

WARNINGS AND NOTICES

WARNING. Use of non-Midway parts or circuit modifications may cause serious injury or equipment damage!

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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.

We recommend that parents observe their children while they play video games. If you or your child experience the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, disorientation, or convulsions, DISCONTINUE USE IMMEDIATELY and consult your physician.

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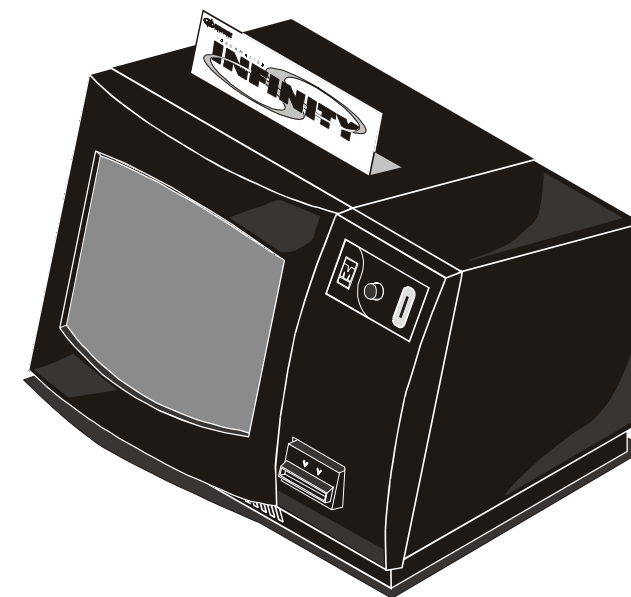
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MAY 2000

16-60068.3-101



COUNTERTOP
STYLE
CABINET



Operations Manual Includes

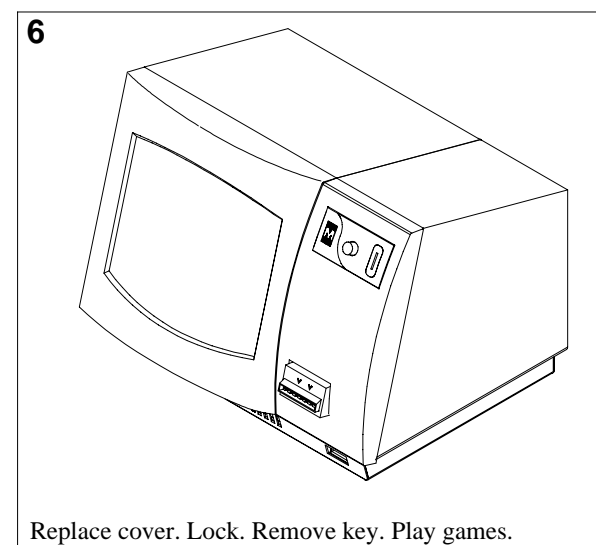
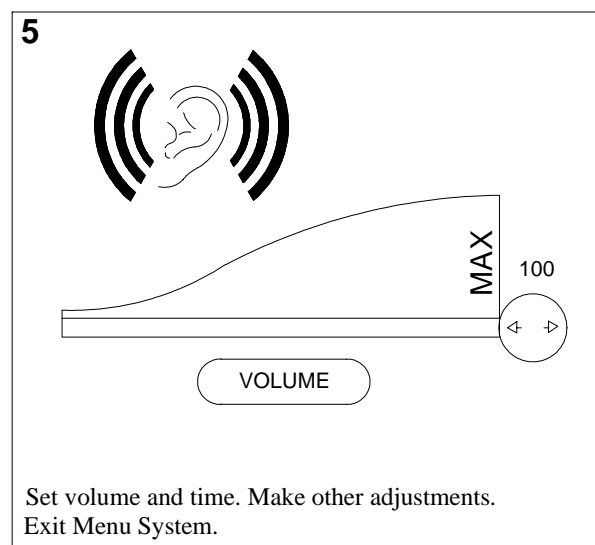
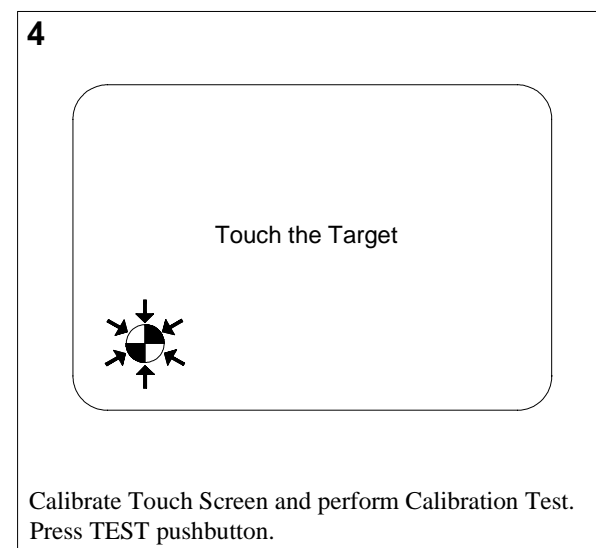
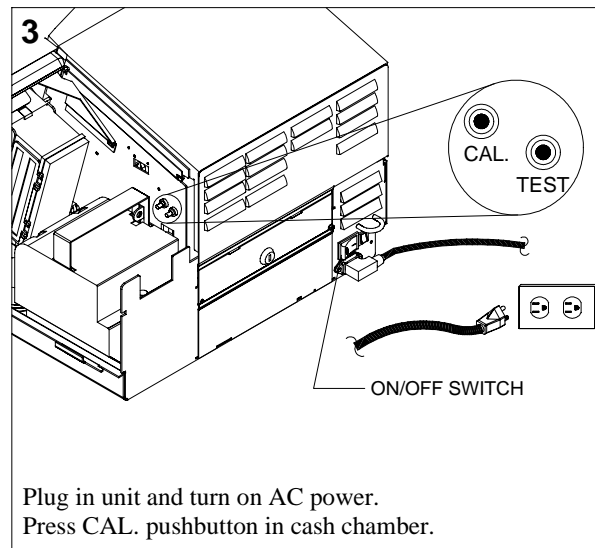
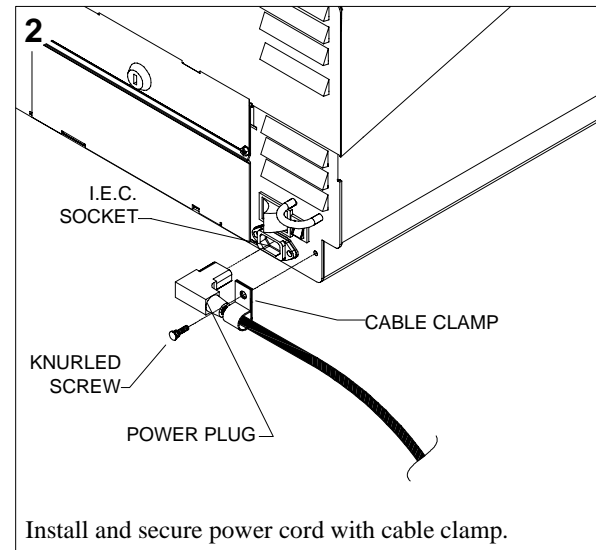
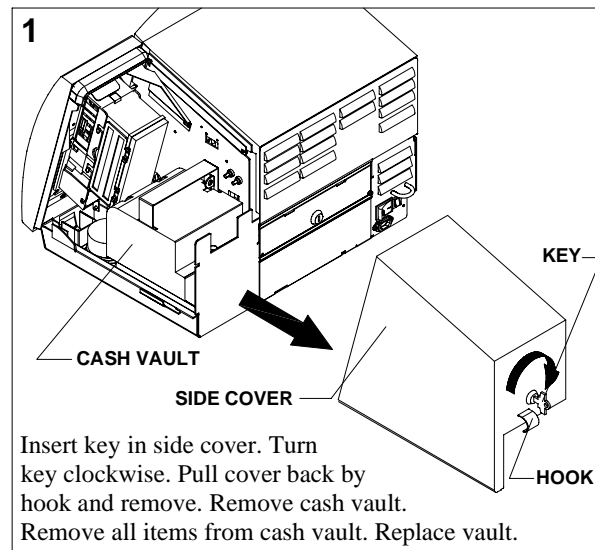
Setup • Service • System • Parts • Wiring • Troubleshooting

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.



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TOUCHMASTER® INFINITY COUNTERTOP QUICKSTART



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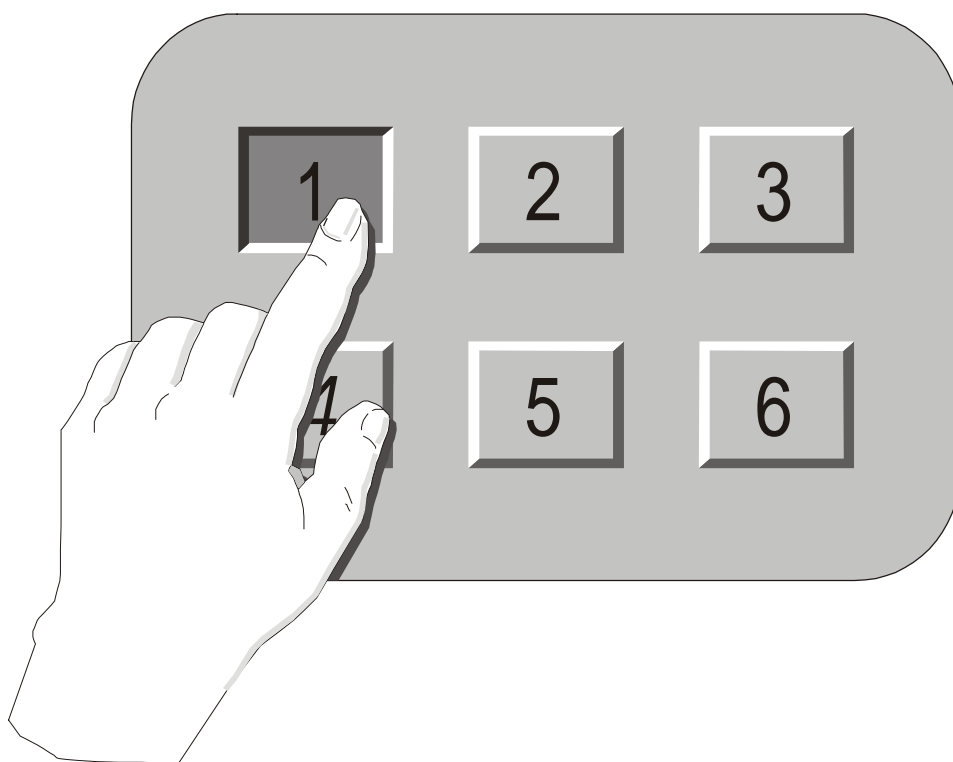
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CHAPTER













Setup and Safety







NOTICE: Information in this manual is subject to change without notice. Midway Amusement Games, LLC reserves the right to improve 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 Touchmaster® Infinity 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 cabinet and components. 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: Touchmaster® Infinity 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 convulsions, <i>discontinue use immediately</i> 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. Fluorescent tubes and 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 authorized parts. <ul style="list-style-type: none"> • 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 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.
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PRODUCT SPECIFICATIONS

Operating Requirements

<u>Location</u>	<u>Electrical Power</u>	<u>Temperature</u>	<u>Humidity</u>
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

<u>Game Dimensions</u>	<u>Shipping Dimensions</u>	<u>Shipping Weight</u>	<u>Design Type</u>
Width 21" (53.3 cm)	Width 25" (63.5 cm)	105 Lbs	Countertop Video Game
Depth 17" (43.2 cm)	Depth 21" (53.3 cm)	(43.0 kg.)	
Height 16" (39.4 cm)	Height 20" (50.8 cm)		

Equipment Characteristics

<u>Video Display Monitor</u>	<u>Audio System</u>	<u>Currency Acceptors</u>
VGA 14" (35.6 cm) CRT with Touchscreen	Digital Monaural 4" (10 cm) Full Range Speaker	Standard 1 Coin Mechanism Door DBV ready 1 Coin Counter

Game Characteristics


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

Place your Touchmaster® Infinity on a bar, countertop, or sturdy table at a convenient height. Its built-in lazy-Susan lets players turn the machine to gain access. (While the cabinet spins 360 degrees, power cord safety prevents you from doing so too often.)

STANDARD MAINTENANCE

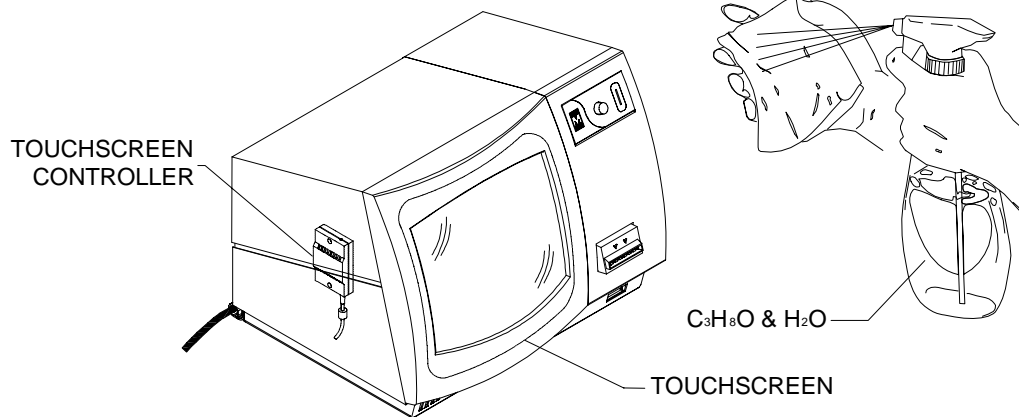
Touchmaster® Infinity uses the same surface for video display and player controls. Because players use their fingers, the entire cabinet will quickly become covered with fingerprints. We recommend you clean the cabinet frequently to ensure maximum customer interest.



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

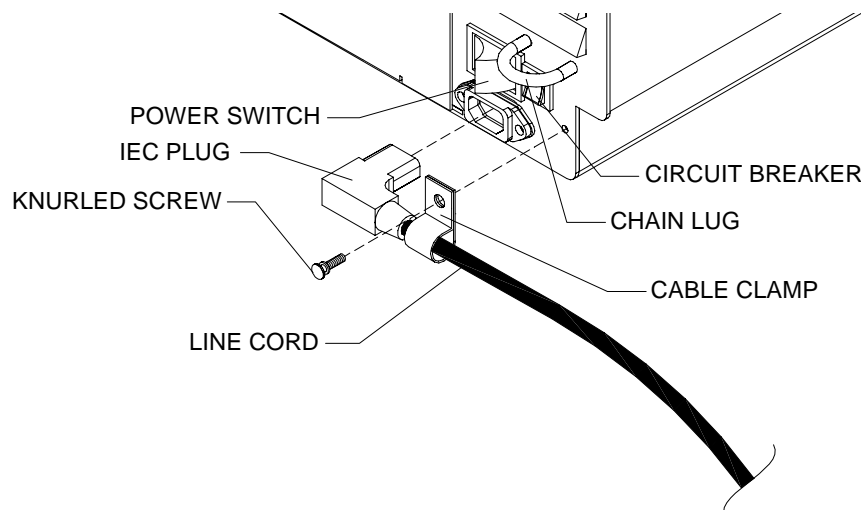
Use only non-abrasive cleaners to avoid damaging decals and graphics. Apply the cleaner to a clean cloth or sponge, then use this to wipe. *Do not apply the cleaner directly to cabinet!* Liquids could enter the cabinet, damaging electronic circuits and voiding the warranty.

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 COUNTERTOP CABINET INSTALLATION

1. Inspect cabinet exterior and screen for signs of damage.
2. Place cabinet on countertop, sturdy table, or other convenient location with access to AC outlet. Do not block the front air intake vents.
3. Remove keys from chain lug on rear of cabinet.
4. Insert key into lock on rear of Side Cover Assembly and turn key clockwise to unlock. Slide side cover backwards off base assembly.
5. Insert key into Rear Door and turn key clockwise to unlock. Pivot Rear Door and remove from cabinet. Remove three right screws from Top Cover Assembly and disconnect fan cable connector as you remove cover from cabinet.
6. Verify that power supply voltage selector switch is set correctly for your local power source. Replace Top Cover Assembly and reconnect fan. Replace and lock Rear Door.
7. Cut tie wrap and remove Cash Box from cash chamber and remove spare parts inside. Line cord is with spare parts.
8. Adjust ease of cabinet rotation by hand tightening knurled screw at base of cash chamber. Use flat-head screwdriver if necessary.
9. Match holes on IEC plug of line cord with prongs in receptacle and push firmly to seat line cord. Hold cord flat against cabinet and secure it to rear of cabinet using cable clamp and knurled screw provided in spare parts kit.
10. Plug line cord into grounded (3-plug) wall outlet. Turn AC power on at power switch at rear of cabinet. Touchmaster® powers up and begins self-diagnostics. Upon finding no errors, Attract Mode begins.
11. Press CAL. (calibrate) pushbutton. Calibrate Touchscreen.
12. Press TEST pushbutton. Set game options, such as volume and country coin setup. Customize Ad Screens and set other variables.
13. Exit Menu System. Replace and lock side cover.
14. Fold marquee and insert into plastic marquee holder. Place holder on top of cabinet. Play games.



LINE CORD AND CABINET REAR



NOTICE: Your Touchmaster® Infinity has erotic software turned off at the factory and a green AAMA label indicating games are suitable for all ages.

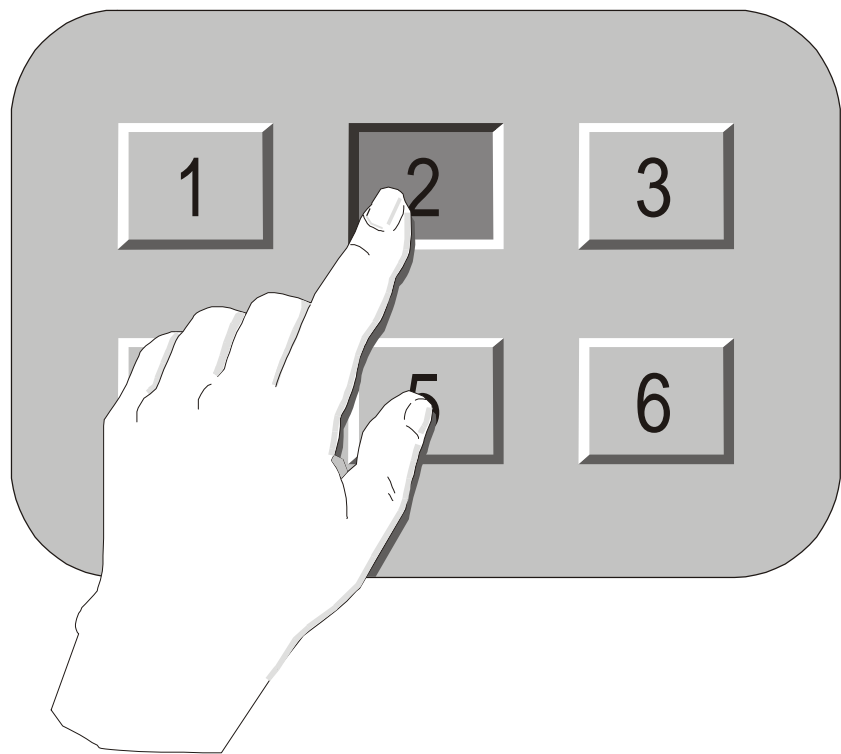
Should you choose to turn erotic software on, apply appropriate red AAMA label over the original label. The additional label is included in the spare parts kit.

NOTES

A series of horizontal dotted lines for taking notes.



CHAPTER



Service



NOTICE: This manual is subject to 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.

SERVICE

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.

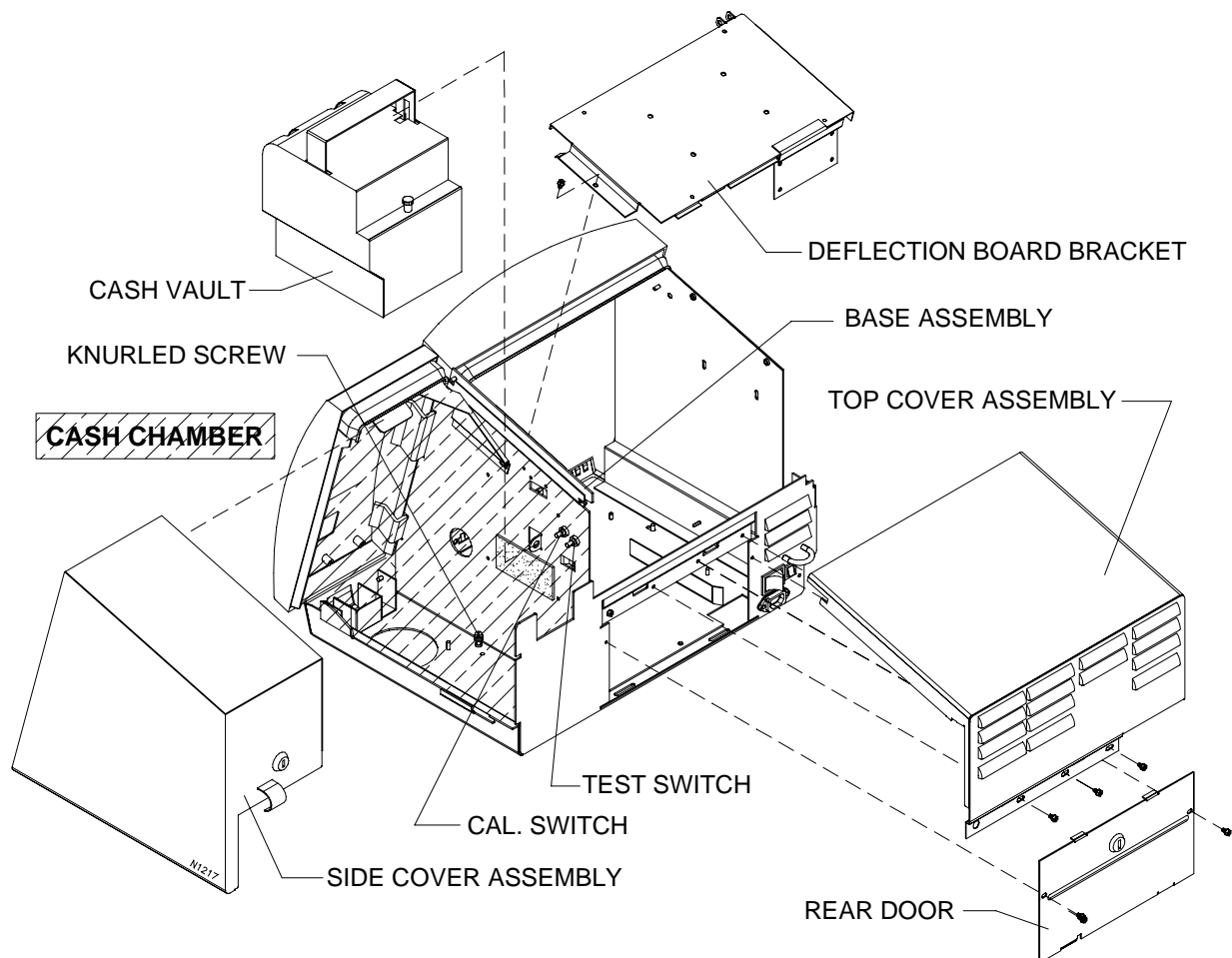
Touchmaster® Infinity uses complex electronic components that are sensitive to static electricity. Observe the following precautions when handling any electronics.

