UBA™ Pro Series

Universal Banknote Acceptor

Operation and Maintenance Manual

(Revision 2)

P/N 960-000211R_REV. 2

Issue #4116-SME-01-02

http://www.jcmglobal.com/

Issue #4116-SME-01-02

REVISION HISTORY		
Rev №.	**Date**	**Reason for Update**
A	Feb. 3, 2020	Initial Release
	Apr. 10, 2020	Updated the International Compliance information on the inside cover page. Fixed the number search issue in Section 7.
1	Aug. 12, 2021	Corrected the standards of the country code in Section 1, Updated how to open and close the Centering Mechanism and Updated EDP numbers in Section 7. Updated Error and Reject Codes in Appendix A.
	Jan. 28, 2022	Added the UKCA mark to the International Compliance. Removed the Limited Power Source requirement and corrected the storage operating humidity in Section 1. Added the Banknote processing speed mode information in Section 1 and Section 2. Added “Australia Office” to JCM American in Oceania in Section 1 and Section 3. Updated Parts Lists in Section 7. Updated Reject Codes in Appendix A.
2	Feb. 7, 2023	Updated the Environment Specifications regarding the outdoor installation in Section 1. Corrected the function of Pin #5 of Sub Board 1 and Sub Board 2 and Pin #13 of Sub Board 2 cc-Talk in Section 1. Updated EDP numbers in Section 7.

The JCM Website for patents is: http://www.jcm-hq.co.jp/english/patents/

Electrical Current Symbol

Direct Current: ⎓ indicates Direct Current values on product labels.

International Compliance

- RoHS Directive or or or
- UL & c-UL Marks File No. E157601
- CE Mark
- UKCA Mark
- CB Scheme JP-21497-A1-UL (IEC 62368-1), JP-21657-UL (IEC 60950-1)
- FCC & ISED Regulations

This product must not be used in residential areas.

This device complies with part 15 of the FCC Rules and Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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UBA™ Pro Series
Universal Banknote Acceptor
Table of Contents

Table of Contents

Table of Contents

Table of Contents

Table of Contents

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UBA™ Pro Series
Universal Banknote Acceptor
List of Figures

List of Figures

List of Figures

List of Figures

List of Figures

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UBA™ Pro Series
Universal Banknote Acceptor
List of Tables

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UBA™ Pro Series
Universal Banknote Acceptor
Section 1

1 GENERAL INFORMATION

Description

This section provides a general overview of the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro), pictured in Figure 1-1. This section is designed to help the user navigate through this guide with ease. It includes the following information:

In order to make operating this device and navigating within this manual easier, the following illustrations are used:

- **Safety Instructions** need to be observed in order to protect the operators and the equipment; these are identified with **Bold** text and the pictographs (Refer to "Definitions for Warning, Caution and Note Signs" on page 1-3).
- **Special *Notes*** affect the use of the UBA Pro Unit; these are identified with *italic* text and the following pictograph: ☞
- **Steps** require the operator to perform specific actions; these are identified with sequential numbers (1, 2, 3, etc.).

UBA Pro Unit

☞ *NOTE: The Stack Up (SU) installation is also available by using a specified SU Bezel.*

Figure 1-1 UBA Pro Unit

Model Descriptions

Table 1-1 lists the UBA Pro Product Model Number Descriptions.

Table 1-1 UBA Pro Model Number Specifications

Nº	Model: UBA - * * * - (*) * * (*) - * Nº (1) (2) (3) (4) (5) (6) (7) (8)
(1)	Model Name (UBA Pro Series)
(2)	Validation Sensor 5 = World Wide Type 1 (Standard) 6 = Reserved
(3)	Barcode Sensor Board (Optional) 0 = Upper only (Standard) 1 = Upper and Lower
(4)	Acceptor Head Unit Type 0 = Centering Type (Banknote Short Side: 62mm - 85mm) 1 = Reserved
(5)	Input Section Unit (Optional) None = Standard
(6)	Stacking Type None = Acceptor Head Unit only SS = Security Stacker (common for SU)
(7)	Cash Box Access None = Front Access (Standard)
(8)	Recycler (Banknote Recycling) None = No Recycler featured. RT = 1 Drum Type Recyler Module RQ = 2 Drum Type Recycler Modules RC = 1 Roller Friction Type Recycler Box

NOTE: Refer to the UBA Pro-RT/RQ™ Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro-RT or RQ product's details.

NOTE: Refer to the UBA™ Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro-RC product's details.

Type Descriptions

Table 1-2 lists the UBA Pro Type Number Descriptions.

Table 1-2 UBA Pro Type Number Specifications

Nº	Type: * * * - * * - * * * * (*) Nº (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)
(1)	Cash Box Capacity 0 = No Cash Box (Acceptor Head Unit only) 5 = 500 notes (Street Grade) 9 = 900 notes (Street Grade)
(2)	Cash Box Type 0 = Deep Green (Standard)
(3)	Cash Box Handle 0 = Blue (Standard)
(4)	Acceptor Head Unit Sub Board Type 0 = Unassigned Number 1 = Sub Board 1 (RS232/Photo-Coupler Isolation/TTL/2 USBs) 2 = Sub Board 2 (RS232/Photo-Coupler Isolation/TTL/ccTalk/1 USB) 3 = Reserved 4 = Reserved
(5)	Acceptor Head Unit Cover 0 = Black (Standard)

Table 1-2 UBA Pro Type Number Specifications

Nº	Type: * * * - * * - * * * * (*) Nº (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)
(6)	Bezel (Option) 0 = No Bezel 1 = Black/2 Green LEDs (Bezel 85) (Standard Installation) 2 = Reserved 8 = Reserved 9 = Reserved A = Reserved B = Black/2 Blue LEDs (SU Installation)
(7)	ICB (Option)* 0 = Not Supported 1 = Supported
(8)	Optional Conversion Circuit Board 0 = No Optional Conversion Circuit Board (Standard)
(9)	Interface Setting (Factory Default)† 0 = Reserved P = Photo-Coupler Isolation R = RS232C
(10)	External Harness 0 = None 1 = Standard Interface Harness 1 (No USB, UBA-1x Series Type) 2 = Standard Interface Harness 2 (1 USB, iPRO Series Type) 3 = Standard Interface Harness 3 (2 USBs, UBA Pro Series Type) 5 = Reserved 6 = Reserved 7 = Reserved 8 = Reserved 9 = Reserved A = Reserved 5U = Reserved 6U = Reserved 7U = Reserved 8U = Reserved *NOTE: Refer to "Recommended Wire" on page 2-6 for your original harness.*

*. A specific ICB Box is required.

†. Refer to "SW1 and SW2 Configurations" on page 2-4 for details.

Software Descriptions

Table 1-3 lists the Software Number Descriptions.

Table 1-3 UBA Pro Software Number Specifications

Nº	Software: UBA-5** (***) - * * ID-*** V***-** Nº (A) (B) (C) (D) (E)
(A)	Software Model Name
(B)	Country Code (Denomination)*
(C)	Stacker Type (See Table 1-1)
(D)	Interface Protocol Name
(E)	Software Version

*. The Country Code is indicated by three (3) Alphabetical Characters officially assigned ISO 3166 alpha-3.

Precautions

Definitions for Warning, Caution and Note Signs

WARNING	**Indicates a hazardous situation that, if not avoided, could result in death or serious injury.**
CAUTION	**Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury and/or equipment damage.**
NOTE	*Indicates information considered important to perform and function optimal. Read carefully to prevent malfunctions or improper operation.*

Definitions for General Symbols

	Signifies a general prohibition (prohibited action)
	Signifies a mandatory action
	Signifies a general warning

User Cautions

Careful measures were taken in the design of this product to ensure its quality; however, the following cautions pertain to all users and should be followed for safe operation.

WARNING
Careful measures were taken in the design of this product to ensure its quality; however, ensure that a fail-safe design is used for the Host Machine to assure safety.

Installation

WARNING
Do not use the Unit where it may be exposed to airborne evaporated or sporadic chemicals and/or oil.
• **Ensure that the Host Machine is designed to meet the Environment Specifications (page 1-8). Otherwise, especially in terms of the Operating Temperature, nonconformity may affect and degrade the Validation performance.**
WARNING
• **Ensure that the Host Machine is installed horizontally on a flat and stable surface in accordance with the Environmental Specifications (page 1-8) and the Structural Specifications (page 1-8) designated.**

CAUTION
• **Do not use the Unit in environments that may be subject to extreme temperature changes.** • **Do not allow the Unit to endure anything beyond the environmental limits specified such as exposing the Unit to the elements, including when it is installed in a Host Machine (Refer to "Environmental Specifications" on page 1-8).**
• **Be sure the Host Machine is designed with careful consideration for retrieving a Banknote and/or cleaning a Banknote jam.** • **Be sure to connect the Frame Housing to the Frame Ground of the Host Machine (Refer to "Grounding" on page 2-1).** • **Be careful not to use excessive outside pressure on the Unit, or subject it to excessive vibration during transportation.** • **The extremely-high electric or magnetic fields or radio waves may cause malfunctions or degrade the Validation performance. Ensure that the Unit is used in environments taking such effects into account.** • **Ensure that the power cables comply with the recommended specifications to avoid reset. Cut off all the not-connected unused cables to avoid static electrical effects or short circuit possibilities that could cause damage to the Unit (Refer to "Recommended Wire" on page 2-6).**

Mounting, Dismounting & Transportation

WARNING

Disconnect Main Plug From Electrical Outlet

Be sure to remove electrical power from the Unit and disconnect a USB Cable before mounting or removing the Unit including any optional or sub assembly.

Be sure to carry the Unit using both hands, holding onto the Unit and the Cash Box. Holding the Unit with only one hand may cause personal injury if the unit comes apart.

CAUTION

- While transporting, do not apply too much pressure to the unit, or subject it to excess vibration.
- Do not throw or apply excessive force to the unit.

Disconnect Main Plug From Electrical Outlet

Plugging or unplugging the communication connector while electrical power is being applied to the Unit may cause damage to the Unit.

Be sure to carry or transport the Unit with the Cash Box installed. Exerting external pressure on the equipment without the Cash Box in place may cause it to distort.

Placing Foreign Objects into the Unit

WARNING

- Do not insert anything except Banknotes or Tickets into the Insertion Slot. Inserting Receipts, Paper Clips, Rubber Bands, Credit Cards, etc. into the Unit may damage the Banknote Transport path.
- Do not inject water or liquid agents of any kind into the Unit, as this may cause extreme damage to the Unit.

Operation

CAUTION

- Do not drop or apply external pressure on the Cash Box. The Banknotes stacked up inside of the Cash Box may collapse.

CAUTION

- Do not manually refill the Cash Box with the Banknotes.

Pinch Point Hazard

Be careful to avoid any personal injury to fingers when closing or installing any part such as the Acceptor Head Unit or its Cover.

- When closing or installing any part with latches or locking tabs, ensure that it clicks firmly into place.
- Do not remove the Cash Box during operation.

Preventive Maintenance

WARNING

Do not redesign or disassemble the Unit. Unauthorized use by inadequately trained personnel, or use outside the original manufacturer's intent for operation voids the warranty.

Disconnect Main Plug From Electrical Outlet

Be sure to remove electrical power from the Unit before beginning a maintenance procedure. The equipment can produce abnormal operating signals while in maintenance mode that may cause personal injury.

If the Unit is exposed to water or other liquids, use a clean, dry micro-fiber cloth to wipe off and absorb excess liquids immediately. Any remaining liquids may affect and degrade the Sensors and Validation performance.

CAUTION

- When reassembling a disassembled unit, ensure that each part is carefully placed in its proper location.
- Be sure that each part is placed in the proper location after maintenance.
- To keep the Unit's performance and Banknote acceptance at optimal rates, clean and maintain the Unit regularly, especially in smoky environments such as where excessive Automobile exhaust emission or Cigarette Smoke may exist (Refer to "Cleaning Procedure" on page 2-17).

Battery Replacement and Disposal Considerations

CAUTION

Risk of explosion if battery is replaced by an incorrect type.

- **Do not allow positive (+) and negative (-) battery terminals to touch each other.**
- **Use caution so that batteries stored or transported together do not short circuit.**
- **Follow federal, state and local regulations for battery disposal.**

Banknote Fitness Requirements

CAUTION

The following Banknote types may not validate correctly, or worse, can cause a Banknote jam and/or damage to the Unit's Transport Path, and should be avoided:

- Torn
- Worn
- Taped
- Excessive folds or wrinkles
- Dirty
- Wet and/or Oiled
- Adhering foreign objects
- Excessive miscuts, misaligns and/or misprints

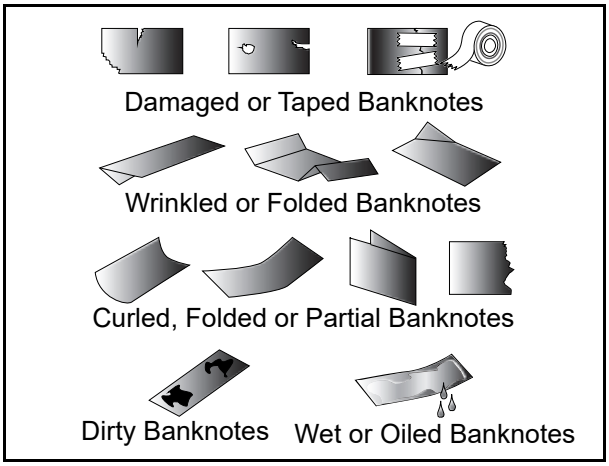


Figure 1-2 Unacceptable Banknotes

Primary Features

This UBA Pro Series Banknote Acceptor Unit contains the following primary features:

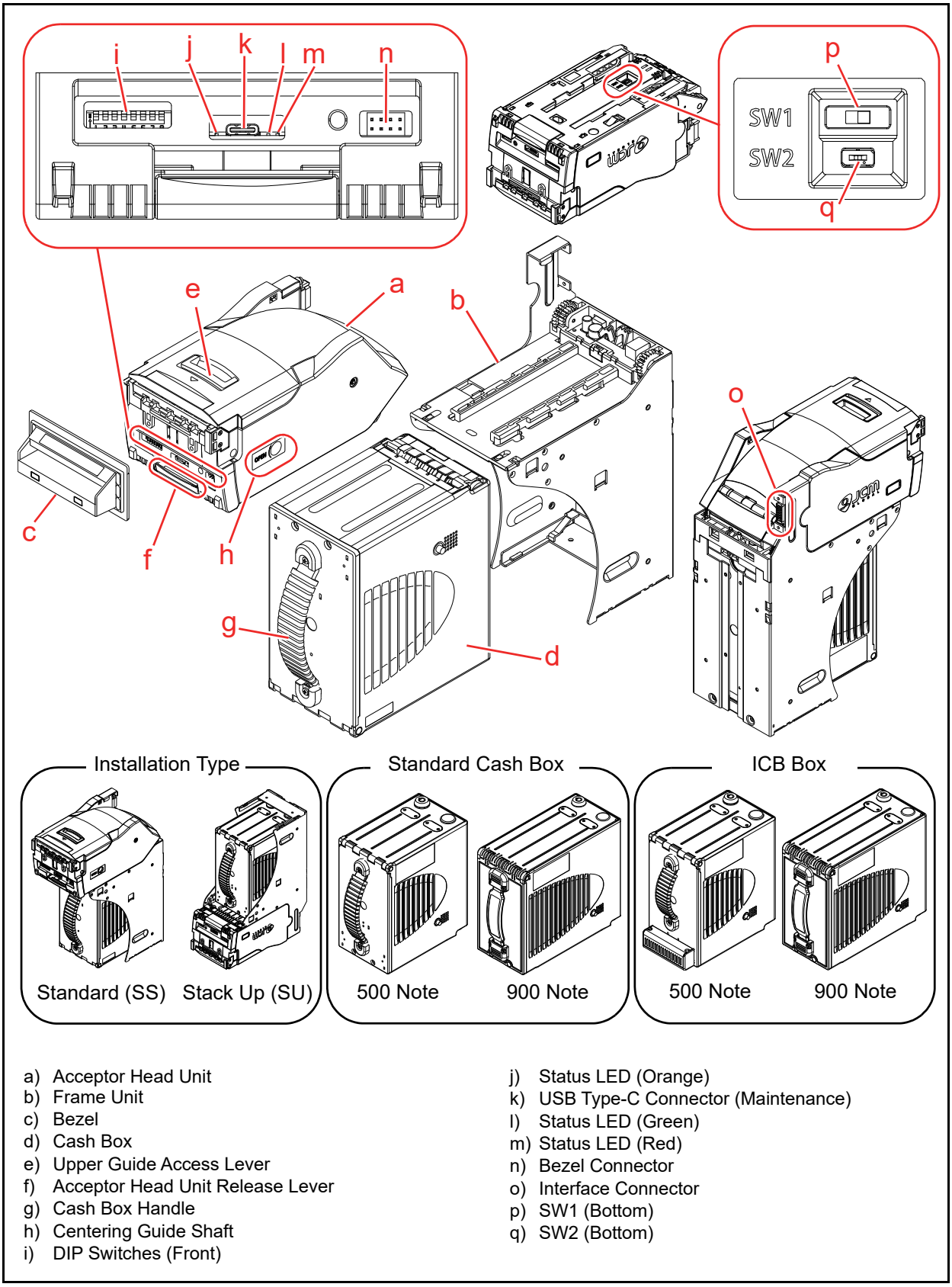
- The UBA Pro Unit is backwards compatible with all previous UBA and iPRO Series Unit just by replacing its Acceptor Head Unit. Upgrade of current UBA or iPRO Series Unit to the new UBA Pro Unit can be accomplished by just replacing the Acceptor Head Unit.

  NOTE: For the UBA-RC and iPRO-RC Series, a plug and play is a future option.

- Processing speed is greater than the previous UBA Series Units.
- By using high precision Sensors and the Automatic Centering Mechanism, for 62-85mm wide Banknotes, the UBA-5x0 Series Unit ensures high Banknote acceptance.
- The JCM patented Anti-Pullback Mechanism provides powerful protection against Banknote stringing operations.

Component Names

Figure 1-3 illustrates the UBA Pro component names and locations.



a) Acceptor Head Unit
b) Frame Unit
c) Bezel
d) Cash Box
e) Upper Guide Access Lever
f) Acceptor Head Unit Release Lever
g) Cash Box Handle
h) Centering Guide Shaft
i) DIP Switches (Front)
j) Status LED (Orange)
k) USB Type-C Connector (Maintenance)
l) Status LED (Green)
m) Status LED (Red)
n) Bezel Connector
o) Interface Connector
p) SW1 (Bottom)
q) SW2 (Bottom)

Figure 1-3 UBA Pro Component Names

Specifications

Technical Specifications

Table 1-4 UBA Pro Technical Specification

Banknote	**Acceptance Rate*:**	98% or greater **Note: The following banknote types are excluded:** • Banknotes with excess or unclear graphics • Double (dual) Notes • Worn, dirty, wet, stained, torn or excessively wrinkled Banknotes • Banknotes having folded corners or edges • Banknotes having the wrong cut dimensions or printing displacement • Returned Banknotes because of incorrect or failed insertion.
	Banknote Size†:	• Long side: 120mm - 165mm (4.72 - 6.49in.) • Short side: 62mm - 85mm (2.44 - 3.34in.)
	Insertion Direction†:	Four-way
Barcode Ticket	**Barcode Standard Specifications‡:**	• Read code: ITF (Interleaved 2 of 5) • Narrow Bar: 0.5mm-0.6mm (0.019-0.023 in.) • Wide Bar to Narrow Bar ratio = 3:1 • Characters: 18 Characters • Print Position: Middle (Divides a Ticket equally from the left, right, top and bottom of the Ticket's center) • Print Width: Wider than 10mm (0.39 in.)
	Insertion Direction†:	• Two-way • Four-way as option (with Upper and Lower Barcode Sensor)
Validation Speed (note-to-note):**		2.2 seconds or faster (Max speed, No Current Limit mode††)
Validation Method:		Optical
Diagnostic Indicators:		Status LEDs (Red/Green/Orange) **Refer to "LED Light Flashing Pattern" on page 2-5.**
Escrow:		1 Note
Anti-Pullback Mechanism:		Pull-Back (PB) Unit (Anti-pullback System - JCM Patented)
Cash Box Type‡‡:		• Security Box (Standard) • ICB Box (Intelligent Cash Box) (Optional)
Cash Box Capacity*:**		• 500 notes (Street Grade) • 900 notes (Street Grade)
Interface†††:		• USB (USB Specification Rev. 2.0 Compliance) (Full Speed/12Mbps) • Photo-Coupler Isolation • RS232C • cc-Talk • TTL

*. The Banknotes accepted on the second attempt are included. The Acceptance Rate Test was conducted on more than 100 Banknotes. Refer to the "Software Information Sheet" for each Country's Acceptance Rate parameters.

†. Refer to the "Software Information Sheet" for more details.

‡. Refer to the "Barcode Ticket Specification" for more details.

**. Excluded Host Communication time lag. The "from Banknote insertion to enable of next insertion" is a processing speed per Banknote when 10 Banknotes are consecutively inserted.

††.Refer to "Denomination Acceptance Settings (DIP Switches at the front)" on page 2-4 for the settings and the details of "Max speed, No Current Limit" mode.

‡‡.A key and lock are not included (A tang is provided). Refer to "Cash Box Lock Installation" on page 2-3 for the installation. (1 Key Hole Cap is fitted in place to cover existing holes when shipped).

***.The number of Banknotes or Barcode Tickets stacked depends on its condition.

†††.Refer to "Type Descriptions" on page 1-2 for the Sub Boards supporting each Interface.

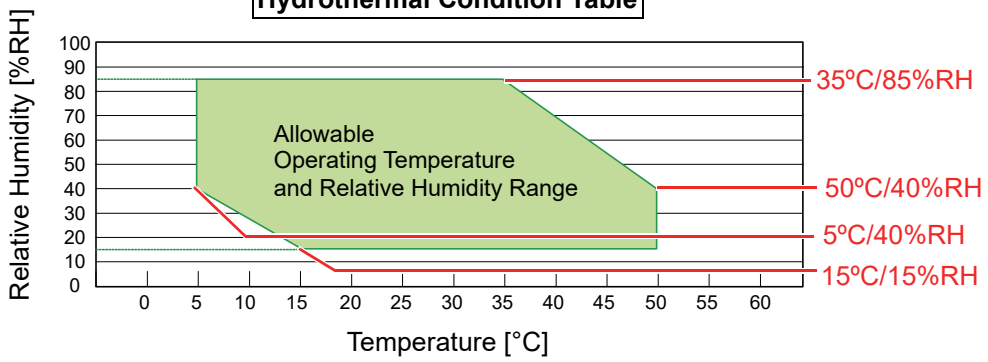
Environmental Specifications

Table 1-5 UBA Pro Environmental Specifications

Operating Temperature:	+5ºC to +50ºC (41ºF to 122ºF)*
Storage Temperature:	-20ºC to +60ºC (-4ºF to 140ºF)*
Relative Operating Humidity:	15%RH to 85%RH (non-condensed)
Relative Storage Humidity:	15%RH to 85%RH (non-condensed)
Visible Light Sensitivity:	Avoid contact with direct sunlight and/or incandescent light (i.e. Car headlights) **(Interior lighting must be incandescent with a Radiant Angle of 15 Degree or more having an illumination index of 3000 Lux or less)**
Installation:	• Integrate in an indoor Host Machine • No vibration or shock • Be sure the Host Machine contains enough protection to keep the Validator away from wet, dusty and/or sandy-dust conditions. ⚠ To integrate in an outdoor Host Machine, every specification and condition specified here in Table 1-5 MUST be met so the Validator is fully protected.

*. Depends on hydrothermal conditions.

Hydrothermal Condition Table



Electrical Specifications

Table 1-6 UBA Pro Electrical Specification*

Supply Voltage:	12V DC (-5%) - 24V DC (+5%) (Greater than 70W recommended)	
Power Consumption:	12.0V • Standby = 0.3A • Operation = 1.8A • Peak = 4.0A	24.0V • Standby = 0.2A • Operation = 0.9A • Peak = 2.0A

*. Measured on a new and factory default UBA Pro Unit.

Structural Specifications

Table 1-7 UBA Pro Series Structural Specification

Weight:	UBA Pro Unit + Frame + Standard 500 Note Cash Box: Approximately 4kg (8.81lbs)
Mounting:	Horizontal, 0 degrees, ±0 degrees angle (parallel to the Banknote insertion direction)
Outside Dimensions:	See “Unit Dimensions” on page 1-9. of this Manual.

Unit Dimensions

UBA Pro with Standard 500 Note Cash Box Outside Dimension

Figure 1-4 illustrates the UBA Pro Unit with a Standard 500 Note Cash Box Outside Dimension.

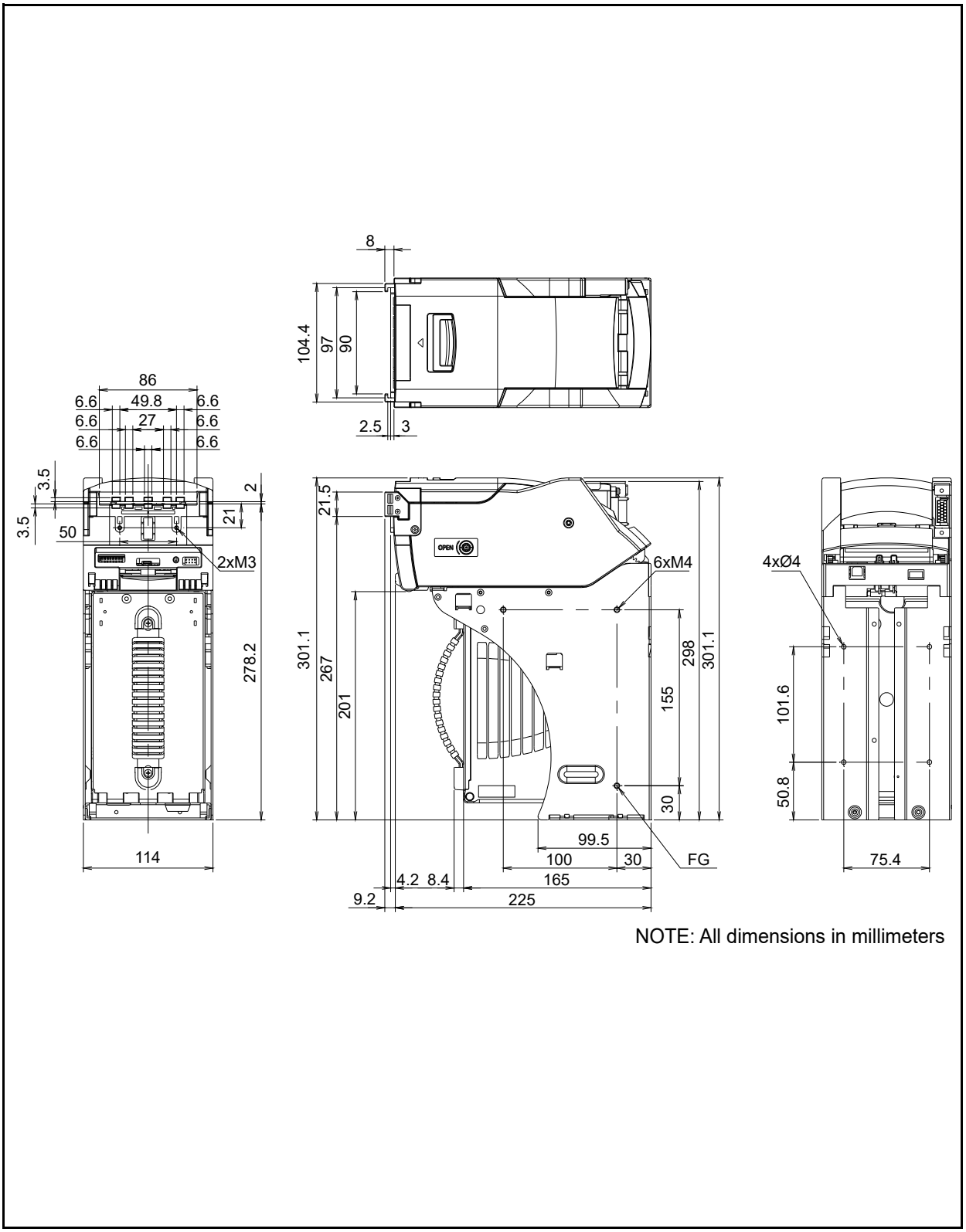
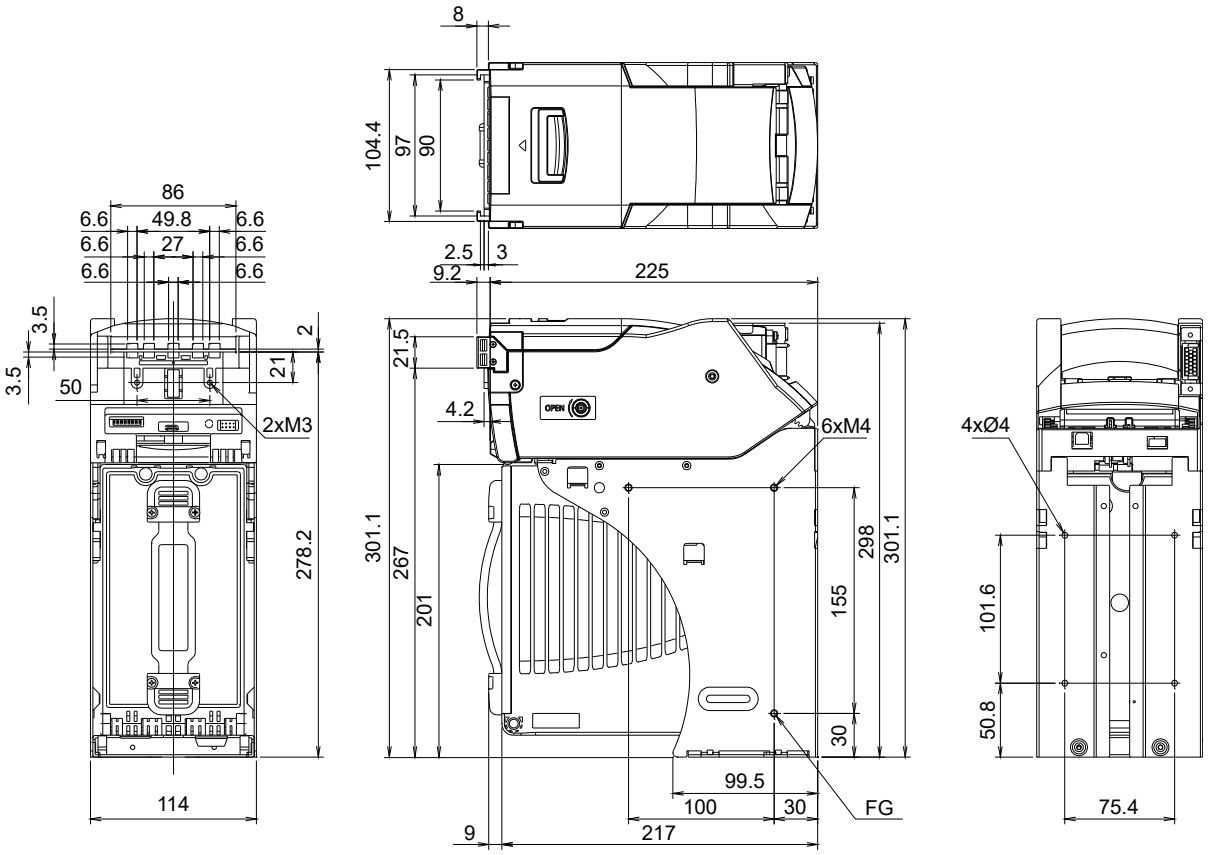


Figure 1-4 UBA Pro Unit With 500 Note Cash Box Outside Dimension

UBA Pro with Standard or ICB 900 Note Cash Box Outside Dimension

Figure 1-5 illustrates the UBA Pro Unit with a Standard or ICB 900 Note Cash Box Outside Dimension.



NOTE: All dimensions in millimeter

NOTE: For the ICB 900 Note Box, the ICB is equipped inside of the Box. There is no difference in dimensions between Standard and ICB Boxes.

Figure 1-5 UBA Pro Unit With Standard or ICB 900 Note Cash Box Outside Dimension

UBA Pro with ICB 500 Note Cash Box Outside Dimension

Figure 1-6 illustrates the UBA Pro Unit with an ICB 500 Note Cash Box Outside Dimension.

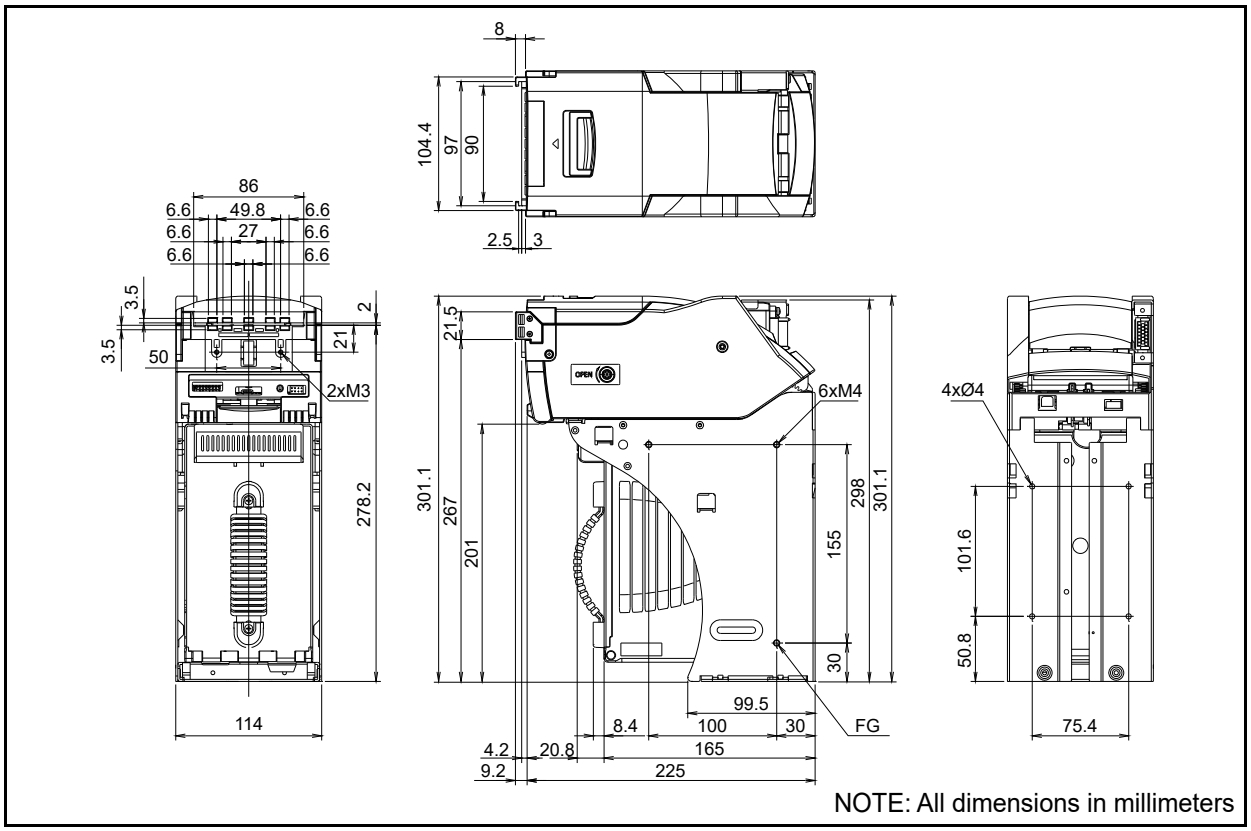


Figure 1-6 UBA Pro Unit With ICB 500 Note Cash Box Outside Dimension

Installation and Maintenance Space Requirements

Figure 1-7 illustrates the spaces required to install and maintain the UBA Pro Unit.

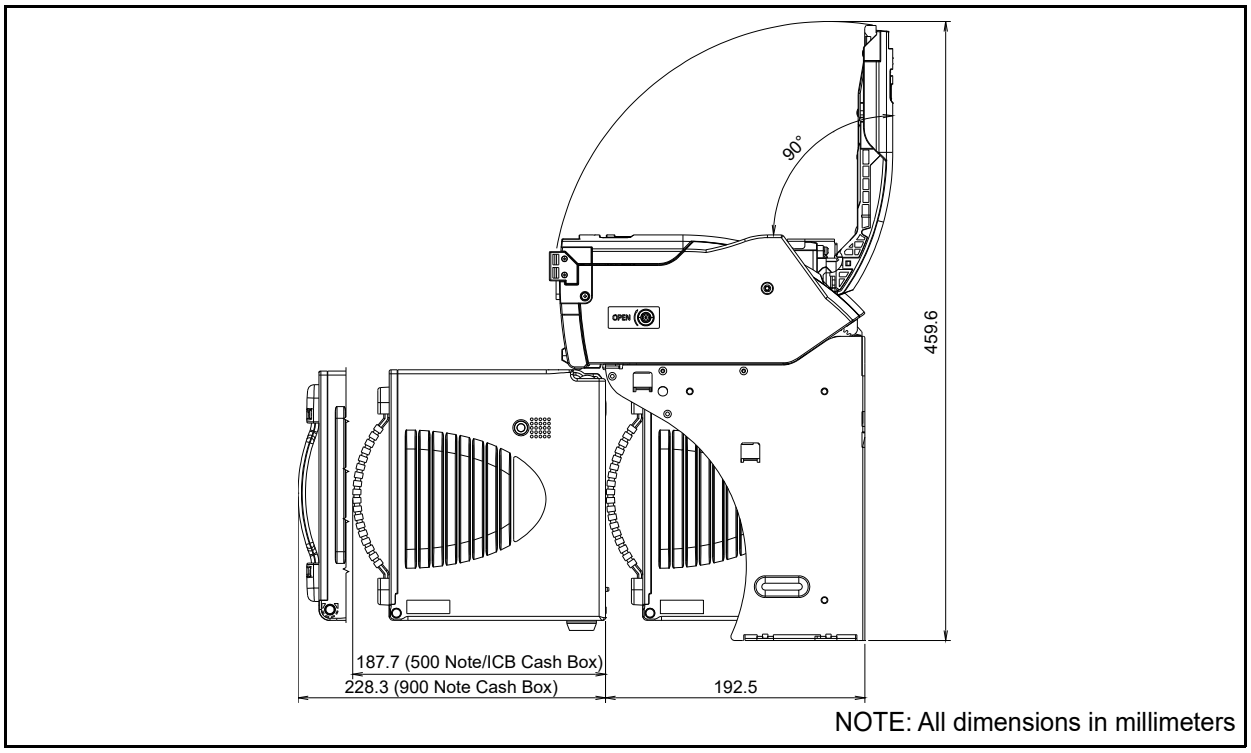


Figure 1-7 UBA Pro Unit Installation and Maintenance Space Requirements

Technical Contact Information

To obtain further technical information regarding the UBA Pro Unit, please contact the nearest location listed below:

Americas

JCM American

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road,
Las Vegas, NV 89119

E-mail: support@jcmglobal.com

Europe, Middle East, Africa & Russia

JCM Europe GmbH

Phone: +49-211-530-645-60

Fax: +49-211-530-645-85

Mündelheimer Weg 60 D-40472
Düsseldorf Germany

E-mail: support@jcmglobal.eu

UK & Ireland

JCM Europe (UK Office)

Phone: +44 (0) 190-837-7331

Fax: +44 (0) 190-837-7834

Luminous House, 300 South Row,
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Phone: +81-6-6703-8400

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2-3-15, Nishiwaki, Hirano-ku,
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E-mail: Shohin@jcm-hq.co.jp

The JCM Website for all locations is:
http://www.jcmglobal.com

UBA™ Pro Series
Universal Banknote Acceptor
Section 2

2 INSTALLATION

This section provides the installation and operating instructions for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro). It includes the following information:

Installation Process

The UBA Pro Frame Unit provides installation holes for each surface.

Perform the following steps to install as the Standard (SS) and Stack Up (SU) Installation Type.

CAUTION: Ensure that there is sufficient space to clean and maintain a UBA Pro Unit. (Refer to "Installation and Maintenance Space Requirements" on page 1-11.)

CAUTION: Do Not exert external pressure on the UBA Pro Unit. Strong pressure on the Unit may cause the Unit's performance to degrade.

Grounding

CAUTION: Be sure to connect the Frame Housing to the Frame Ground of the Host Machine.

NOTE: Prepare the following Grounding Wire, Screw and Washer for grounding:

- Grounding Cable with Conductor Diameter 1.6mm or larger
- M4 Pan Head with Spring Washer + Large Washer, 12mm or shorter
- Toothed Washer
- Tightening Torque: 120N·cm

1. Install the Toothed Washer (Figure 2-1 a), the Grounding Wire (Figure 2-1 b) and then the single (1) specified Screw (Figure 2-1 c) into the Frame Ground (Figure 2-1 d) in order.
2. Tighten the Screw to secure the Wire and Washer.

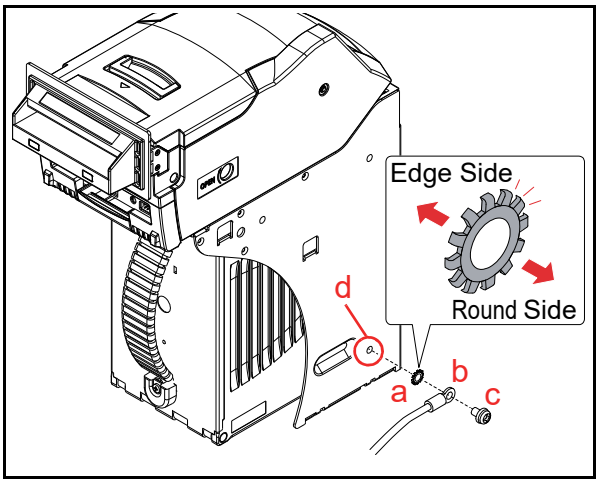


Figure 2-1 Grounding

Side Installation

NOTE: Prepare the following Screw:

- M4 Screw (The length from Frame surface to the edge of the Screws should be within 4mm in order not to puncture the plastic surface of the UBA Pro Unit)
- Tightening Torque: 120N·cm

1. Remove the UBA Pro Unit (Figure 2-2 a) and the Cash Box (Figure 2-2 b) from the Frame (Figure 2-2 c).
2. Place the Frame in its intended mounting location.
3. Secure both right and left sides of the Frame into its intended location using six (6) specified Screws (Figure 2-2 d_1 through d_6) from the outside of the Frame.
4. Install the UBA Pro Unit and the Cash Box back into the Frame.

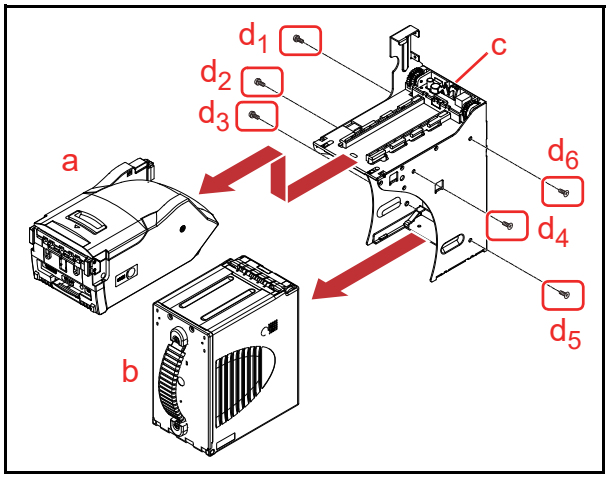


Figure 2-2 Side Installation

Rear Installation

NOTE: Prepare the following Screws:

- UNC6-32 Flat Head Screws
- Tightening Torque: 120N·cm

1. Remove the UBA Pro Unit (Figure 2-3 a) and the Cash Box (Figure 2-3 b) from the Frame (Figure 2-3 c).
2. Secure the back side of the UBA Pro Frame into its intended location using four (4) specified Screws (Figure 2-3 d_1 through d_4) from the inside of the Frame Unit (Figure 2-3).
3. Install the UBA Pro Unit and the Cash Box back into the Frame.

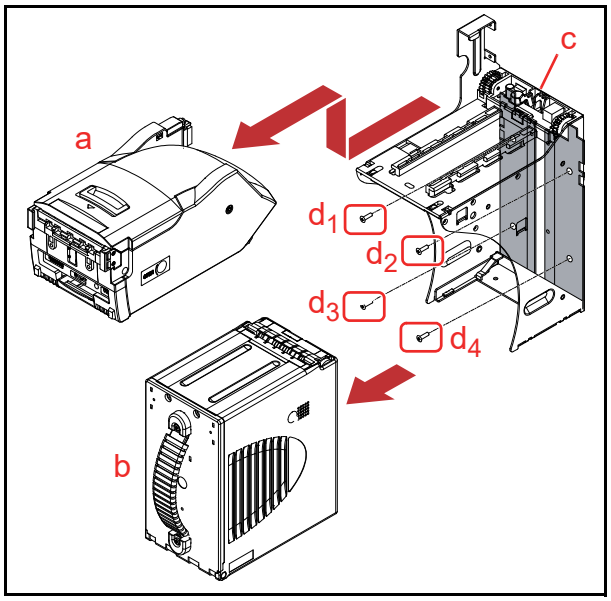


Figure 2-3 Rear Installation

Transport Stand Protector Installation (For Stack Up (SU) Installation Type)

CAUTION: For the SU Installation Type, a "Transport Stand Protector" is required to have sufficient strength to the Frame.

