TECHNICAL MANUAL

ORGANIZATIONAL- MAINTENANCE MANUAL
DATA DISPLAY GROUP
EQUIPMENT MAINTENANCE
EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAMS)

GUIDED MISSILE
AIR DEFENSE SYSTEM
AN/TSQ-73

HEADQUARTERS, DEPARTMENT OF THE ARMY

4 APRIL 1985

Change
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 30 September 1991

**ORGANIZATION MAINTENANCE MANUAL: DATA DISPLAY GROUP
EQUIPMENT MAINTENANCE
EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAMS)
GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73**

TM 9-1430-655-20-4-5, 4 April 1985, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by the applicable change number, i.e., Change 1, at the bottom of the page adjacent to the page number. Revised text will have a vertical bar in the margin next to the changed area. Revised illustrations will have suffix change letter added to the identification number.

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A/(B blank)	A/(B blank)
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FO-12	FO-12
FO-18	FO-18
FO-23	FO-23
FO-24 (Sheet 2)	FO-24 (Sheet 2)

2. File this change sheet in front of the publication for reference.

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Chief of Staff

Official:

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The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-32-E, Block 2342, requirements for TM 9-1430-655-20-4-5, AN/TSQ-73 Missile System.

WARNING

DANGEROUS VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

Do not be misled by the term "low voltage". Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration refer to FM 21-11.

EXTREMELY DANGEROUS POTENTIALS

greater than 500 volts exist in the following units:

Display console high voltage power supply

Display console CRT

WARNING

For emergencies requiring immediate shutdown of system power, press SYSTEM POWER OFF switch located on power cabinet power transfer unit. Observe that SYSTEM POWER ON indicator light goes off.

LIST OF EFFECTIVE PAGES

Insert latest change pages, dispose of superseded pages in accordance with applicable regulations.

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page.

Dates of issue for original and change pages are:

Original ..... 0..... 4 Apr 85
Change ..... 1..... 30 Sep 91

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 48, CONSISTING OF THE FOLLOWING:

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TECHNICAL MANUAL
NO. 9-1430-655-20-4-5

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. 4 April 1985

ORGANIZATION MAINTENANCE MANUAL: DISPLAY EQUIPMENT MAINTENANCE EXPANDED TROUBLESHOOTING (LOGIC DIAGRAMS) GUIDED MISSILE AIR DEFENSE SYSTEM AN/TSQ-73

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2, located in back of this manual, directly to: Commander, U.S. Army Missile Command, ATTN: AMSMI-LC-ME-P, Redstone Arsenal, AL 35898-5238. A reply will be furnished directly to you.

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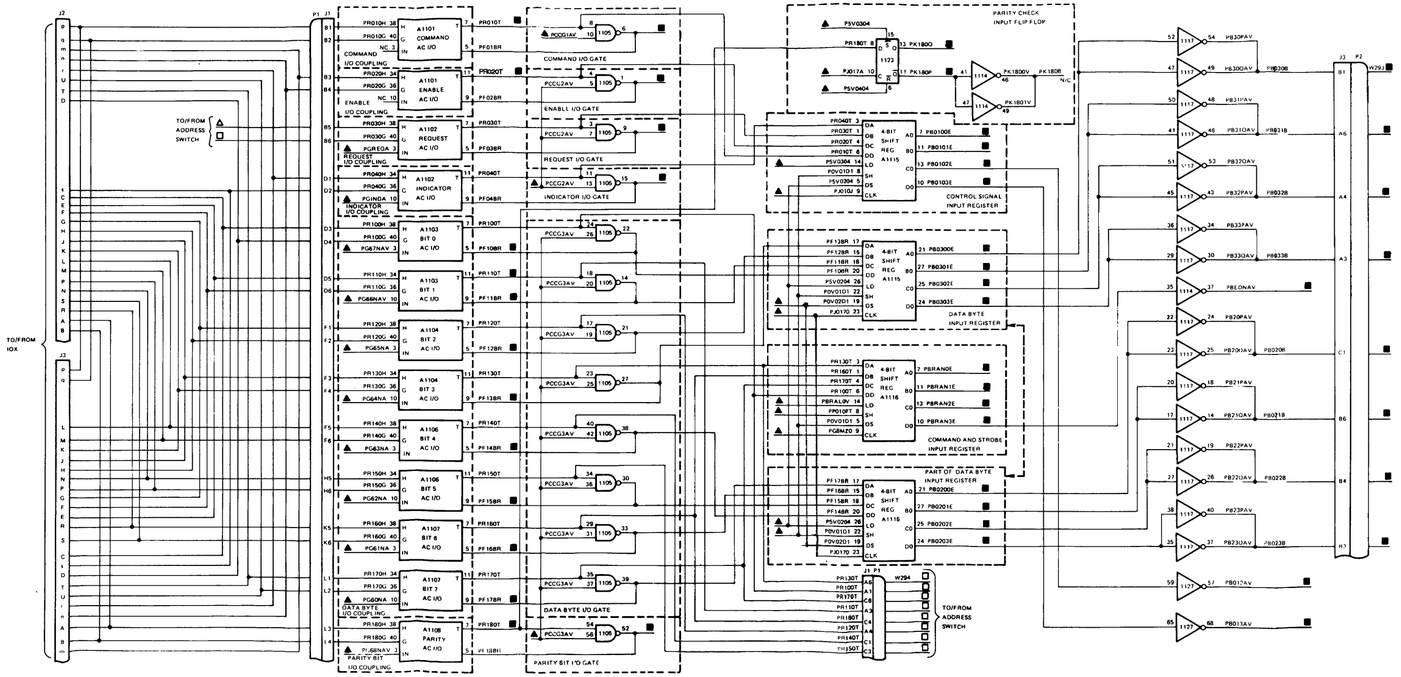
INPUTS	F/O - SH	OUTPUTS	F/O - SH	OUTPUTS	F/O - 2H
PBRALOV	8-1	PADDRO	4-0	PB031B	2-0
PCCG1AV	4-0		8-1		6-0
PCCG2AV	4-0	PBEDNAV	8-1	PB032B	2-0
PCCG3A	4-0	PBRAN0E	8-1		6-0
PGINDA	5-0	PBRAN1E	8-1		8-1
PGREQA	5-0	PBRAN2E	8-1	PB033B	2-0
PG60NA	6-0	PBRAN3E	8-1		6-0
PG61NA	6-0	PB0100E	8-1		8-1
PG62NA	6-0	PB0101E	8-1	PF01BR	3-0
PG63NA	6-0	PB0102E	8-1		4-0
PG64NA	6-0	PB0103E	8-2	PF02BR	3-0
PG65NA	6-0	PB012AV	8-1		4-0
PG66NA	6-0	PB013AV	8-1	PF03BR	3-0
PG67NA	6-0	PB020B	2-0	PF04BR	3-0
PG68NA	6-0		6-0	PF10BR	3-0
PG8MZ0	23-0		8-1	PF11BR	3-0
PJ010J	4-0	PB0200E	3-0	PF12BR	3-0
PJ017A	4-0	PB0201E	3-0	PF13BR	3-0
PJ0170	4-0	PB0202E	3-0	PF14BR	3-0
PK180B	10-0	PB0203E	3-0	PF15BR	3-0
PP0107T	8-1	PB021B	2-0	PF16BR	3-0
			6-0	PF17BR	3-0
		PB022B	2-0	PF18BR	3-0
			6-0	PK180P	3-0
		PB023B	8-1	PK180Q	6-0
			2-0	PR010T	4-0
		PB030B	6-0	PF020T	4-0
			6-0	PR110T	8-1
			8-1	PR180T	8-1
		PB0300E	3-0		
		PB0301E	3-0		
		PB0302E	3-0		
		PB0303E	3-0		



Change 1 FO-1. Input Register Logic Diagram (Sheet 1 of 2)

NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

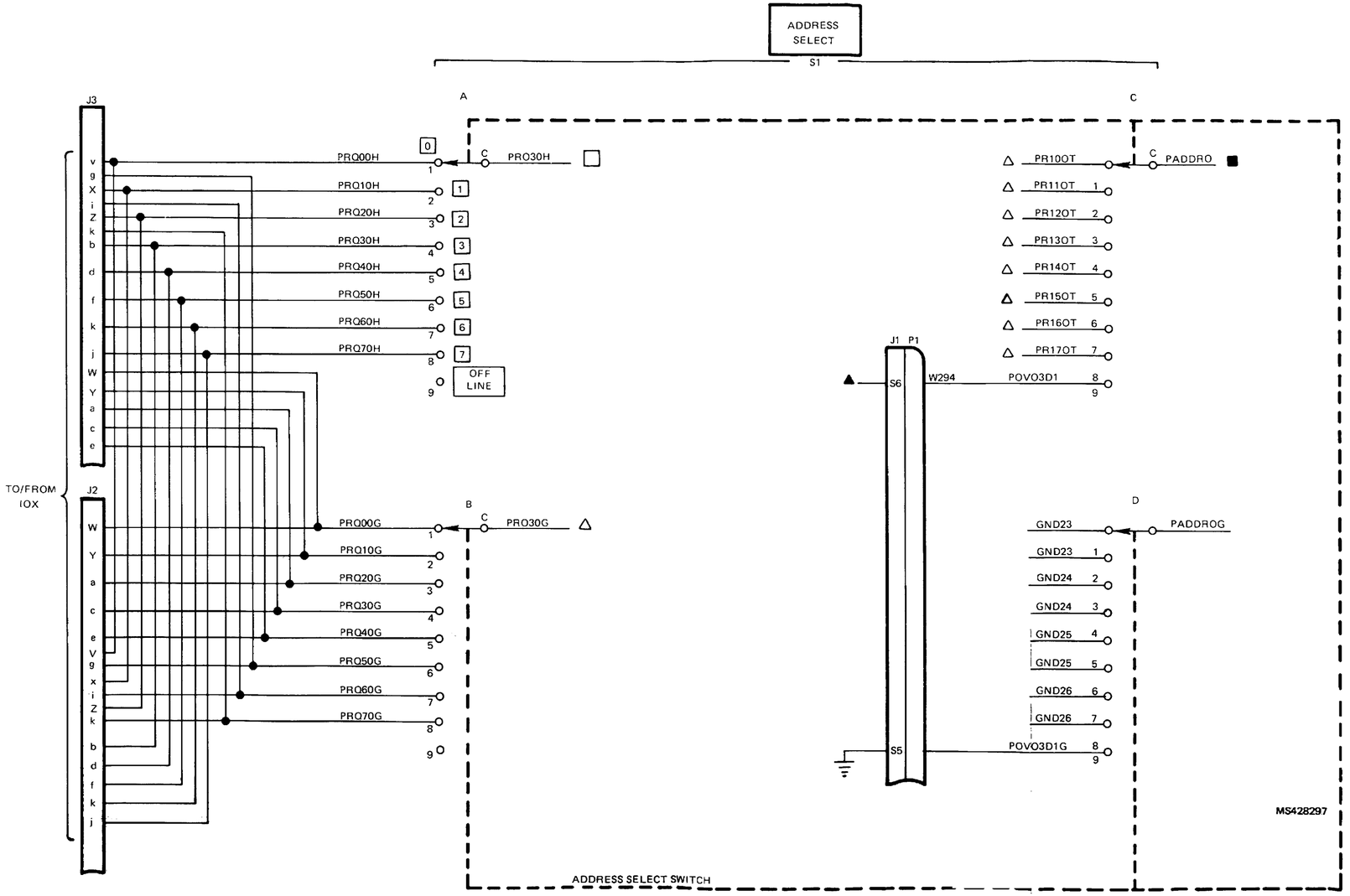
   △ INPUT FROM SAME FIGURE

   ■ OUTPUT TO ANOTHER FIGURE

   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

   ▯ OUTPUT TO SAME FIGURE

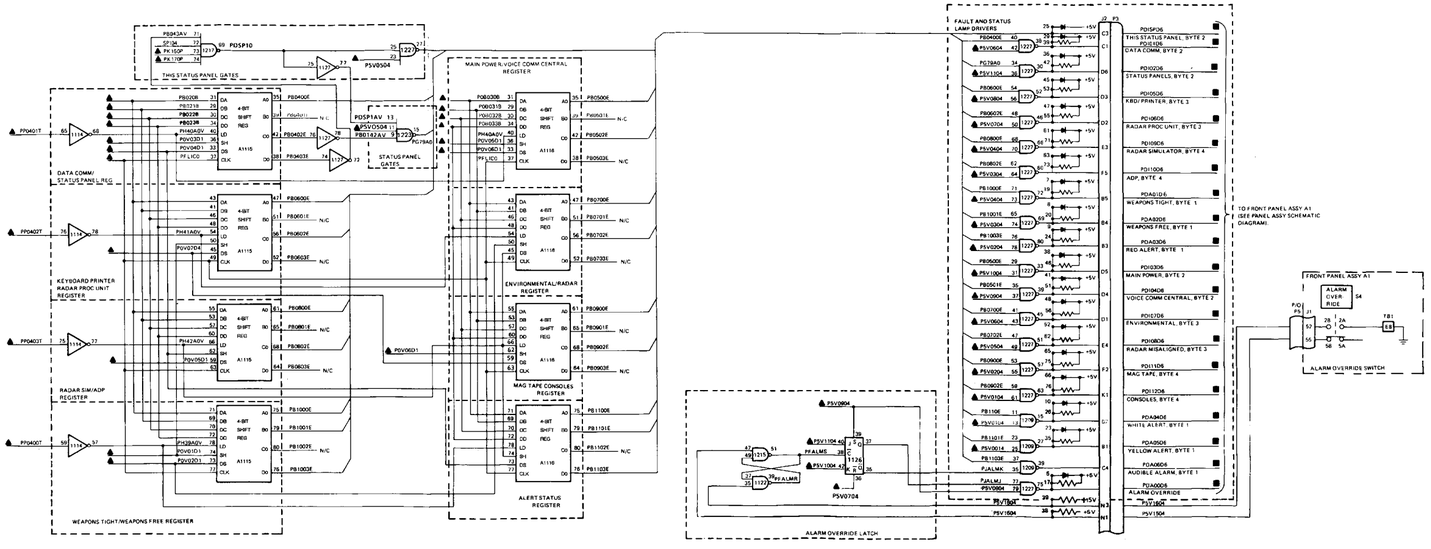
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.



FO-1. Input Register Logic Diagram (Sheet 2 of 2)

INPUTS	F/O-SH
PB020B	(J3-C1)
PB021B	(J3-B6)
PB022B	(J3-B4)
PB023B	(J3-B3)
PB030B	(J3-B1)
PB031B	(J3-A6)
PB032B	(J3-A4)
PB033B	(J3-A3)
PFL1C0	4-0
PK160P	6-0
PK160P	7-0
PK170P	7-0
PP0400T	7-0
PP0401T	7-0
PP0402T	20-0
PP0403T	20-0
P0V01D1	20-0
P0V02D1	20-0
P0V03D1	20-0
P0V04D1	20-0
P0V05D1	20-0
P0V06D1	20-0
P0V07D4	20-0
P5V0504	20-0
P5V0604	20-0
P5V0704	20-0
P5V0804	20-0
P5V0904	20-0
P5V1004	20-0
P5V1104	20-0

OUTPUTS	F/O-SH
PBA00D6	25-2
PDA01D6	25-1
PDA01D6	25-1
PDA02D6	25-1
PDA03D6	25-1
PDA04D6	25-1
PDA05D6	25-2
PDA06D6	25-1
PDI01D6	25-1
PDI02D6	25-1
PDI03D6	25-1
PDI04D6	25-1
PDI05D6	25-1
PDI06D6	25-1
PDI07D6	25-1
PDI08D6	25-1
PDI09D6	25-1
PDI10D6	25-1
PDI11D6	25-1
PDI12D6	25-1
PDISPD6	25-2



Change 1 FO-2. Fault/Status Byte Logic Diagram

NOTES: UNLESS OTHERWISE SPECIFIED

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3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

INPUT FROM ANOTHER FIGURE

INPUT FROM SAME FIGURE

OUTPUT TO ANOTHER FIGURE

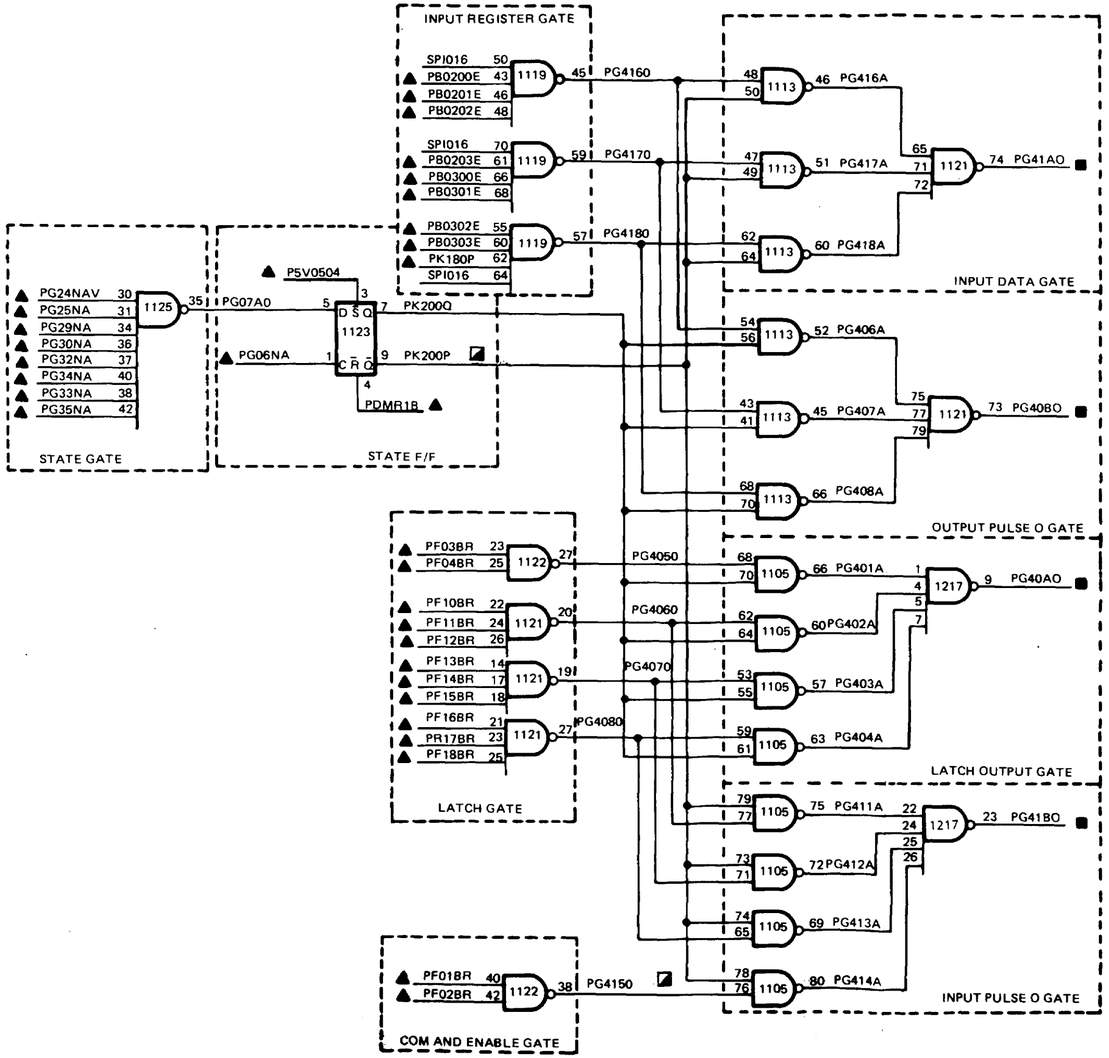
OUTPUT TO BOTH SAME AND ANOTHER FIGURE

OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

INPUTS	F/O-SH
PB0200E	1-1
PB0201E	1-1
PB0202E	1-1
PB0203E	1-1
PB0300E	1-1
PB0301E	1-1
PB0302E	1-1
PB0303E	1-1
PDMR1B	1-1
PF01BR	1-1
PF02BR	23-0
PF03BR	1-1
PF04BR	1-1
PF10BR	1-1
PF11BR	1-1
PF12BR	1-1
PF13BR	1-1
PF14BR	1-1
PF15BR	1-1
PF16BR	1-1
PF17BR	1-1
PF18BR	1-1
PG06NA	1-1
PG24NAV	4-0
PG25NA	8-1
PG29NA	8-1
PG30NA	8-1
PG32NA	8-1
PG33NA	8-1
PG34NA	8-1
PG35NA	8-1
PK180P	1-1
P5V0504	2-0

OUTPUTS	F/O-SH
PG40A0	4-0
	8-1
PG40B0	8-1
PG41A0	4-0
PG41B0	4-0
PG4150	4-0
PK200P	4-0



Change 1 FO-3. Data Detection Logic Diagram.

