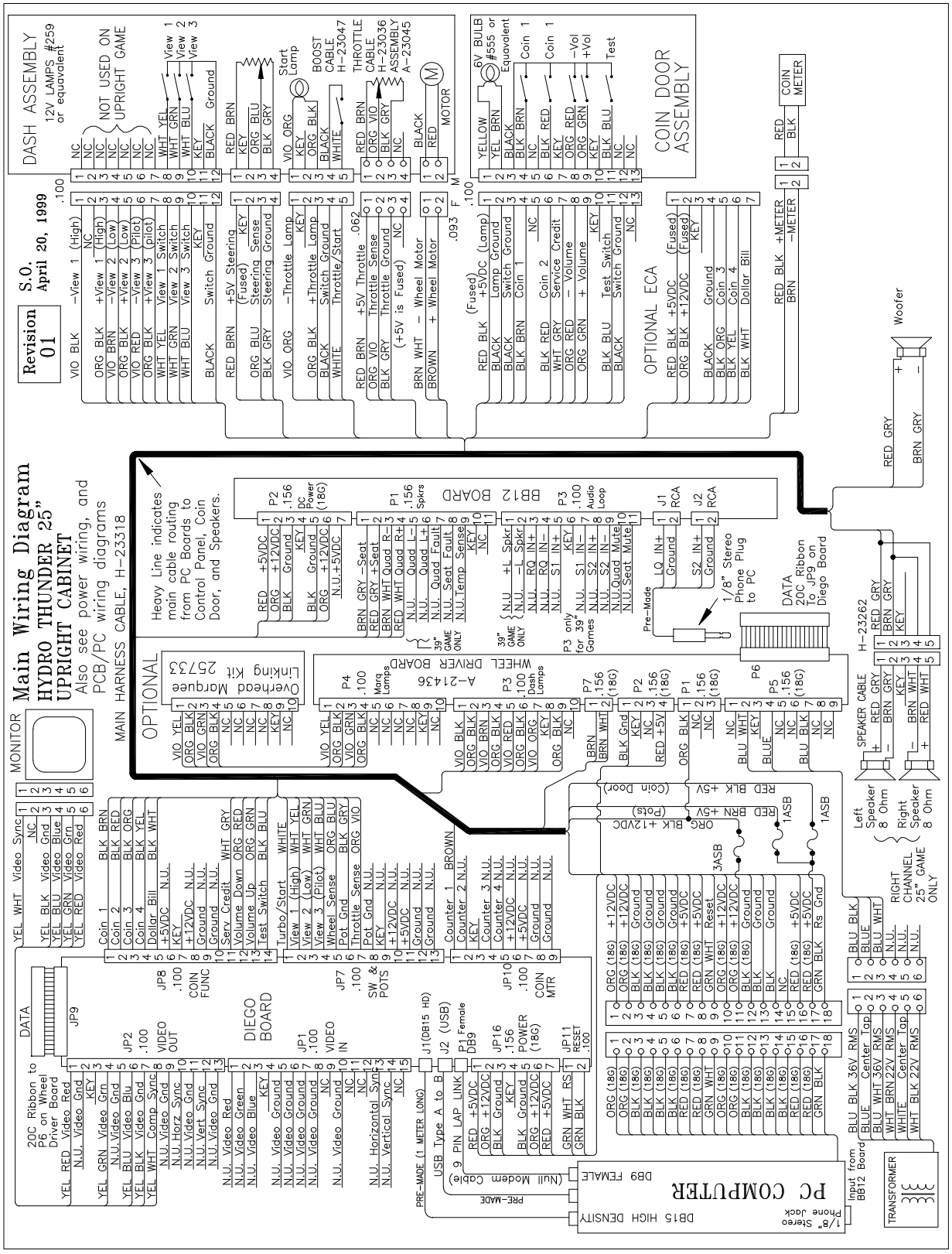
HYDROTHUNDER™

CHAPTER FIVE

WIRING & CIRCUIT INFORMATION

	**WARNING:** Failure to reconnect all ground wires or to replace metal shields and covers with each mounting screw installed and securely tightened may result in **radio frequency interference**. Do not disconnect or connect cables, wiring harness, circuit boards, computer circuit cards, jumpers, etc., with the power ON. Doing so can damage game electronic components and void your warranty.