NOTE: Prepare the following Screw:

- 2.6x5 Flat Head with Nyloc
- Tightening Torque: 40N·cm

1. Remove the UBA Pro Unit (Figure 2-4 a) and the Cash Box (Figure 2-4 b) from the Frame Unit (Figure 2-4 c).
2. Secure the Protector (Figure 2-4 d) using four (4) specified Screws (Figure 2-4 e_1 through e_4) from the outside of the Frame Unit (Figure 2-4 c).
3. Secure the Frame into its intended location. (Refer to "Side Installation" on page 2-1 or "Rear Installation" on page 2-2.)
4. Install the UBA Pro Unit and the Cash Box back into the Frame.

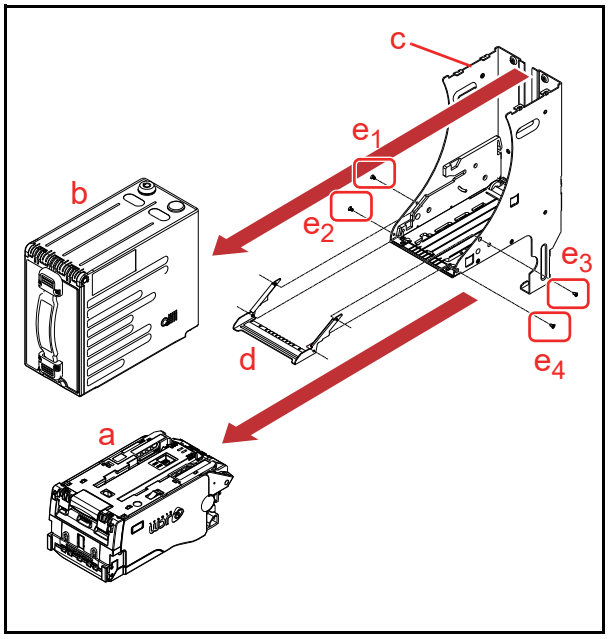


Figure 2-4 Transport Stand Protector Installation (SU Installation Type)

Bezel Installation

NOTE: Prepare the following Screw:

- M3x16 Screw (provided)
- Tightening Torque: 60N·cm

1. Open the UBA Pro's Cover (Figure 2-5 a).
2. Slide the Bezel (Figure 2-5 b) on to the UBA Pro Bezel Tabs (Figure 2-5 c_1 & c_2).
3. Secure the Bezel (Figure 2-5 b) using two (2) specified Screws (Figure 2-5 d_1 & d_2).

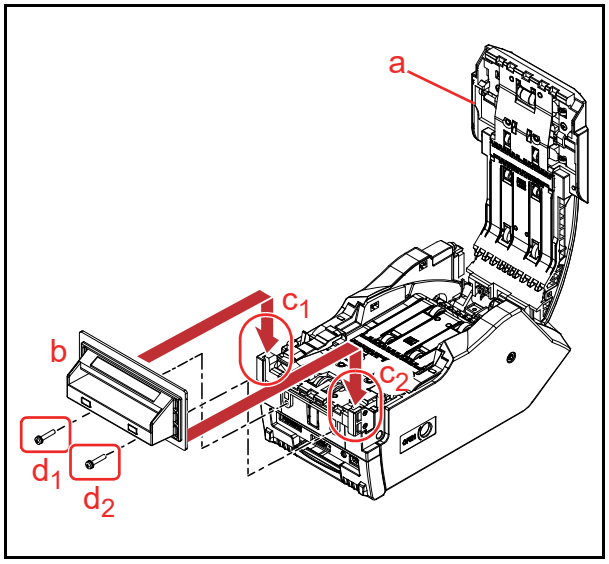


Figure 2-5 Bezel Installation

External Harness Installation

NOTE: Prepare the following Screw:

- M3x12 Screw (provided)
- Tightening Torque: 80N·cm

1. Secure the Connector (Figure 2-6 a) using two (2) specified Screws (Figure 2-6 b_1 & b_2).

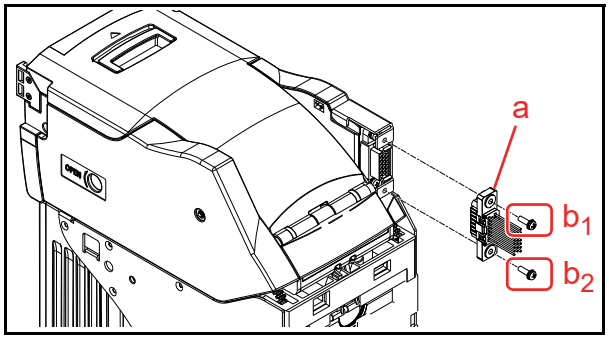


Figure 2-6 External Harness Installation

Cash Box Lock Installation

One or two security locks can be installed onto a UBA Pro Cash Box. When installing a security lock, the following attachment accessories may be required:

- Two Key Spacers
- Plate Lock Keys
- Key Cap Attachment.

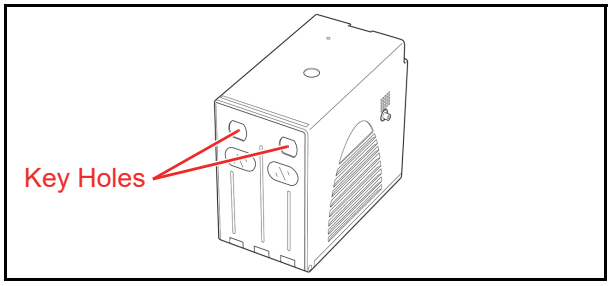


Figure 2-7 Key Hole Location

Choose a Lock that fits a standard 5/8”, 1-1/8” or 20.5mm hole dimension format (Figure 2-8). In addition, when two locks are to be installed, both locks must be identical.

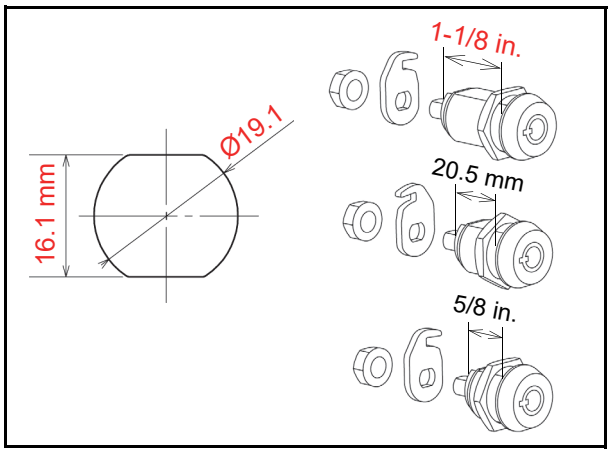


Figure 2-8 Key Hole Dimension & Cylinder Length

Unlock Procedure

Make sure lock(s) are installed and rotates in the correct direction(s).

NOTE: When two locks are installed, they must rotate in the same direction as illustrated in Figure 2-9.

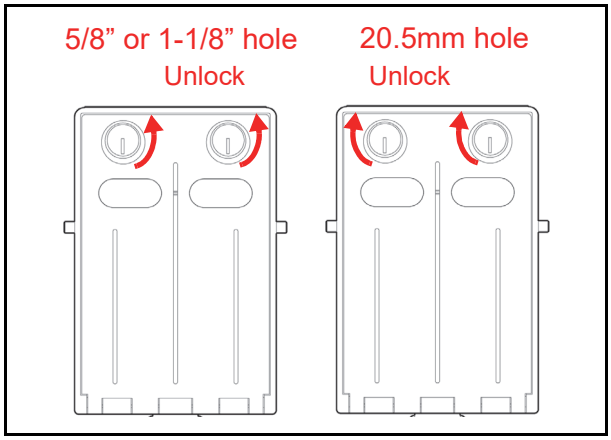


Figure 2-9 Key Lock Rotation Requirement

NOTE: When using only one lock, the remaining blank hole does not provide access to Cash Box contents. However, some regulatory authorities may require installation of a Key Cap.

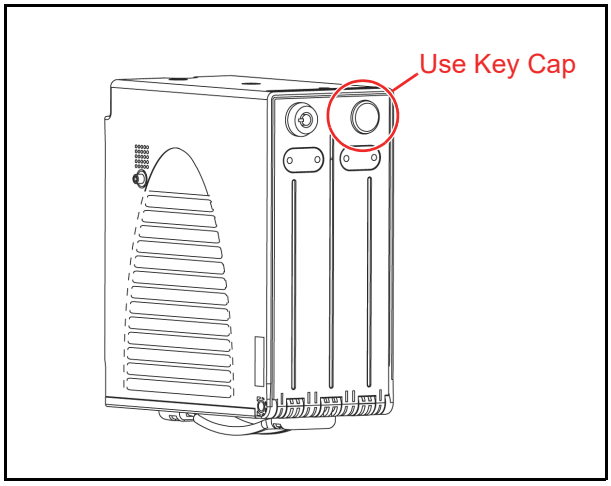


Figure 2-10 Key Cap Installation

NOTE: There are many lock designs, and Key Spacer washers may be required for some lock types. Locks vary greatly in price, security, keying policies, etc. The customer is responsible for selecting a Lock with performance that fits the intended purpose. JCM does not test or endorse any specific brand of Lock for its security characteristics.

DIP Switch Configurations

Denomination Acceptance Settings (DIP Switches at the front)

Table 2-1 lists the default Front DIP Switches configurations for the acceptable denominations.

CAUTION: To avoid voltage drop that may cause reset, any Unit that was upgraded from the UBA to the UBA Pro by replacing its Acceptor Head Unit should use the Standard Current Limit mode.

NOTE: Front DIP Switch settings may vary based on Software. Refer to each Country's "Software Information Sheet" for making the proper switch settings.

Table 2-1 Denomination Acceptance Settings

Switch No.	ON/OFF	Description
1	ON	VEND 1 INHIBIT
	OFF	VEND 1 ACCEPT
2	ON	VEND 2 INHIBIT
	OFF	VEND 2 ACCEPT
3	ON	VEND 3 INHIBIT
	OFF	VEND 3 ACCEPT
4	ON	VEND 4 INHIBIT
	OFF	VEND 4 ACCEPT
5	ON	VEND 5 INHIBIT
	OFF	VEND 5 ACCEPT
6	ON	VEND 6 INHIBIT
	OFF	VEND 6 ACCEPT
7	ON	Max speed, No Current Limit * (Fastest Banknote processing mode)
	OFF	Standard Current Limit Mode
8	OFF†	OFF (Fixed)

*. This mode requires an appropriate harness(es) designated in the "Recommended Wire" on page 2-6.

†. Not Applicable (N/A). Never Switched to ON.

SW1 and SW2 Configurations

The UBA Pro Main Board contains two (2) DIP Switches that are located adjacent to one another. The interface and the Recycler option can be configured by these Switches (Figure 2-11).

NOTE: Refer to the UBA Pro RT/RQ Series Banknote Recycler Operation and Maintenance Manual for the Recycler options.

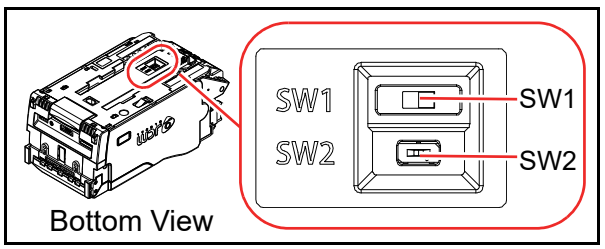


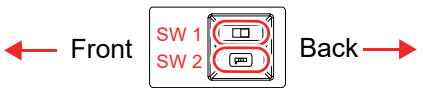
Figure 2-11 SW1 and SW2 Switches

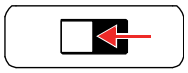
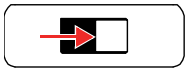
Interface Settings (Sub Board 1)

The SW1 switch equipped on the Sub Board 1 is to set an interface RS232C or Photo-Coupler Isolation (Table 2-2).

NOTE: For the interface USB and TTL, no need to configure the SW1 switch.

Table 2-2 Sub Board 1 Interface Settings



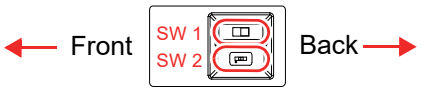
Settings		Description
SW1		Photo-Coupler Isolation
		RS232C
	-	USB, TTL
SW2	Not available	-

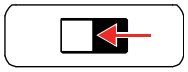
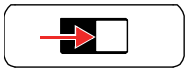
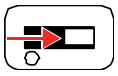
Interface and Recycler Settings (Sub Board 2)

The SW1 switch equipped on the Sub Board 2 is to set an interface RS232C, Photo-Coupler Isolation, I-TTL2 or ccTalk (Table 2-3).

NOTE: For the interface USB and TTL (except for I-TTL2), no need to configure the SW1 switch.

Table 2-3 Sub Board 2 Interface Settings



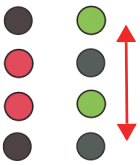
Settings		Description
SW1		Photo-Coupler Isolation I-TTL2
		RS232C cc-Talk
	-	USB, TTL (Except for I-TTL2)
SW2		To use a UBA Pro Unit without a Recycler Unit(s)*

*. Refer to the UBA Pro RT/RQ Series Operation and Maintenance Manual for using the Recycler Unit(s).

LED Light Flashing Pattern

The LED Color Pattern indications listed in Table 2-4 occur during various UBA Pro Unit operating and error conditions.

Table 2-4 LED Light Flashing Pattern

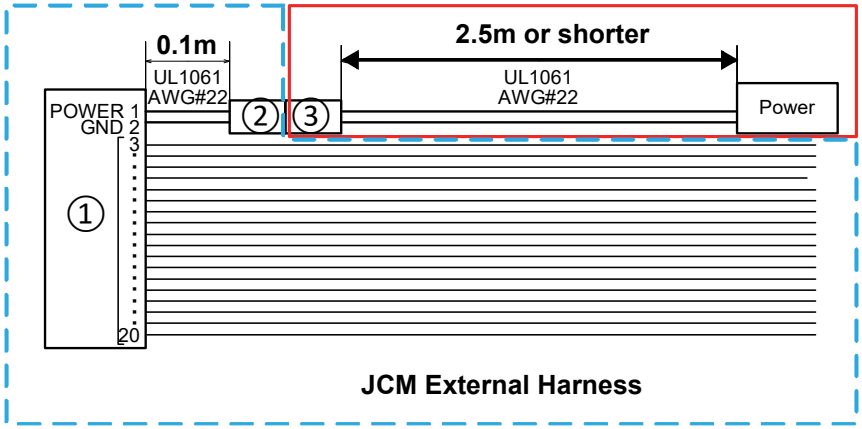
Red LED	Green LED	Sequence	Condition	Cause and Solution
OFF	OFF		Initial Movement	**Initializing**
OFF	OFF		Stand-by	**Stand-by**
OFF	Flashes		Reject	**Reject occurred (Refer to "Reject Error Code Conditions; Banknotes" on page A-6 and "Reject Error Code Conditions; Barcode Tickets" on page A-8.)**
Flashes	OFF		Error (Standard)	**Standard error occurred (Refer to "Standard Error Code Conditions" on page A-4.)**
Flashes	ON		Error (Boot Program Area)	**Boot program area error occurred (Refer to "Standard Error Code Conditions" on page A-4.)**
Flashes	OFF		Error (ICB)	**ICB error occurred (Refer to "ICB Error Code Conditions" on page A-6.)**
ON	ON		Performance Test (Stand-by)	**Stand-by for a Performance Test**
OFF ON	ON OFF		Download Stand-by	**Stand-by for a Download**
OFF ON ON OFF	ON OFF ON OFF		Downloading	**Downloading**
Flashes	Flashes		Download Success	**Download completed**
Flashes	OFF		Download Failure	**Download has Failed**

NOTE: The Orange LED indicates that the Centering Mechanism is in the home position.

Recommended Wire

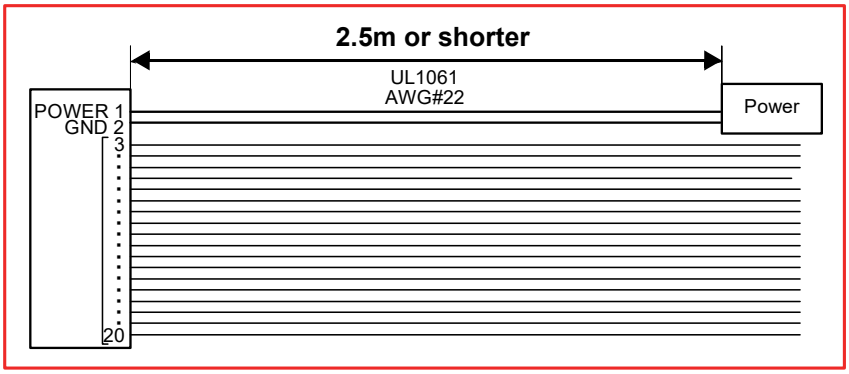
CAUTION: The wiring harness must be UL1061 AWG#22 with the specified length (the acceptable electrical resistance of a wire: Approximately 150mΩ). For 12V DC, the thinner or longer wiring harness than recommended specifications may cause the UBA Pro Unit to reset caused by voltage drop.

With JCM External Harness



Connector	Housing	Terminal	Manufacture
①	*NOTE: Refer to "Connector Pin Assignment" on page 2-7 for details.*		
②	70107-0001	16-02-0115	Molex
③	70066-0176	16-02-0103	Molex

Not using JCM External Harness



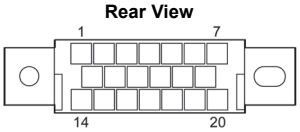
Connector Pin Assignment

NOTE: Refer to "SW1 and SW2 Configurations" on page 2-4 to determine the Interface settings on the Main Board.

Sub Board 1: USB Connector Pin Assignment

Table 2-5 lists the UBA Pro Unit's Sub Board 1 USB Connector Pin Assignments.

Table 2-5 Sub Board 1 USB Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20: D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	-	-	No Connection
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	-	-	No Connection
7	-	-	No Connection
8	VBUS1	-	USB1 Communication Vbus Signal Line (+5V DC)
9	DATA-1	IN/OUT	USB1 Communication Input/Output Signal Line
10	DATA+1	IN/OUT	USB1 Communication Input/Output Signal Line
11	-	-	No Connection
12	GND (USB)	-	USB1 and USB2 Communication Ground (0V DC)
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	VBUS2	-	USB2 Communication Vbus Signal Line (+5V DC)
16	DATA-2	IN/OUT	USB2 Communication Input/Output Signal Line
17	DATA+2	IN/OUT	USB2 Communication Input/Output Signal Line
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

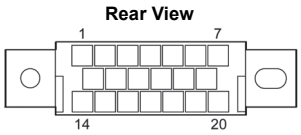
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 1: Photo-Coupler Isolation Connector Pin Assignment

Table 2-6 lists the UBA Pro Unit's Sub Board 1 Photo-Coupler Isolation Connector Pin Assignments.

Table 2-6 Sub Board 1 Photo-Coupler Isolation Interface Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Controller
5	+12V (I/F)	-	Photo-Coupler Interface Power Supply (+12V DC)
6	RXD	IN	Input Signal Line from Controller to Acceptor
7	Opto-GND	-	Interface Power Supply (Photo-Coupler Isolation, 0V DC)
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

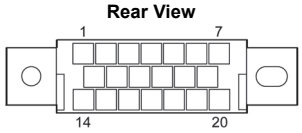
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 1: RS232C Connector Pin Assignment

Table 2-7 lists the UBA Pro Unit's Sub Board 1 RS232C Connector Pin Assignments.

Table 2-7 Sub Board 1 RS232C Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Serial Communication Output Signal Line
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	RXD	IN	Serial Communication Input Signal Line
7	-	-	No Connection
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

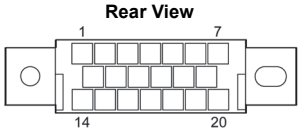
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 1: TTL Connector Pin Assignment

Table 2-8 lists the UBA Pro Unit's Sub Board 1 TTL Connector Pin Assignments.

Table 2-8 Sub Board 1TTL Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	-	-	No Connection
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	-	-	No Connection
7	-	-	No Connection
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	O-TTL1	OUT	TTL (Open Collector) Output Signal Line 1
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	O-TTL2(LED-)	OUT	TTL (Open Collector) Output Signal Line 2 (LED Drive Line)
19	O-TTL3	OUT	TTL (Open Collector) Output Signal Line 3
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

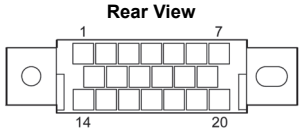
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 2: USB Connector Pin Assignment

Table 2-9 lists the UBA Pro Unit's Sub Board 2 USB Connector Pin Assignments.

Table 2-9 Sub Board 2 USB Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	-	-	No Connection
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	-	-	No Connection
7	-	-	No Connection
8	VBUS	-	USB Communication Vbus Signal Line (+5V DC)
9	DATA-	IN/OUT	USB Communication Input/Output Signal Line
10	DATA+	IN/OUT	USB Communication Input/Output Signal Line
11	-	-	No Connection
12	GND (USB)	-	USB Communication Ground (0V DC)
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

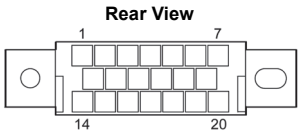
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 2: Photo-Coupler Isolation Connector Pin Assignment

Table 2-10 lists the UBA Pro Unit's Sub Board 2 Photo-Coupler Isolation Connector Pin Assignments.

Table 2-10 Sub Board 2 Photo-Coupler Isolation Interface Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Controller
5	+12V (I/F)	-	Photo-Coupler Interface Power Supply (+12V DC)
6	RXD	IN	Input Signal Line from Controller to Acceptor
7	Opto-GND	-	Interface Power Supply (Photo-Coupler Isolation, 0V DC)
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

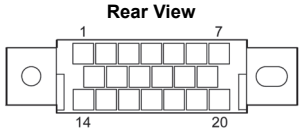
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 2: RS232C Connector Pin Assignment

Table 2-11 lists the UBA Pro Unit's Sub Board 2 RS232C Connector Pin Assignments.

Table 2-11 Sub Board 2 RS232C Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Serial Communication Output Signal Line
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	RXD	IN	Serial Communication Input Signal Line
7	-	-	No Connection
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

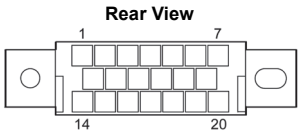
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 2: cc-Talk Connector Pin Assignment

Table 2-12 lists the UBA Pro Unit's Sub Board 2 cc-Talk Connector Pin Assignments.

Table 2-12 Sub Board 2 cc-Talk Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	-	-	No Connection
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	-	-	No Connection
7	-	-	No Connection
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND (SG)	-	cc-Talk Communication GND
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	No Connection
16	cc-Talk	IN/OUT	cc-Talk Communication Input/Output Signal Line
17	-	-	No Connection
18	LED-	OUT	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

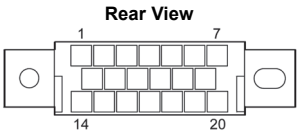
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

Sub Board 2: TTL Connector Pin Assignment

Table 2-13 lists the UBA Pro Unit's Sub Board 2 TTL Connector Pin Assignments.

Table 2-13 Sub Board 2 TTL Connector Pin Assignments



Socket (UBA Pro Side): DRA-20PC-FO (JAE)
Contact (UBA Pro Side) Pin No.1 and No.2: D02-22-22P-10000 (JAE)
Contact (UBA Pro Side) Pin No.3 - No.20:D02-22-26P-10000 (JAE)
Socket (Frame Side): DRA-20SC-FO (JAE)
Contact (Frame Side) Pin No.1 and No.2: D02-22-22S-10000 (JAE)
Contact (Frame Side) Pin No.3 - No.20: D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	Power	-	+12V to +24V DC Power Supply
2	GND (Power)	-	DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	-	-	No Connection
5	+12V (I/F)	-	Acceptor Reset Power Supply (+12V DC)
6	-	-	No Connection
7	-	-	No Connection
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	O-TTL1	OUT	TTL (Open Collector) Output Signal Line 1
12	-	-	No Connection
13	GND (SG)	-	0V DC Power Supply
14	LED POWER	-	LED Drive Line (Anode)
15	I-TTL1	IN	TTL Input Signal Line 1
16	I-TTL2	IN	TTL Input Signal Line 2
17	I-TTL3	IN	TTL Input Signal Line 3
18	O-TTL2(LED-)	OUT	TTL (Open Collector) Output Signal Line 2 (LED Drive Line)
19	O-TTL3	OUT	TTL (Open Collector) Output Signal Line 3
20	SU SELECT	IN	Standard (SS)/Stack Up (SU) Selection†

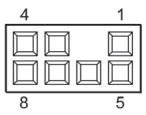
*. I/O (input/output) is the terminal as viewed from the Banknote Acceptor's backside.

†. No Connection = Standard (SS) Installation type. Connected Pin #20 to Pin #13 (GND SG) = Stack Up (SU) Installation type.

CN5 Bezel Connector Pin Assignments

Table 2-14 lists the UBA Pro Unit's CN5 Bezel Connector Pin Assignments.

Table 2-14 CN5 Bezel Connector Pin Assignments



Header: RF-H08 (07) 2SD-1110 (JST)
Contact: RF-SC2210 (JST)
Housing: RF-08 (JST)
Wire Type: Slit Wire UL1007 AWG#24-26

Pin No.	Signal Name	I/O*	Function
1	-	-	No Connection
2	-	-	No Connection
3	O-TTL3	OUT	TTL Communication Output Signal Line
4	I-TTL3	IN	TTL Communication Input Signal Line
5	+12V (Power)	-	+12V DC Power Supply (from UBA Pro)
6	GND (SG)	-	0V DC Power Supply (from UBA Pro)
7	LED Power	-	LED Drive Line (Anode, 5V - 220Ω)
8	LED - (O-TTL2)	OUT	LED Drive Line (Cathode)

*. I/O (input/output) is the terminal as viewed from outside the Banknote Acceptor.

Preventive Maintenance

Collecting Banknotes

To collect Cash Box deposited Banknotes, perform the following steps:

1. Pull the Cash Box Handle to separate the Cash Box from the Frame Housing.
2. Press thumb on the Acceptor Head while pulling the Cash Box Handle forward to obtain better leverage during Cash Box extraction.
3. When a lock is installed on a Cash Box, use the appropriate key to unlock the Cash Box first.
4. Open the Cash Box Door and remove the Banknotes as illustrated in Figure 2-12.

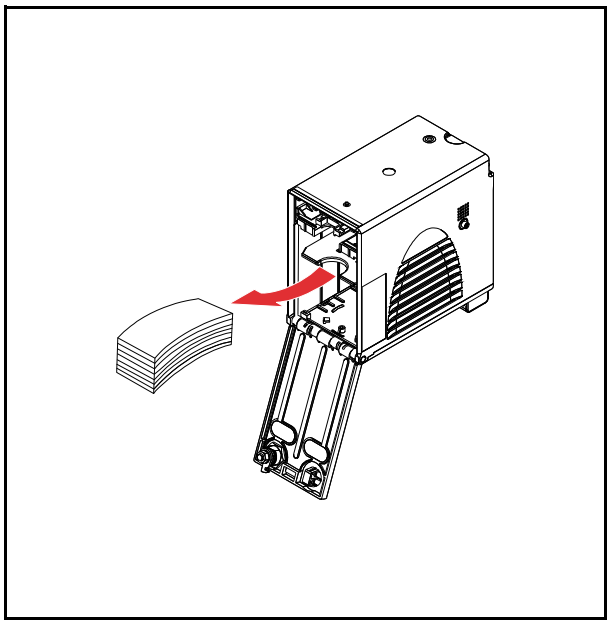


Figure 2-12 Collecting Banknotes

Clearing a Banknote Jam

To remove a jammed Banknote located inside the Banknote Acceptor, proceed as follows:

1. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover (Figure 2-13 a).
2. Remove the jammed Banknote (Figure 2-13 b_1).
3. Remove the UBA Pro Unit (Figure 2-13 c) from the Frame (Figure 2-13 d).
4. Remove any jammed Banknote found in the Transport or Cash Box area (Figure 2-13 b_2).
5. If the Banknote jam location is not evident, pull on the Cash Box Handle to remove it from the Frame (Figure 2-13 e).
6. Remove any jammed Banknote found there (Figure 2-13 b_3 & b_4).

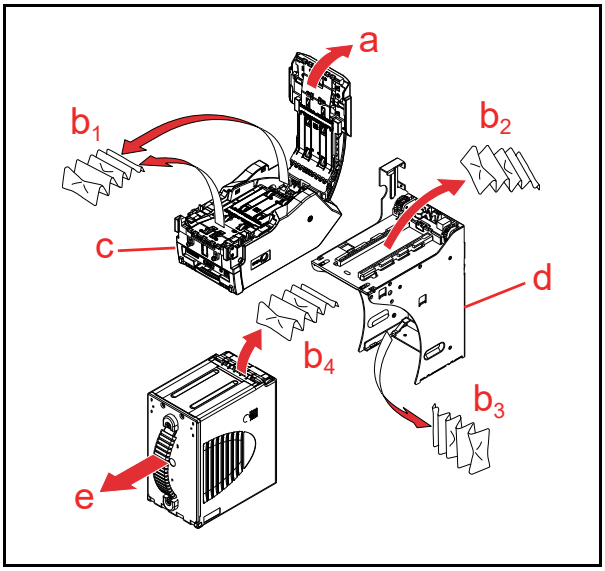
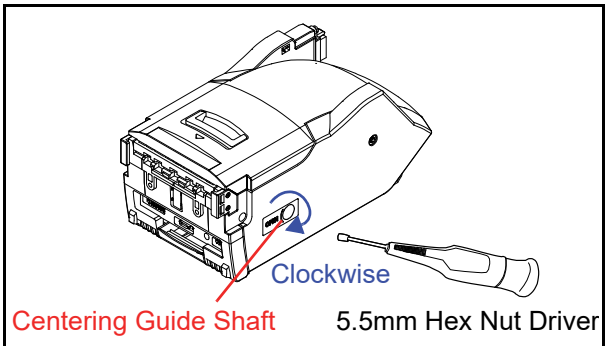


Figure 2-13 Clearing a Banknote Jam

Opening/Closing the Centering Mechanism (UBA-5x0 Series)

If a Banknote jam occurs and the Centering Mechanism is closed, the Cover will not open. To unjam the Unit when this occurs, recycle power to the Unit and allow it to reset.

NOTE: If recycling the power fails to clear a Banknote jam, use a 5.5mm Hex Nut Driver and rotate the Centering Guides Shaft clockwise, then open the Top Cover to remove the jam (Figure 2-14).



NOTE: To open and close the Centering Mechanism, keep turning the Shaft clockwise.

Figure 2-14 Opening/Closing Centering Mechanism (UBA-5x0 Series)

Cleaning Procedure

To clean the UBA Pro Unit, gently rub the Sensors or Rollers in the Banknote Path using a dry, soft, lint-free, Micro-fiber Cloth ONLY.

WARNING: Be sure to use non-flammable compressed air only.

WARNING: DO NOT let liquids or fluids drip into the Unit's interior; otherwise, the Unit may not operate correctly.

CAUTION: To keep the UBA Pro Unit's performance optimal, perform routine cleaning and maintenance:

- At least once a month; and/or
- Whenever Sensors, Rollers or Banknote Path are dirty due to dust, foreign objects or similar debris adhering to them.

CAUTION: Do not use alcohol, thinner or citrus based products for cleaning any Banknote Transport Sensors or surfaces. The lenses can become clouded by chemical evaporation residue that may cause acceptance errors.

1. Remove electrical power from the UBA Pro Unit.
2. Open the UBA Pro Unit's Upper Guide.
3. Clean the appropriate path and Lens of each Sensor and Roller. (Refer to "Sensor and Roller Locations" on page 2-18 for each Sensor and Roller that requires cleaning.)

NOTE: When closing or installing the UBA Pro Unit, ensure it firmly latches into place. Also, when re-installing the UBA Pro Unit, ensure that it re-seats correctly into place.

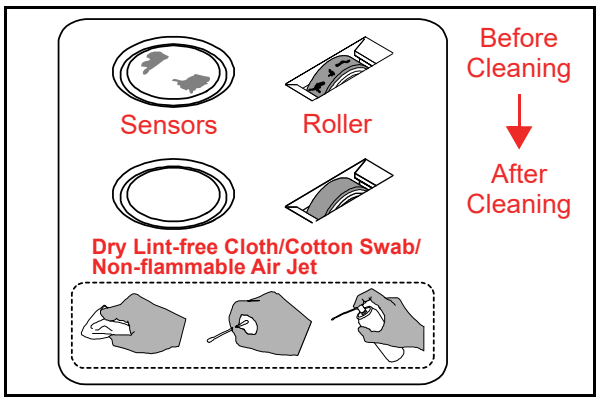


Figure 2-15 General Cleaning Image

Sensor and Roller Locations

Figure 2-16 illustrates the UBA Pro Unit's various sensors and rollers to clean. Table 2-15 lists the UBA Pro sensor type cleaning methods.

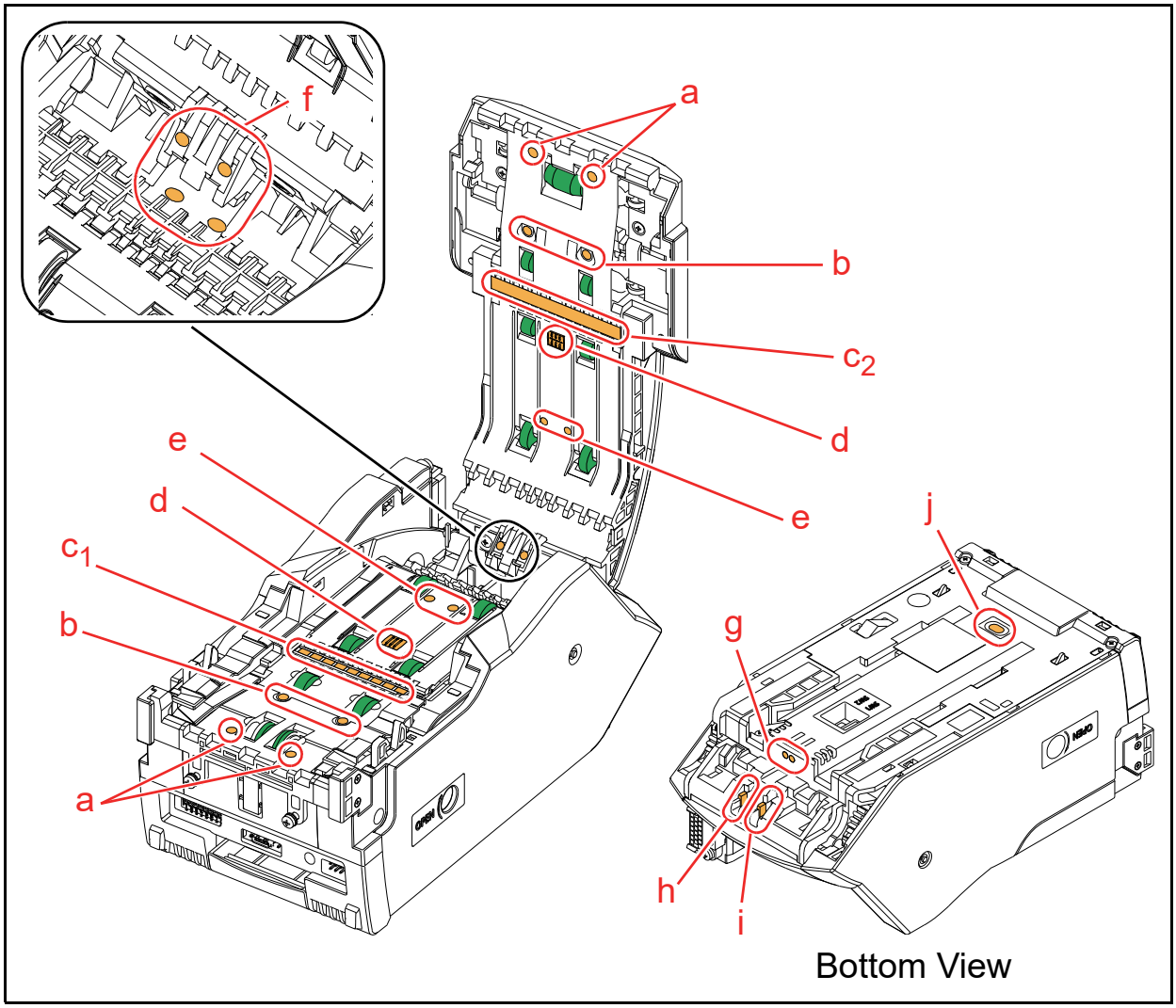


Figure 2-16 UBA Pro Sensor and Roller Locations

Table 2-15 UBA Pro Sensors and Cleaning Methods

Sym.	Sensor/Roller Type	Cleaning Method
a	Entrance Sensor	Wipe clean using a dry, lint free cloth, cotton swab or Blow clean using non-flammable Compressed Air. (Refer to "Cleaning Procedure" on page 2-17.)
b	Centering Start Sensor	
c_1	Validation Sensor (PDIC Sensor Array)	
c_2	Validation Sensor (LED Light Source Module)	
d	Barcode Sensor	
e	PB-IN Sensor	
f	PB-OUT Sensor	
g	Exit Sensor	
h	Pusher Home Position Sensor	
i	Cash Box Detection Sensor (Box Exist)	
j	ICB Sensor	

NOTE: Wipe and clean all of the Green-colored Rollers shown in Figure 2-16 using a slightly damp (not wet), lint-free Micro-fiber cloth as needed.

Standard Interface Circuit Schematics

Sub Board 1 Circuit Schematics 1

Figure 2-17 illustrates the RS232C and Photo-Coupler Isolation interface circuit schematic diagram of the UBA Pro Sub Board 1.

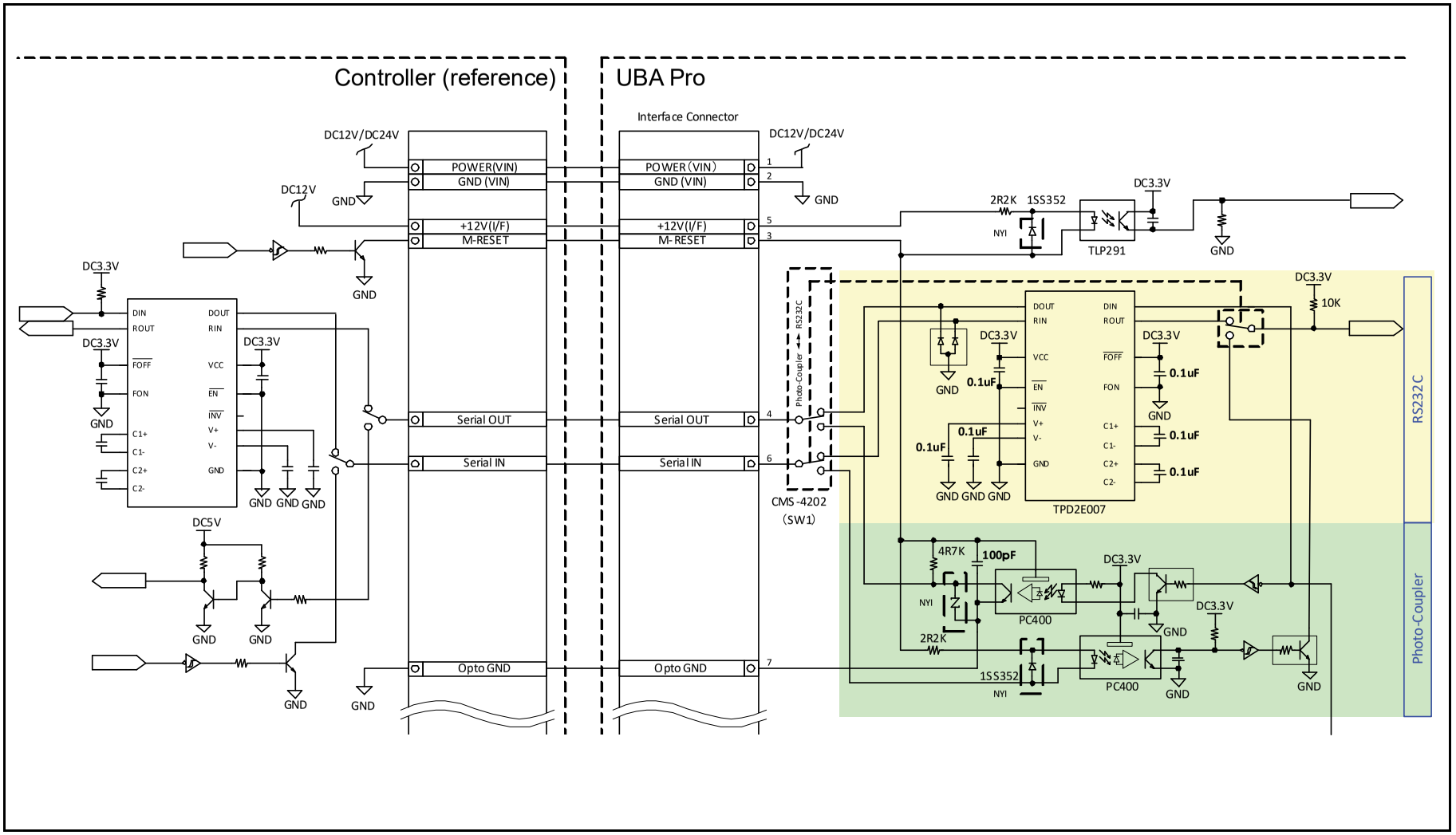


Figure 2-17 UBA Pro Sub Board 1 Interface Circuit Schematic Diagram 1

Sub Board 1 Circuit Schematics 2

Figure 2-18 illustrates the TTL and USB (2 ports) interface circuit schematic diagram of the UBA Pro Sub Board 1.

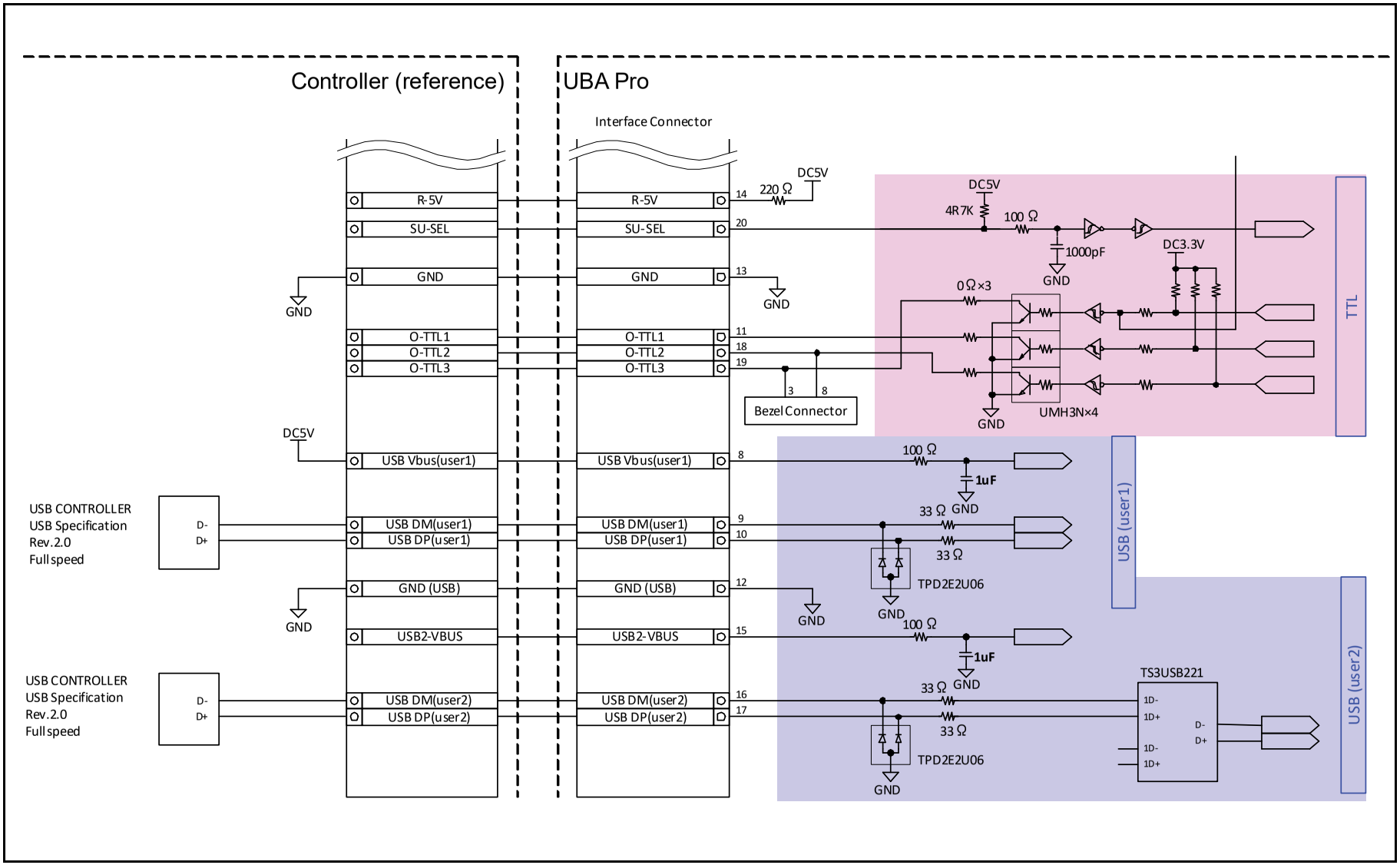


Figure 2-18 UBA Pro Sub Board 1 Interface Circuit Schematic Diagram 2

Sub Board 2 Circuit Schematics 1

Figure 2-19 illustrates the RS232C and Photo-Coupler Isolation interface circuit schematic diagram of the UBA Pro Sub Board 2.

