

# UBA Pro RT/RQ™ Series


## Banknote Recycler Operation and Maintenance Manual

(Revision 1)










REVISION HISTORY		
Rev No.	Date	Reason for Update
A	Jan. 29, 2020	Initial Release
	Mar. 5, 2020	Corrected the Error Codes in Appendix A.
	Apr. 10, 2020	Updated the International Compliance information on the inside cover page. Fixed the number search issue and updated EDP numbers in Section 7.
1	Jan. 28, 2022	Re-designed the Cover. Added the UKCA mark to the International Compliance. Corrected the standards of the country code in Section 1. Changed the screw depth requirement in Section 1 and Section 2. Updated the Technical Contact information in Section 1 and Section 3. Changed the signal names of Connector Pin Assignments in Section 2. Updated EDP numbers in Section 7.

## 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-21480-A1-UL (IEC 62368-1), JP-21656-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.

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

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## Banknote Recycler

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# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 1

### 1 GENERAL INFORMATION

This section provides a general overview of the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ) pictured in Figure 1-1.

The RT/RQ Unit is a Banknote Recycler compatible with the UBA Pro Series Universal Banknote Acceptor.



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

This section is designed to help you navigate through this guide with ease, and provides the following information:

- RT and RQ Units
- Model Descriptions
- Type Descriptions
- Software Descriptions
- Precautions
- Primary Features
- Component Names
- Specifications
- Unit Dimensions
- Technical Contact Information

In order to make operation of this device easier and make navigation within this manual simpler, the following illustrations were used within the text:

- **Safety Instructions** need to be observed in order to protect the operators and the equipment; these are identified with **Bold** text and the following pictographs:
- **Special Notes** affect the use of the RT/RQ 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.).

### RT and RQ Units

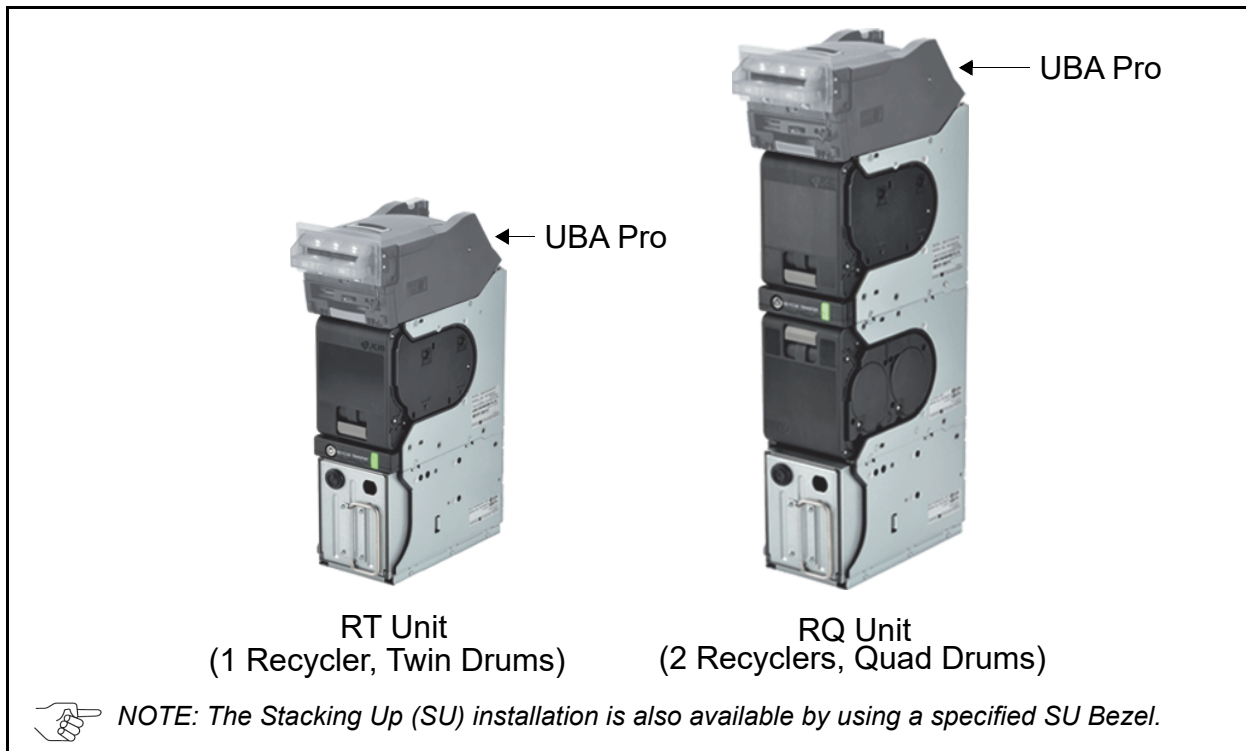


Figure 1-1 RQ and RT Units

## Model Descriptions

Table 1-1 lists the RT/RQ Product Model Number Descriptions.

**Table 1-1** RT/RQ Product Model Number Specifications

Nº	Model: UBA - 5 * 0 - (* ) ** (* ) - ** (1) (2)(3)(4) (5) (6) (7) (8)
(1)	Model Name (UBA Pro RT/RQ 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 SH2 = Horizontal Down (82mm, SH2 Box) SS = Vertical Down (85mm, Large Box)
(7)	Cash Box Access None = Front Access (Standard)
(8)	Recycler Type RT = 1 Recycler (Twin Drums) RQ = 2 Recyclers (Quad Drums)

\*. Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro Unit's details.

†. The acceptable Banknote width depends on the Cash Box. Refer to "Technical Specifications" on page 1-7 for each Cash Box's acceptable Banknote size.

## Type Descriptions

Table 1-2 lists the RT/RQ Type Number Descriptions.

**Table 1-2** RT/RQ Type Number Specifications

Nº	Type: * * * - * * - * * * * * * * * * * (1)(2)(3) (4)(5) (6)(7)(8)(9)(10)(11)(12)
(1)	Cash Box Capacity 4 = 400 notes, SH2 Box (New Banknote) 8 = 800 notes, Large Box, (New Banknote)
(2)	Cash Box Type 0 = Standard
(3)	Cash Box Handle 0 = Standard
(4)	Sub Board Type 0 = Reserved 1 = Reserved 2 = Sub Board 2 (RS232/Photo-Coupler Isolation/TTL/ccTalk/1 USB) 3 = Reserved 4 = Reserved
(5)	Acceptor Head Unit Cover 0 = Black (Standard)
(6)	Bezel 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)	Bezel Spacer* 0 = No Bezel Spacer 1 = With Bezel Spacer

**Table 1-2** RT/RQ Type Number Specifications

Nº	Type: * * * - * * - * * * * * * * * * * (1)(2)(3) (4)(5) (6)(7)(8)(9)(10)(11)(12)
(8)	Optional Circuit Board 0 = Reserved
(9)	Interface Setting (Factory Default)† P = Photo-Coupler Isolation R = RS232C
(10)	External Harness 0 = None 1 = Standard Harness (with power cord) 2 = USB I/F Harness (with power cord)
(11)	Cash Box Faster/Lock (Optional) 0 = None 1 = Thumb Twist Lock Fastener for the Cash Box 2 = Specified Locks for the Cash Box and Recycler Lock (specific customer)
(12)	Battery (For Recycler Detection) 0 = No Battery 1 = Battery Equipped

\*. Small pieces of paper or receipts might accidentally be inserted into the UBA Pro Unit. The Bezel Spacer makes the distance to the Sensor longer and the Sensor may not detect such foreign objects. Also, small pieces of paper or receipts are difficult to detect and remove.

†. Refer to "SW1 and SW2 Configurations" on page 2-5 for details.

## Software Descriptions

Table 1-3 lists the RT/RQ Software Number Descriptions.

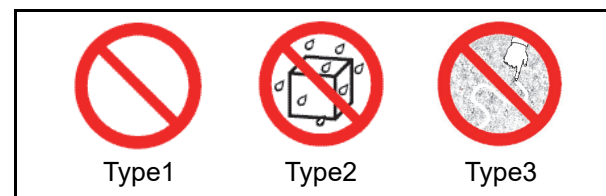
**Table 1-3** RT/RQ Software Number Specifications

Nº	UBA-5**-(*)**(*)-RC-T/Q *** - 0 ** - V * ** (A) (B) (C) (D)
(A)	Software Model Name
(B)	Country Code (Denomination)*
(C)	Interface Protocol Name
(D)	Software Version

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

## Precautions

**Caution: User cautions should be included in any user guides or manuals.**



**Figure 1-2** Precautionary Symbols

The Figure 1-2 symbols are defined as follows:

- (Type 1) Do not insert a damaged or exhibited unfit condition Banknote; it may cause a jam inside the unit.  
*NOTE: Refer to "Banknote Fitness Requirements" on page 1-4.*
- (Type 2) Do not expose the unit to water. The unit contains several precision electronic devices that can be damaged if water or any liquid is sprayed or spilled into the unit.

- (Type 3) Do not install the unit in a dusty environment. Dust may damage the unit or degrade its performance.

## User Cautions

Careful measures are taken in the design of this product to ensure its quality; however, the following cautions should be read and understood by all users in order to confirm safe operation.

## Installation Cautions

The Installation Cautions are defined as follows:

- Do not allow the Unit to endure or operate at a high temperature, in high humidity and/or in a dusty environment. (Refer to “Environmental Specifications” on page 1-8.)
- Do not install the Unit into an area where excessive vibration or shock are present.
- The Unit is not designed for outside installation. Be sure that the Host Machine contains enough protection to avoid wet or dusty conditions when installing in either an indoor or open-air space.
- Avoid exposing the Unit to direct Sunlight and/or Incandescent Lamp illumination. (Refer to “Environmental Specifications” on page 1-8.)
- Ensure that the Host Machine is designed for daily operational access for maintenance and/or clearing a Banknote jam. (Refer to “Unit Dimensions” on page 1-9.)
- When installing the equipment, connect the Frame Housing to the Frame Ground of the Host Machine.
- If an unused Interface Harness exists, cut the Harness off short to avoid attracting static electricity or a short circuit possibility that may cause damage to the Unit.
- Because this equipment is a component product, close the Host Machine’s door before using it.
- Do not operate the RT/RQ Unit without the Cash Box and/or the Recycler or while the Cash Box and/or the Recycler’s door is open. Do not use the Unit where it may be exposed to airborne evaporated or sporadic chemicals and/or oil.
- 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 considering the risk of electronic components that can cause induced noise. The noise generated by the components on the Host Machine may affect and degrade the Validation performance.



**WARNING: Make sure Interface Harness connections to the Host Machine are shorter than 9.84 Feet (3 Meters) in length. Cut off all unused portions of the Interface Harness wiring to avoid static electrical effects or short circuit possibilities that could cause damage to the Unit.**

## Mounting, Dismounting & Transportation

Methods for Mounting, Dismounting, and Transporting the Unit are as follows:

- Be sure to remove the Power from the RT/RQ Unit before attaching or unplugging Connector Plugs to avoid the risk of damage to the Unit.
- Be sure to carry the Unit by both hands when transporting it. Holding the Unit by one hand may cause personal injury if the Unit accidentally becomes disassembled and falls away from the Frame housing.
- Be careful not to use excessive outside pressure on the Recycler, or subject it to excessive vibration during transportation.
- Check that the UBA Pro Unit does not drop off the Unit Frame while pulling the Recycler forward from the Frame.

## Operation Cautions

The Operation Cautions are defined as follows:

- When closing the UBA Pro Unit, ensure it firmly clicks into place.
- When installing the Recycler, ensure it firmly clicks into place.
- Do not remove the Recycler and/or the Cash Box during operation.
- Do not throw or apply strong external pressure on the Recycler.
- Be sure to follow the specified measures when removing or re-seating any removal unit of the RT/RQ Unit. Improper handling may cause personal injury and/or damage to the equipment.
- The Recycler is not protected by a key. Caution is advised for cash handling.

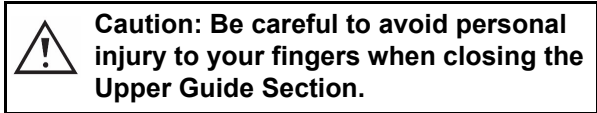
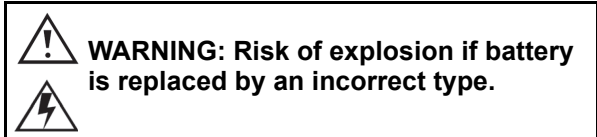


**WARNING: Do not inject water or liquid agents of any kind into the Unit, as this may cause extreme damage to the Unit.**

## Preventive Maintenance

The Preventive Maintenance requirements are defined as follows:

- Be sure to remove the Power from the RT/RQ Unit before cleaning or performing or maintenance procedure, except for the Recycler and the Cash Box. Cleaning or performing maintenance while the Power is turned on may cause personal injury if the Unit mechanisms accidentally move.
- To keep the RT/RQ Unit’s performance optimal, clean and maintain the RT/RQ Unit regularly based on the Unit condition and/or maintenance schedule. (Refer to “Cleaning Procedure” on page 2-16.)
- Do not redesign or disassemble the Recycler. Unauthorized use by inadequately-trained personnel, or use outside the original manufacturer’s intent for operation voids the warranty.
- Perform cleaning and maintenance regularly when using the equipment in an smoky environment such as where excessive Automobile exhaust emission or Cigarette Smoke may exist.



## Disposal Considerations

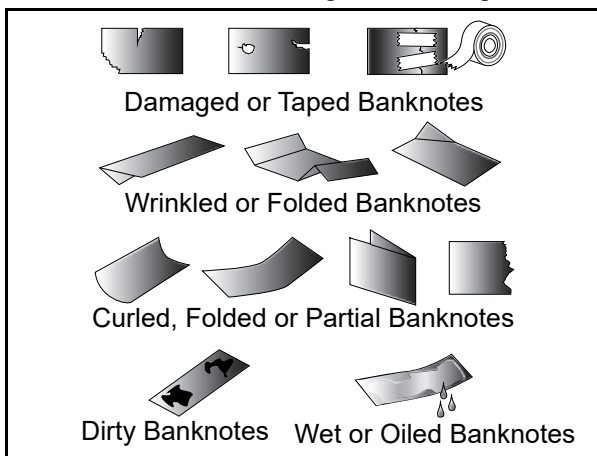
The battery disposal requirements are defined as follows:

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

## Banknote Fitness Requirements

The following Banknote types may not validate correctly, or can cause a Banknote jam and/or damage to the Unit's Transport path. Banknotes exhibiting the conditions listed below and illustrated in Figure 1-3 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 1-3** Unacceptable Banknotes

## Primary Features

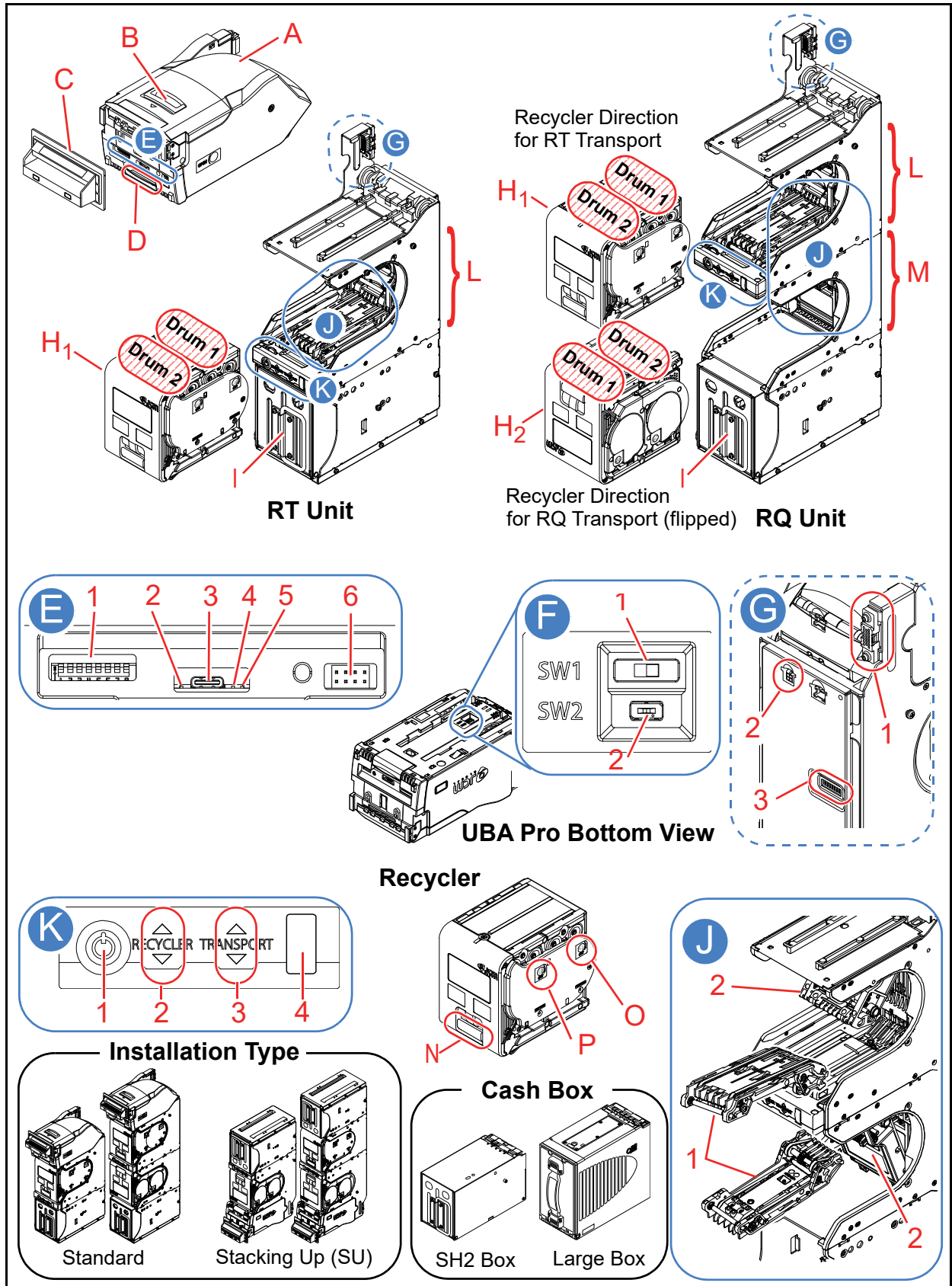
The RT/RQ Unit contains the following primary features:

- The RT Unit is equipped with one high capacity compact Recycler, containing two drums for recycling two denominations of Banknotes.

- The RQ Unit is equipped with two high capacity compact Recyclers, each containing two drums for recycling four denominations of Banknotes.
- Each Recycler's Drum can store up to 30 Banknotes.
- The Recycler is lockable and removal, and contains a memory device to assure safe and secure cash handling.
- Processing speed is approximately double or greater than the previous UBA-RC Series Units. (Refer to "Technical Specifications" on page 1-7 for processing speed specifications.)
- The Automatic Centering Mechanism allows the Unit to read Banknotes ranging from 62 to 85mm in width, and it will automatically center Banknotes inserted obliquely to help improve the acceptance rate. (Refer to "Technical Specifications" on page 1-7 for the detailed acceptable Banknote width.)
- Easy access to all the note paths for maintenance efficiency.
- Able to stack up to 800 Banknotes in the plastic Cash Box (Large Box only).
- The JCM patented Anti-Pullback Mechanism provides powerful protection against Banknote stringing operations.

# Component Names

Figure 1-4 illustrates the RT/RQ component names and locations.



**Table 1-4** RT/RQ Component Names

Sym.	Description	Sym.	Description
A	Acceptor Head Unit (UBA Pro)	H <sub>1</sub>	Recycler (RT Transport)
B	Upper Guide Access Lever	H <sub>2</sub>	Recycler (RQ Transport)
C	Bezel	I	Cash Box
D	Acceptor Head Unit Release Lever	J	1 Transport Unit
E	1 DIP Switches (Front)	K	2 Front Transport Unit
	2 UBA Pro Status LED (Orange)		1 Recycler Lock
	3 USB Type-C Connector (Maintenance)		2 Recycler LED
	4 UBA Pro Status LED (Green)		3 Transport LED
	5 UBA Pro Status LED (Red)	4 Status LED/Collect Button*	
	6 Bezel Connector	L	RT Transport
F	1 SW1 (Bottom) for the Interface Settings†	M	RQ Transport
	2 SW2 (Bottom) for the Recycler Settings†	N	Recycler Release Lever
G	1 Interface Connector	O	Drum 1 Shaft
	2 Power Connector	P	Drum 2 Shaft
	3 DIP Switches (Rear)		-

\*. With the Collect Button (Status LED), the Banknotes are sent from the Recycler into the Cash Box. Refer to "Collecting Banknotes into the Cash Box by the Collect Button" on page 2-12.

†. Refer to "SW1 and SW2 Configurations" on page 2-5 for the detailed DIP Switch Settings.



# Specifications

## Technical Specifications

**Table 1-5 RT/RQ Technical Specifications**

Acceptance Rate:	98% or greater* The following Banknote Types are excluded: <ul style="list-style-type: none"> <li>• Banknotes with excess or unclear graphics</li> <li>• Double (dual) Banknotes</li> <li>• Worn, dirty, wet, stained, torn or excessively-wrinkled Banknotes</li> <li>• Banknotes having folded corners or edges</li> <li>• Banknotes having the wrong cut dimensions or a printing displacement</li> </ul>																	
Banknote Types Accepted:	<p>RT/RQ Unit with SH2 Box</p> <ul style="list-style-type: none"> <li>• Length: 120-170mm (4.72-6.69in.)</li> <li>• Width: 62-82mm (2.44-3.22in.)</li> </ul> <p>RT/RQ Unit with Large Box</p> <ul style="list-style-type: none"> <li>• Length: 120-165mm (4.72-6.49in.)</li> <li>• Width (for Recycler): 62-82mm (2.44-3.22in.)</li> <li>• Width (for Cash Box): 62-85mm (2.44-3.44in.)</li> </ul> <p> <b>NOTE:</b> In case of Large Box, a Banknote wider than 82mm (3.22in.) up to 85mm (3.44in.) is directly transported to the Cash Box.</p>																	
Barcode Coupon†:	<p>Standard Specification</p> <ul style="list-style-type: none"> <li>• Interleaved Barcode Read: 2 of 5</li> <li>• Narrow Bar Width: 0.5mm-0.6mm (0.019-0.023 in.)</li> <li>• Wide Bar to Narrow Bar ratio = 3:1</li> <li>• Characters: 18 Characters</li> <li>• Print Position: Middle (Divides a Coupon equally to the left, right, top and bottom of the Coupon's center line)</li> <li>• Print Width: Wider than 10mm (0.39 in.)</li> </ul>																	
Insertion Direction:	<p>Banknote: Refer to the specific Country's "Software Information Sheet"</p> <p>Barcode Coupon: Four-way with Upper and Lower Barcode Sensor option</p>																	
Processing Speed‡:	<p>From Banknote insertion to stacking operation completion ** :</p> <table border="1"> <thead> <tr> <th>Destination</th> <th>RT</th> <th>RQ</th> </tr> </thead> <tbody> <tr> <td>Collect to Recycler:</td> <td>Approx. 2 seconds (to Drum 1)</td> <td>Approx. 2 seconds (to Drum 1)</td> </tr> <tr> <td>Collect to Cash Box:</td> <td>Approx. 2.9 seconds</td> <td>Approx. 3.2 seconds</td> </tr> </tbody> </table> <p>From Recycler to completion of dispensing operation**:</p> <table border="1"> <thead> <tr> <th>RT</th> <th>RQ</th> </tr> </thead> <tbody> <tr> <td>Approx. 2 seconds (from Drum 1)</td> <td>Approx. 2 seconds (from Drum 1)</td> </tr> </tbody> </table> <p>From Recycler to completion of collecting operation (into Cash box) ††:</p> <table border="1"> <thead> <tr> <th>RT</th> <th>RQ</th> </tr> </thead> <tbody> <tr> <td>Approx. 2.4 seconds (from Drum 1)</td> <td>Approx. 2.7 seconds (from Drum 1)</td> </tr> </tbody> </table>	Destination	RT	RQ	Collect to Recycler:	Approx. 2 seconds (to Drum 1)	Approx. 2 seconds (to Drum 1)	Collect to Cash Box:	Approx. 2.9 seconds	Approx. 3.2 seconds	RT	RQ	Approx. 2 seconds (from Drum 1)	Approx. 2 seconds (from Drum 1)	RT	RQ	Approx. 2.4 seconds (from Drum 1)	Approx. 2.7 seconds (from Drum 1)
Destination	RT	RQ																
Collect to Recycler:	Approx. 2 seconds (to Drum 1)	Approx. 2 seconds (to Drum 1)																
Collect to Cash Box:	Approx. 2.9 seconds	Approx. 3.2 seconds																
RT	RQ																	
Approx. 2 seconds (from Drum 1)	Approx. 2 seconds (from Drum 1)																	
RT	RQ																	
Approx. 2.4 seconds (from Drum 1)	Approx. 2.7 seconds (from Drum 1)																	
Escrow:	1 Note																	
Validation Method:	Optical																	
Diagnostic Indicators:	<p>Acceptor Head Unit (UBA Pro): Status LEDs (Red/Green)</p> <p>RT/TQ Unit: Full-color LEDs (White/Yellow/Red/Green/Magenta/Cyan/Blue)</p>																	
Anti-Pullback Mechanism:	Pull-Back (PB) Unit (Anti-pullback System - JCM Patented)																	
Banknote Refilling Method:	From the Insertion Slot (Refer to "Refilling Banknotes" on page 2-12.)																	
Cash Box‡‡:	<p>SH2 Box (Metal): Secure Type</p> <p>Large Box (Plastic): Secure Type</p>																	
Cash Box Capacity *** :	<p>SH2 Box (Metal): 400 Notes (New Banknotes Only)</p> <p>Large Box (Plastic): 800 Notes (New Banknotes Only)</p>																	
Recycler:	<p>2 Denomination Integral Recycler</p> <p>Drum Type (2 Drums are equipped in a Recycler Unit)</p>																	

**Table 1-5 RT/RQ Technical Specifications (Continued)**

Recycler Capacity <sup>†††</sup> :	RT Unit: Max. 60 Notes (Max. 30 Notes x 2 Drums) RQ Unit: Max. 120 Notes (Max. 30 Notes x 4 Drums)
Interfaces:	USB (USB Specification Rev. 2.0 Compliance) (Full Speed/12Mbps) Photo-Coupler Isolation RS232C cc-Talk

\*. 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 specific Country's Barcode Ticket Specification for more details.

‡. Excludes the time lag associated with Host Communication (Power Supply: +24V DC ±5%, Temperature: 25° C ±5° C).

\*\*.. The average per note when 10 notes are inserted.

††. The average per note when 10 notes are collected.

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

\*\*\*. The number of Polymer Banknotes stacked depends on the Banknote's condition and denomination.

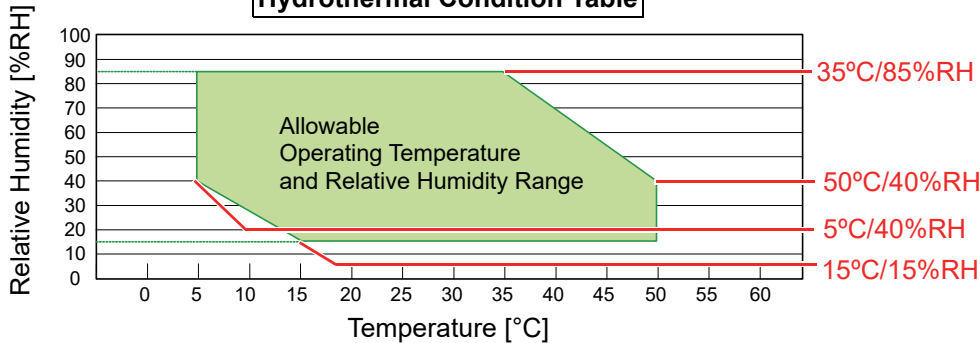
†††. 150mm New Banknote Only

**Environmental Specifications**

**Table 1-6 RT/RQ Environmental Specifications**

Operating Temperature:	5°C to +50°C (41°F to 122°F) *Depends on hydrothermal conditions
Storage Temperature:	-20°C to +60°C (-4°F to 140°F) *Depends on hydrothermal conditions
Relative Operating Humidity:	15%RH to 85%RH (non-condensing)
Relative Storage Humidity:	30%RH to 85%RH (non-condensing)
Visible Light Sensitivity:	Avoid contact with direct Sunlight (Interior lighting must be incandescent with a Radiant Angle of 15 Degree or more having an illumination index of 3000 Lux or less)
Installation:	Indoors Only

**Hydrothermal Condition Table**



**Electrical Specifications**

**Table 1-7 RT/RQ Electrical Specifications \***

Supply Voltage:	24V DC (±5%) (6A or higher Recommended)
Current Consumption:	Standby: 0.4A Operation: 2.0A Peak: 3.8A

\*. Measured on a new and factory default RQ Unit.

**Structural Specifications**

**Table 1-8 RT/RQ Structural Specifications**

Weight Empty:	RT (with SH2 Box): 8kg (17.63lbs) RQ (with SH2 Box): 11.4kg (25.13lbs)
Mounting:	Horizontal, 0 degrees, ±0 degrees angle (Stacking Up (SU) installation is available. Refer to "Installation Procedure" on page 2-1.)
Outside Dimensions:	Refer to "Unit Dimensions" on page 1-9 of this Service Manual Section.



### Unit Dimensions RT Unit With SH2 Box Outside Dimensions and Installation/Maintenance Space Requirement

Figure 1-5 illustrates the RT Unit with a SH2 Box (400 Notes) Outside Dimension and the spaces required to clean and maintain the RT Unit.

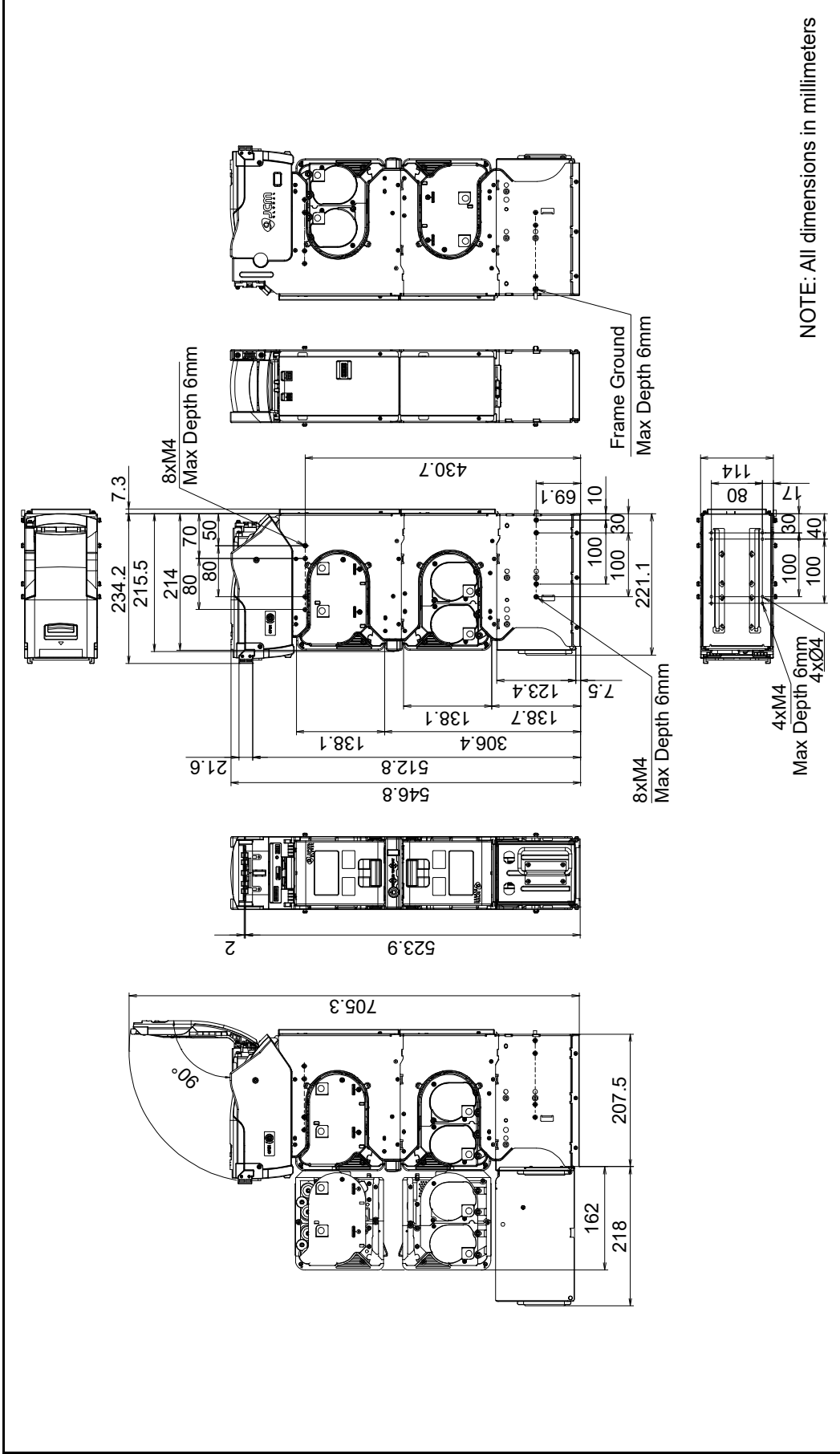


Figure 1-5 RT Unit With SH2 Box Outside Dimension and Installation/Maintenance Space Requirement

### RT Unit With Large Box Outside Dimensions and Installation/Maintenance Space Requirement

Figure 1-6 illustrates the RT Unit with a Large Box (800 Notes) Outside Dimension and the spaces required to clean and maintain the RT Unit.

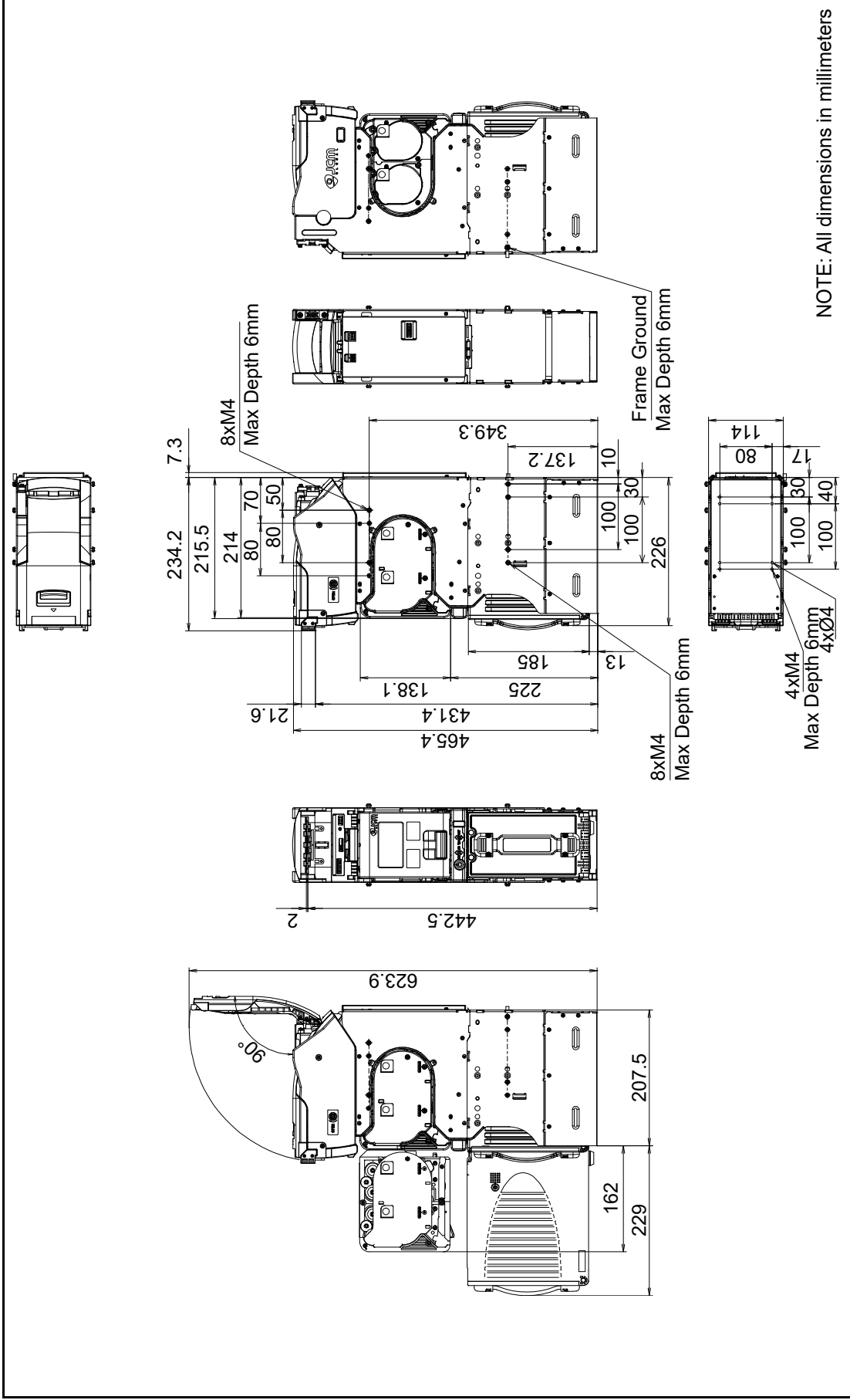
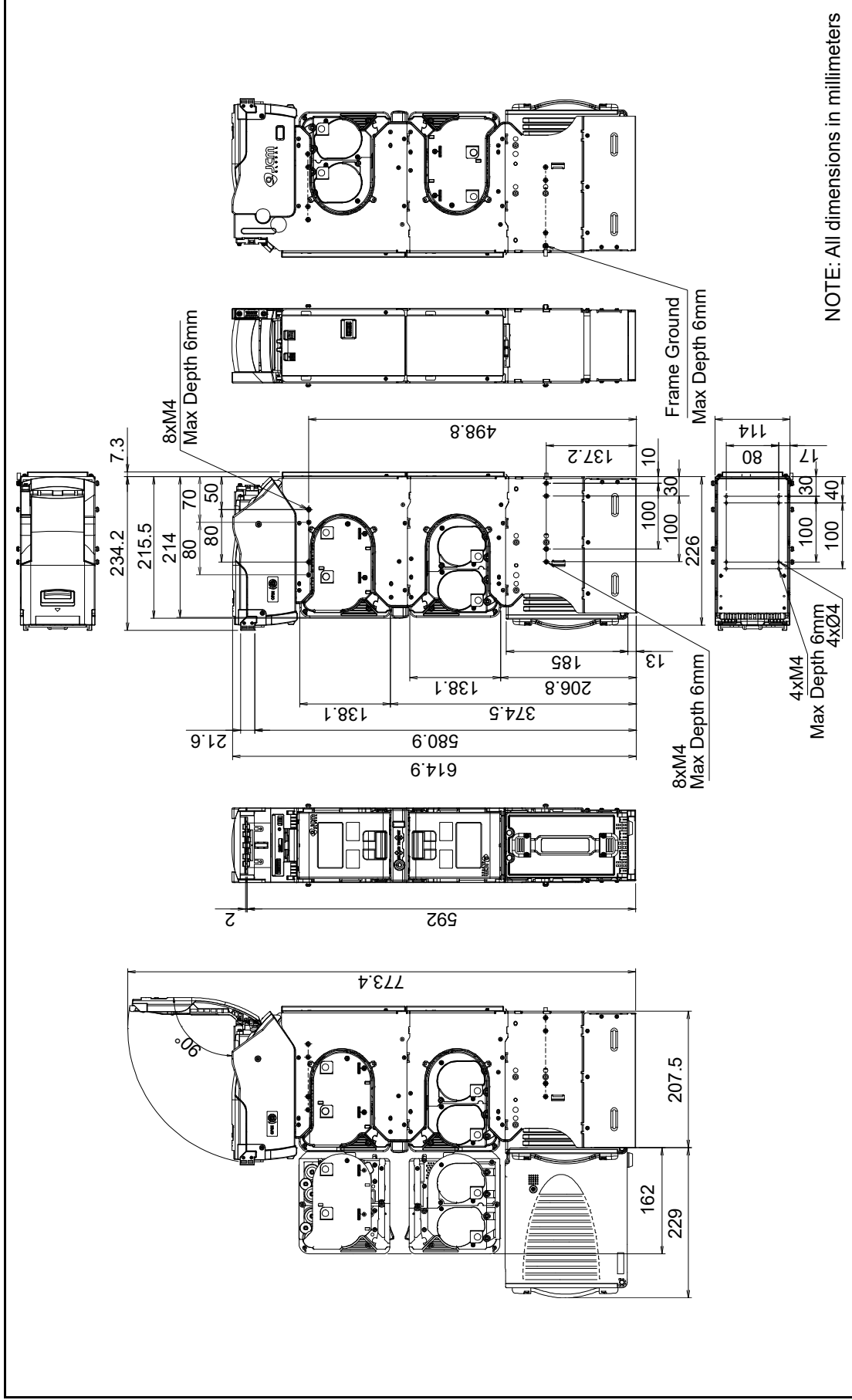


Figure 1-6 RT Unit With Large Box Outside Dimension and Installation/Maintenance Space Requirement



### RQ Unit With Large Box Outside Dimensions and Installation/Maintenance Space Requirement

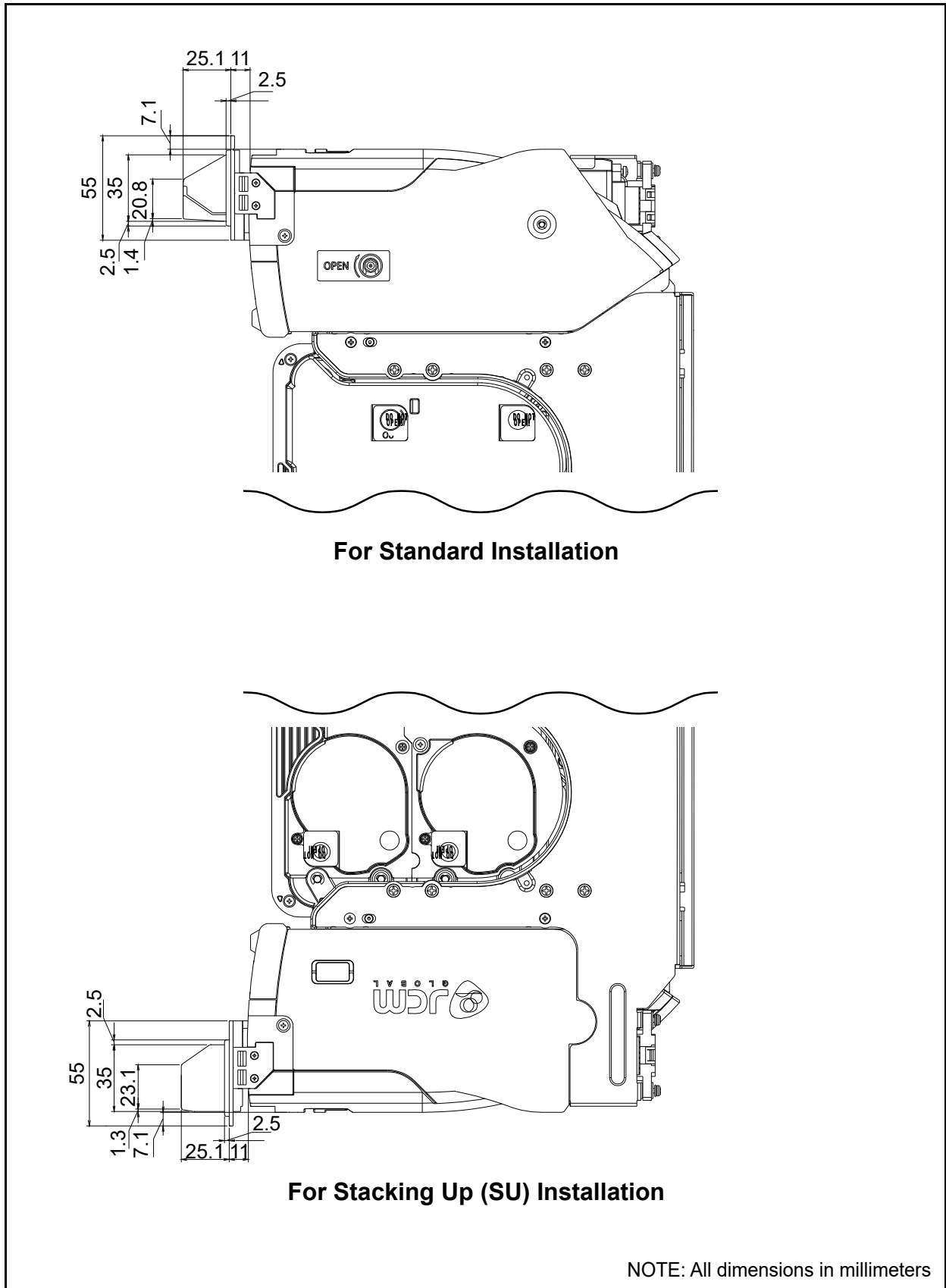
Figure 1-8 illustrates the RQ Unit with a Large Box (800 Notes) Outside Dimension and the spaces required to clean and maintain the RQ Unit.



**Figure 1-8** RQ Unit With Large Box Outside Dimension and Installation/Maintenance Space Requirement

### Bezel Outside Dimensions

Figure 1-9 illustrates the Bezel Outside Dimensions.



NOTE: All dimensions in millimeters

Figure 1-9 Bezel Outside Dimensions

## Technical Contact Information

To obtain further technical information regarding the RT/RQ 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](mailto: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](mailto: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,  
Milton Keynes MK9 2FR, United Kingdom

E-mail: [support@jcmglobal.eu](mailto:support@jcmglobal.eu)

### Asia and Oceania

#### JCM American (Australia Office)

Phone: +61-2-9648-0811

Fax: +61-2-9647-1438

Unit 21, 8 Avenue of the Americas Newington,  
NSW 2127 Australia

E-mail: [Sales-AsiaPac@jcmglobal.com](mailto:Sales-AsiaPac@jcmglobal.com)

### JAPAN CASH MACHINE CO., LTD. (HQ)

Phone: +81-6-6703-8400

Fax: +81-6-6707-0348

2-3-15, Nishiwaki, Hirano-ku,  
Osaka 547-0035 JAPAN

E-mail: [Shohin@jcm-hq.co.jp](mailto:Shohin@jcm-hq.co.jp)

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

# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 2

### 2 INSTALLATION

This section provides installation and operating instructions for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ). The information within contains the following features:

- Installation Procedure
- DIP Switch Configurations
- LED Flashing Patterns
- Connector Pin Assignments
- Preventive Maintenance
- Standard Interface Circuit Schematics
- Operational Flowcharts

#### Installation Procedure

Holes are provided in each Frame Unit to accommodate mounting the RT/RQ Unit during installation. Select and perform the following steps required to install the RT/RQ Unit.

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

**NOTE:** Ensure that there is sufficient space to open, clean and maintain a UBA Pro Unit (Refer to "Unit Dimensions" on page 1-9).

**Caution:** Be sure to use specified Screw Holes when installing the Unit.

**Caution:** To keep the Unit's performance optimal, ensure that the mounting location is horizontally at 0 degrees on a flat surface and strong enough to ensure the Unit weight.

#### Grounding

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

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

**NOTE:** Refer to "Unit Dimensions" on page 1-9) for each Frame Ground location.

2. Tighten the Screw to secure the Wire and Washer.

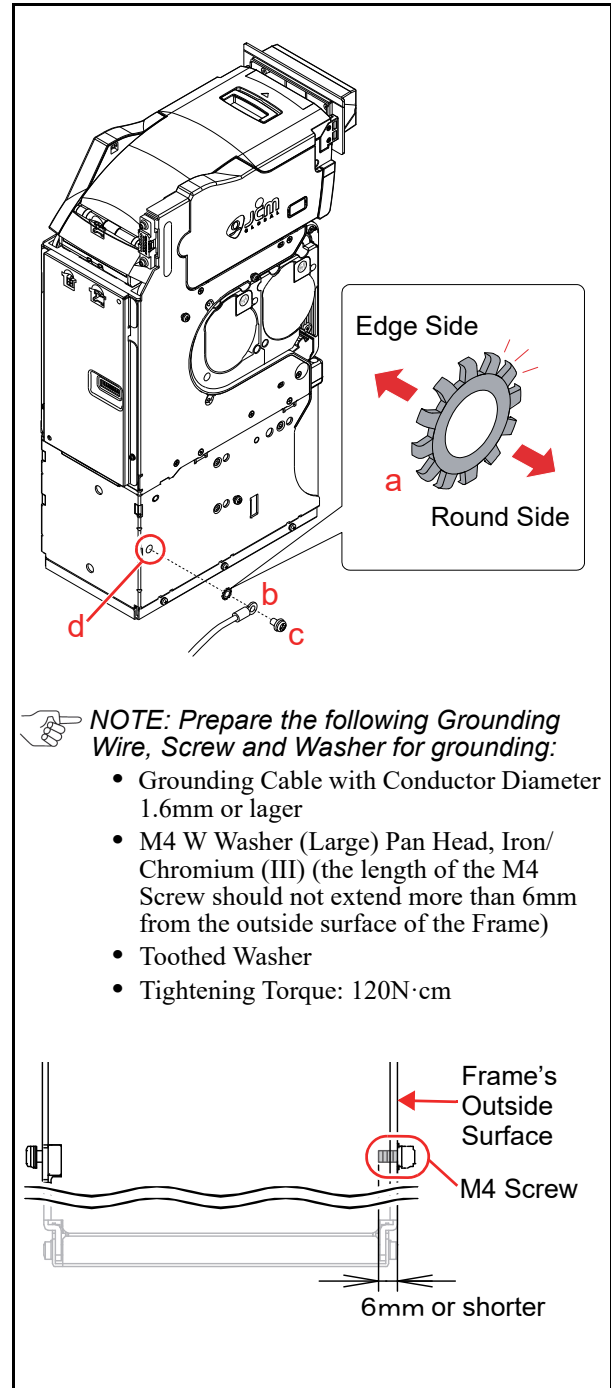
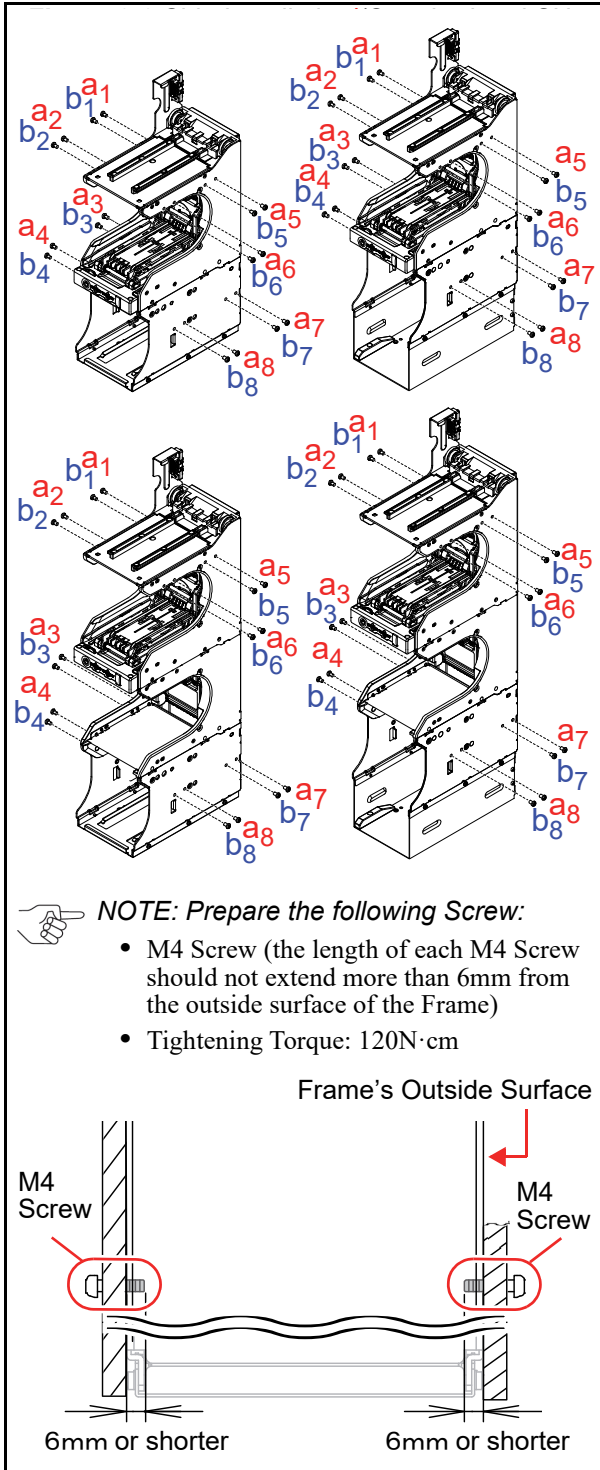


Figure 2-1 Grounding

### Side Installation (For Standard and Stacking Up (SU) Installation types)

When a side mounting configuration is preferred, perform the following procedure:

1. Secure the left and right side of the RT/RQ Frame into its intended location using 8 (eight) M4 Screws from each side of the Frame (Figure 2-2 a<sub>1</sub> through a<sub>8</sub>) or (Figure 2-2 b<sub>1</sub> through b<sub>8</sub>).



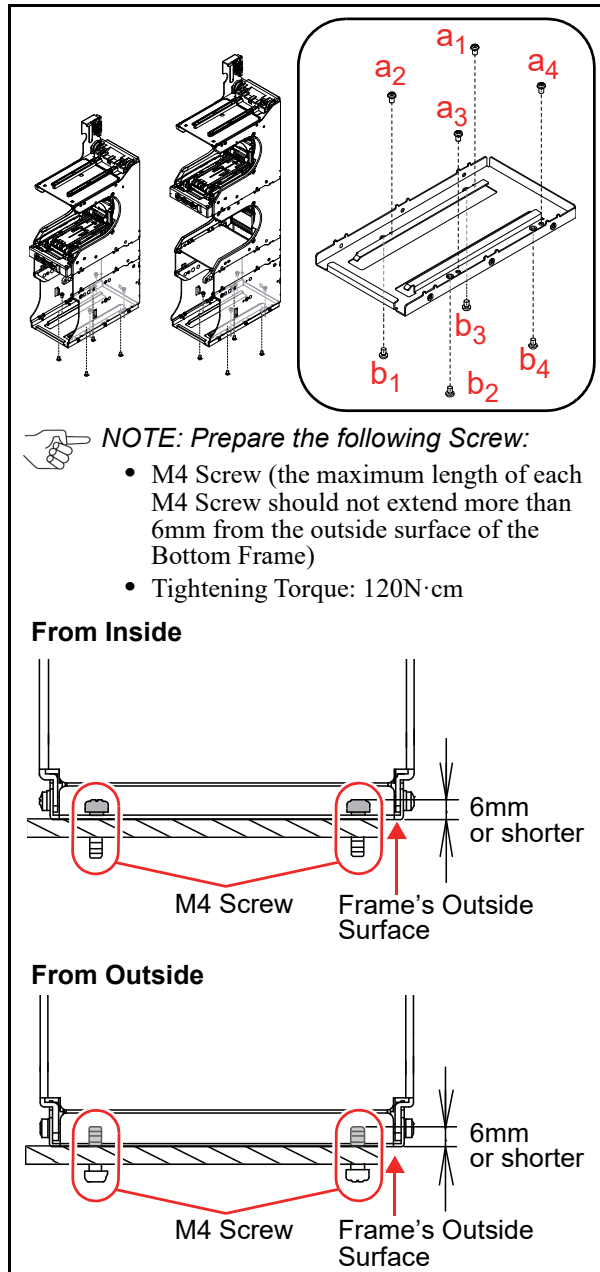
**Figure 2-2** Side Installation (Standard and SU Installation Types)

### Bottom Installation (For Standard Installation Type Only)

When a bottom mounting configuration is preferred, perform the following procedure:

**Caution: This installation is allowed only when the RT/RQ unit is used as Standard installation.**


1. **From Inside:**  
Secure the inside of the RT/RQ Bottom Frame into its intended location using four (4) M4 Screws (Figure 2-3 a<sub>1</sub> through a<sub>4</sub>).
- From Outside:**  
Secure the outside of the RT/RQ Bottom Frame into its intended location using the four (4) M4 Screws (Figure 2-3 b<sub>1</sub> through b<sub>4</sub>).



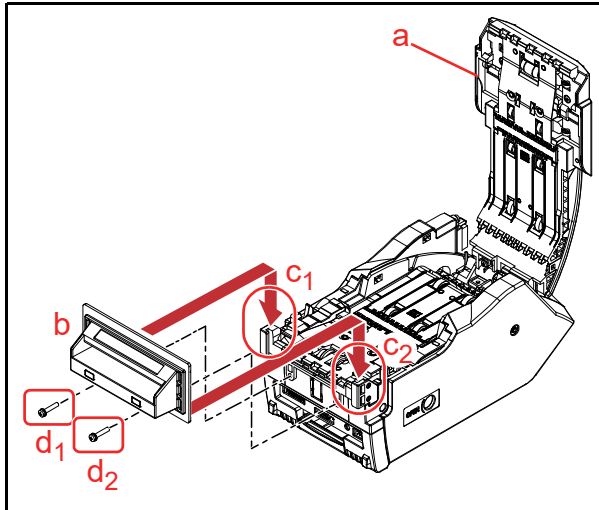
**Figure 2-3** Bottom Installation (Standard Installation Type)



### Bezel Installation


 **NOTE: Prepare the following Screw:**

- M3x16 Screw (provided)
  - Tightening Torque: 60N·cm
1. Open the UBA Pro's Cover (Figure 2-4 a).
  2. Slide the Bezel (Figure 2-4 b) on to the UBA Pro Bezel Tabs (Figure 2-4 c<sub>1</sub> & c<sub>2</sub>).
  3. Secure the Bezel (Figure 2-4 b) using two (2) specified Screws (Figure 2-4 d<sub>1</sub> & d<sub>2</sub>).

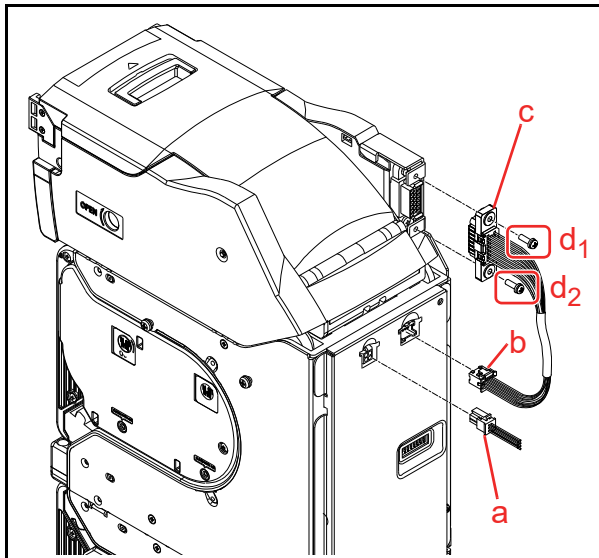


**Figure 2-4 Bezel Installation**

### External Harness Installation

 **NOTE: Prepare the following Screw:**

- M3x10 Screw (provided)
  - Tightening Torque: 80N·cm
1. Plug the Power Cable (Figure 2-5 a) and the Interface Harness (Figure 2-5 b) into each Connector.
  2. Secure the Connector (Figure 2-5 c) using two (2) specified Screws (Figure 2-5 d<sub>1</sub> & d<sub>2</sub>).

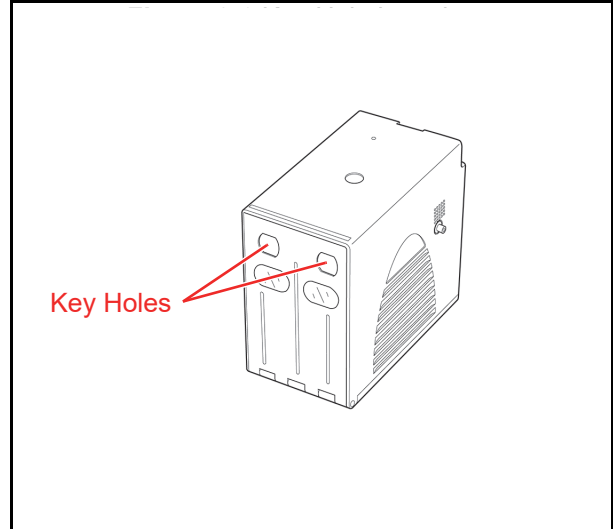


**Figure 2-5 External Harness Installation**

### Cash Box Lock Installation

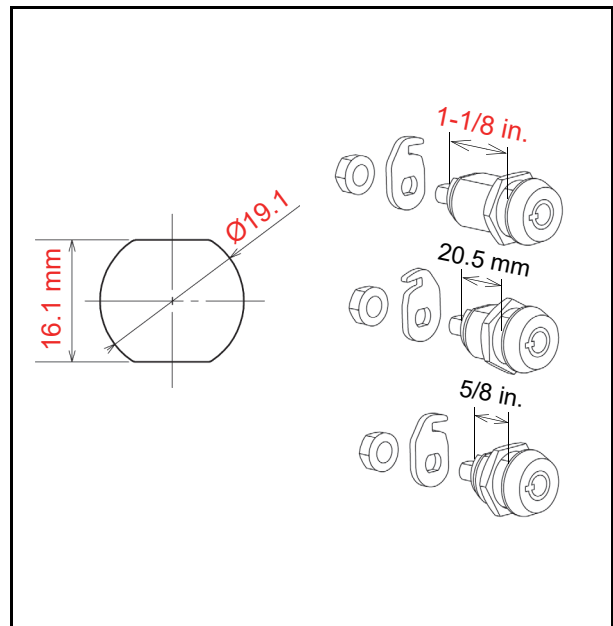
One or two security locks can be installed onto a Cash Box. When installing a security lock, the following attachment accessories may be required:

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



**Figure 2-6 Key Hole Location**


Choose a Lock that fits a standard 5/8", 1-1/8" or 20.5mm hole dimension format (Figure 2-7). In addition, when two locks are to be installed, both locks must be identical.

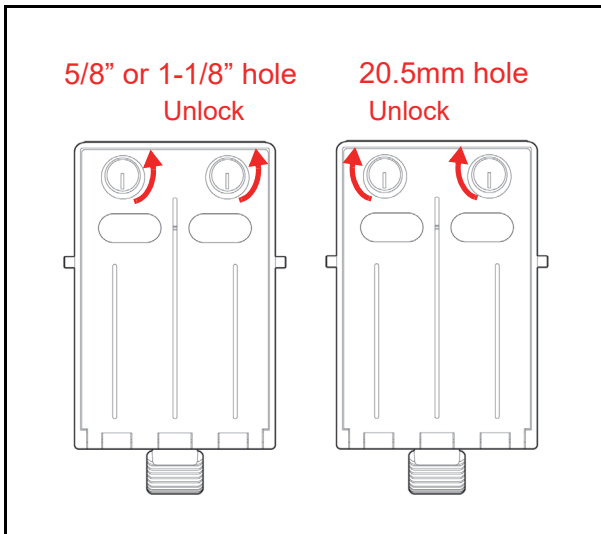


**Figure 2-7 Key Hole Dimension & Cylinder Length**


### Unlock Procedure

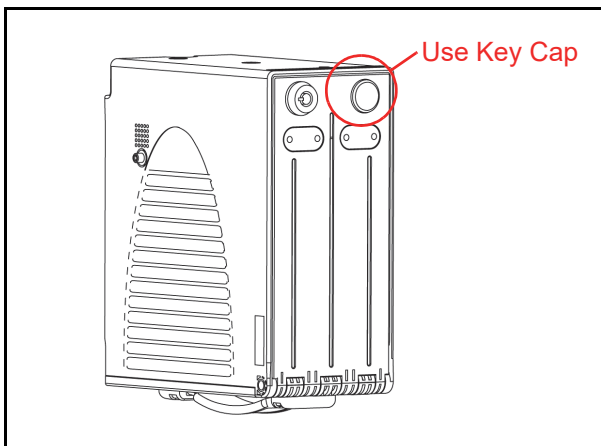
Make sure lock(s) are installed and rotates in the correct direction(s).

 **NOTE:** When two locks are installed, they must rotate in the same direction as illustrated in Figure 2-8.




**Figure 2-8** 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 2-9** 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.

 **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




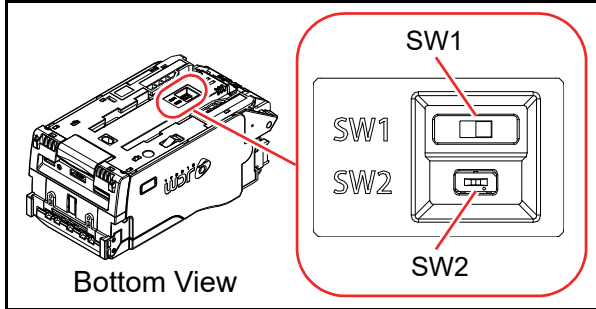
Switch No.	Switch ON/OFF	Description
1	ON	VEND 1 INHIBIT
	OFF	VEND 1 ACCEPT
2	ON	VEND 2 INHIBIT
	OFF	VEND 2 ACCEPT
3	ON	VEND 3 INHIBIT
	OFF	VEND 3 ACCEPT
4	ON	VEND 4 INHIBIT
	OFF	VEND 4 ACCEPT
5	ON	VEND 5 INHIBIT
	OFF	VEND 5 ACCEPT
6	ON	VEND 6 INHIBIT
	OFF	VEND 6 ACCEPT
7	ON	VEND 7 INHIBIT
	OFF	VEND 7 ACCEPT
8	OFF*	OFF (Fixed)

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

### SW1 and SW2 Configurations

The UBA Pro CPU Circuit 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 2-10).


 **NOTE:** Refer to the UBA Pro RC Series Banknote Recycler Operation and Maintenance Manual for the Recycler options.



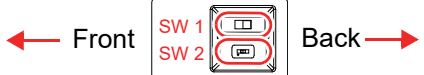



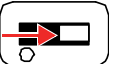
**Figure 2-10** SW1 and SW2 Switches

### Interface and Recycler Settings (Sub Board 2)

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

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

**Table 2-2** Sub Board 2 Interface Settings

		
	Settings	Description
SW1		Photo-Coupler Isolation
		RS232C cc-Talk
	-	USB
SW2		To use a UBA Pro Unit with a Recycler Unit(s)
		To use a UBA Pro Unit without a Recycler(s)*

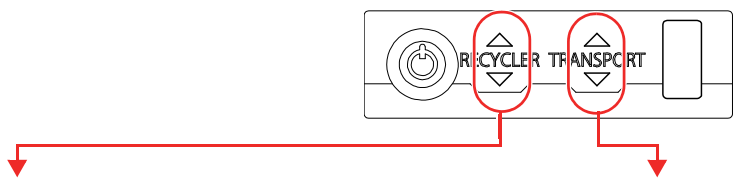
\* Refer to the UBA Pro Series Operation and Maintenance Manual for using the UBA Pro unit with a Recycler(s).

### LED Flashing Patterns

The LED Color Pattern indications listed in Table 2-3 and Table 2-4 occur during various RT/RQ Unit operating and error conditions.

