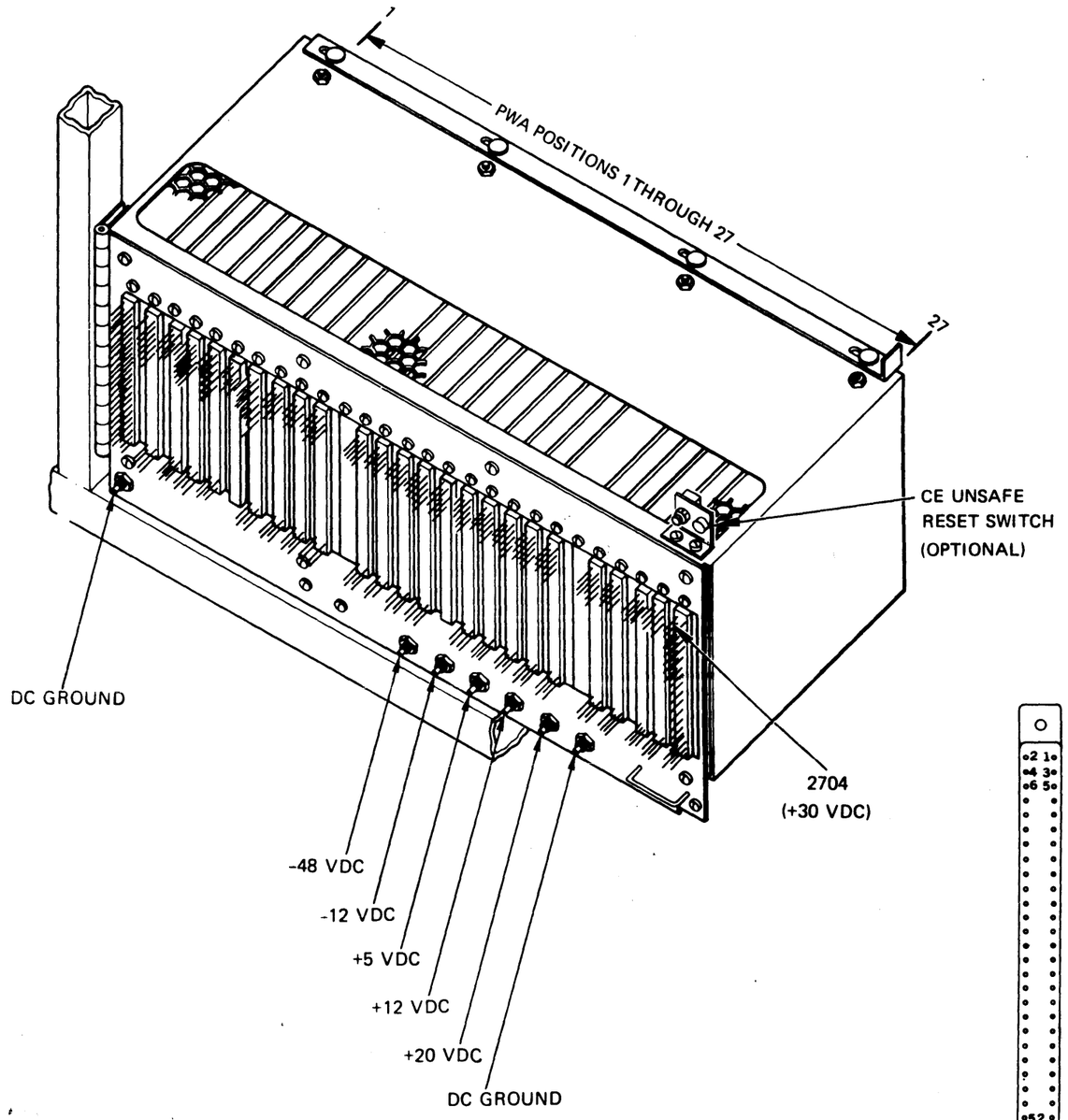
10.6 PWA ASSIGNMENTS

Table 10-3 lists the printed wiring assemblies located in the electronic gate. The revision level of each part number is given in Chapter 9, Parts Identification.

Table 10-3. PWA Assignments in Electronic Gate

GATE POS.	PART NUMBER	PWA TITLE
1	INTERFACE	READ/WRITE PADDLE
2	75000003-X	SELECT 0–9
3	75000068-X	SELECT 10–19
4	75004343 X	WRITE
5	75003548-X	READ
6	75003978-X	DEFECT DETECTOR
7	INTERFACE	SCU SIGNAL PADDLE
8	75004484-X	HEAD ADDRESS REGISTER (HAR)
9	75003727-X	CYLINDER ADDRESS REGISTER (CAR)
10	INTERFACE	DIAG UNIT DISPLAY PADDLE
11	NOT USED	
12	75003461-X	FILE STATUS
13	75003728-X	DIFFERENCE COUNTER
14	75003370-X	ACCESS CONTROL
15	75002523-X	CURVE GENERATOR
16	75004293-X	DIFFERENCE CALCULATOR
17	75003462-X	INDEX TRANSDUCER CUSTOMER OPTION
18	75004139-X	TEMPERATURE COMP & SAFETY
19	INTERFACE	TRANSDUCER PADDLE
20	75003713-X	CYLINDER DETECTOR
21	75002521-X	AUTOMATIC GAIN CONTROL (AGC)
22	NOT USED	- - - - - - - - - -
23	75003719-X	TACHOMETER
24	75003720-X	PULSER AND SUMMING AMP
25	75004138-X	CYLINDER SELECTOR
26	INTERFACE	PWR SEQ AND PULSER PADDLE
27	75003394-X	POWER CONTROL
*28	75000065-X	MATRIX A
*29	75000065-X	MATRIX B

*These PWA's located on CAM Tower



VOLTAGE LEVELS	
NOMINAL	RANGE
-48 VDC	-43.7 TO -51.3 VDC
-12 VDC	-11.5 TO -13.5 VDC
+12 VDC	+11.5 TO +13.5 VDC
+20 VDC	+19.5 TO +21.5 VDC
+5 VDC	+4.75 TO +5.25 VDC
+30 VDC SOCKET 27, PIN 4	+27.6 TO +32.4 VDC

Figure 10-20. Electronic Gate

CONNECTOR PIN DETAIL 0623 10/13/71

10.7 LOGIC AND SCHEMATIC

Logic diagrams and schematic diagrams for printed wiring assemblies (PWA's) are arranged in socket number order. Each diagram is a logical representation of a particular circuit configuration that is identified by a basic part number and a dash number.

In addition, schematic diagrams are presented for the following circuits located elsewhere in the disk drive:

DC Power Supply (50 Hz and 60 Hz)

Sequence Panel (50 Hz and 60 Hz)

Power Driver

The following PWA schematic diagrams are not included in this section due to their proprietary nature:

PWA 6, Defect Detector

PWA 18, Temp Comp and Safety

PWA 20, Cylinder Detector

PWA 21, AGC

PWA 23, Tachometer

10.7.1 Pin Connections

Only pins used for input and output signals are shown on the diagrams. These pins correspond with sockets in the electronic gate or terminal connection points located on other components. Test points and voltage values are provided where applicable. Voltages and ranges at pin locations where normally present are listed in Table 10-4.

Table 10-4. Pin Location Voltage Levels

PIN NO.	VOLTAGE LEVEL	RANGE
2	DC Ground	- - - - - - - - - -
10	+5V	+4.75 to +5.25 VDC
20	+12V	+11.5 to +13.5 VDC
30	+20V	+19.5 to +21.5 VDC
40	-12V	-11.5 to -13.5 VDC
56	-48V	-43.7 to -51.3 VDC

10.7.2 Logic Voltage Levels

A standard level interface voltage is employed for signal lines which interface with the control unit. The down (low) level is 0.0 to +0.5 volts (+0.0V nominal). The up (high) level is +2.5 to +5.0 volts (+3.0V nominal). Voltage levels between +0.5 and +2.5 volts are spurious signals and indicate the circuit is defective.

10.7.3 Line Names

Names assigned to signal lines on diagrams are listed at source output and destination input points. Additional information provided below the line name shows the socket and pin numbers for connection with other circuits.

For example, the output signal "+Velocity Too Great" from socket 18, pin 16 goes to 1406.

Where: 14 = Socket Number
06 = Pin Number on Socket

The sign (+) or (-) in front of the line name indicates the logic level of internal lines when active and inactive status by the designation 0X+3, -12X0, 0X-48, or 0X-12. The first value (0, -12) is the active state of the line and the second value (+3, 0, -48, -12) is the inactive state of the line. The "X" is used as a divider between the two line states.

10.7.4 Waveforms

Lines associated with a waveform are indicated by a triangle and number  . The waveforms pertain to a 192-cylinder seek-seek and an 8-cylinder seek-seek, and they are presented in 10.4.

REDUCED SIZE PRINT

SKT 1

PART OF SOCKET 1

0X-48 HEAD 1 SELECTED 0201	1	2815
0X-48 HEAD 2 SELECTED 0203	3	2803
0X-48 HEAD 5 SELECTED 0205	5	2813
0X-48 HEAD 6 SELECTED 0207	7	2807
0X-48 HEAD 9 SELECTED 0209	9	2809
0X-48 HEAD 10 SELECTED 0321	21	2822
0X-48 HEAD 13 SELECTED 0323	23	2820
0X-48 HEAD 14 SELECTED 0325	25	2818
0X-48 HEAD 17 SELECTED 0327	27	2814
0X-48 HEAD 18 SELECTED 0329	29	2812
-A HEADS SELECTED 0235, 0351	41	2808
-31X+5 WRITE CURRENT A 0431	47	2816
-48V	56	2824
-26X-30 WRITE PRE DRIVER 1 0453	51	2819
-26X-30 WRITE PRE DRIVER 2 0455	53	2802
GND	2	2804, 2806
+20V	30	2823

0X-48 HEAD 0 SELECTED 0211	11	2915
0X-48 HEAD 3 SELECTED 0213	13	2903
0X-48 HEAD 4 SELECTED 0215	15	2913
0X-48 HEAD 7 SELECTED 0217	17	2907
0X-48 HEAD 8 SELECTED 0219	19	2909
0X-48 HEAD 11 SELECTED 0331	31	2922
0X-48 HEAD 12 SELECTED 0333	33	2920
0X-48 HEAD 15 SELECTED 0335	35	2918
0X-48 HEAD 16 SELECTED 0337	37	2914
0X-48 HEAD 19 SELECTED 0339	39	2912
-B HEADS SELECTED 0233, 0395	43	2908
-31X+5 WRITE CURRENT B 0419	49	2916
		2924
		2919
		2902
		2904, 2906
		2923

2917	
2921	
2901	
2801	
2817	
2821	

PART OF SOCKET 1

48	PRE-AMP OUT 2 0544
55	0X+0.8 WRITE TRANSITIONS 0447
44	PRE-AMP OUT 1 0548

HARNESS ASSEMBLY
83001869-1

READ/WRITE PADDLE
SOCKET 1

TITLE INTERCONNECTION DIAGRAM - READ/WRITE PADDLE

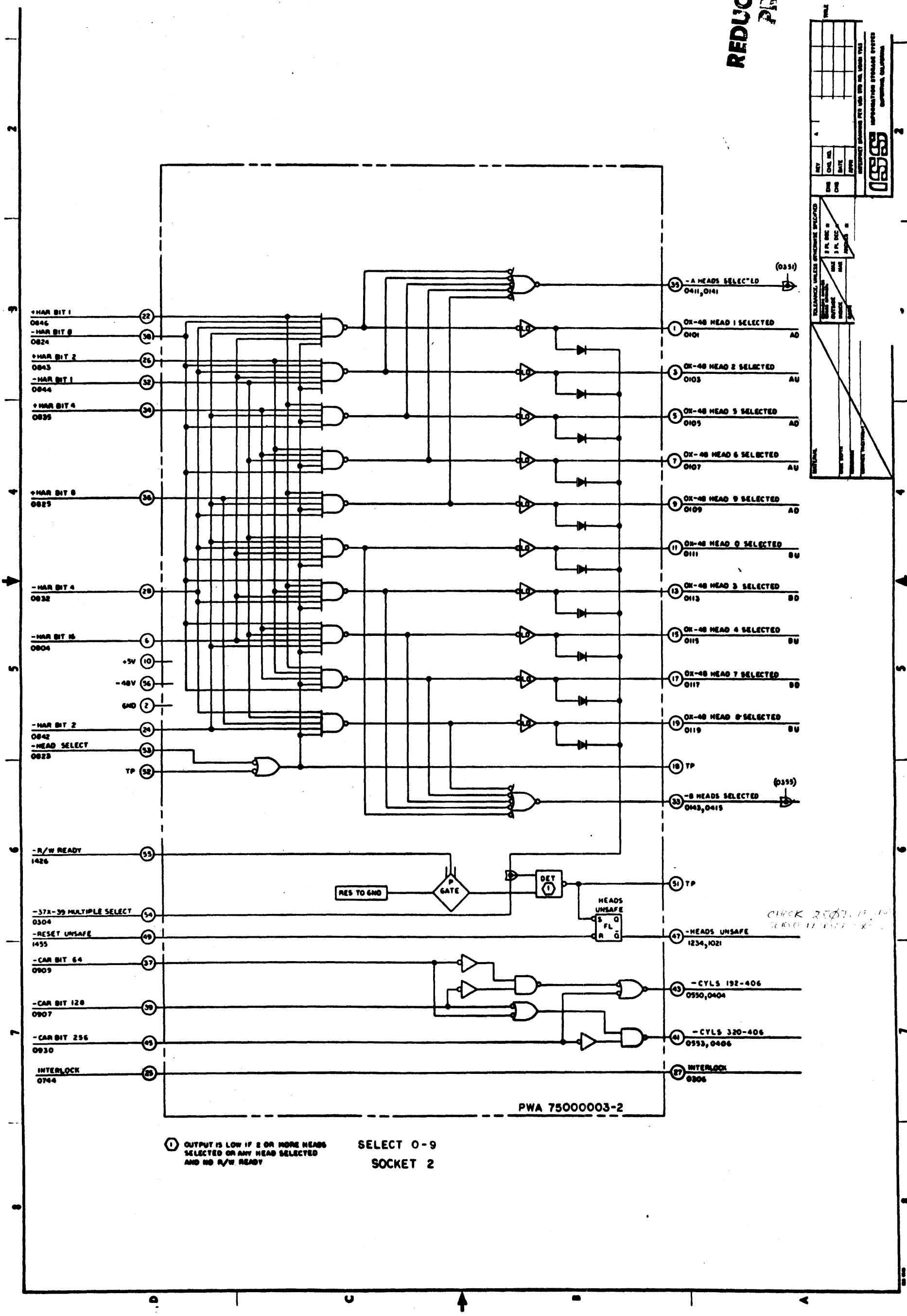
INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA

