

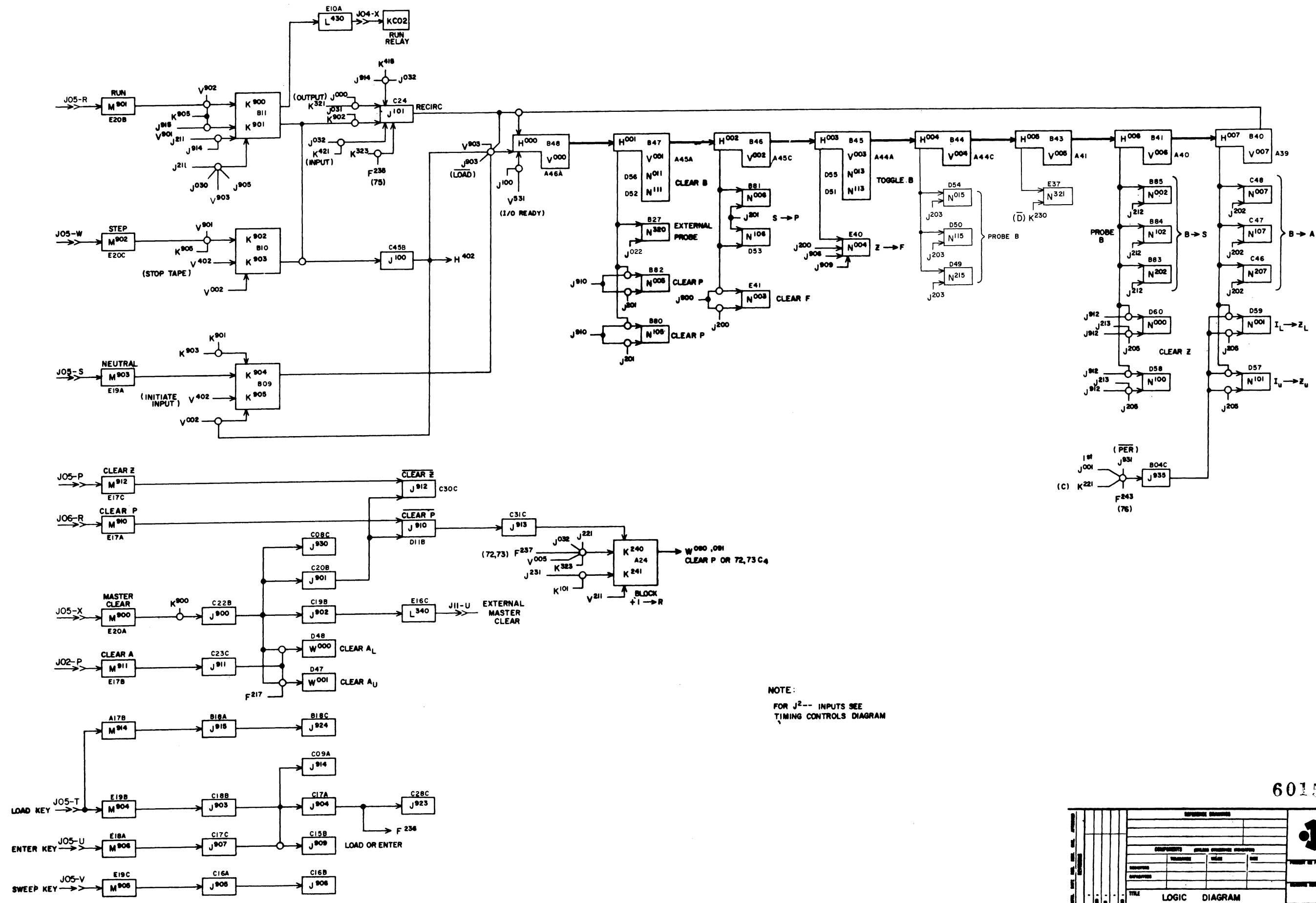
*Customer Engineering Diagrams*

**CONTROL DATA<sup>®</sup>**  
**160-B COMPUTER**

(SERIALS 0 - 33)

**CONTROL DATA**  
CORPORATION





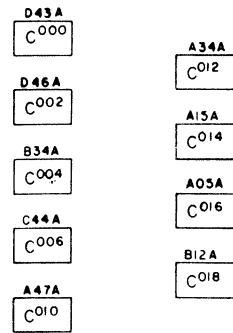
NOTE:  
 FOR J<sup>2</sup>-- INPUTS SEE  
 TIMING CONTROLS DIAGRAM

60150900

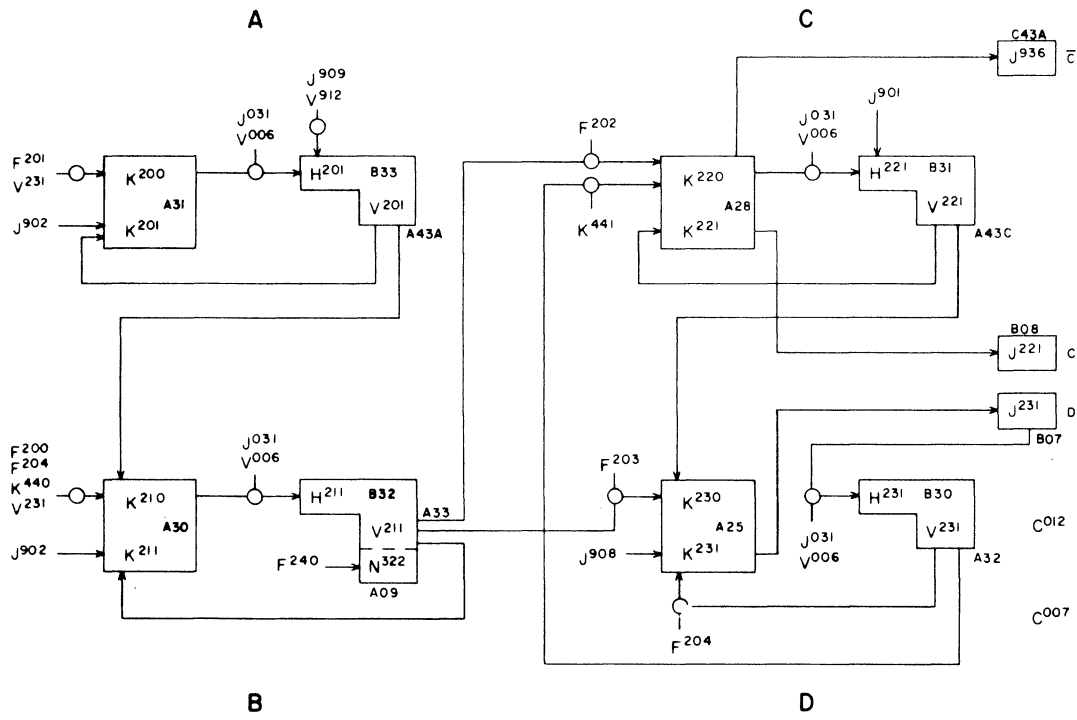
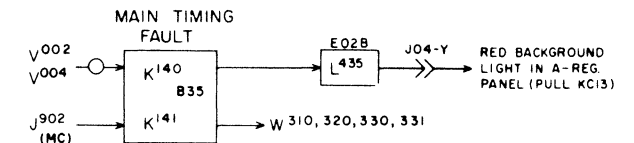
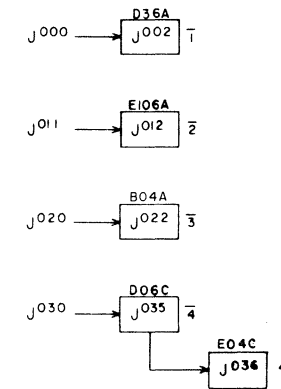
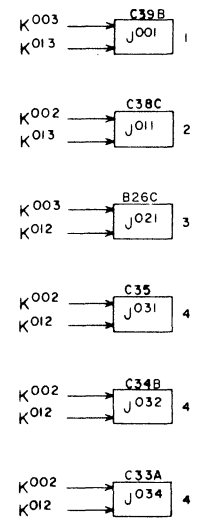
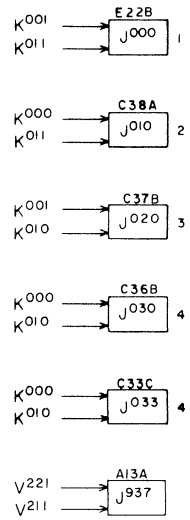
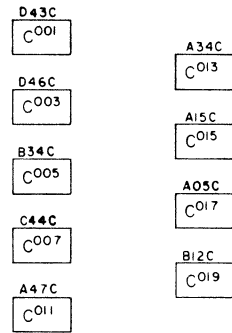
REVISIONS		CONTROL DATA CORPORATION
NO.	DATE	
COMPONENTS		3034
DESCRIPTION	QUANTITY	
TITLE		119830
LOGIC DIAGRAM		
MAIN TIMING CHAIN		