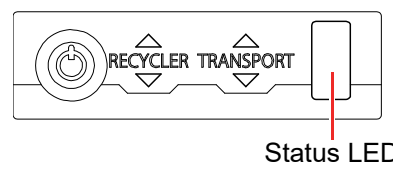
 **NOTE:** Refer to “LED Error Codes” on page A-1 for a detailed explanation of each error code.












**Table 2-3** Recycler and Transport LEDs Flashing Patterns



Recycler LED	Cause and Solution	Transport LED	Cause and Solution
▲ OFF	Operating	▲ OFF	Operating
▼ OFF	Operating	▼ OFF	Operating
△ ON	Error occurred in a Drum of the RT Transport side.	△ ON	Error occurred in the RT Transport side.
▽ ON	Error occurred in a Drum of the RQ Transport side.	▽ ON	Error occurred in the RQ Transport side.

**Table 2-4** Status LED Flashing Patterns



Status LED	Cause and Solution	Status LED	Cause and Solution
 OFF	Stand-by (Test Mode)/Operating or Error occurred in the UBA Pro Unit side. (Refer to “LED Error Codes” on page A-1.)	 Cyan Flashes	Error occurred while a Banknote was being dispensed. Return the cash in the RT/RQ Unit.
 White ON	Turning power on	 Blue Flashes	Error occurred after a Banknote was determined to dispense. Return the cash to the customer.
 Green ON	Stand-by (Normal Mode)	 Yellow Flashes	Error occurred while a Banknote was being accepted. Return the cash to the customer.
 White Flashes	Error occurred while turning power on.	 Red Flashes	Error occurred after a Banknote was determined to accept. Return the cash in the RT/RQ Unit.
 Green Flashes	Error occurred when the Unit was in stand-by or while downloading software to the Unit (Recycler).	 Green ↔ Red Flashes	Downloading software from Acceptor Head Unit to Recycler.
 Magenta Flashes	Error occurred when Banknotes were being collected.		

## Connector Pin Assignments

### USB Interface Connector Pin Assignments (UBA Pro Side)

Table 2-5 USB Interface Connector Pin Assignments (UBA Pro Side)

 <p>Socket (UBA Pro Unit Side): DRA-20PC-FO (JAE)                  Contact (UBA Pro Unit Side): D02-22-26P-10000 (JAE)                  Socket (Frame Side): DRA-20SC-FO (JAE)                  Contact (Frame Side): D02-22-26S-10000 (JAE)                  Contact (Frame Side) Pin No.3, No.13: D02-22-22S-10000 (JAE)                  Recommended Wires: Slit Wire UL1061 AWG #26</p>			
Pin No.	Signal Name	I/O*	Function
1	-	-	Reserved (For the UBA Pro Side)
2	-	-	Reserved (For the UBA Pro Side)
3	M.RES	IN	Acceptor Reset Signal Line
4	NC	-	No Connection
5	-	-	Reserved (For the UBA Pro Side)
6	NC	-	No Connection
7	NC	-	No Connection
8	Vbus	IN	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	-	-	Reserved (For the UBA Pro Side)
12	GND (USB)	-	USB Communication Ground (0V DC)
13	NC	-	No Connection
14	LED POWER	-	LED Drive Line (Anode)
15	-	-	Reserved (For the UBA Pro Side)
16	NC	-	No Connection
17	-	-	Reserved (For the UBA Pro Side)
18	LED-	-	LED Drive Line (Cathode)
19	NC	-	No Connection
20	-	-	Reserved (For the UBA Pro Side)

\*. I/O (input/output) is the terminal as viewed from the RT/RQ Unit's side.

## Photo Coupler Interface Connector Pin Assignments (UBA Pro Side)

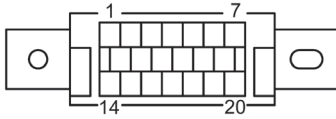


**NOTE:** The Interface setup is required. Refer to "Interface and Recycler Settings (Sub Board 2)" on page 2-5 for the settings.

**Table 2-6** Photo Coupler Interface Connector Pin Assignments (UBA Pro Side)

Pin No.	Signal Name	I/O*	Function
1	-	-	Reserved (For the UBA Pro Side)
2	-	-	Reserved (For the UBA Pro Side)
3	M.RES	IN	Acceptor Hard Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Host
5	-	-	Reserved (For the UBA Pro Side)
6	RXD	IN	Input Signal Line from Host to Acceptor
7	Opto-GND	-	Interface Power Supply (Photo Coupler 0V DC)
8	NC	-	No Connection
9	NC	-	No Connection
10	NC	-	No Connection
11	-	-	Reserved (For the UBA Pro Side)
12	NC	-	No Connection
13	NC	-	No Connection
14	LED POWER	-	LED Indicator Power Supply Line (Anode)
15	-	-	Reserved (For the UBA Pro Side)
16	NC	-	No Connection
17	-	-	Reserved (For the UBA Pro Side)
18	LED -	-	LED Indicator Control Line (Cathode)
19	NC	-	No Connection
20	-	-	Reserved (For the UBA Pro Side)

\*. I/O (input/output) is the terminal as viewed from the RT/RQ Unit's side.



Socket (UBA Pro Unit Side): DRA-20PC-FO (JAE)  
 Contact (UBA Pro Unit Side): D02-22-26P-10000 (JAE)  
 Socket (Frame Side): DRA-20SC-FO (JAE)  
 Contact (Frame Side): D02-22-26S-10000 (JAE)  
 Contact (Frame Side) Pin No.3, No.13: D02-22-22S-10000 (JAE)  
 Recommended Wires: Slit Wire UL1061 AWG #26

### RS232C Interface Connector Pin Assignments (UBA Pro Side)



**NOTE:** The Interface setup is required. Refer to "Interface and Recycler Settings (Sub Board 2)" on page 2-5 for the settings.

**Table 2-7** RS232C Connector Pin Assignments (UBA Pro Side)

Socket (UBA Pro Unit Side): DRA-20PC-FO (JAE) Contact (UBA Pro Unit Side): D02-22-26P-10000 (JAE) Socket (Frame Side): DRA-20SC-FO (JAE) Contact (Frame Side): D02-22-26S-10000 (JAE) Contact (Frame Side) Pin No.3, No.13: D02-22-22S-10000 (JAE) Recommended Wires: Slit Wire UL1061 AWG #26			
Pin No.	Signal Name	I/O*	Function
1	-	-	Reserved (For the UBA Pro Side)
2	-	-	Reserved (For the UBA Pro Side)
3	M.RES	IN	Acceptor Hard Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Host
5	-	-	Reserved (For the UBA Pro Side)
6	RXD	IN	Input Signal Line from Host to Acceptor
7	NC	-	No Connection
8	NC	-	No Connection
9	NC	-	No Connection
10	NC	-	No Connection
11	-	-	Reserved (For the UBA Pro Side)
12	NC	-	No Connection
13	GND (SG)	-	Interface Power Supply (RS232C 0V DC)
14	LED POWER	-	LED Indicator Power Supply Line (Anode)
15	-	-	Reserved (For the UBA Pro Side)
16	NC	-	No Connection
17	-	-	Reserved (For the UBA Pro Side)
18	LED-	-	LED Indicator Control Line (Cathode)
19	NC	-	No Connection
20	-	-	Reserved (For the UBA Pro Side)

\*. I/O (input/output) is the terminal as viewed from the RT/RQ Unit's side.

## cc-Talk Interface Connector Pin Assignments (UBA Pro Side)

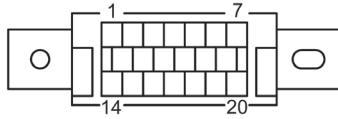


**NOTE:** The Interface setup is required. Refer to "Interface and Recycler Settings (Sub Board 2)" on page 2-5 for the settings.

**Table 2-8** cc-Talk Interface Connector Pin Assignments (UBA Pro Side)

Pin No.	Signal Name	I/O*	Function
1	-	-	Reserved (For the UBA Pro Side)
2	-	-	Reserved (For the UBA Pro Side)
3	M.RES	IN	Acceptor Hard Reset Signal Line
4	NC	-	No Connection
5	-	-	Reserved (For the UBA Pro Side)
6	NC	-	No Connection
7	NC	-	No Connection
8	NC	-	No Connection
9	NC	-	No Connection
10	NC	-	No Connection
11	-	-	Reserved (For the UBA Pro Side)
12	NC	-	No Connection
13	GND (SG)	-	Interface Power Supply (cc-Talk 0V DC)
14	LED POWER	-	LED Indicator Power Supply Line (Anode)
15	-	-	Reserved (For the UBA Pro Side)
16	TXD	OUT	Output Signal Line from Acceptor to Host
17	-	-	Reserved (For the UBA Pro Side)
18	LED-	-	LED Indicator Control Line (Cathode)
19	NC	-	No Connection
20	-	-	Reserved (For the UBA Pro Side)

\*. I/O (input/output) is the terminal as viewed from the RT/RQ Unit's side.

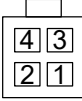


Socket (UBA Pro Unit Side): DRA-20PC-FO (JAE)  
 Contact (UBA Pro Unit Side): D02-22-26P-10000 (JAE)  
 Socket (Frame Side): DRA-20SC-FO (JAE)  
 Contact (Frame Side): D02-22-26S-10000 (JAE)  
 Contact (Frame Side) Pin No.3, No.13: D02-22-22S-10000 (JAE)  
 Recommended Wires: Slit Wire UL1061 AWG #26



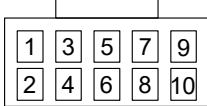
### Power Supply Connector Pin Assignments (RT/RQ Side)

**Table 2-9** Power Supply Connector Pin Assignments (RT/RQ Side)

		Header Type: 43045-0424 (MOLEX) Contact Type: 43030-0001 (MOLEX) Housing: 43025-0400 (MOLEX) Recommended Wires: Slit Wire UL1007 AWG #20-24	
Pin No.	Signal Name	I/O	Function
1	VHOST24V	-	+24V DC Power Supply
2	NC	-	No Connection
3	PGND	-	0V DC Power Supply
4	NC	-	No Connection

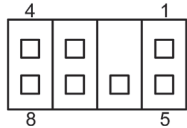
### Interface Connector Pin Assignments (RT/RQ Side)

**Table 2-10** Interface Connector Pin Assignments (RT/RQ Side)

		Header Type: B10B-PADSS-1 (JST) Contact Type: SPH-002T-P0.5L (JST) Housing: PADP-10V-1-S (JST) Recommended Wires: Slit Wire UL1061 AWG #24-28	
Pin No.	Signal Name	I/O	Function
1	-	-	Reserved (The pin is used on the UBA Pro Side)
2	-	-	Reserved (The pin is used on the UBA Pro Side)
3	-	-	Reserved (The pin is used on the UBA Pro Side)
4	-	-	Reserved (The pin is used on the UBA Pro Side)
5	-	-	Reserved (The pin is used on the UBA Pro Side)
6	-	-	Reserved (The pin is used on the UBA Pro Side)
7	-	-	Reserved (The pin is used on the UBA Pro Side)
8	-	-	Reserved (The pin is used on the UBA Pro Side)
9	-	-	Reserved (The pin is used on the UBA Pro Side)
10	NC	-	No Connection

### Bezel Connector Pin Assignments (UBA Pro Side)

**Table 2-11** Bezel Connector Pin Assignments (UBA Pro Side)

		Header Type: RF-H08(07)2SD-1110 (JST) Contact Type: RF-SC2210 (JST) Housing: RF-08 (JST) Recommended Wires: Slit Wire UL1007 AWG #24-26	
Pin No.	Signal Name	I/O*	Function
1	NC	-	No Connection
2	NC	-	No Connection
3	NC	-	No Connection
4	NC	-	No Connection
5	+12V (Power)	-	+12V DC Power (from UBA Pro)
6	GND (SG)	-	0V DC Power (from UBA Pro)
7	LED Power	-	LED Drive Line (Anode) [5V-220Ω]
8	LED-	-	LED Drive Line (Cathode)

\*. I/O (input/output) is the terminal as viewed from the RT/RQ Unit's side.

## Preventive Maintenance

### Refilling Banknotes

Banknotes can be refilled into the Recycler by using the UBA Pro Unit.

To refill Banknotes into the Recycler, perform the following procedure:

**NOTE: Do Not manually refill the Banknotes directly into the Recyclers.**

1. Insert Banknotes note-by-note in a single fashion into the Insertion Slot or Bezel (Figure 2-11).

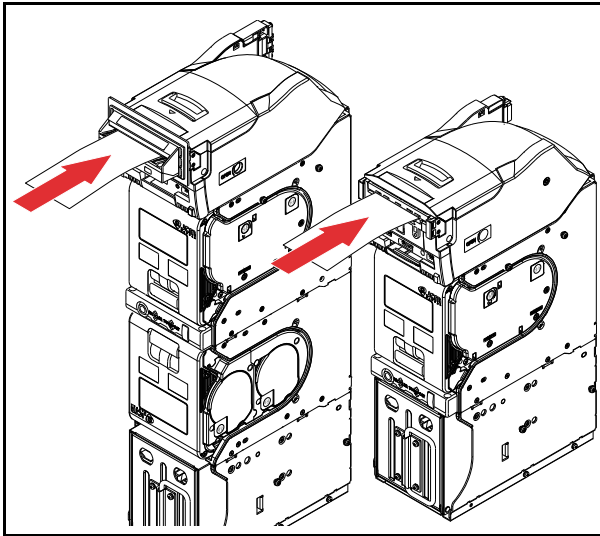


Figure 2-11 Refilling Banknotes

### Collecting Banknotes

To collect Banknotes from the Recycler, perform one (1) of the following two (2) procedures.

#### Collecting Banknotes into the Cash Box by the Collect Button

**NOTE:** Enable the Collect Button function by sending a Command from the Host Machine (disabled by default).

1. Press the Collect Button on the RT/RQ Unit (Figure 2-12 a).

**NOTE:** The Banknotes in each Drum will be transported note-by-note into the Cash Box.

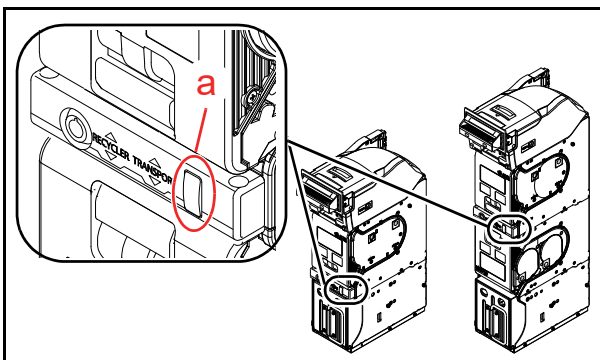


Figure 2-12 Collecting Banknotes 1

2. Remove the Cash Box (Figure 2-13 a).
3. Use the appropriate User-supplied Key(s) to unlock the Cash Box (Figure 2-13 b).
4. Open the Cash Box Door and remove the collected Banknotes (Figure 2-13 c).

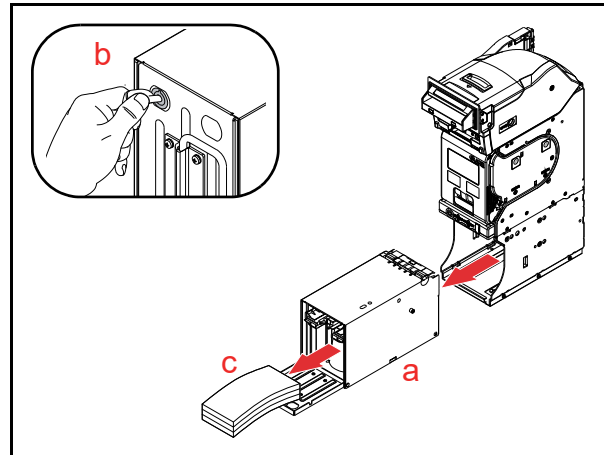


Figure 2-13 Collecting Banknotes 2

#### Collecting Banknotes into the Cash Box by Command

1. Send a Command to the RT/RQ Unit from the Host Machine in order to collect Banknotes.

**NOTE:** The Banknotes in each Drum will be transported note-by-note into the Cash Box.

2. Remove the Cash Box (Figure 2-13 a).
3. Use the appropriate User-supplied Key(s) to unlock the Cash Box (Figure 2-13 b).
4. Open the Cash Box Door and remove the collected Banknotes (Figure 2-13 c).

### Dispense Settings

Dispensing Banknotes from each Drum of the Recycler to the Insertion Slot or the Bezel is possible. Banknote denomination dispensing is predetermined by settings made for each Drum. To change the dispensable Banknote denomination values, replace the Recycler with another Unit containing the different denomination settings.

**NOTE:** Before setting the Recycler's denomination values, check the Banknote sizes against the Recycler's size limitation settings (Refer to "Technical Specifications" on page 1-7). This operation should be performed once appropriate Operator training has been completed.

### Clearing a Banknote Jam

**NOTE: Do Not re-insert a removed Banknote caused by Banknote Jam or error.**


#### Find where a Banknote Jam occurred

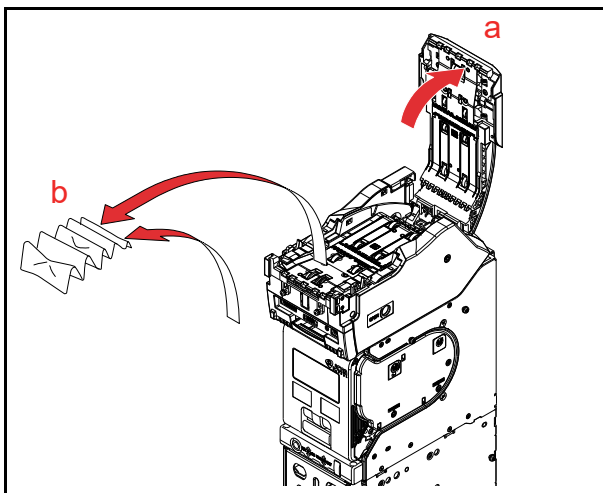
Check each LED to determine where and/or in which Unit a Banknote is jammed (Refer to "LED Flashing Patterns" on page 2-6).

**Jammed in UBA Pro Unit**

To remove jammed Banknotes from the UBA Pro Unit, proceed as follows to clear it.

1. Lift up on the Upper Guide Access Lever to open the UBA Pro's Cover (Figure 2-14 a).
2. Remove any jammed Banknote found there. (Figure 2-14 b).

 **NOTE:** Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro Unit's details.

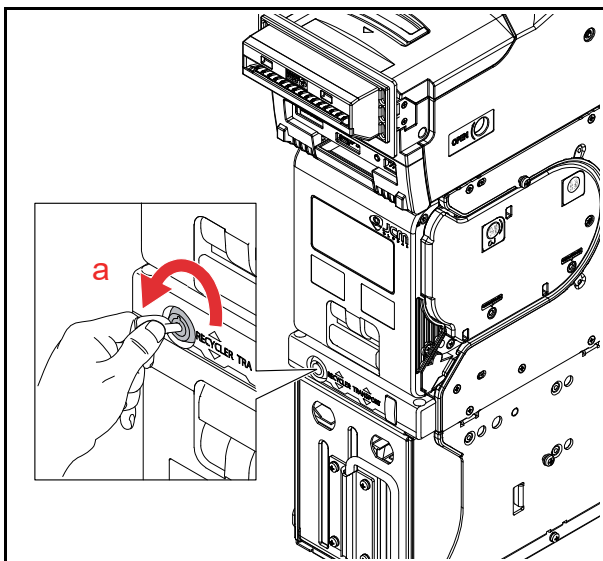


**Figure 2-14** UBA Pro Unit Banknote Jam Clear

**Jammed in RT Transport Banknote**

To remove jammed Banknotes from the RT Transport, proceed as follows to clear it.

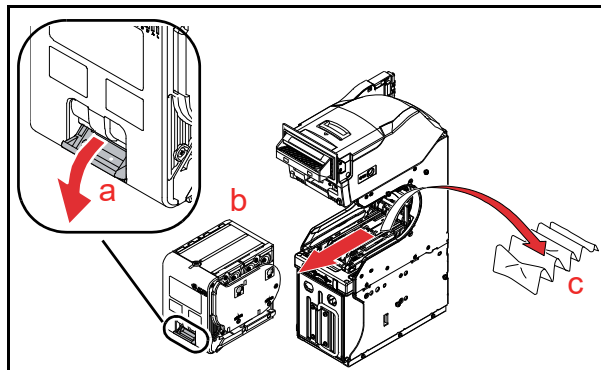
1. Unlock the Recycler Release Lock (Figure 2-15 a).



**Figure 2-15** RT Transport Banknote Jam Clear 1

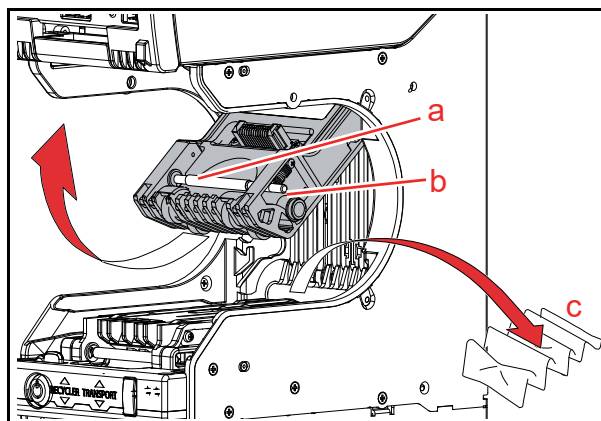
2. Press down on the Release Lever (Figure 2-16 a) of the Recycler installed in the RT Transport to remove the Recycler (Figure 2-16 b) out of the RT Transport.

3. Remove any jammed Banknote found there (Figure 2-16 c).



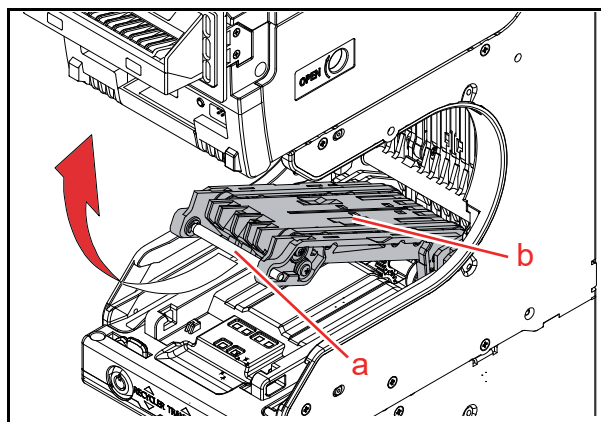
**Figure 2-16** RT Transport Banknote Jam Clear 2

4. If the Banknote jam location is not visible, press down on the Front Transport Unit's Release Lever (Figure 2-17 a) to pull up the Front Transport Unit (Figure 2-17 b).
5. Remove any jammed Banknote found there (Figure 2-17 c).



**Figure 2-17** RT Transport Banknote Jam Clear 3

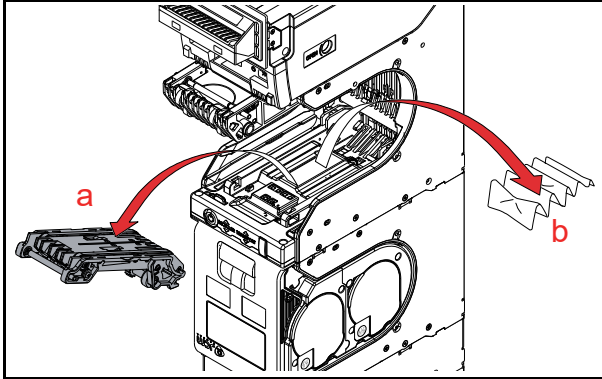
6. If the Banknote jam location is not visible, pull and release the Transport Unit's Release Lever (Figure 2-18 a) to lift the Transport Unit (Figure 2-18 b).



**Figure 2-18** RT Transport Banknote Jam Clear 4

7. Remove the Transport Unit out of the RT Transport (Figure 2-19 a).

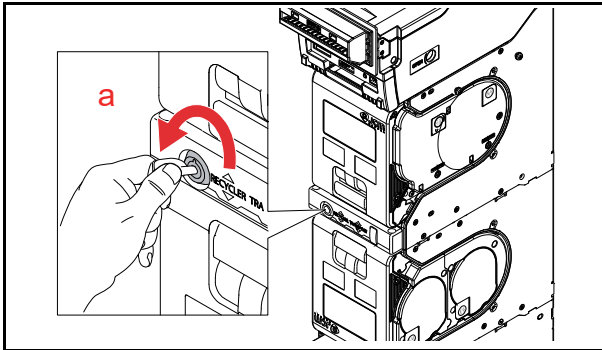
8. Remove any jammed Banknote found there (Figure 2-19 b).



**Figure 2-19 RT Transport Banknote Jam Clear 5  
Jammed in RQ Transport**

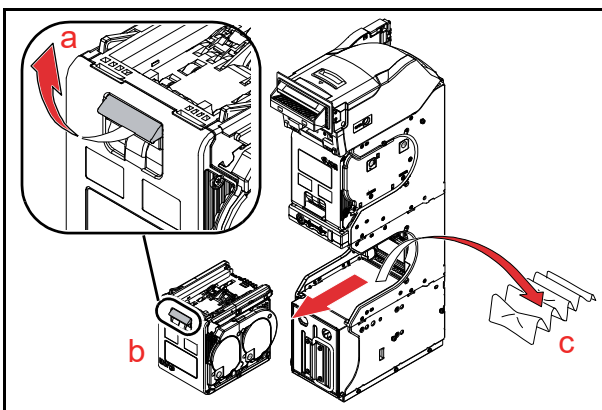
To remove jammed Banknotes from the RQ Transport, proceed as follows to clear it.

1. Unlock the Recycler Release Lock (Figure 2-20 a).



**Figure 2-20 RQ Transport Banknote Jam Clear 1**

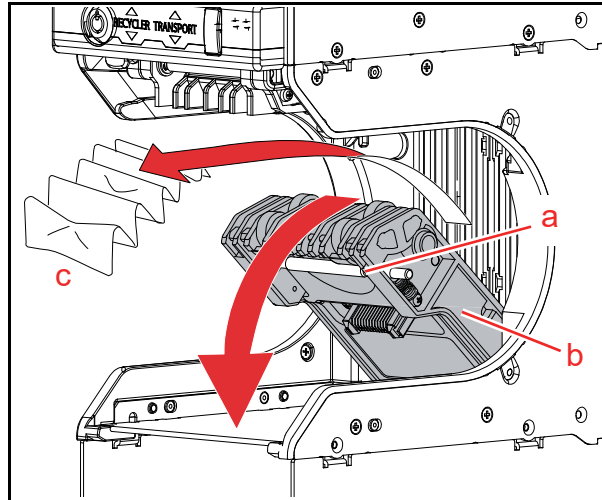
2. Press up on the Release Lever (Figure 2-21 a) of the Recycler installed in the RQ Transport to remove the Recycler (Figure 2-21 b) out of the RQ Transport.  
3. Remove any jammed Banknote found there (Figure 2-21 c).



**Figure 2-21 RQ Transport Banknote Jam Clear 2**

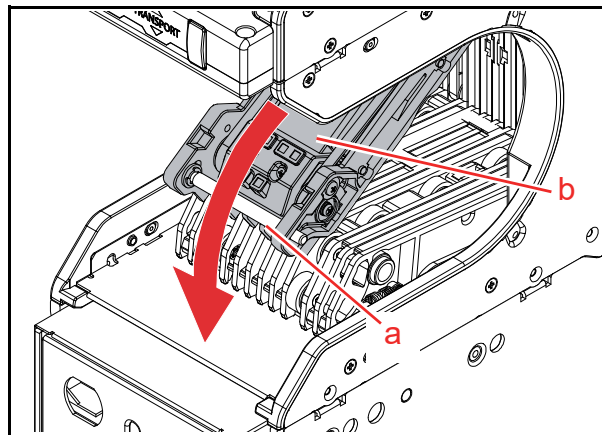
4. If the Banknote jam location is not visible, press up on the Front Transport Unit's Lever (Figure 2-22 a) to pull down the Front Transport Unit (Figure 2-22 b).

5. Remove any jammed Banknote found there (Figure 2-22 c).



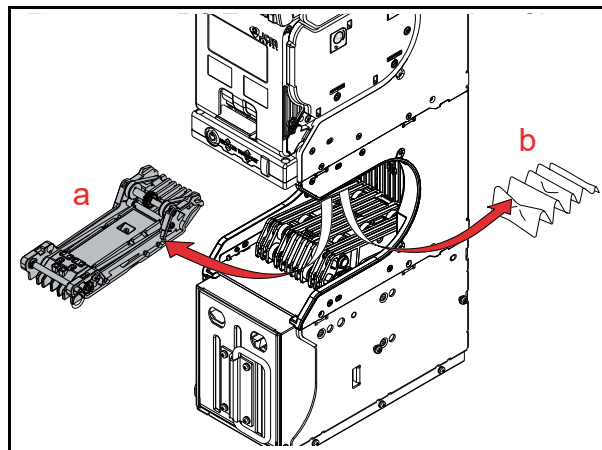
**Figure 2-22 RQ Transport Banknote Jam Clear 3**

6. If the Banknote jam location is not visible, press down on the Transport Unit's Lever (Figure 2-23 a) to pull down the Transport Unit (Figure 2-23 b).



**Figure 2-23 RQ Transport Banknote Jam Clear 4**

7. Remove the Transport Unit (Figure 2-24 a).  
8. Remove any jammed Banknote found there (Figure 2-24 b).



**Figure 2-24 RQ Transport Banknote Jam Clear 5**

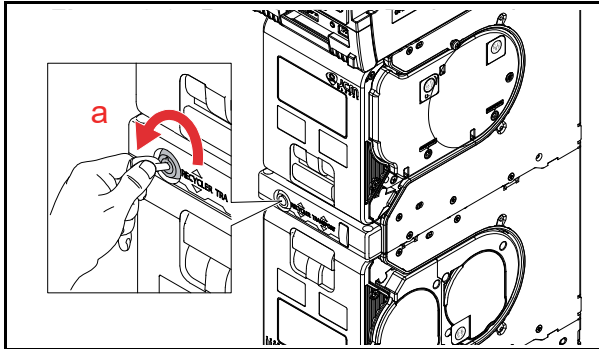


### Jammed in Recycler Drum

To remove jammed Banknotes from the Recycler Drum, proceed as follows to clear it.

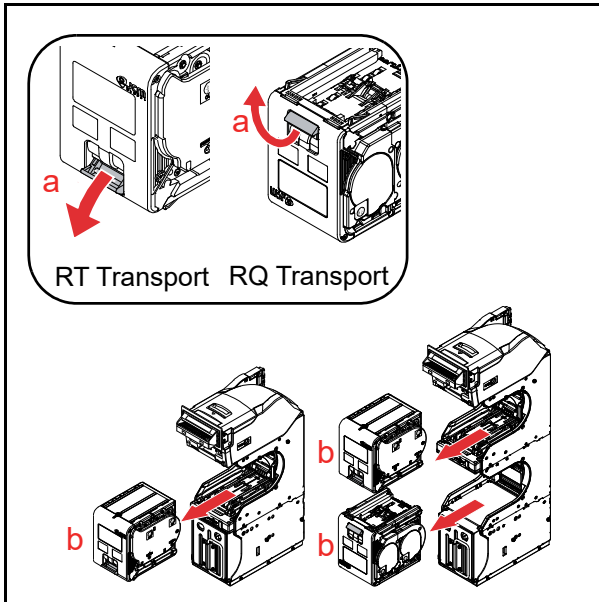
**NOTE:** Be sure to send a command and update the number of Banknotes in the Recycler(s) after removing a jammed Banknote in order to maintain the Banknote count match.

1. Unlock the Recycler Release Lock (Figure 2-25 a).



**Figure 2-25** Recycler Drum Banknote Jam Clear 1

2. Release the Release Lever (Figure 2-26 a) of the desired Recycler to remove (Figure 2-26 b) out of the Frame.



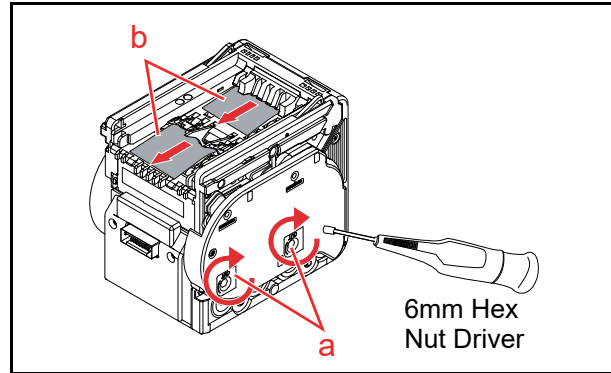
**Figure 2-26** Recycler Drum Banknote Jam Clear 2

3. Flip the Recycler upside down.
4. Use a 6mm Hex Nut Driver to rotate the desired Drum Shaft (Figure 2-27 a) in the dispense direction indicated by the arrow.

**NOTE:** Do Not manually rotate any Drum when there is no Banknote to avoid the risk of damage to the Recycler.

5. Remove the jammed Banknote (Figure 2-27 b).

**NOTE:** Do Not put a tool directly inside of the Recycler to remove a jammed Banknote. A winded film may be pulled out resulting in damage to the Recycler.

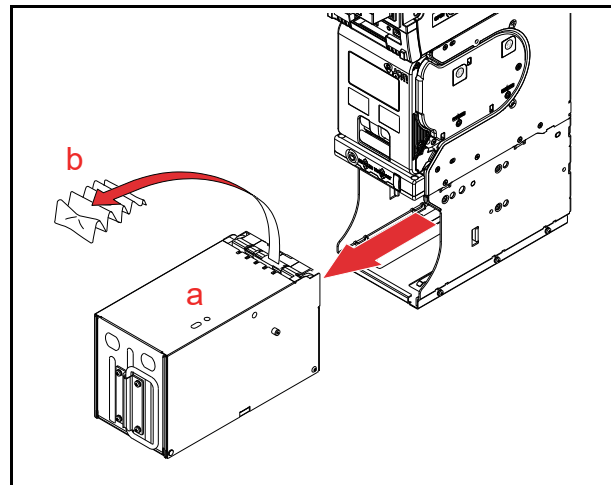


**Figure 2-27** Recycler Drum Banknote Jam Clear 3

### Jammed in Cash Box

To remove jammed Banknotes from the Cash Box, proceed as follows to clear it.

1. Pull the Cash Box (Figure 2-28 a) out of the Frame.
2. Remove any jammed Banknote found there (Figure 2-28 b).



**Figure 2-28** Cash Box Banknote Jam Clear

## Cleaning Procedure

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



**To keep the RT/RQ Unit's performance optimal, perform routine cleaning and maintenance:**

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

1. Remove electrical power from the RT/RQ Unit.
2. Open the UBA Pro Unit's Cover.
3. Clean the Sensor Lens, Rollers, Belts in the Banknote Path.



**NOTE:** Refer to the *UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual* for the UBA Pro Unit's details.

4. Pull the Recycler out of the RT/RQ Frame.
5. Clean the Sensor Lenses, Roller and Belts located in the RT/RQ Frame, Recycler and/or Cash Box.



**Caution: DO NOT use alcohol, solvents, abrasive cleaning agents, or citrus-based cleaners that can damage the plastic surface of the device when cleaning it. The lenses can become clouded by chemical evaporation residue that may cause acceptance errors.**



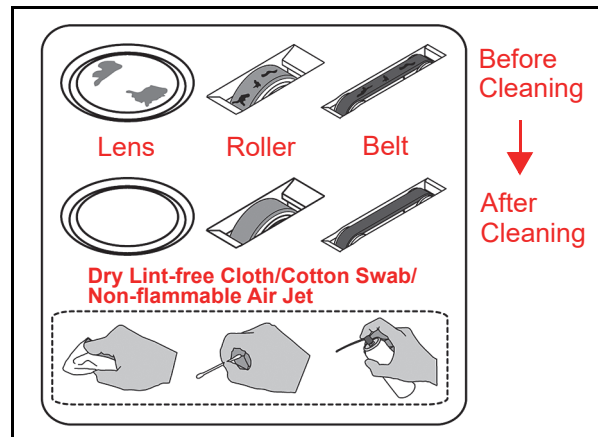
**Caution: Be sure to use non-flammable compressed air only.**



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

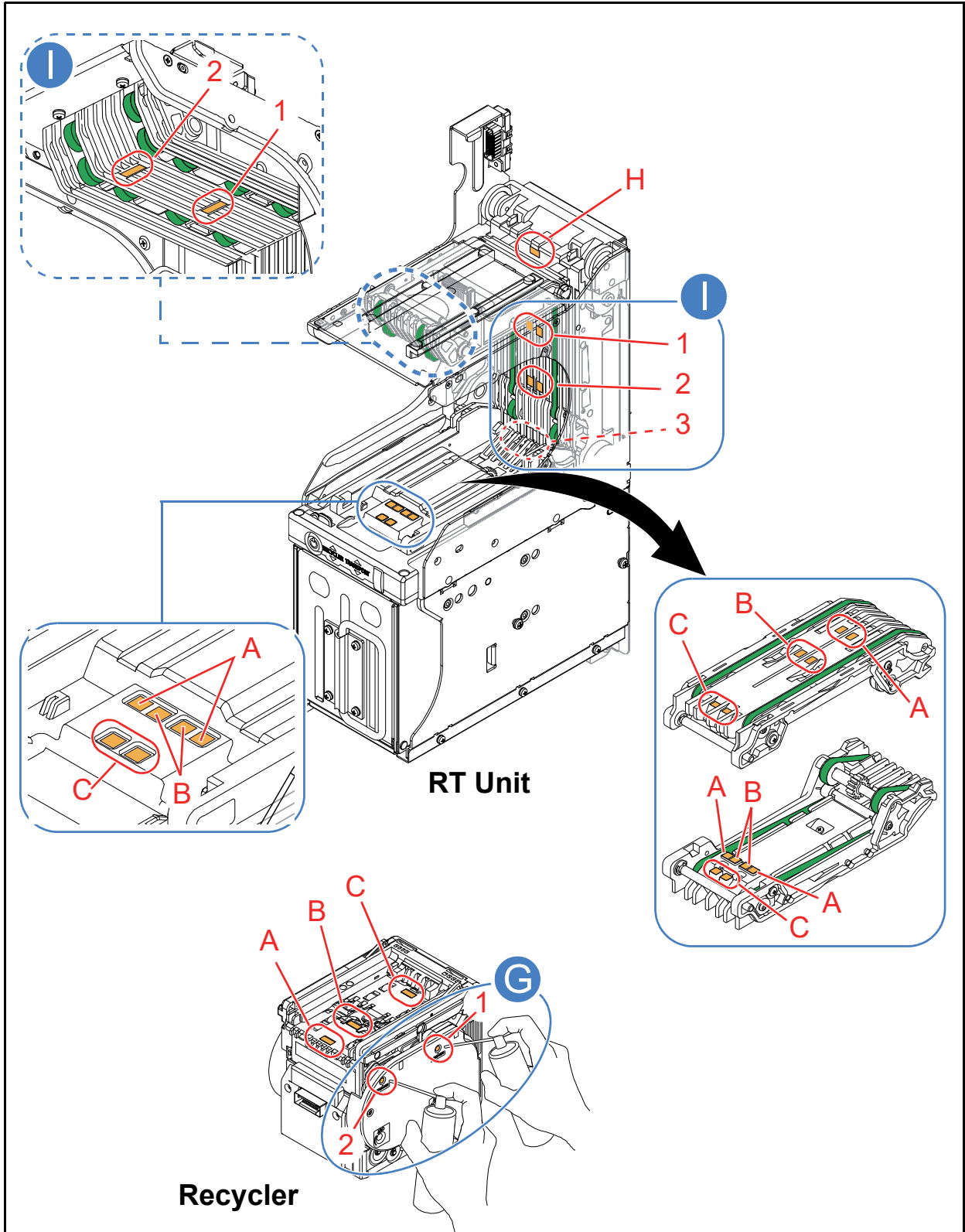


**NOTE:** When closing or installing the UBA Pro Unit or the Recycler, ensure it firmly latches into place. Also, when re-installing the RT/RQ Unit, ensure that it re-seats correctly into place.



**Figure 2-29** Sensor and Roller Cleaning

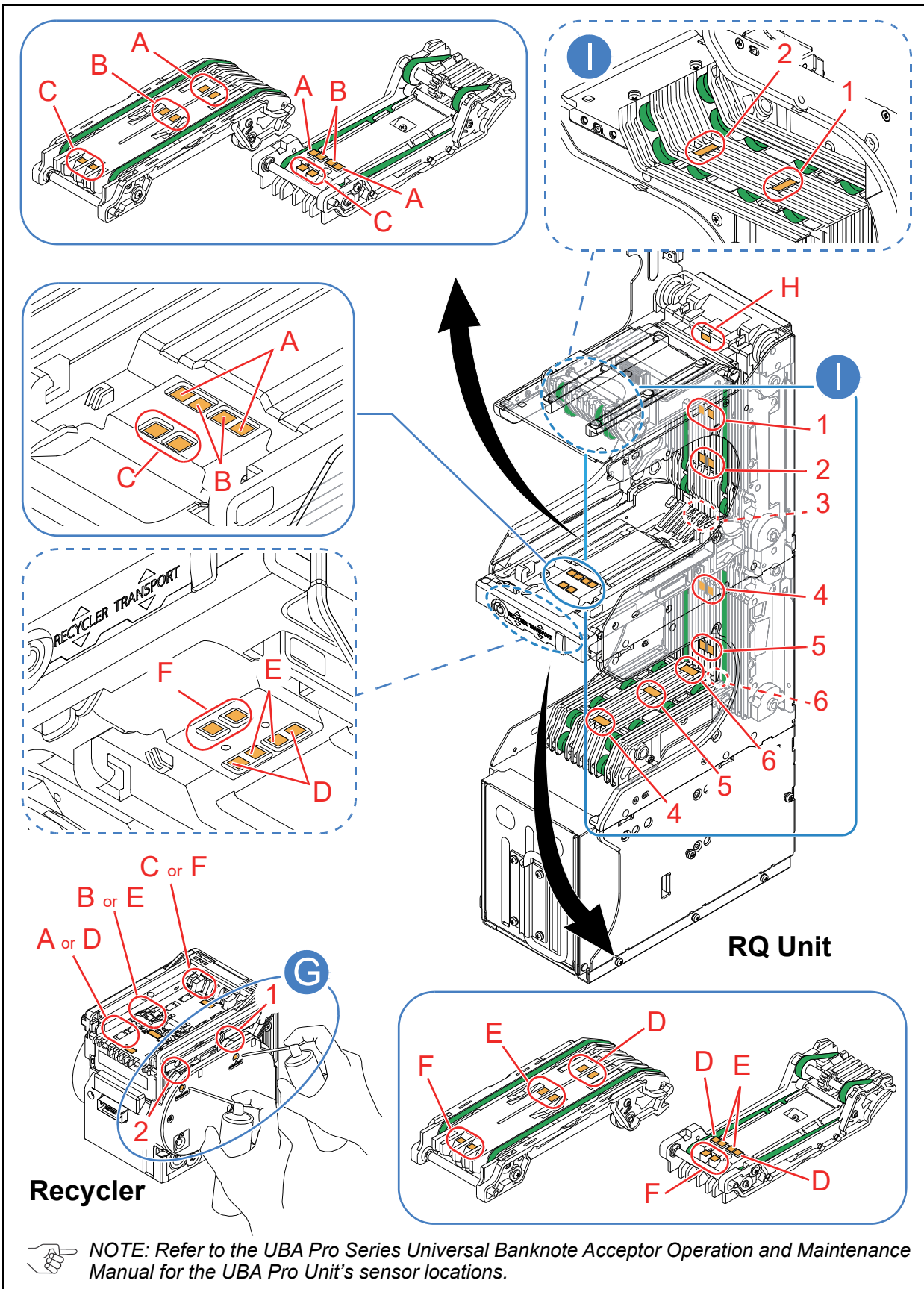
### Sensor, Roller and Belt Locations RT Unit Sensor, Roller and Belt Locations



**NOTE:** Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro Unit's sensor locations.

**Figure 2-30** RT Unit Sensor, Roller and Belt Locations

### RQ Unit Sensor, Roller and Belt Locations



**NOTE:** Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro Unit's sensor locations.

**Figure 2-31** RQ Unit Sensor, Roller and Belt Locations



**Table 2-12 RT/RQ Sensors and Cleaning Methods**

Sym.		Sensors	Cleaning Method
A		Note Position Sensor A (RT Transport)	Wipe clean using a dry, lint free cloth, cotton swab.
B		Note Position Sensor B (RT Transport)	
C		Note Position Sensor C (RT Transport)	
D		Note Position Sensor D (RQ Transport)	
E		Note Position Sensor E (RQ Transport)	
F		Note Position Sensor F (RQ Transport)	
G	1	Drum 1 Tape Full Empty Sensor 1 (RT/RQ Transport)	Clean using non-flammable Compressed Air.
	2	Drum 2 Tape Full Empty Sensor 2 (RT/RQ Transport)	
H		Exit Prism	Wipe clean using a dry, lint free cloth, cotton swab.
I	1	Note Position Sensor 1 (RT Transport)	Wipe clean using a dry, lint free cloth, cotton swab.
	2	Note Position Sensor 2 (RT Transport)	
	3	Note Position Sensor 3 (RT Transport) *This sensor is not visible.	Clean using non-flammable Compressed Air.
	4	Note Position Sensor 4 (RQ Transport)	Wipe clean using a dry, lint free cloth, cotton swab.
	5	Note Position Sensor 5 (RQ Transport)	
	6	Note Position Sensor 6 (RQ Transport)	



*NOTE: Wipe and clean all of the **Green** colored Rollers and Belts shown in Figure 2-30 using a slightly damp, lint-free, Micro-fiber cloth. Do not allow liquids or fluids to drip into the Unit, to minimize the risk of damage or improper performance.*

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### Standard Interface Circuit Schematics Bezel Connector Interface Circuit Schematics

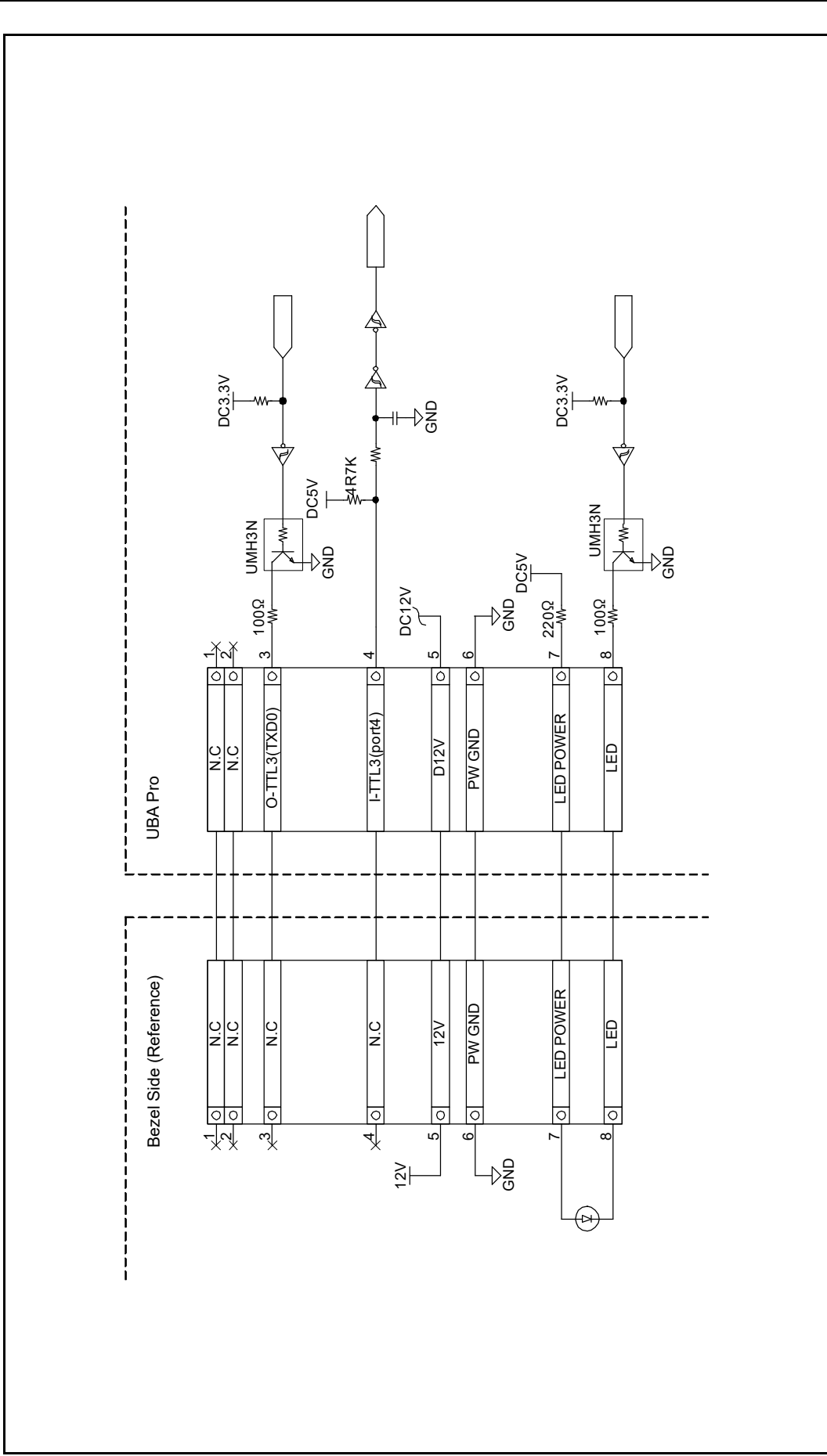


Figure 2-32 Bezel Connector Interface Circuit Schematics

### RT/RQ Interface Circuit Schematics (Sub Board 2)

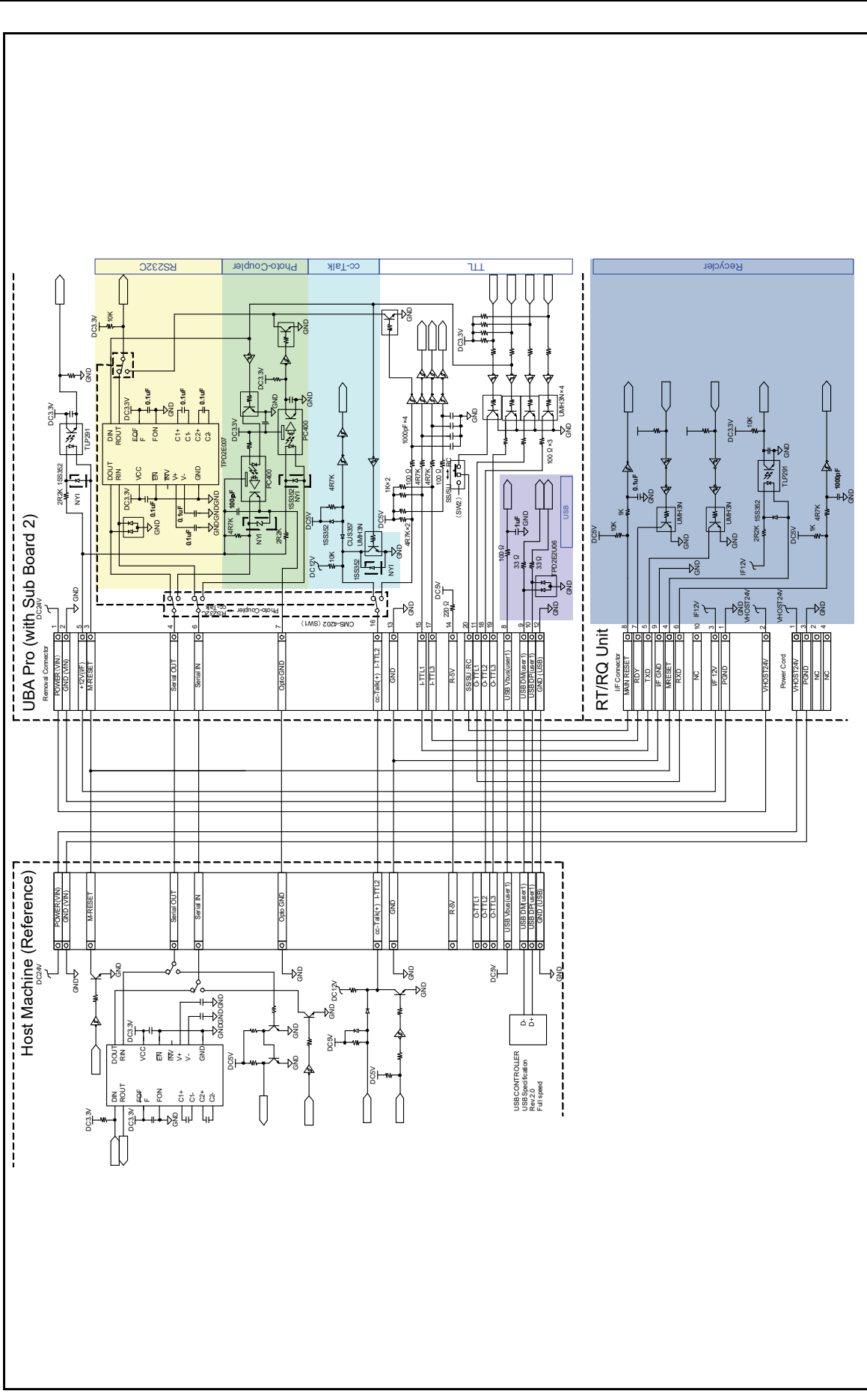
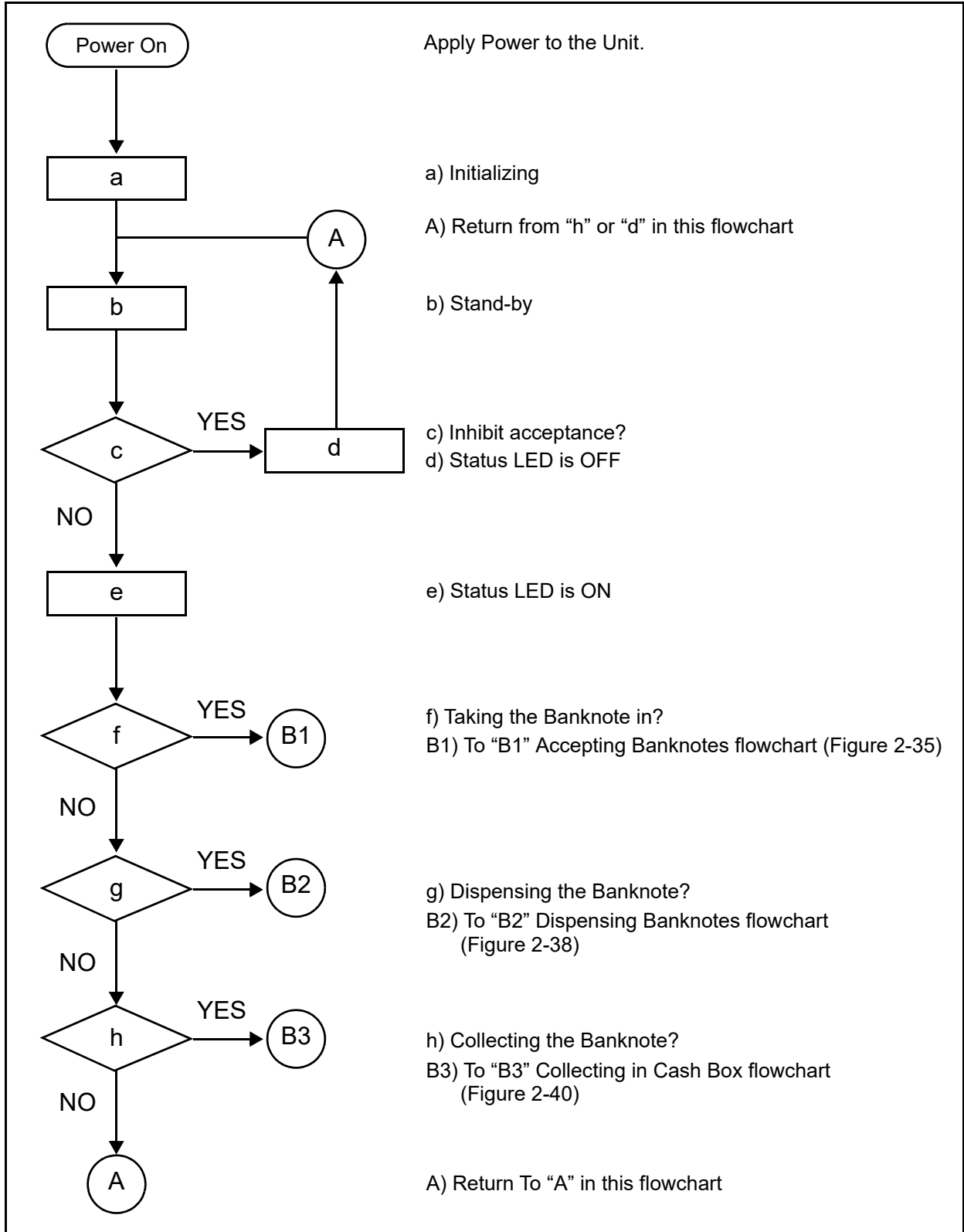


Figure 2-33 RT/RQ Interface Circuit Schematics (Sub Board 2)

**Operational Flowcharts**  
**RT/RQ Main Flow Process**



**Figure 2-34** RT/RQ Main Flow Process

### RT/RQ Accepting Banknotes Flow Process

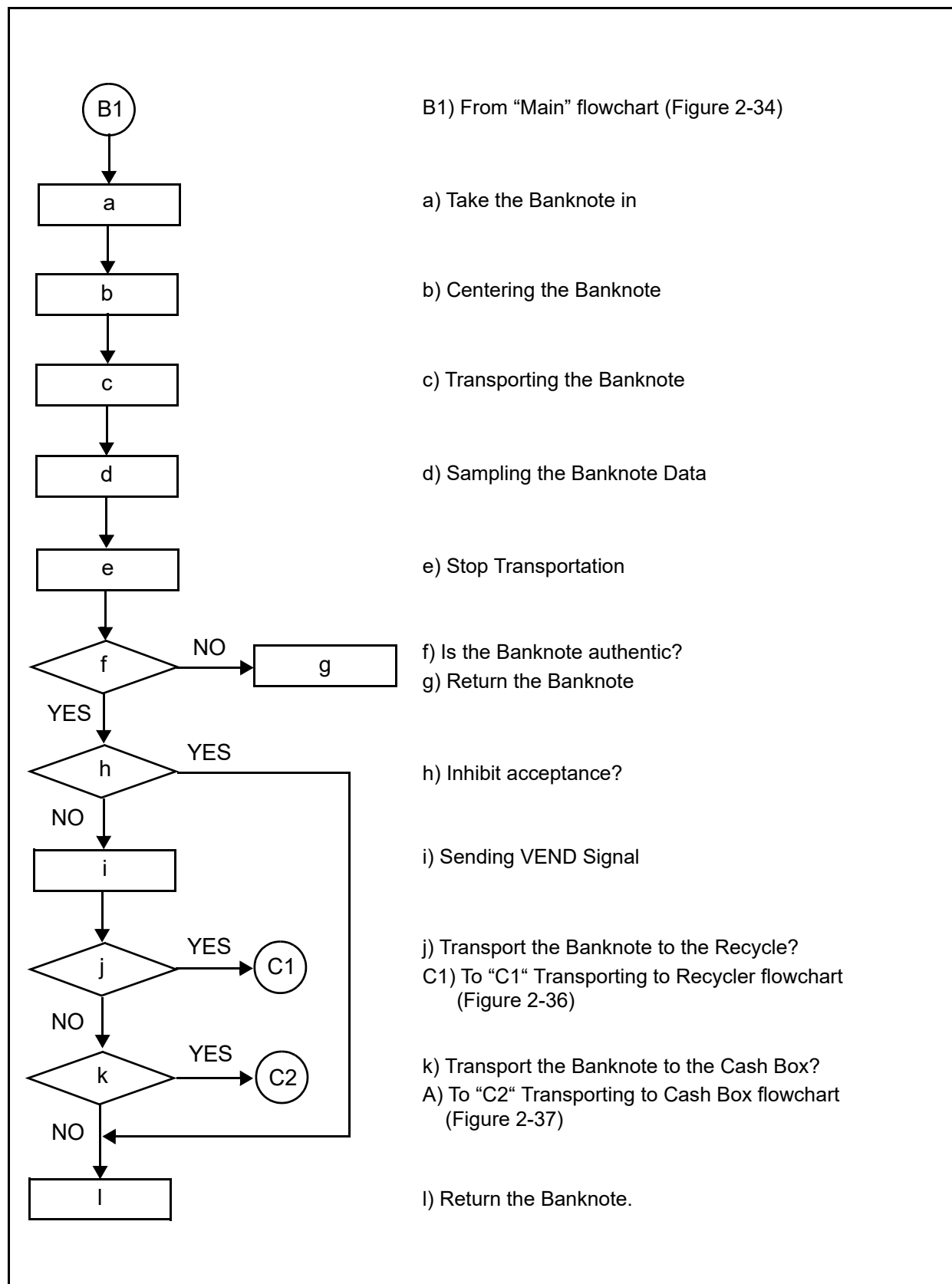
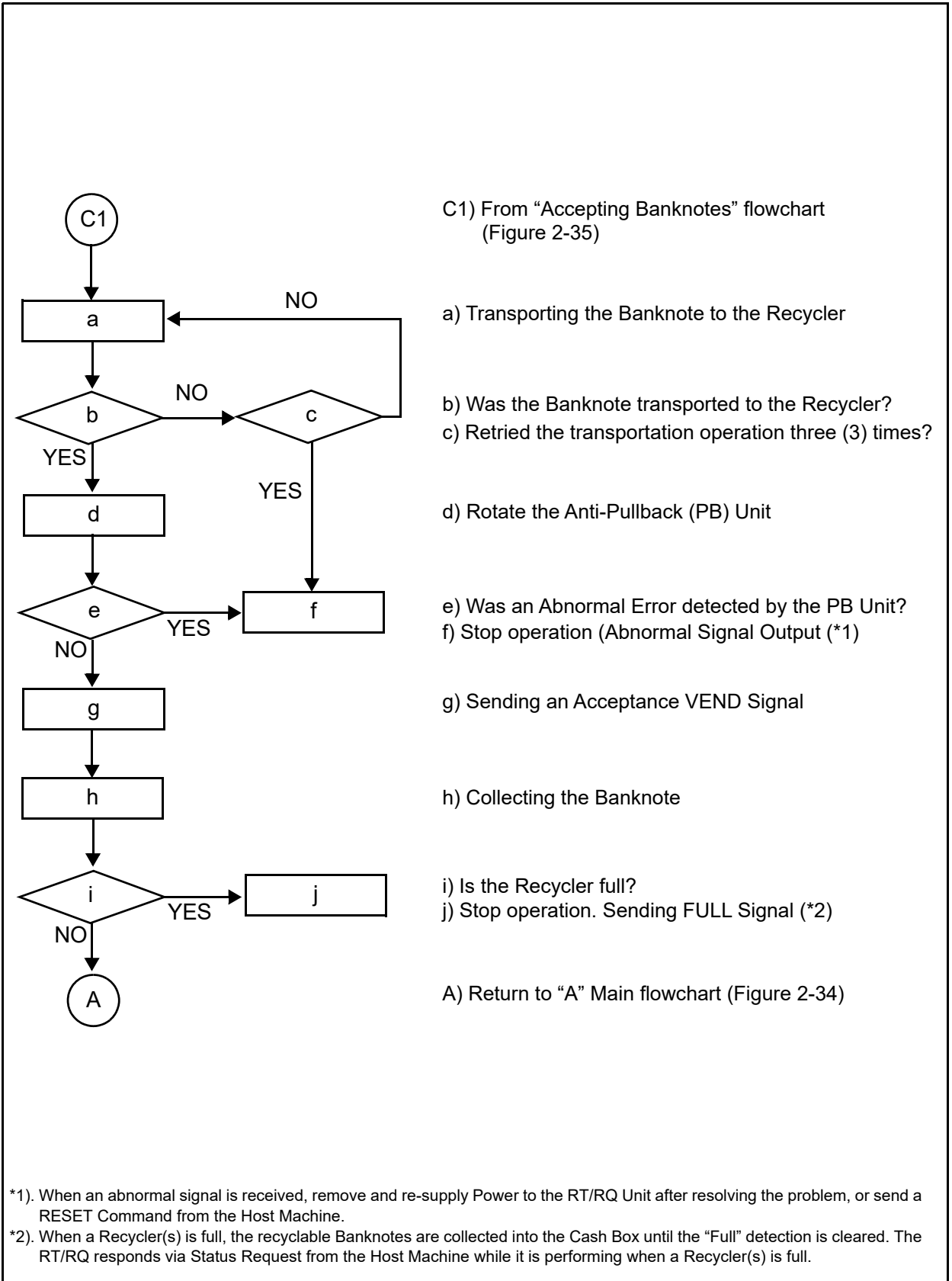


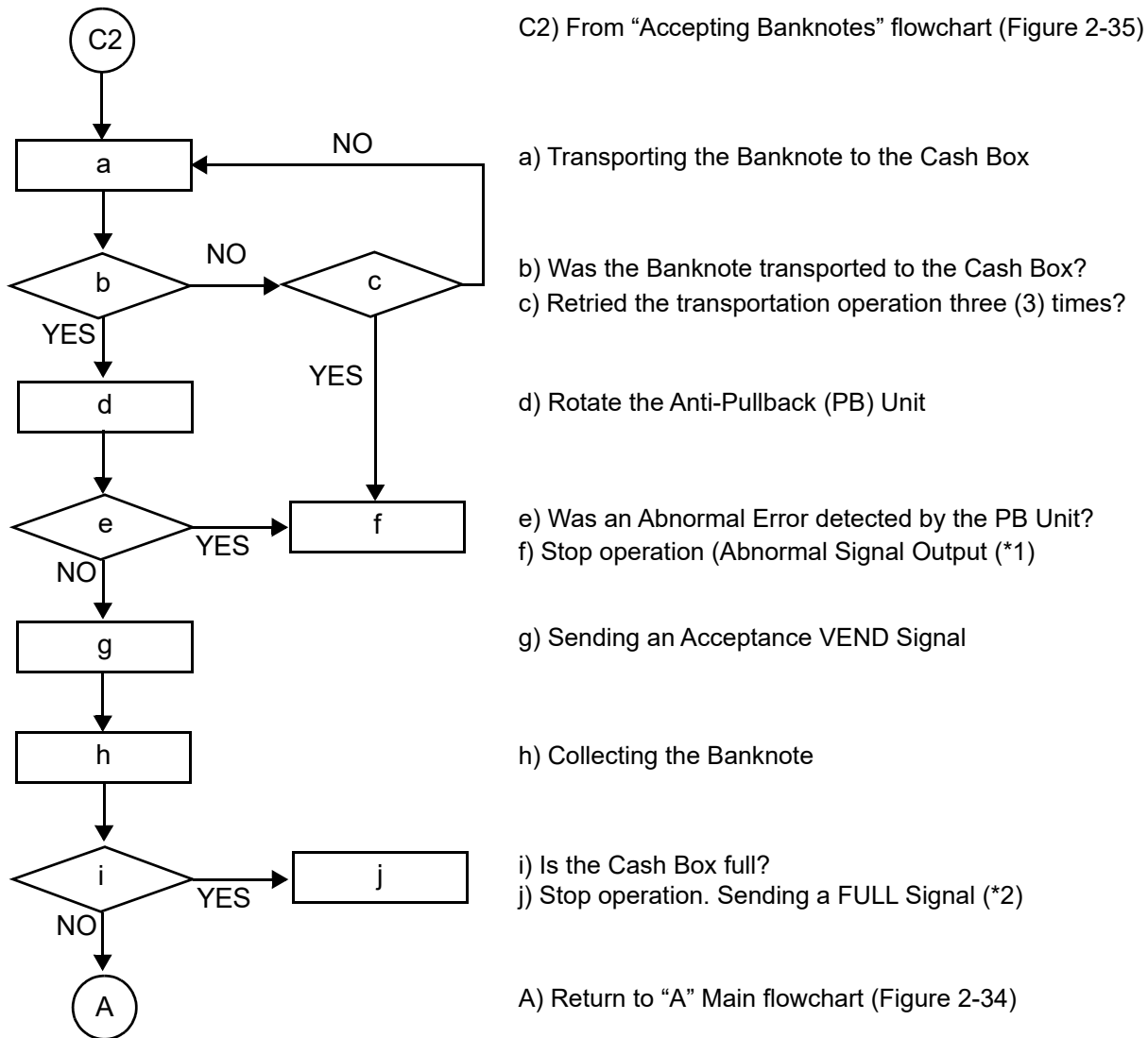
Figure 2-35 RT/RQ Accepting Banknotes Flow Process

### RT/RQ Transporting to Recycler Flow Process



**Figure 2-36** RT/RQ Transporting to Recycler Flow Process

### RT/RQ Transporting to Cash Box Flow Process



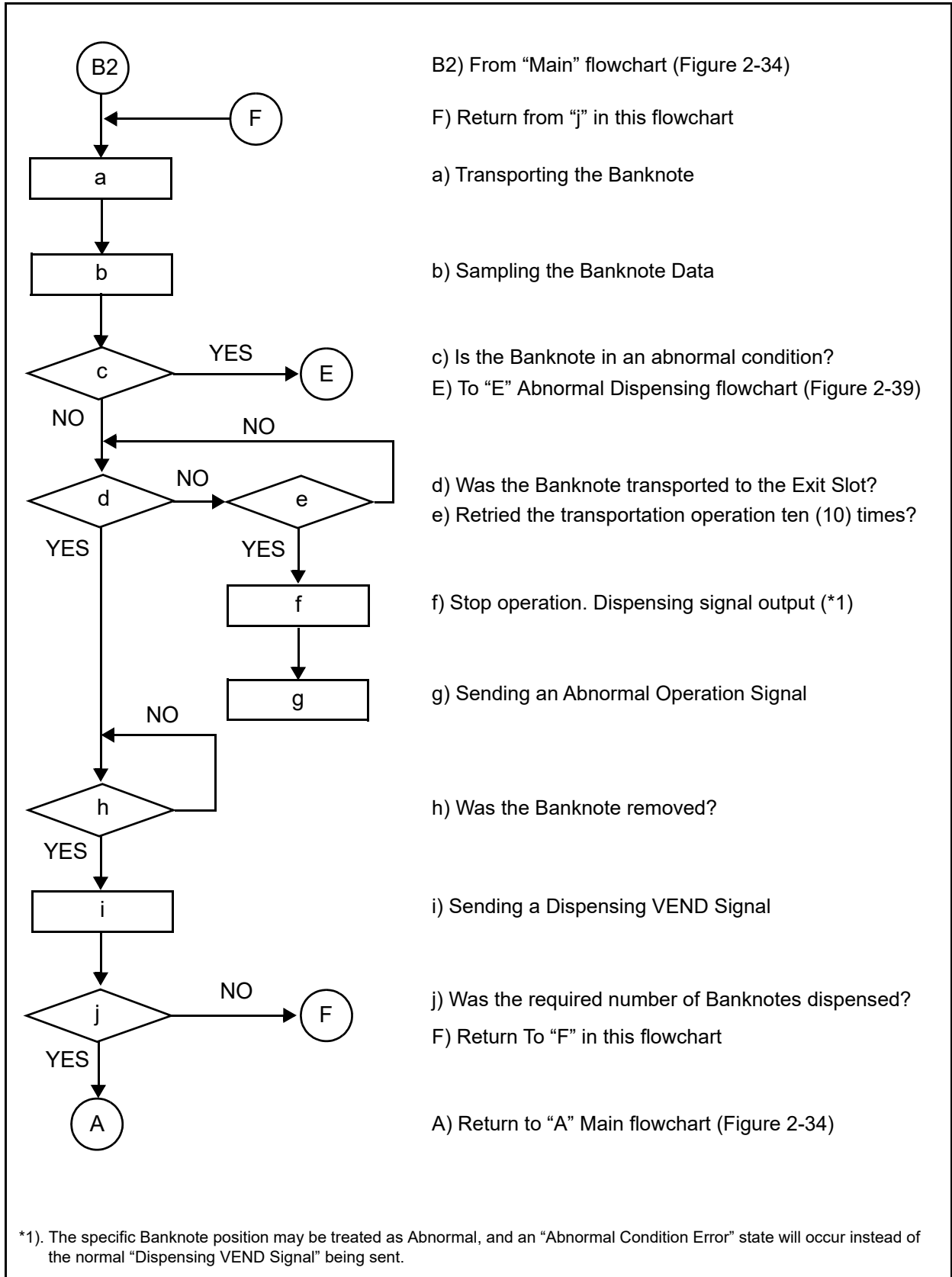
\*1). When an abnormal signal is received, remove and re-supply Power to the RT/RQ Unit after resolving the problem, or send a RESET Command from the Host Machine.

