TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL
DATA DISPLAY GROUP
EQUIPMENT MAINTENANCE

EXPANDED TROUBLESHOOTING
(LOGIC DIAGRAM THEORY)

GUIDED MISSILE AIR DEFENSE SYSTEM
AN/TSQ-73

DEPARTMENT OF THE ARMY

11 MAY 1984

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

This manual is volume four of TM 9-1430-655-20-4 of the Display Equipment Maintenance for Guided Missile Air Defense System AN/TSQ-73.

*Zero in this column indicates an original page.

Technical Manual

No. 9-1430-655-20-4-4

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC., *11 May 1984*

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REPORTING OF ERRORS

You can help improve this publication. 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 direct to: Commander, U.S. Army Missile Command, ATTN: DRSMI-SNPM, Redstone Arsenal, AL 35898. A reply will be furnished to you.

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CHAPTER 6

DATA DISPLAY GROUP EXPANDED TROUBLESHOOTING

Section I. INTRODUCTION

6-1. Scope. This manual is volume four of TM 9-1430-655-20-4 of the Display Equipment Maintenance for Guided Missile Air Defense System AN/TSQ-73 and provides supplemental expanded troubleshooting information. This manual is published for the use and guidance of advanced personnel responsible for repair of the display console beyond the scope of organizational maintenance covered in the basic TM 9-1430-655-20 series of technical manuals.

6-2. Expanded Troubleshooting Concept. Expanded troubleshooting is required when use of the existing fault isolation procedures in the basic manuals fail to isolate and correct a malfunction. It is assumed that expanded troubleshooting will be performed by personnel fully trained and experienced in the AN/TSQ-73 system and its mission. Expanded troubleshooting covered in this manual is based on the use of existing onsite equipment (tapes, tools, test equipment, spare parts, and publications). Isolation of malfunctions is based on the fault analysis of normal system operating conditions and the use of built-in M & D software programs.

6-3. Troubleshooting Aids. This manual contains functional logic diagrams to enhance troubleshooting and fault isolation capabilities. The functional logic diagrams and the associated circuit descriptions are intended to be self contained and minimize the requirements for additional troubleshooting aids. Power distribution diagrams, cabling diagrams, and front-panel schematic diagrams are also supplied.

a. Input/Output Tables. Input and output tables are provided, as applicable, for each figure and sheet to enable easy access to signals referenced to other diagrams.

b. Input/Output Symbols. Symbols used on diagrams to indicate input and output signals include the following: A Indicates input from another figure:

▲ Indicates input from another figure.

△ Indicates input from same figure.

■ Indicates output to another figure.

□ Indicates output to same figure.

◪ Indicates output to same and another figure.

c. Equipment Interface. The troubleshooting diagrams may reference inputs and outputs interfacing between other pieces of equipment. When a notation shows that external equipment is involved, it is assumed that the user will refer to the applicable troubleshooting information provided for that equipment.

d. Logic Symbols. Logic symbols depend on card types. For discrete circuit cards containing conventional integrated circuits, conventional logic symbols are used. These symbols are used independently, with card locations and card pin numbers notated with the symbol. For analog circuits, circuit card details are provided only to a functional level.

6-4. Physical Description (fig. 6-1). The Data Display Group (DDG) is a freestanding assembly comprising a cabinet with two power supplies, and a front panel assembly, two card cage/array assemblies, a blower fan, miscellaneous minor components, and associated cabling and connectors. Two DDG's (units 1A7 and 1A17) are usually installed in the AN/TSQ-73 system shelter. In the Group configuration, both are used; in the Battalion configuration, only unit 1A7 is used. Provisions are made for installing either DDG, or both, in a remote position external to the system shelter. Refer to TM 9-1430655-20-1 for cabling diagrams depicting the various DDG installations.

a. Cabinet Assembly. The DDG cabinet assembly is an electromechanical enclosure that houses a control panel assembly, two power supplies, and two card cage/array assemblies. Mechanically, the cabinet contains a cooling system, two hinged doors, and mounting provisions for mechanical components.

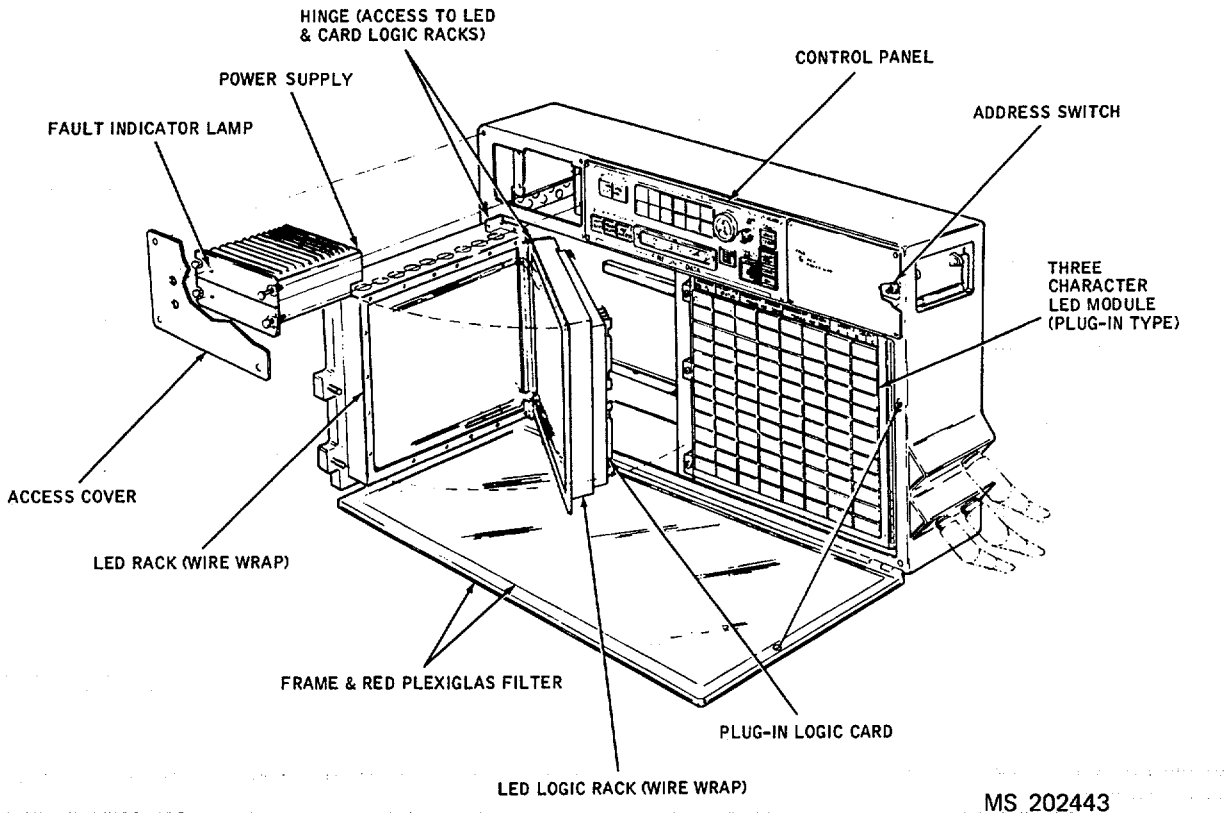


Figure 6-1. Data Display Group (DDG)

(1) *Front Panel Assembly (fig. 6-2).* The front panel assembly contains the control panel assembly and the status board section. The control panel assembly is mounted in the upper section of the cabinet. With the use of lamps and audible alarms, the panel provides fault indicators, operational status, and the state of alert information. The status board section houses the LED displays, which provide fire unit information and status.

(2) *Card Cage/Array Assembly (fig 6-3).* The card cage/array assemblies include the left-hand (A2) and right-hand (A3) assemblies. They are mounted in the lower front of the cabinet. Hinges on the outside permit easy access to the printed circuit cards and backplane wiring.

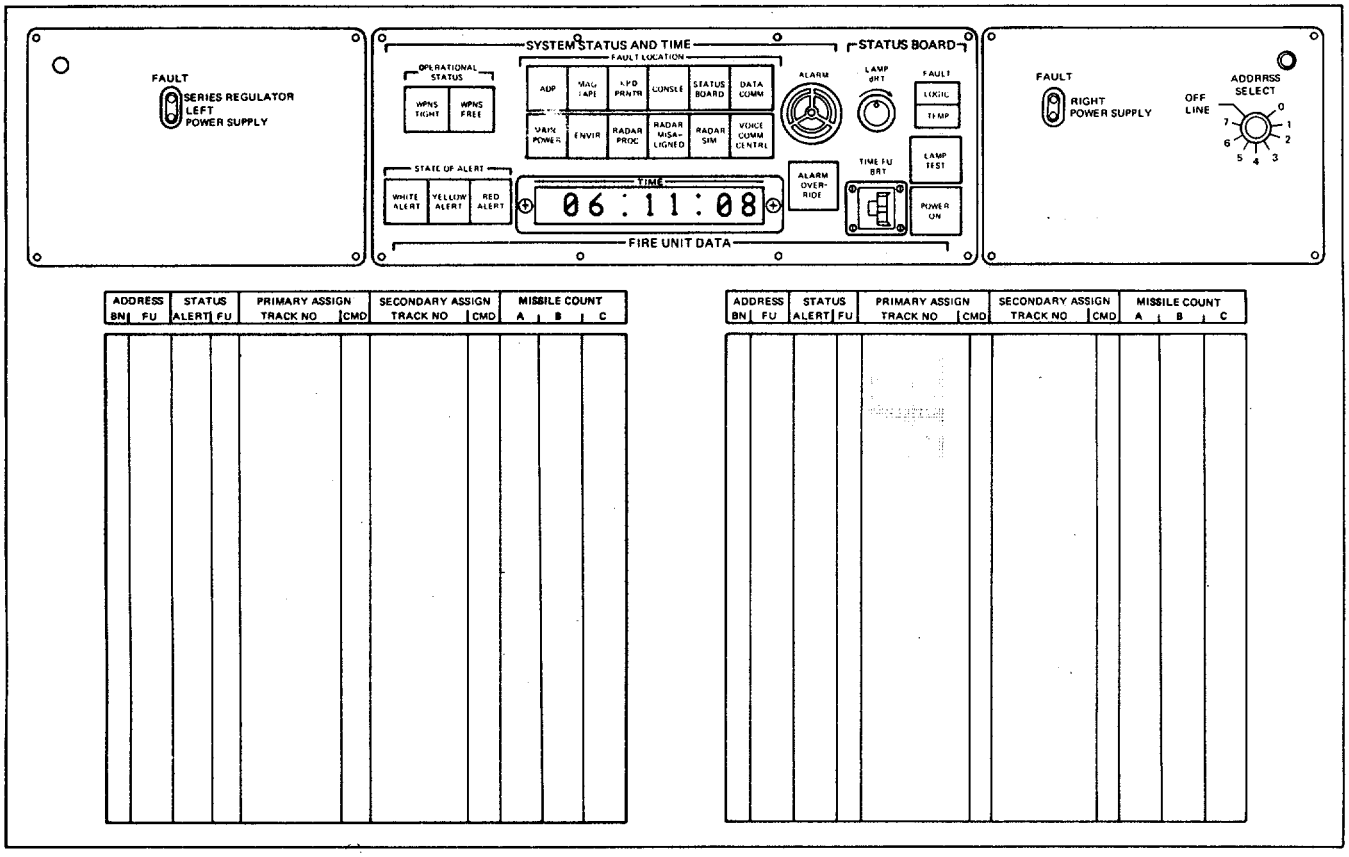
(3) *Cooling System.* Cooling within the cabinet is accomplished by air circulation from an internally mounted blower fan which draws in filtered air for distribution to the electronic components.

(4) *Cabinet Cable Set (fig. 6-4 and 6-5).* The cabinet cable set includes wiring harnesses, and cable assemblies W291 thru W294. The cable set provides electrical interconnections between internal electronic components, and external interface. The interface connectors are located on the right side of the cabinet.

(5) *Power Supplies.* The power supplies are mounted in the upper left (PSI) and upper right (PS2) sections of the data display cabinet. Each power supply is provided with a fault indicator.

(6) *Series Regulator.* The series regulator (A4), an electronic component assembly located in the center rear of the cabinet, provides voltage regulation for the output of PS1.

b. Circuit Card Location. The circuit cards in the data display group are mounted inside the card cage/array, right-hand and left-hand sides. Refer to figure 6-6 for individual circuit card locations.



LEFT HAND SIDE

RIGHT HAND SIDE

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Figure 6-2. DDG Front Panel Assembly

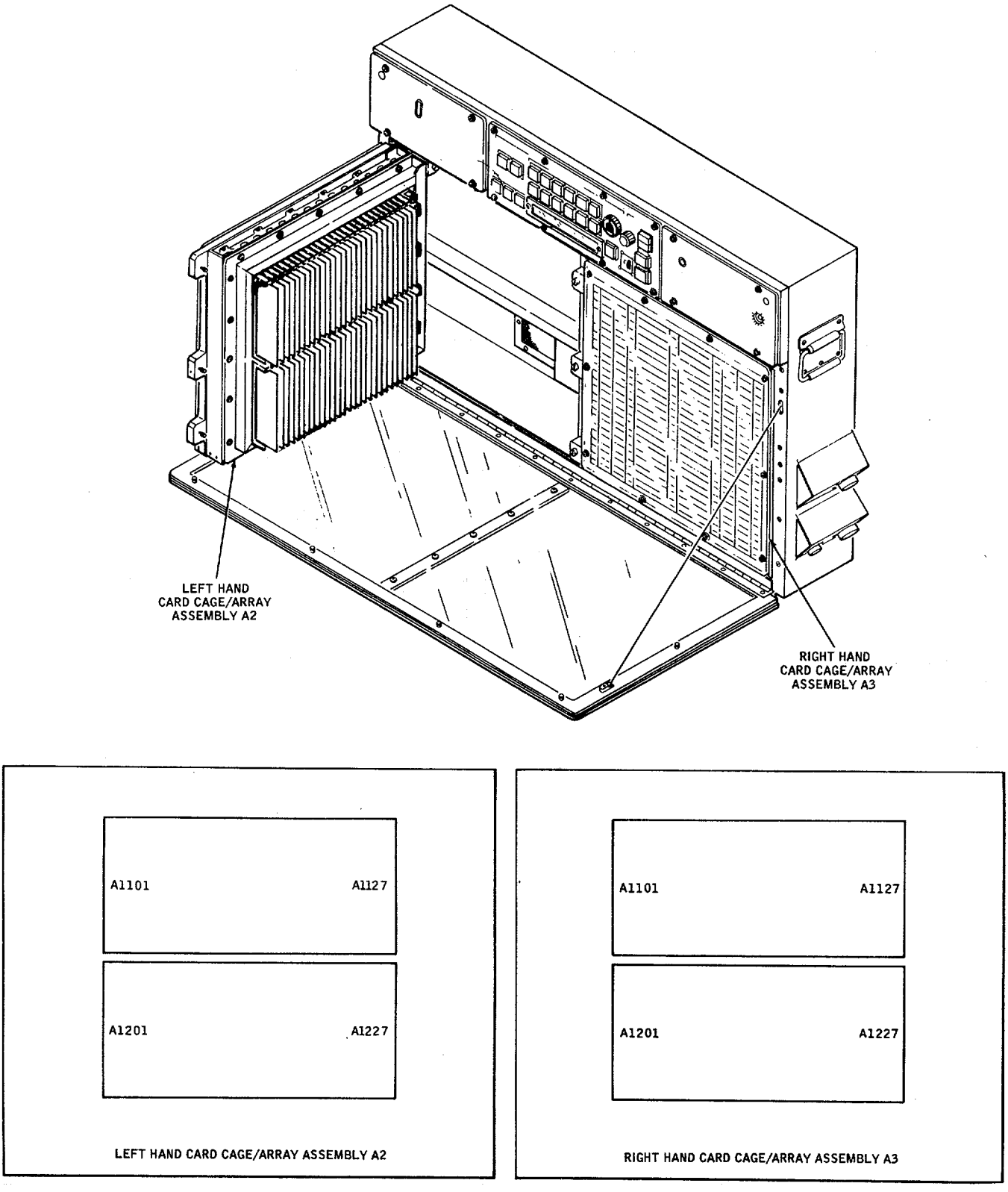


Figure 6-3. DDG Card Cage/Array Assembly

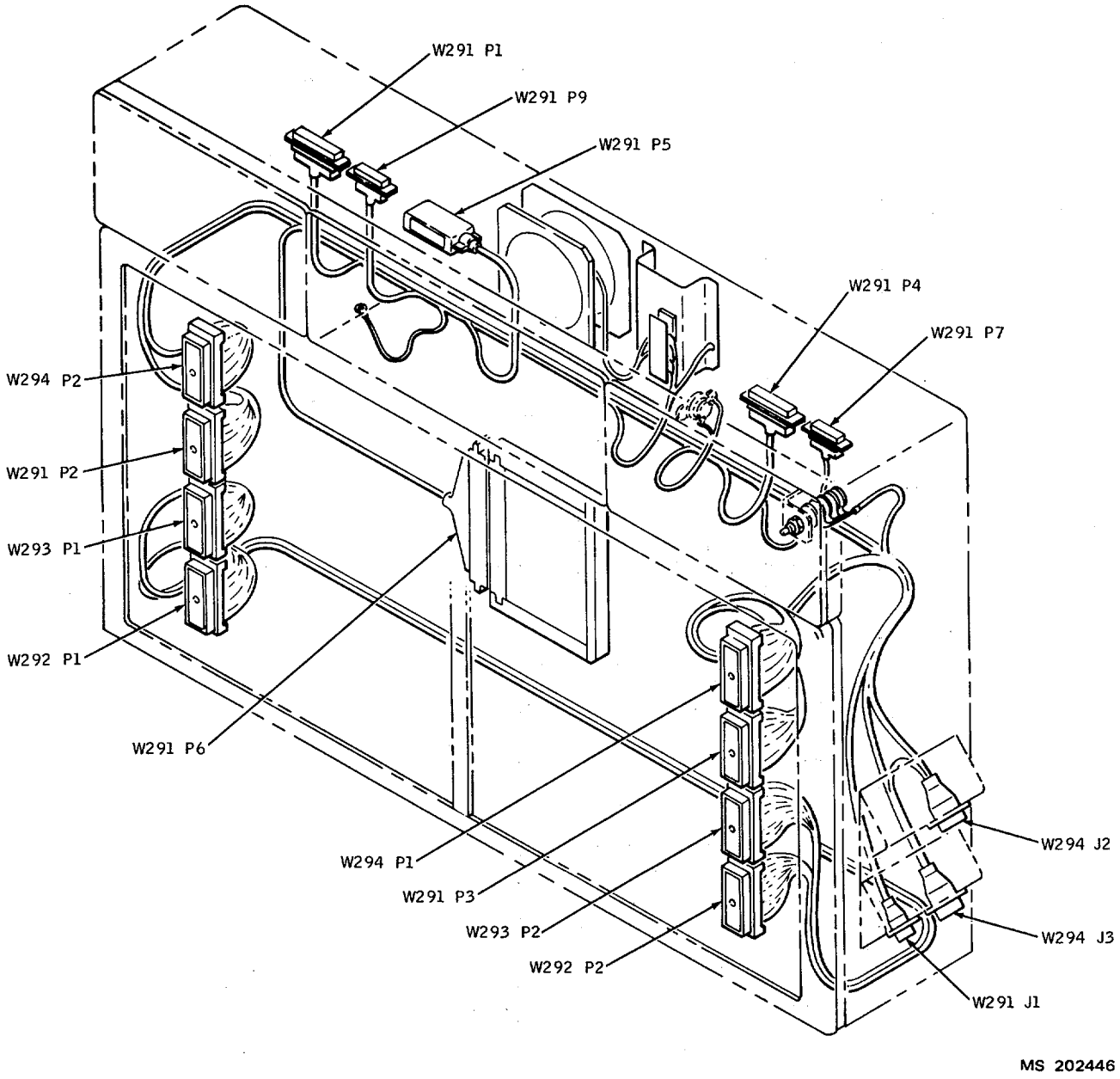
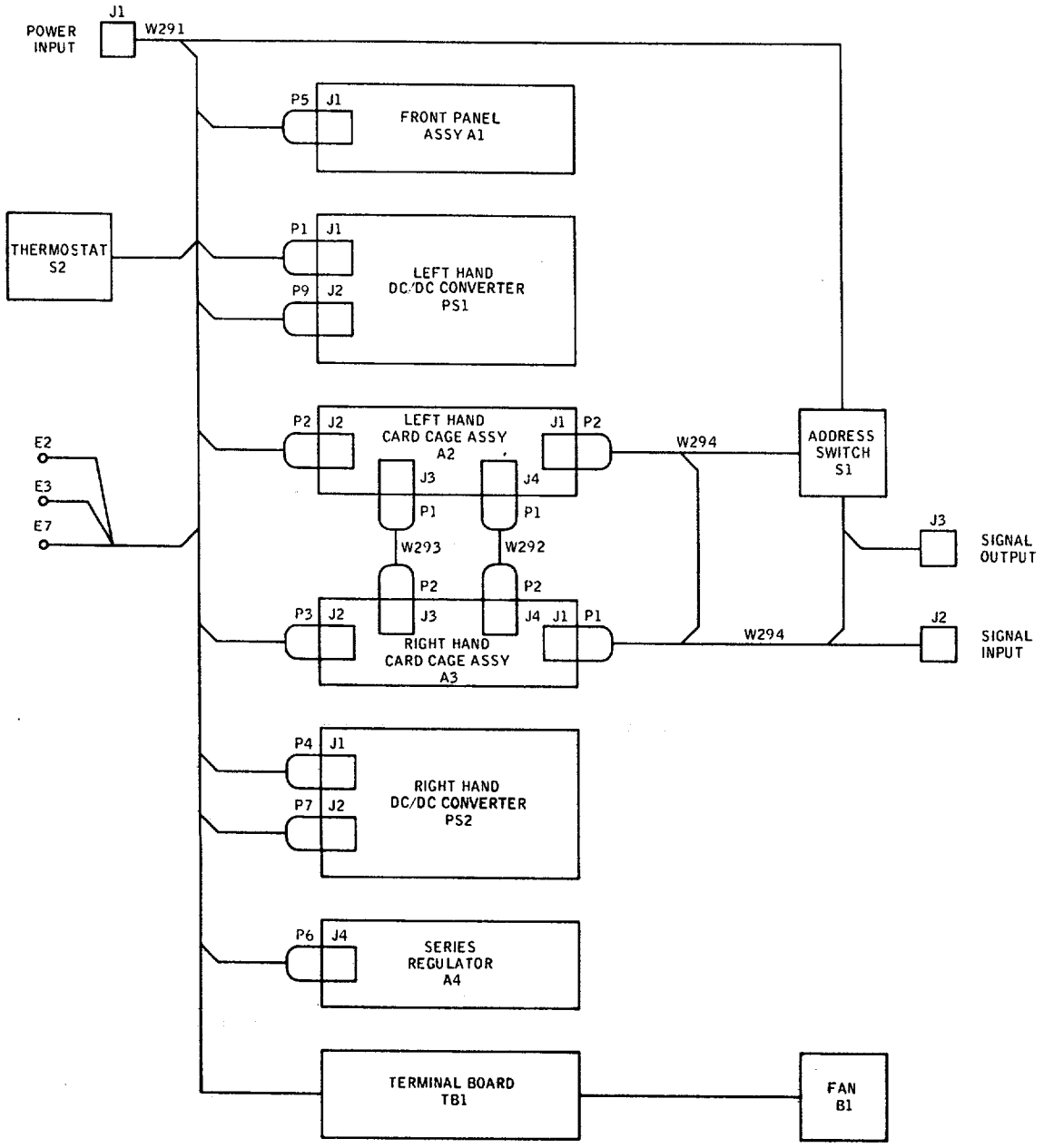


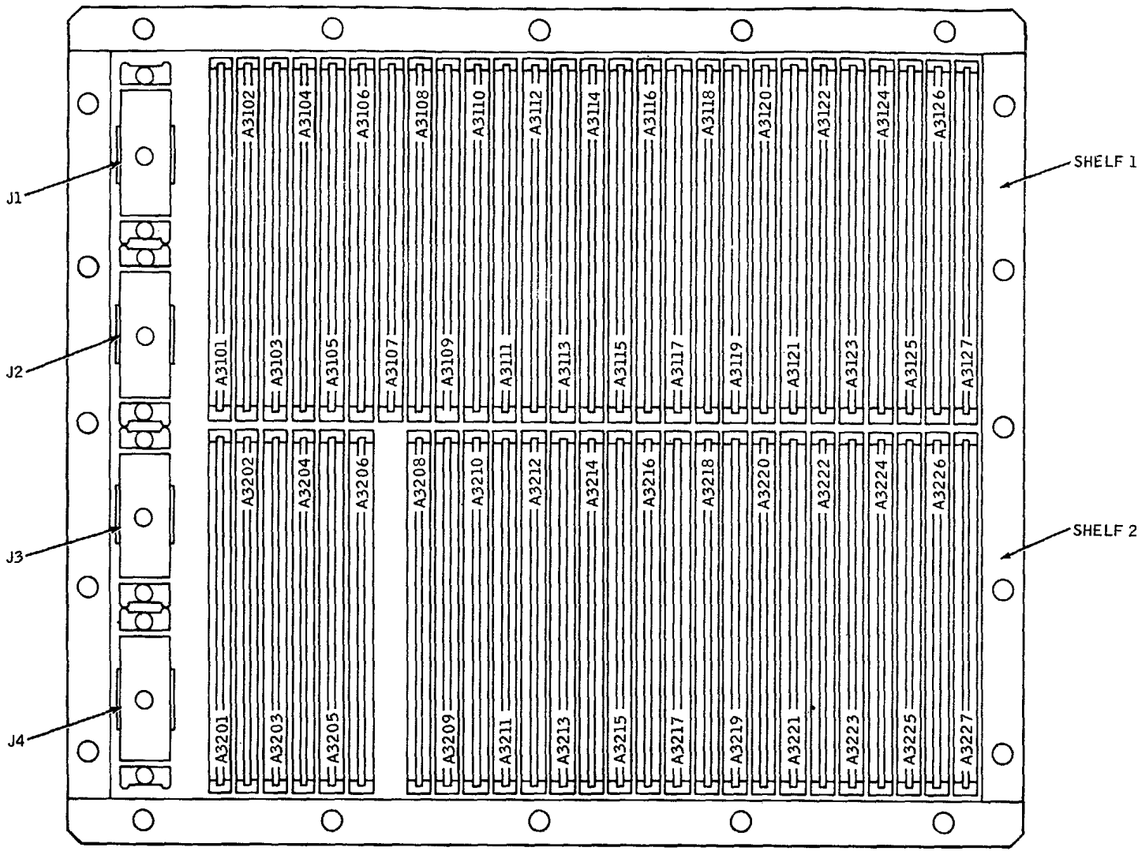
Figure 6-4. DDG Cabinet Connector Cabling



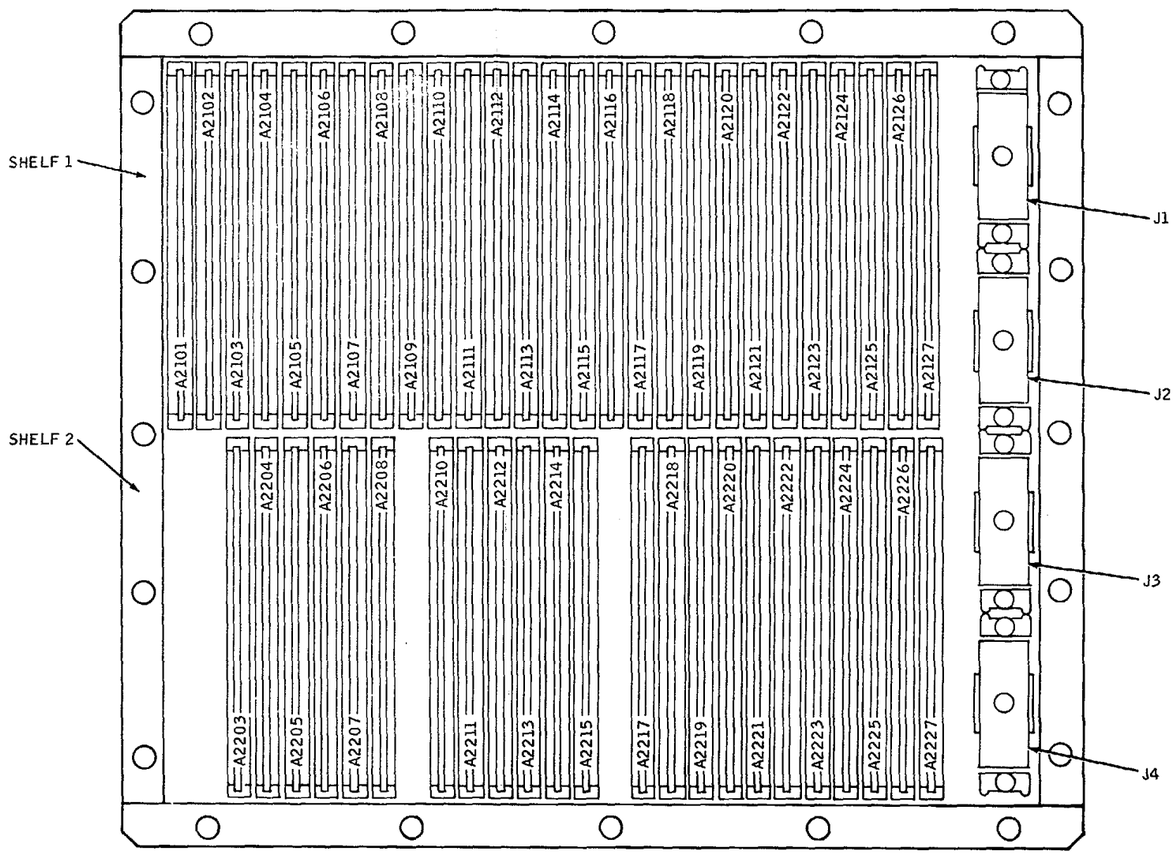
NOTES:
PREFIX ALL REFERENCE DESIGNATIONS WITH 1A7 OR 1A17, AS APPLICABLE.

MS 202447

Figure 6-5. DDG Cable Set



LEFT HAND CARD BAY



RIGHT HAND CARD BAY

MS 202448

Figure 6-6. DDG Circuit Card Location

Section II. OVERALL THEORY OF OPERATION

6-5. Overall Function Description (fig. 6-7). The DDG provides a display of Fire Unit (FU) status information, system fault conditions, weapons status, and alert conditions. The FU information is displayed on two 8-x-12 fields of Light-Emitting Diode (LED) modules. Each LED module displays three characters, with each character formed by a 5-x-7 dot matrix. System status, alert indicators, and time-of-day clock are located on a control panel above the LED field.

a. The Automatic Data Processor (ADP) stores the Display File (DF), which includes information received from the FUs and system status data. The ADP program initiates a device command to the Input/Output (I/O) buffer logic over the control data lines. The I/O buffer logic responds with a request for data. The ADP then transmits from 1 byte to 588 bytes (8 bits/byte) of data, depending on the program. The I/O buffer logic accepts the DF data at its own rate and stores it temporarily. The stored DF is then used to update the refresh memory logic, which can store all but the first four of 588 bytes.

b. The first four bytes (parity bytes) are applied to the fault and indicator status logic which, when an error exists, lights the system fault indicator lamps on the control panel. The refresh data bytes are serially clocked and parity checked out of the refresh memory into the output display logic. If an error exists in a byte, the # symbol is substituted for that character. The refresh data bytes are applied consecutively to one full row (48 characters) of LED's (left to right) in the output display logic. Bytes 5 through 12 represent the time-of-day, and the remaining 576 bytes represent FU information. Each byte represents one character and, depending on the code in that byte, causes the dot matrix of the affected LED module to light in the pattern corresponding to that character. At the end of the last byte, the I/O buffer sends an interrupt to the ADP and goes into the idle condition. A full update of the refresh memory requires about 150 ms.

6-6. Logic Theory Presentation. The following describes the philosophy and techniques that illustrate and support the console logic theory. The detailed logic diagrams in volume 2 are the primary illustrative material for the logic theory. These are supplemented by functional block diagrams, timing diagrams, and tabular data, which are integrated into the logic theory.

a. The functional block diagrams provide simplified illustrative support for the theory, emphasizing functional flow and descriptive signal connotation, whereas the logic diagrams show individual signal flow and unique mnemonic connotation. The block diagrams, therefore, aid in understanding the operation of the device and facilitate use of the logic diagrams in isolating a fault.

b. The block diagrams collect related functional elements (gates, flip-flops, multiplexers, etc.) into functional blocks that are directly related to the broken-line enclosed areas on the associated logic diagrams. In addition, the block diagrams contain the primary input and output mnemonics for each functional block. For the purpose of simplicity, both outputs (flip-flops J and K) are shown only when logically critical. Bused lines, where practical, illustrate the flow of related signals. Clock inputs and initialization signals are not shown.

6-7. Circuit Card and Key Signal Lookup Tables. Circuit card and key signal lookup tables provide figure references to functional logic diagrams and aid in locating circuit areas corresponding to circuit card locations or those for which signal mnemonics are known.

a. Circuit Card Lookup. Tables 6-1 and 6-2 are circuit card locations for the left-hand and righthand card cages, respectively. The circuit card lookup table provides figure and sheet references to logic diagrams when a circuit card at a particular location is suspect. (Since a circuit card can be used for various functional applications, multiple references may be provided for a single circuit card.) The table also provides information on whether a circuit card is testable by the module test set.

b. Key Signal Lookup. Tables 6-3 and 6-4 are key signal lookup listings for the left-hand and righthand assemblies, respectively. Key signals are derived by interconnecting signals going between

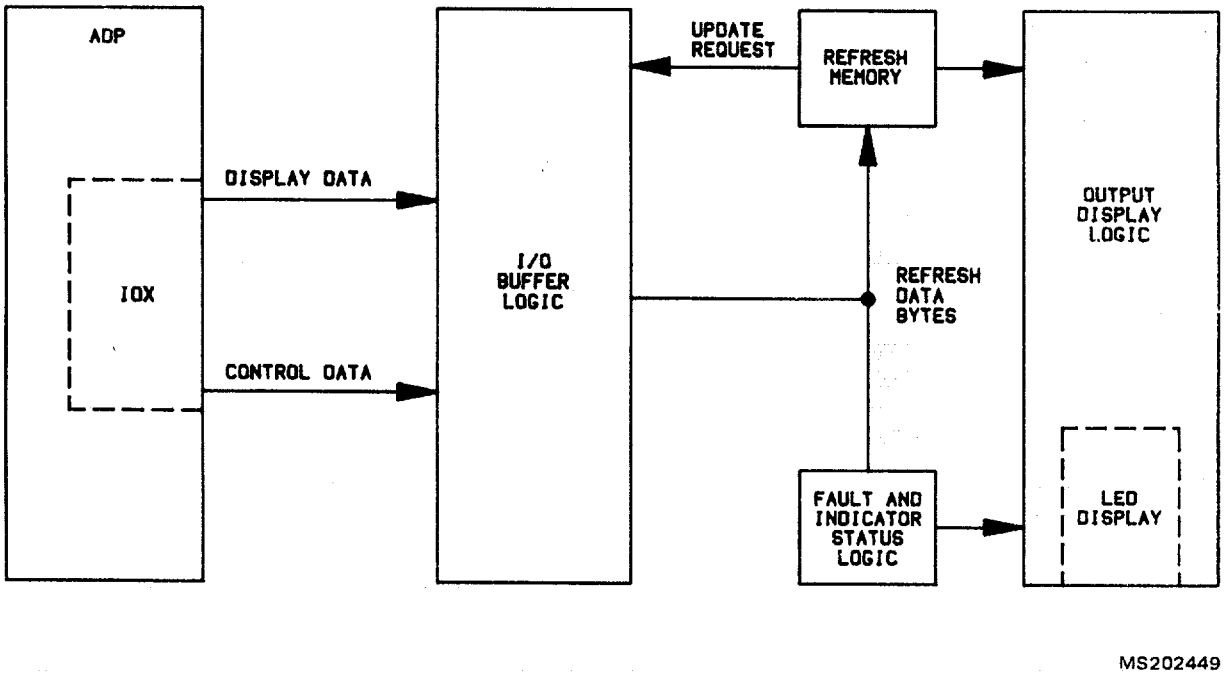


Figure 6-7. Data Display Group Overall Block Diagram

either a physical assembly or a functional circuit area covered by a troubleshooting diagram. Key signals are listed in alphabetical/numerical order (letters precede numbers). The destination lists the following:

Connector or switch	*Pin number*	*Test Point*	*Figure and sheet*
*J1214	54	25A	FO1400

The * symbol indicates the source of the signal. FO signifies the reference to a Volume I foldout. The third and fourth digits indicate the foldout number. The last two digits indicate the sheet number. When a figure contains a single sheet, the last two digits are 00.

The connector or switch designations are represented by a J or an A, respectively.

c. Mnemonics. The descriptive signal names are usually a direct translation of the particular mnemonic. In the DDG, the first letter is always a P. The final two letters usually indicate the output element, which is then indicative of the signal's logic significance, as follows:

Final mnemonic letter	*Source element*	*Logic significance*
J or JQ	Flip-flop J output	High when set
K or KQ	Flip-flop K output	High when reset
A	AND gate output	Low when enabled
O	OR gate output	High when enabled
OV	Inverted AND gate output	High when active
AV	Inverted K gate output	Low when active
OT-9T	Decoder outputs	Low for active output
1V-2V	Binary counter outputs	High when active
OE-3E	Shift register outputs	High when active

Table 6-1. Left-Hand Assembly Card Location Index

Card slot	Fig. sheet	MTS-testable	Card slot	Fig. sheet	MTS-testable
A1101	6-19-1	Yes	A1116	6-21-1	Yes
				6-21-2	
A1102	6-19-1	Yes		6-21-4	
	6-19-2			6-21-5	
A1103	6-16	Yes	A1117	6-18	Yes
	6-19-1			6-21-2	
	6-19-2			6-21-3	
				6-21-5	
A1104	6-15	Yes			
	6-16		A1118	6-15	Yes
	6-19-1				
	6-19-2		A1119	6-21-2	Yes
				6-21-3	
A1105	6-15	Yes		6-21-5	
	6-19-1			6-21-6	
A1106	6-18	Yes	A1121	6-18	No
	6-21-6				
			A1122	6-21-3	No
A1107	6-21-1	Yes		6-21-6	
	6-21-2				
	6-21-3		A1123	6-21-3	No
	6-21-4			6-21-6	
	6-21-5				
	6-21-6		A1124	6-21-2	No
				6-21-5	
A1108	6-16	Yes			
	6-19-1		A1125	6-21-2	No
				6-21-5	
A1109	6-12	Yes			
	6-16		A1126	6-21-1	No
				6-21-4	
A1110	6-14-1	Yes			
	6-14-2		A1127	6-21-1	No
				6-21-4	
A1111	6-14-1	Yes			
	6-14-2		A1203	6-9	Yes
				6-16	
A1112	6-14-1	Yes		6-19-2	
	6-14-2				
			A1204	6-16	Yes
A1113	6-14-1	Yes		6-19-1	
	6-14-2			6-19-2	
A1114	6-14-1	Yes	A1205	6-15	Yes
	6-14-2			6-16	

Table 6-1. Left-Hand Assembly Card Location Index

Card slot	Fig. sheet	MTS-testable	Card slot	Fig. sheet	MTS-testable
A1205	6-19-1 6-19-2	Yes	A1215	6-19-2	Yes
			A1217	6-12	Yes
A1206	6-12	Yes		6-17	
	6-15			6-18	
	6-16				
	6-18		A1218	6-11	Yes
	6-19-1			6-12	
	6-19-2			6-18	
A1207	6-19-2	Yes	A1219	6-11	Yes
	6-16				
A1208	6-15	Yes		6-18	
	6-16				
	6-19-1		A1220	6-11	Yes
	6-19-2			6-12	
A1210	6-13	No	A1221	6-10	No
				6-20	
A1211	6-17	Yes			
	6-18		A1222	6-10	No
				6-20	
A1212	6-17	Yes			
	6-18		A1223	6-10	No
				6-20	
A1213	6-17	Yes			
	6-18		A1224	6-10	No
				6-20	
A1214	6-15	Yes			
	6-16		A1225	6-10	No
	6-18			6-20	
A1215	6-13	Yes	A1226	6-10	No
	6-15			6-20	
	6-17				
	6-18		A1227	6-10	No
	6-19-1			6-20	

Table 6-2. Right-Hand Assembly Card Location Index

Card slot	Fig.	Sheet	MTS-testable	Card slot	Fig.	Sheet	MTS-testable
A1101	6-1	1	Yes	A1114	6-1	1	Yes
					6-2		
A1102	6-1	1	Yes		6-4		
					6-5		
A1103	6-1	1	Yes		6-7		
					6-8	1	
A1104	6-1	1	Yea		6-9		
					6-23		
A1105	6-1	1	Yes				
	6-3			A1115	6-1	1	Yes
	6-4				6-2		
	6-9						
	6-23			A1116	6-1	1	Yes
	6-2						
A1106	6-1	1	Yes				
				A1117	6-1	1	Yes
A1107	6-1	1	Yes		6-4		
					6-6		
A1108	6-1	1	Yes		6-8	1	
	6-23				6-8	2	
					6-9		
A1109	6-4		Yes		6-17		
	6-7				6-23		
	6-8	2					
	6-9			A1118	6-6		Yes
	6-23				6-8	1	
					6-15		
A1110	6-4		Yes	A1119	6-3		Yes
	6-5				6-4		
	6-7				6-5		
	6-8	2			6-6		
	6-23				6-8	1	
	6-23						
A1111	6-4		Yes				
	6-6			A1120	6-6		Yes
	6-8	1			6-8	1	
	6-8	2			6-15		
	6-9						
	6-17			A1121	6-3		Yes
	6-23				6-4		
					6-8	1	
A1112	6-23		No		6-8	2	
A1113	6-4		Yes	A1122	6-2		Yes
	6-8	1			6-3		
	6-9				6-4		
	6-23				6-6		

Table 6-2. Right-Hand Assembly Card Location Index

Card slot	Fig.	Sheet	MTS-testable	Card slot	Fig.	Sheet	MTS-testable
A1122	6-8	1		A1207	6-23		Yes
	6-23						
				A1208	6-22-1		Yes
A1123	6-1	1	Yes		6-22-2		
	6-3				6-22-3		
	6-4				6-23		
	6-6						
	6-9			A1209	6-2		Yes
	6-23				6-22-1		
					6-22-2		
A1124	6-7		Yes		6-22-3		
	6-8	2					
	6-9			A1210	6-22-4		Yes
					6-22-5		
A1125	6-3		Yes		6-22-6		
	6-4						
	6-5			A1211	6-4		Yes
	6-7				6-8-1		
	6-8	1			6-9		
	6-8	2			6-20		
					6-22-4		
A1126	6-2		Yes		6-22-5		
	6-4				6-22-6		
	6-5						
	6-8	1		A1212	6-20		No
A1127	6-1	1	Yes	A1213	6-6		Yes
	6-2				6-9		
	6-4						
	6-5			A1214	6-4		Yes
	6-8	1			6-6		
	6-23				6-8-1		
					6-15		
A1201	6-22	1	No		6-23		
A1202	6-22-2		No	A1215	6-2		Yes
					6-4		
A1203	6-22-3		No		6-6		
	6-23				6-7		
					6-8-1		
A1204	6-22-4		No		6-23		
	6-23						
				A1216	6-6		Yes
A1205	6-22-5		No		6-7		
	6-23				6-9		

Table 6-2. Right-Hand Assembly Card Location Index

Card slot	Fig.	Sheet	MTS-testable	Card slot	Fig.	Sheet	MTS-testable
A1206	6-22-6 6-23		No	A1217	6-2 6-3		Yes
A1217	6-4 6-6 6-7 6-8-1 6-9			A1222	6-7 6-9		Yes
A1218	6-6 6-15		Yes	A1223	6-2 6-5 6-7 6-8-1 6-9		Yes
A1219	6-6 6-15		Yes	A1224	6-9		Yes
A1220	6-4 6-5 6-6 6-7 6-8-1 6-23		Yes	A1225	6-7 6-8-1 6-9		Yes
				A1226	6-9		Yes
				A1227	6-2 6-20		Yes

Table 6-3. Left Hand Assembly Key Signal Lookup

Signal	Distribution											
PARMCA	J1204	04	04A	FO2300	J03	N1		FO2300				
PATR1D	J1121	04		FO1800	J02	L4		FO1800				
PATR2D	J1121	06		FO1800	J02	L5		FO1800				
PATR3D	J1121	14		FO1800	J02	L6		FO1800				
PATR4D	J1121	18		FO1800	J02	M3		FO1800				
PATR5D	J1121	24		FO1800	J02	M4		FO1800				
PATR6D	J1121	34		FO1800	J02	N1		FO1800				
PATR7D	J1121	40		FO1800	J02	N2		FO1800				
PBRTIOV	J1208	08	06A	FO1600	J1205	68	32B	FO1600				
PBRTCO	J1204	39	19B	FO1600	J1204	36	17A	FO1600	J1204	31	15B	FO1600
PBRTSB	J1208	06	05A	FO1600	J1110	77	38B	FO1402	J1111	77	38B	FO1402
	J1112	77	38B	FO1402	J1113	77	38B	FO1402	J1114	77	38B	FO1402
	J1114	63	32B	FO1402	J1113	63	32B	FO1402	J1112	63	32B	FO1402
	J1111	63	32B	FO1401	31110	63	32B	FO1401	J1110	49	26B	FO1401
	J1111	49	26B	FO1401	J1112	49	26B	FO1401	J1113	49	26B	FO1401
	J1114	49	26B	FO1402	J1114	37	18B	FO1402	J1113	37	18B	FO1401
	J1112	37	18B	FO1401	J1111	37	18B	FO1401	J1110	37	18B	FO1401
	J1110	23	12B	FO1401	J1111	23	12B	FO1401	J1112	23	12B	FO1401
	J1113	23	12B	FO1401	J1114	23	12B	FO1401	J1114	09	06B	FO1401
	J1113	09	06B	FO1401	J1112	09	06B	FO1401	J1111	09	06B	FO1401
	J1110	09	06B	FO1401								
PBRT004	J1108	22	14A	FO1600	J1115	08		FO1600	J02	D2	FO1600	
PBRT1A	J1204	63	33B	FO1600	J1205	65	33B	FO1600				
PBRT104	J1108	23	12A	FO1600	J1115	10		FO1600	J02	D3	FO1600	

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBRT20V	J1204	57	30B	F01600	J1205	57	30B	F01600				
PBRT204	J1108	20	10A	F01600	J1115	05		F01600	J02	D4		F01600
PBRT3A	J1204	30	15A	F01600	J1204	35	17B	F01600	J1204	40	19A	F01600
	J1206	21	10B	F01600								
PBRT304	J02	D5		F01600	J1115	07		F01600	J1108	17	09B	F01600
PBSWOAV	J1109	27	14A	F01600	J1109	14	06A	F01600	J1108	24	13A	F01600
PBSWIAV	J1109	26	13A	F01600	J1109	10	05A	F01600	J1108	25	11A	F01600
PBSW2AV	J1109	24	12A	F01600	J1109	08	04A	F01600	J1108	18	09A	F01600
PBSW3AV	J1108	14	08B	F01600	J1219	66	32B	F01600				
PBS010E	J04	A1		F01401	J1116	08	06A	F02101	J1110	07	05B	F01401
	J1106	54	25A	F01800								
PBS011E	J04	A2		F01401	J1116	24	13A	F02101	J1110	11	07B	F01401
PBS012E	J04	A3		F01401	J1116	40	19A	F02102	J1110	13	07A	F01401
PBS013E	J04	A4		F01401	J1119	08	06A	F02102	J1111	05	04B	F01401
	J11110	05A		F01401								
PBS020E	J04	A5		F01401	J1119	24	13A	F02103	J1111	07	05B	F01401
PBS021E	J04	A6		F01401	J1119	40	19A	F02103	J1111	11	07B	F01400
PBS022E	J04	B1		F01401	J1116	54	25A	F02104	J1111	13	07A	F01401
PBS023E	J1112	05	04B	F01401	J1111	10	05A	F01401	J1116	68	3ZA	F02104
	J04	B2		F01401								
PBS030E	J04	B3		F01401	J1116	77	38B	F02105	J1112	07	05B	F01401
PBS031E	J04	B4		F01401	J1119	54	25A	F02105	J1112	11	07B	F01401
PBS032E	J04	B5		F01401	J1119	68	32A	F02106	J1112	13	07A	F01401

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBS033E	J1113	05	04B	F01401	J1112	10	05A	F01401	J1119	77	38B	F02106
	J04	B6		F01401								
PBS043E	J1114	05	04B	F01401	J1113	10	05A	F01401				
PBS051E	J1107	08	06A	F02101	J1114	11	07B	F01401	J1117	77	38B	F01800
	J04	C1										
PBS052E	J04	C2		F01401	J1107	24	13A	F02101	J1114	13	07A	F01401
PBS053E	J04	C3		F01401	J1107	40	19A	F02102	J1114	10	05A	F01401
	J1110	19	10B	F01401								
PBS060E	J04	C4		F01401	J1107	11	05B	F02102	J1110	21	11B	F01401
PBS061E	J04	C5		F01401	J1107	23	11i	F02103	J1110	27	13B	F01401
PBS062E	J04	C6		F01401	J1107	35	17B	F02103	J1110	25	14A	
PBS063E	J1111	19	10B	F01401	J1110	24	12A	F01401	J1107	54	25A	F02104
	J04	D5		F01401								
PBS070E	J04	D2		F01401	J1107	68	32A	F02104	J1111	21	11B	F01401
PBS071E	J04	D3		F01401	J1107	77	38B	F02105	J1111	27	13B	F01401
PBS072E	J04	D4		F01401	J1107	47	25B	F02105	J1111	25	14A	F01401
PBS073E	J1112	19	10B	F01401	J1111	24	12A	F01401	J1107	59	31B	F02106
PBS080E	J04	D6		F01401	J1107	76	37A	F02106	J1112	21	11B	F01401
PBS083E	J1113	19	10B	F01401	J1112	24	12A	F01401				
PBS092E	J04	E2		F01401	J1116	04	04A	F02101	J1113	25	14A	F01401
	J1106	48	22A	F01800								
PBS093E	J04	E3		F01401	J1116	18	10A	F02101	J1114	19	10B	F01401
	J1113	24	12A	F01401								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBS100E	J04	E4		F01401	J1116	34	16A	F02102	J1114	21	11B	F01401
PBS101E	J04	E5			J1119	04						
PBS101E	J1119	04	04A	F02102	J1114	27	13B	F01401				
PBS102E	J04	E6		F01401	J1119	18	10A	F02103	J1114	25	14A	F01401
PBS103E	J04	F1		F01401	J1119	34	16A	F02103	J1114	24	12A	F01401
	J1110	33	6B	F01401								
PBSO10E	J04	F2		F01401	J1116	48	22A	F02104	J1110	35	17B	F01401
PBS111E	J04	F3		F01401	J1116	62	29A	F02104	J1110	39	19B	F01401
PBS112E	J04	F4		F01401	J1116	71	36A	F02105	Jll10	42	20A	F01401
PBS113E	J1111	33	16B	F01401	J11lO	38	18A	F01401	J1119	48	22A	F02105
	J04	F5		F02101								
PBS120E	J04	F6		F01401	J1119	62	29A	F02106	J1111	35	17B	F01401
PBS121E	J04	H1		F01401	J1119	71	36A	F02106	J1111	39	19B	F01401
PBS123E	J1112	33	16B	F01401	J1111	38	18A	F01401				
PBS133E	J117	04	04A	F02101	J1113	33	16B	F01401	J1112	38	18A	F01401
	J1117	71	36A	F01200	J04	H2	F01401					
PBS140E	J04	H5		F01401	J1107	18	10A	F02101	J1113	35	17B	F01401
PBS141E	J04	H6		F01401	J1107	34	16A	F02102	J1113	39	19B	F01401
PBS142E	J1117	04	04A	F02102	J1113	42	20A	F01401		J04	J1	F01401
PBS143E	J1117	11	05B	F02103	J1114	33	16B	F01401	J1113	38	18A	F01401
	J04	K1		F01401								
PBS150E	J04	K2		F01401	J1117	18	IOA	F02103	J1114	35	17B	F01401
PBS151E	J04	K5		F01401	J1107	48	22A	F02104	J1114	39	19B	F01401

