US-0320 Upright Reel Slot

28-00269-01

April 2001

CDS Gaming

Notice

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This manual applies to the CDS model US-0320 upright reel slot machine. The following games are associated with this model:
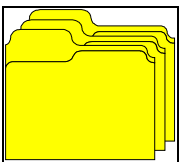
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A User Response Notes form is provided at the back of this document for customer comments. You can mail this form or any other comments to the address above.

Contents

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Introduction

This manual provides reference materials for the Casino Data Systems model US-0320 upright reel slot machine.

Procedures are provided for the proper installation of the machine on the casino floor, performing day-to-day machine operations, troubleshooting, and routine machine maintenance.

Machine and sub-assembly exploded view drawings and part numbers are provided in Appendix 1.
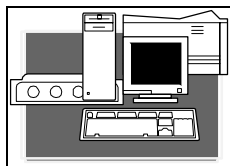
Installation

Locks

To assure maximum security, the property should install permanent locks during machine installation. Refer to the Operation section of this manual on page 6 for lock locations. Temporary "thumb-turn" shipping locks (non-keyed) are installed by Casino Data Systems on the following:

Main Door	–	To unlock, rotate key counter-clockwise 90-degrees.
Belly Door	–	To unlock, rotate key counter-clockwise 90-degrees.
Logic Door	–	To unlock, rotate both keys clockwise 90-degrees.
Bill Stacker	–	To unlock, rotate key counterclockwise 90-degrees.

These locks are provided to prevent damage to machine components during shipment. The temporary locks should be replaced with 5/8-inch barrel locks with the same rotation direction and degree of rotation as listed above for the shipping locks. The existing lock cams should be used.

If the machine was delivered without temporary locks, install the machine locks with the appropriate cams (packed with machine). Refer to the Cams section (next) when installing the new locks.

Cam (typical)
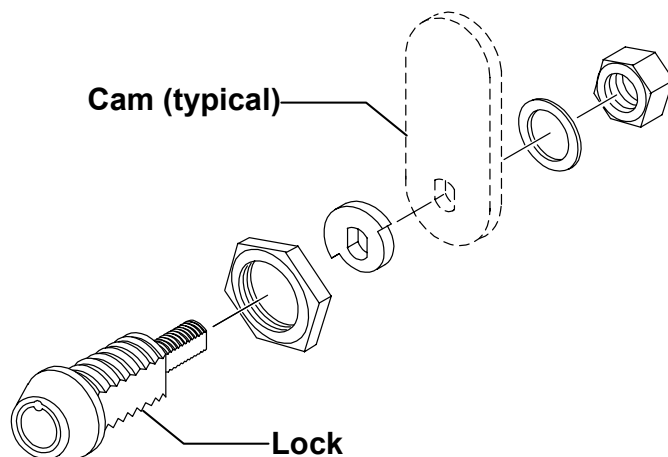
Lock

Typical Lock Installation

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Cams

Install the appropriate cam on the locks for the main door, belly door and logic door. Refer to the illustration below when installing locks and cams.
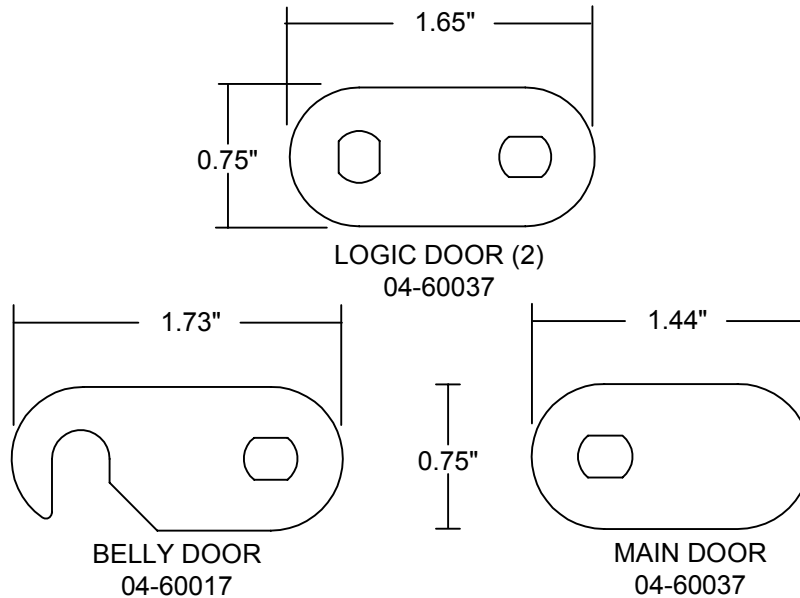
US-0320 Lock Cams

Environmental Requirements

Electrical

Input voltages: 117 VAC 50/60 Hz.
                   220 VAC 50/60 Hz (with optional transformer).

Operating Condition	Input Current (AMPS)
At Play	1.45
During Payout	3.78
Maximum Theoretical	5.0

Weight

Overall weight (not including stand) is 275 lbs.

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Cabinet Dimensions
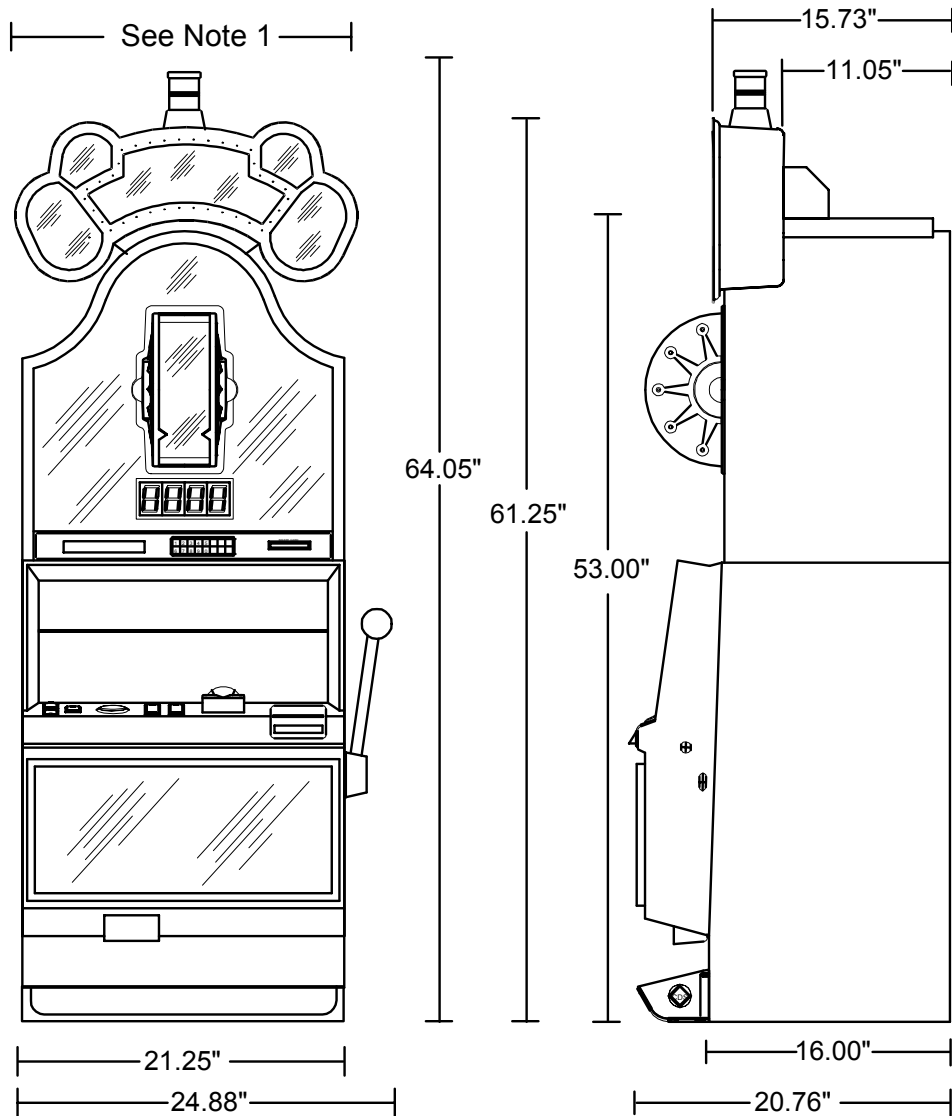
Note 1:
Revision A measures 28.00 inches
Revision B measures 26.50 inches

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Drop Stand Mounting

The machine support or stand should be drilled prior to lifting the machine into place. The minimum drop stand size is 26 inches wide by 16 inches deep. A 28-inch drop stand is recommended.

The following guide should be referenced when drilling mounting bolt, coin drop, and cable access holes:
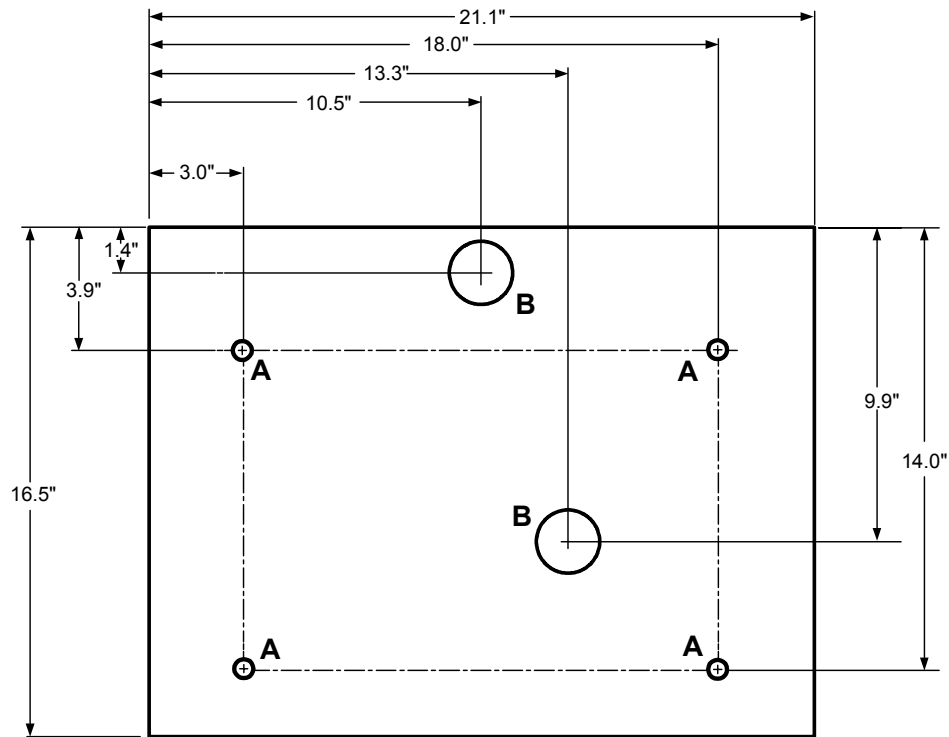
Secure the machine to the support or cabinet with 5/16-inch carriage bolts, flat washers, and nuts (4 places) as shown below.
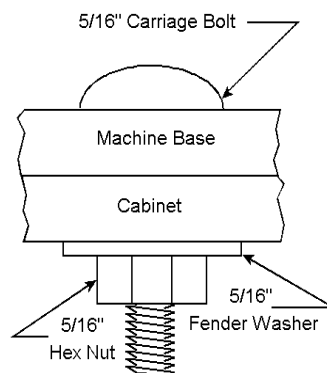
Operation

Lock and Control Switch Locations

Attendant Key Switch

Main Door Lock

Belly Door Lock
Belly Door Latch

Main Door Latch

Belly Door

Name Plate
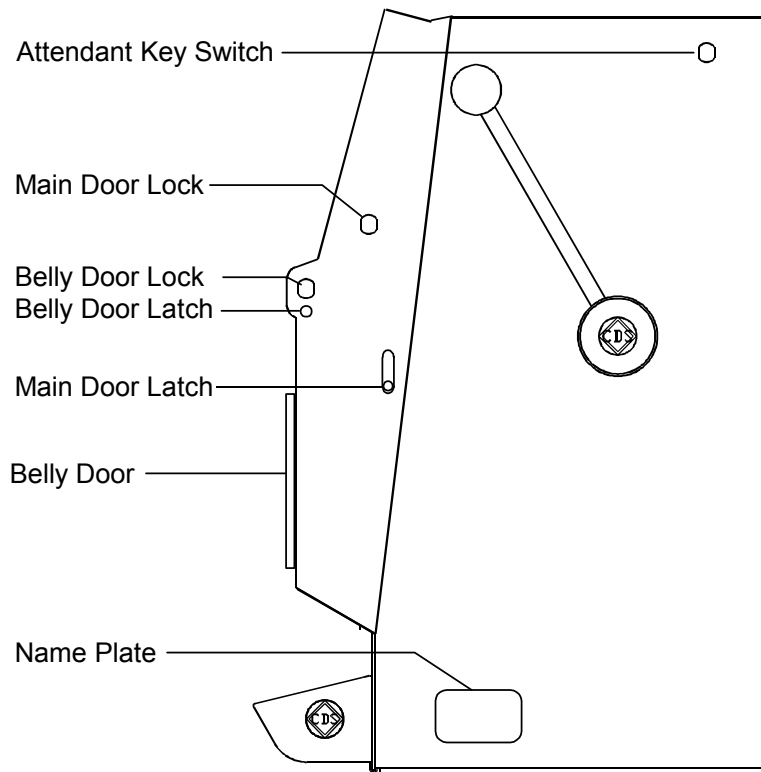
Lock and Keyswitch Locations

Main Door

The main door provides access to all areas of the machine including the top box. Logic compartment and bill validator cash box access requires additional keys as required by gaming regulation and/or local procedures.

