MP72 Scanner Scale

Service Guide

ZEBRA

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About This Guide

This guide includes information to enable service center associates to maintain and repair the MP72 Scanner Scale.

Configurations

The MP72 is available in a variety of configurations.

Table 1 MP72 Scanner Scale Configurations

Number	Description
MP7200-LND0L000WW	LONG, NO SCALE, DLC GLASS, COLOR CAMERA, WORLDWIDE
MP7200-LND0N000WW	LONG, NO SCALE, DLC GLASS, WORLDWIDE
MP7200-LNS0L000WW	LONG, NO SCALE, SAPPHIRE GLASS, COLOR CAMERA, WORLDWIDE
MP7200-LNS0N000WW	LONG, NO SCALE, SAPPHIRE GLASS, WORLDWIDE
MP7200-LPS0L000WW	LONG, NO SCALE, DL PARSING, COLOR CAMERA, SAPPHIRE GLASS, WORLDWIDE
MP7200-LPS0N000WW	LONG, NO SCALE, DL PARSING, SAPPHIRE GLASS, WORLDWIDE
MP7200-MND0L000WW	MEDIUM, NO SCALE, DLC GLASS, COLOR CAMERA, WORLDWIDE
MP7200-MND0N000WW	MEDIUM, NO SCALE, DLC GLASS, WORLDWIDE
MP7200-MNDLL000WW	MEDIUM, SCALE READY, COLOR CAMERA, DLC GLASS, WORLDWIDE
MP7200-MNDLN000WW	MEDIUM, SCALE READY, DLC GLASS, WORLDWIDE
MP7200-MNS0L000WW	MEDIUM, NO SCALE, SAPPHIRE GLASS, COLOR CAMERA, WORLDWIDE
MP7200-MNS0N000WW	MEDIUM, NO SCALE, SAPPHIRE GLASS, WORLDWIDE
MP7200-MNSLL000WW	MEDIUM, SCALE READY, COLOR CAMERA, SAPPHIRE GLASS, WORLDWIDE

Table 1 MP72 Scanner Scale Configurations (Continued)

Number	Description
MP7200-MNSLN000WW	MEDIUM, SCALE READY, SAPPHIRE GLASS, WORLDWIDE
MP7200-MPS0L000WW	MEDIUM, NO SCALE, DL PARSING, COLOR CAMERA, SAPPHIRE GLASS, WORLDWIDE
MP7200-MPS0N000WW	MEDIUM, NO SCALE, DL PARSING, SAPPHIRE GLASS, WORLDWIDE
MP7200-SND0L000WW	SHORT, NO SCALE, DLC GLASS, COLOR CAMERA, WORLDWIDE
MP7200-SND0N000WW	SHORT, NO SCALE, DLC GLASS, WORLDWIDE
MP7200-SNS0L000WW	SHORT, NO SCALE, SAPPHIRE GLASS, COLOR CAMERA, WORLDWIDE
MP7200-SNS0N000WW	SHORT, NO SCALE, SAPPHIRE GLASS, WORLDWIDE
MP7200-SPS0L000WW	SHORT, NO SCALE, DL PARSING, COLOR CAMERA, SAPPHIRE GLASS, WORLDWIDE
MP7200-SPS0N000WW	SHORT, NO SCALE, DL PARSING, SAPPHIRE GLASS, WORLDWIDE
MP7201-LNDLL000AU	LONG, SINGLE INTERVAL SCALE,COLOR CAMERA, DLC GLASS, AUSTRALIA
MP7201-LNDLL000CM	LONG, SINGLE INTERVAL SCALE, COLOR CAMERA, DLC GLASS, CANADA/MEXICO
MP7201-LNDLL000EU	LONG, SINGLE INTERVAL SCALE, DLC GLASS, COLOR CAMERA, EUROPE
MP7201-LNDLL000NN	LONG, SINGLE INTERVAL SCALE,DLC GLASS, COLOR CAMERA, OIML
MP7201-LNDLL000US	LONG, SINGLE INTERVAL SCALE, DLC GLASS, COLOR CAMERA, UNITED STATES
MP7201-LNDLN000AU	LONG, SINGLE INTERVAL SCALE, DLC GLASS, AUSTRALIA
MP7201-LNDLN000CM	LONG, SINGLE INTERVAL SCALE, DLC GLASS, CANADA/MEXICO
MP7201-LNDLN000EU	LONG, SINGLE INTERVAL SCALE, DLC GLASS, EUROPE
MP7201-LNDLN000US	LONG, SINGLE INTERVAL SCALE, DLC GLASS, UNITED STATES
MP7201-LNDLN000NN	LONG, SINGLE INTERVAL SCALE, DLC GLASS, OIML
MP7201-LNDWL000NN	SCALE,LONG, DLC,SINGLE INTERVAL, COLOR CAMERA, WEIGHT GUARD, OIML
MP7201-LNSLL000AU	LONG, SINGLE INTERVAL SCALE, COLOR CAMERA,SAPPHIRE GLASS, AUSTRALIA
MP7201-LNSLL000CM	LONG, SINGLE INTERVAL SCALE, COLOR CAMERA,SAPPHIRE GLASS, CANADA/MEXICO
MP7201-LNSLL000US	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, COLOR CAMERA, UNITED STATES
MP7201-LNSLL000EU	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, COLOR CAMERA, EUROPE
MP7201-LNSLN000AU	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, AUSTRALIA

Table 1 MP72 Scanner Scale Configurations (Continued)

Number	Description
MP7201-LNSLN000CM	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, CANADA/MEXICO
MP7201-LNSLN000NN	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, OIML
MP7201-LNSLN000US	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, UNITED STATES
MP7201-LNSLN000EU	LONG, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, EUROPE
MP7201-LPSLL000US	LONG, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, COLOR CAMERA, UNITED STATES
MP7201-LPSLN000US	LONG, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, UNITED STATES
MP7201-LPSWL000US	LONG, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, COLOR CAMERA,WEIGHT GUARD, UNITED STATES
MP7201-LPSWN000US	LONG, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, WEIGHT GUARD, UNITED STATES
MP7201-MNDLL000AU	MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, DLC GLASS, AUSTRALIA
MP7201-MNDLL000CM	MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, DLC GLASS, CANADA/MEXICO
MP7201-MNDLL000EU	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, COLOR CAMERA, EUROPE
MP7201-MNDLL000NN	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, COLOR CAMERA, OIML
MP7201-MNDLL000RU	MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, DLC GLASS, RUSSIA
MP7201-MNDLL000US	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, COLOR CAMERA, UNITED STATES
MP7201-MNDLN000AU	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, AUSTRALIA
MP7201-MNDLN000CM	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, CANADA/MEXICO
MP7201-MNDLN000EU	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, EUROPE
MP7201-MNDLN000NN	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, OIML
MP7201-MNDLN000RU	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, RUSSIA
MP7201-MNDLN000US	MEDIUM, SINGLE INTERVAL SCALE, DLC GLASS, UNITED STATES
MP7201-MNSLL000AU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, SAPPHIRE GLASS, AUSTRALIA
MP7201-MNSLL000CM	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, SAPPHIRE GLASS, CANADA/MEXICO
MP7201-MNSLL000EU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, COLOR CAMERA, EUROPE
MP7201-MNSLL000NN	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPHIRE GLASS, COLOR CAMERA, OIML
MP7201-MNSLL000RU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, COLOR CAMERA, SAPPHIRE GLASS, RUSSIA
MP7201-MNSLL000US	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, COLOR CAMERA, UNITED STATES

Table 1 MP72 Scanner Scale Configurations (Continued)

Number	Description
MP7201-MNSLN000AU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, AUSTRALIA
MP7201-MNSLN000CM	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, CANADA/MEXICO
MP7201-MNSLN000EU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, EUROPE
MP7201-MNSLN000NN	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, OIML
MP7201-MNSLN000RU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, RUSSIA
MP7201-MNSLN000US	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, UNITED STATES
MP7201-MNSWL000EU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS, WEIGHT GUARD, COLOR CAMERA, EUROPE
MP7201-MNSWN000EU	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, SAPPHIRE GLASS,WEIGHT GUARD, EUROPE
MP7201-MPSLL000US	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, COLOR CAMERA, UNITED STATES
MP7201-MPSLN000US	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, UNITED STATES
MP7201-MPSWL000US	SCNR, MP7201: MEDIUM, SINGLE INTERVAL SCALE, DRIVERS LICENSE PARSING, SAPPHIRE GLASS, COLOR CAMERA, WEIGHT GUARD, UNITED STATES
MP7202-LNDWL000NN	SCNR, SCALE, LONG, DLC, DUAL INTERVAL, COLOR CAMERA, WEIGHT GUARD, OIML
MP7202-LNDWL000US	SCNR, SCALE, LONG, DLC, DUAL INTERVAL, COLOR CAMERA, WEIGHT GUARD, UNITED STATES/PUERTO RICO
MP7202-MNDLL000EU	SCNR, MP7202: MEDIUM, DUAL INTERVAL SCALE, DLC GLASS, COLOR CAMERA, EUROPE
MP7202-MNDLL000RU	SCNR, MP7201: MEDIUM, DUAL INTERVAL SCALE,COLOR CAMERA, DLC GLASS, RUSSIA
MP7202-MNDLN000RU	SCNR, MP7201: MEDIUM, DUAL INTERVAL SCALE, DLC GLASS, RUSSIA
MP7202-MNSLL000EU	SCNR, MP7202: MEDIUM,DUAL INTERVAL SCALE, SAPPHIRE GLASS, COLOR CAMERA, EUROPE
MP7202-MNSLL000RU	SCNR, MP7201: MEDIUM, DUAL INTERVAL SCALE, COLOR CAMERA,SAPPHIRE GLASS, RUSSIA
MP7202-MNSLN000RU	SCNR, MP7201: MEDIUM, DUAL INTERVAL SCALE, SAPPHIRE GLASS, RUSSIA
MP7203-LNDWL000NN	SCNR, SCALE, LONG, DLC, SINGLE INTERVAL WITH CALIBRATION SWITCH, COLOR CAMERA, WEIGHT GUARD, OIML
MP7204-MNDWV000NN	SCNR, MP7200: MEDIUM, DUAL INTERVAL WITH CALIBRATION SWITCH, DLC GLASS, COLOR CAMERA, WEIGHT GUARD, SINGLE BOARD COMPUTER, WORLDWIDE

NOTE:

1. EU scales are legally accepted in the following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Liechtenstein, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom
2. OIML scales are legally accepted in the following countries: Bahamas, Barbados, Belize, Bermuda, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Hong Kong, Jamaica, Saint Lucia, Panama, Peru, Philippines, Thailand, Trinidad, and Tobago
3. The color camera configuration type is noted by an L in the fifth digit after the dash. For example, MP7200-LND0L000WW.

Notational Conventions

The following notational conventions make the content of this document easy to navigate.

- **Bold** text is used to highlight the following:
  - Dialog box, window, and screen names
  - Dropdown list and list box names
  - Checkbox and radio button names
  - Icons on a screen
  - Key names on a keypad
  - Button names on a screen
- Bullets (•) indicate:
  - Action items
  - List of alternatives
  - Lists of required steps that are not necessarily sequential
- Sequential lists (for example, those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following visual indicators are used throughout the documentation set.

NOTE: The text here indicates information that is supplemental for the user to know and that is not required to complete a task.

IMPORTANT: The text here indicates information that is important for the user to know.

CAUTION: If the precaution is not heeded, the user could receive a minor or moderate injury.

WARNING: If danger is not avoided, the user CAN be seriously injured or killed.

DANGER: If danger is not avoided, the user WILL be seriously injured or killed.

Service Information

If you have a problem with your equipment, contact Zebra Global Customer Support for your region. Contact information is available at: zebra.com/support.

When contacting support, please have the following information available:

- Serial number of the unit
- Model number or product name
- Software/firmware type and version number

Zebra responds to calls by email, telephone, or fax within the time limits set forth in support agreements.

If your problem cannot be solved by Zebra Customer Support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your Zebra business product from a Zebra business partner, contact that business partner for support.

Getting Started

The MP72 Scanner Scale is a data capture solution that reads 1D, 2D, and mobile barcodes in all orientations. Barcode data is transmitted to a Point-Of-Sale (POS) host via USB, RS-232, or RS-485. Auxiliary device support includes USB and RS-232 hand-held scanners, Checkpoint and Sensormatic Electronic Article Surveillance (EAS), scale and optional Scale Display (varies with the model), and USB staging flash drive (memory stick).

The MP72 is embedded in a retail checkstand cutout. Features include:

- Support for 1D, 2D (for example, PDF, Aztec), and mobile barcodes (cell phone) in all orientations
  - Reads top-bottom, left-right, and cashier-customer side barcodes
  - Omni-directional symbol orientation
- User interface (LED indicators, touch controls, audio)
- High swipe speed for increased throughput
- Aggressive scanning performance on high-density, truncated, and poorly printed barcodes
- Scanner Management Service (SMS) and 123Scan support enable remote configuration and monitoring of attached peripherals
- Optional integrated scale (single/dual interval)
- Optional Scale Display (single/dual head) for scale installations
- Optional Weight Guard for scale installations
- Optional integrated Customer Facing Scanner (CFS) supporting 1D and 2D barcodes
- Auxiliary scanner support (USB and RS-232)
- Optional color camera
- Optional Checkpoint EAS antenna
- Support for low inductance Sensormatic EAS coil

Features Summary

The following table provides brief MP72 feature descriptions.

Table 2 MP72 Scanner Scale Features

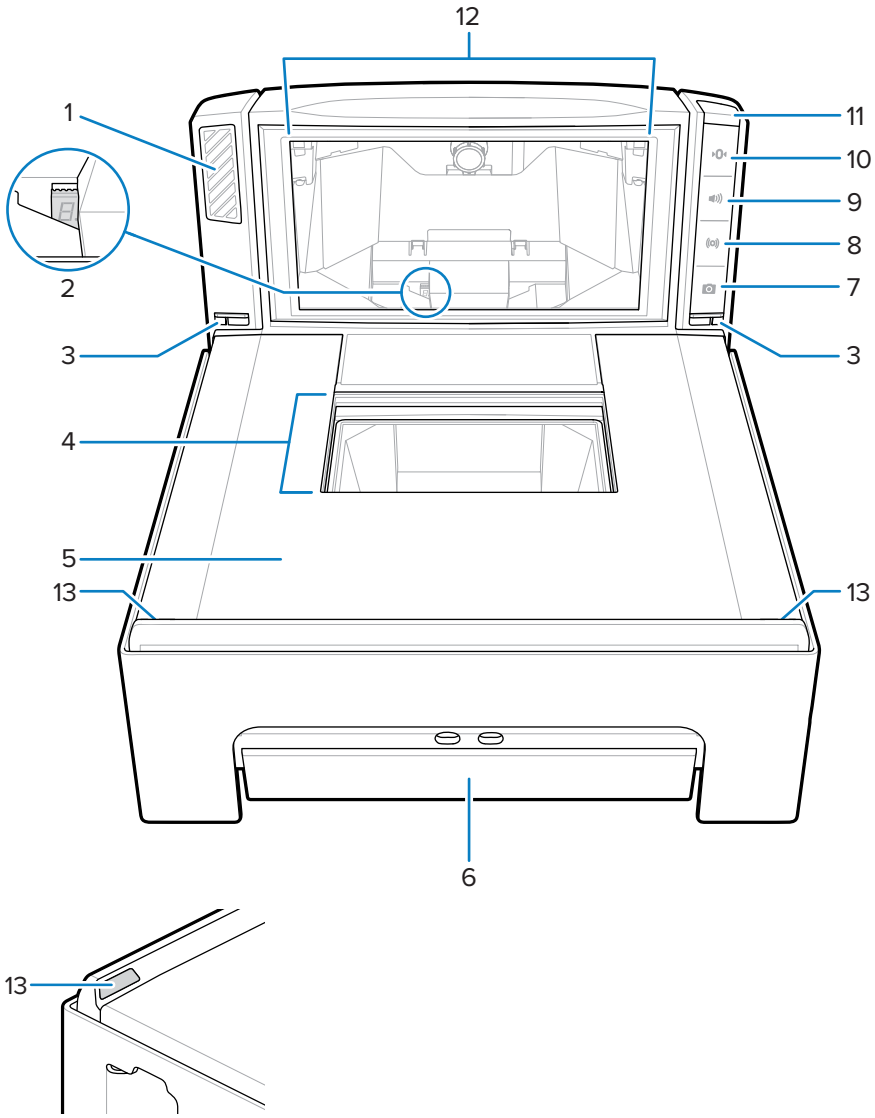
Feature	Description
Diagnostic LED/7-segment Display	Internal display provides detailed status, troubleshooting information, and scale legal parameters during calibration.
User Feedback Light Indicator	Provides visual feedback for system status and alerts.
Scale Zero Button	Scale status LED and touch button provides scale status, and allows user to zero the scale.
Volume/Tone Control Button	User selectable settings for audible system indications (Status LED and button).
EAS Deactivation Button (Sensormatic only)	Indicates the state of the Sensormatic EAS device, and controls manual deactivation (optional).
Color Camera Connection LED	When green, verifies that the MP72 color camera is on. Disconnecting/connecting the USB cable causes the device to beep and toggle the LED (up to a 10 second delay).
Camera Activation Button	Allows an operator to take a picture.
Platter	Stainless steel surface for weighing items and scanning barcodes via the horizontal and vertical imaging windows.
Scale (Optional/Scanner Scale Configurations Only)	Available for medium and long length configurations.
Calibration Switch	Facilitates manual scale calibration.
Scale Display	Single or dual display option provides the weight of items on the scale.
Customer Facing Scanner	Mounts on either side of the MP72; used for scanning barcodes, coupons, and loyalty cards from customers' mobile phones and paper.
Weight Guard	Off-platter detection system. Triggers an alert when an item being weighed blocks the signal.
Leveling Screws (medium and short configurations only)	Standard length leveling screws ship with all short and medium configurations. Longer length screws are available as an accessory.
Connectors	Connect the MP72 to peripherals and POS/host.
Internal USB Cap/Port	Located under the platter.
EAS Cable Channel	Cable routing channel for EAS antenna.
Scale Cable Channel	Cable routing channel for the scale cable.
Drainage/Ventilation Holes	Outlet for spills.

MP72 Scanner Scale Features

The following images illustrate MP72 features. The medium configuration is shown.

See MP72 Connectors for an illustration and information on connector ports.

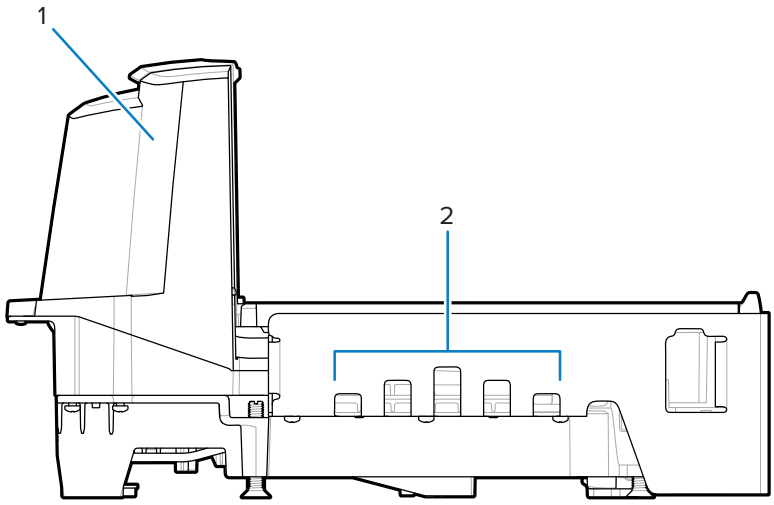
Figure 1 Front View



Item	Description
1	Speaker
2	7-segment display
3	Weight Guard indicator LEDs (2)
4	Horizontal scan window
5	Platter
6	Scale (optional)
7	Camera activation button
8	EAS deactivation button
9	Volume/Tone control button

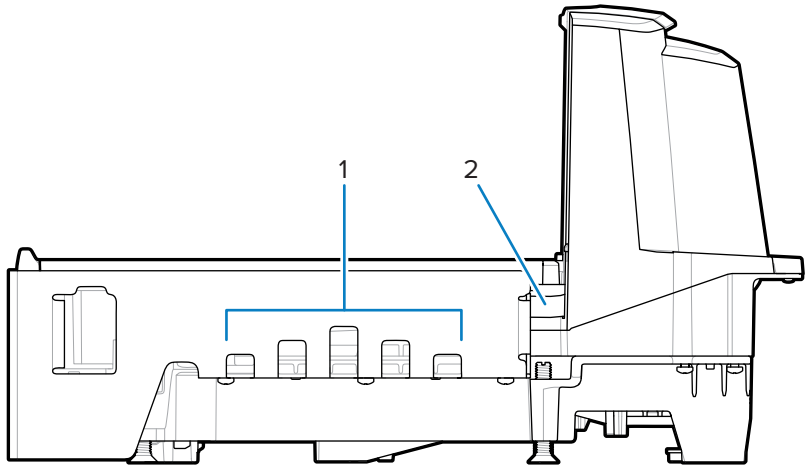
Item	Description
10	Scale zero button
11	User feedback light indicator
12	Vertical scan window
13	Weight Guard retroreflectors

Figure 2 Left Side View



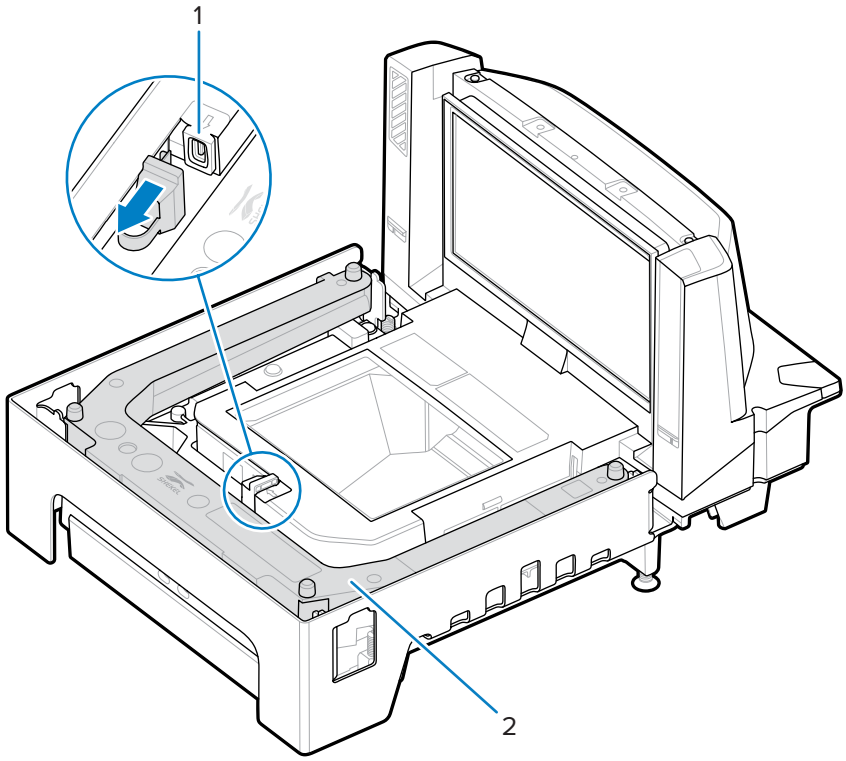
Item	Description
1	Tower (part of upper housing)
2	Drainage/Ventilation holes

Figure 3 Right Side View



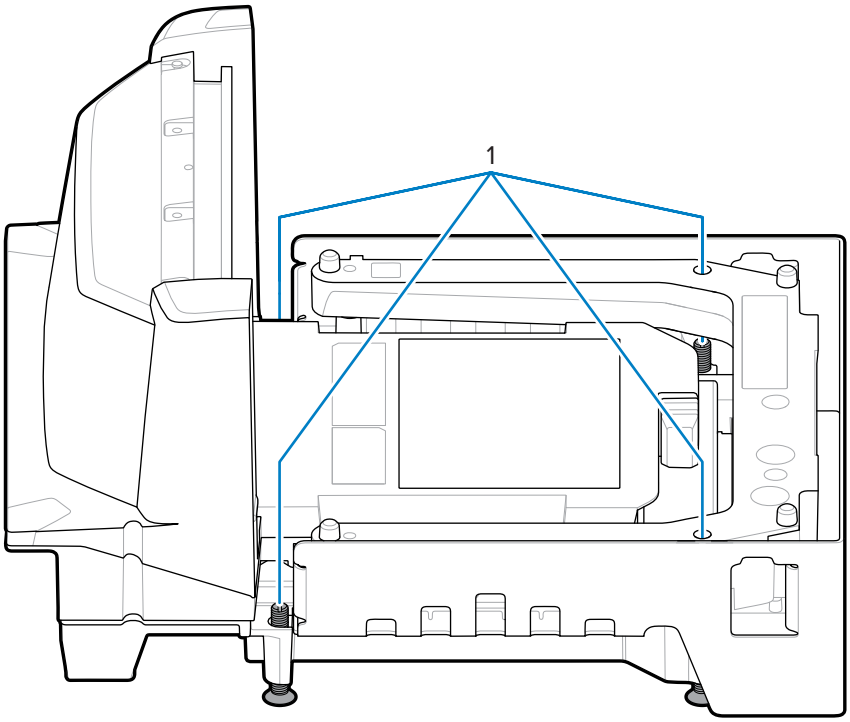
Item	Description
1	Drainage/Ventilation holes
2	EAS cable channel

Figure 4 View Under Platter



Item	Description
1	USB flash drive port
2	Optional scale (medium and long configurations only)

Figure 5 Leveling Screws (Short and Medium Configurations)



Item	Description
1	Leveling screws

NOTE: Leveling screw kit MX301-SR00004ZZWR is available as an optional accessory at additional cost. Kit MX302-SR00004ZZWR containing 20 mm (0.8 in.) longer leveling screws is available as an optional accessory at additional cost.

MP72 Scanner Scale Related Hardware

This section details MP72 hardware components.

Scan Windows

The MP72 reads 1D, 2D (for example, PDF, Aztec), and mobile barcodes (cell phone) in all orientations and scans difficult symbols (for example, truncated, poor contrast, and damaged barcodes).

The horizontal window on the platter is clear, scratch-proof sapphire built for long-term reliability and clarity and is impervious to scratches. The vertical window is chemically tempered and can sustain normal product impact. In case of abusive impact outside of normal usage, this window is laminated with anti-splinter film to ensure any glass shard remains intact on the window assembly.

Platter

The platter covers the horizontal scan window and scale (if applicable) and accommodates product placement. The sapphire platter glass is built for long-term reliability and clarity and is impervious to scratches except from industrial diamonds.

Scale (Scanner/Scale Configurations Only)

Scales are available for Medium and Long configurations only.

