PeakCurve49

Service Manual
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TECHNOLOGY TRAINING & SUPPORT SERVICES
10 Memorial Boulevard, Providence, RI 02903 USA

IGT™

PeakCurve49 - Service Manual

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Safety

This section contains safety precautions that should be reviewed and followed when troubleshooting any IGT device. It includes safety precautions that pertain to all IGT products.

Safety Messages

Safety messages are included in this manual and affixed to the product hardware. Safety messages indicate:

- Potential hazard to the product or technician
- Instructions to reduce the chance of injury
- Results of not following the safety message instructions

Indicates that potential injury to the product or technician is possible if instructions are not followed.

Indicates that serious injury or death may result if the instructions are not followed.

General Safety Precautions

- Follow all applicable local electrical codes. Check to ensure that adequate power is available based on the requirement(s) of the system being installed.
- Always ensure that the electrical outlets are correctly wired and properly grounded. Polarity and ground testers are available from most electronic stores. Test all outlets in the work area before working on any electrical equipment. If there are any doubts about the wiring in the work area, consult a qualified electrician.

Never use an adapter plug to connect a three-prong power plug to a two-prong wall outlet. Adapters defeat the ground pin and eliminate the grounding protection.

- When working with either AC or DC voltage, take care not to touch the wires or circuitry to each other or any other point of contact, including yourself. Use only approved test equipment that is in good working condition.
- Turn off the power prior to connecting or disconnecting any electronic or electrical components.
- Take precautions to protect sensitive electronic components from damage before moving previously installed equipment.
- Disconnect the device from all power sources before making changes to operating voltage or frequency. Double check all electrical connections before applying power to avoid permanent damage to the device's electronic components.

Risk of explosion if battery is replaced by an incorrect type. Always dispose of used batteries according to the instructions.

- Handle all glass with extreme care to avoid breakage or injury from potentially sharp edges.
- Be cautious when handling all sheet metal to avoid injury due to sharp edges.

- When equipped with a base or stand, verify that the device is securely bolted to the base/stand before beginning any work.
- Replace safety-critical components with the manufacturer's recommended parts only.
- Use caution to keep hands clear of pinch points when closing doors.
- This device incorporates an earth connection for functional purposes only.
- The device may only be installed by qualified, trained personnel.
- If the device was stored in a cold environment, condensation can occur. To prevent condensation, wait for the device to acclimate to the temperature for 3 to 4 hours before opening the package.
- Check whether the set nominal voltage of the device corresponds to the voltage of the local line.
- This device is equipped with a safety-tested power cable and may only be connected to a grounded power outlet.

Power cord to be supplied by end user (IEC60320-1 and an approved power cord set to be used to meet requirements (Minimum: H05VV-F, 3 x 1.00mm2, 300V, 600C min., plugs rated 250V, 10A min., Class 1)).

- Ensure that the power outlet of the building installation is freely accessible. Never pull the power or data cables from the sockets by the cables; always grip the plug.
- Lay leads and cables so that no one can stand on or trip over them.
- Data transmission lines must not be connected or disconnected during a thunderstorm.
- Ensure that no objects (e.g. jewelry, paper clips, etc.) are allowed to drop inside the device.
- In emergencies (e.g. damaged housing, operating elements or power cable, entry of moisture or objects), switch off the device, disconnect power and contact the responsible customer support department.
- Repairs or modifications to the device may only be carried out by authorized specialist personnel.
- Unauthorized opening of the device and inexpert repairs can result in considerable danger for the user and jeopardize the warranty coverage.
- The device utilizes high-intensity LEDs internally for buttons and the collection bins. Do not to stare into them, as doing so over a period of time could damage the eyes.
- This device is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the device by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the device.

For safety and information resources, review the MT007 Safety and Information Resources document.

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Chapter 1 PeakCurve49 Overview

This manual describes the technical aspects of the PeakCurve49 EGM. The information contained in this document includes component identification, installation instructions, and preventive maintenance practices.

This chapter describes the technical aspects of the PeakCurve49 EGM including an overview of all of its major components.

Topics include:

- PeakCurve49 Features
- Specifications
- External Components Overview
- Basic Operational Instructions and Features
- Internal Components Overview

1.1 PeakCurve49 Features

The PeakCurve49 is a trade sale EGM initially being released with core themes; premium themes to follow.

- C-Curve 49" LCD
- 27" topper with matching lighting
- AVP 4.1 Brain Box
- 13.3" DPP Single Bash w/Inductive Charger
- Virtual Service and Cash Out buttons
- Wireless phone charging
- 800W Power Supply
- Stand mounting the same as Cobalt, S3K, and DRS

Figure 1-1 PeakCurve49 EGM

1.2 PeakCurve49 Specifications

The following specifications are for the PeakCurve49.

1.2.1 Electrical Specifications

Electrical Characteristics		Specification
AC line voltage (single phase)	120 V~ 240 V~	108 V~ to 132 V~ 216 V~ to 264 V~
Max power consumption	120 V~ 240 V~	3.0 Amps 360 Watts 1.5 Amps 360 Watts
Circuit breaker, internal		10A
Heat generated (used for cooling requirements)		1,229 BTU/hr

1.2.2 Physical Specifications

Physical Characteristics	Specification	
Height with Candle	83.4"	211.8 cm
Width	27.5"	69.8 cm
Depth	29"	73.6 cm
Weight with 27" Topper	345 lbs	156.5 kg

1.2.3 Environmental Specifications

The machines carry ratings for storage, transport, and nominal operation. If any of these are violated, potential damage could occur.

Characteristic		Specification
Temperature (Environmental)	Operating	50° F - 100° F (ambient) 10° C - 38° C
	Storage	14° F - 140° F (ambient) -10° C - 60° C
Relative Humidity (Environmental)	Operating	10% to 90% (noncondensing)
	Storage	0% to 90% (noncondensing)

A machine below the minimum operating temperature must be brought to an internal and external temperature within the rating operating temperature range. If the machine was below the minimum operating temperature for cases such as storage or transport, the device must be checked for water condensation and/or frost. Prior to powering on the machine, all forms of moisture especially on circuit boards, power supplies, and a circuit board containing devices must not be present. These machines are rated as indoor appliances and not protected from condensing, outdoor, or wet environments.

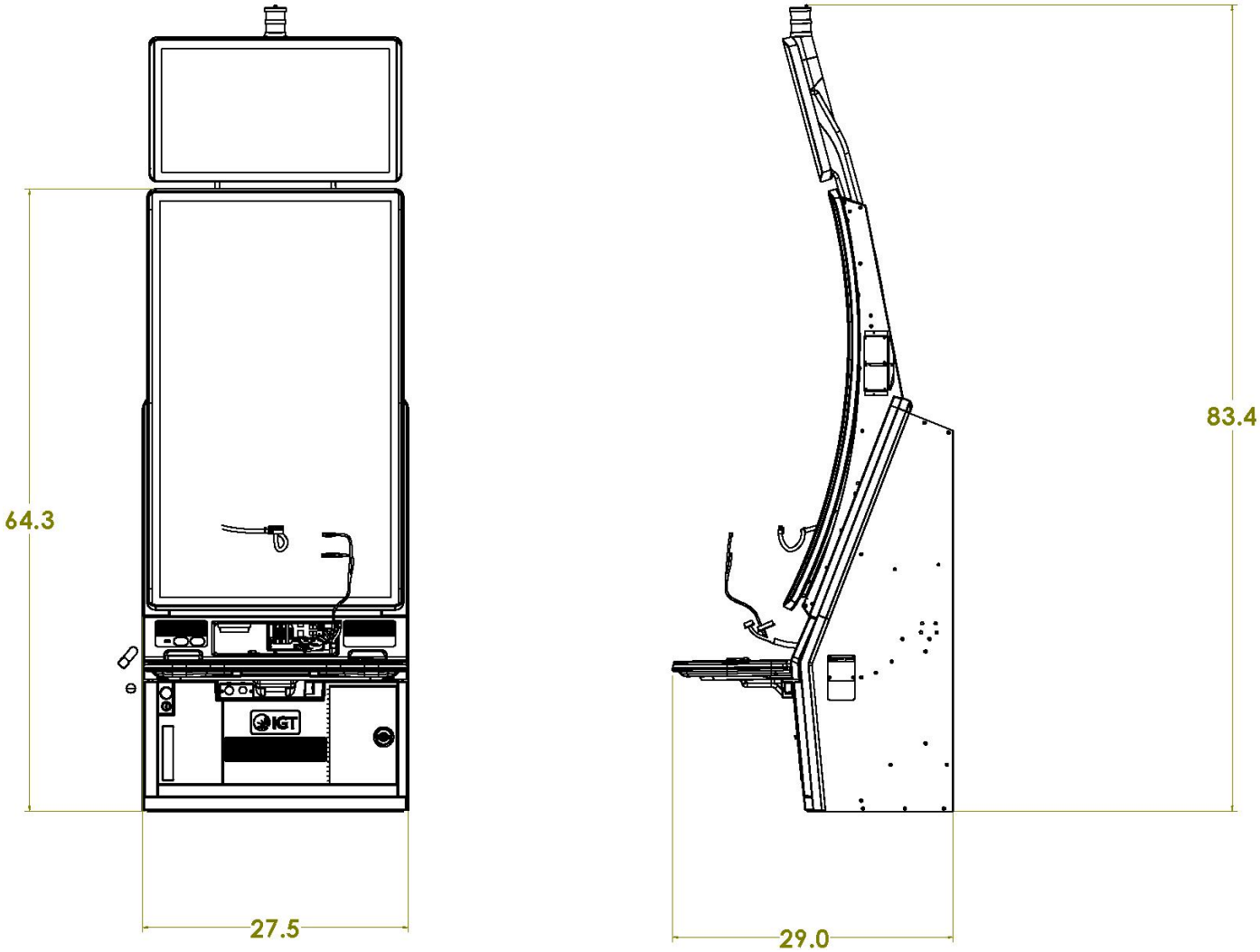


Figure 1-2 PeakCurve with topper

1.3 External Components

The following image, numbers, and table describe the external components of the PeakCurve49.

1.3.1 Cabinet Components

Figure 1-3 PeakCurve49 External Components

Number	Description
1	Candle
2	27" Video Topper
3	C-Curve 49" LCD
4	Financial Panel/Player Tracking
5	Printer
6	Bill Validator
7	13.3" DPP Single Bash w/Inductive Charger
8	Attendant Reset Switch and W2G
9	Main Door and Monitor Lock
10	Front Door
11	Cash Box Access Door

1.4 PeakCurve49 Internal Components

1.4.1 Internal Components of the Lower Cabinet

The Lower Base Cabinet interior is accessible when the Front door is removed. The following image, numbers, and table describe the Lower Base Cabinet components:

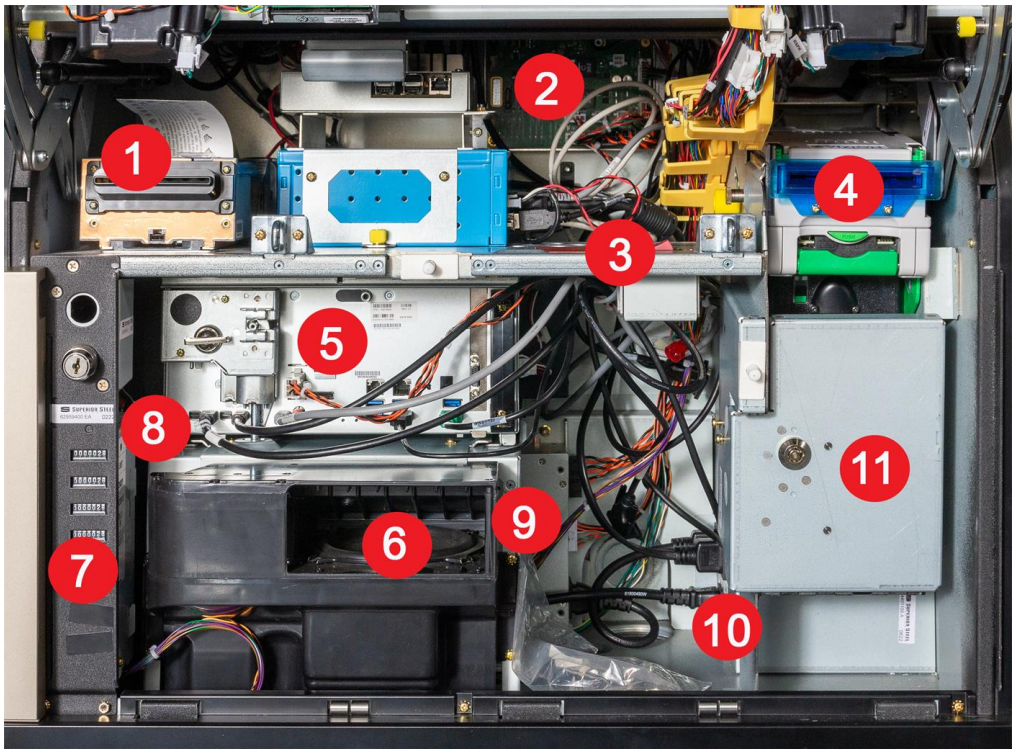


Figure 1-4 Base Cabinet Internal View

Number	Description
1	Printer
2	Cabinet Controller Board
3	Power Switch
4	Bill Validator
5	AVP4.1 Brain Box
6	Bass Speaker
7	Mechanical Meters (optional)
8	Fan (behind meters)
9	800 Watt DC Power Supply
10	AC Box
11	Cash Box

1.4.2 Internal Components of the Upper Cabinet

The following image, numbers, and table describe the internal components of the Upper Cabinet:

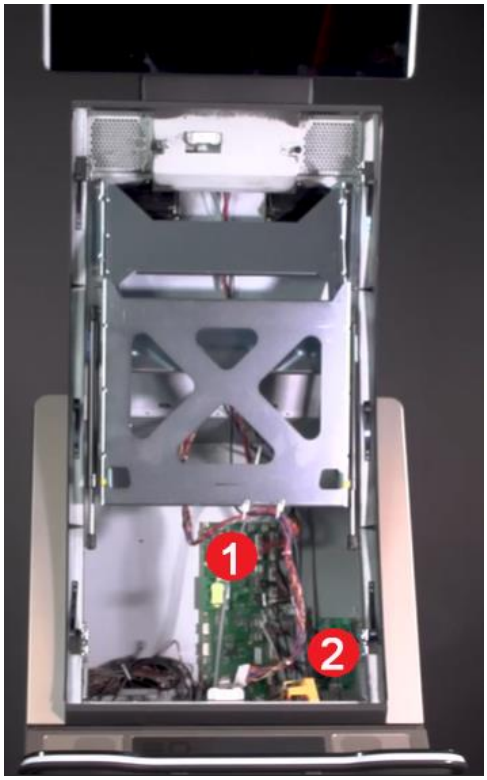


Figure 1-5 Upper Cabinet Internal View

Number	Description
1	Cabinet Controller Board
2	Audio Amplifier Board

1.4.3 Mutha Goose System Hardware

The Fledging Board is used for Mutha Goose system configurations. Refer to *Fledging Board* on page 55 for more information.

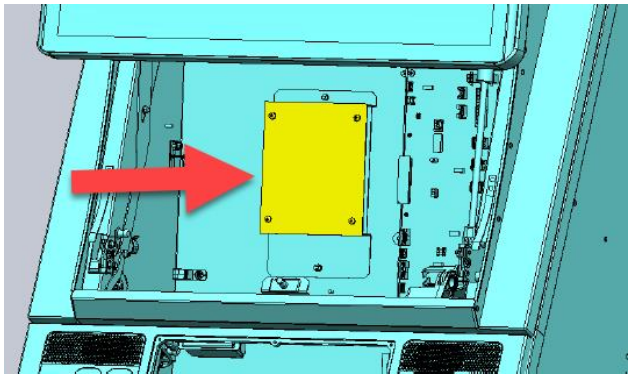


Figure 1-6 Mutha Goose System Fledging Board

1.5 Basic Operational Instructions and Features

Do not hot swap.

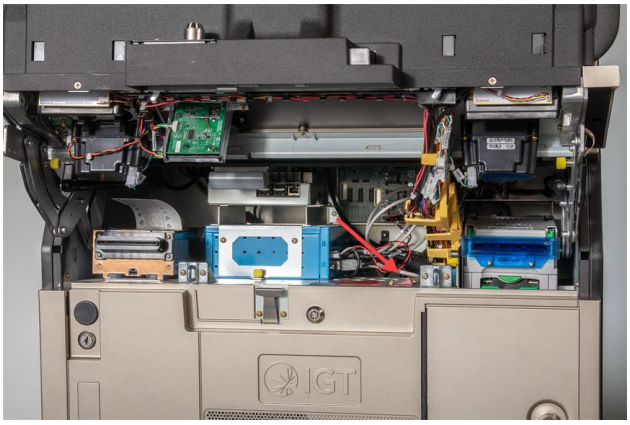
Always power off the cabinet.

Observe ESD precautions.

1.5.1 Powering Off the PeakCurve49

1. Unlock the Main door and press the plunger to open the Main door.

2. Press the power switch to power off the cabinet.



1.5.2 Opening the Main Door

1. Unlock the Main door and press the plunger to open the Main door.

2. The Main Door opens up.

Be careful closing the door when the machine is positioned closely in a bank. A possible pinch point exits with a hand in the position shown below.

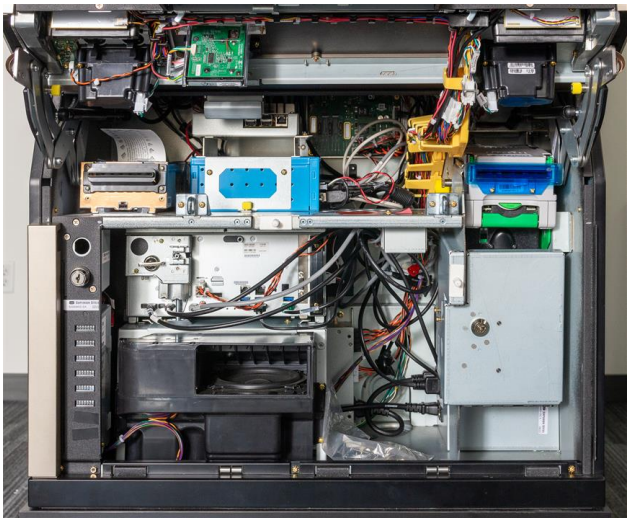
To prevent equipment damage, make sure the Cash Access Door is fully closed and latched before closing the Main Door. Do not slam or force the Main Door shut.

1.5.3 Opening the Front Door

1. Open the Main Door.

2. Unlock and open the Front Door.

3. Pull the Front Door off (the door weighs about 12 lbs).

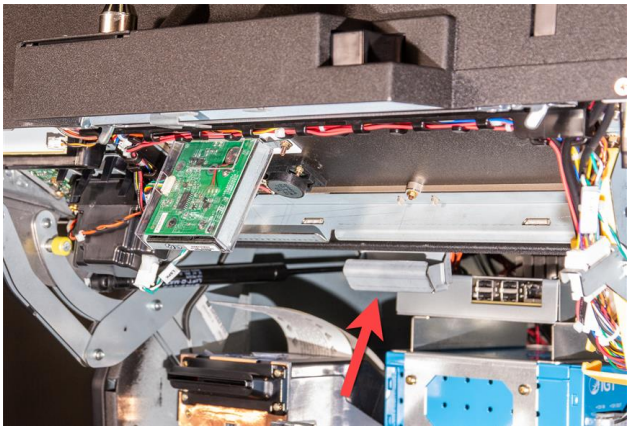


1.5.4 Opening the Main Monitor

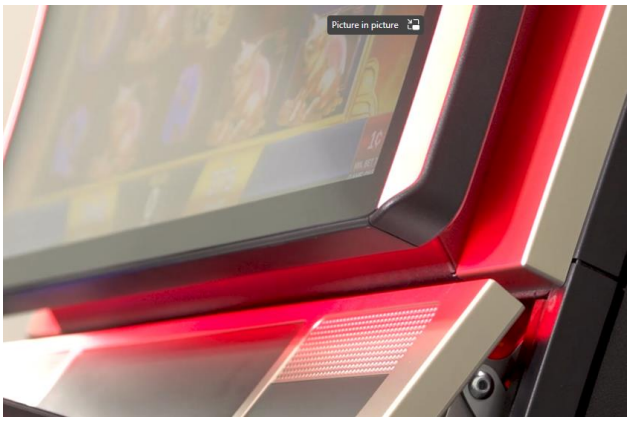
The Deck door must be closed or at the half stop point before the monitor can be opened.

1. Open the Main door.

2. Pull the release lever for the monitor.



3. Lower the Main Door to the half stop position and grasp the lower corners of the monitor.

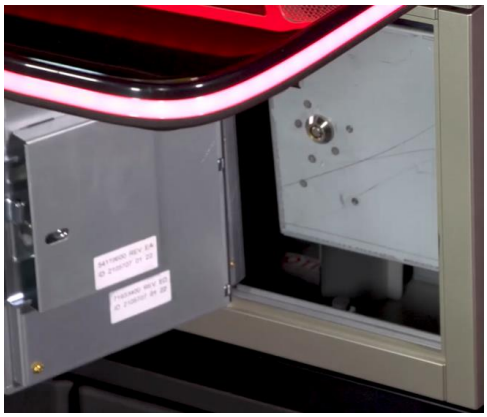


4. Pull the monitor up.

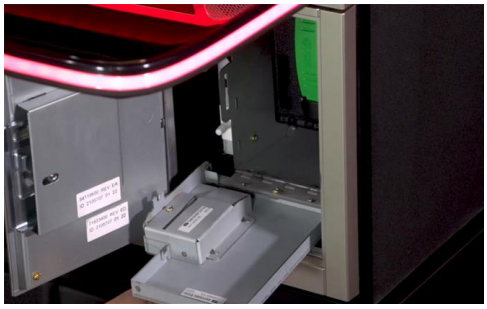
1.5.5 Opening the Bill/Cash Box Door

1. Unlock the Cash Box Door.

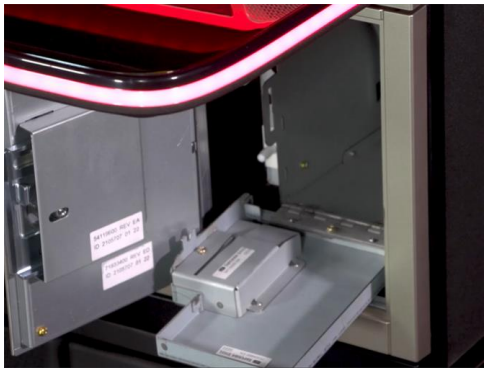
2. Open the cash can door.



3. The cas can door opens down to access the cash can.



4. Pull the cash can out.



Always make sure the Cash Access Door is fully closed and latched before closing the Main Door.

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Chapter 2 PeakCurve49 Hardware

This section discusses the typical components of the PeakCurve49.

2.1 Displays

The PeakCurve49 has a 49" 4K C-Curved LCD main display and an optional 27" Topper.

2.1.1 Topper

91204301 KIT-NO TOPPER, 2STG CANDLE, PCU

91457401 TOPPER ASSY,27IN LCD,NOBASE,NOCNDL,TVS

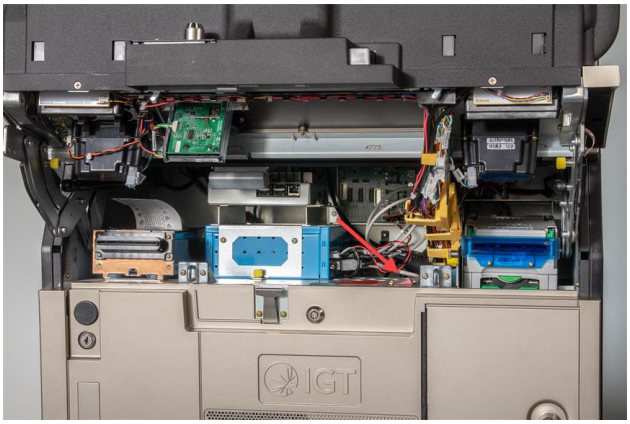
94210901 KIT-27IN TPPR, 2STG CNDL W/MNT, PCU

The topper does not come installed and must be installed in the field. A ladder may be required if the machine is on the stand when installing the topper.

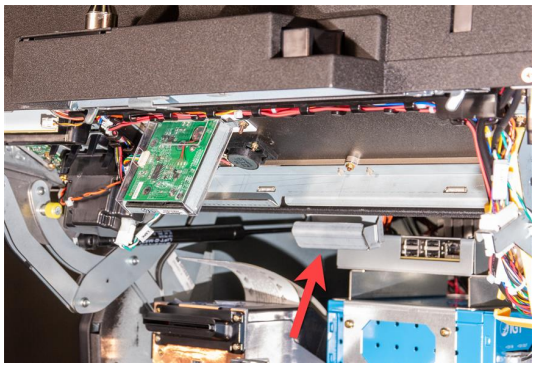
- 27” LCD Video Topper with On-Screen-Display (OSD)
- Protective Glass
- LED light boards
- Sleep Mode
- Back light converter
- Analog to digital video card

2.1.1.1 Topper Installation

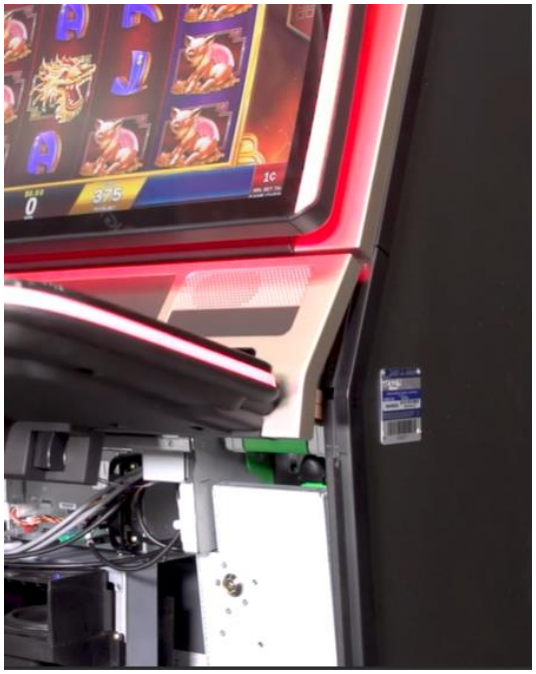
1. Open the Main door and power off the EGM.



2. Pull the silver latch to open the displays.



3. Close the Main door to the half way position.



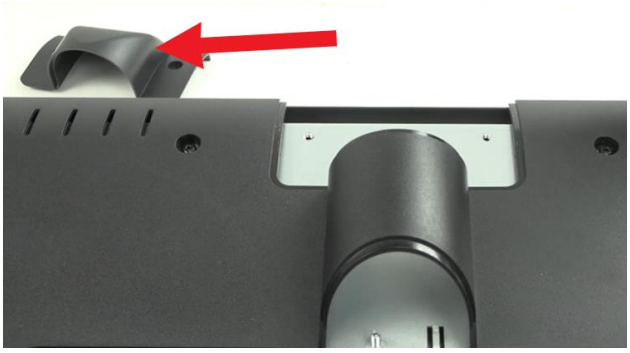
4. Grab the monitor at the bottom corners and lift up.

5. Remove the topper and all of the parts for the topper from packaging.

If a candle needs to be installed, continue with next instructions, otherwise skip to step 9 to continue with Topper installation:

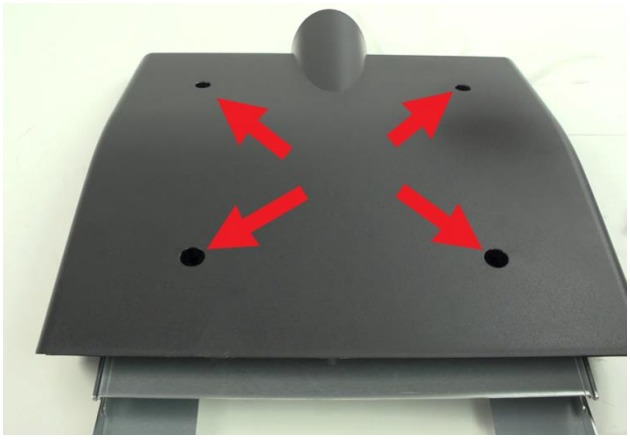
6. Remove the two screws for the candle holder from the back of the Topper.