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBS152E	J04	K6		F01401	J1107	62	29A	F02104	J1114	42	20A	F01401
PBS153E	J04	L1		F01401	J1107	71	36A	F02105	J1114	38	18A	F01401
	J1110	45	24B	F01401								
PBS160E	J04	L2		F01401	J1117	23	11B	F02105	Jll10	47	25B	F01401
PBS161E	J10	51	27B	F01401	J1106	77	38B	F02106	J04	L3		F01401
PBS162E	J04	L4		F01401	J1100	56	26A	F01401	J1106	65	34B	F02106
PBS163E	J1111	45	24B	F01401	J1110	52	24A	F01401				
PBS173E	J1112	45	24B	F01401	J1111	52	24A	F01401				
PBS180E	J04	L5		F01401	J1116	03	02A	F02101	J1112	47		
PBS180E	J1112	47	25B	F01401	J1106	41	22B	F01800				
PBS181E	J04	L6		F01401	J1116	17	08B	F02101	J1112	51	27B	F01401
PBS182E	J04	M2		F01401	J1116	29	14B	F02102	J1112	56	26A	F01401
PBS183E	J1119	03	02A	F02101	J1113	45	24B	F01401	J1112	52	24A	F01401
PBS190E	J04	M4		F01402	J1119	17	08B	F02103	J1113	47	25B	F01402
PBS191E	J04	M5		F01402	J1119	29	14B	F02103	J1113	51	27B	F01402
PBS192E	J04	M6		F01402	J1116	41	22B	F02104	J1113	56	26A	F01402
PBS193E	J1114	45	24B	F01402	J1113	52	24A	F01402	J1116	53	28B	F02104
	J04	N1		F01402								
PBS200E	J04	N2		F01402	J1116	65	34B	F02105	J1114	47	25B	F01402
PBS201E	J04	N3		F01402	J1119	41	22B	F02105	J1114	51	27B	F01402
PBS202E	J04	N4		F01402	J1119	53	28B	F02106	J1114	56	26A	F01402
PBS203E	J04	N5		F01402	J1119	65	34B	F02106	J1114	52	24A	F01402
	J1110	59	30B	F01402								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBS213E	J1111	59	30B	F01402	J110	64	31A	F01402				
PBS221E	J1107	03	02A	F02101	J1117	65	34B	F01800	J1111	65	33B	F01402
	J04	N6		F01402								
PBS222E	J04	P1		F01402	J1107	17	08B	F02101	J1111	68	33A	F01402
PBS223E	J04	P2		F01402	J1107	29	14B	F02102	J1112	59	30B	F01402
	J111	64	31A	F01402								
PBS230E	J1117	03	02A	F02102	J1112	61	31B	F01402	J04	P3		F01402
PBS231E	J1117	24	13A	F02103	J1112	65	33B	F01402	J04	P4		F01402
PBS232E	J1117	17	08B	F02103	J1112	68	33A	F01402	J04	P5		F01402
PBS233E	J04	P6		F01402	J1107	41	22B	F02104	J1113	59	30B	F01402
	J1112	64	31A	F01402								
PBS240E	J04	RI		F01402	J1107	53	28B	F02104	J1113	61	31B	F01402
PBS24IE	J04	R2		F01402	J1107	65	34B	F02105	J1113	65	33B	F01402
PBS242E	J04	R3		F01402	J1117	76	37A	F02105	J1113	68	33A	F01402
PBS243E	J04	R4		F01402	J1114	59	30B	F01402	J1113	64	31A	F01402
	J1106	71	36A	F02106								
PBS250E	J04	R5		F01402	J1114	61	31B	F01402	J1106	76	37A	F02106
PBS253E	J1114	64	31A	F01402	J1110	73	36B	F01402				
PBS262E	J04	R6		F01402	J1110	80		F01402	J1106	47	39A	F01402
	J1116	11	25B	F01200			05B	F02101				
PBS263E	J04	S1		F01402	J1116	23	11B	F02101	J1111	73	36B	F01402
	J1110	76	37A	F01402								
PBS270E	J04	S2		F01402	J1116	35	17B	F02102	J1111	75	37B	F01402

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PBS271E	J1119	11	05B	F02102	J1111	79	39B	F01402	J04	S3		F01402
PBS272EQ	J1119	23	11B	F02103	J1111	80	39A	F01402	J04	S4		F01402
PBS273E	J04	55		F02103	J1119	35	17B	F01402	J1112	73	36B	F01402
	J1111	76	37A	F01402								
PBS280E	J04	S6		F01402	J1116	47	25B	F02104	J1112	75	37B	F01402
PBS281E	J03	R6		F01402	J1116	59	31B	F02104	J1112	79	39B	F01402
PBS282E	J03	S1		F01402	J1116	76	37A	F02105	J1112	80	39A	F01402
PBS283E	J03	S3		F01402	J1119	47	25B	F02105	J1113	73	36B	PF01402
	J1112	76	37A	F01402								
PBS290E	J03	S4		F01402	J1119	59	31B	F02106	J1113	75	37B	F01402
PBS291E	J03	S6		F01402	J1119	76	37A	F02106	J1113	79	39B	F01402
PBS293E	J1114	73	36B	F01402	J1113	76	37A	F01402				
PB020B4	J1115	56		F01001	J1223	77		F01001	J1222	61		F01001
	J1221	49		F01001	J1226	49		F01001	J1227	61		F01001
	J1225	35		F01001	J1224	23		F01001	J1223	07		F01001
	J03	B1		F01001								
PB021B4	J1115	37		F01001	J1227	45		F01001	J1224	71		F01001
	J1223	57		F01001	J1222	45		F01001	J1221	29		F01001
	J1226	29		F01001	J1225	19		F01001	J1224	03		F01001
	J03	B6		F01001								
PB022B4	Jl115	17		F01001	J1227	49		F01001	J1224	77		F01001
	J1223	61		F01001	J1222	49		F01001	J1221	35		F01001
	J1226	35		F01001	J1225	23		F01001	J1224	07		F01001

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution									
	J03	84		F01001						
PB023B4	J1115	19		F01001	J1225	71	F01001	J1224	57	F01001
	J1223	45		F01001	J1221	19	F01001	J1222	29	F01001
	J1227	29		F01001	J1226	19	F01001	J1225	03	F01001
	J03	B3		F01001						
PB030B4	J1115	23		F01001	J1225	77	F01001	J1224	61	F01001
	J1223	49		F01001	J1221	23	F01001	J1222	35	F01001
	J1227	35		F01001	J1226	23	F01001	J1225	07	F01001
	J03	B1		F01001						
PB03184	J1115	25		F01001	J1226	71	F01001	J1225	57	F01001
	J1224	45		F01001	J1223	29	F01001	J1222	19	F01001
	J1221	03		F01001	J1226	03	F01001	J1227	19	F01001
	J03	A6		F01001						
PB032B4	J1115	29		F01001	J1226	77	F01001	J1225	61	F01001
	J1224	49		F01001	J1223	35	F01001			
	J1223	35		F01001	J1222	23	F01001	J1221	07	FO1001
	J1226	07		F01001	J1227	23	F01001	J03	A4	FO1001
PB033B4	J1115	35		F01001	J1222	71	F01001	J1227	71	FO1001
	J1226	57		F01001	J1225	45	F01001	J1224	29	FO1001
	J1223	19		F01001	J1222	03	F01001	J1227	03	FO1001
	J03	A3		F01001						
PB1200E	J1217	35	17B	F01200	J1210	30	F01300			
PB1201E	J1217	39	19B	F01200	J1210	29	F01500			

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PB1202E	J1217	42	20A	F01200	J1210	75		F01300				
PB1203E	J1217	38	18A	F01200	J1210	59		F01300				
PB1300E	J1217	47	25B	F01200	J1210	61		F01300				
PBI301E	J1217	51	27B	F01200	J1210	71		F01300				
PB1302E	J1217	56	26A	F01200	J1210	63		F01300				
PB1400E	J1217	07	05B	F01200	J1214	03	03B	F01800				
PB1401E	J1217	11	07B	F01200	J12f4	01	02B	F01800				
PB1402E	J1217	13	07A	F01200	J1214	04	02A	F01800				
PB1403E	J1219	56	28B	F01800	J1217	10	05A	F01800	J1214	06	03A	F01800
PB1500E	J1214	07	05B	F01800	J1213	03	03B	F01800				
PB1501E	J1214	11	07B	F01800	J1213	01	02B	F01800				
PB1502E	J1214	13	07A	F01800	J1213	04	02A	F01800				
PB1503E	J1219	59	30B	F01800	J1214	10	05A	F01800	J1213	06	03A	F01800
PB1600E	J1217	17	09B	F01800	J1213	07	05B	F01800				
PB1601E	J1217	15	08B	F01800	J1213	11	07B	F01800				
PB1602E	J1217	18	09A	F01800	J1213	13	07A	F01800				
PB1603E	J1219	53	26B	F01800	J1217	20	10A	F01800	J1213	10	05A	F01800
PB1700E	J1217	21	11B	F01800	J1214	17	09B	F01800				
PS1701E	J1217	27	13B	F01800	J1214	15	08B	F01800				
PB1702E	J1217	25	14A	F01800	J1214	18	09A	F01800				
PB1703E	J1218	78	38A	F01800	J1217	24	12A	F01800	J1214	20	10A	F01800
PB1800E	J1214	21	11B	F01800	J1213	17	09B	F01800				
PB1801E	J1214	27	13B	F01800	J1213	15	08B	F01800				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PB1802E	J1214	25	14A	F01800	J1213	18	09A	F01800				
PB1803E	J1218	72	35A	P01800	J1214	24	12A	F01800	J1213	20	10A	F01800
PB1900E	J1214	31	15B	F01800	J1213	21	11B	F01800				
PB1901E	J1214	29	14B	F01800	J1213	27	13B	F01800				
PB1902E	J1214	30	15A	F01800	J1213	25	14A	F01800				
PB1903E	J1218	77	36B	F01800	J1214	34	16A	F01800	J1213	24	12A	F01800
PB2000E	J1214	35	17B	F01800	J1213	31	15B	F01800				
PB2001E	J1214	39	19B	F01800	J1213	29	14B	F01800				
PB2002E	J1214	42	20A	F01800	J1213	30	15A	F01800				
PB2003E	J1218	71	33B	F01800	J1214	38	18A	F01800	J1213	34	16A	F01800
PB2103E	J1215	64	33A	F01800	J1213	38	18A	F01800				
PB2130V	J02	S4		F01800	J1215	66	32A	F01800				
PB2130VG	J02	S5		F01800	J1215	67		F01800				
PB2200E	J1214	47	25B	F01700	J1213	43	23B	F01700				
PB2201E	J1214	51	27B	F01700	J1213	41	22B	F01700				
PB2202E	J1214	56	26A	F01700	J1213	46	21A	F01700				
PB2203E	J1215	73	37B	F01700	J1215	61	31A	F01700	J1214	52		F01700
PB2203E	J1214	52	24A	F01700	J1213	48	22A	F01700				
PB2300E	J1217	55	29B	F01700	J1213	47	25B	F01700				
PB2301E	J1217	53	28B	F01700	J1213	51	27B	F01700				
PB2302E	J1217	57	28A	F01700	J1213	56	26A	F01700				
PB2303E	J1217	60	29A	F01700	J1215	69	35B	F01700	J1215	62	29A	F01700
	J1213	52	24A	F01700								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PB2400E	J1217	61	31B	F01700	J1214	55	29B	F01700				
PB2401E	J1217	65	33B	F01700	J1214	53	28B	F01700				
PB2402E	J1217	68	33A	F01700	J1214	57	28A	F01700				
PB2403E	J1215	74	35A	F01700	J1215	55	29B	F01700	J1214	60	29A	F01700
	J1217	64	31A	F01700								
PB2503E	J1215	76	37A	F01700	J1215	59	31B	F01700	J1214	64	31A	F01700
PB2600E	J1217	71	35B	F01700	J1213	61	31B	F01700				
PB2601E	J1217	69	34B	F01700	JI1213	65	33B	F01700				
PB2602E	J1217	70	34A	F01700	J1213	68	33A	F01700				
PB2603E	J03	P3		F01700	J1217	72	35A	F01700	J1213	64	31A	F01700
PB2700E	J1217	75	37B	F01700	J1214	71	35B	F01700				
PB2701E	J1217	79	39B	F01700	J1214	69	34B	F01700				
PB2702E	J1217	80	39A	F01700	J1214	70	34A	F01700				
PB2703E	J03	P4		F01700	J1217	76	37A	F01700	J1214	72	35A	F01700
PB2800E	J1214	75	37B	F01700	J1213	71	35B	F01700				
PB2801E	J1214	79	39B	F01700	J1213	69	34B	F01700				
PB2802E	J1214	80	39A	F01700	J1213	70	34A	F01700				
PB2803E	J03	P6		F01700	J1214	76	37A	F01700	J1213	72	35A	F01700
PB2903E	J03	R1		F01700	J1213	76	37A	F01700				
PDAA1D	J1119	52	24A	F02105	J1124	48		F02105				
PDAA2D	J1124	54		F02105	J1107	51	27B	F02105	J1119	50	23A	F02105
	J1119	56	26A	F02105								
PDAA3D	J1124	56		F02105	J1107	49	26B	F02105	J1119	46	21A	F02105

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PDAA4D	J1117	27	13B	F02105	J1124	60		F02105				
PDAA5D	J1124	62		F02105	J1117	78	38A	F02105	J1119	45	24B	F02105
	J1117	25	12B	F02105								
PDAA6D	J1124	68		F02105	J1119	43	23B	F02105	J1119	49	26B	F02105
	J1117	80	39A	F02105								
PDAA7D	J1119	51	27B	F02105	J1124	66		F02105				
PDAB1D	J1119	66	31A	F02106	J1123	48		F02106				
PDAB2D	J1123	54		F02106	J1107	63	33B	F02106	J1119	64	30A	F02106
	J1119	70	33A	F02106								
PDAB3D	J1123	56		F02106	J1107	61	32B	F02106	J1119	60	28A	F02106
PDAB4D	J1106	75	37B	F02106	J1123	60		F02106				
PDAB5D	J1123	62		F02106	J1119	57	30B	F02106	J1106	73	36B	F02106
	J1106	79	39B	F02106								
PDAB6D	J1123	68		F02106	J1119	55	29B	F02106	J1119	61	32B	F02106
	J1106	72	34A	F02106								
PDAB7D	J1119	63	33B	F02106	J1123	66		F02106				
PDACID	J1119	75	37B	F02106	J1122	48		F02106				
PDAC2D	Jl119	73	36B	F02106	J1119	79		F02106				
PDAC2D	J1119	79	39B	F02106	J1107	80	39A	F02106	J1122	54		F02106
PDAC3D	J1122	56		F02106	J1107	78	38A	F02106	J1119	72	34A	F02106
PDAC4D	J1106	69	35A	F02106	J1122	60		F02106				
PDACSD1	J1106	78	38A	F02106	J1106	74	35B	F02106	J1119	69	35A	F02106
	J1122	62		F02106								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PDAC6D	J1122	68		F02106	J1119	74	35B	F02106	J1119	78	38A	F02106
	J1106	80	39A	F02106								
PDAC7D	J1119	80	39A	F02106	J1122	66		F02106				
PDA11D	J1116	06	05A	F01401	J1127	10		F01401				
PDA12D	J1127	11		F01401	J1116	1007A		F01401	J1116	05	03B	F01401
	J1107	06	05A	FP01401								
PDA13D	J1127	30		F01401	J1116	01	02B	F01401	J1107	10	07A	F01401
PDA14D	J1107	01	02B	F01401	J1127	26		F01401				
PDA15D	J1127	36		F01401	J1116	09	04B	F01401	J1107	07	03A	F01401
	J1107	05	03B	F01401								
PDA16D	J1127	38		F01401	J1116	13	06B	F01401	J1116	07	03A	F01401
	J1107	09	04B	F01401								
PDA17D	J1116	15	07B	F01401	J1127	46		F01401				
PDA21D	J1116	22	12A	F02101	J1126	10		F02101				
PDA22D	J1126	11		F02101	J1116	26	14A	F02101	J1116	20	11A	F02101
	J1107	22	12A	F02101								
PDA23D	J1126	30		F02101	J1116	14	09A	F02101	J1107	26	14A	F02101
PDA24D	J1107	14	09A	F02101	J1126	26		F02101				
PDA25D	J1107	19	09B	F02101	J1107	20	i1A	F02101	J1116	21	10B	F02101
	J1126	36		F02101								
PDA26D	J1126	38		F02101	J1116	25	12B	F02101	J1116	19	09B	F02101
	J1107	21	10B	F02101								
PDA27D	J1116	27	13B	F02101	J1126	46	F02101					

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PDA31D	J1116	38	18A	F02102	J1125	10		F02102				
PDA32D	J1125	11		F02102	J1116	42	20A	F02102	J1116	36	17A	F02102
	J1107	38	18A	F02102								
PDA33D	J1125	30		F02102	J1116	30	15A	F02102	J1107	42	20A	F02102
PDA34D	J1107	30	15A	F02102	J1125	26		F02102				
PDA35D	J1125	36		F02102	J1107	31	15B	F02102	J1116	33	16B	F02102
	J1107	36	17A	F02102								
PDA36D	J1125	38		F02102	J1116	37	18B	F02102	J1116	31	15B	F02102
	J1107	33	16B	F02102								
PDA37D	J1116	39	19B	F02102	-J1125	46	F02102					
PDA41D	J1119	06	05A	F02102	J1124	10	F02102					
PDA42D	J1119	05	03B	F02102	J1119	10	07A	F02102	J1107	15	07B	F02102
	J1124	11		F02102								
PDA43D	J1124	30		F02102	J1107	13	06B	F02102	J1119	01	02B	F02102
PDA44D	J1117	01	02B	F02102	J1124	26		FP02102				
PDA45D	J1124	36		F02102	J1119	09	04B	F02102	J1117	07	03A	F02102
	J1117	05	03B	F02102								
PDA46D	J1124	38		F02102	J1119	13	06B	F02102	J1119	07	03A	F02102
	J1117	09	04B	F02102								
PDA47D	Jl119	15	07B	F02102	J1124	46		FP02102				
PDA51D	J1119	22	12A	F02103	J1123	10		F02103				
PDA52D	J1123	11		F02103	J1107	27	13B	F02103	J1119	26	14A	F02103
	J1119	20	11A	F02103								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PDA53D	J1123	30		F02103	J1107	25	12B	F02103	J1119	14	09A	F02103
PDA54D	J1117	15	07B	F02103	J1123	26		F02103				
PDA55D	J1123	36		F02103	J1119	21	10B	F02103	J1117	26	14A	F02103
	J1117	13	06B	F02103								
PDA56D	J1123	38		F02103	J1119	25	12B	F02103	J1119	19	09B	F02103
	J1117	22	12A	F02103								
PDA57D	J1119	27	13B	F02103	J1123	46		F02103				
PDA61D	J1119	38	18A	F02103	J1122	10		F02103				
PDA62D	J1122	11		F02103	J1119	36	17A	F02103	J1107	39	19B	F02103
	J1119	42	20A	F02103								
PDA63D	J1122	30		F02103	J1107	37	18B	F02103	J1119	30	15A	F02103
PDA64D	J1117	14	09A	F02103	J1122	26		F02103				
PDA65D	J1117	19	09B	F02103	J1117	20	11A	F02103	J1119	33	16B	F02103
	J1122	36		F02103								
PDA66D	J1122	38		F02103	J1119	37	18B	F02103	J1119	31	15B	F02103
	J1117	21	10B	F02103								
PDA67D	J1119	39	19B	F02103	J1122	46		F02103				
PDA71D	J1116	52	24A	F02104	J1127	48		F02104				
PDA72D	J1127	54		F02104	J1116	56	26A	F02104	J1116	50	23A	F02104
	J1107	52	24A	F02104								
PDA73D	J1127	56		F02104	J1116	46	21A	F02104	J1107	56	26A	F02104
PDA74D	J1107	46	21A	F02104	J1127	60		F02104				
PDA75D	J1127	62		F02104	J1107	43	23B	F02104	J1116	45	24B	F02104

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
	J1107	50	23A	F02104								
PDA76D	J1127	68		F02104	J1116	49	26B	F02104	J1116	43	23B	F02104
	J1107	45	24B	F02104								
PDA77D	J1116	51	27B	F02104	J1127	66		F02104				
PDA81D	J1116	66	31A	F02104	J1126	48		F02104				
PDA82D	J1126	54		F02104	J1116	70	33A	F02104	J116	64	30A	F02104
	J1107	66	31A	F02104								
PDA83D	J1126	56		F02104	J1116	60	28A	F02104	J1107	70	33A	F02104
PDA84D	J1107	60	28A	F02104	J1126	60		F02104				
PDA85D	J1126	62		F02104	J1107	55	29B	F02104	J1116	57	30B	F02104
	J1107	64	30A	F02104								
PDA86D	J1126	68		F02104	J1116	61	32B	P02104	J1116	55	29B	F02104
	J1107	57	30B	F02104								
PDA87D	J1116	63	33B	F02104	J1126	66		F02104				
PDA91D	J1116	75	373	F02105	J1125	48		F02105				
PDA92D	J1125	54		F02105	J1116	79	39B	F02105	J1116	73	36B	F02105
	J1107	75	37B	F02105								
PDA93D	J1125	56		F02105	J1116	72	34A	F02105	J1107	79	39B	F02105
PDA94D	J1107	72	34A	F02105	J1125	60		F02105				
PDA95D	J1125	62		F02105	J1116	69	35A	F02105	J1107	74	35B	F02105
	J1107	73	36B	F02105								
PDA96D	J1125	68		F02105	J1116	78	38A	F02105	J1116	74	35B	F02105
	J1107	69	35A	F02105								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
FDA97D	J1116	80	39A	F02105	J1125	66		F02105				
PDMR2B	J1101	35	16B	F01901	J1102	35	16B	F01902	J1103	35	16B	F01600
	J1103	49	24B	F01902	J1103	66	32B	F01902	J1104	66	32B	F01902
	J1104	49	24B	F01500	J1104	35	16B	F01901	J1105	35	16B	F01901
	J1105	49	24B	F01901	J1105	66	32B	F01901	J1108	01	02B	F02300
	J110803	03A		F02300	JI10S	08	04A	F02300	J1108	07	04B	F02300
	J1108	13	06A	F02300	J1208	04	04A	F01600	J1208	29	14B	F01901
	J1208	39	19B	F01500	J1208	41	22B	F01901	J1208	51	27B	F01901
	J1208	63	33B	F01902	J1208	73	36B	F02300	J1203	73	36B	F01902
	J1203	64	30A	F02300	J1203	50	23A	F01600	J1203	27	13B	F01902
	J1203	04	04A	F01902								
PDTR10	J1106	52	24A	F01800	J1121	10		F01800				
PDTR2D	J1106	50	23A	F01800	J1106	56	26A	F01800	J1117	75	37B	F01800
	J1121	11		F01800								
PDTR3D	J1121	30		F01800	J1117	79	39B	F01800	J1106	46	21A	F01800
PDTR4D	J1117	72	34A	F01800	J1121	26		F01800				
PDTR5D	J1121	36		F01800	J1117	74	35B	F01800	J1117	73	36B	F01800
	J1106	45	24B	F01800								
PDTR6D	J1121	38		F01800	J1117	69	35A	F01800	J1106	49	26B	F01800
	J1106	43	23B	F01800								
PDTR7D	J1106	51	27B	F01800	J1121	46		F01800				
PERMCA	J1204	73	36B	F02300	J03	N4		F02300				
PFUSCAV	J1205	13	06A	F01901	JI!05	80	38B	F01901				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PFUSCO	J1208	54	25A	F01901	J1206	69	35A	F01901	J1205	11	07A	F01901
PGRCEO	J1206	75	37B	F02300	J1204	76	37A	F02300	J1204	77	38B	F02300
	J1204	08	06A	F02300								
PGRMCA	J03	M6		F02300	J1206	18	10A	F02300	J1204	80	39A	F02300
PGRMID4	J1117	66	31A	F02300	J1227	79		F01000	J1115	47		F02300
PGRMJD4	J1117	63	33B	F02300	J1226	79		F01000	J1115	46		F02300
PGRMKD4	J1117	60	28A	F02300	J1225	79		F01000	J1115	45		F02300
PGRMKO	J1206	14	09A	F02300	J1217	37	18B	F01200	J1217	49	26B	F01200
PGRMLD4	J1117	57	30B	F02300	J1224	79		F01200	J1115	42		F02300
PGRMMD4	J1117	52	24A	F02300	J1223	79		F01200	J1115	41		F02300
PGRMND4	J1117	51	27B	F02300	J1222	79		F01200	J1115	39		F02300
PGRMPD4	J1117	46	21A	F02300	J1221	79		F01200	J1115	38		F02300
PG13AOV	J1203	71	36A	F00900	J1208	56	26A	F01901	J03	H6		F00900
PG4MZO	J03	H1		F02300	J1206	42	20A	F01902	J1206	36	17A	F01902
	J1206	23	11B	F02300	J1206	35	17B	F01800				
PG47AO	J01	P4		F01500	J1204	50	23A	F01902				
PG47BO	J01	P6		FP01500	J1204	43	23B	F01902				
PG47NA	J1206	38	18A	F01902	J1204	41	22B	F01902	J1204	52	24A	F01902
PG48AO	J1204	64	30A	F01902	J1118	42	20A	F01500	J1118	37	18B	F01500
	J1118	36	17A	F01500	J1118	31	15B	F01500	J1118	26	14A	F01500
	J1118	25	12B	F01500	J1118	20	11A	F01500	J1118	19	09B	F01500
	J1118	13	06B	F01500	J1118	10	07A	F01500	J1118	07	03A	F01500
	J1118	05	03B	F01500								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PG48BO	J1118	79	39B	F01500	J1118	78	38A	F01500	J1118	74	35B	F01500
	J1118	73	36B	F01500	J11118	70	33A	F01500	J1118	64	30A	62200
	J1118	61	32B	F01500	J1118	55	29B	F01500	J1118	56	26A	F01500
	J1118	50	23A	F01500	J1118	49	26B	F01500	J1118	43	23B	F01500
	J1207	47	25B	F01500								
PG48NA	J1207	43	23B	F01902	J1204	66	31A	F01902	J1206	30	15A	F01902
PG69AOV	J1203	54	25A	F01600	J1108	56	28B	F01600				
PG69NA	J1206	45	24B	F01600	J1108	55	29B	F01600				
PG75AOV	J1215	80	38B	F01901	J1206	56	26A	F01600	J1206	41	22B	F01600
	J1206	19	09B	F01600	J1206	05	03B	F01500	J1104	64	30A	F01500
	J1103	48	22A	F01600								
PG75NA	J1215	79	39B	F01901	J1204	07	03A	F01901	J1105	50	24A	F01901
PG7510	J1206	06	05A	F01901	J1204	03	02A	F01901				
PG76AOV	J1203	56	26A	F01600	J1108	60	28A	F01600				
PG76NA	J1206	52	24A	F01600	J1108	62	29A	F01600	J1103	50	24A	F01600
PG7610V	J1206	54	25A	F01600	J1205	60	28A	F01600				
PG77AOV	J1215	40	19A	F01902	J1208	30	15A	F01901	J1208	70	33A	F01902
	J1203	77	33B	F01902								
PG77NA	J1103	63	31A	F01902	J1206	26	14A	F01902	J1207	35	17B	F01902
	J1206	64	30A	F01800	J1206	49	26B	F01800	J1215	38	20A	F01902
PG78AOV	J1215	19	10B	F01902	JI208	68	32A	F01902				
PG78NA	J1215	21	11B	F01902	J1207	23	11B	F01902	J1103	80	38B	F01902
	J1102	50	22A	61901								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PG831A	J1101	50	24A	F01901	J1204	55	29B	F01901				
PG8320V	J1205	07	04B	F01901	J1204	53	28B	F01901				
PG85A0	J1203	26	14A	F01902	J1203	08	06A	F01902	J1206	15	07B	F01902
PG86A0	J1206	22	12A	F01902	J1203	24	13A	F01902				
PG97A0	J1220	49	24B	F01200	J1218	49	24B	F01100	J1206	46	21A	F01200
PG98A0V	J1215	24	13A	F01500	J1208	40	19A	F01500				
PG98NA	J1215	22	14A	F01500	J1206	01	02B	F01500	J1104	63	31A	F01500
PHS10RP	J1227	13		F01000	J1220	03	02B	F01100				
PHS10SP	J1227	06		F01000	J1220	19	09B	F01100				
PHS11RP	J1227	25		F01000	J1220	35	16A	F01100				
PHS11SP	J1227	15		F01000	J1219	03	02B	F01100				
PHS12RP	J1227	37		F01000	J1219	19	09B	F01100				
PHS12SP	J1227	27		F01000	J1219	35	16B	F01100				
PHS13RP	J1227	51		F01000	J1218	03	02B	F01100				
PHS13SP	J1227	41		F01000	J1218	19	09B	F01100				
PHS14RP	J1227	65		F01000	J1218	35	16B	F01100				
PHS20RP	J1227	80		F01000	J1220	05	03B	F01100				
PHS20SP	J1227	76		F01000	J1220	21	10B	F01100				
PHS21RP	J1226	13		F01000	J1220	37	17B	F01100				
PHS21SP	J1226	06		F01000	J1219	05	03B	F01100				
PHS22RP	J1226	25		F01000	J1219	21	10B	F01100				
PHS22SP	J1226	15		F01000	J1219	37	17B	F01100				
PHS23RP	J1226	37		F01000	J1218	05	03B	F01100				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution						
PHS23SP	J1226	27	F01000	J1218	21	10B	F01100
PHS24RP	J1226	51	F01000	J1218	37	17B	F01100
PHS30RP	J1226	65	F01000	J1220	07	04B	F01100
PHS30SP	J1226	55	F01000	J1220	23	11B	F01100
PHS31RP	J1226	80	F01000	J1220	39	18B	F01100
PHS31SP	J1226	76	F01000	J1219	07	04B	F01100
PHS32RP	J1225	13	F01000	J1219	23	11B	F01100
PHS32SP	J1225	06	F01000	J1219	39	18B	F01100
PHS33RP	J1225	25	F01000	J1218	07	04B	F01100
PHS33SP	J1225	15	F01000	J1218	23	11B	F01100
PHS34RP	J1225	37	F01000	J1218	39	18B	F01100
PHS40RP	J1225	51	F01000	J1120	09	05B	F01100
PHS40SP	J1225	41	F01000	J1220	25	12B	F01100
PHS41RP	J1225	65	F01000	J1220	41	19B	F01100
PHS41SP	J1225	55	F01000	J1219	09	05B	F01100
PHS42RP	J1225	80	F01000	J1219	25	12B	F01100
PHS42SP	J1225	76	F01000	J1219	41	19B	F01100
PHS43RP	J1224	13	F01000	J1218	09	05B	F01100
PHS43SP	J1224	06	F01000	J1218	25	12B	F01100
PHS44RP	J1224	25	F01000	J1218	41	19B	F01100
PHS50RP	J1224	37	F01000	J1220	11	06B	F01100
PHS50SP	J1224	27	F01000	J1220	29	133	F01100
PHS51RP	J1224	51	F01000	J1220	43	22B	F01100

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution						
PHS51SP	J1224	41	F01000	J1219	11	06B	F01100
PHS52RP	J1224	65	F01000	J1219	29	13B	P01100
PHS52SP	J1224	55	F01000	J1219	43	22B	F01100
PHS53RP	J1224	80	F01000	J1218	11	06B	F01100
PHS53SP	J1224	76	F01000	J1218	29	13B	F01100
PHS54RP	'J1223	13	F01000	J1218	43	22B	F01100
PHS60RP	J1223	25	F01000	J1220	15	07B	F01100
PHS60SP	J1223	15	F01000	J1220	31	14B	F01100
PHS61RP	J1223	37	F01000	J1220	45	23B	F01100
PHS61SP	J1223	27	F01000	J1219	15	07B	F01100
PHS62RP	J1223	51	F01000	J1219	31	14B	F01100
PHS62SP	J1223	41	F01000	J1219	45	23B	F01100
PHS63RP	J1223	65	F01000	J1218	15	07B	F01100
PRS63SP	J1223	55	F01000	J1218	31	14B	F01100
PHS64RP	J1223	80	F01000	J1218	45	23B	F01100
PHS70RP	J1222	13	F01000	J1220	18	09A	F01100
PHS70SP	J1222	06	F01000	J1220	34	15B	F01100
PHS71RP	J1222	25	F01000	J1220	47	23A	F01100
PES71SP	J1222	15	F01000	J1219	18	09A	F01100
PHS72RP	J1222	37	F01000	J1219	34	15B	F01100
PHS72SP	J1222	27	F01000	J1219	47	23A	F01100
PHS73RP	J1222	51	F01000	J1218	18	09A	F01100
PHS73SP	J1222	41	F01000	J1218	34	15B	F01100

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution									
PHS74RP	J1222	65	F01000	J1218	47	23A	F01100			
PHS80RP	J1222	80	F01000	J1220	17	08B	F01100			
PHS80SP	J1222	76	F01000	J1220	33	16A	F01100			
PHS81RP	J1221	13	F01000	J1220	50	24A	F01100			
PHS81SP	J1221	06	F01000	J1219	17	08B	F01100			
PHS82RP	J1221	25	F01000	J1219	33	16A	F01100			
PHS82SP	J1221	15	F01000	J1219	50	24A	F01100			
PHS83RP	J1221	37	F01000	J1218	17	08B	F01100			
PHS83SP	J1221	27	F01000	J1218	33	16A	F01100			
PHS84RP	J1221	51	F01000	J1218	50	24A	F01100			
PH31A0V	J03	C3	FP0100	J1227	05		F01000	J1227	21	F01000
	J1227	31	F01000	J1227	47		F01000	J1227	59	F01000
	J1226	34	F01000							
PH32A0V	J1226	30	F01000	J1227	75		F01000	J1226	47	F01000
	J1226	31	F01000	J1226	21		F01000	J1226	05	F01000
PH33A0V	J1225	66	F01000	J1226	75		F01000	J1226	59	P01000
	J1225	31	F01000	J1225	21		F01000	J1225	05	F01000
	J03	C6	F01000							
PR34A0V	J1225	34	F01000	J1225	75		F01000	J1225	59	F01000
	J1225	47	F01000	J1224	21		F01000	J1224	05	F01000
	J03	D1	F01000							
PH35A0V	J1225	30	F01000	J1224	75		F01000	J1224	59	F01000
	J1224	47	F01000	J1224	31		F01000	J1223	05	F01000

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
	J03	D3		F01000								
PH36A0V	J1224	69		F01000	J1223	75		F01000	J1223	59		F01000
PH36A0V	J1223	47		F01000	J1223	31		F01000	J1223	21		F01000
	J03	D4		F01000								
PH37A0V	J1224	53		F01000	J1222	59		F01000	J1222	47		F01000
	J1222	31		F01000	J1222	21		F01000	J1222	05		F01000
	J03	D6		F01000								
PH38A0V	J1224	40		F10100	J1222	75		F01000	J1221	47		F01000
	J1221	31		F01000	J1221	21		F01000	J1221	05		F01000
	J03	E3		F01000								
PH44NAV	J03	F2		F01200	J1206	48	22A	F01200				
PH58A0V	J1204	59	31B	F01600	J1206	43	23B	F01600	J1205	24	13A	F01500
	J1118	08	06A	F01500	J1118	04	04A	F01500	J03	R3		F01500
PH59A0V	J01	S1		F01500	J1118	03	02A	F01500	J1118	11	05B	F01500
	J1205	25	11A	F01500								
PH60A0V	J01	E4		F01500	J1118	24	13A	F01500	J1118	1810A		F01500
	J1205	18	09A	F01500								
PH61A0V	J1205	14	08B	F01500	J1118	17	08B	F01500	J1118	23	11B	F01500
	J01	E6		F01500								
PH62A0V	J1205	19	10B	F01500	J1118	40	19A	F01500	J1118	34	16A	F01500
	J01	H1		F01500								
PH63A0V	J1205	26	12B	F01500	J1118	29	14B	F01500	J1118	35	17B	F01500
	J01	J1		F01500								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PH64A0V	J01	K1		F01500	J1118	54	25A	F01500	J1118	48	22A	F01500
	J1205	40	19A	F01500								
PH65A0V	J01	M3		F01500	J1118	41	22B	F01500	J1118	47	25B	F01500
	J1205	37	17A	F01500								
PH66AOV	JO1	M4		F01500	J1118	68	32A	F01500	J1118	62	29A	F01500
J1205	34	15A		F01500								
PH67AOV	J01	M6		F01500	J1118	53	28B	F01500	J1118	59	31B	FP01500
J1205	30	14B		F01500								
PH68AOV	J01	P1		F01500	J1118	77	38B	F01500	J1118	71	36A	F01500
J1205	31	16B		F01500								
PH69AOV	J01	P3		F01500	J1118	65	34B	F01500	J1118	76	37A	F01500
J1205	42	18B		F01500								
PH70AOV	J1205	53	26B	F01902	J1204	01	02B	F01901	J1105	48	22A	F01901
PH71AOV	J1205	43	24B	F01902	J1204	72	34A	F0901				
PH72AOV	J1206	77	38B	F02300	J1205	32A		F01902	J1204	49	26B	F01901
J1203	10	07A		F01902								
PH75NAV	J1215	18	09A	F01500	J1206	03	02A	F01500	J1105	05	03B	F01500
PH78NAV	J1205	63	30A	F01600	J1104	05	03B	F01600				
PINCPAV	J1205	08	04A	F01901	J1104	50	24A	F01901				
PINCPO	J1208	48	22A	F01901	J1206	80	39A	F01901	J1205	06	05A	F01901
J1203	72	34A		F00900								
PJRC1J	J1203	07	03A	F02300	J1208	77	38B	F02300				
PJRC1K	J1203	09	04B	F02300	J1208	79	39B	F02300				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PJRC2J	J1208	78	38A	F02300	J1203	70	33A	F02300				
PJRC3J	J1203	61	32B	F02300	J1117	68	32A	F02300	J1117	62	29A	P02300
J1117	59	31B		F02300	J1117	54	25A	F02300	J1117	53	28B	F02300
J1117	48	22A		F02300	J1117	47	25B	F02300	J03	P1		F02300
PJ150J	J1217	78	38A	F01700	J1214	78	38A	F01700	J1213	78	38A	P01700
J1213	66	32A		F01700	J1203	13	06B	F01902				
PJ150K	J1217	74	36A	F01700	J1214	74	36A	F01700	J1213	74	36A	F01700
J1213	62	30A		F01700	J1206	40	19A	F01902	J1203	11	05B	F01902
PJ160J	J1217	66	32A	F01700	J1214	66	32A	F01700	J1214	54	25A	F01700
J1213	54	25A		F01700	J1203	25	12B	F01902				
PJ160K	J1217	62	30A	F01700	J1214	62	30A	F01700	J11214	50	23A	F01700
J1213	50	23A		F01700	J1206	34	16A	F01902	J1203	23	11B	F01902
PJ210J	J1208	13	06B	F01600	J1110	05	04B	P01400				
PJ220K	J1206	62	29A	F01200	J1203	76	37A	F01902	J1103	61	31B	F01902
PJ250J	J1208	37	18B	F01500	J1206	07	03A	F01500				
PJ250K	J1208	35	17B	F01500	J1206	04	04A	F01500	J1204	45	24B	F01901
J1204	65	34B		F01902								
PJ260K	J1208	33	16B	F01901	J1105	61	31B	F01901				
PJ270K	J1208	47	25B	P01901	J1105	79	37B	F01901				
PJ280K	J1208	45	24B	F01901	J1104	47	23A	F01901				
PJ290J	J1208	61	32B	F01902	J1106	59	31B	F01800				
PJ290K	J1208	59	31B	F01902	J1103	79	37B	F01902				
PJ310K	J03	N3		F00900	J1203	69	35A	F00900	J1206	73	36B	F02300

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PJ320J	J1203	49	26B	F01600	J1103	47	23A	F01600				
PKDO1Q	J1219	54	26A	F01800	J1217	05	04B	F01800	J1212	13	06B	F01800
PKD02Q	JI1219	57	29B	F01800	J1214	05	04B	F01800	J1212	07	03A	F01800
PKD03Q	J1213	05	04B	F01800	J1212	25	12B	F01800	J1219	51	25B	F01800
PKD04Q	J1218	76	37B	F01800	J1217	19	10B	F01800	J1212	19	09B	F01800
PKD05Q	J1218	70	34A	F01800	J1214	19	10B	F01800	J1211	25	12B	F01800
PKDO6Q	J1218	75	35B	F01800	J1213	19	10B	F01800	J1211	19	09B	F01800
PKD07Q	J121&	69	32A	F01800	J1214	33	16B	F01800	J1212	37	18B	F01800
PKD08Q	J1213	33	16B	F01800	J1212	31	15B	F01800				
PKDO9Q	J1214	45	24B	F01700	J1212	49	26B	F01700	J1211	54	25A	F01700
PKDO10Q	J1212	68	32A	F01700	J1213	45	24B	F01700	J1211	49	26B	F01700
PKDl1Q	J1217	59	30B	F01700	J1212	61	32B	F01700	J1211	68	32A	F01700
PKD12Q	J1214	59	30B	F01700	J1211	61	32B	F01700				
PKD13Q	J1213	59	30B	F01700	J1212	78	38A	F01700	J1211	77	38B	F01700
PKD14Q	J1217	73	36B	F01700	J1212	71	36A	P01700	J1211	78	38A	F01700
PKD15Q	J1214	73	36B	F01700	J1212	74	35B	F01700	J1211	71	36A	F01700
PKD16Q	J1213	73	36B	F01700	J1211	74	35B	F01700				
PKMRSP	J1108	04	02A	F02300	J1108	06	05A	F02300	J1108	05	03B	F02300
J1108	09	05B		F02300	J1108	11	07A	F02300	J03	F6		F02300
PK180B4	J1115	62		F01000	J1222	77		F01000	J1227	77		F01000
	J1226	61		F01000	J1225	49		F01000	J1224	35		F01000
	J1223	23		F01000	J1222	07		F01000	J1227	07		F01000
	J03	A1		F01000								

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PLED10V	J1205	46	22B	F01600	J1204	61	32B	F01600				
PMCG01Z	J1210	73		F01300	J1215	47	24A	F01300				
PMCG02Z	J1210	79		F01300	J1215	50	22A	F01300				
PMCG03Z	J1210	77		F01300	J1215	41	23B	F01300				
PMCG04Z	J1210	19		F01300	J1215	45	25B	F01300				
PMCG05Z	J1210	21		F01300	J1215	51	27B	F01300				
PMCG1AV	J1217	06	03A	F01800	J1215	49	23A	F01300	J1214	48	22A	F01700
J1213	60	29A		F01700								
PMCG2AV	J1217	04	02A	F01800	J1215	48	21A	F01300	J1214	46	21A	F01700
J1213	57	28A		F01700								
PMCG3AV	J1217	01	02B	F01800	J1215	46	22B	F01300	J1214	41	22B	F01700
J1213	53	28B		F01700								
PMCG4AV	J1217	03	03B	F01800	J1215	43	24B	F01300	J1214	43	23B	F01700
J1213	55	29B		F01700								
PMCG5AV	J1212	77	38B	F01700	J1215	53	26B	F01300	J.11212	54	25A	F01700
J1212	08	06A		F01800								
PMOSCA	J1206	72	34A	F02300	J1205	73	37B	F02300				
PMOSCOV	J1205	71	36B	F02300	J1203	05	03B	F02300	J1203	68	32A	F02300
PP0700T	J1205	22	14A	F01500	J1105	24	12A	F01500				
PPO701T	J1205	23	12A	F01500	J1105	26	13A	F01500				
PP0702T	J1205	20	10A	F01500	J1105	27	14A	F01500				
PP0703T	J1205	17	09B	F01500	J1105	30	15A	F01500				
PP0704T	J1205	21	11B	F01500	J1105	33	16A	F01500				

Table 6-3. Let Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PP0705T	J1205	27	13B	F01500	J1105	23	11B	F01500				
PP0706T	J1205	38	20A	F01500	J1105	25	12B	F01500				
PP0707T	J1205	35	18A	F01500	J1105	29	13B	F01500				
PP0800T	J1205	36	16A	F01500	J1105	08	04A	F01500				
PP0801T	J1205	29	15B	F01500	J1105	10	05A	F01500				
PP0802T	J1205	33	17B	F01500	J1105	14	06A	F01500				
PP0803T	J1205	39	19B	F01500	J1105	13	07A	F01500				
PP0900T	J1205	75	39A	F02300	J1103	08	04A	F01902				
PP0900V	J1205	77	38A	F02300	J1206	71	36A	F02300				
PP0903T	J1205	64	33A	F01902	J1103	13	07A	F01902				
PP0904T	J1205	45	25B	F01902	J1206	24	13A	F01902	J1103	17	08B	F01902
PP0908T	J1205	51	27B	F01902	J1206	13	06B	F01902	J1103	15	07B	F01902
	J1104	80	38B	F01902								
PP1OOOT	J1109	33	16A	F01600	J1104	08	04A	F01600				
PP1003T	J1109	03	02B	F01600	J1104	13	07A	F01600				
PP1006T	J1205	62	29A	F01600	J1109	05	03B	F01600	J1104	09	05B	F01600
PP100T	J1109	19	09B	F01600	J1104	24	12A	F01600				
PP11OlT	J1109	21	10B	F01600	J1104	26	13A	F01600				
PP1102T	J1109	23	11B	F01600	J1104	27	14A	F01600				
PP1103T	J1109	25	12B	F01600	J1104	30	15A	F01600				
PP1104T	J1109	29	13B	F01600	J1104	33	16A	F01600				
PP1105T	J1109	31	14B	F01600	J1104	23	1B	F01600				
PPL106T	J1109	34	15B	F01600	J1104	25	12B	F01600				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PP1200T	J1102	08104A		F01901	J1205	41	23B	F01600				
PP1206T	J1205	09	05B	F01901	J1102	09	05B	F01901				
PP1405T	J1206	76	37A	F01901	J1102	23	11B	F01901				
PP1504T	J1103	33	16A	F01901	J1205	52	26A	F01901				
PP1505T	J1205	59	31B	F01600	J1206	08	06A	F01901	J1103	23	11B	F01901
PP1540V	J1205	54	25A	F01901	J1204	47	25B	F01901	J1204	71	36A	F01902
PP1603T	J1215	75	39A	F01901	J1206	11	05B	F01902	J1l01	13	07A	F01901
	J1105	63	31A	F01901								
PP1630V	31215	77	38A	F01901	J1208	34	16A	F01901				
PP1703T	J1206	65	34B	F01901	J1205	50	22A	F01901	Jl101	30	15A	F01901
PQ0110V	J03	E4		F01100	J1220	14	06A	F01100	J1218	14	06A	F01100
	J1219	14	06A	F01100	J1220	27	14A	F01100	J1219	27	14A	F01100
	J1218	27	14A	F01100	J1218	46	21A	F01100	J1219	46	21A	F01100
	J1220	46	21A	F01100								
PQ0120V	J03	E6		F01100	J1220	10	05A	F01100	J1219	10	05A	F01100
	J1218	10	05A	F01100	J1218	26	13A	F01100	J1219	26	13A	F01100
	J1220	26	13A	F01100	J1220	42	20A	F011100	J1219	42	20A	F01100
	J1218	42	20A	F01100								
PQ0130V	J03	F1		F01100	J1220	08	04A	F01100	J1219	08	04A	F01100
	J1218	08	04A	F01100	J1218	24	12A	FOIO0	J1219	24	12A	F01100
	J1220	24	12A	F01100	J1220	40	19A	FOl100	J1219	40	19A	F01100
	J1218	40	19A	F01100								
PQ1101U	J1105	04	02A	F01500	J1105	0	10OA	FO1500	J1104	54	26A	F01500

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PQ1102U	J1105	06	03A	F01500	J1105	22	11A	F01500	J1104	56	28B	F01500
PQ1103U	J1105	03	02B	F01500	J1105	19	09B	F01500	J1104	60	28A	F01500
PQ1104U	J1215	20	10A	F01500	J1104	62	29A	F01500				
PQ1105U	J1104	52	25A	F01500	J1208	42	20A	F01500				
PQ1201U	J1104	70	34A	F01902	J1103	04	02A	F01902				
PQ1202U	J1104	72	35A	F01902	J1103	06	03A	F01902				
PQ1203U	J1104	74	36A	F01902	J1103	03	02B	F01902				
PQ1204U	J1104	76	37A	F01902	J1103	05	03B	F01902				
PQ1501U	J1104	04	02A	F01600	J1104	20	10A	F01600	J1103	38	18A	F01600
PQ1502U	J1104	06	03A	F01600	J1104	22	11A	F01600	J1103	40	19A	F01600
PQ1503U	J1104	03	02B	F01600	J1104	19	09B	F01600	J1103	42	20A	F01600
PQI504U	J1104	21	10B	F01600	J1103	46	21A	F01600	J1205	61	31A	F01600
PQ1701U	J1215	35	18A	F01902	J1103	54	26A	F01902				
PQ1702U	J1215	36	16A	F01902	J1103	56	28B	F01902				
PQ1703U	J1215	29	15B	F01902	J1103	60	28A	F01902				
PQ1704U	J1207	30	15A	P01902	J1103	62	29A	F01902				
PQ171AV	J1215	37	17A	F01902	J1207	36	17A	F01902				
PQ172AV	J1215	34	15A	F01902	J1207	34	16A	F01902				
PQ173AV	J1215	30	14B	F01902	J1207	31	15B	F01902				
PQ1801U	J1207	24	13A	F01902	J1103	70	34A	F01902				
PQ1802U	J1207	22	12A	F01902	J1103	72	35A	F01902				
PQ1803U	J1207	20	11A	F01902	J1103	74	36A	F01902				
PQ1804U	J1215	33	17B	F01902	J1103	76	37A	F01902				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution							
PQ1805U	J1103	68	33A	F01902	J1102	47	23A	F01902
PQ184AV	J1215	31	16B	F01902	J1207	19	09B	F01902
PQ1910U	J1215	39	19B	F01902	J1102	38	18A	F01902
PQ1902U	J1207	14	09A	F01902	J1102	40	19A	F01902
PQ191AV	J1215	42	18B	F01902	J1207	18	10A	F01902
PQ2001U	J1105	38	18A	F01901	J1103	20	01A	F01901
PQ2002TU	J1105	40	19A	F01901	J1103	22	11A	F01901
PQ2003U	J1105	42	20A	F01901	J1103	19	09B	F01901
PQ2004U	J1105	46	21A	F01901	J1103	21	10B	F01901
PQ2101U	J1105	54	26A	F01901	J1101	04	02A	F01901
PQ2102U	J1105	56	28B	F01901	J1101	06	03A	F01901
PQ2103U	J1105	60	28A	F01901	J1110	03	02B	F01901
PQ2104U	J1105	62	29A	F01901	J1101	05	03B	F01901
PQ2201U	J1105	70	34A'	F01901	J1101	20	10A	F01901
PQ2202U	J1105	72	35A	FO1901	J1101	22	11A	F01901
PQ2203U	J1105	74	36A	FO1901	J1101	19	09B	F01901
PQ2204U	J1105	76	37A	F01901	J1101	21	01B	F01901
PQ2301U	J1104	38	18A	F01901	J1102	20	10A	F01901
PQ2302U	J1104	40	19A	F01901	J1102	22	11A	F01901
PQ2303U	J1104	42	20A	F01901	J1102	-19	09B	F01901
PQ2304U	J1205	79	39B	F01901	J1104	46	21A	F01901
PQ234AV	J1205	80	38B	F01901	J1102	21	10B	F01901
PQ2401U	J1102	04	02A	F01901	J1101	38	18A	F01300