NOTES: UNLESS OTHERWISE SPECIFIED

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▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

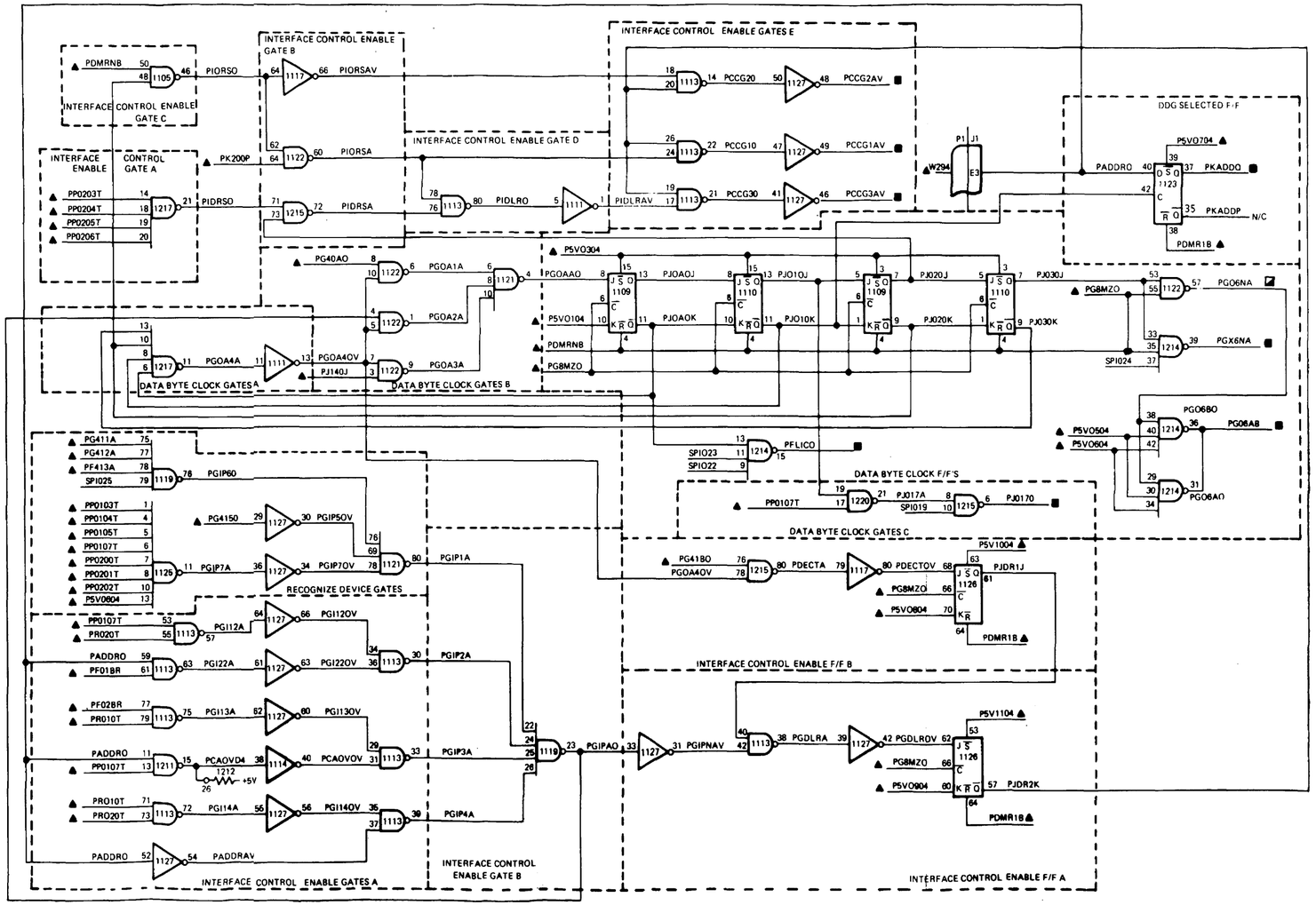
■ OUTPUT TO ANOTHER FIGURE

◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

INPUTS	F/O-SH	OUTPUTS	F/O-SH
PADDRO	1-2	PCCG1AV	1-1
		PCCG2AV	1-1
PDMRNB	23-0	PCCG3AV	1-1
PDMR1B	23-0		
		PFLICO	2-0
PF01BR	1-1		
PF02BR	1-1	PG06AB	6-0
			7-0
PG40AO	3-0		8-1
PG411A	3-0	PG06NA	3-0
PG412A	3-0		7-0
PG413A	3-0		
PG41B0	3-0	PGX6NA	7-0
PG4150	3-0		
		PJ0170	1-1
PG8MZ0	23-0		
		PKADDQ	8-1
PJ140J	7-0		
PK200P	3-0		
PP0103T	8-2		
PP0104T	8-2		
PP0105T	8-2		
PP0107T	8-2		
PP0200T	8-2		
PP0201T	8-2		
PP0202T	8-2		
PP0203T	8-2		
PP0204T	8-2		
PP0205T	8-2		
PR0206T	8-2		
PR010T	1-1		
PR020T	1-1		



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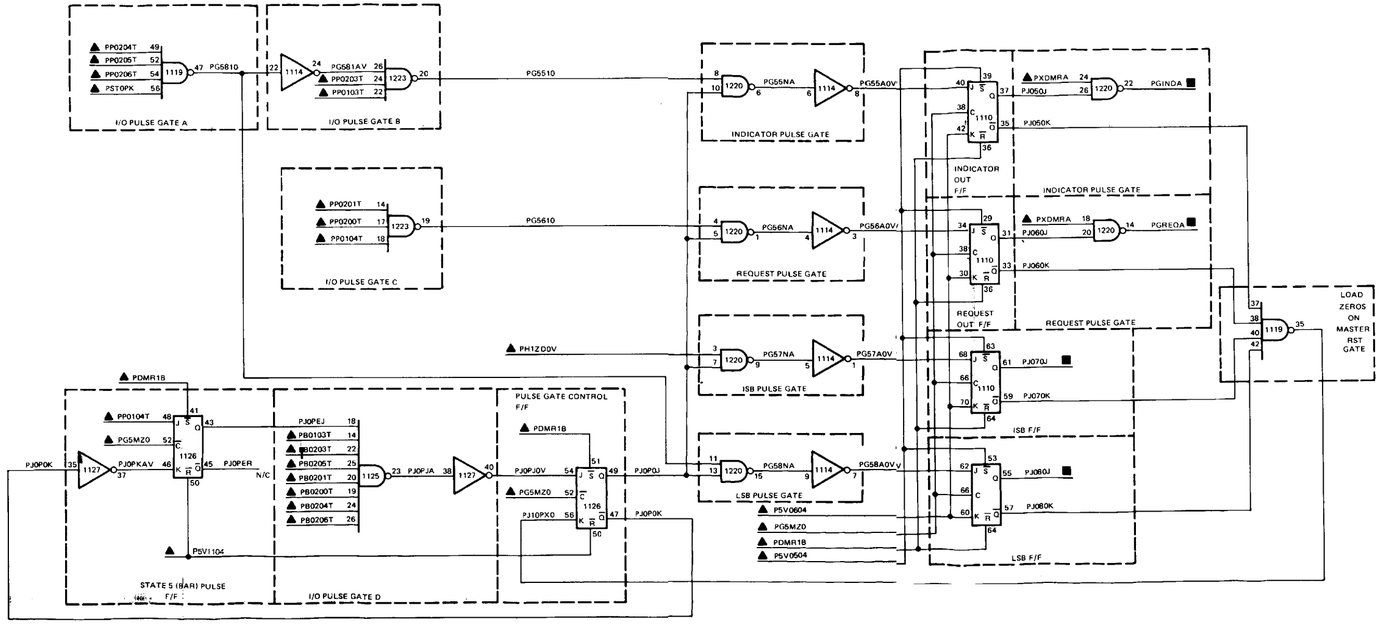
   - ▲ INPUT FROM ANOTHER FIGURE
   - △ INPUT FROM SAME FIGURE
   - ■ OUTPUT TO ANOTHER FIGURE
   - ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE
   - □ OUTPUT TO SAME FIGURE
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-4. Input Pulse Detection Logic Diagram

INPUTS	F/O-SH
PDMR1B	23-0
PG5MZ0	23-0
	7-0
PH1ZD0V	8-2
PP0103T	8-2
PP0104T	8-2
PP105T	8-2
PP200T	8-2
PP201T	8-2
PP202T	8-2
PP203T	8-2
PP204T	8-2
PP205T	8-2
PP206T	8-2
PST0PK	8-1
PXDMRA	23-0
P5V1104	23-0

OUTPUTS	F/O-SH
PGINDA	1-1
PGREQA	1-1
PJ070J	6-0
PJ080J	6-0



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3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

   △ INPUT FROM SAME FIGURE

   ■ OUTPUT TO ANOTHER FIGURE

   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

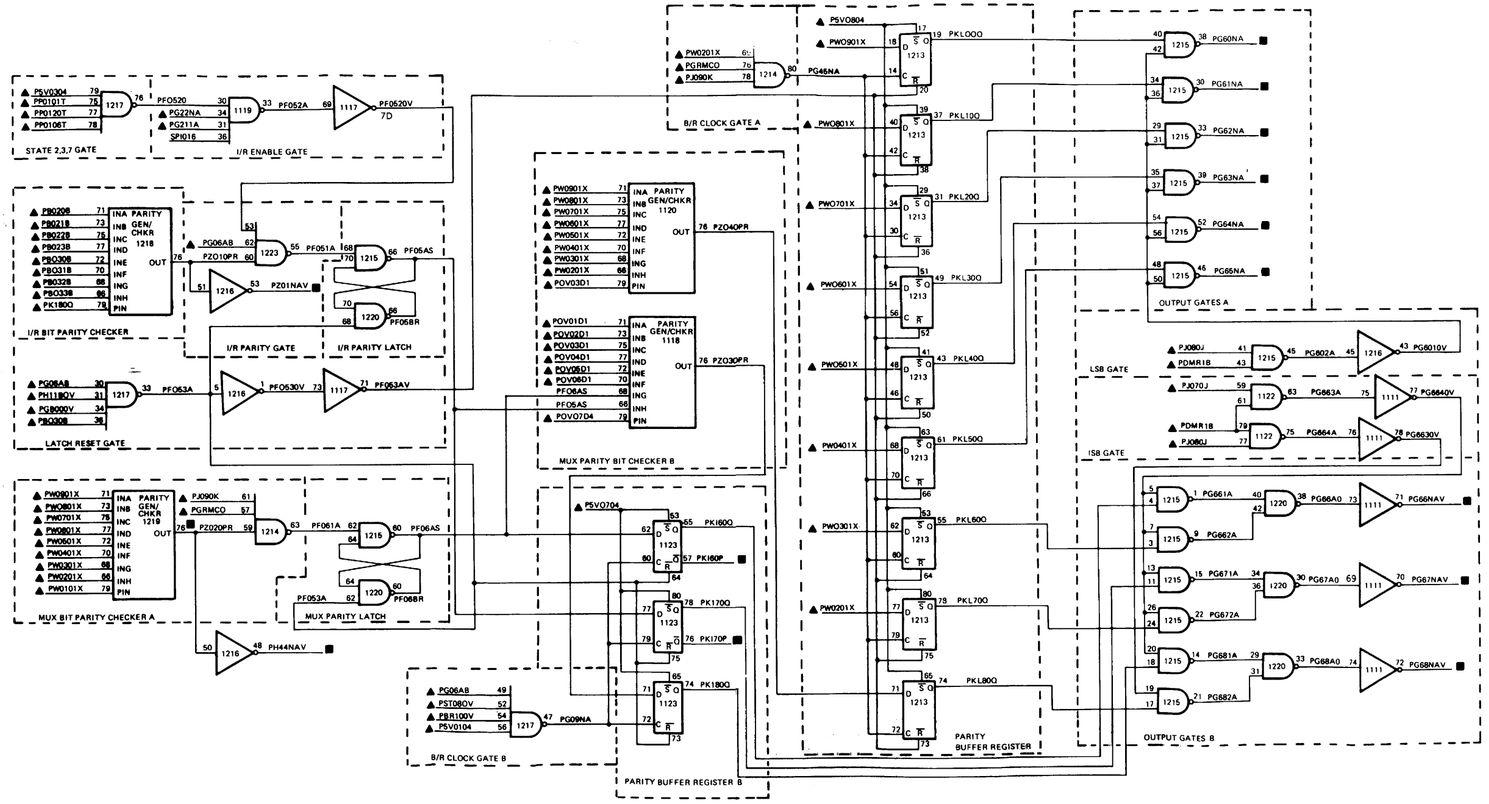
   □ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-5. Output Pulse Detection Logic Diagram.

INPUTS	F/O-SH
PBR100V	8-1
PB020B	1-1
PB021B	1-1
PB022B	1-1
PB023B	1-1
PB030B	1-1
PB031B	1-1
PB032B	1-1
PB033B	1-1
PDMR1B	23-0
PGB000V	8-1
PGRMC0	9-0
PG06AB	4-0
PG211A	8-1
PG22NA	8-1
PH11BOV	8-2
PJ070J	5-0
PJ080J	5-0
PJ090J	9-0
PK180Q	1-1
PP0101T	8-2
PP0102T	8-2
PP0106T	8-2
PST080V	8-2
PW0101X	11-0
PW0201X	11-0
PW0301X	11-0
PW0401X	11-0
PW0501X	11-0
PW0601X	11-0
PW0701X	11-0
PW0801X	11-0
PW0901X	11-0

OUTPUTS	F/O-SH
PG60NA	1-1
PG61NA	1-1
PG62NA	1-1
PG63NA	1-1
PG64NA	1-1
PG65NA	1-1
PG66NAV	1-1
PG67NAV	1-1
PG68NAV	1-1
PH44NAV	12-1
PK160P	2-0
PK170P	2-0
PZ01NAV	8-1
PZ020PR	12-0



NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

■ OUTPUT TO ANOTHER FIGURE

◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

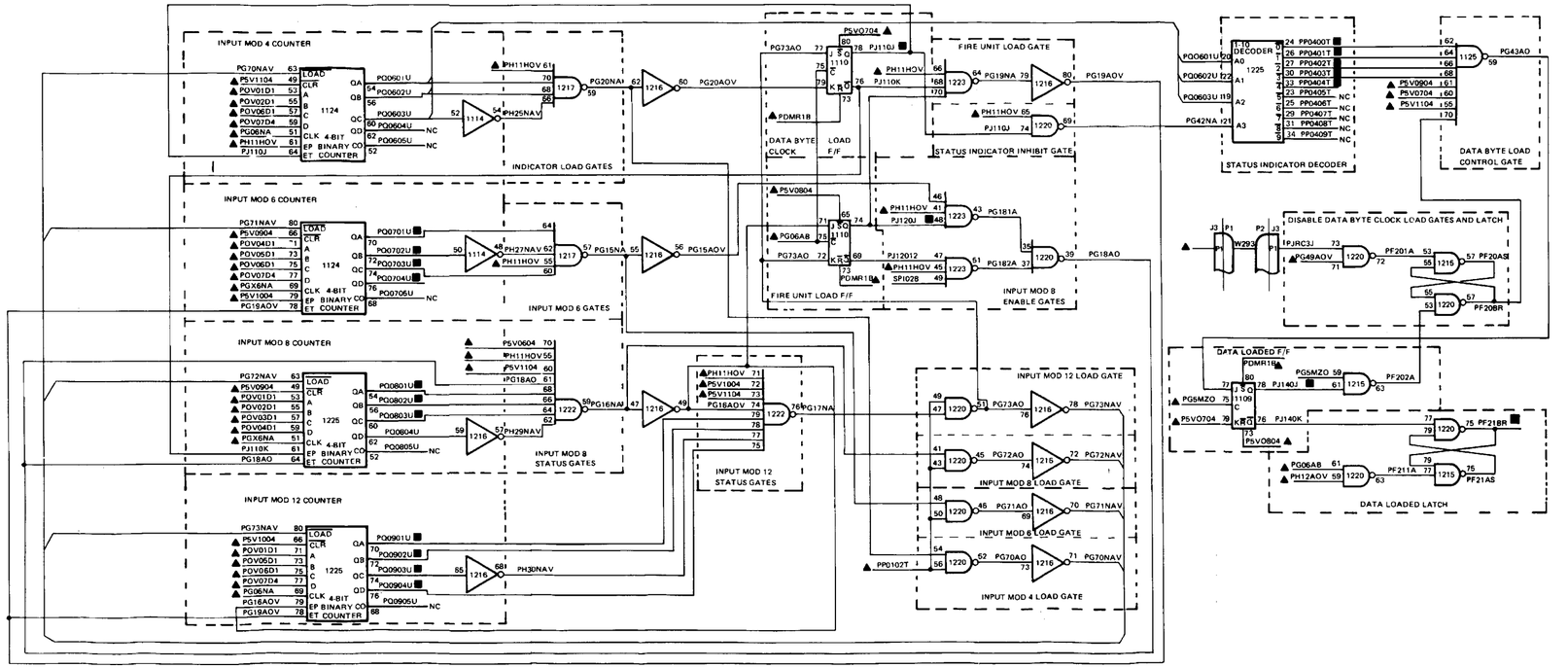
□ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-6. Parity Check/Interrupt Byte Logic Diagram

INPUTS	F/O-SH
PDMR1B	23-0
PG06AB	4-0
PG06NA	4-0
PGX6NA	4-0
PG49ZOV	9-0
PG5MZO	23-0
PH11HOV	8-2
PH12AOV	8-2
PJRC3J	7-0 (J3-P1)
POV01D1	20-0
POV02D1	20-0
POV03D1	20-0
POV04D1	20-0
POV05D1	20-0
POV06D1	20-0
POV07D4	20-0
PP0102T	8-2
P5V0604	20-0
P5V0704	20-0
P5V0804	20-0
P5V0904	20-0
P5V1004	20-0
P5V1104	20-0

OUTPUTS	F/O-SH
PF21BR	8-1
PJ110J	9-0
PJ120J	9-0
PJ140J	4-0
PP0400T	2-0
PP0401T	2-0
PP0402T	2-0
PP0403T	2-0
PQ0701U	9-0
PQ0702U	9-0
PQ0703U	9-0
PQ0704U	9-0
PQ0801U	9-0
PQ0802U	9-0
PQ0803U	9-0
PQ0901U	9-0
PQ0902U	9-0
PQ0903U	9-0
PQ0904U	9-0



NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

■ OUTPUT TO ANOTHER FIGURE

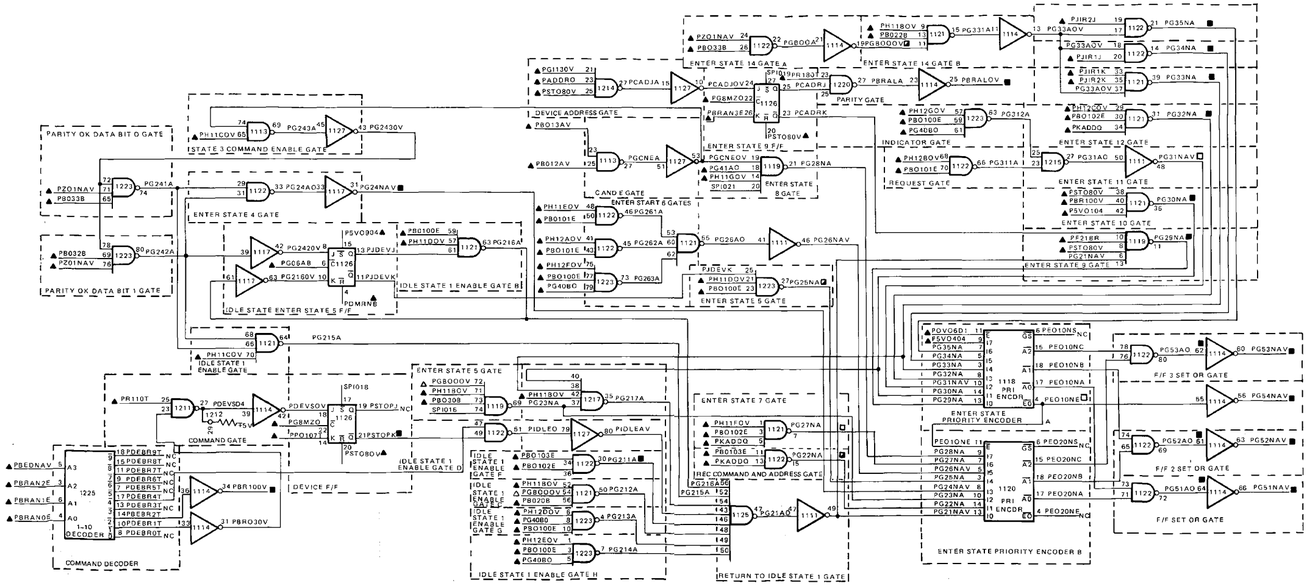
◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.
8. SPIXXX INDICATES +5V PULL UP THROUGH RESISTOR CARD A1212

Change 1 FO-7. Input Counter Logic Diagram

OUTPUTS	F/O - SH	INPUTS	F/O - SH	OUTPUTS	F/O - SH
PADDRO	4-0	PR110T	1-1	PH11BOV	6-0
		PR180T	1-1	PH11COV	
PBEDNAV	1-1			PH11DOV	
		PST080V	8-2	PH11EOV	
PBRANOE	1-1			PH11FOV	
PBRAN1E		P201NAV	6-0	PH11GOV	8-1
PBRAN2E				PH11HOV	7-0
PBRAN3E	1-1	PDMRNB	23-0		9-0
					8-1
PBO100E	1-1	PEO10NE	8-1	PH12AOV	
PBO101E				PH12BOV	
PBO102E		PG06AB	4-0	PH12COV	
PBO103E				PH12DOV	5-0
PBO12AV		PG51AO	8-1		8-1
PBO13AV	1-1			PH12EOV	
		PG51NAV	8-1	PH12FOV	
PBO20B	1-1	PG52AO		PH12GOV	8-1
PBO21B		PG52NAV			
PBO22B		PG53AO		PJ1R1J	8-1
PBO30B		PG53NAV		PJ1R2J	
PBO32B		PG54NAV	8-1	PJ1R1K	
PBO33B	1-1			PJ1R2K	8-1
		PKADDQ	4-0		
PDMRNB	23-0			PP0101T	6-0
				PP0102T	6-0
PF21BR	70	OUTPUTS	F/O - SH		7-0
				PP0103T	4-0
PB130V	4-0	PBRA10V	1-1		5-0
		PBR100V	6-0	PP0104T	4-0
PG06AB	4-0				5-0
		PEO10NE	8-2	PP0105T	4-0
PG40BO	3-0			PP0106T	6-0
PG41AO	3-0	PGB000V	6-0	PP0107T	1-0
					4-0
PG8M20	23-0	PG211A	6-0		
		PG22NA	6-0	PP0200T	4-0
PH11BOV	8-2	PG24NAV	3-0		5-0
PH11COV		PG25NA		PP0201T	4-0
PH11DOV		PG29NA			5-0
PH11EOV		PG30NA		PP0202T	4-0
PH11FOV		PG32NA		PP0203T	4-0
PH11GOV	8-2	PG33NA			5-0
		PG34NA		PP0204T	4-0
PH12AOV	8-2	PG35NA	3-0		5-0
PH12BOV				PP0205T	4-0
PH12COV		PG51AO	8-2		5-0
PH12DOV		PG51NAV		PP0206T	4-0
PH12EOV		PG52AO			5-0
PH12FOV		PG52NAV		PSTO80V	6-0
PH12GOV	8-2	PG53AO			8-1
		PG53NAV	8-2		
PJ1R1J	8-2	PG54NAV	8-2		
PJ1R1K					
PH1R2J		PSTOPK	5-0		
PJ1R2K	8-2				
PKADDQ	4-0				
PP0107T	8-2				



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FO-8. State Gate Tree Logic Diagram (Sheet 1 of 2)

NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

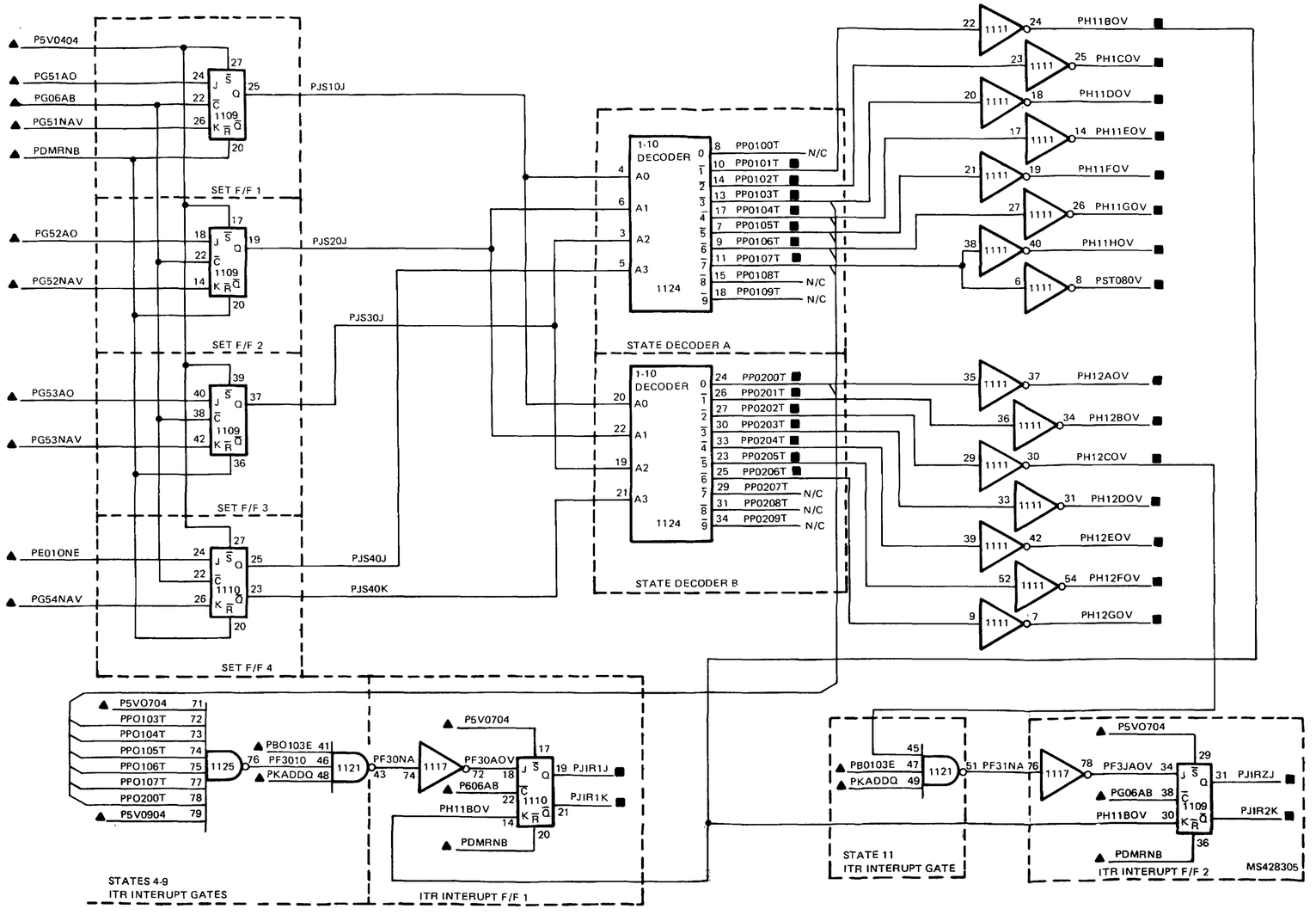
   ▲ INPUT FROM SAME FIGURE

   △ OUTPUT TO ANOTHER FIGURE

   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

   □ OUTPUT TO SAME FIGURE

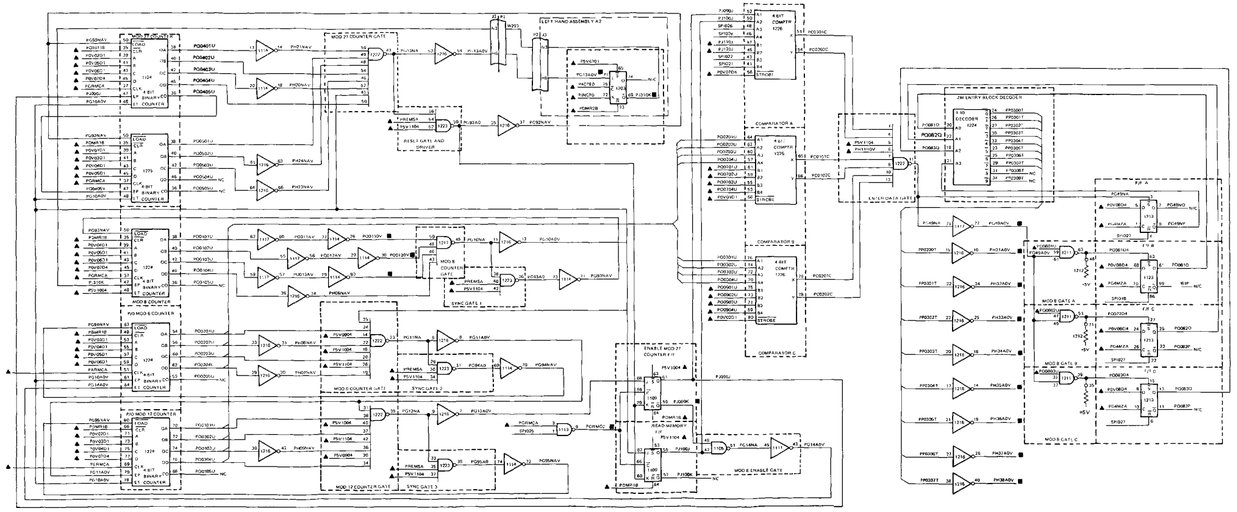
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.



FO-8. State Gate Tree Logic Diagram (Sheet 2 of 2)

INPUTS	F/O - SH
PARMCA	23-0
PDMR1B	23-0
PDMR2B	24-0
PERMCA	23-0
PGRMCA	23-0
PG4M2A	23-0
PH11H0V	8-2
PINCO0	19-1
PJ110J	7-0
PJ120J	7-0
PQ0701U	7-0
PQ0702U	
PQ0703U	
PQ0704U	
PQ0801U	
PQ0802U	
PQ0803U	
PQ0901U	
PQ0902U	
PQ0903U	
PQ0904U	7-0
PREMSA	19-1

OUTPUTS	F/O - SH
PGRMC0	6-0
PG13A0V	19-1
PG49A0V	7-0
PH31A0V	10-0
PH32A0V	
PH33A0V	
PH34A0V	
PH35A0V	
PH36Z0V	
PH37A0V	
PH38A0V	10-0
PJ090K	6-0
PJ310K	23-0
PQ0110V	11-0
PQ023PV	11-0
PQ013PV	11-0



FO-9. Memory Entry Logic Diagram

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

   △ INPUT FROM SAME FIGURE

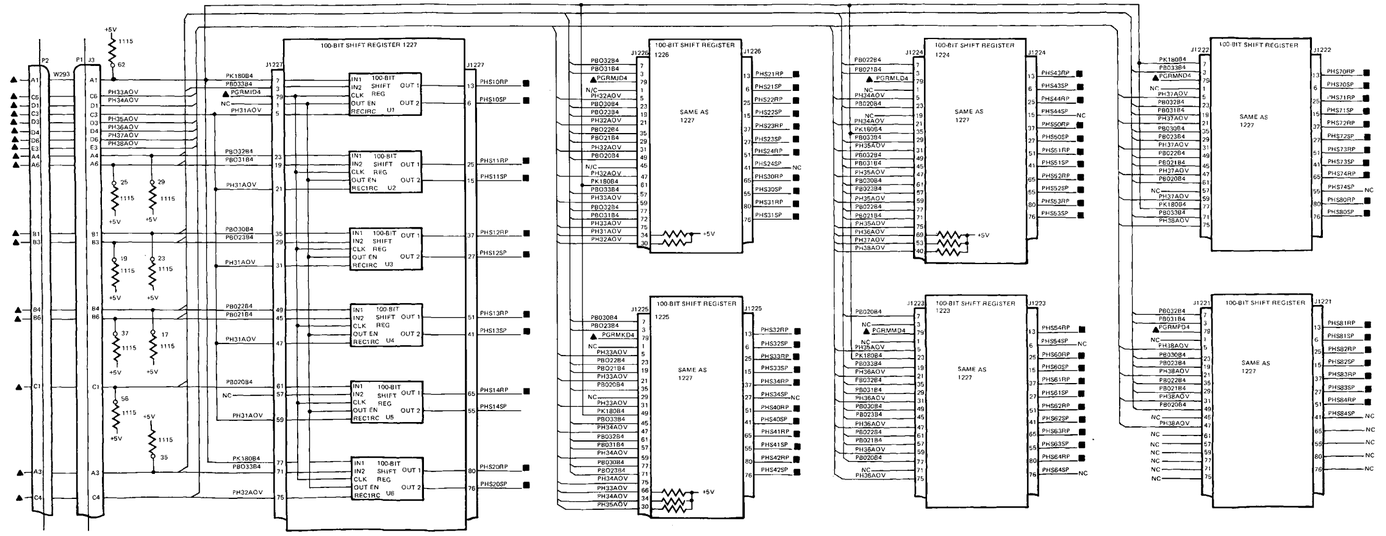
   ■ OUTPUT TO ANOTHER FIGURE

   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

   □ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.
8. SPIXXX INDICATES +5V PULL UP THROUGH RESISTOR CARD A1212.

INPUTS	F/O - SH	OUTPUTS	F/O - SH	OUTPUTS	F/O - SH
PB020B4	1-0	PHS10RP	11-0	PHS44RP	11-0
PB021B4		PHS10SP		PHS50RP	
PB022B4		PHS11RP		PHS50SP	
PB023B4		PHS11SP		PHS51RP	
PB030BR		PHS12RP		PHS51SP	
PB031BR		PHS12SP		PHS52RP	
PB032B4		PHS13RP		PHS52SP	
PB033B4	1-0	PHS13SP		PHS53RP	
		PHS14RP		PHS53SP	
PGRMID4	23-0	PHS20RP		PHS54RP	
PGRMJD4		PHS20SP		PHS60RP	
PGRMKD4		PHS21RP		PHS60SP	
PGRMLD4		PHS21SP		PHS61RP	
PGRMMD4		PHS22RP		PHS61SP	
PGRMND4		PHS22SP		PHS62RP	
PGRMPD4	24-0	PHS23RP		PHS62SP	
		PHS23SP		PHS63RP	
PH31AOV	9-0	PHS24RP		PHS64RP	
PH32AOV		PHS30RP		PHS70RP	
PH33AOV		PHS30SP		PHS70SP	
PH34AOV		PHS31RP		PHS71RP	
PH35AOV		PHS31SP		PHS71SP	
PH36AOV		PHS32RP		PHS72RP	
PH37AOV		PHS32SP		PHS72RP	
PH38AOV	9-0	PHS33RP		PHS73RP	
		PHS33SP		PHS73SP	
PK180B4	1-1	PHS33RP		PHS74RP	
		PHS40RP		PHS80RP	
		PHS40SP		PHS80SP	
		PHS41RP		PHS81RP	
		PHS41SP		PHS81SP	
		PHS42RP		PHS82RP	
		PHS42SP		PHS82SP	
		PHS43RP		PHS83RP	
		PHS43SP	11-0	PHS83SP	
				PHS84RP	11-0



FO-10. Memory Storage Logic Diagram.

NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

   △ INPUT FROM SAME FIGURE

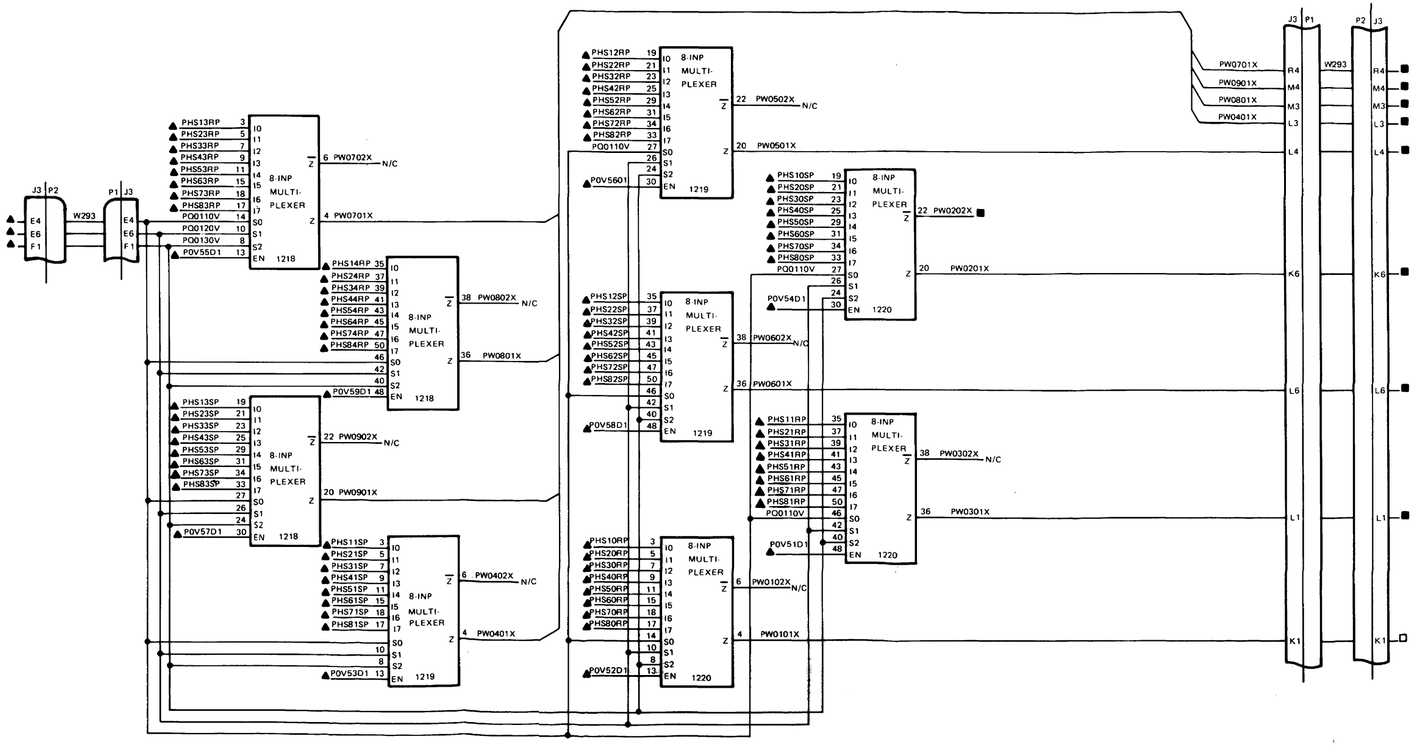
   ■ OUTPUT TO ANOTHER FIGURE

   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

   □ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
6. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

INPUTS	F/O - SH	INPUTS	F/O - SH	INPUTS	F/O - SH
PHS10RP	10-0	PHS50RP	10-0	PH44NAV	12-0
PHS10SP	10-0	PHS50SP	10-0	PQ0110V	9-0
PHS11RP	10-0	PHS51RP	10-0	PQ0120V	9-0
PHS11SP	10-0	PHS51SP	10-0	PQ0130V	9-0
PHS12RP	10-0	PHS52RP	10-0	P0V52D1	20-0
PHS12SP	10-0	PHS52SP	10-0	P0V53D1	20-0
PHS13RP	10-0	PHS53RP	10-0	P0V54D1	20-0
PHS13SP	10-0	PHS53SP	10-0	P0V55D1	20-0
PHS14RP	10-0	PHS54RP	10-0	P0V56D1	20-0
PHS20RP	10-0	PHS60RP	10-0	P0V57D1	20-0
PHS20SP	10-0	PHS60SP	10-0	P0V58D1	20-0
PHS21RP	10-0	PHS61RP	10-0	P0V59D1	20-0
PHS21SP	10-0	PHS61SP	10-0		
PHS22RP	10-0	PHS62RP	10-0	OUTPUTS	F/O - SH
PHS22SP	10-0	PHS62SP	10-0		
PHS23RP	10-0	PHS63RP	10-0	PW0201X	12-0
PHS23SP	10-0	PHS63SP	10-0	PW0202X	12-0
PHS24RP	10-0	PHS64RP	10-0	PW0301X	12-0
PHS30RP	10-0	PHS70RP	10-0	PW0401X	12-0
PHS30SP	10-0	PHS70SP	10-0	PW0501X	12-0
PHS31RP	10-0	PHS71RP	10-0	PW0601X	12-0
PHS31SP	10-0	PHS71SP	10-0	PW0701X	12-0
PHS32RP	10-0	PHS72RP	10-0	PW0801X	12-0
PHS32SP	10-0	PHS72SP	10-0	PW0901X	12-0
PHS33RP	10-0	PHS73RP	10-0		
PHS33SP	10-0	PHS73SP	10-0		
PHS34RP	10-0	PHS74RP	10-0		
PHS40RP	10-0	PHS80RP	10-0		
PHS40SP	10-0	PHS80SP	10-0		
PHS41RP	10-0	PHS81RP	10-0		
PHS41SP	10-0	PHS81SP	10-0		
PHS42RP	10-0	PHS82RP	10-0		
PHS42SP	10-0	PHS82SP	10-0		
PHS43RP	10-0	PHS83RP	10-0		
PHS43SP	10-0	PHS83SP	10-0		
PHS44RP	10-0	PHS84RP	10-0		



NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

■ OUTPUT TO ANOTHER FIGURE

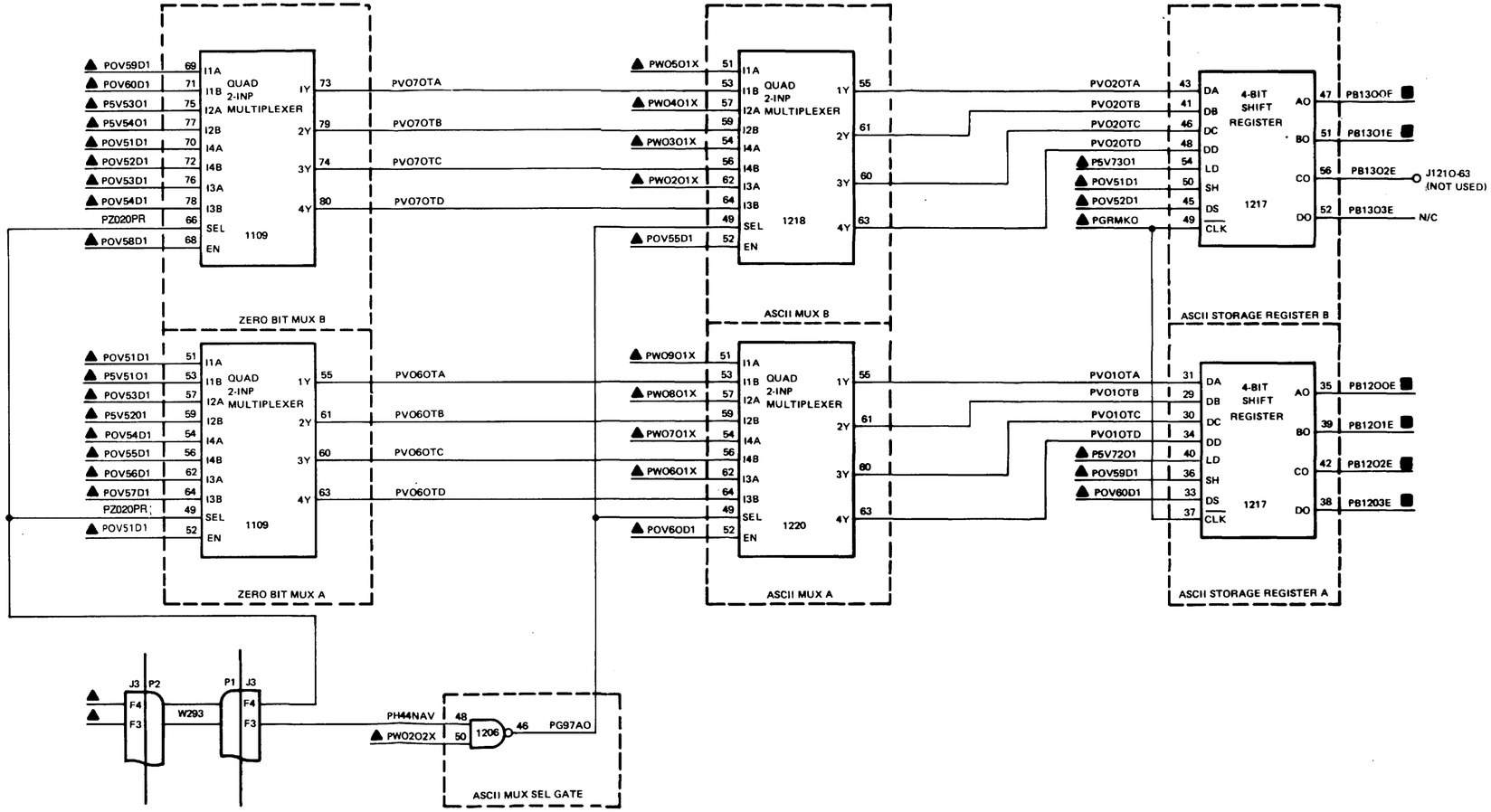
◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-11. Memory 8-Way Multiplexer Logic Diagram

INPUTS	F/O - SH	OUTPUTS	F/O - SH
PGRMK0	23-0	PB1200E	13-0
PH44NAV	6-0	PB1201E	13-0
PW0201X	11-0	PB1202E	13-0
PW0202X	11-0	PB1203E	13-0
PW0302X	11-0	PB1300E	13-0
PW0401X	11-0	PB1301E	13-0
PW0501X	11-0	PH44NAV	11-0
PW0601X	11-0		
PW0701X	11-0		
PW0801X	11-0		
PW0901X	11-0		
P0V51D1	20-0		
P0V60D1	20-0		
P202PR	6-0		



NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON LEFT HAND CARD CAGE A2. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

■ OUTPUT TO ANOTHER FIGURE

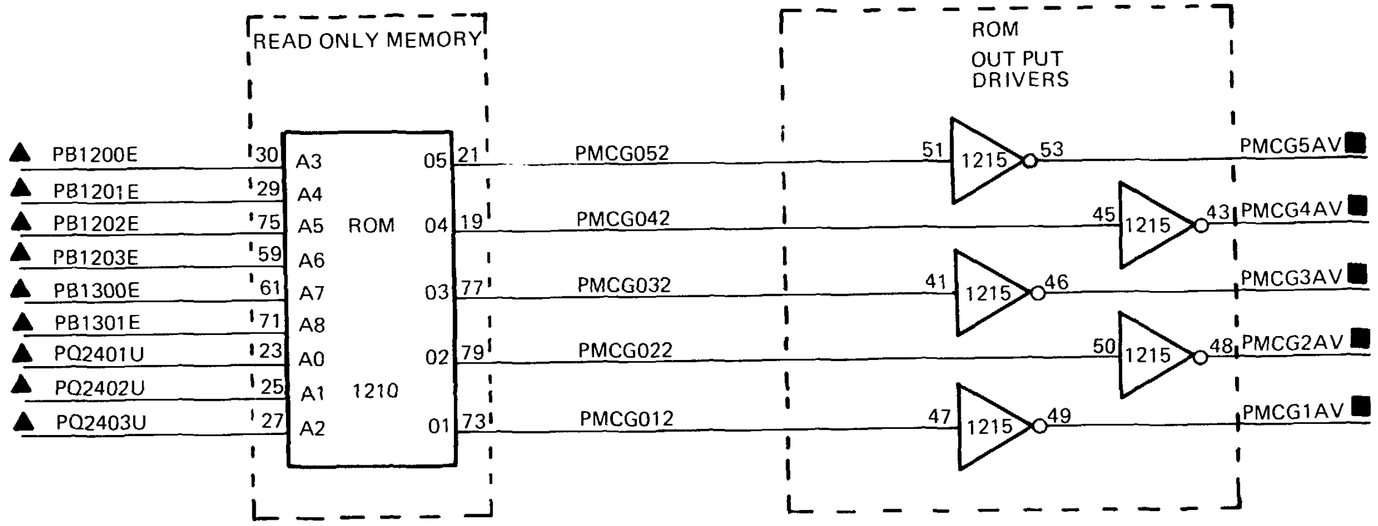
◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-12. Memory Output Multiplexer Logic Diagram.

