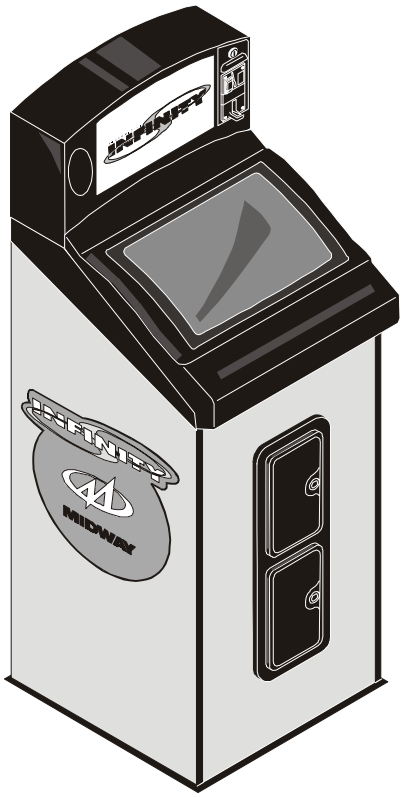
MIDWAY
AMUSEMENT GAMES, LLC

JANUARY 2000
16-60091-101

TOUCHMASTER
INFINITY



UPRIGHT STYLE CABINET

Operations Manual Includes

Setup and Safety • Service • System • Parts • Wiring • Troubleshooting

The manufacturer intends that this game is to be operated for amusement purposes only and not in contravention of any federal, state or local law or regulation of the United States or any foreign country governing gaming devices. All operators of this game are responsible for its operation in accordance with such laws and regulations. The manufacturer's factory settings for this game may require adjustment in order to comply with laws applicable in an operator's specific jurisdiction. It is the operator's responsibility to determine whether adjustments are necessary and, if they are, to make the appropriate adjustments prior to operating the amusement game.

Midway Amusement Games, LLC
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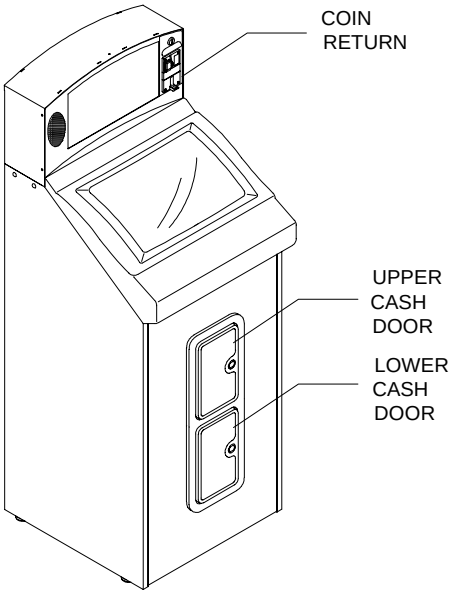
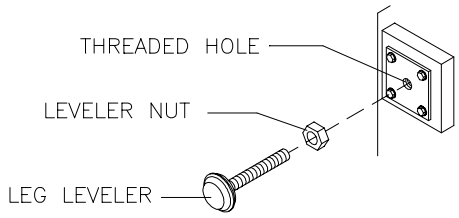
Touchmaster® Infinity Upright QuickStart

1



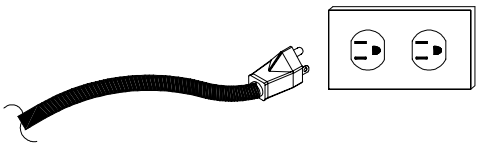
Remove items from shipping carton. Remove key from coin return. Open upper cash door. Remove keys from hook on left inside coin door. Open lower cash door. Remove cash box and locate spare parts, line cord, etc.

2



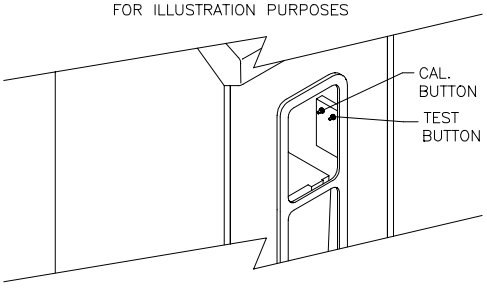
Carefully tilt cabinet and insert leg leveler and nut into each of the four corner threaded holes. Adjust levelers so cabinet is steady and balanced.

3



Plug in line cord and turn on AC power.

4

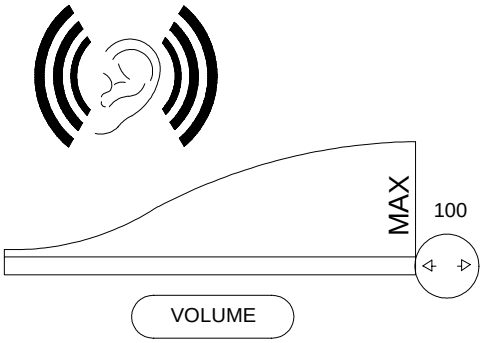


Open upper coin door and press CAL. button.

5

Calibrate Touchscreen and perform Calibration Test.

6

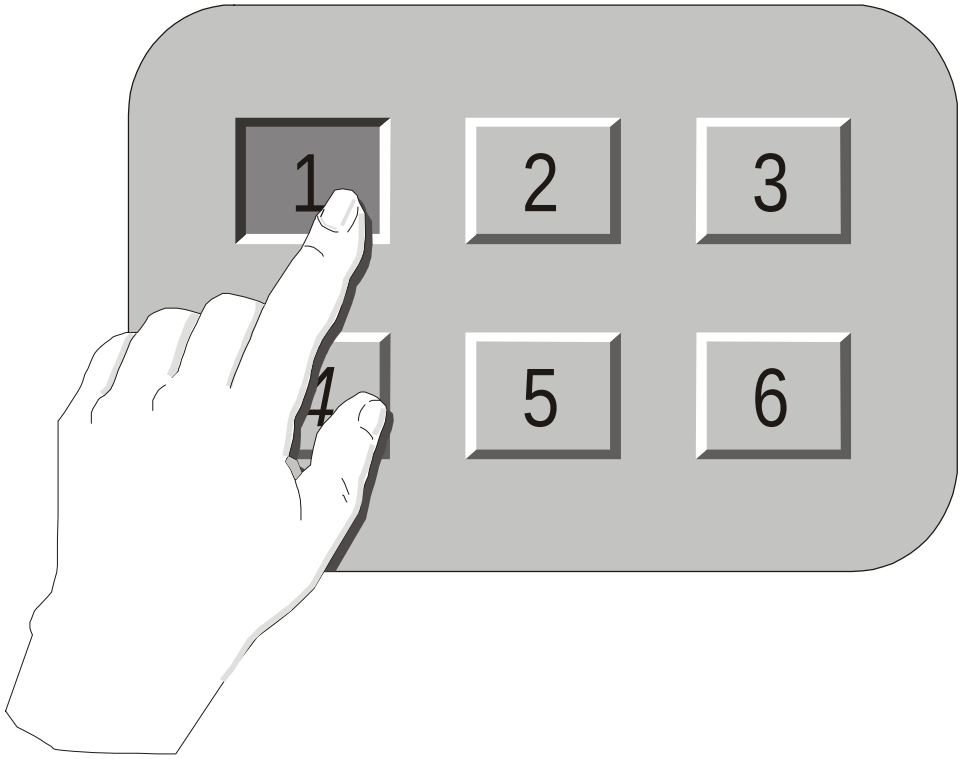


Press TEST button.
Set volume and time.
Make other adjustments to currency, game price, erotic software, etc.
Exit Menu System.
Replace cash box.
Close and lock upper and lower cash doors.
Play games.

TOUCHMASTER

INFINITY

CHAPTER



Setup and Safety

	NOTICE: Information in this manual may change without notice. Midway Amusement Games, LLC. reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods may warrant. Field installed upgrade kits may also change the operating sequence or functions.

SAFETY INSTRUCTIONS

Read safety instructions before preparing Video Game Machine for play, performing maintenance, or beginning service procedures. These instructions apply to all operators and service personnel. Specific notes, cautions, and warnings appear in manual where applicable.

	LABELS: Labels posted directly on and in Touchmaster® Infinity contain important information. Most replaceable assemblies are labeled with part numbers and versions or date codes for easy identification. Caution labels are placed to alert readers to potential equipment damage. Warning labels address possibility of personal injury.
	HIGH VOLTAGE CONSIDERATIONS: CRTs and their power supplies can retain energy long after power is turned off. This is especially true when a defective circuit prevents a normal discharge. Connect a well-insulated ground strap to metal chassis. Slide free end of strap under CRT anode cap until you make contact. Wait two minutes for charge recovery, then discharge anode again.
	ELECTRICAL GROUND: To avoid electrical shocks, do not connect line cord or turn AC power on until you have inspected Video Game Machine. Use only factory-approved AC line cords. Only plug this game into a grounded 3-wire outlet. Never use a “cheater” plug or cut off ground pin on line cord.
	AC LINE VOLTAGE: AC line voltage and frequency vary for different countries and continents. Measure local line voltage if you are not sure of its value. Set power supply selector switch and transformer taps for best voltage match.
	HEAT: When left on for long periods of time, internal components–especially heat sink–may become very hot. Check temperature of internal components before touching.
	MOVEMENT: This Video Game Machine contains fragile components. Avoid rough handling when moving machine to its destination. Do not relocate Touchmaster® Infinity while AC power is on.
	UNPACKING: Inspect shipping carton and its contents for signs of damage before removing cabinet. Begin assembly only after identifying and accounting for all parts. Keep spare parts and documents with machine.
	EPILEPSY WARNING: A very small portion of the population has a condition which may cause them to experience epileptic seizures or have momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are commonly present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition. If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g. seizure or loss of awareness), immediately consult your physician before using any video games. Parents should observe their children while they play video games. If you or your child experience any of the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convolutions, *discontinue use immediately* and consult your physician.
	GAME LOCATION: Do not operate Touchmaster® Infinity near equipment or vents that produce excessive heat or moisture. Ensure drapes or other furnishings do not block air circulation around cabinet vents. Platform beneath cabinet must safely support its weight and remain steady when touched. Route line cord away from possible foot traffic.
	RADIATION: High voltages used in monitor can generate X-rays under fault conditions. Do not substitute high voltage components or modify circuit without factory authorization. Follow manufacturer’s directions for measuring and adjusting CRT anode voltage.

	GLASS PARTS: Wear protective gloves and use both hands when carrying or moving parts made of glass. CRTs usually implode if broken. Glass pieces can fly eight feet (more than two meters) or more from point of impact.
	WARNING: Use of non-Midway parts or circuit modifications may cause serious injury or equipment damage. Use only Midway Amusement Games, LLC authorized parts. • For safety and reliability, substitute parts and modifications are not recommended. • Substitute parts or modifications may void CE type acceptance. • This game is protected by Federal Copyright, trademark, and patent laws. Unauthorized modifications may be illegal under Federal law. This also applies to Midway Amusement Games, LLC logos, designs, publications, and assemblies. Moreover, facsimiles of Midway Games, Inc. equipment (or any feature thereof) may be illegal under federal law, regardless of whether such facsimiles are manufactured with Midway components.
	HARD DRIVE: This machine uses a hard disk drive to store game information, custom settings, high scores, etc. Hard drives are sensitive to static electricity. When transporting or storing drives, place them in anti-static bags. Or, you can transport drive in hard drive box (part 08-8068). Handle hard drives carefully. Do not drop them or store heavy items on top of them, as this may cause damage.
	NOTICE: No part of this publication may be reproduced by any mechanical, photographic, or electronic process, or in the form of a phonographic recording, nor may be transmitted, or otherwise copied for public or private use, without permission of the publisher.

PRODUCT SPECIFICATIONS

Operating Requirements

Location	*Electrical Power*	*Temperature*	*Humidity*
Domestic	120VAC @ 60Hz 3.0 Amps	32°F to 100°F	Not to exceed 95% relative
Foreign	230VAC @ 50Hz 2.0 Amps	(0°C to 38°C)	
Japan	100VAC @ 50Hz 3.0 Amps		

Cabinet Statistics

Game Dimensions	*Shipping Dimensions*	*Shipping Weight*	*Design Type*
Width 21.0" (53.3 cm)	Width 23.5” (59.7 cm)	220 Lbs	Dedicated Video Game
Depth 25.7" (65.3 cm)	Depth 31” (78.7 cm)	(100 kg.)	Machine
Height 57.2" (145.3 cm)	Height 60” (152.4 cm)		Upright cabinet style

Equipment Characteristics

Video Display Monitor	*Audio System*	*Currency Acceptors*
VGA 640 x 480 resolution	Digital Monaural	Standard 1 Coin Mechanism Door
19” (48.3 cm) CRT with	3” (10 cm) Full	DBV ready
Touchscreen	Range Speaker	1 Coin Counter

Game Characteristics

Player Variables	*Operator Variables*	*Diagnostics*
Choice of many different games	Coinage, Difficulty,	Automatic Power-Up Self-Test
1 or 2 players per game	Graphics, Statistics	Manual Multi-Level Menu System
High score recognition	Modem, Time, Volume	Touchscreen Calibration

GAME PLAY

Touchmaster® Infinity offers opportunities for expanded gameplay, graphics, connectivity, upgradability, and earnings. The hard disk drive lets players enjoy a wider variety of games, more vivid images and action, and the chance to pit their scores against other players. It also makes upgrading simpler.

You can customize up to four Attract Mode Ad Screens, calling attention to games or tournaments, advertising drink or food specials, announcing birthdays or special occasions, or promoting your establishment name.

Models in Playboy® and other erotic games strip to their bikinis or their birthday suits. You can control when and if these images are viewable, although they are turned off at the factory. You can also change the “card” games to “tactic” games and make playing cards look like tiles to comply with local regulations.

Game instructions are built into the software and appear at the start of each game. Players can recall instructions during game play by touching the ? button. A player unhappy with a game can stop a game with the Exit button. However, game credits are spent once play begins and are not refunded or reused.

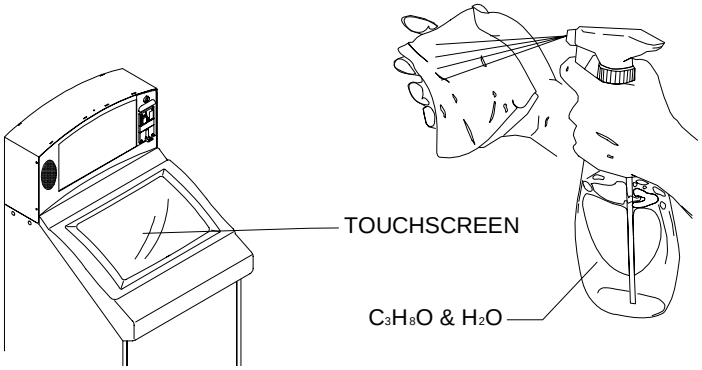
STANDARD MAINTENANCE

This Video Game Machine uses the same surface for video display and player controls. Because players use their fingers, the entire cabinet will quickly become covered with fingerprints. We recommend you clean the cabinet frequently to ensure maximum customer interest.

	CAUTION: Use only isopropyl alcohol and warm water as a Touchscreen cleaning solution. Do not use products with ammonia, chlorine, bleach, lemon, vinegar, TSP (tri-sodium phosphate), or any abrasive ingredients. Many common household cleaners include these chemicals.

Glass surfaces

You do not need to switch off AC power to clean glass. Apply a mixture of isopropyl alcohol and water to a clean cloth or sponge, then use this to wipe screen. *Do not apply the cleaner directly on glass!* Liquids could drip down into Touchscreen circuits and cause erratic operation.



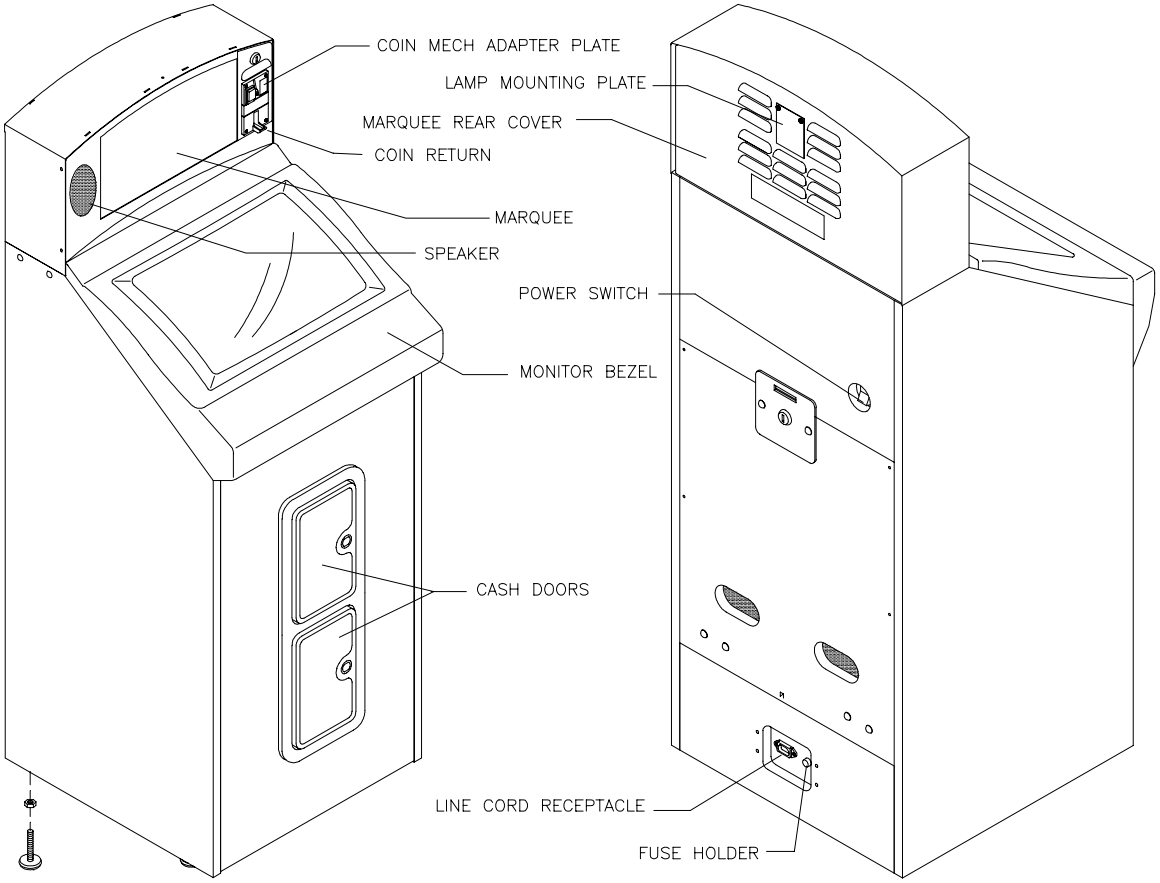
Cabinet

Use only non-abrasive cleaners to avoid damaging decals and graphics. Apply the cleaner to a clean cloth or sponge, then use this to wipe. *Do not apply the cleaner directly to cabinet!* Liquids could enter the cabinet, damaging electronic circuits and voiding the warranty.

Calibration

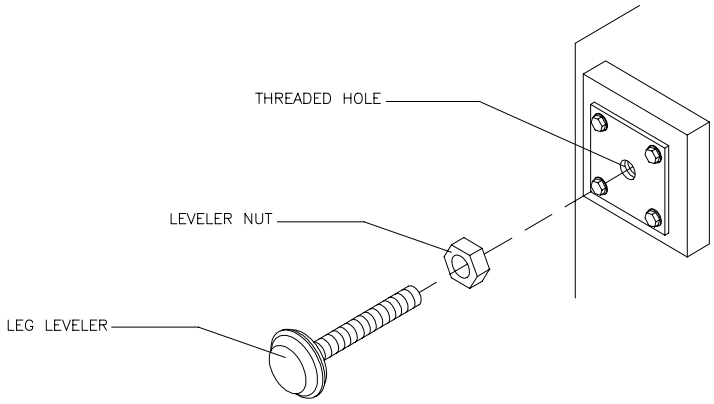
After each cleaning, and after each time you move the cabinet, check screen calibration for accuracy. Use Calibrate Test to determine if recalibration is required.

TYPICAL UPRIGHT CABINET INSTALLATION



CABINET FRONT AND REAR

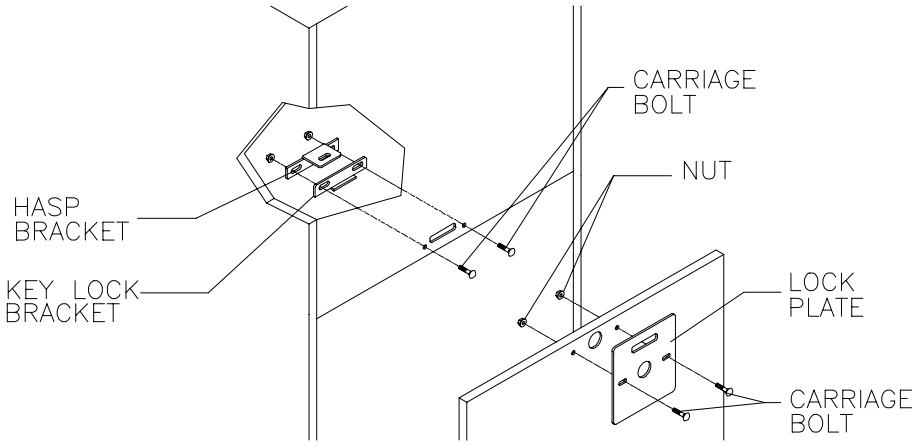
1. Remove items from shipping container and set them aside. Line cord and spare parts bag are shipped in cash box. Inspect the exterior of the cabinet and CRT for any signs of damage.
2. Cash door keys are attached to marquee currency acceptor. Remove keys. Unlock and open lower cash door. Leg levelers and other cabinet parts are in cash box.
3. Find four leg levelers and nuts in spare parts bag. Install one nut onto each leveler. Install one leveler and nut into threaded hole in each cabinet corner. Do not tighten nuts yet.



LEG LEVELER AND NUT INSTALLATION

4. Remove and save screws from cabinet rear door. Lift door off cabinet. Inspect interior for signs of damage. Check all major assemblies to ensure they are mounted securely.

5. Refer to Cabinet Wiring Diagram in Wiring Chapter and check that all cable connectors are correctly secured. *Do not force connectors; they are keyed to fit in only one direction.* Bent pins and reversed connections may damage Touchmaster® Infinity and void warranty.



INSTALLATION OF EXTRA LOCK PLATE AND HASP

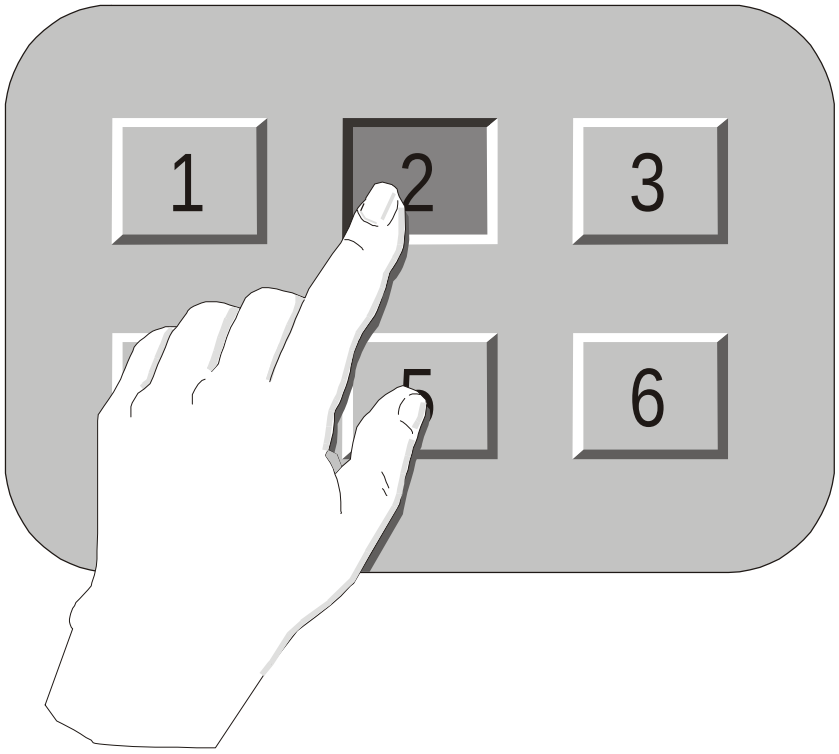
6. You can install an extra padlock to secure rear door. Locate hasp in spare parts bag. Remove two lock bracket nuts from inside cabinet, above rear door opening. Slide hasp onto bolts so that it protrudes from hole in back of cabinet. Reinstall nuts.
7. Locate lock plate at top of rear door. Remove bolts and nuts from lock plate. Rotate plate so slot is above door. Reinstall bolts and nuts and tighten firmly.
8. Line cord is with spare parts. Match holes on IEC plug with prongs in receptacle and push firmly to seat line cord.
9. Return cash box to lower coin chamber. Close and lock coin doors. Store keys in a safe place (i.e., on key hook inside cabinet).
10. Reinstall rear door. Install screws at top and sides of rear door and tighten snugly.
11. Lift and move Touchmaster® to intended location. Do not slide cabinet; it has no wheels. Adjust leg levelers until cabinet is stable and level. Distribute weight equally on each corner. Tighten nuts firmly.
12. Plug line cord into grounded AC outlet. Do not use a “cheater” plug. Connect line cord ground wires. Turn AC power on with switch in rear of cabinet. Self-diagnostics begin. If there are no errors, Attract Mode begins.
13. If game fails to start, or if fuse blows, turn off AC power and remove line cord. Remove rear door and check voltage setting on power supply. Replace fuse.
14. Unlock and open the coin door. Press and release the CAL pushbutton to optimize the monitor screen touch sensors. Follow the screen instruction to calibrate and verify Touchscreen system.
15. Press and release the TEST pushbutton to set the game variables and verify operation.
16. Recalibrate the Touchscreen each time the cabinet is moved to a different location.

	NOTICE: Touchmaster® Infinity has erotic software turned off at the factory and a label indicating games are suitable for all ages. Should you choose to turn erotic software on, apply appropriate red AAMA sexual content label over the original label. The additional label is included in the spare parts kit.

TOUCHMASTER

INFINITY

CHAPTER



Service

	NOTICE: This manual may change without notice. Midway Amusement Games, LLC reserves the right to make improvements in equipment function, design, or components as progress in engineering or manufacturing methods warrants. Installing field upgrade kits may also change the operating sequence or functions.

SERVICING TOUCHMASTER® INFINITY UPRIGHT

Only qualified service personnel should maintain and repair a Touchmaster® Infinity. Read all instructions and safety warnings carefully before beginning service. Failure to do so may cause serious injury or damage to machine. More specific notes, cautions, and warnings appear in manual where applicable.

Read the safety notices in the previous chapter thoroughly before beginning service.

This Video Game Machine uses complex electronic components that are sensitive to static electricity. Observe the following precautions when handling any electronics.

- Ensure AC power is turned off prior to servicing electronics. *Do not* remove or connect electronics assemblies when power is on. Doing so will damage electronics assemblies and void the warranty.
- Discharge any static electricity buildup in your body by touching the cabinet. This must be done *before* touching or handling electronic assemblies.
- Store electronics assemblies in an anti-static bag in an anti-static area. When replacing electronics, reuse the bag from the new part to store removed boards during service.