Opening

1. Insert the key into the main door lock and turn it clockwise 90-degrees.

2. Lift the main door latch to the top of the slot and pull the door open.

Closing

1. Verify that the bill validator head is fully inserted so that it does not interfere with the door being closed.

2. Push on the door until the door latch drops to the bottom of the slot.

3. Turn the main door key counterclockwise 90-degrees and remove it from the lock.

Belly Door

An additional door is provided on the lower portion of the main door to allow access to the bill validator bill stacker without opening the main door. This door also provides easy access to change the belly glass and the door fluorescent lamp.

Opening

1. Unlock the belly door.

2. Place one hand at the top of the belly door and push the access latch on the right side of the main door.

3. Lower the door until it is held firmly by the safety chain.

Closing

1. Lift the top of the belly door until it touches the main door.

2. Push firmly on the top until it latches.

3. Lock the belly door.

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Bill Validator Access

The bill validator bill stacker can be accessed by opening the main door, and unlocking the bill stacker door, or opening the belly door and unlocking the stacker door. See the instructions on the previous page for opening the main and belly doors.

Bill Stacker Removal

1. Open the main door or belly door as described on the previous page.

2. Turn the bill stacker access door key counterclockwise 90-degrees.

3. Grasp the bill stacker by the handle and push downward on the latch (right side of stacker).

4. Pull the bill stacker from the bill validator housing.

Bill Stacker Installation

1. Slide the validator stacker into the validator housing until it latches.

2. Close and lock the bill stacker door.

3. Close and lock the main door or belly glass door.

Game Top/Glass Access

Opening

The game top compartment does not have a separate lock. To access the compartment, follow these steps:

1. Open the main door.

2. Turn off the AC power.

3. Lift up on the bottom edge of the reader/keypad/display bracket or blank panel at the notches provided on the top edge of the doorframe as shown below.

Notch

Notch

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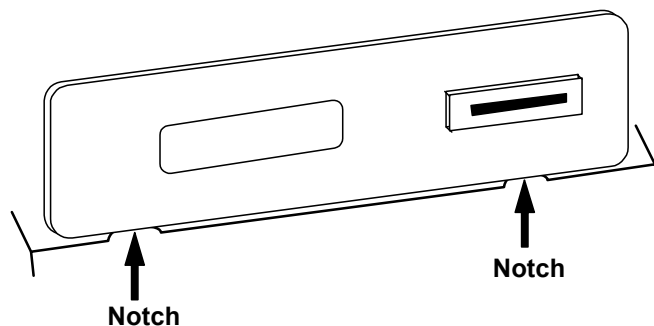
4. When the card reader/keypad/display bracket or blank panel is free of the groove in the doorframe, pull it forward until the cable connectors on the keypad, card reader, and display are accessible.

5. Unplug the power supply.

6. Disconnect the cables from the bracket components, and then remove the bracket.

Removing Top Glass

1. Remove the player tracking or blank access panel as described under "Game Top/Glass Access" on page 8 in the previous section.
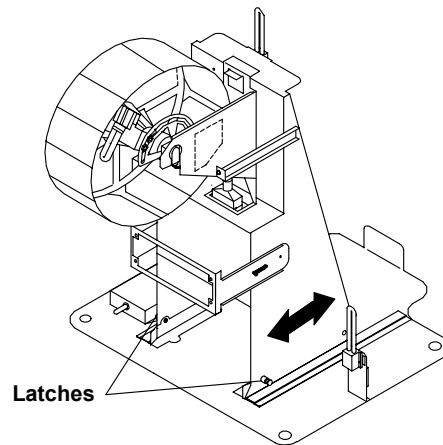
Latches

2. Pull outward on the two top wheel latches (shown above) and push the assembly into the cabinet so that the wheel is clear of the wheel housing on the top glass.

   Note: Early models have a single latch on the base of the assembly.

3. Lift straight up on the top compartment glass bottom edge so that it is slightly above the glass retaining seats on the rotating glass brackets shown below.
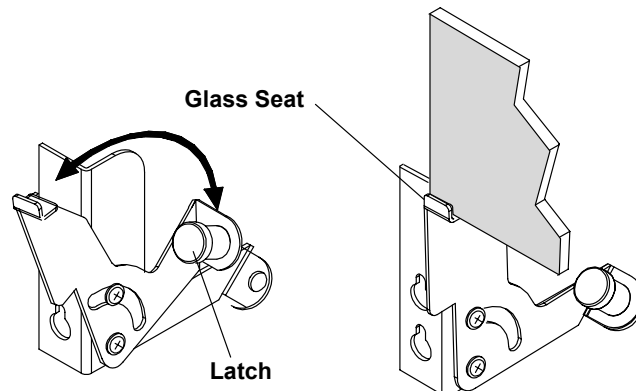
Glass Seat

Latch

4. Pull upward on the rotating glass bracket latches to release.

5. Rotate the brackets downward so that the glass seats are clear of the bottom of the glass.

6. Disconnect any lamp and/or meter cables, and then remove the glass and place it in a safe location to prevent it from dropping or presenting a trip hazard.

Installing Top Glass

To install the game top glass, follow these steps.

1. Turn off the AC power.

2. If the card reader/keypad/display bracket or blank panel was reinstalled since the glass was removed, remove it from the cabinet.

3. Verify that the top wheel assembly is pushed back into the cabinet to prevent interference with the glass.

4. Lift the glass up into position and connect any lamp and/or meter cables.

5. Slide the upper edge of the glass into the grove on the top cabinet

6. Rotate the top glass-mounting bracket upward until they latch.

7. Set the bottom of the glass into position on top of the clips.

8. Connect the keypad, card reader, and display cables, and then slide the unit into place between the glass and the doorframe. Verify that the base sets evenly into the groove on the top of the doorframe.

9. Plug the card reader/keypad/display power supply into on of the 4-plex AC outlets.

10. Pull the top wheel assembly forward until it latches.

11. Turn on the machine AC power and close the main door.

Maintenance

Coin Acceptor

Removal

1. Open the main door and turn off the AC power.

2. Disconnect the wiring harness cable connector from the left side of the coin acceptor.

3. Lift the two latches (shown below) with your thumbs while pulling forward on the top of the coin acceptor with your forefingers.

4. Lift the comparitor out of the bracket lower guide slots.
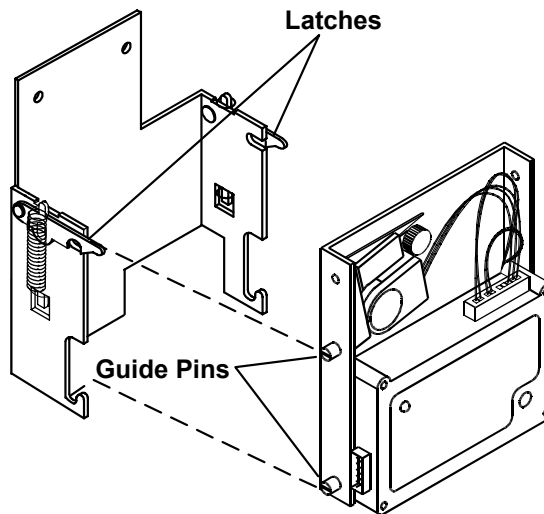
Installation

1. Insert the comparitor lower guide pins into the slots on the bracket.

2. Push the top of the comparitor into the bracket until the two upper guide pins are firmly latched by the spring latches.

3. Plug the wiring harness connector into the coin acceptor connector.

4. Turn on the machine AC power and close the main door.

Coin Hopper

Removal

1. Open the main door and turn off the AC power.

2. Grasp the hopper handle firmly with your left hand and pull forward while balancing the hopper with your right hand.

3. Continue to pull it until the hopper is free of the mounting rails.

Handle

Slide under rails in machine cabinet

Grasp here for balance when removing or installing
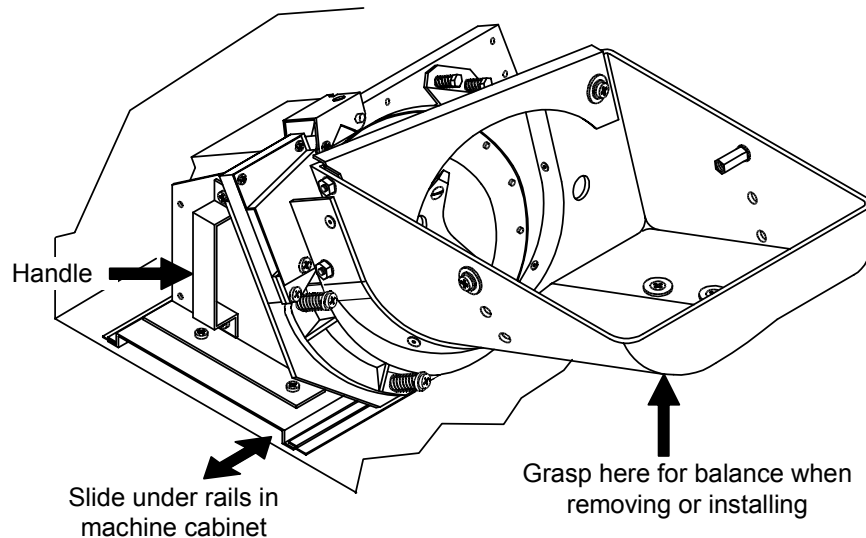
Installation

1. Grasp the hopper handle firmly with your left hand, and the right side of the coin bowl with your right hand.

2. Lift the hopper until the mounting rails are aligned with the rails on the cabinet base.

3. Push the hopper into the cabinet until it seats firmly into the electrical connector.

4. Turn on the machine AC power and close the main door.

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Main Logic Board

> ⚠️ **CAUTION**
>
> *Always discharge body static before handling Main I/O boards.*
>
> *Whenever a Main I/O board is removed from the card cage, it must be transported and stored in an anti-static card wrapper to prevent damage. Defective boards should be handled like a new board to prevent additional component failure.*

Removal

1. Open the main door and turn off the AC power.

2. Unlock and open the logic door.

3. Grasp the logic board assembly by the plastic release levers, and pull forward to remove it from the cage assembly.

4. Grasp the logic board assembly by the plastic release levers, and pull forward to remove it from the rack assembly.

DIP Switches

RAM Chips
U62 & U68

Board release
Thumb Latches (2)

TMS 34020
Processor
Board

Main I/O Board

U63 & U64
EPROMS
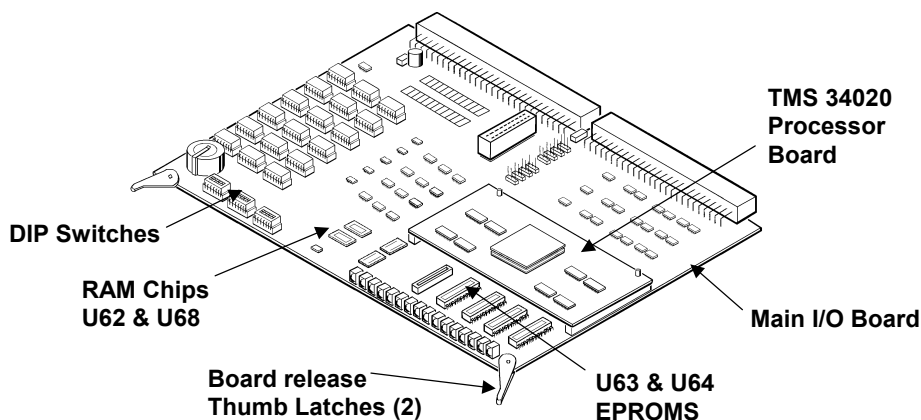
Installation

1. Position the board with the components facing upward into the lower slot in the card cage assembly.

2. Push the card cage assembly into the guide rails until firmly seated.

3. Install and lock the logic access door.

4. Turn on the AC power and close the main door.

Power Supply Replacement

12/5-Volt DC Power Supply

The 12/5 Volt DC power supply is located on the rear inside wall of the machine directly behind the reels. The 12/5-volt DC power supply is mounted below the 24/5-volt DC power supply.

Removal

1. Open the main door and turn off the AC power.

2. Remove the reels as described under "Reel Replacement on page 16.

3. Remove the four screws that secure the plastic power supply cover to the standoffs.

4. Disconnect the two wiring harness power connectors from the short power supply cables and remove the supply from the cabinet.