7. Remove the candle holder blank.

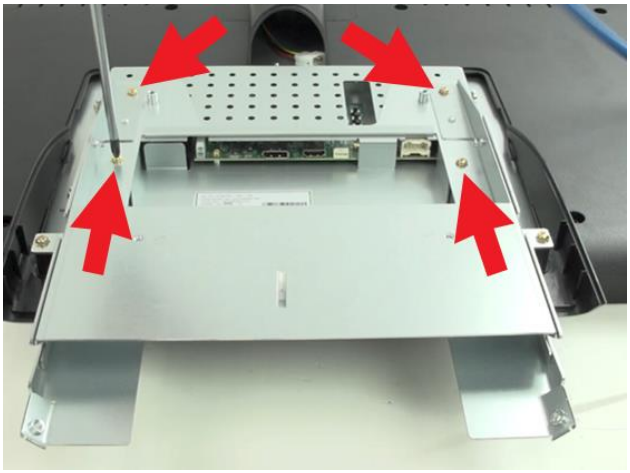


8. Install the candle assembly using the two screws.

9. Remove four screws securing trim to Topper mounting bracket.

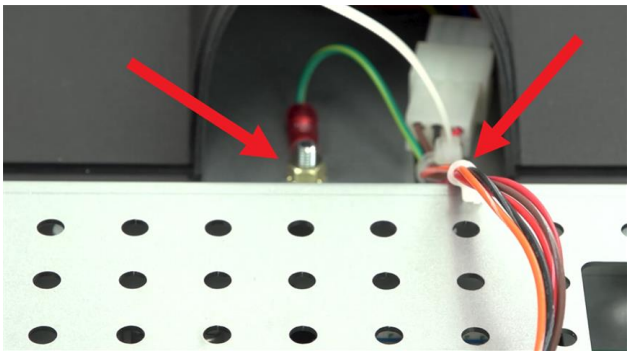


10. Secure Topper mounting bracket to Topper using four screws (from plastic bag).

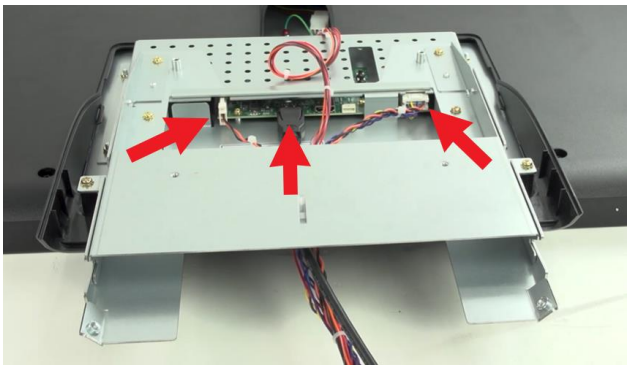


11. Route harnessing and display port cable.

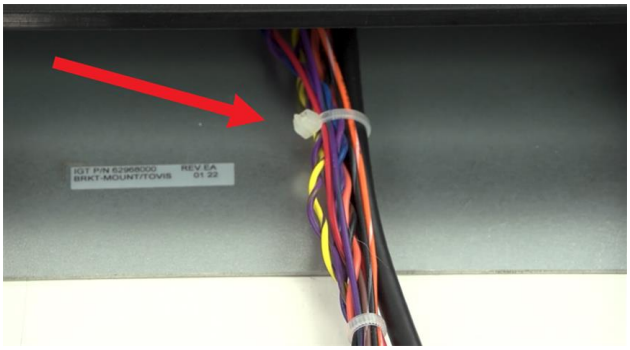
12. Connect candle harness to candle and ground with M4 nut. Zip tie to secure.



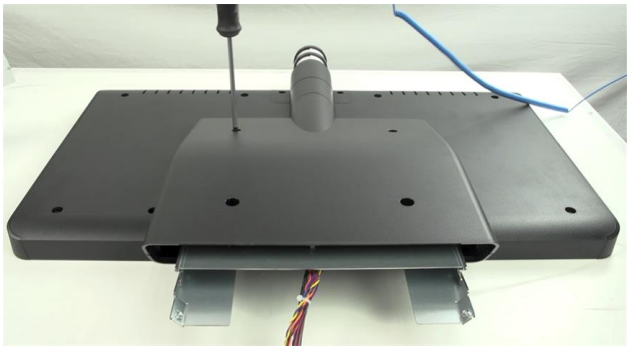
13. Plug connections into display and install display port cable.



14. Flip Topper over and zip tie harness and cable to mounting bracket.



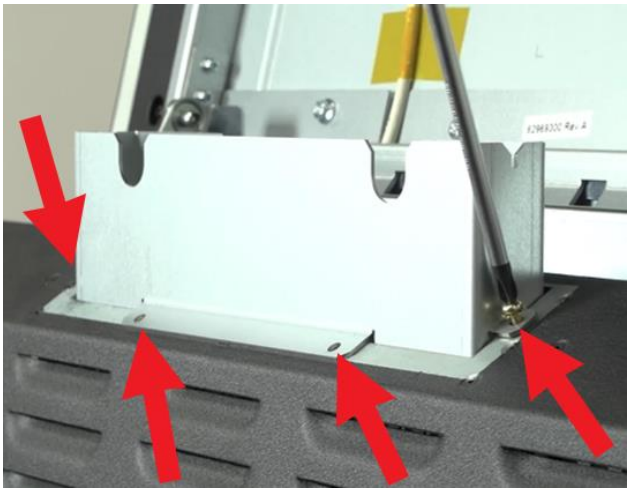
15. Flip Topper over again and attach back cover.



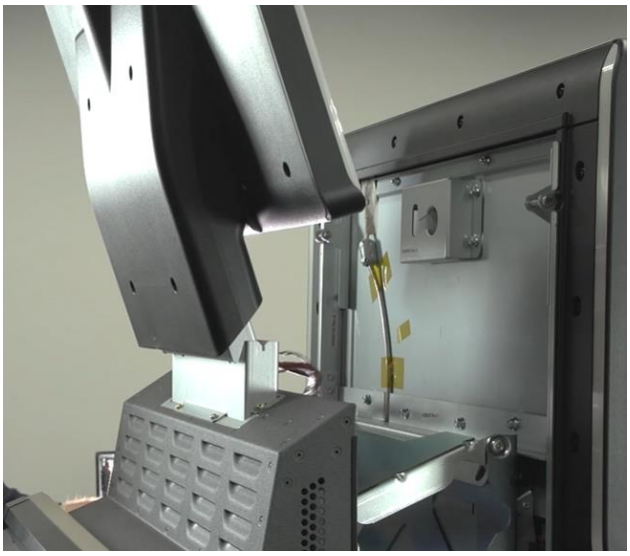
2.1.1.2 Place the Topper

Due to the height of the cabinet, a ladder will be required if the machine is on the stand.

1. Place receiver on cabinet with four M4 screws.

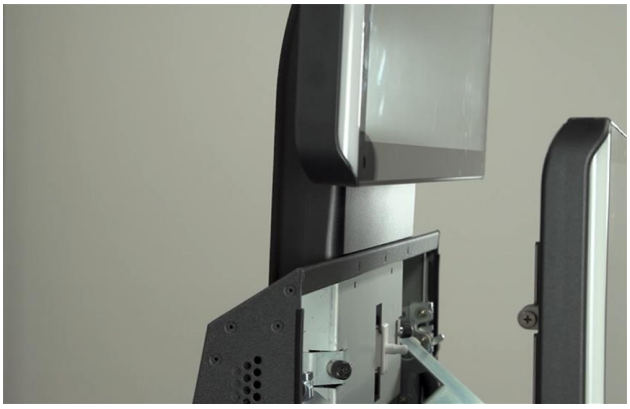


2. Place topper in intermediate position and route cables.

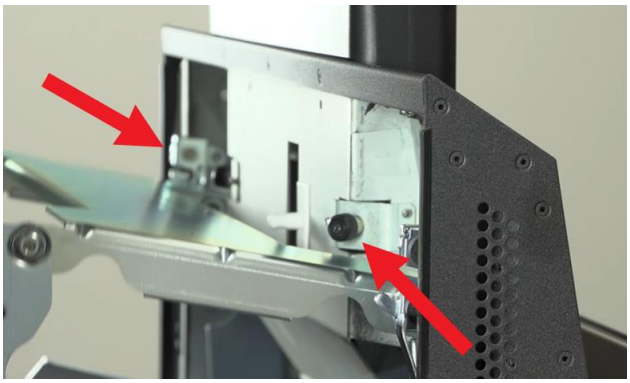


Two people are recommended to prevent pinching cables. One person can place the topper while the other person feeds the harness and DP cable into the cabinet.

3. Set Topper in place.

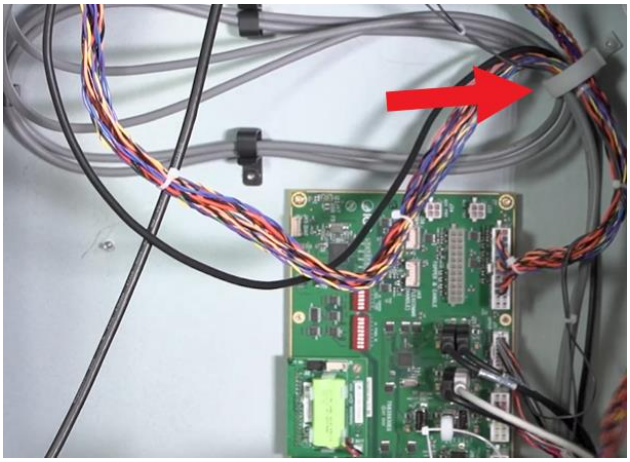


4. Secure Topper with the two thumbscrews (one on each side).

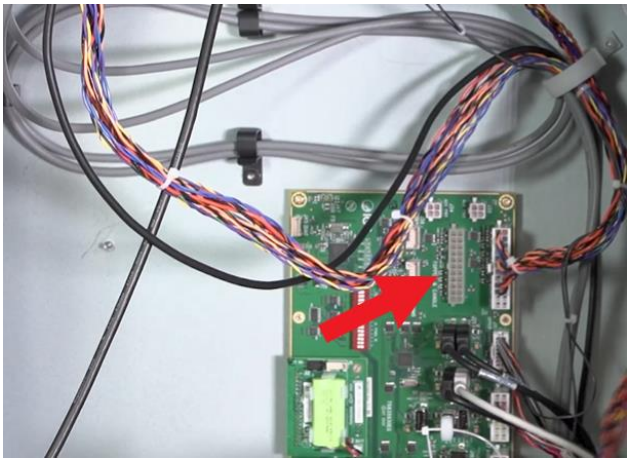


With two people, one can hold the display partially open while the other tightens the thumbscrews.

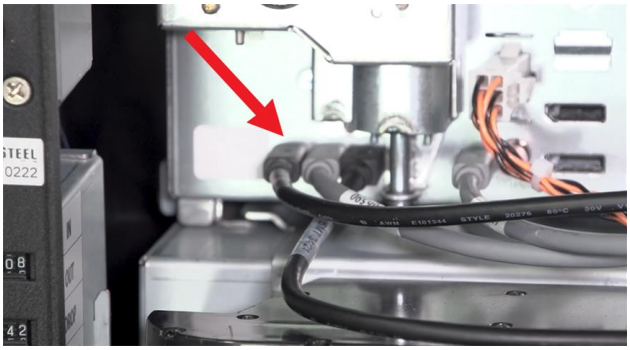
5. Route harnessing and display port cable using wire loops.



6. Plug harness into J10 of Cabinet Controller Board.



7. Route display port cable to lower cabinet and plug into Brain Box (if using a T1000, the far left port on the Brain Box is not used and will be taped off).

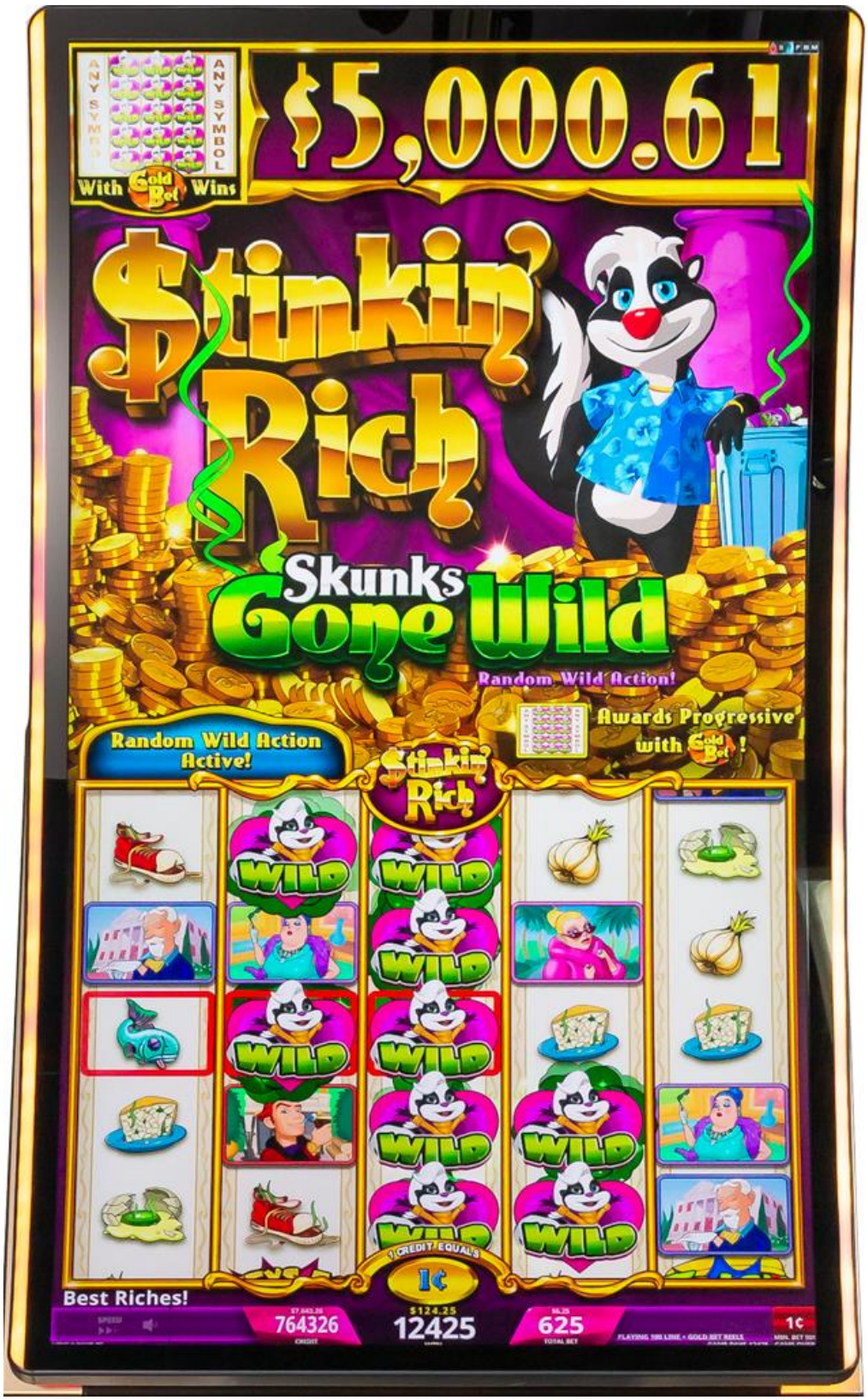


8. Take up the cable slack.

Reverse these instructions to remove.

2.1.2 Main Display

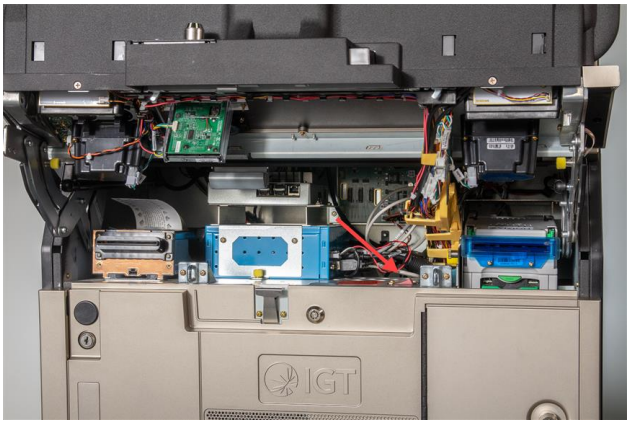
69981201 MON ASSY,49IN CURVED,PCT, PEAK49,TOV



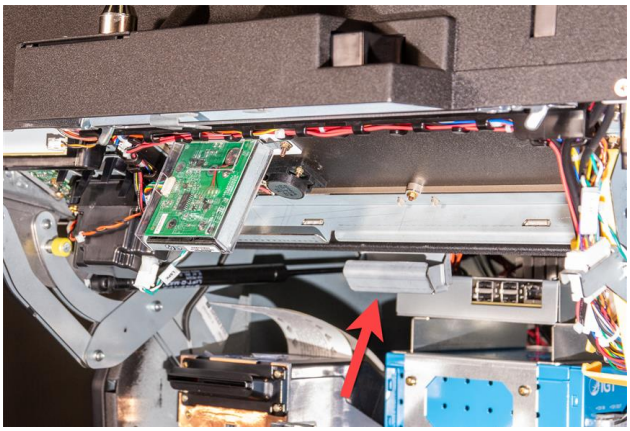
2.1.2.1 Main Display Removal

The curve display weighs 55 pounds so two people are required to remove this display.

1. Open the Main door and power off the EGM.

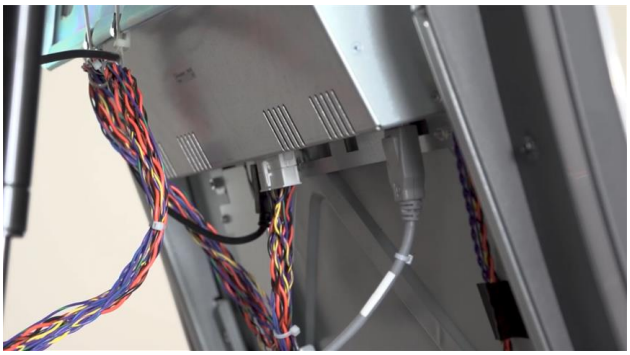


2. Pull the silver latch to open the Main display.



3. Place the main display in loading position and engage plungers on the sides of the hinge to keep the monitor from moving.

4. Disconnect all connections to the display on both sides.



5. Loosen the yellow thumbscrew on each side (use a screwdriver).

6. Lift up on the display to remove it from the lip it rests on.

Reverse these instructions to re-install.

When replacing the display, ensure the display rests firmly on the lip.

2.2 Trim Lighting

P/N 75206500 PCB,LED,PCU, 49IN MON,SHORT,INPUT,ASSY

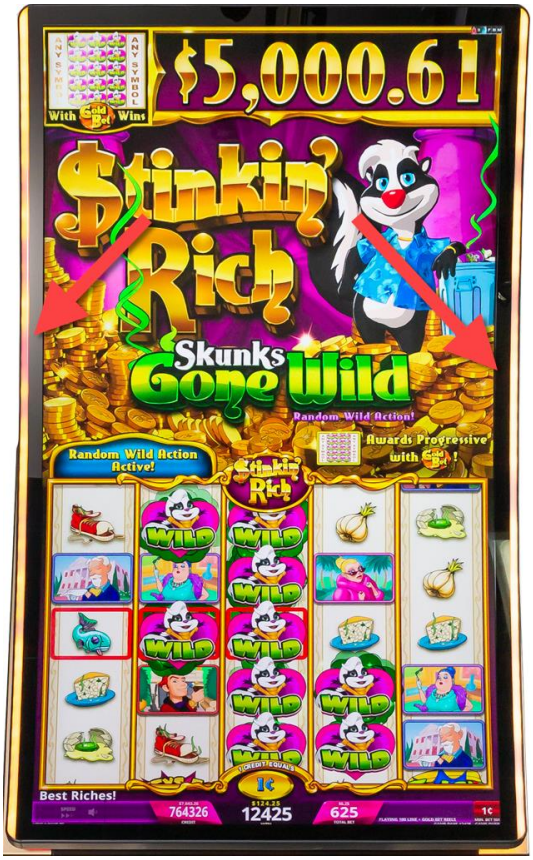
P/N 75206501 PCB,LED,PCU, 49IN MON,SHORT,TOP,INPUT

P/N 75206600 PCB,LED,PCU, 49IN MON,SHORT,ASSY

P/N 75206601 PCB,LED,PCU, 49IN MON,SHORT,TOP

P/N 75206700 PCB,LED,PCU, 49IN MON,SIDE,ASSY

The LED trim around the Unified Display Assembly is serviceable. Field replaceable components include the T/S Controller, LED Boards and LED Lens.



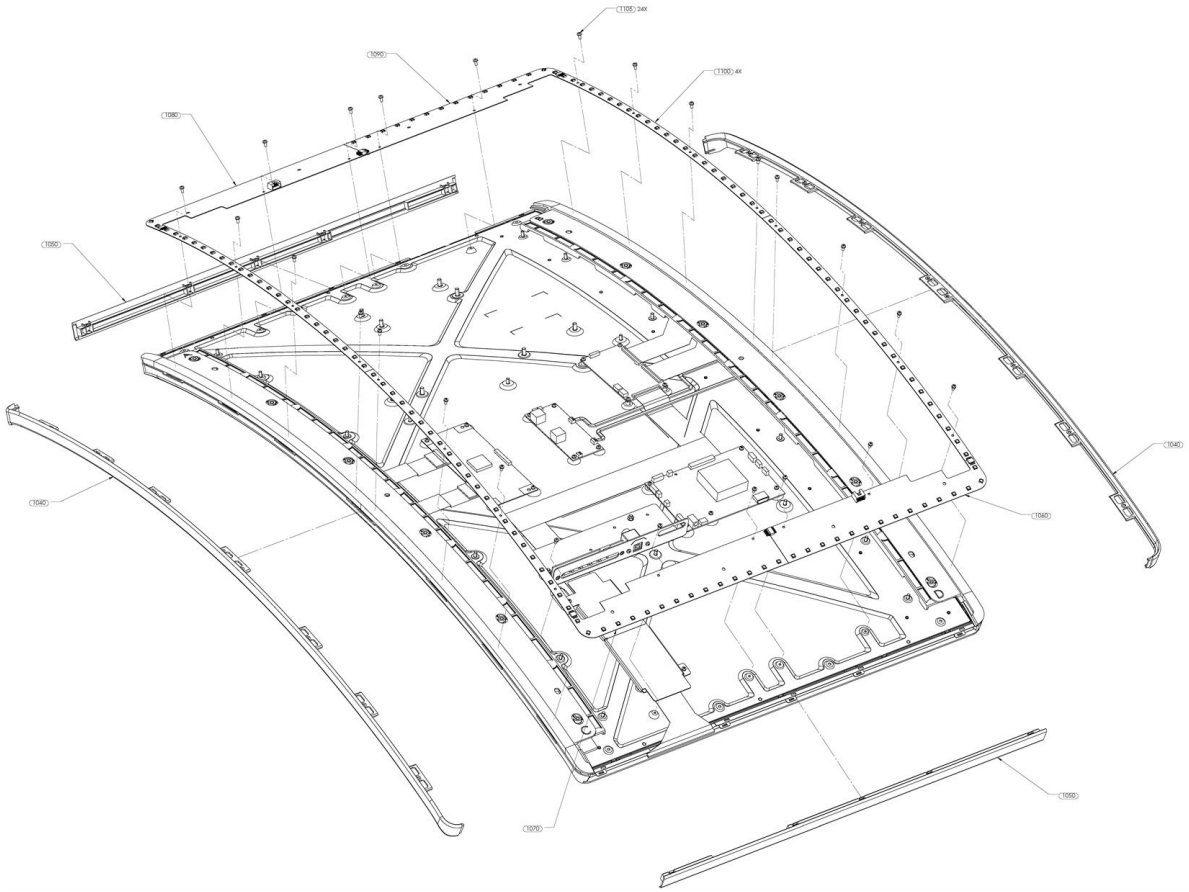


Figure 2-1 Display Assembly Diagram

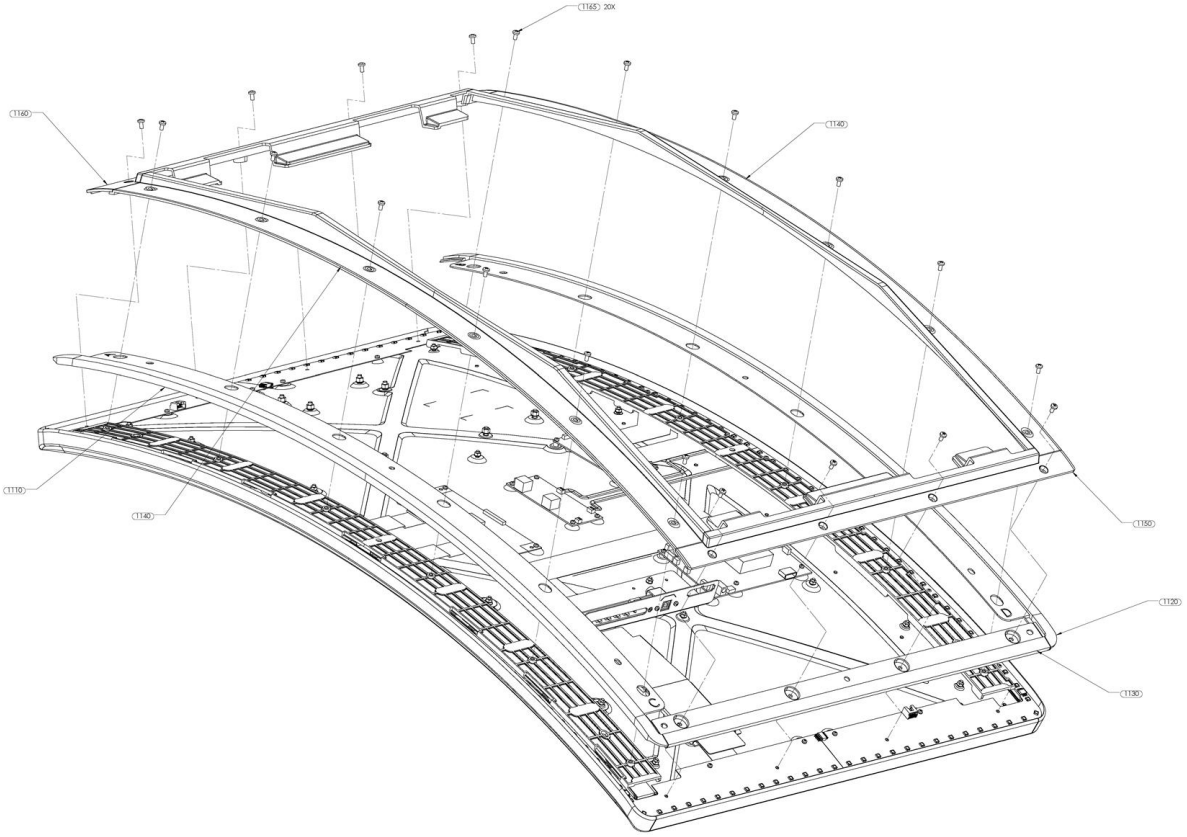


Figure 2-2 Display Assembly Diagram

2.2.1 Main door trim

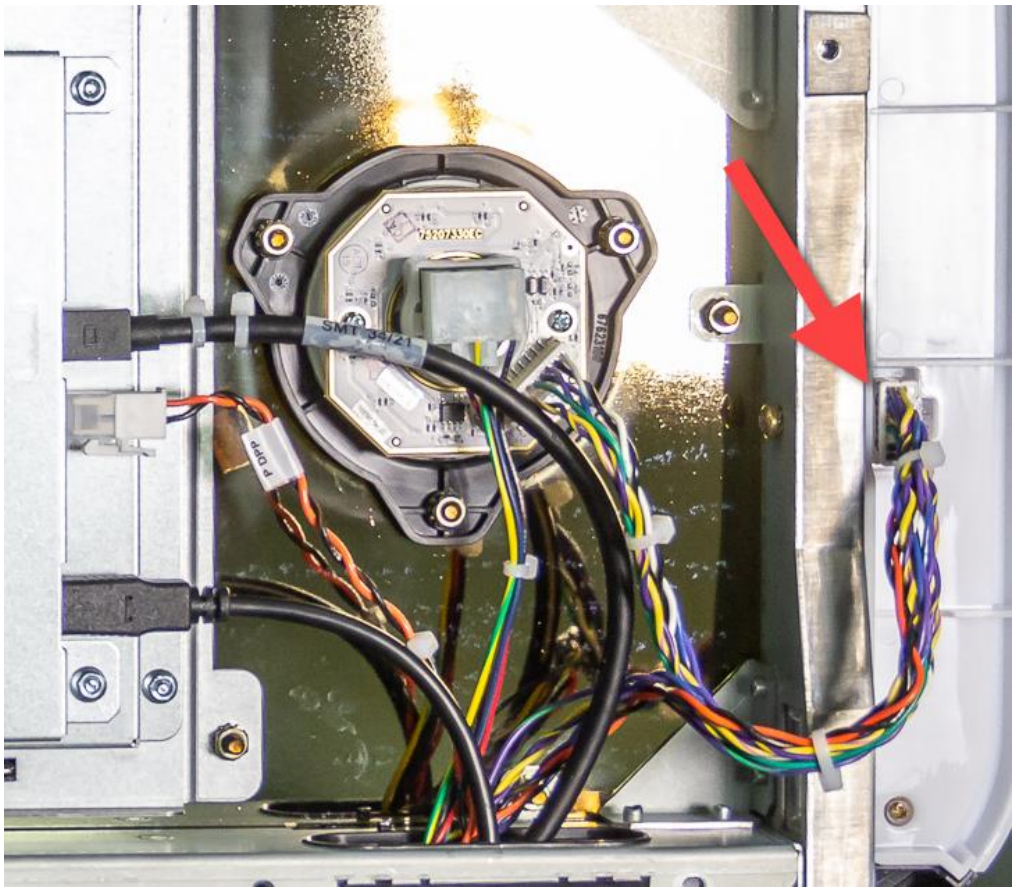
P/N 75207000 PCB,PCU,BTTN PNL TRIM LIGHTS,RIGHT,ASY

P/N 75207100 PCB,PCU,BTTN PNL TRIM LIGHTS,CNTR,ASY

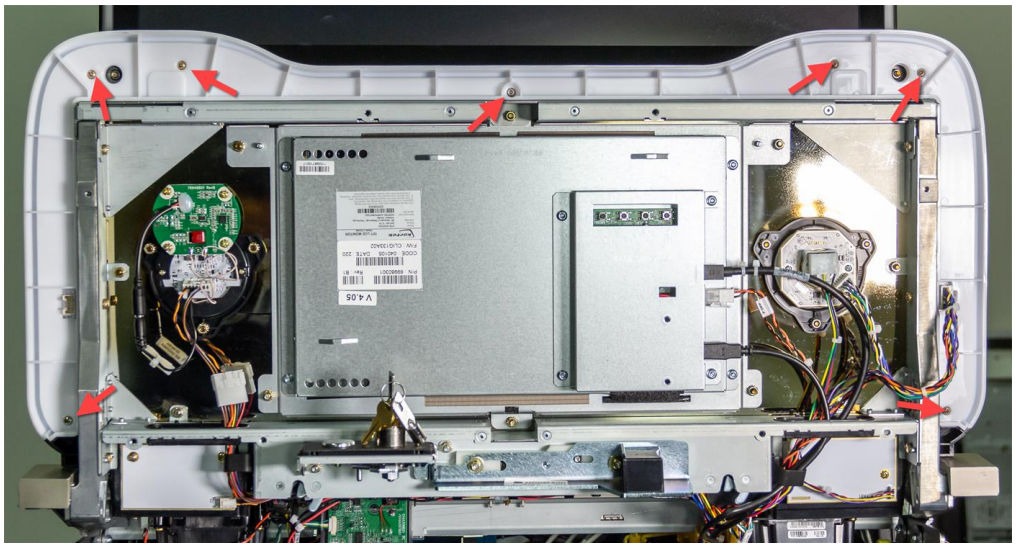
P/N 75207200 PCB,PCU,BTTN PNL TRIM LIGHTS,LEFT,ASY

1. To access the trim lights, open the main door and remove the main door bottom cover. See *DPP* on page 60 for instructions to remove bottom cover.