INPUTS	F/O - SH	OUTPUTS	F/O - SH
PB1200E	12-0	PMCG1AV	17-0
PB1202E			18-0
PB1202E		PMCG2AV	17-0
PB1203E			18-0
PB1300E		PMCG3AV	17-0
PB1301E	12-0		18-0
		PMCG4AV	17-0
PQ2401U	19-1		
PQ2402U			18-0
		PMCG5AV	17-0
PQ2403U	19-1		
			18-0

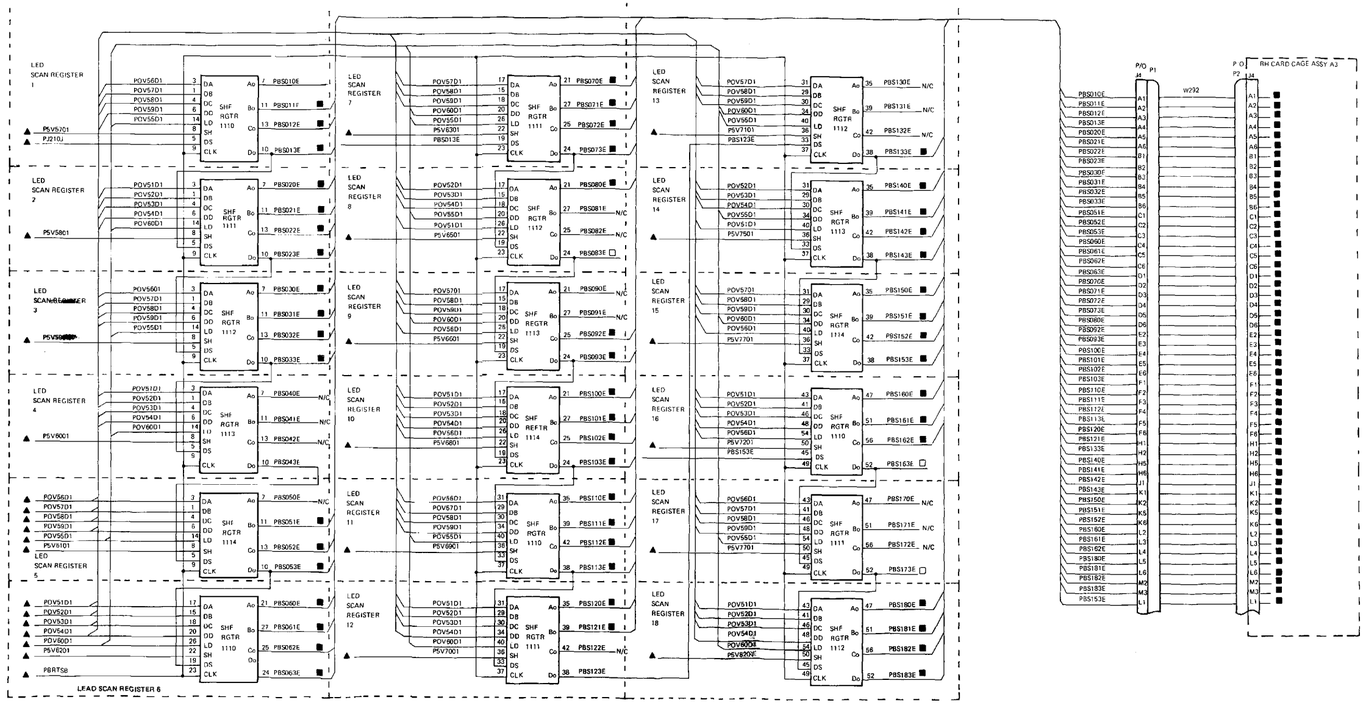


FO-13. Display Character Generator Logic Diagram

NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON LEFT HAND CARD CAGE A2. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:
   - ▲ INPUT FROM ANOTHER FIGURE
   - △ INPUT FROM SAME FIGURE
   - ■ OUTPUT TO ANOTHER FIGURE
   - ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE
   - □ OUTPUT TO SAME FIGURE
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS

INPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH
PBRTSB	16-0	PBS010E	18-0	PBS072E	21-5	PBS152E	21-4	PBS233E	21-4
			21-1		22-5		22-4		22-4
PJ210J	16-0		22-1	PBS073E	21-6	PBS153E	21-5	PBS240E	21-4
		PBS011E	21-1		22-6		22-5		22-4
PBS183E	14-1		22-1	PBS080E	21-6	PBS160E	21-5	PBS241E	21-5
		PBS012E	21-2		22-6		22-5		22-5
			22-2	PBS092E	18-0	PBS161E	21-6	PBS242E	21-5
					21-1		22-6		22-5
		PBS013E	21-2		22-1	PBS162E	21-6	PBS243E	21-6
			22-2	PBS093E	21-1		22-6		22-6
		PBS020E	21-3		22-1	PBS180E	18-0	PBS250	21-6
			22-3	PBS100E	21-2		21-1		22-6
		PBS021E	21-3		22-2		22-1	PBS262	18-0
			22-3	PBS101E	21-1	PBS181E	21-1		21-1
		PBS022E	21-4		22-2		22-1		22-1
			22-4	PBS102E	21-3	PBS182E	21-2	PSB263E	21-1
		PBS023E	21-4		22-3		22-2		22-1
			22-4	PBS103E	21-3	PBS183E	21-2	PBS270E	21-2
		PBS030E	21-5		22-3		22-2		22-2
			22-5	PBS110E	21-4	PBS190E	21-3	PBS271E	21-2
		PBS031E	21-5		22-4		22-3		22-2
			22-5	PBS111E	21-4	PBS181E	21-3	PBS272E	21-3
		PBS032E	21-6		22-4		22-3		22-3
			22-6	PBS112E	21-5	PBS192E	21-4	PBS273E	21-3
		PBS033E	21-6		22-5		22-4		22-3
			22-6	PBS113E	21-5	PBS193E	21-4	PBS280E	21-4
		PBS051E	18-0		22-5		22-4		22-4
			21-1	PBS120E	21-6	PBS200E	21-5	PBS281E	21-4
			22-1		22-6		22-5		22-4
		PBS052E	21-1	PBS121E	21-6	PBS201E	21-5	PBS282E	21-5
			22-1		22-6		22-5		22-5
		PBS053E	21-2	PBS133E	18-0	PBS202E	21-6	PBS283E	21-5
			22-2		21-1		22-6		22-5
		PBS060E	21-2		22-1	PBS203E	21-6	PBS290E	21-6
			22-2	PBS140E	21-1		22-6		22-6
		PBS061E	21-3		22-1	PBS222E	21-1	PBS291E	21-6
			22-3	PBS141E	21-2		22-1		22-6
		PBS062E	21-3		22-2	PBS223E	21-2		
			22-3	PBS142E	21-2		22-2		
		PBS063E	21-4		22-2	PBS230E	21-2		
			22-4	PBS143E	21-3		22-2		
		PBS070E	21-4		22-3	PBS231E	21-3		
			22-4	PBS150E	21-3		22-3		
		PBS071E	21-5		22-3	PBS232E	21-3		
			22-5	PBS151E	21-4		22-3		
					22-4				



NOTES: UNLESS OTHERWISE SPECIFIED

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2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON LEFT HAND CARD CAGE A2. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

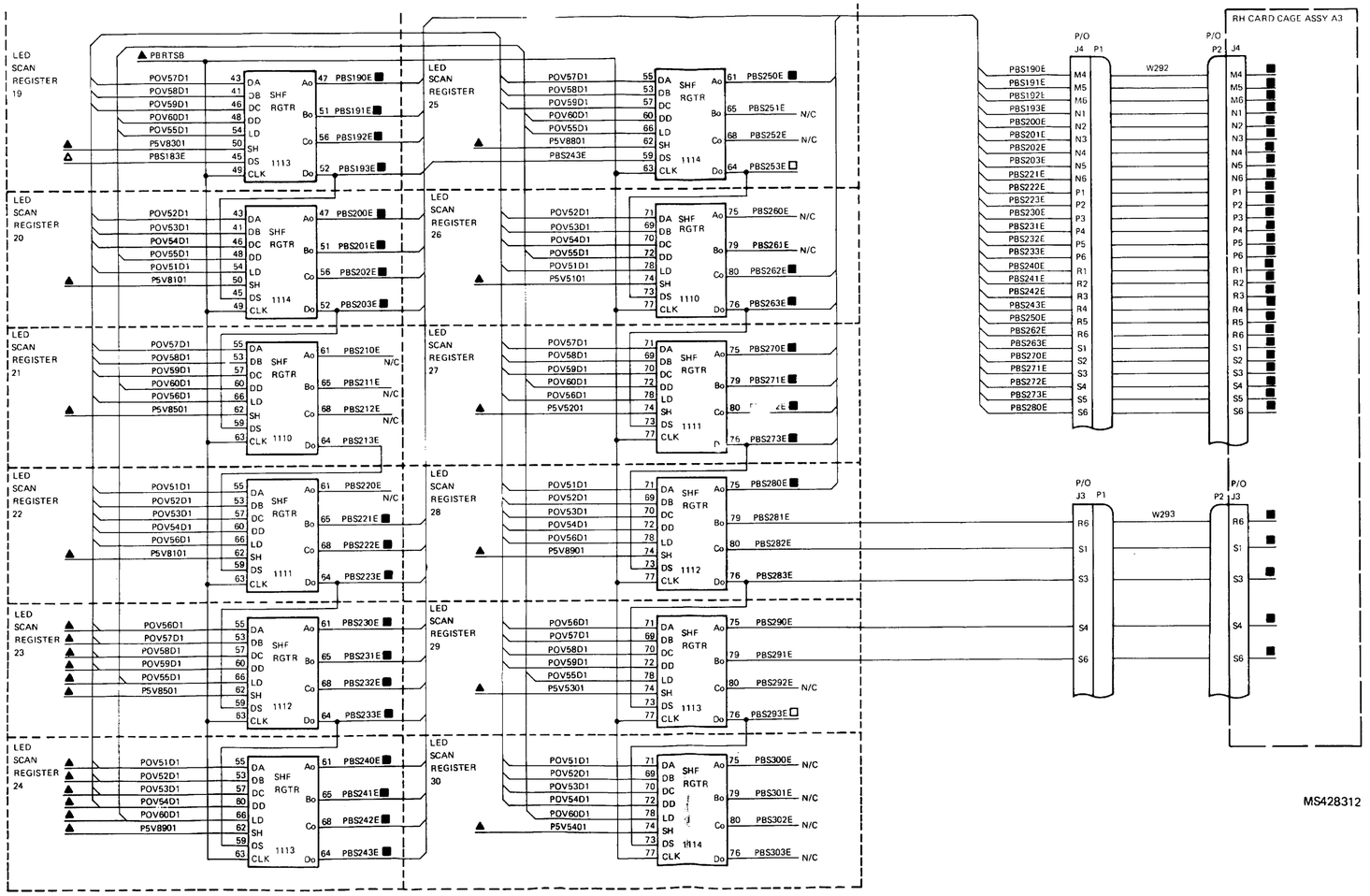
■ OUTPUT TO ANOTHER FIGURE

◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

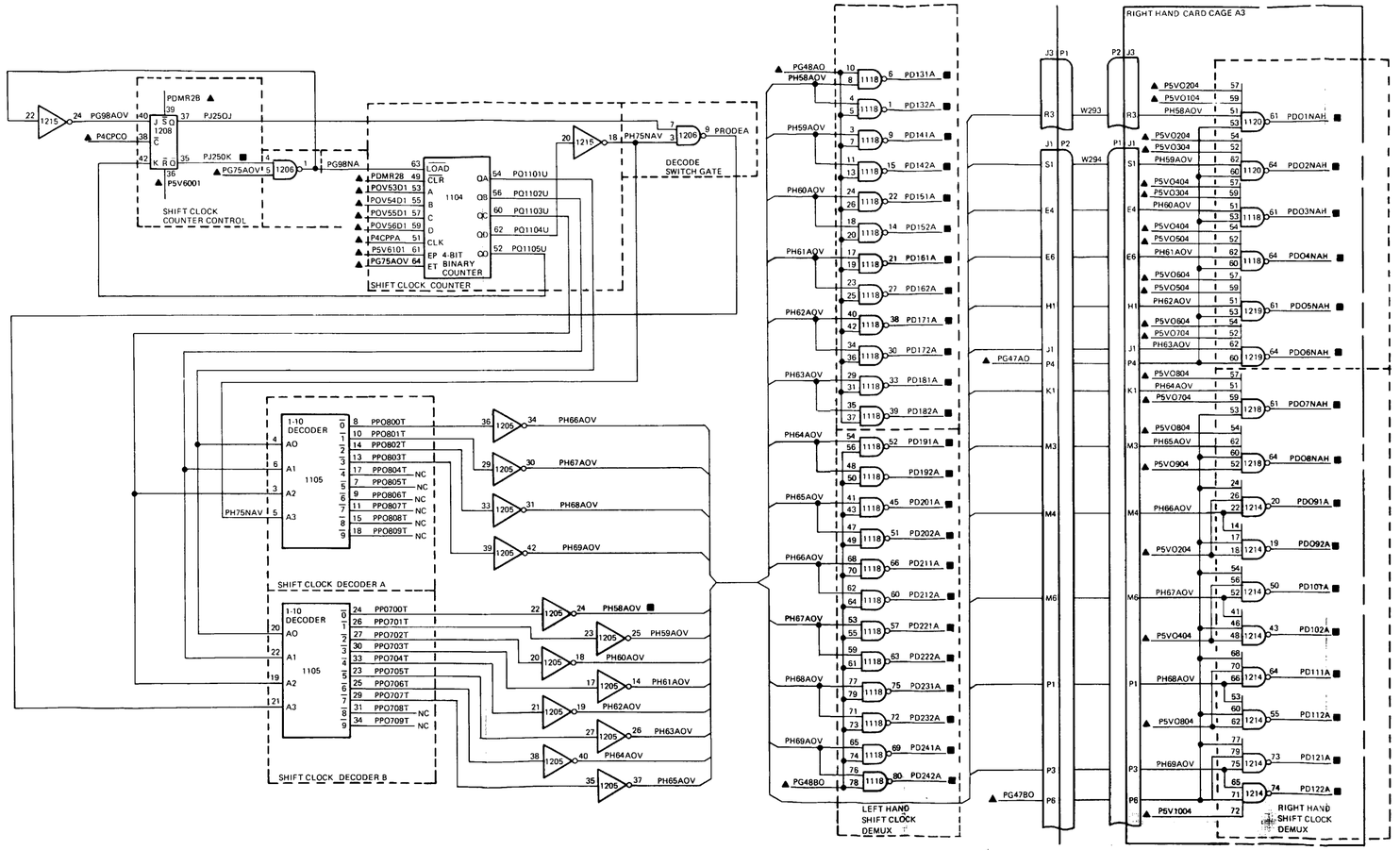
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS

FO-14. Display Scan Register Logic Diagram (Sheet 1 of 2)



FO-14. Display Scan Register Logic Diagram (Sheet 2 of 2)

INPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH
PDMR2B	23-0	PDO1NAH	22-1	PD152A	21-2
		PDO2NAH	22-1	PD161A	
PG47AO	19-2			PD162A	21-2
PG47BO		PDO3NAH	22-2		
PG48AO		PDO4NAH	22-2	PD171A	21-3
PG48BO	19-2			PD172A	
		PDO5NAH	22-3	PD181A	
PG75AOV	19-1	PDO6NAH	22-3	PD182A	21-3
P4CPCO	23-0	PDO7NAH	22-4	PD191A	21-4
P4CPPA	23-0	PDO8NAH	22-4	PD192A	
				PD201A	
		PDO91A	22-5	PD202A	
		PDO92A		PD211A	
		PD101A		PD212A	
		PD102A	22-5	PD221A	
				PD222A	21-4
		PD111A	22-6		
		PD112A		PD231A	21-6
		PD121A		PD232A	
		PD122A	22-6	PD241A	
				PD242A	21-6
		PD131A	21-1		
		PD132A		PD58AOV	16
		PD141A			
		PD142A	21-1	PJ250K	19-1
					19-2
		PD151A	21-2		



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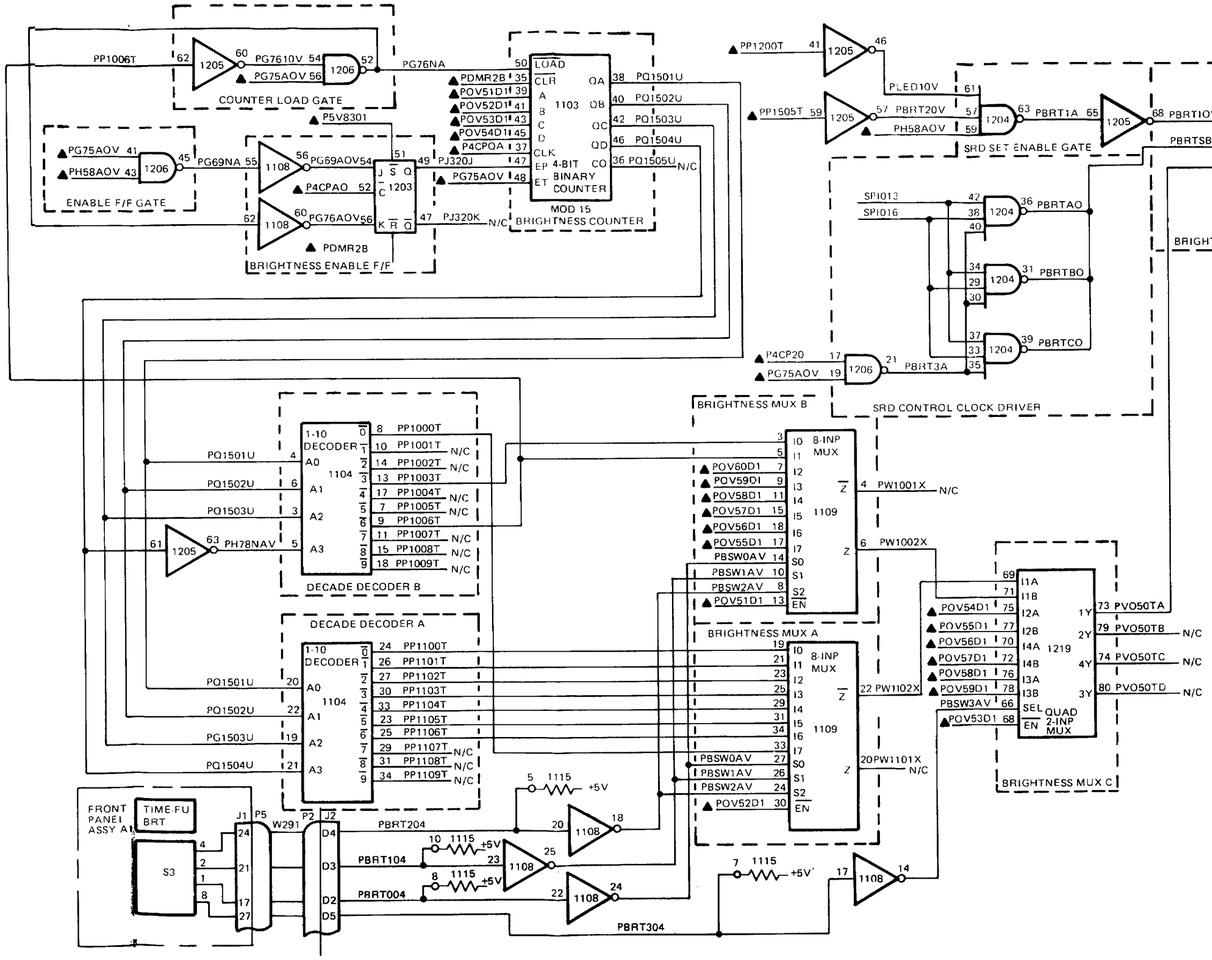
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS
8. SPIXX INDICATES ±5V PULL UP THROUGH RESISTOR CARD A1212.

FO-15. Clock Demultiplexer Logic Diagram

INPUTS	F/O-SH	OUTPUTS	F/O-SH
PDMR2B	23-0	PJ210J	14-1
PG75AOV	19-1		
PH58AOV	15-0		
PP1200T	19-1		
PP1505T	19-1		
P4CPAO	23-0		
P4CPQA			
P4CP20	23-0		



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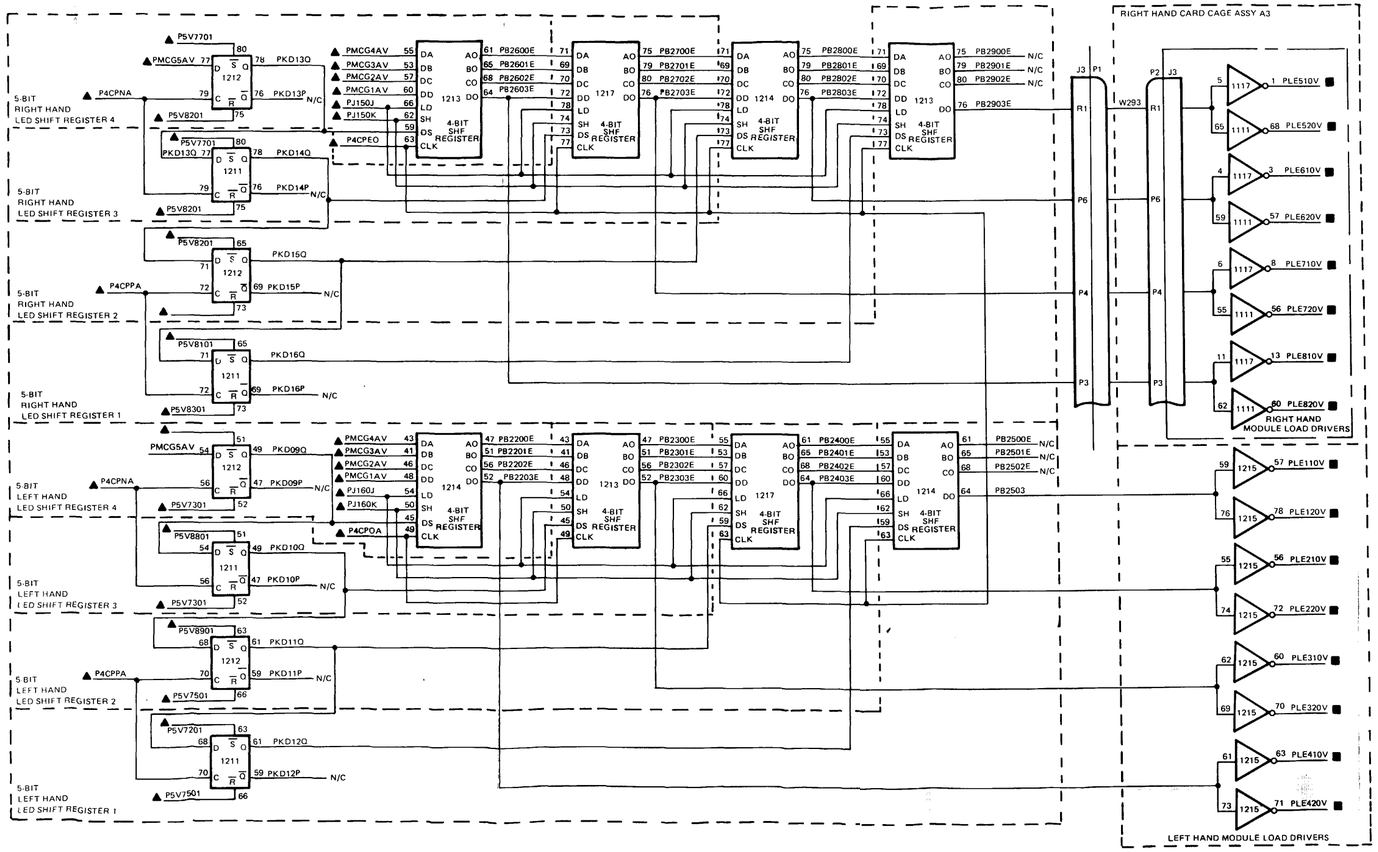
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS
8. SPIXXX INDICATED °TV PULL UP THROUGH RESISTOR CARD A1212.