3

REDUCED SIZE PRINT

SKT 2

TITLE LOGIC DIAGRAM-
SELECT 0-9



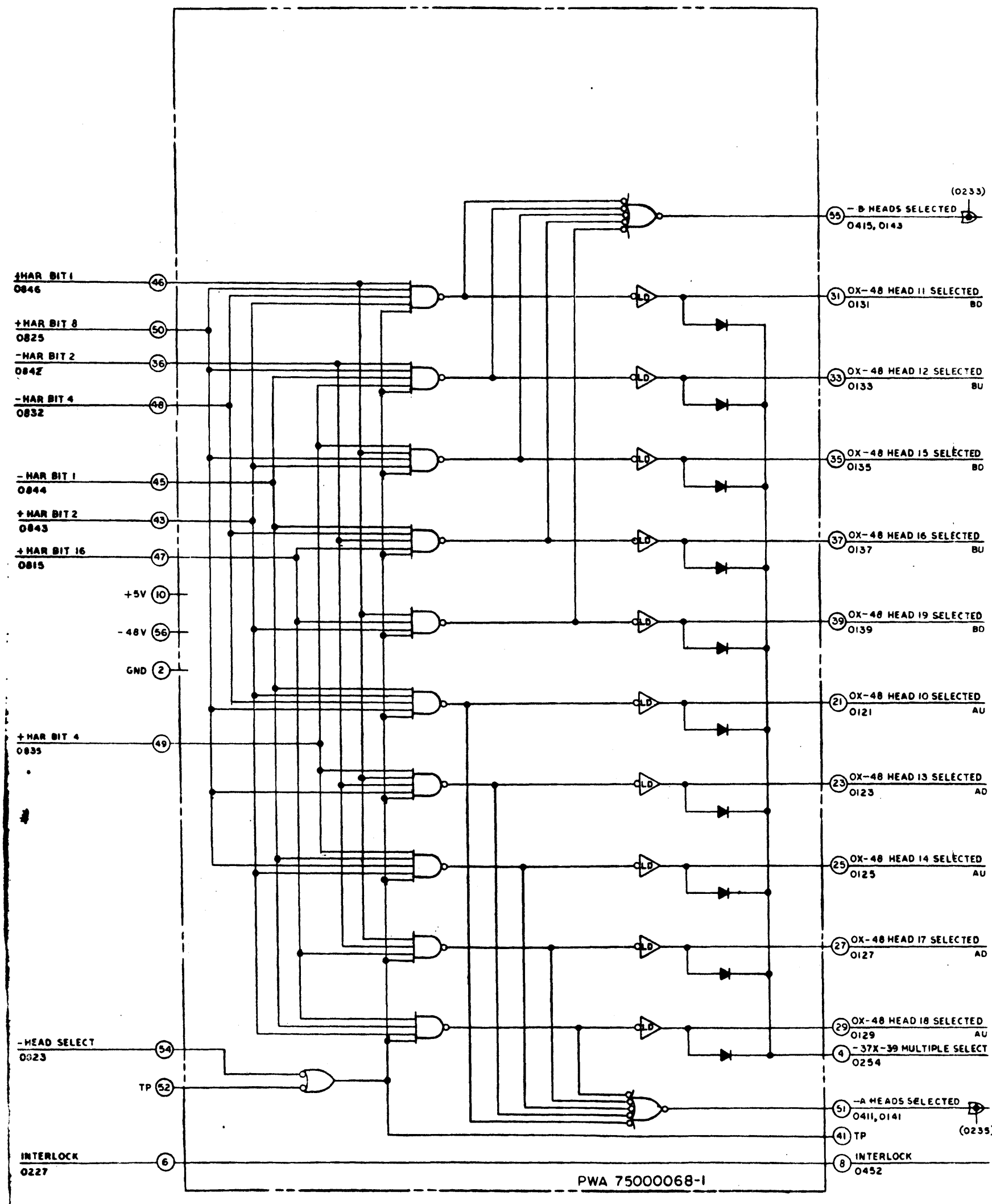
CHECK 2501.11.10

(1) OUTPUT IS LOW IF 2 OR MORE HEADS SELECTED OR ANY HEAD SELECTED AND NO R/W READY

SELECT 0-9
SOCKET 2

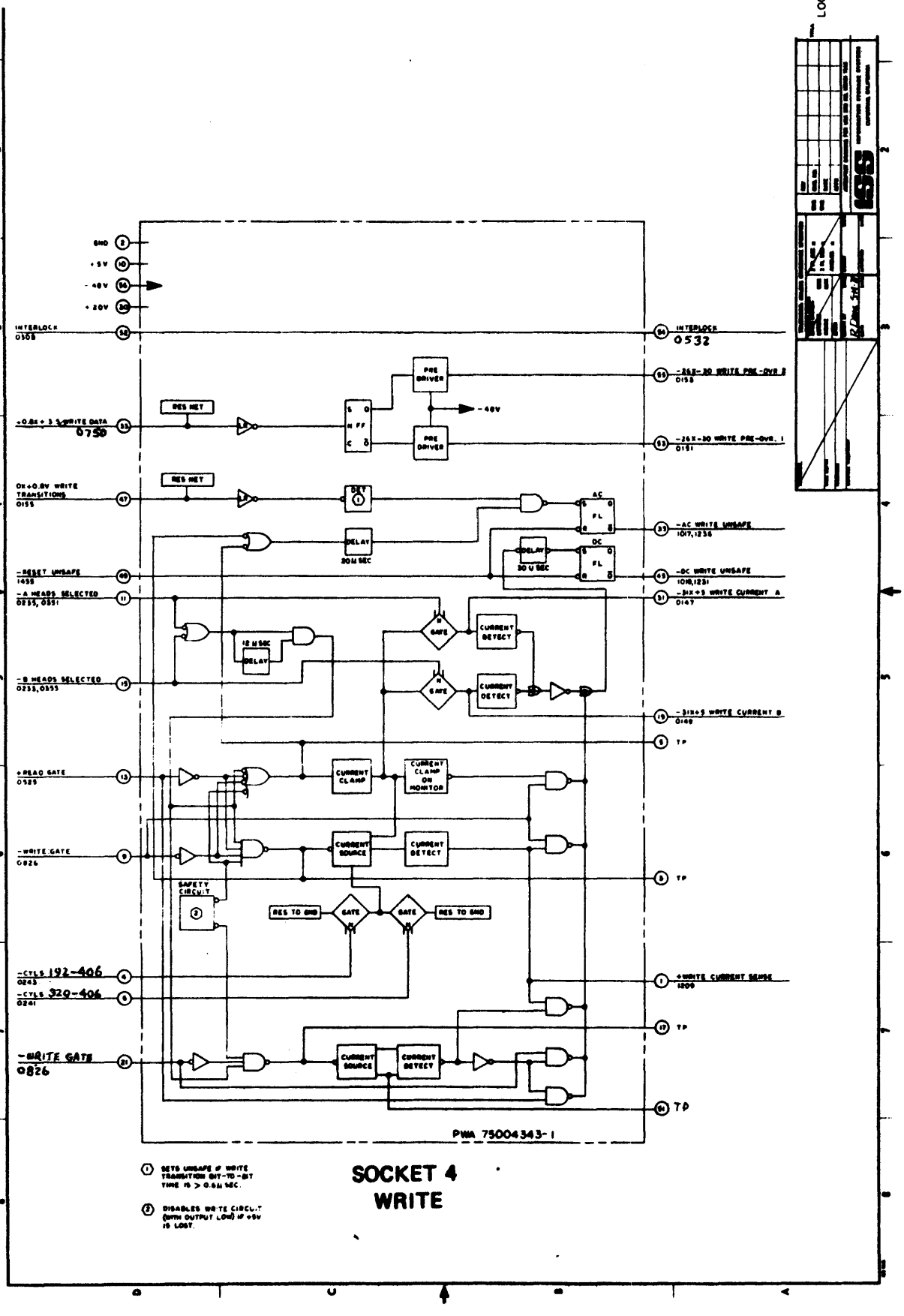
REDUCED SIZE PRINT

LOGIC DIAGRAM— SELECT-10-19



SELECT 10-19

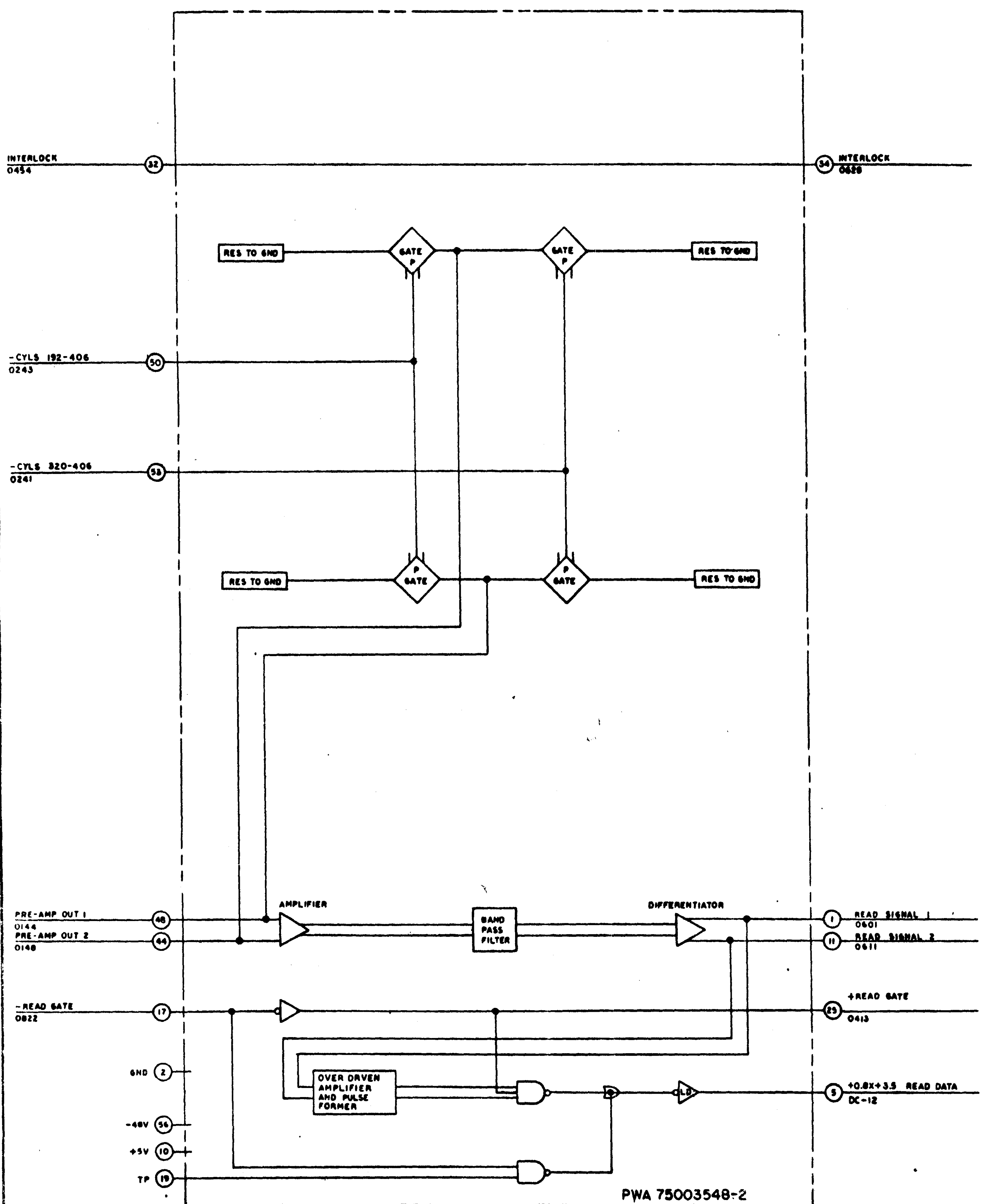
SOCKET 3


LOGIC DIAGRAM – WRITE
GND
+5V
-40V
+20V
INTERLOCK 0508
INTERLOCK 0532
RES SET
PRE DRIVER
-40V
+0.8± 3.5 WRITE DATA 0750
-26X-30 WRITE PRE-DVR. 0158
-26X-30 WRITE PRE-DVR. 0161
0± +0.8V WRITE TRANSITIONS 0155
SET
DELAY
20 M SEC
AC FL
DC FL
30 U SEC
-AC WRITE UNSAFE 1017,1236
-DC WRITE UNSAFE 1018,1231
-RESET UNSAFE 1498
-A HEADS SELECTED 0255, 0351
-31X+5 WRITE CURRENT A 0147
18 M SEC DELAY
A GATE
B GATE
CURRENT DETECT
-B HEADS SELECTED 0253, 0355
-31X+5 WRITE CURRENT B 0149
TP
+READ GATE 0525
CURRENT CLAMP
CURRENT CLAMP OR MONITOR
-WRITE GATE 0826
CURRENT SOURCE
SAFETY CIRCUIT
RES TO GND
GATE
-CYLS 192-406 0248
-CYLS 320-406 0241
+WRITE CURRENT SENSE 1209
-WRITE GATE 0826
PWA 75004343-1
SOCKET 4 WRITE
① SETS UNSAFE IF WRITE TRANSITION BIT-TO-BIT TIME IS > 0.8µ SEC.
② DISABLES WRITE CIRCUIT (WITH OUTPUT LOW) IF +5V IS LOST.

SKT 5

REDUCED SIZE PRINT

LOGIC DIAGRAM—
READ



READ

SOCKET 5

8

8

REDUCED SIZE PRINT

LOGIC DIAGRAM – DEFECT DETECTOR

SKT 6

PWA75003978-4

DEFECT DETECTOR
SOCKET 6

① DETECTOR PRODUCES +ERROR SENSE IF SPACING BETWEEN ANY TWO SENSE PULSES EXCEEDS 500 N SEC

TP
TP (E OUT 2)
TP (E OUT 1)
TP(RECTIFIED SIGNAL)
TP(PEAK HOLD)
TP(DETECTION LEVEL)
TP(DETECTION REFERENCE)
TP(SENSE PULSE)
TP(TIMING CAPACITOR)
TP(+ERROR SENSE)
+ERROR DETECTED 0938
INTERLOCK 0812

DIFFERENTIATOR
DIFFERENTIATOR
40 MC DEMOD
10K MC DEMOD
AMPL
+5
RES NET
PEAK DETECTOR
PEAK DETECTOR
FULL WAVE RECT
RES NET
AMPL
GATE
GATE
COMP
DETECTOR
(5 μSEC)
(30 μSEC)

TP (17)
TP (READ SIGNAL) (19)
READ SIGNAL 1 0901
READ SIGNAL 2 0911
+20V (30)
+12V (20)
+5V (10)
GND (2)
-48V (50)
-12V (40)
+FILE BUS 256 1343
-READ GATE 0822
INTERLOCK 0534

DEVELOPMENT NO.	
RELEASED FOR ASSY.	QTY. 1

REV	A		
CHG. NO.			
DATE			
APPR.			