# CLOCK

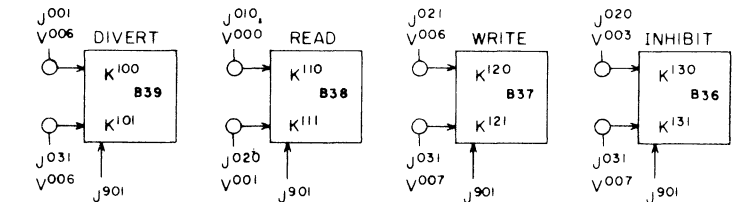
## EVEN PHASE



## ODD PHASE

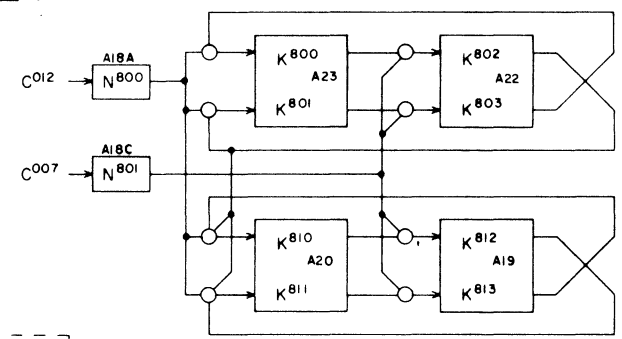


## PRIMARY TIMING CONTROL

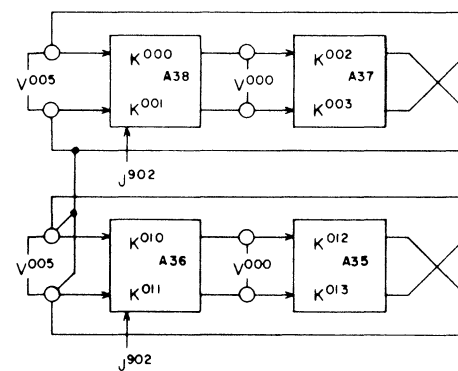


## STORAGE REFERENCE CONTROL (SRC)

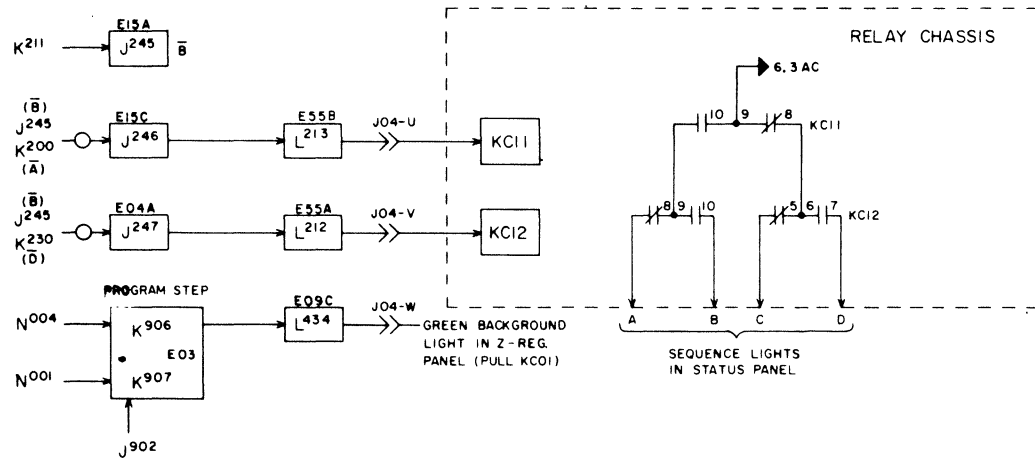
## RESYNC COUNTER



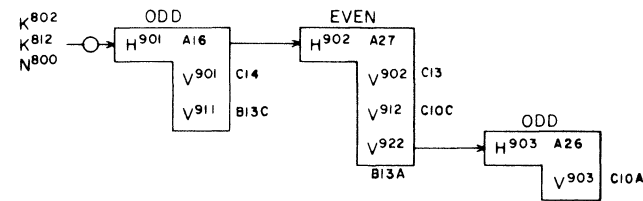
## TIMING CHAIN EXCURSIONS COUNTER (EK)



## STORAGE SEQUENCE CONTROL (SSC)



## RESYNC TIMING

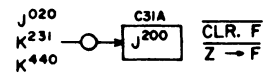


### F TRANSLATORS

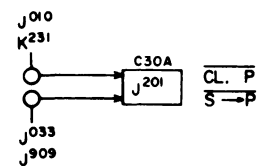
SYMBOL	FUNCTION
F200	$\bar{1}$
F201	$i$
F202	$B \rightarrow C$
F203	$B \rightarrow D$
F204	$\bar{D} \rightarrow \bar{D}$
F240	$\bar{75}$

60150900

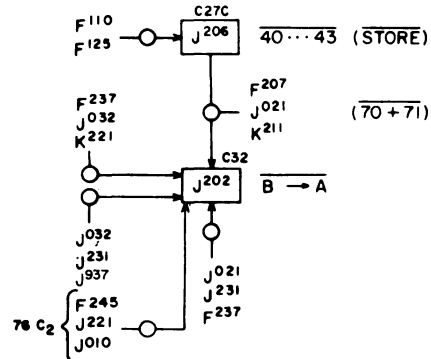
REFERENCE DRAWINGS		CONTROL DATA CORPORATION
COMPONENTS SUPPLIER OTHERWISE INDICATED		
DESIGNER	FILE NUMBER	PROJECT OR PART NUMBER
DRAWN BY	DATE	3034
TITLE		119831
MAIN CONTROL		PAGE 2



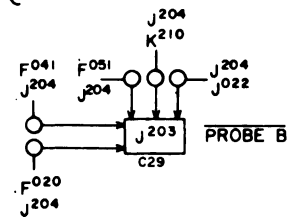
DOWN FOR  
EARLY 311  
D-CYCLE  
FIRST TRANSFER ON I/O SEQUENCE



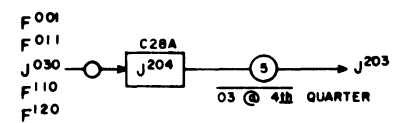
DOWN FOR  
EARLY D<sub>2</sub>  
EARLY 4 ON LD OR ENTER



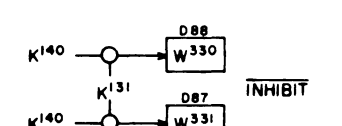
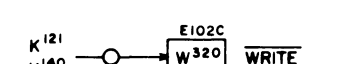
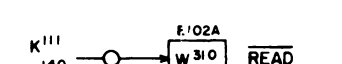
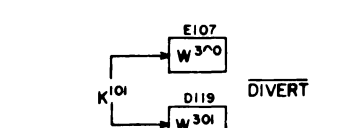
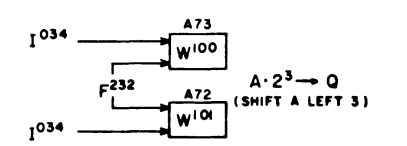
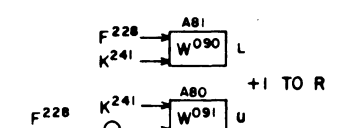
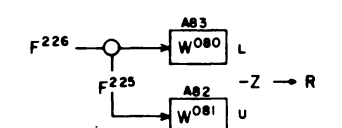
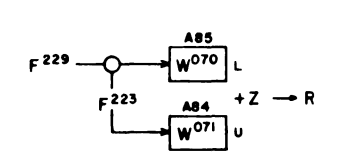
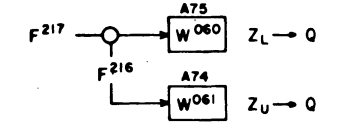
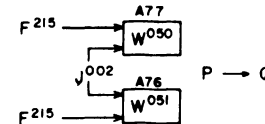
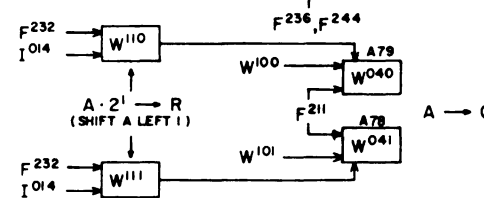
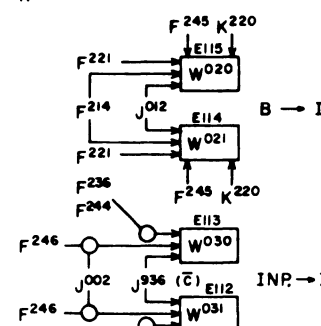
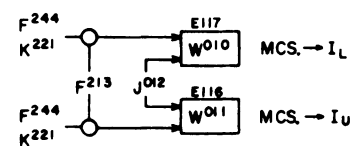
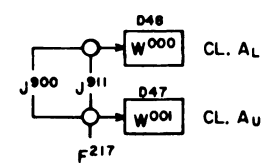
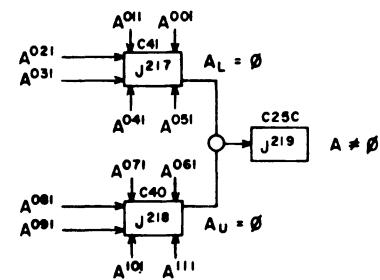
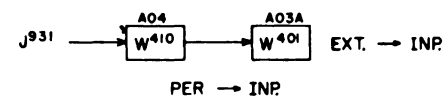
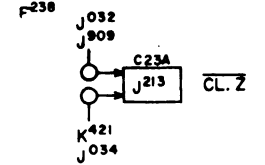
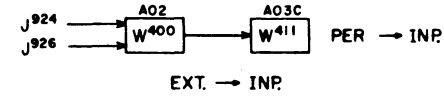
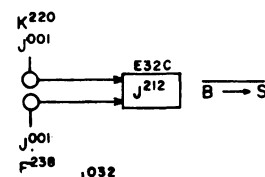
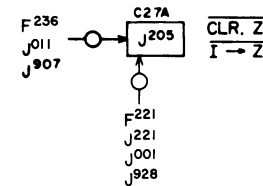
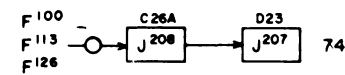
J202 IS DOWN FOR  
40...43, 70, 71, 72, 73, D<sub>3</sub>  
72, 73, C<sub>4</sub>  
D<sub>4</sub>  
76 C<sub>2</sub> (EARLY)



J203 IS UP FOR LOGICAL SUM  
INSTRUCTIONS ONLY.



J204 IS DOWN FOR  
LOGICAL SUM.