5. Remove the four standoffs that secure the power supply board to the PEM studs on the rear of the cabinet.

6. Remove the power supply from the cabinet.
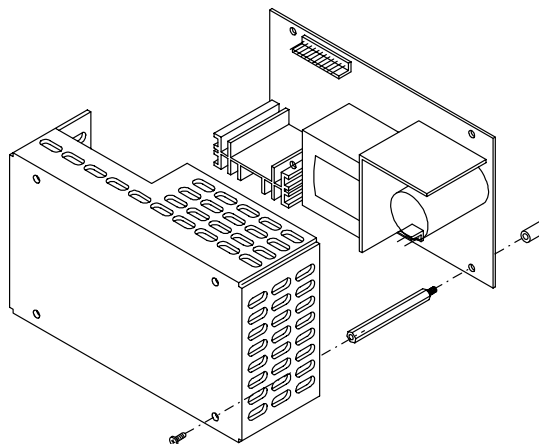
Installation

1. Align the new power supply mounting holes with the mounting holes on the power supply base plate.

2. Insert the four standoffs through the board mounting holes and screw them into the PEM studs on the rear of the cabinet.

3. Connect the two power cables that were previously disconnected.

4. Secure the plastic power supply cover on the standoffs using the four screws previously removed.

5. Install the reels as described under "Reel Replacement" on page 16.

24/5-Volt DC Power Supply (Machine)

The 24/5-volt DC power supply is located on the rear inside wall of the machine directly behind the reels. The 24/5-volt DC power supply is mounted above the 12/5-volt DC power supply.

Removal

1. Open the main door and turn off the AC power.

2. Remove the reels as described under "Reel Replacement" on page 16.

3. Remove the three screws that secure the plastic cover to the standoffs.

4. Disconnect the two wiring harness power connectors from the power supply and remove the supply from the cabinet.

5. Remove the three standoffs that secure the power supply to the cabinet.

6. Remove the power supply from the cabinet.

Installation

1. Align the new power supply mounting holes with the mounting holes on the power supply base plate.

2. Insert the board over the three power supply mounting plate standoffs. Twist the long standoffs onto the mounting plate standoffs and tighten.

3. Connect the two power cables that were previously disconnected.

4. Secure the plastic power supply cover on the standoffs using the three screws removed earlier.

5. Install the reels as previously described in the procedure under "Reel Replacement" on page 16.

5. Turn on the machine AC power and close the main door.

Reel Replacement

Removal

1. Open the main door.

2. Turn off the AC power to the machine.

3. Remove the screw that secures the reel to the front of the reel shelf.

4. Lift upward on the front of the reel base and pull forward so that it disengages from the mounting screw and washer.

5. Remove the reel assembly from the machine.

   Note: If all reel assemblies are going to be removed, make sure to mark them so that they are returned to the correct position during installation.

Installation

1. Turn off the machine AC power.

2. Verify that the reel being installed is the correct one for the position.

3. Place the largest portion of the slot on the reel base over the mounting screw and flat washer.

4. Push the reel back into position while lowering the front lip so that the reel plug slides into the chassis connector.

5. Secure the reel base to the reel shelf with the original mounting screw.

6. Turn on the machine AC power and close the main door.

Backplane I/O Board Replacement

Removal

1. Open the main door and turn off the AC power.

2. Remove the coin hopper as described under "Coin Hopper Removal" on page 12.

3. Unlock and remove the logic board door.

4. Remove the VIG-II logic board.

5. Use an 11/32-inch nut driver to remove the two front lock nuts that secure the logic board housing from the reel shelf.
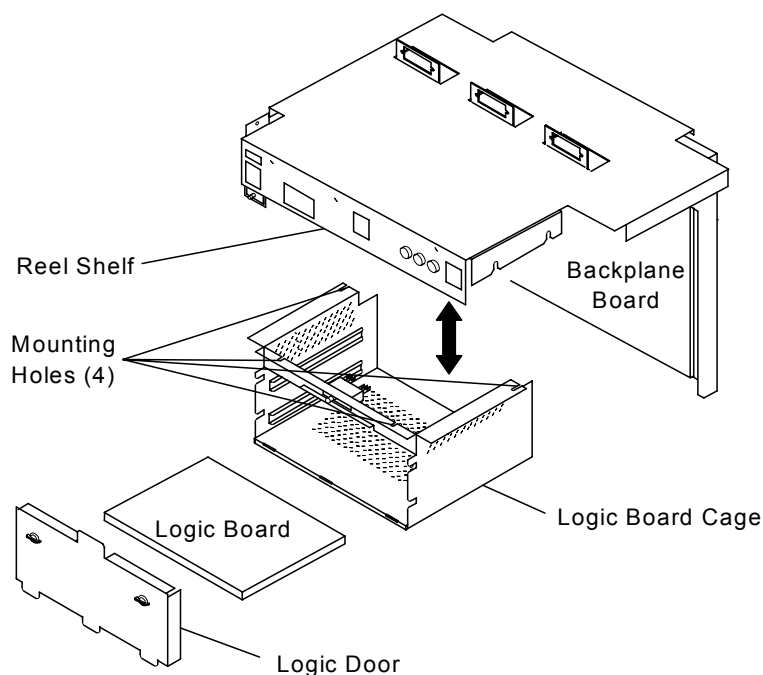
6. Loosen but do not remove the two rear lock nuts.

7. Pull the logic board cage forward so that the slots slip free of the rear mounting studs.

8. Remove the logic board cage from the cabinet.

9. Pull all wire harness connectors from the backplane I/O board.

10. Remove the 15 screws that secure the backplane I/O board to the back plate.

   Caution: *Place the defective backplane I/O board in an anti-static bag to prevent further damage to the board during transit.*

Installation

1. Be sure to discharge any static charge before opening the new backplane I/O board package.

2. Install the new backplane I/O board with the 15 original mounting screws.

3. Plug in all of the wire harness connectors to the backplane I/O board.

4. Slip the rear mounting hole slots on the logic board cage onto the mounting studs on the reel shelf.

5. Pull the logic board cage forward until the front mounting holes slip into place on the forward mounting studs.

6. Use an 11/32-inch nut driver to tighten the lock nuts.

7. Install the logic board in the lower slot on the cage.

8. Install and lock the logic board door.

9. Install the coin hopper.

10. Turn on the AC power and test the machine to insure that the new backplane board is functioning correctly.

Handle Mechanism Replacement

Removal

1. Open the main door and turn off the AC power.

2. Remove reel number three (the right side reel) as described under "Reel Replacement" on page 16.
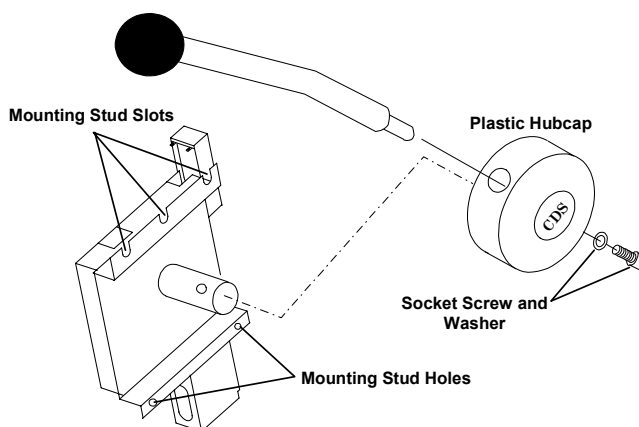
3. Use a ¼-inch hex driver to remove the socket head screw and washer that secures the handle to the handle mechanism shaft.

4. Pull the handle from the handle mechanism shaft.

5. Pull the plastic hubcap from the handle mechanism shaft.

6. Use an 11/32-inch nut driver to remove the four lock nuts that secure the handle mechanism to the cabinet.

7. Pull the handle mechanism from the cabinet.

Installation

1. Place the handle mechanism in the cabinet so that the mounting stud slots and holes slide over the cabinet studs.

2. Use an 11/32-inch nut driver to tighten the four lock nuts. A nut is not used on the lower rear stud.

3. Slide the plastic hubcap over the handle shaft so that the handle hole is aligned with the hole on the shaft.

4. Insert the handle into the hole on the mechanism shaft so that the flat guide on the handle aligns with the flat area in the hole on the mechanism shaft.

5. Insert the socket head screw and washer into the hole on the hub cap and tighten it with a ¼-inch hex drive.

6. Install reel number three.

7. Turn on the machine AC power and close the main door.

8. Access the Operator Menu and access the Handle Mech option from the Machine Test menu. Pull the handle and verify that it releases and latches correctly.

Soundboard

The soundboard is located on the lower left side of the cabinet.

Removal

1. Open the main door and turn off the AC power.

2. Disconnect the three cables from the soundboard.

3. Remove the four mounting screws that secure the soundboard to the CPU housing.

Installation

1. Align the mounting holes on the soundboard over the mounting holes on the CPU housing.

2. Install and tighten the four mounting screws.

3. Connect the three cables to the soundboard.

4. Turn on the machine AC power and close the door.

Fan Replacement

Removal

1. Open the main door and turn off the AC power.

2. Remove the bonus top glass as described in the Operation section of this manual.

3. Disconnect the fan power cable.

4. Remove the four fan mounting screws.

5. Pull the fan and grill from the cabinet.

Fan Mounting Plate

Fan Assembly
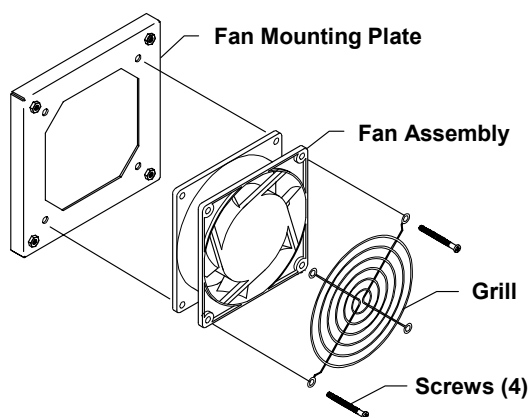
Grill

Screws (4)

Installation

1. Mount the new fan and grill with the four original mounting screws.

2. Connect the fan power cable.

3. Turn on the machine AC power.

4. Verify that the fan is exhausting air from the cabinet.

5. Install the top bonus glass.

6. Close the main door.

Fluorescent Lamp Replacement

Reel Lamp

1. Open the main door and turn off the AC power.

2. Rotate the reel fluorescent lamp approximately 90-degrees in either direction to unlatch the pins, and then pull it out of the sockets.

3. Remove the lamp from the cabinet.

4. Slide the pins of the new lamp into the slots in the sockets and rotate the lamp approximately 90-degrees until it latches.

5. Turn on the AC power. The lamp should turn on. If not, replace the ballast.

6. Close the main door.

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Belly Glass Lamp

1. Unlock and open the belly glass door and turn off the AC power.

2. Rotate the lamp approximately 90-degrees in either direction to unlatch the pins, and then pull it out of the sockets.

3. Slide the pins of the new lamp into the slots in the sockets and rotate the lamp approximately 90-degrees in either direction until it latches.

4. Turn on the AC power. The lamp should turn on. If not, replace the ballast.

5. Close the belly door.

Top Compartment Lamp Replacement

1. Open the main door.

2. Turn off the machine AC power.

3. Remove the top glass as described under "Game Top/Glass Access" on page 8.

4. Verify that the lamp is **NOT HOT**. Grasp the lamp at the base as shown and pull upward until it slips free of the socket.

   To prevent glass breakage, do not pull on the glass tube. Lift upward on the lamp base.

   When replacing the lamp inside the bonus wheel, use a small knife or flat blade screwdriver to gently pry the lamp base from the socket.

5. Plug the new lamp into the socket.

6. Install the top glass as described under Game Top/Glass Access in the Operations section of this manual.

7. Turn on the AC power.

8. Close and lock the main door.

CAUTION
LIFT ON LAMP BASE ONLY
DO NOT PULL ON GLASS TUBE
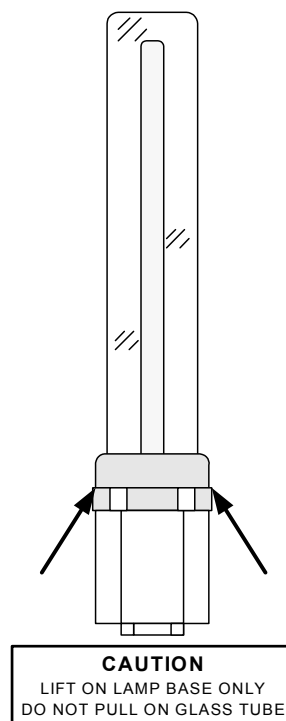
Belly Glass Replacement

If the belly glass is broken, use protective equipment to remove the broken pieces from the frame before attempting to lower the door.