ENG
CHG

INTERFACE DRAWING PER USA STD NO. X3.66-1968

ISS INFORMATION STORAGE SYSTEMS CUPERTINO, CALIFORNIA

TITLE INTERCONNECTION DIAGRAM-SIGNAL PADDLE

TOLERANCE UNLESS OTHERWISE SPECIFIED
2 PL DEC ±
3 PL DEC ±
ANGLES ±

MATERIAL

PART OF SOCKET 7

Lo = TRUE

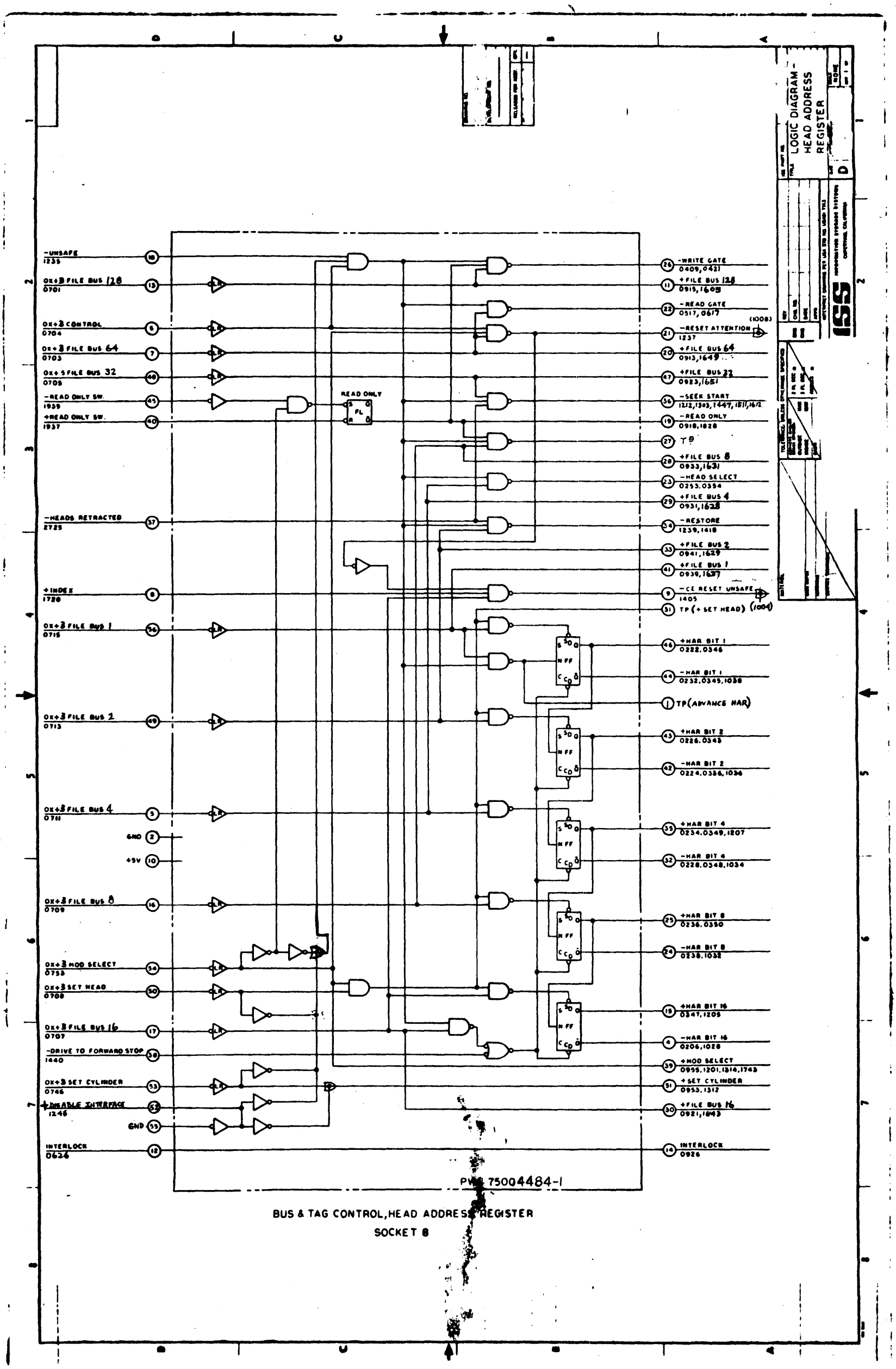
OX+3 FILE BUS 256	6	1664	
SI-15, SO-15 (A-56)	P		
SI 16, SO-16			
OX+3 FILE BUS 128	1	0813	
SI-1, SO-1 (A-51)	P		
SI-2, SO-2			
OX+3 FILE BUS 64	3	0807	
SI-3, SO-3 (A-58)	P		
OX+3 FILE BUS 32	5	0848	
SI-4, SO-4 (A-47)	P		
SI-5, SO-5			
OX+3 FILE BUS 16	7	0817	
SI-7, SO-7 (A-55)	P		
OX+3 FILE BUS 8	9	0816	
SI-8, SO-8 (A-45)	P		
SI-10, SO-10			
OX+3 FILE BUS 4	11	0805	
SI-11, SO-11 (A-41)	P		
OX+3 FILE BUS 2	13	0849	
SI-12, SO-12 (A-49)	P		
SI-13, SO-13			
OX+3 FILE BUS 1	15	0856	
SI-14, SO-14 (A-43)	P		
OX+3 CONTROL	4	0806	
SI-21, SO-21 (C-01)	P		
OX+3 SET CYL	46	0858	
SI-17, SO-17 (C-03)	P		
OX+3 SET HEAD	8	0850	
SI-18, SO-18 (C-25)	P		
SI-20, SO-20			
-MOD SELECT DSDDU	54		
OX+3 MOD SELECT	53	0854	
DC-23 (C-27, 34-H07)	P		
DC-28			
	2 GND		
WRITE DATA +0.8X+3.5	50	0833	
004			
INTERLOCK	44	0225	
DSDDU			

PART OF HARNESS ASSEMBLY 83004358-1

PART OF SOCKET 7

1719	20	OX+3 SELECTED SECTOR	
	P	SI-62, SO-62	
		SI-63, SO-63	
1225	48	OX+3 GATED ATTENTION	
	P	DC-21	
		DC-26	
1255	12	OX+3 SEL FILE READY	
	P	SI-52, SO-52 (34-A11)	
		SI-53, SO-53	
1220	14	OX+3 SEL FILE ON LINE	
	P	SI-54, SO-54 (34-B11)	
1204	16	OX+3 SEL FILE UNSAFE	
	P	SI-57, SO-57 (34-C11)	
1206	18	OX+3 SEL WRITE CUR SEN	
	P	SI-64, SO-64	
1254	22	OX+3 SEL END OF CYL	
	P	SI-60, SO-60 (C-08, 34-F10)	
1222	24	OX+3 SEL SEEK INCOMP	
	P	SI-58, SO-58 (B-47, 34-H11)	
		SI-59, SO-59	
1252	51	OX+3 SELECTED MODULE	
	P	DC-22 (34-E11)	
		DC-27	
0904	32	OX+3 SELECTED INDEX	
	P	SI-55, SO-55 (B-44)	
		SI-56, SO-56	
0935	28	OX+3 SELECTED 715 D	
	P	SI-27, SO-27 (34-J11)	
		SI-70, SO-70	
0950	17	OX+3 CYL ADDR REG 1	
	P	SI-40, SO-40 (34-H10)	
		SI-41, SO-41	
0952	19	OX+3 CYL ADDR REG 2	
	P	SI-42, SO-42 (34-G10)	
0956	21	OX+ CYL ADDR REG 4	
	P	SI-43, SO-43 (34-F10)	
		SI-44, SO-44	
0954	23	OX+3 CYL ADDR REG 8	
	P	SI-45, SO-45 (34-E10)	
0908	25	OX+3 CYL ADDR REG 16	
	P	SI-46, SO-46 (34-D10)	
		SI 47 SO 47	
0912	27	OX+3 CYL ADDR REG 32	
	P	SI-48, SO-48 (34-C10)	
0906	29	OX+3 CYL ADDR REG 64	
	P	SI-49, SO-49 (34-B10)	
		SI-50, SO-50	
0946	31	OX+3 CYL ADDR REG 128	
	P	SI-51, SO-51 (34-A10)	
0920	56	OX+3 CYL ADDR REG 256	
	P	SI-24, SO-24 (34-J10)	
0934	33	OX+3 SELECTED ERROR DETECTED	
	P	SI-25, SO-25	
		SI-26, SO-26	
0848	43	OX+3 SELECTED READ ONLY	
		SI-67, SO-67	
		SI-66, SO-66	

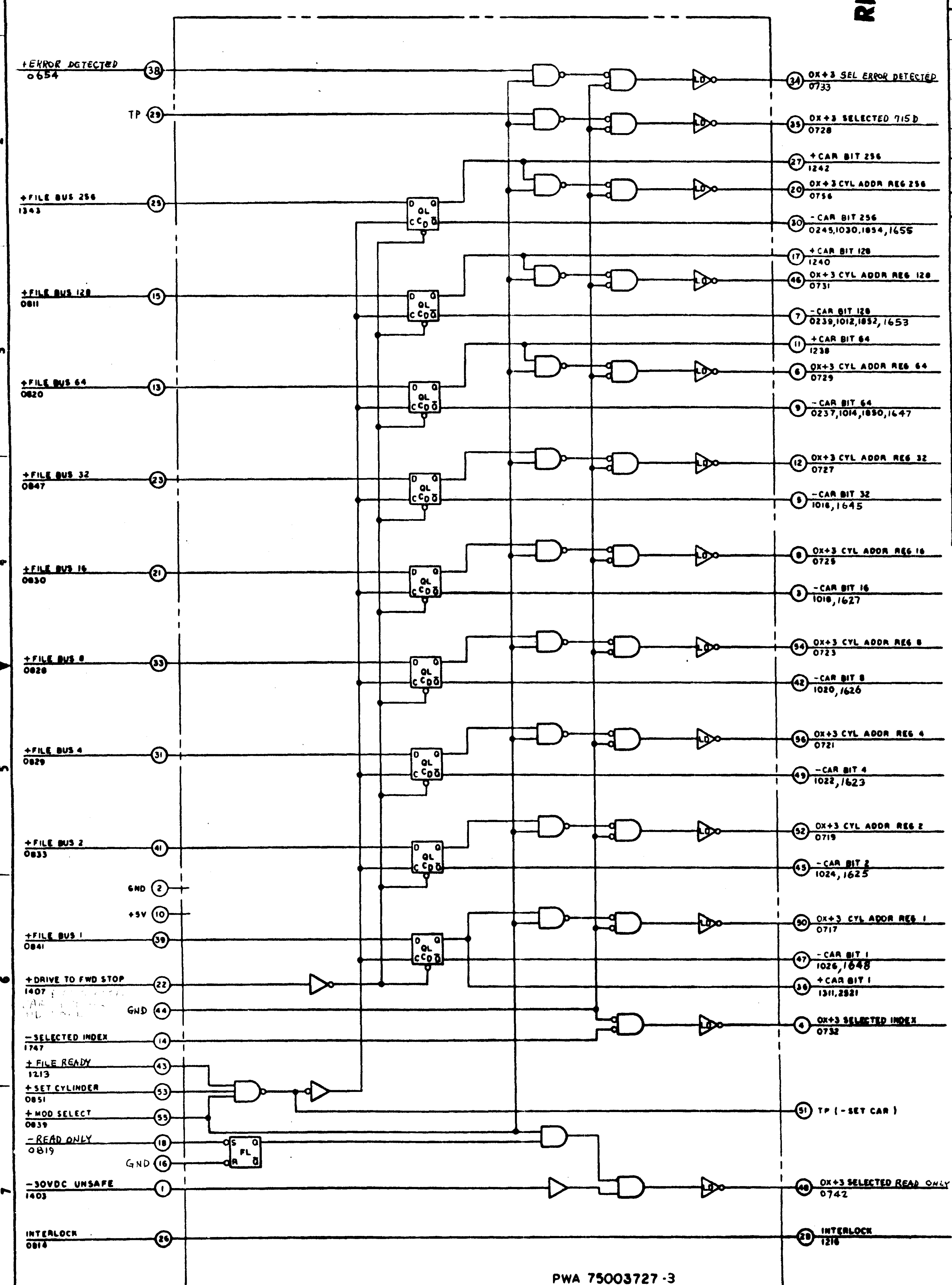
SIGNAL PADDLE
SOCKET 7


LOGIC DIAGRAM - HEAD ADDRESS REGISTER
-UNSAFE 1235
0X+3 FILE BUS 128 0701
0X+3 CONTROL 0704
0X+3 FILE BUS 64 0703
0X+5 FILE BUS 32 0705
-READ ONLY SW. 1939
+READ ONLY SW. 1937
READ ONLY
-HEADS RETRACTED 2725
+INDEX 1720
0X+3 FILE BUS 1 0715
0X+3 FILE BUS 2 0713
0X+3 FILE BUS 4 0711
GND
+5V
0X+3 FILE BUS 8 0709
0X+3 MOD SELECT 0755
0X+3 SET HEAD 0709
0X+3 FILE BUS 16 0707
-DRIVE TO FORWARD STOP 1440
0X+3 SET CYLINDER 0746
+DISABLE INTERFACE 1246
GND
INTERLOCK 0624
-WRITE GATE 0409,0421
+FILE BUS 128 0915,1605
-READ GATE 0517, 0617
(1008)
-RESET ATTENTION 1237
+FILE BUS 64 0913,1649
+FILE BUS 32 0923,1651
-SEEK START 1212,1303,1447, 1511,1612
-READ ONLY 0918,1828
TP
+FILE BUS 8 0933,1631
-HEAD SELECT 0253.0354
+FILE BUS 4 0931,1628
-RESTORE 1239,1418
+FILE BUS 2 0941,1629
+FILE BUS 1 0939,1627
-CE RESET UNSAFE 1405
TP (+ SET HEAD) (1004)
+HAR BIT 1 0222.0346
-HAR BIT 1 0232.0349,1038
TP(ADVANCE HAR)
+HAR BIT 2 0226.0348
-HAR BIT 2 0224.0336,1036
+HAR BIT 4 0234.0349,1207
-HAR BIT 4 0228.0348,1034
+HAR BIT 8 0236.0350
-HAR BIT 8 0238,1032
+HAR BIT 16 0347,1209
-HAR BIT 16 0206,1028
+MOD SELECT 0955,1201,1314,1743
+SET CYLINDER 0953,1312
+FILE BUS 16 0921,1643
INTERLOCK 0926
PWB 75004484-1
BUS & TAG CONTROL, HEAD ADDRESS REGISTER
SOCKET 8

REDUCED SIZE PRINT

SKT 9

LOGIC DIAGRAM-
CYLINDER ADDRESS
REGISTER



CYLINDER ADDRESS REGISTER

SOCKET 9

INTERPRET DRAWING PER USA STD NO. USAS Y14.5

INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA

TOLERANCE, UNLESS OTHERWISE SPECIFIED

MATERIAL

PART OF SOCKET 10

1339	27	-DIFF CTR BIT 256	(34-J06)
1341	1	-DIFF CTR BIT 128	(34-A06)
1335	3	-DIFF CTR BIT 64	(34-B06)
1346	5	-DIFF CTR BIT 32	(34-C06)
1349	7	-DIFF CTR BIT 16	(34-D06)
1351	9	-DIFF CTR BIT 8	(34-E06)
1353	11	-DIFF CTR BIT 4	(34-F06)
1355	13	-DIFF CTR BIT 2	(34-G06)
1322	15	-DIFF CTR BIT 1	(34-H06)
1337	55	-DIFF EQUALS ONE	(C-51,34-G04)
1330	56	-DIFF EQUALS ZERO	(34-H04)
0930	30	-CAR BIT 256	(34-J02)
0907	12	-CAR BIT 128	(34-A02)
0909	14	-CAR BIT 64	(34-B02)
0905	16	-CAR BIT 32	(34-C02)
0903	18	-CAR BIT 16	(34-D02)
0942	20	-CAR BIT 8	(34-E02)
0949	22	-CAR BIT 4	(34-F02)
0945	24	-CAR BIT 2	(34-G02)
0947	26	-CAR BIT 1	(34-H02)
0804	28	-HAR BIT 16	(34-D09)
0824	32	-HAR BIT 8	(34-E09)
0832	34	-HAR BIT 4	(34-F09)
0842	36	-HAR BIT 2	(34-G09)
0844	38	-HAR BIT 1	(34-H09)

(0821)

-RESET ATTN (36-28)	8	1237	

(0809)

-CE RESET UNSAFE (36-29)	4	1405	

PART OF SOCKET 10

1544	43	-DRIVE FWD 5"/SEC	(B-26)
1543	45	-DRIVE FWD 20"/SEC	(B-20)
1525	47	-DRIVE FWD 5"/SEC	(34-H03)
1539	51	+GO REVERSE	(B-25)
1555	53	-GO FORWARD	(34-B03)
0435	17	-AC WRITE UNSAFE	(34-A12)
0445	19	-DC WRITE UNSAFE	(34-B12)
1829	23	-VELOCITY UNSAFE	(34-D12)
1841	31	-EVERY UNSAFE EXCEPT R/W	(34-H12)
2050	42	-EVEN CYLINDER	(34-D03)
2054	44	-ODD CYLINDER	(34-E03)
0247	21	-HEADS UNSAFE	(34-C12)
1739	29	-PACK SPEED UNSAFE	(34-G12)
1913	52	TP(FORWARD STOP)	
2603	25	-AC UNSAFE	(34-E12)
2715	54	-POWER ON/START RESET	(B-30)
1442	33	-FORWARD	(34-A09)
1451	35	-SEEK IN PROCESS	(34-C04)
1438	37	+HOLD REVERSE	(B-15)
1407	39	+DRIVE TO FORWARD STOP	(B-21)
1429	41	-HEAD LOAD	(B-14)
1427	49	-LINEAR MODE	(B-31)
1421	46	-RETRACTED MODE	(34-A03)
1408	48	-FIRST CYL DETECTED	(34-B04)
1412	50	-FILE READY	(B-19)

+5V	10	+5V	(A-10,B-10,C-10,35-COM)
+30V	6	+30V	(35-COM)
-12V	40	-12V	(A-40,B-40,C-40)
GND	2	GND	(A-2,B-2,C-2,35-COM)