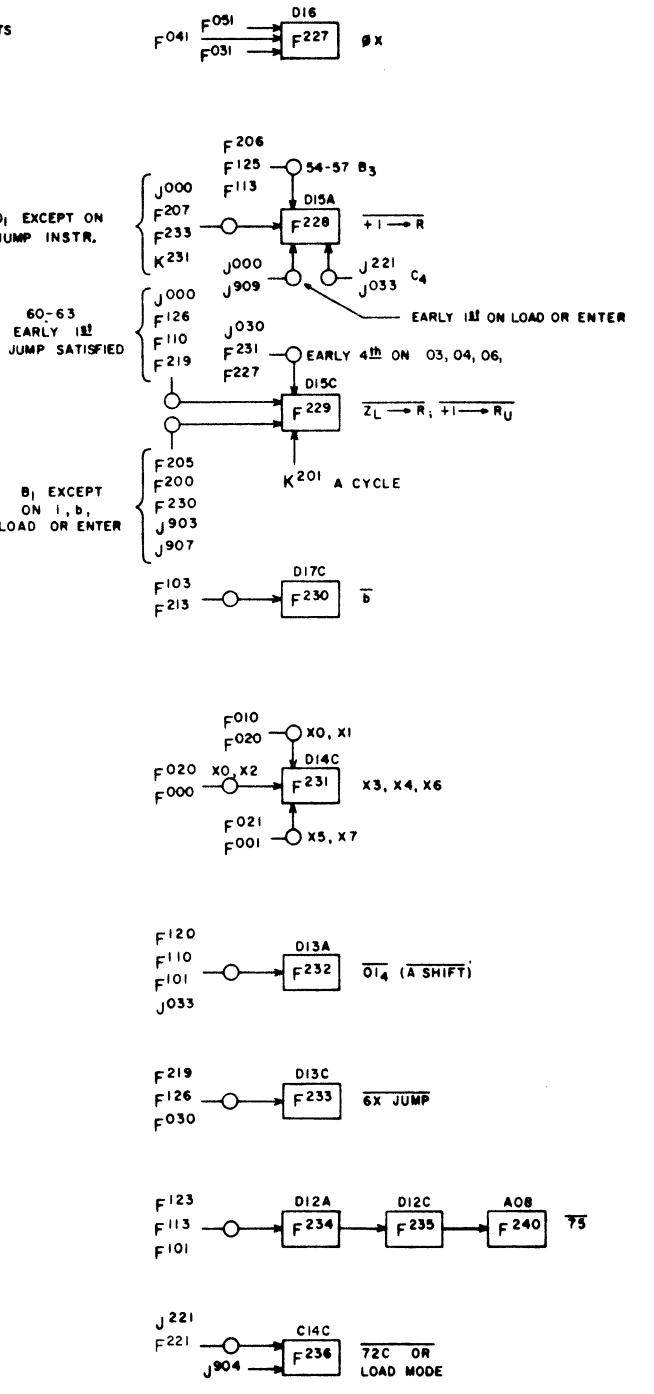
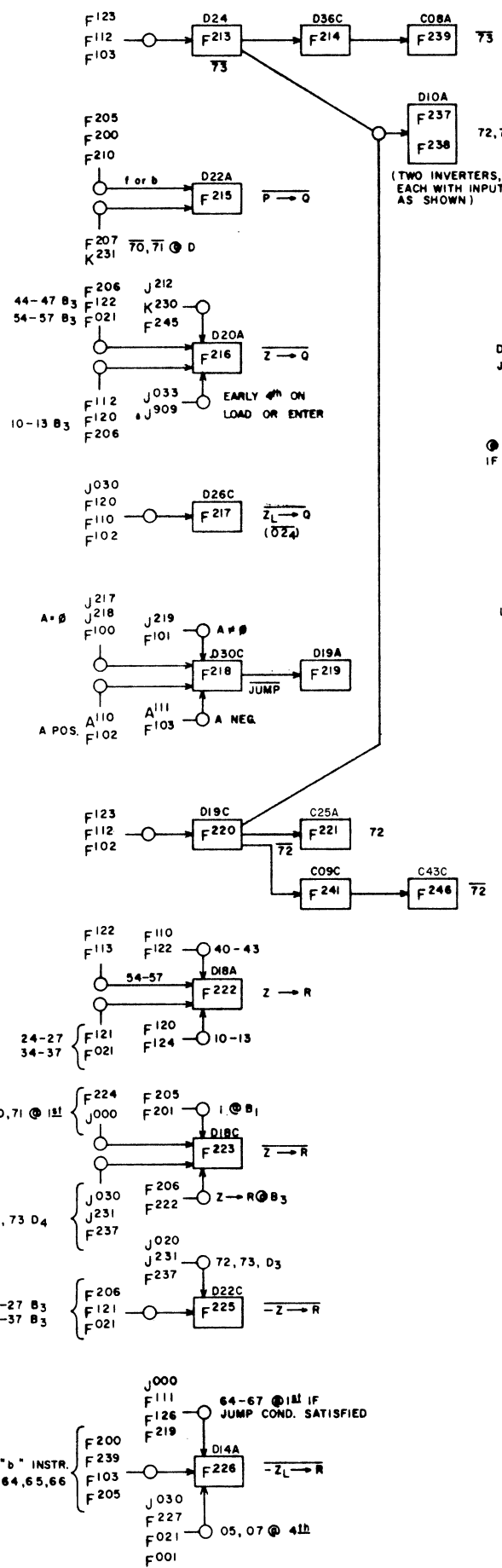
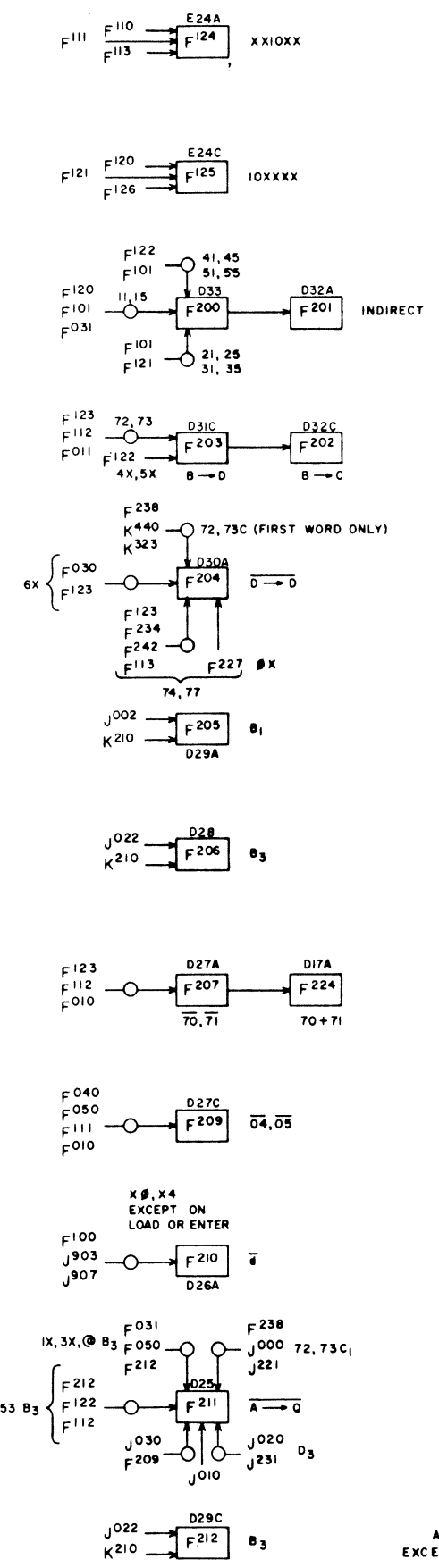
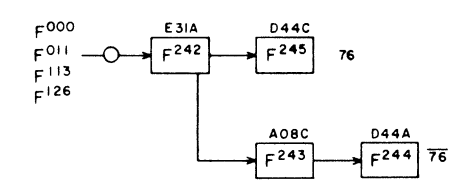
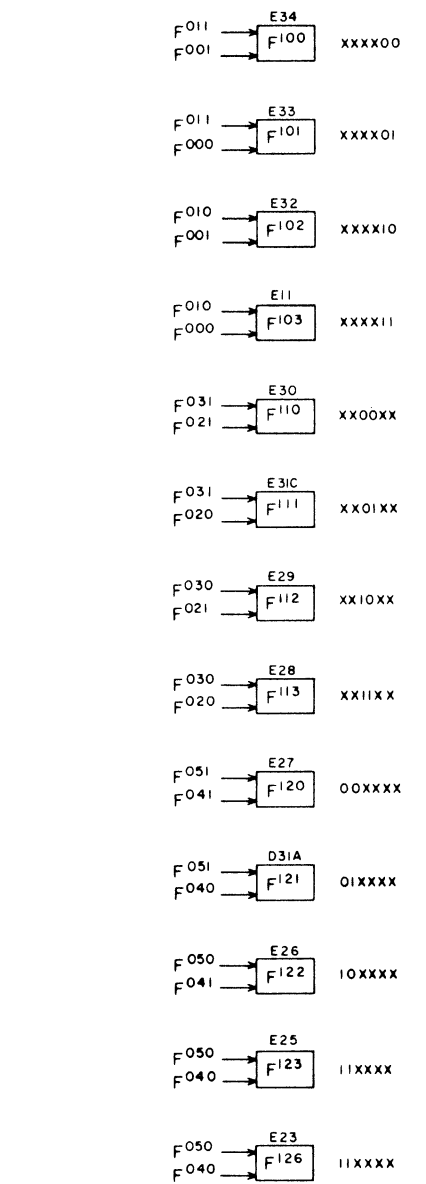
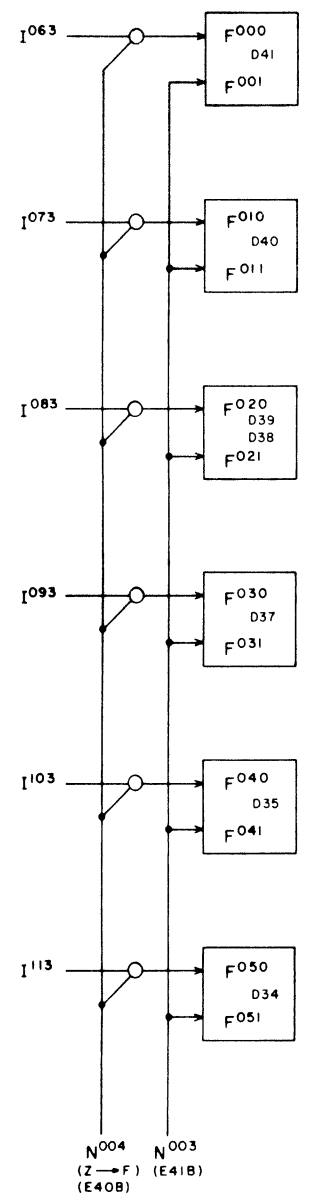


