Nintendo

NINTENDO SUPER SYSTEM™

OPERATION MANUAL

Official Nintendo Seal of Quality

NO: NSSU-US

WARNING

This equipment generates and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

WARNING

Use of non-Nintendo parts or modifications of your Nintendo game circuitry may adversely affect the safety of your game, and may cause injury to your players.

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NINTENDO SUPER SYSTEM
OPERATION MANUAL

1 • LOCATION SETUP

The Nintendo Super System™ (NSS) has been shipped ready for operation after installation of software and game graphics. Please follow the procedure below to insure safe and proper operation.

Game Installation Requirements

Amperage:	1.5 Amps
Voltage:	120 Volts +/-10%, 60 Htz.
Temperature:	0 to 38 degrees Celsius/32 to 100 degrees Fahrenheit
Humidity:	Not over 95% relative
Space Requirements:	27.5" wide x 36" deep x 75" high
Tool required for setup:	Phillips head screwdriver
	Roberts head screwdriver, #1
	Security Screw tool (supplied)

Visual Inspection

A. Check the exterior of the NSS for any shipping damage such as dents, scrapes or breakage.

B. Open both of the coin mechanism doors and remove the contents of the coin collection box. It should contain the power cord, cabinet levelers and a tool for removing exterior cabinet security screws.

C. Remove the rear monitor access plate (phillips head screw driver). Be sure to replace after inspection procedure is complete.

D. Reach up through the upper coin mechanism door and the holes in the printed circuit board (pcb) shelf and release the control panel latches on each side of the cabinet **(See Illustration 1)**.

E. Close the coin mechanism doors and rotate the control panel away from the cabinet to expose the pcb shelf and the main pcb **(See Illustration 1)**.

F. Reach down along the sides of the pcb shelf and unbolt both of the shelf bolts. Unscrew both of the thumb screws. Pull the pcb shelf/control panel assembly up and out about 3/4 of the way and lower the front down so that the shelf is now horizontal **(See Illustration 2)**.

G. Inspect all plug-in connectors to make sure they are securely connected together. Check all sub-assemblies (video monitor, transformer, power supply, etc.) for damage and make sure they are securely attached to the cabinet.

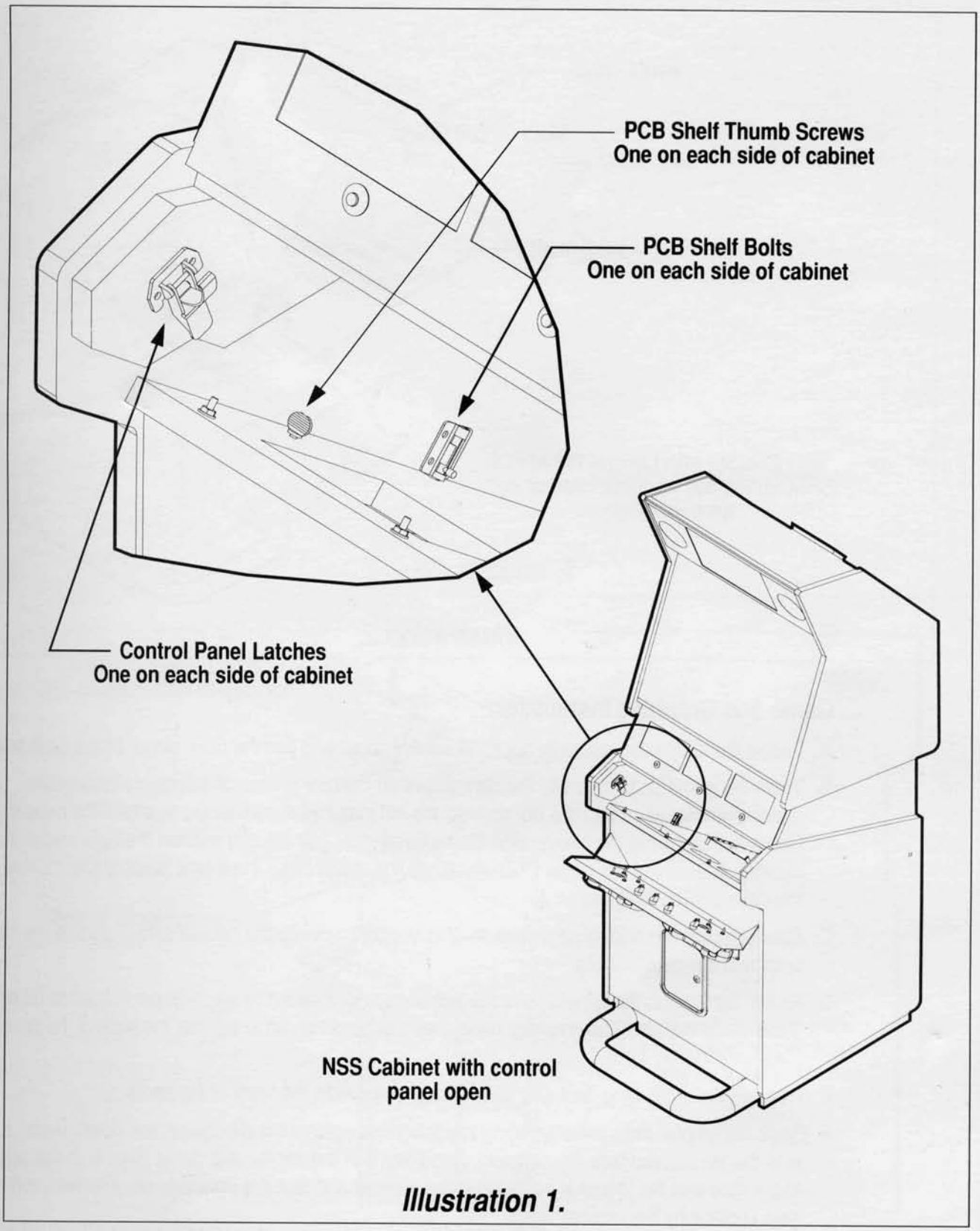
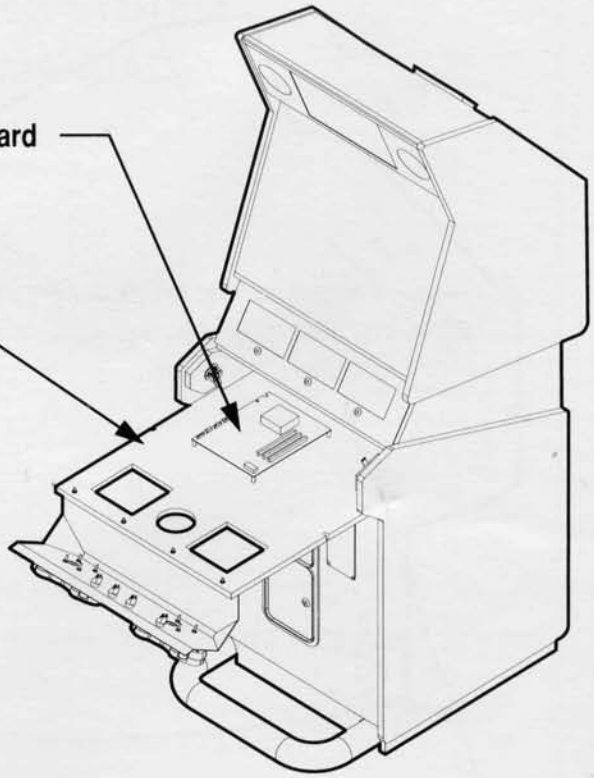


Illustration 1.



NSS Cabinet with Control Panel/PCB Shelf pulled out for inspection or software installation.

Illustration 2.

Game and Graphics Installation

A. Follow the above procedure to open the control panel and pull the main circuit board shelf out.

B. Insert the game pc boards into the connectors on the rear portion of the main circuit board. Game one should go into the slot nearest the left side of the cabinet (as you face the cabinet). Game two goes into the middle slot. Game three goes into the slot nearest the right side of the cabinet. The side of the game PCB which has the circuit chips must face towards the left side of the cabinet **(See Illustration 3)**.

C. Carefully slide the control panel/pcb shelf assembly back into the cabinet and re-secure the wing bolts and the cabinet bolts.

D. Reach up through the panel above the pcb shelf and unlatch the graphics panel latches on both sides of the cabinet. The graphics panel can now be removed to expose the back of the panel **(See Illustration 4)**.

E. Remove the eight wing nuts and four retainer strips from the back of the panel.

F. Place the graphic films corresponding to each game against the plexiglass face down. Game one is to the left (as you face the cabinet), game two is in the middle and game three is to the right. Make sure that the image is centered in the window and that it is right side up. The films will be held in place by the retainer strips.

