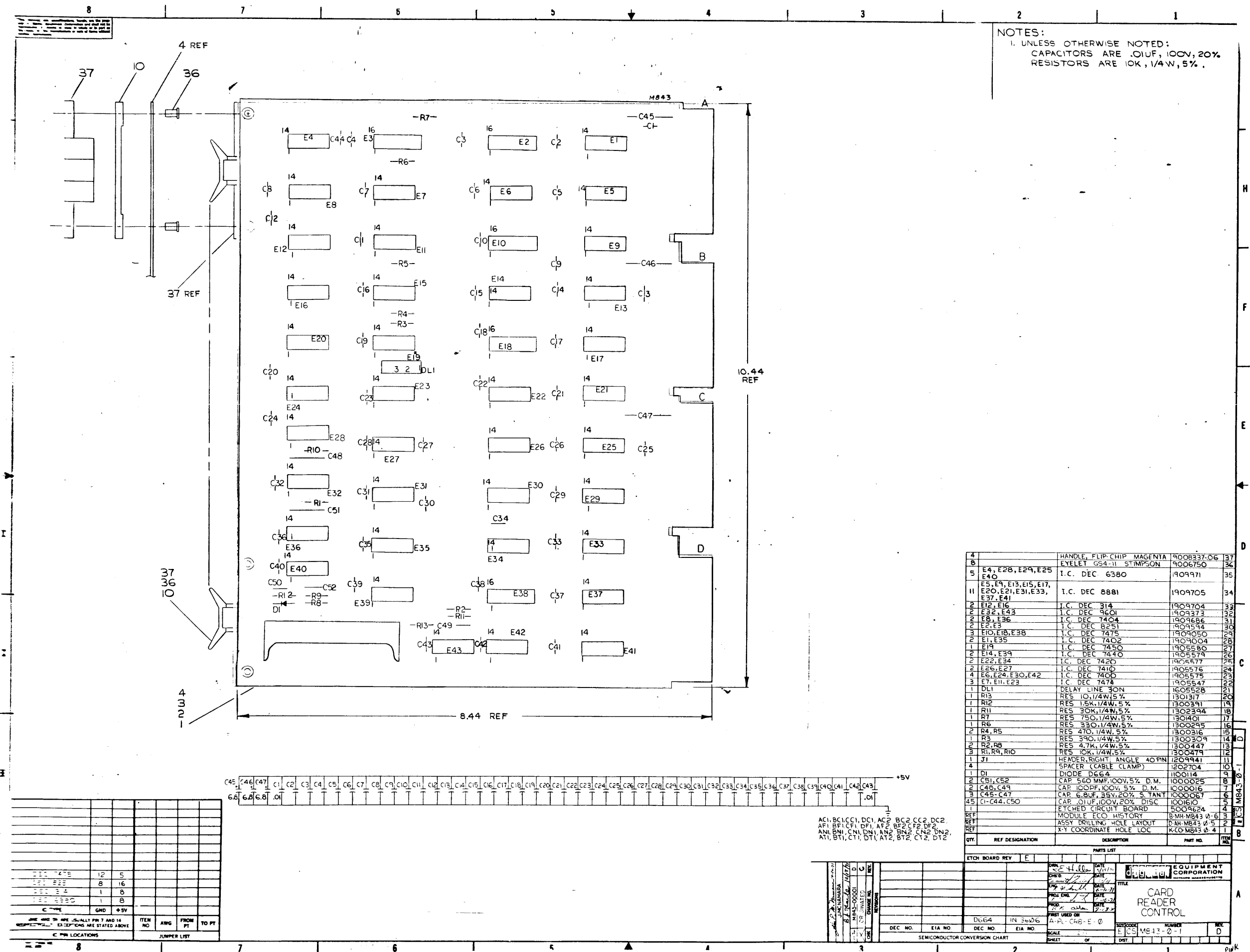
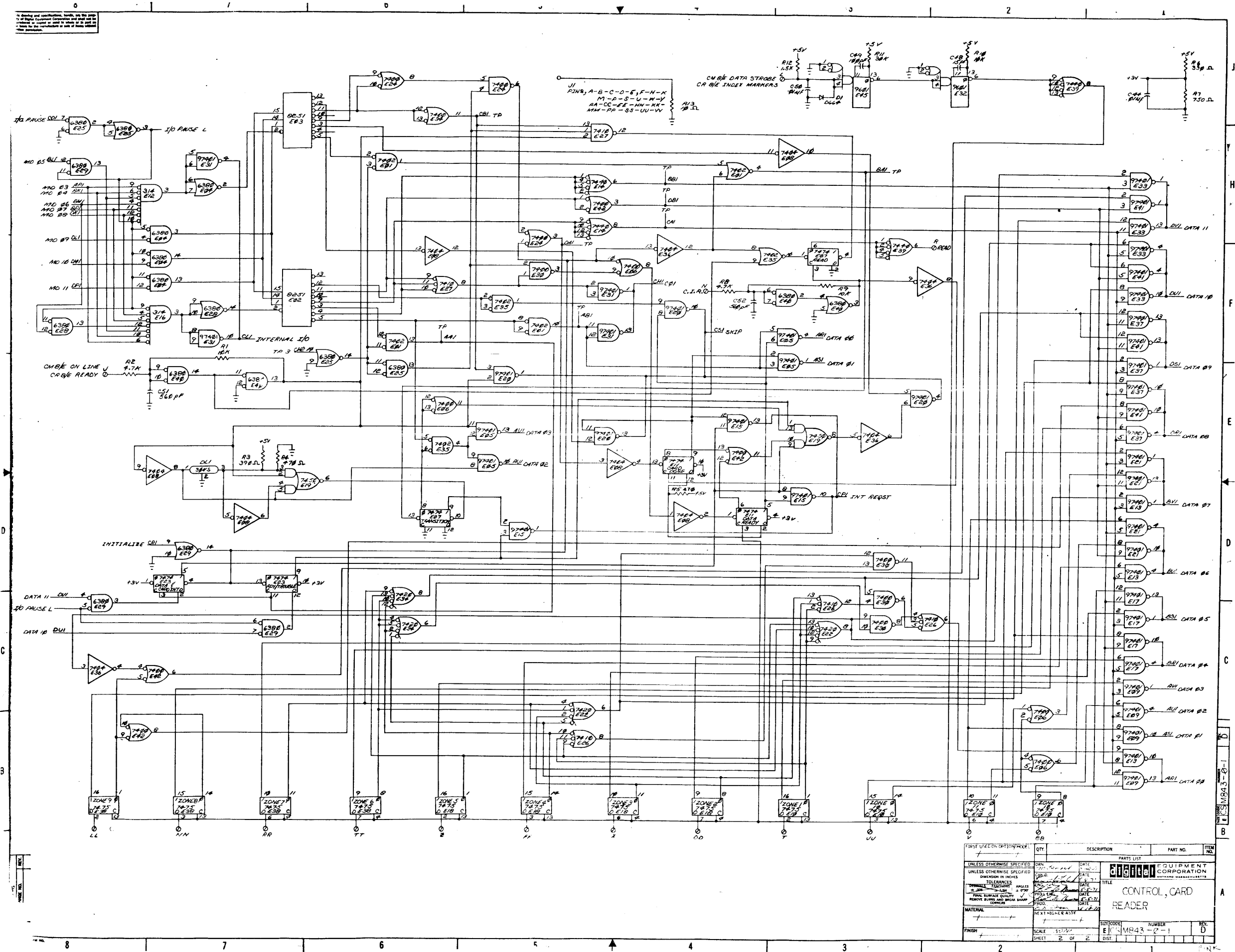