F TRANSLATORS

SYMBOL	FUNCTION
F211	A -> Q
F213	75
F214	75
F215	F -> Q
F216	Z -> Q
F217	Z <sub>L</sub> -> Q
F221	72
F223	Z -> R
F226	-Z <sub>L</sub> -> R
F228	+I -> R
F229	Z <sub>L</sub> -> R
F232	A SHIFT
F236	72C OR LOAD MODE
F237	72, 73
F238	72, 73
F244	76
F245	76
F246	72

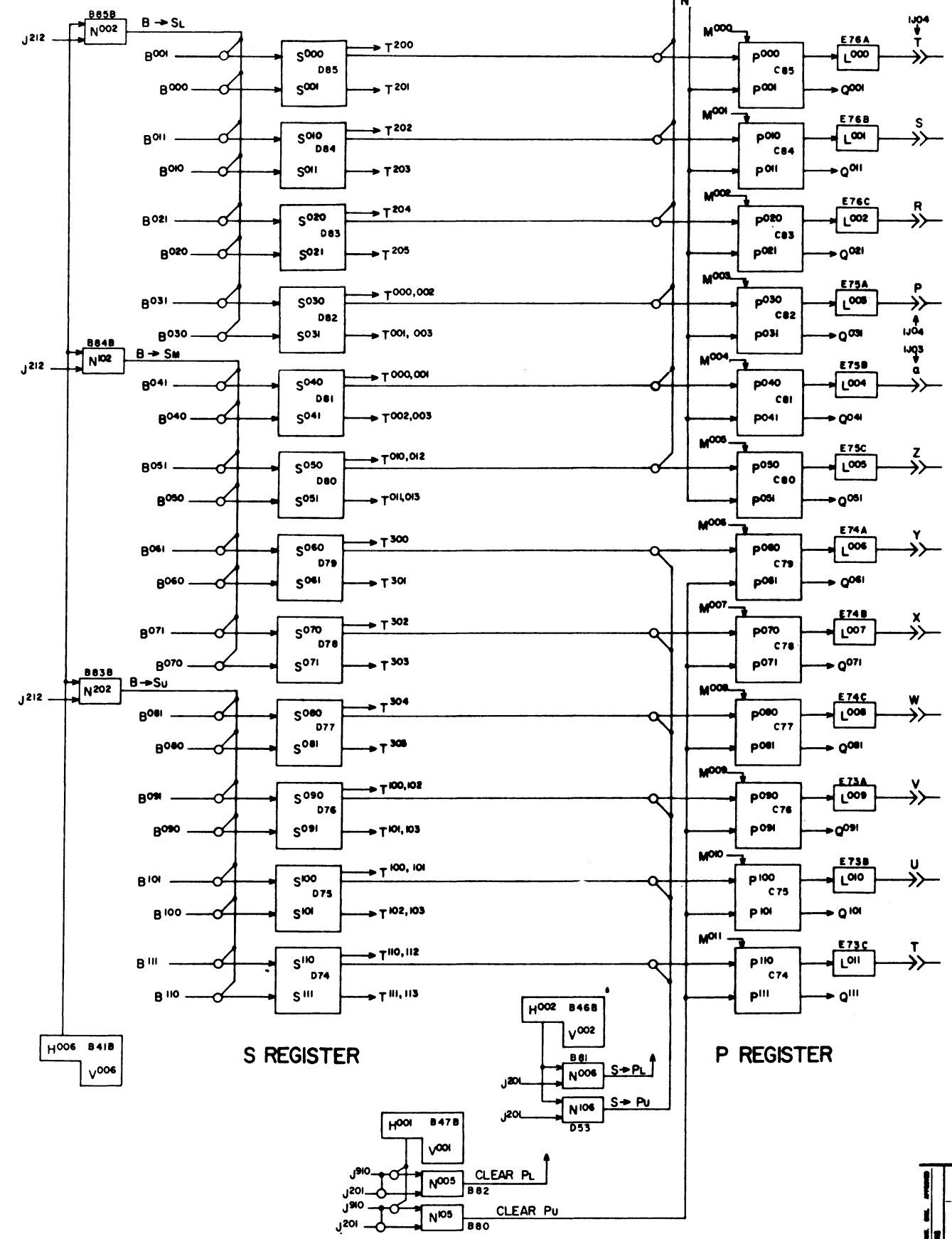
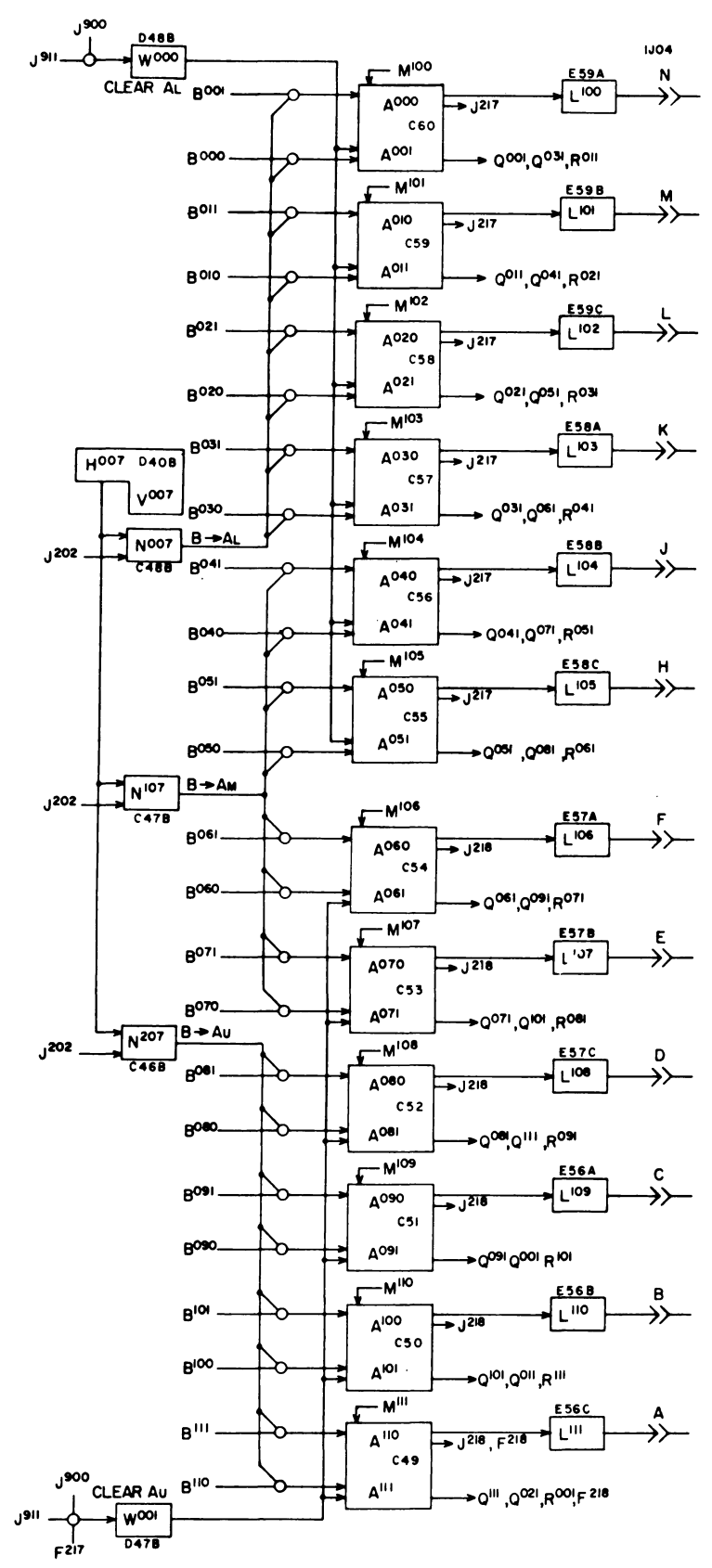
60150900

CONTROL DATA CORPORATION 3034 119832 3	REFERENCE DRAWING
	COMPONENTS (GROSS OPERATING WEIGHT)
	WEIGHT OF PARTS
	TITLE <b>LOGIC DIAGRAM TIMING CONTROLS</b>