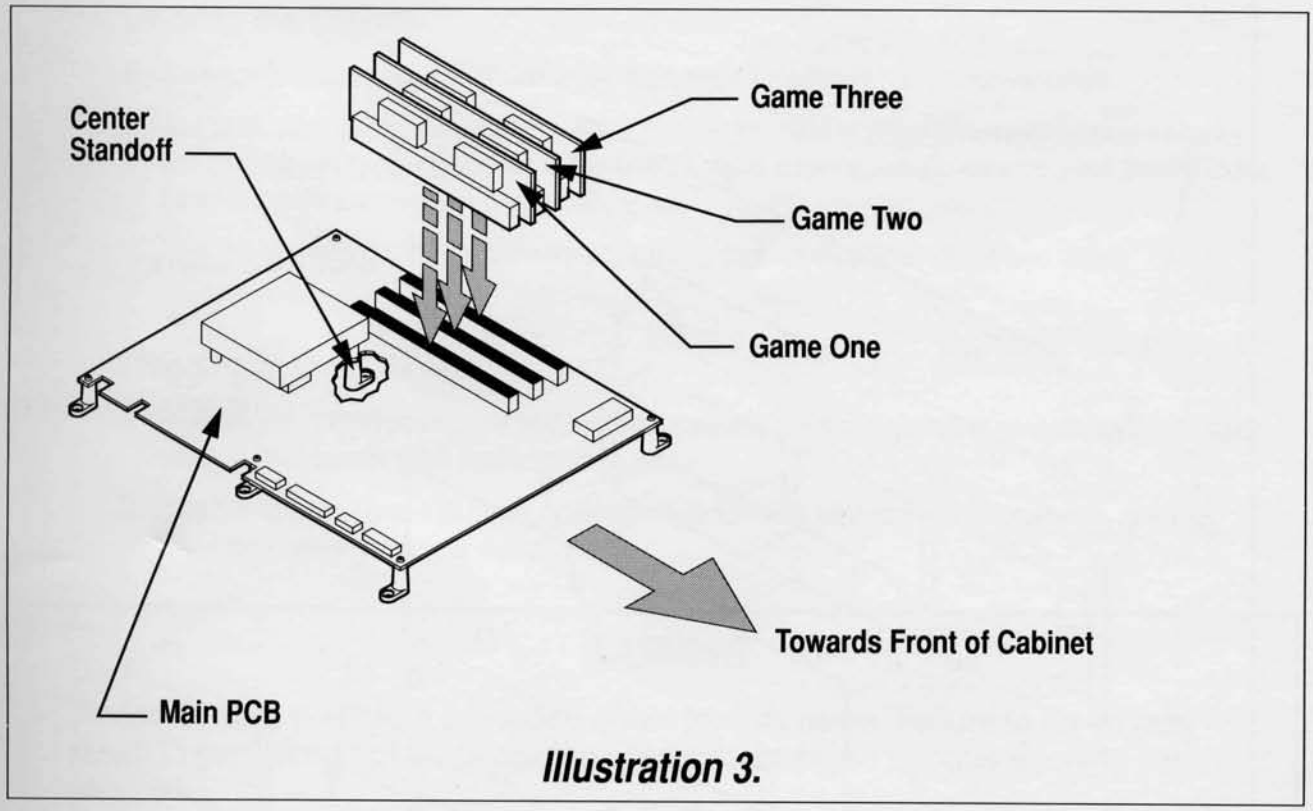


Illustration 3.

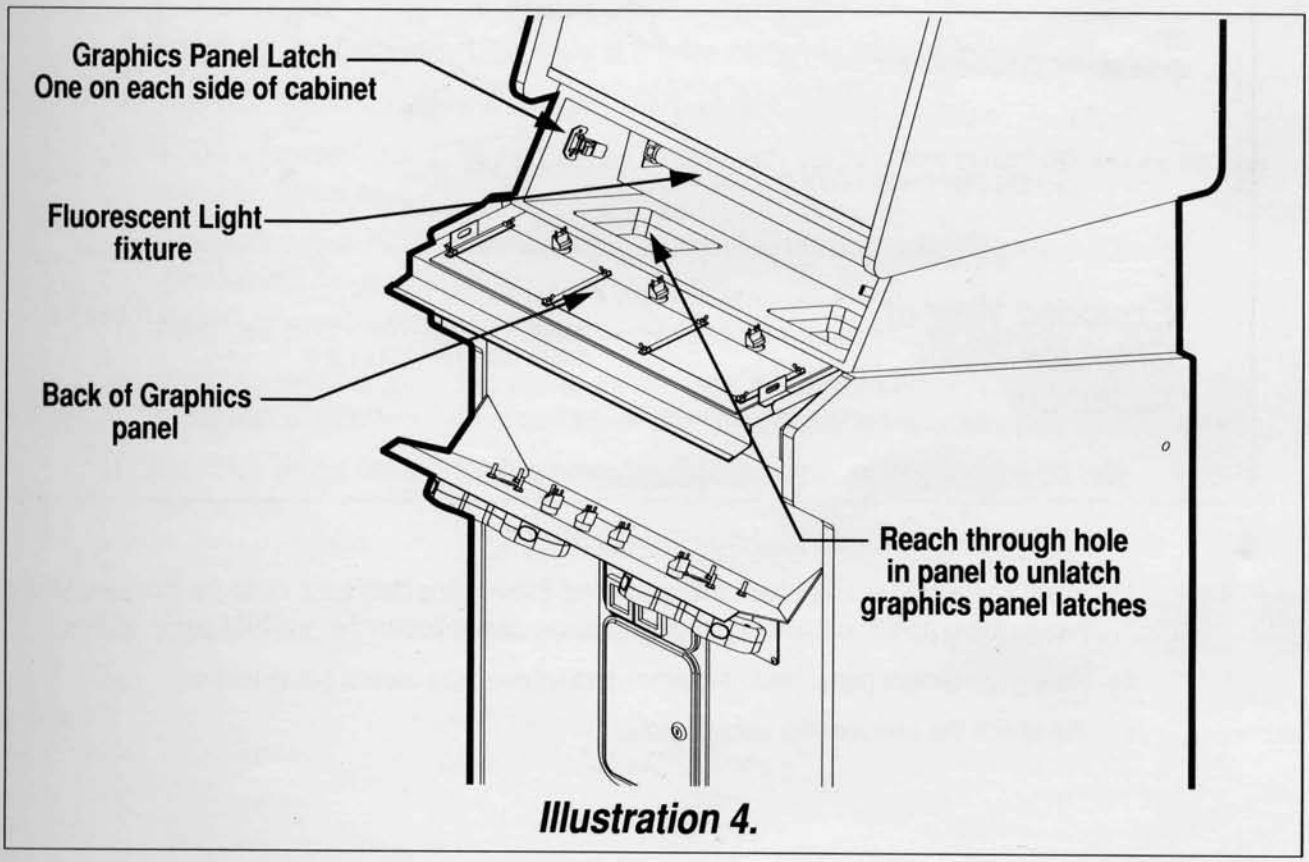
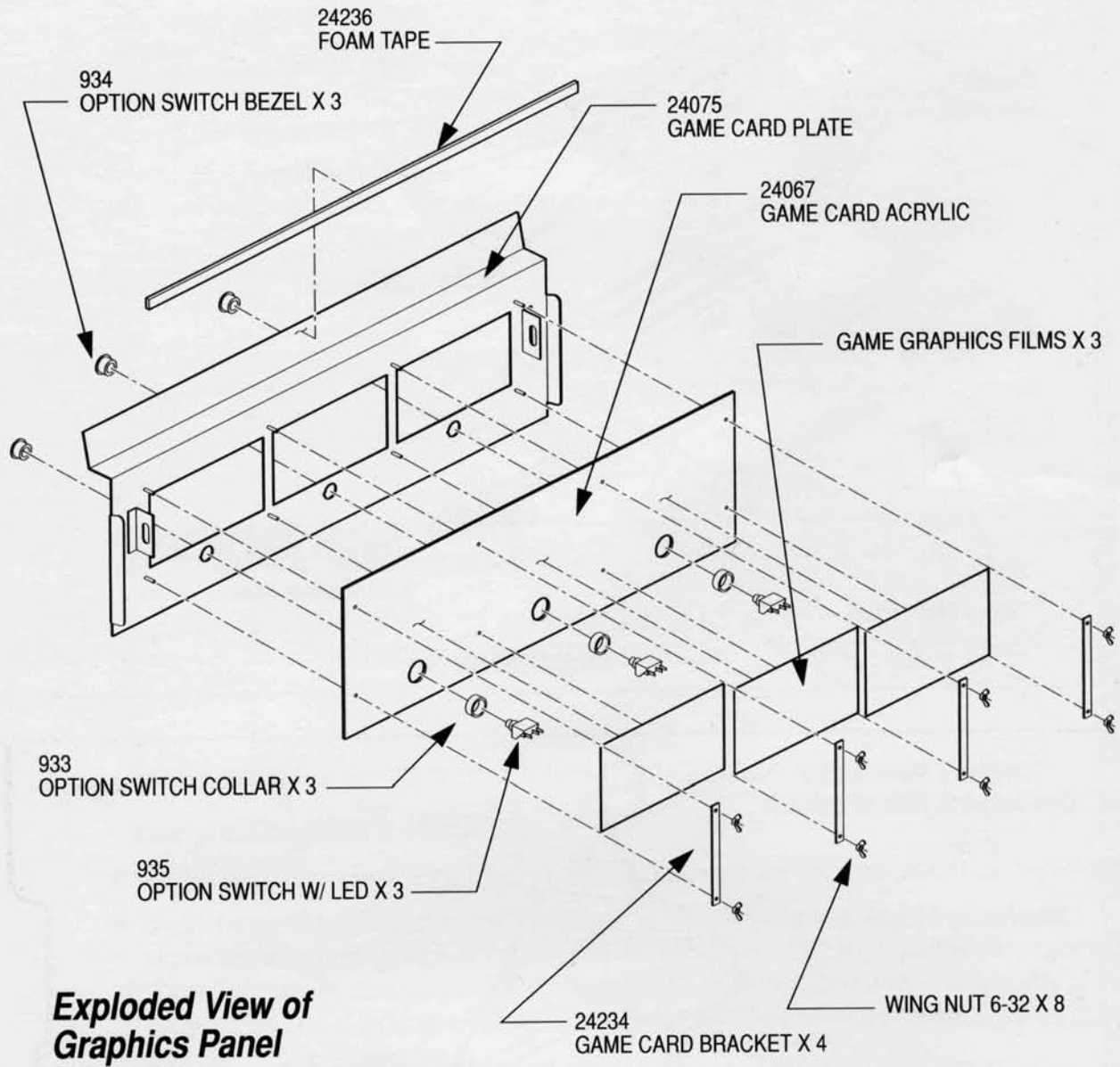


Illustration 4.



Exploded View of Graphics Panel Assembly

Illustration 5.

G. Place game card bracket back into place and thread wing nuts back on to the threaded shafts. Return the graphics panel to its original position and re-fasten the graphics panel latches.

H. Rotate the control panel back into place and refasten the control panel latches.

I. Re-attach the rear monitor access plate.

Leveling the Cabinet

A. If the cabinet does not sit flat and level, four screw-in levelers have been included.

B. To install, carefully tilt the cabinet a few inches to the right or left while another person screws two of the levelers into the holes in the bottom of the cabinet. Tilt the cabinet a few inches in the other direction and screw the other two levelers into the other two holes.

C. Now the levelers can be individually adjusted to make the cabinet sit flat and stable.

Plugging in the Cabinet

A. Plug the connector on the end of the power cord into the corresponding receptacle on the back of the game cabinet **(See Illustration 6)**.

B. Plug the opposite end into a grounded outlet. If no three wire outlets are available, see the procedure below for proper setup.

WARNING

Please be sure you use a grounded outlet for this game. Failure to do so may result in destruction of electronic components or cause serious injury to your players!

Grounding the Cabinet (Use only if 3 wire outlet is unavailable)

A. The NSS cabinet should be unplugged.

B. A U.L. approved 2 pole, 3 wire grounding adapter with a ground wire should be plugged into the end of the power cord.

C. A grounding wire should be connected to a grounding bar or a metal pipe which is firmly inserted into the ground.

D. Attach the ground wire on the adapter securely to the wire connected to the bar or pipe.

E. Do not connect the grounding wire to a water pipe, because polyvinylchloride (PVC) pipes are sometimes used in water lines, and the electronic continuity to the ground may be interrupted.