Two optional scales are available:

- Single Interval Range Scales have the same resolution for the entire weight range (from zero to maximum capacity) and the following weight capacity:
  - 0.00 - 30.00 lb at a resolution of 0.01 lb
  - 0.000 - 15.000 kg at a resolution of 0.005 kg
- Dual Interval Range Scales change resolution after a certain weight is reached. For example, 2g to 6kg, 5g above 6kg. Dual Interval weight capacity is:
  - 0.000 - 12.00 lb at a resolution of 0.005 lb; then 12.00 - 30.00 lb at a resolution of 0.01 lb
  - 0.000 - 6.000 kg at a resolution of 0.002 kg; then 6.000 - 15.000 kg at a resolution of 0.005 kg

Scale Displays (Scanner/Scale Configurations Only)

MP72 scale configurations offer a single or dual Scale Display. The single display is positioned to provide continuous display of weight values and digital zero balance indication for the customer and operator. The dual display offers more flexibility by allowing two display heads to rotate independently.

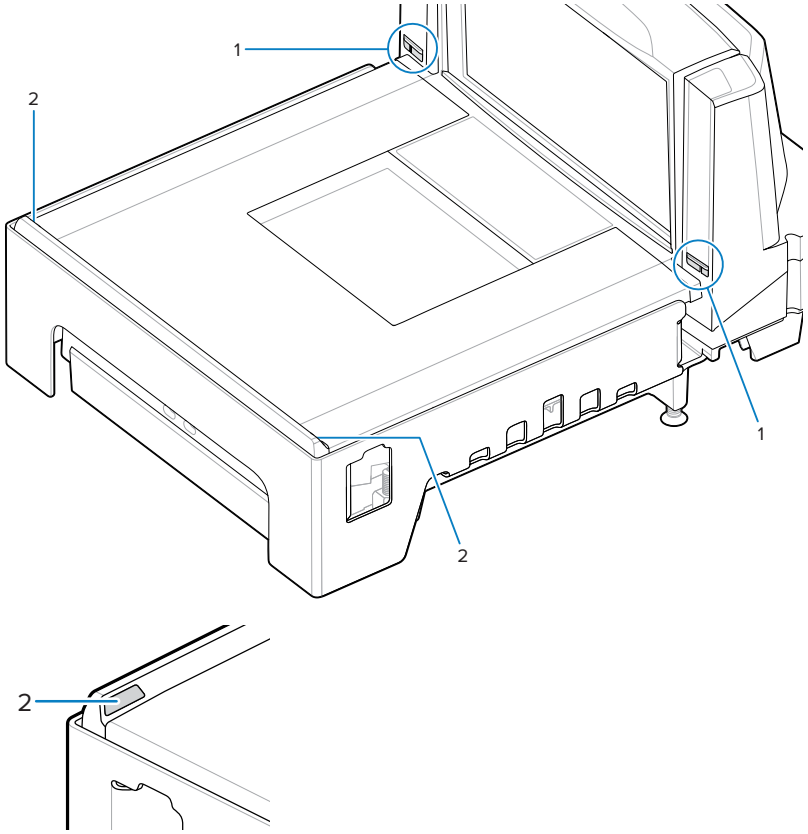
Both single and dual displays show gross weight in pounds and/or kilograms (depending on location).

Weight Guard

Weight Guard is an off-platter detection system. An IR emitter/receiver pair (1) on each side of the MP72 tower views a retroreflector pair (2) at the far end of the platter and triggers a user indicator alert when an item being weighed blocks the signal.

See Weight Guard Configuration for information on setting up the Weight Guard.

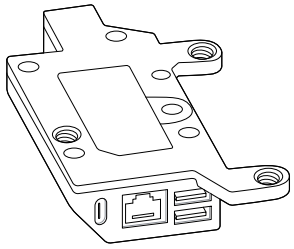
Figure 6 Weight Guard Detection System



MP72 EDGE

MP72 EDGE is a small Linux-based computer that uses advanced AI software to help improve store checkout systems. The system uses a color camera to identify produce, detect ticket changes, and prevent scanning errors. It is a ready-to-use, smart solution designed to make retail checkouts more efficient and accurate.

Figure 7 MP72 EDGE Module



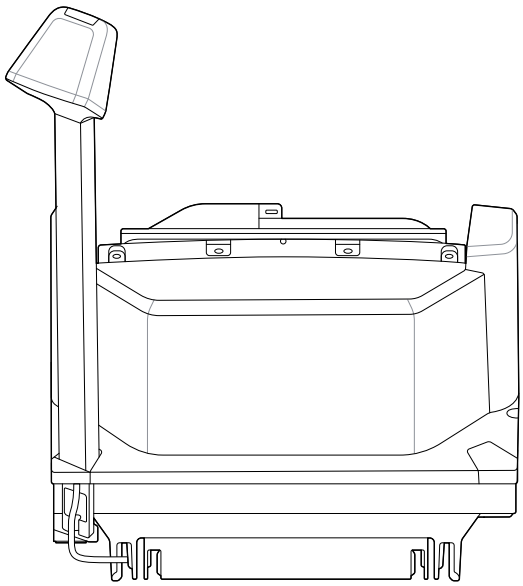
Peripherals

The MP72 Scanner Scale supports various peripheral devices.

Customer Facing Scanner

The Customer Facing Scanner (CFS) is an optional integrated device that supports scanning barcodes, coupons, and loyalty cards from customers' mobile phones and paper.

Figure 8 Customer Facing Scanner



Auxiliary Hand-held Scanner

The MP72 provides auxiliary data ports (USB and RS-232) for hand-held scanner connection.

NOTE: The MP72 supports connecting an auxiliary cordless scanner, such as the DS8178. If the scanner uses a standard cradle, a separate cradle power supply is required.

IMPORTANT: The MP72 scanner does not configure an auxiliary scanner. Auxiliary scanners must be configured separately.

EAS Devices

The MP72 supports various Sensormatic and Checkpoint EAS devices.

- Sensormatic AMB-9010 controller
- Sensormatic AMB-9010-IPS controller
- Checkpoint controller
- Checkpoint with interlock controller

Scale Devices

The MP72 supports various scales and displays.

- OEM standard scale
- Single/dual head Scale Displays
- Mettler-Toledo price computing scale for parts of Europe
- Bizerba scale

USB Flash Drives

The MP72 accommodates a typical USB flash drive with a Type A connector.

Related Product Line Configurations

Check Solutions Pathway for additional information regarding all available accessories, and the latest available configurations.

MP72 Replaceable and Serviceable Parts

This table lists replaceable components and field replacement units (FRUs). FRUs are subassemblies that can be replaced if a component within the subassembly is damaged.

Table 3 Serviceable Parts and Field Replacement Units

Part Number	Description
11-162246-04	TRIM: REAR FLANGE
50-12800-1039	SCR:HL,PANTX,SS,PV,4-24X.500
50-12800-1501	SCR:MA,PAN,XR,ST,ZN,M3X6
50-12857-028B	SCR:HL,PAN,XR,ST,BZ,#6-19X0.750
91-002234-01	LABEL, LCD, MP72XX, BR
91-005843-01	FRU: SCALE, W/O CALIBRATION SWITCH, PLANKTON
91-005849-01	FRU: SCALE, WITH CALIBRATION SWITCH, PLANKTON
AS-001012-01	FRU: ASSY: SINGLE BOARD COMPUTER
91-005850-01	FRU: ASSY: MAIN DECODE PCB W/IMAGING LENS
91-005851-01	FRU:ASSY: MAIN DECODE PCB W/IMAGING LENS
91-005852-01	FRU: ASSY: LOWER HOUSING, PLANKTON
91-005853-01	FRU: ASSEMBLY: CAMERA MODULE, UART
91-005855-01	FRU: PLATTER, SHORT, SAPPHIRE, MP72
91-005856-01	FRU: PLATTER, SHORT, DLC, MP72
91-005857-01	FRU: PLATTER, MEDIUM, SAPPHIRE, MP72
91-005858-01	FRU: PLATTER, MEDIUM, SAPPHIRE, NFS, MP72

Table 3 Serviceable Parts and Field Replacement Units (Continued)

Part Number	Description
91-005859-01	FRU: PLATTER, MEDIUM, SAPPHIRE, WW, MP72
91-005860-01	FRU: PLATTER, MEDIUM, DLC, MP72
91-005861-01	FRU: PLATTER, MEDIUM, DLC, NFS, MP72
91-005862-01	FRU: PLATTER, MEDIUM, DLC, WW, MP72
91-005863-01	FRU: PLATTER, LONG, SAPPHIRE, MP72
91-005864-01	FRU: PLATTER, LONG, SAPPHIRE, NFS, MP72
91-005865-01	FRU: PLATTER, LONG, SAPPHIRE, WW, MP72
91-005866-01	FRU: PLATTER, LONG, DLC, MP72
91-005867-01	FRU: PLATTER, LONG, DLC, NFS, MP72
91-005868-01	FRU: PLATTER, LONG, DLC, WW, MP72
91-005895-01	FRU: ASSY: UPPER HOUSING, NON SCALE, PLANKTON
91-005896-01	FRU: ASSY: UPPER HOUSING, SCALE, PLANKTON
91-005897-01	FRU: ASSY: CARRIER, PLANKTON
91-005999-01	LABEL, LCD, MP72, SINGLE, EU
91-006000-01	LABEL, LCD, MP72, SINGLE, ROW, NN
91-006001-01	LABEL, LCD, MP72, SINGLE, US
91-006002-01	LABEL, LCD, MP72, DUAL, EU
91-006003-01	LABEL, LCD, MP72, DUAL, ROW, NN
94-005869-01	FRU: PCBA, PLANKTON TOWER RED ILLUMINATION BOARD
94-005870-01	FRU: PCBA, PLANKTON EVOLUTION UI BOARD
94-005871-01	FRU: PCBA, PLANKTON WHITE COLOR CAMERA ILLUM BRD
94-005872-01	FRU: PCBA, PLANKTON WEIGHT WARDEN PCB
AC-000144-01	SPEAKER,36X4.4MM,4 OHM,2.0W,88DB
CB-000777-01	HARNESS: USB FLASHDRIVE, PLANKTON
CB-000778-01	WIRE HARNESS: SCALE
CB-000780-01	CABLE: CC, USB-C, RA
CB-000786-01	CABLE: GROUND, MP72
CB-000805-01	CABLE: USB HOST, TYPE-C TO TYPE-A, 2.5M, PLANKTON
CB-000805-02	CABLE: USB HOST, TYPE-C TO TYPE-A, 2.0M, PLANKTON
CBL-CC0004	CABLE: COLOR CAMERA, 0.35m, MP72, CAMERA TO EDGE COMPUTER
CB-000869-01	WIRE HARNESS: UI, ILLUM LEFT, MP72
CB-000870-01	WIRE HARNESS: SPEAKER, ILLUM RIGHT, MP72
CB-000871-01	HARNESS: COLOR CAMERA, MP72

Table 3 Serviceable Parts and Field Replacement Units (Continued)

Part Number	Description
CB-000872-01	HARNESS: WEIGHT WARDEN LEFT/RIGHT, MP72
CBL-DC-388A1-01	CABLE, ASSEMBLY, POWER,12VDC, 4.16A. RIGHT ANGLE, MP72 EDGE
FN000004A01	SCREW,SELF-THREADING (CUTTING/FORMING)-STANDARD-2-32,STEEL,BT,PANTX,2-32X0.25
FN000183B04	SCREW,SELF-THREADING (CUTTING/FORMING)-STANDARD-2-32,PAN,STAINLESS STEEL,BT,PANTX,2-32X.38
FN-000281-01	SCREW,MACHINED THREAD-METRIC-M4X0.7,FLANGE HEX,TRILOBULAR,STEEL,6-LOBE,TORX,M4-0.7X12
FN-000311-01	SCREW,M8X35,MACHINE,SOCKET,HARDENED STEEL,ZINC
HN-000959-04	MOUNTING FRAME: FRONT, LONG, CHAMFERED, MP7000
HN-000983-02	MOUNTING FRAME: FRONT, MEDIUM, MP7000
HN-000984-01	MOUNTING FRAME: FRONT, SHORT, MP7000
HN-001011-04	MOUNTING FRAME: BACK, CFS, MP7000
HN-001066-01	CLIP: LOCKING, SPEAKER, MP7000
HN-001744-04	ADAPTER, PLUG
HN-001745-01	HANDLE, MP72
HN-001747-01	FRAME: SUPPORT, MP72
HN-001748-04	ADAPTER: COLOR CAMERA, LOWER, MP72
HN-001877-04	PLUG, UPPER CAMERA OPENING
HN-002161-01	FILLER: CORNER, LEFT, MP72
HN-002161-02	FILLER: CORNER, RIGHT, MP72
HW-000385-01	GASKET: SOUND CHAMBER, PLANKTON
LB-001212-04	LABEL: UI, UPPER HOUSING, PLANKTON
LB-001213-01	LABEL: LAMINATE, MANUFACTURING, MP72
LB-001214-01	LABEL: MANUFACTURING, MP72
LB-001214-01	LABEL: MANUFACTURING, MP72
LB-001341-01	LABEL, PRODUCT, MP7000 LAMINATE
LB-001342-01	LABEL, REGULATORY, MP72
LE-000428-01	LENS: SUPP WW CARRIER, MP72
LE-000429-01	LIGHTPIPE, MP72
MX301-SR00004ZZWR	KIT,ACCY,MP6000,LEVELING SCREW PACK OF 4
MX310-SA00WW	CHECKPOINT ANTENNA
MX312-SA00WW	CHECKPOINT ANTENNA, NO CONNECTOR, MP72
MX72-SR000WW	CUSTOMER FACING SCANNER

Table 3 Serviceable Parts and Field Replacement Units (Continued)

Part Number	Description
SL-000387-01	PLUG: SEAL, USB, PLANKTON

Fastener Specifications

The following table lists the various screws and fasteners used in MP72 assembly.

Table 4 Fastener Specifications

Part Number	Drive	Torque	Where Used	Qty	Notes
FN000004A01	T7	0.23 Nm (2 in-lb)	Customer Facing Scanner (CFS)	2	
50-12800-1039	T8	0.56 Nm (5 in-lb)	Main PCB PA-002188-01 to Carrier HN-001736-04	5	
50-12800-1039	T8	0.56 Nm (5 in-lb)	Adapter Plug/CC HN-001744/8-04 to Carrier HN-001736-04	2	
50-12800-1039	T8	0.56 Nm (5 in-lb)	Opto-Mech Assy PH-004516-XX to Upper Hsg HN-001731-01	4	
50-12857-028B	PH #1	1.58 Nm (15 in-lb)	Lower Hsg Assy AS-000617-01 close up	6	
50-12800-1501	PH #1	0.79 Nm (7 in-lb)	Platter Adapter 12-162221-01 to Platter Assy	4	Non-scale platter configs only
FN000183B04	T8	0.56 Nm (5 in-lb)	Color Camera Assy AS-001005-01 to Adapter HN-001748	2	Lower (upward) CC config only
FN-000311-01	Sct 6	19 Nm (14 ft-lb)	Scale PH-004840-XX to Support Frame HN-001747-01	4	Scale configs only
FN-000281-01	T20	1.36 Nm (12 in-lb)	Front Mnt Frames to Support Frame HN-001747-01	6 (4 on short)	
FN-000281-01	T20	1.36 Nm (12 in-lb)	Rear Mnt Frame to Support Frame HN-001747-01	4	Long configs only
FN-000281-01	T20	1.36 Nm (12 in-lb)	Gnd Cable CB-000786-01 to Support Frame HN-001747-01	1	
MX301-SR00004ZZWR	PH #4	1.69 Nm (13 in-lb)	Leveling screws (pack of 4) to Support Frame HN-001747-01	1	Medium and short configs only

Tools Required

The following tools are required for MP72 disassembly and assembly.

- Phillips head screwdriver
- T7, T8, T12, T15, and T20 Torx screwdrivers

- Torque driver
- Torque wrench (for scale assembly)
- Can of compressed air
- For leveling screws: slotted screwdriver (field assembly only; not used for servicing)
- For scale assembly: 6 mm hex screwdriver or hex wrench
- For scale cable cap press washer: 11 mm socket

MP72 Disassembly and Reassembly

The MP72 consists of field replacement units that the service associate must access and replace in order to maintain or repair the device.

NOTE: After replacing any MP72 component, calibrate the scale using the instructions in the Integrator Guide.

The scanner scale design is optimized for field integration of parts such as scale and Sensormatic coils, and supports multiple platters to accommodate three device lengths. Modularity improves in-field service and upgrades.

CAUTION: When handling any electronic assembly, adhere to proper ESD grounding practices.

MP72 disassembly and assembly consists of:

1. Removing the housing frame, which includes the scale sub-assembly.
2. Replacing the scale, if damaged.
3. Removing the plastic lower housing. If mirrors in the lower housing are damaged, replace the entire lower housing.
4. Removing the cable carrier from the plastic upper housing. The carrier holds the main PCB and connectors for all cables.

   The upper housing includes horizontal and vertical scan windows. Replace the entire upper housing if scan windows are damaged.
5. Replacing damaged components, which may include:
   - Speaker assembly
   - Illumination boards
   - User interface (touch) PCB
   - Color camera
   - Weight Guard
   - Main PCB
   - Platter or vertical scan window (if no scale)
6. Re-installing the cable carrier into the upper housing.
7. Re-installing the lower housing.
8. Re-installing the housing frame.

If the vertical window in the platter is damaged, remove the bezel holding the window and replace it with a new bezel/window.

When assembling FRUs, see Fastener Specifications for torque information.

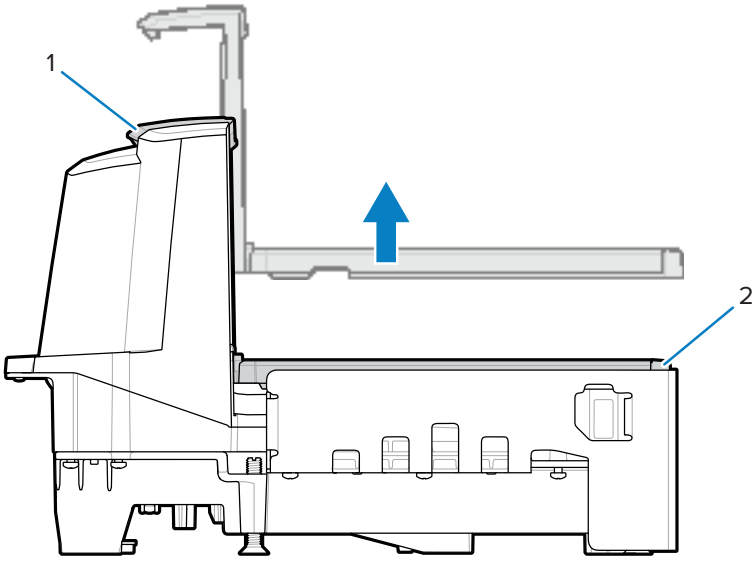
Platter Replacement

The platter covers the scan windows and scale (if applicable) and accommodates product placement. The sapphire platter glass is built for long-term reliability and clarity and is impervious to scratches except from industrial diamonds.

The platter is avaible in short, medium, and long configurations.

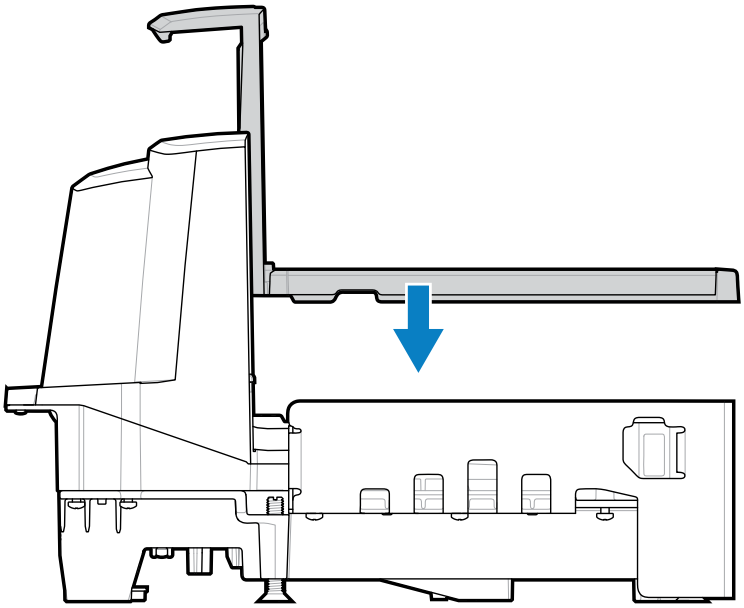
Removing the Short or Medium Platter

To remove the short or medium platter grasp the top (1) and edge (2) of the platter and lift up.



Installing the Short or Medium Platter

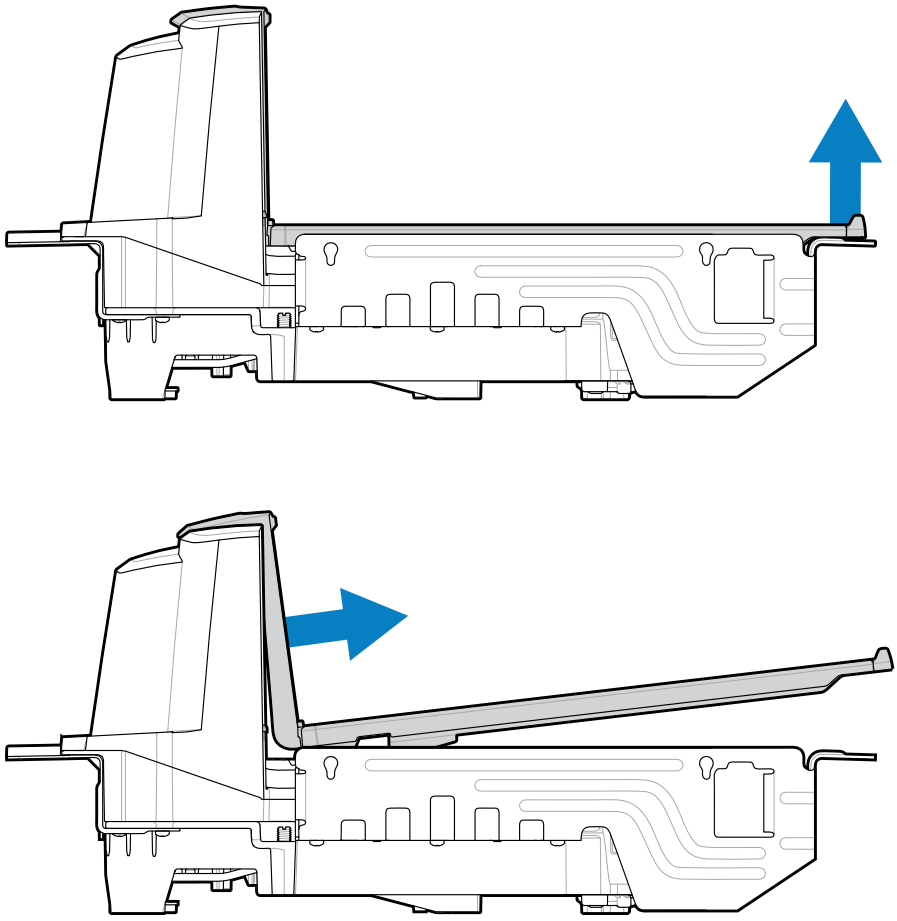
To install the short or medium platter, grasp the top and edge of the platter and lower into place until secure.



Removing the Long Platter

This section describes how to remove the long platter.

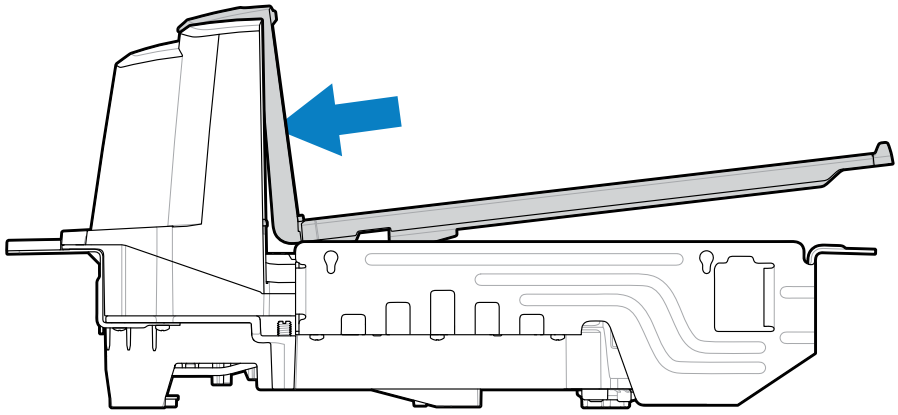
1. Grasp the edge of the platter and lift it up slightly.
2. Holding the edge and top of the platter, pull out and lift off.

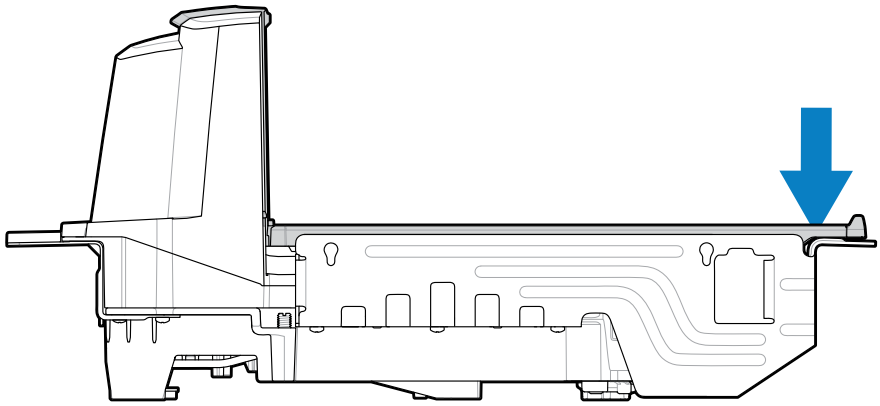


Installing the Long Platter

This section describes how to install the long platter.

1. Grasp the edge and top of the platter and slide the bottom of the vertical scan window into the housing.
2. Lower the edge of platter to sit securely in the device.