Fuse

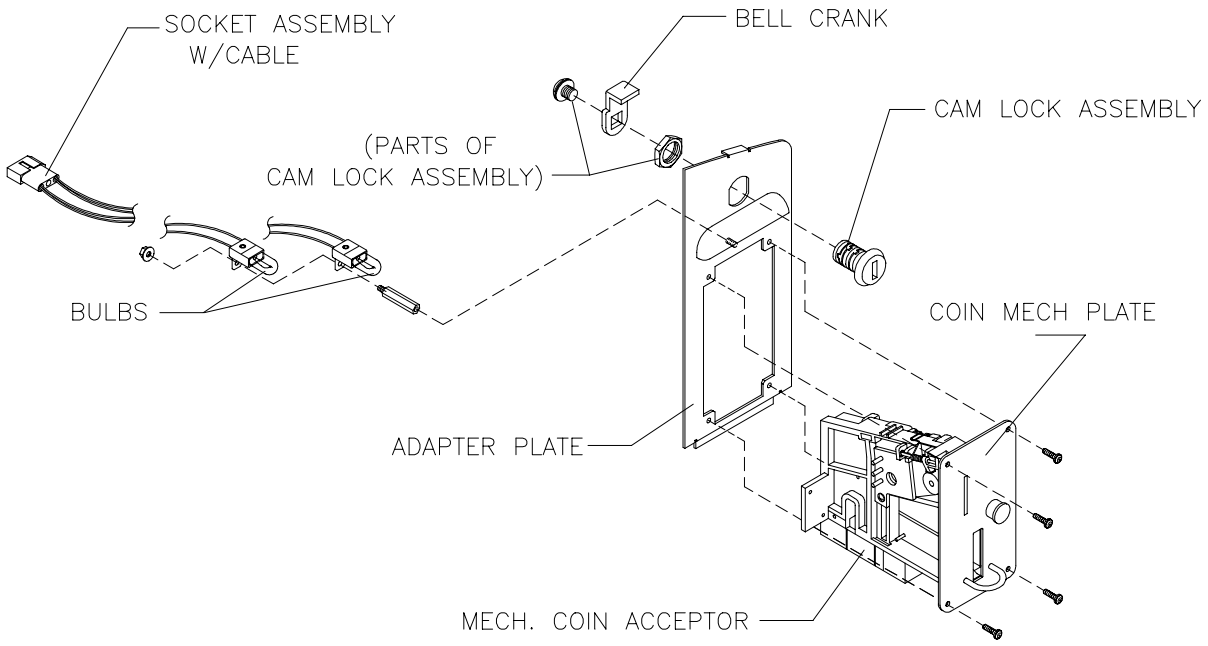
Fuse is near the base of the rear of the cabinet, next to the power cord receptacle. To replace, first turn AC power off and unplug line cord. Turn fuse holder ¼ turn counterclockwise and pull straight out of cabinet. Replace with fuse of exact same type.

Coin Mechanism

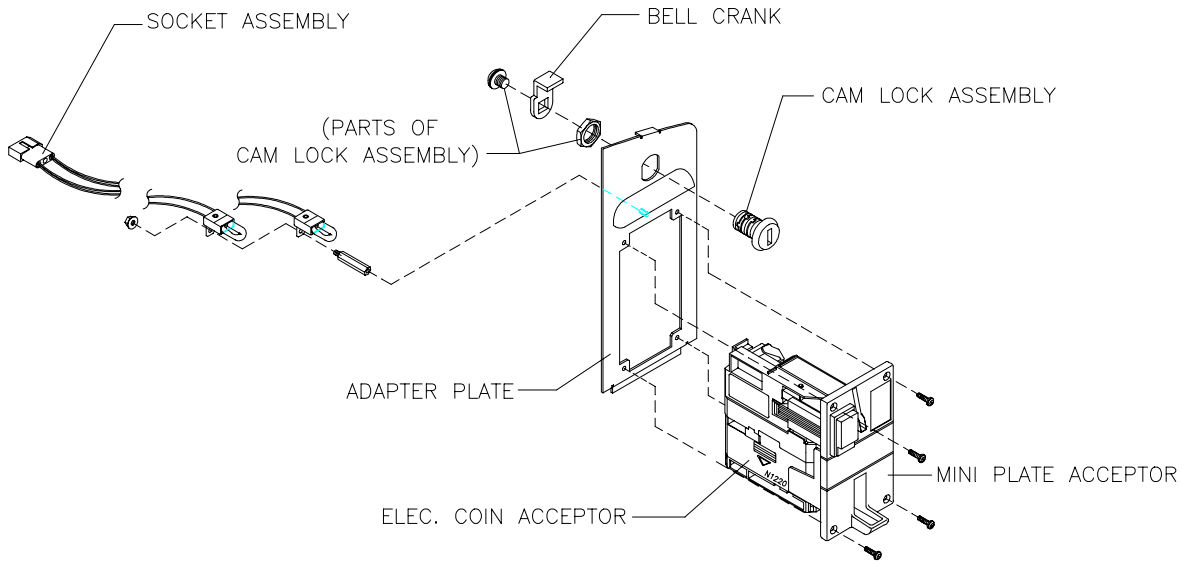
Remove screws holding coin mechanism adapter plate to marquee assembly. Remove adapter plate. Disconnect coin mechanism inside marquee assembly. Replace coin mechanism and plate.

Coin Mechnism Bulb

Remove adapter plate. Remove nut holding bulb assembly on stud. Slide bulb out of socket and replace with exact same type.



COIN MECHANISM ASSEMBLY



ALTERNATE COIN MECHANISM ASSEMBLY

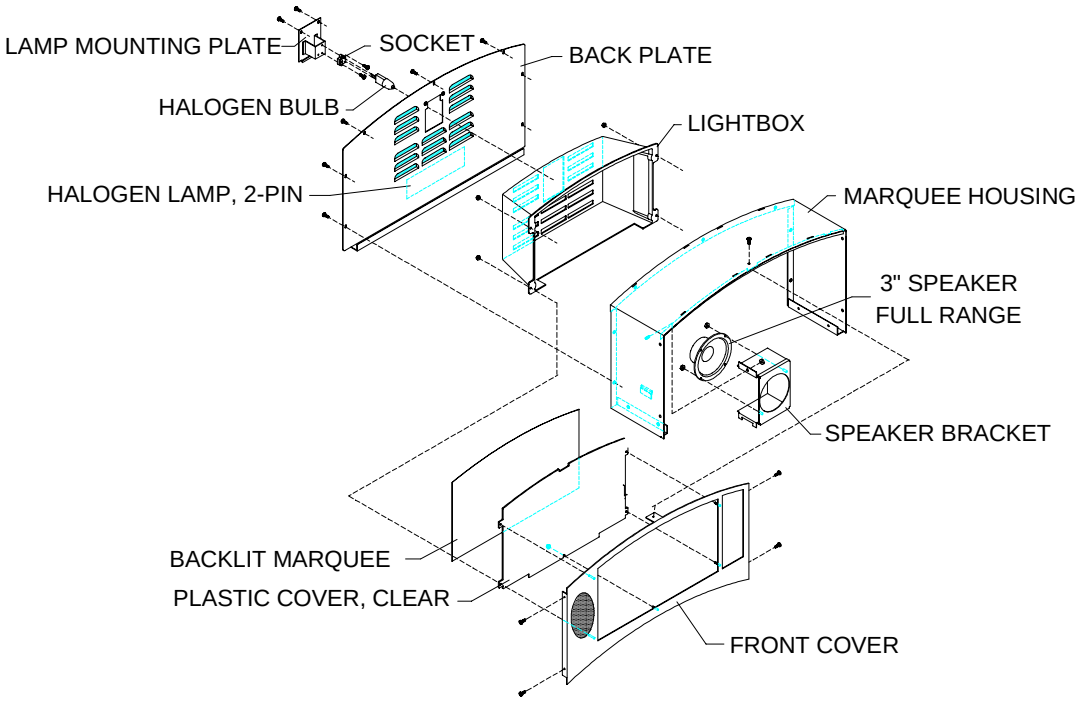
Speaker

Remove Marquee Rear Cover. Disconnect and mark polarity of speaker wires. Remove two nuts holding speaker on studs and pull speaker out of marquee.

⚠	**WARNING:** When you touch a halogen bulb, oil from your fingers sticks to the glass and can cause the bulb to overheat and fail. Bulbs are also extremely HOT after even a short period of use. Always handle halogen bulbs carefully, holding them with tissue or a cloth.

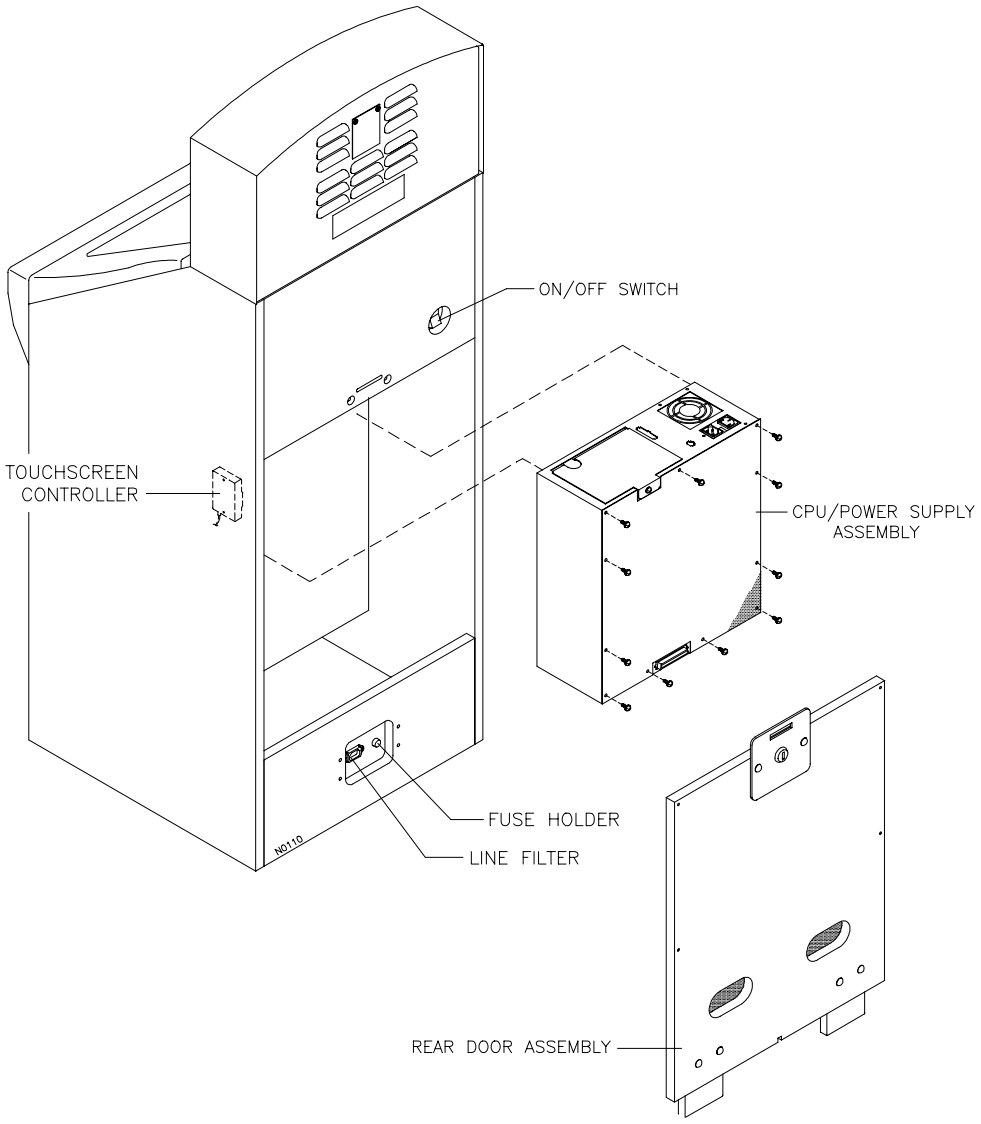
Marquee bulb

Remove Lamp Mounting Plate. Slide halogen bulb from socket and replace with bulb of exact same type.



MARQUEE ASSEMBLY

	CONNECTORS: Check that all cable connectors are correctly secured. Do not force connectors. They are keyed to fit in only one location. Bent pins and reversed connectors may damage your game and void warranty. You may choose to check all connections when you remove your game from its carton, as connections may have loosened in transit.
	ANTI-STATIC BAGS: Store electronic assemblies in an anti-static area. Keep board assemblies in anti-static bags during service, transport, or storage.



CABINET REAR

Rear Door

Insert key in lock and turn clockwise. Remove screws on side of rear door. Carefully lift door off cabinet and set in safe place.

CPU Cover

Remove Rear Door. Remove 11 machine screws holding electronics cover to CPU Board Assembly panel.

CPU Enclosure and CPU Panel

Remove CPU cover. Detach cable connectors at top of CPU enclosure, as well as VGA connector and Touchscreen connector. Remove four screws that hold wood CPU panel to wood cabinet cleats. Carefully remove panel, with CPU enclosure and electronics assembly, from rear of cabinet.

Electronics Assemblies

Remove CPU cover. Disconnect cables at top of CPU enclosure, as well as VGA cable and Touchscreen connector. Remove screws holding electronics assembly base to CPU panel.

Security Board Assembly

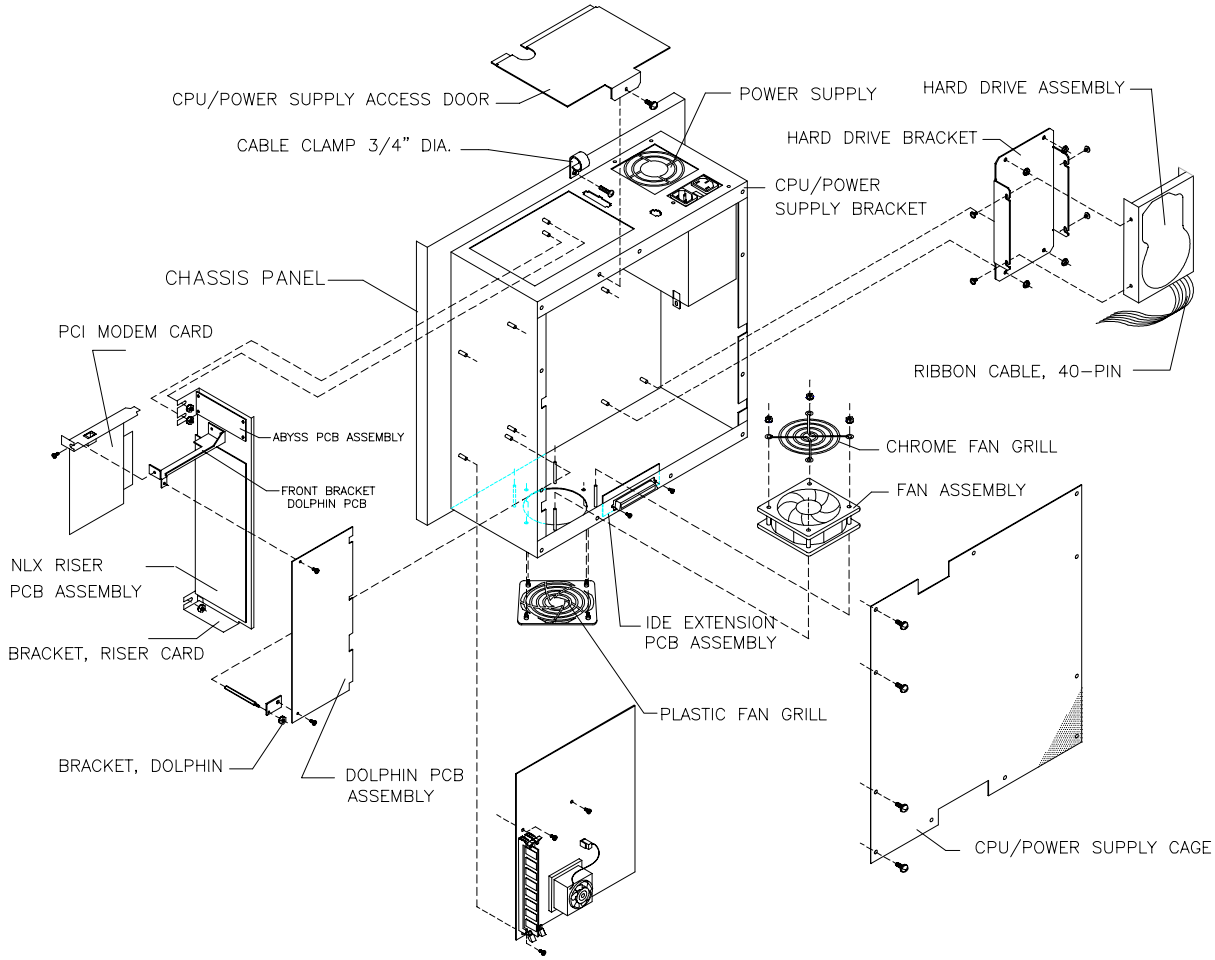
Remove CPU cover. Disconnect cable to CPU Board Assembly. Pull Security Board Assembly away from retaining pins with a firm, gentle tug.

Hard Disk Drive

Remove CPU cover. Disconnect data and power cable. Remove four nuts holding bracket on studs. Remove drive from cabinet. To remove hard drive from bracket, unscrew four side screws through bracket into hard drive.

Battery

Remove CPU cover. Pry battery from socket and discard according to replacement instructions.



ELECTRONICS ASSEMBLIES

	STATIC ELECTRICITY: Discharge static electricity buildup in your body by touching exterior of cabinet. Do this *before* touching or handling electronic assemblies. Failure to do this may damage assemblies.

Fan

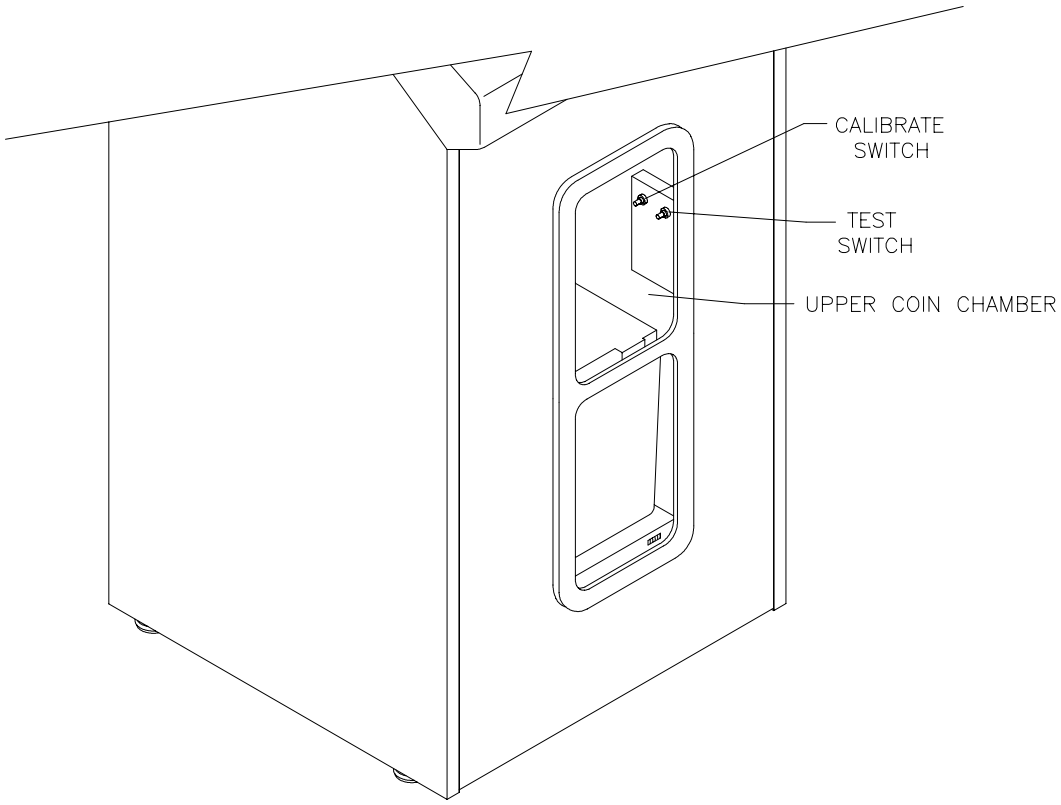
Remove CPU cover. Remove four nuts on fan studs. Remove grill from fan. Remove fan from studs, disconnecting fan cable as you pull fan out of cabinet.

Power Supply

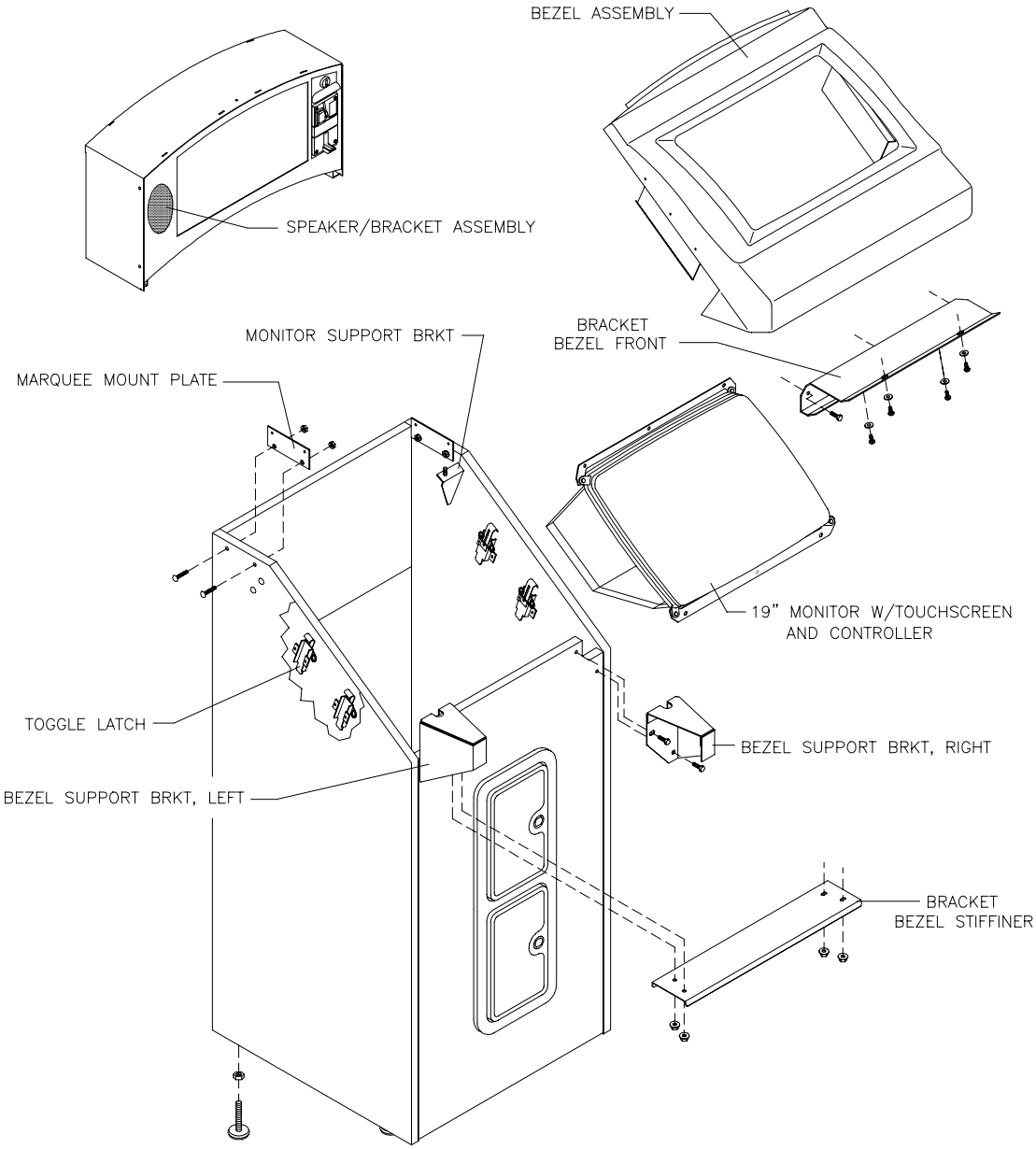
Disconnect all wiring leading to CPU enclosure and electronics assembly. Remove AC plug from power supply at top of CPU enclosure. Remove screws holding CPU cover to CPU enclosure. Detach power connectors from monitor, marquee light, etc. Remove screws holding power supply to CPU enclosure. Remove power supply from cabinet.

Pushbutton Switches

Open upper coin door. Remove switch nut. Reach around switch mounting bracket and disconnect wire. Pull switch through wall.



LOCATION OF CALIBRATE AND TEST SWITCHES (DOORS REMOVED FOR ILLUSTRATION)



CABINET FRONT (EXPLODED)

Monitor Bezel

Remove rear door. Reach in through rear and unhook four toggle latches that restrain bezel. They are fastened to the sides of the cabinet. Remove four Torx screws at bottom front of bezel. Pull bezel towards front of cabinet and upward to remove.

⚠	**CAUTION:** Monitor is very heavy. Most of its weight is toward front of cabinet. Firmly support monitor as you remove it from cabinet.

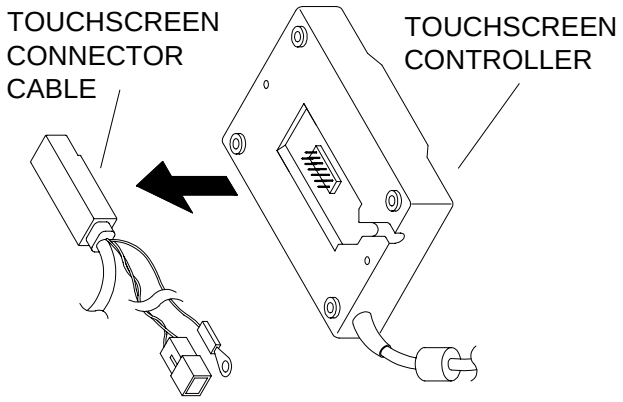
Monitor

Remove monitor bezel. Remove CPU cover. Disconnect VGA cable from CPU Board Assembly. Disconnect Touchscreen Connector Cable. Disconnect ground lug and power connector. Disconnect power cable from monitor assembly. Remove four nuts holding monitor bracket to cabinet bracket. Carefully lift monitor through front of cabinet.

ISOLATION TRANSFORMER: Monitor does not require isolation from AC line voltage during normal operation. However, when operating outside cabinet or servicing monitor on a test bench, isolate monitor from line voltage with isolation transformer.

Touchscreen Controller

Remove rear door. Remove two screws holding controller on inside wall. Detach Touchscreen Connector Cable from Controller. Disconnect green wire from safety ground stud. Remove Electronics Cover and detach Cable Connector from mate on corresponding cable.



