



IBM 5110 System Logic Manual

SY31-0552-3

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Fourth Edition (February 1979)

This is a reprint of SY31-0552-2 incorporating changes released in technical newsletter SN31-6241.

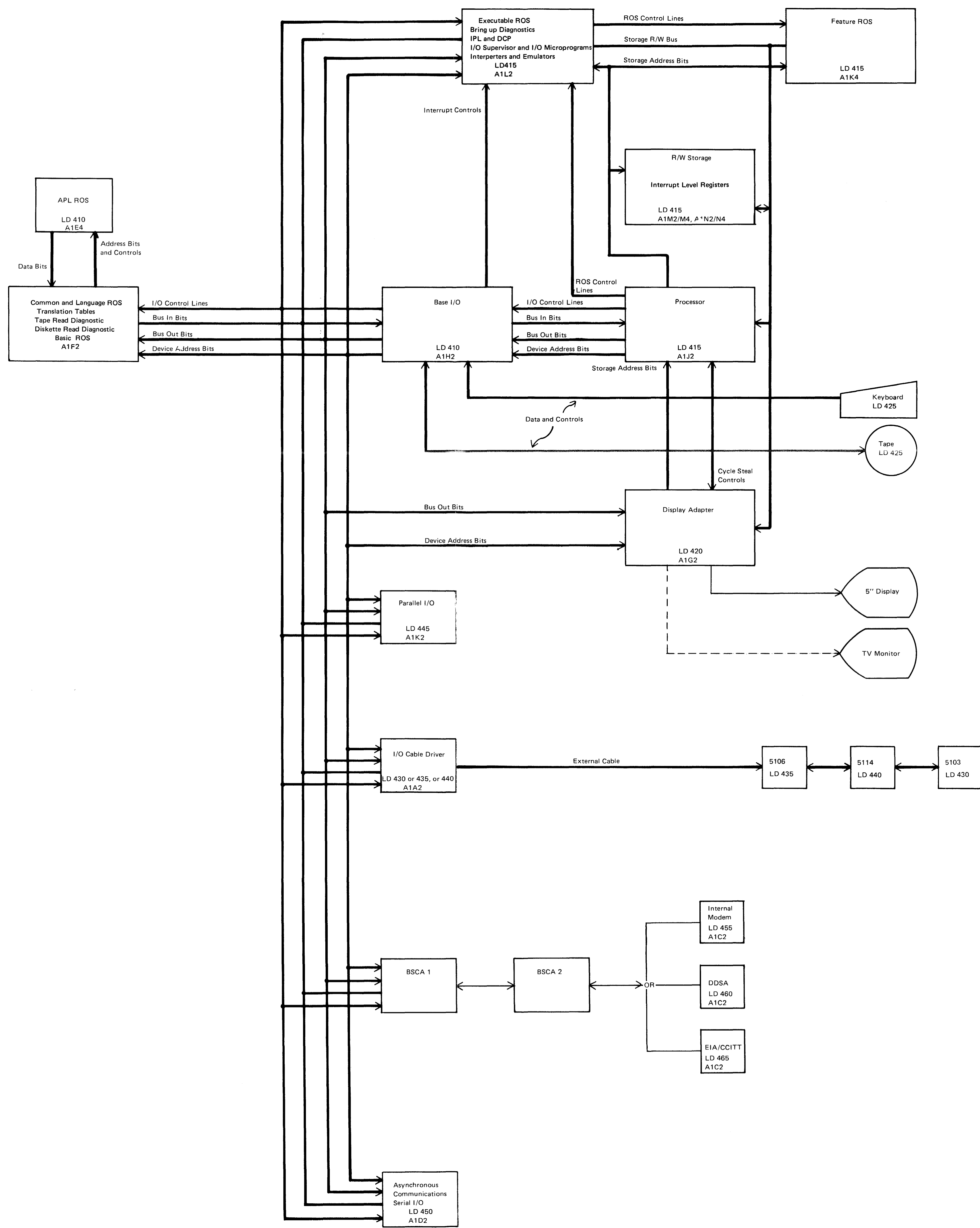
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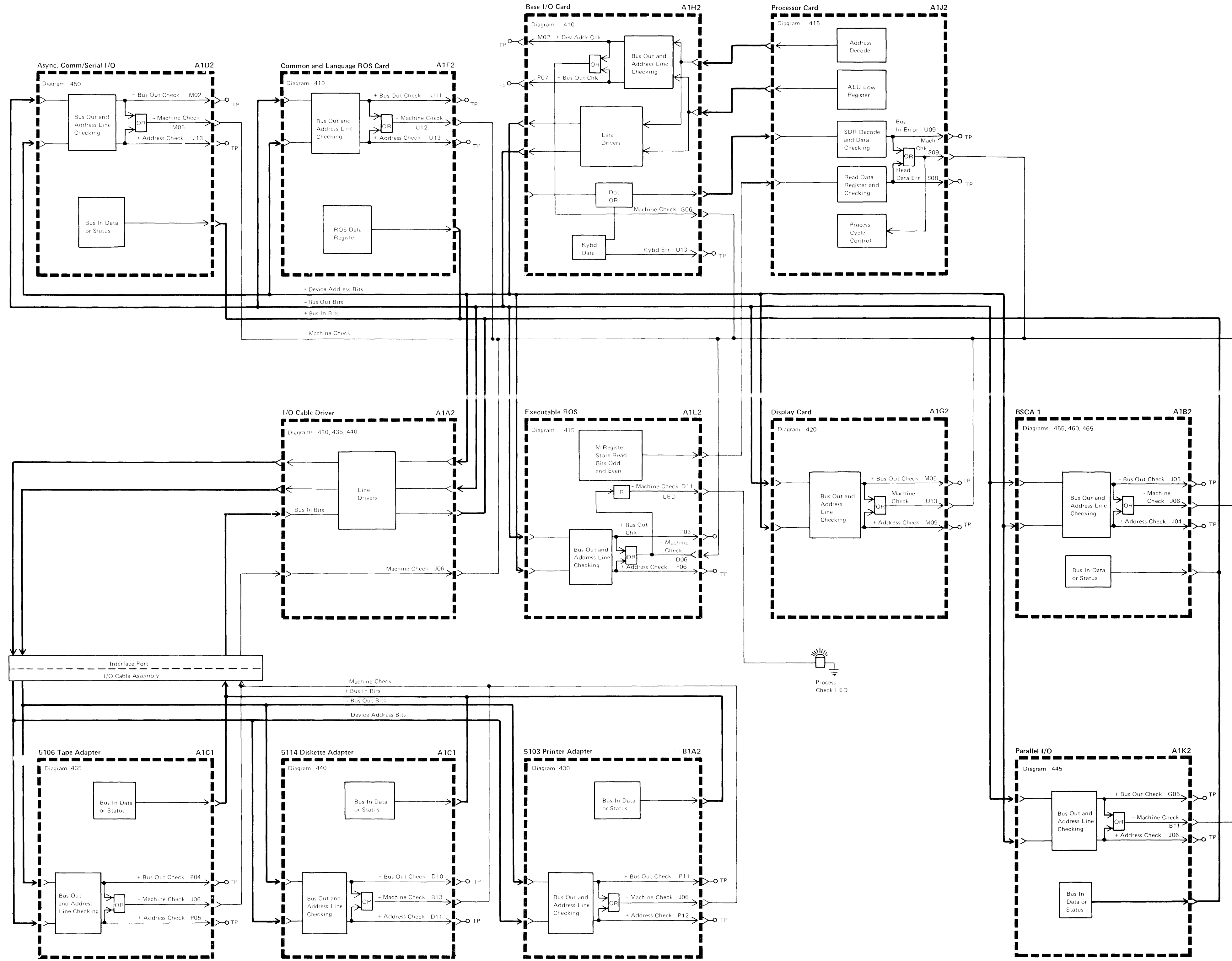
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5110

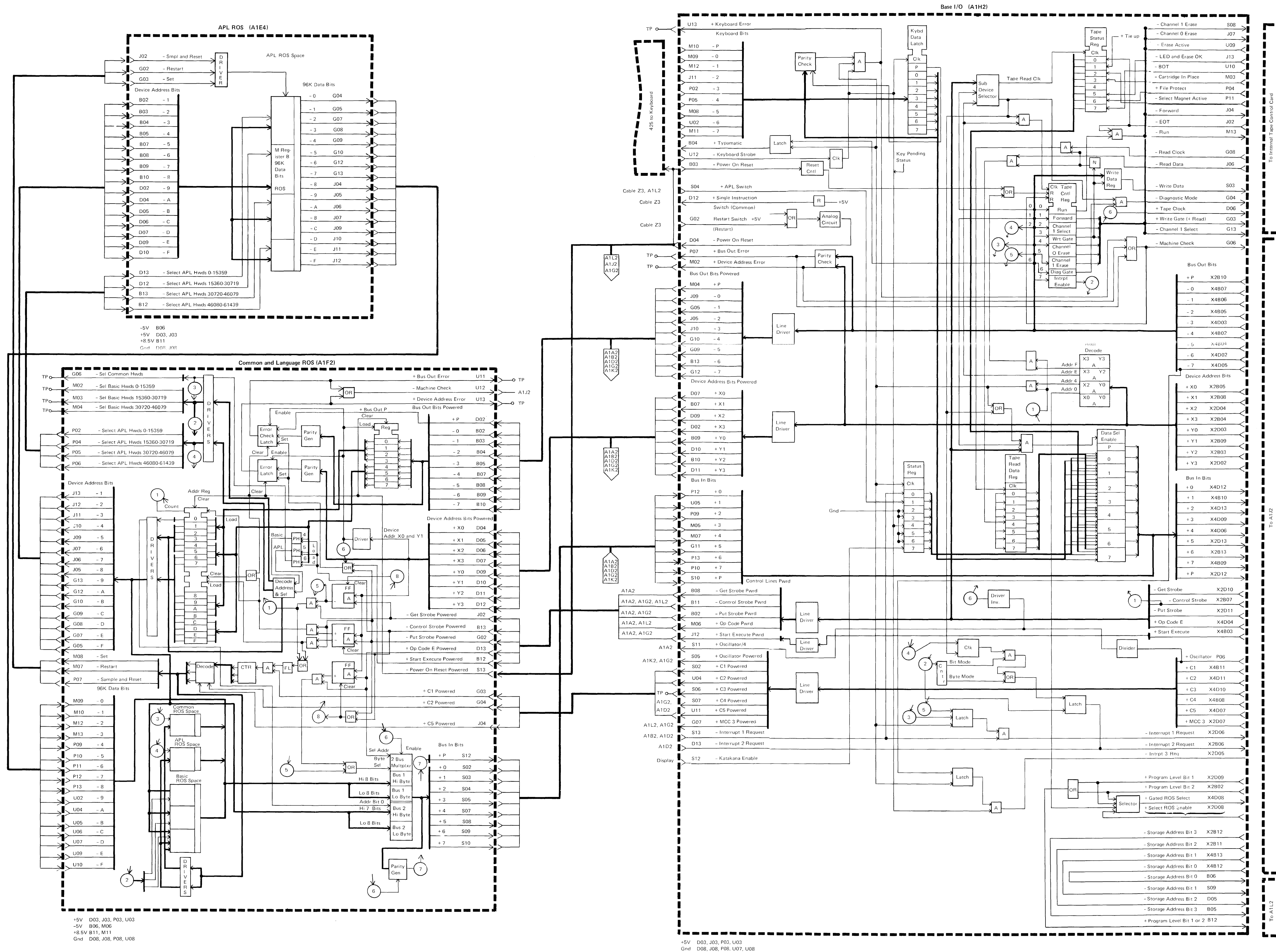


Data Flow 400



Process Check Chart 405

	A1C1 5106 Tape Adapter	5114 Diskette Adapter	5103 Printer Adapter	A1H2 Base I/O Card	A1J2 Processor Card	A1A2 I/O Cable Driver	A1L2 Executable ROS	A1G2 Display Card	A1B2 BSCA 1	A1K2 Parallel I/O
Bus Out Parity Check	P04	D10	P11	M02	U11	M05	M02	U09	G05	P05
Address Check	P05	D11	P12	P07	M09	P07	P07	S08	J06	P06
Keyboard Parity Error							U13			



