FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
RLV11-ØØ
RLV11-AK

RLV11

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ635

REVISIONS	REV.	CHG. NO.	DATE
	A	RLV11-ML001	11/78

USED ON OPTION/MODEL
RLV11

SHEET 1 OF 1

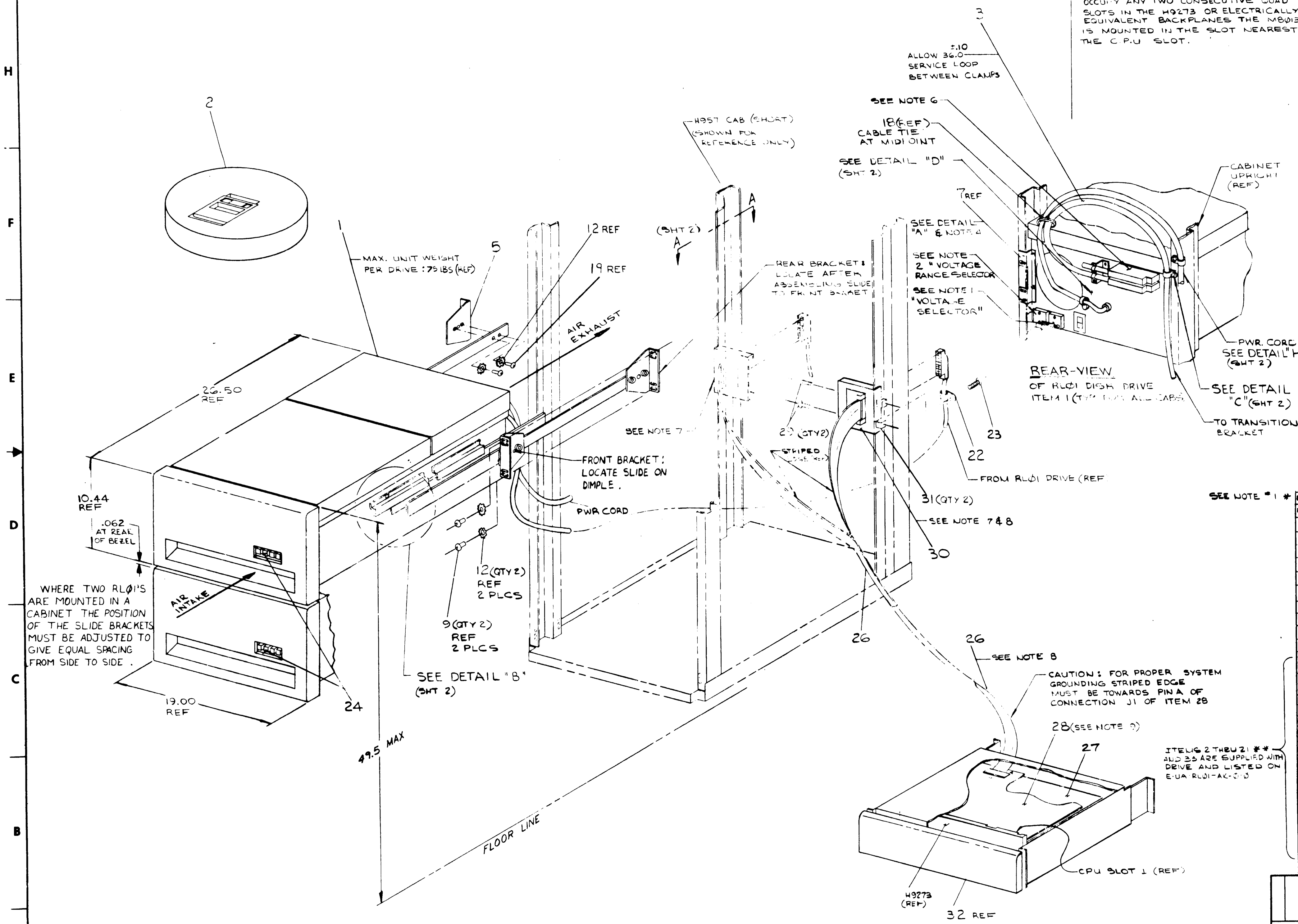
DRN. G. Drayton	DATE 3/78	TITLE: RLV11	
CHK'D R. Hultman	DATE		
PROJ. ENG. P. Kotch	DATE 5/78		
FIELD SERV. P. Kotch	DATE 3/78		

SIZE	CODE	NUMBER	REV.
B	TC	RLV11-Ø-1	A
DIST.			

EN-01124-16-N676-(327)

LINE VOLTAGE	VOLTAGE SELECTOR SETTING	VOLTAGE RANGE SELECTOR SETTING
90V-105V	11Ø	LOW
100V-127V	11Ø	NORMAL
180V-210V	22Ø	LOW
200V-254V	22Ø	NORMAL

LEGEND	
NUMBER	VARIATION
RLV11-00	WITH OUT DISK DRIVE
RLV11-AK	WITH DISK DRIVE



6. FOR LAST DRIVE IN A SYSTEM "CONTROLLER CABLE" (ITEM 3) PLUGS INTO EITHER SOCKET. TERMINATOR ASSY (ITEM 25) PLUGS INTO THE OTHER.
7. WHEN ALTERNATE MOUNTING POSITION IS USED CONNECTOR IN TRANSITION BRACKET MUST BE INVERTED SO THAT I/O CABLE FROM DRIVE (ITEM 1) WILL HANG IN A DOWNWARD POSITION AS SHOWN.
8. ITEM 22 THRU 31 ARE NOT ASSEMBLED UNTILL INSTALLATION IN A CABINET.
9. THE RLV11 MODULE SET (M8013, M8Ø14) WILL OCCUPY ANY TWO CONSECUTIVE QUAD SLOTS IN THE H9273 OR ELECTRICALLY EQUIVALENT BACKPLANES THE M8Ø13 IS MOUNTED IN THE SLOT NEAREST THE C.P.U SLOT.

NOTES:

1. FOR SYSTEMS OPERATING AT 22Ø VAC REMOVE THE SCREWS FROM THE "VOLTAGE SELECTOR" COVER, WITHDRAW THE COVER AND RE-INSERT TURNED UP SIDE DOWN. AFTER INSERTION, "22Ø V" MUST BE SHOWING THROUGH THE SMALL WINDOW. REPLACE THE TWO SCREWS, CUT OFF "11ØV" MALE PLUG AND REPLACE BY "22ØV" PLUG (ITEM 20). FOR COLOR CODE SEE DETAIL H SHT 2. FOR 5Ø HZ OPERATION ADD (ITEM 33) TO UNIT.
2. FOR SYSTEMS OPERATING WITH LOW LINE VOLTAGE, REMOVE TWO SCREWS FROM "VOLTAGE RANGE SELECTOR" COVER, WITHDRAW THE COVER AND RE-INSERT IT TURNED UPSIDE DOWN. AFTER THE INSERTION, "LOW" MUST BE SHOWING THROUGH THE SMALL WINDOW. REPLACE THE TWO SCREWS, SEE TABLE (THIS SHT ZONE 6J)
3. CABLE CLAMPS (ITEM 14) TO BE MOUNTED IN NEXT AVAILABLE HOLES (AS SHOWN IN DETAIL "C" SHT 2) ABOVE SHIPPING BRACKET (ITEM 7) AFTER SHIPPING BRACKET IS MOUNTED PER NOTE 4.
4. TO ATTACH SHIPPING BRACKET (ITEM 7) REMOVE TWO SCREWS AND TWO LOCKWASHERS FROM ONE SIDE OF THE POWER PANEL ON THE REAR OF DISK DRIVE (ITEM 1), POSITION A SHIPPING BRACKET TO DETERMINE LOCATION OF "U" NUTS (ITEM 13) AND ATTACH BRACKET USING ORIGINAL SCREWS AND LOCKWASHERS AND ITEMS 12 & 9 (AS SHOWN IN DETAIL "A") REPEAT PROCEDURE ON OTHER SIDE OF DRIVE.
5. TO MOUNT RLØI TO CABINET:
   a. MOUNT SLIDES AND BRAKETS TO UPRIGHTS.
   b. EXTEND SLIDES AS FAR AS POSSIBLE BY RELEASING CATCHES SEE DETAIL "B" (SHT 2)
   c. PLACE DRIVE ON SLIDES AND PUSH BACK UNTILL ENDS OF RAILS FIT UNDER TABS ON SLIDES AND LATCHES ENGAGE
   d. SECURE DRIVE TO SLIDES USING SCREWS SUPPLIED. SEE DETAIL "B" (SHT 2)
   TO REMOVE DRIVE, EXTEND SLIDES FULLY, REMOVE SCREWS RELEASE LATCHES AND LIFT OFF.

SEE NOTE #1 # (item 33)

ITEMS 2 THRU 21 ** AND 33 ARE SUPPLIED WITH DRIVE AND LISTED ON E-UA-RLØI-AK-Ø-Ø

RLV11-AK	RLV11-00	DESCRIPTION	DWG./PART NO.	ITEM NO.
REF	—	LABEL, ADHESIVE BACKED 5Ø HZ	A-PS-5613209-01	33
REF	REF	UNIT ASSY (BA11-N)	D-UA-BA11-N-Ø	32
2	2	NUT SPRING #10-32	9007786-00	31
1	1	TRANSITION BRACKET ASSY	C-AD-7012415-0-0	30
2	2	SCR PHL TRS HD #10 X .50 LG	[illegible]	29
1	1	RLV11 DISK CONTROL	D-UA-M8013-Ø-Ø	28
1	1	RLV11 BUS CONTROL	D-UA-M8014-Ø-Ø	27
1	1	BC06R I/O CABLE	D-UA-BCØ6R-Ø-Ø	26
1	1	TERMINATOR ASSY	D-IA-7012293-0-0	25
1	1	UNIT SELECT PLUG KIT	A-PL-7012938-Ø-Ø	24
1	1	SCR TAP #8 X .38 LG	9006416-01	23
1	1	CLAMP CABLE	9007083-00	22
REF	—	INTERLOCK KIT	A-PL-H9504-2-0	21
REF	—	CONNECTOR 22Ø V POWER	9008853-00	20
REF	—	SCR. SLOTTED BIND HD #8 X .50	9006039-04	19
REF	—	TIE, CABLE	9007031-00	18
REF	—	WASHER FLAT	9006663-00	17
REF	—	WASHER FLAT	9006653-00	16
REF	—	CLAMP CABLE .75 NOM	9007089-00	15
REF	—	CLAMP CABLE .31 NOM	9007083-00	14
REF	—	NUT, 'U' SHAPED RETAINING #10-32	9007786-00	13
REF	—	WASHER LOCK EXT. TOOTH #10	9007651-00	12
REF	—	WASHER LOCK EXT. TOOTH #6	9007649-00	11
REF	—	SCREW PHL PAN HD #6-32 X .31	9006021-01	10
REF	—	SCREW PHL PAN HD #10-32 X .50	9006073-01	9
REF		BRACKET, CABLE SUPPORT	C-IA-7419357-0-0	8
REF	—	BRACKET SHIPPING RLØI	C-MD-7419356-0-0	7
REF	—	BAR NUT	C-MD-7419262-0-0	6
REF	—	BRACKET CHASSIS SLIDE	A-MD-7419261-0-0	5
REF	—	CHASSIS/SLIDE	A-PS-1213686-0-0	4
REF	—	I/O CABLE ASSY	E-IA-7012122-0-0	3
REF	—	RLØI DATA CARTRIDGE	E-UA-RLØIK-DC	2
1	—	DISK DRIVE, MTG KIT & CARTRIDGE	E-UA-RLØI-AK-Ø-Ø	1

QUANTITY & VARIATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30' — SURFACE QUALITY IN MICROINCHES — CLASS OF ACCURACY (CHECK ONE): MEDIUM / PREFERRED

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: —

DRN. Draughter — CHK'D — ENG. — PROJ. ENG. — PROD. — 3 MAY 78

NEXT HIGHER ASSY.: B-DD-RLV11-Ø

SCALE: NONE

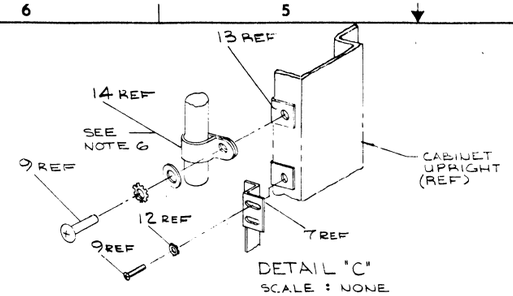
SHEET 1 OF 2

FIRST USED ON: RLV11

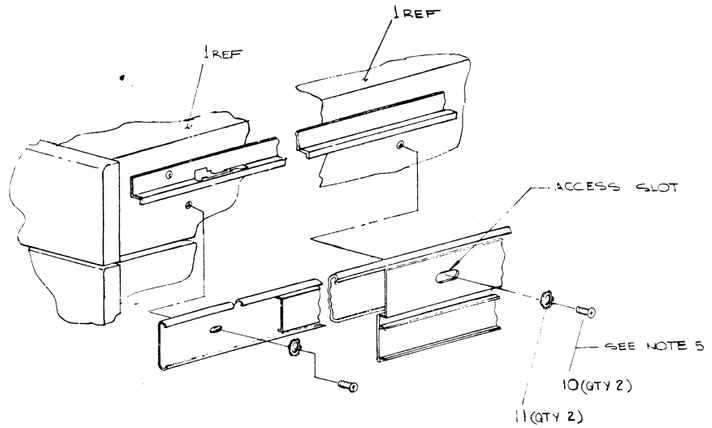
TITLE: DISK CONTROLLER ASSY (RLV11)

SIZE: E — CODE: UA — NUMBER: RLV11-0-Ø — REV:

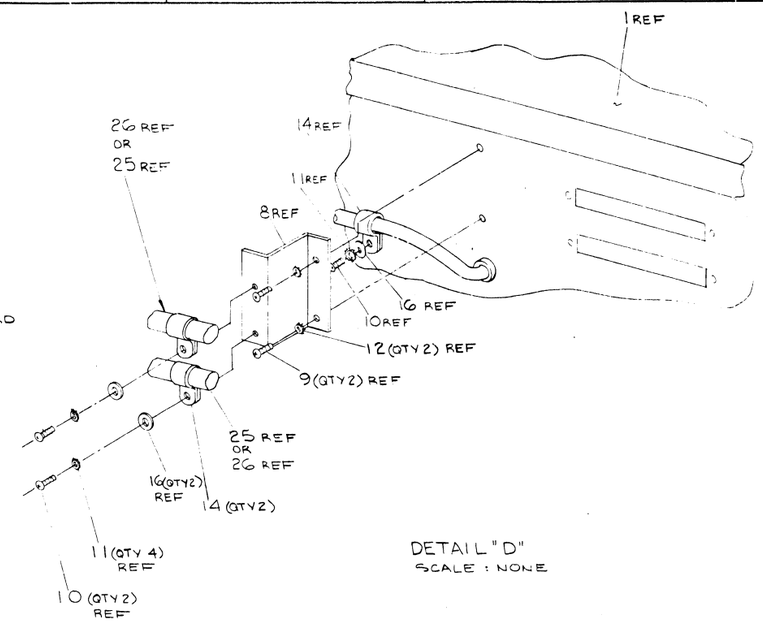
DIST.:



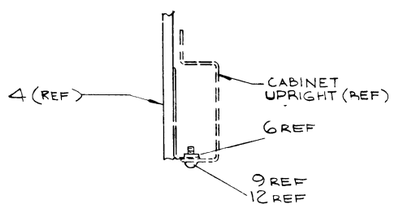
DETAIL "C"
SCALE : NONE
a. ONE CLAMP FOR I/O CABLE ITEM 3 REF
b. ONE CLAMP FOR POWER CORD



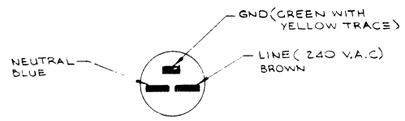
DETAIL "B"
SCALE : NONE



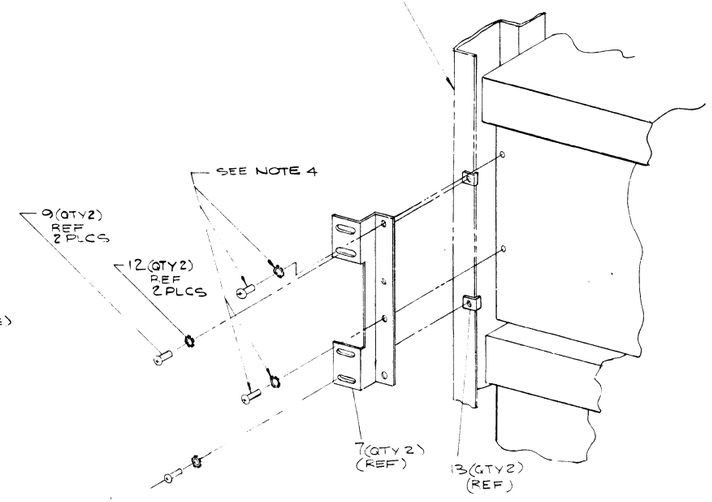
DETAIL "D"
SCALE : NONE



SECTION A-A
(SHOWING TYPICAL MOUNTING OF CHASSIS SLIDES TO CABINET UPRIGHTS)
SCALE: NONE



DETAIL "H"
(FRONT VIEW OF PLUG ITEM 20)



DETAIL "A"
SCALE : NONE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: DISK CONTROLLER (RLV11)
SIZE: E | CODE: UA | NUMBER: RLV11-Ø-Ø | REV.
SCALE: — | SHEET 2 OF 2 | DIST.

SIZE E | CODE UA | NUMBER RLV11-Ø-Ø | REV.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 5-April-78

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	CHANGES VECTOR ADDRESS TO 160	ML0001	R. Lewis	11-78	K Lewis	5 Dec 78

1
5

ENG B. Sullivan APPD W. Smith SIZE A CODE SP NUMBER RLV11-0-2 REV A

EN-1079A-16-R873-(392)
DRA 107A

SHEET 1 OF 6

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

I. GENERAL

This procedure defines the configurations, module utilization, installation, acceptance and diagnostic startup criteria for the RLV11 Disk Controller. Refer to RL01 Service Manual (EK-RL01-SV) for drive acceptance procedure.

II. CONFIGURATION

A. Setup switches and jumpers as indicated in tables 1 and 2 for type of ROM, standard Device Address 174400; and Vector Address 160. See Figures 2 and 3 for switch and jumper locations. For non standard device and Vector Address settings use table 2 setting corresponding address or Vector switch on for a 1 off for a 0.

III. MODULE UTILIZATION

A. Allowable Backplanes

H9273 4X9 slot backplane for the BA11-N or 11/03L or an electrical equivalent with LSI-11 Bus on the A and B connectors and C,D interconnect bus on the C and D connectors.

B. Module Order

Modules are inserted in any two consecutive slots with the M8013 inserted in the slot which is electrically closest to the CPU and the M8014 inserted in the slot directly behind as in Figure 1.

C. System Guidelines

1. Always locate the RLV11 module set at a lower priority (further away from the CPU) than any volatile DMA devices, tape units, and the RKV11 as in Figure 1.

SIZE A CODE SP NUMBER RLV11-0-2 REV A

DEC FORM NO EN-01022-16-N370-(381)
DRA 103

SHEET 2 OF 6

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

Table 1
M8013 Jumper Configuration (See Fig. 2 for jumper locations)

Jumper	E49=Pt.#23-XXXE2	E49=PT.#23-XXXB7
W1	Installed	Removed
W2	Removed	Installed
W3	Installed	Removed
W4	Removed	Installed

Table 2
M8014 Switch settings for standard device address 174400 and vector address 160.
(For switch locations see Fig. 3)

Switch Position	SW2 Address 174400		SW1 Vector 160	
1	A12	on	off	V8
2	A11	on	off	V7
3	A10	off	on	V6
4	A9	off	on	V5
5	A8	on	on	V4
6	A7	off	off	V3
7	A6	off	off	V2
8	A5	off		
9	A4	off		
10	A3	off		

NOTE: ON = 1
For rocker type recessed switches the on position is such that the switch is depressed on the on side with the red stripe visible on the off side.

	A	B	C	D	
1	CPU or M9401 Cable Connector				
2	OPTION A				
3	OPTION B				
4	RLV11 (Ref)				} RLV11
5		M8013			
6		M8014			
7					
8					
9	POUT TERMINATOR				

FIG. 1:H9273 Backplane Module Configuration

SIZE A CODE SP NUMBER RLV11-0-2 REV A

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

SHEET 3 OF 6

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

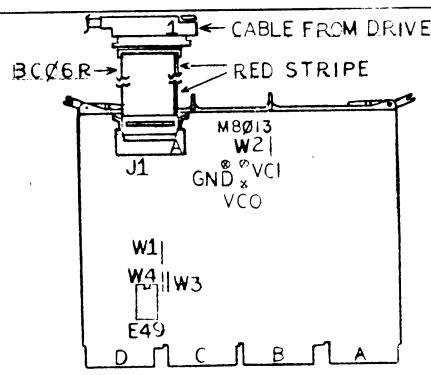


FIGURE 2: M8013 JUMPER LOCATIONS

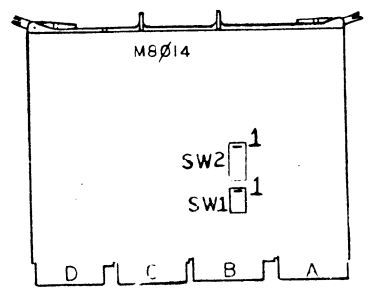


FIGURE 3: M8014 SWITCH LOCATIONS

SIZE A CODE SP NUMBER RLV11-0-2 REV A

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

SHEET 4 OF 6

IV. ACCEPTANCE PROCEDURE

A. Equipment

1. Hardware

   a. BA11-N 11/03 system with a minimum of 16K of memory
   b. Console terminal (VT50, La36, etc.)
   c. RL01 Disk Drive

2. Diagnostics

Program Name		Maindec
CVRLAA0	RLV11 RL01 Diskless Test	AC-B107A-MC
CZRLAB0	RL11/RLV11 Controller Test (Part 1)	AC-E036B-MC
CZRLBB0	RL11/RLV11 Controller Test (Part 2)	AC-E040B-MC

B. Acceptance Criteria

Program Name	Accept Time (Error Free)
CVRLAA0	10 Passes
CZRLAB0	5 Passes
CZRLBB0	3 Passes

V. PROGRAM START PROCEDURE

A. Program Loading

Follow standard DEC procedures for program loading. Absolute Loader for paper tape. XXDP, UPD1, UPD2, UPD3 for other media.

B. Program Starting

Program start location is 200. Use standard DEC procedures. For LSI-11 with ODT Type 200 G.

C. Program Execution Procedure

1. Program Example for CVRLAA

After loading and starting program, it will respond at the console with the following. See diagnostic listing for more detailed explanation or if errors are encountered.

2. Program Response Operator Action

CVRLA (Program Name)

L-CIK (L) N?	(Type Y carriage return for 11/Ø3L with BDV11 RTC Enabled)
50HZ (L) N?	(Type carriage return if system is not 5ØHZ)
LSI (L) N?	(Type Y carriage return)
LPT (L) N?	(Type carriage return)
MEM (K) (D)16?	(Type carriage return)
DS-B	(Type S T A carriage return)
# Units (D) ?	(Type 1 carriage return)

Unit 1
RL11 (L) Y? (Type N carriage return)

Bus Address (Ø)174ØØØ ? (Type carriage return)

Vector (Ø) 330 ? (Type 160 carriage return)

BR Level (Ø) 5? (Type carriage return)

Drive (Ø) Ø ? (Type carriage return)

Change SW (L)? (Type N carriage return)

CVRLA EOP 1 (approximately 45 seconds)

Type C (Control/C) to end execution

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. Drayton	CHECKED R. Hellman	SECTION
DATE 24th April - 78	DATE 3-May-78	1
ENG Richard Hellman	PROD H.T. Gibson	ISSUED SECT.
DATE 26- Apr - 78	DATE 3-May-78	1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION RLV11-Ø	RLV11-AK
1	MPØØ635	MAINTENANCE PRINT SET, RLV11	1	1
2	A-PL-RLV11-Ø-5	SOFTWARE LIST	1	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
RLV11 SHIPPING LIST	E-UA-RLV11-Ø-Ø	A	PL	RLV11-Ø		
	SHEET 1 OF 1	DIST				

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø13-Ø	H

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS
D-UA-M8Ø13-Ø-Ø	3		RLV11 DISK CONTROL	B C D E F H
K-PL-M8Ø13-Ø-DBP	3		RLV11 DISK CONTROL	B C D E F H
D-CS-M8Ø13-Ø-1	5		RLV11 DISK CONTROL	B C D D E F
D-MD-5Ø12962-Ø-Ø	3		DRILL AND ETCH DRAWING	B B B B B B
		5Ø12962	ETCHED BOARD	C C C C C C
K-PC-M8Ø13-Ø-DBC			P.C. DESIGN DATA BASE (CALDEC)	REF - C C C C

NOTES:

REVISIONS							
REV.		C	D	E	F	H	
CHG NO.		00001	ML002	ML003	ML004	ML005	
DATE		4-78	8-78	9-78	11-78	12/78	

digital

USED ON OPTION/MODEL	
RLV11	

DRN.	A. COLON	12-9-77
CHK'D		1/6/78
ENG.		1-6-78
PROD.		1-6-78

TITLE: RLV11 DISK CONTROL

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø13-Ø	H

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø14-Ø	D

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS
D-UA-M8Ø14-Ø-Ø	6		RLV11 BUS CONTROL	A B C D
K-PL-M8Ø14-Ø-DBP	2		RLV11 BUS CONTROL	A B C D
D-CS-M8Ø14-Ø-1	5		RLV11 BUS CONTROL	A B C C
D-MD-5Ø12963-Ø-Ø	5		DRILL & ETCH DRAWING	A A A A
		5012963	ETCHED CIRCUIT BOARD	B B B B
M8Ø14-0-L			P.C. DESIGN DATA BASE	REF – – –

NOTES:

REVISIONS		
DATE	CHG NO.	REV
3-78	[illegible]	B
7-79	[illegible]	C
12-[illegible]	[illegible]	D

digital

USED ON OPTION/MODEL		DRN.		
RLV11		R. KOPPENAL	4 NOV 7	TITLE
		CHK'D	11/6/79	RLV11 BUS CONTROL
		ENG.		SIZE B / CODE DD / NUMBER M8Ø14-Ø / REV. D
		PROD.		SHEET 1 OF 1

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WIRE TABLE

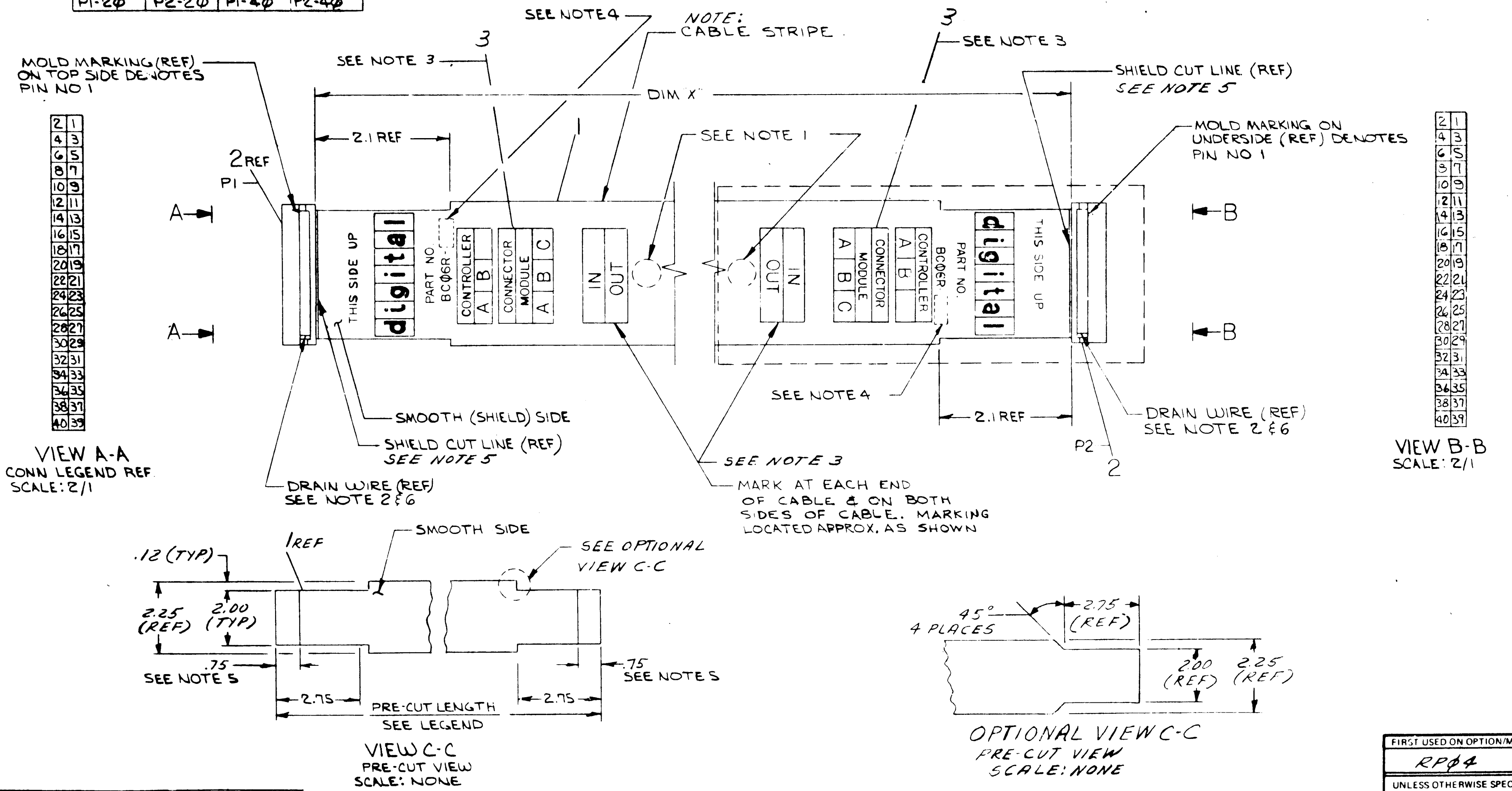
FROM	TO	FROM	TO
P1-1	P2-1	P1-21	P2-21
P1-2	P2-2	P1-22	P2-22
P1-3	P2-3	P1-23	P2-23
P1-4	P2-4	P1-24	P2-24
P1-5	P2-5	P1-25	P2-25
P1-6	P2-6	P1-26	P2-26
P1-7	P2-7	P1-27	P2-27
P1-8	P2-8	P1-28	P2-28
P1-9	P2-9	P1-29	P2-29
P1-10	P2-10	P1-30	P2-30
P1-11	P2-11	P1-31	P2-31
P1-12	P2-12	P1-32	P2-32
P1-13	P2-13	P1-33	P2-33
P1-14	P2-14	P1-34	P2-34
P1-15	P2-15	P1-35	P2-35
P1-16	P2-16	P1-36	P2-36
P1-17	P2-17	P1-37	P2-37
P1-18	P2-18	P1-38	P2-38
P1-19	P2-19	P1-39	P2-39
P1-20	P2-20	P1-40	P2-40

LEGEND

NUMBER	DIM "X"	PRECUT LENGTH	REMARKS
BCØ6R-Ø1	1FT	1FT 1.5IN ± 1IN	SEE PRE-CUT VIEW C-C
BC06R-Ø2	2FT	2FT 1.5IN ± 1 IN	
BCØ6R-Ø3	3FT	3FT 1.5IN ± 1 IN	
BCØ6R-Ø4	4FT	4FT 1.5IN ± 1 IN	
* BCØ6R-Ø5	4FT 6IN	4FT 7.5IN ± 1.5IN	SEE NOTE 7 *
BC06R-Ø6	6FT	6FT 1.5IN ± 2IN	
BCØ6R-Ø8	8 FT	8 FT 1.5IN ± 2IN	
BCØ6R-1Ø	1Ø FT	1Ø FT 1.5IN ± 2IN	
BCØ6R-12	12 FT	12 FT 1.5IN ± 3IN	
BCØ6R-2Ø	2ØFT	2ØFT 1.5IN ± 3IN	
BCØ6R-25	25FT	25FT 1.5IN ± 3IN	
BCØ6R-3Ø	3ØFT	3ØFT 1.5IN ± 6IN	
BCØ6R-5Ø	5ØFT	5ØFT 1.5IN ± 1.C FT	
BC06R-6Ø	6ØFT	6ØFT 1.5IN ± 1.2FT	
BCØ6R-75	75 FT	75 FT 1.5IN ± 1.5 FT	
BC06R-AØ	1ØØFT	1ØØFT 1.5IN ± 2 FT	
BCØ6R-Ø7	7 FT	7FT 1.5IN ± 2 IN.	
BCØ6R-8F	8FT 6IN	8FT 7.5IN ± 1 IN	SEE PRE-CUT VIEW C-C

NOTES:

1. INSPECTION & TEST STAMPS TO BE PLACED AT EACH END OF THE CABLE ASSEMBLY.
2. DRAIN WIRE CONNECTS TO PIN NO 40.
3. RUBBER STAMP INFORMATION SHOWN USING INK (ITEM 3) & ART WORK DEC NO A-DC-7411659-0-0
4. STAMP APPLICABLE OPTION DASH NO. ACCORDING TO LENGTH.
5. REMOVE SHIELD .75 FROM END OF PRECUT CABLE (SEE VIEW C-C).
6. COVER EXPOSED DRAIN WIRE WITH ITEM 4 PRIOR TO ASSY (BOTH ENDS)
*7. FOR RPØ4, RPØ5, RPØ6 USE WRAP AROUND VINYL LABEL. SEE VARIATIONS ON DRAWING NUMBER A-PS-3615389-0-0. ALSO SEE NEXT HIGHER ASSEMBLY E-IA-7009807-0-0 AND E-IA-7009808-0-0.



PARTS LIST

QTY.	DESCRIPTION	PART NO	ITEM NO.
A/R	PLASTIC TAPE	3612511-0	4
A/R	INK	4901150	3
2	CONNECTOR, 40 SOCKET	1211206	2
A/R	CABLE, 40 COND FLAT W/SHIELD	17-00034	1

FIRST USED ON OPTION/MODEL: RPØ4

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = .005, XX = .02, X = 1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL: SEE PARTS LIST
FINISH: —

DRN. D. DiCenzo DATE 12-22-73

NEXT HIGHER ASSY.: E-IA-7009807-0-0, E-IA-7009808-0-0
SCALE NONE
SHEET 1 OF 1

EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: BCØ6R I/O CABLE

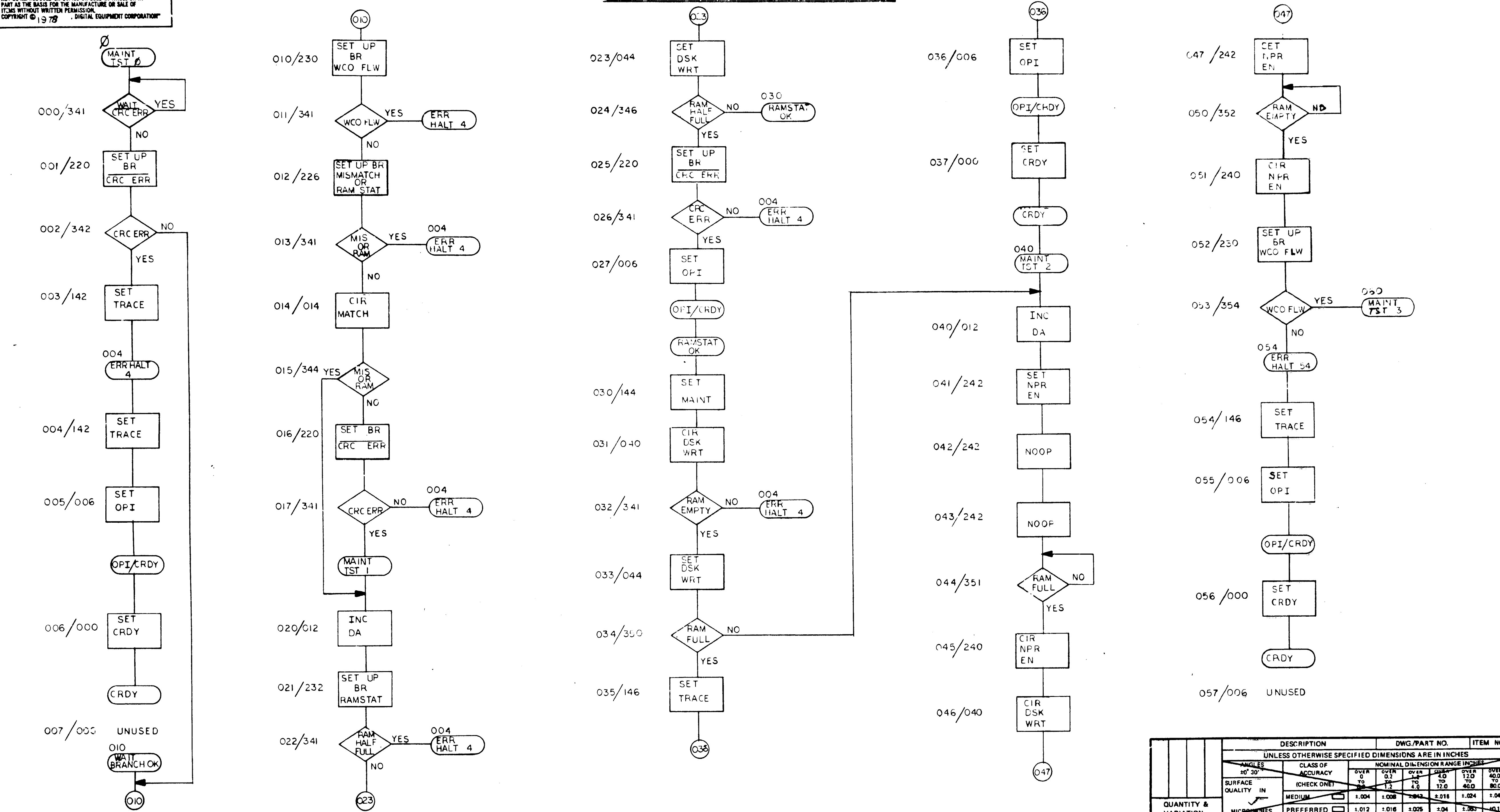
SIZE D | CODE UA | NUMBER BCØ6R-Ø-Ø | REV. E

REVISIONS

CHANGE NO	REV
BCØ6R-00001	A
BCØ6R-00002	B
BCØ6R-00003	C
BC2CR-00004	D
BCØ6R-ML005	E

DEC FORM NO DRD 100-A

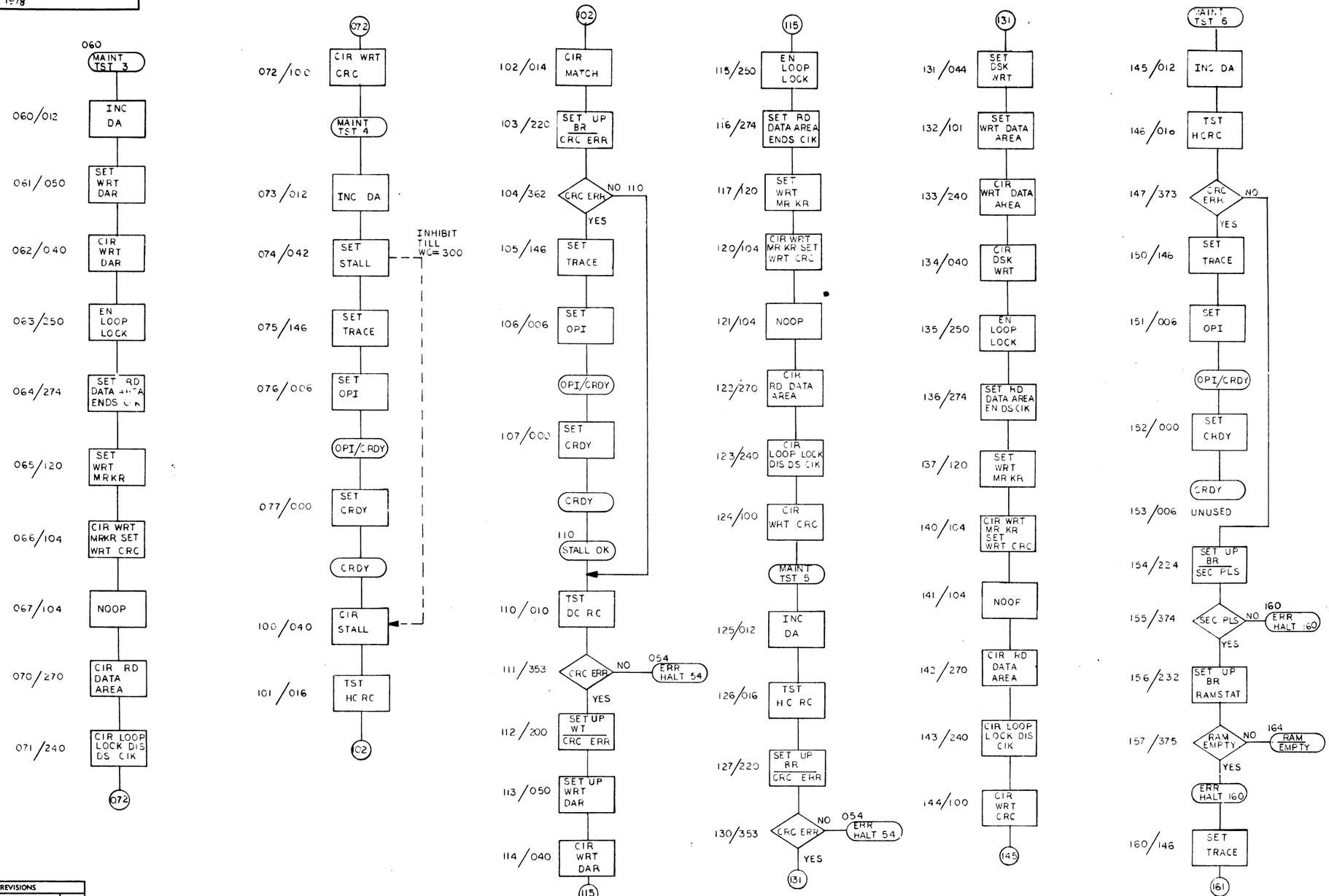
MAINTENANCE FUNCTION Ø



DESCRIPTION	DWG./PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
QUANTITY & VARIATION	
THIRD ANGLE PROJECTION	
REMOVE BURRS AND BREAK SHARP CORNERS	
DO NOT SCALE DWG	
MATERIAL	
FINISH	
DRN. G. Drayton	11 Jan 78
CHK'D R. Hallman	3 May 78
ENG. R. Hallman	3 May 78
PROJ. ENG.	
PROD.	
NEXT HIGHER ASSY.	E-UA-RLV11-Ø-Ø
FIRST USED ON	RLV11
TITLE	FLOW DIAGRAM, DISK CONTROLLER (RLV11)
SIZE	D
CODE	FD
NUMBER	RLV11-Ø-3
SHEET	1 OF 10

DEC FORM NO. DRD 100-C

MAINTENANCE FUNCTION Ø (CONT)

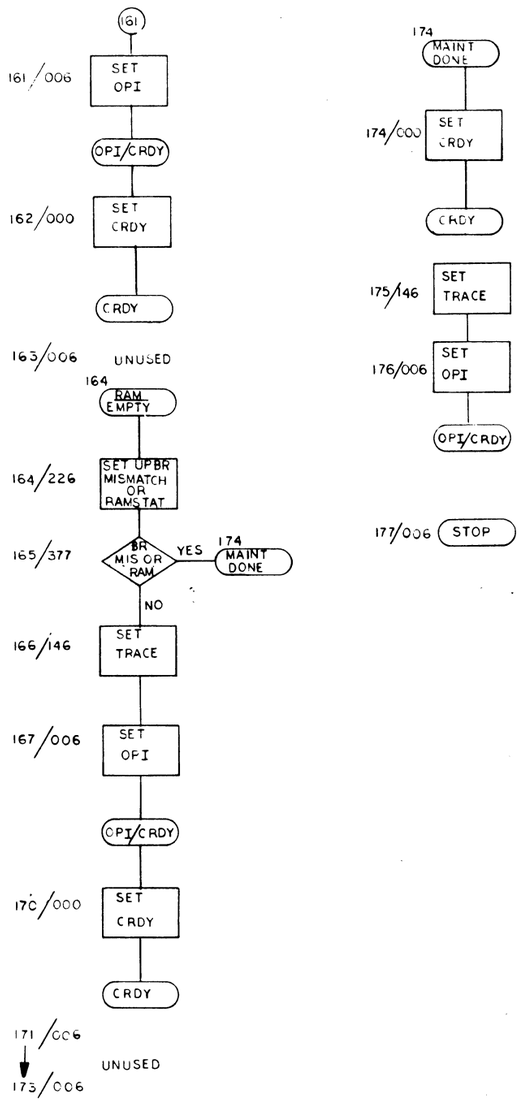


REVISIONS		
CHK	CHANGE NO.	REV.

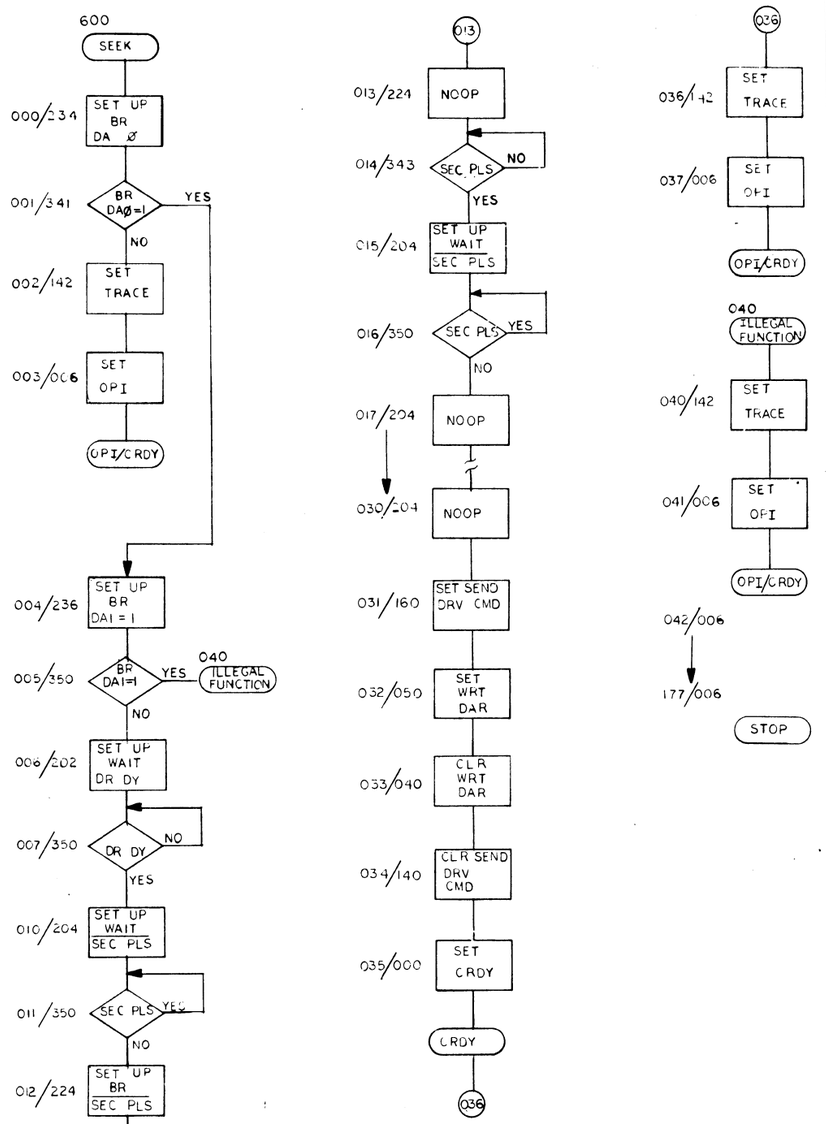
TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	DEC	RLV11-Ø-3	
SCALE —	SHEET 2 OF 10	DIST.		