CABLE REMOVAL

Touchscreen

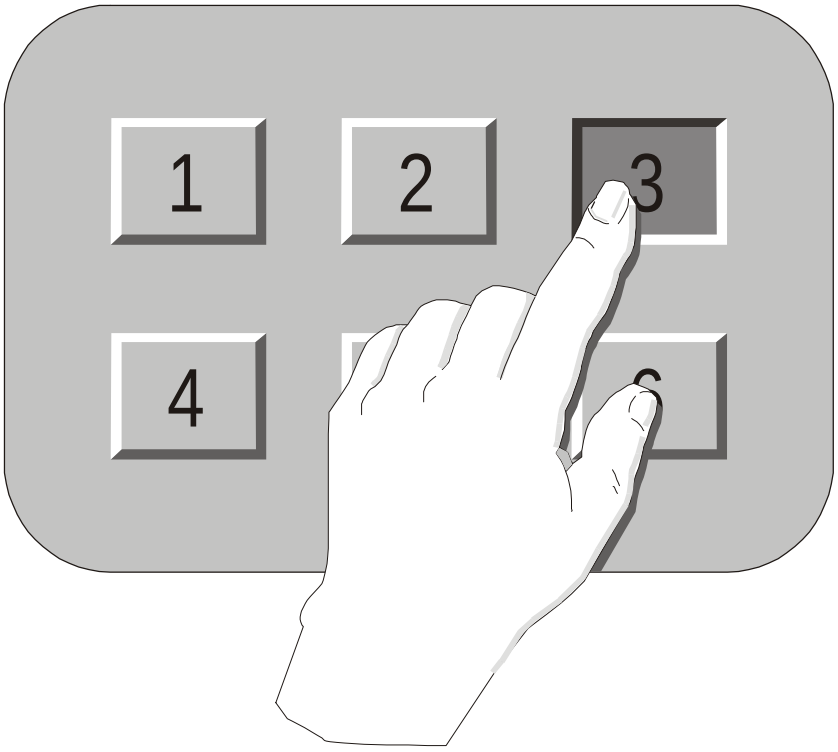
Remove rear door and remove screws holding Touchscreen Controller to inside wall. Detach Touchscreen Connector Cable from Touchscreen Controller. Let cable hang free inside cabinet.

Remove monitor bezel. Remove tape holding Touchscreen to monitor. Pry Touchscreen from monitor, using sharp blade to break tape seal between monitor and Touchscreen. Note orientation of Touchscreen as you remove it. To replace, follow instructions included with new Touchscreen.

TOUCHMASTER

INFINITY

CHAPTER



System

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SYSTEM SOFTWARE

Touchmaster® Infinity uses a graphical user interface for its Menu System that simplifies audits and diagnostics. The following button conventions are used at the bottom of Menu System screens.

or

Accepts modifications to current screen and returns to previous screen.

Ignores recent modifications to current screen and returns to previous screen.

Proceeds to next screen in a series.

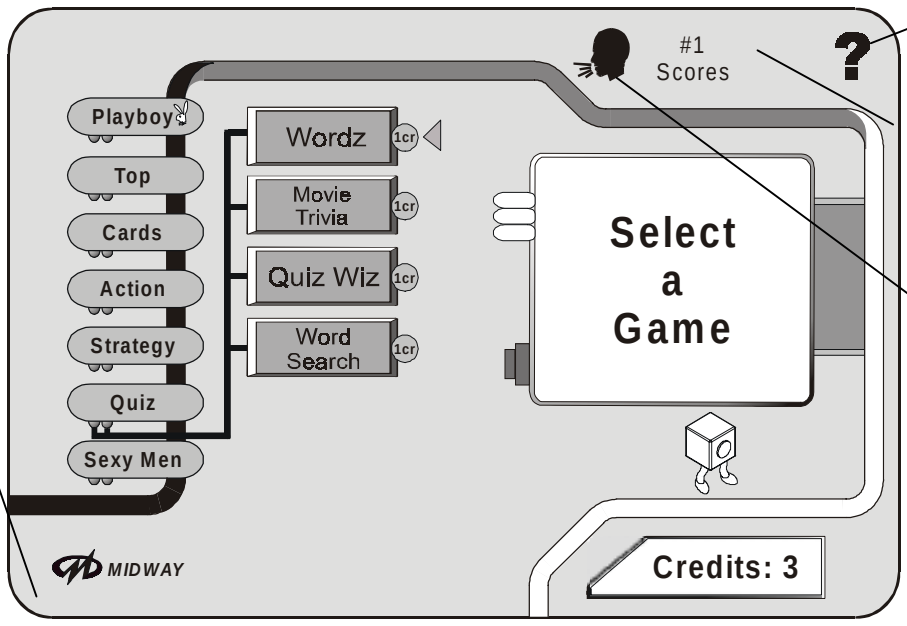
Leaves Menu System and returns to Attract Mode.

Returns to previous screen.

Entering the system

FULL MENU SYSTEM ACCESS

Open the upper cash door and press the TEST pushbutton.



Displays operator Ad Screens

When you select a game, a High Scores button lets you view top scores for that game.

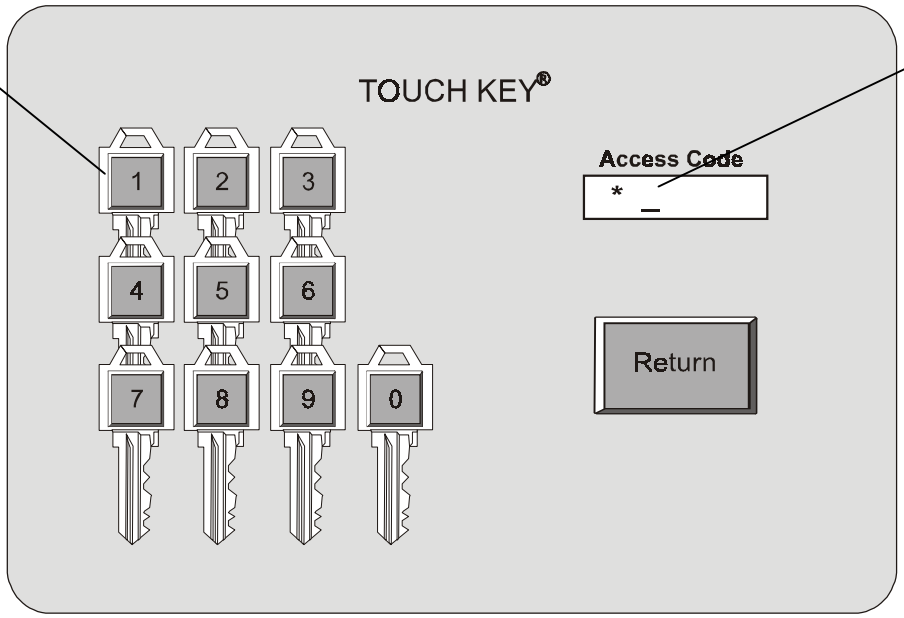
Permits language selection, if available.

Touch bottom left of Attract Mode screen to open Touch Key access screen.

TOUCH KEY (partial) MENU SYSTEM ACCESS

Touch the bottom left of the Attract Mode main screen to access the Touch Key PIN entry screen.

Touch each digit of your PIN (setup by operator). If Touchscreen. does not sense a signal for about 10 seconds, Attract Mode begins again.



Asterisks representing your four digits appear here. As the fourth correct digit is recognized, the Menu System opens. If your PIN is wrong, Attract Mode resumes.

FULL MENU SYSTEM

MAIN MENU

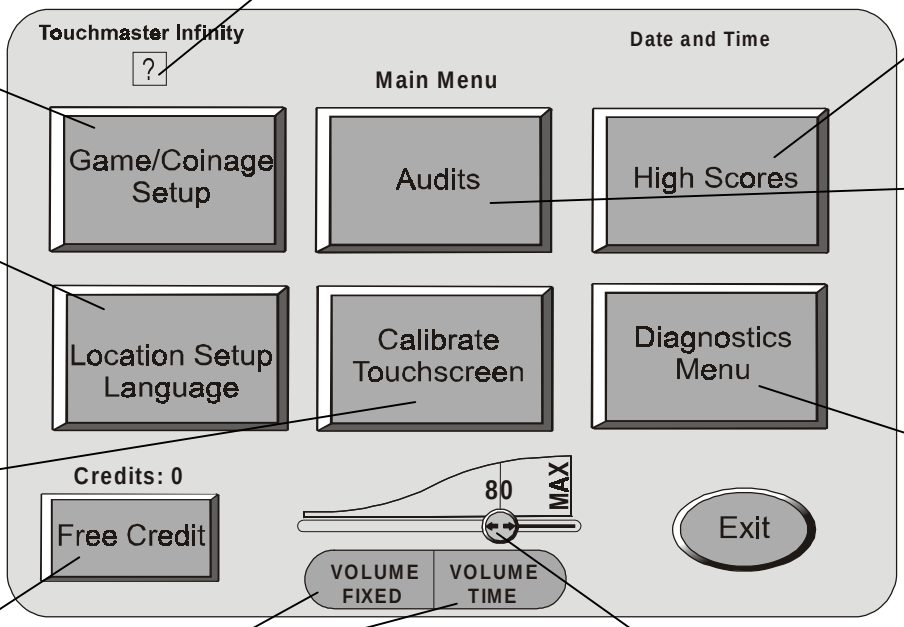
Shows software version.

Lets you modify game characteristics and currency settings.

Permits time and date, Ad Screen, Touch Key PIN, language, and other adjustments.

Accesses Calibrate and Calibrate Test screens.

Increases number of free credits up to the maximum.



By default the Volume Fixed mode is visible.

Select Volume Time to show a bar chart that changes volume based on hour of day.

Move circle left or right to lower or raise volume.

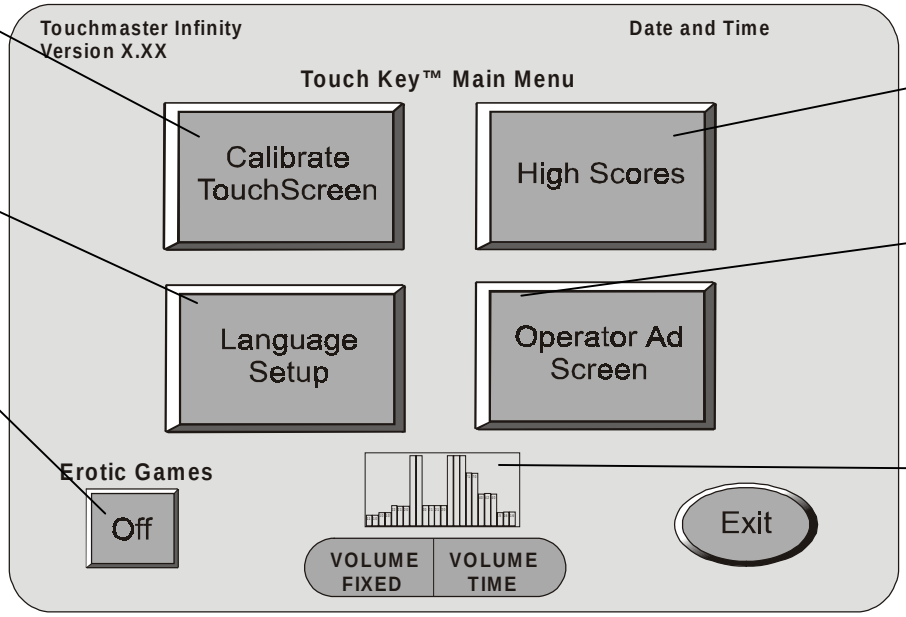
Lets you view and reset game high scores.

Details a wide variety of info about player behavior. This can help you increase earnings.

Accesses various video and sound tests.

TOUCH KEY MENU SYSTEM

MAIN MENU



FULL MENU SYSTEM

MAIN MENU

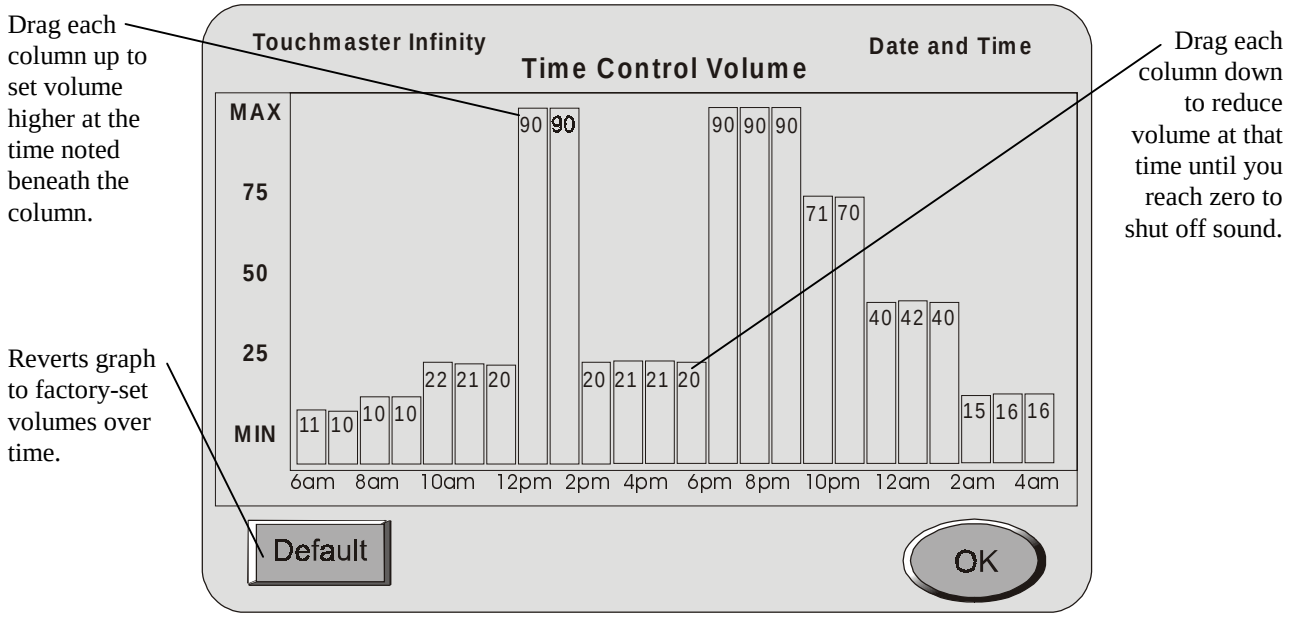
VOLUME TIME

or

TOUCH KEY MENU SYSTEM

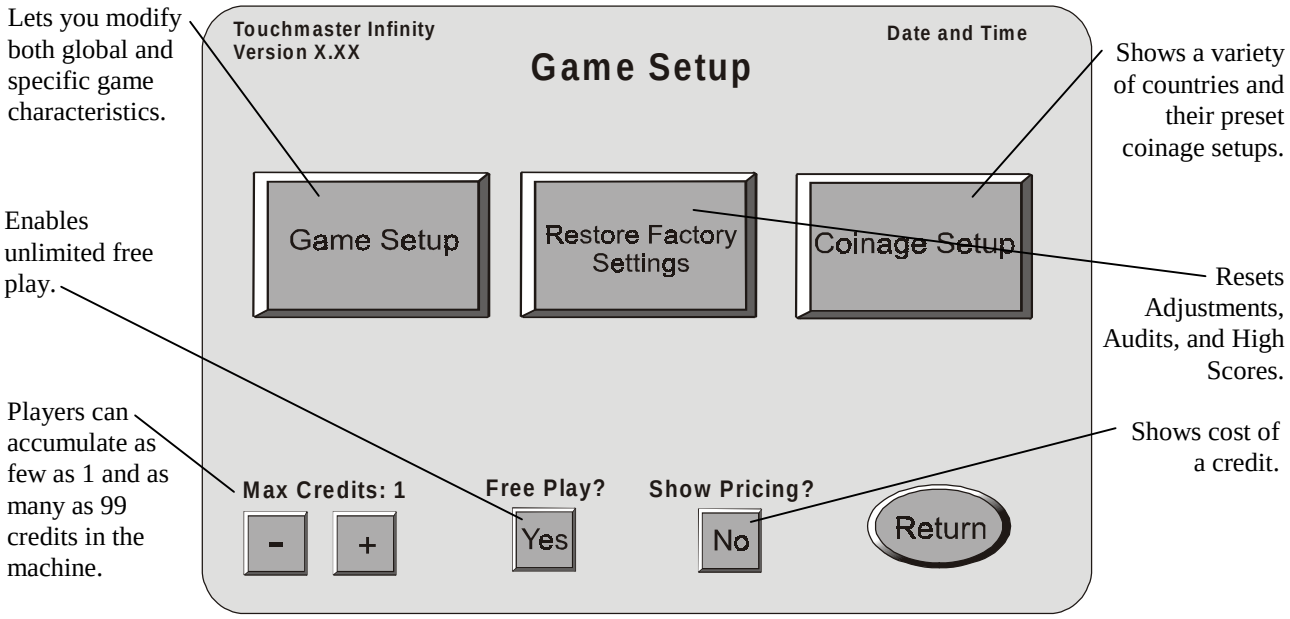
MAIN MENU

VOLUME TIME



FULL MENU SYSTEM

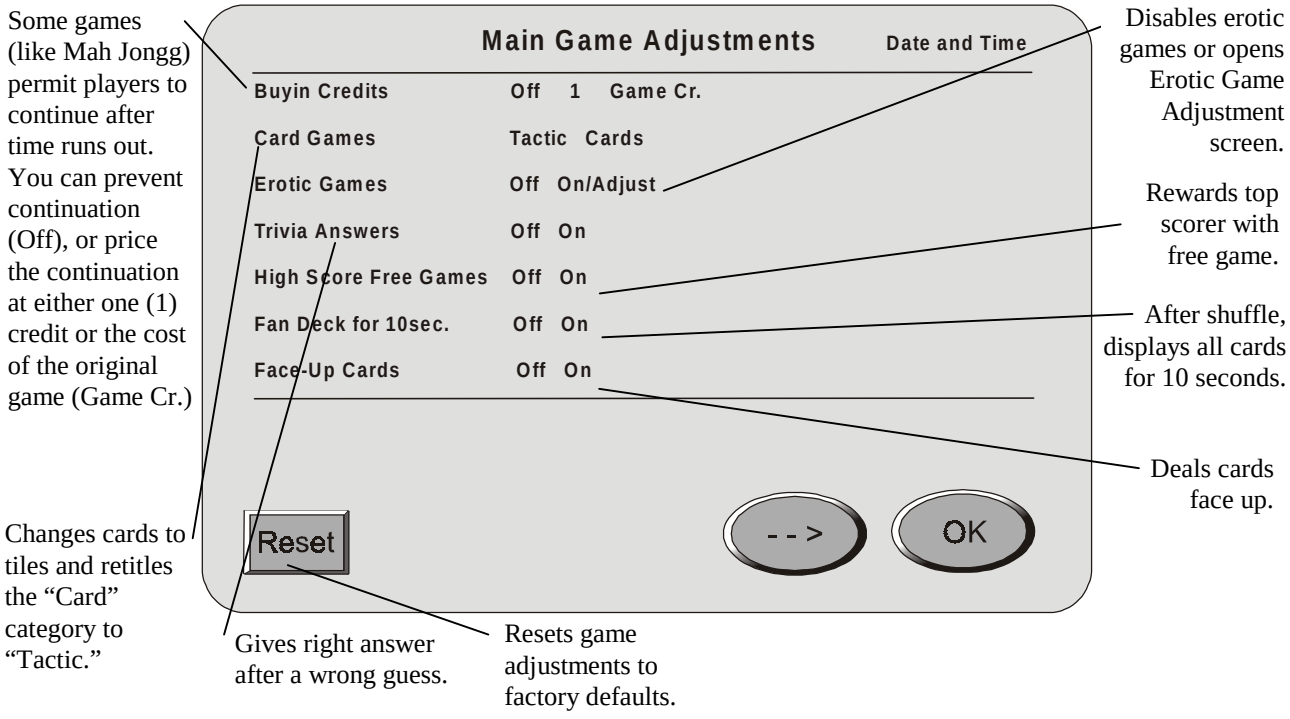
GAME/COINAGE SETUP



FULL MENU SYSTEM

GAME/COINAGE SETUP

GAME SETUP

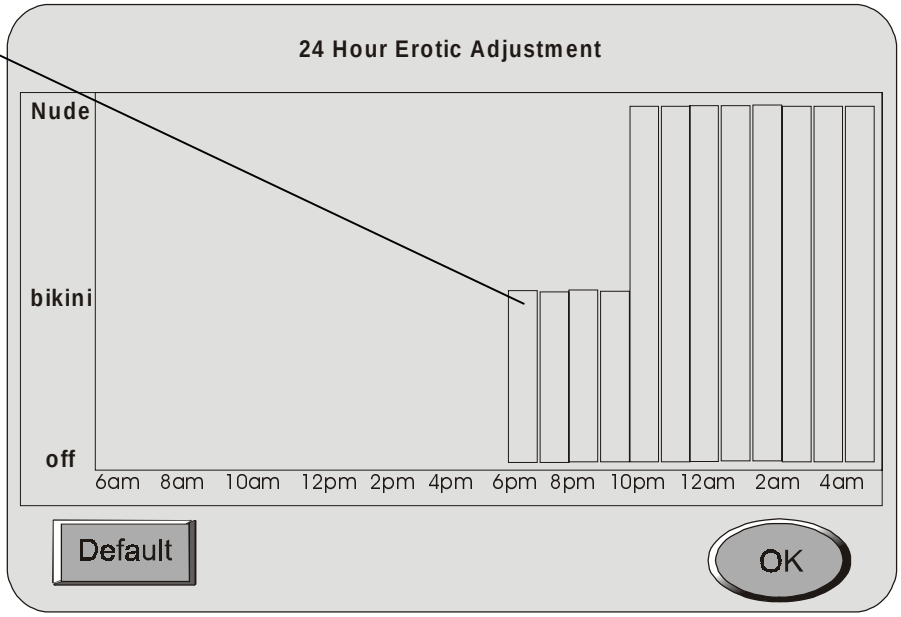


FULL MENU SYSTEM
GAME/COINAGE SETUP
GAME SETUP
Erotic Games

or

TOUCH KEY MENU SYSTEM
EROTIC GAMES
On

To turn nudity on at a given time, touch the desired time to start, then drag up to either bikini or nude level. Set each half hour increment likewise. To turn off erotic software, drag the bar down to "off."



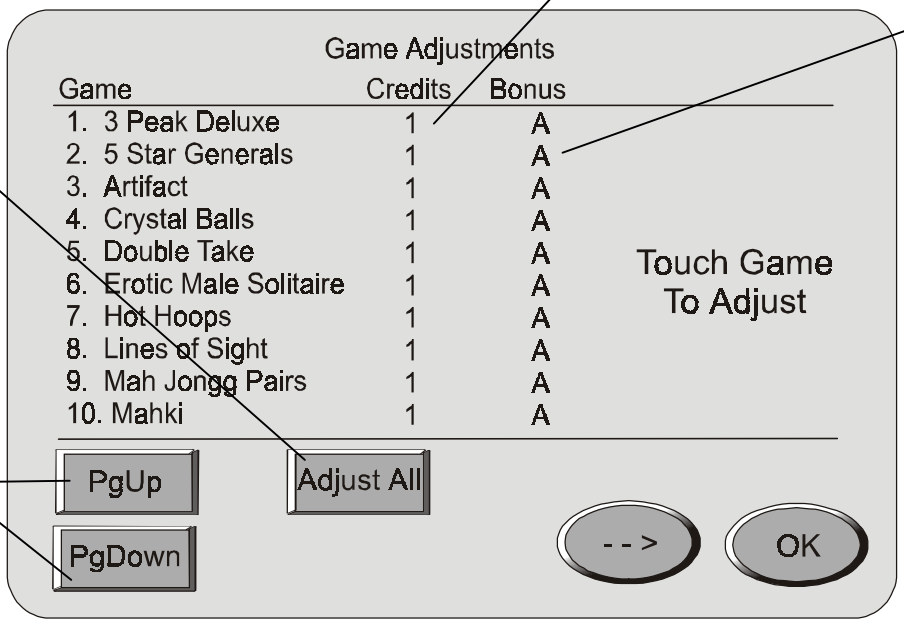
FULL MENU SYSTEM
GAME/COINAGE SETUP
GAME SETUP
Next

Select a game and adjust credits to 0 to turn game off. Or price a game at up to 9 credits.

Select a game to modify bonus level difficulty.

Lets you price all games at from 1-4 credits, as well as adjust difficulty of bonus level.

Scrolls up or down through game list.



FULL MENU SYSTEM
GAME/COINAGE SETUP
RESTORE FACTORY SETTINGS

Selecting Restore Factory Settings clears three settings and shows you these screens:

The first reads,

All Game Adjustments Reset

The next reads,

All Game Audits Cleared

And finally,

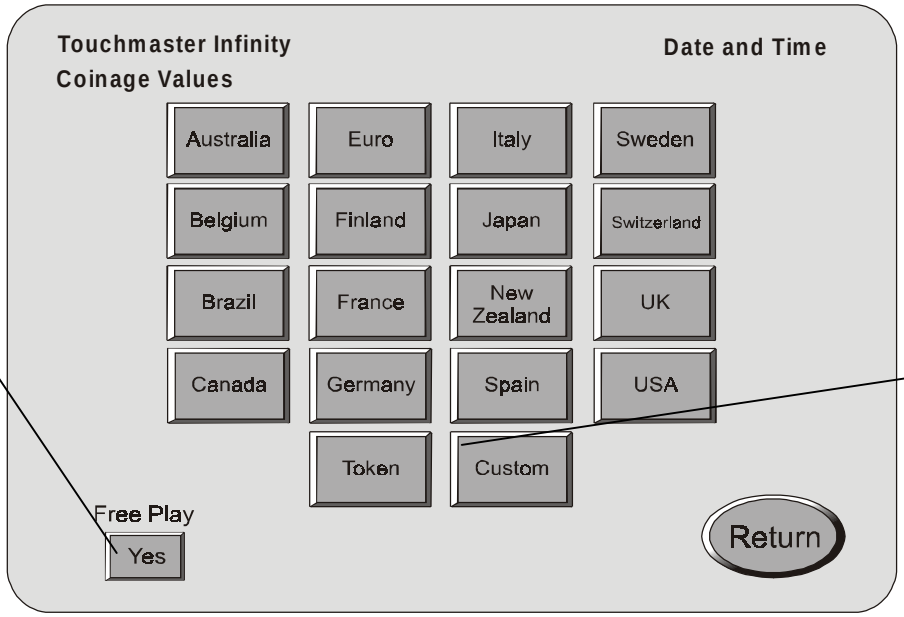
Setting History to Defaults

Note that some settings, such as Touchscreen calibration are not affected here.

FULL MENU SYSTEM
GAME/COINAGE SETUP
COINAGE SETUP

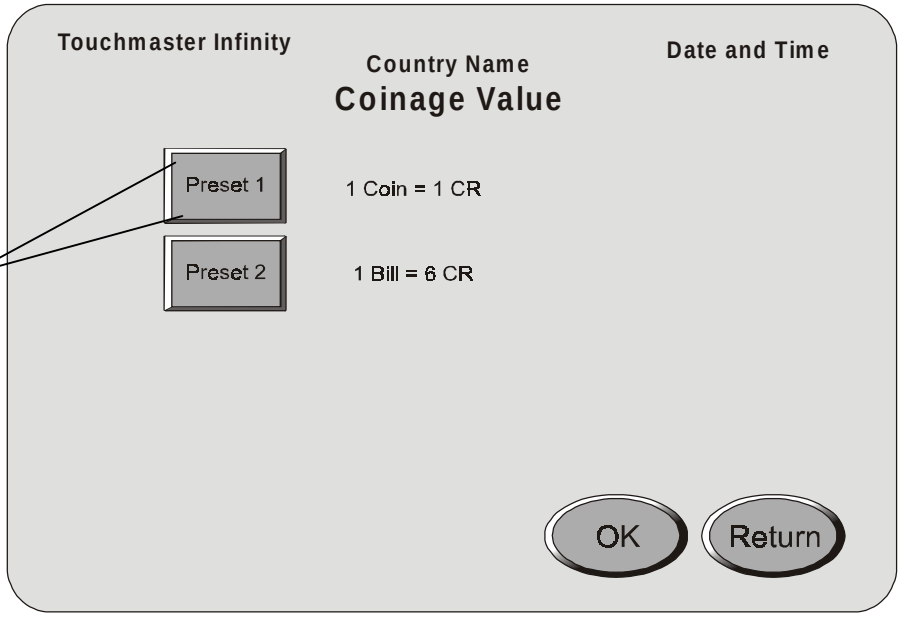
Select your country to display its coinage choices. The last nation modified remains highlighted on this screen.