CABINET WIRING DIAGRAM

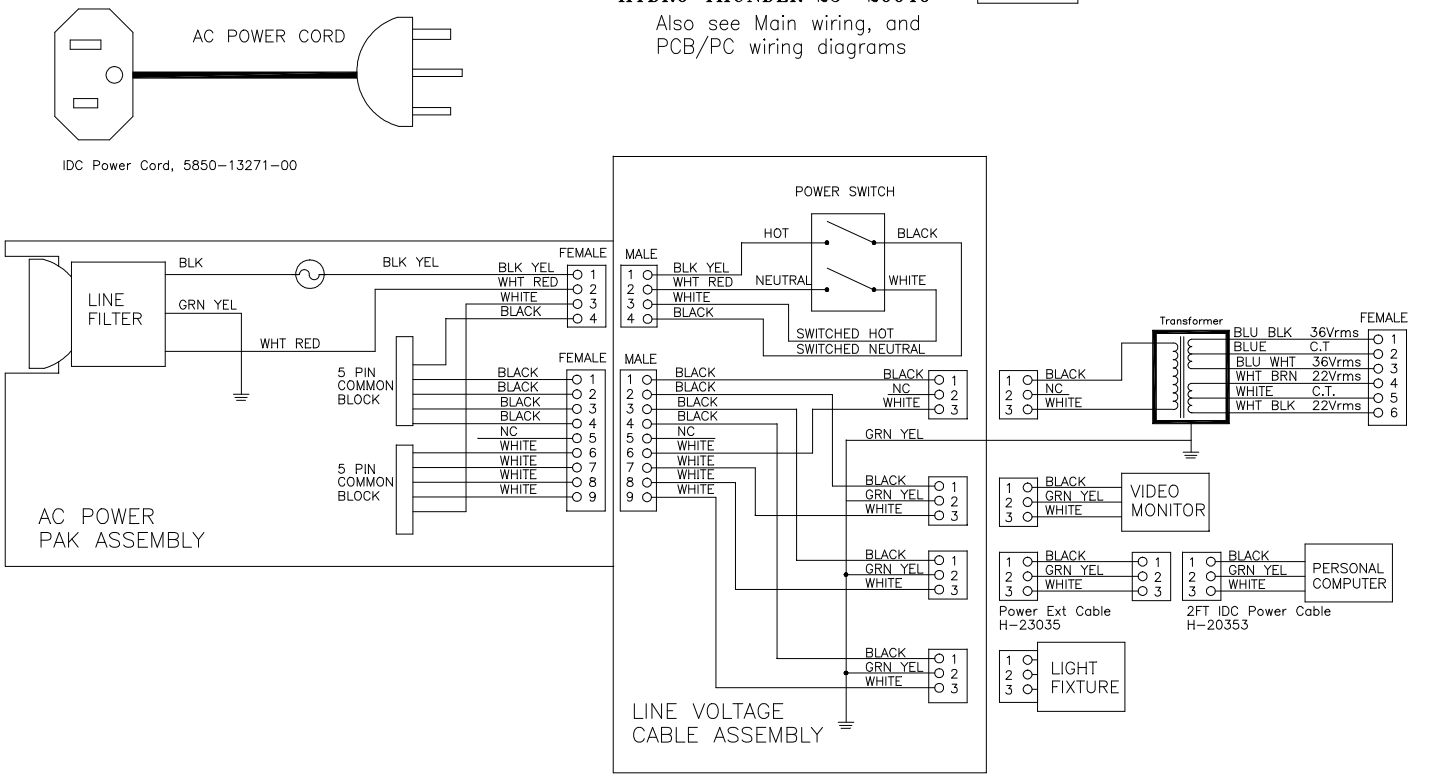


Power Wiring Diagram

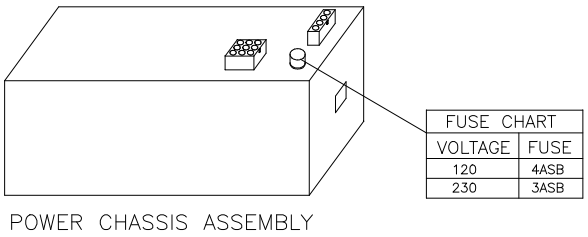
HYDRO THUNDER 25" 20040

Also see Main wiring, and PCB/PC wiring diagrams

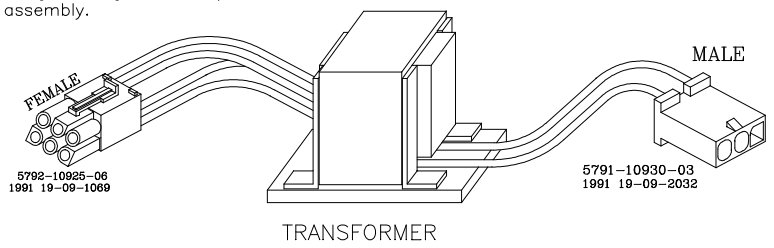
Revision 02



NOTE 1: All Earth Ground Wires (green-yellow) connect to grounding stud on power Chassis assembly.