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PQ2402U	J1102	06	03A	F01901	J1101	40	19A	F01901	J1210	25	F01300	
PQ2403U	J1102	03	02B	F01901	J1101	42	20A	F01901	J1210	27	F01300	
PQ2404U	J1102	05	03B	F01901	J1101	46	21A	F01901				
PREMSA	J1108	65	33B	F01901	J1204	51	27B	F01901	J1206	74	35B	F01901
J1206	79	39B		F02300	J1206	78	38A	F01901	J03	N6	F01901	
PREMS0V	J1101	48	22A	F01901	J1108	68	32B	F01901	J1204	60	28A	F01901
PR0DEA	J1206	09	04B	F01500	J1105	21	10B	F01500				
PT0DCA	J1206	39	19B	F01200	J02	S3		F01800				
PT0DLD4	J1217	14	06A	F01800	J1217	26	13A	F01800	J1213	40	19A	F01800
	J121440	19A		F01800	J1214	26	13A	F01800	J1213	26	13A	F01800
	J1213	14	06A	F01800	J1214	14	06A	F01800	J1115	48		F01800
	J1106	57	30B	F01800								
PT0DSD4	J1218	66	32B	F01800	J1219	49	24B	F01800	J1217	08	04A	F01800
	J1217	22	11A	F01800	J1214	36	17A	F01800	J1213	36	17A	F01800
	J1213	22	11A	F01800	J1214	22	11A	F01800	J1214	08	04A	F01800
	J1213	08	04A	F01800	J1115	51		F01800	J1206	37	18B	F01800
	J1106	63	33B	F01800								
PTOSCA	J1212	01	02B	F01800	J1212	10	07A	F01800	J1212	14	09A	F01800
	J1211	14	09A	F01800	J1211	26	14A	F01800	J1212	26	14A	F01800
	J1212	30	15A	F01800	J1212	42	20A	F01800	J1206	51	27B	F01800
PV01OTA	J1220	55	27B	F01200	J1217	31	15B	F01200				
PVO1OTB	J1220	61	31B	F01200	J1217	29	14B	F01200				
PVO1OTC	J1220	60	28A	F01200	J1217	30	15A	F01200				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PV010TD	J1220	63	31A	F01200	J1217	34	16A	F01200				
PV020TA	J1218	55	27B	F01200	J1217	43	23B	F01200				
PV020TB	J1218	61	31B	F01200	J1217	41	22B	F01200				
PV020TC	J1218	60	28A	F01200	J1217	46	21A	F01200				
PV02OTD	J1218	63	31A	F01200	J1217	48	22A	F01200				
PV03OTA	J1219	55	27B	F01200	J1212	18	O10A	F01800				
PV030TB	J1219	61	31B	F01200	J1212	24	13A	F01800				
PV030TC	J1219	60	28A	F01200	J1212	05	03B	F01800				
PV040TA	J1218	73	34B	F01200	J1212	34	16A	F01800				
PV04OTB	J1218	79	37B	F01200	J1212	40	19A	F01800				
PV04OTC	J1218	74	36A	F01200	J1211	18	10A	F01800				
PV040TD	J1218	80	38B	F01200	J1211	24	13A	F01800				
PV05OTA	J1219	73	34B	F01600	J1208	10	07A	F01600				
PV060TA	J1220	53	26B	FP01200	J1109	55	27B	F01200				
PV060TB	J1220	59	30B	F01200	J1109	61	31B	F01200				
PV06OTC	J1220	56	28B	F01200	J1109	60	28A	F01200				
PV060TD	J1220	64	30A	F01200	J1109	63	31A	F01200				
PV070TA	J1218	53	26B	F01200	J1109	73	34B	F01200				
PV07OTB	J1218	59	30B	F01200	J1109	79	37B	F01200				
PV07OTC	J1218	56	28B	F01200	J1109	74	36A	F01200				
PV07OTD	J1218	64	30A	F01200	J1109	80	38B	F01200				
PWO101X	J03	K1		F01100	J1220	04	02A	F01100				
PWO201X	J03	K6		F01100	J1220	20	10A	F01100	J1218	62	29A	F01200

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PW0202X	J1220	22	11A	F01100	J1206	50	23A	F01200				
PW0301X	J03	L1		F01100	J1220	36	17A	F01100	J1218	54	26A	F01200
PW0401X	J03	L3		F01100	J1219	04	02A	F01100	J1218	57	29B	F01200
PW0501X	J03	L4		F01100	J1219	20	10A	F01100	J1218	51	25B	F01200
PW0601X	J1220	62	29A	F01200	J1219	36	17A	F01100	J03	L6	F01100	
PW0701X	J03	R4		F01100	J1220	54	26A	F01200	J1218	04	F01100	
PW0801X	J1220	57	29B	F01200	J1218	20	10A	F01100	J03	M3	F01100	
PW0901X	J1220	51	25B	F01200	J1218	36	17A	F01100	J03	M4	F01100	
PW1002X	J1219	71	33B	F01600	J1109	06	03A	F01600				
PW1102X	J1219	69	32A	F01600	J1109	22	11A	F01600				
PXDMRA	J02	N5		F02300	J1120	14		F02300				
PX0SCA4	J02	P3		F02300	J1120	11		F02300				
PX1730V	J1205	48	21A	F01901	J1208	46	21A	F01901				
PZ020PR	J03	F4		F01200	J1109	66	32B	F01200	J1109	49	24B	F01200
P0DLSA	J1204	74	35B	F01902	J1205	55		F01902				
P0DLS0V	J1205	56	28B	F01902	J1203	79	39B	F01902				
P4CPA0	J1203	52	24A	F01600	J1204	20	1A	F02300	J1206	55	29B	F02300
J1206	61	32B		F02300	J1208	52	24A	F01901	J1214	49	26B	F01700
J1213	49	26B		F01700	J1213	37	18B	F01800	J1214	37	18B	F01800
P4CPB0	J1207	59	31B	F02300	J1208	75	37B	F02300	J1204	75	37B	F02300
J1204	69	35A		F02300	J1203	66	31A	F02300	J1203	22	12A	F01902
J1203	06	05A		F01902	J1204	06	05A	F02300				
P4CPC0	J1204	19	09B	F02300	J1206,	47	25B	F01800	J1217	23	12B	F01800

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
	J1217	09	06B	F01800	J1213	09	06B	F01800	J1214	09	06B	F01800
	J1214	23	12B	F01800	J1213	23	12B	F01800	J1208	38	18A	F01901
P4CPEO	J1204	27	13B	F02300	J1206	70	33A	F02300	J1208	66	31A	F01902
	J1203	75	37B	F01902	J1217	63	32B	F01700	J1217	77	38B	F01700
	J1214	77	38B	F01700	J1213	77	38B	F01700	J1213	63	32B	F01700
	J1214	63	32A	F01902								
	J1104	69	32A	F01902	J1105	69	32A	FP01901				
P4CPNA	J1113	69	32A	61902	J1212	56	26A	F01700	J1211	56	26A	F01700
	J1212	79	39B	F01700	J1211	79	39B	F01700				
P4CPPA	J1206	57	30B	F02300	J1207	55	29B	F02300	J1211	70	33A	F01700
	J1211	72	34A	F01700	J1212	72	34A	F01700	J1212	70	33A	F01700
	J1105	51	25B	F01901	J1104	51	25B	F01500	J1103	51	25B	F01902
P4CPQA	Jl10	37	17B	F01901	J1102	37	17B	F01902	J1103	37	17B	F01600
	J1104	37	17B	F01901	J1105	37	17B	F01901	J1206	63	33B	F02300
P4CP1A	J1206	33	16B	F02300	J1204	22	12A	F02300	J1204	21	10B	F02300
	J1204	14	09A	F02300								
P4CP20	J1206	29	14B	F02300	J1206	17	08B	F01600	J1204	15	07B	F02300
P4CP3A	J1204	17	08B	F02300	J1204	24	13A	F02300	J1204	23	11B	F02300
	J1206	27	13B	F02300	J1204	09	04B	F02300				
P5V5101	J1221	34		F01300	J1208	62	29A		J1207	05	03B	
	J1203	03	02A	F02300	J1110	74	36A	F01400	J1109	53	26B	F01200
	J1106	08	06A	F01300								
P5V5201	J1221	30	F01300	J1111	74	36A		F01400	J1109	59	30B	F01200

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
	J1105	64	30A	F01901	J1103	64	30A	F01902	J1106	10	07A	F03400
	J1207	06	05A	J1208	60	28A			J1208	80	39A	F02300
P5V5301	J1221	42		F01300	J1113	74	36A	F01400	J1109	75	35B	F01200
	J1106	04	04A	F01300	J1203	63	33B	F02300	J1207	07	03A	
	J1208	53	28B									
P5V5401	J1221	40		F01300	J1207	08	06A		J1203	01	02B	F01300
	J1114	74	36A	F01400	J1109	77	36B	F01200	J1105	78	38A	F01901
	J1103	78	38A	F01902	J1106	05	03B	F01300				
P5V5501	J1106	03	02A	F01300	J1207	10	07A		J1221	53	61300	
P5V5601	J1106	07	03A	F02000	J1104	48	22A	F01901	J1102	48	22A	F01902
	J1221	66		F01300								
P5V5701	J1110	08	04A	F01400	J1106	11	05B	F01300	J1207	01	02B	
	J1221	69		F01300								
P5V5801	Jll11	08	04A	F01400	J1106	13	06B	F01300	J1207	04	04A	
	J1203	80	39A	F01902	J1215	65	33B		J1222	30	F01300	
P5V5901	J1112	08	04A	F01400	J1106	24	13A	F01300	J1207	13	06B	
	J1208	20	11A		J1222	34		63400				
P5V6001	J1113	08	04A	F01400	J1106	26	14A	F01300	J1204	10	07A	F02300
	J1204	78	38A	F02300	J1208	36	17A	F01500	J1222	40	F01300	
P5V6101	J1114	08	04A	F01400	J1106	18	Q0A	F01300	J1104	61	31B	F01500
	J1208	50	23A	F01901	J1222	42		F01300				
P5V6201	J1110	22	11A	F01400	J1106	20	11A	F01200	J1204	79	39B	F02300
J1208	64	30A		F01902	J1222	53		F01300				

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PSV6301	J1222	66		F01300	J1207	37	18B	F01902	J1104	79	37B	F01902
	J1106	17	08B	F01300	J111	22	11A	F01400				
P5V6401	J1222	69		F01300	J1207	38	18A	F01902	J1203	15	07B	F01902
	J1106	19	09B	F01300	J1104	78	38A	F01902	J1104	78	F01902	
	J1101	47	23A	F01901								
P5V6501	J1112	22	11A	F01400	J1106	23	11B	F01300	J1207	40	19A	F01902
	J1223	30		F01300								
P5V6601	J1113	22	11A	F01400	J1106	25	12B	F01300	J1207	42	20A	F01902
	J1223	34		F01300								
P5V6701	J1223	40		F01300	J1203	65	34B	F00900	J1203	20	11A	F01902
	J1106	40	19A	F01300								
P5V6801	J1223	42		F01300	J1114	22	11A	F01400	J1106	42	20A	F01300
P5V6901	J1110	36	17A	F01400	J1106	34	16A	F01300	J1204	62	29A	F01901
	J1223	53		F01300								
P5V7001	J1111	36	17A	F01300	J1106	36	17A	F01400	J1208	15	07B	F01600
	J1223	66		F01300								
P5V7101	J1223	69		F01300	J1112	36	17A	F01300	J1106	62	29A	
	J1106	68		32A	J1105	47	23A	F01901				
P5V7201	J1224	30		F01300	J1217	40	19A	F01200	J1211	63	33B	F01700
	J1110	50	23A	F01400								
P5V7301	J1224	34		F01300	J1217	54	25A	F01200	J1212	52	24A	F01700
	J1211	52	24A	F01700								
P5V7501	J1224	42		F01300	J1212	66	31A	F01700	J1211	66	31A	F01700

Table 6-3. Left Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
J1212	15	07B		F01200	J1113	36	17A	F01400	J1106	55	29B	F01800
	J1106	61	32B	F01200								
P5V7701	J1224	66		F01300	J1211	80	39A	F01700	J1212	27	13B	F01800
	J1111	50	23A	F01400	J1114	36	17A	F01400	J1212	03	02A	F01800
	J1212	80	39A	F01700								
P5V8101	J1225	40		F01300	J1211	65	34B	F01700	J1211	27	13B	F01800
	J1114	50	23A	F01400	J1111	62	30A	F01400	J1212	20	11A	F01800
	J1212	22	12A	F01200								
P5V8201	J1112	50	23A	F01400	J1212	17	08B	F01800	J1212	65	34B	F01700
	J1212	75	37B	F01700	J1211	75	37B	F01700	J1211	17	08B	F01800
	J1225	42		F01300								
P5V8301	J1212	06	05A	F01200	J1212	04	04A	F01800	J1113	50	23A	F01400
	J1203	51	27B	F01600	J1211	73	36B	F01700	J1212	73	36B	F01700
	J1212	39	19B	F01200	J1225	53		F01300				
P58501	J1206	10	07A	F01901	J1110	62	30A	F01400	J1212	29	14B	F01800
	J1225	69		F01300	J1211	22	12A	F01800	J1211	20	11A	F01800
	J1112	62	30A	F01400								
P5V8801	J1226	40		F01300	J1211	51	27B	F01700	J1207	25	12B	F01902
	J1114	62	30A	F01400	J1212	51	27B	F01700				
P5V8901	J1226	42		F01300	J1212	63	33B	F01700	J1207	26	14A	F01902
	J1112	74	36A	F01400	J1113	62	30A	F01400	J1212	36	17A	F01800
	J1212	38	18A	F01200								

Table 6-4. Right Hand Assembly Key Signal Lookup

Signal	Distribution											
PADDRAV	J1127	54	25A	F00400	J1113	37	18B	F00400				
PADDR0	J1214	23	11B	F00801	J1211	11	05B	F00400	J1113	59	31B	F00400
	J1127	52	26A	F00400	J1123	40	19A	F00400	J01	E3	F00400	
PARMCA	J03	N1		F00900	J1224	51	25B	F00900				
PBEDNAV	J1114	37	17A	F00101	J1225	05	03B	F00801				
PBRALA	J1220	27	13B	F00801	J1114	23	12A	F00801				
PBRAL0V	J1114	25	11A	F00801	J1116	14	06A	F00101				
PBRAN0E	J1116	07	05B	F0700	J1225	04	D2A	F01401				
PBRAN1E	J1116	11	07B	F00101	J1225	06	03A	F00801				
PBRAN2E	J1116	13	07A	F00101	J1225	03	02B	F00801				
PBRAN3E	J1126	26	14A	F00801	J1116	10	05A	F00101	J1114	35	18A	F00101
PBR030V	J1114	31	16B	F00801	J1211	23	11B	F00801				
PBR100V	J1114	34	15A	F00801	J1121	40	19A	F00801	J1217	54	25A	F00600
PBS010E	J04	A1		F01401	J1208	08	06A	F02201				
PBS011E	J04	A2		F01401	J1208	54	25A	F02201				
PBS012E	J04	A3		F01401	J1208	24	13A	F02202				
PBS013E	J04	A4		FP01401	J1208	68	32A	F02202				
PBS020E	J04	A5		F01401	:'J1208	40	19A	F02203				
PBS021E	J04	A6		F01401	J1208	77	38B	F02203				
PBS022E	J04	B1		F01401	J1210	08	06A	F02204				
PBS023E	J04	B2		FP01401	J1210	54	25A	F02204				
PBSO30E	J04	B3		F01401	J1210	24	13A	F02205				
PBS031E	J04	B4		F01401	J1210	68	32A	F02205				
PBS032E	J04	B5		F01401	J1210	40	19A	F02206				

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution						
PBS033E	J04	B6	F01401	J1210	77	38B	F02206
PBSO51E	J04	C1	F01401	J1209	08	06A	F02201
PBS052E	J04	C2	F01401	J1209	54	25A	F02201
PBS053E	J04	C3	F01401	J1209	24	13A	F02201
PBS060E	J04	C4	F01401	J1209	68	32A	F02202
PBS061E	J04	C5	F01401	J1209	40	19A	F02203
PBS062E	J04	C6	F01401	J1209	77	38B	F02203
PBS063E	J04	D1	F01401	J1211	08	06A	F02204
PBS070E	J04	D2	F01401	J1211	54	25A	F02204
PBS071E	J04	D3	F01401	J1211	24	13A	P02205
PBS072E	J04	D4	F01401	J1211	68	32A	F02205
PBS073E	J04	D5	F01401	J1211	40	19A	FP02206
PBS080E	J04	D6	F01401	J1211	77	38B	F02206
PBS092E	J04	E2	F01401	J1208	04	04A	FP02201
PBS093E	J04	E3	F01401	J1208	48	22A	F02201
PBS100E	J04	E4	F01401	J1208	18	10OA	F02202
PBS10OE	J04	E5	F01401	J1208	62	29A	F02202
PBS102E	J04	E6	FP01401	J1208	34	16A	F02203
PBS103E	J04	F1	F01401	J1208	71	36A	F02203
PBS110E	J04	F2	F01401	J1210	04	04A	F02204
PBS111E	J04	F3	F01401	J1210	48	22A	F02204
PBS112E	J04	F4	F01401	J1210	18	10A	F02205
PBSl13E	J04	F5	F01401	J1210	62	29A	F02205

Table 6-4. Right Hand Assembly Key Signal Lookup Continued

Signal	Distribution						
PBS120E	J04	F6	F01401	J1210	34	16A	F02206
PBS121E	J04	H1	F01401	J1210	72	36A	F02206
PBS133E	J04	H2	F01401	J1209	04	04A	F02201
PBS140E	J04	H5	F01401	J1209	48	22A	F02201
PBS141E	J04	H6	F01401	J1209	18	10A	F02202
PBS142E	J04	J1	F01401	J1209	62	29A	F02202
PBS143E	J04	K1	F01401	J1209	34	16A	F02203
PBS150E	J04	K2	F01401	J1209	71	36A	F02203
PBS151E	J04	K5	F01401	J1211	04	04A	F02203
PBS152E	J04	K6	F01401	J1211	48	22A	F02204
PBS153E	J04	L1	F01401	J1211	18	10A	F02205
PBS160E	J04	L2	F01401	J1211	62	29A	F02205
PBS161E	J04	L3	F01401	J1211	34	16A	F02206
PBS162E	J04	L4	F01401	J1211	71	36A	F02206
PBS180E	J04	L5	F01401	J1208	03	02A	F02201
PBS181E	J04	L6	F01401	J1208	41	22B	F02201
PBS182E	J04	M2	F01401	J1208	17	08B	F02202
PBS183E	J04	M3	F01401	J1208	53	28B	F02202
PBS190E	J04	M4	F01402	J1208	29	14B	F02203
PBS191E	J04	M5	F01402	J1208	65	34B	F02203
PBS192E	J04	M6	F01402	J1210	03	02A	F02204
PBS193E	J04	N1	F01402	J1210	41	22B	F02204
PBS200E	J04	N2	F01402	J1210	17	08B	F02205

Table 6-4. Right Hand Assembly Key Signal Lookup Continued

Signal	Distribution						
PBS201E	J04	N3	F01402	J1210	53	28B	F02205
PBS202E	J04	N4	F01402	J1210	29	14B	F02206
PBS203E	J04	N5	F01402	J1210	65	34B	F02206
PBS221E	J04	N6	F01402	J1209	03	02A	F02201
PBS222E	J04	P1	F01402	J1209	41	22B	F02201
PBS223E	J04	P2	F01402	J1209	17	08B	F02202
PBS230E	J04	P3	F01402	J1209	53	28B	F02202
PBS231E	J04	P4	F01402	J1209	29	14B	F02203
PBS232E	J04	P5	F01402	J1209	65	34B	F02203
PBS233E	J04	P6	F01402	J1211	03	02A	F02204
PBS240E	J04	R1	F01402	J1211	41	22B	F02204
PBS241E	J04	R2	F01402	J1211	17	08B	F02205
PBS242E	J04	R3	F01402	J1211	53	28B	F02205
PBS243E	J04	R4	F01402	J1211	29	14B	F02206
PBS250E	J04	R5	F01402	J1211	65	34B	F02206
PBS262E	J04	R6	F01402	J1208	11	05B	F02201
PBS263E	J04	S1	F01402	J1208	47	25B	F02201
PBS270E	J04	S2	F01402	J1208	23	11B	F02202
PBS271E	J04	S3	F01402	J1208	59	31B	F02202
PBS272E	J04	S4	F01402	J1208	35	17B	F02203
PBS273E	J04	S5	F01402	J1208	76	37A	F02203
PBS280E	J04	S6	F01402	J1210	11	05B	F02204
PBS281E	J03	R6	F01402	J1210	47	25B	F02204

Table 6-4. Right Hand Assembly Key Signal Lookup Continued

Signal	Distribution											
PBS281EG	J03	R5			J1210	44	27A					
PBS282E	J03	S1		F01402	J1210	23	11B	F02205				
PBS282EG	J03	S2			J1210	16	01B					
PBS283E	J03	S3		F01402	J1210	59	31B	F02205				
PBS283EG	J03	S2			J1210	58	40A					
PBS290E	J03	S4		F01402	J1210	35	17B	F02206				
PBS290EG	J03	S5			J1210	32	21B					
PBS291E	J03	S6		F01402	J1210	76	37A	F02206				
PBS291EG	J03	S5			J1210	67						
PB0100E	J1223	77	38B	F00801	J1223	59	31B	F00801	J1223	23	11B	F00801
	J1223	10	07A	F00801	J1223	03	02A	F00801	J1121	59	31B	F00801
	J1115	07	05B	F00101								
PB0101E	J1122	70	33A	F00801	J1122	50	23A	F00801	J1122	43	23B	F00801
	J1115	11	07B	F00101								
PB0102E	J1127	59	31B	F00101	J1122	36	17A	F00801	J1121	30	15A	F00801
	J1121	03	02A	F00801	J1115	13	07A	F00101				
PB0103E	J1127	65	33B	F00101	J1121	47	25B	F00802	J1121	41	22B	F00802
	J1122	34	16A	F00802	J1122	11	05B	F00802	J1115	10	05A	F00101
PB012AV	J1113	25	12B	F00802	J1127	57	30B	F00101				
PB013AV	J1113	23	11B	F00802	J1127	68	32B	F00101				
PB020B	J03	C1		F00101	J1218	71	34B	F00600	J1115	71	35B	F00200
	J1115	55	29B	F00200	J1115	43	23B	F00200	J1115	31	15B	F00200
	J1117	25	11A	F00101	J1117	24	13A	F00101	J1121	56	26A	F00801

Table 6-4. Right Hand Assembly Key Signal Lookup Continued

Signal	Distribution											
PB0200E	J1119	43	23B	F00300	J1117	22	14A	F00101	J1117	23	12A	F00101
	J1116	21	11B	F00101								
PB0201E	J1119	46	2LA	F00300	J1117	20	10A	F00101	J1117	17	09B	F00101
	J1116	27	13B	F00101								
PB0202E	J119	48	22A	F00300	J1117	21	11B	F00101	J1117	27	13B	F00101
	J1116	25	14A	F00101								
PB0203E	J1119	61	32B	F00300	J1117	38	20A	F00101	J1116	24	18A	F00101
	J1116	24	12A	F00101								
PB021B	J03	B6		F00101	J1218	73	35B	F00600	J1115	69	34B	F00200
	J1115	53	28B	F00200	J1115	41	22B	F00200	J1115	29	14B	F00200
	J1117	18	09A	F00100	J1117	14	08B	F00101				
PB022B	J03	B4		F0100	J1218	75	36B	F00600	J1115	70	34A	F00200
	J1115	57	28A	F00200	J1115	46	21A	F00200	J1115	30	15A	F00200
	J1117	26	12B	F00101	J1117	19	10B	F00101	J1121	13	06B	F00801
PB023B	J03	B3		F00101	J1218	77	37B	F00600	J1115	72	35A	F00200
	J1115	60	29A	F00200	J1115	48	22A	F00200	J1117	40	19A	F00101
	J1117	37	17A	F00101	J1115	34	16A	F00200				
PB030B	J1119	73			J1116	31	36B	61402	J1116	43	15B	60801
	J1117	49	23B	F00200	J1117	54	23A	F00101	J1116	55	25A	F00101
	J1116	71	29B	F00200	J1217	36	35B	F00200	J1218	72	17A	F00600
	J03	B1	36A	F00600								
PB030BR	J03	B2		F00101	J1217	58	40A					
PB0300E	J1119	66	31A	F00300	J1117	52	26A	F00101	J1117	47	24A	F00101

Table 6-4. Right Hand Assembly Key Signal Lookup Continued

Signal	Distribution											
	J1115	21	11B	F00101								
PB0301E	J1119	68	32A	F00300	J1117	50	22A	F00101	J1117	41	23B	F00101
	J1115	27	13B	F00101								
PB0302E	J1119	55	29B	F00300	J1117	51	27B	F00101	J1117	45	25B	F00101
	J1115	25	14A	F00101								
PB0303E	J1119	60	28A	F00300	J1117	36	16A	F00101	J1117	29	15B	F00101
	J1115	24	12A	F00101								
PB031B	J1116	29	14B	F00200	J1116	41	22B	F00200	J1117	46	22B	F00101
	J1117	48	21A	F00101	J1116	53	28A	F00200	J1116	69	34B	F00200
	J1218	70	35A	F00600	J03	A6		F00101				
PB032B	J03	A4		F00101	J1218	68	34A	F00600	J1223	69	35A	F00801
	J1116	70	34A	F00200	J1116	57	28A	F00200	J1117	53	26B	F00101
	J1117	43	24B	F00101	J1116	46	21A	F00200	J1116	30	15A	F00200
PB33QAV	J1117	30	14B	F00101	J1117	34	15A	F00101	J1116	54	16A	F00200
	J1116	48	22A	F00200	J1116	60	29A	F00200	J1116	72	35A	F00200
	J1122	26	14A	F00801	J1223	65	34B	F00801	J1218	66	33A	F00600
	J03	A3		F00101								
PB0400E	J1227	40	19A	F00200	J1115	35	17B	F00200				
PB0402E	J1127	76	37A	F00200	J1115	42	20A	F00200				
PB0403E	J1127	74	35A	F00200	J1115	38	18A	F00200				
PB042AV	J1223	09	04B	F00200	J1127	78	36A	F00200				
PB043AV	J1127	72	34A	F00200	J1217	71	36A	F00200				
PB0500E	J1227	29	14B	F00200	J1116	35	17B	F00200				

Table 6-4. Right Hand Assembly Key Signal Lookup -Continued-

Signal	Distribution											
PB0502E	J1227	35	17B	F00200	J1116	42	20A	F00200				
PB0600E	J1227	54	25A	F00200	J1115	47	25B	F00200				
PB0602E	J1227	48	22A	F00200	J1115	56	26A	F00200				
PB0700E	J1227	41	22B	F00200	J1116	47	25B	F00200				
PB0702E	J1227	47	25B	F00200	J1116	56	26A	F00200				
PBO800E	J1227	68	32A	F00200	J1115	61	31B	F00200				
PB0802E	J1227	62	29A	F00200	J1115	68	33A	F00200				
PB0900E	J1227	53	28B	F00200	J1116	61	31B	F00200				
PB0902E	J1227	59	31B	F00200	J1116	68	33A	F00200				
PB1000E	J1227	71	36A	F00200	J1115	75	37B	F00200				
PB1001E	J1227	65	34B	F00200	J1115	79	39B	F00200				
PB1003E	J1227	76	37A	F00200	J1115	76	37A	F00200				
PB1100E	J1209	11	05B	F00200	J1116	75	37B	F00200				
PB1101E	J1209	23	11B	F00200	J1116	79	39B	F00200				
PB1103E	J1209	37	18B	F00200	J1116	76	37A	F00200				
PB2603E	J03	P3	07A	F01700	J1117	11	29A	F01700	J1111	62		F01700
PB2703E	J03	P4		F01700	J1117	06	05A	F01700	J1111	55	29B	F01700
PB2803E	J03	P6		F01700	J1117	04	02A	F01700	J1111	59	31B	F01700
PB2903E	J03	R1		F01700	J1117	05	03B	F01700	J1111	65	33B	F01700
PCADJA	J1214	27	13B	F00801	J1127	15	07B	F00801				
PCADJOV	J1127	10	06B	F00801	J1126	24	13A	F00801				
PCADRJ	J1126	25	12B	F00801	J1220	25	12B	F00801				
PCADRK	J1126	23	11B	F00801	J1119	10	07A	F00801				

Table 6-4. Right Hand Assembly Key Signal Lookup -Continued-

Signal	Distribution											
PCAOVD4	J1114	38		F00400	J1212	26	20A	F00400	J1211	15	07B	F00400
PCAOVOV	J1114	40	19A	F00400	J1113	31	15B	F00400				
PCCGIAV	J1105	10	07A	F00101	J1127	49	23A	F00400				
PCCG10	J1113	22	12A	F00400	J1127	47	24A	F00400				
PCCG2AV	J1105	05	03B	F00101	J1105	07	03A	F00101	J1105	13	06B	F00101
	J1127	48	21A	F00400								
PCCG20	J1113	14	09A	F00400	J1127	50	22A	F00400				
PCCG3AV	J1127	46	22B	F00400	J1105	56	26A	F00101	J1105	42	20A	F00101
	J1105	36	17A	F00101	J1105	37	18B	F00101	J1105	31	15B	F00101
	J1105	25	12B	F00101	J1105	26	14A	F01010	J1105	20	11A	F00101
	J1105	19	09B	F00101								
PCCG30	J1113	21	10B	F00400	J1127	41	23B	F00400				
PC0101C	J1226	65	33B	F00900	J1222	07	03A	F00900				
PC0102C	J1226	66	32A	F00900	J1222	08	06A	F00900				
PC0201C	J1226	79	39B	F00900	J1222	10	07A	F00900				
PC0202C	J1226	78	38A	F00900	J1222	13	06B	F00900				
PC0301C	J1226	51	27B	F00900	J1222	01	02B	F00900				
PC0302C	J1226	54		F00900	J1222	04	25A	F00900				
PDAOOD6	J1227	75	37B	F00200	J1221	17		F00200	J1221	05	F00200	
	J02	B6		F00200								
PDA01D6	J1227	72	34A	F00200	J1221	19		F00200	J1221	07	F00200	
	J02	B5		F00200								
PDA02D6	J1227	69	35A	F00200	J1221	20		F00200	J1221	08	F00200	

Table 6-4. Right Hand Assembly Key Signal Lookup -Continued-

Signal	Distribution											
	J02	B4		F00200								
PDA03D6	J1227	80	39A	F00200	J1221	24		F00200	J1221	09	F00200	
	J02	B3		F00200								
PDA04D6	J1221	26		F00200	J1221	10		F00200	J1209	15	F00200	
	J02	B2	07B	F00200								
PDA05D6	J1221	35		F00200	J1221	23		F00200	J1209	27	F00200	
	J02	B1	13B	F00200								
PDA06D	J02	C4		F00200	J1209	39	19B	F00200				
PDBA1D	J1205	48		F02205	J1210	66	31A	F02205				
PDBA2D	J1211	66		F02205	J1210	64	31A	F02205	J1210	70	30A	F02205
	J1205	54	33A	F02205								
PDBA3D	J1211	70		F02205	J1210	60	33A	F02205	J1205	56	28A	F02205
PDBA4D	J1205	60		F02205	J1211	60	28A	F02205				
PDBASD	J1211	64		F02205	J1211	55	30A	F02205	J1210	57	29B	F02205
	J1205	62	30B	F02205								
PDBA6D	J1205	68		F02205	J1210	61	32B	F02205	J1210	55	29B	F02205
	J1211	57	30B	F02205								
PDBA7D	J1205	66		F02205	J1210	63	33B	F02205				
PDBB1D	J1206	10		F02206	J1210	38	18A	F02206				
PDBB2D	J1211	38		F02206	J1210	36	18A	F02206	J1210	42	17A	F02206
	J1206	11	20A	F02206								
PDBB3D	J1211	42		F02206	J1210	30	20A	F02206	J1206	30	15A	F02206
PDBB4D	J1206	26		F02206	J1211	30	15A	F02206				

Table 6-4. Right Hand Assembly Key Signal Lookup -Continued-

Signal	Distribution											
PDBB5D	J1211	36		F02206	J1211	31	17A	F02206	J1210	33	15B	F02206
	J1206	36	16B	F02206								
PDBB6D	J1206	38		F02206	J1210	37	18B	FP2206	J1210	31	15B	F02206
	J1211	33	16B	F02206								
PDBB7D	J1206	46		F02206	J1210	39	19B	F02206				
PDBC1D	J1206	48		F02206	J1210	75	37B	F02206				
PDBC2D	J1211	75		F02206	J1210	73	37B	F02206	J1210	79	36B	F02206
	J1206	54	39B	F02206								
PDBC3D	J1211	79		F02206	J1210	72	39B	F02206	J1206	56	34A	F02206
PDBC4D	J1206	60		F02206	J1211	72	34A	F02206				
PDBC5D	J1211	74		F02206	J1211	73	35B	F02206	J1210	69	36B	F02206
	J1206	62	35A	F02206								
PDBC6D	J1206	68		F02206	J1210	78	38A	F02206	J1210	74	35B	F02206
	J1211	69	35A	F02206								
PDBC7D	J1206	66		F02206	J1210	80	39A	P02206				
PDB11D	J1201	10		F02201	J1208	06	05A	P02206				
PDB12D	J1209	06		F02201	J1208	05	05A	F02201	J1208	10	03B	F02201
	J1201	11	07A	F02201								
PDB13D	J1209	10		F02201	J1208	01	07A	F02201	J1201	30	02B	F02201
PDB14D	J1201	26		F02201	J1209	0	023	F02201				
PDB15D	J1209	05		F02201	J1209	07	03B	F02201	J1208	09	03A	F02201
	J1201	36	04B	F02201								
PDB16D	J1201	38		F02201	J1208	13	06B	F02201	J1208	07	03A	F02201

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1209	09	04B	F02201								
PDB17D	J1201	46		F02201	J1208	15	07B	F02201				
PDB21D	J1201	48		F02201	J1208	52	24A	F02201				
PDB22D	J1209	52		F02201	J1208	50	24A	F02201	J1208	56	23A	F02201
	J1201	54	26A	F02201								
PDB23D	J1209	56		F02201	J1208	46	26A	F02201	J1201	56	21A	F02201
PDB24D	J1201	60		F02201	J1209	46	21A	F02201				
PDB25D	J1209	50		F02201	J1209	43	23A	F02201	J1208	45	23B	F02201
	J1201	62	24B	F02201								
PDB26D	J1201	68		F02201	J1208	49	26B	F02201	J1208	43	23B	F02201
	J1209	45	24B	F02201								
PDB27D	J1201	66		F02201	J1208	51	27B	F02201				
PDB3.!D	J1202	10		F02202	J1208	22	12A	F02202				
PDB32D	J1209	22		F02202	J1208	20	12A	F02202	J1208	26	11A	F02202
	J1202	11	14A	F02202								
PDB33D	J1209	26		F02202	J1208	14	14A	F02202	J1202	30	09A	F02202
PDB34D	J1202	26		F02202	J1209	14	09A	F02202				
PDB35D	J1209	20		F02202	J1209	19	11A	F02202	J1208	21	09B	F02202
	J1202	36	10B	F02202								
PDB36D	J1202	38		F02202	J1208	25	12B	F02202	J1208	19	09B	F02202
	J1209	21	10B	F02202								
PDB37D	J1202	46		F02202	J1208	27	13B	F02202				
PDB41D	J1202	48		F02202	J1208	66	31A	F02202				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PDB42D	J1209	66		F02202	J1208	64	31A	F02202	J1208	70	30A	F02202
	J1202	54	33A	F02202								
PDB43D	J1209	70		F02202	J1208	60	33A	F02202	J1202	56	28A	F02202
PDB44D	J1202	60		F02202	J1209	60	28A	F02202				
PDB450	J1209	64		F02202	J1209	55	30A	F02202	J1208	57	29B	F02202
	J1202	62	30B	62202								
PDB46D	J1202	68		F02202	J1208	61	32B	F02202	J1208	55	29B	F02202
	J1209	57	30B	F02202								
PDB47D	J1202	66		F02202	J1208	63	33B	F02202				
PDB51D	J1203	10		F02203	J1208	38	18A	F02203				
PDB52D	J1209	38		F02203	J1208	36	18A	F02203	J1208	42	17A	F02203
	J1203	11	20A	F02203								
PDB53D	J1209	42		F02203	J1208	30	20A	F02203	J1203	30	15A	F02203
PDB54D	J1203	26		F02203	J1209	30	15A	F02203				
PDB55D	J1209	36		F02203	J1209	31	17A	F02203	J1208	33	15B	F02203
	J1203	36	16B	F02203								
PDB56D	J1203	38		F02203	J1208	37	18B	F02203	J1208	31	15B	F02203
	J1209	33	16B	F02203								
PDB57D	J1203	46		F02203	J1208	39	19B	F02203				
PDB61D	J1203	48		F02203	J1208	75	37B	F02203				
PDB62D	J1209	75		F02203	J1208	73	37B	F02203	J1208	79	36B	F02203
	J1203	54	39B	F02203								
PDB63D	J1209	79		F02203	J1208	72	39B	F02203	J1203	56	34A	F02203

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PDB64D	J1203	60		F02203	J1209	72	34A	F02203				
PDB65D	J1209	74		F02203	J1209	73	35B	F02203	J1208	69	36B	F02203
	J1203	62	35A	F02203								
PDB66D	J1203	68		F02203	J1208	78	38B	F02203	J1208	74	35B	F02203
	J1209	69	35A	F02203								
PDB67D	J1203	66		F02203	J1208	80	39A	F02203				
PDB71D	J1204	10		F02204	J1210	06	05A	F02204				
PDB72D	J1211	06		F02204	J1210	05	05A	F02204	J1210	10	03B	F02204
	J1204	11	07A	F02204								
PDB73D	J1211	10		F02204	J1210	01	07A	F02204	J1204	30	02B	F02204
PDB74D	J1204	26		F02204	J1211	01	02B	F02204				
PDB75D	J1211	05		F02204	J1211	07	03B	F02204	J1210	09	03A	F02204
	J1204	36	04B	F02204								
PDB76D	J1204	36		F02204	J1210	13	06B	F02204	J1210	07	03A	F02204
	J1211	09	04B	F02204								
PDB77D	J1204	46		F02204	J1210	15	07B	F02204				
PDB81D	J1204	48		F02204	J1210	52	24A	F02204				
PDB82D	J1211	52		F02204	J1210	50	24A	F02204	J1210	56	23A	F02204
	J1204	54	26A	F02204								
PDB83D	J1211	56		F02204	J1210	46	26A	F02204	J1204	56	21A	F02204
PDB84D	J1204	60		F02204	J1211	46	21A	F02204				
PDB85D	J1211	50		F02204	J1211	43	23A	F02204	J1210	45	23B	F02204
	J1204	62	24B	F02204								

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PDB86D	J1204	68		F02204	J1210	49	26B	F02204	J1210	43	23B	F02204
	J1211	45	24B	F02204								
PDB87D	J1204	66		F02204	J1210	51	27B	.F02204				
PDB91D	J1205	10		F02205	J1210	22	12A	F02205				
PDB92D	J1211	22		F02204	J1210	20	12A	F02205	J1210	26	11A	F02205
	J1205	11	14A	F02205								
PDB93D	J1211	26		F02205	J1210	14	14A	F02205	J1205	30	09A	F02205
PDB94D	J1205	26		F02205	J1211	14	09A	F02205				
PDB95D	J1211	20		F02205	J1211	19	11A	F02205	J1210	21	09B	F02205
	J1205	36	10B	F02205								
PDB96D	J1205	38		F02205	J1210	25	12B	F02205	J1210	19	09B	F02205
	J1211	21	10B	F02205								
PDB97D	J1205	46		F02205	J1210	27	13B	F02205				
PDEBR1T	J1225	10	05A	F00801	J1114	33	17B	F00801				
PDEBR2T	J1225	14	06A	F00801	J1114	36	16A	F00801				
PDEBR4T	J1225	17	08B	F00801	J1122	47	25B	F00801				
PDECTA	J1215	80	39A	F00400	J1117	79	39B	F00400				
PDECTOV	J1117	80	38B	F00400	J1126	68	32A	F00400				
PDEVSD4	J1212	29		F00801	J1211	27	13B	F00801	J1114	39	19B	F00801
PDEVSDV	J1114	42	18B	F00801	J1126	18	10A	F00801				
PDISPD6	J1227	27		F00200	J1221	25	13B	F00200	J02	C3	F00200	
PDI01D6	J1227	38		F00200	J1221	39	18A	F00200	J1221	29	F00200	
	J02	C1		F00200								

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PDI02D6	J02	D6		F00200	J1221	42		F00200	J1221	36		F00200
	J1227	30	15A	F00200								
PDI03D6	J02	D5		F00200	J1221	46		F00200	J1221	38		F00200
	J1227	33	16B	P00200								
PDI04D6	J02	D4		F00200	J1221	51		F00200	J1221	41		F00200
	J1227	39	19B	F00200								
PDI05D6	J1227	52	24A	F00200	J1221	53		F00200	J1221	45		F00200
	J02	D3		F00200								
PD106D6	J02	D2		F00200	J1221	55		F00200	J1221	47		F00200
	J1227	46	21A	F00200								
PDI07D6	J02	D1		F00200	J1221	56		F00200	J1221	48		F00200
	J1227	45	24B	F00200								
PDI08D6	J02	E4		F00200	J1221	62		F00200	J1221	52		F00200
	J1227	51	27B	F00200								
PDI09D6	J1227	66	31A	F00200	J1221	71		F00200	J1221	61		F00200
	J02	E3		F00200								
PDIIOD6	J02	F5		F00200	J1221	73		F00200	J1221	63		F00200
	J1227	60	28A	F00200								
PDIIlD6	J02	F2		F00200	J1221	75		F00200	J1221	65		F00200
	J1227	57	30B	F00200								
PDI12D6	J02	K1		F00200	J1221	76		F00200	J1221	66		F00200
	J1227	63	33B	F00200								
PDMRNB	J1105	50	23A	F00400	J1109	36	17A	F00802	J1109	20	11A	F00802

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1110	20	11A	F00802	J1110	04	04A	F00400	J1109	04	04A	F00400
	J1126	04	04A	F00802	J1127	03	03A	F02300	J1127	01	02B	F02300
	J1127	07	04B	F02300	J1127	08	04A	F02300	J1127	13	06A	F02300
PDMR1B	J1123	38	18A	F00400	J1123	04	04A	F00300	J1124	35	16B	F00900
	J1127	19	10B	F02300	J1127	14	08B	F02300	J1127	18	09A	F02300
	J1127	24	13A	F02300	J1127	26	12B	F02300	J1127	25	11A	F02300
	J126	41	22B	F00500	J1126	51	27B	F00500	J1126	64	30A	F00400
	J1122	61	32B	F00600	J1122	79	39B	F00600	J1224	66	32B	F00900
	J1224	49	24B	F00900	J1224	35	16B	F00900	J1225	35	16B	F00900
	J1215	43	23B	F00600	J1109	80	39A	F00700	J1110	73	36B	F00700
	J1109	64	30A	F00900	J1110	64	30A	F00500	J1110	36	17A	F00500
PDSP1AV	J1123	13	06B	F00200	J1127	77	38A	F00200				
PDSR10	J1217	69	35A	F00200	J1227	25		F00200				
PDSP1O	J1227	25	12B	F00200	J1127	75	39A	F00200				
PERMCA	J03	N4		F00900	J1224	69	32A	F00900				
PEO1ONA	J1122	73	36B	F00800	J1118	17	08B	F00800				
PEOIONB	J1122	74	35B	F00800	J1118	18	09A	F00800				
PEOIONC	J1122	78	38A	F00800	J1118	15	07B	F00800				
PEO1ONE	J1114	55	29B	F00802	J1110	24	13A	F00802	J1118	04	02A	F00802
	J1120	11	06B	F00802								
PE020NA	J1122	71	36A	F00801	J1120	17	08B	F00801				
PE020NB	J1122	65	34B	F00801	J1120	18	09A	F00801				
PE020NC	J1122	76	37A	F00801	J1120	15	07B	F00801				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PFALMR	J1215	49	26B	F00200	J1122	39	19B	F00200				
PFALMS	J1126	38	18A	F00200	J1122	37	18B	F00200	J1215	51	27B	F00200
PFLICO	J1115	37	18B	F00200	J1116	37	18B	F00200	J1116	49	26B	F00200
	J1115	49	26B	F00200	J1115	63	32B	F00200	J1116	63	32B	F00200
	J1116	77	38B	F00200	J1115	77	38B	F00200	J1214	15	07B	F00400
PF01BR	J1122	40	19A	F00300	J1113	61	32B	F00400	J1105	06	05A	F00101
	J1101	05	04B	F00101								
PF02BR	J1122	42	20A	F00300	J1113	77	38B	F00400	J1105	01	02B	F0101
	J1101	09	10B	F00101								
PF03BR	J1122	23	11B	F00300	J1105	09	04B	F00101	J1102	05	04B	F00101
PF04BR	J1122	25	12B	F00300	J1105	15	07B	F00101	J1102	09	10B	F0101
PF05AS	J1215	66	31A	F00600	J1220	70	33A	F00600	J1123	77	38B	F00600
	J1118	66	33A	F00600								
PF05BR	J1220	66	31A	F00600	J1215	70	33A	F00600				
PF051A	J1223	55	29B	F00600	J1215	68	32A	F00600				
PF052A	J1119	33	16B	F00600	J1117	69	35B	F00600				
PP0520	J1119	30	ISA	F00600	J1217	76	37A	F00600				
PF0520V	J1117	70	34B	F00600	J1223	53	28B	F00600				
PF053A	J1220	68	32A	F00600	J1220	62	29A	F00600	J1217	33	16B	F00600
	J1216	05	03B	F00600	J1123	75	37B	F00600	J1123	73	36B	F00600
	J1123	64	30A	F00600								
PF053AV	J1117	71	36B	F00600	J1213	20	11A	F00600	J1213	36	17A	F00600
	J1213	38	18A	F00600	J1213	50	23A	F00600	J1213	52	24A	F00600

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1213	64	30A	F00600	J1213	66	31A	F00600	J1213	73	36B	F00600
	J1213	75	37B	F00600								
PF0530V	J1216	01	02B	F00600	J1117	73	37B	F00600				
PF06AS	J1123	62	29A	F00600	J1118	68	34A	F00600	J1220	64	30A	F00600
	J1215	60	28A	F00600								
PF06BR	J1220	60	28A	F00600	J1215	64	30A	F00600				
PF061A	J1214	63	33B	F00600	J1215	62	29A	F00600				
PF1OBR	J1121	22	12A	F00300	J1115	20	10A	F00101	J1105	22	12A	F00101
	J1103	05	04B	F00101								
PF11BR	J1121	24	13A	F00300	J1115	18	09A	F00101	J1105	14	09A	F00101
	J1103	09	10B	F00101								
PF12BR	J1121	26	14A	F00300	J1115	15	08B	F00101	J1105	21	10B	F0101
	J1104	05	04B	F00101								
PF13BR	J1105	27	13B	F00101	J1115	17	09B	F00101	J1104	09	10B	F00101
	J1121	14	09A	F00300								
PF14BR	J1121	17	08B	F00300	J1116	20	10A	F00101	J1106	05	04B	F00101
	J1105	38	18A	F00101								
PF15BR	J1121	18	10A	P00300	J1116	18	09A	F00101	J1106	09	10B	F00101
	J1105	30	15A	F00101								
PF16BR	J1121	21	10B	F00300	J1116	15	08B	F00101	J1107	05	04B	F00101
	J1105	33	16B	F00101								
PF17BR	J1121	23	11B	F00300	J1116	17	09B	F00101	J1107	09	10B	F00101
	J1105	39	19B	F00100								

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PF18BR	J1121	25	12B	F00300	J1108	05	04B	F00100	J1105	52	24A	F00101
PF20AS	J1220	55	29B	F00700	J1215	57	30B	F00700				
PF20BR	J1215	55	29B	F00700	J1220	57	30B	F00700	J1125	70	33A	F00700
PF201A	J1220	72	34A	F00700	J1215	53	28B	F00700				
PF202A	J1220	53	28B	F00700	J1215	63	33B	F00700				
PF2IAS	J1220	79	39B	F00700	J1215	75	37B	F00700				
PF21BR	J1215	79	39B	F00700	J1220	75	37B	F00700	J1119	08	06A	F00700
PF211A	J1220	63	33B	F00700	J1215	77	38B	F00700				
PF30AOV	J1117	72	34A	F00802	J1110	18	10A	F00802				
PF30NA	J1121	43	23B	F00802	J1117	74	35A	F00802				
PF3010	J1125	76	37A	F00802	J1121	46	21A	F00802				
PF31AOV	J1117	78	36A	F00802	J1109	34	16A	F00802				
PF311NA	J1121	51	27B	F00802	J1117	76	37A	F00802				
PG8OOA	J1122	22	12A	F00802	J1114	21	11B	F00802				
PGBOOOV	J1217	34	16A	F00600	J1119	72	34A	F00801	J1121	54	25A	F00801
	J1121	11	05B	F00801	J1114	19	10B	F00801				
PGCNEA	J1127	51	27B	F00801	J1113	27	13B	F00801				
PGCNEOV	J1127	53	26B	F00801	J1119	19	09B	F00801	J1113	74	35B	F00801
PGDLRA	J1113	38	18A	F00400	J1127	39	19B	F00400				
PGDLROV	J1126	62	29A	F00400	J1127	42	18B	F00400				
PGINDA	J1220	22	12A	F00500	J1102	10	09B	F00101				
PGIPA0	J1119	23	11B	F00400	J1127	33	17B	F00400	J1122	04	04A	F00400
PGIPNAV	J1113	42	20A	F00400	J1127	31	16B	F00400				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PGIPLA	J1119	22	12A	F00400	J1121	80	39A	F00400				
PGIP2A	J1119	24	13A	F00400	J1113	30	15A	F00400				
PGIP3A	J1119	25	12B	F00400	,J1113	33	16B	F00400				
PGIP4A	J1119	26	14A	F00400	J1113	39	19B	F00400				
PGIP50V	J1127	30	14B	F00400	J1121	69	35A	F00400				
PGIP60	J1119	76	37A	F00400	J1121	76		F00400				
PGX6NA	J1214	39	19B	F00400	J1225	51	25B	F00700	J1124	69	32A	F00700
PGOAAO	J1121	04	04A	F00400	J1109	08	06A	F00400				
PGOAIA	J1122	06	05A	F00400	J1121	06	05A	F00400				
PGOA2A	J1122	01	02B	F00400	J1121	08	05A	F00400				
PGOA3A	J1122	09	04B	F00400	J1121	10	07A	F00400				
PGOA4A	J1121	11	05B	F00400	J1111	11	07A	F00400				
PGOA40V	J1122	10	07A	F00400	J1122	05	03B	F00400	J1122	07	03A	F00400
	J1111	13	06A	F00400	J1215	78	38A	F00400				
PG06AB	J1126	06	05A	F00802	J1110	22	12A	F00802	J1109	22	12A	F00802
	J1109	38	18A	F00802	J1110	75	37B	F00700	J1214	31	15B	F00400
	J1214	36	17A	F00400	J1217	30	15A	F00600	J1217	49	26B	F00600
	J1220	61	32B	F00700	J1223	62	29A	F00600				
PG06NA	J1225	69	32A	F00700	J1124	51	25B	F00700	J1122	57	30B	F00400
	J1123	01	02B	F00300	J1214	29	14B	F00400	J1214	38	18A	F00400
PG07AO	J1125	35	17B	F00300	J1123	05	03B	F00300				
PG09NA	J1217	47	25B	F00600	J1123	79	39B	F00600	J1123	72	34A	F00600
	J1123	60	28A	F00600								
PG1OADV	J1224	78	38A	F00900	J1223	61	313B	F00900	J1225	48	22A	F00900