1. Open the belly door and turn off the AC power.

2. Unlock and open the belly glass door as described in the Operations section of this manual.
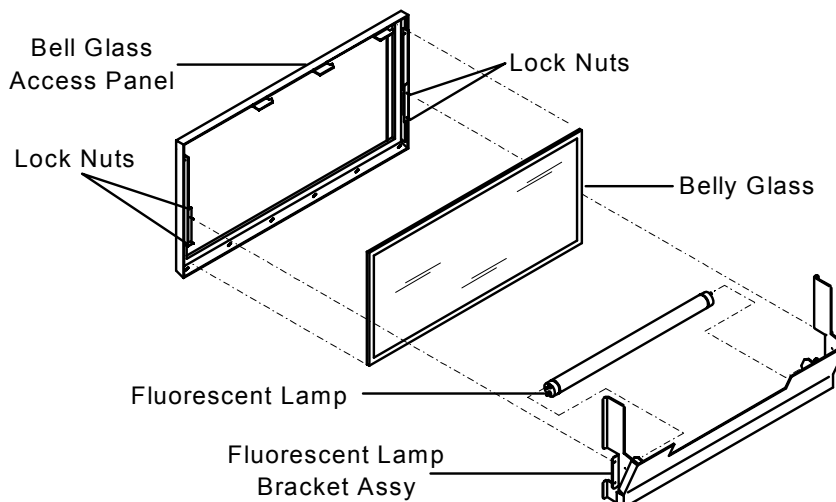
3. Disconnect the fluorescent lamp power cable at the inline connectors.

4. Remove the four lock nuts that secure the fluorescent lamp assembly to the belly glass doorframe.

5. Lift the fluorescent lamp assembly away from the frame and place it in a protected area to prevent breaking the lamp.

6. If the belly glass was not broken, gently push upward on the front side to release it from the foam lining on the frame.

7. Being careful not to catch the bottom edge of the glass under the magnetic door switch, remove the glass from the frame and place it in a protected area to prevent breakage.

8. Carefully place the new glass on the frame making sure that the rubber strip on the frame is not disturbed.

9. Place the fluorescent lamp assembly onto the four mounting studs.

10. Secure the fluorescent lamp assembly with the four original lock nuts.

11. Turn on the machine AC power.

12. Close and lock the belly glass door.

Deck Buttons

Refer to the illustration below when replacing the deck button assemblies or bulbs.
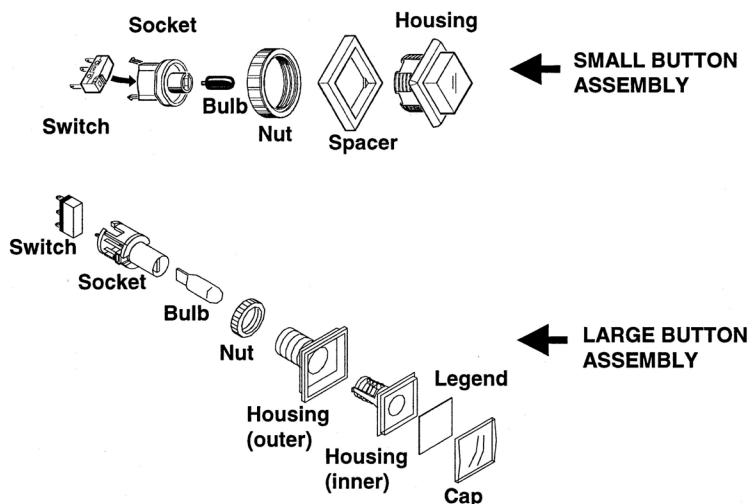
Replacing Deck Button Assembly

1. Unlock and open the machine door and turn off the AC power.

2. Pull (to disconnect) the wire connectors from the micro-switch.

3. Remove the nut from the switch housing and remove it from the deck.

4. Remove the nut from the replacement assembly and insert the housing into the deck, assuring it is properly oriented.

5. Align the button housing on the deck and hold it in place while installing the spacer and nut, tightening the nut from the back.

6. Install the bulb into the socket and the socket into the housing.

7. Install the micro-switch.

8. Turn on the machine AC power and close the main door.

Replacing Deck Button Lamps

1. Unlock and open the machine door and turn off the AC power.

2. Align the base of the replacement lamp with the socket contacts and push it in until it snaps firmly into the socket.

3. Turn the housing 45-degrees counterclockwise to remove the housing on the small button and pull the housing to remove it on large button.

4. Pull the bulb from the socket.

5. Align the tabs on the socket with the slots on the deck button housing and push the socket and turn it 45° to lock it into place.

Replacing Deck Button Switches

1. Open the machine door and turn off the AC power.

2. Pull the wire connectors from the micro-switch.
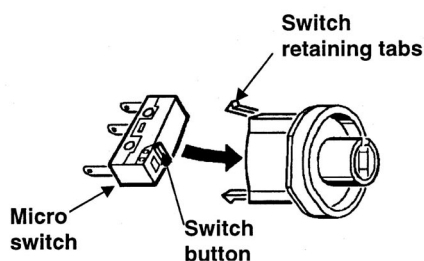
3. Use a small screwdriver or small knife blade to lift up on the socket switch-retaining tab. *Exercise caution to prevent cuts should the tool slip*.

4. Pull the switch off of the retaining pins on the socket and then slide it out of the base of the socket. Note the position of the switch button as shown above.

5. Lift the switch-retaining tab while sliding the new switch onto the retaining pins. Verify the switch button is aligned in the same position as the switch that was removed.

6. Install the wires onto the new micro-switch.

7. Turn on the machine AC power and close the main door.

Replacing Deck Button Legend
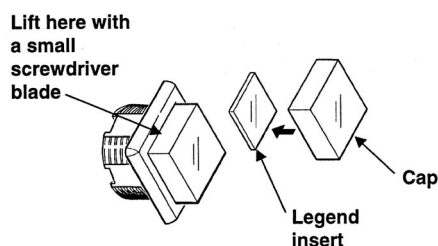
1. Use a sharp object, such as a small screwdriver blade, to pry the cap from the deck button, being careful not to scratch it. *Exercise caution to prevent cuts should the tool slip*.

2. Pry the legend insert from the deck button cap, being careful not to scratch the clear plastic cap.

3. Press the new legend insert into the deck button cap.

4. Align the cap with the deck button housing, and then push into the cap. It will click when seated.

5. Turn on the machine AC power and close the main door.

CDS Gaming

Chase Light Adjustment

A sequence controller located on the left side of the bonus wheel assembly in the top box (see below) controls the chase light sequence rate.

Chase Light
Controller
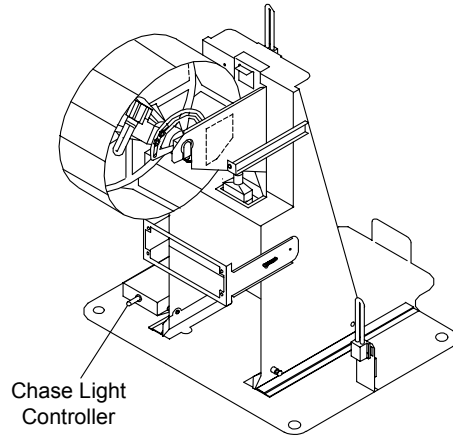
To adjust the chase light sequence rate, follow these steps:

1. Remove the card reader/keypad/display bracket or blank panel that is located below the top glass as described under Top Glass Access on page 8.

2. Rotate the control shaft on the sequence controller counterclockwise to reduce the rate and clockwise to increase it.

   It is recommended that all chase lights in a slot bank be adjusted for the same sequence rate to provide the most effective game attraction.

3. Install the card reader/keypad/display bracket or blank panel as described under Top Glass Access on page 8.

Chase Light Replacement

1. Remove the top glass as described under Top Glass Access on page 8.

2. Remove the cable harness cover on the rear of the chase light box by turning the thumbscrew counterclockwise then lifting the cover.

3. Disconnect the three cable harness connectors.

4. Loosen but do not remove the two #6 locknuts that secure the light box to the top box. These nuts are accessed through the slot at the inside top front of the top box.

5. Grasp the light box with both hands and pull forward until it slides free of the mounting studs.

6. Place the light box face down on a *soft flat* surface such as a piece of carpet to prevent scratching the bezel and glass.

7. Remove the eight locknuts on the rear of the light box.

8. Lift the plastic light box housing away from the bezel assembly.

9. Lift the wire harness socket from the defective LED.

10. Pull the defective LED from the bezel.

11. Insert the new LED into the bezel.

12. Plug the wire harness socket onto the LED leads.

13. Verify that all LEDs are seated into the mounting holes.

14. Install the plastic light box housing onto the bezel assembly and secure it with the eight screws that we previously removed.

15. Make sure that the three harness connectors are pulled through the hole in the rear of the assembly.

16. Carefully lift the light box up and into the mounting slot on the top box.

17. Secure the light box with the two locknuts.

18. Connect the three wire harness connectors and install the harness cover.

19. Install the top glass as described under Top Glass Access on page 8.
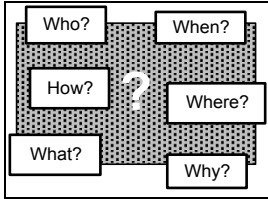
Troubleshooting

The troubleshooting section is provided to help diagnose any problems encountered with the machine.

Power Supplies

Four red LED indicators located on the lower left corner of the backplane board are provided for quick verification of the machine power supply operation. The following table provides information regarding the various modules within the machine that are powered by the machine supplies.

Note: These indicators do not provide status of the auxiliary power supplies located in the top compartment of various games.

Power Supply	*Modules Supplied*
+5 VDC	Card Reader, Displays, Logic Board, Keypad, and Sound Board.
+5 VDC	Handle Mechanism, Reel Drivers, and Logic Board.
+12 VDC	Card Reader, Displays, and Sound Board.
+24 VDC	Coin Acceptor, Handle Mechanism, Reel Drivers, Logic Board, and Sound Board.

The DC power supplies are powered from the AC fuses mounted on the reel shelf. The following illustration shows, which power supplies, are assigned to these fuses:
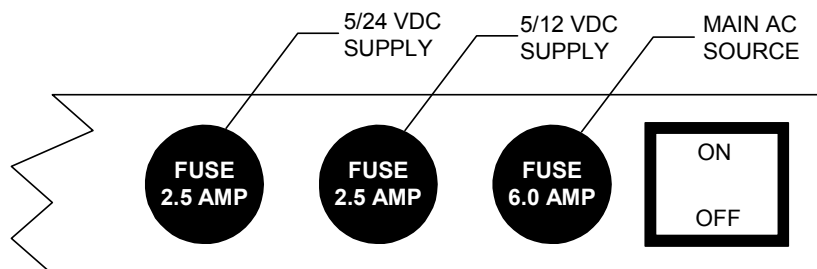
Logic Board Indicators

Additional LED indicators have been provided on the logic board to indicate the status of the following:

- Serial communications between the machine logic board and *internal* devices such as ticket printer and bill validator.

- Serial communications between the machine logic board and *external* devices/systems such as slot accounting and player tracking systems and multi-site progressive systems.

- Logic board logic activity.

- Power supply operation.

These indicators are located along the right edge of the logic board and can be viewed by removing the logic door.

O= Orange   G= Green   R= Red

O	O	G	O	G	O	G	O	G	O	G	O	G	O	G	O	R	R	R
DS1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
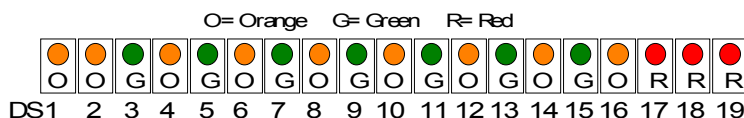
LED	Port	Description
DS1	Status	Not used
DS2	Port 1 – TX	Accounting port (player tracking)
DS3	Port 1 – RX	Accounting port (player tracking)
DS4	Port 2 – TX	Not used
DS5	Port 2 – RX	Not used
DS6	Port 3 – TX	Not used
DS7	Port 3 – RX	Not used
DS8	Port 4 – TX	Bill Validator TTL/RS-232 Communications
DS9	Port 4 – RX	Bill Validator TTL/RS-232 Communications
DS10	Port 5 – TX	Ticket Printer Communications (optional)
DS11	Port 5 – RX	Ticket Printer Communications (optional)
DS12	Port 6 – TX	RS-485 Communications (meters/progressives)
DS13	Port 6 – RX	RS-485 Communications (meters/progressives)
DS14	Port 7 – TX	RS-485 Communications (meters/progressives)
DS15	Port 7 – RX	RS-485 Communications (meters/progressives)
DS16	Watchdog	Processor Watchdog Circuitry – Monitors processor to verify that it is not in a lockup state. Must be flashing to indicate processor activity
DS17	5 VDC	Logic Supply
DS18	5 VDC	Isolated (analog) Supply
DS19	24 VDC	Lamp Driver Supply

Logic Board Jumper Settings
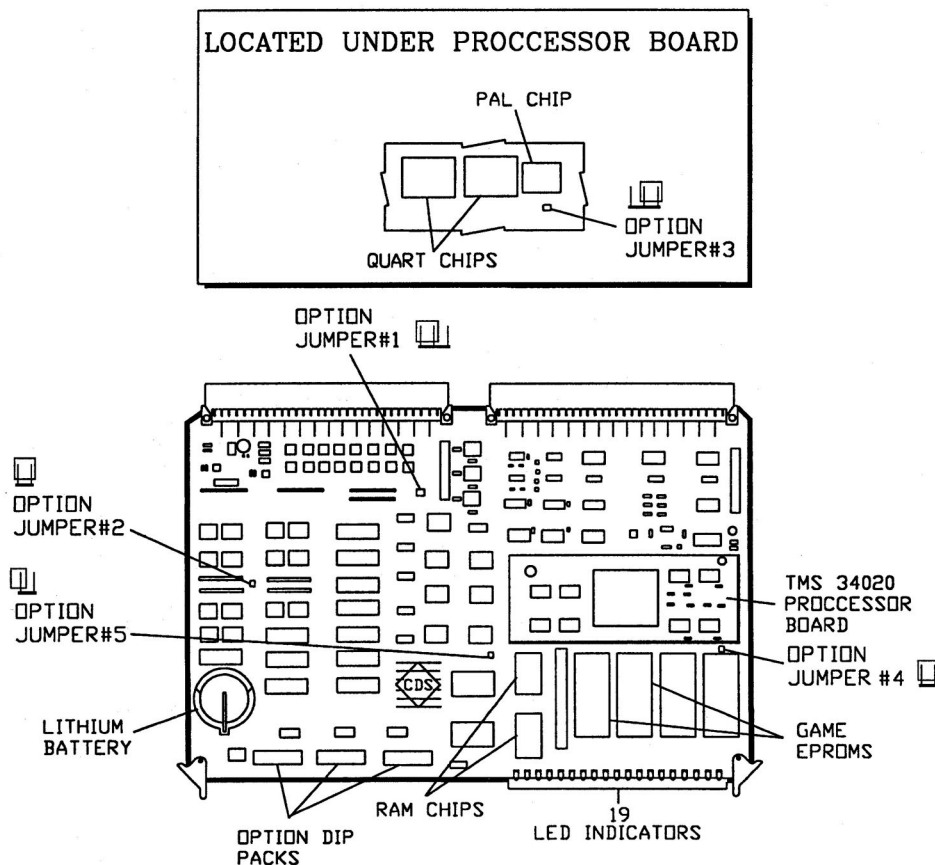
Jumper #1   This switches the Auxiliary 485 port (J16 and J22) between half duplex and full duplex.