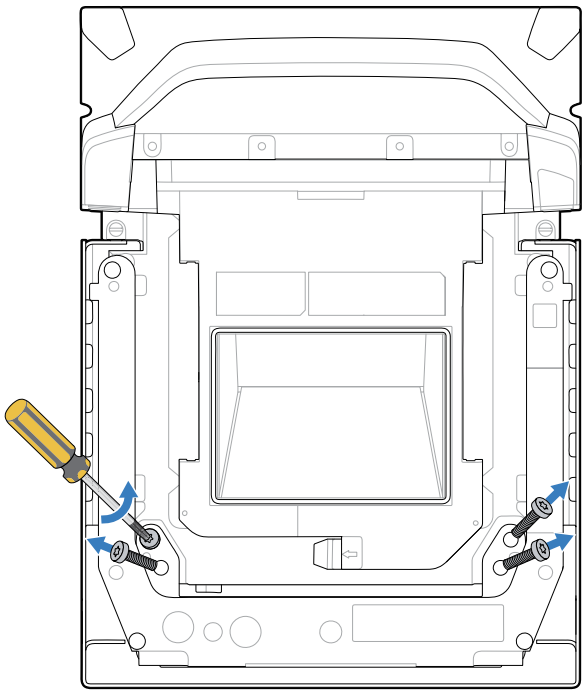




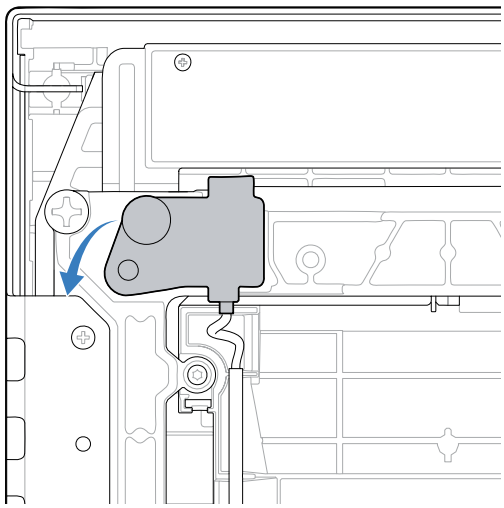
Replacing the Scale

This section describes how to replace the scale, located below the platter.

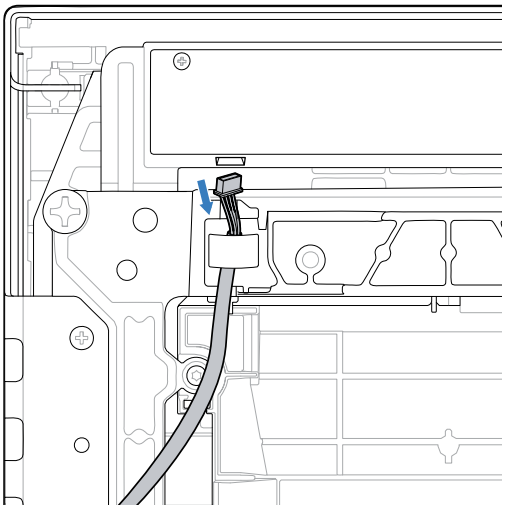
1. Remove the platter.
2. Disconnect power from the device.
3. Remove the four 6 mm drive M8 cap screws securing the scale to the housing using a 6 mm hex screwdriver or hex wrench.



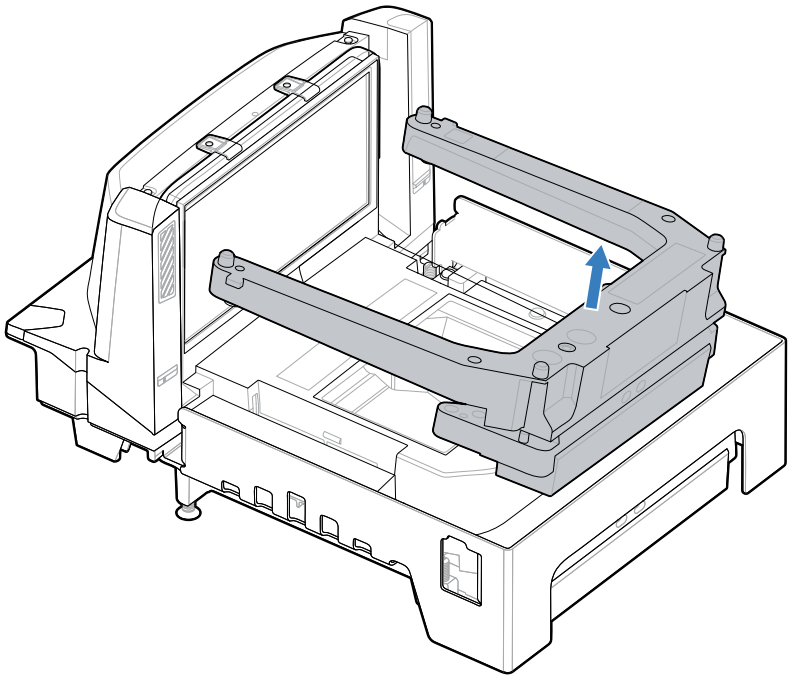
4. Carefully turn the device on its side, using care to prevent the scale from falling out.
5. Remove the scale cable cap.



6. Disconnect the scale connection cable.



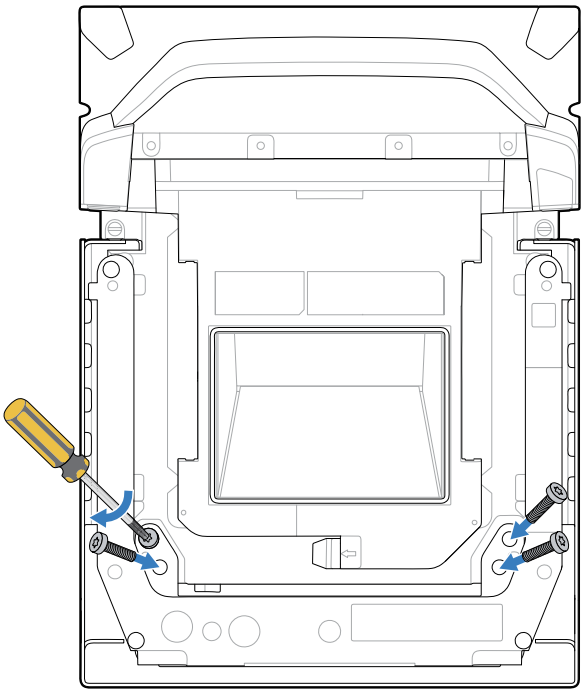
7. Turn the device right-side up and lift the scale from the housing.



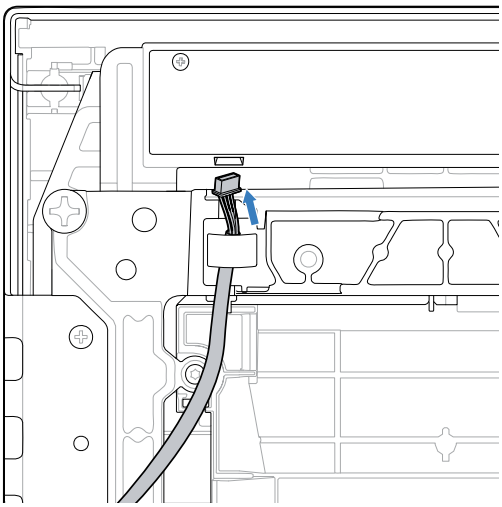
8. Lower the new scale onto the housing.

9. Secure the scale to the housing with four M8 cap screws tightened to 19 Nm +/- 0.3 (14 ft-lb +/- 0.25) torque using a 6 mm hex screwdriver or hex wrench.

NOTE: Removing the press washer can damage threads on the screws. Ensure threads are not damaged on each screw. If so, replace with a new screw.



10. Carefully turn the device on its side, and re-connect the cable to the connector housed inside the scale. Be sure to route the scale cable correctly and through the proper pinch points.



11. Re-install the scale cable cap and replace the press washer using an 11 mm socket.

NOTE: After replacing the scale, calibrate the device.

EAS Devices

The MP72 supports an optional Checkpoint or Sensormatic EAS antenna. The device nests in the MP72 upper housing.

The Sensormatic antenna must be installed by a Sensormatic representative.

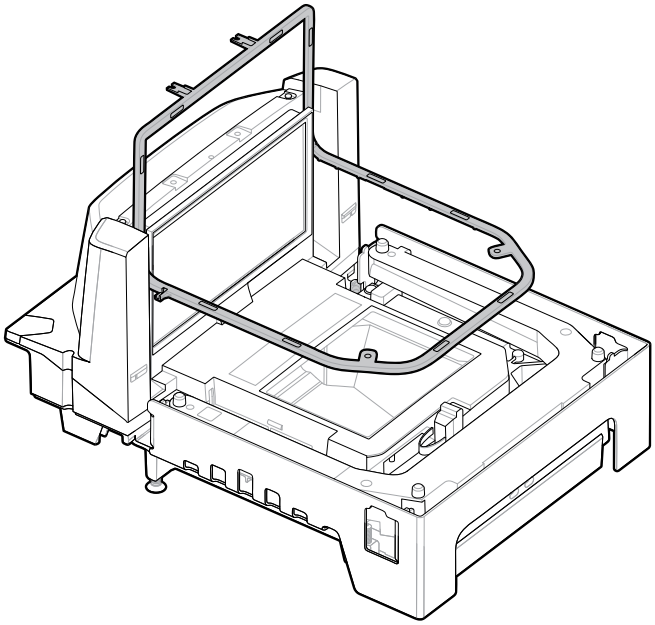
Installing the Checkpoint Antenna

The Checkpoint antenna is installed inside the upper housing below the platter, and loops around the top of the vertical window. The antenna cable is routed alongside the scanner and connects to the controller box.

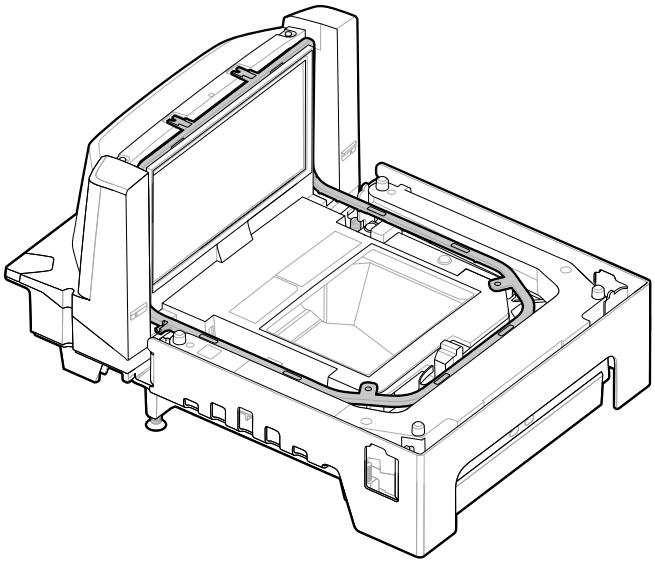
WARNING: Improper installation of Checkpoint antennas can cause issues with scale functionality.

To install the antenna:

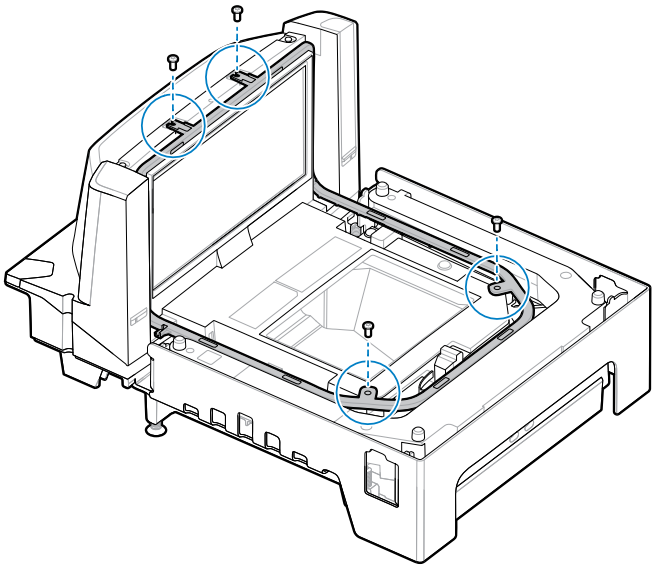
1. Remove the MP72 platter.
2. Lower the antenna into the upper housing of the MP72.



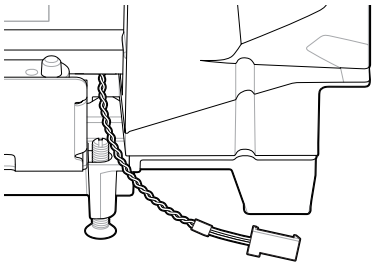
3. Set the antenna in place in the housing, around the vertical window and into the body of the device.



4. Use the four screws provided to secure the antenna to the housing using a T8 Torx screwdriver.



5. Route the antenna cable alongside the scanner and out the corner of the MP72, near the vertical window.



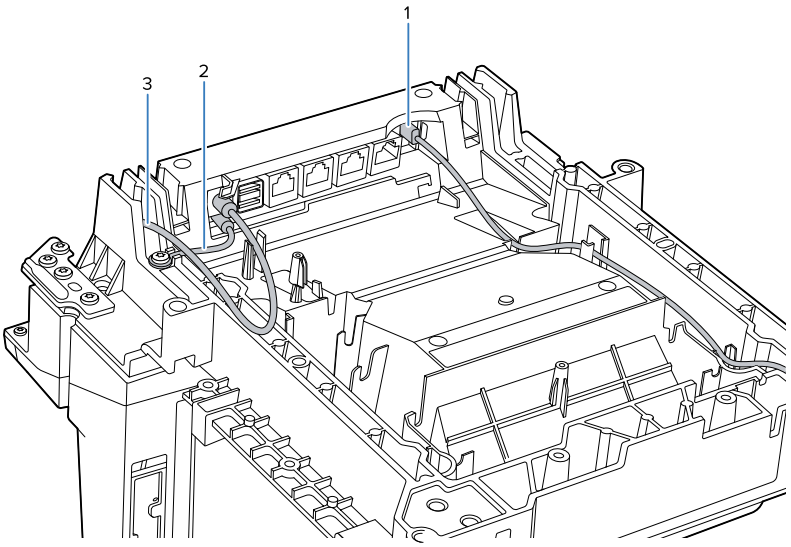
NOTE: The connector on the antenna cable shown is an example only. Use the connector appropriate for the specific EAS controller.

6. Replace the platter.

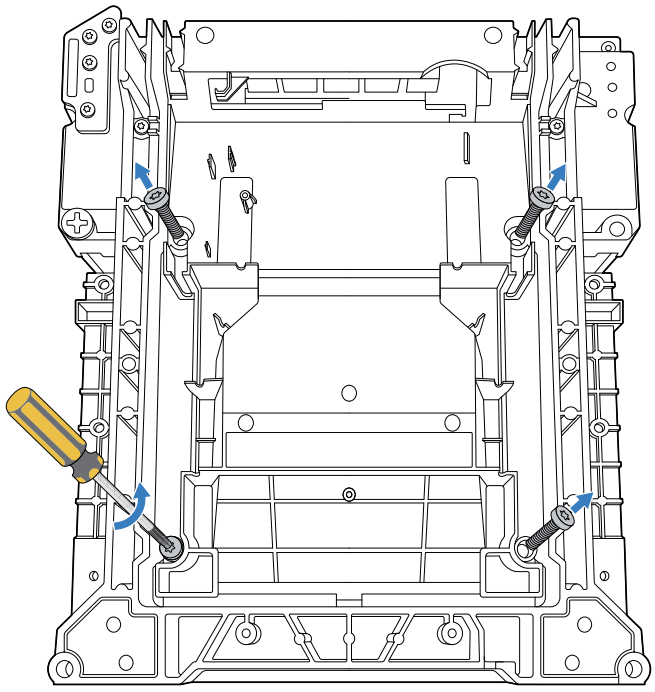
Removing the Housing Frame

Remove the housing frame for replacement if damaged, or to access internal MP72 components.

1. Remove the platter and carefully turn the MP72 upside-down.
2. Unplug the scale cable (1) and grounding strap (2) from the main PCB.
3. Disconnect the power cable (3) by rotating it counter-clockwise and pulling out.

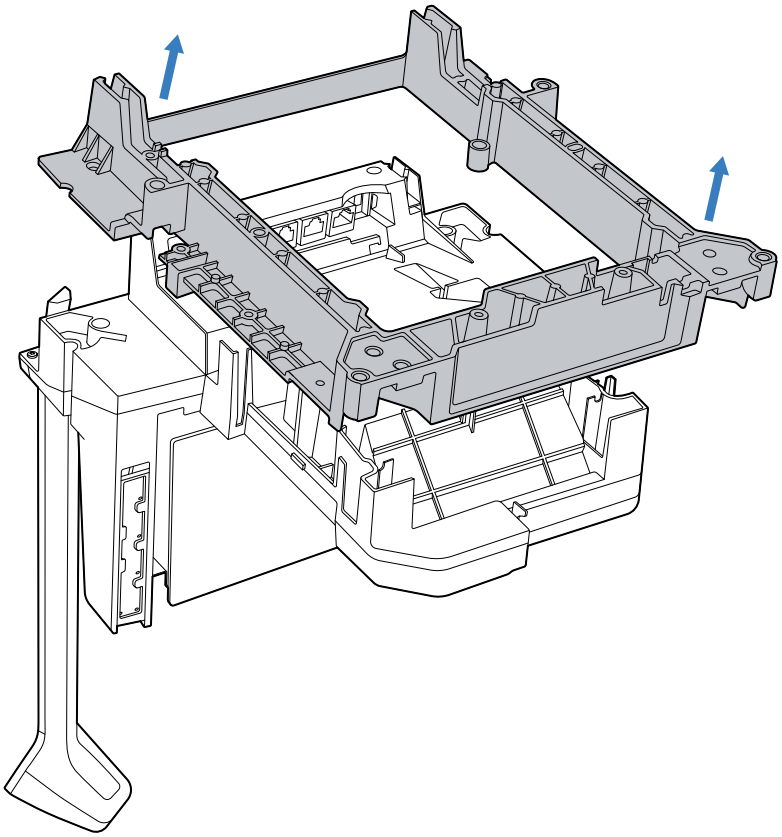


4. Remove the four Phillips head screws securing the frame to the housing.



5. Carefully lift the frame from the plastic housing.

NOTE: The device may tip over as you remove the frame.

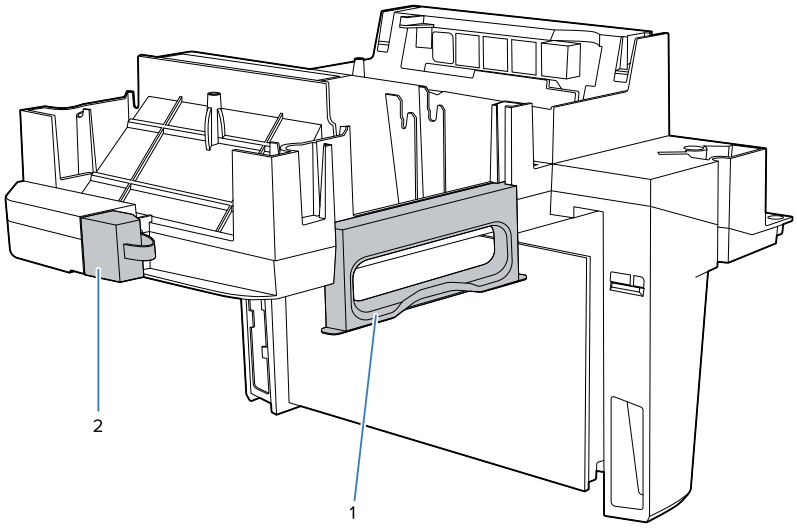


Removing the Lower Housing

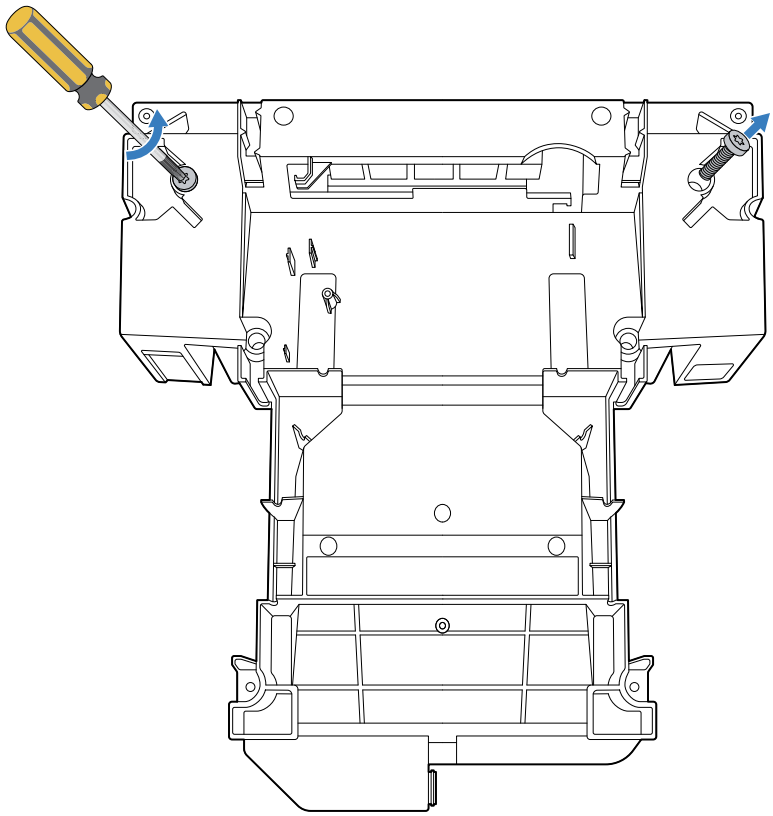
The plastic lower housing includes mirrors. If the housing or mirrors are damaged, replace the entire lower housing.

Remove the MP72 lower housing after removing the frame.

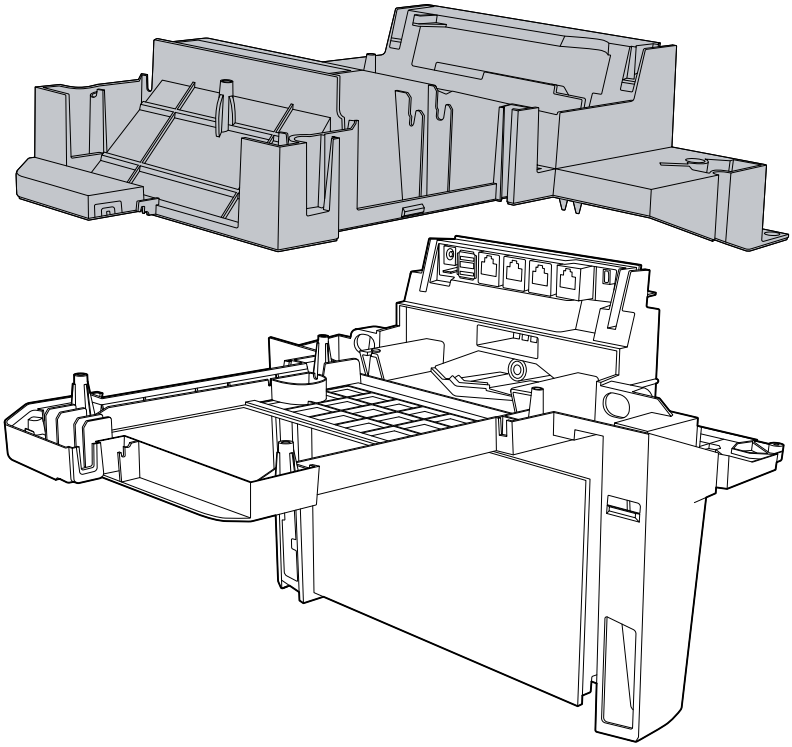
1. With the MP72 upside-down, push the gray handles (1) down to ease removal.
2. Unplug the USB boot (2).



3. Remove the two T15 screws from the housing.



4. Lift the housing off the MP72. If necessary, wiggle the housing from side to side to loosen it. The grey handles and USB boot will fall loose.



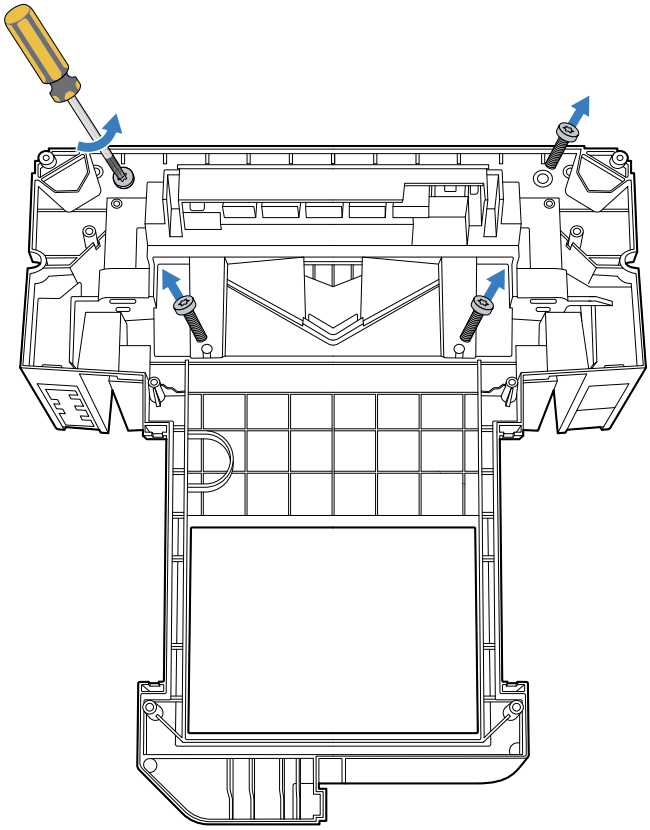
Removing the Cable Carrier

The cable carrier contains the main PCB, boards, and all cables.

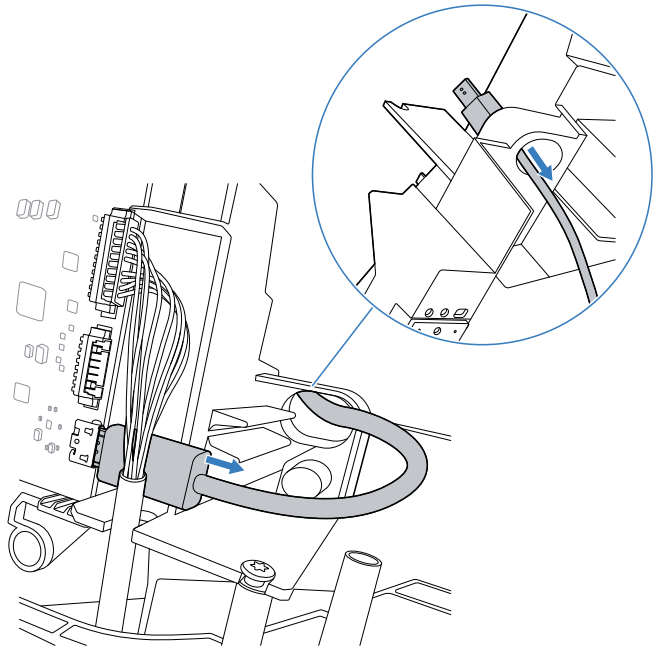
Carrier components include:

- Main PCB with connectors
- UI (touch) board
- Illumination boards (2)
- Speaker
- Illumination harness to left illumination board, UI board, and main PCB
- Illumination harness to right illumination board, speaker, and main PCB
- Optional color camera
- Camera illumination boards (2)
- Camera cable harness to camera illumination boards and main PCB

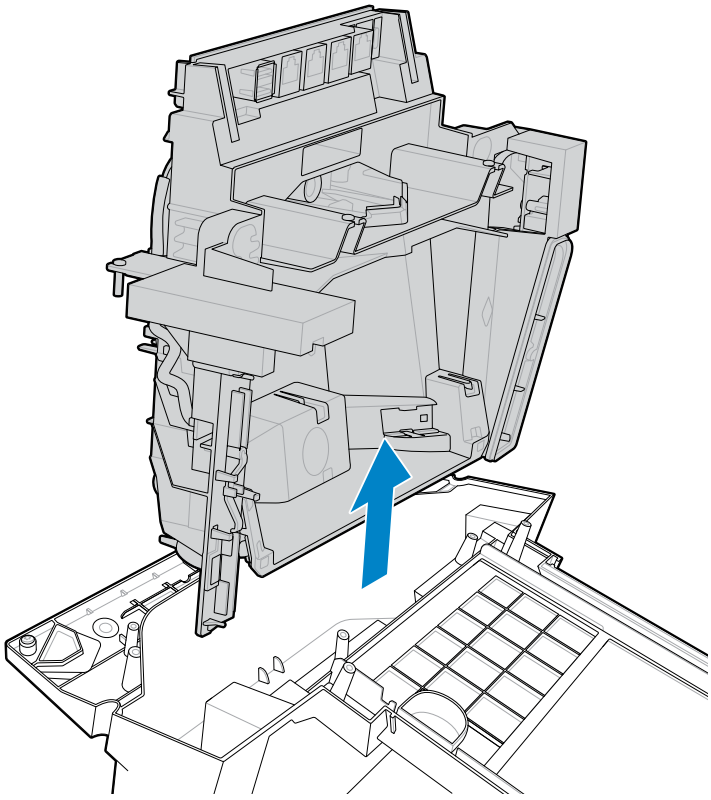
1. Remove the four T8 screws securing the carrier to the upper housing.