- 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.

ACCESSING COMPONENTS

SIDE COVER ASSEMBLY REMOVAL

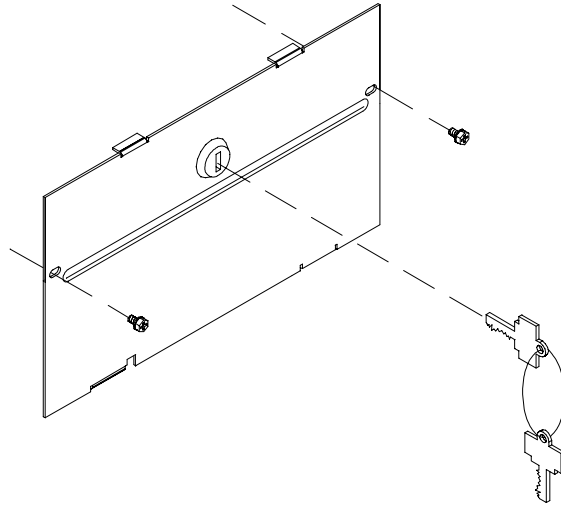
1. Insert key into rear lock of Side Cover Assembly. Turn key 90 degrees clockwise to unlock.
2. Grasp hook and pull down along slope of base assembly. Set Cover in safe place.
3. To replace, slide Cover back onto Base Assembly. Turn key 90 degrees counter-clockwise to lock.



COVERS AND DOOR REMOVAL

REAR DOOR REMOVAL

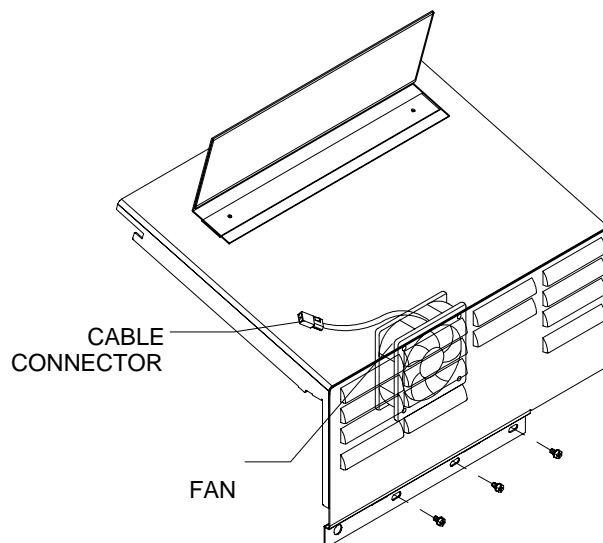
1. Insert key into Rear Door. Turn key 90 degrees clockwise to unlock.
2. Remove two screws that secure Rear Door.
3. Rear Door is hinged at bottom. Swing Door on hinge, remove, and set in safe place.
4. To replace, insert bottom hinges and swing Door closed. Turn key 90 degrees counter-clockwise to lock. Reinstall Rear Door screws.



REAR DOOR REMOVAL

TOP COVER ASSEMBLY REMOVAL

1. Remove Rear Door. Remove three right screws from rear of Top Cover Assembly. (Screw on left is tamper proof and does not hold Top Cover Assembly.)
2. Without completely removing, gently pull Top Cover Assembly downward two to three inches along slope of Base Assembly. Pivot the Cover enough to expose fan wire. Disconnect fan wire. Remove Top Cover Assembly and set in a safe place.
3. To replace Cover, align on Base Assembly close enough to reattach fan cable connector. Slide Top Cover Assembly fully onto base assembly. Fasten three screws and tighten.

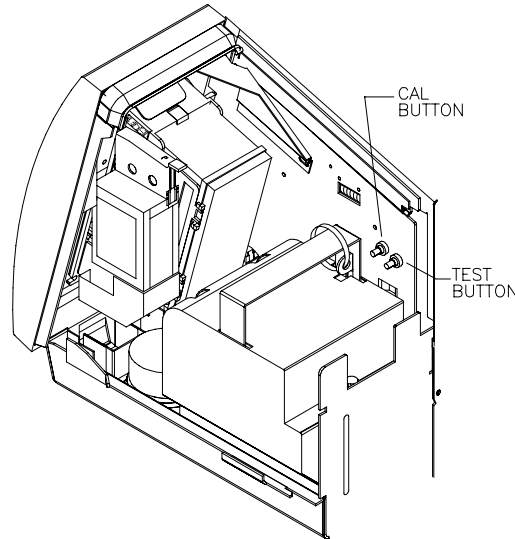


TOP COVER ASSEMBLY REMOVAL

CONTROL SWITCH ACCESS

Remove Side Cover Assembly to access TEST and CAL. pushbuttons on interior wall of cash chamber.

- CAL. pushbutton lets you calibrate Touchscreen. This is crucial to maintaining quality of game play.
- TEST pushbutton gives you access to system software to reset high scores, customize Attract Mode with location name, review game audits, and set other options.



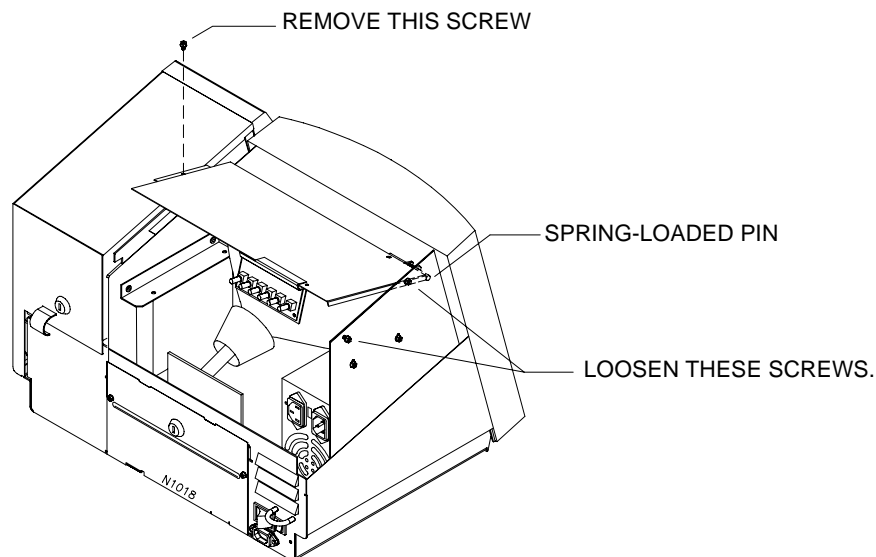
CAL. AND TEST BUTTONS LOCATION

DEFLECTION BOARD BRACKET PIVOTING

You need not remove the Deflection Board Bracket to access components. Pivot the Bracket as follows:

1. Remove Rear Door and Top Cover Assembly.
2. Remove Deflection Board Bracket screw nearest Coin Meter.
3. Loosen Bracket screws holding plate on the opposite side, but do not remove.
4. Lift Rear of bracket until spring-loaded pin near Touchscreen snaps into hole in side panel wall.

To replace Bracket, push in spring-loaded pin and swivel Bracket back into position. Replace and tighten screws.



DEFLECTION BOARD BRACKET PIVOTING

SERVICING THE TOUCHMASTER® INFINITY COUNTERTOP

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.



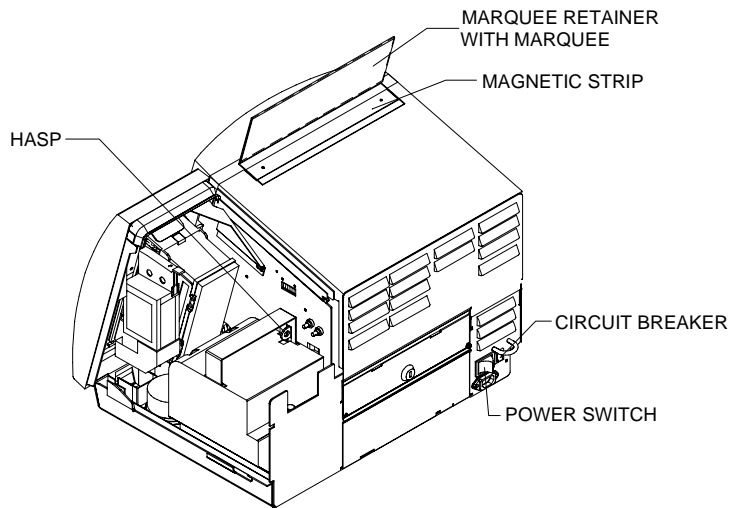
Each of the following service instructions requires you to switch AC power off and unplug line cord from AC power source. Do not attempt any service while AC power is on. This may damage your video game machine or cause injury, as well as void warranty.

Marquee

Grip both sides of marquee and pull forward and down to free magnet strips from top cover. Lift sign up and off cabinet. Slide sign out of top cover.

Padlocks

Your Touchmaster® Infinity is *not* built with a padlock, but you can install one to deter removal of cash vault. Place cash vault in cash chamber and install a small padlock through hasp.



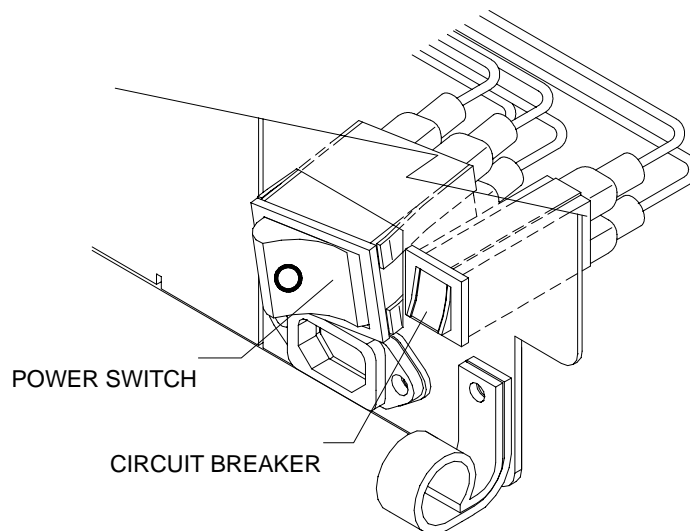
CABINET REAR

Power Switch

Remove top cover. Press upper and lower locking tabs on one side of switch inward. Slide that side partially out through rear wall. Use flat screwdriver if needed. Press in tabs on other side and wiggle device until tabs on both sides are outside cabinet. Remove wires. Remove power switch from cabinet.

Circuit Breaker

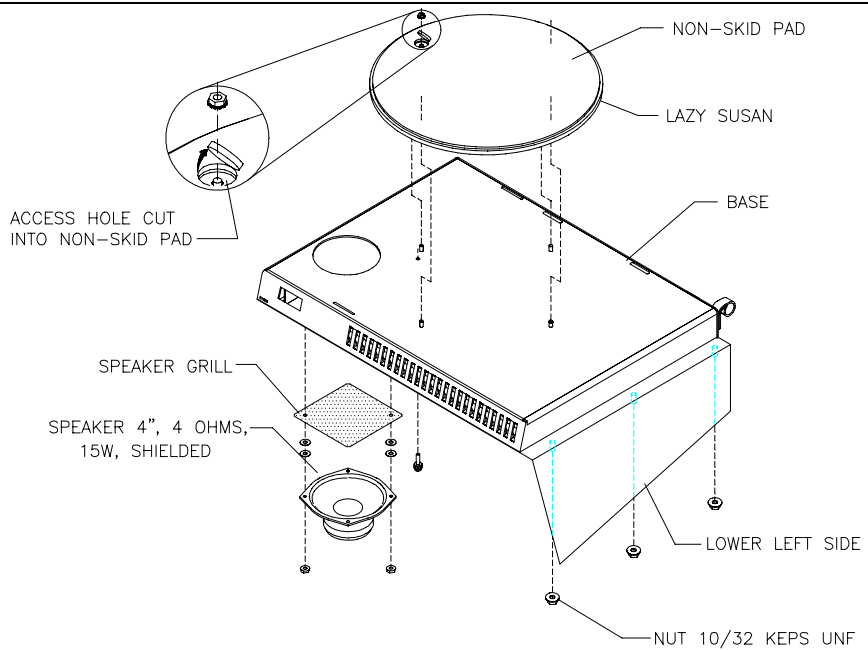
To reset, push in circuit breaker button. To remove circuit breaker, remove top cover. With a flat screwdriver, push tab on one side of circuit breaker inward. Slide side partially out through rear wall. Press tab on other side and wiggle device until both tabs are free. Remove wires.



POWER SWITCH AND CIRCUIT BREAKER

Rotating Base

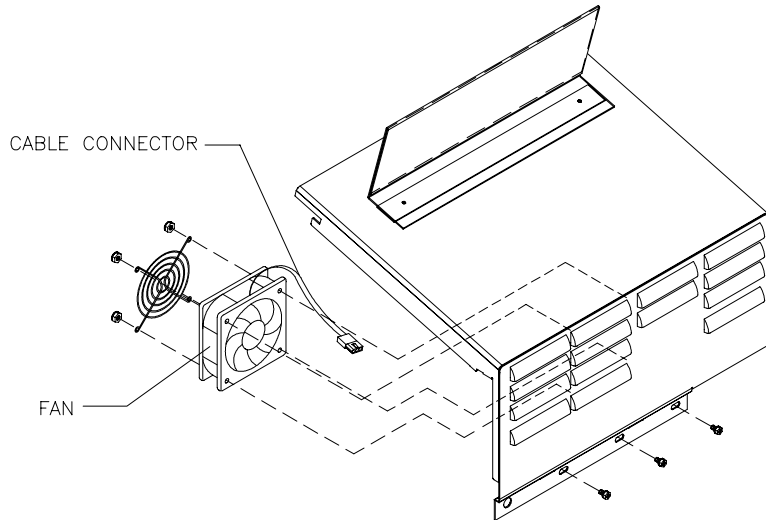
Unlock and open Side Cover. Remove Cash Vault. Remove nylon screw from cash chamber. Replace Cash Vault and Side Cover. Turn cabinet upside down. Cut holes in pad to access nuts. Unscrew nuts and remove base.



ROTATING BASE REMOVAL

Fan

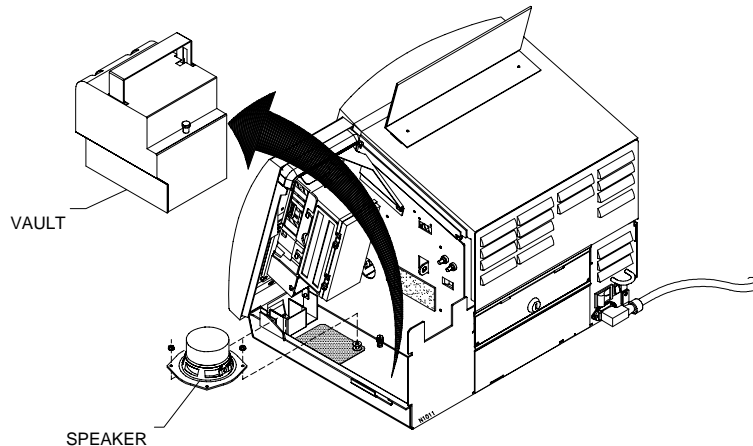
Remove Rear Door and Top Cover Assembly. Disconnect fan wire connector. Use small pliers or nut driver to loosen and remove four nuts and fan grill from threaded studs. Remove fan from Top Cover Assembly.



TOP COVER ASSEMBLY

Speaker

Remove Side Cover Assembly. Remove DBV and Cash Vault if necessary. Disconnect speaker wiring. Remove speaker mounting nuts. Leave washers for use with replacement. Lift speaker up and off studs. Note that replacement speaker must be magnetically shielded.



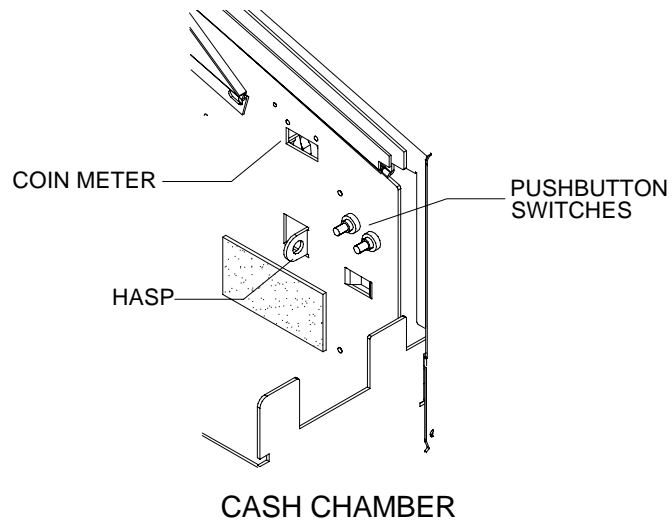
SPEAKER REMOVAL

Pushbutton Switches

Remove Side Cover Assembly, Rear Door, Top Cover Assembly. Remove switch mounting nuts. Push switches through hole. Disconnect wiring and remove switches.

Coin Meter

Remove Side Cover Assembly, Rear door, Top Cover Assembly. Swing up Deflection Board Bracket. Remove meter mounting screws. Disconnect wiring and lift meter away from interior wall.



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 want to check all connections when you remove your machine 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.



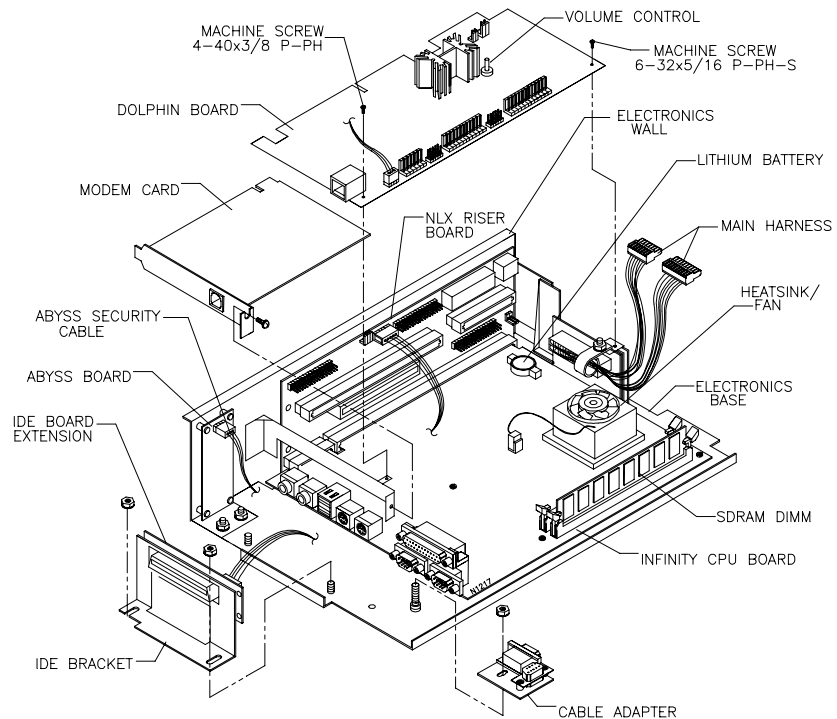
STATIC ELECTRICITY: Discharge static electricity buildup in your body by touching exterior of cabinet. Do this *before* touching or handling electronics assemblies. Failure to do this may damage assemblies.

Electronics Assemblies

Remove Rear Door. Disconnect hard disk drive ribbon connector. Remove screw in rear center of tray. Grasp electronics tray by vertical lip at bottom of tray. Disconnect power cables and other wiring as you slowly slide tray out of cabinet. Remove Top Cover if needed.

Security Board Assembly

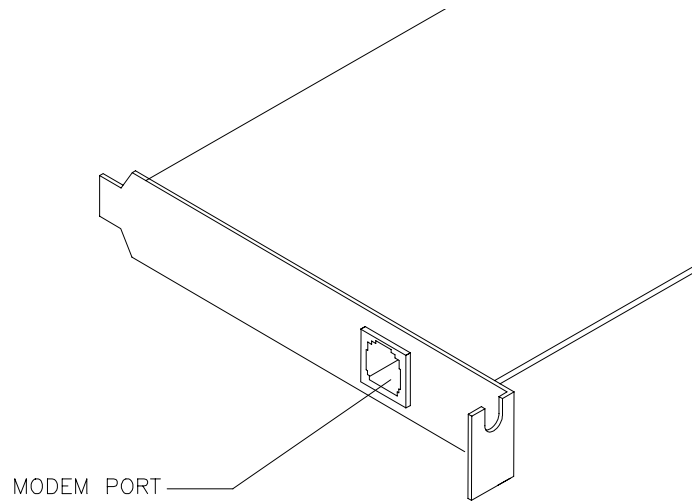
Remove Rear Door. Pull Abyss Security Board Assembly away from top two retaining pins with a firm, gentle tug. When free, pull board away from bottom pins.



Modem Cable

Remove Rear Door. Detach connector from modem port. Remove nut and washer from modem cable clamp. To replace, secure cable in clamp and tighten nut and washer. Insert connector into port. Tie a knot in the cable between clamp and rear door for strain relief.

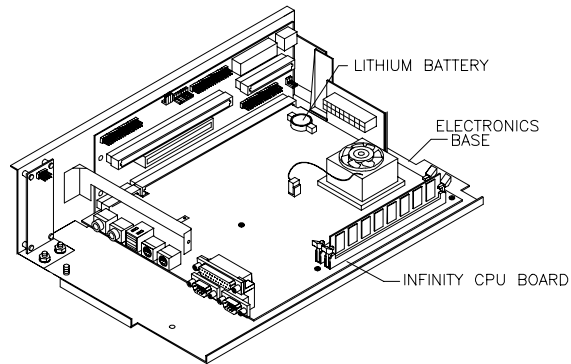
Replace Rear Door, guiding cable through notch at bottom of door next to left hinge.



