CHAPTER FIVE

WIRING

JAMMA CHART

Function	Wire Color	Pin	Pin	Wire Color	Function
Ground	Black	A	1	Black	Ground
Ground	Black	B	2	Black	Ground
+5VDC	Red	C	3	Red	+5VDC
+5VDC	Red	D	4	Red	+5VDC
-5VDC	Yellow	E	5	Yellow	-5VDC
	N/C	F	6	Orange	+12VDC
	Key	H	7	Key	
Coin Counter 2	Brown/Red	J	8	Brown	Coin Counter 1
	N/c	K	9	N/C	
-Cabinet Speaker	Brown/Gray	L	10	Red/Gray	+Cabinet Speaker
	N/C	M	11	Red/White	+Seat Speaker
Video Green	Yellow/Green	N	12	Yellow/Red	Video Red
Video Sync	Yellow/White	P	13	Yellow/Blue	Video Blue
Service Credits	White/Gray	R	14	Yellow/Black	Video Ground
Slam Tilt	Black/Green	S	15	Black/Blue	Test Switch
Coin 2	Black/Red	T	16	Black/Brown	Coin 1
	N/C	U	17	White	Start
Gear 1	Green/Black	V	18	N/C	
Gear 2	Green/Brown	W	19	N/C	
Gear 3	Green/Red	X	20	N/C	
Gear 4	Green/Orange	Y	21	N/C	
	N/C	Z	22	White/Yellow	View 1 Switch
	N/C	a	23	White/Green	View 2 Switch
	N/C	b	24	White/Blue	View 3 Switch
	N/C	c	25	N/C	
	N/C	d	26	N/C	
Ground	Black	e	27	Yellow/Brown, Black	Ground
Ground	Black	f	28	Black	Ground
SOLDER SIDE			COMPONENT SIDE		

DASHBOARD WIRES (NOT PART OF THE MAIN JAMMA HARNESS)

WHEEL MOTOR BLACK	Brown/White -	Green/Black	**GEAR SHIFT 1 (1st)**
WHEEL MOTOR RED	Brown +	Green/Brown	**GEAR SHIFT 2 (2nd)**
Red	**+ 5V STEERING**	Green/Red	**GEAR SHIFT 3 (3rd)**
Orange/Blue	**STEERING POSITION**	Green/Orange	**GEAR SHIFT 4 (4th)**
Black	**GROUND STEERING**	Black	**GEAR GROUND**

