2 INDEX PULSES IS BETWEEN 150 MS AND 180 MS. RETURN
2461 /ADDRESS IS PLACED IN THE COUNTER BEFORE ENTRY, NOT READY RETURN IS
2462 /TO THE RETURN ADDRESS. READY RETURN IS TO THE RETURN ADDRESS PLUS 2
2463
2464
2465
2466 /
2467 2640 0274 CHKRDY, OPEN RTN /SAVE RETURN ADDRESS
2468 2641 0075 LSR
2469 2642 0064 LSP
2470
2471 2643 0070 LCT /2 TO CNTR FOR INDEX PASS COUNT
2472 2644 0375 -2-1
2473
2474 2645 0230 OPEN TEMPA /FOR INDEX PASS COUNT
2475
2476 2646 0075 NEWPAS, LSR /RESTORE INDEX PASS COUNT
2477 2647 0064 LSP
2478
2479 2650 0061 FLAG OFF /CLOSE INDEX WINDOW
2480
2481 2651 0042 LDHD /TO CLEAR INDEX FLOP
2482
2483 2652 0070 LCT /FOR 15 TIMES THROUGH 10MS LOOP
2484 2653 0360 -15-1
2485
2486 2654 0234 STDLY, OPEN TEMPB /RESTORE OUTER COUNT
2487 2655 0075 LSR
2488 2656 0064 LSP
2489
2490 2657 0070 LCT /FOR 40 TIMES THROUGH .25MS LOOP
2491 2660 0327 -40-1
2492
2493 2661 0240 OPEN TEMPC
2494 2662 0075 SPBACK, LSR /RESTORE INNER COUNT
2495 2663 0064 LSP
2496
2497 2664 0070 LCT /WAIT .25 MS FOR INDEX
2498 2665 0005 -250-1
2499 2666 0116 BR INDX T
2500 2667 2714 SAWIND /FOUND INDEX
2501 2670 0073 ICT
2502 2671 0124 BR COFL F
2503 2672 2666 ,-4
2504
2505 2673 0240 OPEN TEMPC /INCREMENT AND TEST INNER COUNT
2506 2674 0071 ESP
2507 2675 0073 ICT
2508 2676 0124 BR COFL F
2509 2677 2662 SPBACK
2510

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2511 2700 0234 OPEN TEMPB /INCREMENT AND TEST OUTER COUNT
2512 2701 0071 ESP
2513 2702 0073 ICT
2514 2703 0124 BR COFL F
2515 2704 2655 STDLY+1
2516
2517 2705 0176 BR FLAGO ONE /WAS INDEX WINDOW OPEN?
2518 2706 2767 UNRDY /YES, NO INDEX WITHIN 180MS
2519
2520 2707 0062 FLAG ON /NO, OPEN WINDOW
2521
2522 2710 0070 LCT /FOR 3 TIMES THROUGH 10 MS LOOP
2523 2711 0374 -3-1 /THE WINDOW IS 30 MS WIDE
2524
2525 2712 0226 JUMP F5 /GO LOOK FOR INDEX
2526 2713 2654 STDLY
2527
2528
2529 2714 0230 SAWIND, OPEN TEMPA /INCREMENT AND TEST INDEX PASS COUNT
2530 2715 0071 ESP
2531 2716 0073 ICT
2532 2717 0124 BR COFL F
2533 2720 2646 NEWPAS /THIS WAS 1ST INDEX, GO LOOK FOR SECOND
2534
2535 2721 0174 BR FLAGO ZERO /THIS WAS 2ND INDEX, WAS THE WINDOW OPEN?
2536 2722 2767 UNRDY /NO, INDEX OCCURRED TOO SOON
2537
2538 2723 0274 OPEN RTN /YES, INDEX OCCURRED BETWEEN 150 AND 180 MS, INCREMENT
2539 2724 0071 ESP /RETURN ADDRESS BY 2
2540 2725 0073 ICT
2541 2726 0073 ICT
2542 2727 0075 LSR
2543 2730 0064 LSP
2544
2545 2731 0214 OPEN STAT /SET DRV RDY BIT OF STAT IN SR
2546 2732 0071 ESP
2547 2733 0075 LSR
2548
2549 2734 0076 ROTATE ONE
2550
2551 2735 0061 FLAG OFF /FLAG OFF TO INDICATE FIRST PASS
2552
2553 2736 0070 ROT3, LCT /END AROUND SHIFT OF THE NEXT 3 BITS OF STAT IN SR
2554 2737 0374 -3-1
2555 2740 0122 BR SR7 T
2556 2741 2745 .+4
2557 2742 0074 ROTATE ZERO
2558 2743 0226 JUMP F5
2559 2744 2746 .+2
2560 2745 0076 ROTATE ONE
2561 2746 0073 ICT
2562 2747 0124 BR COFL F
2563 2750 2740 .-8
2564
2565 2751 0176 BR FLAGO T /WAS IT FIRST 3 OR LAST 3

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2566 2752 2764 EXCHRY /LAST, GO EXIT
2567
2568 2753 0140 BR WRTEN F /UPDATE WRITE PROTECT BIT OF STAT IN SR
2569 2754 2760 .+4
2570 2755 0074 ROTATE ZERO
2571 2756 0226 JUMP F5
2572 2757 2761 .+2
2573 2760 0076 ROTATE ONE
2574
2575 2761 0062 FLAG ON /GO SHIFT AROUND LAST 3 BITS
2576 2762 0226 JUMP F5
2577 2763 2736 ROT3
2578
2579 2764 0064 EXCHRY, LSP /RESTORE THE STAT
2580
2581 2765 0274 OPEN RTN /RETURN FROM CHKRDY SUBROUTINE
2582 2766 0217 JUMP F3 IND
2583
2584 2767 0214 UNRDY, OPEN STAT /CLEAR DRV READY BIT OF STAT IN SR
2585 2770 0071 ESP
2586 2771 0075 LSR
2587 2772 0074 ROTATE ZERO
2588
2589 2773 0226 JUMP F5 /GO UPDATE REST OF STAT IN SR
2590 2774 2735 ROT3-1
2591
2592 2775 0000 0 /OPEN
2593 2776 0000 0 /OPEN
2594 2777 0000 0 /OPEN
2595
2596
2597

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0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
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0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
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0700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

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1100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

1600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2100 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

2600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
2700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

3000
3100

3200
3300

3400
3500

3600
3700

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4000
4100

4200
4300

4400
4500

4600
4700

5000
5100

5200
5300

5400
5500

5600
5700

6000
6100

6200
6300

6400
6500

6600
6700

7000
7100

7200
7300

7400
7500

7600
7700

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/RX01 FLOPPY CONTROLLER FIRMWARE      PAL10  V142A  9-FEB-76      9:17  PAGE 16-5

A      0562      ETRK      0242      PFUNCT    0370      WHCHDR    0075
ABACK  0535      EXCHRY   2764      PGETDA   2617      WRONG     2621
ABV43  0344      FILL1    1175      PGOTIT   1346      WRT08     1322
AGAIN  0531      FILLBU   1110      PNORDY   1771      WRTCRC    0624
AGAIN1 0550      FINDHD   1400      PNTRDY   1765      WRTDAM    0514
AGAIN2 0722      FINDSE   0714      PRDSEC   1105      WRTDAT    0566
AGAIN3 1576      FINDTR   0103      PRTERP   0503      WRTPST    0656
AGAIN4 1616      FUNCT    1036      PTRYAC   2615      WRTSEC    0400
AGAIN5 1635      FUNCT2   1057      PUTSEC   0145      XFRQ      1131
AGAIN6 1653      FUNCT4   1066      PUTTRY   0166      XSTRYS    2573
B      0564      FUNCT6   1076      PYSRDY   1767
BACK   2322      GETCMD   2001      RCALOK   0060
BADDAM 2577      GETCRC   2221      RDEREG   1275
BADHDR 2557      GETDAM   1441      RDSEC    0760
BADSRT 1673      GETWRD   2000      RDSTAT   1224
BACK   0554      GLESSF   2432      READ     2167
BDSRT  2555      GODONE   0712      READOK   0706
BOOT   0252      GODUN    1272      RECAL7   0035
BYTEOU 1152      GOERDN   2610      RECAL1   0034
C      0615      GOREAD   0770      RFINTR   0355
CBACK  0576      GOTIT    2010      ROT       1251
CEGATE 0676      GOTONE   2030      ROT3     2736
CFINSE 0351      GOTRUN   2347      SAWIND   2714
CHKPAR 2041      GOTWRD   2076      SECHLF   0543
CHKRDY 2640      HRCRER   2546      SECPL9   2124
CHKSEC 0730      HRCOM    1571      SELFER   0620
CKHCRC 2515      HDSETL   0322      SPBACK   2662
CKHOME 2105      HLFDLY   0466      STASH    0437
CLRIO  1243      HOMERR   2456      STDLY    2654
CKGATE 0666      ILTRK    0206      STDONE   1031
D      0653      IN10     0045      STEPH0   2100
DAM    1675      INTER1   1374      STPOUT   0275
DAMSUP 0460      INTRDY   2631      SWGATF   0407
DATA   2206      LOOP     1326      TEST     2352
DATAA  0571      MAGCOM   2400      TEST1    1351
DBACK  0646      MORE08   1421      TEST2    1350
DCRCER 2304      MEWORD   1141      TESTDN   1372
DELAY  1300      NEWPAS   2646      TIMERR   1667
DELDAT 1727      NEXTG    2421      TKSKEP   2542
DIF    2462      NODAM    2606      TRKEG    0246
DIFA   2503      NOSTPS   0357      TRYAGN   1413
DIFB   2501      NOTYET   1755      TSTAGN   1353
DLY25  2145      NOZERO   1746      TSTG0    2443
DNRCAL 2625      NUTHER   2034      TSTRTN   0004
DONDLY 2165      NXDRV0   0064      UDIF     0134
DONSTP 2135      NXDRV1   0070      UNRDY    2767
DUNSTP 0305      NXHDR    0737      UONE     0120
E      0627      NXIDAM   1761      USAME    0141
EMPTY1 1210      NXPRAM   1751      UZERO    0127
EMPTYB 1107      OKDONE   1006      WAIT     0743
ENDDAM 1742      OUT      2150      WAITRN   2312
ERDONE 1000      PDNRCL   0372      WATDAT   2021

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/RX01 FLOPPY CONTROLLER FIRMWARE      PAL10  V142A  9-FEB-76      9:17  PAGE 16-6

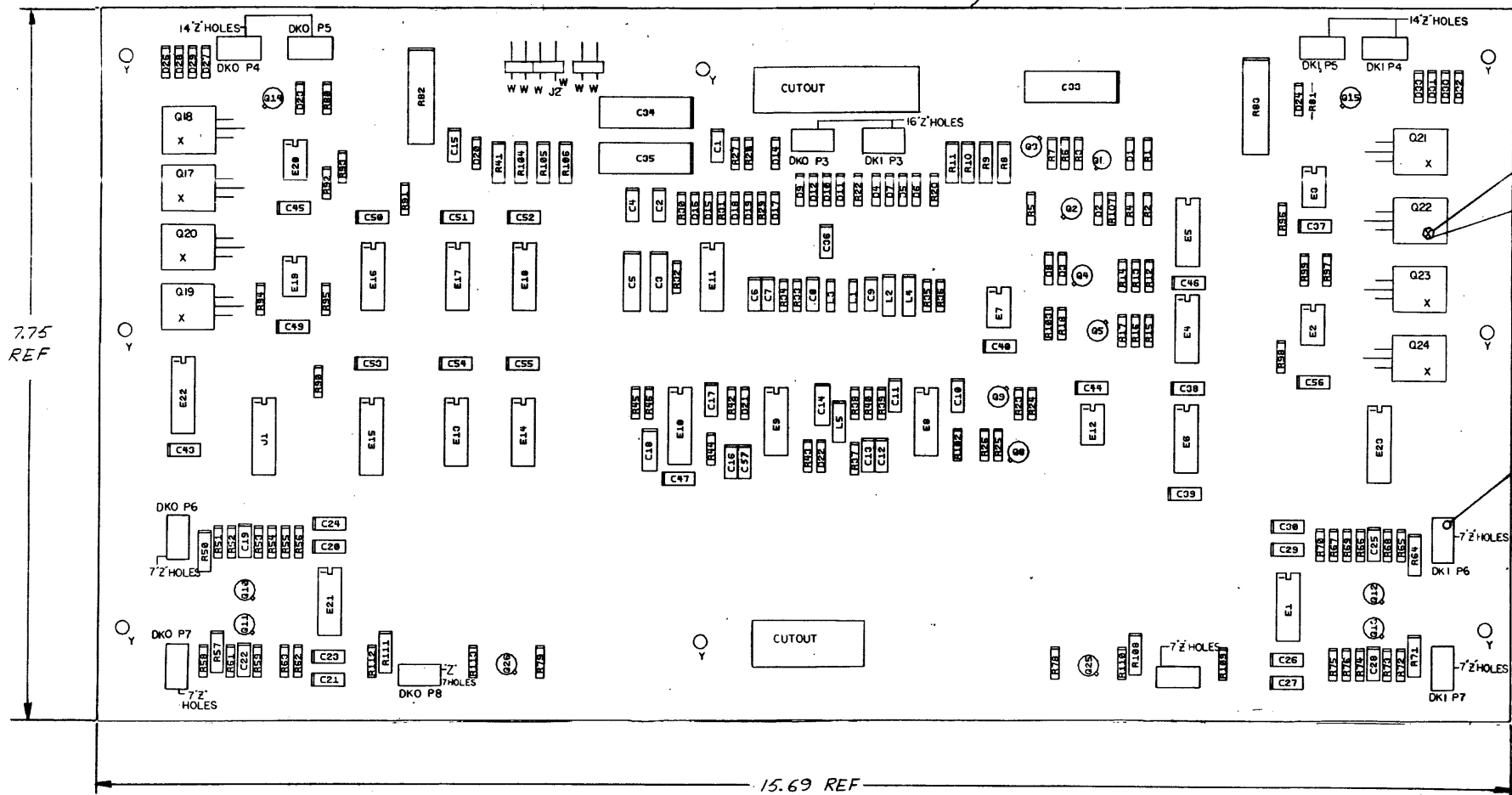
ERRORS DETECTED: 0
LINKS GENERATED: 0
RUN-TIME: 18 SECONDS
3K CORE USED

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NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 A. ALL RESISTORS ARE 1/4W, ±5%.
2. WASHER TO BE USED BETWEEN ITEMS 57 AND 58 WILL BE SUPPLIED WITH THE D44CB TRANSISTOR ONLY BY G.E. THE WASHER IS ONLY REQUIRED WHEN USING THE G.E. TYPE TRANSISTOR.
- * 3. FOR TEST SEE NOTE ON PAGE 3 OF D-CS-M7727
4. DEC PART # 13-01648 MAY BE USED FOR INSERTION IF 13-01320 IS NOT AVAILABLE.
5. R32 RES. MAY ALSO BE CHANGED AT SYSTEM TEST.



IC TYPE	GND	+5V
7473	11	4
74451	4	8
74157	8	16
74452	4	8
74123	8	16

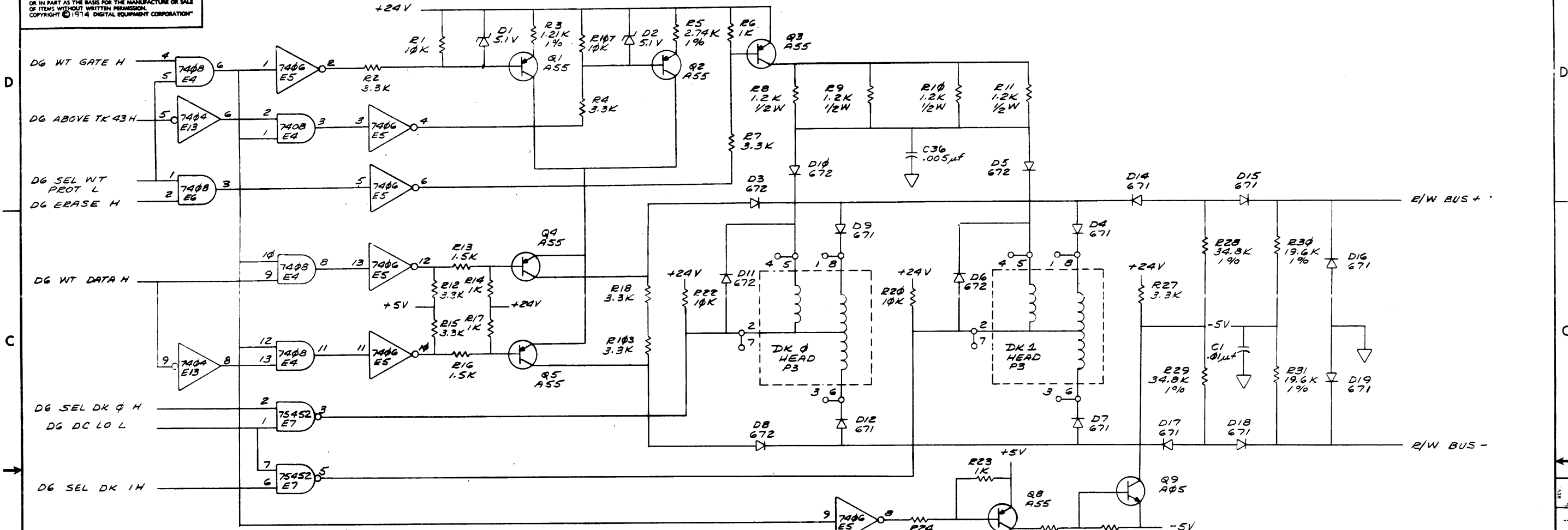
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

REV.	CHG.	M.	CHANGE NO.	REV.
H. DRAB			3-15-74	
H. DRAB			3-15-74	
H. DRAB			3-15-74	
D. ZWICKER			17-10-77	
B. C.			M7727-00003	D
W. SMITH			11-29-77	
W. SMITH			11-29-77	
C. YOUSE			M7727-00002	C
C. YOUSE			M7727-00001	B

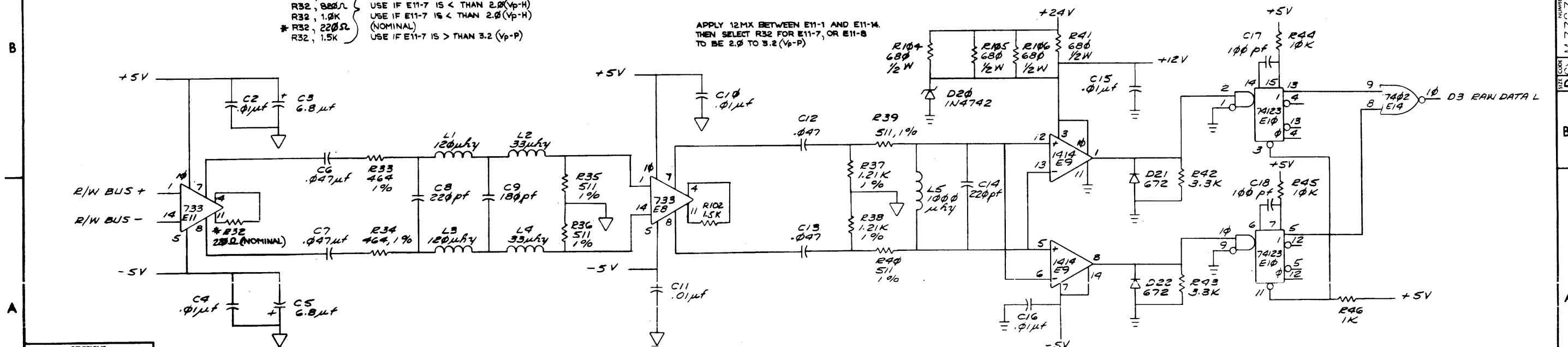
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.													
FIRST USED ON OPTION MODEL M7727																	
ETCH BOARD REV. B																	
PARTS LIST																	
SEMICONDUCTOR CONVERSION CHART		<table border="1"> <tr> <td>DRN</td> <td>DATE 12/31/70</td> <td rowspan="6" style="text-align: center; vertical-align: middle;">digital</td> </tr> <tr> <td>CHNGD</td> <td>DATE 1/24/75</td> </tr> <tr> <td>ENG</td> <td>DATE 4-24-75</td> </tr> <tr> <td>PROL ENG</td> <td>DATE 1/24/75</td> </tr> <tr> <td>PROD</td> <td>DATE 1/24/75</td> </tr> <tr> <td>NEXT HIGHER ASSY</td> <td></td> </tr> </table>			DRN	DATE 12/31/70	digital	CHNGD	DATE 1/24/75	ENG	DATE 4-24-75	PROL ENG	DATE 1/24/75	PROD	DATE 1/24/75	NEXT HIGHER ASSY	
DRN	DATE 12/31/70	digital															
CHNGD	DATE 1/24/75																
ENG	DATE 4-24-75																
PROL ENG	DATE 1/24/75																
PROD	DATE 1/24/75																
NEXT HIGHER ASSY																	
DEC NO.	EIA NO.	DEC NO.	EIA NO.	REV. E													
SCALE 1 OF 6		SIZE CODE NUMBER DIST. DCS M7727-0-1															

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R32, 500Ω USE IF E11-7 IS < THAN 2.0
 R32, 680Ω USE IF E11-7 IS < THAN 2.0
 R32, 880Ω USE IF E11-7 IS < THAN 2.0 (Vp-H)
 R32, 1.0K USE IF E11-7 IS < THAN 2.0 (Vp-H)
 * R32, 220Ω (NOMINAL)
 R32, 1.5K USE IF E11-7 IS > THAN 3.2 (Vp-P)

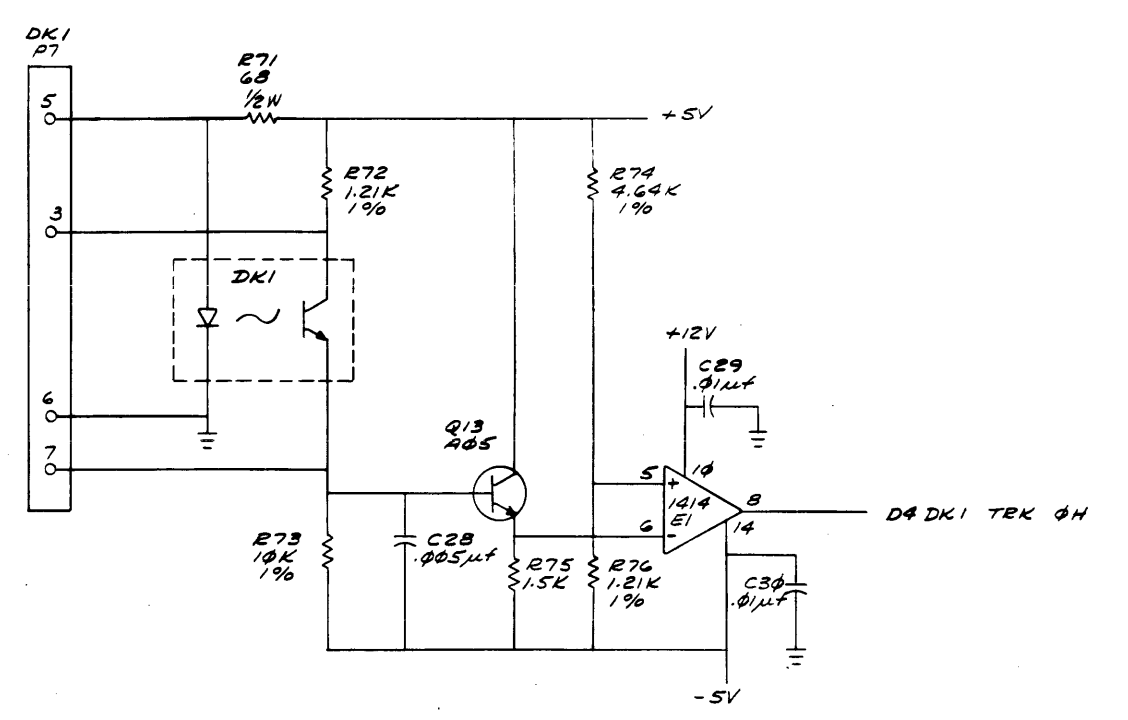
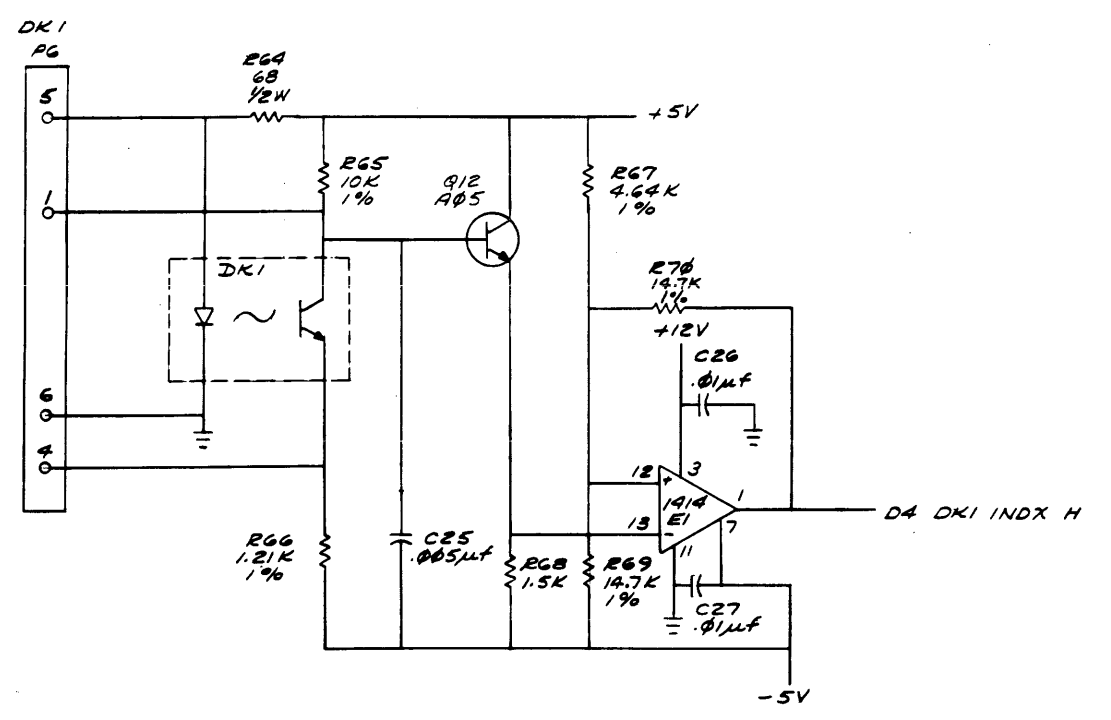
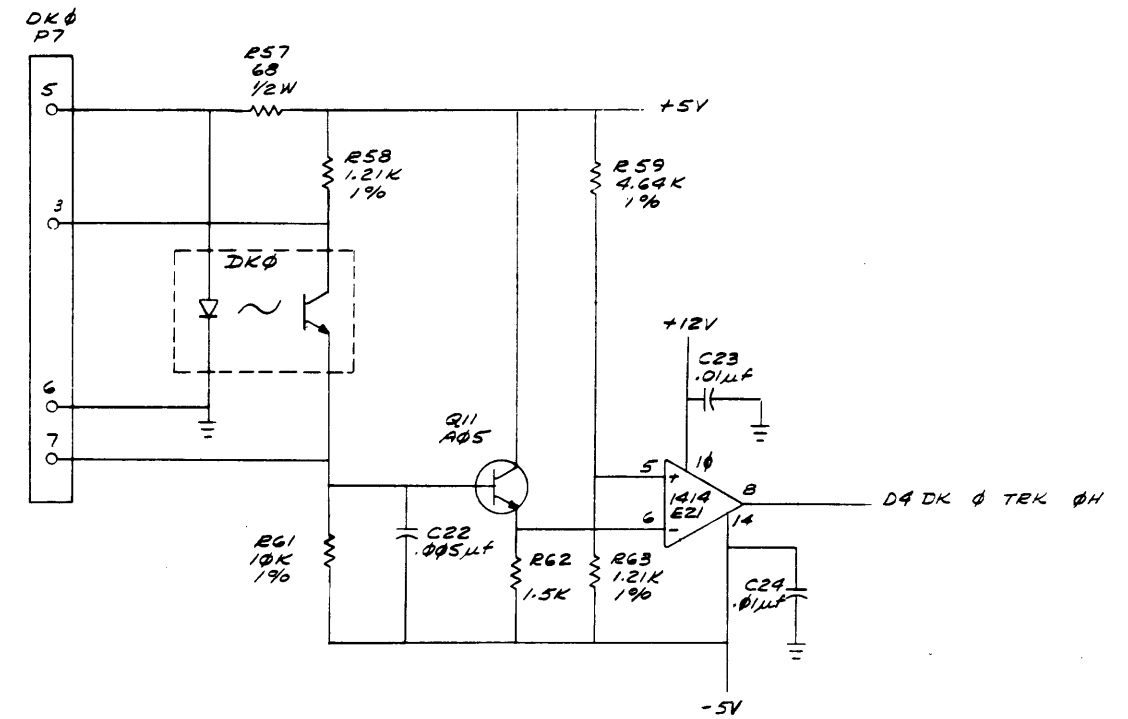
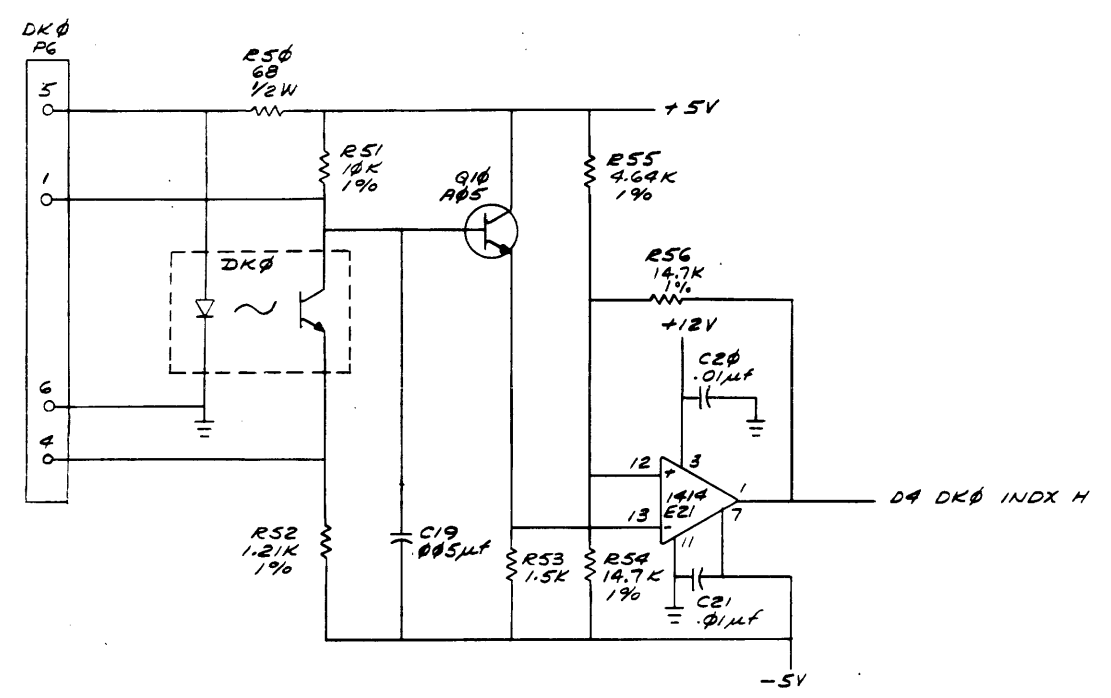
APPLY 12MX BETWEEN E11-1 AND E11-14. THEN SELECT R32 FOR E11-7, OR E11-8 TO BE 2.0 TO 3.2 (Vp-P)



REVISIONS		
CHK	CHANGE NO.	REV.