MODEM CARD

Battery

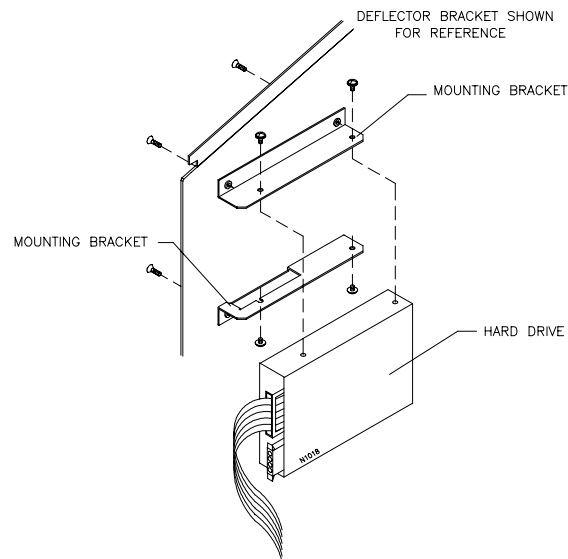
Remove electronics tray from cabinet. Disconnect cables and remove Dolphin I/O Board Assembly to gain access to CPU Board Assembly. Pry lithium battery from socket and discard according to replacement battery instructions.



LOCATION OF BATTERY

Hard Disk Drive

Remove Side Cover Assembly, Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket up. Disconnect cables to hard drive. Remove screws holding Mounting Brackets to interior wall of Base Assembly. Remove Hard Disk Drive from cabinet. Remove screws holding Mounting Brackets to Drive. Do not overtighten screws when replacing Mounting Brackets on Drive.

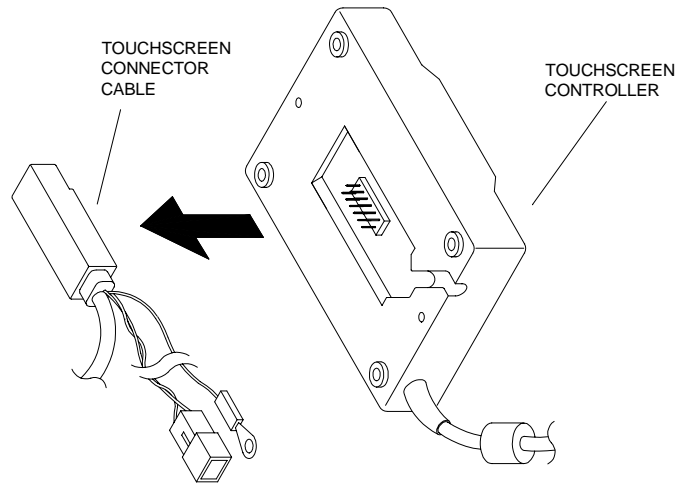


HARD DISK DRIVE ASSEMBLY

Touchscreen Controller

Remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket up for access. Disconnect Touchscreen Controller cable connector (DB9) from CPU Board Assembly. Disconnect flat, rectangular Touchscreen Connector from center of Touchscreen Controller and let it hang free in cabinet.

A hook and loop fastener holds controller to bulkhead. Gently pull controller box away from bulkhead and remove from cabinet.

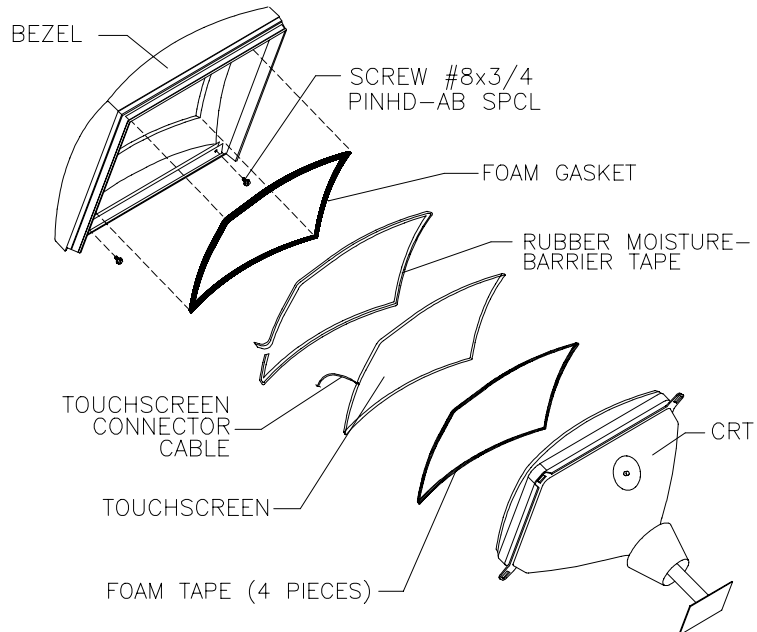


CABLE REMOVAL

Touchscreen

Remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket. Disconnect Touchscreen Connector Cable from Touchscreen Controller. Lower Bracket down. Remove monitor bezel. Remove tape from around Touchscreen. Carefully note orientation of Touchscreen cable and adhesive strips before separating screen from monitor.

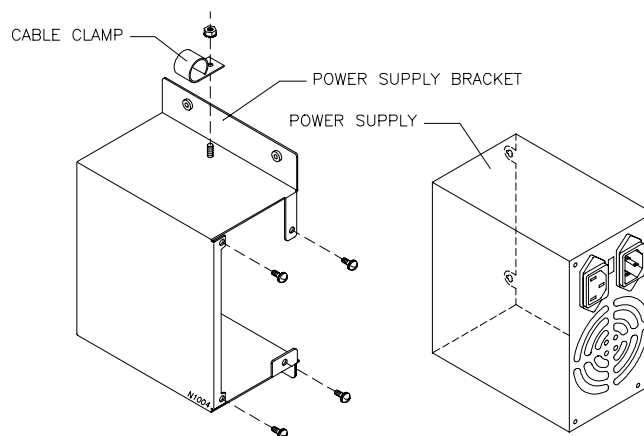
When reinstalling bezel, begin with top screw nearest coin slot, then remaining top screw. Reinstall bottom screws in either order.



MONITOR ASSEMBLY

Power Supply

Remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket up. Unplug IEC plug from receptacle. Unplug DC connector from front of power supply. Remove front and rear screws from power supply. Lift power supply up off power chassis and out of cabinet.



POWER SUPPLY ASSEMBLY

Monitor Controls

Remove Rear Door and Top Cover Assembly. Monitor control board is just above power supply and includes adjustments for contrast, brightness, horizontal size and delay, vertical size and vertical center.



HIGH VOLTAGE CONSIDERATIONS: CRTs and their power supplies can retain **lethal** energy charges long after power is turned off. This is especially true when defective circuits prevent normal discharge. Perform **two** anode discharges before working on monitors.

ANODE DISCHARGE

1. Connect a well-insulated ground strap to metal chassis.
2. Pivot Deflection Board Bracket.
3. Slide free end of ground strap under CRT anode cap until you make contact with anode.
4. Wait two minutes for charge recovery.
5. Repeat steps 1 through 3 a second time.

Monitor Bezel

Remove Rear Door, Top Cover Assembly, and electronics tray. Remove #8 nuts from inside bottom of monitor mounting bracket. (Do not remove nut holding cable clamp.) Hold bezel in place while removing screws holding top of bezel. Lift bezel up and off cabinet. Begin reinstallation with top screw nearest coin slot, then other top screw. Reinstall bottom screws in either order.



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

Monitor Mounting Bracket

Pivot Deflection Board Bracket and discharge anode twice. Replace Bracket and Remove monitor bezel. Disconnect Touchscreen Connector Cable. Unscrew #10 nuts holding Monitor Mounting Bracket to Cabinet and carefully remove. Disconnect any remaining wiring.



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.

Monitor

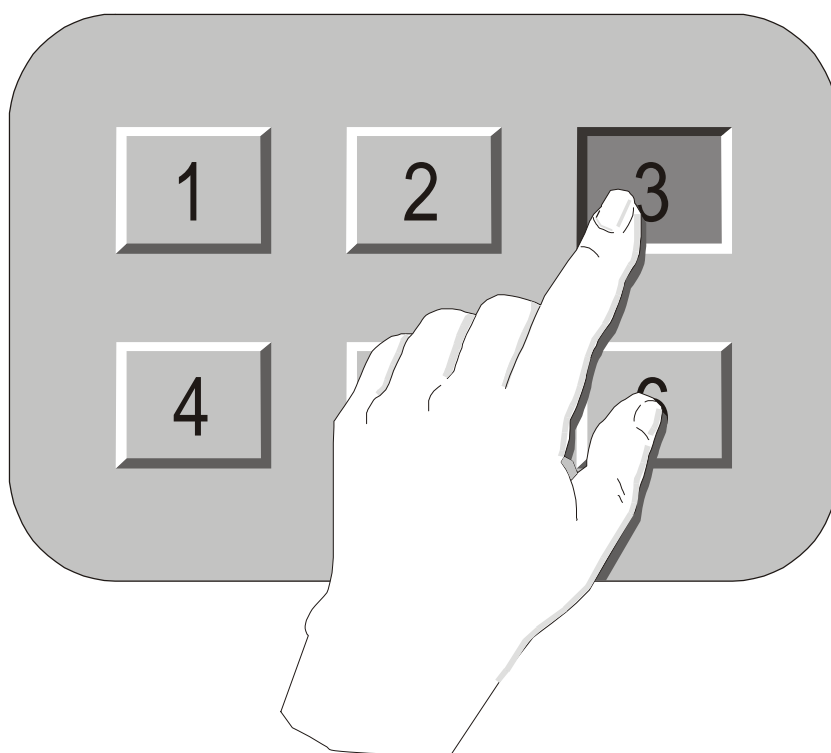


CAUTION: This is a difficult procedure. Only qualified service personnel should attempt to remove the monitor, neckboard, and Deflection Bracket—and only with the aid of an assistant.

1. Remove monitor bezel.
2. Pivot Deflection Board Bracket and discharge anode twice.
3. Unplug AC connector from Bracket and remove cables from cable clamp on cash chamber side of Bracket. Snip wire ties on cables leading to Bracket to allow more freedom of movement.
4. Unplug Touchscreen Connector Cable. Leave Touchscreen Controller in cabinet.
5. Remove nuts and washers from four studs at front of cabinet.
6. Unscrew remaining Deflection Board Bracket screw. Have assistant turn Bracket 90 degrees, but do not rest it on any other equipment.
7. Carefully pull monitor out front of cabinet while assistant guides Bracket out with monitor.



CHAPTER





System





NOTICE: This manual is subject to 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.


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.

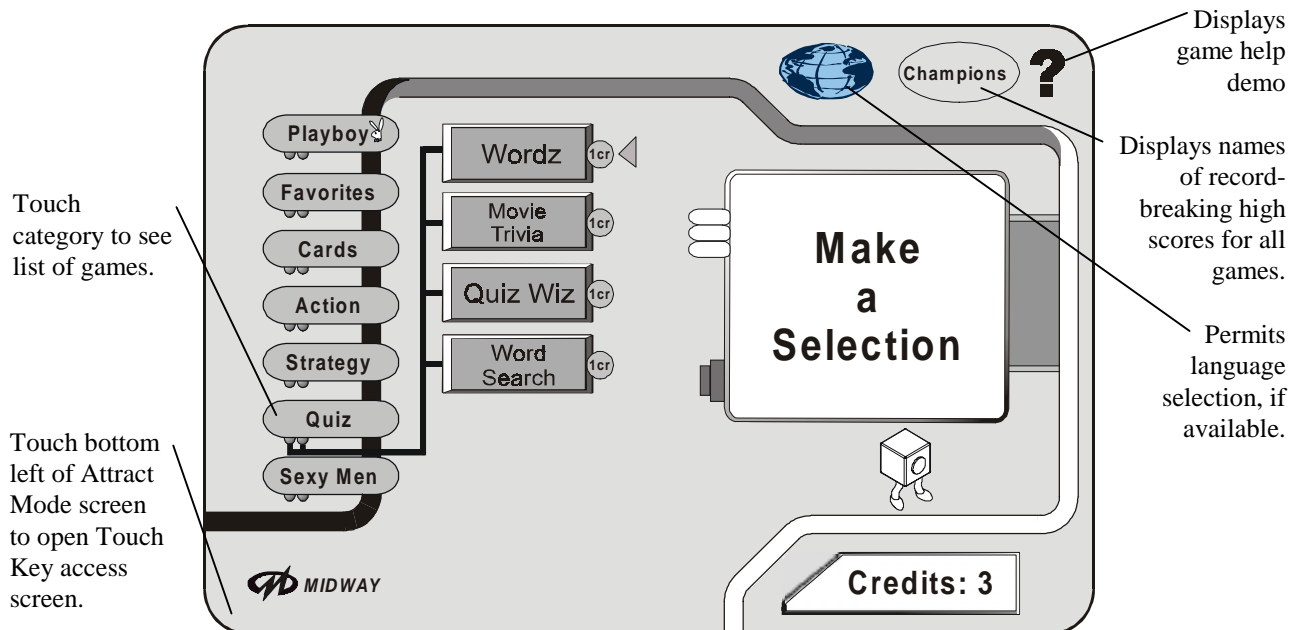
 Leaves Menu System and returns to Attract Mode.

 Returns to previous screen.

Entering the system

FULL MENU SYSTEM ACCESS

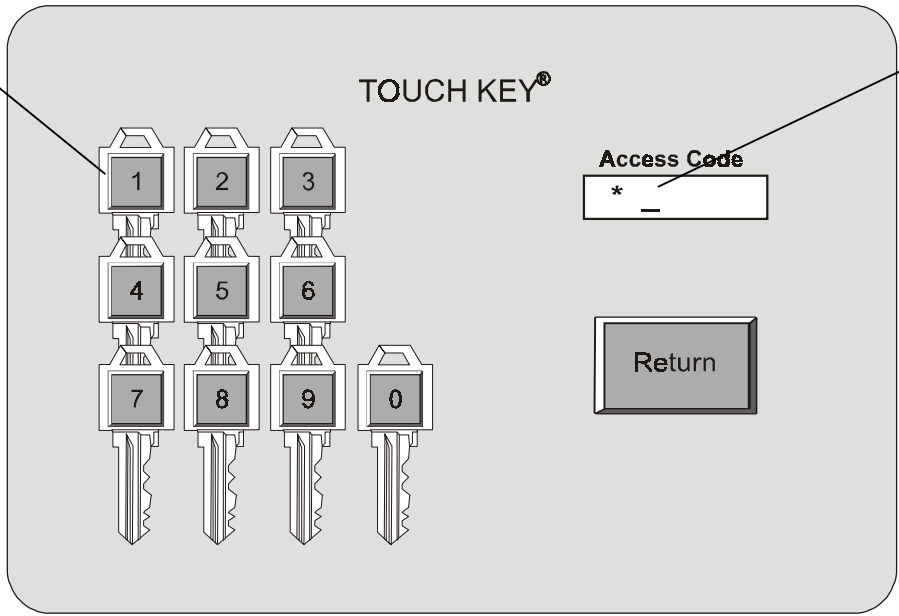
Open the Side Access Cover and press the TEST pushbutton.



TOUCHKEY (partial) MENU SYSTEM ACCESS

Touch the bottom left of the Attract Mode main screen to access the Touchkey 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.

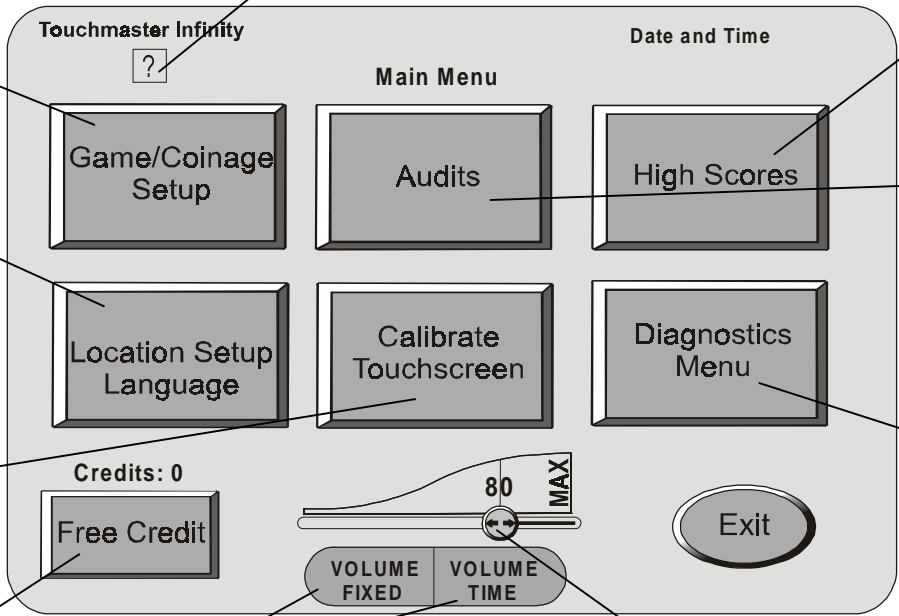
FULL MENU SYSTEM
MAIN MENU

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.



Shows software version.

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.

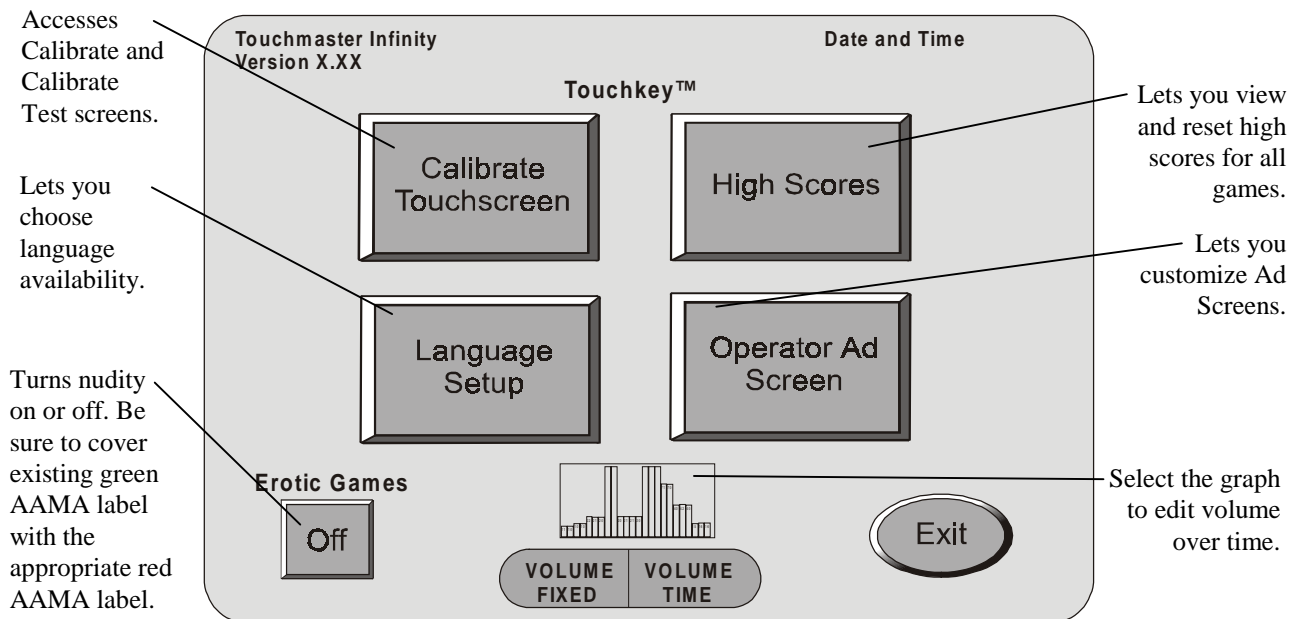
Move circle left or right to lower or raise volume.

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

By default the Volume Fixed mode is visible.

TOUCHKEY MENU SYSTEM

MAIN MENU



FULL MENU SYSTEM

MAIN MENU

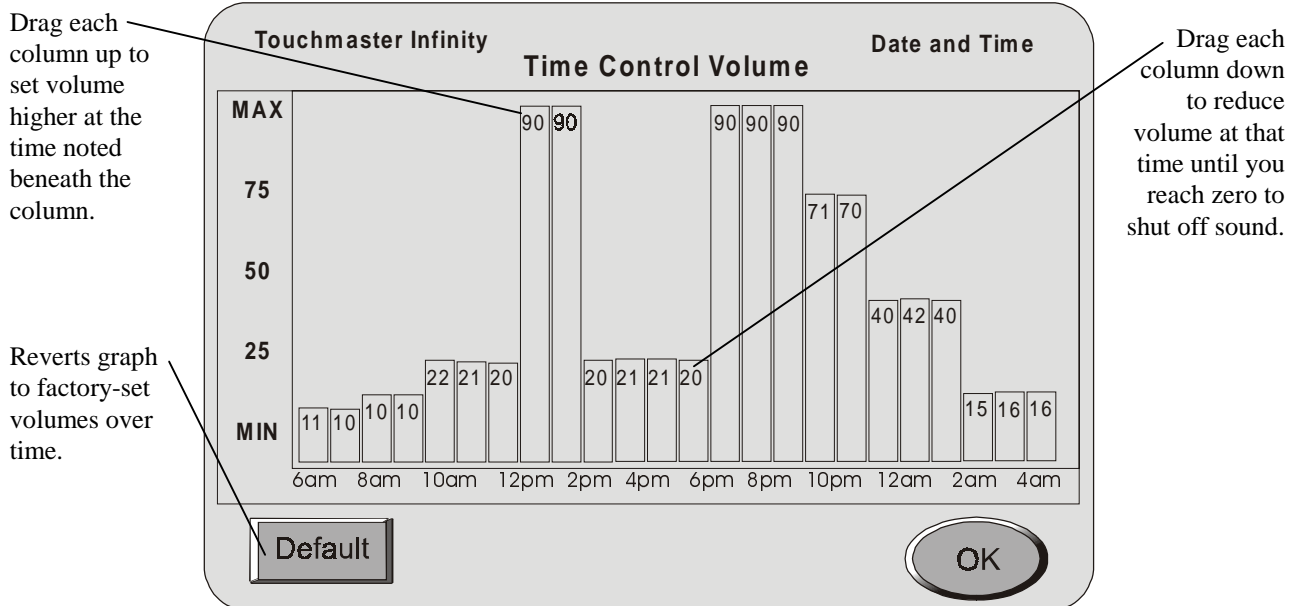
VOLUME TIME

or

TOUCHKEY MENU SYSTEM

MAIN MENU

VOLUME TIME

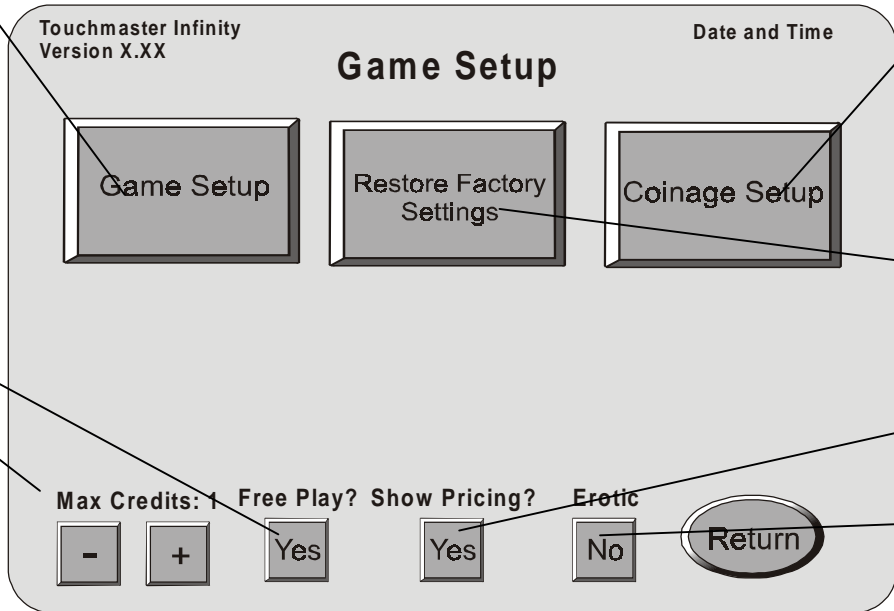


FULL MENU SYSTEM
GAME/COINAGE SETUP

Lets you modify both global and specific game characteristics.