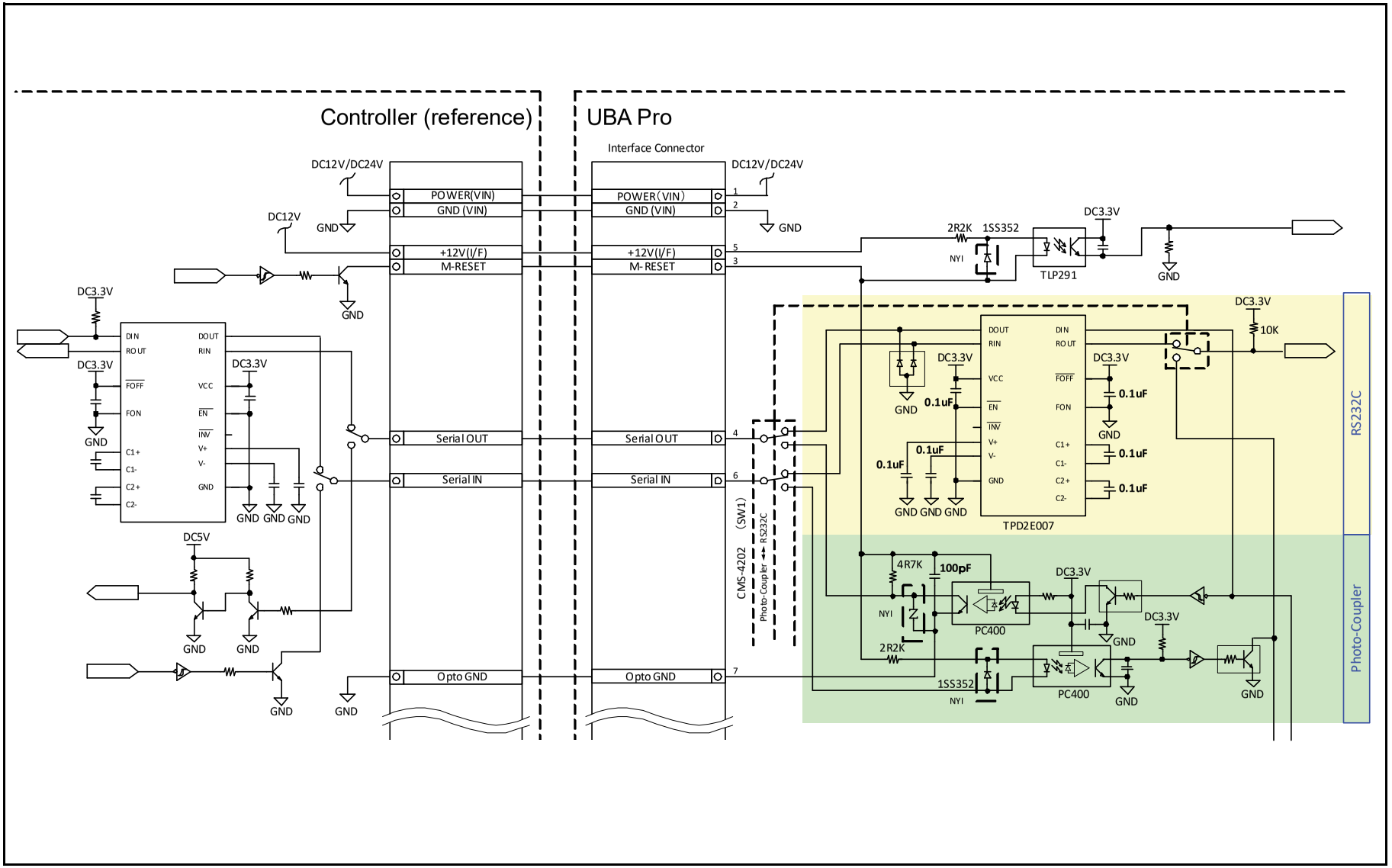


Figure 2-19 UBA Pro Sub Board 2 Interface Circuit Schematic Diagram 1

Sub Board 2 Circuit Schematics 2

Figure 2-20 illustrates the cc-Talk, TTL and USB (1 port) interface circuit schematic diagram of the UBA Pro Sub Board 2.

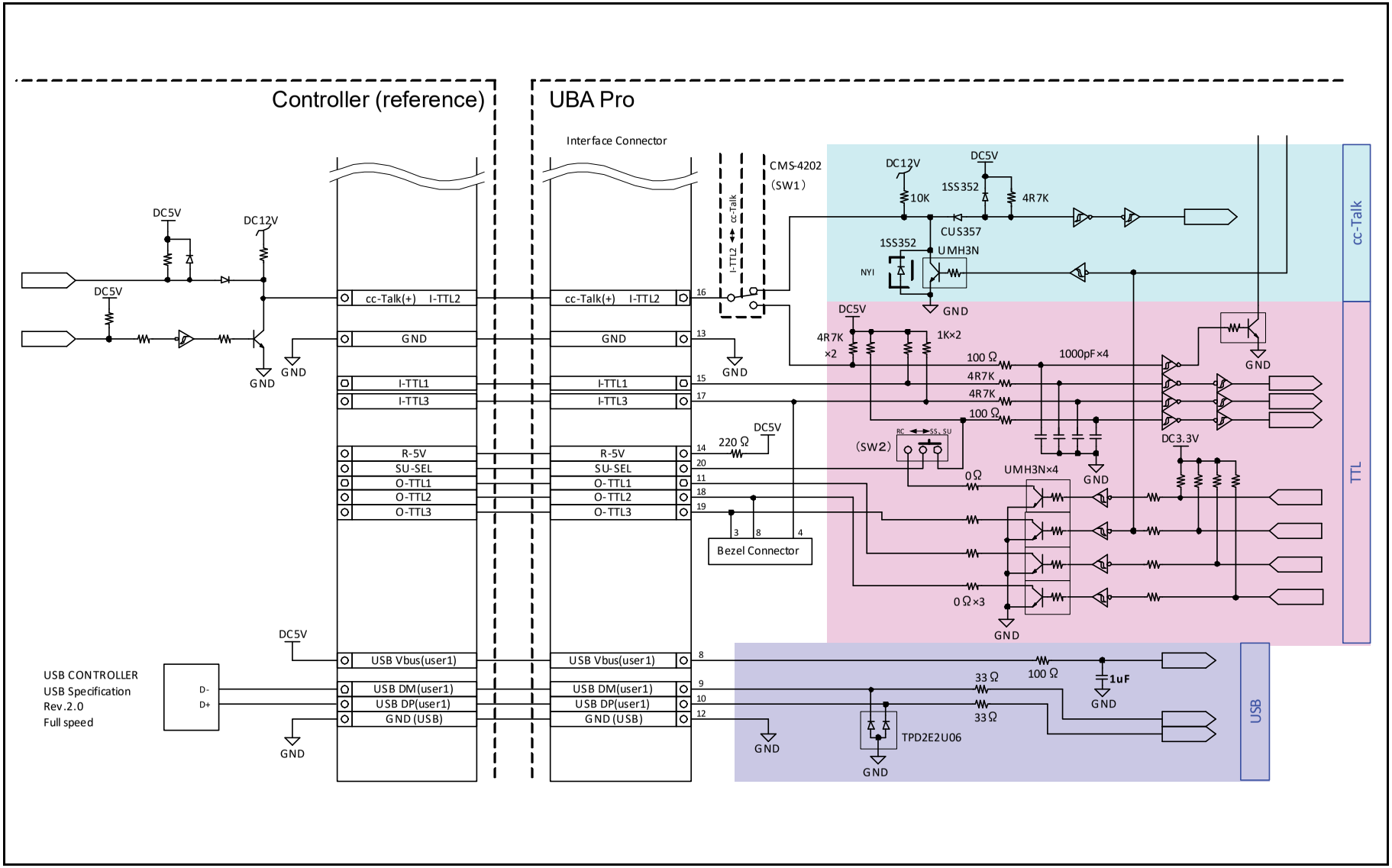


Figure 2-20 UBA Pro Sub Board 2 Interface Circuit Schematic Diagram 2

CN5 Bezel Circuit Schematic

Figure 2-21 illustrates the UBA Pro CN5 Bezel interface circuit schematic diagram.

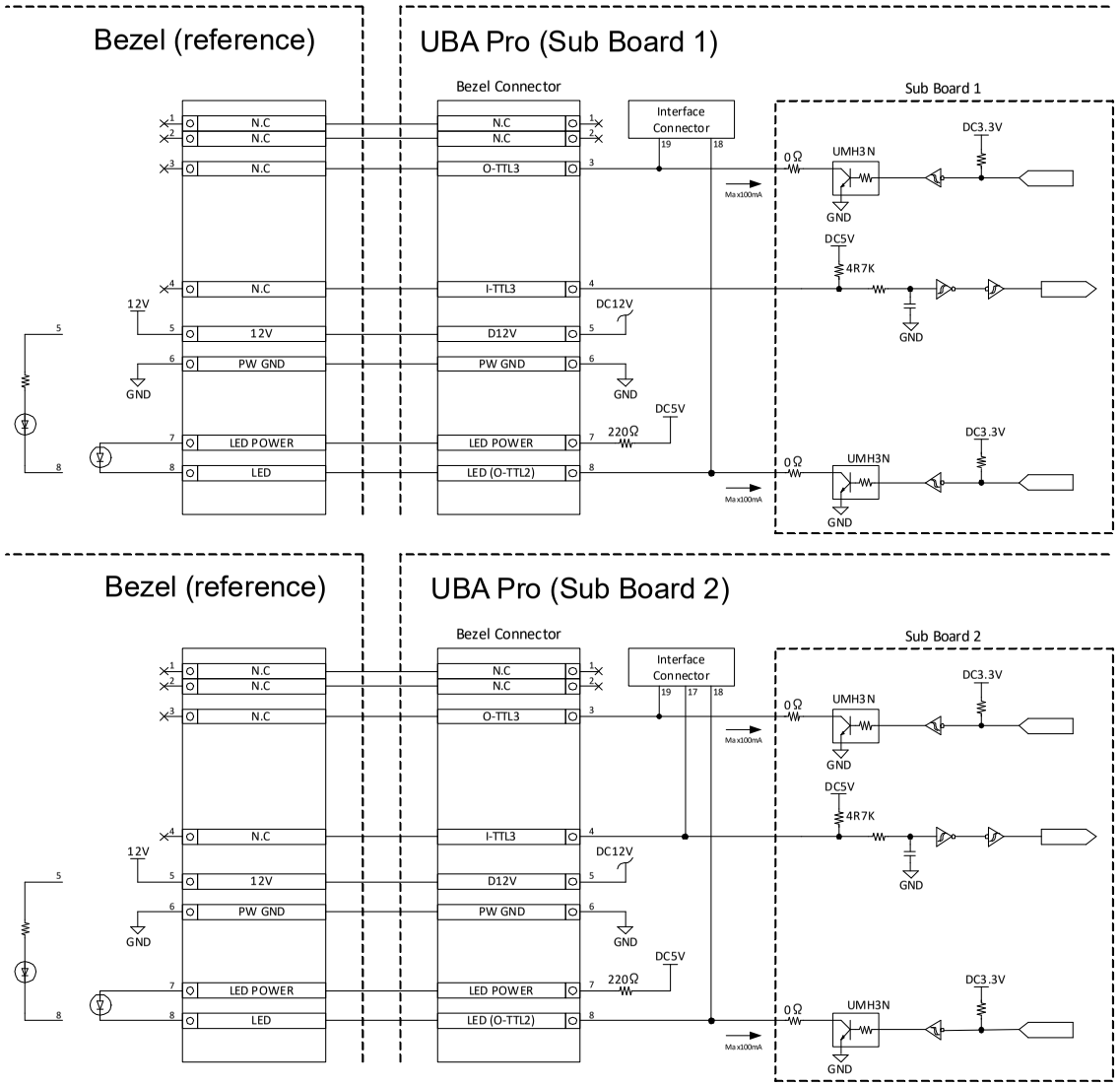


Figure 2-21 UBA Pro CN5 Bezel Interface Circuit Schematic Diagram

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Operational Flowcharts

Initialization and Banknote Acceptance Flowchart

Figure 2-22 depicts a typical UBA Pro Initialization and Banknote Acceptance flow process.

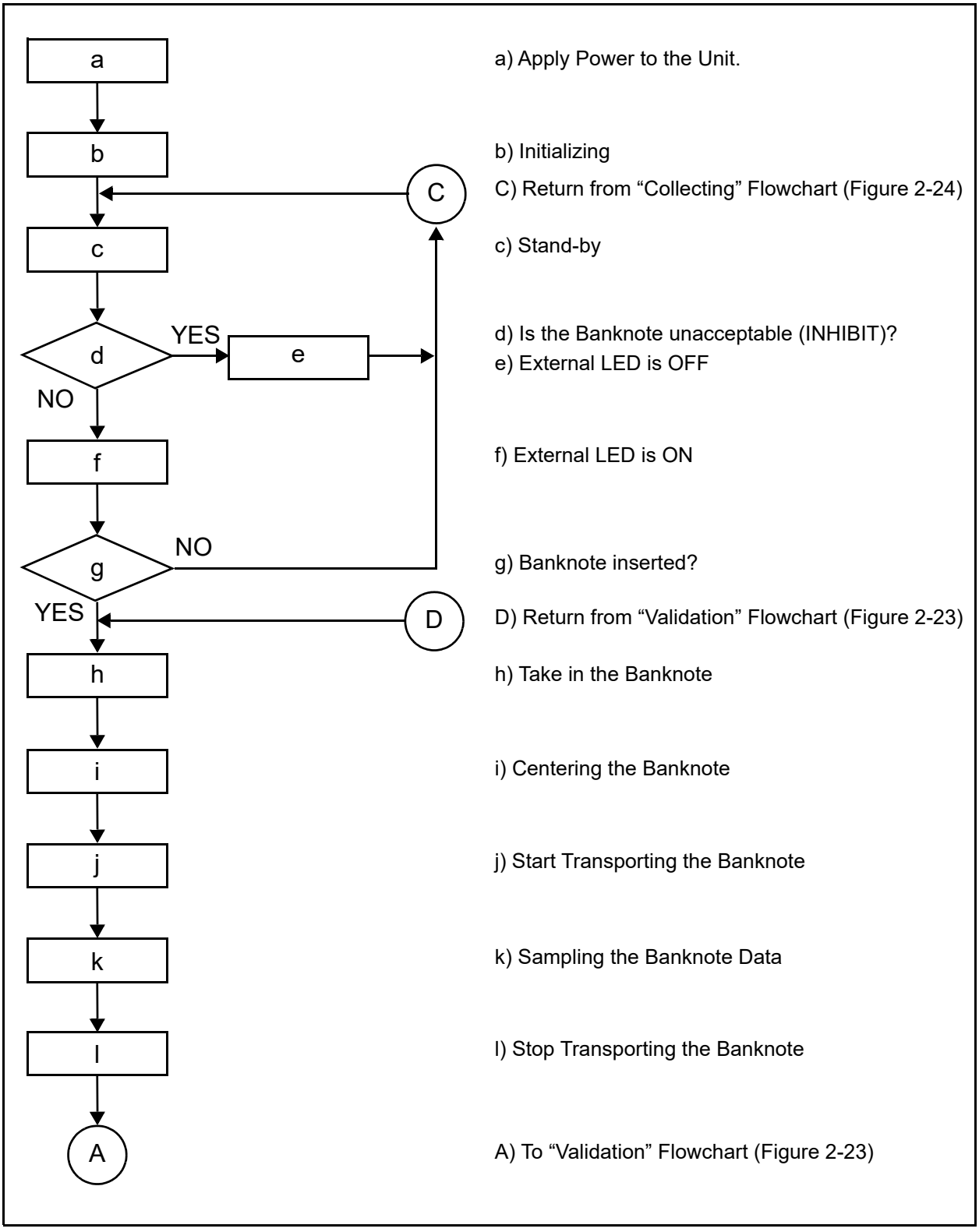
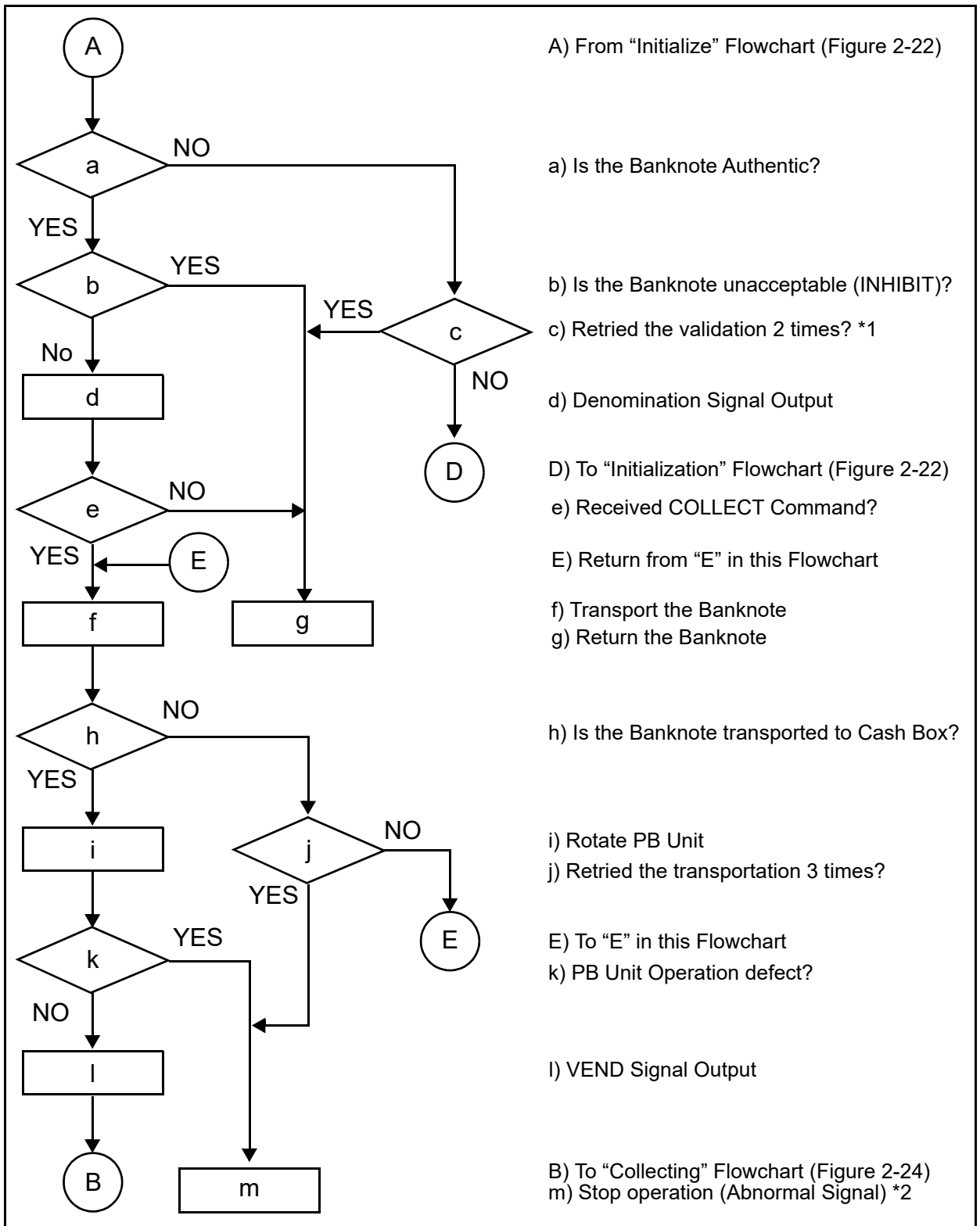


Figure 2-22 UBA Pro Initialization and Banknote Acceptance Flowchart

Validation Flowchart

Figure 2-23 depicts a typical UBA Pro Banknote Validation flow process.

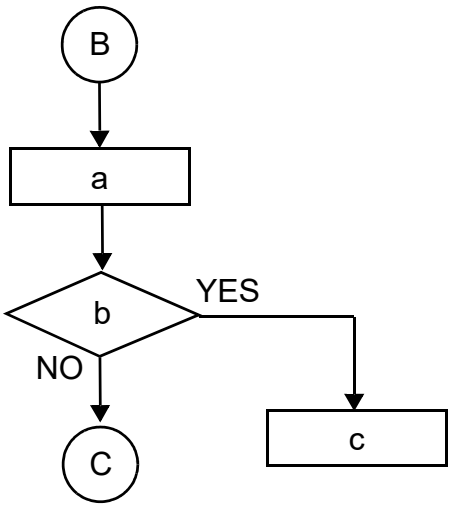


*1). Even when a Banknote is validated as not acceptable, the validation process is retried twice.
*2). When an abnormal signal is received, remove and re-supply Power to the UBA Pro Unit after resolving the problem, or send a RESET Command from the Host Machine.

Figure 2-23 UBA Pro Validation Flowchart

Collecting Flowchart

Figure 2-24 depicts a typical UBA Pro Collecting Banknote flow process.



B) From “Validation” Flowchart (Figure 2-23)

a) Collect the Banknote into the Cash Box

b) Is the Cash Box full?

C) To “Initialization” Flowchart (Figure 2-22)
c) Stop operation (Detected Cash Box Full) *1

*1). When a “Cash Box Full” Signal is received, remove the Banknotes from the Cash Box and re-seat the Cash Box back into the Unit. The Unit will automatically re-initialize.

Figure 2-24 UBA Pro Collecting Flowchart

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UBA™ Pro Series
Universal Banknote Acceptor
Section 3

3 COMMUNICATIONS

This section was intentionally left out due to a Non-Disclosure Agreement requirement.

If this information is required, please contact the closest office location listed below:

Americas
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Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road,
Las Vegas, NV 89119

E-mail: support@jcmglobal.com

Europe, Middle East, Africa & Russia
JCM Europe GmbH

Phone: +49-211-530-645-60

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Mündelheimer Weg 60 D-40472
Düsseldorf Germany

E-mail: support@jcmglobal.eu

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JCM Europe (UK Office)

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E-mail: Shohin@jcm-hq.co.jp

The JCM Website for all locations is:
http://www.jcmglobal.com

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UBA™ Pro Series
Universal Banknote Acceptor
Section 4

4 DISASSEMBLY/REASSEMBLY

This section provides disassembly and reassembly instructions for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro).
This section contains the following information:

NOTE: Calibration is required after reassembly. (Refer to "Calibration and Testing" on page 6-1.)

Tool Requirements

The following tools will be required to perform disassembly and reassembly.

- #1 Phillips Screwdriver
- Flat Blade Screwdriver
- E-Ring Tool
- Tweezer

UBA Pro and Cash Box Removal

To remove the UBA Pro and the Cash Box out of the Frame, proceed as follows:

1. Pull the Lever (Figure 4-1 a) to release the lock.
2. Slide and remove the UBA Pro Unit (Figure 4-1 b) from the Frame (Figure 4-1 e) as illustrated by the Arrow ①.
3. Pull the Cash Box Handle (Figure 4-1 c) to remove the Cash Box (Figure 4-1 d) from the Frame (Figure 4-1 e) in the direction indicated by Arrow ②.

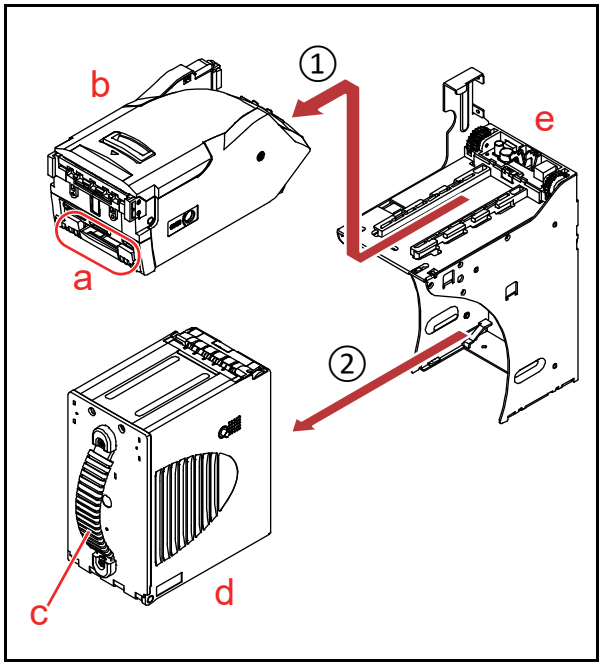

Figure 4-1 UBA Pro and Cash Box Removal

LED Light Module and Upper Barcode Sensor Removal

To remove the LED Light Module and the Upper Barcode Sensor, proceed as follows:

1. Remove the two (2) Screws (Figure 4-2 a_1 & a_2).

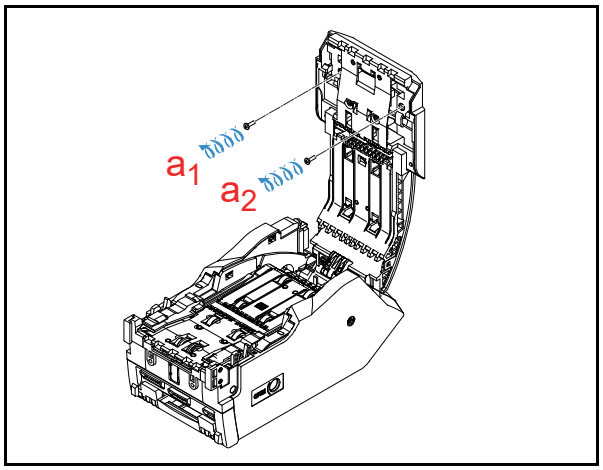

Figure 4-2 LED Light Module and Upper Barcode Sensor Removal 1

2. Release the six (6) Locking Tabs (Figure 4-3 a_1 through a_6), and remove the Top Cover (Figure 4-3 b).

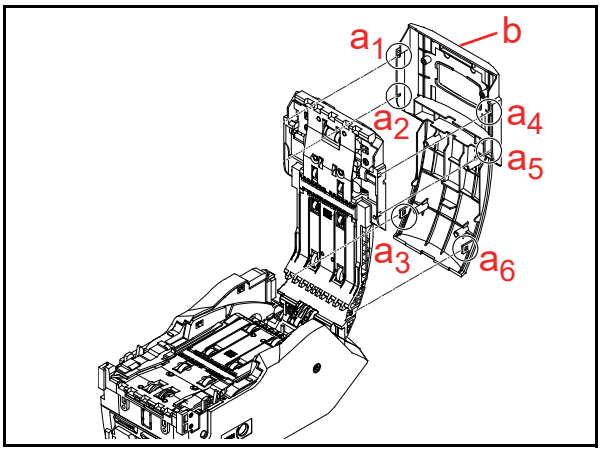

Figure 4-3 LED Light Module and Upper Barcode Sensor Removal 2

3. Unplug the two (2) Connectors (Figure 4-4 a_1 & a_2), and remove the FPC Harness (Figure 4-4 b).

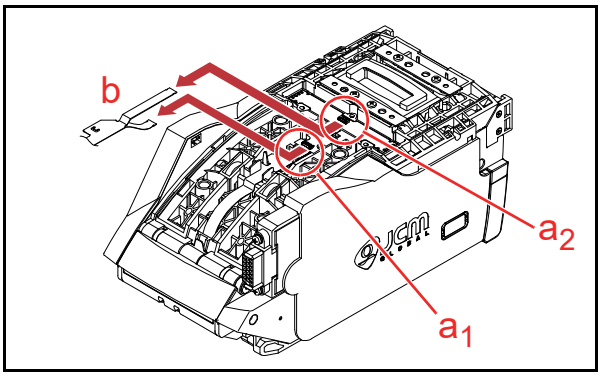

Figure 4-4 LED Light Module and Upper Barcode Sensor Removal 3

4. Remove the three (3) Screws (Figure 4-5 a_1 through a_3), and remove the LED Light Module (Figure 4-5 b).
5. Remove the two (2) Screws (Figure 4-5 c_1 & c_2), and the Upper Barcode Sensor (Figure 4-5 d).

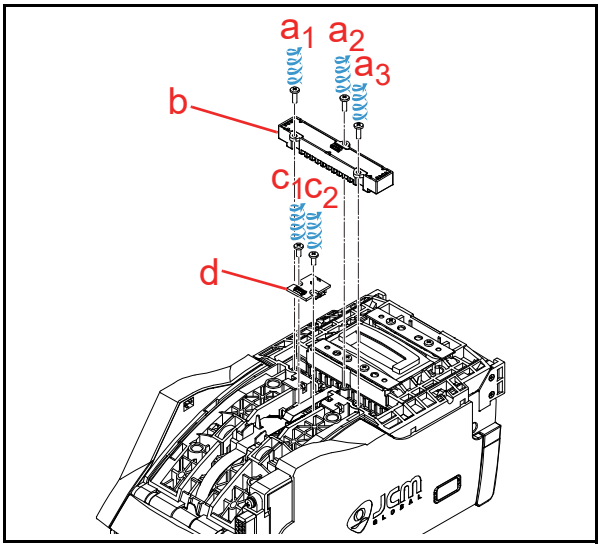

Figure 4-5 LED Light Module and Upper Barcode Sensor Removal 4

Box Sensor Removal

To remove the Box Sensor, proceed as follows:

1. Release the two (2) Locking Tabs (Figure 4-6 a_1 & a_2), and remove the Back Cover (Figure 4-6 b).

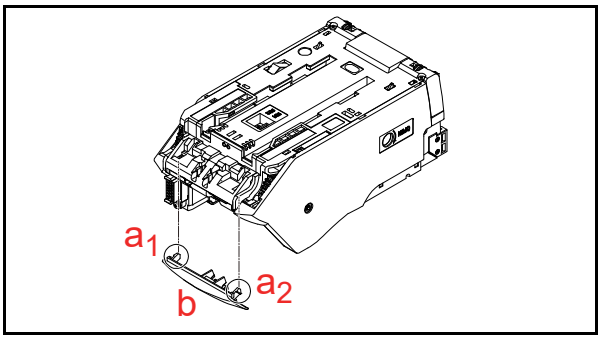

Figure 4-6 Box Sensor Removal 1

2. Unplug the single (1) Connector (Figure 4-7 a), and remove the FPC Harness (Figure 4-7 b).
3. Remove the two (2) Screws (Figure 4-7 c_1 & c_2), and remove the Box Sensor (Figure 4-7 d).

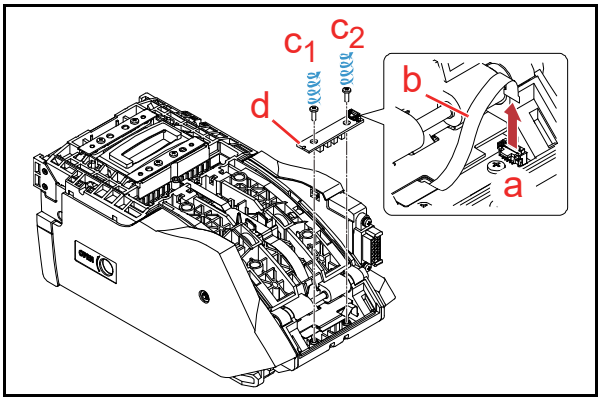

Figure 4-7 Box Sensor Removal 2

Sub Board Removal

To remove the Sub Board, proceed as follows:

1. Release the six (6) Locking Tabs (Figure 4-8 a_1 through a_6), and remove the Side Cover R (Figure 4-8 b).

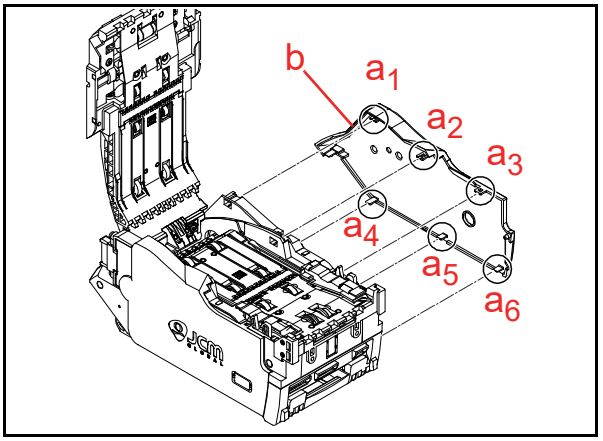

Figure 4-8 Sub Board Removal 1

2. Release the six (6) Locking Tabs (Figure 4-9 a_1 through a_6), and remove the Side Cover L (Figure 4-9 b).

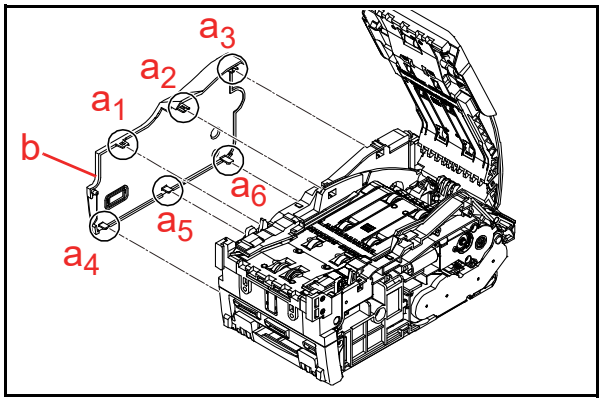

Figure 4-9 Sub Board Removal 2

3. Remove the five (5) Screws (Figure 4-10 a_1 through a_5).

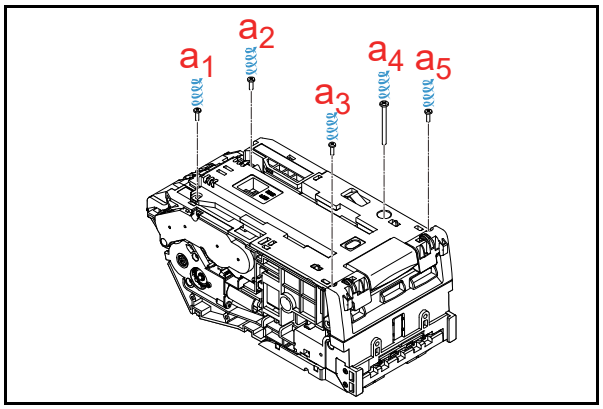

Figure 4-10 Sub Board Removal 3

4. Hold each side of the Bottom Cover (Figure 4-11 a) with your hands as illustrated in Figure 4-11.
5. Slide and remove the Cover as indicated by the Arrow.

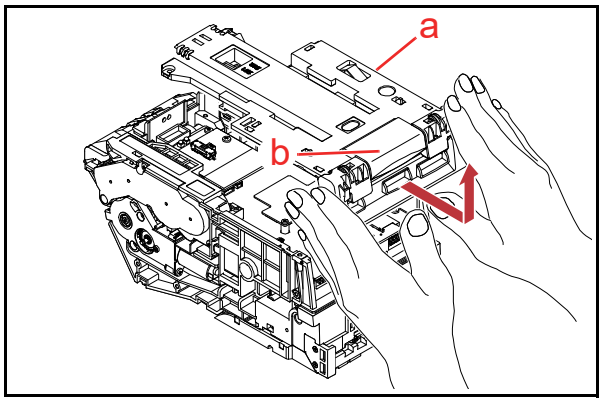

Figure 4-11 Sub Board Removal 4

NOTE: Do Not lift up the Release Lever (Figure 4-11 b) when removing the Bottom Cover to avoid the risk of damage to the Main Board.

6. Remove the two (2) Screws (Figure 4-12 a_1 & a_2), and remove the Sub Board (Figure 4-12 b).

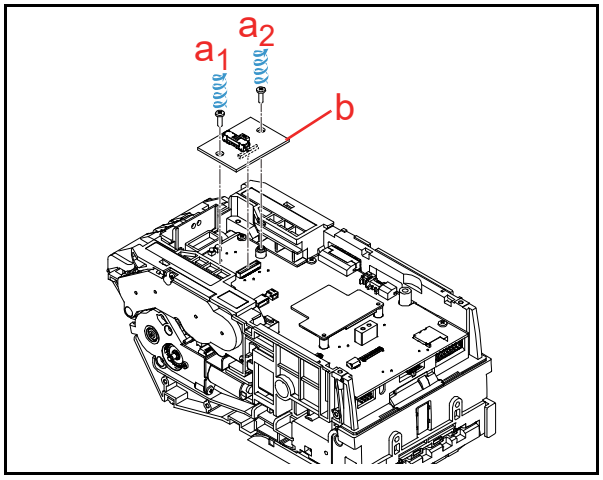

Figure 4-12 Sub Board Removal 5

Main Board Removal

To remove the Main Board, proceed as follows:

1. Unplug the two (2) Connectors (Figure 4-13 a_1 & a_2), and remove the FPC Harness (Figure 4-13 b) as illustrated by the Arrows.

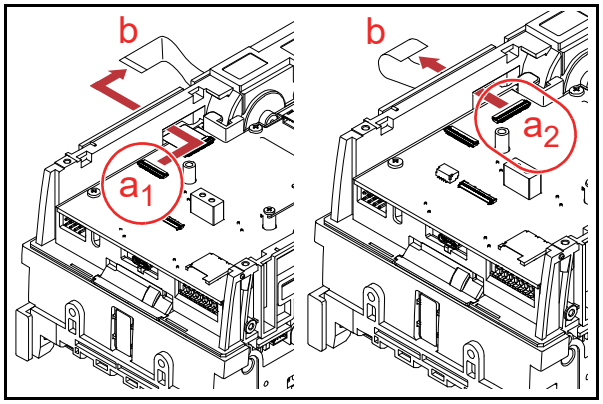

Figure 4-13 Main Board Removal 1

2. Unplug the six (6) Connectors (Figure 4-14 a_1 through a_6).

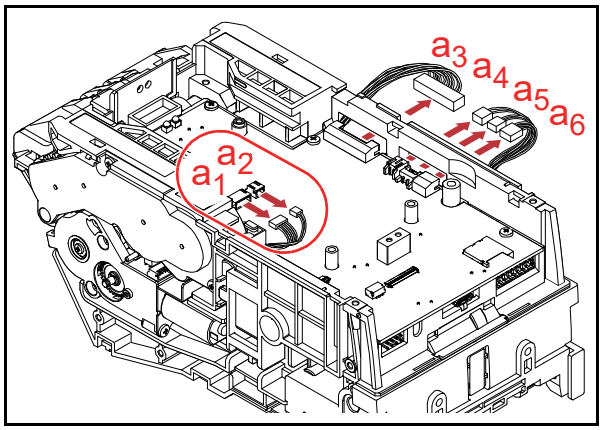

Figure 4-14 Main Board Removal 2

3. Remove the six (6) Screws (Figure 4-15 a_1 through a_6), and remove the Main Board (Figure 4-15 b).

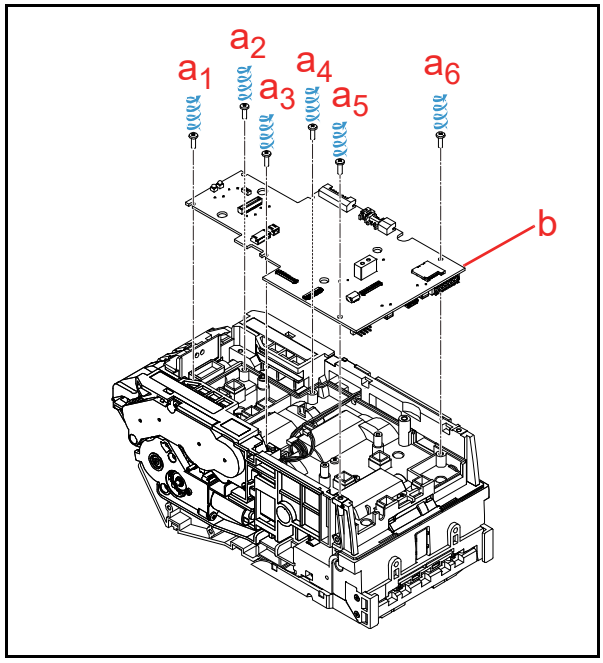

Figure 4-15 Main Board Removal 3

Centering Motor Harness Assy. Removal

To remove the Centering Motor Harness Assy., proceed as follows:

1. Release the Harness (Figure 4-16 a) from the Catch (Figure 4-16 b).
2. Feed the Harness in through the hole on the side of the Unit as illustrated.

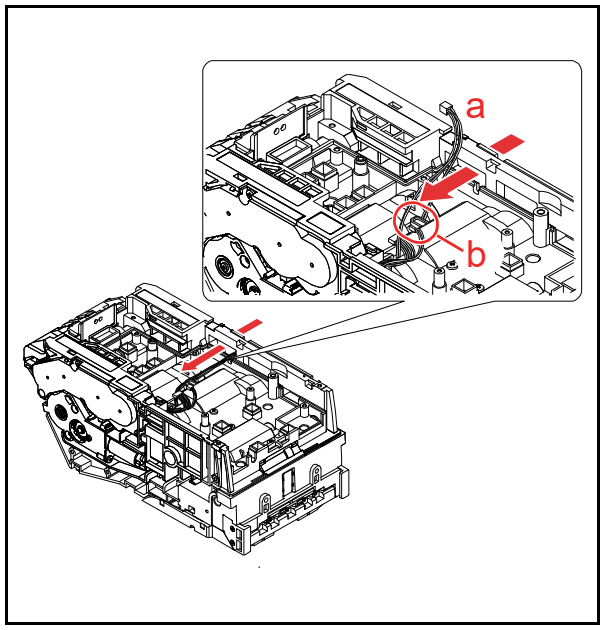

Figure 4-16 Centering Motor Harness Assy. Removal 1

3. Feed the Harness (Figure 4-17 a) out through the hole on the side of the Unit as illustrated.

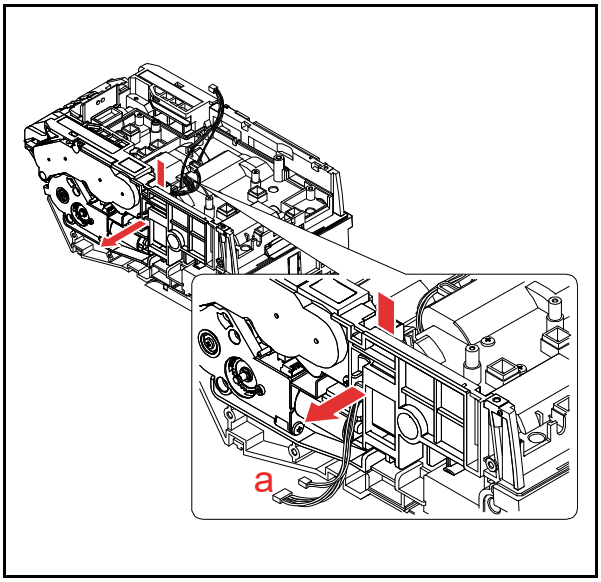

Figure 4-17 Centering Motor Harness Assy. Removal 2

4. Remove the eight (8) Screws (Figure 4-18 a_1 through a_8).
5. Remove the CPU Board Cover (Figure 4-18 b) and the Waterproof Cover (Figure 4-18 c).

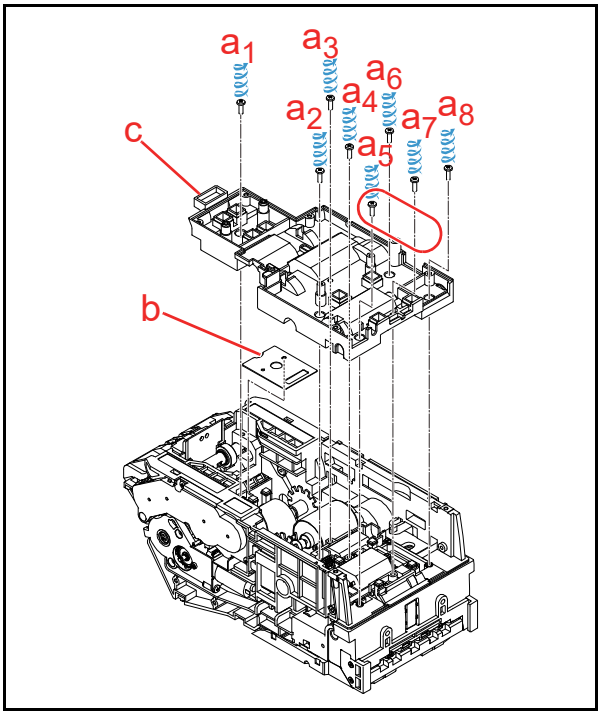

Figure 4-18 Centering Motor Harness Assy. Removal 3

NOTE: For the reassembly, ensure that the CPU Board Cover is:

- *firmly installed in place*
- *not blocking any Light Guides; and*
- *not contacting the Motor Encoder.*

6. Unplug the Motor Harness (Figure 4-19 a), and feed the Harness in through the hole on the side of the Unit as illustrated.
7. Remove the Centering Motor Harness Assy. (Figure 4-19 b).