This duplicates the function of the Free Play button on Game Setup screen.



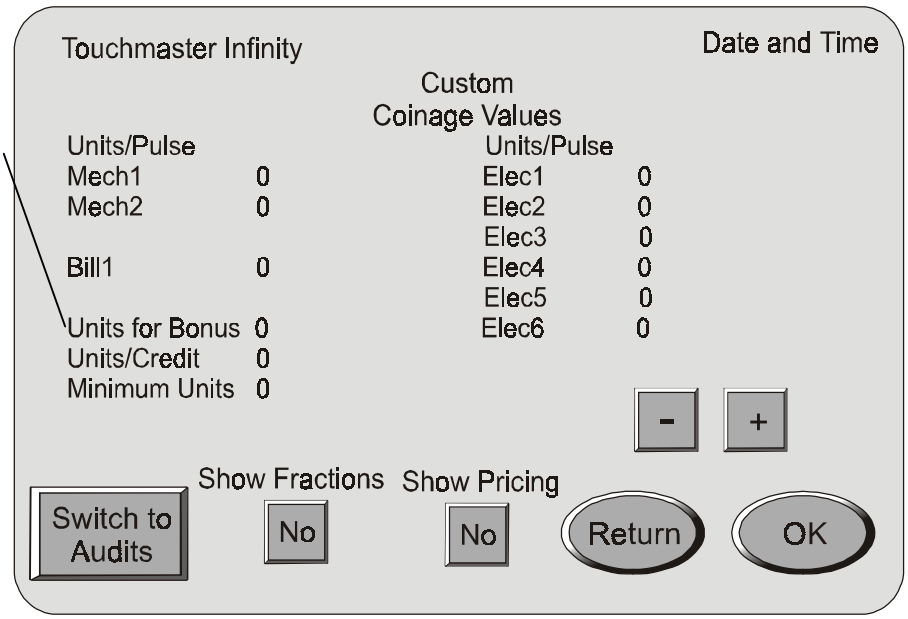
Lets you program custom coinage setups if no existing one meets your needs.

FULL MENU SYSTEM
GAME/COINAGE SETUP
COINAGE SETUP
Country Coinage



Select coinage choice. Not all countries offer multiple choices.

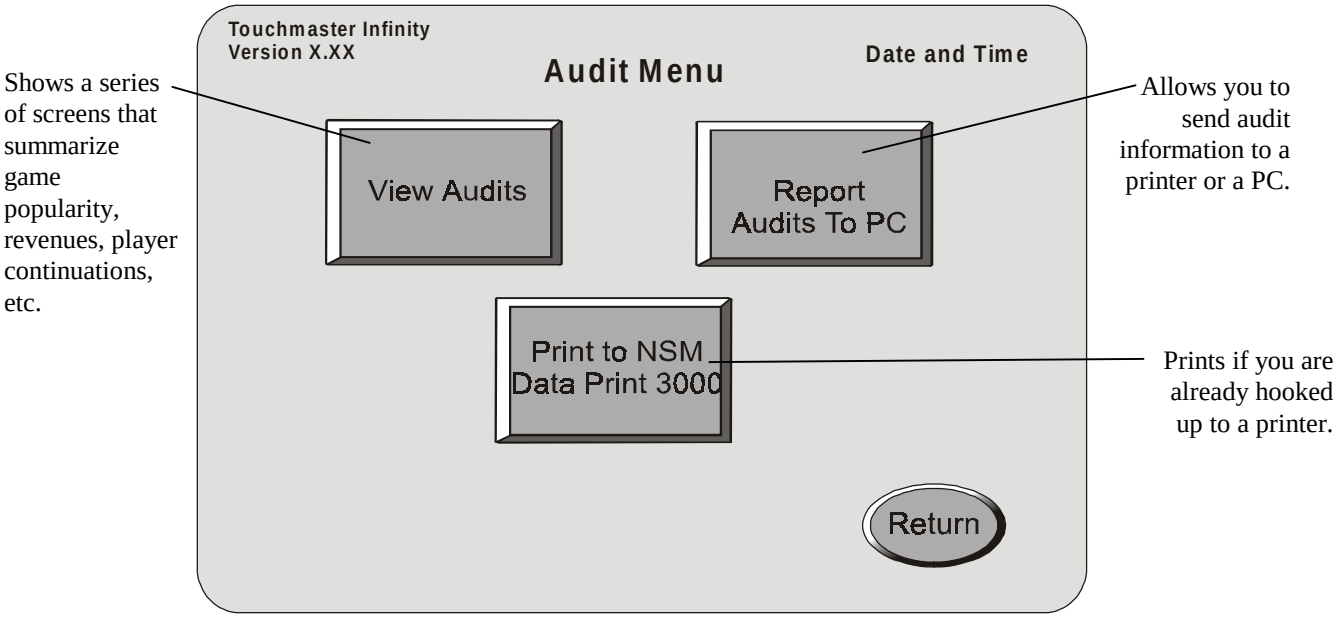
FULL MENU SYSTEM
GAME/COINAGE SETUP
COINAGE SETUP
CUSTOM



If your location requires a coin lockout mechanism, you cannot set this amount past the number of units a dollar bill will buy.

FULL MENU SYSTEM

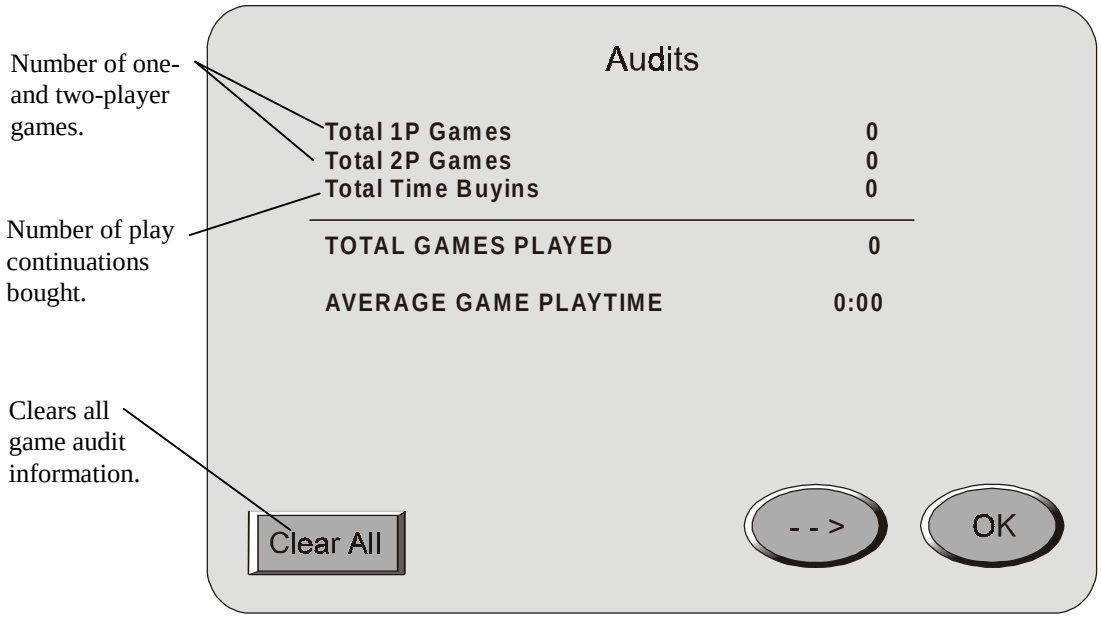
AUDIT MENU



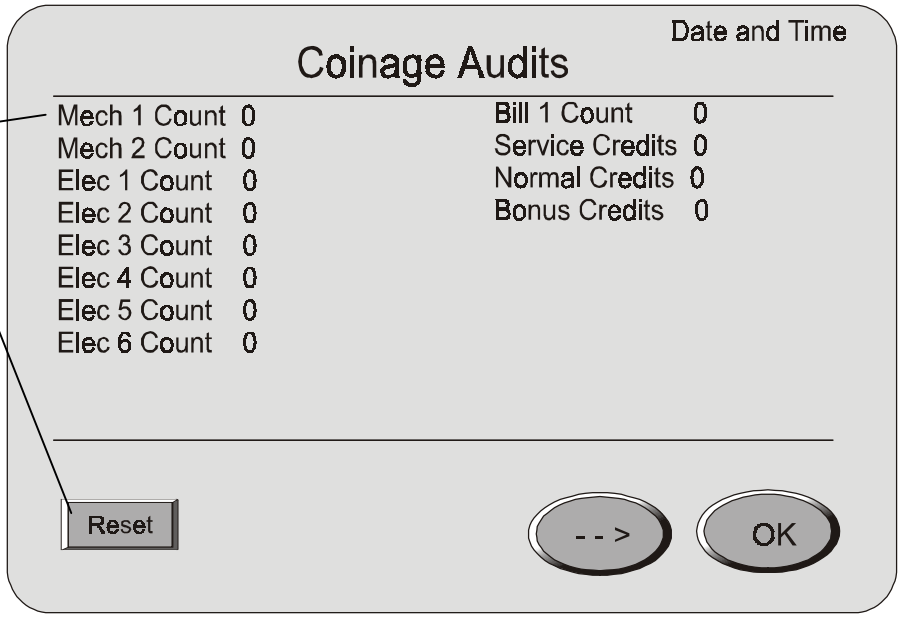
FULL MENU SYSTEM

AUDIT MENU

VIEW AUDITS



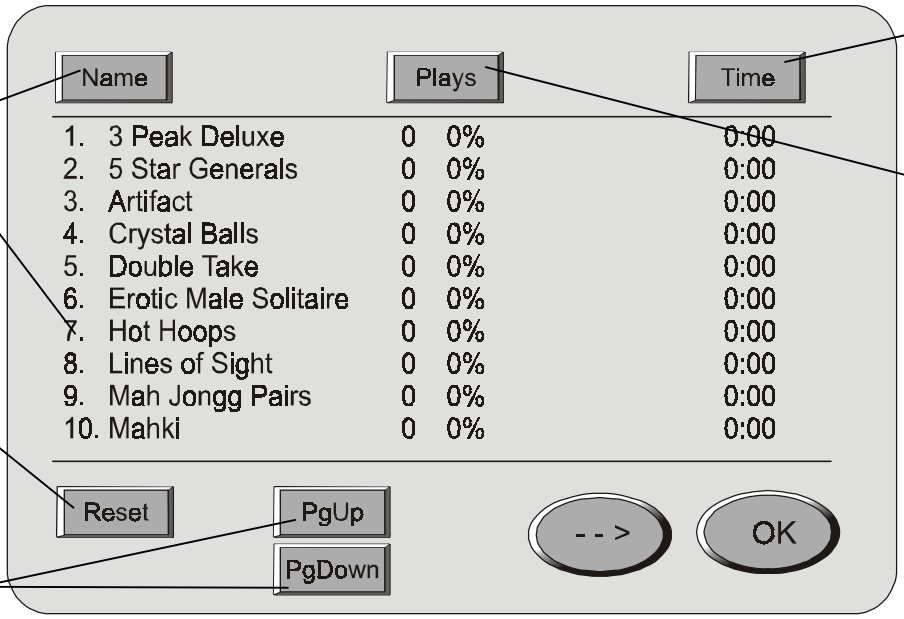
FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next



Displays total coins or bills registered in each device

Sets all audits (not just coinage) to zero.

FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next



Sorts games alphabetically by name.

Sorts games by length of average play.

Sorts games by popularity.

Select a game to view a variety of audit details.

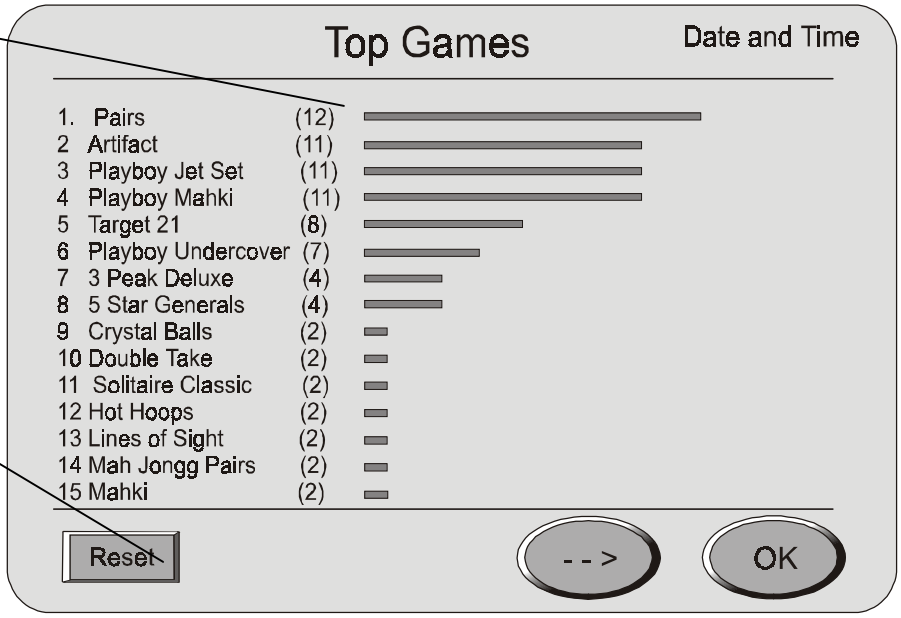
Clears all game audit information– not just this screen..

Scrolls through game list.

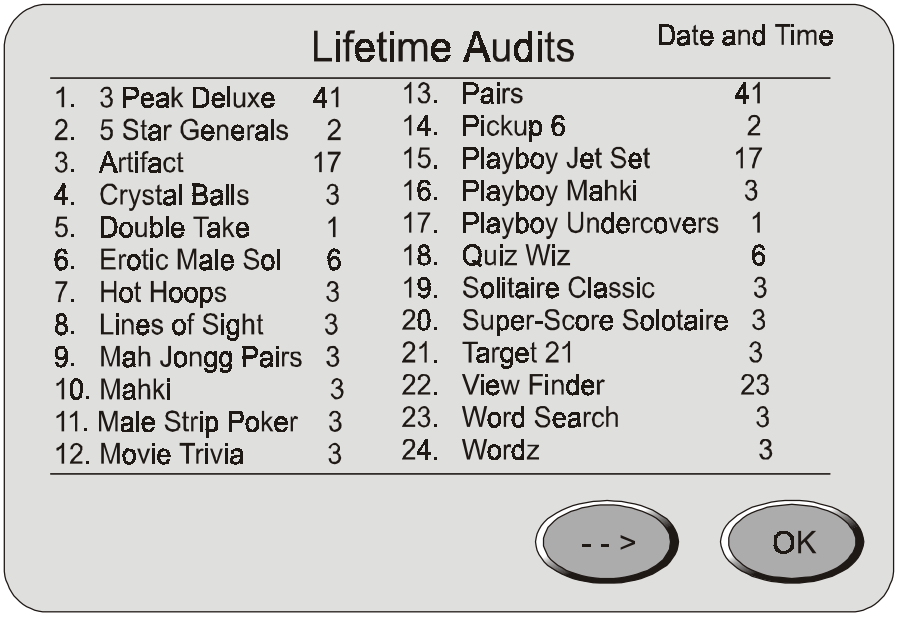
FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next

Games are ranked by popularity. Histogram shows relative frequency of play.

Clears all game audit information–not just this screen.



FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next



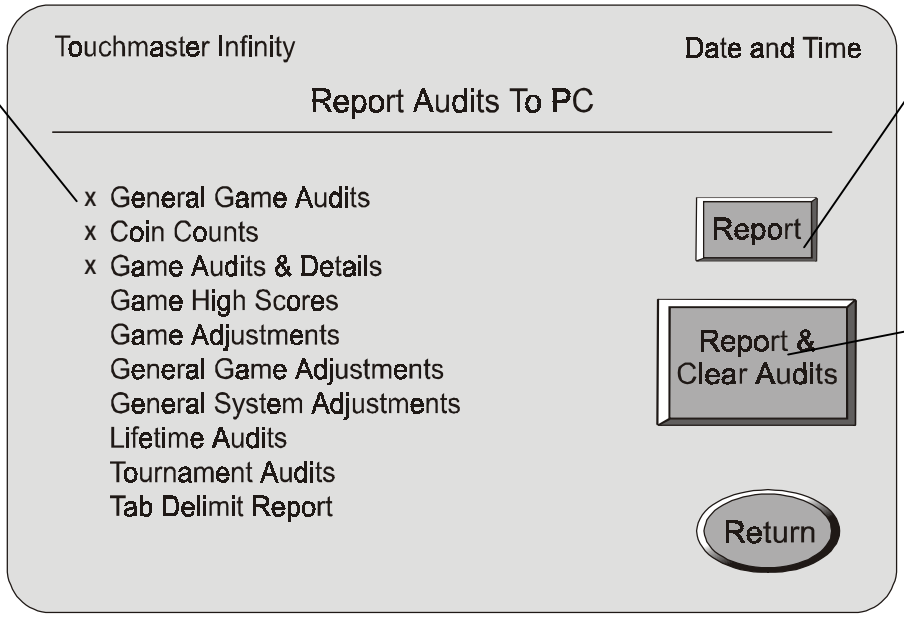
FULL MENU SYSTEM

AUDIT MENU

REPORT AUDITS

Checking this button prepares a table of audits. Checking any other box will give that information in simple list format.

In some cases this screen is replaced by a blue screen and the note: "Printing."



Sends selected information to the serial port, to be captured by a printer or a computer.

Sends report to serial port and clears all audits.

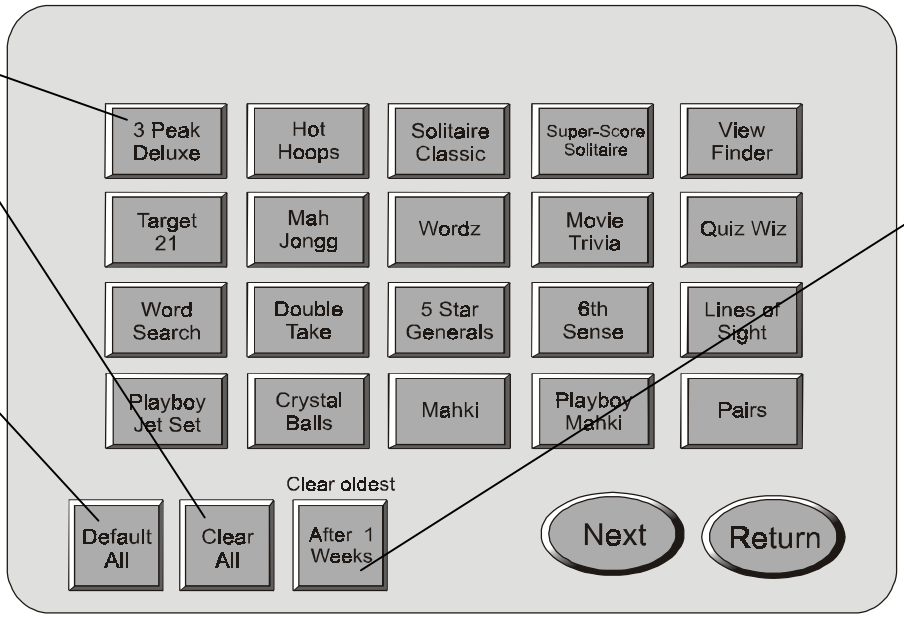
FULL MENU SYSTEM

HIGH SCORES

Select a game to see its high scores.

Sets all scores to zero

Resets all high scores to factory-set names and scores.



If there are 10 high scores, the oldest ones can be dropped each week, after two weeks, three or four weeks, or never. There is then an opening for new players to add their scores.

FULL MENU SYSTEM
HIGH SCORES
Typical Game

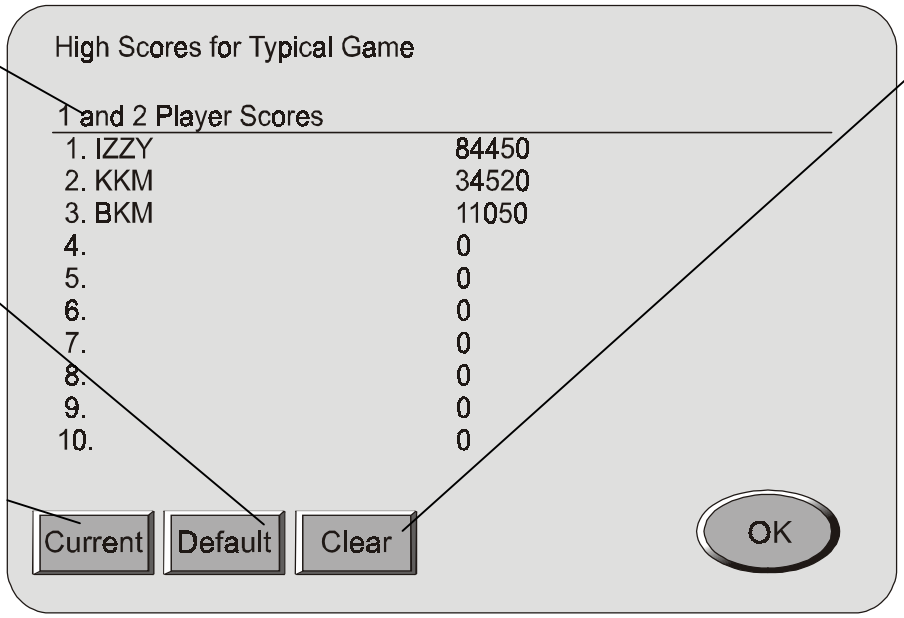
or

TOUCH KEY MENU SYSTEM
HIGH SCORES
Typical Game

Some games have separate columns for different difficulty levels.

Shows the factory-set names and high scores. These cannot be cleared permanently.

Shows the list of high scores that will display in Attract Mode: either factory-set, player-set, or zero.



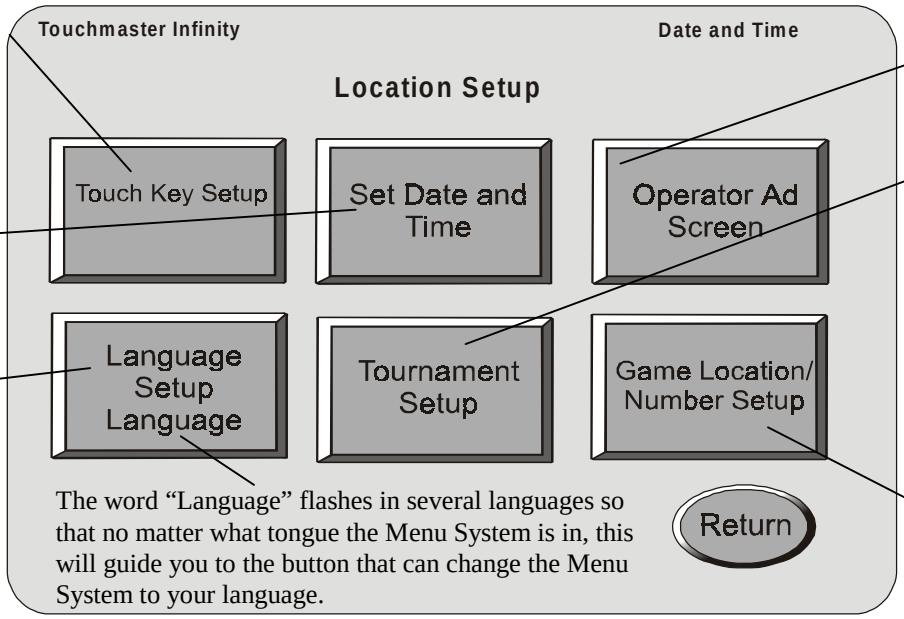
Erases current high scores so that all scores in Attract Mode are set to zero.

FULL MENU SYSTEM
LOCATION SETUP

Lets you assign a PIN and Touch Key access privileges. If you forget your PIN, reset it here.

Permits changes to time, time zone, and date.

Lets you choose which languages games can be played in.



The word "Language" flashes in several languages so that no matter what tongue the Menu System is in, this will guide you to the button that can change the Menu System to your language.

Lets you customize up to four Ad Screens.

Accesses modem setup information screens, if tournaments are permitted. Button is only visible if modem is detected.

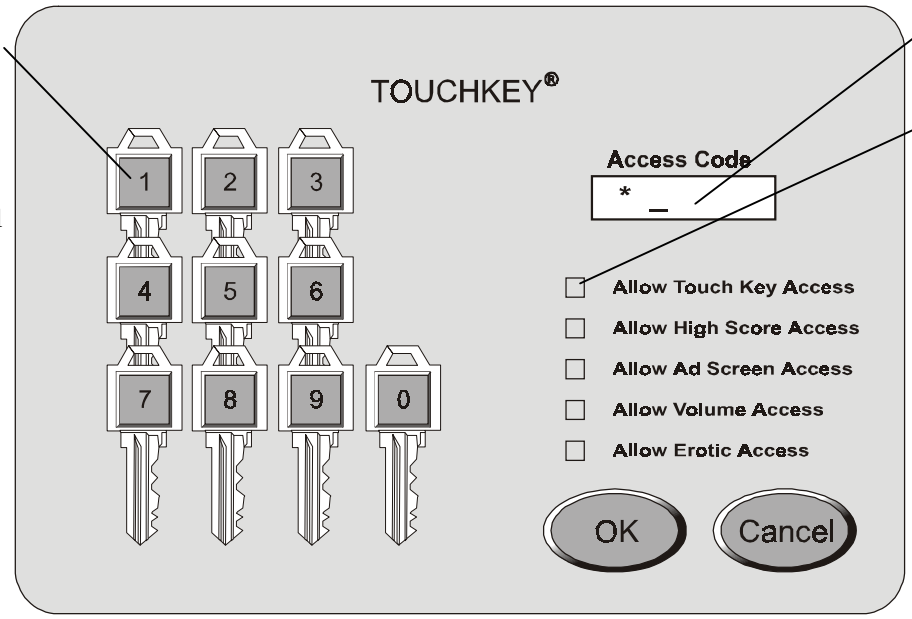
Lets you name and number Touchmaster® Infinity machines at your location.

FULL MENU SYSTEM
LOCATION SETUP
TOUCH KEY SETUP

Touch four keys to program your PIN.

Remember that the cash box key is more powerful than the PIN. If you can access the TEST pushbutton, you can reset the PIN.

Still, exercise caution in revealing your PIN.



Your encrypted PIN appears here.