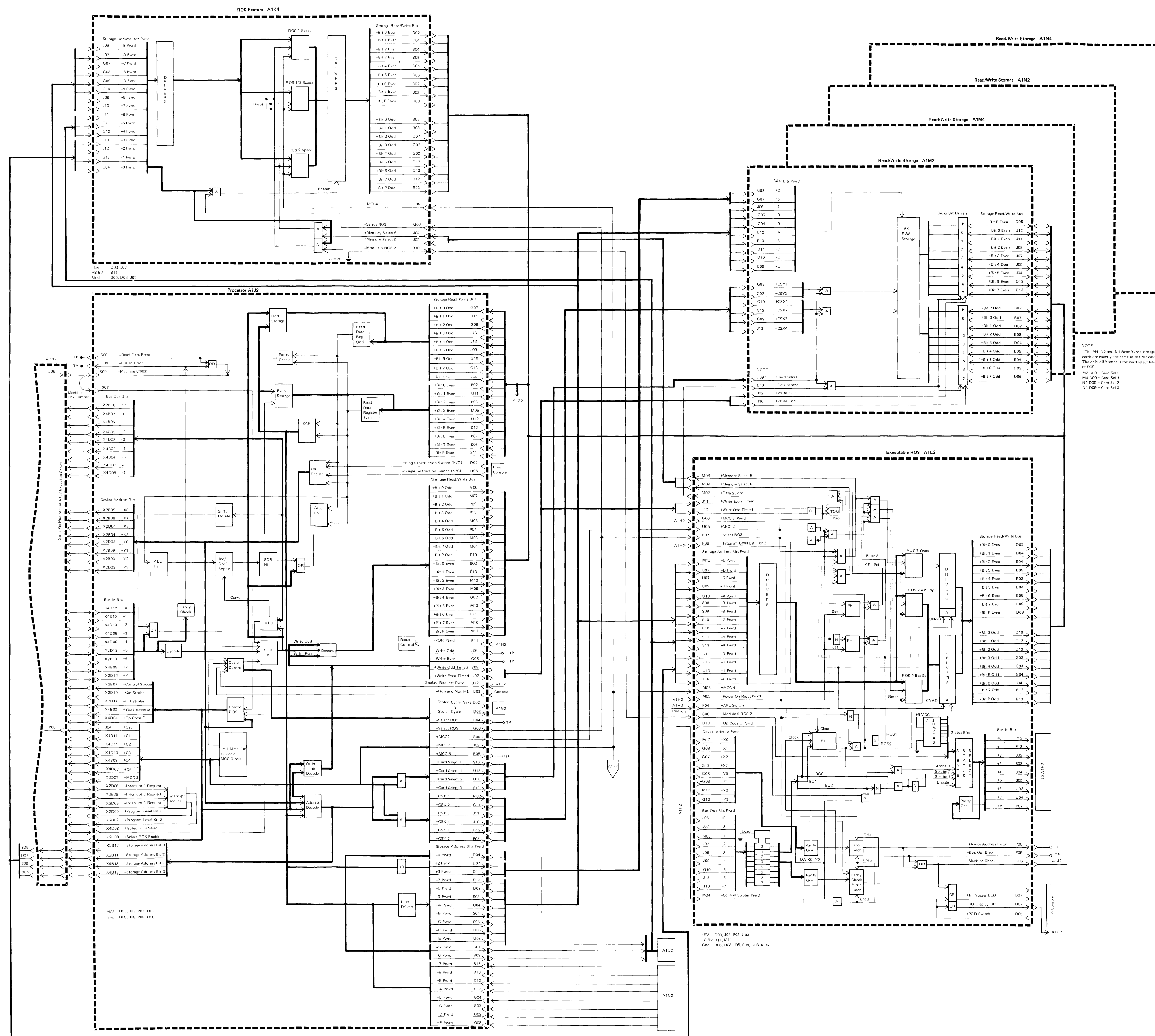
Base I/O
APL ROS
Common/Language ROS

410

+5V D03, J03, P03, U03
-5V B06, M06
+8.5V B11, M11
Gnd D08, J08, P08, U08

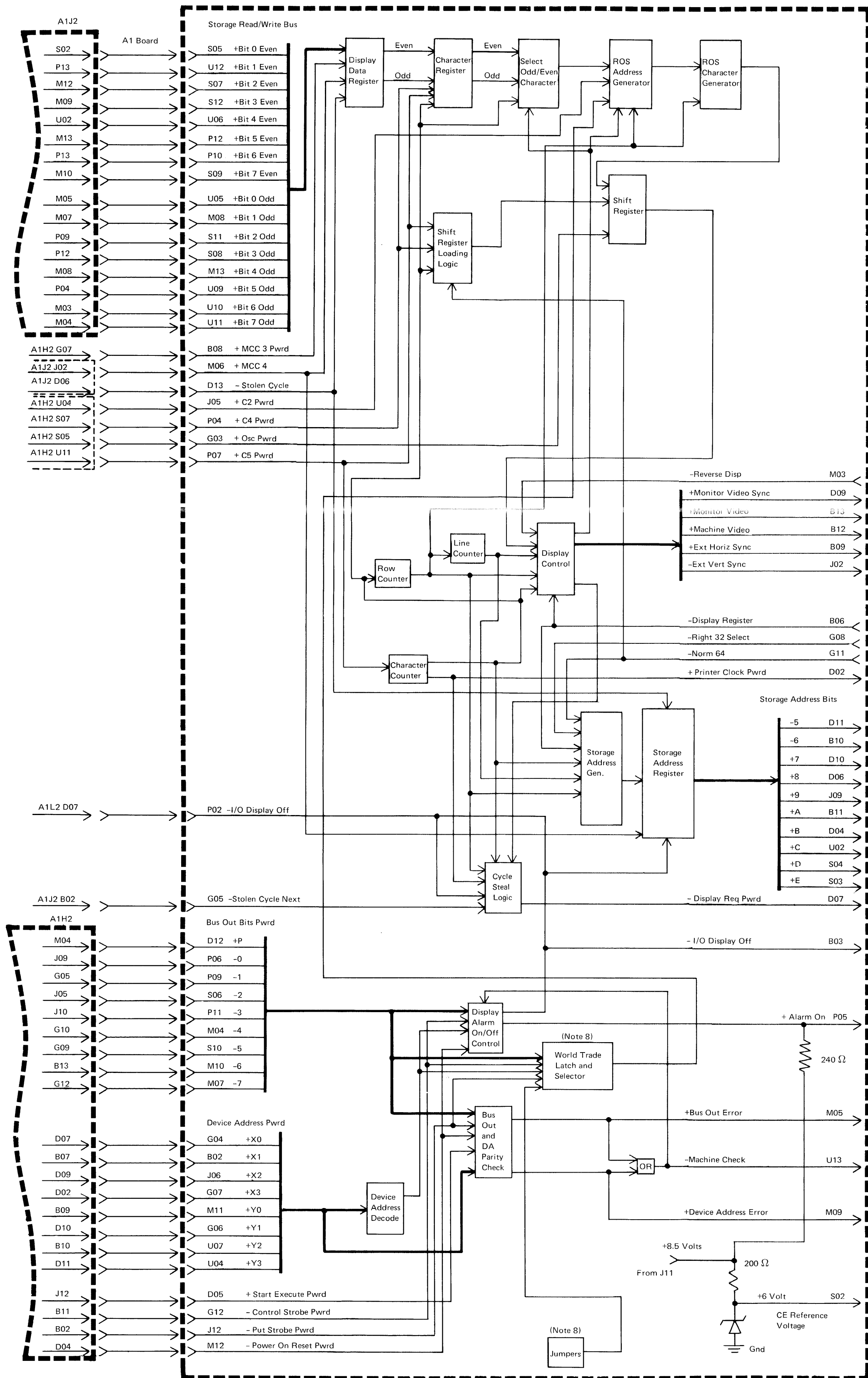
+5V D03, J03, P03, U03
-5V B06, M06
+8.5V B11, M11
Gnd D08, J08, P08, U07, U08

On board only. No
continuity when
card out of machine.



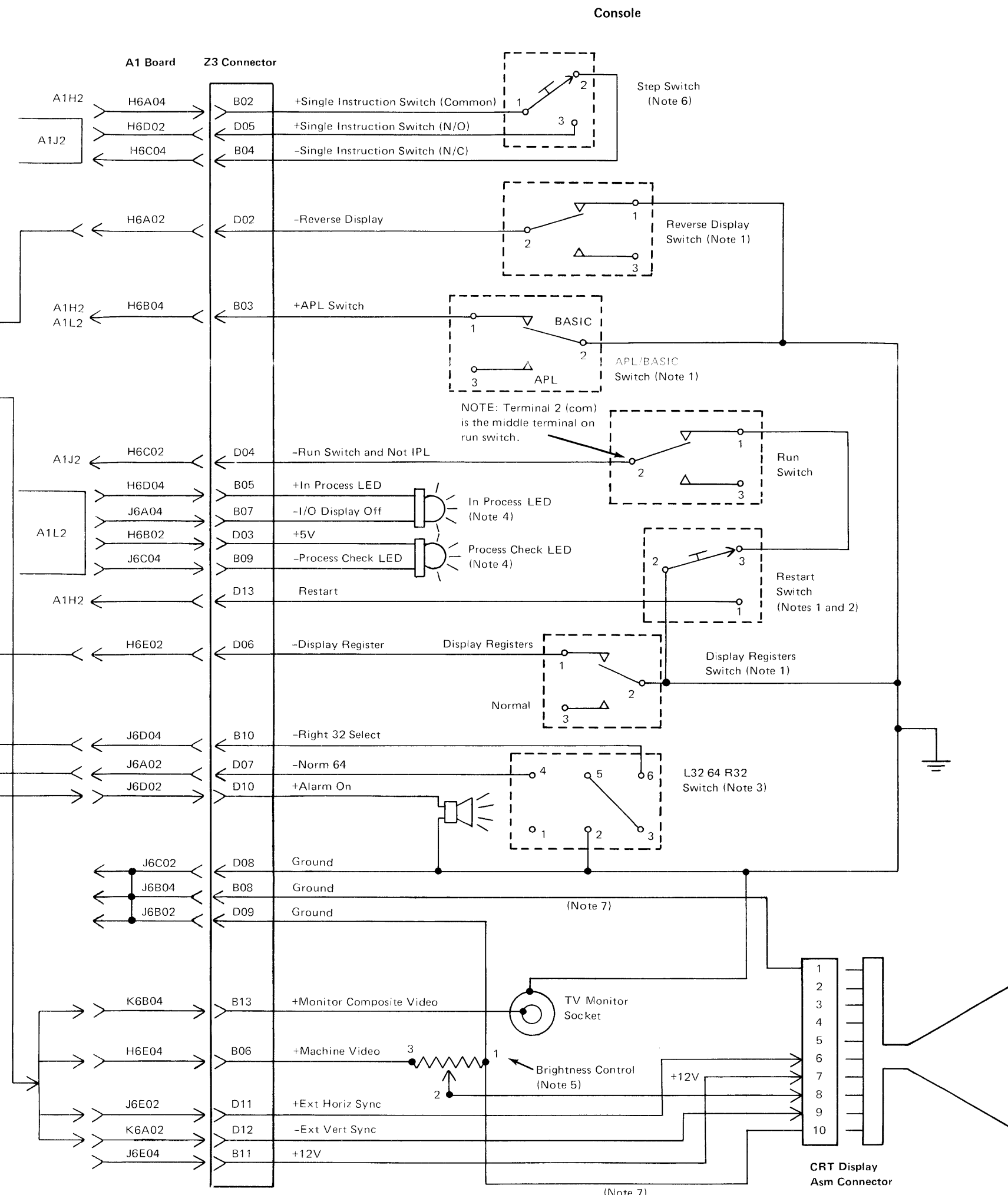
Processor 415
 R/W Storage
 Executable ROS
 Feature ROS

Display Adapter A1G2

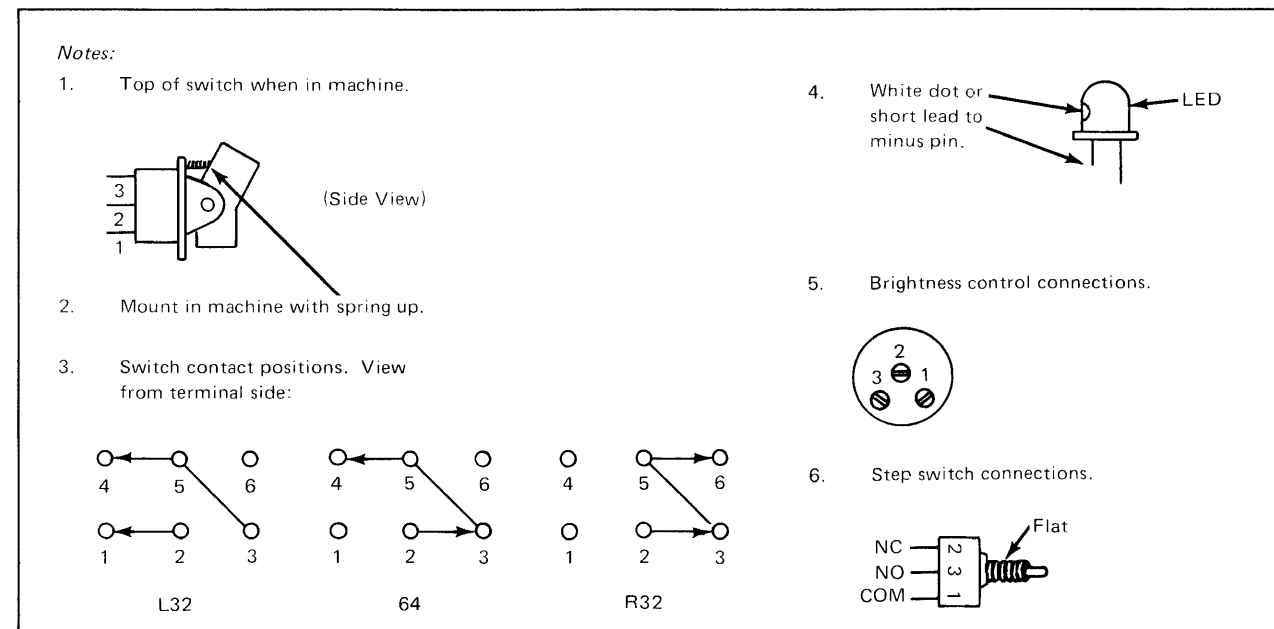


+5V D03, J03, P03, U03
 +8.5V J11
 +6V S02 - CE Reference Voltage
 Gnd D08, G02, G09, J04, J08, P08, S13, U08

Note 8: Not installed on Kanakana featured machines.

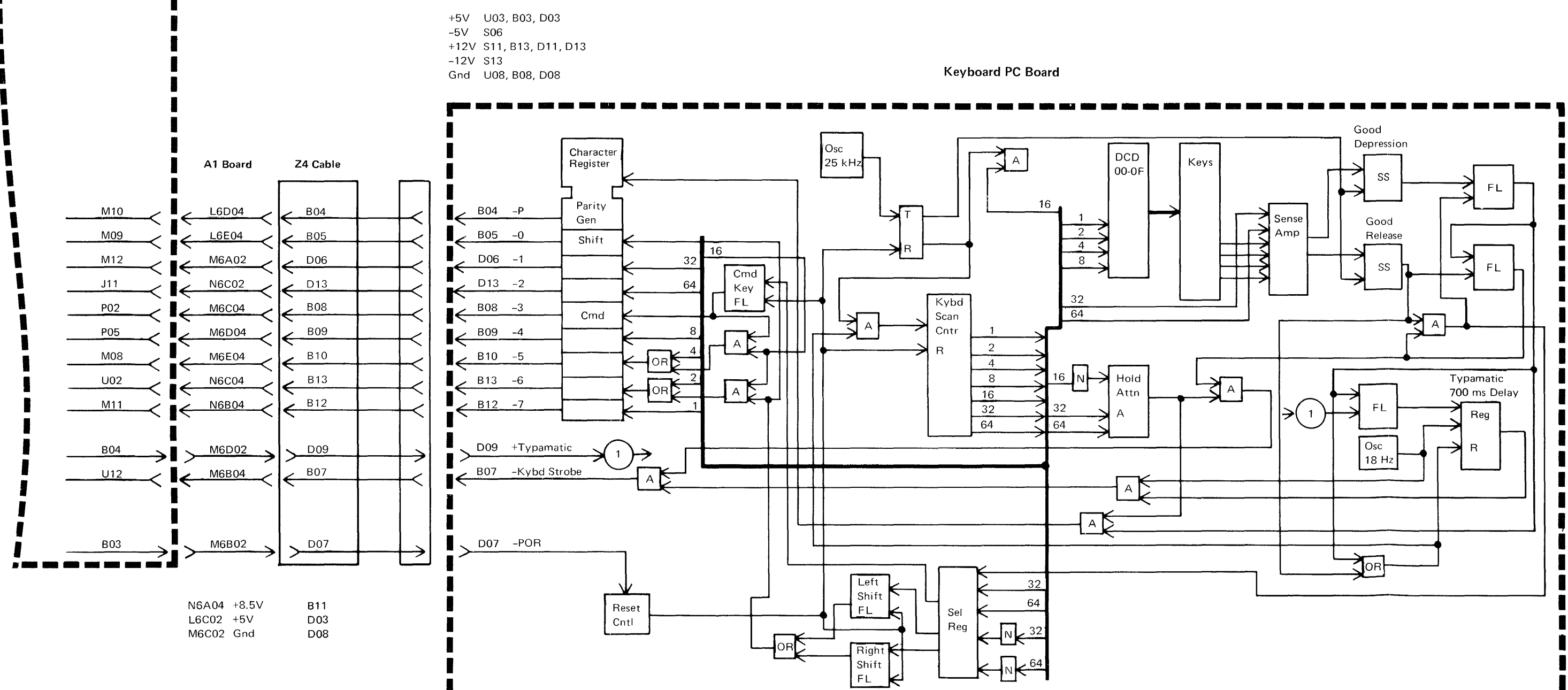
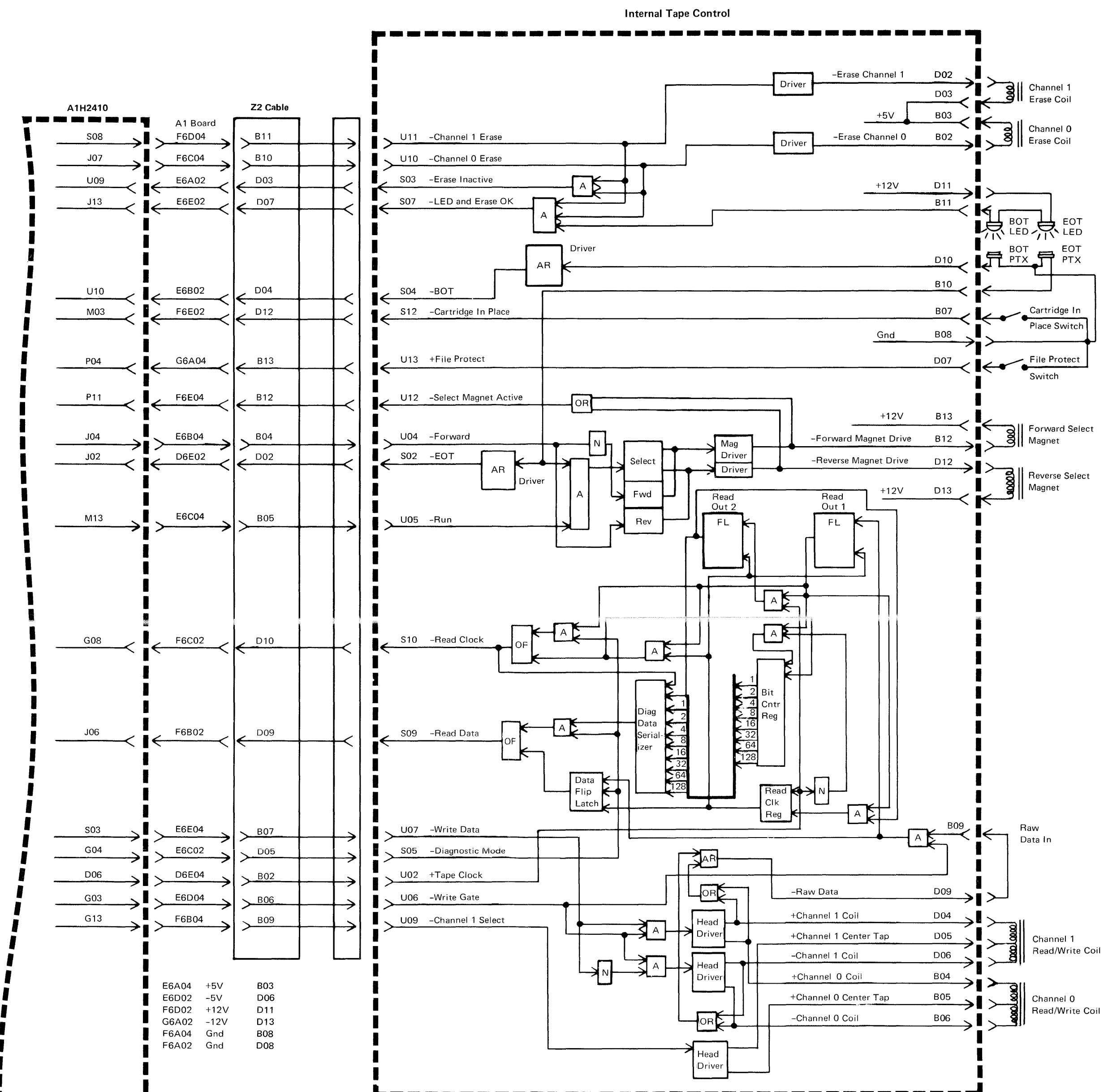