Enables unlimited free play.

Players can accumulate as few as 1 and as many as 99 credits in the machine.



Shows a variety of countries and their preset coinage setups.

Resets Adjustments, Audits, and High Scores.

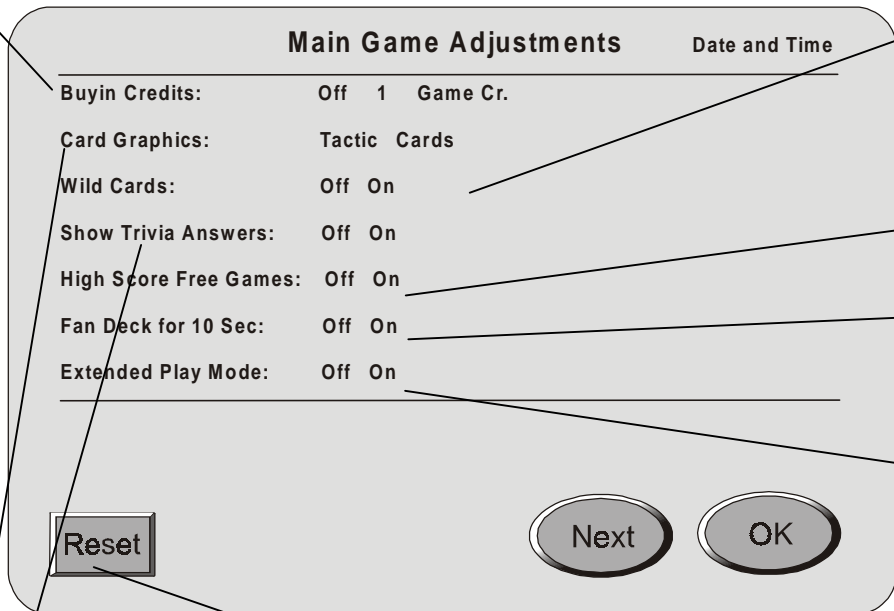
Shows cost of a credit.

Enables erotic games.

FULL MENU SYSTEM
GAME/COINAGE SETUP
GAME SETUP

Some games (like Mah Jongg) permit players to continue after time runs out. You can prevent continuation (Off), or price the continuation at either one (1) credit or the cost of the original game (Game Cr.)

Changes cards to tiles and retitles the "Card" category to "Tactic."



Disables or allows wild cards in games

Rewards top scorer with free game.

After shuffle, displays all cards for 10 seconds.

When on, certain games repeat until time expires. When off, usually only two rounds are played.

Gives right answer after a wrong guess.

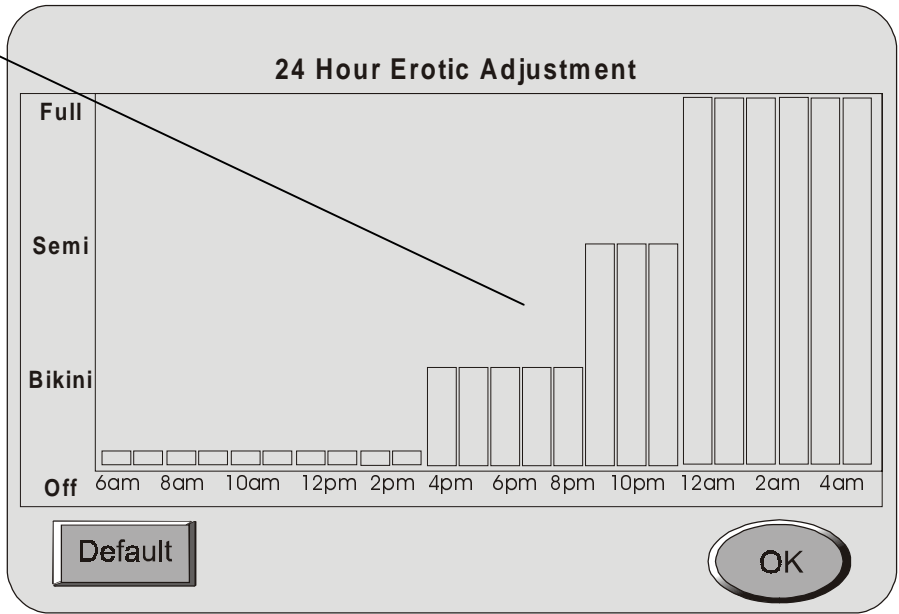
Resets game adjustments to factory defaults.

FULL MENU SYSTEM
GAME/COINAGE SETUP
Erotic Games On

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 semi-nude or fully 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

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

Game Adjustments

Game	Credits	Bonus
1. 3 Peak Deluxe	1	A
2. 5 Star Generals	1	A
3. Artifact	1	A
4. Crystal Balls	1	A
5. Double Take	1	A
6. Erotic Male Solitaire	1	A
7. Hot Hoops	1	A
8. Lines of Sight	1	A
9. Mah Jongg Pairs	1	A
10. Mahki	1	A

Touch Game To Adjust

PgUp, Adj. All, PgDown, Next, OK

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.

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 HiScores 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.

Touchmaster Infinity
Date and Time

Coinage Values

Australia	Euro	Italy	Sweden
Belgium	Finland	Japan	Switzerland
Brazil	France	New Zealand	UK
Canada	Germany	Spain	USA
	Token	Custom	

Free Play
Yes

Return

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.

Touchmaster Infinity Date and Time

Country Name
Coinage Value

Preset 1

1 Coin = 1 CR

Preset 2

1 Bill = 6 CR

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.

Touchmaster Infinity Date and Time

Custom
Coinage Values

Units/Pulse		Units/Pulse	
Mech1	0	Elec1	0
Mech2	0	Elec2	0
Bill1	0	Elec3	0
Units for Bonus	0	Elec4	0
Units/Credit	0	Elec5	0
Minimum Units	0	Elec6	0

Show Fractions

Switch to Audits

Return

OK

FULL MENU SYSTEM
AUDIT MENU

Touchmaster Infinity
Version X.XX

Audits Date and Time

Shows a series of screens that summarize game popularity, revenues, player continuations, etc.

View Audits

Report Audits to PC - Allows you to send audit information to a printer or a PC.

Print to NSM Data Print 3000 - Prints data, if you are already hooked up to a printer.

Return

FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS

Audits

Number of one- and two-player games.

Total 1P Games 0

Total 2P Games 0

Total Time Buys 0

TOTAL GAMES PLAYED 0

AVERAGE GAME PLAYTIME 0:00

Number of play continuations bought.

Playboy: 0 Word: 0

Top: 0 Sexy Men: 0

Card: 0 Tactic: 0

Action: 0

Tournament: 0

Skill: 0

Tallies plays by category

Clears all game audit information.

Reset

Next **OK**

FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next

Date and Time

Coinage Audits

Mech 1 Count	0	Bill 1 Count	0
Mech 2 Count	0	Service Credits	0
Elec 1 Count	0	Normal Credits	0
Elec 2 Count	0	Bonus Credits	0
Elec 3 Count	0		
Elec 4 Count	0		
Elec 5 Count	0		
Elec 6 Count	0		

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

Name	Plays	Time	
1. 3 Peak Deluxe	0 0%	0:00	
2. 5 Star Generals	0 0%	0:00	
3. Artifact	0 0%	0:00	
4. Crystal Balls	0 0%	0:00	<input type="button" value="PgUp"/>
5. Double Take	0 0%	0:00	
6. Erotic Male Solitaire	0 0%	0:00	
7. Hot Hoops	0 0%	0:00	
8. Lines of Sight	0 0%	0:00	<input type="button" value="PgDown"/>
9. Mah Jongg Pairs	0 0%	0:00	
10. Mahki	0 0%	0:00	

Sorts games alphabetically by name.

Select a game to view a variety of audit details.

Sorts games by length of average play.

Sorts games by popularity.


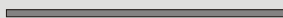

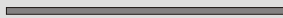











Scrolls through game list.

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

FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next

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

Top Games Date and Time

1. Pairs	(12)	
2. Artifact	(11)	
3. Playboy Jet Set	(11)	
4. Playboy Mahki	(11)	
5. Target 21	(8)	
6. Playboy Undercover	(7)	
7. 3 Peak Deluxe	(4)	
8. 5 Star Generals	(4)	
9. Crystal Balls	(2)	
10. Double Take	(2)	
11. Solitaire Classic	(2)	
12. Hot Hoops	(2)	
13. Lines of Sight	(2)	
14. Mah Jongg Pairs	(2)	
15. Mahki	(2)	

Reset Next Return

Clears all game audit information—not just this screen.

FULL MENU SYSTEM
AUDIT MENU
VIEW AUDITS
Next

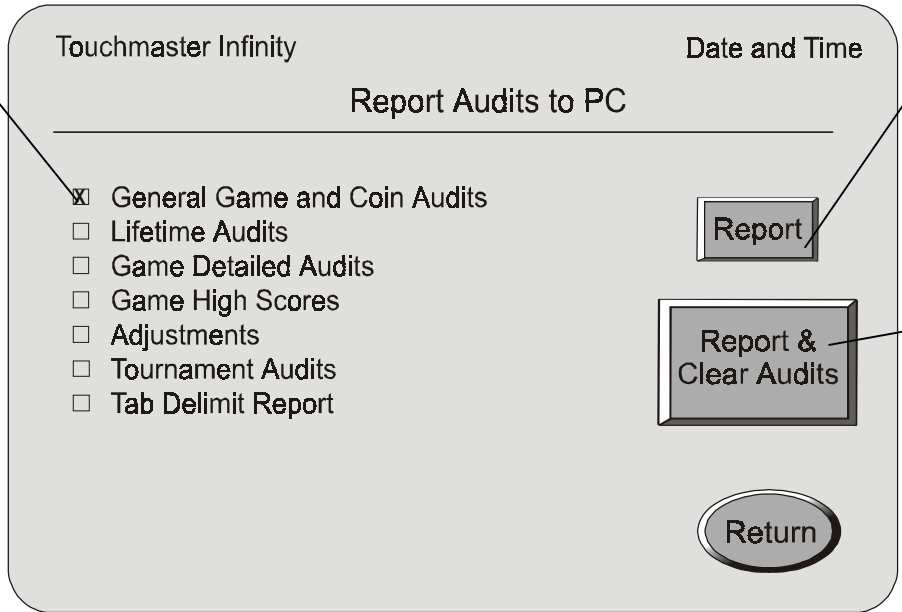
Lifetime Audits Date and Time

1. 3 Peak Deluxe	41	13. Pairs	41
2. 5 Star Generals	2	14. Pickup 6	2
3. Artifact	17	15. Playboy Jet Set	17
4. Crystal Balls	3	16. Playboy Mahki	3
5. Double Take	1	17. Playboy Undercovers	1
6. Erotic Male Sol	6	18. Quiz Wiz	6
7. Hot Hoops	3	19. Solitaire Classic	3
8. Lines of Sight	3	20. Super-Score Solotaire	3
9. Mah Jongg Pairs	3	21. Target 21	3
10. Mahki	3	22. View Finder	23
11. Male Strip Poker	3	23. Word Search	3
12. Movie Trivia	3	24. Wordz	3

Next OK

FULL MENU SYSTEM
AUDIT MENU
REPORT AUDITS

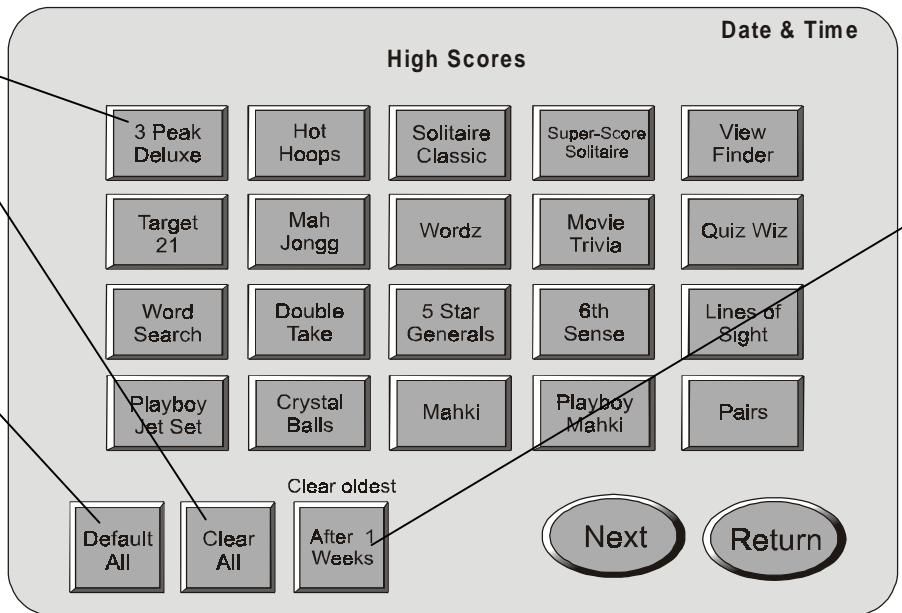
Checking this button prepares a table of audits.
 Checking any other box will give that information in simple list format.
 In some cases this screen is replaced by a blue screen and the note: "Printing."



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.

1 and 2 Player Scores	
1. IZZY	84450
2. KKM	34520
3. BKM	11050
4.	0
5.	0
6.	0
7.	0
8.	0
9.	0
10.	0

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.

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.

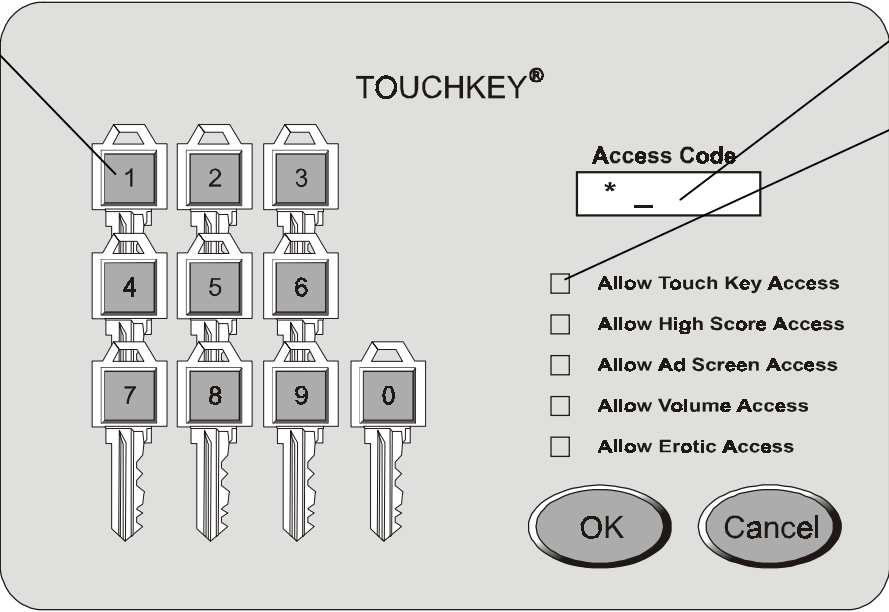
Lets you name and number Touchmaster® Infinity machines at your location.

- 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.

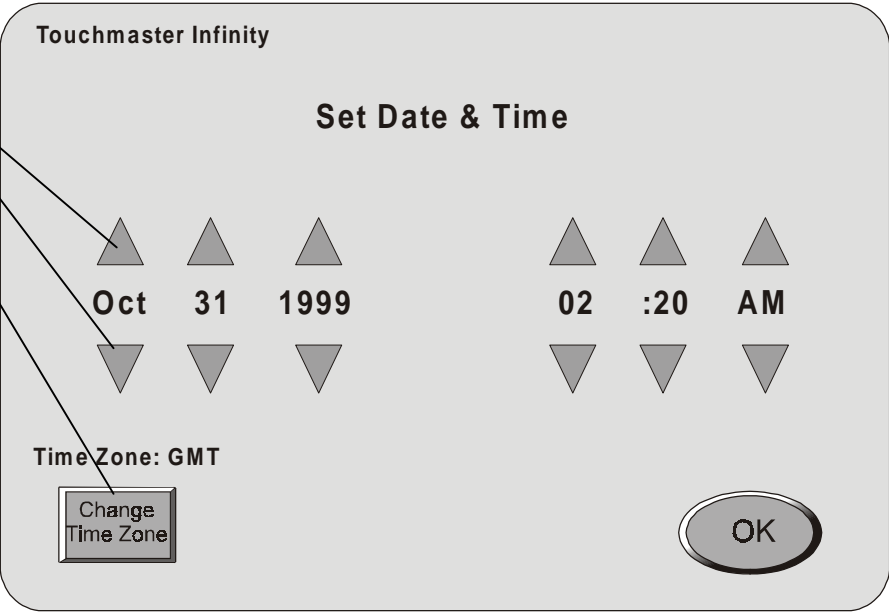
Check this box to make the PIN active. Buttons beneath determine how much control a Touch Key user has.

- 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**

Touch the spot on the Ad Screen design workspace where text or graphic should appear.

Shows keyboard for entering messages.

Touch clip art to place on Screen.

Displays background scenes.

Scrolls through graphics choices.

Background choices include two default ad screens announcing new games. One includes Playboy® games. The other does not announce erotic software.

Deletes selected elements.

Forgets all changes.

Displays the Ad Screen in full-screen mode.

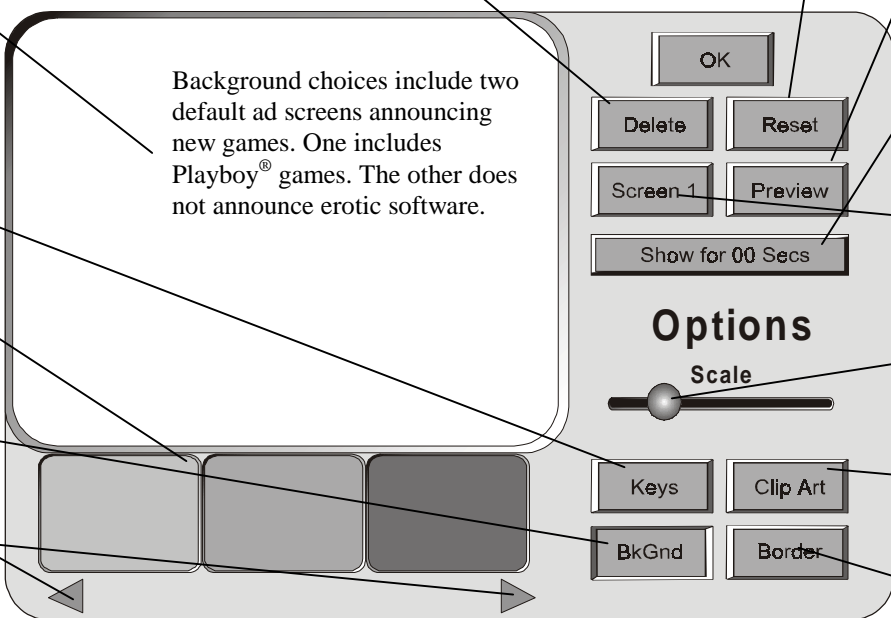
Sets duration the Screen displays in Attract Mode.

Toggles between the 4 Ad Screens.

Enlarges or shrinks selected element.

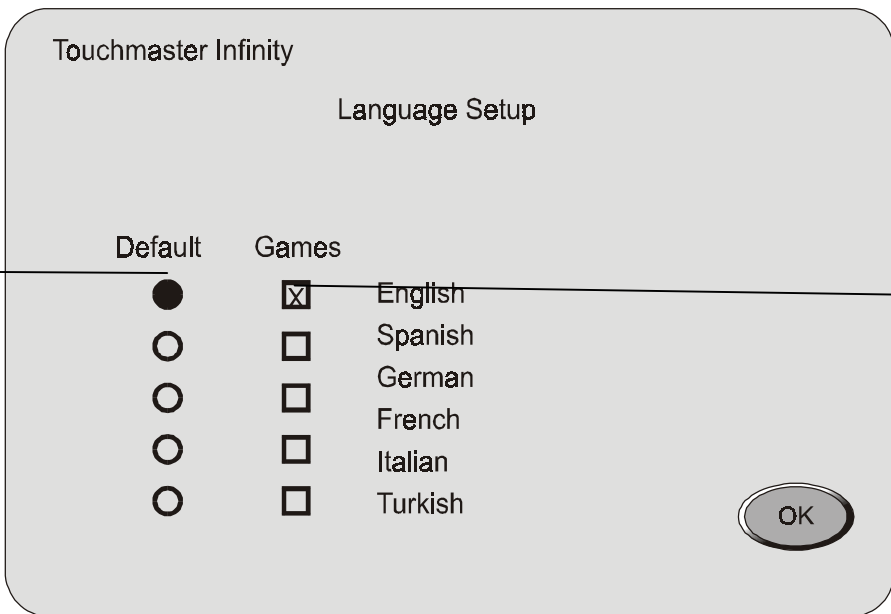
Shows pictures you can include in Ad Screens.