DSDDU MONITOR
SOCKET 10

RELEASED FOR ASSY. QTY. —

ISS PART —
TITLE INTERCONNECTION DIAGRAM-DSDDU MONITOR 715D
SIZE NONE
SHT 1 OF 1

REV A
CHG NO.
DATE
APPR
ENG CHG

INTERFACE DRAWING PER USA STD NO. USASI Y14.5

ISS INFORMATION STORAGE SYSTEMS CUPERTINO, CALIFORNIA

TOLERANCES UNLESS OTHERWISE SPECIFIED
2 PL DEC ±
3 PL DEC ±
ANGLES ±
MATERIAL
FINISH

75003461 —

LOGIC DIAGRAM — FILE STATUS

ISS

LINE DRIVER END 0702 (34)
-SEEK IN PROCESS 1491 (24)
+INDEX 1728 (30)
GND (2)
+5V (10)
-HOLD REVERSE 1438 (15)
+DRIVE TO FWD STOP 1407 (14)
+FIRST CYLINDER 1650 (28)
+LINEAR MODE 1425 (21)
-FILE READY 1412 (11)
-HEADS RETRACTED 2725 (48)
-RESTORE 0834 (39)
-METER DISABLE SW. 1911 (23)
-METER ENABLE SW 1942 (3)
-SEEK START 0836 (12)
+HAR BIT 16 0815 (5)
+MOD SELECT 0839 (1)
+HAR BIT 4 0835 (7)
-RESET ATTENTION 0821,1008 (37)
-POWER ON RESET 2749 (8)
+WRITE CURRENT SENSE 0401 (9)
-HEADS UNSAFE 0247 (34)
-PACK SPEED UNSAFE 1739 (40)
-AC WRITE UNSAFE 0435 (36)
-DC WRITE UNSAFE 0436 (31)
-30 VDC UNSAFE 1403 (45)
TP (47)
-EVERY UNSAFE EXCEPT R/W 1841 (43)
-VELOCITY UNSAFE 1839 (29)
INTERLOCK 0928 (18)

SEEK INCOMPLETE
SEEK END
ENABLE SW. TRANSFER
ENABLE/DISABLE
ON LINE
ATTENTION 1
ATTENTION 2
RES TO V
RES TO V
UNSAFE

-SET DRIVE TO FORWARD STOP 1404 (19)
ACCESS READY LAMP 1917 (61)
+FILE READY 0943,1332 (13)
-SEL SEEK INCOMPLETE 0734 (22)
-SEL FILE READY 0712 (56)
-GATED ATTENTION 0748 (25)
TP (+ACCESS ON LINE) (27)
-SELECTED ON LINE 0714 (20)
-SELECTED MODULE 0751 (62)
-SEL END OF CYLINDER 0732 (54)
-SEL WRITE CURRENT SENSE 0718 (6)
-SEL FILE UNSAFE 0716 (4)
-UNSAFE 0818 (35)
FILE UNSAFE LAMP 1815 (53)
+DISABLE INTERFACE 0852 (44)
INTERLOCK 1842 (18)

PWA 75003461-5

FILE STATUS
SOCKET 12

75003461 —

LOGIC DIAGRAM — FILE STATUS

ISS

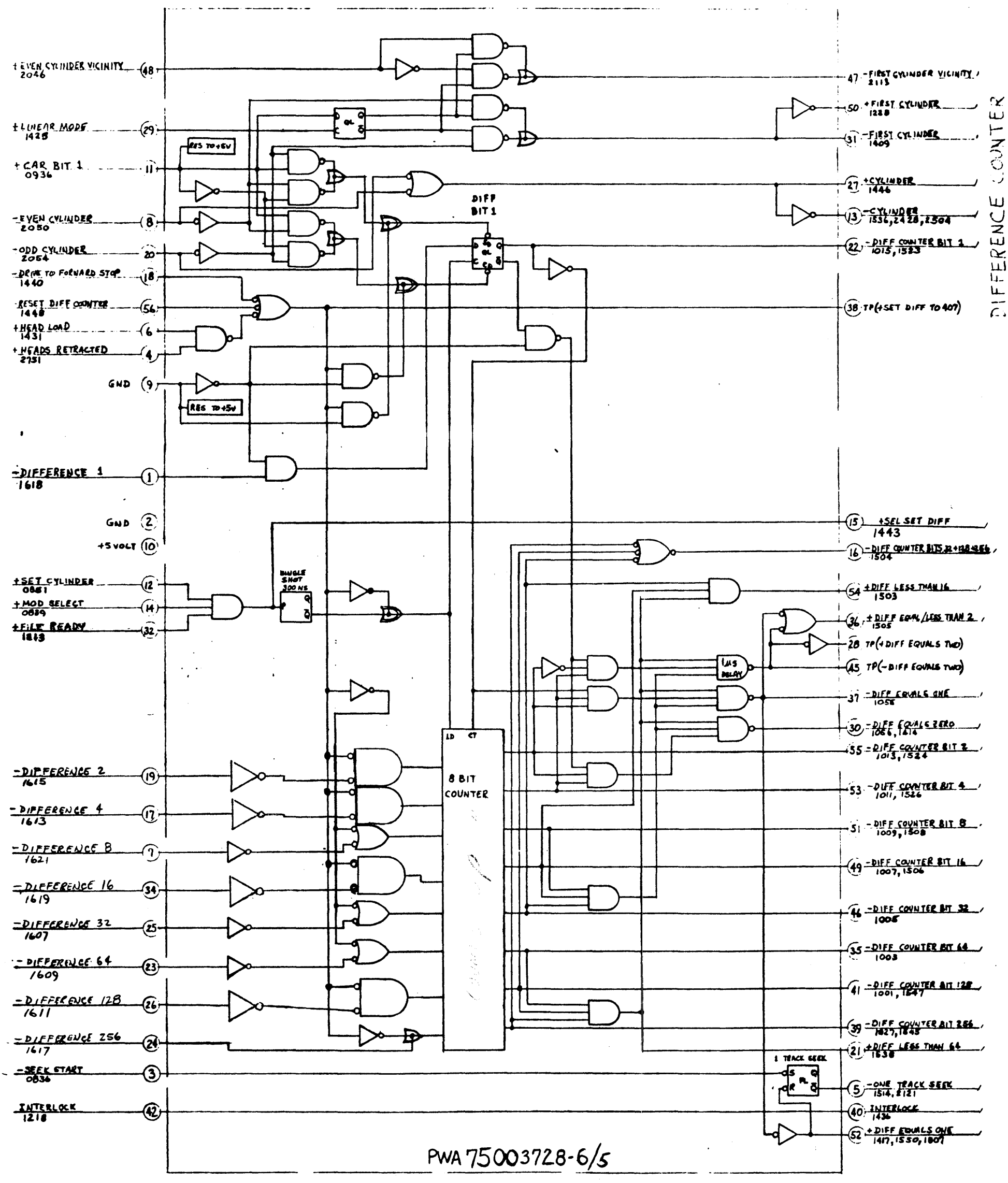
LINE DRIVER GND 0702 — 34
-SEEK IN PROCESS 1491 — 24
+INDEX 1728 — 30
GND — 2
+5V — 10
-HOLD REVERSE 1438 — 15
+DRIVE TO FWD STOP 1407 — 14
+FIRST CYLINDER 1650 — 28
+LINEAR MODE 1425 — 21
-FILE READY 1412 — 11
-HEADS RETRACTED 2725 — 48
-RESTORE 0834 — 39
-METER DISABLE SW. 1911 — 23
-METER ENABLE SW 1912 — 3
-SEEK START 0836 — 12
+HAR BIT 16 0815 — 5
+MOD SELECT 0839 — 1
+HAR BIT 4 0835 — 7
-RESET ATTENTION 0821, 1008 — 37
-POWER ON RESET 2749 — 8
+WRITE CURRENT SENSE 0401 — 9
-HEADS UNSAFE 0247 — 34
-PACK SPEED UNSAFE 1739 — 40
-AC WRITE UNSAFE 0495 — 36
-DC WRITE UNSAFE 0496 — 31
-30 VDC UNSAFE 1403 — 45
TP — 47
-EVERY UNSAFE EXCEPT RW 1841 — 43
-VELOCITY UNSAFE 1839 — 29
INTERLOCK 0928 — 18

SEEK INCOMPLETE
SEEK END
ENABLE SW. TRANSFER
ENABLE/DISABLE
ON LINE
RES 10 V
RES 10 V
ATTENTION 1
ATTENTION 2
UNSAFE

-SET DRIVE TO FORWARD STOP 1404 — 19
ACCESS READY LAMP 1917 — 61
+FILE READY 0943, 1332 — 13
-SEL SEEK INCOMPLETE 0734 — 22
-SEL FILE READY 0712 — 55
-GATED ATTENTION 0748 — 25
TP (+ACCESS ON LINE) — 27
-SELECTED ON LINE 0714 — 20
-SELECTED MODULE 0751 — 62
-SEL END OF CYLINDER 0722 — 54
-SEL WRITE CURRENT SENSE 0718 — 6
-SEL FILE UNSAFE 0716 — 4
-UNSAFE 0818 — 35
FILE UNSAFE LAMP 1915 — 53
+DISABLE INTERFACE 0852 — 46
INTERLOCK 1342 — 18