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1222	43	23B	F00900	J1222	25	12B	F00900	J1216	13	06A	F00900
	J1109	62	29A	F00900	J1124	48	22A	F00900				
PG1ONA	J1223	38	18A	F00900	J1217	45	24B	F00900	J1216	11	07A	F00900
PGLAOV	J1224	79	37B	F00900	J1224	79	15B	F00900	J1216	08	04A	P00900
PG11NA	J1223	29	14B	FO00900	J1222	23	11B	F00900	J1216	06	05A	F00900
PG12AOV	J1216	07	04B	F00900	J1109	68	32A	F00900				
PG12NA	J1223	33	16B	F00900	J1222	35	17B	F00900	J1216	09	05B	F00900
PG13AOV	J1216	54	25A	F00900	J03	H6		F00900				
PG13NA	J1223	56	26A	F00900	J1222	47	25B	F00900	J1216	52	26A	F00900
PG14AOV	J1224	64	30A	F00900	J1111	43	24B	F00900				
PG14NA	J1111	45	25B	F00900	J1105	51	27B	F00900				
PG15AOV	J1223	46	21A	F00700	J1216	56	28B	F00700				
PG15NA	J1220	48	22A	P00700	J1217	57	30B	F00700	J1216	55	29B	F00700
PG16AOV	J1225	79	37B	F00700	J1222	74	35B	F00700	J1216	49	23A	F00700
	J1110	71	36A	F00700								
PG16NA	J1222	59	31B	F00700	J1220	41	22B	F00700	J1216	47	24A	F00700
PG17NA	J1222	76	37A	F00700	J1220	47	25B	F00700				
PG18AO	J1222	61	32B	F00700	J1225	64	30A	F00700	J1220	39	19B	F00700
PG181A	J1223	43	23B	F00700	J1220	35	17B	F00700				
PG182A	J1223	51	27B	F00700	J1220	37	18B	F00700				
PG19AOV	J1216	80	38B	F00700	J1225	78	38A	F00700	J1124	78	38A	F00700
PG19NA	J1223	64	30A	F00700	J1216	79	39B	F00700				
PG20AOV	J1216	60	28A	F00700	J1110	79	39B	F00700				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG20NA	J1220	54	25A	F00700	J1217	59	31B	F00700	J1216	62	29A	F00700
PG21AO	J1125	47	25B	F00801	J1111	47	24A	F00801				
PG21NAV	J1119	13	06B	F00801	J1120	13	07A	F00801	J1111	49	23A	F00801
PG211A	J1125	46	21A	F00801	J1122	30	15A	F00801	J1119	31	15B	F00600
PG212A	J1125	48	22A	F00801	J1121	50	23A	F00801				
PG213A	J1223	04	04A	F00801	J1125	49	26B	F00801				
P0214A	J1223	07	03A	F00801	J1125	50	23A	F00801				
PG215A	J1125	52	24A	F00801	J1121	64	30A	F00801				
PG216A	J1125	56	26A	F00801	J1121	63	33B	F00801	J1117	61	31A	F00801
PG2160V	J1126	10	07A	F00801	J1117	63	30A	F00801				
PG217A	J1217	35	17B	F00801	J1125	54	25A	F00801				
PG22NA	J1122	15	07B	F00801	J1120	14	06A	F00801	J1119	34	16A	F00600
PG23NA	J1119	69	35A	F00801	J1120	10	05A	F00801	J1217	37	18B	F00801
PG24AO	J1122	33	16B	F00801	J1117	33	17B	F00801				
PG24NAV	J1125	30	15A	F00300	J1120	08	04A	F00801	J1117	31	16B	F00801
PG241A	J1122	29	14B	F00801	J1121	66	31A	F00801	J1223	74	35B	F00801
PG242A	J1223	80	39A	F00801	J1121	68	32A	F00801	J1122	31	15B	F00801
	J1117	39	19B	F00801								
PG2420V	J1126	08	06A	F00801	J1117	42	18B	F00801				
PG243A	J1113	69	35A	F00801	J1127	45	25B	F00801				
PG2430V	J1127	43	24B	F00801	J1223	72	34A	F00801	J1223	78	38A	F00801
PG25NA	J1223	27	13B	F00801	J1120	03	02B	F00801	J1125	31	15B	F00300
PG26AO	J1121	55	29B	F00801	J1111	41	23B	F00801				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG4MZO	J1214	51	27B	F00900	J03	H1		F00900				
PG4MZOG	J03	H2			J1215	58	27A					
PG40AO	J1217	09	04B	F00300	J1122	08	06A	F00400				
PG4030	J1223	79	39B	F00801	J1223	61						
PG40BO	J1223	61	32B	F00801	J1223	08	06A	F00801	J1223	05	03B	F00801
	J1121	73	36B	F00300								
PG401A	J1217	01	02B	F00300	J1105	66	31A	F00300				
PG402A	J1217	04	04A	F00300	J1105	60	28A	F00300				
PG403A	J1217	05	03B	F00300	J1105	57	30B	F00300				
PG404A	J1217	07	03A	F00300	J1105	63	33B	F00300				
PG4050	J1122	27	13B	F00300	J1105	68	32A	F00300				
PG406A	J1121	75	37B	F00300	J1113	52	24A	F00300				
PG4060	J1105	77	38B	F00300	J1105	62	29A	F00300	J1121	20	11A	F00300
PG407A	J1121	77	38B	F00300	J1113	45	24B	F00300				
PG4070	J1105	71	36A	F00300	J1105	53	28B	F00300	J1121	19	09B	F00300
PG408A	J1121	79	39B	F00300	J1113	66	31A	F00300				
PG4080	J1105	65	34B	F00300	J1105	59	31B	F00300	J1121	27	13B	F00300
PG41AO	J1119	18	10A	F00801	J1121	74	35B	F00300				
PG4180	J1217	23	11B	F00300	J1215	76	37A	F00400				
PG411A	J1217	22	12A	F00300	J1119	75	37B	F00400	J1105	75	37B	F00300
PG412A	J1217	24	13A	F00300	J1119	77	38B	F00400	J1105	72	34A	F00300
PG413A	J1217	25	12B	F00300	J1119	78	38A	F00400	J1105	69	35A	F00300
PG414A	J1217	26	14A	F00300	J1105	80	39A	F00300				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG26NAV	J1120	05	03B	F00801	J1111	46	22B	F00801				
PG261A	J1122	46	21A	F00801	J1121	53	28B	F00801				
PG262A	J1122	45	24B	F00801	J1121	60	28A	F00801				
PG263A	J1223	73	36B	F00801	J1121	62	29A	F00801				
PG27NA	J1121	70	03A	F00801	J1120	07	04B	F00801				
PG28NA	J1119	21	10B	F00801	J1120	09	05B	F00801				
PG29NA	J1125	34	16A	F00300	J1119	11	05B	FP00801	J1118	13	07A	F00801
PG30NA	J1217	40	19A	F00801	J1121	36	17A	F00801	J1125	36	17A	F00300
	J1118	14	06A	F00801								
PG31AO	J1215	27	13B	F00801	J1111	50	22A	F00801				
PG31NAV	J1118	10	05A	F00801	J1111	48	21A	F00801				
PG311A	J1215	23	11B	F00801	J1122	66	31A	F00801				
PG312A	J1223	63	33B	F00801	J1215	25	12B	F00801				
PG32TA	J1125	37	18B	F00301	J1121	31	15B	F00801	J1118	08	04A	F00801
PG33AOV	J1121	37	18B	F00801	J1122	18	10A	F00801	J1122	17	08B	F00801
	J1114	13	06A	F00801								
PG33NA	J1217	38	18A	F00801	J1125	38	18A	F00300	J1121	39	19B	F00801
	J1118	03	02B	F00801								
PG331A	J1121	15	07B	F00801	J1114	11	07A	F00801				
PG34NA	J1125	40	19A	F00300	J1122	14	09A	F00801	J1118	05	03B	F00801
PG35NA	J1125	42	20A	F00300	J1122	21	10B	F00801	J118	07	04B	F00801
PG4MZA	J1123	70	33A	F00900	J1220	80	39A	F02300	J1214	45	24B	F02300
	J1213	26	14A	F00900	J1213	10	07A	F00900	J1213	01	02B	F00900

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG4150	J1127	29	15B	F00400	J1122	38	18A	F00300	J1105	76	37A	F00300
PG416A	J1113	46	21A	F00300	J1121	65	34B	F00300				
PG4160	J1113	54	25A	F00300	J1113	48	22A	F00300	J1119	45	24B	F00300
PG417A	J1113	51	27B	F00300	J1121	71	36A	F00300				
PG4170	J1113	43	23B	F00300	J1113	47	25B	F00300	J1119	59	31B	F00300
PG418A	J1113	60	28A	F00300	J1121	72	34A	F00300				
PG4180	J1113	68	32A	F00300	J1113	62	29A	F00300	J1119	57	30B	F00300
PG42NA	J1225	21	10B	F00700	J1220	69	35A	F00700				
PG43AO	J1125	59	31B	F00700	J1109	77	38B	F00700				
PG45NA	J1213	79	39B	F00600	J1213	72	34A	F00600	J1213	70	33A	F00600
	J1213	60	28A	F00600	J1213	56	26A	F00600	J1213	46	21A	F00600
	J1213	42	20A	F00600	J1213	30	15A	F00600	J1213	14	09A	F00600
	J1214	80	39A	F00600								
PG47AO	J1219	60	29A	F01500	J1219	53	26A	F01500	J1120	53	26A	F01500
	J1120	60	29A	F01500	J1118	60	29A	F01500	J1118	53	26A	F01500
	J01	P4		F01500								
PG47AOVG	J01	P5		F01500	J1118	58		F01500				
PG4780	J1218	60	29A	F01500	J1218	53	26A	F01500	J1214	77	38B	F01500
	J1214	71	36A	F01500	J1214	68	32A	F01500	J1214	60	28A	F01500
	J1214	54	25A	F01500	J1214	46	21A	F01500	J1214	24	13A	F01500
	J1214	17	08B	F01500	J01	P6		F01500				
PG49AOV	J1211	37	18B	F00900	J1211	49	26B	F00900	J1211	61	32B	F00900
	J1220	71	36A	F00900	J1117	77	38A	F00900				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG49NA	J1213	03	02A	F00900	J1222	11	05B	F00900	J1117	75	39A	F00900
PG49NP	J1213	09	04B	F00900	J1224	21	10B	F00900				
PG5MZA	J1214	07	03A	F02300	J1113	11	05B	F02300				
PG5MZO	J1110	38	18A	F00500	J1113	15	07B	F02300	J1110	66	31A	F00500
PGSMZO	J1109	75	37B	F00700	J1215	59	31B	F00700	J1126	52	24A	F00500
PG51AO	J1122	72	34A	F00801	J1114	64	33A	F00801	J1109	24	13A	F00801
PG51NAV	J1114	66	32A	F00801	J1109	26	14A	F00801				
PG52AO	J1122	69	35A	F00801	J1114	61	31A	F00801	J1109	18	10A	F00801
PG52NAV	J1114	63	30A	F00801	J1109	14	09A	F00801				
PG53AO	J1122	80	39A	F00801	J1114	62	29A	F00801	J1109	40	19A	F00801
PG53NAV	J1114	60	28A	F00801	J1109	42	20A	F00801				
PG54NAV	J1114	56	28B	F00801	J1110	26	14A	F00801				
PG55AOV	J1114	08	04A	F00500	J1110	40	19A	F00500				
PG53NA	J1220	06	05A	F00500	J1114	06	05A	F00500				
PG5510	J1223	20	11A	F00500	J1220	08	06A	F00500				
PG56AOV	J1114	03	03A	F00500	J1110	34	16A	F00500				
PG56NA	J1220	01	02B	F00500	J1114	04	02A	F00500				
PG5610	J1223	19	09B	F00500	J1220	04	04A	F00500				
PG57AOV	J1114	01	02B	F00500	J1110	68	32A	F00500				
PG57'NA	J1220	09	04B	F00500	J1114	05	03B	F00500				
PG58AOV	J1114	07	04B	F00500	J1110	62	29A	F00500				
PG58NA	J1220	15	07B	F00500	J1114	09	05B	F00500				
PG58IAV	J1223	26	14A	F00500	J1114	24	13A	F00500				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG5810	J1119	47	25B	F00500	J1114	22	14A	F00500	J1220	11	05B	F00500
PG60NA	J1215	38	18A	F00600	J1107	10	09B	F00100				
PG6010V	J1215	56	26A	F00600	J1215	50	23A	F00600	J1216	43	24B	F00600
	J1215	42	20A	F00600	J1215	36	17A	F00600	J1215	37	18B	F00600
	J1215	31	15B	F00600								
PG602A	J1216	45	25B	F00600	J1215	45	24B	F00600				
PG61NA	J1215	30	15A	F00600	J1107	03	03A	F00101				
PG62NA	J1215	33	16B	F00600	J1106	10	09B	F00101				
PG63NA	J1215	39	19B	F00600	J1106	03	03A	F00101				
PG64NA	J1215	52	24A	F00600	J1104	10	09B	F00101				
PG65NA	J1215	46	21A	F00600	J1104	03	03A	F00101				
PG66AO	J1220	38	18A	F00600	J1111	73	37B	F00600				
PG66NAV	J1111	71	36B	F00600	J1103	10	09B	F00101				
PG661A	J1220	40	19A	F00600	J1215	01	02B	F00600				
PG662A	J1220	42	20A	F00600	J1215	09	04B	F00600				
PG663A	J1112	63	33B	F00600	J1111	75	39A	F00600				
PG6630V	J1215	26	14A	F00600	J1215	19	09B	F00600	J1215	07	03A	F00600
	J1111	78	36A	F00600								
PG664A	J1122	75	37B	F00600	J1111	76	37A	F00600				
PG6640V	J1215	20	11A	F00600	J1215	13	06B	F00600	J1215	05	03B	F00600
	J1111	77	38A	F00600								
PG67AO	J1220	30	15A	F00600	J1111	69	35B	F00600				
PG6TNAV	J1111	70	34B	F00600	J1103	03	03A	F00100				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG671A	J1220	34	16A	F00600	J1215	15	07B	F00600				
PG672A	J1220	36	17A	F00600	J1215	22	12A	F00600				
PG68AO	J1220	33	16B	F00600	J1111	74	35A	F00600				
PG68NAV	J1111	72	34A	F00600	J1108	03	03A	F00101				
PG681A	J1220	29	14B	F00600	J1215	14	09A	F00600				
PG682A	J1220	31	15B	F00600	J1215	21	10B	F00600				
PG70AO	J1220	52	24A	F00700	J1216	73	37B	F00700				
PG70NAV	J1216	71	36B	F00700	J1124	63	31A	F00700				
PG71AO	J1220	46	21A	F00700	J1216	69	35B	F00700				
PG71NAV	J1216	70	34B	F00700	J1124	80	38B	F00700				
PG72AO	J1220	45	24B	F00700	J1216	74	35A	F00700				
PG72NAV	J1225	63	31A	F00700	J1216	72	34A	F00700				
PG73AO	J1110	72	34A	F00700	J1110	77	38B	F00700	J1220	51	27B	F00700
	J1216	76	37A	F00700								
PG73NAV	J1225	80	38B	F00700	J1216	78	36A	F00700				
PG79AO	J1227	34	16A	F00200	J1223	15	07B	F00200				
PG8MZA	J1214	04	04A	F02300	J1215	65	34B	F02300				
PG8MZO	J1126	22	12A	F00801	J1126	66	31A	F00400	J1122	55	29B	F00400
	J1215	69	35A	F02300	J1220	76	37A	F02300	J1214	35	17B	F00400
	J1110	06	05A	F00400	J1109	06	05A	F00400	J1116	09	06B	F00101
PG92AO	J1223	50	23A	F00900	J1216	35	18A	F00900	J1109	70	33A	F00900
	J1109	60	28A	F00900								
PG92NAV	J1216	37	17A	F00900	J1225	50	24A	F00900	J1124	50	24A	F00900

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PG93AO	J1223	36	17A	F00900	J1114	73	37B	F00900				
PG93NAV	J1224	50	24A	F00900	J1114	71	36B	F00900				
PG94AO	J1223	31	15B	F00900	J1114	69	35B	F00900				
PG94NAV	J1224	63	31A	F00900	J1114	70	34B	F00900				
PG95AO	J1223	39	19B	F00900	J1114	74	35A	F00900				
PG95NAV	J1224	80	38B	F00900	J1114	72	34A	F00900				
PHMRSAV	J1123	24	13A	F02300	J1114	43	24B	F02300				
PHMRSOV	J1114	45	25B	F02300	J1111	66	32A	F02300				
PHOSCOV	J1111	10	06B	F02300	J1112	50		F02300				
PH06NAV	J1217	43	23B	F00900	J1216	34	15A	F00900				
PH07NAV	J1222	19	09B	F00900	J1216	30	14B	F00900				
PH08NAV	J1222	22	12A	F00900	J1216	31	16B	F00900				
PH09NAV	J1222	36	17A	F00900	J1216	42	18B	F00900				
PH11BOV	J1217	42	20A	F00600	J1217	31	15B	F00600	J1119	71	36A	F00801
	J1121	52	24A	F00801	J1121	09	04B	F00801	J1110	14	09A	F00801
	J1111	24	13A	F00802	J1109	30	15A	F00801				
PH11COV	J1121	70	33A	F00802	J1111	25	11A	F00802	J1113	65	34B	F00802
PH11DOV	J1223	21	10B	F00802	J1121	57	30B	F00802	J1111	18	09A	F00802
PH11EOV	J1122	48	22A	F00802	J1111	14	08B	F00802				
PH11FOV	J1121	01	02B	F00802	J1111	19	10B	F00802				
PH11GOV	J1119	14	09A	F00802	J1111	26	12B	F00802				
PH11HOV	J1217	55	29B	F00700	J1217	61	32B	F00700	J1220	65	34B	F00700
	J1222	55	29B	F00700	J1222	71	36A	F00700	J1223	66	31A	F00700

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1223	45	24B	F00700	J1223	41	22B	F00700	J1222	06	05A	F00900
	J1124	61	31B	F00700	J1111	40	19A	F00802				
PH12AOV	J1220	59	31B	F00700	J1122	41	22B	F00802	J1111	37	17A	F00802
PH12BOV	J1122	68	32A	F00802	J1111	34	15A	F00802				
PH12COV	J1121	45	24B	F00802	J1121	29	14B	F00802	J1111	30	14B	F00802
PH12DOV	J1223	06	05A	F00802	J1220	03	02A	F00500	J1111	31	16B	F00802
PH12EOV	J1223	01	02B	F00802	J1111	42	18B	F00802				
PH12FOV	J1223	75	37B	F00802	J1111	54	25A	F00802				
PH12GOV	J1223	57	30B	F00802	J1111	07	04B	F00802				
PH20NAV	J1222	52	24A	F00900	J1114	18	09A	F00900				
PH21NAV	J1222	56	26A	F00900	J1114	14	08B	F00900				
PH23NAV	J1222	46	21A	F00900	J1216	66	32A	F00900				
PH24NAV	J1222	48	22A	F00900	J1216	63	30A	F00900				
PH25NAV	J1217	66	31A	F00700	J1114	54	25A	F00700				
PH27NAV	J1217	62	29A	F00700	J1114	48	21A	F00700				
PH29NAV	J1222	62	29A	F00700	J1216	57	30B	F00700				
PH30NAV	J1222	77	38B	F00700	J1216	68	32B	F00700				
PH31AOV	J03	C3		F01000	J1216	10	06B	F00900				
PH32AOV	J03	C4		F01000	J1216	24	13A	F00900				
PH33AOV	J03	C6		F01000	J1216	25	11A	F00900				
PH34AOV	J03	D1		F01000	J1216	18	09A	F00900				
PH34AOVG	J03	D2			J1216	16	20B					
PH35AOV	J03	D3		F01000	J1216	14	08B	F00900				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PH35AOVG	J03	D2			J1216	16	20B					
PH36AOV	J03	D4		F01000	J1216	19	10B	F00900				
PH36AOVG	J03	D5			J1216	16	20B					
PH37AOV	J03	D6		F01000	J1216	26	12B	F00900				
PH37AOVG	J03	D5			J1216	32	21B					
PH38AOV	J03	E3		F01000	J1216	40	19A	F00900				
PH38AOVG	J03	E2			J1216	44	27A					
PH39AOV	J1116	78	38A	F00200	J1115	78	38A	F00200	J1114	57	30B	F00200
PH40AOV	J1116	40	19A	F00200	J1115	40	19A	F00200	J1114	68	32B	F00200
PH41AOV	J1116	54	25A	F00200	J1115	54	25A	F00200	J1114	78	36A	F00200
PH42AOV	J1116	66	32A	F00200	J1115	66	32A	F00200	J1114	77	38A	F00200
PH44NAV	J03	F3		F01200	J1216	48	21A	F00600				
PH58AOV	J03	R3		F01500	J1120	51	25B	F01500				
PH59AOV	J01	S1		F01500	J1120	62	30A	F01500				
PH60AOV	J01	E4		F01500	J1118	51	25B	F01500				
PH61AOV	J01	E6		F01500	J1118	62	30A	F01500				
PH62AOV	J01	H1		F01500	J1219	51	25B	F01500				
PH63AOV	J01	J1		F01500	J1219	62	30A	F01500				
PH64AOV	J01	K1		F01500	J1218	51	25B	F01500				
PH65AOV	J01	M3		F01500	J1218	62	30A	F01500				
PH66AOV	J01	M4			J1214	22	12A	62200	J1214	14	0-9A	62200
PH67AOV	J01	M6			J1214	52	24A	62200	J1214	41	22B	62200
PH68AOV	J01	P1		F01500	J1214	66	31A	F01500	J1214	53	28B	F01500

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PH69AOV	J01	P3		F01500	J1214	75	37B	F01500	J1214	65	34B	F01500
PIDLEAV	J1127	80	38B	F00801	J1125	43	23B	F00801				
PIDLEO	J1122	51	27B	F00801	J1127	79	39B	F00801				
PIDLRAV	J1111	01	02B	F00400	J1113	17	08B	F00400				
PIDRLO	J1113	80	39A	F00400	J1113	05	03B	F00400				
PIDRSA	J1113	76	37A	F00400	J1215	72	34A	F00400				
PIDRSO	J1217	21	10B	F00400	J1215	71	36A	F00400				
PIORSA	J1122	60	28A	F00400	J1113	78	38A	F00400	J1113	24	13A	F00400
PIORSAV	J1117	66	32A	F00400	J1113	18	10A	F00400				
PIORSO	J1105	46	21A	F00400	J1117	64	33A	F00400	J1122	62	29A	F00400
PJALMJ	J1227	77	38B	F00200	J1126	37	18B	F00200				
PJALMK	J1209	35	17B	F00200	J1126	35	17B	F00200				
PJDEVJ	J1126	13	06B	F00801	J1121	61	32B	F00801				
PJDEVK	J1223	25	12B	F00801	J1126	11	05B	F00801				
PJDRIJ	J1113	40	19A	F00400	J1126	61	32B	F00400				
PJDR2K	J1126	57	30B	F00400	J1113	26	14A	F00400	J1113	20	11A	F00400
	J1113	19	09B	F00400								
PJIRIJ	J1122	20	11A	F00801	J1110	19	09B	F00801				
PJIR1K	J1121	33	16B	F00801	J1110	21	10B	F00801				
PJIR2J	J1122	19	09B	F00801	J1109	31	15B	F00801				
PJIR2K	J1121	35	17B	F00801	J1109	33	16B	F00801				
PJRC3J	J03	P1		F00700	J1220	73	36B	F00700				
PJS1OJ	J1124	04	02A	F00801	J1124	20	10A	F00801	J1109	25	12B	F00801

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PJS20J	J1124	06	03A	F00801	J1124	22	11A	F00801	J1109	19	09B	F00801
PJS30J	J1124	03	02B	F00801	J1124	19	09B	F00801	J1109	37	18B	F00801
PJS40J	J1124	05	03B	F00801	J1110	25	12B	F00801				
PJS40K	J1124	21	10B	F00801	J1110	28	11B	F00801				
PJOAOJ	J1110	08	06A	F00400	J1109	13	06B	F00400				
PJOAOK	J1214	13	06B	F00400	J1217	06	05A	F00400	J1110	10	07A	F00400
	J1109	11	05B	F00400								
PJOPEJ	J1126	43	23B	F00500	J1125	18	10A	F00500				
PJOPJA	J1125	23	11B	F00500	J1127	38	20A	F00500				
PJOPJOV	J1127	40	19A	F00500	J1126	54	25A	F00500				
PJOPKAV	J1127	37	17A	F00500	J1126	46	21A	F00500				
PJOPKO	J1119	35	17B	F00500	J1126	56	26A	F00500				
PJOPOJ	J1126	49	26B	F00500	J1220	13	06B	F00500	J1220	10	07A	F00500
	J1220	07	03A	F00500	J1220	05	03B	F00500				
PJOPOK	J1127	35	18A	F00500	J1126	47	25B	F00500				
PJ01OJ	J1110	13	06B	F00400	J1109	05	03B	F00400	J1115	09	06B	F00101
	J1220	19	09B	F00400								
PJ01OK	J1217	08	06A	F00400	J1110	11	05B	F00400	J1109	01	02B	F00400
	J1123	42	20A	F00400								
PJ017A	J1123	10	07A	F00101	J1220	21	10B	F00400	J1215	08	06A	F00400
PJ0170	J1116	23	12B	F00101	J1115	23	12B	F00101	J1215	06	05A	F00400
PJ020J	J1215	73	36B	F00400	J1110	05	03B	F00400	J1109	07	03A	F00400
PJ020K	J1105	48	22A	F00400	J1110	01	02B	F00400	J1109	09	04B	F00400

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1217	10	07A	F00400								
PJ030J	J1122	53	28B	F00400	J1110	07	03A	F00400	J1214	33	16B	F00400
PJ030K	J1217	13	06B	F00400	J1110	09	04B	F00400				
PJO50J	J1220	26	14A	F00500	J1110	37	18B	F00500				
PJ050K	Jl10	35	17B	F00500	J1119	37	18B	F00500				
PJO60J	J1220	20	11A	F00500	J1110	31	15B	F00500				
PJO60K	J1110	33	16B	F00500	J1119	38	18A	F00500				
PJ070J	J1122	59	31B	F00600	J1110	61	32B	F00500				
PJ070K	J1110	59	31B	F00500	J1119	40	19A	F00500				
PJ080J	J1215	41	22B	F00600	J1122	77	38B	F00600	J1110	55	29B	F00500
PJ080K	J1110	37	30B	F00500	J1119	42	20A	F00500				
PJ090J	J1109	61	32B	F00900	J1124	47	23A	F00900	J1226	52	24A	F00900
PJ090K	J1214	78	38A	F00600	J1214	61	32B	F00600	Jl109	59	31B	F00900
	J1105	49	26B	F00900								
PJ1OOJ	J1226	50	23A	F00900	J1109	55	29B	F00900	J1105	47	25B	F00900
PJ1lOJ	J1226	47	25B	F00900	J1220	74	35B	F00700	J1124	64	30A	F00700
	J1110	78	38A	F00700								
PJ11OK	J1225	61	31B	F00700	J1223	68	32A	F00700	J1110	76	37A	F00700
PJ120J	J1226	45	24B	F00900	J1223	70	33A	F00700	J1223	48	22A	F00700
	J1110	74	35B	F00700								
PJ120K	J1223	47	25B	F00700	J1110	69	35A	F00700				
PJ140J	J1215	61	32B	F00700	J1109	78	38A	F00700	J1122	03	02A	F00400
PJ140K	J1220	77	38B	F00700	J1109	76	37A	F00700				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PJ310K	J03	N3		F00900	J1224	47	23A	F00900				
PKADDQ	J1123	37	18B	F00400	J1121	49	26B	F00801	J31121	48	22A	F00801
	J1121	34	16A	FP00801	J1122	13	06B	F00801	J1121	05	03B	F00801
PKI60P	J1217	73	36B	F00200	J1123	57	30B	F00600				
PKI60Q	J1215	04	04A	F00600	J1123	55	29B	F00600				
PKI70P	J1217	74	35B	F00200	J1123	76	37A	F00600				
PK170Q	J1215	11	05B	F00600	J1123	78	38A	F00600				
PKI8OQ	J1215	18	10A	F00600	J1123	74	35B	F00600				
PKLOOQ	J1215	40	19A	F00600	J1213	19	09B	F00600				
PKLIOQ	J1215	34	16A	F00600	J1213	37	18B	F00600				
PKL20Q	J1215	29	14B	F00600	J1213	31	15B	F00600				
PKL30Q	J1215	35	17B	F00600	J1213	49	26B	F00600				
PKL40Q	J1215	34	25A	F00600	J1213	43	23B	F00600				
PKL50Q	J1215	48	22A	F00600	J1213	61	32B	F00600				
PKL60Q	J1215	03	02A	F00600	J1213	55	29B	F00600				
PKL70Q	J1215	24	13A	F00600	J1213	78	38A	F00600				
PKL80Q	J1215	17	08B	F00600	J1213	74	35B	F00600				
PKMRSP	J03	F6		F02300	J1123	23	11B	F02300				
PKMRSQ	J1123	25	12B	F02300	J1117	15	07B	F02300	J1117	09	05B	F02300
	J1214	10	07A	F02300	J1214	05	03B	F02300				
PKRSAOV	J1127	04	02A	F02300	J1127	06	05A	F02300	J1127	05	03B	F02300
	J1127	09	05B	F02300	J1127	11	07A	F02300	J1117	07	04B	F02300
PKRSBOV	J1117	10	06B	F02300	J1127	17	09B	F02300	J31127	20	10A	F02300

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1127	22	14A	F02300	J1127	21	11B	F02300	J1127	23	12A	F02300
	J1127	27	13B	F02300								
PK180B	J03	A1		F00101	J1114	46	22B	F00101	J1114	49	23A	F00101
PK180BG	J03	A2			J1114	44	27A					
PK180P	J1123	11	05B	F00101	J1119	62	29A	F00300	J1114	47	24A	F00101
	J1114	41	23B	F00101								
PK180Q	J1218	79	38B	F00600	J1123	13	06B	F00101				
PK200P	J1105	78	38A	F00300	J1105	79	39B	F00300	J1105	73	36B	F00300
	J1105	74	35B	F00300	J1113	64	30A	F00300	J1113	50	23A	F00300
	J1113	49	26B	F00300	J1123	09	04B	F00300	J1122	64	30A	F00400
PK200Q	J1123	07	03A	F00300	J1113	41	22B	F00300	J1113	56	26A	F00300
	J1113	70	33A	F00300	J1105	55	29B	F00300	J1105	61	32B	F00300
	J1105	64	30A	F00300	J1105	70	33A	F00300				
PMROPA	J1119	09	04B	F02300	J1123	26	14A	F02300				
PPO101T	J1124	10	05A	F00802	J1111	22	14A	F00802	J1217	75	37B	F00600
PP0102T	J1217	77	38B	F00600	J1220	56	26A	F00700	J1220	50	23A	F00700
	J1220	49	26B	F00700	J1220	43	23B	F00700	J1124	14	06A	F00802
	J1111	23	12A	F00802								
PPO103T	J1223	22	12A	F00500	J1125	72	34A	F00802	J1124	13	07A	F00802
	J1125	14	09A	F00500	J1125	01	02B	F00400	J1111	20	10A	F00802
PP0104T	J1223	18	10A	F00500	J1125	73	36B	F00802	J1126	48	224	F00500
	J1125	04	04A	F00400	J1124	17	08B	F00802	J1111	17	09B	F00802
PP010T5	J1125	74	35B	F00802	J1125	05	03B	F00400	J1124	07	04B	F00802

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
	J1111	21	11B	F00802								
PP0106T	J1217	78	38A	F00600	J1125	75	37B	F00802	J1124	09	05B	F00802
	J1111	27	13B	F00802								
PPO107T	J1126	14	09A	F00802	J1125	77	38B	F00802	J1125	06	05A	F00400
	J1124	11	06B	F00802	J1220	17	08B	F00400	J1116	08	04A	F00101
	J1113	53	28B	F00400	J1111	38	20A	F00802	J1111	06	05A	D00802
	J1211	13	06B	F00400								
PP0200T	J1223	17	08B	F00500	J1125	78	38A	F00802	J1124	24	12A	F00802
	J1125	19	09B	F00500	J1125	07	03A	F00402	J1111	35	18A	F00802
PP0201T	J1223	14	09A	F00500	J1124	26	13A	F00802	J1125	20	11A	F00500
	J1125	08	06A	F00400	J1111	36	16A	F00802				
PP0202T	J1125	10	07A	F00400	J1124	27	14A	F00802	J1111	29	15B	F00802
PP0203T	J1217	14	09A	F00400	J1223	24	13A	F00500	J1124	30	15A	F00802
	J1125	22	12A	F00500	J1111	33	17B	F00802				
PP0204T	J1125	24	13A	F00500	J1124	33	16A	F00802	J1119	49	26B	F00500
	J1111	39	19B	F00802	J1217	18	10A	F00400				
PP0205T	J1217	19	09B	F00400	J1125	25	12B	F00500	J1124	23	11B	F00802
	J1119	52	24A	F00500	J1111	52	26A	F00802				
PP0206T	J1125	26	14A	F00500	J1124	25	12B	F00802	J1119	54	25A	F00500
	J1111	09	05B	F00802	J1217	20	11A	F00400				
PP0300T	J1224	24	12A	F00900	J1216	15	07B	F00900				
PP0301T	J1224	26	13A	F00900	J1216	22	14A	F00900				
PP0302T	J1224	27	14A	F00900	J1216	23	12A	F00900				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PP0303T	J1224	30	15A	F00900	J1216	20	10A	F00900				
PP0304T	J1224	33	18A	F00900	J1216	17	09B	F00900				
PP0305T	J1224	23	11B	F00900	J1216	21	11B	F00900				
PP0306T	J1224	25	12B	F00900	J1216	27	13B	F00900				
PP0307T	J1224	29	13B	F00900	J1216	38	20A	F00900				
PP0400T	J1225	24	12A	F00700	J1125	62	29A	F00700	J1114	59	31B	F00200
PP0401T	J1225	26	13A	F00700	J1125	64	30A	F00700	J1114	65	33B	F00200
PP0402T	J1225	27	14A	F00700	J1125	66	31A	F00700	J1114	76	37A	F00200
PP0403T	J1225	30	15A	F00700	J1125	68	32A	F00700	J1114	75	39A	F00200
PQO101U	J1224	38	18A	F00900	J1117	62	29A	F00900				
PQ0102U	J1224	40	19A	F00900	J1117	55	29B	F00900				
PQ0103U	J1224	42	20A	F00900	J1117	59	31B	F00900				
PQO104U	J1224	46	21A	F00900	J1216	36	16A	F00900				
PQO11AV	J1117	60	28A	F00900	J1114	27	13B	F00900				
PQO11OV	J03	E4		F01100	J1217	50	23A	F00900	J1114	26	12B	F00900
PQ012AV	J1117	56	28B	F00900	J1114	29	15B	F00900				
PQO120V	J03	E6		F01100	J1217	48	22A	F00900	J1114	30	14B	F00900
PQO13AV	J1117	57	30B	F00900	J1114	79	39B	F00900				
PQO130V	J1217	46	21A	F00900	J1114	80	38B	F00900	J03	F1		F01100
PQ0201U	J1226	64	31A	F00900	J1224	54	26A	F00900	J1222	24	13A	F00900
PQ0202U	J1226	62	30A	F00900	J1224	56	28B	F00900	J1216	33	17B	F00900
PQ0203U	J1226	60	29A	F00900	J1224	60	28A	F00900	J1222	20	11A	F00900
PQ0204U	J1226	37	28A	F00900	J1224	62	29A	F00900	J1216	29	15B	F00900

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PQ0301U	J1226	76	37A	F00900	J1224	70	34A	F00900	J1222	38	18A	F00900
PQ0302U	J1226	74	36A	F00900	J1224	72	35A	F00900	J1222	37	18B	F00900
PQ0303U	J1226	72	35A	F00900	J1224	74	36A	F00900	J1216	39	19B	F00900
PQ0304U	J1226	70	34A	FO00900	J1224	76	37A	F00900	J1222	34	16A	F00900
PQ0401U	J1124	38	18A	F00900	J1114	17	09B	F00900				
PQ0402U	J1222	54	25A	F00900	J1124	40	19A	F00900				
PQ0403U	J1124	42	20A	F00900	J1114	20	10A	F00900				
PQ0404U	J1222	50	23A	F00900	J1124	46	21A	F00900				
PQ0405U	J1225	47	23A	F00900	J1124	36	17A	F00900				
PQ05o1U	J1225	38	18A	F00900	J1222	49	26B	F00900				
PQ0502U	J1225	40	19A	F00900	J1216	61	31A	F00900				
PQ0503U	J1225	42	20A	F00900	J1216	64	33A	F00900				
PQO601U	J1217	70	33A	F00700	J1225	20	10A	F00700	J1124	54	26A	F00700
PQ0602U	J1217	68	32A	F00700	J1225	22	11A	F00700	J1124	56	28B	F00700
PQ0603U	J1225	19	09B	F00700	J1124	60	28A	F00700	J1114	52	26A	F00700
PQO701U	J1217	64	30A	F00700	J1226	61	31B	F00900	J1124	70	34A	F00700
PQ0702U	J1226	59	30B	F00900	J1124	72	35A	F00700	J1114	50	22A	F00700
PQ0703U	J1217	60	28A	F00700	J1226	55	29B	F00900	J1124	74	36A	F00700
PQ0704U	J1226	53	28B	F00900	J1124	76	37A	F00700				
PQ0801U	J1225	54	26A	F00700	J1222	68	32A	F00700	J1211	59	31B	F00900
PQ0802U	J1225	56	28B	F00700	J1222	66	31A	F00700	J1211	47	25B	F00900
PQ0803U	J1225	60	28A	F00700	J1222	64	30A	F00700	J1211	35	17B	F00900
PQO804U	J1225	62	29A	F00700	J1216	59	31B	F00700				

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued -

Signal	Distribution											
PQ081D4	J1211	63	33B	F00900	J1212	48		F00900	J1123	63	33B	F00900
PQO81Q	J1123	61	32B	F00900	J1224	20	10A	F00900	-			
PQO82D4	J1213	27	13B	F00900	J1212	71		F00900	J1211	51	27B	F00900
PQ082Q	J1213	25	12B	F00900	J1224	22	11A	F00900				
PQ083D4	J1213	15	07B	F00900	J1212	35		F00900	J1211	39	19B	F00900
PQO83Q	J1213	13	06B	F00900	J1224	19	09B	F00900				
PQO901U	J1225	70	34A	F00700	J1226	75	37B	F00900	J1222	79	39B	F00700
PQO902U	J1226	73	36B	F00900	J1225	72	35A	F00700	J1222	78	38A	F00700
PQ0903U	J1226	71	35B	F00900	J1225	74	36A	F00700	J1216	65	33B	F00700
PQO904U	J1226	69	34B	F00900	J1225	76	37A	F00700	J1222	75	37B	F00700
PREMSA	J03	N6		F01901	J1223	54	25A	F00900	J1223	30	15A	F00900
	J1223	35	17B	F00900	J1223	40	19A	F00900				
PRO1OG	J01	B2		F00101	J1101	40	07B	F00101				
PRO1OH	J01	B1		F00101	J1101	38	06B	F00101				
PRO1OT	J1115	06	03A	F00101	J1113	79	39B	F00400	J1113	71	36A	F00400
	J1105	08	06A	F00101	J1101	07	05B	F00101				
PRO20G	J01	B4		F00101	J1101	36	13B	F00101				
PRO20H	J01	B3		F00101	J1101	34	12B	F00101				
PRO20T	J1115	04	02A	F00101	J1113	55	29B	F00400	J1113	73	36B	F00400
	J1105	04	04A	F00101	J1101	11	11B	F00101				
PRO30G	J01	B6		F00101	J1102	40	07B	F00101				
PR030H	J01	B5		F00101	J1102	38	06B	F00101				
PRO30T	J1115	01	02B	F00101	J1105	03	02A	F00101	J1102	07	05B	F00101

Table 6-4. Right Hand Assembly Key Signal Lookup - Continued-

PR040G	J01	D2		F00101	J1102	36	13B	F00101				
PR040H	J01	D1		F00101	J1102	34	12B	F00101				
PRO40T	J1115	03	03B	F00101	J1105	11	05B	F00101	J1102	11	11B	F00101
PR100G	J11	D4		F00101	J1103	40	07B	F00101				
PR100H	J01	D3		F00101	J1103	38	06B	F00101				
PR100T	J1116	06	03A	F00101	J1105	24	13A	F00101	J1103	07	05B	F00101
	J01	A1		F00101								
PR1OG	J01	D6		F00101	J1103	36	13B	F00101				
PR11OH	J01	D5		F00101	J1103	34	12B	F00101				
PR10T	J1211	25	12B	F00802	J1105	18	10A	F00101	J1103	11	11B	F00101
	J01	A3		F00101								
PRI20G	J01	F2		F00101	J1104	40	07B	F00101				
PR120H	J01	Fl		F00101	J1104	38	06B	F0101				
PR120T	J1105	17	08B	F00101	J1104	07	05B	F00101	J01	A4	F00101	
PRI30G	J01	F4		F00101	J1104	36	13B	F00101				
PR130H	J01	F3		F00101	J1104	34	12B	F00101				
PRL30T	J1116	03	03B	F00101	J1105	23	11B	F00101	J1104	11	11B	F0101
	J01	A6		F00101								
PR140G	J01	F6		F00101	J1106	40	07B	F00101				
PR140H	J01	F5		F00101	J1106	38	06B	F00101				
PR140T	J1106	07	05B	F00101	J1105	40	19A	F00101	J01	C1	F00101	
PR150G	J01	H6		F00101	J1106	36	13B	F00101				
PR150H	J01	H5		F00101	J1106	34	12B	F00101				

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PR150T	J1106	11	11B	F00101	J1105	34	16A	F0010	J01	C3		F00101
PR160G	J01	K6		F00101	J1107	40	07B	F00101				
PR160H	JO1	K5		F00101	J1107	38	06B	FO00101				
PR160T	J1116	01	02B	F00101	J1107	07	05B	F00101	J1105	29	14B	F00101
	J01	C4		F00101								
PR170G	JO1	L2		FO00101	J1107	36	13B	F00101				
PR170H	J01	L1		F00101	J1107	34	12B	F00101				
PR170T	J1116	04	02A	F00101	J1107	11	11B	F00101	J1105	35	17B	F00101
	J01	C6		F00101								
PR180G	J01	L4		F00101	J1108	40	07B	F00101				
PR180H	JO1	L3		F00101	J1108	38	06B	F00101				
PR180T	J1220	23	11B	F00802	J1123	08	06A	F00101	J1108	07	05B	F00101
	J1105	54	25A	F00101								
PST0PK	J1126	21	10B	F00801	J1122	49	26B	F00801	J1119	56	26A	F00500
PST080V	J1126	20	11A	F00801	J1121	38	18A	F00801	J1119	06	05A	F00801
	J1111	08	04A	F00801	J1214	25	12B	F00801	J1217	52	24A	F00600
PW0101	J03	K1		F01100	J1219	79	38B	F00600				
PW0201X	J1213	77	38B	F00600	J1219	66	33A	F00600	J1120	66	33A	F00600
	J1214	69	35A	F00600	J03	K6		F01100				
PW0301X	J03	L1		F00100	J1213	62	29A	F00600	J1219	68	34A	F00600
	J1120	68		F00600								
PW0401X	J03	L3		F01100	J1213	68	32A	F00600	J1219	70	35A	F00600
	J1120	70	35A	F00600								

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
PW0501X	J03	L4		F01100	J1213	48	22A	F00600	J1219	72	36A	F00600
	J1120	72	36A	F00600								
PW0601X	J03	L6	61700		J1213	54	25A	61200	J1219	77	37B	61200
	J1120	77	37B	F00600								
PW0701X	J1120	75	36B	P00600	J1219	75	36B	F00600	J1213	34	16A	F00600
	J03	R4	F01100									
PW0801X	J1120	73	35B	F00600	J1219	73	35B	F00600	J1213	40	19A	F00600
	J03	M3	F1000									
PXDMRA	J02	N5	F02300		J1111	64	33A	F02300	J1220	18	10A	F00500
	J1220	24	13A	F00500								
PXOSCA4	J02	P3	F02300		J1111	15	07B	F02300	J1212	36		F02300
PZO1NAV	J1216	53	26B	F00600	J1223	76	37A	F00801	J1223	71	36A	F00801
	J1122	24	13A	F00801								
PZO10OPR	J1223	60	28A	F00600	J1218	76	38A	F00600	J1216	51	27B	F00600
PZ020PR	J1219	76	38A	F00600	J1216	50	22A	F00600	J1214	59	31B	F00600
	J03	F4	FO01200									
PZ030PR	J1123	71	36A	F00600	J1118	76	38A	F00600				
PZ040PR	J1213	71	36A	P00600	J1120	76	38A	F00600				
P0V01D1	J1226	68	F00900		J1225	71		F00700	J1225	53		F00700
	J1225	39	F00900									
P04MC0	J1220	78	38A	F02300	J1112	33	F02300		J1119	05	03B	F02300
P08MZ0	J1119	04	04A	F02300	J1113	06	05A	F02300	J1214	08	06A	F02300
P16MCA	J1105	45	24B	F02300	J1113	04	04A	F02300				

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
P16MCO	J1112	48	F02300		J1105	43	23B	F02300				
P16MZO	J1119	01	02B	F02300	J1113	01	02B	F02300	J1110	52	24A	F02300
	J1109	52	24A	F02300	J1214	06	05A	F02300	J1214	01	02B	F02300
P5MC1J	J1110	54	25A	F02300	J1109	49	26B	F02300				
P5MC2J	J1119	07	03A	F02300	J1110	49	26B	F02300	J1109	56	26A	F02300
	J1214	03	02A	F02300								
P5MC2K	J110	47	25B	F02300	J1109	54	25A	F02300				
P5V0104	Jl109	10	07A	F00400	J1112	05			J1209	13	06B	F00801
	J1212	05		F03400	J1217	56	26A	F00600	J1227	61	32B	F00200
	J1121	42	20A		J1120	59	30B	F02200	J1114	51	27B	
P5V0204	J1227	78	38A	F00200	J1227	55	29B	F00200	J1227	08	06A	F03400
	J1214	18	10A	F01500	J1214	26	14A	F01500				
	J1115	26	13A	F00101					J1115	05	04B	F00101
	J1120	54	27B	F01500	J1120	57	29B	F01500	J1117	65	33B	
P5V0304	J1110	03	02A	F00400	J1109	03	02A	F00400	J1109	15	07B	F00400
	J1110	15	07B	F00400	J1112	29			J1115	14	06A	F00700
	J1118	59	30B	F01500	J1120	52	26B	F01500	J1123	15	07B	FOOI01
	J1227	04	04A	F03400	J1227	10	07A	F03400	J1227	64	30A	F00200
	J1227	74	35B	F00200	J1217	79	39	F00600	J1216	75	39A	
	J1212	08		F03400								
P5V0404	J1123	06	05A	F0010	J1118	09	05B	F00801	J1118	54	27B	F01500
	J1118	57	29B	F01500	J1109	17	08B	F00801	J1110	27	13B	F00801
	J1109	27	13B	F00801	J1109	39	19B	F00801	J1112	30		

Table 6-4. Right Hand Assembly Key Signal Lookup
-Continued-

Signal	Distribution											
	J1212	09	F03400		J1214	48	22A	F01500	J1214	56	26A	F01500
	J1227	05	03B	F03400	J1227	70	33A	F00200	J1227	73	36B	F00200
P5V0504	J1227	49	26B	F00200	J1227	23	11B	F00200	J1227	11	05B	F03400
	J1227	03	02A	F03400	J1219	59	30B	F01500	J1214	30	15A	F00400
	J1214	40	19A	F00400	J1212	10		F03400	J1112	52		F02300
	J1111	79	39B	F00500	J1110	63	33B	F005000	J110	53	28B	F00500
	J1110	39	19B	F00500	J1110	29	14B	F00500	J1118	52	28B	F01500
	J1123	03	02A	F00300	J1223	11	05B	F00200				
P5V0604	J1125	13	06B	F00400	J1110	30	15A	F00500	J1110	42	20A	F00200
	J1110	60	28A	F00500	J1110	70	33A	F00500	J1212	17		F03400
	J1214	34	16A	F00400	J1214	42	20A	F00400	J1219	54	27B	F01500
	J1219	57	29B	F01500	J1222	70	33A	F00700	J1227	42	20A	F00200
	J1227	17	08B	F03400	J1227	13	06B	F03400	J1227	07	03A	F03400
	J1227	.18	10OA	F03400	J1227	24	13A	F03400	J1227	43	23B	F00200
P5V0704	J1111	04	02A		J1110	17	08B	F01401	J1109	29	14B	F01401
	J1110	80	39A	F00700	J1110	51	27B	F02300	J1109	51	27B	F02300
	J1109	79	39B	F00700	J1212	19		F03400	J1218	59	30B	F01500
	J1219	52	26B	F01500	J1123	80	39A	F00600	J1125	71	36A	F00802
	J1123	65	34B	F00600	J1123	53	28B	F00600	J1125	60	28A	F00700
	J1123	39	19B	F00400	J1126	36	17A	F00200	J1123	27	13B	F02300
	J1227	50	23A	F00200								
P5V0804	J1126	70	33A	F00400	J1227	56	26A	F00200	J1218	54	27B	F01500
	J1218	57	29B	F01500	J1214	62	29A	F01500	J1214	70	33A	F01500

Table 64. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
	J1213	80	39A	P00600	J1213	65	34B	F00600	J1213	63	3B	F00600
	J1213	53	28B	F00600	J1213	51	27B	F00600	J1213	41	22B	F00600
	J1213	39	19B	F00600	J1213	29	14B	F00600	J1213	17	08B	F00600
	J1212	20		F03400	J110	65	34B	F00700	J110	50	23A	P02300
	J1109	50	23A	F02300	J1109	73	36B	F00700	J1111	51	27B	
P5V0904	J1212	23		F03400	J1218	52	26B	F01500	J1225	49	24B	F00700
	J1227	19	09B	F03400	J1227	20	11A	F03400	J1227	26	14A	F03400
	J1227	37	18B	F00200	J1227	79	39B	F00200	J1222	30	15A	F00900
	J1222	14	09A	F00900	J1124	66	32B	F00700	J1125	79	39B	F00802
	J1125	61	32B	F00700	J1126	60	28A	F00400	J1126	39	19B	F00200
	J1126	15	07B	F00802	J1123	22	12A	F02300				
P5V1004	J1126	42	20A	F00200	J1126	63	33B	F00400	J1124	79	37B	F00700
	J1222	18	LOA	P00900	J1222	40	19A	F00900	J1224	48	22A	F00900
	J1227	31	15B	F00200	J1225	66	32B	F00700	J1222	72	34A	F00700
	J1214	72	34A	F01500	J1214	79	39B	F01500	J1212	24		F03400
	J1109	63	33B	F00900								
P5V1104	J1126	53	28B	F00400	J1126	50	23A	F00500	J1126	40	19A	F00200
	J1125	55	29B	F00700	J1124	49	24B	F00700	J1222	05	03B	F00900
	J1223	37	18B	F00900	J1223	34	16A	F00900	J1223	42	20A	F00900
	J1223	52	24A	FO0900	J1227	36	17A	F00200	J1222	73	36B	F00700
	J1222	60	28A	F00700	J1222	42	20A	F00900	J1222	26	14A	F00900
	J1209	25	12B	F00200	J1212	25		F03400	J1109	53	28B	F00900
	J1110	56	26A	F02300								

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution											
P5V1504	J1215	47	25B	F00200	J1212	38		F00200	.J02	N1		F00200
P5V1604	J1122	35	17B	F00200	J1212	39		F00200	J02	N3		F00200
P8MHZA	J1122	52	24A	F02300	J1113	08	06A	F02300				
P8MIZO	J1112	41		F02300	J1122	54	25A	F02300				
SPI016	J1105	41	22B	F02300	J1126	05	03B		J1126	34	16A	
	J1119	36	17A	F00600	J1119	74	35B	F00801	J1118	26	13A	
	J1118	42	20A		J1120	42	20A		J1119	70	33A	F00900
	J1119	64	30A	F00300	J1119	50	23A	F00300	J1110	48	22A	
SP1019	J1226	10	05A		J1126	80	39A		J1126	27	13B	F01401
SP1020												
SP1021	J1219	39	18B		J1226	41	22B	F01500	J1226	29	14B	
	J1226	15	08B		J1226	01	02B		J1119	20	11A	F01401
SPI022	J1212	72			J1214	09	04B	F01000	J1218	09	05B	
	J1218	41	19B		J1219	41	19B		J1226	43	23B	F01500
	J1126	71	36A		J1122	56	26A	F02300	J1118	41	19B	
SP1023	J1218	13	07A		J1214	11	05B	F01000	J1214	47	25B	F02300
SPI024	J1214	49	26B	F02300	J1214	37	18B	F00400				
SPI025	J1119	79	39B	F00400	J1218	10	05A		J1218	26	13A	
	J1218	42	20A		J1216	41	23B		J1211	76	37A	63400
	J1212	63			J1114	15	07B		J1113	05	03B	F02300
	J1113	07	03A	F00900	J1113	10	07A	F02300	J1113	13	06B	F02300

Table 6-4. Right Hand Assembly Key Signal Lookup
- Continued -

Signal	Distribution										
SP1026	J1224	06	03A	J1226	06	03A		J1226	20	10A	
	J1226	34	16A	J1226	48	22A	61500	J1219	46	21A	
	J1218	46	21A	J1218	27	14A		J1219	27	14A	
	J1219	14	06A	J1218	14	06A		J1212	61		
	J1209	78	38A	J1211	78	38A	63400	J1215	74	35B	F03100
SP1027											
SP1028	J1223	49	26B	J1226	46	21A	F01506	J1226	30	15A	
SP1029											
SP0003											
SP0004											
SP0005											
TEMPA1											
240I0C											

Section III. DETAILED DESCRIPTIONS

6-8. Input Register Logic Detailed Description (flg. 6-8). The input register comprises the printed circuit boards located in the left-hand card cage of the DDG. This register develops TTL level input and output signals by means of 13 AC/IO couplers and I/O gates. It temporarily stores data reguest, enable, indicator, command, and parity bits by means of its data byte and control signal input registers as well as its parity flip-flop. It outputs command data bits 0, 3, 6 and 7 through its idle state input register during PBRALOV time. It also produces a device address (PADDRO) by means of its address select switch. This signal pulse indicates that the DDG has been selected by the input/ output exchanges (IOX).

a. Typical Operation. In a typical operation, if the IOX outputs a command bit and an address data byte to the I/O couplers, this information is enabled and latched high by low-to-high transitions on the data input enable and command enable lines. These pulse outputs control the output state of the data and control I/O gates. When there is a match between the setting of the address select switch and the 8-MHz address data byte, PADDRO is output to the input pulse detection logic and the state gate tree logic.