**CR8-E card reader
engineering drawings**

MASTER DRAWING LIST

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 7/16/71

TITLE CR8-E ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	John McNamara	APPD		SIZE	CODE	NUMBER	REV
				A	SP	CR8-E 1	

DEC FORM NO.
DRA 107

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE CR8-E ACCEPTANCE PROCEDURE

Scope: To define the criteria to accept a CR8-E for shipment.

Test Software:

GDI Technical Manual	GDI Model 100 -
Card Reader Diagnostic	Maindec - 8E - D2EA-D(D)
Alpha Card Deck	Maindec - 89 - D2A1 - C
Binary Card Deck	Maindec - 89 - D2A2 - C

Test Hardware:

PDP8/E
Oscilloscope

Procedure:

Run Maindec - 8/E - D2EA - D(D). Read one new deck of binary cards twenty times and one new deck of alpha cards twenty times.*
Perform standard vibration checks. Complete option check list.

Shipping Software:

GDI Technical Manual	GDI Model 100
Diagnostic Program	Maindec - 8E - D2EA - D(D)
Alpha Card Deck	Maindec - 89 - D2A1 - C
Binary Card Deck	Maindec - 89 - D2A2 - C
Prints	All prints on Master List
Manual	DEC - 8E - HR313-D-CR8E

Shipping Hardware:

Cable Assembly - H856 to Amp	DEC #7007252
Cord, AC extension - 9 ft.	DEC #1201265
Card Reader Control	DEC Module #M843

*Note: For each diagnostic deck run twenty times, there shall be no errors of any kind for twenty consecutive runs of that deck.