F. Absolutely do not connect the grounding wire to a gas pipe, as this can be extremely dangerous.

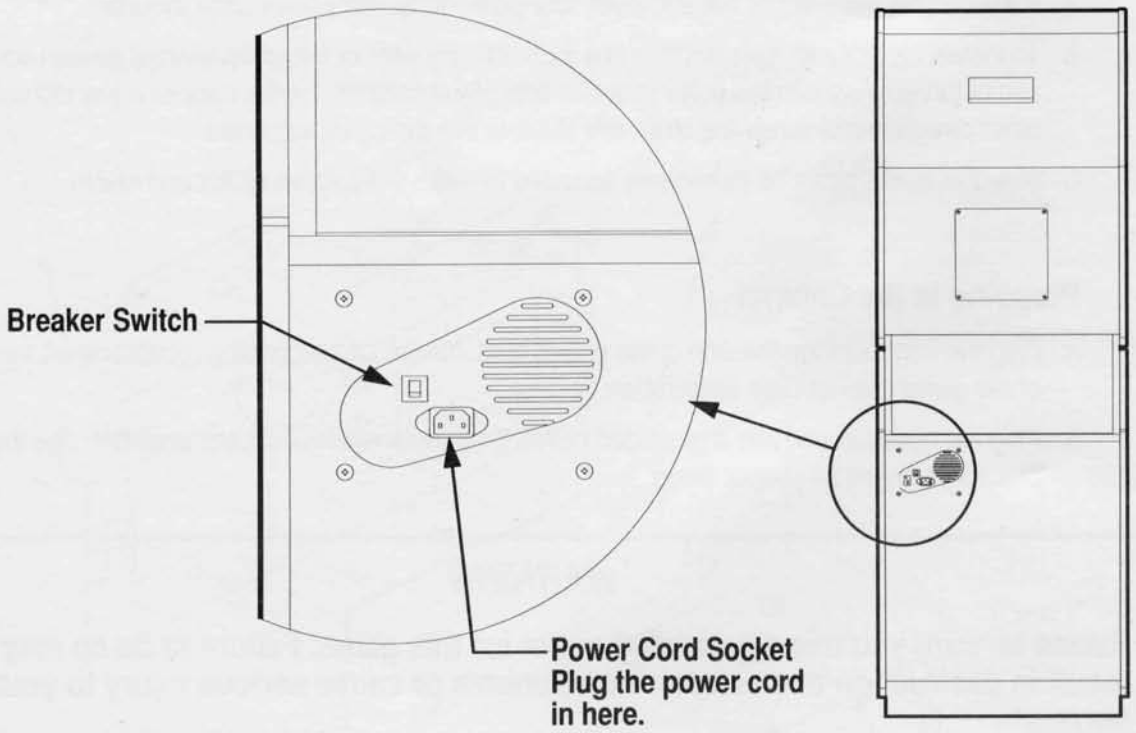


Illustration 6.

2 • GAME OPERATION

Turn on the Power

A. Make sure all panels and doors are securely closed.

B. Depress the power switch, which is located near the back of the right side panel. After a few moments the screen should display the game selection menu and both the upper and lower graphic panels should be lit **(See Illustration 7)**.

Service Switch, Volume Control and Coin Counters

A. The service switch, volume control and coin counters are located on a panel behind the upper coin mechanism door **(See Illustration 7)**.

B. The knob to the right adjusts the volume of the speakers located in the upper graphics panel assembly.

C. The button on the left is the service switch. This is used to register credits or to access the bookkeeping mode (See Section 3). The middle button is not used.

D. The coin counters for the right and left coin mechanisms are just above the switches.

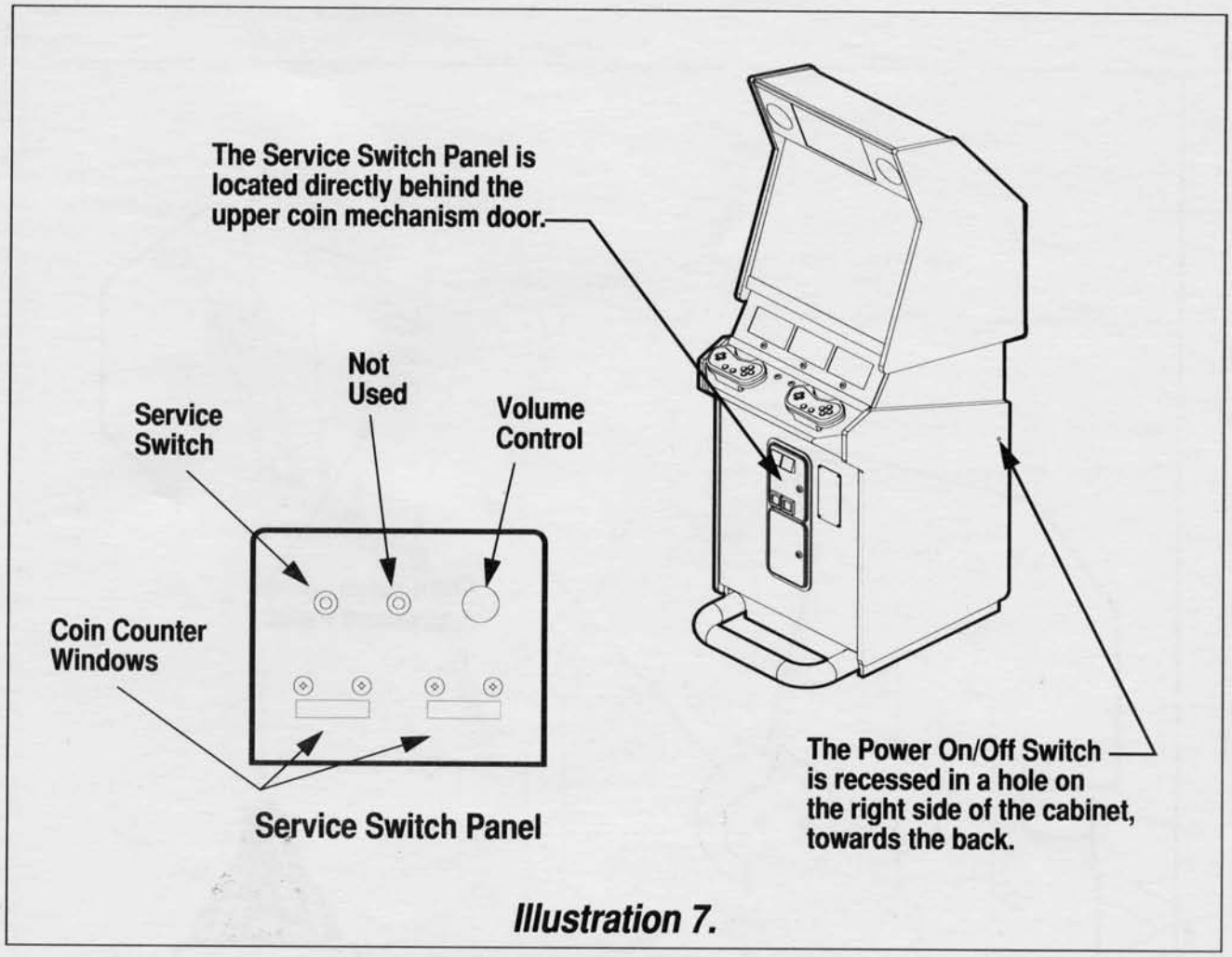


Illustration 7.

Video Monitor Adjustments

WARNING

Do not touch any parts on the back of the video monitor. It contains many parts supplied with high voltage.

A. Primary adjustments are made from the front of the cabinet. Open the cabinet as described in Section 1 above (Visual Inspection).

B. Mounted on the inside of the right side panel is a small pc board with six adjustment knobs. These control Vertical Hold, Vertical Position, Vertical Size, Horizontal Position, Black Level and Contrast **(See Illustration 8)**.

C. Horizontal Hold, Color drives, Color cut off and all other adjustments are done from the back of the cabinet by removing the rear monitor access panel **(See Illustration 9)**.