Displays borders.



- FULL MENU SYSTEM**
- LOCATION SETUP**
- LANGUAGE SETUP**

Sets the language of Attract Mode, help screens, system software, and some games. You can have only one default.



Players can override your default and choose from languages you make available by checking boxes here. You can check multiple boxes.

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP

Tournament Setup screens are only available if your Touchmaster® senses the presence of a modem card. In order to participate in tournaments, contact Midway Amusement Games, LLC for registration information.

Touchmaster Infinity
Version X.XX

Tournament Setup Date and Time

View Audits (Callout: Lists Tournament participants.)

Disable Tournament (Callout: Shuts off Tournament Mode)

Modem Setup (Callout: Allows you to prepare the internal modem to place calls.)

Dial Settings (Callout: Takes you to an interactive questionnaire that helps place a modem phone call.)

Back

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP
VIEW AUDITS

Touchmaster Infinity
Version X.XX

Tournament Audits Date and Time

Name	ID	Plays
1 Player One		
2 Player Two		
3 Player Three		
4 Player Four		
5 Player Five		
6 Player Six		
7 Player Seven		
8 Player Eight		

Next **OK**

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP
MODEM SETUP

Tournament Setup screens are only available if your Touchmaster® senses the presence of a modem card. In order to participate in tournaments, contact Midway Amusement Games, LLC for registration information.

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

Touchmaster Infinity

Modem Setup

Do you need to dial anything to get an outside line?
 Do you have call waiting?
 Does your phone support tone dialing?

1	2	3	4	5	6	7	8	9	0	*	#	,	!	BS
A	B	C	D	E	F	G	H	I	J	K	L	M	&	-
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	←	→

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

FULL MENU SYSTEM
LOCATION SETUP
TOURNAMENT SETUP
DIAL SETTINGS

Type the primary and backup phone numbers.

Touchmaster Infinity

Dial Settings

Primary #

Backup #

Dial Between

Last Call Status

1	2	3	4	5	6	7	8	9	0	*	#	,	!	BS
A	B	C	D	E	F	G	H	I	J	K	L	M	&	-
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	←	→

Dials the primary number immediately.

Dials the backup number immediately.

Sets timeframe in which to attempt call.

Displays result codes from last call.

FULL MENU SYSTEM
LOCATION SETUP
GAME LOC./NO. SETUP

Touchmaster Infinity

Game Location

[Redacted Input Field]

OK

1	2	3	4	5	6	7	8	9	0	*	#	,	!	BS
A	B	C	D	E	F	G	H	I	J	K	L	M	&	-
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	←	→

You can identify the location (bar, arcade, etc.) of your game.

FULL MENU SYSTEM
LOCATION SETUP
GAME LOC./NO. SETUP
OK

Touchmaster Infinity

Game Number

[Redacted Input Field]

OK

1	2	3	4	5	6	7	8	9	0	*	#	,	!	BS
A	B	C	D	E	F	G	H	I	J	K	L	M	&	-
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	←	→

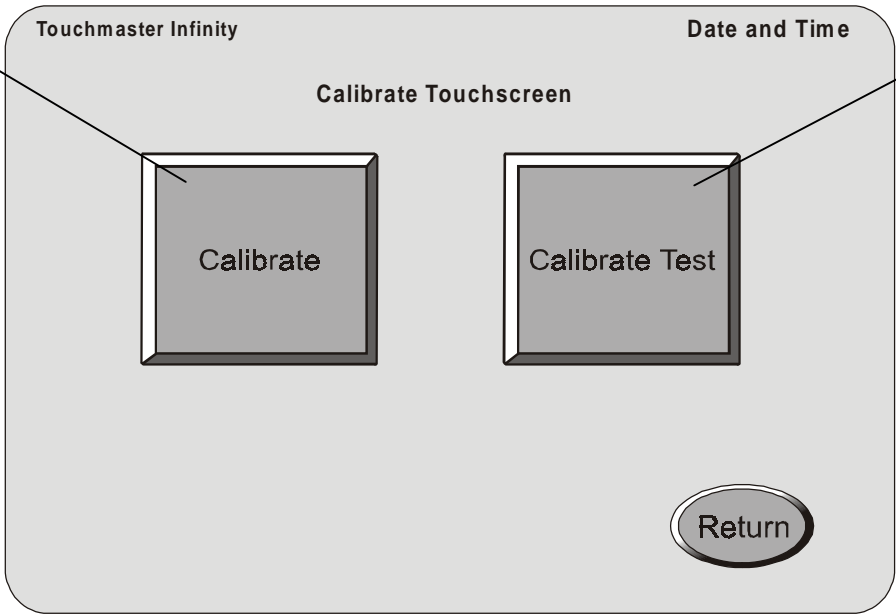
You can uniquely identify each game at a location.

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.



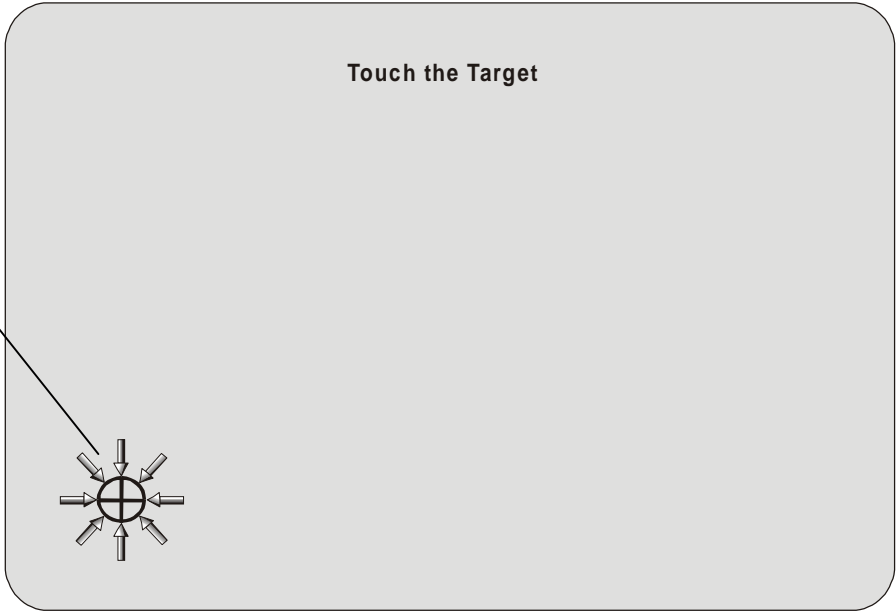
If you just want to verify calibration, touch this button.

FULL MENU SYSTEM
TOUCHSCREEN CALIBRATE
CALIBRATE

or

TOUCH KEY MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE

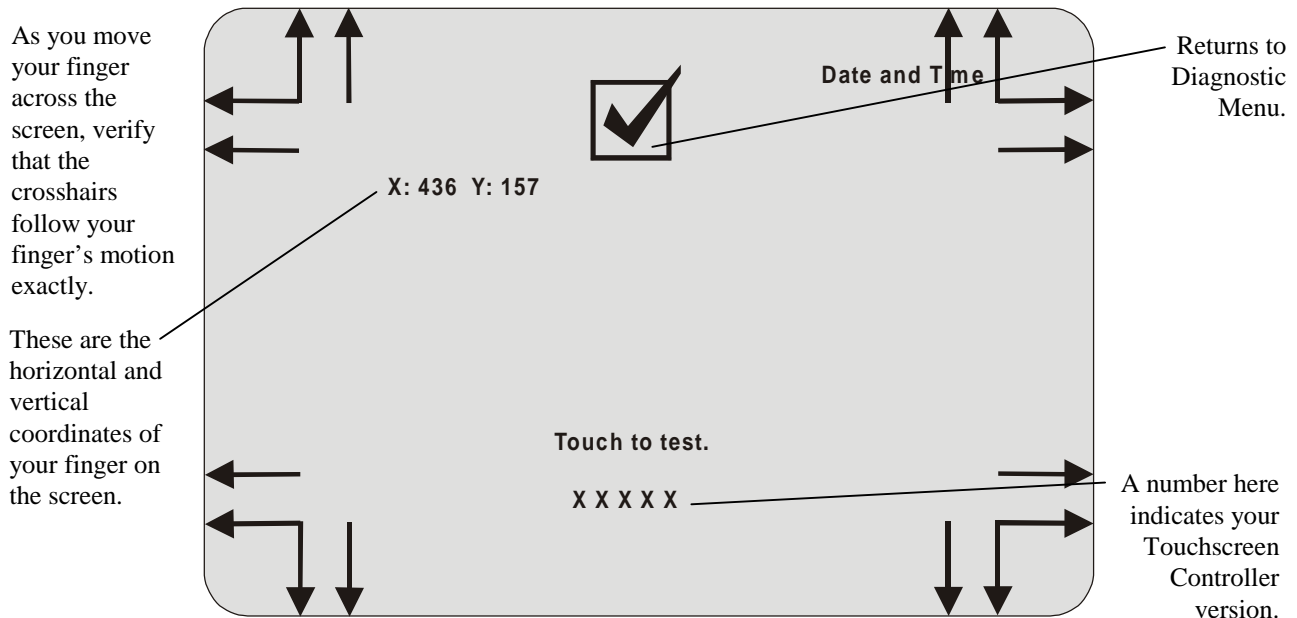
Touch the target dead center as it changes position on the screen.



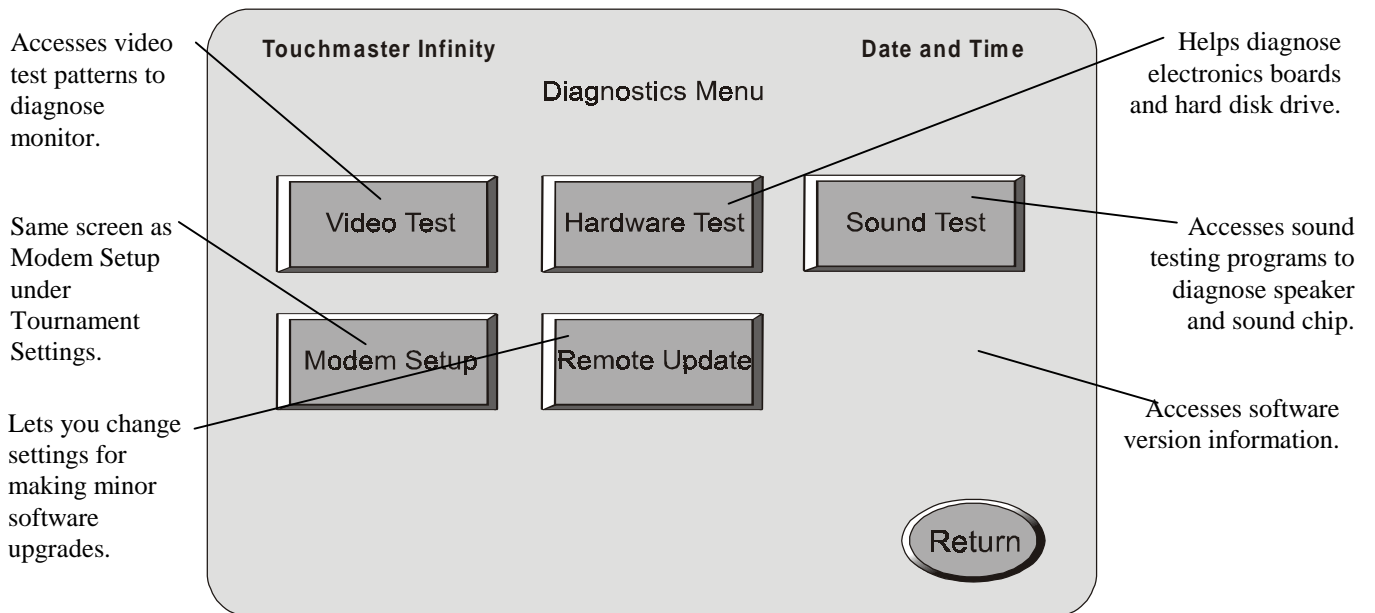
FULL MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE TEST

or

TOUCH KEY MENU SYSTEM
CALIBRATE TOUCHSCREEN
CALIBRATE TEST



FULL MENU SYSTEM
DIAGNOSTICS MENU



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.

Touchmaster Infinity **Date and Time**

Video Test

Alignment Grid **Color Purity** **Color Bars**

Return

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

Touchmaster Infinity **Date and Time**

Hardware Test

Dolphin I/O Test **Switch Test** **Driver Test**

File Integrity Check **Motherboard Test**

Return

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

Touchmaster Infinity
Date and Time

Dip Switches

1	<input checked="" type="checkbox"/>	(OFF) Invert Touchscreen
2	<input checked="" type="checkbox"/>	(OFF) Reserved
3	<input checked="" type="checkbox"/>	(OFF) Reserved
4	<input checked="" type="checkbox"/>	(OFF) Reserved
5	<input checked="" type="checkbox"/>	(OFF) Reserved
6	<input checked="" type="checkbox"/>	(OFF) Reserved
7	<input checked="" type="checkbox"/>	(OFF) Reserved
8	<input checked="" type="checkbox"/>	(OFF) Reserved (leave off)

Switch Test

1	<input checked="" type="checkbox"/>	(OPEN) Coin 1
2	<input checked="" type="checkbox"/>	(OPEN) Coin 1
3	<input checked="" type="checkbox"/>	(OPEN) DBV
4	<input checked="" type="checkbox"/>	(OPEN) Reserved
5	<input checked="" type="checkbox"/>	(OPEN) Reserved
6	<input checked="" type="checkbox"/>	(OPEN) Reserved
7	<input checked="" type="checkbox"/>	(OPEN) Calibrate
8	<input checked="" type="checkbox"/>	(Closed) Test

Electronic Coin Inputs

A	B	C	D	E	F	G
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Touch Screen to Exit

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.

Touchmaster Infinity
Date and Time

Driver Test

Unused	Unused	Unused	Unused
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OFF	OFF	OFF	OFF
Unused	Coin Meter	Unused	Unused
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OFF	OFF	OFF	OFF

System - 22

Midway Amusement Games, LLC

FULL MENU SYSTEM
DIAGNOSTICS MENU
HARDWARE TEST
FILE INTEGRITY CHECK

Date and Time

Scanning Files . .

Files Scanned:
 Dirs Scanned:
 Current Dir:
 Missing Files:
 Corrupt Files:
 Percent Done:
 Signature:

Error log:

FULL MENU SYSTEM
DIAGNOSTICS MENU
HARDWARE TEST
MOTHERBOARD TEST

Date and Time

CPU Type:
 CPU Speed:
 Available RAM:
 Hard Drive:
 HD Features:
 HD Serial:
 HD ROM Rev.:
 HD Geometry:
 Video Chip Model:
 Video RAM:

Touch Screen to Exit

- 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.

Touchmaster Infinity Date and Time

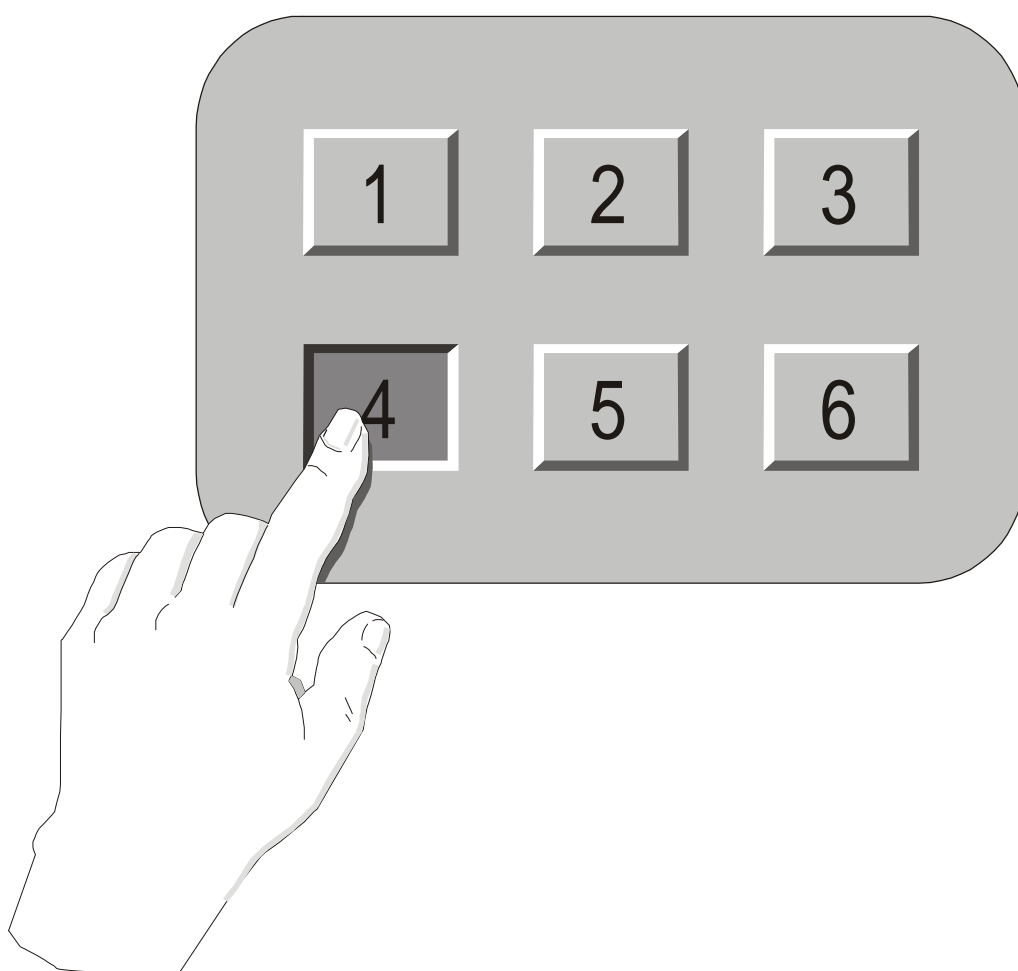
Sound Test

Game Sounds	500 Hz
1 KHZ	10 KHz

Back



CHAPTER



Parts

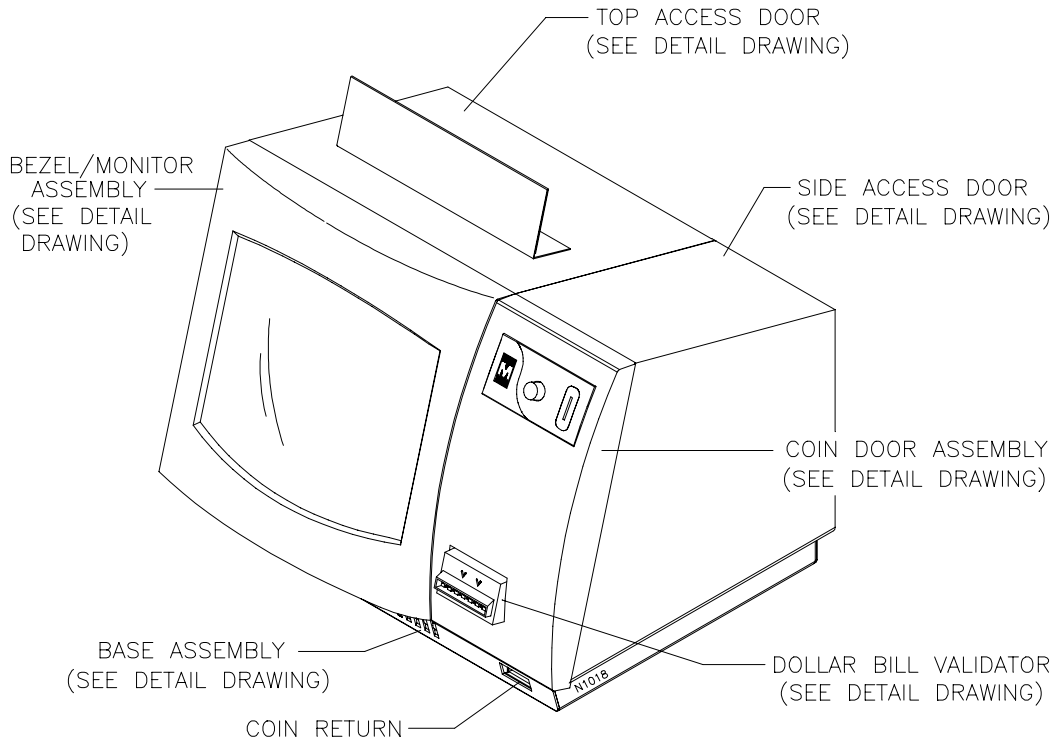


WARNING: Use of non-Midway Amusement Games, LLC parts or circuit modifications may cause serious injury or equipment damage. Use only Midway authorized parts.