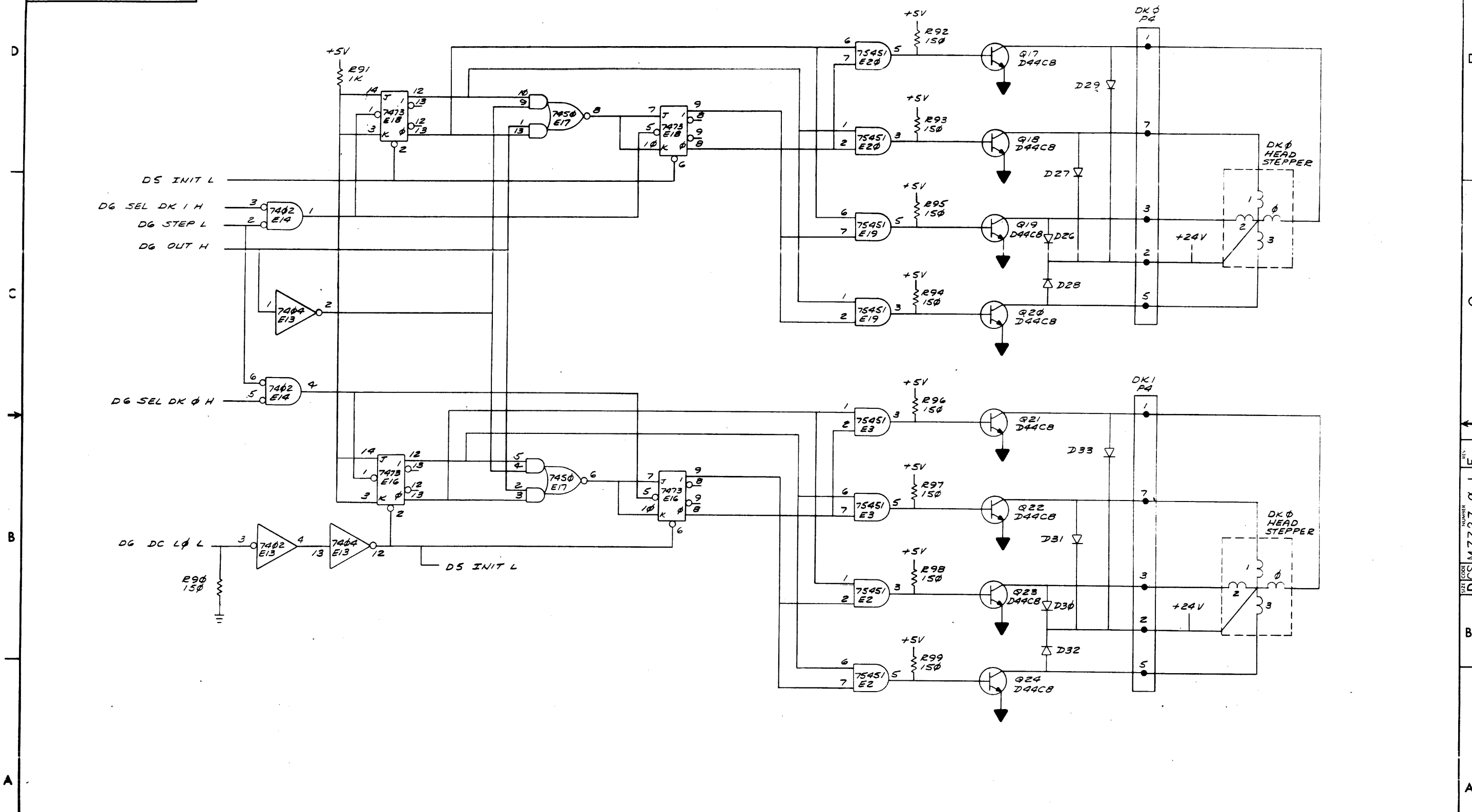
TITLE	READ / WRITE CONTROL (D3)	SIZE CODE	D CS	NUMBER	M7727-0-1	REV.	E
SCALE	1/1	SHEET	3	OF	6	DIST.	

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REVISIONS		
CHK	CHANGE NO.	REV.

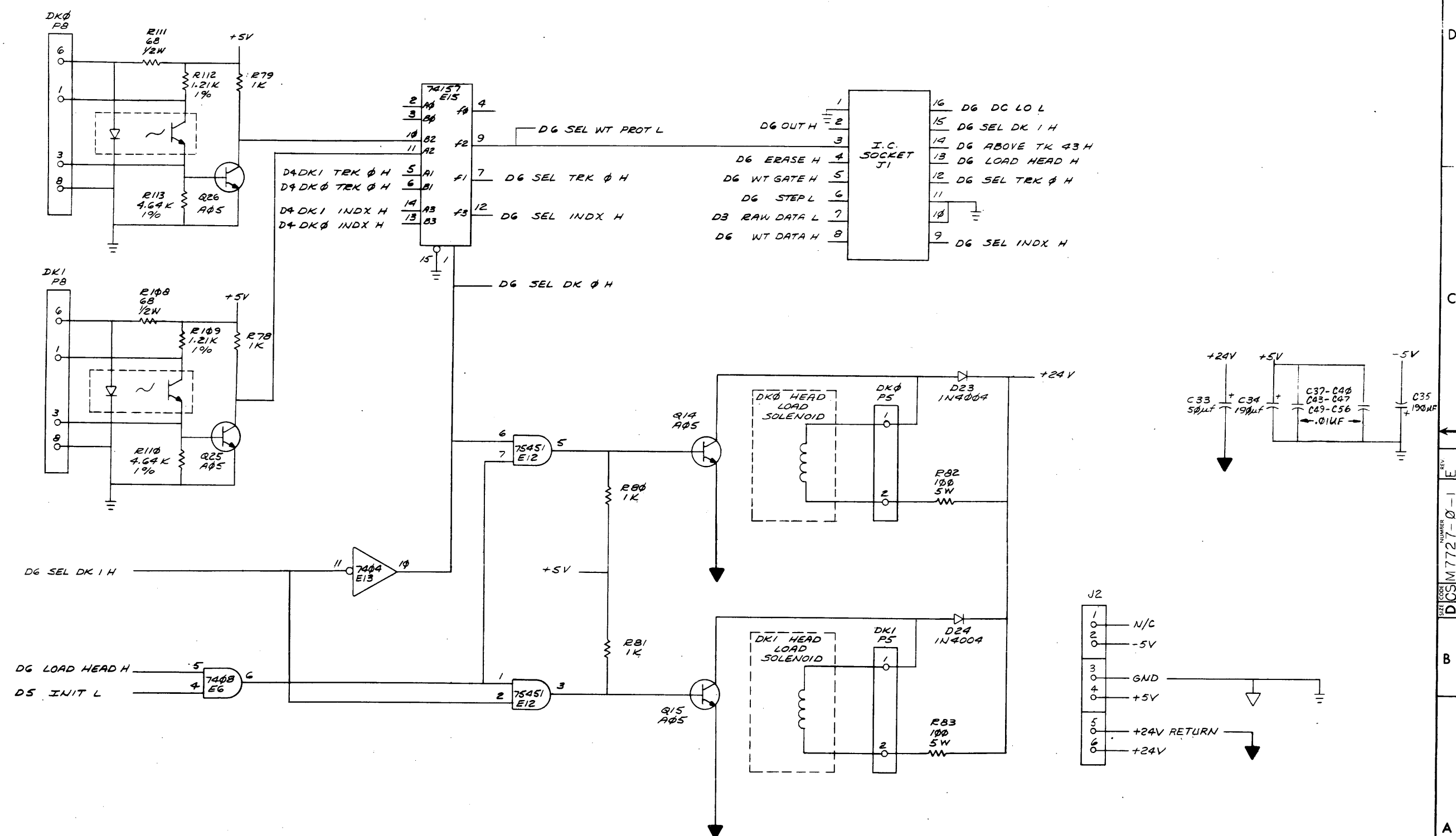
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REVISIONS		
CHK	CHANGE NO.	REV.

DCS M7727-0-1 E

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REVISIONS		
CHK	CHANGE NO.	REV.

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE

SEQUENCE

H771 POWER SUPPLY
H771-A CIRCUIT SCHEMATIC
H771-C CIRCUIT SCHEMATIC
H771-D CIRCUIT SCHEMATIC
RXØ1 POWER BOARD ASSY
RXØ1 POWER SUPPLY BOARD

B-DD-H771-Ø
D-CS-H771-A-1
D-CS-H771-C-1
D-CS-H771-D-1
D-AD-7010718-0-0
D-CS-5411398-0-1

UNIT VARIATIONS

VAR	TITLE	PRINT SET			
		1	2	3	4
H771-A	RXØ1 POWER SUPPLY, 115V, 6ØHZ	X			
H771-C	RXØ1 POWER SUPPLY, LOW VOLT, 5ØHZ	X			
H771-D	RXØ1 POWER SUPPLY, HIGH V, 5ØHZ	X			

DEC 16 (325)-1062-1A-R972

REVISIONS		REV	CHG. NO.
DATE		A	H771-1
		B	H771-2
		C	H771-3
		D	H771-4
		E	H771-5
		F	H771-6
		H	H771-ML7

USED ON OPTION/MODEL	DRN.	DATE	TITLE		
RXØ1	W. McCarthy	2/3/75	H771 POWER SUPPLY		
	CHK'D. <i>W.F.M. Carney</i>	6/13/75			
	PROJ. ENG. <i>Paul Johnson</i>				
	FREQ. <i>J.D. Miller</i>	2/12/75	SIZE	CODE	NUMBER
	FIELD SERV. <i>K.D. Heenan</i>	6/13/75	B	DD	H771-Ø
SHEET 1 OF 3			DIST		
					P.T.V. H

1

H771 POWER SUPPLY
UNIT ASSY
E-UA-H771-Ø-Ø

2

RXØ1 POWER BOARD
ASSY
D-AD-7010718-0-0

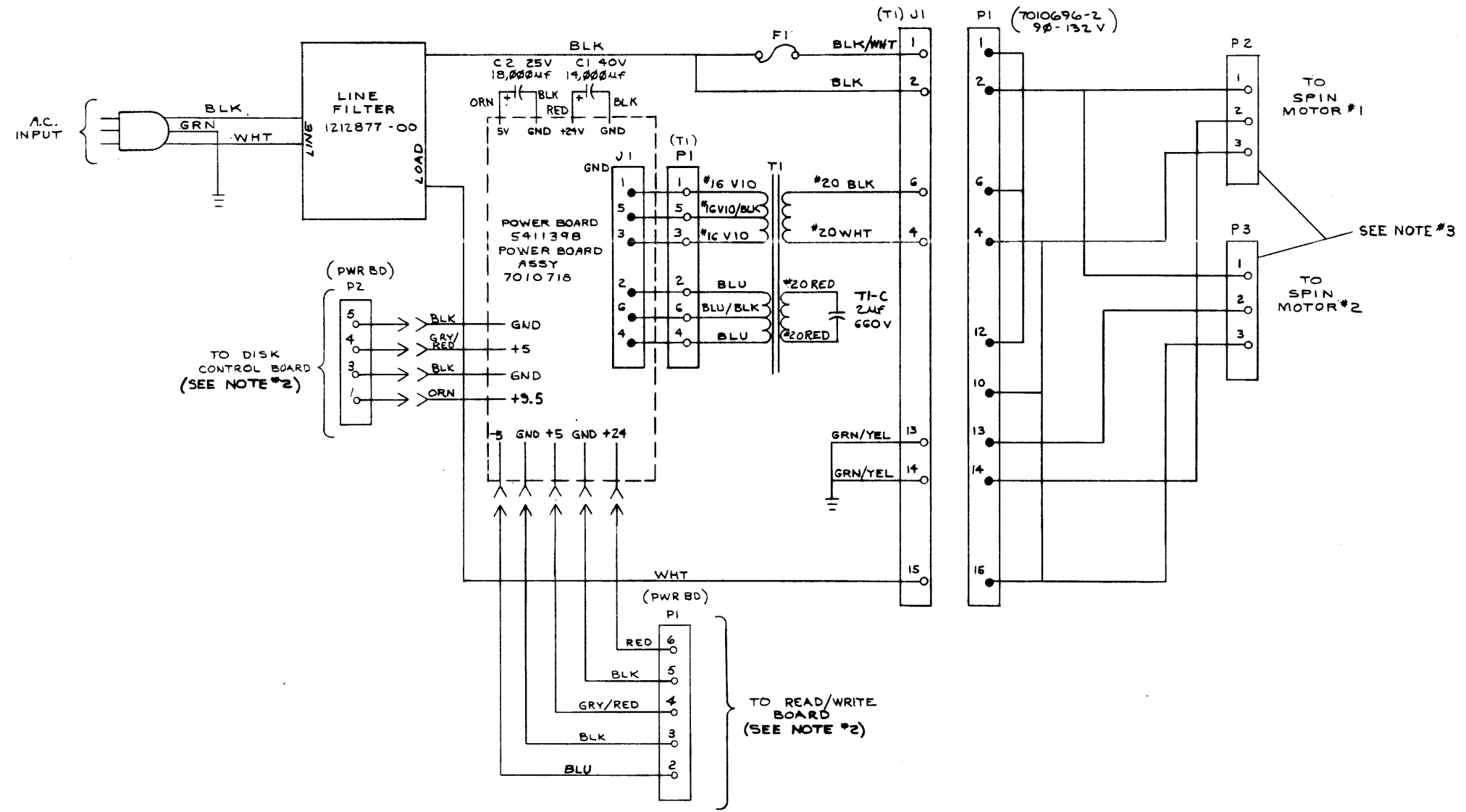
TITLE	SIZE	CODE	NUMBER	REV
H771 POWER SUPPLY	B	DD	H771-Ø	H

CUSTOMER PRINT SET		MECHANICAL					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
		1	E-UA-H771- 0 - 0	H	2	H771 POWER SUPPLY ASSY		X		1	B-DD-H771- 0	E	3	H771 POWER SUPPLY	
			E-MD-7412667-0-0	D	1	CHASSIS, POWER SUPPLY		X			D-CS-H771-A-1	B	1	H771-A CIRCUIT SCHEMATIC	
			D-AD-7010680-0-0	C	1	TRANSFORMER ASSY, 6 \emptyset HZ		X			D-CS-H771-C-1	C	1	H771-C CIRCUIT SCHEMATIC	
			D-AD-7010704-0-0	E	1	TRANSFORMER ASSY, 5 \emptyset HZ		X			D-CS-H771-D-1	C	1	H771-D CIRCUIT SCHEMATIC	
			C-AD-7010697-0-0	B	1	POWER CORD ASSY					A-SP-H771- 0 -1			ENGINEERING SPECIFICATION	
			D-IA -7010972-0-0	C	1	JUMPER									
			C-MD-7413344-0-0		1	BRACKET, FUSE MOUNTING									
			A-DC-7413403-0-0		1	DECAL, H771-A									
			A-DC-7414250-0-0	A	1	DECAL, H771-C									
			A-DC-7414251-0-0	A	1	DECAL, H771-D									
		2	D-AD-7010718-0-0		1	RX \emptyset 1 POWER BOARD ASSY									
			D-IA-7010854-0-0	C	1	READ/WRITE BOARD HARNESS		X		2	D-AD-7010718-0-0	*	1	RX \emptyset 1 POWER BOARD ASSY	
			D-IA-7010853-0-0	B	1	DISK CONTROL BOARD HARNESS		X			D-CS-5411398-0-1	*	1	RX \emptyset 1 POWER BOARD ASSY	

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	SIZE CODE	NUMBER	REV
		H771 POWER SUPPLY	B DD	H771- 0	H

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- NOTES:
1. ALL WIRE TO BE #18 AWG UNLESS OTHERWISE SPECIFIED.
 2. SLOT BETWEEN PI-4 + PI-5 CONTAINS A DUMMY PIN. SLOT BETWEEN P2-4 + P2-5 ALSO CONTAINS A DUMMY PIN.
 3. NO DOUBLE CRIMPS ARE ALLOWED IN MOLEX CONNECTOR(S) TO MOTOR(S).

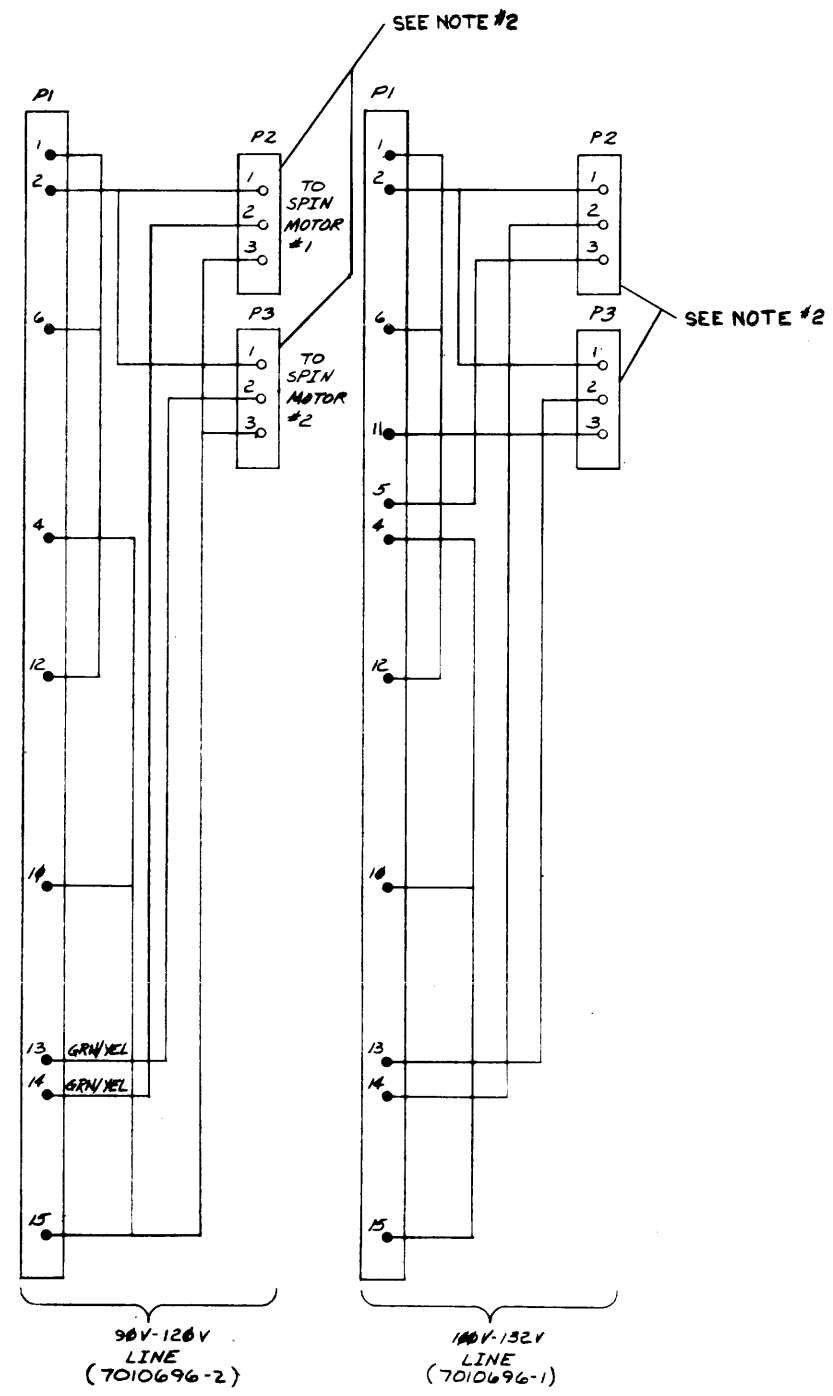
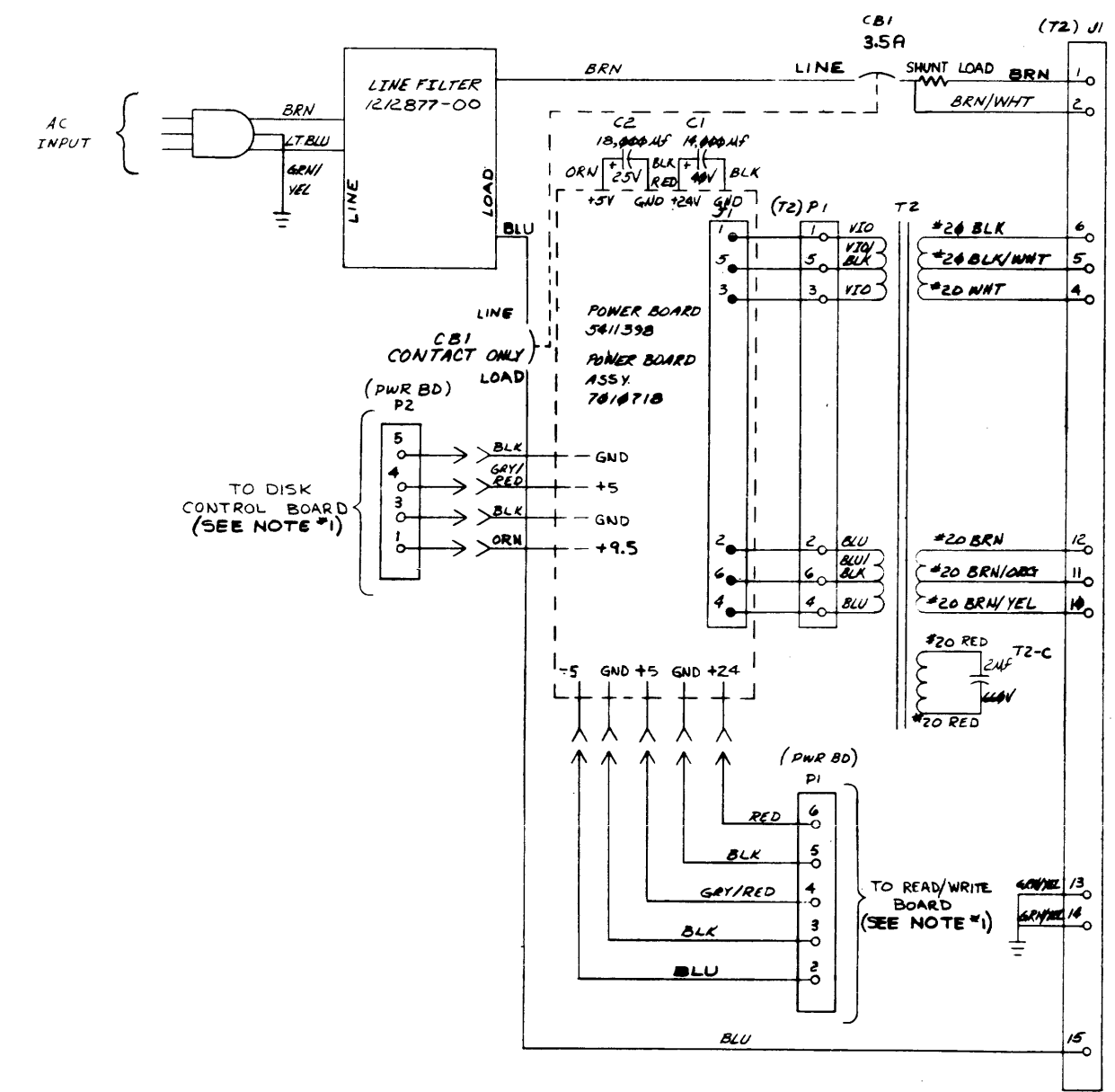


REV	CHANGE NO.	DATE	BY	CHK'D
A	H771-00001	1/22/75	B. HAZEN	B. HAZEN
B	H771-00004	3-18-75	B. HAZEN	B. HAZEN

DRN. D.E. Olson	1/22/75	FIRST USED ON	R x 01	digital
CHK'D WFM	3/10/75	TITLE	H771-A POWER CONNECTIONS	
ENG. Bill	3-18-75	SCALE	NONE	B-DD-771-0
PROJ. ENG. WFM	3-18-75	SIZE CODE	D CS	
PROD. WFM	3/18/75	NUMBER	H771-A-1	REV. B
NEXT HIGHER ASSY.		SHEET	1 OF 1	

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1. SLOT BETWEEN PI-4 AND PI-5 CONTAINS A DUMMY PIN. SLOT BETWEEN P2-4 AND P2-5 ALSO CONTAINS A DUMMY PIN.
 2. NO DOUBLE CRIMPS ALLOWED IN MOLEX CONNECTOR(S) TO MOTOR(S).
 3. ALL WIRES TO BE #18AWG UNLESS OTHERWISE SPECIFIED.

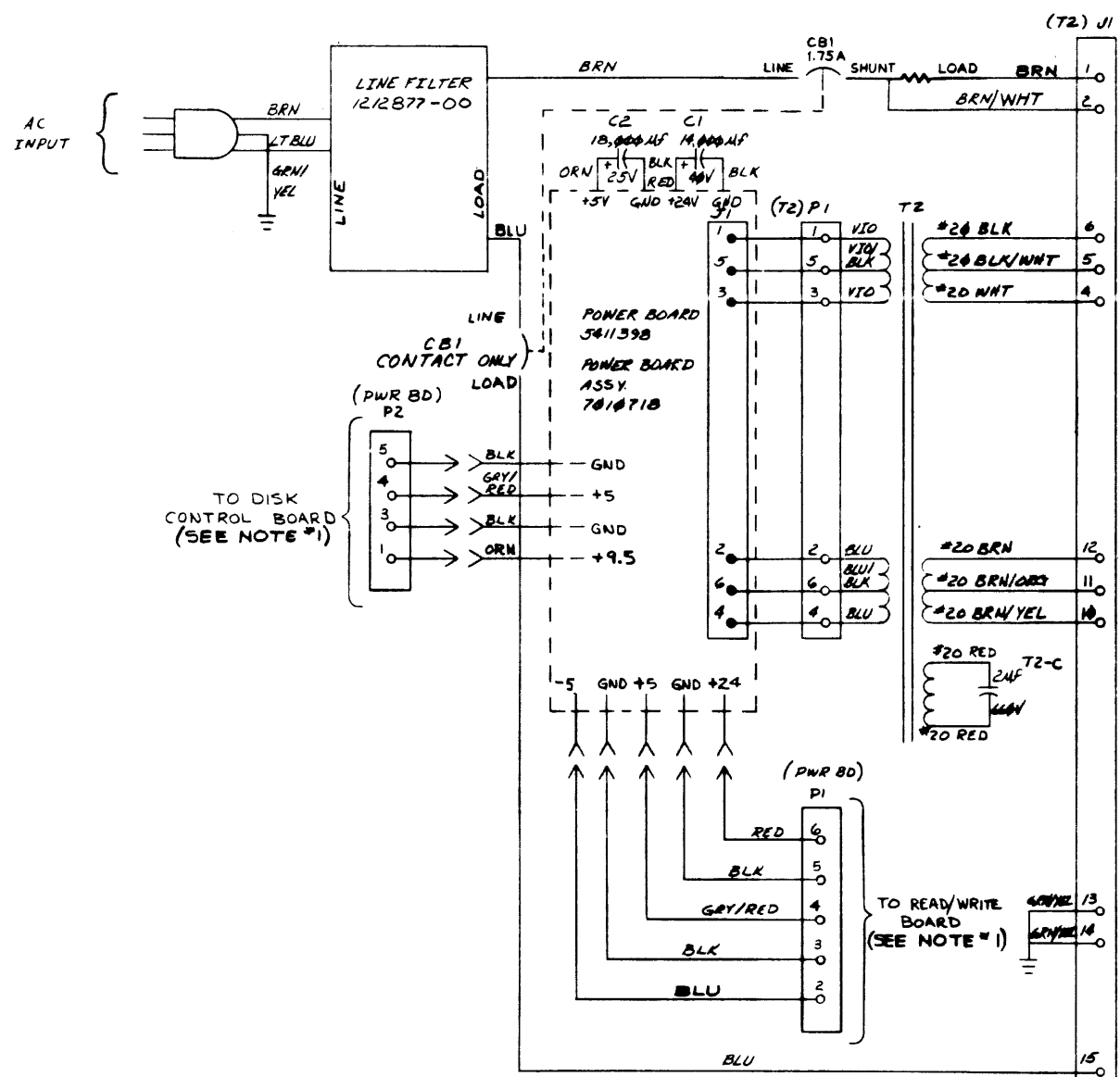


REV.	DATE	BY	CHKD.	DESCRIPTION
1	11/14/75	B. HAZEN	B. HAZEN	ISSUED FOR MANUFACTURE
2	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD DISK CONTROL BOARD CONNECTIONS
3	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD READ/WRITE BOARD CONNECTIONS
4	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD SHUNT LOAD CONNECTIONS
5	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD LINE FILTER CONNECTIONS
6	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD TRANSFORMER CONNECTIONS
7	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD CAPACITOR CONNECTIONS
8	11/14/75	B. HAZEN	B. HAZEN	REVISED TO ADD MOTOR CONNECTIONS

DRN. 8/1/75	7-3-75	FIRST USED ON	RX01
CHK. E. REMED	8-5-75	TITLE	H771-C POWER CONNECTIONS
ENGR. J. B. BROWN	8-10-75	SCALE	1:1
PROD. ENG. J. B. BROWN	8-10-75	SIZE	D CS
NEXT HIGHER ASSY.		NUMBER	H771-C-1
B-DD-H771-0		REV.	C
SHEET 1 OF 1		DIST.	