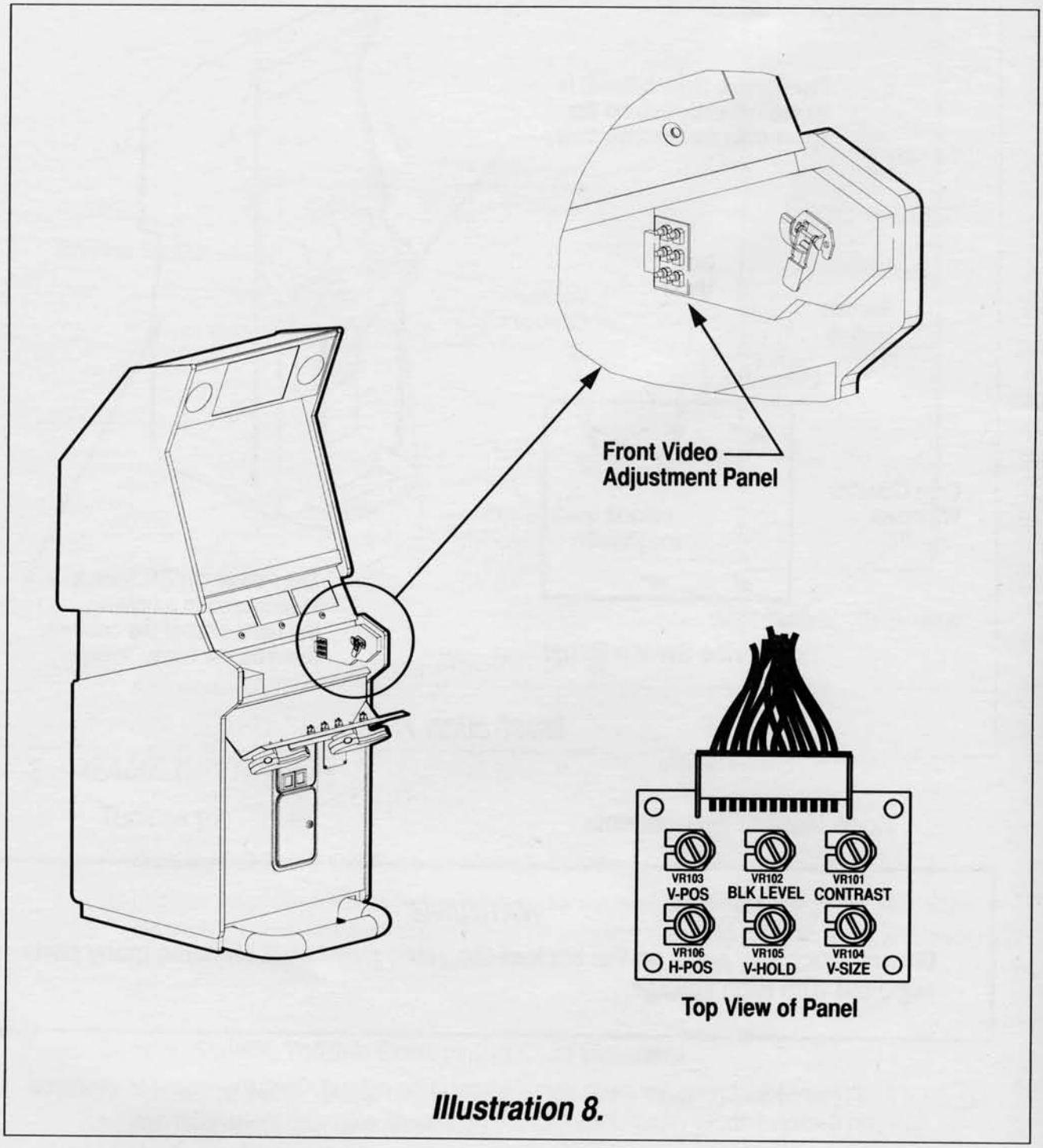
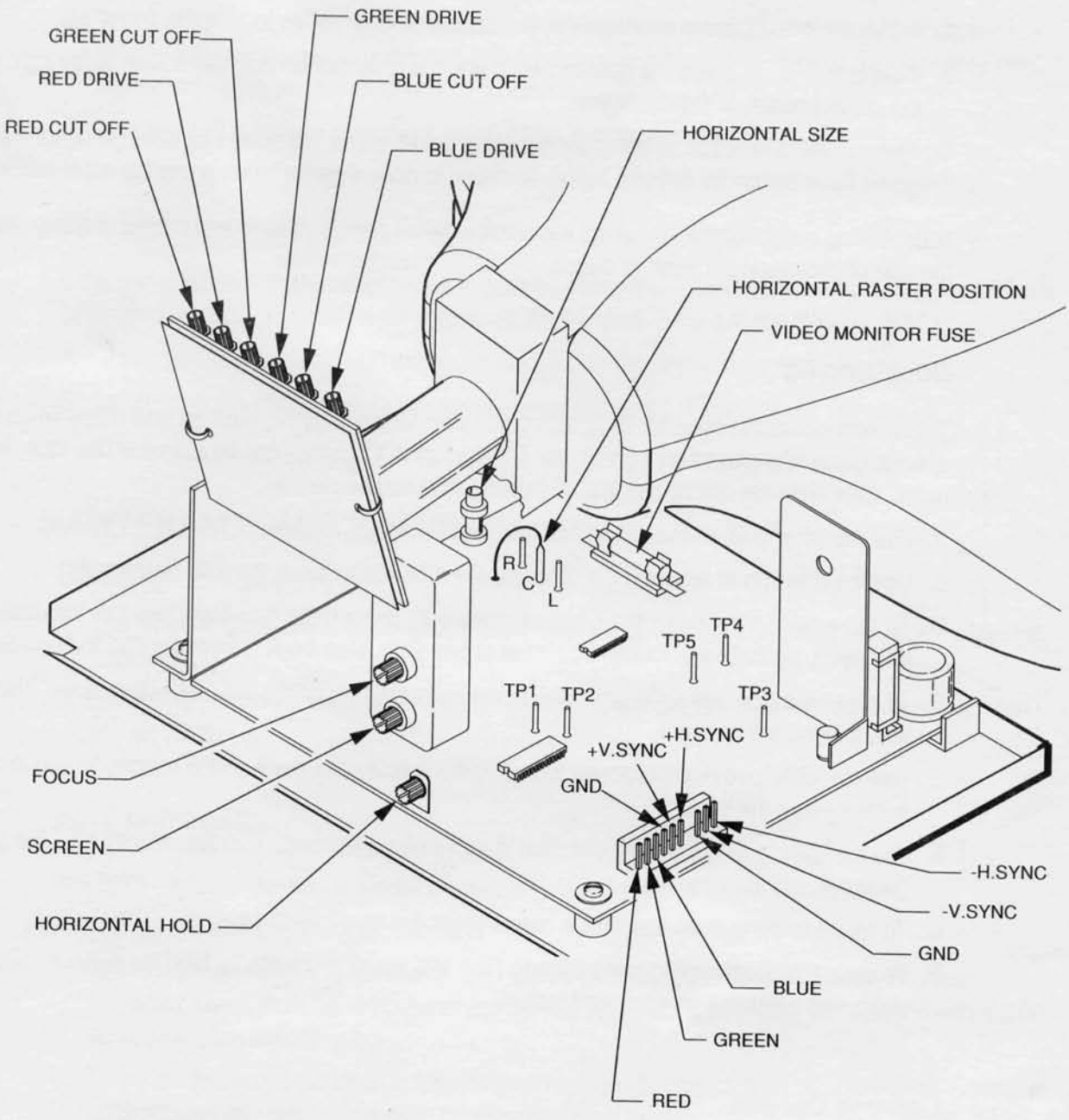


Illustration 8.



Rear Monitor Adjustments from Rear Monitor Access Panel

Illustration 9.

3 • SYSTEM OPERATIONS MODE

There are two ways to enter the system operations mode. First, open the upper coin mechanism door to gain access to the service switch.

A. If the power is off, press and hold the service switch down while turning the power on.

B. If the power is on, press the service switch and the reset button (furthest button to the right on the control panel) at the same time.

C. Press game one button to enter bookkeeping mode, game two button for coinage options and game three button for self test mode. To return to normal game mode press the reset button.

Note: During normal game operation, the service switch can be used to add credits to game play, at the rate of one credit per push of switch.

Bookkeeping

This option allows the operator to access credit data for each game, such as how many times a specific game was played on a given day. Data on up to 15 games can be stored at one time. In this mode, date and time can be set and all existing data can be cleared.

A. Use the "plus" pad on the left control module to scroll up or down.

B. Use the B button to advance the date and the A button to move the date backwards.

C. To see weekly data, press the A button repeatedly, moving the date back until this information is displayed. Up to 25 weeks can be stored at one time. One week is from Sunday to Saturday.

D. To adjust the time and date, press the game restart button during the credit data mode. The time adjust menu will appear.

E. Use the "plus" pad down direction to highlight the time. Use the A and B buttons to add to or subtract from the time.

F. Use the "plus" pad left or right direction to move between hours, minutes, month, day, the day of the week and the year.

G. To return to the system operations menu, press the game restart button.

H. To reset the bookkeeping totals back to zero and return to the menu, hold the service switch down and press the game restart button.

Coinage Options

This option allows the operator to vary the relationship between coins, credits and time given.

A. Move the "plus" pad on the left control module up, down, left or right to highlight the option you wish to change.

B. Use the A and B buttons to increase or decrease the variables.

C. Credits can be varied from one to nine. Time can be varied from one minute to 30 minutes in five second steps.

D. The A and B buttons are used to toggle between on and off for sound during the attract mode.

E. The A and B buttons are also used to turn free play mode on and off. When this mode is on, pressing the game restart button will add credits up to a maximum of three. During game play, the restart button will return to normal function.

F. To return to the system operations menu press the game restart button.

Self Test

If the game number three select button is pushed during the system operations mode, the NSS will automatically perform a test on the system ROM, the work RAM and the backup RAM.

A. If any fault is detected, "NG" will be displayed after the appropriate item.

B. To return to the system operations menu, press the game restart button.

4 • MAINTENANCE AND REPAIR

Cleaning

A. The exterior of the NSS, all metal parts and all glass parts can be cleaned with a non-abrasive cleaner.

B. Extra care should be taken when cleaning the back lit plexiglass headers so as not to scratch or mar them.

Fuse Replacement

The NSS contains four fuses. Replace fuses only with the same type as listed below.

A. Turn off the power and unplug the NSS.

B. The video monitor fuse is located on the monitor pc board **(See Illustration 9)**. The rear inspection panel must be removed to access this pcb. This fuse should be replaced with a **2.0A 250V** slow blow fuse.

C. There are two fuses mounted in fuse holders on the right rear of main pc board shelf. Open the control panel and pull out the main circuit board shelf as described in Section 1, Visual Inspection. These should be replaced with a **5.0A 125/250V** and a **3.0A 125/250V** fuse. **Be sure to place the correct fuse in the proper fuse holder. Do not interchange the 5 amp fuse with the 3 amp fuse).**

D. There is one fuse located in a fuse holder mounted on the inside surface of the cabinet back, between the transformer and the power supply. It is covered with a plastic fuse cover. Remove the PCB shelf/control panel sub-assembly for easier access to this fuse if replacement is necessary. It should be replaced with a **1.0A 125/250V** fuse **(See Illustration 15-b)**.

Control Panel/Control Modules

The Control Modules must be removed from the control panel if they need to be repaired. Familiarize yourself with the internal components by studying the illustrations before beginning any service **(See Illustrations 10 & 11)**.

A. Turn the power off and unplug the NSS.

B. Open the upper coin door and reach up and unlatch both of the control panel latches.

C. Close the coin mechanism door and rotate the control panel away from the cabinet, exposing the underside of the panel.

D. To remove the panel mounted micro switches, unplug the terminals and rotate the switch body counter clockwise to unscrew the switch from the bezel.

E. When re-assembling the micro switch, be sure that the key on the bezel fits into the keyway in the sheet metal control panel. Slide the collar over the bezel and screw the switch clockwise into the bezel part, holding the bezel in place.

F. To remove the control modules, first unplug the wire harnesses at the connectors closest to the control modules.

G. Unscrew the nuts from the bolts and carefully remove the control module assembly from the control panel.

H. Place the control module face down on a flat surface and remove the eight 6-32 Roberts head (square drive) screws using a number 1 Roberts head screwdriver. (If unavailable, this item can be ordered from Nintendo of America. See page 25 for part number).