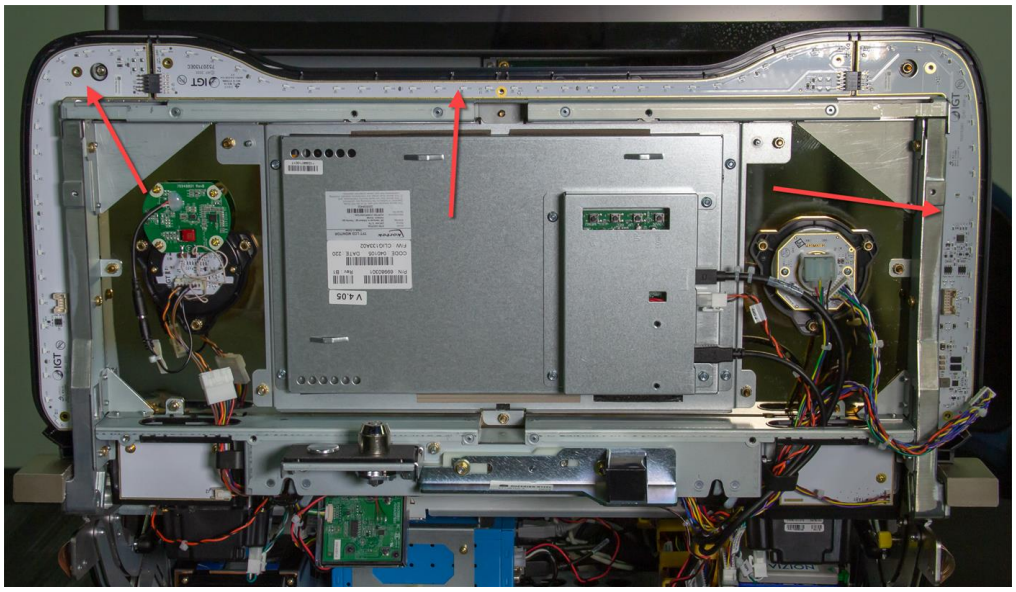
2. Disconnect the single wiring connection on the lower right board.



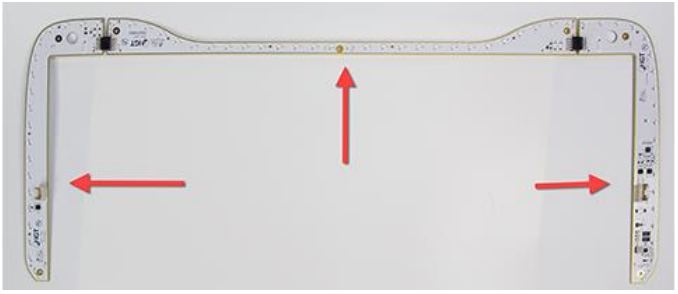
3. Remove the 7 screws securing the plastic diffuser and the LED Board Assembly.

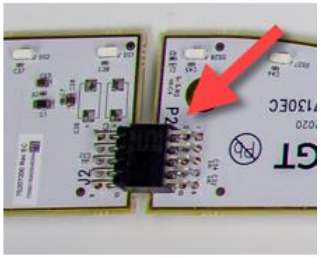


4. Carefully remove the LED Board Assembly.



5. Separate the board(s) as needed to replace.





2.3 Boards

2.3.1 Digital Audio Amplifier Board

P/N 76106590 PCB,AUDIO-AMP,PDU,DIGITAL

This board is used in the PeakCurve49 cabinet. It receives audio input via the USB connection, amplifies, then distributes the sound channels directly to the internal EGM speakers.

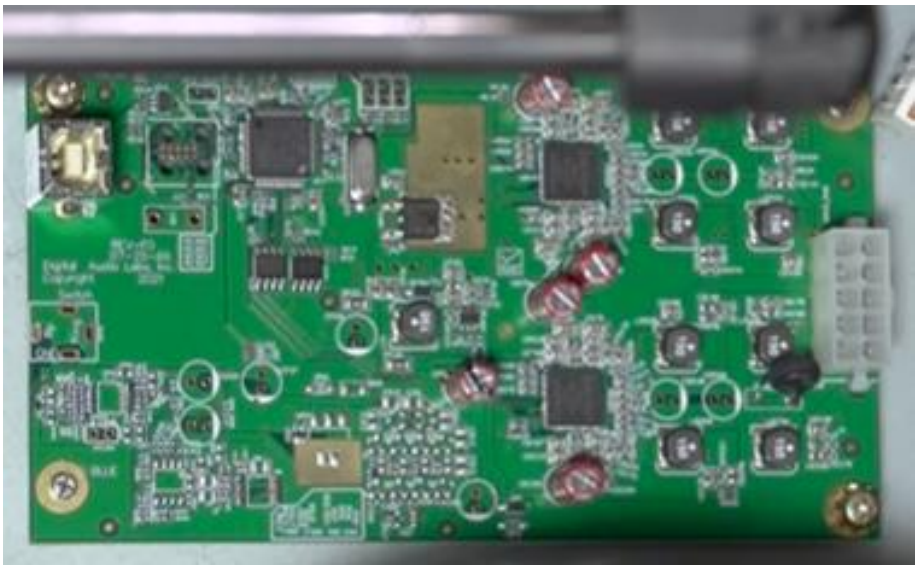


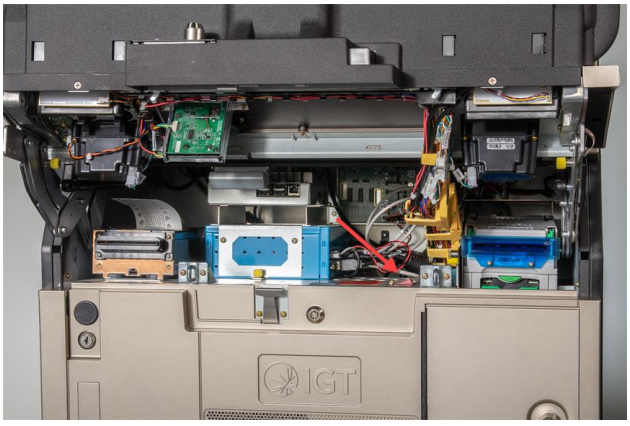
Figure 2-3 PeakCurve49 Digital Audio Amplifier Board

2.3.1.1 Audio Amplifier Board Removal

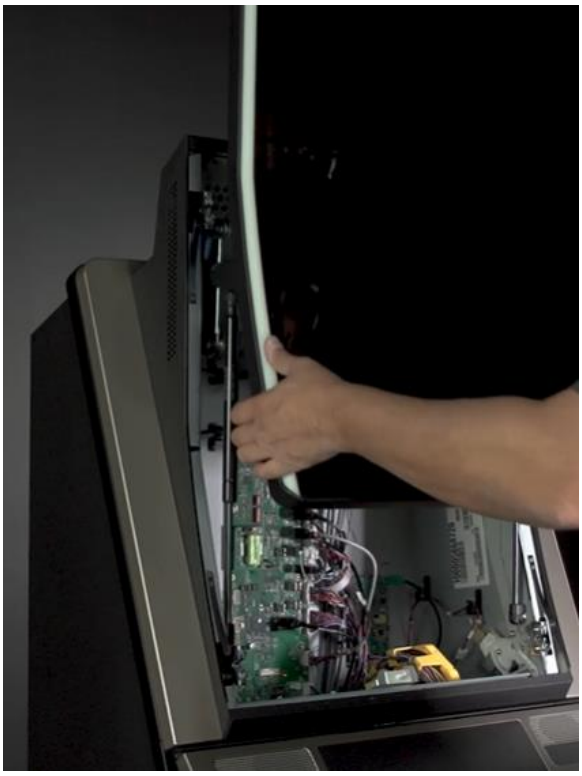
Always observe proper ESD precautions and use an ESD wrist strap when working on components inside the terminal.

To remove the audio amplifier board:

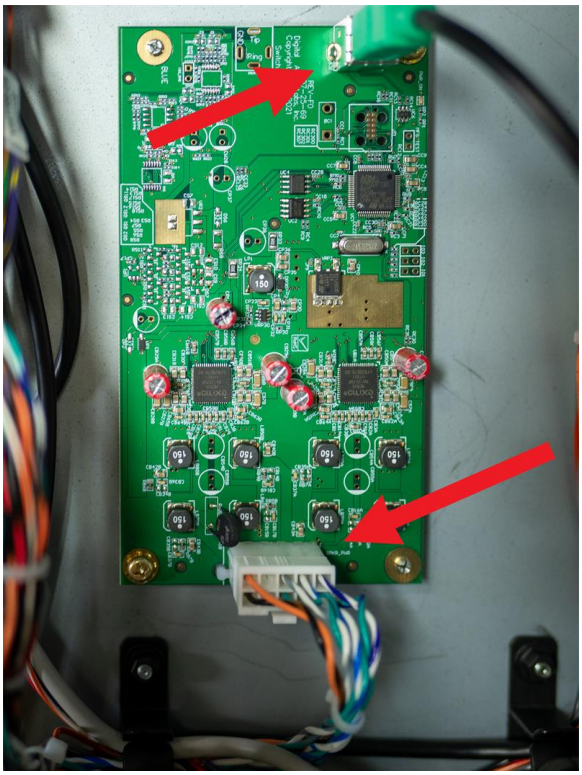
1. Open the Main Door and power off the EGM.



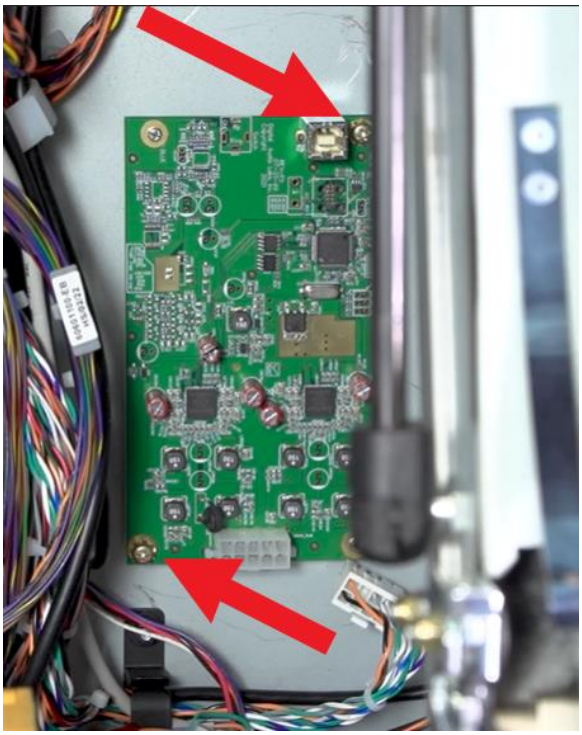
2. Open the top display.



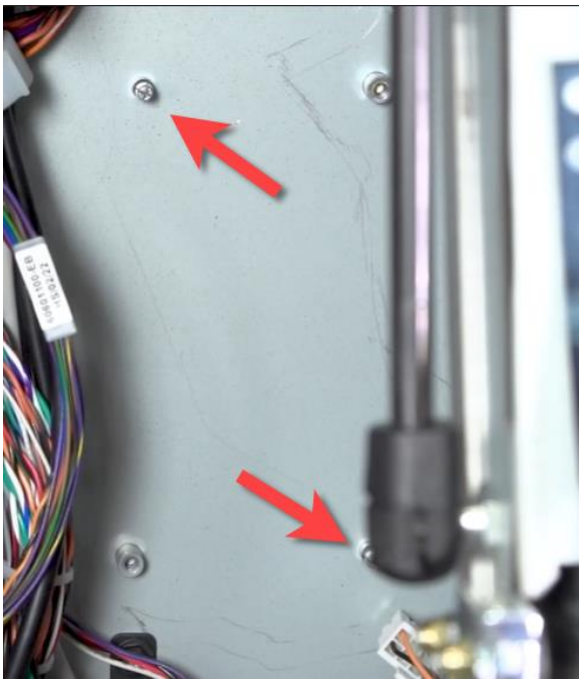
3. Unplug the Power In and the USB-B connection.



4. Remove the two M4 screws securing the Audio Amplifier Board.



5. Remove the board from the compression posts.



Reverse these instructions to re-install.

Be careful not to press too hard when placing the new board on the compression posts. Replace the M4 screws, plug in Power, and USB-B connection.

2.3.2 Single Board Cabinet Controller

P/N 75811700 PCB,CCB, USBIO, PEAK UPRIGHTS, ASY

This board controls the higher security functions and provides connectivity to the telltale module for EGM door open detection. Examples of the control items are:

- Door Security
- Meters (if applicable)
- Handle (if applicable)
- Internal and external communications control

The Telltale Battery (P/N 40404900W) is used in all Crystal, S3000, Peak, Cobalt, AXXIS 23/23, and DiamondRS cabinets. This board also provides an interface to Brain Box, peripheral communications, external communications, and power distribution.

There are no EEPROMs on this board. Instead, two on-board SPI flash 32K partitions are used for the cabinet memory. The information stored in cabinet memory includes a back-up copy of master meters, some option setting (like Game Enabled), and progressive contribution values.

This Cabinet Controller Board uses a USB cable to connect to the AVP 4.1 Brain Box.

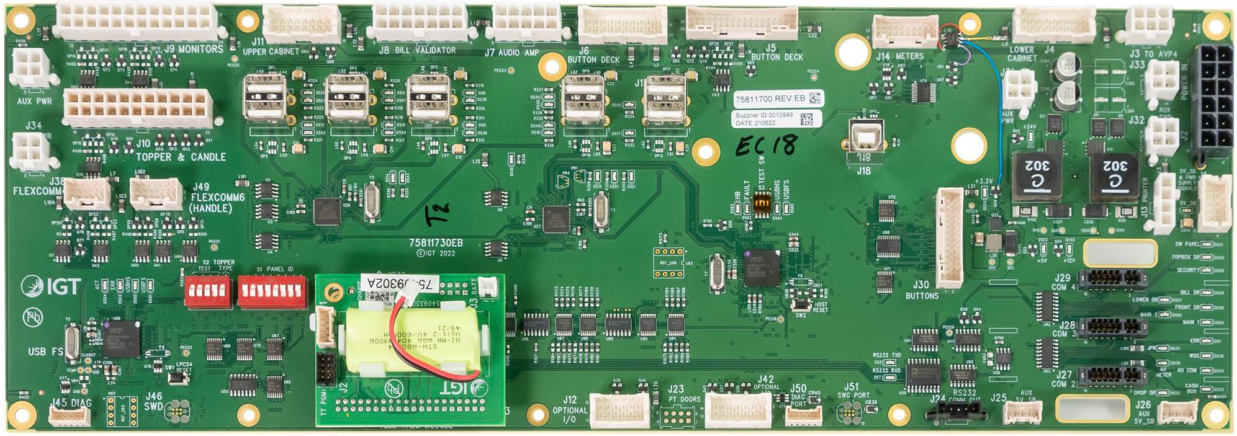


Figure 2-4 USB I/O Cabinet Controller Board

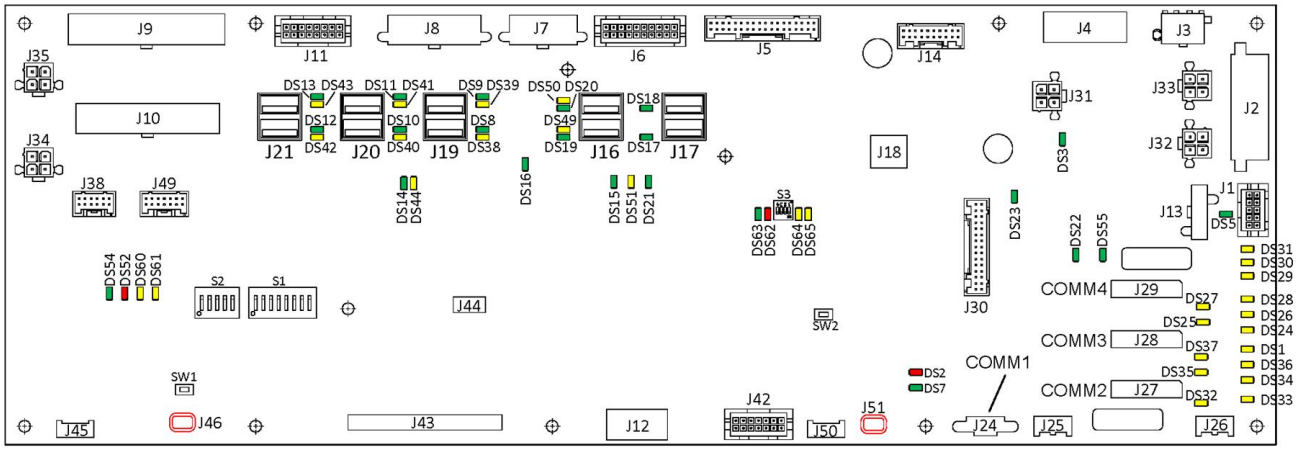


Figure 2-5 USB I/O Cabinet Controller Board Connectors

2.3.2.1 Cabinet Controller Board Connectors

LED Table

LED	Color	Description	LED	Color	Description
DS1	Red	Telltale processor error	DS30	Yellow	Topbox door switch open
DS2	Red	COMM1 transmit	DS31	Yellow	Switch panel switch open
DS3	Green	+24VDC rail within spece	DS32	Yellow	Drop door switch open
DS5	Green	+5VDC standby rail presence	DS33	Yellow	Cashbox present switch open
DS7	Green	COMM1 receive	DS34	Yellow	AU comm cover switch open
DS8	Green	J19 port 1 enumerated	DS35	Yellow	AU meter cover switch open
DS9	Green	J19 port 2 enumerated	DS36	Yellow	W2G key switch
DS10	Green	J20 port 1 enumerated	DS37	Yellow	JPR key switch
DS11	Green	J20 port 2 enumerated	DS38	Yellow	J19 port 1 overcurrent
DS12	Green	J21 port 1 enumerated	DS39	Yellow	J19 port 2 overcurrent
DS13	Green	J21 port 2 enumerated	DS40	Yellow	J20 port 1 overcurrent
DS14	Green	J17 port 2 enumerated	DS41	Yellow	J20 port 2 overcurrent
DS15	Green	Second USB hub U26 enumerated	DS42	Yellow	J21 port 1 overcurrent
DS16	Green	UBPF ARM U60 enumerated	DS43	Yellow	J21 port 2 overcurrent
DS17	Green	USBIO ARM U90 high-speed enumerated	DS44	Yellow	J17 port 2 overcurrent
DS18	Green	USBIO ARM U90 full-speed enumerated	DS49	Yellow	J16 port 1 overcurrent
DS19	Green	J16 port 1 enumerated	DS50	Yellow	J16 port 2 overcurrent
DS20	Green	J16 port 2 enumerated	DS51	Yellow	J17 port 1 overcurrent
DS21	Green	J17 port 1 enumerated	DS52	Red	UBPF ARM U60 error
DS22	Green	+5V rail within spec	DS54	Green	UBPF ARM U60 normal
DS23	Green	+3.3V rail within spec	DS55	Green	+12V rail within spec
DS24	Yellow	Main door 1 switch open	DS60	Yellow	UBPF ARM U60 high-speed USB enumerated
DS25	Yellow	Main door 2 switch open	DS61	Yellow	UBPF ARM U60 full-speed USB enumerated
DS26	Yellow	Front door switch open	DS62	Red	USBIO ARM U90 error
DS27	Yellow	Lower door switch open	DS63	Green	USBIO ARM U90 normal
DS28	Yellow	Bill door switch open	DS64	Yellow	UBPF ARM U90 high-speed USB active
DS29	Yellow	Security door switch open	DS65	Yellow	UBPF ARM U90 full-speed USB active

Connector Table

Connector	Description	Connector	Description
J1	+5VDC standby Power supply signals	J24	COMM1
J2	+24VDC in	J25	Auxiliary +5 standby
J3	+24VDC out to Brain Box	J26	Auxiliary +5 standby

Connector	Description	Connector	Description
J4	Lower cabinet Fan, drop door, power on, front door, security door, JPR, W2G	J27	COMM2
J5	Button deck Wireless charger detect/enable	J28	COMM3
J6	Button deck Bass speaker, L/R speaker, switch panel, printer chevron, BV chevron	J29	COMM4
J7	Audio amp	J30	Buttons
J8	BV power, cashbox present	J31	+12/24VDC out
J9	Monitors	J32	+12/24VDC out
J10	Topper and candle	J33	+12/24VDC out
J11	Upper cabinet Main door 1, main door 2, bill door, topbox door, fan	J34	+12/24VDC out
J12	Optional I/O Sound chair, PT cashbox, PT drop	J35	+12/24VDC out
J13	Printer power, chevron	J38	Flexcomm4
J14	Meters	J42	Optional I/O PT main, PT bill, bell, handle, SLVQ key
J15	USB downstream	J43	Telltale module w/J44
J16	USB downstream	J44	Telltale module w/J43
J17	USB downstream	J45	Diag
J18	USB upstream	J46	SWD
J19	USB downstream	J49	Flexcomm6 (handle)
J20	USB downstream	J50	DIAG port
J21	USB downstream	J51	SWD port

Switches

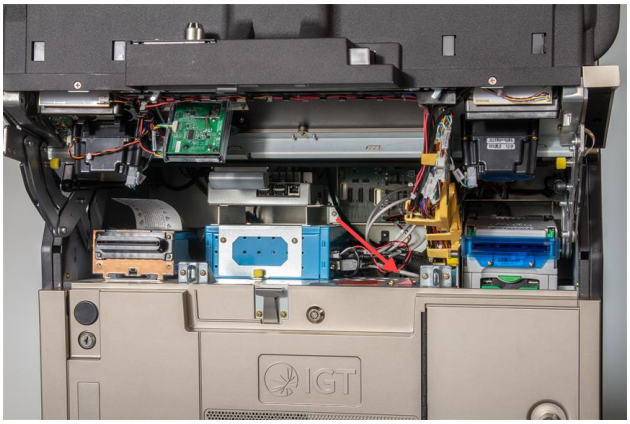
Switch	Purpose	Description
S1	Panel ID	Sets button configuration Single Bash, DPP, virtual Cashout and Service
S2	Test/Topper	1-4: UBPF ARM U60 function testing 5: Identify original topper content
S3	USBIO ARM	USBIO ARM U90 function testing
SW1	LPC54 Reset	UBPF ARM U60 reset
SW1	USBIO ARM RST	USBIO ARM U90 reset

Cabinet Controller Board Removal

Always observe proper ESD precautions and use an ESD wrist strap when working on components inside the terminal.

To remove the cabinet controller board:

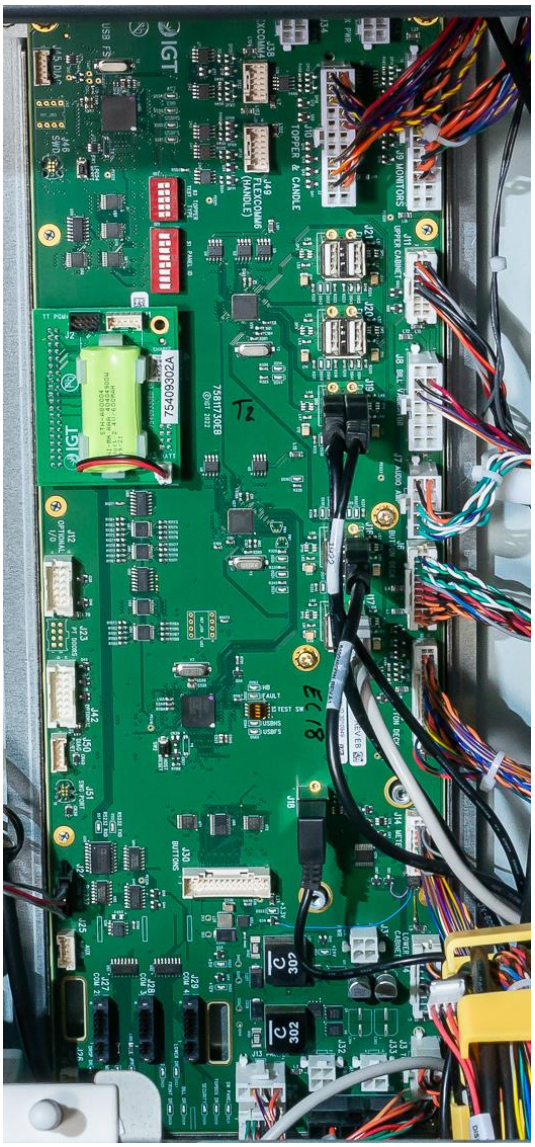
1. Remove the Main Door and Power off the EGM.



2. Open the Main display.

3. Disconnect all connections from the board.

Move any jumpers to the new board.

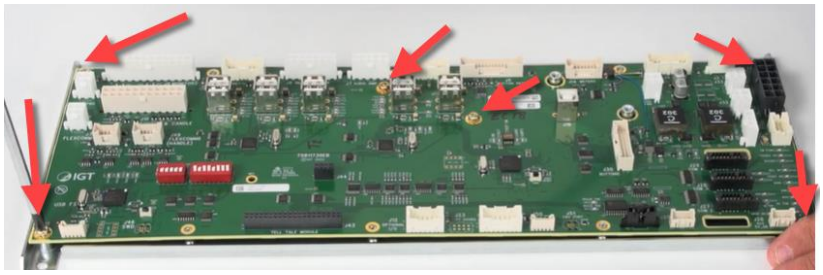


4. Remove the License dongle (if present) and the TellTale battery board.

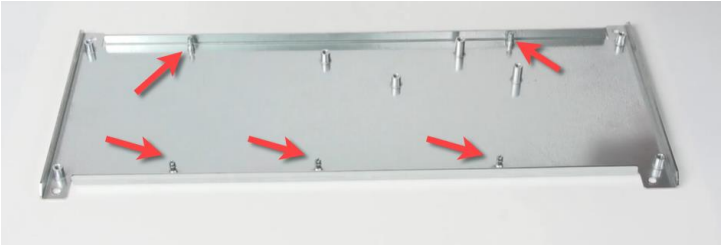
5. Remove four M4 nuts.

6. Remove board and mounting bracket from cabinet and place on a secure surface to remove the controller board from the mounting bracket.