+5V D03
 +12V B11
 Ground B08, D08, D09
 ‡ Commons on A1 Board

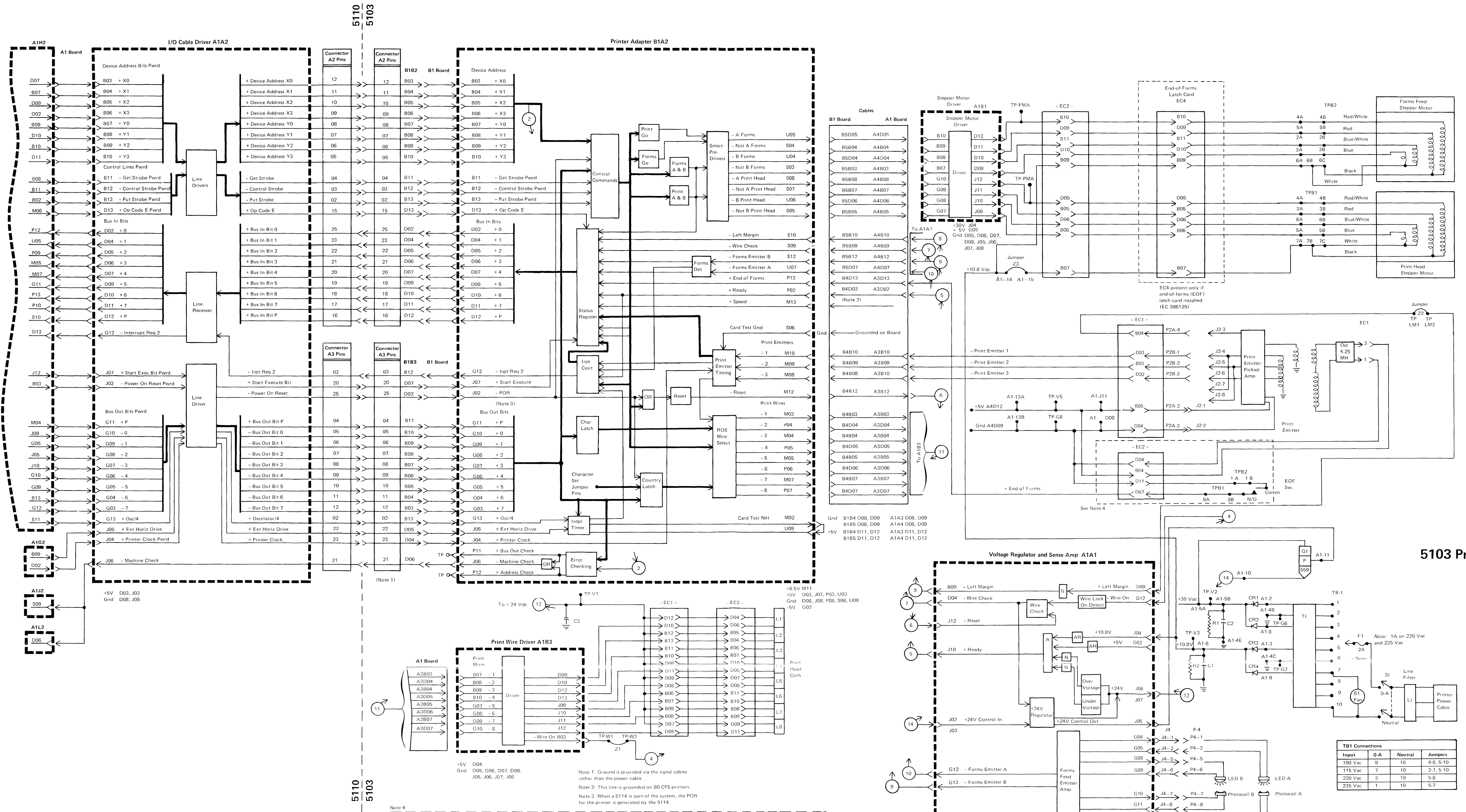


Note 7: This logic drawing shows cable P/N 1608885 with E/C 832661 installed. Cables prior to this E/C have wire coming from brightness control to pin 10 deleted. Also the ground wire going to pin 1 is connected to pin 10 instead of pin 1. (Pin 1 is not used on older level cables.)

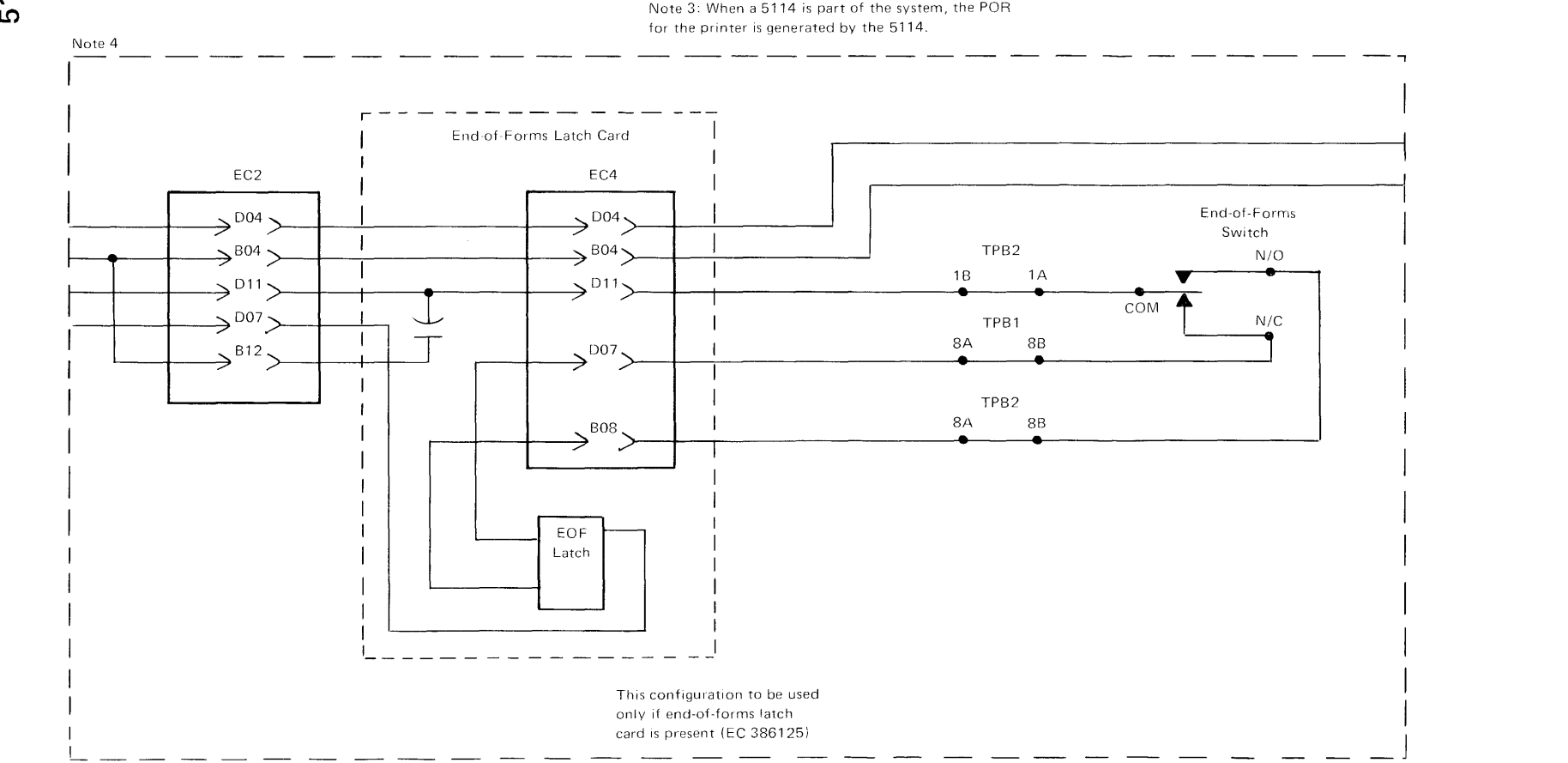
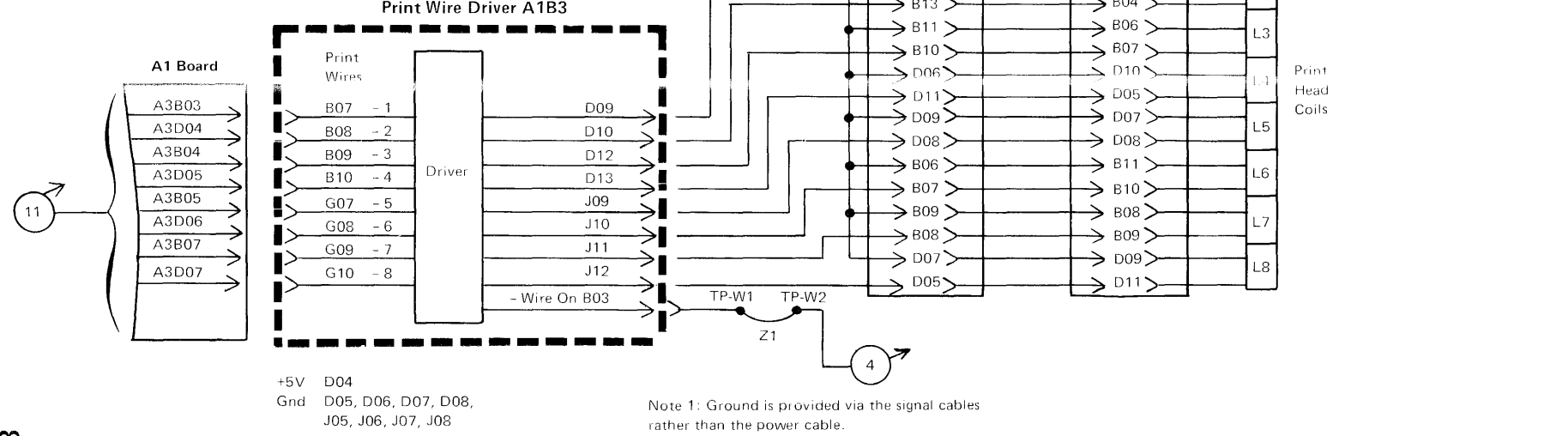
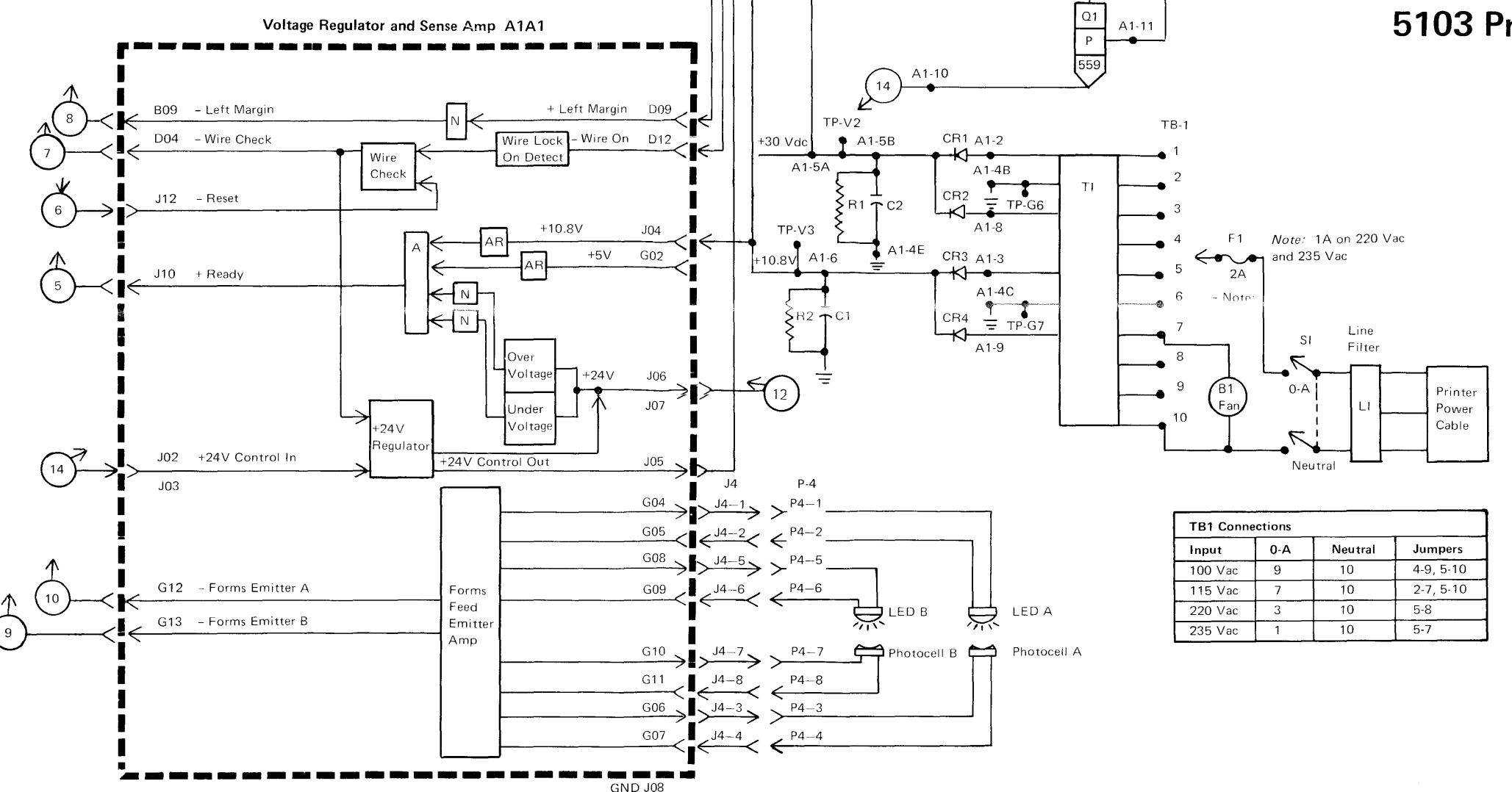
Console 420
 Display Adapter