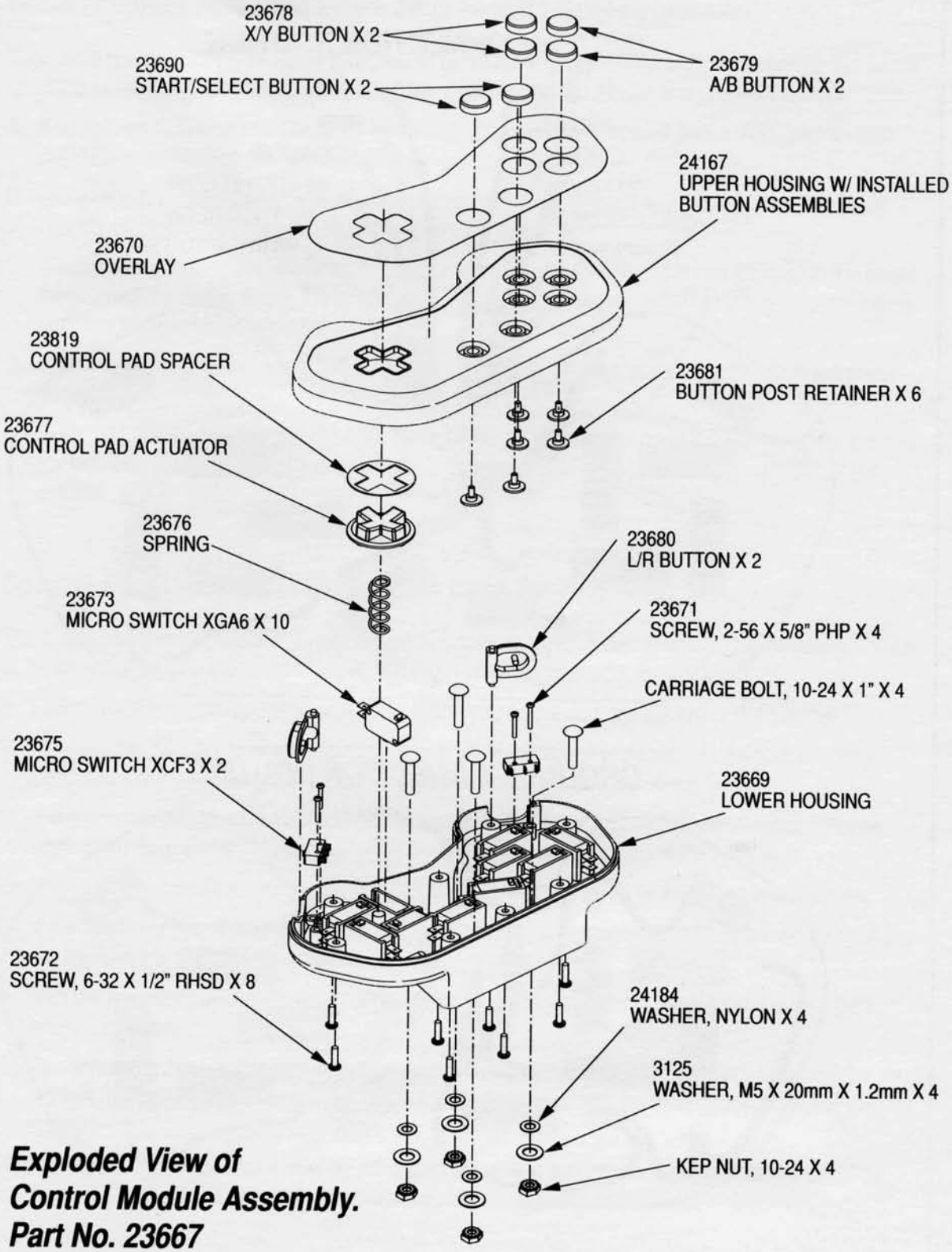
I. Turn the control module face up and remove the top half, exposing the interior. Carefully remove the plus pad, foam spacer and spring and set aside for re-assembly.

J. The ten larger micro switches can be removed by lifting them straight out of the bottom cover and disconnecting them from the wire harness. **Important: Before disassembling the micro switches from the harness, note the wiring arrangement (See illustration 11 to assure correct re-wiring)**.

K. The two smaller micro switches are removed by unscrewing the 2-56 phillips head screws and de-soldering the connections. **Important: When replacing these micro switches, before tightening the screws, push the switch housing firmly towards the interior of the control module. Hold the switch in this position until she screws are completely tightened.**

L. If it is necessary to replace an A/B type button assembly, the button cap retainer can be broken off of the button cap by carefully prying with the end of a flat blade screw driver from the back of the front cover. Both the button cap and the button retainer must be replaced. Before pressing the two parts together it is recommended for added security that a drop of cyanoacrylate cement (super glue) be put on the tip of the button retainer. Make sure that the two parts are pushed completely together.

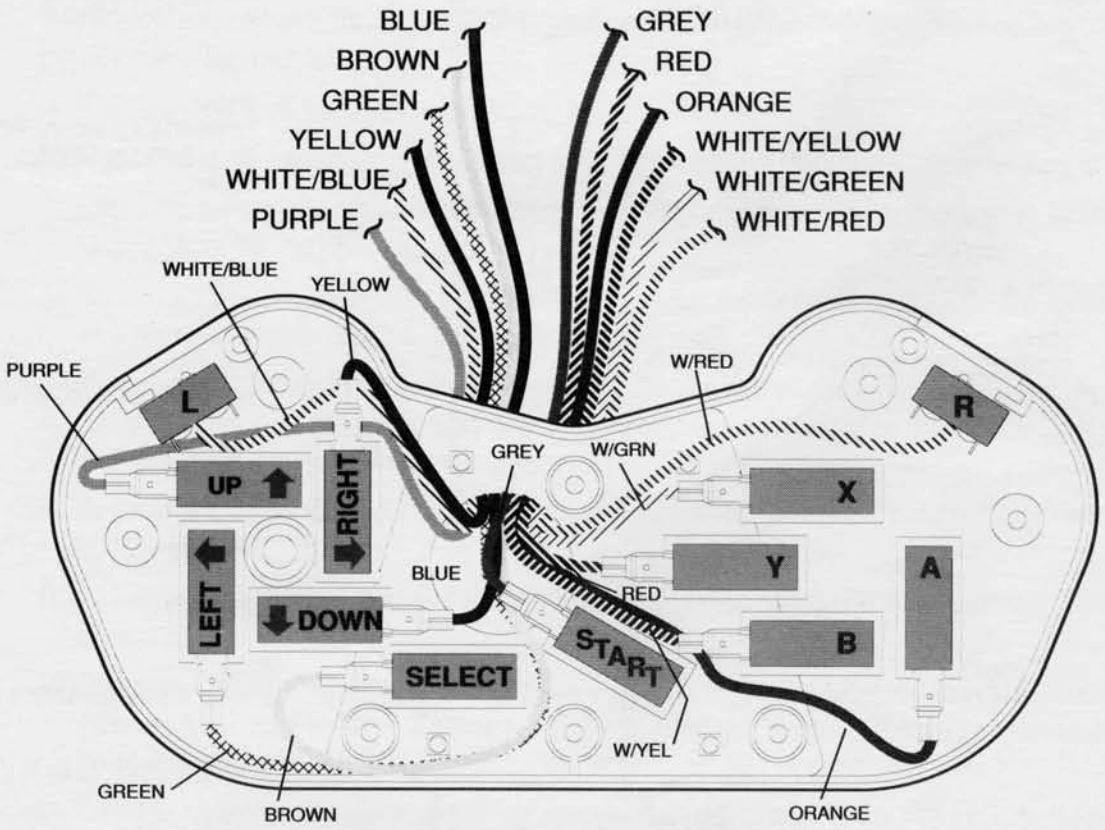
Important: When re-assembling the control module, be sure all micro switches are firmly pressed all the way into their sockets.



Exploded View of Control Module Assembly. Part No. 23667

Illustration 10.

SWITCH CONNECTION ROUTING



GROUND CONNECTION ROUTING

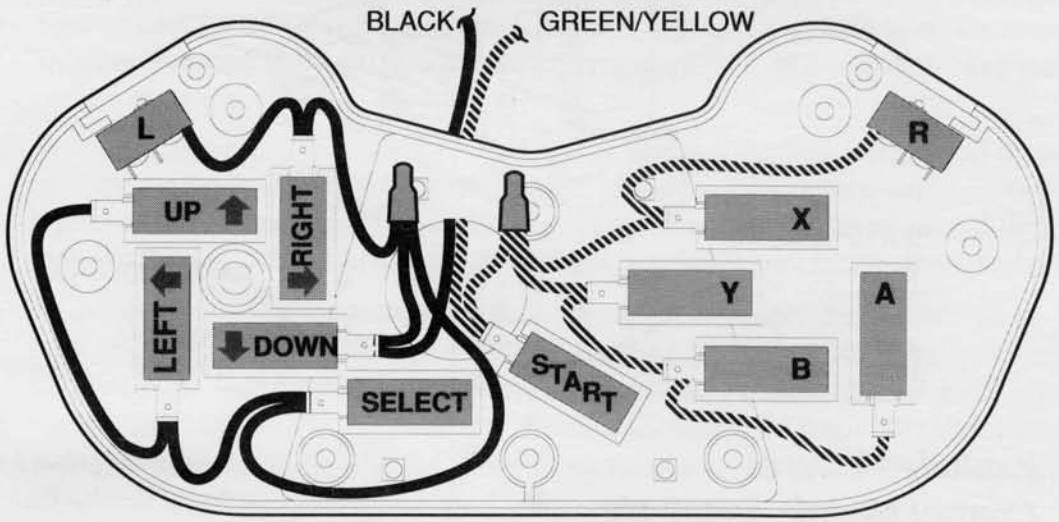


Illustration 11.

Game Graphics Panel and Lower Fluorescent Light Replacement

The game graphics panel must be removed to service the game select switches, change the game graphics or service the fluorescent light fixture. First turn off the power and unplug the NSS.

A. See section 1, Game and Graphics Installation, to open the graphics panel. This section also details how to change the game graphics.

B. To replace the micro switch assemblies, disconnect the terminals and rotate the switch body counter clockwise to unscrew the switch from the bezel.

C. When re-assembling the micro switch, be sure the key on the bezel fits into keyway in the sheet metal graphics panel. Place the collar over the bezel and screw switch clockwise into the bezel part, holding the bezel in place.