DC POWER SOURCE VOLTAGE LIMITS

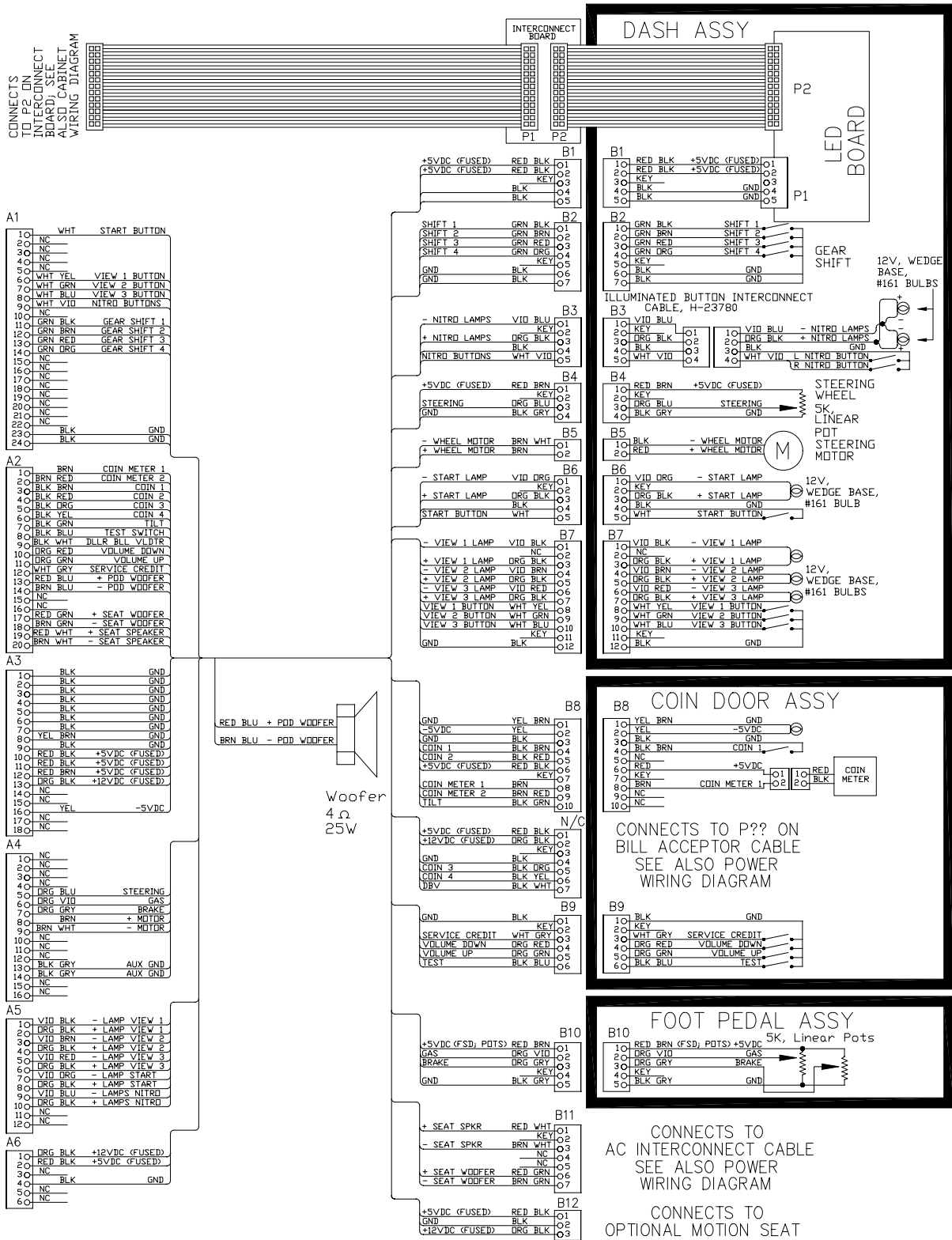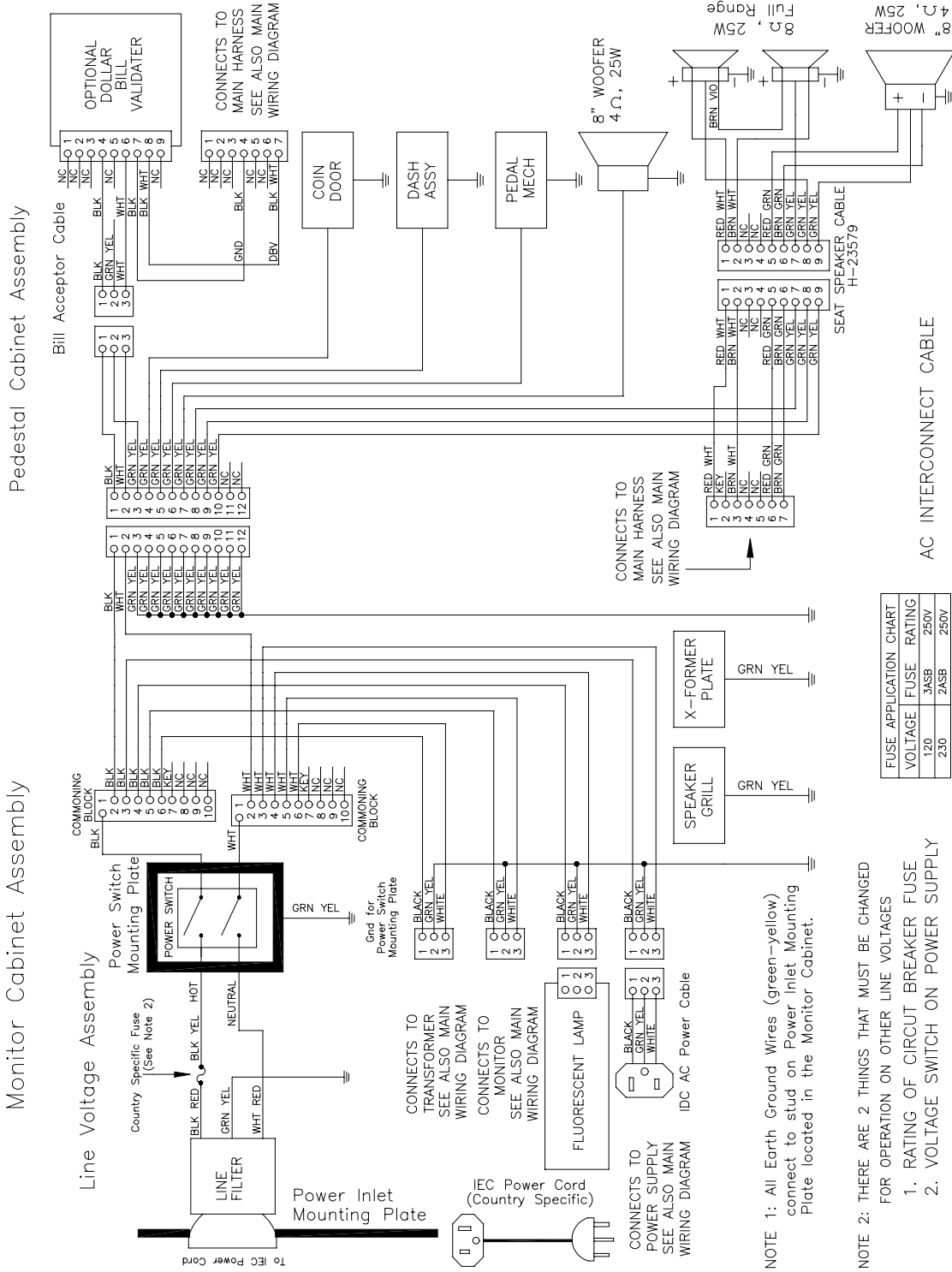| Function	Range Limits	ID	ID	Range Limits	Function
Digital Circuits	+4.90V to +5.10V	+5V	-5V	-4.75V to -5.25	Audio lights
Audio; DBV	+11.5V to +12.5V	+12	NOTE: +5V is adjustable on the power supply		