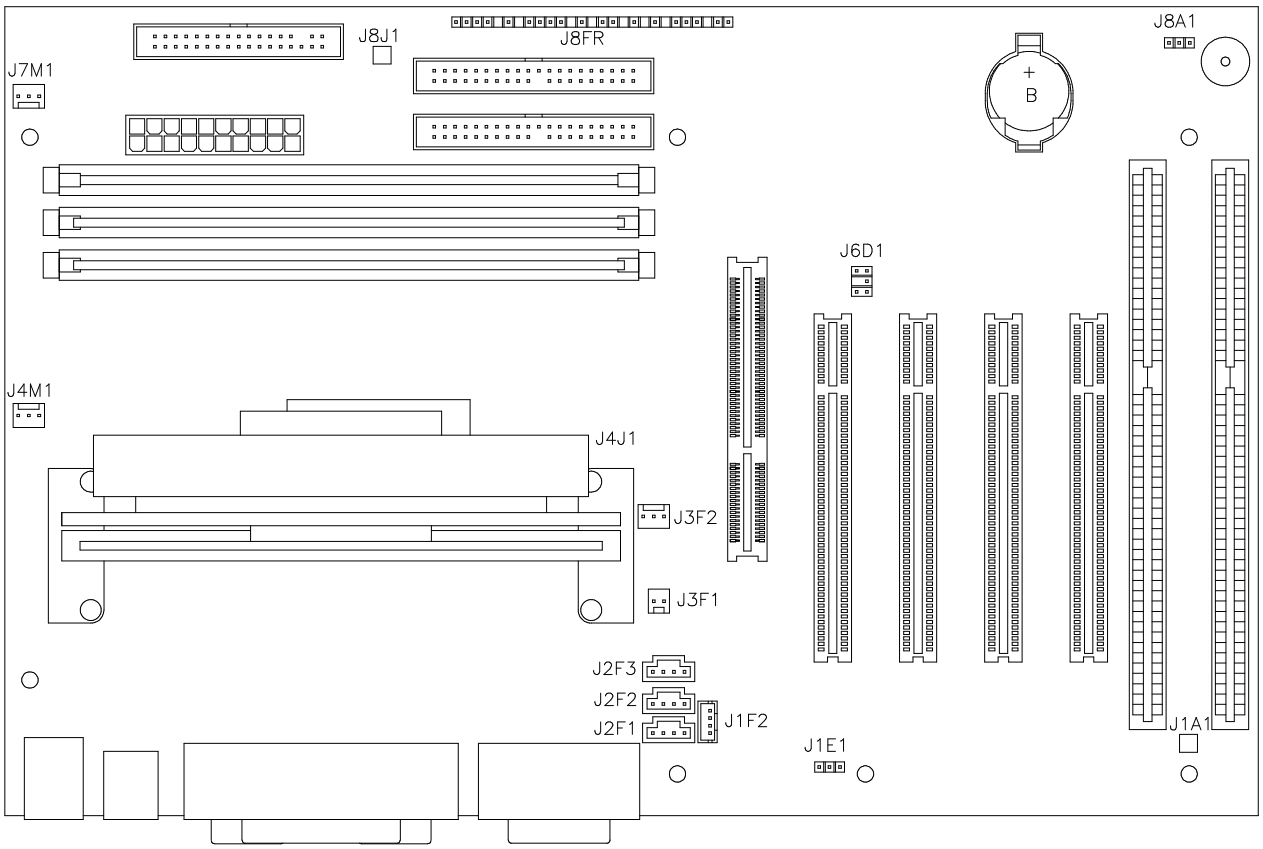


FUSE CHART	
VOLTAGE	FUSE
120	4ASB
230	3ASB



COMPUTER MOTHERBOARD ASSEMBLY

20-10554



MOTHERBOARD CONNECTOR AND JUMPER STATUS

(NOTES FOR CHART ON FOLLOWING PAGE)

NOTES:

1. Jumper is not required for this game. No telephone connection necessary for operation.
2. Jumper is not required for this game. A proprietary network is used for game linking.
3. Connections not required for this game. No ATAPI devices (CD ROM) are used in this game.
4. Jumper is not required for this game. The tamper detection security feature is not installed.
5. Connect processor module fan to this jack. Computer may become unreliable if processor overheats.
6. Connect processor module to this jack. The 242-pin socket accepts single microprocessor modules.
7. Connections not required for this game. The case cooling fans connect directly to the power supply.
8. Connections not required for this game. No SCSI device (Hard Disk Drive) are used in this game.
9. Connect the reset cable from the Filter Card Assembly to this jack. No front panel devices are used.
10. Jumper must be set over pins 1 & 2 for this game. Game will not run if jumper is incorrect or missing.

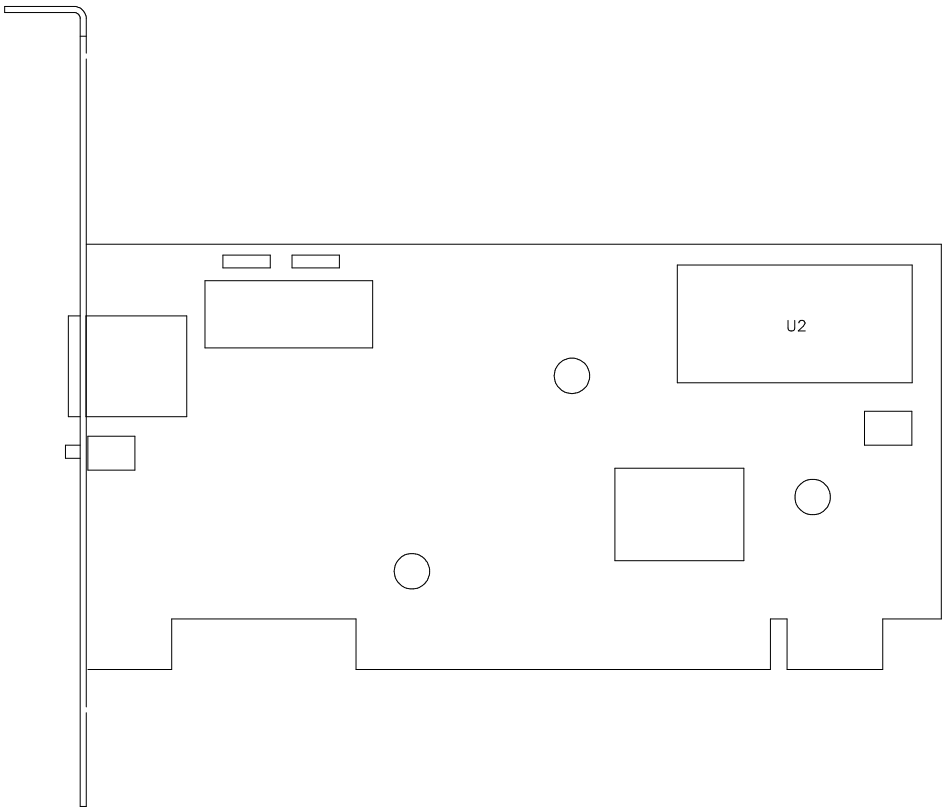
* Replacement Motherboards may not include this jumper. Refer to Parts to order extra shunt jumpers.