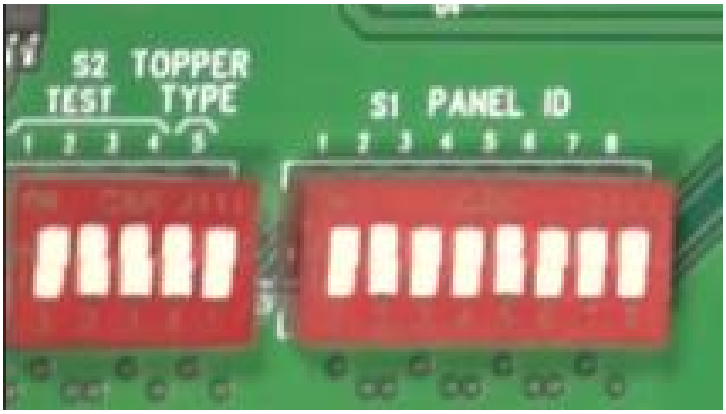
7. Remove the six M4 screws securing the board to the mounting bracket.



8. Carefully remove the board from the compression posts.



9. Make sure the S1 and S2 dip switch settings on the new board match the old board.

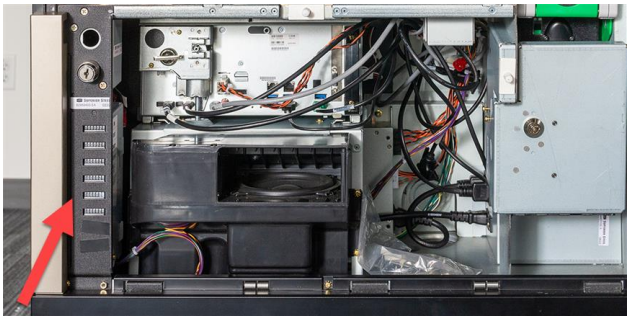


Reverse these instructions to re-install. Attach the new board on bracket and place back in cabinet. Replace all connections.

2.4 Hard Meters

The EGM is equipped with externally viewable mechanical meters. These meters record the lifetime financial records of the EGM. The mechanical meters increment in specified denominations configured in game software. The meters are not meant to be, nor should they ever be, reset to zero. They should always reflect the lifetime values.

- Total In
- Total Out



2.5 Fledging Board

The Fledging Board is only present in Mutha Goose system configurations.

The Fledging Board provides communication between the EGMs and the Mutha Goose System.

- RJ45 connection to Mutha Goose system (or daisy-chained between multiple EGMs connected to the Mutha Goose system).
- Connection to Cabinet Controller Board to "listen" for meters.

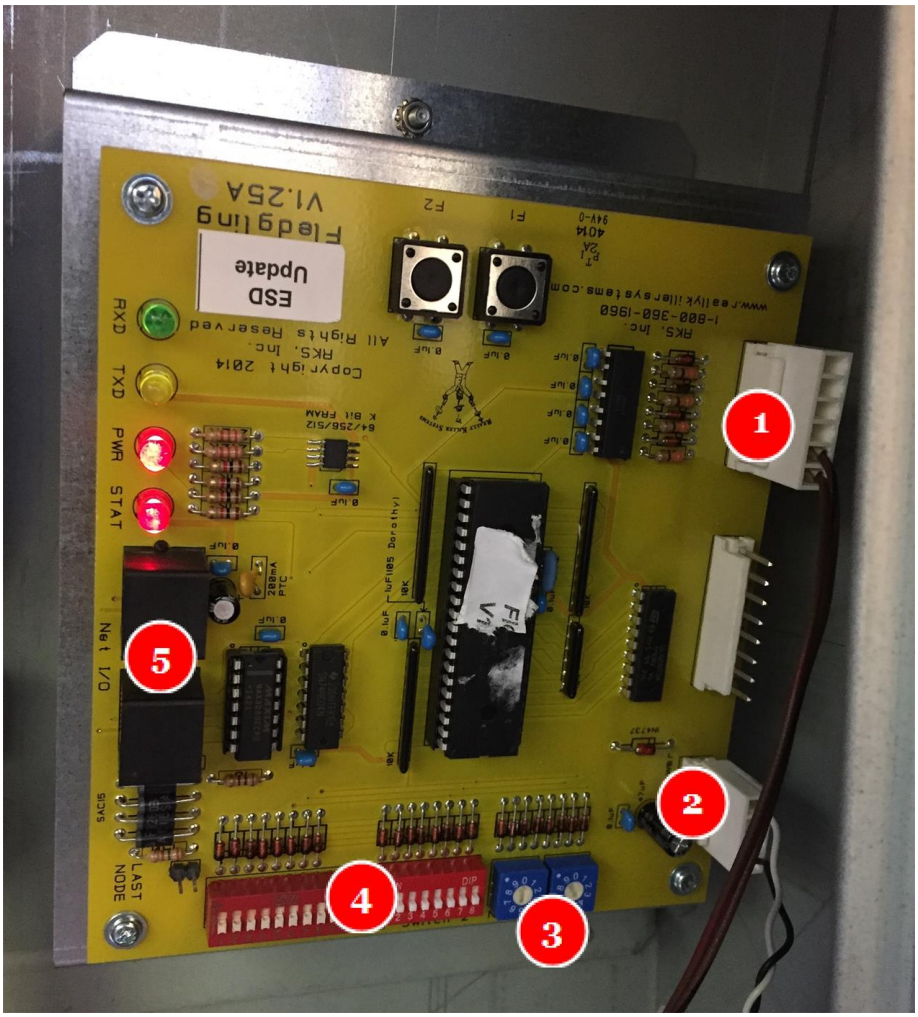


Figure 2-6 Fledging Board

Label	Description
1	Connection to physical Hard Meters by harness (62358200)
2	Power connector to Cabinet Controller Board (J14) by harness (62358200)
3	Node Number
4	Jumpers
5	RJ45 connections for Mutha Goose system / Daisy Chain

2.5.1 Fledging Board Installation

To install the Fledging Board:

1. Open the upper cabinet.
2. Install the Mutha Goose board bracket using two M4 nuts.

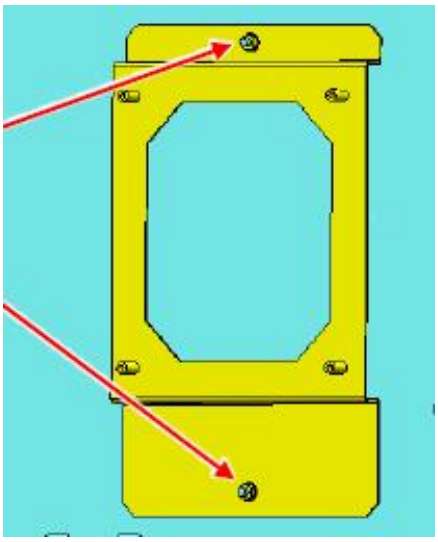
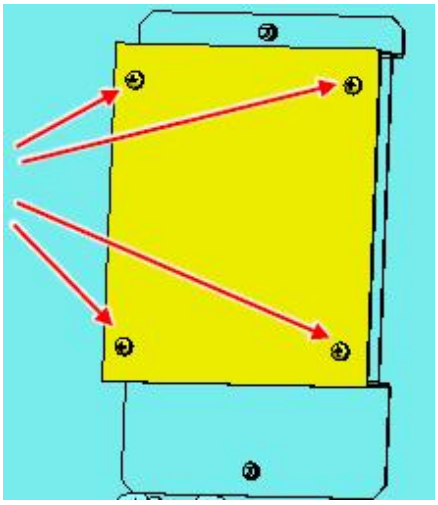


Figure 2-7 Fledging Board bracket

3. Install the Mutha Goose board onto the bracket using 4 screws.



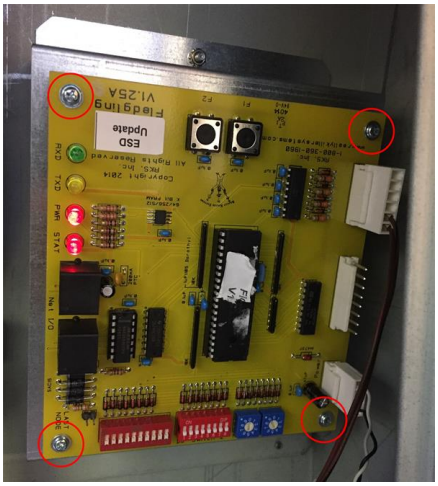


Figure 2-8 Fledging board on bracket

4. Attach the connectors.

2.5.2 Fledging Board Connectors on Cabinet Controller Board

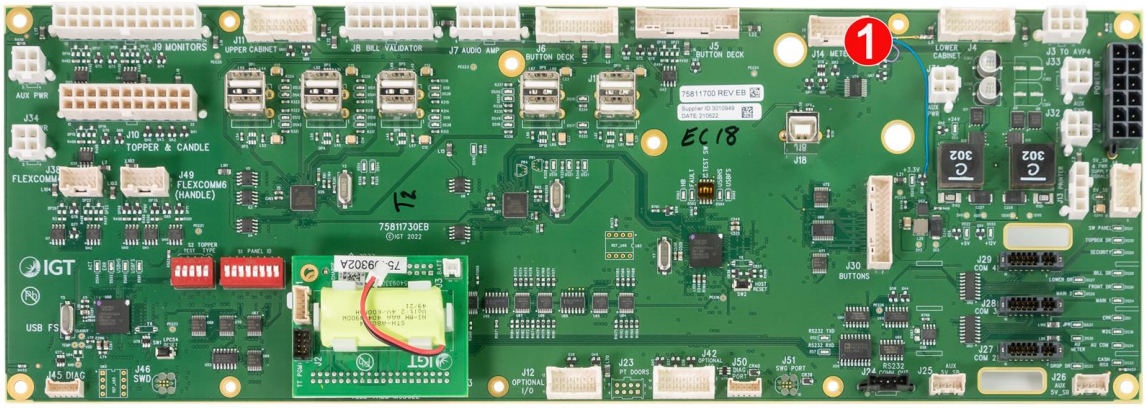


Figure 2-9 Fledging Board Connector on Cabinet Controller Board

Label	Connector	Description
1	J14	Connection to Fledging Board

2.5.3 Fledging Board Removal

To remove the Fledging Board:

1. Disconnect harness connections.
2. Remove the four screws securing the Fledging Board to the bracket.

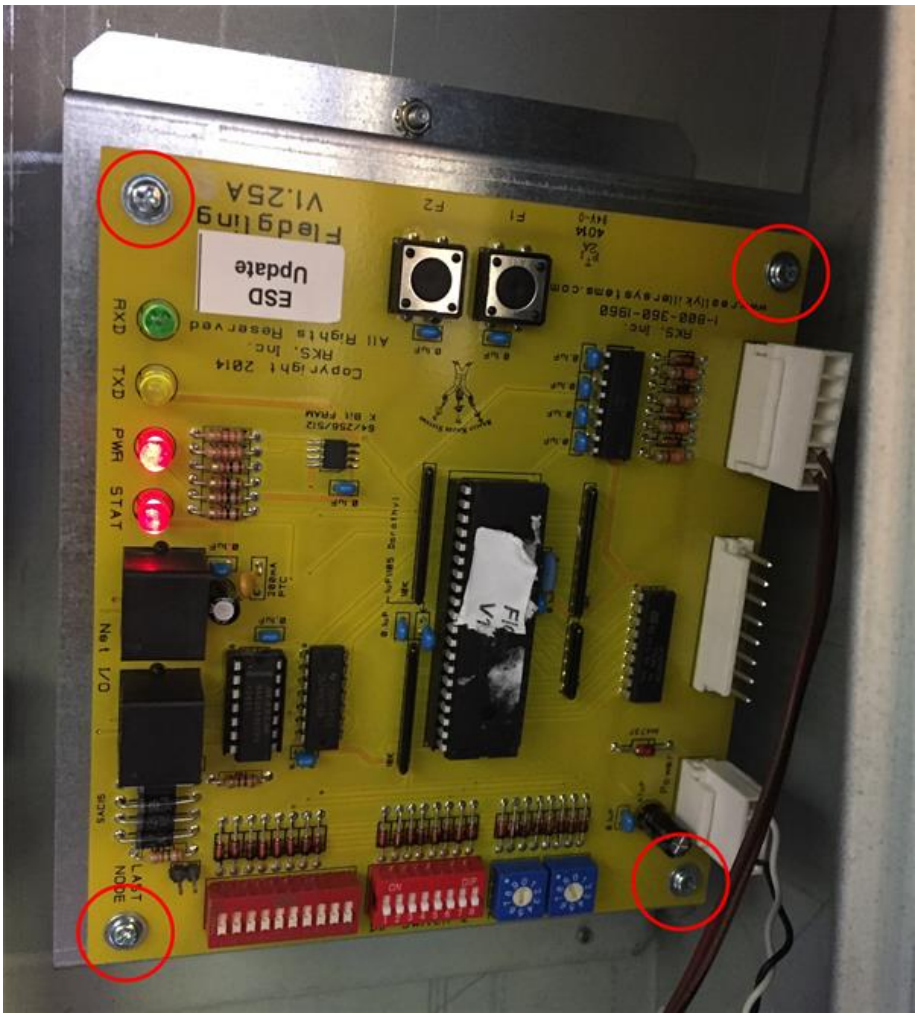


Figure 2-10 Fledging Board Removal

2.6 Player Panel

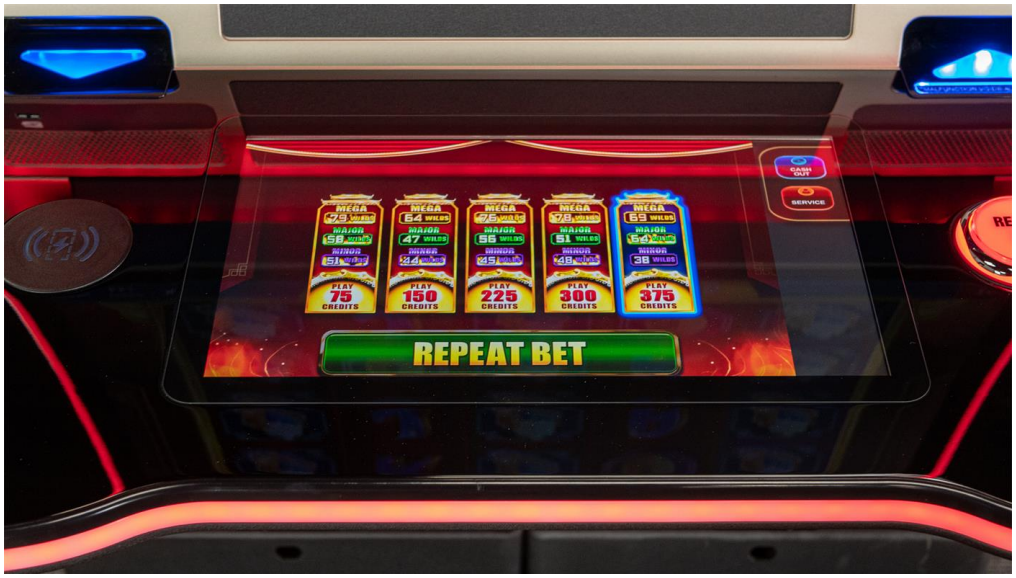
The following image, numbers, and table describe the Player Panel area:

Figure 2-11 Player Interface Panel

Number	Description	Number	Description
1	L/R Speakers	5	Bill Validator Bezel
2	Player Tracking Display/Financial Panel (blanking plate installed)	6	Wireless Inductive Charger
3	USB Charging Port	7	13.3" DPP
4	Printer Bezel	8	Single Bash Button

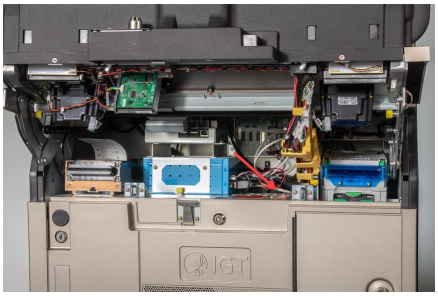
2.6.1 DPP

P/N 69980301 MON ASSY, 13.3IN,PCT TS,DPP,KORTEK



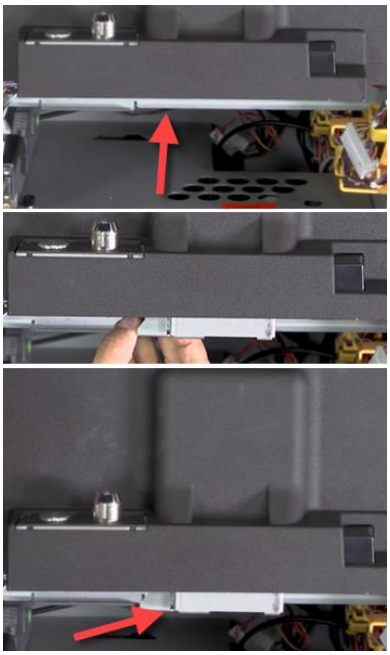
2.6.1.1 DPP Removal

1. Open the Main Door and power off the EGM.

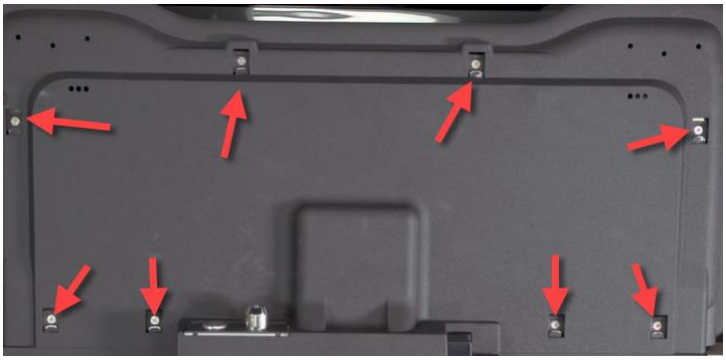


2. Remove the two screws at the bottom of the door.

3. Pull the silver lever at the bottom of the DPP to expose the eight screws for the main door bottom cover.

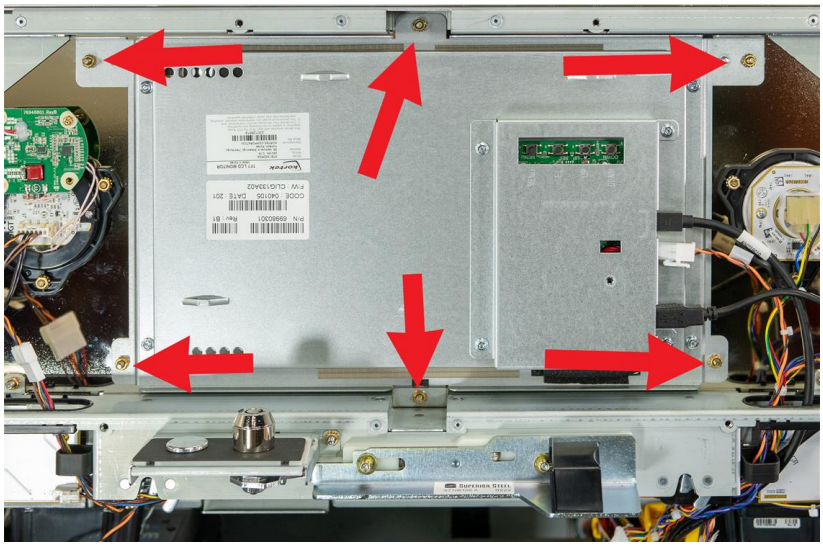


4. Remove the eight screws securing the cover and lift the bottom cover off.



5. Remove the connections.

6. Remove the six M4 nuts, keeping a hand on the display to prevent it from falling out.



Reverse these instructions to re-install.

Carefully align tabs in cover with slots in door when reinstalling.

After attaching cover, push the silver latch up to install the two bottom screws.

Do not overtighten the M4 nuts as it will damage the PVD player panel top surface.

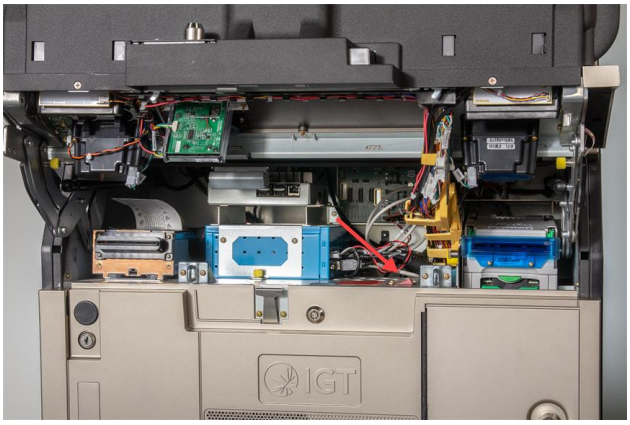
2.6.2 Bash Button

P/N 51809190 SWITCH, PB, W/O-LENS, 2.3IN, HALO, CRM/OPL

P/N 75207300 PCB, BTN EDGLT, GPB1290, OWI, ASY

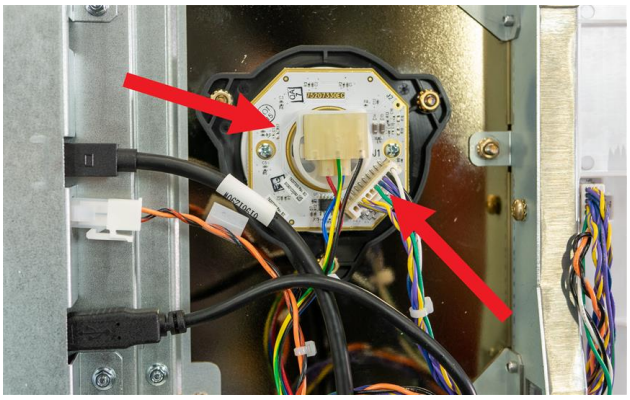
2.6.2.1 Bash Button Removal

1. Open the Main Door and power off the EGM.

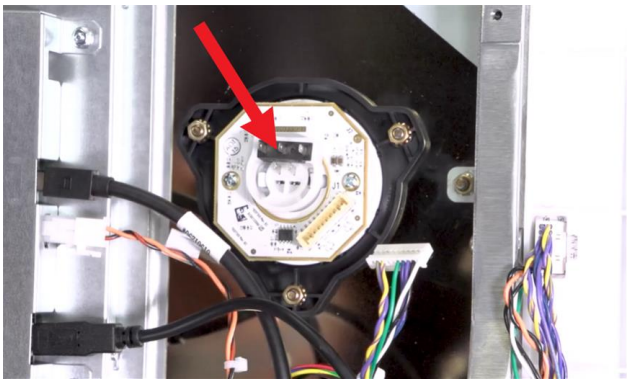


2. Remove the DPP cover (See *DPP* on page 60).

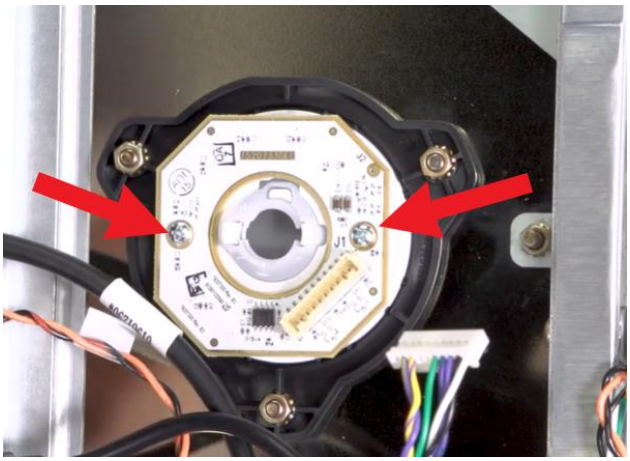
3. Remove the LED connections from the back of the button assembly.



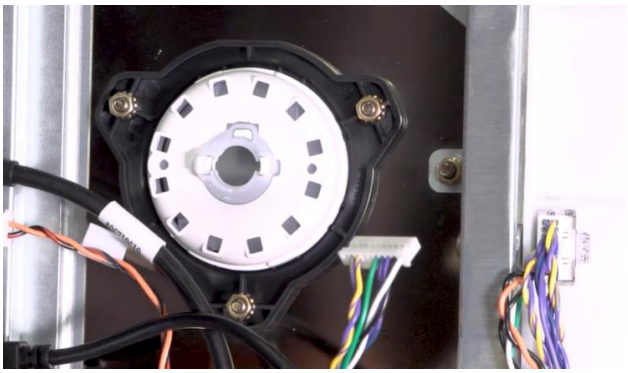
4. Pull out LED holder while turning.



5. To remove the PCB, remove the two screws and remove the board.



6. To remove the diffuser, just pull it off.



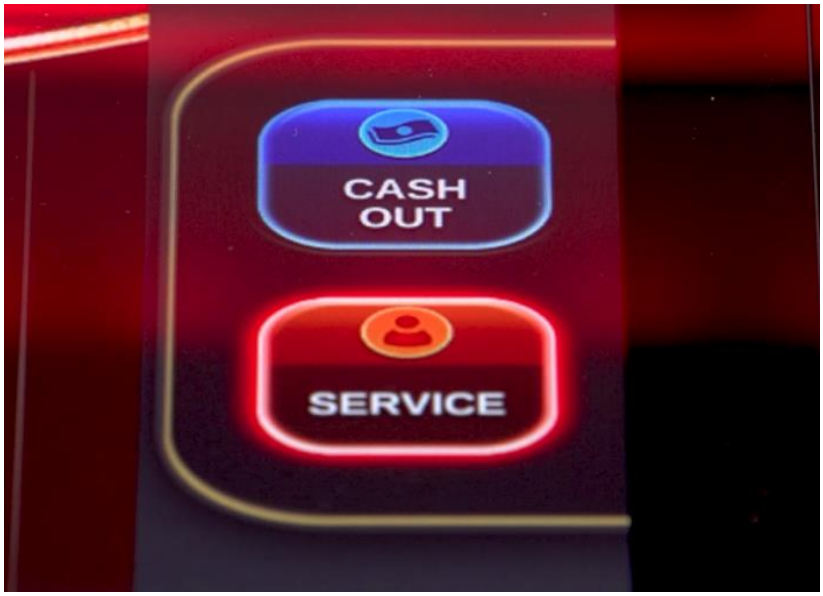
7. To remove the assembly, depress the four tabs on the back of the body and push the button out through the front.

Reverse these instructions to re-install.

Verify the alignment of the button on the DPP before tightening.

2.6.3 Service and Cashout Buttons

The Service and Cashout buttons are virtual.



Mechanical service and cash out buttons are an option and can be retrofitted.

2.6.4 BV and Printer LED

2.6.4.1 BV

P/N 75204900 PCB,PCU,BV CHEVRON,ASY

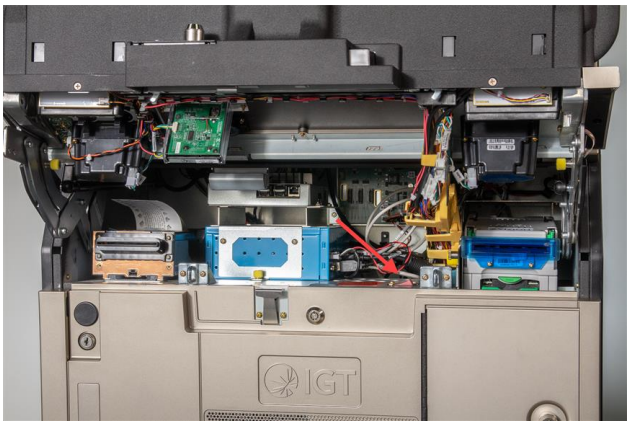
2.6.4.2 Printer

P/N 75205900 PCB,PCU,PRINTER CHEVRON,ASY

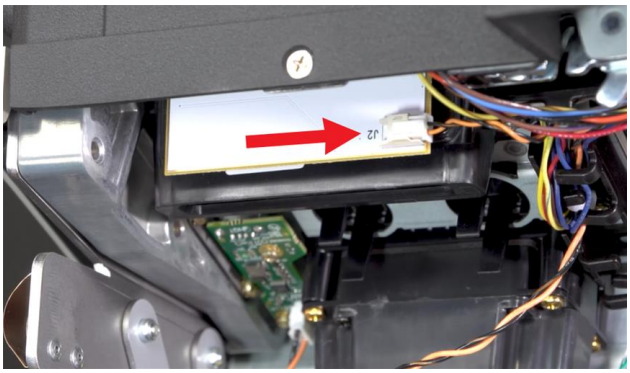
2.6.4.3 BV and Printer LED Removal

The removal of the BV and Printer LED is the same. Use these instructions for either.

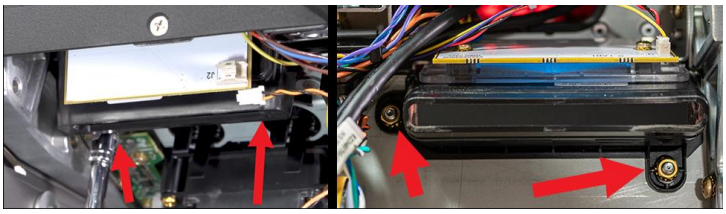
1. Open the Main Door and power off the EGM.