2. Disconnect the external (user) USB cable from the main PCB and remove it from the channel.



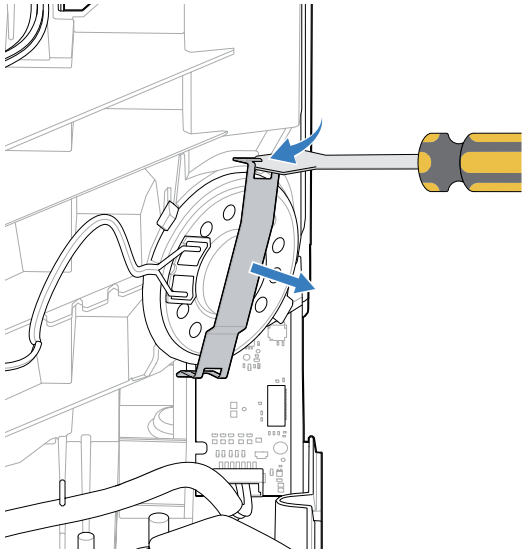
3. Lift the carrier out of the upper housing.



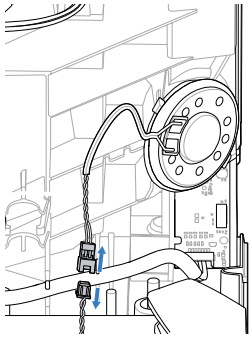
Replacing the Speaker Assembly

The MP72 speaker assembly enables audio feedback.

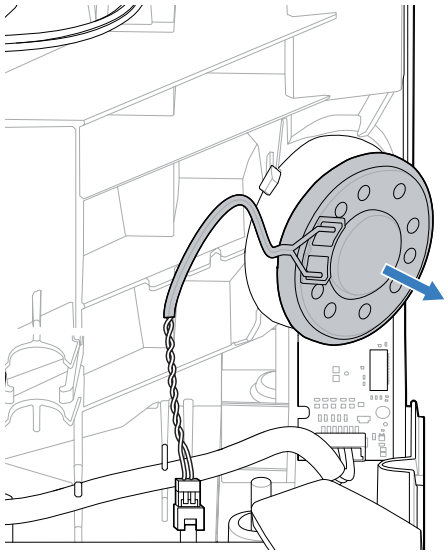
1. Remove the metal clip securing the speaker.



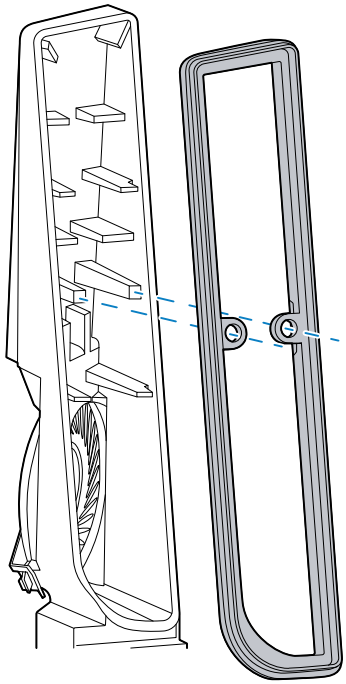
2. Disconnect the speaker wire from the speaker branch of the right illumination speaker wire harness.



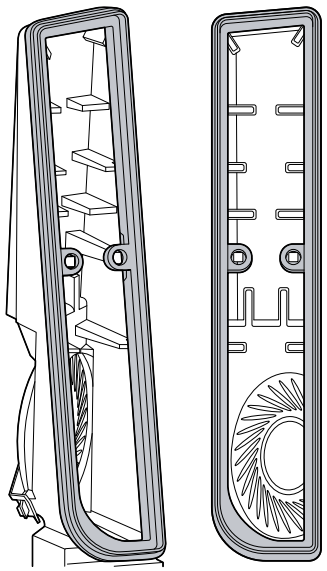
3. Carefully pull the speaker out of the assembly, and remove any PSA tape remaining on the carrier.



4. Verify there is a seal on the new speaker, and remove the PSA liner from the speaker.
5. Gently insert the new speaker into the carrier, ensuring there are no gaps around the speaker opening.
6. Install the metal clip over the new speaker.
7. Connect the speaker branch of the right illumination speaker wire harness back to the speaker cable.
8. Remove the speaker gasket from the compartment behind the speaker, and insert a new gasket using the alignment pins for guidance.



9. Press the gasket into the channels in the compartment.



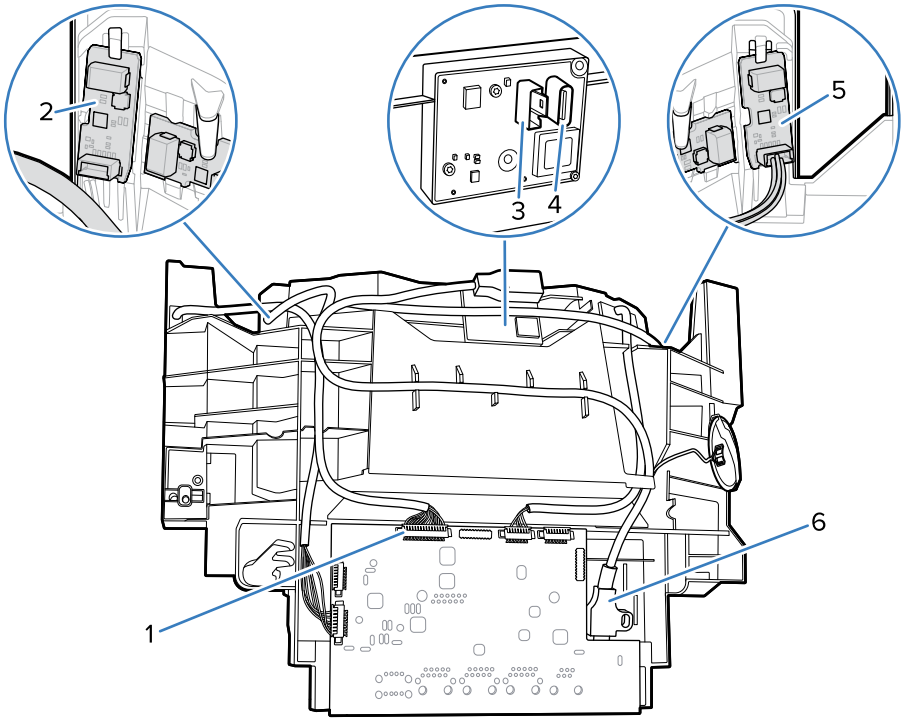
Replacing the Color Camera

The optional color camera can be installed in the upper or lower portion of the cable carrier. The camera illumination harness connects the camera and two camera illumination boards to the main PCB.

NOTE: The left and right camera illumination boards are the same part (p/n 94-005871-01).

If the device does not include a camera, a plug occupies the camera compartment.

Figure 9 Color Camera Connections



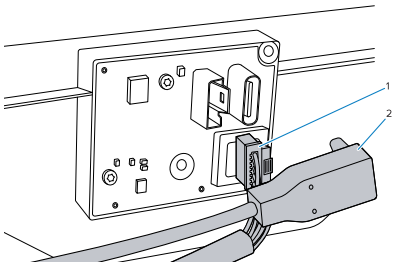
Item	Description
1	Camera harness connector on main PCB
2	Left camera illumination board
3	Camera harness connector at camera
4	USB cable connector at camera
5	Right camera illumination board
6	USB-C connector on main PCB

Upper Camera Replacement

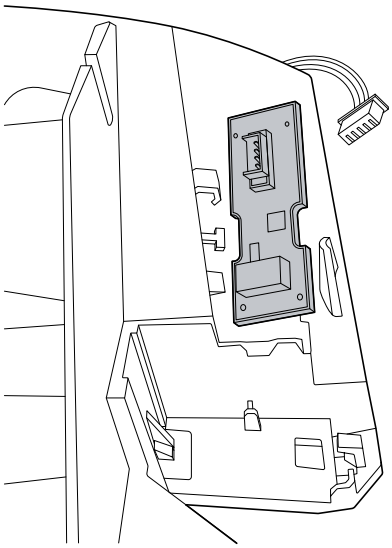
This section describes how to replace any of the following color camera components.

- Left and/or right camera illumination boards
- Camera illumination harness
- USB cable

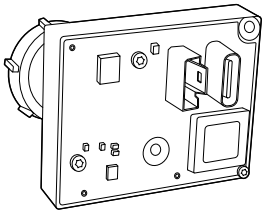
1. Press the locking tab on the camera illumination wire harness, and remove the harness from the camera (1).
2. Remove the USB cable connector (2).



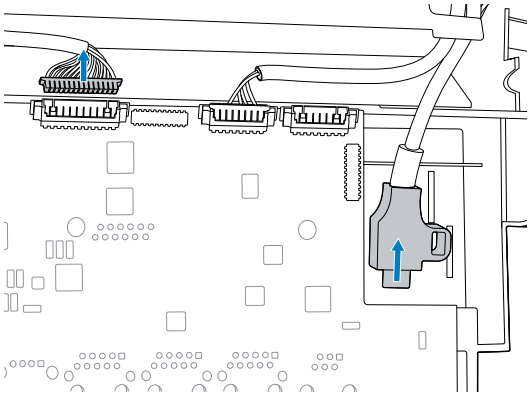
3. Remove the harness connectors from the left and right camera illumination boards, and remove the boards.



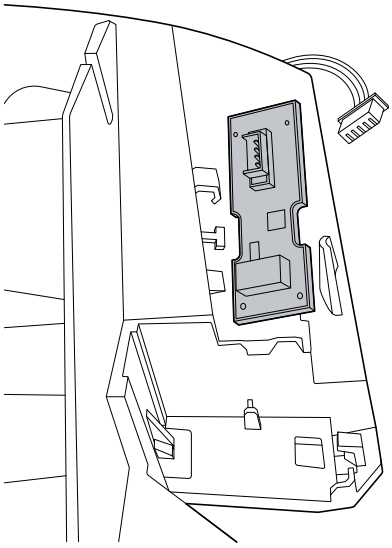
4. Lift the camera out of the compartment.



5. Carefully remove the camera illumination harness connector on the main PCB, and disconnect the USB cable from the USB-C connector.



6. Connect the replacement USB camera cable to the USB-C connector on the main PCB.
7. Insert the connector on the replacement camera harness in the appropriate connector on the main PCB.
8. Insert the new camera into the device.
9. Insert two new camera illumination boards into the left and right compartments, and insert the harness connectors into the boards.



10. Insert the USB cable connector and the camera illumination harness connector in the camera.
11. Properly route all cables on the cable carrier.

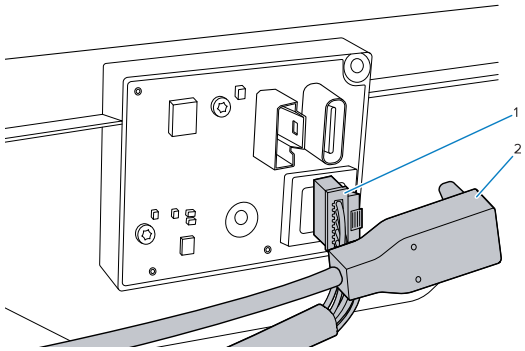
NOTE: After replacing the camera, calibrate the device.

Lower Camera Replacement

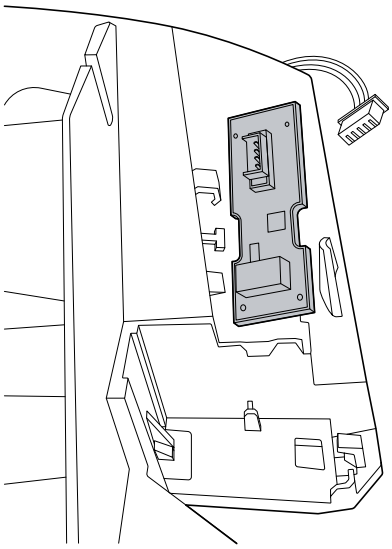
This section describes how to replace any of the following color camera components.

- Left and/or right camera illumination boards
- Camera illumination harness
- USB cable

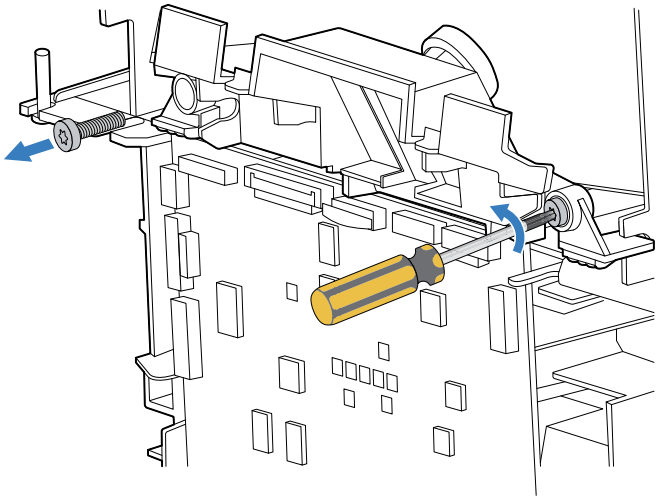
1. Press the locking tab on the camera illumination wire harness, and remove the harness from the camera (1).
2. Remove the USB cable connector (2).



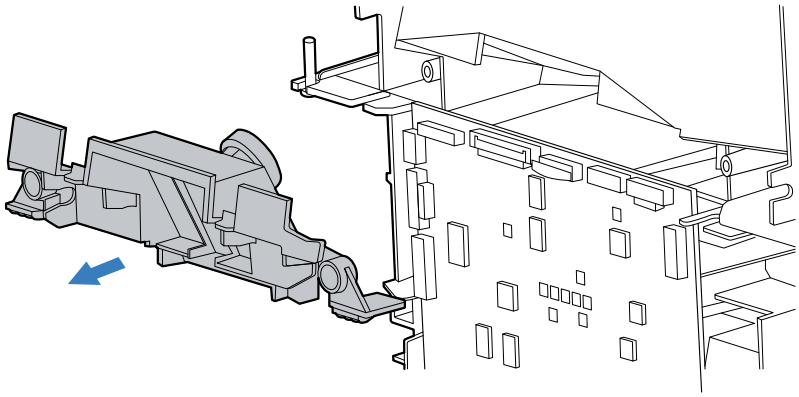
3. Remove the harness connectors from the left and right camera illumination boards, and remove the boards.



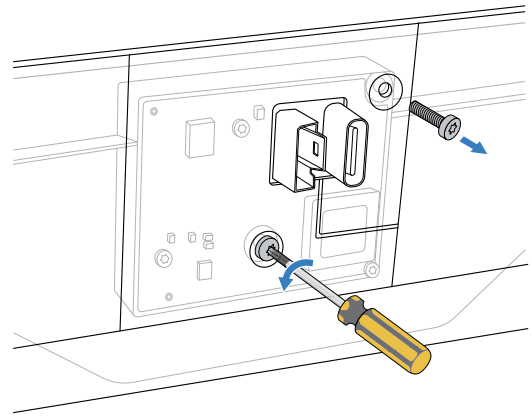
4. Remove the two T8 screws from the camera bracket assembly.

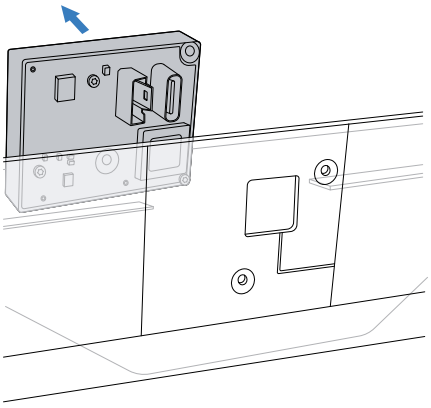


5. Remove the camera/bracket assembly.

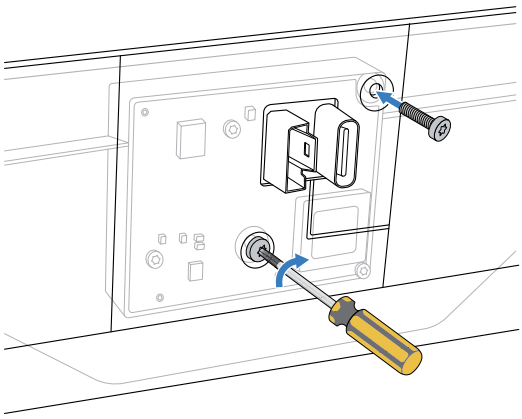


6. Remove the two T8 screws securing the camera to the bracket, and remove the camera from the bracket.

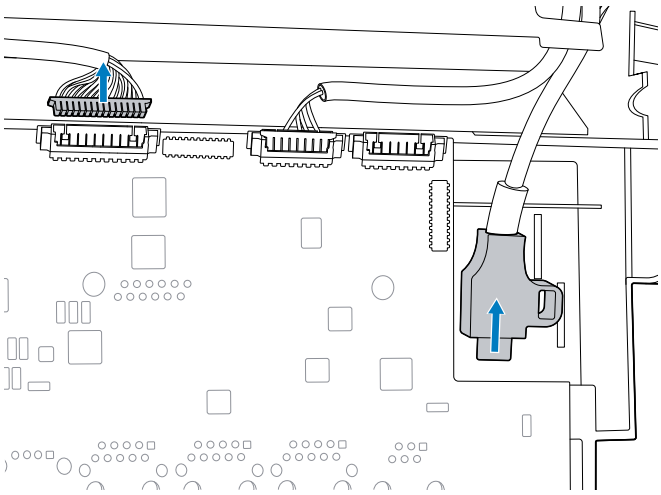




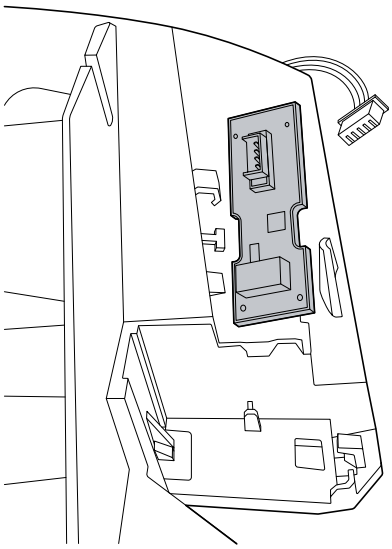
7. Insert the new camera into the bracket, and insert the two T8 screws using 0.56 Nm +/- 0.03 (5 in-lb +/- 0.25) torque to secure the camera to the bracket.



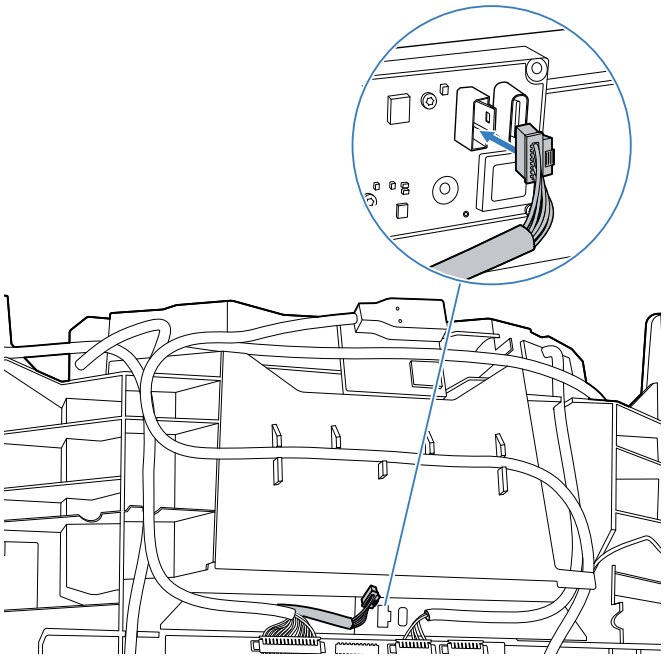
8. Carefully remove the camera illumination harness connector on the main PCB, and disconnect the USB cable from the USB-C connector.



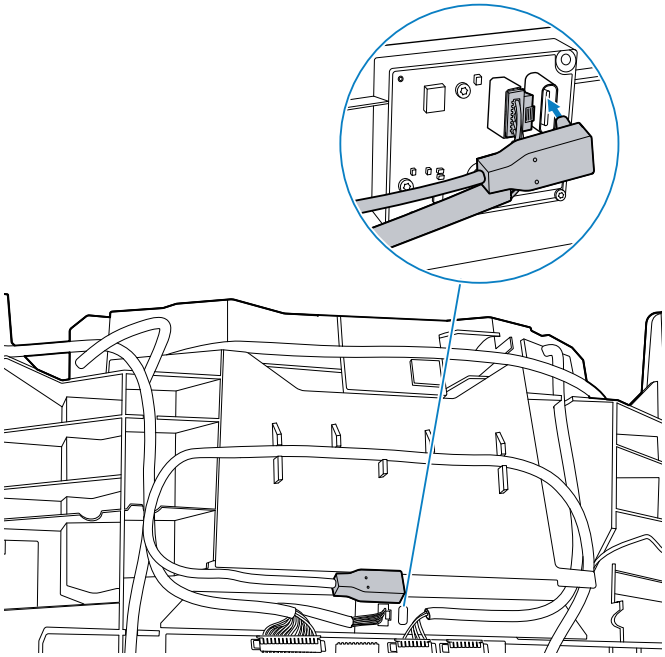
9. Connect the replacement USB camera cable to the USB-C connector on the main PCB.
10. Insert the connector on the replacement camera harness in the appropriate connector on the main PCB.
11. Insert the camera bracket assembly into the device, and secure with the two T8 bracket screws using 0.56 Nm +/- 0.03 (5 in-lb +/- 0.25) torque.
12. Insert two new camera illumination boards into the left and right compartments, and insert the harness connectors into the boards.



13. Fold in the camera illumination harness as shown and connect to the camera.



14. Insert the USB cable connector in the camera, and properly route all cables on the cable carrier.



NOTE: After replacing the camera, calibrate the device.

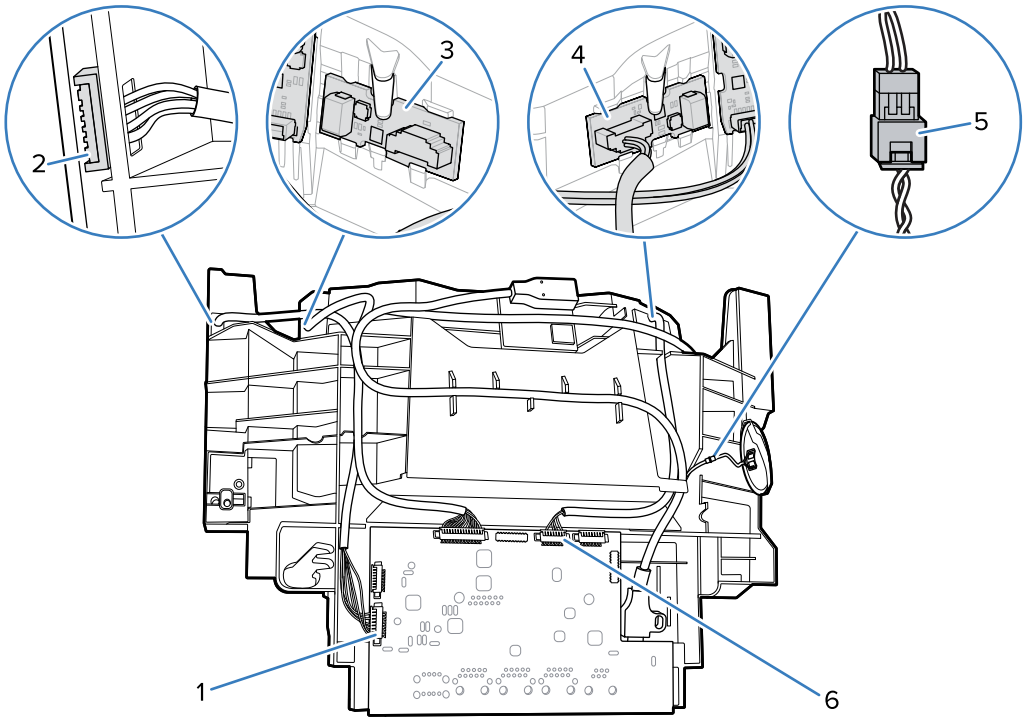
Replacing the Illumination and User Interface Boards

This section describes how to replace either of the two illumination boards and/or the user interface (touch) boards. These boards are located on the cable carrier and are connected to the main PCB.

The left and right illumination boards each include an illumination LED. The right illumination harness cables to the right illumination board and the speaker, and the left harness cables to the left illumination board and the user interface board.

NOTE: The two illumination boards are the same part/part number.