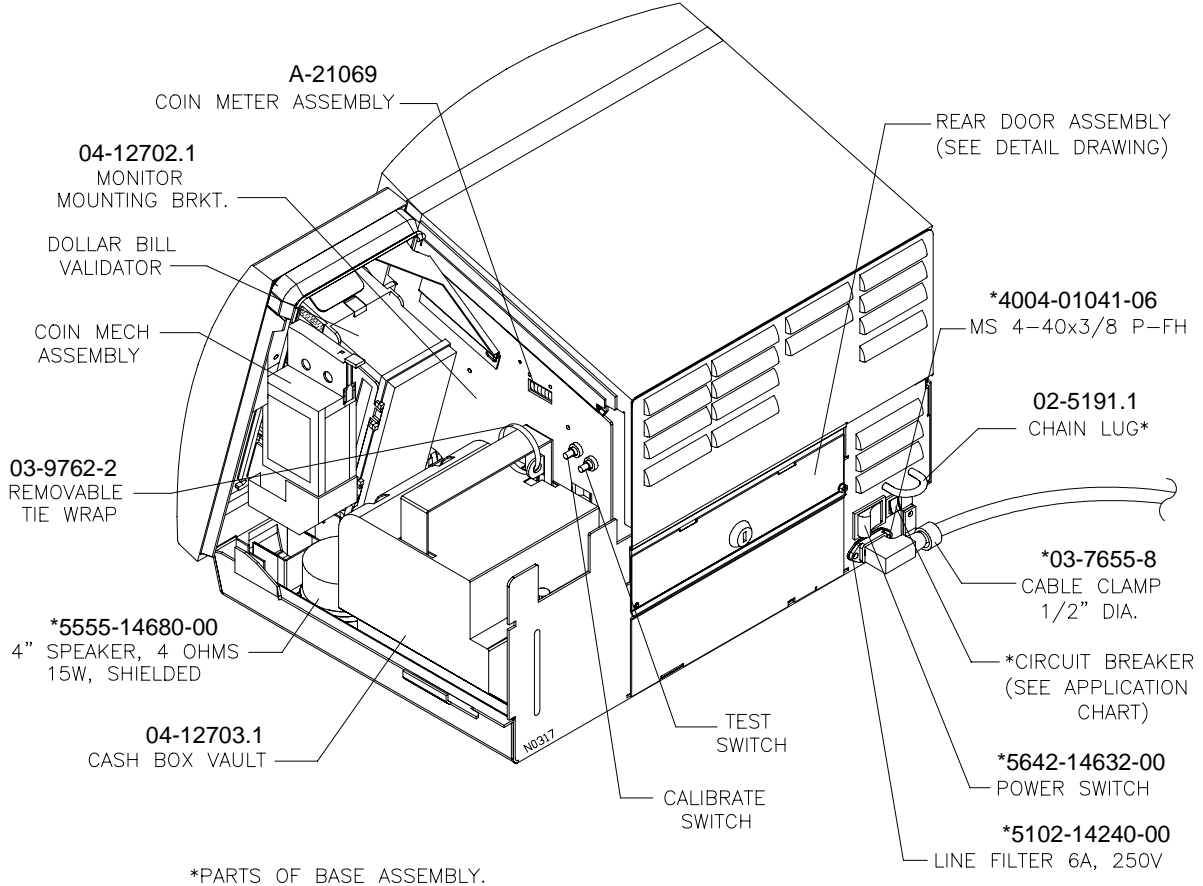
For safety and reliability, substitute parts and modifications are not recommended.

Substitute parts or modifications may void FCC type acceptance.

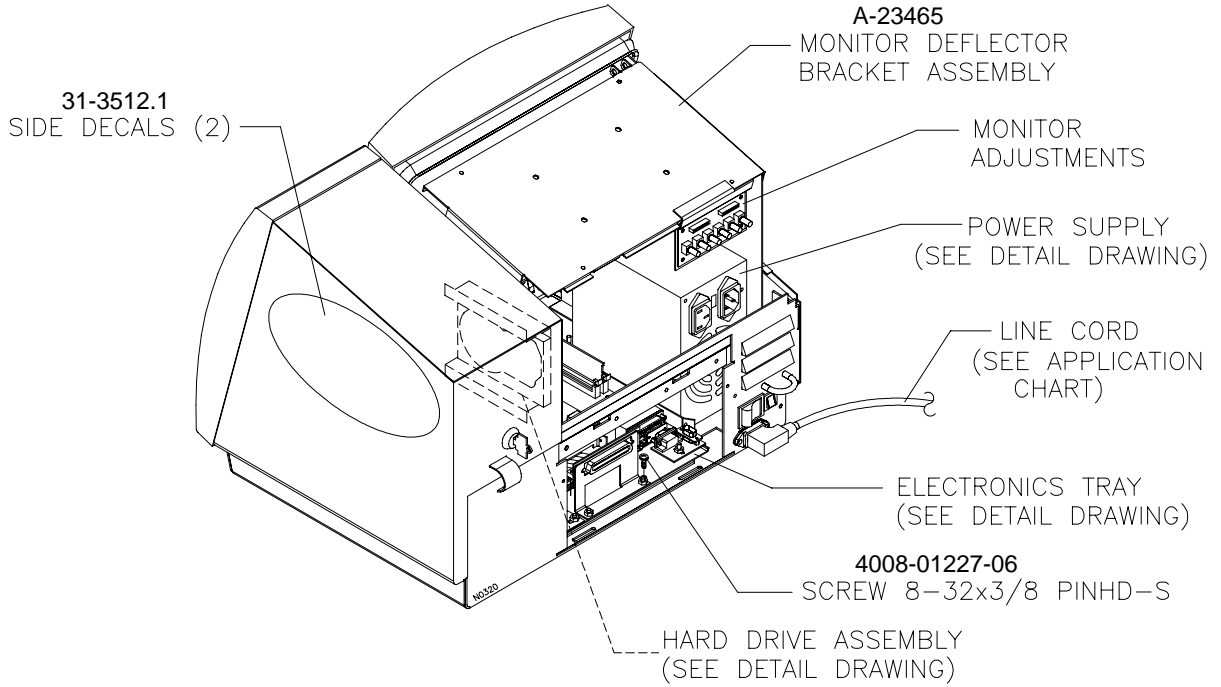
CABINET ASSEMBLY (Front View)



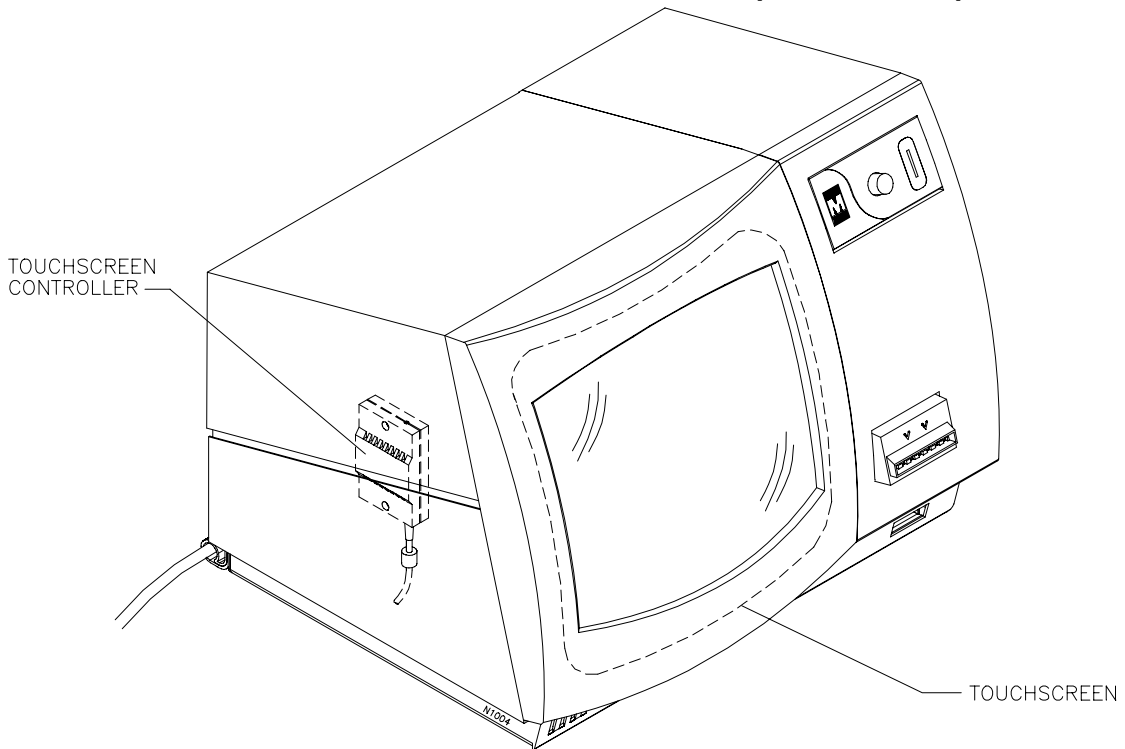
CABINET ASSEMBLY (Rear View)



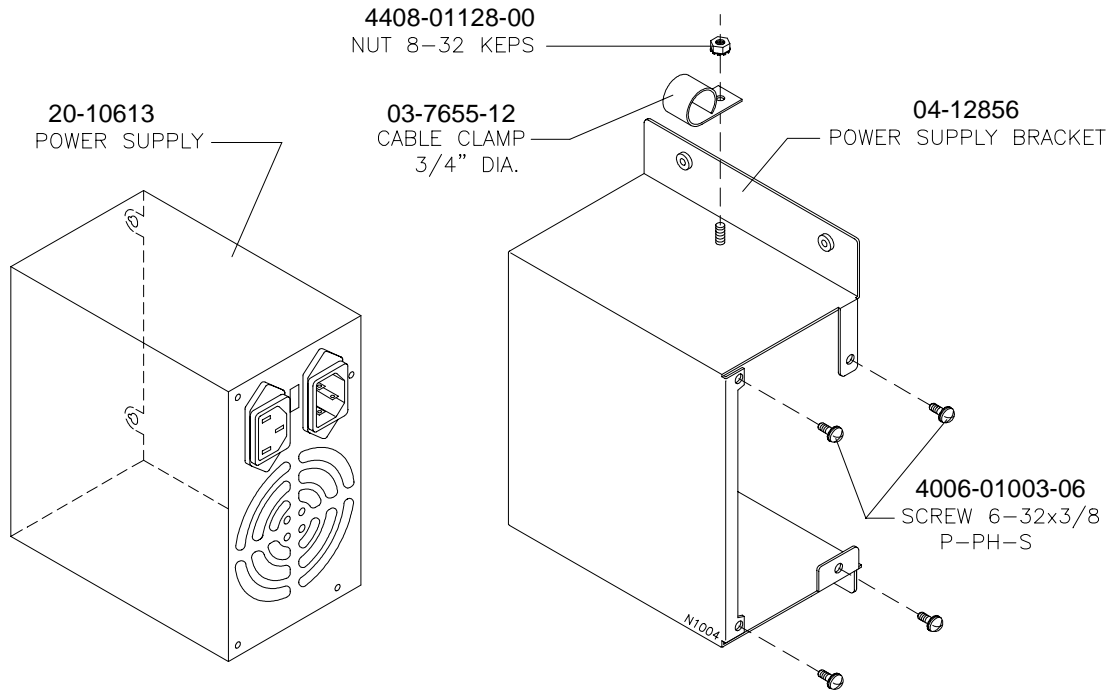
CABINET ASSEMBLY (Rear View)



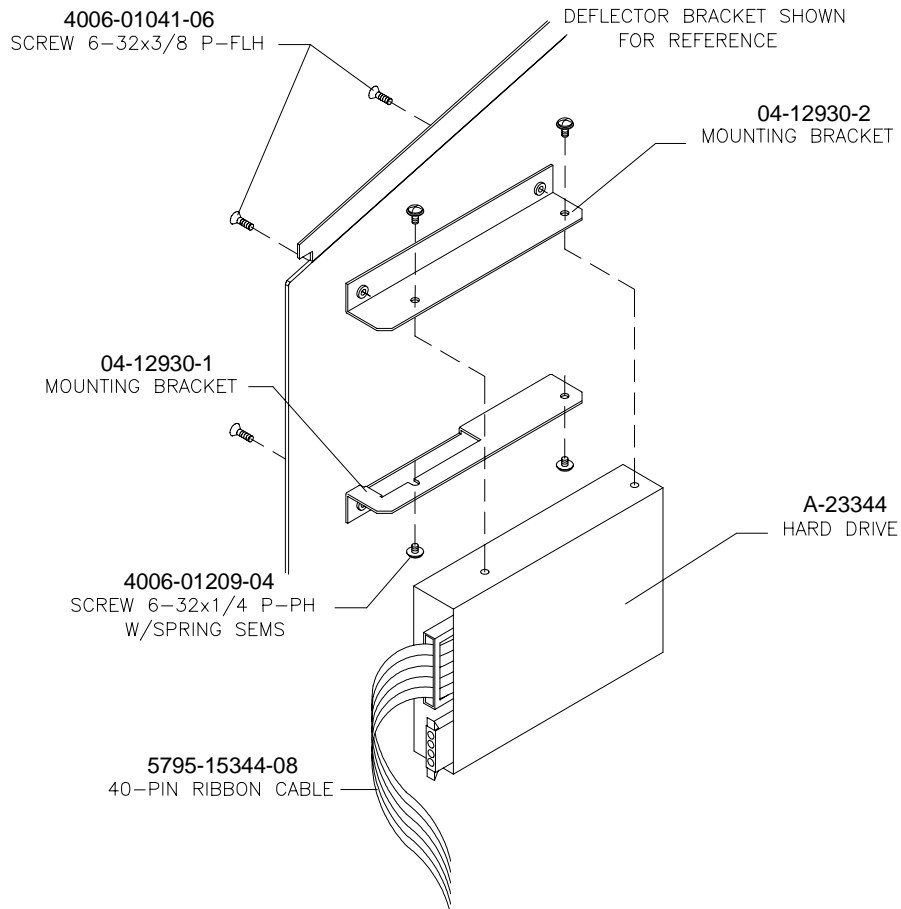
TOUCH SCREEN COMPONENTS (Front View)



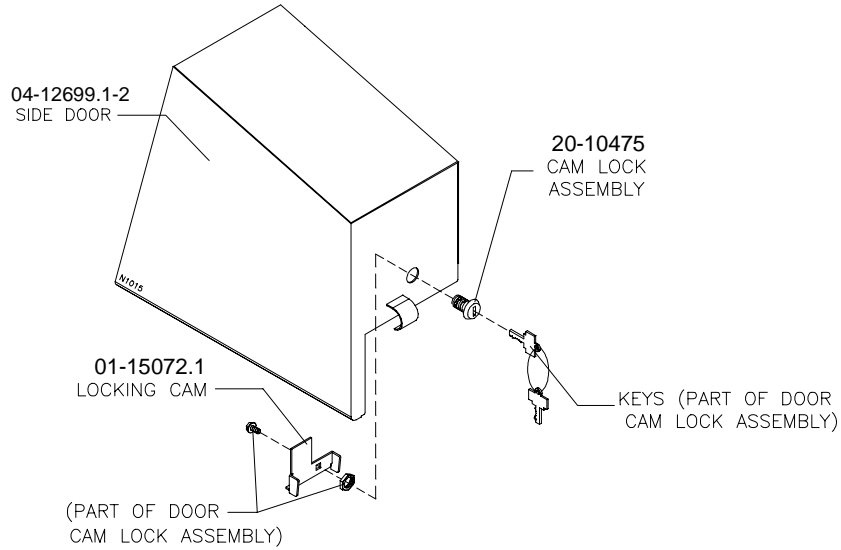
POWER SUPPLY (A-23340)



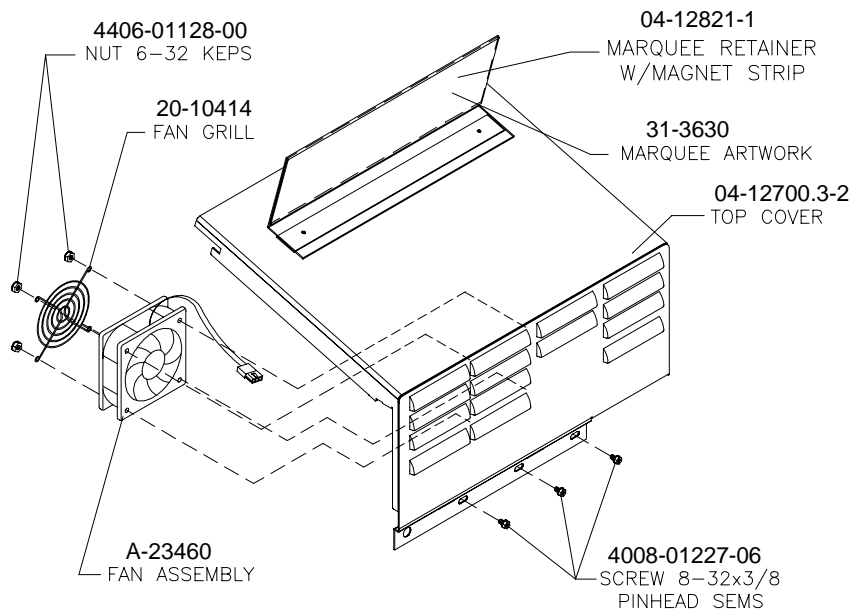
HARD DRIVE/BRACKET ASSEMBLY (A-23343)



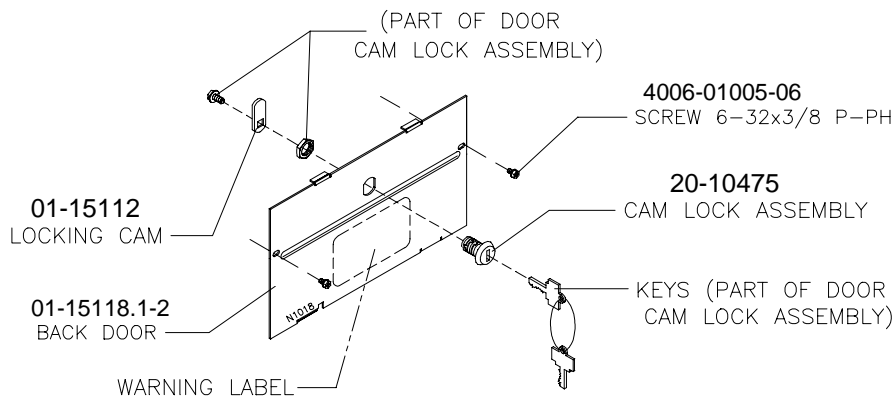
SIDE DOOR ASSEMBLY (A-23337-2)



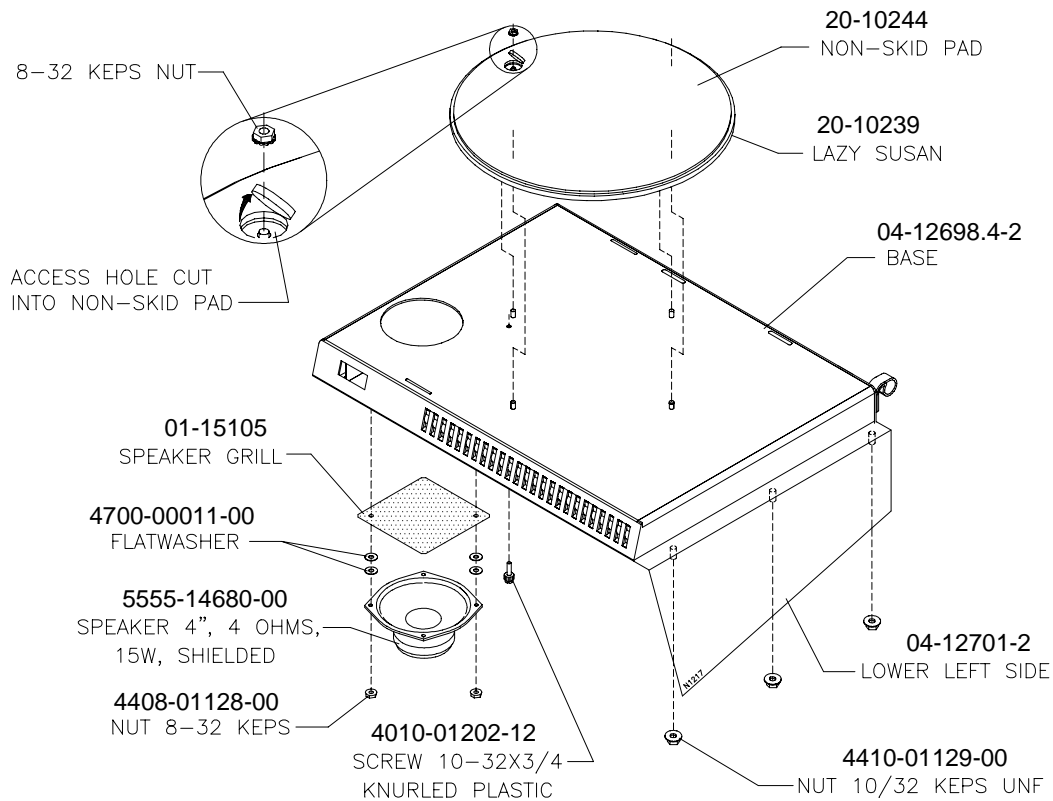
TOP COVER ASSEMBLY (A-23338-2)



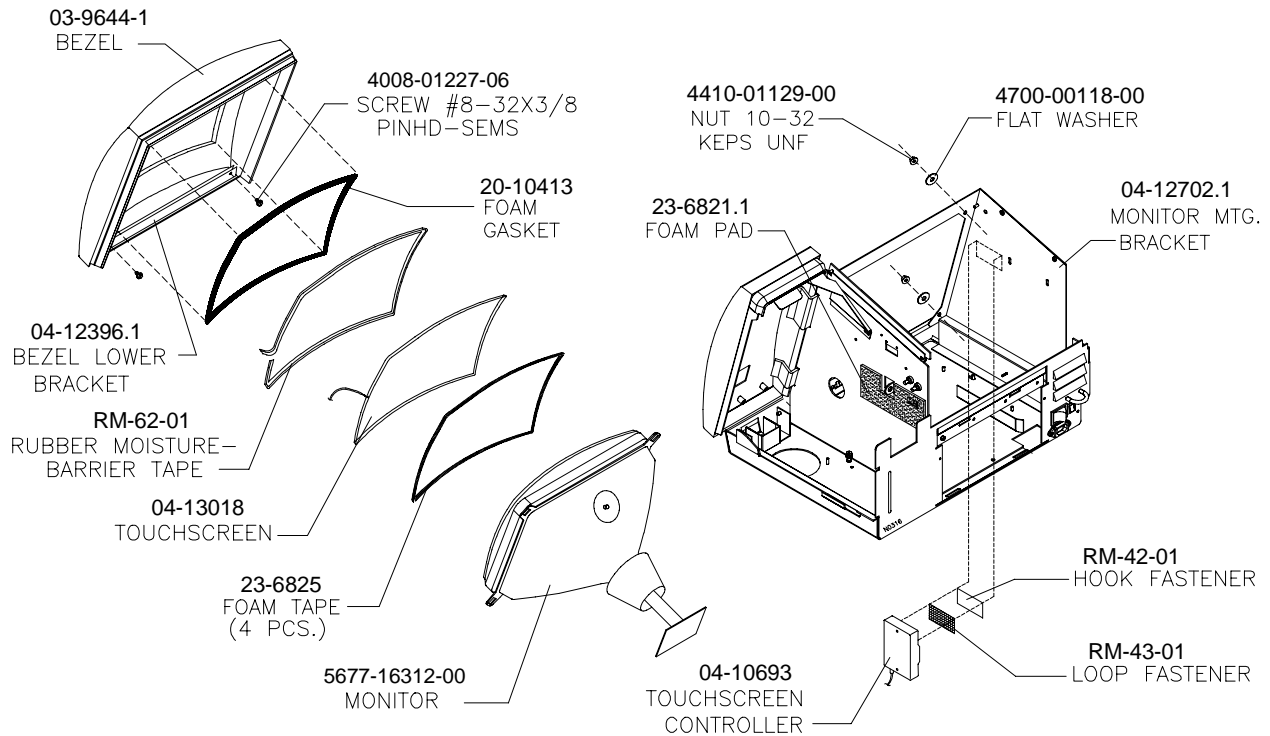
REAR DOOR ASSEMBLY (A-23390-2)