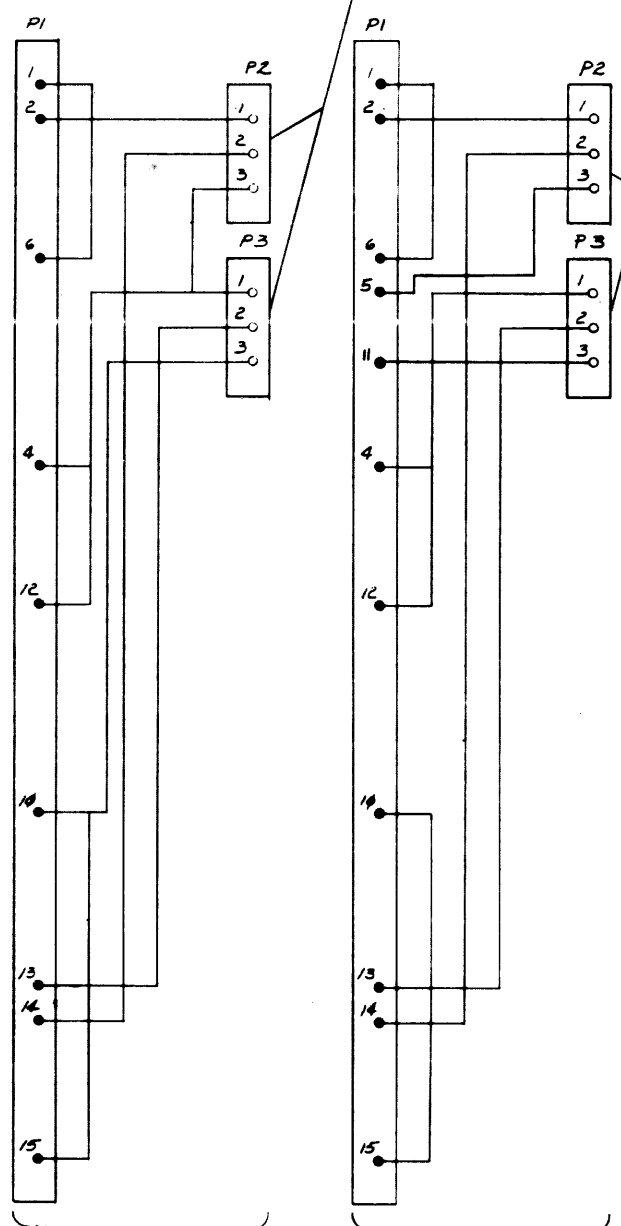
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- NOTES:
1. SLOT BETWEEN PI-4 AND PI-5 CONTAINS A DUMMY PIN. SLOT BETWEEN P2-4 AND P2-5 ALSO CONTAINS A DUMMY PIN.
 2. NO DOUBLE CRIMPS ALLOWED IN MOLEX CONNECTOR(S) TO MOTOR(S).
 3. ALL WIRES TO BE #18AWG UNLESS OTHERWISE SPECIFIED.



TO DISK CONTROL BOARD (SEE NOTE #1)

TO READ/WRITE BOARD (SEE NOTE #1)



100V-240V LINE (7010696-4)

200V-264V LINE (7010696-3)

SEE NOTE #2

SEE NOTE #2

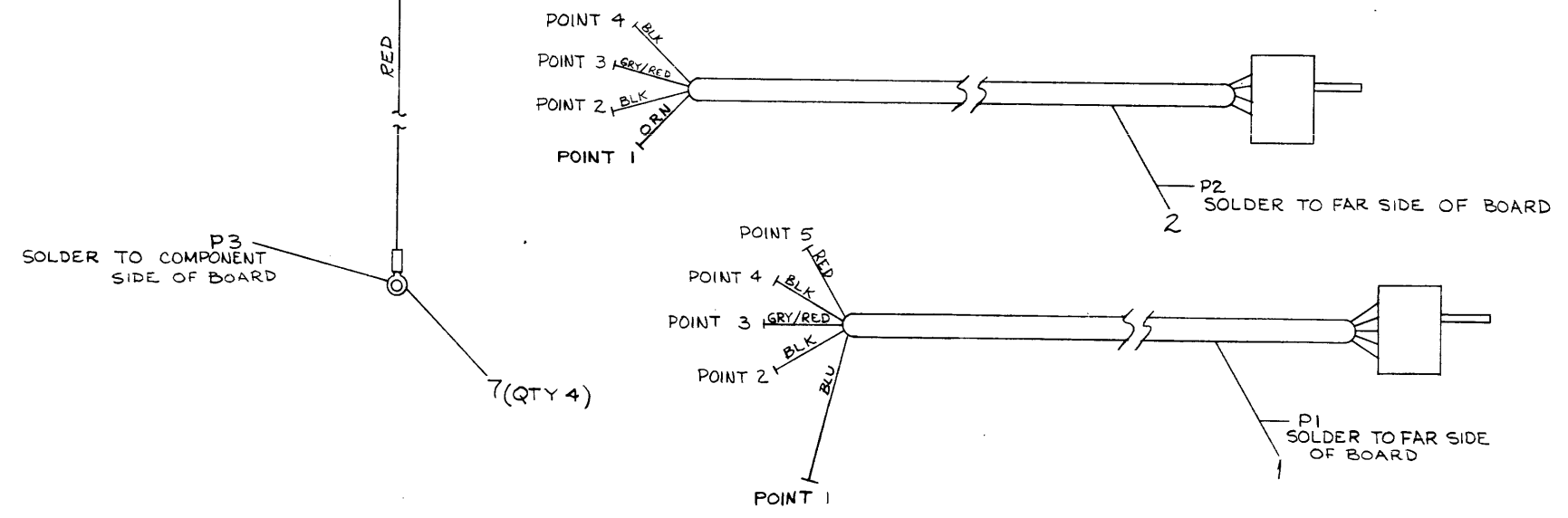
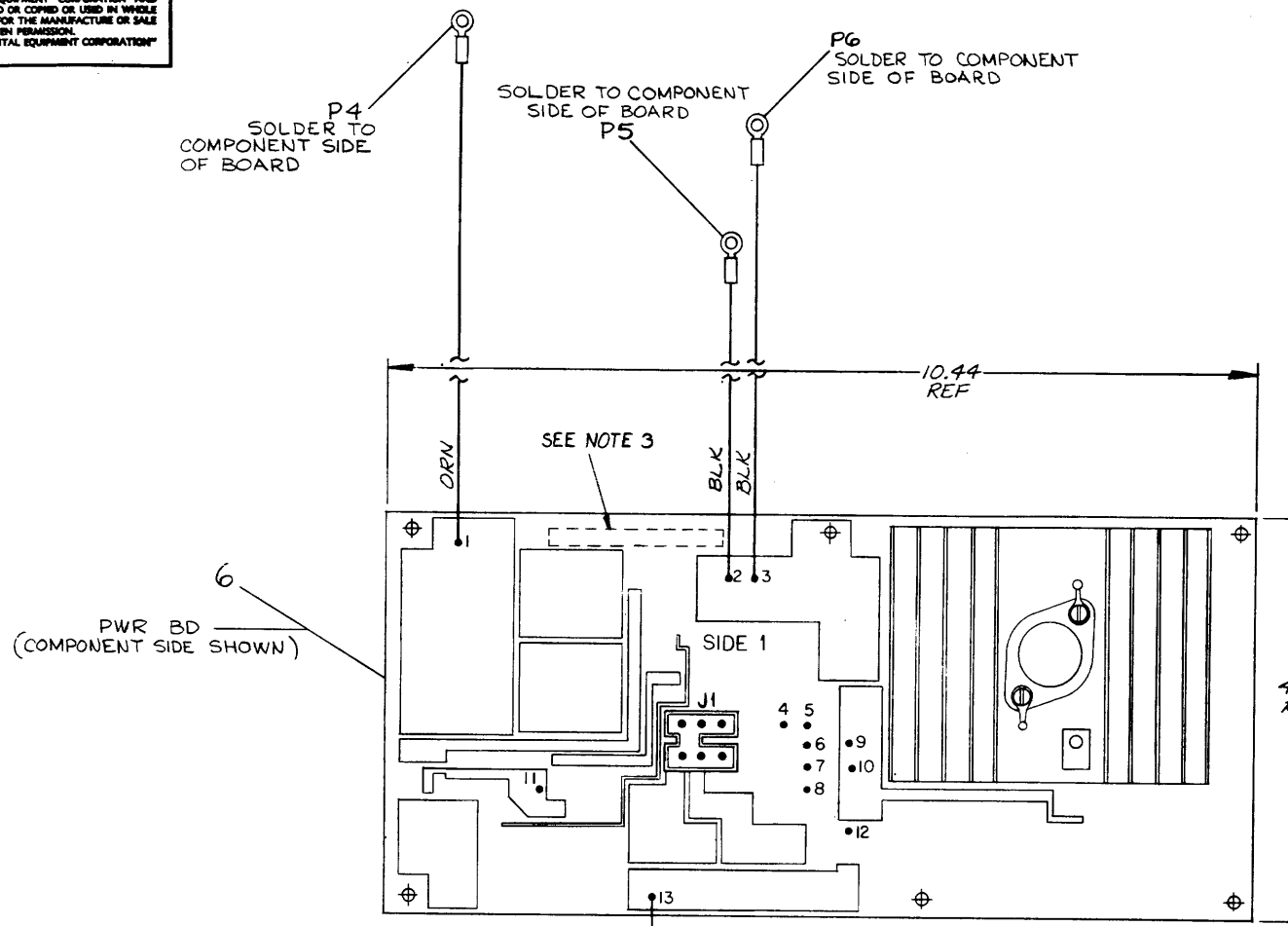
REV	DATE	BY	CHKD
1	7-30-75	B. HAZEN	B. HAZEN
2	8-5-75	B. HAZEN	B. HAZEN
3	8-12-75	B. HAZEN	B. HAZEN
4	8-12-75	B. HAZEN	B. HAZEN
5	8-12-75	B. HAZEN	B. HAZEN
6	8-12-75	B. HAZEN	B. HAZEN
7	8-12-75	B. HAZEN	B. HAZEN
8	8-12-75	B. HAZEN	B. HAZEN

DRN: B. Hazen	7-30-75	FIRST USED ON	400001
CHK'D: B. Hazen	8-5-75	TITLE	RX01
ENG: B. Hazen	8-12-75	TITLE	H771-D POWER CONNECTIONS
PROD: B. Hazen	8-12-75	NEXT HIGHER ASSY.	
B-00-H771-0	SCALE: 1 OF 1	SIZE CODE: D CS	NUMBER: H771-D-1
			REV: C

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ITEM NO.	DESCRIPTION		FROM		TO		LENGTH
	AWG	COLOR	CONN	TERM	CONN	TERM	
1	18	BLU	P1	POINT 1	PWR #11	SOLDER	
		BLK	P1	POINT 2	PWR #6		
		GRY/RED	P1	POINT 3	PWR #9		
		BLK	P1	POINT 4	PWR #5		
		RED	P1	POINT 5	PWR #12		
2		ORN	P2	POINT 1	PWR #4		
		BLK	P2	POINT 2	PWR #7		
		GRY/RED	P2	POINT 3	PWR #10		
3	14	RED	P3	ITEM 7	PWR #13		13 IN ±.25
4	14	BLK	P5	ITEM 7	PWR #2		7 IN ±.25
5	14	ORN	P4	ITEM 7	PWR #1		11 IN ±.25
4	14	BLK	P6	ITEM 7	PWR #3	SOLDER	9 IN ±.25

- NOTES:
1. STRIP LENGTH FOR ITEMS 3, 4 & 5 ARE TO BE .16 LONG.
 2. THE BLACK WIRES ON P1 & P2 CAN BE INTERCHANGED BETWEEN POINTS 5, 6, 7, & 8 ON THE POWER BOARD.
 3. INK STAMP ASS'Y NO. 7010718 IN FIGURES, 13 HIGH WHERE SHOWN.



DESCRIPTION	DWG./PART NO.	ITEM NO.
4 CONN, SOLDERLESS	9007928-00	7
1 POWER SUPPLY BOARD, RXØ1	D-05-54/1398-0-1	6
1/8 WIRE, #14 AWG, IPVC, ORANGE	9107370-33	5
1/8 WIRE, #14 AWG, IPVC, BLACK	9107370-00	4
1/8 WIRE, #14 AWG, IPVC, RED	9107370-22	3
1 HARNESS, DISK CONTROL BOARD	D-1A-7010853-0-0	2
1 HARNESS, READ/WRITE BOARD	D-1A-7010854-0-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
ANGLES 30° 30'	CLASS OF ACCURACY (CHECK ONE)
SURFACE QUALITY IN	MEDIUM
QUANTITY & VARIATION	PREFERRED

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN: T. Quillen 1-28-75

CHK'D: M. Carter 2-5-75

ENG. W. H. ... 3-18-75

PROJ. ENG. ... 3-18-75

PROD. ... 3-18-75

NEXT HIGHER ASSY.

E-UA-H771-Ø-Ø

SCALE 1/1

SHEET 1 OF 1

FIRST USED ON H771

TITLE RXØ1 POWER BOARD ASSY

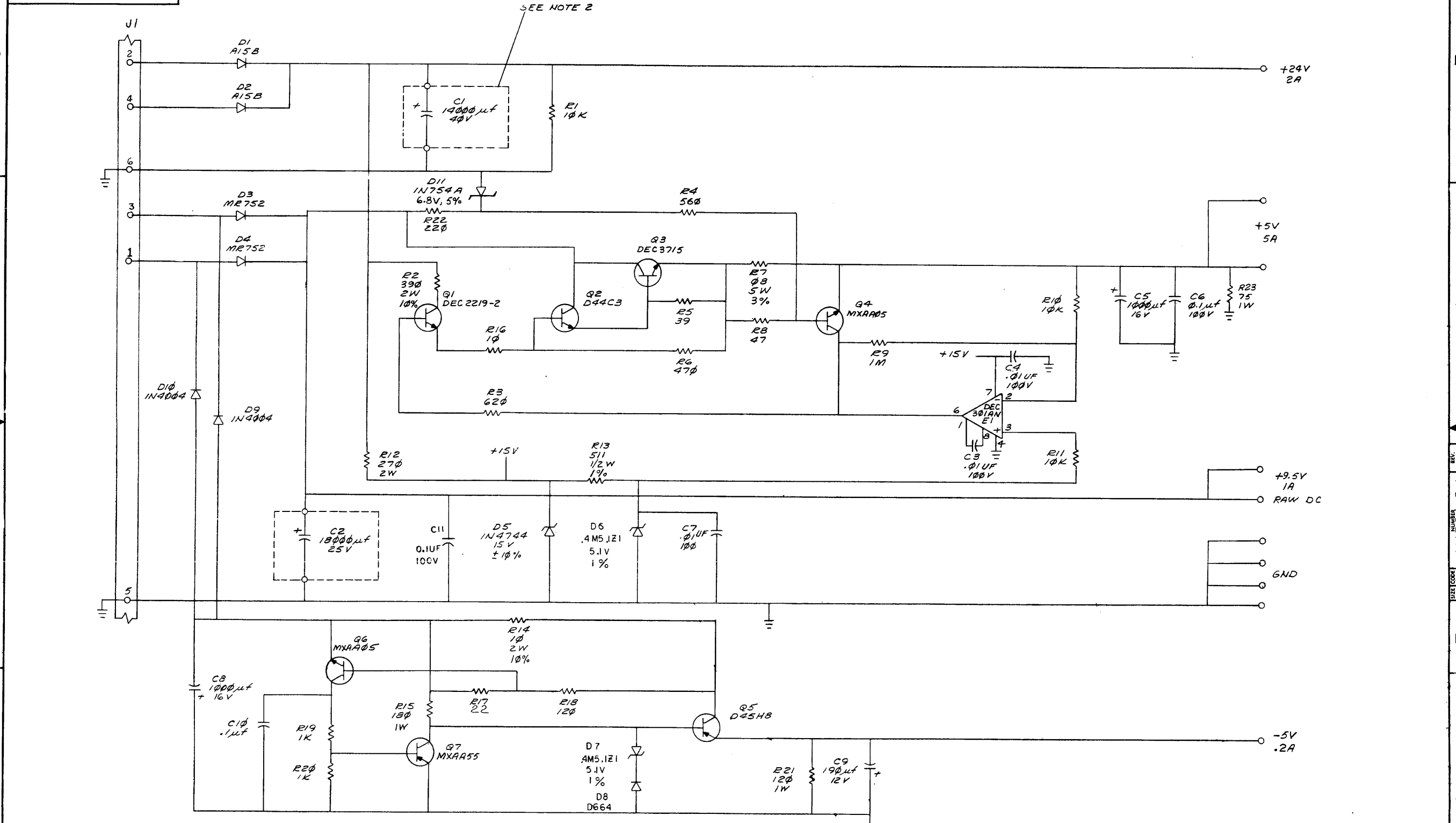
SIZE CODE D AD

NUMBER 7010718-0-0

REV. 3

REV.	CHG.	BY	DATE
A	1	C. YOUSE	7-14-75
B	1	B. HAZEN	7-30-75

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REVISIONS		
CHK	CHANGE NO.	REV.

DCS 5411398-0-1 E

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FOR FIELD MAINTENANCE PRINT SET
REFER TO MP 00656

UNIT VARIATIONS	
VAR	TITLE
7015622-0	COOLING UNIT FOR DUAL RX01 115V
7015622-1	COOLING UNIT FOR DUAL RX01 230V
7015622-2	COOLING UNIT FOR SINGLE RX01 115V
7015622-3	COOLING UNIT FOR SINGLE RX01 230V
7015622-4	7015622-0 W/O PACKAGING
7015622-5	7015622-1 W/O PACKAGING
7015622-6	7015622-2 W/O PACKAGING
7015622-7	7015622-3 W/O PACKAGING

REVISIONS	REV.																																																											
	CHANGE NO.																																																											
	CHK																																																											
				<table border="1" style="font-size: small;"> <tr> <td colspan="2">USED ON OPTION/MODEL</td> <td>DRN.</td> <td>DATE</td> <td rowspan="2" style="font-size: x-small;">TITLE</td> <td rowspan="2" style="text-align: center; font-weight: bold;">digital</td> </tr> <tr> <td colspan="2">RX01</td> <td><i>m. Daniel</i></td> <td>3 Jun 78</td> </tr> <tr> <td colspan="2"></td> <td>CHK'D.</td> <td>DATE</td> <td colspan="2" rowspan="2" style="text-align: center; vertical-align: middle;">RX01 PLENUM/FAN ASSY.</td> </tr> <tr> <td colspan="2"></td> <td><i>E. Remond</i></td> <td>5 Jun 78</td> </tr> <tr> <td colspan="2"></td> <td>PROJ. ENG.</td> <td>DATE</td> <td>SIZE</td> <td>CODE</td> </tr> <tr> <td colspan="2"></td> <td><i>H. Drel</i> (DP)</td> <td>6-7-78</td> <td style="text-align: center;">B</td> <td style="text-align: center;">DD</td> </tr> <tr> <td colspan="2"></td> <td>PROD.</td> <td>DATE</td> <td>NUMBER</td> <td>REV</td> </tr> <tr> <td colspan="2"></td> <td><i>W Brown</i> (DP)</td> <td>6-7-78</td> <td style="text-align: center;">7015622-0</td> <td></td> </tr> <tr> <td colspan="2">SHEET 1 OF 2</td> <td>PROD.</td> <td>DATE</td> <td>DIST.</td> <td></td> </tr> <tr> <td colspan="2"></td> <td><i>W Brown</i> (DP)</td> <td>6-7-78</td> <td></td> <td></td> </tr> </table>	USED ON OPTION/MODEL		DRN.	DATE	TITLE	digital	RX01		<i>m. Daniel</i>	3 Jun 78			CHK'D.	DATE	RX01 PLENUM/FAN ASSY.				<i>E. Remond</i>	5 Jun 78			PROJ. ENG.	DATE	SIZE	CODE			<i>H. Drel</i> (DP)	6-7-78	B	DD			PROD.	DATE	NUMBER	REV			<i>W Brown</i> (DP)	6-7-78	7015622-0		SHEET 1 OF 2		PROD.	DATE	DIST.				<i>W Brown</i> (DP)	6-7-78		
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SHEET 1 OF 2		PROD.	DATE	DIST.																																																								
		<i>W Brown</i> (DP)	6-7-78																																																									

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE			
	MP 00656	FIELD MAINTENANCE PRINT SET (MP)	-							
	B-TC-7015622-0-1	FIELD MAINTENANCE PRINT SET (TC)	-							
1	E-UA-7015622-0	PLENUM, FAN ASSY	E/M							
	D-IA-7013474-0-0	CABLE, PLENUM ADAPTOR	E/M							
	E-MD-7420552-0-0	PLENUM	M							
	C-IC-7013503-0-2	PLENUM INTERCONNECTOR DIAGRAM	E							
	D-IA-7420846-0-0	INSERT, PLENUM	M							
	A-SP-3700867-0-0	RXØ1 SUB-ASSY. PACKAGING KIT	M							
TYPE: E ELECTRICAL M MECHANICAL E/M ELECTRO/MECHANICAL				TITLE RXØ1 PLENUM FAN ASSY.		SHEET 2 OF 2		SIZE CODE B DD	NUMBER 7015622-0	REV

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B-DD-11/03-0 DRAWING DIRECTORY 11/03 (sheet 1 only)
 E-UA-11/03-0-0 UNIT ASSEMBLY 11/03
 C-PL-11/03-0-0 UNIT ASSEMBLY 11/03 (PL)
 C-MU-11/03-0-3 MODULE UTILIZATION
 C-MU-11/03-0-4 MODULE UTILIZATION
 C-MU-11/03-0-5 MODULE UTILIZATION
 A-PL-11/03-0-6 PROCESSOR VARIATION LIST
 A-PL-11/03-0-1 SHIPPING LIST
 A-PL-KEV11-0-0 EIS/FIS
 B-DD-Ball-M Ball-M FIELD MAINTENANCE PRINT SET (COMPLETE)

THE FOLLOWING PRINT SETS ARE SHIPPED WITH THIS PRODUCT.
 THEY ARE NOT INCLUDED IN THIS PRINT SET. REFER TO A-PL-11/03-0-1.

MP00049 KD11-F FIELD MAINTENANCE PRINT SET
 WITH VARIATIONS AA,AB,BA,BB,CA,CB,DA,DB,
 EA,EB,FA,FB,GA,GB,HA,HB,KA,KB,MA,MB,KC

MP00495 KD11-HA FIELD MAINTENANCE PRINT SET
 WITH VARIATIONS SE,SF,SC,SD

B-DD-MMV11-A MMV11-A FIELD MAINTENANCE PRINT SET (COMPLETE)
 WITH VARIATIONS BA,BB,DA,DB,FA,FB,HA,HB

MP00259 MSV11-C FIELD MAINTENANCE PRINT SET
 WITH VARIATIONS KA,KB,MA,MB

MP00566 MSV11-D FIELD MAINTENANCE PRINT SET
 WITH VARIATIONS SE,SF,SC,SD,KC

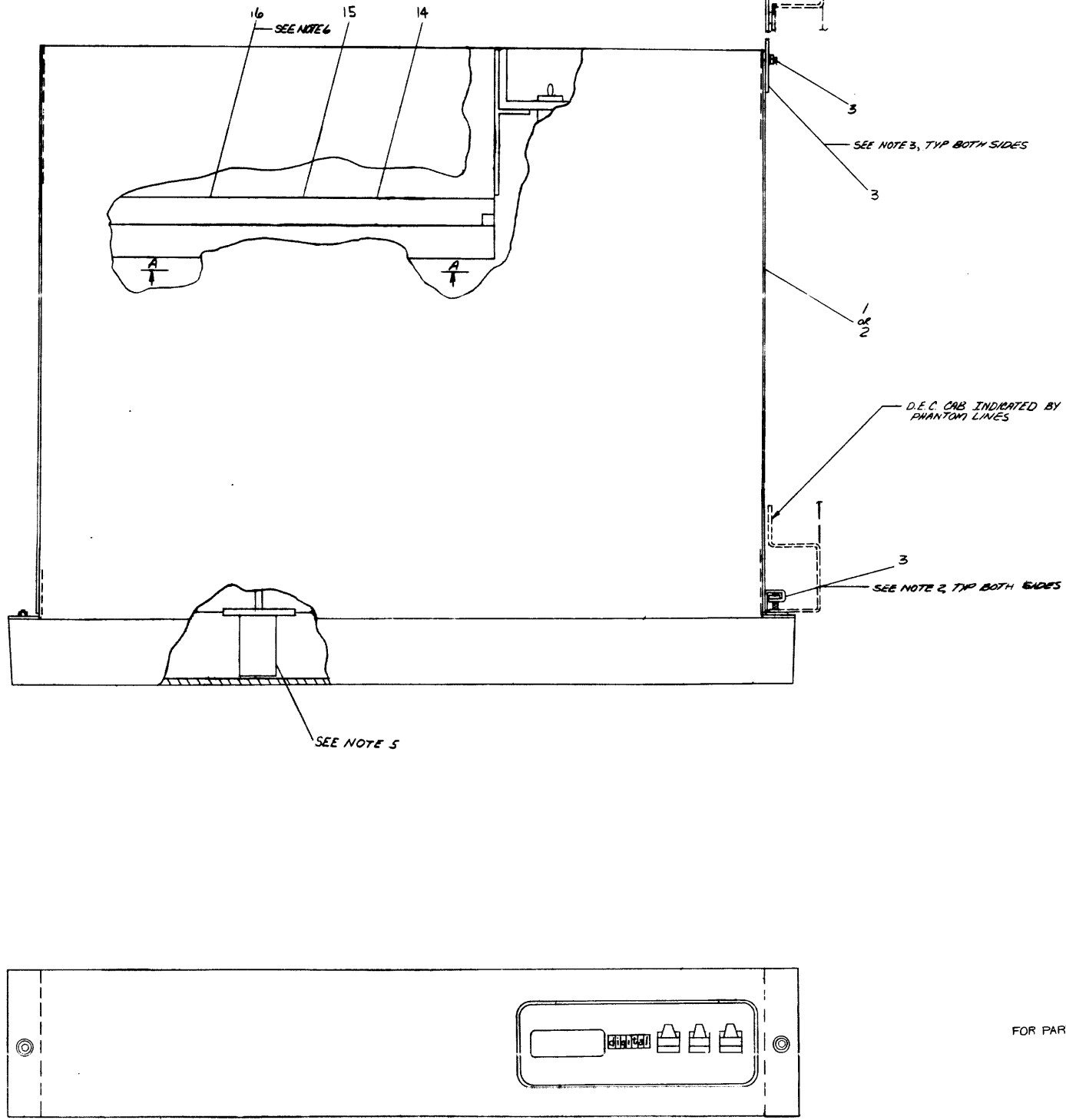
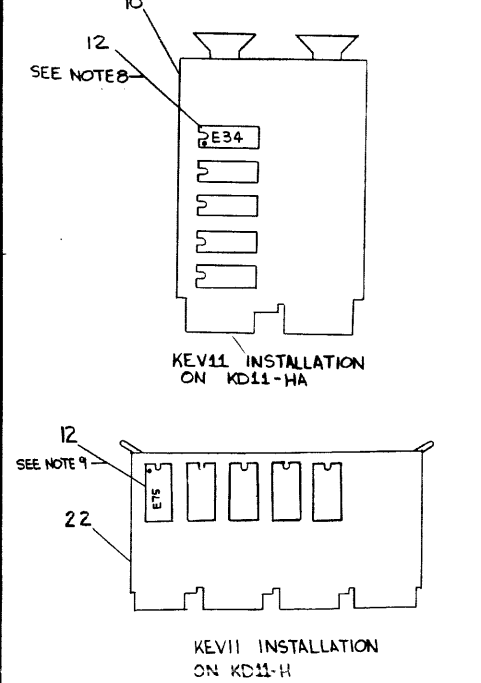
MP00055 DLV11 FIELD MAINTENANCE PRINT SET
 WITH VARIATIONS AA,AB,BA,BB,CA,CB,DA,DB

UNIT VARIATIONS	
VAR	TITLE
11/03-AA	KD11-F, BA11-MA, DLV11, 115V
11/03-AB	KD11-F, BA11-MB, DLV11, 230V
11/03-BA	KD11-J, BA11-MA, DLV11, 115V
11/03-BB	KD11-J, BA11-MB, DLV11, 230V
11/03-CA	KD11-L, BA11-MA, DLV11, 115V
11/03-CB	KD11-L, BA11-MB, DLV11, 230V
11/03-DA	KD11-M, BA11-MA, DLV11, 115V
11/03-DB	KD11-M, BA11-MB, DLV11, 230V
11/03-EA	KD11-F, BA11-MA, 115V
11/03-EB	KD11-F, BA11-MB, 230V
11/03-FA	KD11-J, BA11-MA, 115V
11/03-FB	KD11-J, BA11-MB, 230V
11/03-GA	KD11-L, BA11-MA, 115V
11/03-GB	KD11-L, BA11-MB, 230V
11/03-HA	KD11-M, BA11-MA, 115V
11/03-HB	KD11-M, BA11-MB, 230V
11/03-KA	KD11-R, BA11-MA, 115V
11/03-KB	KD11-R, BA11-MB, 230V
11/03-MA	KD11-S, BA11-MA, 115V
11/03-MB	KD11-S, BA11-MB, 230V
11/03-SE	KD11-HA, KEV11, MSV11-DD, BA11-MA, 115V
11/03-SF	KD11-HA, KEV11, MSV11-DD, BA11-MB, 230V
11/03-SC	KD11-HA, KEV11, MSV11-DC, BA11-MA, 115V
11/03-SD	KD11-HA, KEV11, MSV11-DC, BA11-MB, 220V
11/03-KC	KD11-H, KEV11, MSV11-DD, BA11-MA, 115V

REVISIONS	CHG	1103-ML010	REV. J	USED ON OPTION/MODEL 11/03	DRN.	DATE	TITLE	digital DRAWING DIRECTORY PDP 11/03		
						P. RILEY	7/14/75			
						CHK'D.	DATE			
						D. HEALY	9/10/75			
						PROJ. ENG.	DATE			
				A. COHAN	10/16/75		SIZE B	CODE DD	NUMBER 11/03-0	REV L
					PROD.	DATE				
					D. DEROME	10/16/75				
				SHEET 1 OF 3						

THIS DRAWING AND ASSOCIATED DRAWINGS, BEING PART OF THE UNIT ASSEMBLY DRAWING, SHALL BE USED IN CONJUNCTION WITH THE UNIT ASSEMBLY DRAWING TO BE USED IN THE ASSEMBLY OF THE UNIT ASSEMBLY.