\*2). 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 RT/RQ will automatically start initializing.

**Figure 2-37** RT/RQ Transporting to Cash Box Flow Process



**RT/RQ Dispensing Flow Process (Normal)**



**Figure 2-38** RT/RQ Normal Dispensing Flow Process

### RT/RQ Dispensing Flow Process (Abnormal)

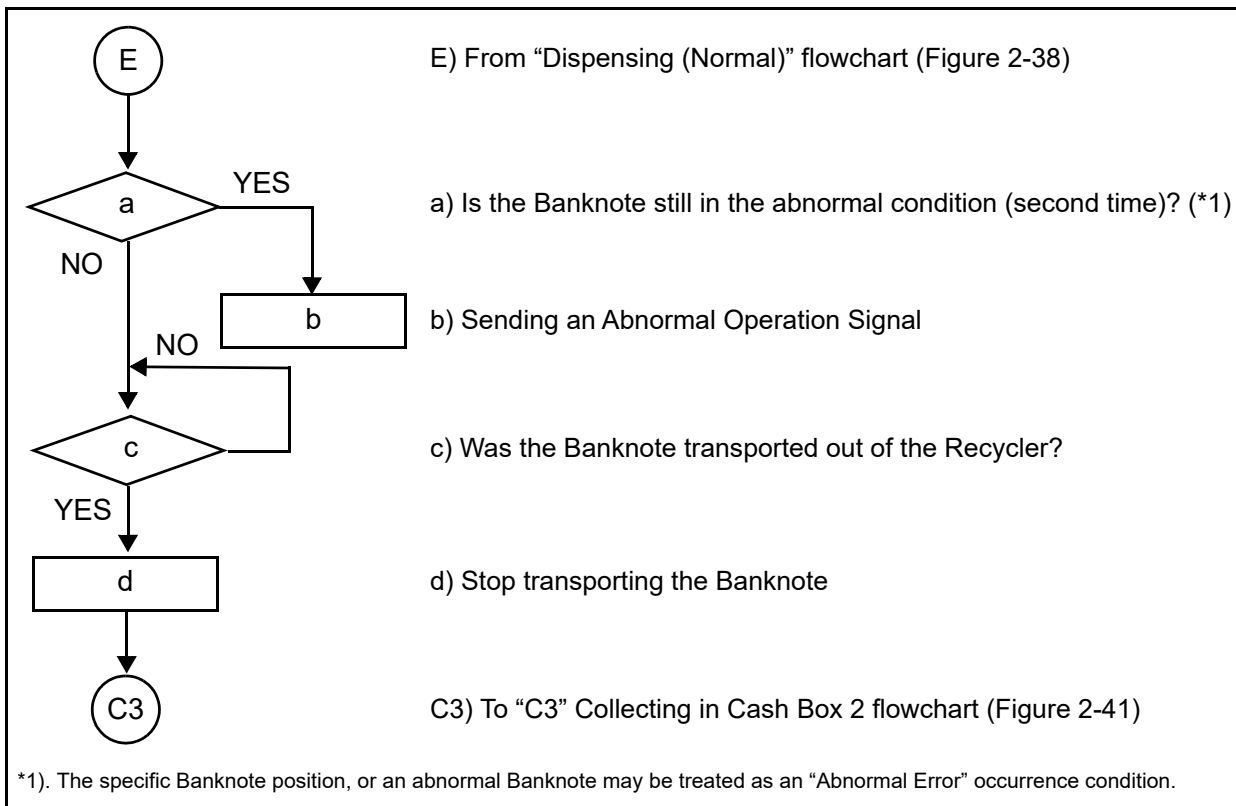


Figure 2-39 RT/RQ Abnormal Dispensing Flow Process

### RT/RQ Collecting in Cash Box Flow Process1

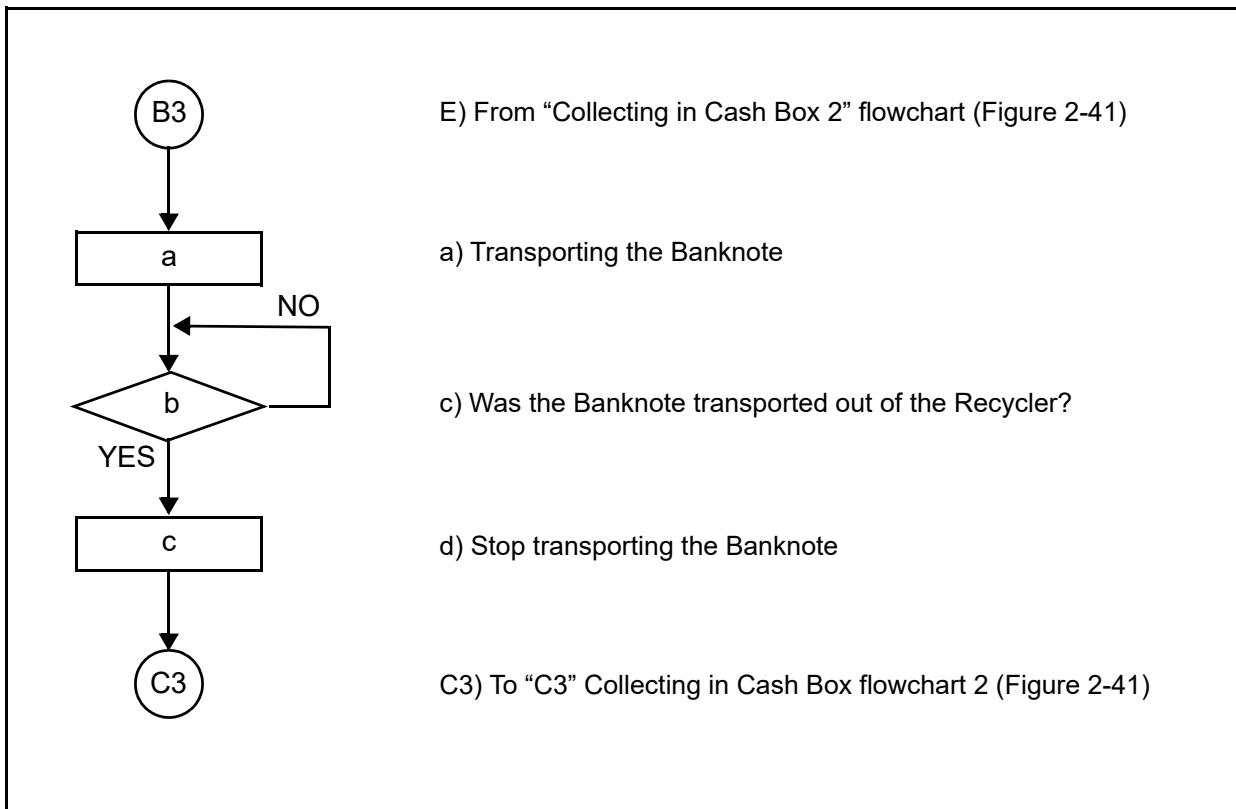
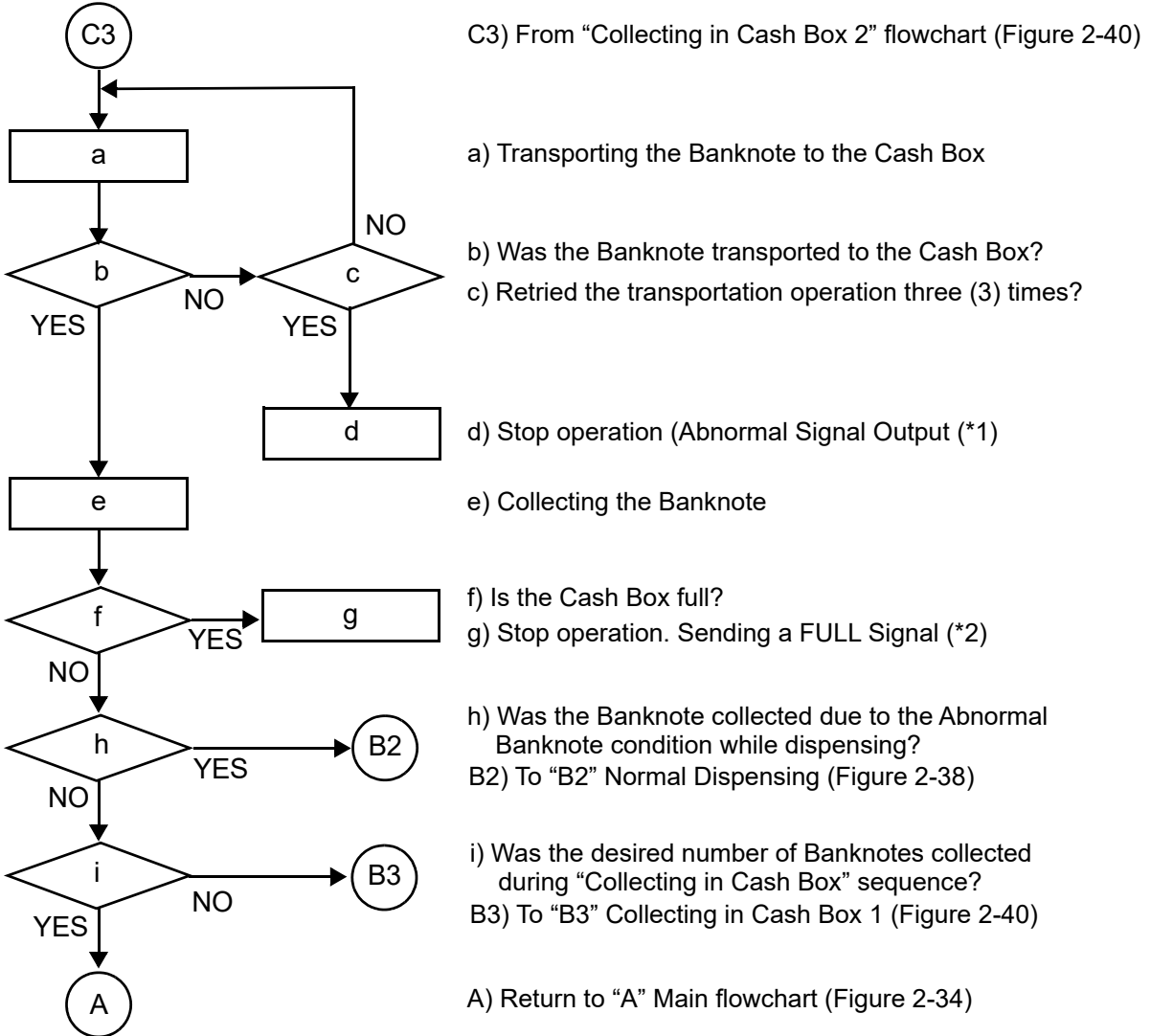


Figure 2-40 RT/RQ Collecting in Cash Box Flow Process 1

### RT/RQ Collecting in Cash Box Flow Process 2



\*1). When an abnormal signal is received, remove and re-supply Power to the RT/RQ Unit after resolving the problem, or send a RESET Command from the Host Machine.

\*2). 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 RT/RQ will automatically start initializing.

**Figure 2-41** RT/RQ Collecting in Cash Box Flow Process 2

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# UBA Pro RT/RQ™ Series

## Banknote Recycler

### Section 3

### 3 COMMUNICATIONS

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

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# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 4

### 4 DISASSEMBLY/REASSEMBLY

This section provides disassembly and reassembly instructions for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ).

This section contains the following information:

- Tool Requirements
- UBA Pro Unit, Recycler and Cash Box Removal
- RT Transport Unit Removal
- RQ Transport Unit Removal
- RT Frame Unit Removal
- RQ Frame Unit Removal
- RT Frame Unit Disassembly
- RQ Frame Unit Disassembly
- RT/RQ Frame Unit Disassembly In Common
- Recycler Disassembly



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

### Tool Requirements

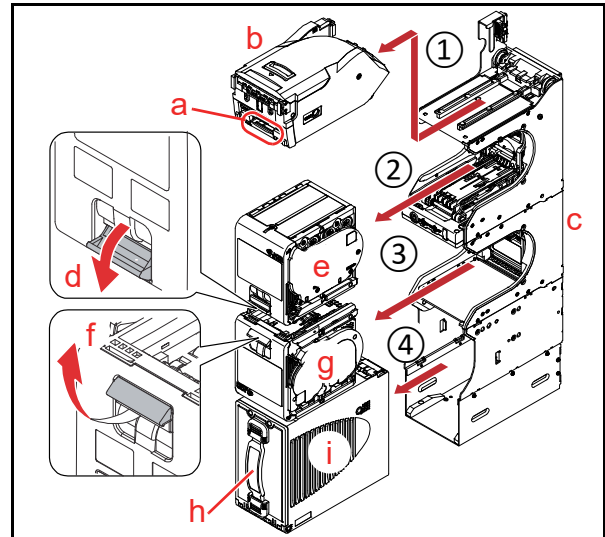
The following tools will be required to perform disassembly and reassembly.

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

### UBA Pro Unit, Recycler and Cash Box Removal

To remove the UBA Pro Unit, Recycler 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 c) as illustrated by the Arrow ①.
3. Press down on the Release Lever (Figure 4-1 d) of the Recycler (Figure 4-1 e) installed in the RT Transport, and pull the Recycler out of the RT Transport in the direction indicated by Arrow ②.
4. Press up on the Release Lever (Figure 4-1 f) of the Recycler (Figure 4-1 g) installed in the RQ Transport, and pull the Recycler out of the RQ Transport in the direction indicated by Arrow ③.
5. Pull the Cash Box Handle (Figure 4-1 h) to remove the Cash Box (Figure 4-1 i) from the Frame (Figure 4-1 c) in the direction indicated by Arrow ④.

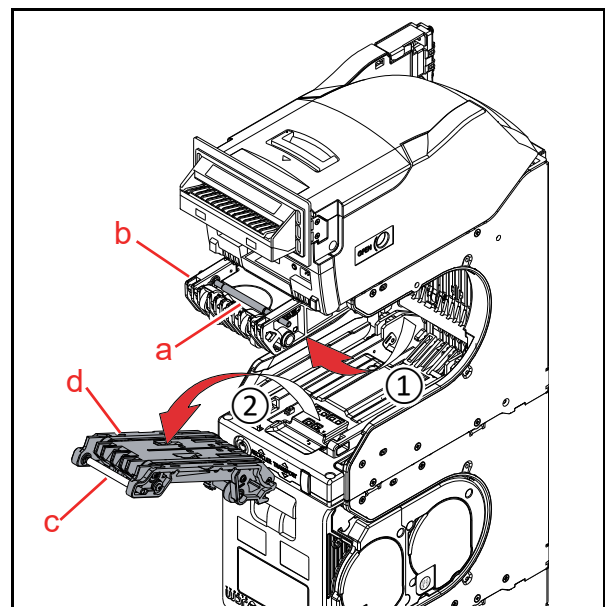


**Figure 4-1** UBA Pro Unit, Recycler and Cash Box Removal

### RT Transport Unit Removal

To remove the Transport Unit in the RT Transport, proceed as follows:

1. Press down on the Front Transport Unit's Release Lever (Figure 4-2 a).
2. Pull up the Front Transport Unit (Figure 4-2 b) as illustrated by the Arrow ①.
3. Pull the Release Lever (Figure 4-2 c).
4. Lift up and remove the Transport Unit (Figure 4-2 d) as illustrated by the Arrow ②.

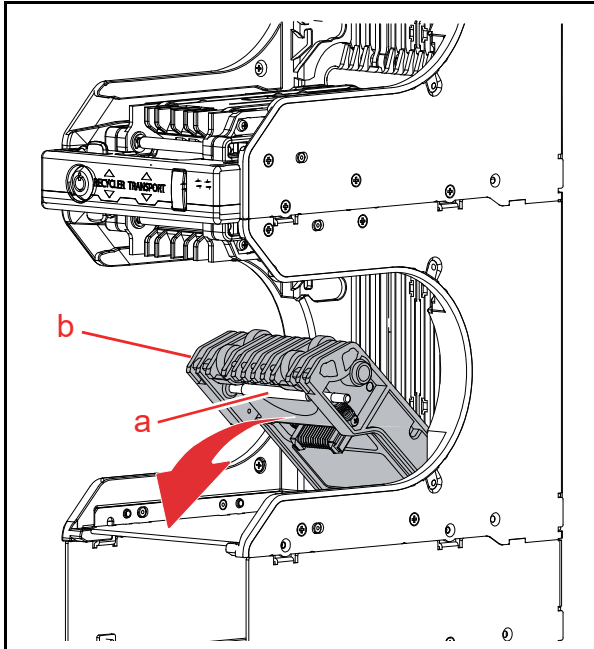


**Figure 4-2** RT Transport Unit Removal

## RQ Transport Unit Removal

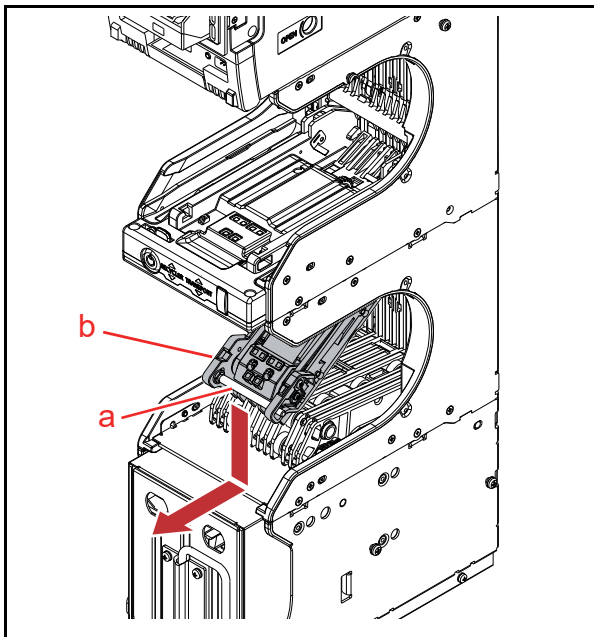
To remove the Transport Unit in the RQ Transport, proceed as follows:

1. Press up on the Front Transport Unit's Release Lever (Figure 4-3 a).
2. Pull down the Front Transport Unit (Figure 4-3 b) as illustrated by the Arrow.



**Figure 4-3 RQ Transport Unit Removal 1**

3. Press down on the Transport Unit's Release Lever (Figure 4-4 a).
4. Pull down and remove the Transport Unit (Figure 4-4 b) as illustrated by the Arrow.

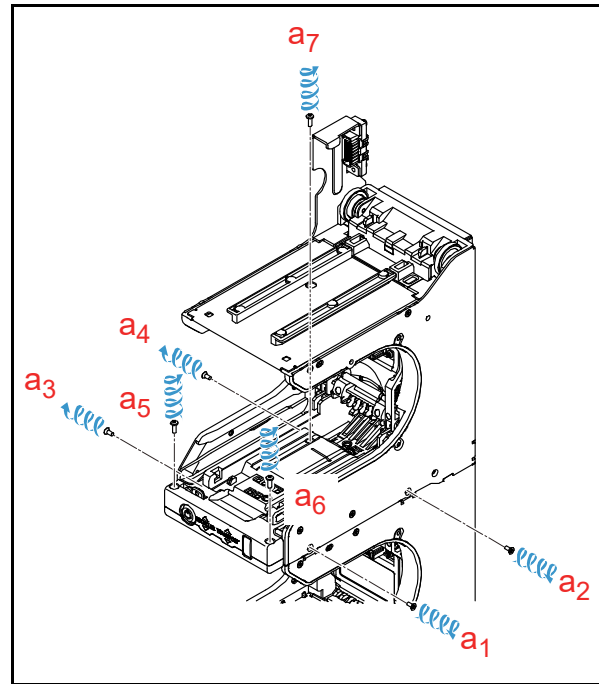


**Figure 4-4 RQ Transport Unit Removal 2**

## RT Frame Unit Removal

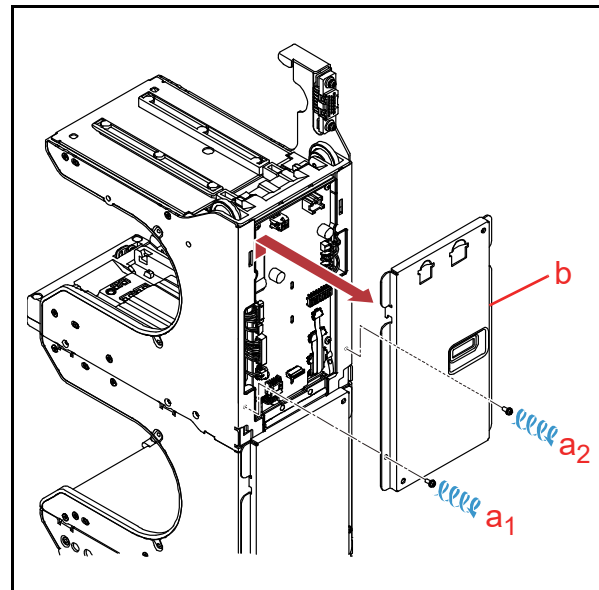
To remove the RT Frame Unit, proceed as follows:

1. Remove the seven (7) Screws (Figure 4-5 a<sub>1</sub> through a<sub>7</sub>).



**Figure 4-5 RT Frame Unit Removal 1**

2. Remove the two (2) Screws (Figure 4-6 a<sub>1</sub> & a<sub>2</sub>).
3. Slide and remove the Frame Rear Cover (Figure 4-6 b) as illustrated by Arrow.



**Figure 4-6 RT Frame Unit Removal 2**

4. Unplug the single (1) Connector (Figure 4-7 a).
5. Unplug the two (2) FPC Harnesses (Figure 4-7 b<sub>1</sub> & b<sub>2</sub>).
6. Remove the two (2) Screws (Figure 4-7 c<sub>1</sub> & c<sub>2</sub>).



- 7. Slide and remove the Frame Rear Cover (Figure 4-7 d) as illustrated by Arrow.

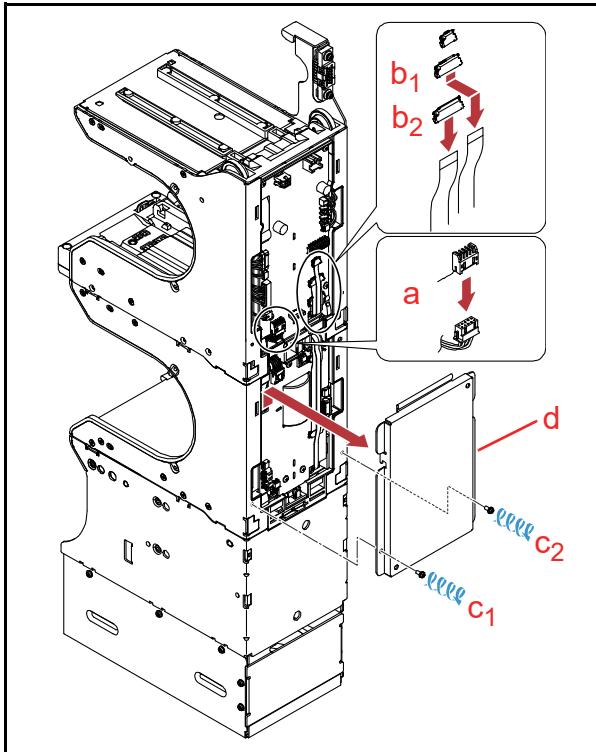


Figure 4-7 RT Frame Unit Removal 3

- 8. Remove the RT Frame Unit (Figure 4-8 a) as illustrated.

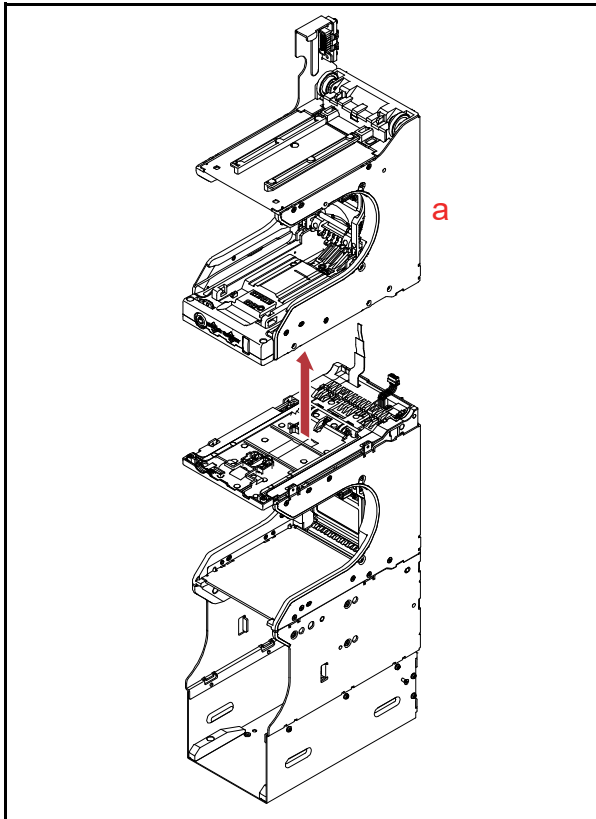


Figure 4-8 RT Frame Unit Removal 4

### RQ Frame Unit Removal

To remove the RQ Frame Unit, proceed as follows:

- 1. Remove the four (4) Screws (Figure 4-9 a<sub>1</sub> through a<sub>4</sub>).

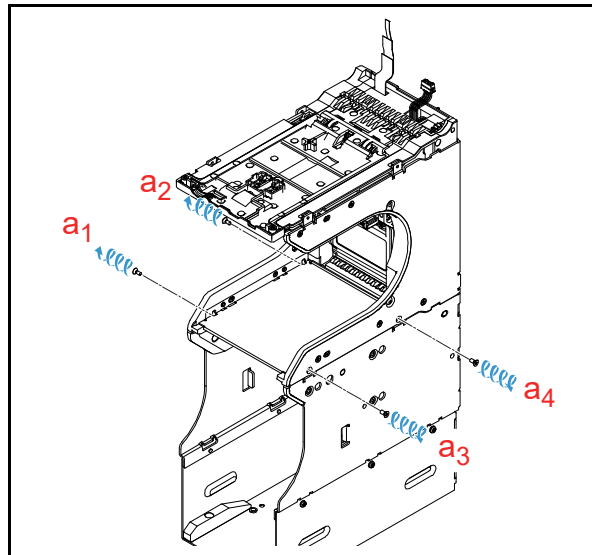


Figure 4-9 RQ Frame Unit Removal 1

- 2. Remove the RQ Frame Unit as illustrated (Figure 4-10 a).

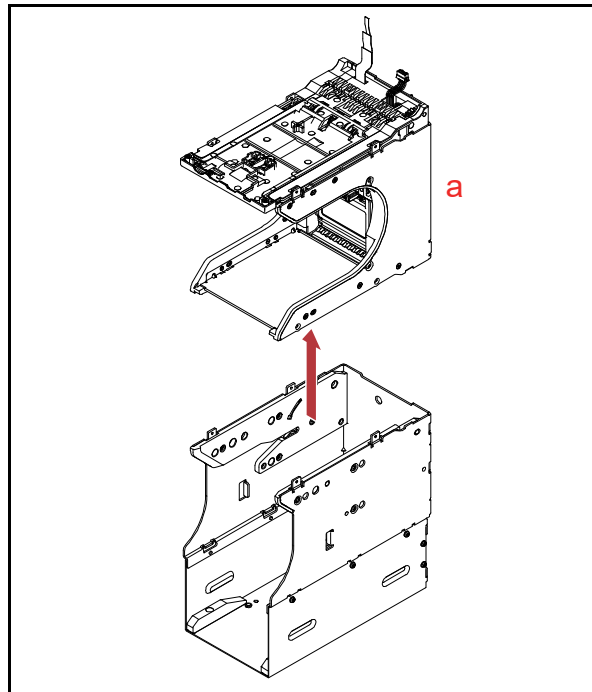


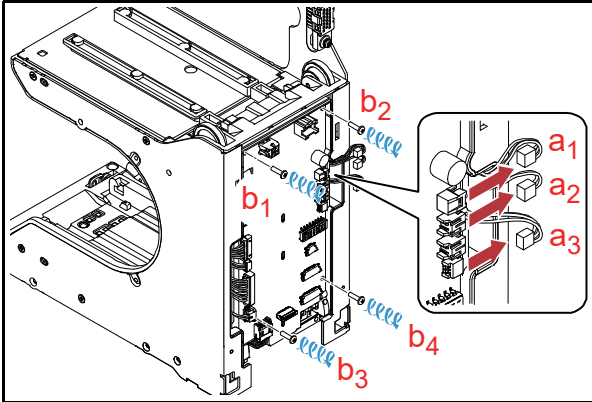
Figure 4-10 RQ Frame Unit Removal 2

### RT Frame Unit Disassembly CPU Board Removal

To remove the CPU Board, proceed as follows:

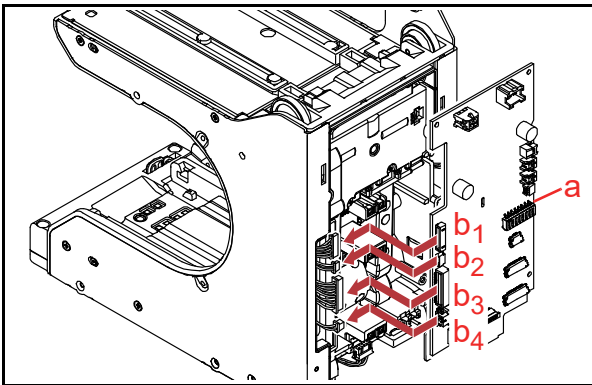
- 1. Unplug the three (3) Connectors (Figure 4-11 a<sub>1</sub> through a<sub>3</sub>).

- Remove the four (4) Screws (Figure 4-11  $b_1$  through  $b_4$ ).



**Figure 4-11 CPU Board Removal 1**

- Slightly lift up the CPU Board (Figure 4-12  $a$ ) to unplug the four (4) Connectors (Figure 4-12  $b_1$  through  $b_4$ ).
- Remove the CPU Board.

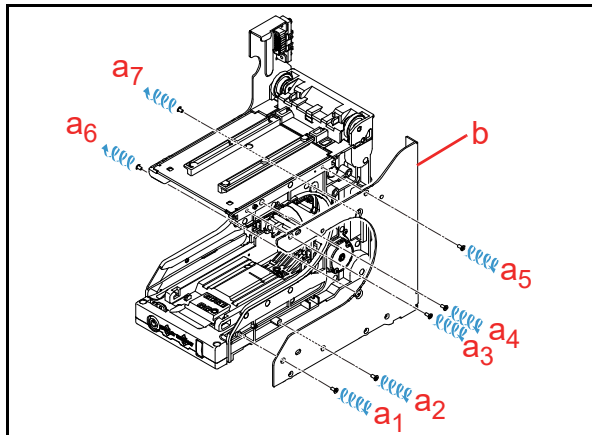


**Figure 4-12 CPU Board Removal 2**

### Flap Board Removal

To remove the Flap Board out of the RT Frame Unit, proceed as follows:

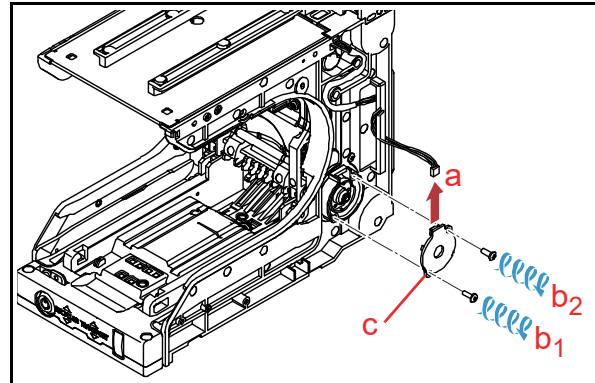
- Remove the seven (7) Screws (Figure 4-13  $a_1$  through  $a_7$ ).
- Remove the Right Frame Panel (Figure 4-13  $b$ ).



**Figure 4-13 Flap Board Removal (RT Frame Unit) 1**

- Unplug the single (1) Connector (Figure 4-14  $a$ ).

- Remove the two (2) Screws (Figure 4-14  $b_1$  &  $b_2$ ).
- Remove the Flap Board (Figure 4-14  $c$ ).

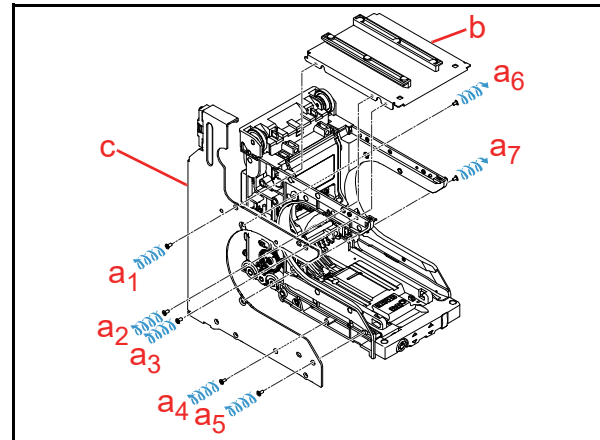


**Figure 4-14 Flap Board Removal (RT Frame Unit) 2**

### Flap Home Board Removal

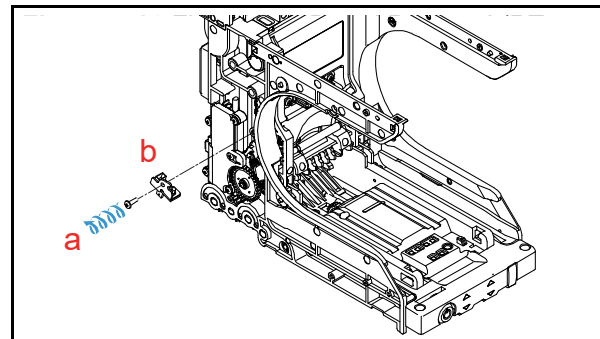
To remove the Flap Home Board out of the RT Frame Unit, proceed as follows:

- Remove the seven (7) Screws (Figure 4-15  $a_1$  through  $a_7$ ).
- Remove the BV Tray Assy. (Figure 4-15  $b$ ) and the Left Frame Panel (Figure 4-15  $c$ ).



**Figure 4-15 Flap Home Board Removal (RT Frame Unit) 1**

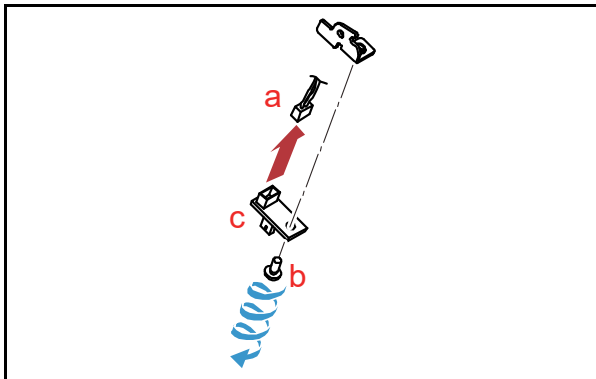
- Remove the single (1) Screw (Figure 4-16  $a$ ) to remove the Sensor Assy. (Figure 4-16  $b$ ).



**Figure 4-16 Flap Home Board Removal (RT Frame Unit) 2**

- Unplug the single (1) Connector (Figure 4-17  $a$ ).

5. Remove the single (1) Screw (Figure 4-17 b).
6. Remove the Flap Home Board (Figure 4-17 c).

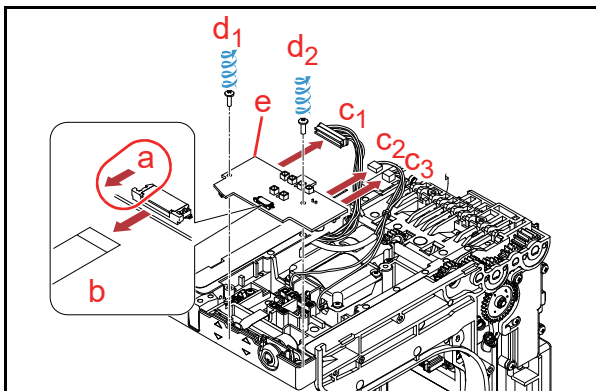


**Figure 4-17** Flap Home Board Removal (RT Frame Unit) 3

### Transport Board Removal

To remove the Transport Board, proceed as follows:

1. Release the single (1) Locking Tab (Figure 4-18 a) to remove the FPC Harness (Figure 4-18 b).
2. Unplug the three (3) Connectors (Figure 4-18 c<sub>1</sub> through c<sub>3</sub>).
3. Remove the two (2) Screws (Figure 4-18 d<sub>1</sub> & d<sub>2</sub>).
4. Remove the Transport Board (Figure 4-18 e).

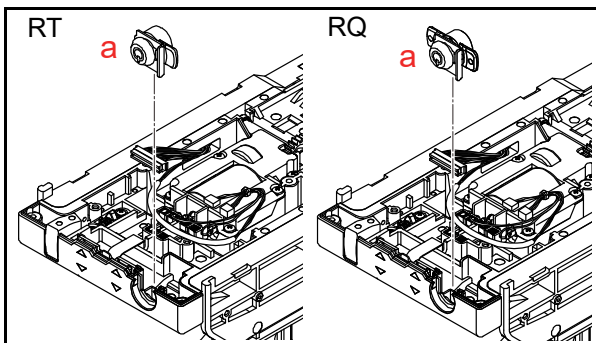


**Figure 4-18** Transport Board Removal

### Cylinder Lock Removal

To remove the Cylinder Lock, proceed as follows:

1. Pull and remove the Cylinder Lock (Figure 4-19 a).

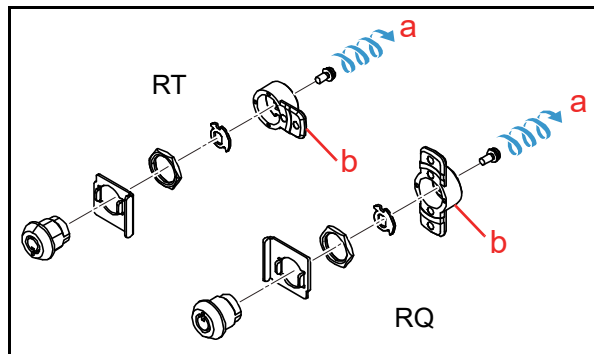


**Figure 4-19** Cylinder Lock Removal

### Key Plate Removal

To remove the Key Plate, proceed as follows:

1. Remove the single (1) Screw (Figure 4-20 a) to remove the Key Plate (Figure 4-20 b).

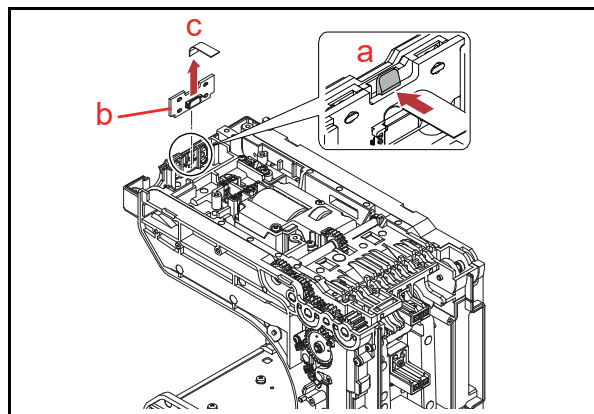


**Figure 4-20** Key Plate Removal

### LED Board Removal

To remove the LED Board, proceed as follows:

1. Release the single (1) Locking Tab (Figure 4-21 a) and remove the LED Board (Figure 4-21 b).
2. Unplug the FPC Harness (Figure 4-21 c).

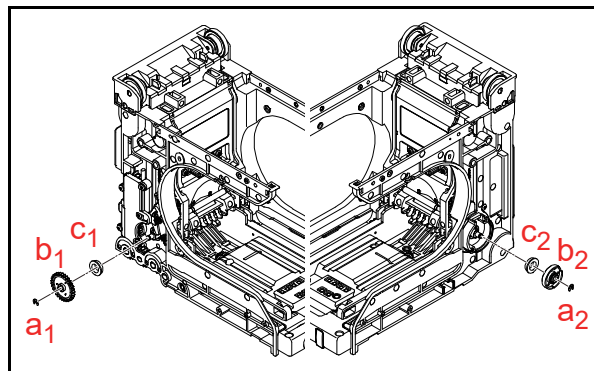


**Figure 4-21** LED Board Removal

### Front Transport Unit Removal

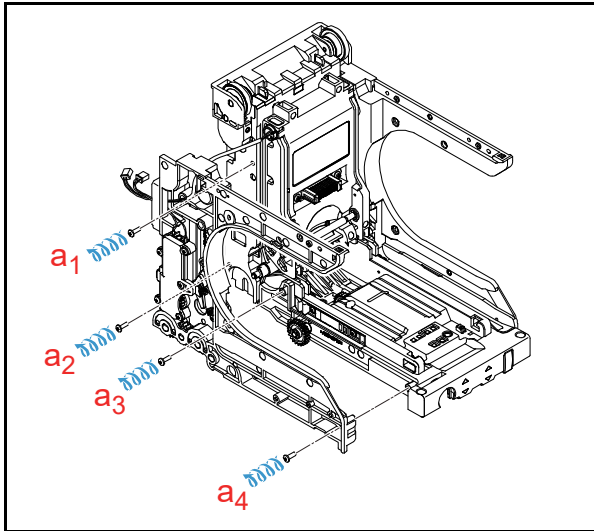
To remove the Front Transport Unit out of the RT Frame Unit, proceed as follows:

1. Remove the two (2) E-rings (Figure 4-22 a<sub>1</sub> & a<sub>2</sub>), the two (2) Gears (Figure 4-22 b<sub>1</sub> & b<sub>2</sub>) and the two (2) Bearings (Figure 4-22 c<sub>1</sub> & c<sub>2</sub>).



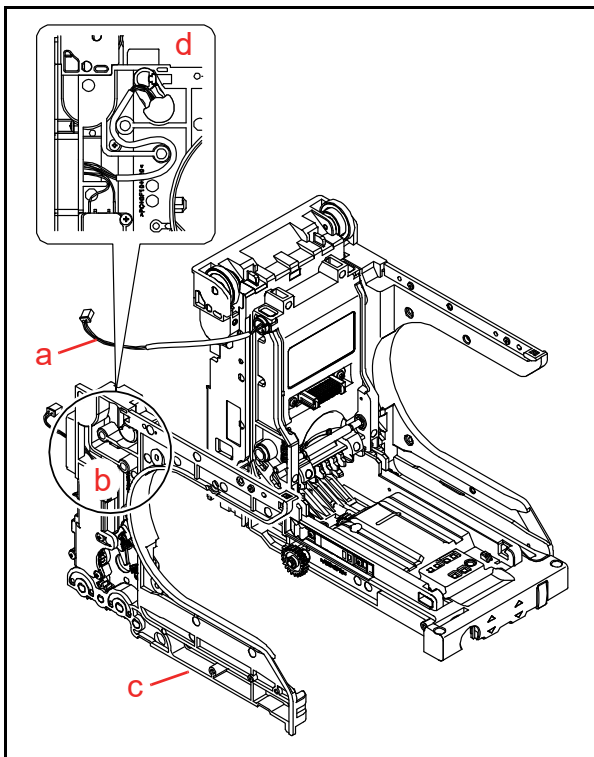
**Figure 4-22** Front Transport Unit Removal (RT Frame Unit) 1

- Remove the four (4) Screws (Figure 4-23 **a<sub>1</sub>** through **a<sub>4</sub>**).




**Figure 4-23** Front Transport Unit Removal (RT Frame Unit) 2

- Feed the Harness (Figure 4-24 **a**) out through the hole (Figure 4-24 **b**) to remove the Frame Assy. (Figure 4-24 **c**).

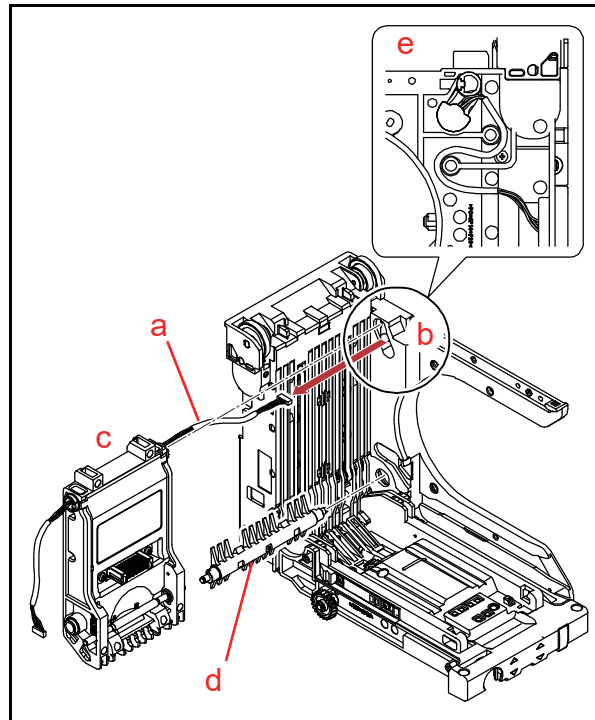


**Figure 4-24** Front Transport Unit Removal (RT Frame Unit) 3


 **NOTE:** For the reassembly, route the Harness as illustrated in Figure 4-24**d**.

- Feed the Harness (Figure 4-25 **a**) out through the hole (Figure 4-25 **b**), and remove the Front Transport Unit (Figure 4-25 **c**).

- Remove the Rotary Guide (Figure 4-25 **d**).



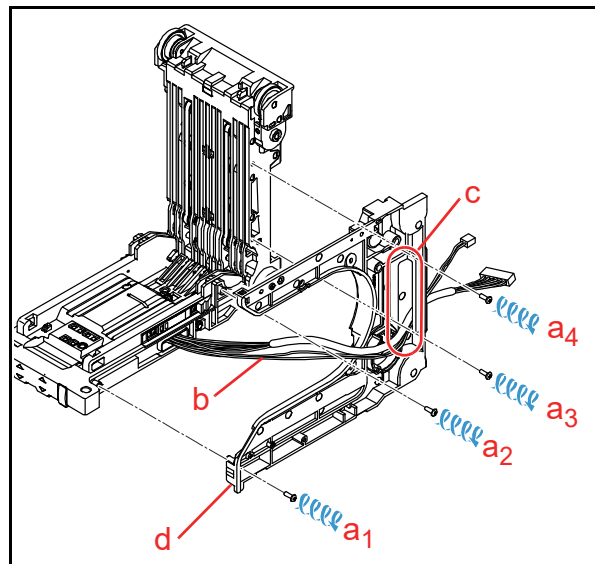
**Figure 4-25** Front Transport Unit Removal (RT Frame Unit) 4

 **NOTE:** For the reassembly, route the Harness as illustrated in Figure 4-25**e**.

### Rear Transport Unit Removal

To remove the Rear Transport Unit out of the RT Frame Unit, proceed as follows:

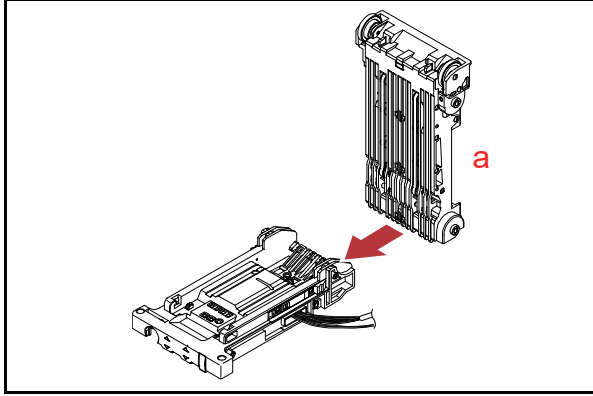
- Remove the four (4) Screws (Figure 4-26 **a<sub>1</sub>** through **a<sub>4</sub>**).
- Feed the Harness (Figure 4-26 **b**) out through the hole (Figure 4-26 **c**), and remove the Right Side Frame Assy. (Figure 4-26 **d**).



**Figure 4-26** Rear Transport Unit Removal (RT Frame Unit) 1



3. Separate the Rear Transport Unit (Figure 4-27 a) as illustrated.

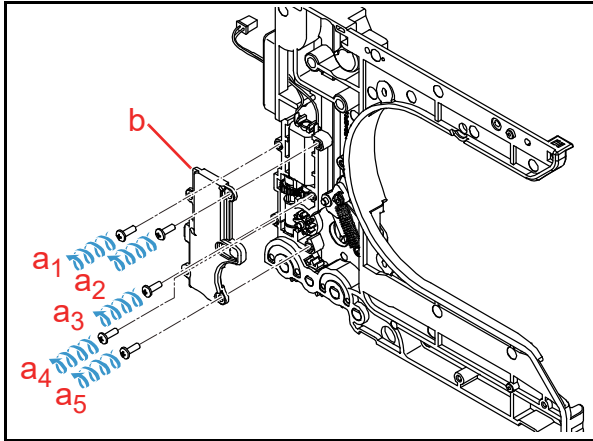


**Figure 4-27** Rear Transport Unit Removal (RT Frame Unit) 2

### Flap Motor Harness Assy. Removal

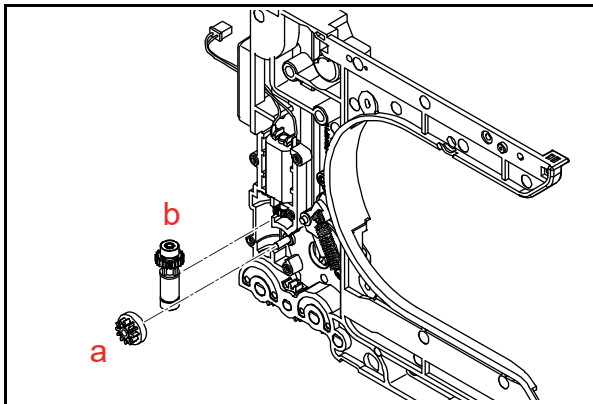
To remove the Flap Motor Harness Assy. out of the RT Frame Unit, proceed as follows:

1. Remove the five (5) Screws (Figure 4-28 a<sub>1</sub> through a<sub>5</sub>) to remove the Gear Cover (Figure 4-28 b).



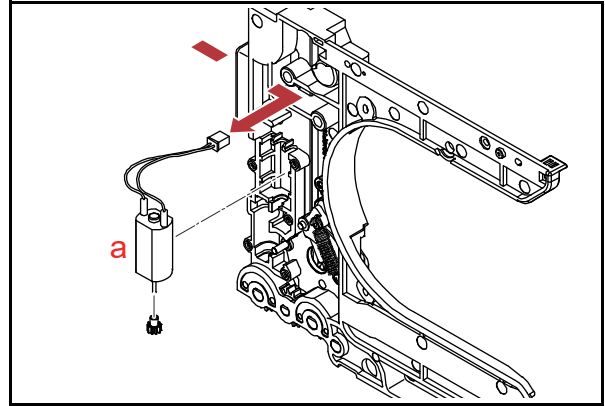
**Figure 4-28** Flap Motor Harness Assy. Removal (RT Frame Unit) 1

2. Remove the Worm Wheel (Figure 4-29 a) and the Worm Gear (Figure 4-29 b).



**Figure 4-29** Flap Motor Harness Assy. Removal (RT Frame Unit) 2

3. Remove the Flap Motor Harness Assy. (Figure 4-30 a).

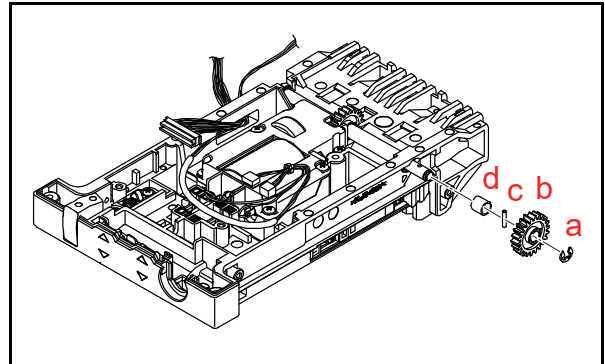


**Figure 4-30** Flap Motor Harness Assy. Removal (RT Frame Unit) 3

### TR Worm Gear (Twin) Removal

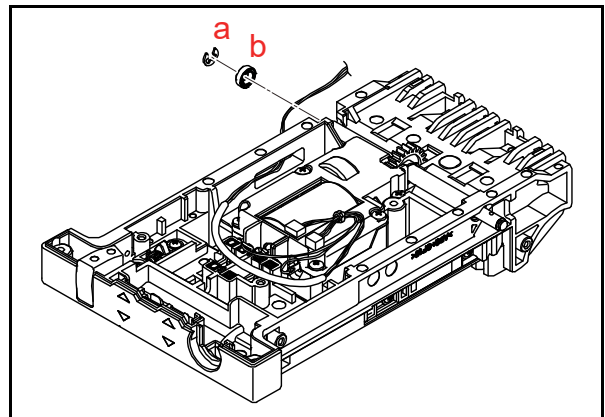
To remove the TR Worm Gear (Twin) out of the RT Frame Unit, proceed as follows:

1. Remove the single (1) E-ring (Figure 4-31 a), the single (1) Gear (Figure 4-31 b), the single (1) Parallel Pin (Figure 4-31 c) and the single (1) Rolled bushing (Figure 4-31 d).



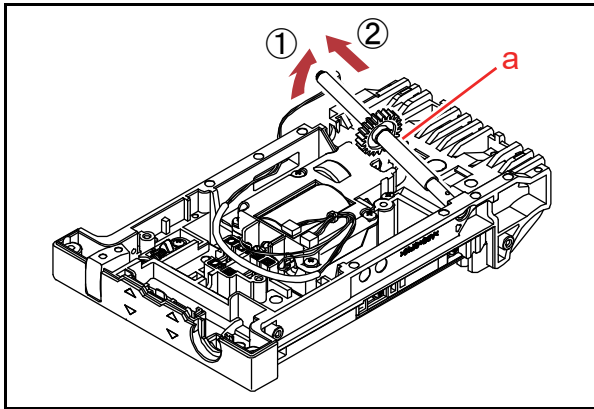
**Figure 4-31** TR Worm Gear (Twin) Removal (RT Frame Unit) 1

2. Remove the single (1) E-ring (Figure 4-32 a) and the single (1) Bearing (Figure 4-32 b).



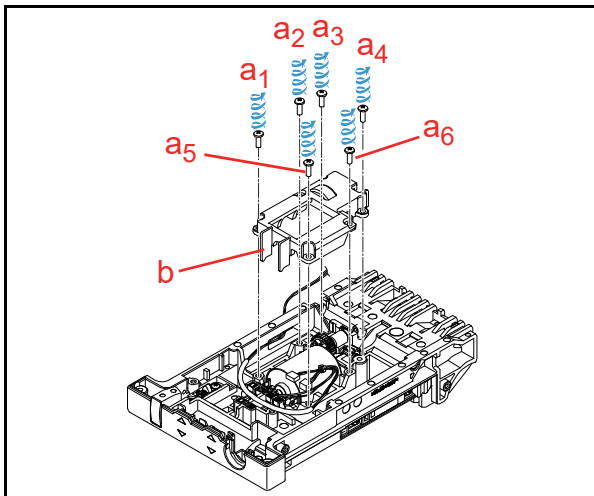
**Figure 4-32** TR Worm Gear (Twin) Removal (RT Frame Unit) 2

- Pick up the Shaft Assy. (Figure 4-33 a) as illustrated by the Arrow ①, and then remove it in the direction indicated by the Arrow ②,



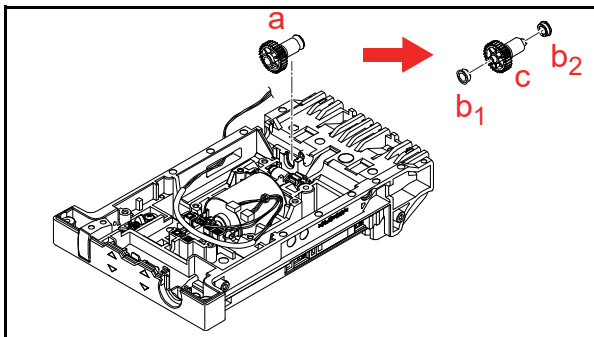
**Figure 4-33** TR Worm Gear (Twin) Removal (RT Frame Unit) 3

- Remove the six (6) Screws (Figure 4-34 a<sub>1</sub> through a<sub>6</sub>) to remove the Pulley Cover (Figure 4-34 b).



**Figure 4-34** TR Worm Gear (Twin) Removal (RT Frame Unit) 4

- Remove the Gear Assy. (Figure 4-35 a).
- Remove the two (2) Bearings (Figure 4-35 b<sub>1</sub> & b<sub>2</sub>) from the TR Worm Gear (Twin) (Figure 4-35 c).

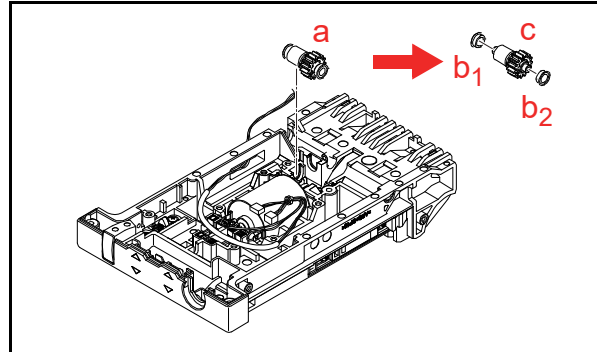


**Figure 4-35** TR Worm Gear (Twin) Removal (RT Frame Unit) 5

## TR Worm Wheel (Twin) Removal

To remove the TR Worm Wheel (Twin) out of the RT Frame Unit, proceed as follows:

- Remove the Wheel Assy. (Figure 4-36 a).
- Remove the two (2) Bearings (Figure 4-36 b<sub>1</sub> & b<sub>2</sub>) from the TR Worm Wheel (Twin) (Figure 4-36 c).

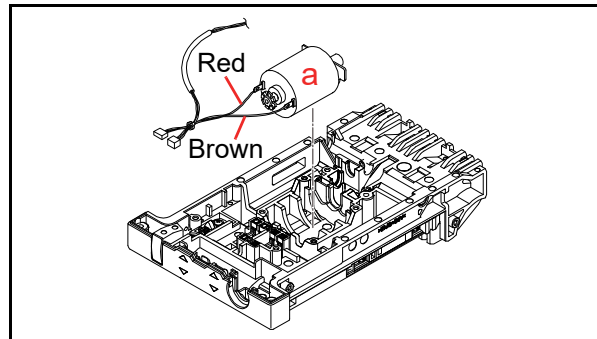


**Figure 4-36** TR Worm Wheel (Twin) Removal (RT Frame Unit)


## TR Motor Harness Assy. Removal

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

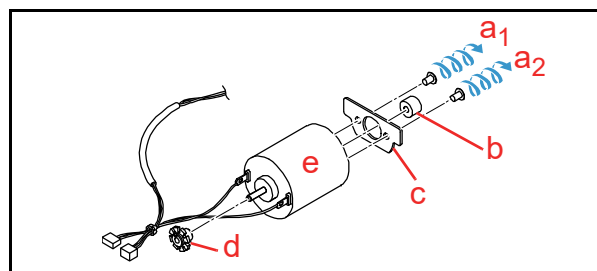
- Remove the Motor Assy. (Figure 4-37 a).



**Figure 4-37** TR Motor Harness Assy. Removal 1

 **NOTE:** For the reassembly, ensure that the Motor Assy. is installed considering the positions of the “Brown” and “Red” Cables.

- Remove the two (2) Screws (Figure 4-38 a<sub>1</sub> & a<sub>2</sub>).
- Remove the Detection Plate (Figure 4-38 b), the Motor Plate (Figure 4-38 c) and the Pinion Gear (Figure 4-38 d) from the TR Motor Harness Assy. (Figure 4-38 e).

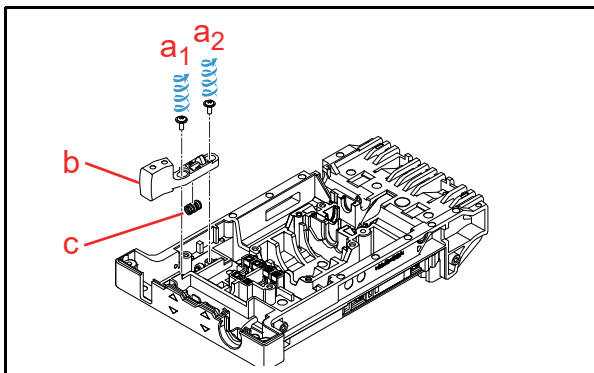


**Figure 4-38** TR Motor Harness Assy. Removal 2

### Status LED/Collect Button Removal

To remove the Status LED/Collect Button, proceed as follows:

1. Remove the two (2) Screws (Figure 4-39 **a<sub>1</sub>** & **a<sub>2</sub>**).
2. Remove the Status LED/Collect Button (Figure 4-39 **b**).
3. Remove the single (1) Spring (Figure 4-39 **c**) from the Button.