DEC FORM NO. DRD 137

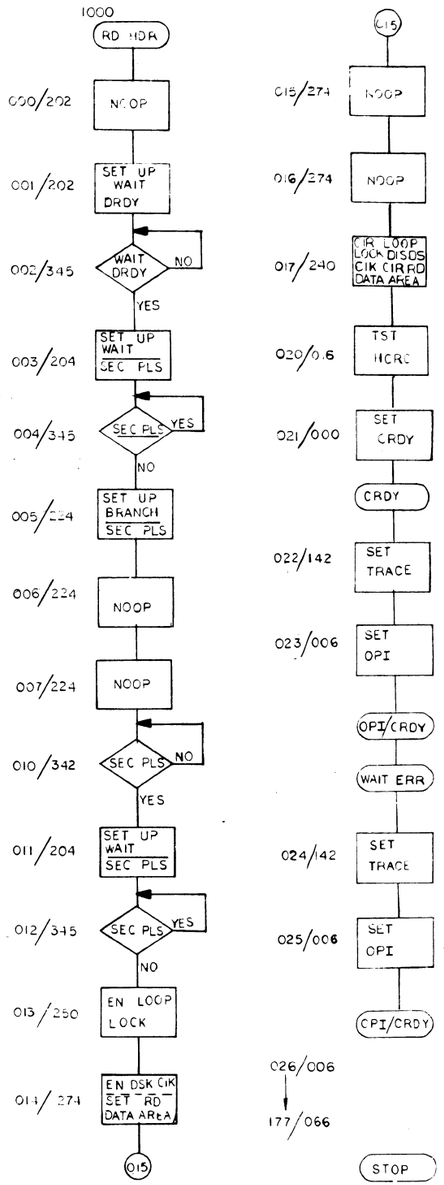
MAINTENANCE FUNCTION Ø (CONT)



SEEK 600 FUNCTION 3



RD HDR 1000 FUNCTION 4

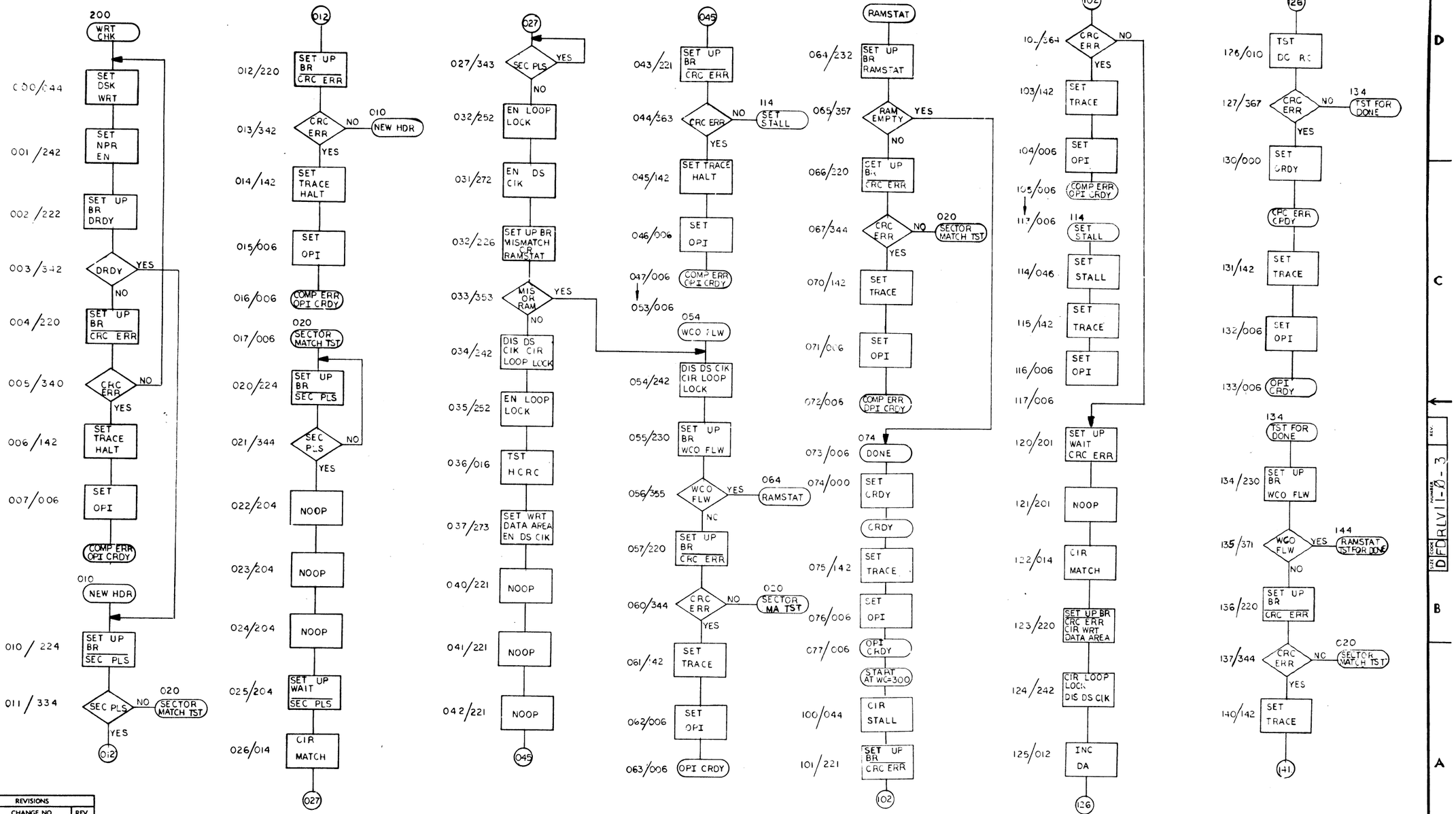


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLVII)	D	FD	RLVII-Ø-3	
SCALE	SHEET 3 OF 10	DIST.		

DEC FORM NO. DRD 137

WRITE CHECK 200 FUNCTION 1



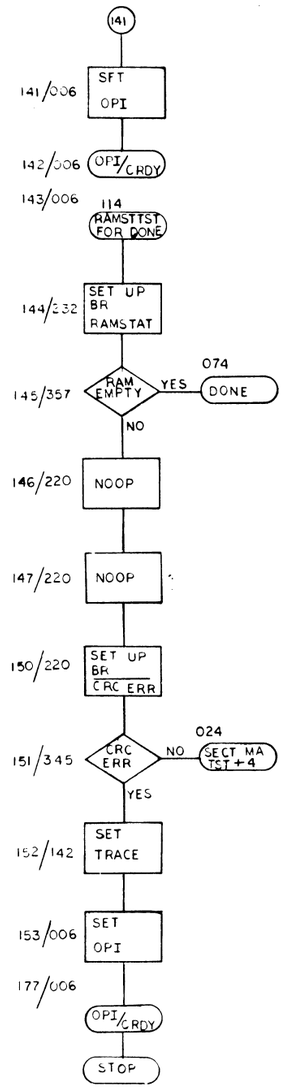
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE FLOW DIAGRAM, DISK CONTROLLER (RLVII)		SIZE D	CODE FD
SCALE	SHEET 4 OF 10	DIST.	NUMBER DFDRLVII-Ø-3

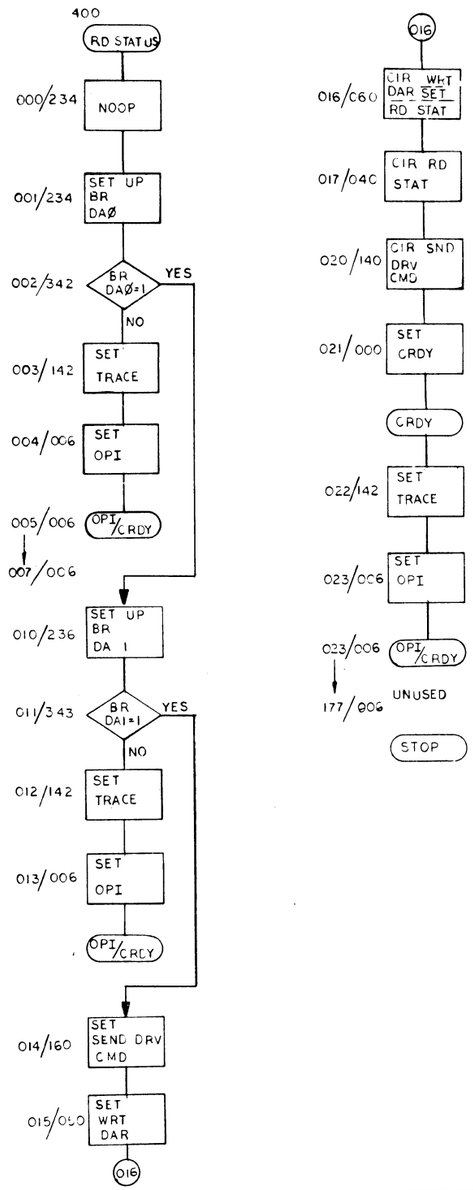
REV.

DEC FORM NO. DRD 187

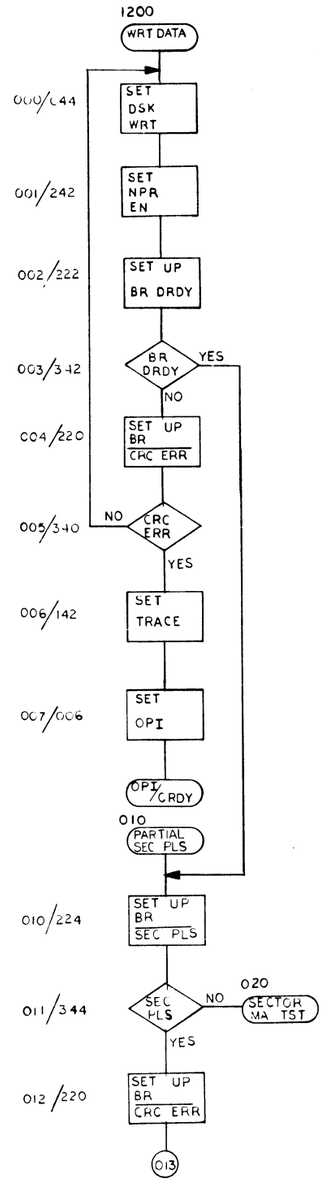
WRITE CHECK FUNCTION 1 (CONT)



GET STATUS 400 FUNCTION 2



WRITE DATA 1200 FUNCTION 5



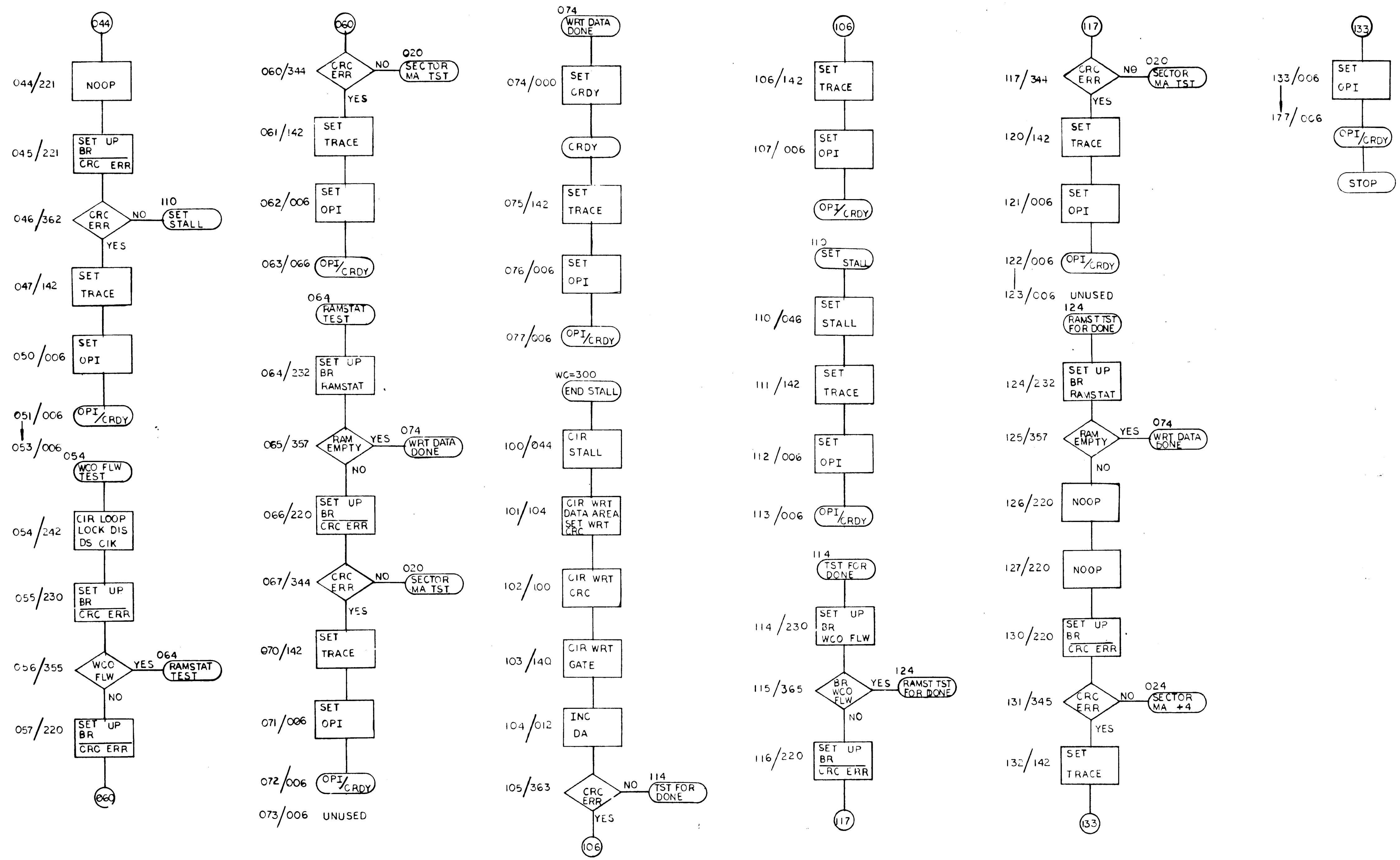
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-Ø-3	

SCALE — SHEET 5 OF 10 DIST.

DEC FORM NO. DRC 327

WRITE DATA 1200
FUNCTION 5 (CONT)



REVISIONS		
CHK	CHANGE NO.	REV.

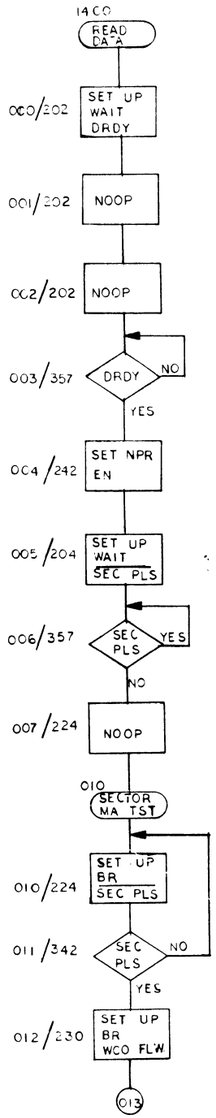
TITLE FLOW DIAGRAM, DISK CONTROLLER (RLV11)

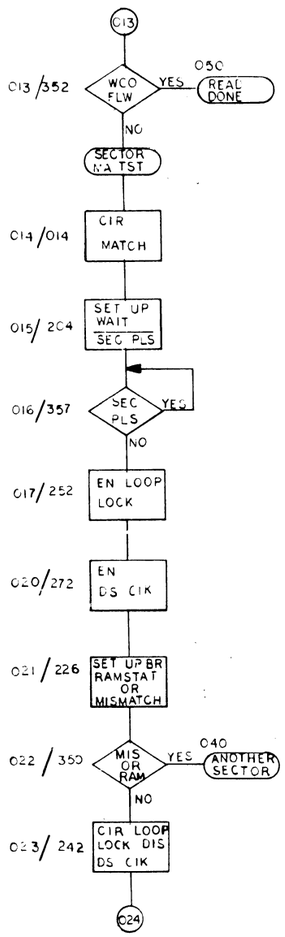
SIZE	CODE	NUMBER	REV.
D	FD	RLV11-0-3	

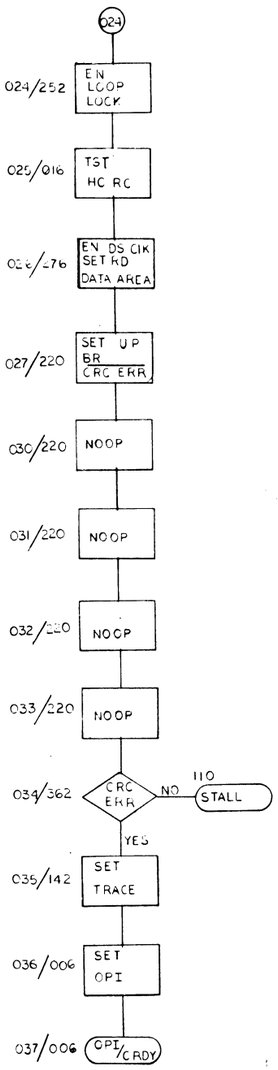
SCALE — SHEET 6 OF 10 DIST.

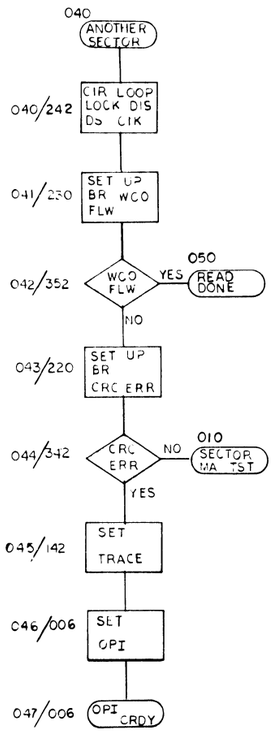
D FD RLV11-0-3

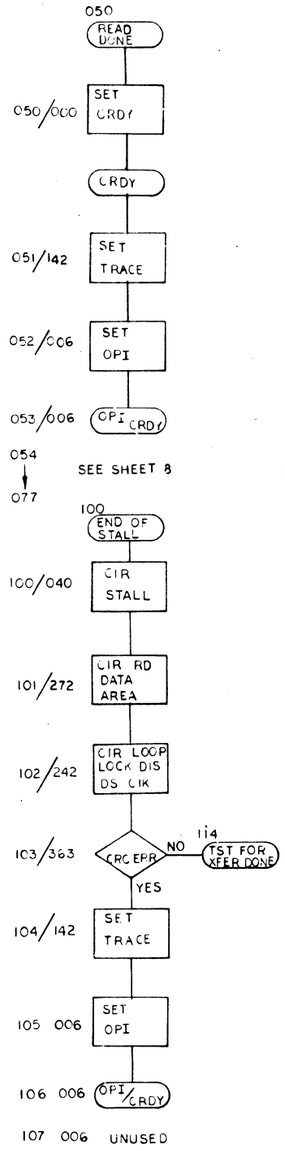
READ DATA 1400
FUNCTION 6

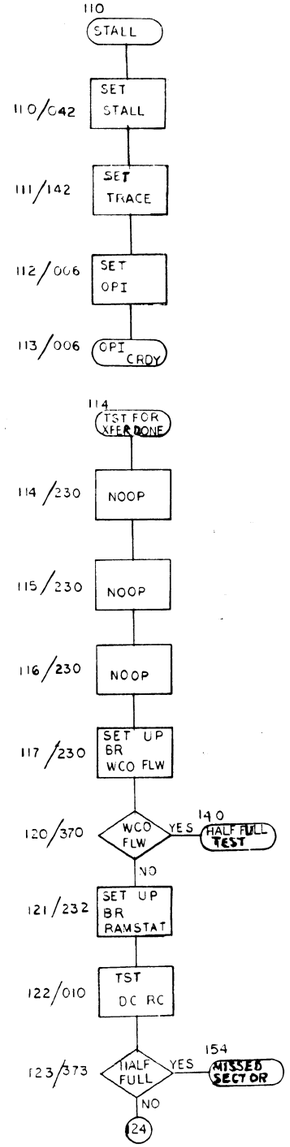










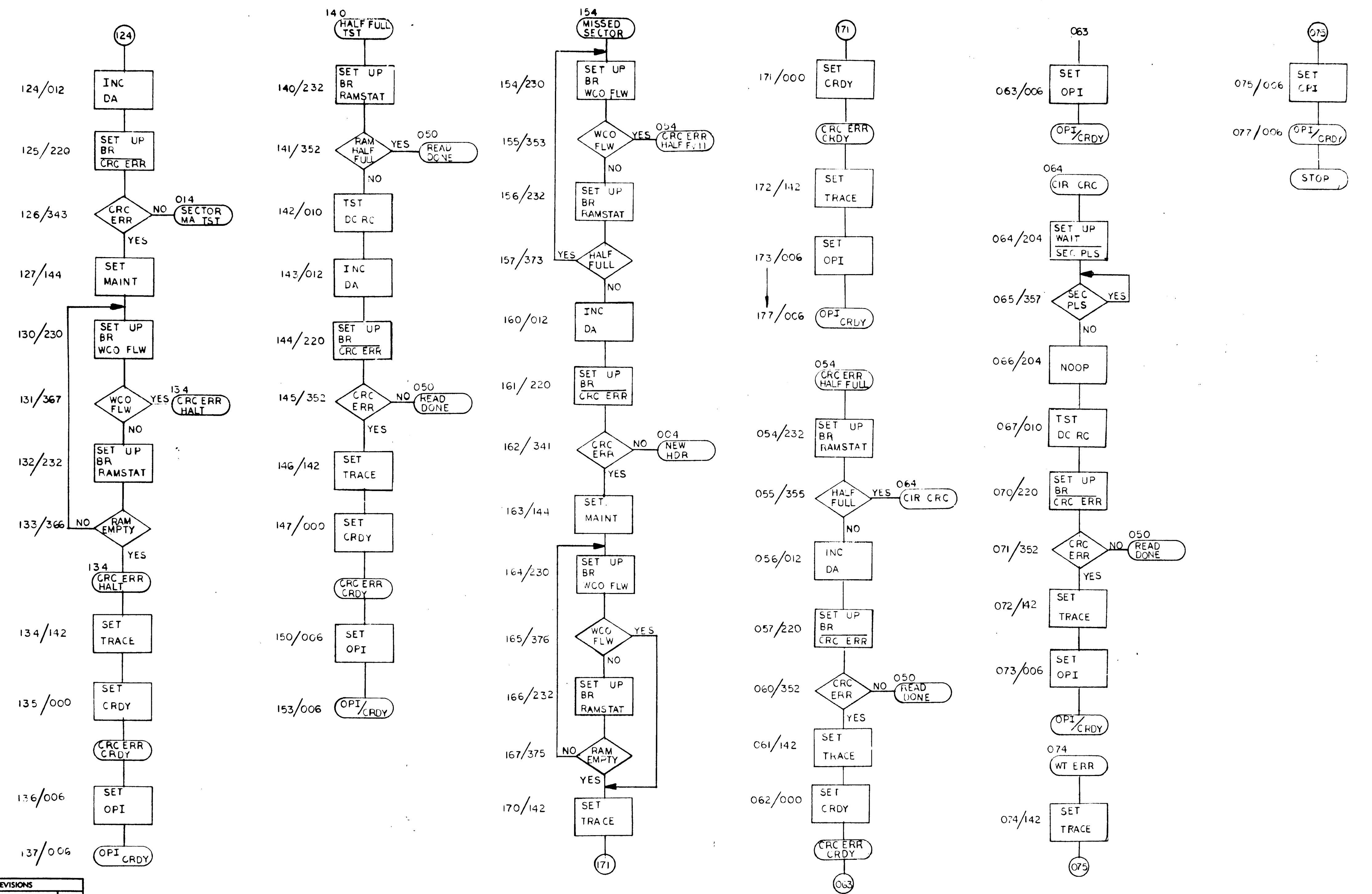


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-Ø-3	
SCALE —	SHEET 7 OF 10	DIST.		

DEC FORM NO. DRD 177

READ DATA
FUNCTION 6 (CONT)



REVISIONS		
CHK	CHANGE NO.	REV.

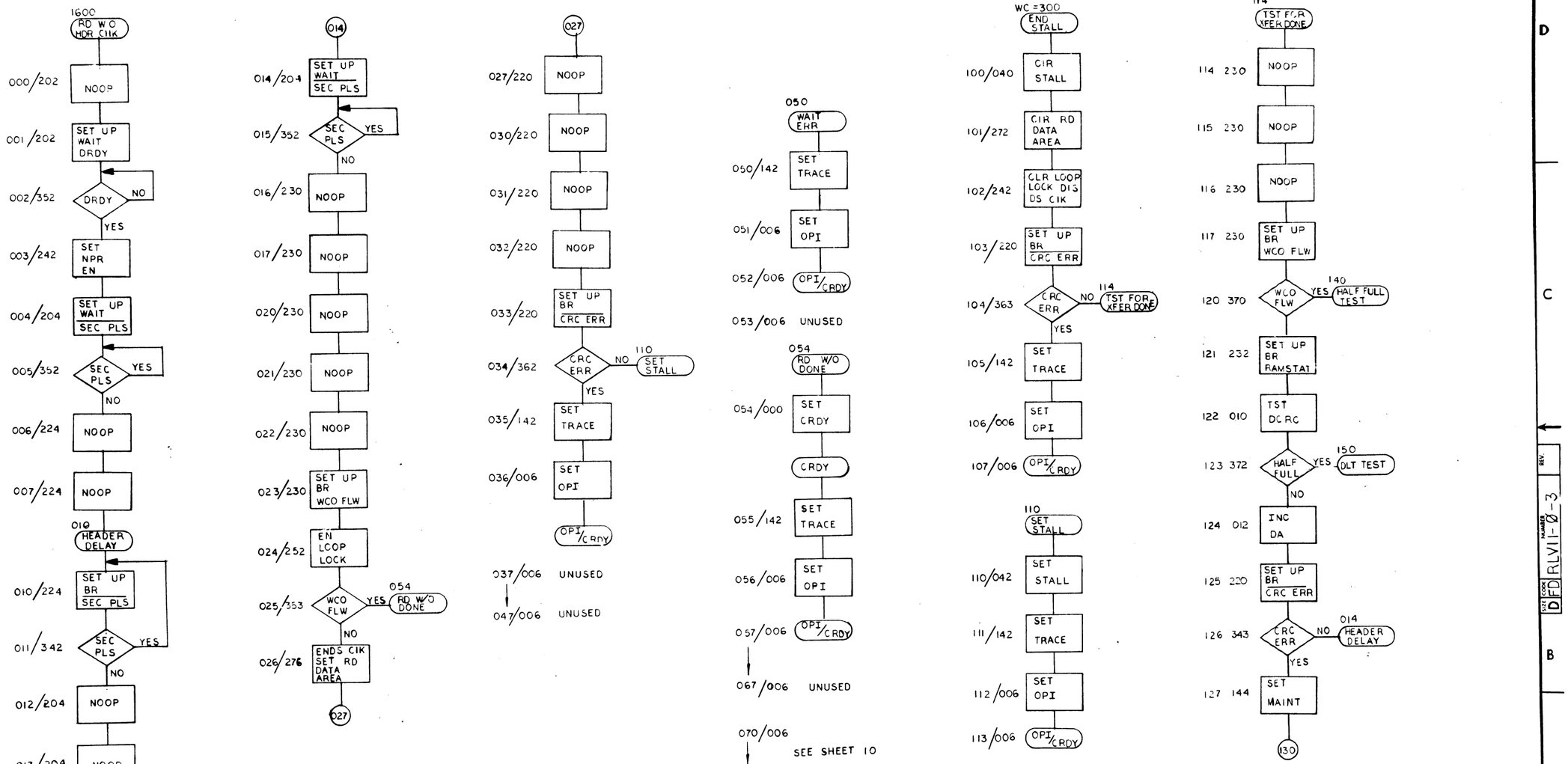
TITLE FLOW DIAGRAM, DISK CONTROLLER (RLV11)

SIZE D | CODE FD | NUMBER RLV11-Ø-3 | REV.

SCALE — | SHEET 8 OF 10 | DIST.

READ W/O HDR CHK 1600

FUNCTION 7

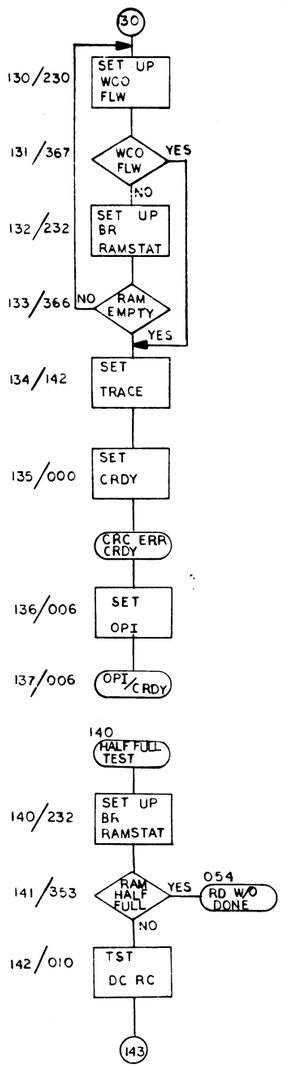


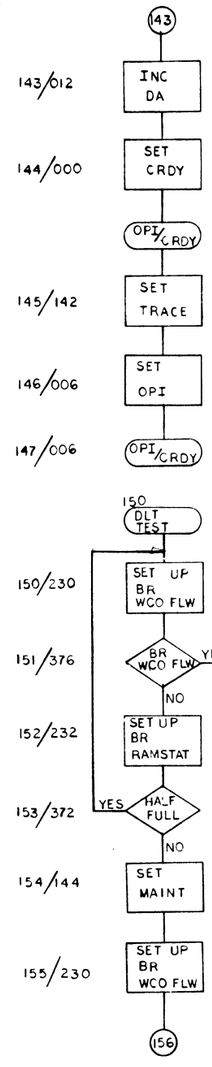
REVISIONS		
CHK	CHANGE NO.	REV.

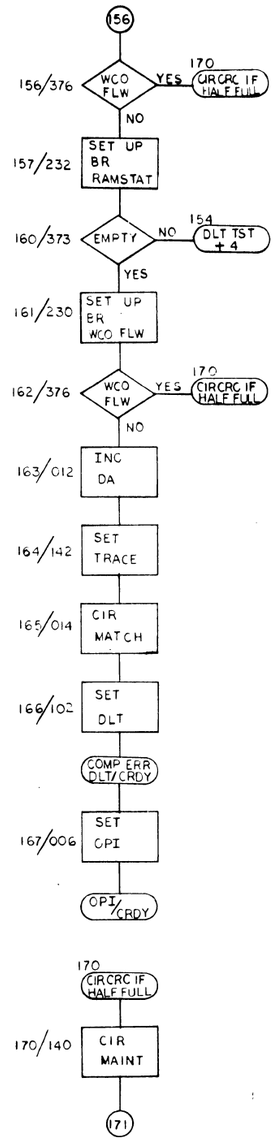
TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-0-3	
SCALE —	SHEET 9 OF 10	DIST.		

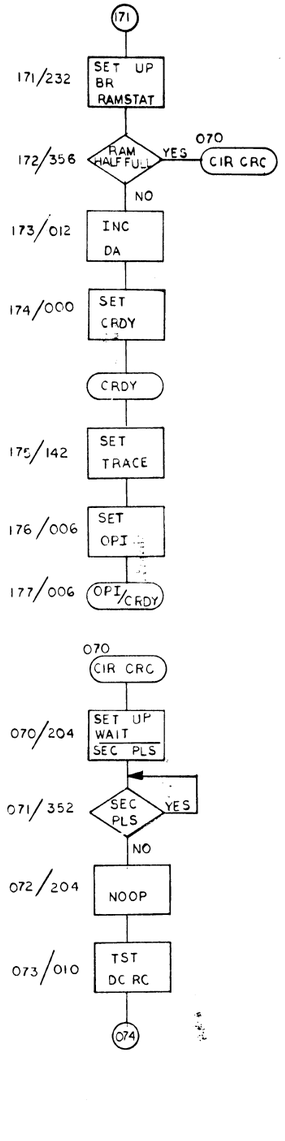
DEC FORM NO. DRD 137

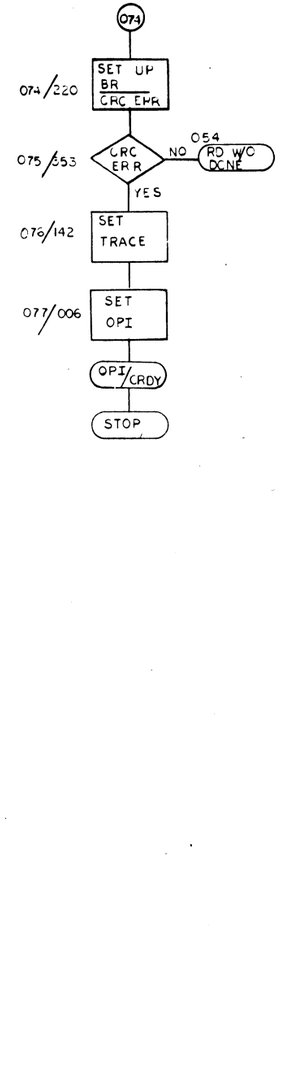
READ WO HDR CHK FUNCTION 7 (CONT)







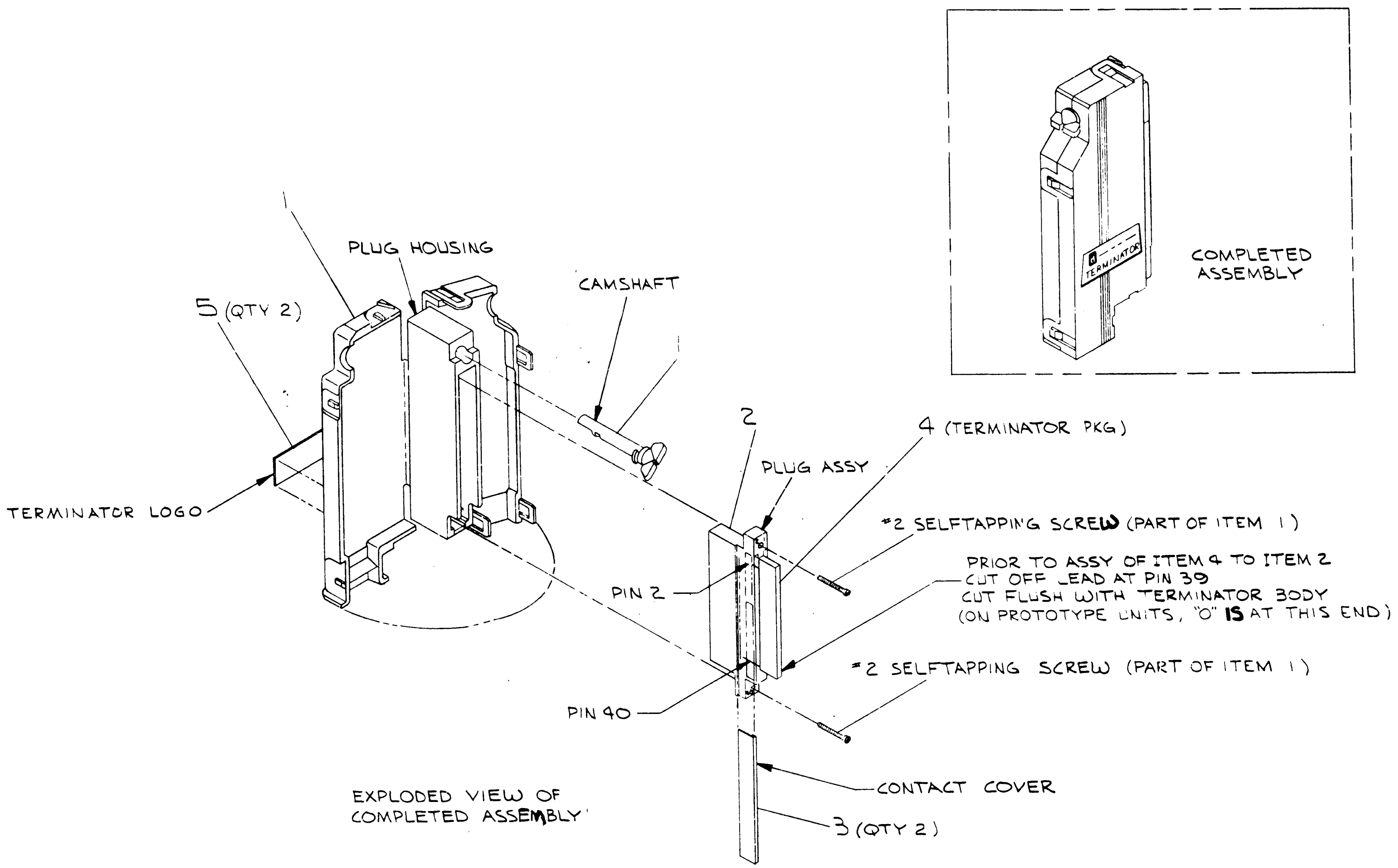




REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLVII)	D	FD	RLVII-Ø-3	
SCALE —	SHEET 10 OF 10	DIST.		

DEC FORM NO. DRD 137



QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
2	LOGO, TERMINATOR	A-DC-7416678-0-0	5
1	TERMINATOR PKG	1313242-00	4
2	COVER, CONTACT	1211591-11	3
1	PLUG ASSY	1211591-07	2
1	CONN PLUG HSG & CAMSHAFT KIT	1211591-34	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'
SURFACE QUALITY IN MICROINCHES

CLASS OF ACCURACY (CHECK ONE)	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	±.004	±.008	±.012	±.016	±.024	±.04
PREFERRED	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH

DRN. 7-JAN-76
CHK'D 26 APR 76
ENG.
PROJ. ENG. 5/27/76
PROD. 6/1/76

NEXT HIGHER ASSY. E-UA-RK611-Φ-Φ

SCALE: NONE

SHEET 1 OF 1

FIRST USED ON RKΦ6

digital

TITLE: TERMINATOR ASSY

SIZE	CODE	NUMBER	REV
D	IA	7012293-0-0	A

DIST.

REVISIONS			
CHK	CHANGE NO.	REV.	
J.C.	7012293-00001	A	
W. DUNHAM			9/29/76

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY Richard Hultman	CHECKED Richard Hultman	SECTION
DATE 4/18/78	DATE 4/26/78	1
ENG Richard Hultman	PROD H.T. Barlow	ISSUED SECT.
DATE 4/18/78	DATE 3-May-78	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION ZJ257-RB	ZJ257-RZ*	ZJ257-PB*
1	AC-EØ36B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (DOC)	1	1	-
2	AH-EØ37B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (FICHE)	-	-	-
3	AK-EØ38B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (PT1)	1	-	1
4	AK-EØ39B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (PT2)	1	-	1
5	AC-EØ40B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (DOC)	1	1	-
6	AH-EØ41B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (FICHE)	-	-	-
7	AK-EØ42B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (PT1)	1	-	1
8	AK-EØ43B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (PT2)	1	-	1
9	AC-EØ44B-MC	CZRLCB0 RLØ1 Drive Test 1 (DOC)	1	1	-
10	AH-EØ45B-MC	CZRLCB0 RLØ1 Drive Test 1 (FICHE)	-	-	-
11	AK-EØ46B-MC	CZRLCB0 RLØ1 Drive Test 1 (PT1)	1	-	1
12	AK-EØ47B-MC	CZRLCB0 RLØ1 Drive Test 1 (PT2)	1	-	1
13	AC-EØ48B-MC	CZRLDB0 RLØ1 Drive Test 2 (DOC)	1	1	-
14	AH-EØ49B-MC	CZRLDB0 RLØ1 Drive Test 2 (FICHE)	-	-	-
15	AK-EØ5ØB-MC	CZRLDB0 RLØ1 Drive Test 2 (PT1)	1	-	1
16	AK-EØ51B-MC	CZRLDB0 RLØ1 Drive Test 2 (PT2)	1	-	1
17	AC-E246B-MC	CZRLEB0 RLØ1 Perf Exer (DOC)	1	1	-
18	AH-E247B-MC	CZRLEB0 RLØ1 Perf Exer (FICHE)	-	-	-
19	AK-E248B-MC	CZRLEB0 RLØ1 Perf Exer (PT1)	1	-	1
20	AK-E249B-MC	CZRLEB0 RLØ1 Perf Exer (PT2)	1	-	1
21	AC-E250B-MC	CZRLFB0 RLØ1 Drive Cmpt (DOC)	1	1	-
22	AH-E251B-MC	CZRLFB0 RLØ1 Drive Cmpt (FICHE)	-	-	-

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
RLV11 Software List	E-UA-RLV11-0-0	A	PL	RLV11-0-5		
	SHEET 1 OF 2	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

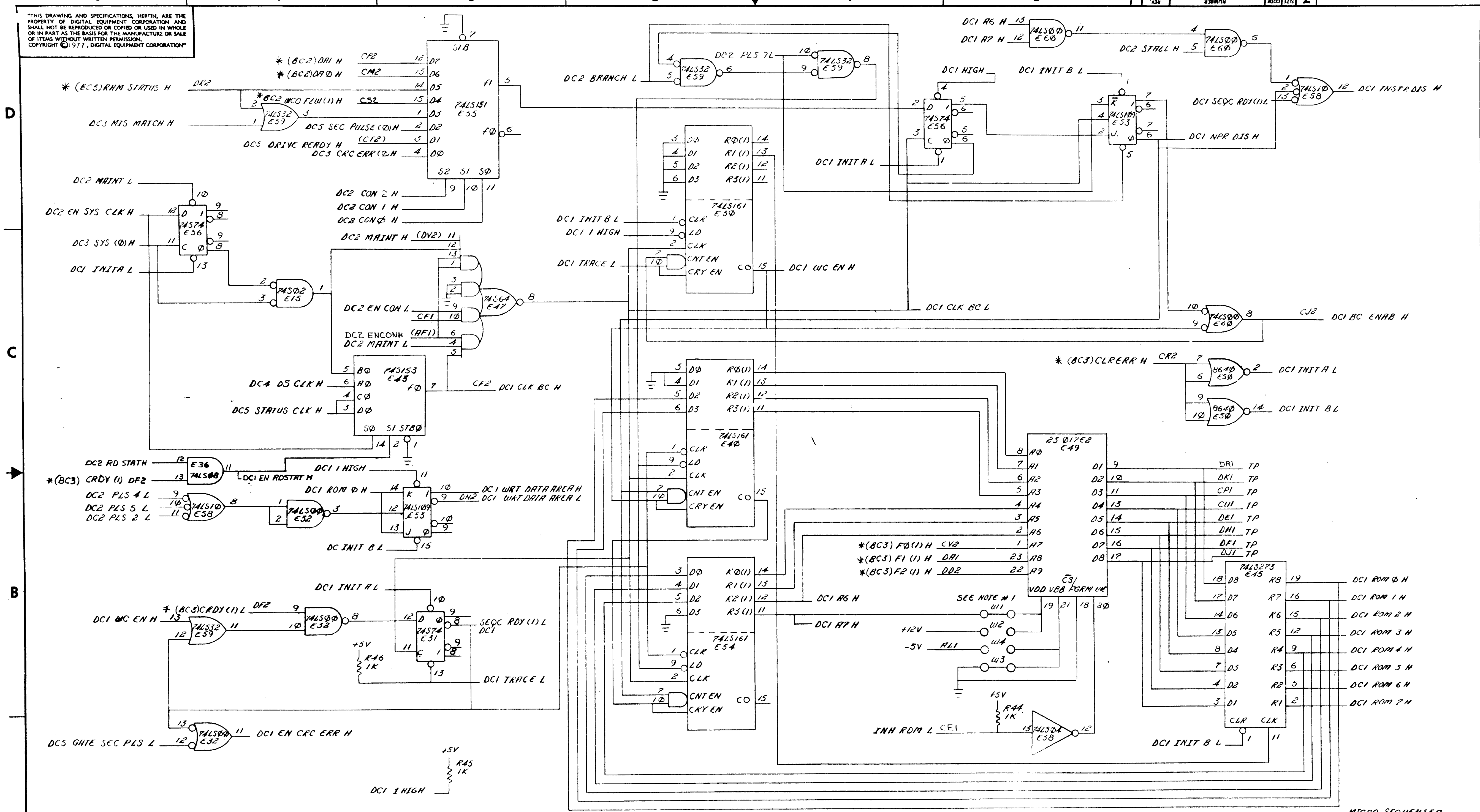
PARTS LIST

MADE BY Richard Hultman	CHECKED Richard Hultman	SECTION
DATE 4/18/78	DATE 4/26/78	1
ENG Richard Hultman	PROD H.T. Barlow	ISSUED SECT.
DATE 4/18/78	DATE 3 May 78	1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION ZJ257-RB	ZJ257-RZ*	ZJ257-PB*
23	AK-E252B-MC	CZRLFB0 RL01 Drive Cmpt (PT1)	1	-	1
24	AK-E253B-MC	CZRLFB0 RL01 Drive Cmpt (PT2)	1	-	1
25	AC-B1Ø7A-MC	CVRLAA0 RLV11/RLØ1 Dskls (DOC)	1	1	-
26	AH-B1Ø8A-MC	CVRLAA0 RLV11/RLØ1 Dskls (FICHE)	-	-	-
27	AK-B1Ø9A-MC	CVRLAA0 RLV11/RLØ1 Dskls (PT1)	1	-	1
28	AK-E375A-MC	CVRLAA0 RLV11/RLØ1 Dskls (PT2)	1	-	1

*NOT TO BE SHIPPED REFERENCE ONLY

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
RLV11 Software List	E-UA-RLV11-Ø-Ø	A	PL	RLV11-Ø-5		
	SHEET 2 OF 2	DIST.				