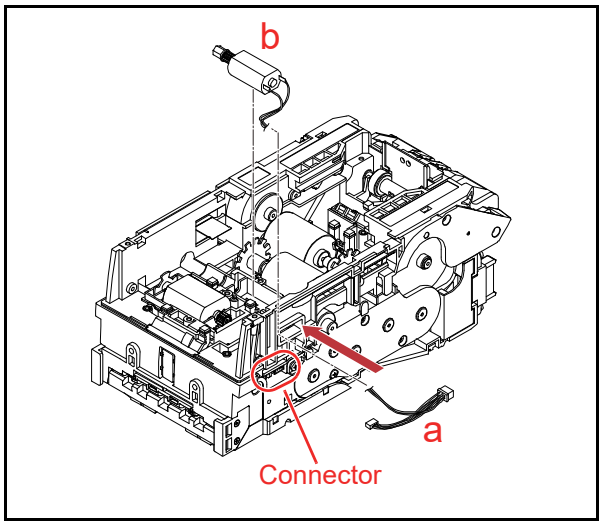

Figure 4-19 Centering Motor Harness Assy. Removal 4

Entrance Motor Harness Assy. Removal

To remove the Entrance Motor Harness Assy., proceed as follows:

1. Feed the Harness (Figure 4-20 a) in though the hole on the side of the Unit as illustrated by the Arrow.
2. Remove the Entrance Motor Harness Assy. (Figure 4-20 b).

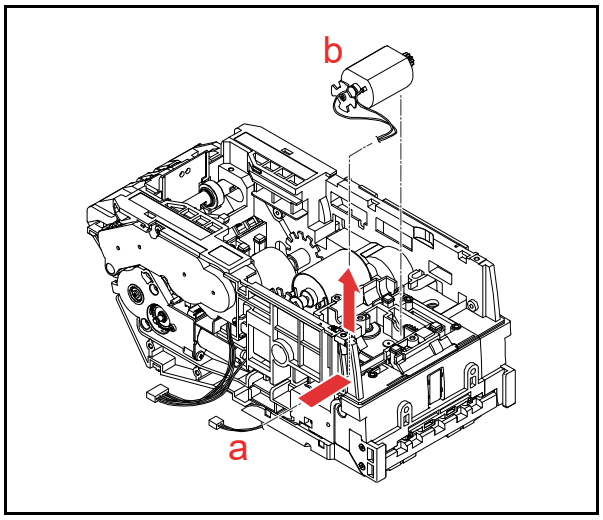

Figure 4-20 Entrance Motor Harness Assy. Removal

Centering HP Board Removal

To remove the Centering HP Board, proceed as follows:

1. Remove the Middle Bracket Assy. (Figure 4-21 a).

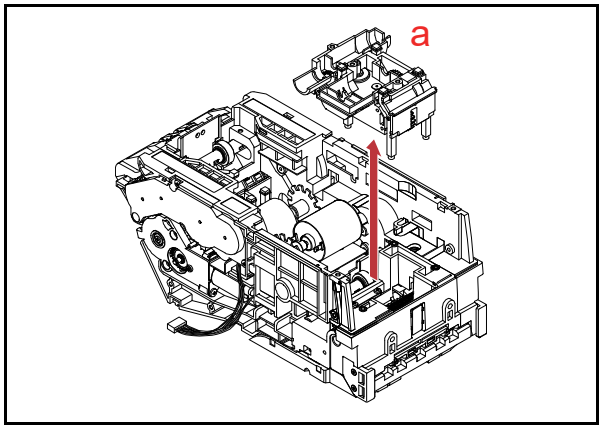

Figure 4-21 Centering HP Board Removal 1

NOTE: For the reassembly, ensure that Middle Bracket Assy. is firmly installed in place.

NOTE: For the reassembly, ensure that Centering Guide R and L are symmetrically positioned at the exact same distance from the center.

2. Remove the single (1) Screw (Figure 4-22 a).

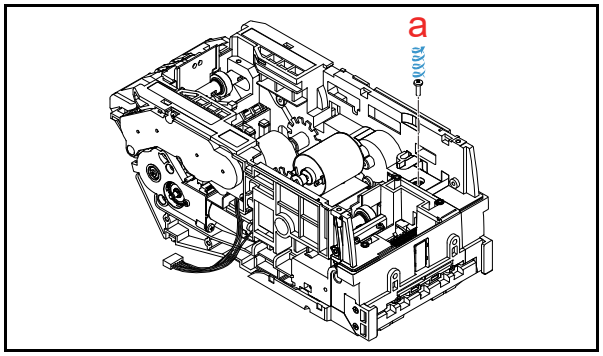

Figure 4-22 Centering HP Board Removal 2

3. Remove and take the Centering HP Board (Figure 4-23 a) out through the side of the Unit as illustrated by the Arrow.

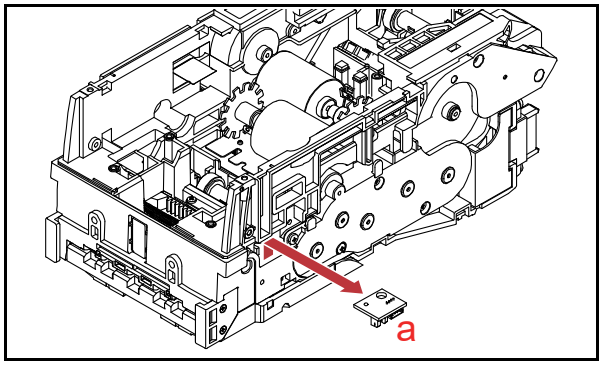

Figure 4-23 Centering HP Board Removal 3

PB Encoder HP Board Removal

To remove the PB Encoder HP Board, proceed as follows:

1. Remove the two (2) Screws (Figure 4-24 a_1 & a_2).
2. Keeping the Lever (Figure 4-24 b) pulling down, remove the PB Bracket Assy. (Figure 4-24 c).

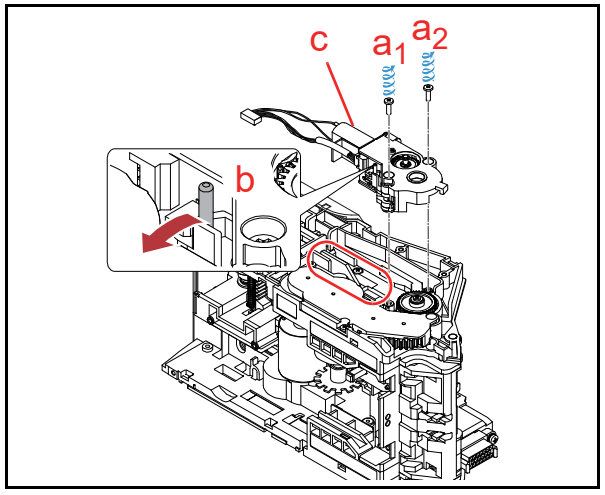

Figure 4-24 PB Encoder HP Board Removal 1

3. Unplug the single (1) Connector (Figure 4-25 a).
4. Remove the single (1) Screw (Figure 4-25 b).

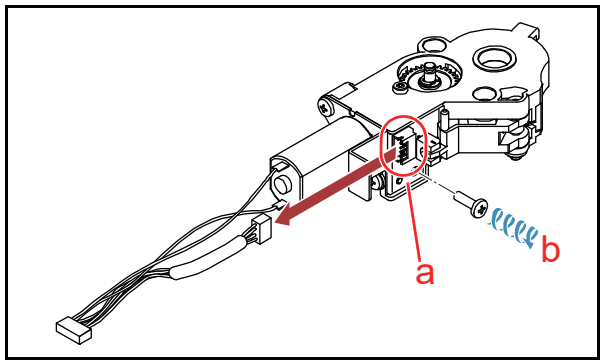

Figure 4-25 PB Encoder HP Board Removal 2

5. Keeping the Lever (Figure 4-26 a) pulling down, remove the PB Encoder HP Board (Figure 4-26 b).

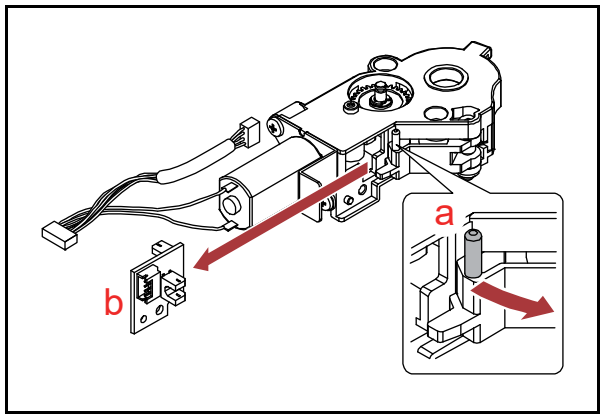

Figure 4-26 PB Encoder HP Board Removal 3

PB Motor Harness Assy. Removal

To remove the PB Motor Harness Assy., proceed as follows:

1. Remove the two (2) Screws (Figure 4-27 a_1 & a_2), and remove the PB Motor Plate Assy. (Figure 4-27 b).

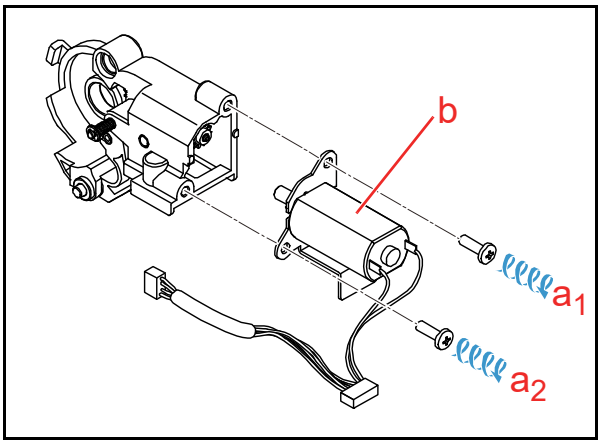

Figure 4-27 PB Motor Harness Assy. Removal 1

2. Remove the two (2) Screws (Figure 4-28 a_1 & a_2).

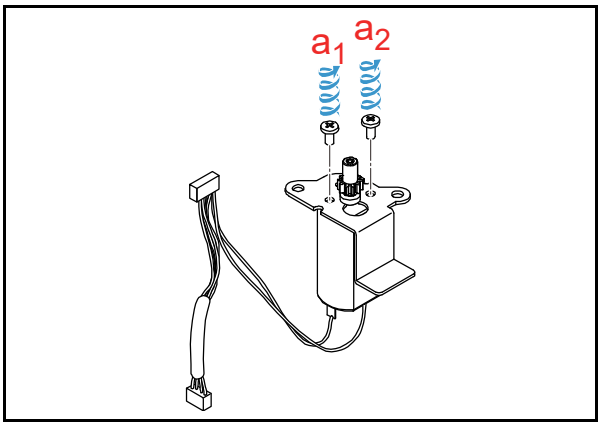

Figure 4-28 PB Motor Harness Assy. Removal 2

3. Slide and remove the PB Motor Harness Assy. (Figure 4-29 a) as illustrated by the Arrow.

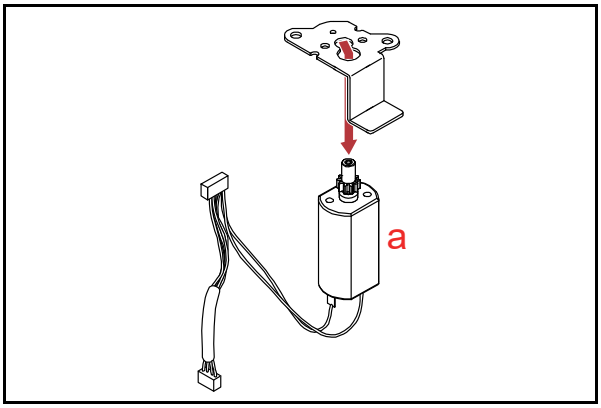

Figure 4-29 PB Motor Harness Assy. Removal 3

Stack Motor Harness Assy. Removal

To remove the Stack Motor Harness Assy., proceed as follows:

1. Remove the four (4) Screws (Figure 4-30 a_1 through a_4), and remove the Stack Gear Cover (Figure 4-30 b).

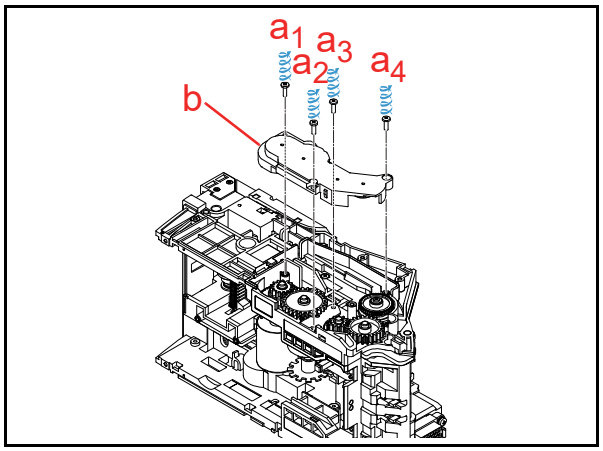

Figure 4-30 Stack Motor Harness Assy. Removal 1

2. Remove the two (2) Screws (Figure 4-31 a_1 & a_2).

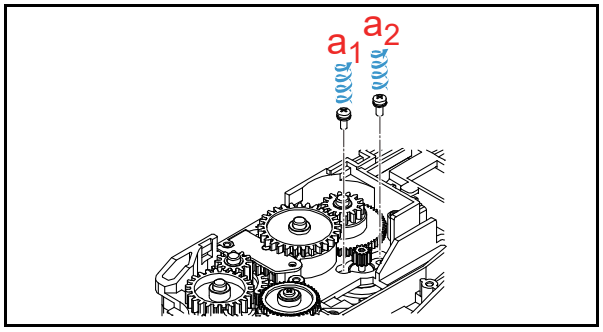

Figure 4-31 Stack Motor Harness Assy. Removal 2

3. Remove the Stack Motor (Figure 4-32 a).

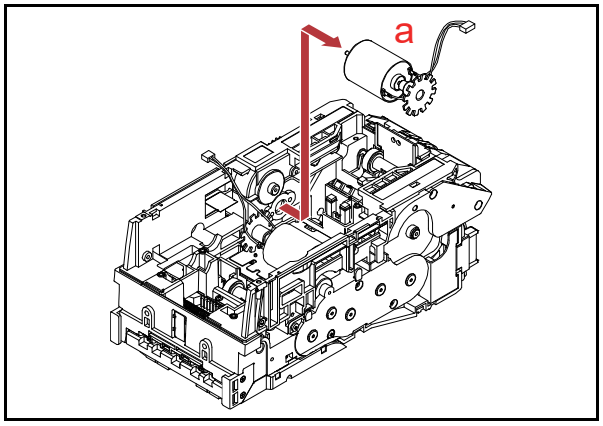

Figure 4-32 Stack Motor Harness Assy. Removal 3

NOTE: For the wire routing when reassembling, ensure that both Orange and Blue Motor Cables are placed under the Motor Encoder.

Transport Motor Harness Assy. Removal

To remove the Transport Motor Harness Assy., proceed as follows:

1. Remove the Tape (Figure 4-33 a) securing the Harness.

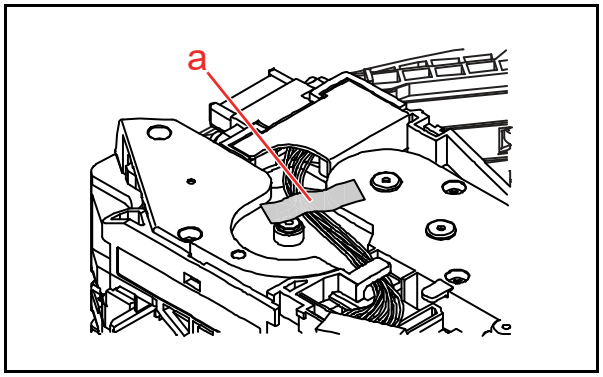

Figure 4-33 Transport Motor Harness Assy. Removal 1

2. Ensure that the Upper Cover is opened.
   How to open the Upper Cover:
   Slide the Levers (Figure 4-34 a_1 & a_2) to open the Centering Mechanism in the directions indicated by Arrows before opening the Cover.

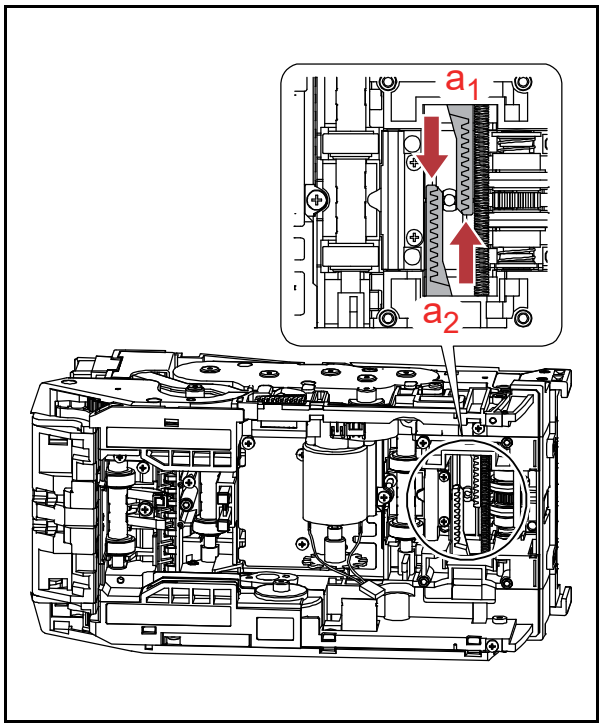

Figure 4-34 Transport Motor Harness Assy. Removal 2

3. Remove the six (6) Screws (Figure 4-35 a_1 through a_6), and remove the Transport Gear Cover (Figure 4-35 b).

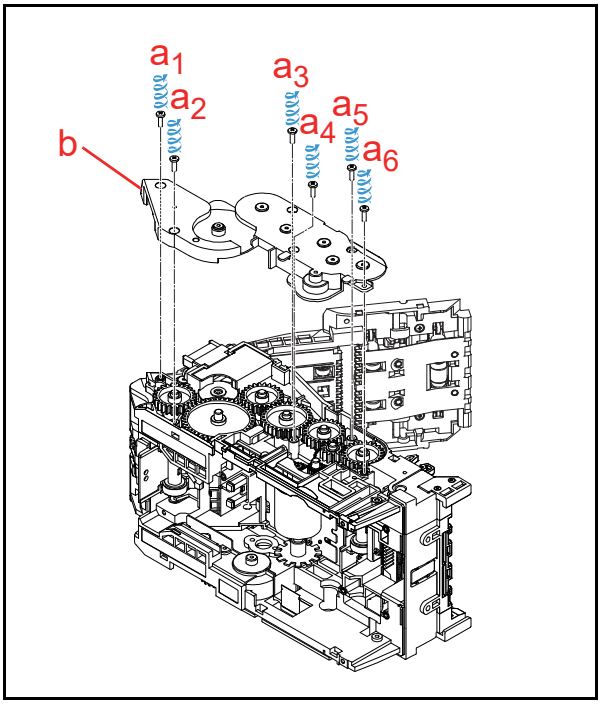

Figure 4-35 Transport Motor Harness Assy. Removal 3

4. Remove the eight (8) Gears (Figure 4-36 a_1 through a_8).

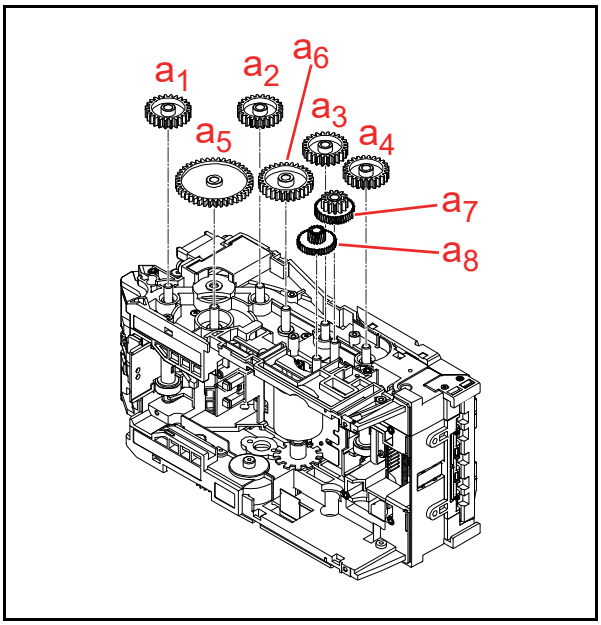

Figure 4-36 Transport Motor Harness Assy. Removal 4

NOTE: For the reassembly, ensure that the TR Gear M1 Z24 (Figure 4-36 a_1 through a_4) is installed adjusting to the shape of the Shaft.

5. Remove the two (2) Screws (Figure 4-37 a_1 & a_2), and remove the Transport Motor Harness Assy, (Figure 4-37 b).

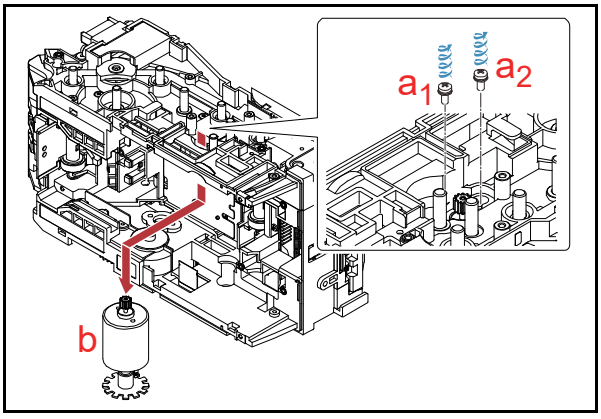

Figure 4-37 Transport Motor Harness Assy. Removal 5

NOTE: For the wire routing when reassembling, ensure that both Orange and Blue Cables are placed under the Motor Encoder.

PDIC Array Removal

To remove the PDIC Array, proceed as follows:

1. Remove the four (4) Screws (Figure 4-38 a_1 through a_4), and remove the TR Guide L Assy. (Figure 4-38 b).

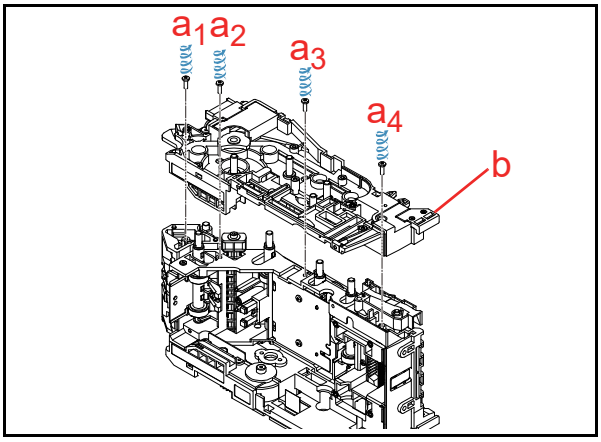

Figure 4-38 PDIC Array Removal 1

2. Remove the two (2) Screws (Figure 4-39 a_1 & a_2), and remove the Waterproof Cover (Figure 4-39 b).

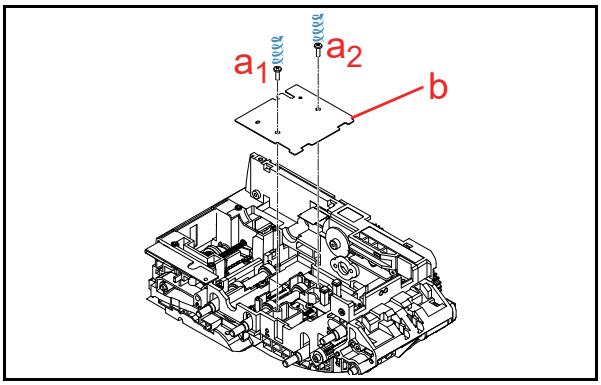

Figure 4-39 PDIC Array Removal 2

3. Unplug the two (2) Connectors (Figure 4-40 a_1 & a_2), and remove the FPC Harness (Figure 4-40 b).

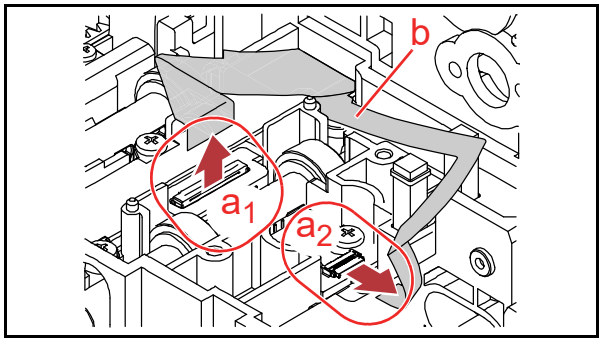

Figure 4-40 PDIC Array Removal 3

4. Remove the single (1) Screw (Figure 4-41 a), and remove the PDIC Array (Figure 4-41 b).

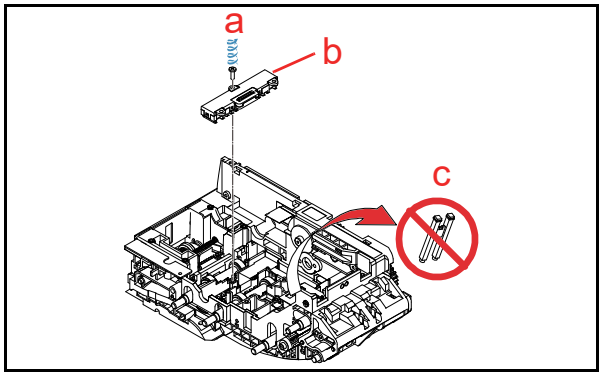

Figure 4-41 PDIC Array Removal 4

NOTE: Be careful not to drop the Prism (Figure 4-41 c) when disassembling.

Lower BAR Sensor Removal

To remove the Lower Barcode Sensor, proceed as follows:

NOTE: This removal procedure is reserved for the UBA Pro Units equipped with a Lower BAR Sensor Board.

1. Remove the two (2) Screws (Figure 4-42 a_1 & a_2), and remove the Lower BAR Sensor (Figure 4-42 b).

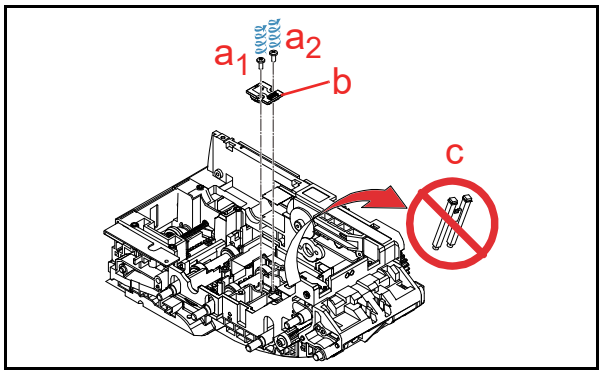

Figure 4-42 Lower BAR Sensor Removal

NOTE: Be careful not to drop the Prism (Figure 4-42 c) when disassembling.

Slide Roller Removal

To remove the Slide Roller, proceed as follows:

1. Remove the Entrance Roller Shaft (Figure 4-43 a).
2. Remove the Slide Roller Assy. (Figure 4-43 b).

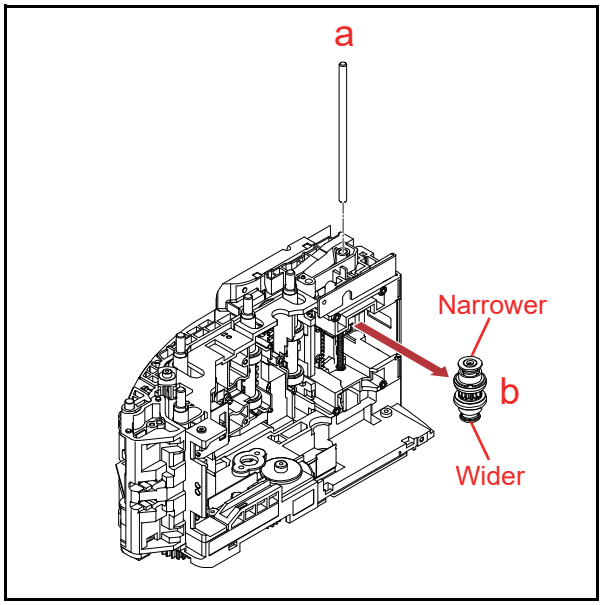

Figure 4-43 Slide Roller Removal 1

NOTE: For the reassembly, ensure that the Slid Roller Shaft Assy. is installed considering its "Narrower" and "Wider" ends.

3. Disassemble the Slide Roller Assy. to remove the Slide Rollers (Figure 4-44 a_1 & a_2).

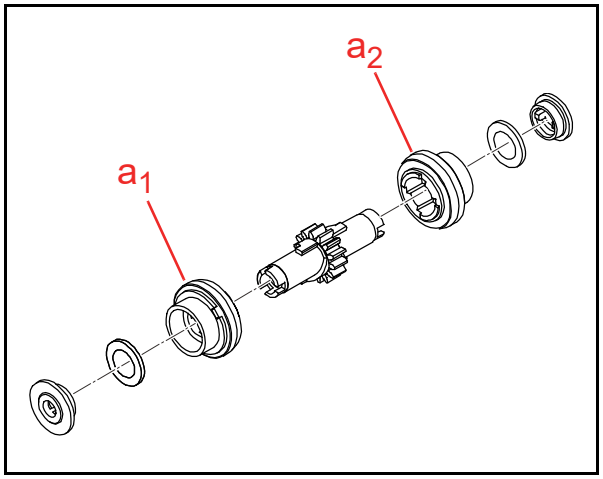

Figure 4-44 Slide Roller Removal 2

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UBA™ Pro Series
Universal Banknote Acceptor
Section 5

5 WIRING DIAGRAMS

This section provides a Wiring Diagram for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro) for the following item:

UBA Pro Wiring Diagram

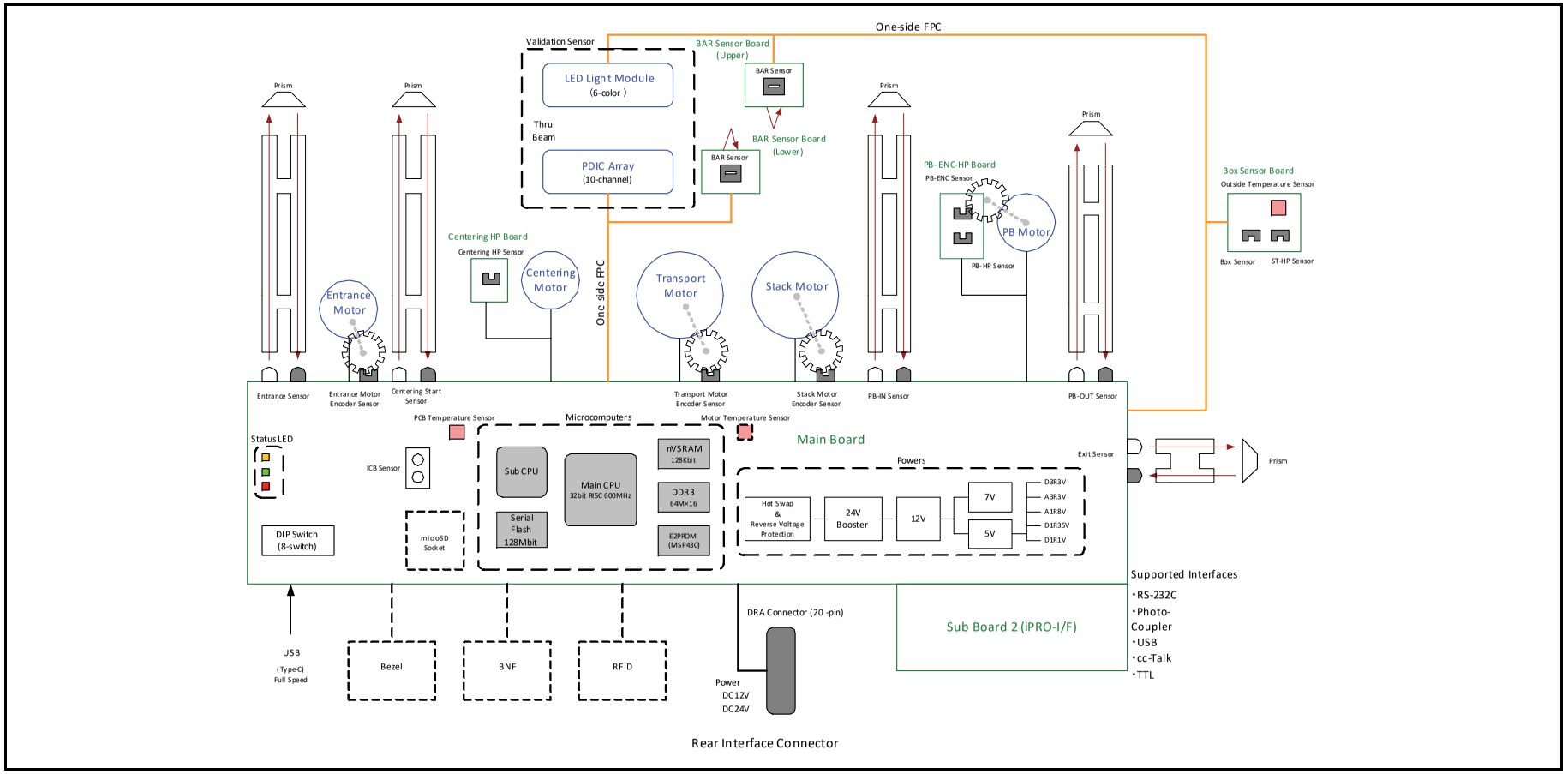

Figure 5-1 UBA Pro Wiring Diagram

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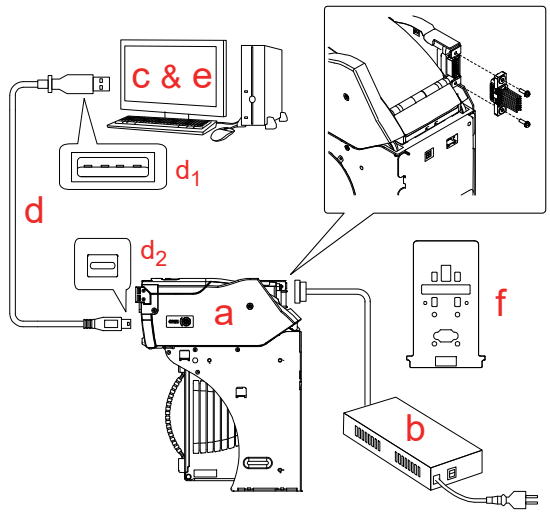
UBA™ Pro Series
Universal Banknote Acceptor
Section 6

6 CALIBRATION AND TESTING

This section provides Calibration and Performance Testing instructions for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro). This section contains the following information:

Tool Requirements

Figure 6-1 illustrates and identifies the tools and equipment interconnects necessary to download and install the Unit.



a) UBA Pro Unit
b) Power Supply
c) PC (OS: Windows® 8/10) (USB Driver Installed)
d) USB Cable
   d_1) USB Type-A (PC Side)
   d_2) USB Type-C (UBA Pro Side)
e) Application Software*
   (JCM Tool Suite Standard Edition)
f) Reference Paper (KS-101)

*. Containing USB Downloader, Sensor Calibration, Performance Test programs and Utility Function.

NOTE: Do Not put too much pressure on the USB Cable to avoid the risk of damage to the UBA Pro's PCB.

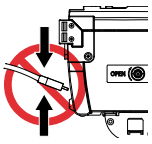


Figure 6-1 Tool and Harness Connections

Installation Procedures

Perform the following steps to install the "JCM Tool Suite Standard Edition" Application Software and USB Drivers (Refer to Figure 6-1 for the necessary Tool and Harness Connections).

Part 1 - JCM Tool Suite Installation

NOTE: Uninstall the current version of the JCM Tool Suite application software installed on your PC before updating to a newer version.

1. Copy the "JCMToolSuiteStandardEdition.zip" Application Software and extract on to the Desktop.
2. Double-click on "Setup.exe"(Figure 6-2 a).

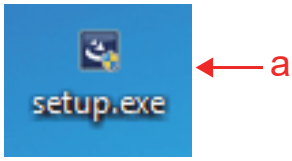


Figure 6-2 JCM Tool Suite Installation 1

3. The "JCM Tool Suite Standard Edition - Install Shield Wizard" Screen shown in Figure 6-3 will appear.
4. Click the "Next>" Next > Button (Figure 6-3 a).

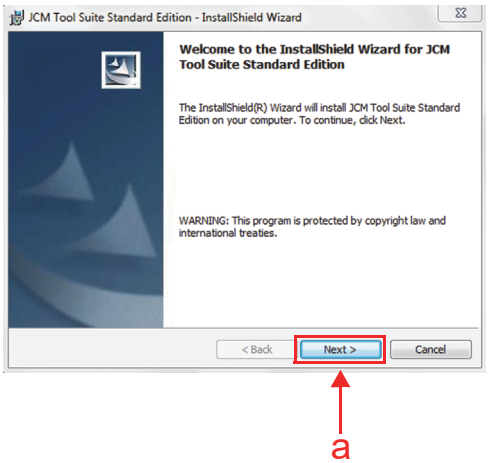


Figure 6-3 JCM Tool Suite Installation 2

5. Click the "Next>" Next > Screen Button (Figure 6-4 a) when the "Destination Folder" Screen shown in Figure 6-4 appears.

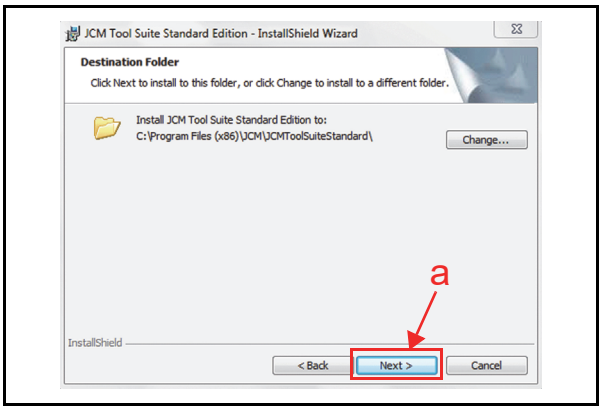


Figure 6-4 JCM Tool Suite Installation 3

6. When the "Ready to Install the Program" Screen appears, select "Anyone who uses this computer (all users)" (Figure 6-5 a) and then click the "Install" Install Screen Button (Figure 6-5 b) to start the installation.

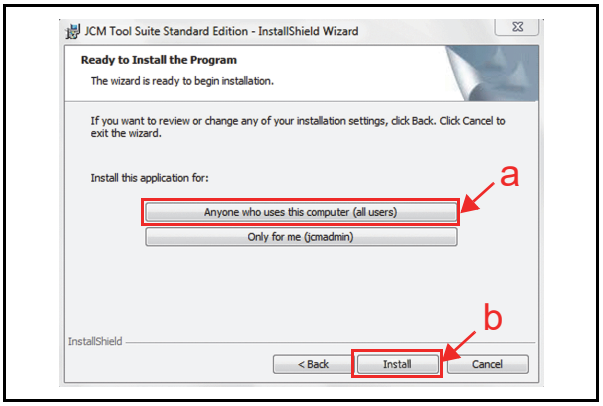


Figure 6-5 JCM Tool Suite Installation 4

7. Once installation is complete, the "InstallShield Wizard Completed" Screen shown in Figure 6-6 will appear.
Click the "Finish" Finish Screen Button (Figure 6-6 a) to end the installation process.

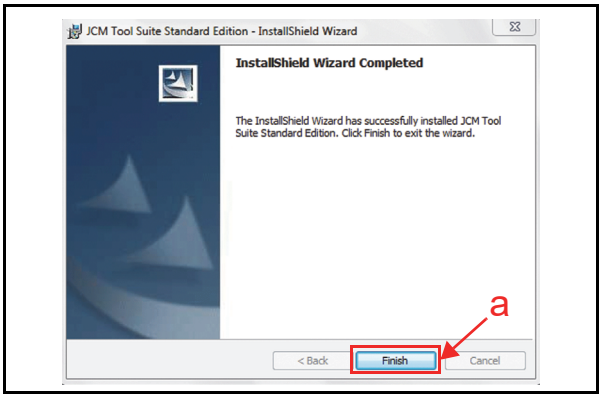


Figure 6-6 JCM Tool Suite Installation 5

This completes the "JCM Tool Suite Standard Edition" installation procedure.

Part 2 - USB Drivers Installation

USB Drivers need to be installed on the PC before the JCM Tool Suite Standard Edition can be used. To install the Driver, proceed as follows:

NOTE: The USB Driver Installation Wizard Screen appears when the JCM Tool Suite installation is completed (Go to Step 3).

NOTE: Step 1 and 2 are reserved for when the USB Drivers need to be installed manually.

1. Copy the provided Driver into the desired PC Folder.
2. Connect the USB Cable to the Unit (Refer to Figure 6-1 for the Tool Requirements and Harness Connector locations).
3. When the Device Driver Installation Wizard Screen (Figure 6-7) appears, click the "Next>" Next > Screen Button (Figure 6-7 a) to install the driver.

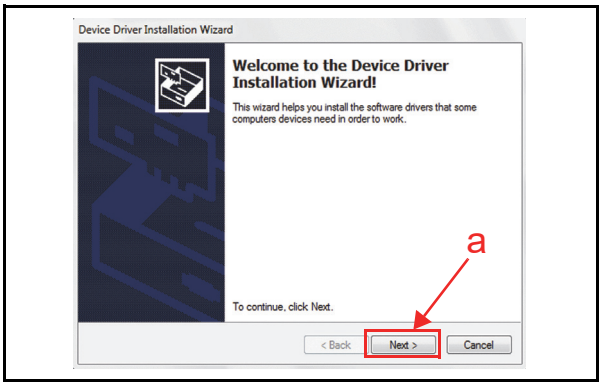


Figure 6-7 USB Drivers Installation 1

4. When the USB Driver Installation is complete, the "Completing the Device Driver Installation Wizard" Screen will appear as shown in Figure 6-8.
5. Click the "Finish" Finish Screen Button (Figure 6-8 a) to close the Screen.

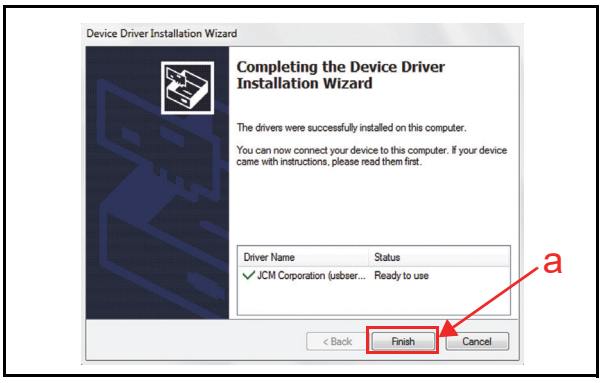


Figure 6-8 USB Drivers Installation 2

NOTE: If the Windows Security Screen appears, select "Install this Driver Software (I)" to proceed.

This completes the USB driver installation procedure.

JCM Tool Suite Standard Edition Mode

The following two (2) mode feature types exist in the "JCM Tool Suite Standard Edition" package:

- Normal Mode
- Test Mode

"**Normal Mode**" (DIP Switches All OFF) is a mode designed to provide the UBA Pro Operating Software to be downloaded.
The "**Service Mode**" contains three (3) available choices shown in Figure 6-9 as follows:

- **Download** (for downloading software)
- **Statistics** (for observing log data)
- **Utility** (for ICB and Bar Ticket settings)

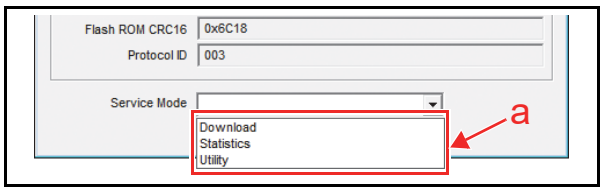


Figure 6-9 Normal Mode Selection

"**Test Mode**" (DIP Switch #8 ON) is a mode designed to perform UBA Pro Calibration and Performance Testing. The "**Service Mode**" contains five (5) available choices in its Pull-down Menu shown in Figure 6-10 as follows:

- **Download** (for downloading software)
- **Statistics** (for observing log data)
- **Sensor Adjustment** (for calibration)
- **Performance Test** (for performance testing)
- **Utility** (for ICB and Bar Ticket settings)

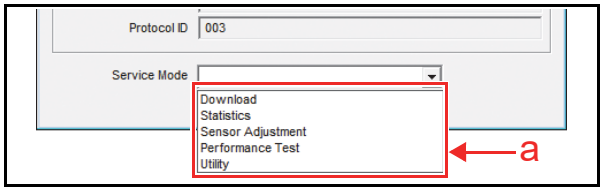


Figure 6-10 Test Mode Selection

Software Download

The following two (2) procedures are available to download the Software Program with a PC (JCM Tool Suite Standard Edition):

- The Software Program is loaded on the Unit (Upgrade)
- The Software Program is not loaded on the Unit (Initial) (e.g., after replacing the Main Board)

To download the Software Program, proceed as follows:

1. Remove electrical power from the UBA Pro Unit.
2. When upgrading the Software, set DIP Switches as below (Figure 6-11).