PWA 7500346[illegible]-5

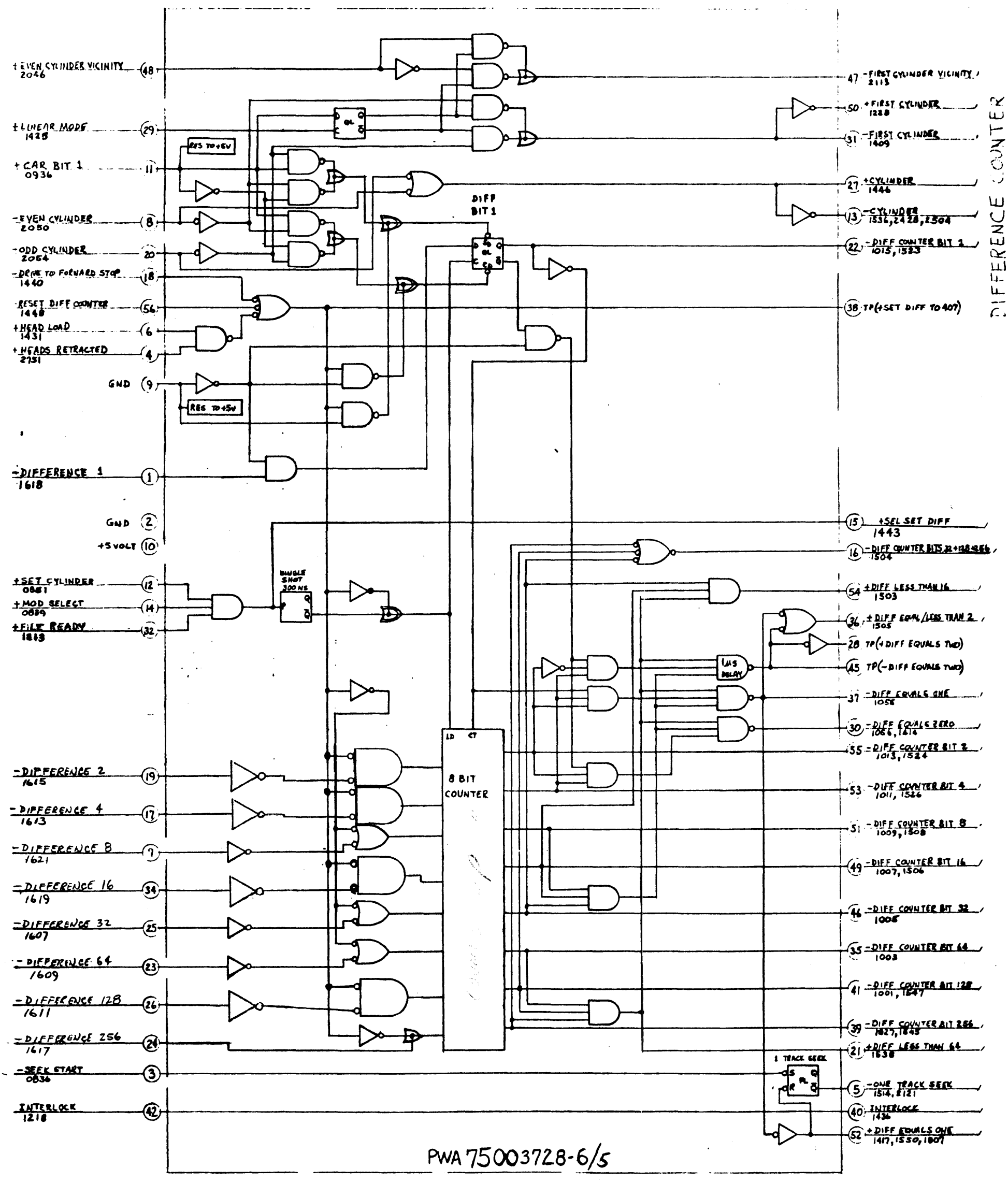
FILE STATUS
SOCKET 12



PWA 75003728-6/5

DIFFERENCE COUNTER

SOCKET 13



PWA 75003728-6/5

DIFFERENCE COUNTER
SOCKET 13

SKT 14

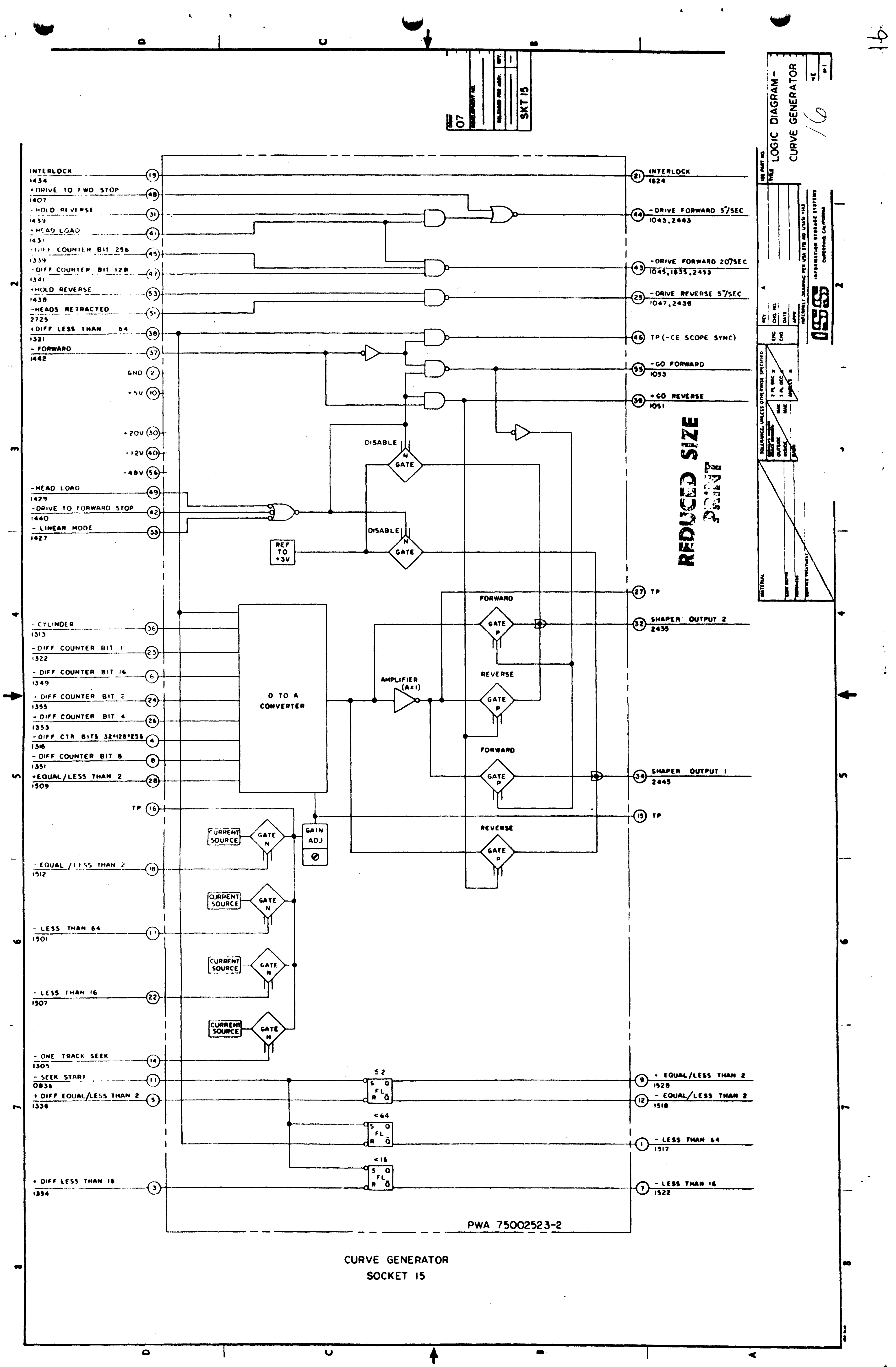
LOGIC DIAGRAM-
ACCESS CONTROL

INTERLOCK 1340 (36) → (34) INTERLOCK 1519
+FORWARD SIGN 1633 (44)
+SEL SET DIFF 1315 (43) → (42) -FORWARD 1537, 1033
FORWARD FL
+DIFF EQUALS ONE 1352 (17)
TP (16)
+CYLINDER VICINITY 2043 (15)
-DIFF EQUALS ZERO 1330 (14)
LINEAR MODE FL → (29) +LINEAR MODE 1221, 2325, 1329, 2526; (27) -LINEAR MODE 1938, 1049, 2505, 2416, 1805
-SEEK START 0836 (47)
-FIRST CYLINDER 1331 (9)
FIRST CYLINDER DETECTED FL → (13) +FIRST CYLINDER DETECTED 1833, 2111; (8) -FIRST CYLINDER DETECTED 1048, 1552, 1831
- SET DRIVE TO FORWARD STOP 1219 (4)
-RESTORE 0834 (18)
+5V
DRIVE TO FWD STOP FF
+VELOCITY TOO GREAT 1816 (6)
RES TO +5V
-FORWARD STOP 1913 (20)
(12) -FILE READY 1211, 1090
(7) +DRIVE TO FWD STOP 1214, 0922, 1548, 1039
(40) -DRIVE TO FWD STOP 1318, 1542, 0838, 1723, 1635
(48) -RESET DIFF COUNTER 1356, 2522
(26) -R/W READY 0255
(49) +RETRACTED MODE 2327, 1844
(22) -USE FAST AGC 2105, 2315
(21) -RETRACTED MODE 2047, 2107, 1046, 2408
+HEADS RETRACTED 2751 (35)
+START AND CONTROLLED GND 2747 (24)
-ANY UNSAFE EXCEPT R/W 1841 (23)
-POWER ON/START RESET 2715 (19)
SEQUENCE START PULSE 2731 (53)
-INVALID SEEK 1601 (41)
+CYLINDER 1327 (46)
+VEL MINUS POS EQUALS ZERO 2423 (45)
GND (28)
HOLD REVERSE FL
HEAD LOAD FL
SEEK IN PROCESS FL
SEEK COMPLETE FL
DLY
(38) +HOLD REVERSE 1553, 1037
(31) +HEAD LOAD 1541, 1804, 2329, 1306
(29) -HEAD LOAD 1814, 1549, 1041,
(11) +ACCESS READY 2044, 2101, 2503
(51) -SEEK IN PROCESS 1224, 1035, 2518
(33) -ACCESS READY 2109, 2045
+INDEX 1728 (32)
-CE RESET UNSAFE 1004, 0809 (5)
(39) -HOLD REVERSE 1745, 1531, 1215, 2506
(55) -RESET UNSAFE 1827, 1737, 0249, 0449, 2501
AC UNSAFE FL → (1) -AC UNSAFE 1849, 1028 (2603)
GND (2)
+5V (10)
-48V (56)
DC VOLTAGE CHECK (1)
+30VDC 2601 (54) → (3) -30 VDC UNSAFE 1245, 1842, 0901
MOTOR TRANSFORMER SEC 1 2611 (50)
MOTOR TRANSFORMER SEC 2 2612 (52)
AC VOLTAGE CHECK (2) → (37) -TRIAC ON 2717, 1916

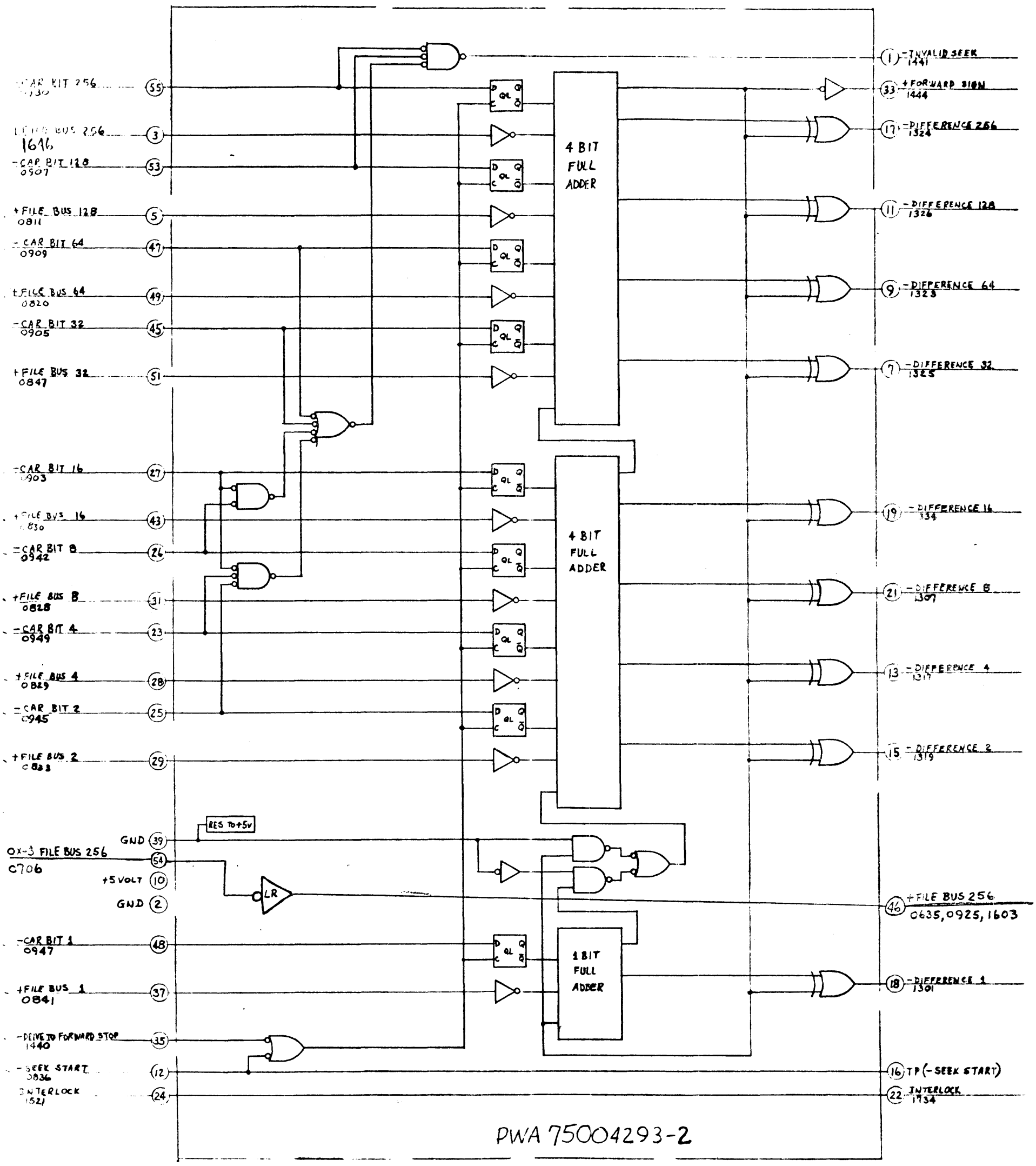
PWA 75003370-1

(1) OUTPUT LOW IF INPUT BELOW 5 VOLTS.
(2) OUTPUT LOW IF AC INPUT PRESENT.

ACCESS CONTROL
SOCKET 14



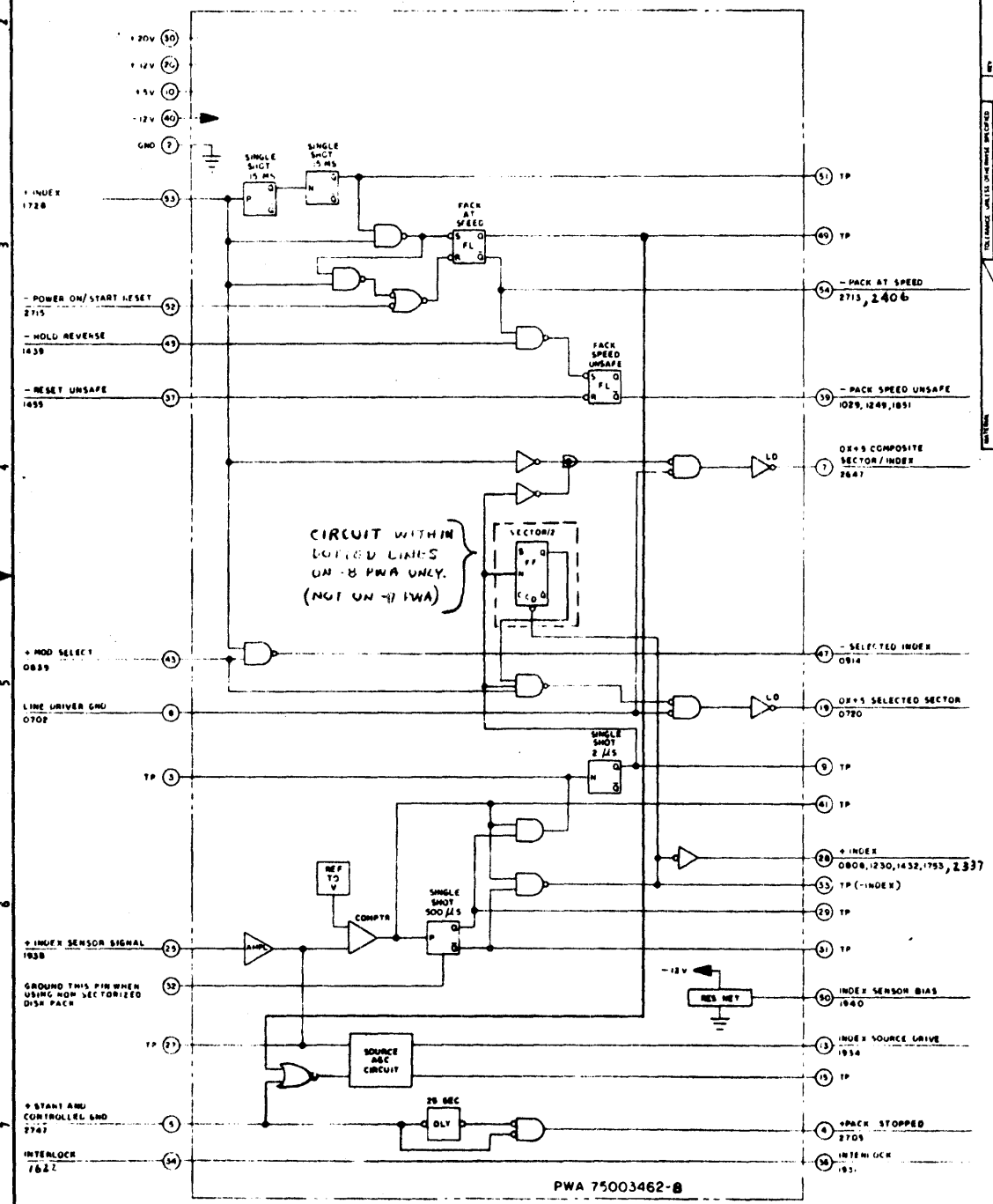
CURVE GENERATOR
SOCKET 15



PWA 75004293-2

DIFFERENCE CALCULATOR

SOCKET 16

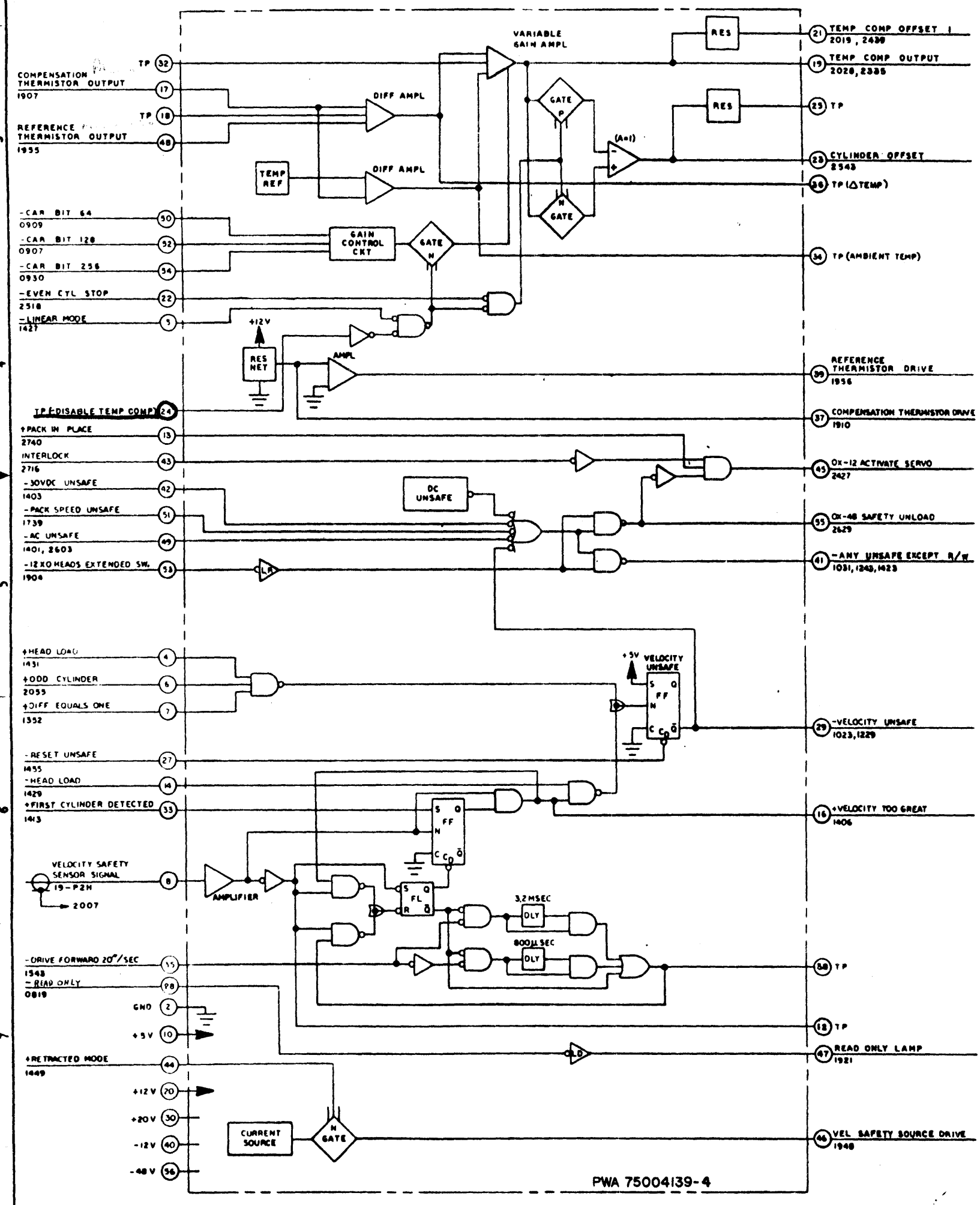


SOCKET 17
INDEX TRANSDUCER

SKT 18

REDUCED SIZE PRINT

LOGIC DIAGRAM - TEMPERATURE COMPENSATION & SAFETY



PWA 75004139-4

TEMPERATURE COMPENSATION & SAFETY
SOCKET 18

SKT 19

SENSOR BIAS
1039
SHIELD COMMON
1007

PART OF SOCKET 19

+5V (36)
+5V (47)
+5V (52)
+5V (53)
+5V (54)