60150900

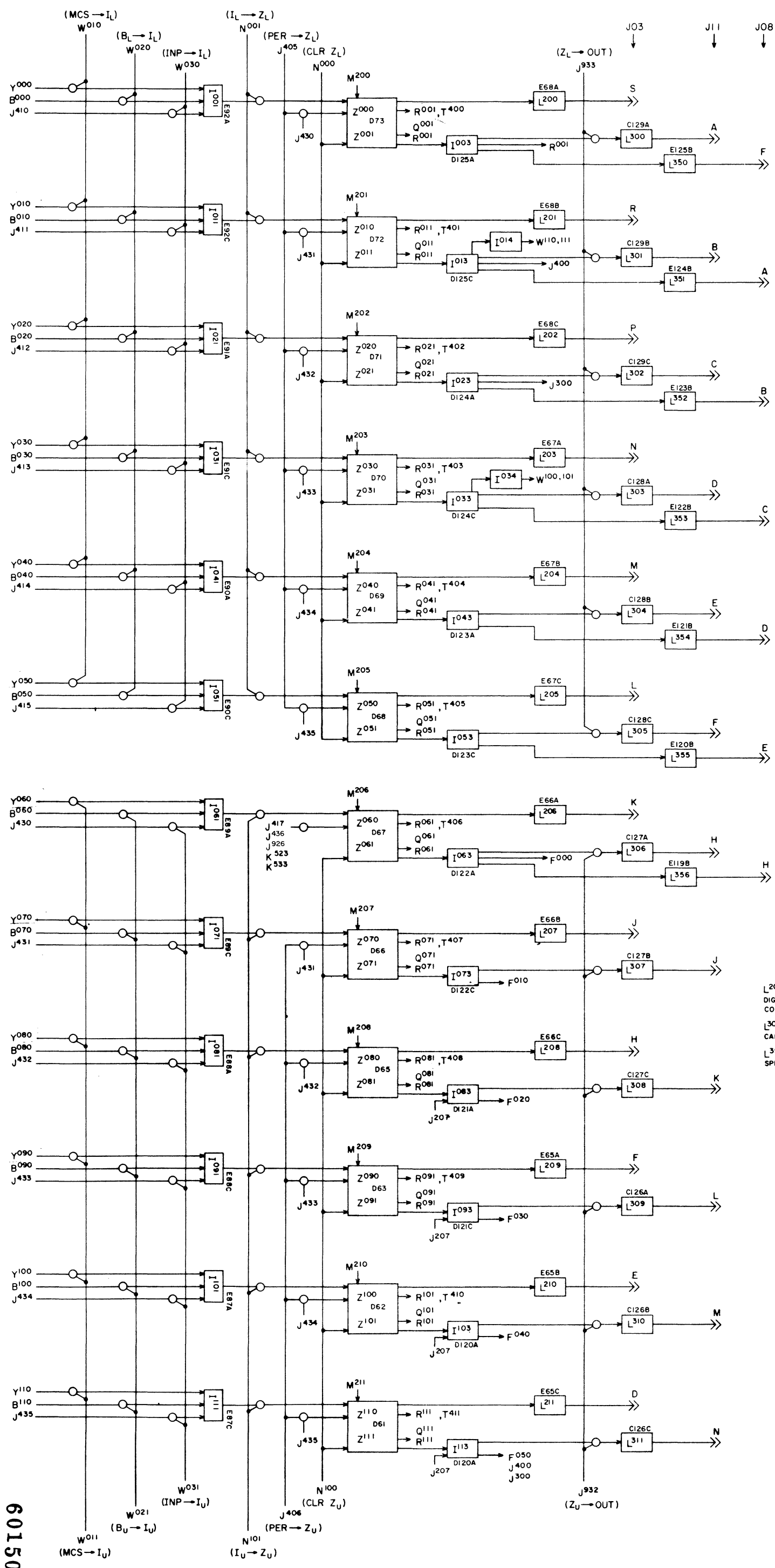
REVISIONS		 CONTROL DATA CORPORATION
NO.	DATE	
DESIGNER		3034 119833 4
DATE	BY	
CHECKED		
APPROVED		
TITLE		LOGIC DIAGRAM FUNCTION REGISTER



NOTE  
JACK CONNECTIONS SHOWN GO TO  
DIGITAL DISPLAY UNITS IN CONSOLE.

60150900

REFERENCE DRAWING			
COMPONENTS (UNLESS OTHERWISE INDICATED)			
DESCRIPTION	QUANTITY	VALUE	SIZE
CONTROL DATA CORPORATION			
TITLE			3034
LOGIC DIAGRAM REGISTERS A, S, AND P			119834
			5

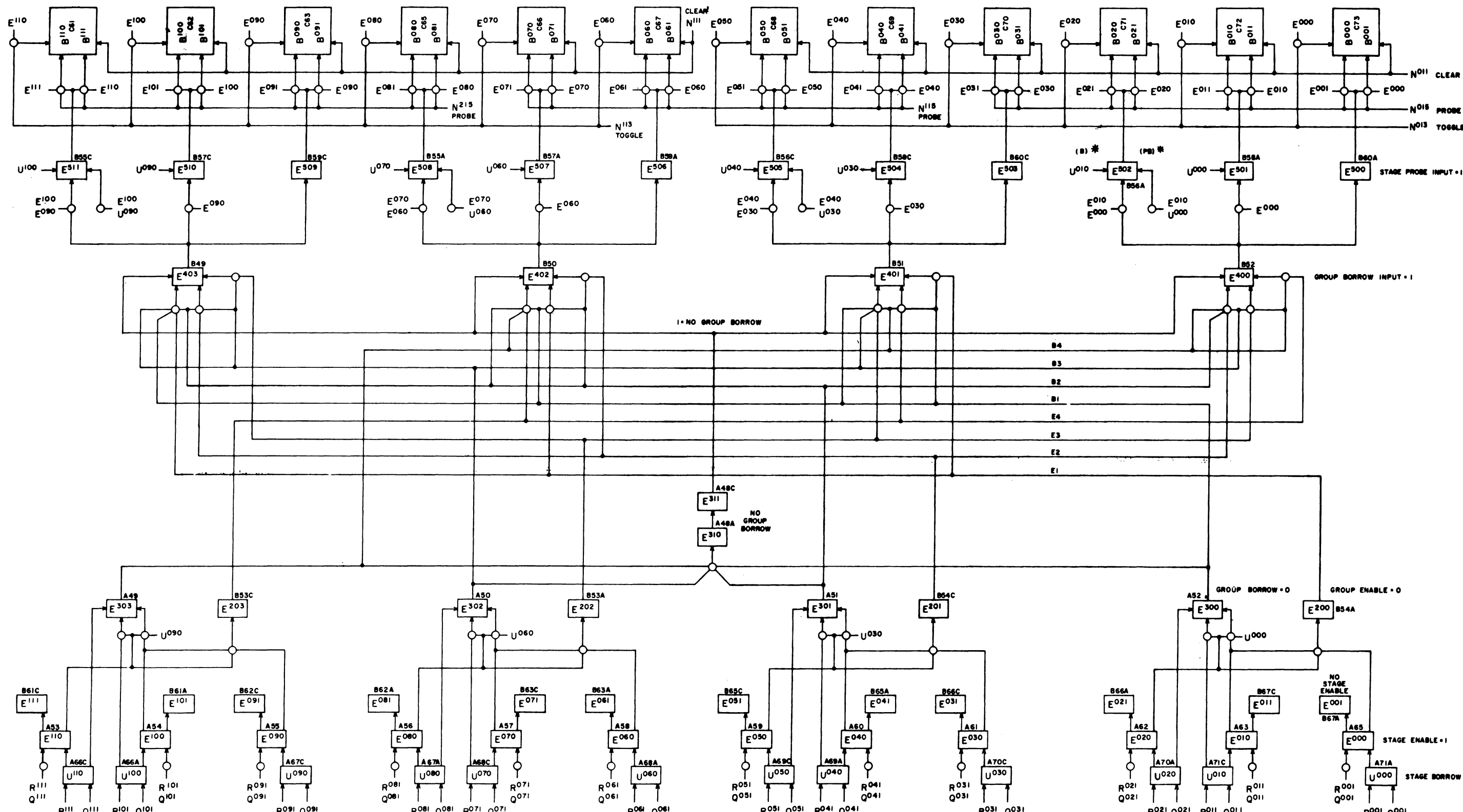


NOTES:  
 L200...L211 OUTPUTS GO TO DIGITAL DISPLAY UNIT IN CONTROL CONSOLE.  
 L300...L311 FEED THE OUTPUT CABLE.  
 L350...L356 FEED THE HIGH-SPEED PUNCH.

REV.	DATE	BY	CHK.	APP.
APPROVED: R. MILLER 8-9-60				
DRAWN: R. MILLER 8-9-60				
CHECKED: R. MILLER 8-9-60				
TITLE: Z REGISTER				
CONTROL DATA CORPORATION				
3034				
119835				
6				

60150900



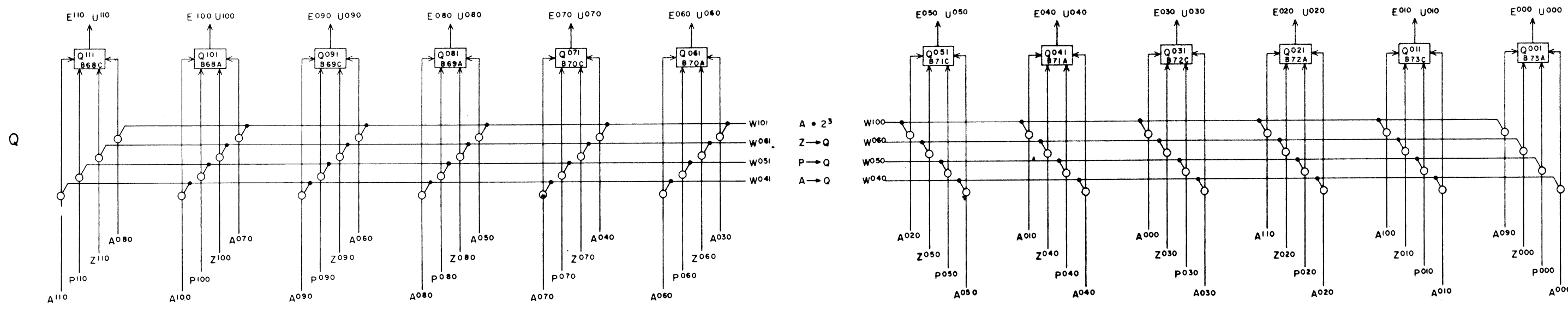
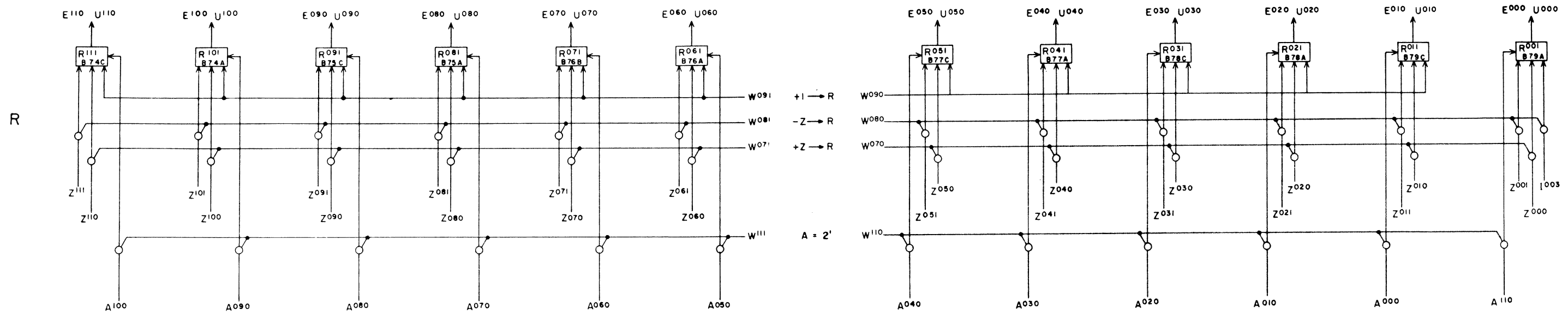


PYRAMD INPUTS  
 +Z } R  
 -Z }  
 +1 }  
 A-2' }  
 P } Q  
 A }  
 A-2' }  
 +Z }

\* SEE TEXT FOR (B) & (PB) DESIGNATION. THESE TERMS APPLY TO THE CORRESPONDING INPUTS IN EACH OF THE OCTAL GROUPS.