NOTES:
1. FOR ROM PT. # 23017E2-00 INSERT W1 AND W3 DELETE W2 AND W4.
FOR ROM PT. # 2305887-00 INSERT W2 AND W4 DELETE W1 AND W3.
2. * MEANS REFERRING TO POINT ON D-CS-M8014-0-1

FIRST USED ON	RLV11
TITLE	RLV11 DISK CONTROL (DC1)
NEXT HIGHER ASSY.	D-UA-M8013-0-0
SIZE	D
CODE	CS
NUMBER	M8013-0-1
REV.	F
SCALE	NONE
SHEET	1 OF 5

digital

REV.	CHANGE NO.	CHK
C	M8013-00001	R. HULTMAN
D	M8013-ML002	R. HULTMAN
E	M8013-ML004	R. HULTMAN
F	M8013-ML005	R. HULTMAN

+5V
RA0 1K
EN CON H — AF1 — 3 — 74S04 E6 — 4 — DC2 EN CON L
13 — 74LS32 E35 — 11 — DC2 PLS7L
12

74S138 E46
DC1 ROM 5 H — 1 — SEL A — D7 — 7
DC1 ROM 6 H — 2 — SEL B — D6 — 9 — DC2 PLS 5 L
DC1 ROM 7 H — 3 — SEL C — D5 — 10 — DC2 PLS 4 L
D4 — 11
D3 — 12
D2 — 13 — DC2 PLS 2 L
D1 — 14
D0 — 15
DC1 INSTR DTS H — 4 — EN
DC1 CLK BC L — 5
DC1 WC EN H — 6

74LS175 E41
13 D3 R3(1) 15 — DCI NPR DIS H — 9 — 74LS08 E25 — 8 — DU2 — DC2 NPR EN H
R3(0) 14 — 10
12 D2 R2(1) 10 — DC2 RD DATA AREA H
R2(0) 11
5 D1 R1(1) 7 — DC2 EN LOOP LOCK H
R1(0) 6 — DC2 EN LOOP LOCK L
4 D0 R0(1) 2 — DC2 EN DS CLK H
R0(0) 3 — DC2 EN SYS CLK H
CLK CLR
9 1

74LS175 E42
13 D3 R3(1) 15 — DC2 CON 0 H
R3(0) 14
12 D2 R2(1) 10 — DC2 CON 1 H
R2(0) 11
5 D1 R1(1) 7 — DC2 CON 2 H
R1(0) 6
4 D0 R0(1) 2 — DC2 BRANCH H
R0(0) 3 — DC2 BRANCH L
CLK CLR
9 1

74LS175 E25
13 D3 R3(1) 15 — DC2 TRACE HALT H
R3(0) 14
12 D2 R2(1) 10 — DV2 — DC2 MAINT H
R2(0) 11 — DC2 MAINT L
5 — 74LS08 E36 — 6 — DC2 WRT GATE H
4 — DC3 CRC NOT ZERO L
5 D1 R1(1) 7
R1(0) 6
4 D0 R0(1) 2 — DC2 SEND DRV CMD H
R0(0) 3
CLK CLR
9 1

DC1 SEQC RDY (1) L
DC1 ROM 1 H
DC1 ROM 2 H
DC1 ROM 3 H
DC1 ROM 4 H

DC1 INIT B L

* (BC5)CRDY (1) L (DF2)

74LS175 E27
13 D3 R3(1) 15
R3(0) 14 — CU2 — DC2 DLT L
12 D2 R2(1) 10 — DC2 WRT CRC H
R2(0) 11
5 D1 R1(1) 7
R1(0) 6
4 D0 R0(1) 2 — DC2 WRT MKR H
R0(0) 3
CLR CLK
1 9

74LS175 E33
13 D3 R3(1) 15 — DC2 STALL H
R3(0) 14
12 D2 R2(1) 10 — DJ2 — DC2 DSK WRT H
R2(0) 11
5 D1 R1(1) 7 — DC2 WRT DAR H
R1(0) 6
4 D0 R0(1) 3
R0(0) 2 — DC2 RD STAT H
DC2 RD DATA AREA H — 1 — 74LS32 E35 — 3 — DJ2 — DC2 EN WRT RAM H
CLR CLK
1 9

INITBL

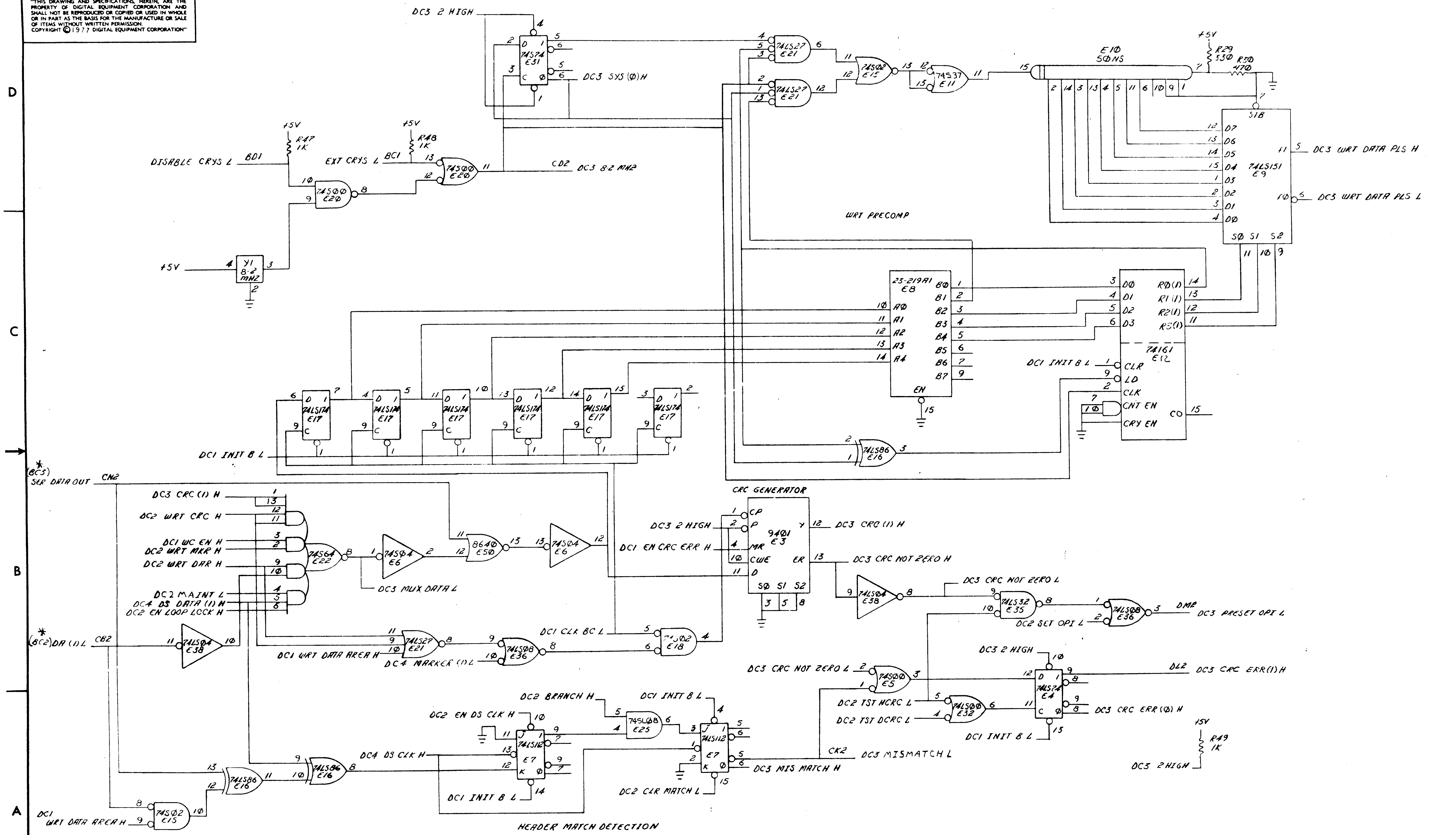
74LS138 E37
1 SEL A — D0 — 15 — DH2 — DC2 SET CRDY L
2 SEL B — D1 — 14
3 SEL C — D2 — 13
D3 — 12 — DC2 SET OPT L
D4 — 11 — DC2 TST DCRC L
D5 — 10 — DB2 — DC2 INC DAR L
D6 — 9 — DC2 CLR MATCH L
D7 — 7 — DC2 TST HCRC L
4
5 — EN
6 — DC1 I HIGH

MICRO SEQUENCER LATCHES

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RLV11 DISK CONTROL (DC2)	D	DCS	M8013-0-1	F
SCALE NONE — SHEET 2 OF 5	DIST.			

DEC FORM NO. DRD 138


DC3 2 HIGH
74S74 E31
DC3 SYS (Ø) H
74LS27 E21
74S02 E15
74S37 E11
E1Ø 5ØNS
+5V
R29 33Ø
R5Ø 47Ø
S18
74LS151 E9
DC3 WRT DATA PLS H
DC3 WRT DATA PLS L
WRT PRECOMP
DISABLE CRYS L
BD1
R47 1K
74SØØ E2Ø
EXT CRYS L
BC1
R48 1K
CD2
DC3 8.2 MHZ
Y1 8.2 MHZ
23-219A1 E8
74161 E12
DC1 INIT B L
74LS174 E17
74LS86 E16
(BC5) SER DATA OUT
CN2
CRC GENERATOR
DC3 CRC (1) H
DC2 WRT CRC H
DC1 WC EN H
DC2 WRT MKR H
DC2 WRT DAR H
DC2 MAINT L
DC4 DS DATA (1) H
DC2 EN LOOP LOCK H
74S64 E22
74S04 E6
DC3 MUX DATA L
8640 E50
DC3 2 HIGH
DC1 EN CRC ERR H
9401 E3
DC3 CRC (1) H
DC3 CRC NOT ZERO H
74LS04 E38
DC3 CRC NOT ZERO L
74LS32 E35
DC2 SET OPI L
74LS08 E36
DMP
DC3 PRESET OPI L
(BC2) DA (1) L
CB2
74LS04 E38
74LS27 E21
DC1 WRT DATA AREA H
DC4 MARKER (1) L
74LS08 E36
DC1 CLK BC L
74S02 E18
DC3 CRC NOT ZERO L
74S00 E5
DC2 TST HCRC L
DC2 TST DCRC L
74LS00 E32
DC3 2 HIGH
74S74 E4
DL2
DC3 CRC ERR (1) H
DC3 CRC ERR (Ø) H
DC1 INIT B L
R49 1K
DC3 2HIGH
DC2 BRANCH H
DC1 INIT B L
DC2 EN DS CLK H
74LS08 E25
74LS112 E7
CK2
DC3 MISMATCH L
DC3 MIS MATCH H
DC2 CLR MATCH L
DC4 DS CLK H
DC1 INIT B L
DC1 WRT DATA AREA H
74S02 E15
74LS86 E16
HEADER MATCH DETECTION

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RLV11 DISK CONTROL (DC3)	D	CS	M8Ø13-Ø-1	F
SCALE NONE	SHEET 3 OF 5	DIST.		

DEC FORM NO. DRD 138

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
RLV11-ØØ
RLV11-AK

RLV11
Field Maintonance Print Sot

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ635

REVISIONS	REV.	CHG. NO.	DATE
	A	RLV11-ML001	11/78

USED ON OPTION/MODEL: RLV11

SHEET I OF 1

DRN.	G. Drayton	DATE	3/78
CHK'D	R. Hultman	DATE	
PROJ. ENG.	P. Kotch	DATE	5/78
FIELD SERV.	P. Kotch	DATE	3/78

digital

TITLE: RLV11

SIZE	CODE	NUMBER	REV.
D	TC	RLV11-Ø-1	A

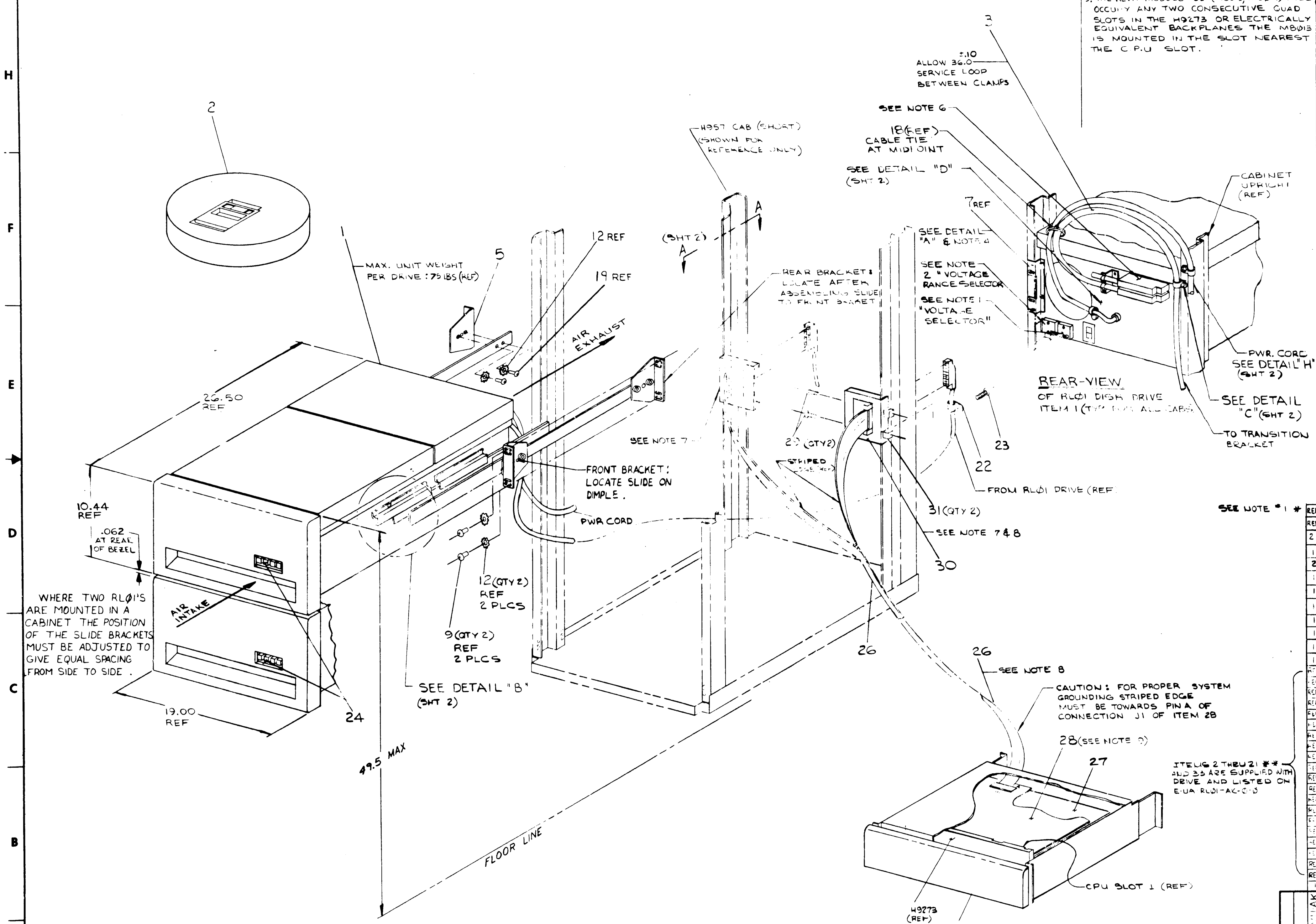
DIST.

EN-01124-16-N675-(327)

LINE VOLTAGE	VOLTAGE SELECTOR SETTING	VOLTAGE RANGE SELECTOR SETTING
90V-105V	110	LOW
100V-127V	110	NORMAL
180V-210V	220	LOW
200V-254V	220	NORMAL

LEGEND

NUMBER	VARIATION
RLV11-00	WITH OUT DISK DRIVE
RLV11-AK	WITH DISK DRIVE



6. FOR LAST DRIVE IN A SYSTEM "CONTROLLER CABLE" (ITEM 3) PLUGS INTO EITHER SOCKET. TERMINATOR ASSY (ITEM 25) PLUGS INTO THE OTHER.
7. WHEN ALTERNATE MOUNTING POSITION IS USED CONNECTOR IN TRANSITION BRACKET MUST BE INVERTED SO THAT I/O CABLE FROM DRIVE (ITEM 1) WILL HANG IN A DOWNWARD POSITION AS SHOWN.
8. ITEM 22 THRU 31 ARE NOT ASSEMBLED UNTILL INSTALLATION IN A CABINET
9. THE RLV11 MODULE SET (M8013, M8014) WILL OCCUPY ANY TWO CONSECUTIVE QUAD SLOTS IN THE H9273 OR ELECTRICALLY EQUIVALENT BACKPLANES THE M8013 IS MOUNTED IN THE SLOT NEAREST THE C.P.U SLOT.

NOTES:

1. FOR SYSTEMS OPERATING AT 220 VAC REMOVE THE SCREWS FROM THE "VOLTAGE SELECTOR" COVER, WITHDRAW THE COVER AND RE-INSERT TURNED UPSIDE DOWN. AFTER INSERTION "220 V" MUST BE SHOWING THROUGH THE SMALL WINDOW. REPLACE THE TWO SCREWS, CUT OFF "110V" MALE PLUG AND REPLACE BY "220V" PLUG (ITEM 20). FOR COLOR CODE SEE DETAIL H SHT 2 FOR 50 HZ OPERATION ADD (ITEM 33) TO UNIT.
2. FOR SYSTEMS OPERATING WITH LOW LINE VOLTAGE, REMOVE TWO SCREWS FROM "VOLTAGE RANGE SELECTOR" COVER, WITHDRAW THE COVER AND RE-INSERT IT TURNED UPSIDE DOWN. AFTER THE INSERTION, "LOW" MUST BE SHOWING THROUGH THE SMALL WINDOW. REPLACE THE TWO SCREWS, SEE TABLE (THIS SHT ZONE 6J)
3. CABLE CLAMPS (ITEM 14) TO BE MOUNTED IN NEXT AVAILABLE HOLES (AS SHOWN IN DETAIL "C" SHT 2) ABOVE SHIPPING BRACKET (ITEM 7) AFTER SHIPPING BRACKET IS MOUNTED PER NOTE 4.
4. TO ATTACH SHIPPING BRACKET (ITEM 7) REMOVE TWO SCREWS AND TWO LOCKWASHERS FROM ONE SIDE OF THE POWER PANEL ON THE REAR OF DISK DRIVE (ITEM 1), POSITION A SHIPPING BRACKET TO DETERMINE LOCATION OF "U" NUTS (ITEM 13) AND ATTACH BRACKET USING ORIGINAL SCREWS AND LOCKWASHERS AND ITEMS 12 & 9 (AS SHOWN IN DETAIL "A") REPEAT PROCEDURE ON OTHER SIDE OF DRIVE.
5. TO MOUNT RL01 TO CABINET:
   a. MOUNT SLIDES AND BRAKETS TO UPRIGHTS.
   b. EXTEND SLIDES AS FAR AS POSSIBLE BY RELEASING CATCHES SEE DETAIL "B" (SHT 2)
   c. PLACE DRIVE ON SLIDES AND PUSH BACK UNTILL ENDS OF RAILS FIT UNDER TABS ON SLIDES AND LATCHES ENGAGE
   d. SECURE DRIVE TO SLIDES USING SCREWS SUPPLIED. SEE DETAIL "B" (SHT 2)
   TO REMOVE DRIVE, EXTEND SLIDES FULLY, REMOVE SCREWS RELEASE LATCHES AND LIFT OFF.

WHERE TWO RL01'S ARE MOUNTED IN A CABINET THE POSITION OF THE SLIDE BRACKETS MUST BE ADJUSTED TO GIVE EQUAL SPACING FROM SIDE TO SIDE.

SEE NOTE #1 *

ITEMS 2 THRU 21 ** AND 33 ARE SUPPLIED WITH DRIVE AND LISTED ON E-UA-RL01-AK-0-0

RLV11-AK	RLV11-00	DESCRIPTION	D.G. PART NO.	ITEM NO.
REF	–	LABEL, ADHESIVE BACKED 50 HZ	A-PS-3613209-01	33
REF	REF	UNIT ASSY (BA11-N)	E-UA-BA11-N-0	32
2	2	NUT SPRING #10-32	9007786-00	31
1	1	TRANSITION BRACKET ASSY	C-AD-7012415-0-0	30
2	2	SCR PHL TRS HD #10 x .50 LG	[illegible]	29
1	1	RLV11 DISK CONTROL	D-UA-M8013-0-0	28
1	1	RLV11 BUS CONTROL	D-UA-M8014-0-0	27
1	1	BC06R I/O CABLE	D-UA-BC06R-0-0	26
1	1	TERMINATOR ASSY	D-IA-7012293-0-0	25
1	1	UNIT SELECT PLUG KIT	A-PL-7012938-0-0	24
1	1	SCR, TAP #8 x .38 LG	9006416 01	23
1	1	CLAMP CABLE	9007083-00	22
REF	–	INTERLOCK KIT	A-PL-H9504-2-0	21
REF	–	CONNECTOR 220V POWER	9008853 00	20
REF	–	SCR. SLOTTED BIND. HD #8 x .50	9006039-04	19
REF	–	TIE, CABLE	9007031-00	18
REF	–	WASHER FLAT	9006663-00	17
REF	–	WASHER FLAT	9006653-00	16
REF	–	CLAMP CABLE .75 NOM	9007089-00	15
REF	–	CLAMP CABLE .31 NOM	9007083-00	14
REF	–	NUT, 'U' SHAPED RETAINING #10-32	9007786 00	13
REF	–	WASHER LOCK EXT. TOOTH #10	9007651-00	12
REF	–	WASHER LOCK EXT. TOOTH #6	9007649-00	11
REF	–	SCREW PHL PAN HD #6-32 x .31	9006021-01	10
REF	–	SCREW PHL PAN HD #10-32 x .50	9006073-01	9
REF	–	BRACKET, CABLE SUPPORT	C-IA 7419357-0-0	8
REF	–	BRACKET SHIPPING RL01	C-MD 7419356-0-0	7
REF	–	BAR NUT	C-MD-7419262-0-0	6
REF	–	BRACKET CHASSIS SLIDE	A-MD-7419261-0-0	5
REF	–	CHASSIS/SLIDE	A-PS-1213686-0-0	4
REF	–	I/O CABLE ASSY	E-IA-7012122-0-0	3
REF	–	RL01 DATA CARTRIDGE	E-UA-RL01K-DC	2
1	–	DISK DRIVE, MTG KIT & CARTRIDGE	E-UA-RL01-AK-0-0	1

QUANTITY & VARIATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

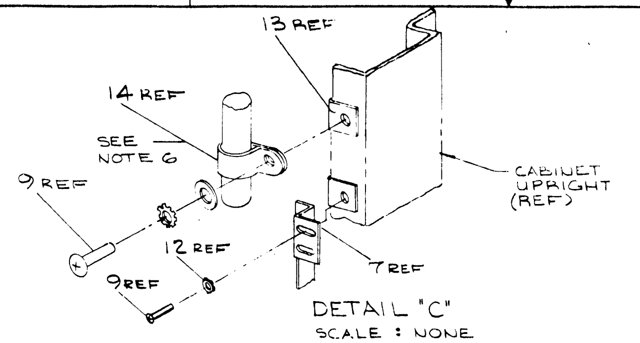
MATERIAL: SEE PARTS LIST

FIRST USED ON: RLV11

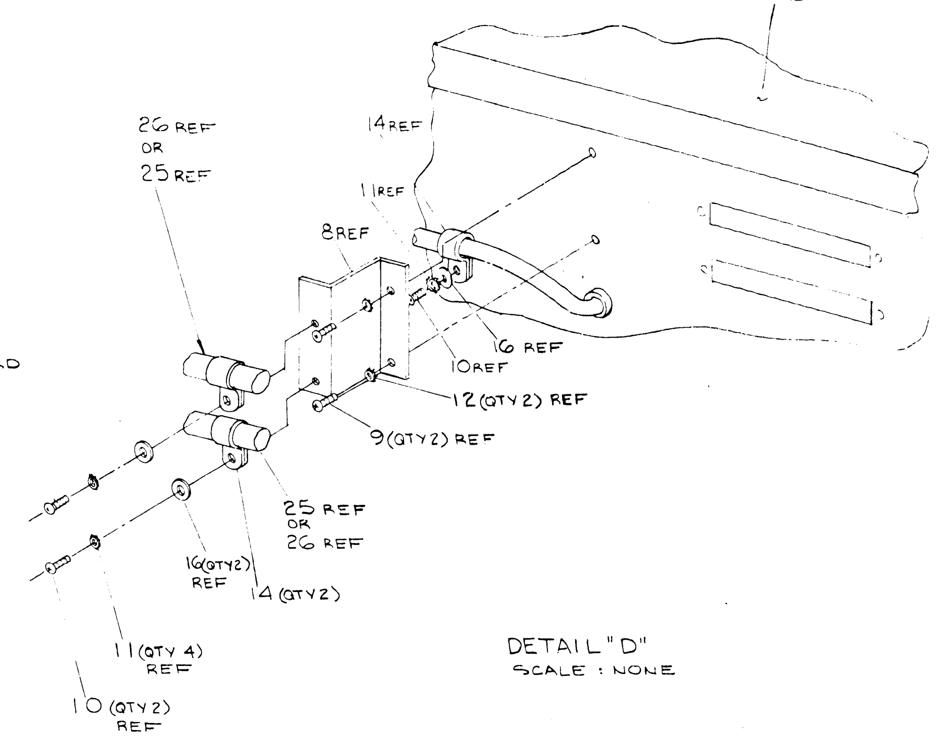
TITLE: DISK CONTROLLER ASSY (RLV11)

SIZE: E CODE: UA NUMBER: RLV11-0-0

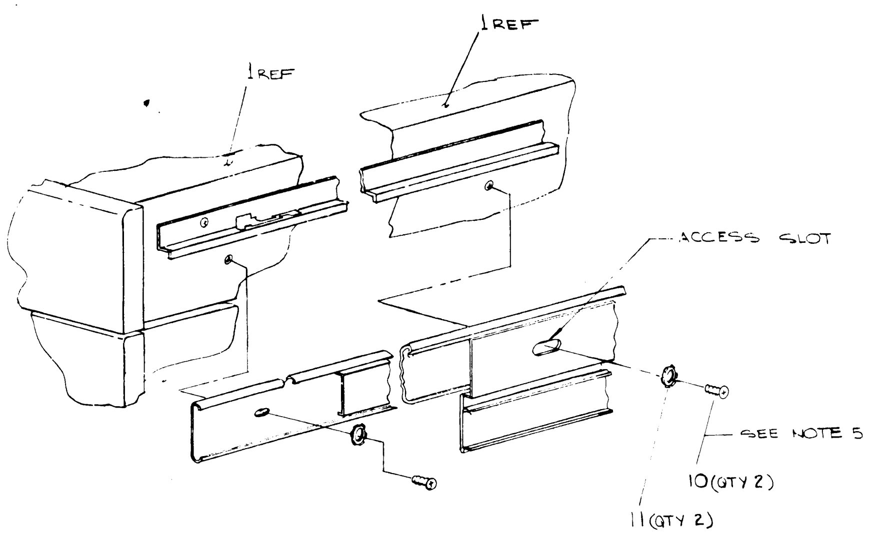
SCALE: NONE SHEET 1 OF 2



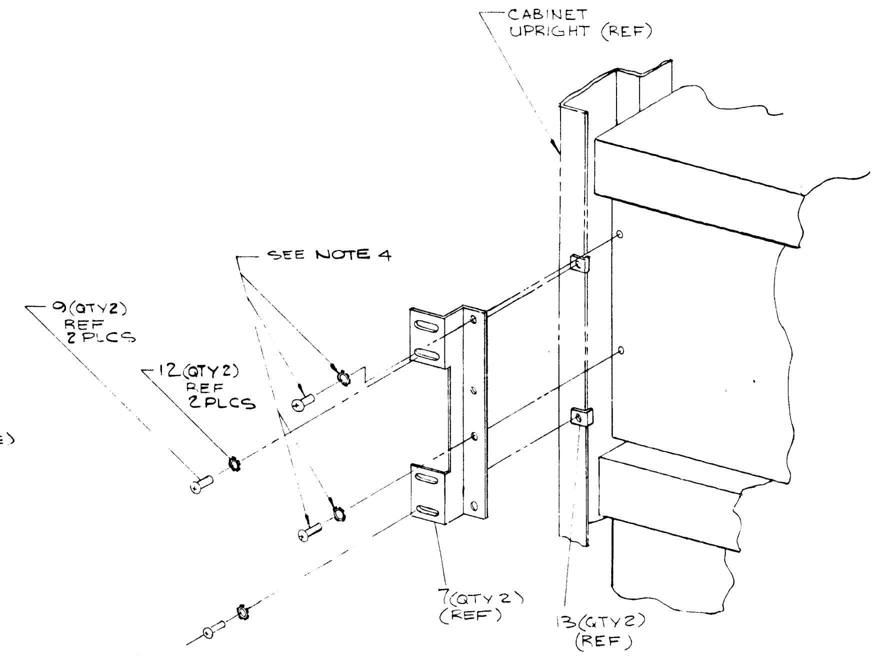
DETAIL "C"
SCALE : NONE
a. ONE CLAMP FOR I/O CABLE ITEM 3 REF
b. ONE CLAMP FOR POWER CORD



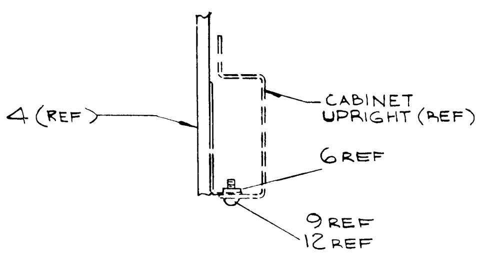
DETAIL "D"
SCALE : NONE



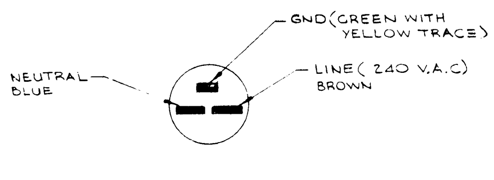
DETAIL "B"
SCALE : NONE



DETAIL "A"
SCALE : NONE



SECTION A-A
(SHOWING TYPICAL MOUNTING OF CHASSIS SLIDES TO CABINET UPRIGHTS)
SCALE: NONE



DETAIL "H"
(FRONT VIEW OF PLUG ITEM 20)

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
DISK CONTROLLER (RLV11)	E	UA	RLV11-Ø-Ø	
SCALE — SHEET 2 OF 2				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 5-April-78

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	CHANGES VECTOR ADDRESS TO 160	MLØØ1	R. Lewis	11-78	R Lewis	5 Dec 78

ENG	APPD	SIZE	CODE	NUMBER	REV
R. Sullivan	[signature]	A	SP	RLV11-Ø-2	A

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

I. GENERAL

This procedure defines the configurations, module utilization, installation, acceptance and diagnostic startup criteria for the RLV11 Disk Controller. Refer to RLØ1 Service Manual (EK-RLØ1-SV) for drive acceptance procedure.

II. CONFIGURATION

A. Setup switches and jumpers as indicated in tables 1 and 2 for type of ROM, standard Device Address 1744ØØ; and Vector Address 16Ø. See Figures 2 and 3 for switch and jumper locations. For non standard device and Vector Address settings use table 2 setting corresponding address or Vector switch on for a 1 off for a Ø.

III. MODULE UTILIZATION

A. Allowable Backplanes

H9273 4X9 slot backplane for the BA11-N or 11/Ø3L or an electrical equivalent with LSI-11 Bus on the A and B connectors and C,D interconnect bus on the C and D connectors.

B. Module Order

Modules are inserted in any two consecutive slots with the M8Ø13 inserted in the slot which is electrically closest to the CPU and the M8Ø14 inserted in the slot directly behind as in Figure 1.

C. System Guidelines

1. Always locate the RLV11 module set at a lower priority (further away from the CPU) than any volatile DMA devices, tape units, and the RKV11 as in Figure 1.

SIZE	CODE	NUMBER	REV
A	SP	RLV11-Ø-2	A

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

Table 1
M8Ø13 Jumper Configuration (See Fig. 2 for jumper locations)

Jumper	E49=Pt.#23-XXXE2	E49=PT.#23-XXXB7
W1	Installed	Removed
W2	Removed	Installed
W3	Installed	Removed
W4	Removed	Installed

Table 2
M8014 Switch settings for standard device address 174400 and vector address 16Ø.
(For switch locations see Fig. 3)

Switch Position	SW2 Address 174400		SW1 Vector 16Ø	
1	A12	on	off	V8
2	A11	on	off	V7
3	A10	off	on	V6
4	A9	off	on	V5
5	A8	on	on	V4
6	A7	off	off	V3
7	A6	off	off	V2
8	A5	off		
9	A4	off		
10	A3	off		

NOTE: ON = 1
For rocker type recessed switches the on position is such that the switch is depressed on the on side with the red stripe visible on the off side.

	A	B	C	D
1	CPU or M9401 Cable Connector			
2	OPTION A			
3	OPTION B			
4	RLV11 (Ref)			
5	M8013			} RLV11
6	M8014			} RLV11
7				
8				
9	POUT TERMINATOR			

FIG. 1:H9273 Backplane Module Configuration

SIZE	CODE	NUMBER	REV
A	SP	RLV11-Ø-2	A

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE RLV11 FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

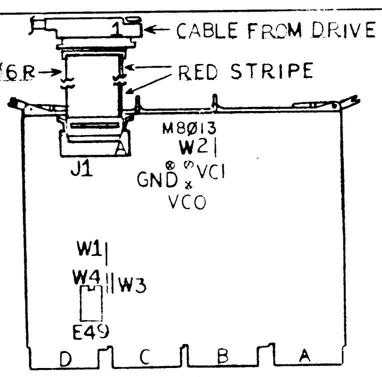


FIGURE 2: M8Ø13 JUMPER LOCATIONS

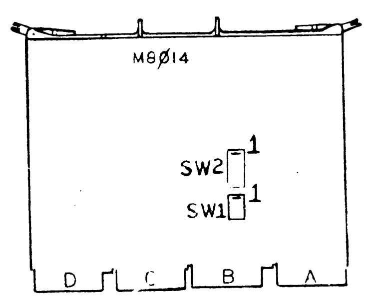


FIGURE 3: M8Ø14 SWITCH LOCATIONS

SIZE	CODE	NUMBER	REV
A	SP	RLV11-Ø-2	A

IV. ACCEPTANCE PROCEDURE

A. Equipment

1. Hardware

   a. BA11-N 11/03 system with a minimum of 16K of memory
   b. Console terminal (VT50, La36, etc.)
   c. RL01 Disk Drive

2. Diagnostics

Program Name		Maindec
CVRLAA0	RLV11 RL01 Diskless Test	AC-B107A-MC
CZRLAB0	RL11/RLV11 Controller Test (Part 1)	AC-E036B-MC
CZRLBB0	RL11/RLV11 Controller Test (Part 2)	AC-E040B-MC

B. Acceptance Criteria

Program Name	Accept Time (Error Free)
CVRLAA0	10 Passes
CZRLAB0	5 Passes
CZRLBB0	3 Passes

V. PROGRAM START PROCEDURE

A. Program Loading

Follow standard DEC procedures for program loading. Absolute Loader for paper tape. XXDP, UPD1, UPD2, UPD3 for other media.

B. Program Starting

Program start location is 200. Use standard DEC procedures. For LSI-11 with ODT Type 200 G.

C. Program Execution Procedure

1. Program Example for CVRLAA

After loading and starting program, it will respond at the console with the following. See diagnostic listing for more detailed explanation or if errors are encountered.

2. Program Response Operator Action

CVRLA (Program Name)

L-CIK (L) N?	(Type Y carriage return for 11/03L with BDV11 RTC Enabled)
50HZ (L) N?	(Type carriage return if system is not 50HZ)
LSI (L) N?	(Type Y carriage return)
LPT (L) N?	(Type carriage return)
MEM (K) (D)16?	(Type carriage return)
DS-B	(Type S T A carriage return)
# Units (D) ?	(Type 1 carriage return)

Unit 1
RL11 (L) Y? (Type N carriage return)

Bus Address (0)174400 ? (Type carriage return)

Vector (0) 330 ? (Type 160 carriage return)

BR Level (0) 5? (Type carriage return)

Drive (0) 0 ? (Type carriage return)

Change SW (L)? (Type N carriage return)

CVRLA EOP 1 (approximately 45 seconds)

Type C (Control/C) to end execution

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R.J. Drayton	CHECKED R. Hultman	SECTION 1
DATE 24th April - 78	DATE 3-May-78	
ENG Richard Hultman	PROD H.T. Gibson	ISSUED SECT. 1
DATE 26- Apr - 78	DATE 3-May-78	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION RLV11-Ø	RLV11-AK
1	MPØØ635	MAINTENANCE PRINT SET, RLV11	1	1
2	A-PL-RLV11-Ø-5	SOFTWARE LIST	1	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
RLV11 SHIPPING LIST	E-UA-RLV11-Ø-Ø	A	PL	RLV11-Ø		
	SHEET 1 OF 1	DIST				

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø13-Ø	H

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS
D-UA-M8Ø13-Ø-Ø	3		RLV11 DISK CONTROL	B C D E F H
K-PL-M8Ø13-Ø-DBP	3		RLV11 DISK CONTROL	B C D E F H
D-CS-M8Ø13-Ø-1	5		RLV11 DISK CONTROL	B C D D E F
D-MD-5Ø12962-Ø-Ø	3		DRILL AND ETCH DRAWING	B B B B B B
		5Ø12962	ETCHED BOARD	C C C C C C
K-PC-M8Ø13-Ø-DBC			P.C. DESIGN DATA BASE (CALDEC)	REF - C C C C

NOTES:

REVISIONS							
REV.		C	D	E	F	H	
CHG NO.		00001	ML002	ML003	ML004	ML005	
DATE		4-78	8-78	9-78	11-78	12/78	

digital

USED ON OPTION/MODEL	
RLV11	

DRN.	A. COLON	12-9-77
CHK'D	[illegible]	1/6/78
ENG.	[illegible]	1-6-78
PROD.	Bob Peck [illegible]	1-6-78

TITLE: RLV11 DISK CONTROL

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø13-Ø	H

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø14-Ø	D

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS
D-UA-M8Ø14-Ø-Ø	6		RLV11 BUS CONTROL	A B C D
K-PL-M8Ø14-Ø-DBP	2		RLV11 BUS CONTROL	A B C D
D-CS-M8Ø14-Ø-1	5		RLV11 BUS CONTROL	A B C C
D-MD-5Ø12963-Ø-Ø	5		DRILL & ETCH DRAWING	A A A A
		5012963	ETCHED CIRCUIT BOARD	B B B B
M8Ø14-0-L			P.C. DESIGN DATA BASE	REF - - -

NOTES:

REVISIONS	DATE	CHG NO.	REV
	3-78	[illegible]	B
	7-79	[illegible]	C
	12-[illegible]	[illegible]	D

digital

USED ON OPTION/MODEL		DRN. R. KOPPENAL	4 NOV 77
RLV11		CHK'D [illegible]	1/6/78
		ENG. [illegible]	
		PROD. [illegible]	

TITLE: RLV11 BUS CONTROL

SIZE	CODE	NUMBER	REV.
B	DD	M8Ø14-Ø	D

SHEET 1 OF 1

WIRE TABLE

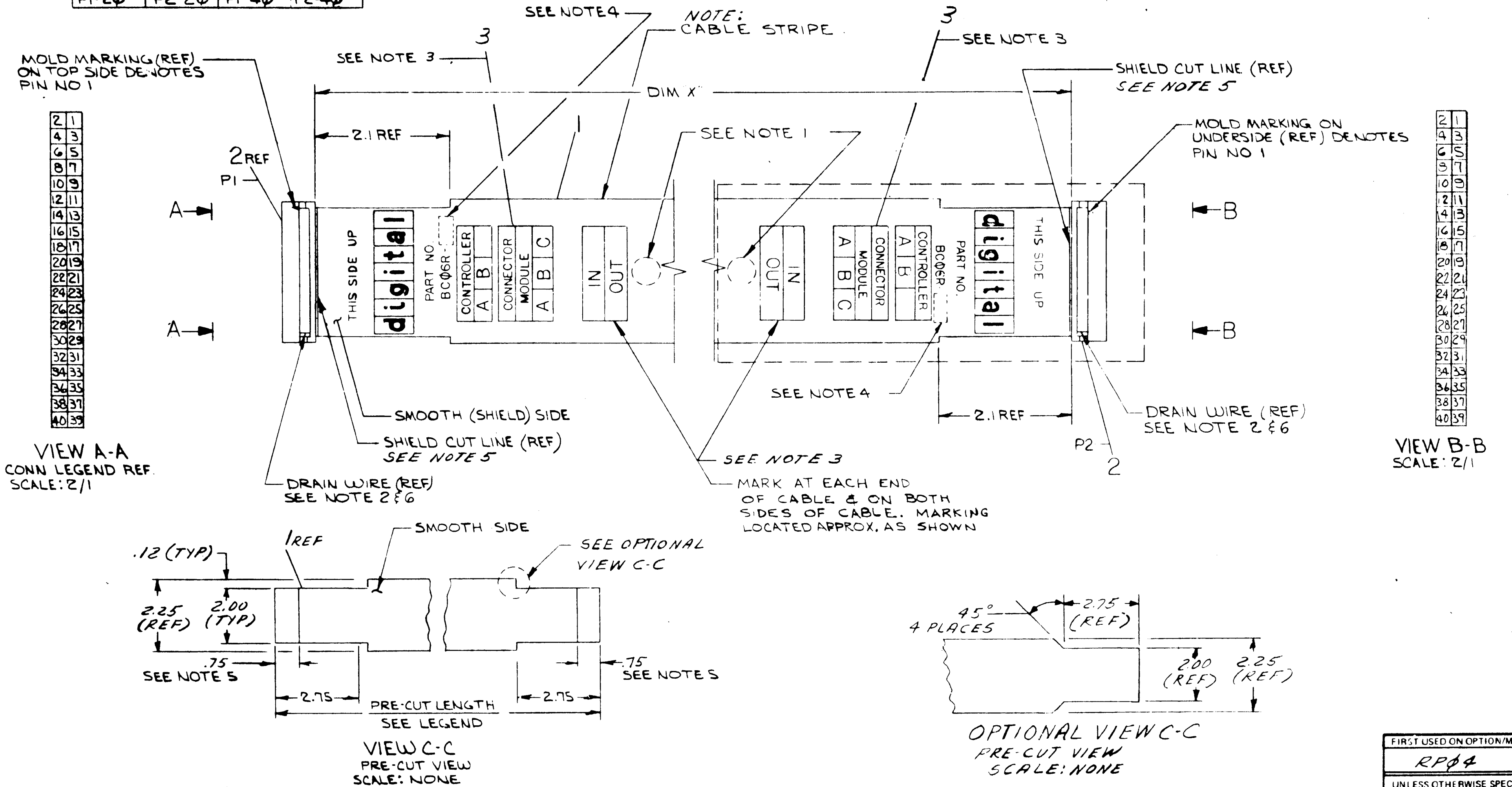
FROM	TO	FROM	TO
P1-1	P2-1	P1-21	P2-21
P1-2	P2-2	P1-22	P2-22
P1-3	P2-3	P1-23	P2-23
P1-4	P2-4	P1-24	P2-24
P1-5	P2-5	P1-25	P2-25
P1-6	P2-6	P1-26	P2-26
P1-7	P2-7	P1-27	P2-27
P1-8	P2-8	P1-28	P2-28
P1-9	P2-9	P1-29	P2-29
P1-10	P2-10	P1-30	P2-30
P1-11	P2-11	P1-31	P2-31
P1-12	P2-12	P1-32	P2-32
P1-13	P2-13	P1-33	P2-33
P1-14	P2-14	P1-34	P2-34
P1-15	P2-15	P1-35	P2-35
P1-16	P2-16	P1-36	P2-36
P1-17	P2-17	P1-37	P2-37
P1-18	P2-18	P1-38	P2-38
P1-19	P2-19	P1-39	P2-39
P1-20	P2-20	P1-40	P2-40

LEGEND

NUMBER	DIM "X"	PRECUT LENGTH	REMARKS
BCØ6R-Ø11	1FT	1FT 1.5IN ± 1IN	SEE PRE-CUT VIEW C-C
BCØ6R-Ø2	2FT	2FT 1.5IN ± 1 IN	
BCØ6R-Ø3	3FT	3FT 1.5IN ± 1 IN	
BCØ6R-Ø4	4FT	4FT 1.5IN ± 1 IN	
* BCØ6R-Ø5	4FT 6IN	4FT 7.5IN ± 1.5IN	SEE NOTE 7 *
BCØ6R-Ø6	6FT	6FT 1.5IN ± 2IN	
BCØ6R-Ø8	8 FT	8 FT 1.5IN ± 2IN	
BCØ6R-1Ø	1Ø FT	1Ø FT 1.5IN ± 2IN	
BCØ6R-12	12 FT	12 FT 1.5IN ± 3IN	
BCØ6R-2Ø	2Ø FT	2Ø FT 1.5IN ± 3IN	
BCØ6R-25	25 FT	25 FT 1.5IN ± 3IN	
BCØ6R-3Ø	3Ø FT	3Ø FT 1.5IN ± 6IN	
BCØ6R-5Ø	5Ø FT	5Ø FT 1.5IN ± 1.C FT	
BCØ6R-6Ø	6Ø FT	6Ø FT 1.5IN ± 1.2 FT	
BCØ6R-75	75 FT	75 FT 1.5IN ± 1.5 FT	
BCØ6R-AØ	1ØØ FT	1ØØ FT 1.5IN ± 2 FT	
BCØ6R-Ø7	7 FT	7FT 1.5IN ± 2 IN.	
BCØ6R-8F	8FT 6IN	8FT 7.5IN ± 1 IN	SEE PRE-CUT VIEW C-C

NOTES:

1. INSPECTION & TEST STAMPS TO BE PLACED AT EACH END OF THE CABLE ASSEMBLY.
2. DRAIN WIRE CONNECTS TO PIN NO 40.
3. RUBBER STAMP INFORMATION SHOWN USING INK (ITEM 3) & ART WORK DEC NO A-DC-7411659-0-0
4. STAMP APPLICABLE OPTION DASH NO. ACCORDING TO LENGTH.
5. REMOVE SHIELD .75 FROM END OF PRECUT CABLE (SEE VIEW C-C).
6. COVER EXPOSED DRAIN WIRE WITH ITEM 4 PRIOR TO ASSY (BOTH ENDS)
* 7. FOR RPØ4, RPØ5, RPØ6 USE WRAP AROUND VINYL LABEL. SEE VARIATIONS ON DRAWING NUMBER A-PS-3615389-0-0. ALSO SEE NEXT HIGHER ASSEMBLY E-IA-7009807-0-0 AND E-IA-7009808-0-0.