Setting = half duplex.

Jumper #2   This is the pull-up connection for outputs.

Setting = half duplex.

Jumper #3   This switches the bill validator communication between TTL and RS-232.

Setting = TTL (JCM WBA-13 bill validator)
Setting = RS-232 (Mars bill validator)

Jumper #4   This enables 8 MB chip use.

Setting = on.

Jumper #5   This enables virtual doors.

Setting = off.

Backplane Board Connections
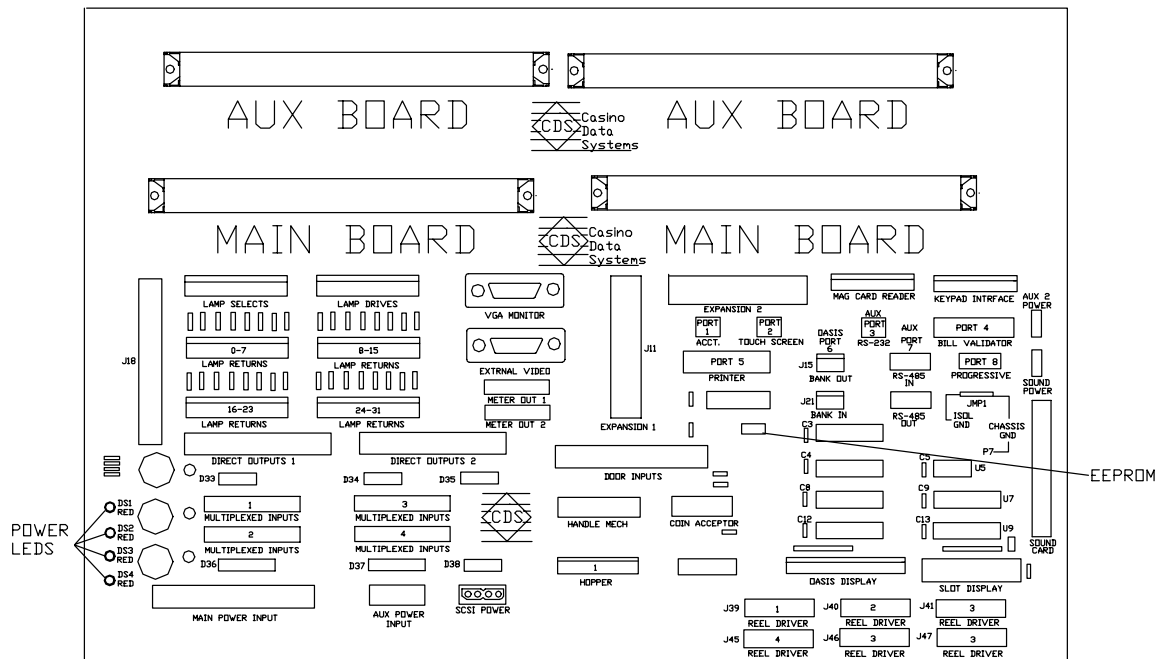
Backplane Connectors

Conn	Function	Conn	Function
J2	Lamp Drivers	J31	Coin Acceptor
J6	Aux Power	J32	Multiplexed Inputs
J9	Aux RS-232	J33	Multiplexed Inputs
J10	Bill Validator	J34	Multiplexed Inputs
J12	Lamp Returns	J36	Coin Hopper
J13	Lamp Returns	J38	Door Display Interface
J19	Sound Board Power	J39	Reel 1 Driver
J20	Meter Drivers	J40	Reel 2 Driver
J24	Lamp Returns	J41	Reel 3 Driver
J26–J27	Direct Outputs	J42	Main Power
J28	Door Switch Inputs	J43	Aux Power
J29	Sound Board Interface	J45	Bonus Wheel Driver

Troubleshooting Techniques

Problem: Bill Validator Errors

1. Verify that the bill stacker is installed correctly inside the bill validator.

2. Verify that the bill validator head is seated firmly in the validator housing.

3. Verify that the proper bill validator EPROM is installed.

   From the Operator Menu, select **MACHINE TEST** and then the **BILL VAL** option.

   If the bill validator has been enabled, the "IDLE" message appears on the game alphanumeric display. If it is disabled, the message "OFF-LINE" is displayed.

   If the "OFF-LINE" message appears, select the **CONFIGURATION** and then **BILL VAL** options from the Operator Menu. A value of "0" on the Winner Paid meter indicates that the validator is *not* enabled. Press **SPIN REELS** to toggle the value to "1" to enable it.

   Press **BET ONE** to view the status of each of the following options on the Winner Paid meter ("0" = disabled, "1" = enabled).

   - BV ENABLE
   - BILLS ($1, $2, $5, $20, $50, $100)

   To toggle a value, press **SPIN REELS** or **MAX BET**.

4. From the Operator Menu, select **MACHINE TEST** and then the **BILL VAL** option to test the bill validator. Insert bills of various denominations into the validator. Good bills are drawn in and "Escrow" appears briefly on the alphanumeric display. Bad bills are rejected and the reason for rejection is displayed.

5. Verify that the main wire harness is plugged into connector J10 on the backplane board.

6. Verify that the main wire harness is plugged into the connector on the back of the bill validator.

7. Substitute a known good bill validator head.

Problem: 5/12-Volt DC Power Supply Inoperable

1. Verify that red LED indicators DS1 and DS2 on the backplane board are lit.

2. Check the middle fuse on the AC power panel.

3. Verify that the main wire harness is plugged into backplane board connector J43.

4. Replace the power supply with a known good supply as described under "Power Supply Replacement" on page 14.

Problem: 5/24-Volt DC Power Supply Inoperable.

1. Verify that red LED indicators DS3 and DS4 on the backplane board are lit.

5. Check the left fuse on the AC power panel.

6. Verify that the main wire harness is plugged into backplane board connector J43.

7. Replace the power supply with a known good supply as described under "Power Supply Replacement" on page 14.

Problem: Coin Comparitor Errors

1. Verify that the comparitor has the correct comparison coin installed.

2. Verify that the comparitor wire harness is firmly seated in the connector.

3. Verify that the main harness is plugged into J31 on the backplane board.

4. Substitute a known good comparitor.

Problem: Coin Diverter Inoperable

1. Verify that the diverter wire harness is connected.

2. Verify that the main harness is plugged into J31 on the backplane board.

3. Substitute a known good diverter assembly.

Problem: Machine Lamps Inoperable

1. From the Operator Menu select the **ALL LAMPS TEST** or **SINGLE LAMP TEST** option on the **MACHINE TEST** menu to test all or individual lamps.

2. Verify that the main wire harness is connected to backplane board connectors J2, J12, J13 and J24.

3. If more than one input is operating simultaneously, check the main wire harness for shorts to ground.

4. Replace the backplane board with a known good board.

Problem: Key Switches and Button Inoperable

1. From the Operator Menu select the **MULTIPLEX INPUTS** option on the **MACHINE TEST** menu to check buttons and switches.

2. Verify that only one input is seen at a time.

3. Verify that the main wire harness is connected to backplane connectors J32, J33 and J34.

4. If more than one input is operating simultaneously, check the main wire harness for shorts to ground.

5. Replace the backplane board with a known good board.
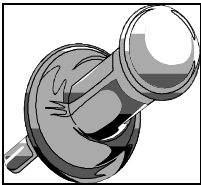
Appendix 1

Parts List and Exploded View Drawings

CDS Gaming
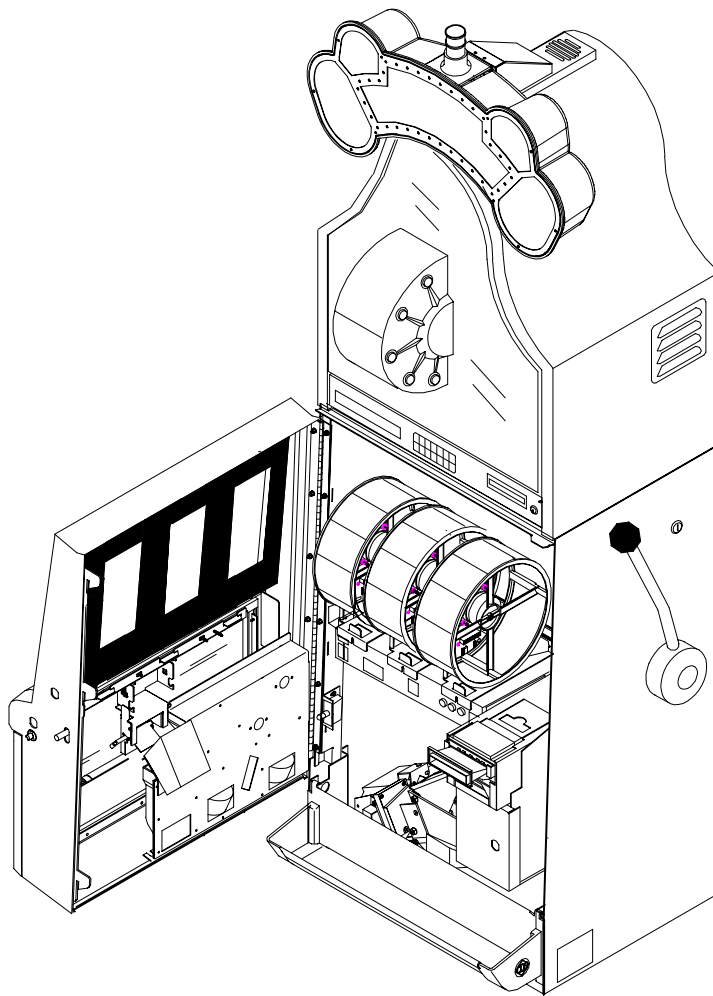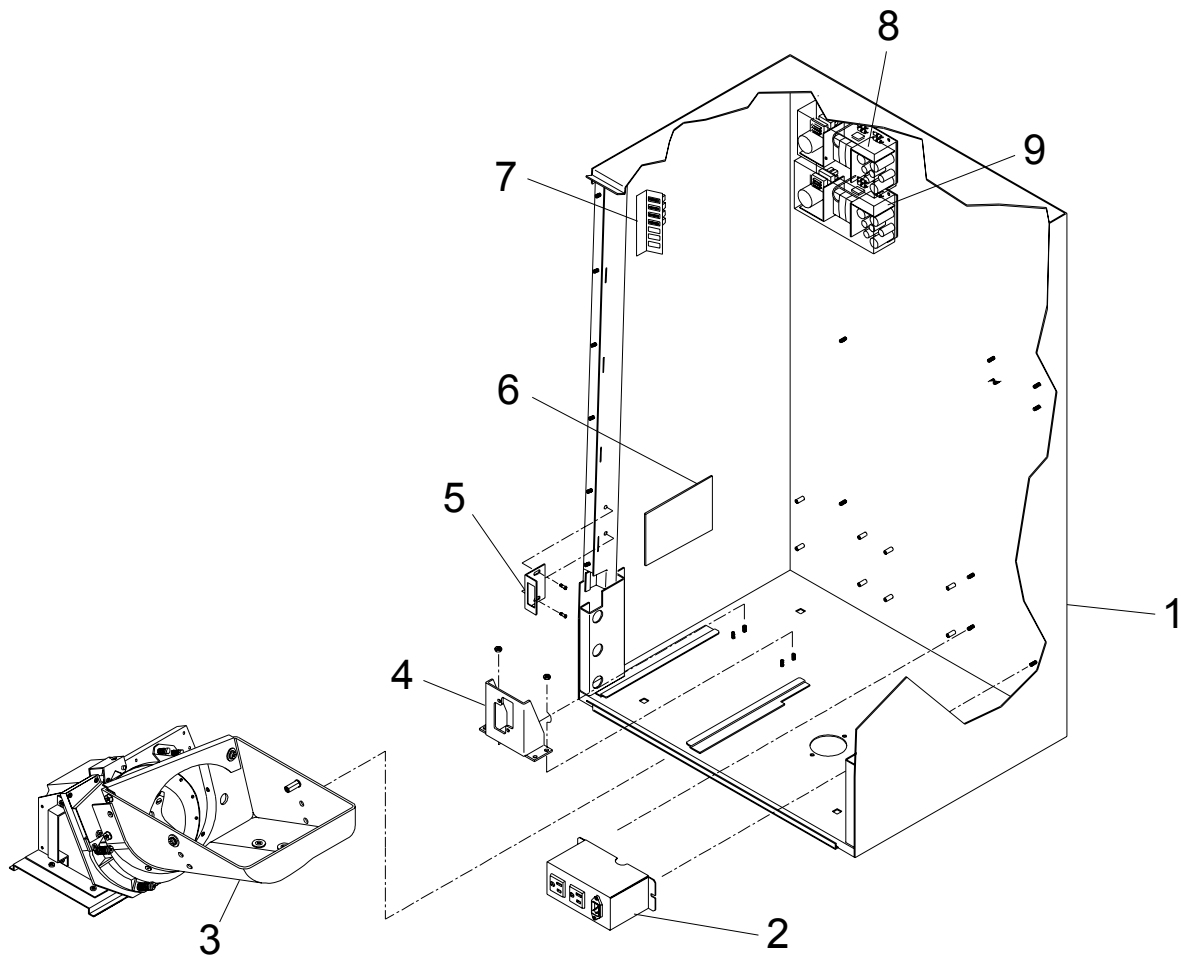
Cabinet 1