Keyboard 425
Internal Tape



5103 Printer 430

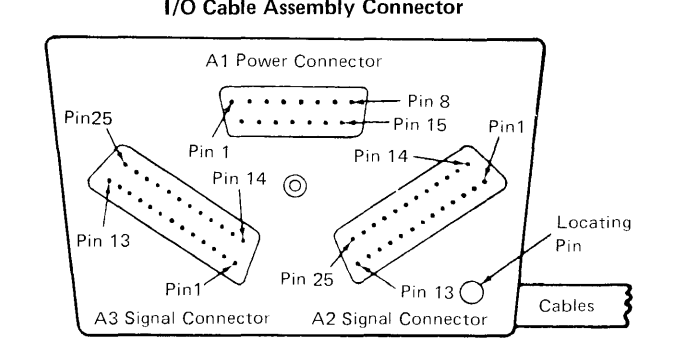
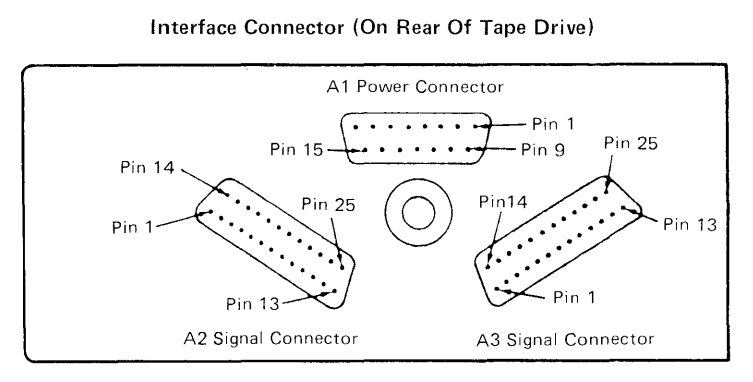
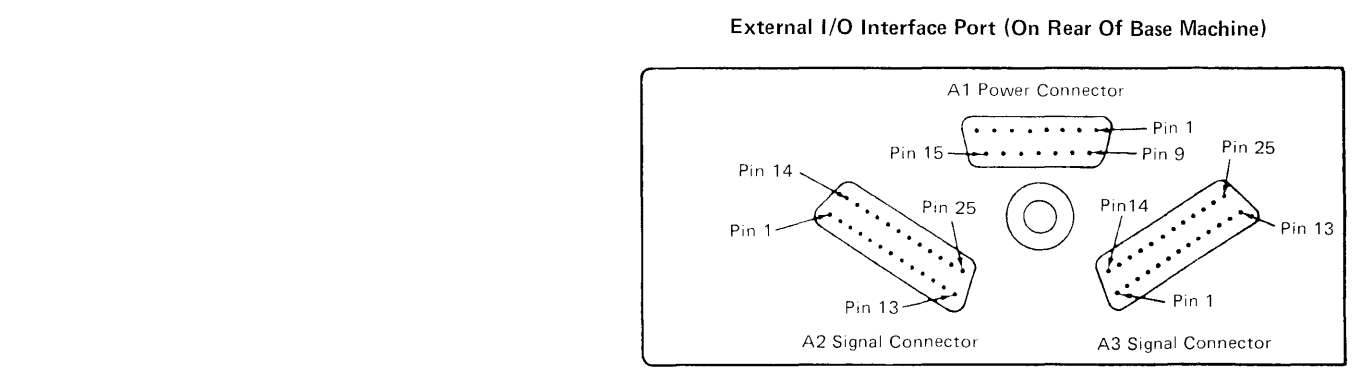
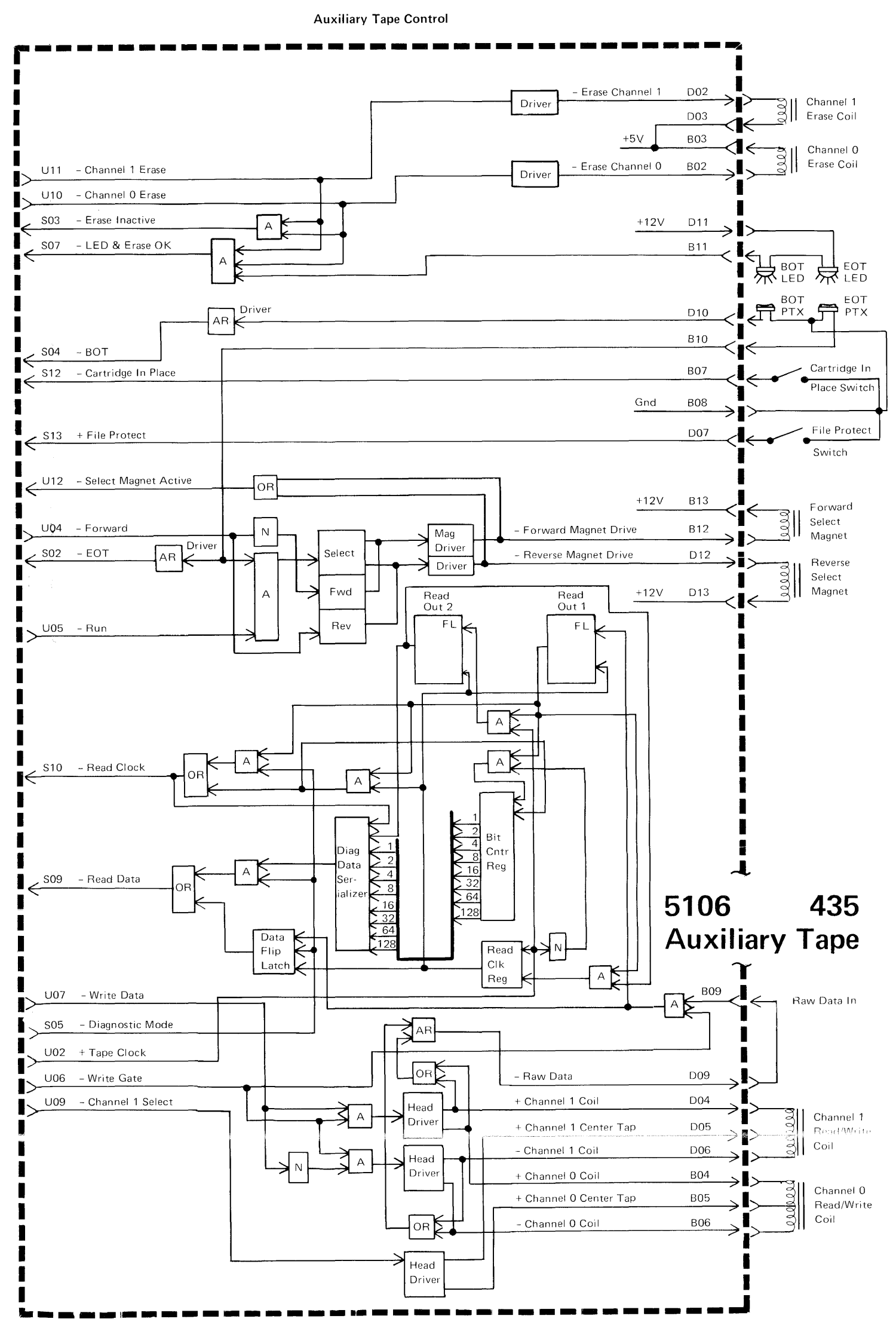
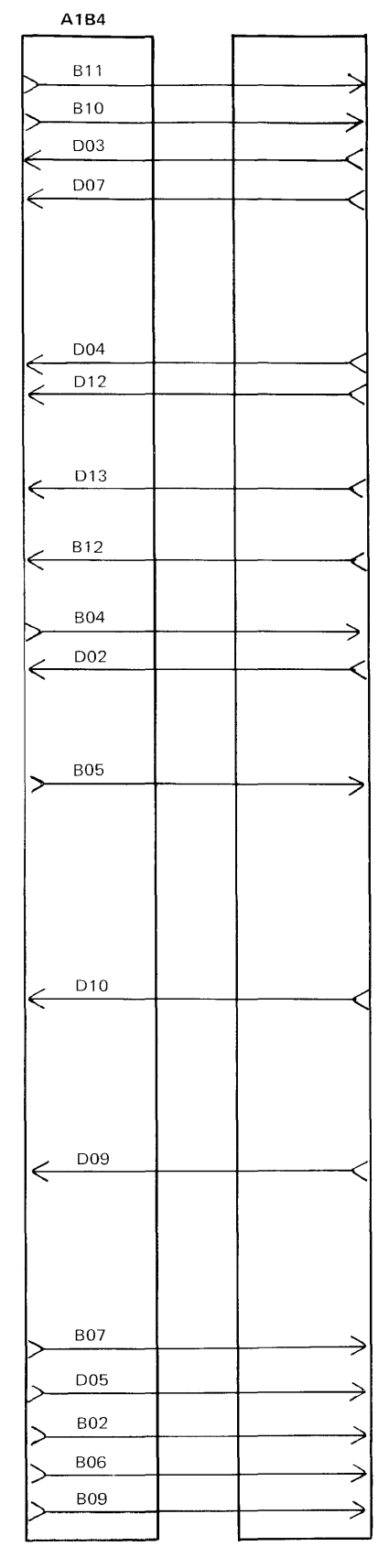
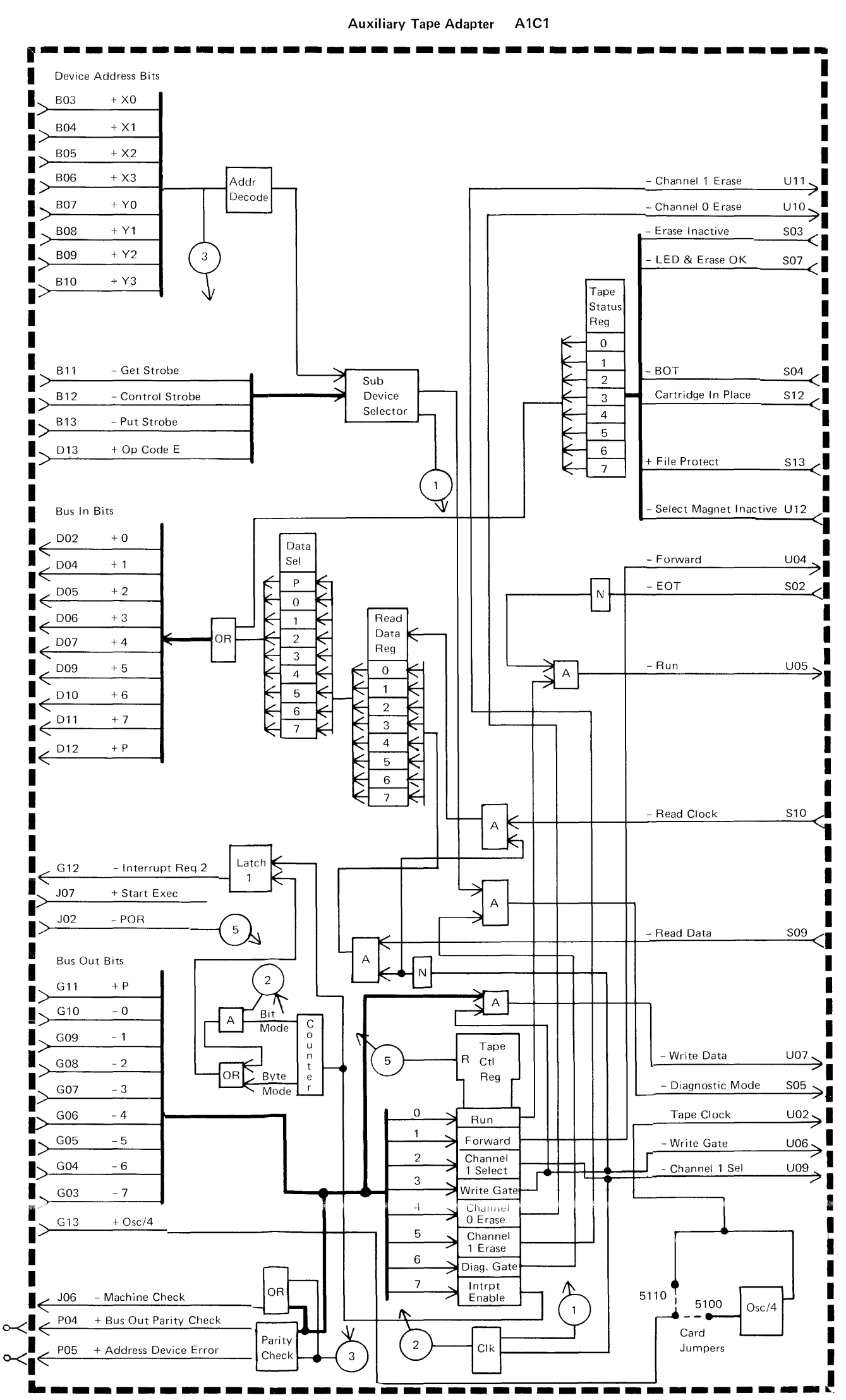
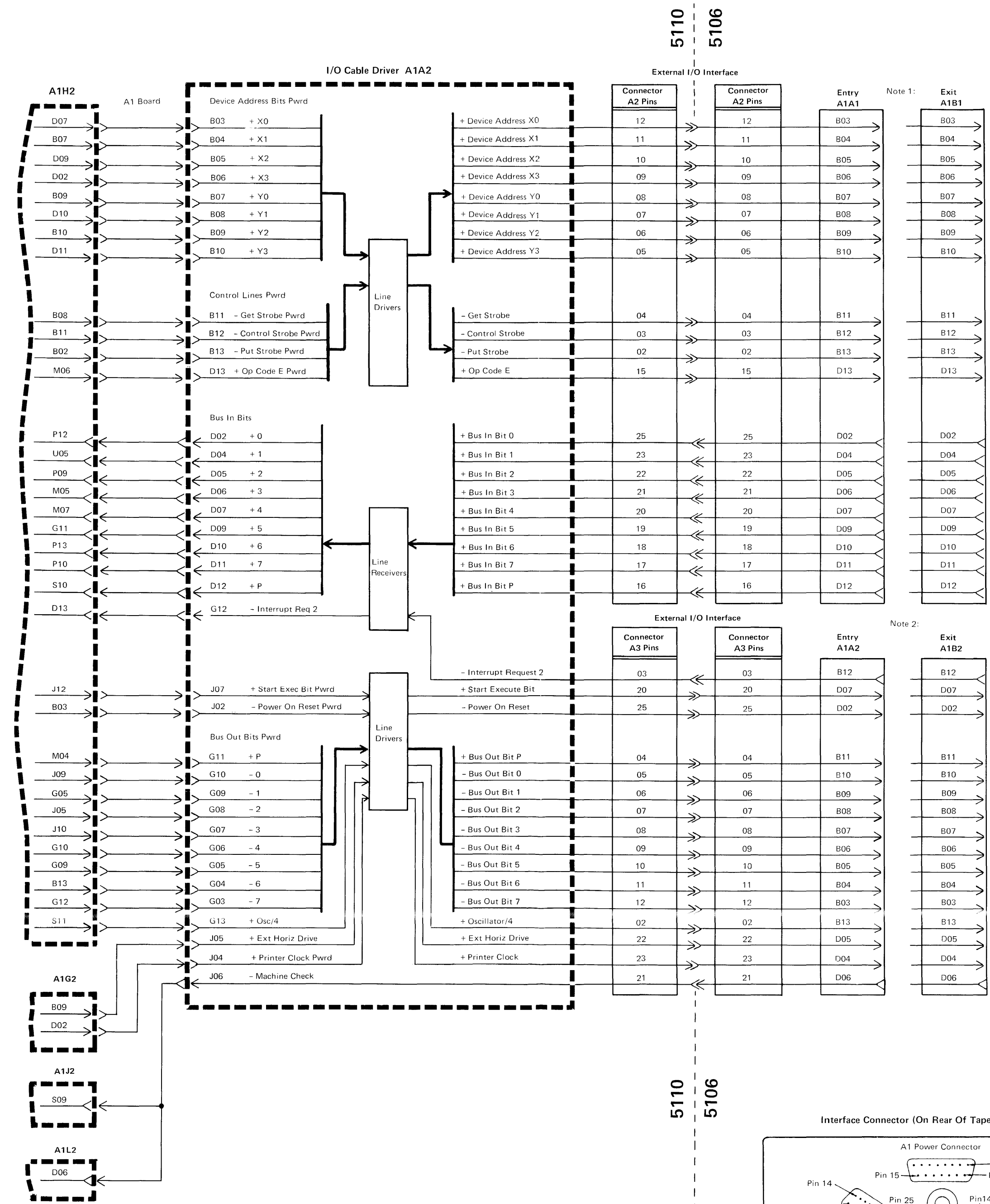


TB1 Connections			
Input	G-A	Neutral	Jumper
100 Vac	9	10	4-9, 5-10
115 Vac	7	10	2-7, 5-10
220 Vac	3	10	5-8
235 Vac	1	10	5-7

Note 1: Ground is provided via the signal cables rather than the power cable.
 Note 2: This line is grounded on 80 CPS printers.
 Note 3: When a 5114 is part of the system, the POR for the printer is generated by the 5114.

Note 4: This configuration is to be used only if end-of-arms latch card is present (EC 386125).