D. With the graphics panel open, the fluorescent light bulb and the starter can be changed when necessary.

E. To service the fluorescent light ballast, the light fixture panel must be removed. Unscrew the two screws, one at either end of the light fixture. The panel can now be pulled forward out of the cabinet.

Speaker Panel and Upper Fluorescent Light Replacement

The upper sheet metal header panel must be removed to replace the speakers, the header graphics or to service the fluorescent light fixture. First turn off the power and unplug the NSS.

A. Remove the top trim by unscrewing the phillips head screws from the top of the cabinet.

B. Remove the security screws from the lower front of the speaker panel with the tool provided. Use care when removing these screws as the speaker panel is relatively heavy.

C. If the speaker panel will be completely removed from the cabinet, the speaker wires must be unplugged from the speakers.

D. The graphics panel can be removed by sliding it up out of the top of the sheet metal panel.

E. If the speakers are replaced, be sure to remove the square magnet shields from the back of the old speakers and installed on to the new speakers.

F. With the speaker panel removed, the fluorescent light bulbs and the starter can be changed when necessary.

G. To service the fluorescent light ballast, the light fixture panel must be removed. Unscrew the two screws, one at either end of the light fixture. The panel can now be pulled forward out of the cabinet.

H. Re-assemble the speaker panel by reversing the above procedure. Be sure that the speaker wires are securely re-attached and that all hardware is firmly re-installed.

Main Circuit Board

A. Turn the power off and unplug the NSS.

B. Open the control panel and pull out the circuit board shelf as outlined in Section 1, Visual Inspection - Step D.

C. Carefully remove all harnesses attached to the circuit board.

D. Remove the six perimeter screws and the one screw near the middle that hold the pcb to the standoffs (See Illustration 3 for location of center screw).

Front Screen Removal

A. To remove the front screen, first open the control panel and the graphics panel as outlined in Section 1, Visual Inspection - Step D, and Game and Graphics Installation - Step D.

B. Pull the bottom of the screen towards you and carefully pull it down out of the upper slot.

C. To re-install, carefully insert the top edge of the glass into the upper slot and rotate the bottom edge into place.

Video Monitor Removal

WARNING

It is recommended that the NSS be left unplugged for at least one hour before removing the video monitor. This will probably discharge the CRT, but extreme caution is still necessary.
Use extreme caution and do not touch electrical parts of the yoke or cap area with your hands or with any metal object in your hands.

A. Turn the power off and unplug the NSS.

B. Remove the front screen as outlined in the section above, Front Screen Removal.

C. Remove the paper bezel from in front of the monitor.

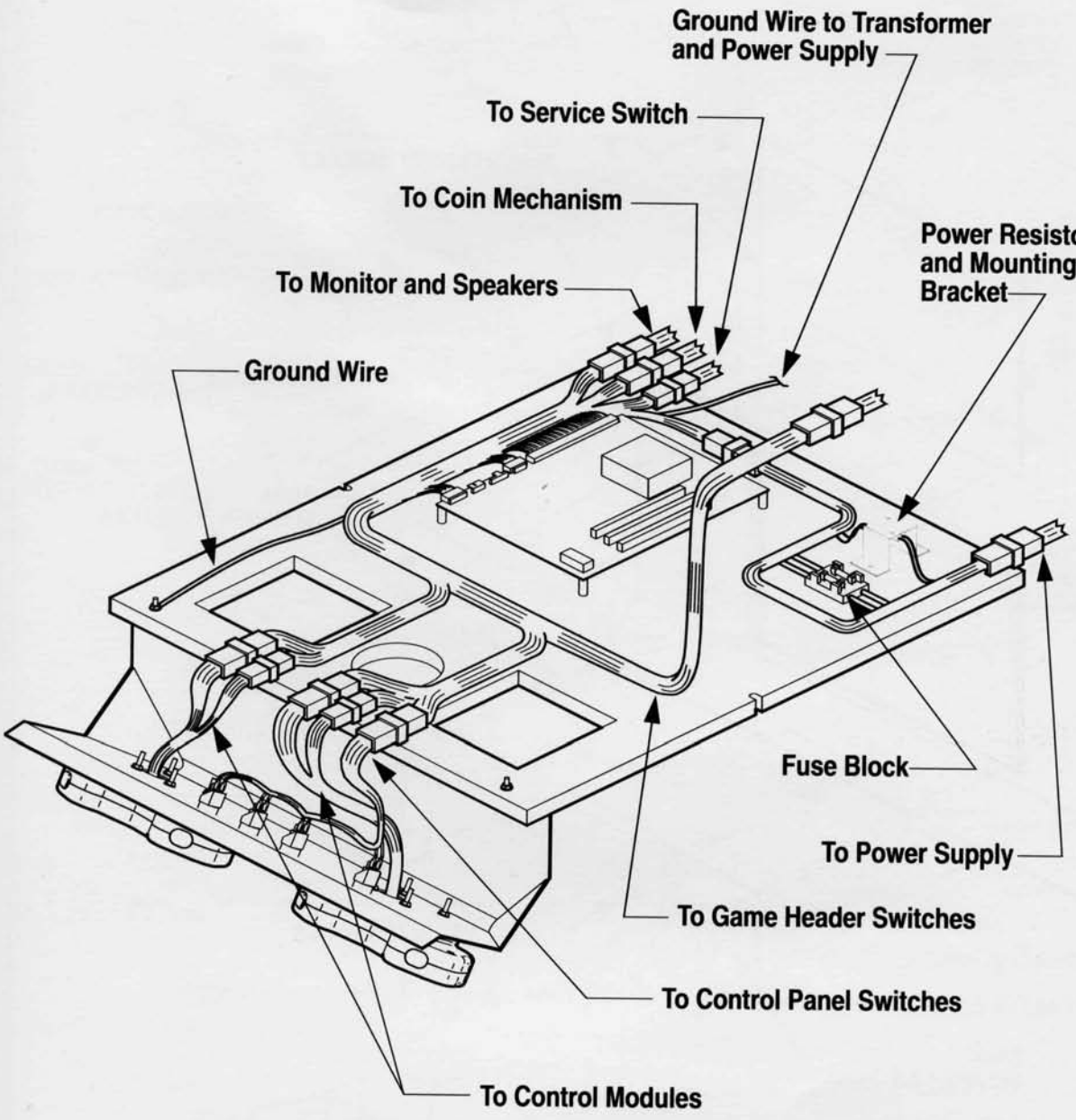
D. Remove the rear inspection panel and disconnect all harnesses and cables from the video monitor.

E. From the front of the cabinet, remove the four screws which attach the monitor to the cabinet.

F. Carefully lift the video monitor and pull out toward you. As the monitor is very heavy, this should be done by two people.

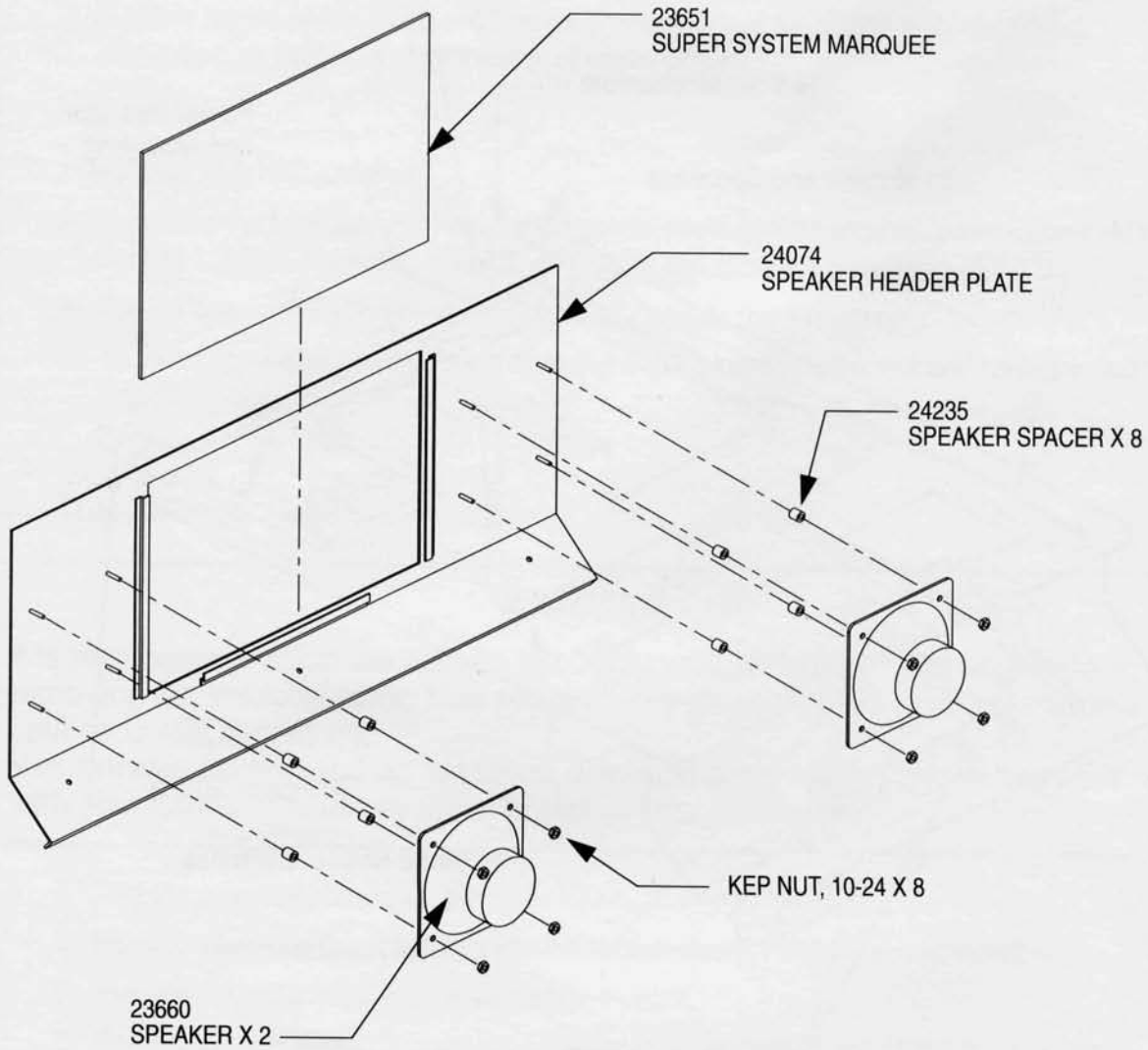
Optional Bill Acceptor

On the front of the cabinet to the right of the coin mechanism doors is a panel which can be removed to install a dollar bill acceptor. Please contact your distributor for further information.