MOTHERBOARD CONNECTOR AND JUMPER STATUS CHART

DESIGNATION	LOCATION	FUNCTION	MEANING	SETTING	DEFAULT
J1A1	LOWER RIGHT	WAKE	NOT USED IN THIS	OPEN	■
	NEAR BOARD	ON	GAME (NO	1 & 2	
(NOTE 1)	EXPANSION SLOT	RING	TELEPHONE)		
J1E1	LOWER CENTER	WAKE	NOT USED IN THIS	OPEN	■
	NEAR BOARD	ON	GAME (NO		
(NOTE 2)	EXPANSION SLOT	LAN	PC LAN)		
J1F2	LOWER CENTER	CD AUDIO	NOT USED IN THIS	OPEN	■
	NEAR BOARD	INPUT	GAME (NO		
(NOTE 3)	EXPANSION SLOT	CIRCUIT	CD PLAYER)		
J2F1	LOWER CENTER	CD DATA	NOT USED IN THIS	OPEN	■
	NEAR BOARD	INPUT	GAME (NO		
(NOTE 3)	EXPANSION SLOT	CIRCUIT	CD PLAYER)		
J2F2	LOWER CENTER	TELEPHONY	NOT USED IN THIS	OPEN	■
	NEAR BOARD	INPUT	GAME (NO		
(NOTE 1)	EXPANSION SLOT	CIRCUIT	TELEPHONE)		
J2F3	LOWER CENTER	AUXILLIARY	NOT USED IN THIS	OPEN	■
	NEAR BOARD	INPUT	GAME (NO		
(NOTE 3)	EXPANSION SLOT	CIRCUIT	AUX DEVICES)		
J3F1	MIDDLE CENTER	CHASSIS	NOT USED IN THIS	OPEN	■
	NEAR CPU	INTRUSION	GAME (NO	1 & 2	
(NOTE 4)	AND FAN	CIRCUIT	INTRUSION)		
J3F2	MIDDLE CENTER	PROCESSOR	TWO SPEED FAN	OPEN	
	NEAR CPU	FAN	FOR PROCESSOR	1, 2, & 3	■
(NOTE 5)	AND FAN	CIRCUIT	COOLING		
J4J1	CENTER LEFT	SYSTEM	SYSTEM	OPEN	
	MODULE WITH	MICRO-	MICRO-	FILLED	■
(NOTE 6)	FAN ASSEMBLY	PROCESSOR	PROCESSOR		
J4M1	CENTER LEFT	PROCESSOR	CONTROLLED FAN	OPEN	■
	NEAR CPU	FAN	FOR PROCESSOR	1, 2, & 3	
(NOTE 7)	MODULE	CIRCUIT	COOLING		
J7M1	UPPER LEFT	CASE	CONTROLLED FAN	OPEN	■
	NEAR POWER &	FAN	FOR HARD DISK	1, 2, & 3	
(NOTE 7)	FLOPPY JACKS	CIRCUIT	DRIVE COOLING		
J8J1	UPPER LEFT	SCSI	NOT USED IN THIS	OPEN	■
	BETWEEN HARD	DRIVE	GAME (NO	1 & 2	
(NOTE 8)	& FLOPPY JACKS	INDICATOR	SCSI DRIVES)		
J8FR	UPPER CENTER	FRONT	ONLY RESET	OPEN	
	NEAR HARD DISK	PANEL	PINS ARE USED	1 & 2	■
(NOTE 9)	DRIVE JACKS	DEVICES	IN THIS GAME		
J8A1	UPPER RIGHT	CONFIGU-	STARTS SYSTEM	OPEN	
	NEAR BATTERY	RATION	SETUP ROUTINE	1 & 2	■
(NOTE 10)	AND SPEAKER	SELECT	OR OPERATION	2 & 3	