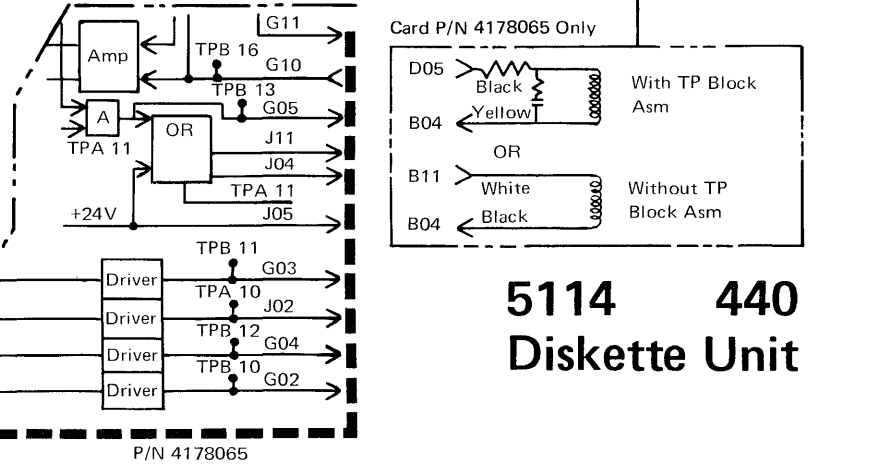
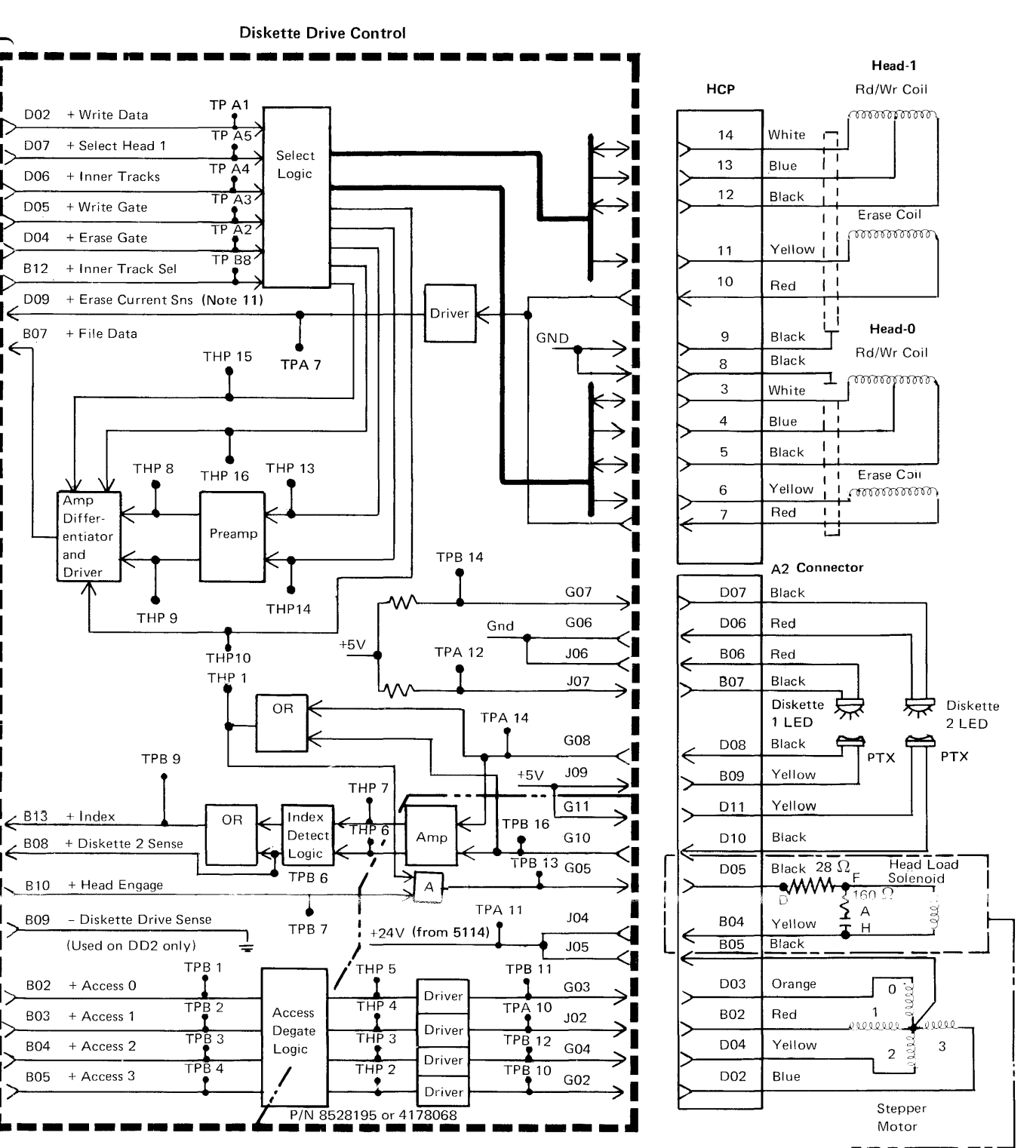
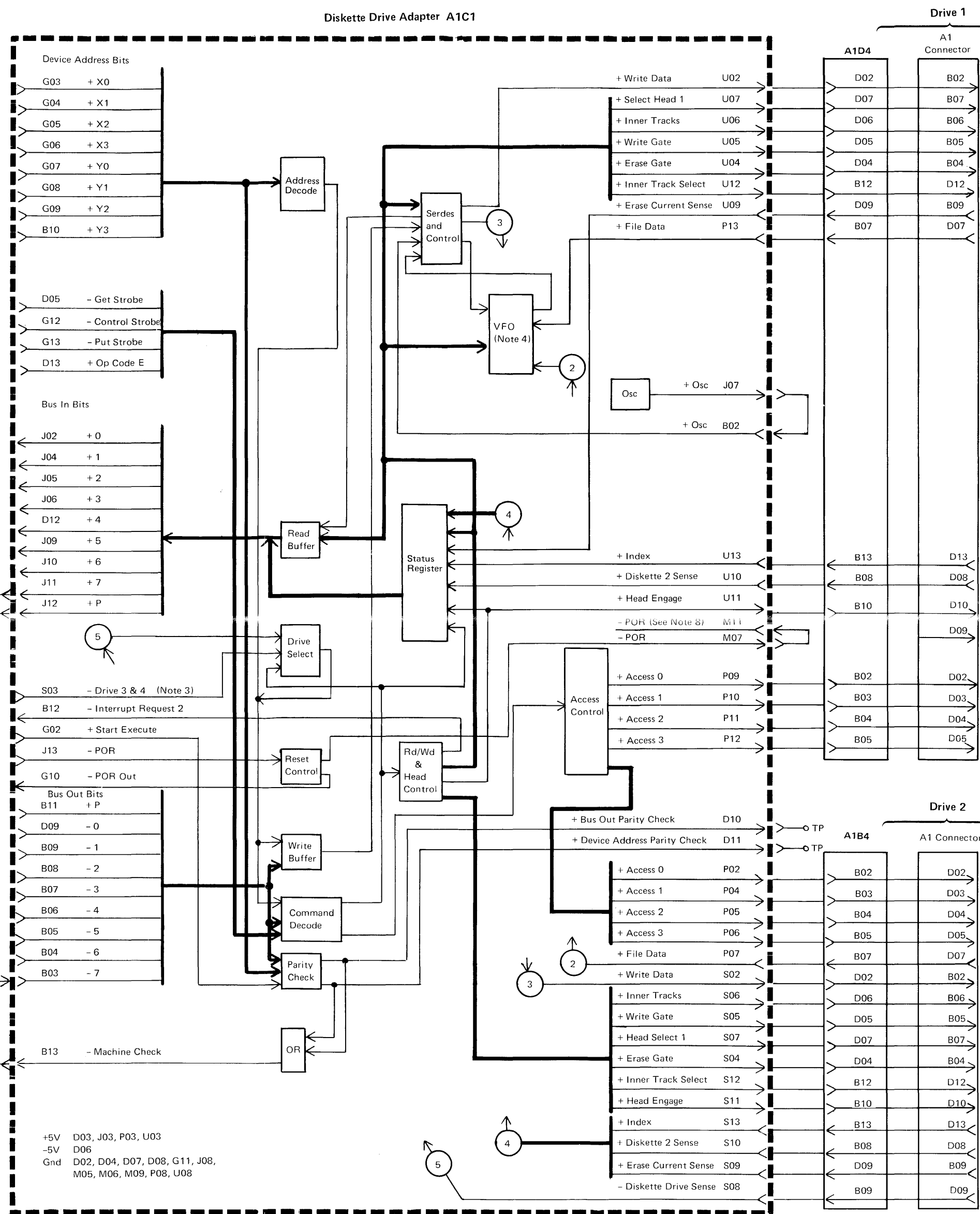
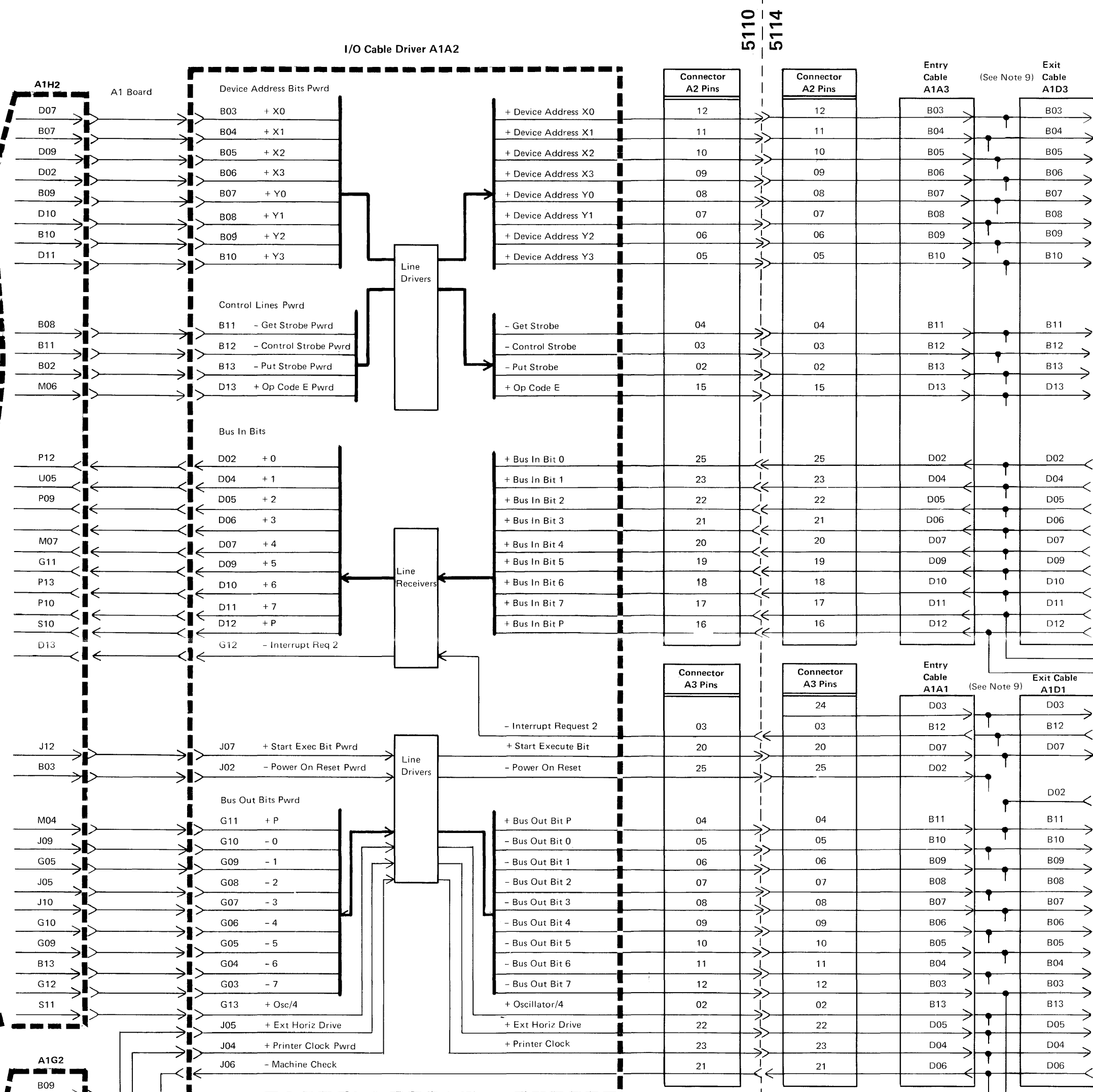
5110
5103



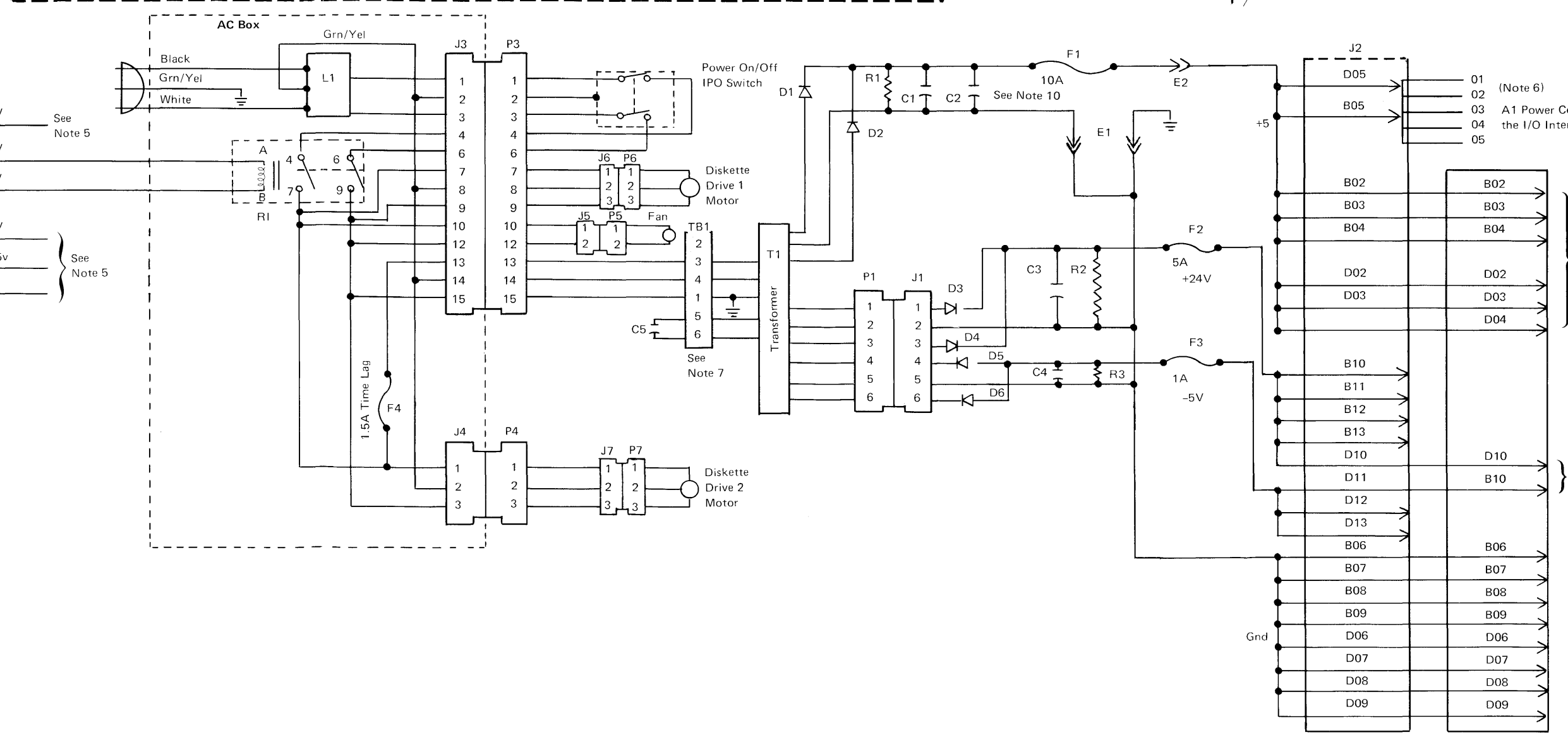
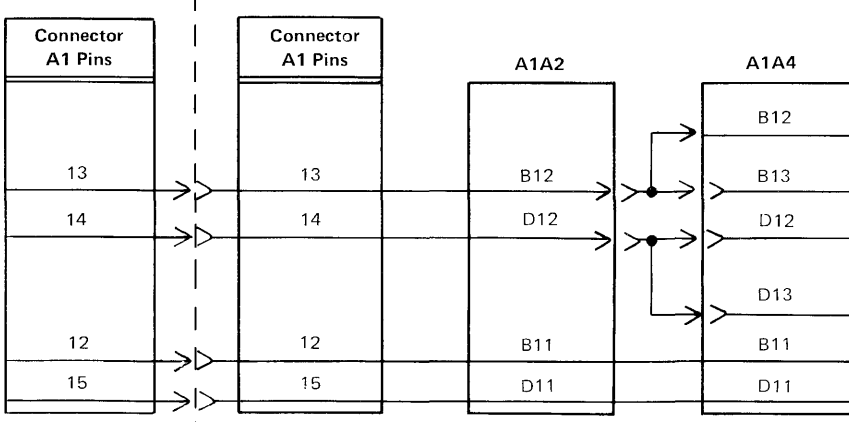
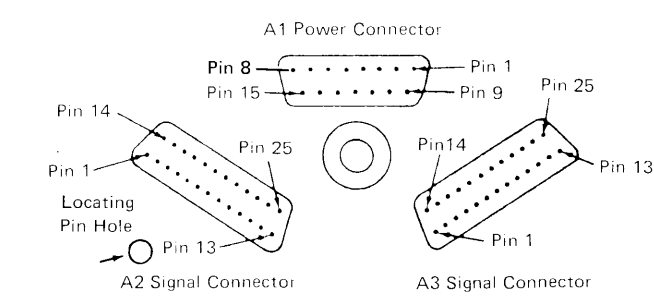
Notes:

- A2 I/O Signal Cable enters A1 Board via A1A1 and exits via A1B1 and the I/O Interface Port.
- A3 I/O Signal Cable enters A1 Board via A1A2 and exits via A1B2 and the I/O Interface Port.