Main Cabinet Wiring
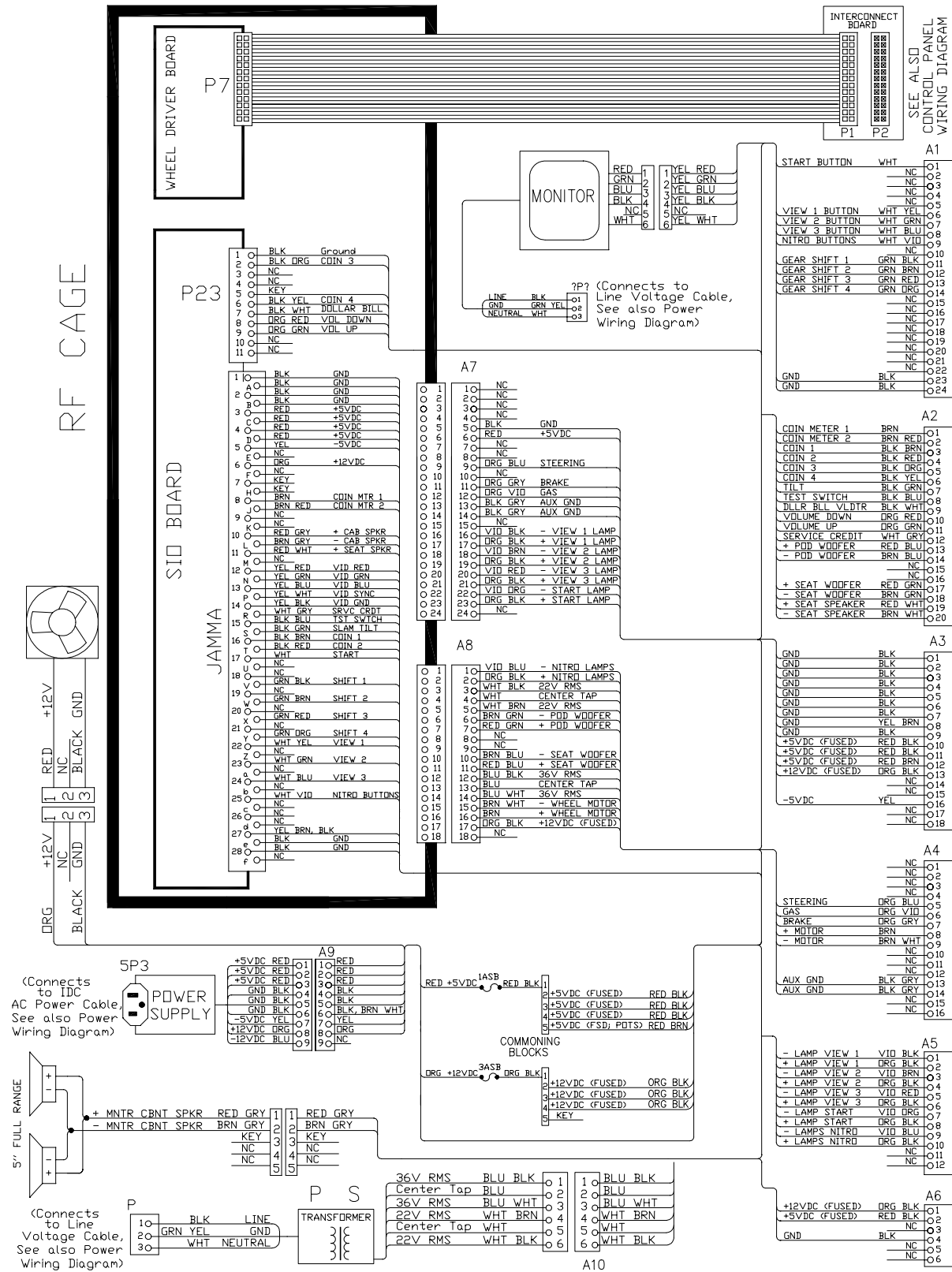
RF Cage Wiring
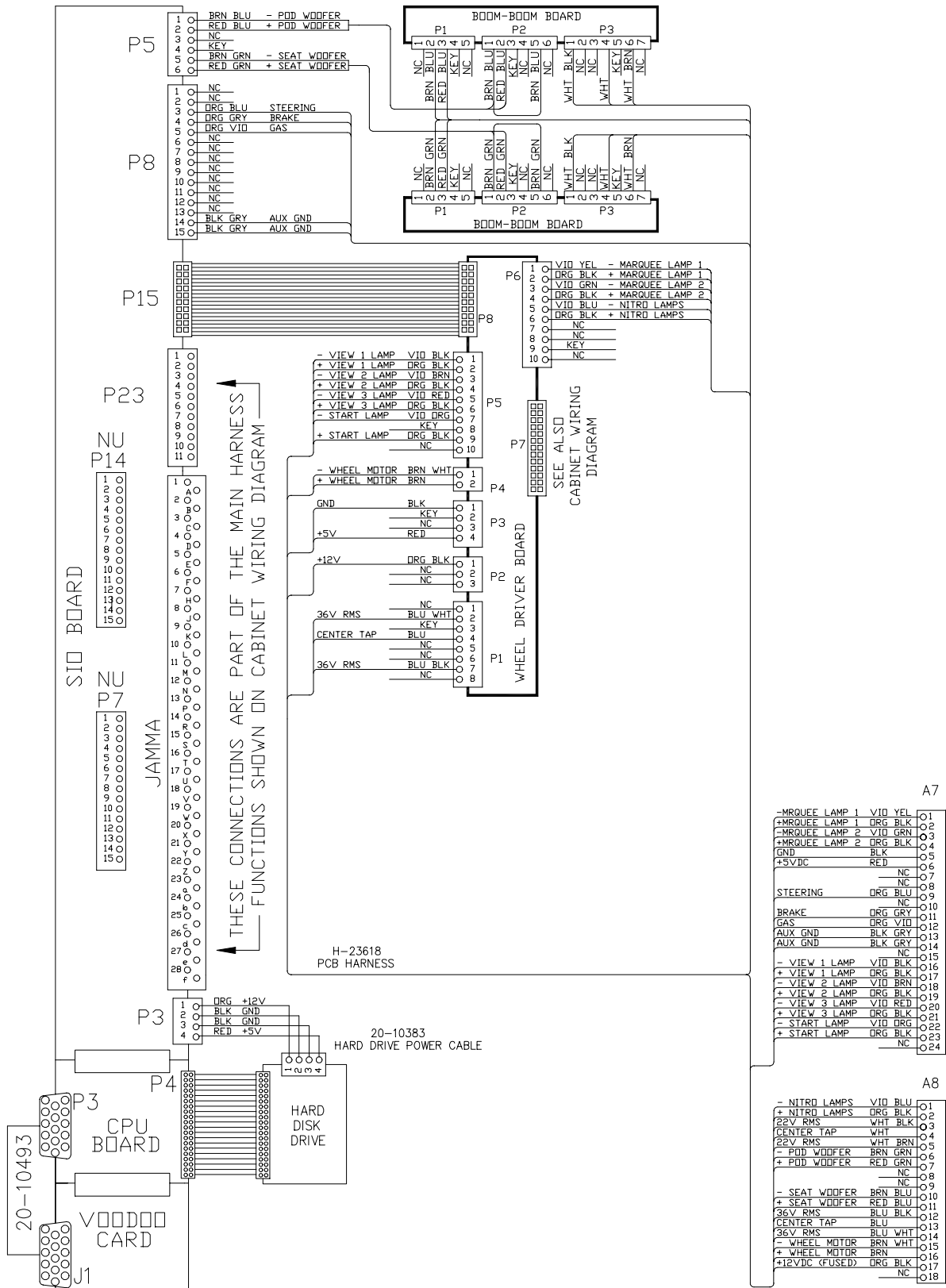
Control Cabinet Wiring