PARTS LIST

QTY.	DESCRIPTION	PART NO	ITEM NO.
A/R	PLASTIC TAPE	3612511-0	4
A/R	INK	4901150	3
2	CONNECTOR, 40 SOCKET	1211206	2
A/R	CABLE, 40 COND FLAT W/SHIELD	17-00034	1

FIRST USED ON OPTION/MODEL: RPØ4

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± 1
ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL: SEE PARTS LIST
FINISH: —

DRN. D. Dicenzo DATE 12-22-73
CHK. DATE 3-25-74
DATE
DATE 4/17/74
DATE

NEXT HIGHER ASSY.: E-IA-7009807-0-0, E-IA-7009808-0-0
SCALE: NONE
SHEET 1 OF 1

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

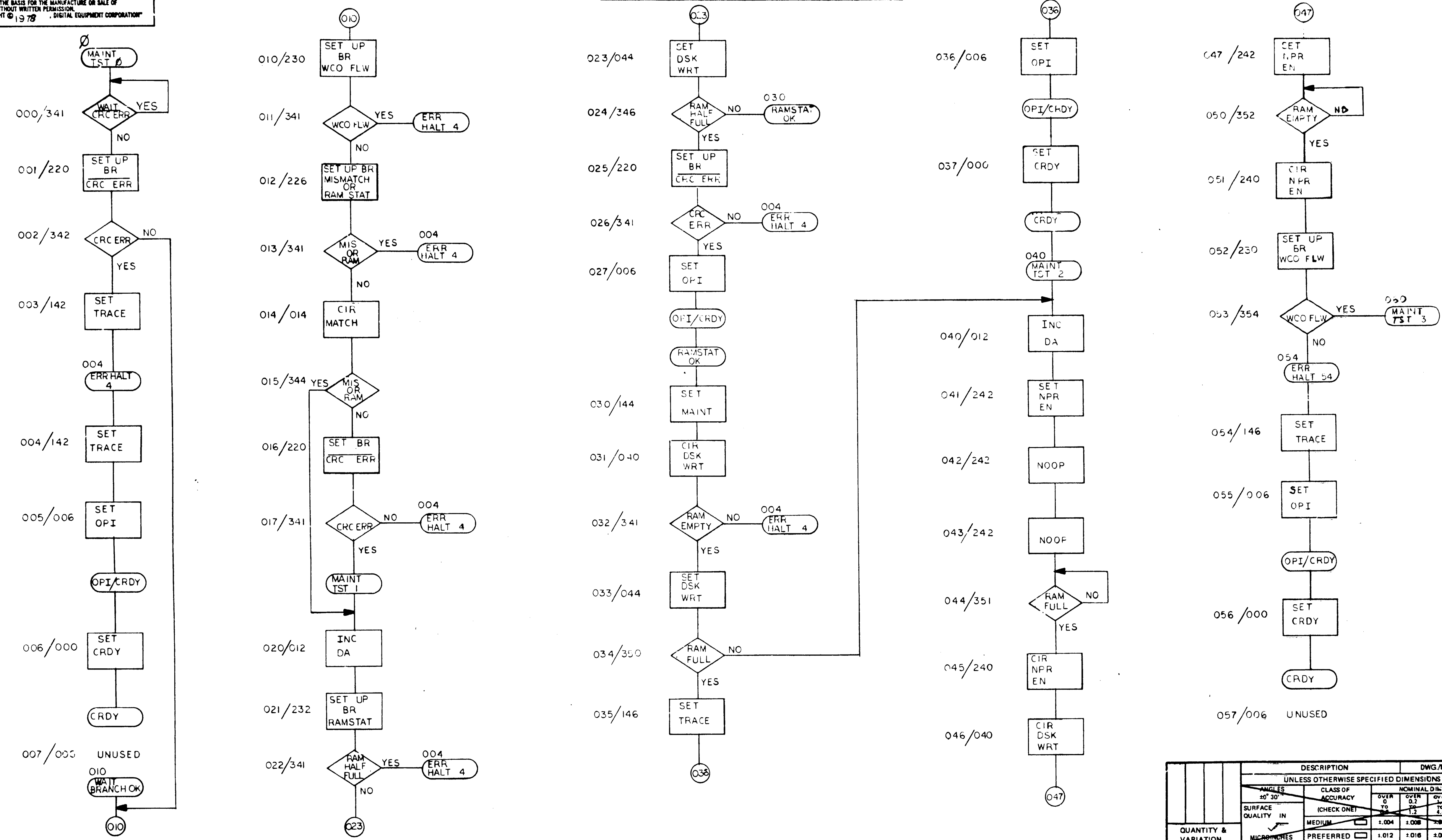
TITLE: BCØ6R I/O CABLE

SIZE	CODE	NUMBER	REV.
D	UA	BCØ6R-Ø-Ø	E

REVISIONS

CHK	CHANGE NO	REV
	BCØ6R-00001 W. DUNHAM 11/4/74	A
	BCØ6R-00002 L. CONDON 4-7-75	B
	BCØ6R-00003 D. LIGNOS 6-17-75	C
	BCØ6R-00004 R. BUJOREAU	D
	BCØ6R-ML005 L. CAPPABIANCA 10-27-78	E

MAINTENANCE FUNCTION Ø



DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO .2	OVER .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
SURFACE QUALITY IN MICROINCHES	(CHECK ONE) MEDIUM	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED	±.012	±.016	±.025	±.04	±.063	±.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL —/—
FINISH —/—

DRN. E. Drayton 11 Jan 78
CHK'D R. Hallman 3 May 78
ENG. R. Hallman 3 May 78
PROJ. ENG. 3 May 78
PROD. 5 May 78

NEXT HIGHER ASSY. E-UA-RLV11-Ø-Ø

FIRST USED ON RLV11

digital

TITLE FLOW DIAGRAM DISK CONTROLLER (RLV11)

SIZE D | CODE FD | NUMBER RLV11-Ø-3 | REV.

SCALE
SHEET 1 OF 10
DIST.

REVISIONS — CHANGE NO. — REV. — CHK

DEC FORM NO. DRO 100-C

MAINTENANCE FUNCTION Ø (CONT)

060 MAINT TST 3
060/012 INC DA
061/050 SET WRT DAR
062/040 CIR WRT DAR
063/250 EN LOOP LOCK
064/274 SET RD DATA AREA ENDS CIK
065/120 SET WRT MRKR
066/104 CIR WRT MRKR SET WRT CRC
067/104 NOOP
070/270 CIR RD DATA AREA
071/240 CIR LOOP LOCK DIS DS CIK
→ 072

072 CIR WRT CRC
072/100 MAINT TST 4
073/012 INC DA
074/042 SET STALL — INHIBIT TILL WC=300
075/146 SET TRACE
076/006 SET OPI
OPI/CRDY
077/000 SET CRDY
CRDY
100/040 CIR STALL
101/016 TST HC RC
→ C2

102 CIR MATCH
102/014 SET UP BR / CRC ERR
103/220 CRC ERR? NO → 110
104/362 YES
SET TRACE
105/146 SET OPI
106/006 OPI/CRDY
SET CRDY
107/000 CRDY
110 STALL OK
TST DC RC
110/010 CRC ERR? NO → 054 ERR HALT 54
111/353 YES
SET UP WT / CRC ERR
112/200 SET UP WRT DAR
113/050 CIR WRT DAR
114/040 → 115

115 EN LOOP LOCK
115/250 SET RD DATA AREA ENDS CIK
116/274 SET WRT MR KR
117/120 CIR WRT MR KR SET WRT CRC
120/104 NOOP
121/104 CIR RD DATA AREA
122/270 CIR LOOP LOCK DIS DS CIK
123/240 CIR WRT CRC
124/100 MAINT TST 5
INC DA
125/012 TST HC RC
126/016 SET UP BR / CRC ERR
127/220 CRC ERR? NO → 054 ERR HALT 54
130/353 YES
→ 131

131 SET DSK WRT
131/044 SET WRT DATA AREA
132/101 CIR WRT DATA AREA
133/240 CIR DSK WRT
134/040 EN LOOP LOCK
135/250 SET RD DATA AREA ENDS CIK
136/274 SET WRT MR KR
137/120 CIR WRT MR KR SET WRT CRC
140/104 NOOP
141/104 CIR RD DATA AREA
142/270 CIR LOOP LOCK DIS CIK
143/240 CIR WRT CRC
144/100 → 145

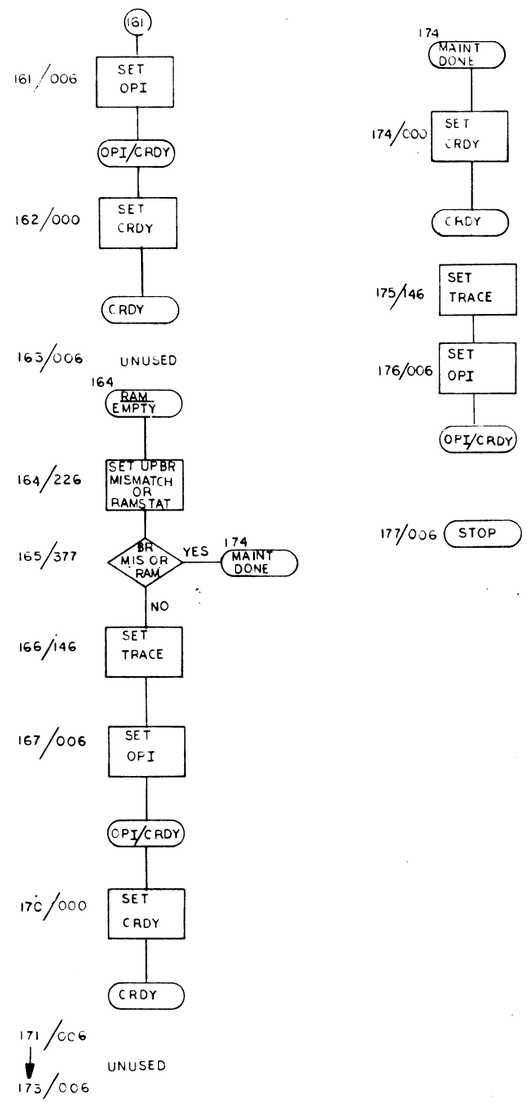
MAINT TST 6
145/012 INC DA
146/010 TST HCRC
147/373 CRC ERR? NO → 160 ERR HALT 160
YES
SET TRACE
150/146 SET OPI
151/006 OPI/CRDY
SET CRDY
152/000 CRDY
153/006 UNUSED
SET UP BR / SEC PLS
154/224 SEC PLS? NO → 160 ERR HALT 160
155/374 YES
SET UP BR RAMSTAT
156/232 RAM EMPTY? NO → 164 RAM EMPTY
157/375 YES
ERR HALT 160
SET TRACE
160/146 → 161

REVISIONS		
CHK	CHANGE NO.	REV.

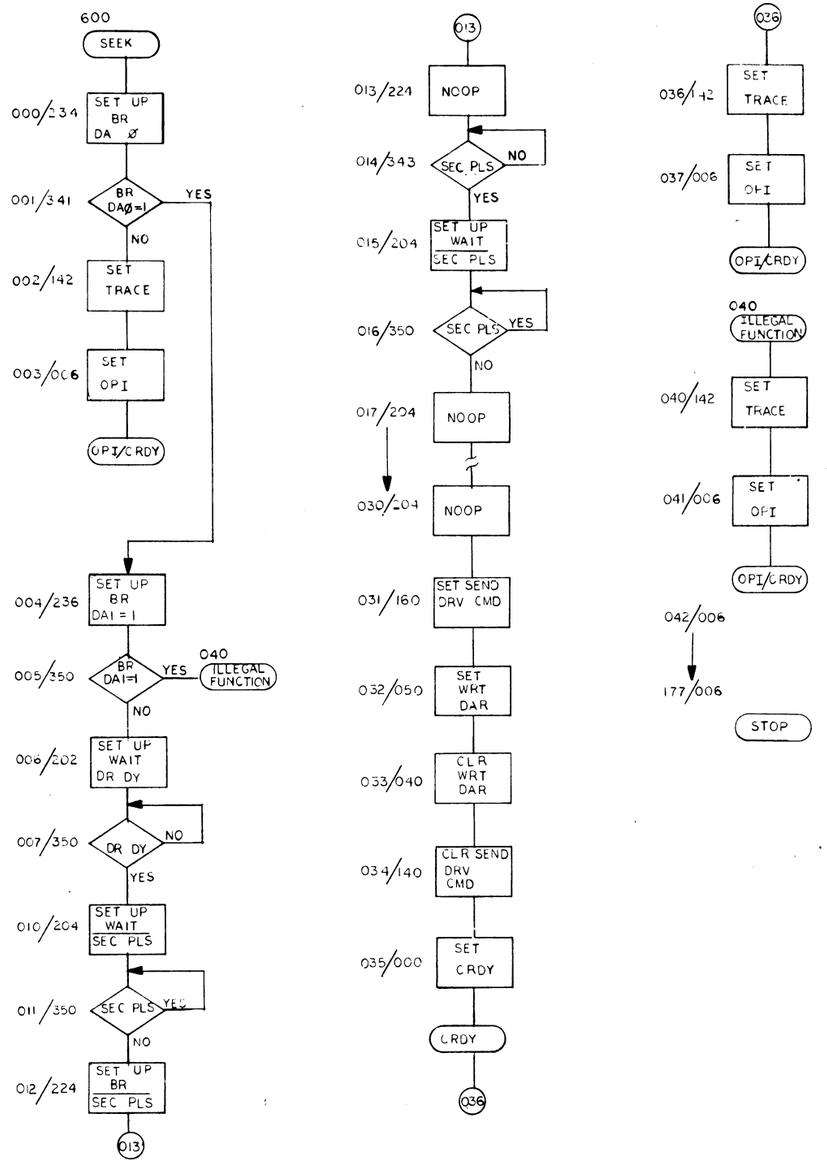
TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-0-3	
SCALE —	SHEET 2 OF 10	DIST.		

DEC FORM NO. DRD 137

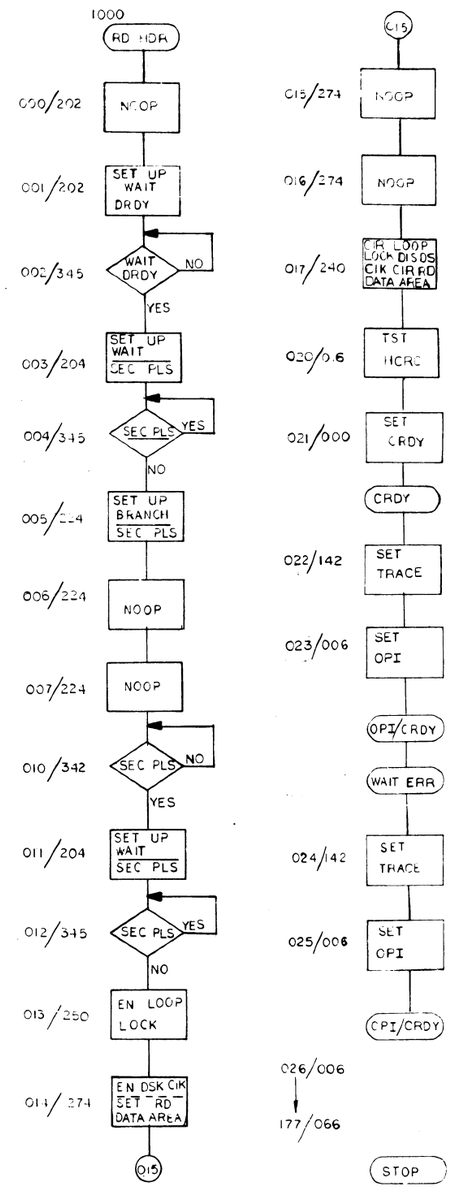
MAINTENANCE FUNCTION Ø (CONT)



SEEK 600 FUNCTION 3



RD HDR 1000 FUNCTION 4

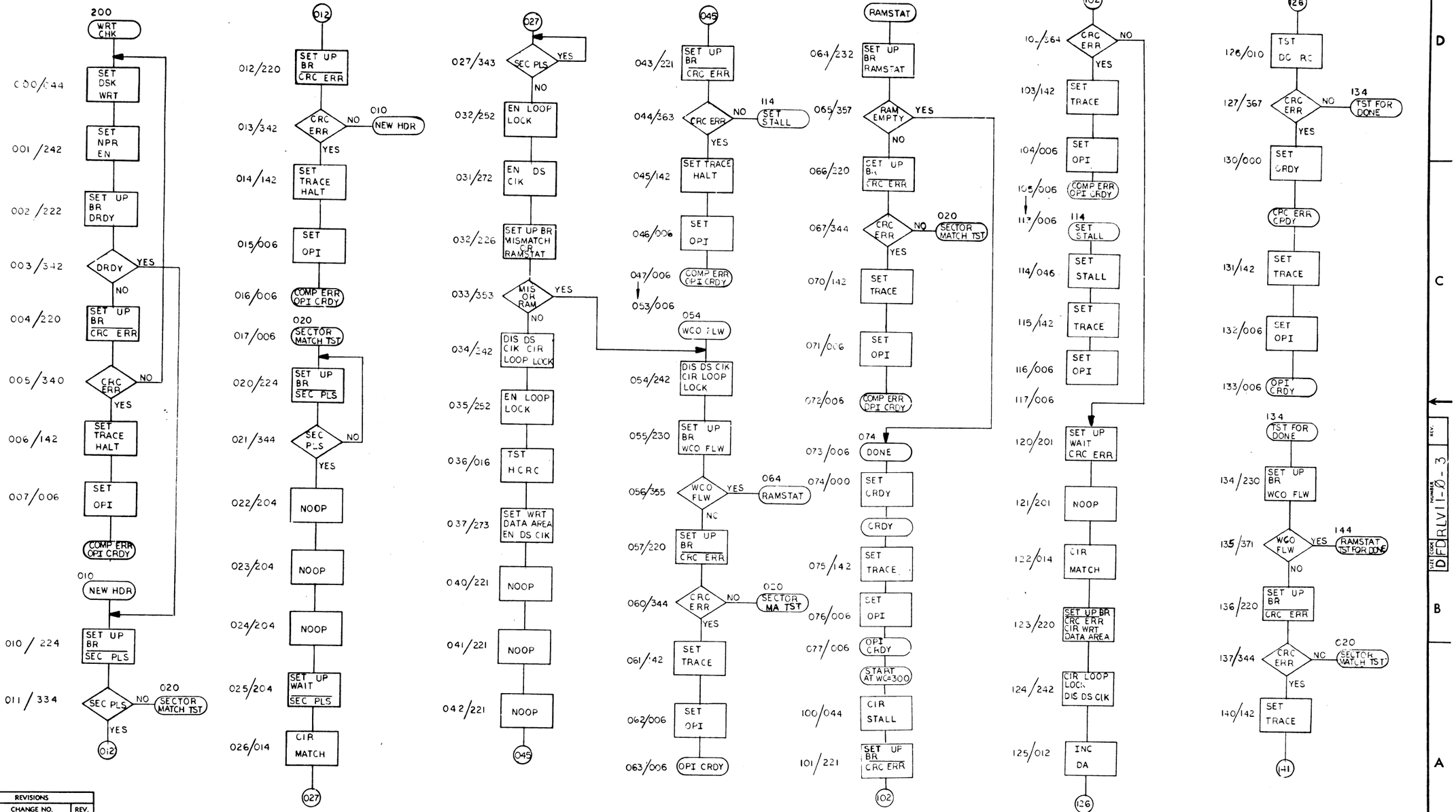


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLVII)	D	FD	RLVII-Ø-3	
SCALE —/— SHEET 3 OF 10	DIST.			

DEC FORM NO. DRD 137

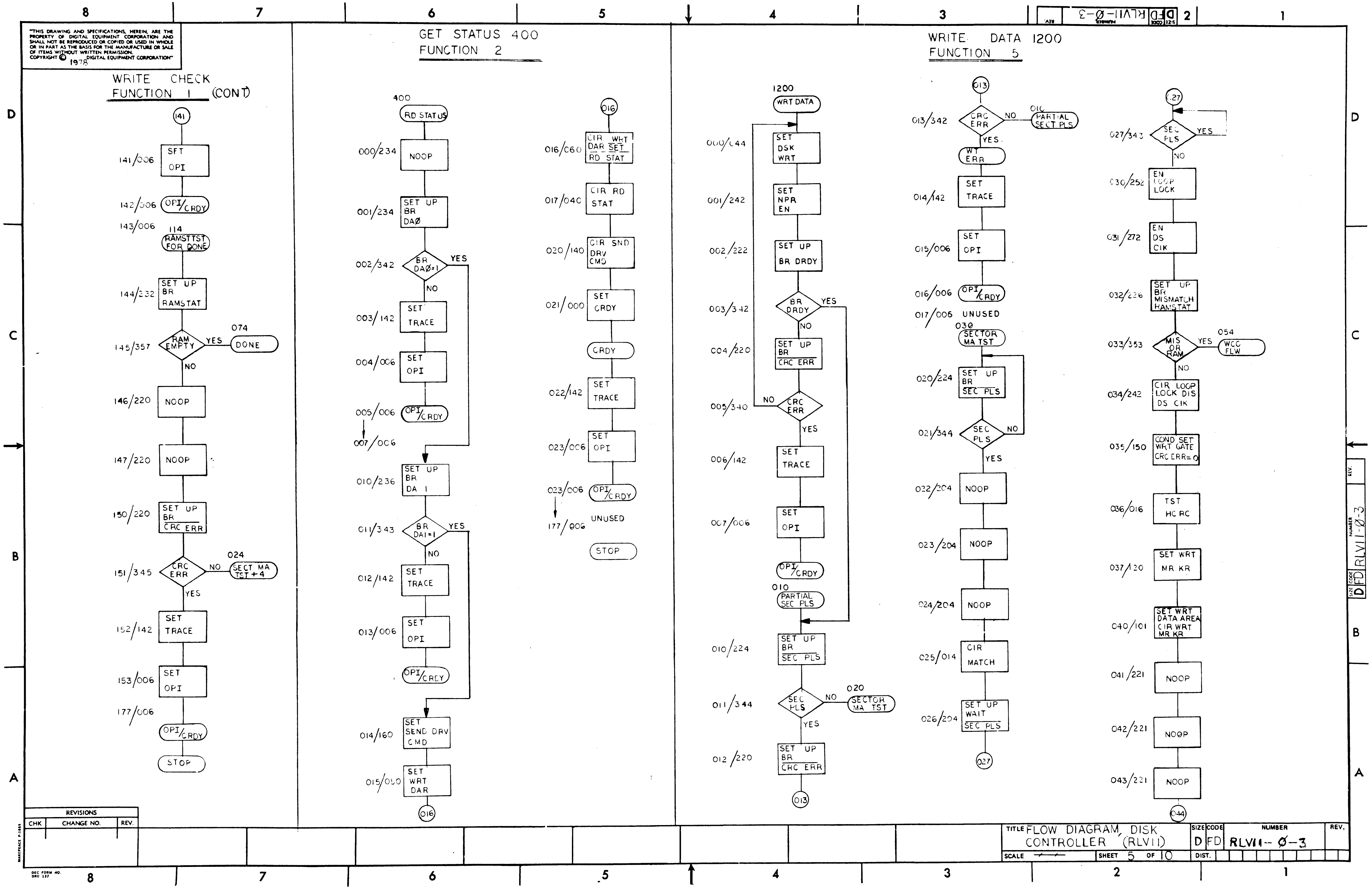
WRITE CHECK 200 FUNCTION 1



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	DFD	RLV11-Ø-3	
SCALE —	SHEET 4 OF 10	DIST.		

DEC FORM NO. DRD 127



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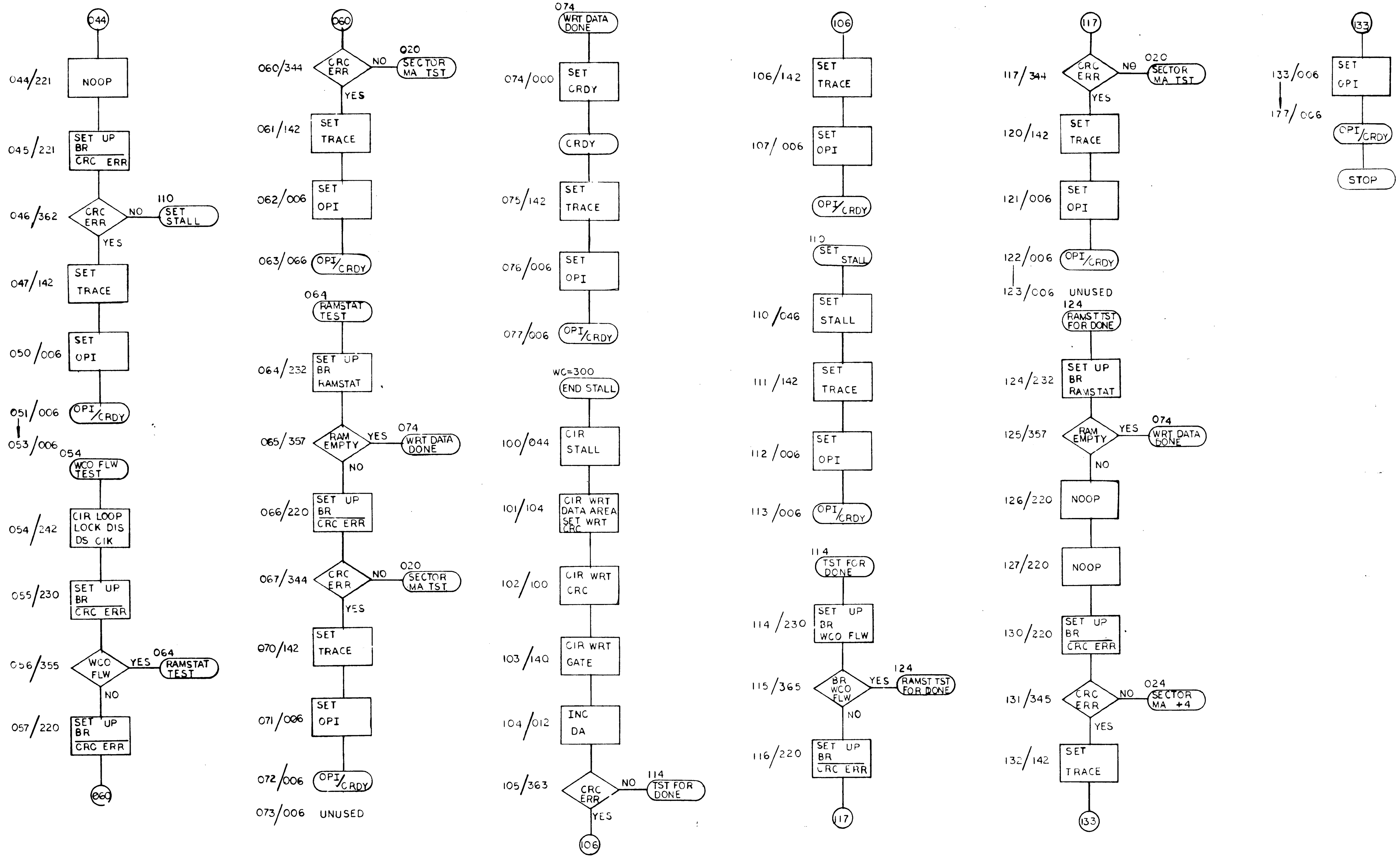
WRITE CHECK
FUNCTION 1 (CONT)
141
141/006 SET OPI
142/006 OPI/CRDY
143/006 114 RAMSTTST FOR DONE
144/232 SET UP BR RAMSTAT
145/357 RAM EMPTY
YES
074 DONE
NO
146/220 NOOP
147/220 NOOP
150/220 SET UP BR CRC ERR
151/345 CRC ERR
NO
024 SECT MA TST + 4
YES
152/142 SET TRACE
153/006 SET OPI
177/006 OPI/CRDY
STOP
GET STATUS 400
FUNCTION 2
400
RD STATUS
000/234 NOOP
001/234 SET UP BR DAØ
002/342 BR DAØ=1
YES
NO
003/142 SET TRACE
004/006 SET OPI
005/006 OPI/CRDY
007/006
010/236 SET UP BR DA 1
011/343 BR DA1=1
YES
NO
012/142 SET TRACE
013/006 SET OPI
OPI/CRDY
014/160 SET SEND DRV CMD
015/050 SET WRT DAR
016
016
016/060 CLR WRT DAR SET RD STAT
017/040 CLR RD STAT
020/140 CLR SND DRV CMD
021/000 SET CRDY
CRDY
022/142 SET TRACE
023/006 SET OPI
023/006 OPI/CRDY
177/006 UNUSED
STOP
WRITE DATA 1200
FUNCTION 5
1200
WRT DATA
000/044 SET DSK WRT
001/242 SET NPR EN
002/222 SET UP BR DRDY
003/342 BR DRDY
YES
NO
004/220 SET UP BR CRC ERR
005/340 CRC ERR
NO
YES
006/142 SET TRACE
007/006 SET OPI
OPI/CRDY
010 PARTIAL SEC PLS
010/224 SET UP BR SEC PLS
011/344 SEC PLS
NO
020 SECTOR MA TST
YES
012/220 SET UP BR CRC ERR
013
013
013/342 CRC ERR
NO
010 PARTIAL SECT PLS
YES
WT ERR
014/142 SET TRACE
015/006 SET OPI
016/006 OPI/CRDY
017/006 UNUSED
030 SECTOR MA TST
020/224 SET UP BR SEC PLS
021/344 SEC PLS
NO
YES
022/204 NOOP
023/204 NOOP
024/204 NOOP
025/014 CLR MATCH
026/204 SET UP WAIT SEC PLS
027
027
027/343 SEC PLS
YES
NO
030/252 EN LOOP LOCK
031/272 EN DS CLK
032/236 SET UP BR MISMATCH RAMSTAT
033/353 MIS OR RAM
YES
054 WCC FLW
NO
034/242 CLR LOOP LOCK DIS DS CLK
035/150 COND SET WRT GATE CRC ERR=0
036/016 TST HC RC
037/120 SET WRT MR KR
040/101 SET WRT DATA AREA CLR WRT MR KR
041/221 NOOP
042/221 NOOP
043/221 NOOP
044
REVISIONS
CHK
CHANGE NO.
REV.
TITLE FLOW DIAGRAM, DISK CONTROLLER (RLV11)
SIZE D
CODE FD
NUMBER RLV11-Ø-3
REV.
SCALE
SHEET 5 OF 10
DIST.
DEC FORM NO. DRC 137

WRITE DATA 1200
FUNCTION 5 (CONT)



REVISIONS		
CHK	CHANGE NO.	REV.

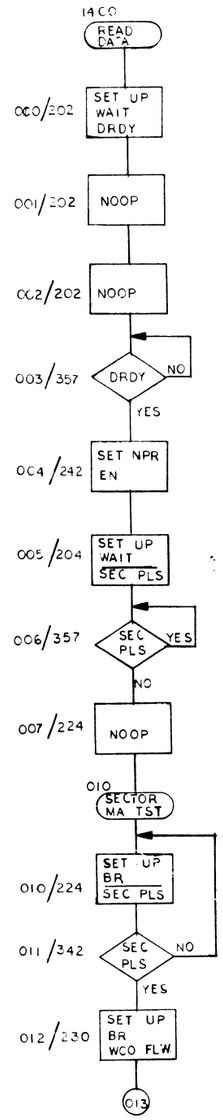
TITLE FLOW DIAGRAM, DISK CONTROLLER (RLV11)

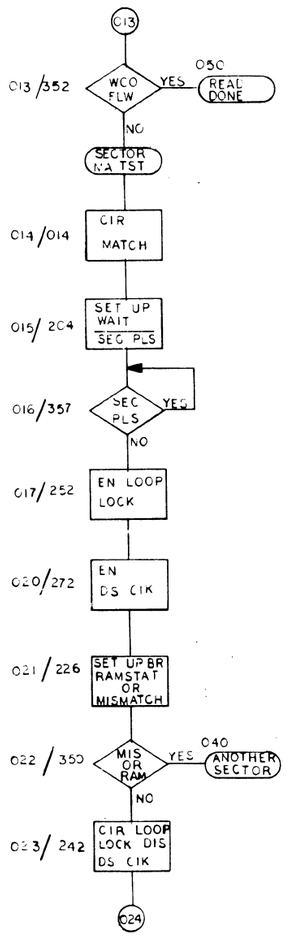
SIZE	CODE	NUMBER	REV.
D	FD	RLV11-Ø-3	

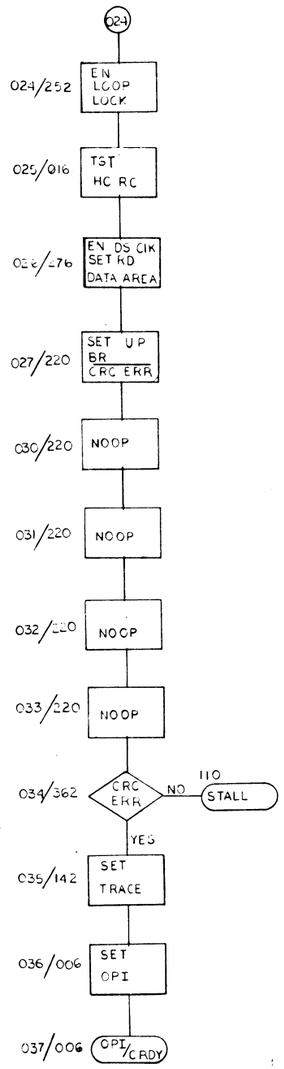
SCALE — SHEET 6 OF 10

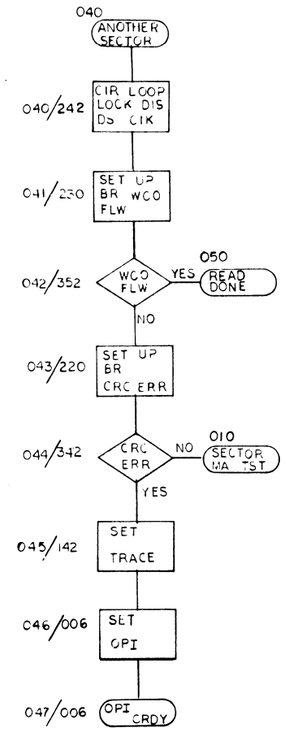
DIST.

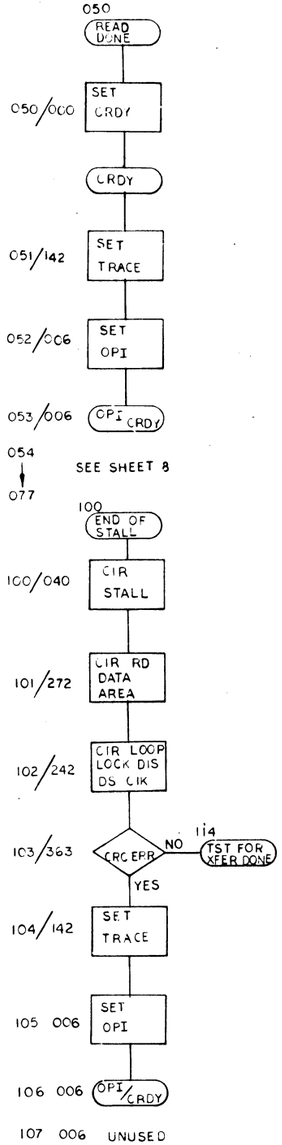
READ DATA 1400
FUNCTION 6

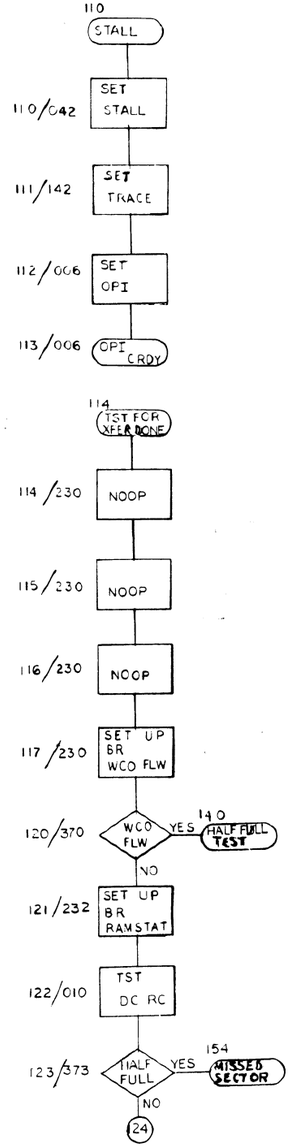










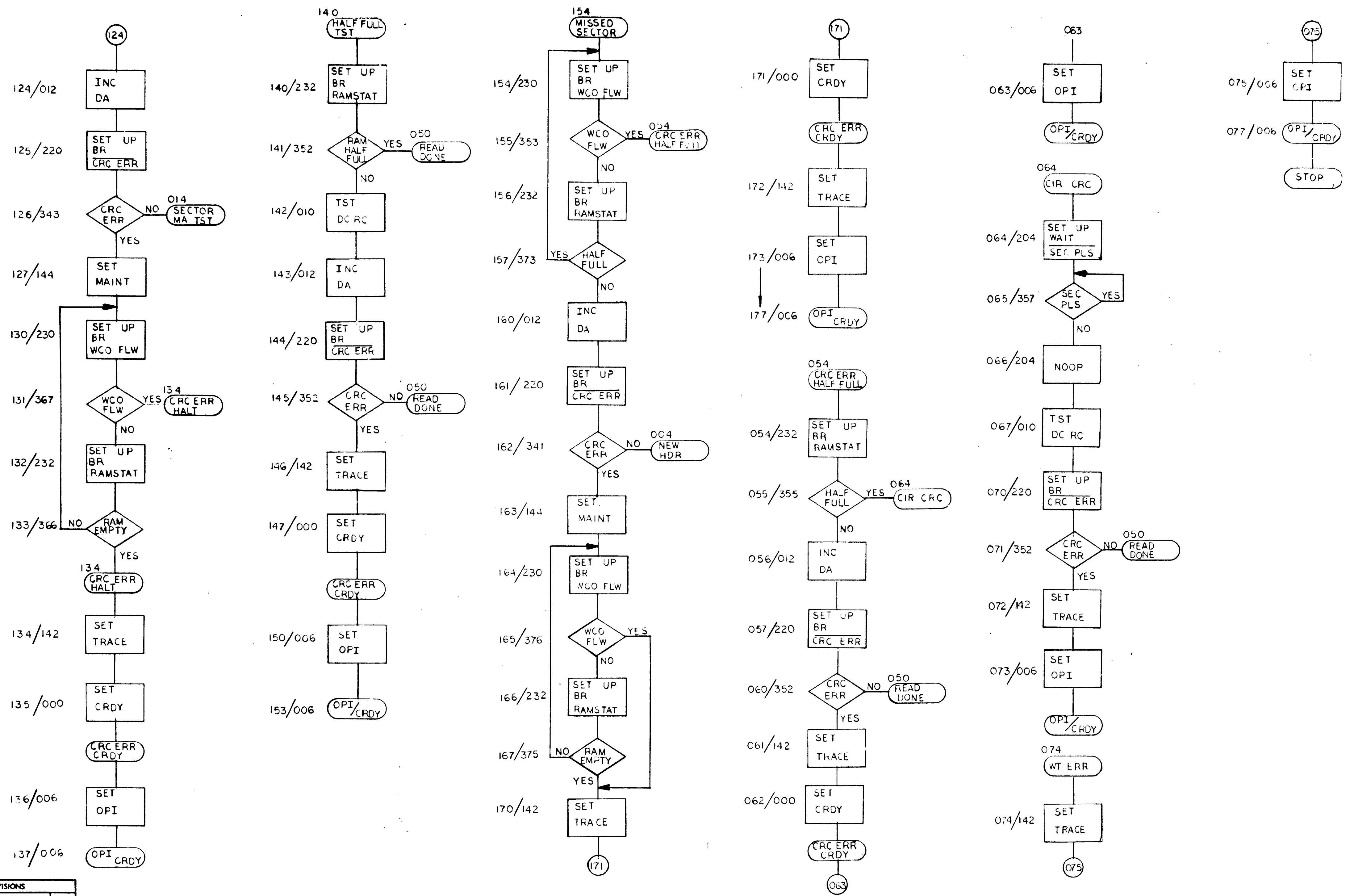


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-Ø-3	
SCALE —	SHEET 7 OF 10	DIST.		

DEC FORM NO. DRD 1-77

READ DATA
FUNCTION 6 (CONT)

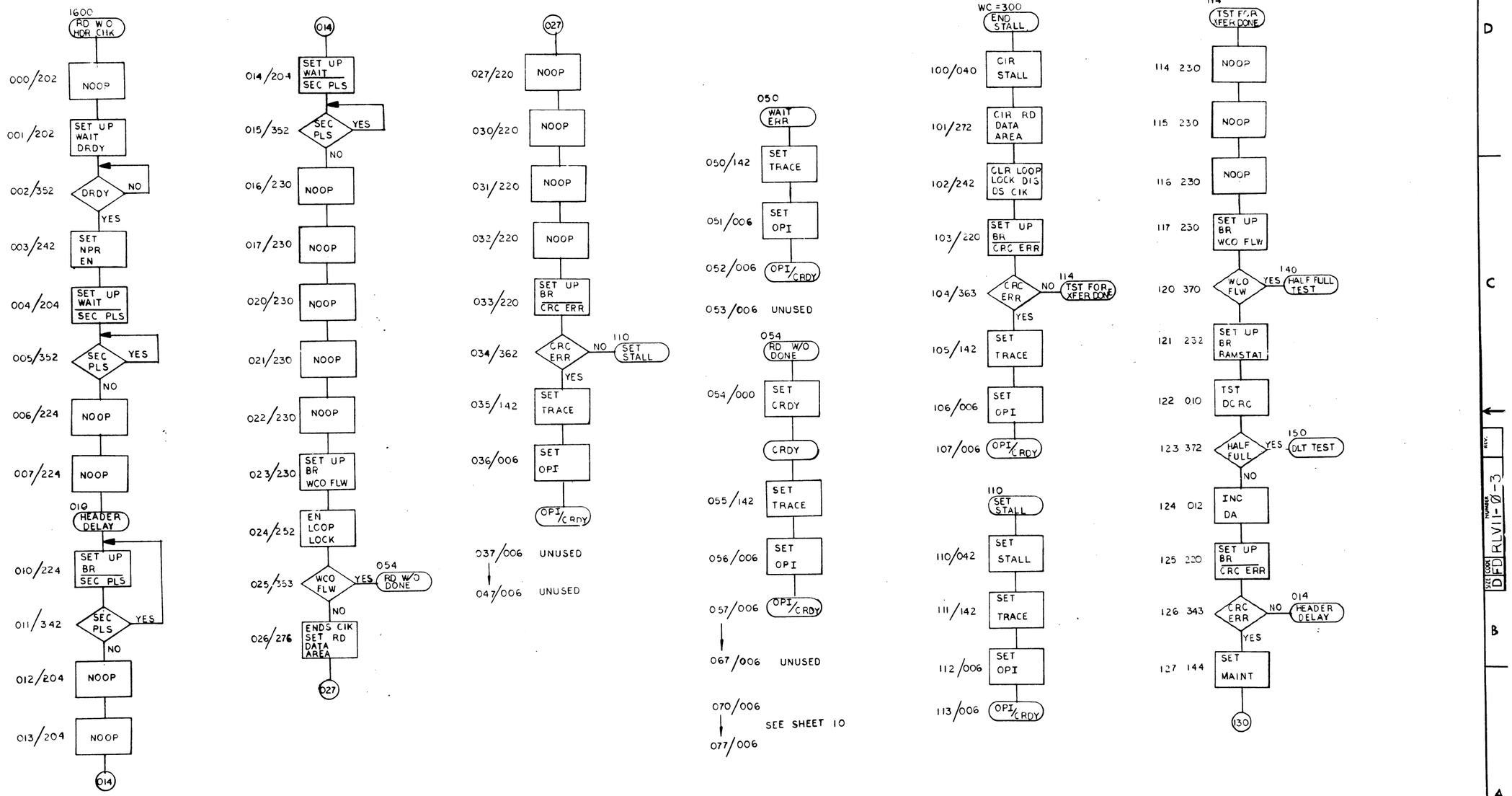


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	FLOW DIAGRAM, DISK CONTROLLER (RLV11)
SIZE	D
CODE	FD
NUMBER	RLV11-Ø-3
SCALE	—
SHEET	8 OF 10

READ W/O HDR CHK 1600

FUNCTION 7

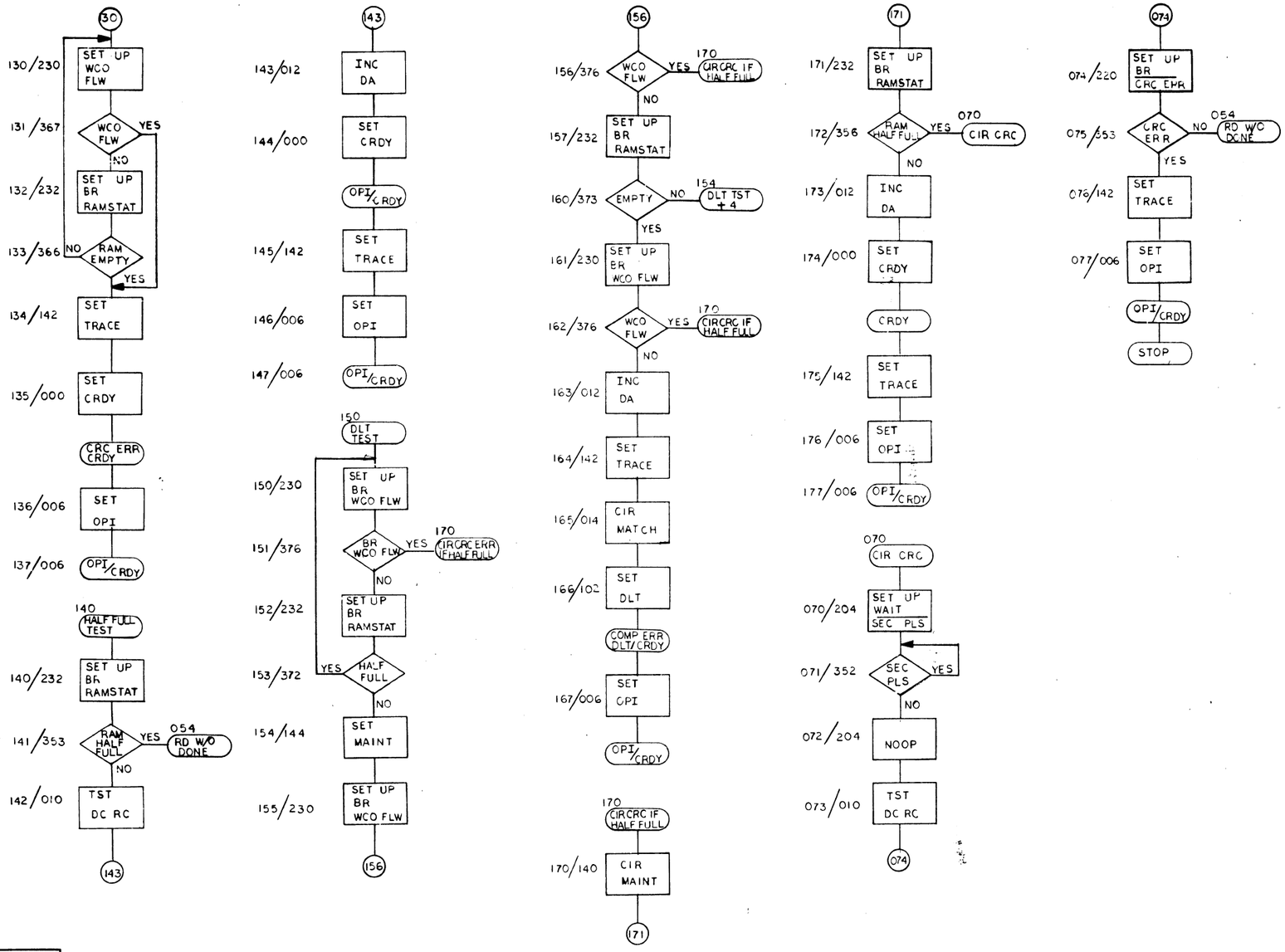


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLV11)	D	FD	RLV11-0-3	
SCALE —	SHEET 9 OF 10	DIST.		