+5V U03, B03, D03
 -5V S06
 +12V S11, B13, D11, D13
 -12V S13
 Gnd U08, B08, D08

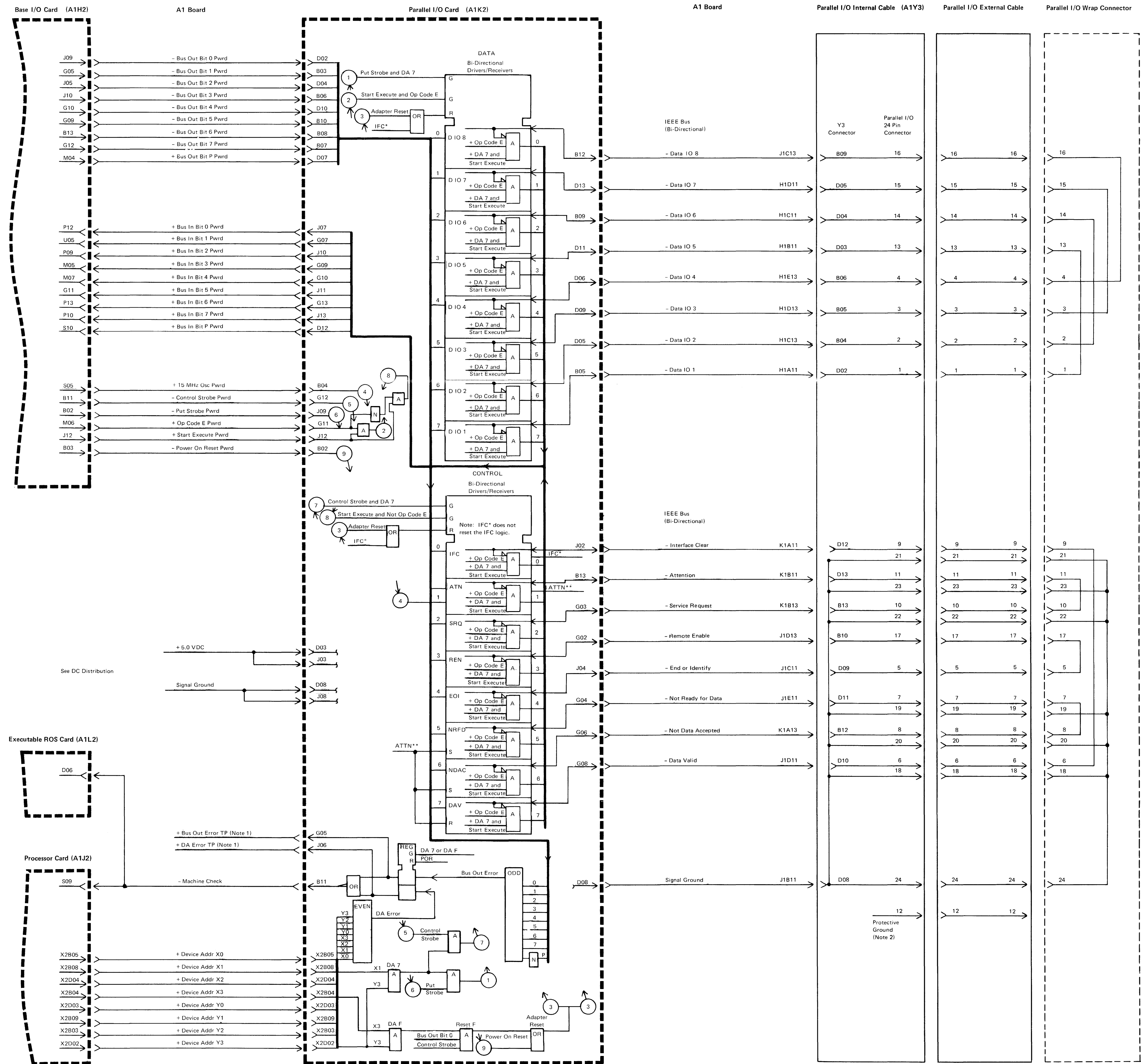


- Notes:
- A2 I/O Signal Cable enters A1 Board via A1A3 and exits via A1D3 to the I/O Interface Port A2.
 - A3 I/O Signal Cable enters A1 Board via A1A1 and exits via A1D1 to the I/O Interface Port A3.
 - Drive 3 & 4 is created in the 5114 by grounding that line in the preceding 5114.
 - On some machines, the VFO circuitry is on a separate card in the A1B1 position.
 - These voltages go to the A1 Power Connector on the 5114 I/O Interface Port.
 - +5V from the 5110 terminates at the 5114. The 5114 generates +5V for internal use and use for all I/O devices attached after it. Also, there is no ground via the power cable (A1).
 - TB 1 Connections
- | 60 Hz | | 50 Hz | |
|---------|---------|---------|---------|
| 100 Vac | 115 Vac | 100 Vac | 235 Vac |
| P3-13 | TB1-2 | TB1-3 | TB1-2 |
| P3-14 | TB1-4 | TB1-4 | TB1-5 |
- POR is the General Reset Line for the Adapter Card.
 - A1D3 & A1D1 are cable outputs for additional devices or terminators. The wiring from A1A3 and A1A1 to the A1C1 card are all as shown by pins D11, D12 of A1A3 and pins B03 and D06 of A1A1.
 - Some power supplies do not have C2. In this case F1 is BA.



- Control Card Test Points
- | | | | |
|-------|---------------------------------|-------|---------------------------|
| TPA1 | + Write Data | THP1 | + Diskette Loaded |
| TPA2 | + Erase Gate | THP2 | + Predrive MC-3 (Note 13) |
| TPA3 | + Write Gate | THP3 | + Predrive MC-2 (Note 14) |
| TPA4 | + Inner Tracks | THP4 | + Predrive MC-1 (Note 15) |
| TPA5 | + Select Head 1 | THP5 | + Predrive MC-0 (Note 16) |
| TPA6 | Ground | THP6 | Diskette 2 Index |
| TPA7 | + Erase Current Sense (Note 11) | THP7 | Diskette 1 Index |
| TPA8 | + 24 Vdc | THP8 | Diff Read A |
| TPA9 | + 5 Vdc | THP9 | + High Gain |
| TPA10 | MC-1 | THP10 | - Align Access 0 |
| TPA11 | MC Common (Note 12) | THP11 | + High Current |
| TPA12 | Diskette 1 LED Voltage | THP12 | Preamp TP1 |
| TPA13 | Ground | THP13 | Preamp TP2 |
| TPA14 | Diskette 1 PTX | THP14 | + High Gain A |
| | | THP15 | + High Gain B |
| | | THP16 | - High Gain B |

- Notes 11 through 16 apply to diskette drive control card P/N 4178065.
- + Current Enabled.
 - + Hd Load Solenoid.
 - Hd Load Osc.
 - + 14 Vdc
 - Gnd
 - Gnd



Parallel I/O 445

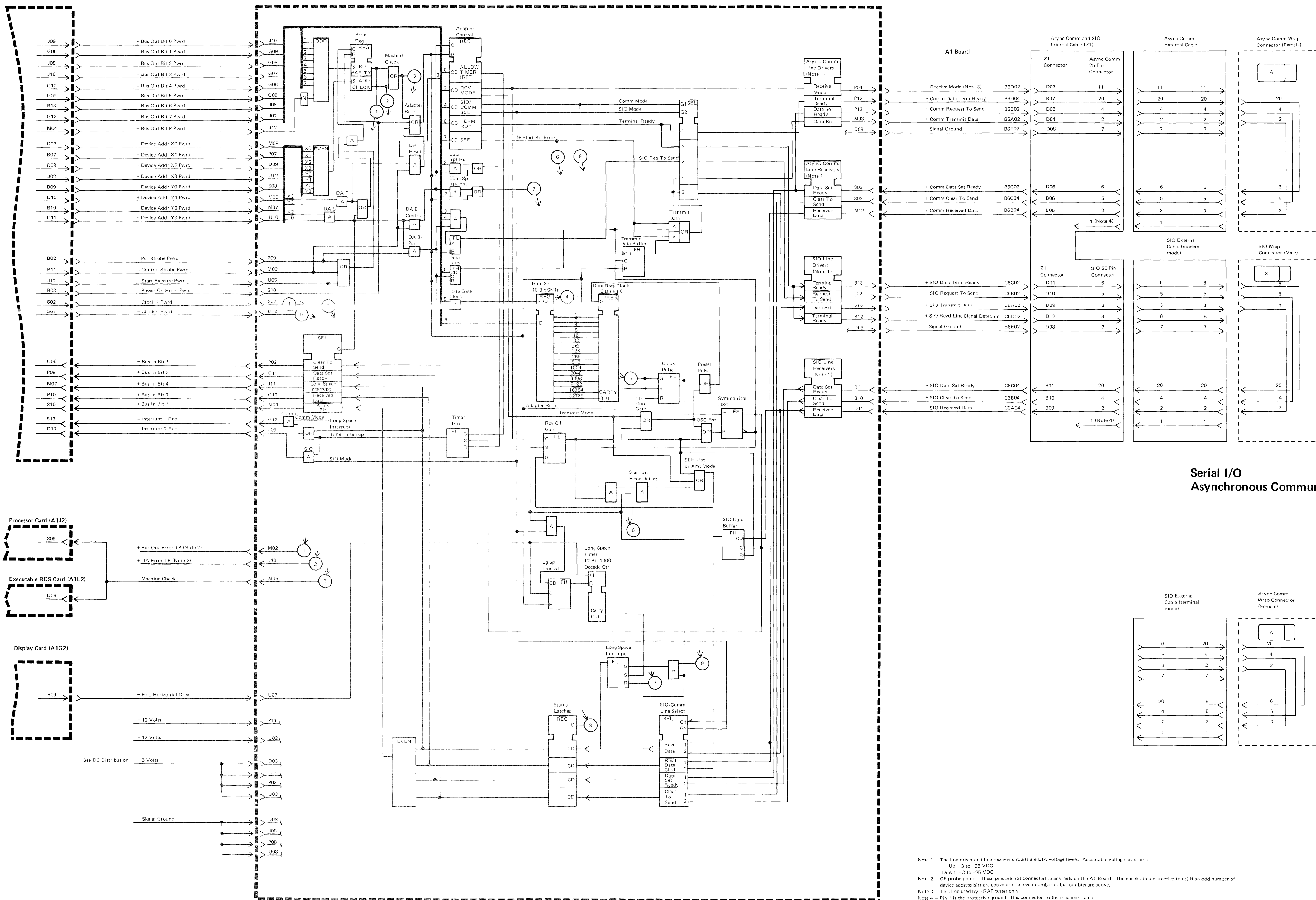
Note 1 - CE probe points—These pins are not connected to any nets on the A1 Board. The check circuit is active (plus) if an odd number of device address bits are active or if an even number of bus out bits are active.

Note 2 - Pin 12 is the protective ground. It is connected to the machine frame.

Base I/O Card (A1H2)

A1 Board

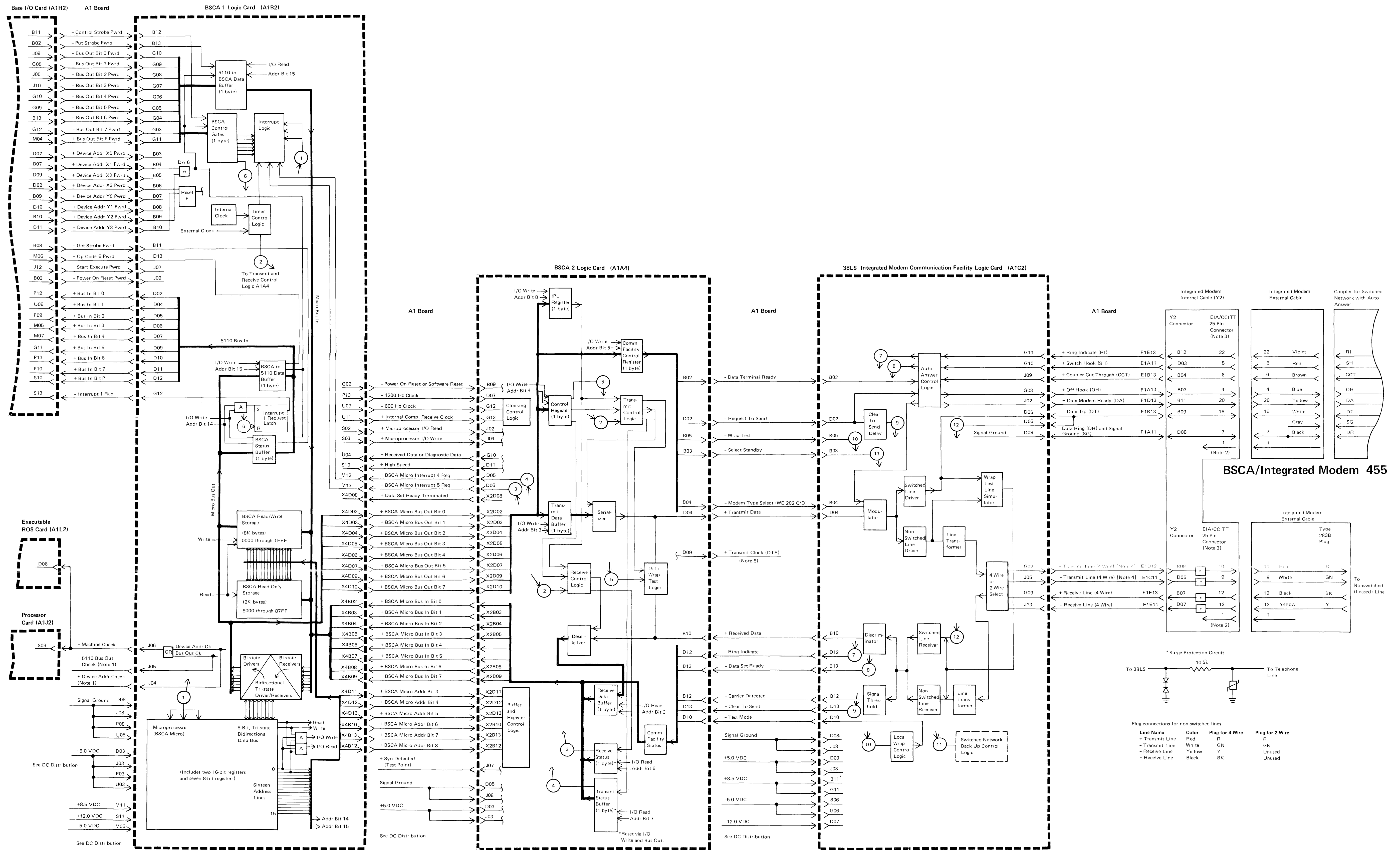
Asynchronous Communication—Serial I/O Card (A1D2)



**Serial I/O
Asynchronous Communications**

450

Note 1 — The line driver and line receiver circuits are EIA voltage levels. Acceptable voltage levels are:
Up +3 to +25 VDC
Down -3 to -25 VDC
Note 2 — CE probe points—These pins are not connected to any nets on the A1 Board. The check circuit is active (plus) if an odd number of device address bits are active or if an even number of bus out bits are active.
Note 3 — This line used by TRAP tester only.
Note 4 — Pin 1 is the protective ground. It is connected to the machine frame.