60150900

CONTROL DATA CORPORATION 3034 119836 7	TITLE <b>LOGIC DIAGRAM BORROW PYRAMID</b>	DESIGNED BY R. MILLER 7-27-60	CHECKED BY [ ]
	COMPONENTS [ ]	[ ]	[ ]
	[ ]	[ ]	[ ]
	[ ]	[ ]	[ ]



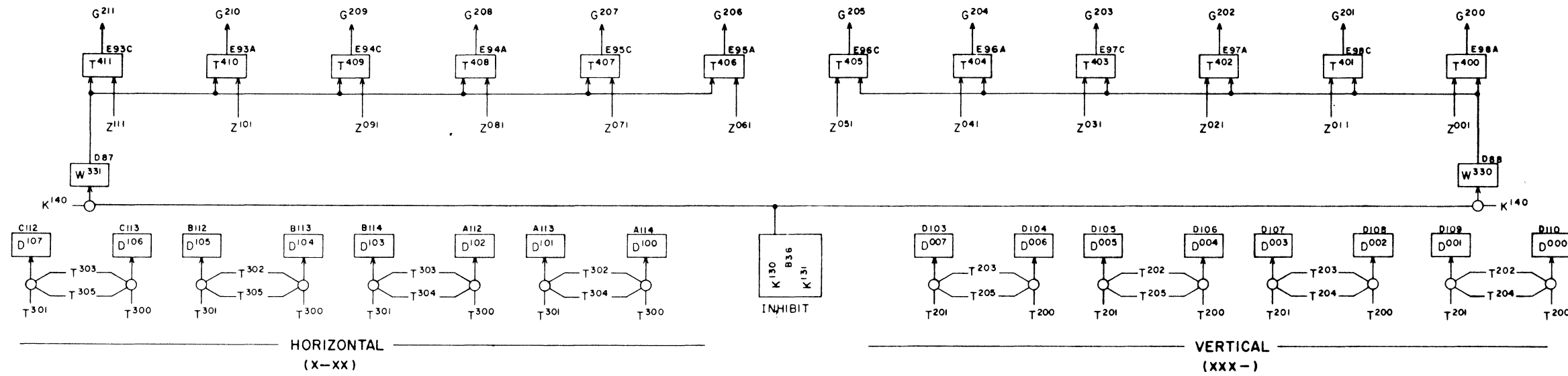
60150900

REV. DATE. BY. CHK. APPROVED REVISIONS	REFERENCE DRAWINGS		
	COMPONENTS UNLESS OTHERWISE INDICATED		
	TOLERANCE	VALUE	SIZE
	RESISTORS		
	CAPACITORS		
TITLE <b>LOGIC DIAGRAM R &amp; Q INVERTERS</b>			
PROPERTY OF CONTROL DATA CORPORATION			3034
DRAWING NUMBER 119837			PAGE 8



INHIBIT DRIVERS

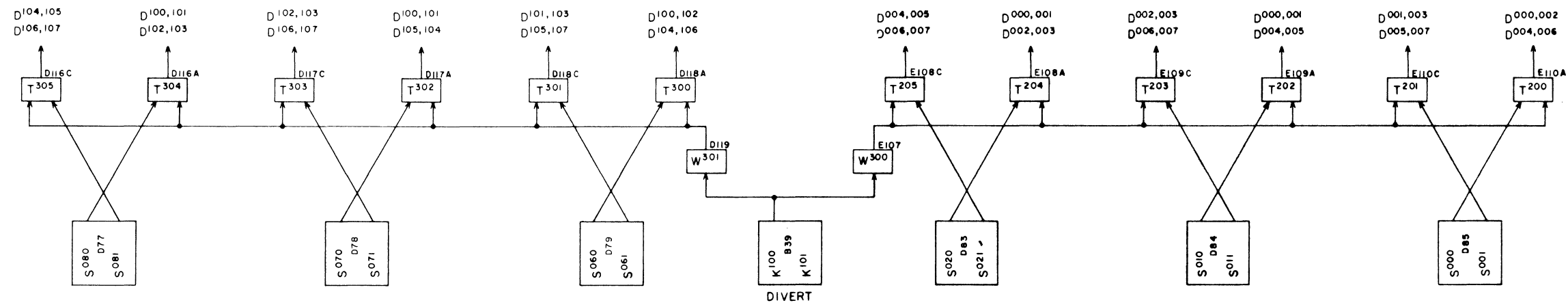
INHIBIT



HORIZONTAL  
(X-XX)

VERTICAL  
(XXX-)