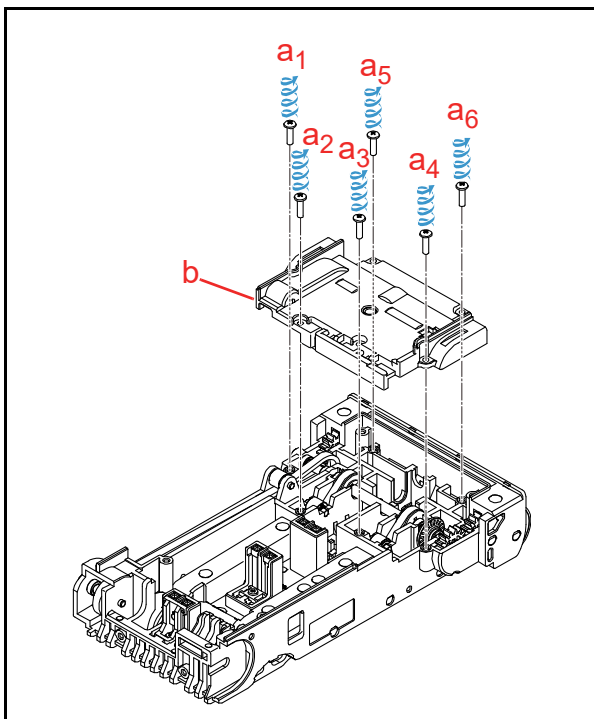


**Figure 4-39** Status LED/Collect Button Removal

### Timing Belt Removal (RT Rear Transport Unit)

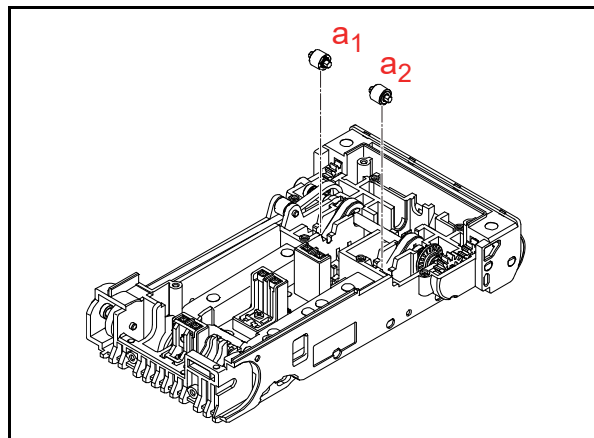
To remove the Timing Belts (38-S1.5M-255UVE and 40-S3M-324CL) out of the RT Rear Transport Unit, proceed as follows:

1. Remove the six (6) Screws (Figure 4-40 **a<sub>1</sub>** through **a<sub>6</sub>**).
2. Remove the Gear Pulley Cover (Figure 4-40 **b**).



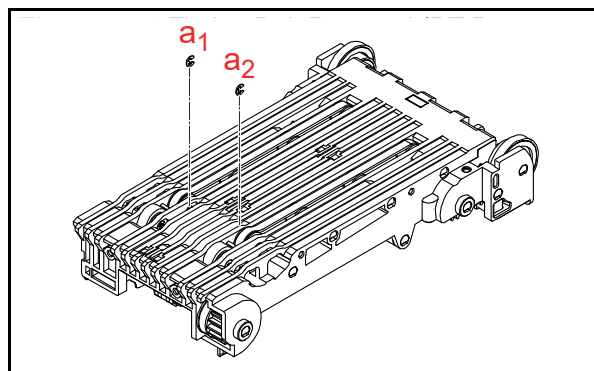
**Figure 4-40** Timing Belt Removal (RT Rear Transport Unit) 1

3. Remove the two (2) Pulley Shaft Assy. (Figure 4-41 **a<sub>1</sub>** & **a<sub>2</sub>**).



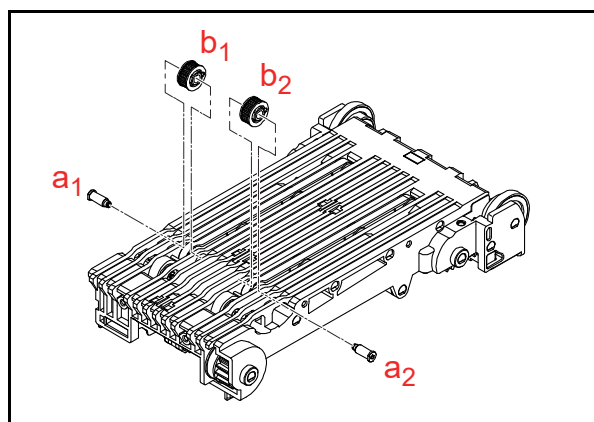
**Figure 4-41** Timing Belt Removal (RT Rear Transport Unit) 2

4. Remove the two (2) E-rings (Figure 4-42 **a<sub>1</sub>** & **a<sub>2</sub>**).



**Figure 4-42** Timing Belt Removal (RT Rear Transport Unit) 3

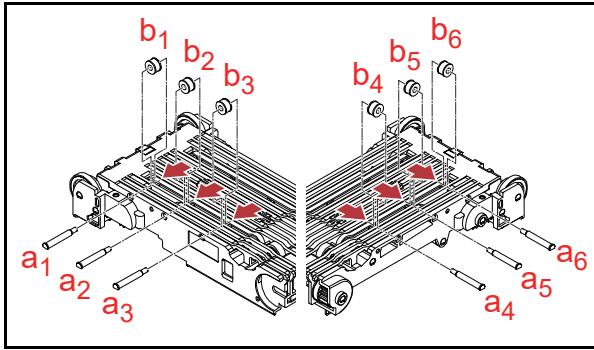
5. Remove the two (2) Pulley Pins (Figure 4-43 **a<sub>1</sub>** & **a<sub>2</sub>**) and the two (2) Pulleys (Figure 4-43 **b<sub>1</sub>** & **b<sub>2</sub>**).



**Figure 4-43** Timing Belt Removal (RT Rear Transport Unit) 4

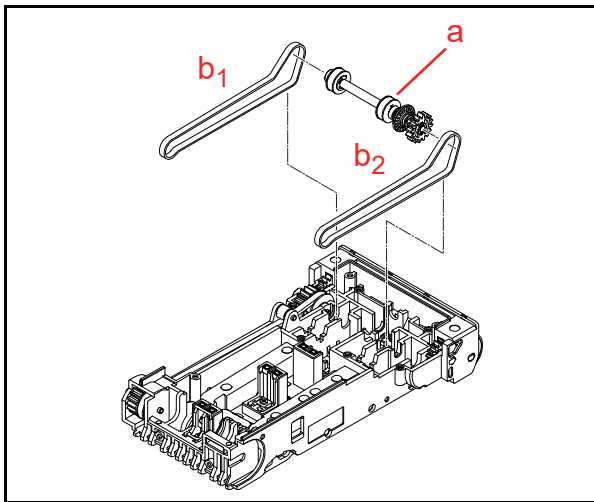
6. Remove the six (6) Driven Pulley Pins (Figure 4-44 **a<sub>1</sub>** through **a<sub>6</sub>**).

7. Remove the six (6) Pulleys (Figure 4-44 **b<sub>1</sub>** through **b<sub>6</sub>**).



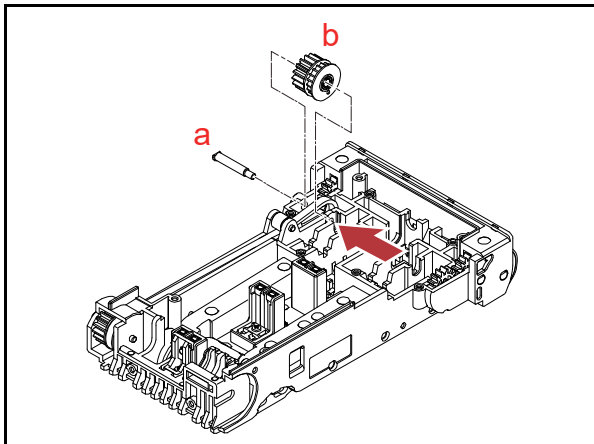
**Figure 4-44** Timing Belt Removal (RT Rear Transport Unit) 5

8. Remove the TR Drive Shaft Assy. (Figure 4-45 **a**) to remove the two (2) Timing Belts 38-S1.5M-255UVE (Figure 4-45 **b<sub>1</sub>** & **b<sub>2</sub>**).



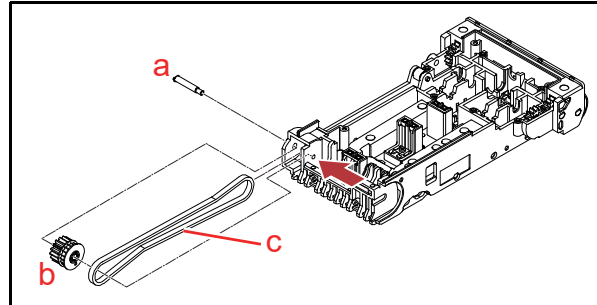
**Figure 4-45** Timing Belt Removal (RT Rear Transport Unit) 6

9. Remove the single (1) Pulley Pin (Figure 4-46 **a**) and the single (1) the Gear Pulley 2 (Figure 4-46 **b**).



**Figure 4-46** Timing Belt Removal (RT Rear Transport Unit) 7

10. Remove the single (1) Pulley Pin (Figure 4-47 **a**) and the single (1) the Gear Pulley 2 (Figure 4-47 **b**).
11. Remove the Timing Belt 40-S3M-324CL (Figure 4-47 **c**).

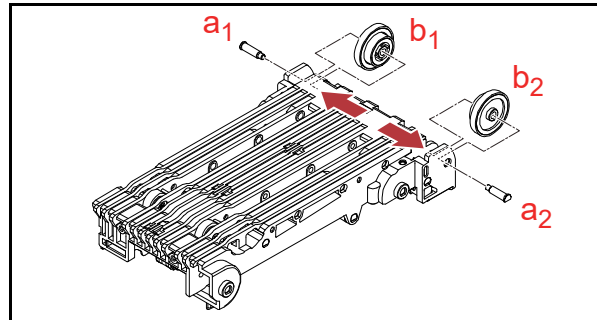


**Figure 4-47** Timing Belt Removal (RT Rear Transport Unit) 8

### Back Transport Gear 1 Removal

To remove the Back Transport Gears 1, proceed as follows:

1. Remove the two (2) Pulley Pins (Figure 4-48 **a<sub>1</sub>** & **a<sub>2</sub>**).
2. Remove the two (2) Back Transport Gears 1 (Figure 4-48 **b<sub>1</sub>** & **b<sub>2</sub>**).



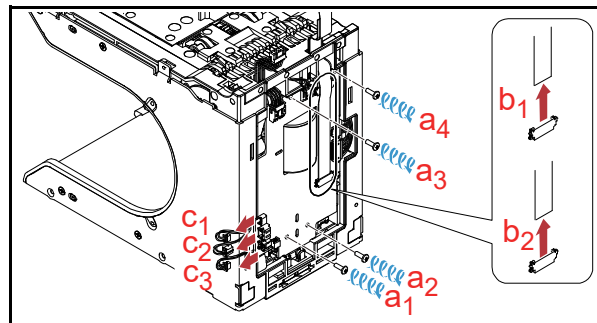
**Figure 4-48** Back Transport Gear 1 Removal

### RQ Frame Unit Disassembly

#### Quad Board Removal

To remove the Quad Board, proceed as follows:

1. Remove the four (4) Screws (Figure 4-49 **a<sub>1</sub>** through **a<sub>4</sub>**).
2. Unplug the two (2) FFC Harnesses (Figure 4-49 **b<sub>1</sub>** & **b<sub>2</sub>**) and the three (3) Connectors (Figure 4-49 **c<sub>1</sub>** through **c<sub>3</sub>**).



**Figure 4-49** Quad Board Removal 1



3. Slightly lift up the Quad Board (Figure 4-50 a) to unplug the four (4) Connectors (Figure 4-50 b<sub>1</sub> through b<sub>4</sub>) as illustrated by each Arrows.
4. Remove the Quad Board.

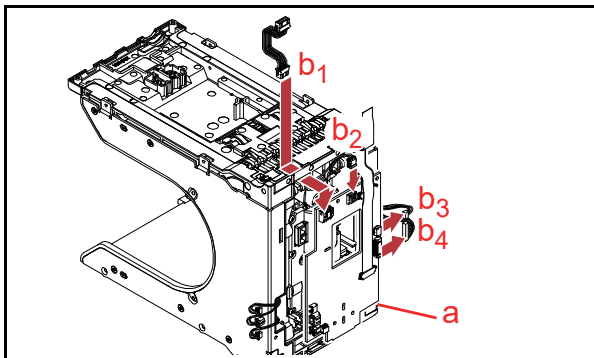


Figure 4-50 Quad Board Removal 2

### Flap Board Removal

To remove the Flap Board out of the RQ Frame Unit, proceed as follows:

1. Remove the seven (7) Screws (Figure 4-51 a<sub>1</sub> through a<sub>7</sub>).
2. Remove the Right Frame Panel (Figure 4-51 b).

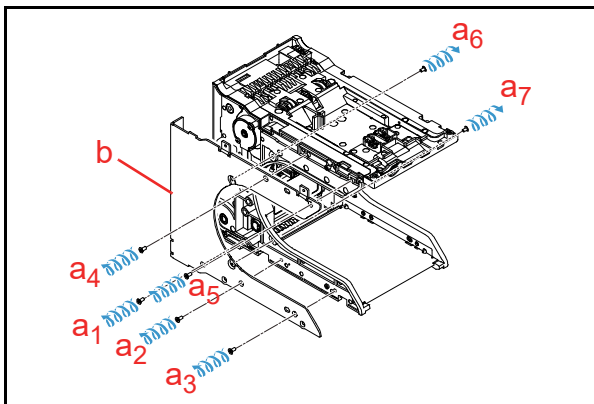


Figure 4-51 Flap Board Removal (RQ Frame Unit) 1

3. Unplug the single (1) Connector (Figure 4-52 a).
4. Remove the two (2) Screws (Figure 4-52 b<sub>1</sub> & b<sub>2</sub>).
5. Remove the Flap Board (Figure 4-52 c).

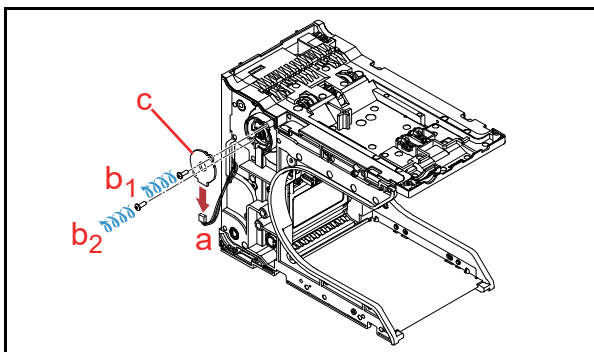


Figure 4-52 Flap Board Removal (RQ Frame Unit) 2

### Flap Home Board Removal

To remove the Flap Home Board out of the RQ Frame Unit, proceed as follows:

1. Remove the seven (7) Screws (Figure 4-53 a<sub>1</sub> through a<sub>7</sub>).
2. Remove the Left Frame Pnel (Figure 4-15 b).

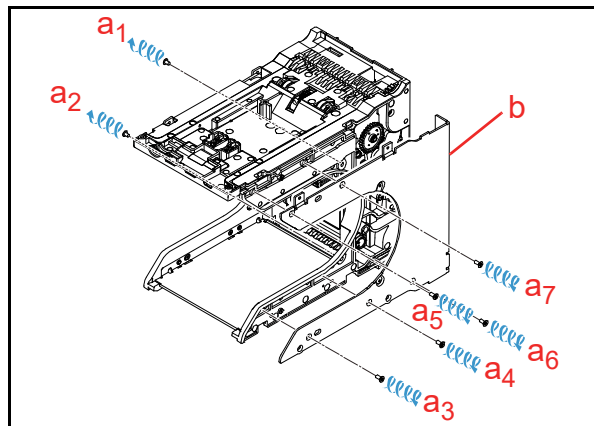


Figure 4-53 Flap Home Board Removal (RQ Frame Unit) 1

3. Remove the single (1) Screw (Figure 4-54 a) to remove the Sensor Assy. (Figure 4-54 b).

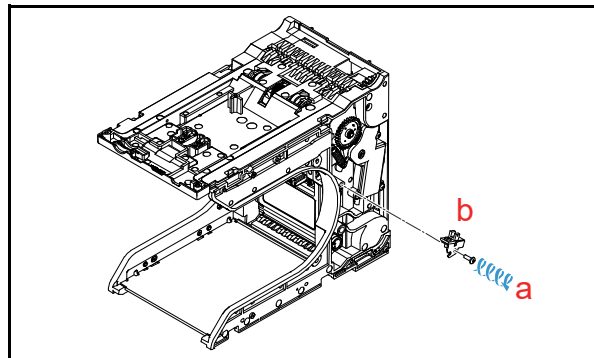


Figure 4-54 Flap Home Board Removal (RQ Frame Unit) 2

4. Unplug the single (1) Connector (Figure 4-55 a).
5. Remove the single (1) Screw (Figure 4-55 b).
6. Remove the Flap Home Board (Figure 4-55 c).

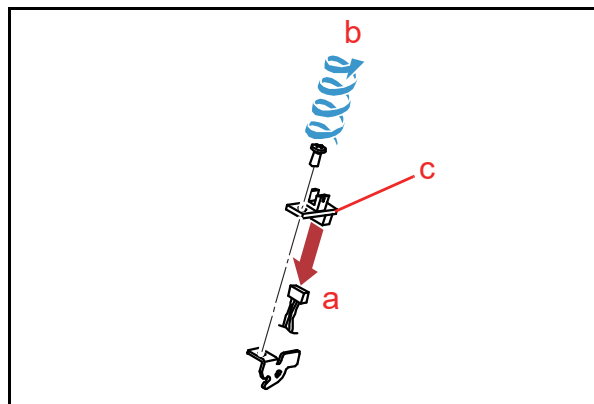
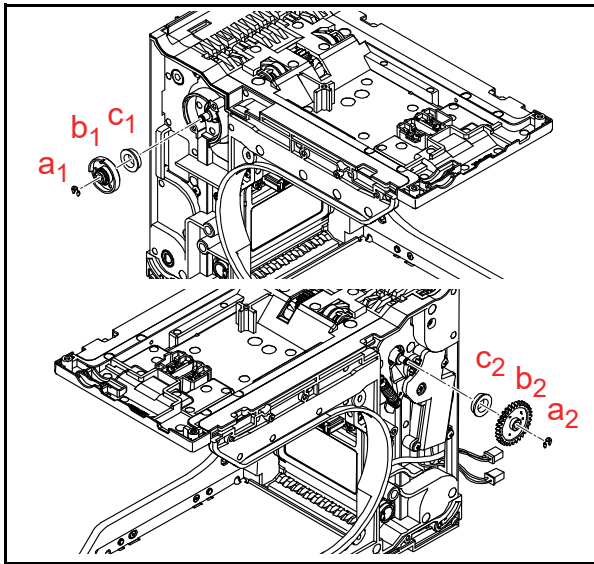


Figure 4-55 Flap Home Board Removal (RQ Frame Unit) 3

## Front Transport Unit Removal

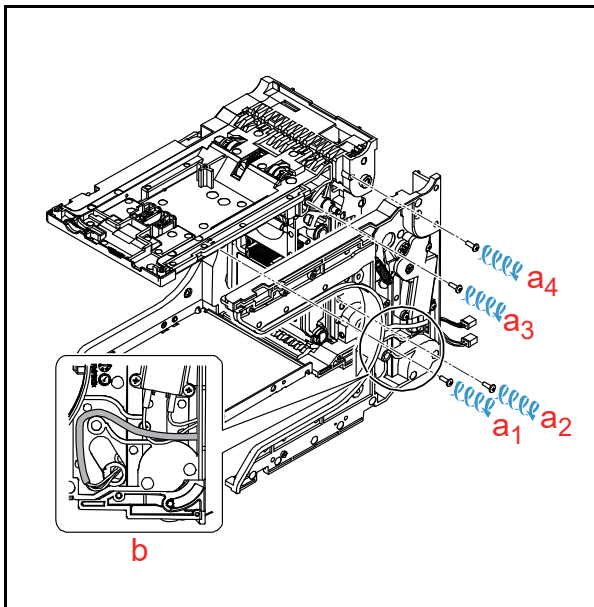
To remove the Front Transport Unit out of the RQ Frame Unit, proceed as follows:

1. Remove the two (2) E-rings (Figure 4-56 **a**<sub>1</sub> & **a**<sub>2</sub>), the two (2) Gears (Figure 4-56 **b**<sub>1</sub> & **b**<sub>2</sub>) and the two (2) Bearings (Figure 4-56 **c**<sub>1</sub> & **c**<sub>2</sub>).




**Figure 4-56** Front Transport Unit Removal (RQ Frame Unit) 1

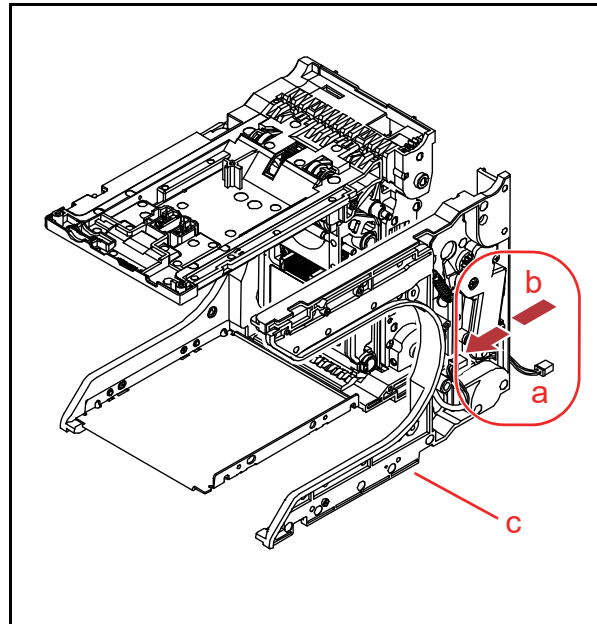
2. Remove the four (4) Screws (Figure 4-57 **a**<sub>1</sub> through **a**<sub>4</sub>).



**Figure 4-57** Front Transport Unit Removal (RQ Frame Unit) 2

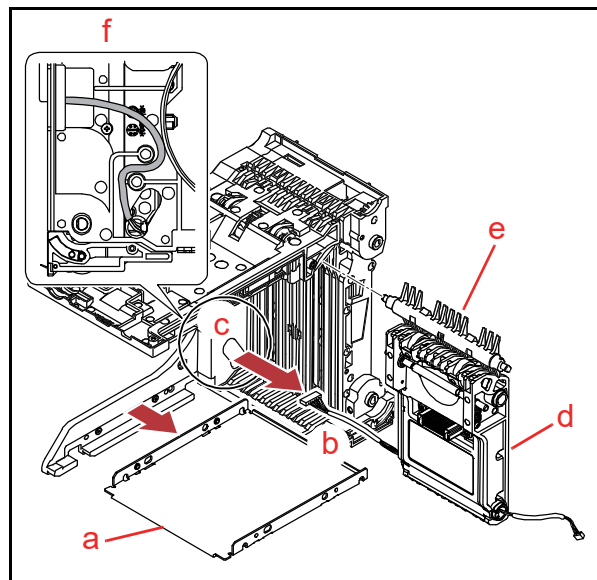
 **NOTE:** For the reassembly, route the Harness as illustrated in Figure 4-57**b**. Ensure that the Harness doesn't get pinched when opening the Front Transport Unit.

3. Feed the Harness (Figure 4-58 **a**) out through the hole (Figure 4-58 **b**) to remove the Side Frame Assy. (Figure 4-58 **c**).




**Figure 4-58** Front Transport Unit Removal (RQ Frame Unit) 3

4. Remove the BV Tray Assy. (Figure 4-59 **a**).
5. Feed the Harness (Figure 4-59 **b**) out through the hole (Figure 4-59 **c**) to remove the Front Transport Unit (Figure 4-59 **d**).
6. Remove the Rotary Guide (Figure 4-59 **e**).



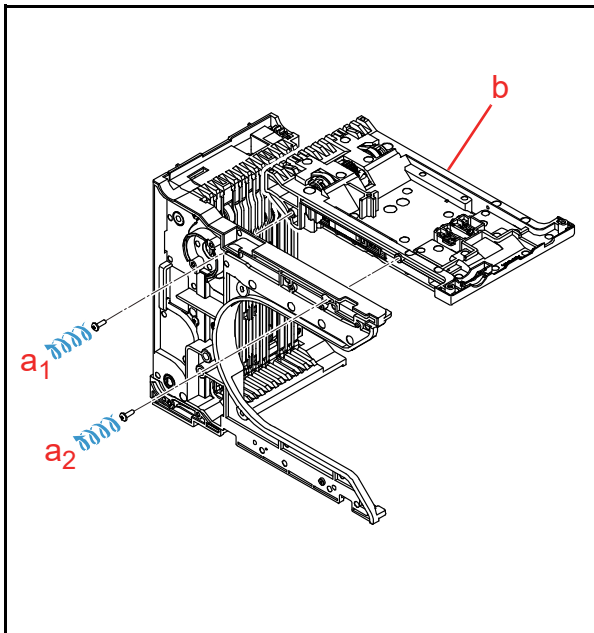
**Figure 4-59** Front Transport Unit Removal (RQ Frame Unit) 4

 **NOTE:** For the reassembly, route the Harness as illustrated in Figure 4-59 **f**. Ensure that the Harness doesn't get pinched when opening the Front Transport Unit.

### Rear Transport Unit Removal

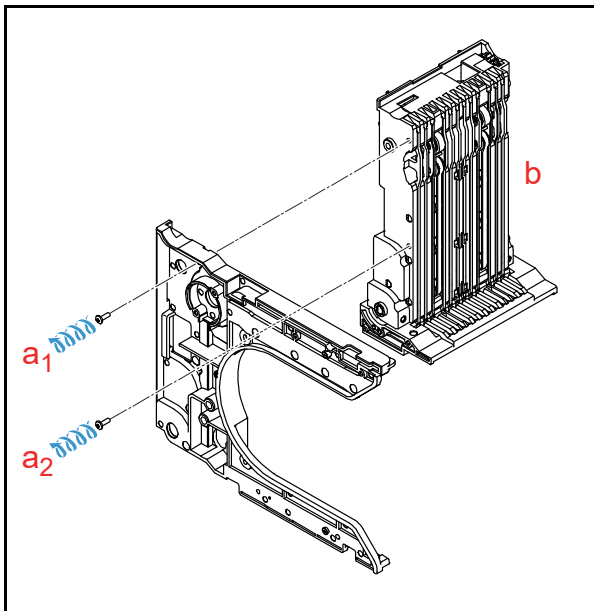
To remove the Rear Transport Unit out of the RQ Frame Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-60 a<sub>1</sub> & a<sub>2</sub>) to remove the Upper Module (Figure 4-60 b).



**Figure 4-60** Rear Transport Unit Removal (RQ Frame Unit) 1

2. Remove the two (2) Screws (Figure 4-61 a<sub>1</sub> & a<sub>2</sub>), and remove the Rear Transport Unit (Figure 4-61 b).

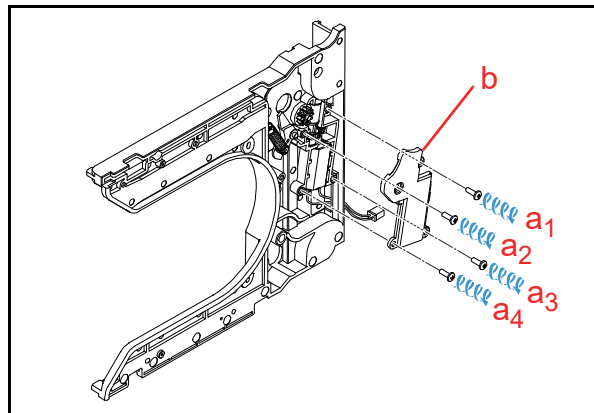


**Figure 4-61** Rear Transport Unit Removal (RQ Frame Unit) 2

### Flap Motor Harness Assy. Removal

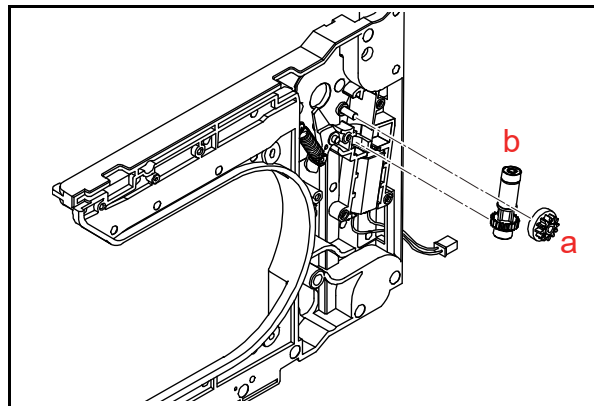
To remove the Flap Motor Harness Assy. out of the RQ Frame Unit, proceed as follows:

1. Remove the four (4) Screws (Figure 4-62 a<sub>1</sub> through a<sub>4</sub>) to remove the Gear Cover (Figure 4-62 b).



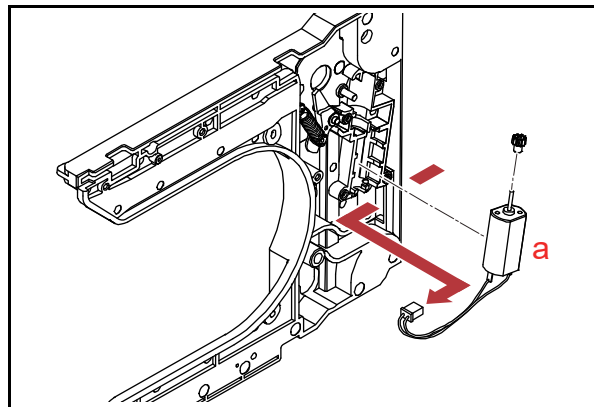
**Figure 4-62** Flap Motor Harness Assy. Removal (RQ Frame Unit) 1

2. Remove the Worm Wheel (Figure 4-63 a) and the Worm Gear (Figure 4-63 b).



**Figure 4-63** Flap Motor Harness Assy. Removal (RQ Frame Unit) 2

3. Remove the Flap Motor Harness Assy. (Figure 4-64 a).

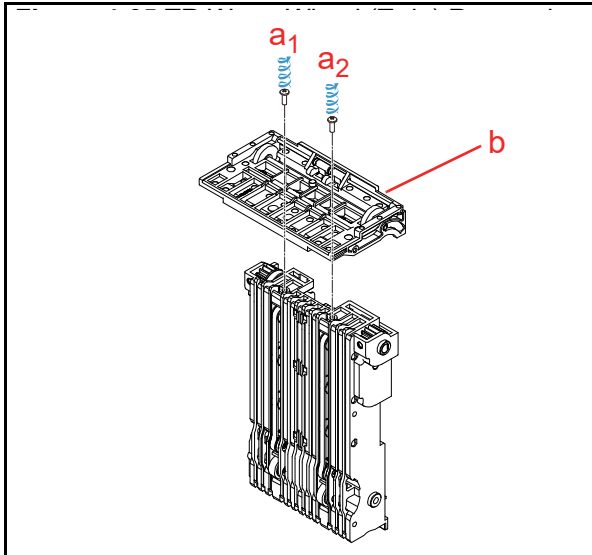


**Figure 4-64** Flap Motor Harness Assy. Removal (RQ Frame Unit) 3

## TR Worm Wheel (Twin) Removal

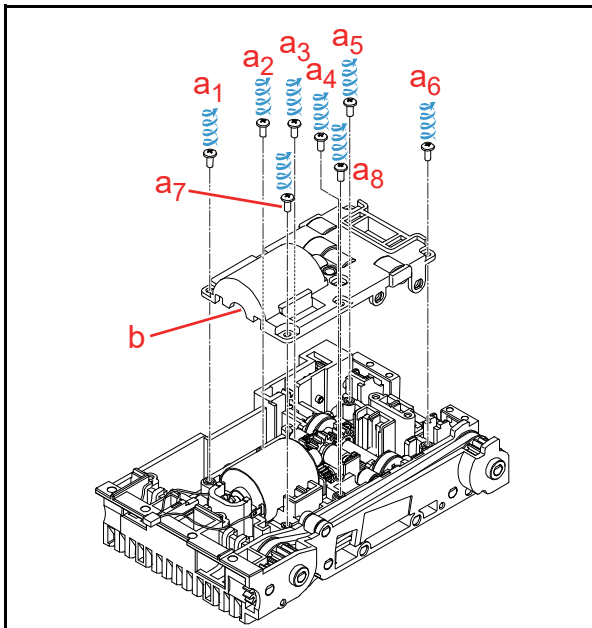
To remove the TR Worm Gear (Twin) out of the RQ Frame Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-65 **a<sub>1</sub>** & **a<sub>2</sub>**) to remove the Box Connect Module (Figure 4-65 **b**).



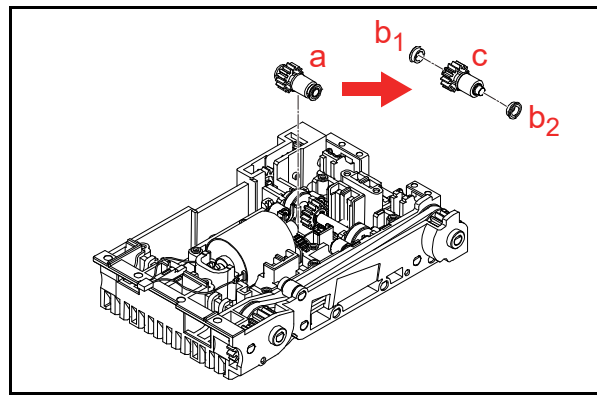
**Figure 4-65** TR Worm Wheel (Twin)  
Removal (RQ Frame Unit) 1

2. Remove the eight (8) Screws (Figure 4-66 **a<sub>1</sub>** through **a<sub>8</sub>**) to remove the Rear Motor Cover (Figure 4-66 **b**).



**Figure 4-66** TR Worm Wheel (Twin)  
Removal (RQ Frame Unit) 2

3. Remove the Wheel Assy. (Figure 4-67 **a**).
4. Remove the two (2) Bearings (Figure 4-67 **b<sub>1</sub>** & **b<sub>2</sub>**) from the TR Worm Wheel (Twin) (Figure 4-67 **c**).

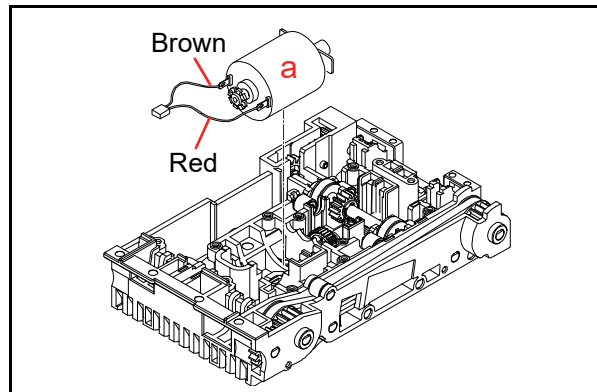


**Figure 4-67** TR Worm Wheel (Twin)  
Removal (RQ Frame Unit) 3

## Quad TR Motor Harness Assy. Removal

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

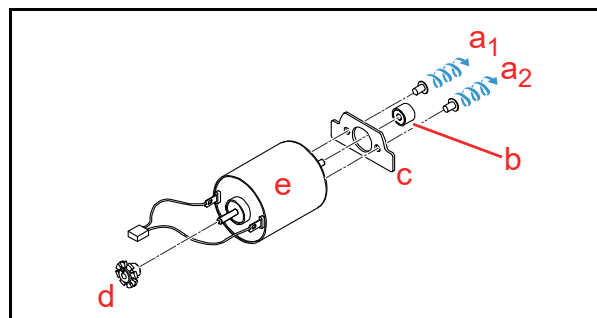
1. Remove the Motor Assy. (Figure 4-68 **a**).



**Figure 4-68** Quad TR Motor Harness Assy.  
Removal 1

**NOTE:** For the reassembly, ensure that the Motor Assy. is installed considering the positions of the “Brown” and “Red” Cables.

2. Remove the two (2) Screws (Figure 4-69 **a<sub>1</sub>** & **a<sub>2</sub>**).
3. Remove the Detection Plate (Figure 4-69 **b**), the Motor Plate (Figure 4-69 **c**) and the Pinion Gear (Figure 4-69 **d**) from the Quad TR Motor Harness Assy. (Figure 4-69 **e**).



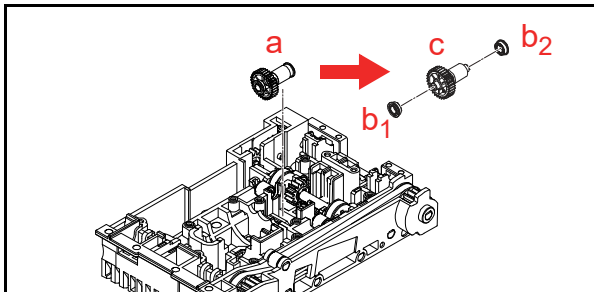
**Figure 4-69** Quad TR Motor Harness Assy.  
Removal 2



### TR Worm Gear (Twin) Removal

To remove the TR Worm Gear (Twin) out of the RQ Frame Unit, proceed as follows:

1. Remove the Gear Assy. (Figure 4-70 a).
2. Remove the two (2) Bearings (Figure 4-70 b<sub>1</sub> & b<sub>2</sub>) from the TR Worm Gear (Twin) (Figure 4-70 c).

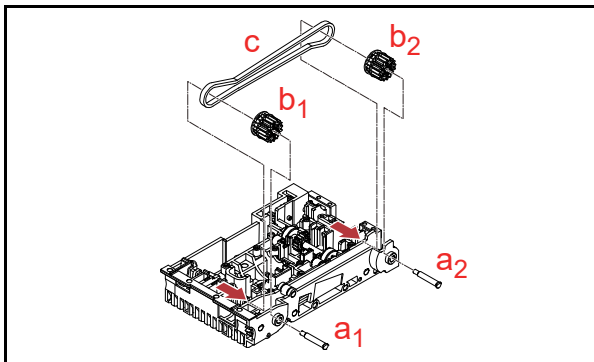


**Figure 4-70** TR Worm Gear (Twin) Removal (RQ Frame Unit)

### Timing Belt Removal (RQ Rear Transport Unit)

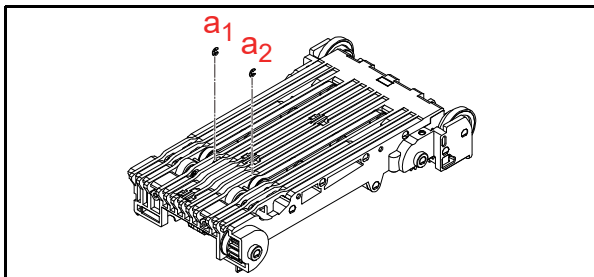
To remove the Timing Belts (38-S1.5M-255UVE and 40-S3M-324CL) out of the RQ Rear Transport Unit, proceed as follows:

1. Remove the two (2) Pulley Pins (Figure 4-71 a<sub>1</sub> & a<sub>2</sub>) and the two (2) the Gear Pulleys 2 (Figure 4-71 b<sub>1</sub> & b<sub>2</sub>).
2. Remove the Timing Belt 40-S3M-324CL (Figure 4-71 c).



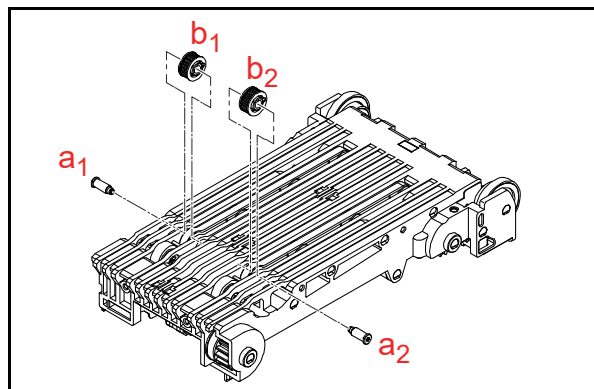
**Figure 4-71** Timing Belt Removal (RQ Rear Transport Unit) 1

3. Remove the two (2) E-rings (Figure 4-72 a<sub>1</sub> & a<sub>2</sub>).



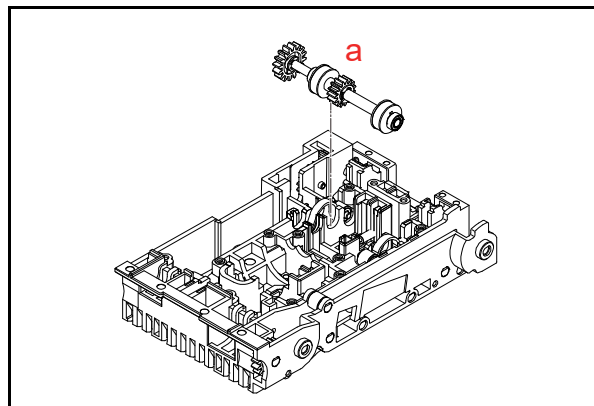
**Figure 4-72** Timing Belt Removal (RQ Rear Transport Unit) 2

4. Remove the two (2) Pulley Pins (Figure 4-73 a<sub>1</sub> & a<sub>2</sub>) and the two (2) Pulleys (Figure 4-73 b<sub>1</sub> & b<sub>2</sub>).



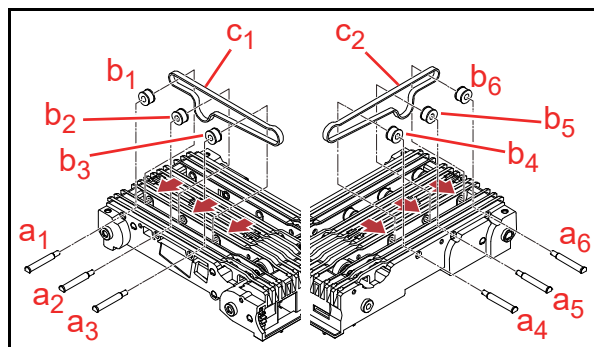
**Figure 4-73** Timing Belt Removal (RQ Rear Transport Unit) 3

5. Remove the single (1) Pulley Shaft Assy. (Figure 4-74 a).



**Figure 4-74** Timing Belt Removal (RQ Rear Transport Unit) 4

6. Remove the six (6) Driven Pulley Pins (Figure 4-75 a<sub>1</sub> through a<sub>6</sub>).
7. Remove the six (6) Pulleys (Figure 4-75 b<sub>1</sub> through b<sub>6</sub>).
8. Remove the two (2) Timing Belts 38-S1.5M-255UVE (Figure 4-75 c<sub>1</sub> & c<sub>2</sub>).



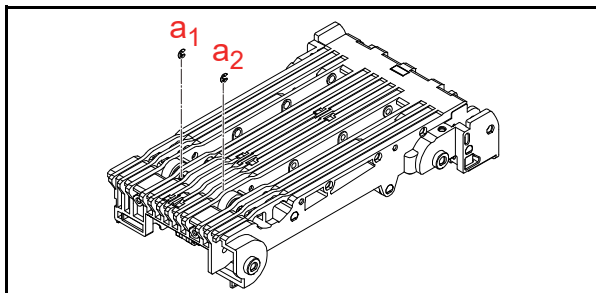
**Figure 4-75** Timing Belt Removal (RQ Rear Transport Unit) 5

## RT/RQ Frame Unit Disassembly In Common

### Sponge Roller Assy. Removal (Rear Transport Unit)

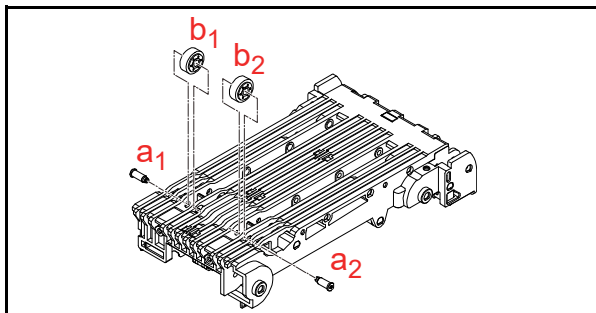
To remove the Sponge Roller Assy. out of the Rear Transport Unit, proceed as follows:

1. Remove the two (2) E-rings (Figure 4-76 *a*<sub>1</sub> & *a*<sub>2</sub>).



**Figure 4-76** Sponge Roller Assy. Removal (Rear Transport Unit) 1

2. Remove the two (2) Pulley Pins (Figure 4-77 *a*<sub>1</sub> & *a*<sub>2</sub>) to remove the two (2) Sponge Roller Assy. (Figure 4-77 *b*<sub>1</sub> & *b*<sub>2</sub>).

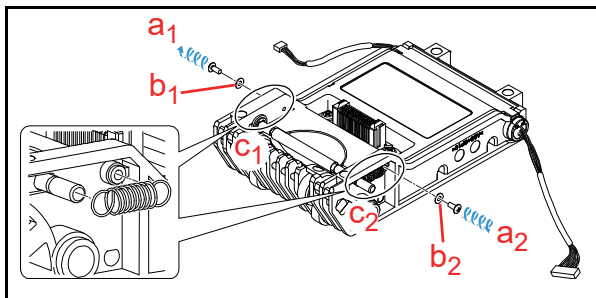


**Figure 4-77** Sponge Roller Assy. Removal (Rear Transport Unit) 2

### Sponge Roller Assy. Removal (Front Transport Unit)

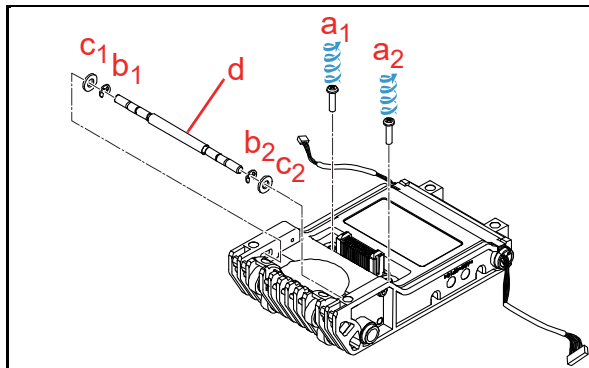
To remove the Sponge Roller Assy. out of the Front Transport Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-78 *a*<sub>1</sub> & *a*<sub>2</sub>) and the two (2) Washers (Figure 4-78 *b*<sub>1</sub> & *b*<sub>2</sub>).
2. Remove the two (2) Front Latch Springs (Figure 4-78 *c*<sub>1</sub> & *c*<sub>2</sub>).



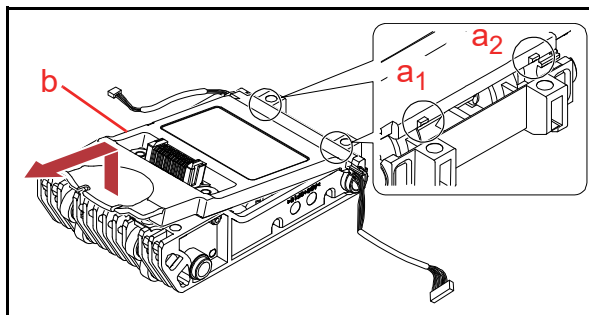
**Figure 4-78** Sponge Roller Assy. Removal (Front Transport Unit) 1

3. Remove the two (2) Screws (Figure 4-79 *a*<sub>1</sub> & *a*<sub>2</sub>).
4. Remove the two (2) E-rings (Figure 4-79 *b*<sub>1</sub> & *b*<sub>2</sub>) and the two (2) Washers (Figure 4-79 *c*<sub>1</sub> & *c*<sub>2</sub>) to remove the Shaft Assy. (Figure 4-79 *d*).



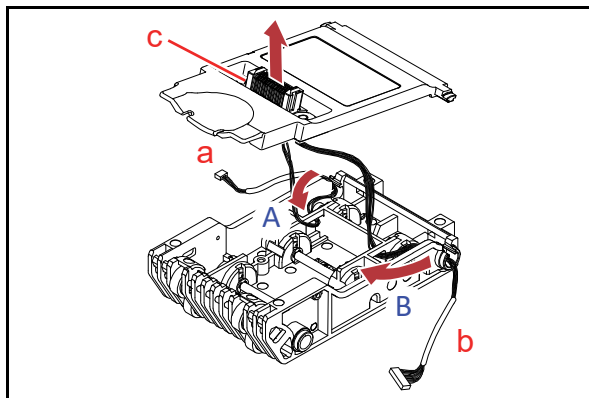
**Figure 4-79** Sponge Roller Assy. Removal (Front Transport Unit) 2

5. Release the two (2) Locking Tabs (Figure 4-80 *a*<sub>1</sub> & *a*<sub>2</sub>).
6. Remove the Cover (Figure 4-80 *b*) as illustrated by the Arrow.



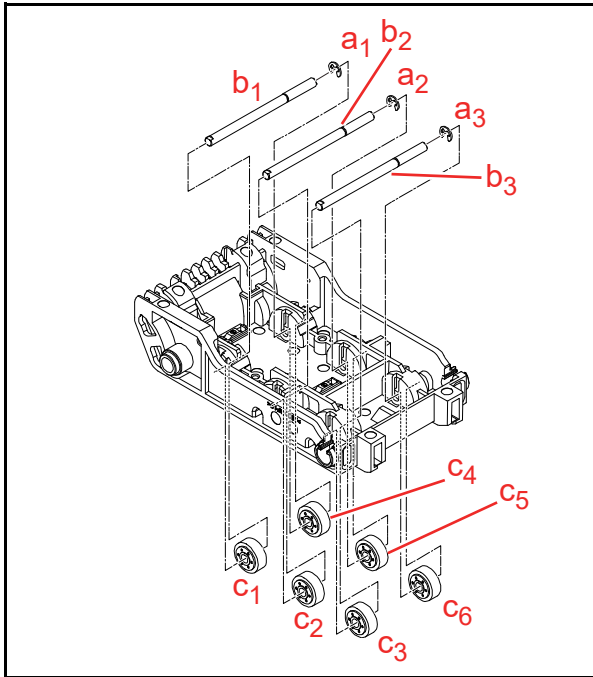
**Figure 4-80** Sponge Roller Assy. Removal (Front Transport Unit) 3

7. Feed out the single (1) Harness (Figure 4-81 *a*) as illustrated by Arrow *A*.
8. Feed out the single (1) Harness (Figure 4-81 *b*) as illustrated by Arrow *B*.
9. Remove the Twin Drum Removal Harness (Figure 4-81 *c*).




**Figure 4-81** Sponge Roller Assy. Removal (Front Transport Unit) 4

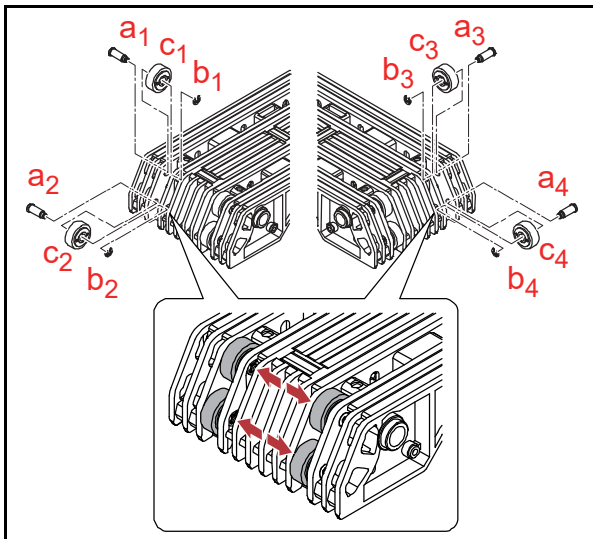
10. Remove the three (3) E-rings (Figure 4-82 a<sub>1</sub> through a<sub>3</sub>) and the three (3) Shafts (Figure 4-82 b<sub>1</sub> through b<sub>3</sub>).
11. Remove the six (6) Sponge Roller Assy. (Figure 4-82 c<sub>1</sub> through c<sub>6</sub>).



**Figure 4-82** Sponge Roller Assy. Removal (Front Transport Unit) 5

 **NOTE:** For the reassembly, install each Shaft considering its “D-shape”.

12. Remove the four (4) Pulley Pins (Figure 4-83 a<sub>1</sub> through a<sub>4</sub>).
13. Remove the four (4) E-rings (Figure 4-83 b<sub>1</sub> through b<sub>4</sub>) to remove the four (4) Sponge Roller Assy. (Figure 4-83 c<sub>1</sub> through c<sub>4</sub>).

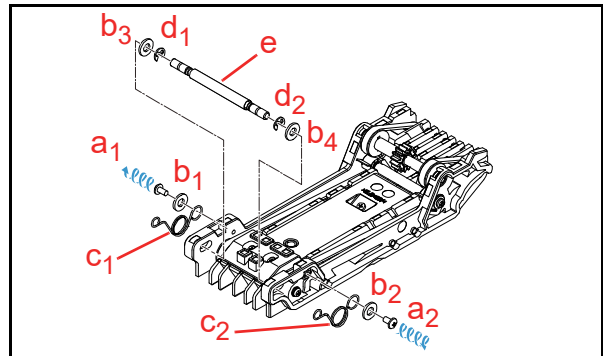


**Figure 4-83** Sponge Roller Assy. Removal (Front Transport Unit) 6

### Timing Belt Removal (Transport Unit)

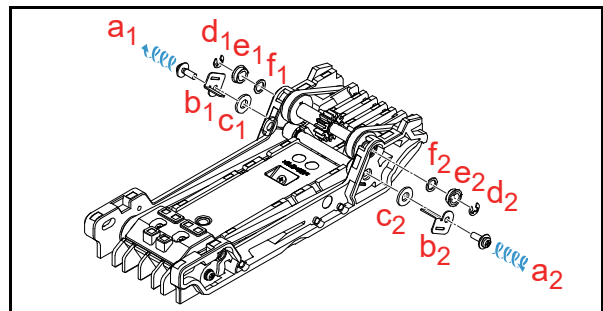
To remove the Timing Belts (38-S1.5M-335UVE) out of the Transport Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-84 a<sub>1</sub> & a<sub>2</sub>), the two (2) DURACON Washers (Figure 4-84 b<sub>1</sub> & b<sub>2</sub>) and the two (2) Springs (Figure 4-84 c<sub>1</sub> & c<sub>2</sub>).
2. Remove the two (2) E-rings (Figure 4-84 d<sub>1</sub> & d<sub>2</sub>) and the two (2) DURACON Washers (Figure 4-84 b<sub>3</sub> & b<sub>4</sub>) to remove the Shaft Assy. (Figure 4-84 e)



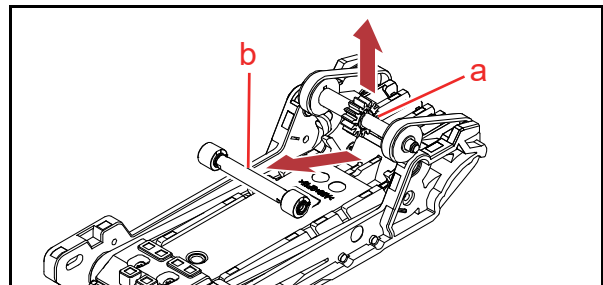
**Figure 4-84** Timing Belt Removal (Transport Unit) 1

3. Remove the two (2) Screws (Figure 4-85 a<sub>1</sub> & a<sub>2</sub>).
4. Remove the two (2) Spacers (Figure 4-85 b<sub>1</sub> & b<sub>2</sub>) and two (2) DURACON Washers (Figure 4-85 c<sub>1</sub> & c<sub>2</sub>).
5. Remove the two (2) E-rings (Figure 4-85 d<sub>1</sub> & d<sub>2</sub>), the two (2) Bearings (Figure 4-85 e<sub>1</sub> & e<sub>2</sub>) and the two (2) Polysliders (Figure 4-85 f<sub>1</sub> & f<sub>2</sub>).



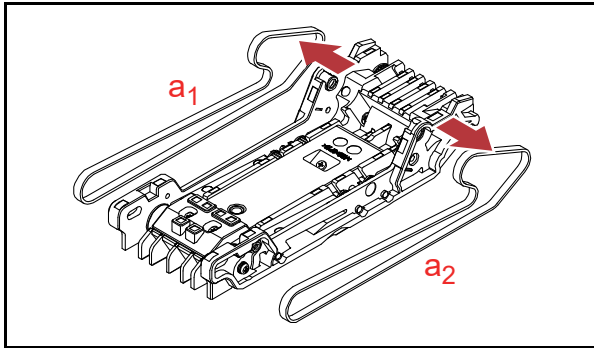
**Figure 4-85** Timing Belt Removal (Transport Unit) 2

6. Remove the Drive Shat Assy. (Figure 4-86 a) and the Pulley Beam B Assy. (Figure 4-86 b).



**Figure 4-86** Timing Belt Removal (Transport Unit) 3

7. Remove the two (2) Timing Belts (Figure 4-87 **a<sub>1</sub>** & **a<sub>2</sub>**).



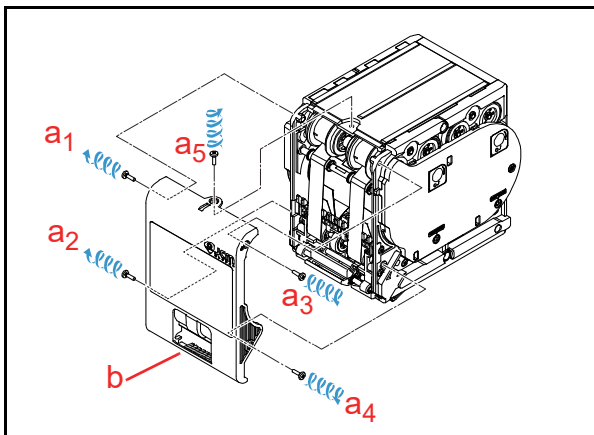
**Figure 4-87** Timing Belt Removal (Transport Unit) 4

## Recycler Disassembly

### Recycler Board Removal

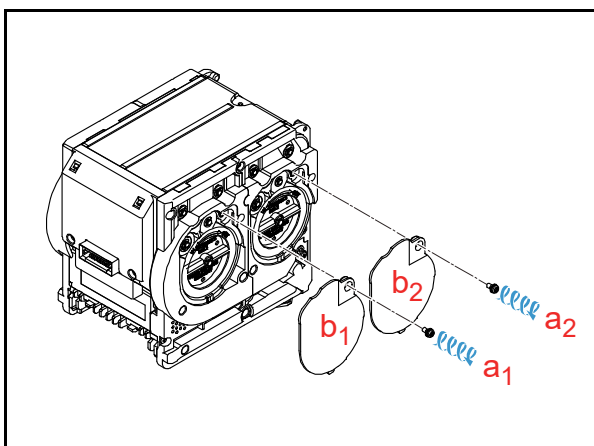
To remove the Recycler Board out of the Recycler, proceed as follows:

1. Remove the five (5) Screws (Figure 4-88 **a<sub>1</sub>** through **a<sub>5</sub>**) to remove the Front Cover (Figure 4-88 **b**).



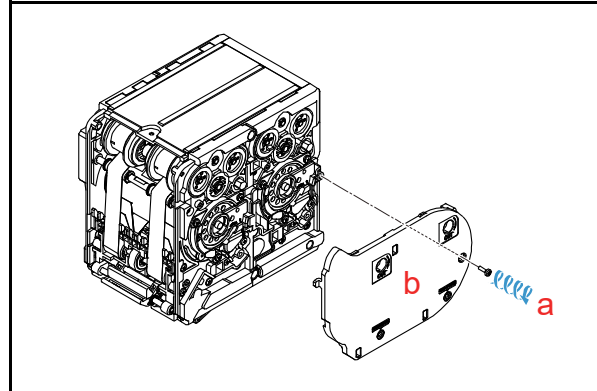
**Figure 4-88** Recycler Board Removal 1

2. Remove the two (2) Screws (Figure 4-89 **a<sub>1</sub>** & **a<sub>2</sub>**) to remove the two (2) Gear Covers 1 (Figure 4-89 **b<sub>1</sub>** & **b<sub>2</sub>**).



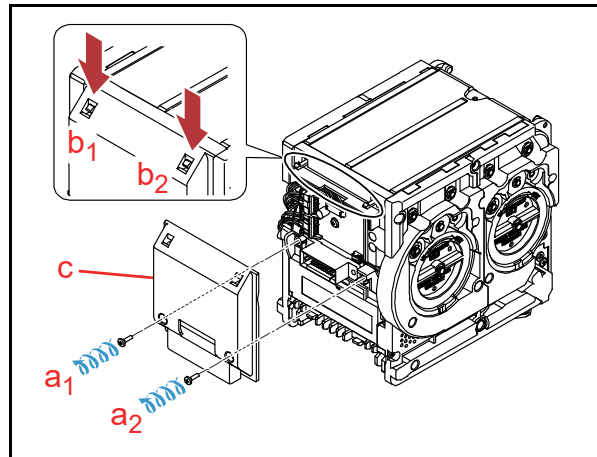
**Figure 4-89** Recycler Board Removal 2

3. Remove the single (1) Screw (Figure 4-90 **a**) to remove the single (1) Side Cover (Figure 4-90 **b**).



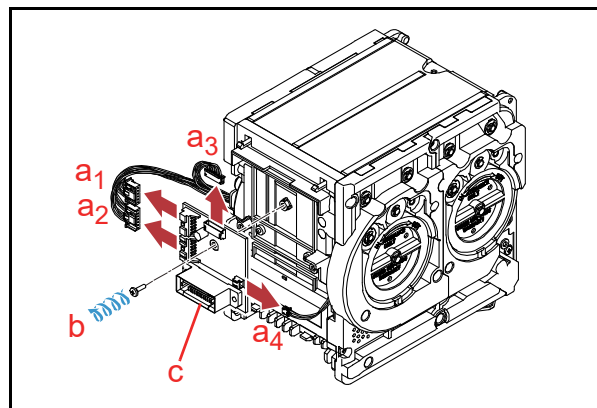
**Figure 4-90** Recycler Board Removal 3

4. Remove the two (2) Screws (Figure 4-91 **a<sub>1</sub>** & **a<sub>2</sub>**).
5. Release the two (2) Locking Tabs (Figure 4-91 **b<sub>1</sub>** & **b<sub>2</sub>**), and remove the single (1) Gear Cover 2 (Figure 4-91 **c**).



**Figure 4-91** Recycler Board Removal 4

6. Unplug the four (4) Connectors (Figure 4-92 **a<sub>1</sub>** through **a<sub>4</sub>**).
7. Remove the single (1) Screw (Figure 4-92 **b**) to remove the Recycler Board (Figure 4-92 **c**).



**Figure 4-92** Recycler Board Removal 5



### Tape Board Removal

To remove the Tape Board out of the Recycler, proceed as follows:

1. Remove the two (2) Screws (Figure 4-93 a<sub>1</sub> & a<sub>2</sub>).
2. Pull the Rear Cover (Figure 4-93 b) as illustrated by the Arrow ①, and then remove in the direction indicated by the Arrow ②.

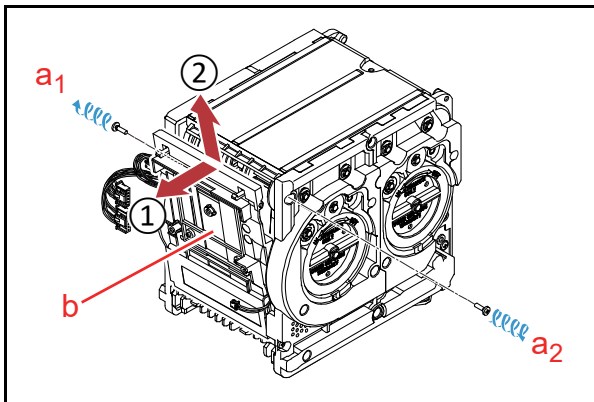


Figure 4-93 Tape Board Removal 1

3. Cut the single (1) Cable Tie (Figure 4-94 a).

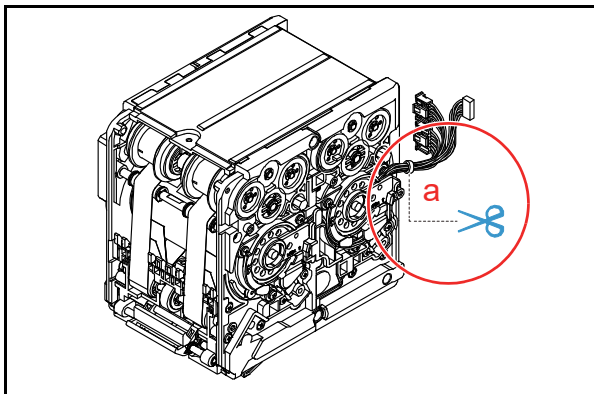


Figure 4-94 Tape Board Removal 2

4. Remove the four (4) Screws (Figure 4-95 a<sub>1</sub> through a<sub>4</sub>) to remove the two Sensor Holder Assy. (Figure 4-95 b<sub>1</sub> & b<sub>2</sub>).

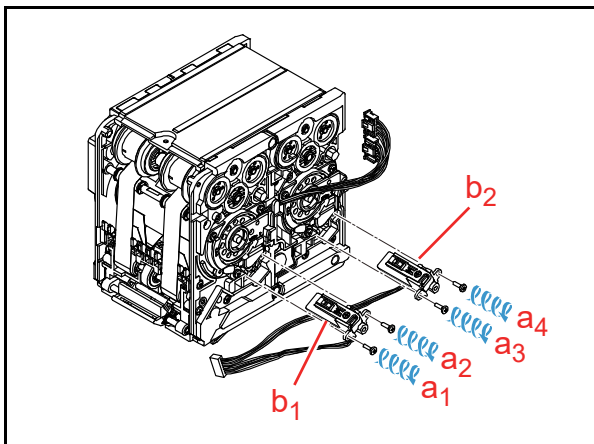


Figure 4-95 Tape Board Removal 3

5. Remove the two (2) Screws (Figure 4-96 a<sub>1</sub> & a<sub>2</sub>) to remove the two Tape Boards (Figure 4-96 b<sub>1</sub> & b<sub>2</sub>).