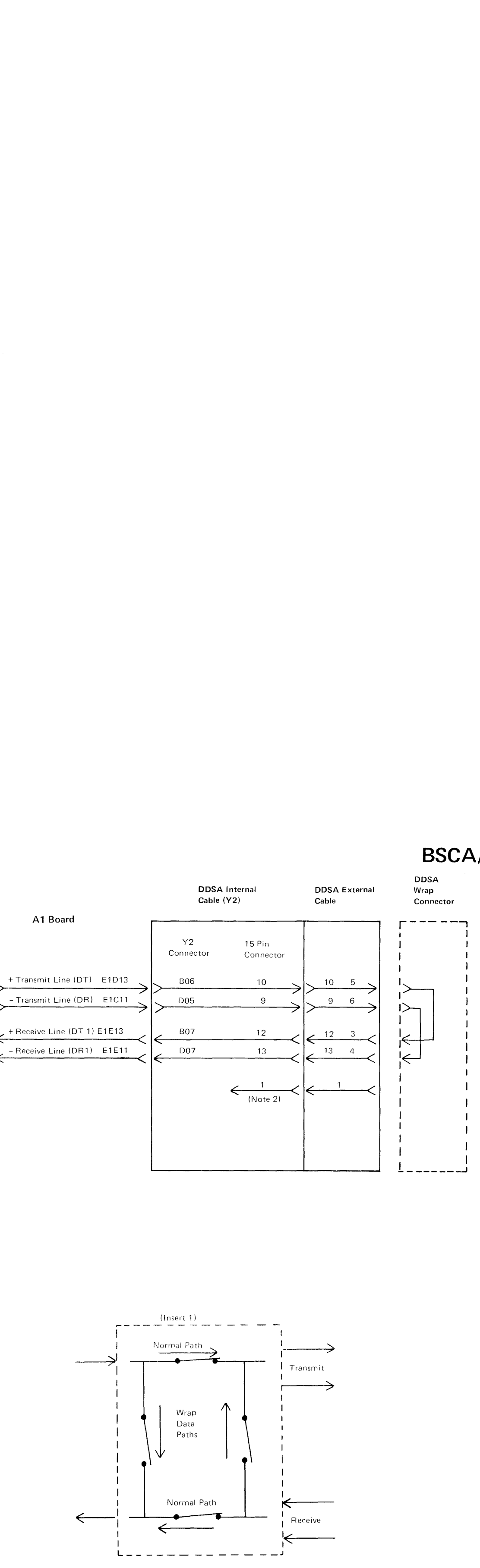
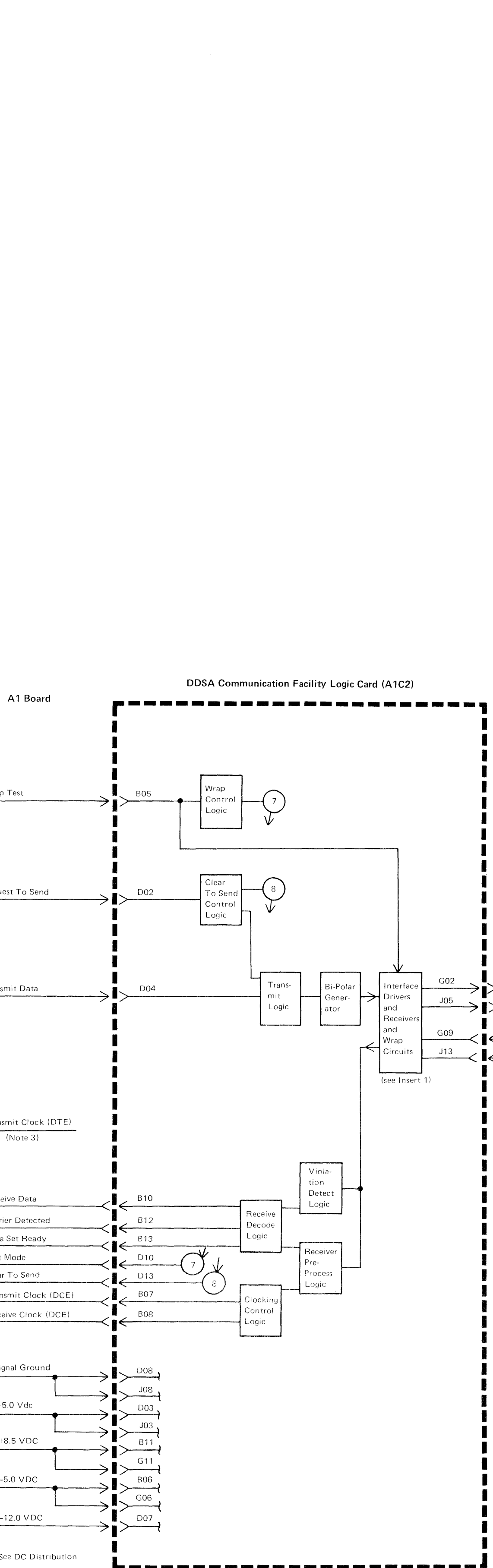
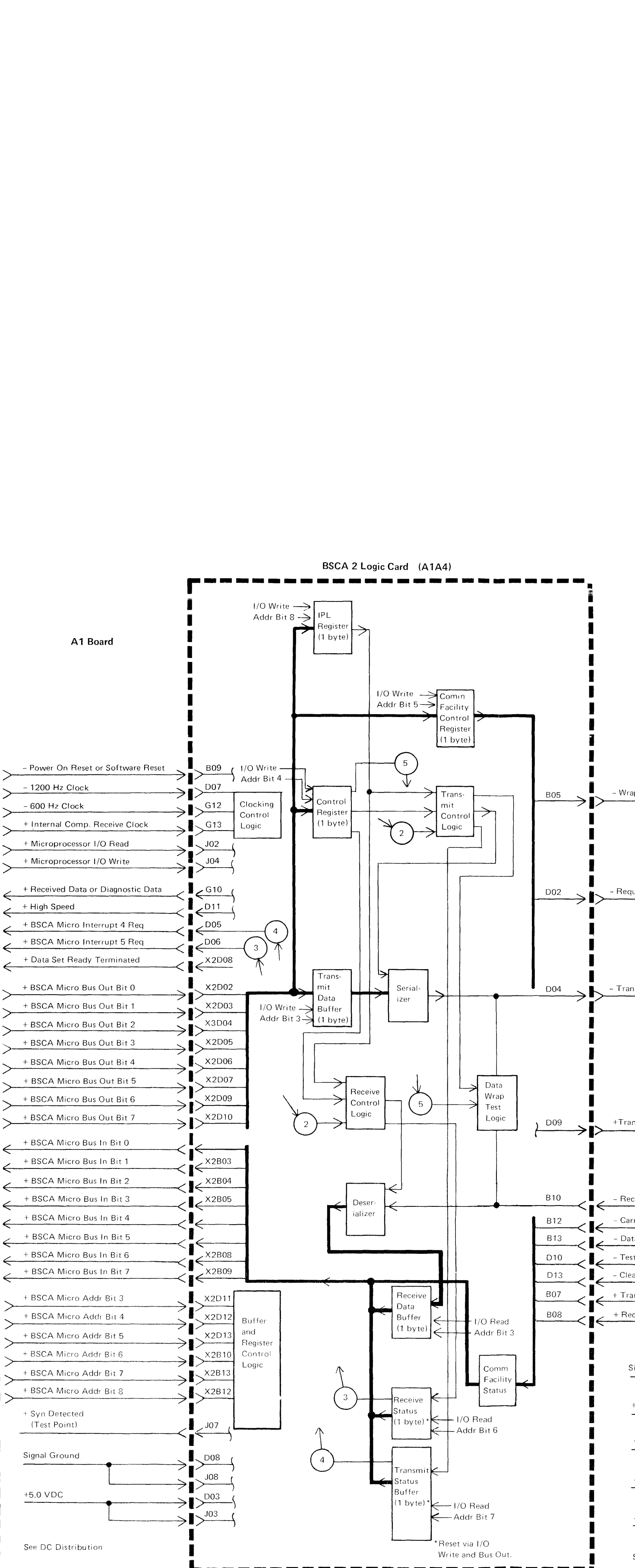
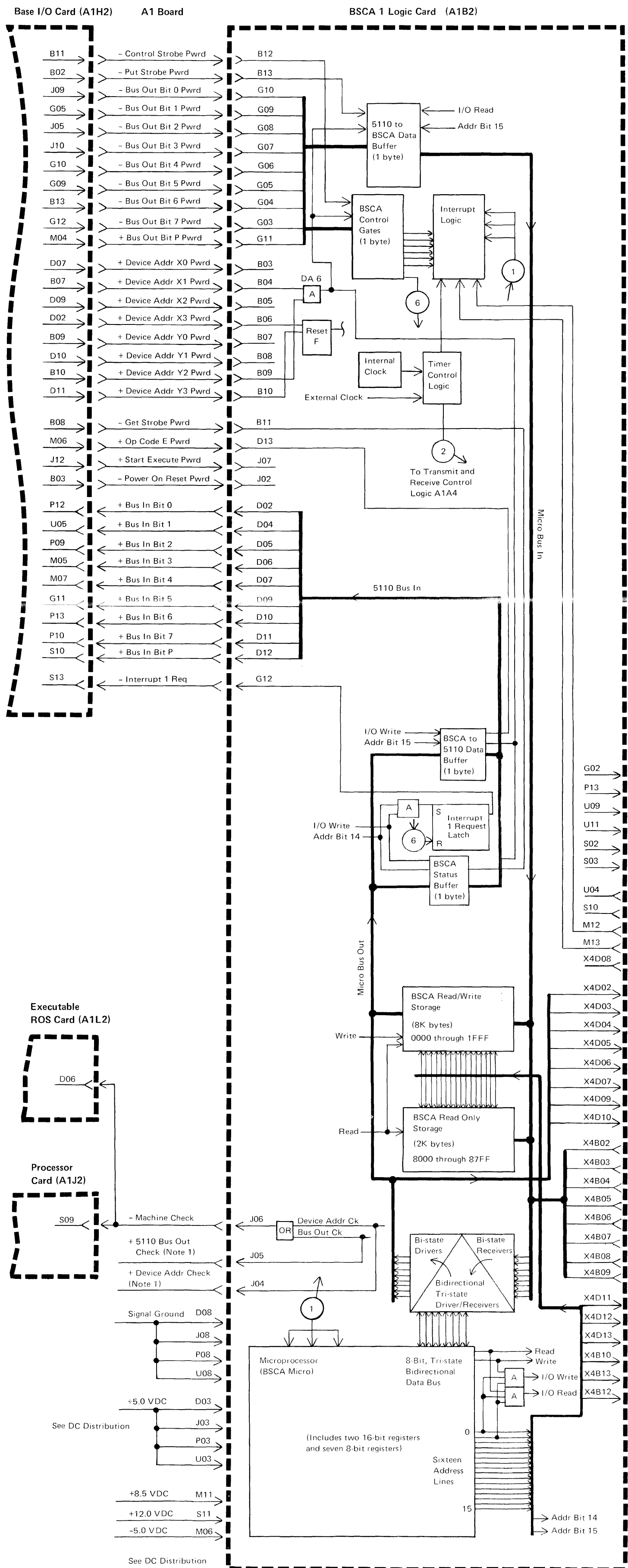


Note 1 - CE probe points - These pins are not connected to any nets on the A1 Board. The check circuit is active (plus) if an odd number of device address bits are active or if an even number of bus out bits are active.

Note 2 - Pin 1 is the protective ground wire. It is connected to the machine frame.
 Note 3 - Only one EIA/CCITT 25 pin connector is used unless the switched network backup (SNBU) feature is installed. Switched Network Backup requires an additional EIA/CCITT 25 pin connector.
 Note 4 - This line used for 2 wire connection.
 Note 5 - Used by TRAP tester only.

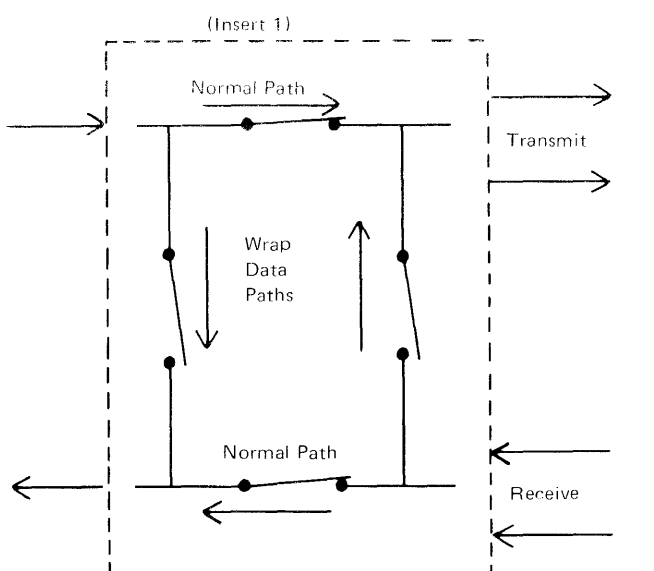
Plug connections for non-switched lines

Line Name	Color	Plug for 4 Wire	Plug for 2 Wire
+ Transmit Line	Red	R	R
- Transmit Line	White	GN	GN
- Receive Line	Yellow	Y	Y
+ Receive Line	Black	BK	BK