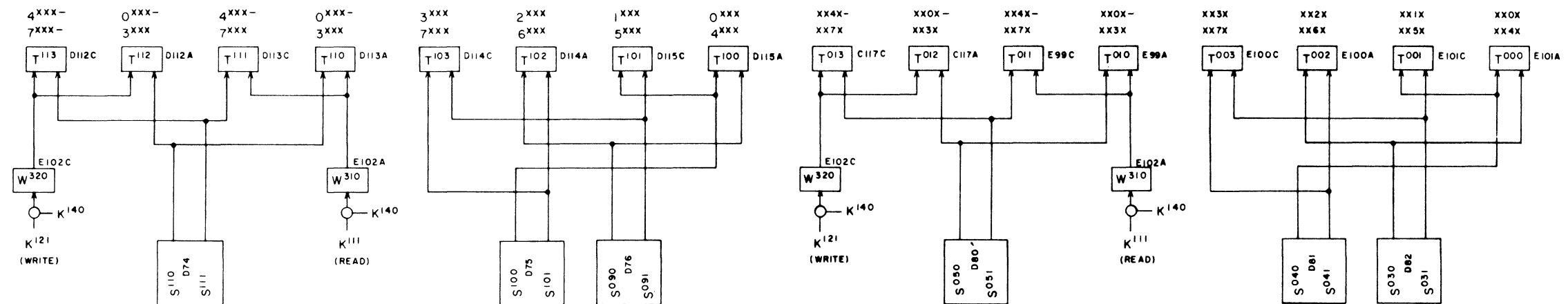
DIVERT



HORIZONTAL

VERTICAL

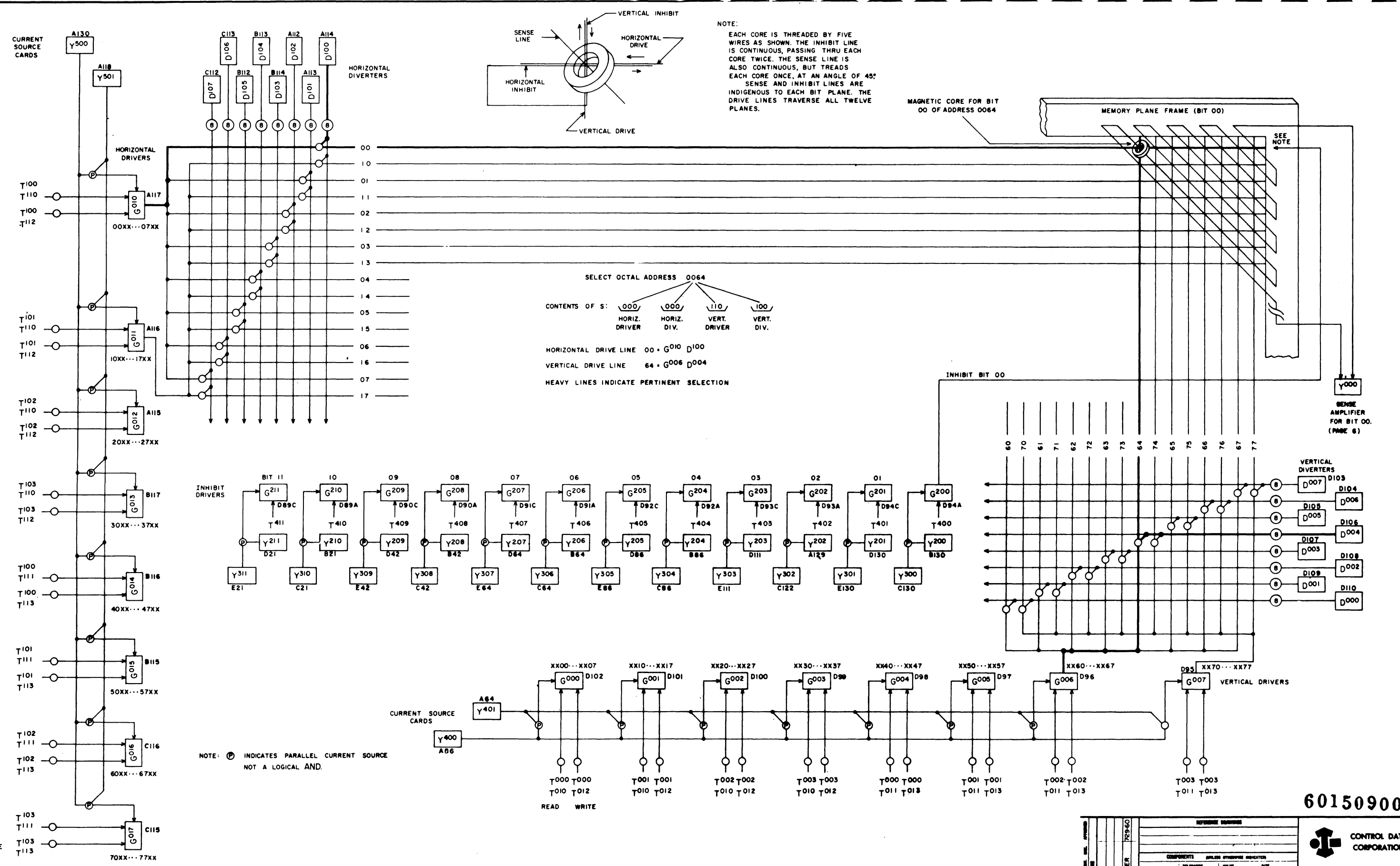
R/W DRIVE



NOTE:  
 LOW-ORDER DIGIT IN DESTINATION SYMBOL SIGNIFIES  
 MAGNITUDE OF DIVERTER LINE SELECTED. THUS:  
 D104,105 = X4XX OR X5XX  
 D106,107 = X6XX OR X7XX  
 OUTPUT DESIGNATIONS FROM T305; AND T205  
 = XXX4, XXX5, XXX6, XXX7

60150900

REV.	DATE	BY	APP.	DESCRIPTION	REFERENCE DRAWINGS	<p>CONTROL DATA CORPORATION</p>
COMPONENTS (UNLESS OTHERWISE INDICATED) TOLERANCE VALUE SIZE					PROJECT # 3034 DRAWING # 119839	
DESIGNER: R. MILLER CHECKER: R. MILLER DATE: 7-20-60					TITLE: STORAGE TRANSLATORS PAGE 10	
TITLE: STORAGE TRANSLATORS					PAGE 10	



NOTE:  
EACH CORE IS THREADED BY FIVE WIRES AS SHOWN. THE INHIBIT LINE IS CONTINUOUS, PASSING THRU EACH CORE TWICE. THE SENSE LINE IS ALSO CONTINUOUS, BUT TREADS EACH CORE ONCE, AT AN ANGLE OF 45°. SENSE AND INHIBIT LINES ARE INDIGENOUS TO EACH BIT PLANE. THE DRIVE LINES TRAVERSE ALL TWELVE PLANES.

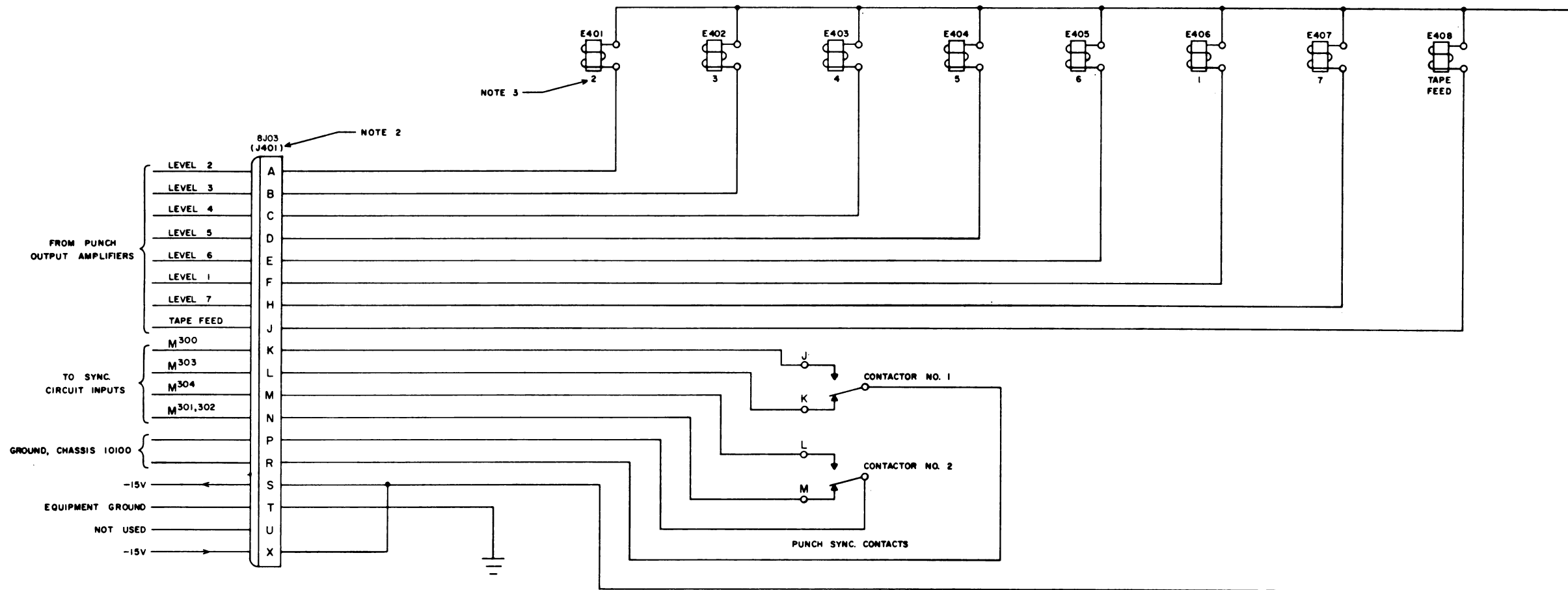
SELECT OCTAL ADDRESS 0064

CONTENTS OF S:	000	000	110	100
	HORIZ. DRIVER	HORIZ. DIV.	VERT. DRIVER	VERT. DIV.

HORIZONTAL DRIVE LINE 00 - G010 D100  
VERTICAL DRIVE LINE 64 - G006 D004  
HEAVY LINES INDICATE PERTINENT SELECTION

60150900

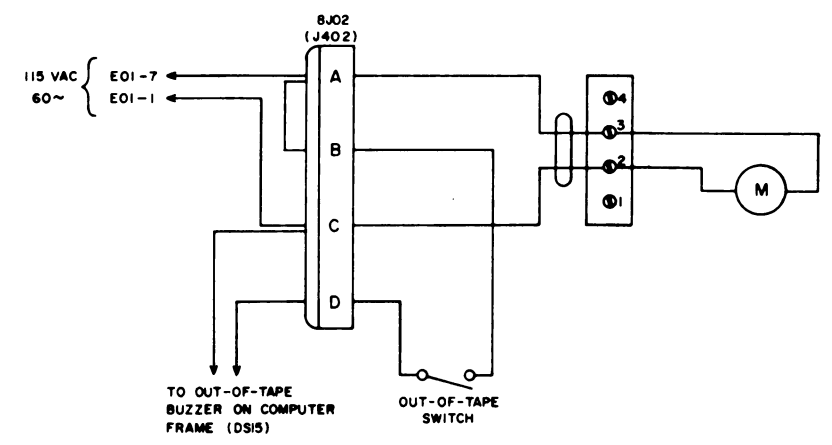
REV. DATE APPROVED DESIGNED CHECKED R. MILLER 729-50	REFERENCE DRAWING	CONTROL DATA CORPORATION 3034 119840 11
	COMPONENTS (UNLESS OTHERWISE INDICATED)	
	TITLE LOGIC DIAGRAM STORAGE ADDRESS SELECTION	
	PROJECT OR PART NO.	