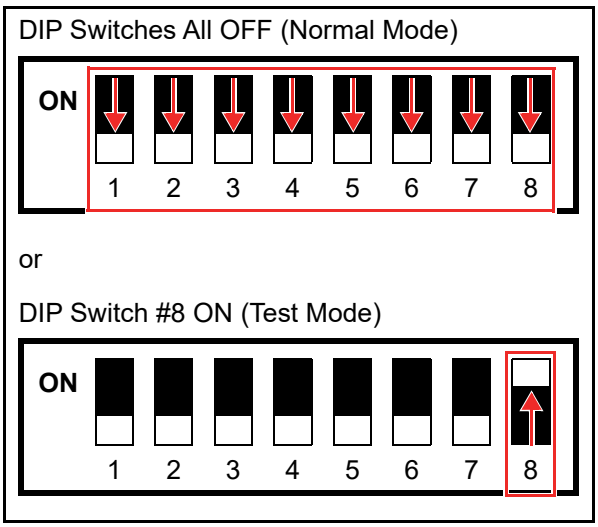


Figure 6-11 Software Download (Upgrade) 1

When downloading to a Unit (software not previously installed), set the DIP Switches as below (Figure 6-12).

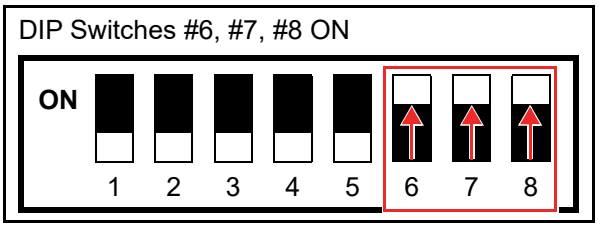


Figure 6-12 Software Download (Initial) 1

3. Connect the UBA Pro Unit to the PC (Refer to Figure 6-1 for the Tool Requirements and Harness Connector locations).
4. Apply electrical power to the UBA Pro Unit.
5. The Green and Red Status LEDs will be lit.
6. Launch the "JCM Tool Suite Standard Edition" Application.
7. The Main Screen (Figure 6-13) will appear.

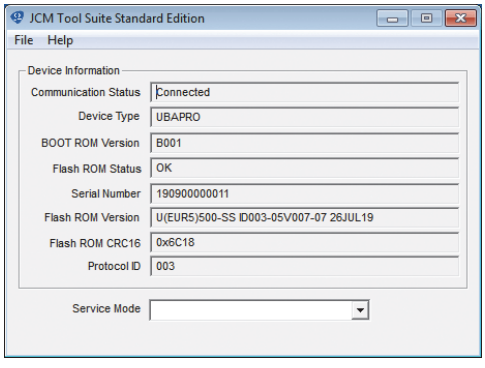


Figure 6-13 Software Download (Upgrade) 2

When downloading the Software Program for the first time, the Device Information will not appear (Figure 6-14).

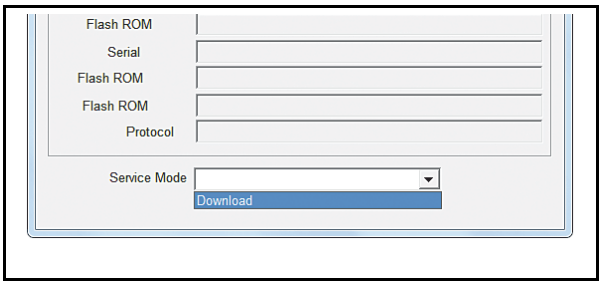


Figure 6-14 Software Download (Initial) 2

8. Click and hold-down the "Service Mode" Pull-Down Menu and select "Download" (Figure 6-15 a) from within the Pull-Down Menu Selections. The selected Field will highlight Blue.

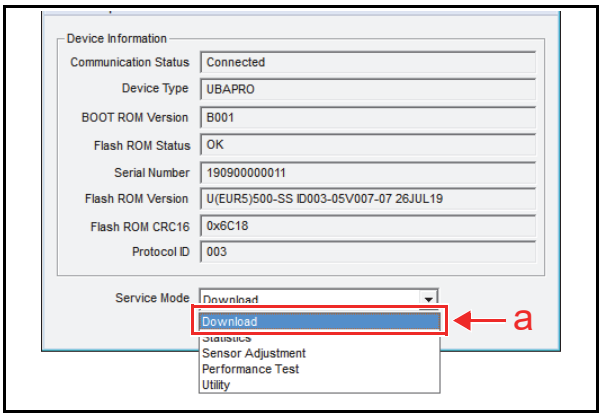


Figure 6-15 Software Download 3

9. When "Download" is selected the "JCM Downloader Suite Edition Version X.XX" will automatically begin functioning
10. Click the "Browse" Screen Button (Figure 6-16 a).

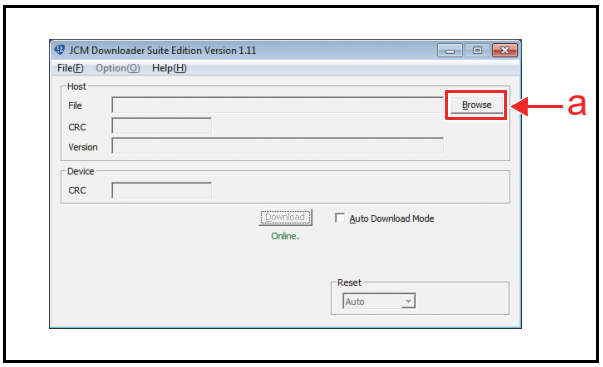


Figure 6-16 Software Download 4

11. Select the appropriate UBA Pro Software Program Version (Figure 6-17 a) on the Download File Screen.
12. Click the "Open" Open Screen Button (Figure 6-17 b).

NOTE: Select the correct UBA Pro Software for the Country desired.

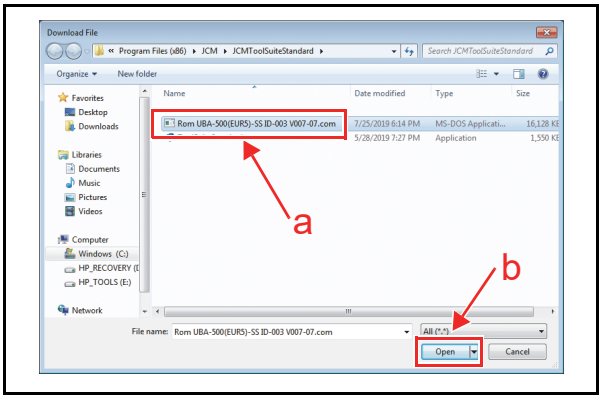


Figure 6-17 Software Download 5

13. When the "JCM Downloader Suite" Screen re-appears, click the center "Download" Download Screen Button (Figure 6-18 a) to begin the Software download into the UBA Pro Unit.
14. The Download Screen will display a Progress Bar during the download operation (Figure 6-18 b), and a Blue Text Line below the Download Screen Button will display the download Percentage as "Downloading : XX%" (Figure 6-18 c).

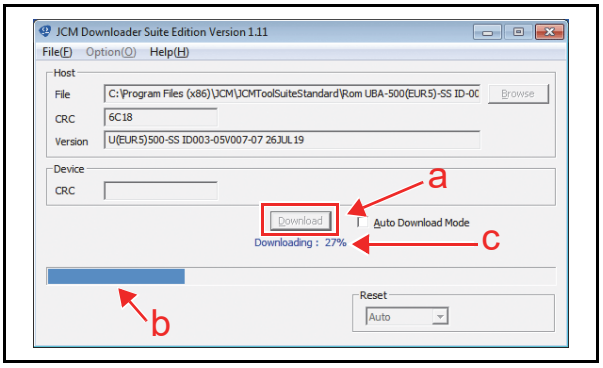


Figure 6-18 Software Download 6

15. When the download is complete, the "Download Success. Reset Done. Waiting for USB Cable Disconnection." Blue Text Line will appear (Figure 6-19 a).
16. Confirm that the Host's Checksum and the Device Checksum's identically match each other (Figure 6-19 b).

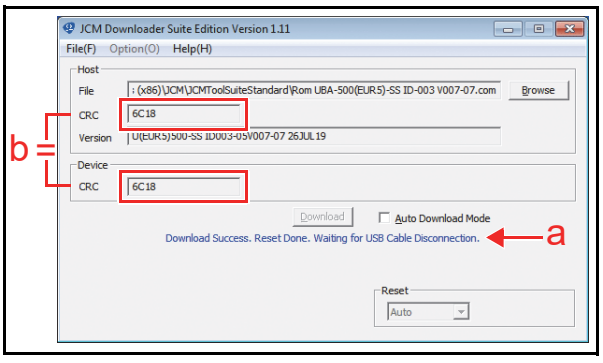


Figure 6-19 Software Download 7

This completes the Software Downloading Procedures.

Calibration

This section provides instructions for performing a calibration of the UBA Pro Sensors.

When to Calibrate

Calibration should be performed when one of the following five (5) conditions occur:

- The Unit is disassembled or reassembled.
- One of Sensors is removed or replaced.
- The UBA Pro Main Board is removed or replaced.
- Dirt adheres to the Sensors (See "Cleaning Procedure" on page 2-17.).
- The Banknote Acceptance Rate becomes drastically degraded.

Placing Reference Paper

NOTE: Do not touch the Paper Surfaces on either side of the KS-101 Reference Paper (Figure 6-20).

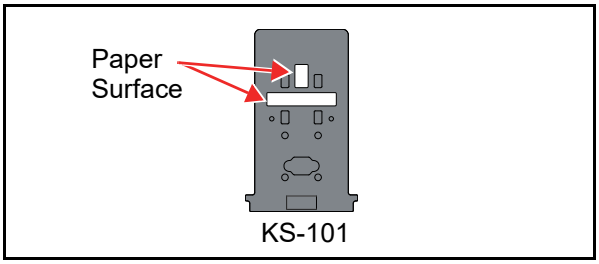
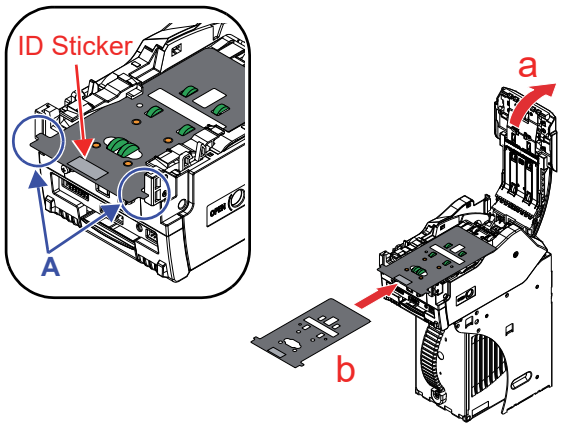


Figure 6-20 KS-101 Reference Paper

Perform the following steps to properly place a selected Reference Paper (KS-101) into the UBA Pro Unit.

1. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover (Figure 6-21 a).
2. Slide the selected Reference Paper (Figure 6-21 b) into the Unit until its Catch Edges evenly touch both the left and right side of the Frame (Figure 6-21 **A**).



NOTE: Place the Reference Paper upward so the ID Sticker is visible; otherwise, calibration will not be performed correctly.

Figure 6-21 Placing Reference Paper 1

3. Firmly close the Upper Guide (Figure 6-22 a) until it "clicks" in place, and ensure that both sides are tightly closed and locked.

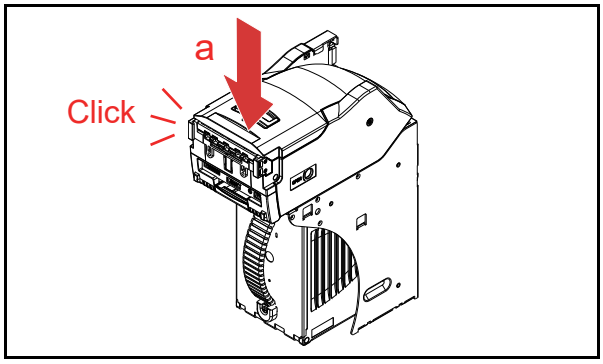


Figure 6-22 Placing Reference Paper 2

Sensor Calibration

To calibrate the UBA Pro sensors, proceed as follows:

1. Remove electrical power from the UBA Pro Unit.
2. Set DIP Switches as below (Figure 6-23).

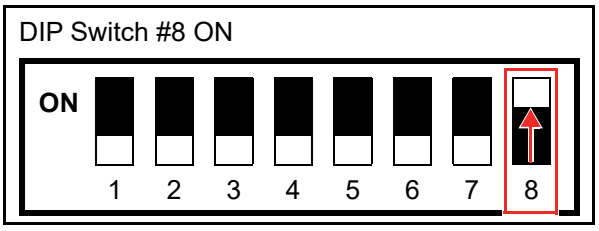


Figure 6-23 Sensor Calibration 1

3. Connect the UBA Pro Unit to the PC.

NOTE: Refer to Figure 6-1 for the necessary Tool and Harness Connections and USB Cable Type Requirements respectively.

4. Apply electrical power to the UBA Pro Unit.
5. The Green and Red Status LEDs will be lit.
6. Launch the "JCM Tool Suite Standard Edition" Application.
7. Click and hold-down the "Service Mode" Pull-Down Menu.
8. Select "Sensor Adjustment" (Figure 6-24 a).

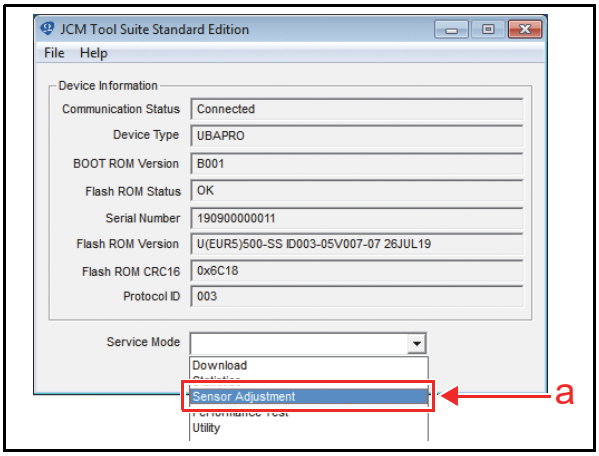


Figure 6-24 Sensor Calibration 2

9. Confirm that the Sensor Calibration Program Screen appears (Figure 6-25).
10. Click the "Sensor Calibration" button (Figure 6-25 a).

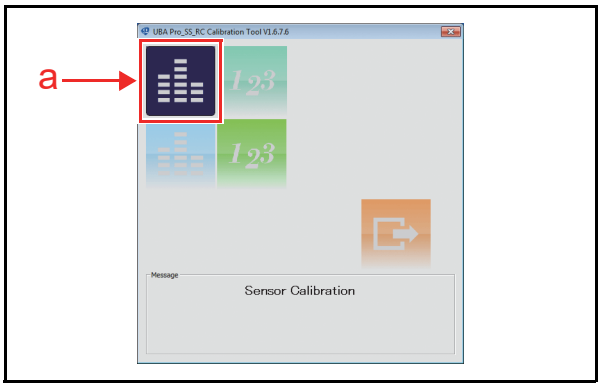


Figure 6-25 Sensor Calibration 3

11. Click the "Start" button (Figure 6-26 a) to begin the Sensor Calibration "Without Paper".

NOTE: If the Start button is grayed out (off), check the USB cable connection.

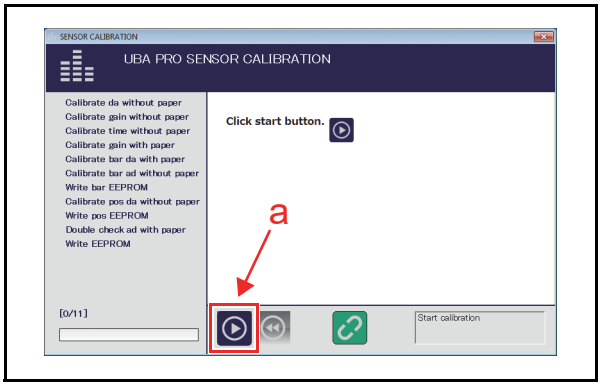


Figure 6-26 Sensor Calibration 4

12. 1st "Calibrate DA without paper" through 3rd "Calibrate time without paper" items will automatically run.

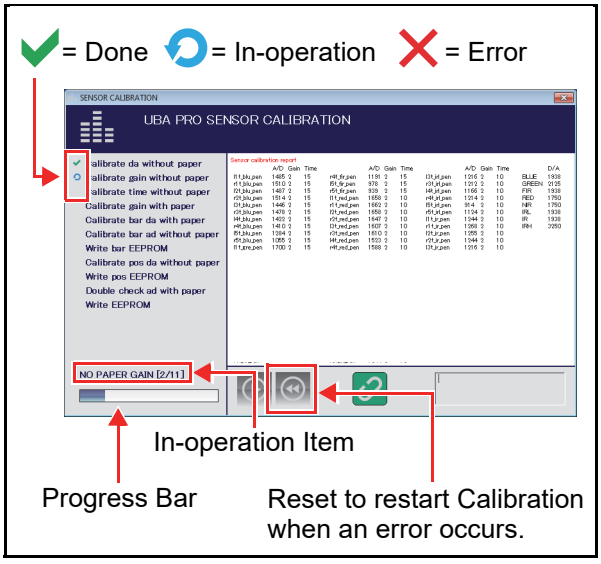


Figure 6-27 Sensor Calibration 5

13. The Sensor Calibration will pause before the "With Paper" calibration.
14. Open the UBA Pro's Cover (Figure 6-28 a).
15. Place the Reference Paper (Figure 6-28 b) (Refer to "Placing Reference Paper" on page 6-5 for detailed instructions).

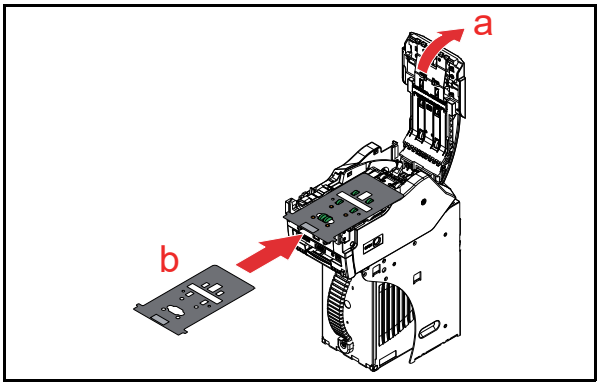


Figure 6-28 Sensor Calibration 6

16. Close the UBA Pro's Cover until it "clicks" into place.
17. Click the "OK" button (Figure 6-29 a) to begin the Sensor Calibration "With Paper".

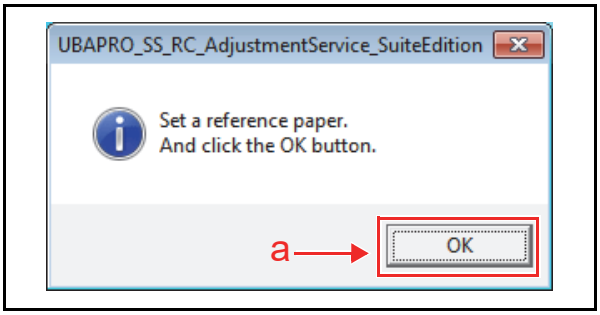


Figure 6-29 Sensor Calibration 7

18. 4th "Calibrate gain with paper" through 5th "Calibrate bar DA with paper" calibration will automatically run.

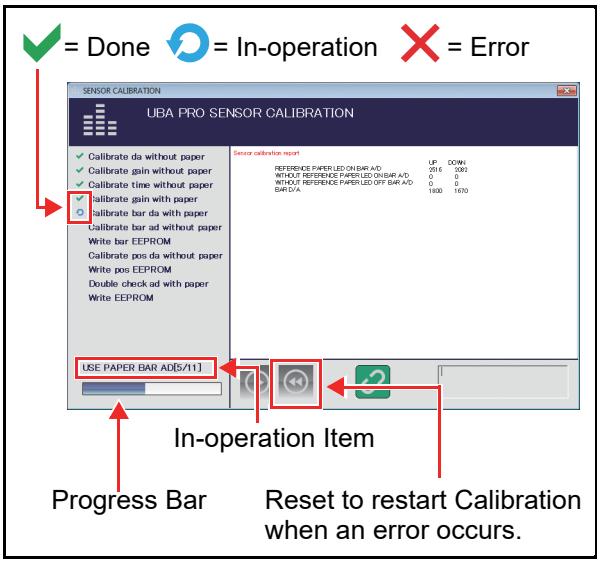


Figure 6-30 Sensor Calibration 8

19. The Sensor Calibration will pause when the "With Paper" calibration is completed.
20. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover (Figure 6-31 a).
21. Remove the Reference Paper (Figure 6-31 b).
22. Close the UBA Pro's Cover until it "clicks" into place.

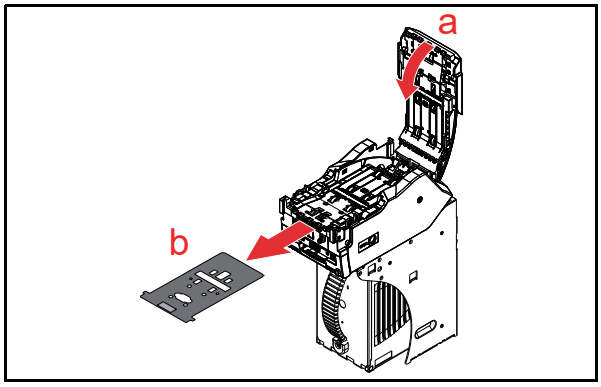


Figure 6-31 Sensor Calibration 9

23. Click the "OK" [OK] button (Figure 6-32 a) to begin the Sensor Calibration "Without Paper".

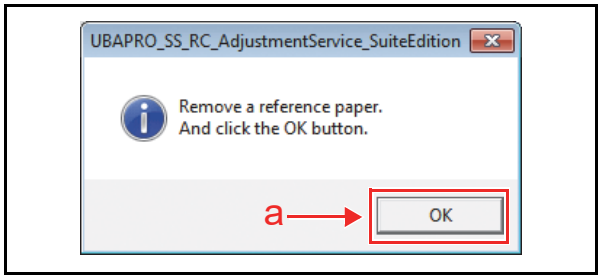


Figure 6-32 Sensor Calibration 10

24. 6th "Calibrate bar AD without paper" through 9th "Write pos EEPROM" items will automatically run.

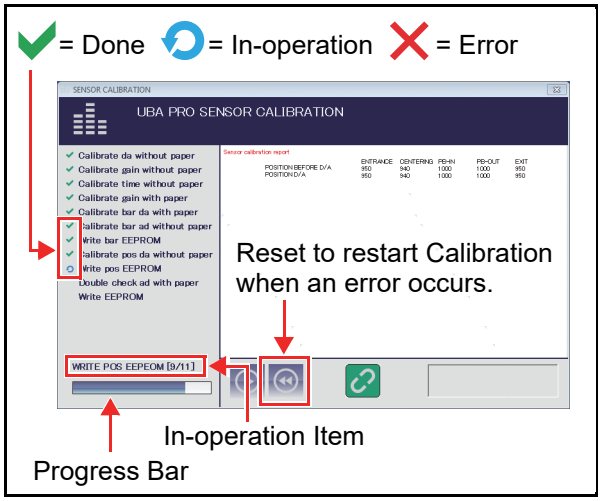


Figure 6-33 Sensor Calibration 11

25. The Sensor Calibration will pause again before the "With Paper" calibration.
26. Open the UBA Pro's Cover (Figure 6-34 a).
27. Place the Reference Paper (Figure 6-34 b) (Refer to "Placing Reference Paper" on page 6-5 for detailed instructions).

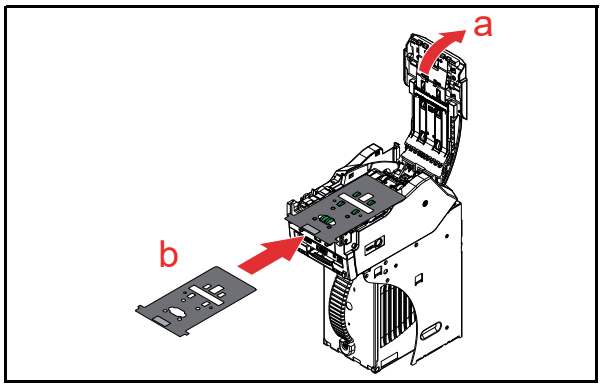


Figure 6-34 Sensor Calibration 12

28. Close the UBA Pro's Cover until it "clicks" into place.
29. Click the "OK" [OK] button (Figure 6-35 a) to begin the Sensor Calibration "With Paper".

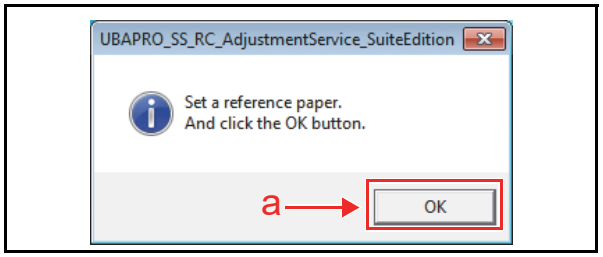


Figure 6-35 Sensor Calibration 13

30. 10th "Double check AD with paper" through 11th "Write EEPROM" items will automatically run.

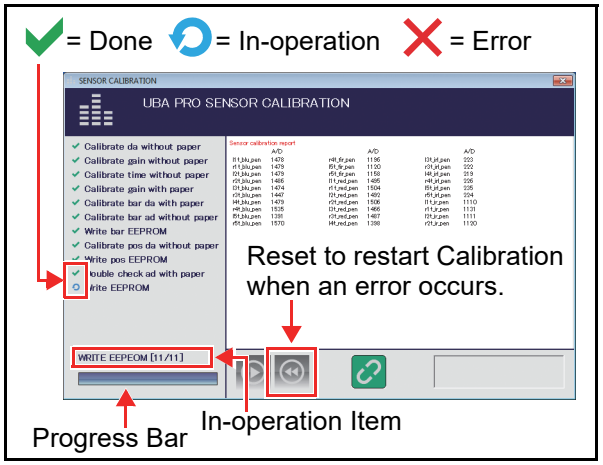


Figure 6-36 Sensor Calibration 14

31. When the Sensor Calibration is completed successfully, the following window will appear.
32. Click the "OK" [OK] button (Figure 6-37 a) to end.

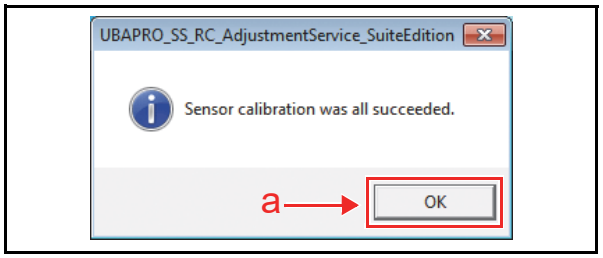


Figure 6-37 Sensor Calibration 15

Performance Test Using a PC

List of UBA Pro Performance Tests

Table 6-1 lists the test items for the UBA Pro Unit Performance Test using a PC.

Table 6-1 List of the UBA Pro Performance Tests

*. This test is available when the Cash Box is correctly seated.

†. This test is available when the Cash Box is NOT seated.

Launch Performance Test Program

To launch the Performance Test program, proceed as follows:

1. Remove electrical power from the UBA Pro Unit.
2. Set DIP Switches as below (Figure 6-38).

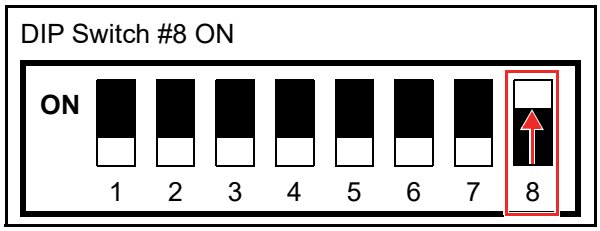


Figure 6-38 Launch Performance Test Program 1

3. Connect the UBA Pro Unit to the PC (Refer to Figure 6-1 for the Tool Requirements and Harness Connector locations).
4. Apply electrical power to the UBA Pro Unit.
5. The Green and Red Status LEDs will be lit.
6. Launch the "JCM Tool Suite Standard Edition" Application.
7. Click and hold-down the "Service Mode" Pull-Down Menu.
8. Select "Performance Test" (Figure 6-39 a).

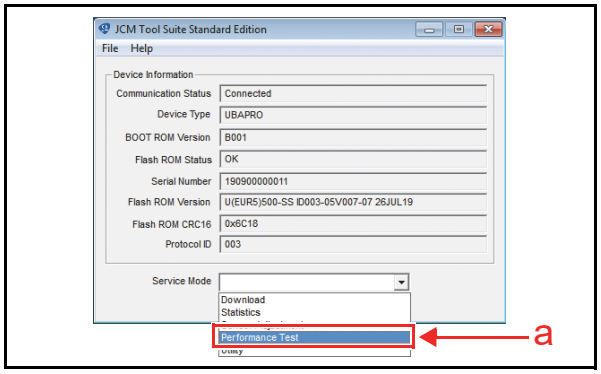


Figure 6-39 Launch Performance Test Program 2

9. The Performance Test Main Screen will appear (Figure 6-40).

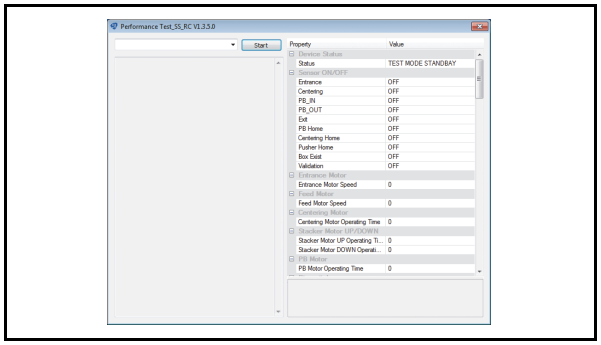


Figure 6-40 Launch Performance Test Program 3

Banknote Acceptance Test with Cash Box

To perform the Acceptance Test validating Banknotes with the Cash Box installed, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select "ACCEPT_SS_TEST" (Figure 6-41 a).
4. Click the "Start" Start Screen Button (Figure 6-41 b).
5. Insert a Banknote.
6. Confirm that the UBA Pro accepts the Banknote.
7. Click the "Stop" Stop Screen Button (Figure 6-41 c) to end the test.

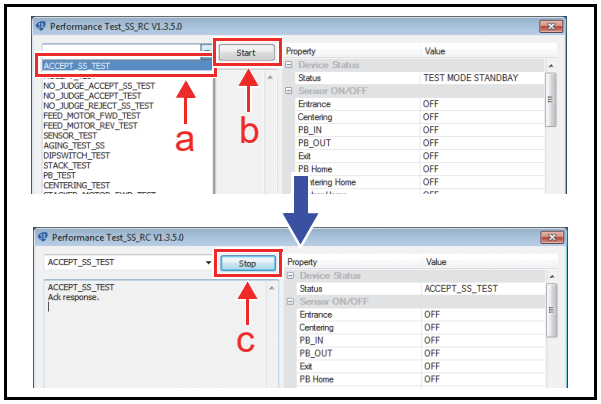


Figure 6-41 Banknote Acceptance Test with Cash Box

Banknote Acceptance Test without Cash Box

To perform the Acceptance Test validating Banknotes without the Cash Box, proceed as follows:

1. Remove the Cash Box.
2. Launch the Performance Test Program (see page 6-8).
3. Select “ACCEPT_TEST” (Figure 6-42 a).
4. Click the “Start” Start Screen Button (Figure 6-42 b).
5. Insert a Banknote.
6. Confirm that the UBA Pro accepts the Banknote.
7. Click the “Stop” Stop Screen Button (Figure 6-42 c) to end the test.

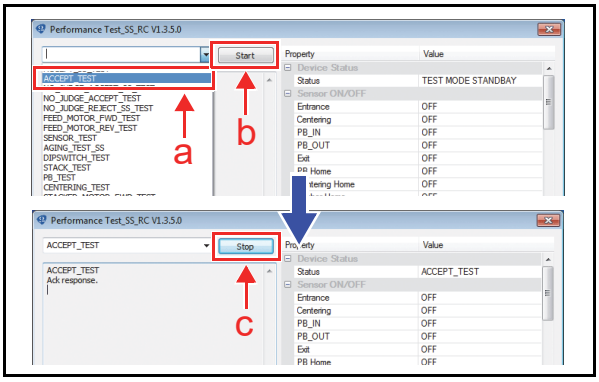


Figure 6-42 Banknote Acceptance Test without Cash Box

Non-Validation Banknote Acceptance Test with Cash Box

To perform the Acceptance Test not validating Banknotes with the Cash Box installed, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select “NO_JUDGE_ACCEPT_SS_TEST” (Figure 6-43 a).
4. Click the “Start” Start Screen Button (Figure 6-43 b).
5. Insert a Banknote.
6. Confirm that the UBA Pro accepts the Banknote.
7. Click the “Stop” Stop Screen Button (Figure 6-43 c) to end the test.

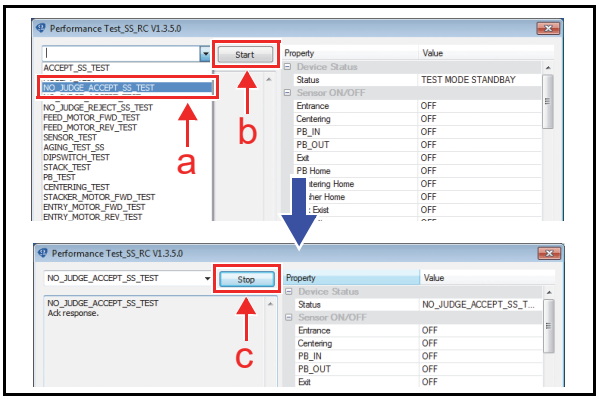


Figure 6-43 Non-Validation Banknote Acceptance Test with Cash Box

Non-Validation Banknote Acceptance Test without Cash Box

To perform the Acceptance Test not validating Banknotes without the Cash Box, proceed as follows:

1. Remove the Cash Box.
2. Launch the Performance Test Program (see page 6-8).
3. Select “NO_JUDGE_ACCEPT_TEST” (Figure 6-44 a).
4. Click the “Start” Start Screen Button (Figure 6-44 b).
5. Insert a Banknote.
6. Confirm that the UBA Pro accepts the Banknote.
7. Click the “Stop” Stop Screen Button (Figure 6-44 c) to end the test.

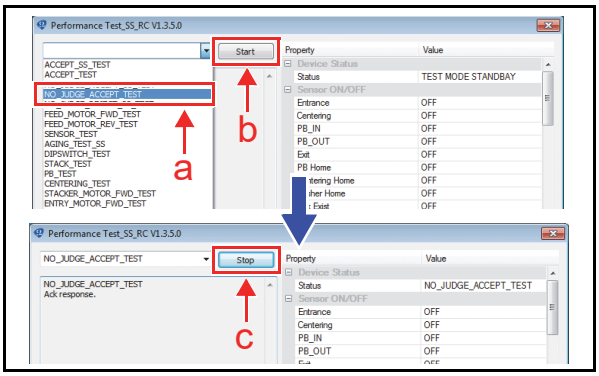


Figure 6-44 Non-Validation Banknote Acceptance Test without Cash Box

Non-Validation Banknote Reject Test with Cash Box

To perform the Reject Test not validating Banknotes without the Cash Box installed, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select “NO_JUDGE_REJECT_SS_TEST” (Figure 6-45 a).
4. Click the “Start” Start Screen Button (Figure 6-45 b).
5. Insert a Banknote.
6. Confirm that the UBA Pro rejects the Banknote.
7. Click the “Stop” Stop Screen Button (Figure 6-45 c) to end the test.

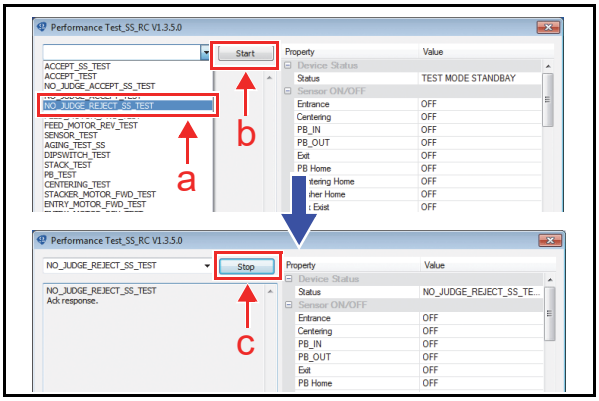


Figure 6-45 Non-Validation Banknote Reject Test without Cash Box

Feed Motor Speed Test (Forward)

To perform the Feed Motor Speed Test in the forward rotation, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select "FEED_MOTOR_FWD_TEST" (Figure 6-46 a).
4. Click the "Start" Start Screen Button (Figure 6-46 b).

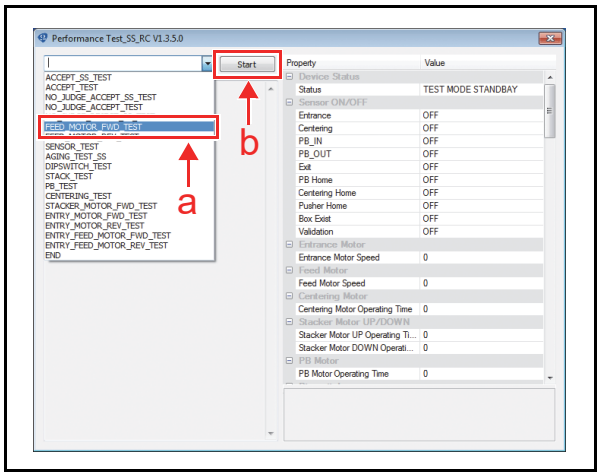


Figure 6-46 Feed Motor Speed Test (Forward) 1

5. The measured speed will appear in the "Feed Motor Speed" area (Figure 6-47 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 550mm/sec to 1000mm/sec.
7. Click the "Stop" Stop Screen Button (Figure 6-47 b) to end the test.

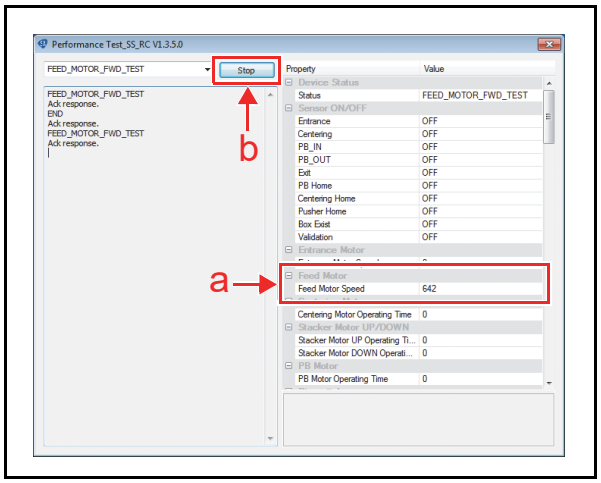


Figure 6-47 Feed Motor Speed Test (Forward) 2

Feed Motor Speed Test (Reverse)

To perform the Feed Motor Speed Test in the reverse rotation, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select "FEED_MOTOR_REV_TEST" (Figure 6-48 a).
4. Click the "Start" Start Screen Button (Figure 6-48 b).

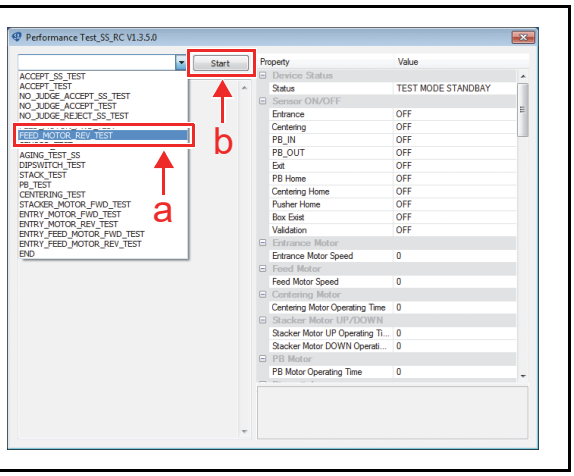


Figure 6-48 Feed Motor Speed Test (Reverse) 1

5. The measured speed will appear in the "Feed Motor Speed" area (Figure 6-49 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 550mm/sec to 1000mm/sec.
7. Click the "Stop" Stop Screen Button (Figure 6-49 b) to end the test.

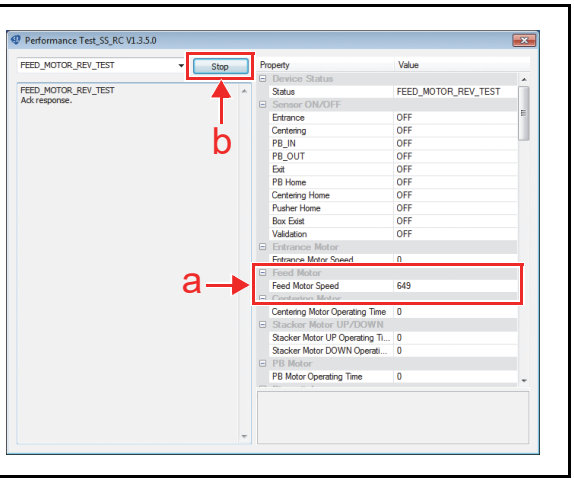


Figure 6-49 Feed Motor Speed Test (Reverse) 2

Sensor Test

To perform the Sensor detection test, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select "SENSOR_TEST" (Figure 6-50 a).
3. Click the "Start" Start Screen Button (Figure 6-50 b).

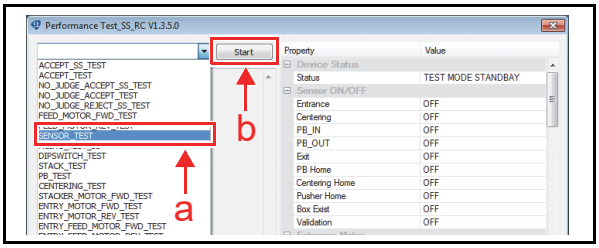
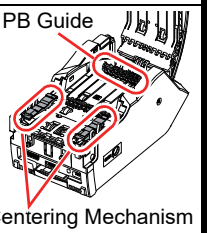


Figure 6-50 Sensor Test 1

4. Follow the procedures below.

NOTE: Refer to "Sensor and Roller Locations" on page 2-18 for the location of each Sensor.

Sensor	Procedure
Entrance Centering PB_IN PB_OUT	Open the Cover. ↓ Cover/uncover the Sensor with a Banknote. ↓ Close the Cover firmly.
Exit	Insert a Banknote from the bottom of the Unit.
PB Home	Open the Cover. ↓ Move the PB Guide manually.
Centering Home	Open the Cover. ↓ Move the Centering Mechanism manually.
Pusher Home Box Exist	Remove the Cash Box. ↓ Reach to and push each "Arm" linked to the Sensors on the bottom of the Unit.
Validation	Open the Cover. ↓ Cover/uncover the Sensor with a Banknote. ↓ Close the Cover firmly.



5. Confirm the ON/OFF indication (Detected/NOT Detected) appeared in the "Sensor ON/OFF" area (Figure 6-51 a).
6. Click the "Stop" Stop Screen Button (Figure 6-51 b) to end the test.

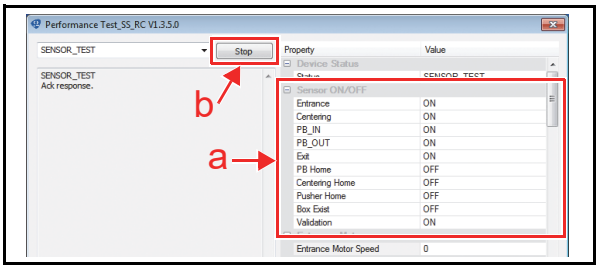


Figure 6-51 Sensor Test 2

Aging Test

To perform the Aging Test, proceed as follows:

1. Ensure that the Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-8).
3. Select "AGING_TEST_SS" (Figure 6-52 a).
4. Click the "Start" Start Screen Button (Figure 6-52 b).
5. Confirm that the UBA Pro begins the acceptance through stacking operation.
6. Click the "Stop" Stop Screen Button (Figure 6-52 c) to end the test.

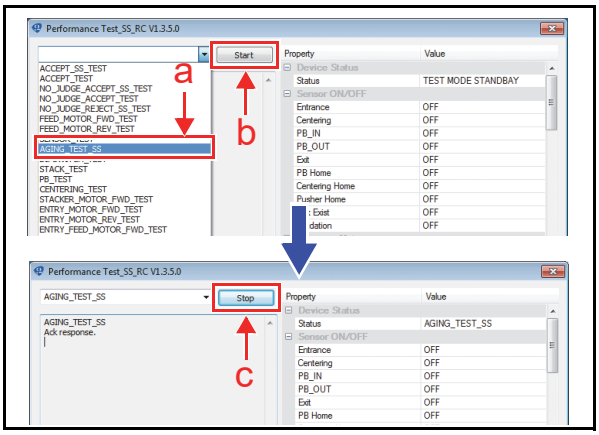


Figure 6-52 Aging Test

DIP Switch Test

To perform the DIP Switch Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select "DIPSWITCH_TEST" (Figure 6-53 a).
3. Click the "Start" Start Screen Button (Figure 6-53 b).