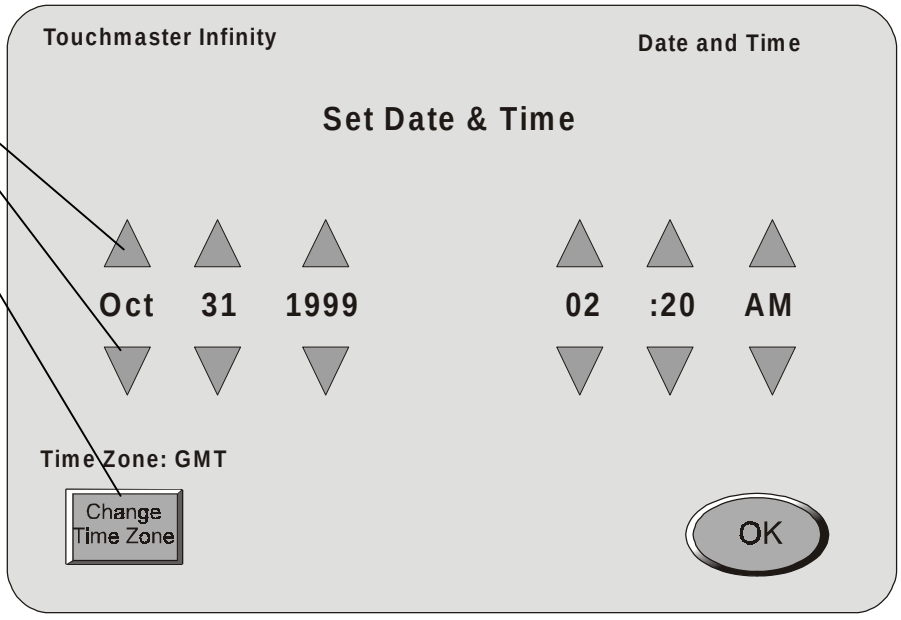
Check this box to make the PIN active. Buttons beneath determine how much control a Touch Key user has.

FULL MENU SYSTEM
LOCATION SETUP
SET DATE AND TIME

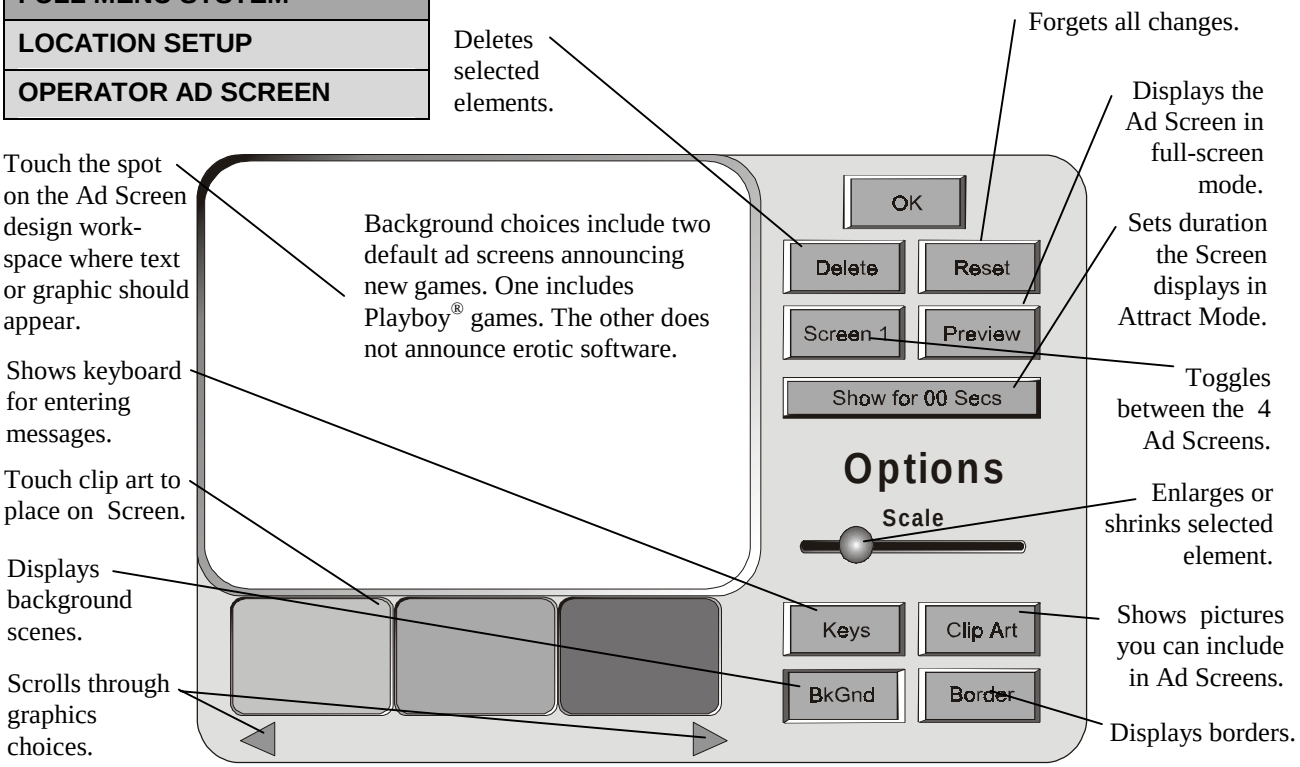
Moves forward a month.

Moves back a month.

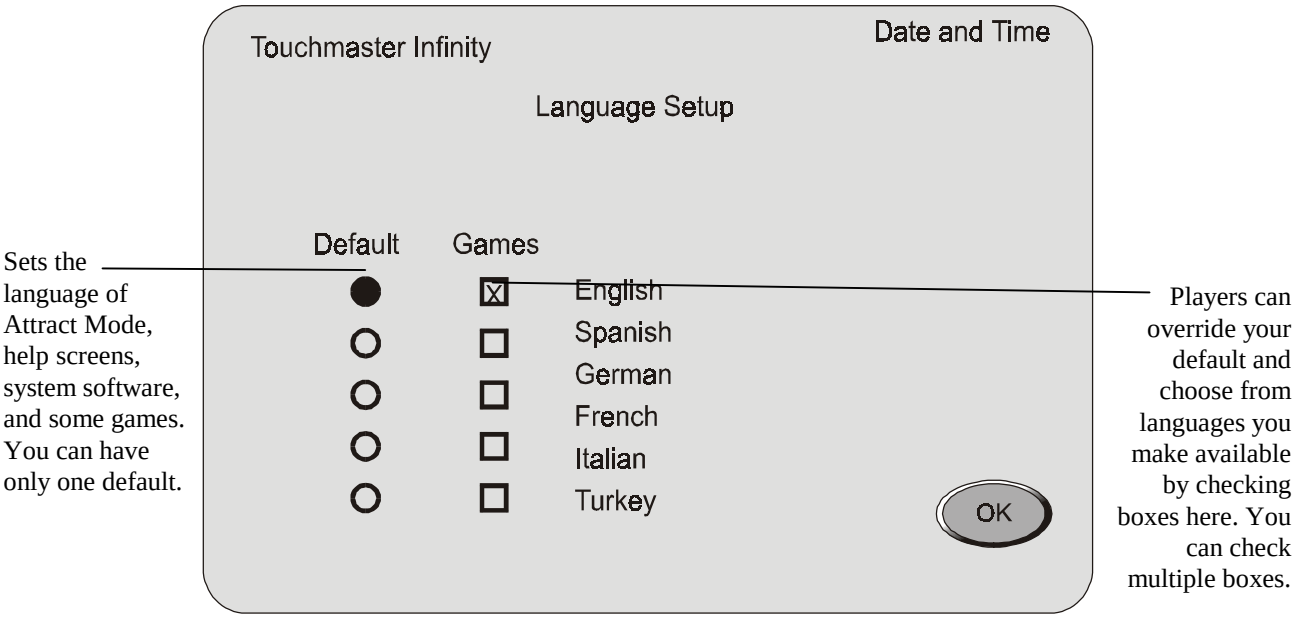
Lets you choose a time zone.



FULL MENU SYSTEM
LOCATION SETUP
OPERATOR AD SCREEN



FULL MENU SYSTEM
LOCATION SETUP
LANGUAGE SETUP

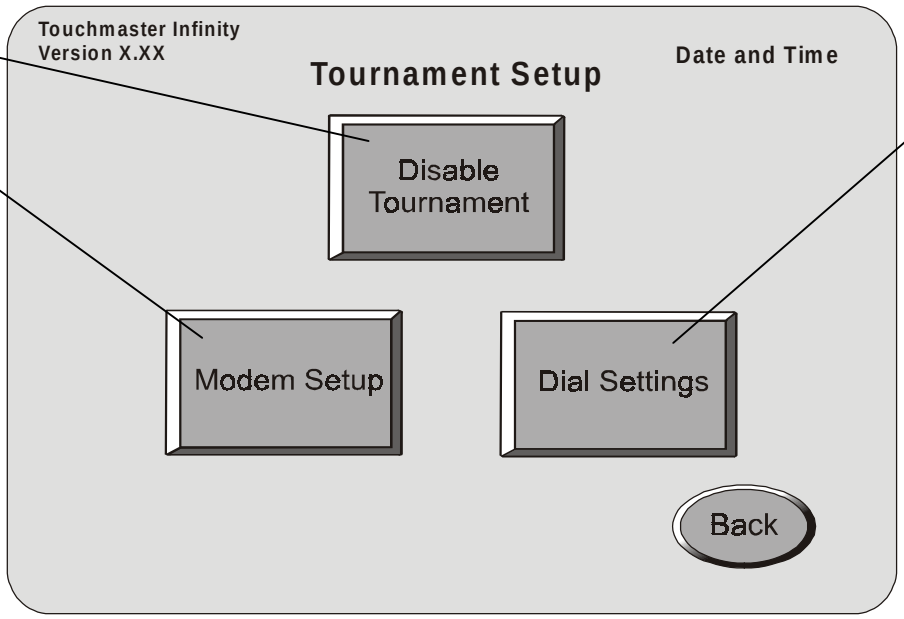


FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP

Shuts off tournament mode.

Allows you to prepare the internal modem to place calls.

Note that tournament mode, if permitted, may not be available on your Video Game Machine.

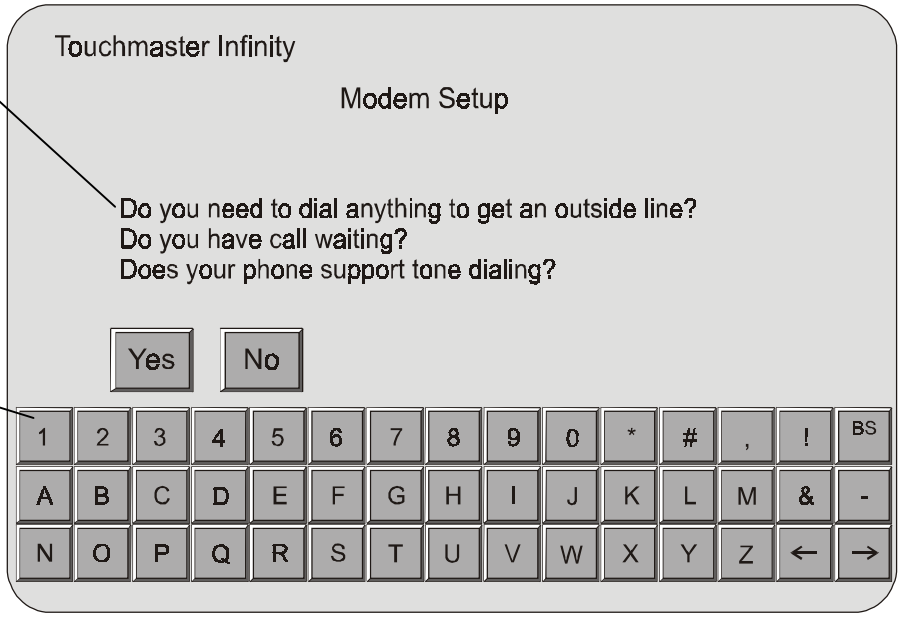


Takes you to an interactive questionaire that helps place a modem phone call.

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP
MODEM SETUP

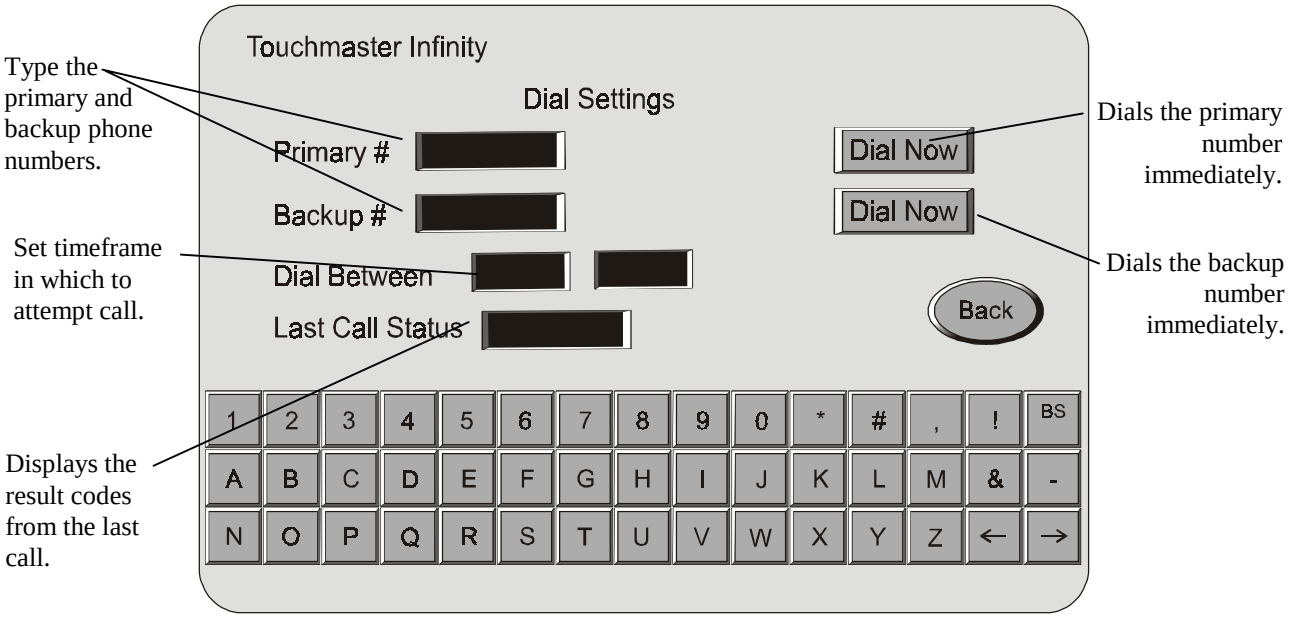
Answer Yes or No to these three consecutive questions to let Touchmaster enable tournaments for you.

If your answers are all "Yes," the keys appear so you can enter information.

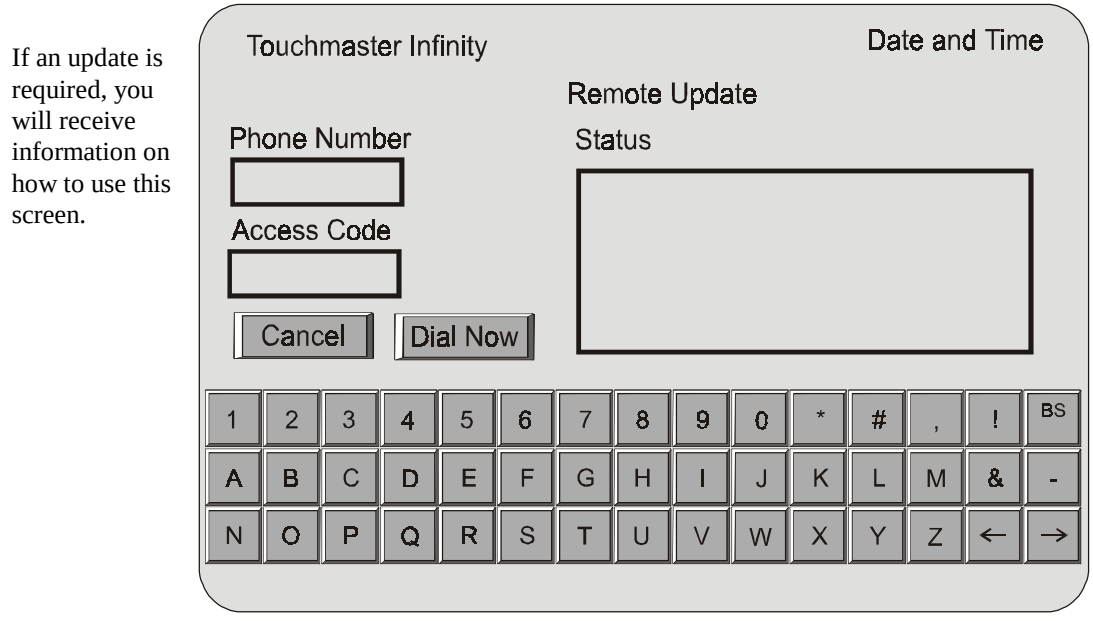


Note that tournament mode, if permitted, may not be available on your Video Game Machine.

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP
DIAL SETTINGS



FULL MENU SYSTEM
DIAGNOSTIC MENU
REMOTE UPDATE

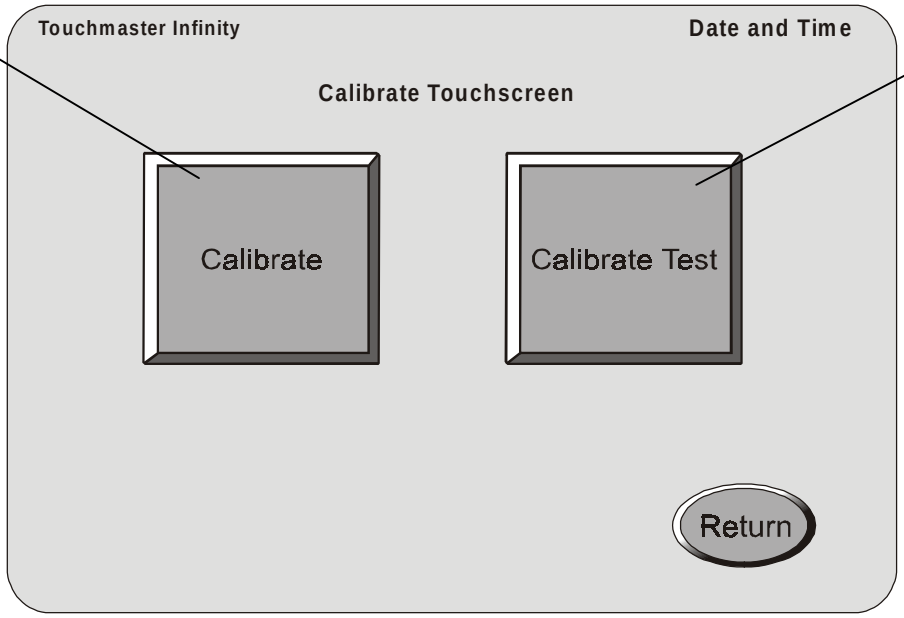


FULL MENU SYSTEM
CALIBRATE TOUCHSCREEN

or

TOUCH KEY MENU SYSTEM
CALIBRATE TOUCHSCREEN

Takes you to a screen to set calibration. Immediately after that, you will be given a calibration test.



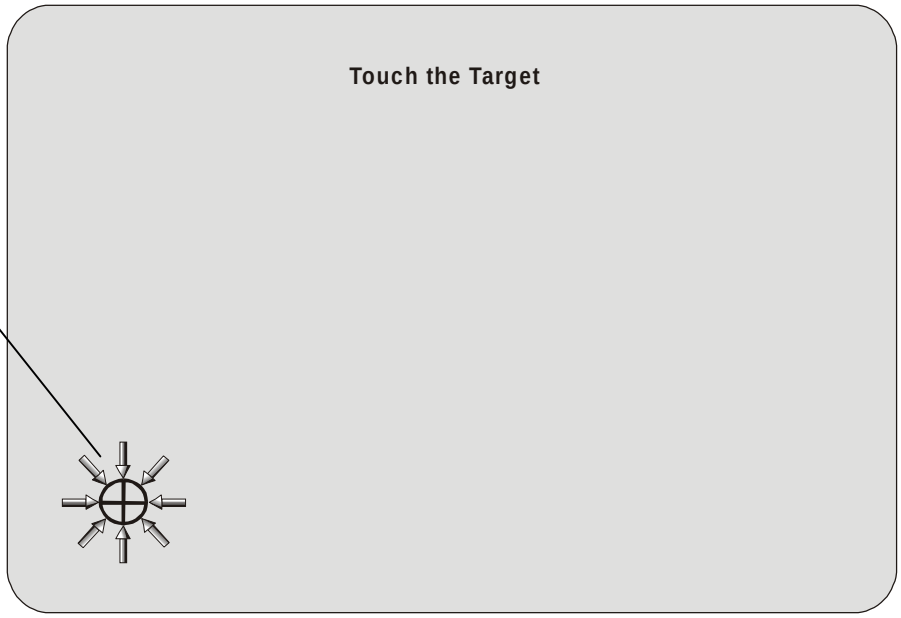
If you just want to verify calibration, touch this button.

FULL MENU SYSTEM
TOUCHSCREEN CALIBRATE
CALIBRATE

or

TOUCH KEY MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE

Touch the target dead center as it changes position on the screen.



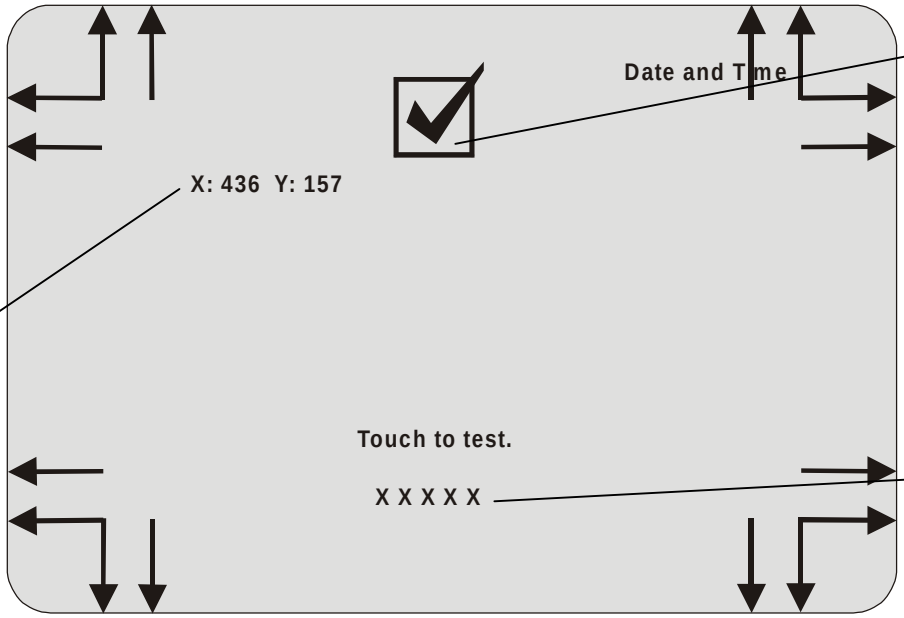
FULL MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE TEST

or

TOUCH KEY MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE TEST

As you move your finger across the screen, verify that the crosshairs follow your finger's motion exactly.

These are the horizontal and vertical coordinates of your finger on the screen.



Returns to Diagnostic Menu.

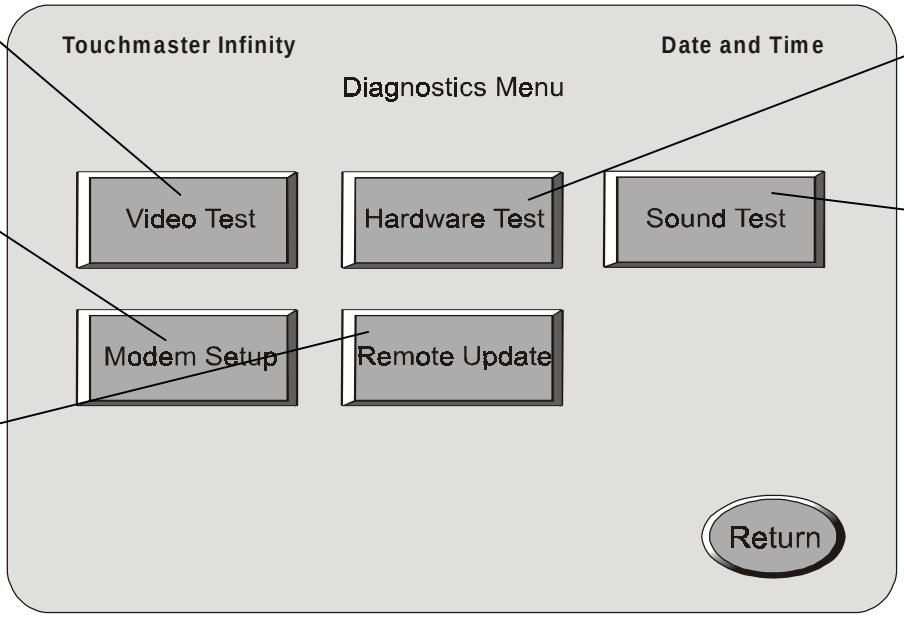
A number here indicates your Touchscreen Controller version.

FULL MENU SYSTEM
DIAGNOSTICS MENU

Accesses video test patterns to diagnose monitor.

Same screen as Modem Setup under Tournament Settings.

Lets you change settings for making minor software upgrades.



Helps diagnose electronics boards and hard disk drive.

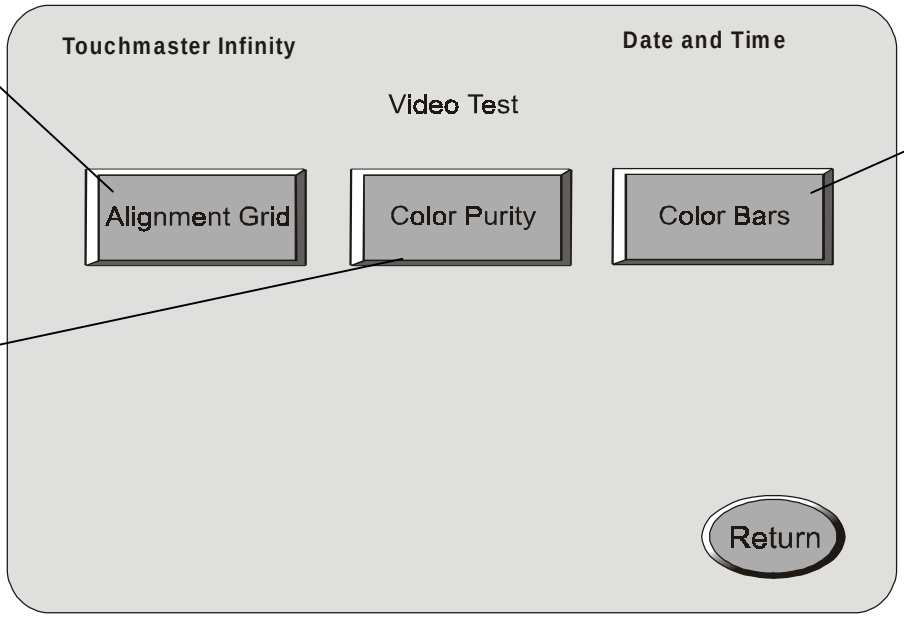
Accesses sound testing programs to diagnose speaker and sound chip.

FULL MENU SYSTEM
DIAGNOSTICS MENU
VIDEO TEST

When you arrive at these screens, touch the screen to advance to the next test. Use the monitor control panel above the Power Supply to adjust contrast, brightness, horizontal and vertical size, horizontal delay and vertical center.

Fills the screen with horizontal and vertical lines so you can adjust the horizontal and vertical position of the image.

Shows a series of colored screens to help you calibrate the monitor's color levels.