SOURCE 1 DRIVE
2155 (50)

SOURCE 2 DRIVE
2153 (51)

CYL VICINITY SOURCE DRIVE
2027 (49)

VEL SAFETY SOURCE DRIVE
1846 (48)

INTERLOCK
1736 (31)

INDEX SOURCE DRIVE
1713 (34)

INDEX SENSOR BIAS
1750 (40)

COMPENSATION THERMISTOR DRIVE
1837 (10)

REFERENCE THERMISTOR DRIVE
1839 (56)

-TRIAC ON
1437 (16)

ACCESS TRANSDUCER

SOURCE BLOCK

SOURCE P1
H
E
F
D
C
A
B

CENTER
REAR
FORWARD
OUTSIDE

SENSOR BLOCK

CENTER
REAR
FORWARD
OUTSIDE

SENSOR P2
C
E
A
H
B
F
K
D
J

SHIELD COMMON
2007
SENSOR 1 SIGNAL
2001
SENSOR 2 SIGNAL
2005
CYLINDER VICINITY SENSOR SIGNAL
2009
VELOCITY SAFETY SENSOR SIGNAL
1808

PART OF SOCKET 19
(33) INTERLOCK
2012

INDEX TRANSDUCER

PART OF INDEX P3
B
E
F
C

UPPER
LOWER

PART OF INDEX P3
A
D
H

(38) INDEX SENSOR SIGNAL
1725
(2) GND

COMPENSATION THERMISTOR

PART OF J3
2

T

PART OF J3
1

(7) COMPENSATION THERMISTOR OUTPUT
1817

REFERENCE THERMISTOR

T

BASEPLATE

(55) REFERENCE THERMISTOR OUTPUT
1848

FORWARD STOP CONTACTED
(13) -FORWARD STOP
1052, 1420

INDEX BLOCK IN PLACE SW
(5) -COVERS CLOSED
2727

TOP COVER SW
(6) -COVERS OPEN
2735

BRUSH MOTOR SW
RETRACTED
(8) -BRUSH AT STOP
2723
EXTENDED
(9) -BRUSH IN PACK
2729

CARRIAGE RETRACT SW
RETRACTED
(4) -12XO HEADS EXTENDED SW
1833, 2706
EXTENDED
(22) -HEADS EXTENDED
2646

USAGE METER
TERMINAL (3)

CONTROL PANEL

PART OF CP-1

READ ONLY SW.
(14)
(13)
(39) -READ ONLY SW.
0845
(37) +READ ONLY SW.
0840

ENABLE SW
ENABLE (1)
DISABLE (3)
(2)
(12) -METER ENABLE SW
1203
(11) -METER DISABLE SW
1223

PART OF START/STOP SW
START (8)
STOP (10)
(9)
(1) -DRIVE SWITCH ON
2739
(3) -DRIVE SWITCH OFF
2737

PART OF CP-1

+20V (30) (4) FILE READY
ACCESS READY LAMP 1251 (17) (7)
SELECT LOCK
FILE UNSAFE LAMP 1253 (19) (6)
READ ONLY
READ ONLY LAMP 1847 (21) (5)

HARNESS ASSEMBLY 83003979-1

TRANSDUCER PADDLE
SOCKET 19

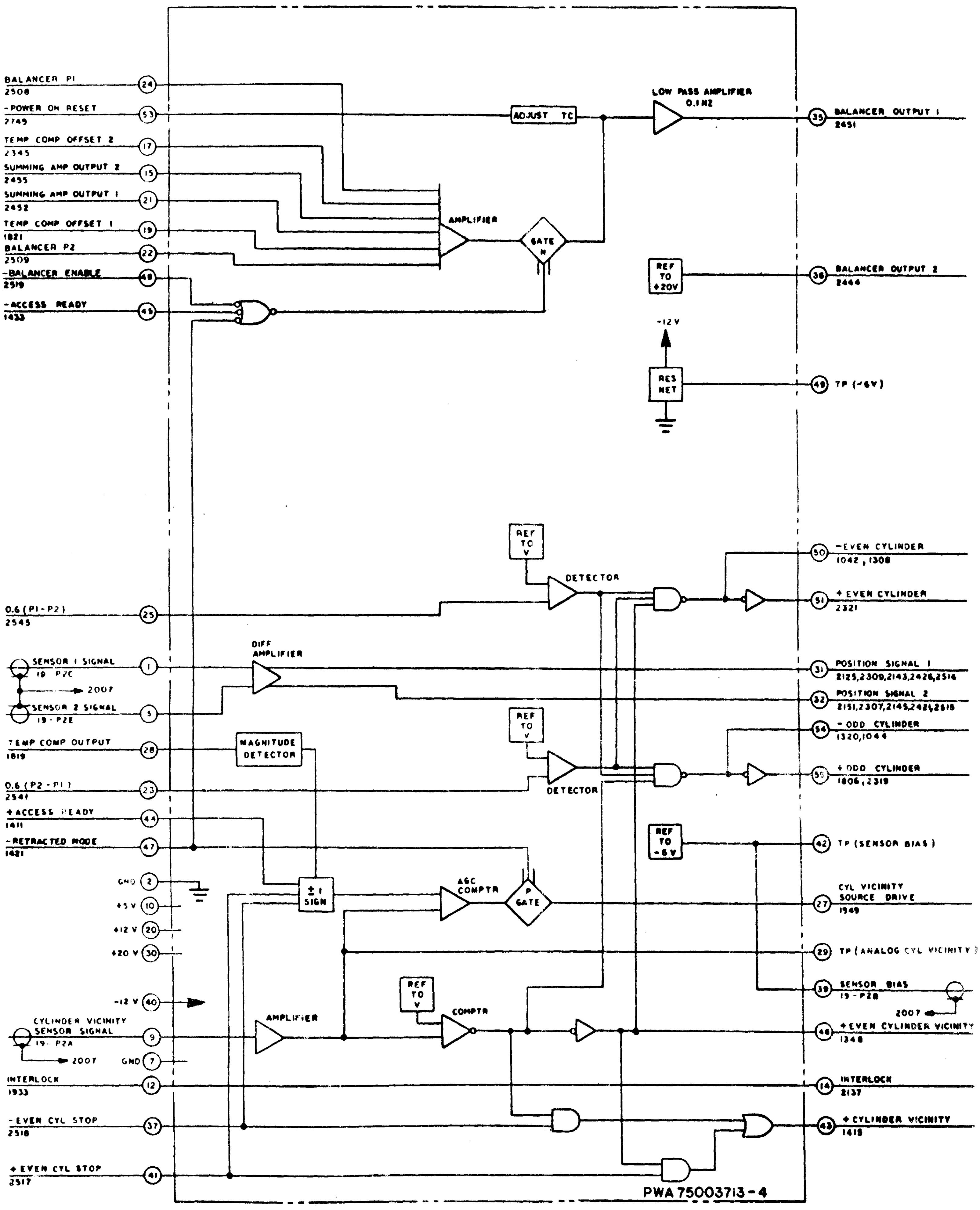
TITLE INTERCONNECTION DIAGRAM - TRANSDUCER PADDLE

SKT 20

REDUCED SIZE PRINT

LOGIC DIAGRAM - CYLINDER DETECTOR

INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA



CYLINDER DETECTOR

SOCKET 20

REDUCED SIZE PRINT

SKT 21

LOGIC DIAGRAM-
AGC

TOLERANCE UNLESS OTHERWISE SPECIFIED

INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA

REF TO V

POSITION SIGNAL 1
2031

POSITION SIGNAL 2
2032

AMPLIFIER

COMPARATOR

ADJUST TOTAL CURRENT

TOTAL SOURCE CURRENT

CURRENT SOURCE

+FIRST CYLINDER DETECTED
1413

-FIRST CYLINDER VICINITY
1347

-ACCESS READY
1433

1-1/2 CYLINDER DETECTED

GND

+5 V

+12 V

+20 V

-12 V

-48 V

TP

AMPLIFIER

P GATE

SUM AMPLIFIER

DEMOD

GATE N

AMPLIFIER

GATE N

DIRECTION CONTROL

CURRENT DIRECTOR

GATE P

GATE P

SOURCE 1 DRIVE
1950

SOURCE 2 DRIVE
1951

40HZ WIGGLER PULSE
2535

-ONE TRACK SEEK
1309

+ACCESS READY
1411

70MSEC

DLY

SET DELAY TIME

+ACCESS READY + 70 MSEC
2422

TP (-ACCESS READY + 70 MSEC)