LEGEND		
NUMBER	VARIATION	
11/03-AA	KD11-F, BAI1-MA, DLV11	115V
11/03-AB	KD11-F, BAI1-MB, DLV11	230V
11/03-BA	KD11-T, BAI1-MA, DLV11	115V
11/03-BB	KD11-T, BAI1-MB, DLV11	230V
11/03-CA	KD11-L, BAI1-MA, DLV11	115V
11/03-CB	KD11-L, BAI1-MB, DLV11	230V
11/03-DA	KD11-M, BAI1-MA, DLV11	115V
11/03-DB	KD11-M, BAI1-MB, DLV11	230V
11/03-EA	KD11-F, BAI1-MA	115V
11/03-EB	KD11-F, BAI1-MB	230V
11/03-FA	KD11-J, BAI1-MA	115V
11/03-FB	KD11-J, BAI1-MB	230V
11/03-GA	KD11-L, BAI1-MA	115V
11/03-GB	KD11-L, BAI1-MB	230V
11/03-HA	KD11-M, BAI1-MA	115V
11/03-HB	KD11-M, BAI1-MB	230V
11/03-KA	KD11-R, BAI1-MA	115V
11/03-KB	KD11-R, BAI1-MB	230V
11/03-MA	KD11-S, BAI1-MA	115V
11/03-MB	KD11-S, BAI1-MB	230V
11/03-SE	KD11-HA, KEV11, MSV11-DD, BAI1-MA, 115V	
11/03-SF	KD11-HA, KEV11, MSV11-DD, BAI1-MB, 230V	
11/03-SC	KD11-HA, KEV11, MSV11-DC, BAI1-MA, 115V	
11/03-SD	KD11-HA, KEV11, MSV11-DC, BAI1-MB, 230V	
11/03-KC	KD11-H, KEV11, MSV11-DD, BAI1-MA, 115V	



- NOTES:
- TO BE INSTALLED BY CUSTOMER. TYP BOTH SIDES.
 - REMOVE BEZEL FROM FRONT OF ITEM #1 OR 2. REMOVE 2 NUTS ON EACH SIDE (FRONT ONLY) & REPLACE WITH NUT #10-32 (D.E.C. CAB) PART OF ITEM #3 KIT.
 - ATTACH MTC. BRKT. PART OF ITEM #3 (REAR ONLY).
 - FOR MODULE UTILIZATION SEE C-MU-1103-0-3, C-MU-1103-0-4 & C-MU-1103-0-5.
 - ASSEMBLY MODULE HOLDER ASSEMBLY SUPPLIED IN UA-BAI11A TO MODULES AS SHOWN.
 - AMPERAGE RATINGS ON SERIAL NO. TAGS (ITEM #10) TO BE AS FOLLOWS: FOR 115V SYSTEMS: 2 AMPS; FOR 230V SYSTEMS: 1 AMP. (NOTE THAT THIS IS A TYPICAL VALUE FOR THE BASIC SYSTEM.)
 - FOR VARIATIONS 11/03-SE AND 11/03-SF, THE BACKPLANE ETCH BOARD, 5411/04B, (PART OF ITEM 1 OR 2) MUST BE ETCH REV. E OR LATER FOR PROPER OPERATION OF RUN LIGHT. IF IT IS NECESSARY TO USE AN EARLIER REVISION, BACKPLANE A WIRE MUST BE CONNECTED BETWEEN BACKPLANE PINS AB1F1 AND CA1H1.
 - INSTALL ITEM 12 ONTO ITEM 10 AS SHOWN FOR VARIATIONS 11/03-SE AND 11/03-SF. 11/03-SC, 11/03-SD MAKE SURE DOT ON IC IS LOCATED AS SHOWN OR VOLTAGE WILL BE REVERSED.
 - INSTALL ITEM 12 ONTO ITEM 22 AS SHOWN FOR VARIATION 11/03-KC. MAKE SURE DOT ON IC IS LOCATED AS SHOWN OR VOLTAGE WILL BE REVERSED.

FOR PARTS LIST SEE : C-PL-11/03-0-0

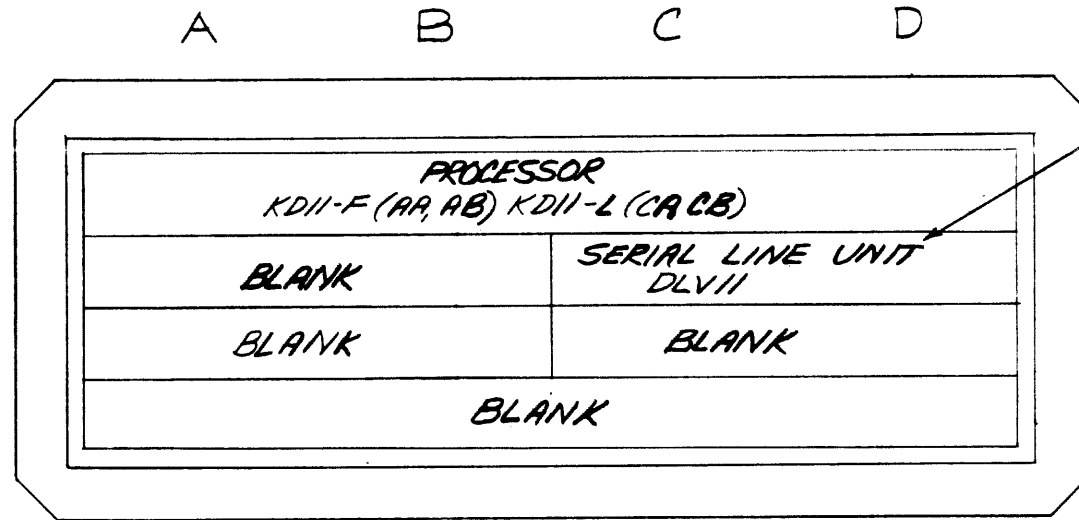
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DESCRIPTION	UNIT ASSEMBLY	DWG. PART NO.	11/03-0-0	TYPE NO.	
DATE	11/73	DESIGNED BY	W. J. BROWN	CHECKED BY	W. J. BROWN
ENGINEER	W. J. BROWN	PROJ. ENG.	W. J. BROWN	PROJ. MGR.	W. J. BROWN
DATE	11/73	FIRST USED BY	W. J. BROWN	DATE	11/73
TITLE	UNIT ASSEMBLY				
MATERIAL	SEE PARTS LIST				
SCALE	NONE				
FIGURE	1				
SHEET	1 OF 1				

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NOTES:

1. THIS MODULE UTILIZATION WILL BE USED FOR: 11/03-AA, 11/03-AB, 11/03-CA, 11/03-CB, 11/03-EA, 11/03-EB, 11/03-GA, 11/03-GB.
2. 11/03-EA, 11/03-EB, 11/03-GA, AND 11/03-GB DO NOT INCLUDE DLV-11.



SEE NOTE 2

- 1
- 2
- 3
- 4

VIEW FROM MODULE SIDE OF BACKPLANE

REV.	CHANGE NO.	CHK	DATE
A	11/03-00001	J. BIRIO	12 Nov 75
		J. BIRIO	25 Nov 75

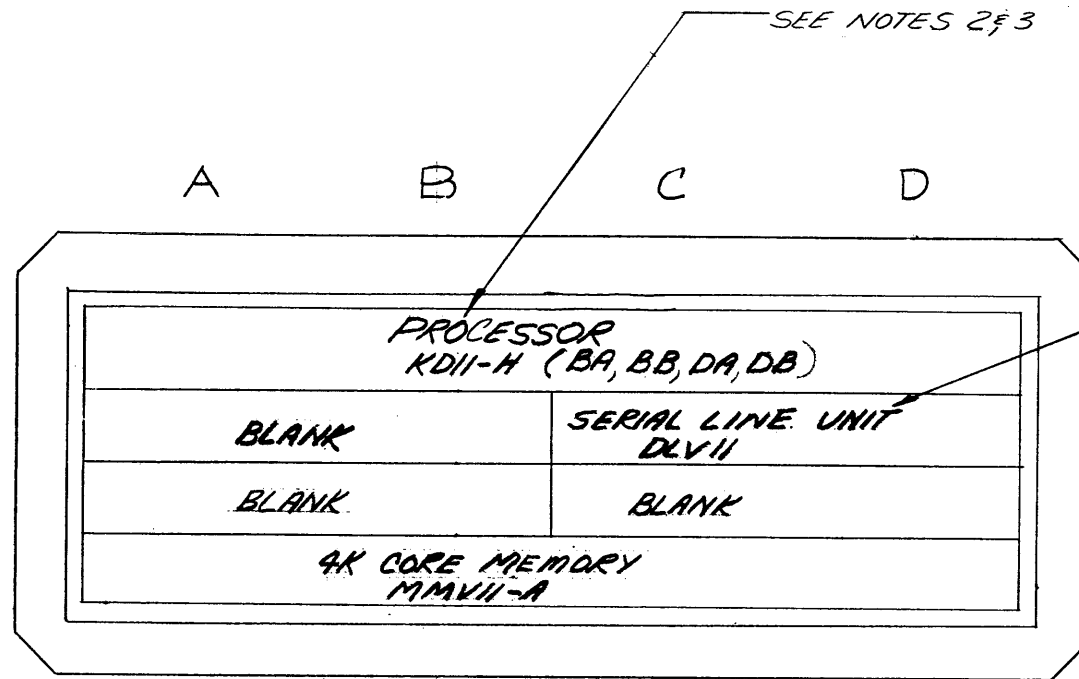
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/03				
PARTS LIST				
DIMENSIONAL TOLERANCE		DRN. <i>[Signature]</i>	DATE 9/28/75	digital
DIMENSIONS ARE MILLIMETERS INCHES UNLESS OTHERWISE SPECIFIED		CHK'D <i>[Signature]</i>	DATE	
MILLIMETERS	INCHES	ANGLES	ENG. <i>[Signature]</i>	DATE 8/27/75
X,XX ±0.10	.XXX ±0.006	±0° 30'	PROJ. ENGR. <i>[Signature]</i>	DATE 9/23/75
X,X ±0.5	.XX ±0.02		PROD. <i>[Signature]</i>	DATE 9/23/75
X ±2	.X ±.1			
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	NEXT HIGHER ASSY.		
MATERIAL	—#—	B-DD-11/03-0	SIZE CODE	NUMBER
FINISH	—#—	SCALE	C MU	11/03-0-3
		SHEET 1 OF 1	DIST.	REV. A

SIZE CODE C MU NUMBER 11/03-0-3 REV. A

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NOTES:

1. THIS MODULE UTILIZATION WILL BE USED FOR: 11/03-BA, 11/03-BB, 11/03-DA, 11/03-DB, 11/03-FA, 11/03-FB, 11/03-HA, 11/03-HB.
2. KDII-H WITH MMVII-A BECOMES KDII-J.
3. KDII-H WITH MMVII-A AND KEVII BECOMES KDII-M.
4. 11/03-FA, 11/03-FB, 11/03-HA, AND 11/03-HB DO NOT INCLUDE DLVII.



VIEW FROM MODULE SIDE OF BACKPLANE

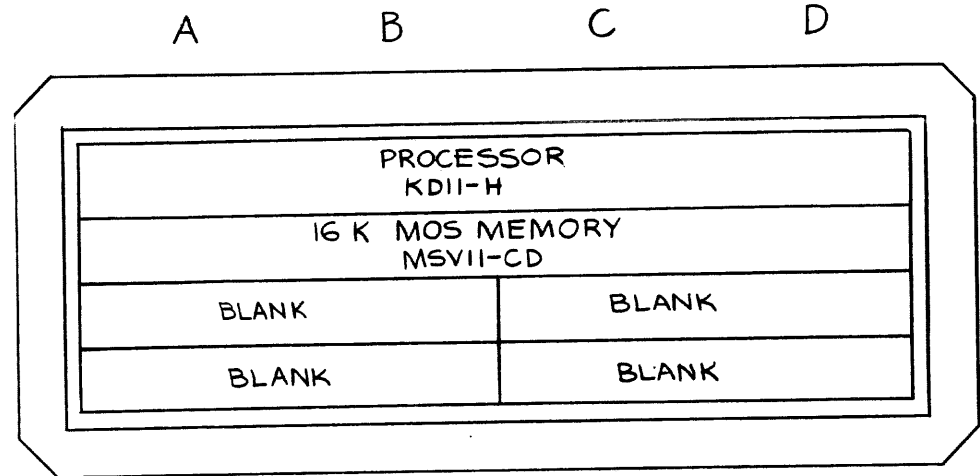
REVISIONS		REV.
CHK	CHANGE NO.	
28	11/03-00001	A
J. BIRRO		25 JUN 75

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/03			PARTS LIST		
DIMENSIONAL TOLERANCE		DRN. <i>Alley</i>	DATE 9/23/75	digital	
DIMENSIONS ARE MILLIMETERS INCHES UNLESS OTHERWISE SPECIFIED		CHK'D <i>Q/R</i>	DATE		
MILLIMETERS	INCHES	ENG. <i>W. J. ...</i>	DATE 9/23/75	TITLE MODULE UTILIZATION (11/03)	
X,XX ±0.10 XX ±0.5 X ±2	.XXX ±.005 .XX ±.02 X ±.1	PROJ. ENG. <i>...</i>	DATE 9/23/75		
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROD. <i>...</i>	DATE 9/17/75	NEXT HIGHER ASSY.	
MATERIAL #		B-DD-11/03-0	SIZE CODE CMU	NUMBER 11/03-0-4	REV. A
FINISH #		SCALE #	SHEET 7 OF 1	DIST.	

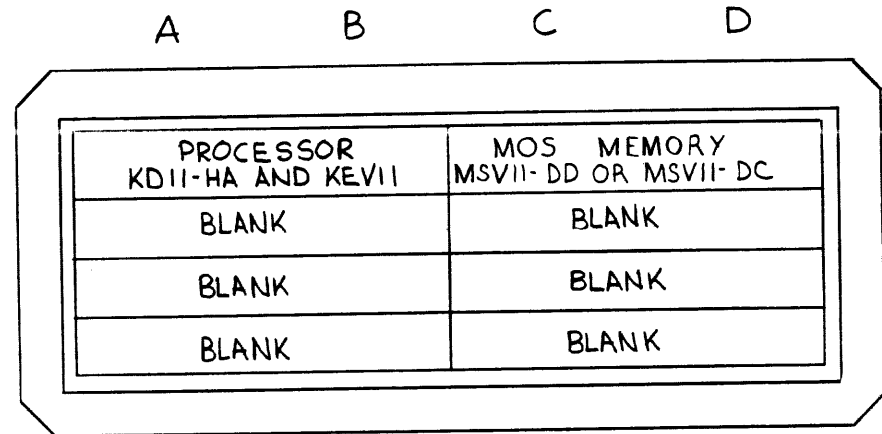
REV. A
NUMBER 11/03-0-4
SIZE CODE CMU

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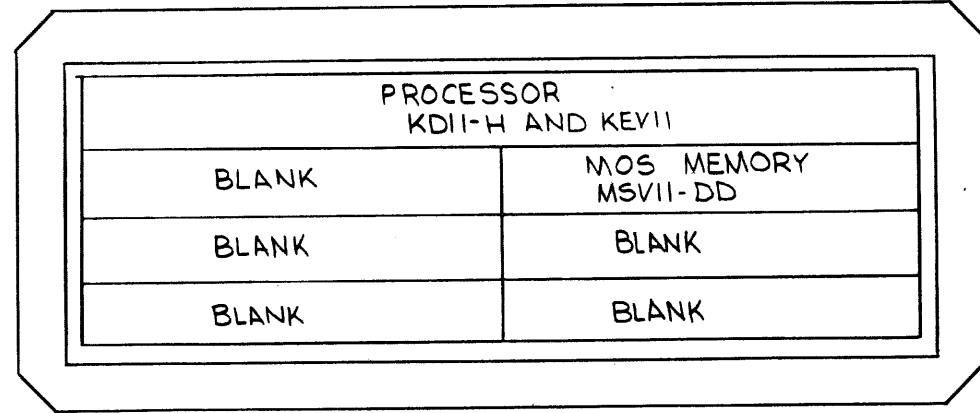
THIS MODULE UTILIZATION WILL BE USED FOR: 11/03-KA, 11/03-KB, 11/03-MA, 11/03-MB



THIS MODULE UTILIZATION WILL BE USED FOR: 11/03-SE, 11/03-SF, 11/03-SC, 11/03-SD



THIS MODULE UTILIZATION WILL BE USED FOR: 11/03-KC



VIEW FROM MODULE SIDE OF BACK PLANE

VIEW FROM MODULE SIDE OF BACK PLANE

REV.	CHANGE NO.	DATE	BY	CHK
A	11/03-00006	31 MAR 77	R. Chasson	J. BIRI
B	11/03-00007	6 APR 77	D. Bennett	D. Bennett
C	11/03-ML010	19 Apr 78	R. Lewis	R. Lewis
D	11/03-ML011	25 Sep 78	R. Lewis	R. Lewis
E	11/03-ML012	5 Dec 78	R. Lewis	R. Lewis

QUANTITY & VARIATION	DESCRIPTION	DWG./PART NO.	ITEM NO.
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	ANGLES ±0° 30'	GLASS OF ACCURACY (CHECK ONE)	
	SURFACE FINISH IN MICROINCHES	NOMINAL DIMENSION RANGE INCHES	
		OVER 0 TO 0.2	OVER 0.2 TO 1.2
		OVER 1.2 TO 4.0	OVER 4.0 TO 12.0
		OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
		MEDIUM <input checked="" type="checkbox"/>	±.004 ±.008 ±.012 ±.016 ±.024 ±.04
		PREFERRED <input type="checkbox"/>	±.012 ±.016 ±.026 ±.04 ±.063 ±.1
THIRD ANGLE PROJECTION	DRN. BarPellerin 30 Dec 76	FIRST USED ON 11/03	digital
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D BY [Signature] 30 Dec 76	TITLE MODULE UTILIZATION (11/03)	
DO NOT SCALE DWG	PROJ. ENG. J. BIRI 4 Jan 77	SIZE CODE NUMBER REV. C MU 11/03-0-5 E	
MATERIAL	PROD. [Signature] 11 Feb 77	SHEET 1 OF 1	
FINISH	NEXT HIGHER ASSY.	DIST.	

REV. E
NUMBER 11/03-0-5
BASE CODE C MU

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY <i>RFC</i>	CHECKED <i>RFC</i>	SECTION
DATE <i>25 Apr 78</i>	DATE <i>25 Apr 78</i>	
ENG <i>RFC</i>	PROD <i>RFC</i>	ISSUED SECT.
DATE <i>25 Apr 78</i>	DATE <i>25 Apr 78</i>	

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	KD11-F	KD11-H	KD11-J	KD11-L	KD11-M	KD11-N	KD11-R	KD11-S	KD11-WA
1.	B-PL-M7264-AA-0	Processor with 4K RAM	1	-	-	1	-	-	-	-	-
2.	B-PL-M7264-YA-0	Processor with no RAM	-	1	1	-	1	1	1	1	-
3.	D-UA-MMV11-A-0	4K CORE Memory	-	-	1	-	1	-	-	-	-
4.	A-PL-MSV11-CD-0	16K MOS Memory	-	-	-	-	-	-	1	1	-
5.	A-PL-KEV11-0-0	EIS/FIS	-	-	-	1	1	1	-	1	-
6.	B-PL-M7270-0-0	DOUBLE HEIGHT PROCESSOR WITH NO RAM	-	-	-	-	-	-	-	-	1
		NOTE: This is a reference document only, listing processor variations covered by the 11/03 Field Maintenance Print Set. For more detailed information, refer to individual option prints.									

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
11/03 Processor Variation List	B-DD-11/03-0	A	PL	11/03-0-6	A	11/03- ML010
SHEET | OF |	DIST.					

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST

MADE BY WALT SIZER
DATE 9/29/75
ENG ARNOLD COHAN
DATE 10/17/75
CHECKED WALT SIZER
DATE 9/29/75
PROD DON DEROME
DATE 10/17/75
SECTION 1
ISSUED SECT. 2

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	EB-1511-76	LSI-11, PDP-11/03 USER'S MANUAL
2	EB-04879-75	LSI-11, 11/03 PROCESSOR HANDBOOK
3	EH-04779-75	LSI-11 PROGRAMMING CARD
4	ZJV01-RB	LSI-11 BASIC DIAGNOSTIC KIT
5	MP-11/03	PDP-11/03 CUSTOMER PRINT SET
6	A-PL-7011609-0-0	11/03 MOUNTING BRACKET KIT
7	EB-06583-76	MICROCOMPUTER HANDBOOK
8	EB-15114-78	MICROCOMPUTER PROCESSORS HANDBOOK
9	EB-15115-78	MEMORIES AND PERIPHERALS HANDBOOK
10	MP00049	FD11-F FIELD MAINTENANCE PRINT SET
11	MP00495	FD11-HA FIELD MAINTENANCE PRINT SET
12	B-DD-MMV11-A (COM- PLETE)	MMV11-A FIELD MAINTENANCE PRINT SET
13	MP00259	MSV11-C FIELD MAINTENANCE PRINT SET
14	MP00566	MSV11-D FIELD MAINTENANCE PRINT SET
15	MP00055	DLV11 FIELD MAINTENANCE PRINT SET
		* NOTE: THESE ITEMS ARE ONLY TO BE SHIPPED WITH FIRST SHIP TO CUSTOMER.

TITLE PDP 11/03 SHIPPING LIST
ASSTY NO. NONE
SHEET 1 OF 2
SIZE CODE A PL
NUMBER 11/03-0-1
ECONO. NO. 11/03 ML011

DEC FORM DEC 16 (325) 1031 N870
ORA 110

M.L.

11/03-AA	11/03-AB	11/03-BA	11/03-BB	11/03-CA	11/03-CB	11/03-DA	11/03-DB	11/03-EA	11/03-EB	11/03-FA	11/03-FB
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
1	1	1	1	1	1	1	1	1	1	1	1
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-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
1	1	1	1	1	1	1	1	1	1	1	1

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST

MADE BY WALT SIZER
DATE 9/29/75
ENG ARNOLD COHAN
DATE 10/17/75
CHECKED WALT SIZER
DATE 9/29/75
PROD DON DEROME
DATE 10/17/75
SECTION 2
ISSUED SECT. 2

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1	EB-1511-76	LSI-11, PDP-11/03 USER'S MANUAL
2	EB-04879-75	LSI-11, 11/03 PROCESSOR HANDBOOK
3	EH-04779-75	LSI-11 PROGRAMMING CARD
4	ZJV01-RB	LSI-11 BASIC DIAGNOSTIC KIT
5	MP-11/03	PDP-11/03 CUSTOMER PRINT SET
6	A-PL-7011609-0-0	11/03 MOUNTING BRACKET KIT
7	EB-06583-76	MICROCOMPUTER HANDBOOK
8	EB-15114-78	MICROCOMPUTER PROCESSORS HANDBOOK
9	EB-15115-78	MEMORIES AND PERIPHERALS HANDBOOK
10	MP00049	FD11-F FIELD MAINTENANCE PRINT SET
11	MP00495	FD11-HA FIELD MAINTENANCE PRINT SET
12	B-DD-MMV11-A (COM- PLETE)	MMV11-A FIELD MAINTENANCE PRINT SET
13	MP00259	MSV11-C FIELD MAINTENANCE PRINT SET
14	MP00566	MSV11-D FIELD MAINTENANCE PRINT SET
15	MP00055	DLV11 FIELD MAINTENANCE PRINT SET

* NOTE: THESE ITEMS ARE ONLY TO BE SHIPPED WITH FIRST SHIP TO CUSTOMER.

11/03-GA	11/03-GB	11/03-HA	11/03-HB	11/03-KA	11/03-KB	11/03-MA	11/03-MB	11/03-SA	11/03-SB	11/03-SC	11/03-SD
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
1	1	1	1	1	1	1	1	1	1	1	1
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*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
1	1	1	1	1	1	1	1	1	1	1	1
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

TITLE PDP 11/03 SHIPPING LIST
ASSTY NO. NONE
SHEET 2 OF 2
SIZE CODE A PL
NUMBER 11/03-0-1
ECONO. NO. 11/03 ML011

DEC FORM DEC 16 (325) 1031 N870
ORA 110

M.L.

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE ↯

SEQUENCE ↯

B-DD-BALL-M	DRAWING DIRECTORY BALL-M (SHEET 1 ONLY)
E-UA-BALL-M-0	BOX, FRAME, AND P.S. ASSY
D-AD-7011841-0-0	FRAME AND P.S. ASSY
D-UA-H9270-A-0	FRAME ASSY
E-UA-H9270-0-0	FRAME
D-AD-7011145-0-0	BACKPLANE ASSY
D-CS-5411648-0-1	BACKPLANE
E-UA-H780-0-0	POWER SUPPLY
C-PL-H780-0-0	POWER SUPPLY
D-UA-5411776-0-0	REGULATOR
B-PL-5411776-0-0	REGULATOR
D-CS-5411776-0-1	REGULATOR
D-CS-5411808-0-1	MASTER CONSOLE
D-CS-5412143-0-1	SLAVE CONSOLE
A-PL-BALL-M-1	SHIPPING LIST

UNIT VARIATIONS		PRINT SET		
VAR	TITLE	1		
BALL-MA	3.5 BOX, H9270-A & H780-A	X		
BALL-MB	3.5 BOX, H9270-A & H780-B	X		
BALL-MC	3.5 BOX, NO FRAME OR P.S.	X		
BALL-ME	3.5 BOX, H9270-A & H780-E	X		
BALL-MF	3.5 BOX, H9270-A & H780-F	X		

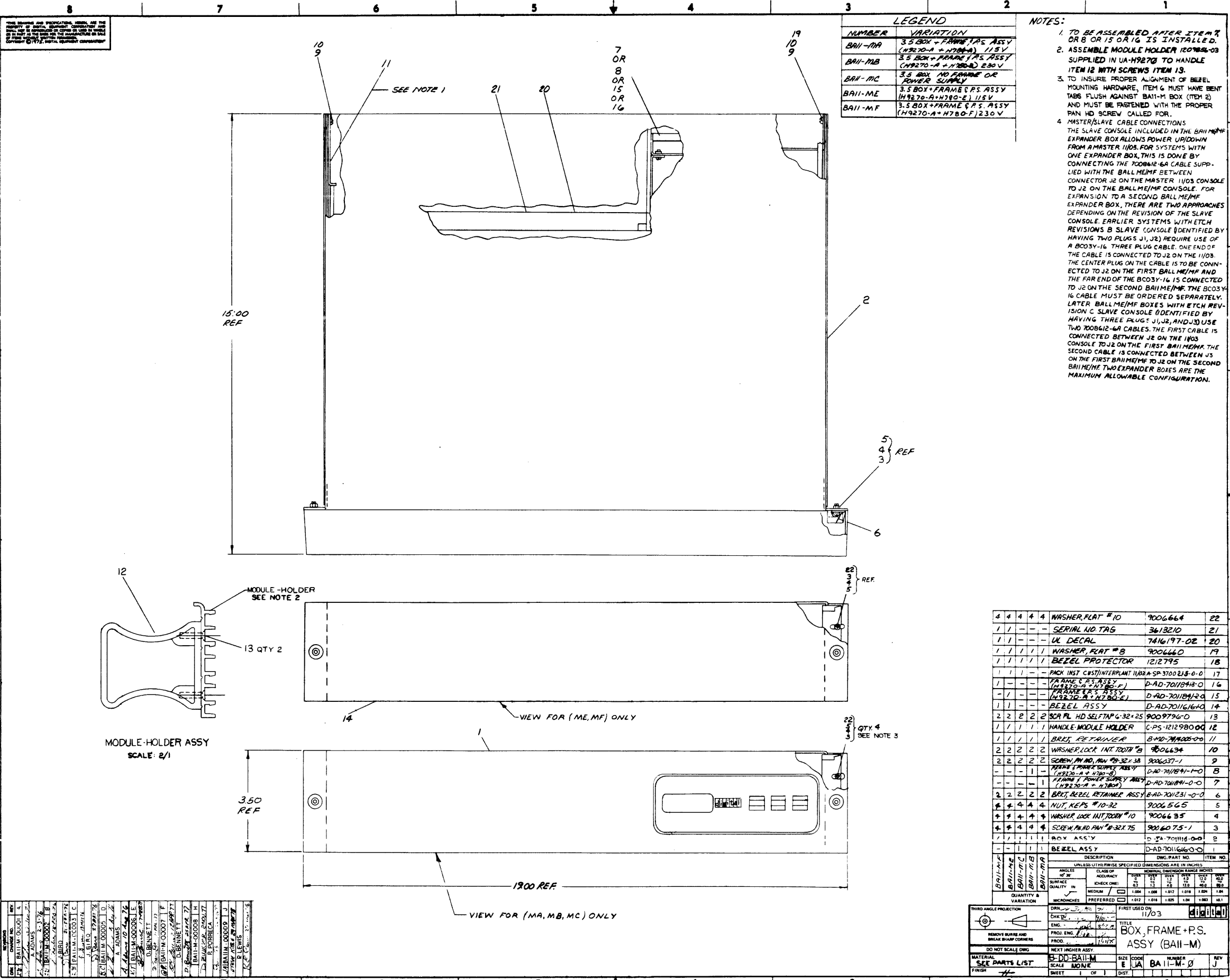
EN-01062-1A-16-R972-(325)

REV	CHG. NO.	DATE
A	BALL-M-1	JAN 76
B	BALL-M-2	FEB 76
C	BALL-M-3	5-76
D	BALL-M-4	5-76
E	BALL-M-5	8-76
F	BALL-M-6	2-77
H	BALL-M-7	4-77
J	BALL-M-9	3-78
K	BALL-M-10	8-78

USED ON OPTION/MODEL	DRN.	DATE	TITLE
	M. BAPTISTE	8/4/75	DRAWING DIRECTORY BALL-M
11/03	CHK'D. D. HEALY	9/10/75	
	PROJECTED	10/16/75	
	PROD.	10/16/75	
	FIELD SERV.	10/17/75	

SHEET 1 OF 3

SIZE B	CODE DD	NUMBER BALL-M	REV K
DIST			



LEGEND

NUMBER	VARIATION
BAII-MA	3.5 BOX + FRAME + P.S. ASSY (H9270-A + H780-A) 115V
BAII-MB	3.5 BOX + FRAME + P.S. ASSY (H9270-A + H780-A) 230V
BAII-MC	3.5 BOX NO FRAME OR POWER SUPPLY
BAII-ME	3.5 BOX + FRAME + P.S. ASSY (H9230-A + H780-E) 115V
BAII-MF	3.5 BOX + FRAME + P.S. ASSY (H9270-A + H780-F) 230V

- NOTES:**
1. TO BE ASSEMBLED AFTER ITEM 7 OR 8 OR 15 OR 16 IS INSTALLED.
 2. ASSEMBLY MODULE HOLDER 120042-03 SUPPLIED IN UA-H9270 TO HANDLE ITEM 12 WITH SCREWS ITEM 13.
 3. TO INSURE PROPER ALIGNMENT OF BEZEL MOUNTING HARDWARE, ITEM 6 MUST HAVE BENT TABS FLUSH AGAINST BAII-M BOX (ITEM 2) AND MUST BE FASTENED WITH THE PROPER PAN HD SCREW CALLED FOR.
 4. MASTER/SLAVE CABLE CONNECTIONS THE SLAVE CONSOLE INCLUDED IN THE BAII-M/F EXPANDER BOX ALLOWS POWER UP/DOWN FROM A MASTER I/O'S. FOR SYSTEMS WITH ONE EXPANDER BOX, THIS IS DONE BY CONNECTING THE 700612-6A CABLE SUPPLIED WITH THE BAII-M/F BETWEEN CONNECTOR J2 ON THE MASTER I/O'S CONSOLE TO J2 ON THE BAII-M/F CONSOLE. FOR EXPANSION TO A SECOND BAII-M/F EXPANDER BOX, THERE ARE TWO APPROACHES DEPENDING ON THE REVISION OF THE SLAVE CONSOLE. EARLIER SYSTEMS WITH ETCH REVISIONS B SLAVE CONSOLE IDENTIFIED BY HAVING TWO PLUGS (J1, J2) REQUIRE USE OF A BC03Y-16 THREE PLUG CABLE. ONE END OF THE CABLE IS CONNECTED TO J2 ON THE I/O'S. THE CENTER PLUG ON THE CABLE IS TO BE CONNECTED TO J2 ON THE FIRST BAII-M/F AND THE FAR END OF THE BC03Y-16 IS CONNECTED TO J2 ON THE SECOND BAII-M/F. THE BC03Y-16 CABLE MUST BE ORDERED SEPARATELY. LATER BAII-M/F BOXES WITH ETCH REVISION C SLAVE CONSOLE (IDENTIFIED BY HAVING THREE PLUGS (J1, J2, AND J3)) USE TWO 700612-6A CABLES. THE FIRST CABLE IS CONNECTED BETWEEN J2 ON THE I/O'S CONSOLE TO J2 ON THE FIRST BAII-M/F. THE SECOND CABLE IS CONNECTED BETWEEN J3 ON THE FIRST BAII-M/F TO J2 ON THE SECOND BAII-M/F. TWO EXPANDER BOXES ARE THE MAXIMUM ALLOWABLE CONFIGURATION.