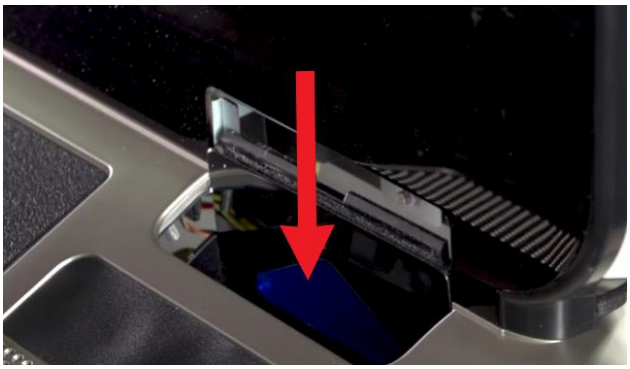
2. For either BV or Printer, unplug the power connection.



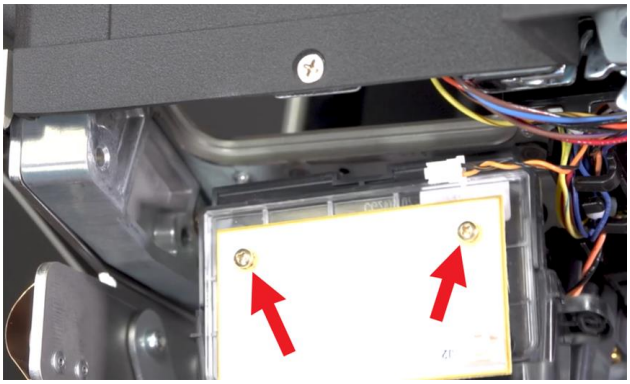
3. To access without removing the DPP cover, remove the two M4 nuts securing the LED PCB and bezel and guide to the door.



4. Push the assembly down from the front while guiding from the back.

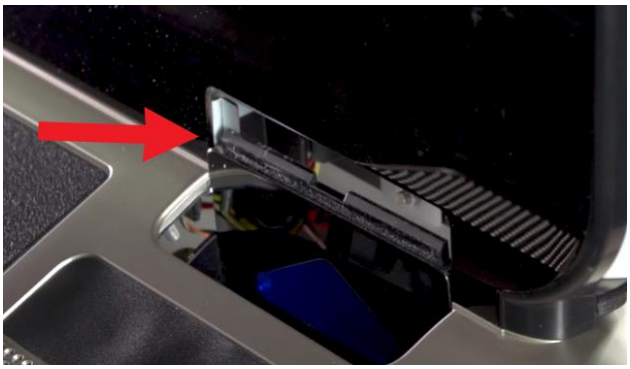


5. Remove the assembly and remove the two screws securing the LED PCB.



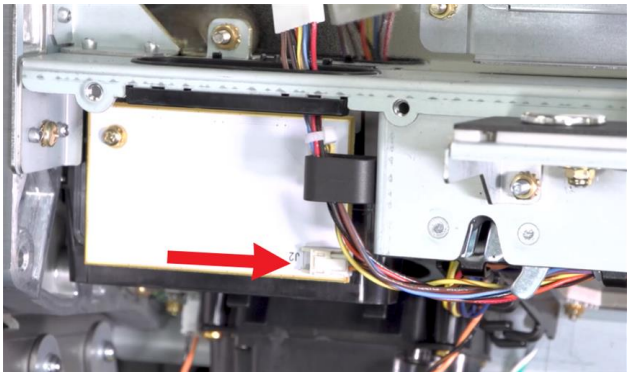
Reverse these instructions to re-install.

When reinstalling, ensure the assembly aligns with the cabinet.

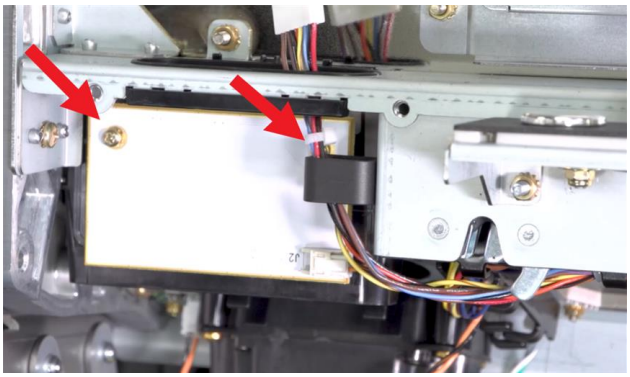


To access the BV and Printer LED by removing the DPP cover:

1. Remove the DPP cover (60).
2. Unplug the power to the PCB.



3. Remove the two screws securing the LED PCB.

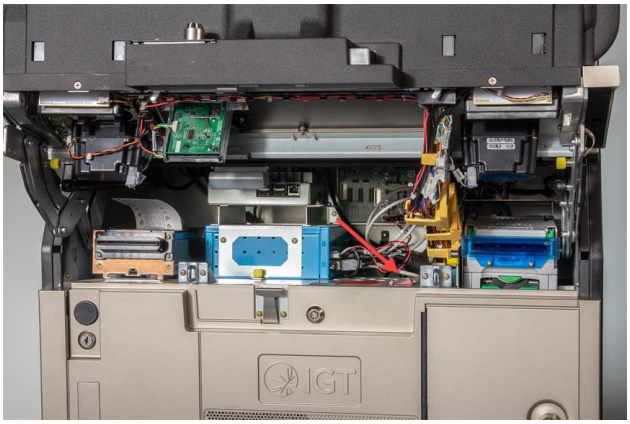


Reverse these instructions to re-install.

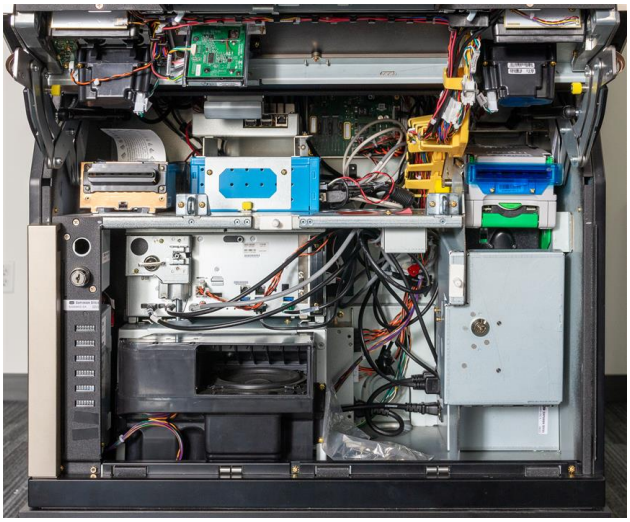
2.6.5 BV Assembly

2.6.5.1 BV Assembly Removal

1. Open the Main Door and power off the EGM.

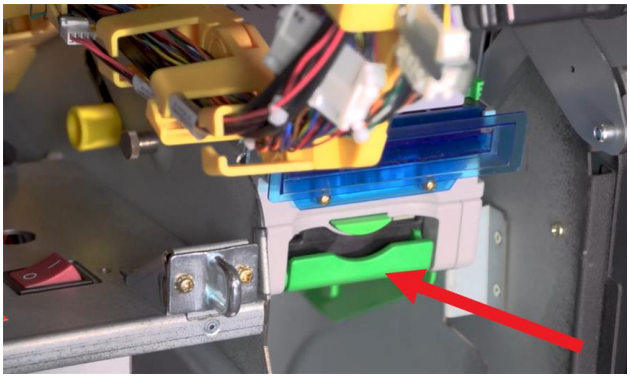


2. Open and remove the Front Door.

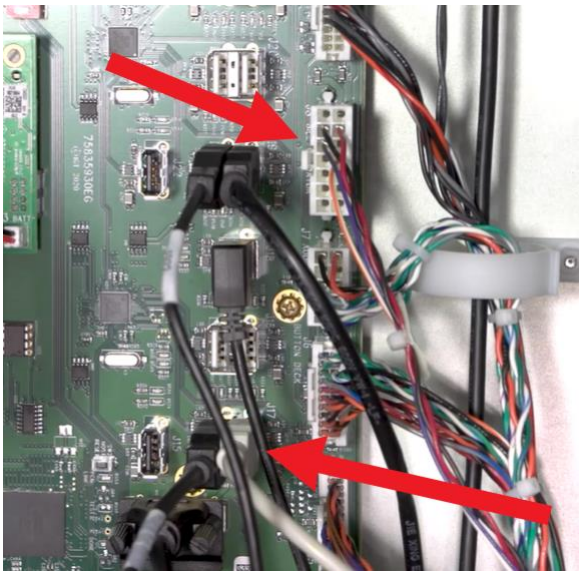


3. Open the cash box door and remove the cash box and place it in a safe and secure area.

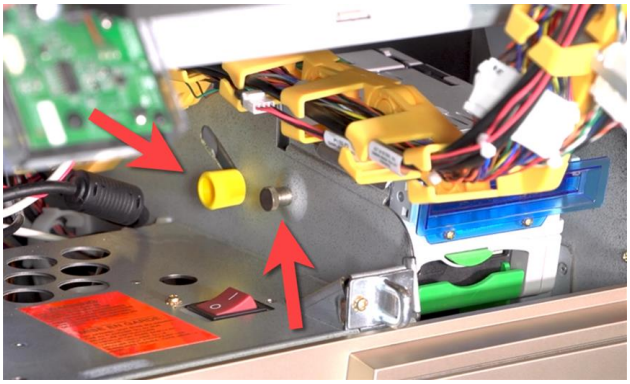
4. Remove the BV Transport assembly.



5. Disconnect J5 and the BV USB connection on the Cabinet Controller Board. Guide the cable out so it does not get caught while removing the BV assembly.

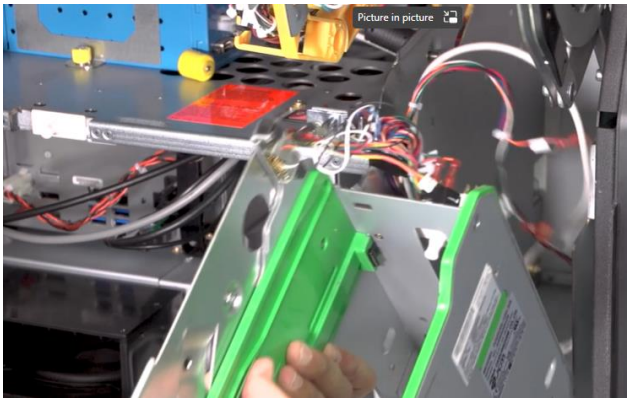


6. Push the yellow knob while pulling the pull pin to move the BV Assembly.



7. Hold the pull pin out while sliding the BV Assembly forward and down to remove the assembly.

Do not snag the wiring.



Reverse these instructions to re-install.

2.6.5.2 iVIZION™ Bill Validator

The iVIZION bill validator uses optical technology to center banknotes being passed through the transport unit eliminating the need for mechanical centering. It communicates to the Cabinet Controller Board through a harness at the back of the unit and this same harness provides +12VDC from the power supply to power the iVIZION.

Figure 2-12 iVIZION Bill Validator

iVIZION Bill Validator Components

The iVizion does not require field calibration as it is self-calibrating.

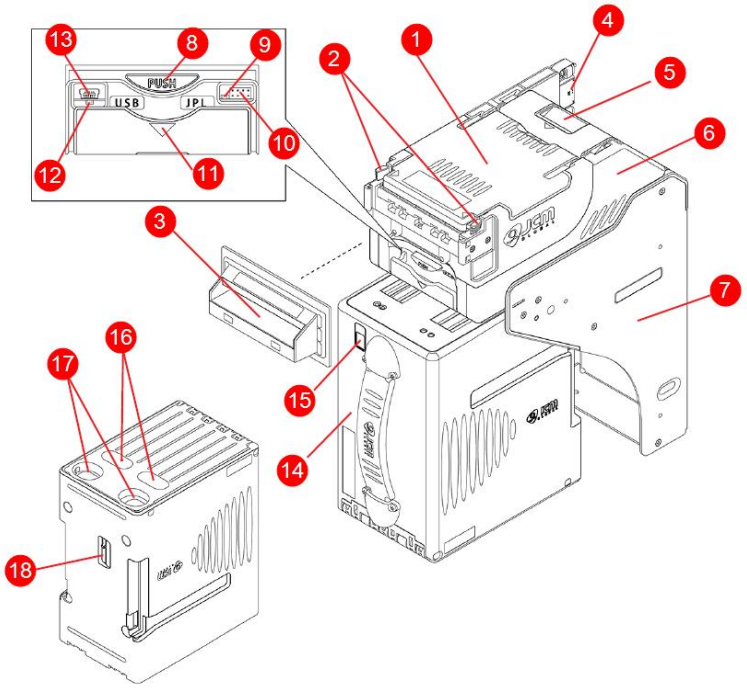


Figure 2-13 iVIZION Components

Number	Description	Number	Description
1	Validator Unit	10	Front Panel Bezel JPL Connector
2	Front Upper Guide Access Lever (Validator Unit)	11	Transport Unit Release Lever
3	Bezel (Option)	12	Power ON LED (Green)
4	Interface Connector	13	USB (Mini-B) Software Download/ Calibration & Maintenance Connector
5	Rear Upper Guide Access Lever (Transport Unit)	14	Cash Box
6	Transport Unit	15	Stack Volume Indicator Window
7	Frame Housing	16	Cash Box Window- confirms last stacked Banknote Denomination Value
8	Validator Unit Release Pushbutton	17	Lock Installation Hole (user provided)
9	Status LED (4 colors: red/yellow/green/blue)	18	Pusher Lever - manually moves the Pusher Plate down (Activate to confirm the denomination value through Cash Box Window "R")

iVIZION Bill Validator Sensors

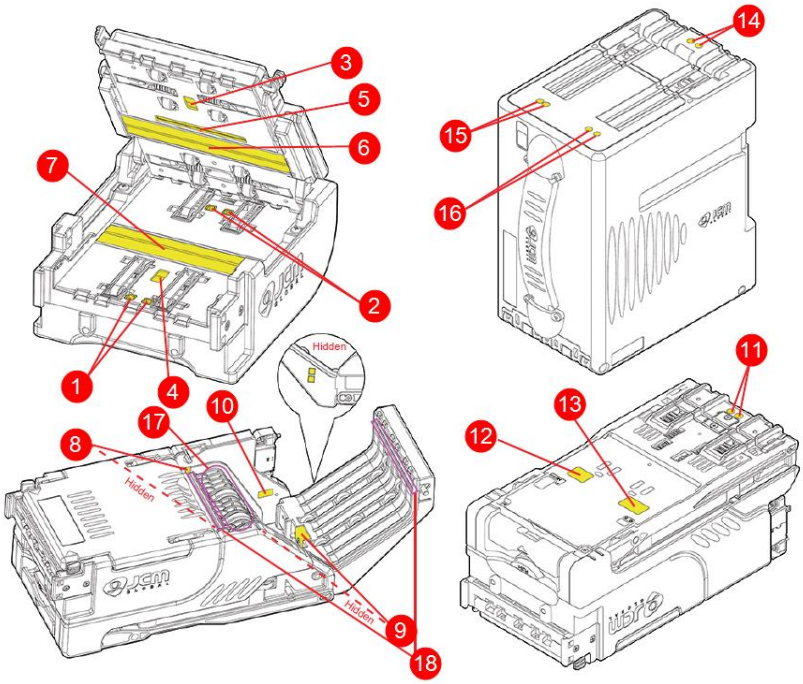


Figure 2-14 iVIZION Sensors

Symbol		Sensor
1	Validator Unit	Entrance Sensors
2		Exit Sensors
3		UV Sensor (Upper)
4		UV Sensor (Lower)
5		Transmissive Sensor
6		CIS Sensor (Upper)
7		CIS Sensor (Lower)
8	Transport Unit	Feed-in Sensor
9		Feed-out Sensor
10		Home Position Sensor
11		Home Position Sensor Lens
12		Nearly Full Sensor
13		Cash Box Sensor
14	Cash Box	Home Position Sensor Lens
15		Cash Box Sensor Lens
16		Nearly Full Sensor Lens
17	Anti-Stringing Mechanism	
18	Feed-in Sensor's Comb Grooves	

iVIZION Bill Validator Error Codes

The color of the LEDs on the front of the Bill Validator determines the state of the validator. The table below outlines possible errors.

Number	Condition	LED Indicatiors	
		Power LED	Status LED
1	OFF	Extinguished (OUT)	Extinguished (OUT)
2	Initializing	(Green) Solid	(Blue) Flashing
3	Stand-by	(Green) Solid	Extinguished (OUT)
4	Reject	(Green) Solid	(Green) Flashing
5	Banknote Jam	(Green) Solid	(Yellow) Flashing
6	Abnormal Error	(Green) Solid	(Red) Flashing
7	Downloading	(Green) Solid	(Red) Solid
			(Green) Solid
8	Performance Test (Stand-by)	(Green) Solid	(Blue) Solid

2.6.5.3 UBA® Bill Validator

The bill validator has four-way acceptance (face up/down, right side up/down) and it communicates to the Cabinet Controller Board through the harness at the back of the UBA. The same harness provides +12VDC from the power supply to power the UBA. The UBA bill validator uses 8Mb Flash Chips to store the firmware that dictates what currency it is to accept.

Figure 2-15 UBA Bill Validator

UBA Bill Validator Components

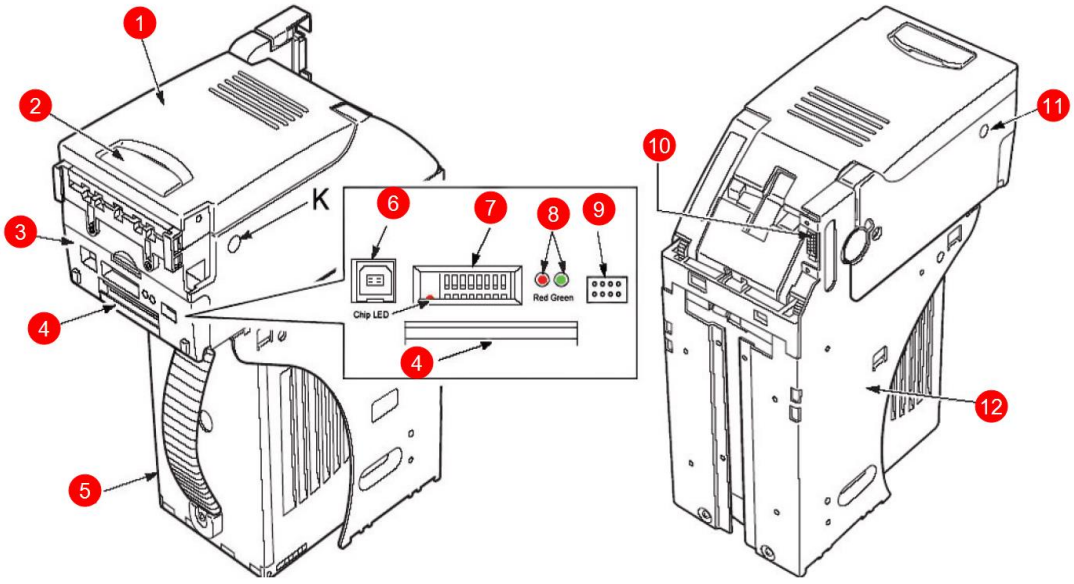


Figure 2-16 UBA Components

Number	Description	Number	Description
1	Acceptor Unit	7	DIP Switch Block
2	Upper Guide Access Lever	8	Diagnostic LEDs
3	Front Access Door	9	Front Bezel Connector
4	Acceptor Unit Release Lever	10	Interface Connector
5	SS Style Cash Box	11	Centering Guide Release Port
6	USB Type B Male Receptacle for software downloading and adjustments	12	Housing Frame

UBA Bill Validator Connectors & Sensors

The UBA bill validator does not require field calibration. It only requires calibration when a component (sensor) board or the CPU Board is replaced. The calibration process involves a PC based program that adjusts the sensors to factory levels and is done at the repair depot only.

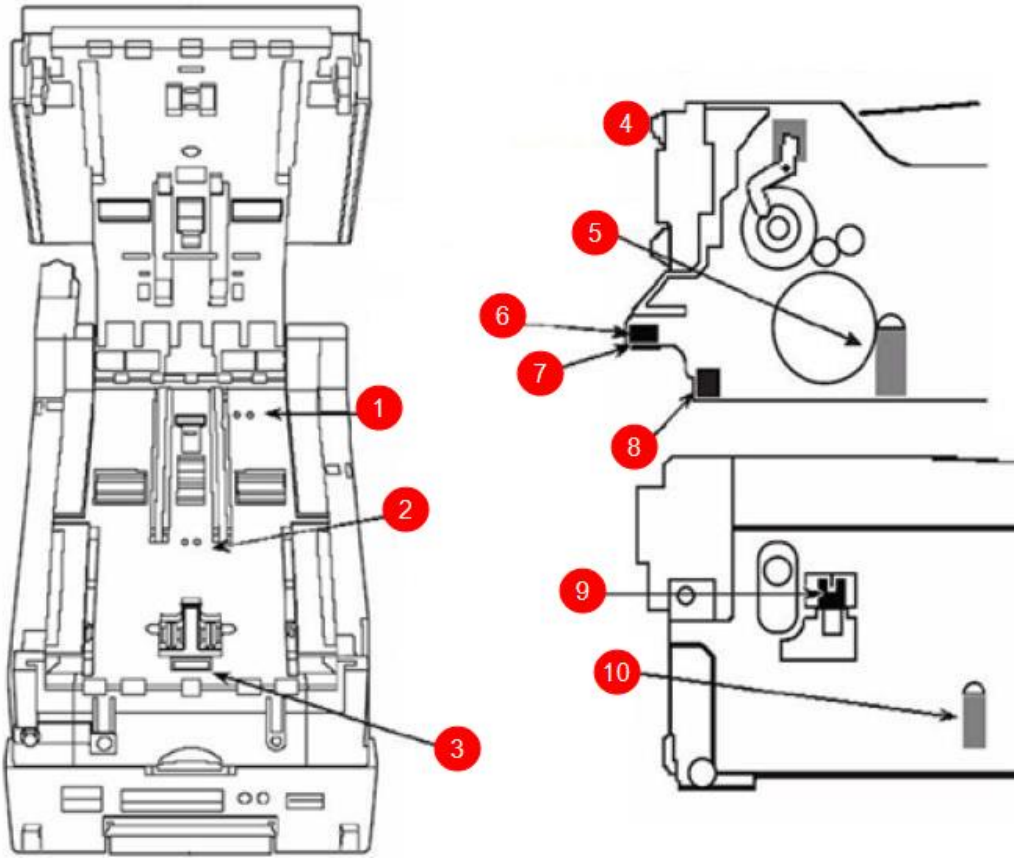


Figure 2-17 UBA Connectors and Sensors

Number	Description	Number	Description
1	PB-In Sensor	6	Pusher Home Sensor
2	Centering Mechanism Timing Sensor	7	Cashbox Installed Sensor
3	Entrance Sensor	8	Exit Sensor
4	PB Home Sensor	9	Centering Mechanism Home Sensor
5	Transport Motor Encoder Sensor	10	Stacker Mode Encoder Sensor

UBA Bill Validator Error Codes

LED Status		Error	Causes and Solutions
Red LED	Green LED		
Flashes 1 x	ON	Boot ROM error	Change the CPU Board.
Flashes 2 x	ON	1. Incorrect external ROM contents or empty program 2. No program in the external Flash ROM	
Flashes 3 x	ON	Internal RAM error	
Flashes 4 x	ON	External RAM error	
Flashes 1 x	OFF	Cash Box full	Empty the cash box and re-install
Flashes 2 x	OFF	Stacker Pusher Mechanism Fault (Transport Jam Type 1)	Stacker motor may be corrupted. Change the motor if defective. A Stacker Encoder Board failure may have also occurred. Check all harnesses and connectors. Exchange the Stacker Encoder Board and/or CPU Board if required with a known good board.
Flashes 3 x	OFF	Transport Jam Type 2	The ICB is disabled/cash box is active. An Exit Sensor Board failure may have occurred. Check all harness and connecters. Exchange the Exit Sensor Board and/or CPU Board if required with a known good board.
Flashes 4 x	OFF	Stacker Encoder Signal Fault or a Validator Jam	A Stacker Encoder Sensor failure may have occurred. Check all lenses for dirt or scratches. A Lower Sensor Board failure may have occurred. Exchange the Sensor Board if required with a known good board.
Flashes 5 x	OFF	Transport Motor speed error	The Transport Motor Speed Encoder does not detect motor rotation or requires sensor adjustment. Check all harnesses and connectors. A Motor or CPU Board failure may have occurred. Exchange the Motor and/or CPU Board with a known good board.
Flashes 6 x	OFF	Transport Motor failure	
Flashes 7 x	OFF	Reserved	N/A
Flashes 8 x	OFF	Reserved	N/A
Flashes 9 x	OFF	Anti-Pullback Unit error	An Anti-Pullback Home Sensor Board and/or a Lower Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Anti-Pullback Home Sensor Board and/or Lower Sensor Board with a known good board.
Flashes 10 x	OFF	Cash Box error	Cash box not seated or not present. A Cash Box Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Cash Box Sensor Board and/or CPU Board if required with a known good board.
Flashes 11 x	OFF	Reserved	N/A
Flashes 12 x	OFF	Cheated	Cheat attempt detected.
Flashes 13 x	OFF	Centering Mechanism Solenoid error	A Solenoid or an Upper Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Upper Sensor Board with a known good board.

LED Status		Error	Causes and Solutions
Red LED	**Green LED**		
Flashes 14 x	OFF	Centering Mechanism error	A Centering Mechanism Home Sensor Board and/or CPU Board failure may have occurred. Check all harnesses and connectors. Exchange the Centering Mechanism Home Sensor Board with a known good board.
OFF	Flashes 1x	Slanted Bill Insertion	Re-insert the bill straight
OFF	Flashes 2x	Magnetic Sensor pattern error	Check all lenses for dirt or scratches. An Upper Sensor Board failure may have occurred. Check all harnesses and connectors.
OFF	Flashes 3x	Paper detected inside the Validator in standby mode	Remove the paper jam from the Validator path and clean the lenses. An Upper and/or Lower Sensor Board failure may have occurred. Check all harnesses and connectors.
OFF	Flashes 4x	Optical Sensor error Type 1	
OFF	Flashes 5x	Bill feed error Type 1	Check all lenses for dirt or scratches. An Upper Sensor Board failure may have occurred. Check all harnesses and connectors.
OFF	Flashes 6x	Bill identification error	Remove the bill from the Validator and clean the lenses. An Upper and/or Lower Sensor Board failure may have occurred. Check all harnesses and connectors.
OFF	Flashes 7x	Optical Sensor error Type 2	
OFF	Flashes 8x	Optical Sensor error Type 3	
OFF	Flashes 9x	Inhibited Bill	Check and set DIP switches properly.
OFF	Flashes 10x	Return Bill	Bill inhibited by host machine
OFF	Flashes 11x	Reserved	N/A
OFF	Flashes 12x	Bill feed error Type 2	Check all bill path sensors
OFF	Flashes 13x	Bill length error	Check all belts and rollers in the transport path.
OFF	Flashes 14x	Optical Sensor error Type 4	Remove the bill from the Validator and clean the lenses.
OFF	Flashes 15x	Optical Sensor error Type 5	

2.6.5.4 MEI CASHFLOW® Bill Validator

The MEI CASHFLOW bill validator communicates to the Brain Box via a USB cable and it gets +12VDC from the Cabinet Controller Board through a harness at the back of the unit.

Figure 2-18 MEI CASHFLOW Bill Validator

To access the inside of the clamshell, pull on the yellow cap and pull up.

Figure 2-19 MEI CASHFLOW Clamshell

MEI CASHFLOW Bill Validator Components & Sensors

Figure 2-20 MEI CASHFLOW Components & Sensors

Number	Feature	Number	Feature
1	Light Bar	14	Common Validator Modules
2	Lensed Receiver	15	PC Style Edge Connector Interface Cards
3	Custom Bar-Code Reader	16	Validator Release Latch
4	100 mhz dsp processor	17	Note Path Release
5	Early Note Pick-up	18	Dispute Resolution Window.
6	Smooth Sealed Note Path	19	Entry Guide & Power Mounting
7	Direct Roller Drive	20	Configuration Button -not used on sc83 series
8	Ridges Mate with Validator	21	Diagnostic LEDs
9	Internal Direct Roller Drive Elevator	22	USB Service Port
10	Short Note Path	23	Validator User Interface
11	Durable Welded Plastic Exterior	24	Flexible Handle
12	Recessed Plastic Gears	25	Passive Cash box Latches
13	Dual Lock Capability		

MEI CASHFLOW Bill Validator Error Codes

The table below indicates the 15 color-coded combinations of diagnostic LEDs on the validator module. For each color, there is a solid indicator and four flashing combinations. If multiple failure conditions occur, the most severe condition will be displayed.