NETWORK INTERFACE CARD ASSEMBLY

20-10550



NETWORK INTERFACE LED INDICATOR STATUS CHART

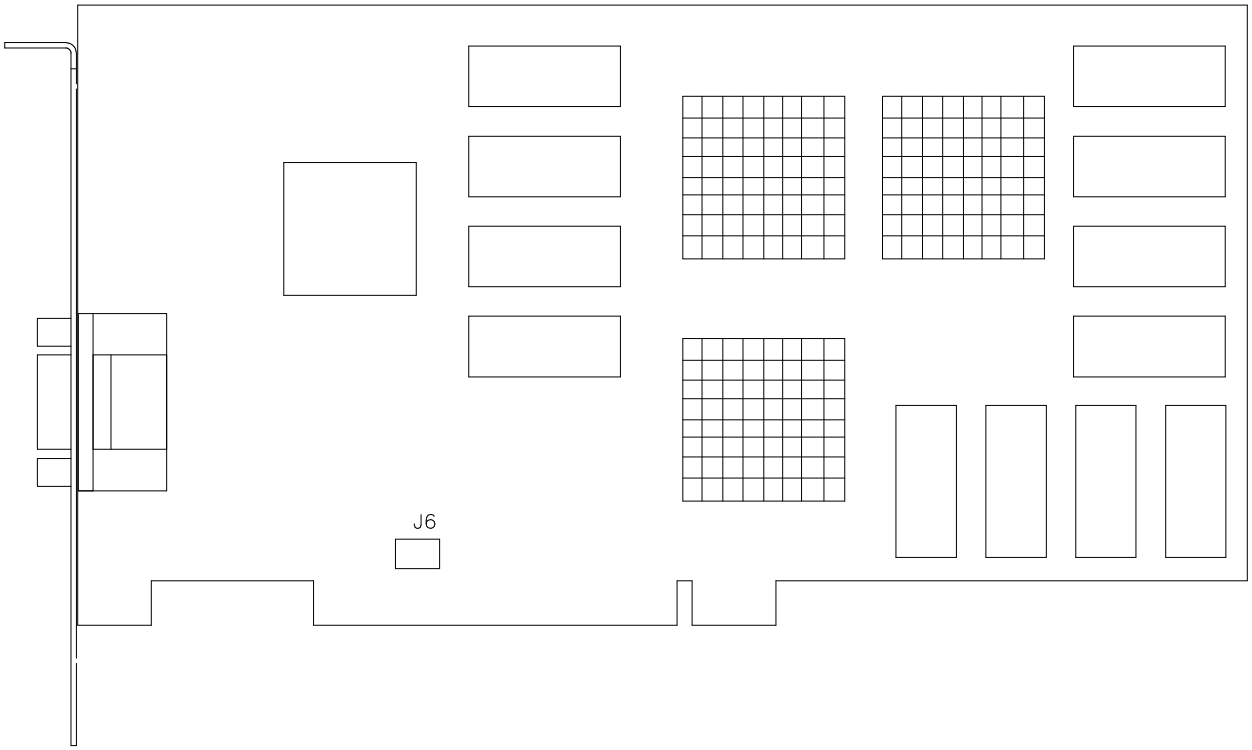
DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED 1 (LNK)	LEFT CENTER UNDER JACK	LINK VERIFY INDICATOR	GREEN	OFF	NOT IN USE (NO GAME LINK)
				ON	NORMAL OPERATION
				BLINKING	LINK FAULT (NOTE 1)
LED 2 (ACT)	RIGHT CENTER UNDER JACK	ACTIVITY INDICATOR	GREEN	OFF	NOT IN USE (NO DATA)
				ON	RECEIVING DATA (NOTE 2)
				BLINKING	NORMAL OPERATION

NOTES:

1. Intermittent cable or hub problems may cause blinking. Must be continuous at all times when linked.
2. Blinks as data packets are exchanged. May appear almost continuous during heavy network activity.

VIDEO GRAPHICS CARD ASSEMBLY

20-10551



VIDEO GRAPHICS CONNECTOR AND JUMPER STATUS CHART

DESIGNATION	LOCATION	FUNCTION	MEANING	SETTING	DEFAULT
J1	LEFT CENTER	VIDEO	GRAPHIC	OPEN	
	(DB-15 ON	SIGNAL	INFORMATION	1-15	■
(NOTE 1)	BRACKET)	OUTPUT	TO INTERFACE		
J2-J7	NONE	---	NOT USED	OPEN	■
(NOTE 2)					
JP2	NONE	---	NOT USED	OPEN	■
(NOTE 2)					

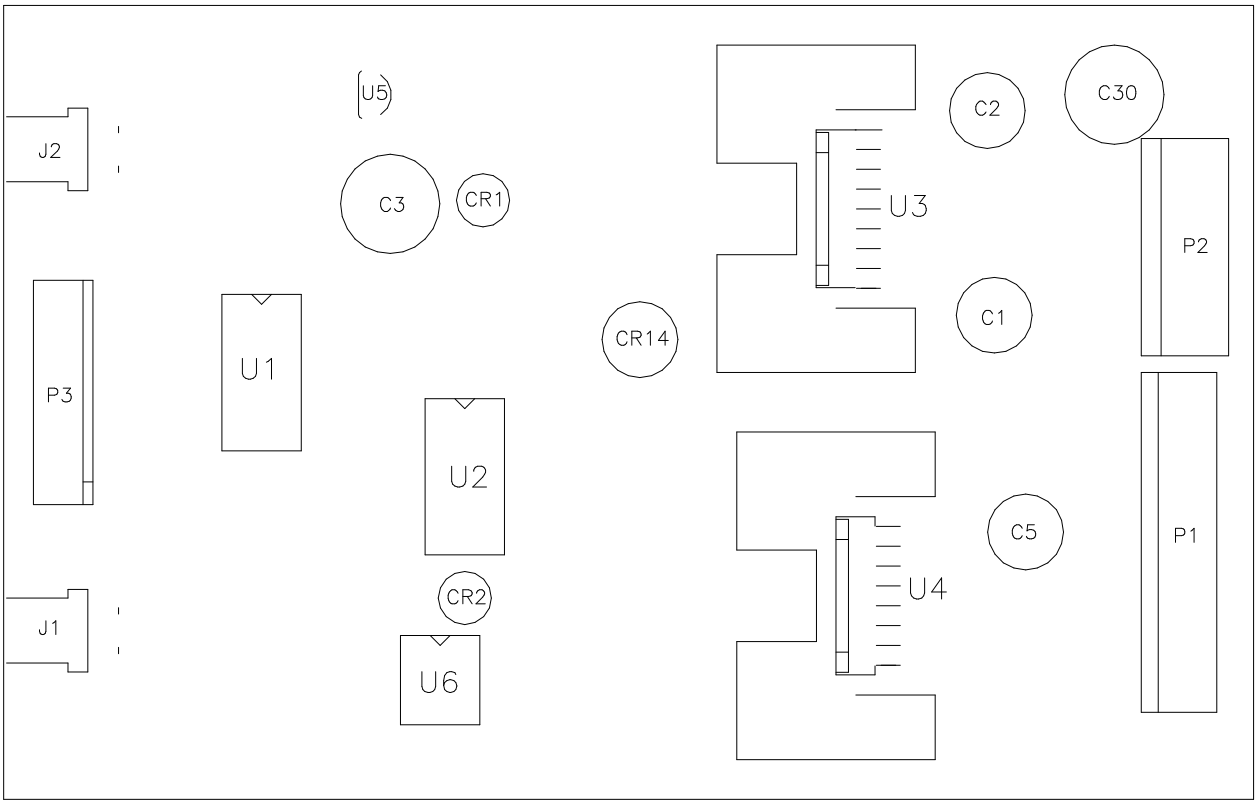
NOTES:

1. Connects to Interface Board Assembly through shielded cable. Does not connect directly to monitor.

2. Manufacturer option connectors and jumpers. Not required for this game.

AUDIO AMPLIFIER BOARD ASSEMBLY

04-12529.1



AUDIO AMPLIFIER LED INDICATOR STATUS CHART

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED 1 (CR1)	UPPER CENTER NEAR C3	FAULT INDICATOR	RED	OFF	NORMAL OPERATION
				ON	LOCKED UP (NOTE 1)
				BLINKING	OVERLOAD (NOTE 2)
LED 2 (CR2)	LOWER CENTER NEAR U2 & U6	FAULT INDICATOR	RED	OFF	NORMAL OPERATION
				ON	LOCKED UP (NOTE 1)
				BLINKING	OVERLOAD (NOTE 2)

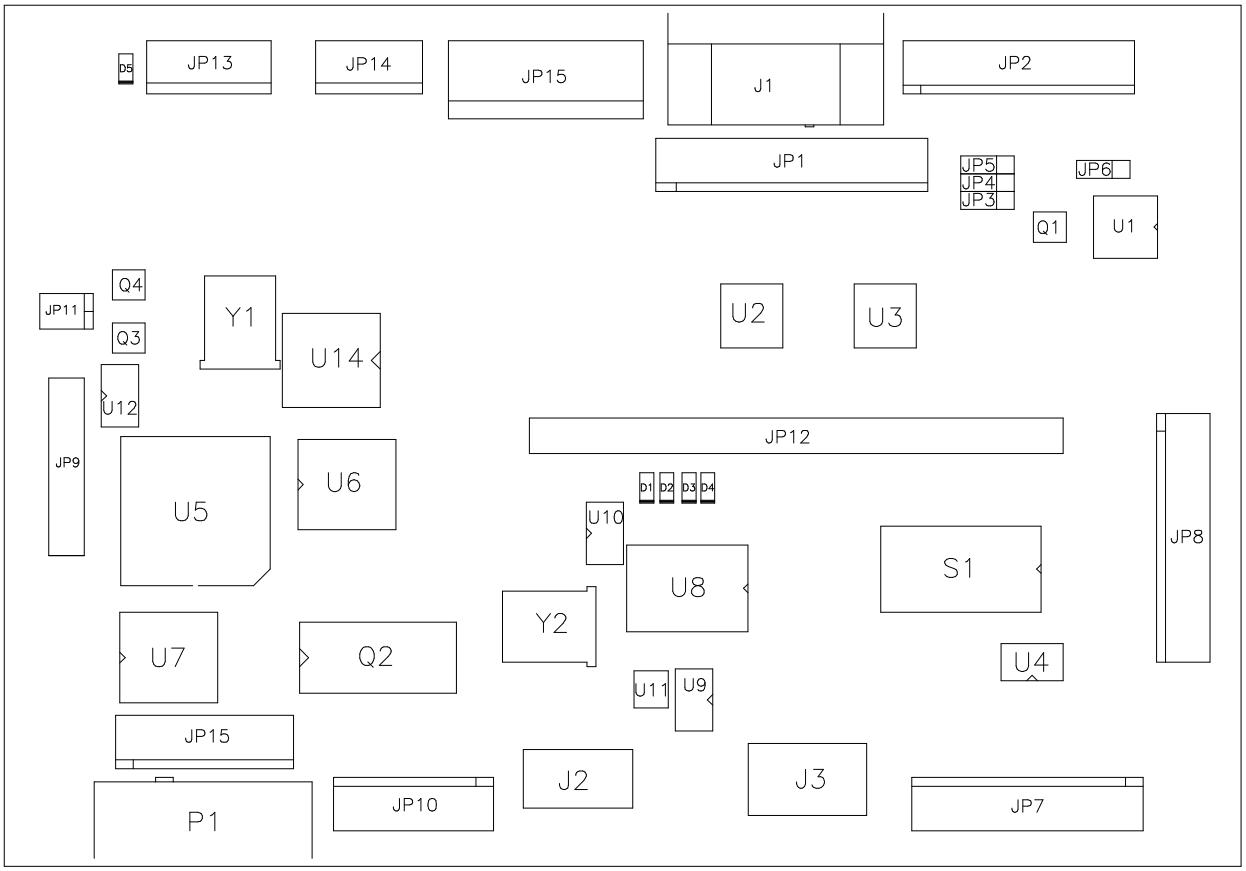
NOTES:

1. Output protection circuit has been activated. Clear fault and remove power to attempt a circuit reset.

2. Intermittent audio overload or overheating may cause blinking. LED should flash only during start up.

DIEGO INTERFACE BOARD ASSEMBLY

04-12522.4



DIEGO INTERFACE BOARD SWITCHES

DESIGNATION	LOCATION	FUNCTION	POSITIONS	STATE	MEANING
S1-3	RIGHT CENTER NEAR JP7 & JP8	GAME MODES	2	OFF*	NORMAL OPERATION
				ON	FIXED IN TEST MODE
S1-4	RIGHT CENTER NEAR JP7 & JP8	CABINET SIZE	2	OFF	STANDARD 25” CABINET
				ON*	39” CABINET
S1-8	RIGHT CENTER NEAR JP7 & JP8	RESET MODES	2	OFF	WATCHDOG DISABLED
				ON*	WATCHDOG ENABLED

NOTES:
1. Use S1-3 only during testing or troubleshooting. The game will not start if this switch is left ON.
2. Use S1-4 to set game type. The speakers and leader lights will not work properly if set incorrectly.
3. Use S1-8 only during testing or troubleshooting. The game may lock up or freeze if this is disabled.
4. S1-1, -2, -5, -6, and -7 have no assigned function. Leave these switches in their OFF positions.

DIEGO INTERFACE BOARD LED INDICATOR STATUS CHART

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED 1 (D1)	MIDDLE CENTER NEAR JP12 & U10	INDICATOR	GREEN	OFF	NOT IN USE
				ON	LOCKED UP (NOTE 1)
				BLINKING	NORMAL OPERATION
LED 2 (D2)	MIDDLE CENTER NEAR JP12 & U10	INDICATOR	RED	OFF	NOT IN USE
				ON	LOCKED UP (NOTE 1)
				BLINKING	NORMAL OPERATION
LED 3 (D3)	MIDDLE CENTER NEAR JP12 & U10	INDICATOR	GREEN	OFF	NOT IN USE
				ON	LOCKED UP (NOTE 2)
				BLINKING	NORMAL OPERATION
LED 4 (D4)	MIDDLE CENTER NEAR JP12 & U10	INDICATOR	RED	OFF	NOT IN USE
				ON	LOCKED UP (NOTE 2)
				BLINKING	NORMAL OPERATION
LED 5 (D5)	UPPER LEFT NEAR JP13 & L37	POWER INDICATOR	RED	OFF	NO POWER
				ON	NORMAL OPERATION
				BLINKING	POWER FAULT (NOTE 3)

NOTES:

1. LED 1 and LED 2 are active on all versions of this board. LEDs may flash together during game start up. If these LEDs are always ON, there may be a fault that has caused the game freeze or lock up.

2. LED 3 and LED 4 are active on some versions of this board. May flash together during game start up. If these LEDs are always ON, there may be a fault that has caused the game to freeze or lock up.

3. LED 5 monitors a regulated power supply voltage source. Must be on continuously at all times. Flash or blinking indicates an intermittent connection, a power problem, a circuit fault, etc.