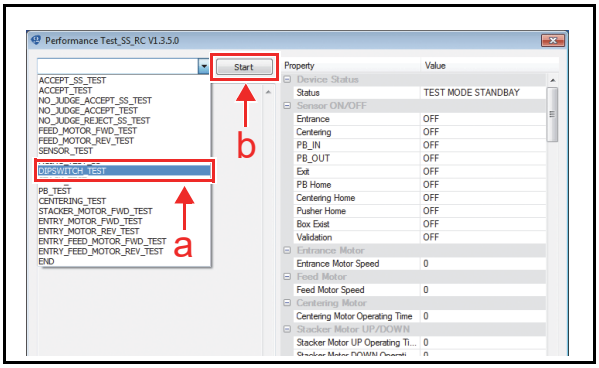


Figure 6-53 DIP Switch Test 1

4. Switch the DIP Switch #1 through #8 to ON and OFF.

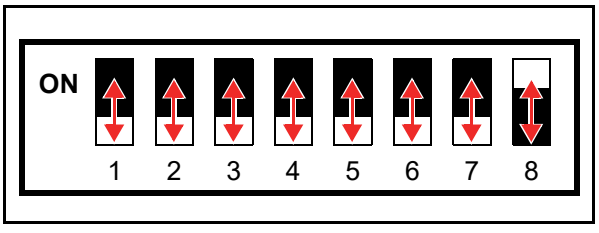


Figure 6-54 DIP Switch Test 2

5. The resulting indication will appear in the “DIP switch” area (Figure 6-55 a) on the Screen.
6. Confirm that indication changes “ON” and “OFF” as the Switch is set.
7. Click the “Stop” Stop Screen Button (Figure 6-55 b) to end the test.

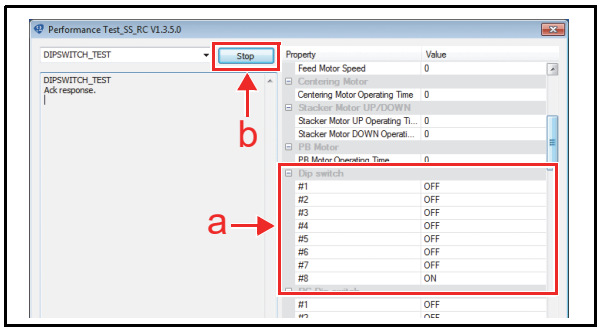


Figure 6-55 DIP Switch Test 3

Stacker Motor Operation Time Test

To perform the Stack Motor Operation Time Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “STACK_TEST” (Figure 6-56 a).
3. Click the “Start” Start Screen Button (Figure 6-56 b).

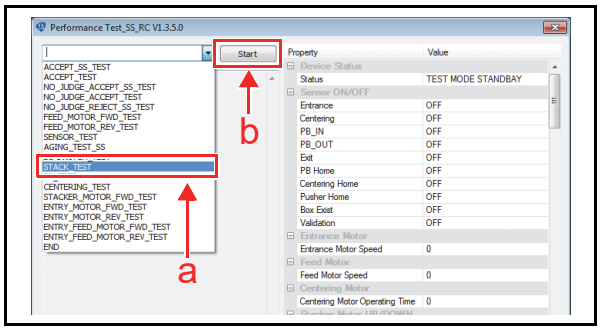


Figure 6-56 Stacker Motor Operation Time Test 1

4. The measured time will appear in the “Stacker Motor UP/DOWN” area (Figure 6-57 a) on the Screen.
5. Confirm that the operation time is in the acceptable range: 300msec to 1000msec.
6. Click the “Stop” Stop Screen Button (Figure 6-57 b) to end the test.

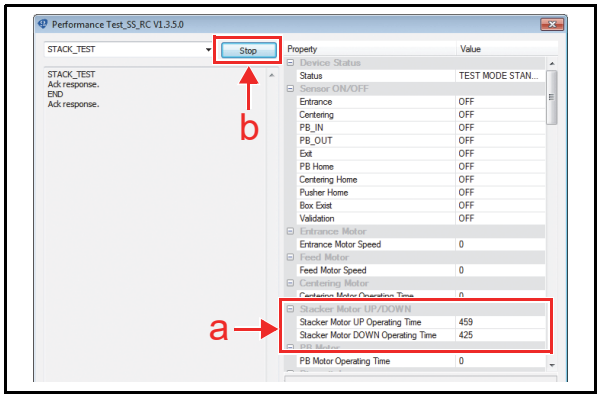


Figure 6-57 Stacker Motor Operation Time Test 2

PB Motor Operation Time Test

To perform the PB Motor Operation Time Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “PB_TEST” (Figure 6-58 a).
3. Click the “Start” Start Screen Button (Figure 6-58 b).

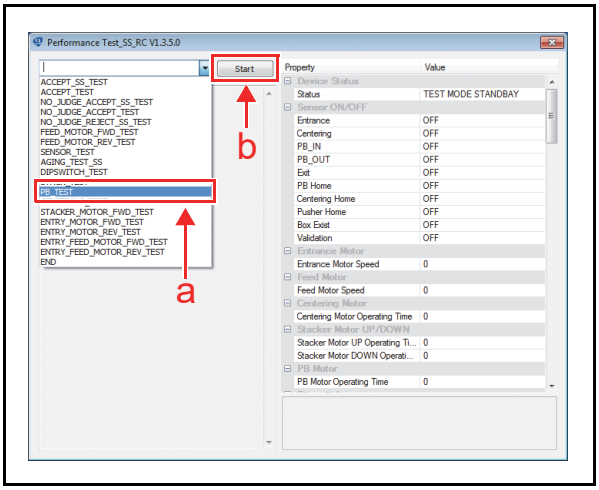


Figure 6-58 PB Motor Operation Time Test 1

4. The measured time will appear in the “PB Motor” area (Figure 6-59 a) on the Screen.
5. Confirm that the operation time is in the acceptable range: 150msec to 300msec.
6. Click the “Stop” Stop Screen Button (Figure 6-59 b) to end the test.

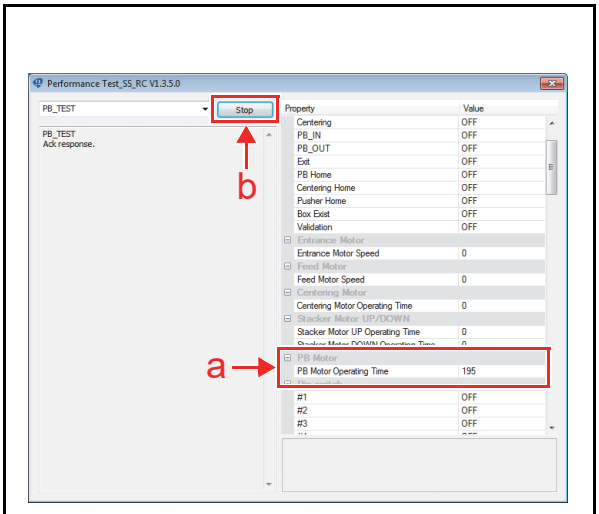


Figure 6-59 PB Motor Operation Time Test 2

Centering Motor Operation Time Test

To perform the Centering Motor Operation Time Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “CENTERING_TEST” (Figure 6-60 a).
3. Click the “Start” Start Screen Button (Figure 6-60 b).

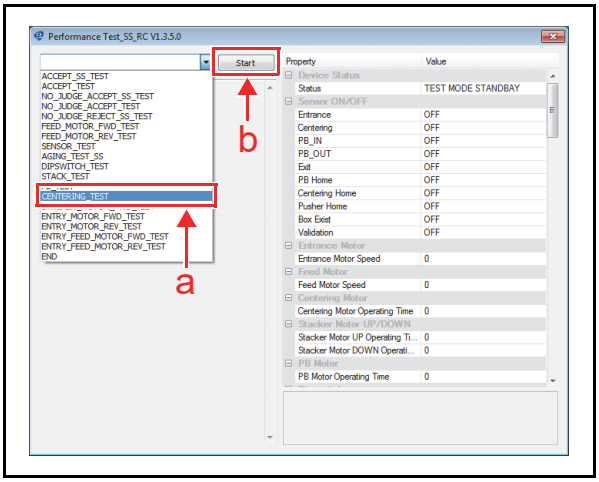


Figure 6-60 Centering Motor Operation Time Test 1

4. The measured time will appear in the “Centering Motor” area (Figure 6-61 a) on the Screen.
5. Confirm that the operation time is in the acceptable range: 100msec to 350msec.
6. Click the “Stop” Stop Screen Button (Figure 6-61 b) to end the test.

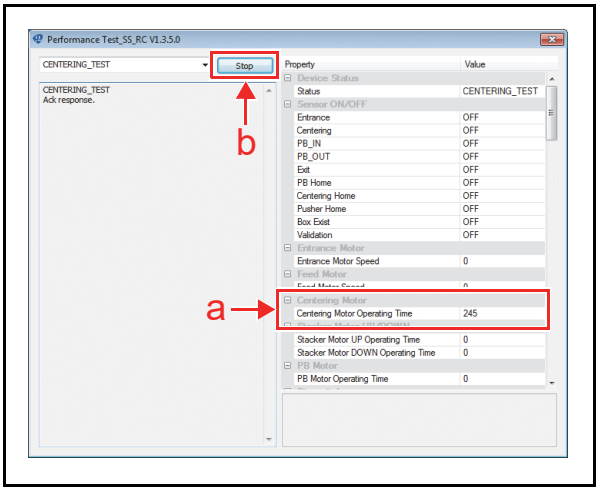


Figure 6-61 Centering Motor Operation Time Test 2

Stacker Motor Operation Test

To perform the Stacker Motor Operation Test without the Cash Box, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “STACKER_MOTOR_FWD_TEST” (Figure 6-62 a).
3. Click the “Start” Start Screen Button (Figure 6-62 b).

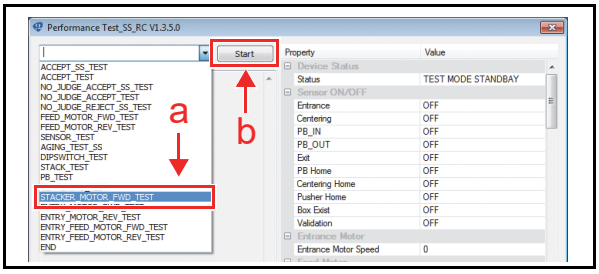


Figure 6-62 Stacker Motor Operation Test 1

4. Remove the Cash Box.

NOTE: Be sure to remove the Cash Box to avoid the risk of damage.

5. Click the “OK” OK button (Figure 6-63 a) to start.

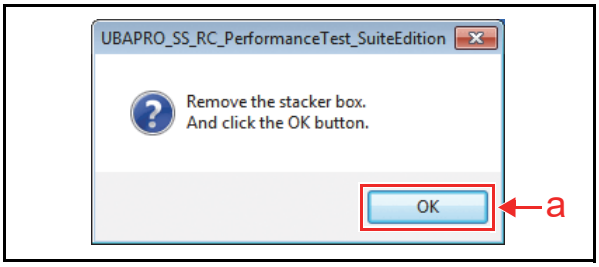


Figure 6-63 Stacker Motor Operation Test 2

6. Confirm that the Stack Gear is spinning normally.

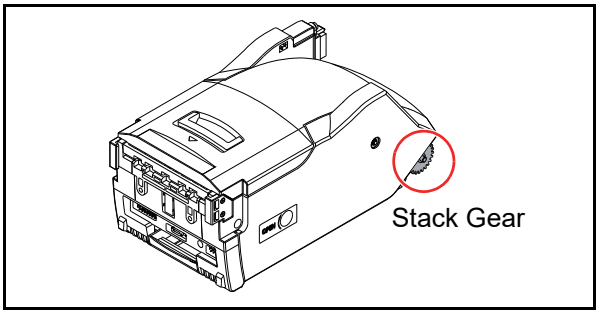


Figure 6-64 Stacker Motor Operation Test 3

7. Click the “Stop” Stop Screen Button (Figure 6-65 a) to end the test.

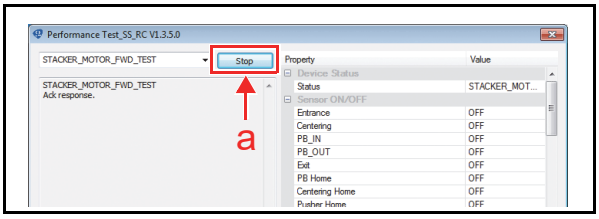


Figure 6-65 Stacker Motor Operation Test 4

Entrance Motor Speed Test (Forward)

To perform the Entrance Motor Speed Test in the forward rotation, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “ENTRY_MOTOR_FWD_TEST” (Figure 6-66 a).
3. Click the “Start” Start Screen Button (Figure 6-66 b).

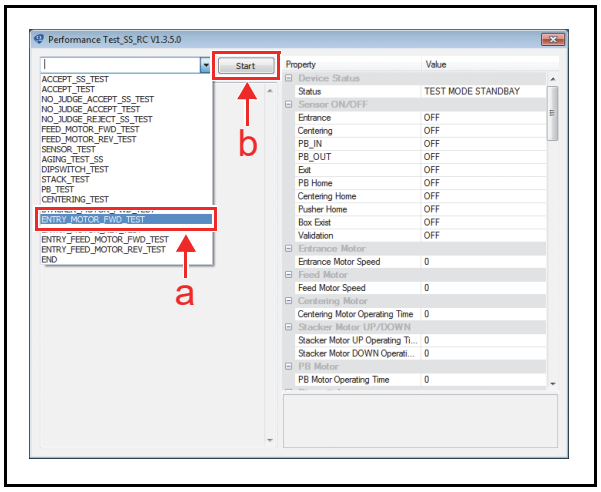


Figure 6-66 Entrance Motor Speed Test (Forward) 1

4. The measured time will appear in the “Entrance Motor” area (Figure 6-67 a) on the Screen.
5. Confirm that the motor speed is in the acceptable range: 550mm/sec to 1200mm/sec.
6. Click the “Stop” Stop Screen Button (Figure 6-67 b) to end the test.

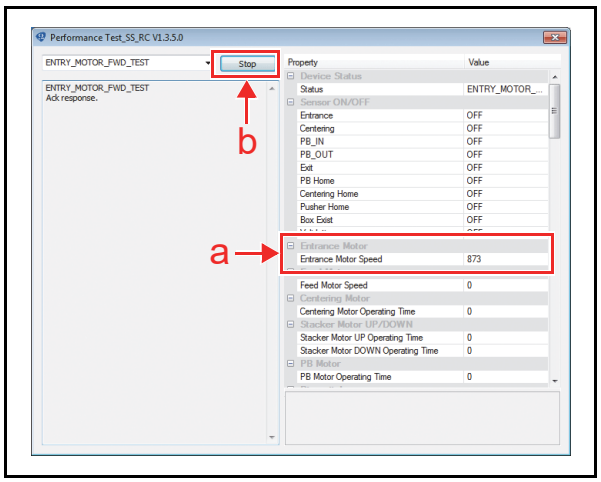


Figure 6-67 Entrance Motor Speed Test (Forward) 2

Entrance Motor Speed Test (Reverse)

To perform the Entrance Motor Speed Test in the reverse rotation, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “ENTRY_MOTOR_REV_TEST” (Figure 6-68 a).
3. Click the “Start” Start Screen Button (Figure 6-68 b).

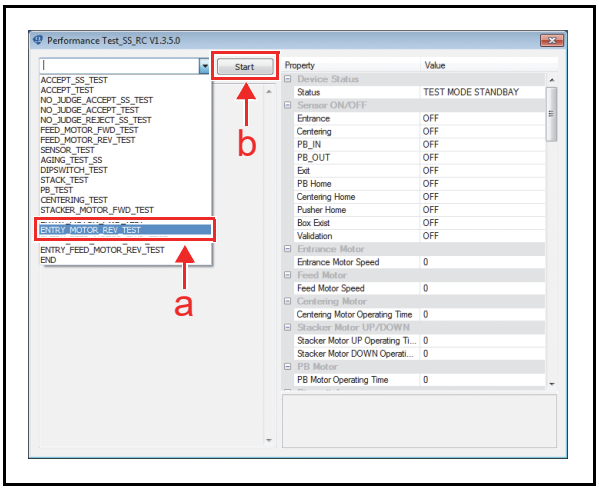


Figure 6-68 Entrance Motor Speed Test (Reverse) 1

4. The measured time will appear in the ““Entrance Motor” area (Figure 6-69 a) on the Screen.
5. Confirm that the motor speed is in the acceptable range: 550mm/sec to 1200mm/sec.
6. Click the “Stop” Stop Screen Button (Figure 6-69 b) to end the test.

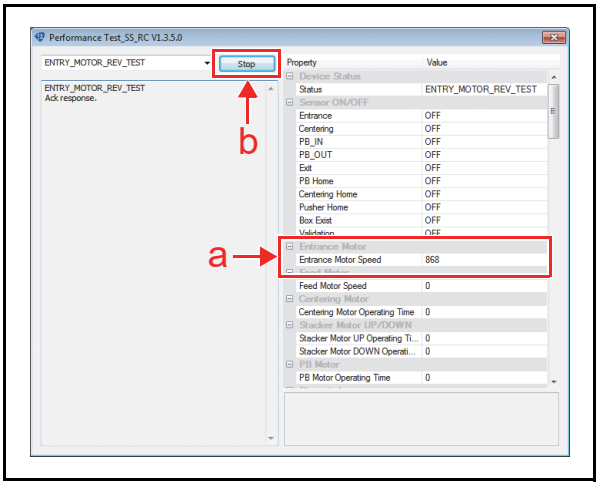


Figure 6-69 Entrance Motor Speed Test (Reverse) 2

Entrance and Feed Motors Simultaneous Speed Test (Forward)

To perform the Speed Test of the Entrance Motor and the Feed Motor in the forward rotation at the same time, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “ENTRY_FEED_MOTOR_FWD_TEST” (Figure 6-70 a).
3. Click the “Start” Start Screen Button (Figure 6-70 b).

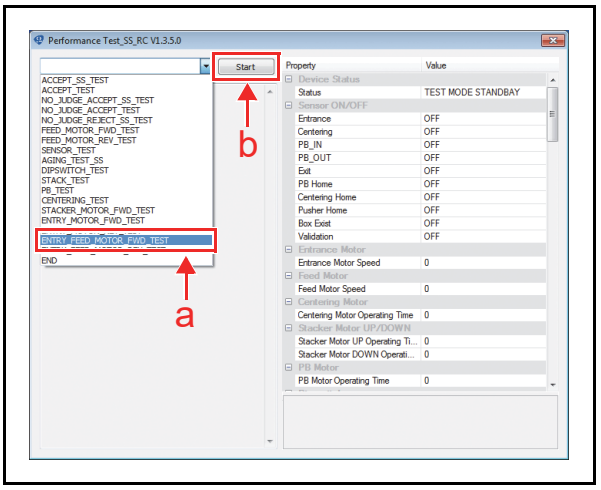


Figure 6-70 Entrance and Feed Motors Simultaneous Speed Test (Forward) 1

4. The measured time will appear in the “Entrance Motor” (Figure 6-71 a) and “Feed Motor” areas (Figure 6-71 b) on the Screen.
5. Confirm that each motor speed is in the acceptable range as below:
   - Entrance Motor 550mm/sec to 1200mm/sec
   - Feed Motor 550mm/sec to 1000mm/sec
6. Click the “Stop” Stop Screen Button (Figure 6-71 c) to end the test.

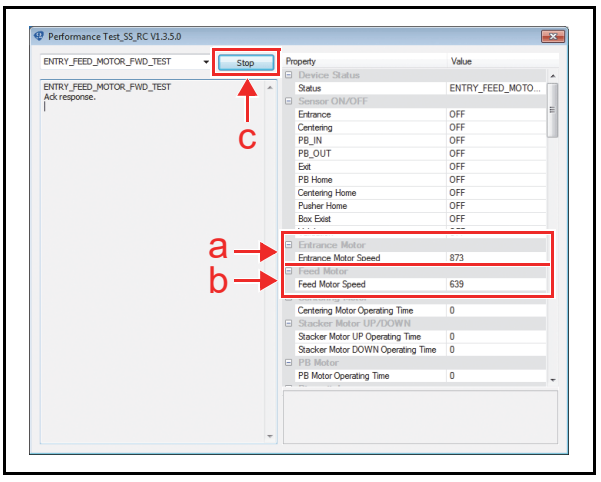


Figure 6-71 Entrance and Feed Motors Simultaneous Speed Test (Forward) 2

Entrance and Feed Motors Simultaneous Speed Test (Reverse)

To perform the Speed Test of the Entrance Motor and the Feed Motor in the reverse rotation at the same time, proceed as follows:

1. Launch the Performance Test Program (see page 6-8).
2. Select “ENTRY_FEED_MOTOR_REV_TEST” (Figure 6-72 a).
3. Click the “Start” Start Screen Button (Figure 6-72 b).

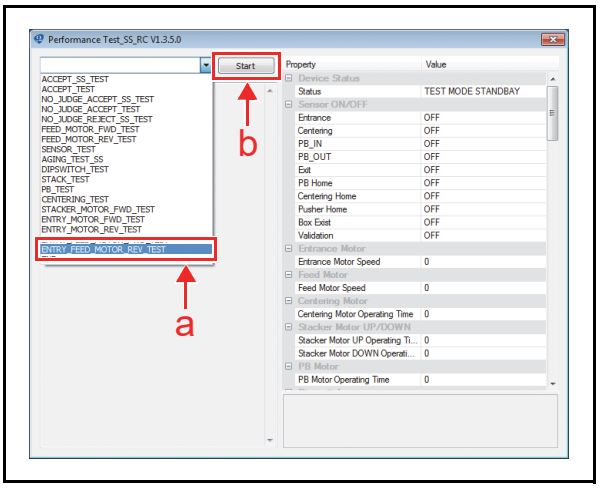


Figure 6-72 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 1

4. The measured time will appear in the “Entrance Motor” (Figure 6-73 a) and “Feed Motor” areas (Figure 6-73 b) on the Screen.
5. Confirm that each motor speed is in the acceptable range as below:
   - Entrance Motor 550mm/sec to 1200mm/sec
   - Feed Motor 550mm/sec to 1000mm/sec
6. Click the “Stop” Stop Screen Button (Figure 6-73 c) to end the test.

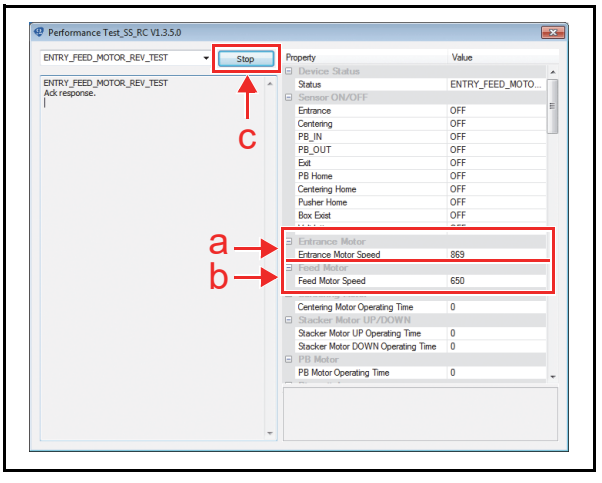


Figure 6-73 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 2

Performance Test without a PC

List of the Performance Tests without a PC

Table 6-2 lists the items and DIP Switch settings for the Performance Test using DIP Switches without a PC.

Table 6-2 Performance Tests without a PC and DIP Switch Settings

Test Item and Purpose	Page	DIP Switches							
		1	2	3	4	5	6	7	8*
Banknote Acceptance with Cash Box†	page 6-17	ON	ON	ON	ON				ON → OFF
Banknote Acceptance without Cash Box‡	page 6-17	ON	ON	ON					ON → OFF
Non-Validation Banknote Acceptance with Cash Box†	page 6-18	ON	ON	ON	ON		ON		ON → OFF
Non-Validation Banknote Acceptance without Cash Box‡	page 6-18	ON	ON	ON		ON			ON → OFF
Non-Validation Banknote Reject Test with Cash Box†	page 6-19	ON	ON	ON	ON	ON		ON	ON → OFF
Feed Motor Operation Test (Forward)	page 6-19	ON							ON → OFF
Feed Motor Operation Test (Reverse)	page 6-20		ON						ON → OFF
Sensor Test	page 6-20							ON	ON → OFF
Aging Test with Cash Box†	page 6-21				ON				ON → OFF
DIP Switch Test	page 6-21	ON	ON	ON	ON	ON	ON	ON	ON → OFF
Stacking Operation Test	page 6-22			ON					ON → OFF
PB Motor Operation Test	page 6-23					ON			ON → OFF
Centering Motor Operation Test	page 6-23	ON				ON			ON → OFF
Stacker Motor Operation Test‡	page 6-24	ON		ON					ON → OFF
Entrance Motor Operation Test (Forward)	page 6-24						ON		ON → OFF
Entrance Motor Operation Test (Reverse)	page 6-25					ON	ON		ON → OFF
Entrance and Feed Motors Simultaneous Operation Test (Forward)	page 6-25	ON					ON		ON → OFF
Entrance and Feed Motors Simultaneous Operation Test (Reverse)	page 6-26		ON			ON	ON		ON → OFF

*. DIP Switch #8 Setting: OFF to start test, ON to stop test.

†. This test is available when the Cash Box is correctly seated.

‡. This test is available when the Cash Box is NOT seated.

Banknote Acceptance with Cash Box

To perform the Acceptance Test with the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-74).

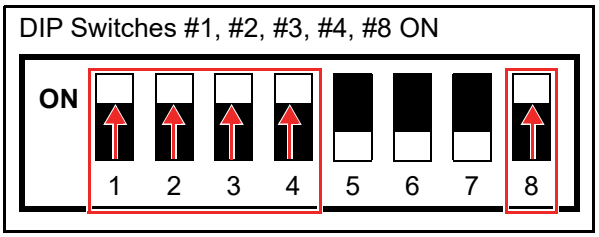


Figure 6-74 Banknote Acceptance with Cash Box 1

3. Ensure that the Cash Box is properly installed.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

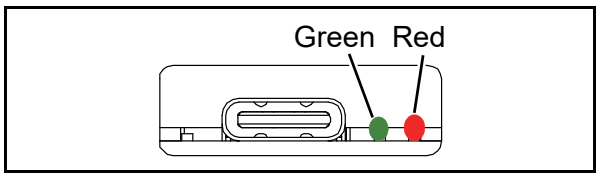


Figure 6-75 Banknote Acceptance with Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-76).

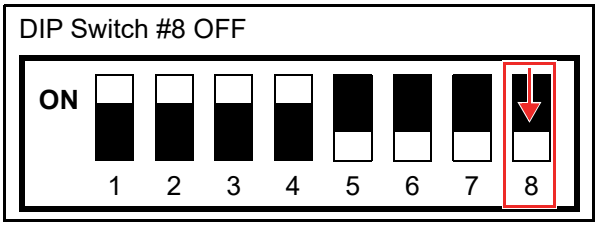


Figure 6-76 Banknote Acceptance with Cash Box 3

7. Insert a Banknote.
8. Confirm that the UBA Pro accepts and stacks the Banknote into the Cash Box.
9. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Banknote Acceptance without Cash Box

To perform the Acceptance Test without the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-77).

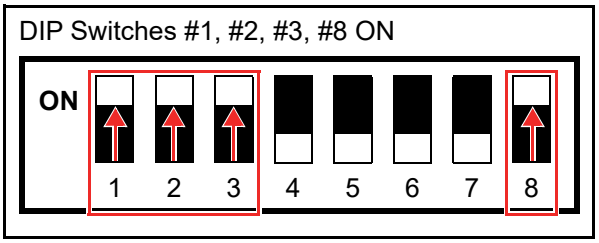


Figure 6-77 Banknote Acceptance without Cash Box 1

3. Remove the Cash Box.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

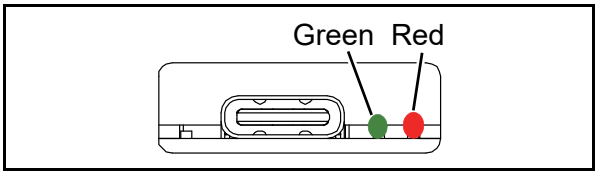


Figure 6-78 Banknote Acceptance without Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-79).

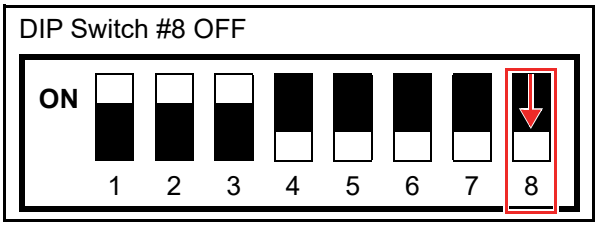


Figure 6-79 Banknote Acceptance without Cash Box 3

7. Insert a Banknote.
8. Confirm that the UBA Pro accepts and drops the Banknote into the frame area.
9. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Non-Validation Banknote Acceptance with Cash Box

To perform the Non-Validation Acceptance Test with the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-80).

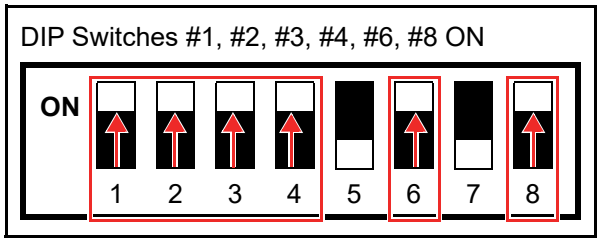


Figure 6-80 Non-Validation Banknote Acceptance with Cash Box 1

3. Ensure that the Cash Box is properly installed.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

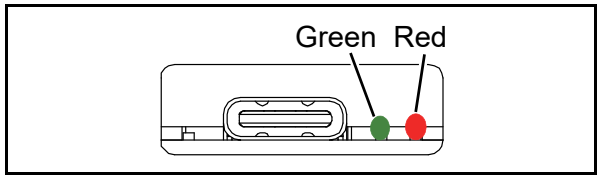


Figure 6-81 Non-Validation Banknote Acceptance with Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-82).

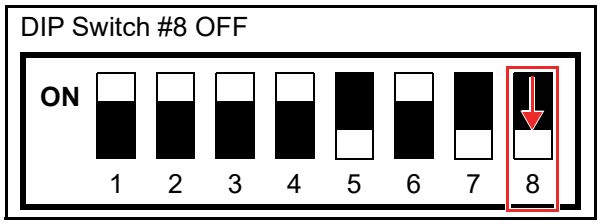


Figure 6-82 Non-Validation Banknote Acceptance with Cash Box 3

7. Insert a Banknote.
8. Confirm that the UBA Pro accepts and stacks the Banknote into the Cash Box.
9. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Non-Validation Banknote Acceptance without Cash Box

To perform the Non-Validation Acceptance Test without the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-83).

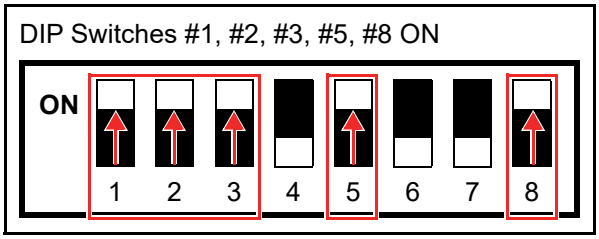


Figure 6-83 Non-Validation Banknote Acceptance without Cash Box 1

3. Remove the Cash Box.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

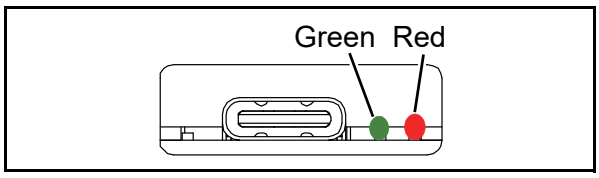


Figure 6-84 Non-Validation Banknote Acceptance without Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-85).

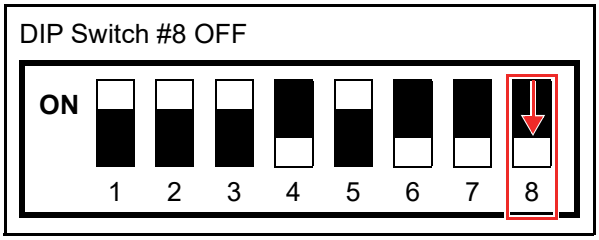


Figure 6-85 Non-Validation Banknote Acceptance without Cash Box 3

7. Insert a Banknote.
8. Confirm that the UBA Pro accepts and drops the Banknote into the frame area.
9. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Non-Validation Banknote Reject Test with Cash Box

To perform the Banknote Reject Test with the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-86).

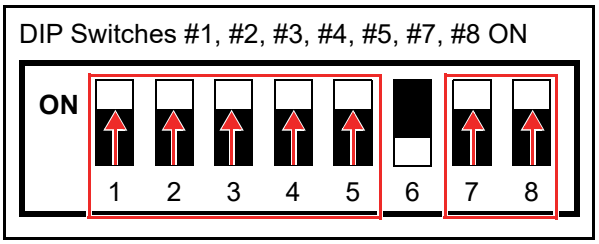


Figure 6-86 Non-Validation Banknote Reject Test with Cash Box 1

3. Ensure that the Cash Box is properly installed.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

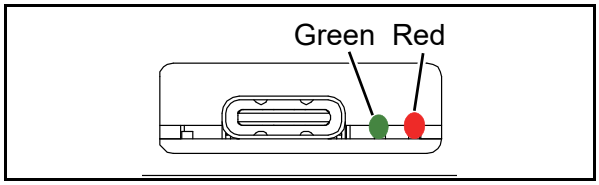


Figure 6-87 Non-Validation Banknote Reject Test with Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-88).

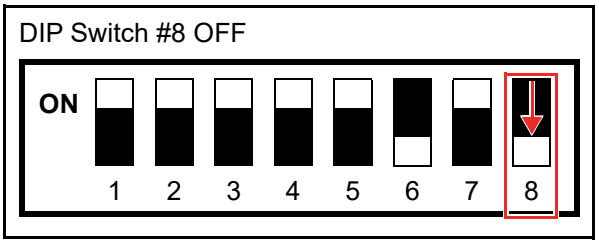


Figure 6-88 Non-Validation Banknote Reject Test with Cash Box 3

7. Insert a Banknote.
8. Confirm that the UBA Pro rejects the Banknote inserted.
9. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Feed Motor Operation Test (Forward)

To perform the Feed Motor Operation Test in the forward rotation, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-89).

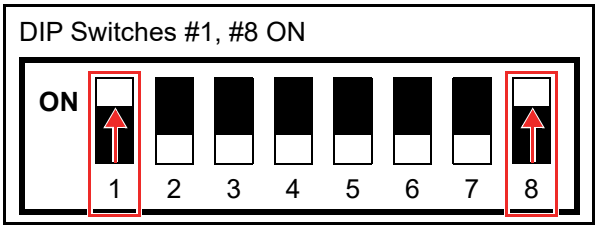


Figure 6-89 Feed Motor Operation Test (Forward) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

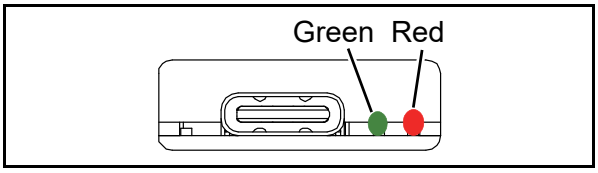


Figure 6-90 Feed Motor Operation Test (Forward) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-91).

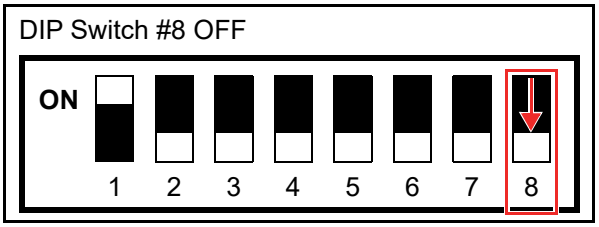


Figure 6-91 Feed Motor Operation Test (Forward) 3

7. The Rollers will start running in the forward direction when the Feed Motor functions properly.

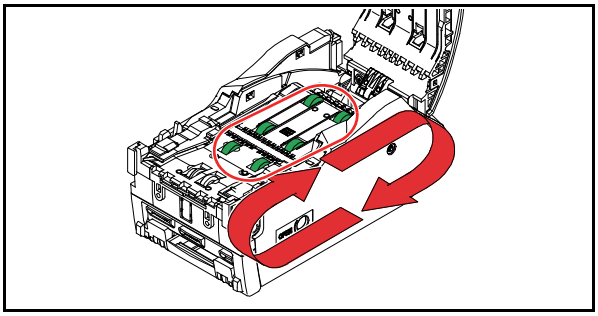


Figure 6-92 Feed Motor Operation Test (Forward) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Feed Motor Operation Test (Reverse)

To perform the Feed Motor Operation Test in the forward rotation, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-93).

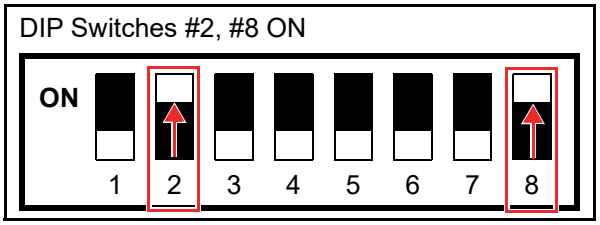


Figure 6-93 Feed Motor Operation Test (Reverse) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

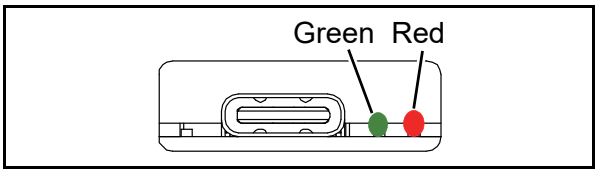


Figure 6-94 Feed Motor Operation Test (Reverse) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-95).

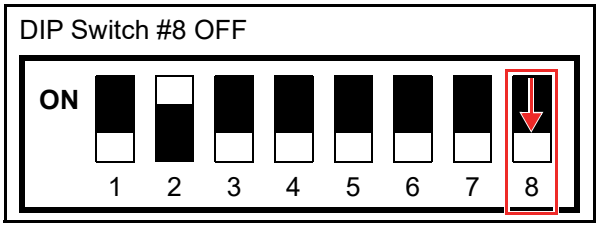


Figure 6-95 Feed Motor Operation Test (Reverse) 3

7. The Rollers will start running in the forward direction when the Feed Motor functions properly.

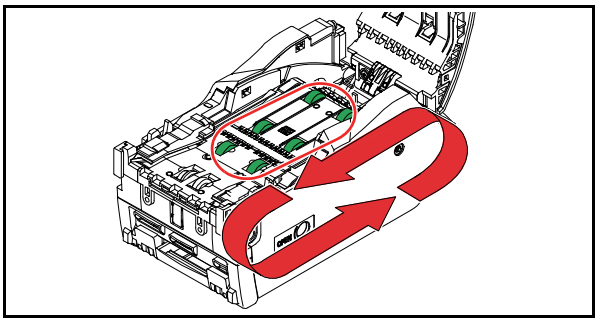


Figure 6-96 Feed Motor Operation Test (Reverse) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Sensor Test

To perform the Sensor Test, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-97).

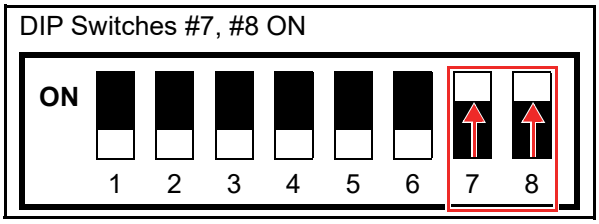


Figure 6-97 Sensor Test 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

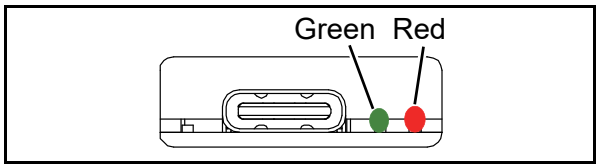


Figure 6-98 Sensor Test 2

5. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-99).

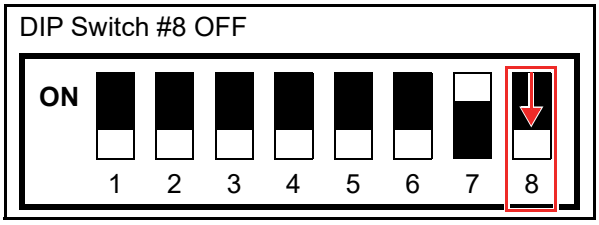
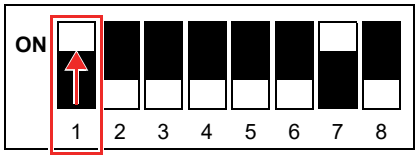
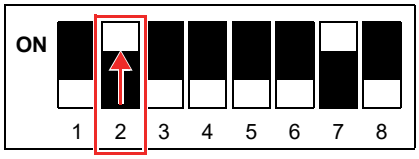
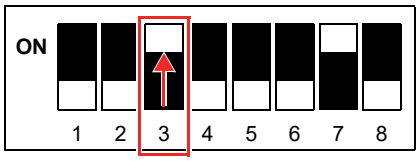
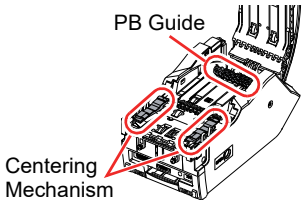
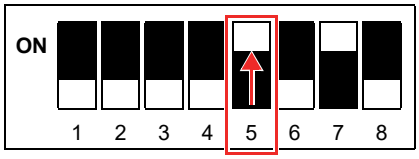
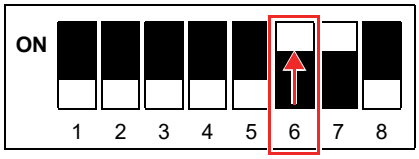


Figure 6-99 Sensor Test 3

6. Follow the each procedure below and confirm that the LED is lit as specified.

NOTE: Refer to "Sensor and Roller Locations" on page 2-18 for the location of each Sensor.

Sensor/ Mechanism	Procedure and Confirmation
Entrance & Centering	(1) DIP Switch #1 ON  (2) Open the Cover. (3) Cover the Sensor with a Banknote (4) Close the Cover firmly. (5) Confirm that the Status LED is lit as below when the Sensor detects the Banknote: Entrance Sensor: Green LED Centering Sensor: Red LED

Sensor/ Mechanism	Procedure and Confirmation
PB_IN & PB_OUT	(1) DIP Switch #2 ON  (2) Open the Cover. (3) Cover the Sensor with a Banknote (4) Close the Cover firmly. (5) Confirm that the Status LED is lit as below when the Sensor detects the Banknote: PB IN Sensor: Green LED PB OUT Sensor: Red LED
PB Home & Centering Home	(1) DIP Switch #3 ON  (2) Open the Cover. (3) Move the PB Guide with your finger. (4) Confirm that the Green LED is lit. (5) Move the Centering Mechanism with your fingers. (6) Confirm that the Orange and Red LEDs are lit. 
Pusher Home & Box Exist	(1) DIP Switch #5 ON  (2) Remove the Cash Box. (3) Reach to and push each “Arm” linked to the Sensors on the bottom of the Unit. (4) Confirm that the Status LED is lit as below when the Sensor turns on: Pusher Home Sensor: Green LED Box Exist Sensor: Red LED
Exit	(1) DIP Switch #6 ON  (2) Remove the Cash Box. (3) Insert a Banknote from the bottom of the Unit. (4) Confirm that the Green LED is lit.

7. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Aging Test with Cash Box

To perform the Aging Test with the Cash Box, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-100).

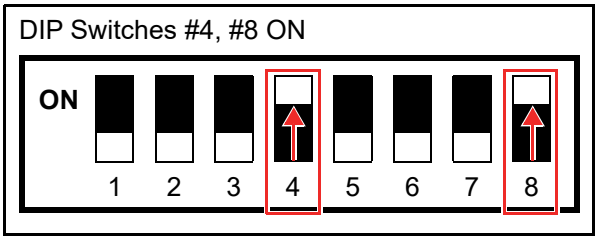


Figure 6-100 Aging Test with Cash Box 1

3. Ensure that the Cash Box is properly installed.
4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

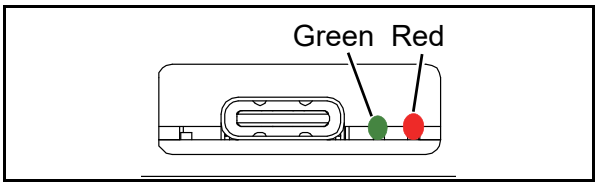


Figure 6-101 Aging Test with Cash Box 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-102).

Figure 6-102 Aging Test with Cash Box 3

7. The aging operation will begin.
8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

DIP Switch Test

To perform the DIP Switch Test, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-103).

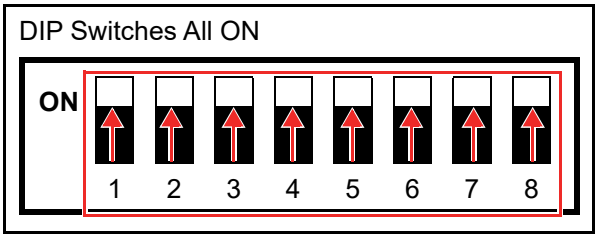


Figure 6-103 DIP Switch Test 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

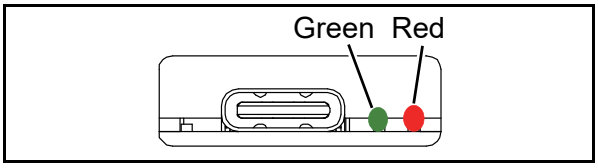


Figure 6-104 DIP Switch Test 2

5. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-105).