FO-16. Display Brightness Control Logic Diagram

INPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH
PJ150J	19-2	PLE110V	21-4	PLE510V	22-1
PJ150K			21-5		22-2
PPJ160J			21-6		22-3
PJ160K	19-2	PLE120V	21-1	PLE520V	22-4
			21-2		22-5
PMCG1AV	13-0		21-3		22-6
PMCG2AV		PLE210V	21-4	PLE610V	22-1
PMCG3AV			21-5		22-2
PMCG4AV			21-6		22-3
PMCG5AV	13-0	PLE220V	21-1	PLE620V	22-4
			21-2		22-5
P4CPAO	23-0		21-3		22-6
P4CPEO		PLE310V	21-4	PLE710V	22-1
P4CPNA			21-4		22-2
P4CPPA	23-0		21-6		22-3
		PLE320V	21-1	PLE720V	22-4
P5V7201	20-0		21-2		22-5
P5V7301			21-3		22-6
P5V7501		PLE410V	21-4	PLE810V	22-1
P5V7701			21-5		22-2
P5V8101			21-6		22-3
P5V8201		PLE420V	21-1	PLE820V	22-4
P5V8301			21-2		22-5
P5V8801			21-3		22-6
P5V8901	20-0				



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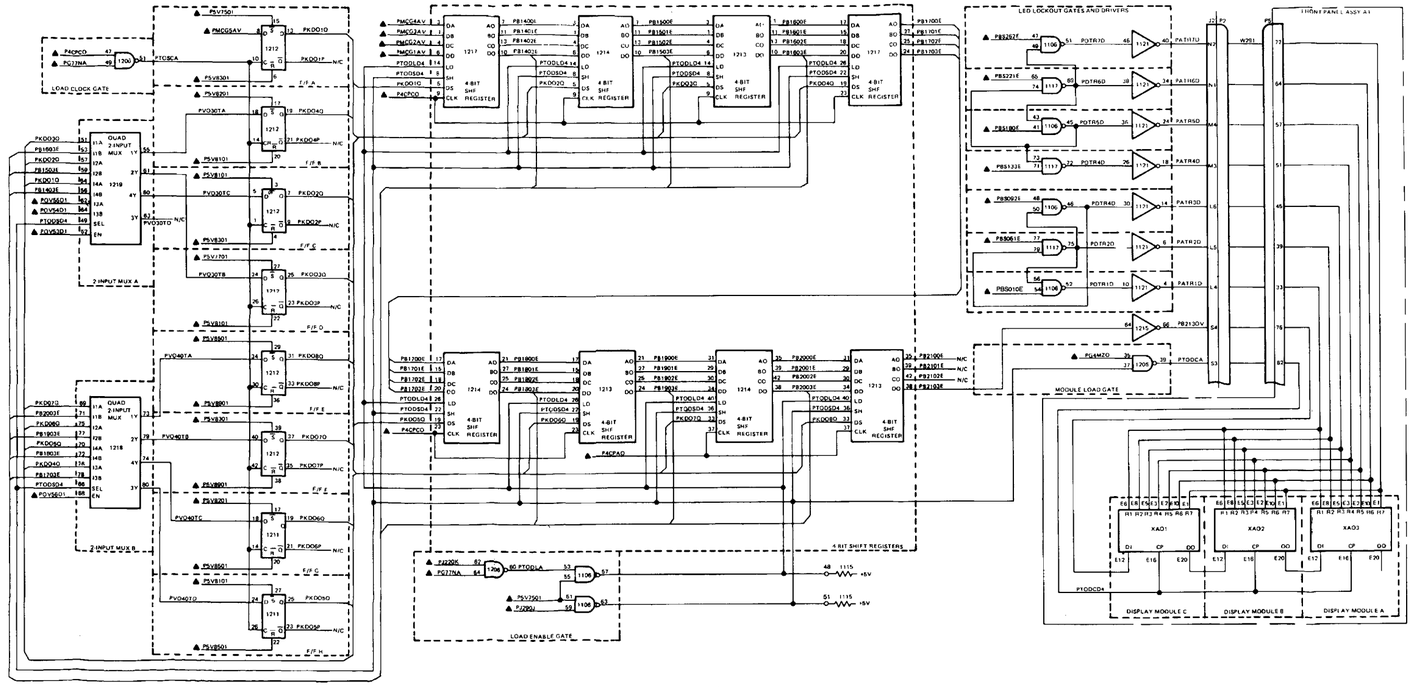
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS

FO-17. FU Readout Registers/Data Drivers Logic Diagram.

INPUTS	F/O-SH	OUTPUTS	F/O-SH
PBS010E	14-1	(NONE)	
PBS051E	14-1		
PBS092E	14-1		
PBS133E	14-1		
PBS180E	14-1		
PBS221E	14-2		
PBS262E	14-2		
PG4MZ0	23-0		
PG77NA	19-2		
PJ220K	19-2		
PJ290J	19-2		
PMCG1AV	13-0		
PMCG2AV	13-0		
PMCG3AV	13-0		
PMCG4AV	13-0		
PMCG5AV	13-0		
POV53D1	20-0		
POV54D1	20-0		
POV55D1	20-0		
POV56D1	20-0		
P4CPA0	23-0		
P4CPC0	23-0		
P5V7501	20-0		
P5V7701	20-0		
P5V8101	20-0		
P5V8201	20-0		
P5V8301	20-0		
P5V8501	20-0		
P5V8901	20-0		



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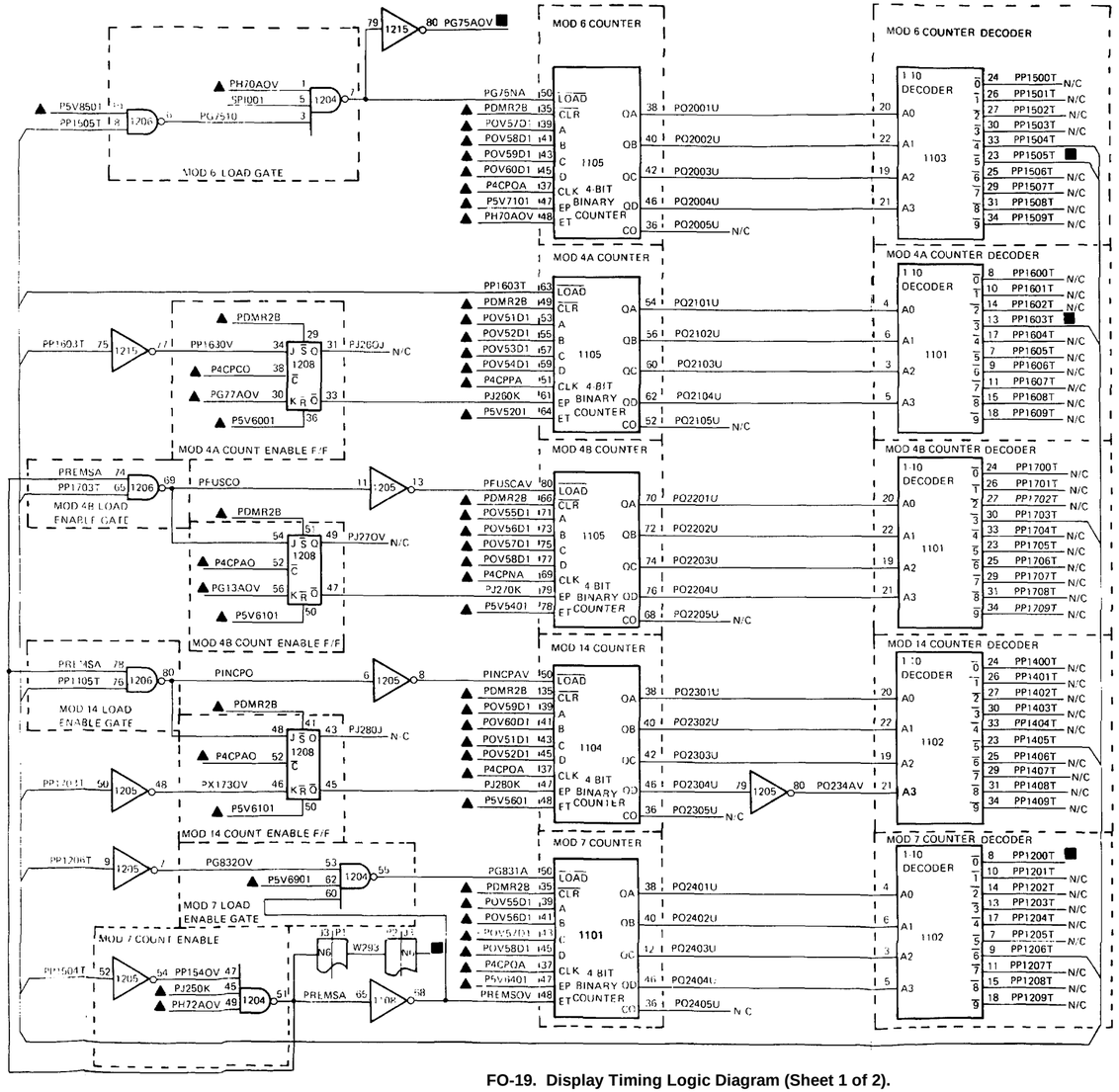
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

Change 1 FO-18. Time of Day Logic Diagram

INPUTS	F/O-SH	OUTPUTS	F/O-SH
PDMR2B	23-0	PG47A0	15-0
		PG47B0	
PJ250K	15-0	PG48A0	
		PG48B0	15-0
PP1540V	19-1	PH72AOV	19-1
PP1603T	19-1		
		PJ150J	17-0
P4CPB0	23-0	PJ160J	17-0
P4CPE0		PJ290J	18-0
P4CPNA			
P4CPPA		PP0900T	23-0
P4CPQA	23-0		



FO-19. Display Timing Logic Diagram (Sheet 1 of 2).

NOTES: UNLESS OTHERWISE SPECIFIED

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   △ INPUT FROM SAME FIGURE

   ■ OUTPUT TO ANOTHER FIGURE

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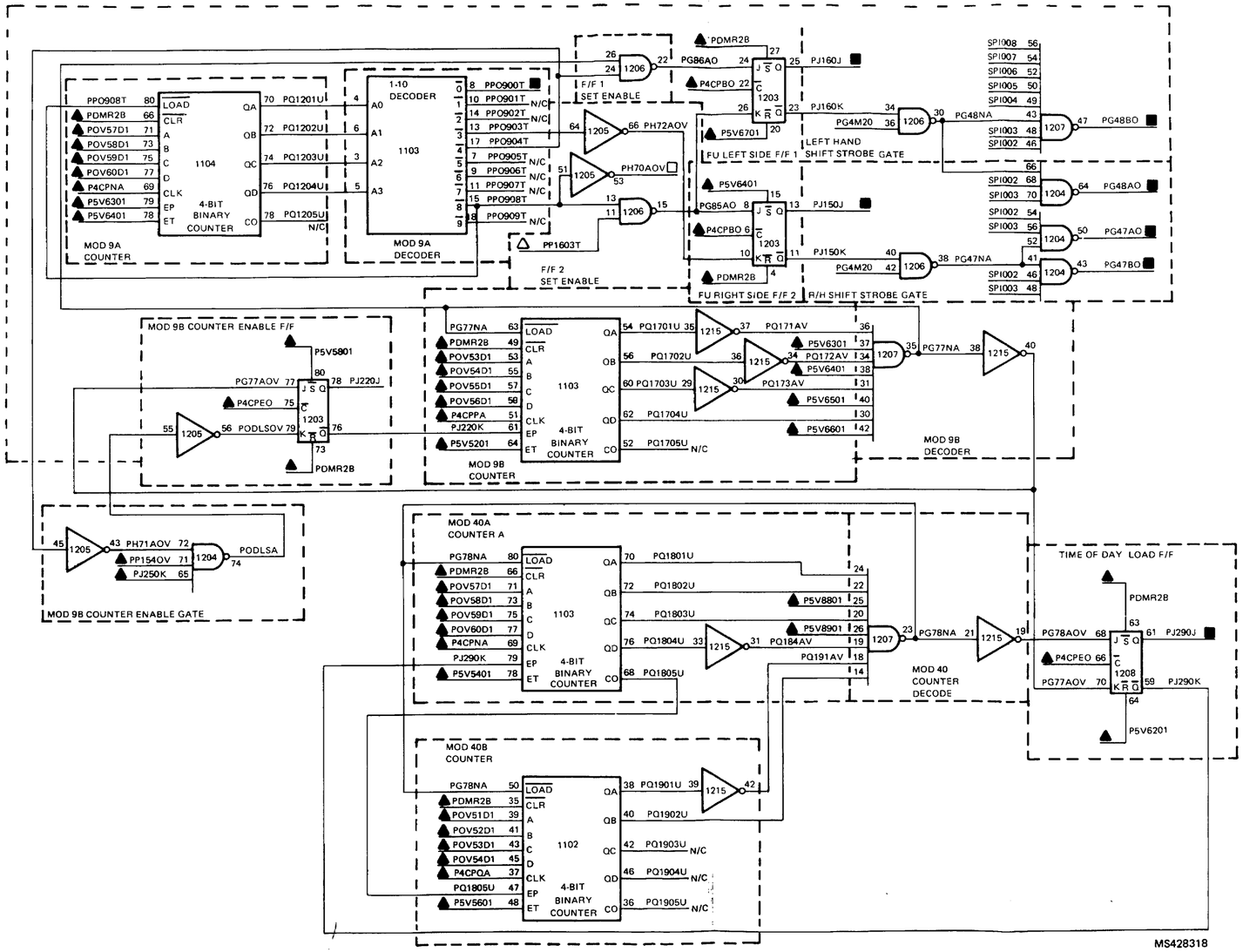
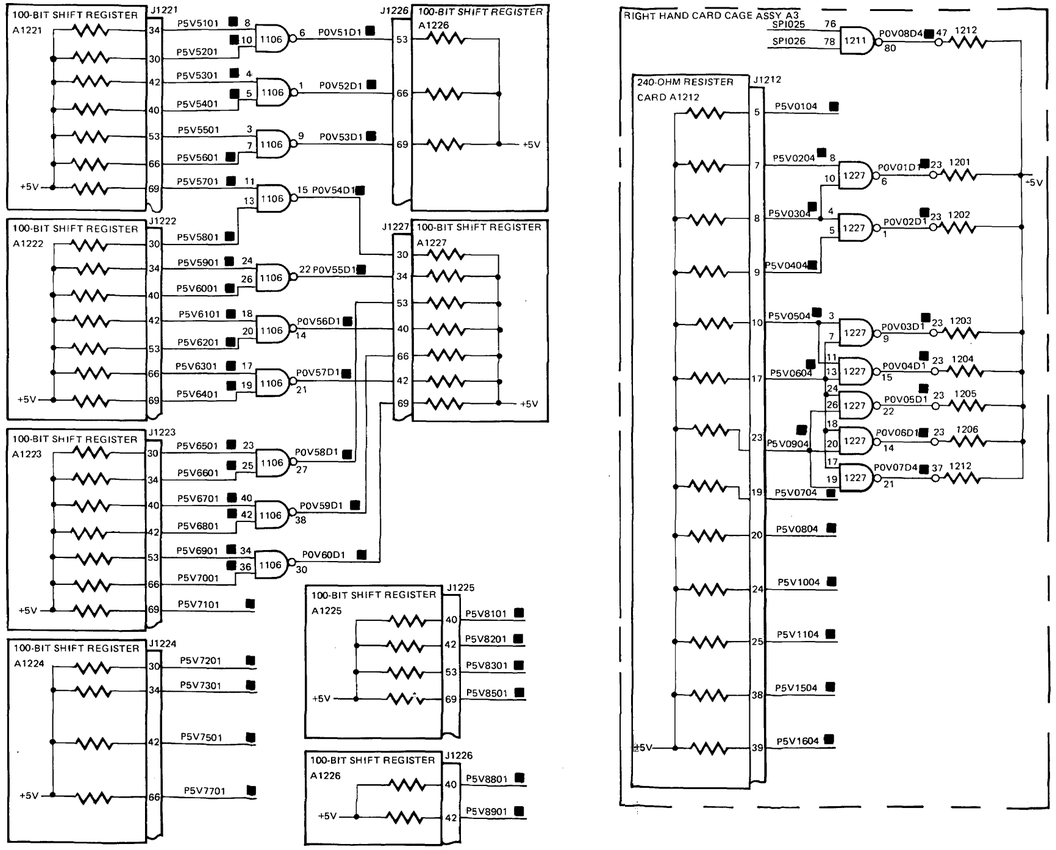
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.



FO-19. Display Timing Logic Diagram (Sheet 2 of 2).

OUTPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH
P0V01D1	1-1	P0V55D1	11-0	P5V0604	2-0	P5V6201	14-1
	2-0		12-0		4-0		19-2
	6-0		14-1		5-0		23-0
	7-0		14-2		7-0	P5V6301	14-1
	9-0		15-0		15-0		19-2
P0V02D1	1-1		16-0	P5V0704	2-0	P5V6301	14-1
	2-0		18-0		4-0		19-2
	6-0		19-1		6-0	P5V6401	19-1
	7-0		19-2		7-0		19-2
	9-0	P0V56D1	11-0		8-2	P5V6501	14-1
P0V03D1	1-2		12-0		15-0		19-2
	2-0		14-1		23-0	P5V6601	14-1
	6-0		14-2	P5V0804	2-0		19-2
	7-0		15-0		4-0	P5V6701	9-0
	9-0		16-0		6-0		19-2
P0V04D1	2-0		18-0		7-0	P5V6801	14-1
	6-0		19-1		15-0	P5V6901	14-1
	7-0		19-2		23-0		19-1
	9-0	P0V57D1	11-0	P5V0904	2-0	P5V7001	14-1
P0V05D1	2-0		12-0		4-0		16-0
	6-0		14-1	P5V1004	2-0	P5V7101	14-1
	7-0		14-2		4-0		19-1
	9-0		16-0		7-0	P5V7201	12-0
P0V06D1	2-0		19-1		9-0		14-1
	6-0		19-2		15-0		17-0
	7-0	P0V58D1	11-0	P5V1104	2-0	P5V7301	12-0
	8-1		12-0		4-0		17-0
	9-0		14-1		5-0	P5V7501	14-1
P0V07D4	2-0		14-2		7-0		17-0
	6-0		16-0		9-0		18-0
	7-0		19-1		23-0	P5V7701	14-1
	9-0		19-2	P5V1504	2-0		17-0
P0V08D4	9-0	P0V59D1	11-0	P5V1604	2-0		18-0
P0V51D1	11-0		12-0	P5V5101	12-0	P5V8101	14-1
	12-0		14-1		14-2		17-0
	14-1		14-2		23-0		18-0
	14-2		16-0	P5V5201	12-0	P5V8201	14-1
	16-0		19-1		14-2		14-2
	19-1		19-2		19-1		17-0
	19-2	P0V60D1	12-0		19-2		18-0
P0V52D1	11-0		14-1	P5V5301	12-0	P5V8301	14-2
	12-0		14-2		14-2		16-0
	14-1		16-0		23-0		17-0
	14-2		19-1	P5V5401	12-0		18-0
	16-0		19-2		14-1	P5V8501	14-2
	19-1	P5V0104	2-0		19-1		18-0
	19-2		4-0		19-2		19-1
P0V53D1	11-0		6-0		23-0	P5V8801	14-2
	12-0		8-1	P5V5601	19-1		17-0
	14-1	P5V0204	1-1		19-2		19-2
	14-2		2-0	P5V5701	14-1	P5V8901	14-2
	15-0		15-0	P5V5801	15-1		17-0
	16-0	P5V0304	1-1		19-2		18-0
	18-0		2-1	P5V5901	14-1		19-2
	19-1		4-0		15-0		
	19-2		6-0		19-1		
P0V54D1	11-0		15-0		23-0		
	12-0	P5V0404	1-1	P5V6001	14-1		
	14-1		2-0		15-0		
	14-2		8-1		19-1		
	15-0		8-2		23-0		
	16-0		15-0	P5V6101	14-1		
	18-0	P5V0504	2-0		15-0		
	19-1		3-0		19-1		
	19-2		4-0	P5V6201	14-1		
	19-1		5-0		19-2		
	19-2		15-0		23-0		
			23-0				



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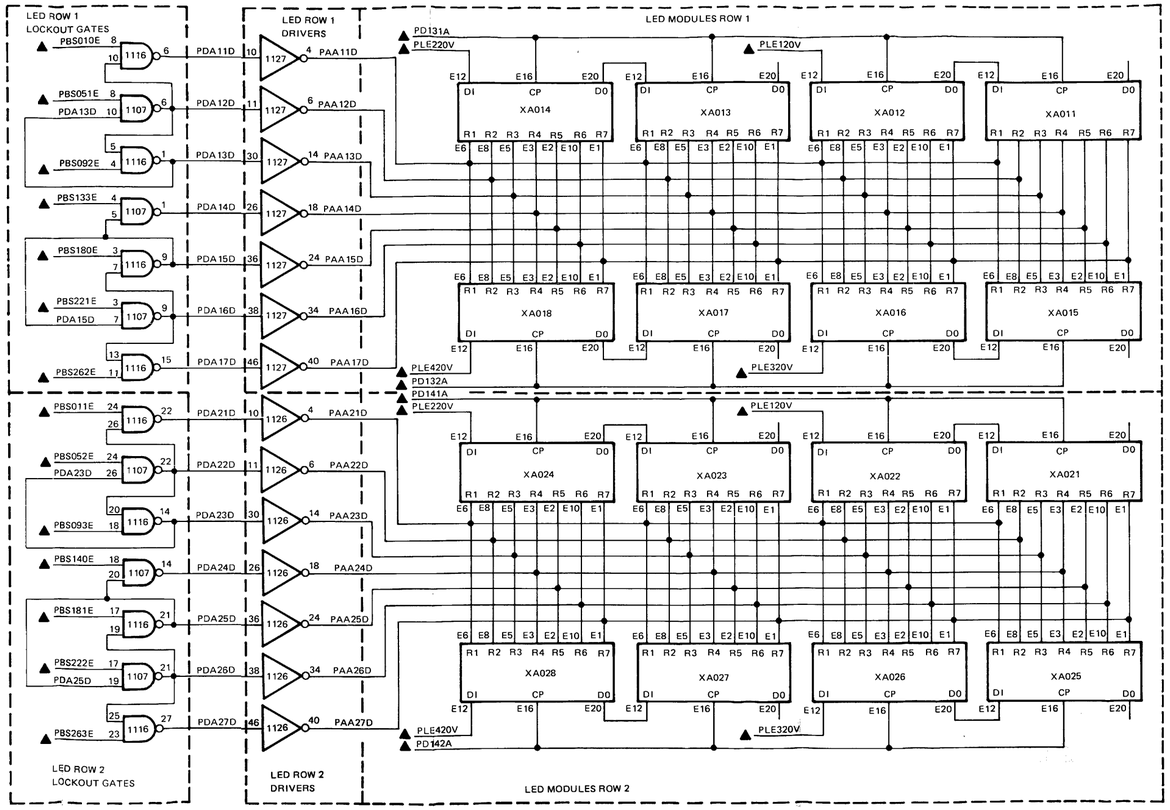
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

FO-20. Pullups and Grounds Logic Diagram.