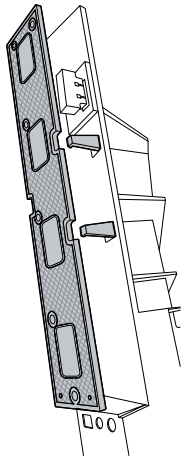
Figure 10 Illumination and User Interface Boards Connections



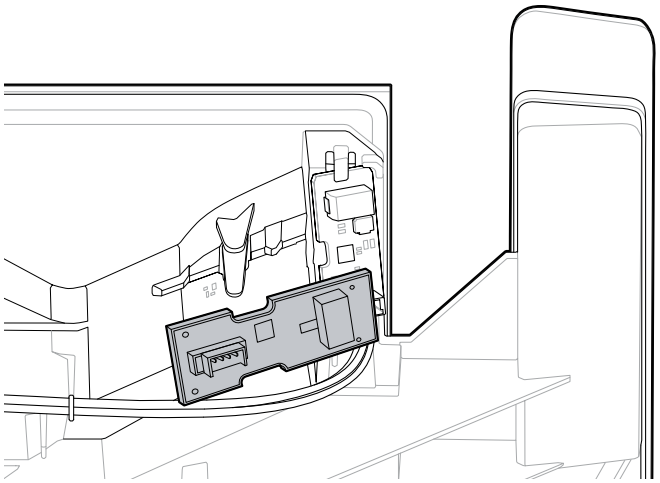
Item	Description
1	Left illumination and UI board connector on main PCB
2	User interface board connector
3	Left illumination board connector
4	Right Illumination board connector
5	Speaker connector
6	Right illumination and speaker connector on main PCB

1. Carefully remove the connectors from the right and left illumination boards, and from the UI board. Also remove the speaker connector if the harness is being replaced (items 2 - 5 in Illumination and User Interface Boards Connections).

2. Unsnap the user interface board from the compartment.

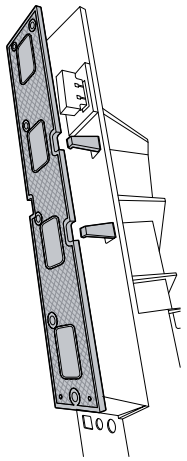


3. Unsnap the two illumination boards from the compartments.



4. Carefully disconnect the left and right illumination cables from the connectors on the main PCB (items 1 and 6 in Illumination and User Interface Boards Connections).
5. Insert the two new illumination boards into the two compartments.

6. Insert the new UI board into the respective compartment by inserting it into the plastic catch and snapping it into the holding clips.



7. Carefully insert the connectors on the left harness to the UI board and left illumination board (items 2 and 3 in Illumination and User Interface Boards Connections).
8. Insert the connector on the right harness into the right illumination board, and to the speaker if necessary (items 4 and 5 in Illumination and User Interface Boards Connections).
9. Insert the connectors at the end of the left and right harnesses to the respective connectors on the main PCB (items 1 and 6 in Illumination and User Interface Boards Connections).
10. Properly route all cables on the cable carrier.

NOTE: After replacing the illumination board, calibrate the device.

Replacing the Weight Guard

Weight Guard is an optional off-platter detection system. An IR emitter/receiver pair on each side of the MP72 tower views a retroreflector at the far end of the platter and triggers an alert when an item being weighed blocks the signal.

Figure 11 Weight Guard Assembly

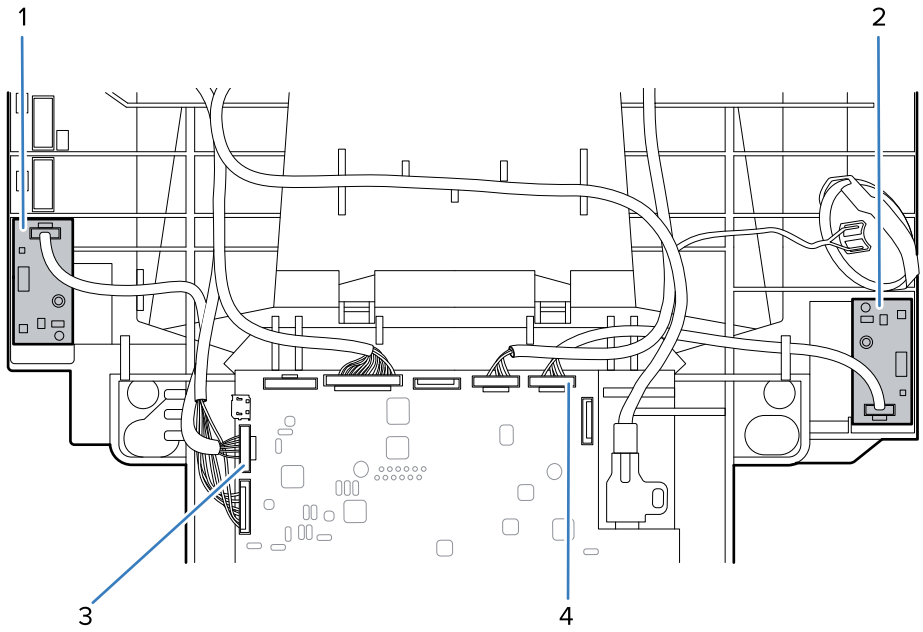
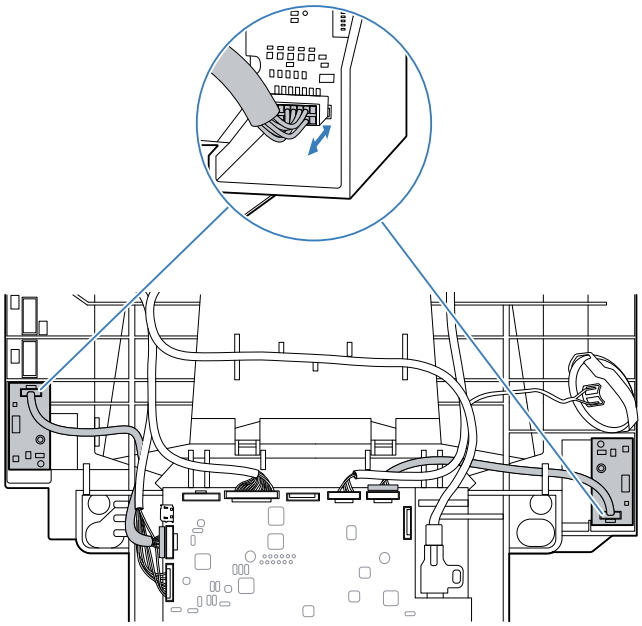


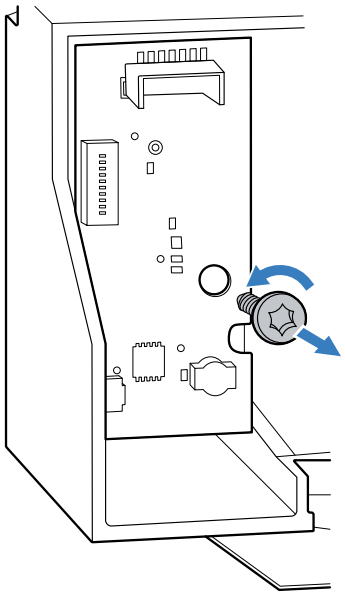
Table 5 Weight Guard Components

Item	Description
1	Left Weight Guard board
2	Right Weight Guard board
3	Left Weight Guard board connector on main PCB
4	Right Weight Guard board connector on main PCB

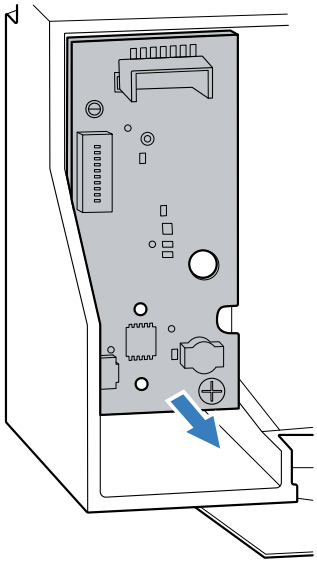
1. Press the locking tab and carefully remove the connectors from the left and right Weight Guard boards.



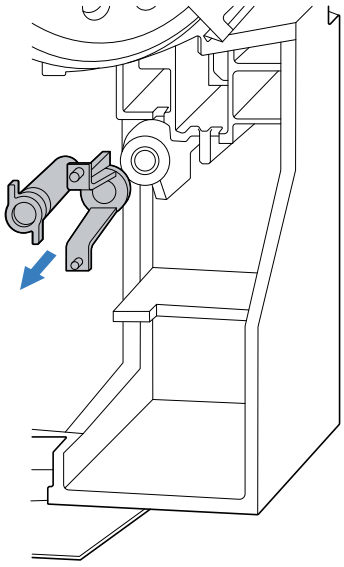
2. Remove the T8 screw on each board.



3. Carefully remove each board.



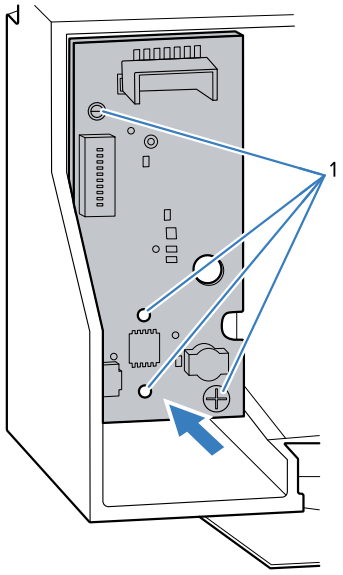
4. In the left and right Weight Guard compartments, remove the lens and the user LED lightpipe.



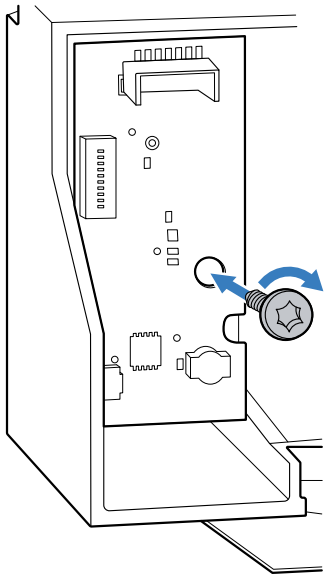
5. Insert a new lens and lightpipe in the respective sub-compartments in each board compartment.

6. Place the new Weight Guard boards in the left and right compartments, using the alignment pins (1) in each for proper placement.

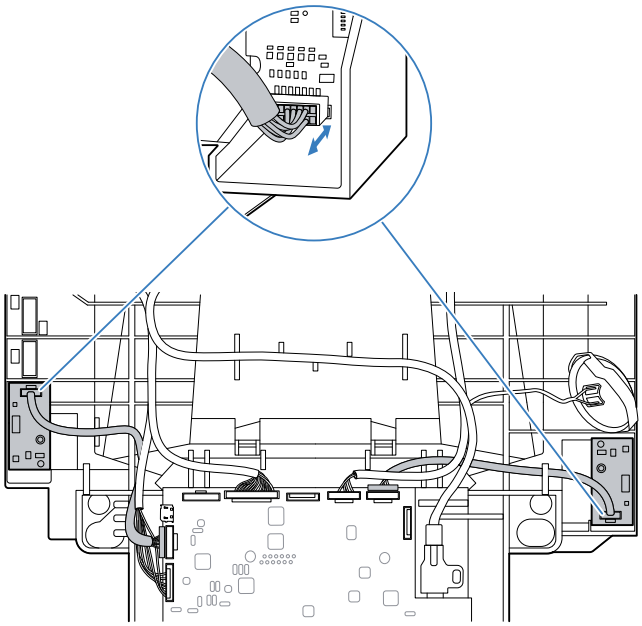
NOTE: There is one Weight Guard PCB part (part number) used in both left and right compartments.



7. Insert the T8 screw in each board using 0.56 Nm +/- 0.03 (5 in-lb +/- 0.25) torque to secure the board over the lens and lightpipe.



8. Insert the connector in each board, and route the cables through the appropriate retaining channels.



Cleaning the Weight Guard

Periodically clean the Weight Guard system surfaces to ensure optimal functionality.

Several factors can impact Weight Guard performance after continued use.

- Dirt, scratches, or other substances on the transmit/receive window on either side of the tower
- Dirt or other substances on the platter surface
- Dirt, scratches, or other substances on the retroreflector inlays on either side of the far edge of the platter
- Damaged or peeling retroreflector inlays

Clean the Weight Guard as follows during regular cleaning of the MP7200 scanner, as well as when a Weight Guard warning or error code displays on the 7-segment display.

1. Wipe all Weight Guard surfaces with a damp cloth or Zebra approved cleaning agent. This includes transmit/receive windows, platter surface, and retroreflector inlays.
2. Wait two minutes while the system surfaces dry completely. If the warning or error codes clear, no further action is required.
3. If the warning or error codes persist, attempt a field calibration using the scale **0** button on the touch UI panel. Also perform a field calibration after replacing any parts of the Weight Guard system.
4. If field calibration fails (U39), check all Weight Guard surfaces for damage. A Weight Guard field calibration may compensate for minor damage. More significant damage, such as deep scratches to transmit receive windows, peeling or missing retroreflectors, or hard to remove substances require additional service to restore performance.

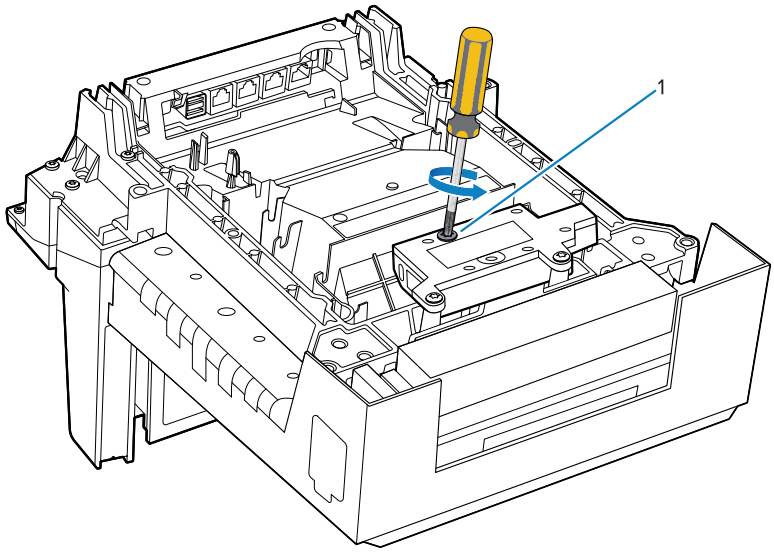
NOTE: Wait a minimum of two minutes after cleaning to allow liquid cleaning agents to completely evaporate. Weight Guard function is not reliable when system surfaces are wet or damp.

Replacing MP72 EDGE

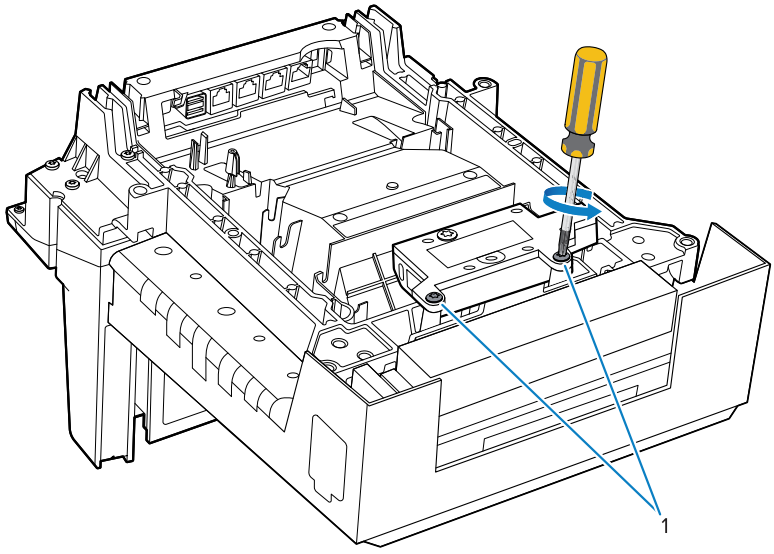
The following sections describe removing and installing the MP72 EDGE.

Removing the MP72 EDGE

1. Ensure all cords are unplugged from the unit.
2. Using a T15 screwdriver, loosen the self-tapping screw (1).



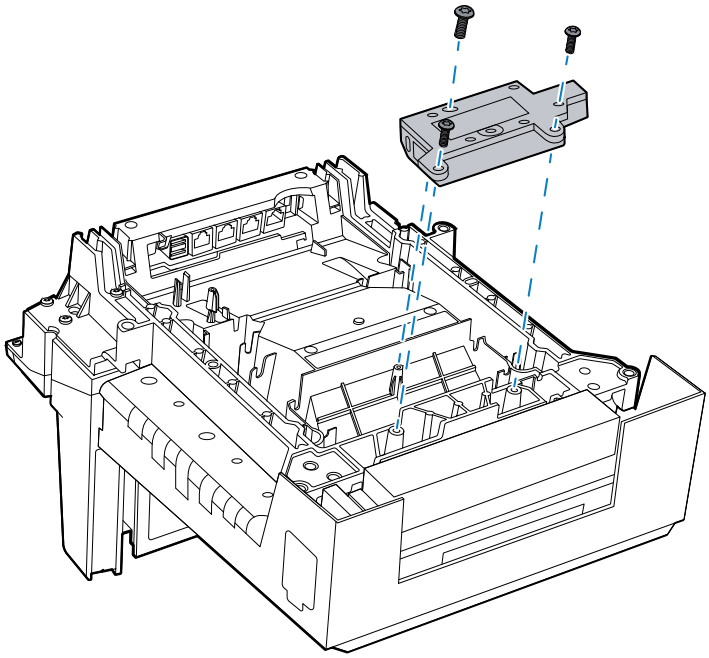
3. Using a T20 screwdriver, loosen the two machined screws (1).



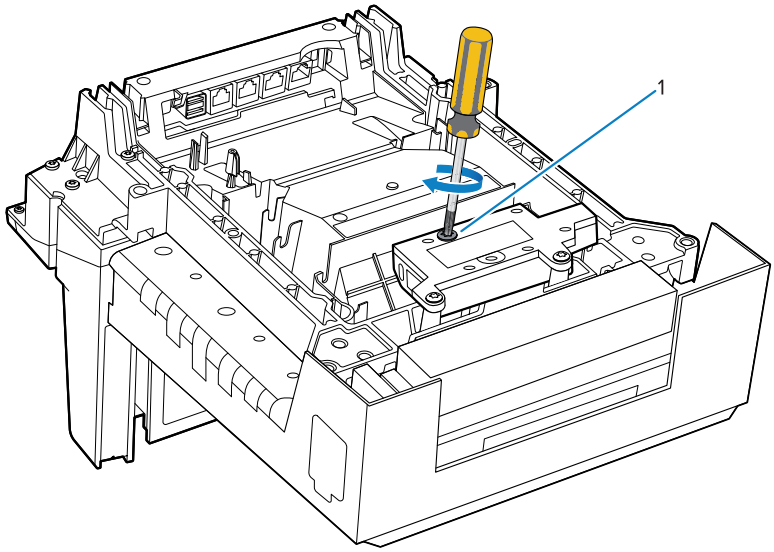
4. Gently lift the unit from where it was mounted.

Installing the MP72 EDGE

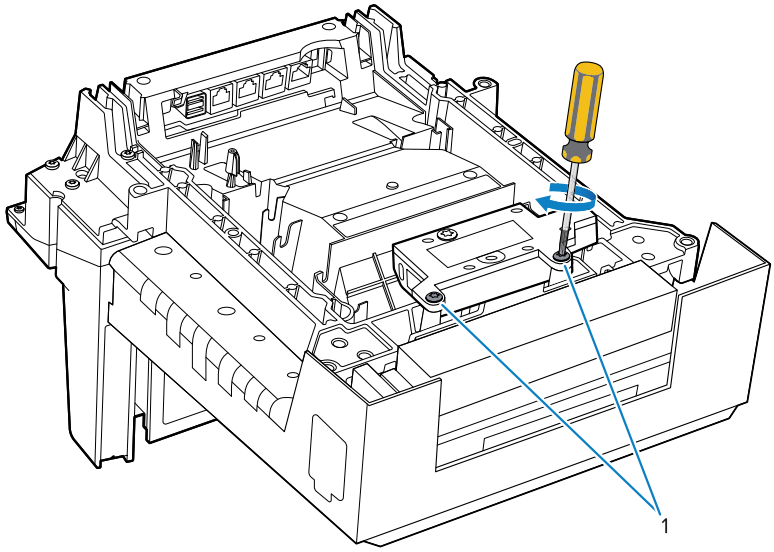
1. Set the new unit into place.



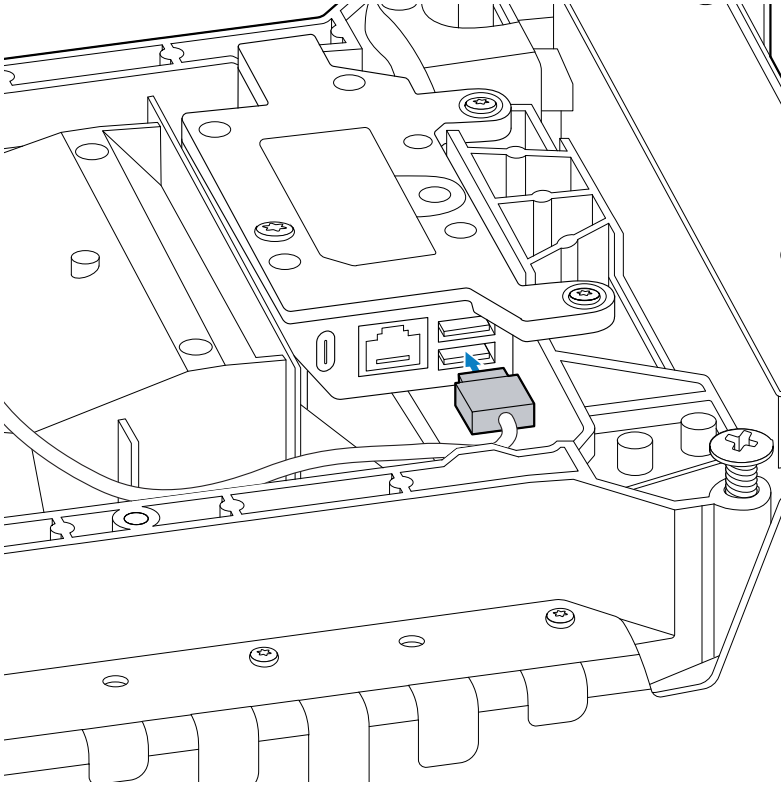
2. Using a T15 screwdriver, tighten the self-tapping screw (1) to a torque of 15 inch-pounds, ensuring the torque is within a range of 14.75 to 15.25 inch-pounds for proper installation.



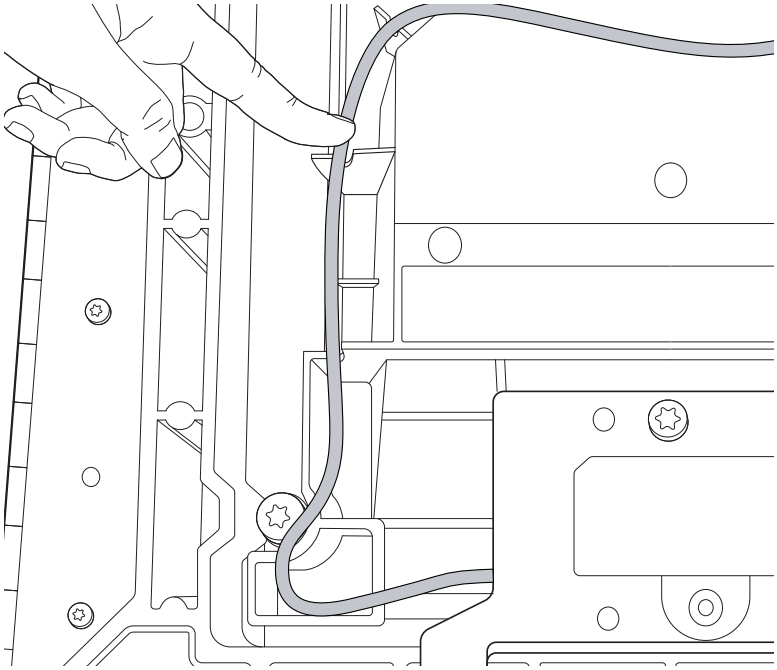
3. Using a T20 screwdriver, tighten the two machined screws (1) to a torque of 12 inch-pounds, ensuring the torque is within a range of 11.75 to 12.25 inch-pounds for proper installation.



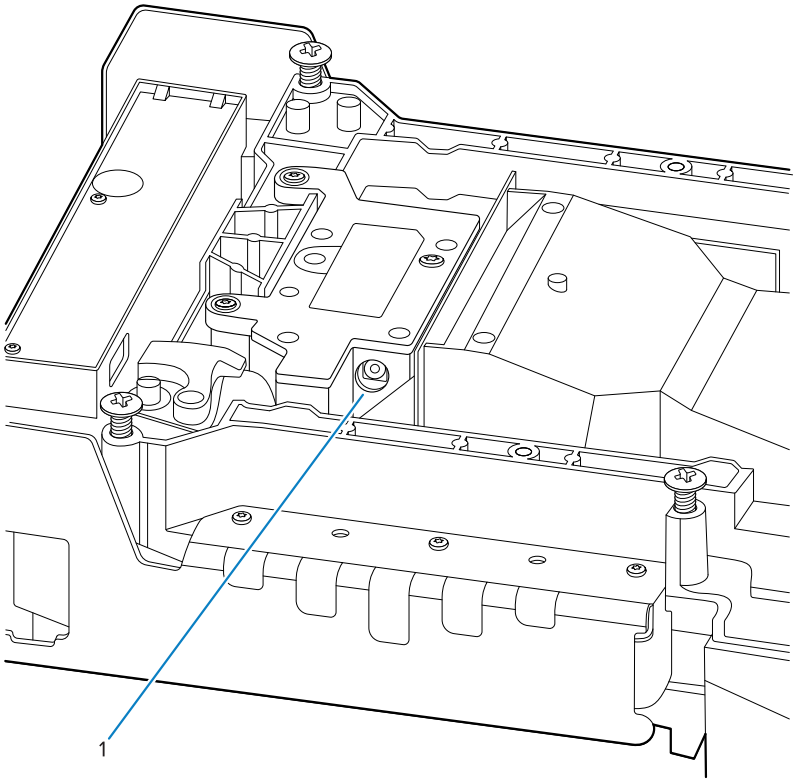
4. Connect the color camera cable to the unit.



NOTE: Ensure you secure the wire when connecting it to the MP72 EDGE.