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42680	US-0320 CABINET
2	1	07-41103	TWO-PLEX ELECTRICAL BOX
	1	07-40057	LOWER FOUR-PLEX ELEC. BOX
3	1	07-41051	HOPPER, UV19U32TS $1.00
		07-41080	HOPPER, UV19U32TS $0.50
		07-41050	HOPPER, UV19U32TS $0.25 MD BOWL
		07-41049	HOPPER, UV19U32TS $0.05
	Contact CDS Sales Representative for denomination conversion parts.		
4	1	04-12009	HOPPER BRACKET
5	1	O4-12127	SWITCH BRACKET
6	1	07-10106	SOUND BOARD
7	1	04-12010	METER BRACKET
	4	01-80064	METERS 7 DIGIT
8	1	06-20061	POWER SUPPLY 5V
9	1	06-20047	POWER SUPPLY 24V

Cabinet 2
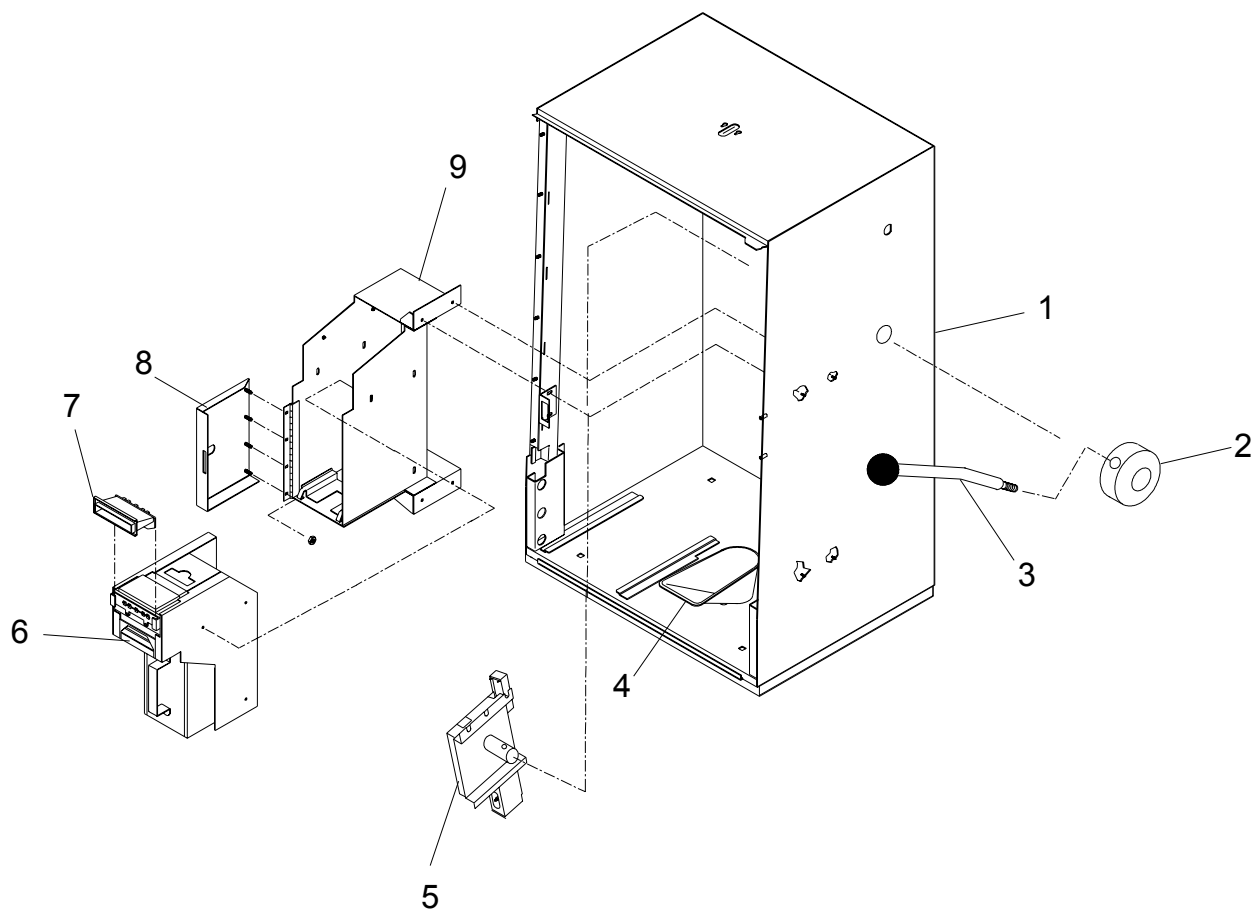
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42680	US-0320 CABINET
2	1	09-12016	PULL HANDLE COVER
3	1	03-70118	PULL HANDLE WITH KNOB
4	1	04-41075	COIN CHUTE
5	1	07-41115	HANDLE MECH.
6	1	07-40155	BILL VALIDATOR (WBA13)
7	1	04-41030	BILL VALIDATOR BEZEL
8	1	09-12046	BILL STACKER DOOR
9	1	04-12081	BILL VALIDATOR HOUSING

Reel Shelf Assembly
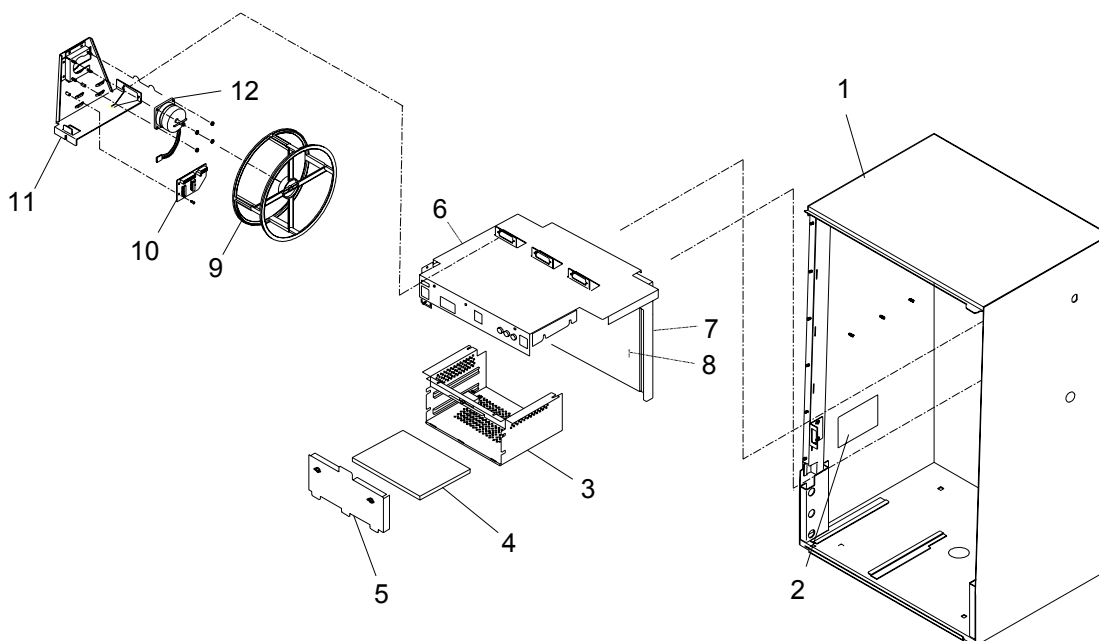
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42680	US-0320 CABINET
2	1	07-10106	SOUND BOARD
3	1	07-40201	ASSEMBLY, CPU CAGE
	1	02-60001	SWITCH, CHERRY E79-30A
	1	04-40029	GUIDE CPU BOARD
4	1	07-10099	PCB VIGII MAIN
5	1	09-12029	DOOR CPU
6	1	07-40166	ASSEMBLY, REEL SHELF
	1	02-60001	SWITCH, CHERRY E79-30A
	1	04-12087	BRACKET, SHELF SUPPORT
	1	01-80013	FUSE HOLDER, .5mmX20mm
	1	01-80032	FUSE HOLDER, L/F #3453LF2
	1	01-80042	RECEPTICAL, A/C 659-4086
	1	01-80049	FUSE, 6AMP 3AGL/F#312006
	1	01-80170	FUSE, 2.5AGMA
	1	01-70015	SWITCH ON/OFF
	1	07-20407	HARNESS, US-0320, REEL 1
	1	07-20408	HARNESS, US-0320, REEL 2
	1	07-20409	HARNESS, US-0320, REEL 3
	1	07-20558	HARNESS, US-0320, A/C
7	1	07-40200	ASSEMBLY, BACK PLANE BRACKET
8	1	07-10102	BOARD, BACKPLANE-VIG II
9	3	04-40160	REEL PLSTC STARPOINT TS
10	1	07-10153	PCB VIG II REEL DRIVER
11	1	04-12197	BRACKET, REEL
12	1	01-80063	MOTOR, 24V REELS WITH KEY

Door (Reel Glass)
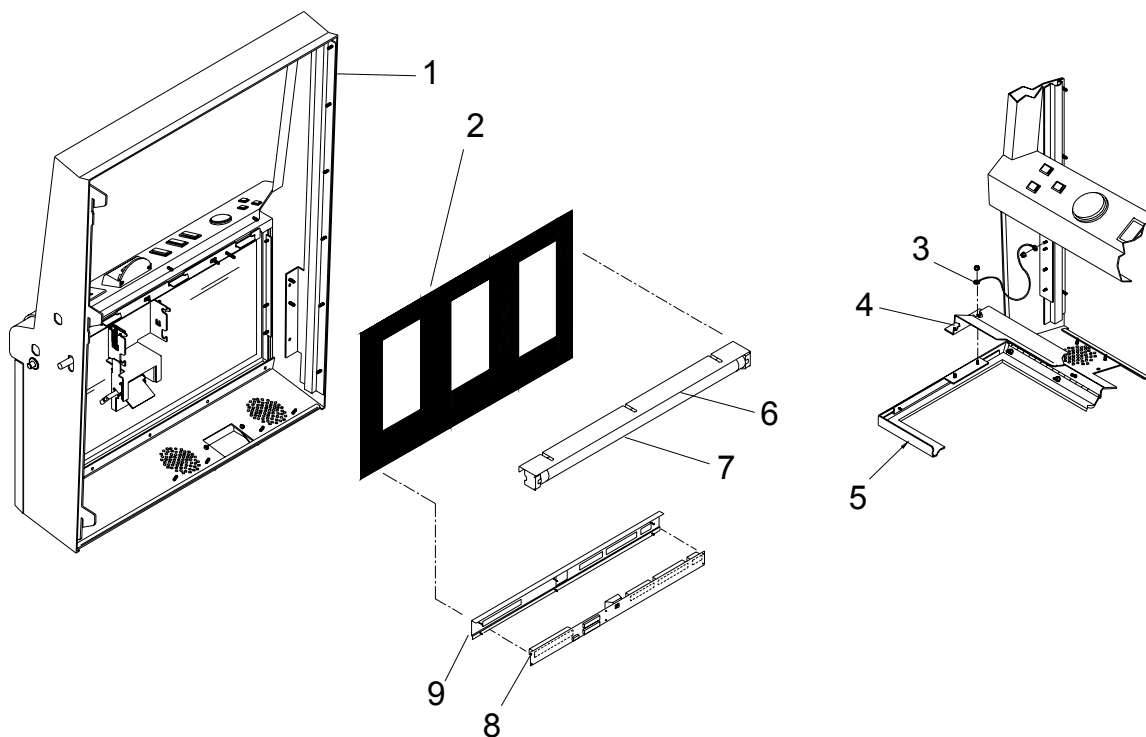
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42681	MAIN DOOR WITH BONUS SPIN
2	1	GE40TMXXXXXX-00	REEL GLASS
3	1	07-20730	LANYARD CHAIN MAIN DOOR, 15"
	1	07-20729	LANYARD CHAIN BELLY DOOR, 12"
4	1	07-41062	ASSEMBLY, UV19/032 LMP.LWR BELLY
5	1	09-12040	DOOR, UV19/S/D BL BX ACC.
6	1	04-12088	BRACKET, USO32TS UPPER GLASS
7	1	01-80047	BULB, FLOURES F15T8/CW18
8	1	07-40163	LED, HORIZONTAL DISPLAY
9	1	04-12096	BRACKET, LED COUNTER/METER