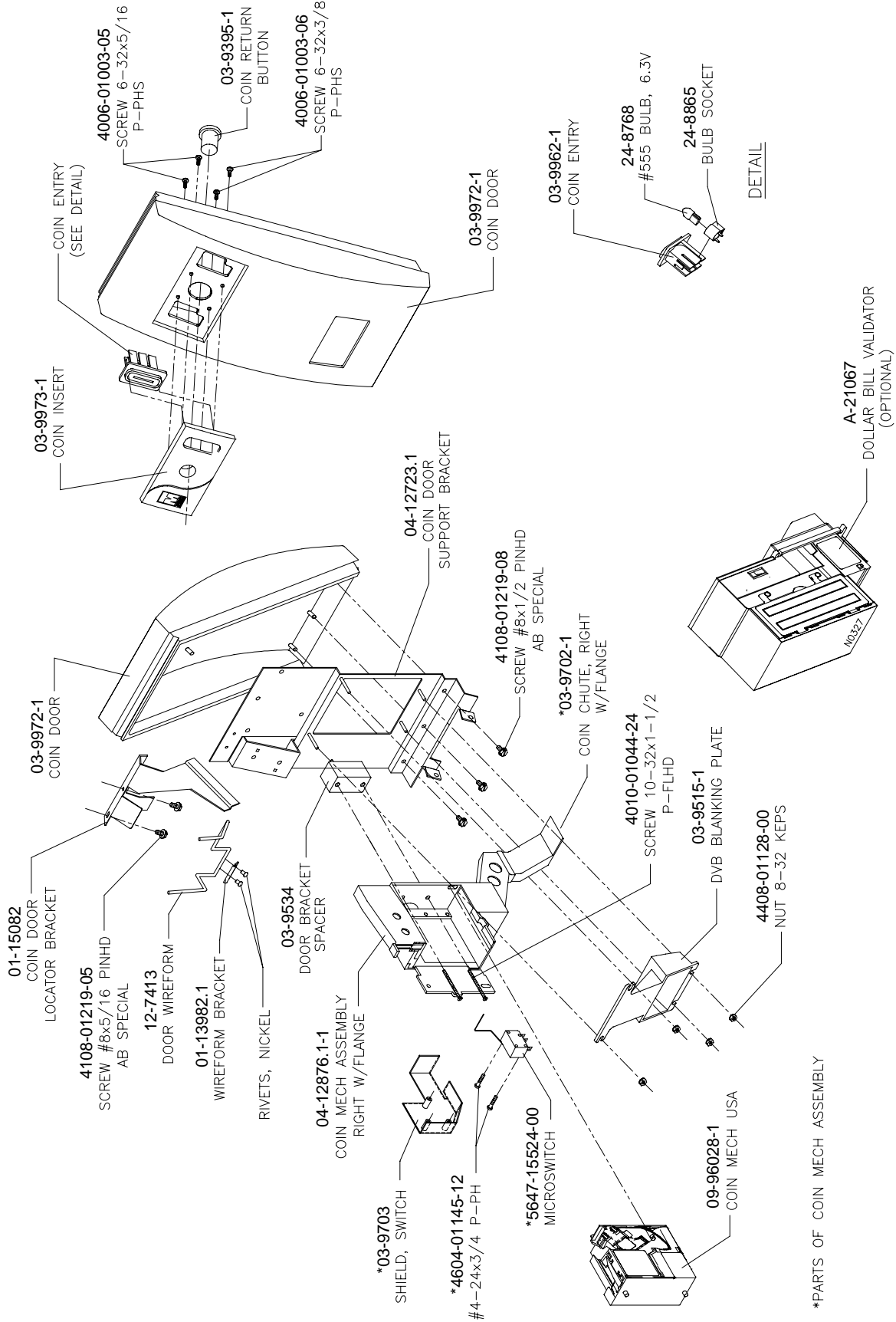
BASE ASSEMBLY (BOTTOM VIEW, A-23336-2)



MONITOR MOUNTING BRACKET ASSEMBLY (A-23335)

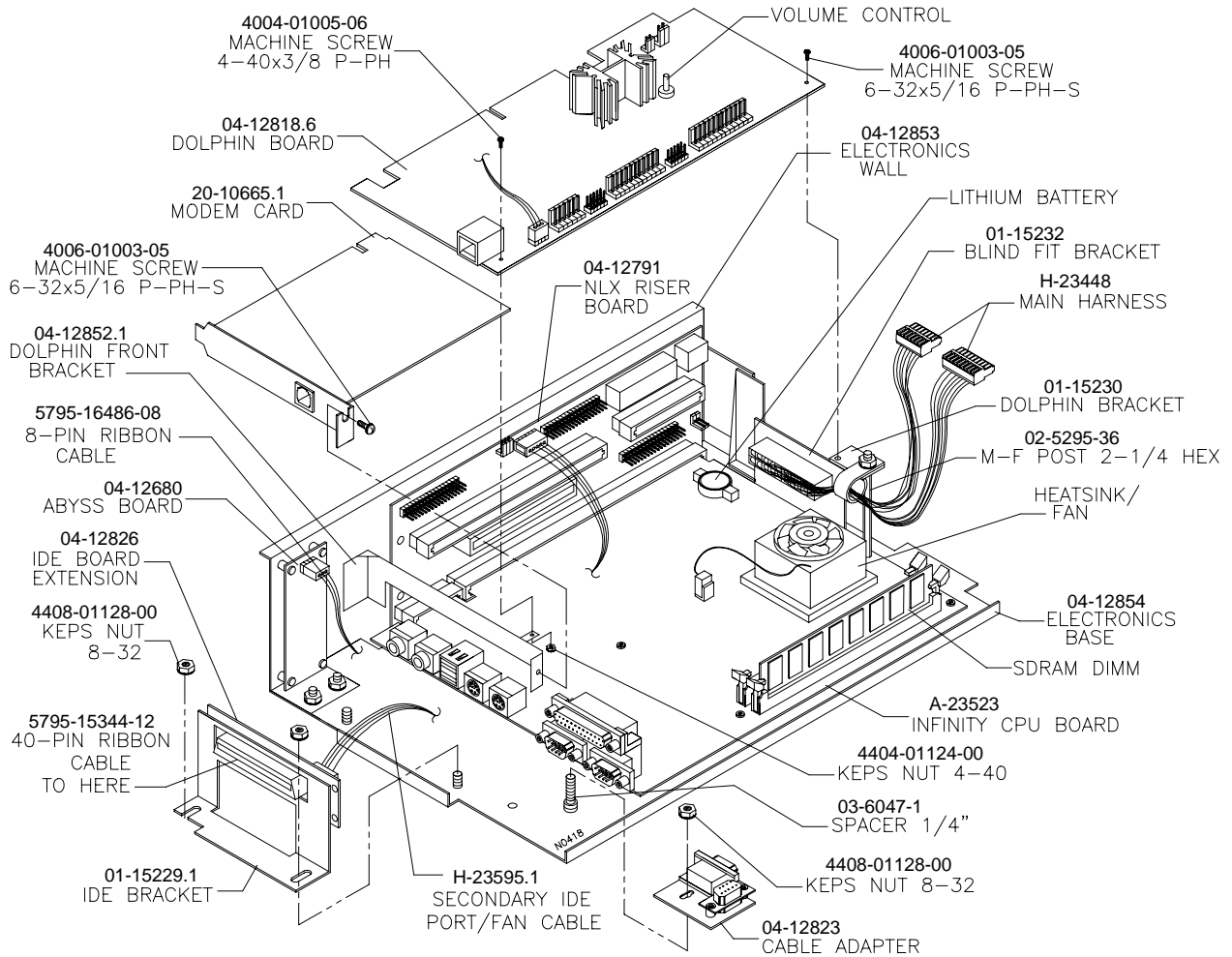


COIN DOOR ASSEMBLY, U.S. DOLLAR BILL VALIDATOR READY (A-23334-2)



*PARTS OF COIN MECH ASSEMBLY

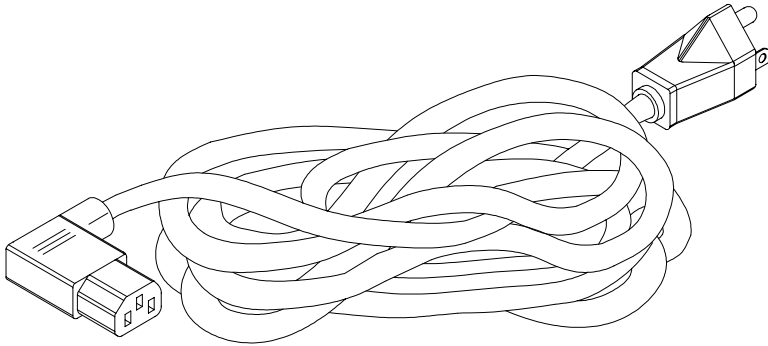
CPU BOARD ASSEMBLY (A-23341)



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.

LINE CORD APPLICATION CHART

Part Number Country	5850-14699-00	5850-14699-01	5850-14699-02	5850-14699-03	5850-14699-04	5850-14699-05	5850-14699-06	5850-14699-07
USA		■						
UK				■				
Italy	■							
Japan		■						
New Zealand						■		
Germany			■					
Spain			■					
Denmark			■					
Finland			■					
Holland			■					
Norway			■					
Sweden			■					
Switzerland					■			
Hungary			■					
Canada		■						
Austria			■					
France			■					
Australia						■		
Belgium			■					
Saudi Arabia			■					
Brazil		■						
India								■
Indonesia			■					



TYPICAL LINE CORD

COIN DOOR/ACCEPTOR APPLICATION CHART

Part No.	Coin Doors		Coin Acceptors							
	A-23334-1	A-23334-2	A-23374-2	A-23374-4	A-23374-10	A-23374-17	A-23374-20	A-23374-22	A-23374-2	09.96004-1
Country										
Germany	•		•							
France	•			•						
UK	•				•					
New Zealand	•					•				
Spain	•						•			
Switzerland	•							•		
US DBV Installed		•							•	
US DBV Ready										•

MARS DBV SETTING (A-E2411U5E)

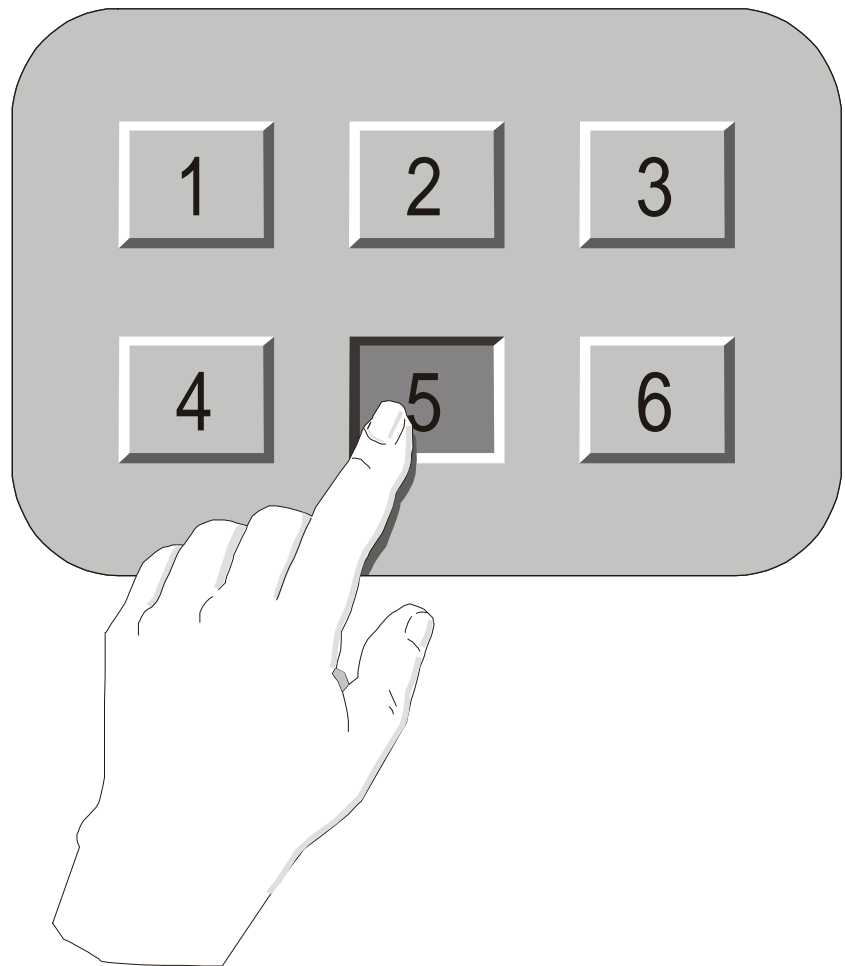
	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8
Domestic	Off	On	On	On	On	On	Off	Off
New Jersey	Off	On	On	On	Off	Off	Off	On
Function	2 way	2 way	High Security	\$1 accept	\$2 accept	\$5 accept	1 pulse per dollar	Harness enable

MARS DBV SETTING (VN2511U5)

	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8
Domestic	Off	On	On	On	On	On	Off	Off
New Jersey	Off	On	On	On	Off	Off	Off	Off
Function	2 way	2 way	High Security	\$1 accept	\$2 accept	\$5 accept	Long pulse	Long pulse



CHAPTER

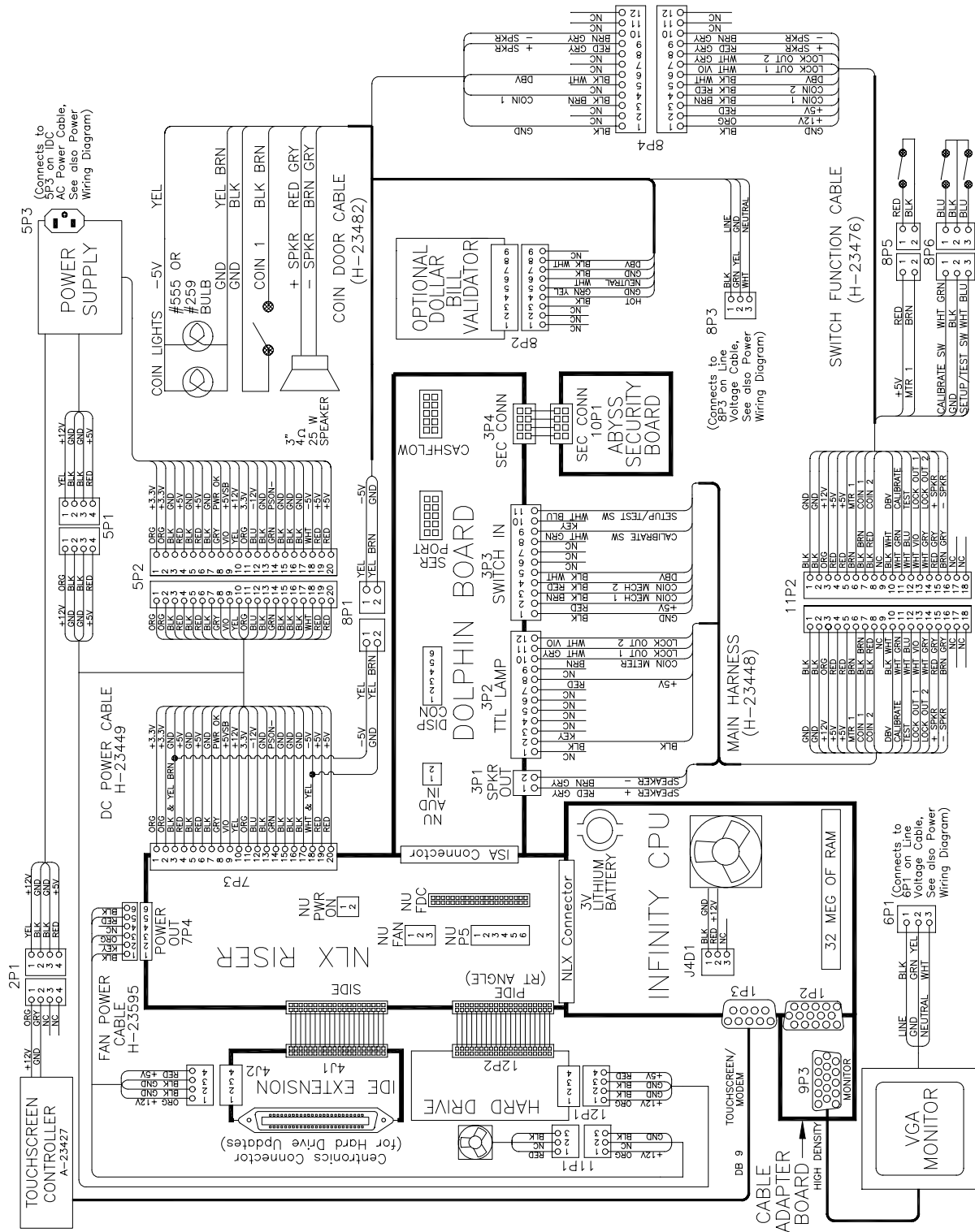


Wiring

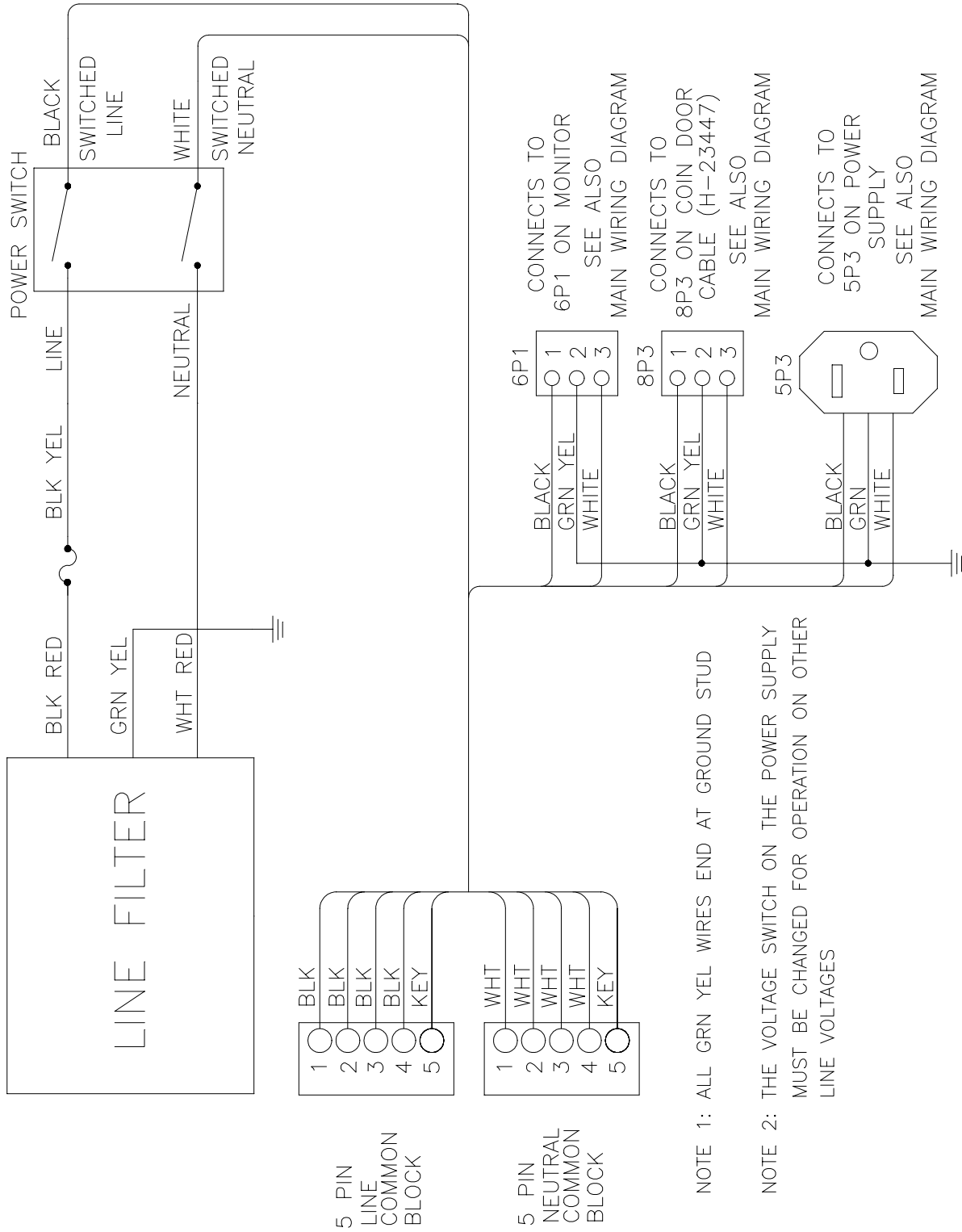


WARNING: Failure to reconnect all ground wires or replace metal shields and covers with each mounting screw installed and securely tightened may result in radio frequency interference.