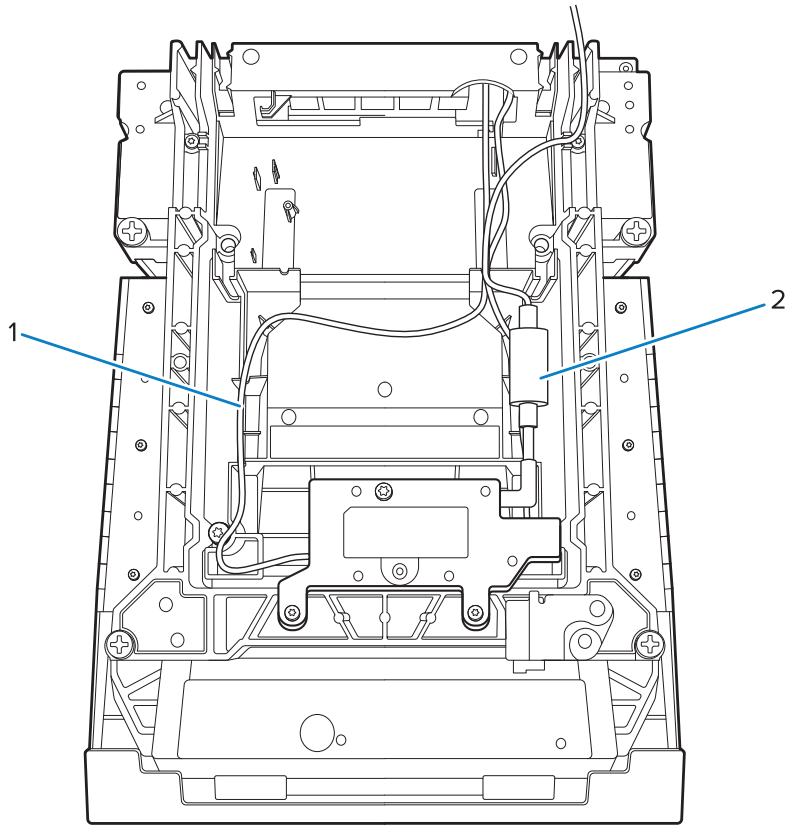


5. Connect a power cable to the unit.



Item	Description
1	12V Power Cable Input

6. Ensure your cable routing is sufficient.



Item	Description
1	Color Camera Cable
2	Power Supply Cable

Replacing the Main PCB Board

The main PCB board housed in the cable carrier includes an optics system consisting of six illumination LEDs and a camera imaging system that includes one camera module.

CAUTION: When handling any electronic assembly, adhere to proper ESD grounding practices.

The main PCB includes the following accessible connectors (ports J1-J8).

Figure 12 Main PCB Board

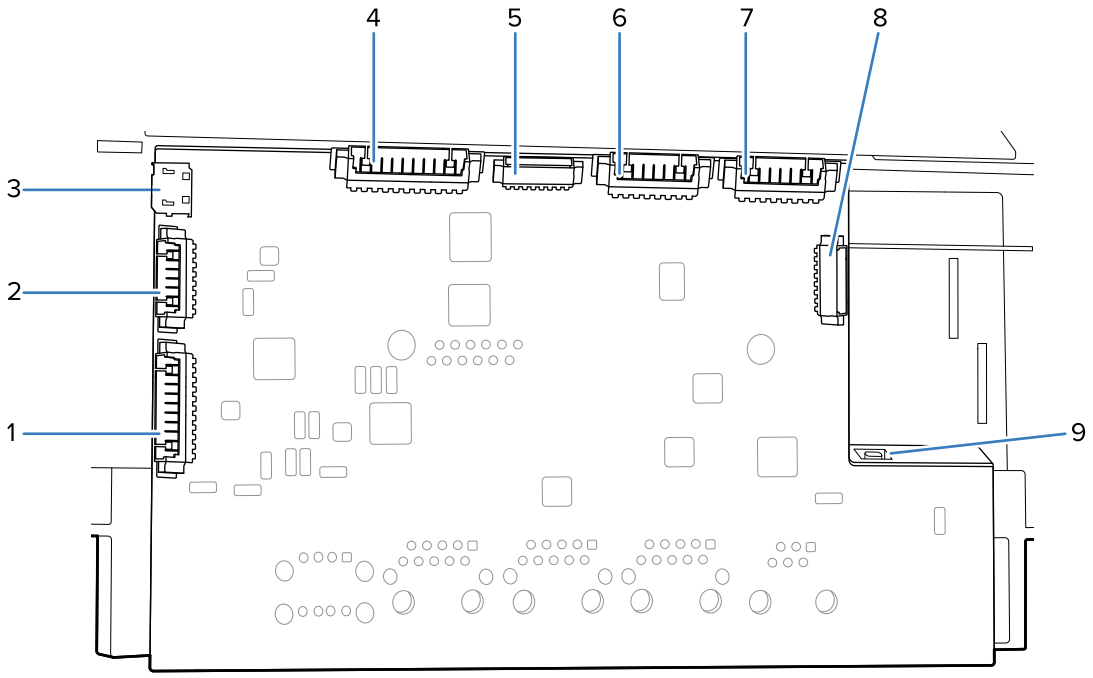
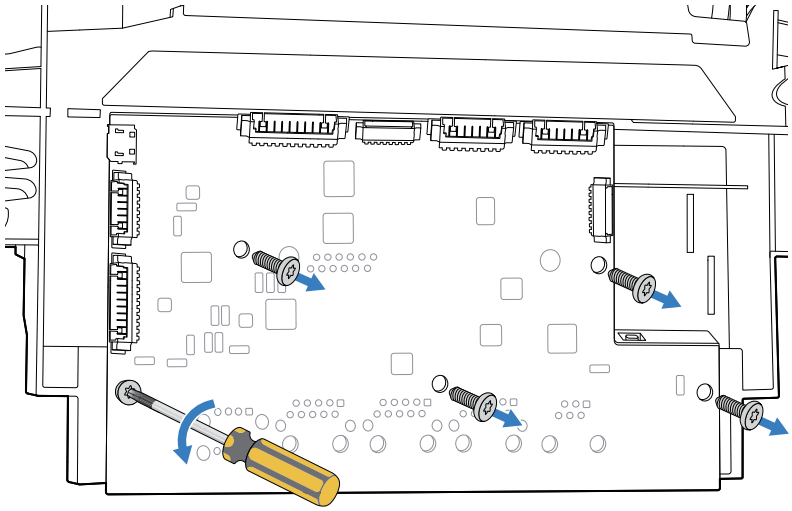


Table 6 Main PCB Internal Connectors

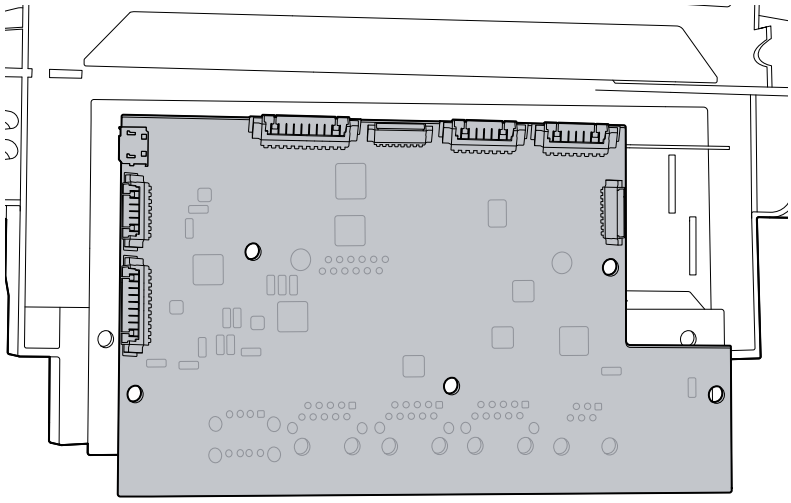
Item	Description
1	Left illumination and UI board
2	Weight Guard (left)
3	External (user) USB
4	Color camera illumination
5	Debug connector (not populated on production boards)
6	Right illumination and speaker
7	Weight Guard (right)
8	Debug connector (not populated on production boards)
9	Color camera

1. Disconnect all cables.

2. Unscrew the five T8 screws securing the board to the housing.



3. Carefully remove the board from the housing.



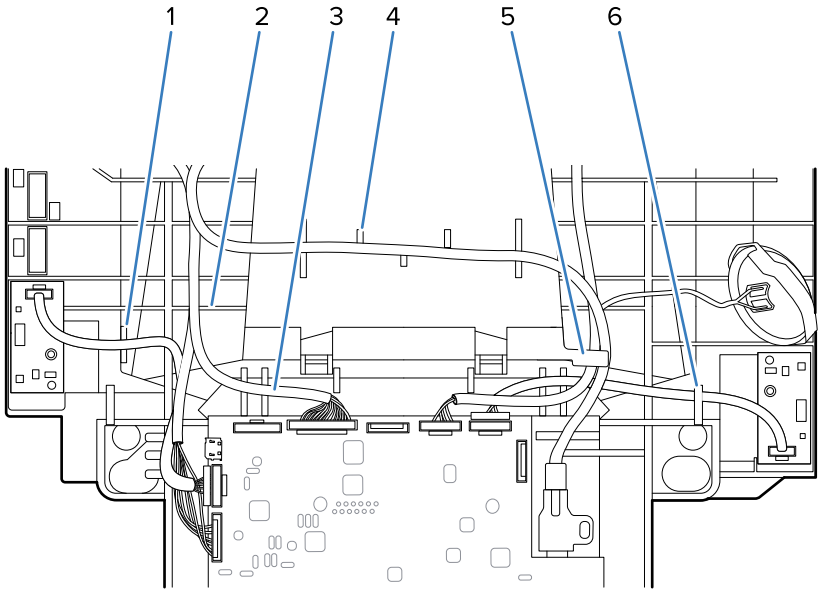
4. Insert the new board into the carrier housing.
5. Secure the board to the housing with the five screws provided, using 0.56 Nm +/- 0.03 (5 in-lb +/- 0.25) torque.

NOTE: After replacing the main PCB board, install the cable carrier, calibrate the device, and then scan the appropriate configuration barcode to re-configure the device for the new board.

Installing the Cable Carrier

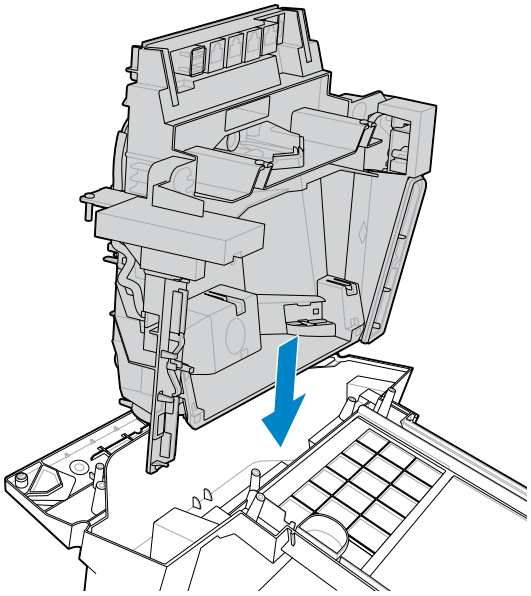
After installing the main PCB, route and connect the appropriate cables and insert the cable carrier into the upper housing.

1. Route the right and left illumination cable harnesses and the camera illumination harness from the main PCB to the appropriate components through the proper channels as shown below.

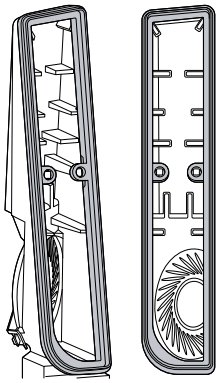


Item	Description
1	Left Weight Guard routing guide
2	Left illumination harness routing channel
3	Color camera and white illumination cable
4	USB cable (camera) routing guides
5	Right illumination harness routing channel
6	Right Weight Guard routing guide

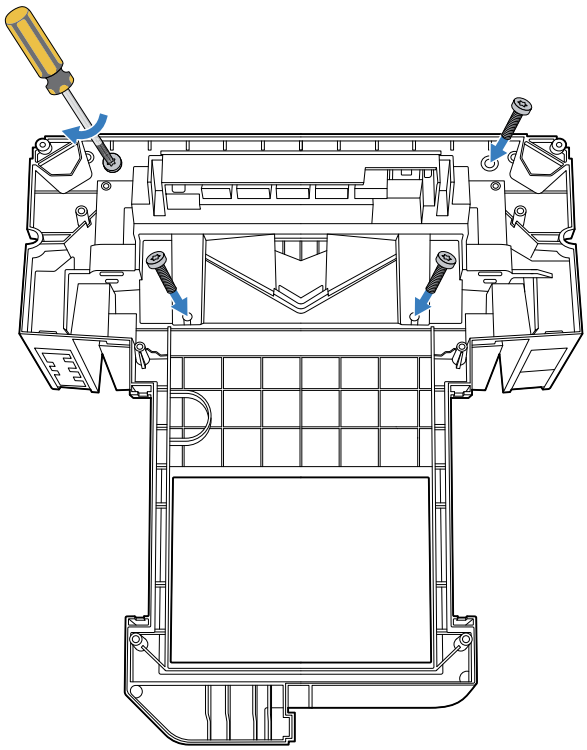
2. Insert the carrier into the upper housing.



NOTE: Verify the speaker seal gasket is properly installed on the cable carrier and it stays in place during carrier insertion into the upper housing.



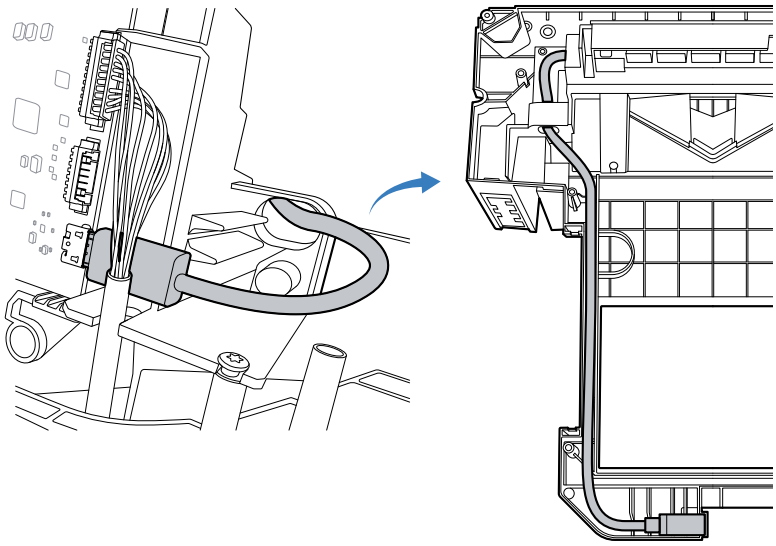
3. Insert the four T8 screws using 0.56 Nm +/- 0.03 (5 in-lb +/- 0.25) torque, securing the carrier to the upper housing.



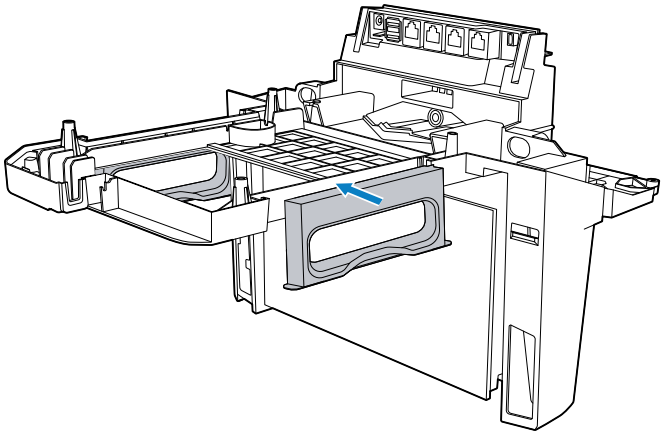
Installing the Lower Housing

Install the MP72 lower housing after inserting the carrier.

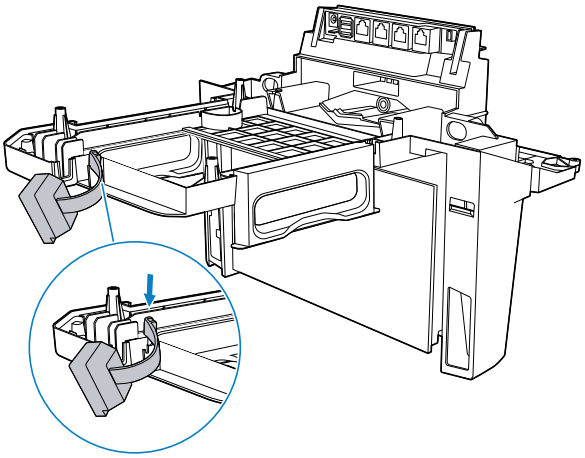
1. Route the external (user) USB cable through the channel and connect to the main PCB, underneath the left illumination / UI board wire harness.
2. Route the USB cable through the long channel in the upper housing, fitting the external connector into its compartment so it is user-accessible.



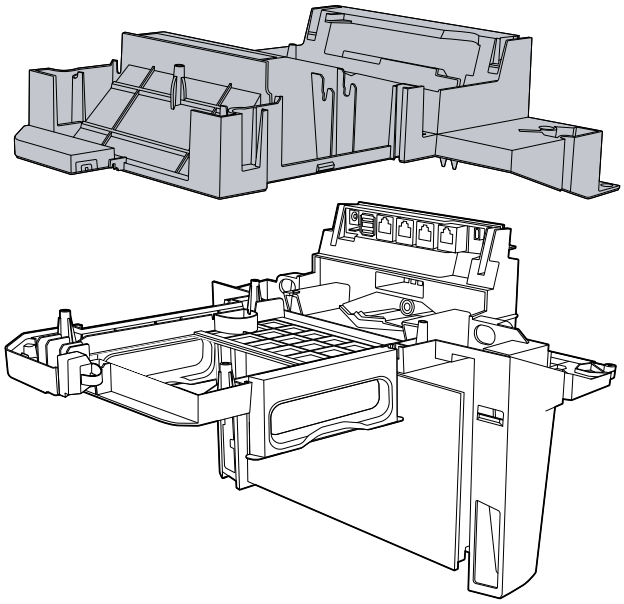
3. Install the handles on the upper housing.



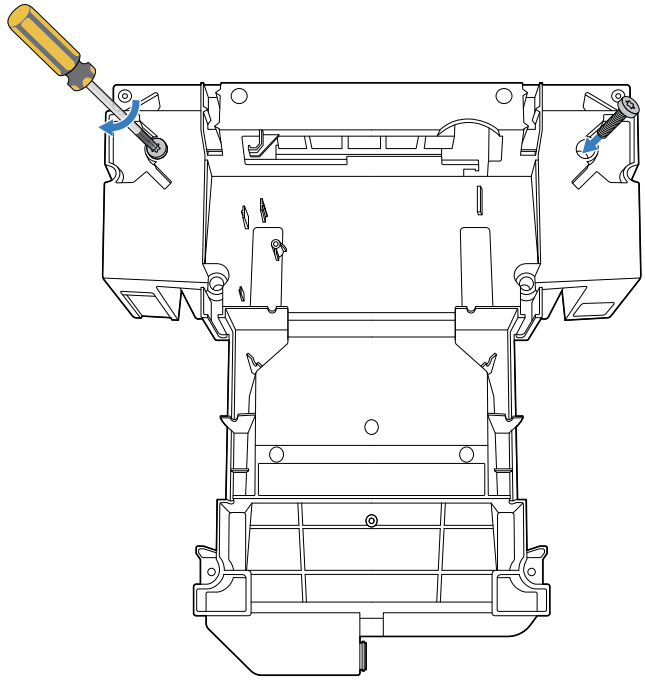
4. Insert the USB boot belt into the notch on the housing.



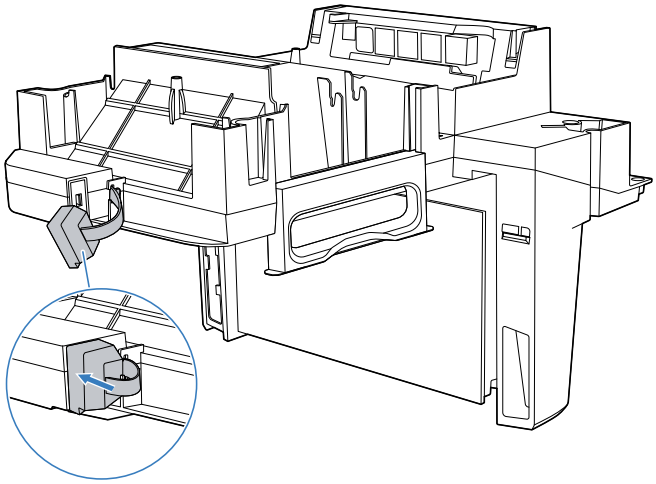
5. Place the lower housing on the MP72.



6. Insert the two PH #1 screws using 1.69 Nm +/- 0.03 (15 in-lb +/- 0.25) torque to secure the lower housing to the upper housing.



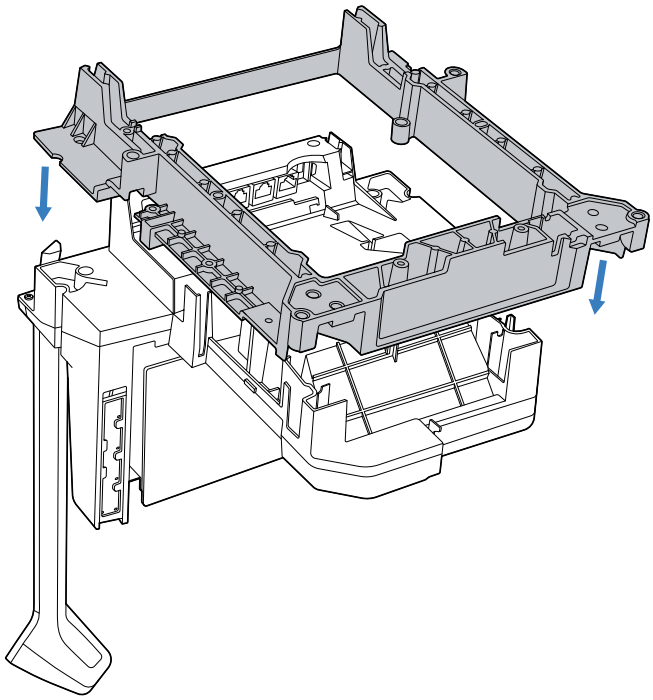
7. Place the USB boot over the USB port.



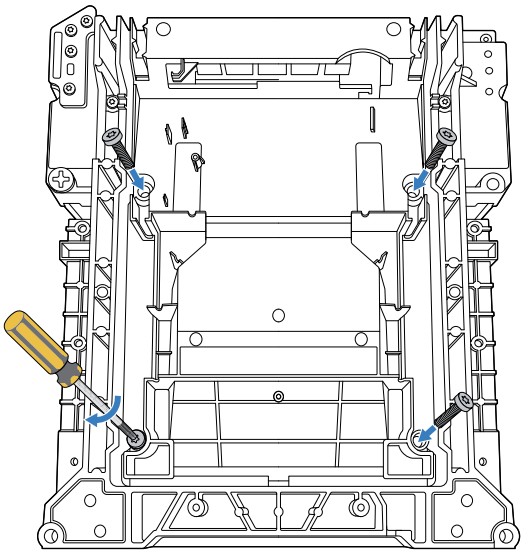
Installing the Housing Frame

This section describes how to install the housing frame.

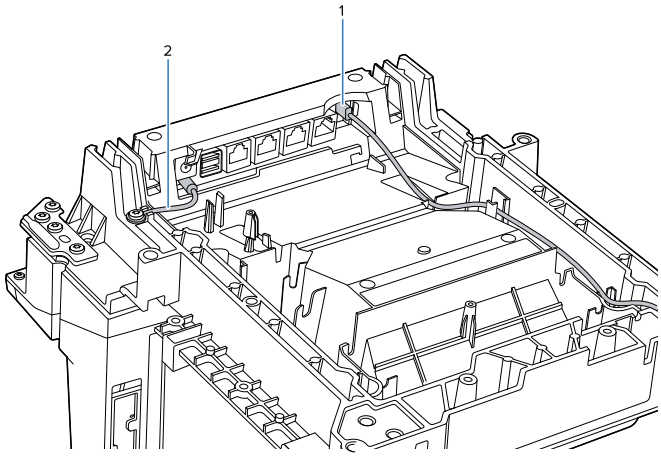
1. With the MP72 upside-down, lower the frame onto the plastic housing, aligning the guide holes in the frame with the frame guides on the housing.



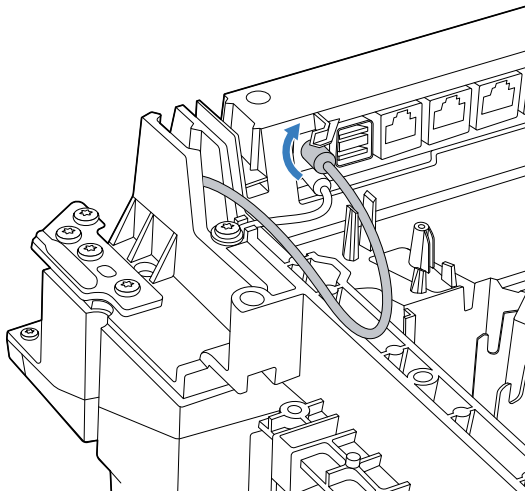
2. Insert the four PH #1 screws to secure the frame to the housing using 1.69 Nm +/- 0.03 (15 in-lb +/- 0.25) torque.



3. Connect the scale cable (1) and grounding strap (2). Dress the scale cable into the cable routing feature, ensuring it is routed under the hook.



4. Connect the power cable by inserting and rotating it clockwise. Route the cable through the proper channels.

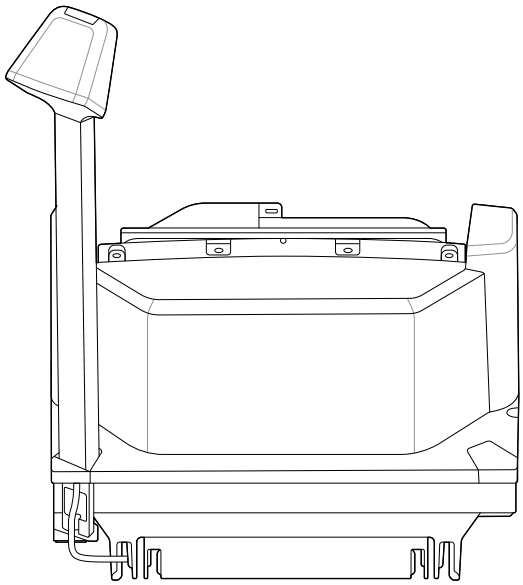


5. Carefully turn the MP72 rightside-up and install the platter.

Customer Facing Scanner

The Customer Facing Scanner (CFS) is an optional integrated device that supports scanning barcodes, coupons, and loyalty cards from customers' mobile phones and paper.

Figure 13 Customer Facing Scanner



Installing the Customer Facing Scanner

Mount the CFS on either side of the MP72 and connect it to the USB-A port on the main PCB on the bottom of the MP72.

NOTE: The CFS kit (MX72-SR000WW) includes left and right brackets. Choose the bracket according to the CFS mounting side.