4	4	4	4	WASHER, FLAT #10	700666	22
1	1	-	-	SERIAL NO TAG	3613210	21
1	1	-	-	UK DECAL	7416197-02	20
1	1	1	1	WASHER, FLAT #8	9006660	19
1	1	1	1	BEZEL PROTECTOR	1212795	18
1	1	1	1	PACK INST CUST/INTERPLANT 1102A-SP-9700215-0-0		17
1	-	-	-	FRAME P.S. ASSY (H9270-A + H780-F)	D-AD-7011848-0	16
-	1	-	-	FRAME P.S. ASSY (H9270-A + H780-E)	D-AD-7011847-0	15
1	1	-	-	BEZEL ASSY	D-AD-7011616-0	14
2	2	2	2	SCREW PAN HD SELF TAP #3-25	9009796-0	13
1	1	1	1	HANDLE MODULE HOLDER	C-PS-121298000	12
1	1	1	1	BEZEL RETAINER	B-MD-701405-00	11
2	2	2	2	WASHER LOCK INT TOOTH #9	9006634	10
2	2	2	2	SCREW PAN HD #8-32 X .3A	900637-1	9
-	-	1	-	FRAME P.S. ASSY (H9270-A + H780-G)	D-AD-7011849-0	8
-	-	1	-	FRAME P.S. ASSY (H9270-A + H780-B)	D-AD-7011846-0	7
2	2	2	2	BEZEL RETAINER ASSY	B-AD-701231-0-0	6
4	4	4	4	NUT KEPS #10-32	9006565	5
4	4	4	4	WASHER LOCK INT TOOTH #10	9006635	4
4	4	4	4	SCREW PAN HD #8-32 X .75	9006075-1	3
1	1	1	1	BOX ASSY	D-AD-7011116-0-0	2
-	-	1	1	BEZEL ASSY	D-AD-7011616-0	1

THIRD ANGLE PROJECTION		FIRST USED ON 11/03	
REMOVE BORES AND BREAK SHARP CORNERS		TITLE BOX, FRAME + P.S. ASSY (BAII-M)	
DO NOT SCALE DIMS		NEXT HIGHER ASSY	
MATERIAL SEE PARTS LIST		SIZE CODE E JA BAII-M-Ø	
FINISH		SHEET 1 OF 1	

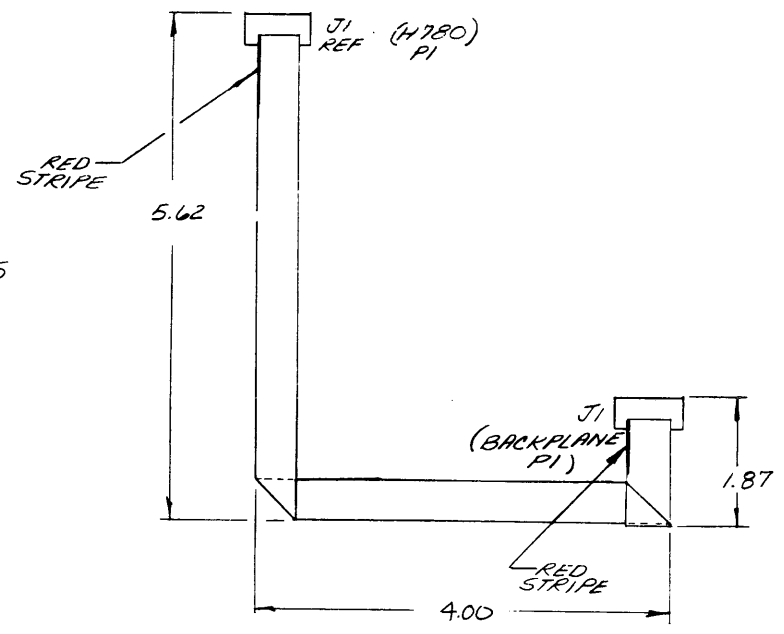
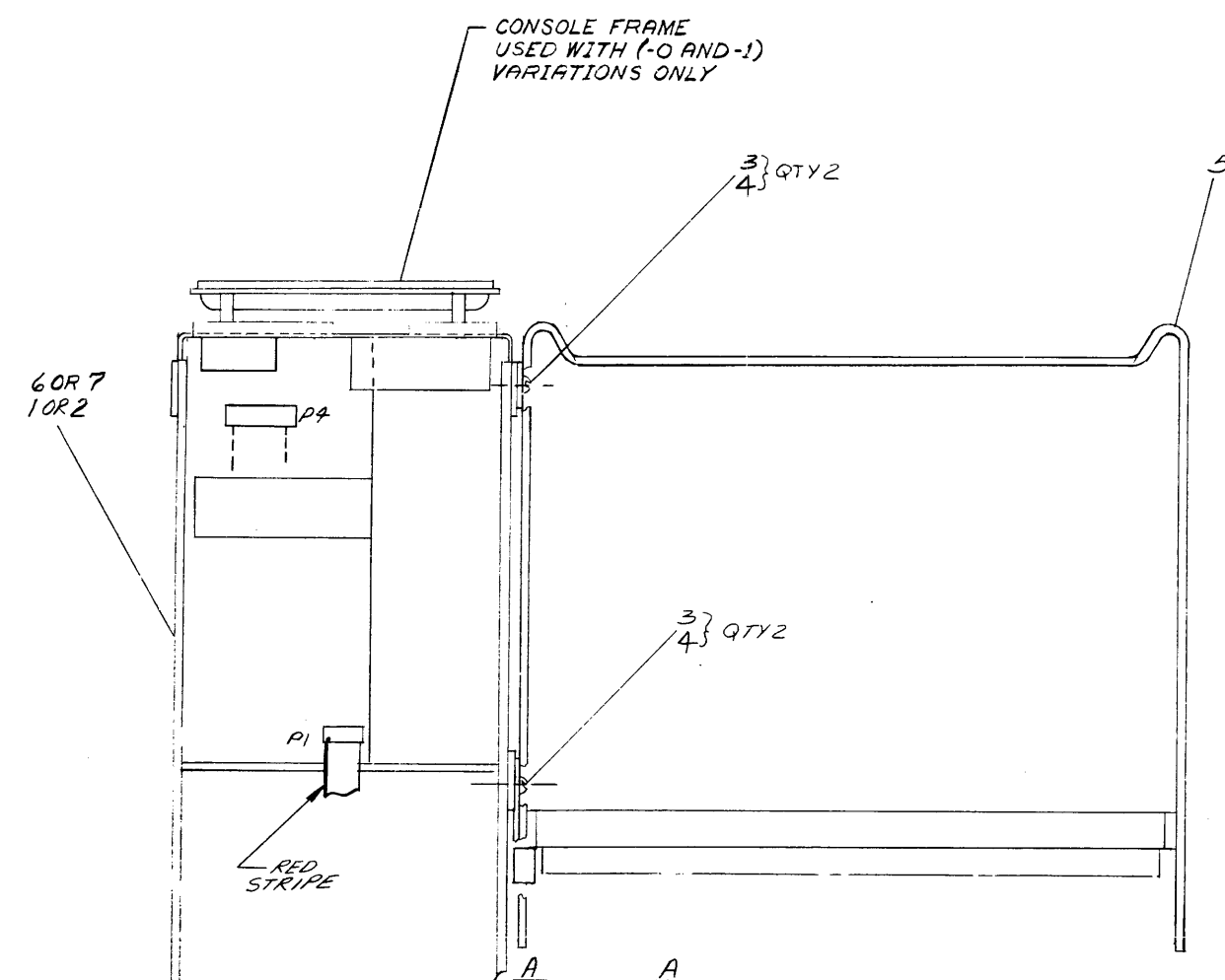
REVISIONS

NO	DATE	BY	DESCRIPTION
1	11/17/77	J. L. ADAMS	INITIAL RELEASE
2	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
3	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
4	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
5	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
6	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
7	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
8	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
9	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
10	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
11	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
12	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
13	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
14	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
15	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
16	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
17	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
18	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
19	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
20	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
21	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
22	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
23	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
24	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
25	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
26	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
27	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
28	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
29	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
30	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
31	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS
32	12/10/77	J. L. ADAMS	REVISED TO SHOW DIMENSIONS

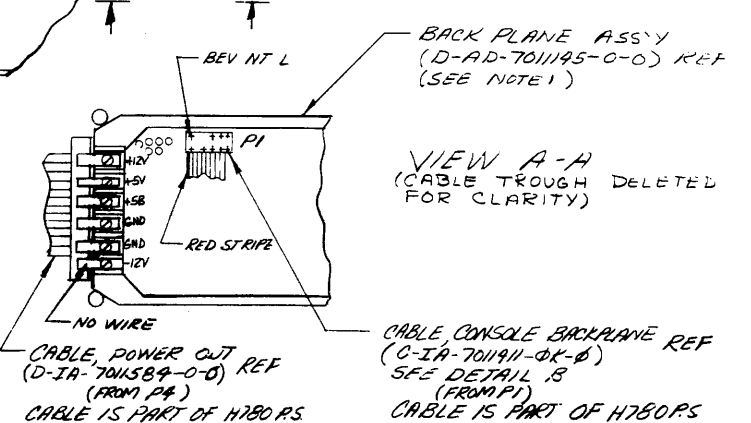
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7011841-00 2 1

NOTES:
1. FOR WIRING INFO REFER TO D-AD-7011145-0-0



DETAIL B
CABLE FOLD ILLUSTRATION



QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
1	H780-F SLAVE CON. 230V	E-UA-H780-F-0	7
1	H780-E SLAVE CON. 115V	E-UA-H780-E-0	6
1	FRAME ASSEMBLY	D-IA-H9270-A-0	5
4	WASHER, INT TOOTH #8	9006634-0	4
4	SCREW, PH HD, PAN #8-32x.38	9006037-1	3
1	POWER SUPPLY 230V	E-UA-H780-B-0	2
1	POWER SUPPLY 115V	E-UA-H780-A-0	1

CLASS	ACCURACY	OVER	UNDER	OVER	UNDER	OVER	UNDER
ANGLES 10° 30'	±.004	±.008	±.012	±.016	±.024	±.04	±.04
SURFACE QUALITY IN	±.004	±.008	±.012	±.016	±.024	±.04	±.04
QUANTITY & VARIATION	±.012	±.016	±.020	±.04	±.08	±.16	±.16

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH #

DRN: *[Signature]* 9-5-75
CHK: *[Signature]* 9-15-75
ENG: *[Signature]* 9-17-75
PROJ. ENG: *[Signature]* 9-23-75
PROD: *[Signature]* 11/1/75

FIRST USED ON 11/03

TITLE: FRAME & P.S. ASSY (H9270-A & H780)

SIZE: B-DD-7011841-0-0
SCALE: NONE
SHEET: 1 OF 1

NUMBER: 7011841-0-0
REV: A

REV.	CHG	DATE	BY	APP
A		09-17-75	J. BIRRO	
		12-16-76	J. BIRRO	

DEC FORM NO. DRD 100-C

D AD 7011841-00

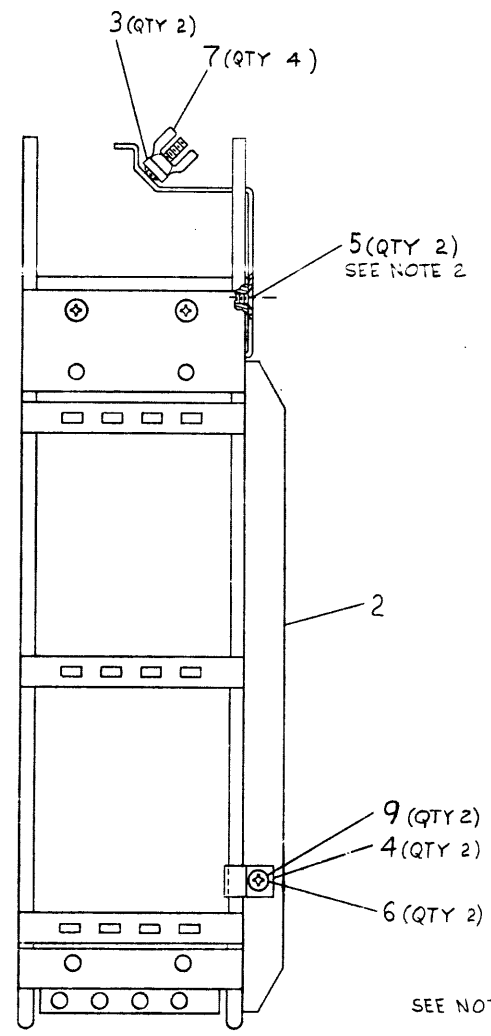
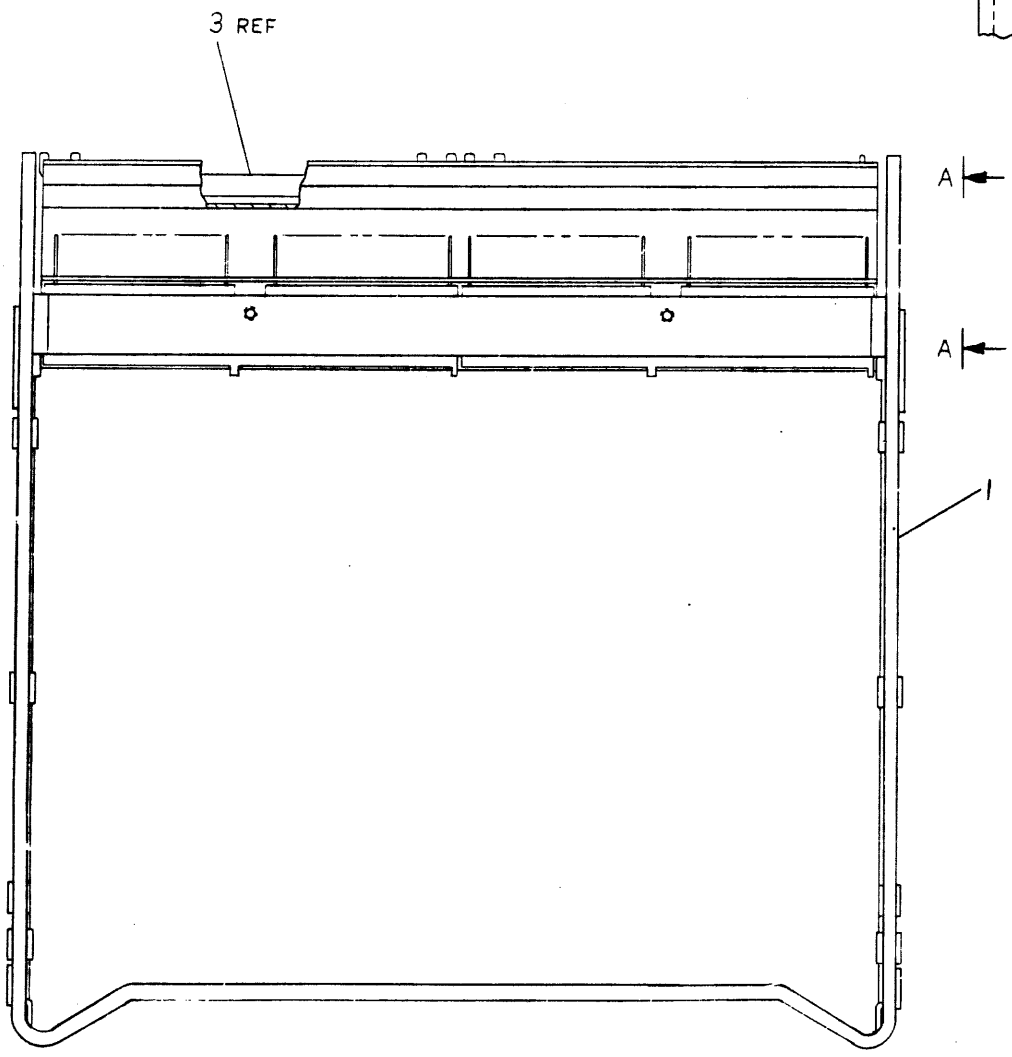
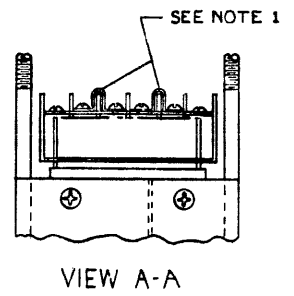
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H9270-A-0

NOTES:

- BEFORE ASSEMBLING CABLE THROUGH (7413849) TO H9270-0-0, REMOVE JUMPERS (9007589), QUANTITY 2, FROM TERMINAL BLOCK. REPLACE SCREWS TO TERMINAL BLOCK.
- MANUFACTURING HAS THE OPTION TO USE 100° FLAT HEAD SCREW NO. 9008404-2 PLUS THREAD LOCKING COMPOUND NO. 9009321 IN PLACE OF SCREW CALLED FOR.



QTY	DESCRIPTION	DWG/PART NO.	ITEM NO.
2	WASHER, LOCK SPLIT #6	9007801-00	9
1	PACKAGING INSTRUCTIONS H9270-A-SP-3700266-0-0		8
4	NUT, WING #6-32	9009711	7
2	SCR, PHL. PAN HD. #6-32 X .25	9006020-1	6
2	SCR, PHL. FLAT HD 100° CSK #6-32 X .31	9009730	5
2	CLAMP	C-MD-7416425-0-0	4
2	BAR, CABLE STRAIN RELIEF	B-MD-7413846-0-0	3
1	TROUGH, CABLE	D-IA-7413849-0-0	2
1	UNIT ASSY H9270	E-UA-H9270-0-0	1

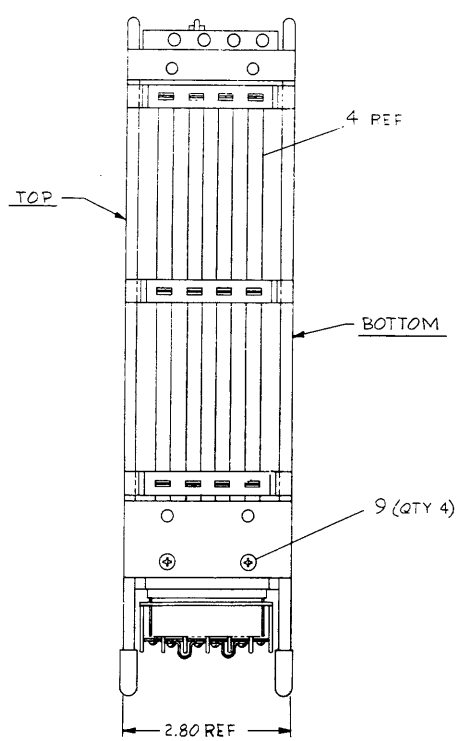
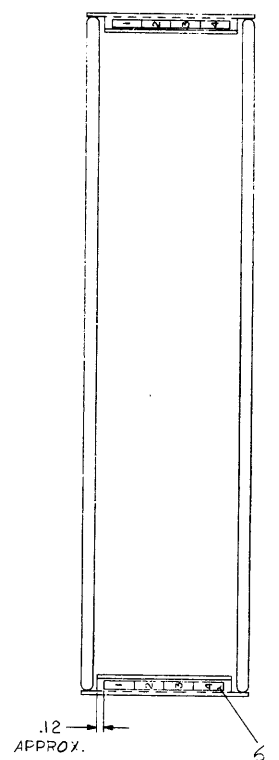
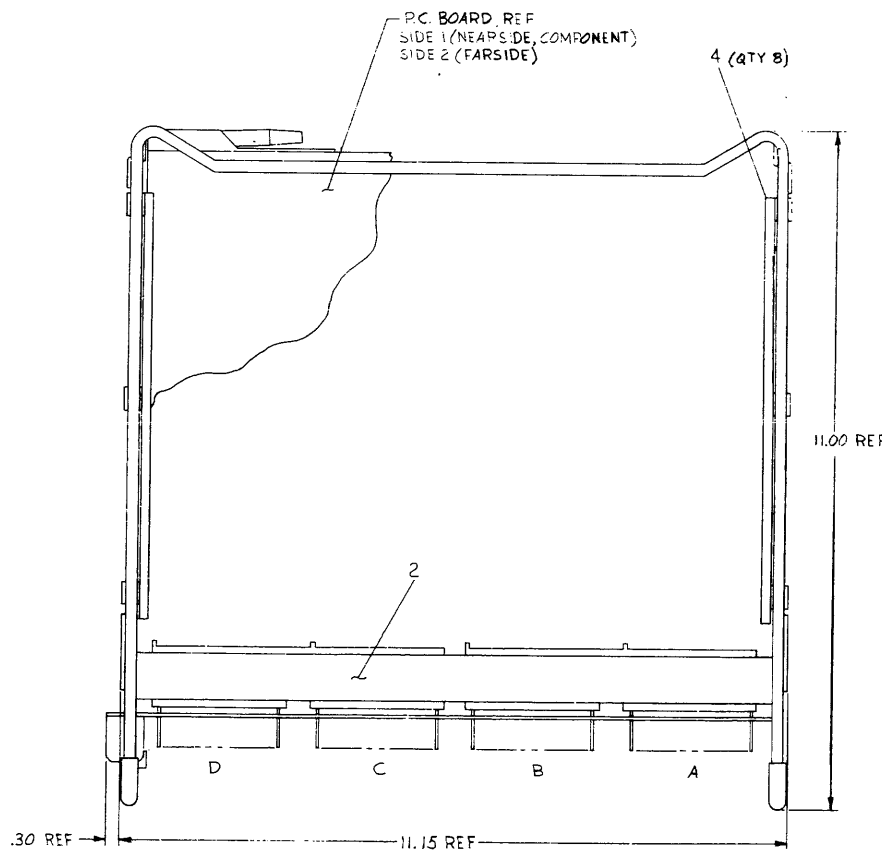
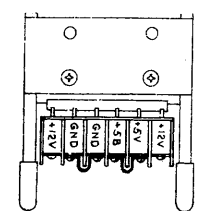
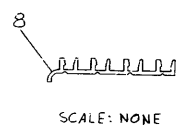
REV	CHANGE NO.	DATE	BY	CHK'D
1	H9270-A-00001	A		
2	H9270-A-00002	B		
3	H9270-A-00003	C		
4	H9270-A-00004	D		
5	H9270-A-00005	E		
6	H9270-A-00006	F		
7	H9270-A-00007	G		

THIRD ANGLE PROJECTION	DRN. <i>J. Bennett</i> 5-2-75	FIRST USED ON	11/03
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>J. Bennett</i> 7/1/75	ENG. <i>J. Bennett</i> 6/24/75	PROJ. ENG. <i>J. Bennett</i> 7/1/75
DO NOT SCALE DWG	NEXT HIGHER ASSY.	TITLE FRAME ASSY	
MATERIAL SEE PARTS LIST	B-DD-H9270-A	SCALE 1/1	SIZE CODE D UAI
FINISH	SHEET 1 OF 1	DIST.	NUMBER H9270-A-0
			REV. F

DATE CODE NUMBER H9270-A-0

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QTY	DESCRIPTION	DWG. PART NO.	ITEM NO.
1	PACK INST H9270	A-SP-3700206-00	10
4	SCR, PH. HD. FL NYLOC	9009730	9
1	MODULE HOLDER	A-SP-1209856-03	8
1	POWER-DISTRIB. DECAL	A-DC-7414331-00	7
2	SLOT NUMBERING DECAL	A-DC-7414311-00	6
1	AWT REV STATUS LABEL	A-DC-7414310-00	5
8	CARD GUIDE WHITE	A-PS-1212405-00	4
1	SCR, FL. HD. 6-32 X .31	9008404-2	3
1	BACK PLANE ASSY	D-AD-7011145-00	2
1	CARD FRAME 24 MODULE	E-IA-7011047-00	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES	CLASS OF ACCURACY	FORMAL DIMENSION TOLERANCES			
SURFACE QUALITY	FINISH	AS BUILT	13	12	11
QUALITY IN	FINISH	13	12	11	10
IN	FINISH	13	12	11	10
IN	FINISH	13	12	11	10
IN	FINISH	13	12	11	10

QUANTITY & VARIATION: 11/03

THIRD ANGLE PROJECTION

DRN: REP/IS/E 2-18-75
CHK'D: HEALY 7-7-75
ENG: J. WALLS 7-7-75
PROJ. ENGL. CORN 7-7-75
PROD. & DE ROM 7-8-75

FIRST USED ON: 11/03

TITLE: UNIT ASSY H9270

MATERIAL: SEE PARTS LIST

SCALE: 1/1

SIZE: COOM

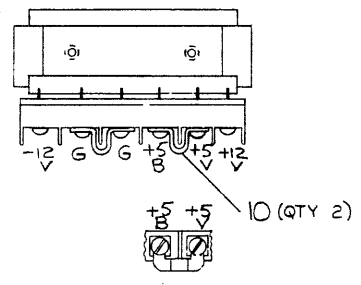
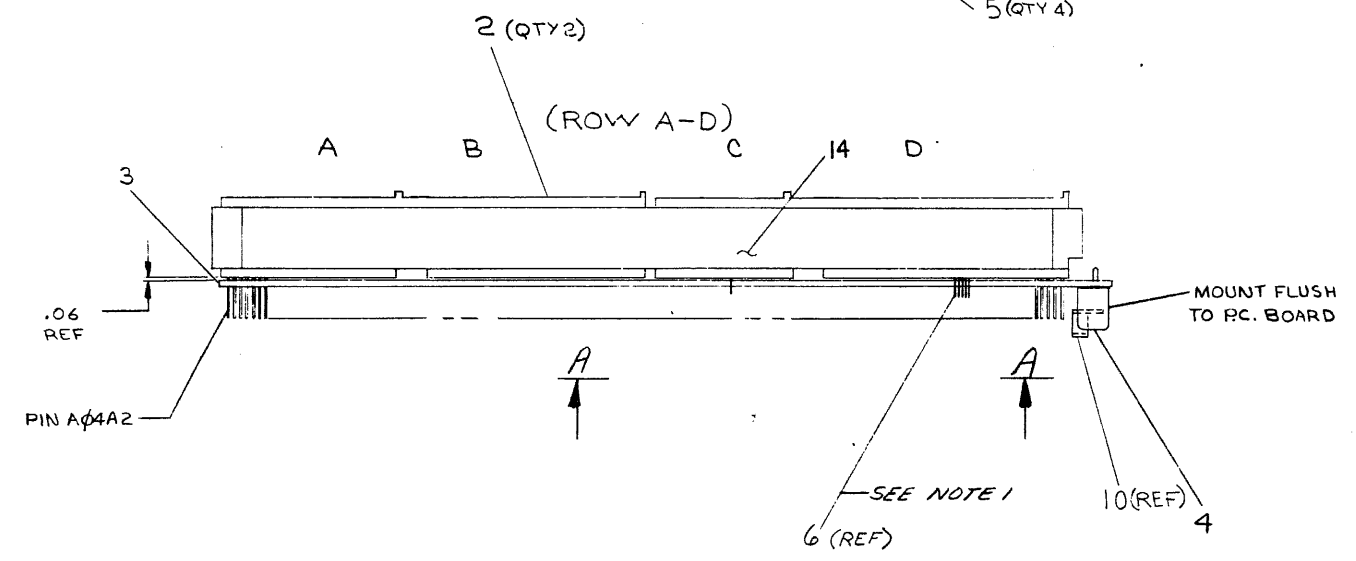
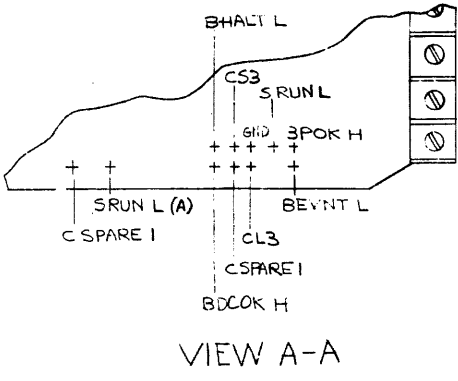
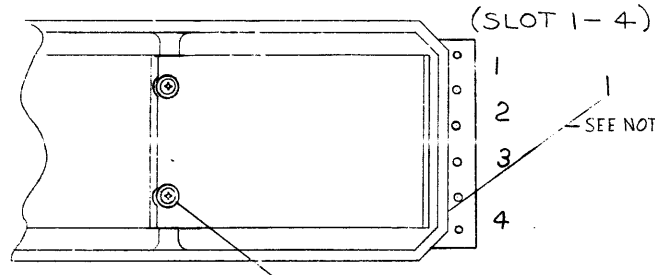
NO. 1

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WIRE TABLE								
ITEM NO	DESCRIPTION	FROM	TO	SIGNAL	REMARKS			
NO	AWG	COLOR	POINT	CONN	WITH			
15	30	GREEN		DOIM1	WIRE WRAP	PIN 5 OF STAKED IN PINS (GND) WITH ONE TURN OF WIRE WRAP THEN SOLDER TACK	GND	SEE NOTES 6 & 7

H 0-0-571145-01 2

- NOTES:
- ~~INSERT ITEM 1 ON PC BOARD PRIOR TO INSTALLING ON BACK PLANE.~~
 - ~~ALL WIRE WRAP EXCEPT THAT GOING TO THE TERMINAL LUG MUST BE APPLIED BEFORE THE AWT.~~
 - AWT SHOULD BE RUN BEFORE ITEMS 4 & 10 ARE ATTACHED.
 - #121025B IS AN ALLOWABLE SUBSTITUTION WHEN NO 121025B-01'S ARE AVAILABLE.
 - SAND CAST FRAME, NO. C-MD-7413493, CAN BE USED IN PLACE OF DIE CAST VERSION IF SUPPLY PROBLEM EXISTS.
 - IT IS IMPERATIVE THAT THE CONNECTION TO THE STAKED IN PIN BE MADE AS CLOSE TO THE ETCH BOARD AS POSSIBLE TO ALLOW A CONNECTOR TO SLIP DOWN ONTO THE PIN.
 - THIS WIRE IS REQUIRED ON 701145'S BUILT WITH ETCH REVISION D BOARDS ONLY.