DEC FORM NO. DRD 137

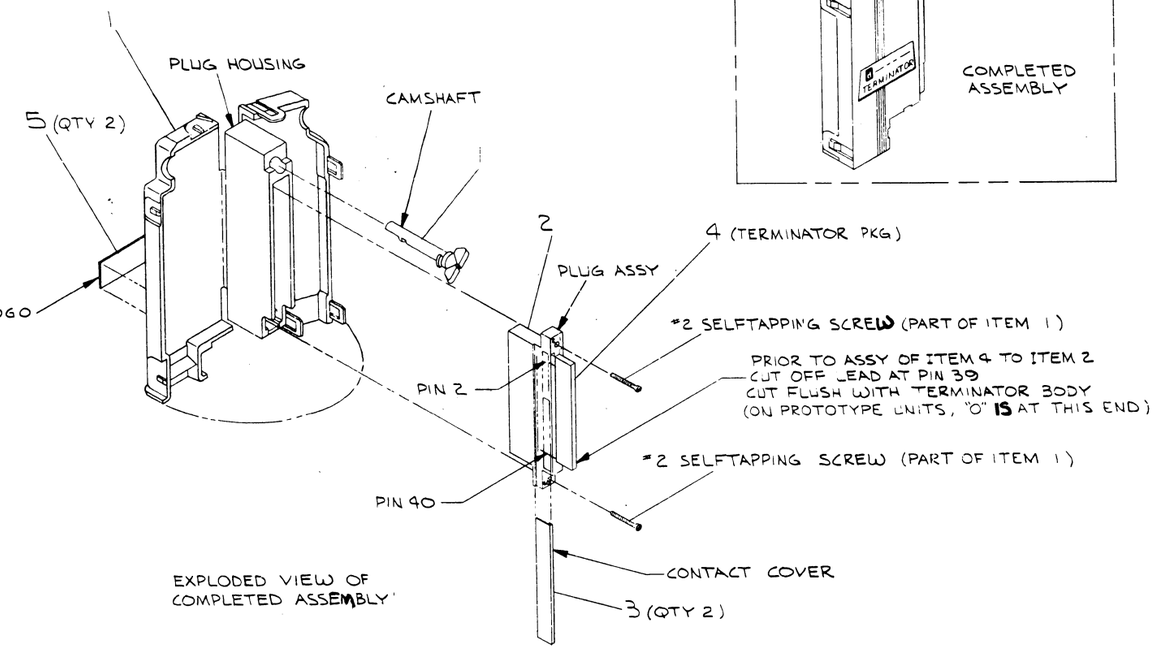
READ WO HDR CHK
FUNCTION 7 (CONT)



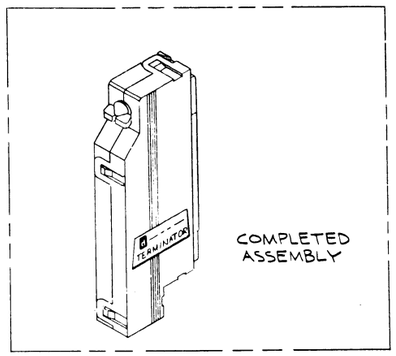
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
FLOW DIAGRAM, DISK CONTROLLER (RLVII)	D	FD	RLVII-Ø-3	
SCALE —	SHEET 10 OF 10	DIST.		

DEC FORM NO. DRD 1.27



EXPLODED VIEW OF COMPLETED ASSEMBLY



COMPLETED ASSEMBLY

ITEM NO.	DWG/PART NO.	DESCRIPTION	QTY
2	A-DC-7916678-0-0	LOGO, TERMINATOR	5
1	1313742-00	TERMINATOR PKG	4
2	1211591-11	COVER, CONTACT	3
1	1211591-07	PLUG ASSY	2
1	1211591-34	CONN PLUG HSG & CAMSHAFT KIT	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

SURFACE QUALITY IN MICROINCHES	CLASS OF ACCURACY (CHECK ONE)	ANGLES ±0° 30'	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 ☐		±.004	±.008	±.012	±.016	±.024	±.06
	PREFERRED ☐		±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

70122930

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN D. Lamp 7-JAN-76
CHK'D W. Mann 7/9/76
ENG Matt Burke 7/9/76
PROJ. ENG W. Mann 5/27/76
PROD. [illegible] 6/1/76

NEXT HIGHER ASSY. E-DA-RK611-0-0

SCALE: NONE

SHEET 1 OF 1

FIRST USED ON RK06

digital

TITLE
TERMINATOR ASSY

SIZE D | CODE | NUMBER IA7012293-0-0 | REV A

DIST.

REVISIONS			
CHK	CHANGE NO.	REV.	
JC	7012293-00001	A	W. DUNHAM 9/29/76

DEC FORM NO. DRD 100-C

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY Richard Hallman	CHECKED Richard Hallman	SECTION 1
DATE 4/18/78	DATE 4/26/78	
ENG Richard Hallman	PROD H.T. Barlow	ISSUED SECT. 1
DATE 4/18/78	DATE 3-May-78	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION ZJ257-RB	ZJ257-RZ*	ZJ257-PB*
1	AC-EØ36B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (DOC)	1	1	-
2	AH-EØ37B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (FICHE)	-	-	-
3	AK-EØ38B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (PT1)	1	-	1
4	AK-EØ39B-MC	CZRLAB0 RL11/RLV11 CTRL 1 (PT2)	1	-	1
5	AC-EØ40B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (DOC)	1	1	-
6	AH-EØ41B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (FICHE)	-	-	-
7	AK-EØ42B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (PT1)	1	-	1
8	AK-EØ43B-MC	CZRLBB0 RL11/RLV11 CTRL 2 (PT2)	1	-	1
9	AC-EØ44B-MC	CZRLCB0 RLØ1 Drive Test 1 (DOC)	1	1	-
10	AH-EØ45B-MC	CZRLCB0 RLØ1 Drive Test 1 (FICHE)	-	-	-
11	AK-EØ46B-MC	CZRLCB0 RLØ1 Drive Test 1 (PT1)	1	-	1
12	AK-EØ47B-MC	CZRLCB0 RLØ1 Drive Test 1 (PT2)	1	-	1
13	AC-EØ48B-MC	CZRLDB0 RLØ1 Drive Test 2 (DOC)	1	1	-
14	AH-EØ49B-MC	CZRLDB0 RLØ1 Drive Test 2 (FICHE)	-	-	-
15	AK-EØ5ØB-MC	CZRLDB0 RLØ1 Drive Test 2 (PT1)	1	-	1
16	AK-EØ51B-MC	CZRLDB0 RLØ1 Drive Test 2 (PT2)	1	-	1
17	AC-E246B-MC	CZRLEB0 RLØ1 Perf Exer (DOC)	1	1	-
18	AH-E247B-MC	CZRLEB0 RLØ1 Perf Exer (FICHE)	-	-	-
19	AK-E248B-MC	CZRLEB0 RLØ1 Perf Exer (PT1)	1	-	1
20	AK-E249B-MC	CZRLEB0 RLØ1 Perf Exer (PT2)	1	-	1
21	AC-E250B-MC	CZRLFB0 RLØ1 Drive Cmpt (DOC)	1	1	-
22	AH-E251B-MC	CZRLFB0 RLØ1 Drive Cmpt (FICHE)	-	-	-

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
RLV11 Software List	E-UA-RLV11-0-0	A	PL	RLV11-0-5		
	SHEET 1 OF 2	DIST.				

DEC FORM DEC 16 (325) 1031 N870
DRA 110

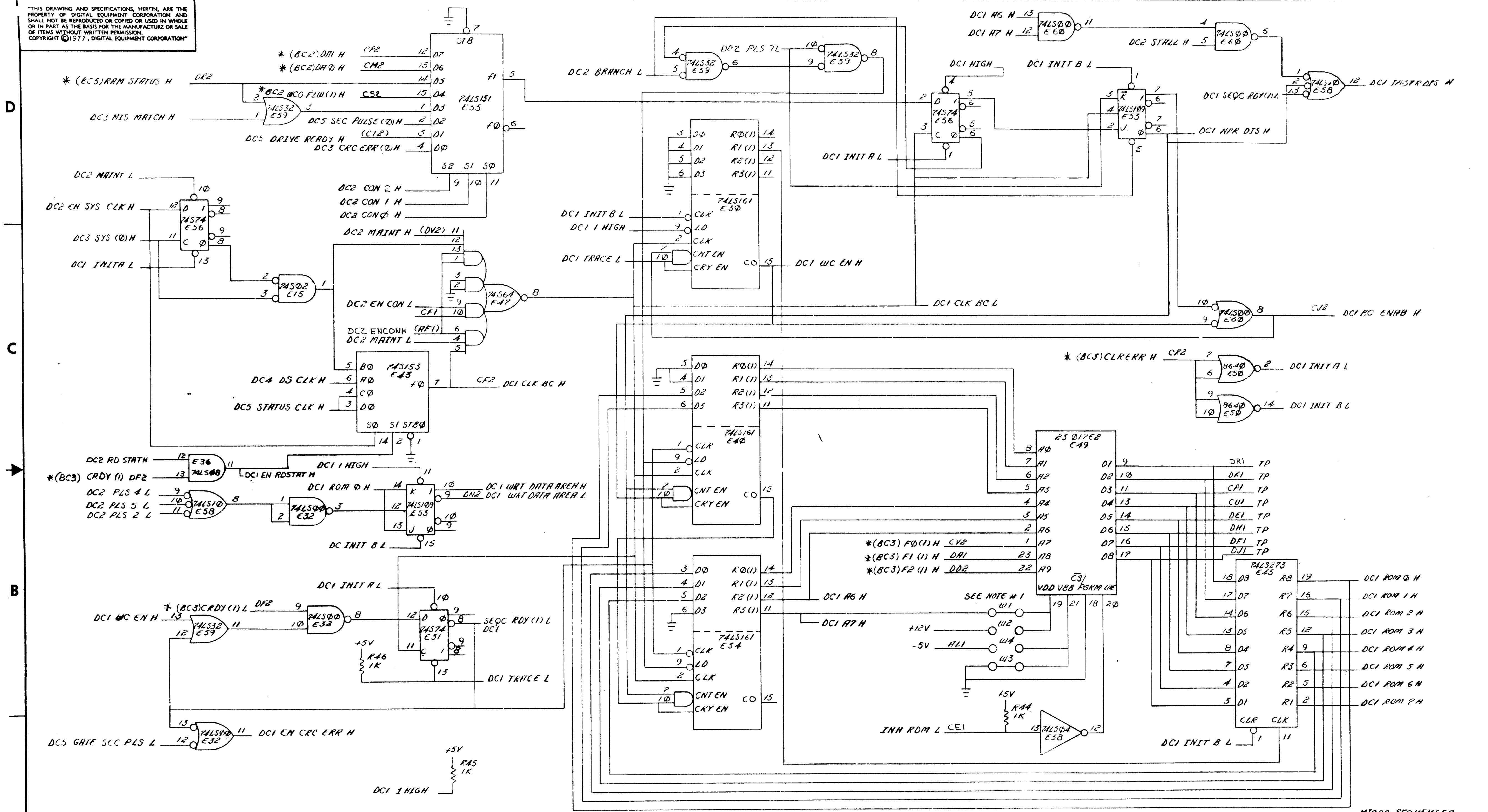
DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY Richard Hallman	CHECKED Richard Hallman	SECTION 1
DATE 4/18/78	DATE 4/26/78	
ENG Richard Hallman	PROD H.T. Barlow	ISSUED SECT. 1
DATE 4/18/78	DATE 3-May-78	

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION ZJ257-RB	ZJ257-RZ*	ZJ257-PB*
23	AK-E252B-MC	CZRLFB0 RL01 Drive Cmpt (PT1)	1	-	1
24	AK-E253B-MC	CZRLFB0 RL01 Drive Cmpt (PT2)	1	-	1
25	AC-B1Ø7A-MC	CVRLAA0 RLV11/RLØ1 Dskls (DOC)	1	1	-
26	AH-B1Ø8A-MC	CVRLAA0 RLV11/RLØ1 Dskls (FICHE)	-	-	-
27	AK-B1Ø9A-MC	CVRLAA0 RLV11/RLØ1 Dskls (PT1)	1	-	1
28	AK-E375A-MC	CVRLAA0 RLV11/RLØ1 Dskls (PT2)	1	-	1
		*NOT TO BE SHIPPED REFERENCE ONLY			

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
RLV11 Software List	E-UA-RLV11-Ø-Ø	A	PL	RLV11-Ø-5		
	SHEET 2 OF 2	DIST.				

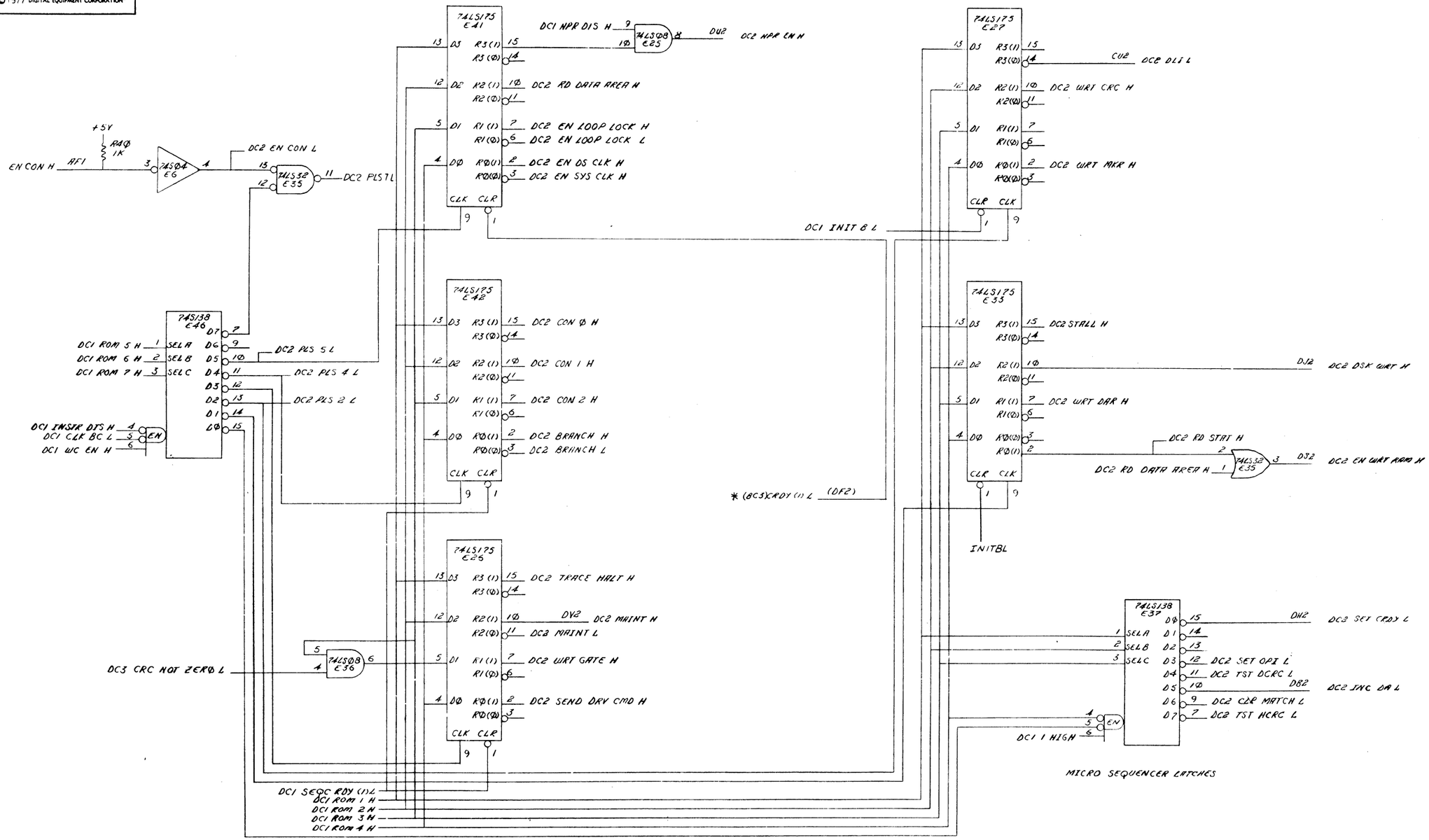


NOTES:
1. FOR ROM PT. # 23Ø17E2-ØØ INSERT W1 AND W3 DELETE W2 AND W4.
   FOR ROM PT. # 23Ø588?-ØØ INSERT W2 AND W4 DELETE W1 AND W3.
2. * MEANS REFERRING TO POINT ON D-CS-M8014-Ø-1

REV.	CHANGE NO.	CHK
C	M8Ø13-0001	
D	M8Ø13-ML002	
E	M8Ø13-ML004	
F	M8Ø13-ML005	

FIRST USED ON	RLV11
TITLE	RLV11 DISK CONTROL (DCI)
NEXT HIGHER ASSY.	D-UA-M8Ø13-Ø-Ø
SIZE	D
CODE	CS
NUMBER	M8Ø13-Ø-1
REV.	F
SCALE	NONE
SHEET	1 OF 5

digital



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
RLVII DISK CONTROL	(DC2)	D	DCS	M8013-0-1	F
SCALE NONE	SHEET 2 OF 5	DIST.			

DEC FORM NO. DRD 138

DC3 2 HIGH

74LS74 E31

DC3 SYS (Ø) H

+5V

DISABLE CRYS L BDI — R47 1K

EXT CRYS L BCI — R48 1K

74S00 E20 → CD2 DC3 Ø2 MM2

74S00 E20

+5V — Y1 8.2 MHZ

74LS27 E21 ×2 → 74S02 E15 → 74S37 E11

E10 SIP NS — +5V — R29 330 — R30 470

S18 — DC3 WRT DATA PLS H — DC3 WRT DATA PLS L

74LS151 E9 — D7 D6 D5 D4 D3 D2 D1 D0 — S0 S1 S2

WRT PRECOMP

25-219A1 E8 — A0 A1 A2 A3 A4 — B0 B1 B2 B3 B4 B5 B6 B7 — EN

74161 E12 — D0 D1 D2 D3 — RD(1) R1(1) R2(1) R3(1) — CLR LD CLK CNT EN CRY EN — CO

DC1 INIT B L

74LS174 E17 ×6

DC1 INIT B L

74LS86 E16

(BC5) SER DATA OUT CN2

DC3 CRC (1) H

DC2 WRT CRC H

DC1 WC EN H

DC2 WRT MKR H

DC2 WRT DAR H

DC2 MAINT L

DC4 DS DATA (1) H

DC2 EN LOOP LOCK H

74LS64 E22 → 74S04 E6 → 8640 E50 → 74S04 E6

DC3 MUX DATA L

(BC2) DA (1) L CB2 — 74LS04 E38

DC1 WRT DATA AREA H — 74LS27 E21 → 74S08 E36

DC4 MARKER (1) L

DC1 CLK BC L — 74S02 E18

CRC GENERATOR

9401 E3 — CP P MR CWE D — Y ER — SØ S1 S2

DC3 2 HIGH

DC1 EN CRC ERR H

DC3 CRC (1) H

DC3 CRC NOT ZERO H

74LS04 E38 → DC3 CRC NOT ZERO L

74LS32 E35 — DC2 SET OPI L

74LS08 E36 → DMP DC3 PRESET OPI L

DC3 2 HIGH

DC3 CRC NOT ZERO L — 74S00 E3

DC2 TST MCRC L

DC2 TST DCRC L

74S00 E32 — DC1 INIT B L

74LS74 E4 — DL2 DC3 CRC ERR (1) H — DC3 CRC ERR (Ø) H

+5V — R49 1K — DC3 2 HIGH

DC2 BRANCH H

DC1 INIT B L

DC2 EN DS CLK H

74LS08 E25 → 74LS112 E7

DC4 DS CLK H

74LS86 E16

DC1 INIT B L

DC2 CLR MATCH L

CK2 DC3 MISMATCH L

DC3 MIS MATCH H

DC1 WRT DATA AREA H — 74S02 E15

HEADER MATCH DETECTION

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RLV11 DISK CONTROL (DC3)	D	CS	M8Ø13-Ø-1	F
SCALE NONE — SHEET 3 OF 5	DIST.			

DEC FORM NO. DRD 138

READ DATA PULSE GENERATOR

DC2 MAINT H DV2
DC3 WRT DATA PLS L
74S37 E11
74S37 E11
E2 100NS
R25 220
74S04 E24
74S00 E29
74S00 E29
74S00 E29
74S00 E29
74S10 E14
DC4 EARLY ERROR L
PHASE/FREQUENCY ERROR DETECTION
74S04 E24
74S10 E14
DC4 LATE ERROR L
74S04 E24
DC4 3 HIGH
DC5 READ DATA H
74LS112 E28
+5V
R51 1K
DC4 3 HIGH
DC2 EN LOOP LOCK L
74S04 E6

READ DATA SEPARATOR

DC4 3 HIGH
DC1 INIT B L
DC4 3 HIGH
DC4 DS DATA(1) H
DC4 3 HIGH
DC2 EN DS CLK H
74S74 E23
74S74 E13
74S74 E15
74S74 E25
74LS112 E28
DC4 MARKER(1) H
DC4 MARKER(1) L
* (BC3) RDY (1) L
DC4 HIGH GAIN L
74S00 E5
74S02 E18
DC4 MARKER(1) L
74S02 E18
DC4 DS CLK H

DC4 HI GAIN L (E23-9)
75452 E39
R56 750 1%
+12V
D15 1N6.8AZ1 6.8V
R31 383 1%
Q5 2N4403
D6 1N4454
D7 1N4454
D8 1N4454
R42 470
R50 470
D10 1N6.8AZ1 6.8V
R34 6.19K 1%
Q6 2N4403
T.P.1 VC1
R21 150 1/2W
R22 180 1/2W
R23 150 1/2W
R24 180 1/2W
D11 1N5.1AZ1
D12 1N5.1AZ1
CB0 .47UF
Q7 2N4403
DC4 LATE ERROR L
DC4 EARLY ERROR L
Q8 2N4403
R33 2.10K 1%
R35 2.80K 1%
CB1 39PF
74S124 E34
Q9 2N4401
R20 75
C63 100PF
D9 1N4454
R17 100 1%
R15 100 1%
C61 .033UF
R32 4.87K 1%
R41 5K
C68 .47UF
-10V
R54 270 1/2W
D5 6.8V 1N6.8AZ1
C45 .47UF
VCO CONTROL - CHARGE PUMP AND FILTER
INH VCO CLK L
T.P.2 VCO
TP3 GND
EXT PLL CLK L
+5V
R52 1K
AE1
74S00 E5
+5V
R53 1K
AH1
74S00 E5

+12V
R43 5.1K
C66 5600PF
C60 .01MF
R37 22K
R19 120
D13 1N754A
Q3 MX455
R26 220
C72 15MF
C73 15MF
D1 D672
D2 D672
R1 2.7 1/2W
-10V
Q10 LM320
C74 15MF
C69 6.8MF
AR1
-5V OUT
D14 1N754A
Q1 MX405
C67 .047UF
R27 220
CTL VTH DCG
555 E1
-10V AND -5V CHARGE PUMP

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RLV11 DISK CONTROL (DC4)	D	DCS	M8013-0-1	F
SCALE NONE	SHEET 4 OF 5		DIST.	

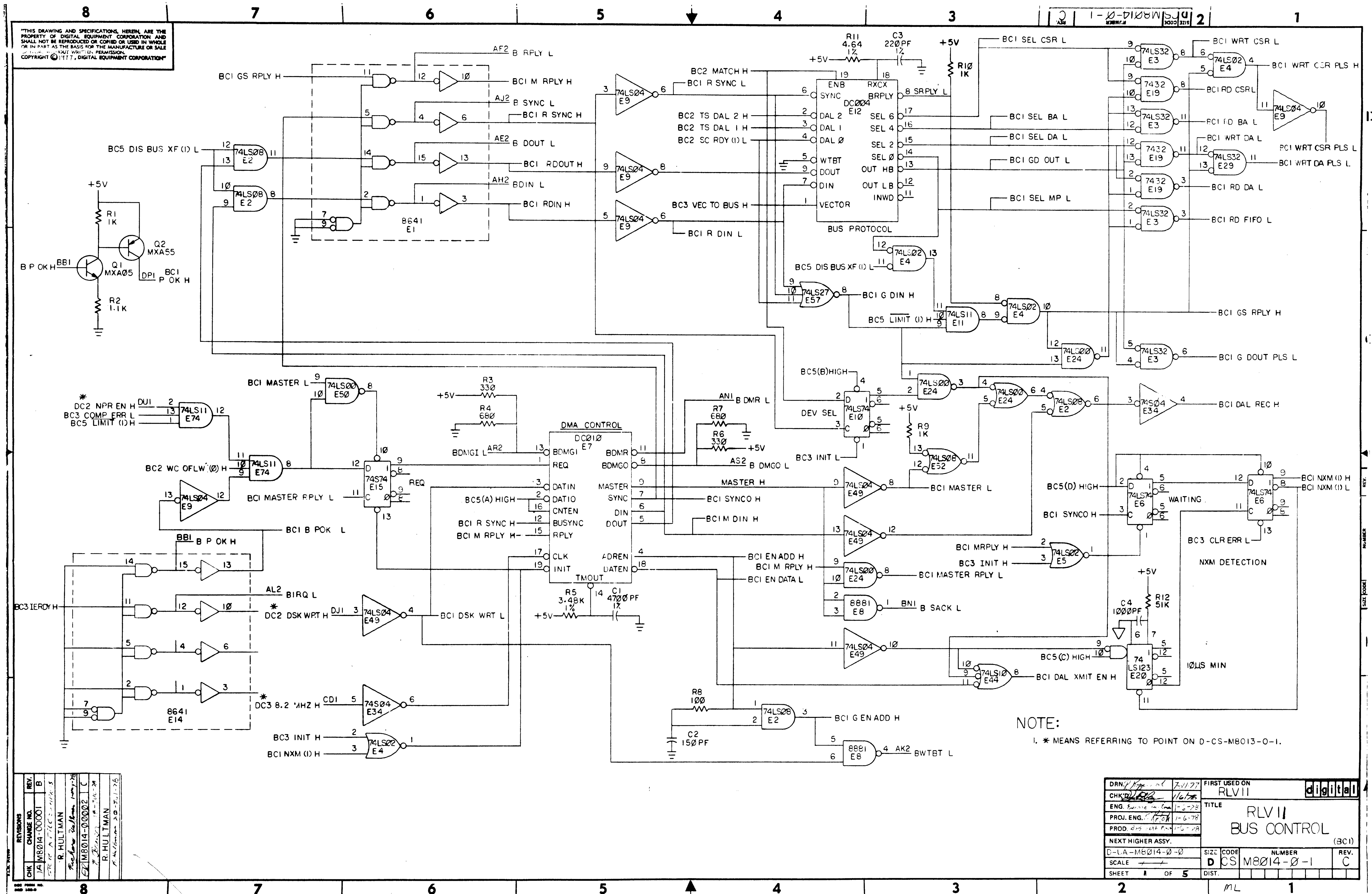
DEC FORM NO. DRD 188

(BC3) DRV SEL Ø (1) H CE2
DC5 4 HIGH
75113 E51
R3 82 1/2W
R4 82 1/2W
+5V
E63 82
(BC3) DRV SEL 1 (1) H CA1
DC3 WRT DATA PLS H
75113 E57
R5 82 1/2W
R6 82 1/2W
DC5 4 HIGH
DC2 WRT GATE H
74LS08 E25
DC2 MAINT H DV2
74LS04 E38
DC2 SEND DRV CMD H
75113 E48
R7 82 1/2W
RB 82 1/2W
DC5 4 HIGH
(BC1) POK H DP2
DC1 INIT B L
DC3 MUX DATA L
DC3 SYS (Ø) H
DC5 4 HIGH
74LS74 E4
JI
SS TT N J RR PP X W CC DD M N NN MM D C Y P S T HH JJ UU VV LL KK FF EE BB AA U V J K L Q R
R9 82 1/2W
R10 82 1/2W
R11 82 1/2W
R12 82 1/2W
R13 82 1/2W
R14 82 1/2W
DC5 4 HIGH
75107 E52
CT2 DC5 DRIVE READY H
75107 E52
74LS04 E38
74LS00 E60
DC5 GATED SEC PLS L
DC5 READ DATA H
DC2 MAINT H (DV2)
75107 E44
74LS04 E38
74LS74 E61
DC5 SEC PULSE (1) H
DC5 SEC PULSE (Ø) H
DC1 INIT B L
DC5 4 HIGH
75107 E44
DC5 STATUS CLK H
75107 E62
CH2 DC5 DRIVE ERR H
75107 E62
DC5 STATUS IN H
AA2 BA2 CA2 DA2 BV1 AC2 BC2 CC2 DC2 AJ1 BJ1 AM1 BM1 AT1 BT1 CT1 DT1
+5V
C1 THRU C59 .01 UF
C78 THRU C80 .01UF
C70; C71, C75, C76 6.8 UF
AD2 BD2 AR2 AS2 AM2 AN2
+12V
C77 6.8 UF
+5V
R55 1K
DC5 4 HIGH
DC4 DS DATA (1) H
DC1 EN RD STAT H
DC2 EN SYS CLK H
74S153 E43
S1 S0 S181
DC3 4 HIGH
DC1 CLK BC H (CF2)
DC1 INIT B L
74LS74 E61
CL2 DC5 SER DATA IN H
DRIVE BUS INTERFACE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RLV11 DISK CONTROL (DC5)	D	CS	M8013-Ø-1	F
SCALE NONE	SHEET 5 OF 5		DIST.	

DEC FORM NO. DRD 128



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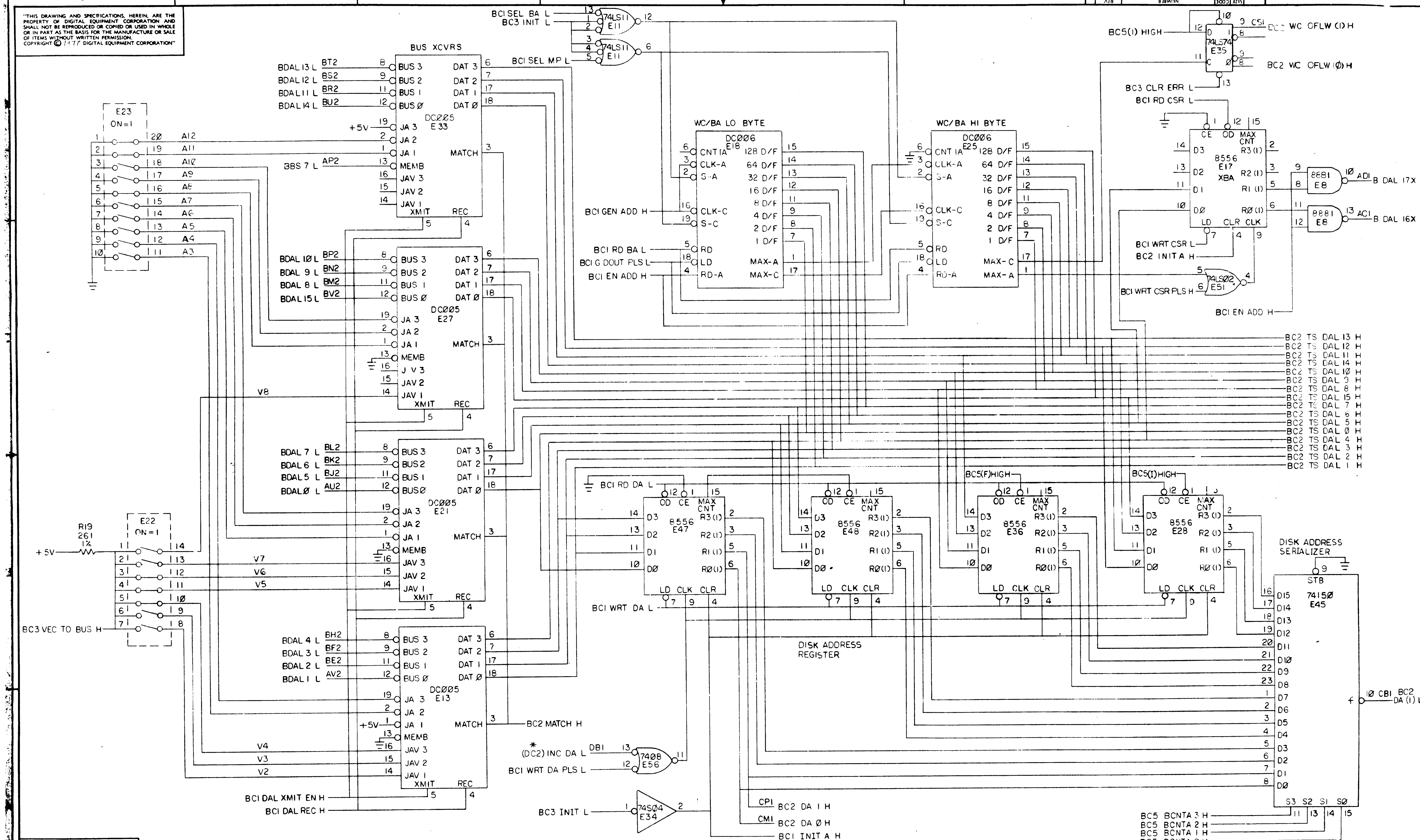
BCI GS RPLY H
AF2 B RPLY L
BCI M RPLY H
AJ2 B SYNC L
BCI R SYNC H
AE2 B DOUT L
BCI RDOUT H
AH2 BDIN L
BCI RDIN H
8641 E1
BC5 DIS BUS XF (I) L
74LS08 E2
+5V
R1 1K
Q2 MXA55
Q1 MXAØ5
B P OK H
BCI P OK H
R2 1.1K
BC2 MATCH H
BCI R SYNC L
BC2 TS DAL 2 H
BC2 TS DAL 1 H
BC2 SC RDY (I) L
BC3 VEC TO BUS H
BCI R DIN L
R11 4.64 1%
C3 220PF 1%
R1Ø 1K
DCØØ4 E12
BUS PROTOCOL
8 SRPLY L
BCI SEL CSR L
BCI SEL BA L
BCI SEL DA L
BCI GD OUT L
BCI SEL MP L
BCI WRT CSR L
BCI WRT CSR PLS H
BCI RD CSR L
BCI RD BA L
BCI WRT DA L
BCI WRT CSR PLS L
BCI WRT DA PLS L
BCI RD DA L
BCI RD FIFO L
BC5 DIS BUS XF (I) L
BCI G DIN H
BC5 LIMIT (I) H
BCI GS RPLY H
BCI G DOUT PLS L
BCI MASTER L
DC2 NPR EN H
DC3 COMP ERR L
BC5 LIMIT (I) H
BC2 WC OFLW (Ø) H
BCI MASTER RPLY L
BCI B POK L
BB1 B P OK H
BC3 IERDY H
AL2 BIRQ L
DC2 DSK WRT H
BCI DSK WRT L
DC3 8.2 MHZ H
8641 E14
BC3 INIT H
BCI NXM (I) H
R3 330
R4 680
DMA CONTROL
DCØ1Ø E7
BDMGI L
BC5(A) HIGH
BCI R SYNC H
BCI M RPLY H
R5 3.48K 1%
C1 4700 PF 1%
TMOUT
AN1 B DMR L
R7 680
R6 330
AS2 B DMGO L
MASTER H
BCI SYNCO H
BCI M DIN H
BCI EN ADD H
BCI M RPLY H
BCI EN DATA L
R8 100
C2 150 PF
BCI G EN ADD H
AK2 BWTBT L
BC5(B)HIGH
DEV SEL
BC3 INIT L
R9 1K
BCI DAL REC H
BCI MASTER L
BCI MASTER RPLY L
BN1 B SACK L
BCI MRPLY H
BC3 INIT H
BC5(D) HIGH
WAITING
BCI SYNCO H
BCI NXM (I) H
BCI NXM (I) L
BC3 CLR ERR L
NXM DETECTION
R12 51K
C4 1000PF
BC5(C) HIGH
BCI DAL XMIT EN H
10μS MIN
NOTE:
1. * MEANS REFERRING TO POINT ON D-CS-M8013-0-1.
REVISIONS
CHANGE NO. M8014-00001 B
M8014-00002 C
R. HULTMAN
FIRST USED ON RLV11
digital
TITLE RLV11 BUS CONTROL (BC1)
NEXT HIGHER ASSY. D-UA-M8014-Ø-Ø
SIZE D CODE CS NUMBER M8Ø14-Ø-1 REV. C
SHEET 1 OF 5


BUS XCVRS
DC005 E33
DC005 E27
DC005 E21
DC005 E13
E23 ON=1
E22 ON=1
R19 261 1%
+5V
BDAL 13 L
BDAL 12 L
BDAL 11 L
BDAL 14 L
BDAL 10 L
BDAL 9 L
BDAL 8 L
BDAL 15 L
BDAL 7 L
BDAL 6 L
BDAL 5 L
BDAL 0 L
BDAL 4 L
BDAL 3 L
BDAL 2 L
BDAL 1 L
BBS 7 L
BC3 VEC TO BUS H
BC1 DAL XMIT EN H
BC1 DAL REC H
BC2 MATCH H
BC1 SEL BA L
BC3 INIT L
BC1 SEL MP L
74LS11 E11
WC/BA LO BYTE
DC006 E18
WC/BA HI BYTE
DC006 E25
BC1 GEN ADD H
BC1 RD BA L
BC1 G DOUT PLS L
BC1 EN ADD H
BC5(1) HIGH
74LS74 E35
BC2 WC OFLW (1) H
BC2 WC OFLW (0) H
BC3 CLR ERR L
BC1 RD CSR L
8556 E17 XBA
8881 E8
B DAL 17X
B DAL 16X
BC1 WRT CSR L
BC2 INIT A H
74LS02 E51
BC1 WRT CSR PLS H
BC2 TS DAL 13 H
BC2 TS DAL 12 H
BC2 TS DAL 11 H
BC2 TS DAL 14 H
BC2 TS DAL 10 H
BC2 TS DAL 9 H
BC2 TS DAL 8 H
BC2 TS DAL 15 H
BC2 TS DAL 7 H
BC2 TS DAL 6 H
BC2 TS DAL 5 H
BC2 TS DAL 0 H
BC2 TS DAL 4 H
BC2 TS DAL 3 H
BC2 TS DAL 2 H
BC2 TS DAL 1 H
BC1 RD DA L
BC5(F)HIGH
BC5(1)HIGH
8556 E47
8556 E48
8556 E36
8556 E28
BC1 WRT DA L
DISK ADDRESS REGISTER
DISK ADDRESS SERIALIZER
74150 E45
CB1 BC2 DA (1) L
(DC2) INC DA L
BC1 WRT DA PLS L
7408 E56
BC3 INIT L
74S04 E34
BC2 DA 1 H
BC2 DA 0 H
BC1 INIT A H
BC5 BCNTA 3 H
BC5 BCNTA 2 H
BC5 BCNTA 1 H
BC5 BCNTA 0 H

REVISIONS		
CHK	CHANGE NO.	REV

TITLE RLV11 BUS CONTROL (BC2)

SIZE D CODE CS NUMBER M8014-0-1 REV. C

SCALE — SHEET 2 OF 5

DFC FORM NO. DRO 138

INTERUPT CONTROL
DC003 E16
RQSTA, BIAKI, BINIT, EDIN, RQSTB, ENA DAT, ENB DAT, ENA CLK, ENB CLK, ENA ST, BIRQ, BIAKO, INITO, VECTOR, VEC RQST, ENB ST
BC3 IE RDY H
BIAK I L AM2
B INIT L AT2
BCI R DIN L
BIAKO L AN2
BC3 INIT L
BC3 VEC TO BUS H
R13 330 +5V
R14 680
R15 330 +5V
R16 680
R23 1K +5V
BC5(B)HIGH
BC3 C RDY(I) H
BC3 IERDY H
74LS74 E10
74LS02 E5
BCI WRT CSR PLS H
74LSI74 E26
D3 R3(I) CVI BC3 FO (I) H
D2 R2(I) DCI BC3 F1 (I) H
D1 R1(I) DDI BC3 F2 (I) H
D0 R0(I)
D4 R4(I) CEI BC3 DRV SEL Ø (I) H
D5 R5(I) CCI BC3 DRV SEL 1 (I) H
CLK CLR
R20 10K R21 10K R22 10K +5V
BC2 TS DAL 1 H
BC2 TS DAL 2 H
BC2 TS DAL 3 H
BC2 TS DAL 6 H
BC2 TS DAL 8 H
BC2 TS DAL 9 H
8097 E70 (x6)
BCI RD CSR L
DC2 SET C RDY L DHI 10
74LS08 E52
BC5(G) HIGH
74LS74 E63
BC3 COMP ERR H
BC3 C RDY (I) H
DFI BC3 C RDY (I) L
BCI WRT CSR PLS L
BCI TS DAL 7 H
74LS32 E29
74Ø8 E56
74LS04 E62 12 CRI
BC3 CLR ERR H
BC3 CLR ERR L
BCI NXM (I) L
BC3 C RDY(I) H
DC5 DRV ERR H CH1
DC3 CRC ERR (I) H DL1
74LS51 E40
74LS10 E44
74LS04 E49
BC3 COMP ERR L
BC3 COMP ERR H
DC5 DRIVE READY H DT2
BC2 TS DAL 15 H
BC2 TS DAL Ø H
8097 E76 (x8)
+5V R17 180K C5 6.8 UF
DC2 INC DA L DBI 2
74LSI23 E20
DC2 DLT L CUI 4
74LS08 E52
DC3 PRESET OPI L DMI
74 LS109 E69
BC5(G) HIGH
BC3 CLR ERR L
74LS04 E9
BC3 INIT H
BC3 SCRDY(I) L
74S74 E15
BCI R SYNC L
BC5(C) HIGH
BC2 TS DAL 7 H
BC2 TS DAL 10 H
BC2 TS DAL 12 H
DC3 MIS MATCH L CK1
74LS02 E51
BCI NXM (I) H
BC2 TS DAL 13 H
BC2 TS DAL 11 H
BC2 TS DAL 14 H
8097 E30 (x8)

REVISIONS
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
RLV11 BUS CONTROL (BC3)		D	CS	M8014-Ø-1	C
SCALE —	SHEET 3 OF 5	DIST.			