(1) The command bit is loaded into the control signal input register and shifted out to the state gate tree logic, which outputs PBRALOV (the IS LOAD pulse) and PP107T (which shifts the next data byte out of the idle state input register). This data byte contains a command function on lines 0, 3, 5, 6, and 7. Refer to table 6-5 for the meaning of various command function bit combinations.

Table 6-5. Command Functions.

Bits (Lines) Present During Control Phase	Function
0 and 3	Device Command (DEV)
0 and 5	Input-To-Register (ITR)
0 and 6	End-Of-Block (EOB)
0 and 7	Device Stop

(2) Assume that bits 0 and 3 pulse are high true, indicating a device (DEV) command. This command is decoded by the command decoder on the state gate tree, which responds by advancing from state 2 to state 4 through state 3. State 4 enables the output of an indicator pulse (PGINDA) to the IOX from the output pulse detection logic. Next, the state gate tree advances to state 5, outputting a request pulse (PGREQA) from the same logic, indicating that the DDG is ready for data transfer. The indicator and request pulses both are latched out of their respective I/O coupler by means of request/enable/ind (PCCG2AV). The IOX now outputs an enable bit and an address on the data bus, which advances the state gate tree to state 8. This enables the input register clock (PJ017O) and permits data loading. Up to 588 data bytes can now pass through the fault status logic and parity check/interrupt byte logic to the refresh memory.

b. Parity I/0 Coupling, Gate and Flip-Flop. One odd parity bit is output with each data byte to facilitate error detection by the parity check/ interrupt byte logic. The data on the incoming information lines is checked for parity at the parity flip-flop. If a parity error exists, the external parity bit in the interrupt status byte (ISB) is set. The odd parity bit is latched out of the parity bit I/O coupler by the data input enable pulse, then applied to the parity flipflop. This is a D-latch which outputs PK180P high when the parity bit equals one, and PKI80Q high when the parity bit equals zero. An erroneous parity bit is output by the IOX to signal a device input to the register or end-of-block (EOB) command function.

c. Generation of Loop Status Byte and Interrupt Status Byte (PG60NA thru PG67NA). Either one of these status bytes can be output to the IOX through the data byte I/O couplers in response to a computer-initiated ITR operation. An input-to-register (ITR) operation occurs when the computer requests DDG status. After the IOX outputs the command pulse and the DDG address on the data bus, the next data byte exhibits 1-bits on data lines 0 and 5, plus an erroneous even parity bit. This is decoded by the state gate tree as an ITR operation, causing it to jump to state 13, which institutes an indicator pulse and an interrupt status byte or loop status byte output.

6-9. Fault Status Byte Logic Detailed Description (fig. 6-9). This logic, located on PC boards in the right-hand card cage of the DDG, consists of eight 4-bit registers, 19 lamp-drivers and an alarm override circuit. The first four bytes of the computer display file are held in this 32-bit overall register, the output of which controls the fault and status lamp drivers. These lamp drivers control their respective indicators on the control panel.

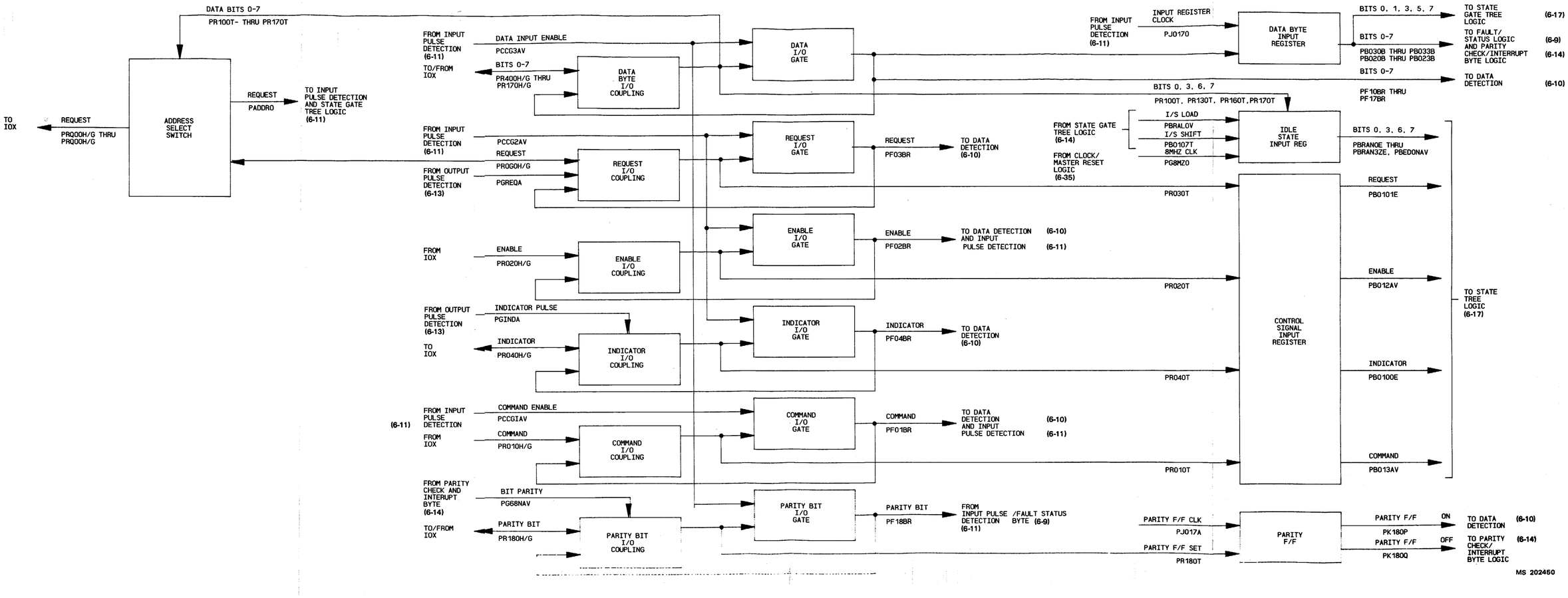


Figure 6-8. Input Register Block Diagram

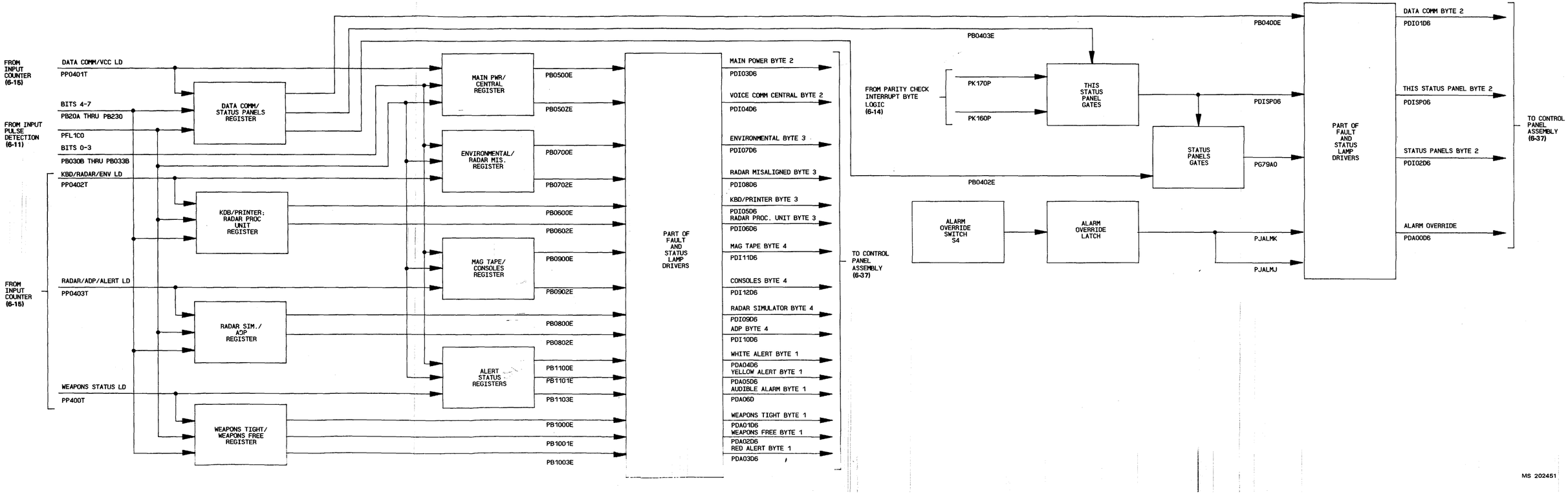


Figure 6-9. Fault/Status Byte Logic

a. Fault and Indicator Status Bytes. The fault and indicator status bytes comprise the first four bytes of the 588-byte (maximum) display file output from the IOX. (Refer to table 6-6.) Load control inputs PP0404T, PP0401T, PP0402T, PP0403T from the input counter logic pulse low to load data bytes 1,2,3, and 4, respectively. Thus, the fault status bytes are loaded and any available 1-bits are parallel-shifted out to enable their respective control panel indicator. It should be noted that INT 6 (PK160P) and INT 7 (PK170K) from the parity check/interrupt byte logic are gated with byte 2 bit 7 high to enable the THIS STATUS PANEL indicator.

b. Alarm Override Logic. This circuit consists of a manually selected alarm override switch and a latch. Pressing the alarm override switch sets a J-K flip-flop in the alarm override latch, disabling the audible alarm indicator and enabling the alarm override indicator.

6-10. Data Detection Logic Detailed Description (fig. 6-10). This logic located on PC boards in the right-hand card cage of the DDG, outputs high true state output pulse 0 (PG40BO) to the state gate tree logic to help enable entry to state 13 under certain conditions, or to idle state 1 under other conditions. (Refer to para 6-15 for details). Additionally, this circuitry outputs input data OR (PG41AO), IO FF clear (PD200P), and input pulse 0 (PG41BO) status indicators that are gated at the input pulse detection logic with other status pulses to control the I/O coupler latch enable signal (PJDR2K).

a. State Output Pulse 0 (PG40BO). State gate, state F/F, and state output pulse 0 compose the operative logic for outputting this signal. The state gate performs an OR function, outputting state set (PG07AO) high (true) whenever the state gate tree logic is about to enter one of the following states: 4, 5, 9, or 10, or 12 thru 15. For timing purposes, an erratic 16-megapulse signal (PG06NA) is used to clock state set out of this D-type flip-flop. An 8-MHz I/O FF preset high (PK200K) true pulse is output on the leading edge of the state clock pulse, and is then gated with any available data bits being parallel shifted out of the data shift register of the input register. These data bits are shifted out at 8 MHz by PG8MZO. When the PG416A, PG417A, or PG418A, and the PK200Q lines are simultaneously high, a single high (true) state output pulse 0 passes to the state gate tree logic. Here it is gated, with other signals, to develop signal enter state 10 or enter idle state 1.

b. Output Pulse (PG40AO) Generation. This high (true) 15-ns pulse is developed by gating the state flip-flop's I/O FF preset output with the request, indicator and/or BO-B7 latching lines (PF03BR, PF04BR, and PFOIOBR through PF018BR). These lines latch data out of the I/O couplers of the input register. An output pulse signal (PG4DAD) is applied to the input pulse detection logic to control circulation of the first 1 bit through the ring configured data byte clock flip-flops. To do this, the latch gate and latch output gate monitor the status of the request bit, indicator bit, and data bit line latches connected to the I/O couplers of the input register logic. When one or more of these latch line states are low, which occurs immediately after an I/ 0 couplers output has been latched high, latch gate output line PG4050 goes high. The 8-MHz output pulse is delayed, however, until the state gate tree begins to enter state 4, 5, 9, or 10, or 12 thru 15.

c. Input Pulse 0 (PG41BO) Generation. This high true 8-MHz pulse aids in setting J-K interface control enable flip-flop A of the input pulse detector. This is gated, with other status signals, to force the I/O coupler latch signal low (false), thus disabling I/O coupler data transmission. Input pulse 0 is generated by monitoring the status of the data, command, and enable bit latch lines connected to the I/O coupler. When one or more of these lines go low, one or more of the following lines go high: PG4060, PG4070, PG4080 and/or PG4150. These outputs are ORed with I/O FF clear high from the state gate to produce input pulse 0. I/O FF clear goes true only when the state gate free logic is in idle state 1 or in states 2, 3, 6, 7, 8 or 11, where command or enable bits are allowable inputs.

6-11. Input Pulse Detection Logic Detailed Description (fig. 6-11 and fig. 6-12). The PC boards containing this circuitry are located in the righthand card cage of the DDG. The input pulse detection logic performs the functions described in the following subparagraphs.

a. Latching Pulse Generation. It generates latching pulses PCCG2AV, PCCG1AV, and PCCG3AV. These pulses are applied to the data, command, indicator, request, and enable ac I/O couplers on the input register logic to latch these signals high. The 8 MHz data input (PCCG3AV) signal latches ones on data lines BO thru B7 high as they are output from the ac I/O couplers of the input register logic. The data input signal is derived by gating complementary 8 MHz pulses PJO20J and PJ020K, tapped off the data byte clock flip-flops, with I/O

coupler latch enable (PJDR2K) high during states 12, 13, 14, or 15. The data input state is initially low to enable one byte of data transmission from the data ac I/O couplers, then goes high to latch out any data byte ones. Request/enable/ind (PCCG2AV) is an 8 MHz pulse required by the input register's ac VO couplers for latching the request, enable, or indicator bit high. It is derived by gating inverted 8 MHz PJ020K clock pulse tapped off the data byte flip-flops with I/O coupler latch enable high true. Command 1 is another gated 8 MHz latching pulse that latches out any command bit output from the command ac I/O coupler.

b. Coupler Latch Enable Pulse Generation. It generates an I/O coupler, latch enable signal to control the output of latching pulses PCCG1AV, PCCG2AV, and PCCG3AV. This erratic 8MHz pulse is output from the interface control enable flip-flop, which is controlled by interface control enable gates A through D (fig. 6-11). I/O coupler latch enable signal (PJDR2K) goes high true under the following conditions: A 1-bit being input to data byte clock flipflops and PG41 1A, PG412A, or PG413A is low. State 4, 5, 6, 8, 10, or 11 is high false or PG4150 is low. State 8 and enable are high and device address and command latch are high; or enable latch and command are high, or state 8 and device address are high; and command and enable are high and device address is low.

c. Data Byte Input Register Clock (PJO170), ISB CP1 PGO6NA), ISB CP2 (PGX6NA), ISB CP (BAR) (PG06AB) and PJ010. It develops the 8-MHz DDG selected/(PKADDQ) pulse from PADDRO, which is output from the input register's address select switch to indicate that the DDG has been selected. The DDG selected pulse is applied to the state gate logic to control the sequence of its state outputs. Generates clock pulses Data Byte Input Reg. Clock (PJ0170), ISB CP1 (PG06NA), ISB CP2 (PGX6NA), ISB CP (BAR) (PG06AB), and (PJO1OJ).

The 8-MHZ data byte input register clock (PJ0170) clocks data bytes through the data byte shift registers on the input register during state-8 time, the time when data loading is permitted. This signal is tapped off the data byte clock flip-flops at output PJO10J and is gated with state-8 (PP0107T) (fig. 6-12). ISB CP-type clocks are gated, erratic, 16megapulse waveforms derived by gating of the standard 8 MHz clock (PG8MZO) with the PJ030J output from the data byte clock flip-flops. These clocking pulses are applied to the input counter, the parity check/input byte logic, the state gate tree' logic, and data detection logic.

6-12. Buffer Output Pulse Detection Logic Detailed Description (fig. 6-13). This circuitry monitors the outputs from the state gate tree logic, gates them, and latches them to develop indicator, request, interrupt status byte, and loop status byte pulses. Either the indicator or the request pulse, when enabled, is output to the I/O couplers which return this pulse to the CPU.

a. Indicator Pulse. The indicator pulse acknowledges receipt of a command during the device control phase, or it can be output to identify the DDG to the CPU and follow this, if necessary, with up to eight status bits.

b. Request Pulse. The request pulse indicates when the DDG is ready to accept an information transfer. When the DDG activates this line, the request pulse tells the computer that the panel is ready to receive data at its own rate until receipt of an end-of-block (EOB), a device stop, or a master reset. Any of these commands puts the DDG interface into idle state 0 to await a new command.

c. Interrupt Status Byte (ISB) and Loop Status Byte (LSB) Pulses. ISB and LSB pulses are generated during an input-to-register (ITR) operation to develop either an ISB or an LSB status message. The ISB or LSB pulse is output to the parity check/interrupt byte logic for this purpose.

d. Output Pulse Enabling Conditions. An indicator pulse (low) will be output to the input registers to acknowledge receipt of a command or to identify the DDG to the CPU, under the following conditions:

(1) Trailing edge of the 5-MHz clock pulse.

(2) States 12 and 4 from the state gate tree logic are high, and states 13, 14, and 15 are low.

(3) High (true) states 4, 12, 14, 10, 9, 13, 5.

(4) High state 5 (latched) from the state gate tree logic.

e. Interrupt Status Bit (ISB). This low pulse is output to the parity check/interrupt byte logic under the following conditions:

(1) Trailing edge of the 5-MHz clock pulse.

(2) State 12 true from the state gate tree logic.

	0	1	2	3	4	5	6	7	8
BYTE 1	WHITE ALERT	YELLOW ALERT		AUDIBLE ALARM	WEAPONS TIGHT	WEAPONS FREE		RED ALERT	PARITY BIT

	0	1	2	3	4	5	6	7	8
BYTE 2	MAIN PWR		VOICE COMM		DATA COMM		STATUS PANELS	THIS STATUS PANELS	PARITY BIT

	0	1	2	3	4	5	6	7	8
BYTE 3	ENVIRON-MENTAL		RADAR MISALIGNED		KBD/ PRINTER		RADAR PROCESS UNIT		PARITY BIT

	0	1	2	3	4	5	6	7	8
BYTE 4	MAG TAPE		CONSOLES		RADAR SIM.		ADP		PARITY BIT

60-61-009

Table 6-6. Fault and Indicator Status Bytes

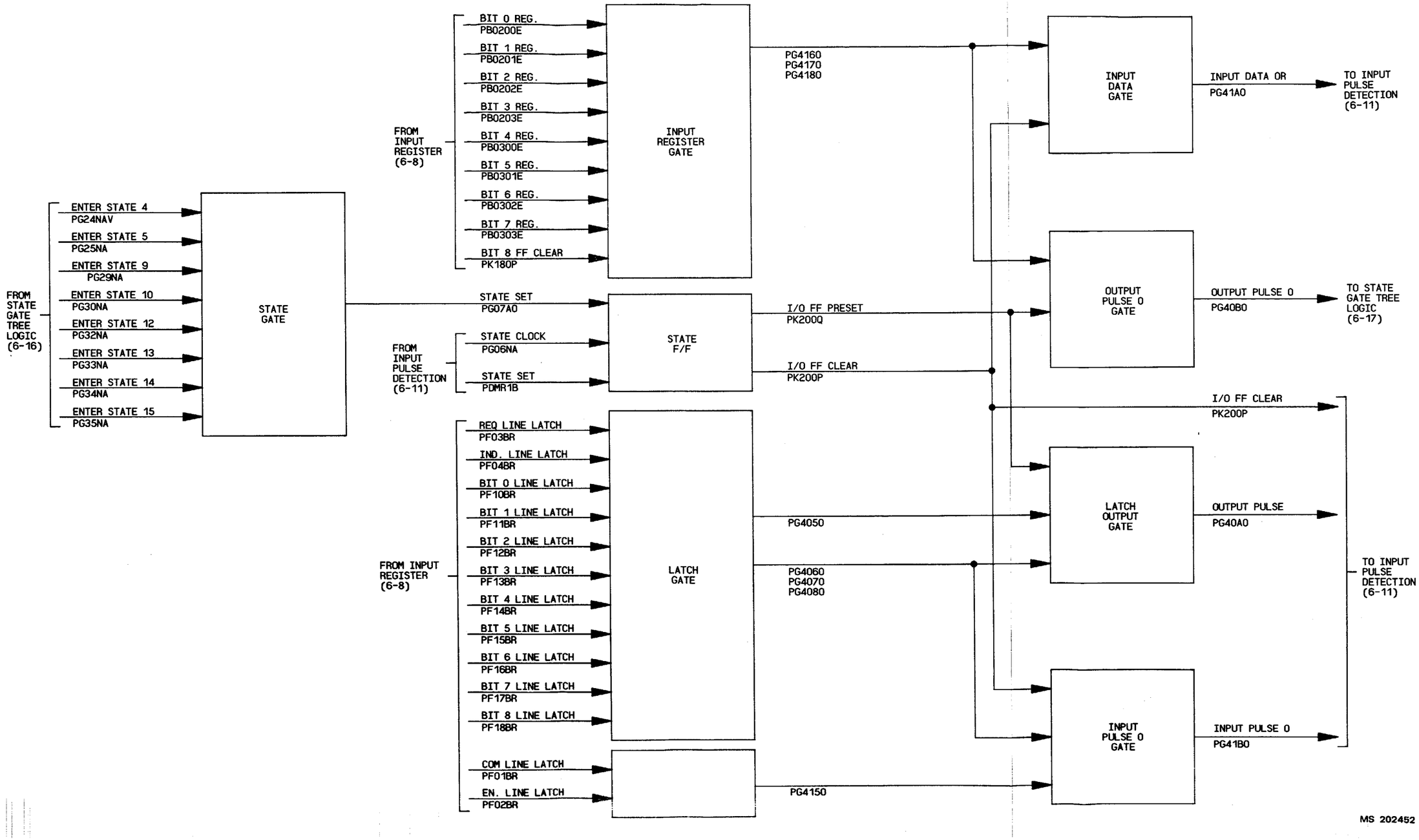


Figure 6-10. Data Detection Block Diagram

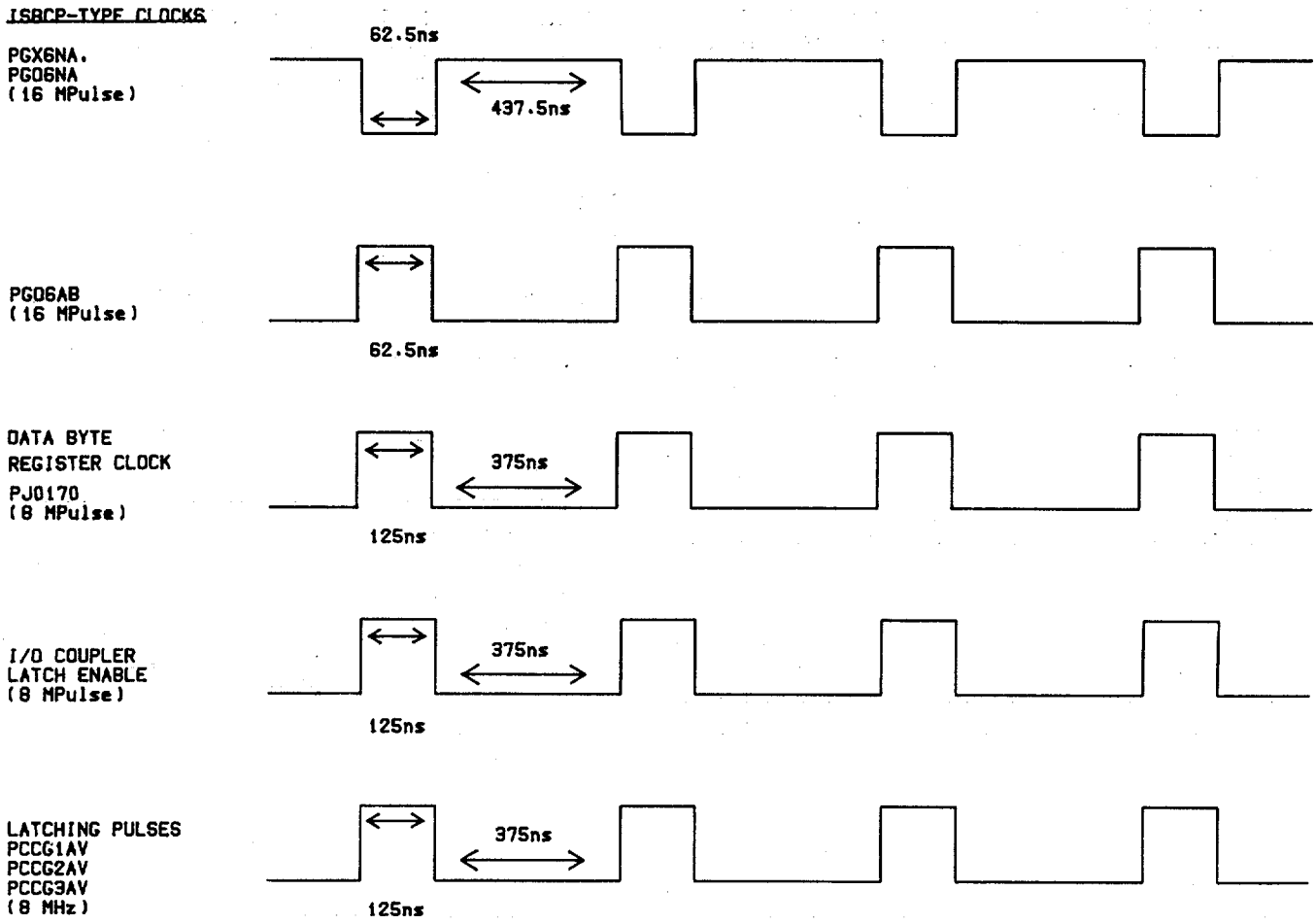


Figure 6-12. Input Pulse Detection Timing Diagram

(3) States 4, 12, 14, 10, 9, 13, and 15 high true.

(4) State 5 (latched) false from the state gate tree logic.

f. Loop Status Byte (LSB). This low pulse is output to the parity check/interrupt gate logic under the following conditions:

(1) Trailing edge of the 5-MHz clock pulse.

(2) One or more false states 13, 14, 15 and PSTOPK low from the state gate tree logic.

(3) High tree states 14, 12, 14, 10, 9, 13, and 15, and state 5 (latched) high false.

g. Load Zeros on Master Reset Gate And Flip-Flop. Indicator clear, request clear, ISB clear and LSB clear are simultaneously output to the load zeros on master reset gate during a master reset condition. This forces the PJOPOJ output from the pulse gate control flip-flop low on the trailing edge of the next 5-MHz clock pulse. The load zeros output of this flip-flop goes low, is inverted high to become PJOPKAV, and is applied to the K input of the load zeros on the master reset flip-flop, forcing state 5 (latched) low on the next 5-MHz clock pulse to disable state gate 4. The pulse gate control flip-flop disables the pulse gates, thus inputting zeros to the indicator out, request out, ISB and LSB flip-flops until the master reset condition is lifted.

6-13. Detailed Description Parity Check and Loop/Interrupt Byte Logic (fig. 6-14). This circuit is on PC boards in the right-hand card cage of the DDG. It generates the parity errors indicator bit, which is returned to the IOX through the input register on line PG68NAV. For developing the parity error indicator bit, parity errors must be output from the even parity mux bit parity checker B as well as from the odd parity IR bit parity checker. It generates the loop status byte, which is the complement of the 8-way multiplexer output byte, during loop status byte (LSB) pulse time. It also generates the interrupt status byte (ISB), which consists of ones on status bits 6, 7, and 8, during ISB pulse time.

a. Parity Bit Indicator Generation. Data bytes from the input register and the 8-way multiplexer are applied to the IR bit parity checker and the mux bit parity checker B, respectively. When there is an odd parity error in the Input Register byte and an even parity error in the mux byte, ones will be present at both parity checker outputs. The mux parity error one sets a D latch in the parity buffer register, and line PK1 80Q high is applied to output gates (B). An IR parity error one bit is gated with the states 3 and 7 gate output. The state gate tree must be in one of these states to pass the IR error indicator to the IR parity latch. This latch is set high, and its output is summed with the mux parity error bit at parity checker C, whose output goes high when mux and IR data parity errors are present. This high input sets a D latch in the parity buffer register on the low-to-high transition of the PG06AB clock pulse. D-latch output line PK18DQ goes high, enabling output gates (B), which output a bit parity 1 on line PG68NAV. This bit is output through the input register to the IOX. An IR parity error only is output on line PG67NAV as bit 6. A mux parity error only is output on line PG66NAV as bit 7.

b. Loop Status Byte Generation. During transfer of the display file to the DDG, any space code (0100,000) present can be replaced by a loop test pattern of any type. The loop status bit (LSB) is set as a result. The LSB pulse from the output pulse detector clocks the current mux data byte through the D latches in the LSB register to output gates (A) and (B). These gates output the complement of the mux data byte to the IOX.

c. Interrupt Status Byte (ISB) Generation. This status byte is returned to the IOX at completion of the display file update and after an EOB has been sent by the computer. The interrupt status byte contains 1 bit on data lines PG66NAV thru PG68NAV and is output on receipt of the ISB pulse from the output pulse detector.

6-14. Input Counter Logic Detailed Description (fig. 6-15). This circuit is on PC boards on the right-hand card cage of the DDG. The mod-4 counter and the status indicator load decoder provide load pulses for the first four bytes of data. These are fault status bytes, which enable the various status indicators on the control panel. Mod-6, mod-8, and mod-12 counters and their respective load gates count out the remaining 584 bytes of the 588-byte display file. These counter outputs consist of series PQ700, PQ800, and PQ900 signals, which are used as sync pulses by comparators A, B, and C of the refresh memory-entry logic. Data loaded F/F and data loaded latch output data loaded status signal (PF21BR) in response to PG 49A0V high, which indicates that the last data byte has been entered into the refresh memory.

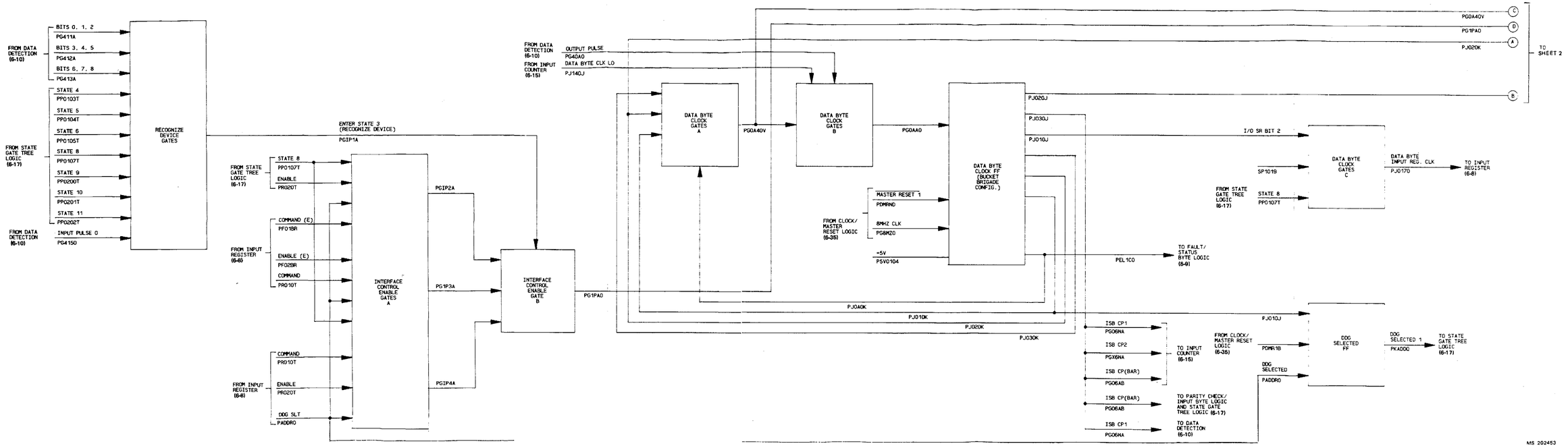


Figure 6-11. Input Pulse Detection Block Diagram (Sheet 1 of 2)

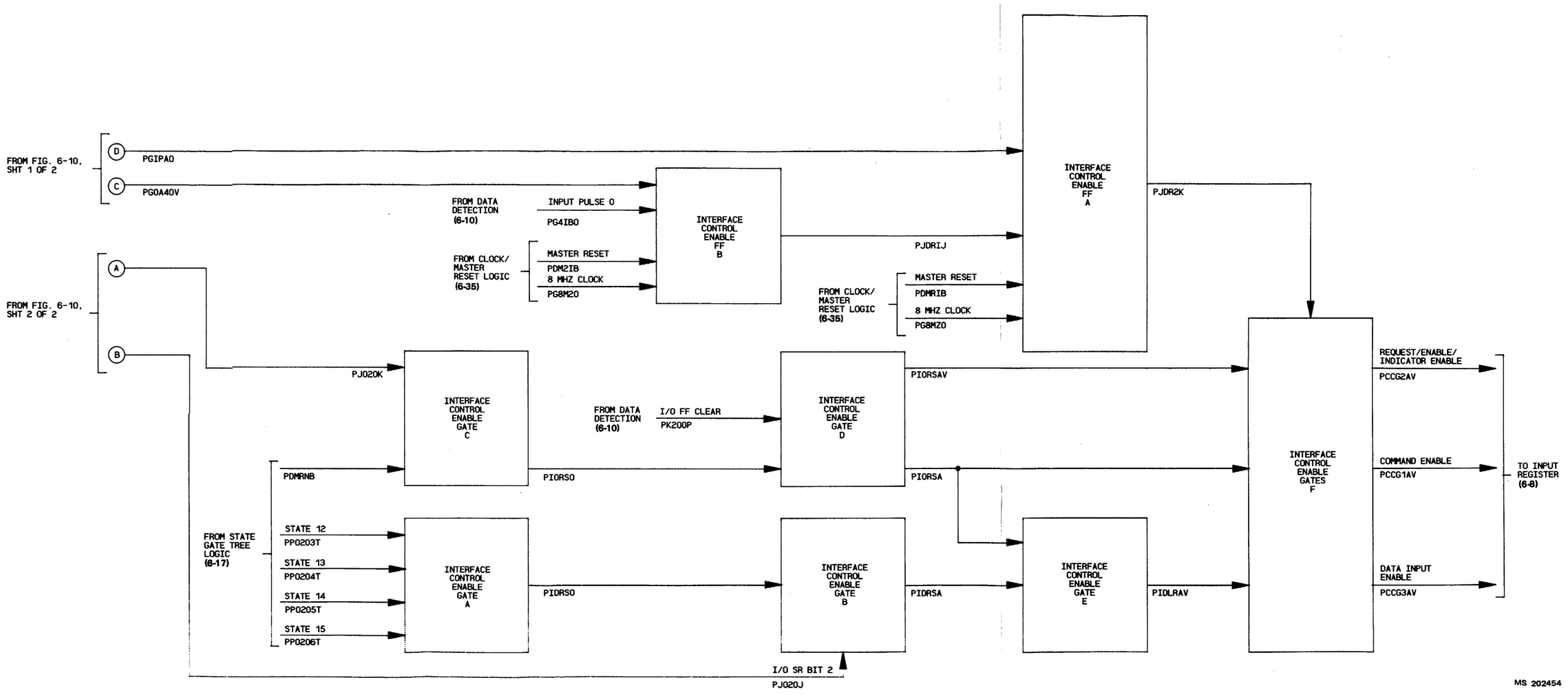


Figure 6-11. Input Pulse Detection Block Diagram (Sheet 2 of 2)

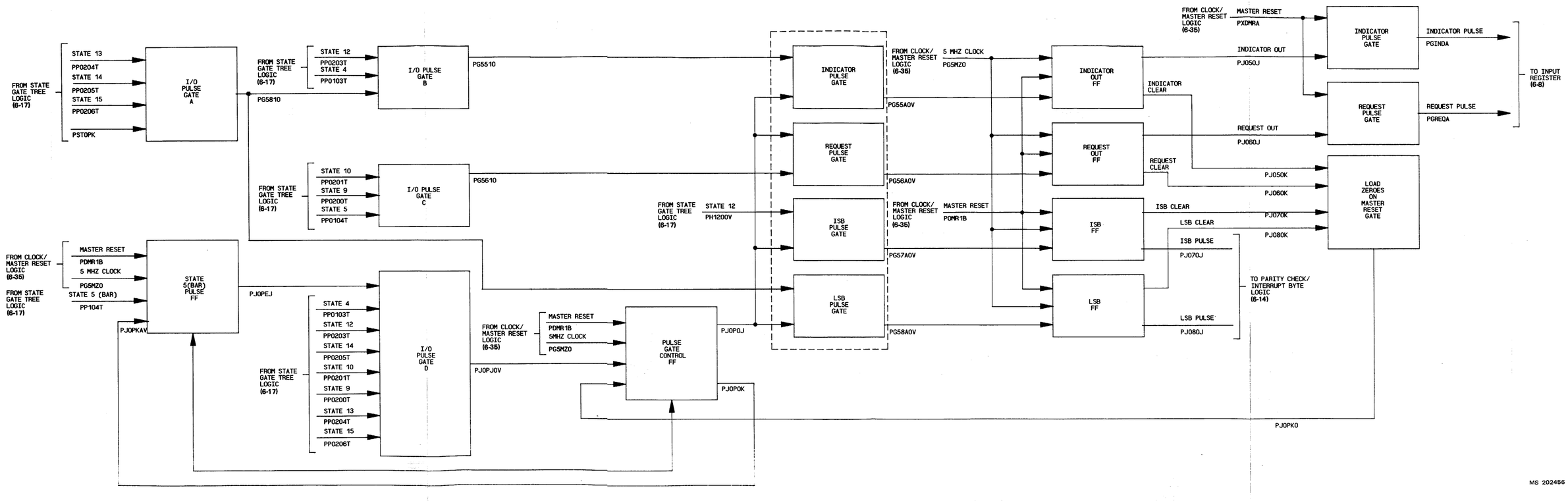


Figure 6-13. Output Pulse Detection Block Diagram

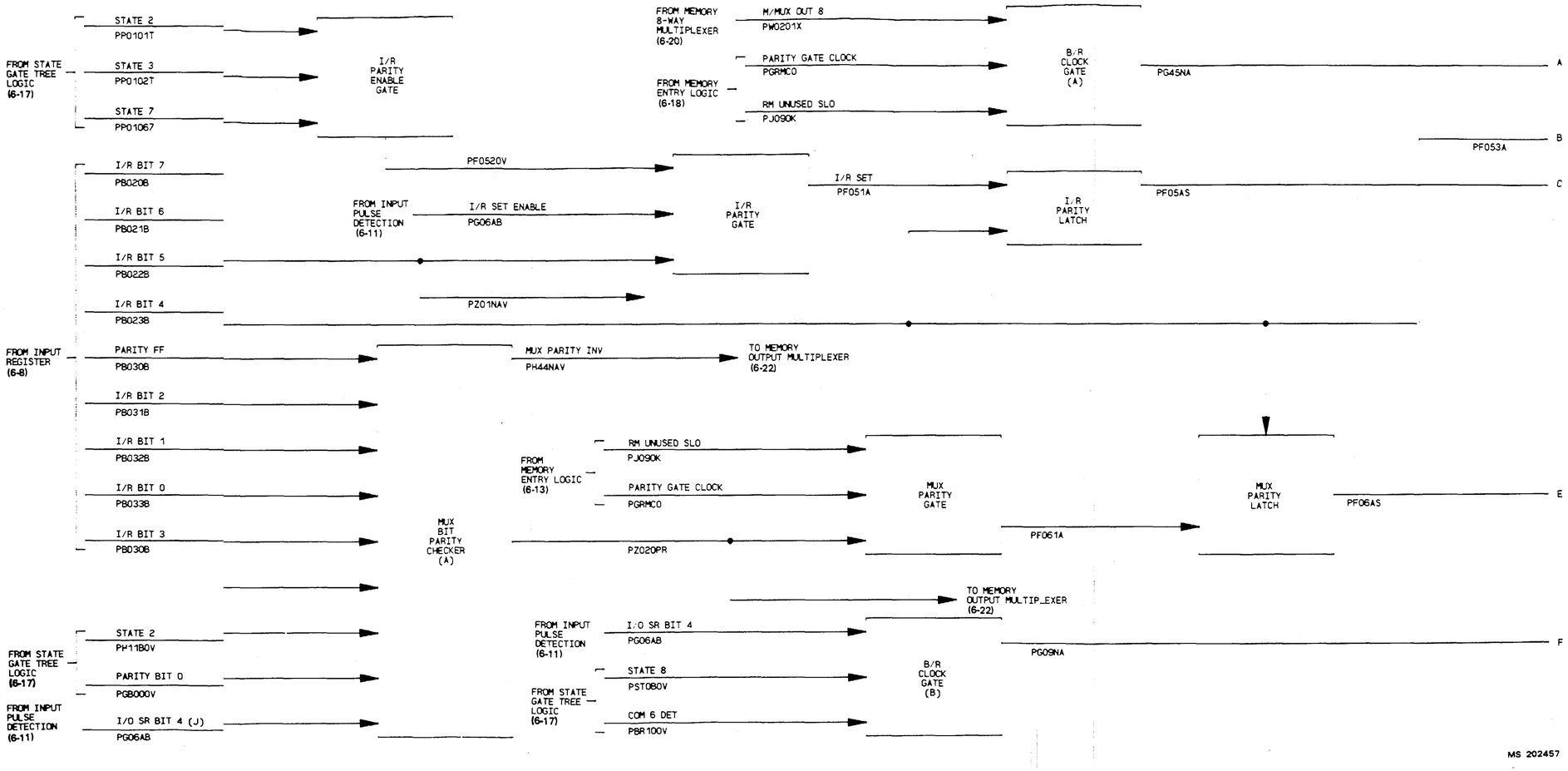


Figure 6-14. Parity Check/Interrupt Byte Block Diagram (Sheet 1 of 2)

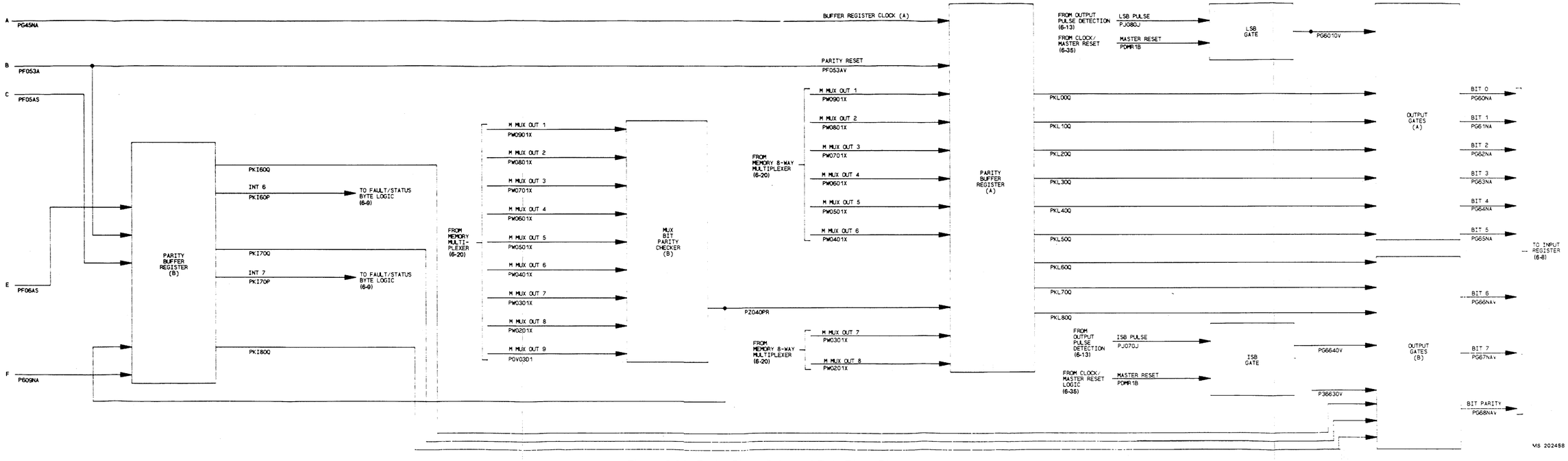


Figure 6-14. Parity Check/Interrupt Byte Block Diagram (Sheet 2 of 2)

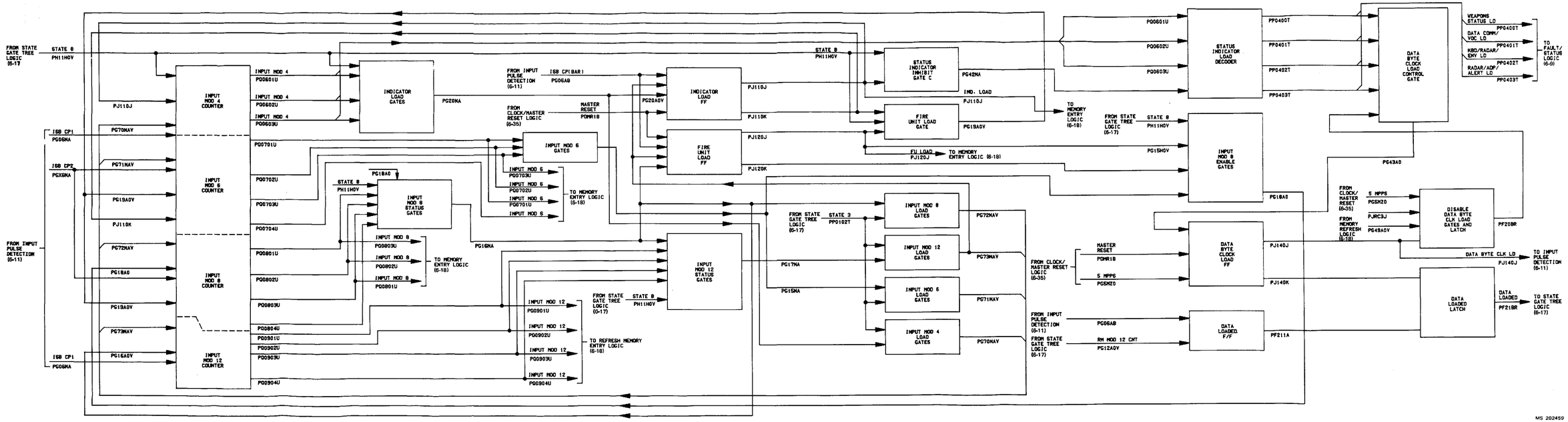


Figure 6-15. Input Counter Block Diagram

a. Normal Operation. Counting commences when the state gate logic outputs state 3, which indicates that a device control sequence has been initiated. This sets PJ110J from the indicator load flip-flop which, in turn, enables the input mod-4 counter. This counter counts to 8, being loaded by PG70NAV low from the input mod-4 load gates. Weapons status load (PP0400T) goes low to load byte 1 into the fault status register on count 1, with bytes 2, 3, and 4 being loaded on counts 2, and 4. Signal lines PP0401T thru PP0403T pulse low in serial sequence. When PP0400T goes low, the output of the data byte clock load control gate goes high, setting high data byte clock load FF PJ140J. This, in turn, latches high the PF20BR output of the disable data byte clock load gates and latch. When count 4 is exceeded, the outputs of the status indicator load decoder are high.

(1) After the input mod-4 counter counts out, its output and state 8 high enable the indicator load gates. This resets the indicator load flip-flop, forcing PJlO1K high to enable the input mod-8 counter. The input mod-8 counter times out the first eight bytes of data from the display file, to the memory refresh logic on lines PQ801U thru PQ803U. The input mod-8 counter is loaded by PG72NAV low from the input mod-8 load gates.