-USE FAST AGC
1422

SET TIME CONSTANT

RESPONSE TIME

-RETRACTED MODE
1421

INTERLOCK
2014

INTERLOCK
2343

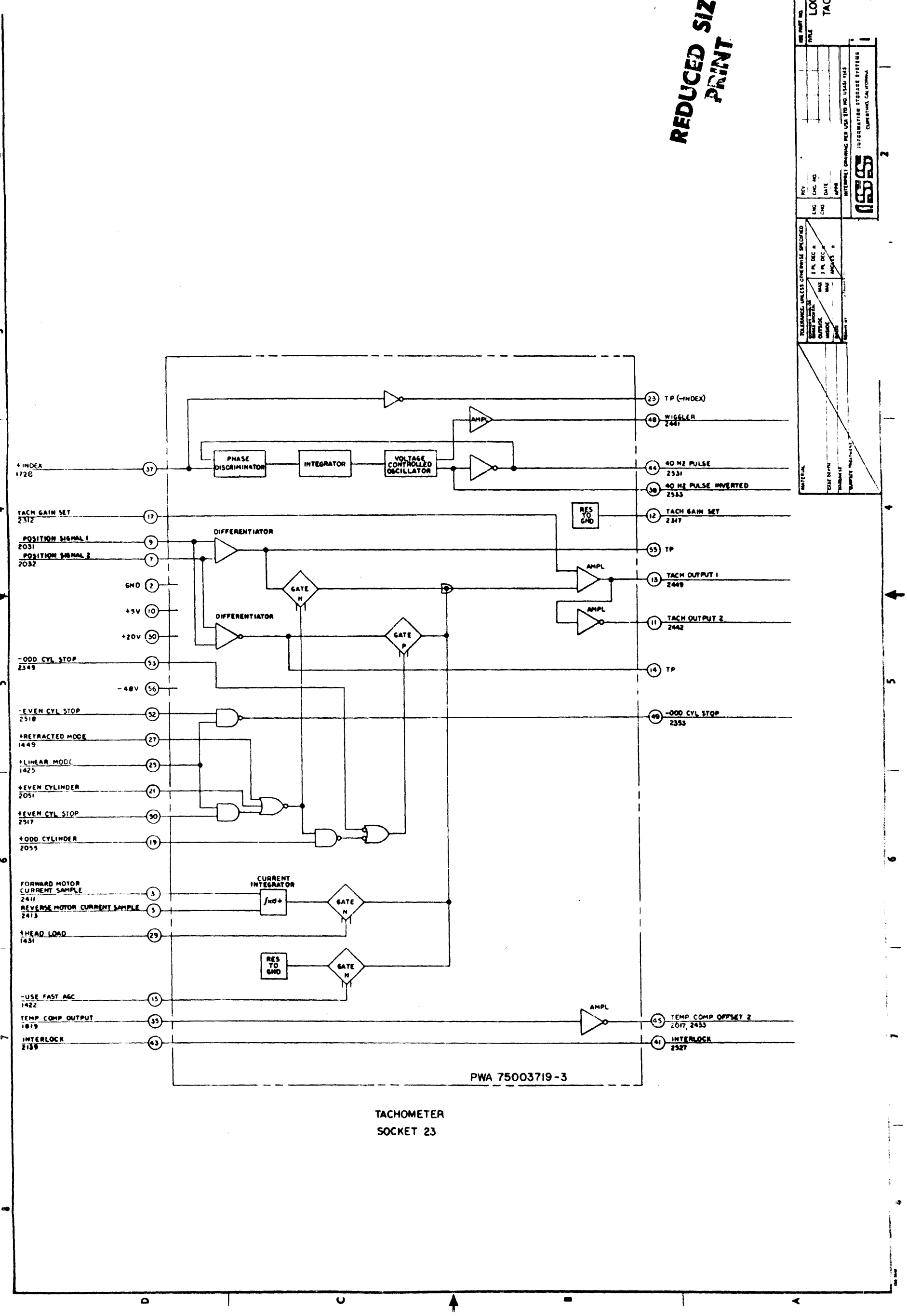
PWA 75002521-1

AGC
SOCKET 21

REDUCED SIZE PRINT

SKT 23

LOGIC DIAGRAM - TACHOMETER



TACHOMETER

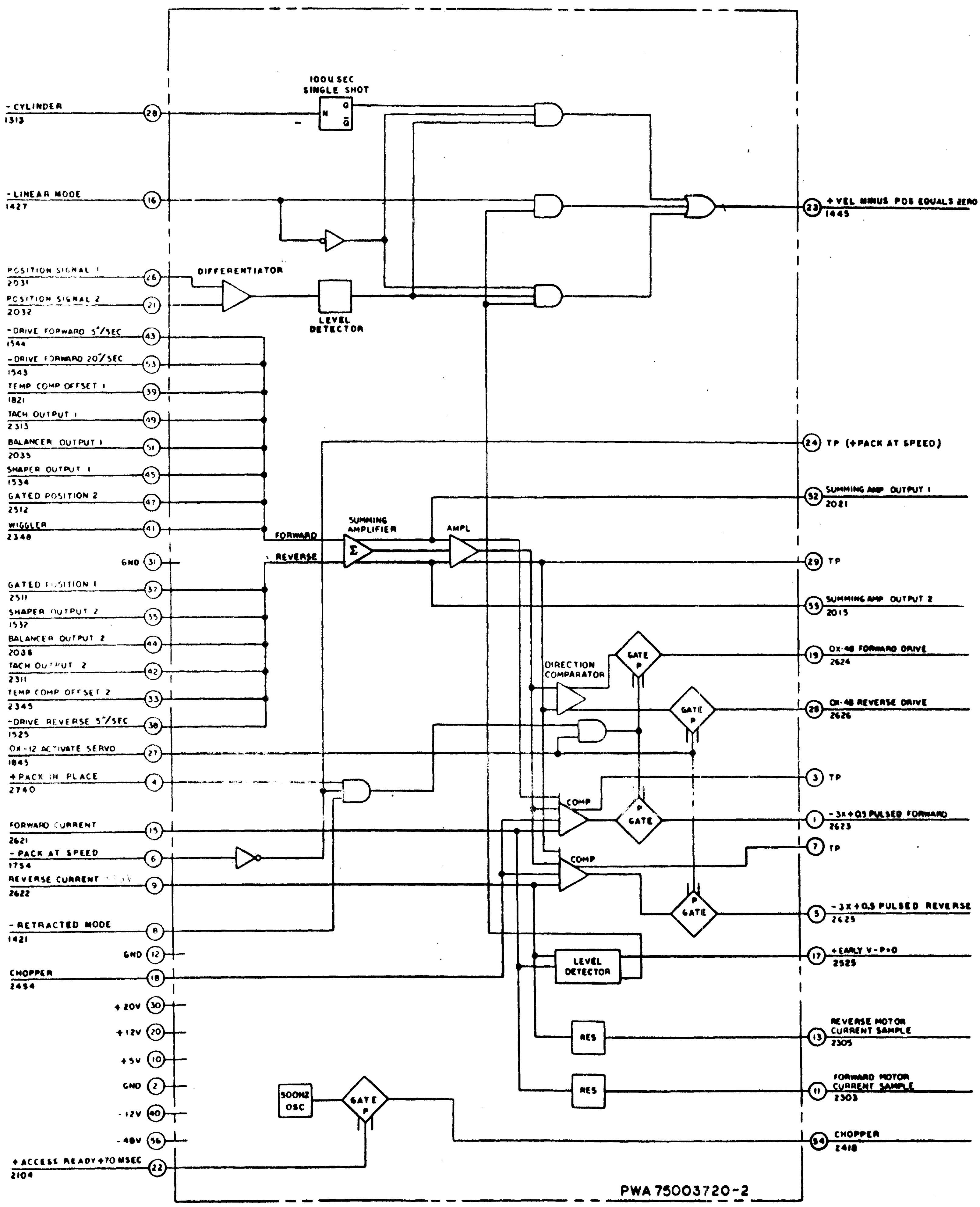
SOCKET 23

SKT 24

REDUCED SIZE PRINT

LOGIC DIAGRAM-
SUMMING AND PULSER

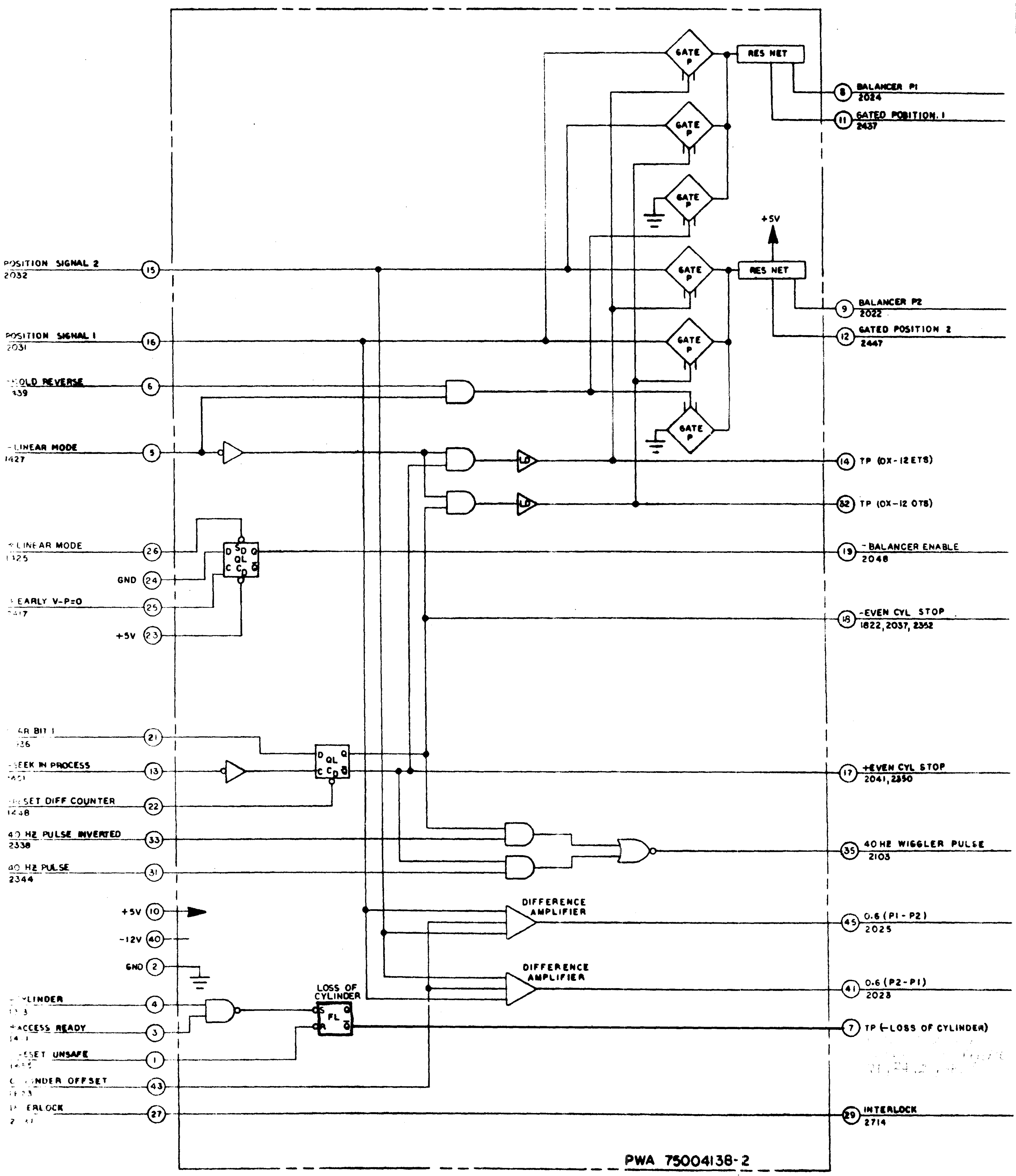
INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA



SUMMING AND PULSER

SOCKET 24

RELEASED FOR ASSY. | QTY. 1 | SKT 25



CYLINDER SELECT
SOCKET 25

TITLE: LOGIC DIAGRAM — CYLINDER SELECT

SIZE D

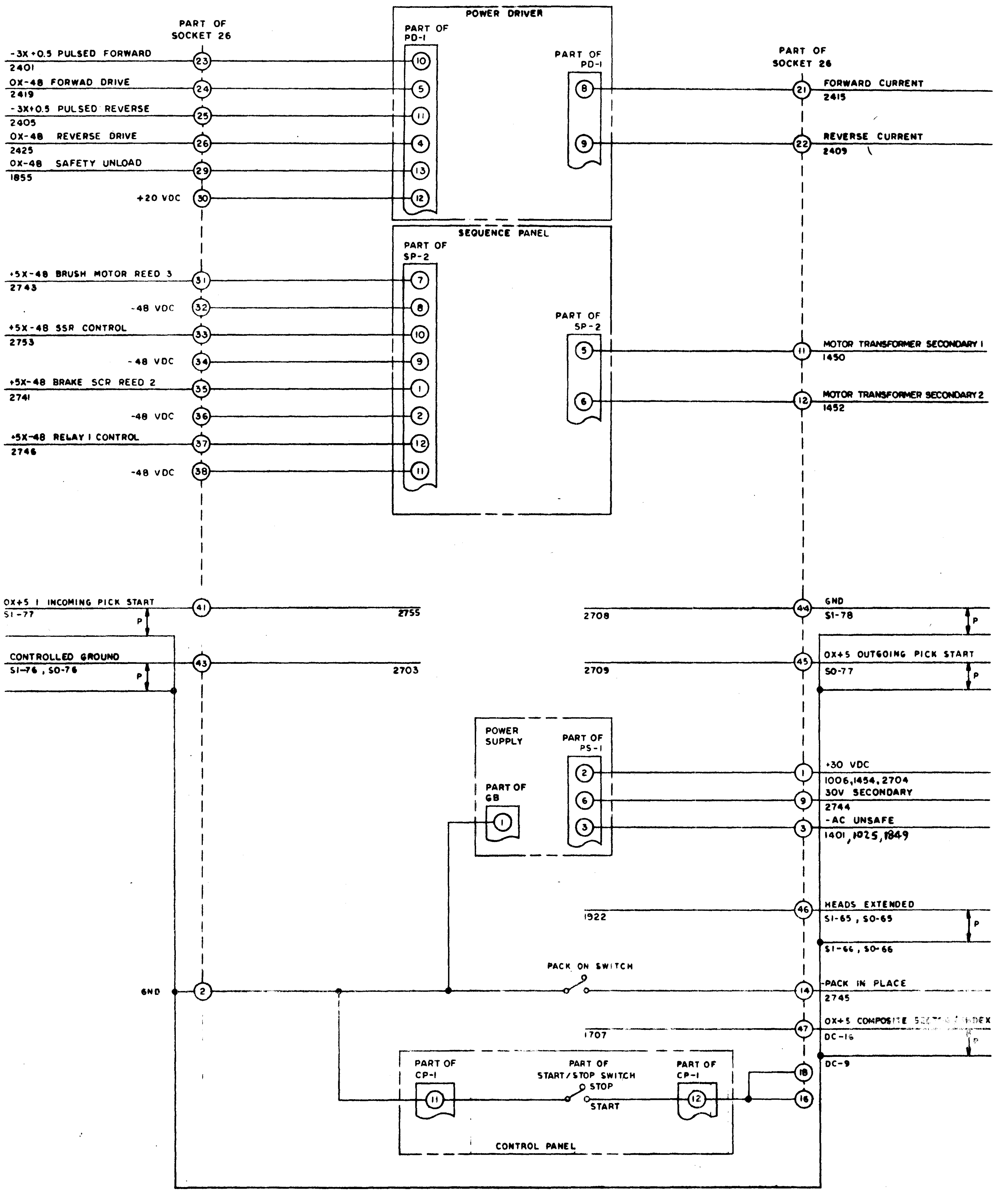
ISS INFORMATION STORAGE SYSTEMS
CUPERTINO, CALIFORNIA

INTERCONNECTION DIAG - POWER SEQUENCER AND PULSER PADDLE

REV A

INTERPRET DRAWING PER USA STD NO. USASI Y14.5

ISS INFORMATION STORAGE SYSTEMS, CUPERTINO, CALIFORNIA



PART OF SOCKET 26
POWER DRIVER
PART OF PD-1
-3X+0.5 PULSED FORWARD
2401
OX-48 FORWAD DRIVE
2419
-3X+0.5 PULSED REVERSE
2405
OX-48 REVERSE DRIVE
2425
OX-48 SAFETY UNLOAD
1855
+20 VDC
FORWARD CURRENT
2415
REVERSE CURRENT
2409
SEQUENCE PANEL
PART OF SP-2
+5X-48 BRUSH MOTOR REED 3
2743
-48 VDC
+5X-48 SSR CONTROL
2753
+5X-48 BRAKE SCR REED 2
2741
+5X-48 RELAY I CONTROL
2746
MOTOR TRANSFORMER SECONDARY 1
1450
MOTOR TRANSFORMER SECONDARY 2
1452
OX+5 I INCOMING PICK START
S1-77
2755
CONTROLLED GROUND
S1-76 , S0-76
2703
GND
S1-78
2708
OX+5 OUTGOING PICK START
S0-77
2709
POWER SUPPLY
PART OF PS-1
PART OF GB
+30 VDC
1006,1454,2704
30V SECONDARY
2744
-AC UNSAFE
1401, 1025, 1849
HEADS EXTENDED
S1-65 , S0-65
1922
S1-66 , S0-66
PACK ON SWITCH
GND
-PACK IN PLACE
2745
OX+5 COMPOSITE SECTOR INDEX
1707
DC-16
DC-9
PART OF CP-1
PART OF START/STOP SWITCH
STOP
START
CONTROL PANEL

PART OF HARNESS ASSEMBLY
83004358-1

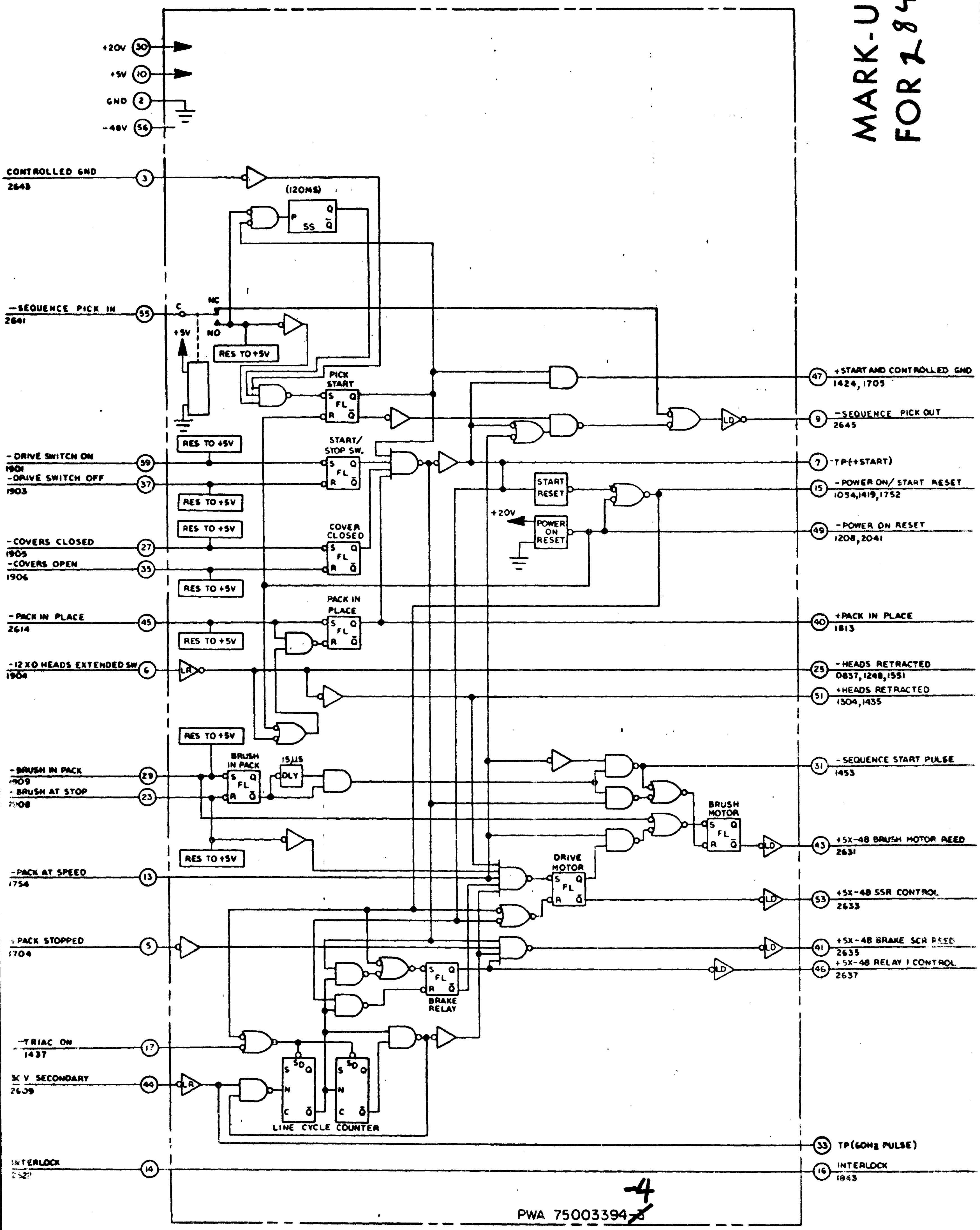
POWER SEQUENCER AND PULSER PADDLE
SOCKET 26

07003394-3A

REDUCED SIZE PRINT

DRAWING NO.	DEVELOPMENT NO.	RELEASED FOR ASSY.	QTY.
07003394-3A	—	—	1

MARK-UP FOR 2844B



POWER CONTROL

SOCKET 27

ISS PART NO.	07003394-3A	
TITLE	LOGIC DIAGRAM — POWER CONTROL	
REV A	CHG. NO. E1232	DATE 7-20-71
TOLERANCE: UNLESS OTHERWISE SPECIFIED	DRAWN BY C Chew 4/6/71	DESIGN J. Whitwell 5/17/71
CHKD Argle 4/8/71	APPROVED John ... 7/10/71	
SIZE D	DRAWING NO. 07003394-3A	SCALE NONE, SHT 1 OF 1