CDS Gaming

Door (Coin Comparitor/Door Hardware)
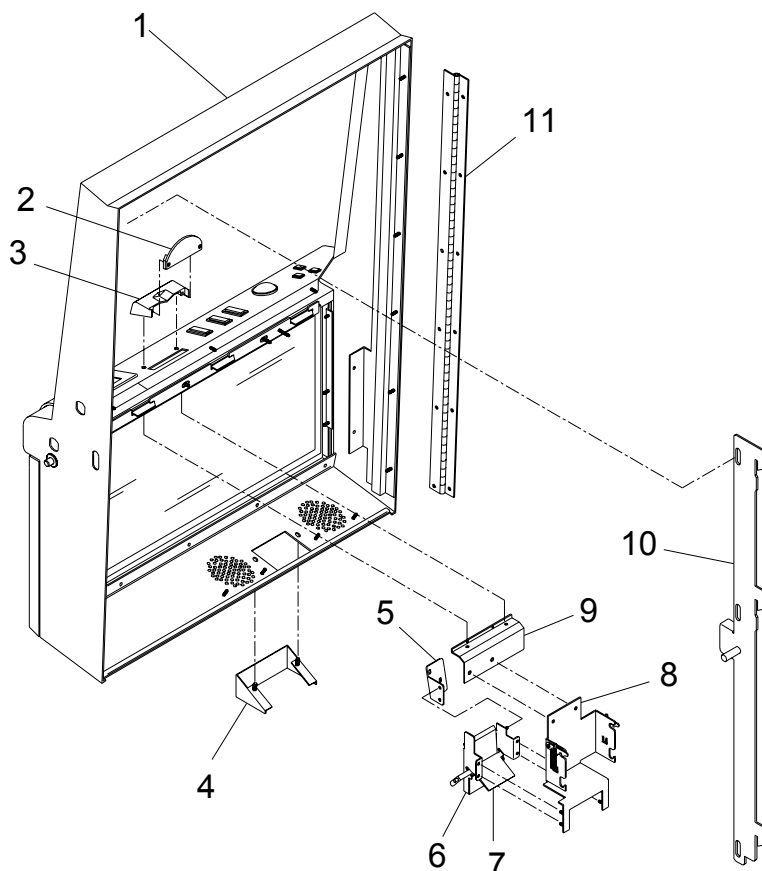
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42681	MAIN DOOR WITH BONUS SPIN
2	1	04-21013	BACKPLATE, COIN HEAD $.05
	1	04-21035	BACKPLATE, COIN HEAD $.25
	1	04-21071	BACKPLATE, COIN HEAD $.50
	1	04-21003	BACKPLATE, COIN HEAD $1.00
	1	04-21041	BACKPLATE TOKEN HEAD
3	1	04-31009	COIN HEAD, SLT/US32/UB20, 20 DEG
4	1	09-12052	COVER, COIN EXIT
5	1	04-12032	BRACKET, SOLENOID
6	1	04-12031	BRACKET, U19/U20/U32 DIVERTER
7	1	09-12034	DIVERTER, UV19/UB20/US
8	1	04-12045	BRACKET, UV19/UB20 COIN MECH.
9	1	04-40108	GUIDE, COIN US/UV19/UB20
10	1	03-80123	LOCKBAR, MAIN DOOR US-0320 TS
11	1	03-70027	HINGE, US-0320 MAIN DOOR

CDS Gaming

Door (Various Hardware)
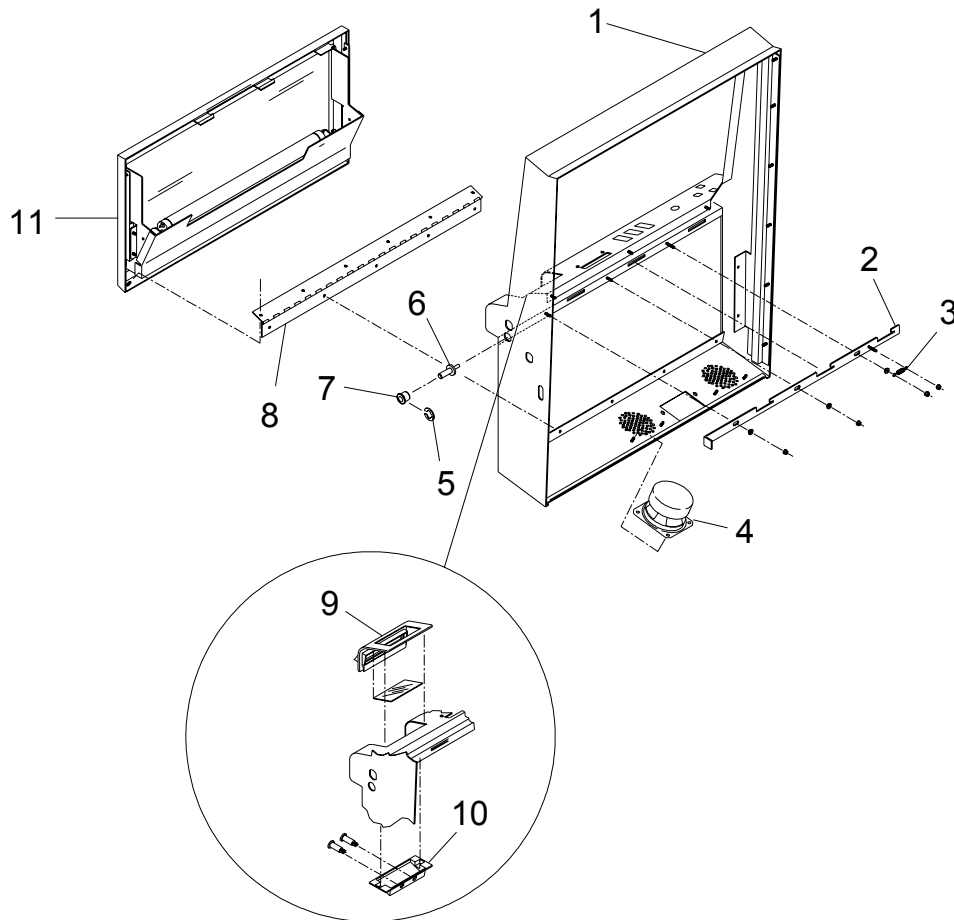
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42681	MAIN DOOR WITH BONUS SPIN
2	1	04-12040	BRACKET, SLIDE, ACCESS DOOR
3	1	03-70086	SPRING, EXTENSION, ACCESS DOOR
4	2	01-80151	SPEAKER, 8 OHM, 6 WATT
	2	04-12113	BRACKET, SPKR.MNT.DOOR
5	1	03-70085	RING, RETAINER
6	1	02-70064	BUTTON, PUSH, ACCESS DOOR
7	1	03-80102	BUSHING, PUSH BUTTON
8	1	03-70081	HINGE, ACCESS DOOR
9	1	04-40109	GUIDE, BEZEL, MAIN DOOR
10	1	04-12043	BRACKET, LAMP
11	1	REFERENCE	DOOR, BELLY, ASSEMBLY

Door (Coin Panel)
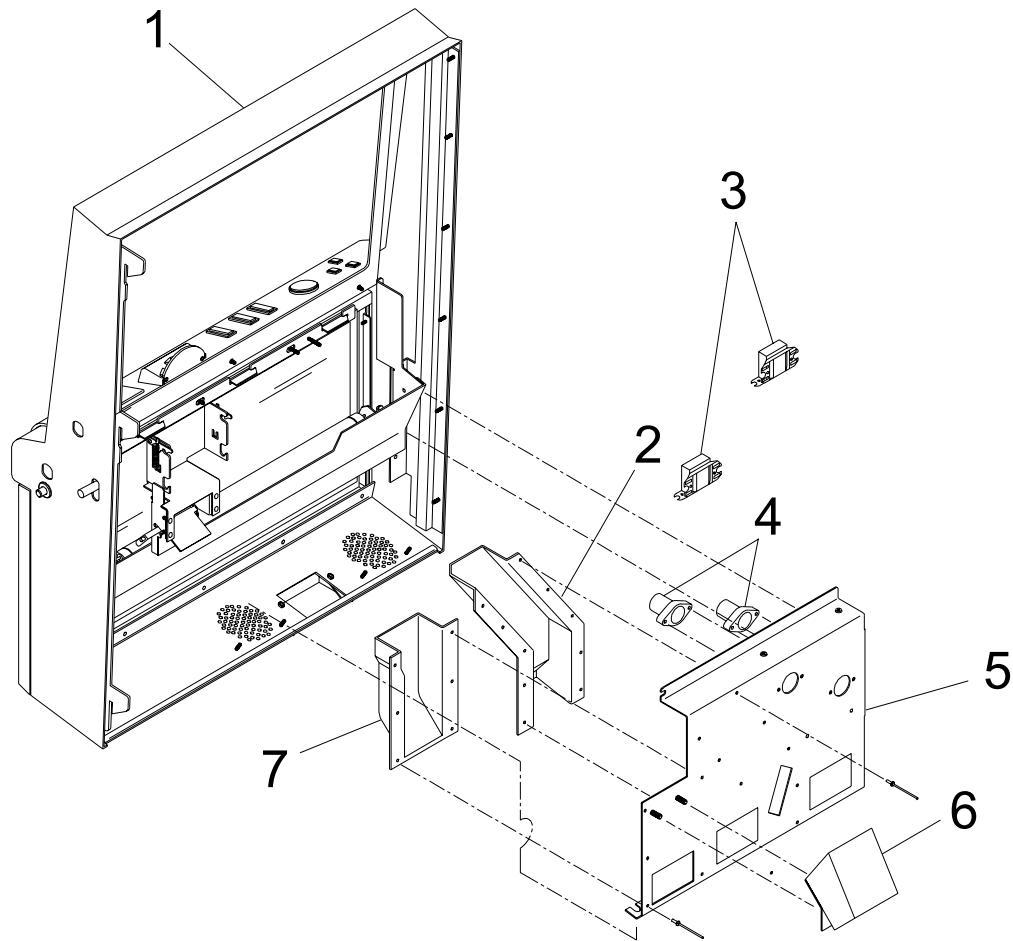
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	07-42681	MAIN DOOR W/BONUS SPIN
2	1	04-41013	REJECT SHUTE
3	2	01-80037	BALLASTS, LAMP,-22W, 120V
4	2	01-80036	STARTERS LAMP, FS-2
	2	01-80043	SOCKET, STARTER, #596
5	1	04-12048	BRACKET, UV19, BELLY COIN HANDLING
6	1	04-41031	COIN HOPPER CHUTE
7	1	04-41033	DROP CHUTE

CDS Gaming
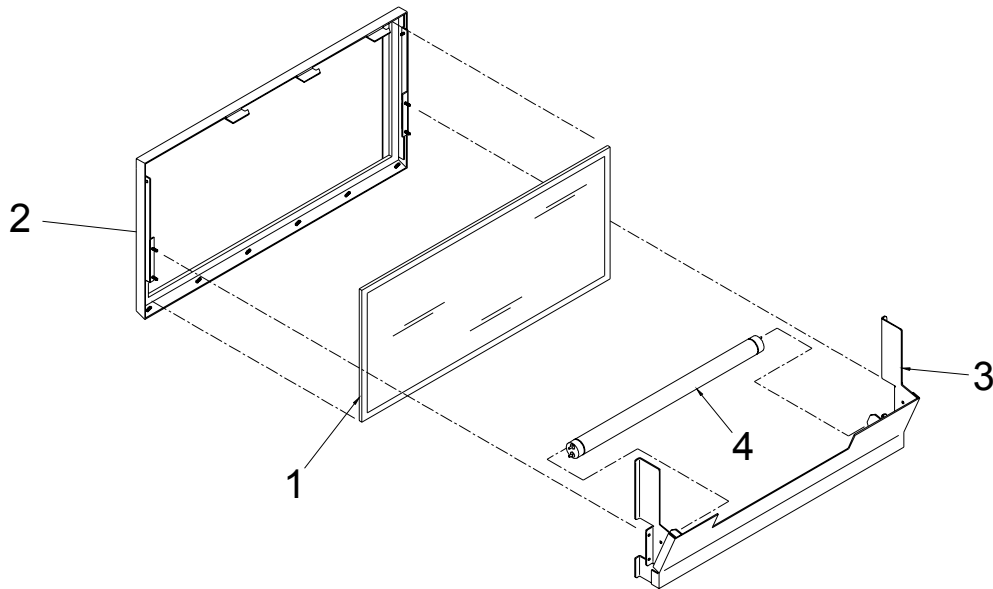
Door (Belly Door)