Power Wiring Diagram

DIP SWITCH U13 SETTING TABLE

FUNCTION	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
DIP COINAGE CMOS COINAGE	OFF ON*							
USA 13 GER1 FR ECA1 UK1 ECA USA 11 GER2 FR ECA2 UK2 ECA USA 10 GER3 FR ECA3 UK3 ECA USA 1 GER4 FR ECA4 UK4 USA DC8 GER5 FR ECA5 UK5 USA DC6 GER ECA1 FR ECA6 UK6 ECA USA DC5 GER ECA2FR ECA7 UK7 ECA USA DC1 GER ECA3 FR ECA8 FREE PLAY (UK)		OFF* ON OFF ON OFF ON OFF ON ON	OFF* OFF ON ON OFF OFF ON ON ON	OFF* OFF OFF OFF ON ON ON ON ON				
USA FRANCE GERMANY UK**					OFF* ON OFF ON	OFF* OFF ON ON		

DIP Switch Setting for Coinage
There are many ways to select the type and quantity of currency recognized by the game machine.
1. The most common coin combinations for several countries are pre-programmed and may be selected from the table when Standard Pricing is activated (see Game Adjustments).

2. DIP Switch settings may be changed with the power switched on. Set any switch then observe the screen to verify that the desired selection is enabled. **NOTE**: If CMOS coin settings are active, switch settings for an individual Country will have no effect.

3. Some European countries may accept currency used in other countries. The most popular coinage settings are listed in the Pricing Table.

DIP SWITCH U12 SETTING TABLE (FACTORY DEFAULTS IN BOLD)

Function	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8
Unused	**OFF** ON							
Unused		**OFF** ON						
Unused			**OFF** ON					
Unused				**OFF** ON				
Unused					**OFF** ON			
Brake Enabled Brake Disabled						**OFF** ON		
Unused							**OFF** ON	
Game Mode Test Mode								**OFF** ON

CPU BOARD JUMPER LOCATION TABLE

Jumper	J1	J2	J3	J4	J5	J6
Location	U28, P5	U28, P5	U28, P5	U28, P5	U28, P5	U22, U27

CPU BOARD JUMPER POSITION TABLE

ROM Type	Default	Options*	J1	J2	J3	J4	J5	J6
Boot (U27)	*	27C080, 1M X 8, EPROM	1-2	2-3	1-2	1-2	----	---------
		27C040, 512K X 8, EPROM	1-2	1-2	1-2	1-2	------	---------
		27C010, 128K X 8, EPROM	1-2	1-2	1-2	2-3	------	---------
		29F040, 512K X 8, Flash	2-3	1-2	2-3	1-2	------	---------
		29F020, 256K X 8, Flash	1-2	1-2	2-3	1-2	------	
		29F010, 128K X 8, Flash	1-2	1-2	2-3	1-2	------	
Expansion (28)	*	27C080, 1M X 8, EPROM	------	------	------	------	2-3	---------
		27C040, 512K X 8, EPROM	------	------	------	------	1-2	---------
		27C010, 128K X 8, EPROM	------	------	------	------	1-2	
External Boot	*	Boot from CPU ROM	------	------	------	------	------	1-2
		Boot from SIO ROM	------	------	------	------	------	Empty