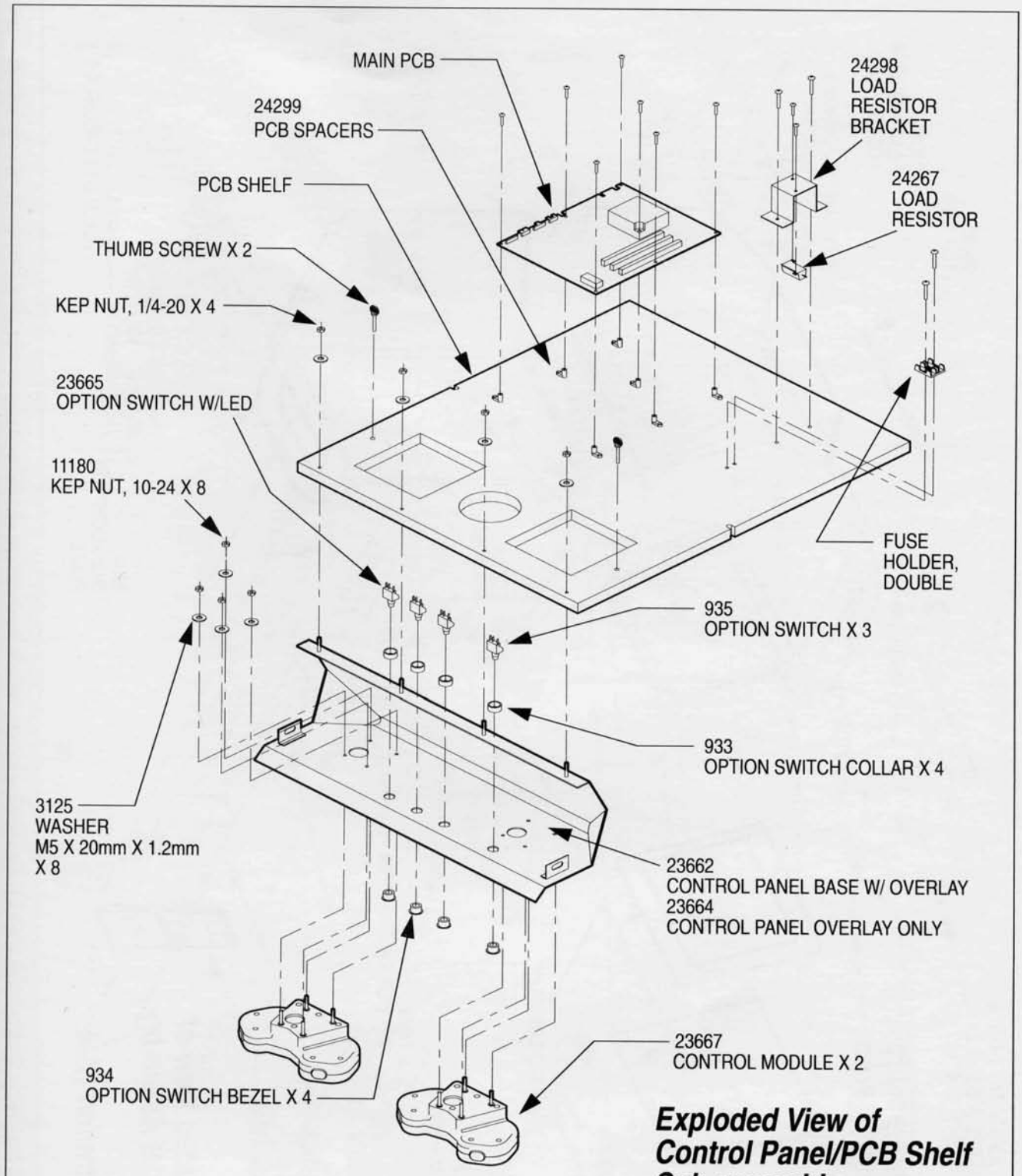
Control Panel &
P.C. Board Wire Harness

Illustration 12.



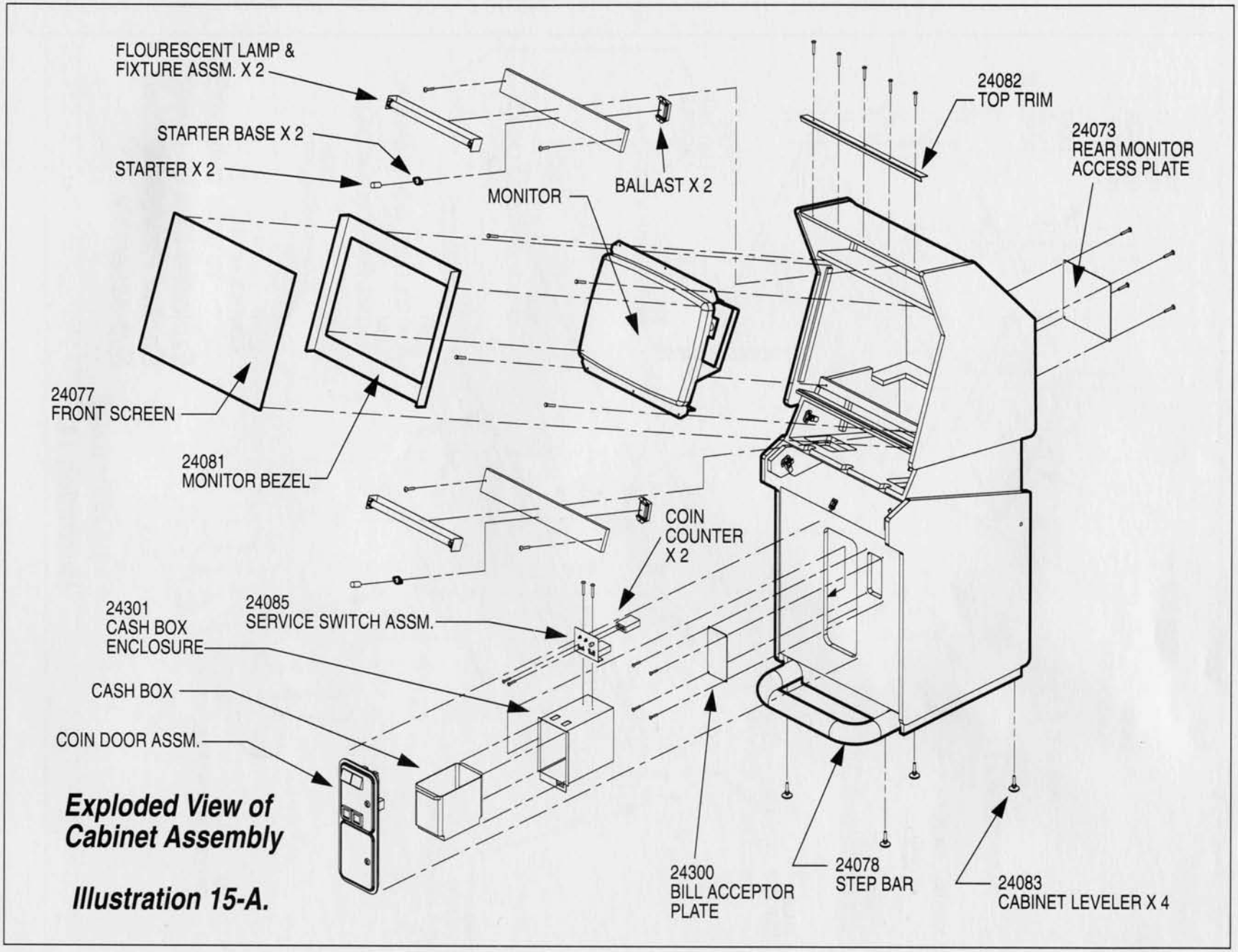
Exploded View of Speaker/Marquee Sub-assembly

Illustration 13.



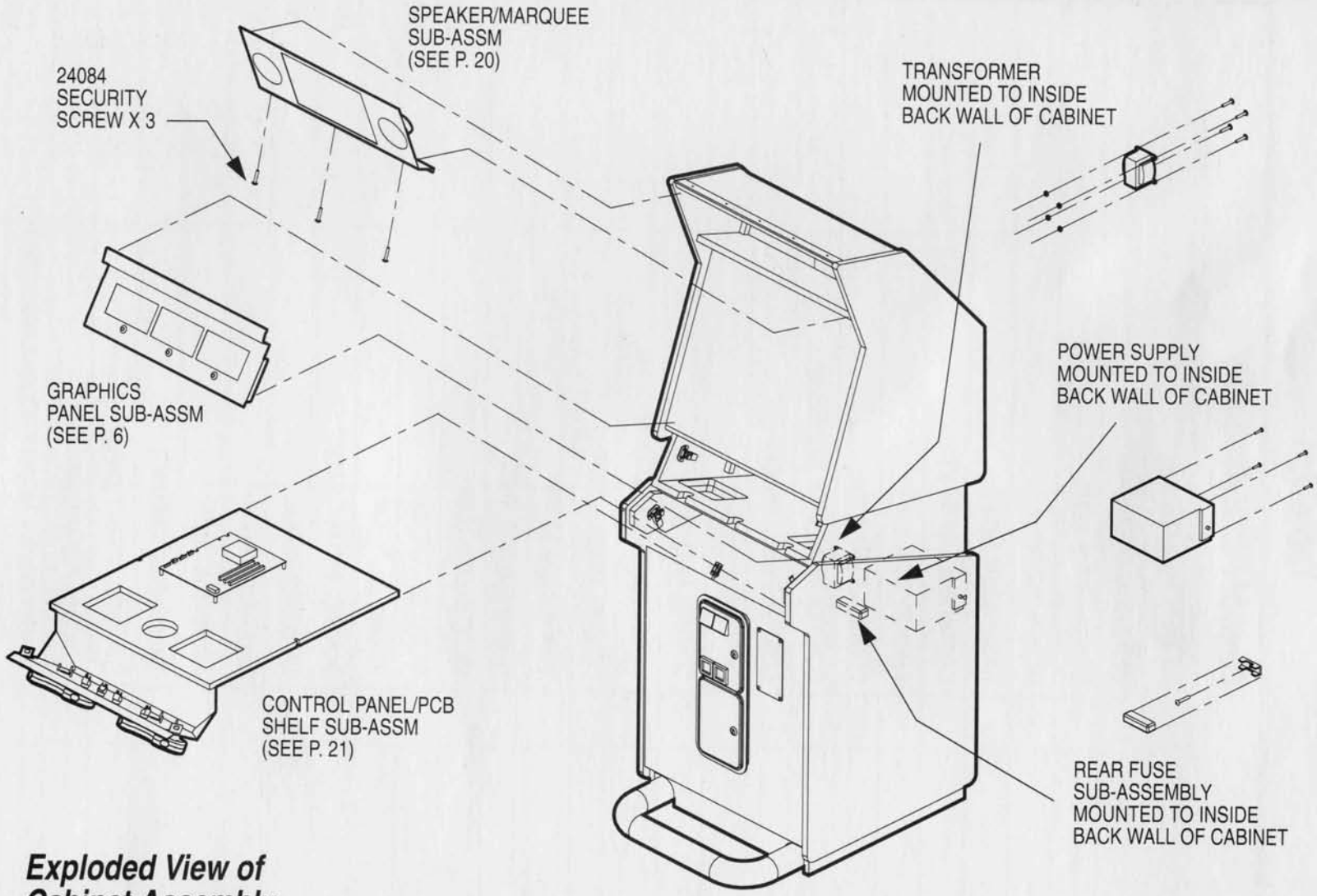
Exploded View of Control Panel/PCB Shelf Sub-assembly

Illustration 14.