Figure 6-105 DIP Switch Test 3

6. Set the DIP Switches to **OFF** (Figure 6-106).

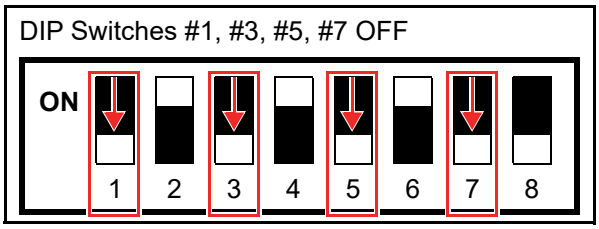


Figure 6-106 DIP Switch Test 4

7. Confirm that the Red LED is lit.

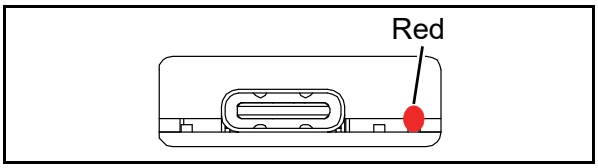


Figure 6-107 DIP Switch Test 5

8. Set the DIP Switches to **OFF** (Figure 6-108).

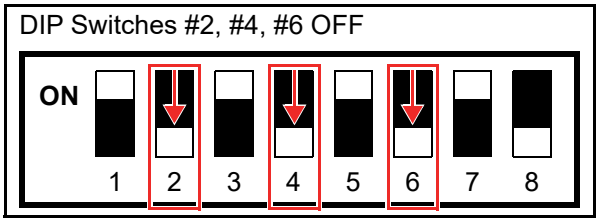


Figure 6-108 DIP Switch Test 6

9. The Green LED will be lit.

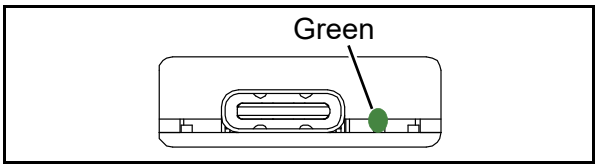


Figure 6-109 DIP Switch Test 7

10. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Stacking Operation Test

To perform the Stacking Operation Test, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-110).

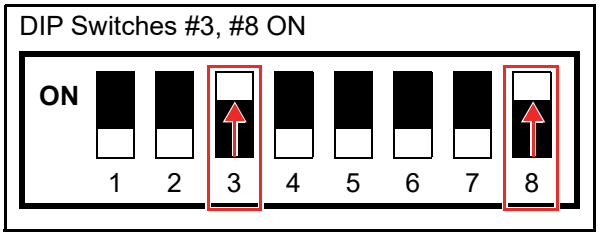


Figure 6-110 Stacking Operation Test 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

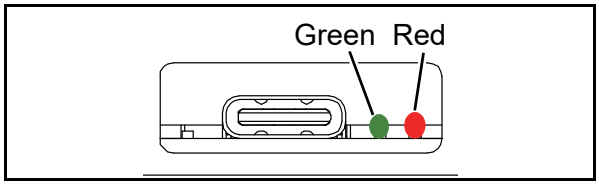


Figure 6-111 Stacking Operation Test 2

5. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-112).

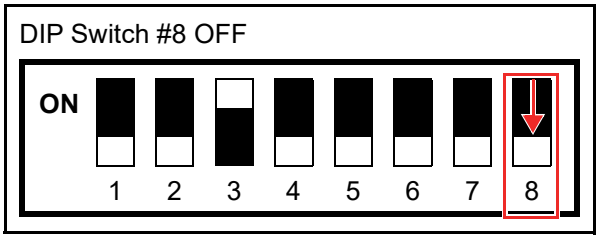


Figure 6-112 Stacking Operation Test 3

6. The stacking operation will begin.
7. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

PB Motor Operation Test

To perform the PB Motor Operation Test, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-113).

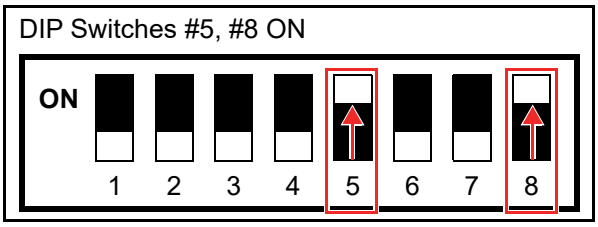


Figure 6-113 PB Motor Operation 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

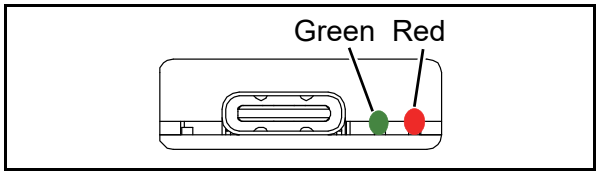


Figure 6-114 PB Motor Operation 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-115).

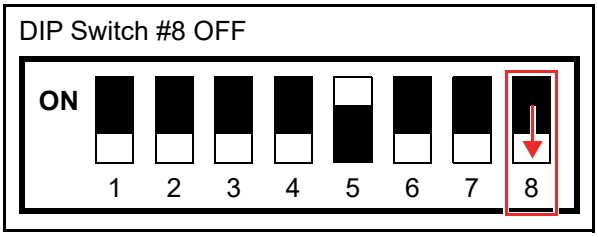


Figure 6-115 PB Motor Operation 3

7. The PB Guide will start moving when the PB Motor functions properly.

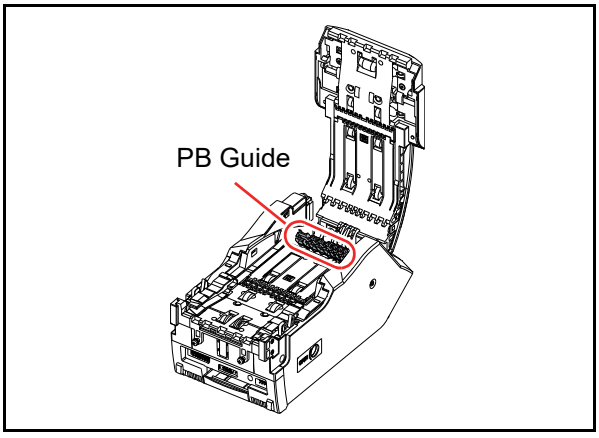


Figure 6-116 PB Motor Operation 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Centering Motor Operation Test

To perform the Centering Motor Operation Test, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-117).

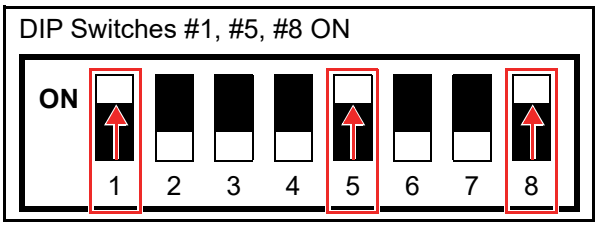


Figure 6-117 Centering Motor Operation 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

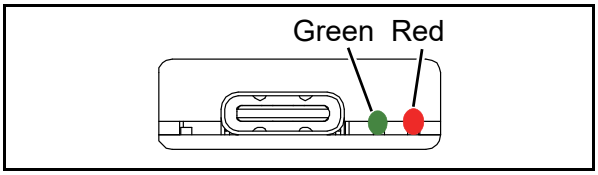


Figure 6-118 Centering Motor Operation 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-119).

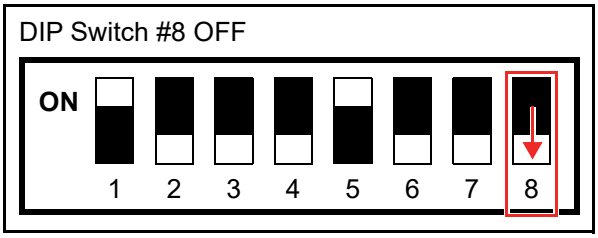


Figure 6-119 Centering Motor Operation 3

7. The Centering Mechanism will start moving when the Centering Motor functions properly.

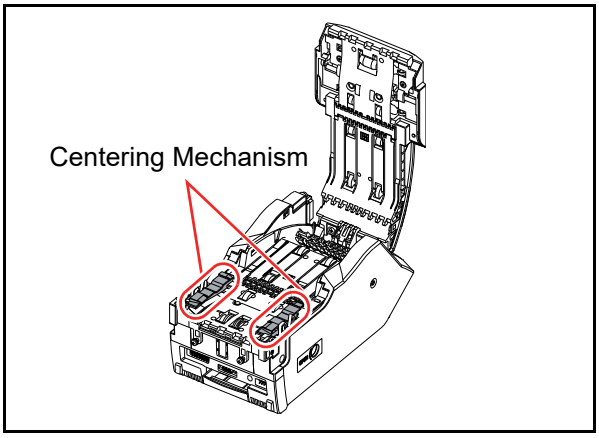


Figure 6-120 Centering Motor Operation 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Stacker Motor Operation Test

To perform the Stacker Motor Operation Test without the Cash Box, proceed as follows:

1. Remove electrical power.
2. Remove the Cash Box.

NOTE: Be sure to remove the Cash Box to avoid the risk of damage.

3. Set the DIP Switches as below (Figure 6-121).

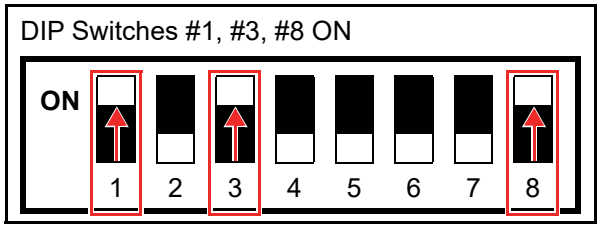


Figure 6-121 Stacker Motor Operation Test 1

4. Apply electrical power.
5. Confirm that the Green and Red Status LEDs are lit.

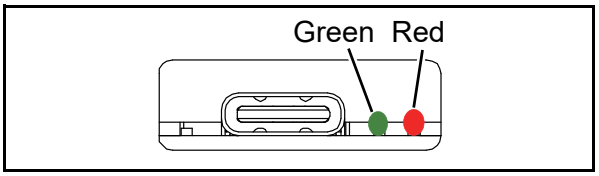


Figure 6-122 Stacker Motor Operation Test 2

6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-123).

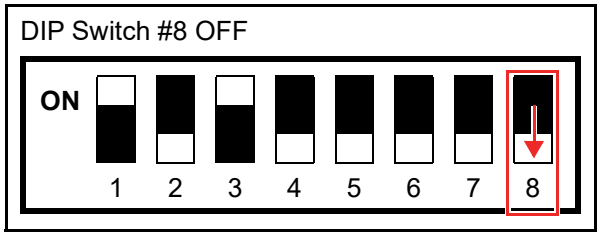


Figure 6-123 Stacker Motor Operation Test 3

7. The Stack Gear will start spinning when the Stacker Motor functions properly.

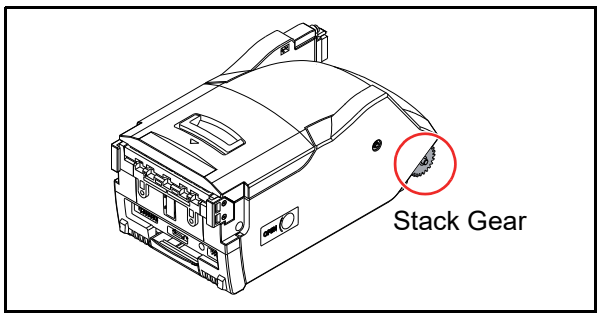


Figure 6-124 Stacker Motor Operation Test 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Entrance Motor Operation Test (Forward)

To perform the Entrance Motor Operation Test in the forward rotation, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-125).

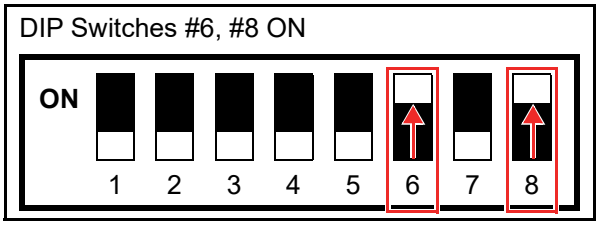


Figure 6-125 Entrance Motor Operation Test (Forward) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

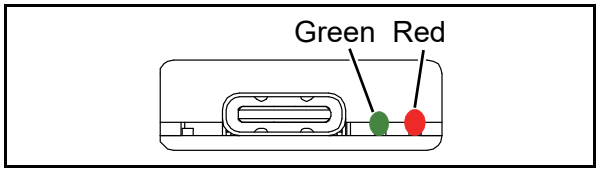


Figure 6-126 Entrance Motor Operation Test (Forward) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-127).

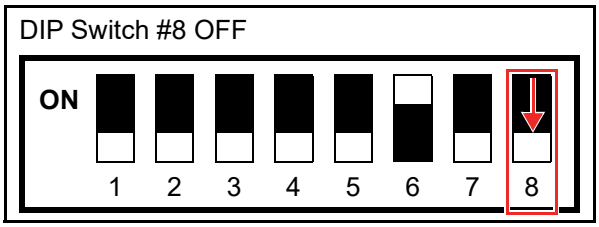


Figure 6-127 Entrance Motor Operation Test (Forward) 3

7. The Rollers will start running in the forward direction when the Feed Motor functions properly.

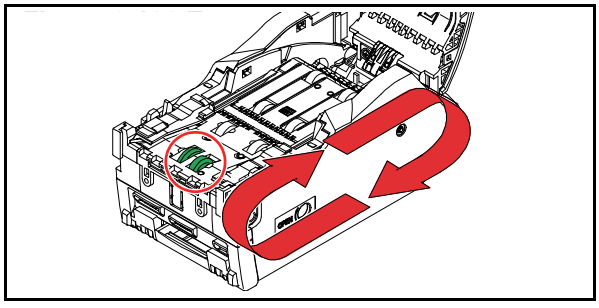


Figure 6-128 Entrance Motor Operation Test (Forward) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Entrance Motor Operation Test (Reverse)

To perform the Entrance Motor Operation Test in the reverse rotation, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-129).

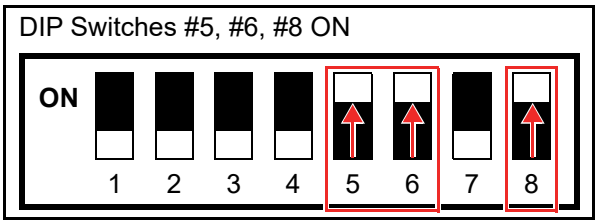


Figure 6-129 Entrance Motor Operation Test (Reverse) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

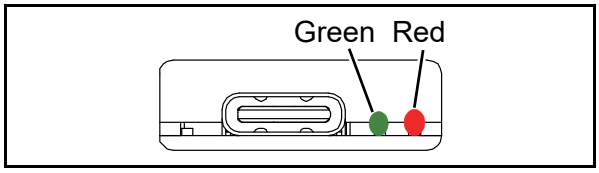


Figure 6-130 Entrance Motor Operation Test (Reverse) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-131).

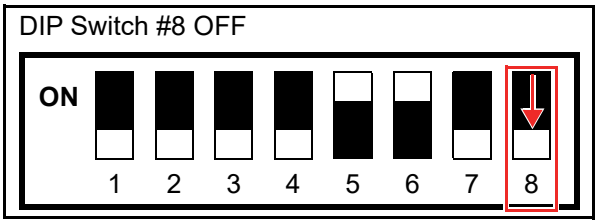


Figure 6-131 Entrance Motor Operation Test (Reverse) 3

7. The Rollers will start running in the reverse direction when the Feed Motor functions properly.

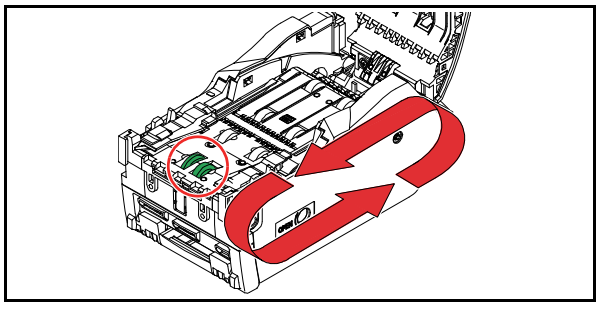


Figure 6-132 Entrance Motor Operation Test (Reverse) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Entrance and Feed Motors Simultaneous Operation Test (Forward)

To perform the Motor Operation Test of the Entrance Motor and the Feed Motor in the forward rotation at the same time, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-133).

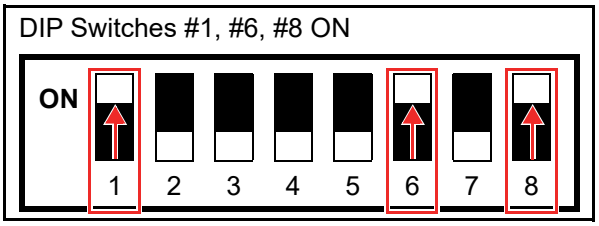


Figure 6-133 Entrance and Feed Motors Simultaneous Speed Test (Forward) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

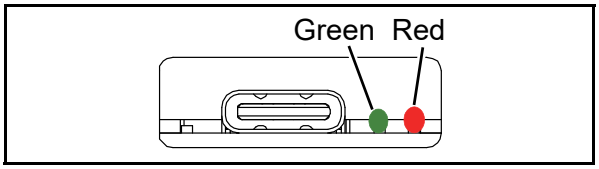


Figure 6-134 Entrance and Feed Motors Simultaneous Speed Test (Forward) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-135).

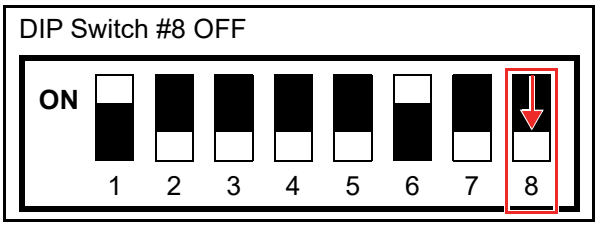


Figure 6-135 Entrance and Feed Motors Simultaneous Speed Test (Forward) 3

7. The Rollers will start running in the forward direction when the Entrance and Feed Motors function properly.

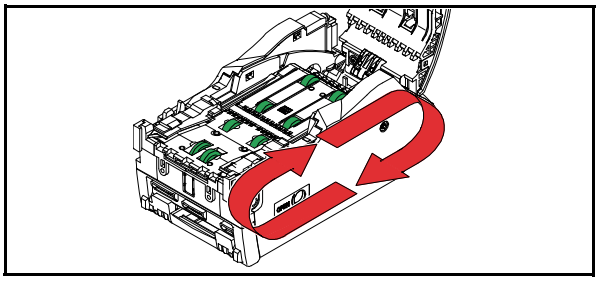


Figure 6-136 Entrance and Feed Motors Simultaneous Speed Test (Forward) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

Entrance and Feed Motors Simultaneous Operation Test (Reverse)

To perform the Motor Operation Test of the Entrance Motor and the Feed Motor in the reverse rotation at the same time, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches as below (Figure 6-137).

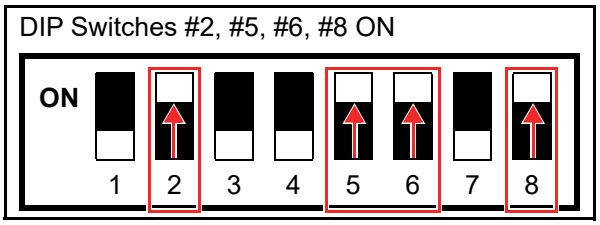


Figure 6-137 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 1

3. Apply electrical power.
4. Confirm that the Green and Red Status LEDs are lit.

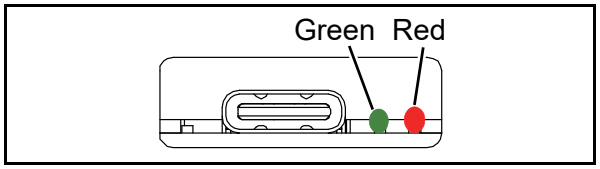


Figure 6-138 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 2

5. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover
6. To start the Test, set the DIP Switch #8 to **OFF** (Figure 6-139).

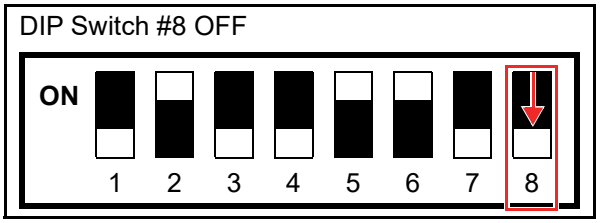


Figure 6-139 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 3

7. The Rollers will start running in the reverse direction when the Entrance and Feed Motors function properly.

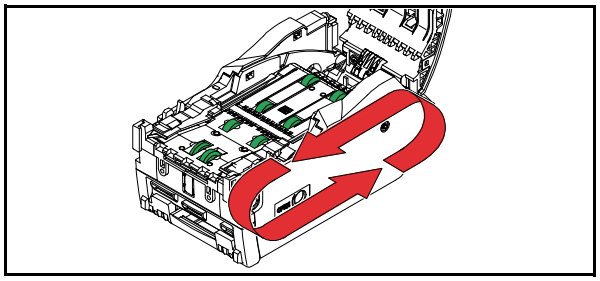


Figure 6-140 Entrance and Feed Motors Simultaneous Speed Test (Reverse) 4

8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

UBA™ Pro Series
Universal Banknote Acceptor
Section 7

7 EXPLODED VIEWS AND PARTS LISTS

This section provides product Exploded Views and Parts Lists for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro).
This section contains the following Unit or Assembly's exploded view and part list information.

NOTE: Contact your local JCM Representative for parts availability.

NOTE: Parts may be changed for improvement without notice.

UBA Pro Entire Unit Exploded View

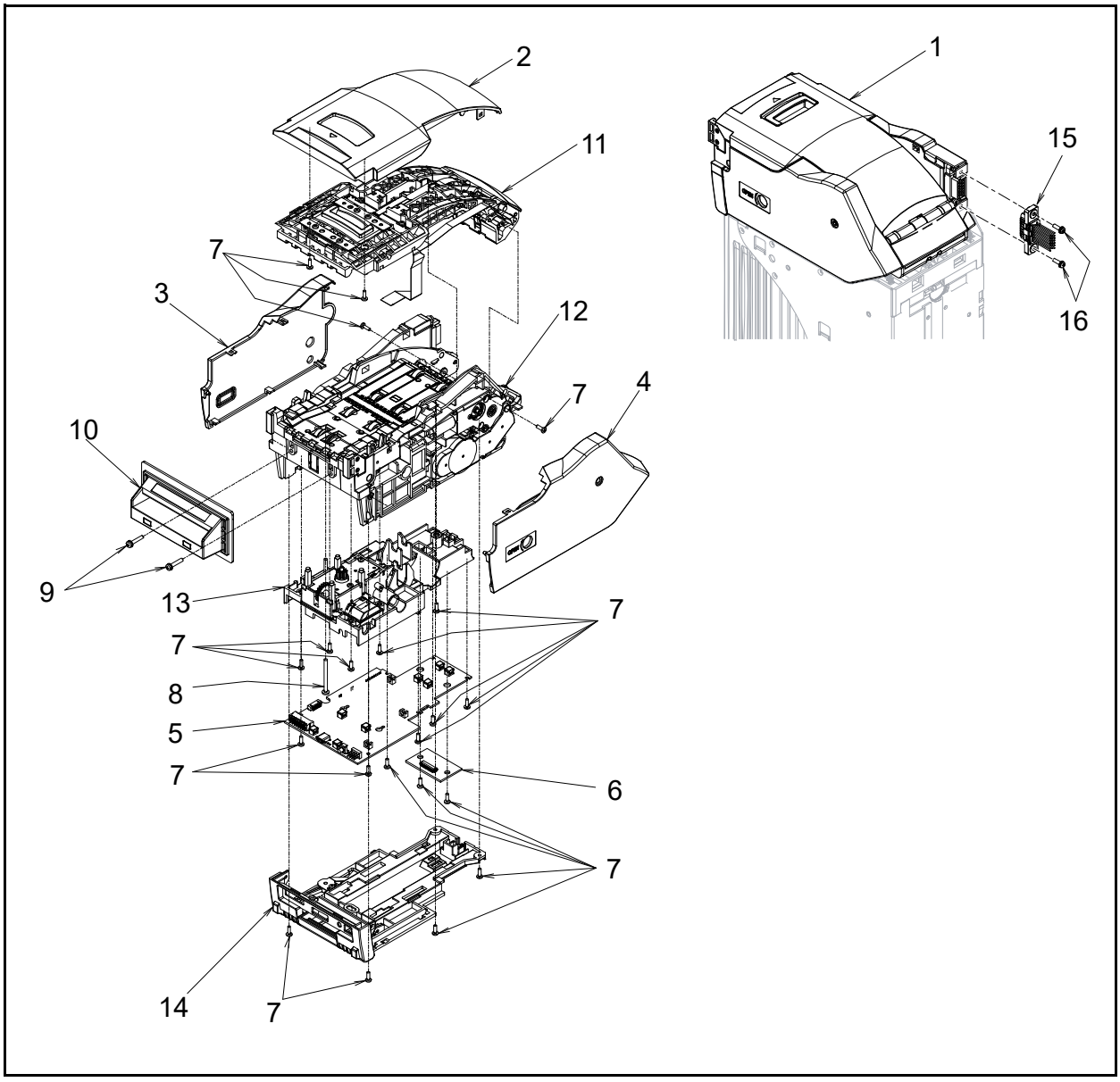


Figure 7-1 UBA Pro Entire Unit Exploded View

UBA Pro Entire Unit Parts List

Table 7-1 UBA Pro Entire Unit Parts List

No.	EDP No.	Description	Qty	Remark
1*	282646	UBA-500-10-SS TRANSPORT UNIT PH	1	With a shipping box Upper Barcode Sensor only Centering Type Sub Board 1
	284329	UBA-500-20-SS TRANSPORT UNI EUR PH	1	With a shipping box Upper Barcode Sensor only Centering Type Sub Board 2
	–	UBA-510-10 TRANS UNIT CENT		No shipping box Upper and Lower Barcode Sensors Centering Type Sub Board 1
2	274208	TOP COVER	1	
3	274213	4116RE0113 SIDE COVER L	1	
4	274214	4116RE0114 SIDE COVER R	1	
5	282224	4116-3630-06-001E-01A MAIN BOARD	1	Service Part
6	271598	4116-3630-06-201B-01 SUB BOARD (UBA-PRO)	1	Service Part Sub Board 1
	282223	4116-3630-06-202B-01A SUB BOARD (IPRO IF)	1	Service Part Sub Board 2
	297425	4116-3630-06-203B-01 SUB BOARD	1	For the UBA Pro-RC only Service Part Sub Board 3
7	144840	2.6X8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron/Chromium (III)	21	
8	274296	3x35 Pan Head Screw with Spring Washer + Small Washer, Iron (III) CM	1	
9	006481	3x16 Pan Head Screw with Spring Washer + Small Washer, Iron (III) CM	2	
10	290392	INS GUIDE UBA	1	Without LEDs,85mm/Black
	290393	INS GUIDE UBA(BL)	1	Without LEDs,85mm/Blue
	290855	INS GUIDE UBA 82	1	Without LEDs,82mm/Black
	290394	INS GUIDE UBA(GR)	1	Without LEDs,85mm/Green
	202272	UBA Bezel SS 1 R (85mm, Black, Green LED)	1	For Standard (SS) installation No Relay Harness
	202273	UBA Bezel SS 2 R (85mm, Blue, Blue LED)	1	
	202274	UBA Bezel SS 8 R (82mm, Black, Green LED)	1	
	202275	UBA Bezel SS A R (85mm, Blue, 2-Line Blue LED)	1	For Standard (SS) installation With Relay Harness
	202276	UBA Bezel SS B R (85mm, Green, 2-Line Green LED)	1	
	202277	UBA Bezel SS Metal M1 R (85mm, Silver (Metal), Green LED)	1	For Standard (SS) installation No Relay Harness
	202278	UBA Bezel SS Metal M2 R (85mm, Silver (Metal), Blue LED)	1	
	202279	UBA Bezel SU 1 R (85mm, Black, Green LED)	1	For Stack Up (SU) installation No Relay Harness
	212987	UBA Bezel SS Metal M1 T (85mm, Gold (Metal), Green LED)	1	For Standard (SS) installation No Relay Harness
	212988	UBA Bezel SS Metal M2 T (85mm, Gold (Metal), Blue LED)	1	
	212991	UBA Bezel SS Metal M1 N (85mm, Bronze Silver (Metal), Green LED)	1	
	212992	UBA Bezel SS Metal M2 N (85mm, Bronze Silver (Metal), Blue LED)	1	
11	-	Upper Transport Guide Assy	1	
12	-	Transport Unit Assy	1	
13	-	Middle Bracket Assy.	1	
14	-	Bottom Cover Assy.	1	
15*	283354	3630-05-010 (Standard Interface Harness 1)	1	No USB, UBA-1x Series Type
	283355	3630-05-011 (Standard Interface Harness 2)	1	1 USB, iPRO Series Type
	283356	3630-05-012 (Standard Interface Harness 3)	1	2 USBs, UBA Pro Series Type
16	006037	3x12 Pan Head with Spring Washer + Small Washer, Iron (III) CM	2	

*. Refer to the UBA Pro-RT/RQ™ Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro-RT or RQ product. Refer to the UBA™ Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro-RC product.

UBA Pro Upper Transport Guide Exploded View

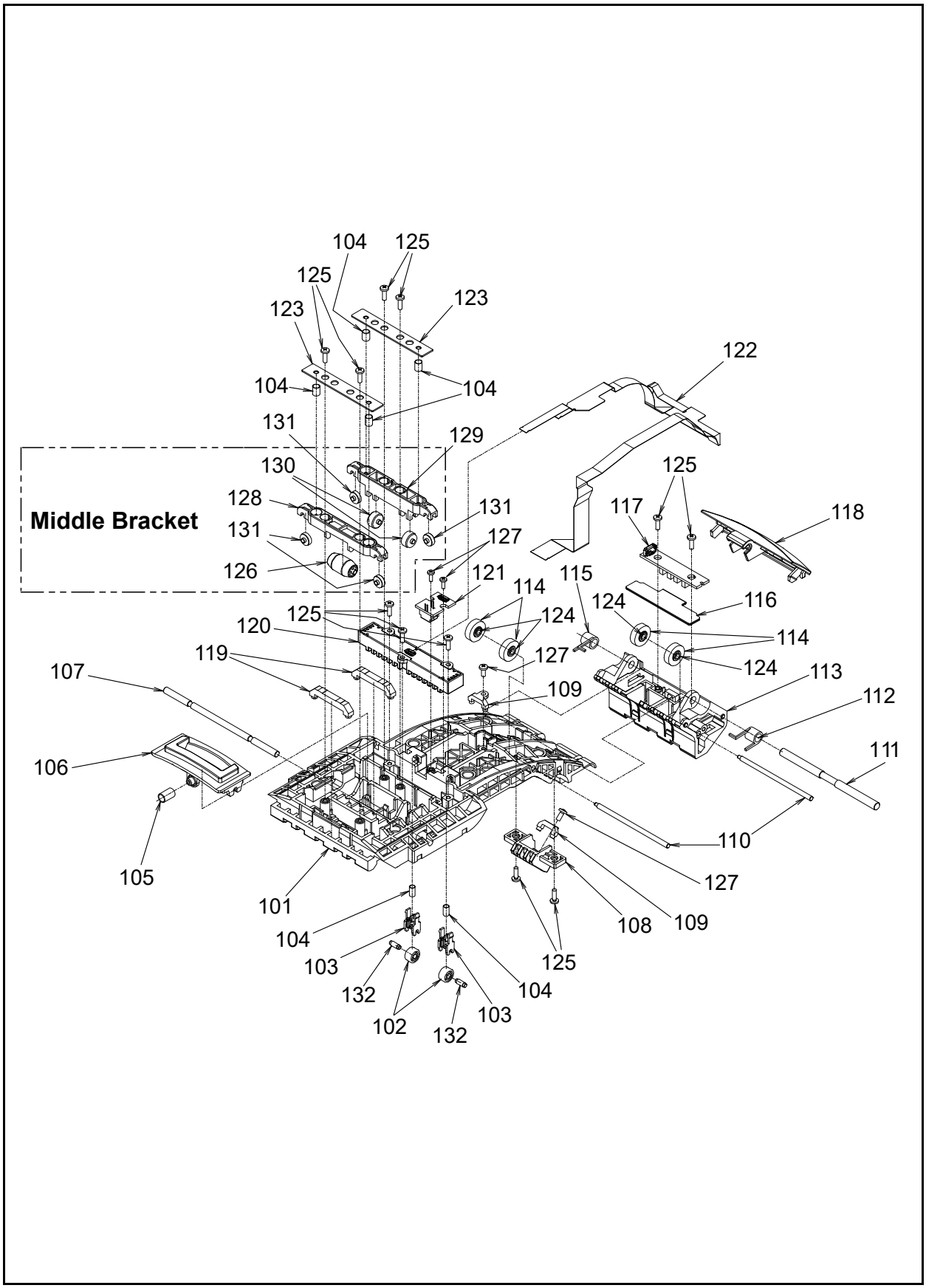


Figure 7-2 UBA Pro Upper Transport Guide Exploded View

UBA Pro Upper Transport Guide Parts List

Table 7-2 UBA Pro Upper Transport Guide Parts List

No.	EDP No.	Description	Qty	Remark
101	280245	Upper Transport GUIDE	1	
102	279832	φ9 Idle Roller	2	
103	236947	φ9 Idle Roller Bracket	2	
104	231376	Transport Spring B140	6	
105	274285	Open Lever Spring	1	
106	274221	Open Lever	1	
107	274283	Open Lever Shaft	1	
108	274232	TR GUIDE PBOUT	1	Transport Guide PB-Out
109	195225	Prism URF B	2	
110	274270	Sponge Roller Shaft	2	
111	274278	Hinge Shaft	1	
112	274292	Hinge Kick Spring, Right	1	
113	280246	Transport Guide, Back	1	
114	274294	φ15 Sponge Roller	4	
115	274291	Hinge Kick Spring, Left	1	
116	274295	FPC Holder	1	
117	271602	4116-3630-06-004B-01 BOX SENSOR BOARD	1	Service Part
118	274209	Back Cover	1	
119	274220	UBA Pro Prism A	2	
120	274364	LSJC02 LED MODULE	1	Service Part LED Light Source Module
121	271601	4116-3630-06-005B-01 BAR SENSOR BOARD	1	Upper Barcode Sensor Service Part
122	274361	3630-05-007x 24P-FPC HARNESS	1	
123	274263	Center Arm Plate	2	
124	147966	Transport Roller Core	4	
125	144840	2.6X8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron/Chromium (III)	11	
126	290704	ENT IDLE RO	1	Entrance Idle Roller
127	104010	2.6X6 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Iron(III)	4	
128	290702	Centering Arm A	1	
129	290703	Centering Arm B	1	
130	195230	Transport Roller URF	2	
131	290705	CENT ARM RO SH	4	
132	279833	φ9 Idle Roller Shaft	2	

UBA Pro Transport Unit Exploded View 1

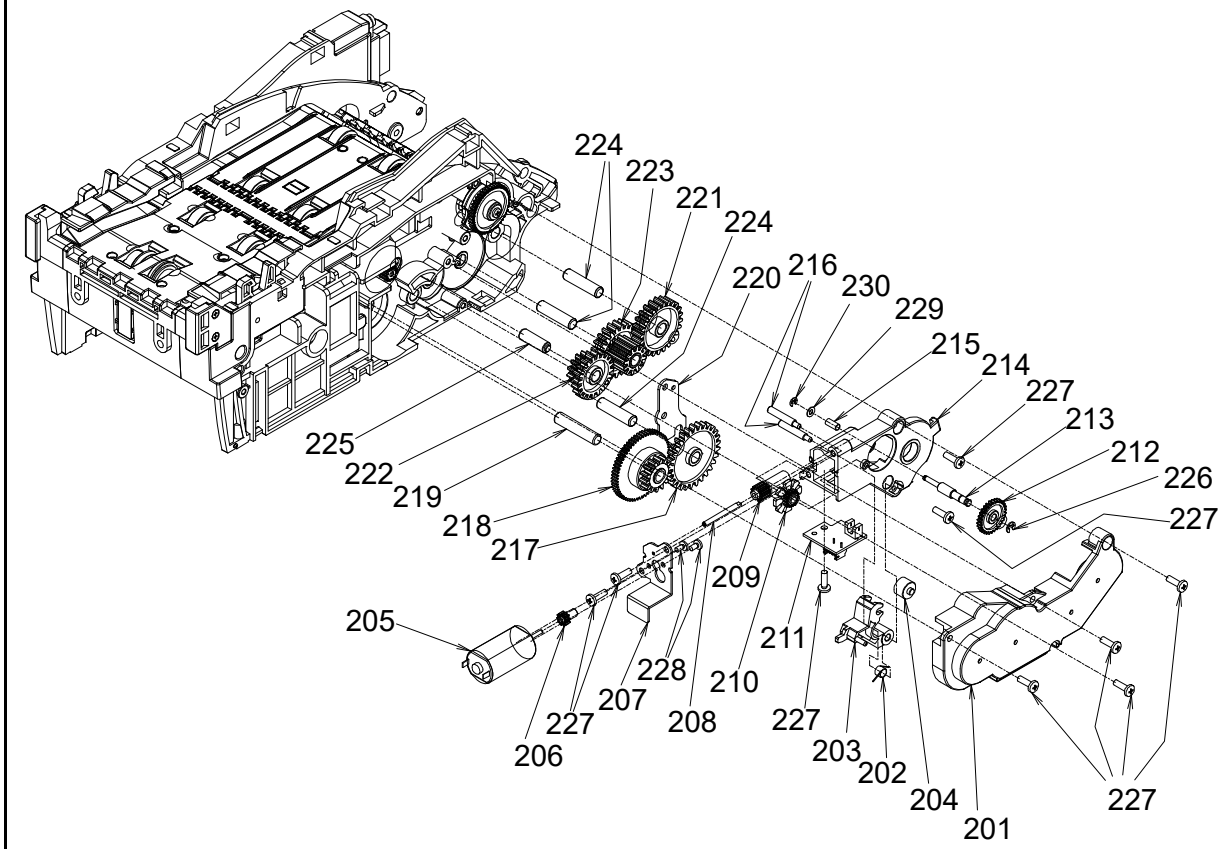


Figure 7-3 UBA Pro Transport Unit Exploded View 1

UBA Pro Transport Unit Parts List 1

Table 7-3 UBA Pro Transport Unit Parts List 1

No.	EDP No.	Description	Qty	Remark
201	274212	ST Gear Cover	1	
202	274293	PB Home Kick Spring	1	
203	274226	PB Home Lever	1	
204	274255	PB Lever Roller	1	
205	274368	4116-3630-03-004 PB MOT HARNESS ASSY	1	Service Part
206	234698	PB MOTOR PINION GEAR	1	Press-in fit is required for assembly
207	274264	PB Bracket Plate	1	
208	274277	PB Pin C	1	
209	274247	PB Worm Gear	1	
210	274246	PB Gear ENC	1	
211	271599	4116-3630-06-002B-01 PB-ENC-HP BOARD	1	Service Part
212	274245	PB Gear, M05 Z30	1	
213	274276	PB Pin B	1	
214	274224	PB Bracket	1	
215	274288	PB Pin Spacer	1	
216	274275	PB Pin A	2	
217	274242	ST Gear A	1	
218	195314	TL Gear	1	
219	274271	ST Gear Pin A	1	
220	274267	ST Gear Plate	1	
221	274239	TR Gear, M1 Z24	1	
222	274243	ST Gear B	1	
223	274252	ST Gear C	1	
224	274269	TR ST Gear Pin	3	
225	274272	ST Gear Pin B	1	
226	104034	φ2 E-ring SUS (TAIYO)	1	
227	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	9	
228	005491	2x4 Pan Head with Spring Washer + Small Washer, Iron (III) CM	2	
229	035547	φ2x4.3x0.3 Flat Head Washer, Iron/Chromium (II)	1	
230	104033	φ1.5 E-ring SUS (TAIYO)	1	

UBA Pro Transport Unit Exploded View 2

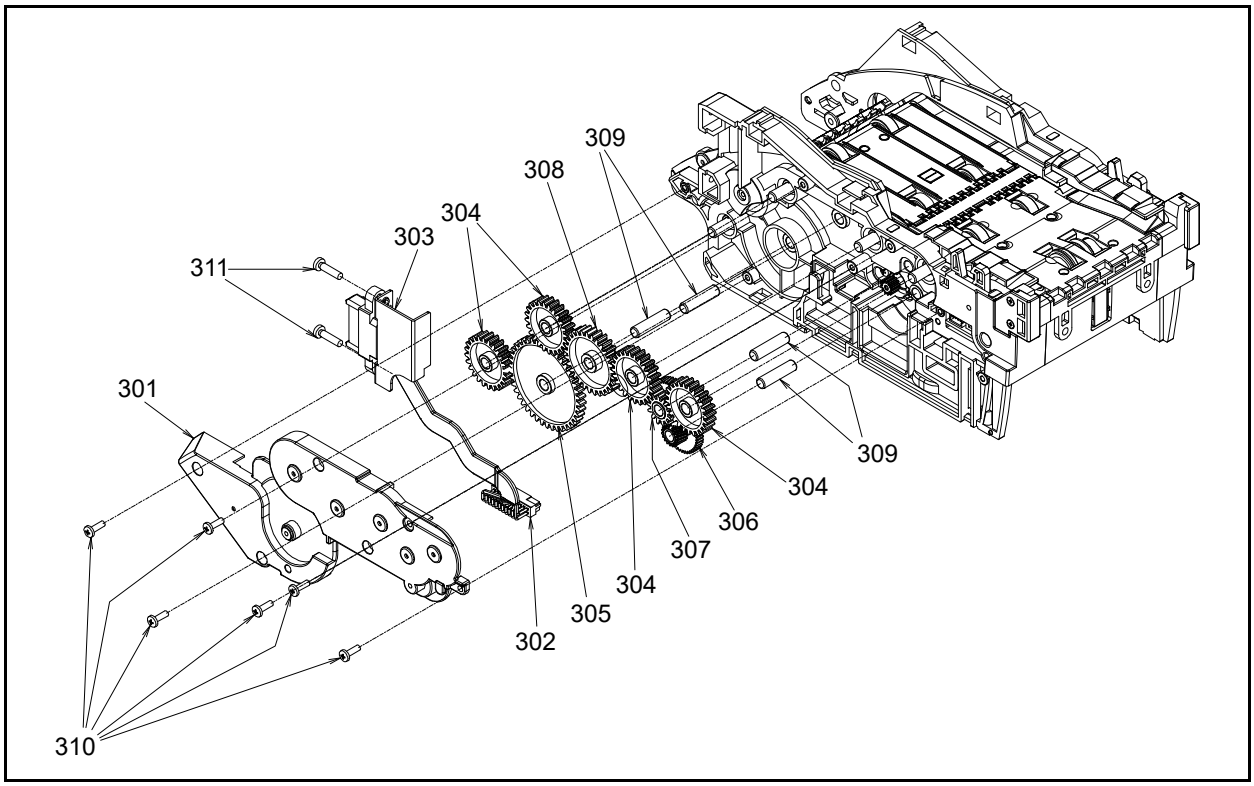


Figure 7-4 UBA Pro Transport Unit Exploded View 2

UBA Pro Transport Unit Parts List 2

Table 7-4 UBA Pro Transport Unit Parts List 2

No.	EDP No.	Description	Qty	Remark
301	274211	TR Gear Cover	1	
302	278352	Power Supply Communication Harness (3630-05-001x)	1	
303	274261	CN Bracket	1	
304	274239	TR Gear, M1 Z24	4	
305	274241	TR Gear, M1 Z42	1	
306	274237	TR Gear A	1	
307	274238	TR Gear B	1	
308	274240	TR Gear, M1 Z29	1	
309	274269	TR ST Gear Pin	4	
310	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	6	
311	006037	3x12 Pan Head with Spring Washer + Small Washer, Iron (III) CM	2	

UBA Pro Transport Unit Exploded View 3

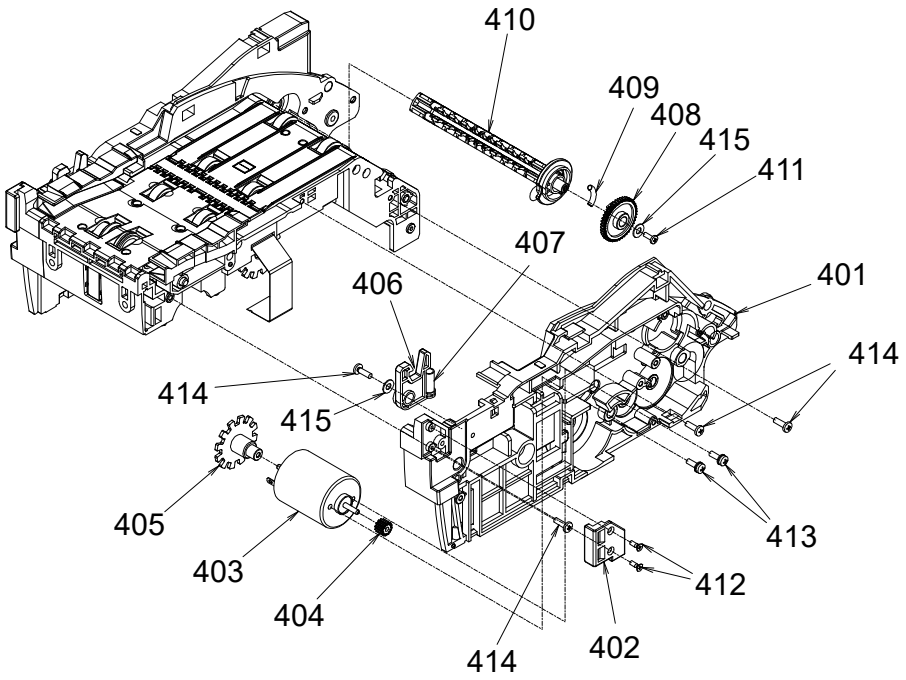


Figure 7-5 UBA Pro Transport Unit Exploded View 3

UBA Pro Transport Unit Parts List 3

Table 7-5 UBA Pro Transport Unit Parts List 3

No.	EDP No.	Description	Qty	Remark
401	274202	TR Guide R	1	
402	195243	Bezel Holder URF A	1	
403	280694	4116-3630-03-003B STACK MOT HARNESS	1	Service Part
404	234695	TR MOTOR PINION GEAR	1	Press-in fit is required for assembly
405	280249	TR ST MO ENC	1	Press-in fit is required for assembly
406	274223	Open Latch R	1	
407	274284	Latch Spring	1	
408	274244	PB Gear, M05 Z44	1	
409	274289	PB Guide Spring	1	
410	274225	UBA PRO PB Guide	1	
411	101172	2x6 P-TITE (Phillips, Self-Tapping) Binding Head Screw	1	
412	058834	2x6 P-TITE (Phillips, Self-Tapping) Flat Head Screw, Iron/ Chromium (III)	2	
413	005555	2.6x6 Pan Head with Spring Washer + Small Washer, Iron (III) CM	2	
414	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	4	
415	100946	φ3x7x0.5 Flat Head Washer	2	