QTY	DESCRIPTION	DWG. PART NO.	ITEM NO.
15	WIRE #30 AWG SOLID GRN	9105740-55	15
1	AWT REV STATUS LABEL	74-11881	14
3	WIRE #30 AWG SOLID (GRN)	9105740-55	13
12	WIRE #22 AWG SOLID (GRN)	9107688-55	12
11	TERM. RING INS. (RED)	9006781	11
2	JUMPER	9007569	10
9	AWT ETCH LIST	K-WL-701145-0-1	9
8	AWT REV STATUS	A-WT-701145-0	8
7	CIRCUIT SCHEMATIC	D-CS-541648-0-1	7
6	PHYS. STAKING PC. BD.	9009142	6
5	SCREW, FIL HD POSI DR #6-32x.2	9006120-6	5
4	BARRIER TERM BOARD (EAM)	1212484-2	4
3	ETCH CIRCUIT BOARD ASSY.	5411643-0-1	3
2	288 PIN BLOCK (SLOTTED)	121025B-01	2
1	FRAME, BACKPLANE	C-MD-7413888-00	1

REV.	CHANGE NO.	DATE	BY	CHK'D	DESCRIPTION
A	00001	7/15/75	M.E. LEWANDOWSKI		INITIAL RELEASE
B	00103	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
C	00002	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
D	00003	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
E	00007	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
F	00008	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
G	00004	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD
H	00004	7/15/75	M.E. LEWANDOWSKI		REVISION D BOARD

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: #

CLASS OF ACCURACY: MEDIUM

QUANTITY & VARIATION: 1 OF 1

DRN: J. Walls

CHK'D: J. Walls

ENG: J. Walls

PROJ. ENG: J. Walls

PROD: J. Walls

NEXT HIGHER ASSY.

SIZE: E-UA-h 727-0-0-0

SCALE: NONE

SHEET: 1 OF 1

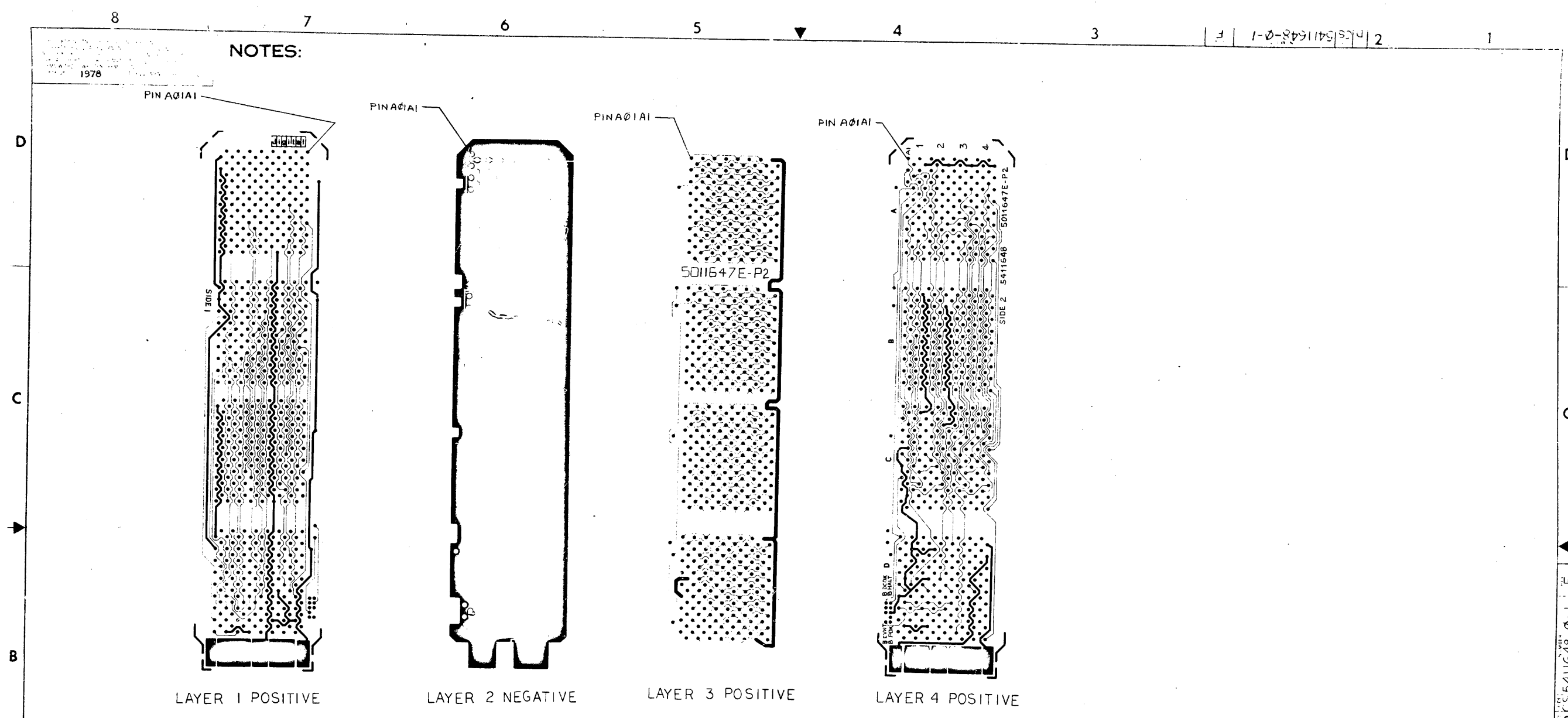
FIRST USED ON: 11/73

TITLE: BACK PLANE ASS'Y

SIZE CODE: DAD

NUMBER: 701145-0-0

REV. H



NOTES:

1978

IC TYPE	GND	-5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REF	DRILL & ETCH DRAWING	D-MD-5011647-0-0	7
11	PIN STAKING (P.C BOARD)	9009149	6
REF	AWT-REV STATUS	AWT-701145-0	5
REF	MODULE ECO HISTORY	B-MH-5411648-0	4
REF	ASSY/DRILL HOLE LAYOUT	E-AH-5411648-0	3
REF	XY COORDINATE HOLE LOCATION	K-CO-5411648-0	2
1	ETCHED CIRCUIT BOARD	5011647	1

FIRST USED ON OPTION MODEL		H9270	
ETCH BOARD REV		E-P2	
DRY	H. Dunmore	DATE	4-24-78
CHK'D	<i>[Signature]</i>	DATE	5/3/78
ENG	<i>[Signature]</i>	DATE	7/7/78
PROJ. ENG.	<i>[Signature]</i>	DATE	7/7/78
PROD. MGR.	<i>[Signature]</i>	DATE	7/7/78
NEXT HIGHER ASSY			
D-AD-701145-00			
SCALE	1/1	SIZE CODE	
SHEET	1	OF	1

digital

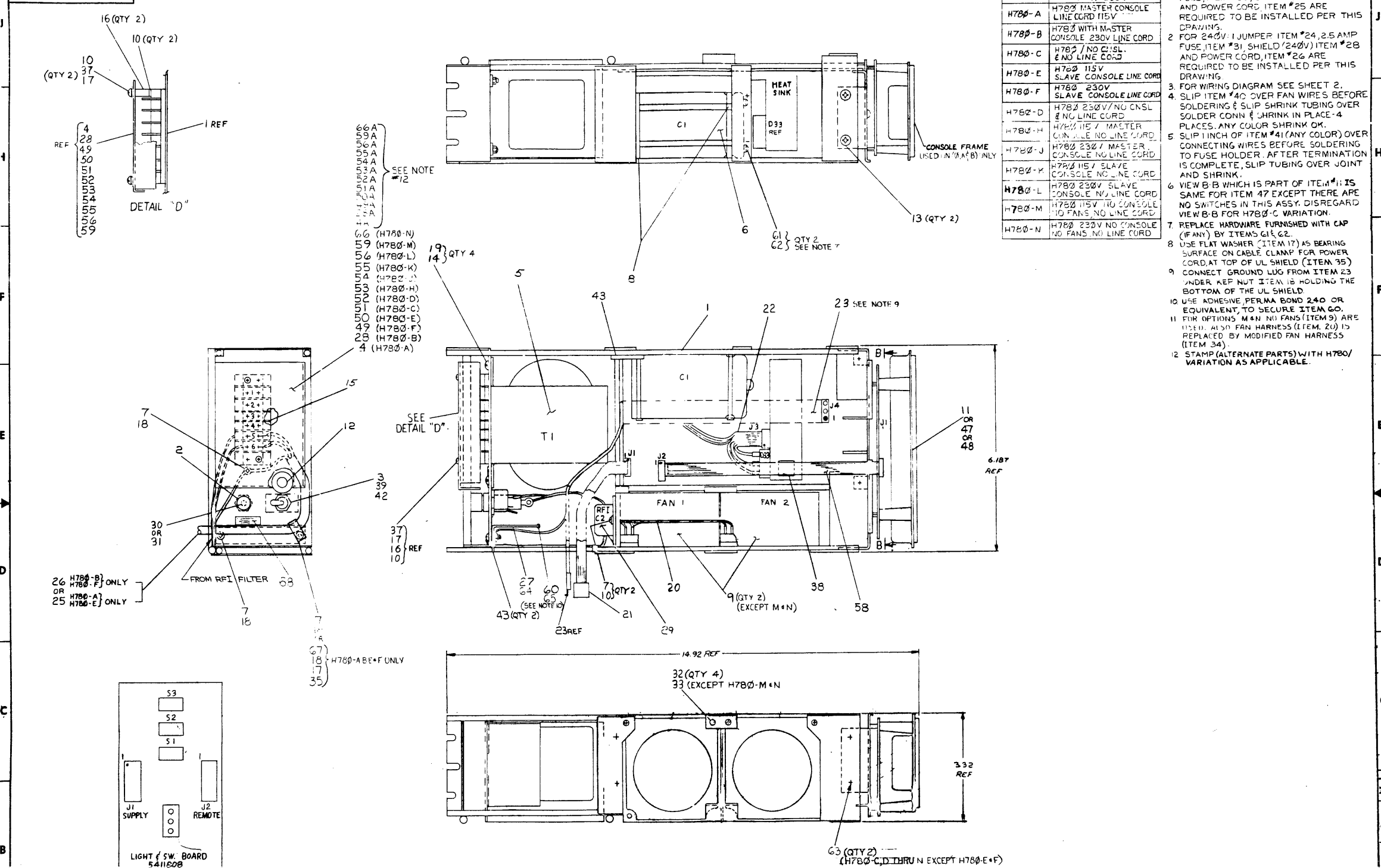
TITLE
CIRCUIT SCHEMATIC
BACK PLANE

SIZE CODE NUMBER REV.
DCS 5411648-0-1 F

SEMICONDUCTOR CONVERSION CHART

DCS 5411648-0-1 F

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- NOTES:
- 1. FOR 120V: 2 JUMPERS, ITEM #24, 5 AMP FUSE, ITEM #30, SHIELD (120V) ITEM #4, AND POWER CORD, ITEM #25 ARE REQUIRED TO BE INSTALLED PER THIS DRAWING.
 - 2. FOR 240V: 1 JUMPER ITEM #24, 2.5 AMP FUSE, ITEM #31, SHIELD (240V) ITEM #28 AND POWER CORD, ITEM #26 ARE REQUIRED TO BE INSTALLED PER THIS DRAWING.
 - 3. FOR WIRING DIAGRAM SEE SHEET 2.
 - 4. SLIP ITEM #40 OVER FAN WIRES BEFORE SOLDERING & SLIP SHRINK TUBING OVER SOLDER CONN & SHRINK IN PLACE-4 PLACES, ANY COLOR SHRINK OK.
 - 5. SLIP 1 INCH OF ITEM #41 (ANY COLOR) OVER CONNECTING WIRES BEFORE SOLDERING TO FUSE HOLDER. AFTER TERMINATION IS COMPLETE, SLIP TUBING OVER JOINT AND SHRINK.
 - 6. VIEW B-B WHICH IS PART OF ITEM #1: IS SAME FOR ITEM 47 EXCEPT THERE ARE NO SWITCHES IN THIS ASSY. DISREGARD VIEW B-B FOR H780-C VARIATION.
 - 7. REPLACE HARDWARE FURNISHED WITH CAP (IF ANY) BY ITEMS 61 & 62.
 - 8. USE FLAT WASHER (ITEM 17) AS BEARING SURFACE ON CABLE CLAMP FOR POWER CORD AT TOP OF UL SHIELD (ITEM 35).
 - 9. CONNECT GROUND LUG FROM ITEM 23 UNDER REF NUT ITEM 18 HOLDING THE BOTTOM OF THE UL SHIELD.
 - 10. USE ADHESIVE PERMA BOND 240 OR EQUIVALENT, TO SECURE ITEM 60.
 - 11. FOR OPTIONS M & N NO FANS (ITEM 9) ARE USED. ALSO FAN HARNESS (ITEM 20) IS REPLACED BY MODIFIED FAN HARNESS (ITEM 34).
 - 12. STAMP (ALTERNATE PARTS) WITH H780/ VARIATION AS APPLICABLE.

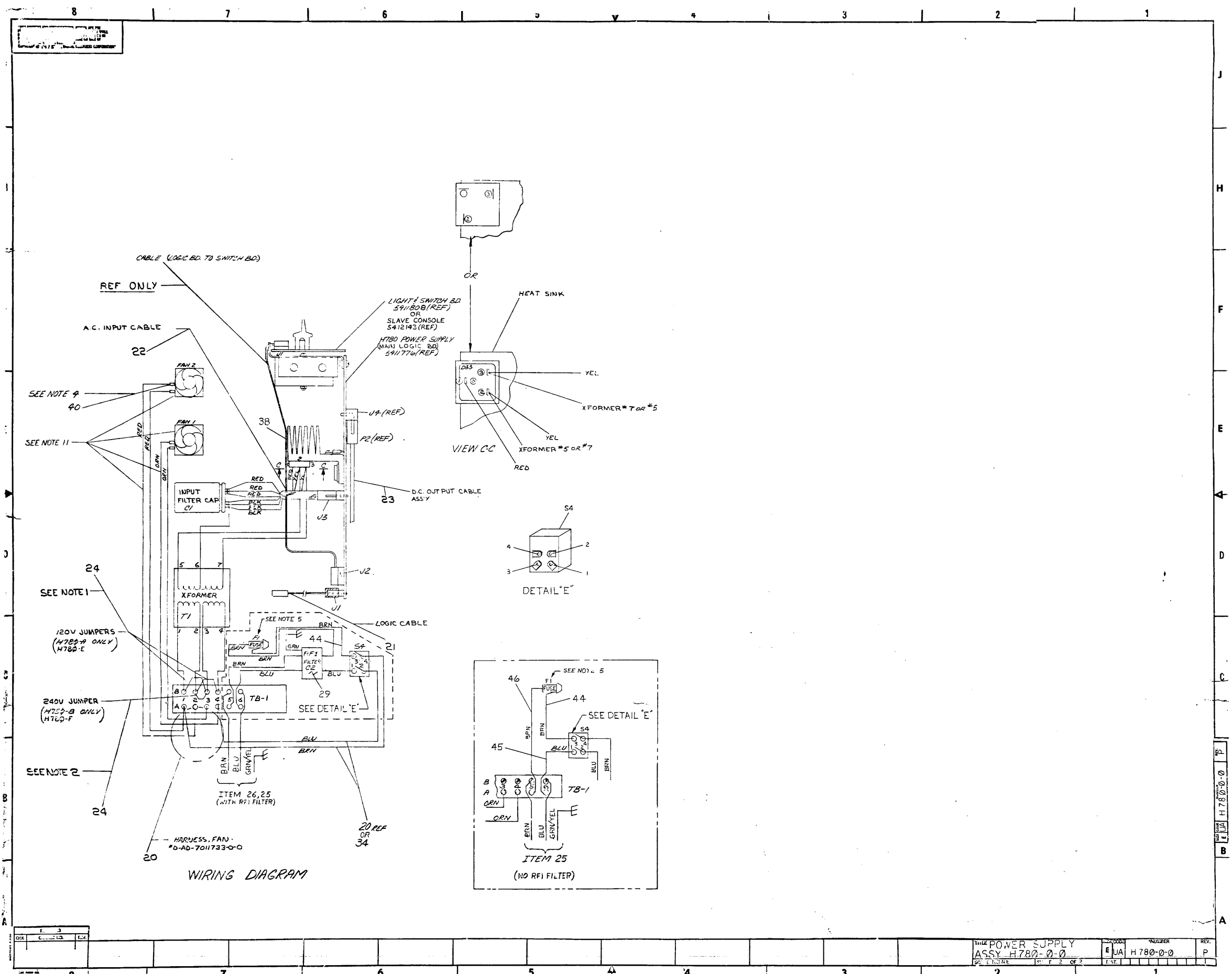
SEE C-PL-H780-0-0 FOR PARTS LIST

DESCRIPTION	SPECIFIED	QUANTITY	ITEM NO
POWER SUPPLY ASSY H780	1		
...

POWER SUPPLY ASSY H780

REVISIONS

NO	DATE	DESCRIPTION	BY
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REV.	DATE	BY	CHK
3			

TITLE	POWER SUPPLY	NUMBER	
ASSY	H780-0-0	EUA	H780-0-0
REV.			
1			

4

3

2

1

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Item No.	Dwg./Part No.	Description	H780-B	H780-A	H780-B	H780-C	H780-E	H780-F	H780-D	H780-H	H780-J	H780-K	H780-L	H780-M	H780-N
1	E-IA-7011283-0-0	Chassis, Assy, Power Supply	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1212893-00	Fuse Holder 20A, 300V PNL MT	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1204722	Toggle Switch D.P.S.T.	1	1	1	1	1	1	1	1	1	1	1	1	1
4	C-IA-7414416-0	Shield P.S. (H780A)	-	1	-	-	-	-	-	-	-	-	-	-	-
5	C-IA-7011667-0-0	Transformer Assy	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1009966	Capacitor, 19,000 MFD, 40V	1	1	1	1	1	1	1	1	1	1	1	1	1
7	9006022-1	Screw Phl Hd Pan #6-32x.38	3	2	4	3	2	4	5	3	5	3	5	3	3
8	9009617	Tie Cable .19W x 11.0	2	2	2	2	2	2	2	2	2	2	2	2	2
9	1210719	Fan, Boxer 35 CFM 115V	2	2	2	2	2	2	2	2	2	2	-	-	-
10	9006633	Washer, Int. Tooth #6	2	4	6	4	4	6	6	4	6	4	6	4	4
11	D-AD-7011569-0-0	Regulator Assy	1	1	1	-	-	-	-	1	1	-	-	-	-
12	9007016	Gromet Rubber .50 I.D.	1	1	1	1	1	1	1	1	1	1	1	1	1
13	9000039-01	Screw FL. Hd. #8-32 x .25 x 100	2	2	2	2	2	2	2	2	2	2	2	2	2
14	9006565	Nut, Kep 10-32	4	4	4	4	4	4	4	4	4	4	4	4	4
15	9006905	Terminal Block 6 Pos.	1	1	1	1	1	1	1	1	1	1	1	1	1
16	9006844	Spacer Threaded #6-32 x 3/8	2	2	2	2	2	2	2	2	2	2	2	2	2
17	9006653	Washer, Flat .156 ID x .380.D.	-	2	3	2	3	3	2	2	2	2	2	2	2
18	9006560	Nut, Kep #6-32	3	3	3	3	3	3	3	3	3	3	3	3	3
19	9006071-3	Scr. Ph. Hd Truss #10-32 x .38	4	4	4	4	4	4	4	4	4	4	4	4	4
20	D-IA-7011733-0-0	Harness, Fan	1	1	1	1	1	1	1	1	1	1	-	-	-
21	C-IA-7011411-ØK-0	Cable, Logic	1	1	1	1	1	1	1	1	1	1	1	1	1
22	D-IA-7011658-0-0	Harness, Input	1	1	1	1	1	1	1	1	1	1	1	1	1
23	D-IA-7011584-0-0	Cable, DC Output	1	1	1	1	1	1	1	1	1	1	1	-	-
24	B-IA-7414691-0-0	Jumper	-	2	1	2	2	1	2	1	2	1	2	1	2
25	C-IA-7012075-1-0	Cable, Input Power 115V	-	1	-	-	1	-	-	-	-	-	-	-	-
26	C-IA-7012075-0-0	Cable, Input Power 240V	-	-	1	-	-	1	-	-	-	-	-	-	-
27	B-MD-7414712-0-0	Shield, U.L.	1	1	1	1	1	1	1	1	1	1	1	1	1
28	C-IA-7414416-1	Shield P.S. (H780 B)	-	-	1	-	-	-	-	-	-	-	-	-	-
29	C-IA-7011668-0-0	Filter	-	-	1	-	-	1	1	-	1	-	1	-	-
30	9007221	Fuse 5 Amp 250V	-	1	-	1	1	-	1	-	1	-	1	-	1
31	9008387	Fuse 2.5 Amp 250V	-	-	1	-	-	1	1	-	1	-	1	-	1
32	9006011-2	Scr. Ph. 82° FL. Hd #4-40 x .38	4	4	4	4	4	4	4	4	4	4	4	4	4
33	9006557	Nut, Kep #4-40	4	4	4	4	4	4	4	4	4	4	4	4	4
34	D-IA-7011733-01	HARNESS, FAN (MODIFIED)	-	-	-	-	-	-	-	-	-	-	1	1	-
35	9007082	Clamp .31 I.D.	-	1	1	-	1	1	-	-	-	-	-	-	-
36			-	-	-	-	-	-	-	-	-	-	-	-	-
37	9006020-1	Scr. Ph. Hd. Pan #6-32 x .25	-	2	2	2	2	2	2	2	2	2	2	2	2
38	9007834-00	Tape Double Sided	A/R	A/RA	BA/RA	BA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA
39	9009314-01	Label Switch (On-Off)	1	1	1	1	1	1	1	1	1	1	1	1	1
40	9107305	Tubing, Shrink	A/R	A/RA	BA/RA	BA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA
41	91-07253	Tube, Shrink	A/R	A/RA	BA/RA	BA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA	RA/RA
42	9009782-00	Ring Locking	1	1	1	1	1	1	1	1	1	1	1	1	1
43	9007880	Cable Tie	1	1	3	1	1	3	-	1	-	1	-	1	1

CHK	REVISIONS	CHANGE NO.	REV.
JC	ORIGINAL	H780-00004	D
JC	REVISED	H780-00005	E
JC	REVISED	H780-00006	F
JC	REVISED	H780-00007	H
JC	REVISED	H780-00008	J
JC	REVISED	H780-00009	K
JC	REVISED	H780-00010	L
JC	REVISED	H780-00011	M
JC	REVISED	H780-00012	N
JC	REVISED	H780-00013	P
JC	REVISED	H780-00014	Q

DRN. M. Baptiste	6/27/75	FIRST USED ON	11/03
CHK'D D. Healy	9/3/75	TITLE	Power Supply Assy H780
ENG. R. Martel	9/17/75	SIZE	C
PROJ. ENG. R. Rouffopoulos	9/17/75	CODE	PL
PROD. D. DeRome	9/17/75	NUMBER	H780-Ø-Ø
NEXT HIGHER ASSY.			REV. P
E-UA-BALL-M-Ø			
SCALE None			
SHEET 1 OF 2		DIST.	

4

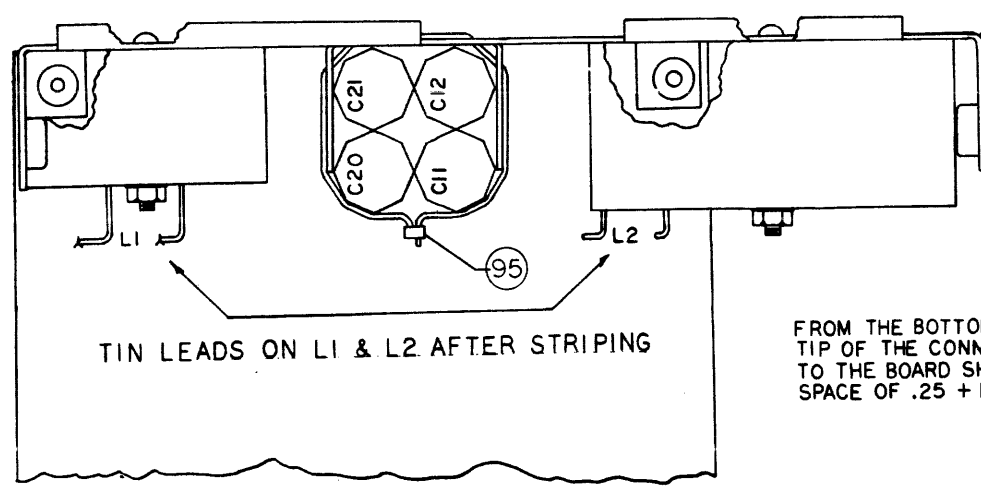
3

2

1

COMPONENT SIDE VIEW

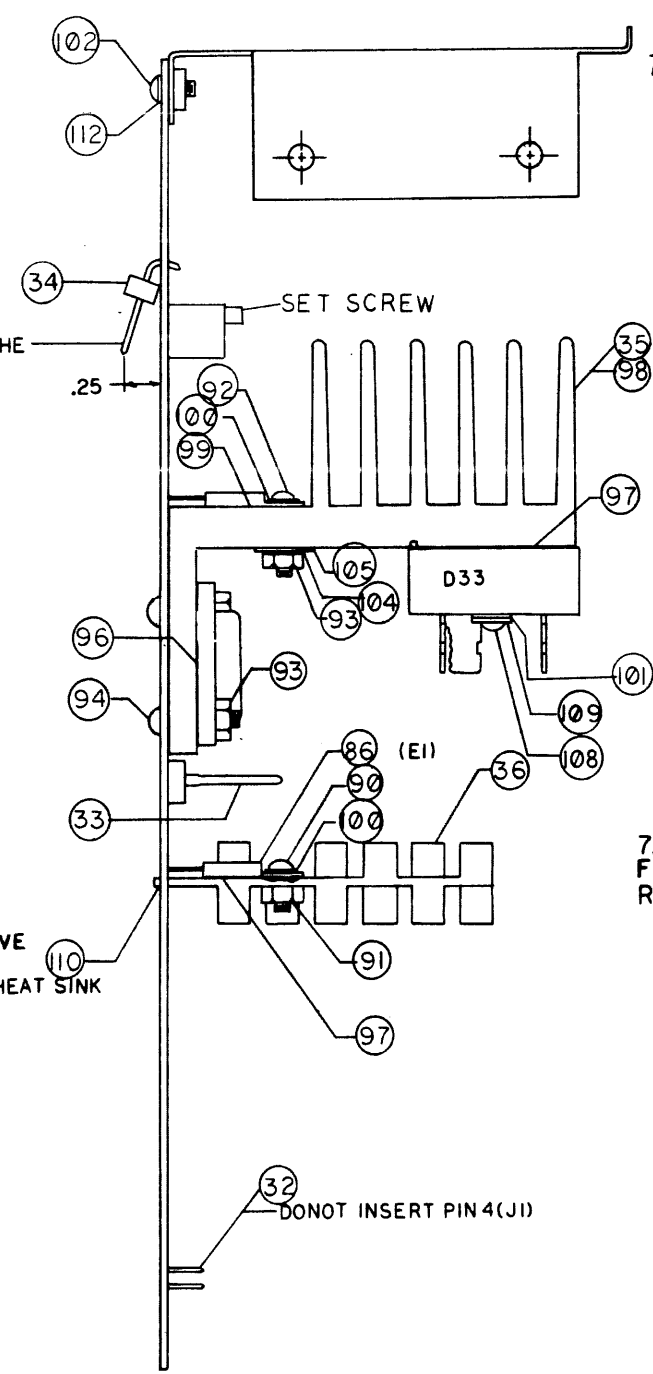
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TIN LEADS ON L1 & L2 AFTER STRIPING

TOP VIEW OF CHOKE & BRACKET ASSY. MTG. TO BRD.