NOTE 3

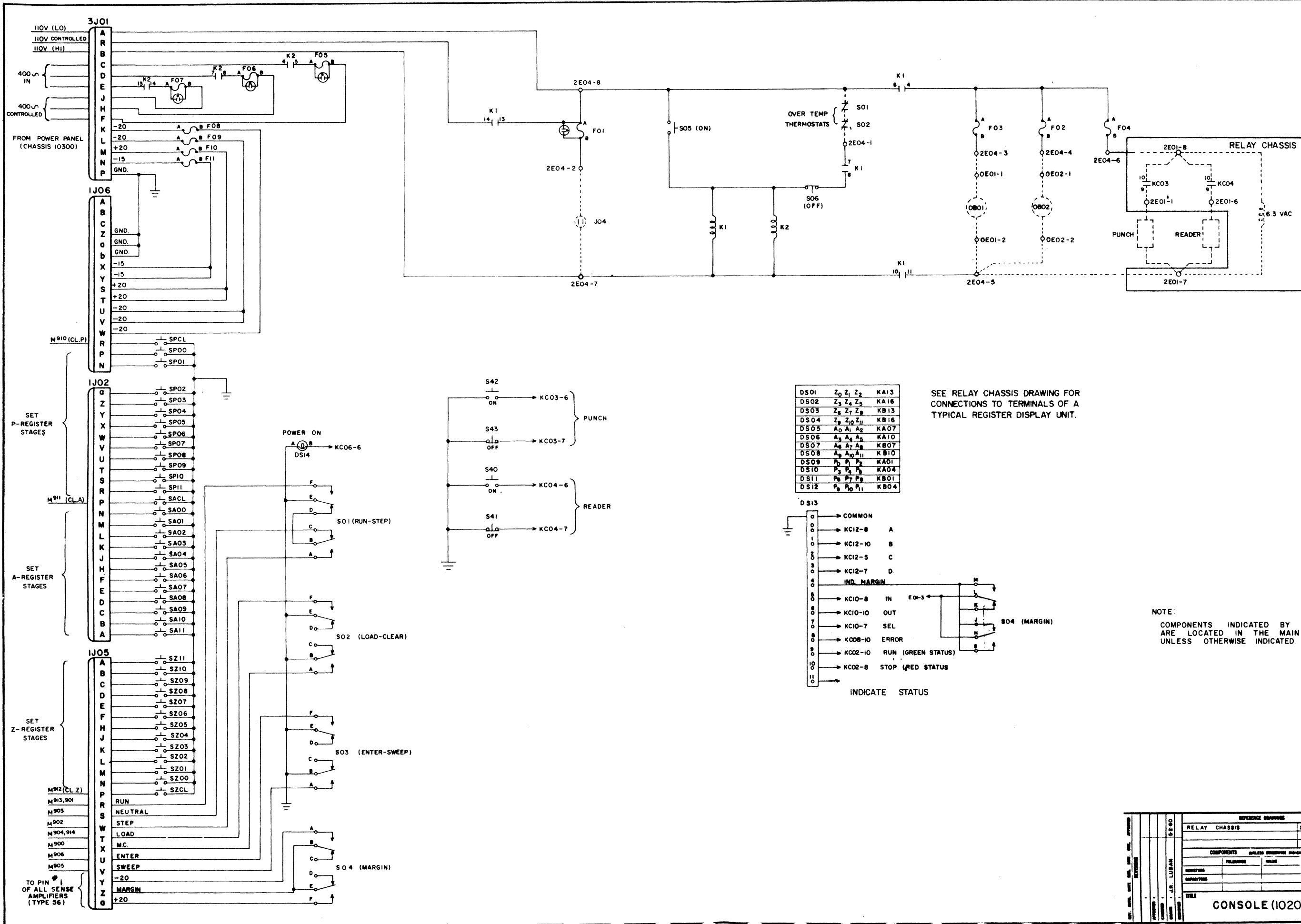
NOTE 2

- NOTES:
1. THIS IS A REVISED DRAWING OF TELETYPE DRAWINGS WD-2781 & WD-2778, SHOWING THE PUNCH CIRCUITS AS MODIFIED BY CONTROL DATA CORPORATION.
  2. JACK NUMBERS IN PARENTHESES REFER TO TELETYPE JACK NUMBERS.
  3. LEVEL NUMBERS USED ON THIS DRAWING REFER TO CONTROL DATA CORPORATION'S CORRESPONDING COMPUTER REGISTER STAGE NUMBERS.



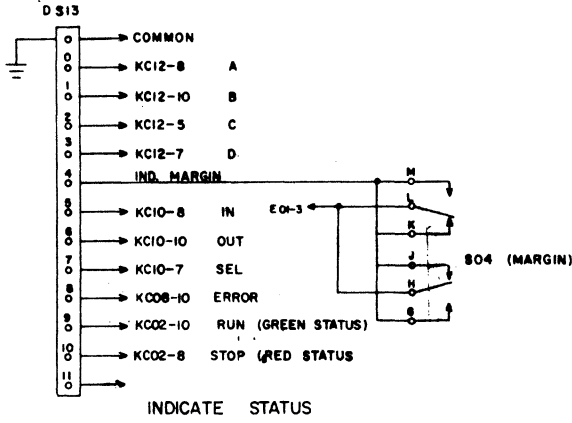
60150900

REVISIONS		 CONTROL DATA CORPORATION
NO.	DATE	
COMPONENTS		3034 119841 13
TITLE: SCHEMATIC DIAGRAM, MODIFIED PUNCH CIRCUITS		13



DS01	Z <sub>0</sub>	Z <sub>1</sub>	Z <sub>2</sub>	KA13
DS02	Z <sub>3</sub>	Z <sub>4</sub>	Z <sub>5</sub>	KA16
DS03	Z <sub>6</sub>	Z <sub>7</sub>	Z <sub>8</sub>	KB13
DS04	Z <sub>9</sub>	Z <sub>10</sub>	Z <sub>11</sub>	KB16
DS05	A <sub>0</sub>	A <sub>1</sub>	A <sub>2</sub>	KA07
DS06	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	KA10
DS07	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	KB07
DS08	A <sub>9</sub>	A <sub>10</sub>	A <sub>11</sub>	KB10
DS09	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	KA01
DS10	P <sub>3</sub>	P <sub>4</sub>	P <sub>5</sub>	KA04
DS11	P <sub>6</sub>	P <sub>7</sub>	P <sub>8</sub>	KB01
DS12	P <sub>9</sub>	P <sub>10</sub>	P <sub>11</sub>	KB04

SEE RELAY CHASSIS DRAWING FOR CONNECTIONS TO TERMINALS OF A TYPICAL REGISTER DISPLAY UNIT.



NOTE:  
COMPONENTS INDICATED BY DASHED LINES ARE LOCATED IN THE MAIN CABINET UNLESS OTHERWISE INDICATED.

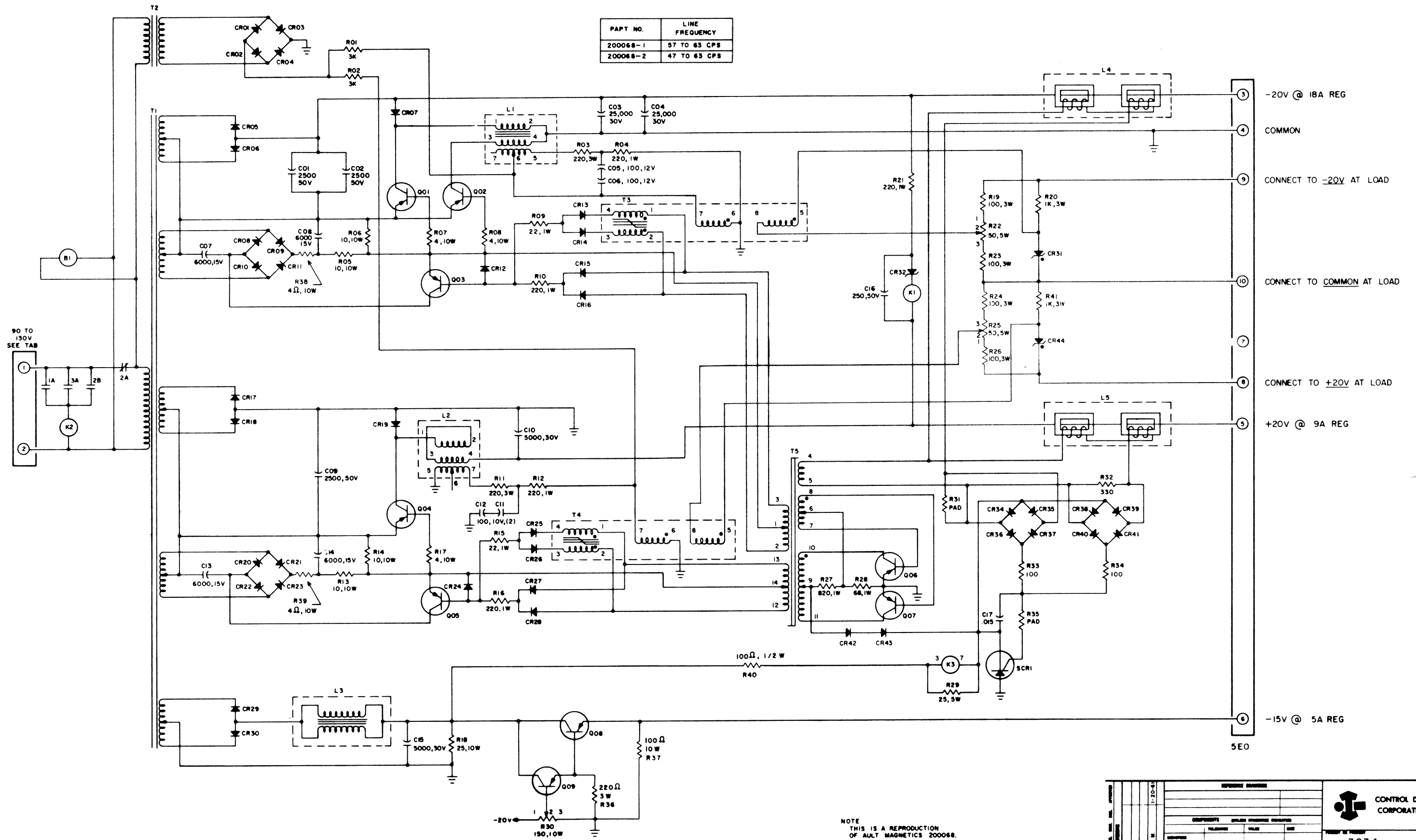
60150900

REFERENCE DRAWING			
RELAY CHASSIS	XD 102174		
COMPONENTS (UNLESS OTHERWISE INDICATED)			
DESIGNATOR	SYMBOL	VALUE	USE
RESISTORS			
CAPACITORS			
TITLE			
CONSOLE (10200)			
CONTROL DATA CORPORATION		3034	119842
			14





PART NO.	LINE FREQUENCY
200068-1	57 TO 63 CPS
200068-2	47 TO 63 CPS



90 TO 130V SEE TAB

- ③ -20V @ 18A REG
- ④ COMMON
- ⑨ CONNECT TO -20V AT LOAD
- ⑩ CONNECT TO COMMON AT LOAD
- ⑦ CONNECT TO +20V AT LOAD
- ⑤ +20V @ 9A REG
- ⑥ -15V @ 5A REG

5E0

NOTE  
THIS IS A REPRODUCTION  
OF AULT MAGNETICS 200068.  
USE THROUGH 160 SERIAL 68 ONLY

CONTROL DATA CORPORATION	
3034	
60 CPS REGULATED POWER SUPPLY	
60150900	
16	

**COMMENT SHEET**

MANUAL TITLE CONTROL DATA® 160-B COMPUTER SYSTEM

C. E. Diagrams

PUBLICATION NO. 60150900 REVISION A

**FROM:** NAME: \_\_\_\_\_

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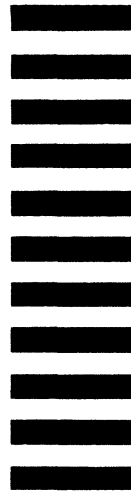
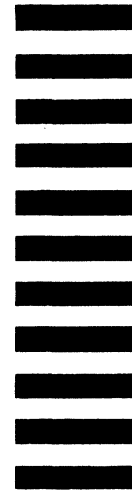
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