DEC FORM NO. DRD 138

BCI RD FIFØ L
BCI EN DATA L
74LSØØ E5Ø

BC5 LD BOUT PLS L

FIFO OUTPUT BUFFER

BC5 ED BIN H
BCI MDIN H
74LS295 E65
BC2 TS DAL 8 H
BC2 TS DAL 9 H
BC2 TS DAL IØ H
BC2 TS DAL 11 H
BC5(L) HIGH

74LS295 E31
BC2 TS DAL 4 H
BC2 TS DAL 5 H
BC2 TS DAL 6 H
BC2 TS DAL 7 H
FIFO INPUT BUFFER
BC5(E) HIGH

74LS295 E77
BC2 TS DAL Ø H
BC2 TS DAL 1 H
BC2 TS DAL 2 H
BC2 TS DAL 3 H
BC5(L) HIGH

74LS295 E38
BC2 TS DAL 12 H
BC2 TS DAL 13 H
BC2 TS DAL 14 H
BC2 TS DAL 15 H
BC5(F) HIGH

74LS295 E64
BC2 TS DAL 8 H
BC2 TS DAL 9 H
BC2 TS DAL IØ H
BC2 TS DAL 11 H
BC5(G) HIGH

74LS295 E54
BC2 TS DAL 4 H
BC2 TS DAL 5 H
BC2 TS DAL 6 H
BC2 TS DAL 7 H
BC5(M) HIGH

74LS295 E71
BC2 TS DAL Ø H
BC2 TS DAL 1 H
BC2 TS DAL 2 H
BC2 TS DAL 3 H
BC5(C) HIGH

BC4 TS FIFO Ø H
BC4 TS FIFO 1 H
BC4 TS FIFO 2 H
BC4 TS FIFO 3 H
BC4 TS FIFO 4 H
BC4 TS FIFO 5 H
BC4 TS FIFO 6 H
BC4 TS FIFO 7 H
BC4 TS FIFO 8 H
BC4 TS FIFO 9 H
BC4 TS FIFO IØ H
BC4 TS FIFO 11 H
BC4 TS FIFO 12 H
BC4 TS FIFO 13 H
BC4 TS FIFO 14 H
BC4 TS FIFO 15 H

BC5 ED BIN H
BCI M DIN H
74LS295 E32
BC2 TS DAL 12 H
BC2 TS DAL 13 H
BC2 TS DAL 14 H
BC2 TS DAL 15 H
BC5(E) HIGH

74LS04 E49
BC3 CLR ERR L

(RD/WRT ADDR CNTR)
DCØØ6 E6Ø
CNT IA
CLK-A
S-A
CLK-C
S-C
RD
LD
RD-A
128 D/F
64 D/F
32 D/F
16 D/F
8 D/F
4 D/F
2 D/F
1 D/F
MAX-A
MAX-C
BC5 INC RA H
BC5(M) HIGH
BC5 EO RAM L

2111A2 E78
2111A2 E66
2111A2 E73
2111A2 E72
A7 A6 A5 A4 A3 A2 A1 AØ
I/O1 I/O2 I/O3 I/O4
OD
R/W CE1 CE2

BC5 WRT RAM L

BC5(G) HIGH
74LS74 E68
DC5 SER DATA IN H
(SAVE)
BC3 INIT L

74LS299 E55 ODD
74LS299 E61 EVEN
S/L S/R QH QA SØ S1 CLK CLR G1 G2
R8 R7 R6 R5 R4 R3 R2 R1
BC5(K) HIGH
BC5(J) HIGH
BC5 SR LD EN H
BC4 BCNTA Ø L
WRT/RD SHIFT REGISTER

74LS04 E34
BC4 BCNTA Ø L

3C3 INIT L
DC5 WRT RAM L
DC2 DSK WRT H (DJ11)
BC5 BCNTA Ø H

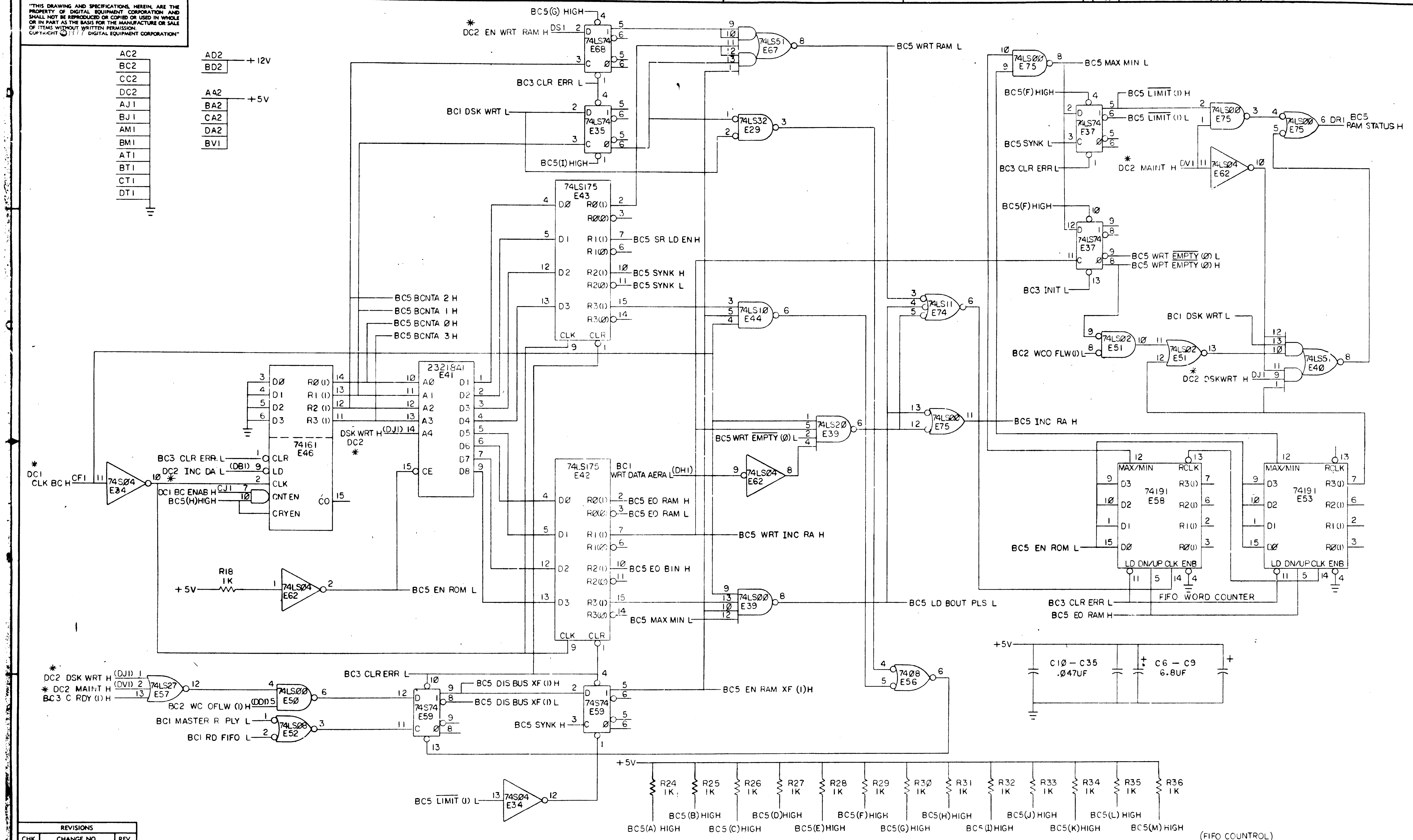
BC4 BCNTA Ø L
74LS51 E67
74LS27 E57
BC5 WRT EMPTY Ø H
DCIWRT DATA AREA L
DNI
BC4 SER DATA OUT H

(FIFO BUFFER)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	RLV11 BUS CONTROL (BC4)	SIZE/CODE D CS	NUMBER M8014-Ø-1 REV. C
SCALE	SHEET 4 OF 5	DIST.	

DEC FORM NO. DRD 138



(FIFO CONTROL)

TITLE	RLV 11 BUS CONTROL (BC5)	SIZE D	CODE CS	NUMBER M8014-Ø-1	REV. C
SCALE		SHEET 5 OF 5	DIST.		

REVISIONS

CHK	CHANGE NO.	REV

DEC FORM NO. DRD 138

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	REFERENCE DESIGNATOR
1	1	D-MD-5012962-0-0	5012962-00	RLV11 DISK CONTROL	-	
2	2		1000011-00	*** THIS ITEM IS NOT USED ***	-	
3	3		1000016-00	100.0 MMF 100V 5%200PPM DM15S	1	C63
4	4		1011740-00	5600.0 MMF 50V 10% CW15C CER.	1	C66
5	5		1000050-00	.033 MFD 100V 10% 663UW MYLR	1	C61
6	6		1012784-00	.047 MFD 50V -20+80 CER	1	C67
7	7		1012312-00	.47 MFD 50V X% CER.	4	C68,C45,C80,C83
8	8		1005306-00	6.8MFD 35V 10% S.TANT	6	C69-C71,C75-C77
9	9		1004812-00	15 MFD 20V 10% S.TANT	3	C72-C74
10	10		1001610-01	.01 MFD 100V -20+80 Z5U DISC	61	C1-C44,C78,C79,C46-C60
11	11		1211813-00	SOCKET 16PIN LOW PROFILE	1	XE8
12	12		1105275-00	D 672 TR= 15NS PIV= 60V SI	2	D1,D2
13	13		1111577-00	1N 4454 TR= 4NS PIV= 50 S	4	D6,D7,D8,D9
14	14		1105871-00	1/4W5.1AZ1 = 5.1 1% .25W N	2	D11,D12
15	15		1109991-00	1N 754A VZ= 6.8 5% .40W	2	D13,D14
16	16		1109991-01	4W6.8AZ1 VZ= 6.8 1% .40W	3	D5,D10,D15
17	17		1210693-00	SOCKET 24PIN IC	1	XE49
18	18		1300285-00	270 1/2W 5% CC	1	R54
19	19		1309444-00	2.7 1/2W 10% CC	1	R1
20	20		1301781-00	82 1/2W 5% CC	12	R3-R14
21	21		1300005-05	R NETWORK 13-02 RESISTORS 5% 14	1	E63
22	22		1302858-00	100 1/4W 1% RN55D-F 100PPM	2	R15,R17
23	23		1300247-00	120 1/4W 5% CC	1	R19
24	24		1301322-00	*** THIS ITEM IS NOT USED ***	-	
25	25		1300260-00	180 1/2W 5% CC	2	R22,R24
26	26		1300271-00	220 1/4W 5% CC	3	R26,R27,R25
27	27		1300295-00	330 1/4W 5% CC	1	R29
28	28		1300316-00	470 1/4W 5% CC	3	R30,R42,R50
29	29		1300365-00	1 K 1/4W 5% CC	11	R40,R44-R49,R51-R53,R55
30	30		1300417-00	2.2 K 1/4W 5% CC	1	R37

REVISION HISTORY			SECTION 1 OF 1	RESP.ENG.: R. HULTMAN	DATE: 28-DEC-77	D I G I T A L
ENG	ECO NUMBER	REV	SECTION, VARIATION INDEX	MADE BY: R. NICHOLSON	DATE: 31-OCT-77	TITLE PARTS LIST
W.H	00001	C	1.00	CHECKED: R. KOPPENAL	DATE: 28-DEC-77	RLV11 DISK CONTROL
J.A	ML002	D	2.	DSN.ENG.: P. KOTSCH	DATE: 28-DEC-77	SIZE: K CODE: PL DOCUMENT NUMBER: M8013-0-DBP REV: H
ER	ML003	E	3.	PROD.: R. KIRK	DATE: 28-DEC-77	EDIT #: 31
R.H	M8013-ML004	F	4.	ASSEMBLY NUMBER: D-UA-M8013-0-0		PART NUMBER: M8013
R.H	M8013-ML005	H	5.			
			6.			
			7.			
			8.			
			9.			
			10.			
			11.			
			12.			

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	REFERENCE DESIGNATOR
31	31		1305145-00	2.8 K 1/4W 1% RN55D-F 100PPM	1	R35
32	32		1309143-09	5 K 3/4W10% POT 100PPM	1	R41
33	33		1312934-00	5.1 K 1/4W 5% CC	1	R43
34	34		1305125-00	383 1/4W 1% RN55D-F 100PPM	1	R31
35	35		1314187-00	6.19 K 1/4W 1% RN55D-F 100PPM	1	R34
36	36		1313592-00	4.87 K 1/4W 1% RN55D-F 100PPM	1	R32
37	37		1312923-00	2.10 K 1/4W 1% RN55D-F 100PPM	1	R33
38	38		1510705-00	XA 05 NPN 500MW SI 60 50 P	1	Q1
39	39		1510706-00	XA 55 PNP 500MW SI 60 50 P	1	Q3
40	40		1513490-00	2N 4403 PNP 350MW SI-40 30	4	Q5-Q8
41	41		1513489-00	2N 4401 NPN 350MW SI 40 20	1	Q9
42	42		1610033-00	DELAY= 10-100NS,10TAPS	1	E2
43	43		1614159-00	DELAY 50NS,10TAPS	1	E10
44	44		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	2	E32,E60
45	45		1912803-00	LS04 INVERTER GATE-HEX 1I	1	E38
46	46		1912805-00	LS08 AND GATE-QUAD 2IN,PO	2	E25,E36
47	47		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E58
48	48		1912813-00	LS27 NOR GATE-TRIPLE 3IN	1	E21
49	49		1912816-00	LS32 OR GATE-QUAD 2IN,POS	2	E35,E59
50	50		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	2	E4,E61
51	51		1912829-00	LS86 X-OR GATE-QUAD 2IN	1	E16
52	52		1912833-00	LS109 FF-JK DUAL,POS EDGE	1	E53
53	53		1912842-00	LS138 DECODER-THREE INPUT,	1	E37
54	54		1912844-00	LS151 MUX 1 OF 8 & DATA	2	E9,E55
55	55		1912697-00	LS174 FF-D HEX W/CLEAR	1	E17
56	56		1912853-00	LS175 FF-D QUAD	5	E26,E27,E33,E41,E42
57	57		1912863-00	LS273 FF-D OCTAL W/CLEAR	1	E45
58	58		1910950-00	74S74 FF-D DUAL (-45 VERSI	3	E23,E31,E56
59	59		1910091-00	*** THIS ITEM IS NOT USED ***	-	
60	60		1910650-00	74161 COUNTER,SYNCHR, UP	1	E12
61	61		1910542-00	74S64 A-O-I GATE 4-2-3-2	2	E22,E47
62	62		1910532-00	74S00 NAND GATE-QUAD 2IN$	3	E5,E24,E29
63	63		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	2	E18,E15
64	64		1910534-00	74S04 INVERTER GATE-HEX 1I	2	E6,E24
65	65		1910536-00	74S10 NAND GATE-TRIPLE 3IN	1	E14
66	66		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	1	E13
67	67		1910545-00	*** THIS ITEM IS NOT USED ***	-	
68	68		1911911-00	DEC 74S124 OSCILLATOR,DUAL VOLT	1	E34
69	69		1910547-00	74S153 MUX 1 OF 4 (DUAL)	1	E43
70	70		1910268-00	DEC 75107B RECEIVER,LINE,DUAL,	3	E44,E52,E62
71	71		1911341-00	75113 DRIVER,LINE,DUAL,MA	3	E48,E51,E57
72	72		1911469-00	DEC 8640 RECEIVER,BUS,QUAD,U	1	E50
73	73		1913474-00	9401 GENERATOR/CHECKER CR	1	E3
74	74		1911944-00	555CN TIMER,FUNCT,BLOCK	1	E1
75	75		1912541-00	VOLT.REG.FIX -	1	Q14
76	76		2305887-00	*** THIS ITEM IS NOT USED ***	-	
77	77		1912834-00	LS112 FF-JK DUAL,EDGE TRIG	2	E7,E28
78	78		1911675-00	74S138 DECODER/DEMUX 3-8 LIN	1	E46

D	I	G	I	T	A	L	TITLE	SECTION 1 OF 1	SIZE	CODE	DOCUMENT NUMBER	REV
							RLV11 DISK CONTROL		K	PL	M9013-0-DBP	H

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	REFERENCE DESIGNATOR
79	79		1912849-00	LS161 COUNTER,SYNCHR,4BIT	3	E30,E40,E54
80	80		1811660-12	OSCILLATOR, CRYSTAL 8.2000MHZ	1	Y1
81	81		1209941-02	HEADER 100 40POS RT ANGLE	1	J1
82	82		1209941-03	HEADER RT ANGLE LEFT L	1	
83	83		1209941-04	HEADER RT ANGLE,RIGHT	1	
84	84		1213113-01	HANDLE,MODULE,	1	
85	85		9009185-00	JUMPER, WIRE, INSULATED, BLACK B	4	W1-W4
86	86		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	8	
87	87		9007791-00	TERM PCB 2POS SOLDER,TURRET	3	TP1,TP2,TP3
88	88		23219A1-00	A1-07	1	E8
89	89		9007201-00	TRANSIPADS #10253	1	
90	90		9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
91	91		1302249-00	150 1/2W 5% CC	2	R21,R23
92	92		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	1	E11
93	93	SEE NOTES	23017E2-00	E2-01	1	E49
94	94		1000010-00	39.0 MMF 100V 5%200PPM DM15S	1	C81
95	95	BLANK			0	
96	96		1302955-00	750 1/4W 1% RN55D-F 100PPM	1	R56
97	97		1910645-00	75452 DRIVER,PERIPH,DUAL,	1	E39
98	98		1303064-00	75 1/4W 1% RN55D-F 100PPM	1	R24

99 NOTE: PARTS SUBSTITUTION LIST
100 NOTE: NOTE: FOR E49:23017E2-00 IS PREFERRED, ALLOWABLE SUBSTITUTION IS 2305887-00
101 NOTE:
102 NOTE:

DIGITAL	TITLE	SECTION 1 OF 1	SIZE	CODE	DOCUMENT NUMBER	REV
	RLV11 DISK CONTROL		K	PL	MR013-0-DRP	H

AUTOMATED BY PRTLST.2D(12) — P A R T S L I S T — SHEET 1 OF 2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	REFERENCE DESIGNATOR
1	1	D-MD-5012963-0-0	5012963-00	RLV11 BUS CONTROL	REF	
2	2		1012784-00	.047 MFD 50V -20+80 CER	26	C10-C35
3	3		1005306-00	6.8MFD 35V 10% S.TANT	5	C5,C6,C7,C8,C9
4	4		1012121-00	220.0 MMF 100V 1%200PPM DM15S	1	C3
5	5		1000042-00	1000.0 MMF 100V 5%200PPM DM15S	1	C4
6	6		1000019-00	150.0 MMF 100V 5%200PPM DM15S	1	C2
7	7		1009312-00	4700.0 MMF 100V 1% 663UW MYLR	1	C1
8	8		1211164-06	SW,DIP 1P 1A 10POS	1	E23
9	9		1211164-03	SW,DIP 1P 1A 7POS	1	E22
10	10		1213113-01	HANDLE,MODULE,	1	
11	11		1211813-00	SOCKET 16PIN LOW PROFILE	1	XE41
12	12		1300229-00	100 1/4W 5% CC	1	R8
13	13		1300295-00	330 1/4W 5% CC	4	R3,R6,R13,R15
14	14		1301424-00	680 1/4W 5% CC	4	R4,R7,R14,R16
15	15		1300365-00	1 K 1/4W 5% CC	18	R1,R9,R10,R18,R23-R36
16	16		1302873-00	261 1/4W 1% RN55D-F 100PPM	1	R19
17	17		1300439-00	*** THIS ITEM IS NOT USED ***	-	
18	18		1305114-00	3.48 K 1/4W 1% RN55D-F 100PPM	1	R5
19	19		1304856-00	4.64 K 1/4W 1% RN55D-F 100PPM	1	R11
20	20		1302397-00	180 K 1/4W 5% CC	1	R17
21	21		1300479-00	10 K 1/4W 5% CC	3	R20,R21,R22
22	22		1304839-00	51 K 1/4W 5% CC	1	R12
23	23		1510705-00	XA 05 NPN 500mW SI 60 50 P	1	Q1
24	24		1510706-00	XA 55 PNP 500mW SI 60 50 P	1	Q2
25	25		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	3	E24,E50,E75
26	26		1912801-00	LS02 NOR-GATE-QUAD 2IN	3	E4,E5,E51
27	27		1912803-00	LS04 INVERTER GATE-HEX 1I	3	E9,E49,E62
28	28		1912805-00	LS08 AND GATE-QUAD 2IN,PO	2	E2,E52
29	29		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E44
30	30		1912808-00	LS11 AND GATE-TRIPLE 3IN	2	E11,E74

REVISION HISTORY			
ENG	ECO NUMBER	REV	SECTION 1 OF 1
J.A	INIT	B	SECTION. VARIATION INDEX
E.R	00002	C	1.00
R.H	M8014-M1003	D	2.
			3.
			4.
			5.
			6.
			7.
			8.
			9.
			10.
			11.
			12.

RESP.ENG.: R. DULTMAN — DATE: 24-APR-78

MADE BY: R. KUPPEAL — DATE:

CHECKED: K. GLEASON — DATE: 24-APR-78

DSD.ENG.: R. DULTMAN — DATE:

PROD.: R. KIRK — DATE:

ASSEMBLY NUMBER: D-UA-M8014-0-0

D	J	G	L	T	A	L

TITLE: PARTS LIST

RLV11 BUS CONTROL

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	M8014-0-DBP	D

EDIT #: 7

PART NUMBER: M8014

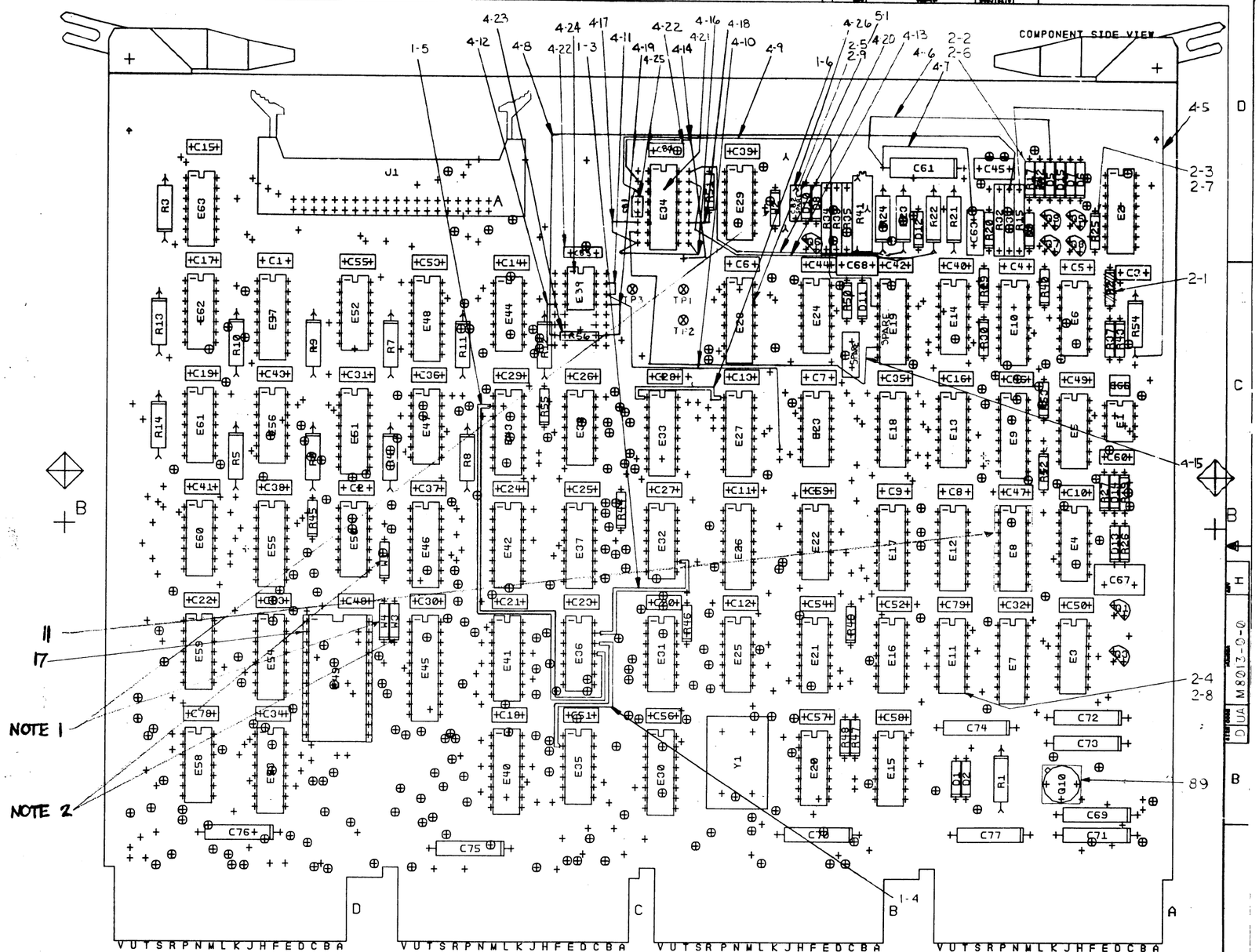
LINE	ITEM	DOCUMENT NUMBER	PART NUMBER		DESCRIPTION	QTY	REFERENCE DESIGNATOR
31	31		1912813-00		LS27 NOR GATE-TRIPLE 3IN	1	E57
32	32		1912816-00		LS32 OR GATE-QUAD 2IN,POS	2	E3,E22
33	33		1912820-00		LS51 A-O-I GATE 2-WIDE 2I	2	E47,E49
34	34		1912824-00		LS74 FF-D DUAL,EDGE TRIGG	6	E58,E63,E35,E37,E10,E6
35	35		1912833-00		LS109 FF-JK DUAL,POS EDGE	1	E69
36	36		1912837-00		LS123 ONE SHOT-DUAL,RETRIG	1	E20
37	37		1912697-00		LS174 FF-D HEX W/CLEAR	1	E26
38	38		1912853-00		LS175 FF-D QUAD	2	E42,E43
39	39		1912866-00		LS295 SHIFT REG.,4BIT RIGH	8	E71,E54,E64,E38,E77,E31,E65,E32
40	40		1912868-00		LS299 SHIFT REG, 8-BIT UNI	2	E55,E61
41	41		1910155-00	DEC	7408 AND GATE,POS,QUAD 2I	1	E56
42	42		1911521-00		7432 OR GATE-QUAD 2IN, PO	1	E19
43	43		1910153-00	DEC	74150 MUX 1 OF 16	1	E45
44	44		1910652-00		74161 COUNTER,SYNCHR, UP	1	E46
45	45		1910096-00	DEC	74191 COUNTER,SYNCHR, UP/D	2	E53,E58
46	46		1910534-00		74S04 INVERTER GATE-HEX 1I	1	E34
47	47		1910950-00		74S74 FF-D DUAL (-45 VERSI	2	E15,E59
48	48		1911527-00		8097 BUFFER GATE-HEX 2INP	3	E30,E70,E76
49	49		1909705-00	DEC	8881 NAND GATE-QUAD 2IN O	1	E8
50	50		1912951-00	DM	8556 COUNTER,BINARY,4BIT	5	E17,E28,E36,E47,E48
51	51		1911579-00		8641 TRANSCEIVER,BUS,QUA	2	E1,E14
52	52		1912730-00	DC	003 INTERRUPT,2 CIRCUIT	1	E16
53	53		1912729-00	DC	004 PROTOCOL,REG. SELECT	1	E12
54	54		1913040-00	DC	005 TRANSCEIVER 4BIT	4	E13,E21,E27,E33
55	55		1914035-00	DC	006 BIPOLAR,BUS ADDRESS	3	E18,E25,E60
56	56		1914038-00	DC	010 BIPOLAR,MEM ADDRESS,L	1	E7
57	57		1912810-00		LS20 NAND GATE-DUAL 4IN	1	E39
58	58		2113106-01		1K MOS RAM 250NS	4	E66,E72,E73,E78
59	59		23218A1-00		A1-07	1	E41
60	60		9000024-21		EYELET, ROLLED FLANGE, .121 OD X	8	
61	61		1301475-00		1.1 K 1/4W 5% CC	1	R2

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	M8014-0-DSP	P

TITLE: RLV11 BUS CONTROL

SECTION 1 OF 1

DIGITAL



NOTES:

PART SUBSTITUTION LIST:
23-017E2-00 : E49 PREFERRED
23-058B7-00: E49 SUSTITUTE
1. WHEN USING 23-017E2-00 FOR E49 REMOVE W2 & W4 (W1 & W3 INSERTED)
2. WHEN USING 23-058B7-00 FOR E49 REMOVE W1 & W3 (W2 & W4 INSERTED)

REV	CHANGE NO	CHK
C	M8013-00001	R. HULTMAN
D	M8013-M1002	R. HULTMAN
E	M8013-M1003	R. HULTMAN
F	M8013-M1004	R. HULTMAN
H	M8013-M1.5	R. HULTMAN

ETCH REV. C
P.C. DESIGN DATA BASE REV. CL

SIGNATURES	DATE
DRN.	10-10-77
CHK'D.	11-1-77
ENG.	
PROJ.ENG.	
PROD.	

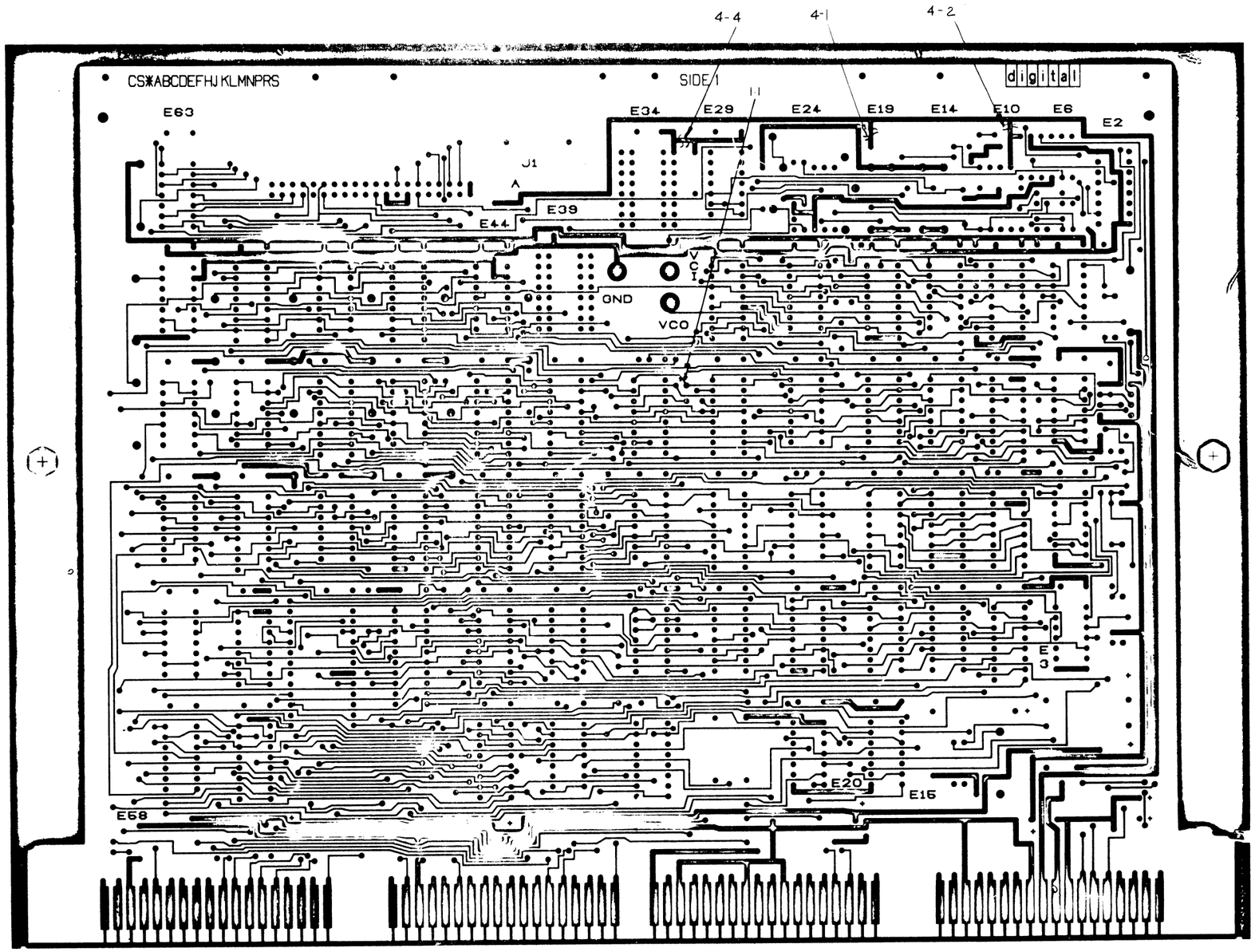
digital

TITLE: RLV11 DISK CONTROL

SIZE D | CODE UA | NUMBER M8013-0-0 | REV H

SCALE 2/1
SHT. 1 OF 4
NEXT HIGHER ASSY. 3-DD-M8013-0

MS# 10-1123

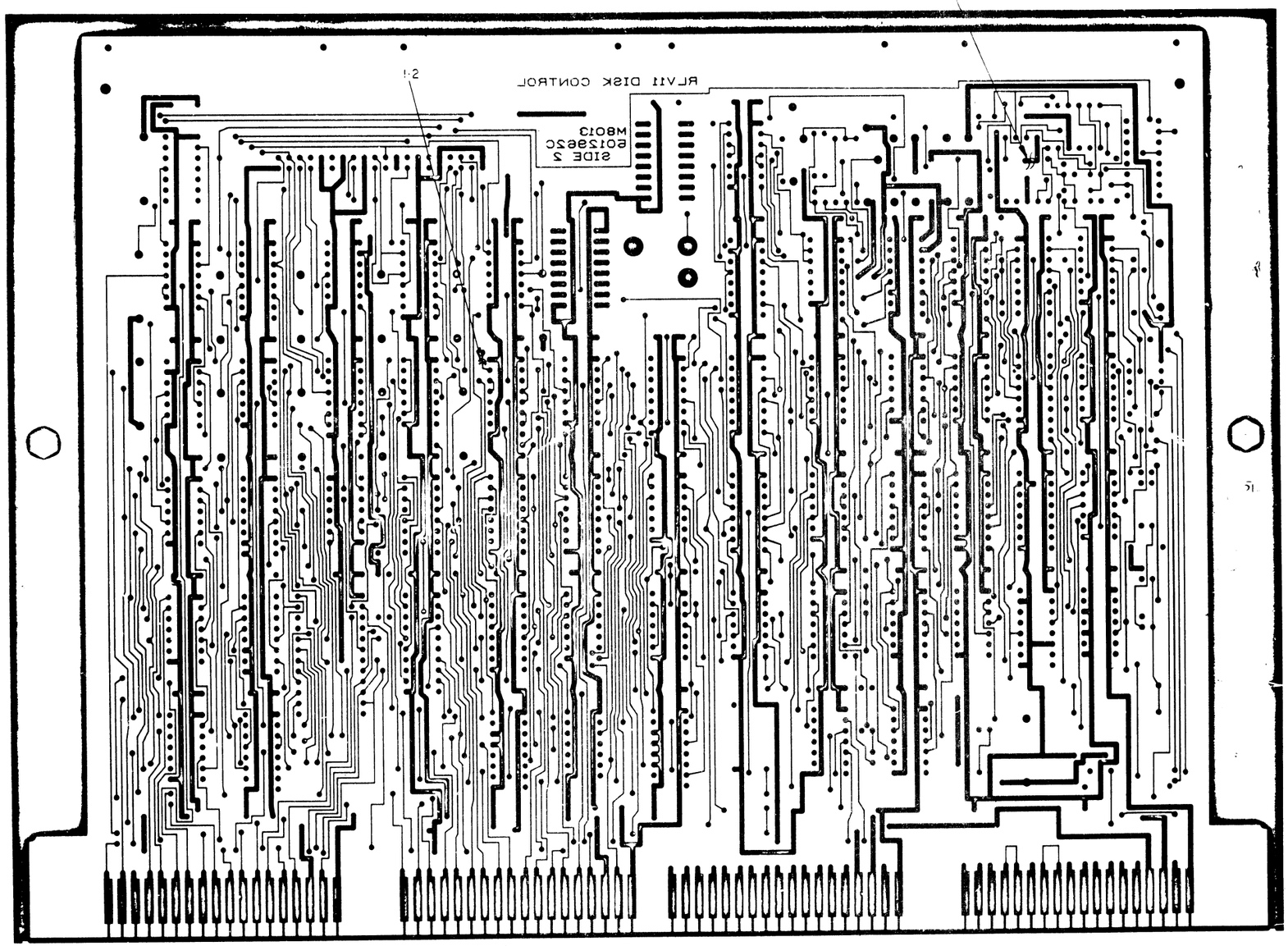


VIEWED FROM SIDE 1

REVISIONS		
CHK	CHANGE NO	REV

TITLE: RL V11 DISK CONTROL		SIZE: D	CODE: UA
SCALE: 2:1	SHEET 2 OF 4	NUMBER: M8013-0-0	REV: H
		DIST	

DUAM8013-0-0 H



VIEWED FROM SIDE 1

REVISIONS		
CHK	CHANGE NO	REV

TITLE	RLV11 DISK CONTROL	SIZE CODE	DUA M8013-00 REV H
SCALE 2:1	SHEET 3 OF 4		

DUA M8013-00 H

ML

REWORK INSTRUCTIONS:

E.C.O.#1

ETCH CUTS SIDE 1:

1-1. BETWEEN E33-1 AND PTH TO THE RIGHT OF E33-16.

ETCH CUTS SIDE 2:

1-2 BETWEEN E43-2 AND PTH ABOVE AND TO THE LEFT OF E43-1

WIRE ADDS SIDE 1:

1-3. FROM E32-9 TO E36-13
1-4. FROM E35-2 TO E36-12
1-5. FROM E43-2 TO E36-11
1-6. FROM E33-1 TO E27-1

ECO.#2

COMPONENT DELETES SIDE 1

2-1. R2, 330Ω (P/N, 13-00295-00)
2-2. R17, 180Ω (P/N, 13-01322-00)
2-3. R25, 470Ω (P/N, 13-00316-00)
2-4. E11, 7437 (P/N, 1910091-00)
2-5. E28, 74S112 (P/N, 1910545-00)

COMPONENT ADD SIDE 1

2-6 R17, 100Ω (P/N, 13-00229-00)
2-7 R25, 220Ω (P/N, 13-00271-00)
2-8 E11, 74S37 (P/N, 1912746-00)
2-9 E28, 74LS112 (P/N, 1912834-00)

ECO#4

ETCH CUTS

4-1 CUT ETCH AT LEFT SIDE OF C61, SIDE 1.
4-2 CUT ETCH AT LINE TO R17 AND R15, AT TOP OF R17, SIDE 1.
4-3 CUT ETCH AT LINE FROM TOP OF R15 TO FEED THRU UNDER R31, SIDE 2.
4-4 CUT ETCH AT E34-16 BETWEEN E34 AND R51 NEAREST R51, SIDE: 1.

WIRE ADDS:

4-5 BOTTOM OF R54 TO TOP OF R15.
4-6 TOP OF D5 (ANODE) TO LEFT SIDE OF C61 (TWO WIRES, REF: REWORK STEP 4-7).
4-7 LEFT SIDE OF C61 TO TOP OF C63 (REF: REWORK STEP 4-6).
4-8 TOP OF R31 TO E39 LOCATION, PIN 7 (REF: REWORK STEP 4-23).
4-9 E19 LOCATION, PIN 3 TO E34 LOCATION, PIN 3 (ROUTE WIRE UP BETWEEN R34 AND R33 THEN LEFT OVER R29 AND E34.)
4-10 FEED THRU TO THE LEFT OF E23, PIN 6 TO E39 LOCATION, PIN 14 (ROUTE WIRE UP TO C7 THEN LEFT TO C26 THEN UP) (TWO WIRES, REF: REWORK STEP 4-11).
4-11 E39 LOCATION, PIN 14 TO E39 LOCATION, PIN 15 (REF: REWORK STEP: 4-10).
4-12 E39 LOCATION, PIN 4 TO E39 LOCATION, PIN 8.
4-13 BOTTOM OF R22 TO E34, PIN 15 (ROUTE WIRE BELOW R41 AND E29).
4-14 E34 PIN 2 TO VC1 AT FEED THRU BELOW E34, PIN 9 (ROUTE WIRE ABOVE E34 THEN DOWN TO FEED THRU).
4-15 E34, PIN 7 TO E19 LOCATION, PIN 7.
4-16 E34, PIN 8 TO E34, PIN 9 (TWO WIRES, REF: REWORK STEP 4-17).
4-17 E34, PIN 8 TO E34, PIN 6 (REF: REWORK STEP 4-16).
4-18 E34, PIN 11 TO BOTTOM OF R51.

REWORK INSTRUCTIONS CONT.

ECO #4 (CONT.)

4-19 E39 LOCATION, PIN 13 TO E39 LOCATION, PIN 10 (REF: REWORK STEP 4-23).
4-20 BOTTOM OF R23 TO E34, PIN 16.

COMPONENT ADDS: (* ONLY THESE INSTRUCTIONS SHOWN ON UA DWG.)

* 4-21 E34 (P/N 19-11911-00) 74S124.
* 4-22 C80, C83 (P/N 10-12312-01) ABOVE E34 LOCATION AND E39 LOCATION.
* 4-23 R56 (P/N 13-02955-00) AT E39 LOCATION, PINS 7 AND 10 (REF: REWORK STEP 4-8 AND 4-18).
* 4-24 E39 (P/N 19-10645-00) AT PINS 1-4, 13-16.
* 4-25 C81 (P/N 10-00010-00) AT LOCATION E34 PINS 4 AND 5.
* 4-26 C82 (P/N 10-00020-00) AT LEFT OF D10 FEED THRUS TOP & BOTTOM.
4-27 R20 (P/N 13-03064-00)
4-28 R42 & R50 (P/N 13-00316-00)
4-29 R31 (P/N 13-05125-00)
4-30 R17 (P/N 13-02858-00).
4-31 R34 (P/N 13-14187-00).
4-32 R33 (P/N 13-12923-00).
4-33 R35 (P/N 13-05145-00).
4-34 R32 (P/N 13-13592-00).
4-35 R54 (P/N 13-00285-00).
4-36 R21 & R23 (P/N 13-00249-00)
4-37 C61 (P/N 10-00050-00)
4-38 C45, C68 (P/N 10-12312-01)

COMPONENT DELETES:

4-39 R31 (P/N 13-03047-00)
4-40 R17 (P/N 13-00229-00)
4-41 R20 (P/N 13-01322-00)
4-42 R34 (P/N 13-04862-00)
4-43 R33 (P/N 13-04858-00)
4-44 R35 (P/N 13-02645-00)
4-45 R32 (P/N 13-10630-00)
4-46 R54 (P/N 13-00228-00)
4-47 R21 & R23 (P/N 13-00260-00)
4-48 C61 (P/N 10-05784-00)
4-49 C45 & C68 (P/N 10-10274-00)
4-50 E19 (P/N 19-11911-00).
4-51 C62 (P/N 10-00011-00)
4-52 R42 & R50 (P/N 13000365-00)

ECO #5

COMPONENT DELETE

5-1 C82 (P/N 10-00020-00)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
RL VII DISK CONTROL	D	UA	M8013-00-00	H
SCALE —/— SHEET 4 OF 4	DIST.			

DEC FORM NO. DRD 137

10.44 (265.17MM) REF

COMPONENT SIDE VIEW

8.41 (213.61MM) REF

10

60 8 PLACES

1

X TH1

X TH2

12

11

NOTE 1

NOTE 2

D C B A

V U T S R P N M L K J H F E D C B A

NOTES:
1. FOR STANDARD DEVICE ADDRESS CSR:174400
E23 SWITCH 1,2,5 ARE ON. E23 SWITCH 3,4,6,7,8,9,10 ARE OFF.