INPUTS	F/O-SH	INPUTS	F/O-SH	INPUTS	F/O-SH
PBS010E	14-1	PBS020E	14-1	PBS030E	14-1
PBS011E		PBS021E		PBS031E	
PBS051E		PBS061E		PBS071E	
PBS052E		PBS062E		PBS072E	
PBS092E		PBS102E		PBS112E	
PBS093E		PBS103E		PBS113E	
PBS133E		PBS143E		PBS153E	
PBS140E		PBS150E	14-1	PBS160E	14-1
PBS180E		PBS190E	14-2	PBS200E	14-2
PBS181E	14-1	PBS191E		PBS201E	
PBS221E	14-2	PBS231E		PBS241E	
PBS222E		PBS232E		PBS242E	
PBS262E		PBS272E		PBS282E	
PBS263E	14-2	PBS273E	14-2	PBS283E	14-2
PD131A	15-0	PD171A	15-0	PD211A	15-0
PD132A		PD172A		PD212A	
PD141A		PD181A		PD221A	
PD142A	15-0	PD182A	15-0	PD222A	15-0
				PLE110V	17-0
PLE120V	17-0	PLE120V	17-0	PLE210V	
PLE220V		PLE220V		PLE310V	
PLE320V		PLE320V		PLE410V	17-0
PLE420V	17-0	PLE420V	17-0	PBS032E	14-1
PBS012E	14-1	PBS022E	14-1		
PBS013E		PBS023E		PBS033E	
PBS053E		PBS063E		PBS073E	
PBS060E		PBS070E		PBS080E	
PBS100E		PBS110E		PBS120E	
PBS101E		PBS111E		PBS121E	14-1
PBS141E		PBS151E		PBS162E	14-1
PBS142E		PBS152E	14-1	PBS202E	14-2
PBS182E		PBS192E		PBS203E	
PBS183E	14-1	PBS193E		PBS243E	
PBS223E	14-2	PBS233E		PBS250E	
PBS230E		PBS240E		PBS290E	
PBS270E		PBS280E		PBS291E	14-2
PBS271E	14-2	PBS281E	14-2		
				PD231A	15-0
PD141A	15-0	PD191A	15-0	PD232A	
PD152A		PD192A		PD241A	
PD161A		PD201A		PD242A	15-0
PD162A	15-0	PD202A	15-0		
				PLE110V	17-0
PLE120V	14-0	PLE110V	17-0	PLE210V	
PLE220V		PLE210V		PLE310V	
PLE320V		PLE310V		PLE410V	17-0
PLE420V	17-0	PLE410V	17-0		



FO-21. L/H LED Modules Logic Diagram (Sheet 1 of 6)

NOTES: UNLESS OTHERWISE SPECIFIED

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATIONS, PREFIX WITH APPLICABLE UNIT NUMBER AND ASSEMBLY DESIGNATION.
2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   ▲ INPUT FROM ANOTHER FIGURE

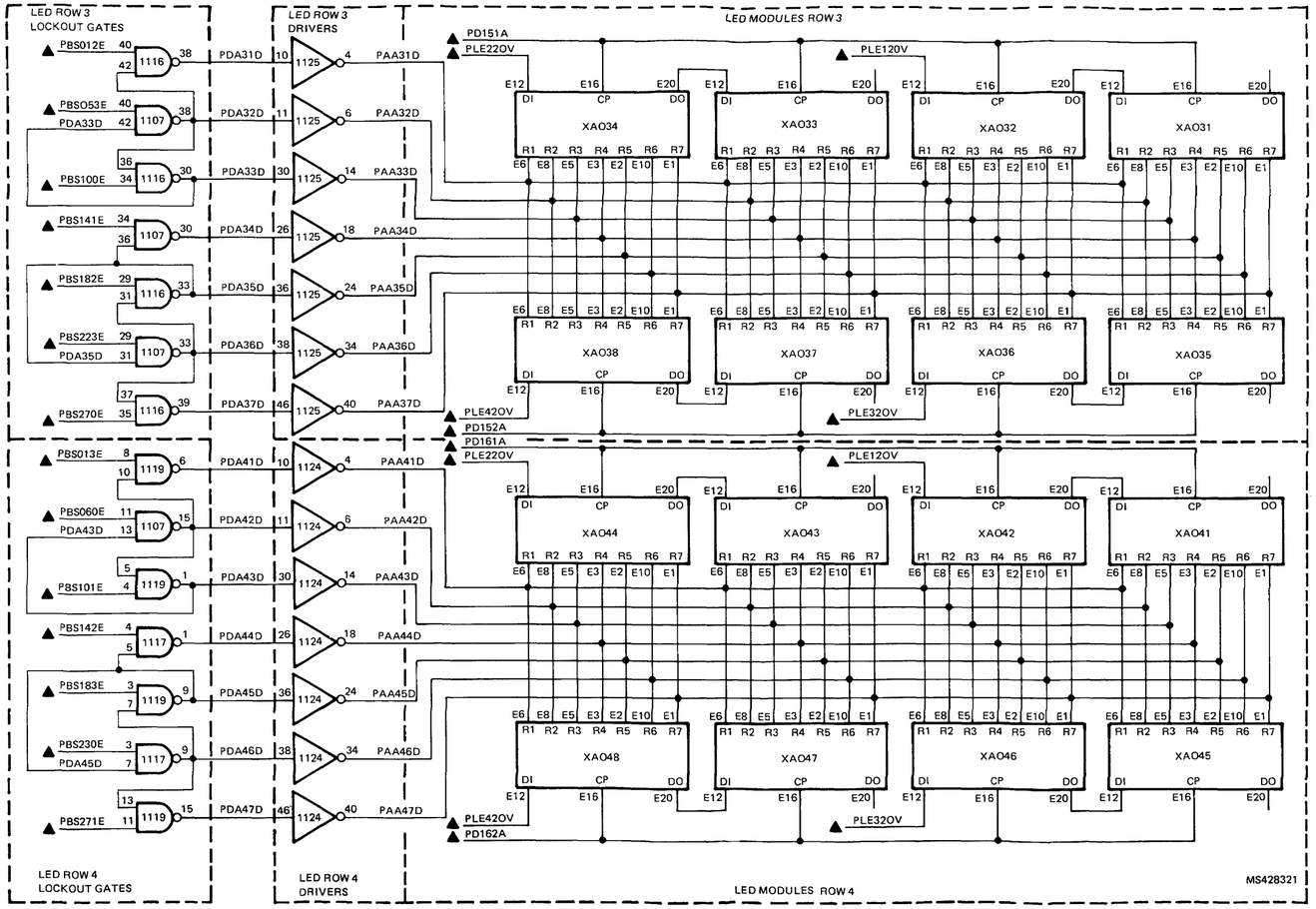
   △ INPUT FROM SAME FIGURE

   ■ OUTPUT TO ANOTHER FIGURE

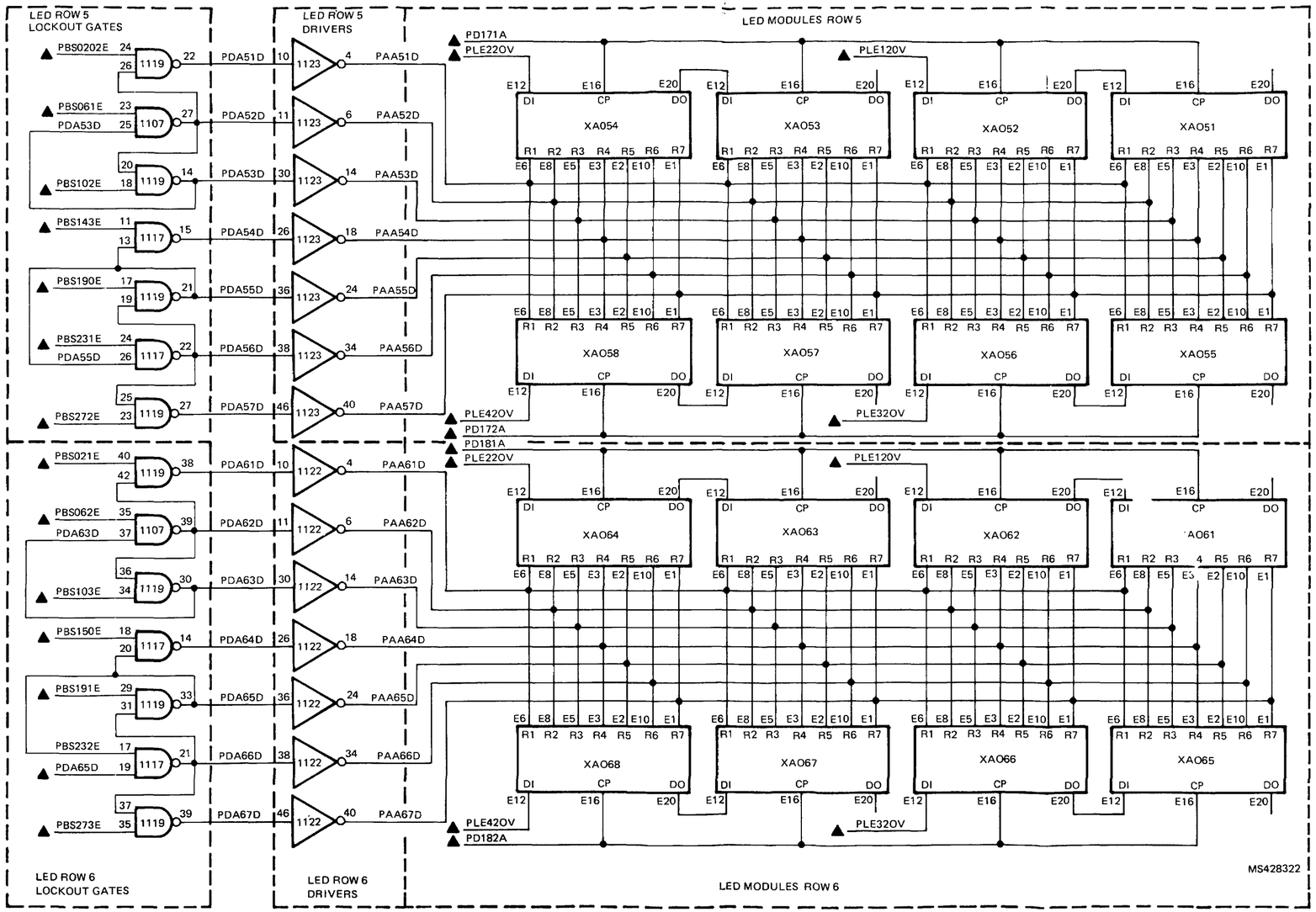
   ◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

   □ OUTPUT TO SAME FIGURE

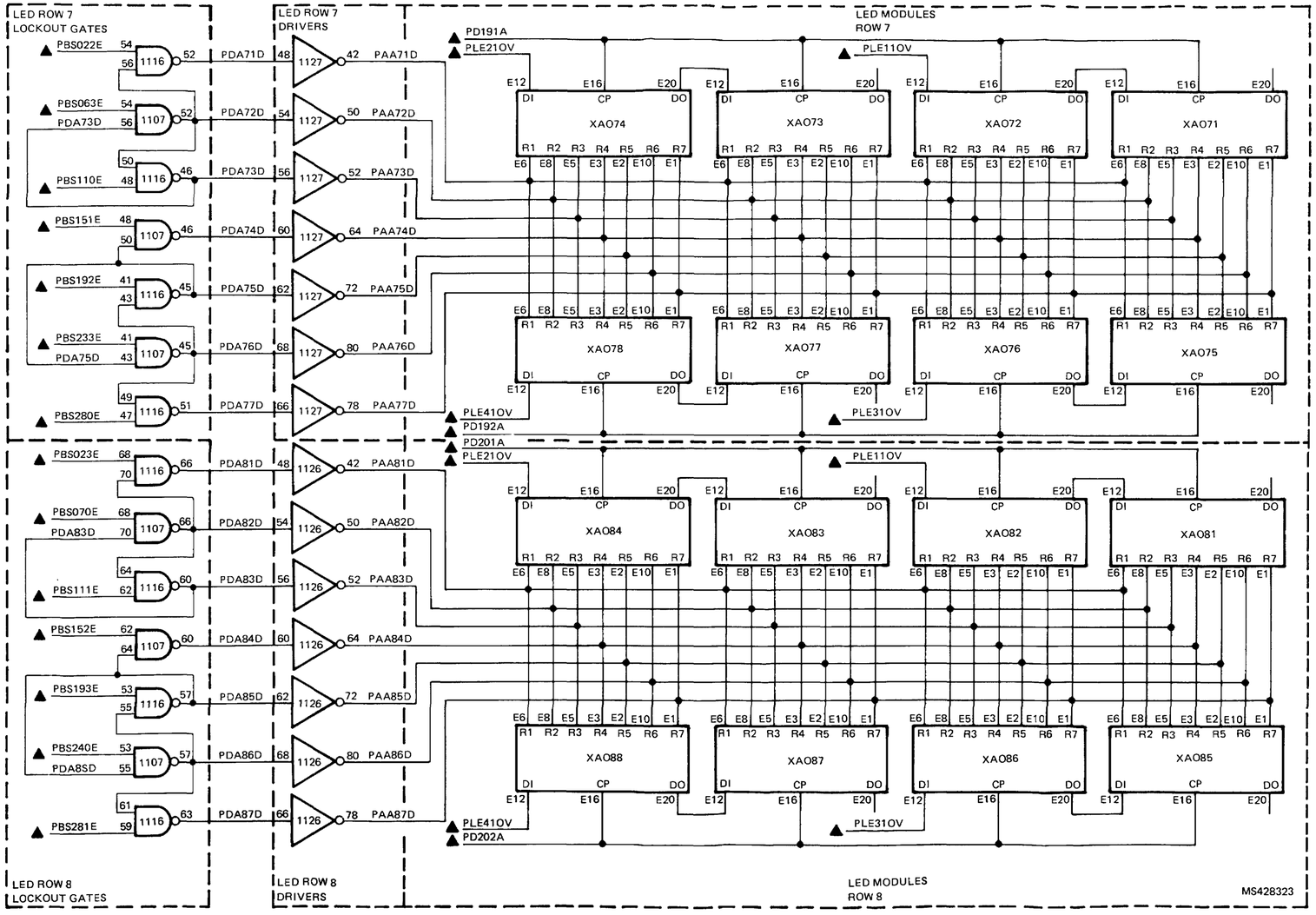
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.



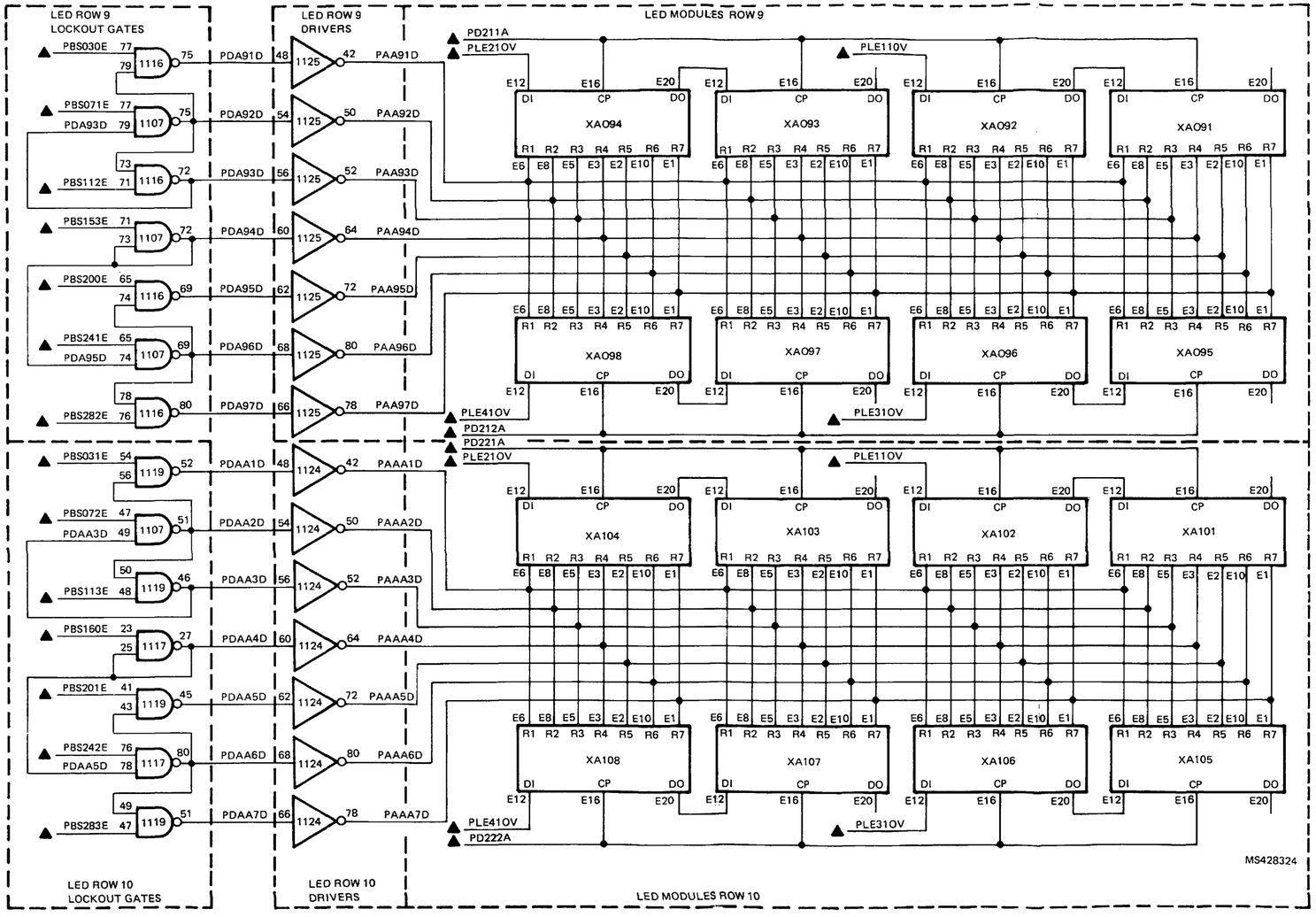
FO-21. L/H LED Modules Logic Diagram (Sheet 2 of 6)



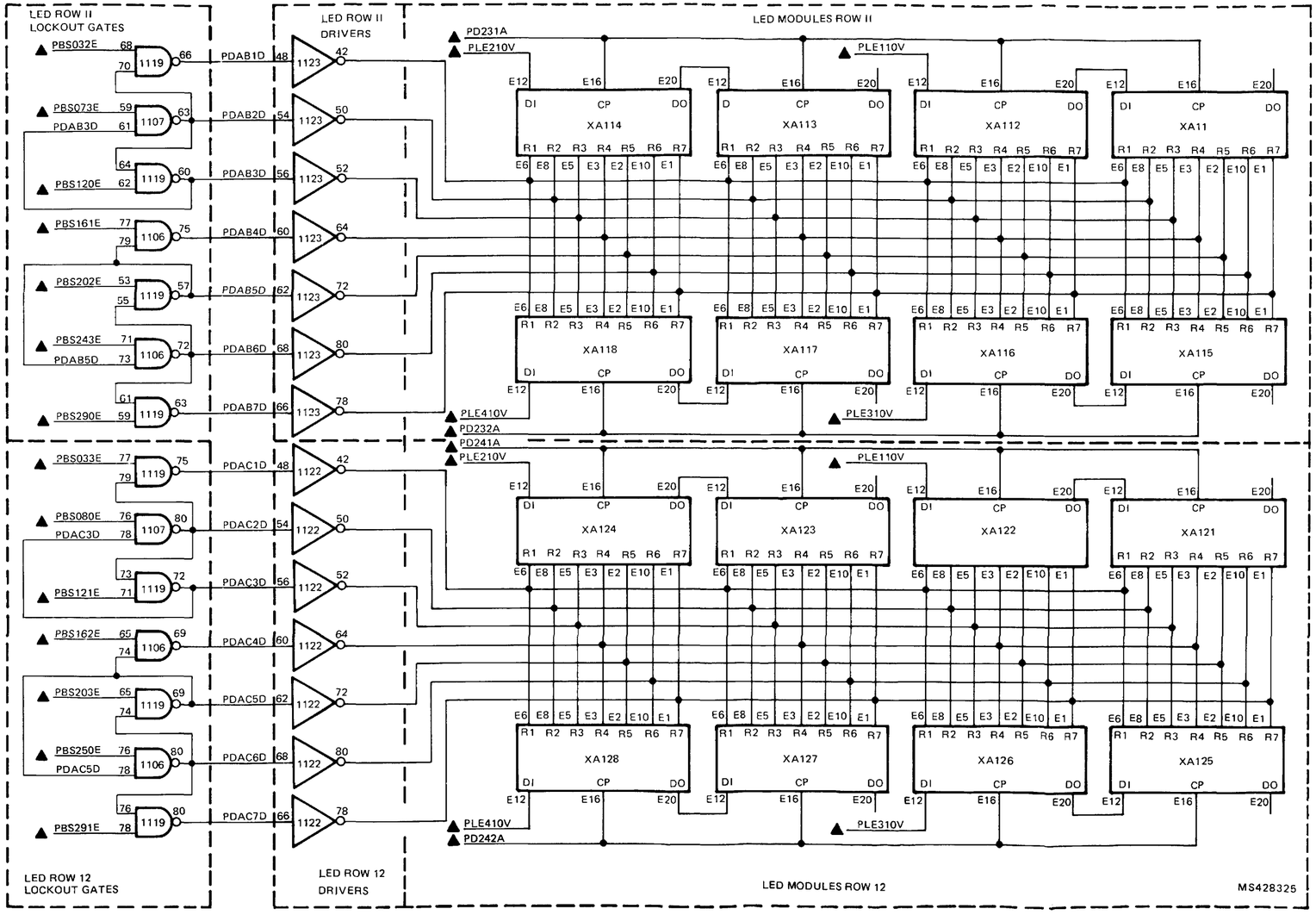
FO-21. L/H LED Modules Logic Diagram (Sheet 3 of 6)



FO-21. L/H LED Modules Logic Diagram (Sheet 4 of 6)