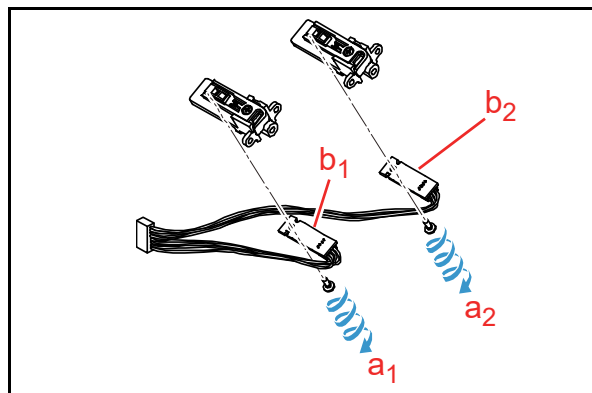


Figure 4-96 Tape Board Removal 4

### Drum Unit Disassembly

To separate the Drum Unit into the Drum 1 and Drum 2 Units, proceed as follows:

1. Remove the six (6) Screws (Figure 4-97 a<sub>1</sub> through a<sub>6</sub>).
2. Remove the Top Cover (Figure 4-97 b).

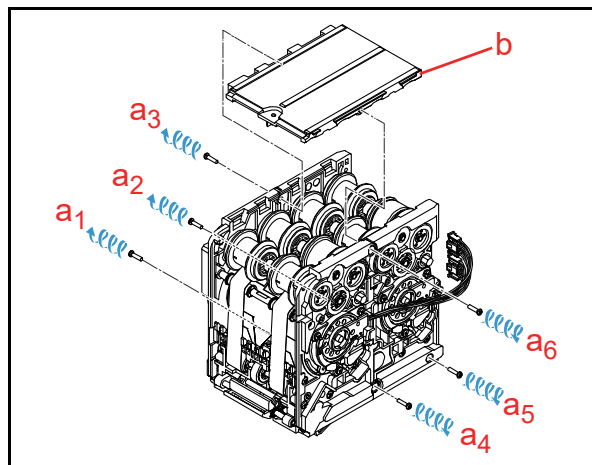


Figure 4-97 Drum Unit Disassembly 1

3. Separate the Drum Unit as illustrated.

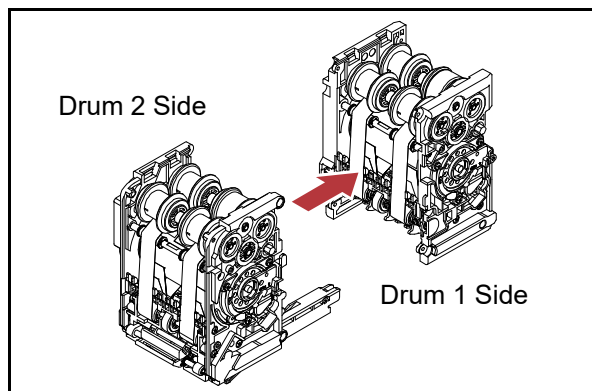
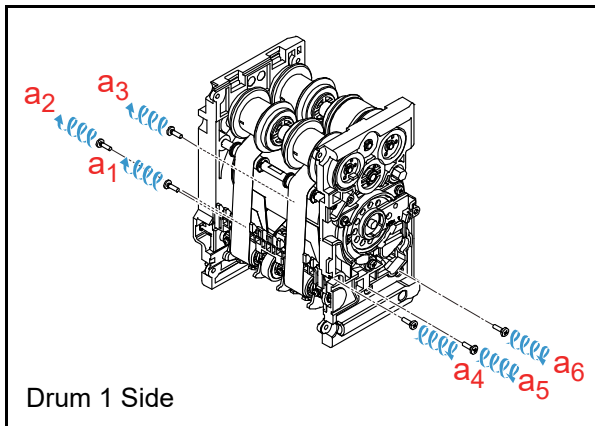


Figure 4-98 Drum Unit Disassembly 2

## Sponge Roller Assy. Removal (Drum 1 Side)

To remove the Sponge Roller Assy. from the Drum 1 Side, proceed as follows:

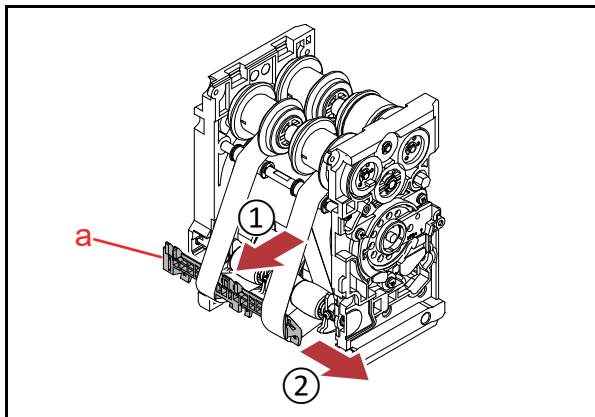
1. Remove the six (6) Screws (Figure 4-99 **a<sub>1</sub>** through **a<sub>6</sub>**) from the Rear Unit.



Drum 1 Side

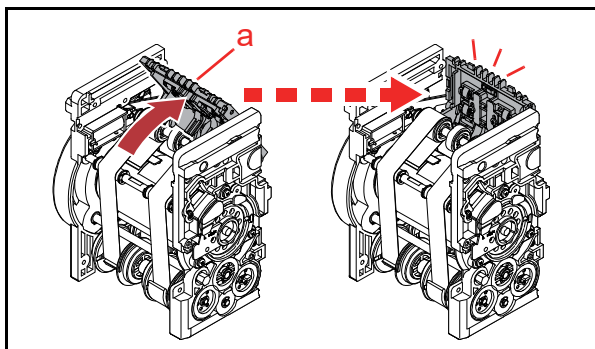
**Figure 4-99** Sponge Roller Assy. Removal (Drum 1 Side) 1

2. Pull the Course Guide (Figure 4-100 **a**) as illustrated by the Arrow ①, and then slide out in the direction indicated by the Arrow ②.



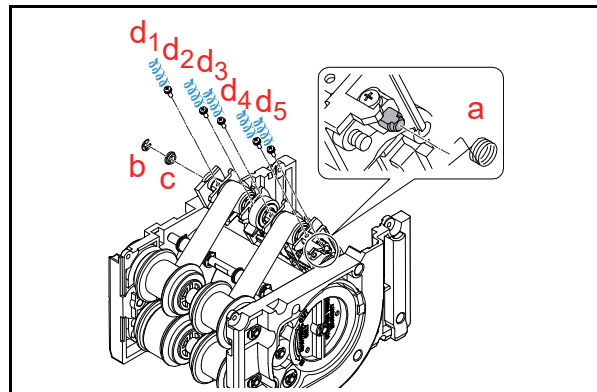
**Figure 4-100** Sponge Roller Assy. Removal (Drum 1 Side) 2

3. Slide the Course 1 (Figure 4-101 **a**) as illustrated until it stops.



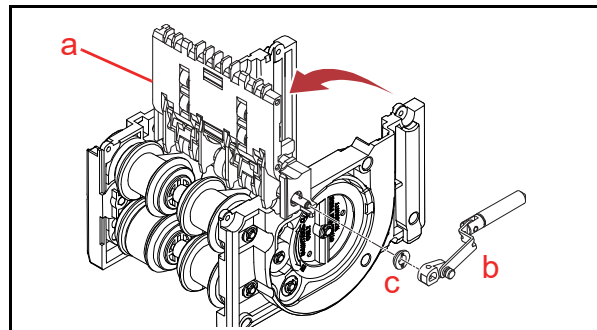
**Figure 4-101** Sponge Roller Assy. Removal (Drum 1 Side) 3

4. Remove the single (1) Spring (Figure 4-102 **a**).
5. Remove the single (1) E-ring (Figure 4-102 **b**) and the single (1) Drum Guide RO (Figure 4-102 **c**).
6. Remove the five (5) Screws (Figure 4-102 **d<sub>1</sub>** through **d<sub>5</sub>**).



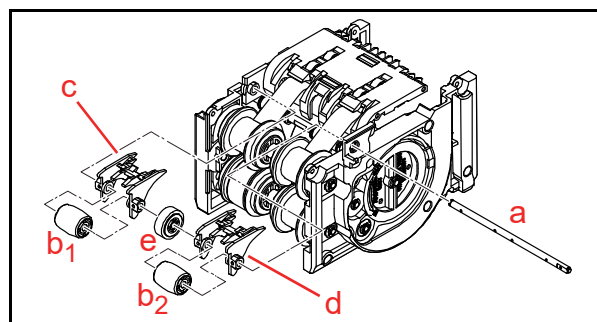
**Figure 4-102** Sponge Roller Assy. Removal (Drum 1 Side) 4

7. Lift the Course 1 (Figure 4-103 **a**) up as illustrated.
8. Remove the single (1) Solenoid Link Plate Assy. (Figure 4-103 **b**) and the single (1) Drum Guide Roller (Figure 4-103 **c**).



**Figure 4-103** Sponge Roller Assy. Removal (Drum 1 Side) 5

9. Remove the single (1) Shaft (Figure 4-104 **a**).
10. Remove the two (2) Pulleys (Figure 4-104 **b<sub>1</sub>** & **b<sub>2</sub>**), the single (1) Flapper R (Figure 4-104 **c**) and the single (1) Flapper L (Figure 4-104 **d**) to remove the Sponge Roller Assy. (Figure 4-104 **e**).

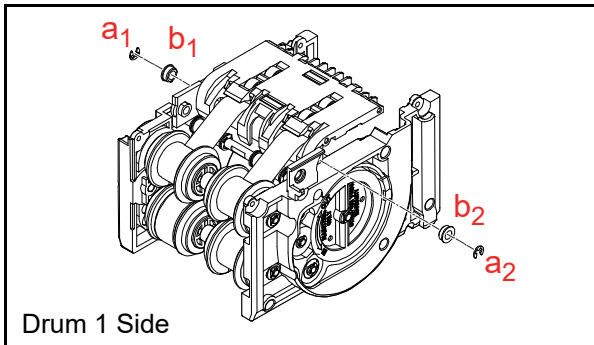


**Figure 4-104** Sponge Roller Assy. Removal (Drum 1 Side) 6

### Rubber Pulley and Drive Roller Removal (Drum 1 Side)

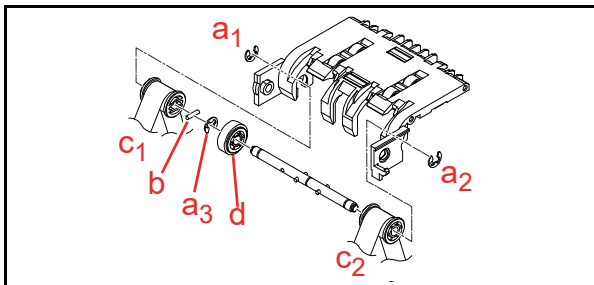
To remove the Rubber Pulley and Drive Roller from the Drum 1 Side, proceed as follows:

1. Remove the two (2) E-rings (Figure 4-105 a<sub>1</sub> & a<sub>2</sub>) and the two (2) Bearings (Figure 4-105 b<sub>1</sub> & b<sub>2</sub>).



**Figure 4-105** Rubber Pulley and Drive Roller Removal (Drum 1 Side) 1

2. Remove the three (3) E-rings (Figure 4-106 a<sub>1</sub> through a<sub>3</sub>) and the single (1) Parallel Pin (Figure 4-106 b).
3. Remove the two (2) Rubber Pulleys (Figure 4-106 c<sub>1</sub> & c<sub>2</sub>) and the single (1) Drive Roller (Figure 4-106 d).

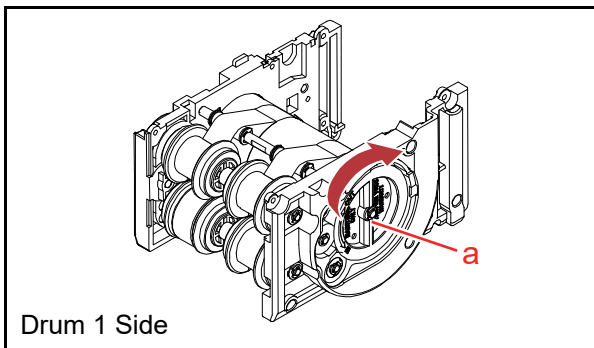


**Figure 4-106** Rubber Pulley and Drive Roller Removal (Drum 1 Side) 2

### Solenoid Removal

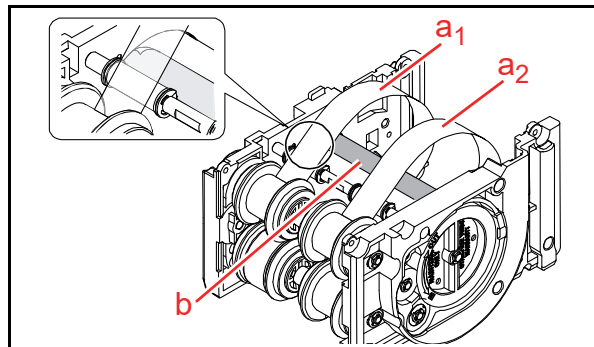
To remove the Solenoid from the Drum 1 Side, proceed as follows:

1. Rotate the Handle (Figure 4-107 a) all the way in the direction indicated by the Arrow.



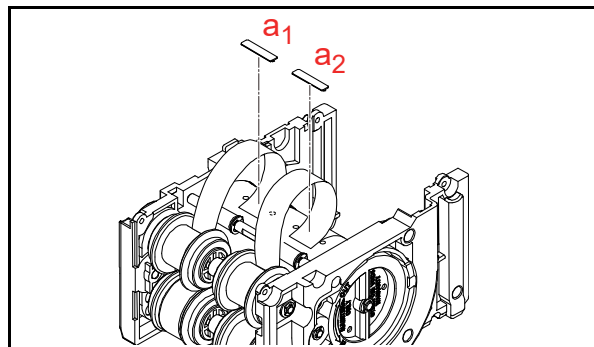
**Figure 4-107** Solenoid Removal 1

2. Pull out the two (2) Tapes (Figure 4-108 a<sub>1</sub> & a<sub>2</sub>).
3. Peel off the Clip Sticker (Figure 4-108 b).



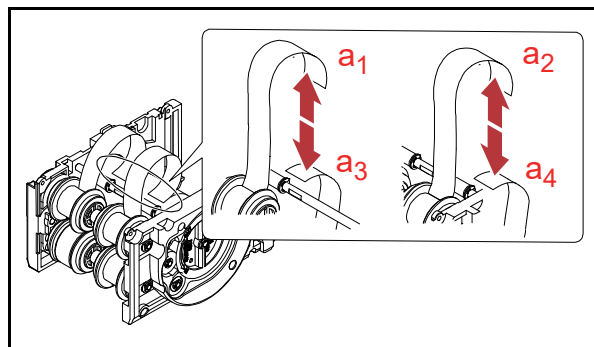
**Figure 4-108** Solenoid Removal 2

4. Remove the two (2) Clips (Figure 4-109 a<sub>1</sub> & a<sub>2</sub>).



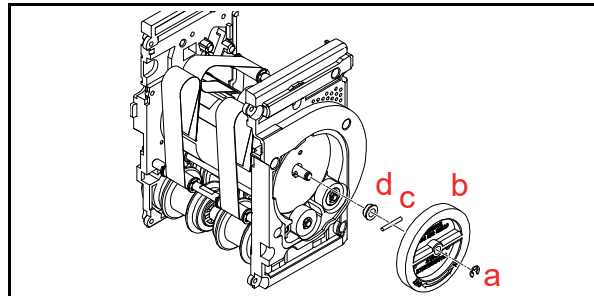
**Figure 4-109** Solenoid Removal 3

5. Peel off and separate Tapes (Figure 4-110 a<sub>1</sub> through a<sub>4</sub>).



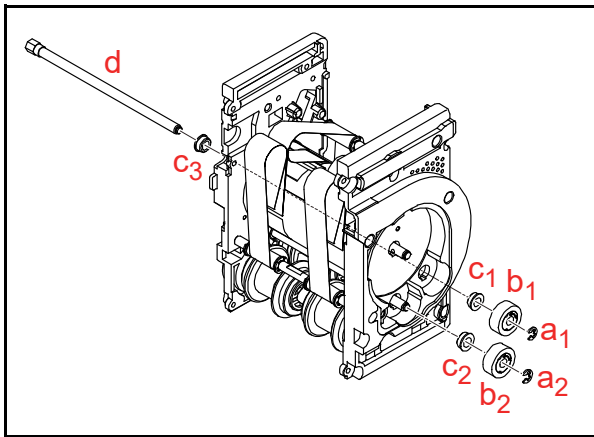
**Figure 4-110** Solenoid Removal 4

6. Remove the single (1) E-ring (Figure 4-111 a), the single (1) Handle (Figure 4-111 b), the single (1) Parallel Pin (Figure 4-111 c), and the single (1) Bearing (Figure 4-111 d).



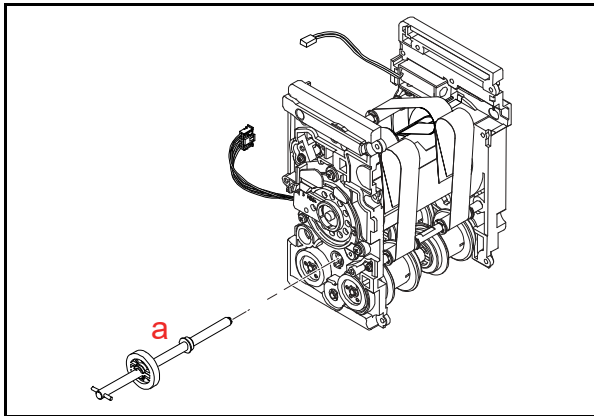
**Figure 4-111** Solenoid Removal 5

7. Remove the two (2) E-rings (Figure 4-112 **a<sub>1</sub>** & **a<sub>2</sub>**), the two (2) Clutch Gears (Figure 4-112 **b<sub>1</sub>** & **b<sub>2</sub>**) and the three (3) Bearings (Figure 4-112 **c<sub>1</sub>** through **c<sub>3</sub>**)
8. Remove the single (1) Shaft (Figure 4-112 **d**).



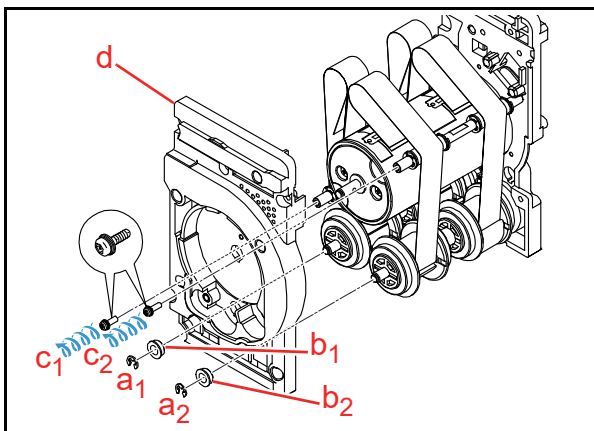
**Figure 4-112 Solenoid Removal 6**

9. Remove the Shaft Assy. (Figure 4-113 **a**).



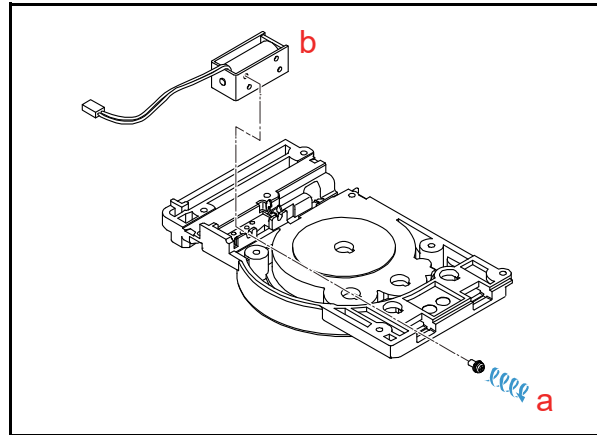
**Figure 4-113 Solenoid Removal 7**

10. Remove the two (2) E-rings (Figure 4-114 **a<sub>1</sub>** & **a<sub>2</sub>**) and the two (2) Bearings (Figure 4-114 **b<sub>1</sub>** & **b<sub>2</sub>**).
11. Remove the two (2) Screws (Figure 4-114 **c<sub>1</sub>** & **c<sub>2</sub>**) to remove the Frame Assy. (Figure 4-114 **d**).



**Figure 4-114 Solenoid Removal 8**

12. Remove the single (1) Screw (Figure 4-115 **a**) to remove the Solenoid (Figure 4-115 **b**).

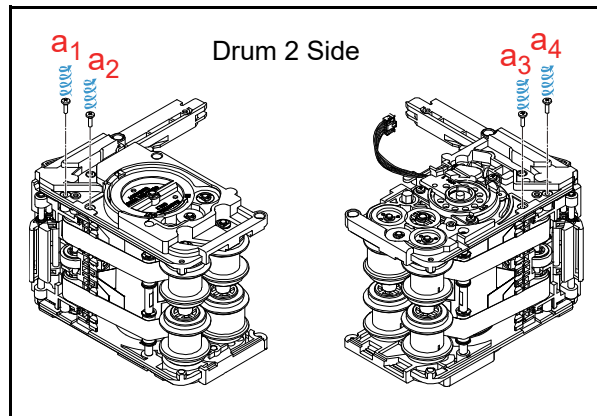


**Figure 4-115 Solenoid Removal 9**

### Sponge Roller Assy. Removal (Drum 2 Side)

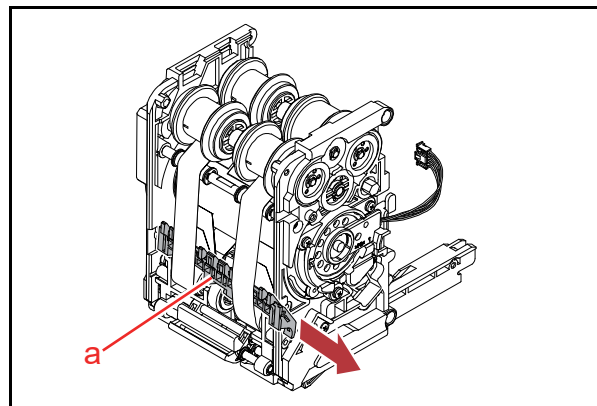
To remove the Sponge Roller Assy. from the Drum 2 Side, proceed as follows:

1. Remove the four (4) Screws (Figure 4-116 **a<sub>1</sub>** through **a<sub>4</sub>**).



**Figure 4-116 Sponge Roller Assy. Removal (Drum 2 Side) 1**

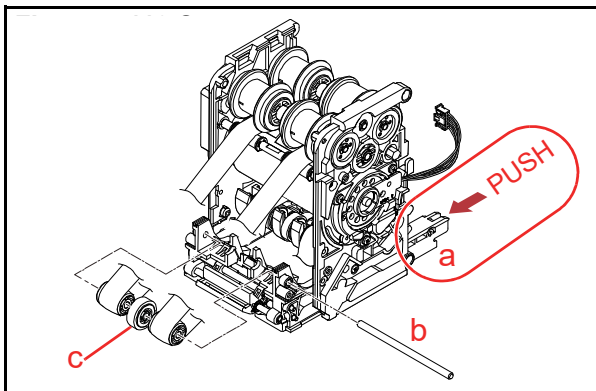
2. Remove the Course Guide (Figure 4-117 **a**).



**Figure 4-117 Sponge Roller Assy. Removal (Drum 2 Side) 2**



3. Push the Bottom Course (Figure 4-118 a) in the direction indicated by the Arrow.
4. Remove the single (1) Shaft (Figure 4-118 b) to remove the Sponge Roller (Figure 4-118 c).

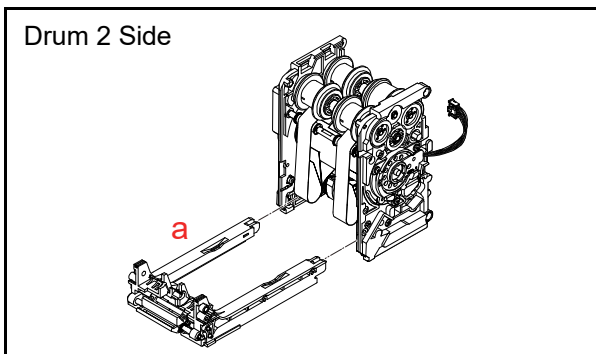


**Figure 4-118** Sponge Roller Assy. Removal (Drum 2 Side) 3

### Rubber Pulley and Drive Roller Removal (Drum 2 Side)

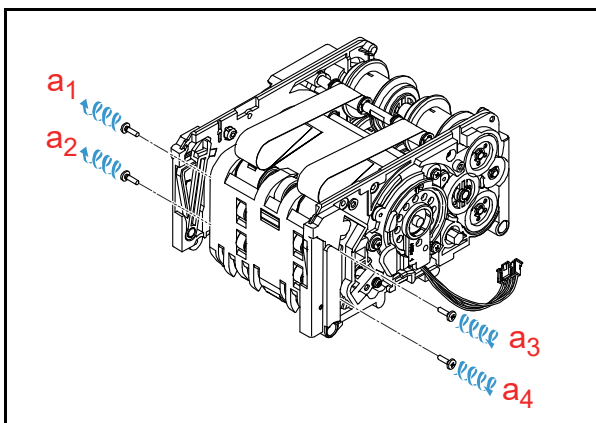
To remove the Rubber Pulley and Drive Roller from the Drum 2 Side, proceed as follows:

1. Release the locks and remove the Bottom Course Assy. (Figure 4-119 a).



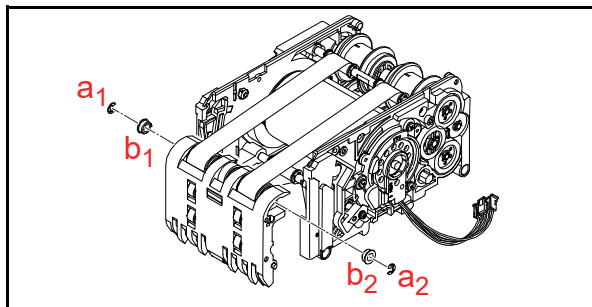
**Figure 4-119** Rubber Pulley and Dive Roller Removal (Drum 2 Side) 1

2. Remove the four (4) Screws (Figure 4-120 a<sub>1</sub> through a<sub>4</sub>).



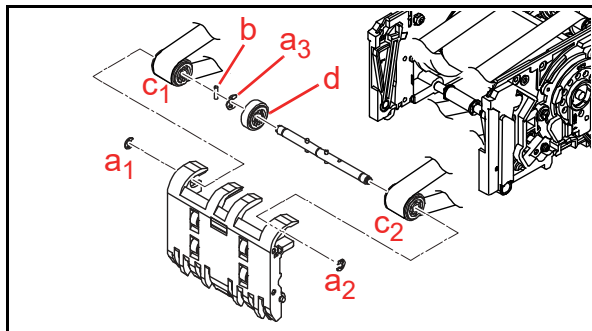
**Figure 4-120** Rubber Pulley and Dive Roller Removal (Drum 2 Side) 2

3. Remove the two (2) E-rings (Figure 4-121 a<sub>1</sub> & a<sub>2</sub>) and the two (2) Bearings (Figure 4-121 b<sub>1</sub> & b<sub>2</sub>).



**Figure 4-121** Rubber Pulley and Dive Roller Removal (Drum 2 Side) 3

4. Remove the three (3) E-rings (Figure 4-122 a<sub>1</sub> through a<sub>3</sub>) and the single (1) Parallel Pin (Figure 4-122 b).
5. Remove the two (2) Rubber Pulley (Figure 4-122 c<sub>1</sub> & c<sub>2</sub>) and the single (1) Drive Roller (Figure 4-122 d).



**Figure 4-122** Rubber Pulley and Dive Roller Removal (Drum 2 Side) 4

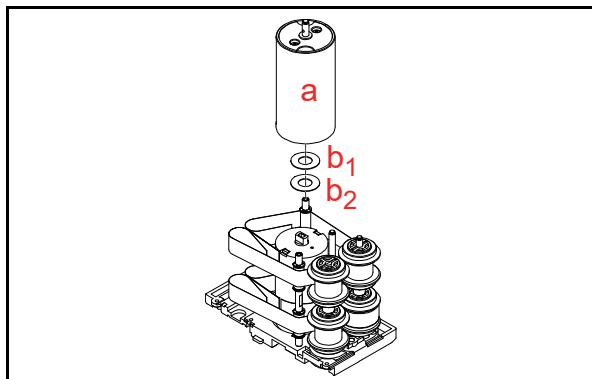
### Motor Harness Assy. Removal

To remove the Motor Harness Assy. out of Drum 1 or Drum 2 Unit, proceed as follows:



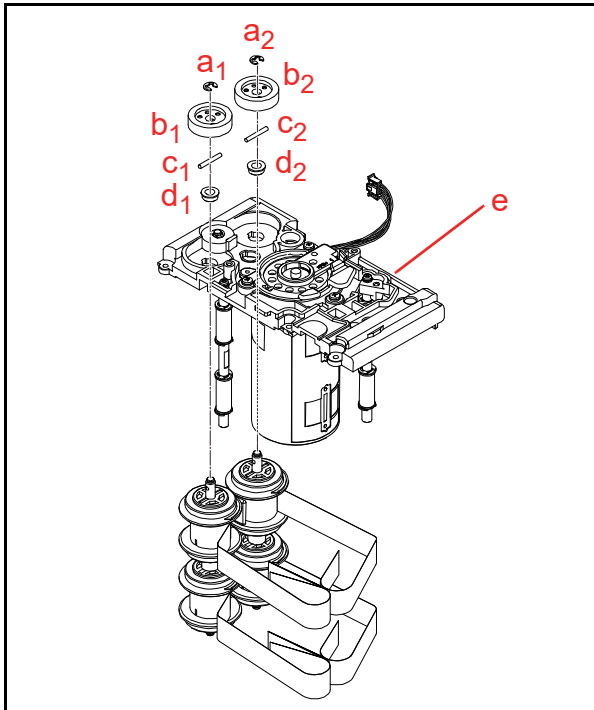
**NOTE:** For the Drum 2 Side, follow the "Solenoid Removal" on page 4-21 to disassemble the Unit this far.

1. Remove the single (1) Main Drum (Figure 4-123 a) and the two (2) Washers (Figure 4-123 b<sub>1</sub> & b<sub>2</sub>).



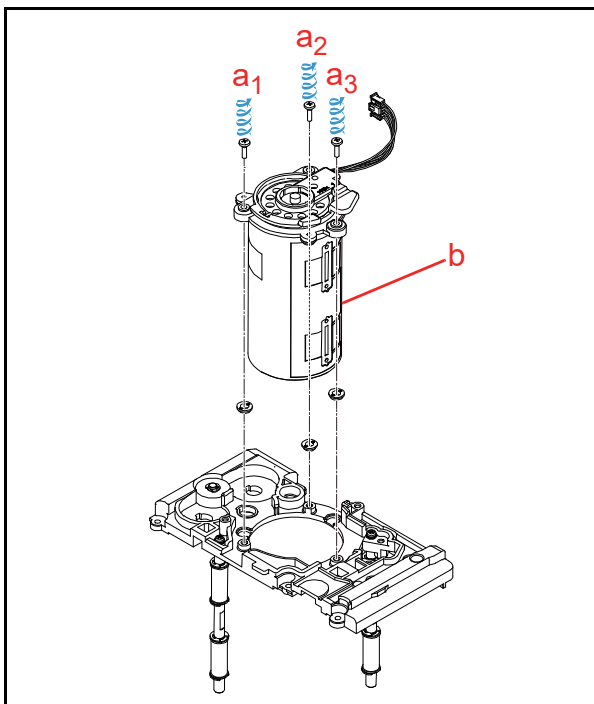
**Figure 4-123** Motor Harness Assy. Removal 1

2. Remove the two (2) E-rings (Figure 4-124 **a<sub>1</sub>** & **a<sub>2</sub>**), the two (2) Bobbin Gears (Figure 4-124 **b<sub>1</sub>** & **b<sub>2</sub>**), the two (2) Parallel Pins (Figure 4-124 **c<sub>1</sub>** & **c<sub>2</sub>**) and the two (2) Bearings (Figure 4-124 **d<sub>1</sub>** & **d<sub>2</sub>**).
3. Remove the Frame Motor Assy. (Figure 4-124 **e**).



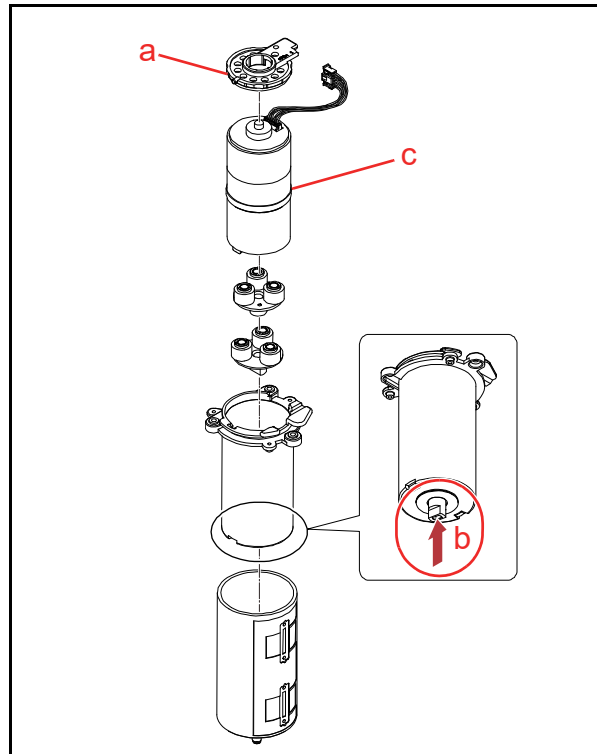
**Figure 4-124** Motor Harness Assy. Removal 2

4. Remove the three (3) Screws (Figure 4-125 **a<sub>1</sub>** through **a<sub>3</sub>**) to remove the Motor Cover Assy. (Figure 4-125 **b**).



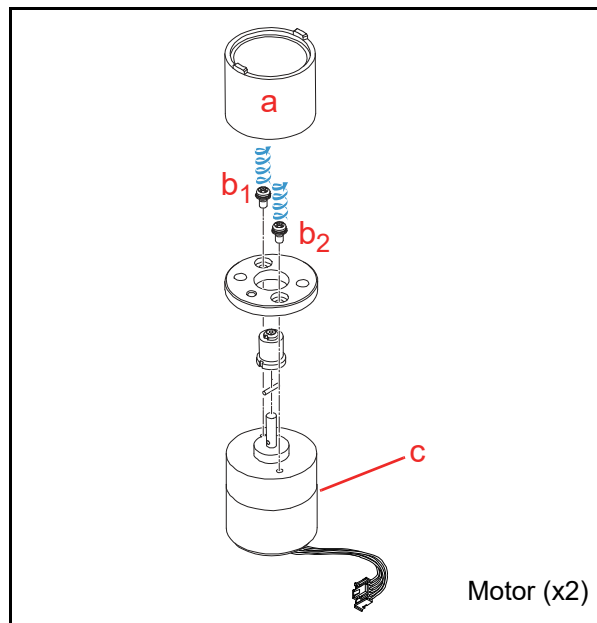
**Figure 4-125** Motor Harness Assy. Removal 3

5. Remove the single (1) Harness Cover (Figure 4-126 **a**).
6. Push the Pin (Figure 4-126 **b**) to remove the Motor Assy. (Figure 4-126 **c**) out of the Case.



**Figure 4-126** Motor Harness Assy. Removal 4

7. Remove the single (1) Outer Gear (Figure 4-127 **a**).
8. Remove the two (2) Screws (Figure 4-127 **b<sub>1</sub>** & **b<sub>2</sub>**) and disassemble the Motor Assy. as illustrated.
9. Remove the Motor Harness Assy. (Figure 4-127 **c**).

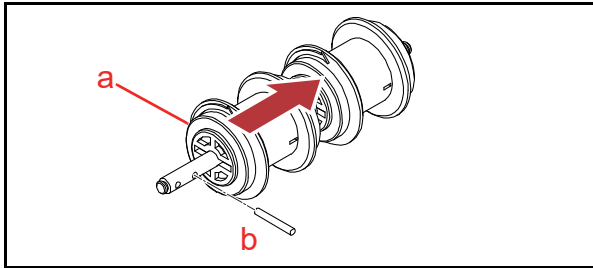


**Figure 4-127** Motor Harness Assy. Removal 5

### Clear Film and DET Film Removal

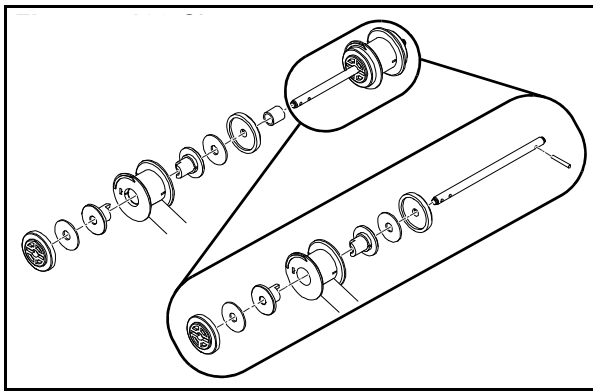
To remove the Clear Film and the DET Film, proceed as follows:

1. Push the Film Bobbin Assy. (Figure 4-128 a) in the direction indicated by the Arrow to remove the single (1) Parallel Pin (Figure 4-128 b).



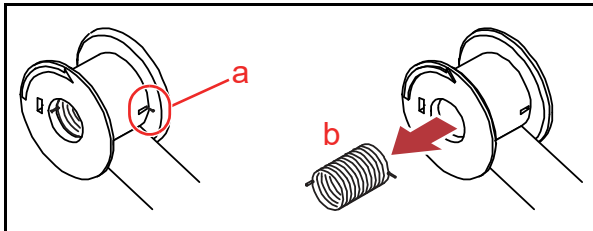
**Figure 4-128** Clear Film and DET Film Removal 1

2. Disassemble the Film Bobbin Assy. as illustrated.



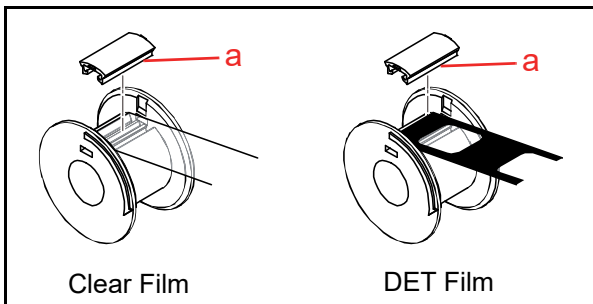
**Figure 4-129** Clear Film and DET Film Removal 2

3. Release the Spring End from the Slot in the Film Bobbin (Figure 4-130 a).
4. Remove the single (1) Spring (Figure 4-130 b).



**Figure 4-130** Clear Film and DET Film Removal 3

5. Remove the single (1) Clamp (Figure 4-131 a).
6. Remove the Clear Film or DET Film.



**Figure 4-131** Clear Film and DET Film Removal 4

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# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 5

### 5 WIRING DIAGRAMS

This section provides a Wiring Diagram for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ).

This section contains the following information:

- RT/RQ Wiring Diagram

### RT/RQ Wiring Diagram

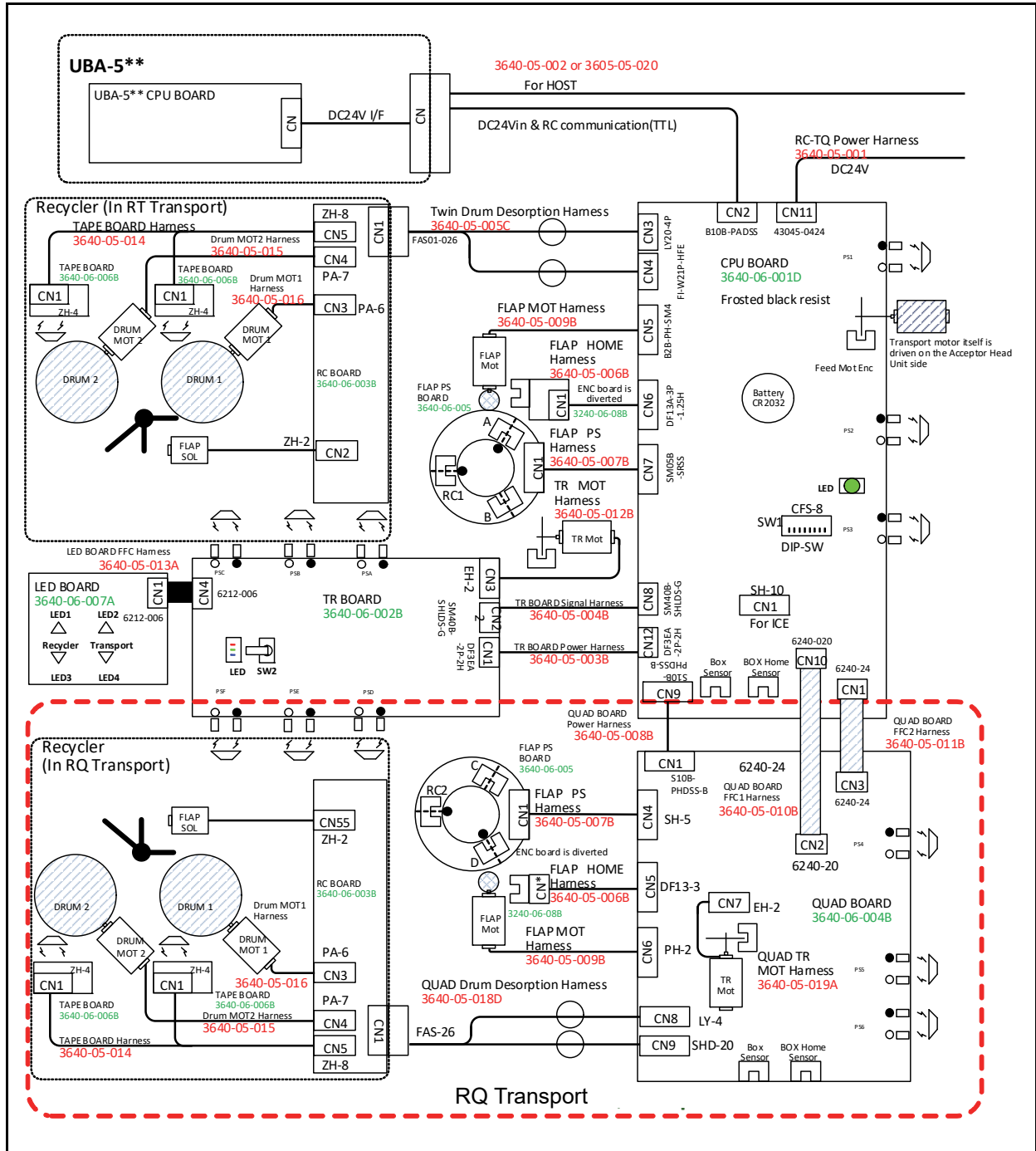


Figure 5-1 RT/RQ Wiring Diagram

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# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 6

### 6 CALIBRATION AND TESTING

This section provides Calibration and Performance Testing instructions for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ).

This section contains the following information:

- Tool Requirements
- Installation Procedures
- JCM Tool Suite Standard Edition Modes
- Software Download
- Calibration
- Performance Test Using a PC
- Performance Test without a PC

#### Tool Requirements

Figure 6-1 illustrates and identifies the tools and equipment interconnects necessary to install and/or download the Application Software, USB driver and Software, to calibrate Sensors, and to perform the Performance Test using a PC.

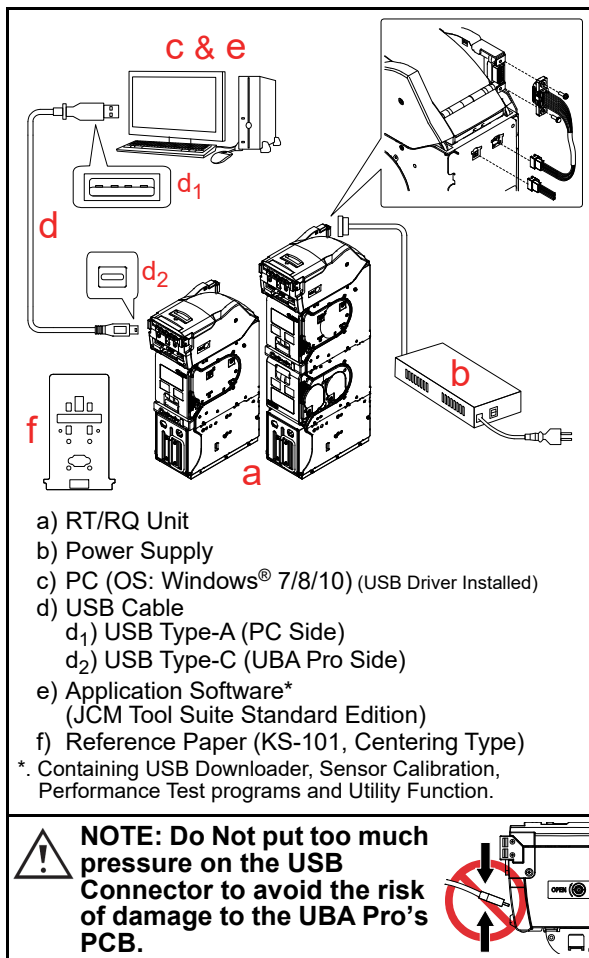


Figure 6-1 Tool and Harness Connections

#### 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).

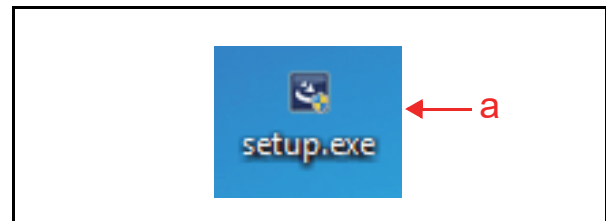


Figure 6-2 JCM Tool Suite Installation 1

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

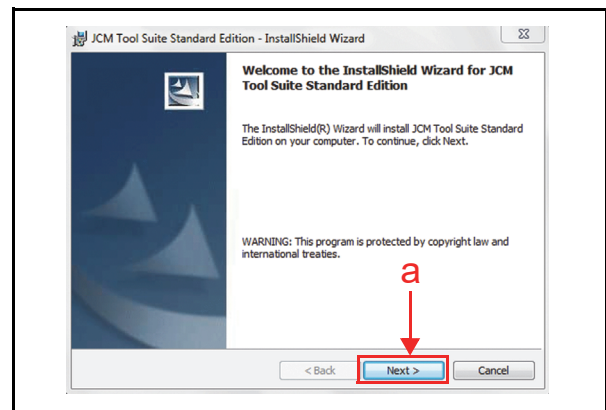
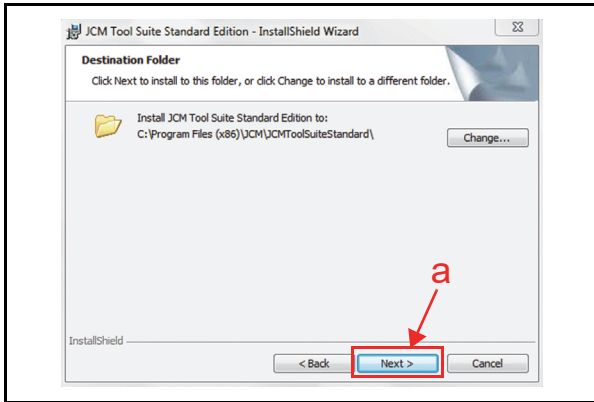


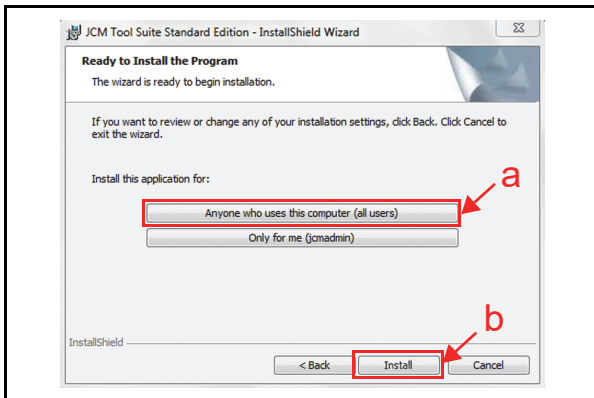
Figure 6-3 JCM Tool Suite Installation 2

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



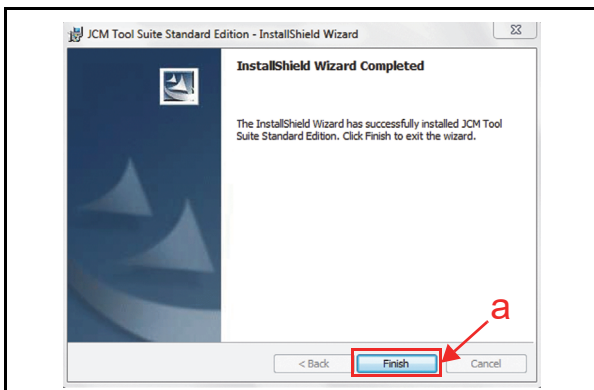
**Figure 6-4** JCM Tool Suite Installation 3

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”  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”  Screen Button (Figure 6-6 a) to end the installation process.



**Figure 6-6** JCM Tool Suite Installation 5

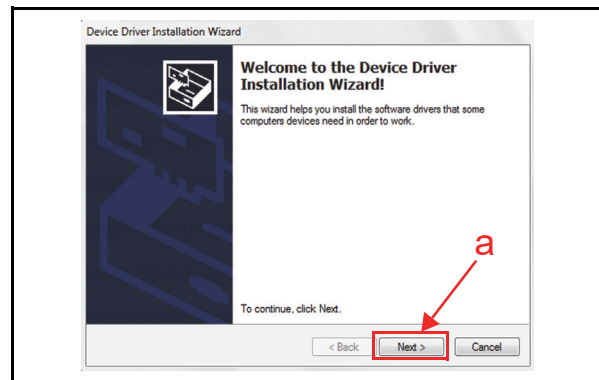
This completes the “JCM Tool Suite Standard Edition” installation procedure.

## 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:

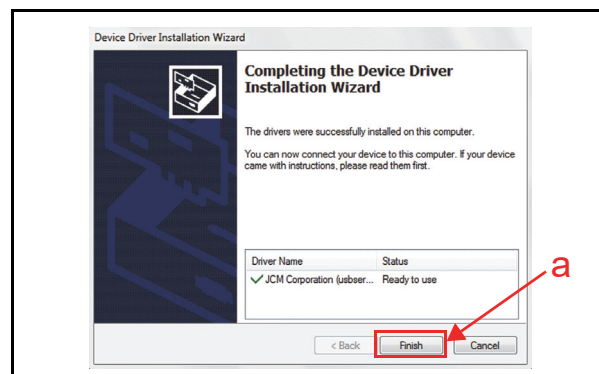
- NOTE:** The USB Driver Installation Wizard Screen appears when the JCM Tool Suite installation is completed (Go to Step 3).
- NOTE:** Step 1 and 2 are reserved for when the USB Drivers need to be installed manually.

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>”  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”  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 Modes

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 a as follows:

- **Download** (for downloading software)
- **Statistics** (for observing log data)
- **Utility** (for ICB settings, Not supported by the RT/RQ)

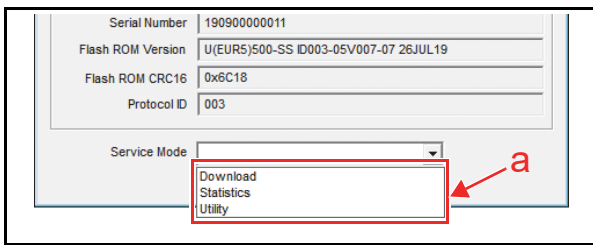


Figure 6-9 Normal Mode Selection

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

- **Download** (for downloading software)
- **Statistics** (for observing log data)
- **Sensor Adjustment** (for calibration)
- **Performance Test** (for performance testing)
- **Utility** (for ICB settings, Not supported by the RT/RQ)

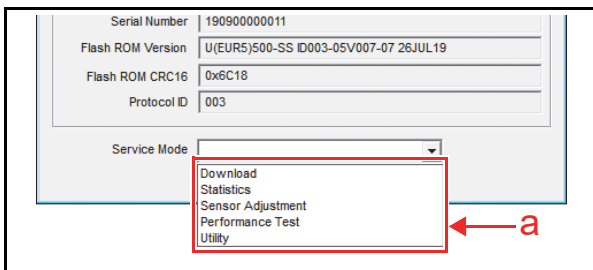


Figure 6-10 Test Mode Selection

## 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 CPU Board)

To download the Software Program, proceed as follows:

1. Remove electrical power.
2. Set the RT/RQ’s DIP Switches to All OFF.
3. When upgrading the Software, set the UBA Pro’s DIP Switches as below (Figure 6-11).

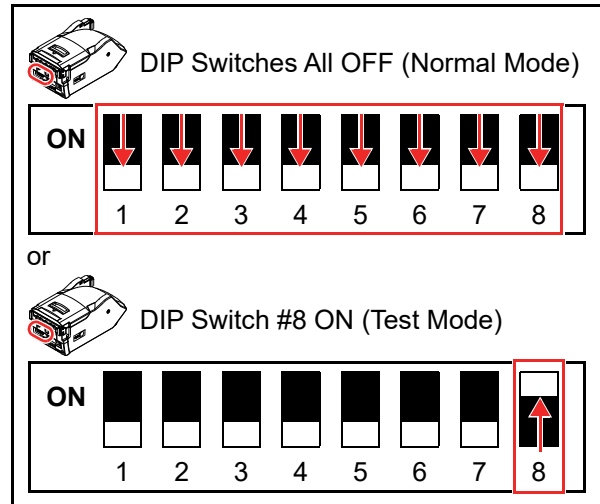


Figure 6-11 Software Download (Upgrade) 1

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

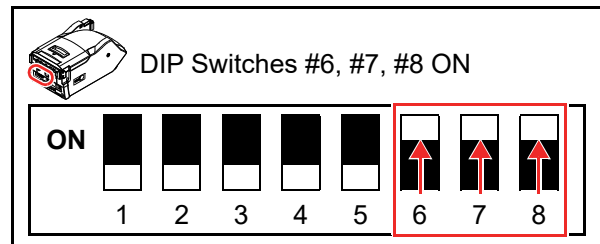


Figure 6-12 Software Download (Initial) 1

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

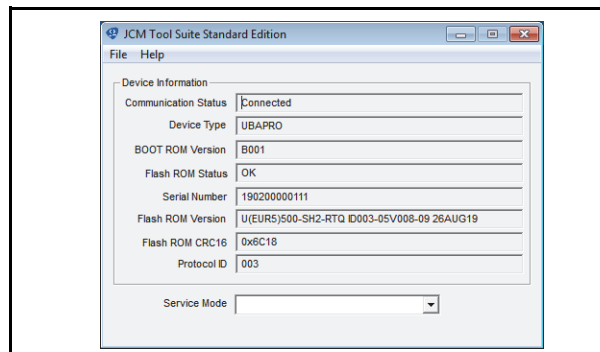
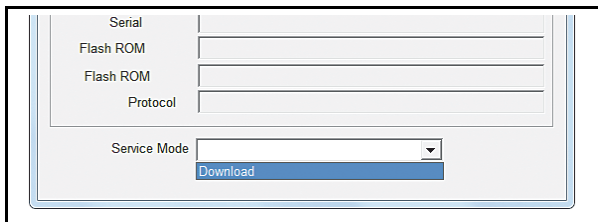


Figure 6-13 Software Download (Upgrade) 2

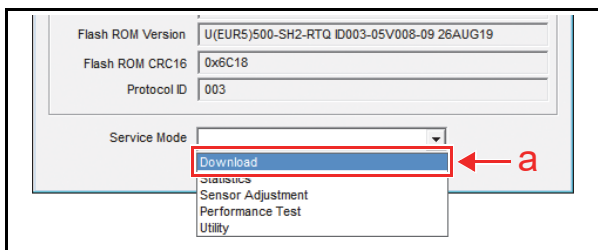


When downloading the Software Program for the first time, the Device Information will not appear (Figure 6-14).



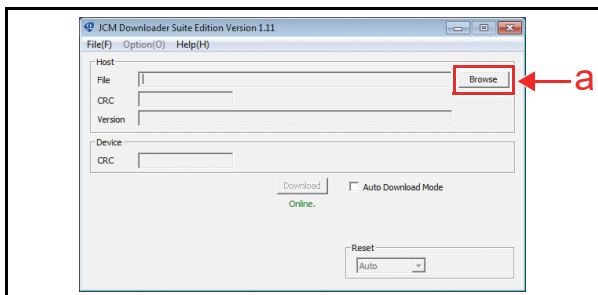
**Figure 6-14 Software Download (Initial) 2**

- 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**

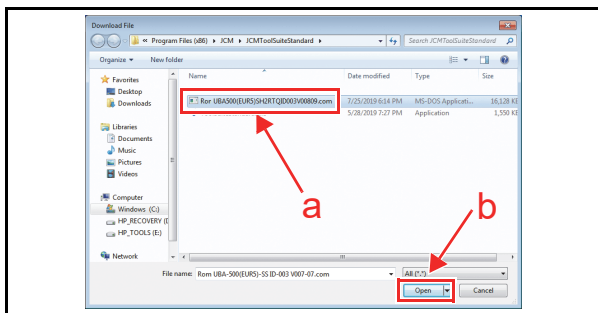
- When “Download” is selected, the “JCM Downloader Suite Edition Version X.XX” will automatically begin functioning.
- Click the “Browse” Screen Button (Figure 6-16 a).



**Figure 6-16 Software Download 4**

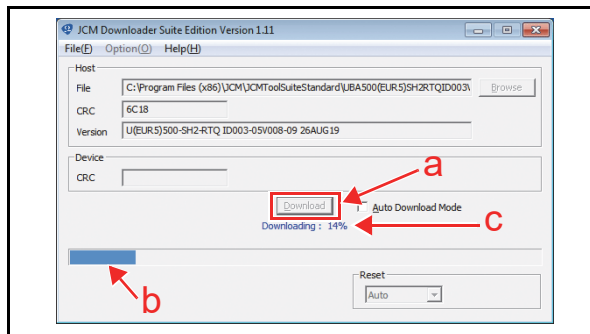
- Select the appropriate RT/RQ Software Program Version (Figure 6-17 a) on the Download File Screen.
- Click the “Open” Screen Button (Figure 6-17 b).

*NOTE: Select the correct RT/RQ Software for the Country desired.*



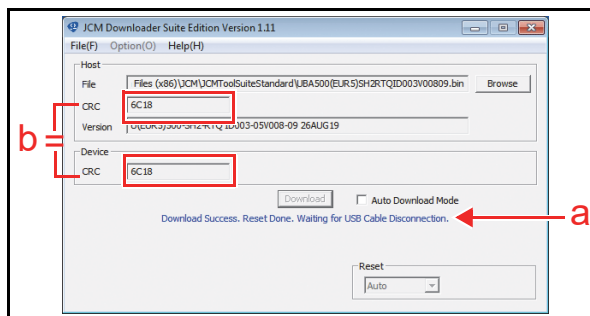
**Figure 6-17 Software Download 5**

- When the “JCM Downloader Suite” Screen reappears, click the “Download” Screen Button (Figure 6-18 a) to begin the Software download into the UBA Pro Unit.
- 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).



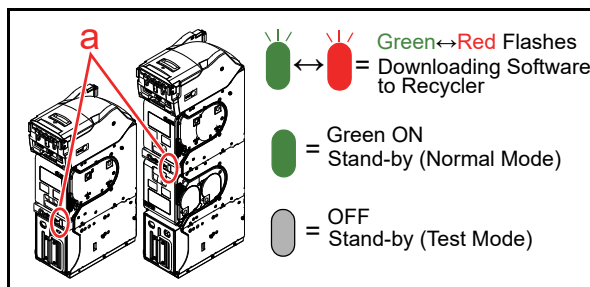
**Figure 6-18 Software Download 6**

- When the download is complete, the “Download Success. Reset Done. Waiting for USB Cable Disconnection.” Blue Text Line will appear (Figure 6-19 a).
- 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**

- To download Software from the UBA Pro into the Recycler(s), remove and then apply electrical power.
- Software will be downloaded into the Recycler(s) as needed.
- When Software Download to the Recycler(s) is completed, the RT/RQ’s Status LED (Figure 6-20 a) will turn Green (or OFF in Test Mode).



**Figure 6-20 Software Download 8**

This completes the Software Downloading Procedures.

## Calibration

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



**NOTE:** Refer to the *UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual* for calibrating the Sensors on the UBA Pro Unit.

### When to Calibrate

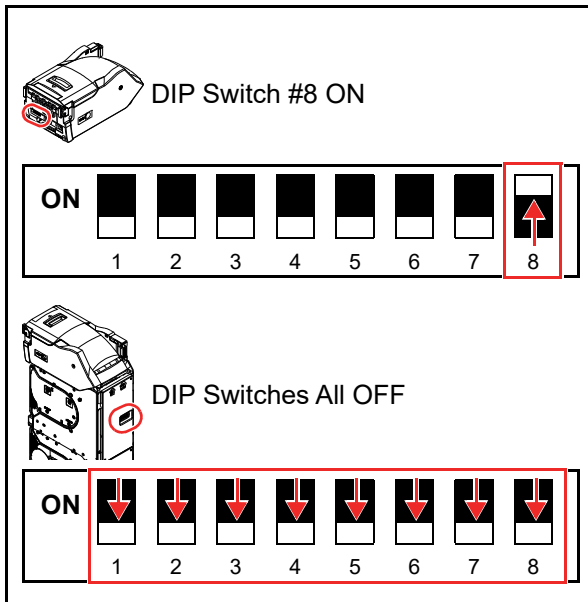
Calibration should be performed when one of the following four (4) conditions occur:

- The Unit is disassembled or reassembled.
- One of Sensors is removed or replaced.
- The UBA Pro Main Board or RT/RQ Main Board is removed or replaced.
- Dirt adheres to the Sensors (Clean the Sensor first. See “Cleaning Procedure” on page 2-16).
- The Banknote Acceptance Rate becomes drastically degraded.

### Sensor Calibration

To calibrate the Recycler Sensors, proceed as follows:

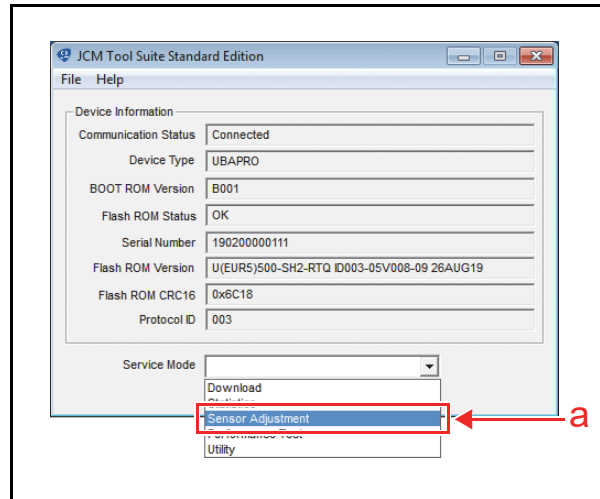
1. Remove electrical power.
2. Set each DIP Switch of the UBA Pro and the RT/RQ as below (Figure 6-21).



**Figure 6-21** Sensor Calibration 1

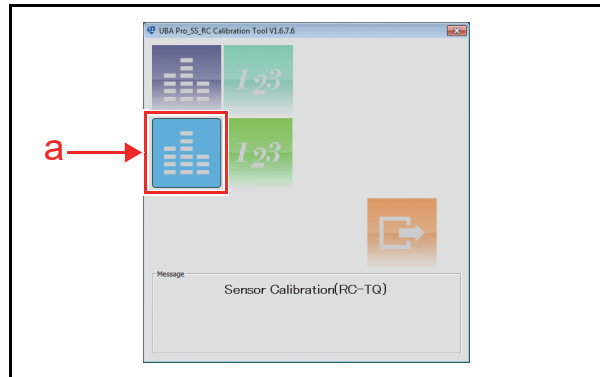
3. Connect the Unit to the PC.  
(Refer to Figure 6-1 for the Tool Requirements and Harness Connector locations).
4. Apply electrical power.
5. The Green and Red Status LEDs will be lit.
6. Launch the “JCM Tool Suite Standard Edition” Application.
7. Click and hold-down the “Service Mode” Pull-Down Menu.

8. Select “Sensor Adjustment” (Figure 6-22 a).



**Figure 6-22** Sensor Calibration 2

9. Confirm that the Sensor Calibration Program Screen appears (Figure 6-23).
10. Click the “Sensor Calibration (RC-TQ)” button (Figure 6-23 a).

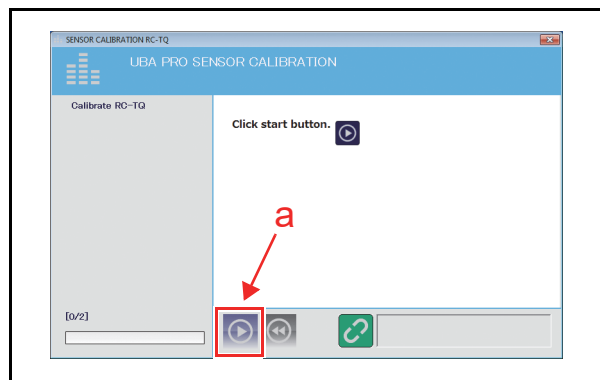


**Figure 6-23** Sensor Calibration 3

11. Click the “Start” button (Figure 6-24 a) to begin the Sensor Calibration.



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



**Figure 6-24** Sensor Calibration 4

12. The 2 Sensor Calibration items will automatically run.

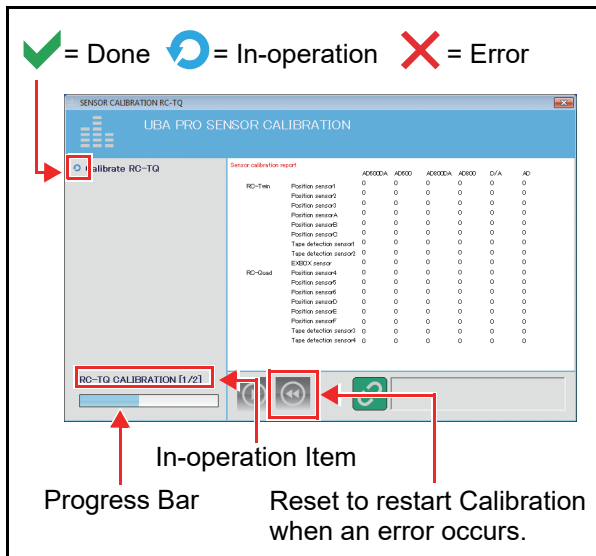


Figure 6-25 Sensor Calibration 5

13. When the Sensor Calibration is completed successfully, the following window (Figure 6-26) will appear.

14. Click the “OK”  button (Figure 6-26 a).

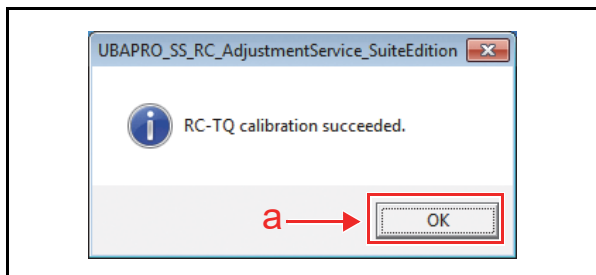


Figure 6-26 Sensor Calibration 6

### Performance Test Using a PC

The various Performance Tests using a PC are available for the RT Transport side (Figure 6-27 a) and the RQ Transport side (Figure 6-27 b).

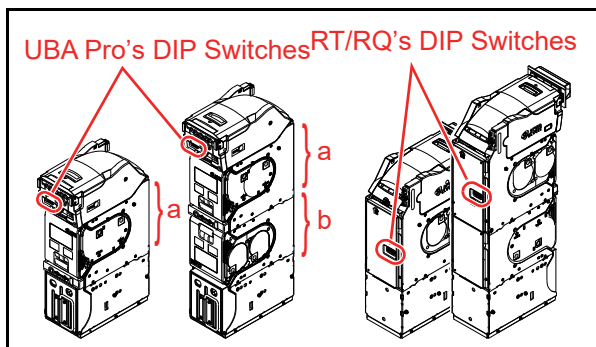


Figure 6-27 DIP Switches and RT/RQ Transports

### List of the Performance Tests without a PC

#### List of the UBA Pro Unit Performance Tests

*NOTE: Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the following test items specific to the UBA Pro Unit.*

- Feed Motor Forward Rotation Test
- Feed Motor Reverse Rotation Test
- Sensor Test
- Aging Test
- DIP Switch Test
- Stacking Operation Test
- PB Motor Test
- Centering Motor Test
- Stacker Motor Test without Cash Box
- Entry Motor Forward Rotation Test
- Entry Motor Reverse Rotation Test
- Entry Motor and Feed Motor Forward Rotation Test
- Entry Motor and Feed Motor Reverse Rotation Test

#### List of the RT/RQ Unit Performance Tests

Table 6-1 lists the test items for the RT/RQ Unit Performance Test using a PC.