Notes on CPU Jumper Position

1. Boxes containing "----" means not applicable

2. Memory type numbers shown are for blank parts. Your game requires programmed parts.

SOUND SIO BOARD JUMPER POSITION TABLE

Jumper	Location	Function	Meaning	Position	State
J1 (Note1)	U9, Y3	I/O Connector P2	Input Mode Output Mode	Pins 1 & 2 Pins 2 & 3	*
J2	U35, U10	Video Sync	Positive Sync Negative Sync	Jumper not installed Pins 1 & 2	*
J3 (Note 2)	U15	I/O Connector P4	Input Mode Output Mode	Pins 1 & 2 Pins 2 & 3	*
J4	None	None	Not used	None	---
J5 (Note 2)	U15, P2	I/O Connector P4	Input Mode Output Mode	Pins 1 & 2 Pins 2 & 3	*
J6	None	None	Not used	None	---
J7	None	None	Not used	None	---
J8 (Note 1)	U9, P4	I/O Connector P2	Input Mode Output Mode	Pins 1 & 2 Pins 2 & 3	*

Notes on SIO Jumper Position

1. Configure I/O port P2 by setting both jumpers J1 and J8 to input or output mode.

2. Configure I/O port P4 by setting both jumpers J3 and J5 to input or output mode.

SOUND I/O BOARD LED INDICATOR STATUS TABLE

LED	Location	Function	Color	State	Meaning
LED 1 (Note 1)	U11	Not Used (Remains Off)	Green	OFF ON BLINKING	--- --- ---
LED 2 (Note 2)	U34, Y1	Linking Connector Status	Green	OFF ON	Not in use (No game linking) Link continuity good
LED 3 (Note 2)	JAMMA Connector	-5V power indicator	Red	OFF* ON*	No power Normal operation
LED 4 (Note 2)	U35, P14	+12V power indicator	Red	OFF ON	No power Normal operation
LED 5 (Note 2)	P23	+5V power indicator	Red	OFF ON	No power Normal operation
LED 6 (Note 2)	U34, Y1	CPU linking activity	Red	OFF ON	Not in use CPU and ethernet contact
LED 7 (Note 2)	U34, Y1	Linking and transmission of data	Red	OFF ON BLINKING	Not in use (No game linking) Sending data Normal operation
LED 8 (Note 1)	U14, Y1	Audio activity	Yellow	OFF ON BLINKING	No sound boot ROM Locked up Normal operation
LED 9 (Note 2)	U34, Y1	Linking receiving data	Yellow	OFF ON	Not in use (No game linking) Receiving data
LED10 (Note 1)	U44, Y2	Not used (Remains On)	Green	OFF ON BLINKING	--- --- ---
LED 11 (Note 1)	U44, Y2	Not used (Remains On)	Red	OFF ON BLINKING	--- --- ---
LED 12 (Note 1)	U44, Y2	Not used (Remains On)	Yellow	OFF ON BLINKING	--- --- ---
LED 13 (Note 1)	U44, Y2	Not used (Remains On)	Yellow	OFF ON BLINKING	--- --- ---

Notes on SIO LED Indicator Status

1. Software controls this LED. Indications are game and revision specific. Changing the EPROM's on this board may alter the function of this LED. Firmware damage may also cause new or different LED behavior.

2. Hardware controls this LED. Indications depend on hard-wired circuitry. A change in normal LED behavior may indicate a circuit fault. Changing the EPROM's on this board shouldn't alter the function of this LED.

CPU BOARD LED INDICATOR STATUS TABLE

Device	Location	Function	Color	State	Meaning
LED 1	U6, U7, U16	3.3V CPU Power	Red	OFF ON BLINKING	Insufficient power Power OK Power supply fault
LED 2	U28, P5	Disk Drive Activity	Green	OFF ON BLINKING	Disk not in use Locked up disk Normal disk activity
RP63	U22, U26	Indicator	Red	OFF* ON* BLINKING*	See *NOTE 3*, below

Notes on LED Indicator Status

1. LED 1 monitors CPU power (+3.3V). If this LED is off or blinking, investigate processor circuits. If other LED's are off or blinking at the same time, check +5V circuits or the game power supply.

2. LED 2 flashes when the hard disk is operating during game play. LED 2 may light continuously during start-up. If this LED remains lighted, the hard drive may be locked-up or faulty.

3. Software controls RP63. In this game, RP63 initially indicates program start-up stages. This LED is a seven-segment, alphanumeric display device. Normally, RP63 will display a lowercase "b" or "o" pattern with sequentially blinking segments. During Self-Test screens, RP63 displays a "bouncing bar" that resembles a hypen ("-").