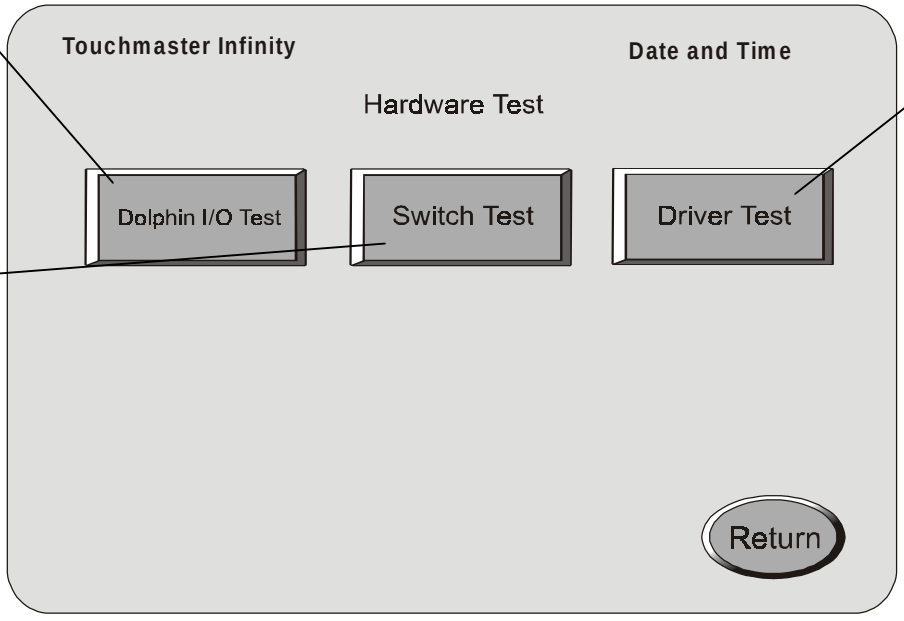


Shows colored vertical bars. To help you adjust sharpness and brightness.

FULL MENU SYSTEM
DIAGNOSTICS MENU
HARDWARE TEST

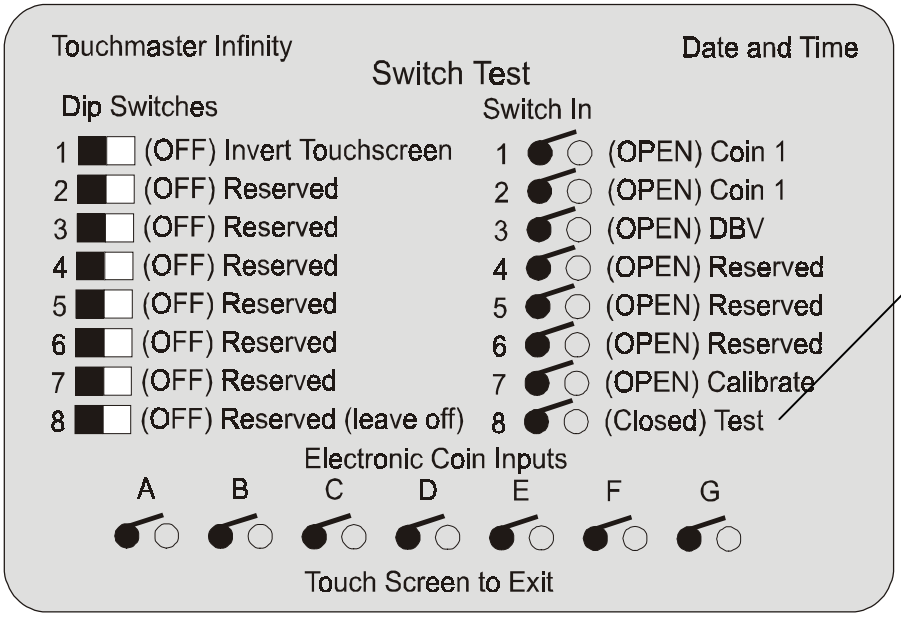
Runs a series of diagnostics that analyze board function.

Lets you see whether switches are open or closed.



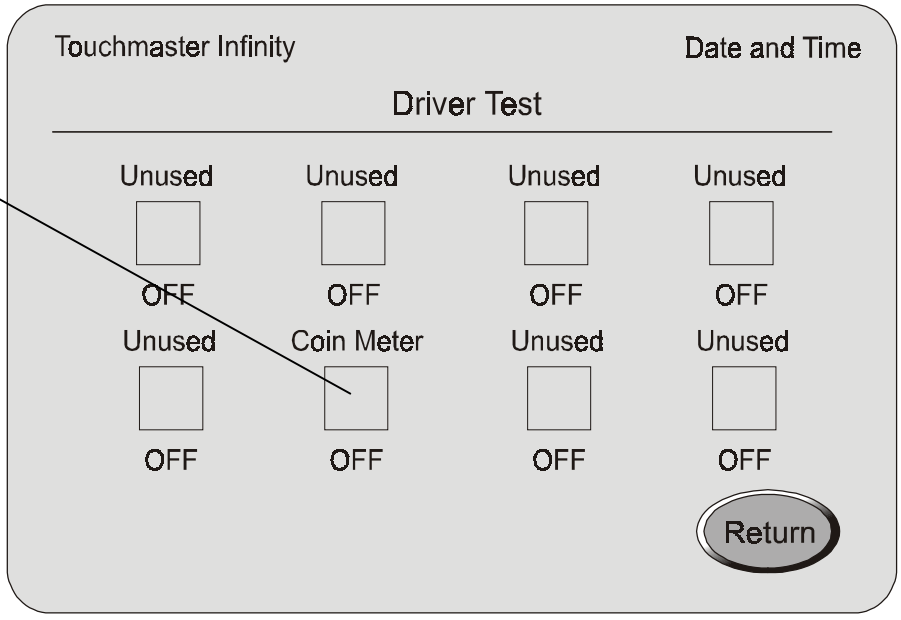
Verifies operation of coin meter and coin lockout circuits, if present in your Video Game Machine.

FULL MENU SYSTEM
DIAGNOSTICS MENU
HARDWARE TEST
SWITCH TEST



Activate one of the switches to watch the response on screen.

FULL MENU SYSTEM
DIAGNOSTICS MENU
HARDWARE TEST
DRIVER TEST

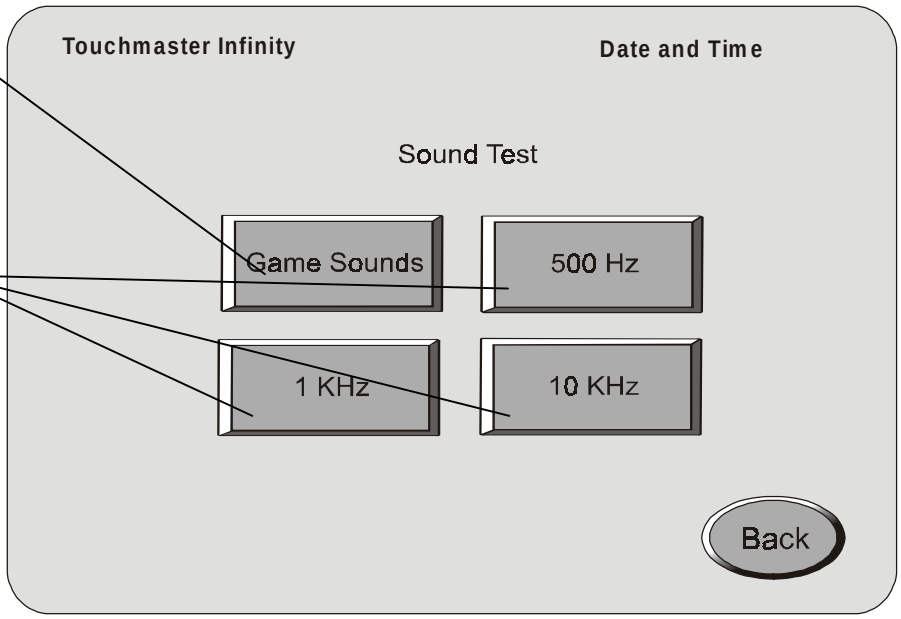


Touching this button advances the coin meter, but does not affect the audit record.

FULL MENU SYSTEM
DIAGNOSTICS MENU
SOUND TEST

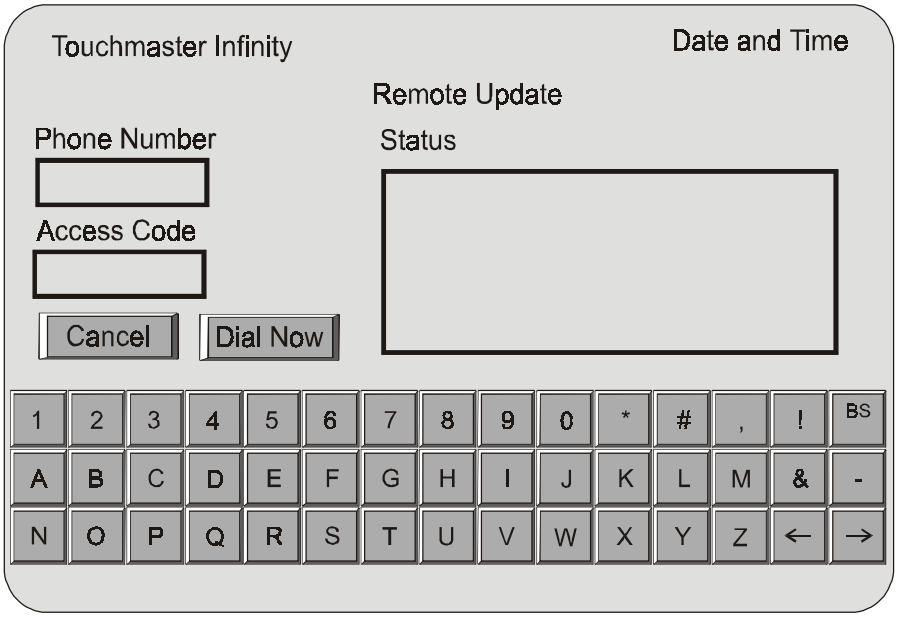
Lets you hear each game's sounds in random sequence.

Plays a low, medium and high-range tone to help verify the speaker's dynamic range.



FULL MENU SYSTEM
DIAGNOSTIC MENU
REMOTE UPDATE

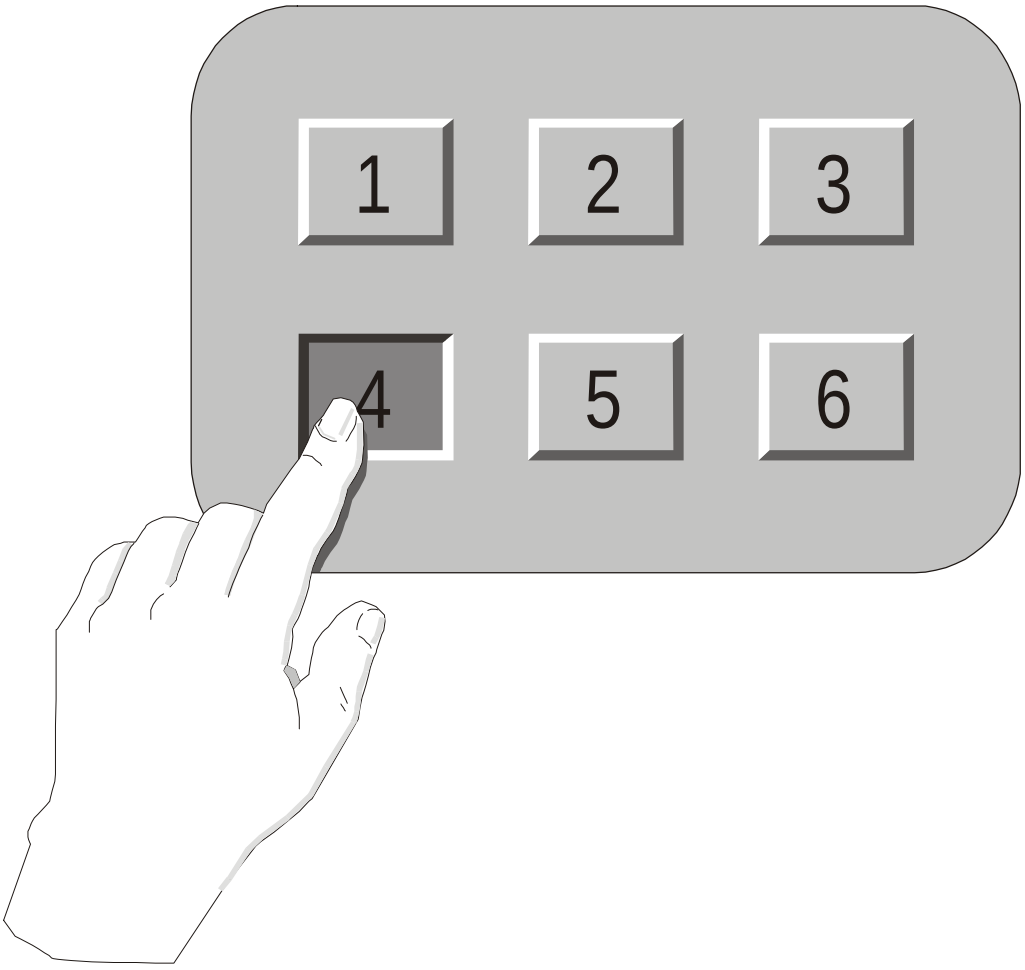
If an update is required, you will receive information on how to use this screen.



TOUCHMASTER

INFINITY

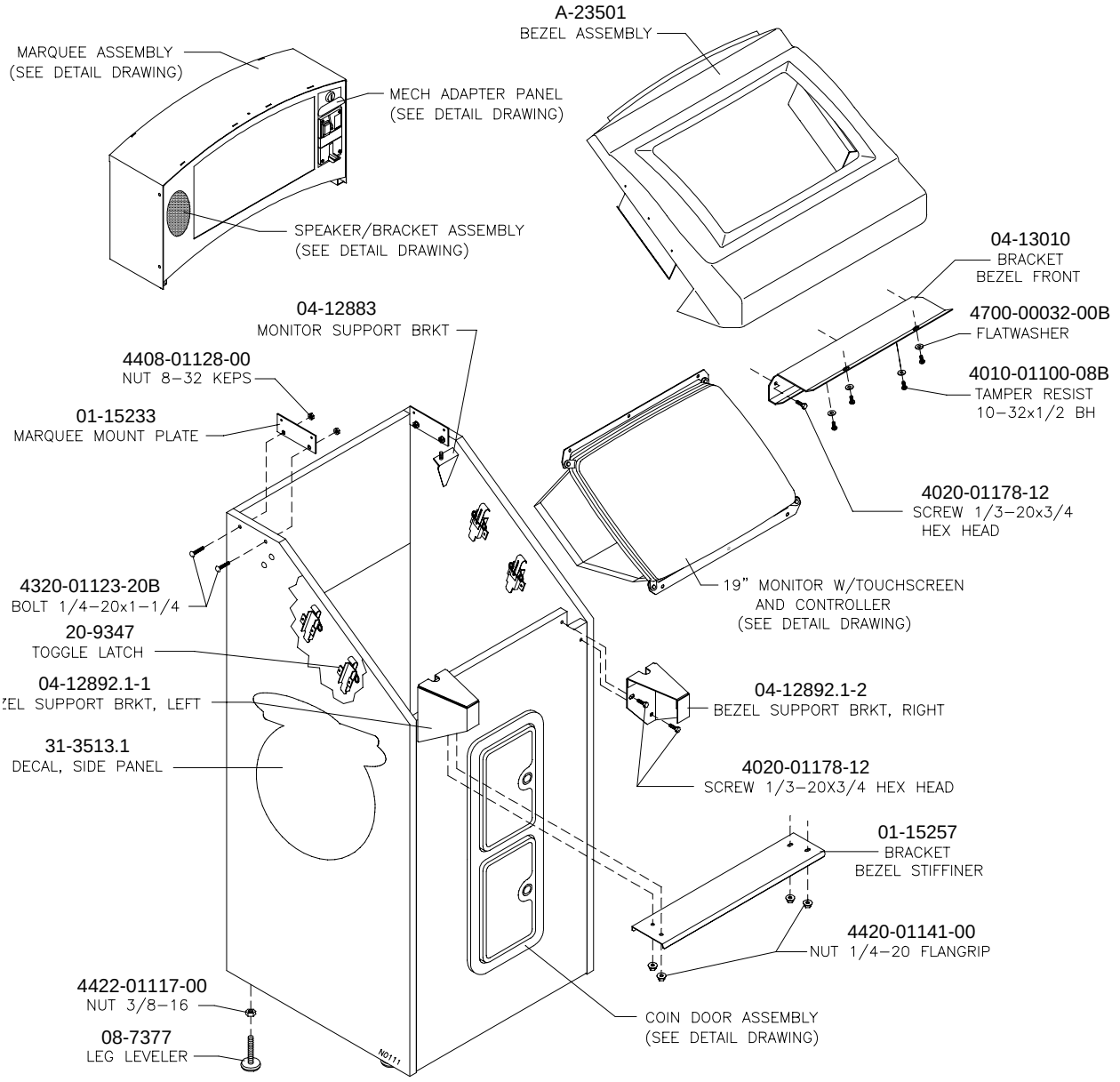
CHAPTER



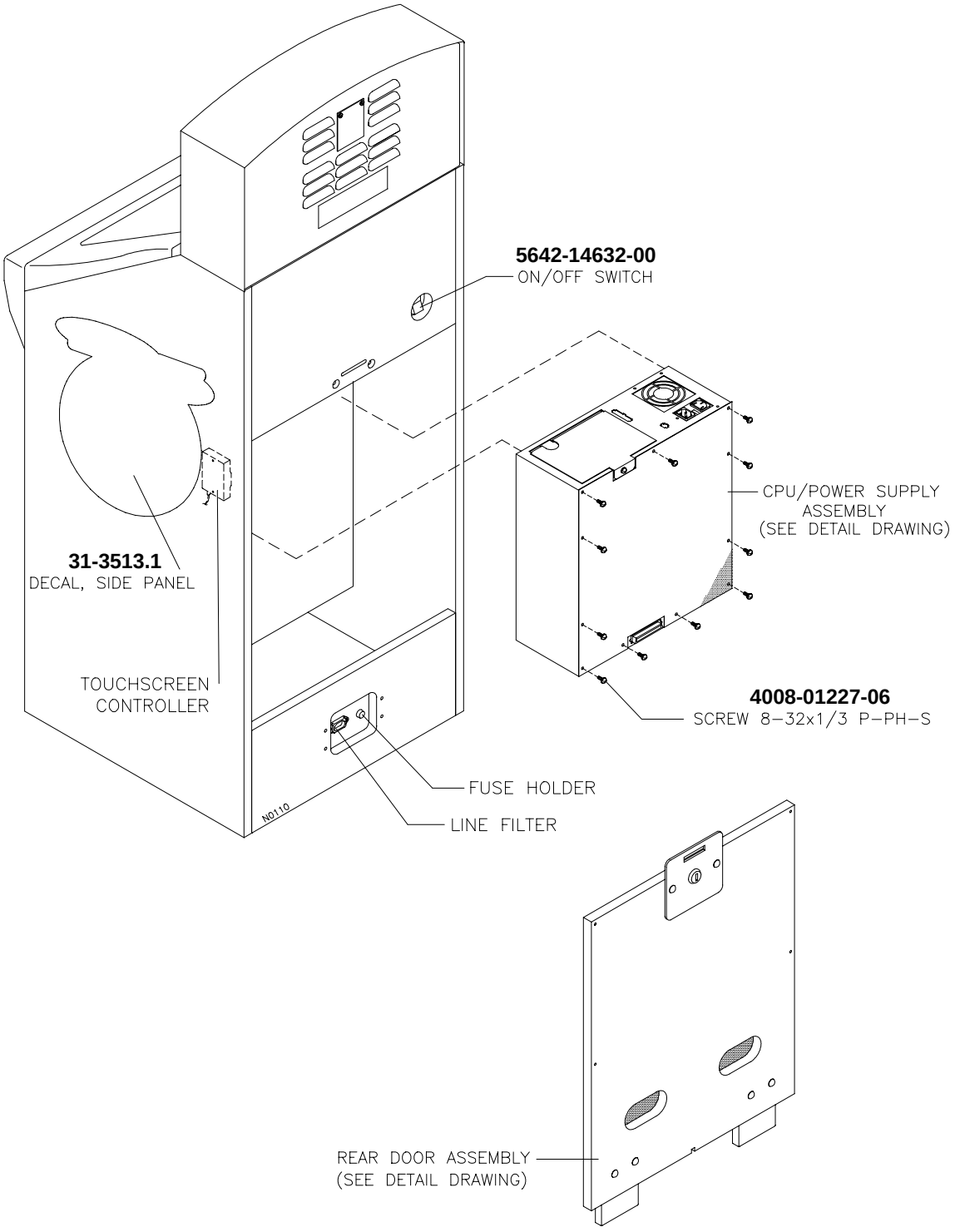
Parts

	WARNING: Use of non-Midway parts or circuit modifications may cause serious injury or equipment damage. Use only parts authorized by Midway Amusement Games, LLC. For safety and reliability, substitute parts and modifications are not recommended. Substitute parts or modifications may void FCC type acceptance.

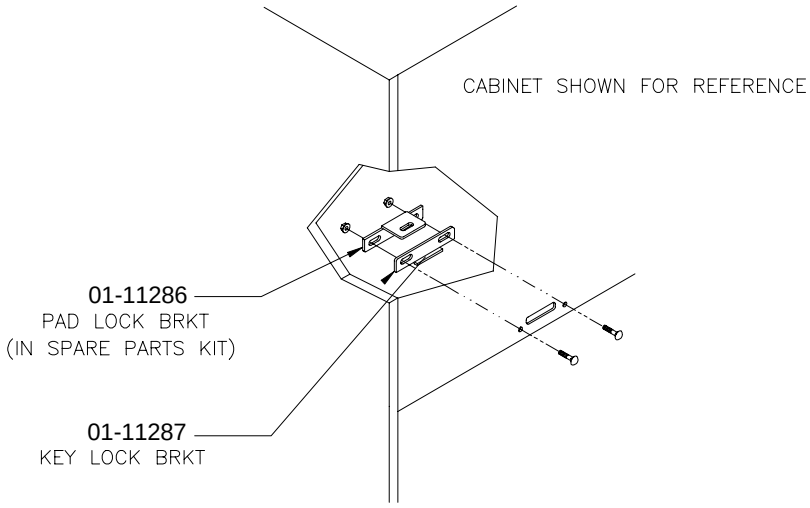
CABINET FRONT

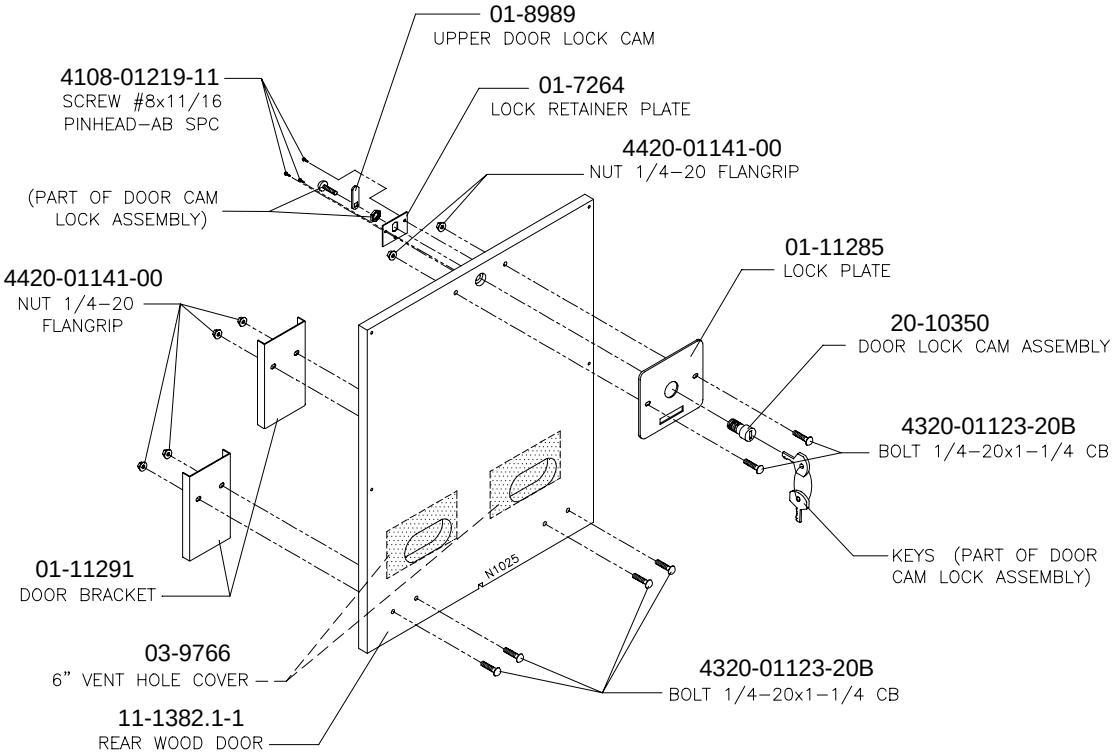


CABINET REAR

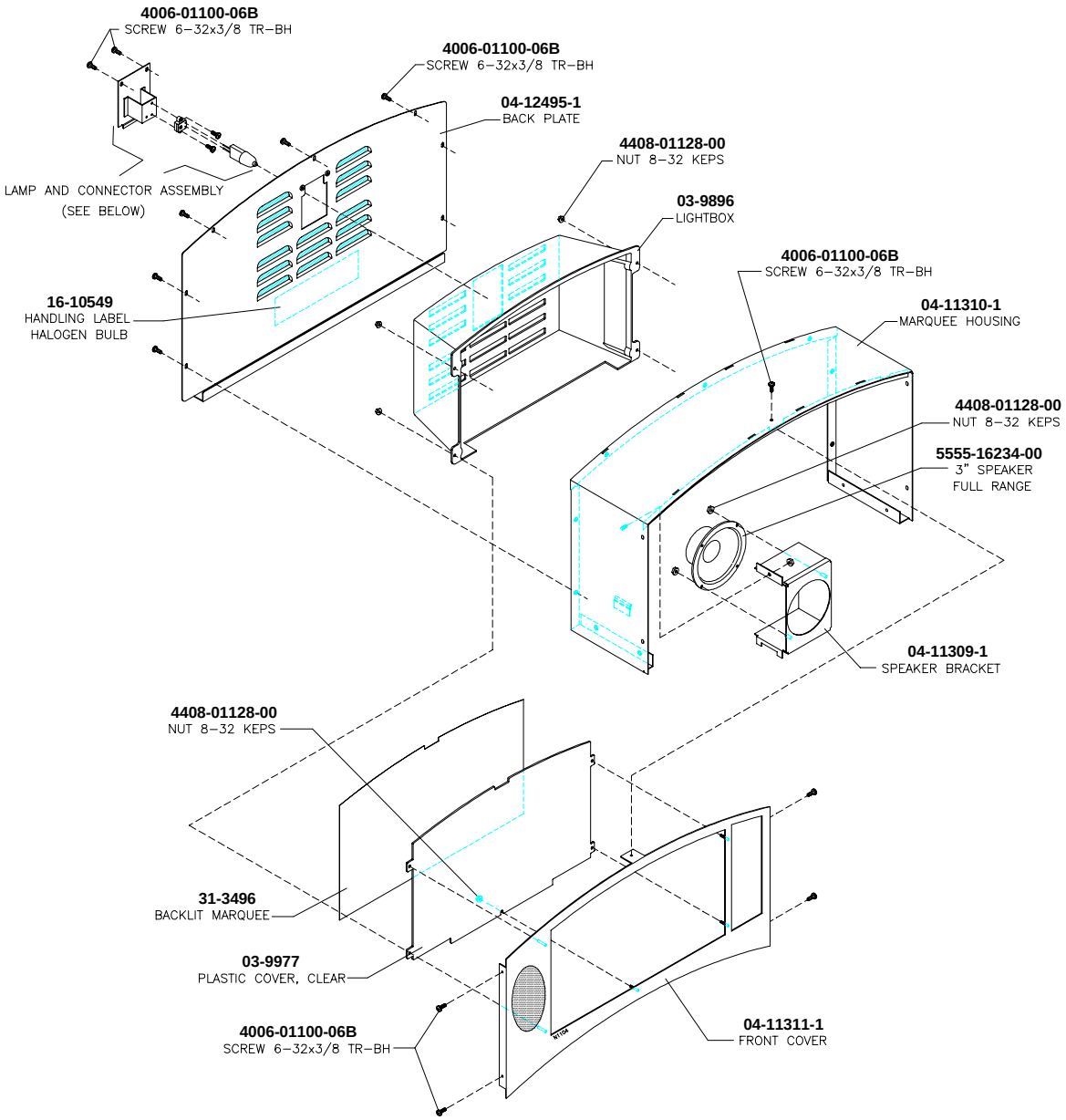


REAR DOOR ASSEMBLY (A-23498)