DIEGO INTERFACE CONNECTOR AND JUMPER STATUS CHART

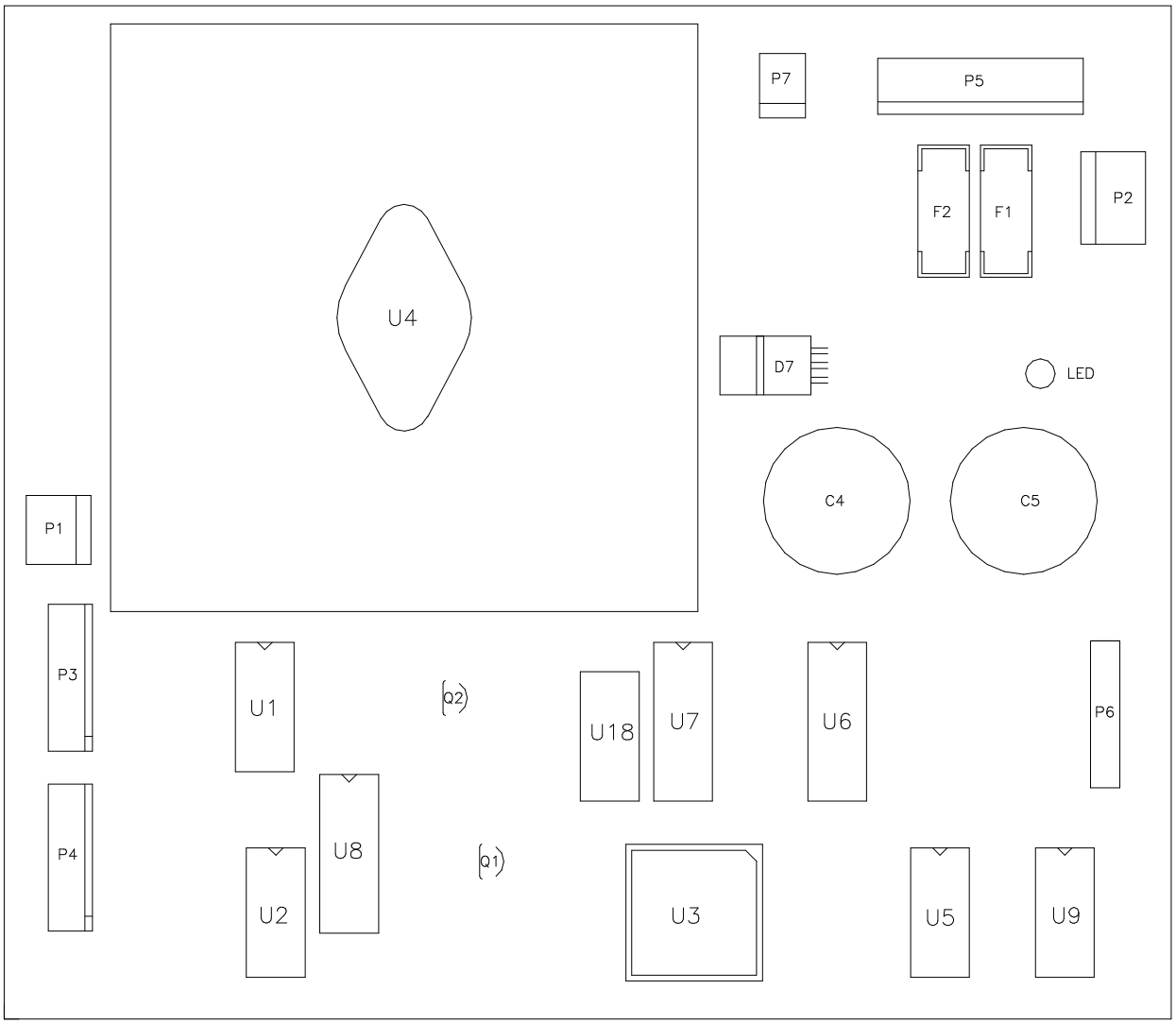
DESIGNATION	LOCATION	FUNCTION	MEANING	SETTING	DEFAULT
J1 & JP1	UPPER RIGHT	VIDEO	SIGNALS FROM	OPEN	
	BETWEEN	INPUT	COMPUTER VIDEO	J1 ALL	■
(NOTE 1)	JP2 AND JP16	SIGNALS	GRAPHICS CARD	JP1 ALL	
J2 & J3	LOWER CENTER	SERIAL	NOT USED IN THIS	OPEN	■
	BETWEEN	COMM	GAME (NO		
(NOTE 2)	JP7 & JP10	SIGNALS	USB COMM)		
JP2	UPPER RIGHT	VIDEO	SIGNALS TO	OPEN	
	BETWEEN	OUTPUT	GAME VIDEO	JP2 ALL	■
	J1 & JP6	SIGNALS	MONITOR		
JP3	UPPER RIGHT	BLUE	MATCHES	OPEN	■
	BETWEEN	VIDEO	DRIVE LEVEL	1 & 2	
(NOTE 3)	JP1 & JP6	LEVEL	TO MONITOR	2 & 3	
JP4	UPPER RIGHT	GREEN	MATCHES	OPEN	■
	BETWEEN	VIDEO	DRIVE LEVEL	1 & 2	
(NOTE 3)	JP1 & JP6	LEVEL	TO MONITOR	2 & 3	
JP5	UPPER RIGHT	RED	MATCHES	OPEN	■
	BETWEEN	VIDEO	DRIVE LEVEL	1 & 2	
(NOTE 3)	JP1 & JP6	LEVEL	TO MONITOR	2 & 3	
JP6	UPPER RIGHT	VIDEO	LOCKS VIDEO	OPEN	■
	BETWEEN	SYNC	MONITOR TO	1 & 2	
(NOTE 4)	L7 & U1	POLARITY	SYNC SIGNAL	2 & 3	
JP7	LOWER RIGHT	PLAYER	SIGNALS FROM	OPEN	
	NEAR	INPUT	SWITCHES AND	JP7 ALL	■
	J3 & JP8	SIGNALS	STEERING WHEEL		
JP8	LOWER RIGHT	OPERATOR	SIGNALS FROM	OPEN	
	NEAR	INPUT	CURRENCY AND	JP8 ALL	■
	JP7 & S1	SIGNALS	TEST SWITCHES		
JP9	CENTER LEFT	WHEEL	STEERING MOTOR	OPEN	
	NEAR	DRIVER	FEEDBACK AND	JP9 ALL	■
	JP11 & U5	SIGNALS	LEADER LIGHTS		
JP10	LOWER LEFT	COIN	INDIVIDUAL	OPEN	
	BETWEEN	OUTPUT	COIN METER	JP10 ALL	■
	J2 & P1	SIGNALS	DRIVE CIRCUITS		
JP11	CENTER LEFT	GAME	WATCHDOG	OPEN	
	BETWEEN	RESET	TIMER	JP11 ALL	■
	C134 & JP9	SIGNAL	CIRCUIT		
JP12	CENTER RIGHT	BOARD	CONNECTOR USED	OPEN	■
	NEAR	TEST	FOR CIRCUIT	JP12 ALL	
	S1 & U8	SIGNALS	DEVELOPMENT		
JP15 & P1	LOWER RIGHT	SERIAL	DATA EXCHANGE	OPEN	
	NEAR	COMM	TO COMPUTER	JP15	
(NOTE 1)	JP10 & U7	SIGNALS	CIRCUITS	P1	■

NOTES:

1. Connectors wired in parallel. Use based on type of interconnect cable connector.
2. Alternate forms of communications. Not required for this game.
3. Jumper not required for production video monitors. Install for early production Neotec or other units.
4. Jumper factory set for production video monitors. Change for older positive sync video monitors.

WHEEL DRIVER BOARD ASSEMBLY

04-11127



WHEEL DRIVER BOARD LED INDICATOR STATUS CHART

DESIGNATION	LOCATION	FUNCTION	COLOR	STATE	MEANING
LED 1	RIGHT CENTER NEAR C5 & P2	INDICATOR	RED	OFF	NOT IN USE
				ON	NORMAL OPERATION
				BLINKING	POWER FAULT (NOTE 1)

NOTES:

1. LED 1 monitors a regulated power supply voltage source. Must be on continuously at all times. Flash or blinking indicates an intermittent connection, a power problem, a circuit fault, etc.