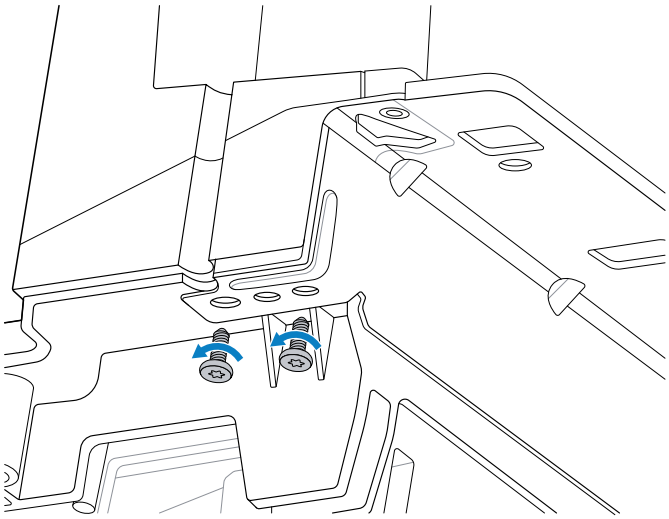
Installing the CFS Bracket

CFS bracket holes align with corresponding openings on the MP72 flange for the long configuration, or on the MP72 lower housing for the short and medium (flangeless) configurations.

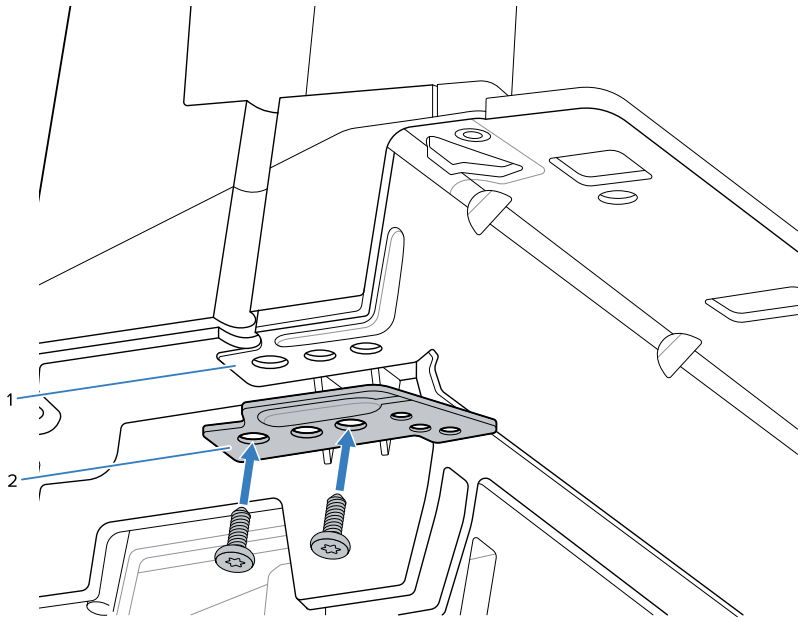
Long (Flanged) Configuration

This section describes how to install the CFS bracket on the long MP72 configuration.

1. Remove the two T20 screws from the MP72 flange.



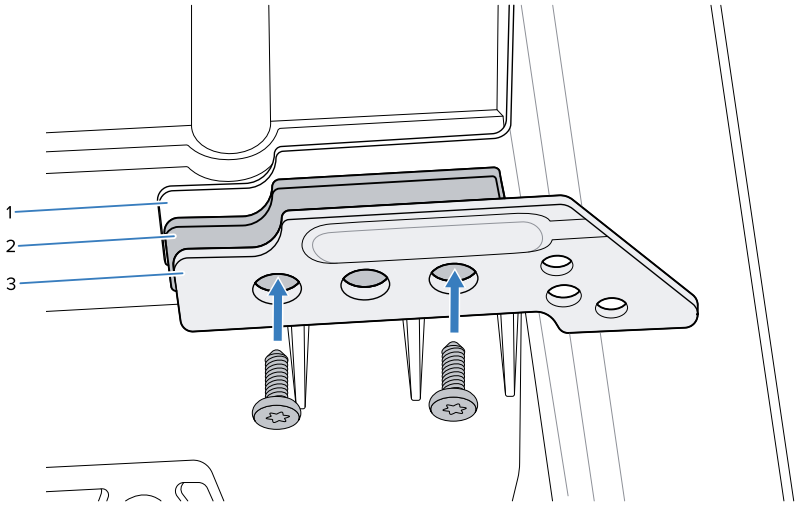
2. Secure the CFS bracket (2) to the flange (1) using the two T20 flange screws. Torque screws to 1.36 Nm +/- 0.03 (12 in-lb +/- 0.25).



Short or Medium (Flangeless) Configuration

This section describes how to install the CFS bracket on the short or medium (flangeless) MP72 configuration.

Place the spacer (2) between the CFS bracket (3) and MP72 chassis (1), and secure using the two screws provided with the CFS. Torque to 1.36 Nm +/- 0.03 (12 in-lb +/- 0.25).

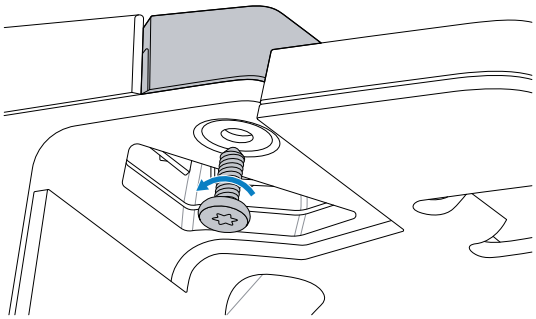


Replacing the Filler Cap

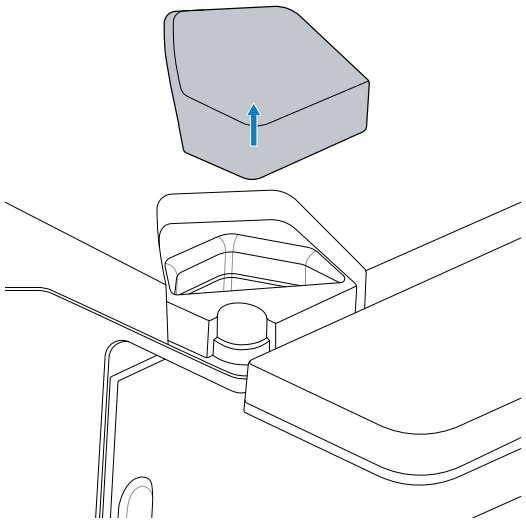
After installing the CFS bracket, replace the MP72 filler cap with the CFS filler cap.

NOTE: The CFS kit includes left and right filler caps. Select the correct one according to the CFS mounting side, as shown in Step 3.

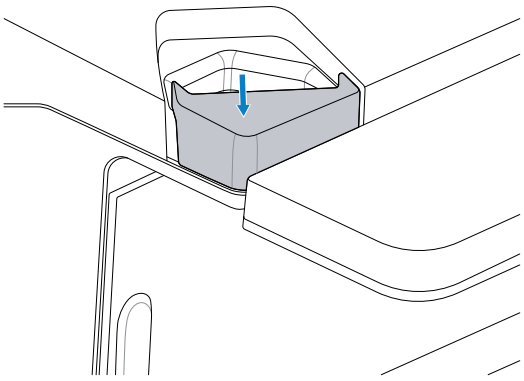
1. Remove the MP72 filler cap T7 mounting screw.



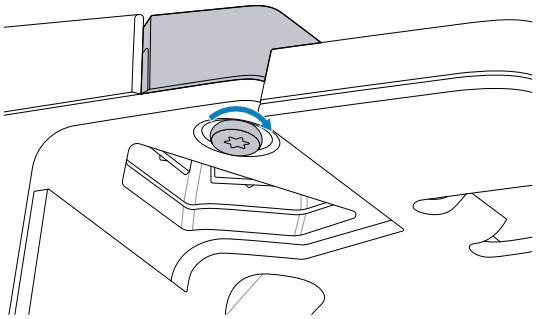
2. Remove the MP72 filler cap.



3. Insert the CFS filler cap and hold in place.



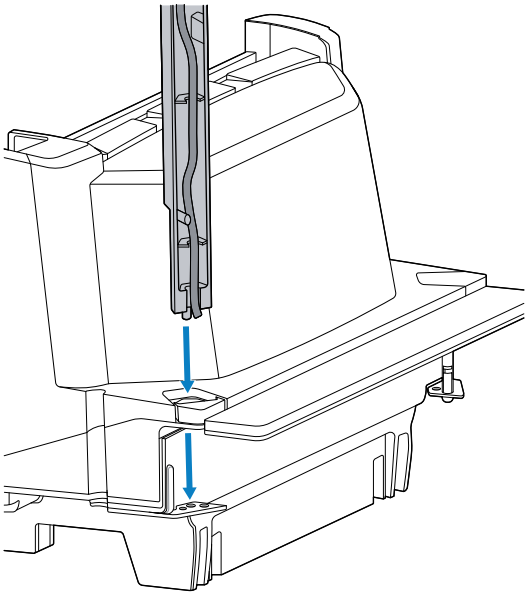
4. Install the filler cap T7 screw and tighten using 0.23 Nm +/- 0.03 (2 in-lb +/- 0.25) torque until the filler cap is fully seated.



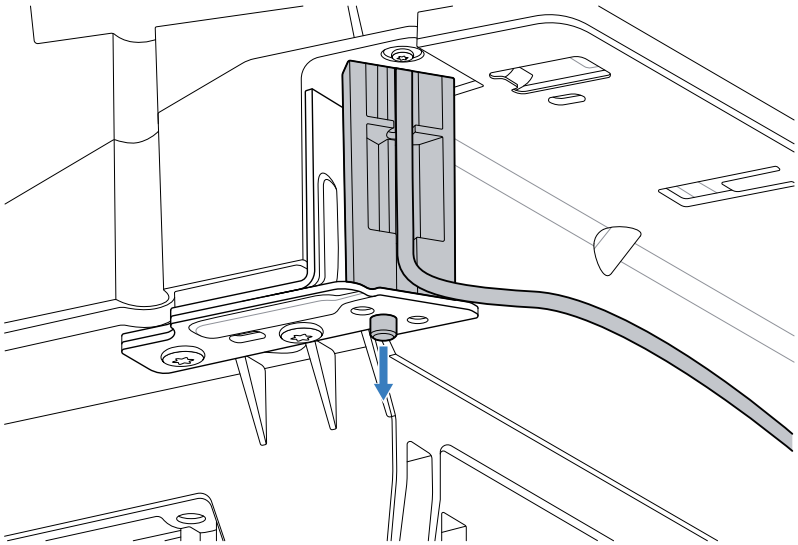
Installing the CFS Pole and Cable

This section describes how to install the CFS pole and USB cable.

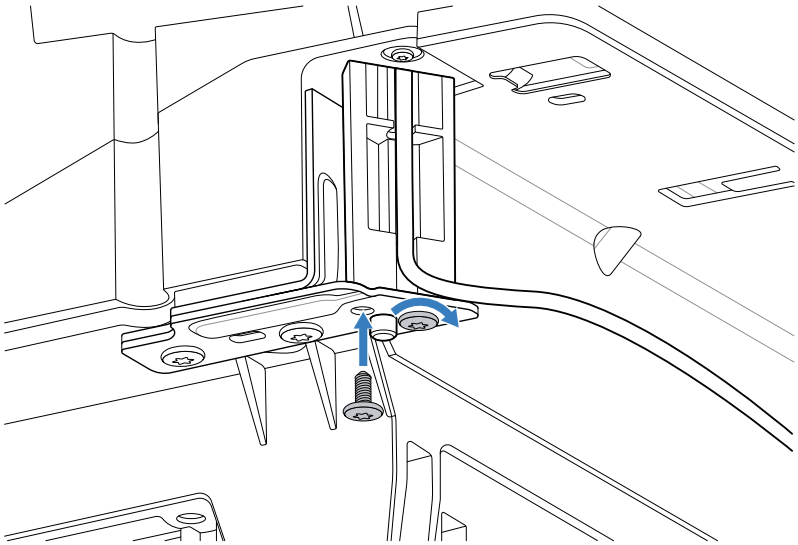
1. Route the USB cable from the CFS through the opening in the MP72, ensuring the cable is vertical in the pole slot.



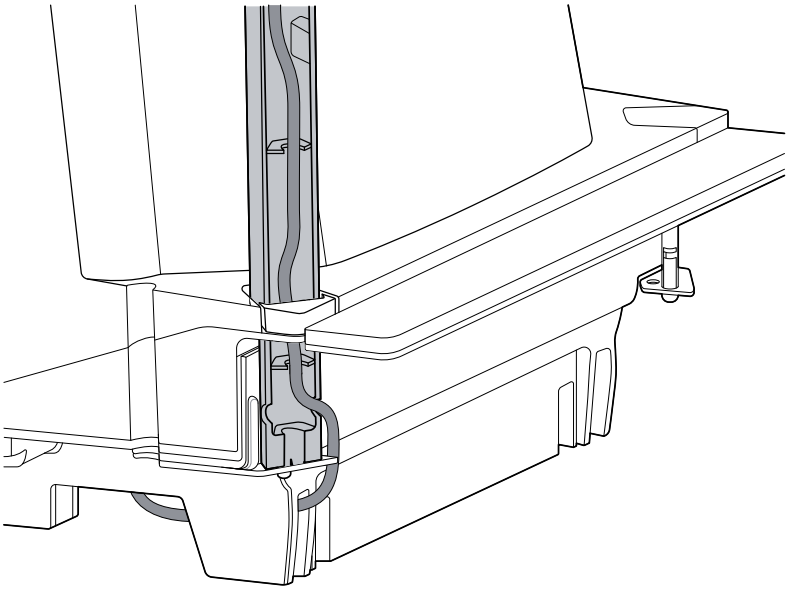
2. Guide the CFS pole so the alignment pin on the pole enters the mating hole on the bracket.



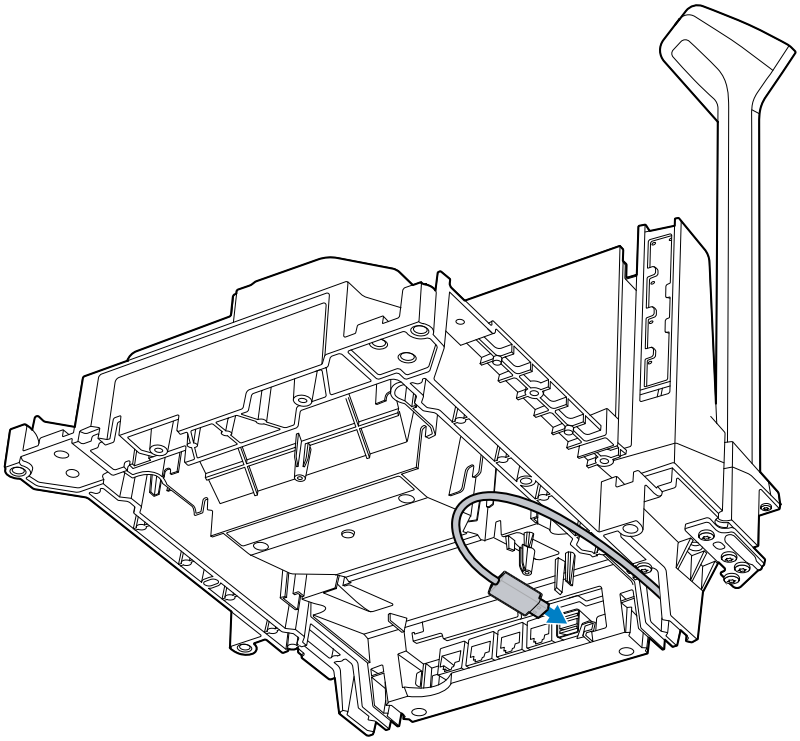
3. Attach the two T20 screws to mount the CFS pole to the bracket, and torque to 1.36 Nm +/- 0.03 (12 in-lb +/- 0.25).



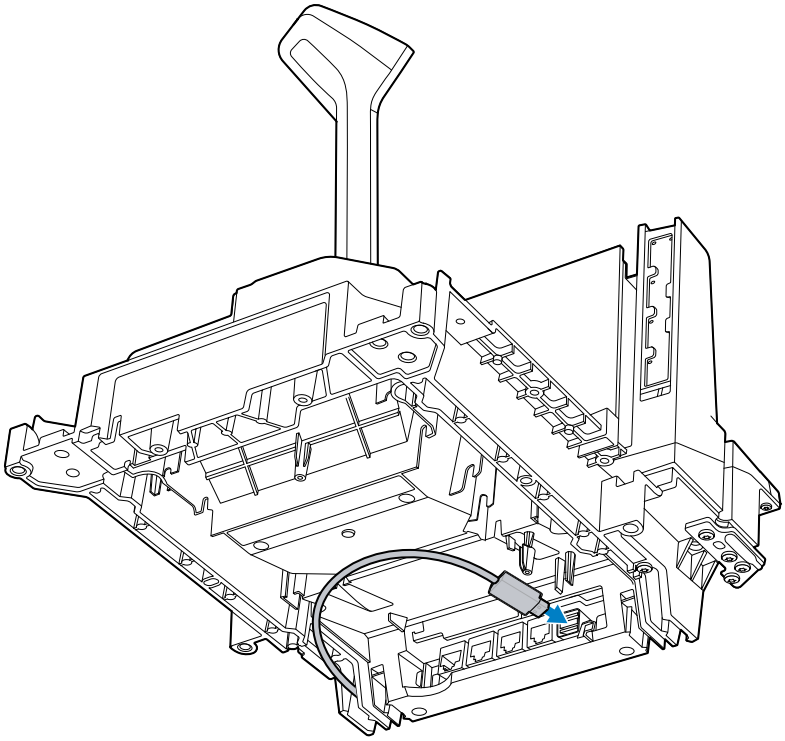
4. Route the USB cable towards the MP72, through an open guiding slot in the CFS mount, pulling the cable taught when routing so it remains in the CFS pole slot after installation.



5. Connect the USB cable to an open USB port.



NOTE: If the CFS is mounted on the opposite side of the MP72, the USB cable routes from the other direction.



Field Calibration

After replacing the main PCB board or an illumination board, calibrate the MP72. This procedure requires two pieces of white paper, such as standard copy paper, to use as targets, large enough to cover the horizontal and vertical windows.

Calibrating the MP72

Calibrate the MP72 after installing a new PCB board or illumination board(s).

1. Re-assemble and power up the device.
2. Scan the STIFIELDCAL barcode.

CAUTION: Only scan this barcode if you are prepared to complete the calibration procedure.

STIFIELDCAL

The MP72 beeps once per second for 10 seconds to indicate it is in calibration mode.

3. While the MP72 is beeping, place the paper targets over both the vertical and horizontal windows.

When the MP72 stops beeping it starts internal calibration, which can take up to 30 seconds (typically less) to complete, during which the device clicks periodically.

Calibration Results

Calibration passes only if all portions of the calibration were successful.

Pass (Successful Calibration)

Upon successful calibration, the MP72 sounds a continuous good beep (low-high, low-high, low-high) and stores all new calibration values.

Remove the paper targets, and cycle power or press the Scale key to exit.

Fail (Unsuccessful Calibration)

If calibration fails, the MP72 sounds an error beep (four low beeps) continuously until power cycle, and does not change calibration parameter values.

Remove the paper targets, and cycle power or press the Scale key to exit, and perform the following checks:

- Ensure that the white paper targets fully cover both the vertical and horizontal windows.
- If the white paper targets appear dirty or crumpled, replace with new targets.
- Check all cable connections.
- Ensure the device and all components are properly installed. Refer to the Integrator Guide.
- Replace the main PCB board.

Configuration Barcodes

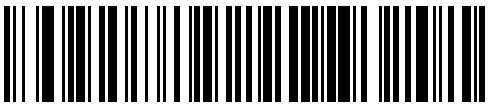
After replacing the main PCB board, use the configuration barcodes in this section to configure the device for the new component.

After installing the main PCB, re-assemble and power up the MP72. Calibrate the MP72 as described in Field Calibration, and then scan the configuration barcode that matches the MP72 model number. A single beep indicates success. The device updates the internal electronic model number, re-programs scale settings, and then reboots. The MP72 is then ready for operation.

After performing this procedure, the electronic model number is partially discarded. For example, MP7200-LND0L000WW reports as MP7200**********. This is intended.

MP7200 - No Scale

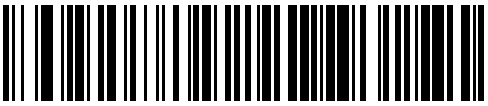
Scan this barcode for MP72 configurations with no scale.



MP7200 - No Scale

MP7201 With Single Interval Scale

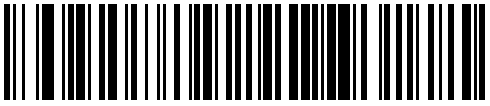
Scan this barcode for MP72 configurations with a single interval scale.



MP7201 - Single Interval Scale

MP7202 With Dual Interval Scale

Scan this barcode for MP72 configurations with a dual interval scale.



MP7202 - Dual Interval Scale

MP7203 With Single Interval Scale With Calibration Switch

Scan this barcode for MP72 configurations with a single interval scale with a calibration switch.

MP7203 - Single Interval Scale With Calibration Switch

MP7204 With Dual Interval Scale With Calibration Switch

Scan this barcode for MP72 configurations with a dual interval scale with a calibration switch.

MP7204 - Dual Interval Scale With Calibration Switch

Diagnostic LEDs and Error Codes

The MP72 includes a one-character LED 7-segment display inside the scanner vertical window. This display provides status and troubleshooting information, as well as scale legal parameters during calibration (for configurations with a scale).

Status, warning, and error information are communicated via letter(s) and number(s) scrolled one character at a time in the display. When a message completes, the display pauses for two seconds, then repeats the sequence continuously.

LED Display Notes

Following is helpful information regarding the LED 7-segment display.

- - (dash) indicates normal operating mode.
- Scale calibration information has precedence over warning messages but not over errors.
- Scrolling **CAL** (number of calibrations performed) and **PAR** (legal parameter) values and **Scale Firmware Version** (x.xxF) display for scale verification (electronic “seal”).
- **Cxxx**, **Pxxx**, and**x.xxF** scroll when you hold the Scale Zero button for three or more seconds.
- An error message displays when a fault condition exists. A power cycle is required. Verify the subsystems and auxiliary devices are operational. See General Error and Warning Codes.
- A warning message displays when a warning condition exists. The power sequence pauses until the issue is resolved. See General Error and Warning Codes.

User Feedback Light Indicator

The MP72 user feedback light indicator communicates device status.

- Green: Operating normally
- Blinking red: warning
- Solid red: error

General Error and Warning Codes

This section describes error and warning codes shown on the 7-segment display.

Table 7 LED 7-Segment Display Error and Warning Codes

LED Display Code	Error/Warning Indication
Errors (E)	
E28	Digital Audio Playback failure
Warnings (U)	
U9	Image Sensor Warning (either)
U16	Sensormatic EAS Offline warning
U17	Host Protocol warning
U27	User Interface (button interface) failure
U31	The Sensormatic control box has an internal high voltage fault. Turn off the control box (EAS tags will not be detected or deactivated).

Scale Warning Codes

The following warning codes appear in the 7-segment display.

Table 8 Scale Warning Codes

Warning Code	Warning Type	Description
U12	Scale Failed to Zero on Scale Zero Button Press	The scale failed to find a zero-weight reference when the Scale Zero button was pressed. The scale zeros if the weight on the platter is within +/- 2% of maximum weight measurement capacity and stable (no motion on the platter). The zeroing weight limit (0.6 lb / 0.3 kg by default) is configurable via the Maximum Scale Zeroing Weight Limit parameter in the MP72 Scanner Scale Barcode Programming Guide. If the operation fails, press the Scale Zero button to clear it.

Table 8 Scale Warning Codes (Continued)

Warning Code	Warning Type	Description
U13	Scale Outside of Zero Drift Threshold	The zero reference drifted beyond 80% of the initial zero setting range of -5% to +15% (-0.9 lb to +3.9 lb / -0.4 kg to +1.9 kg) maximum weight measurement capacity, relative to the zero weight reference found at a no-load legal scale calibration. This indicates the scale will soon require re-calibration. It can possibly be cleared by scanning the Scale Reset parameter barcode, re-powering the scale, or leaving the scale on from a cold power start for more than 10 minutes. If this persists, re-calibrate the scale. **NOTE:** This fault code occurs if a weight greater than 4.5 lb or 2.25 kg is left on the weighing surface while the scale starts from a reset or cold power start. Remove the weight to clear this. **NOTE:** The fault code occurs if the scale resets or upon a cold reset of the MP72 system and the platter is not installed. Install the platter to clear this. **NOTE:** Lowering the Initial Zero Setting maximum weight measurement capacity range of +15% (to as low as +2%) using the **Maximum Initial Zero Setting Range** parameter in the MP72 Scanner Scale Barcode Programming Guide also lowers the maximum Zero Drift warning range respectively, and may lead to more frequent nuisance U13 warnings, which can only be cleared by rebooting the MP72 system. If the U13 warning persists, raise the maximum **Maximum Initial Zero Setting Range**. If the U13 warning persists after reboot and this range is set to the default +15%, then it is not a nuisance annunciation and the scale requires re-calibration.

Table 8 Scale Warning Codes (Continued)

Warning Code	Warning Type	Description
U14	Scale is Out of Calibration	The scale must be legally calibrated before it is operational. There are three possible reasons for this warning: • The scale can no longer find a zero weight reference at power up after a weight is removed from the platter during normal operation or when pressing the Scale Zero button. **NOTE:** The scale software does not remove the scale from calibration under these conditions if it was already legally calibrated. This is an obvious condition for troubleshooting. The Scale Display does not show a 0 (zero) reading from power-up or after pressing the Scale Zero button with no load on the platter. • A new scale was installed in the MP72. • A new MP72 shipped from the factory to an installation that requires calibration at the place of scale use.
U15	Scale Offline	An internal error in the MP72 scanner scale. In most cases, a Scale Communication Error U22 is reported before this error.
U22	Scale Communication Error	Communication failed between the MP72 scanner PCB and the scale device for one of three reasons: • Circuitry on the MP72 scanner PCB failed. • The internal cable between the scanner PCB and scale device is faulty. • Internal circuitry on the scale device is faulty.
U23	Scale Display Communication Error	Communication failed between the MP72 PCB and the Scale Display for one of three reasons: • The Scale Display configuration parameter is enabled, and no Scale Display is connected to the MP72 scanner/scale. Refer to the MP72 Scanner Scale Barcode Programming Guide for scale parameters. • Display circuitry on the MP72 PCB failed. • The Scale Display cable between the MP72 PCB and the Scale Display is faulty, or the internal circuitry of the Scale Display is faulty. The Scale Display and cable are a single Line Replaceable Assembly (FRU*). **NOTE:** In most applications, p/n MX201-SR00004ZZWW can be ordered as a replacement.

Table 8 Scale Warning Codes (Continued)

Warning Code	Warning Type	Description
U24	Scale Motion Fault	The scale detects constant motion on the weighing surface for an extended time. This latched fault requires powering off the MP72, fixing the problem, and powering on the MP72. There are one of three reasons for this fault: • The scale was improperly installed or is mechanically bent or damaged where it cannot achieve a stable weight condition. • The scale or the platter is pressed against a fixed object, inhibiting its free motion. • Debris is lodged under one or more of the over-travel stop screws. **NOTE:** If this occurs, the recommendation in most cases is to remove and re-seat the scale. Replace the scale if the condition persists.