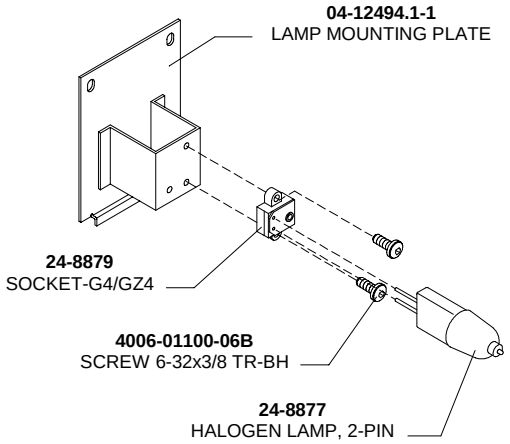




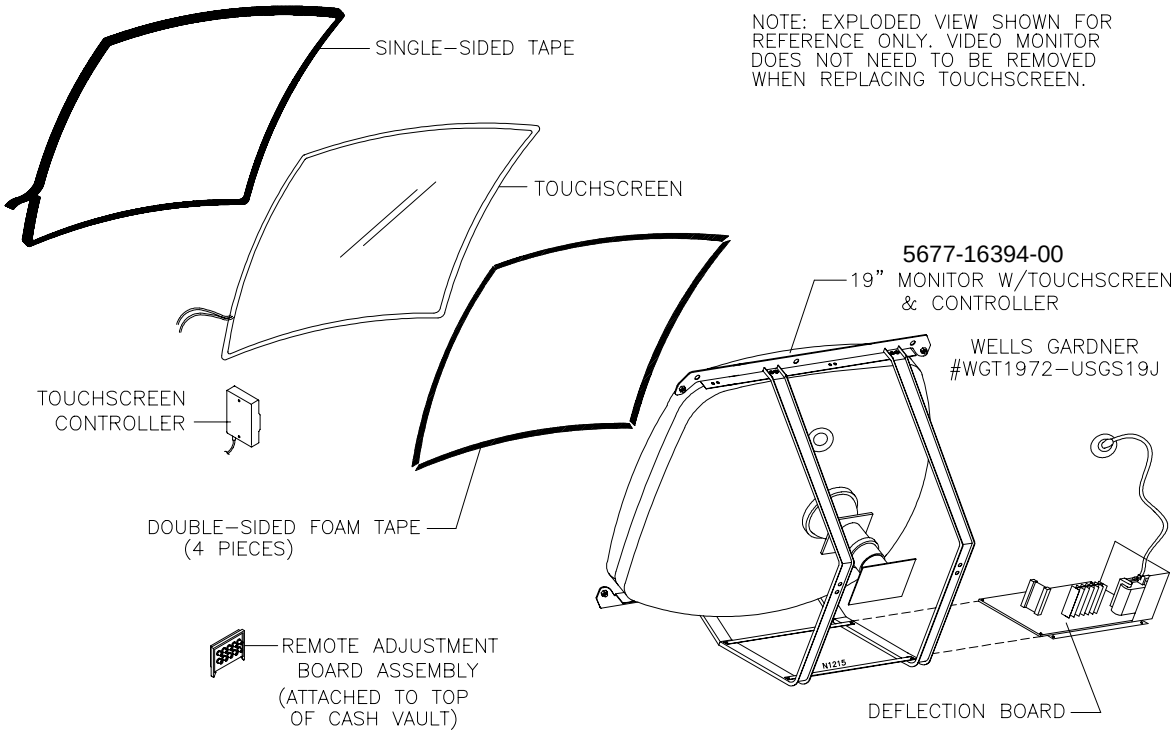
MARQUEE ASSEMBLY (A-23497)



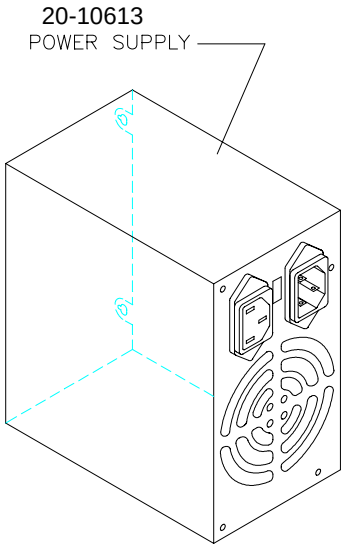
LAMP AND CONNECTOR ASSEMBLY (A-22396)



MONITOR ASSEMBLY (A-23496)



POWER SUPPLY (A-23503)



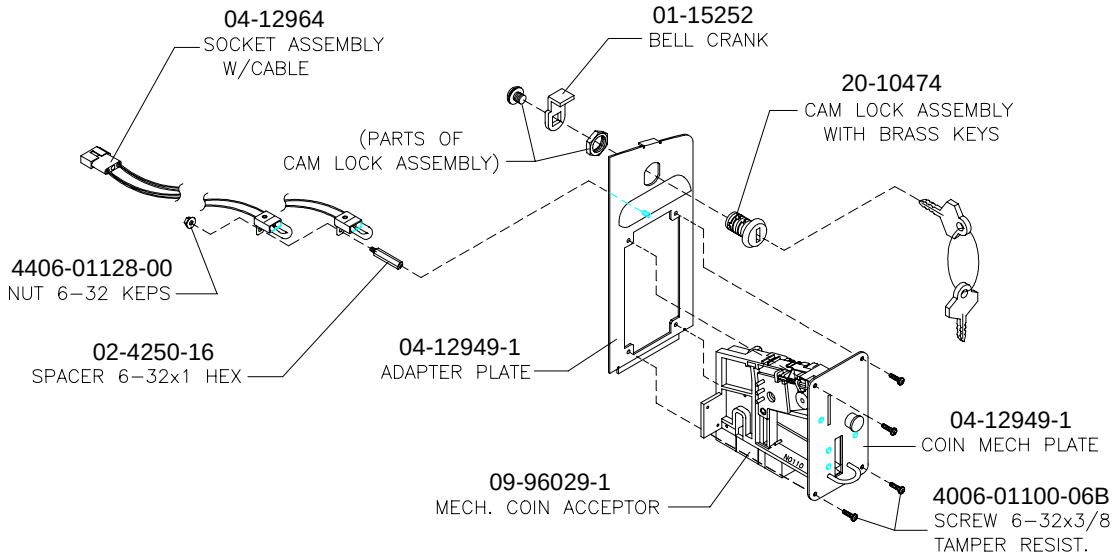
COIN MECH APPLICATION CHART

Country	A-23656	A-23500
USA	■	
New Jersey		■
Canada		■
Quebec	■	
Brazil		■
Germany		■
France		■
Australia		■
Belgium		■
UK		■
Finland		■
Italy		■
Japan		■
New Zealand		■
Spain		■
Switzerland		■

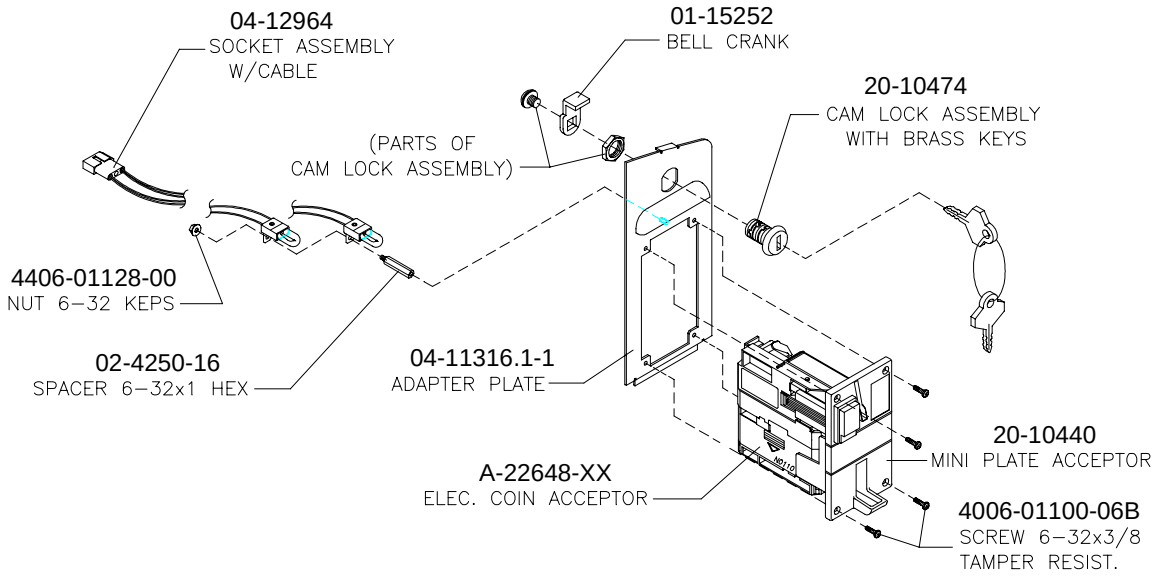
LINE CORD APPLICATION CHART

Country	5850-13271-00	5850-13272-00	5850-13277-00	5850-13772-00	5850-15772-00	5850-15646-00
USA	■					
Canada	■					
Germany		■				
France		■				
Belgium		■				
Spain		■				
Brazil		■				
Switzerland		■				
Australia			■			
New Zealand			■			
UK				■		
Finland					■	
Italy					■	
Japan						■

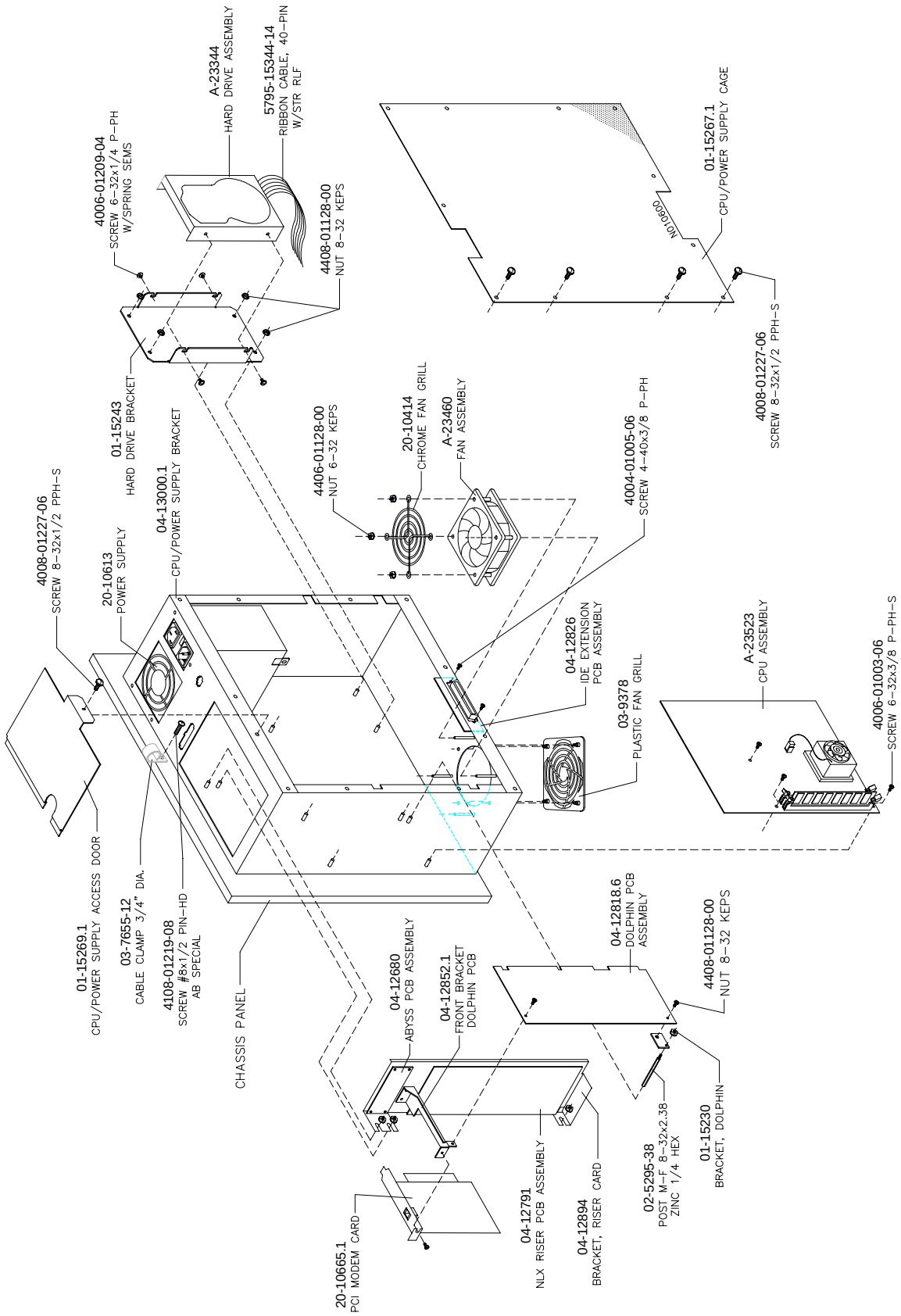
COIN MECH PANEL ASSEMBLY (A-23656)



COIN MECH PANEL ASSEMBLY (A-23500)

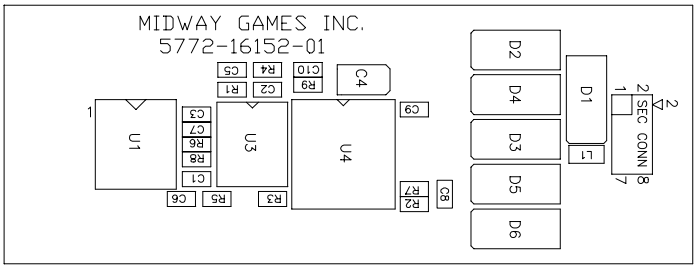


CPU AND POWER SUPPLY ASSEMBLY (A-23723)

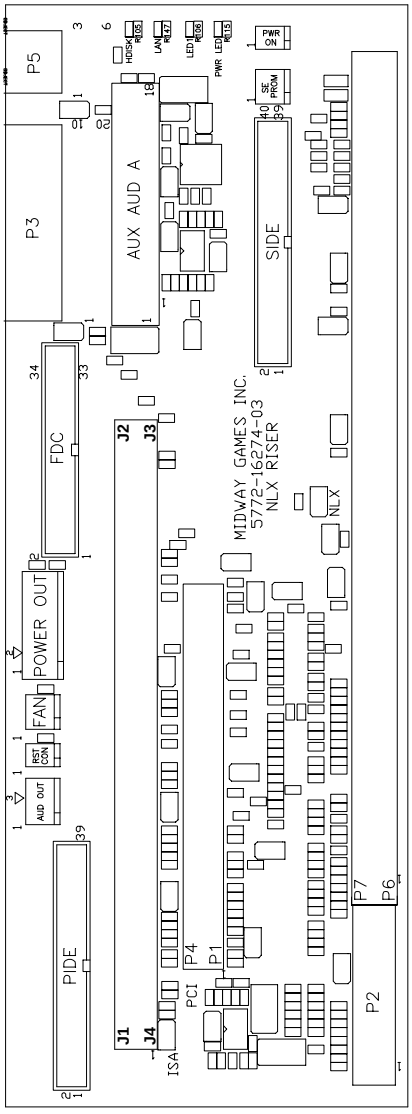


NOTICE: The hard disk drive, the Abyss Security Board, the CPU Board Assembly, and the Dolphin I/O Board are matched at the factory and cannot be mixed. Replacing any one of these components without the others may result in an inoperative Video Game Machine.

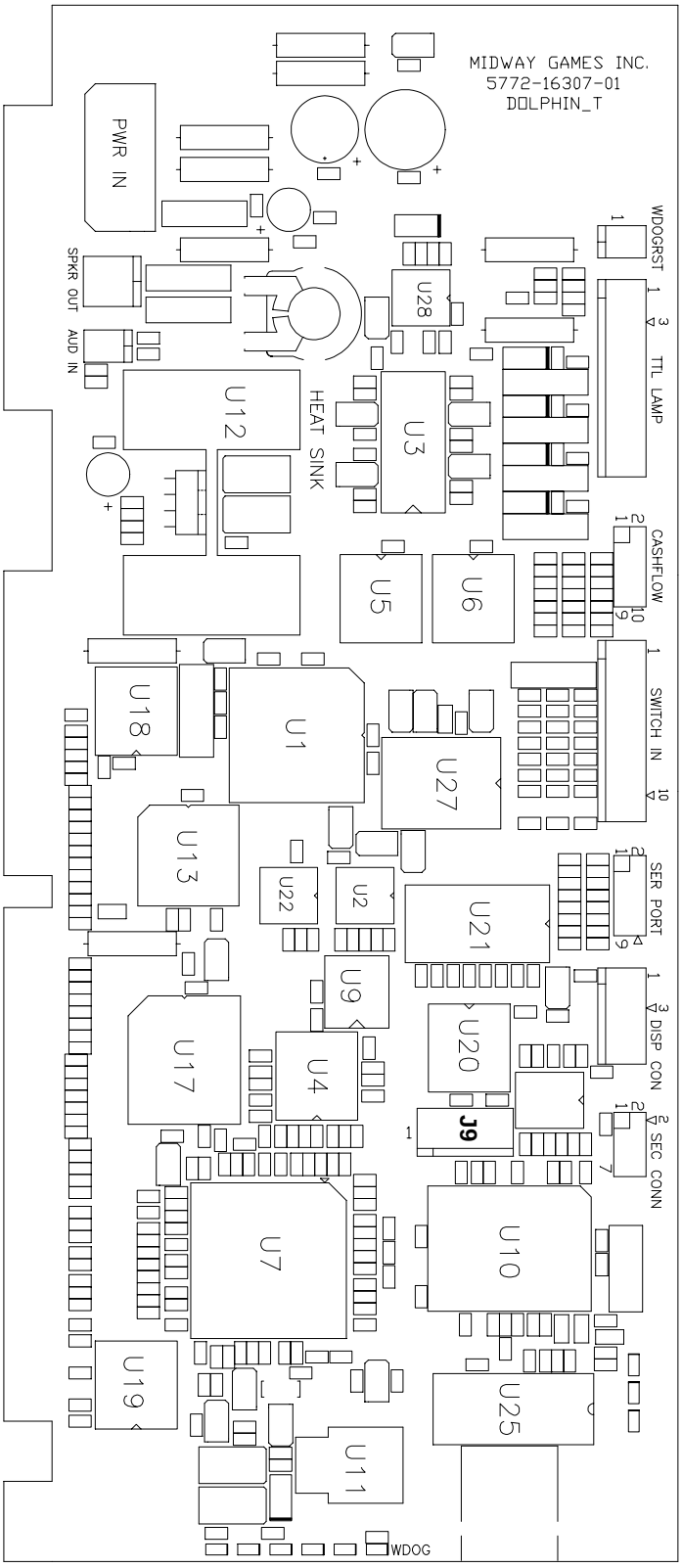
ABYSS SECURITY BOARD (04-12680)



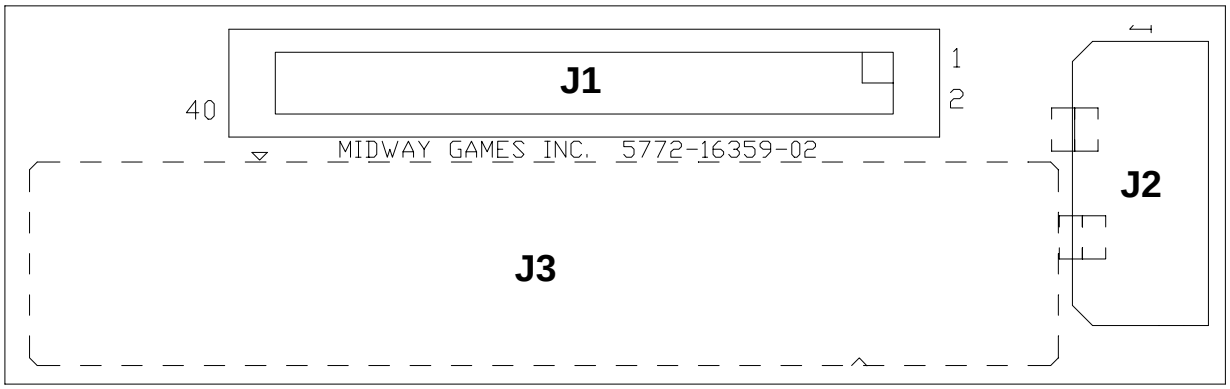
NLX RISER PCB ASSEMBLY (04-12791)



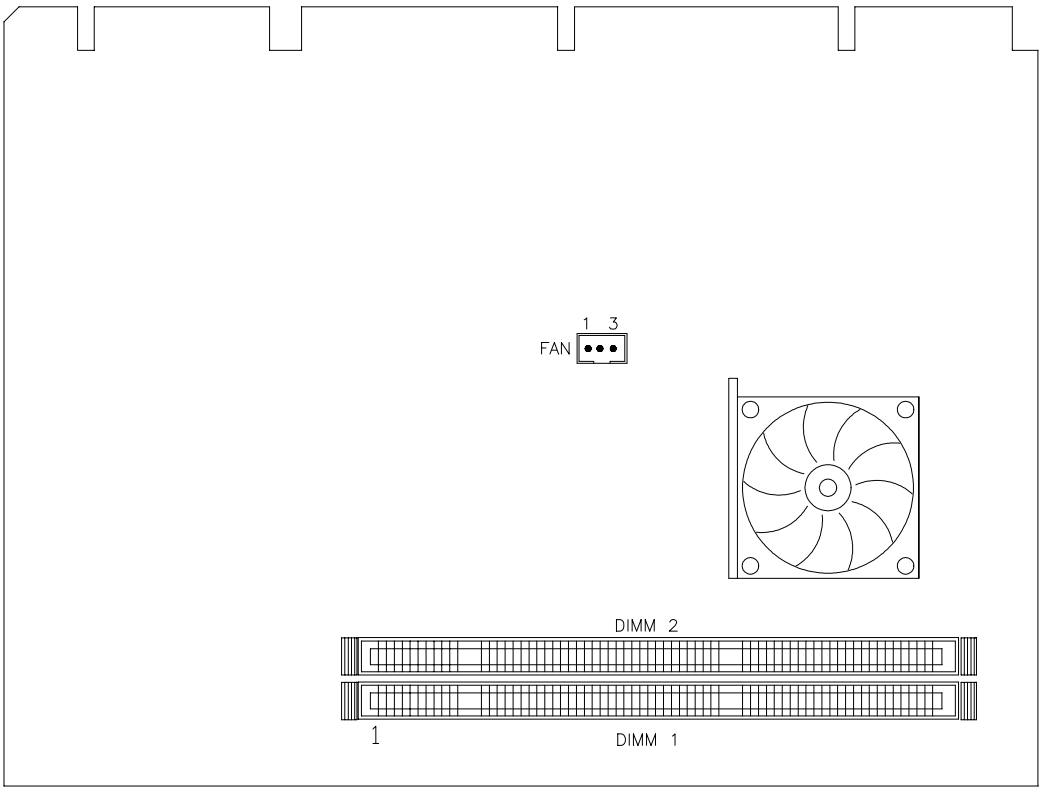
DOLPHIN PCB ASSEMBLY (04-12818.5)



IDE EXTENSION PCB ASSEMBLY (04-12826)

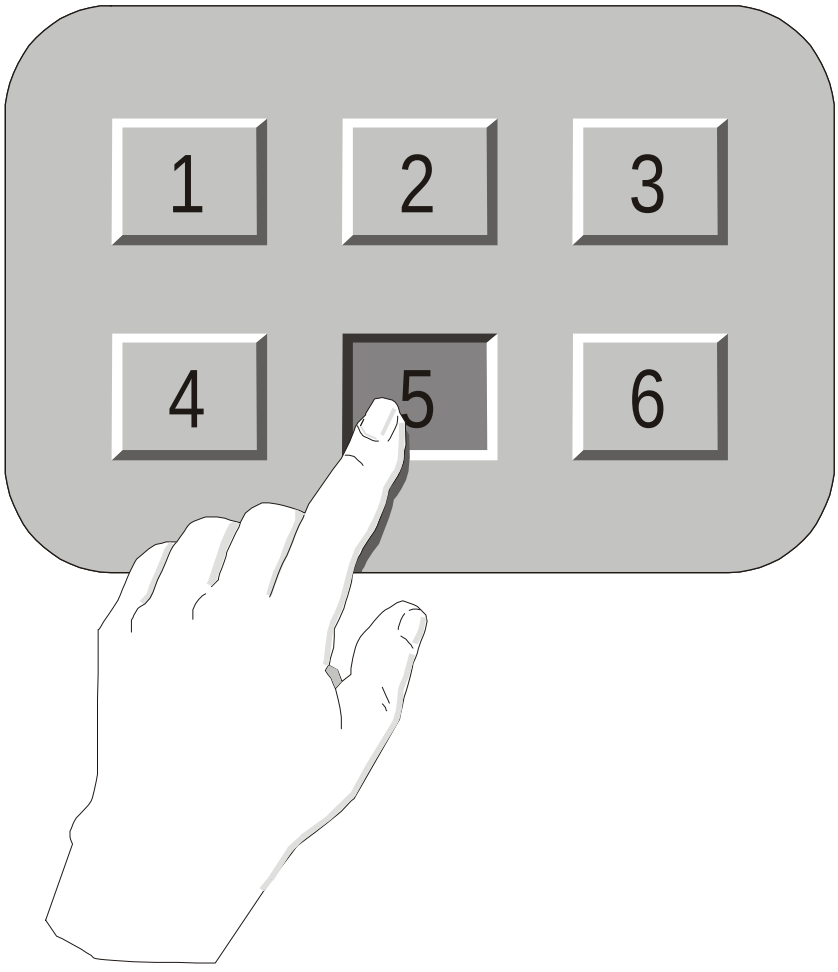


CPU BOARD ASSEMBLY (A-23523)