Table 6-1 List of the RT/RQ Performance Tests

Test Item	Page
Status LED Test	Page 6-7
DIP Switch Test	Page 6-8
Feed Motor Speed (Forward) Test	RT Transport: Page 6-8 RQ Transport: Page 6-12
Feed Motor Speed (Reverse) Test	RT Transport: Page 6-9 RQ Transport: Page 6-13
Flapper Motor Operation Time Test	RT Transport: Page 6-9 RQ Transport: Page 6-13
Note Position Sensor 1-3 Test	Page 6-10
Note Position Sensor 4-6 Test	Page 6-14
Note Position Sensor A-C Test	Page 6-10
Note Position Sensor D-F Test	Page 6-14
Recycler Solenoid Test	RT Transport: Page 6-11 RQ Transport: Page 6-15
Drum 1 Motor Test	RT Transport: Page 6-11 RQ Transport: Page 6-15
Drum 2 Motor Test	RT Transport: Page 6-12 RQ Transport: Page 6-16



### Launch Performance Test Program

To launch the Performance Test program, proceed as follows:

1. Remove electrical power.
2. Set each DIP Switch of the UBA Pro and the RT/RQ as below (Figure 6-28).

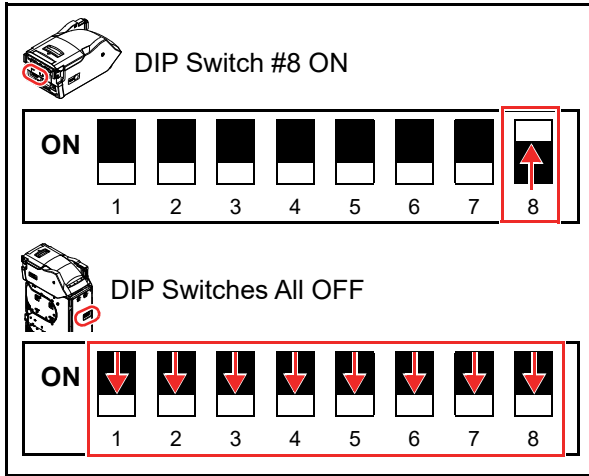


Figure 6-28 Launch Performance Test Program 1

3. Connect the Unit to the PC.  
(Refer to Figure 6-1 for the Tool Requirements and Harness Connector locations).
4. Apply electrical power to the Unit.
5. The UBA Pro's 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 6-29 a).

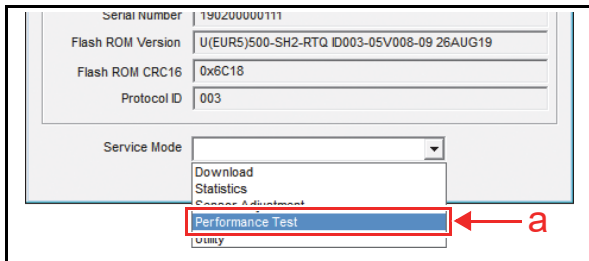


Figure 6-29 Launch Performance Test Program 2

9. The Performance Test Main Screen will appear (Figure 6-30).

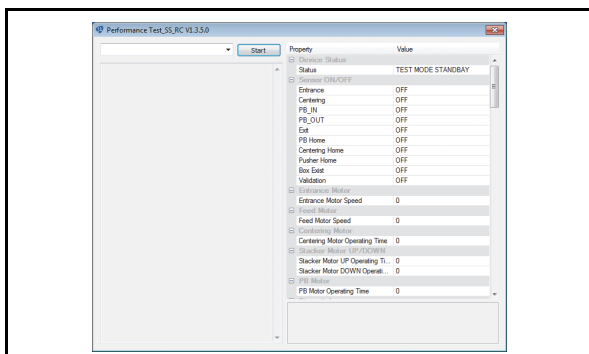


Figure 6-30 Launch Performance Test Program 3

### Status LED Test

To perform the Status LED Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-7).
2. Select "RC\_COLLECT\_AND\_LED\_TEST" (Figure 6-31 a).
3. Click the "Start"  Screen Button (Figure 6-31 b) to begin the Test.

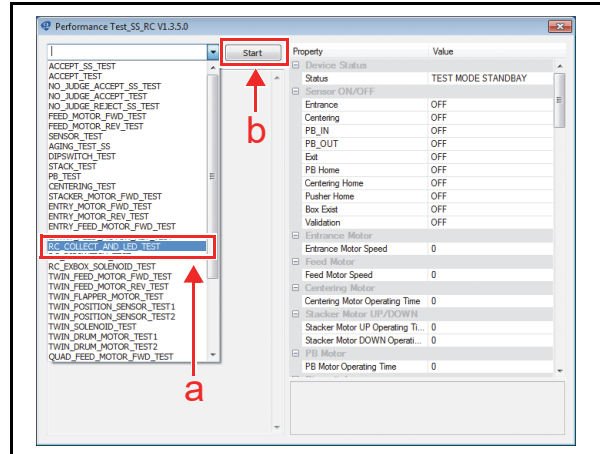


Figure 6-31 Status LED Test 1

4. Press the Status LED/Collect Button (Figure 6-32 a).
5. Confirm that the Status LED is lit in the following sequential order each time when pressing the Status LED/Collect Button:  
Green  => Magenta  => Cyan  => Blue   
Blue  => Yellow  => Red  => White  => OFF

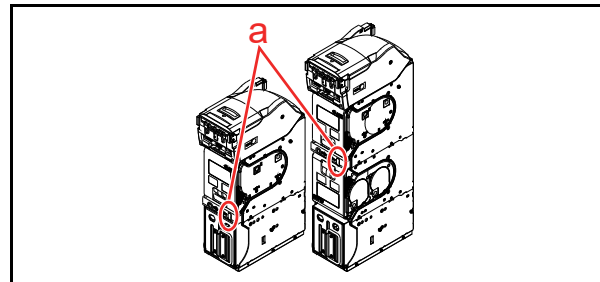


Figure 6-32 Status LED Test 2

6. Click the "Stop"  Screen Button (Figure 6-33 a) to end the test.

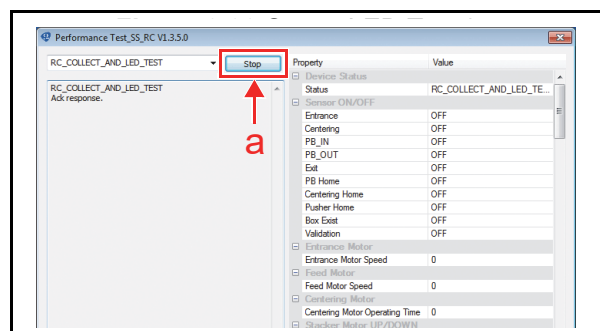


Figure 6-33 Status LED Test 3

### DIP Switch Test

To perform the DIP Switch Test, proceed as follows:

1. Launch the Performance Test Program (see page 6-7).
2. Select “RC\_DIPSWTICH\_TEST” (Figure 6-34 a).
3. Click the “Start”  Screen Button (Figure 6-34 b) to begin the Test.

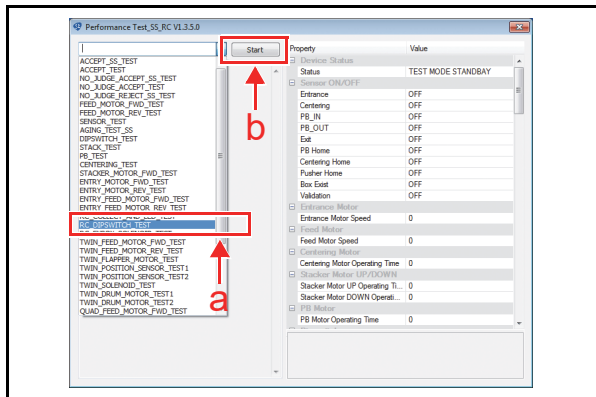


Figure 6-34 DIP Switch Test 1

4. Set the RT/RQ’s DIP Switch #1 through #8 to ON and OFF.

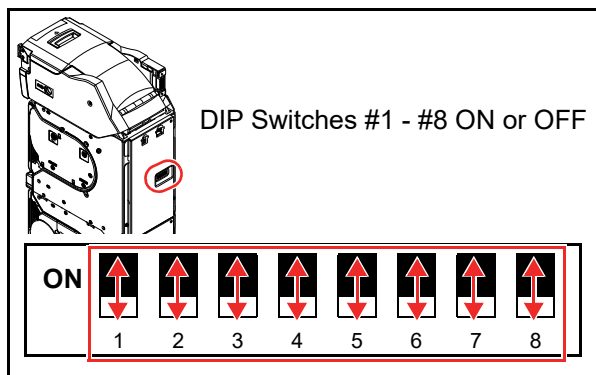


Figure 6-35 DIP Switch Test 2

5. The resulting indication will appear in the “RC-Dip switch” area (Figure 6-36 a) on the Screen.
6. Confirm that indication changes “ON” and “OFF” as the Switch is set.
7. Click the “Stop”  Screen Button (Figure 6-36 b) to end the test.

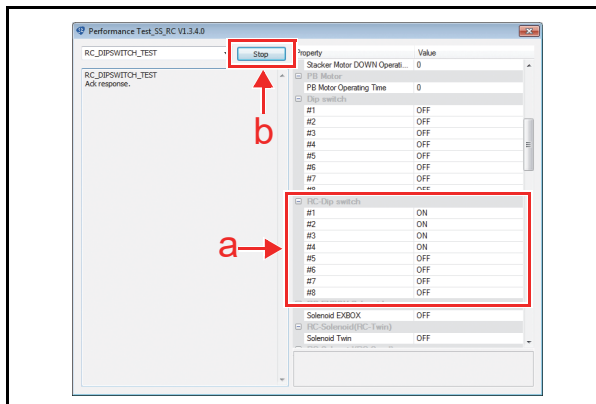


Figure 6-36 DIP Switch Test 3

### RT Transport Performance Tests

This section provides instructions for conducting a Performance Test Using a PC on the RT Transport side (Figure 6-27 a).

#### Feed Motor Speed Forward Rotation Test (RT Transport)

To perform the Feed Motor Speed Test in the forward rotation on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_FEED\_MOTOR\_FWD\_TEST” (Figure 6-37 a).
4. Click the “Start”  Screen Button (Figure 6-37 b) to begin the Test.

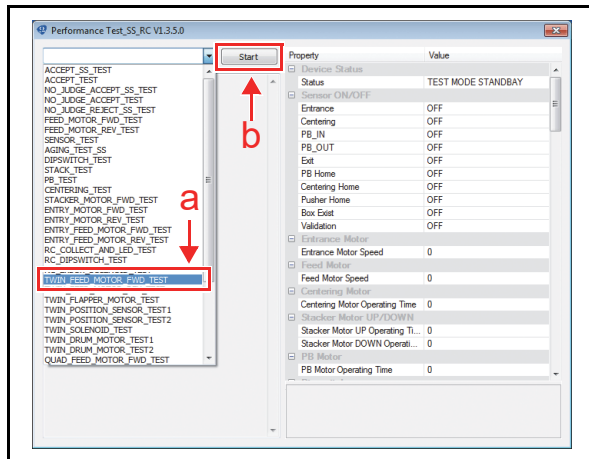


Figure 6-37 Feed Motor Speed Forward Rotation Test (RT Transport) 1

5. The measured speed will appear in the “RC-Feed Motor (RC-Twin)” area (Figure 6-38 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 600mm/sec to 900mm/sec.
7. Click the “Stop”  Screen Button (Figure 6-38 b) to end the test.

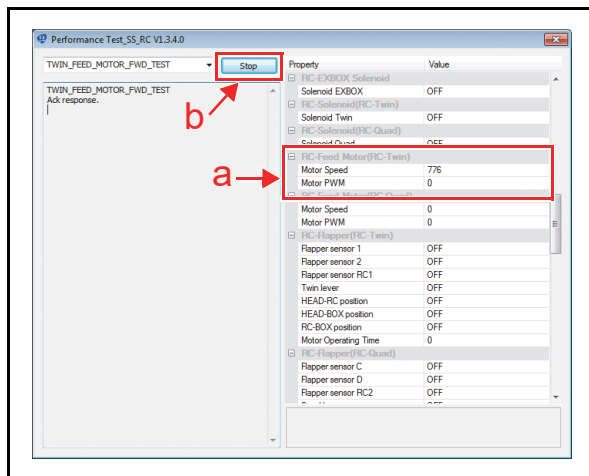



Figure 6-38 Feed Motor Speed Forward Rotation Test (RT Transport) 2

### Feed Motor Speed Reverse Rotation Test (RT Transport)

To perform the Feed Motor Speed Test in the reverse rotation on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_FEED\_MOTOR\_REV\_TEST” (Figure 6-39 a).
4. Click the “Start”  Screen Button (Figure 6-39 b) to begin the Test.

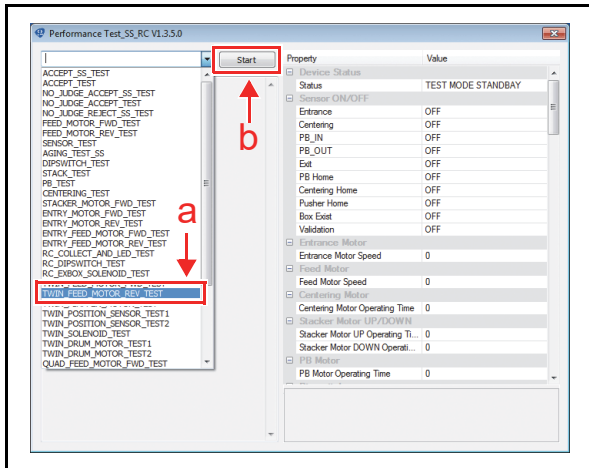



Figure 6-39 Feed Motor Speed Reverse Rotation Test (RT Transport) 1

5. The measured speed will appear in the “RC-Feed Motor (RC-Twin)” area (Figure 6-40 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 600mm/sec to 900mm/sec.
7. Click the “Stop”  Screen Button (Figure 6-40 b) to end the test.

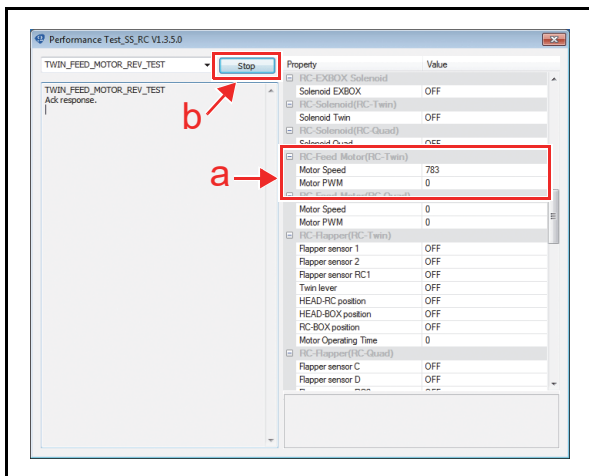



Figure 6-40 Feed Motor Speed Reverse Rotation Test (RT Transport) 2

### Flapper Motor Operation Time Test (RT Transport)

To perform the Flapper Motor Operation Time Test on the RT Transport side, proceed as follows:

1. Launch the Performance Test Program (see page 6-7).
2. Select “TWIN\_FLAPPER\_MOTOR\_TEST” (Figure 6-41 a).
3. Click the “Start”  Screen Button (Figure 6-41 b) to begin the Test.

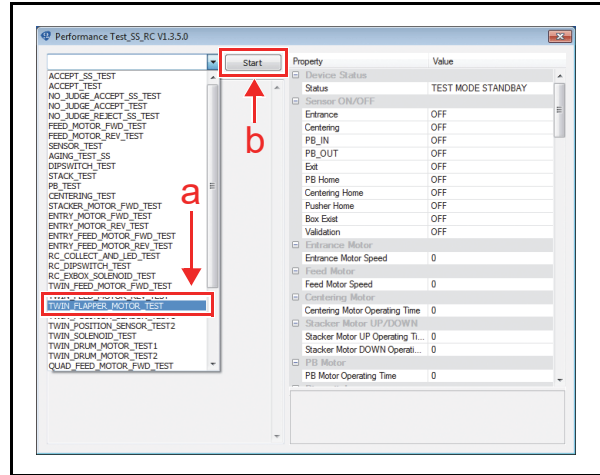



Figure 6-41 Flapper Motor Operation Time Test (RT Transport) 1

4. The measured time will appear in the “RC-Flapper (RC-Twin)” area (Figure 6-42 a) on the Screen.
5. Confirm that the operation time is in the acceptable range: 300msec to 950msec.
6. Click the “Stop”  Screen Button (Figure 6-42 b) to end the test.

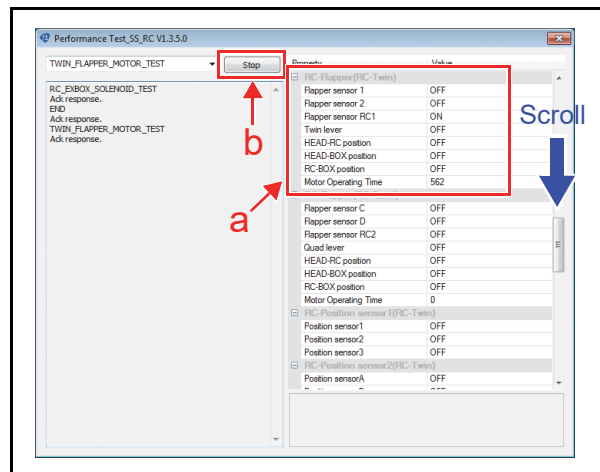



Figure 6-42 Flapper Motor Operation Time Test (RT Transport) 2

**Note Position Sensor 1-3 Test**

To perform the Note Position Sensor 1 through 3 Test on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_POSITION\_SENSOR\_TEST1” (Figure 6-43 a).
4. Click the “Start”  Screen Button (Figure 6-43 b) to begin the Test.

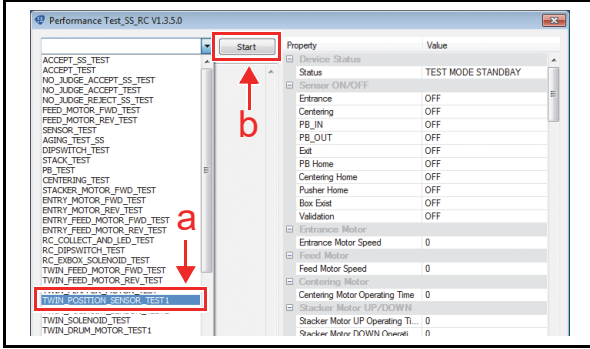

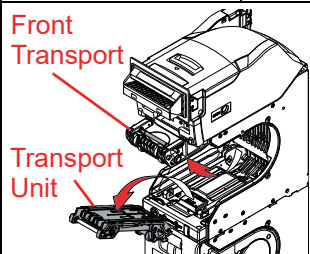


Figure 6-43 Note Position Sensor 1 -3 Test 1

5. Follow the procedures below.

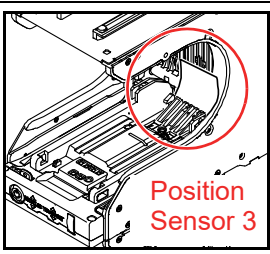
 **NOTE:** Refer to “Sensor, Roller and Belt Locations” on page 2-17 for the detailed Sensor locations.

Test Item	Procedure
Note Position Sensor 1	Remove the Recycler
Note Position Sensor 2	Open/close the Front Transport to cover/uncover each Sensor
Note Position Sensor 3	Remove the Transport Unit ↓ Cover/uncover the Sensor




Front Transport

Transport Unit



Position Sensor 3

6. Confirm the “ON/OFF” indication (Detected/ NOT Detected) appeared in the “RC-Position sensor 1 (RC-Twin)” area (Figure 6-44 a).
7. Click the “Stop”  Screen Button (Figure 6-44 b) to end the test.

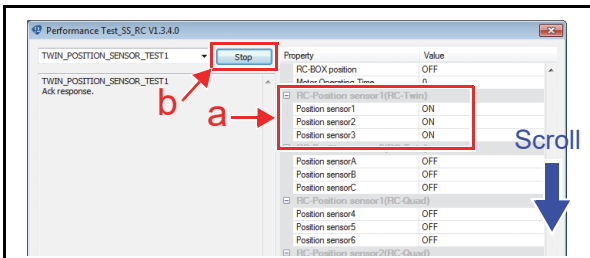



Figure 6-44 Note Position Sensor 1 -3 Test 2

**Note Position Sensor A-C Test**

To perform the Note Position Sensor A through C Test on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_POSITION\_SENSOR\_TEST2” (Figure 6-45 a).
4. Click the “Start”  Screen Button (Figure 6-45 b) to begin the Test.

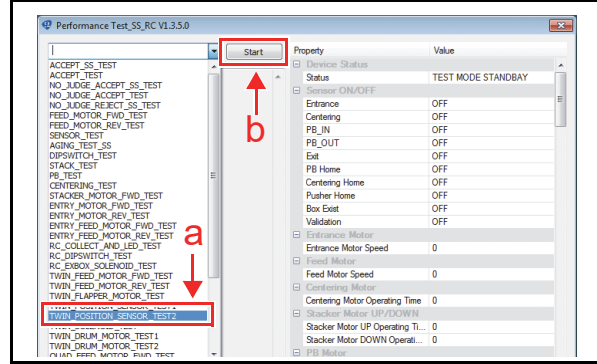

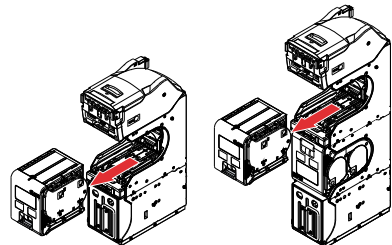



Figure 6-45 Note Position Sensor A -C Test 1

5. Follow the procedures below.

 **NOTE:** Refer to “Sensor, Roller and Belt Locations” on page 2-17 for the detailed Sensor locations.

Test Item	Procedure
Note Position Sensor A	Remove/reseat the Recycler to cover/uncover the Sensors.
Note Position Sensor B	
Note Position Sensor C	



6. Confirm the “ON/OFF” indication (Detected/ NOT Detected) appeared in the “RC-Position sensor 2 (RC-Twin)” area (Figure 6-46 a).
7. Click the “Stop”  Screen Button (Figure 6-46 b) to end the test.

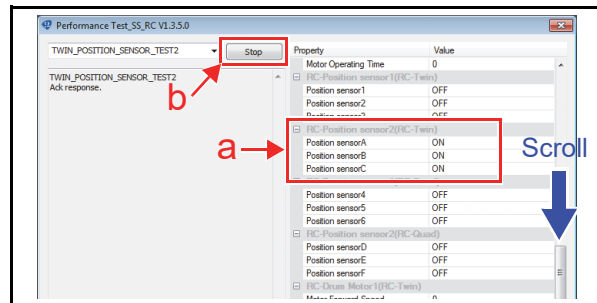



Figure 6-46 Note Position Sensor A -C Test 2



### Solenoid Test (RT Transport)

To perform the Recycler’s Solenoid Test on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_SOLENOID\_TEST” (Figure 6-47 a).
4. Click the “Start”  Screen Button (Figure 6-47 b) to begin the Test.

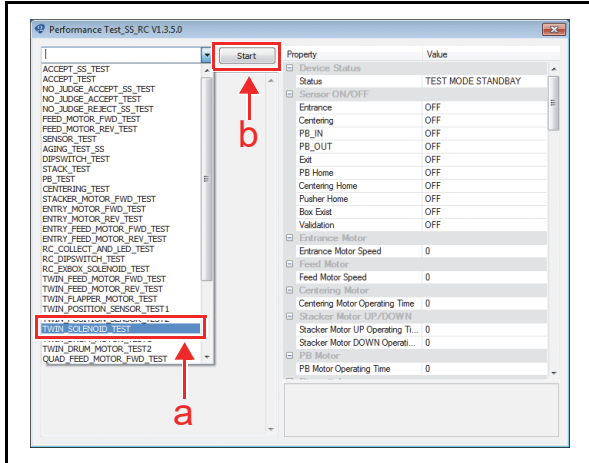



Figure 6-47 Solenoid Test (RT Transport) 1

5. Confirm the “ON/OFF” indication in the “RC-Solenoid (RC-Twin)” area (Figure 6-48 a) is switched as Solenoid moves automatically.
6. Click the “Stop”  Screen Button (Figure 6-48 b) to end the test.

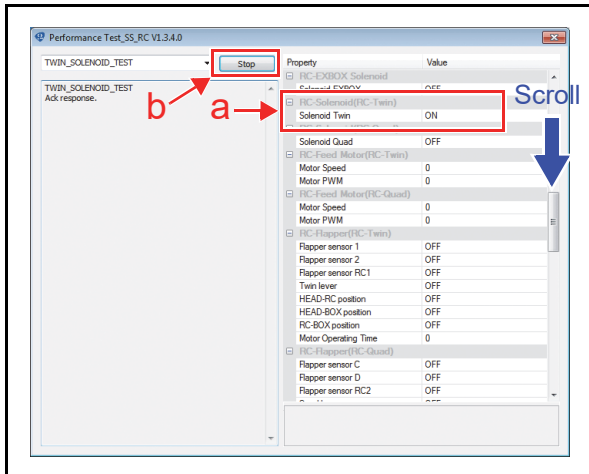



Figure 6-48 Solenoid Test (RT Transport) 2

### Drum 1 Motor Speed Test (RT Transport)

To perform the Drum 1 Motor Speed Test on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_DRUM\_MOTOR\_TEST1” (Figure 6-49 a).
4. Click the “Start”  Screen Button (Figure 6-49 b) to begin the Test.

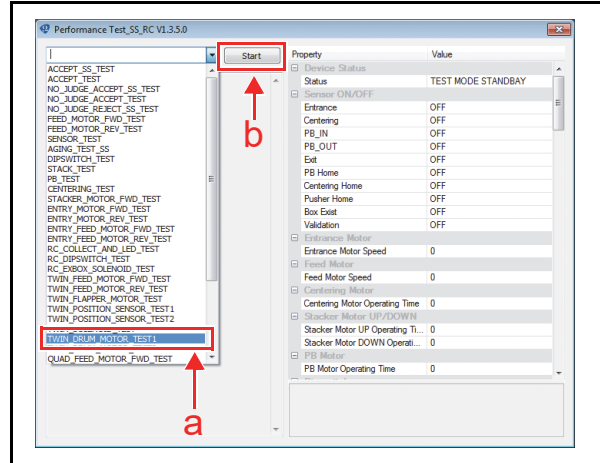



Figure 6-49 Drum 1 Motor Speed Test (RT Transport) 1

5. The measured speed will appear in the “RC-Drum Motor 1 (RC-Twin)” area (Figure 6-50 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 700mm/sec to 950mm/sec (Forward/Reverse)
7. Click the “Stop”  Screen Button (Figure 6-50 b) to end the test.

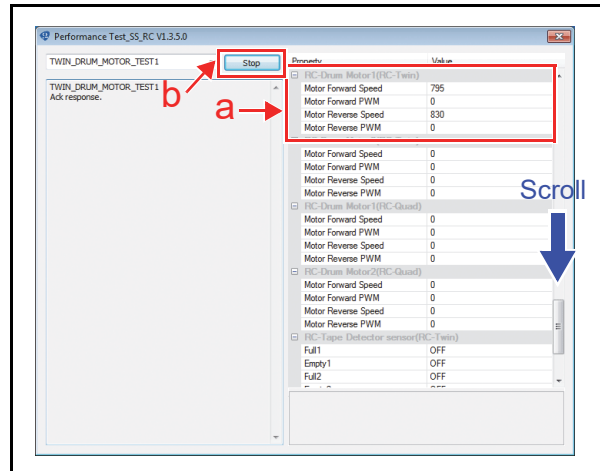


Figure 6-50 Drum 1 Motor Speed Test (RT Transport) 2

### Drum 2 Motor Speed Test (RT Transport)

To perform the Drum 2 Motor Speed Test on the RT Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “TWIN\_DRUM\_MOTOR\_TEST2” (Figure 6-51 a).
4. Click the “Start”  Screen Button (Figure 6-51 b) to begin the Test.

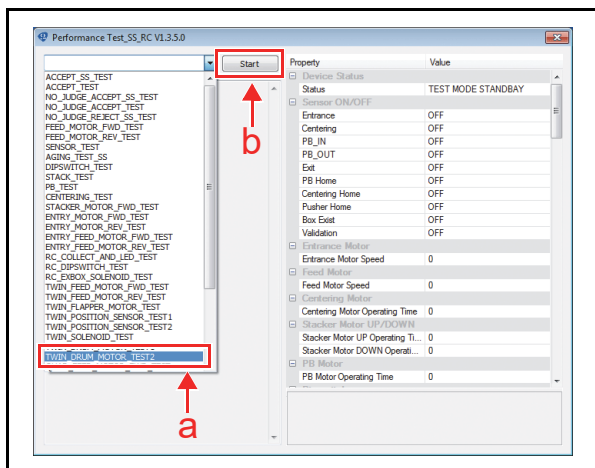


Figure 6-51 Drum 2 Motor Speed Test (RT Transport) 1

5. The measured speed will appear in the “RC-Drum Motor 2 (RC-Twin)” area (Figure 6-52 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 700mm/sec to 950mm/sec (Forward/Reverse)
7. Click the “Stop”  Screen Button (Figure 6-52 b) to end the test.

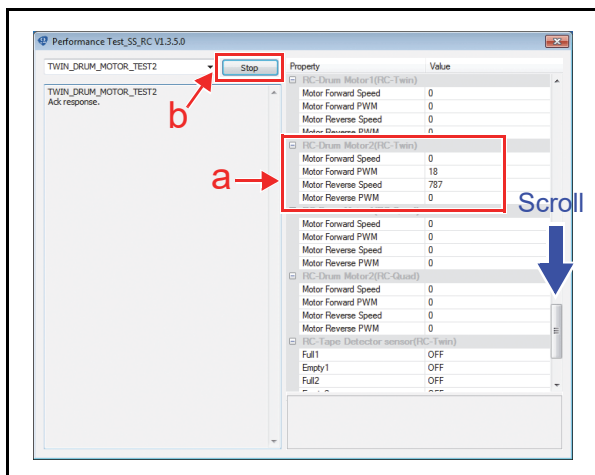


Figure 6-52 Drum 2 Motor Speed Test (RT Transport) 2

### RQ Transport Performance Tests

This section provides instructions for conducting a Performance Test Using a PC on the RQ Transport side (Figure 6-27 b).

#### Feed Motor Speed Forward Rotation Test (RQ Transport)

To perform the Feed Motor Speed Test in the forward rotation on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_FEED\_MOTOR\_FWD\_TEST” (Figure 6-53 a).
4. Click the “Start”  Screen Button (Figure 6-53 b) to begin the Test.

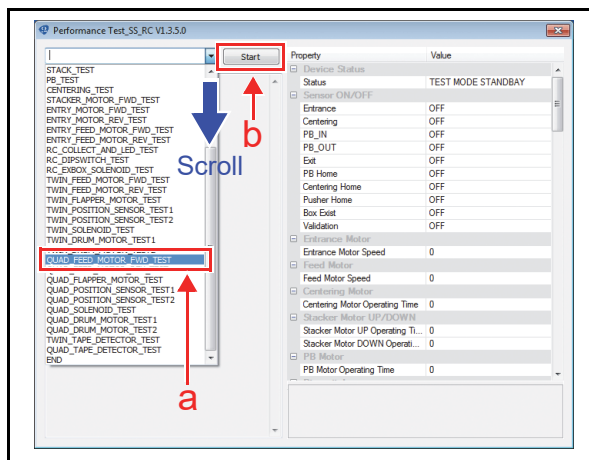


Figure 6-53 Feed Motor Speed Forward Rotation Test (RQ Transport) 1

5. The measured speed will appear in the “RC-Feed Motor (RC-Quad)” area (Figure 6-54 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 600mm/sec to 900mm/sec
7. Click the “Stop”  Screen Button (Figure 6-54 b) to end the test.

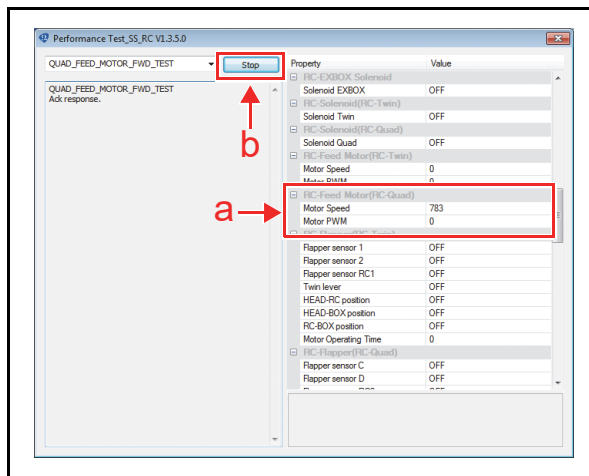



Figure 6-54 Feed Motor Speed Forward Rotation Test (RQ Transport) 2

### Feed Motor Speed Reverse Rotation Test (RQ Transport)

To perform the Feed Motor Speed Test in the reserve rotation on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_FEED\_MOTOR\_REV\_TEST” (Figure 6-55 a).
4. Click the “Start”  Screen Button (Figure 6-55 b) to begin the Test.

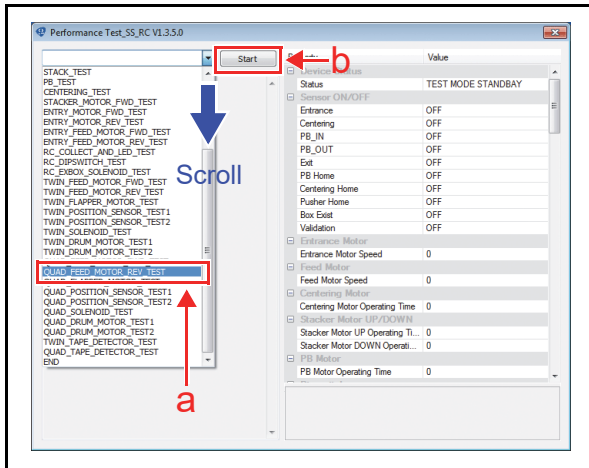



Figure 6-55 Feed Motor Speed Reverse Rotation Test (RQ Transport) 1

5. The measured speed will appear in the “RC-Feed Motor (RC-Quad)” area (Figure 6-56 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 600mm/sec to 900mm/sec
7. Click the “Stop”  Screen Button (Figure 6-56 b) to end the test.

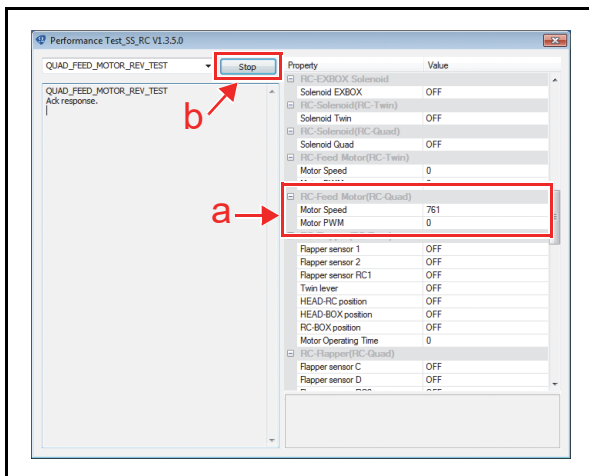



Figure 6-56 Feed Motor Speed Reverse Rotation Test (RQ Transport) 2

### Flapper Motor Operation Time Test (RQ Transport)

To perform the Flapper Motor Operation Time Test on the RQ Transport side, proceed as follows:

1. Launch the Performance Test Program (see page 6-7).
2. Select “QUAD\_FLAPPER\_MOTOR\_TEST” (Figure 6-57 a).
3. Click the “Start”  Screen Button (Figure 6-57 b) to begin the Test.

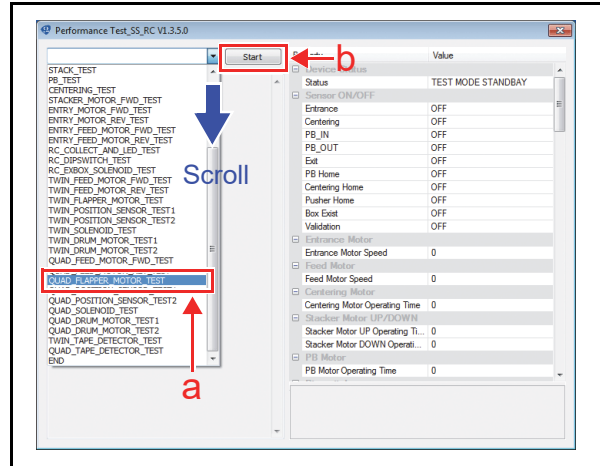



Figure 6-57 Flapper Motor Operation Time Test (RQ Transport) 1

4. The measured time will appear in the “RC-Flapper (RC-Quad)” area (Figure 6-58 a) on the Screen.
5. Confirm that the operation time is in the acceptable range: 300msec to 950msec.
6. Click the “Stop”  Screen Button (Figure 6-58 b) to end the test.

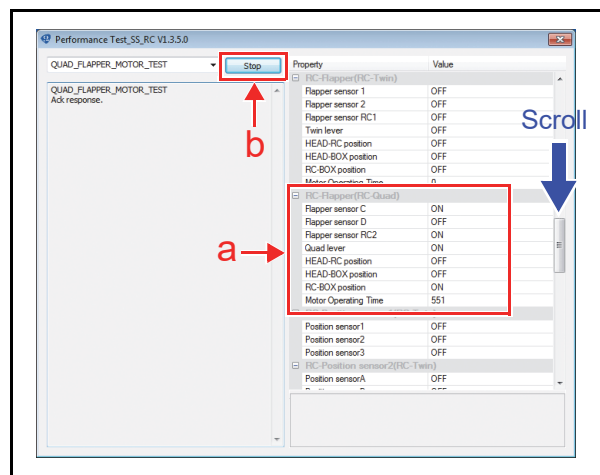


Figure 6-58 Flapper Motor Operation Time Test (RQ Transport) 2



### Note Position Sensor 4-6 Test

To perform the Note Position Sensor 4 through 6 Test on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_POSITION\_SENSOR\_TEST1” (Figure 6-59 a).
4. Click the “Start”  Screen Button (Figure 6-59 b) to begin the Test.

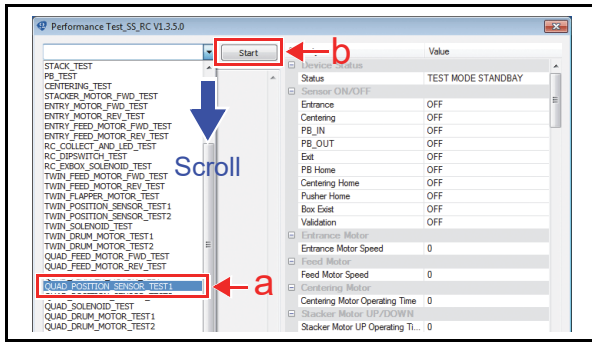


Figure 6-59 Note Position Sensor 4 -6 Test 1

5. Remove the Recycler.
6. Open/Close the Front Transport to cover/uncover the Sensors.

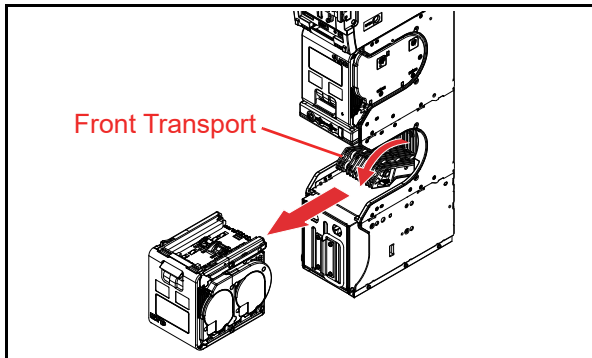



Figure 6-60 Note Position Sensor 4 -6 Test 2

7. Confirm the “ON/OFF” indication (Detected/ NOT Detected) appeared in the “RC-Position sensor 1 (RC-Quad)” area (Figure 6-61 a).

 **NOTE:** Refer to “Sensor, Roller and Belt Locations” on page 2-17 for the detailed Sensor locations.

8. Click the “Stop”  Screen Button (Figure 6-61 b) to end the test.

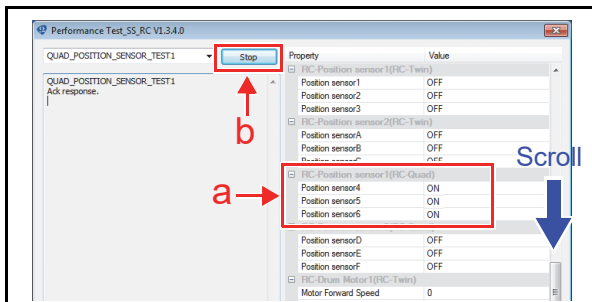


Figure 6-61 Note Position Sensor 4 -6 Test 3

### Note Position Sensor D-F Test

To perform the Note Position Sensor D through F Test on the RQ Transport side with a PC, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_POSITION\_SENSOR\_TEST2” (Figure 6-62 a).
4. Click the “Start”  Screen Button (Figure 6-62 b) to begin the Test.

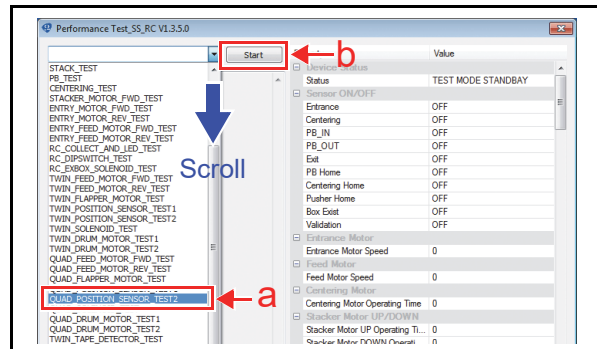


Figure 6-62 Note Position Sensor D -F Test 1

5. Remove/reat the Recycler to cover/uncover the Sensors.

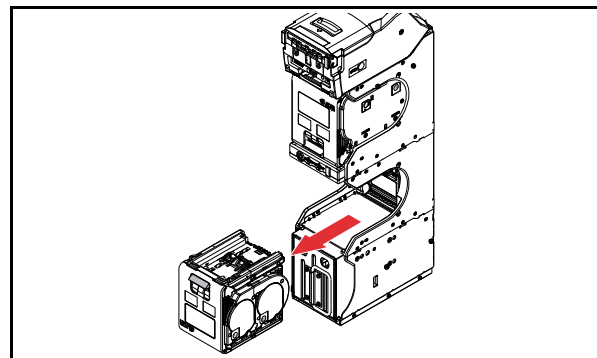



Figure 6-63 Note Position Sensor D -F Test 2

6. Confirm the “ON/OFF” indication (Detected/ NOT Detected) appeared in the “RC-Position sensor 2 (RC-Quad)” area (Figure 6-64 a).

 **NOTE:** Refer to “Sensor, Roller and Belt Locations” on page 2-17 for the detailed Sensor locations.

7. Click the “Stop”  Screen Button (Figure 6-64 b) to end the test.

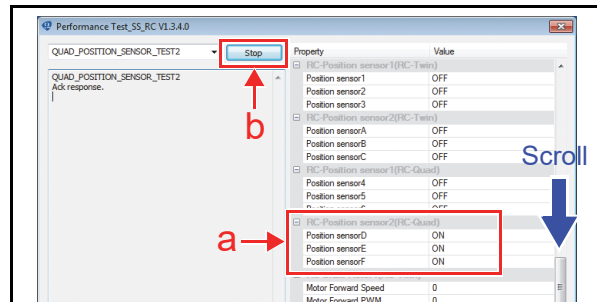



Figure 6-64 Note Position Sensor D -F Test 3

### Solenoid Test (RQ Transport)

To perform the Recycler’s Solenoid Test on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_SOLENOID\_TEST” (Figure 6-65 a).
4. Click the “Start”  Screen Button (Figure 6-65 b) to begin the Test.

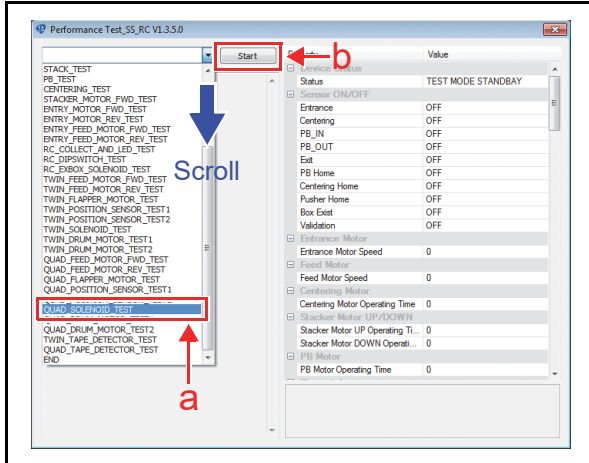



Figure 6-65 Solenoid Test (RQ Transport) 1

5. Confirm the “ON/OFF” indication in the “RC-Solenoid (RC-Quad)” area (Figure 6-66 a) is switched as Solenoid moves.
6. Click the “Stop”  Screen Button (Figure 6-66 b) to end the test.

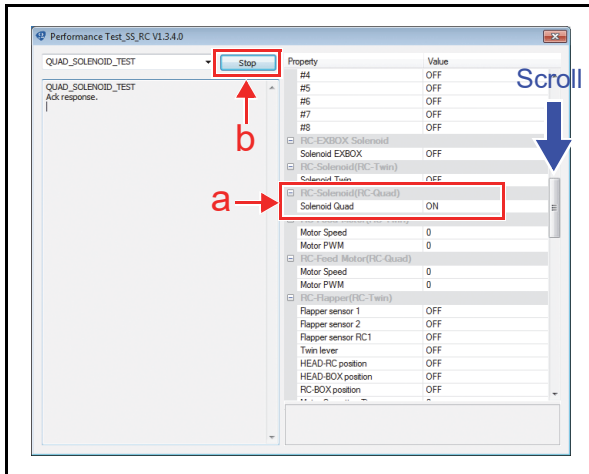



Figure 6-66 Solenoid Test (RQ Transport) 2

### Drum 1 Motor Speed Test (RQ Transport)

To perform the Drum 1 Motor Speed Test on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_DRUM\_MOTOR\_TEST1” (Figure 6-67 a).
4. Click the “Start”  Screen Button (Figure 6-67 b) to begin the Test.

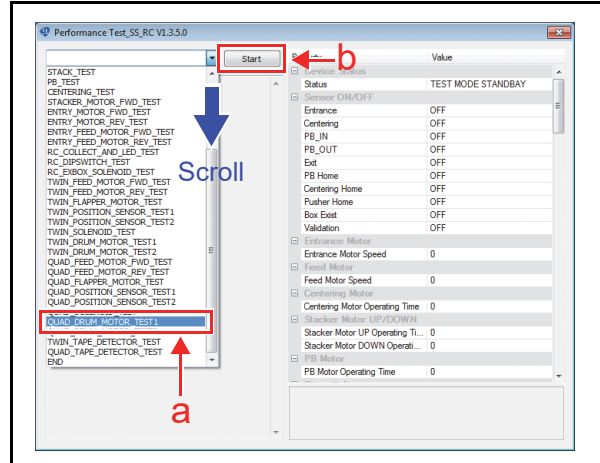



Figure 6-67 Drum 1 Motor Speed Test (RQ Transport) 1

5. The measured speed will appear in the “RC-Drum Motor 1 (RC-Quad)” area (Figure 6-68 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 700mm/sec to 950mm/sec (Forward/Reverse)
7. Click the “Stop”  Screen Button (Figure 6-68 b) to end the test.

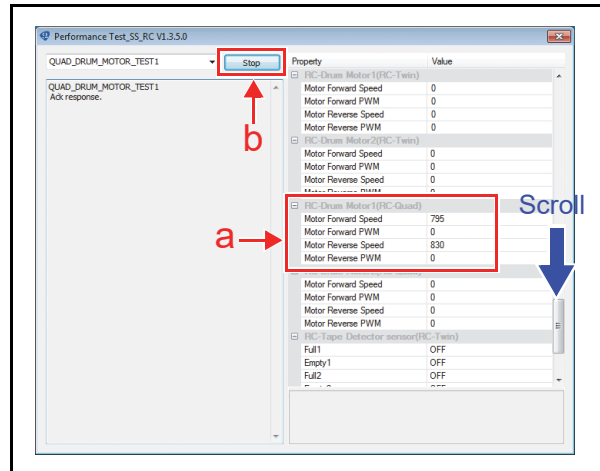
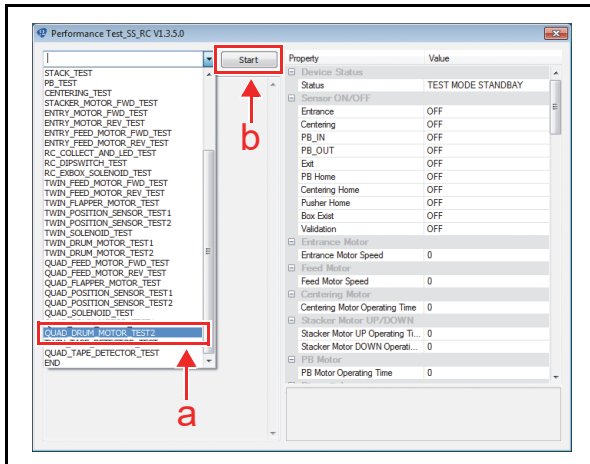


Figure 6-68 Drum 1 Motor Speed Test (RQ Transport) 2

## Drum 2 Motor Speed Test

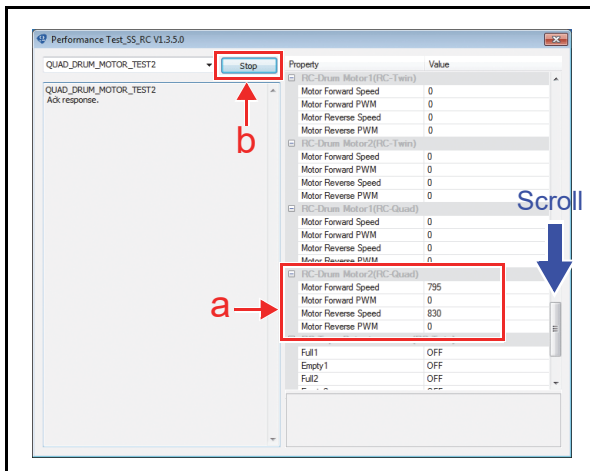
To perform the Drum 2 Motor Speed Test on the RQ Transport side, proceed as follows:

1. Ensure that the Recycler and Cash Box is properly installed.
2. Launch the Performance Test Program (see page 6-7).
3. Select “QUAD\_DRUM\_MOTOR\_TEST2” (Figure 6-69 a).
4. Click the “Start”  Screen Button (Figure 6-69 b) to begin the Test.



**Figure 6-69** Drum 2 Motor Speed Test (RQ Transport) 1

5. The measured speed will appear in the “RC-Drum Motor 2 (RC-Quad)” area (Figure 6-70 a) on the Screen.
6. Confirm that the motor speed is in the acceptable range: 700mm/sec to 950mm/sec (Forward/Reverse)
7. Click the “Stop”  Screen Button (Figure 6-70 b) to end the test.



**Figure 6-70** Drum 2 Motor Speed Test (RQ Transport) 2

### Performance Test without a PC

The various Performance Tests for the RT Transport (Figure 6-71 a) and the RQ Transport (Figure 6-71 b) can be conducted with a combination of the DIP Switch settings of the UBA Pro Unit and RT/RQ Unit.

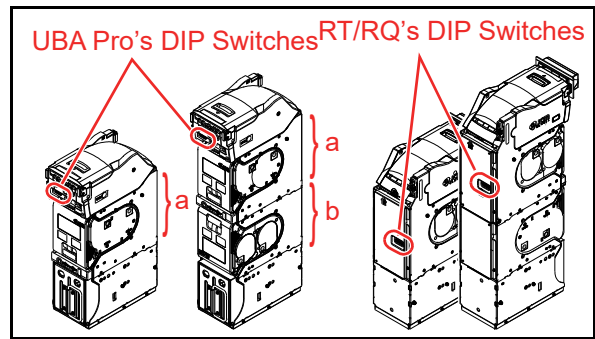


Figure 6-71 DIP Switches and RT/RQ Transports

### List of the Performance Tests without a PC

Table 6-2 lists the items and DIP Switch settings for the General Performance Tests of the RT/RQ Transports using DIP Switches without a PC.

Table 6-2 RT/RQ Transports General Performance Test Settings

Test Item and Purpose	UBA Pro DIP Switches								RT/RQ Unit DIP Switches							
	1	2	3	4	5	6	7	8*	1	2	3	4	5	6	7	8
Communication between UBA Pro and RT/RQ Unit	ON	ON			ON			ON → OFF								
Status LED /Collect Button	ON	ON			ON			ON → OFF					ON			
DIP Switch	ON	ON			ON			ON → OFF						ON		

\*. UBA Pro's DIP Switch #8 Setting: OFF to start test, ON to stop test.

Table 6-3 lists the items and DIP Switch settings for the RT Transport Performance Test using DIP Switches without a PC.

Table 6-3 RT Transport Performance Test Settings

Test Item and Purpose	UBA Pro DIP Switches								RT/RQ Unit DIP Switches							
	1	2	3	4	5	6	7	8*	1	2	3	4	5	6	7	8
Feed Motor (Normal rotation)	ON	ON				ON		ON → OFF	ON							
Feed Motor (Reverse rotation)	ON	ON				ON		ON → OFF		ON						
Flapper Motor	ON	ON				ON		ON → OFF			ON					
Note Position Sensor 1 - 3 Detection	ON	ON				ON		ON → OFF				ON				
Note Position Sensor A - C Detection	ON	ON				ON		ON → OFF	ON			ON				
Solenoid in Recycler	ON	ON				ON		ON → OFF					ON			
Drum 1 Motor	ON	ON				ON		ON → OFF						ON		
Drum 2 Motor	ON	ON				ON		ON → OFF							ON	

\*. UBA Pro's DIP Switch #8 Setting: OFF to start test, ON to stop test.

Table 6-4 lists the items and DIP Switch settings for the RQ Transport Performance Test using DIP Switches without a PC.

Table 6-4 RQ Transport Performance Test Settings

Test Item and Purpose	UBA Pro DIP Switches								RT/RQ Unit DIP Switches							
	1	2	3	4	5	6	7	8*	1	2	3	4	5	6	7	8
Feed Motor (Normal rotation)	ON	ON				ON		ON → OFF	ON							ON
Feed Motor Performance (Reverse rotation)	ON	ON				ON		ON → OFF		ON						ON
Flapper Motor	ON	ON				ON		ON → OFF			ON					ON
Note Position Sensor 4 - 6 Detection	ON	ON				ON		ON → OFF				ON				ON
Note Position Sensor D - F Detection	ON	ON				ON		ON → OFF	ON			ON				ON
Solenoid in Recycler	ON	ON				ON		ON → OFF					ON			ON
Drum 1 Motor	ON	ON				ON		ON → OFF						ON		ON
Drum 2 Motor	ON	ON				ON		ON → OFF							ON	ON

\*. UBA Pro's DIP Switch #8 Setting: OFF to start test, ON to stop test.

### Communication Test

To test the communication between UBA Pro and RT/RQ Unit, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-72).

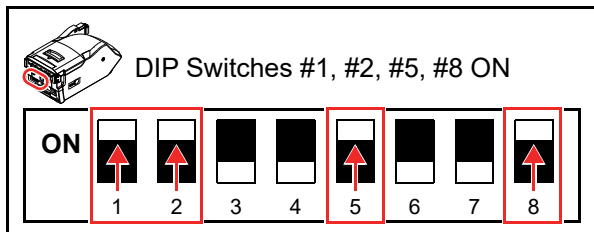


Figure 6-72 Communication Test 1

3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-73).

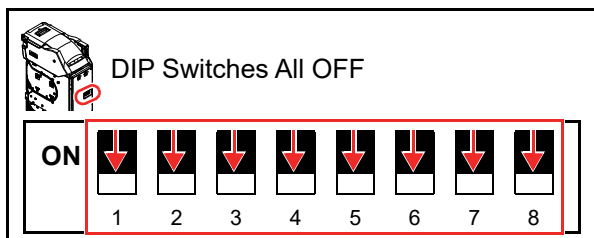


Figure 6-73 Communication Test 2

4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*

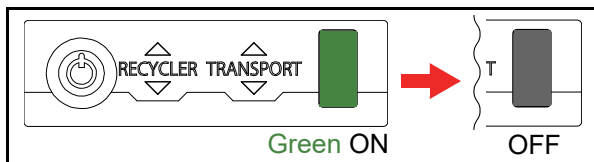


Figure 6-74 Communication Test 3

6. To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-75).

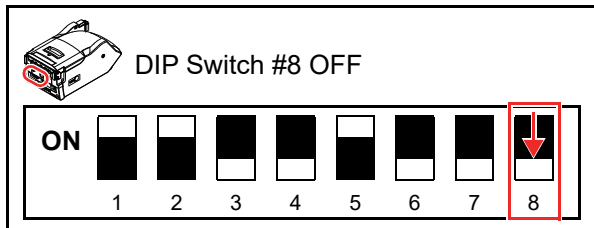


Figure 6-75 Communication Test 4

7. The UBA Pro Green Status LED will turn on when the UBA Pro Unit is communicating with the RT/RQ Unit successfully.
8. Set the UBA Pro DIP Switch #8 to ON to end the test.

### Status LED Test

To test the RT/RQ Unit Status LED's performance, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-76).

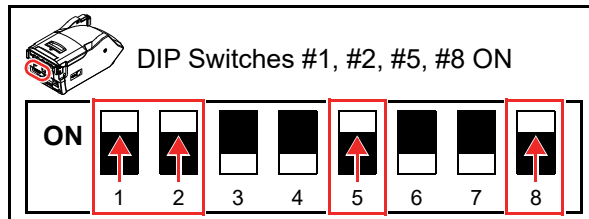


Figure 6-76 Status LED Test 1

3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-77).

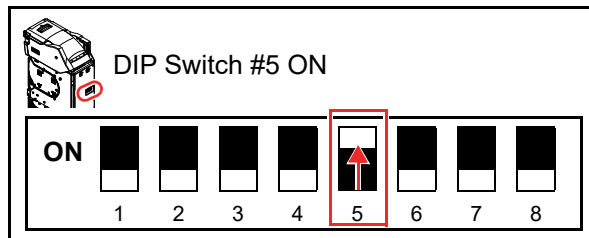


Figure 6-77 Status LED Test 2

4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*

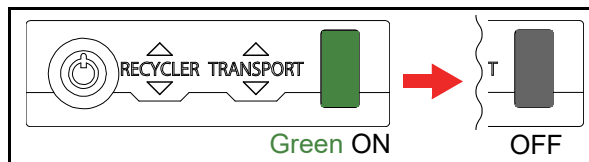


Figure 6-78 Status LED Test 3

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

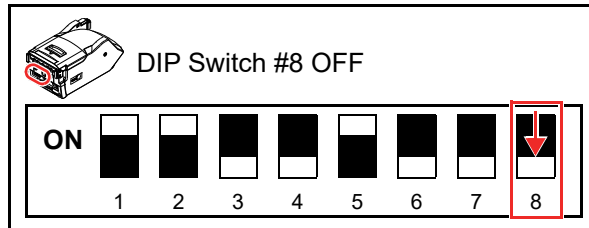


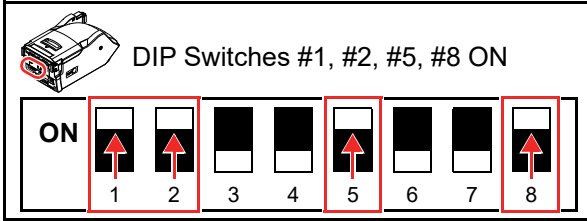
Figure 6-79 Status LED Test 4

7. Press the RT/RQ Unit's Status LED/Collect Button.
8. Confirm that the Status LED is lit in the following sequential order each time when pressing the Status LED/Collect Button:  
 Green ■ => Magenta ■ => Cyan ■ => Blue ■  
 Blue ■ => Yellow ■ => Red ■ => White ■ => OFF ■
9. Set the UBA Pro DIP Switch #8 to ON to end the test.

### DIP Switch Test

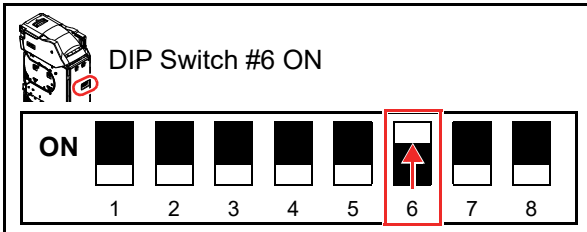
To test the RT/RQ Unit DIP Switch's performance, proceed as follows:

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



**Figure 6-80** DIP Switch Test 1

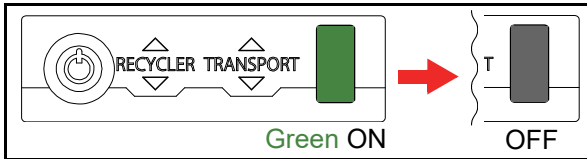
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-81).



**Figure 6-81** DIP Switch Test 2

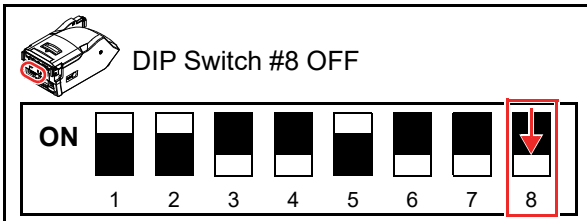
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



**Figure 6-82** DIP Switch Test 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-83).



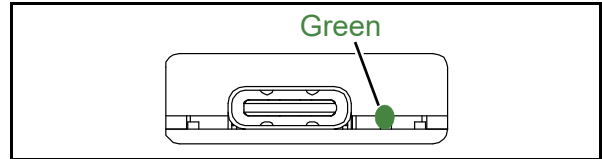
**Figure 6-83** DIP Switch Test 4

7. Re-set the DIP Switches of the RT/RQ Unit as below (Figure 6-84).



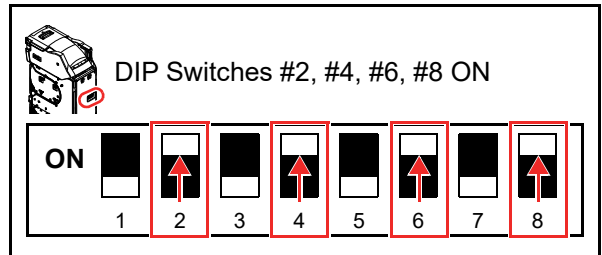
**Figure 6-84** DIP Switch Test 5

8. The UBA Pro **Green** Status LED will turn on when the RT/RQ DIP Switches function properly.



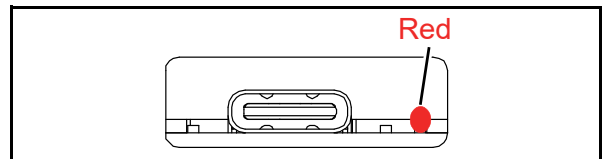
**Figure 6-85** DIP Switch Test 6

9. Re-set the DIP Switches of the RT/RQ Unit as below (Figure 6-86).



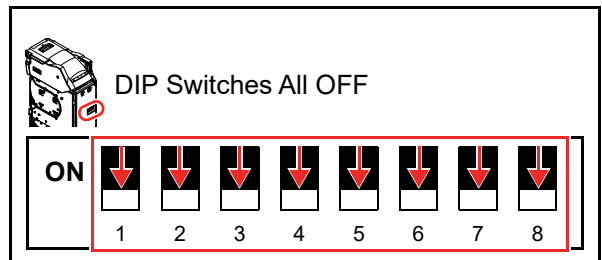
**Figure 6-86** DIP Switch Test 7

10. The UBA Pro **Red** Status LED will turn on when the RT/RQ DIP Switches function properly.



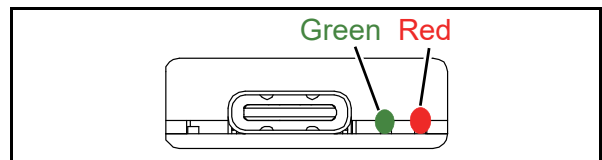
**Figure 6-87** DIP Switch Test 8

11. Re-set the DIP Switches of the RT/RQ Unit as below (Figure 6-88).



**Figure 6-88** DIP Switch Test 9

12. The UBA Pro **Green** and **Red** Status LEDs will turn on when the RT/RQ DIP Switches function properly.



**Figure 6-89** DIP Switch Test 10

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



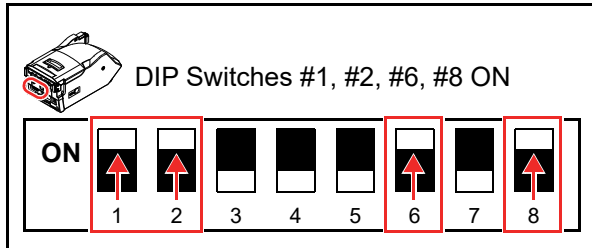
### RT Transport Performance Tests

This section provides instructions for conducting a Performance Test Without a PC on the RT Transport side (Figure 6-71 a).

#### Feed Motor Normal Rotation Test (RT Transport)

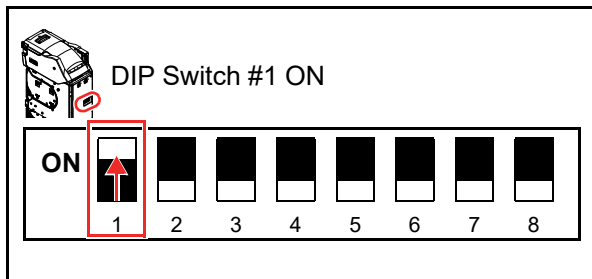
To run the Feed Motor Normal Rotation Test on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-90).



**Figure 6-90** Feed Motor Normal Rotation Test (RT Transport) 1

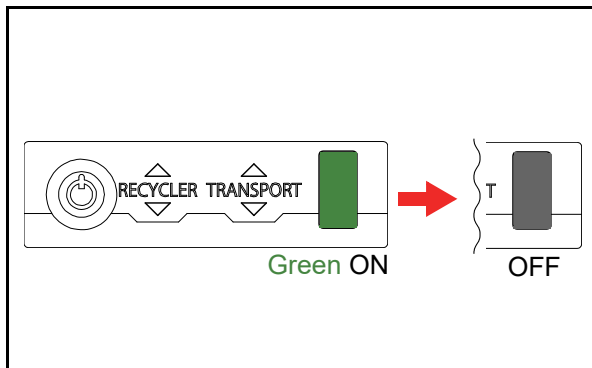
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-91).