CABINET WIRING DIAGRAM



POWER WIRING DIAGRAM



CABINET CABLE CONNECTOR IDENTIFIER CHART

Switch Function Cable (H-23476)

Coin Door Cable (H-23482)

Name	Function	Cnctr	Pin	Color	
Coin Light	-5VDC			Yellow	
	GND			Yellow Brown	
Coin	GND			Black	
	Coin 1			Black Brown	
Spkr	+ Speaker			Red Gray	
	- Speaker			Brown Gray	
From AC Power	Line	8P3	1	Black	
	Ground	8P3	2	Green Yellow	
	Neutral	8P3	3	White	
From DC Power	-5VDC	8P1	1	Yellow	
	Ground	8P1	2	Yellow Brown	
To DBV	Not Used	8P2	1	NC	
	Not Used	8P2	2	NC	
	Not Used	8P2	3	NC	
	Hot	8P2	4	Black	
	Ground	8P2	5	Green Yellow	
	Neutral	8P2	6	White	
	Ground	8P2	7	Black	
	DBV	8P2	8	Black White	
	Not Used	8P2	9	NC	
	To Switch Function Cable (H-23476)	Ground	8P4	1	Black
		Not Used	8P4	2	NC
		Not Used	8P4	3	NC
Coin 1		8P4	4	Black Brown	
Not Used		8P4	5	NC	
DBV		8P4	6	Black White	
Not Used		8P4	7	NC	
Not Used		8P4	8	NC	
+ Speaker		8P4	9	Red Gray	
- Speaker		8P4	10	Brown Gray	
Not Used		8P4	11	NC	
Not Used		8P4	12	NC	

Name	Function	Cnctr	Pin	Color
To Main Harness (H-23448)	Ground	11P2	1	Black
	Ground	11p2	2	Black
	+12VDC	11P2	3	Orange
	+5VDC	11P2	4	Red
	+5VDC	11P2	5	Red
	Meter 1	11P2	6	Brown
	Coin 1	11P2	7	Black Brown
	Coin 2	11P2	8	Black Red
	NC	11P2	9	NC
	DBV	11P2	10	Black White
	Calibrate	11P2	11	White Green
	Test	11P2	12	White Blue
	Lockout 1	11P2	13	White Violet
	Lockout 2	11P2	14	White Gray
	+ Speaker	11P2	15	Red Gray
	- Speaker	11P2	16	Brown Gray
	Not Used	11P2	17	NC
	Not Used	11P2	18	NC
Coin Meter	+5VDC	8P5	1	Red
	Meter 1	8P5	2	Brown
Pshbutton Switches	Calibrate	8P6	1	White Green
	Ground	8P6	2	Black
	Test	8P6	3	White Blue
To Coin Door Cable (H-23482)	Ground	8P4	1	Black
	+12VDC	8P4	2	Orange
	+5VDC	8P4	3	Red
	Coin 1	8P4	4	Black Brown
	Coin 2	8P4	5	Black Red
	DBV	8P4	6	Black White
	Lockout 1	8P4	7	White Violet
	Lockout 2	8P4	8	White Gray
	+ Speaker	8P4	9	Red Gray
	- Speaker	8P4	10	Brown Gray
	Not Used	8P4	11	NC
	Not Used	8P4	12	NC

Connector Name Prefixes

1 CPU Board	2 Touchscreen	3 Dolphin I/O Board	4 IDE Extension	5 Power Supply	6 Video Monitor
7 NLX Riser Board	8 Cash Chamber	9 Cable Adapter	10 Abyss Board	11 Internal Cabling	12 Hard Disk Drive

DC Power Cable (H-23449)

Name	Function	Cnctr	Pin	Color
To NLX Riser Board	+3.3VDC	7P3	1	Orange
	+3.3VDC	7P3	2	Orange
	Ground	7P3	3	Blk & Yel Brn
	+5VDC	7P3	4	Red
	Ground	7P3	5	Black
	+5VDC	7P3	6	Red
	Ground	7P3	7	Black
	Power OK	7P3	8	Gray
	+5VSB	7P3	9	Violet
	+12VDC	7P3	10	Yellow
	+3.3VDC	7P3	11	Orange
	-12VDC	7P3	12	Blue
	Ground	7P3	13	Black
	PS-ON-	7P3	14	Green
	Ground	7P3	15	Black
	Ground	7P3	16	Black
	Ground	7P3	17	Black
	-5VDC	7P3	18	White & Yllow
	+5VDC	7P3	19	Red
	+5VDC	7P3	20	Red
To Ch Door Cable	-5VDC	8P1	1	Yellow
	Ground	8P1	2	Yellow/Brown
To Hard Drive	+12VDC	12P1	1	Orange
	Ground	12P1	2	Black
	Ground	12P1	3	Black
	+5VDC	12P1	4	Red
To Power Supply	+12VDC	5P1	1	Orange
	Ground	5P1	2	Black
	Ground	5P1	3	Black
	+5VDC	5P1	4	Red

Name	Function	Cnctr	Pin	Color
To Power Supply Connector	+3.3VDC	7P3	1	Orange
	+3.3VDC	7P3	2	Orange
	Ground	7P3	3	Blk Yel Brn
	+5VDC	7P3	4	Red
	Ground	7P3	5	Black
	+5VDC	7P3	6	Red
	Ground	7P3	7	Black
	Power OK	7P3	8	Gray
	+5VSB	7P3	9	Violet
	+12VDC	7P3	10	Yellow
	+3.3VDC	7P3	11	Orange
	-12VDC	7P3	12	Blue
	Ground	7P3	13	Black
	PS-ON-	7P3	14	Green
	Ground	7P3	15	Black
	Ground	7P3	16	Black
	Ground	7P3	17	Black
	-5VDC	7P3	18	White Yellow
	+5VDC	7P3	19	Red
	+5VDC	7P3	20	Red

Fan Power Cable (H-23595)

Name	Function	Cnctr	Pin	Color
Power Out	Ground	7P4	1	Black
	Not Used	7P4	2	Key
	+12VDC	7P4	3	Orange
	Not Used	7P4	4	NC
	+5VDC	7P4	5	Red
To IDE Extension	Ground	7P4	6	Black
	+12VDC	4J2	1	Yellow
	Ground	4J2	2	Black
	Ground	4J2	3	Black
To Fan	+5VDC	4J2	4	Red
	+12VDC	11P1	1	Orange
	Not Used	11P1	2	NC
	Ground	11P1	3	Black

Miscellaneous

Name	Function	Cnctr	Pin	Color
CPU Board Fan	Ground	11P1	1	Black
	+12VDC	11P1	2	Red
	Not Used	11P1	3	NC
From VGA Monitor	Line	6P1	1	Black
	Ground	6P1	2	Green Yellow
	Neutral	6P1	3	White

See page 2 for connector name prefixes

Name	Function	Cnctr	Pin	Color
To Cabinet Fan	+12VDC	11P1	1	Red
	Not Used	11P1	2	NC
	Ground	11P1	3	Black
	+12VDC	2P1	1	Orange
Tchscreen Controller	Ground	2P1	2	Gray
	Not Used	2P1	3	N/C
	Not Used	2P1	4	N/C

Main Harness (H-23448)

Name	Function	Contr	Pin	Color
To Switch Function Cable (H-23476)	Ground	11P2	1	Black
	Ground	11P2	2	Black
	+12VDC	11P2	3	Orange
	+5VDC	11P2	4	Red
	+5VDC	11P2	5	Red
	Meter 1	11P2	6	Brown
	Coin 1	11P2	7	Black Brown
	Coin 2	11P2	8	Black Red
	NC	11P2	9	NC
	DBV	11P2	10	Black White
	Calibrate	11P2	11	White Green
	Test	11P2	12	White Blue
	Lockout 1	11P2	13	White Violet
	Lockout 2	11P2	14	White Gray
	+ Speaker	11P2	15	Red Gray
	- Speaker	11P2	16	Brown Gray
	Not Used	11P2	17	NC
	Not Used	11P2	18	NC
Spkr Out	Speaker +	3P1	1	Red Gray
	Speaker -	3P1	2	Brown Gray

Name	Function	Cnctr	Pin	Color	
To TTL Lamp on Dolphin Board	+12VDC	3P2	1	Orange	
	Black	3P2	2	Black	
	Not Used	3P2	3	Key	
	Not Used	3P2	4	NC	
	Not Used	3P2	5	NC	
	Not Used	3P2	6	NC	
	Not Used	3P2	7	NC	
	+5VDC	3P2	8	Red	
	Not Used	3P2	9	NC	
	Coin Meter	3P2	10	Brown	
	Lock Out 1	3P2	11	White Gray	
	Lock Out 2	3P2	12	White Violet	
	Switch In on Dolphin Board	Ground	3P3	1	Black
		+5VDC	3P3	2	Red
Coin Mech 1		3P3	3	Black Brown	
Coin Mech 2		3P3	4	Black Red	
DBV		3P3	5	Black White	
Not Used		3P3	6	NC	
Not Used		3P3	7	NC	
Not Used		3P3	8	NC	
Cal. Switch		3P3	9	White Green	
Not Used		3P3	10	Key	
Test Switch		3P3	11	White Blue	

Power Wiring

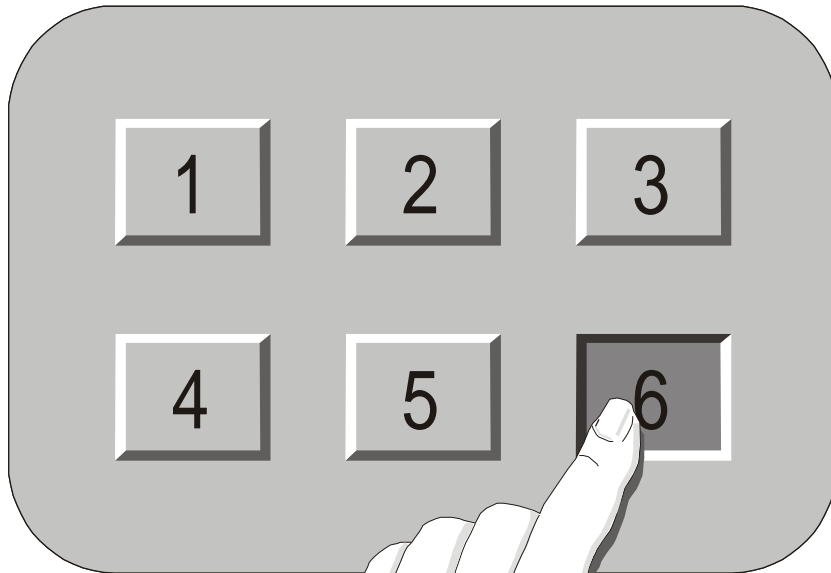
Name	Function	Cnctr	Pin	Color
To Touchscrm Controller	+12VDC	2P1	1	Yellow
	Ground	2P1	2	Black
	Ground	2P1	3	Black
	+5VDC	2P1	4	Red
To DC Power Cable	+12VDC	5P1	1	Yellow
	Ground	5P1	2	Black
	Ground	5P1	3	Black
	+5VDC	5P1	4	Red

Name	Function	Cnctr	Pin	Color
To DC Power Cable	+3.3VDC	5P2	1	Orange
	+3.3VDC	5P2	2	Orange
	Ground	5P2	3	Black
	+5VDC	5P2	4	Red
	Ground	5P2	5	Black
	+5VDC	5P2	6	Red
	Ground	5P2	7	Black
	Power OK	5P2	8	Gray
	+5VSB	5P2	9	Violet
	+12VDC	5P2	10	Yellow
	+3.3VDC	5P2	11	Orange
	-12VDC	5P2	12	Blue
	Ground	5P2	13	Black
	PSO-	5P2	14	Green
	Ground	5P2	15	Black
	Ground	5P2	16	Black
	Ground	5P2	17	Black
	-5VDC	5P2	18	White
	+5VDC	5P2	19	Red
	+5VDC	5P2	20	Red


See page 2 for connector name prefixes.



CHAPTER



Troubleshooting

	<p>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.</p>
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Touchmaster® Infinity 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 cabinet is turned off prior to servicing.
- Discharge any static electricity build up in your body by touching any unpainted metal on the cabinet, such as the chain lug. This is to be done *before* touching or handling the assemblies.
- Handle the electronic assemblies by their edges and store them in an anti-static area when not in active use. Anti-static bags are to be used to store or transport the CPU Board Assembly.
- *Do not* touch, remove, or connect any electronic assemblies when the 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.

Touchmaster® Infinity Does Not Start

Symptom	Problem	Suggested Solution
<ul style="list-style-type: none"> • Machine appears non-functional. • No audio • No fan • No video display 	Lack of electricity	<ol style="list-style-type: none"> 1. Check that power switch is set to 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	<ol style="list-style-type: none"> 1. Check airflow out of cabinet near fan. (This does not mean that voltages or signals are correct, but it indicates that DC power is 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.
	Tripped circuit breaker	<ol style="list-style-type: none"> 1. Examine AC circuit breaker on cabinet. 2. If circuit was broken, reset button protrudes from circuit breaker. 3. Press button in until it latches to restore power.
	Faulty AC line filter	<ol style="list-style-type: none"> 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 breaker opens circuit again.

Startup Problems *continued*

Symptom	Problem	Suggested Solution
<ul style="list-style-type: none"> Machine appears non-functional, but currency acceptor price indicator is illuminated. 	Poor connection	<ol style="list-style-type: none"> Turn AC power off. Unplug AC line cord. Unlock and remove Rear Door and Top Cover Assembly. Inspect CPU Board Assembly. Ensure DC Power connector is attached and fully seated onto mating board connector. Check other wiring harness connectors in same way.
	Poor DC power	<ol style="list-style-type: none"> Turn AC power on. 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	<ol style="list-style-type: none"> 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.
	System errors	<ol style="list-style-type: none"> Verify that Touchmaster[®] Infinity completes Power-Up Self-Test sequence without errors. Note errors and/or failures found during tests. Remove Side Cover Assembly. Enter Menu System by pressing TEST pushbutton. From MAIN MENU, choose DIAGNOSTICS MENU, then VIDEO TEST. Perform tests, then proceed to HARDWARE TEST, and SOFTWARE TEST. Use these tests to check function of components and software.

Currency Does Not Start Game

Symptom	Problem	Suggested Solution
<ul style="list-style-type: none"> Machine does not accept currency or tokens. Machine cannot be started. Audio present Video present 	Bad currency	<ol style="list-style-type: none"> Turn AC power off. Unlock and remove Side Cover Assembly. Empty cash vault and DBV. Inspect revenue for counterfeit currency. Check vault and remove items that block path from coin mechanism.
	Blocked coin mechanism	<ol style="list-style-type: none"> Turn AC power off. Unlock and remove Side Cover Assembly. Check coin mechanism and DBV to ensure proper mounting. Remove coin mechanism and DBV and clear currency path.
	Unleveled coin mechanism	<ol style="list-style-type: none"> Verify coin mechanism is level. Ensure that connector is attached and fully seated. Repair or replace mechanism if bent or damaged. Ensure cables and wiring are connected to currency acceptor or coin mechanism.
<ul style="list-style-type: none"> Machine does not accept currency or tokens. Audio present Video present 	Software setting	<ol style="list-style-type: none"> Enter Menu System. At MAIN MENU, choose <u>GAME/COINAGE SETUP</u>. Check maximum credit limit.
<ul style="list-style-type: none"> Machine accepts currency or tokens. Machine does not start. Audio present Video present 	Faulty coin mechanism	<ol style="list-style-type: none"> Unlock and remove Side Cover Assembly. Check each mechanism to ensure proper mounting. Verify that each release latch is in closed and locked position. Test known good and bad coins to see if mechanism accepts and rejects currency correctly. Enter Menu System. From MAIN MENU, choose <u>DIAGNOSTICS MENU</u>, then <u>HARDWARE TEST</u>, then <u>SWITCH TEST</u>. Use tests to confirm operation of each switch.
	Poor connection	<ol style="list-style-type: none"> Inspect to see if external coin door indicators (pricing, flashing arrows, etc.) are illuminated. Check connectors and cables for wiring continuity from CPU board connector to the coin door. Turn AC power off. Ensure that 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.
<ul style="list-style-type: none"> • Machine accepts currency or tokens. • Number of credits per coin or bill is incorrect. • Credits are sometimes not given for valid currency. 	System error	<ol style="list-style-type: none"> 1. Unlock and remove Side Cover Assembly. 2. Enter Menu System by pressing the TEST pushbutton. 8. From MAIN MENU, choose DIAGNOSTICS MENU, then HARDWARE TEST, then SWITCH TEST. 3. Use these tests to confirm operation of each switch.
	Incorrect pulse width	<ol style="list-style-type: none"> 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 <i>long</i> 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	<ol style="list-style-type: none"> 1. 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
<ul style="list-style-type: none"> • Touchscreen is not accurate for two or more players. 	Dirty screen	<p>Clean entire cabinet frequently, especially video screen glass and Touchscreen area. It is not necessary to switch off AC power to clean Touchmaster® Infinity. Apply an isopropyl alcohol and warm water to a clean cloth or sponge, then use this to wipe surface. <i>Do not apply cleaner directly on unit.</i> Liquids could drip into circuits and cause erratic operation.</p> <p>Turn off AC power. Remove monitor bezel (refer to Service chapter for instructions). Clean Touchscreen, especially areas normally hidden by bezel.</p>
	Overzealous touching	Warn players to use only one finger at a time. Simultaneous touches confuse Touchscreen Controller.
	Players need grounding	Some players may find Touchscreen response improves when they touch the metal surface of cabinet with one hand as they operate the Touchscreen with other hand.
<ul style="list-style-type: none"> • Touchscreen chooses incorrect items. • Touchscreen does not respond when certain areas are touched. 	Incorrect calibration	<ol style="list-style-type: none"> 1. Unlock and remove Side Cover Assembly. 2. Enter Menu System by pressing TEST pushbutton inside coin vault. 3. From MAIN MENU, choose CALIBRATE TOUCHSCREEN. Calibrate, then test calibration. 4. Confirm that the Touchscreen is detecting and properly tracking finger position in all areas of the screen.
	Bad controller	Ensure Touchscreen Controller operates properly by placing in a known good unit.
<ul style="list-style-type: none"> • Touch controls are intermittent or completely non-functional. • Machine starts normally. 	Poor connection	<ol style="list-style-type: none"> 1. Unlock and remove Side Cover Assembly. 2. Enter Menu System by pressing TEST pushbutton inside coin vault. 3. From MAIN MENU, select DIAGNOSTICS MENU, then choose HARDWARE TEST and then SWITCH TEST. 4. Confirm operation of each switch in Video Game Machine.

Touchscreen Problems *continued*

Symptom	Problem	Suggested Solution
	CPU board power	Unlock and remove Rear Door and Top Cover Assembly. Observe CPU Board Assembly and touch the screen. You will see a glow from a red LED if touch is sensed.
	Poor Controller power	You can see a glow from a green LED on the end of Touchscreen Controller (underneath the CPU) if there is voltage in these circuits. Refer to LED Indicator Status Chart (Wiring Chapter). If the LED fails to glow, check power connection to Controller.
	Poor Controller connection	<ol style="list-style-type: none"> 1. Turn AC power off. Remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket. 2. Check that Touchscreen Controller Cable is fully seated in connector of Touchscreen Controller.
	Bad controller	Ensure Touchscreen Controller operates properly by placing in a known good unit.
<ul style="list-style-type: none"> • Touchscreen does not calibrate. 	Bad controller or Touchscreen	<ol style="list-style-type: none"> 1. Ensure that Touchscreen Controller operates properly by placing in a known good unit. 2. If Controller works well in a known good unit, replace Touchscreen.
<ul style="list-style-type: none"> • "Touch Controller Not Found" error message 	Poor connection	<ol style="list-style-type: none"> 1. Turn AC power off. Remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket. 2. Check that Touchscreen Controller Cable is fully seated in connector of Touchscreen Controller. 3. Ensure that Touchscreen Controller operates properly by placing in a known good unit.

Audio Problems

Symptom	Problem	Suggested Solution
<ul style="list-style-type: none"> • Audio is non-functional. • Video present • Machine appears to operate normally. 	Volume set too low in software	<ol style="list-style-type: none"> 1. Unlock and remove Side Cover Assembly. 2. Enter Menu System by pressing TEST pushbutton inside coin vault. 3. From MAIN MENU, observe Volume Fixed level. 4. 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)	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Turn AC power off. 2. Verify correct cabinet wiring for this Machine. 3. Ensure that speaker is properly connected to audio output wires from the audio connector. 4. Verify speaker continuity. 5. Refer to Cabinet Wiring Diagram for specific wiring information.
	Missing DC voltage	<ol style="list-style-type: none"> 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
<ul style="list-style-type: none"> • Audio distorted or muffled • Constant low hum present • Sounds missing 	System error	<ol style="list-style-type: none"> 1. Unlock and remove Side Cover Assembly. 2. Enter Menu System by pressing TEST pushbutton inside the coin vault. 3. From the SYSTEM SETUP menu, go to DIAGNOSTICS and choose SOUND TESTS. These tests verify some functions of the audio circuits.
	Wrong speaker	<ol style="list-style-type: none"> 1. Turn AC power off. 2. Unlock and remove cabinet cover. Locate the speaker. 3. Ensure that it is <i>full range</i> (100 to 10,000 Hz response) and rated for at least 15 watts continuous power.
	Poor connection	Inspect speaker and its wires. Ensure that no loose parts or wires are caught in speaker cone, terminals, mounting screws, or stuck to magnets.
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Monitor non-functional • Audio present • Controls operate as expected. 	No power to monitor	<ol style="list-style-type: none"> 1. Unlock and remove Rear Door and Top Cover Assembly. Pivot Deflection Board Bracket. 2. Verify that 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	<ol style="list-style-type: none"> 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. <i>Do not operate a monitor without a Remote Adjustment Board.</i>
	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.
<ul style="list-style-type: none"> • Power-Up Self Test runs. • Game does not appear. • No audio 	System error	<ol style="list-style-type: none"> 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. Unlock and remove Side Cover Assembly. 6. Enter Menu System by pressing TEST pushbutton inside coin vault. 7. 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	<ol style="list-style-type: none"> 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).
<ul style="list-style-type: none"> • 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	<ol style="list-style-type: none"> 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 Machine.

Miscellaneous

Symptom	Problem	Suggested Solution
<ul style="list-style-type: none"> Machine operates normally. Cabinet gets very warm after several hours of use. System may reset or freeze after time. 	Poor air circulation	<ol style="list-style-type: none"> 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. Unlock and remove Rear Door. 5. Ensure all fans are connected and operate at full speed.
<ul style="list-style-type: none"> Touchscreen requires excessive recalibration to maintain Machine accuracy. 	Dirty screen	<ol style="list-style-type: none"> 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. <i>Do not apply the cleaner directly on unit.</i> Liquids could drip into circuits and cause erratic operation.
	Overzealous touching	Warn players to use only one finger at a time. Simultaneous touches confuse Touch Controller.
	Relocation	Repeat Calibrate and Calibrate Test sequence each time cabinet is relocated.
<ul style="list-style-type: none"> Error messages appear on screen. Machine does not work. No audio 	System error	<ol style="list-style-type: none"> 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
<ul style="list-style-type: none"> "Security Key Error" message 	Security failure	<ol style="list-style-type: none"> 1. Check to see if security key is missing or incorrectly installed on board assembly. 2. Confirm that security key version matches software version.