TOUCHMASTER INFINITY

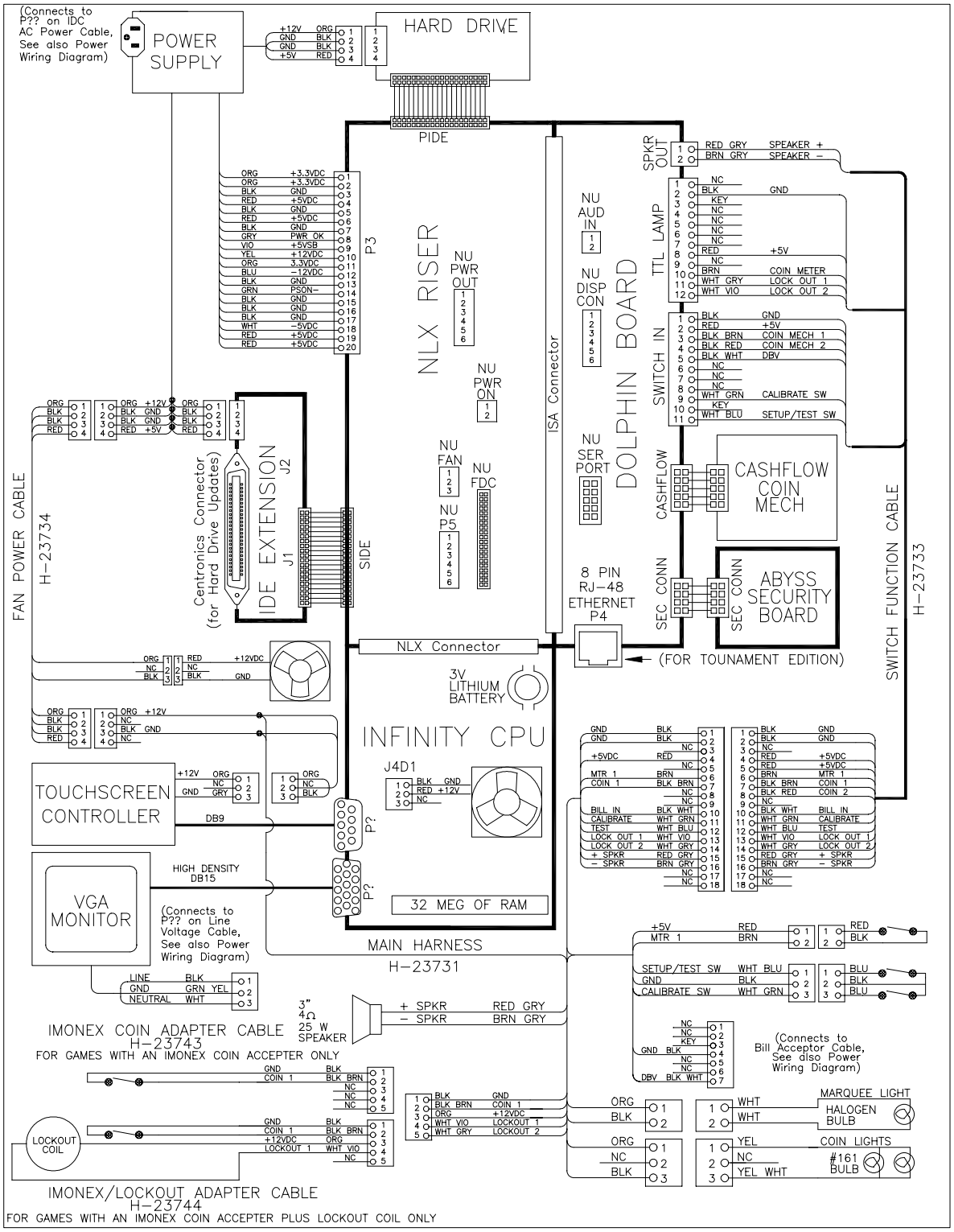
CHAPTER



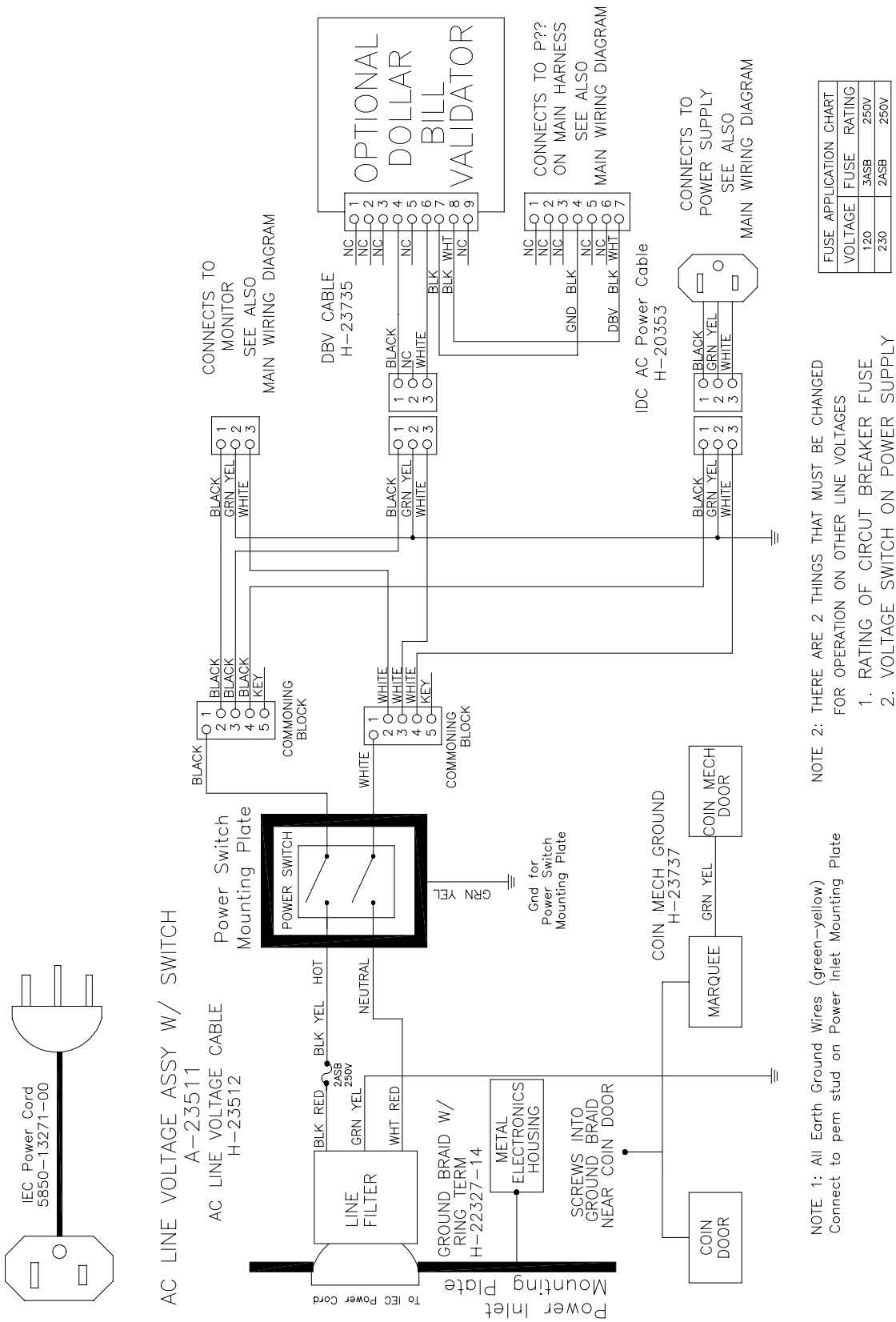
Wiring

	WARNING: Failure to reconnect all ground wires or replace metal shields and covers with each mounting screw installed and securely tightened may result in radio frequency interference.

CABINET WIRING DIAGRAM



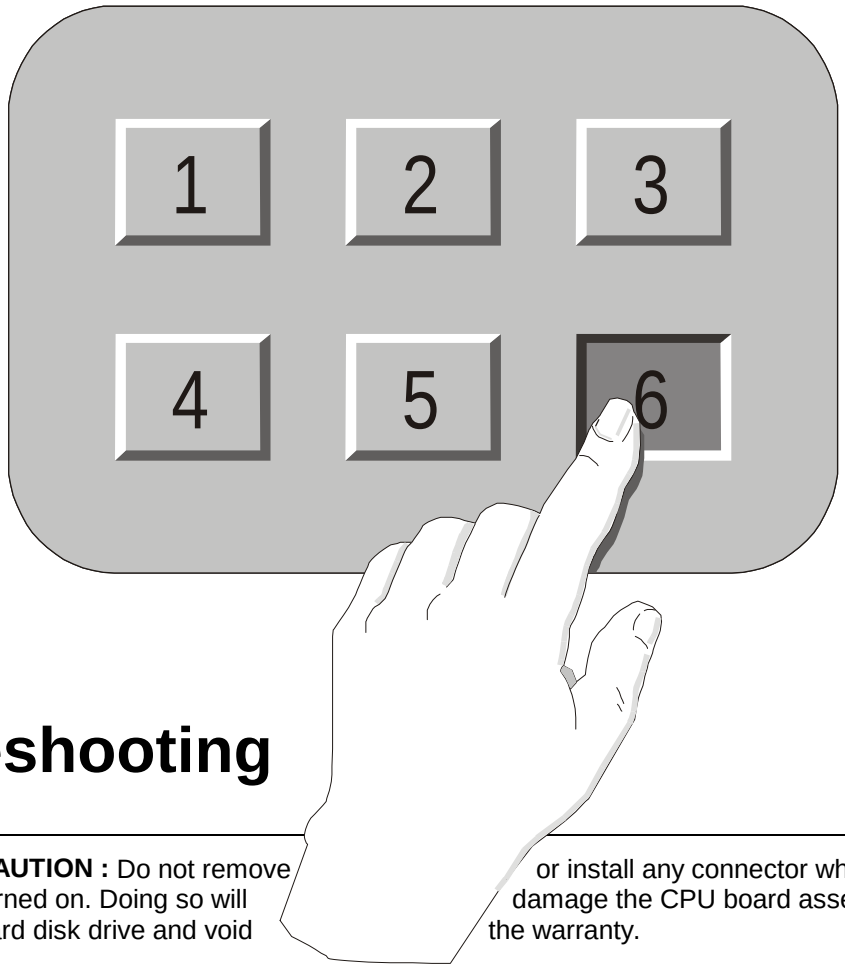
POWER WIRING DIAGRAM



NOTES

TOUCHMASTER INFINITY

CHAPTER



Troubleshooting

⚠	**CAUTION :** Do not remove or install any connector when power is turned on. Doing so will damage the CPU board assembly or the hard disk drive and void the warranty.

This Video Game Machine uses complex electronic components that are sensitive to static electricity. The following precautions must be observed and followed prior to handling any electronics.

- Ensure that the AC power to the Video Game Machine is turned off prior to servicing.
- Discharge any static electricity build up in your body by touching any unpainted metal on the Video Game Machine. Do this *before* touching or handling electronic assemblies.
- Handle electronic assemblies by their edges and store them in an anti-static area when not in use or when being transported.
- *Do not* touch, remove, or connect any electronic assemblies when AC power is on. Doing so will damage electronic assemblies and void the warranty.
- Always replace ground wires, shields, safety covers, etc. when maintenance or service is completed. Ensure that all ground and mounting screws are installed and tightened firmly.

Video Game Machine Does Not Start

Symptom	Problem	Suggested Solution
• Machine appears non-functional. • No audio • No fan • No video display	Lack of electricity	1. Check that power switch is on. 2. Verify that line cord is plugged in. 3. Try another power outlet. 4. Reset circuit breaker at rear of cabinet.
	Poor AC connection	1. Check airflow out of cabinet near fan. (Lack of airflow suggests DC power is not available from power supply.) 2. Turn off AC power. 3. Remove line cord cable clamp. 4. Test line cord, power plug and IEC connector for breaks or damage. 5. Verify continuity of each wire in cord. 6. Fully seat IEC connector into mating cabinet receptacle. 7. Replace cable clamp and its screw. 8. Ensure cabinet wiring harness connectors are fully seated in corresponding AC power wiring harness connectors. 9. Verify AC wire connections at power supply terminals.
	Faulty fuse	1. Remove fuse by turning ¼ turn counterclockwise. 2. Replace fuse with exact same type if necessary.
	Faulty AC line filter	1. Examine AC line fuse on Power Supply Board Assembly. 2. Replace faulty fuse with identical fuse of proper voltage and current rating. 3. Connect line cord and verify operation. 4. Fully seat AC plug in outlet. 5. Verify AC line voltage is present. 6. Turn AC power on. 7. Check DC wiring harness and connectors if fuse breaks again.

Startup Problems *Continued*

Symptom	Problem	Suggested Solution
• Machine appears non-functional, but currency acceptor price indicator is illuminated.	Poor connection	1. Turn AC power off. Unplug AC line cord. Remove Rear Door and electronics cover. 2. Inspect CPU Board Assembly. 3. Ensure DC Power connector is attached and fully seated onto mating board connector. 4. Check other wiring connectors in same way.
	Poor DC power	1. Turn AC power on. 2. Using 20-Volt DC range on a digital voltmeter, measure DC voltages present at power connector pins. Refer to Cabinet Wiring Diagram for specific wiring information and voltage limits.
	Poor AC power	1. Using 2-Volt AC range on a digital voltmeter, measure same DC voltages as above. 2. A reading here indicates that power supply voltages are unstable and may contain ripple or noise.
	System errors	1. Verify that Video Game Machine completes Power-Up Self-Test sequence without errors. 2. Note errors and/or failures found during tests. 3. Open upper cash door and enter Menu System by pressing TEST pushbutton. 4. From MAIN MENU, choose DIAGNOSTICS MENU, then VIDEO TEST. 5. Perform tests, then proceed to HARDWARE TEST, and SOFTWARE TEST. 6. Use these tests to check function of components and software.

Currency Does Not Start Game

Symptom	Problem	Suggested Solution
• Machine does not accept currency or tokens. • Machine cannot be started. • Audio present • Video present	Bad currency	1. Turn AC power off. Open upper and lower cash doors. 2. Empty cash box and DBV. 3. Inspect revenue for counterfeit currency. 4. Remove items that block path from coin mechanism to cash box.
	Blocked coin mechanism	1. Turn AC power off. Open upper and lower cash doors. 2. Check coin mechanism and DBV to ensure proper mounting. 3. Remove coin mechanism and DBV and clear currency path.
	Unleveled coin mechanism	1. Verify coin mechanism is level. 2. Ensure that connector is attached and fully seated. 3. Repair or replace mechanism if bent or damaged. 4. Ensure cables and wiring are connected to currency acceptor or coin mechanism.
• Machine does not accept currency or tokens. • Audio present • Video present	Software setting	1. Enter Menu System. At MAIN MENU, choose GAME/COINAGE SETUP. 2. Check maximum credit limit.
• Machine accepts currency or tokens. • Machine does not start. • Audio present • Video present	Faulty coin mechanism	1. Check coin mechanism and DBV to ensure proper mounting. 2. Verify that each release latch is in closed and locked position. 3. Test known good and bad coins and bills to see if mechanisms accepts and rejects currency correctly. 4. Enter Menu System. 5. From MAIN MENU, choose DIAGNOSTICS MENU, then HARDWARE TEST, then SWITCH TEST. 6. Use tests to confirm operation of each switch.
	Poor connection	1. Check that external coin door indicators (pricing, flashing arrows, etc.) are illuminated. 2. Check connectors and cables for wiring continuity from CPU board connector to coin door. 3. Turn AC power off. 4. Ensure No parts or wires are caught in hinges or switch contacts.

Currency Problems *Continued*

Symptom	Problem	Suggested Solution
	Incorrect program	Examine currency acceptor for programmable features. Some devices require operator adjustment for each specific type of currency recognized. Refer to manufacturer's literature for assistance in setting acceptor features to required values.
	Faulty switch	Check for continuity in each suspect switch connection (Common to Normally Open or Common to Normally Closed). Replace faulty switches (bent levers, broken actuators, etc.).
	Defective mechanism	Verify that each mechanism operates properly by placing in a known good unit.
• Machine accepts currency or tokens. • Number of credits per coin or bill is incorrect. • Credits are sometimes not given for valid currency.	System error	1. Open upper cash door. Enter Menu System by pressing the TEST pushbutton. 7. From MAIN MENU, choose DIAGNOSTICS MENU, then HARDWARE TEST, then SWITCH TEST. 2. Use these tests to confirm operation of each switch.
	Incorrect pulse width	1. From MAIN MENU, choose GAME/COINAGE SETUP and verify that currency acceptor is enabled. 2. Consult manufacturer's literature and adjust pulse width to *long* setting. 3. Verify that currency acceptor operates correctly by placing in a known good unit.
	Incorrect acceptor program	Refer to manufacturer's literature. Set acceptor features to required values.
	Poor wiring	Check that cabinet wiring is correct. Ensure that coin meter and coin switches are properly connected. Refer to Cabinet Wiring Diagram for specific information.
	Defective acceptor	Verify that each acceptor operates properly by placing in a known good unit.

Touchscreen Problems

Symptom	Problem	Suggested Solution
• Touchscreen is not accurate for two or more players.	Dirty screen	Clean cabinet often, especially Touchscreen area. It is not necessary to switch off AC power to clean Video Game Machine. Apply isopropyl alcohol and warm water to a clean cloth or sponge, then use this to wipe surface. *Do not apply cleaner directly on unit.* Liquids dripping into circuits can cause erratic operation. Turn off AC power. Remove monitor bezel. Clean Touchscreen, especially areas normally behind bezel.
	Overzealous touching	Warn players to use only one finger at a time. Simultaneous touches confuse Touchscreen Controller.
	Players need grounding	Some players find Touchscreen response improves when they touch the metal surface of cabinet with one hand as they operate the Touchscreen with other hand.
• Touchscreen chooses incorrect items. • Touchscreen does not respond when certain areas are touched.	Incorrect calibration	1. Open upper cash door. Enter Menu System by pressing TEST pushbutton. 2. From MAIN MENU, choose CALIBRATE TOUCHSCREEN. Calibrate, then test calibration. 3. Confirm that Touchscreen detects and properly tracks finger position in all areas of the screen.
	Bad controller	Ensure Touchscreen Controller operates properly by placing in a known good unit.
• Touch controls are intermittent or completely non-functional. • Machine starts normally.	Poor connection	1. Open upper cash door. Enter Menu System by pressing TEST pushbutton. 2. From MAIN MENU, select DIAGNOSTICS MENU, then HARDWARE TEST and then SWITCH TEST. 3. Confirm operation of each switch in cabinet.
	CPU board power	Remove Rear Door and Electronics Cover. Observe CPU Board Assembly while touching touch screen. Red LED glows if touch is sensed.
	Poor Controller power	Green LED at end of Touchscreen Controller glows if voltage is in circuits. If the LED fails to glow, check power connection to Controller.
	Poor Controller connection	1. Turn AC power off. Remove Rear Door. 2. Check that Touchscreen Controller Cable is fully seated in connector of Touchscreen Controller.
• Touchscreen does not calibrate.	Bad controller or Touchscreen	1. Ensure that Touchscreen Controller operates properly by placing in a known good unit. 2. If Controller works, replace Touchscreen.
• "Touch Controller Not Found" error message	Poor connection	1. Turn AC power off. Remove Rear Door. 2. Check that Touchscreen Controller Cable is fully seated in connector of Touchscreen Controller. 3. Ensure Touchscreen Controller operates properly by placing in a known good unit.

Audio Problems

Symptom	Problem	Suggested Solution
• Audio is non-functional. • Video present • Machine appears to operate normally.	Volume set too low in software	1. Open upper cash door. Enter Menu System by pressing TEST pushbutton. 2. From MAIN MENU, observe Volume Fixed level. 3. Verify that volume is not set at zero. Change level to maximum to make sounds audible.
	Volume set too low on CPU board assembly (some models)	1. Select an endlessly repeating sound track. 2. With screen audio level at maximum, turn CPU Board Assembly master volume control full up. Some models do not have master volume control. 3. Reduce master volume until sound is as loud as possible without distortion. 4. Use screen adjustments to set a comfortable playing level.
	Software error	1. While in SOUND TEST menu, select GAME SOUNDS and listen to sounds to confirm operation of audio amplifier and speaker. 2. Note if any sounds are unintelligible voice messages, strange noises, missing, etc.
	Faulty speaker wiring	1. Turn AC power off. 2. Verify that cabinet wiring is correct. Refer to Cabinet Wiring Diagram. 3. Ensure speaker is properly connected to audio output wires from the audio connector. 4. Verify speaker continuity.
	Missing DC voltage	1. Turn AC power off. 2. Using 20-Volt DC range on a digital voltmeter, measure DC voltages at Power connector pins. 3. Verify +5V, -5V and +12V sources. 4. Refer to Cabinet Wiring Diagram for specific wiring information and voltage limits.
	Ripple in DC supply	Using 2-Volt AC range on a digital voltmeter, measure same DC voltages as above. Any reading here indicates that power supply voltages are unstable and may contain ripple or noise.
	Bad CPU board	Verify proper operation of CPU Board Assembly by placing in a known good Machine.

Audio Problems *Continued*

Symptom	Problem	Suggested Solution
• Audio distorted or muffled • Constant low hum present • Sounds missing	System error	1. Open cash door. Enter Menu System by pressing TEST pushbutton. 2. From the SYSTEM SETUP menu, go to DIAGNOSTICS and choose SOUND TESTS. These tests verify some functions of the audio circuits.
	Wrong speaker	1. Turn AC power off. 2. Remove Rear Marquee Cover and locate speaker. 3. Ensure speaker is *full range* (100 to 10,000 Hz response) and rated for at least 15 watts continuous power.
	Poor connection	Inspect speaker and wires. Ensure that no loose parts or wires are caught in speaker cone, terminals, mounting screws, or stuck to magnets.
• Sounds missing	Poor wiring, bad ground	Check that cabinet wiring is correct for this Video Game Machine. Ensure all cabinet ground wires are connected. Refer to Cabinet Wiring Diagram for specific wiring information.
	Defective speaker	Verify that speaker operates properly by placing it in a known good unit.
	Defective amplifier	Temporarily connect a different speaker to Video Game Machine to test CPU Board Assembly audio amplifier operation.

Video Problems

Symptom	Problem	Suggested Solution
• Monitor non-functional • Audio present • Controls operate as expected.	No power to monitor	1. Remove Rear Door. 2. Verify AC Power is connected to the Video Monitor. 3. Inspect neck of the CRT under low light level conditions. 4. You can see a glow near the CRT base if there is voltage in the filament circuits. This does not mean that other voltages or signals are as they should be, but it does indicate that some of the monitor circuits are receiving power.
	Poor connection	1. Turn AC power off. 2. Verify that video signal and the Remote Adjustment Board connectors are fully seated on the Video Monitor Board Assembly. 3. Check the other monitor connectors in same way. *Do not operate a monitor without a Remote Adjustment Board.*
	Faulty fuse	Examine AC line fuse on Video Monitor Board Assembly. If faulty, replace it with an identical fuse of the proper voltage and current rating.
	Bad settings	Check that the brightness (intensity) and contrast have not been set to their minimum levels.
	Defective monitor	Verify that the video monitor operates correctly by placing it in a known good Machine.
• Power-Up Self Test runs. • Game does not appear. • No audio	System error	1. Note and record any error messages that occur during self-test. 2. Turn AC power off. 3. Restore power after one minute. 4. Note and record any new messages that appear on the screen. 5. Open upper cash door. Enter Menu System by pressing TEST pushbutton. 6. From the SYSTEM SETUP menu, go to DIAGNOSTICS and choose VIDEO TEST. These tests verify some functions of video circuits.

Video Problems *Continued*

Symptom	Problem	Suggested Solution
	Faulty DC voltage source	1. Turn AC power on. 2. Using the 20-Volt DC range on a digital voltmeter, measure DC voltages present at the Power connector pins. 3. Refer to the Cabinet Wiring Diagram (Wiring Chapter) for specific wiring information and voltage limits. 4. Adjust the +5V source if it is variable.
	Ripple on DC supply pins	Using the 2-Volt AC range on a digital voltmeter, measure the same DC voltages as above. Any reading indicates that the supply voltages are unstable and may contain ripple or noise.
	Faulty power at CPU Board Assembly	Compare CPU Board Light Emitting Diode states with the CPU Indicator Chart (Wiring Chapter).
• Monitor does not lock onto signal. • Picture unstable • Colors are missing, etc. • Machine operates normally. • Picture wavers or rolls, has dark bars, uneven colors, etc.	Poor connection	Check connectors and cables for wiring continuity from the CPU Board to the Video Monitor.
	Defective monitor	Verify that the Video Monitor operates correctly by placing it in a known good unit.
	Poor connection	1. Check connectors and cables for wiring continuity from the CPU Board Assembly to Video Monitor. 2. Ensure that all cabinet ground wires are connected, especially at Video Monitor frame.
	Interference	Move cabinet away from machines, appliances, other Machines, etc. Some equipment emits very strong electrical or magnetic fields.
	Defective monitor	Verify that Video Monitor operates correctly by placing it in a known good Video Game Machine.

Miscellaneous

Symptom	Problem	Suggested Solution
• Machine operates normally. • Cabinet gets very warm after several hours of use. • System may reset or freeze after time.	Poor air circulation	1. Check bottom and rear of cabinet for blocked airflow. Move Machine away from sources of heat. 2. Turn AC power off. 3. Apply high power vacuum cleaner to vent holes to remove dust. 4. Remove Rear Door. 5. Ensure all fans are connected and operate at full speed.
• Touchscreen requires excessive recalibration to maintain Machine accuracy.	Dirty screen	1. Clean entire cabinet frequently, especially video screen glass and Touchscreen area. It is not necessary to switch off AC power to clean. 2. Apply an isopropyl alcohol and warm water to a clean cloth or sponge. 3. Use the sponge or cloth to wipe the surface. 4. *Do not apply the cleaner directly on unit.* Liquids could drip into circuits and cause erratic operation.
	Overzealous touching	Warn players to use only one finger at a time. Simultaneous touches confuse Touchscreen Controller.
	Relocation	Repeat Calibrate and Calibrate Test sequence each time cabinet is relocated.
• Error messages appear on screen. • Machine does not work. • No audio	System error	1. Check any assembly (RAM, ROM, battery, Touchscreen, etc.) identified in Error Message. 2. If errors seem to occur at random, try to determine what conditions are connected with appearance of message (i.e., time of day, when other equipment is turned off or on, when room temperature is elevated, only with certain players, periods of low or high humidity, etc.). 3. Call your authorized distributor for help with unresolved screen messages
• "Security Key Error" message	Security failure	1. Check to see if security key is missing or incorrectly installed on board assembly. 2. Confirm that security key version matches software version.
• Unable to update software, high scores, etc.	Modem not functional	1. Ensure modem is seated in PCI slot. 2. Ensure telephone cord is well seated in wall jack and modem port. 3. Check wall jack for dial tone. 4. Place modem in working unit to test. Replace if faulty.

NOTES

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WARNINGS & NOTICES

WARNING

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WARNING

Prevent shock hazard and assure proper game operation. Plug this game into a properly grounded outlet. Do not use a cheater plug to defeat the power cord's grounding pin. Do not cut off the ground pin.

CAUTION

A very small portion of the population has a condition which may cause epileptic seizures or momentary loss of consciousness when viewing certain kinds of flashing lights or patterns that are present in our daily environment. These persons may experience seizures while watching some kinds of television pictures or playing certain video games. People who have not had any previous seizures may nonetheless have an undetected epileptic condition.

If you or anyone in your family has experienced symptoms linked to an epileptic condition (e.g. seizures or loss of awareness), immediately consult your physician before using any video games.

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CAUTION

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