Weight Guard Warning Codes

The following warning codes appear in the 7-segment display.

Table 9 Weight Guard Warning Codes

Warning Code	Warning Type	Description
U34	Weight Guard calibration warning (speaker side)	System degradation is not severe. Examine the system and/or clean the platter. Perform re-calibration if the warning persists after system cleaning.
U35	Weight Guard calibration error (speaker side)	Weight Guard (button side) red LED blinks to indicate that system degradation is severe. Examine the system and/or clean the platter. Perform re-calibration if the error persists after system cleaning. The off-platter detection feature is disabled while in this state.
U36	Field calibration failure (speaker side)	Re-calibration attempt failed upon a zero button press.
U37	Weight Guard calibration warning (button side)	System degradation is not severe. Examine the system and/or clean the platter. Perform re-calibration if the warning persists after system cleaning.
U38	Weight Guard calibration error (button side)	Weight Guard (speaker side) red LED blinks to indicate system degradation is severe. Examine the system and/or clean the platter. Perform re-calibration if the error persists after system cleaning. The off-platter detection feature is disabled while in this state.
U39	Field calibration failure (button side)	Re-calibration attempt failed upon a zero button press.

Table 9 Weight Guard Warning Codes (Continued)

Warning Code	Warning Type	Description
U40	Communication to Weight Guard failed (speaker side)	Communication to speaker-side Weight Guard failed. Check the cable connection to the side board.
U41	Communication to Weight Guard failed (button side)	Communication to button-side Weight Guard failed. Check the cable connection to the side board.

Troubleshooting

This section describes how to diagnose and correct errors in MP72 operation.

Investigating Error Codes

If the MP72 LED displays a code preceded with an E, it does not operate properly until the error is resolved. For LED display codes preceded with a U the MP72 continues to operate with possible performance degradation.

For any warning or error code, review basic hardware installation and software configuration before replacing any hardware components. It is often possible to restore device function by following these steps:

1. Remove power from the MP72, POS equipment, and any auxiliary devices (hand-held scanners/ cradles).
2. Inspect external cables including POS, auxiliary hand-held devices, and optional pole display (scale configurations only) for proper seating in their respective connectors.
3. For scale configurations, remove the platter and confirm the scale communication cable is fully seated within the connector in the scale. If necessary remove the MP72 from the counter-top and ensure the scale communication cable is completely seated within its connector on the main PCB. See Replacing the Scale.

NOTE: In some locations, removing the scale from the checkstand requires recalibration and verification of the scale configuration by a certified technician by law.

4. Remove the platter/bezel assembly. See Platter Replacement.
5. Inspect internal cables.
   a) Remove the housing frame and the lower housing.
   b) Disconnect the external (user) USB cable from the main PCB and remove it from the channel.
   c) Remove the cable carrier and inspect all connectors to the main PCB, speaker, illumination and user interface boards, color camera and camera illumination boards (if present), and ensure they are completely seated within their respective connectors.
6. For devices with the optional Customer Facing Scanner (CFS) ensure the USB cable within the MP72 housing is routed down the side of the device and fully inserted into the side USB port.
7. Install the cable carrier and replace the lower housing and housing frame.
8. Replace the platter on the MP72.

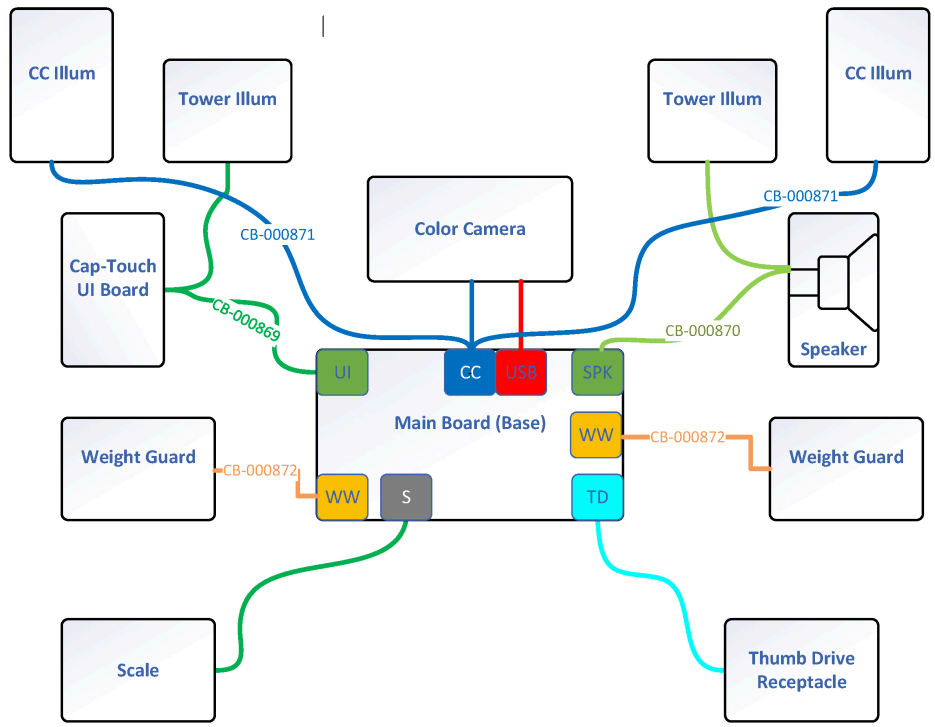
9. Remove any objects from the platter or near the MP72 and re-apply power to the device and attached equipment (POS, hand-held scanner).
10. Wait for the device to boot, and listen for start-up audio indicators.
11. If the LED display codes persist, replace the faulty components or the entire device.

Diagnosing Failure Mode

This section provides information to assist in diagnosing issues associated with LED error codes, such as identifying problem areas (PCB, cables) and corrective actions.

The following diagram illustrates MP72 components, cabling, and interconnectivity.

Figure 14 MP72 Component Wiring Diagram



The following table lists the primary (likely) source of a hardware fault and a potential secondary source for each error code. It also identifies related interconnecting cables. Before replacing a PCB or hardware assembly, inspect the interconnecting cable and verify it is properly seated. If a cable assembly is not identified (problem is local to only a PCB) replace the PCB and retest the device.

Table 10 Possible LED Error Code Sources

LED Error Code	Circuitry Location (primary/secondary)	Cable (Y/N)
E27	UI Board/Main PCB	Y (Qty 1)
U1	Main PCB (more info from SW needed)	TBD
U9-U11	Main PCB	N
U16	Main PCB (verify EAS cable attached)	Y (external)
U17	Main PCB (verify Host configuration/POS cable)	Y (external)

Table 10 Possible LED Error Code Sources (Continued)

LED Error Code	Circuitry Location (primary/secondary)	Cable (Y/N)
U29	Main PCB (verify EAS cable attached)	Y (external)

Functional Test

After repairing an MP72, perform this functional test before final installation and configuration to confirm the device is properly re-assembled and operating correctly.

This procedure does not verify auxiliary devices (hand-held scanners, scale, or optional pole display) or Point-of-Sale (POS) operation. Additional procedures are required to configure and verify installation of such customer equipment.

This test verifies that electrical components such as printed circuit boards (main, left and right illumination, touch UI, LED) and internal cable assemblies are properly replaced and that basic operation is restored. This test assumes a DC power cube accessory (PWRS-14000-148R) is used as the device power source.

Equipment Preparation

Before running the functional test, perform the following:

- Ensure all external cables (including DC power) are disconnected from the device.
- Ensure all PCBs are replaced and secured with the required mounting hardware.
- Visually inspect all cable assemblies to verify proper seating of connectors.
- Verify that the main PCB carrier is replaced and fully secured with the required screws.
- Ensure the lower housing and housing frame are seated properly.
- Plug the DC power cord into the device (with the line cord removed; do not apply power).
- Place the device on a flat level surface or into the check-stand mounting hole.
- Place the platter on the device.
- Plug the IEC line cord into the DC power cube and plug into an appropriate outlet (115V or 230V) to power up the device.

Initial Status

If operating properly, the MP72 issues a three tone boot-up sequence, the LEDs show a single central green light, and the seven segment display shows " - " indicating there are no current system errors or faults.

The middle Volume/Tone control button is highlighted green on the front panel. If an optional scale is present, the Scale Zero is also highlighted green.

User Interface Tests

The following tests verify operation of various user interface components. Before performing the tests:

- If the device includes a scale, ensure the **Legal Scale Dampening Filter** parameter in the Barcode Programming Guide is set to the default **Very Low Vibration Sensitivity**.
- If the device includes a pole display, enable the **Scale Pole Display Configuration** option in the Barcode Programming Guide.

Volume and Tone

The following tests verify the functionality of the Volume/Tone control button on the MP72 front panel.

- Press and release the Volume/Tone control button. Verify that short presses and releases alter the volume.
- Press and hold the Volume/Tone control button to cycle through available decode tones.

Scanning

Use a 100% UPC barcode target (an in-spec barcode mounted on a 3" x 3" white piece of card stock) to test each of the illumination and imaging fields of view (FOVs) for wake-up and decode capability.

For each FOV, a successful decode is indicated by a decode beep, and the indicator LEDs flash the full length of the tower and then return to the center, indicating scanner readiness.

Figure 15 Sample UPC-A Barcode

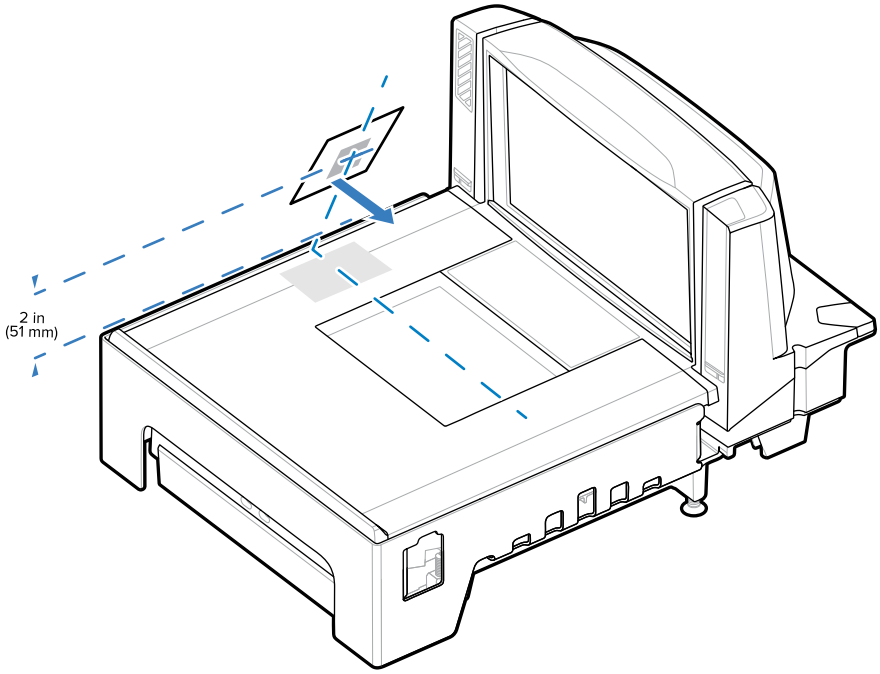
Horizontal Window

Perform the following to test horizontal scan window functionality.

- **Left Side** - hold the target barcode facing the right side of the scanner tilted downward about 20-30° toward the horizontal platter window. Approach the horizontal window (moving the target toward the right along the center line of the horizontal window as illustrated below) with the center of the barcode approximately two inches above the platter. If operating properly, illumination turns on and the scanner decodes before the target exits the area above the platter glass.
- **Right Side** - hold the target barcode facing the left side of the scanner tilted downward about 20-30° toward the horizontal platter window. Approach the horizontal window (moving the target toward the left along the center line of the horizontal window as illustrated below) with the barcode approximately

two inches above the platter. If operating properly, illumination turns on and the scanner decodes before the target exits the area above the platter glass.

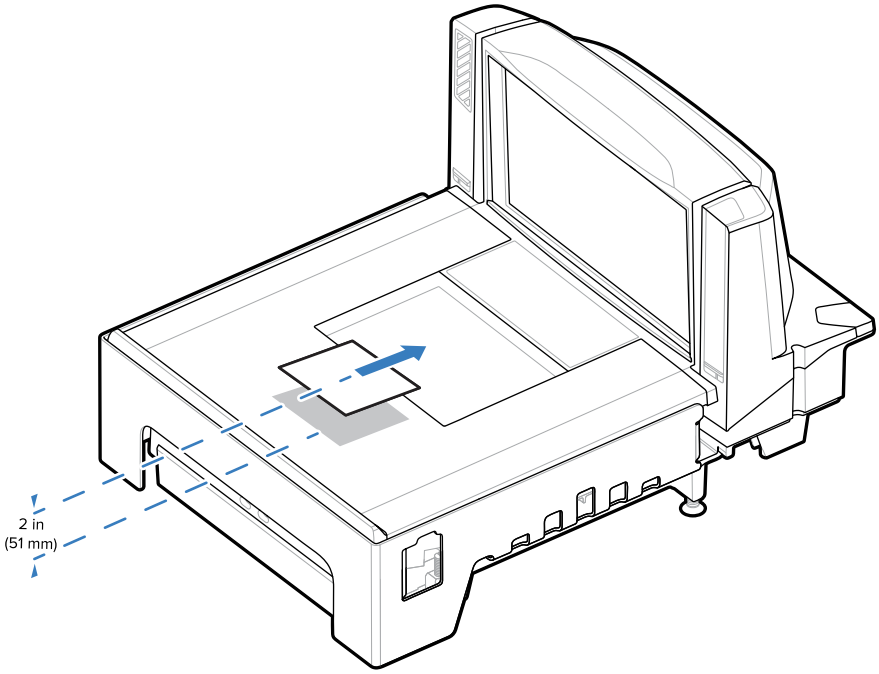
Figure 16 Horizontal Window Test - Left/Right Side



- **Center** - hold the target barcode facing down approximately one inch above the end of the platter, with bars front-to-back, parallel to the direction of motion of the barcode. Move the target barcode toward

the tower along the center line of the horizontal window (as illustrated below). The scanner decodes when the barcode is over the platter glass.

Figure 17 Horizontal Window Test - Center



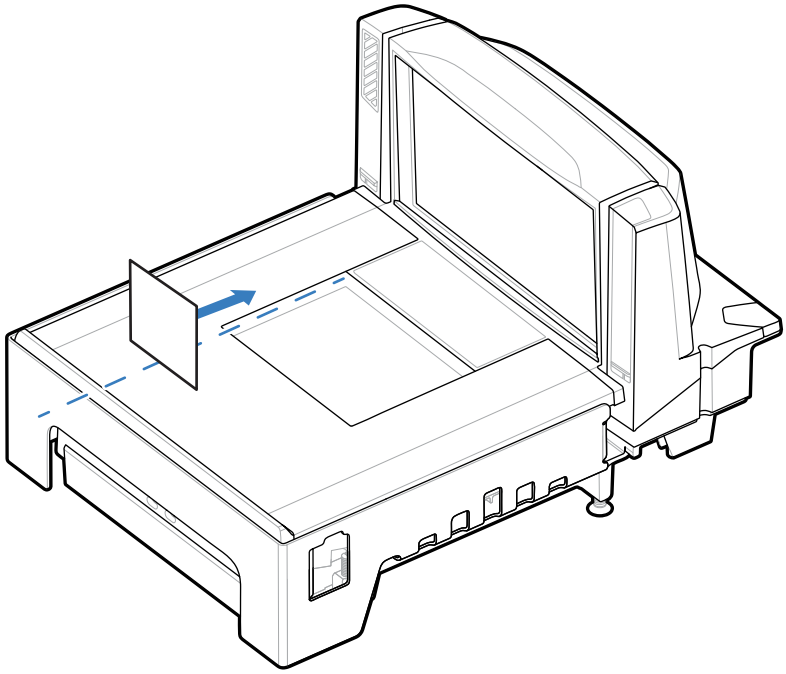
Vertical Window

Perform the following to test vertical scan window functionality.

- **Left Side** - hold the target barcode facing the vertical window near the end of the horizontal platter, with bars perpendicular to the platter. Slide along the left side of the horizontal window toward the vertical window. If operating properly, illumination turns on and the scanner decodes as the target approaches the vertical window.
- **Right Side** - hold the target barcode facing the vertical window near the end of the horizontal platter, with bars perpendicular to the platter. Slide along the right side of the horizontal window toward

the vertical window. If operating properly, illumination turns on and the scanner decodes as the target approaches the vertical window.

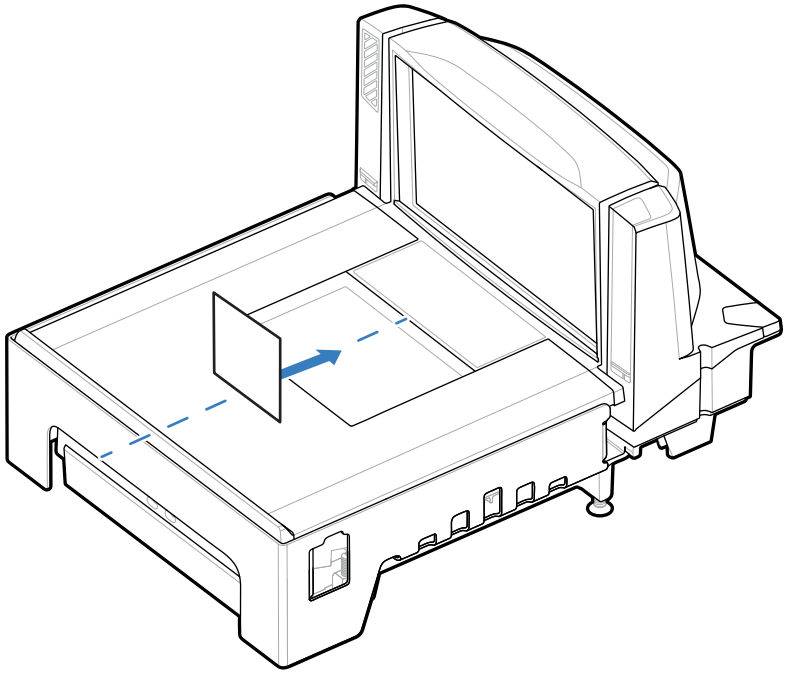
Figure 18 Vertical Window Test - Left/Right Side



- **Center** - hold the target barcode facing the vertical window near the end of the horizontal platter, with bars perpendicular to the platter. Slide toward the vertical window along the center line of the horizontal

window. If operating properly, illumination turns on and the scanner decodes as the target approaches the vertical window.

Figure 19 Vertical Window Test - Center



Connector Pinouts

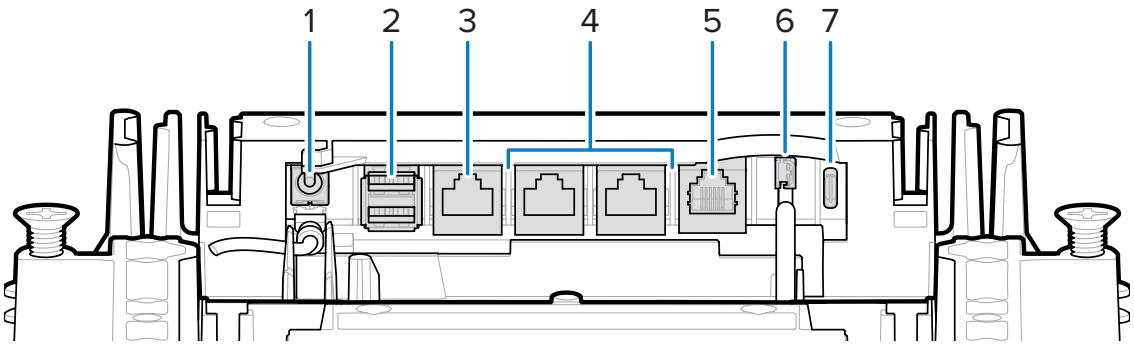
The following tables provide signal information for MP72 interfaces.

NOTE: Signal direction refers to the direction relative to the MP72 main PCB.

MP72 Connectors

This section identifies MP72 ports.

Figure 20 Connector Ports



Item	Port	Description
1	12V DC (J1)	External power input. 12V / 3.33A (not required if powered from terminal). **NOTE:** If a power supply plug is inserted in the J1 connector with no voltage to the power supply, the scanner scale will not power up.
2	AUX A-B (J3)	Dual (stacked) USB 2.0 full speed ports for auxiliary USB scanners, CFS, or mass storage device **NOTE:** An additional USB port is available in the front under the platter. All USB ports can be used for the USB staging flash drive. See the Stacked USB Port table for more information.

Item	Port	Description
3	POS (J2)	RJ45 port connecting MP72 to Point of Sale (POS) equipment (IBM, PC) via USB
4	RS-232 AUX 1 (J18) / AUX 2 (J5)	Refer to the Integrator Guide for more information.
5	0.0 (J6)	Scale display
6	CKP I-LOCK (J4)	Checkpoint EAS interlock
7	USB type C (J17)	Color camera

Connector Pins

Refer to the tables in this section for MP72 port pin information.

12V DC (J1)

Table 11 12V DC Jack, 2.5 mm

Pin #	Signal/Name	Direction	Description
1	EXT 12V	In	Center pin: 12V DC (primary power)
2	GND	N/A	Barrel: signal ground

AUX A-B (Stacked USB) (J3)

NOTE: An additional USB port is available in the front under the platter. All USB ports can be used for the USB staging flash drive. See Connectors table and USB Staging Flash Drive for additional information.

Table 12 Stacked USB Port

Pin #	Signal/Name	Direction	Description
1	5V	Out	USB 5V output *
2	D-	Bidirectional	USB D-
3	D+	Bidirectional	USB D+
4	GND	N/A	Signal ground

NOTE: *The total combined current for the USB and RS-232 peripheral ports should be less than 750 mA total auxiliary current. Each individual port should not exceed 500 mA.

POS (J2)

Table 13 RJ-45, Primary POS

Pin #	Signal/Name	Direction	Description
1	DETECT	Out	USB cable detect output
2	5V	In	USB cable 5V detect input

Table 13 RJ-45, Primary POS (Continued)

Pin #	Signal/Name	Direction	Description
3	GND	N/A	Signal ground
4	TXD/IBM-A	Bidirectional	Multiplexed serial TXD/IBM-A
5	RXD/D+	Bidirectional	Multiplexed serial RXD/USB D+
6	RTS/IBM-B	Bidirectional	Multiplexed serial RTS/IBM-B
7	CTS/USB D-	Bidirectional	Multiplexed serial CTS/USB D
8	DOWNLOAD	In	POS download
9	N/C	N/A	No connection
10	12V	In	Terminal 12V DC to MP72 (power from terminal)*

NOTE: *Terminal systems vary in power capabilities. Ensure your system power supply can support MP72 configuration power requirements. If not, a 12V DC barrel jack is available for external power.

RS-232 AUX 1 (J18)

Table 14 RJ-45 Aux 1

Pin #	Signal/Name	DIrection	Description
1	N/C	N/A	No connection
2	5V	Out	RS-232 scanner 5V DC Supply*
3	GND	N/A	Signal ground
4	TXD	Out	Serial TXD (±5.4V)
5	RXD	In	Serial RXD (±5.4V)
6	RTS	Out	Serial RTS (±5.4V)
7	CTS	In	Serial CTS (±5.4V)
8	Scale LED	In	Price computational scale has returned to zero - reflected in UI Scale Status LED (if enabled). I/O signals are 5V TTL.
9	Scale Zero	Out	Zeros price computational scale when the Zero UI button is pressed (if enabled). I/O signals are 5V TTL.
10	12V/150 mA	Out	Power output for price computational scale.

RS-232 AUX 2 (J5)

Table 15 RJ-45 Aux 2

Pin #	Signal/Name	Direction	Description
1	N/C	N/A	No connection

Table 15 RJ-45 Aux 2 (Continued)

Pin #	Signal/Name	Direction	Description
2	5V	Out	RS-232 scanner 5V supply *
3	GND	N/A	Signal ground
4	TXD	Out	Serial TXD (±5.4V)
5	RXD	In	Serial RXD (±5.4V)
6	RTS	Out	Serial RTS (±5.4V)
7	CTS	In	Serial CTS (±5.4V)
8	N/C	N/A	No connection
9	N/C	N/A	No connection
10	N/C	N/A	No connection

NOTE: *The total combined current for the USB and RS-232 peripheral ports should be less than 750 mA total auxiliary current. Each individual port should not exceed 500 mA.

Scale Display Port (J6)

Table 16 RJ-11, Scale Display

Pin #	Signal/Name	Direction	Description
1	N/C	N/A	No connection
2	5V	Out	Auxiliary 5V output *
3	TXD	Out	Scale Display serial TX (3.3V TTL)
4	RXD	In	Scale Display serial RX (3.3V TTL)
5	GND	N/A	Signal ground
6	N/C	N/A	No connection

NOTE: *The total combined current for the USB and RS-232 peripheral ports should be less than 750 mA total auxiliary current. Each individual port should not exceed 500 mA.

Checkpoint Interlock (J4)

Table 17 EAS Interlock Connector

Pin #	Signal/Name	Direction	Description
1	Interlock	Out	Checkpoint EAS Interlock (5V 4 mA PNP collector out)
2	GND	N/A	Signal ground

USB Type C (J17)

Table 18 USB Type C for Color Camera Configurations

Pin #	Signal/Name	Direction	Description
A1	GND	N/A	Ground
A2	TX1+	In	SuperSpeed differential pair 1 TX, positive
A3	TX1-	In	SuperSpeed differential pair 1 TX, negative
A4	VBUS	N/A	Host indicator (no power consumed by MP72)
A5	CC1	N/A	Configuration channel
A6	D1+	In/Out	USB 2.0 differential pair, position 1, positive
A7	D1-	In/Out	USB 2.0 differential pair, position 1, negative
A8	N/C	N/A	
A9	VBUS	N/A	Host indicator (no power consumed by MP72)
A10	N/C	N/A	
A11	N/C	N/A	
A12	GND	N/A	Ground
B1	GND	N/A	Ground
B2	N/C	N/A	
B3	N/C	N/A	
B4	VBUS	N/A	Host indicator (no power consumed by MP72)
B5	N/C	N/A	
B6	D2+	In/Out	USB 2.0 differential pair, position 2, positive
B7	D2-	In/Out	USB 2.0 differential pair, position 2, negative
B8	N/C	N/A	
B9	VBUS	N/A	Host indicator (no power consumed by MP72)
B10	RX1-	Out	SuperSpeed differential pair 2 RX, negative
B11	RX1+	Out	SuperSpeed differential pair 2 RX, positive
B12	GND	N/A	Ground

NOTE: The USB type-C interface on the MP72 is proprietary and does not support flipped orientation. Use only the following Zebra USB-C color camera cables for the MP72: CBL-CC0025 (2.5M), CBL-CC0020 (2.0M), CBL-CC0015 (1.5M). Do not use MP7000 color camera cables as they are not compatible with the MP72.