DEC FORM NO 16-1022
755 109

SIZE	CODE	NUMBER	REV
A	SP	CR8-E 1	

SHEET 2 OF 2

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[illegible]

ENGINEERING SPECIFICATION		digital	CONTINUATION SHEET																	
TITLE	CR8-E TEST PROCEDURE																			
Test Equipment Required: Oscilloscope PDP-8/E CR8-E Card Reader, Interface and Cable #7007252 Test Software Required: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">GDI Technical Manual</td> <td style="width: 50%;">GDI Model 100</td> </tr> <tr> <td>Card Reader Diagnostic</td> <td>Maindec 8E-D2EA-D(D)</td> </tr> <tr> <td>Alpha Card Deck</td> <td>Maindec 89-D2A1-C</td> </tr> <tr> <td>Binary Card Deck</td> <td>Maindec 89-D2A2-C</td> </tr> </table>					GDI Technical Manual	GDI Model 100	Card Reader Diagnostic	Maindec 8E-D2EA-D(D)	Alpha Card Deck	Maindec 89-D2A1-C	Binary Card Deck	Maindec 89-D2A2-C								
GDI Technical Manual	GDI Model 100																			
Card Reader Diagnostic	Maindec 8E-D2EA-D(D)																			
Alpha Card Deck	Maindec 89-D2A1-C																			
Binary Card Deck	Maindec 89-D2A2-C																			
Procedure: A. The equipment is interfaced by means of an M843 module and a 7007252 cable. Any Omnibus slot may be used. B. Load Diagnostic Maindec-8E-D2EA-D(D). NOTICE: If DF32 Disk is part of the system, it would be in the Operate Mode. When DF32 Disk is in Maintenance mode, it shares device codes with the card reader and therefore the card reader diagnostic cannot validly run. Static test and manual intervention tests should operate correctly before attempting to operate all other tests. C. Control Switch Settings: <table style="width: 100%; border: none;"> <tr><td>SW0 = 0</td><td>Test Alphanumeric Deck</td></tr> <tr><td>SW0 = 1</td><td>Test Binary Deck</td></tr> <tr><td>SW1 = 0</td><td>Print Data Error</td></tr> <tr><td>SW1 = 1</td><td>Suppress Print Data Error</td></tr> <tr><td>SW2 = 0</td><td>Halt After Data Error</td></tr> <tr><td>SW2 = 1</td><td>Suppress Halt After Data Error</td></tr> <tr><td>SW3 = 0</td><td>Halt At End of Test Deck</td></tr> <tr><td>SW3 = 1</td><td>Continue to Next Test Deck Without Halt</td></tr> </table>					SW0 = 0	Test Alphanumeric Deck	SW0 = 1	Test Binary Deck	SW1 = 0	Print Data Error	SW1 = 1	Suppress Print Data Error	SW2 = 0	Halt After Data Error	SW2 = 1	Suppress Halt After Data Error	SW3 = 0	Halt At End of Test Deck	SW3 = 1	Continue to Next Test Deck Without Halt
SW0 = 0	Test Alphanumeric Deck																			
SW0 = 1	Test Binary Deck																			
SW1 = 0	Print Data Error																			
SW1 = 1	Suppress Print Data Error																			
SW2 = 0	Halt After Data Error																			
SW2 = 1	Suppress Halt After Data Error																			
SW3 = 0	Halt At End of Test Deck																			
SW3 = 1	Continue to Next Test Deck Without Halt																			
		SIZE A	CODE SP	NUMBER CR8-E-2	REV															

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE CR8-E TEST PROCEDURE			
D. Starting Addresses of Card Reader Tests: Ø2ØØ = Alpha and Binary Data Reliability Tests Ø2Ø2 = Static IOT Tests Ø2Ø4 = Manual Intervention Tests Ø2Ø6 = Compressed Code Data Reliability Tests Ø21Ø = Validity Bit Data Reliability Tests 23ØØ = Scope Loop E. Program and/or Operator Action: The tests provided in the diagnostic should be run in the following sequence: 1. Static IOT Tests a. Turn on card reader power. b. At this point the only red light to be on should be card supply. Reference GDI manual to remedy other red light error conditions. c. Load address Ø2Ø2. d. Depress Clear and then depress Continue e. Program will print "IOTs OK" if test runs. Program will halt if test fails. Reference symbolic listing and comments for appropriate error description. 2. Manual Intervention Tests: a. Place alphanumeric or binary test deck in lower hopper. b. Turn on card reader power. c. Depress card reader start. At this point all red lights should be off. d. Load address Ø2Ø4. e. Select appropriate switch control (reference C above).			
SIZE	CODE	NUMBER	REV
A	SP	CR8-E-2	