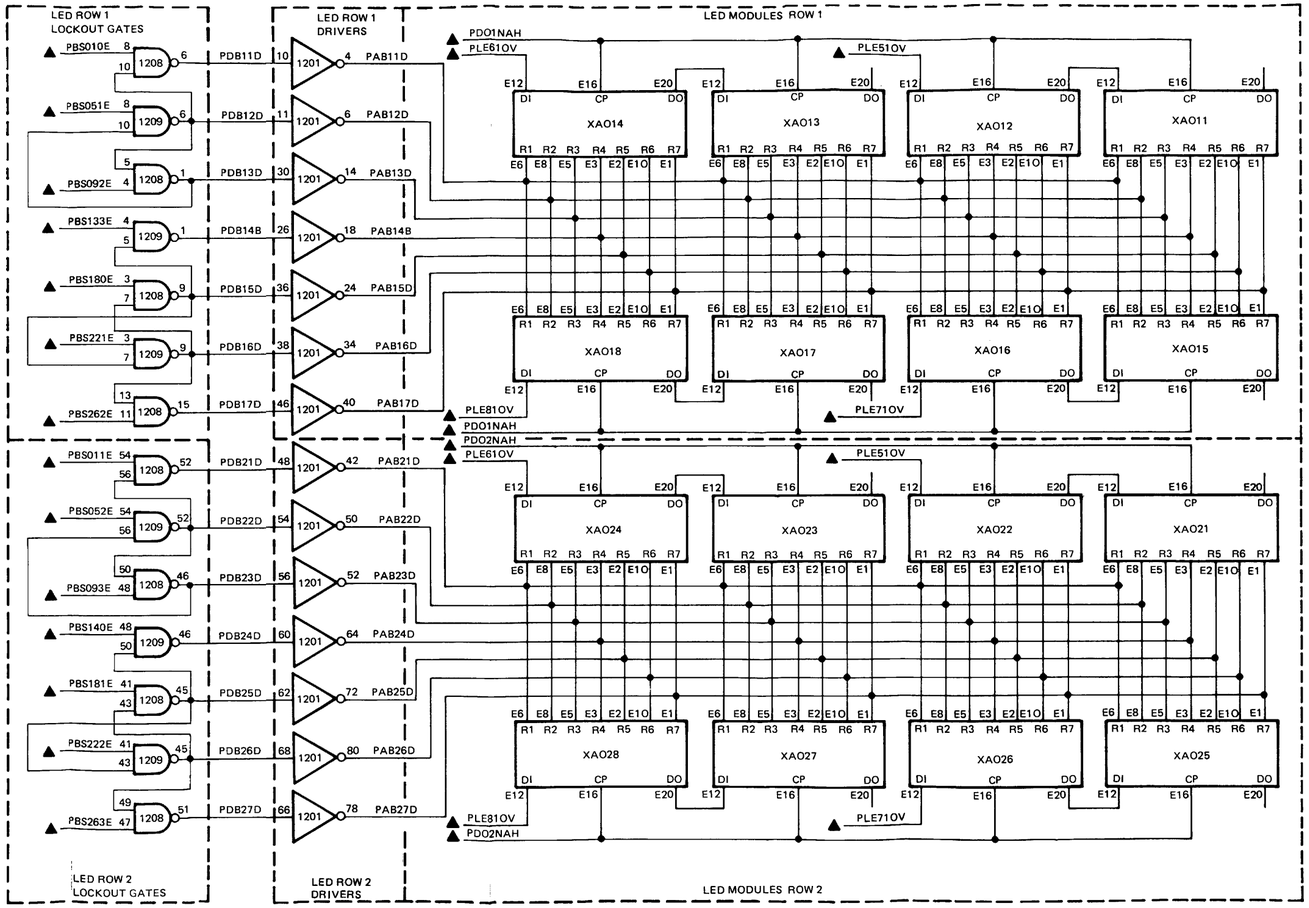


FO-21. L/H LED Modules Logic Diagram (Sheet 5 of 6)



FO-21. L/H LED Modules Logic Diagram (Sheet 6 of 6)

INPUTS	F/O-SH	INPUTS	F/O-SH	INPUTS	F/O-SH
PBS010E	14-1	PBS021E	14-1	PBS071E	14-1
PBS011E		PBS061E		PBS072E	
PBS051E		PBS062E		PBS112E	
PBS052E		PBS102E		PBS113E	
PBS092E		PBS103E		PBS153E	
PBS093E		PBS143E		PBS160E	14-1
PBS133E		PBS150E	14-1	PBS200E	14-2
PBS140E		PBS190E	14-2	PBS201E	
PBS180E		PBS191E		PBS241E	
PBS181E	14-1	PBS231E		PBS242E	
PBS221E	14-2	PBS232E		PBS282E	
PBS222E		PBS272E		PBS283E	14-2
PBS262E		PBS273E	14-2		
PBS263E	14-2			PDO91A	15-0
		PDO5NAH	15-0	PDO92A	
PDO1NAH	15-0	PDO6NAH	15-0	PD101A	
PDO2NAH	15-0			PD102A	15-0
		PLE510V	17-0		
PLE510V	17-0	PLE610V		OLE520V	17-0
PLE610V		PLE710V		PLE620V	
PLE710V		PLE810V	17-0	PLE720V	
PLE810V	17-0			PLE820V	17-0
		PBS022E	14-1		
PBS012E	14-1	PBS023E		PBS032E	14-1
PBS013E		PBS063E		PBS033E	
PBS053E		PBS070E		PBS073E	
PBS060E		PBS110E		PBS080E	
PBS100E		PBS111E		PSB120E	
PBS101E		PBS151E		PBS1221E	
PBS141E		PBS152E	14-1	PBS161E	
PBS142E		PBS192E	14-2	PBS162E	14-1
PBS182E		PBS193E		PBS202E	14-2
PBS183E	14-1	PGS233E		PBS203E	
PBS223E	14-2	PBS240E		PBS243E	
PBS230E		PBS280E		PBS250E	
PBS270E		PBS281E	14-2	PBS290E	
PBS271E	14-2			PBS291E	14-2
		PDO7NAH	15-0		
PDO3NAH	15-0	PDO8NAH	15-0	PD111A	15-0
PDO4NAH	15-0			PD112A	
		PLE520V	17-0	PD121A	
PLE510V	17-0	PLE620V		PD122A	15-0
PLE610V		PLE720V			
PLE710V		PLE820V	17-0	PLE520V	17-0
PLE810V	17-0			PLE620V	
		PBS030E	14-1	PLE720V	
PBS020E	14-1	PBS031E		PLE820V	17-0



NOTES: UNLESS OTHERWISE SPECIFIED

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2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

   INPUT FROM ANOTHER FIGURE

   INPUT FROM SAME FIGURE

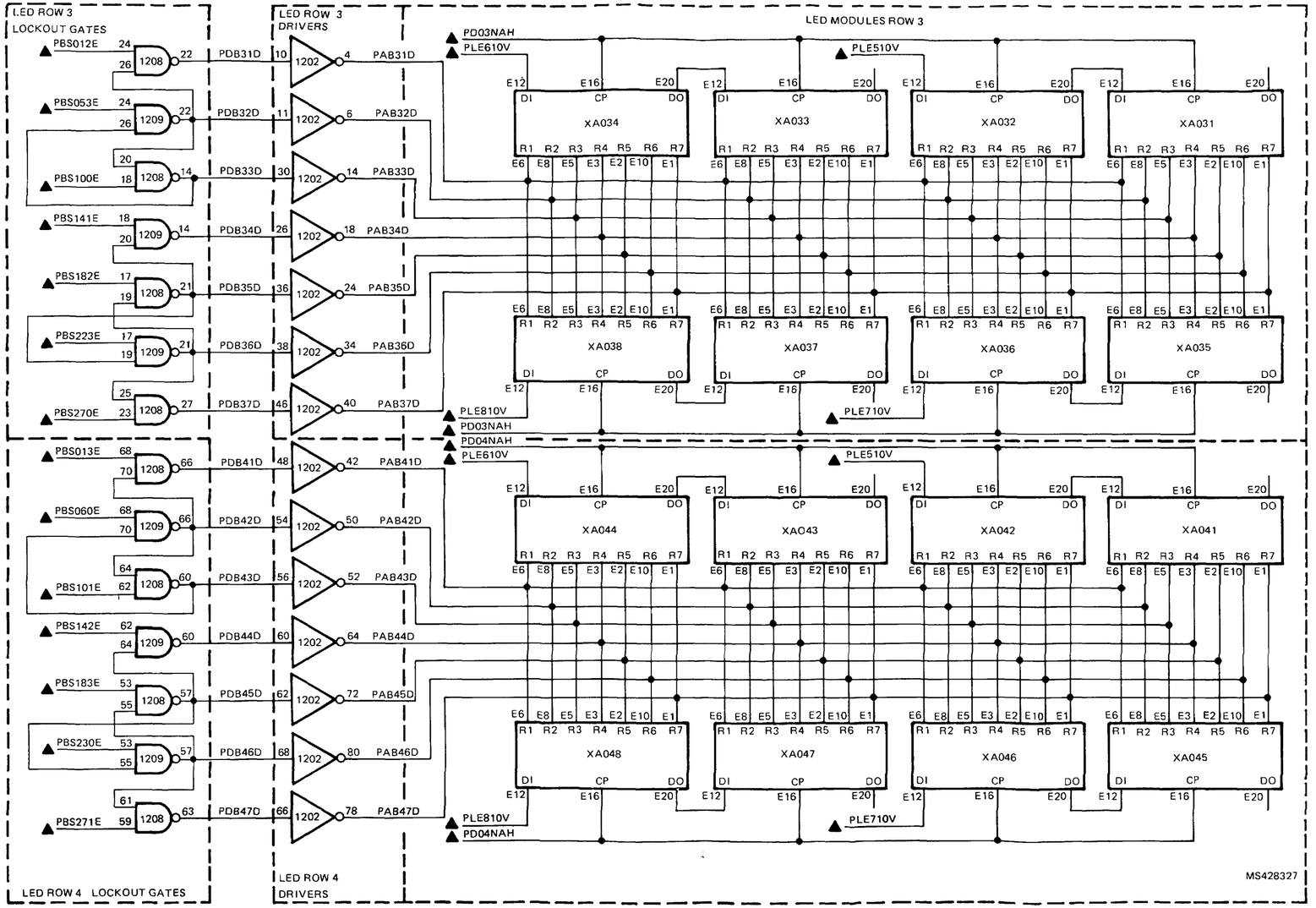
   OUTPUT TO ANOTHER FIGURE

   OUTPUT TO BOTH SAME AND ANOTHER FIGURE

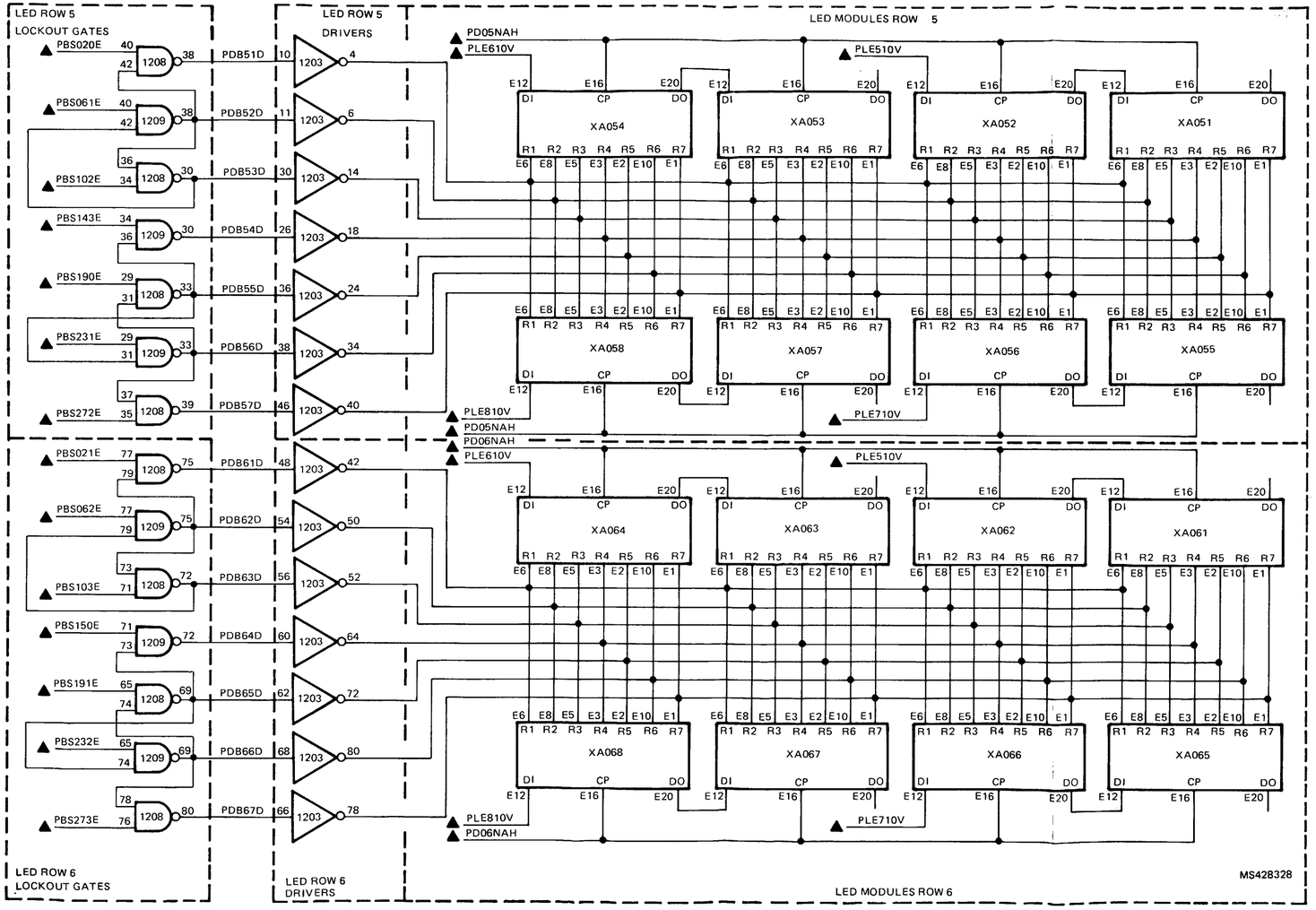
   OUTPUT TO SAME FIGURE

4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.
7. CIRCUIT SYMBOLS INCLUDE CARD LOCATION AND CIRCUIT PIN NUMBERS.

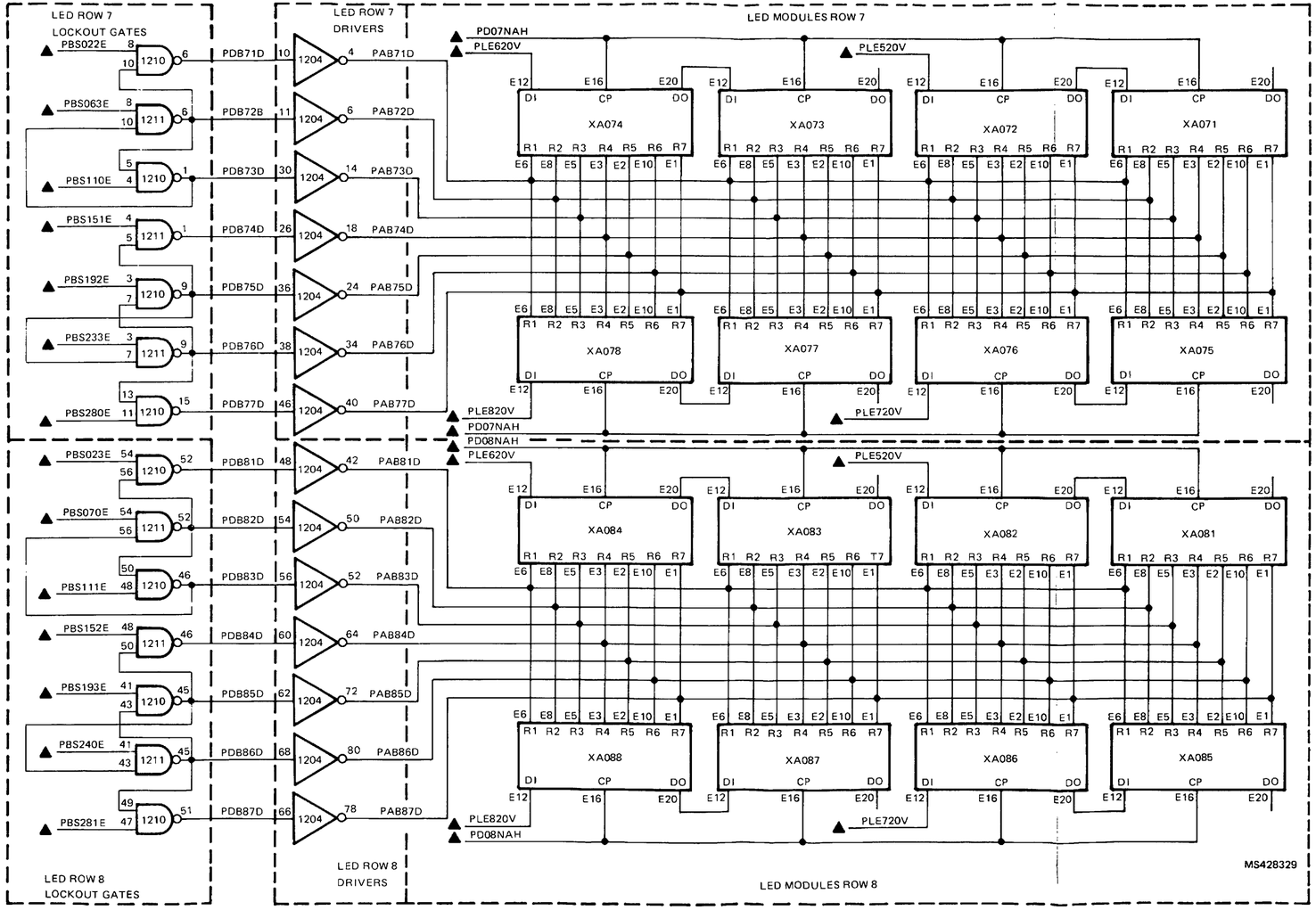
FO-22. R/H LED Modules Logic Diagram (Sheet 1 of 6)



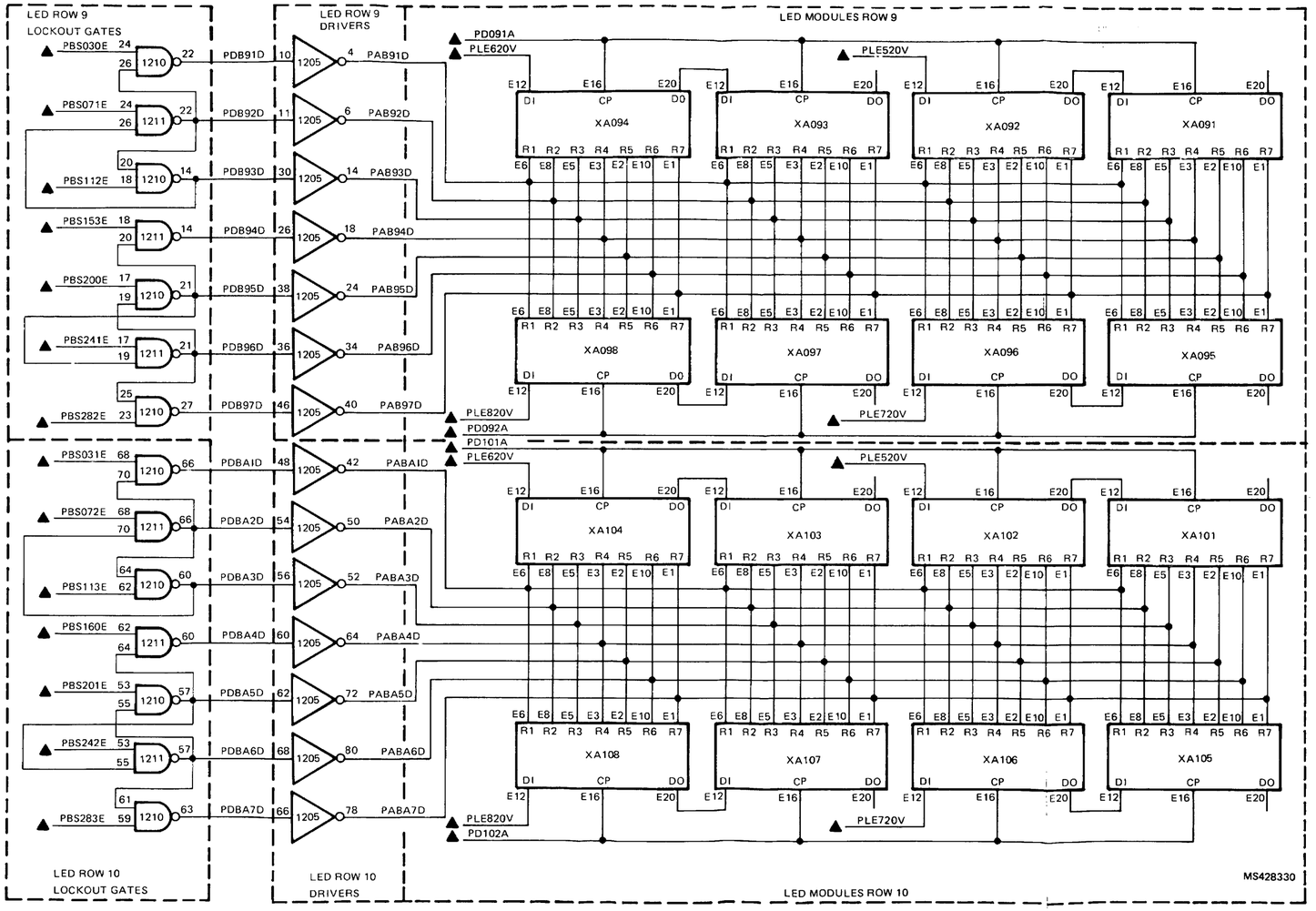
FO-22. R/H LED Modules Logic Diagram (Sheet 2 of 6)



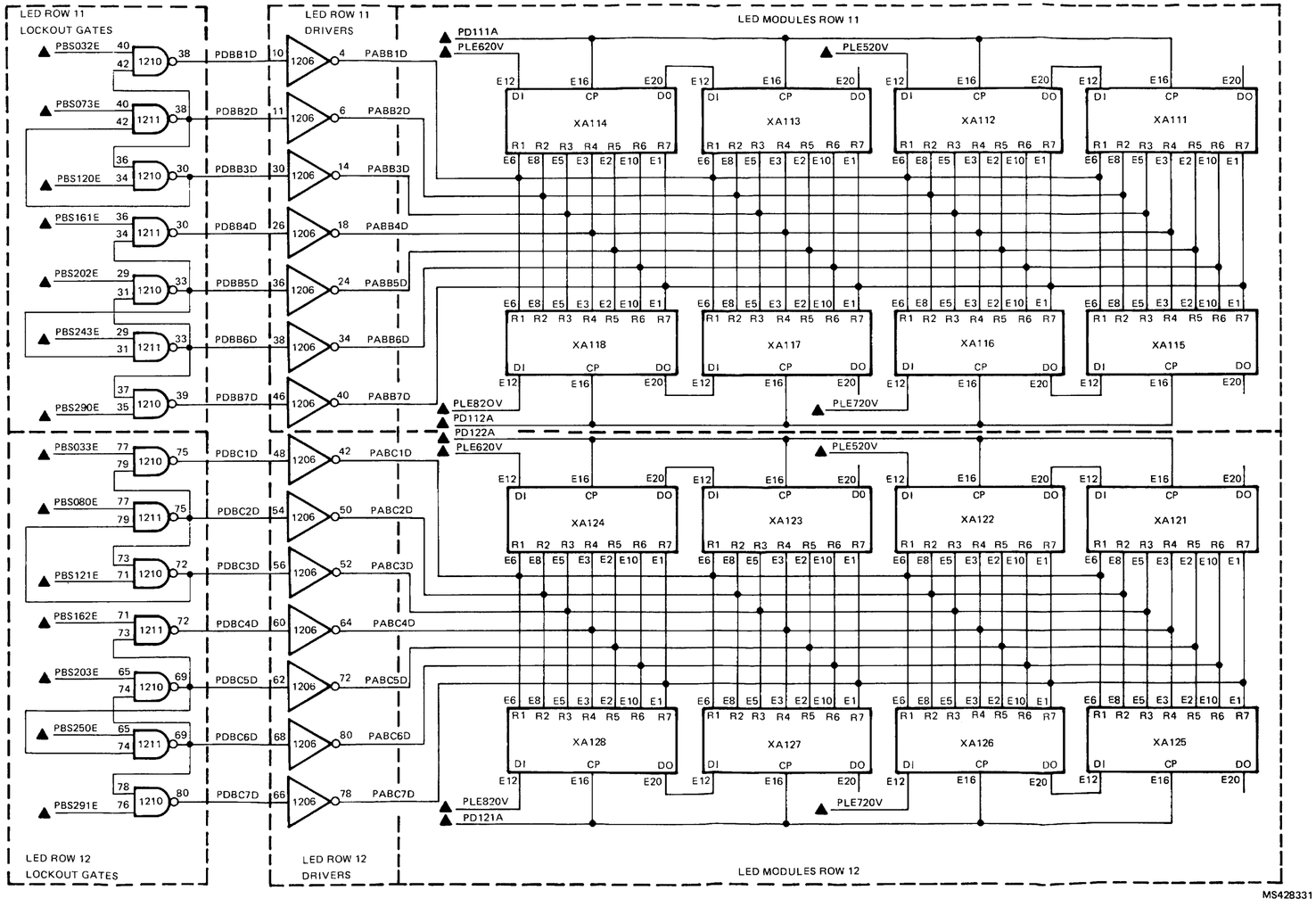
FO-22. R/H LED Modules Logic Diagram (Sheet 3 of 6)