UBA Pro Transport Unit Exploded View 4

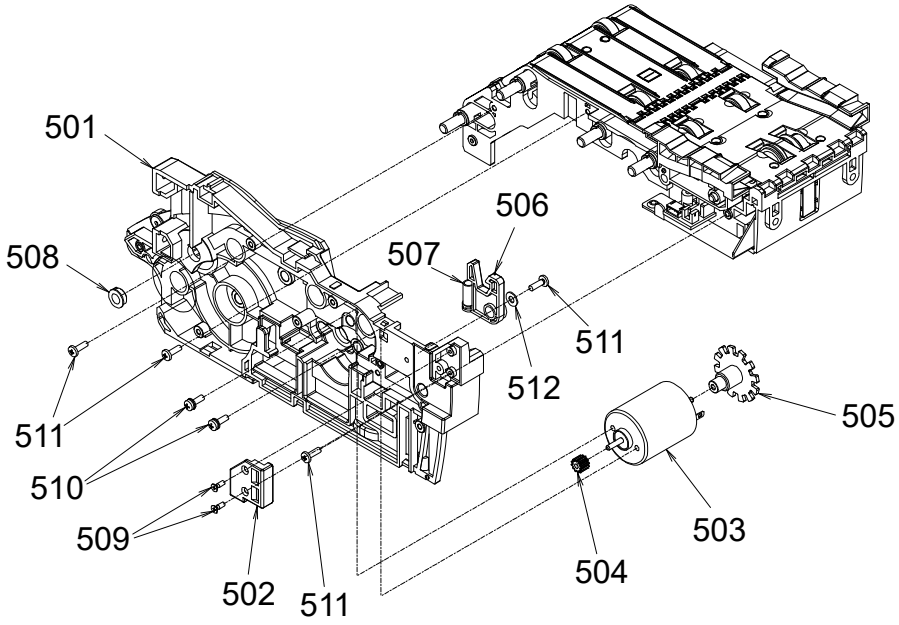


Figure 7-6 UBA Pro Transport Unit Exploded View 4

UBA Pro Transport Unit Parts List 4

Table 7-6 UBA Pro Transport Unit Parts List 4

No.	EDP No.	Description	Qty	Remark
501	280243	TR Guide L	1	
502	195244	Bezel Holder URF B	1	
503	280693	4116-3630-03-002B TRANSPORT MOT HAREN	1	Service Part
504	234695	TR MOTOR PINION GEAR	1	Press-in fit is required for assembly
505	280249	TR ST MO ENC	1	Press-in fit is required for assembly
506	274222	Open Latch L	1	
507	274284	Latch Spring	1	
508	144584	Bearing	1	
509	058834	2x6 P-TITE (Phillips, Self-Tapping) Flat Head Screw, Iron/ Chromium (III)	2	
510	005555	2.6x6 Pan Head with Spring Washer + Small Washer, Iron (III) CM	2	
511	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	4	
512	100946	φ3x7x0.5 Flat Head Washer	1	

UBA Pro Transport Unit Exploded View 5

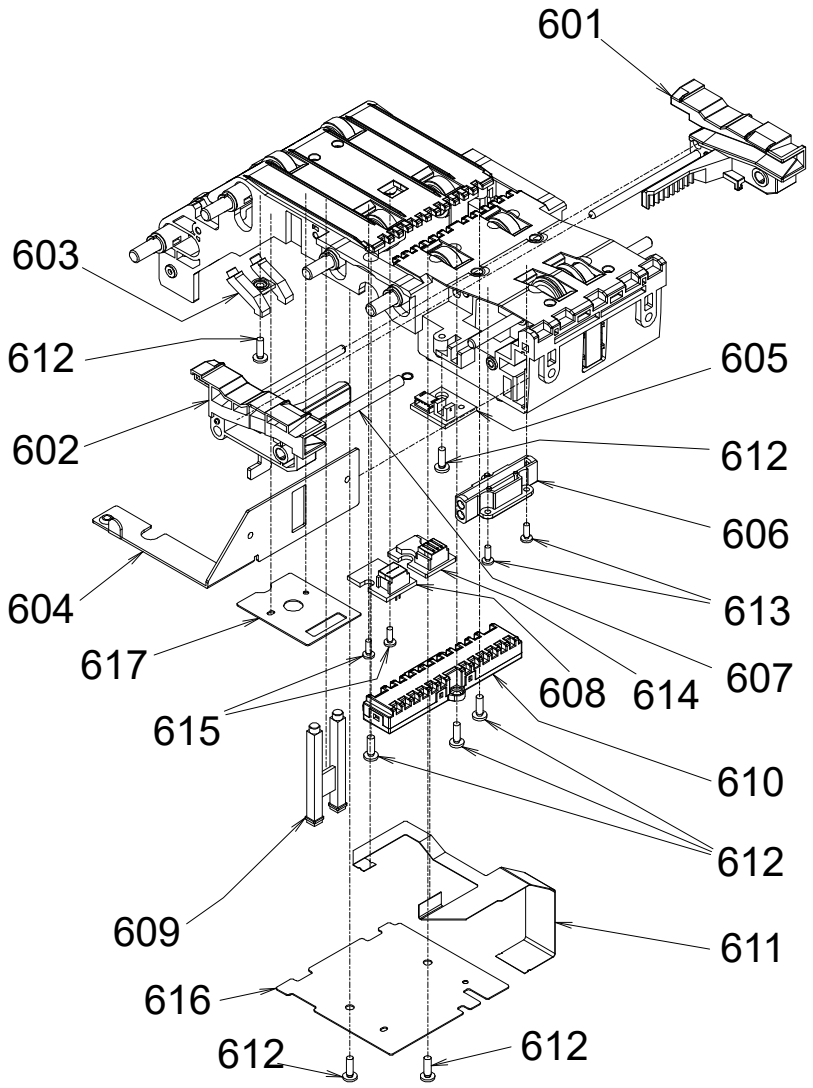


Figure 7-7 UBA Pro Transport Unit Exploded View 5

UBA Pro Transport Unit Parts List 5

Table 7-7 UBA Pro Transport Unit Parts List 5

No.	EDP No.	Description	Qty	Remark
601	274200	Centering Guide R Assy.	1	
602	274199	Centering Guide L Assy.	1	
603	291892	Light Guide D	1	
604	274260	Bezel Plate	1	
605	271600	4116-3630-06-003A-01 CENTERING HP BOARD	1	Service Part
606	274233	CENT COVER	1	
607	280995	Centering SP	1	Spring
608	271601	4116-3630-06-005B-01 BAR SENSOR BOARD	1	Service Part Lower Barcode Sensor
609	274217	Light Guide C	1	
610	274363	HICJC01 PDIC ARRAY	1	Service Part
611	279749	3630-05-009x 28P-FPC(NB) HARNESS	1	For UBA-50x (Barcode Sensor Board: Upper Only)
	274362	3630-05-008x 28P-FPC HARNESS		For UBA-51x (Barcode Sensor Board: Upper and Lower)
612	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	7	
613	124670	2x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Iron/Chromium (III)	2	
614	274234	Dummy Block	1	For UBA-50x
615	104010	2.6X6 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Iron(III)	2	
616	280251	Waterproof Cover A	1	
617	280252	Waterproof Cover B	1	

UBA Pro Transport Unit Exploded View 6

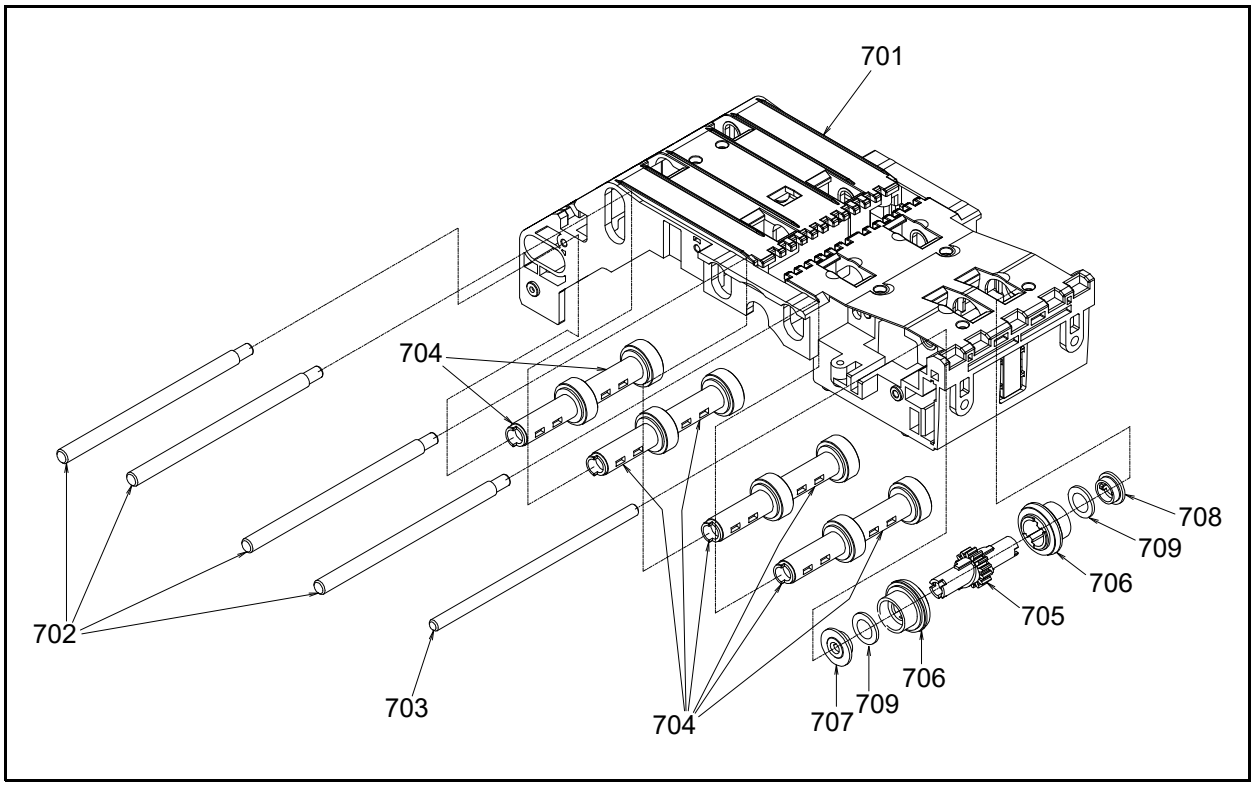


Figure 7-8 UBA Pro Transport Unit Exploded View 6

UBA Pro Transport Unit Parts List 6

Table 7-8 UBA Pro Transport Unit Parts List 6

No.	EDP No.	Description	Qty	Remark
701	280244	TR Guide Middle	1	
702	274268	TR Drive Shaft	4	
703	274273	ENT Roller Shaft	1	
704	274253	TR Drive Roller	8	
705	274251	Slide Roller Gear	1	
706	274254	Slide Roller	2	Service Part
707	274258	Slide Roller Bushing L	1	
708	274259	Slide Roller Bushing R	1	
709	292121	SLIDE RO SPACER	2	

UBA Pro Middle Bracket Exploded View

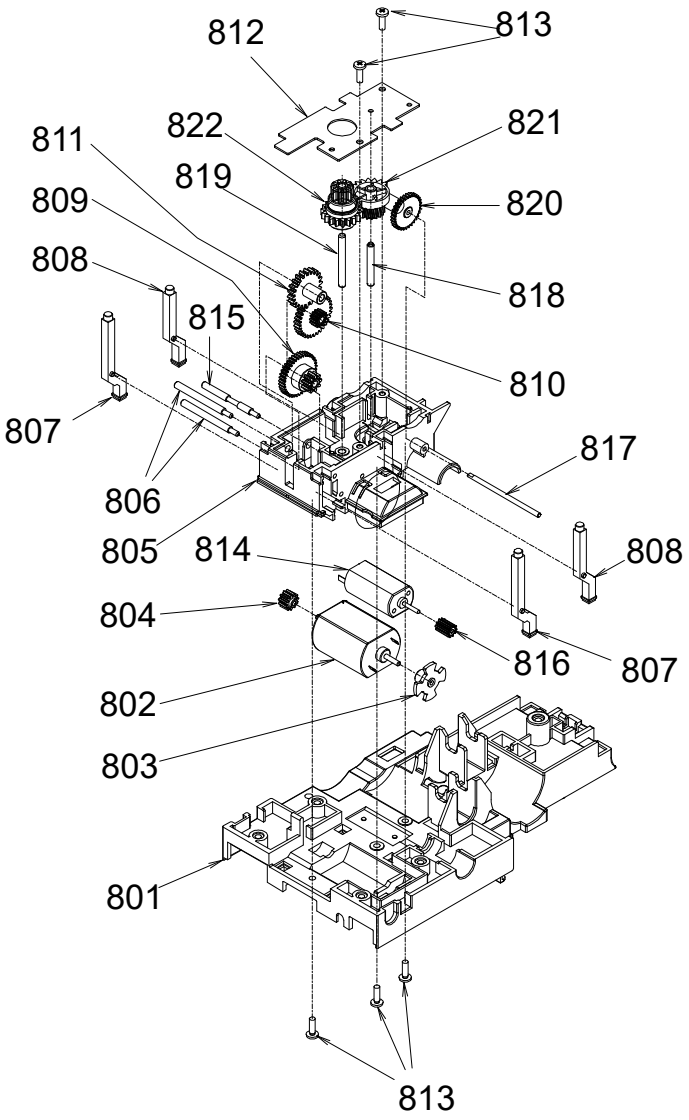


Figure 7-9 UBA Pro Middle Bracket Exploded View

UBA Pro Middle Bracket Parts List

Table 7-9 UBA Pro Middle Bracket Parts List

No.	EDP No.	Description	Qty	Remark
801	280247	CPU Board Cover	1	Main Board Cover
802	274365	4116-3630-03-001A ENTRANCE MOT HARNESS	1	Service Part
803	280250	ENT MO ENC	1	Press-in fit is required for assembly
804	297172	TR ST PINION GE PPS	1	Press-in fit is required for assembly
805	274206	Middle Bracket	1	
806	274274	Entrance Gear Shaft	2	
807	274215	Light Guide A	2	
808	274216	Light Guide B	2	
809	274249	Entrance Gear B	1	
810	274248	Entrance Gear A	1	
811	274250	Entrance Gear, M08 Z21	1	
812	274262	Centering Plate	1	
813	144840	2.6x8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron(III)	5	
814	274369	4116-3630-03-005 CENTERING MOT HARNESS	1	Service Part
815	276534	Entrance Gear Shaft B	1	
816	234696	CNTRG MOTOR PINION GEAR	1	Press-in fit is required for assembly
817	274280	Centering Gear Shaft A	1	
818	274281	Centering Gear Shaft B	1	
819	274282	Centering Gear Shaft C	1	
820	228507	Centering Gear 1	1	
821	234697	Centering Gear 2	1	
822	234674	Centering Gear AB	1	

UBA Pro Bottom Cover Exploded View

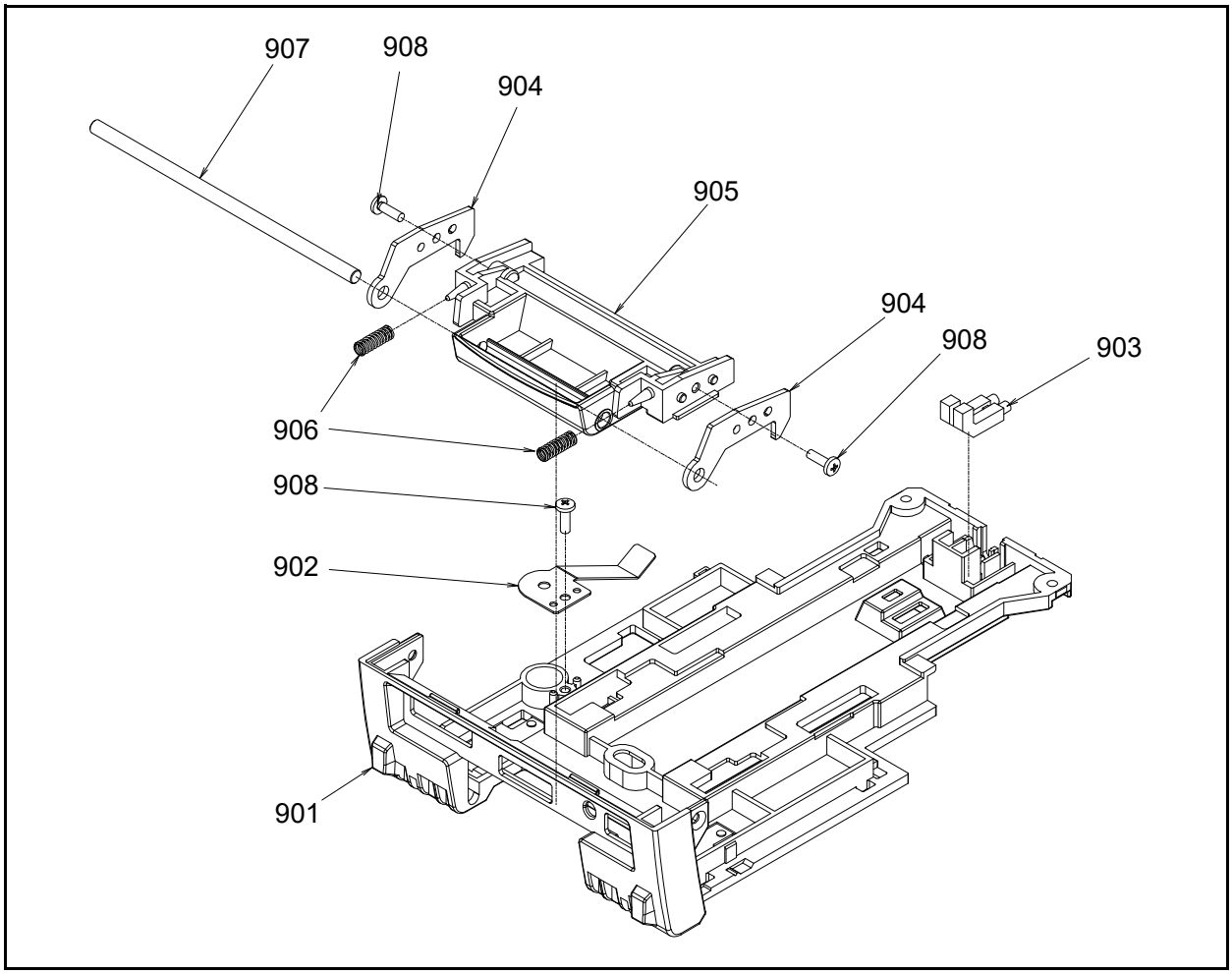


Figure 7-10 UBA Pro Bottom Cover Exploded View

UBA Pro Bottom Cover Parts List

Table 7-10 UBA Pro Bottom Cover Parts List

No.	EDP No.	Description	Qty	Remark
901	280248	Bottom Cover	1	
902	274265	FG Plate	1	
903	291893	Light Guide E	1	
904	274266	Release Lever Plate	2	
905	274229	Release Lever	1	
906	274286	Release Lever Spring	2	
907	274279	Release Lever Shaft	1	
908	144840	2.6X8 P-TITE (Phillips, Self-Tapping) Binding Head Screw, Black, Iron/Chromium (III)	3	

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8 INDEX

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UBA™ Pro Series
Universal Banknote Acceptor
Appendix A

A TROUBLESHOOTING

This section provides Troubleshooting instructions for the UBA™ Pro Series Universal Banknote Acceptor (UBA Pro). This section contains the following information:

NOTE: Refer to "Preventive Maintenance" on page 2-16 for the cleaning method and the location of the Sensors.

Introduction

Most Banknote Acceptor failures are due to minor causes. Before replacing any parts, make sure that all assembly and Circuit Board Connectors are properly fitted and their Harnesses are properly connected.

Lower than expected Banknote acceptance by the Acceptor portion of the Unit is often caused when dust or Iron powder adheres to the Sensors, Rollers or Banknote Path. Clean the Acceptor section first, then observe the operating state of the Acceptor in detail when reinitializing power.

This observation is important in locating any failure causes and the possible fault area. If the Acceptor Head has to be repaired by disassembling it, always recalibrate the Sensors following a repair.

Perform all repairs by referring to the Calibration and Testing in Section 6 and the Disassembly/ Reassembly instructions of this Operation and Maintenance Manual.

Troubleshooting Overview

This product allows the Operator to perform fault diagnosis by checking various fault Table listings against the symptom, and survey the cause(s) of any failure occurrences during process.

After determining the cause of the failure, execute the Performance Test, perform a Sensor readjustment and then repair the Unit by replacing any appropriate parts deemed necessary.

Fault Table Listings

Table A-1 through Table A-3 lists the various possible fault conditions that can occur, and the necessary actions required to correct them.

Table A-1 General Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Banknote Acceptor is not working (does not accept any Banknotes)	No external Power is applied to the Banknote Acceptor (+12V to +24V DC & GND)	Verify that the Power Supply +12V to +24V DC and Ground Cables are connected to their appropriate Pins on the main connector.
	Wrong or inappropriate connections	Verify that all Harness Connectors are properly seated. Check for any bent, missing or damaged Pins in the Connector Plugs and mating Receptacles.
	Corrupted Software	Re-download the correct Software. Refer to "Software Download" on page 6-3 of this Manual for Software downloading instructions.
	Main Board failure	Refer to "Performance Test Using a PC" on page 6-8 or "Performance Test without a PC" on page 6-16 of this Manual, and conduct an Initial Operational Test. If the test result is Negative (NG), replace the Main Board. Make sure to recalibrate the Sensors after Main Board is replaced.
Banknote jams occur often	Rollers are dirty or damaged	Clean all Rollers. Replace as necessary.
	A pressure Roller Spring is loose or missing	Check all Pressure Roller Springs using a finger pressure test. Replace as necessary.
Banknote jams occur often	A foreign object is lodged in the Transport path and/or inside the Cash Box.	Clean the Transport path and remove any foreign object discovered.

Table A-1 General Fault Conditions (Continued)

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Banknote jams occur often	The Acceptor Unit is not properly seated all the way into the Frame (the Acceptor Unit's Latch Release Levers are not locked onto the Frame)	Reseat the Acceptor Unit back into the Frame and confirm the Acceptor Unit Release Lever Latches securely lock onto the Frame.
	Banknote width out of specification	A Banknote is wider than the specified width. Use only Banknotes widths having the correct Banknote size specifications. (Refer to "Technical Specifications" on page 1-7.)
Abnormal Acceptance rates	Dirt and/or stains on the Rollers and Sensors	Clean the Transport path. Refer to "Cleaning Procedure" on page 2-17 of this Manual.
	The Unit has been disassembled and recalibration adjustments have not occurred following a reassembly.	Make sure to calibrate the Sensors after reassembling the UBA Pro Unit. Refer to "Calibration" on page 6-5 of this Manual.
	The wrong Software or an old version of the Software is being used.	Make sure that the programmed Flash or EPROM Memory Software is the latest version, and it supports the Currency values for the specific Country.
	Software not designed to accept current Banknotes	Check the particular specifications for the required Banknote Type Acceptance, and make sure the Banknotes will be accepted by the Software loaded (e.g., check denomination/issuing year, etc.).
Upper Guide can not be opened	Centering Mechanism is not at the Home position.	Turn the Power OFF and ON again. The Host Machine should send a Reset Command to reinitialize the unit.
		If power cannot be applied, use a Hex Nut Driver to open the Upper Guide and manually reset the Centering Mechanism.
All Banknotes being rejected	Incorrect software (different Currency type)	Download the correct Software for Currency being accepted. Refer to "Software Download" on page 6-3 of this Manual regarding Software Downloading procedures.
	Banknotes are not being accepted by the Software.	Make sure the Banknote values required are included in the Software Specifications (e.g., denominations/issuing year, etc.) Refer to "Software Download" on page 6-3 of this Manual.
	Incorrect DIP Switch settings	Enable all denominations by setting all DIP Switches to OFF.
	Banknote acceptance is being inhibited by a Host Controller command.	Enable Banknote acceptance with the required Host Command.
	Upper/Lower Sensor Board failure	Change the Upper or Lower Sensor Board with a known good Circuit Board. Refer to Section 4 "Disassembly/Reassembly" on page 4-1 of this Manual regarding Circuit Board Removal.
	Unit was disassembled and recalibration did not occur following reassembly.	Recalibrate all UBA Pro Sensors following reassembly.
Motor continues to run	Upper Guide is open.	Firmly reclose the Upper Guide.
	A foreign object or a jammed Banknote is stuck in the Transport path.	Open the Upper Guide, remove the foreign object or jammed Banknote, and reclose the Cover.
	Motor Driver failure	Refer to "Performance Test Using a PC" on page 6-8 or "Performance Test without a PC" on page 6-16 of this Manual and conduct a Forward/Reverse Motor Test.
Can not enter the TEST mode	Incorrect DIP Switch settings	Set DIP Switch No. 8 to ON, and reapply Power to the UBA Pro Unit.
	Dip Switch failure	Conduct a DIP Switch Test to check if the specific DIP Switch contains a failure. Refer to "Performance Test Using a PC" on page 6-8 or "Performance Test without a PC" on page 6-16 of this Manual
	Main Board failure	Exchange the Main Board with a known good Circuit Board. Refer to Section 4 "Disassembly/Reassembly" on page 4-1 of this Manual regarding Circuit Board Removal.

Table A-2 Calibration Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Can not launch the JCM Tool Suite Standard Edition	PC Operating System (OS) is not compatible.	The current Calibration program only supports the Windows 8 or greater Operating Systems.
	The Program Files are corrupted.	Request the correct programs from JCM.
Communication Error	Wrong or inappropriate connections	Check the PC Harness connections and the related UBA Pro Interface Connectors for damage. Check for any bent, missing or damaged Pins in the Connector Plug and/or Receptacle.
	UBA Pro DIP Switch settings are incorrect.	Reset the UBA Pro DIP Switches #1 through #7 to OFF, and set Switch #8 to ON. Recycle power to the UBA Pro Unit.
	DIP Switch failure	Refer to “Sensor Calibration” on page 6-5 regarding DIP Switch settings. Refer to “Performance Test Using a PC” on page 6-8 or “Performance Test without a PC” on page 6-16 of this Manual and conduct a DIP Switch Test.
	Main Board failure	Exchange the Main Board with a known good Circuit Board. Refer to Section 4 "Disassembly/Reassembly" on page 4-1 of this Manual regarding Circuit Board Removal.
Calibration Error	Incorrect Reference Paper type	Follow the instruction provided in the UBA Pro Calibration Tool for “UBAPRO_SS_RC_AdjustmentService_SuiteEdition.exe” Program and use the correct recommended Reference Paper.
	Upper/Lower Sensor Board failure	Change the Upper or Lower Sensor Board with a known good Circuit Board. Refer to Section 4 "Disassembly/Reassembly" on page 4-1 of this Manual regarding Circuit Board Removal.

Table A-3 Communication Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Cannot communicate with the Host Machine	DIP Switch settings are incorrect.	Set all DIP Switches to OFF.
	Connectors are off or loosely connected.	Firmly reseat all of the Communication Connectors.
	Damaged Connector Pins	Check for any bent, missing or damaged Pins in the Connector Plugs and mating Receptacles.
	Main Board is corrupted.	Exchange the Main Board with a known good Circuit Board. Refer to Section 4 "Disassembly/Reassembly" on page 4-1 of this Manual regarding Circuit Board Removal.
	Incorrect Interface	Verify that the correct interface between the Host Machine and the Banknote Acceptor is being used.

Standard, ICB and Reject Error Code Conditions

The two (2) Status LEDs (Red and Green) indicate various combinations of solid or alternating Color light flashing conditions when any of the Standard and ICB Error Codes listed in Table A-4 and Table A-5 occur respectively.
Identify the cause and solution for an indicated error by comparing it against each Table A-4 and Table A-5 listing, and ensure that the relative Assemblies are properly connected and that all of the Unit's Sensors are clean before proceeding with troubleshooting the error condition.

NOTE: If the error is not resolved, change the relative part(s) and Sensor(s).

Standard Error Code Conditions

Table A-4 lists the various Standard LED Flash Error Code causes and solutions.

Table A-4 Standard LED Error Codes

Green LED	Red LED	Standard Errors	Solutions	Relative Parts/Sensors
ON	Flashes (2-time)	**Boot Interface Area CRC Error** CRCs don't match.	• Re-download boot interface software. • Check that the relative parts are properly assembled and/or Harness are connected.	• Main Board
ON	Flashes (3-time)	**Interface Program Error** The operation sequence is not normal.	• Remove and re-apply power. • Check that the relative parts are properly assembled and/or Harness are connected.	• Main Board
ON	Flashes (4-time)	**EEPROM Error SPI Communication Failure** EEPROM reading, writing and/or saving was not properly performed. Updating SUM information failed.The SPI communication failure with a DA converter upon power up.	• Perform the Sensor Calibration procedure. • Check that the relative parts are properly assembled and/or Harness are connected. • Remove and re-apply power. • Clean or adjust the relative parts and Sensors.	• Main Board • Validation Sensor • Barcode Sensor • Pusher Home Position Sensor
ON	Flashes (6-time)	**2nd CPU Error** Cannot communicate with the 2nd CPU upon power up.	• Check that the relative parts are properly assembled and/or Harness are connected.	• Main Board
ON	Flashes (7-time)	**Backup External NVSRAM Error** Backup external NVSRAM reading or writing was not properly performed.	• Check that the relative parts are properly assembled and/or Harness are connected.	• Main Board
ON	Flashes (8-time)	**Validation Sensor LED is not connected** The Validation Sensor LED is not connected to the Main Board.	• Check that the relative parts are properly assembled and/or Harness are connected.	• Validation Sensor • Main Board
OFF	Flashes (1-time)	**Cash Box Full** Sensors detected that the Cash Box is full.	• Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected.	• Pusher Mechanism • Stacker Motor • Stacker Home Sensor • Stacker Motor Encoder
OFF	Flashes (2-time)	**Pusher Mechanism Home Position Error** The Pusher Mechanism is not returning to the Home position.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Pusher Mechanism • Stacker Motor • Pusher Home Position Sensor
OFF	Flashes (3-time)	**Banknote Jam (Cash Box)** The sensors are not functioning properly and/or detect an abnormal Banknote transporting in a Cash Box.	• Remove jammed Banknotes if any. • Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Exit Sensor • Pusher Mechanism • Stacker Motor • Pusher Home Position Sensor • Stacker Motor Encoder

Table A-4 Standard LED Error Codes (Continued)

Green LED	Red LED	Standard Errors	Solutions	Relative Parts/Sensors
OFF	Flashes (4-time)	**Banknote Jam (Acceptor Head Unit)** A next banknote transporting operation does not begin after the predetermined time has elapsed. Sensors detect Banknotes with unexpected timing.	• Remove jammed Banknotes if any. • Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Centering Start Sensor • Validation Sensor • Barcode Sensor • PB-IN Sensor • Pusher Home Position Sensor
OFF	Flashes (5-time)	**Motor Speed Error** Motor speed is greater or less than the specified value.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Feed Motor • Feed Motor Encoder
OFF	Flashes (6-time)	**Motor Lock-Up (Acceptor Head Unit)** Motor locked while transporting a Banknote.	• Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Feed Motor • Feed Motor Encoder • Entrance Motor • Entrance Motor Encoder
OFF	Flashes (7-time)	**Banknote Jam (Transporting Timeout) MotorLock-UP (Cash Box)** Motor locked. A next operation does not begin after the predetermined time has elapsed. The Stacker Gear is not functioning properly.	• Remove jammed Banknotes if any. • Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Stacker Motor • Stacker Encoder • Pusher Home Position Sensor • Feed Motor • Feed Motor Encoder
OFF	Flashes (9-time)	**PB Unit Error** The Anti-Pullback (PB) Unit has not performed correctly.	• Remove jammed Banknotes if any. • Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected.	• PB Unit • PB Motor • PB Motor Encoder • PB Home Position Sensor
OFF	Flashes (10-time)	**Cash Box Removal** The Cash Box has been removed.	• Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Cash Box Detection Sensor
OFF	Flashes (12-time)	**Fraud Detection** Sensors detect Banknotes with abnormal timing.	• Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Exit Sensor • Validation Sensor
OFF	Flashes (14-time)	**Centering Mechanism Abnormal** The Centering Mechanism has not moved	• Remove jammed Banknotes if any. • Firmly re-seat the Cash Box. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Centering Mechanism • Centering Motor • Centering Home Position Sensor

ICB Error Code Conditions

Table A-5 lists the various ICB LED Flash Error Code causes and solutions.

Table A-5 ICB LED Error Codes

Green LED	Red LED	ICB Errors	Solutions	Relative Parts/Sensors
OFF	Flashes (3-time)	**Incorrect ICB Settings** The ICB settings between the Acceptor Head Unit and the Intelligent Cash Box do not match.	• Change the ICB settings of an Acceptor Head Unit or use an Intelligent Cash Box based on the ICB settings.	• Intelligent Cash Box
OFF	Flashes (11-time)	**ICB Communication Error** ICB unable to communicate.	• Check that the relative parts are properly assembled and/or Harness are connected.	• ICB Sensor • Intelligent Cash Box • ICB Board
OFF	Flashes (12-time)	**ICB Checksum Error** ICB data is incorrect.	• Check that the relative parts are properly assembled and/or Harness are connected.	• ICB Sensor • Intelligent Cash Box • ICB Board
OFF	Flashes (13-time)	**ICB Number Error** The Game Machine Number is different.	• Initialize the Intelligent Cash Box. • Use the appropriate Intelligent Cash Box.	• Intelligent Cash Box
OFF	Flashes (14-time)	**ICB Initialize Error** The Intelligent Cash Box has not been initialized.	• Initialize the Intelligent Cash Box.	• Intelligent Cash Box
OFF	Flashes (15-time)	**ICB Module Error** While communicating to the ICB, the Intelligent Cash Box has been removed.	• Firmly re-seat the Intelligent Cash Box	• Intelligent Cash Box

Reject Error Code Conditions; Banknotes

Table A-6 lists the various LED Flash Reject Code causes and solutions for Banknotes.

Table A-6 Reject Error Codes For Banknotes

Green LED	Red LED	Reject Errors (Banknote)	Solutions	Relative Parts/Sensors
Flashes (1-time)	OFF	**Skewed Insertion Error** The Banknote has been inserted in an incorrect/crooked direction.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Centering Mechanism • Centering Home Position Sensor • Rollers
Flashes (3-time)	OFF	**Remaining Banknotes Returned** While Initializing, Sensors detected that Banknotes remained in the UBA Pro Unit's Validation path.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Centering Start Sensor • Validation Sensor • Barcode Sensor • PB-IN Sensor • PB-OUT Sensor • Exit Sensor
Flashes (4-time)	OFF	**Magnification Abnormal** When adjusting Banknote data, Sensors detected an abnormal Banknote magnification condition.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (5-time)	OFF	**Banknote Transportation Abnormal** Sensors detected Banknotes remain in the validation path, or none existed during abnormal timing interval.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Entrance Sensor • Centering Start Sensor • Validation Sensor • Barcode Sensor • PB-IN Sensor • PB-OUT Sensor • Exit Sensor • Feed Motor

Table A-6 Reject Error Codes For Banknotes (Continued)

Green LED	Red LED	Reject Errors (Banknote)	Solutions	Relative Parts/Sensors
Flashes (6-time)	OFF	**Denomination Error** The Sensor detected an abnormal denomination.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (7-time)	OFF	**Denomination Pattern Error** The Sensor detected an abnormal denomination pattern.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (8-time)	OFF	**Photo Level Error** While transporting a Banknote, transparent tape was detected.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (9-time)	OFF	**Inhibit Setting Abnormal** The Banknote Accept/Inhibit Setting was made by a Command from the Host Machine. DIP Switch settings are incorrect.	• Check that the Commands from the Host Machine are correct or change the setting to be acceptable for use with the Unit.	-
Flashes (10-time)	OFF	**Reserved**	Contact your local JCM Representative if this error occurs.	
Flashes (11-time)	OFF	**Reserved**	Contact your local JCM Representative if this error occurs.	
Flashes (13-time)	OFF	**Banknote Length Abnormal** The Validation Sensors calculated a Banknote length longer or shorter than the specified value.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (14-time)	OFF	**2-Color Margin Abnormal** The Validation Sensors calculated that the 2-Color Banknote margin was greater than the specified value.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (15-time)	OFF	**Counterfeiting Banknote Action** The Banknote has been validated as a Counterfeit Banknote.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor
Flashes (16-time)	OFF	**3-Color Comparison Abnormal** The Validation Sensors calculated a 3-Color comparison that was greater than the specified value.	• Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Validation Sensor

Reject Error Code Conditions; Barcode Tickets

Table A-7 lists the various LED Flash Reject Code causes and solutions for Barcode Tickets

Table A-7 Reject Error Codes For Barcode Tickets

Green LED	Red LED	Reject Errors (Barcode Ticket)	Solutions	Relative Parts/Sensors
Flashes (1-time)	**OFF**	**Number of characters is not set** The number of Barcode Ticket's characters is not set.	• Check the Barcode specifications and set up properly.	
Flashes (2-time)	**OFF**	**Format Error** The format does not meet the Barcode Ticket's specification.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (3-time)	**OFF**	**Number Of Characters is less or more than its Settings** The number of Barcode Ticket's characters does not match its settings.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (4-time)	**OFF**	**Start Bit Detection Error** A start bit of a Barcode Ticket cannot be detected.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (5-time)	**OFF**	**Stop Bit Detection Error** A stop bit of a Barcode Ticket cannot be detected.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (6-time)	**OFF**	**Barcode Ticket Type Error** A Barcode Ticket Type is not set.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty.	-
Flashes (7-time)	**OFF**	**Abnormal Magnification** When adjusting Barcode Ticket data, Sensors detected an abnormal Barcode Ticket magnification condition.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (8-time)	**OFF**	**Double Tickets Error** Two or more Barcode Tickets were inserted.	• Insert a single Barcode Ticket.	-
Flashes (9-time)	**OFF**	**Upside-Down Insertion** A Barcode Ticket is inserted upside-down.	• Insert a Barcode Ticket in an proper direction	-

Table A-7 Reject Error Codes For Barcode Tickets (Continued)

Green LED	Red LED	Reject Errors (Barcode Ticket)	Solutions	Relative Parts/Sensors
Flashes (10-time)	OFF	**Barcode Ticket Length Abnormal** The Barcode Sensors calculated a Barcode Ticket length longer or shorter than the specified value.	• Check that a proper Barcode Ticket is used. • Check that the Ticket is not damaged or dirty. • Check that the relative parts are properly assembled and/or Harness are connected. • Clean or adjust the relative parts and Sensors.	• Barcode Sensor
Flashes (11-time)	OFF	**Reserved**	Contact your local JCM Representative if this error occurs.	
Flashes (12-time)	OFF	**Reserved**	Contact your local JCM Representative if this error occurs.	

Maintenance Equipment

This portion provides product information for the UBA Pro Maintenance Equipment.

Maintenance Equipment

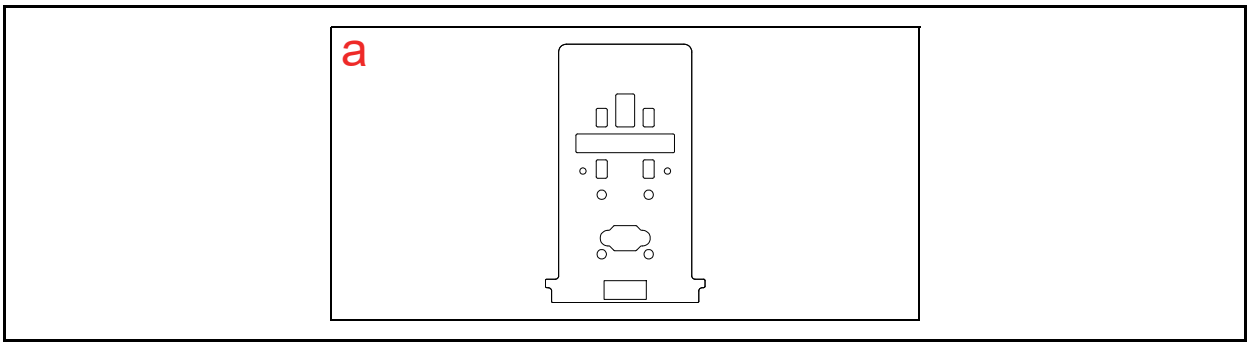

Figure A-1 Additional Maintenance Equipment Requirements

Table A-8 Additional Maintenance Equipment Parts List

Ltr.	EDP No.	JAC No.	Description	Qty.	Remark
a	280829	N/A	Reference Paper (KS-101)	1	
-	-	451-000127R	CUI Power Supply	1	Provides 12VDC at 5A
-	-	302-100002R	Cable, Power	1	
-	-	400-000249R	UBA Harness	1	

Reference Paper Handling

All JCM Reference Paper should be handled as follows:

1. Do not allow the Reference Papers to endure high temperatures and/or high humidity environments.
2. Store unused Reference Papers in their original Shipping Carton to avoid exposing them to direct Sunlight and/or bright indoor light. Ensure that the Reference Papers being stored are not damaged as they are replaced into their shipping carton.
3. Do not use Reference Paper containing damaged areas that are worn, dirty, wrinkled, distorted, discolored and/or containing foreign objects or oil.
4. Use new Reference Paper every 400 times or when a Reference Paper doesn't meet the requirements defined above. Incorrect calibration errors may occur when using Reference Paper that has been used for calibrating more than 400 times.

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UBA™ Pro Series
Universal Banknote Acceptor
Appendix B

B GLOSSARY

A

1 Acceptor

a device used to validate and accept Banknotes, then communicate the acceptance results to Host Machine... 1-1

2 Anti-Pullback Mechanism

a mechanism (optical, mechanical, or a combination of both designed) to prevent the unauthorized retrieving of Banknotes from a Cash Box... 1-7

The rotating drum located in the rear portion of the transport to prevent a Banknote from being retrieved by an attached piece of string, wire or transparent tape... 1-5

B

3 Bezel

a removable Plastic Assembly attached to the front of the Banknote Insertion Slot of an UBA-5x0/5x1 Unit. It features a rectangular shaped access opening (slot) for easy insertion and retrieval of Banknotes. Bezels are available in different shapes and sizes in order to accommodate Banknotes of different widths and different stacking configurations... 1-2

C

4 Checksum

a numerical value assigned to a data file or block of data (usually expressed in Hexadecimal notation). Checksum values are used to verify that the contents of a data file are not corrupted in any way during transmission or encryption. The Checksum values of both the original and duplicate files are compared to each other. If the values do not match then it is recommend that the file be copied (uploaded) again until the Checksum do match.... 6-4

E

5 EEPROM

Electrically Erasable Programmable Read-Only Memory. A form of non-volatile Read-Only Memory (ROM) that can be written to and erased via electronic signals without being removed from its Circuit Board housing. EEPROMs are often used to store system command instructions and reference data sets that are accessed frequently, or when the equipment is first powered up... A-4

H

6 Host Machine

a generic term for any electronic cabinet, equipment or platform where a UBA Pro Unit will be installed. The Host Machine supplies both the power and the communications interface necessary for proper operation of the UBA Pro Unit... A-3

I

7 ICB

an acronym for Intelligent Cash Box - it is an optional system which tracks gaming assets and revenues. The ICB System standards and simplifies the revenue drop and soft count functions, by automating the cash collection process... 1-2

P

8 Pictograph

small internationally recognized safety and attention symbols placed to the left of Notes, Cautions and Warnings throughout a JCM Maintenance Manual... 1-1

9 Precautions

special instructions and warnings that appear in JCM Maintenance Manuals. They are intended to promote personal safety and prevent damage to equipment when working with the applicable JCM Product... 1-3

S

10 Special Notes

notation within JCM Maintenance and Operation Manuals that alerts the reader to specific information that can affect operation of the Unit. Notations often appear throughout the manual, and are identified by the pictograph icon. Special Notes are always written in italic text... 1-1

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