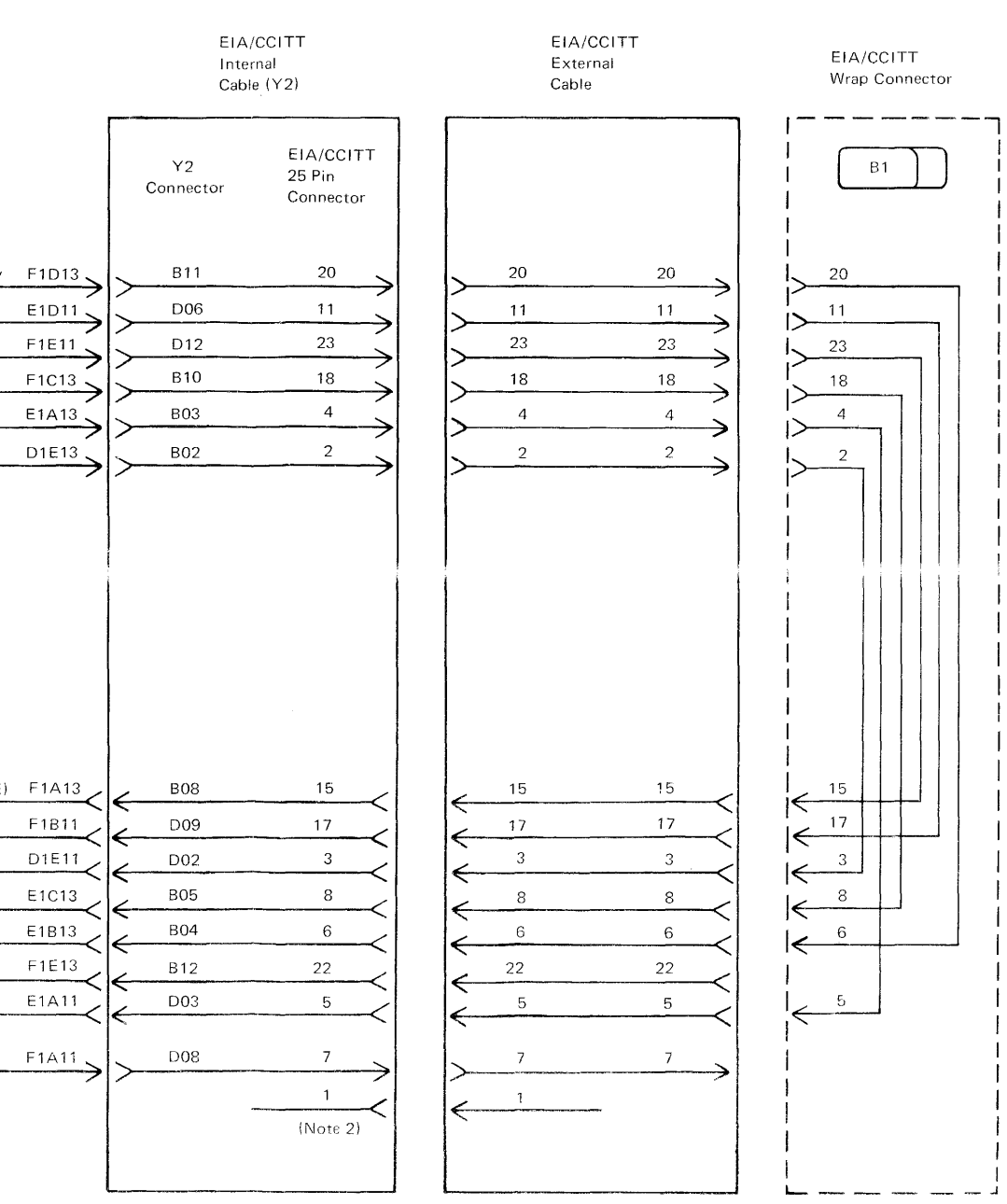
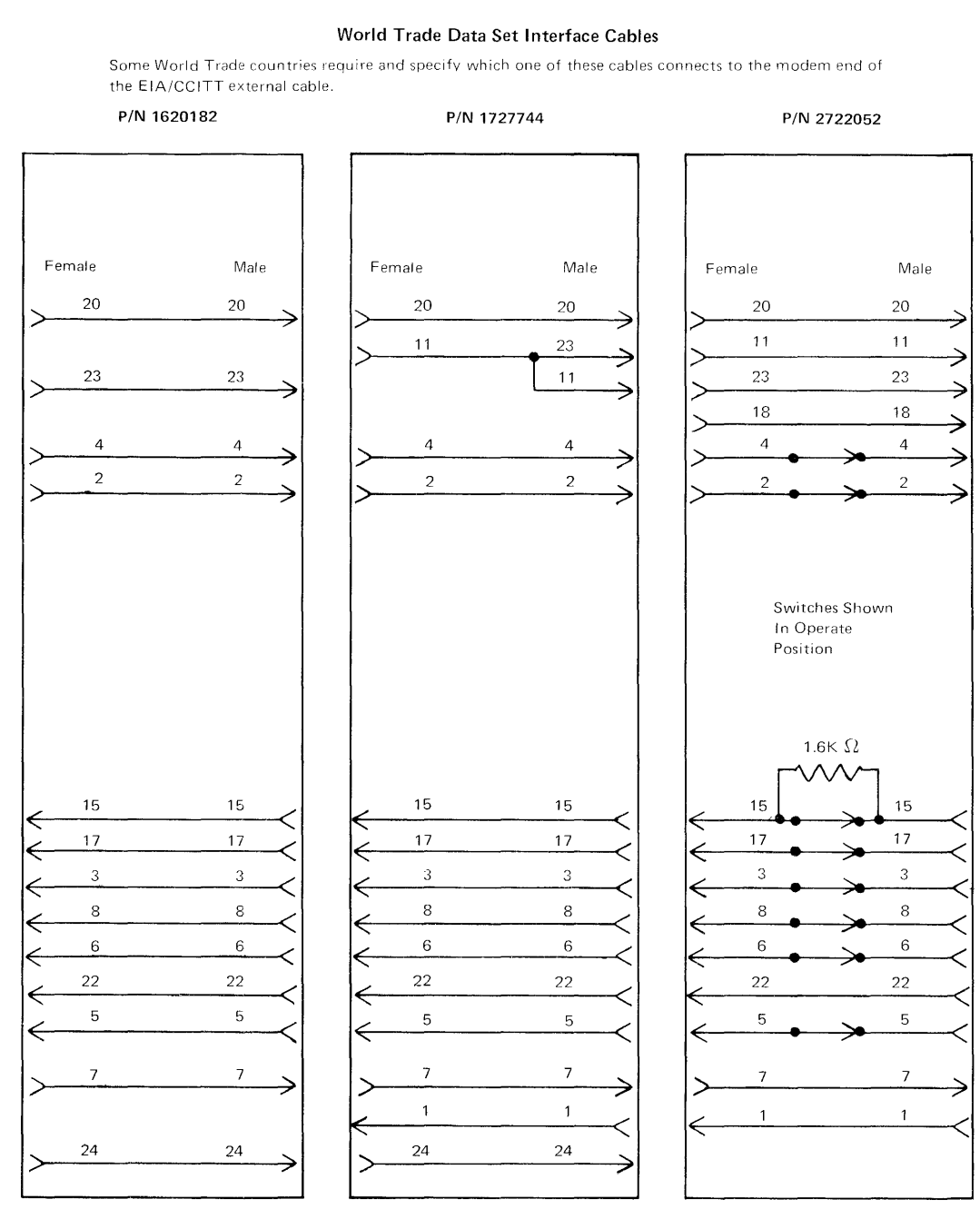
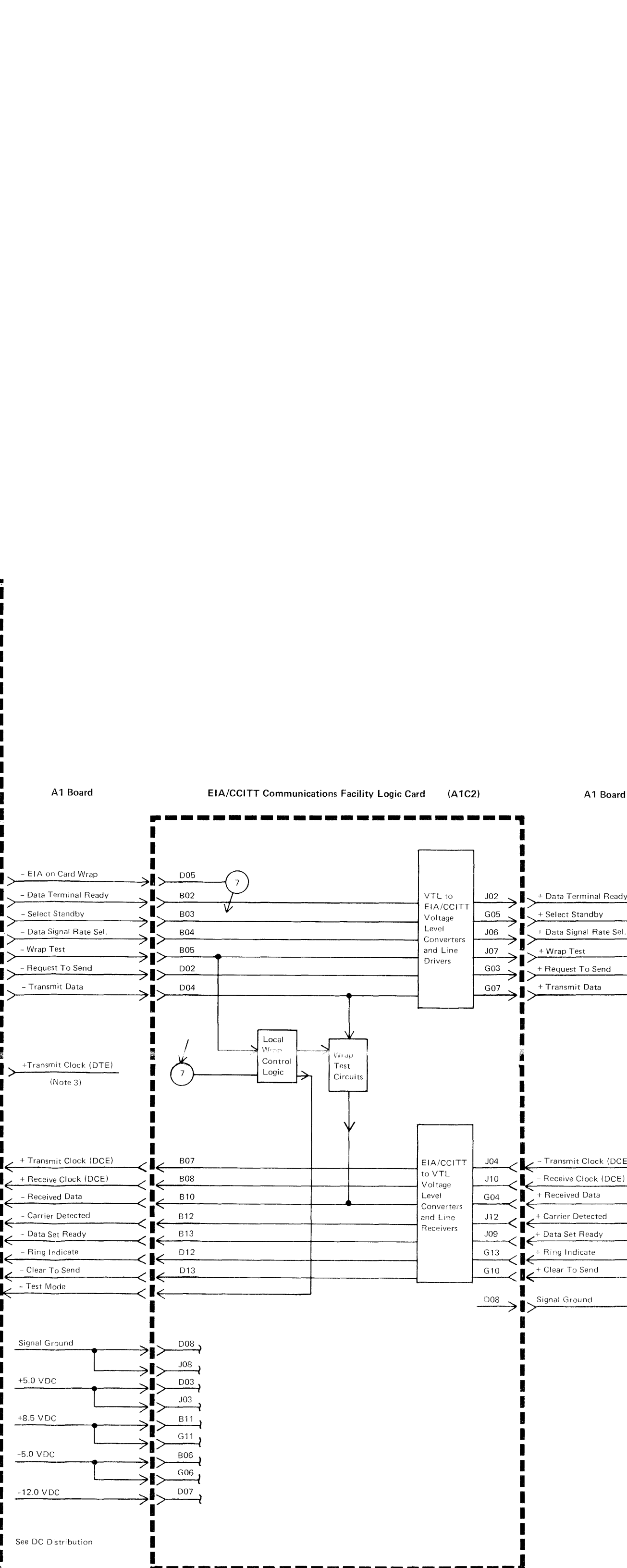
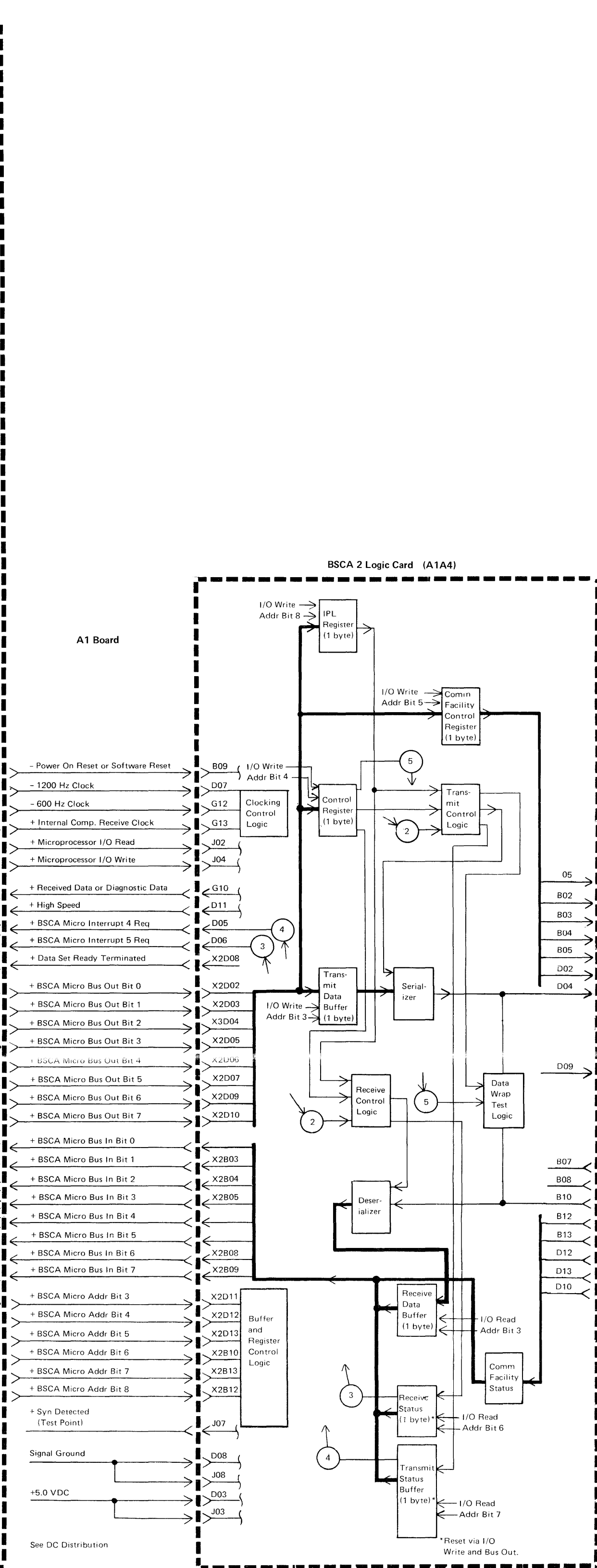
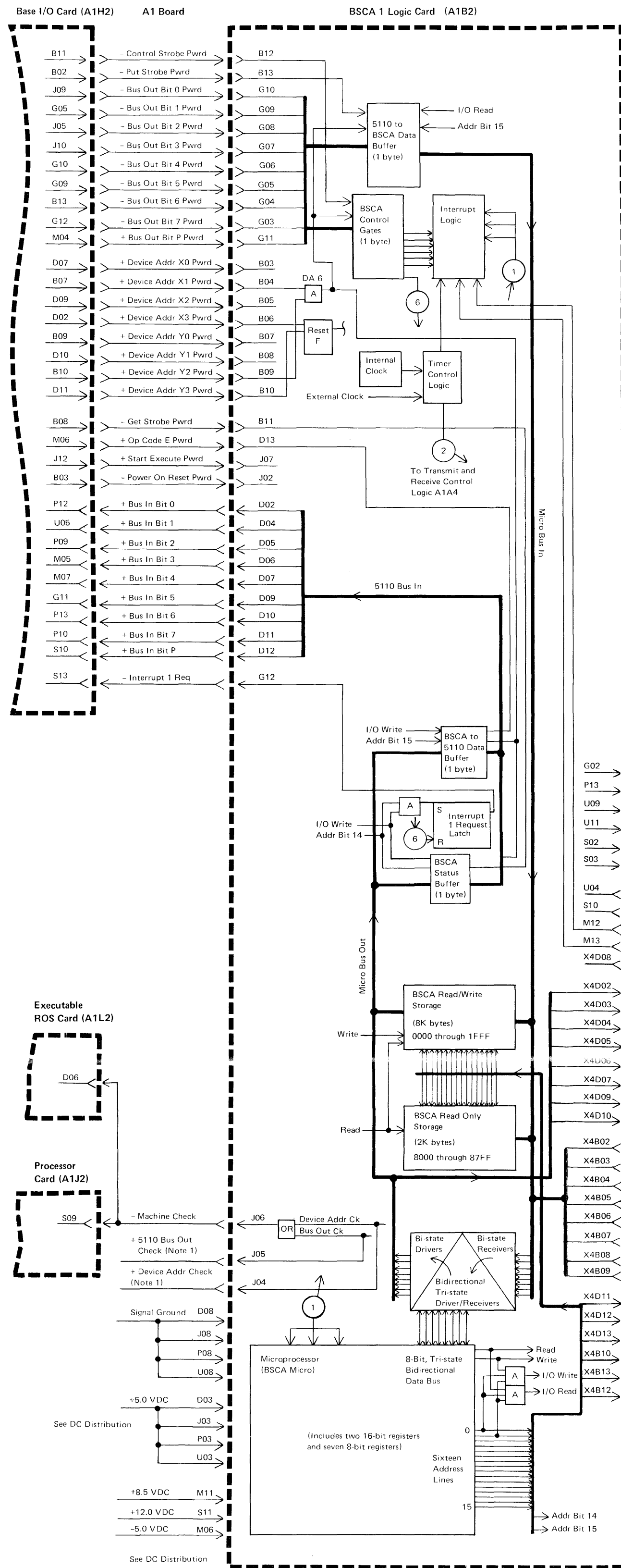
BSCA/DDS 460

DDSA Internal Cable (Y2)		DDSA External Cable		DDSA Wrap Connector
Y2 Connector	15 Pin Connector			
B06	10	10	5	1
D05	9	9	6	
B07	12	12	3	1
D07	13	13	4	
		1	1	



Note 1 - CE probe points - These pins are not connected to any nets on the A1 Board. The check circuit is active (plus) if an odd number of device address bits are active or if an even number of bus out bits are active.

Note 2 - Pin 1 is the protective ground wire. It is connected to the machine frame.
Note 3 - Used by TRAP tester only.

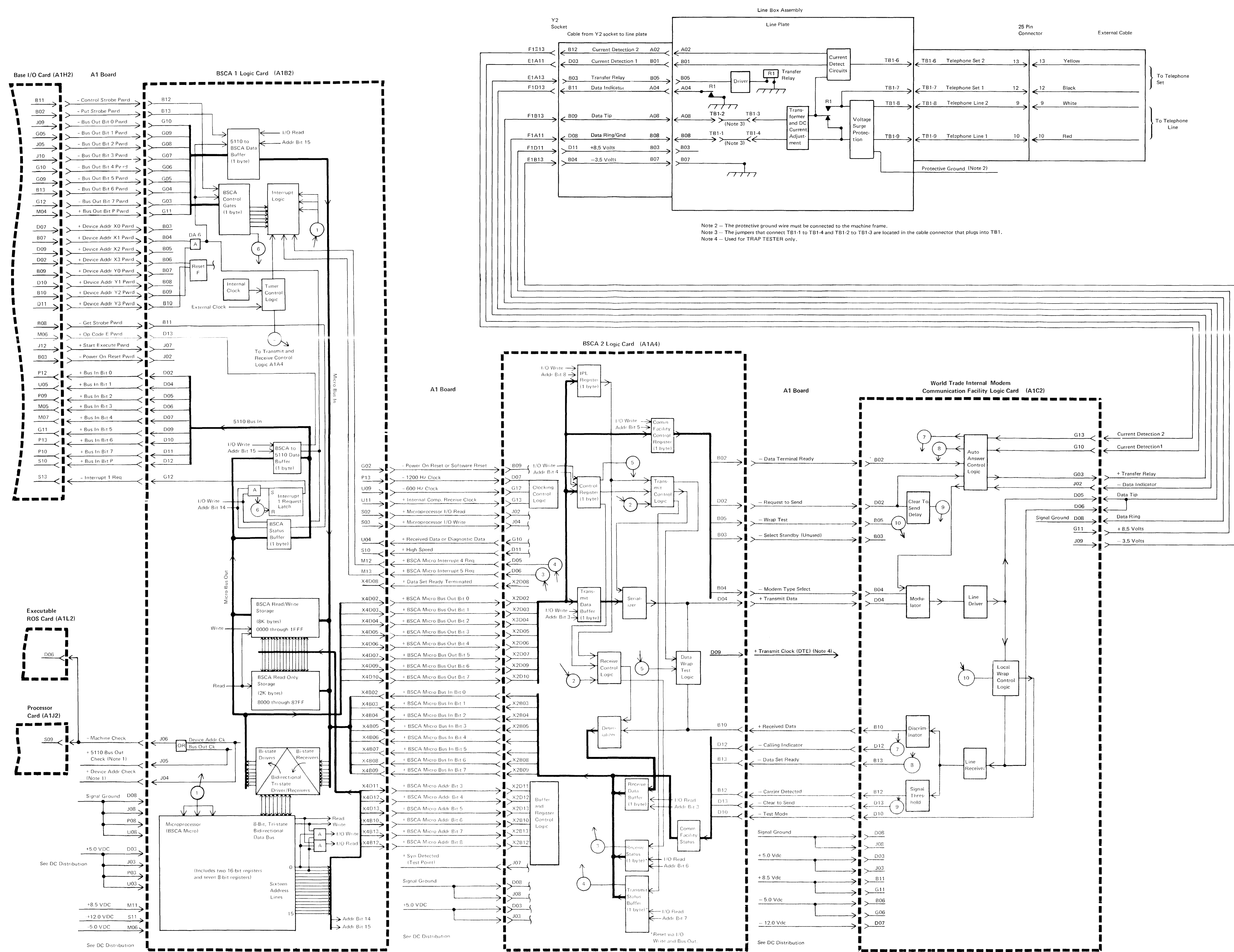


BSCA/EIA 465

Note 1 - CE probe points - These pins are not connected to any nets on the A1 Board. The check circuit is active (plus) if an odd number of device address bits are active or if an even number of bus out bits are active.

Note 2 - Pin 1 is the protective ground. It is connected to the machine frame.

Note 3 - Used by TRAP tester only.



**BSCA/World Trade 470
Integrated Modem**

Note 1 - CE probe points - these pins are not connected to any nets on the A1 Board. The check circuit is active (just) if an odd number of device address bits are active or, if an even number of bus out bits are active.