**Figure 6-91** Feed Motor Normal Rotation Test (RT Transport) 2

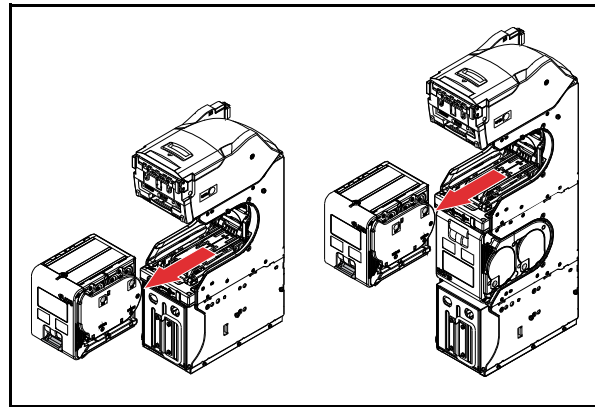
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



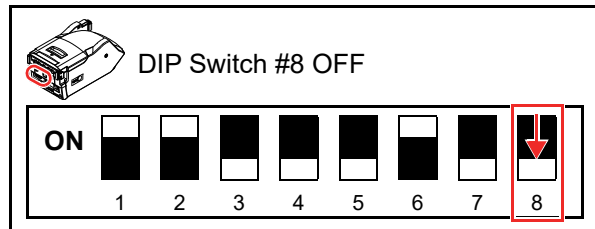
**Figure 6-92** Feed Motor Normal Rotation Test (RT Transport) 3

6. Remove the Recycler from the RT Transport.



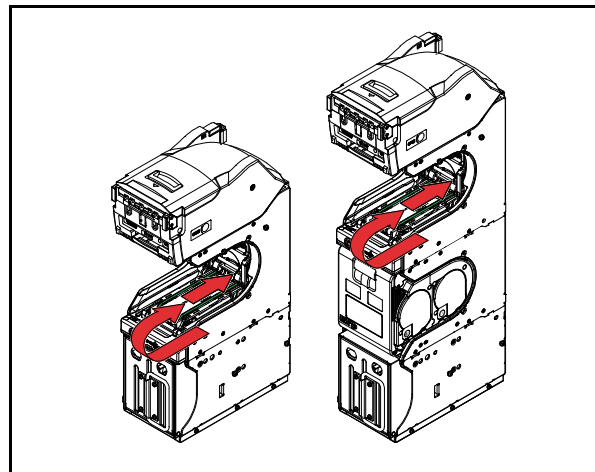
**Figure 6-93** Feed Motor Normal Rotation Test (RT Transport) 4

7. To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-94).



**Figure 6-94** Feed Motor Normal Rotation Test (RT Transport) 5

8. The Belts of the Transport Unit will start running in the normal rotation direction when the Feed Motor functions properly.



**Figure 6-95** Feed Motor Normal Rotation Test (RT Transport) 6

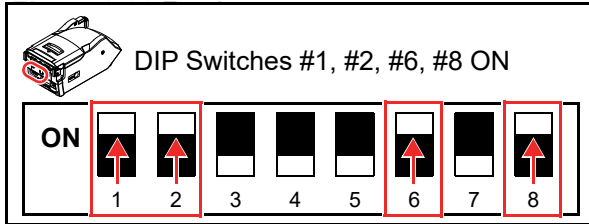
9. Set the UBA Pro DIP Switch #8 to ON to end the test.



### Feed Motor Reverse Rotation Test (RT Transport)

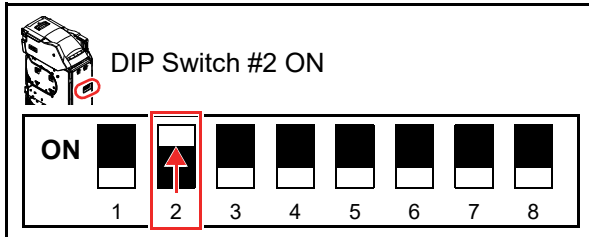
To run the Feed Motor Reverse Rotation Test on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-96).



**Figure 6-96** Feed Motor Reverse Rotation Test (RT Transport) 1

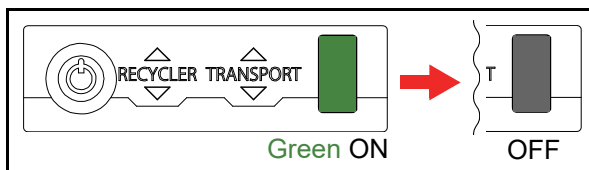
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-97).



**Figure 6-97** Feed Motor Reverse Rotation Test (RT Transport) 2

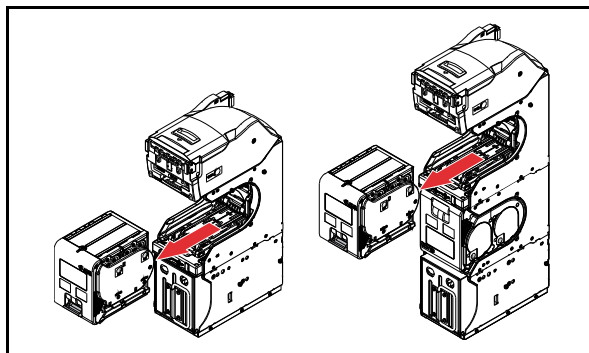
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



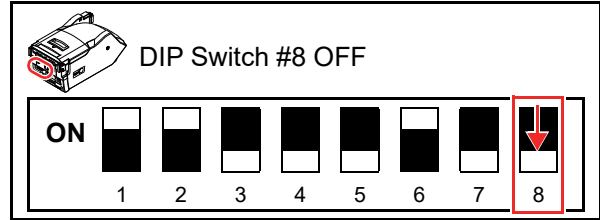
**Figure 6-98** Feed Motor Reverse Rotation Test (RT Transport) 3

6. Remove the Recycler from the RT Transport.



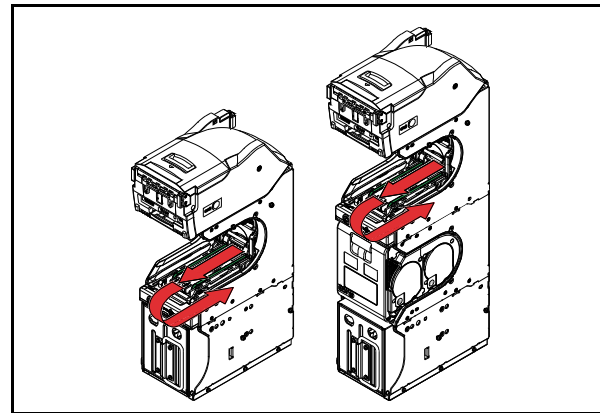
**Figure 6-99** Feed Motor Reverse Rotation Test (RT Transport) 3

7. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-100).



**Figure 6-100** Feed Motor Reverse Rotation Test (RT Transport) 5

8. The Belts of the Transport Unit will start running in the normal rotation direction when the Feed Motor functions properly.



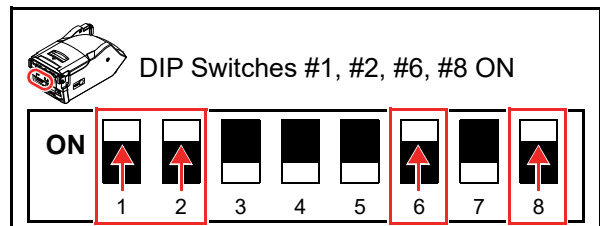
**Figure 6-101** Feed Motor Reverse Rotation Test (RT Transport) 6

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

### Flapper Motor Test (RT Transport)

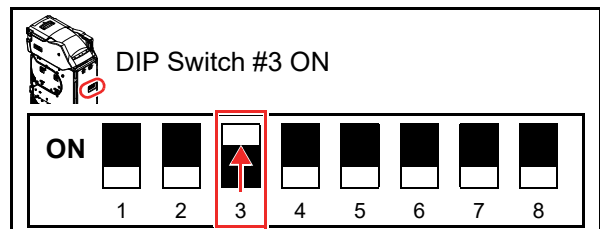
To run the Flapper Motor Test on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-102).




**Figure 6-102** Flapper Motor Test (RT Transport) 1

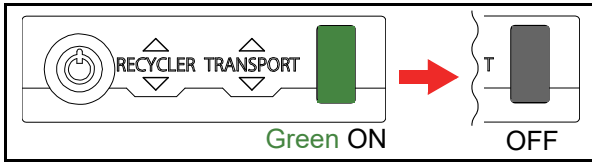
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-103).



**Figure 6-103** Flapper Motor Test (RT Transport) 2

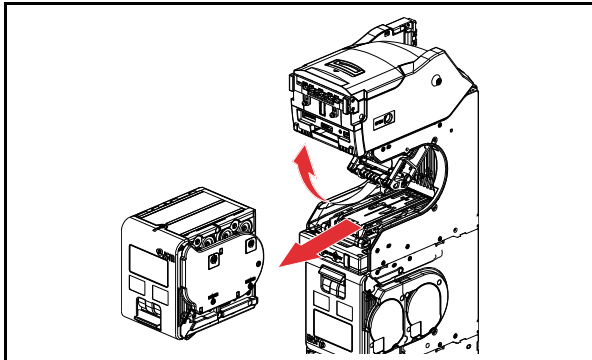
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



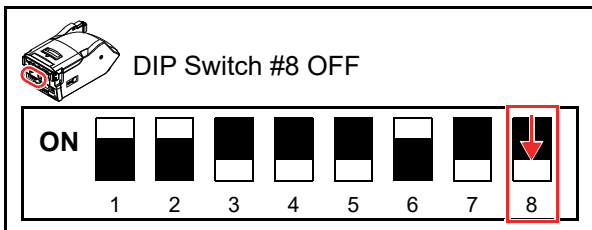
**Figure 6-104** Flapper Motor Test (RT Transport) 3

6. Remove the Recycler from the RT Transport.
7. Lift the Front Transport Unit.



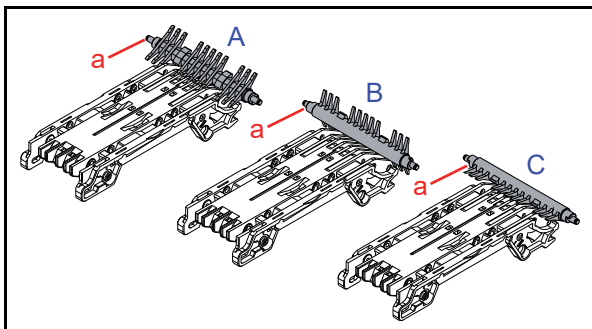
**Figure 6-105** Flapper Motor Test (RT Transport) 4

8. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-106).



**Figure 6-106** Flapper Motor Test (RT Transport) 5

9. The Rotary Guide (Figure 6-101 a) will change the transport path in 3 directions when it functions properly:
  - **A:** UBA Pro to Recycler
  - **B:** UBA Pro to Cash Box
  - **C:** Recycler to Cash Box.



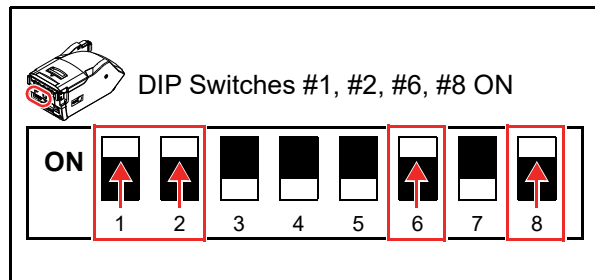
**Figure 6-107** Flapper Motor Test (RT Transport) 6

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

**Note Position Sensor 1 - 3 Test**

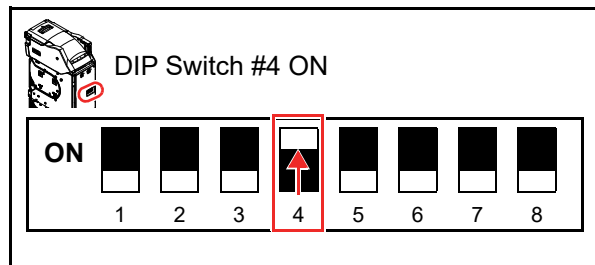
To run the Note Position Sensor 1 - 3 Test on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-108).




**Figure 6-108** Note Position Sensor 1 - 3 Test 1

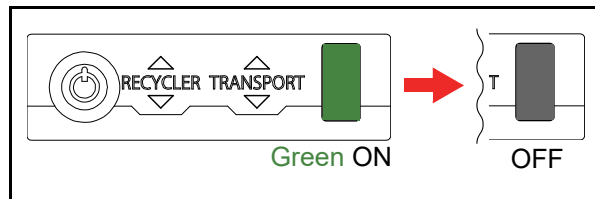
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-109).



**Figure 6-109** Note Position Sensor 1 - 3 Test 2

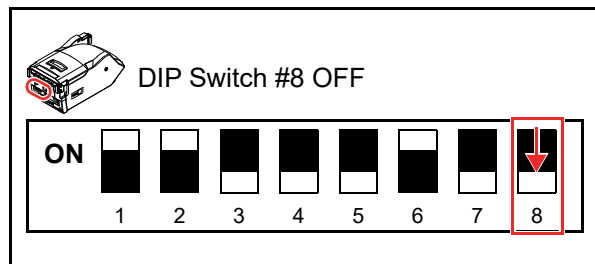
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



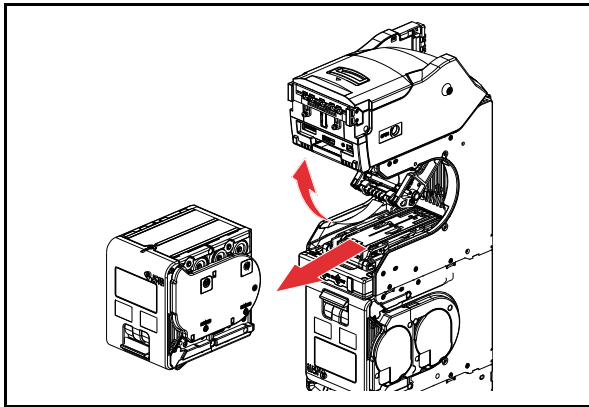
**Figure 6-110** Note Position Sensor 1 - 3 Test 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-111).



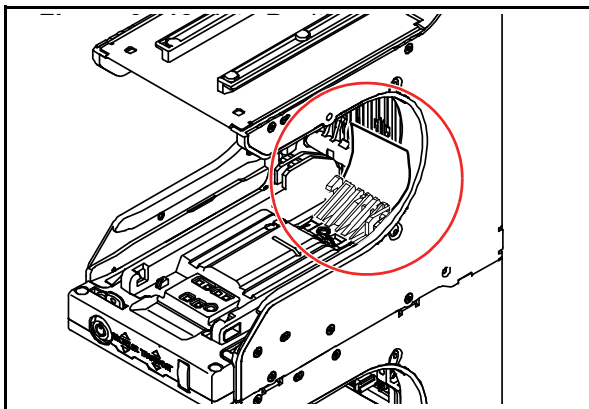
**Figure 6-111** Note Position Sensor 1 - 3 Test 4

7. Remove the Recycler from the RT Transport.
8. Lift the Front Transport to block Note Position Sensor 1 and 2.



**Figure 6-112** Note Position Sensor 1 - 3 Test 5

9. Cover the Note Position Sensor 3 with a Banknote.



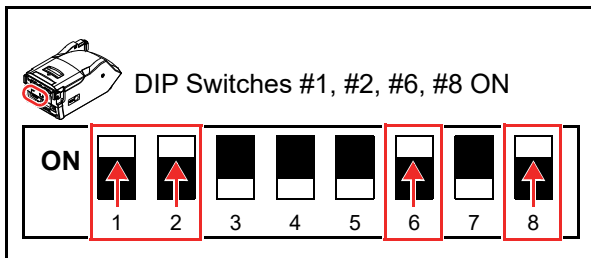
**Figure 6-113** Note Position Sensor 1 - 3 Test 6

10. The RT/RQ Unit Status LED will be lit at Cyan when the Sensors function properly.
11. Set the UBA Pro DIP Switch #8 to ON to end the test.

**Note Position Sensor A - C Test (RT Transport)**

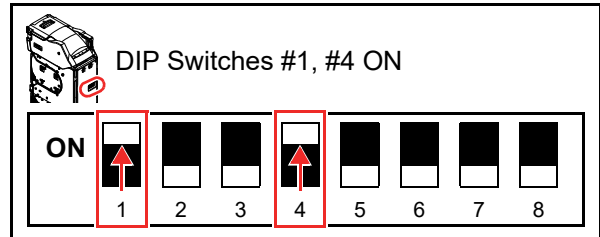
To run the Note Position Sensor A - C Test on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-114).



**Figure 6-114** Note Position Sensor A - C Test (RT Transport) 1

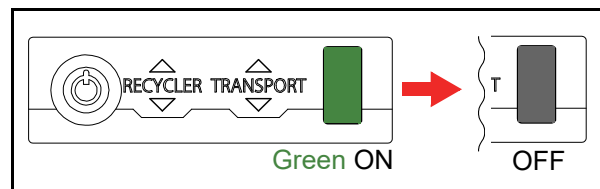
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-115).



**Figure 6-115** Note Position Sensor A - C Test (RT Transport) 2

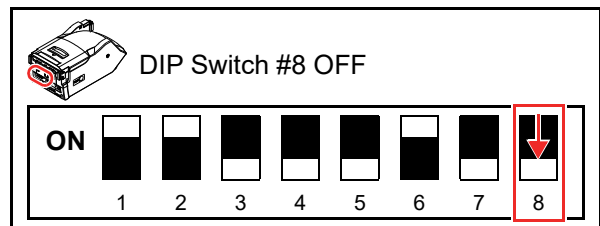
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



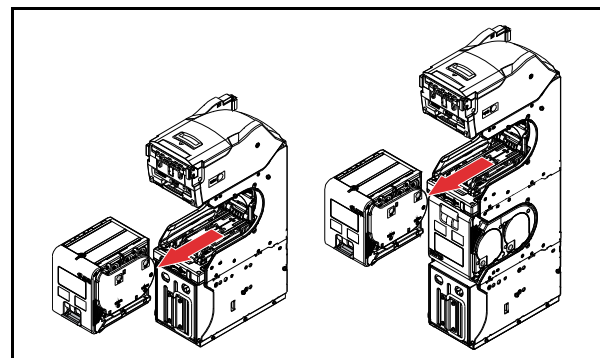
**Figure 6-116** Note Position Sensor A - C Test (RT Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-117).



**Figure 6-117** Note Position Sensor A - C Test (RT Transport) 4

7. Remove the Recycler from the RT Transport to block the Note Position Sensor A through C.



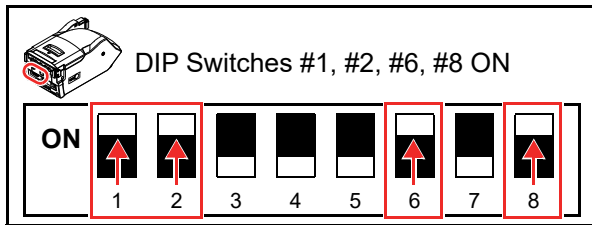
**Figure 6-118** Note Position Sensor A - C Test (RT Transport) 5

8. The RT/RQ's Status LED will be lit at Magenta when the Sensors function properly.
9. Set the UBA Pro DIP Switch #8 to ON to end the test.

### Recycler Solenoid Test (RT Transport)

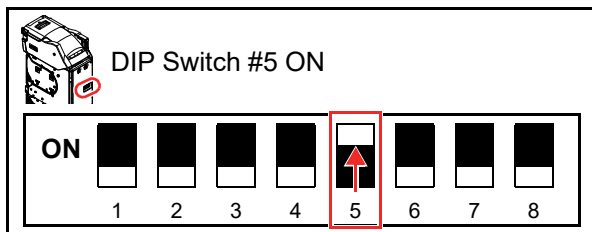
To run the Recycler Solenoid on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-119).



**Figure 6-119** Recycle Solenoid Test (RT Transport) 1

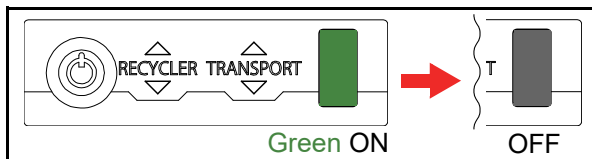
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-120).



**Figure 6-120** Recycle Solenoid Test (RT Transport) 2

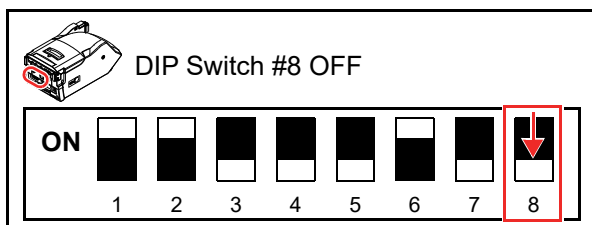
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

**NOTE:** Wait for the Status LED to turn off in order to run the test properly.



**Figure 6-121** Recycle Solenoid Test (RT Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-122).



**Figure 6-122** Recycle Solenoid Test (RT Transport) 4

7. The Solenoid will start operating when it functions properly.

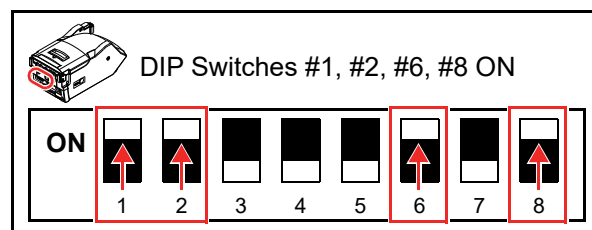
**NOTE:** Confirm the functionality aurally by the sound that the Solenoid is making while in the operation.

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

### Drum 1 Motor Test (RT Transport)

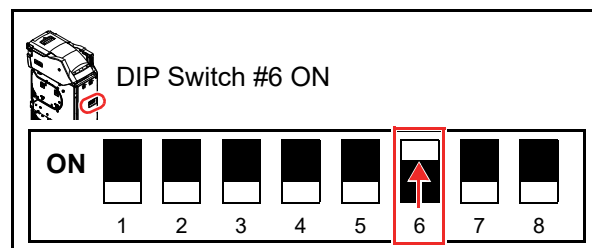
To run the Recycler Solenoid on the RT Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-123).



**Figure 6-123** Drum 1 Motor Test (RT Transport) 1

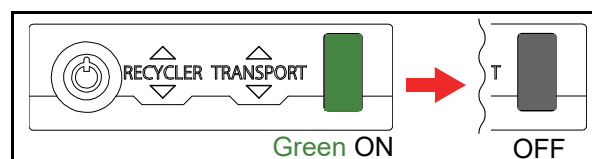
3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-124).



**Figure 6-124** Drum 1 Motor Test (RT Transport) 2

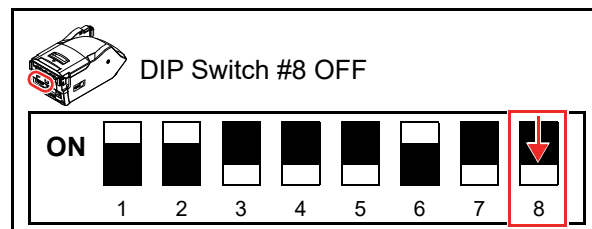
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

**NOTE:** Wait for the Status LED to turn off in order to run the test properly.



**Figure 6-125** Drum 1 Motor Test (RT Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-126).



**Figure 6-126** Drum 1 Motor Test (RT Transport) 4

7. The Drum 1 of the Recycler will start winding the Tape until it reaches to "End" and then to "Full" position back and forward repeatedly.

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

### Drum 2 Motor Test (RT Transport)

To run the Recycler Solenoid on the RT Transport side, proceed as follows:

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

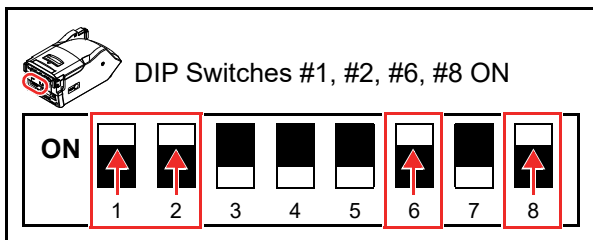


Figure 6-127 Drum 2 Motor Test (RT Transport) 1

3. Set the DIP Switches of the RT/RQ Unit as below (Figure 6-128).

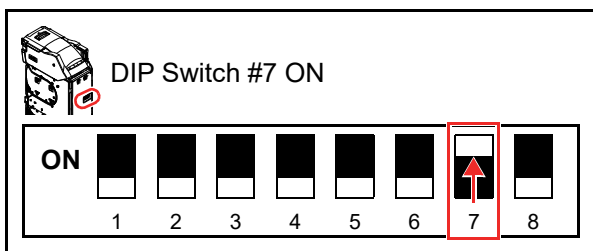


Figure 6-128 Drum 2 Motor Test (RT Transport) 2

4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*

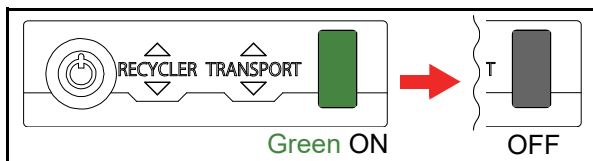


Figure 6-129 Drum 2 Motor Test (RT Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-130).

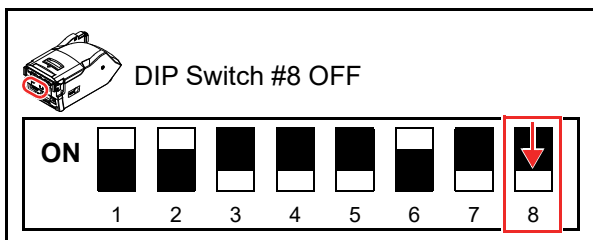


Figure 6-130 Drum 2 Motor Test (RT Transport) 4

7. The Drum 2 of the Recycler will start winding the Tape until it reaches to “End” and then to “Full” position back and forward repeatedly.
8. Set the UBA Pro DIP Switch #8 to ON to end the test.

### RQ Transport Performance Tests

This section provides instructions for conducting a Performance Test Without a PC on the RQ Transport side (Figure 6-71 b).

#### Feed Motor Normal Rotation Test (RQ Transport)

To run the Feed Motor Normal Rotation Test on the RQ Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-131).

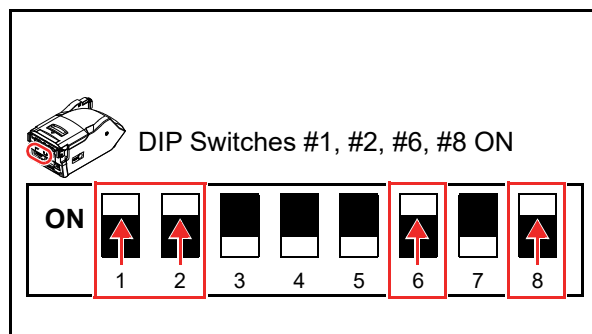


Figure 6-131 Feed Motor Normal Rotation Test (RQ Transport) 1

3. Set the DIP Switches of the RQ Unit as below (Figure 6-132).

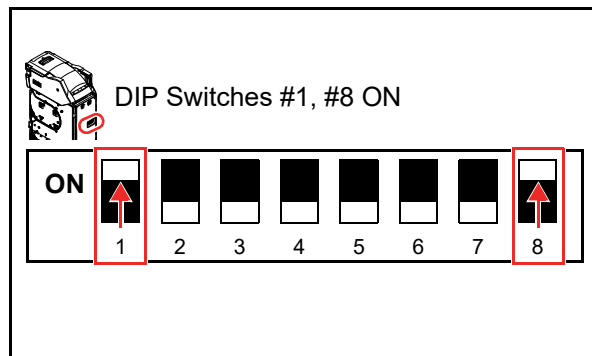


Figure 6-132 Feed Motor Normal Rotation Test (RQ Transport) 2

4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*

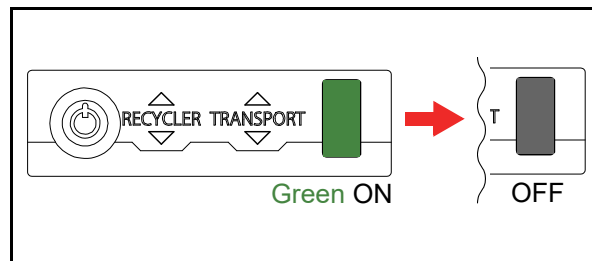
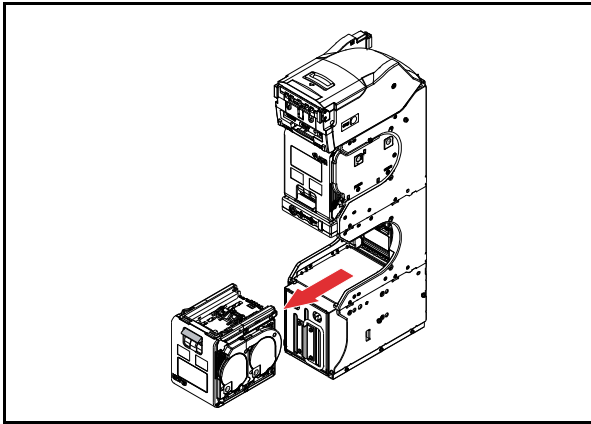


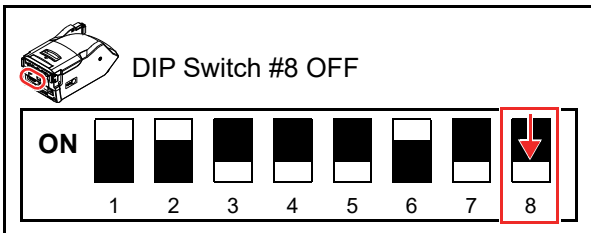
Figure 6-133 Feed Motor Normal Rotation Test (RQ Transport) 3

- Remove the Recycler from the RQ Transport.



**Figure 6-134** Feed Motor Normal Rotation Test (RQ Transport) 4

- To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-135).



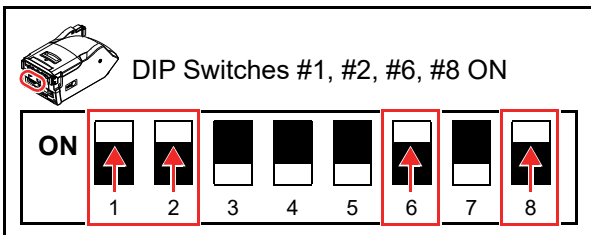
**Figure 6-135** Feed Motor Normal Rotation Test (RQ Transport) 5

- The Belts of the Transport Unit will start running in the normal rotation direction when the Feed Motor functions properly.
- Set the UBA Pro DIP Switch #8 to ON to end the test.

**Feed Motor Reverse Rotation Test (RQ Transport)**

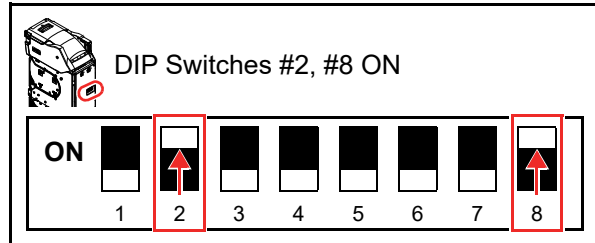
To run the Feed Motor Reverse Rotation Test on the RQ Transport side, proceed as follows:

- Remove electrical power.
- Set the DIP Switches of the UBA Pro Unit as below (Figure 6-136).



**Figure 6-136** Feed Motor Reverse Rotation Test (RQ Transport) 1

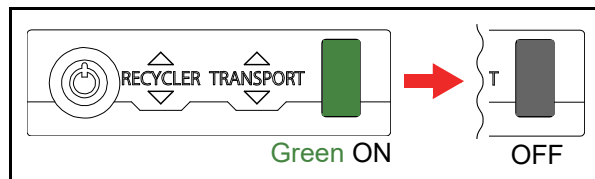
- Set the DIP Switches of the RQ Unit as below (Figure 6-137).



**Figure 6-137** Feed Motor Reverse Rotation Test (RQ Transport) 2

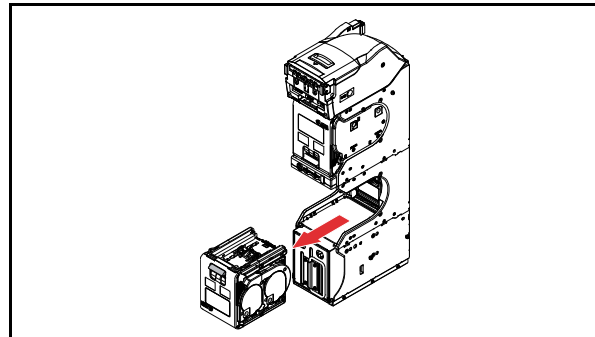
- Apply electrical power.
- Confirm that the Status LED/Collect Button is lit at Green Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



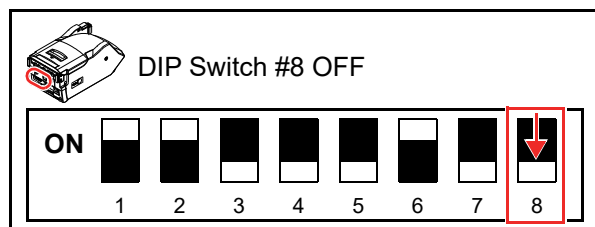
**Figure 6-138** Feed Motor Reverse Rotation Test (RQ Transport) 3

- Remove the Recycler from the RQ Transport.



**Figure 6-139** Feed Motor Reverse Rotation Test (RQ Transport) 4

- To start the Test, set the UBA Pro DIP Switch #8 to OFF (Figure 6-140).



**Figure 6-140** Feed Motor Reverse Rotation Test (RQ Transport) 5

- The Belts of the Transport Unit will start running in the normal rotation direction when the Feed Motor functions properly.
- Set the UBA Pro DIP Switch #8 to ON to end the test.



### Flapper Motor Test (RQ Transport)

To run the Flapper Motor Test on the RQ Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-141).

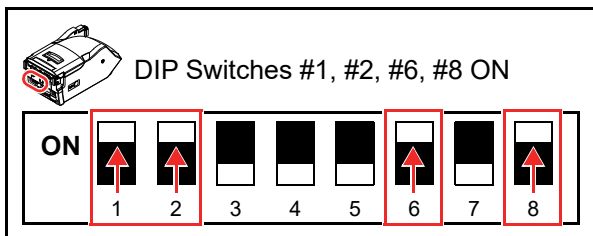


Figure 6-141 Flapper Motor Test (RQ Transport) 1

3. Set the DIP Switches of the RQ Unit as below (Figure 6-142).

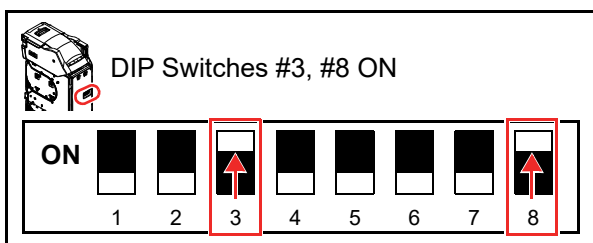


Figure 6-142 Flapper Motor Test (RQ Transport) 2

4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*

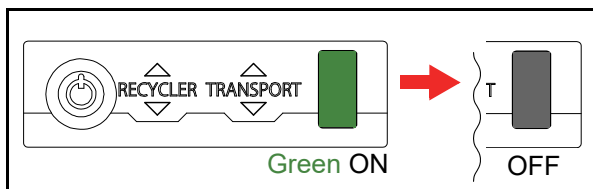


Figure 6-143 Flapper Motor Test (RQ Transport) 3

6. Remove the Recycler from the RQ Transport.
7. Pull down the Front Transport Unit.

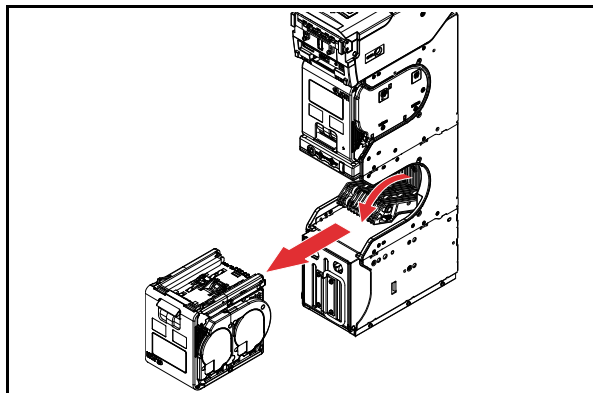


Figure 6-144 Flapper Motor Test (RQ Transport) 4

8. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-145).

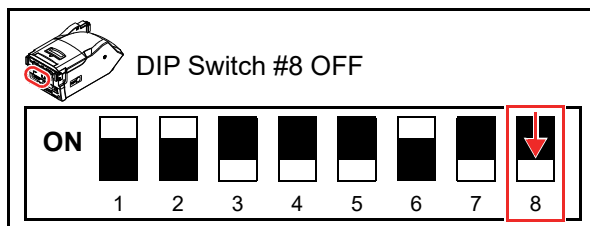


Figure 6-145 Flapper Motor Test (RQ Transport) 5

9. The Rotary Guide (Figure 6-146 a) will change the transport path in 3 directions when it functions properly:

- A: UBA Pro to Recycler
- B: UBA Pro to Cash Box
- C: Recycler to Cash Box.

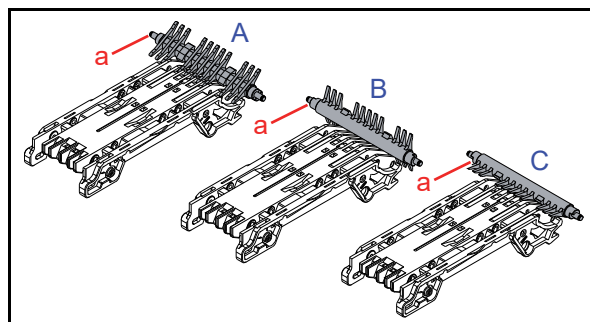


Figure 6-146 Flapper Motor Test (RQ Transport) 6

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

### Note Position Sensor 4 - 6 Test (RQ Transport)

To run the Note Position Sensor 4 - 6 Test on the RQ Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-147).

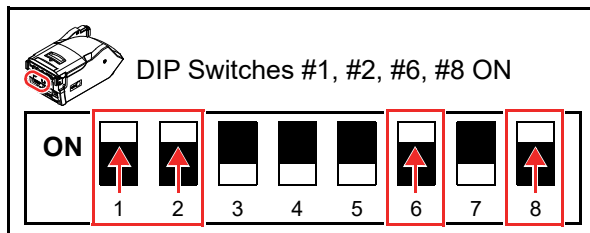


Figure 6-147 Note Position Sensor 4 - 6 Test (RQ Transport) 1

3. Set the DIP Switches of the RQ Unit as below (Figure 6-148).

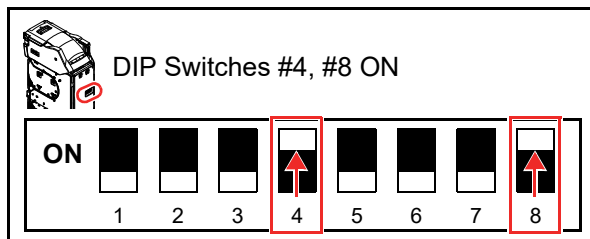

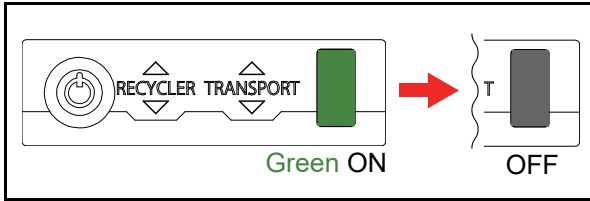


Figure 6-148 Note Position Sensor 4 - 6 Test (RQ Transport) 2



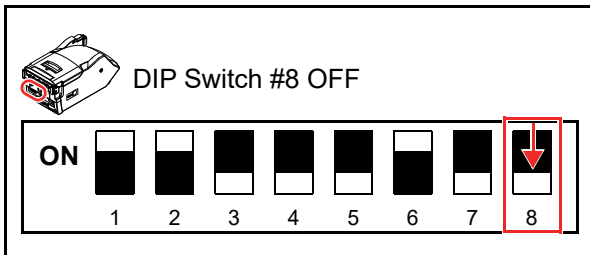
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



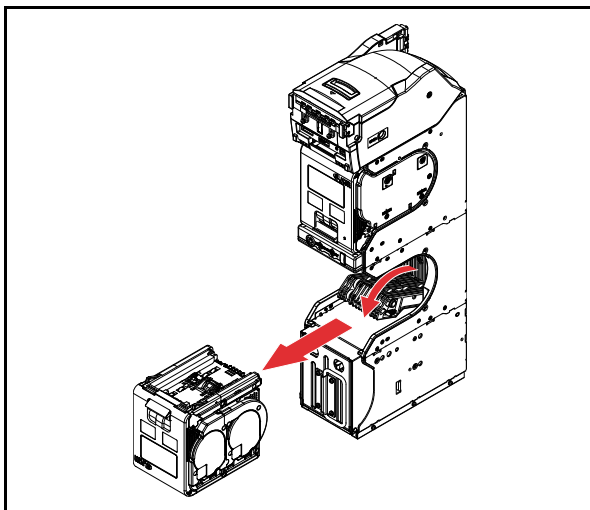
**Figure 6-149** Note Position Sensor 4 - 6 Test (RQ Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-150).




**Figure 6-150** Note Position Sensor 4 - 6 Test (RQ Transport) 4

7. Remove the Recycler from the RQ Transport.
8. Pull down the Front Transport Unit to block the Note Position Sensor 4 through 6.



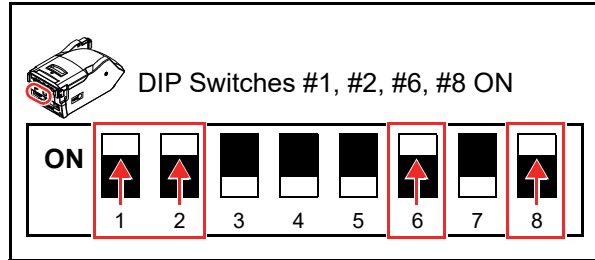
**Figure 6-151** Note Position Sensor 4 - 6 Test (RQ Transport) 5

9. The RQ Unit's Status LED will be lit at Cyan  when the Sensors function properly.
10. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

**Note Position Sensor D - F Test (RQ Transport)**

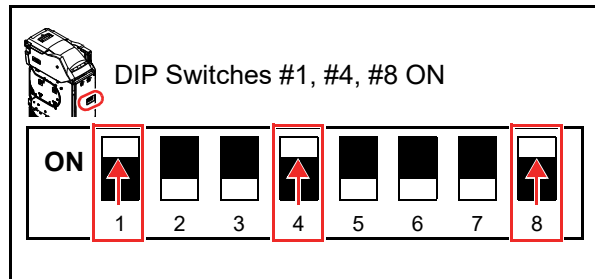
To run the Note Position Sensor D - F Test on the RQ Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-152).




**Figure 6-152** Note Position Sensor D - F Test (RQ Transport) 1

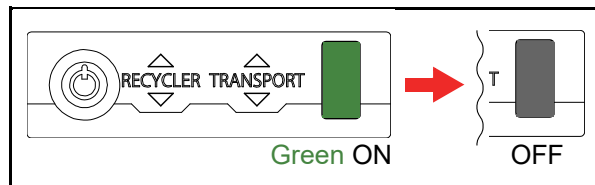
3. Set the DIP Switches of the RQ Unit as below (Figure 6-153).



**Figure 6-153** Note Position Sensor D - F Test (RQ Transport) 2

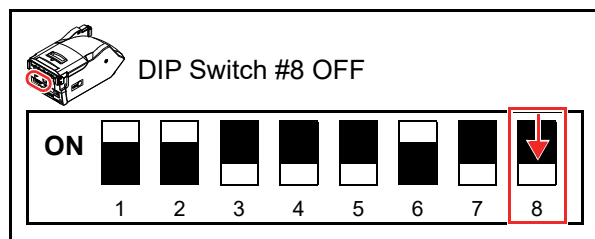
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



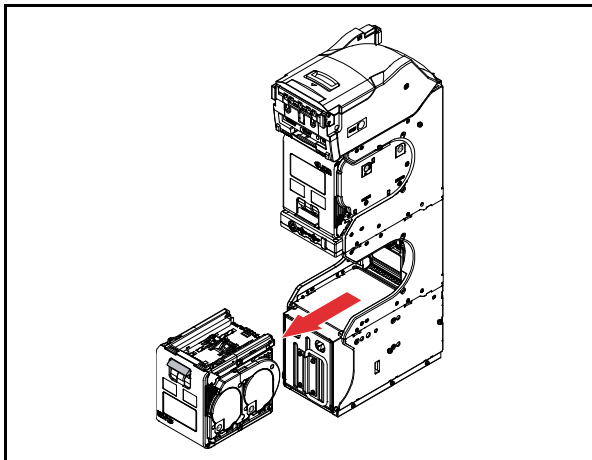
**Figure 6-154** Note Position Sensor D - F Test (RQ Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-155).




**Figure 6-155** Note Position Sensor D - F Test (RQ Transport) 4

- Remove the Recycler from the RQ Transport to block the Note Position Sensor D through F.



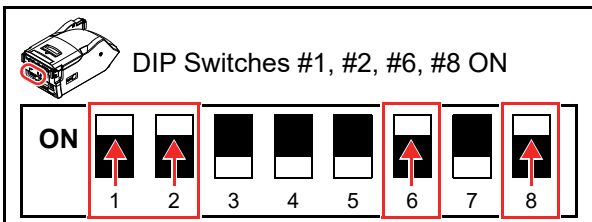
**Figure 6-156** Note Position Sensor D - F Test (RQ Transport) 5

- The RQ Unit's Status LED will be lit at Magenta  when the Sensors function properly.
- Set the UBA Pro DIP Switch #8 to **ON** to end the test.

**Recycler Solenoid Test (RQ Transport)**

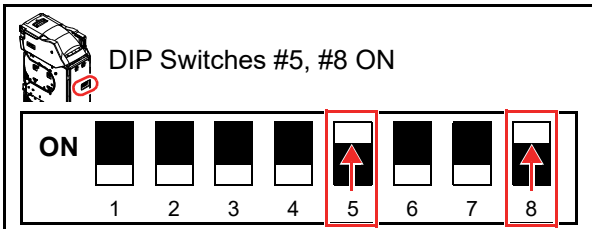
To run the Recycler Solenoid on the RQ Transport side, proceed as follows:

- Remove electrical power.
- Set the DIP Switches of the UBA Pro Unit as below (Figure 6-157).



**Figure 6-157** Recycle Solenoid Test (RQ Transport) 1

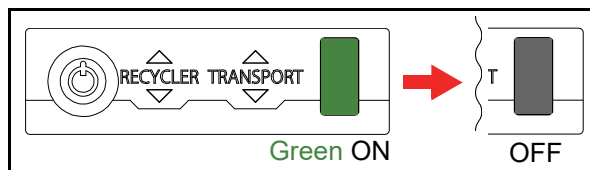
- Set the DIP Switches of the RQ Unit as below (Figure 6-158).



**Figure 6-158** Recycle Solenoid Test (RQ Transport) 2

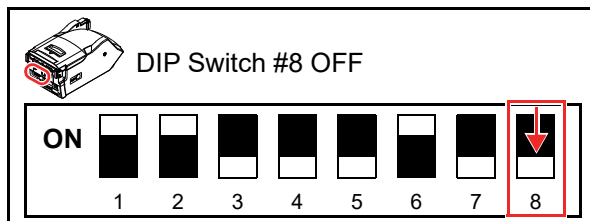
- Apply electrical power.
- Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

*NOTE: Wait for the Status LED to turn off in order to run the test properly.*



**Figure 6-159** Recycle Solenoid Test (RQ Transport) 3

- To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-160).



**Figure 6-160** Recycle Solenoid Test (RQ Transport) 4

- The Solenoid will start operating when it functions properly.

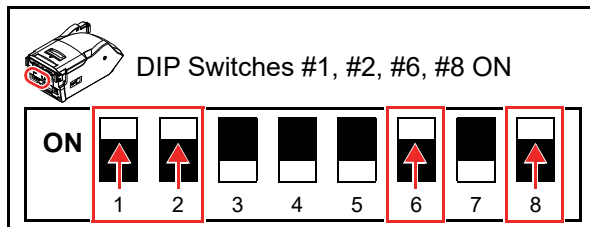
*NOTE: Confirm the functionality aurally by the sound that the Solenoid is making while in the operation.*

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

**Drum 1 Motor Test (RQ Transport)**

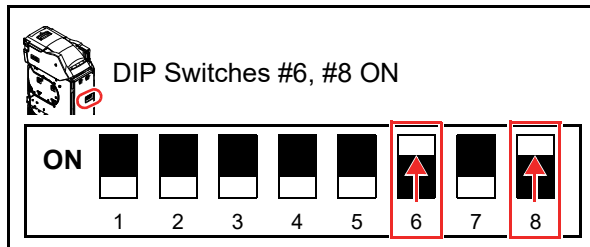
To run the Recycler Solenoid on the RQ Transport side, proceed as follows:

- Remove electrical power.
- Set the DIP Switches of the UBA Pro Unit as below (Figure 6-161).




**Figure 6-161** Drum 1 Motor Test (RQ Transport) 1

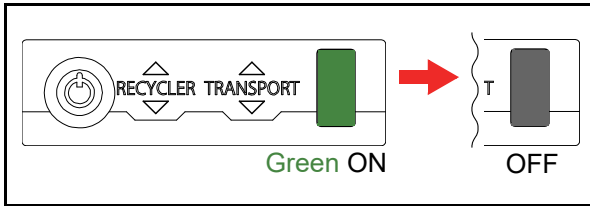
- Set the DIP Switches of the RQ Unit as below (Figure 6-162).



**Figure 6-162** Drum 1 Motor Test (RQ Transport) 2

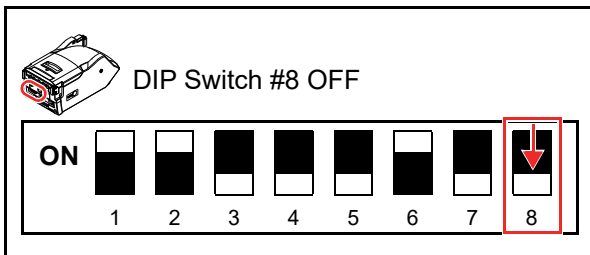
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



**Figure 6-163** Drum 1 Motor Test (RQ Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-164)



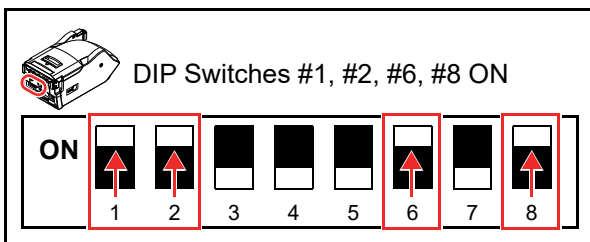
**Figure 6-164** Drum 1 Motor Test (RQ Transport) 4

7. The Drum 1 of the Recycler will start winding the Tape until it reaches to “End” and then to “Full” position back and forward repeatedly.
8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

**Drum 2 Motor Test (RQ Transport)**

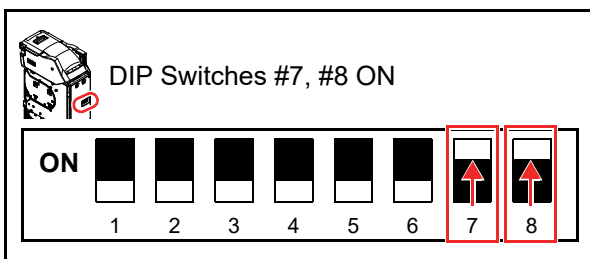
To run the Recycler Solenoid on the RQ Transport side, proceed as follows:

1. Remove electrical power.
2. Set the DIP Switches of the UBA Pro Unit as below (Figure 6-165).




**Figure 6-165** Drum 2 Motor Test (RQ Transport) 1

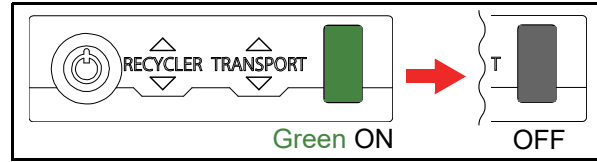
3. Set the DIP Switches of the RQ Unit as below (Figure 6-166).



**Figure 6-166** Drum 2 Motor Test (RQ Transport) 2

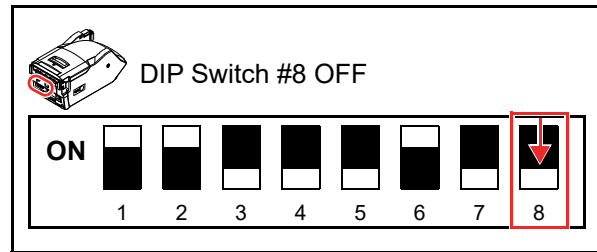
4. Apply electrical power.
5. Confirm that the Status LED/Collect Button is lit at **Green** Color and then turns off.

 **NOTE:** Wait for the Status LED to turn off in order to run the test properly.



**Figure 6-167** Drum 2 Motor Test (RQ Transport) 3

6. To start the Test, set the UBA Pro DIP Switch #8 to **OFF** (Figure 6-168)



**Figure 6-168** Drum 2 Motor Test (RQ Transport) 4

7. The Drum 2 of the Recycler will start winding the Tape until it reaches to “End” and then to “Full” position back and forward repeatedly.
8. Set the UBA Pro DIP Switch #8 to **ON** to end the test.

# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 7

### 7 EXPLODED VIEWS & PARTS LISTS

This section provides product exploded views and parts lists for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ). This section contains the Exploded View and Parts List of the following Units:



*NOTE: Contact your local JCM Representative for parts availability.*



*NOTE: Parts may be changed for improvement without notice.*

- RT Entire Unit

- RQ Entire Unit
- RT (Twin) Frame Unit (for RT and RQ)
- RQ (Quad) Frame Unit
- Transport Unit (for RT and RQ)
- Front Transport Unit (for RT and RQ)
- Rear Transport Unit for RT Frame Unit
- Rear Transport Unit for RQ Frame Unit
- Recycler
- Box Connect Module
- Cash Box Frame

### RT Entire Unit Exploded View

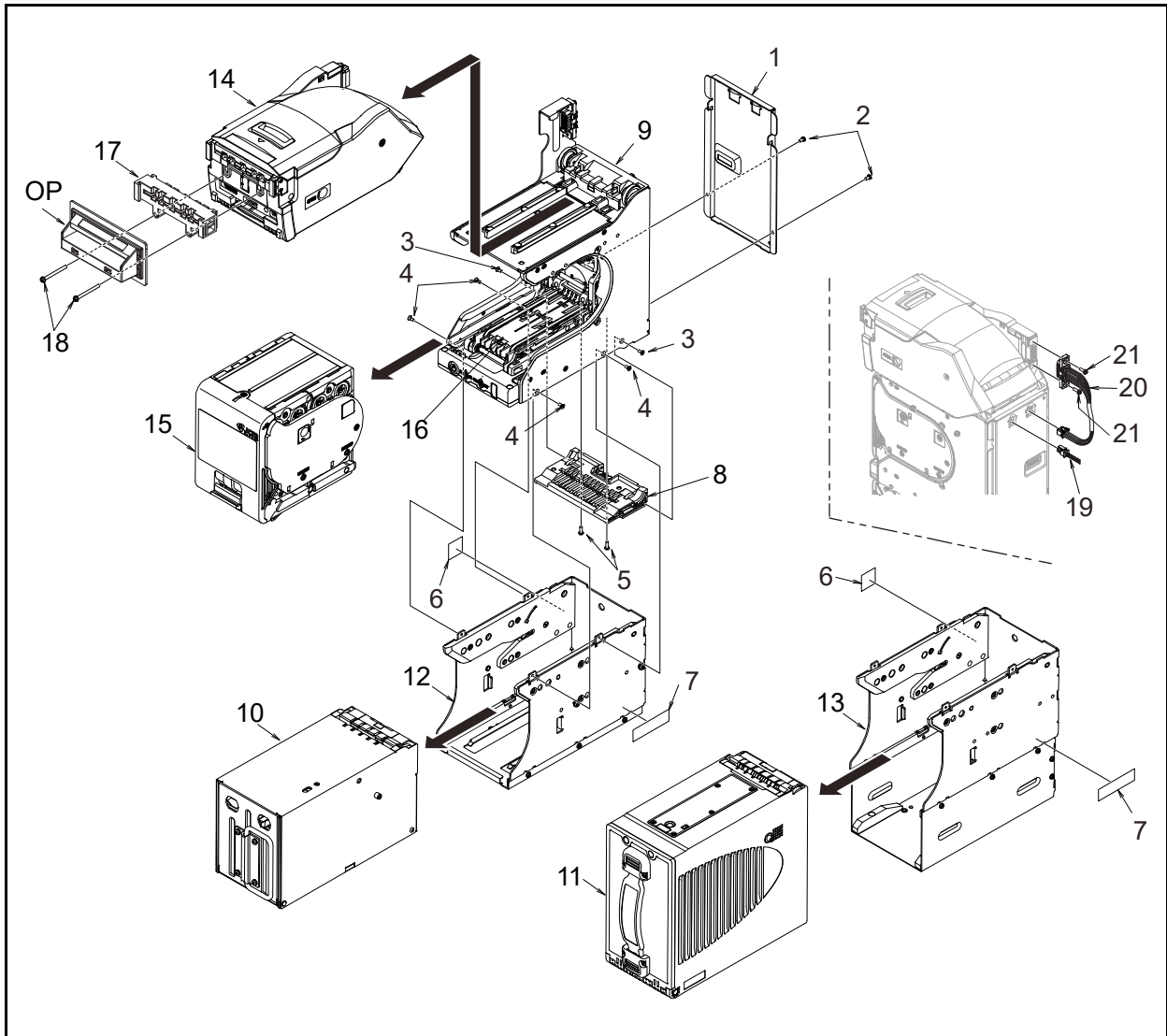


Figure 7-1 RT Entire Unit Exploded View

## RT Entire Unit Parts List

Table 7-1 RT Entire Unit Parts List

No.	EDP No.	Description	QTY	Remark
1	274705	RT (RC-Twin) Rear Cover	1	
2	091531	M2.6×6_P4 Pan Head W Washer	2	
3	148186	2.6X6 Flat Head P-TITE, Black, Iron/Chromium (III)	2	
4	281971	2.6X6 Flat Head P-TITE, Black, Iron(III), EL-S	4	
5	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	2	
6	147357	GND-LABEL	1	
7	-	SERIAL LABEL(SS-BOX)	1	
8	-	RC T/Q Box Connect Module	1	
9	-	RC Twin Frame Unit MP2	1	For RT
	283201	RC TWIN FRAME UNIT_DN MAINT	1	For RT With specified Lock (specific customer) The Frame Unit is the old type #283114 RC TWIN FRAME UNIT_DN.
10	280942	WBA-SH2 Cash Box Unit (PH)	1	SH2 Box, 400 Notes
11	280824	UBA Cash Box Large (TD)	1	Large Box (SS Box), 800 Notes
	283207	UBA Cash Box Large Maintenance	1	With specified Lock (specific customer)
12	-	RC T/Q SH2-Box Frame Unit MP2	1	SH2 Box Frame
13	-	RC T/Q SS-BOX FRAME UNIT MP2	1	Large Box (SS Box) Frame
	283204	RC T/Q SS-BOX FRAME UNIT MAINT		A shipping container is included. The Frame Unit is the old type #274851 RC T/Q SS-BOX FRAME UNIT.
14	284329*	UBA-500-20 UBA Pro Transport EUR PH	1	Upper Barcode only Centering Type Sub Board Type 2
15	283205	RC T/Q RECYCLER MAINT	1	Recycler
16	283206	RC T/Q L-Trans Module	1	Transport Unit
17	198102	Bezel Spacer	1	
18	274296	3x35 W Washer (Large)	2	
19	275423	Power Harness (3640-05-001)	1	
20	280498	Power Supply/Interface Harness (3640-05-020)	1	Without the USB cable
	275424	Power Supply/Interface Harness (3640-05-002)	1	With the USB cable
21	013536	3×10 Pan Head Screw with W Washer Small Iron/Chromium (III)	2	
OPT†	202272	UBA/iPRO Bezel SS 1 R (85mm, Black, 2 Green LEDs)	1	For Standard Installation. No Relay Harness
	202279	UBA/iPRO Bezel SU 1 R (85mm, Black, 2 Green LEDs)	1	For SU Installation. No Relay Harness.

\*. Make sure that the RT/RQ software for the country desired is installed and the DIP Switch Settings are correct.

†. Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for more Bezels.



**NOTE:** Refer to the “UBA™ Series Standard & Large Cash Boxes Exploded View and Parts List” and/or the “UBA™ Series SH2 Cash Box Exploded View and Parts List” for the Cash Box parts.

### RQ Entire Unit Exploded View

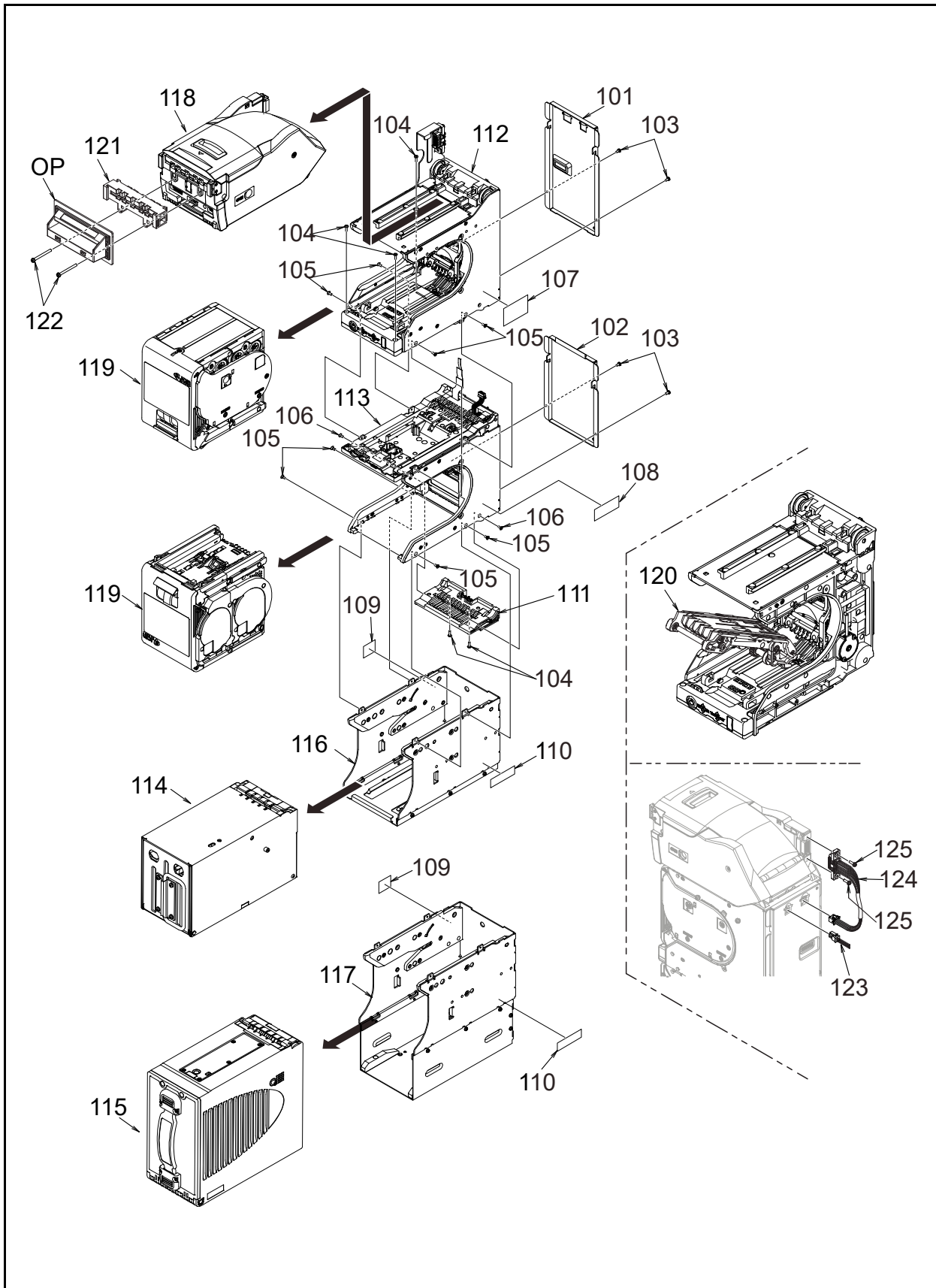


Figure 7-2 RQ Entire Unit Exploded View

**RQ Entire Unit Parts List****Table 7-2 RQ Entire Unit Parts List**

No.	EDP No.	Description	QTY	Remark
101	274705	RT (RC-Twin) Rear Cover	1	
102	274767	Frame-Rear-Cover-Q_PT	1	
103	091531	M2.6×6_P4 Pan Head W Washer	4	
104	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	5	
105	281971	2.6X6 Flat Head P-TITE, Black, Iron(III), EL-S	8	
106	148186	2.6X6 Flat Head P-TITE, Black, Iron/Chromium (III)	2	
107	-	RATING LABEL RC T/Q	1	
108	-	SERIAL LABEL (QUAD)	1	
109	147357	GND-LABEL	1	
110	-	SERIAL LABEL(SH2-BOX)	1	
111	-	RC T/Q Box Connect Module	1	
112	-	RC Twin Frame (Quad) Unit MP2	1	For RQ
	283202	RRC TWIN FRAME(QUAD) UNIT_DN MAINT	1	For RQ With specified Lock (specific customer) The Frame Unit is the old type #283115 RC TWIN FRAME(QUAD) UNIT_DN.
113	-	RC QUAD FRAME UNIT	1	
	283203	RC QUAD FRAME UNIT DN MAINT	1	Specific customer
114	280942	WBA-SH2 Cash Box Unit (PH)	1	SH2 Box, 400 Notes
115	280824	UBA Cash Box Large (TD)	1	Large Box (SS Box), 800 Notes
	283207	UBA Cash Box Large Maintenance	1	With specified Lock (specific customer)
116	-	RC T/Q SH2-Box Frame Unit MP2	1	SH2 Box Frame
117	-	RC T/Q SS-BOX FRAME UNIT MP2	1	Large Box (SS Box) Frame
	283204	RC T/Q SS-BOX FRAME UNIT MAINT		A shipping container is included. The Frame Unit is the old type #274851 RC T/Q SS-BOX FRAME UNIT.
118	284329*	UBA-500-20 UBA Pro Transport EUR PH	1	Upper Barcode only Centering Type Sub Board Type 2
119	283205	RC T/Q RECYCLER MAINT	2	Recycler
120	283206	RC T/Q L-Trans Module	2	Transport Unit
121	198102	Bezel Spacer	1	
122	274296	3x35 W Washer (Large)	2	
123	275423	Power Harness (3640-05-001)	1	
124	280498	Power Supply/Interface Harness (3640-05-020)	1	Without the USB cable
	275424	Power Supply/Interface Harness (3640-05-002)	1	With the USB cable
125	013536	M3×10_P4 Pan Head W Washer	2	
OPT†	202272	UBA/iPRO Bezel SS 1 R (85mm, Black, 2 Green LEDs)	1	For Standard Installation. No Relay Harness
	202279	UBA/iPRO Bezel SU 1 R (85mm, Black, 2 Green LEDs)	1	For SU Installation. No Relay Harness.

\*. Make sure that the RT/RQ software for the country desired is installed and the DIP Switch Settings are correct.

†. Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for more Bezels.