Green conditions	No fault (No problem)
Yellow conditions	Soft Fault (The operator can correct the issue at the machine)
Red conditions	Hard Fault (One of the components needs to be replaced)

LED State		Status	Action
(Green) Solid		Normal	Take no action.
(Green) Flashes 1x		Disabled by machine interface	Fix the machine condition.
(Green) Flashes 2x		Disabled by network interface (if applicable)	Correct the network condition.
(Green) Flashes 3x		Reserved	
(Green) Flashes 4x		Reserved	
(Yellow) Solid		Cash box not seated or not present	Reseat the cash box.
(Yellow) Flashes 1x		Poor acceptance	Clean the validator.
(Yellow) Flashes 2x		Jam in validator	Clear the jam from the validator.
(Yellow) Flashes 3x		Jam in cash box	Remove the validator and try to clear the jam.
(Yellow) Flashes 4x		Reserved	
(Red) Solid		Cash box full	Replace with an empty cash box.
(Red) Flashes 1x		Validator hardware fault	Replace the validator with a programmed spare.
(Red) Flashes 2x		Interface board hardware fault	Replace the interface board.
(Red) Flashes 3x		Unprogrammed unit	Program unit with a service tool.
(Red) Flashes 4x		Reserved	
(Green) Solid	(Yellow) Solid	Normal + cashbox cleaning recommended	Perform the corresponding preventive maintenance.
(Green) Flashes x1	(Yellow) Flashes x1	Disabled by machine interface + cashbox cleaning required.	Perform the corresponding preventive maintenance.
(Yellow) Flashes x4	(Red) Flashes x4	Cashbox cleaning required.	Perform the corresponding preventive maintenance.
(Yellow) Flashes x8	(Red) Flashes x8	Security Timeout	Wait for timeout to expire.

2.6.5.5 UBA® Pro Bill Validator

The UBA Pro bill validator has four-way bill acceptance (face up/down, right side up/down) and it communicates to the Cabinet Controller Board through the connector at the back of the UBA Pro. The same connector provides +12VDC to power the UBA Pro. The UBA Pro bill validator uses 8Mb Flash Chips to store the firmware that dictates what currency it is to accept.

Figure 2-21 UBA Pro Bill Validator

UBA Pro Bill Validator Components

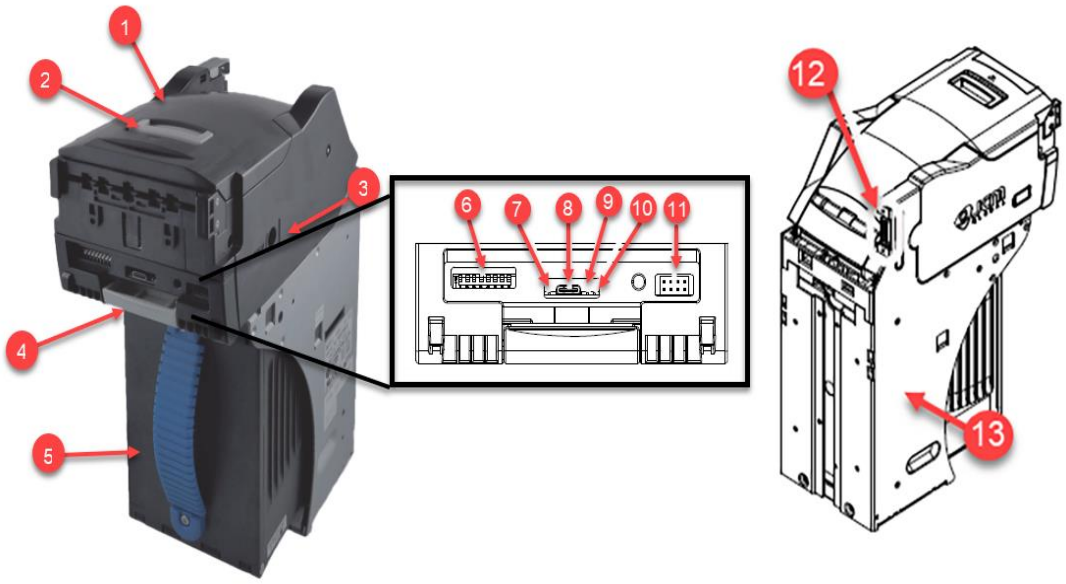


Figure 2-22 UBA Pro Components

Number	Description	Number	Description
1	Acceptor Unit	8	USB Type-C Connector (maintenance)
2	Upper Guide Access Lever	9	Status LED (green)
3	Centering Guide Shaft	10	Status LED (red)
4	Acceptor Unit Release Lever	11	Bezel Connector
5	SS Style Cash Box	12	Interface Connector
6	DIP Switches (front)	13	Housing Frame
7	Status LED (orange)		

UBA Pro Bill Validator Connectors & Sensors

The UBA Pro bill validator does not require field calibration. It requires calibration only when a component (sensor) board or the CPU Board is replaced. The calibration process involves a PC based program that adjusts the sensors to factory levels and is done at the repair depot only.

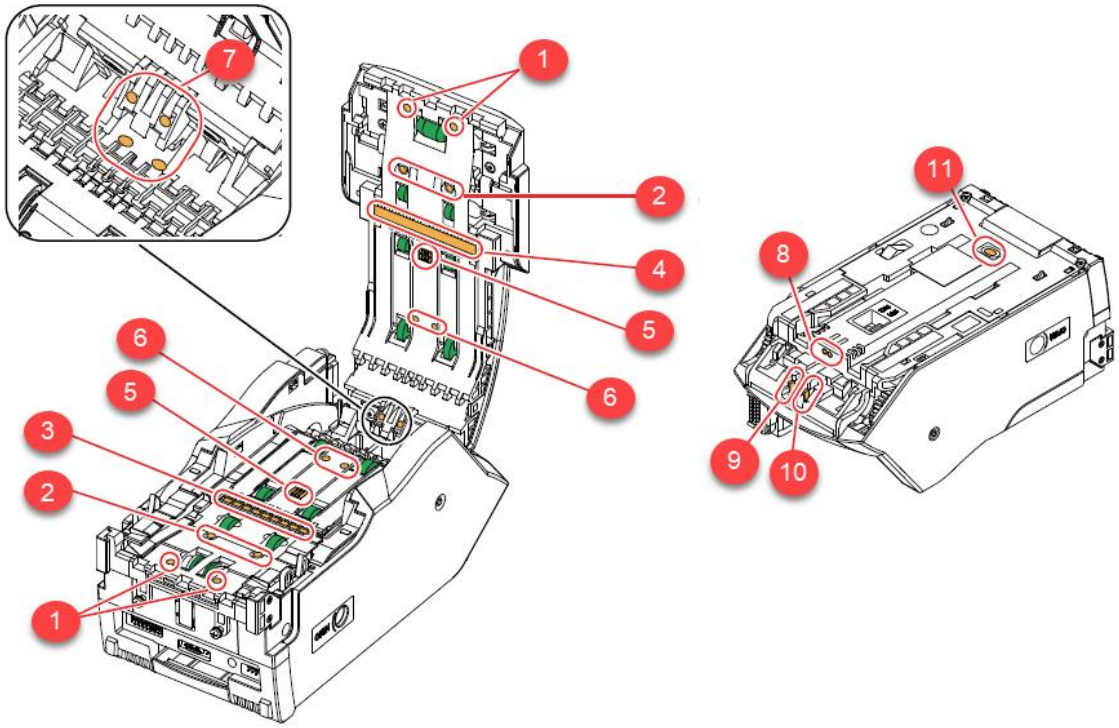


Figure 2-23 UBA Pro Connectors and Sensors

Number	Description	Number	Description
1	Entrance Sensor	7	PB-Out Sensor
2	Centering Start Sensor	8	Exit Sensor
3	Validation Sensor (PDIC Sensor Array)	9	Pusher Home Position Sensor
4	Validation Sensor (LED Light Source Module)	10	Cash Box Detection Sensor (Box Exist)
5	Barcode Sensor	11	ICB Sensor
6	PB-In Sensor		

UBA Pro Bill Validator Removal

The validator unit and stacker can be removed from the chassis of the bill validator.

Follow these steps to remove the validator unit and stacker:

1. Turn off the terminal.
2. Pull the lever to release the lock.
3. Slide the validator unit forward to remove it from the chassis.
4. Pull the cash box handle to remove the cash box from the housing frame.

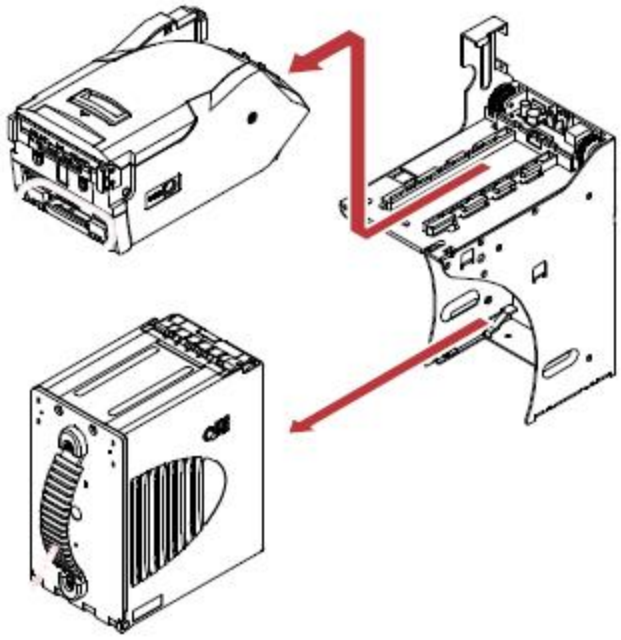


Figure 2-24 UBA Pro and Cash Box Removal

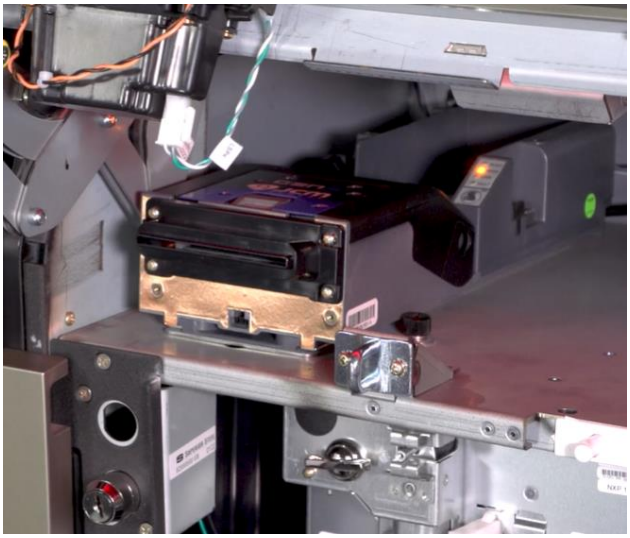
UBA Pro Bill Validator Standard Error Codes

LED Status		Error	Causes and Solutions
Red LED	Green LED		
Flashes 1 x	ON	External Flash ROM Boot Program ROM Check Error	The Boot Program is not correctly written in ROM, or it cannot be read. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 2 x	ON	External Flash ROM Boot I/F Area ROM Check Error	The Boot Interface Area was not written correctly or cannot be read. Re-download the program. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 3 x	ON	External Flash ROM Main Program ROM Check Error	The Main Operating Program is not written into the ROM correctly, or cannot be read. Re-download the program. Check that the relative parts are properly assembled and/or harness is connected.

LED Status		Error	Causes and Solutions
Red LED	Green LED		
Flashes 4 x	ON	EEPROM Error	EEPROM reading, writing and/or saving was not properly performed. Perform the Sensor Calibration procedure. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 5 x	ON	CPU Internal RAM Check Error	RAM reading or writing was not properly performed. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 6 x	ON	External SD-RAM Error	External SD-RAM reading or writing was not properly performed. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 7 x	ON	Backup External RAM Error	Backup external RAM reading or writing was not properly performed. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 1 x	OFF	Cash Box Full	Sensors detected that the Cash Box is Full. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 2 x	OFF	Pusher Mechanism Home Position Error	When stacking Banknotes, the Pusher Mechanism is not returning to the Home position. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 3 x	OFF	Banknote Jam (Cash Box)	When transporting a Banknote to the Cash Box, the sensors are not detecting a Banknote present condition when the time interval is too long, or the number of the Banknotes is greater than specified value for the function. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 4 x	OFF	Banknote Jam (Acceptor Head Unit)	When transporting or returning a Banknote in the Acceptor Head Unit, the sensors did not detect a Banknote present condition when the time interval was too long, or the number of the Banknotes in path is greater than specified value for the function. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 5 x	OFF	Motor Speed Error	Motor speed is greater or less than the specified value. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 6 x	OFF	Transport Motor Lock-Up	Motor locked while transporting a Banknote. Firmly re-seat the Cash Box. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 7 x	OFF	Stacker Motor Lock-Up	Motor locked while stacking a Banknote. Firmly re-seat the Cash Box. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.

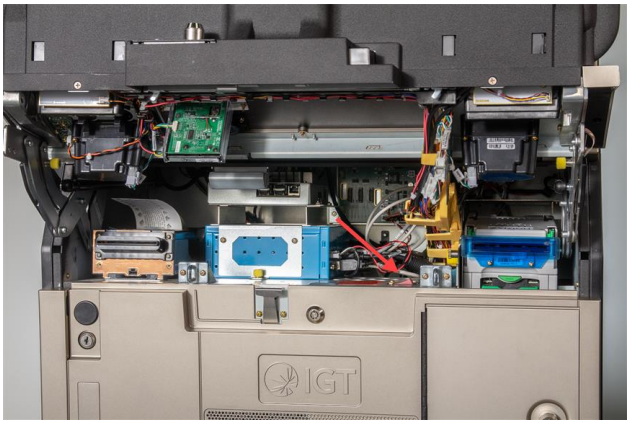
LED Status		Error	Causes and Solutions
Red LED	Green LED		
Flashes 9 x	OFF	PB Unit Error	The Anti-Pullback (PB) Unit has not performed correctly. Check that the relative parts are properly assembled and/or harness is connected.
Flashes 10 x	OFF	Cash Box Removal	The Cash Box has been removed. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 12 x	OFF	Fraud Detection	Sensors detect Banknotes occuring with abnormal timing. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.
Flashes 14 x	OFF	Centering Mechanism Abnormal	The Centering Guide has not moved. Check that the relative parts are properly assembled and/or harness is connected. Clean or adjust the relative parts and sensors.

2.6.6 Printer Assembly

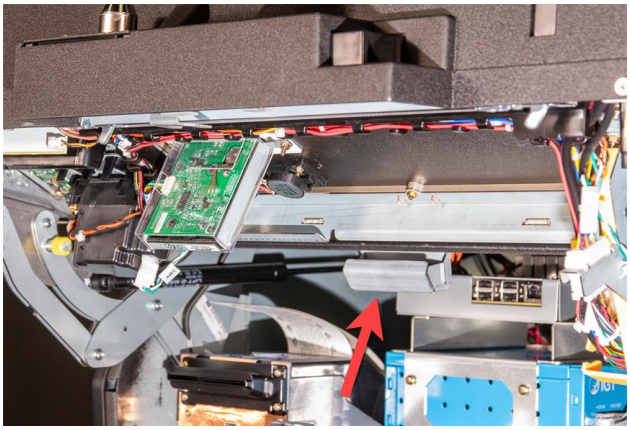


2.6.6.1 Printer Removal

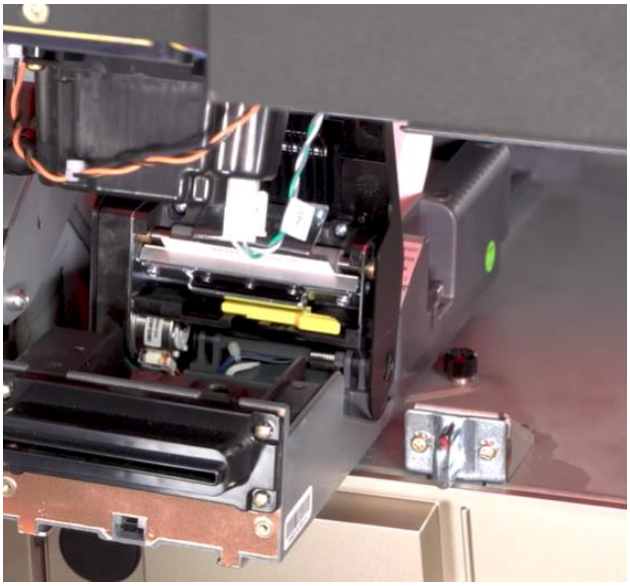
1. Open the Main Door and power off the EGM.



2. Open the main display.



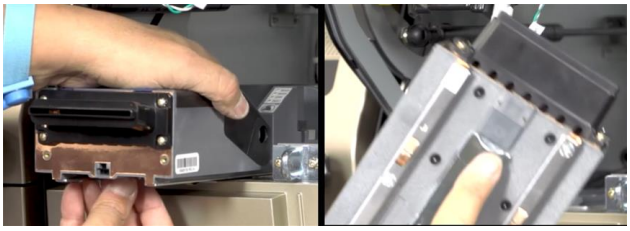
3. Remove the paper from the printer



Removing the printer only

1. Close the Main Door to allow better access to the left side of the printer.
2. Remove the wiring connection.

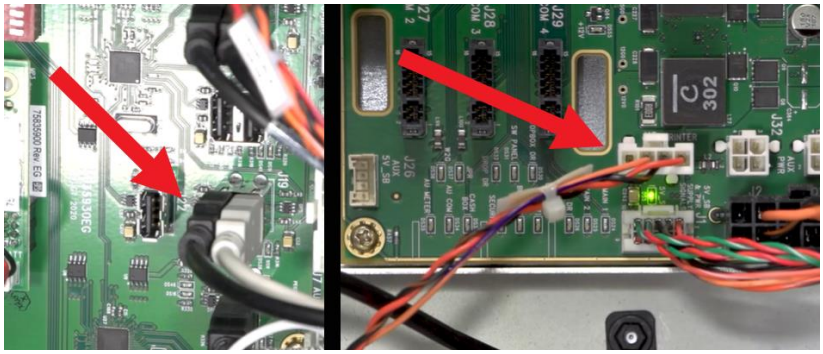
3. Pull printer forward and depress chassis release to remove printer from cabinet.



Reverse these instructions to re-install.

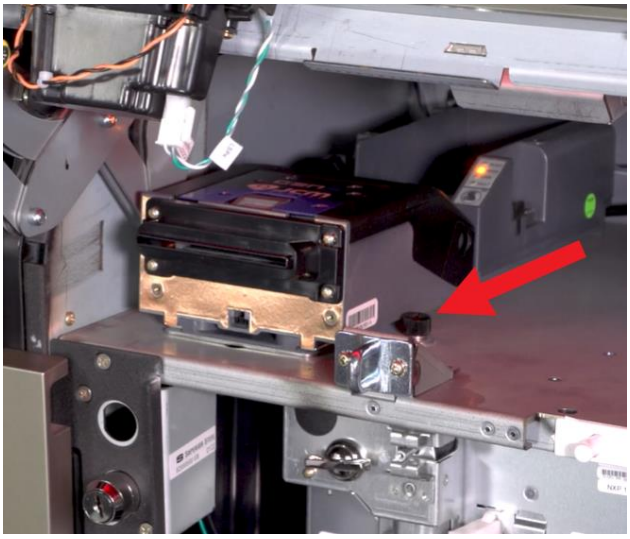
Removing the printer assembly

1. Disconnect the USB connection and the J13 molex connection to the cabinet controller.



Remove wiring from guides.

2. Loosen the thumbscrew on the right front side of the printer.



3. Slide the assembly forward and up and out of the cabinet.

Reverse these instructions to re-install.

When replacing the assembly, make sure the front pin and rear tab line up with the holes in the cabinet.

Slide the assembly all the way back until the thumbscrew lines up with the hole.

2.6.6.2 FutureLogic GEN5™ Printer

The GEN5 Printer is a thermal printer that communicates with the Brain Box via USB connection thru the Cabinet Controller Board.

Figure 2-25 FutureLogic GEN5 Printer

FutureLogic GEN5 Printer Components

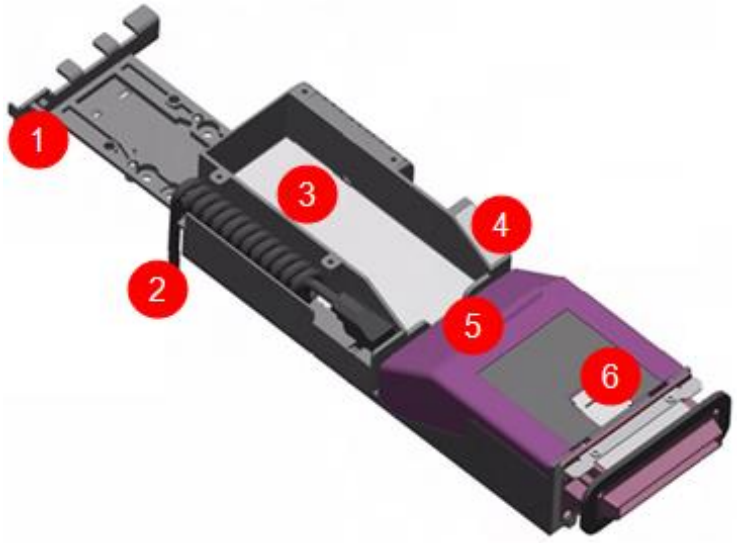


Figure 2-26 FutureLogic GEN5 Printer (opened)

Number	Feature	Number	Feature
1	Printer Open Sensor	4	User Button
2	Power and I/O	5	Paper Entry
3	Paper	6	Lever to access Printer Clamshell

FutureLogic GEN5 Printer Connectors and Sensors

Sensor	Description
Paper Out	The Paper Out sensor is located in the print head. It terminates the print operation when the paper has run out and checks for proper form registration. Load paper to correct this error.
Paper Low	The Paper Low sensor is located in the paper well. It determines when the paper stack has approximately 14 tickets remaining. A Paper Low condition automatically resets once a stack with a greater height is reloaded. Paper Low sensing occurs when the system is idle and takes a few seconds to detect the new paper level.
Paper Taken	The Paper Taken sensor is located in the chute of the GEN5 unit. It determines when the customer has actually taken their cash out ticket.
Drawer Open	The Drawer Open sensor is located in the paper well. It detects when the printer is open.
Platen Engaged	The Platen Engaged sensor is located in the print head. It detects when the printer platen is in use.
Printer Open	The Printer Open sensor is located in the front of the unit. It detects when the printer clamshell is open.

FutureLogic GEN5 Printer, Loading Paper

Always make sure that excess paper is removed and discarded.

To load paper in the GEN5 Printer, make sure that power to the printer is ON and perform the following:

1. Pull the printer forward inside the terminal to provide better access to the paper tray.
2. Place the paper stack in the paper tray with the black index mark on the paper stack facing UP. This black index mark is also known as the Top of Form marking. A sensor inside the printer uses this mark to ensure the printer is feeding and separating the tickets properly.
3. Feed the first ticket from the paper stack into the paper loading slot. The printer will automatically pull the ticket into the printer.

Figure 2-27 FutureLogic GEN5, Loading Paper

FutureLogic GEN5 Printer, Clearing Paper Jam

To prevent permanent damage to the printer avoid using sharp objects such as a screwdriver or knife to remove paper jams.

Make sure the yellow tab (platen lever) is put back to its normal operating position (pushed in) before putting the printer back in service. If the platen is not placed correctly the tickets won't print properly.

1. Pull the printer forward inside the cabinet to provide better access to the printer.
2. Open the clamshell to access inside the printer.
3. Remove any paper debris found inside the printer.
4. Make sure that all paths from the entry point to the paper bezel are clear of paper obstructions.
5. Do not allow a screwdriver or other probing object to come into contact with the print head. Doing so can cause permanent damage to the print head.
6. If necessary pull the platen lever inside the printer forward to gain greater access to the inside of the printer. This lever loosens the platen assembly and eases the removal of certain paper jams.

Figure 2-28 FutureLogic GEN5, Clearing Paper Jam

FutureLogic GEN5 Printer Errors

Error	Error Description	Remedy
Paper Out	Results when the printer does not detect paper present.	Load a new paper stack.
Head Up or Open	Results from opening the head release lever or opening the ticket module lid.	Raise the blue lever on the side of the unit.
Temperature	Results when the printer is in over temperature condition. If the printer is operating in an environment where the ambient temperature is roughly room temperature, this error would most likely be the result of a hardware problem.	The printer will automatically resume operation after the detected head temperature reaches legal operation limits.
Voltage	Results if the printer detects a power supply voltage (+24VDC to +25VDC) outside the legal limits. This error could be the result of a poor cable connection.	The printer will automatically resume operation after the power supply is detected within legal limits.
Print Head	Results when the printer senses an internal error due to connectivity or interfacing problem with the thermal print head. This can be a result of a cable problem between the main controller board and the printer engine.	The printer will remain in this error state until the power is cycled or the unit is reset. If the problem persists, the printer will require service.

FutureLogic GEN5 Printer Status Codes

Use the front bezel display to determine the state of the printer, at a distance, without disturbing the game.

Bezel Display	Status
Solid On	Printer Idle and Ready
Slow Blink	Paper Low or Printer Error
Fast Blink	Ticket Printing and/or Ticket in Chute
Off	Printer power OFF

2.6.6.3 Ithaca Epic 950® Printer

The Ithaca Model 950 printer is a thermal printer that interfaces with the Cabinet Controller Board via USB communications. The paper feed and status lights are located to the right of the paper tray.

Figure 2-29 Ithaca Epic 950 Printer

Ithaca Epic 950 Printer Components

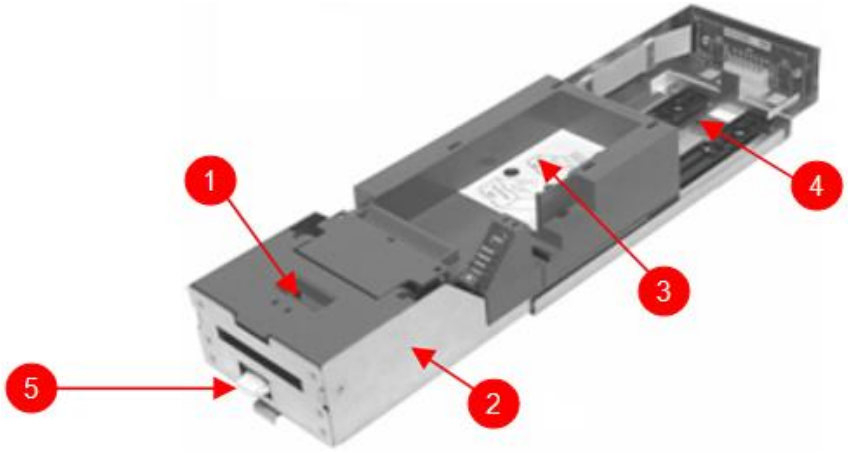


Figure 2-30 Ithaca Epic 950 Components

Number	Feature	Number	Feature
1	Printer Mechanism	4	Outer Chassis Assembly
2	Inner Chassis Assembly	5	Release Lever
3	Printer Ticket Bucket Assembly		

Ithaca Epic 950 Printer Connectors & Sensors

The Ithaca Epic 950 is a thermal printer uses two connectors:

- At the back on the bottom there is the power (+24VDC) and communications connector.
- On the front there is a small connector to power the bezel LEDs (not used).

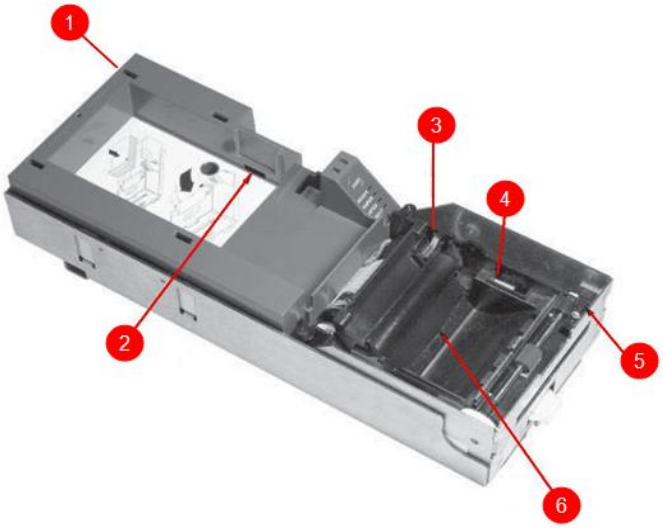


Figure 2-31 Ithaca Epic 950 Connectors and Sensors

Number	Feature	Number	Feature
1	Chassis Open Sensor (Mounted on the Main Control Board)	4	Cover Open Switch
2	Ticket Low Sensor	5	Ticket Taken Sensor
3	Top of Form / Ticket Out Sensor	6	Ticket Burst Sensor

Ithaca Epic 950 Printer, Loading Tickets & Clearing Jams

Always refer to label on printer when loading tickets.

The Epic 950 printers ticket supply bucket is integrated with a guide to direct the ticket into the printer mechanism. Once the leading ticket enters the Top of Form sensor, the ticket will automatically be fed into the Printer Mechanism. The Ithaca Epic 950 prints and separates the ticket (from the ticket stack) before presenting it to the customer.

1. When loading paper tickets into the printer ensure that the power is on and that the printer is in its normal operating position (slid to the back).
2. Load the tickets into the ticket supply tray ensuring that the black index mark (top of form) is positioned as in seen in the following image.