FO-22. R/H LED Modules Logic Diagram (Sheet 4 of 6)



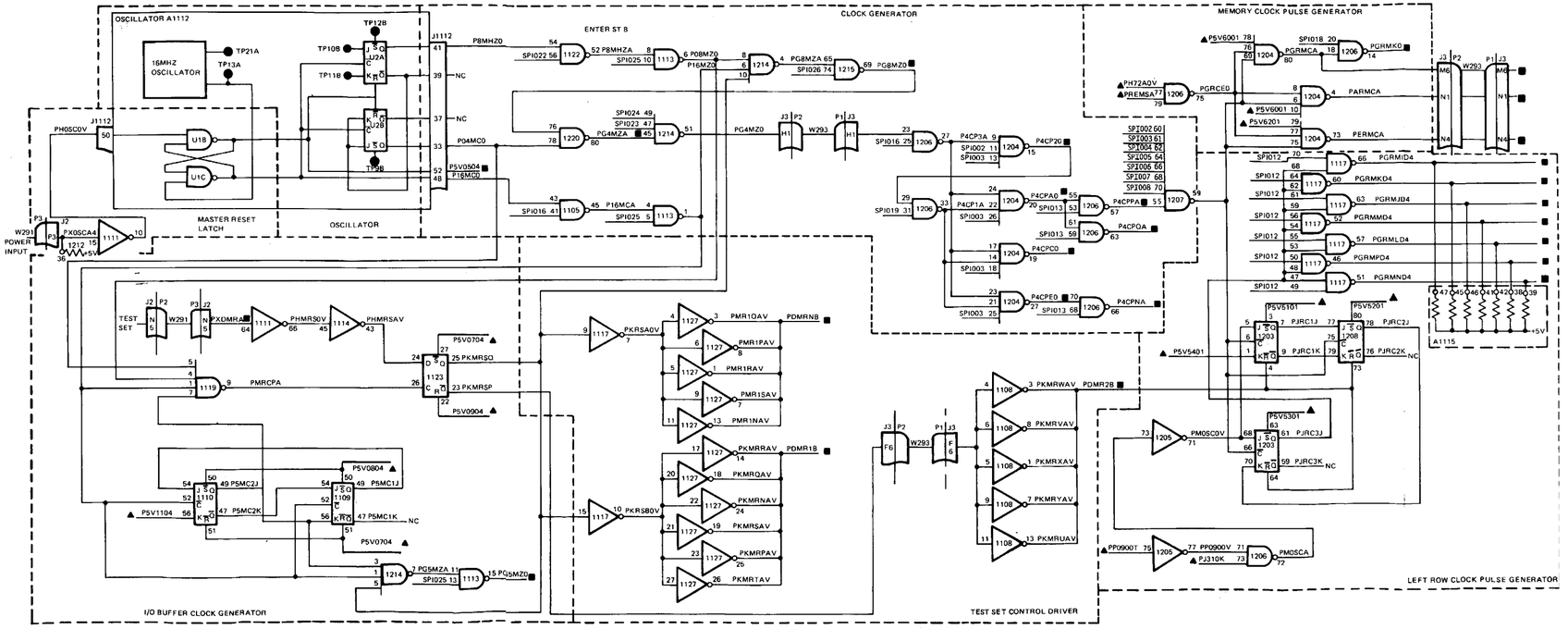
FO-22. R/H LED Modules Logic Diagram (Sheet 5 of 6)



MS428331

FO-22. R/H LED Modules Logic Diagram (Sheet 6 of 6)

INPUTS	F/O-SH	OUTPUTS	F/O-SH	OUTPUTS	F/O-SH
PH72A0	19-2	PARMCA	9-0	PXDMRA	5-0
V	9-0	PDMRNB	4-0	P4CPA0	16-0
PJ310K	19-2		8-2		17-0
PP0900T	19-1	PDMR1B	3-0		18-0
PREMSA	20-0		4-0	P4CPC0	15-0
P5V0704	20-0		5-0		18-0
P5V0804	20-0		6-0		19-1
P5V0904	20-0		7-0	P4CPE0	9-0
P5V1104	20-0		9-0		17-0
P5V5101	20-0	PDRM2B	9-0		19-2
P5V5201	20-0		15-0	P4CPNA	17-0
P5V5301	20-0		16-0		19-1
P5V5401	20-0		19-1		19-2
P5V6001	20-0		19-2	P4CPPA	15-0
P5V6201	20-0	PERMCA	9-0		17-0
		PGRMCA	9-0		19-1
		PGRMID4	10-0	P4CPQA	16-0
		PGRMJD4	10-0		19-1
		PGRMKD4	10-0		19-2
		PGRMK0	12-0	P4CP20	16-0
		PGRMKD4	10-0	P5V0504	2-0
		PGRMMD4	10-0		3-0
		PGRMND4	10-0		4-0
		PGRMPD4	10-0		5-0
		PG4MZA	9-0		15-0
		PG5MZ0	5-0		20-0
			7-0		
		PG8MZ0	1-1		
			4-0		
			8-1		



NOTES: UNLESS OTHERWISE SPECIFIED

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2. ALL CIRCUITS SHOWN ON THIS FIGURE ARE CONTAINED ON RIGHT HAND CARD CAGE A3. (SINCE MULTIPLE DATA DISPLAY GROUPS ARE USED, ABBREVIATED DESIGNATIONS ARE SHOWN).
3. DEFINITIONS FOR SYMBOLS SHOWN ARE AS FOLLOWS:

▲ INPUT FROM ANOTHER FIGURE

△ INPUT FROM SAME FIGURE

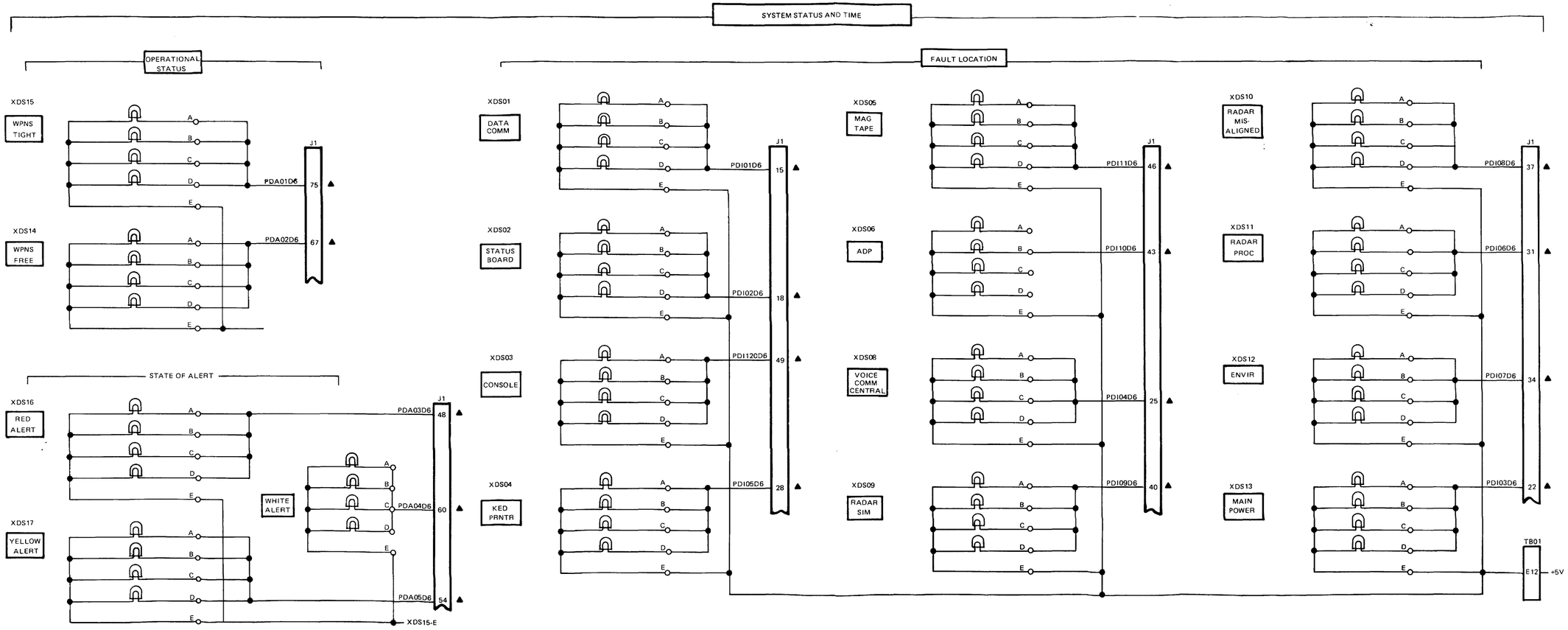
■ OUTPUT TO ANOTHER FIGURE

◪ OUTPUT TO BOTH SAME AND ANOTHER FIGURE

□ OUTPUT TO SAME FIGURE

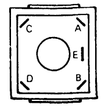
4. REFER TO TABLES 6-3 AND 6-4 FOR CIRCUIT CARD LOCATIONS.
5. REFER TO TABLES 6-5 AND 6-6 FOR CIRCUIT CARD TEST POINTS.
6. REFER TO DATA DISPLAY GROUP POWER DISTRIBUTION DIAGRAMS FOR DC POWER AND GROUND CIRCUITS.

Change 1 FO-23. Clock/Master Reset Logic Diagram

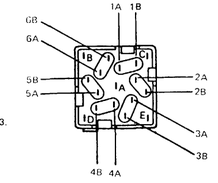


NOTES:

1. ▭ INDICATES FRONT PANEL MARKING.

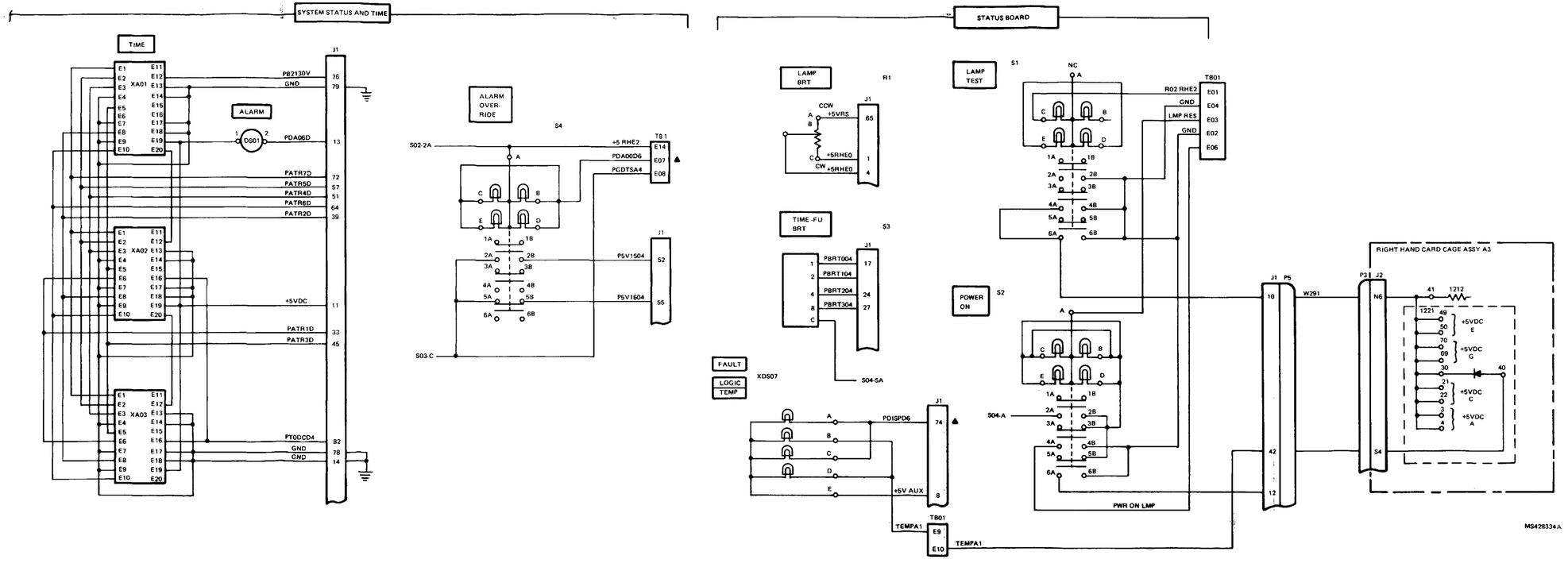
2. 

INDICATES TYPICAL MECHANICAL CONFIGURATION. (SEE XDS15)

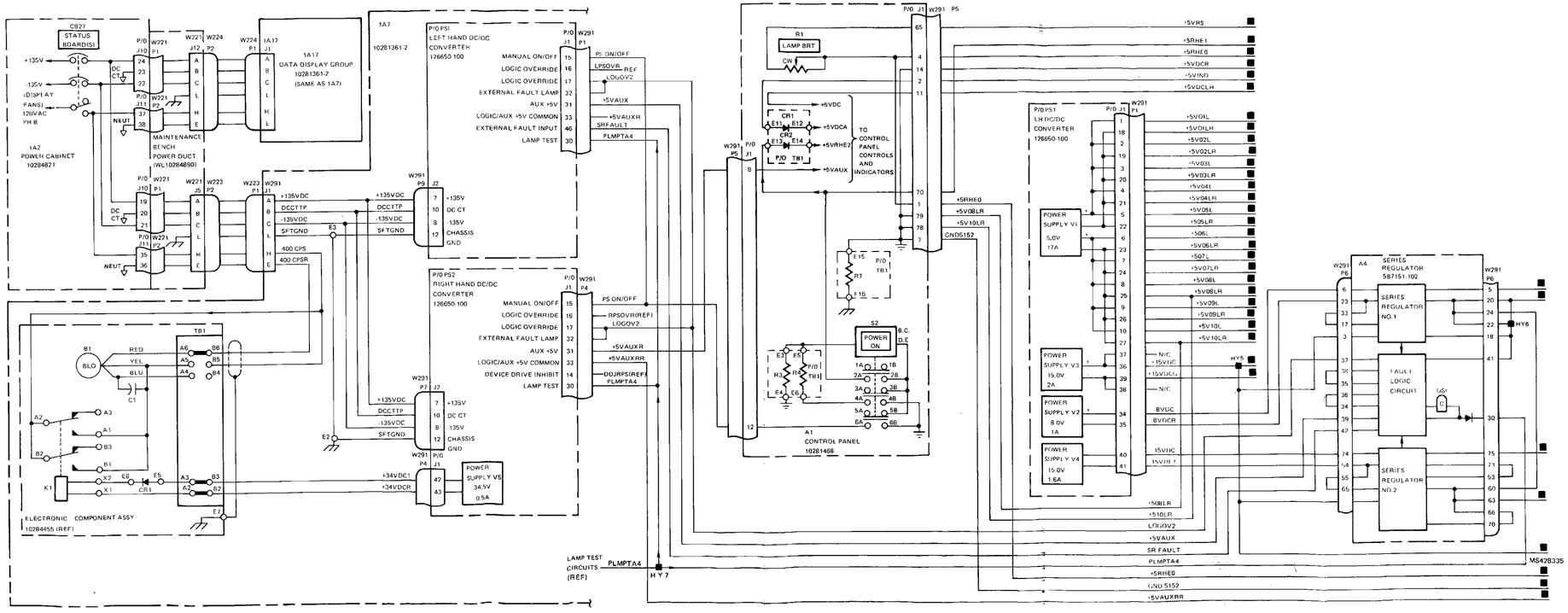
3. 

INDICATES TYPICAL MECHANICAL CONFIGURATION. (SEE S4 ON SH 2)

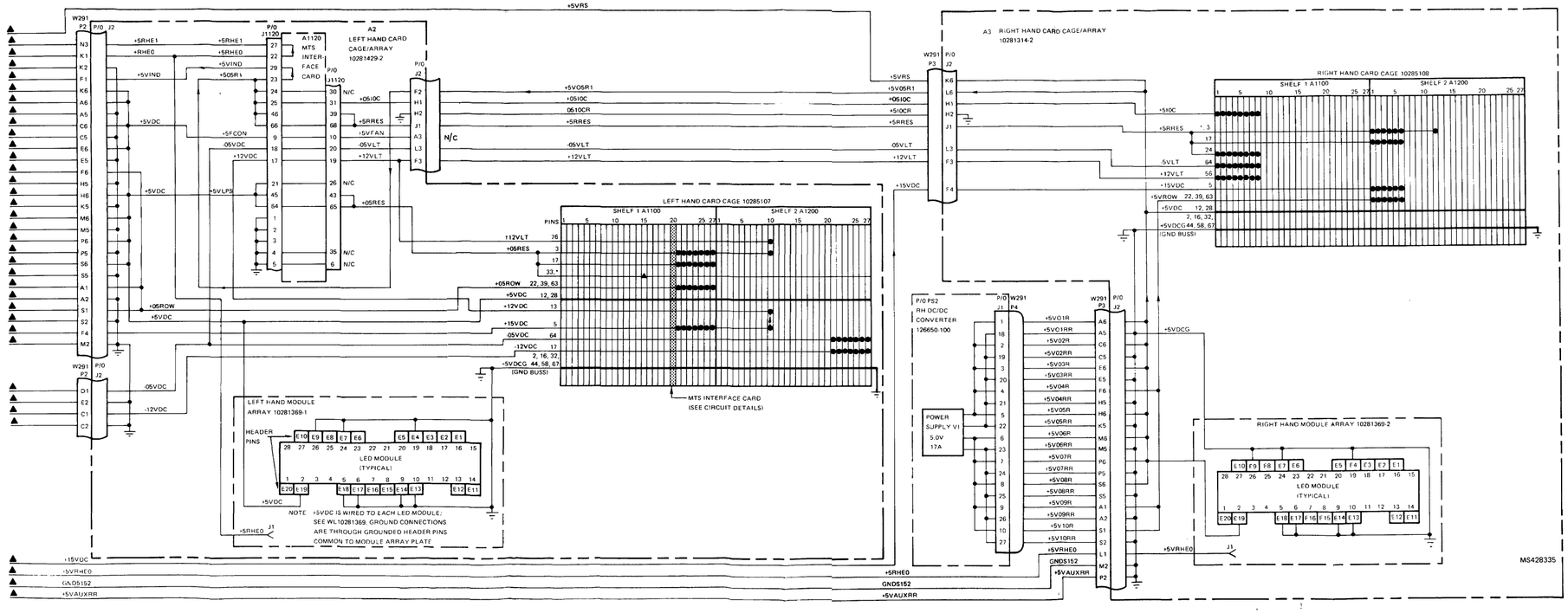
FO-24. Control Panel Assembly (Sheet 1 of 2)



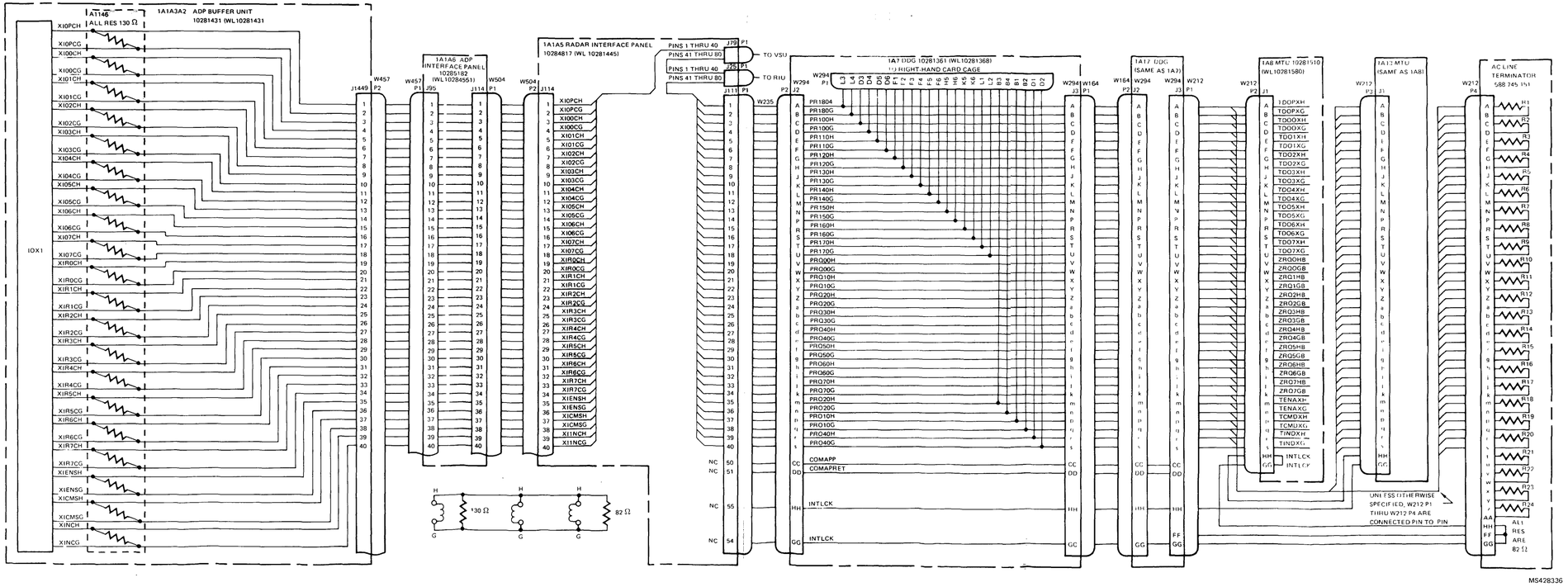
Change 1 FO-24. Control Panel Assembly (Sheet 2 of 2).



FO-25. Power Distribution Wiring Diagram (Sheet 1 of 2)



FO-25. Power Distribution Wiring Diagram (Sheet 2 of 2)



FO-26. DDG/IOX Interface Wiring Diagram

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

DONALD J. DELANDRO
Brigadier General, United States Army
The Adjutant General

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 057730-001