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE CR8-E TEST PROCEDURE			
f. Depress Clear and then depress Continue. g. At this point program will attempt to read four cards and then issue message "operator must now press read stop". h. After read stop is pressed, program will then issue message "operator must now press read start". i. Program will print "Manual Tests OK" if test runs. Program will halt if test fails. Reference symbolic listing and comments for appropriate error description. 3. Validity Bit Data Reliability Tests: Static IOT tests must operate correctly before attempting this test. a. Place Binary test deck in lower hopper. b. Turn on card reader power. c. Depress card reader start. At this point all read lights should be off. d. Load address Ø21Ø. e. Select appropriate switch control (reference C above). f. Depress Clear, then depress Continue. g. Program will ring bell and print "*" when finished with an 8Ø card test deck. h. If more than 1 test deck has been loaded, repeat step e and press Continue.			
SIZE	CODE	NUMBER	REV
A	SP	CR8-E-2	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE CR8-E TEST PROCEDURE

4. Compressed Code Data Reliability Tests

Static IOT test must operate correctly before attempting this test.

- a. Place Alphanumeric test deck in lower hopper.
- b. Turn on card reader power.
- c. Depress card reader start.
At this point all red lights should be off.
- d. Load address 0206.
- e. Select appropriate switch control (reference C above).
- f. Depress clear then depress continue.
- g. Program will ring bell and print "*" when finished with an 80 card test deck.
- h. If more than 1 test deck has been loaded, repeat Step e and press continue.

5. Alphanumeric and Binary Data Reliability Tests

Static test must operate correctly before attempting this test.

- a. Place Alphanumeric or Binary test deck in lower hopper.
- b. Turn on card reader power.
- c. Depress card reader start.
At this point all red lights should be off.
- d. Load address 0200.
- e. Select appropriate switch control (reference C above).
- f. Depress clear and then depress continue.

SIZE	CODE	NUMBER	REV
A	SP	CR8-E-2	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

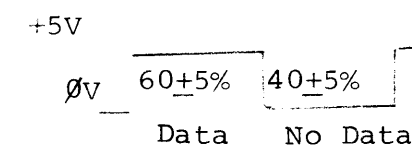
TITLE CR8-E TEST PROCEDURE

- g. Program will ring bell and print "*" when finished with an 80 card deck test.

- h. If more than 1 test deck has been loaded, repeat Step e and press continue.

F. If the Diagnostic Does Not Run Properly

1. Load input hopper with cards of "0"'s and "1"'s pattern. Load and start computer with SR = 2300g (scope mode).
2. With a "0"'s and "1"'s deck cycling through the reader, the 12 amplified data bits can be observed by looking at the collector outputs of the photocell transistors. (Ref GDI Schematic #4003.) The output waveform should be:



3. The timing chart may be used as a guide to trouble-shoot the unit.

SIZE	CODE	NUMBER	REV
A	SP	CR8-E-2	

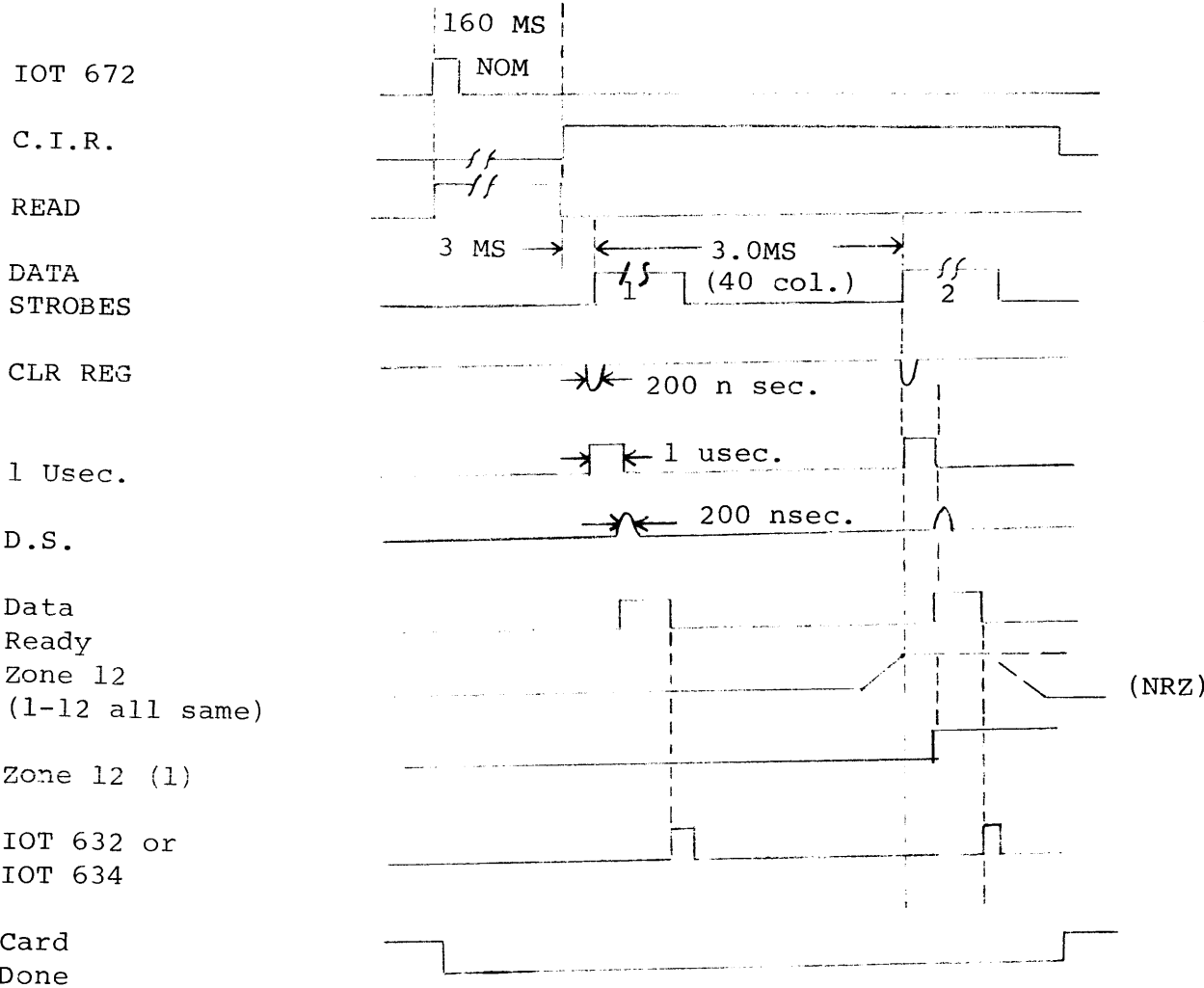
ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE CR8-E TEST PROCEDURE

G. The CR8-E is checked out when 4 decks of binary, 4 decks of alpha numeric cards and 4 decks of test pattern cards have been run for 10 passes each.



DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND		QUANTITY / VARIATION													
ACCESSORY LIST				D DOCUMENT DN DOCUMENT CHANGE NOTICE PA PAPER TAPE ASCII PB PAPER TAPE BINARY PM PAPER TAPE READ-IN-MODE															
MADE BY J. Mc Cluskey DATE 1/26/72		CHECKED J. Mc Cluskey DATE 1-28-72		SECTION															
ENG J. Mc Cluskey DATE 1-28-72		PROD J. Mc Cluskey DATE 1-28-72		ISSUED SECT.															
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION				CR8-E	CR8-EA							KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1	M843	Card Reader Control				1	1												
2	7007252	Cable Assembly				1	1												
3	1201265	AC Extension Cord 9 Ft.				1	1												
4	3005998-1	GDI Card Reader				1	0												
5	GDI Model 100	GDI Technical Manual				1	1												
6	Maindec-89-D1B1-C	Alpha Card Deck (80 Cards)				1	1												
7	Maindec-89-D1B2-C	Binary Card Deck (80 Cards)				1	1												
8	Maindec-8E-D2EB-PB	CR8/E Card Reader Test (Paper Tape)				1	1												
9	Maindec-8E-D2EB-D	CR8/E Card Reader Test (Document)				1	1												
10	A-ML-CR8-E	CR8/E Print Set				1	1												
11	Dec-8E-HR31?-D-CR8/E	CR8/E Maintance Manual				1	1												
12	3005998-2	GDI Card Reader				0	1												
		Note When Item 11 Is Temporarily Waived																	
		Ship The Following																	
	A-S-CR8-E-1	Acceptance Procedure																	
	A-SP-CR8-E-3	Engineering Specifications																	
TITLE		CARD READER				ASSY. NO.		SIZE CODE		NUMBER				REV.		ECO NO			
								A AL		CR8-E-4									
						SHEET OF		DIST.											

[illegible]