(2) The first eight bits from the input mod-8 counter occur during the first eight bytes of the display file, which are time-of-day data. When this counter times out, the fire unit load flip-flop is reset, re-enabling the input mod-8 counter thru PG18A0 high. PG18A0 goes low at the end of the second 8-count, and the input mod-6 counter is enabled by means of PG19A0V high from the fire unit load gate. Every time the input mod-6 counter times out, it increments the input mod-12 counter by one count. When the input mod-12 counter finally times out, 584 bytes of data have been loaded into the refresh memory. State 8 low false PH11HOV) from the state gate tree disables all counters. This occurs when data loading is no longer permitted, because of a system fault interrupt, completion of data loading, etc.

b. Status Indication Inhibit Gate C. PG42NA from this gate goes high at the completion of the fourth fault status byte to force all outputs from the status indicator load decoder high false.

c. Data Loaded Logic. This circuit consists of the data byte clock load control gate, data byte clock load FF, disable data byte clock load gates and latch, and the data loaded FF and latch. Data loaded (FF21BR) is one of the enabling signals required to enter state 9, which indicates that the last data byte has been loaded into the refresh memory logic. PG49A0V high from the refresh memory logic indicates the end of data loading. This is gated with the 4.4-MHz clock PJRC3J to force PF20BR low, which, in turn, disables the data byte clock load control gate and forces PG43A0 high. PG43A0 high sets the data byte clock load flip-flop, resulting in PJ140K low on the trailing edge of PG5MZO, the 5-MHz clock. PJ140K low latches PF21BR high out of the data-loaded latch, thus outputting a data loaded signal to the state gate tree logic. Subsequently, State 9 (PH12A0V) true resets the data loaded latch, forcing data loaded (PF21BR) false.

6-15. State Gate Tree Logic Detailed Description (fig. 6-16 and 6-17). The state gate tree circuit in the right-hand card cage of the DDG is basically a protocol device that examines interface signals from the AC I/O couplers to determine if they are allowable inputs. When enabled, a single state line outputs an 8-MHz output pulse which controls the operation of the other DDG logic elements and enables the next state output pulse.

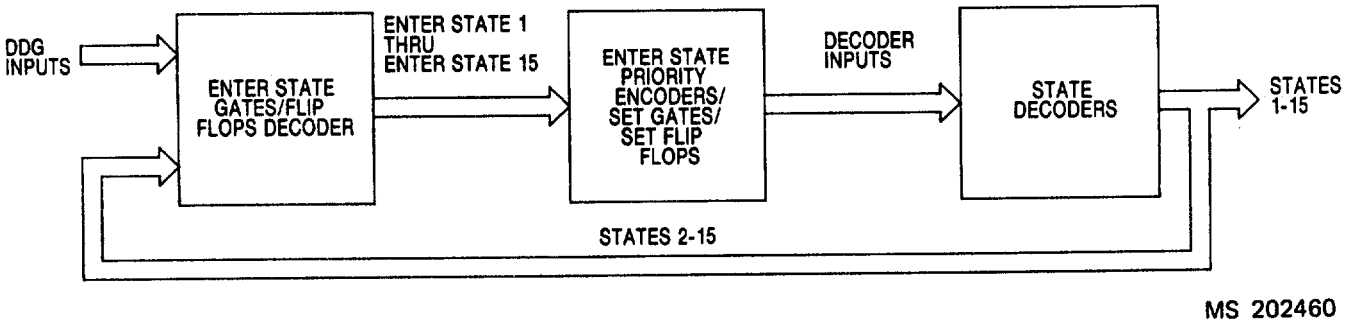


Figure 6-16. Simplified Block Diagram State Gate Tree.

a. State Gating. Table 6-7 lists the present state of the DDG, the allowable inputs while the DDG is in that state, and the next state the DDG will enter if allowable inputs are present. These allowable inputs are applied to the enter state gates shown in table 6-7. Several gates are required for entering states such as idle state 1 because of the large number of states from which entry is possible. State 1, incidentally, is entered but not actually output to the DDG or fed back to the enter state gates. When the DDG is in state 1 (the idle state), it is awaiting instructions and refresh data from the computer, This state also indicates that an illegal condition exists or that master reset has occurred.

b. Enter State Pulses. The low true enter state pulses from the enabled enter state gate are applied to enter state priority encoders A and B. These components act as decimal-to-binary converters, ignoring all but the most significant low input bit. Since the enter state signals are low true pulses, the enter state priority encoders can output a lower state after a higher state, because the more significant higher state input is no longer present. One or more of the low true encoder outputs will be ORed by its/their respective set gate(s). Each gate's high true output is applied to the J output of its respective set flip-flop. The high Q outputs of the set flip-flops are applied to one of the two binary-to-decimal state decoders to produce states 2 thru 15. States 2 thru 15 are fed back to the inputs of the enter state gates and flip-flops to enable the next state for which allowable inputs are available. The command decoder decodes the state of data bits 0, 3, 6 and 7 driving a device command, input-to-register, end-of-block, or device stop sequence. Refer to table 6-7 for the state gate's output sequence.

6-16. Refresh Memory-Entry Logic Detailed Description (fig, 6-18). The primary functional elements of this circuit are the MD-27, MD-8, MD-6, and MD-12 counters, a 10-bit comparator, a binary-to-decimal decoder, and a group of latches. The primary function of this circuit is to count to 584 in exact time synchronization with a counter in the I/O logic. While counting to 584, the entry logic interfaces a binary counter in the I/O to the refresh memories via the decade counter and this, in turn allows transfer of data from the I/O buffer to the refresh memory in a sequence which enables proper display of the data.

a. Timing Gates. The timing gates that are very important to the control of this logic are PINCPO, PREMSA, and PH11HOV (state gate 8). All inputs from the I/O logic are critical to proper operation.

b. Counter Function. The counters work as follows: At the start of valid data, PREMSA goes high, and the gated 4-MHz clocks PGRMCA and variants are enabled, PINCPO resets F/FE (making PJ310K high) and the mod-8 clock starts counting. At the same time, the I/O timing logic is functioning identically. The outputs fed to the 10-bit comparator (comparators A, B, C) are identical and all comparator outputs go high. When state gate 8 is high and F/FA is set, outputs 1 through 8 are meaningful to the refresh memory. As the mod-8 counter counts from 1 to 8 the first time, all eight refresh memory modules are loaded with the first 8 bytes of TOD data. At mod-8 bit-8 time, F/FF enables the mod-6 clock. After this, each time the mod-8 counter times out, it increments the mod-6 counter, which, in turn, increments the mod-12 counter every time it times out. When the mod-12 counter times out, 584 bytes of data have been loaded. The mod-6 and -12 counters are disabled by setting F/FG. Subsequent counting of the mod-8 counter increments the mod-27 counter while the memories are toggled 27 cycles. When mod-27 times out, it resets to zero, disables the mod-8 clock (F/FE set), and sets PG49NA high. A 3-bit binary output from the mod-8 counter drives the 8-way mux during load time so that data can be read as it is stored; thus, invalid data and faults can be detected before the data display on the DDG and appropriate fault indicators can be actuated.

6-17. Memory Storage Detailed Description (fig. 6-19). The refresh memory comprises eight storage modules, each associated with one DDG LED block (six horizontal characters of data). Each module has a storage capacity of 100 bytes of display data. The input to each module is a common 9-line data bus, a clock, and a read/write enable (recirculate). The output of each module goes to nine 8-way multiplexers. Each storage module comprises ten 100-bit shift registers. One line from the data bus goes to each shift register, except for 10 that are not used. Each register has independent input and output terminals with common power and clock inputs. When the recirculate (RECIRC) input is low, the stored data rotates at the clock frequency. When recirculate is high, input data is stored in the register. The output enable (OUT EN) signal permits output control. Output data is available when the output enable is high; the output data is

Table 6-7. State Sequence.

Present state		Allowable input*	Next state
1.	Idle	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
2.	Recognize COMMAND ADDRESS	COMMAND AND ENABLE	1▫
	DEV	INF. BITS 0 AND 3 AND PARITY ERROR	3▫
	ITR	INF. BITS 0 AND 5 AND PARITY ERROR	13▫
	EOB	INF. BITS 0 AND 6 AND PARITY ERROR	10▫
		ANYTHING ELSE	1▫
3.	Recognize DEV	COMMAND AND ENABLE	1
		DEV CONTROL BYTE	4
		ANYTHING ELSE	1
4.	Recognize Control Byte	COMMAND AND ENABLE	1
		Send INDICATOR	5†
5.	Have Sent INDICATOR	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2**
		Send REQUEST	6
6.	Have sent REQUEST	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2**
		ENABLE AND ADDRESS	7
7.	Recognize ENABLE +ADDRESS	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2**
		DATA	8
8.	Recognize DATA	COMMAND AND ENABLE	2**
		COMMAND AND ENABLE	1
		Load Data	9
9.	DATA Entered into Refresh Memory	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2**
		Send REQUEST	6
10.	Recognize EOB	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
		Send REQUEST	11
11.	Have sent REQUEST (EOB)	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2†
		ENABLE AND ADDRESS	12
12.	Recognize ENABLE AND ADDRESS (ECR)	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
		Send INDICATOR AND INT. STATUS BYTE	1
13.	Recognize ITR	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
		Send INDICATOR AND DATA	1
14.	Recognize ITR	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
		Send INDICATOR AND DATA	6
15.	Recognize ITR	COMMAND AND ENABLE	1
		COMMAND AND ADDRESS	2
		Send INDICATOR AND DATA	11

* Any other inputs will be ignored.
** Also sets F/F. If bits 0 and 5 turn up in state 2, go to state 14.
† If DEV control byte must STOP, go to state 1.
▫ Also resets F/F.

inhibited when the output enable is low. Since the output enable line is not connected to a strobe source, it pulls itself high. The input shift clock is 0.444 MHz. The 250-second recirculate gate for each module is furnished sequentially during memory write by a combination of the I/O logic and the memory entry logic.

6-18. Memory 8-Way Multiplexer Detailed Description (fig. 6-20 and 6-21). The 8-way multiplexer consists of nine 8-way multiplexers. Each has the capability of selecting 1 bit of data from one of the eight refresh memories. The first mux selects bit-0 of each refresh memory; the second selects bit-1 and the third selects bit-2, etc. When refresh memory 1 is being accessed, 9 bits (O through 8 of refresh memory 1) are output by the 8-way mux and are the inputs to the read only memory (ROM) input register and parity generator through the 3-way mux. The memory multiplexer interfaces eight 100bit refresh memories to the character generator function. Memory select inputs to the mux are a binary input from a mod-8 counter in the entry logic. This binary select input is normally active during periods when the refresh memory is being loaded or read. The multiplexer output is a 9-bit word which includes a 7-bit ASCII character, a test loop kit, and a parity bit. Multiplexer no. 8 is the only module whose complemented output (PWO202X) is used.

6-19. Memory Output Multiplexer Detailed Description (fig. 6-22). The memory output mux interfaces the 8-way mux to the character generator and provides a method for displaying error symbols and blanking characters, and for latching the character code so that it can be stabilized for decoding. The primary functional units are the zero mux, used to select one of two coded inputs representing an error code or a blank space; the ASCII mux, used to select ASCII from the data bus or data from the zero bit mux; and the ASCII storage register, used to stabilize the character code so that it can be decoded by the ROM's in the character generator. Primary inputs are the max parity INV (which is high as long as data is good), and mux sel enable, which is data-bit 8. Mux parity 10w normally provides the space-code at the zero-bit mux output. When it goes high, the number sign is output. The clock to the ASCII storage register is the gated 4-MHz PGRMKO.

6-20. Display Character Generator Detailed Description (fig. 6-23 and 6-24). The function of the display character generator is to generate seven 5bit words that produce the 35-bit LED pattern used to display one of 64 alphanumeric characters. The display character generator consists of a ROM and five ROM output drivers. The ROM, which only retrieves data, stores 2,240 five-bit words. The stored bits are manufactured into the memory so that information cannot be altered or destroyed. Each LED character requires seven 5-bit words to produce any of the 64 alphanumeric characters used by the DDG. The ROM uses a 9-bit address for each 5-bit output word. Six bits of the address (bit 1 thru bit 6) is the ASCII code for a specific character; the other three address bits (R_1, R_2, R_3) select one of the seven LED rows, Table 6-8 shows the seven addresses needed for generating the letter A. The ASCII portion of the address remains the same for each LED row; only the row decode portion (R_1, R_2, R_3) of the address changes. Table 69 lists the ASCII code for all 674 alphanumeric characters. Table 6-10 shows the LED bit pattern (7 output words) for each configuration of the row decode portion of the address word.

6-21. Display Scan Register Detailed Description (fig. 6-25). The display scan register consists of 30 serially connected 4-bit shift register. The major function of this register is to regulate the ON time of the TOD and FU display. The circuit sequentially outputs a high level at rows 1 thru 12 of lines 1 thru 7 of the left-hand and right-hand LED display modules to sequentially enable each line of 120 LED on each panel.

6-22. Output Display 12-Way Clock Demultiplexer Detailed Description (fig. 6-26). This circuit routes the display shift register clocks to all 12 rows of the right-hand and left-hand displays. Functionally, the logic consists of a mod-16 counter, a decimal 1-to-12 decoder, and a gated steering network. Primary input signals are PG75A0V and gated clocks PG48A0 (PG48B0) and PG47A0 (PG47B0). PG75A0V loads and toggles the counter. The primary circuit outputs are PJ250K, PH58A0V and the two gated clocks. the gated clocks steer sequentially to display row 1 thru row 12 long enough to load row data for one of six characters (5 of 30 bits). Level PJ250K is output when the mod16 clock resets at binary count 16.

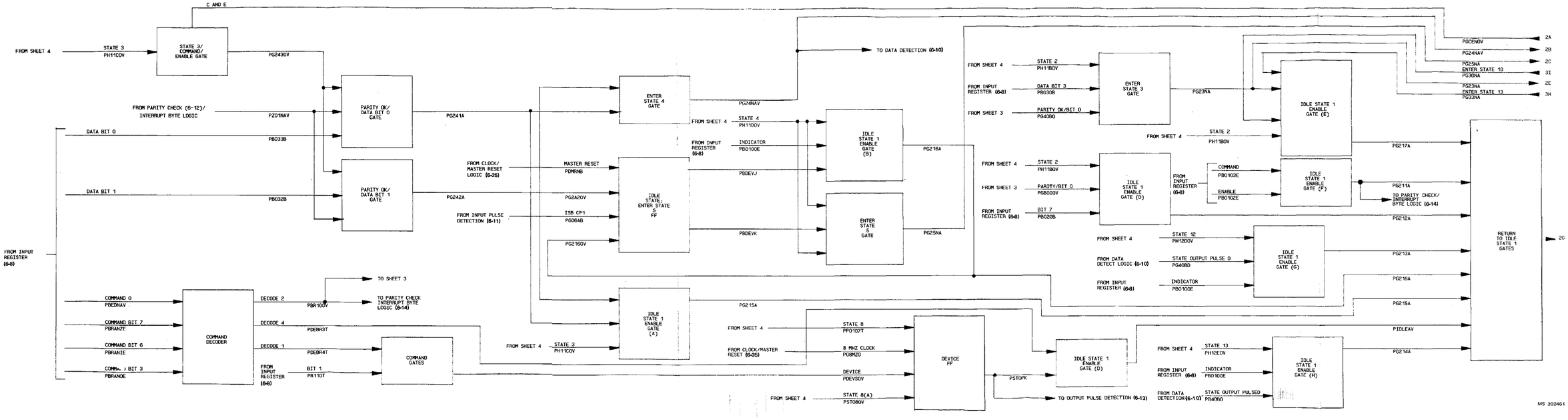


Figure 6-17. State Gate Tree Block Diagram (Sheet 1 of 4)

6-131/(6-132 blank)

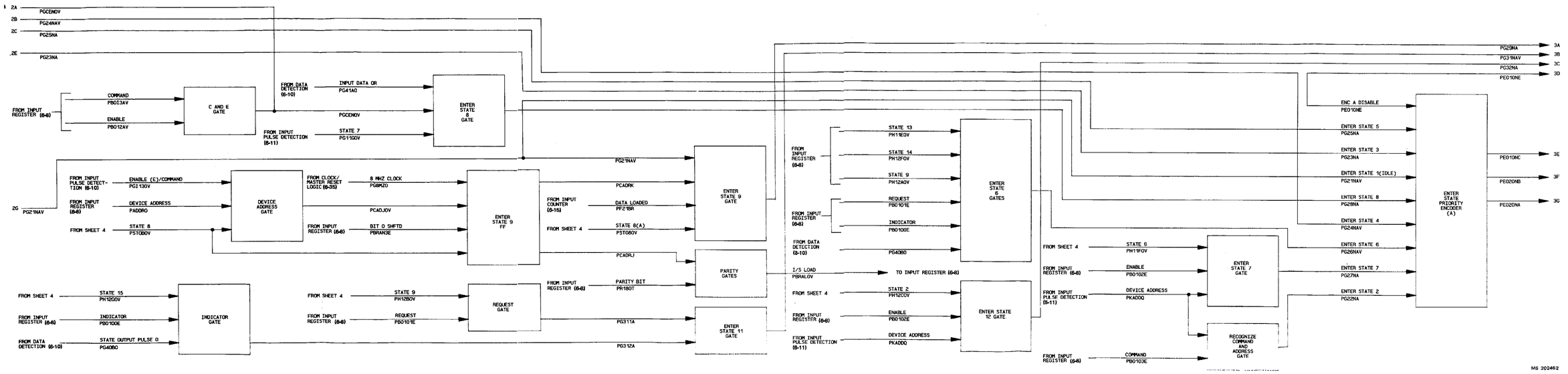


Figure 6-17. State Gate Tree Block Diagram (Sheet 2 of 4)

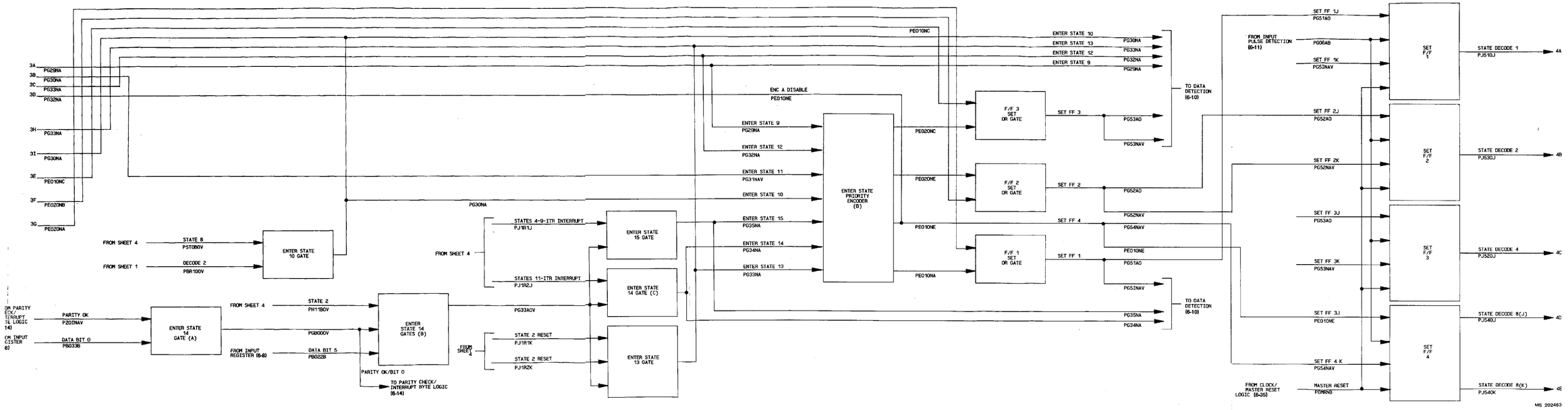


Figure 6-17. State Gate Tree Block Diagram (Sheet 3 of 4)

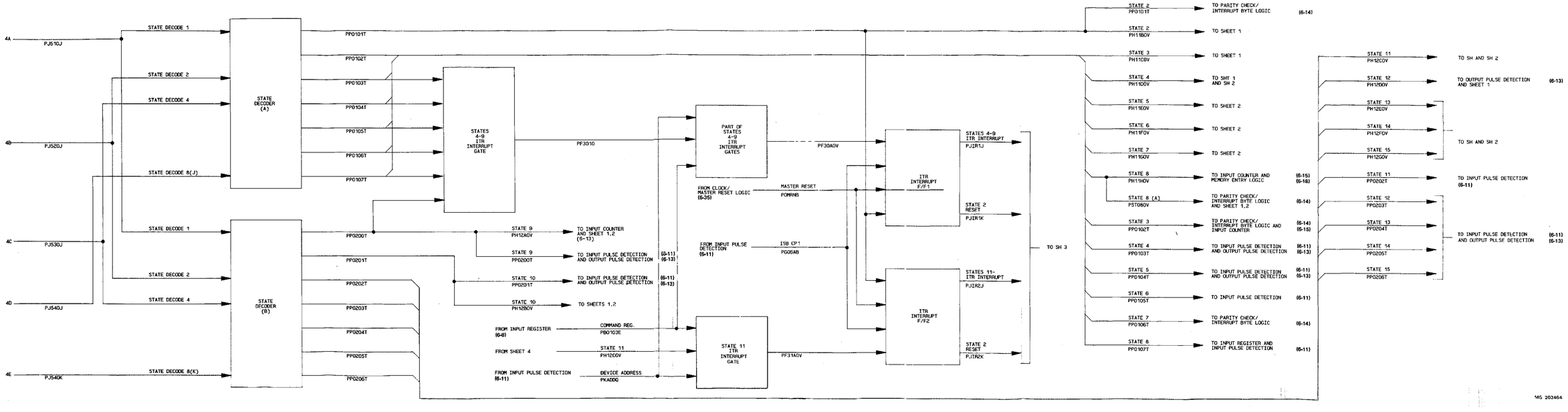


Figure 6-17. State Gate Tree Block Diagram
(Sheet 4 of 4)

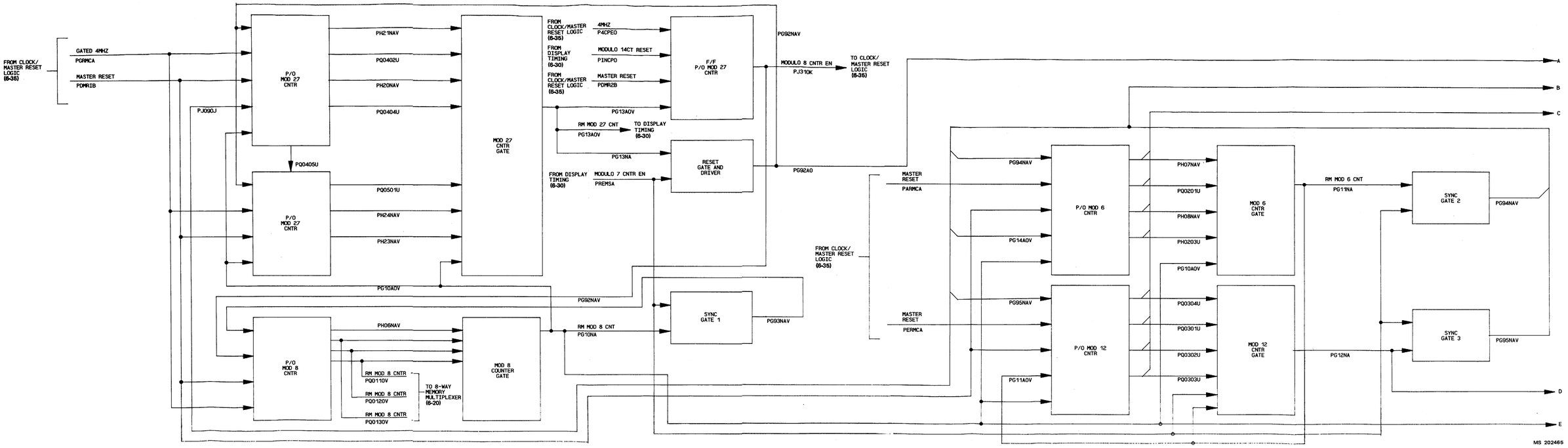


Figure 6-18. Memory Entry Block Diagram (Sheet 1 of 4)

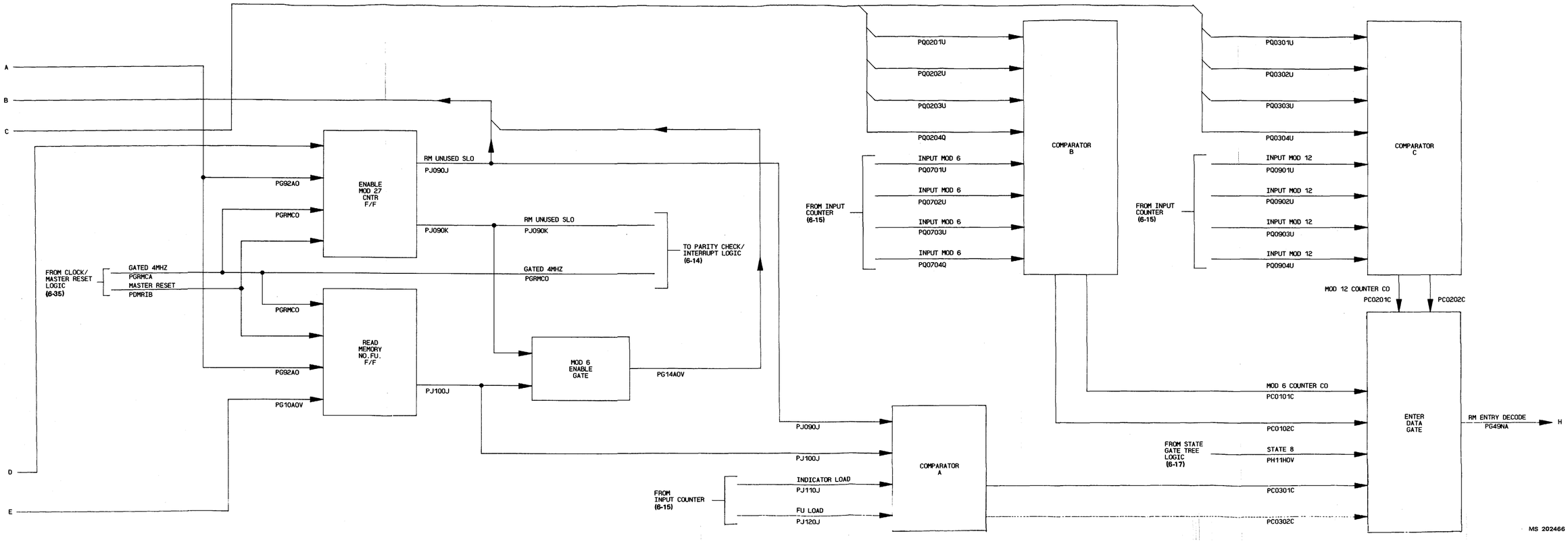


Figure 6-18. Memory Entry Block Diagram (Sheet 2 of 4)

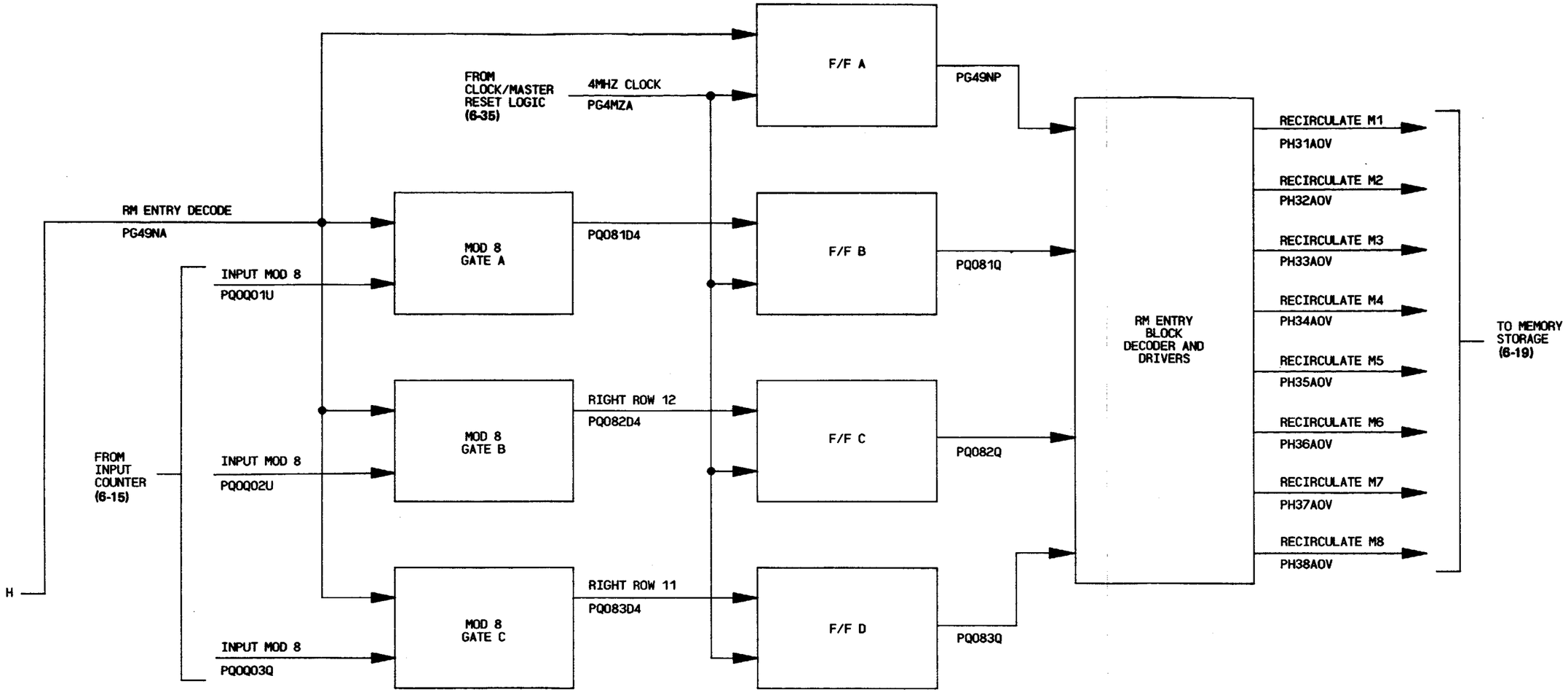


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Figure 6-18. Memory Entry Block Diagram (Sheet 3 of 4)

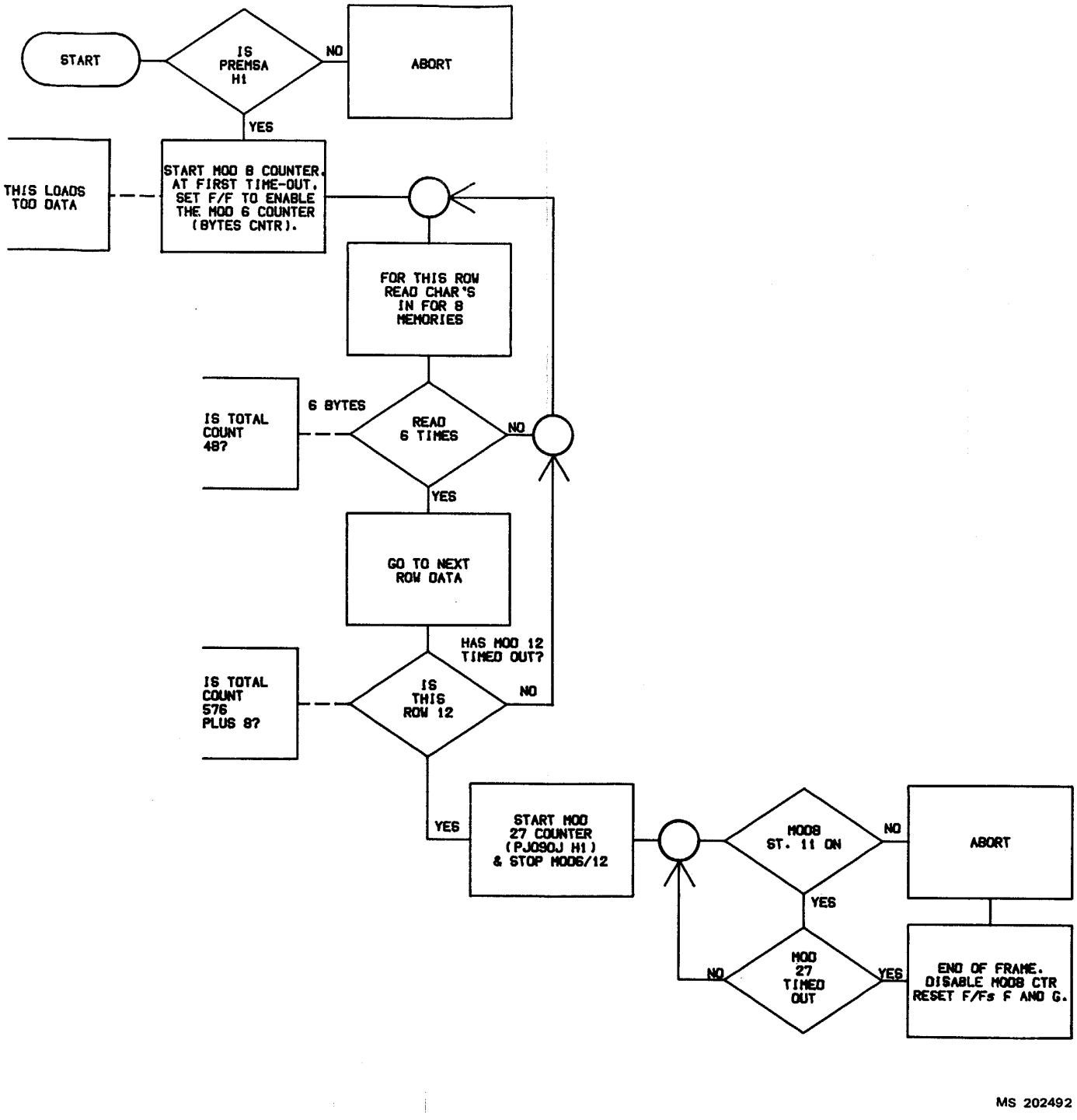
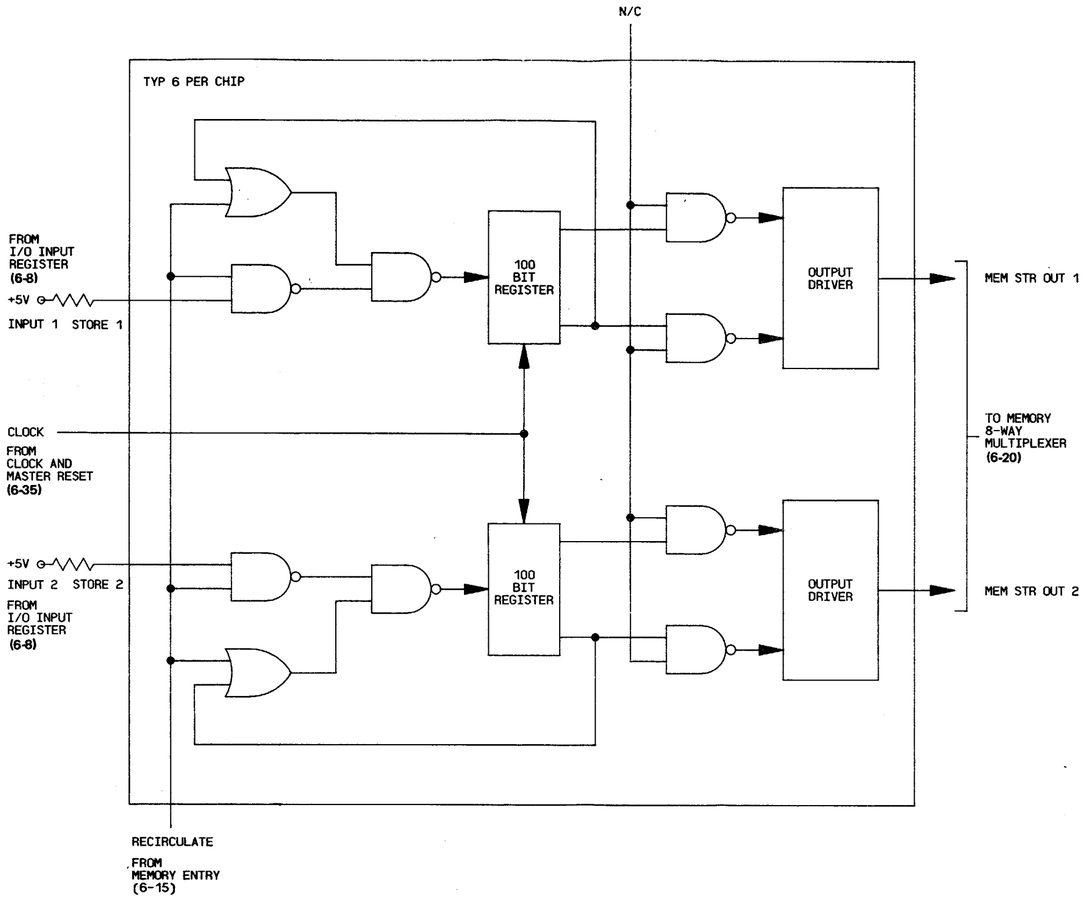


Figure 6-18. Memory Entry Block Diagram (Sheet 4 of 4)



INPUT 1	INPUT 2	CLOCK	RECIRC	OUTPUT 1	OUTPUT 2	CARD	CHIP
PK180B4	PB033B4	PGRMID4	PH31A0V	PHS10RP	PHS10SP	1227	U1
PB032B4	PB031B4	PGRMID4	PH31A0V	PHS11RP	PHS11SP	1227	U2
PB030B4	PB023B4	PGRMID4	PH31A0V	PHS12RP	PHS12SP	1227	U3
PB022B4	PB021B4	PGRMID4	PH31A0V	PHS13RP	PHS13SP	1227	U4
PB020B4	N/C	PGRMID4	PH31A0V	PHS14RP	N/C	1227	U5
PK180B4	PB033B4	PGRMID4	PH32A0V	PHS20SP	PHS20SP	1227	U6
PB032B4	PB031B4	PGRMJD4	PH32A0V	PHS21RP	PHS21SP	1226	U1
PB030B4	PB023B4	PGRMJD4	PH32A0V	PHS22RP	PHS22SP	1226	U2
PB022B4	PB021B4	PGRMJD4	PH32A0V	PHS23RP	PHS23SP	1226	U3
PB020B4	N/C	PGRMJD4	PH32A0V	PHS24RP	N/C	1226	U4
PK180B4	PB033B4	PGRMJD4	PH33A0V	PHS30RP	PHS30SP	1226	U5
PB032B4	PB031B4	PGRMJD4	PH33A0V	PHS31RP	PHS31SP	1226	U6
PB030B4	PB023B4	PGRMKD4	PH33A0V	PHS32RP	PHS32SP	1225	U1
PB022B4	PB021B4	PGRMKD4	PH33A0V	PHS33RP	PHS33SP	1225	U2
PB020B4	N/C	PGRMKD4	PH33A0V	PHS34RP	N/C	1225	U3
PK180B4	PB033B4	PGRMKD4	PH34A0V	PHS40RP	PHS40SP	1225	U4
PB032B4	PB031B4	PGRMKD4	PH34A0V	PHS41RP	PHS41SP	1225	U5
PB030B4	PB023B4	PGRMKD4	PH34A0V	PHS42RP	PHS42SP	1225	U6
PB022B4	PB021B4	PGRMLD4	PH34A0V	PHS43RP	PHS43SP	1224	U1
PB020B4	N/C	PGRMLD4	PH34A0V	PHS44RP	N/C	1224	U2
PK180B4	PB033B4	PGRMLD4	PH35A0V	PHS50RP	PHS50SP	1224	U3
PB032B4	PB031B4	PGRMLD4	PH35A0V	PHS51RP	PHS51SP	1224	U4
PB030B4	PB023B4	PGRMLD4	PH35A0V	PHS52RP	PHS52SP	1224	U5
PB022B4	PB021B4	PGRMLD4	PH35A0V	PHS53RP	PHS53SP	1224	U6
PB020B4	N/C	PGRMMD4	PH35A0V	PHS54RP	N/C	1223	U1
PK180B4	PB033B4	PGRMMD4	PH36A0V	PHS60RP	PHS60SP	1223	U2
PB032B4	PB031B4	PGRMMD4	PH36A0V	PHS61RP	PHS61SP	1223	U3
PB030B4	PB023B4	PGRMMD4	PH36A0V	PHS62RP	PHS62SP	1223	U4
PB022B4	PB021B4	PGRMMD4	PH36A0V	PHS63RP	PHS63SP	1223	U5
PB020B4	N/C	PGRMMD4	PH36A0V	PHS64RP	N/C	1223	U6
PK180B4	PB033B4	PGRMND4	PH37A0V	PHS70RP	PHS70SP	1222	U1
PB032B4	PB031B4	PGRMND4	PH37A0V	PHS71RP	PHS71SP	1222	U2
PB030B4	PB023B4	PGRMND4	PH37A0V	PHS72RP	PHS72SP	1222	U3
PB022B4	PB021B4	PGRMND4	PH37A0V	PHS73RP	PHS73SP	1222	U4
PB020B4	N/C	PGRMND4	PH37A0V	PHS74RP	N/C	1222	U5
PK180B4	PB033B4	PGRMND4	PH38A0V	PHS80RP	PHS80SP	1222	U6
PB032B4	PB031B4	PGRMPD4	PH38A0V	PHS81RP	PHS81SP	1221	U1
PB030B4	PB023B4	PGRMPD4	PH38A0V	PHS82RP	PHS82SP	1221	U2
PB022B4	PB021B4	PGRMPD4	PH38A0V	PHS83RP	PHS83SP	1221	U3
PB020B4	N/C	PGRMPD4	PH38A0V	PHS84RP	N/C	1221	U4

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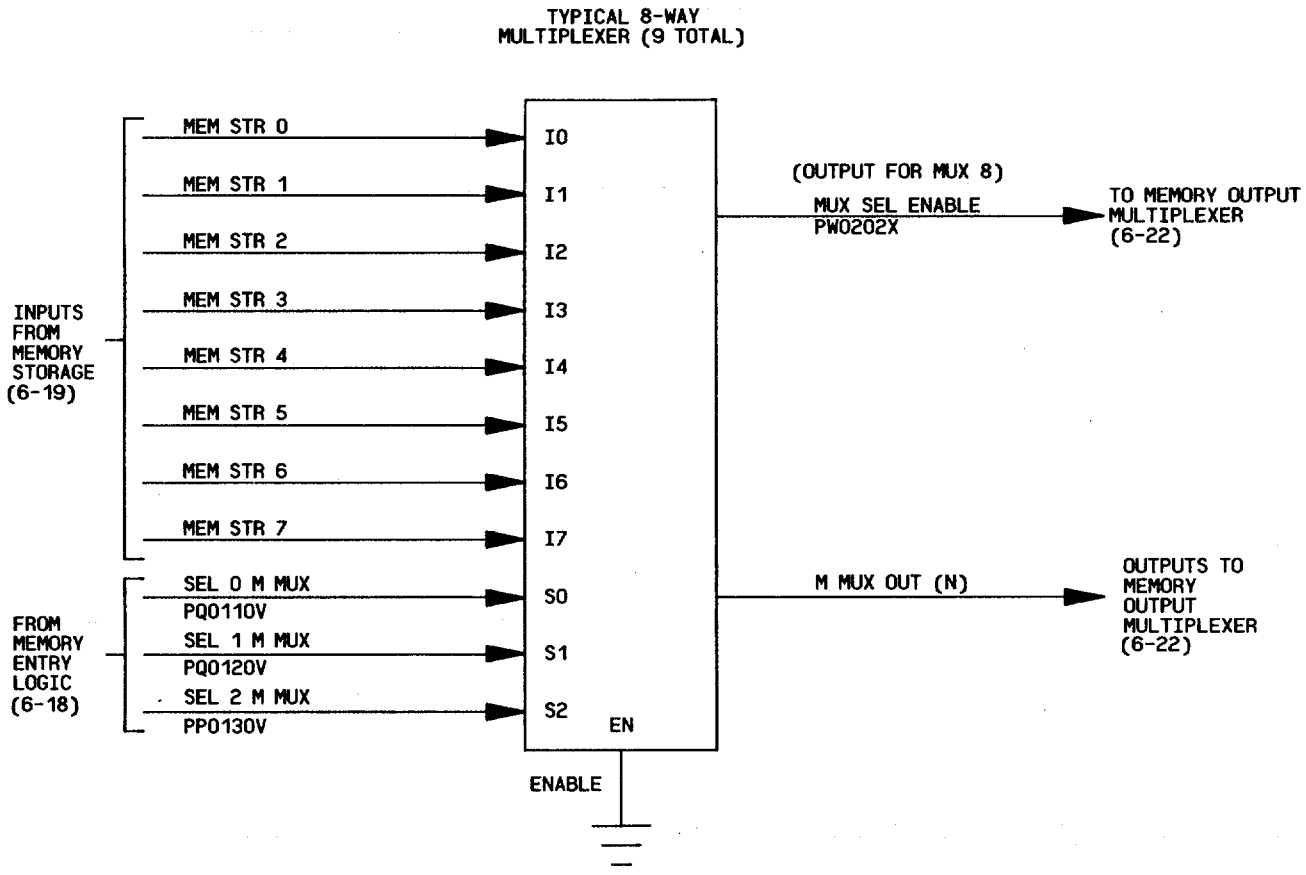
Figure 6-19. Memory Storage Block Diagram



M MUX OUT (N)

INPUTS	9 PW0101X	8 PW0201X	7 PW0301X	6 PW0401X	5 PW0501X	4 PW0601X	3 PW0701X	2 PW0801X	1 PW0901X
I0	PHS10RP	PHS10SP	PHS11RP	PHS11SP	PHS12RP	PHS12SP	PHS13RP	PHS14RP	PHS13SP
I1	PHS20RP	PHS20SP	PHS21RP	PHS21SP	PHS22RP	PHS22SP	PHS23RP	PHS24RP	PHS23SP
I2	PHS30RP	PHS30SP	PHS31RP	PHS31SP	PHS32RP	PHS32SP	PHS33RP	PHS34RP	PHS33SP
I3	PHS40RP	PHS40SP	PHS41RP	PHS41SP	PHS42RP	PHS42SP	PHS43RP	PHS44RP	PHS43SP
I4	PHS50RP	PHS50SP	PHS51RP	PHS51SP	PHS52RP	PHS52SP	PHS53RP	PHS54RP	PHS53SP
I5	PHS60RP	PHS60SP	PHS61RP	PHS61SP	PHS62RP	PHS62SP	PHS63RP	PHS64RP	PHS63SP
I6	PHS70RP	PHS70SP	PHS71RP	PHS71SP	PHS72RP	PHS72SP	PHS73RP	PHS74RP	PHS73SP
I7	PHS80RP	PHS80SP	PHS81RP	PHS81SP	PHS82RP	PHS82SP	PHS83RP	PHS84RP	PHS83SP

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Figure 6-20. Memory 8-Way Multiplexer Block Diagram

a. PDMR2B. At turn-on time, PDMR2B goes low one clock cycle, loading a ONE into the J-K flip-flop, outputs of the binary counter are zeroed, PH75NAV goes high and PRODEA goes low. PRODEA enables shift clock decoder A, and PH75NAV disables decoder B. Row 1 decoder (PH58A0V) goes high, enabling the gates controlling the row-1 display registers. The gated clocks are now output alternately to the left-hand and right-hand display modules.

b. PG75A0V. PG75A0V is a one-clock-wide, high-level signal which is input every 66 clocks (16.5 usec) at the end of a 48-character data transfer (read) cycle. The eighth PG75A0V input causes count 8 to go high; in turn, the decode switch gate changes state, thereby enabling decoder B and disabling decoder A. As the counter continues to count to 12, its outputs are so interpreted by decoder B. Decoder B outputs 13 thru 20 are not connected, so these counts are ignored. The carryout is loaded into the shift counter flip-flop on 15 and resets the flip-flop on count 16. PJ250K going high starts the TOD byte (mod 9B) counter.

6-23. Output Display Brightness Control Logic Detailed Description (fig. 6-27). This circuit furnishes a switch-selectable-width pulse to the display scan register. The primary functional components are a mod-15 counter, a decade decode, a multiplexer, and a JK flip-flop used as a latch. The primary input signals are:

M0D6 CNTR TC
CLOCK DEMUX COUNT 1
MOD 7, DEC 0
MOD 6, DEC 5
MOD 16, DEC 0
SWITCH 1, 2, 4, 8

MOD6 CNTR TC is used as a clock to toggle the counter. CLOCK DEMUX COUNT 1 synchronizes the enabling of the clock with the clock demultiplexer. MOD 7, DEC 0, MOD 6, DEC 5, and MOD 16, DEC 0 synchronize the beginning of the brightness pulse with the beginning of the first display load window. SWITCH 1, 2, 4, 8 is used to select the length of the brightness pulse.

a. Brightness Counter. After initialization, the first MOD 6 CNTRTC pulse sets the brightness counter enable flip-flop loads and partially enables the mod-15 counter. The counter is not synchronized with the load gates to the display matrix. Each time the row count is incremented, the mod 15 counter resets at the end of 12 rows plus 3. This counter operates only during loading by line 1 in all 12 rows of the matrix. At the same time the brightness counter is loaded, the brightness pulse latch is set, and brightness pulse is simultaneously detected at the input of the scan register.

b. SWITCH 1, 2, 4, 8. SWITCH 1, 2, 4, 8 selects one of the nine outputs of the 1-to-14 decoder. As an example, if a 1 is entered at BRIGHTNESS switch S3, it causes the multiplexer to route A DECODE 0 to the brightness pulse latch. When the counter counts to 1, A DECODE 0 goes high, which is inverted in MUX A, resetting the brightness pulse latch. This pulse is the same length as MOD 6 CNTR TC (13.5 usec). If the switch is set to 6, A DECODE 6 is routed to the brightness pulse latch and the output pulse is 6 times 13.5 usec on 79.0 sec wide. The widest pulse, 14 times 13.5 or 189 usec is obtained with B DECODE 6. The scan clock output is virtually identical in shape and timing with MOD 6 CNTRTC, and the driver is required to drive the 30 scan shift registers.