2. FOR STANDARD VECTOR ADDRESS VECTOR:160
E22 SWITCH 3,4,5 ARE ON. E22 SWITCH 1,2,6,7 ARE OFF

CHK	CHANGE NO	REV
JA	M8014-0002	C
JA	M8014-0003	D

ETCH REV.	B
P.C. DESIGN DATA BASE REV.	B

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ. ENG. P. Kotchan	
PROD.	
SCALE 2/1	
SHT. 1 OF 6	
NEXT HIGHER ASSY. B-DD-M8014-0	

digital

TITLE RLVII BUS CONTROL

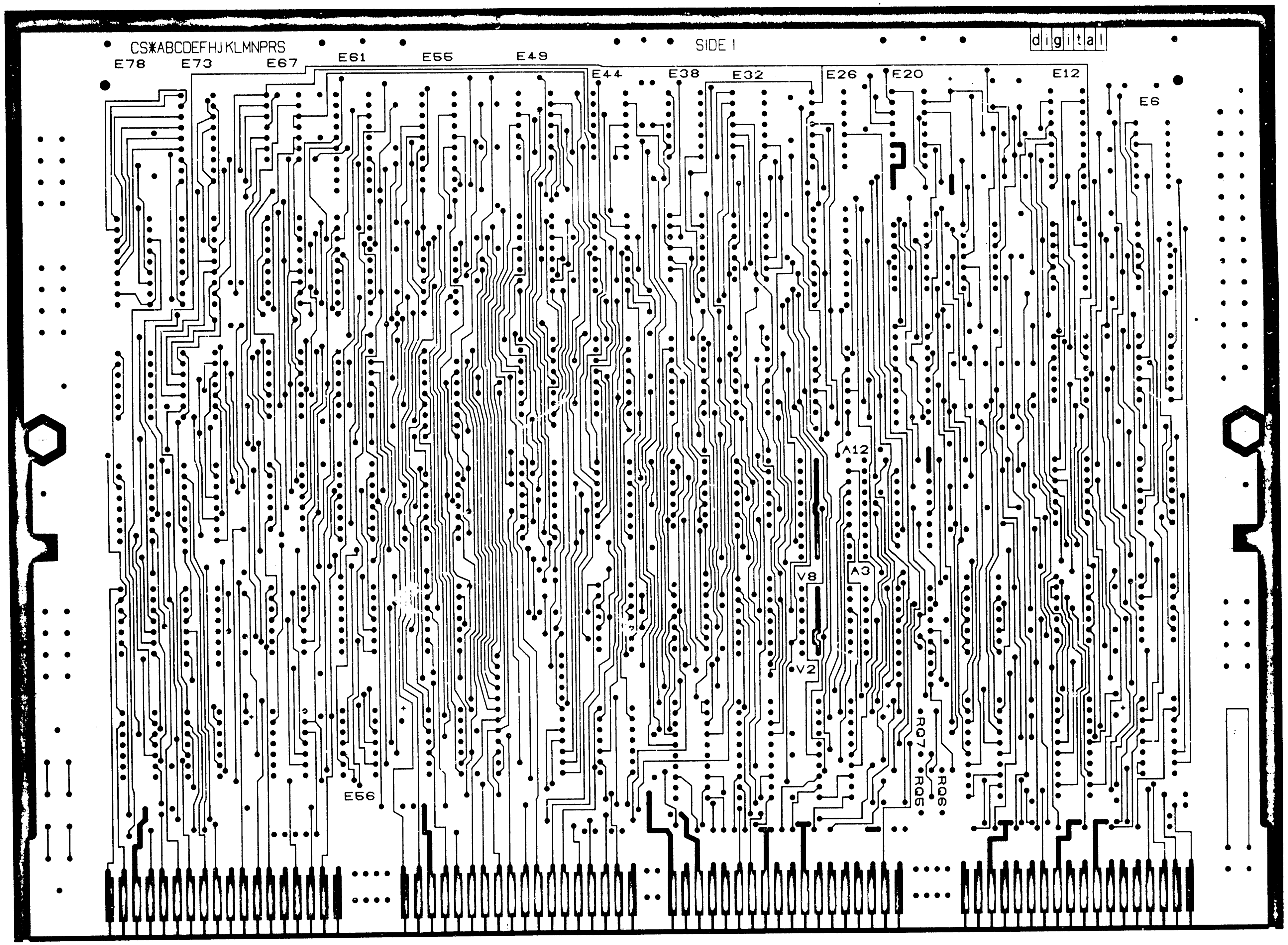
SIZE	CODE	NUMBER	REV
D	UA	M8014-0-0	D

MS#104124

M8014
5012963 B

L1

LAYER I



VIEWED FROM SIDE I

RLV11 BUS CONTROL

D UA-M8014-0-0

D

SHEET 2 OF 6

8 7 6 5 4 3 2 1

5012963 B

LAYER 2

L2

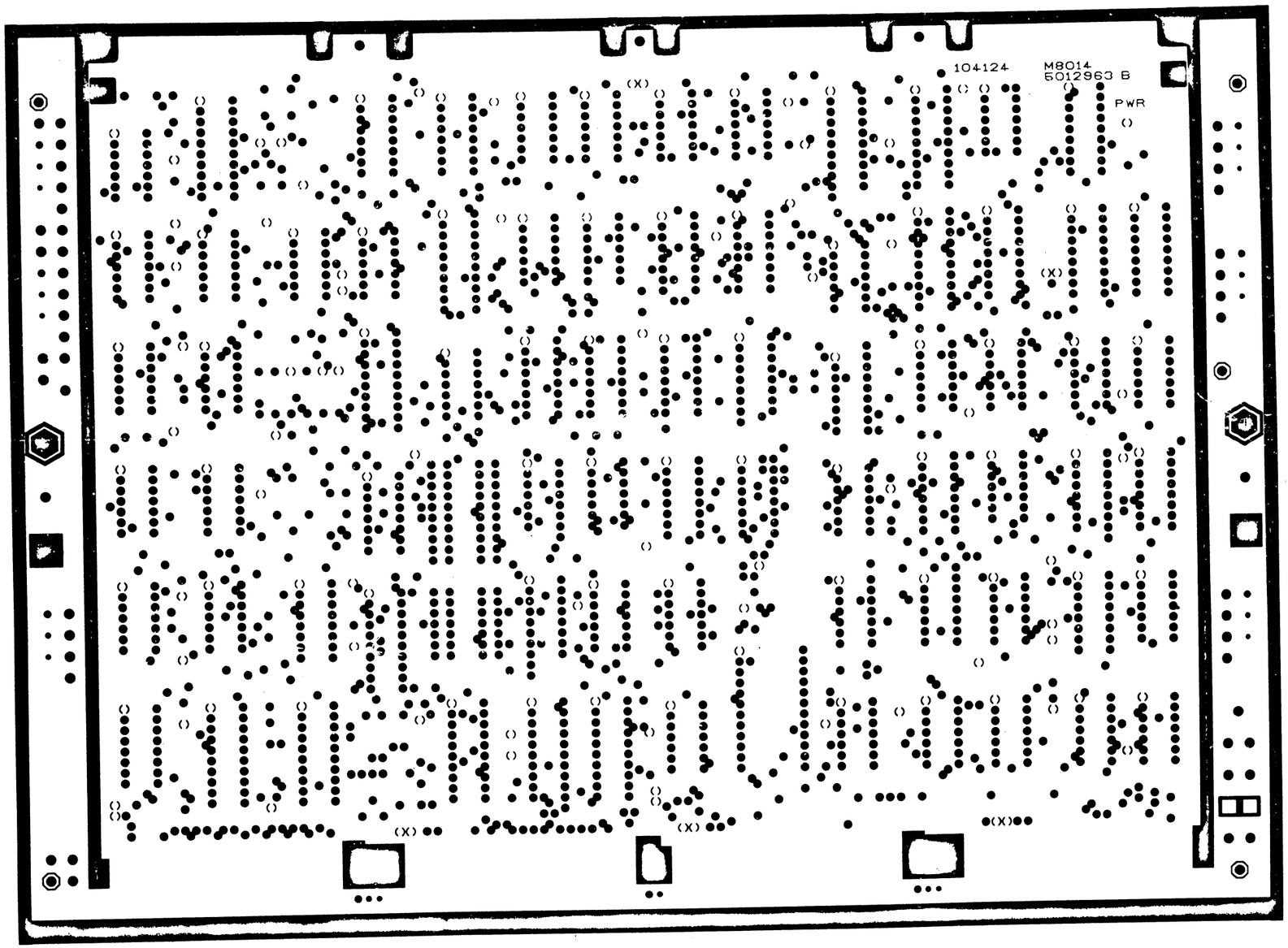
GND

VIEWED FROM SIDE 1

RLV11 BUS CONTROL D UA. M8014-0-0 D

3 6

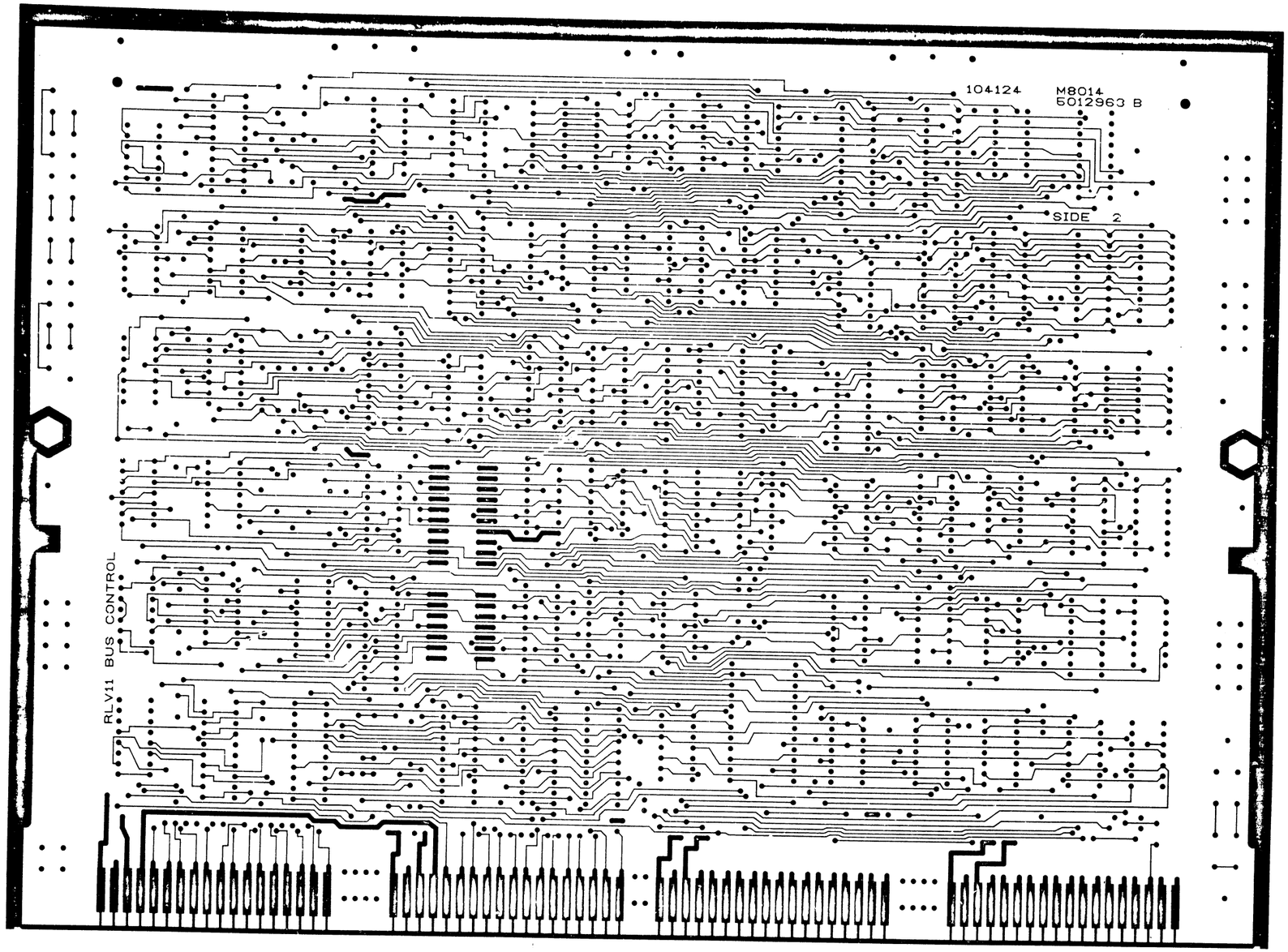
8 7 6 5 4 3 2 1



VIEWED FROM SIDE2

REVISIONS		
CHK	CHANGE NO	

TITLE: RLV11 BUS CONTROL
SIZE: D
DWG NO: UA-M8014-0-0
REV: D
SCALE:
SHEET: 4 OF 6



VIEWED FROM SIDE 2

RLV11 BUS CONTROL D UA M8014-0-0 D

REWORK INSTRUCTIONS:

E.CO #1:

COMPONENT DELETE SIDE 1:

1-1 DELETE R2, 3.3K (P/N. 1300439-00)

COMPONENT ADDS SIDE 1:

1-2 ADD R2, 1.1K (P/N 1301975-00)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	RLVII BUS CONTROL		
SIZE	CODE	NUMBER	REV.
D	UA	M8014-0-0	D
SCALE	2/1	SHEET 6 OF 6	D.ST.

DEC PART NUMBER: 23-017E2-00 ORIGINATOR: RICH HULTMAN BINARY DATA "1" = HIGH SHEET 2 OF 17
LEFT COLUMN OF BIN DATA IS MSB DATE ORIGINATED: 6-DEC-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	000	0000	341	E1	11100001	32	020	0040	012	0A	00001010	64	040	0100	040	20	00100000	96	060	0140	104	44	01000100
1	001	0001	224	94	10010100	33	021	0041	242	A2	10100010	65	041	0101	016	0E	00001110	97	061	0141	104	44	01000100
2	002	0002	342	E2	11100010	34	022	0042	242	A2	10100010	66	042	0102	014	0C	00001100	98	062	0142	270	B8	10111000
3	003	0003	142	62	01110010	35	023	0043	242	A2	10100010	67	043	0103	220	90	10010000	99	063	0143	240	A0	10100000
4	004	0004	142	62	01100010	36	024	0044	351	E9	11101001	68	044	0104	362	F2	11110010	100	064	0144	100	40	01000000
5	005	0005	006	06	00000110	37	025	0045	240	A0	10100000	69	045	0105	146	66	01100110	101	065	0145	012	0A	00001010
6	006	0006	000	00	00000000	38	026	0046	040	20	00100000	70	046	0106	006	06	00000110	102	066	0146	016	0E	00001110
7	007	0007	006	06	00000110	39	027	0047	242	A2	10100010	71	047	0107	000	00	00000000	103	067	0147	373	FB	11111011
8	008	0010	230	98	10011000	40	028	0050	352	EA	11101010	72	048	0110	010	08	00001000	104	068	0150	146	66	01100110
9	009	0011	341	E1	11100001	41	029	0051	240	A0	10100000	73	049	0111	353	EB	11101011	105	069	0151	006	06	00000110
10	00A	0012	226	96	10011110	42	02A	0052	230	98	10011000	74	04A	0112	200	80	10000000	106	06A	0152	000	00	00000000
11	00B	0013	341	E1	11100001	43	02B	0053	354	EC	11101100	75	04B	0113	050	28	00101000	107	06B	0153	006	06	00000110
12	00C	0014	014	0C	00001100	44	02C	0054	146	66	01100110	76	04C	0114	040	20	00100000	108	06C	0154	224	94	10010100
13	00D	0015	344	E4	11100100	45	02D	0055	006	06	00000110	77	04D	0115	250	A8	10101000	109	06D	0155	374	FC	11111100
14	00E	0016	220	90	10010000	46	02E	0056	000	00	00000000	78	04E	0116	274	BC	10111100	110	06E	0156	232	9A	10011010
15	00F	0017	341	E1	11100001	47	02F	0057	006	06	00000110	79	04F	0117	120	50	01010000	111	06F	0157	375	FD	11111101
16	010	0020	012	0A	00001010	48	030	0060	012	0A	00001010	80	050	0120	104	44	01000100	112	070	0160	146	66	01100110
17	011	0021	232	9A	10011010	49	031	0061	050	28	00101000	81	051	0121	104	44	01000100	113	071	0161	006	06	00000110
18	012	0022	341	E1	11100001	50	032	0062	040	20	00100000	82	052	0122	270	B8	10111000	114	072	0162	000	00	00000000
19	013	0023	344	24	00100100	51	033	0063	250	A8	10101000	83	053	0123	240	A0	10100000	115	073	0163	006	06	00000110
20	014	0024	346	E6	11100110	52	034	0064	274	BC	10111100	84	054	0124	100	40	01000000	116	074	0164	226	96	10010110
21	015	0025	224	94	10010100	53	035	0065	120	50	01010000	85	055	0125	012	0A	00001010	117	075	0165	377	FF	11111111
22	016	0026	341	E1	11100001	54	036	0066	104	44	01000100	86	056	0126	016	0E	00001110	118	076	0166	146	66	01100110
23	017	0027	006	06	00000110	55	037	0067	104	44	01000100	87	057	0127	220	90	10010000	119	077	0167	006	06	00000110
24	018	0030	144	64	01100100	56	038	0070	270	B8	10111000	88	058	0130	353	EB	11101011	120	078	0170	000	00	00000000
25	019	0031	040	20	00100000	57	039	0071	240	A0	10100000	89	059	0131	044	24	00100100	121	079	0171	006	06	00000110
26	01A	0032	341	E1	11100001	58	03A	0072	100	40	01000000	90	05A	0132	101	41	01000001	122	07A	0172	006	06	00000110
27	01B	0033	044	24	00100100	59	03B	0073	012	0A	00001010	91	05B	0133	240	A0	10100000	123	07B	0173	006	06	00000110
28	01C	0034	354	EC	11101100	60	03C	0074	042	22	00100010	92	05C	0134	040	20	00100000	124	07C	0174	000	00	00000000
29	01D	0035	146	66	01100110	61	03D	0075	146	66	01100110	93	05D	0135	250	A8	10101000	125	07D	0175	146	66	01100110
30	01E	0036	006	06	00000110	62	03E	0076	006	06	00000110	94	05E	0136	274	BC	10111100	126	07E	0176	006	06	00000110
31	01F	0037	000	00	00000000	63	03F	0077	000	00	00000000	95	05F	0137	120	50	01010000	127	07F	0177	006	06	00000110

REV	NOTES	FIRST USED ON OPTION MODEL	
	1. CS ALL LOW		
B		DRN.	DATE
A		CHK'D.	DATE
		ENG.	DATE
		PROJ.ENG.	DATE
		PROD.	DATE
		NEXT HIGHER ASSEMBLY	
CHR			

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: 2046 X 8
ROM/PROM PATTERN SPEC

SIZE	CODE	NUMBER	REV
K	PS	23017E2-0-M	

DIST.

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
128	080	0200	044	24	00100100	160	0A0	0240	221	91	10010001	192	0C0	0300	044	24	00100100	224	0E0	0340	142	62	01100010
129	081	0201	242	A2	10100010	161	0A1	0241	221	91	10010001	193	0C1	0301	221	91	10010001	225	0E1	0341	006	06	00000110
130	082	0202	222	92	10010010	162	0A2	0242	221	91	10010001	194	0C2	0302	364	F4	11110100	226	0E2	0342	006	06	00000110
131	083	0203	342	E2	11100010	163	0A3	0243	221	91	10010001	195	0C3	0303	142	62	01100010	227	0E3	0343	006	06	00000110
132	084	0204	220	90	10010000	164	0A4	0244	363	F3	11110011	196	0C4	0304	006	06	00000110	228	0E4	0344	232	9A	10011010
133	085	0205	340	E0	11100000	165	0A5	0245	142	62	01100010	197	0C5	0305	006	06	00000110	229	0E5	0345	357	EF	11101111
134	086	0206	142	62	01100010	166	0A6	0246	006	06	00000110	198	0C6	0306	006	06	00000110	230	0E6	0346	220	90	10010000
135	087	0207	006	06	00000110	167	0A7	0247	006	06	00000110	199	0C7	0307	006	06	00000110	231	0E7	0347	220	90	10010000
136	088	0210	224	94	10010100	168	0A8	0250	006	06	00000110	200	0C8	0310	006	06	00000110	232	0E8	0350	220	90	10010000
137	089	0211	344	E4	11100100	169	0A9	0251	006	06	00000110	201	0C9	0311	006	06	00000110	233	0E9	0351	345	E5	11100101
138	08A	0212	220	90	10010000	170	0AA	0252	006	06	00000110	202	0CA	0312	006	06	00000110	234	0EA	0352	142	62	01100010
139	08B	0213	342	E2	11100010	171	0AB	0253	006	06	00000110	203	0CB	0313	006	06	00000110	235	0EB	0353	006	06	00000110
140	08C	0214	142	62	01100010	172	0AC	0254	242	A2	10100010	204	0CC	0314	046	26	00100110	236	0EC	0354	006	06	00000110
141	08D	0215	006	06	00000110	173	0AD	0255	230	98	10011000	205	0CD	0315	142	62	01100010	237	0ED	0355	006	06	00000110
142	08E	0216	006	06	00000110	174	0AE	0256	355	ED	11101101	206	0CE	0316	006	06	00000110	238	0EE	0356	006	06	00000110
143	08F	0217	006	06	00000110	175	0AF	0257	220	90	10010000	207	0CF	0317	006	06	00000110	239	0EF	0357	006	06	00000110
144	090	0220	224	94	10010100	176	0B0	0260	344	E4	11100100	208	0D0	0320	201	81	10000001	240	0F0	0360	006	06	00000110
145	091	0221	344	E4	11100100	177	0B1	0261	142	62	01100010	209	0D1	0321	201	81	10000001	241	0F1	0361	006	06	00000110
146	092	0222	204	84	10000100	178	0B2	0262	006	06	00000110	210	0D2	0322	014	0C	00001100	242	0F2	0362	006	06	00000110
147	093	0223	204	84	10000100	179	0B3	0263	006	06	00000110	211	0D3	0323	220	90	10010000	243	0F3	0363	006	06	00000110
148	094	0224	204	84	10000100	180	0B4	0264	232	9A	10011010	212	0D4	0324	242	A2	10100010	244	0F4	0364	006	06	00000110
149	095	0225	204	84	10000100	181	0B5	0265	357	EF	11101111	213	0D5	0325	012	0A	00001010	245	0F5	0365	006	06	00000110
150	096	0226	014	0C	00001100	182	0B6	0266	220	90	10010000	214	0D6	0326	010	08	00001000	246	0F6	0366	006	06	00000110
151	097	0227	343	E3	11100011	183	0B7	0267	344	E4	11100100	215	0D7	0327	367	F7	11110111	247	0F7	0367	006	06	00000110
152	098	0230	252	AA	10101010	184	0B8	0270	142	62	01100010	216	0D8	0330	000	00	00000000	248	0F8	0370	006	06	00000110
153	099	0231	272	BA	10111010	185	0B9	0271	006	06	00000110	217	0D9	0331	142	62	01100010	249	0F9	0371	006	06	00000110
154	09A	0232	226	96	10010110	186	0BA	0272	006	06	00000110	218	0DA	0332	006	06	00000110	250	0FA	0372	006	06	00000110
155	09B	0233	353	EB	11101011	187	0BB	0273	006	06	00000110	219	0DB	0333	006	06	00000110	251	0FB	0373	006	06	00000110
156	09C	0234	242	A2	10100010	188	0BC	0274	000	00	00000000	220	0DC	0334	230	98	10011000	252	0FC	0374	006	06	00000110
157	09D	0235	252	AA	10101010	189	0BD	0275	142	62	01100010	221	0DD	0335	371	F9	11111001	253	0FD	0375	006	06	00000110
158	09E	0236	016	0E	00001110	190	0BE	0276	006	06	00000110	222	0DE	0336	220	90	10010000	254	0FE	0376	006	06	00000110
159	09F	0237	273	BB	10111011	191	0BF	0277	006	06	00000110	223	0DF	0337	344	E4	11100100	255	0FF	0377	006	06	00000110

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
256	100	0400	234	9C	10011100	288	120	0440	006	06	00000110	320	140	0500	006	06	00000110	352	160	0540	006	06	00000110
257	101	0401	234	9C	10011100	289	121	0441	006	06	00000110	321	141	0501	006	06	00000110	353	161	0541	006	06	00000110
258	102	0402	342	E2	11100010	290	122	0442	006	06	00000110	322	142	0502	006	06	00000110	354	162	0542	006	06	00000110
259	103	0403	142	62	01100010	291	123	0443	006	06	00000110	323	143	0503	006	06	00000110	355	163	0543	006	06	00000110
260	104	0404	006	06	00000110	292	124	0444	006	06	00000110	324	144	0504	006	06	00000110	356	164	0544	006	06	00000110
261	105	0405	006	06	00000110	293	125	0445	006	06	00000110	325	145	0505	006	06	00000110	357	165	0545	006	06	00000110
262	106	0406	006	06	00000110	294	126	0446	006	06	00000110	326	146	0506	006	06	00000110	358	166	0546	006	06	00000110
263	107	0407	006	06	00000110	295	127	0447	006	06	00000110	327	147	0507	006	06	00000110	359	167	0547	006	06	00000110
264	108	0410	236	9E	10011110	296	128	0450	006	06	00000110	328	148	0510	006	06	00000110	360	168	0550	006	06	00000110
265	109	0411	343	E3	11100011	297	129	0451	006	06	00000110	329	149	0511	006	06	00000110	361	169	0551	006	06	00000110
266	10A	0412	142	62	01100010	298	12A	0452	006	06	00000110	330	14A	0512	006	06	00000110	362	16A	0552	006	06	00000110
267	10B	0413	006	06	00000110	299	12B	0453	006	06	00000110	331	14B	0513	006	06	00000110	363	16B	0553	006	06	00000110
268	10C	0414	160	70	01110000	300	12C	0454	006	06	00000110	332	14C	0514	006	06	00000110	364	16C	0554	006	06	00000110
269	10D	0415	050	28	00101000	301	12D	0455	006	06	00000110	333	14D	0515	006	06	00000110	365	16D	0555	006	06	00000110
270	10E	0416	060	30	00110000	302	12E	0456	006	06	00000110	334	14E	0516	006	06	00000110	366	16E	0556	006	06	00000110
271	10F	0417	040	20	00100000	303	12F	0457	006	06	00000110	335	14F	0517	006	06	00000110	367	16F	0557	006	06	00000110
272	110	0420	140	60	01100000	304	130	0460	006	06	00000110	336	150	0520	006	06	00000110	368	170	0560	006	06	00000110
273	111	0421	000	00	00000000	305	131	0461	006	06	00000110	337	151	0521	006	06	00000110	369	171	0561	006	06	00000110
274	112	0422	142	62	01100010	306	132	0462	006	06	00000110	338	152	0522	006	06	00000110	370	172	0562	006	06	00000110
275	113	0423	006	06	00000110	307	133	0463	006	06	00000110	339	153	0523	006	06	00000110	371	173	0563	006	06	00000110
276	114	0424	006	06	00000110	308	134	0464	006	06	00000110	340	154	0524	006	06	00000110	372	174	0564	006	06	00000110
277	115	0425	006	06	00000110	309	135	0465	006	06	00000110	341	155	0525	006	06	00000110	373	175	0565	006	06	00000110
278	116	0426	006	06	00000110	310	136	0466	006	06	00000110	342	156	0526	006	06	00000110	374	176	0566	006	06	00000110
279	117	0427	006	06	00000110	311	137	0467	006	06	00000110	343	157	0527	006	06	00000110	375	177	0567	006	06	00000110
280	118	0430	006	06	00000110	312	138	0470	006	06	00000110	344	158	0530	006	06	00000110	376	178	0570	006	06	00000110
281	119	0431	006	06	00000110	313	139	0471	006	06	00000110	345	159	0531	006	06	00000110	377	179	0571	006	06	00000110
282	11A	0432	006	06	00000110	314	13A	0472	006	06	00000110	346	15A	0532	006	06	00000110	378	17A	0572	006	06	00000110
283	11B	0433	006	06	00000110	315	13B	0473	006	06	00000110	347	15B	0533	006	06	00000110	379	17B	0573	006	06	00000110
284	11C	0434	006	06	00000110	316	13C	0474	006	06	00000110	348	15C	0534	006	06	00000110	380	17C	0574	006	06	00000110
285	11D	0435	006	06	00000110	317	13D	0475	006	06	00000110	349	15D	0535	006	06	00000110	381	17D	0575	006	06	00000110
286	11E	0436	006	06	00000110	318	13E	0476	006	06	00000110	350	15E	0536	006	06	00000110	382	17E	0576	006	06	00000110
287	11F	0437	006	06	00000110	319	13F	0477	006	06	00000110	351	15F	0537	006	06	00000110	383	17F	0577	006	06	00000110

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT HEX BIN DAT	OCT DAT	DEC LOC	HEX LOC	OCT LOC	OCT HEX BIN DAT	OCT DAT
384	180	0600	00000110	006	416	1A0	0640	00000110	006
385	181	0601	00000001	001	417	1A1	0641	00000001	001
386	182	0602	00000010	002	418	1A2	0642	00000010	002
387	183	0603	00000011	003	419	1A3	0643	00000011	003
388	184	0604	00000100	004	420	1A4	0644	00000100	004
389	185	0605	00000101	005	421	1A5	0645	00000101	005
390	186	0606	00000110	006	422	1A6	0646	00000110	006
391	187	0607	00000111	007	423	1A7	0647	00000111	007
392	188	0610	00001000	010	424	1A8	0650	00001000	010
393	189	0611	00001001	011	425	1A9	0651	00001001	011
394	18A	0612	00001010	012	426	1AA	0652	00001010	012
395	18B	0613	00001011	013	427	1AB	0653	00001011	013
396	18C	0614	00001100	014	428	1AC	0654	00001100	014
397	18D	0615	00001101	015	429	1AD	0655	00001101	015
398	18E	0616	00001110	016	430	1AE	0656	00001110	016
399	18F	0617	00001111	017	431	1AF	0657	00001111	017
400	190	0620	00010000	020	432	1B0	0660	00010000	020
401	191	0621	00010001	021	433	1B1	0661	00010001	021
402	192	0622	00010010	022	434	1B2	0662	00010010	022
403	193	0623	00010011	023	435	1B3	0663	00010011	023
404	194	0624	00010100	024	436	1B4	0664	00010100	024
405	195	0625	00010101	025	437	1B5	0665	00010101	025
406	196	0626	00010110	026	438	1B6	0666	00010110	026
407	197	0627	00010111	027	439	1B7	0667	00010111	027
408	198	0630	00011000	030	440	1B8	0670	00011000	030
409	199	0631	00011001	031	441	1B9	0671	00011001	031
410	19A	0632	00011010	032	442	1BA	0672	00011010	032
411	19B	0633	00011011	033	443	1BB	0673	00011011	033
412	19C	0634	00011100	034	444	1BC	0674	00011100	034
413	19D	0635	00011101	035	445	1BD	0675	00011101	035
414	19E	0636	00011110	036	446	1BE	0676	00011110	036
415	19F	0637	00011111	037	447	1BF	0677	00011111	037

TITLE	SIZE	CODE	NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	K	PS	2048 X 8 ROM/PROM PATTERN SPEC 23017E2-0-0	

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT HEX BIN DAT	OCT DAT	DEC LOC	HEX LOC	OCT LOC	OCT HEX BIN DAT	OCT DAT
512	200	1000	00000000	000	544	220	1040	00000000	000
513	201	1001	00000001	001	545	221	1041	00000001	001
514	202	1002	00000010	002	546	222	1042	00000010	002
515	203	1003	00000011	003	547	223	1043	00000011	003
516	204	1004	00000100	004	548	224	1044	00000100	004
517	205	1005	00000101	005	549	225	1045	00000101	005
518	206	1006	00000110	006	550	226	1046	00000110	006
519	207	1007	00000111	007	551	227	1047	00000111	007
520	208	1010	00001000	010	552	228	1050	00001000	010
521	209	1011	00001001	011	553	229	1051	00001001	011
522	20A	1012	00001010	012	554	22A	1052	00001010	012
523	20B	1013	00001011	013	555	22B	1053	00001011	013
524	20C	1014	00001100	014	556	22C	1054	00001100	014
525	20D	1015	00001101	015	557	22D	1055	00001101	015
526	20E	1016	00001110	016	558	22E	1056	00001110	016
527	20F	1017	00001111	017	559	22F	1057	00001111	017
528	210	1020	00010000	020	560	230	1060	00010000	020
529	211	1021	00010001	021	561	231	1061	00010001	021
530	212	1022	00010010	022	562	232	1062	00010010	022
531	213	1023	00010011	023	563	233	1063	00010011	023
532	214	1024	00010100	024	564	234	1064	00010100	024
533	215	1025	00010101	025	565	235	1065	00010101	025
534	216	1026	00010110	026	566	236	1066	00010110	026
535	217	1027	00010111	027	567	237	1067	00010111	027
536	218	1030	00011000	030	568	238	1070	00011000	030
537	219	1031	00011001	031	569	239	1071	00011001	031
538	21A	1032	00011010	032	570	23A	1072	00011010	032
539	21B	1033	00011011	033	571	23B	1073	00011011	033
540	21C	1034	00011100	034	572	23C	1074	00011100	034
541	21D	1035	00011101	035	573	23D	1075	00011101	035
542	21E	1036	00011110	036	574	23E	1076	00011110	036
543	21F	1037	00011111	037	575	23F	1077	00011111	037

TITLE	SIZE	CODE	NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	K	PS	2048 X 8 ROM/PROM PATTERN SPEC 23017E2-0-0	

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
640	280	1200	044	24	00100100
641	281	1201	242	A2	10100010
642	282	1202	222	92	10010010
643	283	1203	342	E2	11100010
644	284	1204	220	90	10010000
645	285	1205	340	E0	11100000
646	286	1206	142	62	01100010
647	287	1207	006	06	00000110
648	288	1210	224	94	10010100
649	289	1211	344	E4	11100100
650	28A	1212	220	90	10010000
651	28B	1213	342	E2	11100010
652	28C	1214	142	62	01100010
653	28D	1215	006	06	00000110
654	28E	1216	006	06	00000110
655	28F	1217	006	06	00000110
656	290	1220	224	94	10010100
657	291	1221	344	E4	11100100
658	292	1222	204	84	10000100
659	293	1223	204	84	10000100
660	294	1224	204	84	10000100
661	295	1225	014	0C	00001100
662	296	1226	204	84	10000100
663	297	1227	343	E3	11100011
664	298	1230	252	AA	10101010
665	299	1231	272	BA	10111010
666	29A	1232	226	96	10010110
667	29B	1233	353	EB	11101011
668	29C	1234	242	A2	10100010
669	29D	1235	150	68	01101000
670	29E	1236	016	0E	00001110
671	29F	1237	120	50	01010000
672	2A0	1240	101	41	01000001
673	2A1	1241	221	91	10010001
674	2A2	1242	221	91	10010001
675	2A3	1243	221	91	10010001
676	2A4	1244	221	91	10010001
677	2A5	1245	221	91	10010001
678	2A6	1246	362	F2	11110010
679	2A7	1247	142	62	01100010
680	2A8	1250	006	06	00000110
681	2A9	1251	006	06	00000110
682	2AA	1252	006	06	00000110
683	2AB	1253	006	06	00000110
684	2AC	1254	242	A2	10100010
685	2AD	1255	230	98	10011000
686	2AE	1256	355	ED	11101101
687	2AF	1257	220	90	10010000
688	2B0	1260	344	E4	11100100
689	2B1	1261	142	62	01100010
690	2B2	1262	006	06	00000110
691	2B3	1263	006	06	00000110
692	2B4	1264	232	9A	10011010
693	2B5	1265	357	EF	11101111
694	2B6	1266	220	90	10010000
695	2B7	1267	344	E4	11100100
696	2B8	1270	142	62	01100010
697	2B9	1271	006	06	00000110
698	2BA	1272	006	06	00000110
699	2BB	1273	006	06	00000110
700	2BC	1274	000	00	00000000
701	2BD	1275	142	62	01100010
702	2BE	1276	006	06	00000110
703	2BF	1277	006	06	00000110
704	2C0	1300	044	24	00100100
705	2C1	1301	104	44	01000100
706	2C2	1302	100	40	01000000
707	2C3	1303	140	60	01100000
708	2C4	1304	012	0A	00001010
709	2C5	1305	363	F3	11110011
710	2C6	1306	142	62	01100010
711	2C7	1307	006	06	00000110
712	2C8	1310	046	26	00100110
713	2C9	1311	142	62	01100010
714	2CA	1312	006	06	00000110
715	2CB	1313	006	06	00000110
716	2CC	1314	230	98	10011000
717	2CD	1315	365	F5	11110101
718	2CE	1316	220	90	10010000
719	2CF	1317	344	E4	11100100
720	2D0	1320	142	62	01100010
721	2D1	1321	006	06	00000110
722	2D2	1322	006	06	00000110
723	2D3	1323	006	06	00000110
724	2D4	1324	232	9A	10011010
725	2D5	1325	357	EF	11101111
726	2D6	1326	220	90	10010000
727	2D7	1327	220	90	10010000
728	2D8	1330	220	90	10010000
729	2D9	1331	345	E5	11100101
730	2DA	1332	142	62	01100010
731	2DB	1333	006	06	00000110
732	2DC	1334	006	06	00000110
733	2DD	1335	006	06	00000110
734	2DE	1336	006	06	00000110
735	2DF	1337	006	06	00000110
736	2E0	1340	006	06	00000110
737	2E1	1341	006	06	00000110
738	2E2	1342	006	06	00000110
739	2E3	1343	006	06	00000110
740	2E4	1344	006	06	00000110
741	2E5	1345	006	06	00000110
742	2E6	1346	006	06	00000110
743	2E7	1347	006	06	00000110
744	2E8	1350	006	06	00000110
745	2E9	1351	006	06	00000110
746	2EA	1352	006	06	00000110
747	2EB	1353	006	06	00000110
748	2EC	1354	006	06	00000110
749	2ED	1355	006	06	00000110
750	2EE	1356	006	06	00000110
751	2EF	1357	006	06	00000110
752	2F0	1360	006	06	00000110
753	2F1	1361	006	06	00000110
754	2F2	1362	006	06	00000110
755	2F3	1363	006	06	00000110
756	2F4	1364	006	06	00000110
757	2F5	1365	006	06	00000110
758	2F6	1366	006	06	00000110
759	2F7	1367	006	06	00000110
760	2F8	1370	006	06	00000110
761	2F9	1371	006	06	00000110
762	2FA	1372	006	06	00000110
763	2FB	1373	006	06	00000110
764	2FC	1374	006	06	00000110
765	2FD	1375	006	06	00000110
766	2FE	1376	006	06	00000110
767	2FF	1377	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
768	300	1400	202	82	10000010
769	301	1401	202	82	10000010
770	302	1402	202	82	10000010
771	303	1403	357	EF	11101111
772	304	1404	242	A2	10100010
773	305	1405	204	84	10000100
774	306	1406	357	EF	11101111
775	307	1407	224	94	10010100
776	308	1410	224	94	10010100
777	309	1411	342	E2	11100010
778	30A	1412	230	98	10011000
779	30B	1413	352	EA	11101010
780	30C	1414	014	0C	00001100
781	30D	1415	204	84	10000100
782	30E	1416	357	EF	11101111
783	30F	1417	252	AA	10101010
784	310	1420	272	BA	10111010
785	311	1421	226	96	10010110
786	312	1422	350	E8	11101000
787	313	1423	242	A2	10100010
788	314	1424	252	AA	10101010
789	315	1425	016	0E	00001110
790	316	1426	276	BE	10111110
791	317	1427	220	90	10010000
792	318	1430	220	90	10010000
793	319	1431	220	90	10010000
794	31A	1432	220	90	10010000
795	31B	1433	220	90	10010000
796	31C	1434	362	F2	11110010
797	31D	1435	142	62	01100010
798	31E	1436	006	06	00000110
799	31F	1437	006	06	00000110
800	320	1440	242	A2	10100010
801	321	1441	230	98	10011000
802	322	1442	352	EA	11101010
803	323	1443	220	90	10010000
804	324	1444	342	E2	11100010
805	325	1445	142	62	01100010
806	326	1446	006	06	00000110
807	327	1447	006	06	00000110
808	328	1450	000	00	00000000
809	329	1451	142	62	01100010
810	32A	1452	006	06	00000110
811	32B	1453	006	06	00000110
812	32C	1454	232	9A	10011010
813	32D	1455	355	ED	11101101
814	32E	1456	012	0A	00001010
815	32F	1457	220	90	10010000
816	330	1460	352	EA	11101010
817	331	1461	142	62	01100010
818	332	1462	000	00	00000000
819	333	1463	006	06	00000110
820	334	1464	204	84	10000100
821	335	1465	357	EF	11101111
822	336	1466	204	84	10000100
823	337	1467	010	08	00001000
824	338	1470	220	90	10010000
825	339	1471	352	EA	11101010
826	33A	1472	142	62	01100010
827	33B	1473	006	06	00000110
828	33C	1474	142	62	01100010
829	33D	1475	006	06	00000110
830	33E	1476	006	06	00000110
831	33F	1477	006	06	00000110
832	340	1500	040	20	00100000
833	341	1501	272	BA	10111010
834	342	1502	242	A2	10100010
835	343	1503	363	F3	11110011
836	344	1504	142	62	01100010
837	345	1505	006	06	00000110
838	346	1506	006	06	00000110
839	347	1507	006	06	00000110
840	348	1510	042	22	00100010
841	349	1511	142	62	01100010
842	34A	1512	006	06	00000110
843	34B	1513	006	06	00000110
844	34C	1514	230	98	10011000
845	34D	1515	230	98	10011000
846	34E	1516	230	98	10011000
847	34F	1517	230	98	10011000
848	350	1520	370	F8	11111000
849	351	1521	232	9A	10011010
850	352	1522	010	08	00001000
851	353	1523	373	FB	11111011
852	354	1524	012	0A	00001010
853	355	1525	220	90	10010000
854	356	1526	343	E3	11100011
855	357	1527	144	64	01100100
856	358	1530	230	98	10011000
857	359	1531	367	F7	11110111
858	35A	1532	232	9A	10011010
859	35B	1533	366	F6	11110110
860	35C	1534	142	62	01100010
861	35D	1535	000	00	00000000
862	35E	1536	006	06	00000110
863	35F	1537	006	06	00000110
864	360	1540	232	9A	10011010
865	361	1541	352	EA	11101010
866	362	1542	010	08	00001000
867	363	1543	01	0A	00001010
868	364	1544	220	90	10010000
869	365	1545	352	EA	11101010
870	366	1546	142	62	01100010
871	367	1547	000	00	00000000
872	368	1550	006	06	00000110
873	369	1551	006	06	00000110
874	36A	1552	006	06	00000110
875	36B	1553	006	06	00000110
876	36C	1554	230	98	10011000
877	36D	1555	353	EB	11101011
878	36E	1556	232	9A	10011010
879	36F	1557	373	FB	11111011
880	370	1560	012	0A	00001010
881	371	1561	220	90	10010000
882	372	1562	341	E1	11100001
883	373	1563	144	64	01100100
884	374	1564	230	98	10011000
885	375	1565	376	FE	11111110
886	376	1566	232	9A	10011010
887	377	1567	375	FD	11111101
888	378	1570	142	62	01100010
889	379	1571	000	00	00000000
890	37A	1572	142	62	01100010
891	37B	1573	006	06	00000110
892	37C	1574	006	06	00000110
893	37D	1575	006	06	00000110
894	37E	1576	006	06	00000110
895	37F	1577	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
896	380	1600	202	82	10000010
897	381	1601	202	82	10000010
898	382	1602	352	EA	11101010
899	383	1603	242	A2	10100010
900	384	1604	204	84	10000100
901	385	1605	352	EA	11101010
902	386	1606	224	94	10010100
903	387	1607	224	94	10010100
904	388	1610	224	94	10010100
905	389	1611	342	E2	11100010
906	38A	1612	204	84	10000100
907	38B	1613	204	84	10000100
908	38C	1614	204	84	10000100
909	38D	1615	352	EA	11101010
910	38E	1616	230	98	10011000
911	38F	1617	230	98	10011000
912	390	1620	230	98	10011000
913	391	1621	230	98	10011000
914	392	1622	230	98	10011000
915	393	1623	230	98	10011000
916	394	1624	252	AA	10101010
917	395	1625	353	EB	11101011
918	396	1626	276	BE	10111110
919	397	1627	220	90	10010000
920	398	1630	220	90	10010000
921	399	1631	220	90	10010000
922	39A	1632	220	90	10010000
923	39B	1633	220	90	10010000
924	39C	1634	362	F2	11110010
925	39D	1635	142	62	01100010
926	39E	1636	006	06	00000110
927	39F	1637	006	06	00000110
928	3A0	1640	006	06	00000110
929	3A1	1641	006	06	00000110
930	3A2	1642	006	06	00000110
931	3A3	1643	006	06	00000110
932	3A4	1644	006	06	00000110
933	3A5	1645	006	06	00000110
934	3A6	1646	006	06	00000110
935	3A7	1647	006	06	00000110
936	3A8	1650	142	62	01100010
937	3A9	1651	006	06	00000110
938	3AA	1652	006	06	00000110
939	3AB	1653	006	06	00000110
940	3AC	1654	000	00	00000000
941	3AD	1655	142	62	01100010
942	3AE	1656	006	06	00000110
943	3AF	1657	006	06	00000110
944	3B0	1660	006	06	00000110
945	3B1	1661	006	06	00000110
946	3B2	1662	006	06	00000110
947	3B3	1663	006	06	00000110
948	3B4	1664	006	06	00000110
949	3B5	1665	006	06	00000110
950	3B6	1666	006	06	00000110
951	3B7	1667	006	06	00000110
952	3B8	1670	204	84	10000100
953	3B9	1671	352	EA	11101010
954	3BA	1672	204	84	10000100
955	3BB	1673	010	08	00001000
956	3BC	1674	220	90	10010000
957	3BD	1675	353	EB	11101011
958	3BE	1676	142	62	01100010
959	3BF	1677	006	06	00000110
960	3C0	1700	040	20	00100000
961	3C1	1701	272	BA	10111010
962	3C2	1702	242	A2	10100010
963	3C3	1703	220	90	10010000
964	3C4	1704	363	F3	11113011
965	3C5	1705	142	62	01100010
966	3C6	1706	006	06	00000110
967	3C7	1707	006	06	00000110
968	3C8	1710	042	22	00100010
969	3C9	1711	142	62	01100010
970	3CA	1712	006	06	00000110
971	3CB	1713	006	06	00000110
972	3CC	1714	230	98	10011000
973	3CD	1715	230	98	10011000
974	3CE	1716	230	98	10011000
975	3CF	1717	230	98	10011000
976	3D0	1720	370	F8	11111000
977	3D1	1721	232	9A	10011010
978	3D2	1722	010	08	00001000
979	3D3	1723	372	FA	11111010
980	3D4	1724	012	0A	00001010
981	3D5	1725	220	90	10010000
982	3D6	1726	343	E3	11100011
983	3D7	1727	144	64	01100100
984	3D8	1730	230	98	10011000
985	3D9	1731	367	F7	11110111
986	3DA	1732	232	9A	10011010
987	3DB	1733	366	F6	11110110
988	3DC	1734	142	62	01100010
989	3DD	1735	000	00	00000000
990	3DE	1736	006	06	00000110
991	3DF	1737	006	06	00000110
992	3E0	1740	232	9A	10011010
993	3E1	1741	353	EB	11101011
994	3E2	1742	010	08	00001000
995	3E3	1743	012	0A	00001010
996	3E4	1744	000	00	00000000
997	3E5	1745	142	62	01100010
998	3E6	1746	006	06	00000110
999	3E7	1747	006	06	00000110
1000	3E8	1750	230	98	10011000
1001	3E9	1751	376	FE	11111110
1002	3EA	1752	232	9A	10011010
1003	3EB	1753	372	FA	11111010
1004	3EC	1754	144	64	01100100
1005	3ED	1755	230	98	10011000
1006	3EE	1756	376	FE	11111110
1007	3EF	1757	232	9A	10011010
1008	3F0	1760	373	FB	11111011
1009	3F1	1761	230	98	10011000
1010	3F2	1762	376	FE	11111110
1011	3F3	1763	012	0A	00001010
1012	3F4	1764	142	62	01100010
1013	3F5	1765	014	0C	00001100
1014	3F6	1766	102	42	01000010
1015	3F7	1767	006	06	00000110
1016	3F8	1770	140	60	01100000
1017	3F9	1771	232	9A	10011010
1018	3FA	1772	356	EE	11101110
1019	3FB	1773	012	0A	00001010
1020	3FC	1774	000	00	00000000
1021	3FD	1775	142	62	01100010
1022	3FE	1776	006	06	00000110
1023	3FF	1777	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1024	400	2000	341	E1	11100001
1025	401	2001	220	90	10010000
1026	402	2002	342	E2	11100010
1027	403	2003	142	62	01100010
1028	404	2004	142	62	01100010
1029	405	2005	006	06	00000110
1030	406	2006	006	06	00000110
1031	407	2007	006	06	00000110
1032	408	2010	230	98	10011000
1033	409	2011	341	E1	11100001
1034	40A	2012	220	90	10010000
1035	40B	2013	341	E1	11100001
1036	40C	2014	014	0C	00001100
1037	40D	2015	344	E4	11100100
1038	40E	2016	220	90	10010000
1039	40F	2017	341	E1	11100001
1040	410	2020	012	0A	00001010
1041	411	2021	232	9A	10011010
1042	412	2022	341	E1	11100001
1043	413	2023	044	24	00100100
1044	414	2024	346	E6	11100110
1045	415	2025	220	90	10010000
1046	416	2026	341	E1	11100001
1047	417	2027	006	06	00000110
1048	418	2030	144	64	01100100
1049	419	2031	040	20	00100000
1050	41A	2032	341	E1	11100001
1051	41B	2033	044	24	00100100
1052	41C	2034	350	E8	11101000
1053	41D	2035	146	66	01100110
1054	41E	2036	006	06	00000110
1055	41F	2037	000	00	00000000
1056	420	2040	012	0A	00001010
1057	421	2041	242	A2	10100010
1058	422	2042	242	A2	10100010
1059	423	2043	242	A2	10100010
1060	424	2044	351	E9	11101001
1061	425	2045	240	A0	10100000
1062	426	2046	040	20	00100000
1063	427	2047	242	A2	10100010
1064	428	2050	352	EA	11101010
1065	429	2051	240	A0	10100000
1066	42A	2052	230	98	10011000
1067	42B	2053	354	EC	11101100
1068	42C	2054	146	66	01100110
1069	42D	2055	006	06	00000110
1070	42E	2056	000	00	00000000
1071	42F	2057	006	06	00000110
1072	430	2060	012	0A	00001010
1073	431	2061	050	28	00101000
1074	432	2062	040	20	00100000
1075	433	2063	250	A8	10101000
1076	434	2064	274	BC	10111100
1077	435	2065	120	50	01010000
1078	436	2066	104	44	01000100
1079	437	2067	104	44	01000100
1080	438	2070	270	B8	10111000
1081	439	2071	240	A0	10100000
1082	43A	2072	100	40	01000000
1083	43B	2073	012	0A	00001010
1084	43C	2074	042	22	00100010
1085	43D	2075	146	66	01100110
1086	43E	2076	006	06	00000110
1087	43F	2077	000	00	00000000
1088	440	2100	040	20	00100000
1089	441	2101	016	0E	00001110
1090	442	2102	014	0C	00001100
1091	443	2103	220	90	10010000
1092	444	2104	362	F2	11110010
1093	445	2105	146	66	01100110
1094	446	2106	006	06	00000110
1095	447	2107	000	00	00000000
1096	448	2110	010	08	00001000
1097	449	2111	353	EB	11101011
1098	44A	2112	200	80	10000000
1099	44B	2113	050	28	00101000
1100	44C	2114	040	20	00100000
1101	44D	2115	250	A8	10101000
1102	44E	2116	274	BC	10111100
1103	44F	2117	120	50	01010000
1104	450	2120	104	44	01000100
1105	451	2121	104	44	01000100
1106	452	2122	270	B8	10111000
1107	453	2123	240	A0	10100000
1108	454	2124	100	40	01000000
1109	455	2125	012	0A	00001010
1110	456	2126	016	0E	00001110
1111	457	2127	220	90	10010000
1112	458	2130	353	EB	11101011
1113	459	2131	044	24	00100100
1114	45A	2132	101	41	01000001
1115	45B	2133	240	A0	10100000
1116	45C	2134	040	20	00100000
1117	45D	2135	250	A8	10101000
1118	45E	2136	274	BC	10111100
1119	45F	2137	120	50	01010000
1120	460	2140	104	44	01000100
1121	461	2141	104	44	01000100
1122	462	2142	270	B8	10111000
1123	463	2143	240	A0	10100000
1124	464	2144	100	40	01000000
1125	465	2145	012	0A	00001010
1126	466	2146	016	0E	00001110
1127	467	2147	373	FB	11111011
1128	468	2150	146	66	01100110
1129	469	2151	006	06	00000110
1130	46A	2152	000	00	00000000
1131	46B	2153	006	06	00000110
1132	46C	2154	224	94	10010100
1133	46D	2155	374	FC	11111100
1134	46E	2156	232	9A	10011010
1135	46F	2157	375	FD	11111101
1136	470	2160	146	66	01100110
1137	471	2161	006	06	00000110
1138	472	2162	000	00	00000000
1139	473	2163	006	06	00000110
1140	474	2164	226	96	10010110
1141	475	2165	377	FF	11111111
1142	476	2166	146	66	01100110
1143	477	2167	006	06	00000110
1144	478	2170	000	00	00000000
1145	479	2171	006	06	00000110
1146	47A	2172	006	06	00000110
1147	47B	2173	006	06	00000110
1148	47C	2174	000	00	00000000
1149	47D	2175	146	66	01100110
1150	47E	2176	006	06	00000110
1151	47F	2177	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1152	480	2200	044	24	00100100	1184	4A0	2240	221	91	10010001	1216	4C0	2300	044	24	00100100	1248	4E0	2340	142	62	01100010
1153	481	2201	242	A2	10100010	1185	4A1	2241	221	91	10010001	1217	4C1	2301	221	91	10010001	1249	4E1	2341	006	06	00000110
1154	482	2202	222	92	10010010	1186	4A2	2242	221	91	10010001	1218	4C2	2302	364	F4	11110100	1250	4E2	2342	006	06	00000110
1155	483	2203	342	E2	11100010	1187	4A3	2243	221	91	10010001	1219	4C3	2303	142	62	01100010	1251	4E3	2343	006	06	00000110
1156	484	2204	220	90	10010000	1188	4A4	2244	363	F3	11110011	1220	4C4	2304	006	06	00000110	1252	4E4	2344	232	9A	10011010
1157	485	2205	340	E0	11100000	1189	4A5	2245	142	62	01100010	1221	4C5	2305	006	06	00000110	1253	4E5	2345	357	EF	11101111
1158	486	2206	142	62	01100010	1190	4A6	2246	006	06	00000110	1222	4C6	2306	006	06	00000110	1254	4E6	2346	220	90	10010000
1159	487	2207	006	06	00000110	1191	4A7	2247	006	06	00000110	1223	4C7	2307	006	06	00000110	1255	4E7	2347	220	90	10010000
1160	488	2210	224	94	10010100	1192	4A8	2250	006	06	00000110	1224	4C8	2310	006	06	00000110	1256	4E8	2350	220	90	10010000
1161	489	2211	344	E4	11100100	1193	4A9	2251	006	06	00000110	1225	4C9	2311	006	06	00000110	1257	4E9	2351	345	E5	11100101
1162	48A	2212	220	90	10010000	1194	4AA	2252	006	06	00000110	1226	4CA	2312	006	06	00000110	1258	4EA	2352	142	62	01100010
1163	48B	2213	342	E2	11100010	1195	4AB	2253	006	06	00000110	1227	4CB	2313	006	06	00000110	1259	4EB	2353	006	06	00000110
1164	48C	2214	142	62	01100010	1196	4AC	2254	242	A2	10100010	1228	4CC	2314	046	26	00100110	1260	4EC	2354	006	06	00000110
1165	48D	2215	006	06	00000110	1197	4AD	2255	230	98	10011000	1229	4CD	2315	142	62	01100010	1261	4ED	2355	006	06	00000110
1166	48E	2216	006	06	00000110	1198	4AE	2256	355	ED	11101101	1230	4CE	2316	006	06	00000110	1262	4EE	2356	006	06	00000110
1167	48F	2217	006	06	00000110	1199	4AF	2257	220	90	10010000	1231	4CF	2317	006	06	00000110	1263	4EF	2357	006	06	00000110
1168	490	2220	224	94	10010100	1200	4B0	2260	344	E4	11100100	1232	4D0	2320	201	81	10000001	1264	4F0	2360	006	06	00000110
1169	491	2221	344	E4	11100100	1201	4B1	2261	142	62	01100010	1233	4D1	2321	201	81	10000001	1265	4F1	2361	006	06	00000110
1170	492	2222	204	84	10000100	1202	4B2	2262	006	06	00000110	1234	4D2	2322	014	0C	00001100	1266	4F2	2362	006	06	00000110
1171	493	2223	204	84	10000100	1203	4B3	2263	006	06	00000110	1235	4D3	2323	220	90	10010000	1267	4F3	2363	006	06	00000110
1172	494	2224	204	84	10000100	1204	4B4	2264	232	9A	10011010	1236	4D4	2324	242	A2	10100010	1268	4F4	2364	006	06	00000110
1173	495	2225	204	84	10000100	1205	4B5	2265	357	EF	11101111	1237	4D5	2325	012	0A	00001010	1269	4F5	2365	006	06	00000110
1174	496	2226	014	0C	00001100	1206	4B6	2266	220	90	10010000	1238	4D6	2326	010	08	00001000	1270	4F6	2366	006	06	00000110
1175	497	2227	343	E3	11100011	1207	4B7	2267	344	E4	11100100	1239	4D7	2327	367	F7	11110111	1271	4F7	2367	006	06	00000110
1176	498	2230	252	AA	10101010	1208	4B8	2270	142	62	01100010	1240	4D8	2330	000	00	00000000	1272	4F8	2370	006	06	00000110
1177	499	2231	272	BA	10111010	1209	4B9	2271	006	06	00000110	1241	4D9	2331	142	62	01100010	1273	4F9	2371	006	06	00000110
1178	49A	2232	226	96	10010110	1210	4BA	2272	006	06	00000110	1242	4DA	2332	006	06	00000110	1274	4FA	2372	006	06	00000110
1179	49B	2233	353	EB	11101011	1211	4BB	2273	006	06	00000110	1243	4DB	2333	006	06	00000110	1275	4FB	2373	006	06	00000110
1180	49C	2234	242	A2	10100010	1212	4BC	2274	000	00	00000000	1244	4DC	2334	230	98	10011000	1276	4FC	2374	006	06	00000110
1181	49D	2235	252	AA	10101010	1213	4BD	2275	142	62	01100010	1245	4DD	2335	371	F9	11111001	1277	4FD	2375	006	06	00000110
1182	49E	2236	016	0E	00001110	1214	4BE	2276	006	06	00000110	1246	4DE	2336	220	90	10010000	1278	4FE	2376	006	06	00000110
1183	49F	2237	273	BB	10111011	1215	4BF	2277	006	06	00000110	1247	4DF	2337	344	E4	11100100	1279	4FF	2377	006	06	00000110