INTERPRET DRAWING PER USA STD NO. USAS1 Y14.5

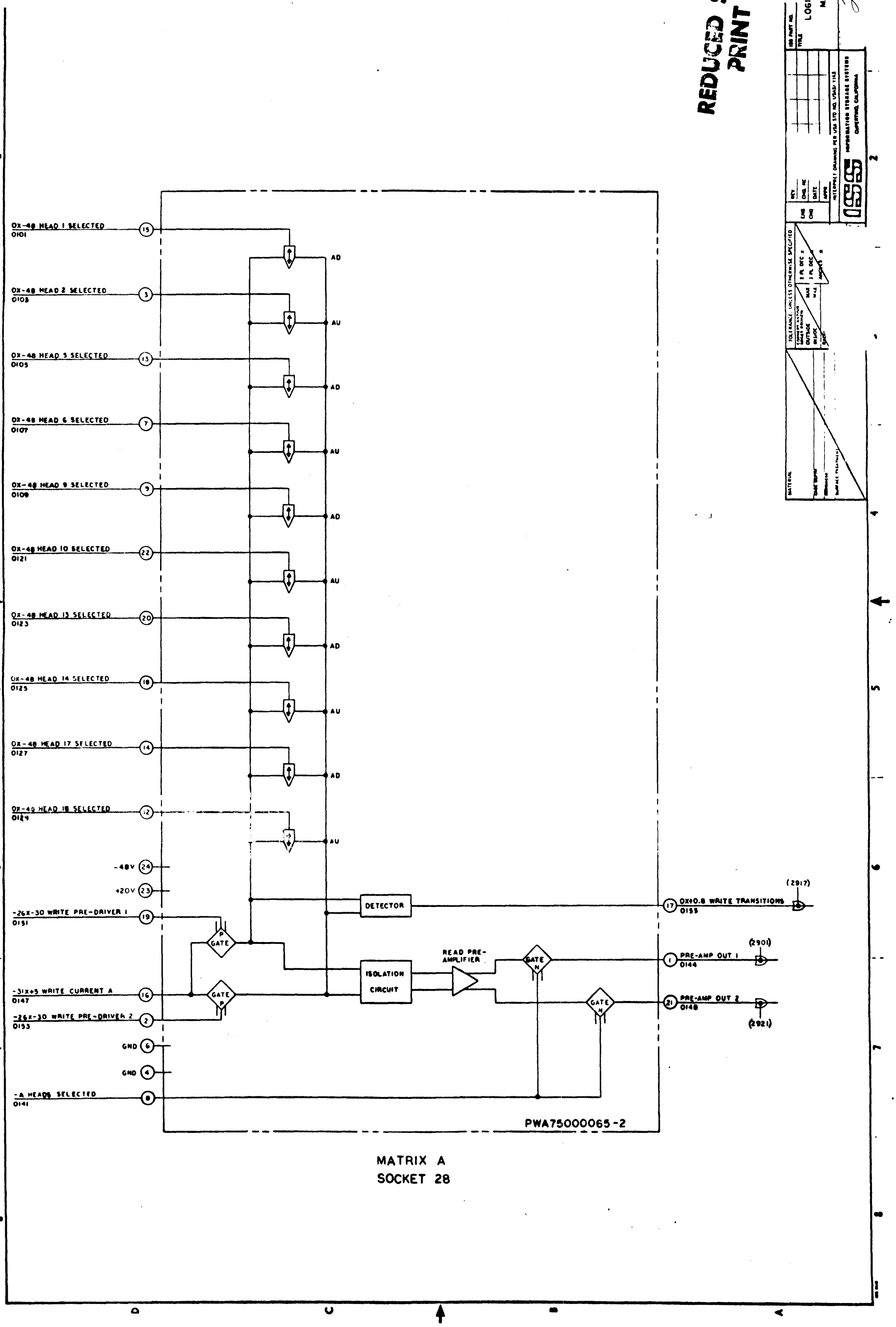
ISS INFORMATION STORAGE SYSTEMS, CUPERTINO, CALIFORNIA

REDUCED SIZE PRINT

SKT 28

LOGIC DIAGRAM – MATRIX A

28



MATRIX A
SOCKET 28

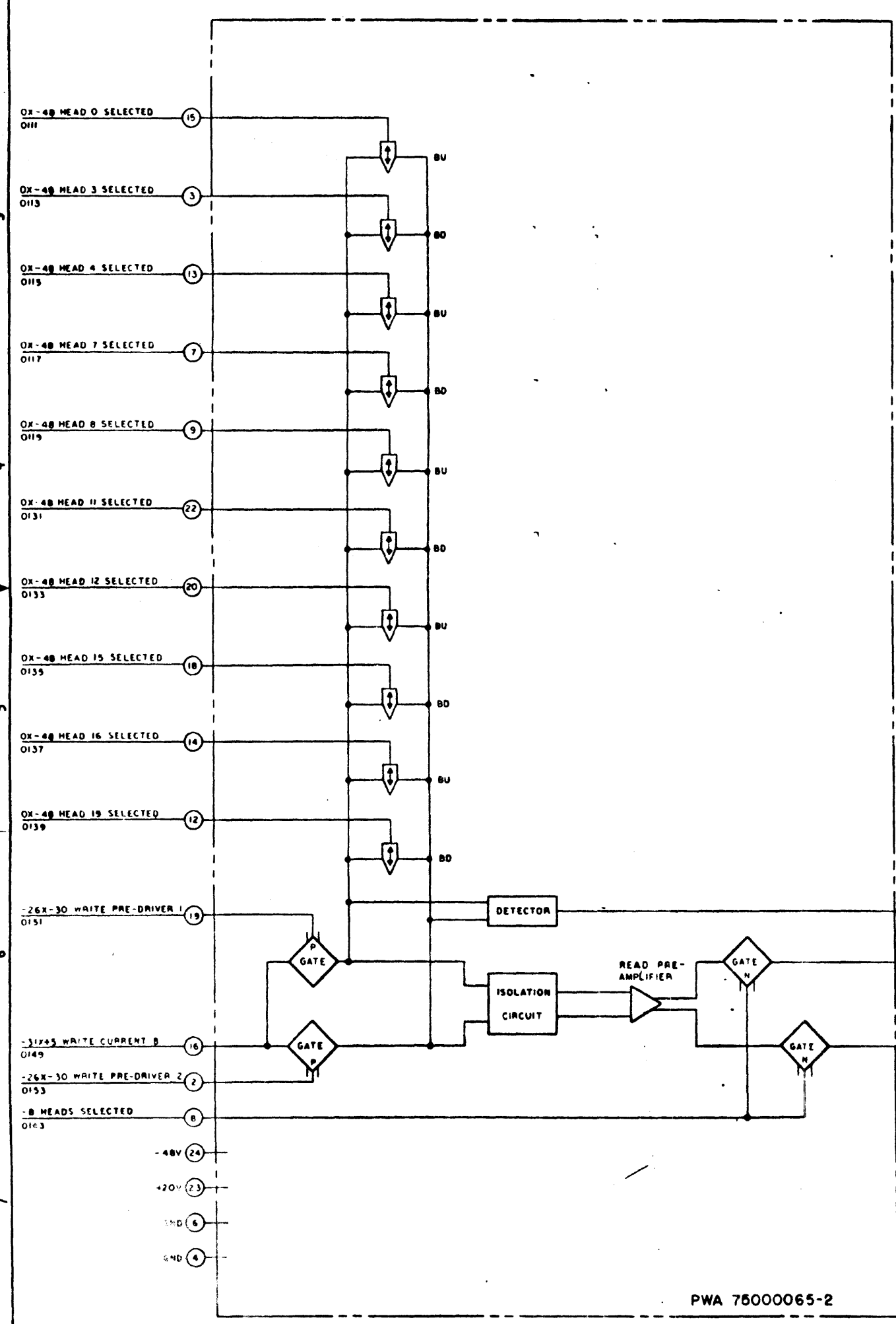
SKT 29

REDUCED SIZE PRINT

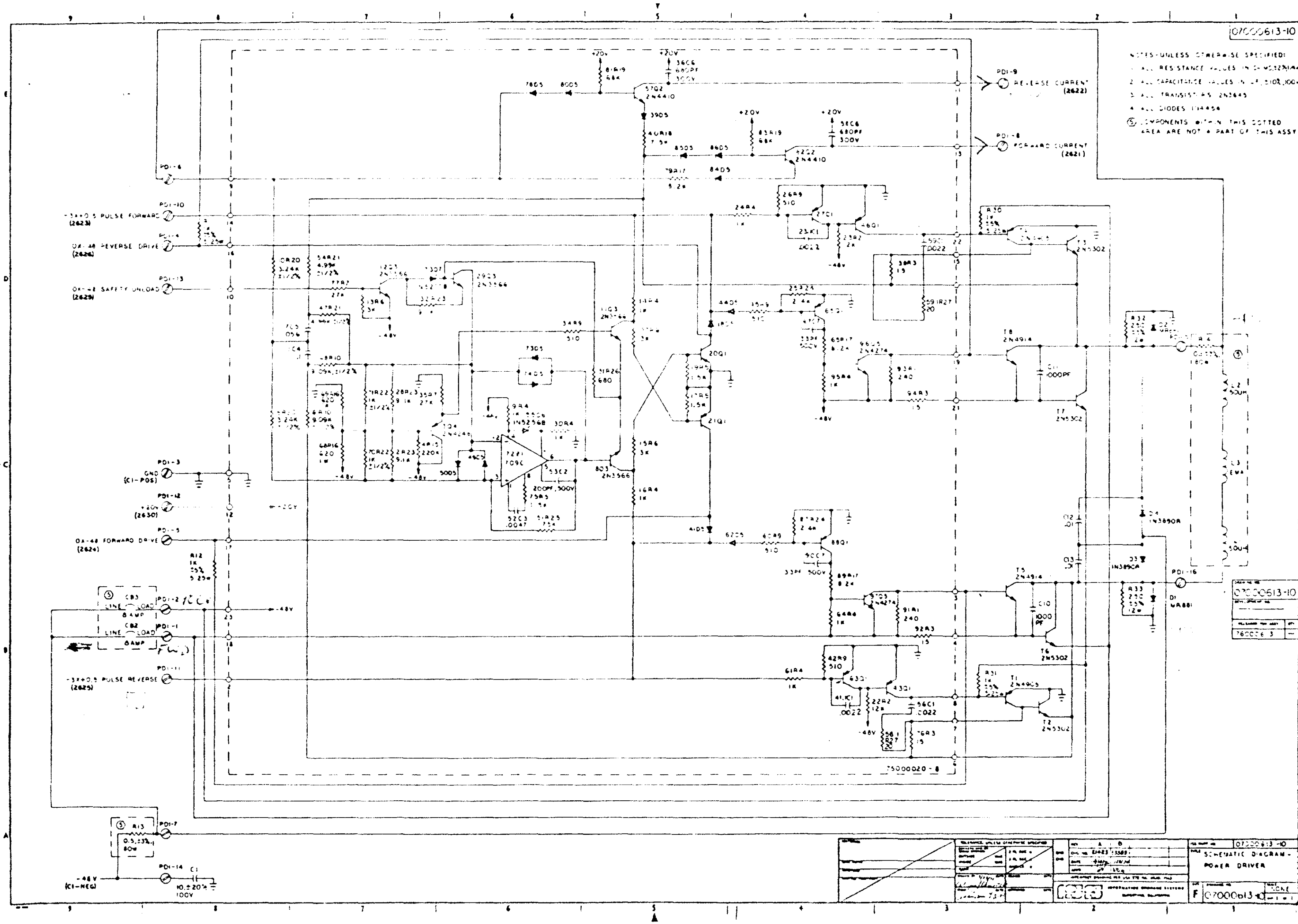
LOGIC DIAGRAM-
MATRIX-B

D

2



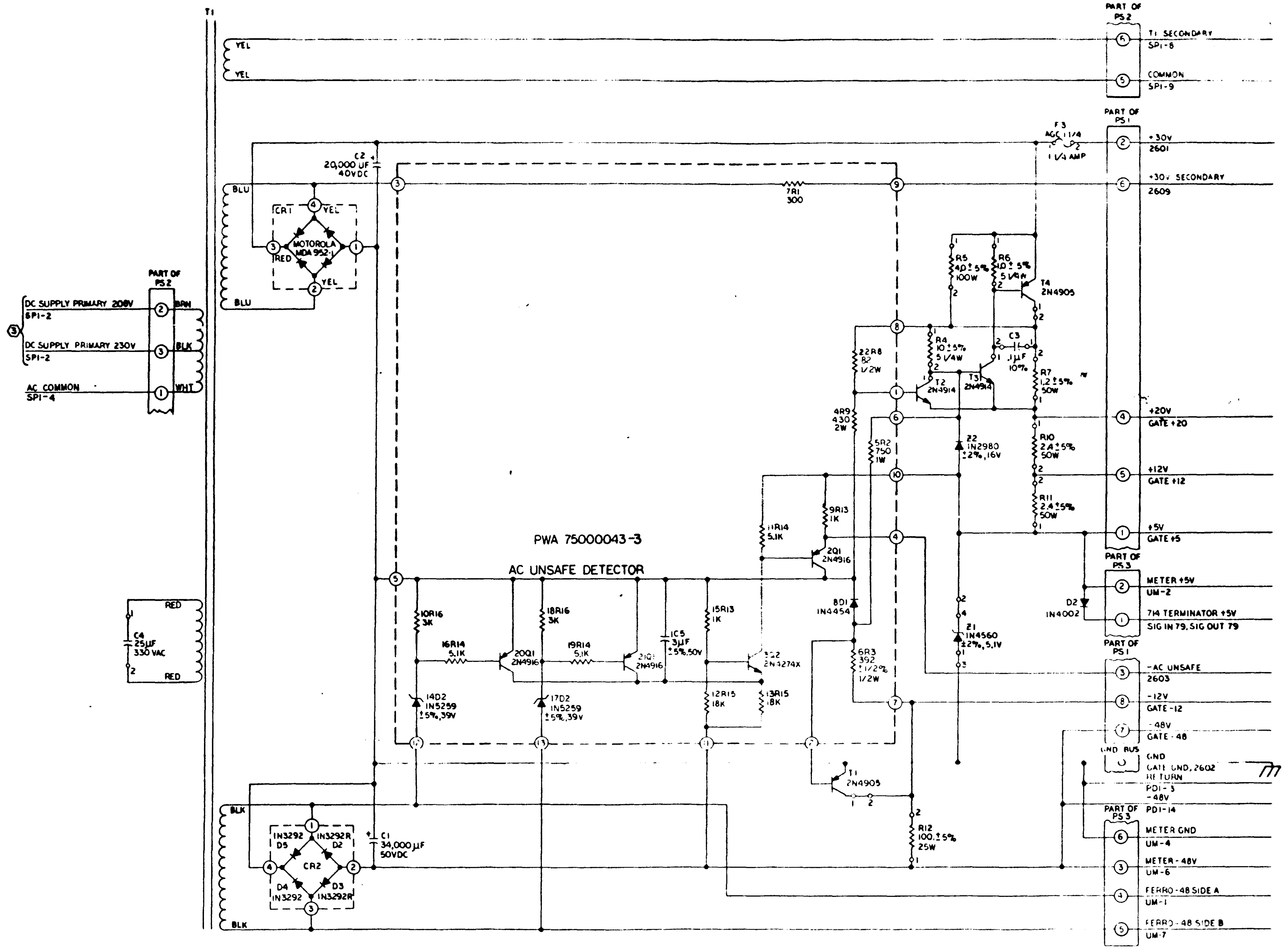
MATRIX B
SOCKET 29


07000613-10
NOTES-UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES IN OHMS, ±2%, 1/4W
2. ALL CAPACITANCE VALUES IN UF, ±10%, 100V
3. ALL TRANSISTORS 2N3645
4. ALL DIODES 1N4454
(5) COMPONENTS WITHIN THIS DOTTED AREA ARE NOT A PART OF THIS ASSY
PD1-9 REVERSE CURRENT (2622)
PD1-8 FORWARD CURRENT (2621)
+3±0.5 PULSE FORWARD (2623)
0/-48 REVERSE DRIVE (2626)
0/-48 SAFETY UNLOAD (2629)
GND (C1-POS)
+20V (2630)
0/-48 FORWARD DRIVE (2624)
+3±0.5 PULSE REVERSE (2625)
-48V (C1-NEG)
75000020-8
SCHEMATIC DIAGRAM - POWER DRIVER
F 07000613-10

07000605-2

NOTES - UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES IN OHMS, ±2%, 1/4W
2. COMPONENT TERMINAL DESIGNATION
3. ONLY ONE OF THE TWO INPUTS IS CONNECTED TO SP1-2 DEPENDING ON INPUT VOLTAGE
4. TERMINATION ABBREVIATIONS:
   PD - POWER DRIVER   SP - SEQUENCE PANEL
   PS - POWER SUPPLY   UM - USAGE METER



REDUCED SIZE PRINT

07000605-2

ISS PART NO.	07000605-2	REV	A
TITLE	SCHEMATIC DIAGRAM - DC POWER SUPPLY - 60Hz	CHG NO.	E 31
SIZE	F	DATE	6-4-71
DRAWING NO.	07000605-2	SCALE	NONE
SHEET	1 of 1		

INTERPRET DRAWING PER USA STD NO. USAS Y14.5

ISS INFORMATION STORAGE SYSTEMS CUPERTINO, CALIFORNIA