6-24. FU Readout Register and Data Driver Detailed Description (fig. 6-28). This circuit receives 5-bit character data from the display character generator, converts parallel inputs to serial outputs, and transfers four words (20 bits) to the display modules in the right-hand and left-hand display modules. Six 20-bit transfers are required for loading one line of character data; therefore, 140 transfers are required for displaying one row of 24 characters, even if all characters are blank.

a. Character Data Loading. Since the operation of the left-hand and right-hand channels are identical, only the right-hand channel is described. Initially, the 5-bit word for the top line of character 6 is received from the ROM drivers and loaded into 5-bit shift register 1. On the next clock cycle, as the 5-bit word for character 18 is toggled into register 1, the 5-bit word for character 12 is parallel-loaded into 5-bit register 2. Data for characters 18 and 24 cause the same sequence, so that the character-6 data is finally resident in register 4. The serial output of register 4 connects through a driver to display module block 1, which is columns 1 and 2 of the display. In other words, the output goes to twelve 30-bit shift registers. Correspondingly, the outputs of registers 3, 2, and 1 are connected to blocks 2, 3, and 4. Initially, the character-6 word is loaded into the character 1 position of the 30-bit register. When the character-5 data is transferred,

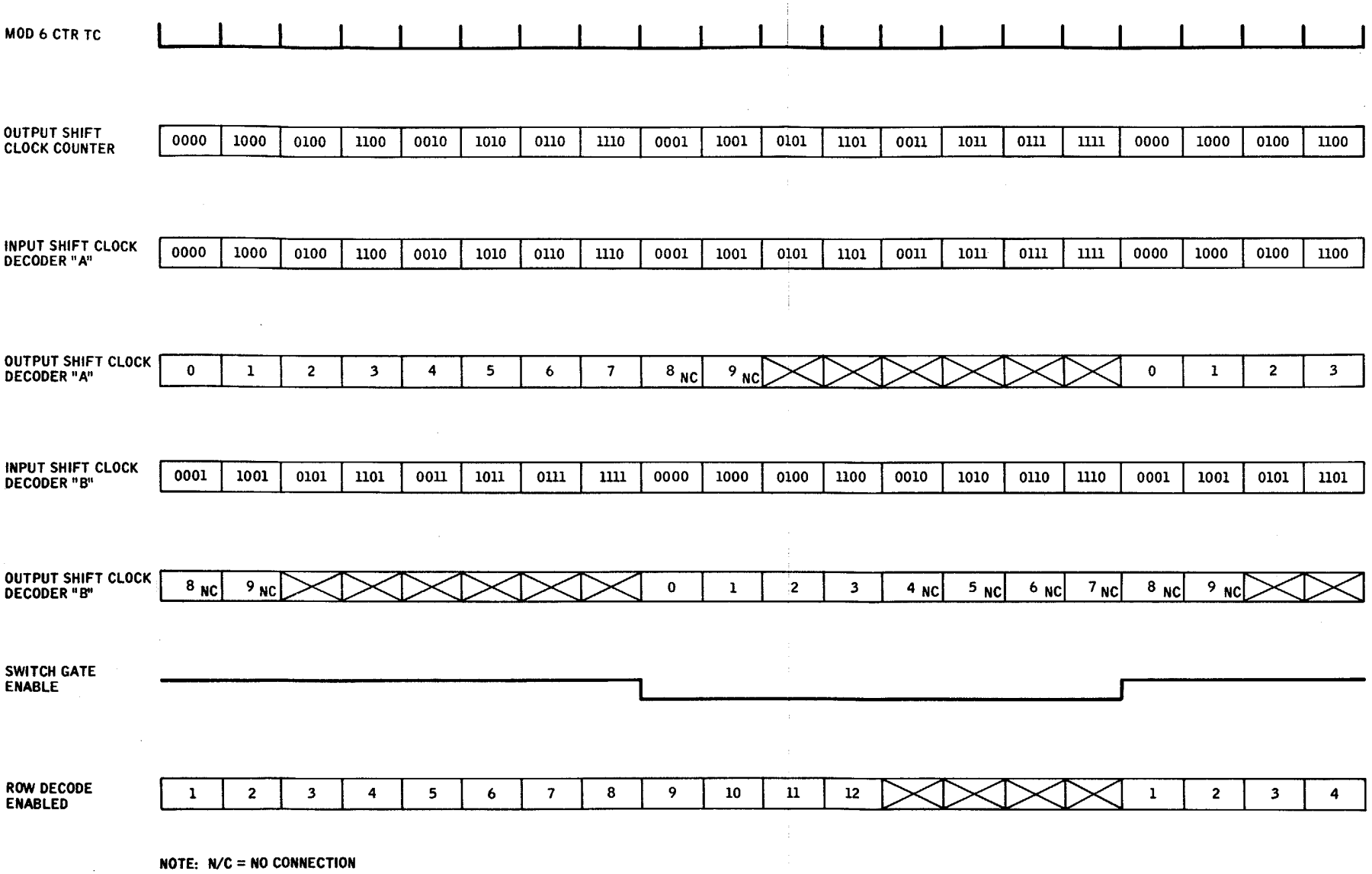

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Figure 6-21. Memory 8-way Multiplexer Timing Diagram

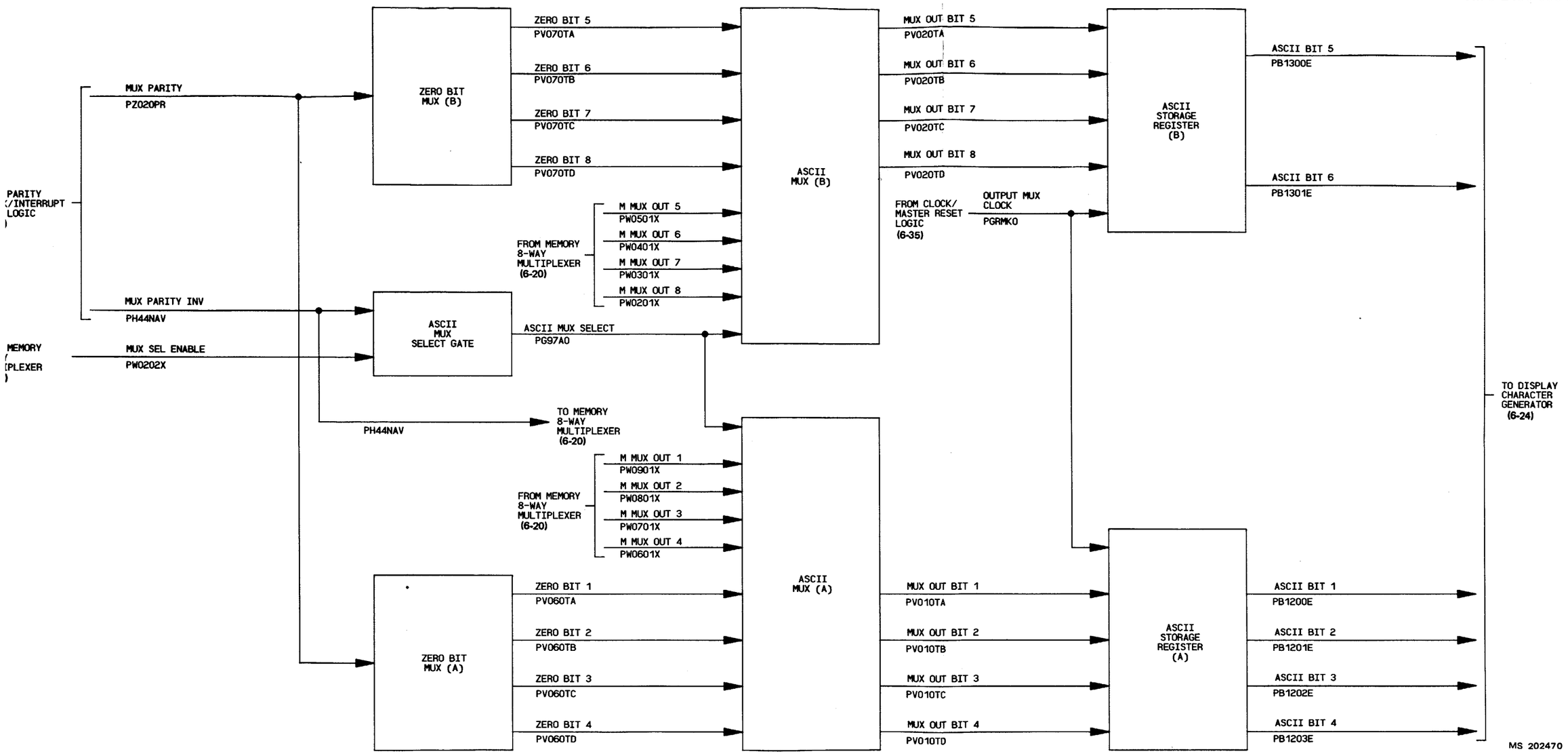

Figure 6-22. Memory Output Multiplexer Block Diagram

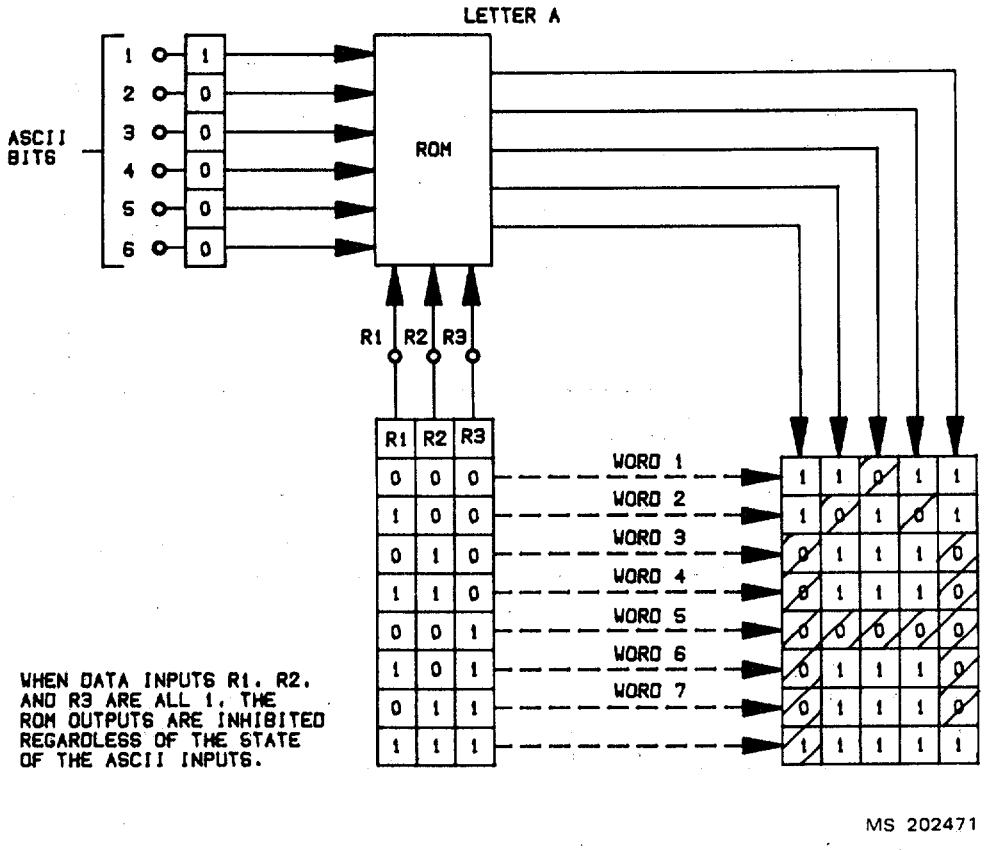

Figure 6-23. ROM Input/Output Scheme

character-6 data is shifted right to the character-2 position. After six transfer cycles, the character-6 data is resident at the proper character-6 position.

b. Timing. Fifty-four clock cycles are required for transferring one line of character data to the four display module serial registers, as follows: Four clock cycles are required to parallel-load the four registers and five clock cycles are required for toggling data out of the registers. Six cycles are required for transferring data for 24 characters.

6-25. Time-of-Day Logic Detailed Descriptions (fig. 6-29). This circuit consists of three main functional groups and three gates. The first functional group is a 40-bit shift register formed by the multiplexers, flip-flops A thru H, and the 4-bit shift registers. The second consists of the LED lockout gates and drivers, and the third is made up of the display modules. The TOD display shows hours: minutes: seconds (12:34:56 for example) and each character is a matrix 5 bits wide by 7 bits high. The character-forming data comes from the character generator as seven 5-bit words for each character. For a TOD display of 12:34:56, the first input will be the 5 bits of the top line of the six-digit data, followed by the 5 bits that make up the 5-digit data, then the colon, and so on. The rightmost bit forming the top line of the 6-digit data is the least significant bit (LSB) of the least significant digit (LSD). The left-most bit of the 1 is the most significant bit (MSB) both of the 5-bit character and the 40-bit shift register word, and the 1 is the most significant digit (MSD).

a. The first line of the LSD is received from the display character generator as a sequence of eight 5-bit words. LSD line 1 character bits 1 thru 4, are parallel-loaded into the shift register of the MSD, whereas character bit 5 is loaded into a flip-flop. When the 5-bit word for the top line of the next LSD arrives on the next clock cycle to be loaded into the MSD register, data from the MSD register is parallel-loaded into the register that follows it, and bit 5 of the LSD is transferred through 2-input mux A to flip-flop B by the LDCLOC. This sequence proceeds eight times altogether, resulting in the least significant 4 bits of the LSD being parallel-

Table 6-8. ROM I/O Bit

ROM address									ROM output				
R_1	R_2	R_3	B6	B5	B4	B3	B2	B1	1	1	0	1	1
0	0	0	0	0	0	0	1	1	0	1	0	1	1
1	0	0	0	0	0	0	0	1	1	0	1	0	1
0	1	0	0	0	0	0	0	1	0	1	1	1	0
1	1	0	0	0	0	0	0	1	0	1	1	1	0
0	0	1	0	0	0	0	0	1	0	0	0	0	0
1	0	1	0	0	0	0	0	1	0	1	1	1	0
0	1	1	0	0	0	0	0	1	0	1	1	1	0

Table 6-9. ASCII Character Code

ASCII bits							ASCII bits							
6	**5**	**4**	**3**	**2**	**1**	**Character**	**6**	**5**	**4**	**3**	**2**	**1**	**Symbol**	**Meaning**
0	0	0	0	0	0	@	1	0	0	1	0	1	%	Percent
0	0	0	0	0	1	A	1	0	0	1	1	0	&	Ampersand
0	0	0	0	1	0	B	1	0	0	1	1	1	'	Apostrophe
0	0	0	0	1	1	C	1	0	1	0	0	0	(	Left parenthesis
0	0	0	1	0	0	D	1	0	1	0	0	1	)	Right parenthesis
0	0	0	1	0	1	E	1	0	1	0	1	0	*	Asterisk
0	0	0	1	1	0	F	1	0	1	0	1	1	+	Plus
0	0	0	1	1	1	G	1	0	1	1	0	0	,	Comma
0	0	1	0	0	0	H	1	0	1	1	0	1	-	Minus
0	0	1	0	0	1	I	1	0	1	1	1	0	.	Period
0	0	1	0	1	0	J	1	0	1	1	1	1	/	Slash
0	0	1	0	1	1	K	1	1	0	0	0	0	0	0
0	0	1	1	0	0	L	1	1	0	0	0	1	1	
0	0	1	1	0	1	M	1	1	0	0	1	0	2	
0	0	1	1	1	0	N	1	1	0	0	1	1	3	
0	0	1	1	1	1	O	1	1	0	1	0	0	4	
0	1	0	0	0	0	P	1	1	0	1	0	1	5	
0	1	0	0	0	1	Q	1	1	0	1	1	0	6	
0	1	0	0	1	0	R	1	1	0	1	1	1	7	
0	1	0	0	1	1	S	1	1	1	0	0	0	8	
0	1	0	1	0	0	T	1	1	1	0	0	1	9	
0	1	0	1	0	1	U	1	1	1	0	1	0	:	Colon
0	1	0	1	1	0	V	1	1	1	0	1	1	;	Semicolon
0	1	0	1	1	1	W	1	1	1	1	0	0	H	Less than
0	1	1	0	0	0	X	1	1	1	1	0	1	=	Equal to
0	1	1	0	0	1	Y	1	1	1	1	1	0	K	Greater than
0	1	1	0	1	0	Z	1	1	1	1	1	1	?	
0	1	0	1	1	1	LEFT BRACKET								
0	1	1	1	0	0	SLASH								
0	1	1	1	0	1	RIGHT BRACKET								
0	1	1	1	1	0									
0	1	1	1	1	1									
1	0	0	0	0	0	SPACE								
1	0	0	0	0	1	! EXCLAMATION POINT								
1	0	0	0	1	0	" QUOTATION MARK								
1	0	0	0	1	1	#								
1	0	0	1	0	0	$								

Table 6-10. LED Bit Pattern

			@					A					B					C				
R_1	R_2	R_3																				
0	0	0	1	1	0	1	1	1	1	0	1	1	0	0	0	0	1	1	0	0	0	1
1	0	0	0	1	0	1	1	1	0	1	0	1	0	1	1	1	0	0	1	1	1	0
0	1	0	0	0	0	1	1	0	1	1	1	0	0	1	1	1	0	0	1	1	1	1
1	1	0	0	1	0	1	1	0	1	1	1	0	0	0	0	0	1	1	1	1	1	1
0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	1
1	0	1	1	1	1	0	1	0	1	1	1	0	0	1	1	1	0	0	1	1	1	0
0	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	0	1	1	0	0	0	1

			D					E					F					G				
R_1	R_2	R_3																				
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1	0	0	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	1	0
0	1	0	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	1	1
1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1
0	0	1	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	0	0
1	0	1	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	1	0
0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0

			H					I					J					K				
R_1	R_2	R_3																				
0	0	0	0	1	1	1	0	1	0	0	0	1	1	1	1	1	0	0	1	1	1	0
1	0	0	0	1	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	1	0	1
0	1	0	0	1	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	0	1	1
1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	0	0	1	1	1
0	0	1	0	1	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	0	1	1
1	0	1	0	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	1	1	0	1
0	1	1	0	1	1	1	0	1	0	0	0	1	1	0	0	0	1	0	1	1	1	0

			L					M					N					O				
R_1	R_2	R_3																				
0	0	0	0	1	1	1	1	0	1	1	1	0	0	1	1	1	0	1	0	0	0	1
1	0	0	0	1	1	1	1	0	0	1	0	0	0	1	1	1	0	0	1	1	1	0
0	1	0	0	1	1	1	1	0	1	0	1	0	0	0	1	1	0	0	1	1	1	0
1	1	0	0	1	1	1	1	0	1	0	1	0	0	1	0	1	0	0	1	1	1	0
0	0	1	0	1	1	1	1	0	1	1	1	0	0	1	1	0	0	0	1	1	1	0
1	0	1	0	1	1	1	1	0	1	1	1	0	0	1	1	1	0	0	1	1	1	0
0	1	1	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	1	0	0	0	1

			P					Q					R					S				
R_1	R_2	R_3																				
0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0
1	0	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	1
0	1	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1	1
1	1	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	1	1	0	0	0	1
0	0	1	0	1	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	1	1	0
1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	1	0
0	1	1	0	1	1	1	1	1	0	0	1	0	0	1	1	1	0	0	0	0	0	1

Table 6-10. LED Bit Pattern
-Continued-

R_1	R_2	R_3	T	U	V	W
0	0	0	0 0 0 0 0	0 1 1 1 0	0 0 1 1 0	0 1 1 1 0
1	0	0	1 1 0 1 1	0 1 1 1 0	0 0 1 1 0	0 1 1 1 0
0	1	0	1 1 0 1 1	0 1 1 1 0	0 0 1 1 0	0 1 1 1 0
1	1	0	1 1 0 1 1	0 1 1 1 0	1 1 1 0 1	0 1 0 1 0
0	0	1	1 1 0 1 1	0 1 1 1 0	1 1 1 0 1	0 1 0 1 0
0	0	1	1 1 0 1 1	0 1 1 1 0	1 1 0 1 1	0 1 0 1 0
0	1	1	1 1 0 1 1	1 0 0 0 1	1 1 0 1 1	1 0 1 0 1

R_1	R_2	R_3	X	Y	Z	Left bracket [
0	0	0	0 1 1 1 0	0 1 1 1 0	0 0 0 0 1	1 0 0 0 1
1	0	0	0 1 1 1 0	0 1 1 1 0	1 1 1 1 0	1 0 1 1 1
0	1	0	1 0 1 0 1	1 0 1 0 1	1 1 1 0 1	1 0 1 1 1
1	1	0	1 1 0 1 1	1 1 0 1 1	1 1 0 1 1	1 0 1 1 1
0	0	1	1 0 1 0 1	1 1 0 1 1	1 0 1 1 1	1 0 1 1 1
1	0	1	0 1 1 1 0	1 1 0 1 1	0 1 1 1 1	1 0 1 1 1
0	1	1	0 1 1 1 0	1 1 0 1 1	1 0 0 0 0	1 0 0 0 1

R_1	R_2	R_3	Slash /	Right bracket]	↑	←
0	0	0	1 1 1 1 1	1 0 0 0 1	1 1 0 1 1	1 1 1 1 1
1	0	0	0 1 1 1 1	1 1 1 0 1	1 0 0 0 1	1 1 0 1 1
0	1	0	1 0 1 1 1	1 1 1 0 1	0 1 0 1 0	1 0 1 1 1
1	1	0	1 1 0 1 1	1 1 1 0 1	1 1 0 1 1	0 0 0 0 0
0	0	1	1 1 1 0 1	1 1 1 0 1	1 1 0 1 1	1 0 1 1 1
1	0	1	1 1 1 1 0	1 1 1 0 1	1 1 0 1 1	1 1 0 1 1
0	1	1	1 1 1 1 1	1 0 0 0 1	1 1 0 1 1	1 1 1 1 1

R_1	R_2	R_3	SPACE	Exclamation Point !	Quotation Mark “	Number Sign #
0	0	0	1 1 1 1 1	1 1 0 1 1	0 0 0 0 1	1 0 1 0 1
1	0	0	1 1 1 1 1	1 1 0 1 1	1 0 1 0 1	0 0 0 0 0
0	1	0	1 1 1 1 1	1 1 0 1 1	0 1 0 1 1	1 0 1 0 1
1	1	0	1 1 1 1 1	1 1 0 1 1	1 1 1 1 1	1 0 1 0 1
0	0	1	1 1 1 1 1	1 1 0 1 1	1 1 1 1 1	0 0 0 0 0
1	0	1	1 1 1 1 1	1 1 1 1 1	1 1 1 1 1	1 0 1 0 1
0	1	1	1 1 1 1 1	1 1 0 1 1	1 1 1 1 1	1 1 1 1 1

R_1	R_2	R_3	Dollar Sign $	Percent %	Ampersand &	Apostrophe ‘
0	0	0	1 1 0 1 1	0 0 1 1 1	1 0 1 1 1	0 0 1 1 1
1	0	0	1 0 0 0 0	0 0 1 1 0	0 1 0 1 1	1 0 1 1 1
0	1	0	0 1 0 1 1	1 1 1 0 1	0 1 0 1 1	0 1 1 1 1
1	1	0	1 0 0 0 1	1 1 0 1 1	1 0 1 1 1	1 1 1 1 1
0	0	1	1 1 0 1 0	1 0 1 1 1	0 1 0 1 0	1 1 1 1 1
1	0	1	0 0 0 0 1	0 1 1 0 0	0 1 1 0 1	1 1 1 1 1
0	1	1	1 1 0 1 1	1 1 1 0 0	1 0 0 1 0	1 1 1 1 1

Table 6-10. LED Bit Pattern
-Continued-

R_1	R_2	R_3	Left Parenthesis (					Right Parenthesis)					Asterisk *					Plus Sign +				
0	0	0	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1
1	0	0	1	1	0	1	1	1	1	0	1	1	1	1	0	1	0	1	1	0	1	1
0	1	0	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	1	1
1	1	0	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0
0	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1
1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1
0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1

R_1	R_2	R_3	Comma ,					Minus Sign -					Period .					Slash /				
0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
1	1	0	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	1	1
0	0	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1
1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1	1	1
0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

R_1	R_2	R_3	0					1					2					3				
0	0	0	1	0	0	0	1	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0
1	0	0	0	1	1	1	0	1	0	0	1	1	0	1	1	1	0	1	1	1	1	0
0	1	0	0	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1
1	1	0	0	1	0	1	0	1	1	0	1	1	1	1	0	1	1	1	1	0	0	1
0	0	1	0	0	1	1	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	0
1	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0
0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1

R_1	R_2	R_3	4					5					6					7				
0	0	0	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1	0	0	1	1	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0
0	1	0	1	0	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1
1	1	0	0	1	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1
0	0	1	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	1	0	1	1	1
1	0	1	1	1	1	0	1	0	1	1	1	0	1	1	1	0	0	1	0	1	1	1
0	1	1	1	1	1	0	1	1	0	0	0	1	0	0	0	1	1	1	0	1	1	1

R_1	R_2	R_3	8					9					Colon :					Semi-Colon ;				
0	0	0	1	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1
0	1	0	0	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1
1	1	0	1	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
0	0	1	0	1	1	1	0	1	1	1	1	0	0	0	1	1	1	1	0	0	1	1
1	0	1	0	1	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	0	1	1
0	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1

Table 6-10. LED Bit Pattern
-Continued-

R_1	R_2	R_3	Less Than <					Equal =					Greater Than >					Question Mark ?				
0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1
1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0
0	1	0	1	1	0	1	1	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0
1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1
0	0	1	1	1	0	1	1	0	0	0	0	0	1	1	0	1	1	1	1	0	1	1
1	0	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1

transferred to the last (eight) 4-bit register (the LSD register), and bit 5 being loaded into flip-flop H. The least-significant 4 bits of the MSD are in the first 4-bit shift register; its MSG is in flip-flop A.

b. The 40-bit shift into the display module register occurs as follows: MOD 40 CNTR1 goes high and both multiplexers switch to the B inputs, configuring the 4-bit shift registers and latches as a continuous, 4-bit shift register. Additionally, the 4-MHz clock to the shift registers, flip-flops, and display module serial register are all enabled by the 40-bit-wide gate. At the trailing edge of the 40-bit gate, line 2 into the LED lockout gates and drivers goes high. This circuit works identically with the circuit shown on figure 6-29, with line 1 enabling the top 40 LED's (which have grounds in the serial register). This process is repeated seven times in order to display characters.

6-26. Display Timing (fig. 6-30 and 6-31). The display timing synchronizes reading and loading of the refresh memory with the display of TOD and FU data. Not all the timers involved are shown on figure 6-30; the timers in memory entry, clock multiplexer, and clock and master reset are also involved. A knowledge of data organization and display operation requirements aids in understanding the operation. The information in figure 6-32 and table 6-11 may also help.

a. Mod-9a Counter. The mod-9a counter (which is free-running) generates the 0.444-MHz clock to the refresh memory (MOD 9, DEC 0), the load gates that load the parallel-to-serial 5-bit character data, the gates that serially load the data into the display registers, and the synchronizing pulses that start the mod-8 counter in memory entry drives the 1-to8 multiplexer. The timing chart illustrates the synchronization of flip-flops 1 and 2 set enable which control the alternate loading of the two parallel-to-serial data registers.

b. Mod-9b Counter. The mod-9b counter is enabled by switch gate enable (PJ250K), which is the mod-16 TC pulse, and mod-9a, DEC 3. The mod-9b counter generates an enable that parallel-loads the 8 bytes of TOD data into the parallel-to-serial register. The mod-9b clock is gated on seven times per memory-read cycle, and each time it resets, it enables the mod-4o counter (PG72A0V high).

c. Mod-40 Counter. The mod-40 counter generates an enable (PJ290J) 40 clocks wide. This gate allows the 40 bits of TOD data in the parallel-to serial register to be toggled into the TOD display register.

d. Mod-6A Counter. The mod-6A counter is clocked by the MOD 9, DEC 8 output of the used 9A counter. This counter counts six bytes read from refresh memory, which is the number of characters that must be loaded in each row of the display matrix. The mod-6 counter resets after 48 bytes have been output (equals 54 clocks). When it resets, it outputs PG75A0V, which is the equivalent of a subframe marker. The mod-6A counter helps clock the mod-7 counter.

e. Mod-4a Counter. The mod-4a counter counts to 4 and shuts off each time it is enabled by MOD 9, DEC 8. This 4-bit gate offsets the problem of loading the FU data registers.

f. Mod-18 Counter. The mod-18 counter is made up of mod-4b and mod-14 clocks. The mod-4b is enabled by PG13A0V, which is the reset pulse from the mod-27 counter in the memory entry logic. The mod-4b clock counts to four and resets. The reset starts the mod-14 clock, which counts to 14 and

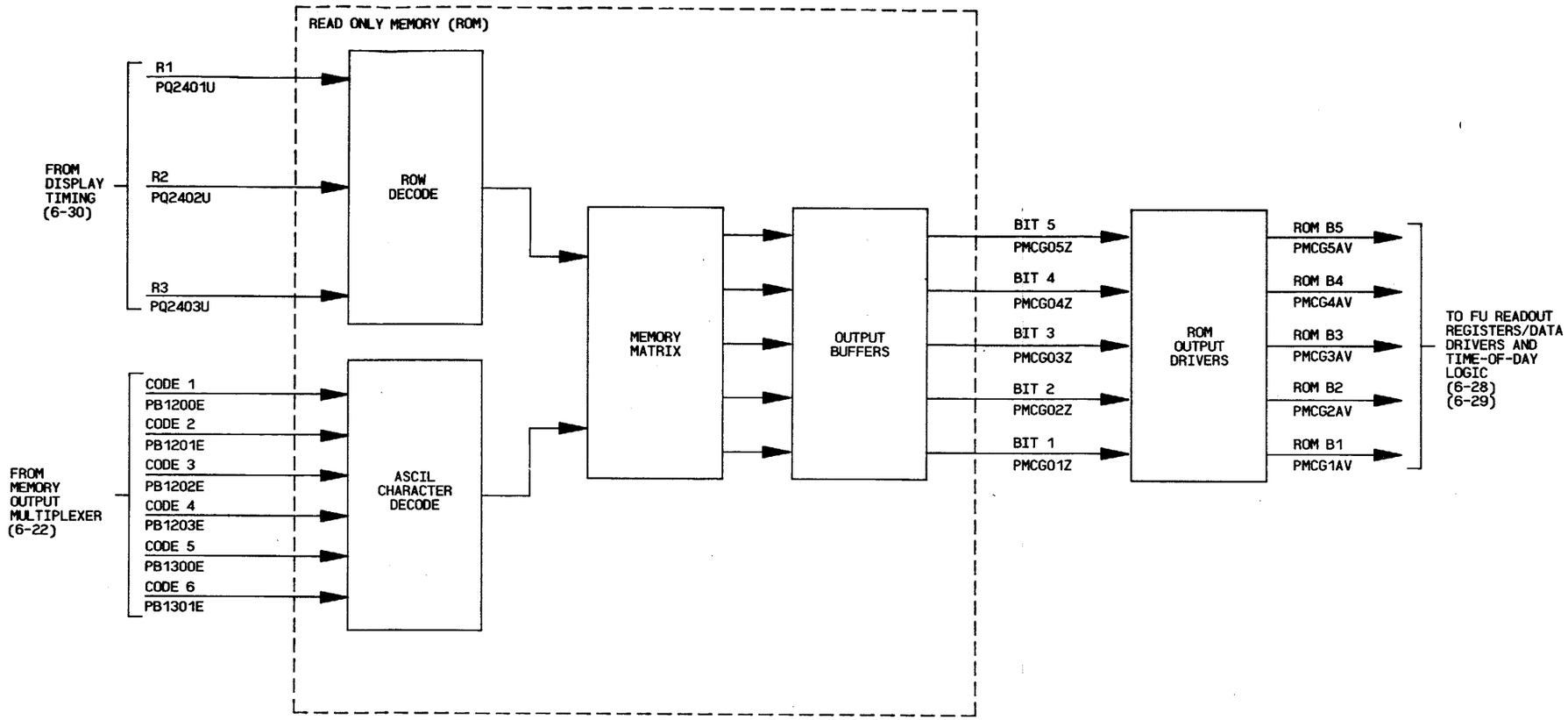

Figure 6-24. Display Character Generator Block Diagram

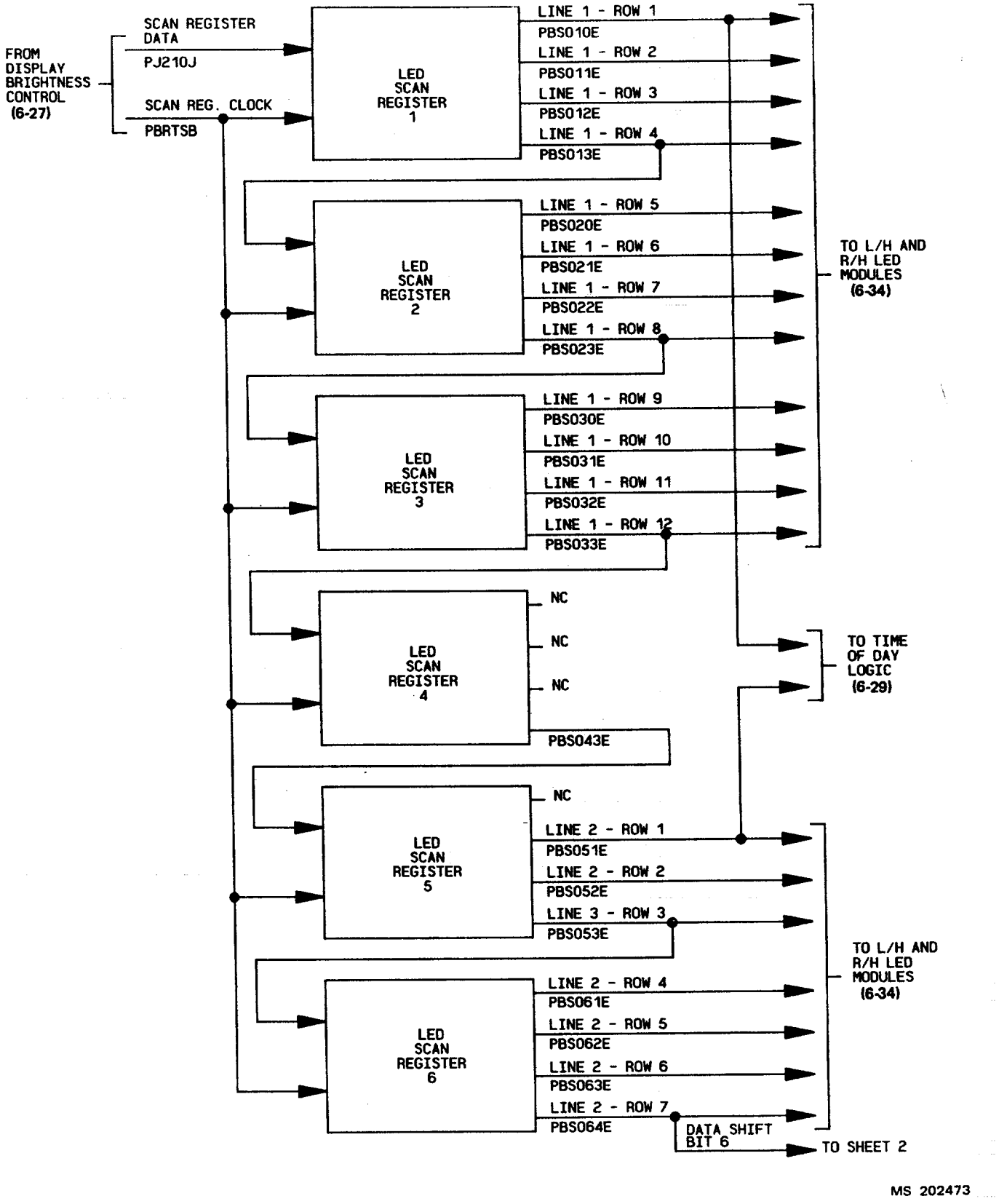

Figure 6-25. Display Scan Register Functional Block Diagram (Sheet 1 of 5)

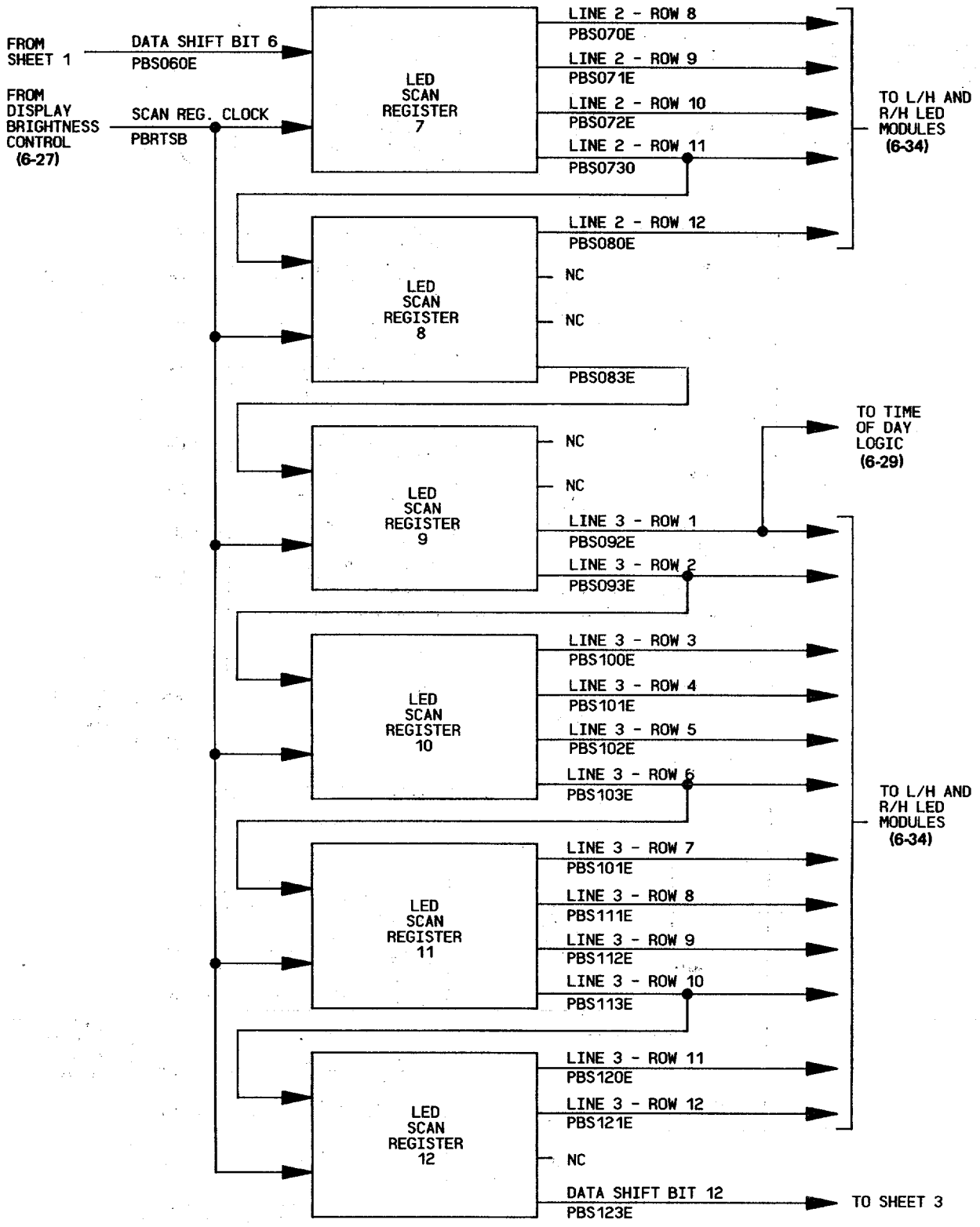

Figure 6-25. Display Scan Register Functional Block Diagram (Sheet 2 of 5)

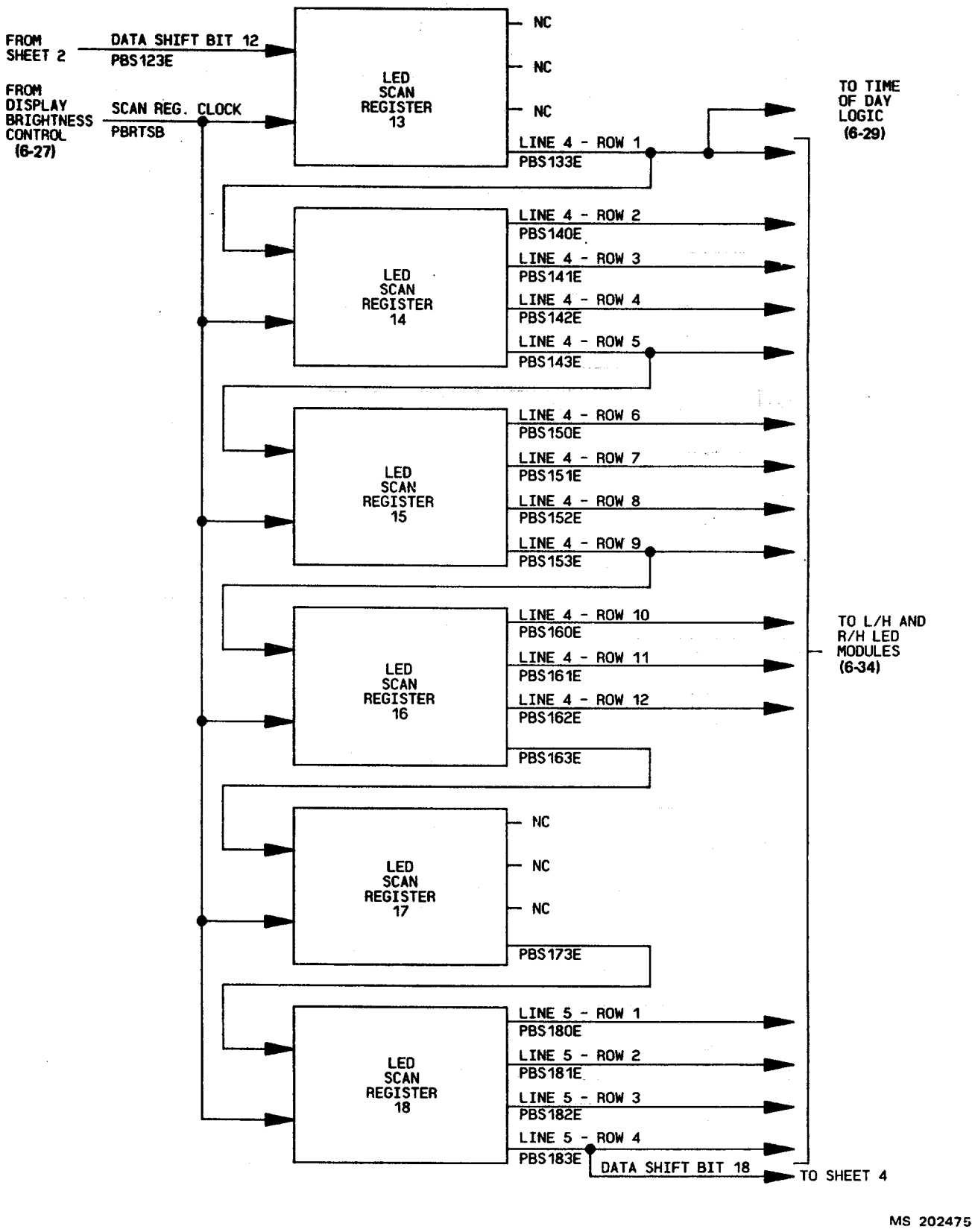

Figure 6-25. Display Scan Register Functional Block Diagram (Sheet 3 of 5)

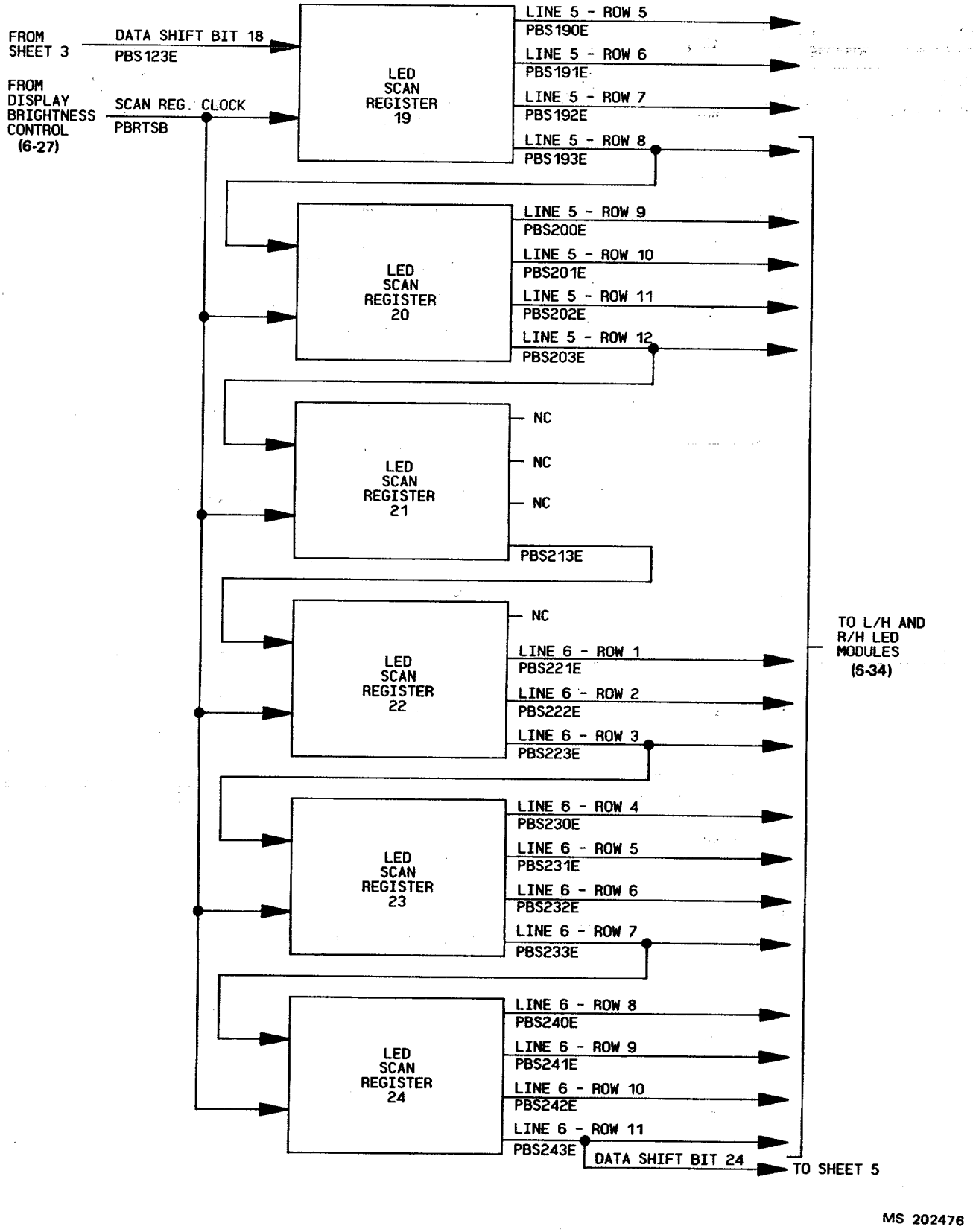

Figure 6-25. Display Scan Register Functional Block Diagram (Sheet 4 of 5)

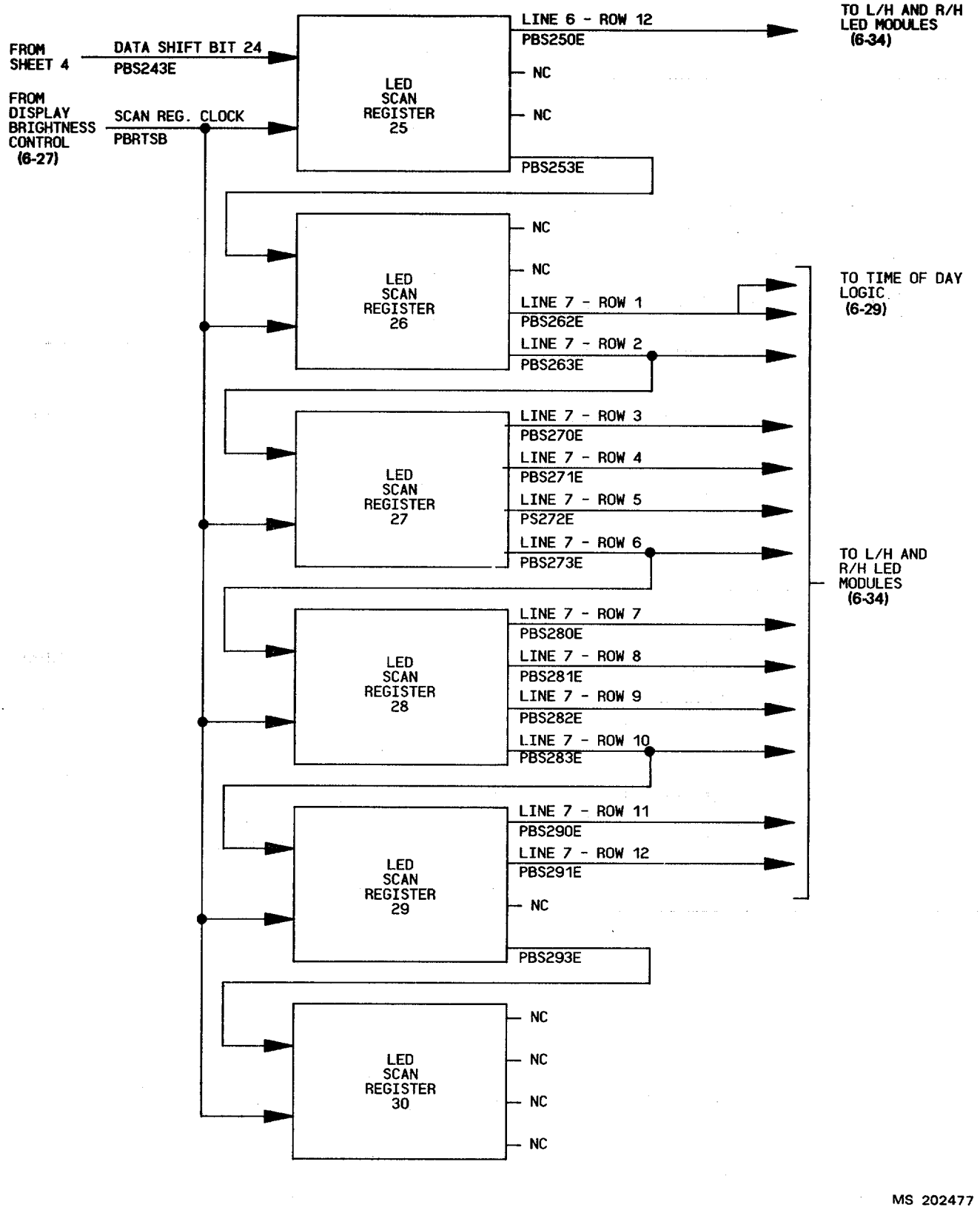

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Figure 6-25. Display Scan Register Functional Block Diagram (Sheet 5 of 5)

resets. The reset (PINCP0) from mod-14 goes to the memory entry logic and initializes the mod-8 counter in that circuit.

g. Mod-7 Counter. The mod-7 counter counts the number of character lines loaded in the display (equals the number of times the memory is read). It is clocked when PP1540V and PS250K are coincidental. PS250K is high when the mod-16 counter in the clock multiplexer resets at count 16.

6-27. LED Module Detailed Description (fig. 6-33). The LED module is a microcircuit containing a 15-bit shift register and a 5-x-7 matrix of LED's. The module provides a three-character alphanumeric display for each character using a 5-x-7 section of the matrix. The three characters are addressed and selected simultaneously.

a. LED Matrix Arrangement. The LED matrix is arranged so that the anodes on the LED's of the horizontal rows are connected to seven common buses. These buses are called lines and are used to select one of the seven rows of the three characters. The cathodes on the LED's of the vertical columns are connected to 15 common buses. These buses (LED columns) are each connected to one of the parallel outputs of the shift register.

b. Load and Display. Character data (6 characters x 5 bits = 30 bits) is shifted serially into the shift register from the character generator. This data represents the first line of data for each of the six characters. Those outputs of the shift register that are logic zero will ground all LED cathodes in that LED column. Line one is now selected (logic ONE), raising all the anodes of the LED's in that row to + 5V. Only those LED's in line one that were enabled will light. Line one is returned to logic ZERO and new data is shifted into the shift register (representing line two), replacing the previous data. Line two is now selected and the LED's in line two that have been enabled will light. This process of shift-enabling and selecting (DISPLAY CYCLE) continues until all seven lines have been consecutively selected.

c. DDG LED Module Panel (fig. 6-34). The LED module display panel consists of a right-hand assembly and a left-hand assembly. Each assembly contains 96 LED modules arranged in a matrix of 8 vertical columns and 12 horizontal rows. The vertical columns are divided into four sections, each section containing two columns. The LED modules are identified according to their location in the matrix. The first two numbers denote the column, and the last number denotes the row. Therefore: LED XA073 would be located in the seventh row (07), third column (3). The LED modules in the right-hand and left-hand assemblies are identically numbered and are identified on the logic drawings by LH (left-hand) and RH (right-hand).

d. LED Right-hand and Left-hand Modules (fig. 6-34). The LED left-hand and right-hand modules show how data, clocks, and enable gates are routed to the LED matrix which forms the data display. The functional block diagram (fig. 6-35) depicts only the top and second row of both displays. Figure 6-35 shows inputs to rows I and 2 of columns 1 thru 8, and provides a signal cross-reference showing the combination of inputs required for loading and lighting the required lines of LED's.

(1) Functionally, figure 6-35 consists of the LED row lockout gates, the LED row drivers, and the LED modules. Operation of the individual LED modules is also explained on figure 6-35. The LED row lockout gates function as toggle switches to provide even LED lighting. The LED row drivers furnish 5 vdc to the line of 120 LED's, aiding even lighting.