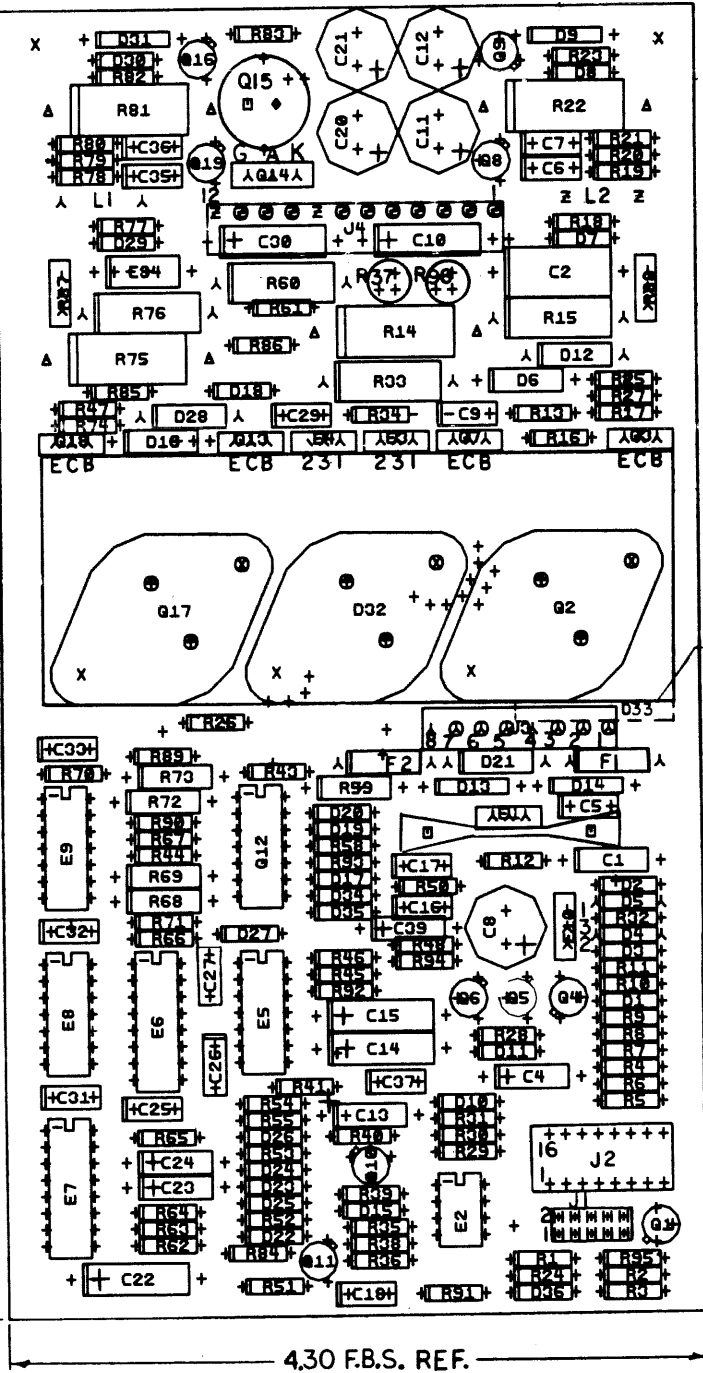
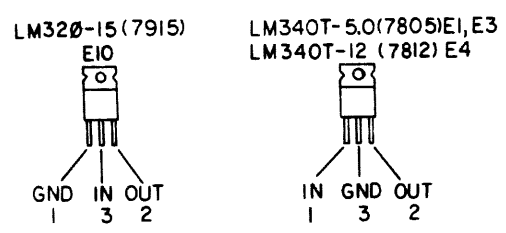
FROM THE BOTTOM END OF THE TIP OF THE CONNECTOR PIN TO THE BOARD SHALL BE A SPACE OF .25 ± 1/16 - 0



SET SCREW

USE ADHESIVE 49-01230 TO SECURE HEAT SINK

DONOT INSERT PIN 4(J1)



- NOTES:
1. 8 HOLES .0765 (+.0005-.0015) MINIMUM ONLY
 2. R37 & R96 USE METAL TYPE ONLY
 3. MOUNT J4 ON SIDE 2

CHANGE NO	REV	DATE	BY	CHKD
1	1	8/11/76	M. QUADRI	
2	1	8/11/76	M. QUADRI	
3	1	8/11/76	M. QUADRI	
4	1	8/11/76	M. QUADRI	
5	1	8/11/76	M. QUADRI	
6	1	8/11/76	M. QUADRI	
7	1	8/11/76	M. QUADRI	
8	1	8/11/76	M. QUADRI	
9	1	8/11/76	M. QUADRI	
10	1	8/11/76	M. QUADRI	

ETCH REV. D-P3	DESIGN DATA BRSE REV. DP3
----------------	---------------------------

SIGNATURES	DATE
DRN. <i>Andy Swalluta</i>	6-27-77
CHK'D. <i>[Signature]</i>	7/11/77
ENG. <i>[Signature]</i>	7/11/77
PROJ. ENG. <i>[Signature]</i>	7/11/77
PROD. R. <i>[Signature]</i>	7/11/77
SCALE 2/1	
SHT. OF 3	
NEXT HIGHER ASSY. B-DD-5411776-0	

digital	TITLE
H780 POWER SUPPLY	
SIZE CODE	NUMBER
D UA 5411776-0-0	REV P

8

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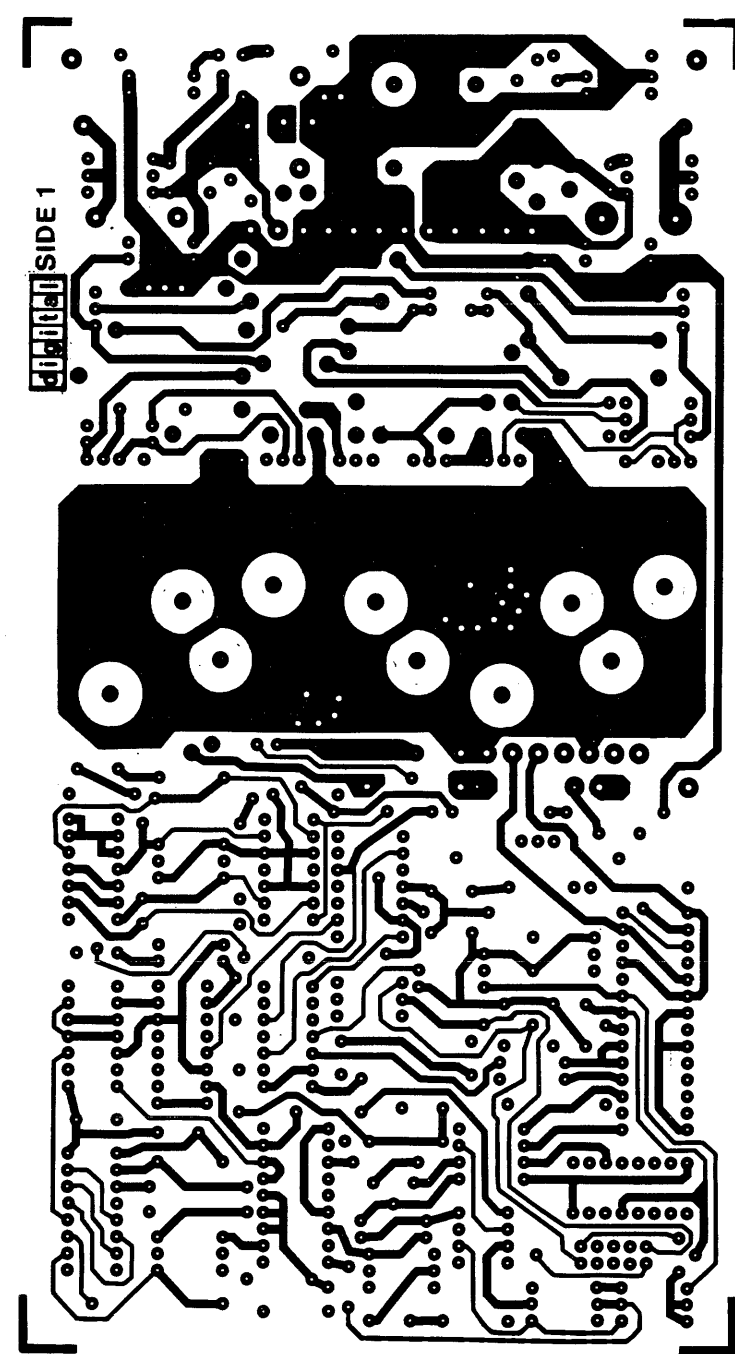
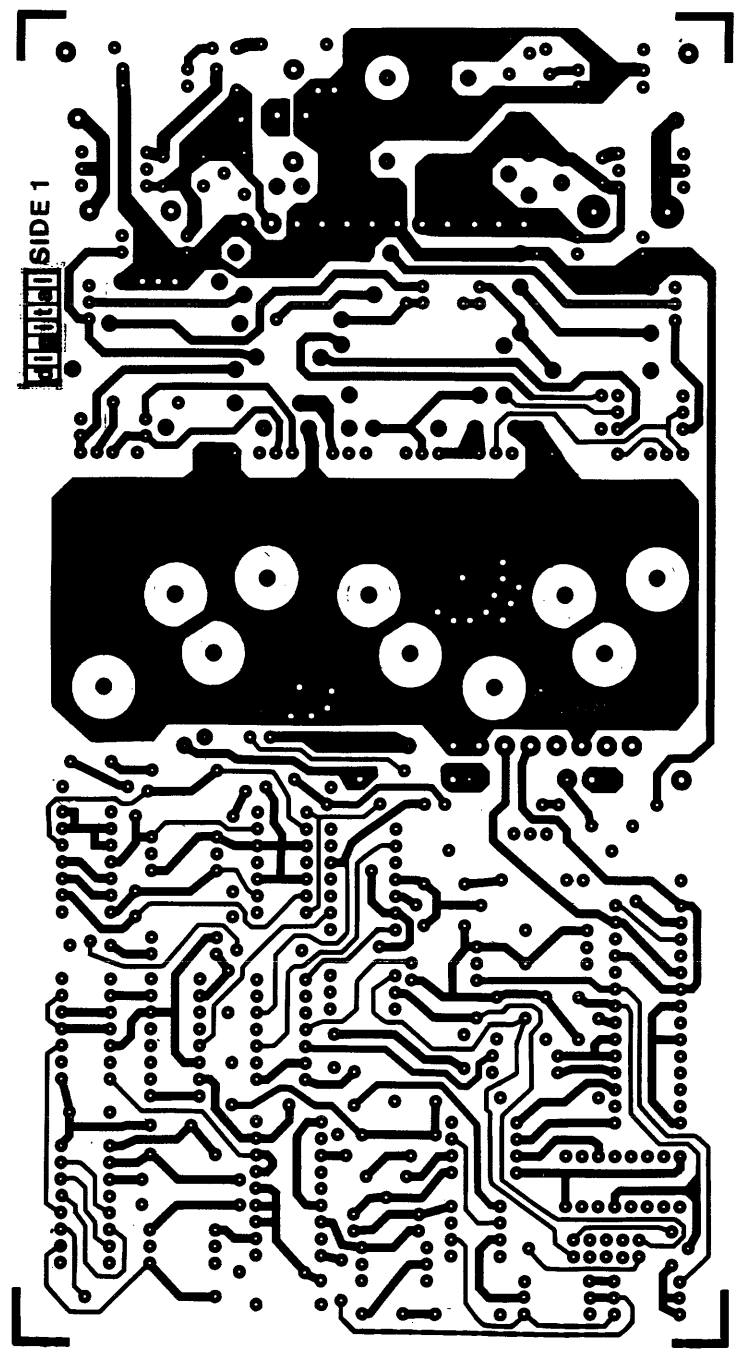
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5011775D-P3 5411776

5011775D-P3 5411776

DUA 5411776-0-0 P 2



VIEWED FROM SIDE 1

REVISIONS		
CHK	CHANGE NO.	REV.

FORM NO. 117

8

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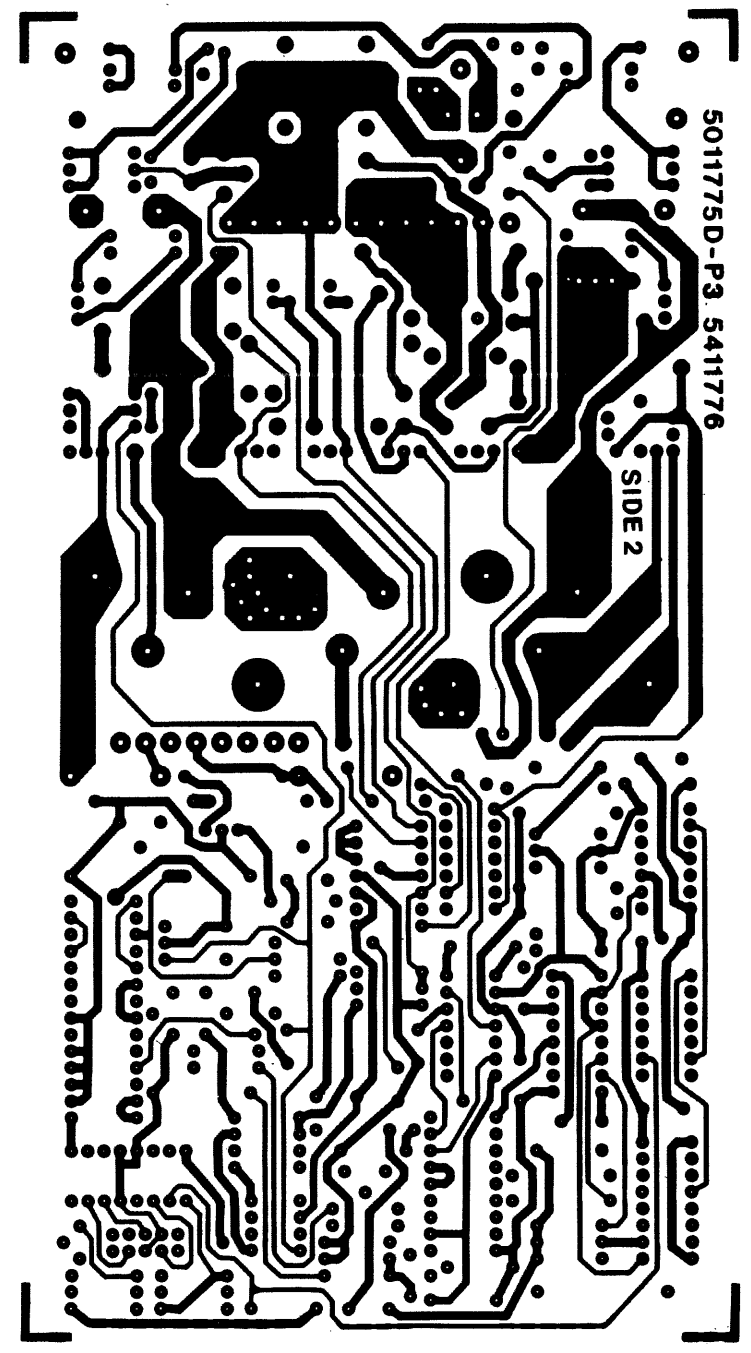
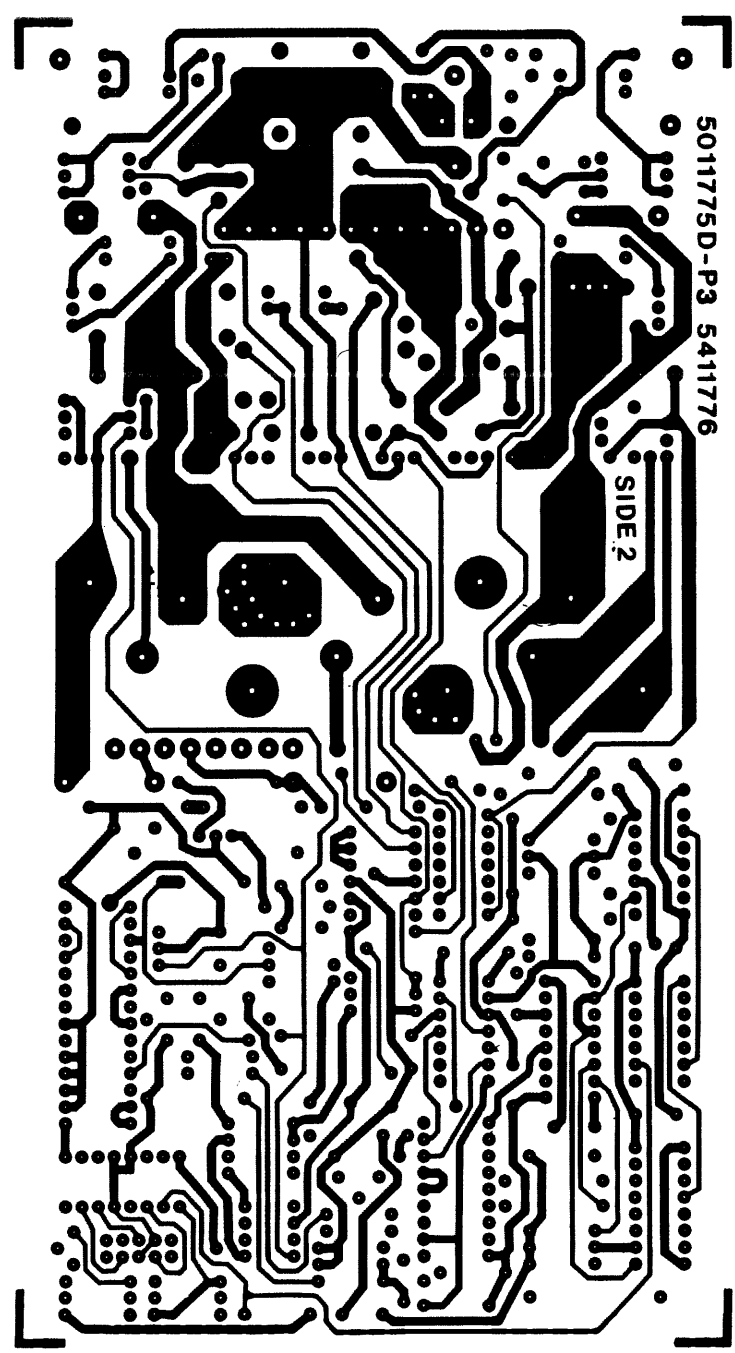
mi

TITLE	H780 POWER SUPPLY	SIZE CODE	DUA	NUMBER	5411776-0-0	REV.	P
SCALE	2:1	SHEET	2	OF	3	DIST.	

DUA 5411776-0-0 P

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DUA 541176-0-0 P 2



VIED FROM SIDE 2

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	H780 POWER SUPPLY	SIZE CODE	DUA	NUMBER	5411776-0-0	REV.	P
SCALE	2:1	SHEET	3	OF	3	DIST.	

FORM NO 4117

M

LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	5011775-00	54-11776	1	
2	2	1000064-00	3.9MFD 10V 10% 150D S.TA	1	C23
3	3	1000076-00	39 MFD 10V 10% 150D S.TA	3	C10,C22,C30
4	4 *	1001610-00	.01 MFD 50V -20+80 Z5U AXIAL	6	C6,C7,C26,C27,C35,C36
5	5	1002180-00	.15 MFD 35V 20% 150D S.TA	1	C1
6	6	1014506-02	180 MFG 50V HZ AL EL	1	C8
7	7	1014506-01	1200 MFG 6.3V HZ AL EL	3	C11,C12,C21
8	8	1005306-00	6.8MFD 35V 10% S.TANT	2	C14,C15
9	9	1009964-00	.68 MFD 35V 10% 150D S.TA	4	C4,C13,C24,C39
10	10	1010031-05	.47 MFD 50V 10% M.POLYCARB	1	C2
11	11	1010274-00	.22 MFD 50V -20+80 Z5U CER	2	C9,C29
12	12	1014506-00	560 MFG 20V HZ AL EL	1	C20
13	13	1010031-02	.10 MFD 50V 10% M.POLYCARB	1	C34
14	14	1010274-02	1 MFD 50V XZ 2C023 CER.	9	C5,C16-C18,C31-C33,C37,C25
15	15	1111205-00	SCREENED VZ= 5.7 2% .40W	1	D9
16	16	1100113-00	D 662 OS 600PCB(STABISTOR)	5	D7,D29,D30,D34,D35
17	17	1100114-00	D 664 QS\75PCB PIV= 25V SP	13	D10,D11,D15,D17,D19,D22-D27,D20,
					CONT D36
18	18	1102808-00	1N 752A VZ= 5.6 5% .40W	1	D6
19	19	1105275-00	D 672 TR= 15NS PIV= 60V SI	4	D1-D3,D8
20	20	1103441-00	1N 756A VZ= 8.2 5% .40W P	1	D14
21	21	1109988-00	1N 964B VZ= 13.0 5% .40W	1	D31
22	22	1112594-00	A115F PIV= 50 I= 3A	2	D12,D28
23	23	1114004-00	UES2601 R PIV= 50 I=30A D05	1	D32
24	24	1110967-00	1N 4005 PIV=600 I= 1A D041 SI	3	D4,D5,D18
25	25	1112588-00	RECT,SILICON PIV=100 I=1	1	D33
26	26	1102421-00	1N 753A VZ= 6.2 5% .40W P	1	D13
27	27	1105652-00	1N 4751 VZ= 30.0 10% 1W Y	1	D16
28	28	1114435-00	1N 5338B VZ= 5.1 5% 5W	1	D21
29	29 *	1209070-00	FUSE, SUB-MINI, 5.000A, 125V, R	1	F2

REVISION HISTORY		BASIC PART NO: 5411776		DRN:	L.PETERSON	DATE:	17-FEB-78	D I G I T A L	
ENG	ECO NUMBER	REV	SECTION A OF A	CHK'D:	C.H.	DATE:	17-FEB-78	TITLE PARTS LIST	
P.G	00013	IN	SECTION.VARIATION INDEX	CHK'D:	C.H. <td>DATE:</td> <td>17-FEB-78</td> <td colspan="2">H780 POWER SUPPLY</td>	DATE:	17-FEB-78	H780 POWER SUPPLY	
R.R	00014	IF	[A] 00						
GC	5411776-ML015	IR	[B]						
			[C]	DES.ENG:	F.KEANS	DATE:	17-FEB-78		
			[D]						
			[E]					DOCUMENT NUMBER	
			[F]	RESP.ENG.:	F.KEANS	DATE:	17-FEB-78	SIZE	CODE
			[H]					NUMBER	REV
			[J]						
			[K]	MFG.ENG.:	R.POWERS	DATE:	17-FEB-78	K	PL
			[L]					5411776-0-DBP	R
			[M]	ASSEMBLY NUMBER:		TOP DOCUMENT NUMBER:		FILE NAME:	EDIT #
			[N]					Z1147R.PLS	14

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PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	PER VARIATION	REFERENCE DESIGNATOR
					00		
30	30		1210929-00	FUSE, SUB-MINI, 15.000A, 32V, A	1		F1
31	31		1211813-02	SOCKET 16PIN IC LOW PROFILE,	1		J2
32	32		9009149-00	PIN, STAKING, P.C. BOARD, .025 X	1		J1
33	33		1212619-00	HEADER.156 8POS STRAIGHT	1		J3
34	34		1212204-02	HEADER.156 12POS RT ANGLE	1		J4
35	35		1212485-00	HEAT SINK, EXTRUSION	1		
36	36		1212531-00	HEAT SINK, TD-3, ALUM, DIAMOND SHAP	1		
37	37		1300197-00	33.0 .25 W 5.0 % CC	2		R25,R26
38	38		1300202-00	47.0 .25 W 5.0 % CC	3		R19,R20,R79
39	39		1300229-00	100.0 .25 W 5.0 % CC	1		R78
40	40		1300295-00	330.0 .25 W 5.0 % CC	1		R47
41	41		1300316-00	470.0 .25 W 5.0 % CC	4		R43,R44,R89,R90
42	42		1300391-00	1.50 K .25 W 5.0 % CC	2		R21,R80
43	43		1300426-00	2.70 K .25 W 5.0 % CC	2		R24,R95
44	44		1301401-00	750.0 .25 W 5.0 % CC	2		R17,R86
45	45		1300447-00	4.70 K .25 W 5.0 % CC	4		R18,R63,R70,R71
46	46		1300479-00	10.0 K .25 W 5.0 % CC	19		R4,R7,R11,R94,R29,R35,R41,R84, CONT R45,R46,R53,R54,R1,R58,R62,R67, CONT R77,R92,R50 R13,R64-R66
47	47		1300496-00	15.0 K .25 W 5.0 % CC	4		R38
48	48		1300539-00	120.0 K .25 W 5.0 % CC	1		R27,R36,R74
49	49		1301317-00	10.0 .25 W 5.0 % CC	3		R30
50	50		1301425-00	300.0 .25 W 5.0 % CC	1		R14,R75
51	51		1301927-00	560.0 2.0 W 5.0 % CC	2		R91
52	52		1301972-00	270.0 .25 W 5.0 % CC	1		R39,R55
53	53		1302177-00	47.0 K .25 W 5.0 % CC	2		R34,R61
54	54		1302388-00	2.0 K .25 W 5.0 % CC	2		R32
55	55		1305129-00	8 K 1/4W 1% RN55D-F 100PPM	1		R2,R31
56	56		1305336-00	200.0 K .25 W 1.0 % RN55D-F10	2		R3,R5,R6,R8,R9,R51,R52
57	57		1303312-00	10.0 K 1/4W 1% RN55D-F 100PPM	7		R16,R23,R82,R85
58	58		1300365-00	1.0 K .25 W 5.0 % CC	4		R10
59	59		1301424-00	680.0 .25 W 5.0 % CC	1		R40,R93
60	60		1303313-00	12.1 K 1/4W 1% RN55D-F 100PPM	2		R60
61	61		1305428-00	1.0 2.0 W 5.0 % WW	1		R81
62	62		1310876-02	.06 5.0 W 3.0 % WW	1		R59
63	63		1300364-00	1.0 K .50 W 5.0 % CC	1		R83
64	64		1309422-00	5.10 .25 W 5.0 % CC	1		R87,R88
65	65		1309811-00	500.0 .50 W10.0 % POT	2		R15,R76
66	66		1309729-00	15.0 1.0 W 5.0 % CC	2		R22
67	67		1310876-00	.02 5.0 W 3.0 % WW	1		R68,R69,R72,R73
68	68		1300440-00	3.30 K .50 W 5.0 % CC	4		R12,R28,R48
69	69		1303114-00	1.0 K 1/4W 1% RN55D-F 100PPM	3		R37,R96
70	70		1309150-13	20.0 K .50 W10.0 % POT	2		Q14
71	71		1505867-00	2N 4441 SCRW 50V & 8A	1		Q12
72	72	*	1510015-00	4008 NPN 600MW SI4COREDR	1		Q2,Q17
73	73		1510196-00	2N 5302/HSNPN 200WC SI 60 40 M	2		Q3,Q19
74	74	*	1512652-00	2N 6490 PNP 50W SI 60 40	2		Q7,Q13
75	75		1510421-00	D 44C8 NPN 30WT SI 60 20	2		

! D ! I ! G ! I ! T ! A ! L !	! TITLE	! H780 POWER SUPPLY	! SECTION A OF A	! SIZE ! CODE !	! DOCUMENT NUMBER	! REV
				! K ! PL !	! 5411776-0-DBP	! R

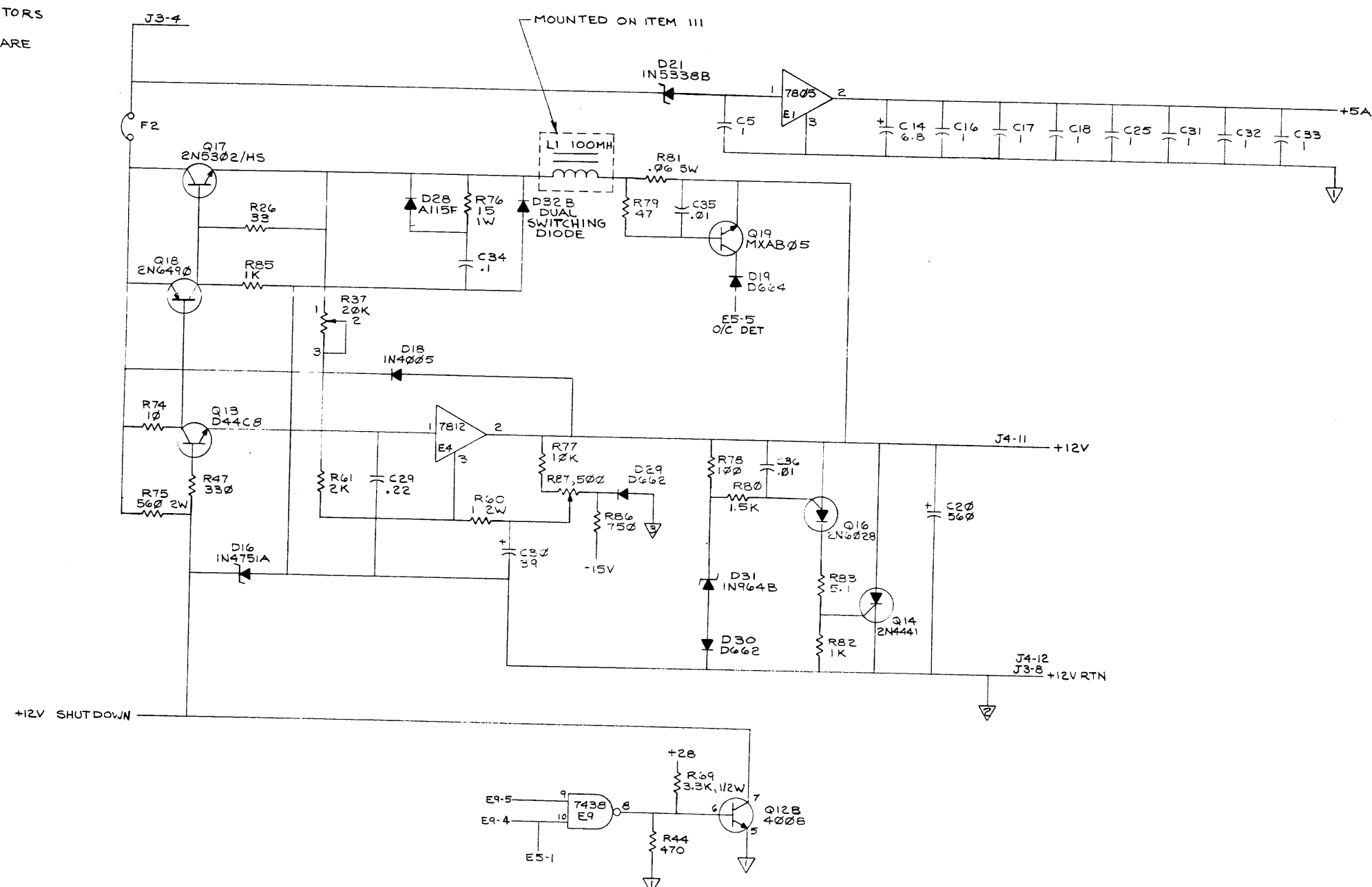
LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
76	76		1510705-00	XA 05 NPN 500MW SI 60 50 P	3	Q1,Q4,Q11
77	77		1510706-00	XA 55 PNP 500MW SI 60 50 P	1	Q10
78	78		1510877-00	2N 6028 UJT 300MW R67B	2	Q9,Q16
79	79		1510928-00	C32AX135 SCR@100V I=25A	1	Q15
80	80		1511686-00	DECS433 FET N 350MW 10 25 1A	2	Q5,Q6
81	81		1510705-01	B 05 NPN 500MW SI 60 50	2	Q8,Q19
82	82		1905575-00	7400 NAND GATE-QUAD 2IN	1	E8
83	83		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	2	E6,E7
84	84		1911219-00	7438 NAND GATE-QUAD 2IN,B	1	E9
85	85		1912108-00	339 VOLT CMPRTR,QUAD	1	E5
86	86		1912536-00	DEC 7805 VOLT REG,FIX +5V	2	E1,E3
87	87		1912048-02	DEC 7812 VOLT REG,FIX +12V	1	E4
88	88		1912792-00	DEC 7915 VOLT REG,FIX -15V	1	E10
89	89		1914156-00	LM 393 VOLT.COMPARATOR DUAL	1	E2
90	90		9006011-01	SCREW,PAN,PHIL, 4-40X 3/8 S	1	
91	91		9006557-00	NUT,KEP , 4-40X 1/4 AF	1	
92	92		9006025-01	SCREW,PAN ,PHIL, 6-32X 5/8	6	
93	93		9008185-00	NUT,KEP , 6-32X1/4 AF	12	
94	94		9006024-01	SCREW,PAN ,PHIL, 6-32X 1/2	6	
95	95		9007032-00	TIE, CABLE, TYPE 101	1	
96	96		1213071-02	INSULATOR,RUBBER SILICONE SM	3	
97	97		9008268-00	COMPOUND, THERMAL JOINT	A/R	
98	98		9009255-00	LABEL, POWER SUPPLY, 2-15/16 " L	1	
99	99		1213071-08	INSULATOR,RUBBER,THERMAL	1	
100	100		9009769-00	WASHER, RECTANGULAR .405X.225X.0	7	
101	101		9006660-00	WASHER, FLAT, .375 O.D. X .187 I	1	
102	102		9008301-01	SCREW,PAN ,PHIL, 4-40X 1/4	2	
103	103	"BLANK"			0	
104	104		9006653-00	WASHER, FLAT, .375 O.D. X .156 I	6	
105	105		9006708-00	WASHER, NYLON, FLAT #8 .375 OD	6	
106	106		9008957-00	*** THIS ITEM IS NOT USED ***	-	
107	107		9007801-00	*** THIS ITEM IS NOT USED ***	-	
108	108		9006042-01	SCREW,PAN ,PHIL, 8-32X 7/8	1	
109	109		9008072-00	WASHER, LOCK, EXTERNAL TOOTH #8	1	
110	110		4901230-00	CEMENT, ACRYLIC RESIN (ETHYL CYA	A/R	
111	111	C-AD-7011583-0-0		BRACKET&CHOKE ASSY.	1	
112	112		9006655-00	WASHER, FLAT, .312 O.D. X .125 I	2	
113	113		1303201-00	3.9 1W 10%	1	R33

- 114 NOTE: *ALTERNATE PARTS LIST:
- 115 NOTE: ITEM 4 (P/N 1001610-00) CAN BE REPLACED BY (P/N 1001610-01)
- 116 NOTE: ITEM 72 (P/N 1510015-00) CAN BE REPLACED BY (P/N 1511102-00)
- 117 NOTE: ITEM 29 (P/N 1209070-00) CAN BE REPLACED BY (P/N 1205747-00)
- 118 NOTE: ITEM 74 (P/N 1512652-00) CAN BE REPLACED BY (P/N 1510708-00)

! D ! I ! G ! I ! T ! A ! L !	! TITLE	! SECTION A OF A	! SIZE ! CODE !	! DOCUMENT NUMBER	! REV
	H780 POWER SUPPLY		! K ! PL !	5411776-0-DBP	! R

NOTES:

- 1. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE 1/4 W, 5% ; ALL CAPACITORS ARE IN μ F.
- 2. COMPONENTS SHOWN IN DASHED LINES ARE EXTERNAL TO THE P.C. BOARD.



QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

HIGHEST REF. DES.		
C39	D36	E10
REF. DES. DELETED		
C3	C19	C28
C35		
IC PIN LOCATIONS		
R42	R47	R49
R56		R57

PARTS LIST		
QTY	REF. DESIGNATION	DESCRIPTION

SEMICONDUCTOR CONVERSION CHART			
DEC NO.	EIA NO.	DEC NO.	EIA NO.

REV.	DATE	DESCRIPTION
1	7-22-77	DRN. SWING
2	7-27-77	CHKD. M
3	7-29-77	ENG. PRODUCTIONS
4	7-29-77	PROJ. ENG. M. G. ...
5	7-27-77	PROO. R. ...

IC TYPE	GND	+5V	-15V	+28V
LM 339	E5	12	3	
LM 393	E2	8	4	

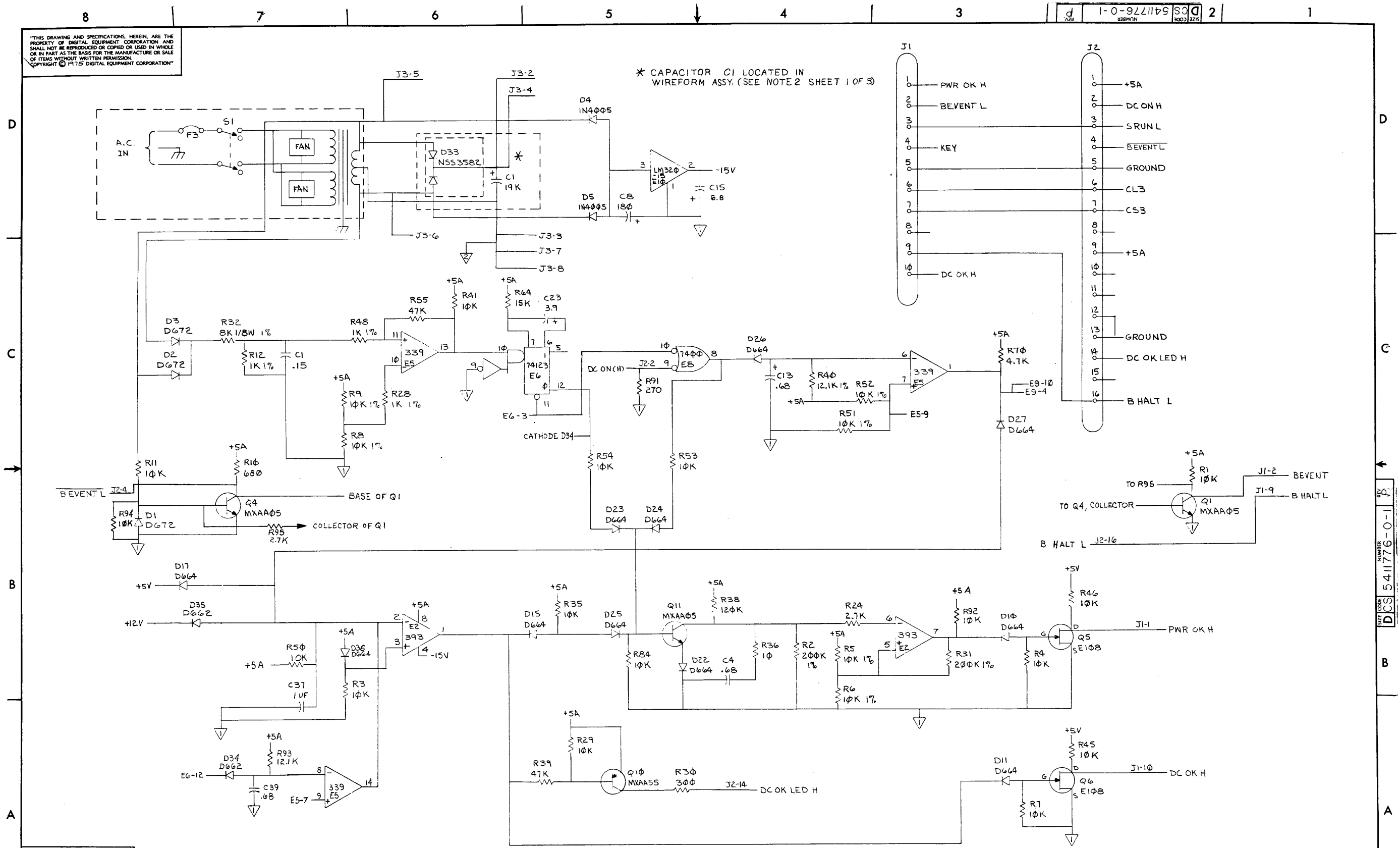


TITLE H780 POWER SUPPLY

D-AD-7011569-0-0 5411776-0-1 P

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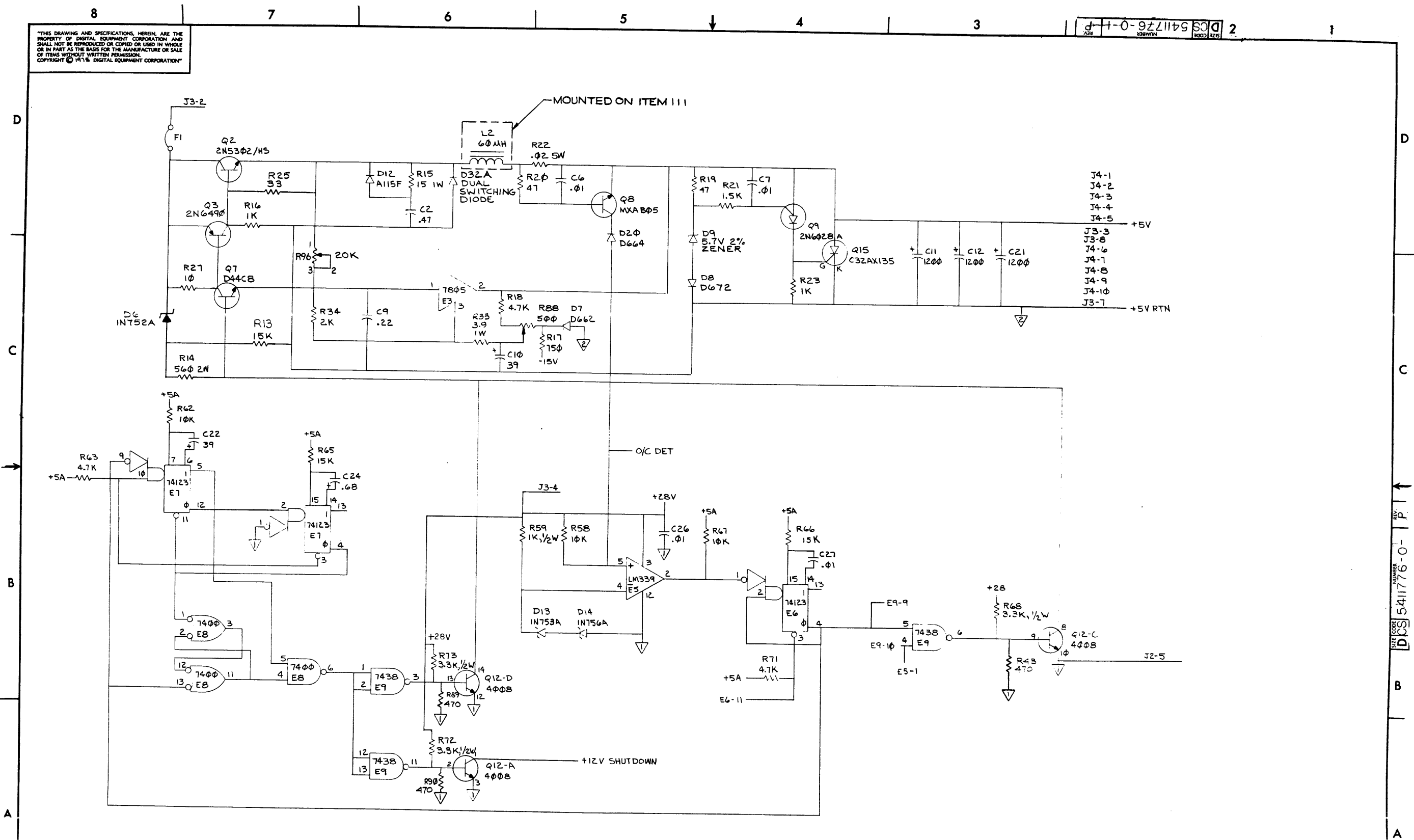
* CAPACITOR C1 LOCATED IN WIREFORM ASSY. (SEE NOTE 2 SHEET 1 OF 3)



REVISIONS		
CHK	CHANGE NO.	REV.

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DCS 5411776-0-1 P. 2



REVISIONS		
CHK	CHANGE NO.	REV.

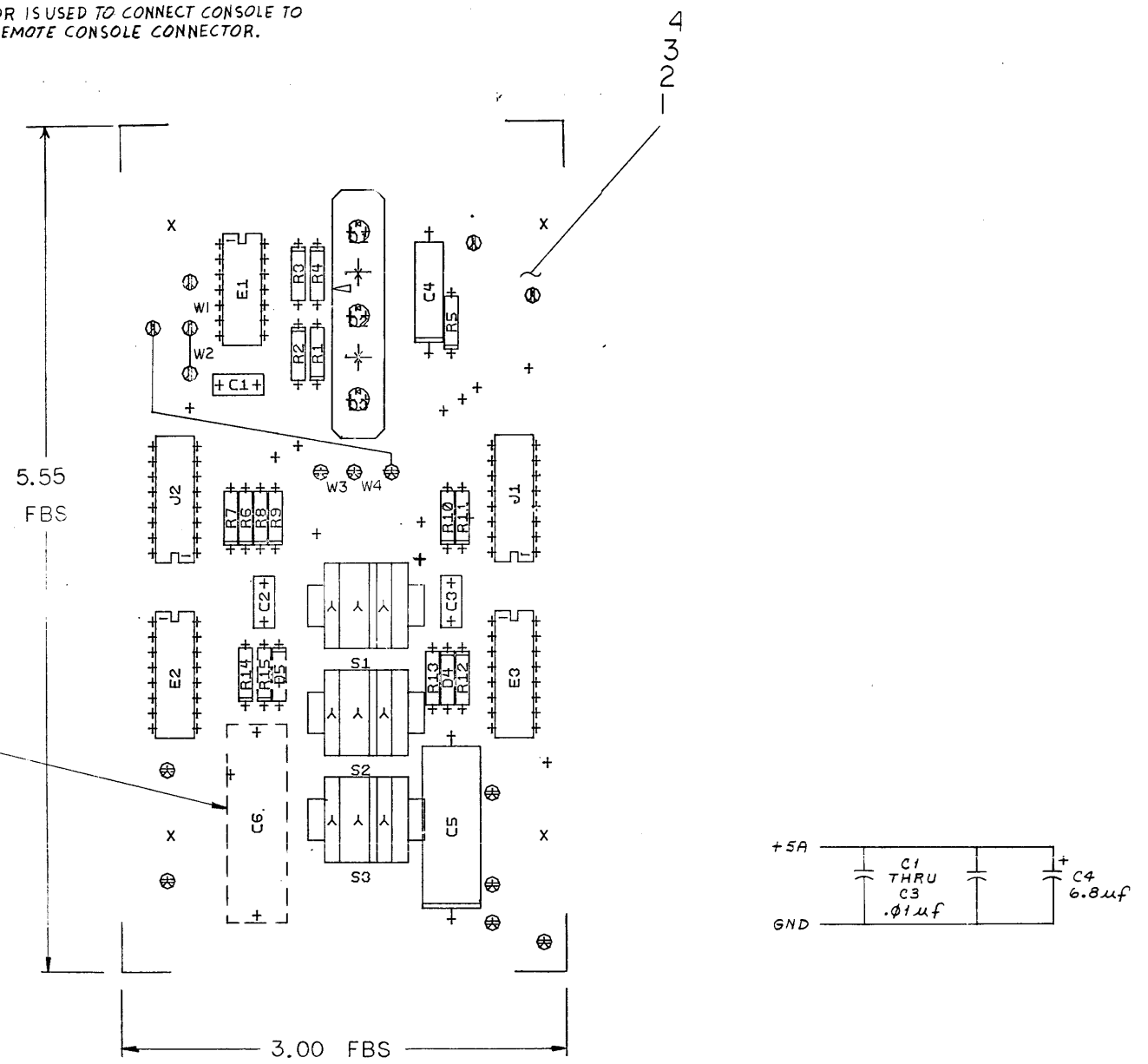
8	7	6	5	4	3	2	1	
TITLE H780 POWER SUPPLY						SIZE CODE DCS	NUMBER 5411776-0-1	REV. P.
SCALE						SHEET	3 OF 3	DIST.

DCS 5411776-0-1 P. 2

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NOTES:

1. DOTTED COMPONENTS C6, D5 AND R15 ARE ENGINEERING OPTION. VALUE TO BE DETERMINED AT LATER DATE.
2. ADD GREEN WIRE ITEM 23 FROM TP2 SPLIT LUG TO W4 SPLIT LUG NEXT TO R10.
3. W1, W3, AND W4 ARE OPTIONAL JUMPERS NOT TO BE INSERTED AT THIS TIME.
4. J2 CONNECTOR IS USED TO CONNECT CONSOLE TO SLAVE UNIT REMOTE CONSOLE CONNECTOR.
5. J1 SUPPLY CONNECTOR IS USED TO CONNECT RIBBON CABLE TO J2 ON POWER SUPPLY REGULATOR BOARD. (CABLE P/N 7008612 0M)
6. W3 AND W4 JUMPERS ARE NOT USED. (OPTIONS)



SEE NOTE 1

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011807	1
REF		X-Y COORDINATE HOLE LOC.	K-CD-5411808-0-1	2
REF		ASSY, DRILL. HOLE LAYOUT	D-MH-5411808-0-1	3
REF		MODULE HISTORY	B-MH-5411808-0-1	4
1	E1	IC DEC 7406	1910741	5
1	E3	IC DEC 74123	1910736	6
1	E2	IC DEC 8838	1911117	7
10	R1, R5, R7-R13, R4	RES. 2K, 1/4 W, 5%	1302388	8
2	R2, R3	RES. 220 Ω, 1/4 W, 5%	1302271	9
1	R14	RES. 39K, 1/4 W, 5%	1302514	10
2	J1, J2	IC SOCKET	1211813	11
1		L.E.D. HOLDER	1210940-2	12
3		SWITCH LEVERS	1210786	13
3	S1, S2, S3	SWITCH, S.P.D.T.	1210890	14
1	D4	DIODE D669	1100114	15
3	D1, D2, D3	DIODE, LIGHT EMITTING	1110864	16
1	C5	CAP, 22MF, 10%, 50V	1011328	17
2		SCREW, PH. HD, SELF TAP #6 X .25	9008230-1	18
15		SPLIT LUG	9006735	19
3	C1, C2, C3	CAP. 0.1 μF 100V	1001610-01	20
1	C4	CAP. 6.8 μF 35V 10%	1005306	21
A/R	W2,	UNINSULATED #22 BUS WIRE	9107560-01	22
A/R		WIRE, #30 AWG	9105740-55	23
1	R6	RES. 10K 1/8W 1%	1303312	24

Parts List and Revision History:

DRN. <i>J. Kouloupos</i>	DATE 5-22-75
ENGRD. <i>J. Vincent</i>	DATE 4-9-75
ENG. <i>W. Desjardins</i>	DATE 9-8-75
PROJ. ENG. <i>W. Desjardins</i>	DATE 9-8-75
PROD. <i>W. Desjardins</i>	DATE 4-5-75

TITLE: LIGHTS & SWITCHES BOARD

D-AD-7011569-0-0

SCALE: 1:1

SHEET 1 OF 2

IC TYPE	GND	+5A
I.C. DEC 74123	8	16
I.C. DEC 8838	8	16

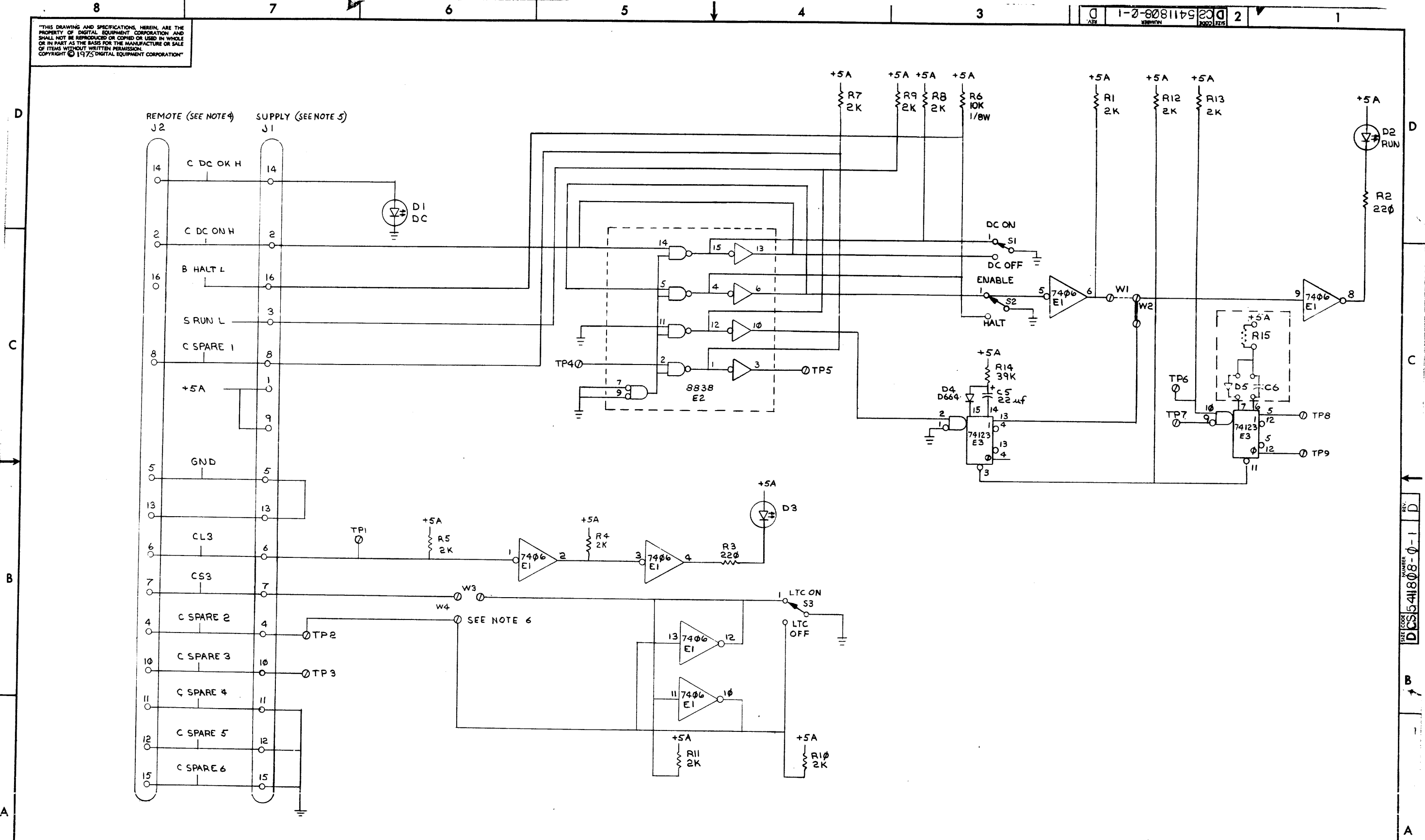
IC PIN LOCATIONS

GND AND 5A ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

5411808-0-1
REV. NUMBER
D

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1-2-808-0-1

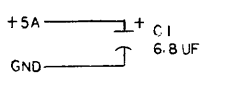
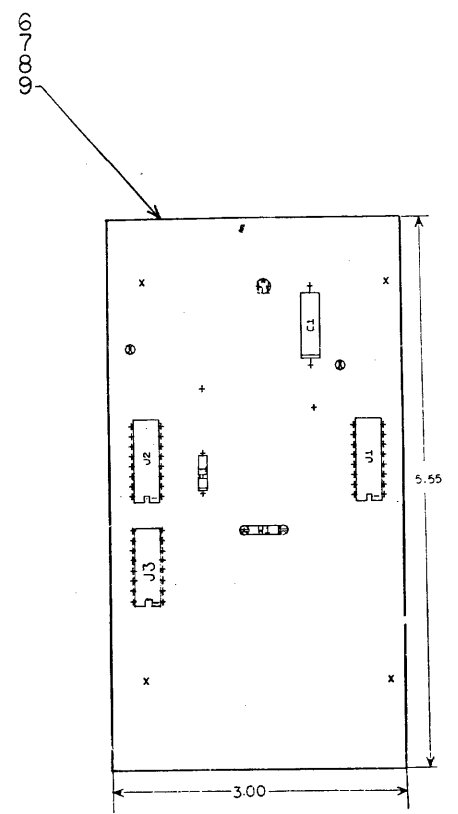
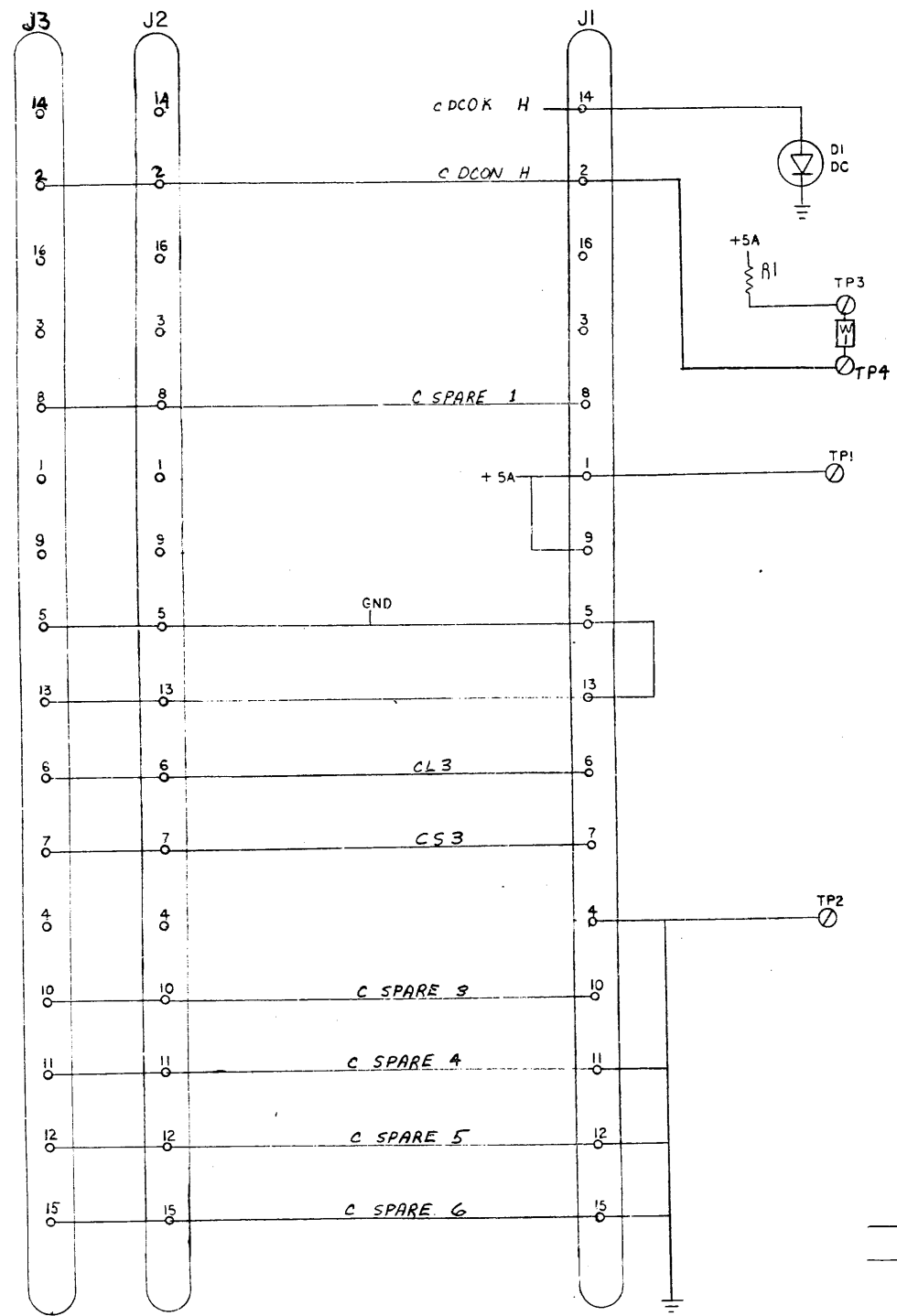


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE LIGHTS & SWITCHES BOARD
 SCALE $\frac{1}{8}$ SHEET 2 OF 2
 SIZE CODE DCS 5411808-0-1
 NUMBER DCS 5411808-0-1
 REV. D

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NOTES:



QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	W 1	JUMPER INSULATED (22 AWG)	90-09185	10
1		ETCHED CIRCUIT BOARD	5012142	9
	REF	X-Y COORDINATE HOLE LOC	K-CO-5412143-0-4	8
	REF	ASSY/DRILL HOLE LAYOUT	D-AH-5412143-0-5	7
	REF	MODULE HISTORY	BMD-5412143-0-6	6
1	C1	CAP 6.8UF 35V 10%	10-05306	5
1	D1	DIODE LIGHT EMITTING	11-10864	4
3	J1, J2, J3	IC SOCKET	12-11813	3
1	R1	RES 60, 1/4W 5%	13-00219	2
4	TP1, TP2, TP3, TP4	SPLIT LUG	90-06735	

IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

CHK	CHANGE NO.	REV.	DATE
DICK BENNETT		A	2-18-76
JIM RICHARDS		B	2-22-76

DATE: 2-18-76
 DATE: 2-22-76
 DATE: 4/9/76
 DATE: 4/13/76
 DATE: 7/14/76

DRN. L. REYNOLDS
 CHK'D. E. GAROFALO
 PROJ. ENG. J. W. GUNN
 PROD. J. HENDERSON

FIRST USED ON OPTION MODEL

ETCH BOARD REV. C

REVISIONS

TITLE: SLAVE CONSOLE

SIZE CODE NUMBER REV. DIST.

SCALE DCS 5412143-0-1 B

SEMICONDUCTOR CONVERSION CHART

SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY R. Lewis	CHECKED <i>R Lewis</i>	SECTION
DATE 4 June 1976	DATE 4 June 76	1
ENG <i>John R Lewis</i>	PROD <i>A Standart</i>	ISSUED SECT.
DATE 4 June 76	DATE 4 June 76	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
1.	A-PL-7011609-0-0	MOUNTING BRACKET KIT
2.	7008612-6A	CABLE, KEYBOARD, 6FT

BALI-MA	BALI-MB	BALI-MC	BALI-ME	BALI-ME							
1	1	1	1	1							
1	1	1	1	1							

TITLE BALI-M SHIPPING LIST	ASSY NO. E-UA-BALI-M-0	SIZE A	CODE PL	NUMBER BALI-M-1	REV.	ECO NO.
SHEET 1 OF 1	DIST.					