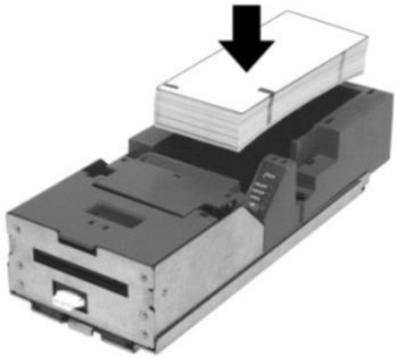


Figure 2-32 Ithaca Epic 950 Ticket Loading

3. Orient the tickets so that the black index mark is towards the leading edge of the ticket.
4. Insert the ticket into the Ticket Entry – the printer will automatically feed the ticket through to the printer assembly.

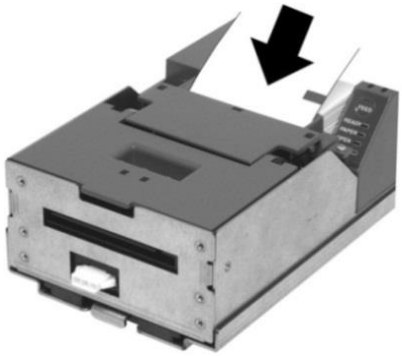


Figure 2-33 Ithaca Epic 950 Ticket Entry

Ithaca Epic 950 Printer Status Codes

The printer's LED keypad contains LEDs that show the status of the printer.

CONDITION	READY	PAPER	OPEN	FAULT
Unit Ready	On	Off	Off	Off
Cover Open	On	Off	On	Off
Chassis Open	On	Off	Blink	Off
Ticket Out	On	On	Off	Off
Ticket Low	On	Blink	Off	Off
Temperature Error	Blink	Off	Off	Blink
Paper Jam	On	Off	Off	Blink
Ram Error	2-Blink	Off	Off	On
Checksum Error	4-Blink	Off	Off	On

2.6.6.4 Nanoptix PayCheck 4™ Printer

The Nanoptix PayCheck 4 printer is a thermal printer that has a jam-resistant bezel, allows for quick drop in replacement, and has easy access to the paper path. The Nanoptix printer is connected to Cabinet Controller Board through a USB port at the back of the printer.

Figure 2-34 Nanoptix PayCheck 4 Printer (Generic picture shown, may be different from installed printer)

Nanoptix PayCheck 4 Printer Components

Figure 2-35 Nanoptix PayCheck 4 Printer

Number	Feature	Number	Feature
1	Paper Tray	3	Release Lever
2	Paper Loading Slot	4	Ticket Guide (if installed)

Nanoptix PayCheck 4 Printer Connectors and Sensors

The printer is equipped with three communication interface ports: one power/communication port at the bottom rear, one USB port at the top rear, one maintenance USB port on the side, and a 3 pin I/O connector used to control the illuminated bezel.

Figure 2-36 Nanoptix PayCheck 4 Connectors

Number	Feature	Number	Feature
1	USB Port	3	Maintenance USB Port
2	Power Communication Port	4	3 pin I/O Connector

Optical and reflective sensors are used to:

- Detect low paper
- Start the feeder motor when loading paper
- Realign paper back to its “ready” position

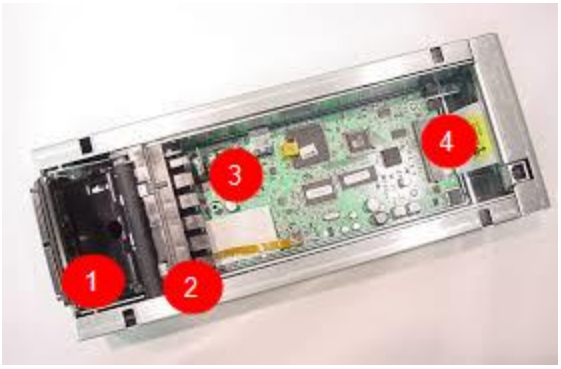


Figure 2-37 Nanoptix PayCheck 4 Sensors

Number	Feature	Number	Feature
1	Paper Chute	3	Paper Low
2	Top of Form	4	Tray In

Nanoptix PayCheck 4 Printer, Loading Paper

1. Pull tray forward inside the gaming machine to provide better access to the paper tray.

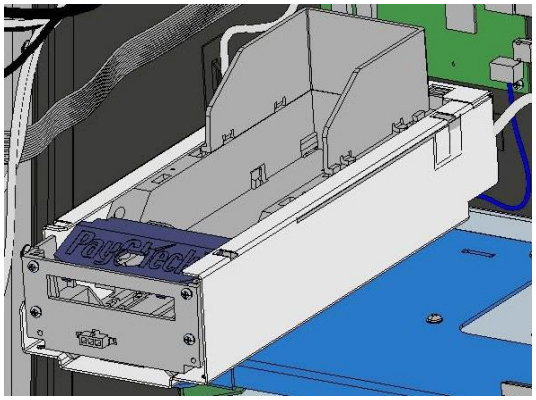


Figure 2-38 Nanoptix PayCheck 4 Tray

2. Place the paper ticket stack in the tray with the Top of Form facing up.

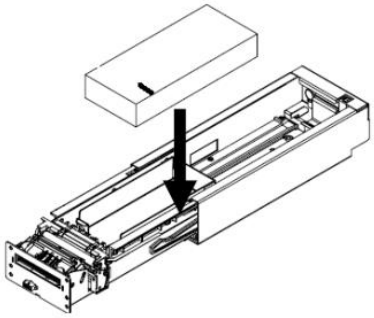


Figure 2-39 Nanoptix PayCheck 4, Load Paper

3. Feed the ticket into the printer mechanism until resistance is felt. The printer will automatically pull the ticket into the printer and align it.

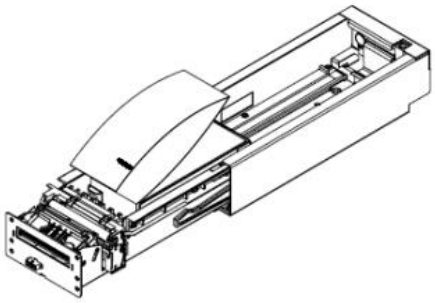


Figure 2-40 Nanoptix PayCheck 4, Feed Ticket

4. Push the printer tray back into the gaming machine and secure the metal printer stopper thumbscrew, and the printer is ready to print.

Nanoptix PayCheck 4 Printer, Clearing Paper Jams

1. Loosen the thumbscrew on the metal printer stopper and swing downward. Pull tray forward inside the gaming machine to provide better access to the printer.
2. Push the yellow release lever to remove the printer's paper guide.

Figure 2-41 Nanoptix PayCheck 4 Release Lever

3. Lift the printing mechanism roller to remove paper.

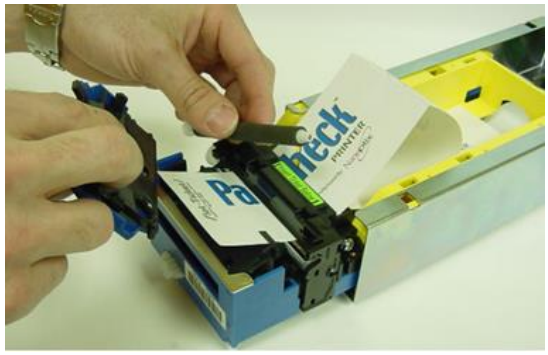


Figure 2-42 Nanoptix PayCheck 4 Printer Mechanism Roller

4. Clear the printer error from the terminal. In the event the error will not clear, cycle power on the terminal.

Nanoptix PayCheck 4 Printer Status Codes

To view the LED status of the printer, slide it forward and out of the gaming machine. The status LEDs are on the left side of the printer.

Figure 2-43 Nanoptix PayCheck 4 Status LED

Error LED (Red)	Status LED (Green)	Condition
OFF	ON	Printer Ready
ON	OFF	Paper Out
Med Blink	OFF	Temperature Error
Slow Blink	OFF	Voltage Error (Over 26.2 VDC)
Fast Blink	ON	Print Head Error
Fast Blink	ON	Missing Black Index Mark
Fast Blink	ON	Paper Jam

2.6.7 Speakers

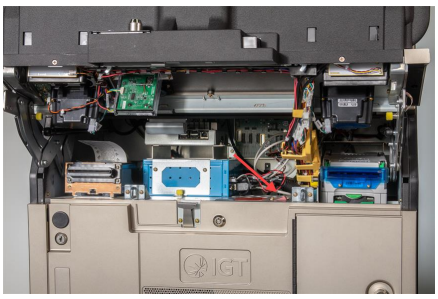
P/N 13808590 SPEAKER, ASY, C-SLANT GLOBAL, L/R

Figure 2-44 Left and Right Speakers

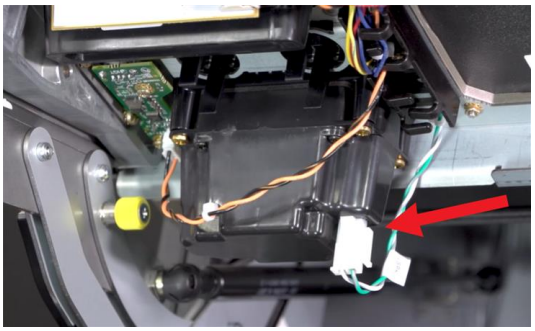
2.6.7.1 Speaker Removal

Use these instructions for either the left or right speaker.

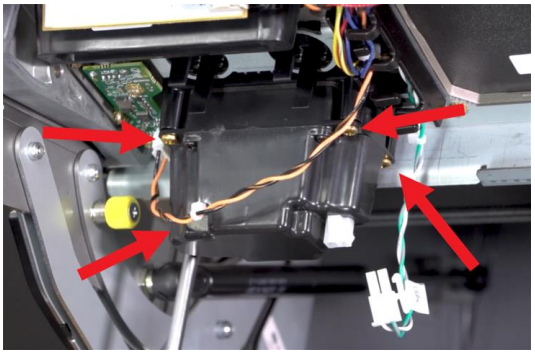
1. Open the Main Door and power off the EGM.



2. Disconnect the single molex connection.



3. Remove the four M4 screws connecting the speaker and the speaker pulls out.



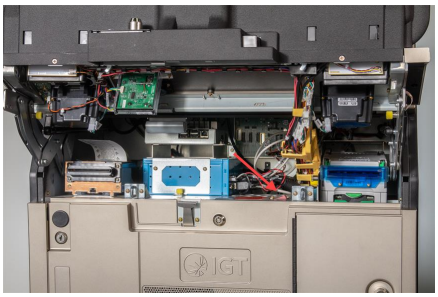
Reverse these instructions to re-install.

2.6.8 Bass Speaker

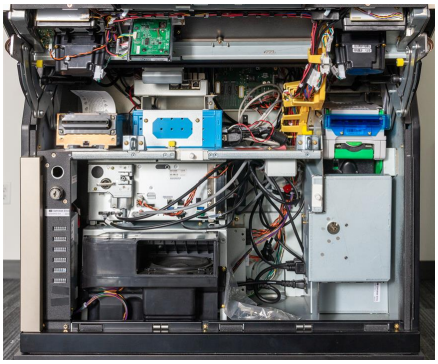
P/N 13806990 SPEAKER-ASSY,SUBWFR,PCU

2.6.8.1 Speaker Removal

1. Open the Main Door and power off the EGM.

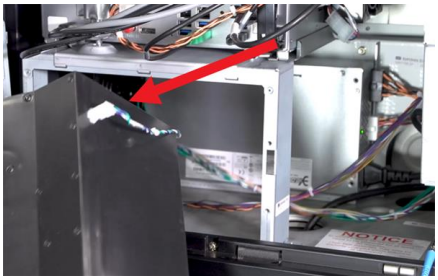


2. Open and remove the Front Door.



3. Remove the four M4 screws securing the bass speaker (two on each side).

4. Lift the bass speaker up and out to detach the clips holding it.



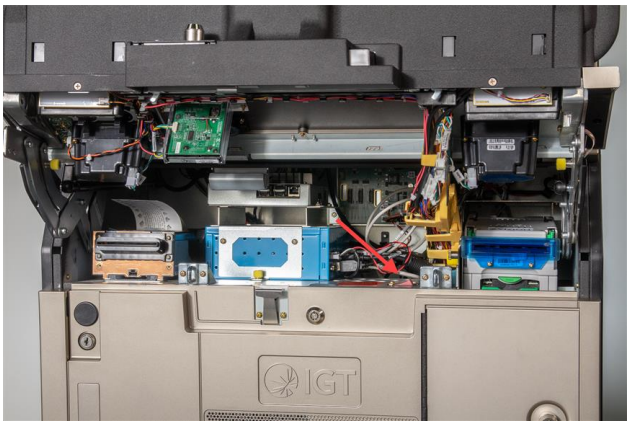
Reverse these instructions to re-install.

2.6.9 USB Charger

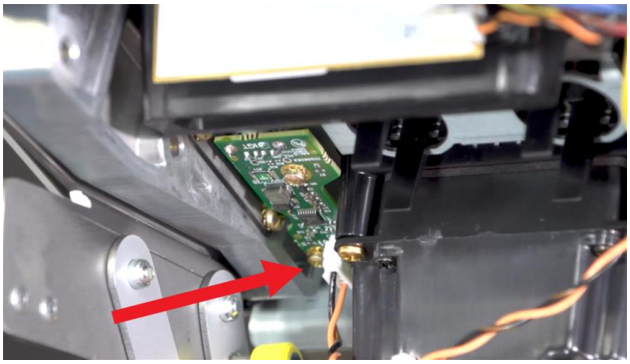
P/N 76106801 PCB, PEAK DUAL, USB CHRG, LM25575

2.6.9.1 USB Charging Port PCB Removal

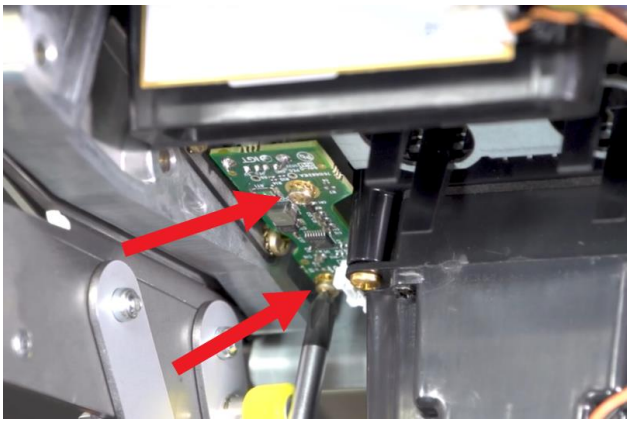
1. Open the Main Door and power off the EGM.



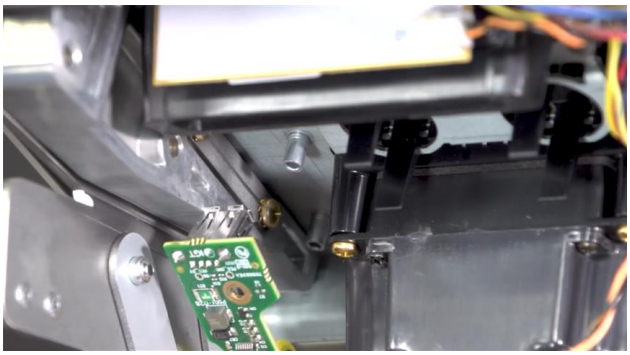
2. Disconnect the power in connection.



3. Remove the two screws from the PCB.



4. Remove the PCB.



Reverse these instructions to re-install.

2.6.10 Wireless Charger

P/N 76946701 PCB, Q1 CHARGER, 9V PS, ASY

P/N 76948802 PCB,QI CHARGER,TYLT,9V, V3

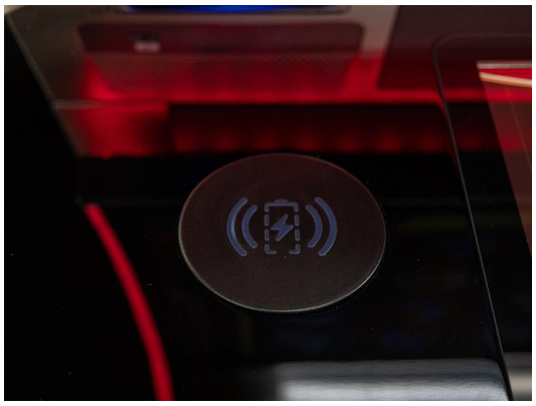
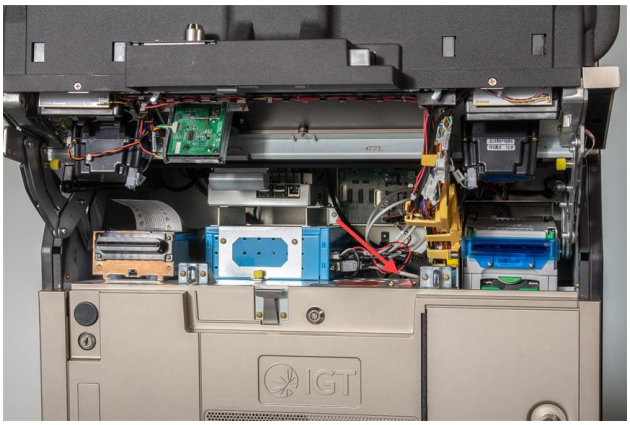


Figure 2-45 Wireless Charger

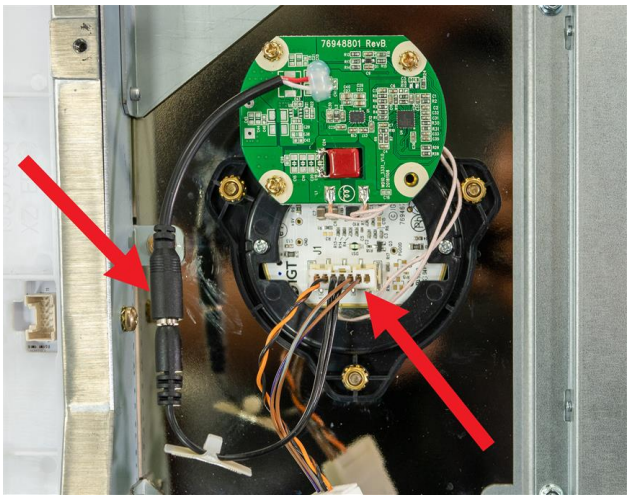
2.6.10.1 Wireless Charger Removal

1. Open the Main Door and power off the EGM.

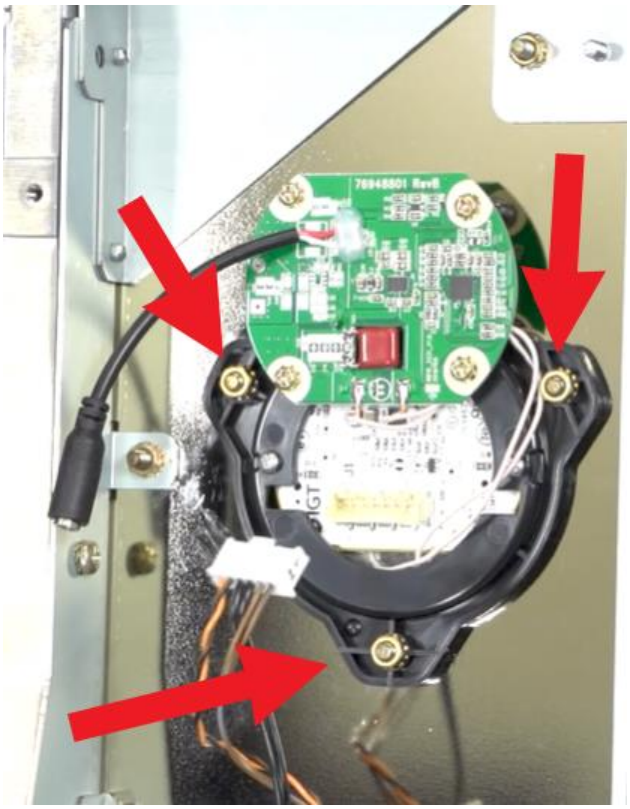


2. Remove the DPP cover (See *DPP* on page 60).

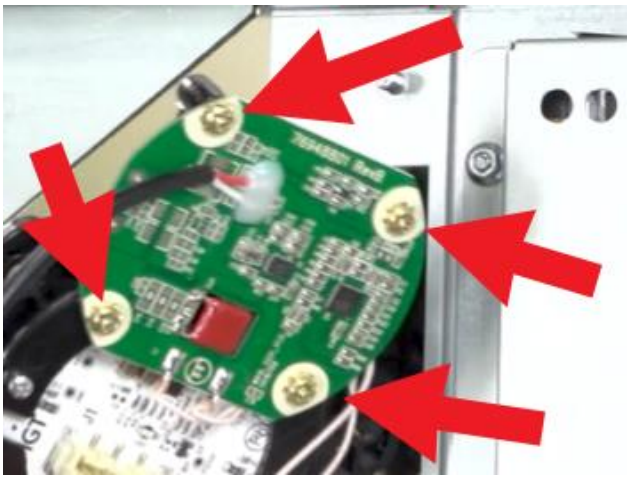
3. Disconnect the wiring connection and any zip ties.



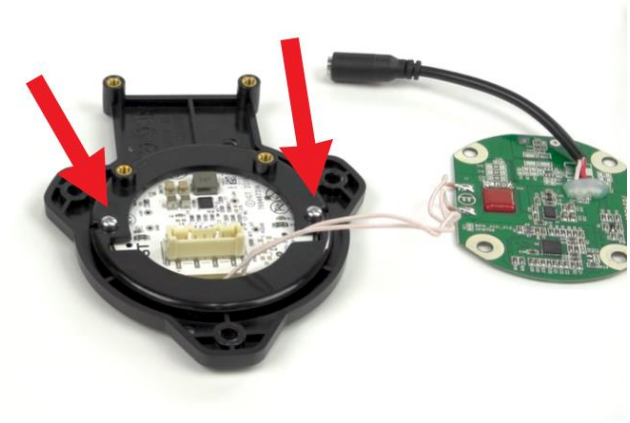
4. Remove the three M4 nuts securing the assembly to the door and place it in a secure area.



5. Remove the four screws from the back of the wireless charger PCB and remove the board.



6. Remove the two silver screws connecting the charger and mount.



7. These parts are not one unit and must be ordered separately.

Reverse these instructions to re-install.

2.7 Power Supply

P/N 40014300 POWER-SUPPLY,800W,24VDC/33A,5VSB/2A

The 800W Power Supply provides 24VDC used by most of the Main Module's components.

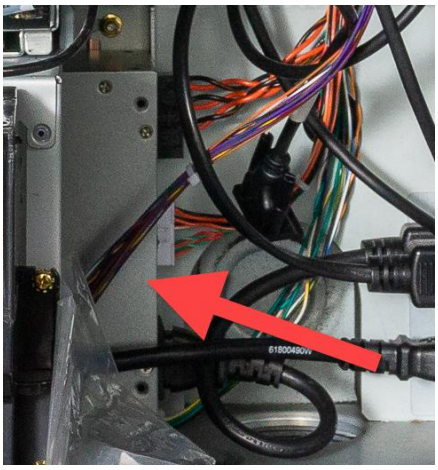
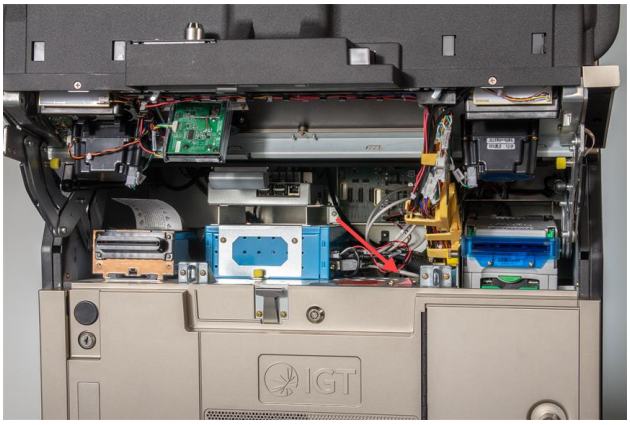


Figure 2-46 800W Power Supply

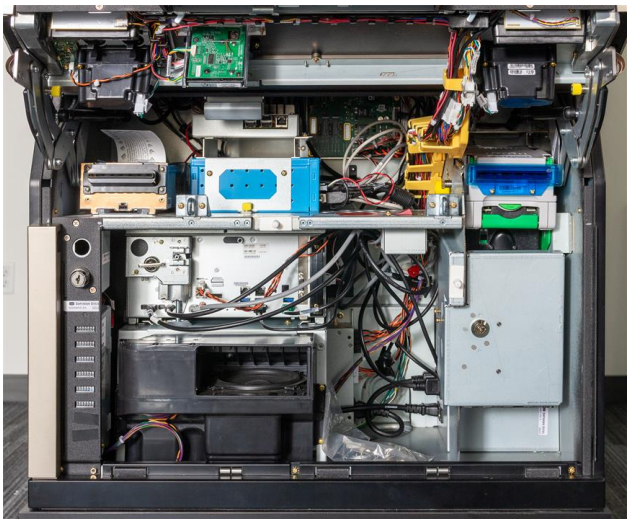
2.7.1 800W Main Power Supply Removal

To make it easier to remove the power supply, the bass speaker can be removed first however the power supply can also be removed without removing the bass speaker.

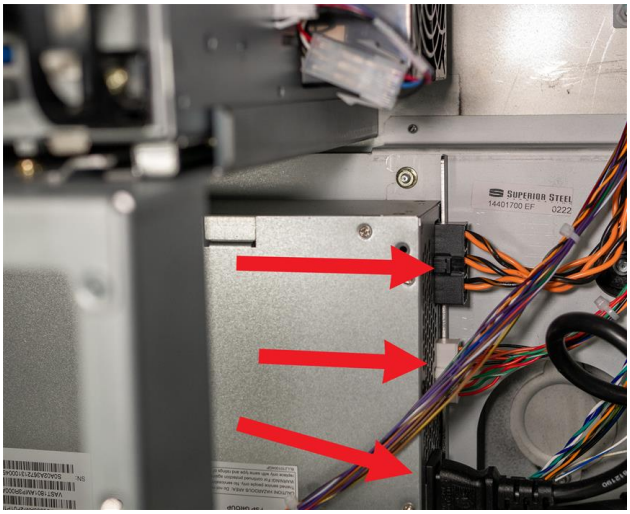
1. Open the Main Door and power off the EGM.



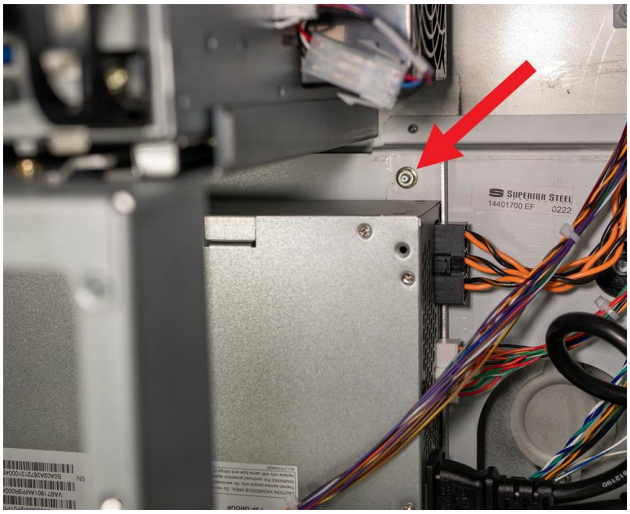
2. Open and remove the Front Door.



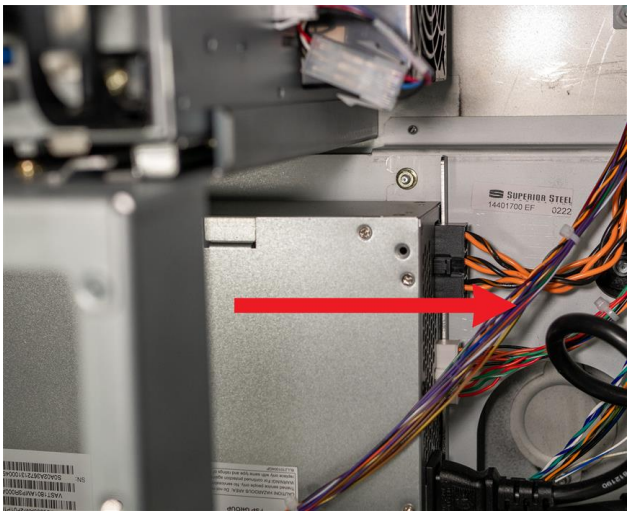
3. Disconnect the power cable and all molex connections.



4. Loosen the single M4 nut securing the power supply to the back of the cabinet.



5. Slide the power supply to the right and out.



The power supply can be removed from the bracket by removing the three screws.

Reverse these instructions to re-install.