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1280	500	2400	234	9C	10011100	1312	520	2440	006	06	00000110	1344	540	2500	006	06	00000110	1376	560	2540	006	06	00000110
1281	501	2401	234	9C	10011100	1313	521	2441	006	06	00000110	1345	541	2501	006	06	00000110	1377	561	2541	006	06	00000110
1282	502	2402	342	E2	11100010	1314	522	2442	006	06	00000110	1346	542	2502	006	06	00000110	1378	562	2542	006	06	00000110
1283	503	2403	142	62	01100010	1315	523	2443	006	06	00000110	1347	543	2503	006	06	00000110	1379	563	2543	006	06	00000110
1284	504	2404	006	06	00000110	1316	524	2444	006	06	00000110	1348	544	2504	006	06	00000110	1380	564	2544	006	06	00000110
1285	505	2405	006	06	00000110	1317	525	2445	006	06	00000110	1349	545	2505	006	06	00000110	1381	565	2545	006	06	00000110
1286	506	2406	006	06	00000110	1318	526	2446	006	06	00000110	1350	546	2506	006	06	00000110	1382	566	2546	006	06	00000110
1287	507	2407	006	06	00000110	1319	527	2447	006	06	00000110	1351	547	2507	006	06	00000110	1383	567	2547	006	06	00000110
1288	508	2410	236	9E	10011110	1320	528	2450	006	06	00000110	1352	548	2510	006	06	00000110	1384	568	2550	006	06	00000110
1289	509	2411	343	E3	11100011	1321	529	2451	006	06	00000110	1353	549	2511	006	06	00000110	1385	569	2551	006	06	00000110
1290	50A	2412	142	62	01100010	1322	52A	2452	006	06	00000110	1354	54A	2512	006	06	00000110	1386	56A	2552	006	06	00000110
1291	50B	2413	006	06	00000110	1323	52B	2453	006	06	00000110	1355	54B	2513	006	06	00000110	1387	56B	2553	006	06	00000110
1292	50C	2414	160	70	01110000	1324	52C	2454	006	06	00000110	1356	54C	2514	006	06	00000110	1388	56C	2554	006	06	00000110
1293	50D	2415	050	28	00101000	1325	52D	2455	006	06	00000110	1357	54D	2515	006	06	00000110	1389	56D	2555	006	06	00000110
1294	50E	2416	000	30	00110000	1326	52E	2456	006	06	00000110	1358	54E	2516	006	06	00000110	1390	56E	2556	006	06	00000110
1295	50F	2417	040	20	00100000	1327	52F	2457	006	06	00000110	1359	54F	2517	006	06	00000110	1391	56F	2557	006	06	00000110
1296	510	2420	140	60	01100000	1328	530	2460	006	06	00000110	1360	550	2520	006	06	00000110	1392	570	2560	006	06	00000110
1297	511	2421	000	00	00000000	1329	531	2461	006	06	00000110	1361	551	2521	006	06	00000110	1393	571	2561	006	06	00000110
1298	512	2422	142	62	01100010	1330	532	2462	006	06	00000110	1362	552	2522	006	06	00000110	1394	572	2562	006	06	00000110
1299	513	2423	006	06	00000110	1331	533	2463	006	06	00000110	1363	553	2523	006	06	00000110	1395	573	2563	006	06	00000110
1300	514	2424	006	06	00000110	1332	534	2464	006	06	00000110	1364	554	2524	006	06	00000110	1396	574	2564	006	06	00000110
1301	515	2425	006	06	00000110	1333	535	2465	006	06	00000110	1365	555	2525	006	06	00000110	1397	575	2565	006	06	00000110
1302	516	2426	006	06	00000110	1334	536	2466	006	06	00000110	1366	556	2526	006	06	00000110	1398	576	2566	006	06	00000110
1303	517	2427	006	06	00000110	1335	537	2467	006	06	00000110	1367	557	2527	006	06	00000110	1399	577	2567	006	06	00000110
1304	518	2430	006	06	00000110	1336	538	2470	006	06	00000110	1368	558	2530	006	06	00000110	1400	578	2570	006	06	00000110
1305	519	2431	006	06	00000110	1337	539	2471	006	06	00000110	1369	559	2531	006	06	00000110	1401	579	2571	006	06	00000110
1306	51A	2432	006	06	00000110	1338	53A	2472	006	06	00000110	1370	55A	2532	006	06	00000110	1402	57A	2572	006	06	00000110
1307	51B	2433	006	06	00000110	1339	53B	2473	006	06	00000110	1371	55B	2533	006	06	00000110	1403	57B	2573	006	06	00000110
1308	51C	2434	006	06	00000110	1340	53C	2474	006	06	00000110	1372	55C	2534	006	06	00000110	1404	57C	2574	006	06	00000110
1309	51D	2435	006	06	00000110	1341	53D	2475	006	06	00000110	1373	55D	2535	006	06	00000110	1405	57D	2575	006	06	00000110
1310	51E	2436	006	06	00000110	1342	53E	2476	006	06	00000110	1374	55E	2536	006	06	00000110	1406	57E	2576	006	06	00000110
1311	51F	2437	006	06	00000110	1343	53F	2477	006	06	00000110	1375	55F	2537	006	06	00000110	1407	57F	2577	006	06	00000110

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1408	580	2600	234	9C	10011100
1409	581	2601	341	E1	11100001
1410	582	2602	142	62	01100010
1411	583	2603	006	06	00000110
1412	584	2604	236	9F	10011110
1413	585	2605	350	E8	11101000
1414	586	2606	202	82	10000010
1415	587	2607	350	E8	11101000
1416	588	2610	204	84	10000100
1417	589	2611	350	E8	11101000
1418	58A	2612	224	94	10010100
1419	58B	2613	224	94	10010100
1420	58C	2614	343	E3	11100011
1421	58D	2615	204	84	10000100
1422	58E	2616	350	E8	11101000
1423	58F	2617	204	84	10000100
1424	590	2620	204	84	10000100
1425	591	2621	204	84	10000100
1426	592	2622	204	84	10000100
1427	593	2623	204	84	10000100
1428	594	2624	204	84	10000100
1429	595	2625	204	84	10000100
1430	596	2626	204	84	10000100
1431	597	2627	204	84	10000100
1432	598	2630	204	84	10000100
1433	599	2631	160	70	01110000
1434	59A	2632	050	28	00101000
1435	59B	2633	040	20	00100000
1436	59C	2634	140	60	01100000
1437	59D	2635	000	00	00000000
1438	59E	2636	142	62	01100010
1439	59F	2637	006	06	00000110
1440	5A0	2640	142	62	01100010
1441	5A1	2641	006	06	00000110
1442	5A2	2642	006	06	00000110
1443	5A3	2643	006	06	00000110
1444	5A4	2644	006	06	00000110
1445	5A5	2645	006	06	00000110
1446	5A6	2646	006	06	00000110
1447	5A7	2647	006	06	00000110
1448	5A8	2650	006	06	00000110
1449	5A9	2651	006	06	00000110
1450	5AA	2652	006	06	00000110
1451	5AB	2653	006	06	00000110
1452	5AC	2654	006	06	00000110
1453	5AD	2655	006	06	00000110
1454	5AE	2656	006	06	00000110
1455	5AF	2657	006	06	00000110
1456	5B0	2660	006	06	00000110
1457	5B1	2661	006	06	00000110
1458	5B2	2662	006	06	00000110
1459	5B3	2663	006	06	00000110
1460	5B4	2664	006	06	00000110
1461	5B5	2665	006	06	00000110
1462	5B6	2666	006	06	00000110
1463	5B7	2667	006	06	00000110
1464	5B8	2670	006	06	00000110
1465	5B9	2671	006	06	00000110
1466	5BA	2672	006	06	00000110
1467	5BB	2673	006	06	00000110
1468	5BC	2674	006	06	00000110
1469	5BD	2675	006	06	00000110
1470	5BE	2676	006	06	00000110
1471	5BF	2677	006	06	00000110
1472	5C0	2700	006	06	00000110
1473	5C1	2701	006	06	00000110
1474	5C2	2702	006	06	00000110
1475	5C3	2703	006	06	00000110
1476	5C4	2704	006	06	00000110
1477	5C5	2705	006	06	00000110
1478	5C6	2706	006	06	00000110
1479	5C7	2707	006	06	00000110
1480	5C8	2710	006	06	00000110
1481	5C9	2711	006	06	00000110
1482	5CA	2712	006	06	00000110
1483	5CB	2713	006	06	00000110
1484	5CC	2714	006	06	00000110
1485	5CD	2715	006	06	00000110
1486	5CE	2716	006	06	00000110
1487	5CF	2717	006	06	00000110
1488	5D0	2720	006	06	00000110
1489	5D1	2721	006	06	00000110
1490	5D2	2722	006	06	00000110
1491	5D3	2723	006	06	00000110
1492	5D4	2724	006	06	00000110
1493	5D5	2725	006	06	00000110
1494	5D6	2726	006	06	00000110
1495	5D7	2727	006	06	00000110
1496	5D8	2730	006	06	00000110
1497	5D9	2731	006	06	00000110
1498	5DA	2732	006	06	00000110
1499	5DB	2733	006	06	00000110
1500	5DC	2734	006	06	00000110
1501	5DD	2735	006	06	00000110
1502	5DE	2736	006	06	00000110
1503	5DF	2737	006	06	00000110
1504	5E0	2740	006	06	00000110
1505	5E1	2741	006	06	00000110
1506	5E2	2742	006	06	00000110
1507	5E3	2743	006	06	00000110
1508	5E4	2744	006	06	00000110
1509	5E5	2745	006	06	00000110
1510	5E6	2746	006	06	00000110
1511	5E7	2747	006	06	00000110
1512	5E8	2750	006	06	00000110
1513	5E9	2751	006	06	00000110
1514	5EA	2752	006	06	00000110
1515	5EB	2753	006	06	00000110
1516	5EC	2754	006	06	00000110
1517	5ED	2755	006	06	00000110
1518	5EE	2756	006	06	00000110
1519	5EF	2757	006	06	00000110
1520	5F0	2760	006	06	00000110
1521	5F1	2761	006	06	00000110
1522	5F2	2762	006	06	00000110
1523	5F3	2763	006	06	00000110
1524	5F4	2764	006	06	00000110
1525	5F5	2765	006	06	00000110
1526	5F6	2766	006	06	00000110
1527	5F7	2767	006	06	00000110
1528	5F8	2770	006	06	00000110
1529	5F9	2771	006	06	00000110
1530	5FA	2772	006	06	00000110
1531	5FB	2773	006	06	00000110
1532	5FC	2774	006	06	00000110
1533	5FD	2775	006	06	00000110
1534	5FE	2776	006	06	00000110
1535	5FF	2777	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1536	600	3000	202	82	10000010
1537	601	3001	202	82	10000010
1538	602	3002	345	E5	11100101
1539	603	3003	204	84	10000100
1540	604	3004	345	E5	11100101
1541	605	3005	224	94	10010100
1542	606	3006	224	94	10010100
1543	607	3007	224	94	10010100
1544	608	3010	342	E2	11100010
1545	609	3011	204	84	10000100
1546	60A	3012	345	E5	11100101
1547	60B	3013	250	A8	10101000
1548	60C	3014	274	BC	10111100
1549	60D	3015	274	BC	10111100
1550	60E	3016	274	BC	10111100
1551	60F	3017	240	A0	10100000
1552	610	3020	016	0E	00001110
1553	611	3021	000	00	00000000
1554	612	3022	142	62	01100010
1555	613	3023	006	06	00000110
1556	614	3024	142	62	01100010
1557	615	3025	006	06	00000110
1558	616	3026	006	06	00000110
1559	617	3027	006	06	00000110
1560	618	3030	006	06	00000110
1561	619	3031	006	06	00000110
1562	61A	3032	006	06	00000110
1563	61B	3033	006	06	00000110
1564	61C	3034	006	06	00000110
1565	61D	3035	006	06	00000110
1566	61E	3036	006	06	00000110
1567	61F	3037	006	06	00000110
1568	620	3040	006	06	00000110
1569	621	3041	006	06	00000110
1570	622	3042	006	06	00000110
1571	623	3043	006	06	00000110
1572	624	3044	006	06	00000110
1573	625	3045	006	06	00000110
1574	626	3046	006	06	00000110
1575	627	3047	006	06	00000110
1576	628	3050	006	06	00000110
1577	629	3051	006	06	00000110
1578	62A	3052	006	06	00000110
1579	62B	3053	006	06	00000110
1580	62C	3054	006	06	00000110
1581	62D	3055	006	06	00000110
1582	62E	3056	006	06	00000110
1583	62F	3057	006	06	00000110
1584	630	3060	006	06	00000110
1585	631	3061	006	06	00000110
1586	632	3062	006	06	00000110
1587	633	3063	006	06	00000110
1588	634	3064	006	06	00000110
1589	635	3065	006	06	00000110
1590	636	3066	006	06	00000110
1591	637	3067	006	06	00000110
1592	638	3070	006	06	00000110
1593	639	3071	006	06	00000110
1594	63A	3072	006	06	00000110
1595	63B	3073	006	06	00000110
1596	63C	3074	006	06	00000110
1597	63D	3075	006	06	00000110
1598	63E	3076	006	06	00000110
1599	63F	3077	006	06	00000110
1600	640	3100	006	06	00000110
1601	641	3101	006	06	00000110
1602	642	3102	006	06	00000110
1603	643	3103	006	06	00000110
1604	644	3104	006	06	00000110
1605	645	3105	006	06	00000110
1606	646	3106	006	06	00000110
1607	647	3107	006	06	00000110
1608	648	3110	006	06	00000110
1609	649	3111	006	06	00000110
1610	64A	3112	006	06	00000110
1611	64B	3113	006	06	00000110
1612	64C	3114	006	06	00000110
1613	64D	3115	006	06	00000110
1614	64E	3116	006	06	00000110
1615	64F	3117	006	06	00000110
1616	650	3120	006	06	00000110
1617	651	3121	006	06	00000110
1618	652	3122	006	06	00000110
1619	653	3123	006	06	00000110
1620	654	3124	006	06	00000110
1621	655	3125	006	06	00000110
1622	656	3126	006	06	00000110
1623	657	3127	006	06	00000110
1624	658	3130	006	06	00000110
1625	659	3131	006	06	00000110
1626	65A	3132	006	06	00000110
1627	65B	3133	006	06	00000110
1628	65C	3134	006	06	00000110
1629	65D	3135	006	06	00000110
1630	65E	3136	006	06	00000110
1631	65F	3137	006	06	00000110
1632	660	3140	006	06	00000110
1633	661	3141	006	06	00000110
1634	662	3142	006	06	00000110
1635	663	3143	006	06	00000110
1636	664	3144	006	06	00000110
1637	665	3145	006	06	00000110
1638	666	3146	006	06	00000110
1639	667	3147	006	06	00000110
1640	668	3150	006	06	00000110
1641	669	3151	006	06	00000110
1642	66A	3152	006	06	00000110
1643	66B	3153	006	06	00000110
1644	66C	3154	006	06	00000110
1645	66D	3155	006	06	00000110
1646	66E	3156	006	06	00000110
1647	66F	3157	006	06	00000110
1648	670	3160	006	06	00000110
1649	671	3161	006	06	00000110
1650	672	3162	006	06	00000110
1651	673	3163	006	06	00000110
1652	674	3164	006	06	00000110
1653	675	3165	006	06	00000110
1654	676	3166	006	06	00000110
1655	677	3167	006	06	00000110
1656	678	3170	006	06	00000110
1657	679	3171	006	06	00000110
1658	67A	3172	006	06	00000110
1659	67B	3173	006	06	00000110
1660	67C	3174	006	06	00000110
1661	67D	3175	006	06	00000110
1662	67E	3176	006	06	00000110
1663	67F	3177	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1664	680	3200	044	24	00100100	1696	6A0	3240	101	41	01000001	1728	6C0	3300	044	24	00100100	1760	6E0	3340	006	06	00000110
1665	681	3201	242	A2	10100010	1697	6A1	3241	221	91	10010001	1729	6C1	3301	104	44	01000100	1761	6E1	3341	006	06	00000110
1666	682	3202	222	92	10001010	1698	6A2	3242	221	91	10010001	1730	6C2	3302	100	40	01000000	1762	6E2	3342	006	06	00000110
1667	683	3203	342	E2	11100010	1699	6A3	3243	221	91	10010001	1731	6C3	3303	140	60	01100000	1763	6E3	3343	006	06	00000110
1668	684	3204	220	90	10010000	1700	6A4	3244	221	91	10010001	1732	6C4	3304	012	0A	00001010	1764	6E4	3344	006	06	00000110
1669	685	3205	340	E0	11100000	1701	6A5	3245	221	91	10010001	1733	6C5	3305	363	F3	11110011	1765	6E5	3345	006	06	00000110
1670	686	3206	142	62	01100010	1702	6A6	3246	362	F2	11110010	1734	6C6	3306	142	62	01100010	1766	6E6	3346	006	06	00000110
1671	687	3207	006	06	00000110	1703	6A7	3247	142	62	01100010	1735	6C7	3307	006	06	00000110	1767	6E7	3347	006	06	00000110
1672	688	3210	224	94	10010100	1704	6A8	3250	006	06	00000110	1736	6C8	3310	046	26	00100110	1768	6E8	3350	006	06	00000110
1673	689	3211	344	E4	11100100	1705	6A9	3251	006	06	00000110	1737	6C9	3311	142	62	01100010	1769	6E9	3351	006	06	00000110
1674	68A	3212	220	90	10010000	1706	6AA	3252	006	06	00000110	1738	6CA	3312	006	06	00000110	1770	6EA	3352	006	06	00000110
1675	68B	3213	342	E2	11100010	1707	6AB	3253	006	06	00000110	1739	6CB	3313	006	06	00000110	1771	6EB	3353	006	06	00000110
1676	68C	3214	142	62	01100010	1708	6AC	3254	242	A2	10100010	1740	6CC	3314	230	98	10011000	1772	6EC	3354	006	06	00000110
1677	68D	3215	006	06	00000110	1709	6AD	3255	230	98	10011000	1741	6CD	3315	365	F5	11110101	1773	6ED	3355	006	06	00000110
1678	68E	3216	006	06	00000110	1710	6AE	3256	355	ED	11101101	1742	6CE	3316	220	90	10010000	1774	6EE	3356	006	06	00000110
1679	68F	3217	006	06	00000110	1711	6AF	3257	220	90	10010000	1743	6CF	3317	344	E4	11100100	1775	6EF	3357	006	06	00000110
1680	690	3220	224	94	10010100	1712	6B0	3260	344	E4	11100100	1744	6D0	3320	142	62	01100010	1776	6F0	3360	006	06	00000110
1681	691	3221	344	E4	11100100	1713	6B1	3261	142	62	01100010	1745	6D1	3321	006	06	00000110	1777	6F1	3361	006	06	00000110
1682	692	3222	204	84	10000100	1714	6B2	3262	006	06	00000110	1746	6D2	3322	006	06	00000110	1778	6F2	3362	006	06	00000110
1683	693	3223	204	84	10000100	1715	6B3	3263	006	06	00000110	1747	6D3	3323	006	06	00000110	1779	6F3	3363	006	06	00000110
1684	694	3224	204	84	10000100	1716	6B4	3264	232	9A	10011010	1748	6D4	3324	232	9A	10011010	1780	6F4	3364	006	06	00000110
1685	695	3225	014	0C	00001100	1717	6B5	3265	357	EF	11101111	1749	6D5	3325	357	EF	11101111	1781	6F5	3365	006	06	00000110
1686	696	3226	204	84	10000100	1718	6B6	3266	220	90	10010000	1750	6D6	3326	220	90	10010000	1782	6F6	3366	006	06	00000110
1687	697	3227	343	E3	11100011	1719	6B7	3267	344	E4	11100100	1751	6D7	3327	220	90	10010000	1783	6F7	3367	006	06	00000110
1688	698	3230	252	AA	10101010	1720	6B8	3270	142	62	01100010	1752	6D8	3330	220	90	10010000	1784	6F8	3370	006	06	00000110
1689	699	3231	272	BA	10111010	1721	6B9	3271	006	06	00000110	1753	6D9	3331	345	E5	11100101	1785	6F9	3371	006	06	00000110
1690	69A	3232	226	96	10010110	1722	6BA	3272	006	06	00000110	1754	6DA	3332	142	62	01100010	1786	6FA	3372	006	06	00000110
1691	69B	3233	353	EB	11101011	1723	6BB	3273	006	06	00000110	1755	6DB	3333	006	06	00000110	1787	6FB	3373	006	06	00000110
1692	69C	3234	242	A2	10100010	1724	6BC	3274	000	00	00000000	1756	6DC	3334	006	06	00000110	1788	6FC	3374	006	06	00000110
1693	69D	3235	150	68	01101000	1725	6BD	3275	142	62	01100010	1757	6DD	3335	006	06	00000110	1789	6FD	3375	006	06	00000110
1694	69E	3236	016	0E	00001110	1726	6BE	3276	006	06	00000110	1758	6DE	3336	006	06	00000110	1790	6FE	3376	006	06	00000110
1695	69F	3237	120	50	01010000	1727	6BF	3277	006	06	00000110	1759	6DF	3337	006	06	00000110	1791	6FF	3377	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC PART NUMBER: 23-017E2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: RICH HULTMAN
DATE ORIGINATED: 6-DEC-77

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1792	700	3400	242	A2	10100010	1824	720	3440	242	A2	10100010	1856	740	3500	040	20	00100000	1888	760	3540	232	9A	10011010
1793	701	3401	272	BA	10111010	1825	721	3441	230	98	10011000	1857	741	3501	272	BA	10111010	1889	761	3541	35[illegible]	EA	11101010
1794	702	3402	242	A2	10100010	1826	722	3442	352	EA	11101010	1858	742	3502	242	A2	10100010	1890	762	3542	014	0C	00001100
1795	703	3403	357	EF	11101111	1827	723	3443	220	90	10010000	1859	743	3503	363	F3	11110011	1891	763	3543	012	0A	00001010
1796	704	3404	242	A2	10100010	1828	724	3444	342	E2	11100010	1860	744	3504	142	62	01100010	1892	764	3544	220	90	10010000
1797	705	3405	204	84	10000100	1829	725	3445	142	62	01100010	1861	745	3505	006	06	00000110	1893	765	3545	352	EA	11101010
1798	706	3406	357	EF	11101111	1830	726	3446	006	06	00000110	1862	746	3506	006	06	00000110	1894	766	3546	142	62	01100010
1799	707	3407	224	94	10010100	1831	727	3447	006	06	00000110	1863	747	3507	006	06	00000110	1895	767	3547	000	00	00000000
1800	708	3410	224	94	10010100	1832	728	3450	000	00	00000000	1864	748	3510	042	22	00100010	1896	768	3550	006	06	00000110
1801	709	3411	342	E2	11100010	1833	729	3451	142	62	01100010	1865	749	3511	142	62	01100010	1897	769	3551	006	06	00000110
1802	70A	3412	230	98	10011000	1834	72A	3452	006	06	00000110	1866	74A	3512	006	06	00000110	1898	76A	3552	006	06	00000110
1803	70B	3413	352	EA	11101010	1835	72B	3453	006	06	00000110	1867	74B	3513	006	06	00000110	1899	76B	3553	006	06	00000110
1804	70C	3414	014	0C	00001100	1836	72C	3454	232	9A	10011010	1868	74C	3514	230	98	10011000	1900	76C	3554	230	98	10011000
1805	70D	3415	204	84	10000100	1837	72D	3455	355	ED	11101101	1869	74D	3515	230	98	10011000	1901	76D	3555	353	FB	11101011
1806	70E	3416	357	EF	11101111	1838	72E	3456	012	0A	00001010	1870	74E	3516	230	98	10011000	1902	76E	3556	232	9A	10011010
1807	70F	3417	252	AA	10101010	1839	72F	3457	220	90	10010000	1871	74F	3517	230	98	10011000	1903	76F	3557	373	FB	11111011
1808	710	3420	272	BA	10111010	1840	730	3460	352	EA	11101010	1872	750	3520	370	F8	11111000	1904	770	3560	012	0A	00001010
1809	711	3421	226	96	10010110	1841	731	3461	142	62	01100010	1873	751	3521	232	9A	10011010	1905	771	3561	220	90	10010000
1810	712	3422	350	E8	11101000	1842	732	3462	000	00	00000000	1874	752	3522	010	08	00001000	1906	772	3562	341	E1	11100001
1811	713	3423	242	A2	10100010	1843	733	3463	006	06	00000110	1875	753	3523	373	FB	11111011	1907	773	3563	144	64	01100100
1812	714	3424	252	AA	10101010	1844	734	3464	204	84	10000100	1876	754	3524	012	0A	00001010	1908	774	3564	230	98	10011000
1813	715	3425	016	0E	00001110	1845	735	3465	357	EF	11101111	1877	755	3525	220	90	10010000	1909	775	3565	376	FE	11111110
1814	716	3426	276	BE	10111110	1846	736	3466	204	84	10000100	1878	756	3526	343	E3	11100011	1910	776	3566	232	9A	10011010
1815	717	3427	220	90	10010000	1847	737	3467	010	08	00001000	1879	757	3527	144	64	01100100	1911	777	3567	375	FD	11111101
1816	718	3430	220	90	10010000	1848	738	3470	220	90	10010000	1880	758	3530	230	98	10011000	1912	778	3570	142	62	01100010
1817	719	3431	220	90	10010000	1849	739	3471	352	EA	11101010	1881	759	3531	367	F7	11110111	1913	779	3571	000	00	00000000
1818	71A	3432	220	90	10010000	1850	73A	3472	142	62	01100010	1882	75A	3532	232	9A	10011010	1914	77A	3572	142	62	01100010
1819	71B	3433	220	90	10010000	1851	73B	3473	006	06	00000110	1883	75B	3533	366	F6	11110110	1915	77B	3573	006	06	00000110
1820	71C	3434	362	F2	11110010	1852	73C	3474	142	62	01100010	1884	75C	3534	142	62	01100010	1916	77C	3574	006	06	00000110
1821	71D	3435	142	62	01100010	1853	73D	3475	006	06	00000110	1885	75D	3535	000	00	00000000	1917	77D	3575	006	06	00000110
1822	71E	3436	006	06	00000110	1854	73E	3476	006	06	00000110	1886	75E	3536	006	06	00000110	1918	77E	3576	006	06	00000110
1823	71F	3437	006	06	00000110	1855	73F	3477	006	06	00000110	1887	75F	3537	006	06	00000110	1919	77F	3577	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC PART NUMBER: 23-017E2-00 ORIGINATOR: RICH HULTMAN BINARY DATA "1" = HIGH SHEET 17 OF 17
LEFT COLUMN OF BIN DATA IS MSB DATE ORIGINATED: 6-DEC-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
1920	780	3600	202	82	10000010	1952	7A0	3640	006	06	00000110	1984	7C0	3700	040	20	00100000	2016	7E0	3740	232	9A	10011010
1921	781	3601	202	82	10000010	1953	7A1	3641	006	06	00000110	1985	7C1	3701	272	BA	10111010	2017	7E1	3741	353	EB	11101011
1922	782	3602	352	EA	11101010	1954	7A2	3642	006	06	00000110	1986	7C2	3702	242	A2	10100010	2018	7E2	3742	010	08	00001000
1923	783	3603	242	A2	10100010	1955	7A3	3643	006	06	00000110	1987	7C3	3703	220	90	10010000	2019	7E3	3743	012	0A	00001010
1924	784	3604	204	84	10000100	1956	7A4	3644	006	06	00000110	1988	7C4	3704	363	F3	11110011	2020	7E4	3744	000	00	00000000
1925	785	3605	352	EA	11101010	1957	7A5	3645	006	06	00000110	1989	7C5	3705	142	62	01100010	2021	7E5	3745	142	62	01100010
1926	786	3606	224	94	10010100	1958	7A6	3646	006	06	00000110	1990	7C6	3706	006	06	00000110	2022	7E6	3746	006	06	00000110
1927	787	3607	224	94	10010100	1959	7A7	3647	006	06	00000110	1991	7C7	3707	006	06	00000110	2023	7E7	3747	006	06	00000110
1928	788	3610	224	94	10010100	1960	7A8	3650	142	62	01100010	1992	7C8	3710	042	22	00100010	2024	7E8	3750	230	98	10011000
1929	789	3611	342	E2	11100010	1961	7A9	3651	006	06	00000110	1993	7C9	3711	142	62	01100010	2025	7E9	3751	376	FE	11111110
1930	78A	3612	204	84	10000100	1962	7AA	3652	006	06	00000110	1994	7CA	3712	006	06	00000110	2026	7EA	3752	232	9A	10011010
1931	78B	3613	204	84	10000100	1963	7AB	3653	006	06	00000110	1995	7CB	3713	006	06	00000110	2027	7EB	3753	372	FA	11111010
1932	78C	3614	204	84	10000100	1964	7AC	3654	000	00	00000000	1996	7CC	3714	230	98	10011000	2028	7EC	3754	144	64	01100100
1933	78D	3615	352	EA	11101010	1965	7AD	3655	142	62	01100010	1997	7CD	3715	230	98	10011000	2029	7ED	3755	230	98	10011000
1934	78E	3616	230	98	10011000	1966	7AE	3656	006	06	00000110	1998	7CE	3716	230	98	10011000	2030	7EE	3756	376	FE	11111110
1935	78F	3617	230	98	10011000	1967	7AF	3657	006	06	00000110	1999	7CF	3717	230	98	10011000	2031	7EF	3757	232	9A	10011010
1936	790	3620	230	98	10011000	1968	7B0	3660	006	06	00000110	2000	7D0	3720	370	F8	11111000	2032	7F0	3760	373	FB	11111011
1937	791	3621	230	98	10011000	1969	7B1	3661	006	06	00000110	2001	7D1	3721	232	9A	10011010	2033	7F1	3761	230	98	10011000
1938	792	3622	230	98	10011000	1970	7B2	3662	006	06	00000110	2002	7D2	3722	010	08	00001000	2034	7F2	3762	376	FE	11111110
1939	793	3623	230	98	10011000	1971	7B3	3663	006	06	00000110	2003	7D3	3723	372	FA	11111010	2035	7F3	3763	012	0A	00001010
1940	794	3624	252	AA	10101010	1972	7B4	3664	006	06	00000110	2004	7D4	3724	012	0A	00001010	2036	7F4	3764	142	62	01100010
1941	795	3625	353	EB	11101011	1973	7B5	3665	006	06	00000110	2005	7D5	3725	220	90	10010000	2037	7F5	3765	014	0C	00001100
1942	796	3626	276	BE	10111110	1974	7B6	3666	006	06	00000110	2006	7D6	3726	343	E3	11100011	2038	7F6	3766	102	42	01000010
1943	797	3627	220	90	10010000	1975	7B7	3667	006	06	00000110	2007	7D7	3727	144	64	01100100	2039	7F7	3767	006	06	00000110
1944	798	3630	220	90	10010000	1976	7B8	3670	204	84	10000100	2008	7D8	3730	230	98	10011000	2040	7F8	3770	140	60	01100000
1945	799	3631	220	90	10010000	1977	7B9	3671	352	EA	11101010	2009	7D9	3731	367	F7	11110111	2041	7F9	3771	232	9A	10011010
1946	79A	3632	220	90	10010000	1978	7BA	3672	204	84	10000100	2010	7DA	3732	232	9A	10011010	2042	7FA	3772	356	EE	11101110
1947	79B	3633	220	90	10010000	1979	7BB	3673	010	08	00001000	2011	7DB	3733	366	F6	11110110	2043	7FB	3773	012	0A	00001010
1948	79C	3634	362	F2	11110010	1980	7BC	3674	220	90	10010000	2012	7DC	3734	142	62	01100010	2044	7FC	3774	000	00	00000000
1949	79D	3635	142	62	01100010	1981	7BD	3675	353	EB	11101011	2013	7DD	3735	000	00	00000000	2045	7FD	3775	142	62	01100010
1950	79E	3636	006	06	00000110	1982	7BE	3676	142	62	01100010	2014	7DE	3736	006	06	00000110	2046	7FE	3776	006	06	00000110
1951	79F	3637	006	06	00000110	1983	7BF	3677	006	06	00000110	2015	7DF	3737	006	06	00000110	2047	7FF	3777	006	06	00000110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: 2048 X 8 ROM/PROM PATTERN SPEC	SIZE: K	CODE: PS	NUMBER: 23017E2-0-0	REV

DEC PART NUMBER: 23-219A1-0 ORIGINATOR: RICH HULTMAN BINARY DATA "1" = HIGH SHEET 2 OF 2
LEFT COLUMN OF BIN DATA IS MSB DATE ORIGINATED: 6-DEC-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	015	0D	0000111																		
1	01	01	015	0D	0000111																		
2	02	02	001	01	0000000																		
3	03	03	001	01	0000000																		
4	04	04	016	0E	0000111																		
5	05	05	016	0F	0000111																		
6	06	06	032	1A	0001101																		
7	07	07	032	1A	0001101																		
8	08	10	003	03	0000001																		
9	09	11	003	03	0000001																		
10	0A	12	003	03	0000001																		
11	0B	13	003	03	0000001																		
12	0C	14	002	02	0000001																		
13	0D	15	002	02	0000001																		
14	0E	16	016	0E	0000111																		
15	0F	17	016	0F	0000111																		
16	10	20	031	19	0001100																		
17	11	21	031	19	0001100																		
18	12	22	015	0D	0000111																		
19	13	23	015	0D	0000111																		
20	14	24	016	0E	0000111																		
21	15	25	016	0F	0000111																		
22	16	26	032	1A	0001101																		
23	17	27	032	1A	0001101																		
24	18	30	003	03	0000001																		
25	19	31	003	03	0000001																		
26	1A	32	003	03	0000001																		
27	1B	33	003	03	0000001																		
28	1C	34	002	02	0000001																		
29	1D	35	002	02	0000001																		
30	1E	36	016	0E	0000111																		
31	1F	37	016	0F	0000111																		

NOTES	FIRST USED ON OPTION MODEL	DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
REV	DRN. / DATE		
	CHK'D. / DATE	TITLE: 32 X 8 ROM/PROM PATTERN SPEC	
	ENG. / DATE		
	PROJ.ENG. / DATE		
	PROD. / DATE	SIZE: K / CODE: PS / NUMBER: 23219A1-0-0	REV
CHK	NEXT HIGHER ASSEMBLY	DIST.	

DEC PART NUMBER: 23-218A1-00 ORIGINATOR: RICH HULTMAN BINARY DATA "1" = HIGH SHEET 2 OF 2
LEFT COLUMN OF BIN DATA IS MSB DATE ORIGINATED: 6-DEC-77 BINARY DATA "0" = LOW

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	00	000	00	00000000												
1	01	01	040	20	00100000												
2	02	02	040	20	00100000												
3	03	03	244	A4	10100100												
4	04	04	054	2C	00101100												
5	05	05	040	20	00100000												
6	06	06	040	20	00100000												
7	07	07	040	20	00100000												
8	08	10	040	20	00100000												
9	09	11	040	20	00100000												
10	0A	12	040	20	00100000												
11	0B	13	244	A4	10100100												
12	0C	14	054	2C	00101100												
13	0D	15	040	20	00100000												
14	0E	16	000	00	00000000												
15	0F	17	001	01	00000001												
16	10	20	040	20	00100000												
17	11	21	004	04	00000100												
18	12	22	105	45	01000101												
19	13	23	114	4C	01001100												
20	14	24	100	40	01000000												
21	15	25	100	40	01000000												
22	16	26	100	40	01000000												
23	17	27	100	40	01000000												
24	18	30	100	40	01000000												
25	19	31	104	44	01000100												
26	1A	32	105	45	01000101												
27	1B	33	114	4C	01001100												
28	1C	34	000	00	00000000												
29	1D	35	040	20	00100000												
30	1E	36	042	22	00100010												
31	1F	37	062	32	00110010												

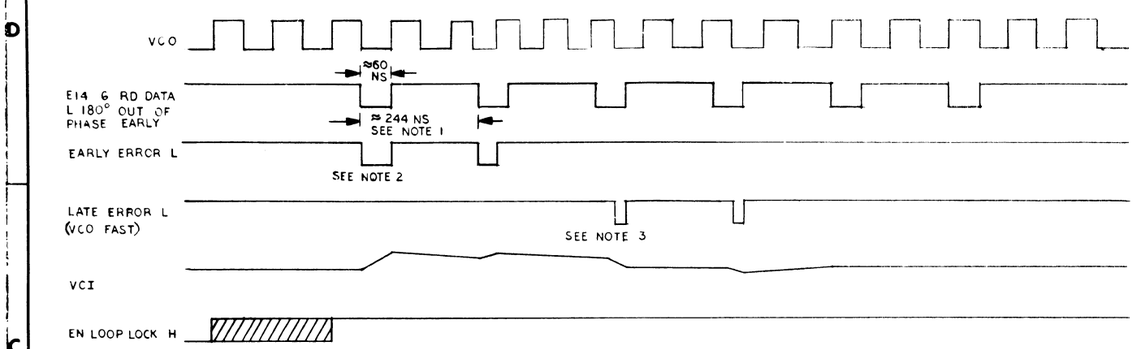
REV	NOTES	FIRST USED ON OPTION MODEL	
		DRN.	DATE
		CHK'D.	DATE
		ENG.	DATE
		PROJ.ENG.	DATE
		PROD.	DATE
CHK		NEXT HIGHER ASSEMBLY	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

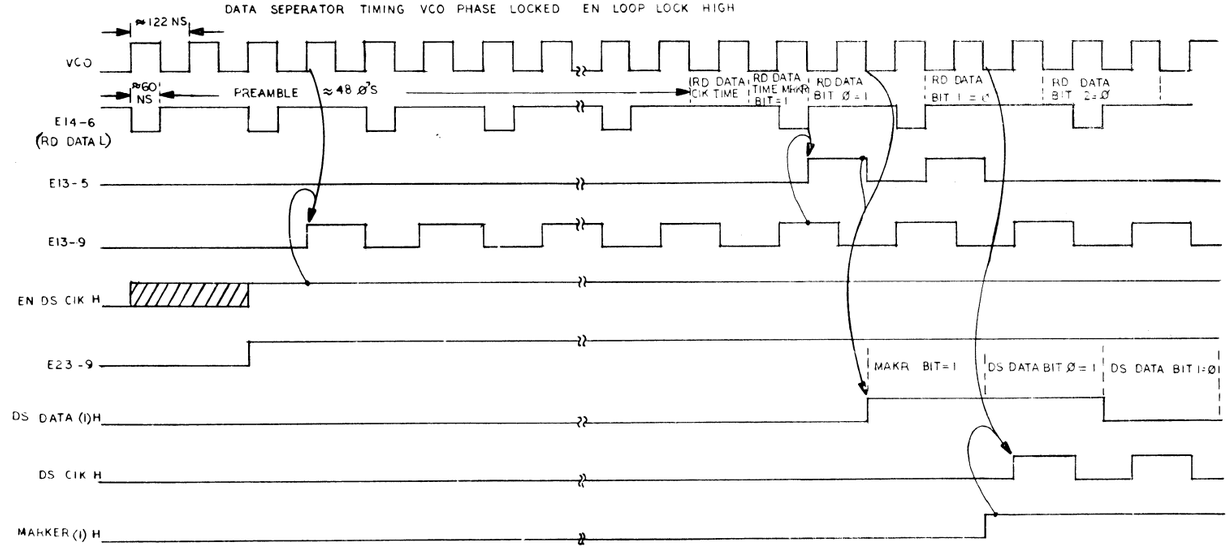
TITLE
32 X 8
ROM/PROM PATTERN SPEC

SIZE	CODE	NUMBER	REV
K	PS	23218A1-0-0	

DIST.



DATA SEPERATOR TIMING VCO PHASE LOCKED EN LOOP LOCK HIGH



NOTE

1. 244 NS BIT RATE IS DEPENDENT UPON SPEED VARIATIONS AT THE DRIVE.
2. EARLY ERRORS CAUSE THE VCO CLOCK RATE TO INCREASE. VCO IS RUNNING SLOWER THAN READ DATA. POS PLS @ VCI
3. LATE ERRORS CAUSE THE VCO CLOCK RATE TO DECREASE. VCO IS RUNNING FASTER THAN READ DATA. NEG. PLS @ VCI

REVISIONS	REV.	CHK
CHANGE NO.		

DRN	20 Jan 78	FIRST USED ON: RLVII
CHK'D	3 may 78	
ENG.	3 may 78	TITLE: TIMING DIAGRAM (RLVII)
PROJ. ENG.	1 May 78	
PROD.	3 may 78	
NEXT HIGHER ASSY.		
E-UA-RLVII-Ø-Ø		SIZE D, CODE TD, NUMBER RLVII-Ø-4, REV.
SCALE		
SHEET 1 OF 1		DIST.

digital

RLVII-Ø-4 REV. A