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	XX-XXXX	Game specific, contact CDS Sales Dept.
2	1	09-12040	DOOR, BELLY
3	1	04-12039	BRACKET, LAMP, GLASS BILL AC DR
4	1	01-80047	LAMP, FLOURESCENT F15T8/CW 18

Buttons
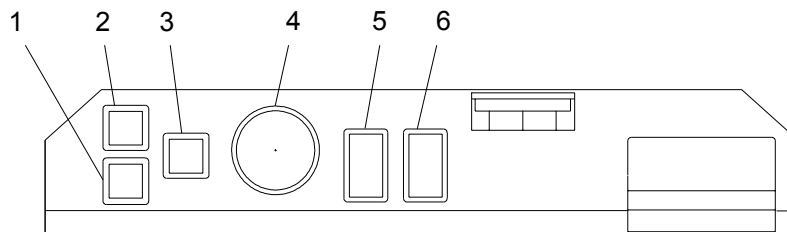
ITEM	QTY	LEGEND	PART NUMBER	DESCRIPTION
1	1	04-40190	02-70121	S/S COLLECT
2	1	04-40188	02-70140	DOOR, BILL BOX ACCESS
3	1	04-40189	02-70121	BRACKET, LAMP, GLASS BILL AC DR
4	1	04-40221	02-70131	LAMP, FLOURESCENT F15T8/CW 18
5	1	04-40268	02-70120	SPIN REELS (VERT. RECTANGLE.)
6	1	04-40222	02-70120	MAX BET (VERT. RECTANGLE)

Coin Acceptor
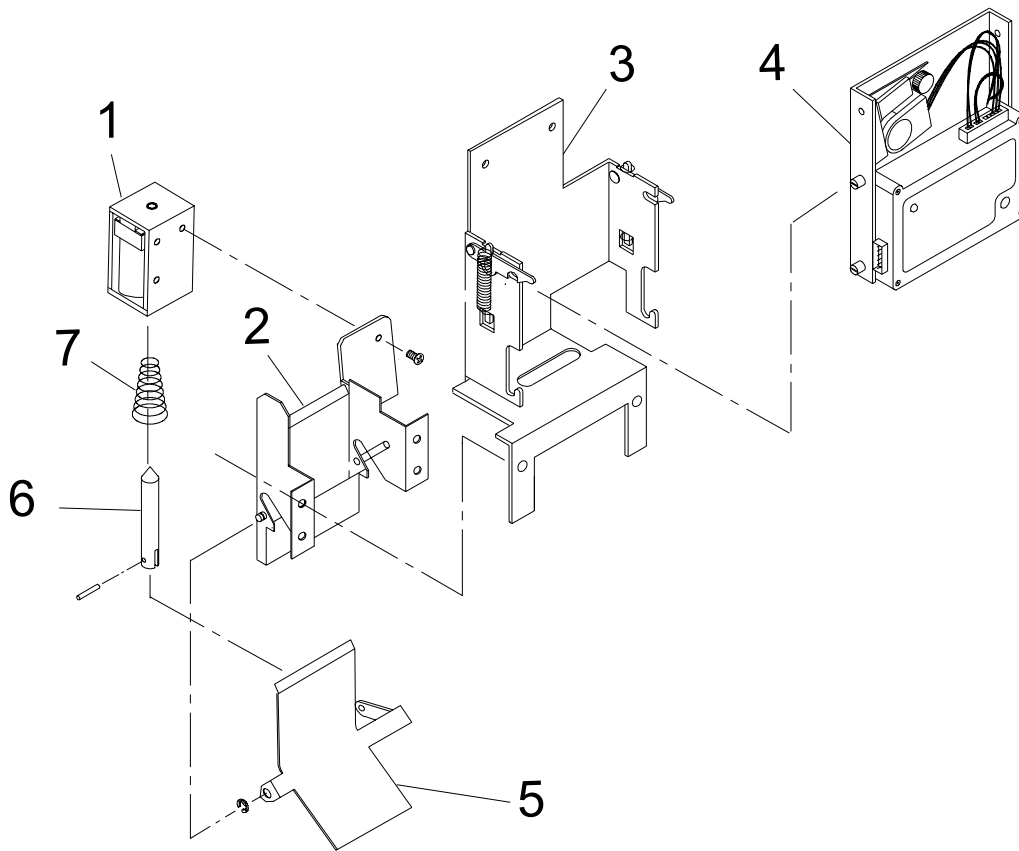
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	01-80031	SOLENOID, DIVERTER #11DC, 24V
1	1	04-12032	BRACKET, UV19/UB20 SOLENOID
2	1	04-12031	BRACKET, UV19/UB20/US32 DIVERTER
3	1	04-12045	BRACKET, UV19/UB20 COIN MECH.
3	2	03-70110	SPRING COIN DIVERTER #LE0118C-4
4	1	07-40157	COIN COMPARITOR .05/.25, MC40
5	1	09-12034	DIVERTER, UV19/UB20/US
6	1	03-80011	ROLL PIN, DIVERTER 3/32X5/8
7	1	03-70025	SPRING, SOLENOID, N#55084-00

CDS Gaming

Top Box
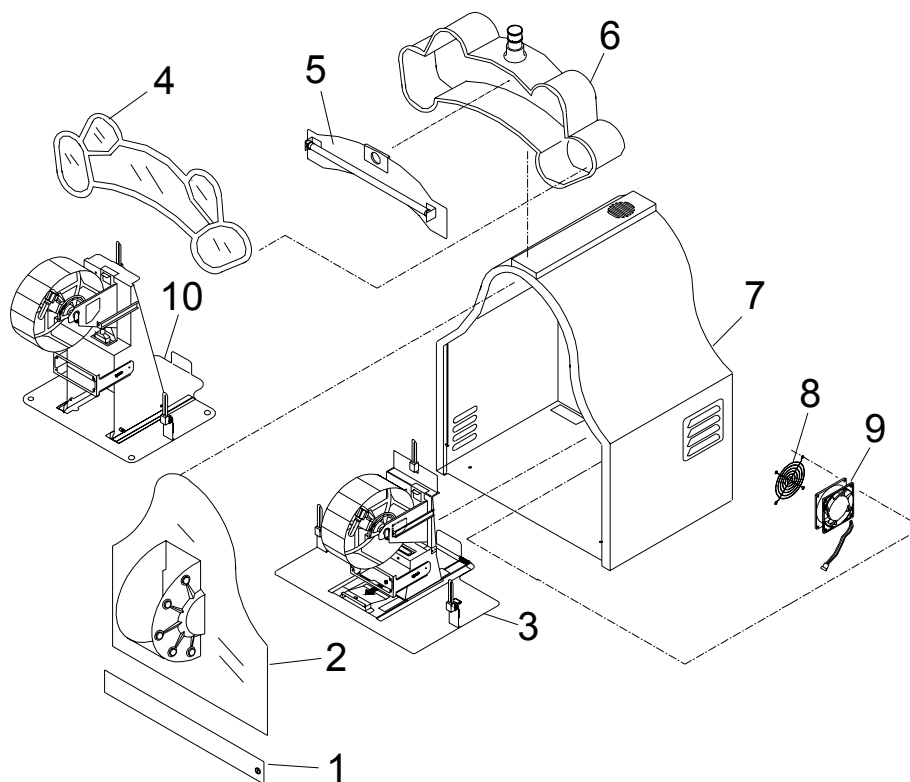
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	04-21184	BRACKET, US TH 3" BLANK
2	1	GW4OTMXXXXXX-00	OTM AWARD CRDT BLTP US312
	1	07-41274	BONUS WHEEL COVER ASSEMBLY
3	1	07-41229	ASSEMBLY, UB32/S002 (SEE PAGE A-12)
4	1	04-12225	COVER, SIGN BOX BRACKET
	VARIES BY GAME	01-70025	LED, BLUE
		01-70026	LED, WHITE
		01-70027	LED, YELLOW
5	1	04-11218	PLATE, ELEC. SIGN BOX
	1	01-80043	SOCKET STARTER #596
	1	01-80047	BULB, FLUORES, F15T8/CW 18
	1	01-80068	SOCKET, LAMP US/UP #500-1
	1	01-80124	STARTER, LIGHT FS-5
6	1	04-31034	BOX, EXTERIOR LIGHT/SIGN
	1	07-41320	ASSEMBLY, TOWER LIGHT
7	1	07-42668	CTO BELL TOP REEL BOX
8	1	01-80054	FAN, GUARD 92MM ORION
9	1	01-80155	FAN, 24VDC, NIDEC #M33423-16
10	1	07-41302	ASSEMBLY, BASE PLATE (SEE DETAILED DR)
	1	07-41316	ASSEMBLY, TOWER (SEE PAGE A-13)
	1	00-90061	METER KIT, TC-1
	1	01-80178	CONTROLLER, LAMP SEQUENCE

TOP BOX HARNESS

QTY	PART NUMBER	DESCRIPTION
1	07-20700	HARNESS, BONUS LAMPS EXTENSION, TOP BOX
1	07-20701	HARNESS, LED LAMPS EXTENSION LIGHT BOX
1	07-20702	HARNESS, LED LAMP EXTENSION, TOP BOX
1	07-20567	HARNESS, US/D32, REEL METER SENSE
1	07-20469	HARNESS, SB TOWER EXTENSION
1	07-20590	HARNESS, TCX/XI DISP THJR
1	07-20646	HARNESS, UD32/US002, REEL FLUORESCENT LAMP
1	07-20696	HARNESS, AC, REEL4 ASSY. TOP BOX
1	07-20697	HARNESS, AC, EXTENSION LIGHT BOX
1	07-20698	HARNESS, BONUS REEL, TOP BOX
1	07-20699	HARNESS, BONUS LAMPS TOP BOX

Bonus Wheel – Type 1

ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	01-80119	BULB, FLOURES, CF9DS, 8419W
	3	01-80140	SOCKET, LAMP #PC-9
2	1	04-12217	BRACKET, TOWER, UPRIGHT
3	1	04-11226	WELDMENT, RIGHT, STAT ARM
	1	04-11225	WELDMENT, LEFT, STAT ARM
4	1	04-12220	BRACKET, TOWER, LOWER
5	1	09-11217	RAILS, GUIDE
6	2	04-11230	BRACKET, LIGHT ARM, BL TPRIBX
7	1	04-11217	PLATE SLIDE
8	1	04-12221	BRACKET. LOCKING
9	1	09-11215	WELDMENT,. PLATE BASE
	1	06-20071	TRANSFORMER, 241-5-12
	3	01-80037	BALLAST, LAMP, 13-22W, 120V
10	1	01-80178	CONTROLLER, SEQUENCE, LAMP
11	1	04-12219	BRACKET, METER, 7SEGMENT, LED
12	1	07-41301	ASSEMBLY, BONUS REEL, OTM
	1	01-80063	MOTOR, 24V REEL W/KEY PIN
	1	07-10153	PCB, VIG II REEL DRIVER
	1	04-12197	BRACKET, US002, SWIVL FLRLIT RLS
13	1	04-40160	REEL PLSTC STARPOINT TS
14	1	04-12258	BRACKET, US32, TWR LMP UPPER

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Bonus Wheel – Type 2

ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	01-80119	BULB, FLOURES, CF9DS, 8419W
	3	01-80140	SOCKET, LAMP #PC-9
2	1	04-12263	BRACKET, SINGLE TOWER
3	1	04-11226	WELDMENT, RT STAT ARM
	1	04-11225	WELDMENT, LT STAT ARM
4	1	09-11215	WELDMENT, BASE PLATE
	3	01-80037	BALLAST, LT 13-22W, 120V
	1	06-20071	TRANSFORMER, 241-5-12
5	1	04-12219	BRACKET, METER
6	1	01-80178	CONTROLLER, SEQUENCE, LAMP
7	1	07-41301	ASSEMBLY, BONUS REEL OTM
	1	01-80063	MOTOR, 24V REEL W/KEY PIN
	1	07-10153	PCB VIG II REEL DRIVER
	1	04-12197	BRACKET, US002, SWIVL FLR LIT RLS
	1	04-40160	REEL PLASTIC, STARPOINT TS

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User Response Notes

Any errors, omissions, or suggestions for improvement to this manual should be reported to:

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Please let us know how you would rate this manual:

❏ Excellent   ❏ Adequate   ❏ Needs Improvement

Suggestions for improvement:

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