2.8 AC Distribution Box

P/N 27207001W FILTER,LINE,10A,50/60HZ,C14,25TABS,ASSY

P/N 52102190W CIRCUIT-BRKR,240V,10A,1P,PBR,PNL-MT

The PeakCurve49 EGM uses an EM (Electromagnetic) interference suppression technology in the *AC Distribution Box* design to filter the incoming AC line voltage. Unintentional EM energy from the power supplies is effectively diminished to be compliant with FCC and EN/IEC standards.

Each Distribution Box enclosure has a resettable 10 Amp circuit breaker in the event of a temporary overload. The *AC Distribution Box* is also certified for use domestically in North America and internationally in the European Union.

The wide input voltage rating is 90 to 250 VAC, making it useable in any jurisdiction.

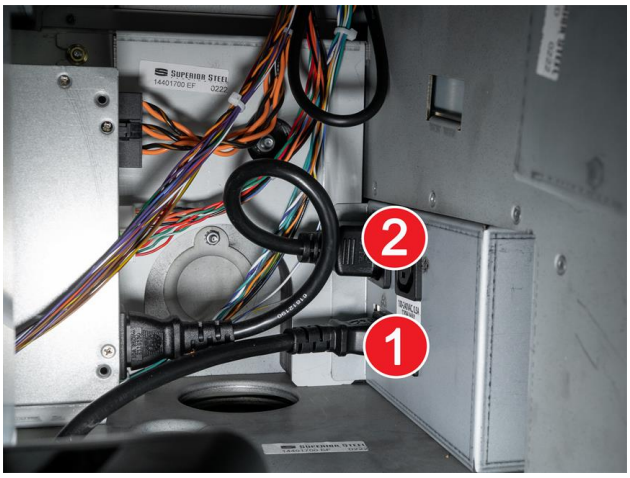


Figure 2-47 AC Distribution Box

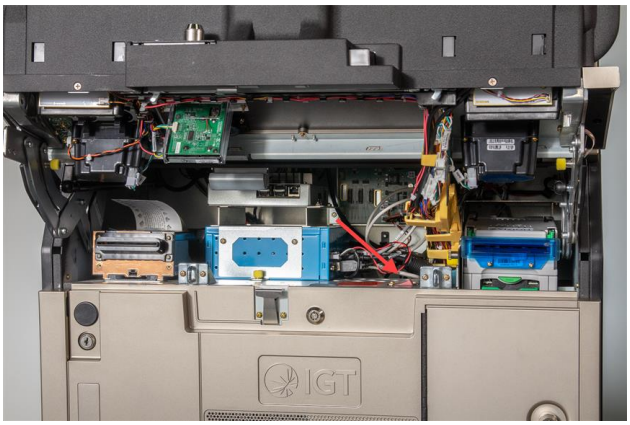
Item	Description
1	Power into Cabinet
2	Power to 800W Power Supply

2.8.1 AC Box Removal

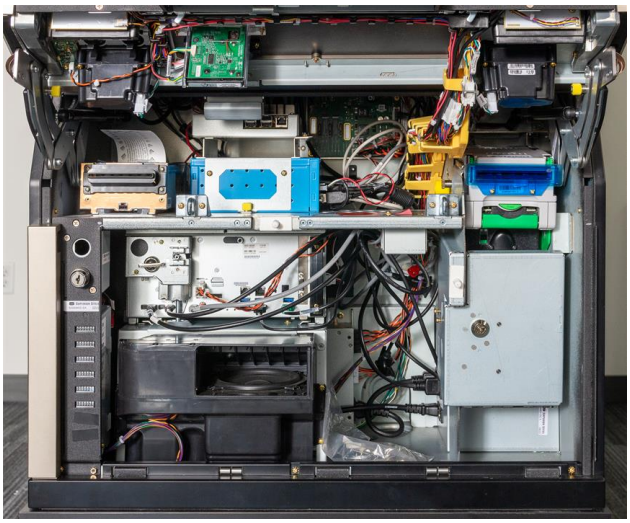
Always observe proper ESD precautions and use an ESD wrist strap when working on components inside the terminal.

Removing the bass speaker may make it easier to remove the AC Box.

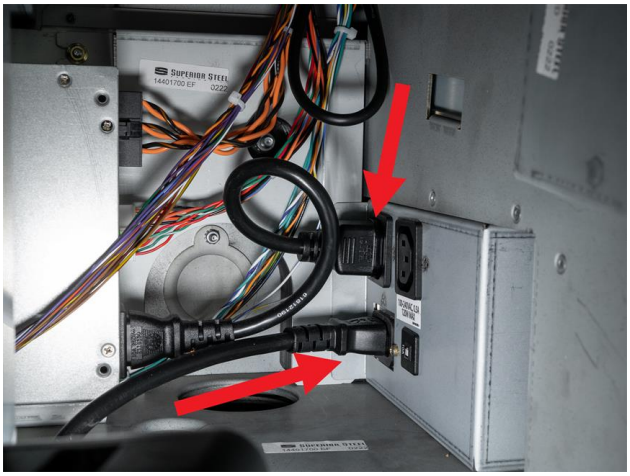
1. Open the Main Door and power off the EGM.



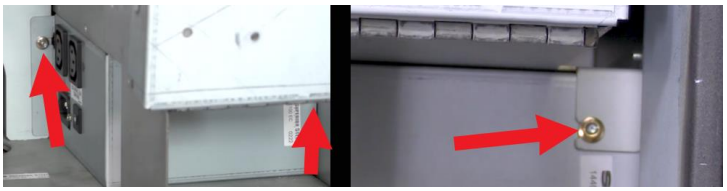
2. Open and remove the Front Door.



3. Remove all the connections and move any wiring out of the way.



4. Remove the two M4 nuts.



5. Slide the AC Box to the left and out the front.

Reverse these instructions to re-install.

2.9 AVP 4.1 Brain Box

P/N 50070600 BOX, CPU, AVP4.1,I3

P/N 50072600 BOX, CPU, AVP4.1, RS2, I3

The following list details the features of the AVP 4.1 Brain Box:

- AMD E9260 GPU or NVIDIA T1000 GPU
- 24VDC input requirement
- Six USB 3.0 ports
- No dedicated "secure" USB port protective cover or door
  - Secure USB access is granted when the brain box is unlocked.
  - Ascent SPC progressives / game configurations require e-key insertion and card cage (logic) door to be opened.
  - SGF Memory clear / software installation requires Security key, CFinit and payloadthumb drives inserted with the brain box unlocked.
- 240GB NVMe SSD in M.2 format
- 16GB RAM standard
- USBIO
- Minimum software/firmware requirements (Ascent)
  - DIAGUNV00124
  - IBR*41I****15
  - OI0200200608
  - AI020000R11
  - APR00005

The following images and tables describe the AVP 4.1 interface and components:

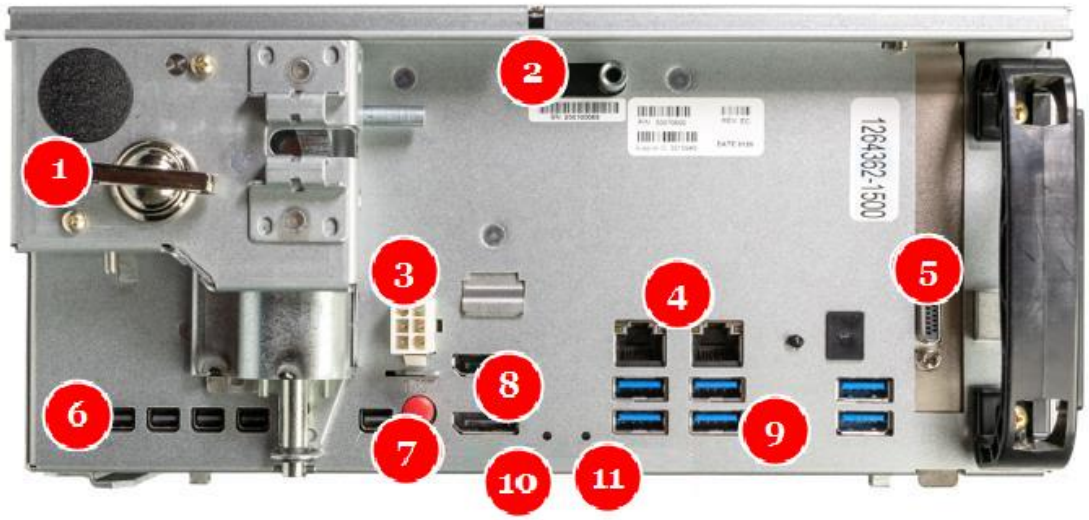


Figure 2-48 AVP 4.1 Brain Box Interface

Number	Description
1	Brain Box Lock
2	Cover Slide Lock
3	24VDC Input
4	1 Gb/s Ethernet Ports
5	(Not used with USB I/O Cabinet Controller Board)
6	Five mini DisplayPort (mDP) Outputs (the far left port is not used with the T1000 MXM video card)
7	Self-test Switch
8	DisplayPort Ouputs (not used)
9	Six USB 3.0 Ports
10	Boot programs authentication status LED. Red indicates failure; solid blue indicates success.
11	SATA LED (indicates activity)

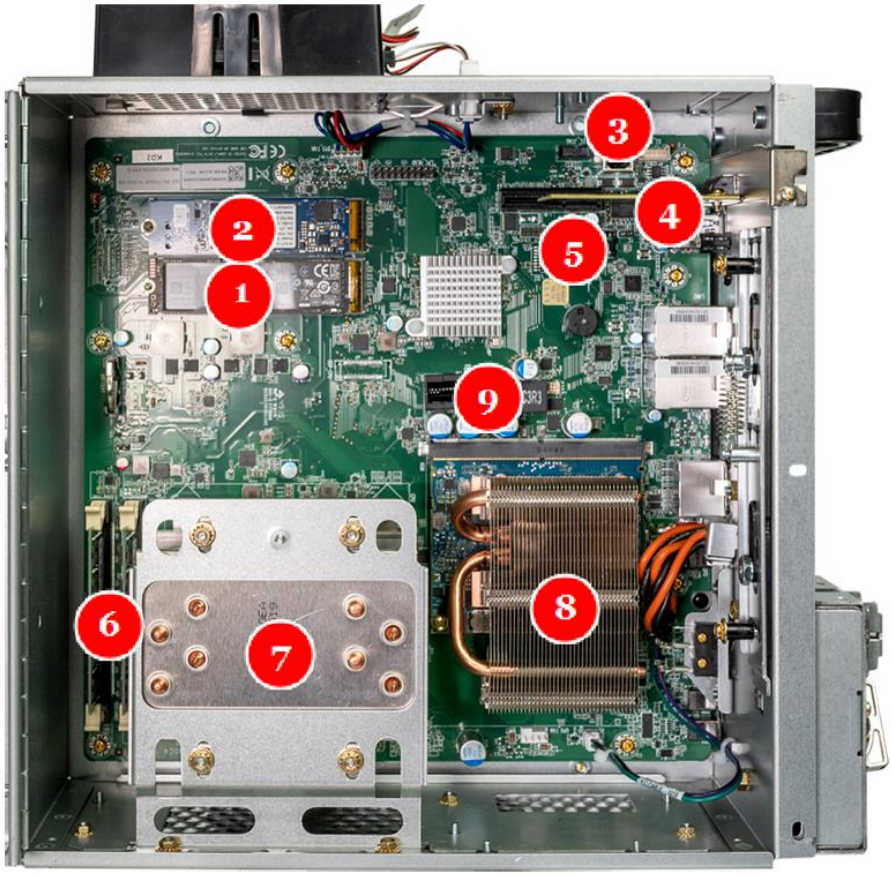
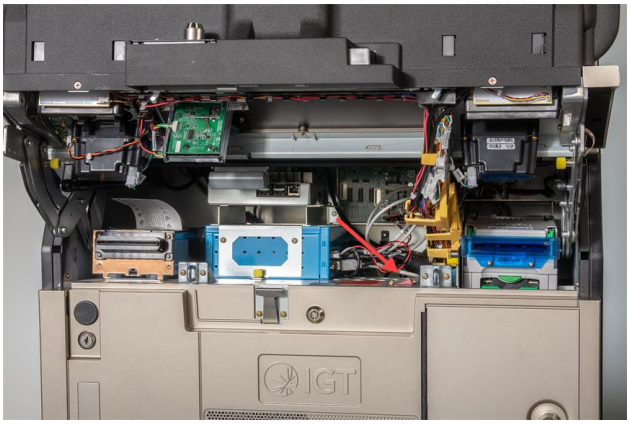


Figure 2-49 AVP 4.1 Brain Box Components

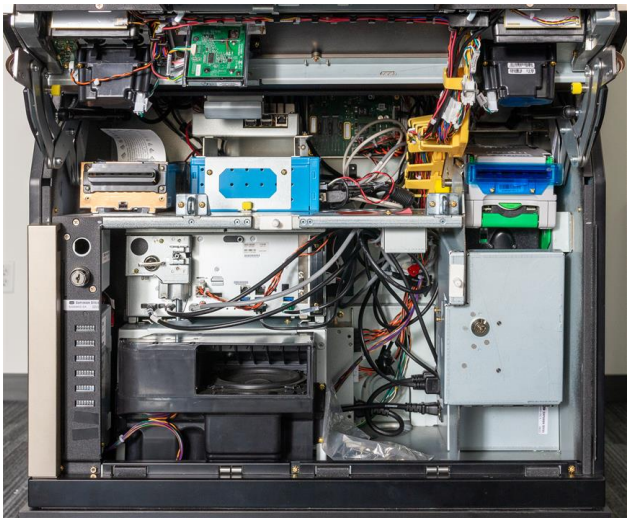
Number	Description
1	Solid State Drive in M.2 Format (Game Packages)
2	Optane Module in M.2 Format (NVRAM/Safe Storage and Logs)
3	USB-B This port is used to replace the Boot image for the Brain Box. Use the Windows® file system to place the boot image into the AVP_BIOS partition to update. Boot image updates may also be accomplished through the Universal Diagnostic's Deployment Utility.
4	PCIex1 EGM Interface Card
5	AP Chip This chip contains a read-only AP_Image directory which authenticates the boot image in the AVP_BIOS partition. The APR***** chip must be compatible with the boot release version. Refer to the theme overview for more information.
6	System RAM
7	CPU
8	GPU
9	APR chip

2.9.1 Brain Box Removal

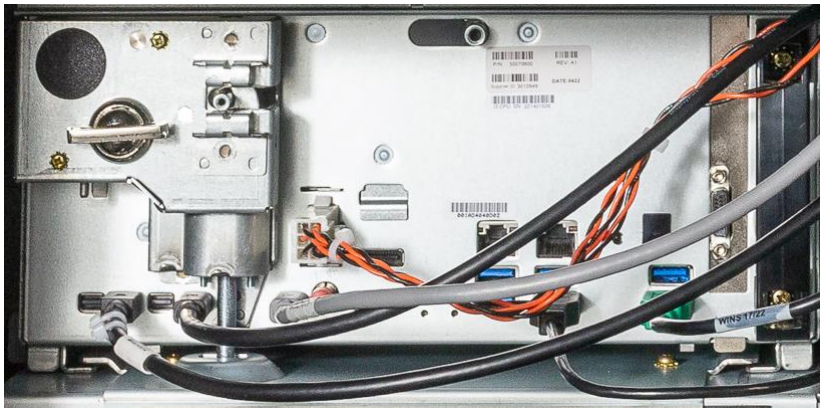
1. Open the Main Door and power off the EGM.



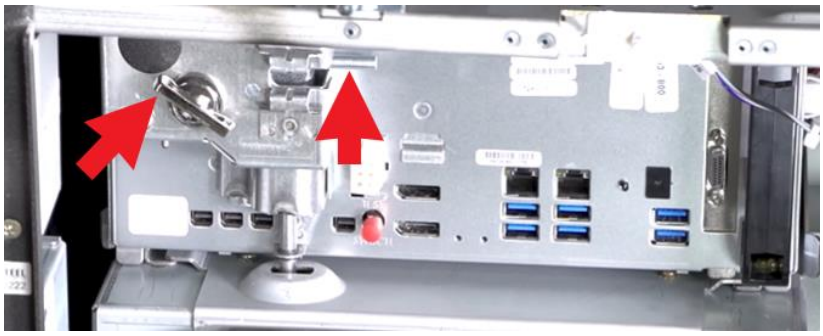
2. Open and remove the Front Door.



3. Disconnect all connections.



4. Unlock the Brain Box.

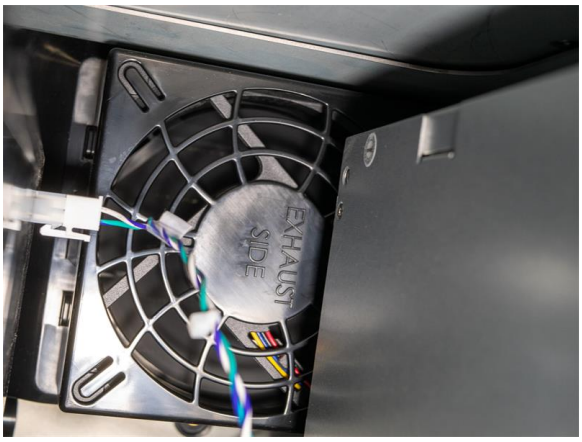


5. Verify there are no cables in front of the Brain Box, reroute if necessary.
6. Use the handle to slide the Brain Box to the right and out of the cabinet without snagging the brainbox fan on any wiring.

Reverse these instructions to re-install.

2.10 Fan

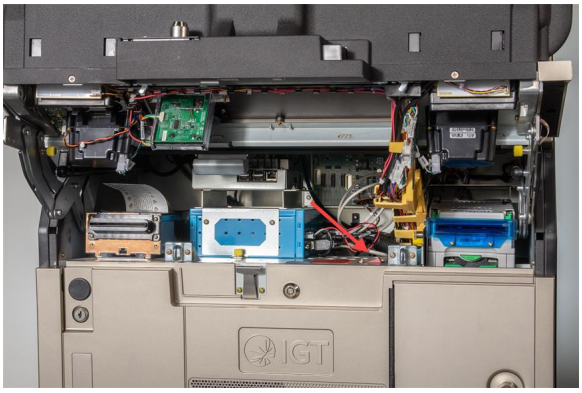
P/N 26010200 FAN,24V,116CFM,TACH,PWM,1X4CONN



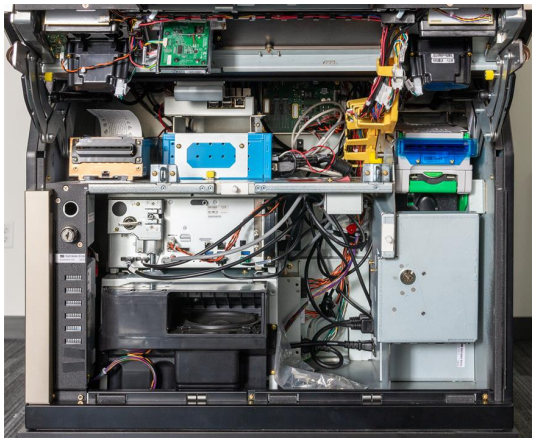
2.10.1 Removal

2.10.1.1 Fan

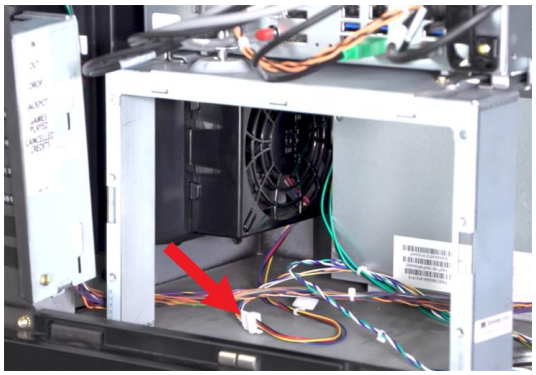
1. Open the Main Door and power off the EGM.



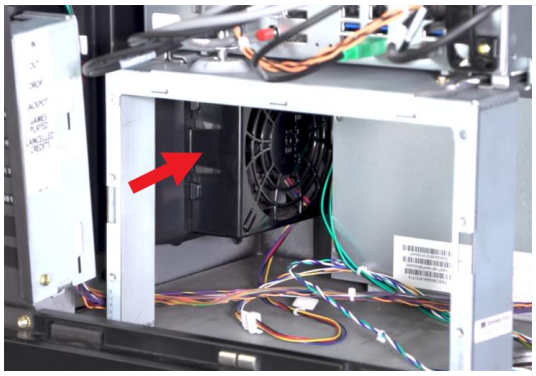
2. Open and remove the Front Door.



3. Remove the bass speaker. (109).
4. Disconnect the molex connection to the fan.



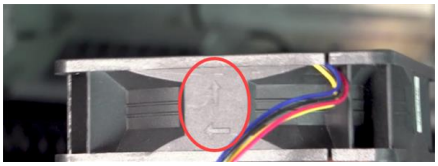
5. Squeeze the black plastic tabs at the base of the fan and lift to remove it.



6. Remove the fan from the grill.

Reverse these instructions to re-install.

When replacing the fan, verify the power cable matches the arrow directions and that air flow is into the cabinet.



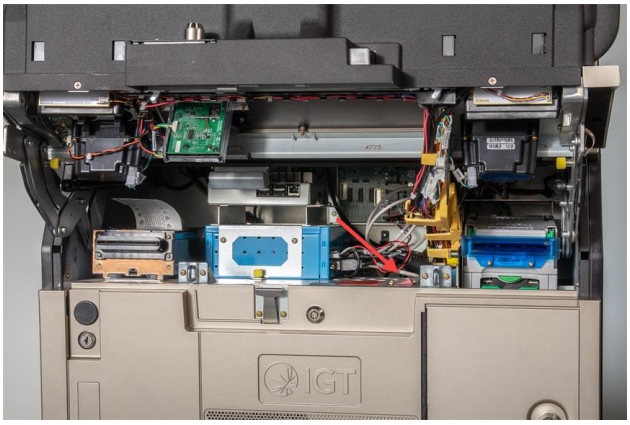
2.11 Air Filter

P/N 27903100 FILTER-ASSY PEAK UPRIGHT,SHDW SND

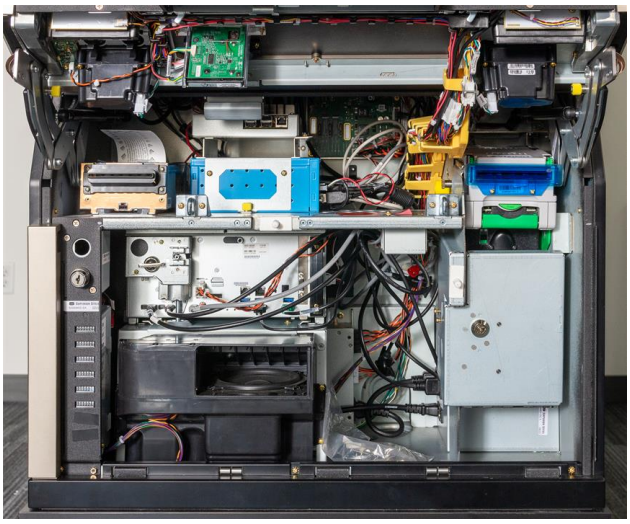
2.11.1 Removal

2.11.1.1 Air Filter

1. Open the Main Cabinet Door and power off the EGM.



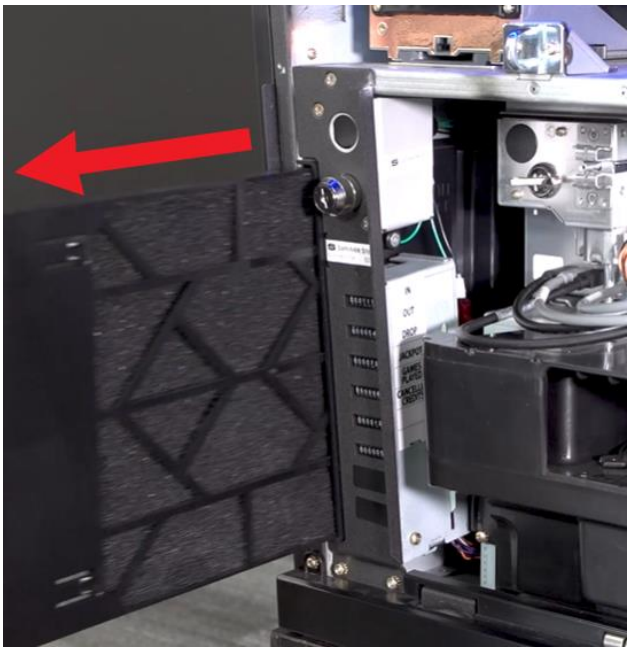
2. Open and remove the Front Door.



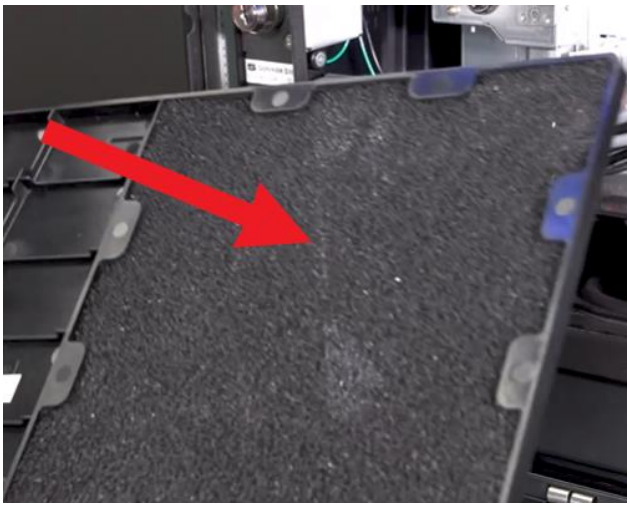
3. Loosen the thumbscrew securing the filter assembly.

4. Grab the filter assembly.

5. Pull the filter assembly out.



6. The filter can be cleaned (see maintenance section) or replaced.



Reverse these instructions to re-install.

Verify the thumbscrew is tightened when installing the assembly otherwise the air filter assembly could be removed when the cabinet is locked.

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Chapter 3 PeakCurve49 Maintenance

This chapter discusses the general maintenance for the PeakCurve49.

3.1 Cleaning

To prevent damage to the EGM always switch the power OFF before performing all maintenance.

Perform the following recommendations to clean each component:

Doors & Locks on page 133

Bill Validator on page 134

Printer on page 134

LCD Display, Touchscreen on page 134

Brain Box / Power Supply on page 134

Player Panel and Player Buttons on page 135

Cabinet on page 135

3.1.1 Doors & Locks

1. Ensure all doors open and close easily.
2. Adjust lock mechanisms as necessary.
3. Inspect all lock nuts/retainers, tighten, and adjust as necessary.
4. Inspect all door switches ensuring that they are tightly installed and adjust as necessary.

3.1.2 Bill Validator

1. Remove the bill validator head and cash box from the bill validator chassis.
2. Inspect for any physical damage and any missing parts such as damaged belts or rollers and scratched sensor lenses. Repair/replace as necessary.
3. Use compressed air to blow the dust and debris from the bill validator head.
4. Using a non-abrasive cleaner such as water with soap (99 to 1 ratio), dampen a lint free cloth, and clean the rollers and sensor lenses ensuring that no liquid is spilled inside the assembly.
5. No calibration is required due to the nature of the bill validators used in the PeakCurve49 – calibration occurs when firmware is updated.
6. Inspect and clean the bill validator chassis ensuring that all dirt and debris are removed from the bill path.
7. Re-install the bill validator head.

3.1.3 Printer

1. It's not necessary to remove the printer from the PeakCurve49.
2. Inspect for any physical damage and repair/replace as necessary.
3. Remove the paper and open the covers. Use compressed air to blow the dust and debris from the printer.

3.1.4 LCD Display, Touchscreen

1. Wipe the LCD surface(s) with a lint free cloth with a soap and water mixture.
2. Inspect for damage such as cracks or major scratches.
3. Repair/replace as necessary.

3.1.5 Brain Box / Power Supply

1. Remove the Brain Box, open the lid, and use compressed air to blow the dust and debris from the Brain Box.
2. Re-install the Brain Box.
3. Use compressed air to blow the dust and debris from the power supply.

3.1.6 Player Panel and Player Buttons

1. Wipe the buttons with a lint free cloth.
2. Open the Main Door in order to inspect the button assemblies and cabling.
3. Repair or replace any damaged cables/assemblies.

3.1.7 Cabinet

1. Clean the interior of dust and debris using compressed air and the vacuum cleaner.
2. Open the Main Door area and clean as necessary.
3. Wipe the interior of the cabinet thoroughly using the soap and water mixture.
4. Clean all debris from vents and fans using compressed air and the vacuum cleaner.
5. Clean the outside of the cabinet using the soap and water mixture.

3.2 Air Filter Maintenance

IGT suggests the air filter in the PeakCurve49 should be cleaned every 90 days for optimal performance. Cleaning the air filter more often than every 90 days may be required depending on the environment.

Refer to *Air Filter* on page 129 for more information.

Maintain a supply of spare filter media to replace any that may be damaged during the process of cleaning.

Document Modification History

Date	Version	Description of Change
08/19/2025	0.0	Initial for Georgia