(2) The LED module functions as follows. Serial input LED shift data is clocked into the four LED shift registers as four 30-bit words. The four shift-register clocks are enabled only for 30 bits when the 30th bit is loaded. Line 1 from the display scan register goes high, causing grounded clocks to light. The four 30-bit words for line 1 of row 2 are clocked in and the power is applied to the diode-line for line 1 of row 2. This operation is repeated until line 1 of row 12 is lighted. Following this, line 2 of all rows are loaded and lighted; and so on until all the rows have been loaded and lighted. The entire load/display sequence requires 150 ms or less.

6-28. Clocking/Master Reset Detailed Description (fig. 6-36 and fig. 6-37). The following paragraphs describe the clocking/master reset.

a. Oscillator Section. The Oscillator section contains a crystal controlled, modified Hartley oscillator which generates the 16-MHz master clock signal. This signal is divided by 2 and 4 to produce the 8-MHz and 4-MHz clocks, respectively. The oscillator board includes the MASTER RESET

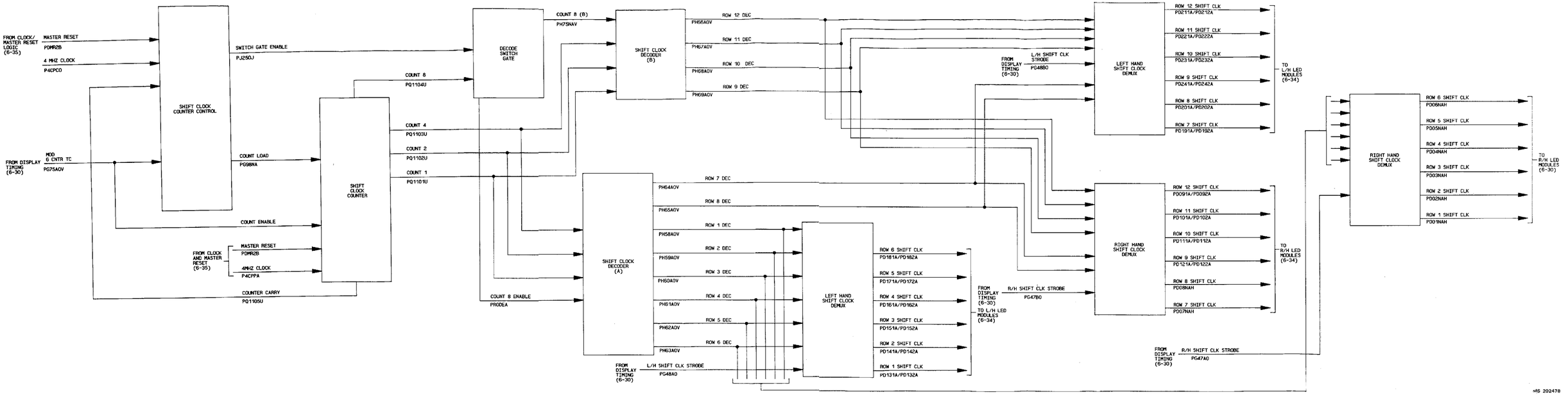


Figure 6-26. Clock Demultiplexer Block Diagram

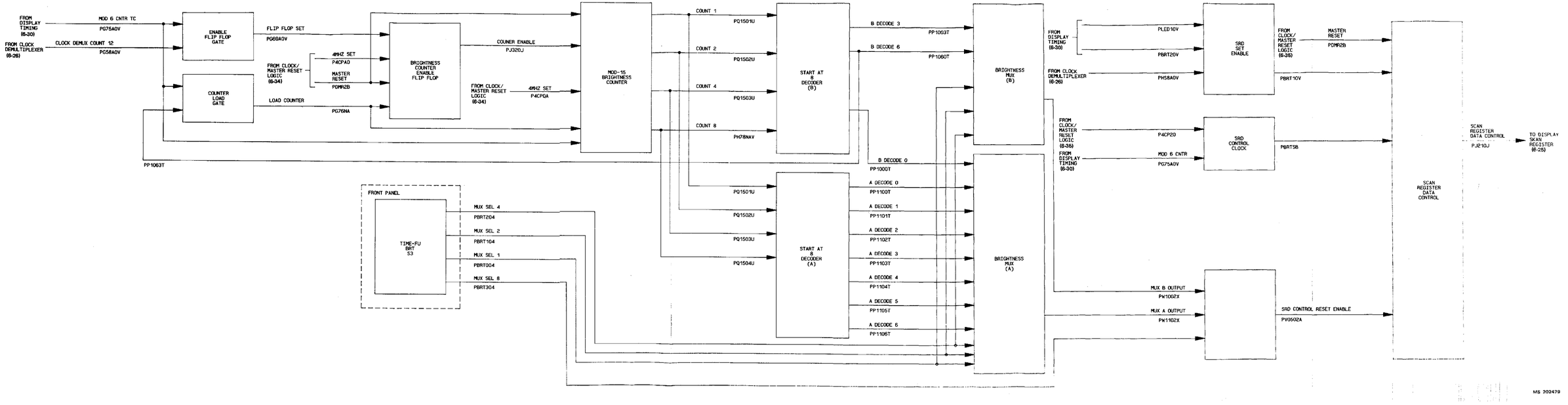


Figure 6-27. Output Display Brightness Control Block Diagram

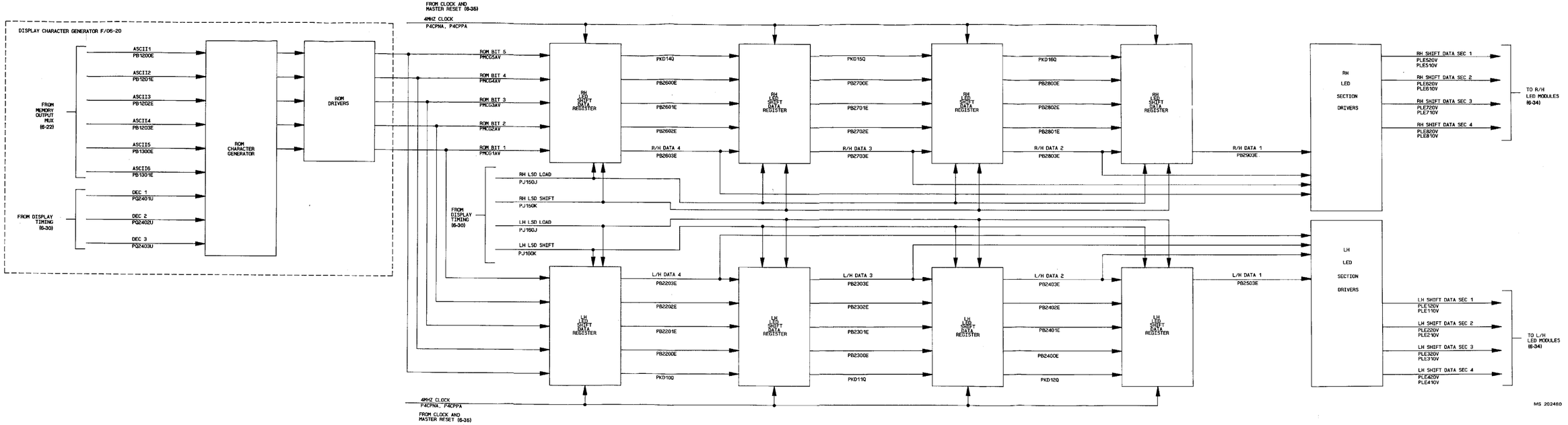


Figure 6-28. FU Readout/Data Drivers Block Diagram

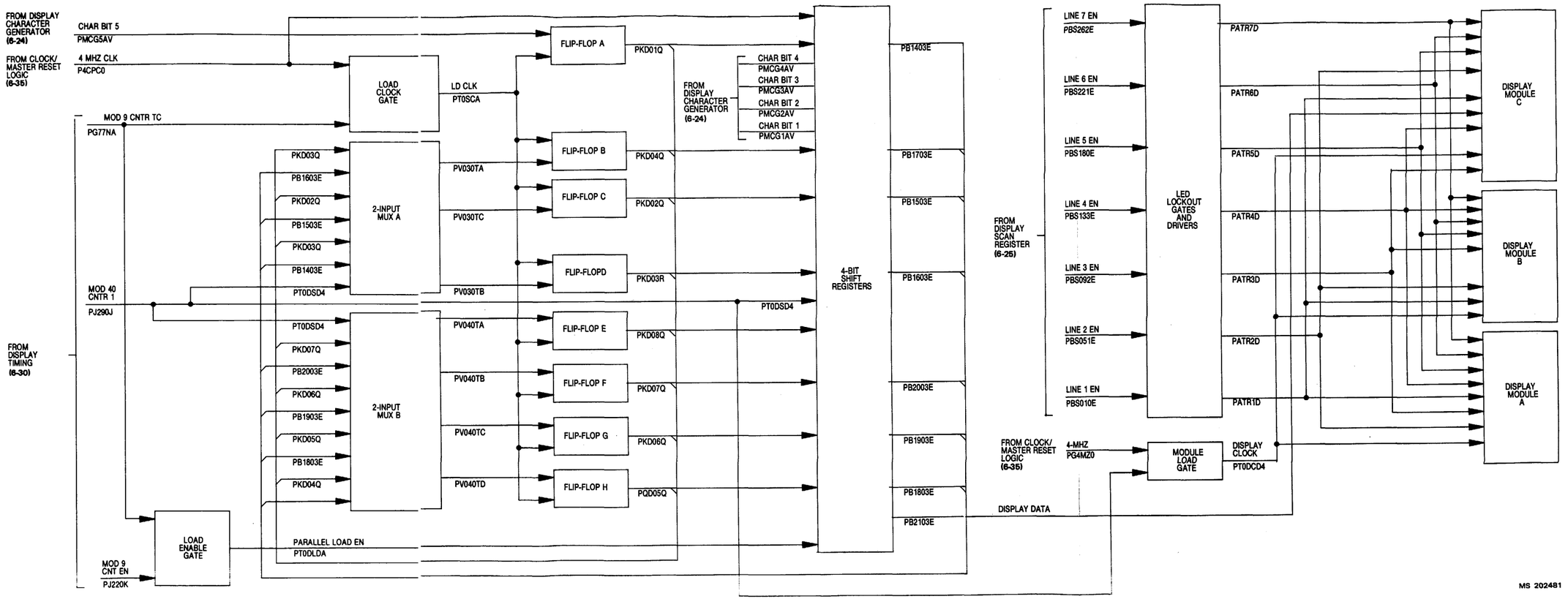


Figure 6-29. Time-of-Day Logic Block Diagram

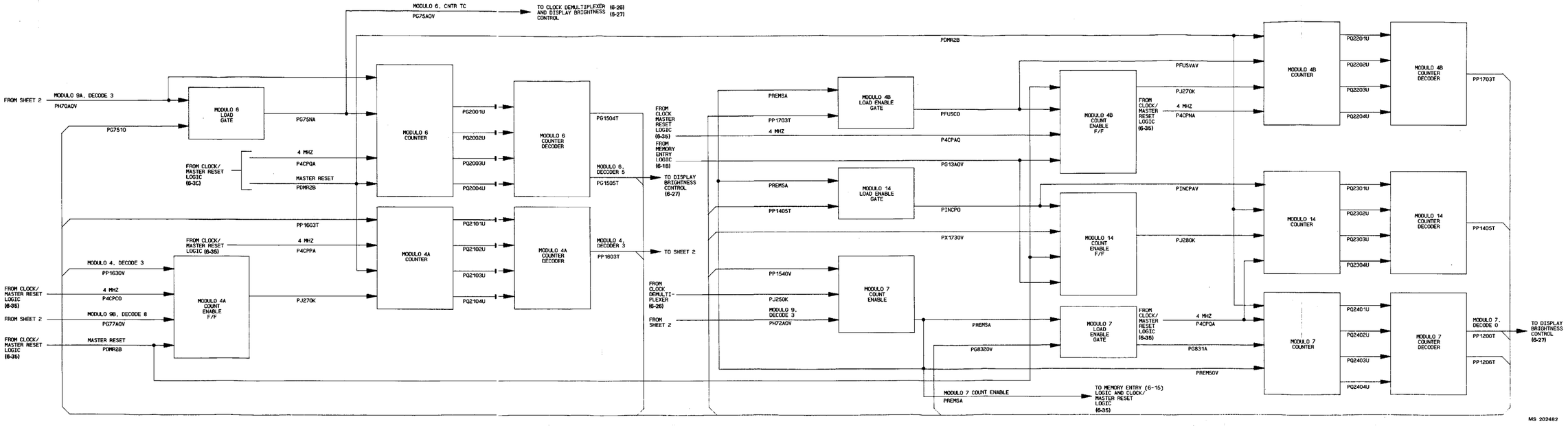


Figure 6-30. Display Timing Block Diagram (Sheet 1 of 2)

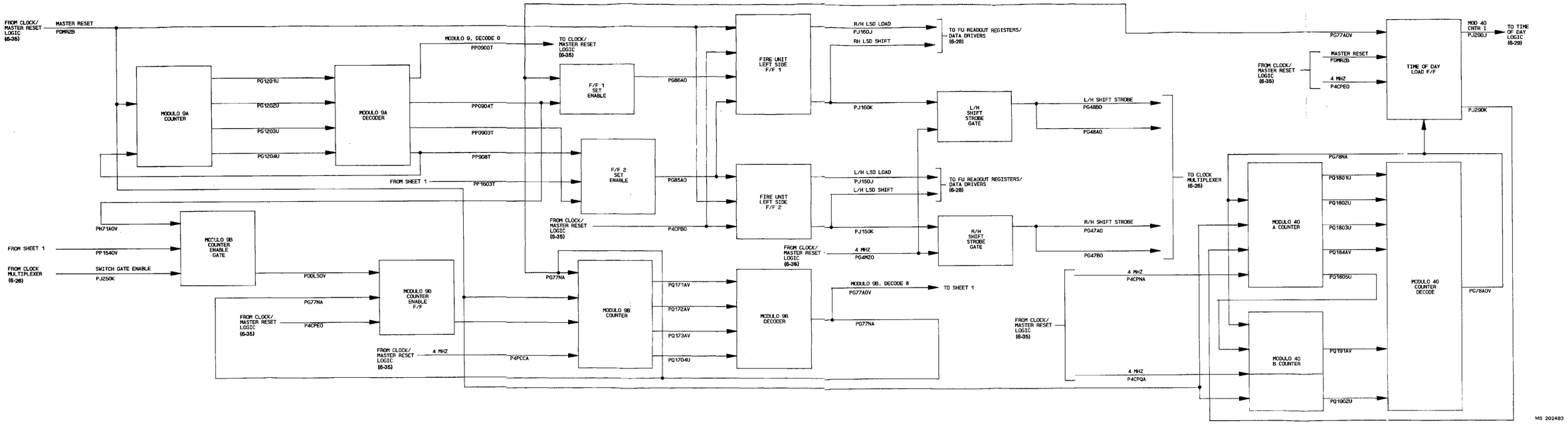
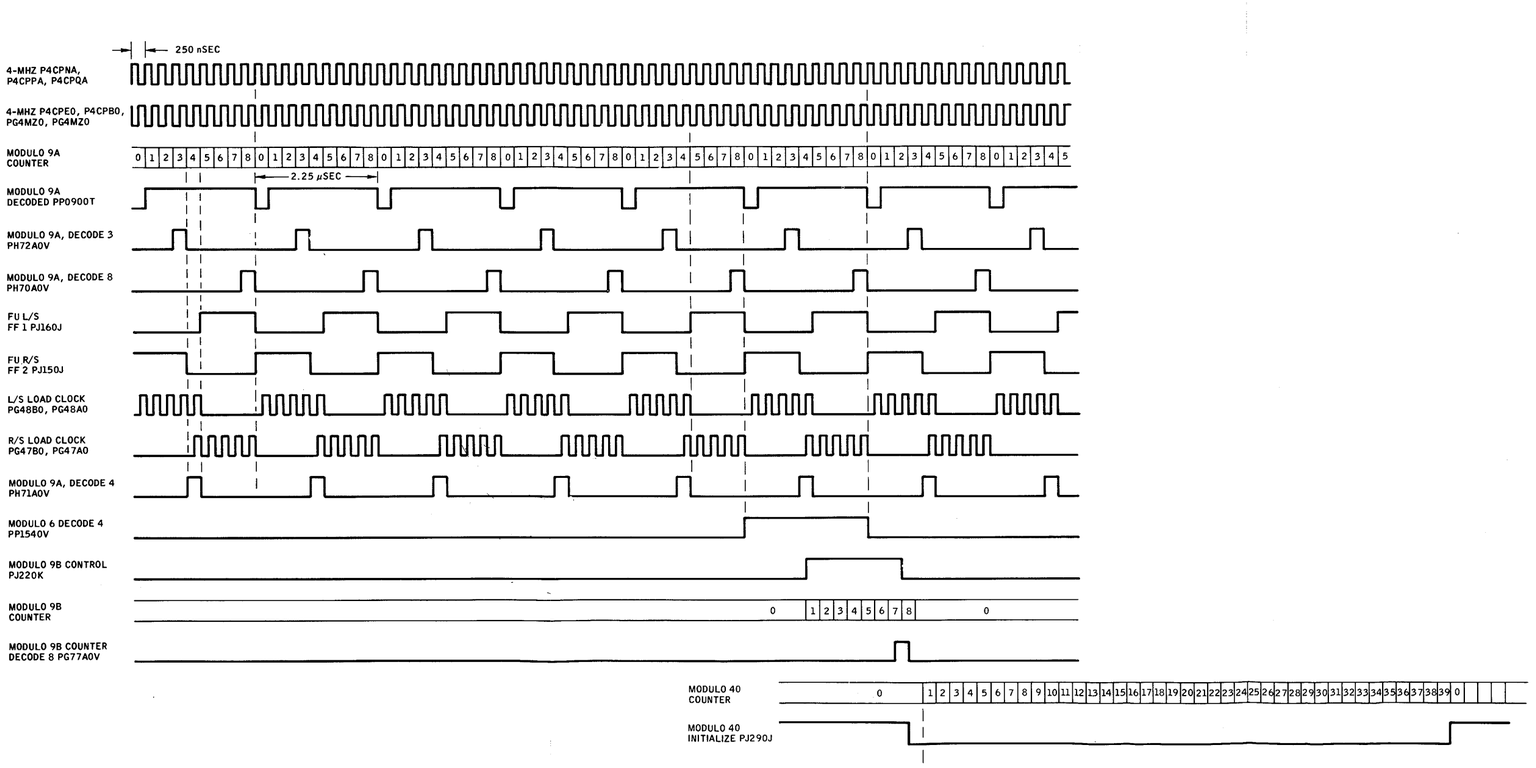


Figure 6-30. Display Timing Block Diagram (Sheet 2 of 2)

6-181/(6-182 blank)



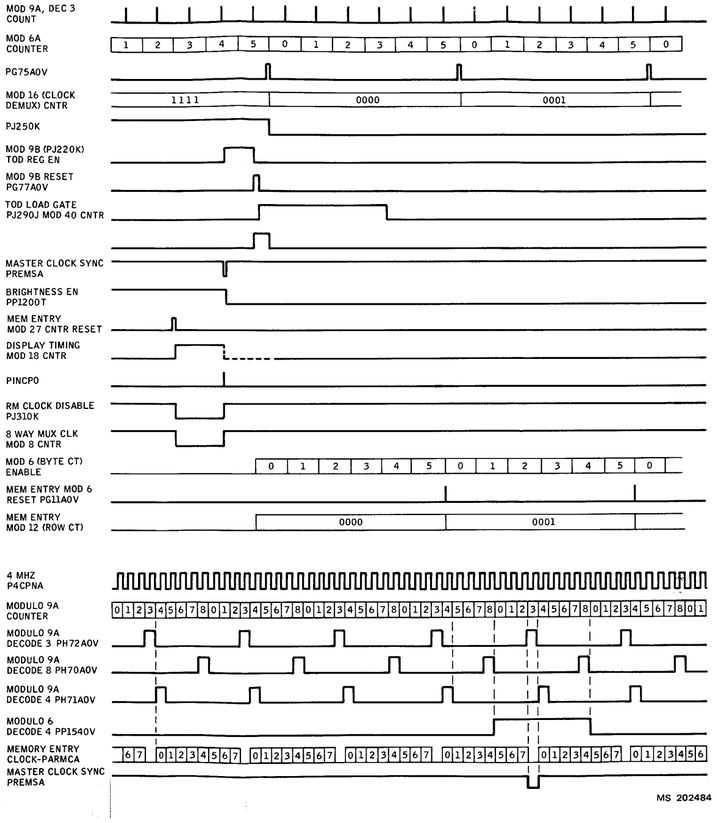


Figure 6-31. Display Timing Diagram

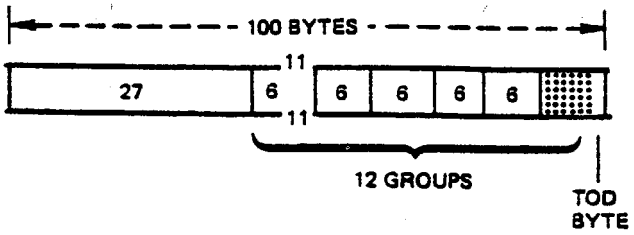


Figure 6-32. MOD-27 Diagram

latch circuit, which generates the MASTER RESET signal when dc power is applied to the DDG (Power On = low).

b. Buffer Clock Generator. The buffer clock generator divides the 16 MHz by 5 to produce a 5.33-MHz BUFFER CLOCK signal. This 187-ns clock is required for signal interfacing between the DDG and the ADPE.

c. Clocks. The 8-MHz and 4-MHz clocks are shaped and powered by the CLOCK GENERATOR section. The clock signals are used by the DDG for internal clocking and timing. The left row clock pulse generator supplies the clocks to the 100-bit shift registers in the memory entry logic (fig. 6-18) and the shift clocks for the memory output multiplexing (fig. 6-22) are supplied by the memory clock pulse generator.

d. Test Set Control. The test set control section, when activated by the TEST SET ENABLE signal, generates test data and test clocks used in various sections of the DDG during the test mode. The test set control driver provides driving capabilities for these signals.

Table 6-11. Refresh Memory Organization

Clock required	Function
Mod 8	Drives 1-to-8 multiplexer
Mod 6	Counts bytes in refresh memory
Mod 12	Counts rows (6-byte groups in refresh memory)
Mod 27	Counts non-data bytes in refresh memory
Mod 40	Loads TOD data in display shift register
Mod 16	Gates character data to rows in display matrix
Mod 9a	Loads 5-bit parallel-load data into shift register, transfer serial data to display generator 0.444 MHz-clock to drive refresh memory
Mod 9b	Parallel-loads TOD data into p/s register
Mod 7	Counts number of times memory is read
Mod 18	Sets a delay at end of memory read gate

Section IV. POWER DISTRIBUTION

6-29. Data Display Group Power Distribution (fig. 6-38). The DDG power distribution circuits consist of primary power, low-voltage distribution, an MTS interface card, and DDG power fault-monitoring.

a. Primary Power. Primary power for the DDG is provided by the system power cabinet. It includes complimentary + 135v and -135v, referenced to dc center tap (common), and single-phase, 120-vac, 400-Hz referenced to neutral (common to safety or frame ground) through the power cabinet. The STATUS BOARD circuit breaker, CB27, in the power cabinet, 1A2, turns on primary power. When two DDG's are in use, power for both is controlled by CB27.

(1) Power of + 135v and -135v is supplied to dc/dc converters PSI and PS2 to supply + 5v and Ov logic levels to the left-hand and right-hand card cages, respectively, of the DDG. In addition, PS2, when energized, supplies a + 34.5v relay voltage to energize K1 in the air-circulation blower circuit of B1 and cause 120-vac, 400-Hz power to be applied to B 1. Converters PS1 and PS2 are energized when POWER switch S2 on control panel Al of the DDG is set to the on position (UP).

(2) Ac power is used solely for fan assembly B1. The fan assembly, part of the DDG cooling system, circulates the air from an external ventilation system.

b. Low-Voltage Distribution. Low-voltage distribution consists of low voltage outputs from dc/dc converters PS1 and PS2. Refer to the detailed power distribution diagram (fig. 6-38) for power interconnections.

(1) For card cage distribution, + 5v and + 5v common (digital and analog ground) are shown as common buses; these buses are insulated voltage and ground planes which form the backplane. Converters PS1 and PS2 are identical and contain five independent power supplies and a logic control circuit.

(2) The dc/dc converters contain transformer-coupled, floating power supplies which can be used for positive or negative voltage. These voltage supplies include a 5.0v, an 8.0v, two 15v, and 34.5v sources.

(3) The DDG left-hand dc/dc converter, PS1, supplies + 5v, + 15v, -15v, and 8v outputs. The + 5v supplies the logic voltage for the left and right-hand card cage assemblies and the left-hand module array.

(4) The + 15v and -15v supplies develop the +12v and -12v regulated outputs for the logic circuitry. The -12v regulated output is developed in A1210 of the left-hand card cage assembly. The -12v regulated output is obtained from series regulator No. 2 of A4.

(5) A regulated -5v output (-0.5 vdc) is obtained from series regulator no. 1 of A4, which is supplied by the -8 vdc output of PS1.

(6) The 34.5v power supply output of PS2 is used as the blower control voltage.

(7) The + 5v and -5v outputs of PS2 augment the logic level voltages supplied to the right-hand card cage assembly and the right-hand module array.

c. Power Fault-Monitoring. Power status is monitored at the DDG front panel. Ports cut in the DDG front panel provide viewing access to the fault lamps (INT and EXT) mounted on the PS1 and PS2 assemblies. On the left, the FAULT indicator indicates that a fault exists in series regulator A4 or left-hand power supply PSI, On the right, the FAULT indicator indicates that a fault only exists in right-hand power supply PS2. The A4 fault indication is a result of the monitoring, after regulation, of the -8v and -15v PS1 voltage outputs. These outputs available at PS2 are not used by the DDG.

d. Lamp. Testing. The LAMP TEST switch on the DDG front panel permits testing status of all pertinent DDG indicators, including the INT and EXT power supply fault indicators, e. MTS Interface Card. The MTS interface card is installed in card slot A2A1120 of the left-hand card cage assembly. When the MTS interface card is installed, + 5v pullup resistor voltages, + 5v power for controls and indicators, and + 12v for 16bit shift registers are provided. When the MTS is used for an in-system test, the MTS interface card is removed and the MTS umbilical cable W210 is inserted in the card slot. This allows the MTS to provide isolated power, timing, and control logic for test purposes.

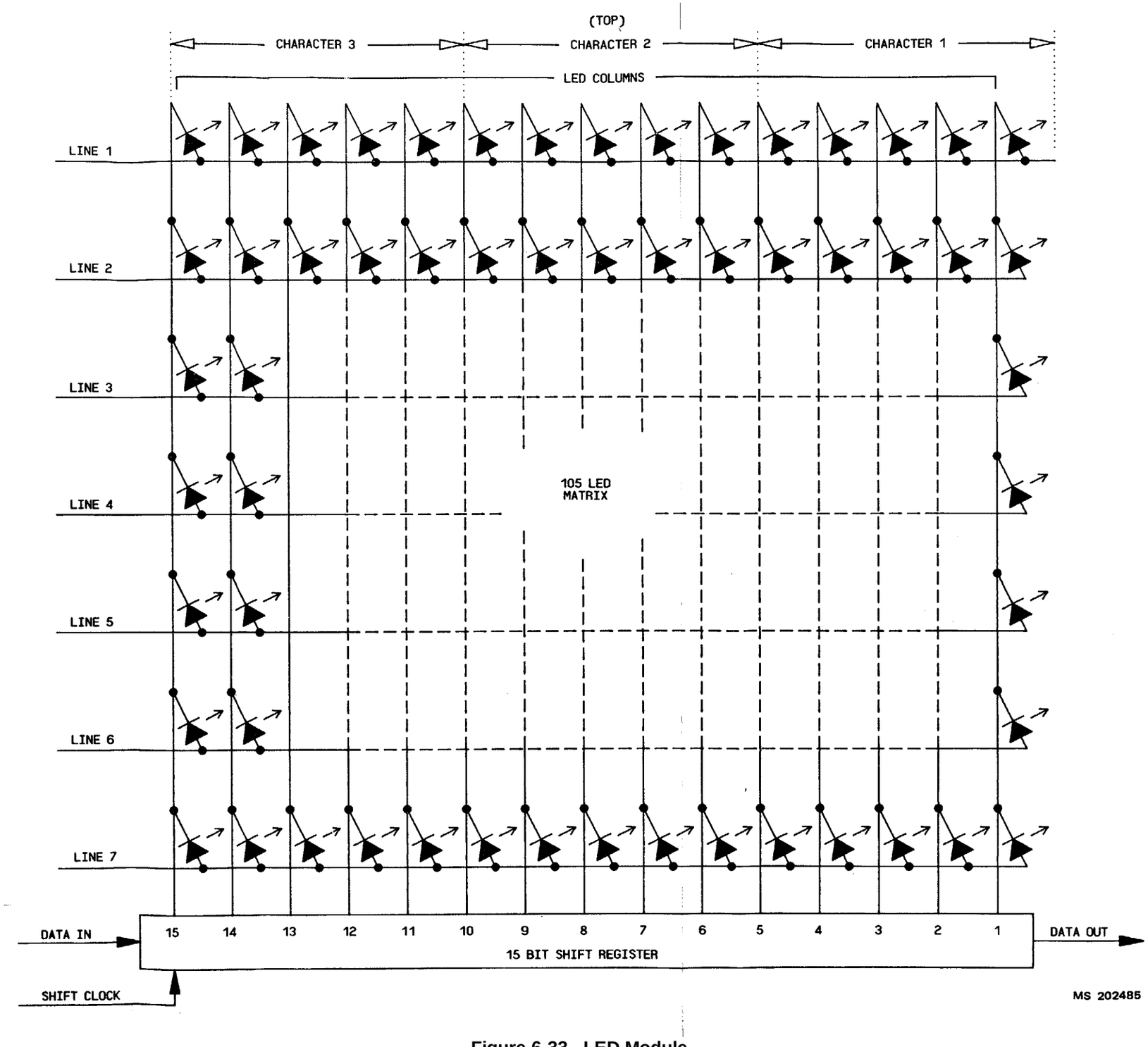


Figure 6-33. LED Module

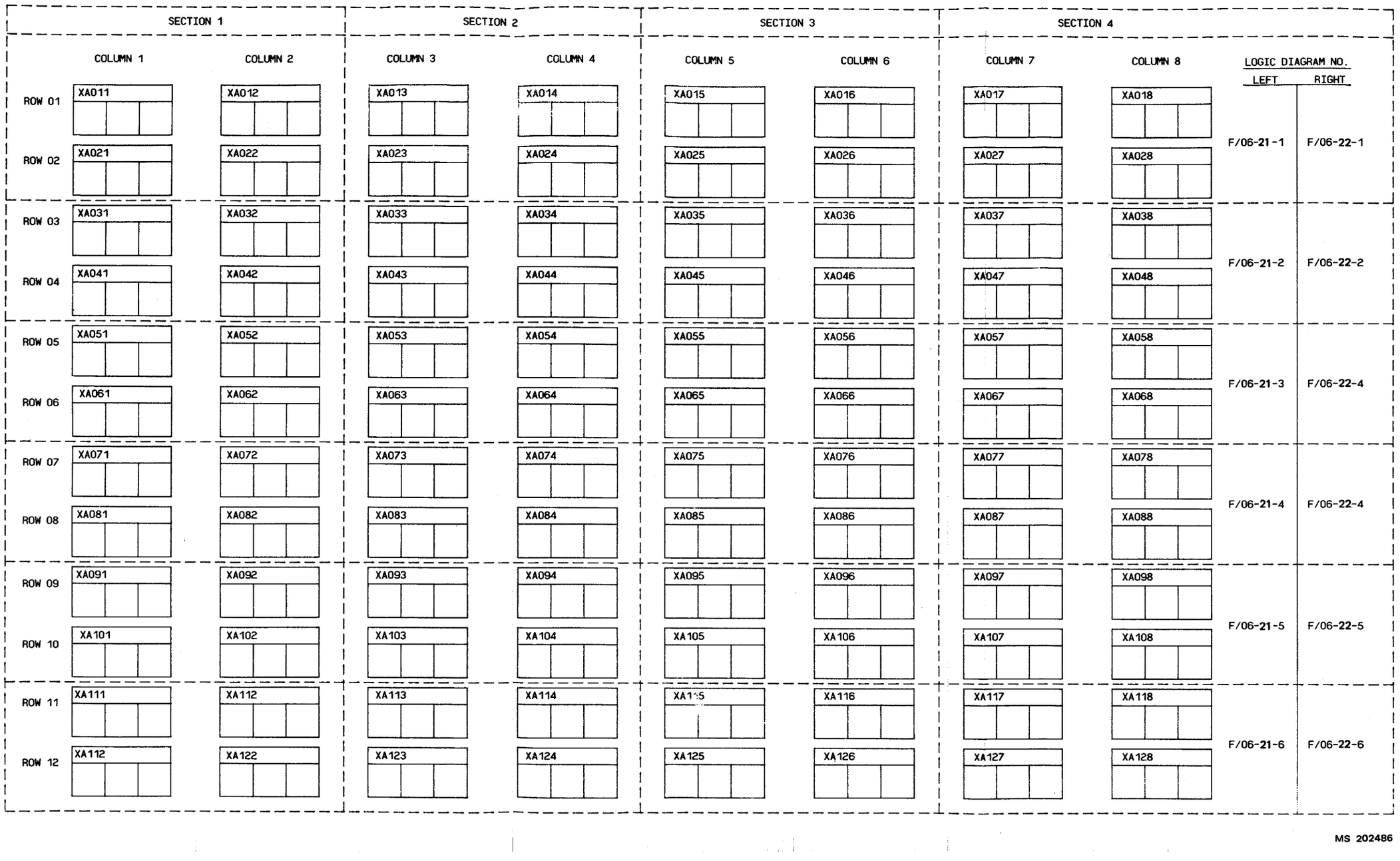
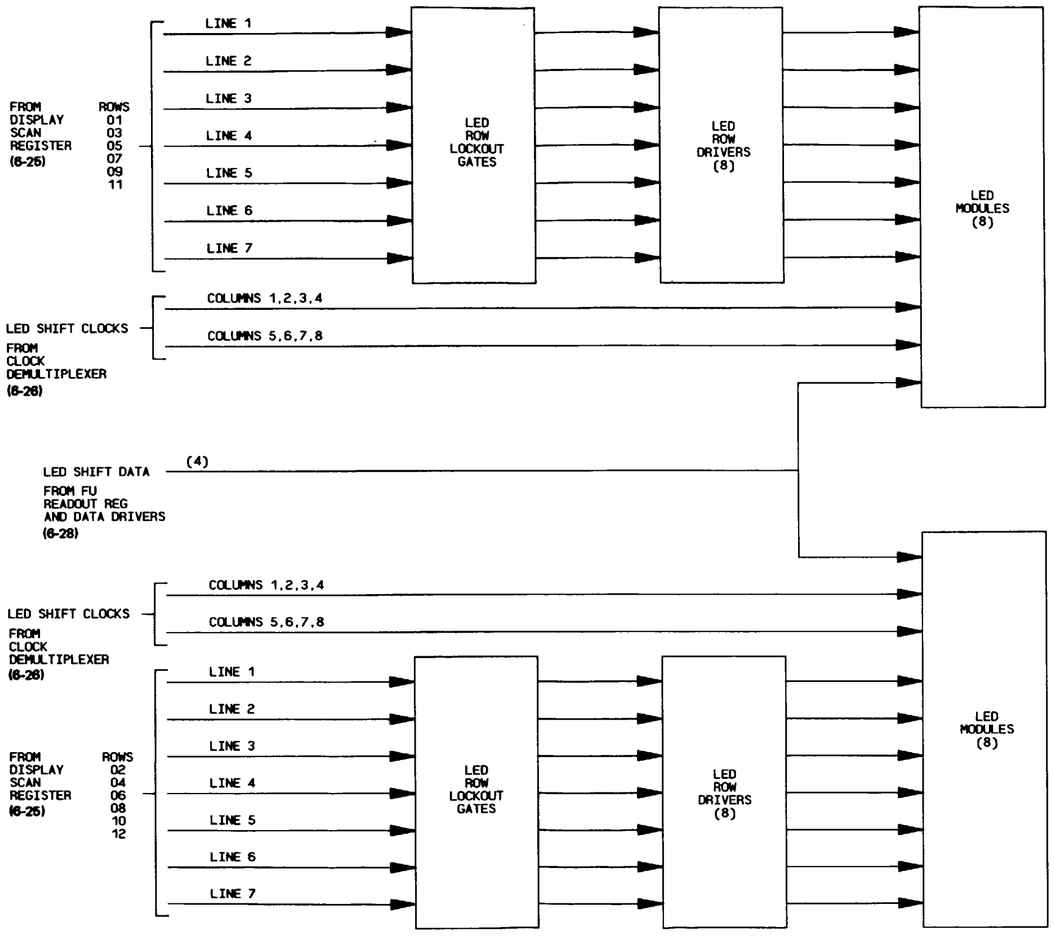


Figure 6-34. LED Module Panel



LED MODULES INPUT MNEMONICS

LED ROW DRIVERS

	ROW 01	ROW 02	ROW 03	ROW 04	ROW 05	ROW 06	ROW 07	ROW 08	ROW 09	ROW 10	ROW 11	ROW 12
LINE 1	PBS010E	PBS011E	PBS012E	PBS013E	PBS020E	PBS021E	PBS022E	PBS023E	PBS030E	PBS031E	PBS032E	PBS033E
LINE 2	PBS051E	PBS052E	PBS053E	PBS060E	PBS061E	PBS062E	PBS063E	PBS070E	PBS071E	PBS072E	PBS073E	PBS080E
LINE 3	PBS092E	PBS093E	PBS100E	PBS101E	PBS102E	PBS103E	PBS110E	PBS111E	PBS112E	PBS113E	PBS120E	PBS121E
LINE 4	PBS133E	PBS140E	PBS141E	PBS142E	PBS143E	PBS150E	PBS151E	PBS152E	PBS153E	PBS160E	PBS161E	PBS162E
LINE 5	PBS180E	PBS181E	PBS182E	PBS183E	PBS190E	PBS191E	PBS192E	PBS193E	PBS200E	PBS201E	PBS202E	PBS203E
LINE 6	PBS221E	PBS222E	PBS223E	PBS230E	PBS231E	PBS232E	PBS233E	PBS240E	PBS241E	PBS242E	PBS243E	PBS250E
LINE 7	PBS262E	PBS263E	PBS270E	PBS271E	PBS272E	PBS273E	PBS280E	PBS281E	PBS282E	PBS283E	PBS290E	PBS291E

LED SHIFT DATA

	SECTION 1 COLUMNS 1 AND 2	SECTION 2 COLUMNS 3 AND 4	SECTION 3 COLUMNS 5 AND 6	SECTION 4 COLUMNS 7 AND 8	
ROWS 01, 02, 03, 04, 05, 06	PLE120	PLE220	PLE320	PLE420	LEFT HAND CARD CAGE
ROWS 07, 08, 09, 10, 11, 12	PLE110	PLE210	PLE310	PLE410	
ROWS 01, 02, 03, 04, 05, 06	PLE520	PLE620	PLE720	PLE820	RIGHT HAND CARD CAGE
ROWS 07, 08, 09, 10, 11, 12	PLE510	PLE610	PLE710	PLE810	

LED SHIFT CLOCKS

	ROW 01	ROW 02	ROW 03	ROW 04	ROW 05	ROW 06	ROW 07	ROW 08	ROW 09	ROW 10	ROW 11	ROW 12	
COLUMNS 1,2,3,4	PD131A	PD141A	PD151A	PD161A	PD171A	PD181A	PD191A	PD201A	PD211A	PD221A	PD231A	PD241A	LEFT HAND CARD CAGE
COLUMNS 5,6,7,8	PD132A	PD142A	PD152A	PD162A	PD172A	PD182A	PD192A	PD202A	PD212A	PD222A	PD232A	PD242A	
COLUMNS 1,2,3,4	PD01NAH	PD02NAH	PD03NAH	PD04NAH	PD05NAH	PD06NAH	PD07NAH	PD08NAH	PD091A	PD101A	PD111A	PD122A	RIGHT HAND CARD CAGE
COLUMNS 5,6,7,8									PD092A	PD102A	PD112A	PD121A	

Figure 6-35. LED R/H and L/H Modules Block Diagram

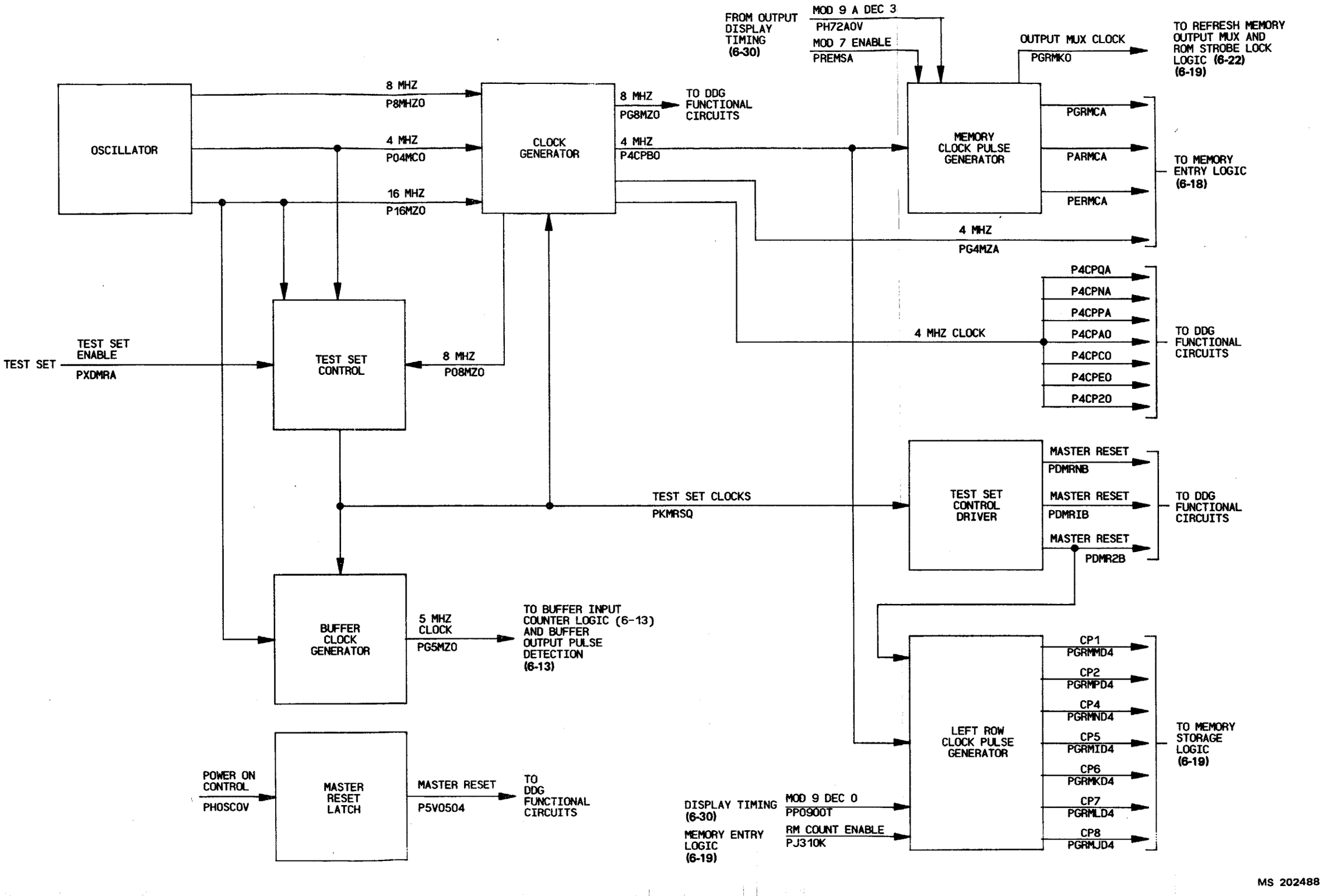


Figure 6-36. Clock and Master Reset Block Diagram

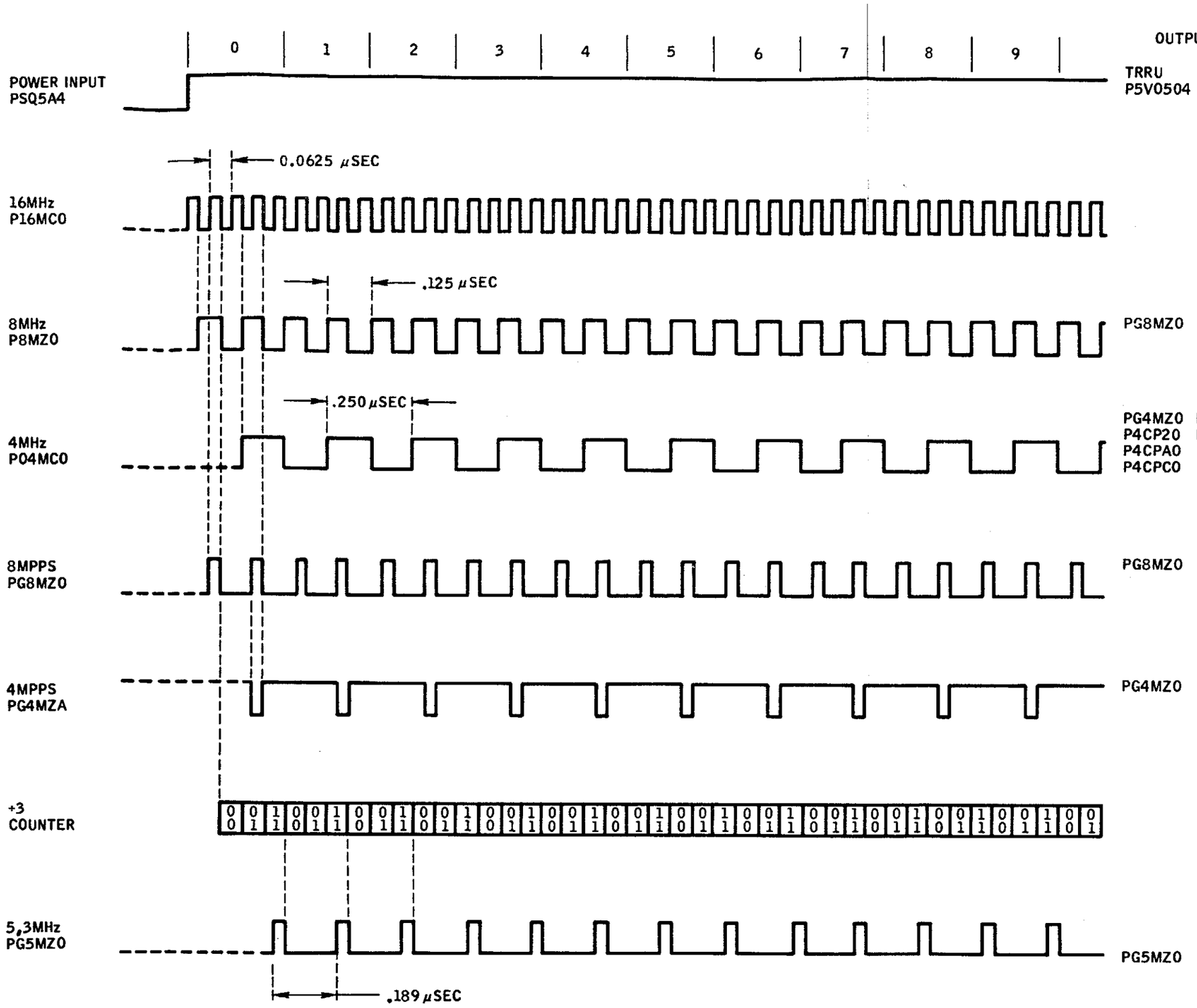


Figure 6-37. Clock and Master Reset Timing Diagram

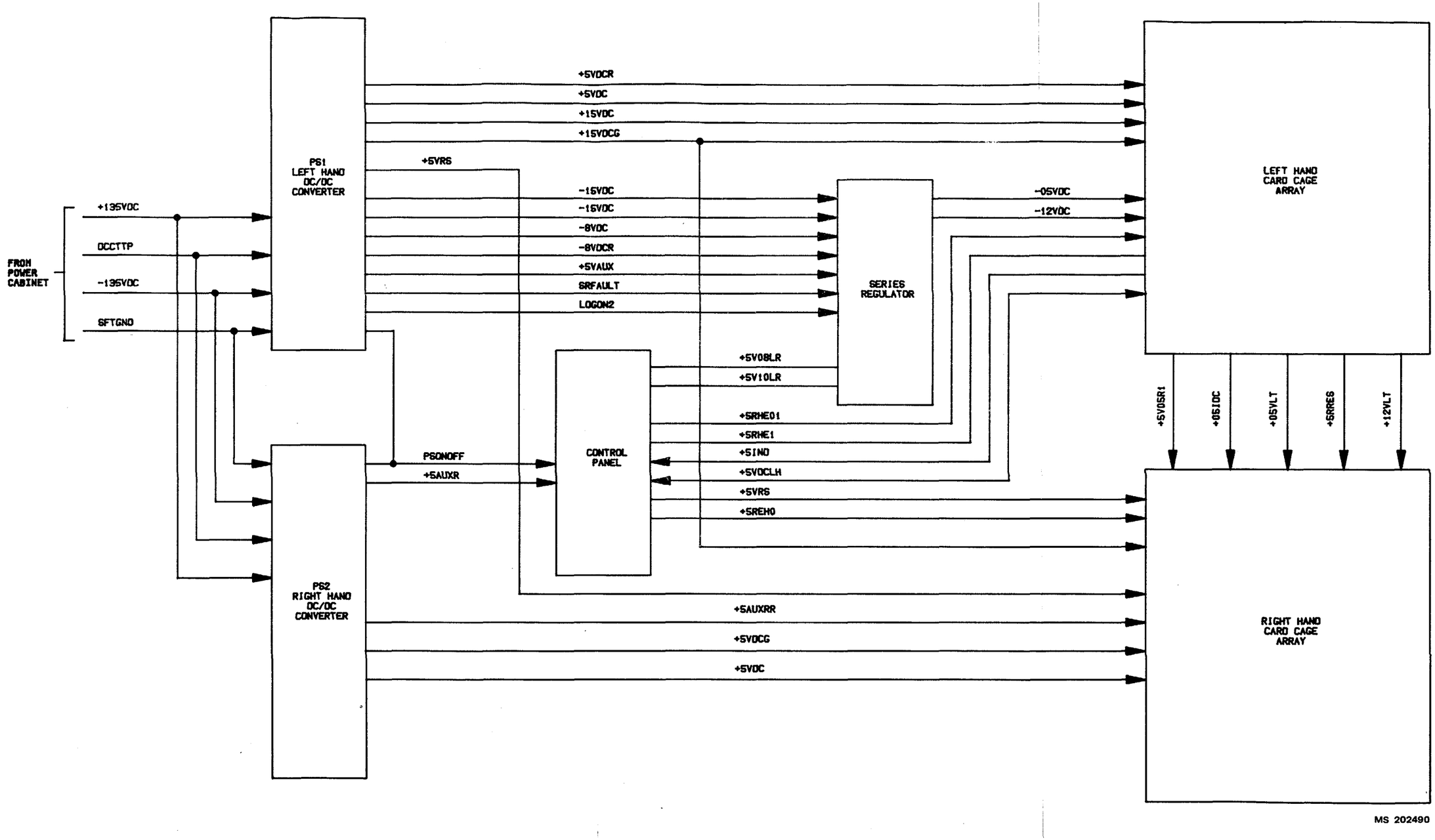


Figure 6-38. Power Distribution Block Diagram

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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

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