Exploded View of Cabinet Assembly

Illustration 15-A.



Exploded View of Cabinet Assembly

Illustration 15-B.

Table 1:

Control Panel Assembly	
NINTENDO PART NO.	**DESCRIPTION**
933	OPTION SWITCH COLLAR
934	OPTION SWITCH BEZEL
935	OPTION SWITCH
3125	WASHER, M5 x 20 x1.2
11173	CARRIAGE BOLT 10/24 x 1
11180	KEP NUT 10-24
23661	CONTROL PANEL ASSY
23662	CONTROL PANEL BASE W/OVERLAY
23664	CONTROL PANEL OVERLAY
23665	OPTION SWITCH W/LED
23667	CONTROL MODULE
23669	LOWER CONTROL MODULE HOUSING
23670	CONTROL MODULE OVERLAY
23671	SCREW, 2-56 X 5/8 PHP
23672	SCREW, 6-32 X 1/2 RHSD
23673	MICRO SWITCH XGA6
23675	MICRO SWITCH XCF3
23676	SPRING
23677	CONTROL PAD ACTUATOR
23678	X/Y BUTTON
23679	A/B BUTTON
23680	L/R BUTTON
23681	BUTTON POST RETAINER
23690	START/SELECT BUTTON
23819	CONTROL PAD SPACER
24176	UPPER CONTROL MODULE HOUSING W/BUTTONS
24184	WASHER, NYLON

Table 2:

Cabinet Assembly			
NINTENDO PART NO.	**MANUFACTURERS PART NO.**	**DESCRIPTION**	**COMMENTS**
23650		CABINET	
23651		SUPER SYSTEM MARQUEE	
23655		SIDE DECAL	
23660		SPEAKER	
24073		MONITOR ACCESS PLATE (REAR INSPECTION)	
24074		SPEAKER HEADER PLATE	
24075		GAME HEADER PLATE	
24076		GAME HEADER (PLEXI-GLASS)	
24077		FRONT SCREEN (GLASS)	
24078		STEP BAR	
24081		MONITOR BEZEL	
24082		TOP TRIM	
24083		CABINET LEVELER	
24084		SECURITY SCREW	
24085		SERVICE SWITCH ASSEM-BLY	
24086		CONTROL PANEL LATCH	
24087		ROBERTS DRIVE TOOL	
24088		SECURITY SCREW TOOL	
24234		GAME CARD BRACKET	
24235		SPACER, SPEAKER	
24237		POTENTIOMETER, VOLUME, 10K OHM	
24267		LOAD RESISTOR	
24298		LOAD RESISTOR BRACKET	

Table 2:

Cabinet Assembly (Continued)			
NINTENDO PART NO.	**MANUFACTURERS PART NO.**	**DESCRIPTION**	**COMMENTS**
24299		PCB SPACER	
24300		BILL ACCEPTOR PLATE	
24301		COIN HOUSING ENCLOSURE	
	LITTLEFUSE PART NO. S-8202-2	FUSE HOLDER, DOUBLE	NOT A NINTENDO STOCKED ITEM
	LITTLEFUSE PART NO. 354 901-GY	FUSE HOLDER, SINGLE	NOT A NINTENDO STOCKED ITEM
	RICHCO PLASTICS PART NO. 840836	FUSE COVER	NOT A NINTENDO STOCKED ITEM
	IMPERIAL INTERNATL. MOD. NO. USP-11-15OU-3	POWER SUPPLY	NOT A NINTENDO STOCKED ITEM
	MIDWESTCO MODEL NO. 3PB88	ISOLATION TRANS-FORMER	NOT A NINTENDO STOCKED ITEM
	WELLS GARDNER MODEL NO. 25K7193	MONITOR, 25in	NOT A NINTENDO STOCKED ITEM
	COIN CONTROL MODEL NO. 10-4110-09	COIN DOOR ASSY	NOT A NINTENDO STOCKED ITEM
	PHILLIPS MODEL NO. F15T8CW	FLUORESCENT LAMP	NOT A NINTENDO STOCKED ITEM
	A-1 PRODUCTS MODEL NO. C4-LK18	FLUORESCENT LAMP FIXTURE	NOT A NINTENDO STOCKED ITEM
	HEYCO MODEL NO. FS-2	STARTER	NOT A NINTENDO STOCKED ITEM
	SCHUMACHER PART NO. E32496	BALLAST	NOT A NINTENDO STOCKED ITEM
	COIN CONTROLS MODEL NO. 20-4177-00	CASH BOX	NOT A NINTENDO STOCKED ITEM
	COIN CONTROLS MODEL NO. 6-Y-41623-441-SE	COIN COUNTER	NOT A NINTENDO STOCKED ITEM

Table 3:

Wiring Harness		
NINTENDO PART NO.	**DESCRIPTION**	**REMARKS**
23495	EXPANSION HARNESS 10P	
23682	GAME SELECT HARNESS	
23683	INFO/RESTART HARNESS	
23685	EXPANSION HARNESS 13P	
24089	MAIN HARNESS	
24090	COIN DOOR HARNESS	
24091	MONITOR HARNESS	
24092	SERVICE SWITCH EXTENSION HARNESS	
24094	A/V EXTENSION HARNESS	

Nintendo

Nintendo of America Inc.
P.O. Box 957, Redmond, WA. 98073-0957

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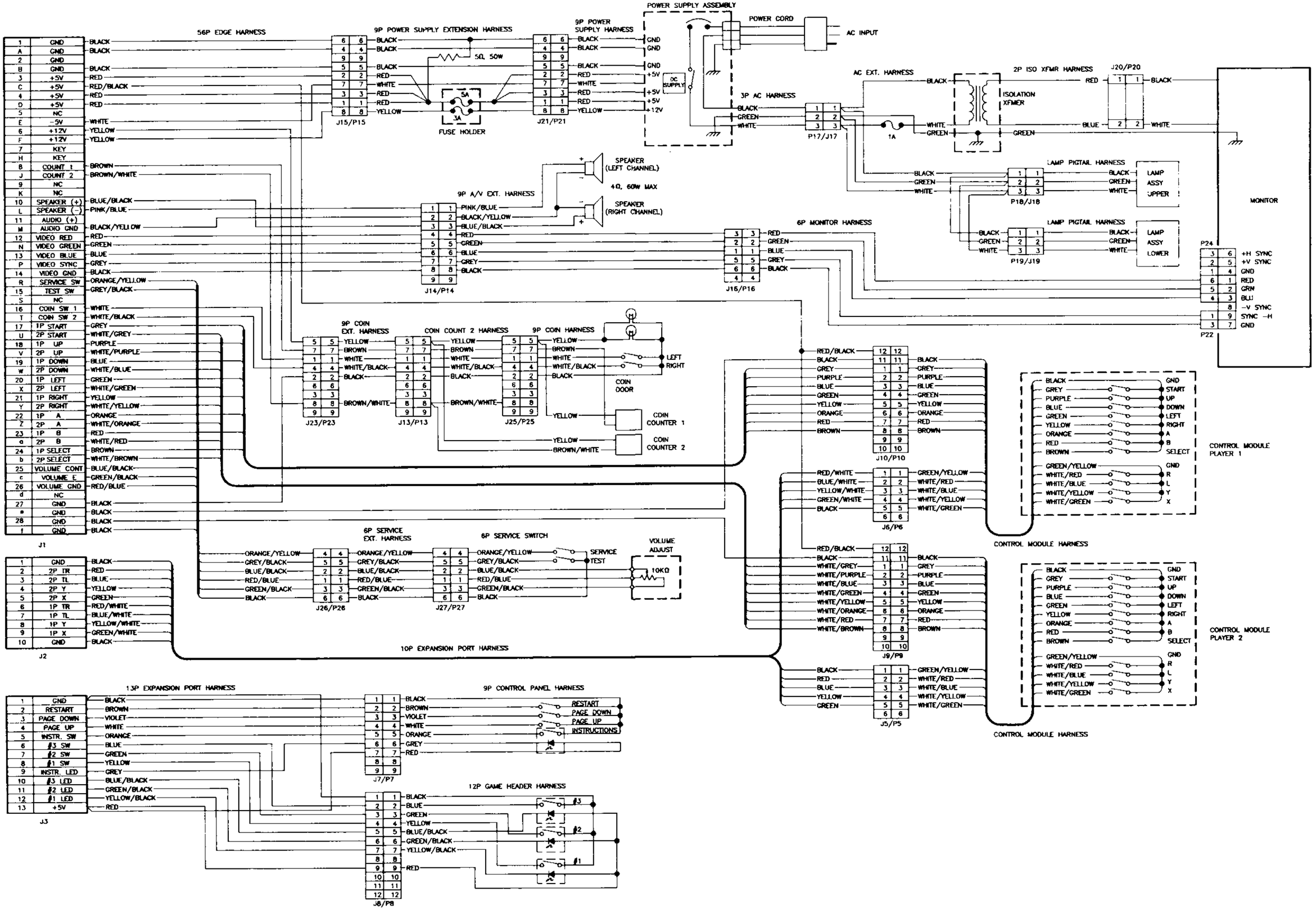

NSS WIRING DIAGRAM Rev A

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