### RT (Twin) Frame Unit (for RT and RQ) Exploded View 1

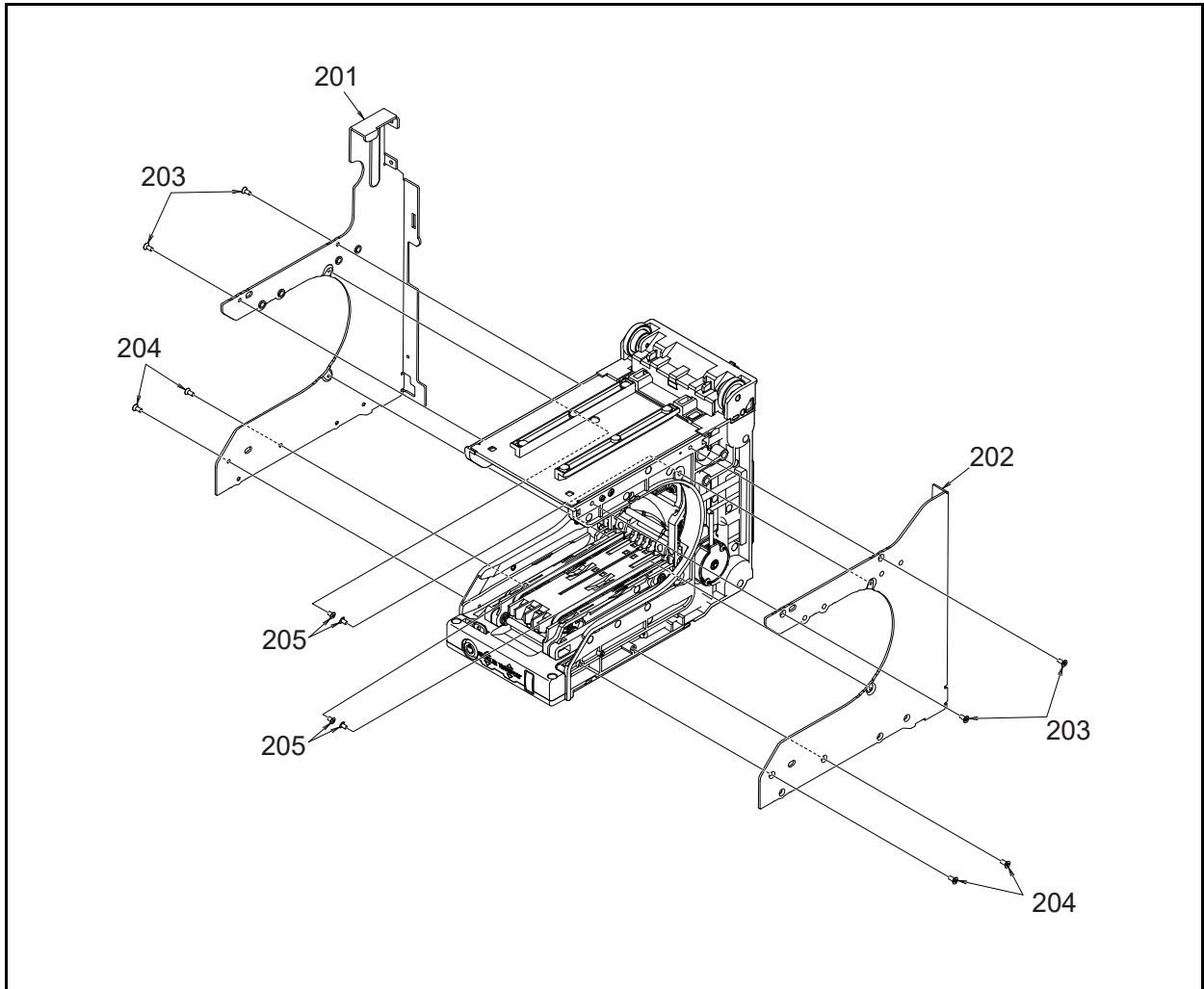


Figure 7-3 RT (Twin) Frame Unit (for RT and RQ) Exploded View 1

### RT (Twin) Frame Unit (for RT and RQ) Parts List 1

Table 7-3 RT (Twin) Frame Unit (for RT and RQ) Parts List 1

No.	EDP No.	Description	QTY	Remark
201	289687	RC-TWIN FL PANEL	1	Left Panel
202	289688	RC-TWIN FR PANEL	1	Right Panel
203	281971	2.6X6 Flat Head P-TITE, Black, Iron(III), EL-S	4	
204	148186	2.6X6 Flat Head P-TITE, Black, Iron/Chromium (III)	4	
205	227685	M2.6x4 Slim Head Screw, Iron(III), G-180B	4	

### RT (Twin) Frame Unit (for RT and RQ) Exploded View 2

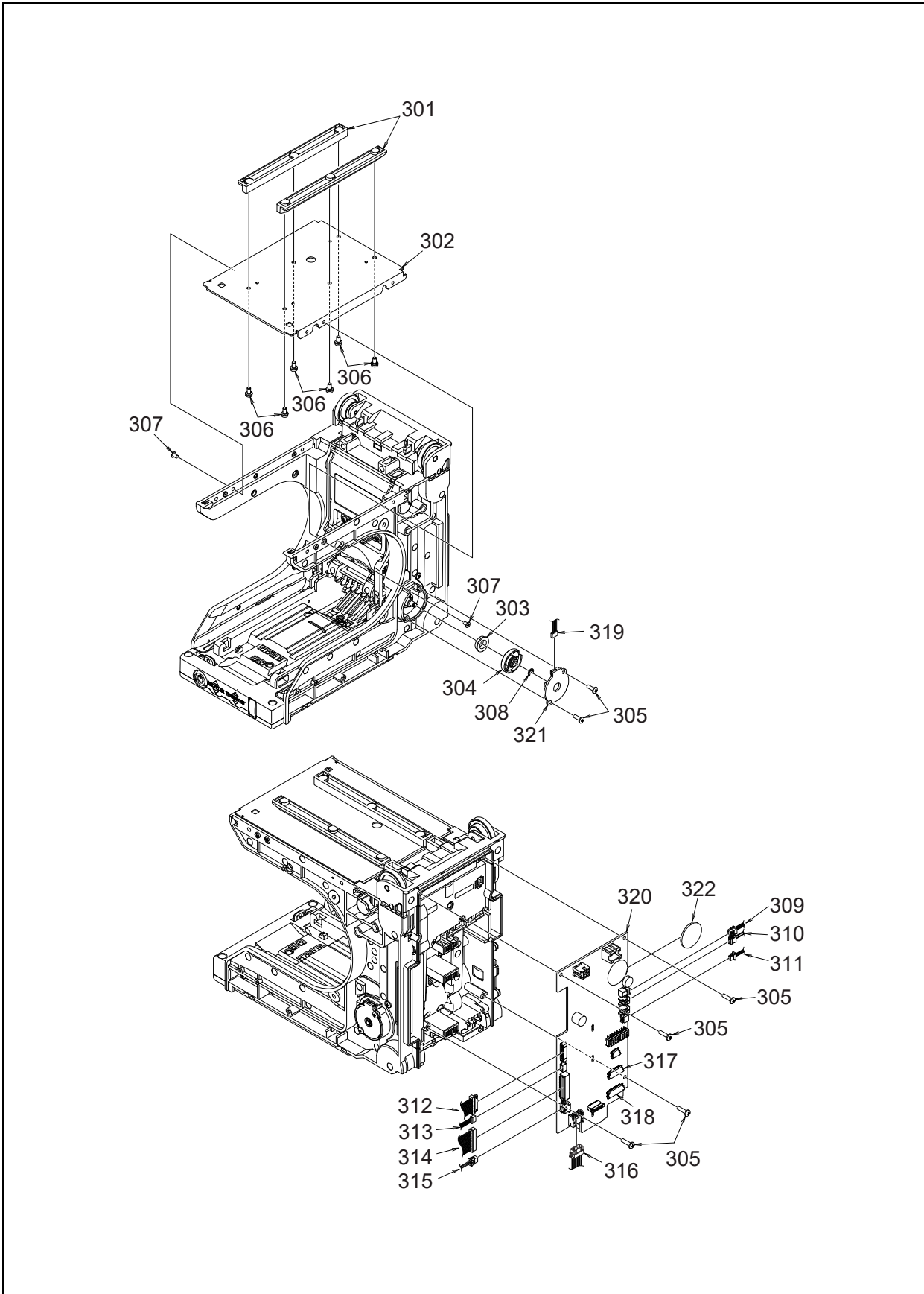


Figure 7-4 RT (Twin) Frame Unit (for RT and RQ) Exploded View 2

**RT (Twin) Frame Unit (for RT and RQ) Parts List 2****Table 7-4 RT (Twin) Frame Unit (for RT and RQ) Parts List 2**

No.	EDP No.	Description	QTY	Remark
301	265780	UBA-TRANS RAIL	2	
302	280419	BV Tray	1	
303	274550	Bearing (Anti-Environment Stress Cracking)	1	
304	280428	E-Slit Crown	1	
305	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	6	
306	003601	M3×6 Pan Head W Washer	6	
307	227685	M2.6x4 Slim Head Screw, Iron(III), G-180B	2	
308	248124	φ2.5 E-ring	1	
309	278125	RT (Twin) Drum Removal Harness (3640-05-005x)	1	CN3
310	275444	Flapper Motor Harness Assy. (4115-3640-03-001)	1	CN5
311	275428	Flapper Home Harness (3640-05-006B)	1	CN6
312	278125	RT (Twin) Drum Removal Harness (3640-05-005x)	(1)	CN4 Split from #309
313	275429	Flapper PS Harness (3640-05-007x)	1	CN7
314	275426	TR Board Signal Harness (3640-05-004)	1	CN8
315	275425	TR Board Power Harness (3640-05-003)	1	CN12
316	275430	RQ (Quad) Board Power Supply Harness (3640-05-008x)	1	CN9
317	275432	RQ (Quad) Board FFC1 Harness (3640-05-010x)	1	CN10
318	275433	RQ (Quad) Board FFC2 Harness (3640-05-011x)	1	CN13
319	275429	Flapper PS Harness (3640-05-007x)	1	
320	282193	CPU Board (4115-3640-06-001x-01x)	1	
321	275306	Flapper Board (4115-3640-06-005-01x)	1	
322	078590	CR2032H XP Bulk (Coin Cell Battery)	1	For Recycler Detection Battery Equipped Type

### RT (Twin) Frame Unit (for RT and RQ) Exploded View 3

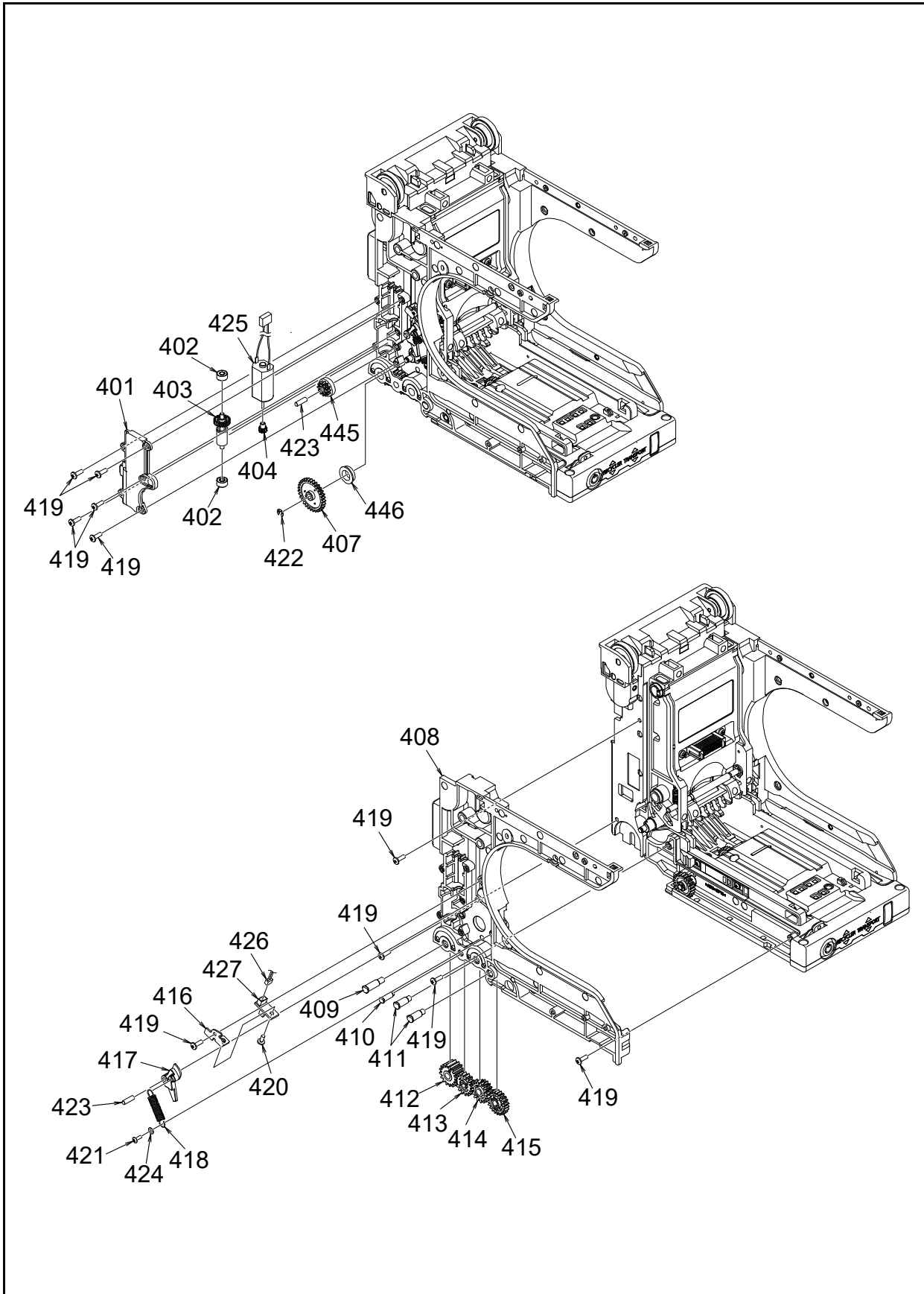


Figure 7-5 RT (Twin) Frame Unit (for RT and RQ) Exploded View 3

**RT (Twin) Frame Unit (for RT and RQ) Parts List 3****Table 7-5 RT (Twin) Frame Unit (for RT and RQ) Parts List 3**

No.	EDP No.	Description	QTY	Remark
401	274716	Rotary-G Gear Cover	1	
402	274552	Bearing (Anti-Environment Stress Cracking)	2	
403	274693	Rotary-G Worm Gear	1	
404	231388	CENT GE D	1	
405	274692	Rotary-G Worm Wheel	1	
406	274550	Bearing (Anti-Environment Stress Cracking)	1	
407	274697	Rotary-G Gear	1	
408	289689	RC-TWIN SIDE-FL	1	
409	280440	Side-FR TR-Stud C	1	
410	280439	Side-FR TR-Stud B	1	
411	280438	Side-FR TR-Stud A	2	
412	274691	GEAR m1.0-z16	1	
413	195942	BACK TRANS GEAR 2	1	
414	274690	FL-Connect Gear	1	
415	274689	Guide-L Spur Gear	1	
416	274706	Flapper Sensor-B Plate	1	
417	274717	Rotary-G Latch	1	
418	274753	Rotary-G Latch-SP	1	
419	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	10	
420	274761	2.6×6 Binding Head Screw, Iron(III), G-180B	1	
421	148572	2×6 Truss Head P-TITE Screw	1	
422	248124	φ2.5 E-ring	1	
423	081190	Parallel Pin (Hard)	2	
424	274757	φ2.2×φ5×t0.3 Washer (Large), Iron(III)	1	
425	275444	Flapper Motor Harness Assy. (4115-3640-03-001)	1	
426	275428	Flapper Home Harness (3640-05-006x)	1	
427	116208	Flapper Home Board (4033-3240-06-08x-01)	1	

## RT (Twin) Frame Unit (for RT and RQ) Exploded View 4

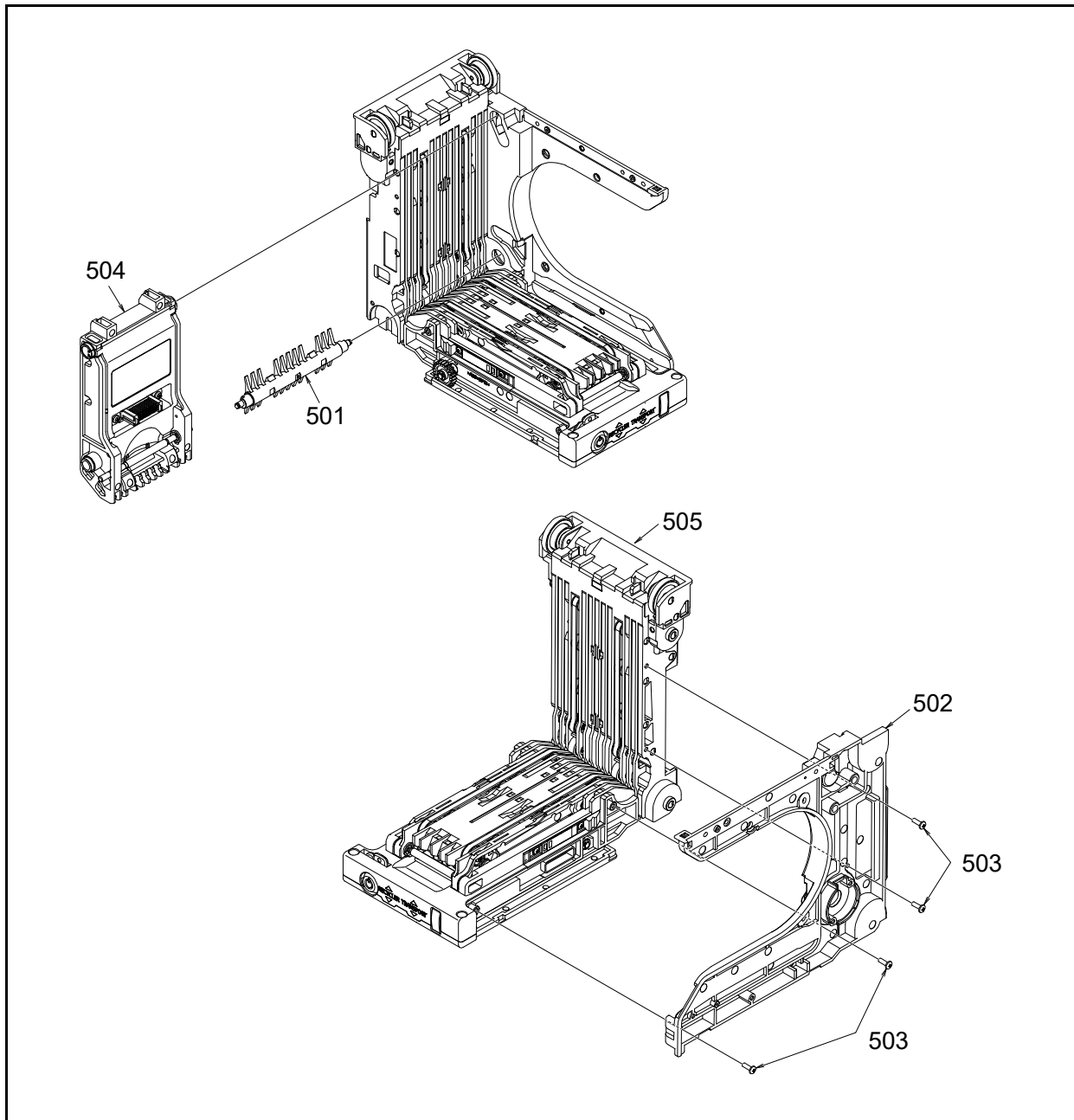


Figure 7-6 RT (Twin) Frame Unit (for RT and RQ) Exploded View 4

### RT (Twin) Frame Unit (for RT and RQ) Parts List 4

Table 7-6 RT (Twin) Frame Unit (for RT and RQ) Parts List 4

No.	EDP No.	Description	QTY	Remark
501	274733	Rotary Guide	1	
502	289690	RC-TWIN SIDE-FR	1	
503	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/ Chromium(III)	4	
504	-	Front Transport Unit	1	
505	-	Rear Transport Unit	1	

### RT (Twin) Frame Unit (for RT and RQ) Exploded View 5

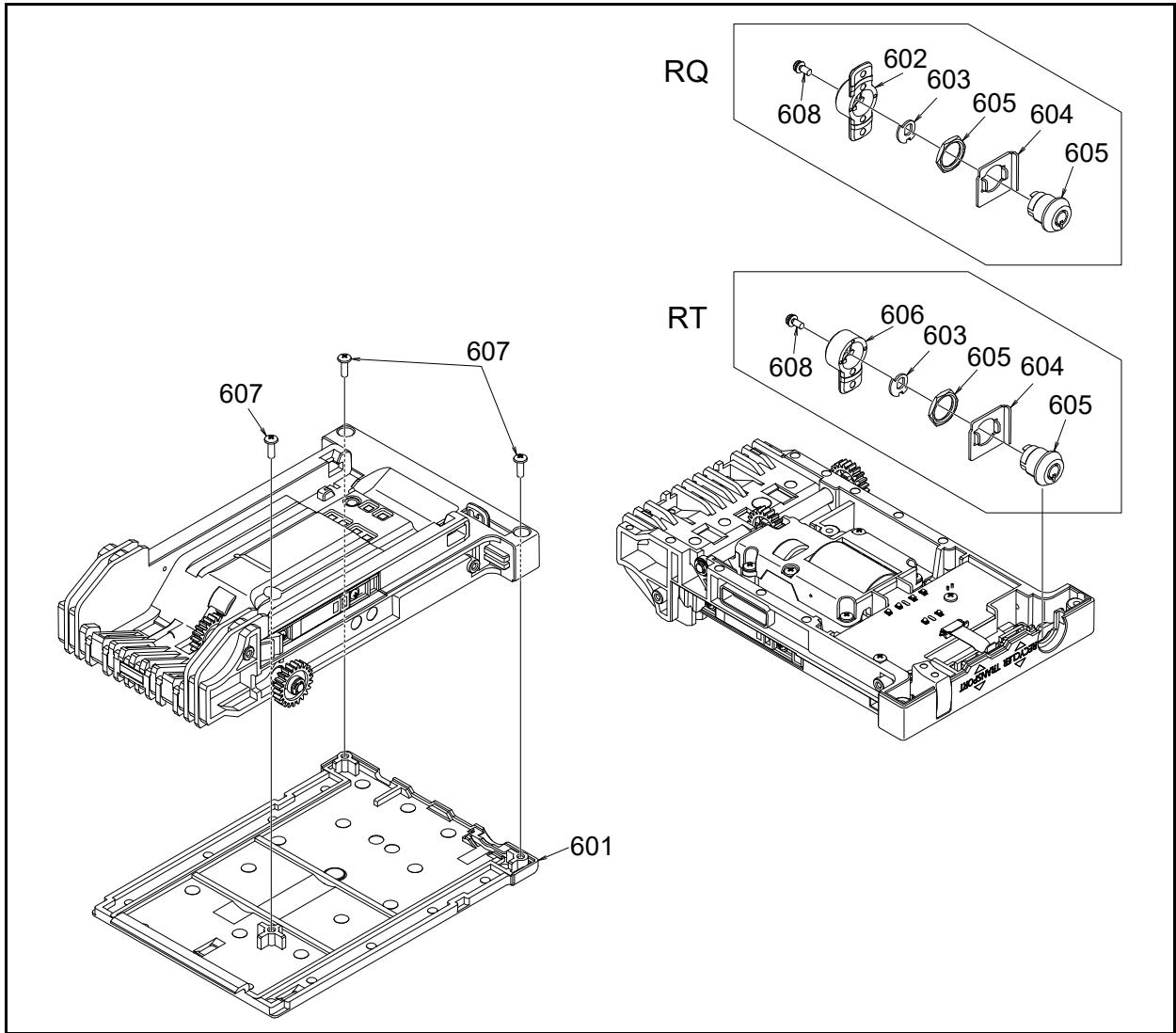


Figure 7-7 RT (Twin) Frame Unit (for RT and RQ) Exploded View 5

### RT (Twin) Frame Unit (for RT and RQ) Parts List 5

Table 7-7 RT (Twin) Frame Unit (for RT and RQ) Parts List 5

No.	EDP No.	Description	QTY	Remark
601	274722	RT (RC-Twin) FB Box Guide	1	RT Unit only
602	278254	Upper-Key-Plate-Q_RE	1	RQ Unit only
603	278253	RT (RC-Twin) KEY PT	2	
604	274708	Key Plate	2	
605	274546	C-88-8B	1	Standard*
606	278252	RT (RC-Twin) Key Plate	1	RT Unit only
607	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	3	RT Unit only
608	091531	M2.6×6_P4 Pan Head W Washer	2	

\*. Contact your local JCM Representative for a lock specified by a specific customer.



### RT (Twin) Frame Unit (for RT and RQ) Exploded View 6

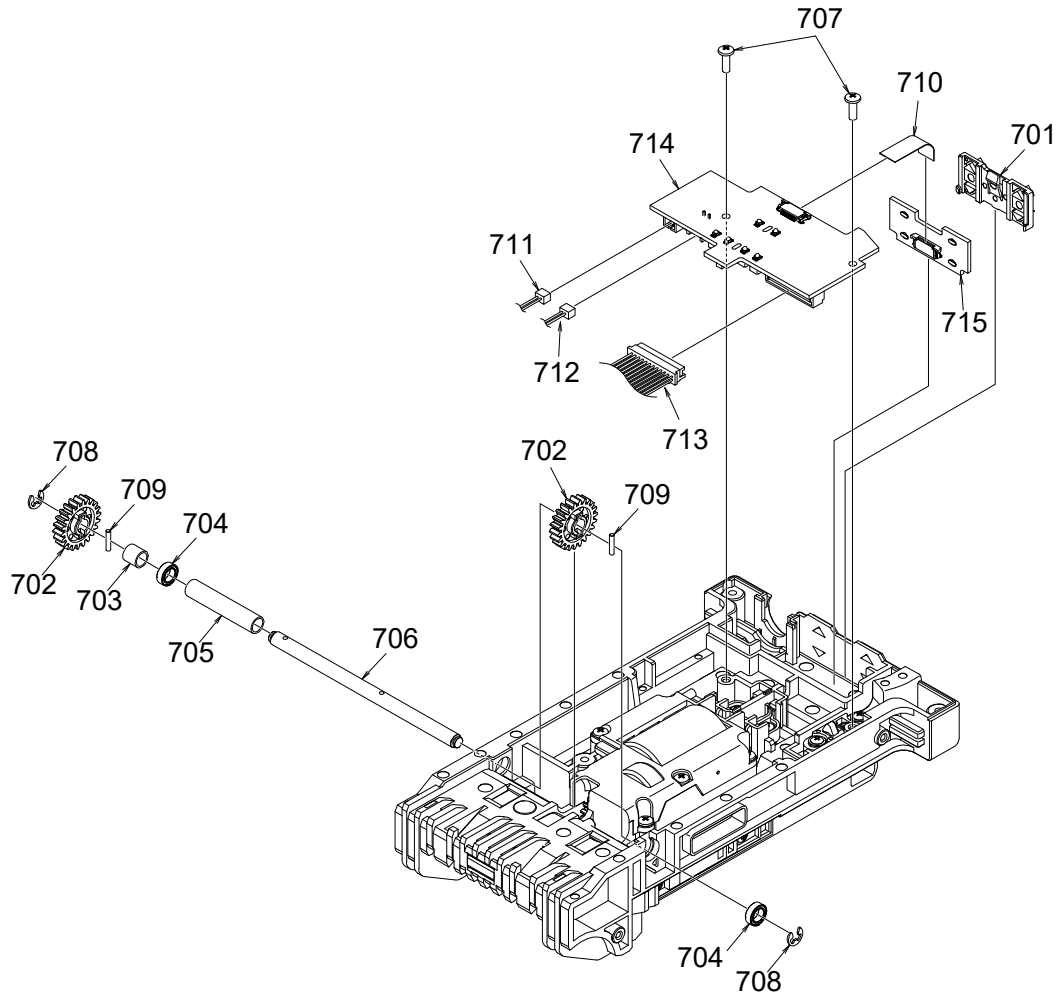


Figure 7-8 RT (Twin) Frame Unit (for RT and RQ) Exploded View 6

**RT (Twin) Frame Unit (for RT and RQ) Parts List 6****Table 7-8 RT (Twin) Frame Unit (for RT and RQ) Parts List 6**

No.	EDP No.	Description	QTY	Remark
701	274725	F-LED Cover	1	
702	274689	Guide-L Spur Gear	2	
703	274755	5X32 Rolled Spacer, Iron/Chromium (III)	1	
704	274549	Bearing (Anti-Environment Stress Cracking)	2	
705	274756	5X6 Rolled Spacer, Iron/Chromium (III)	1	
706	274749	RT (RC-Twin) Frame Dr-Shaft	1	
707	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	2	
708	248115	φ3 E-ring	2	
709	091515	Parallel Pin, 1.6-L8 (Hard)	2	
710	275435	LED Board FFC Harness (3640-05-013x)	1	CN4
711	275425	TR Board Power Harness (3640-05-003)	1	CN1
712	275445	TR Motor Harness Assy. (3640-03-002x)	1	CN3
713	275426	TR Board Signal Harness (3640-05-004)	1	CN2
714	275303	TR Board (4115-3640-06-002x-01)	1	
715	275308	LED Board (4115-3640-06-007x-01)	1	

## RT (Twin) Frame Unit (for RT and RQ) Exploded View 7

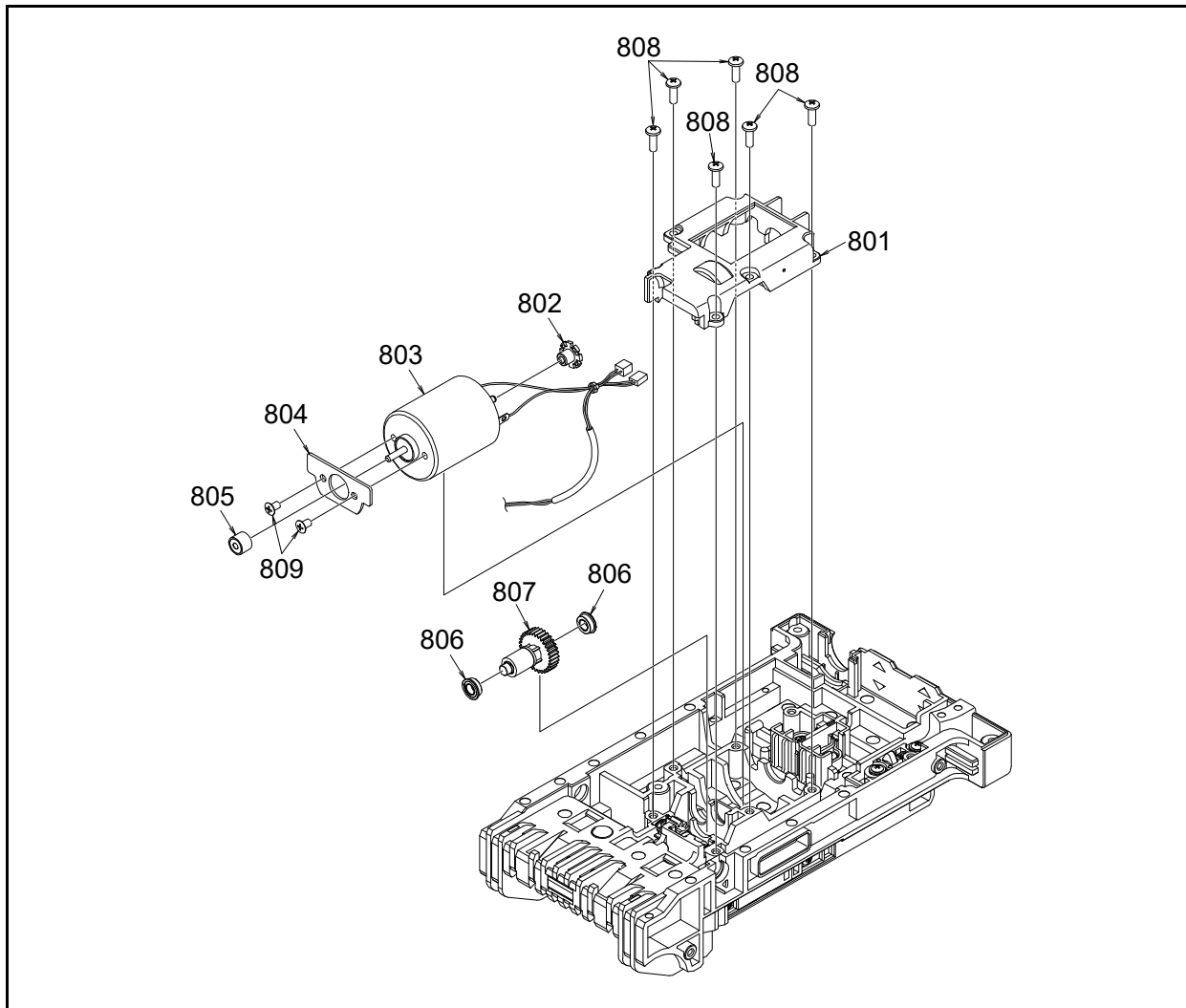


Figure 7-9 RT (Twin) Frame Unit (for RT and RQ) Exploded View 7

### RT (Twin) Frame Unit (for RT and RQ) Parts List 7

Table 7-9 RT (Twin) Frame Unit (for RT and RQ) Parts List 7

No.	EDP No.	Description	QTY	Remark
801	274723	RT (RC-Twin) MO-GE Cover	1	
802	280096	ENC-Plate	1	
803	275445	TR Motor Harness Assy. (3640-03-002x)	1	RT (Twin) Frame Unit Only
804	274707	Motor Plate	1	
805	234695	TR MOTOR PINION GEAR	1	
806	269212	Bearing (Anti-Environment Stress Cracking)	2	
807	274695	TR Worm Gear (Twin)	1	
808	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	6	
809	227685	M2.6x4 Slim Head Screw, Iron(III), G-180B	2	

### RT (Twin) Frame Unit (for RT and RQ) Exploded View 8

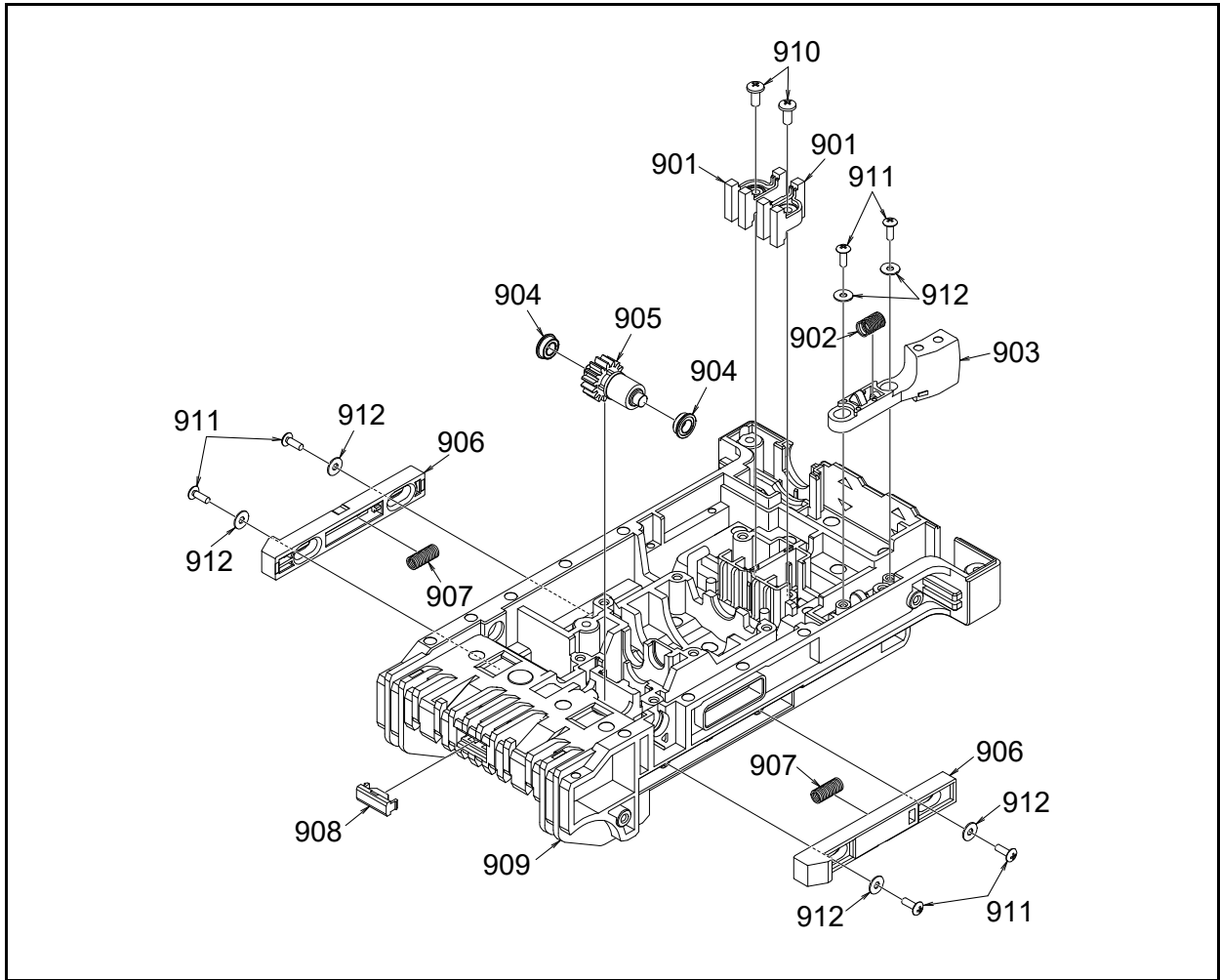


Figure 7-10 RT (Twin) Frame Unit (for RT and RQ) Exploded View 8

### RT (Twin) Frame Unit (for RT and RQ) Parts List 8

Table 7-10 RT (Twin) Frame Unit (for RT and RQ) Parts List 8

No.	EDP No.	Description	QTY	Remark
901	274726	Frame Base Light-Guide	2	
902	274686	Button Spring	1	
903	274727	Button	1	
904	269212	Bearing (Anti-Environment Stress Cracking)	2	
905	292424	TR Worm Wheel (Twin)	1	
906	274729	Recycler (WU) Pusher	2	
907	274687	Recycler (WU) Pusher Spring	2	
908	282670	Prism B	1	
909	280426	RT (RC-Twin) Frame Base	1	
910	063250	2.6×6 Binding Head P-TITE Screw (Phillips, Self-Tapping)	2	
911	148572	2×6 Truss Head P-TITE Screw	6	
912	274762	φ2.3×φ6×t0.4 Washer (Large), Iron(III)	6	

## RQ (Quad) Frame Unit Exploded View 1

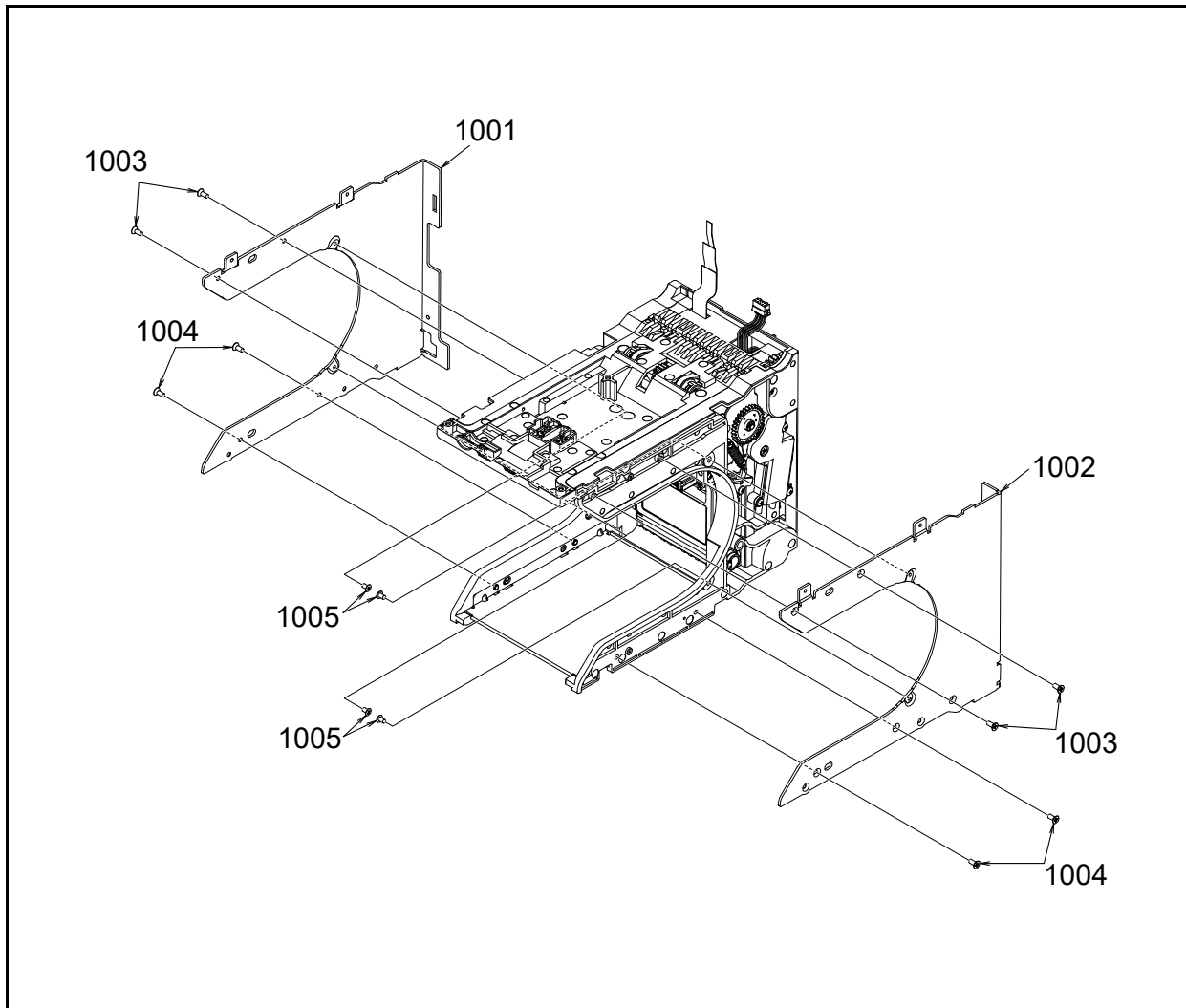


Figure 7-11 RQ (Quad) Frame Unit Exploded View 1

### RQ (Quad) Frame Unit Parts List 1

Table 7-11 RQ (Quad) Frame Unit Parts List 1

No.	EDP No.	Description	QTY	Remark
1001	274766	FR-Panel-Q_PT	1	
1002	274764	FL-Panel-Q_PT	1	
1003	281971	2.6X6 Flat Head P-TITE, Black, Iron(III), EL-S	4	
1004	148186	2.6X6 Flat Head P-TITE, Black, Iron/Chromium (III)	4	
1005	227685	M2.6x4 Slim Head Screw, Iron(III), G-180B	4	

### RQ (Quad) Frame Unit Exploded View 2

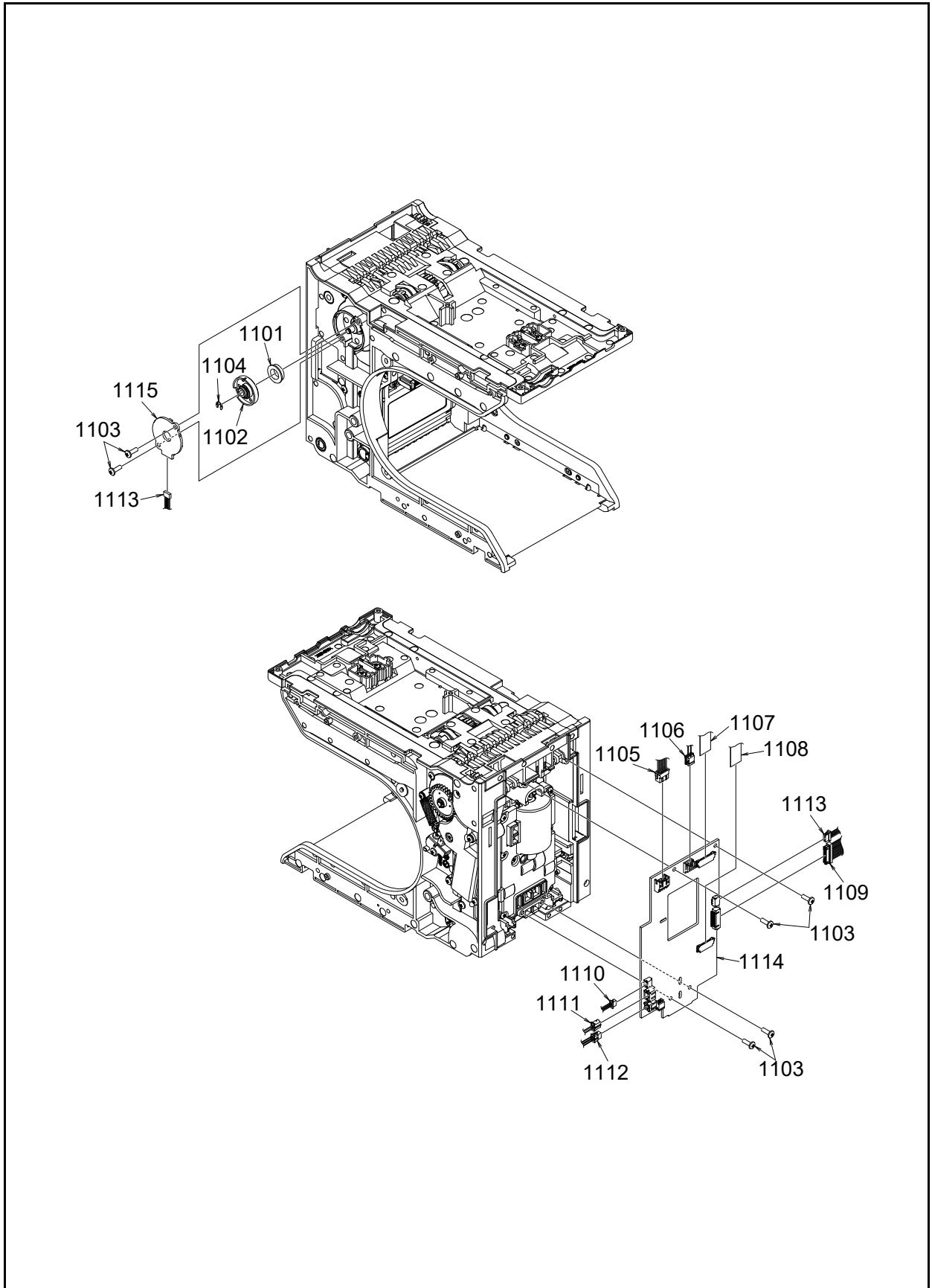


Figure 7-12 RQ (Quad) Frame Unit Exploded View 2

**RQ (Quad) Frame Unit Parts List 2****Table 7-12 RQ (Quad) Frame Unit Parts List 2**

No.	EDP No.	Description	QTY	Remark
1101	274550	Bearing (Anti-Environment Stress Cracking)	1	
1102	280428	E-Slit Crown	1	
1103	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/ Chromium(III)	6	
1104	248124	φ2.5 E-ring	1	
1105	275430	RQ (Quad) Board Power Supply Harness (3640-05-008x)	1	CN1
1106	275446	RQ (Quad) Transport Motor Harness Assy. (4115-3640-03-003)	1	CN7
1107	275433	RQ (Quad) Board FFC2 Harness (3640-05-011x)	1	CN3
1108	275432	RQ (Quad) Board FFC1 Harness (3640-05-010x)	1	CN2
1109	280222	RQ (Quad) Drum Removal Harness (3640-05-018x)	1	CN9
1110	275428	Flapper Home Harness (3640-05-006B)	1	CN5
1111	275444	Flapper Motor Harness Assy. (4115-3640-03-001)	1	CN6
1112	280222	RQ (Quad) Drum Removal Harness (3640-05-018x)	(1)	CN8 Split from #1109
1113	275429	Flapper PS Harness (3640-05-007x)	1	CN4
1114	282194	RQ (Quad) Board (4115-3640-06-004B-01x)	1	
1115	275306	Flapper Board (4115-3640-06-005-01x)	1	



### RQ (Quad) Frame Unit Exploded View 3

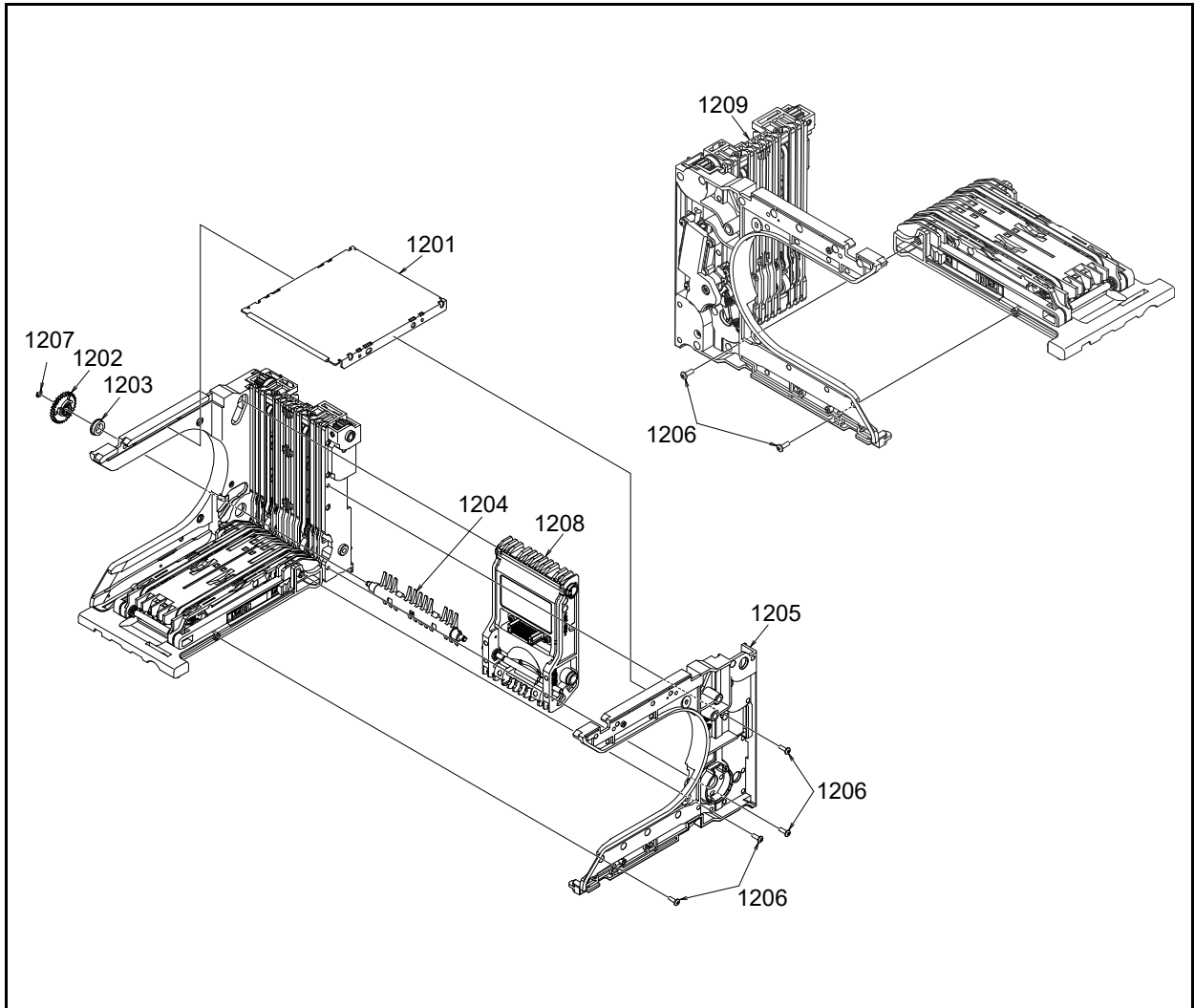


Figure 7-13 RQ (Quad) Frame Unit Exploded View 3

### RQ (Quad) Frame Unit Parts List 3

Table 7-13 RQ (Quad) Frame Unit Parts List 3

No.	EDP No.	Description	QTY	Remark
1201	280420	Frame-Tray-Q_PT	1	
1202	274697	Rotary-G Gear	1	
1203	274550	Bearing (Anti-Environment Stress Cracking)	1	
1204	274733	Rotary Guide	1	
1205	280430	Side-FL-Q_RE	1	
1206	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	6	
1207	248124	φ2.5 E-ring	1	
1208	-	Front Transport Unit	1	
1209	-	Rear Transport Unit	1	

### RQ (Quad) Frame Unit Exploded View 4

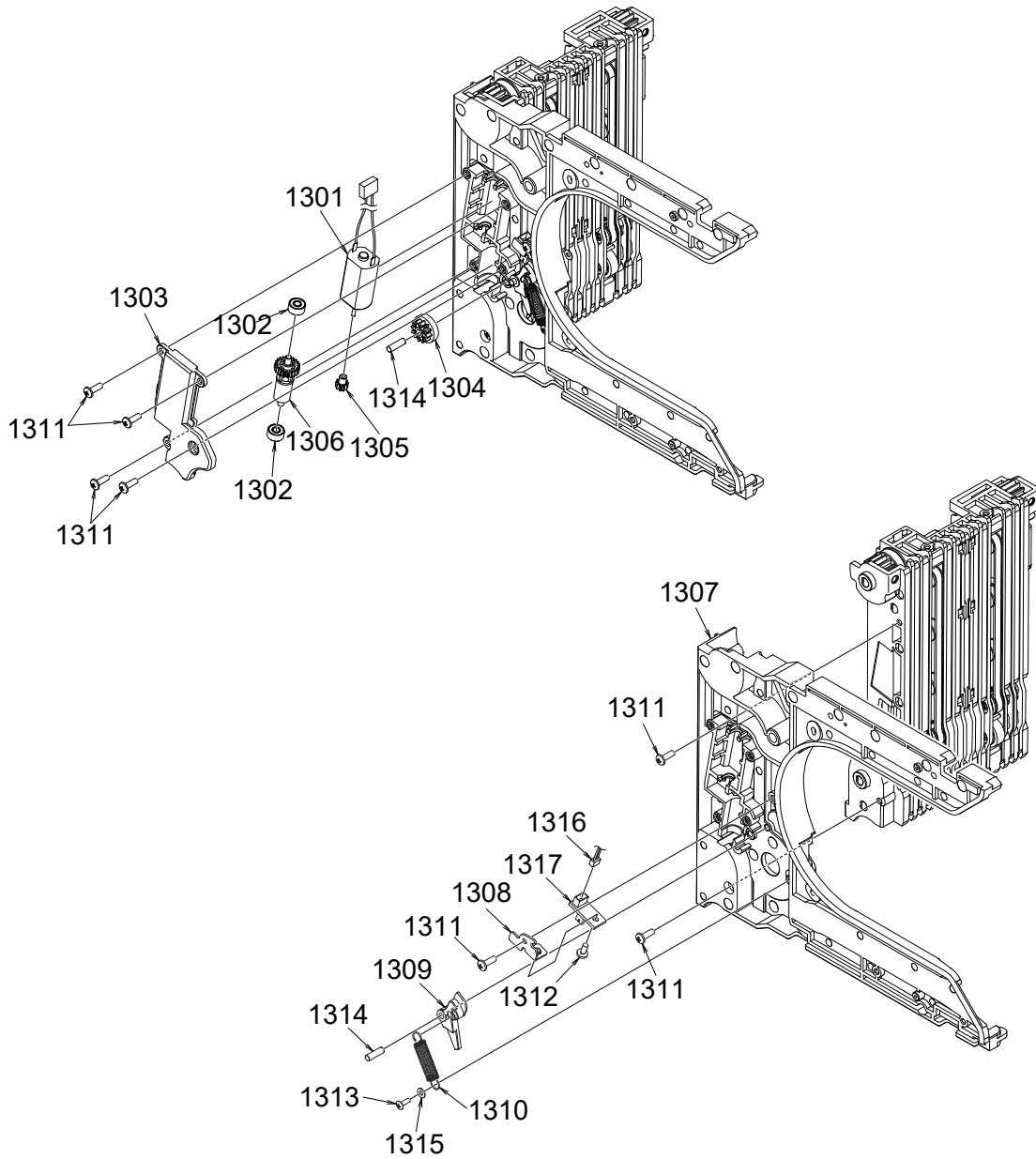


Figure 7-14 RQ (Quad) Frame Unit Exploded View 4

**RQ (Quad) Frame Unit Parts List 4****Table 7-14 RQ (Quad) Frame Unit Parts List 4**

No.	EDP No.	Description	QTY	Remark
1301	275444	Flapper Motor Harness Assy. (4115-3640-03-001)	1	
1302	274552	Bearing (Anti-Environment Stress Cracking)	2	
1303	274772	Side-FR-Gear-Cover-Q_RE	1	
1304	274692	Rotary-G Worm Wheel	1	
1305	231388	CENT GE D	1	
1306	274693	Rotary-G Worm Gear	1	
1307	280429	Side-FR-Q_RE	1	
1308	274706	Flapper Sensor-B Plate	1	
1309	274717	Rotary-G Latch	1	
1310	274753	Rotary-G Latch-SP	1	
1311	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	7	
1312	274761	2.6×6 Binding head Screw, Iron(III), G-180B	1	
1313	148572	2×6 Truss Head P-TITE Screw	1	
1314	081190	Parallel Pin (Hard), 3-L10	2	
1315	274757	φ2.2×φ5×t0.3 Washer (Large), Iron(III)	1	
1316	275428	Flapper Home Harness (3640-05-006x)	(1)	
1317	116208	Flapper Home Board (4033-3240-06-08B-01)	1	

## RQ (Quad) Frame Unit Exploded View 5

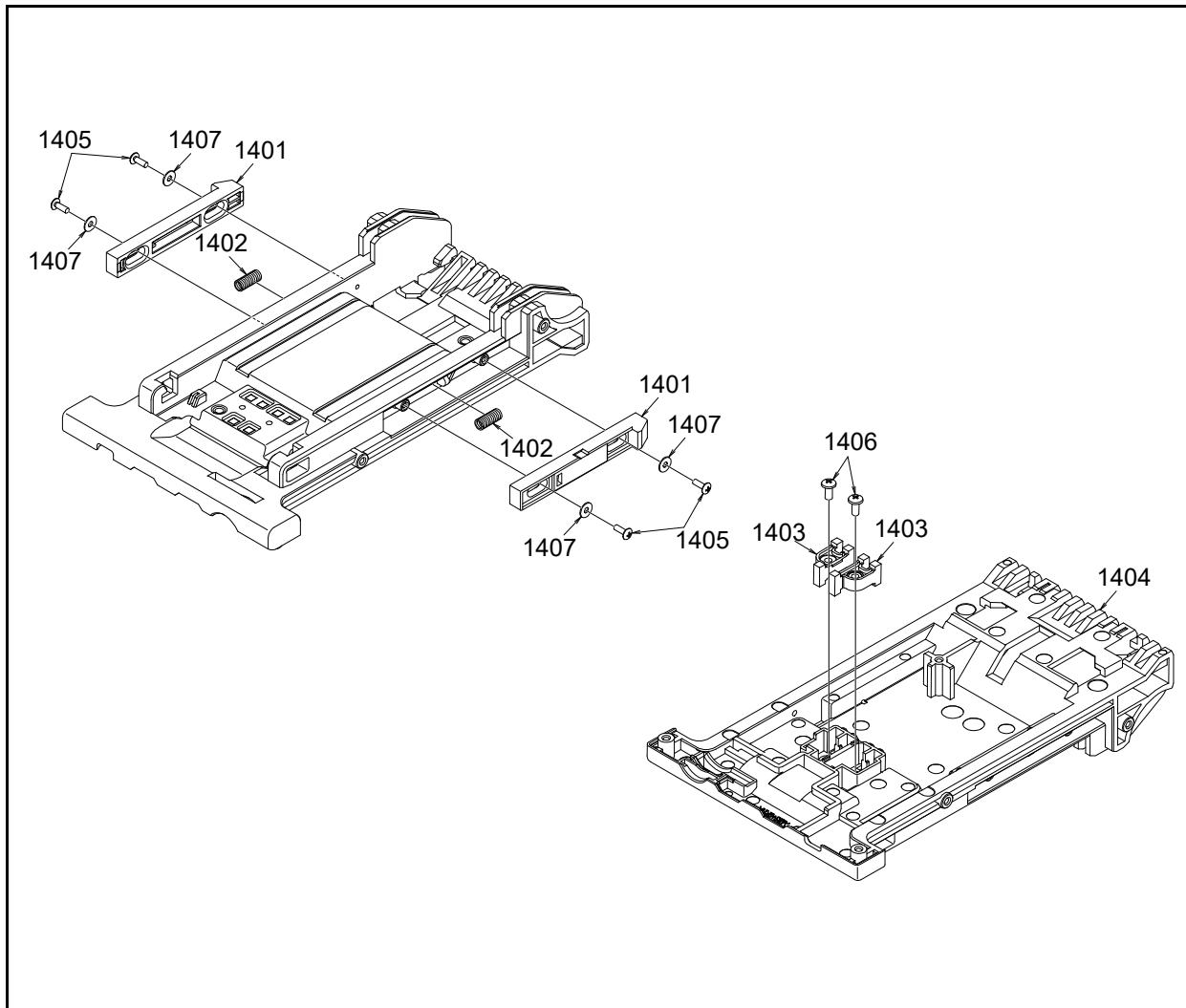


Figure 7-15 RQ (Quad) Frame Unit Exploded View 5

## RQ (Quad) Frame Unit Parts List 5

Table 7-15 RQ (Quad) Frame Unit Parts List 5

No.	EDP No.	Description	QTY	Remark
1401	274729	Recycler (WU) Pusher	2	
1402	274687	Recycler (WU) Pusher Spring	2	
1403	274777	Upper-Light-Guide-Q_RE	2	
1404	274776	Upper-Frame-Base-Q_RE	1	
1405	148572	2x6 Truss Head P-TITE Screw	4	
1406	063250	2.6x6 Binding Head P-TITE Screw (Phillips, Self-Tapping)	2	
1407	274762	φ2.3xφ6x10.4 Washer (Large), Iron(III)	4	

### Front Transport Unit Exploded View 1

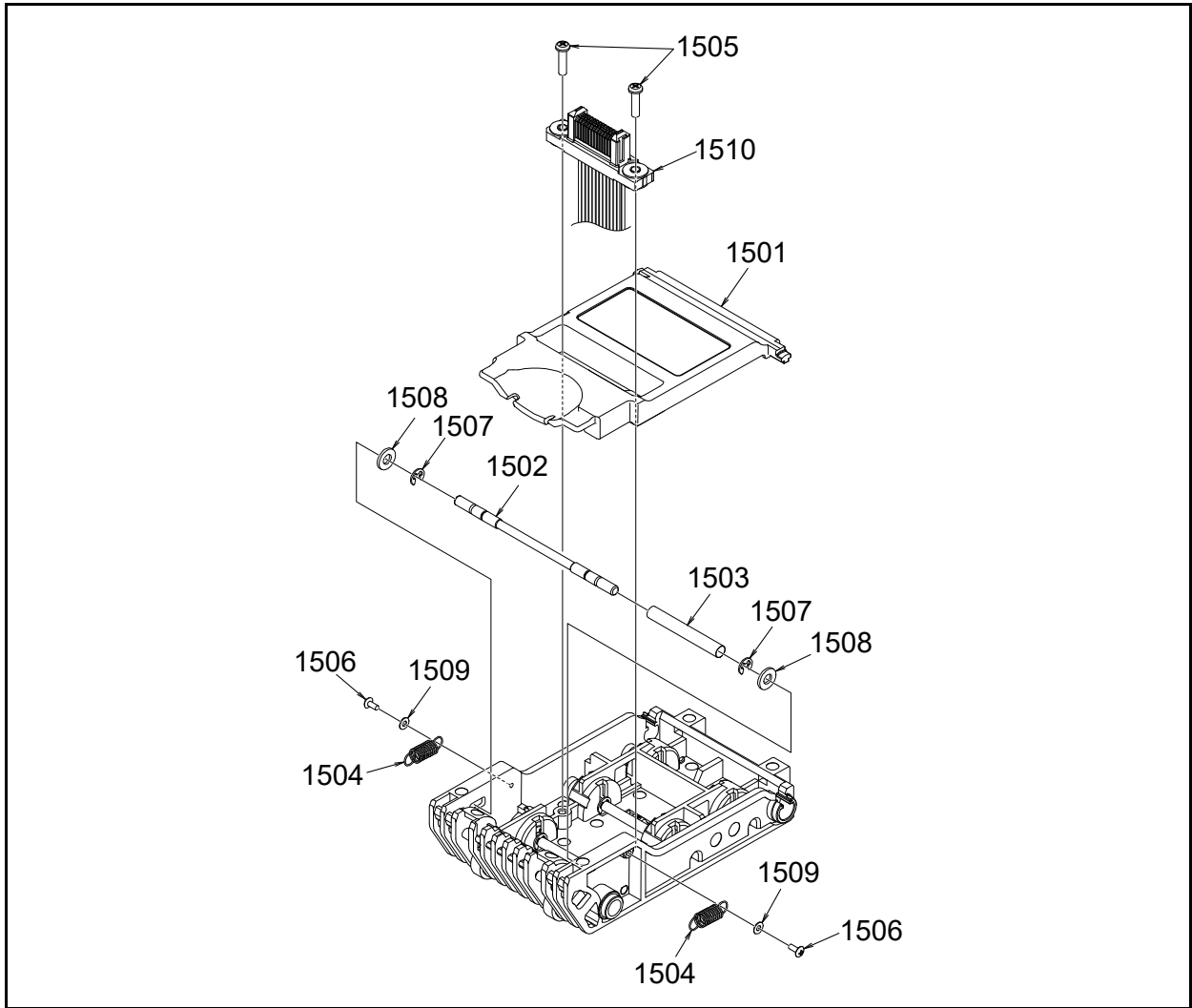


Figure 7-16 Front Transport Unit Exploded View 1

### Front Transport Unit Parts List 1

Table 7-16 Front Transport Unit Parts List 1

No.	EDP No.	Description	QTY	Remark
1501	274720	Module-F Cover	1	For RT (Twin) Frame Unit
	280432	Front-Cover-Q_RE	1	For RQ (Quad) Frame Unit
1502	274747	Module-F Latch Shaft	1	
1503	280418	Guide-L Latch Tube	1	
1504	274754	Front Latch-SP	2	
1505	234637	3×12 Pan Head P-TITE Screw	2	
1506	274760	2X5 Truss Head P-TITE Screw, Iron/Chromium (III)	2	
1507	248115	φ3 E-ring	2	
1508	085516	DURACON Washer (CC-0409-10)	2	
1509	274757	φ2.2×φ5×t0.3 Washer (Large), Iron(III)	2	
1510	278125	RT (Twin) Drum Removal Harness (3640-05-005x)	1	For RT (Twin) Frame Unit
	280222	RQ (Quad) Drum Removal Harness (3640-05-018x)	1	For RQ (Quad) Frame Unit

## Front Transport Unit Exploded View 2

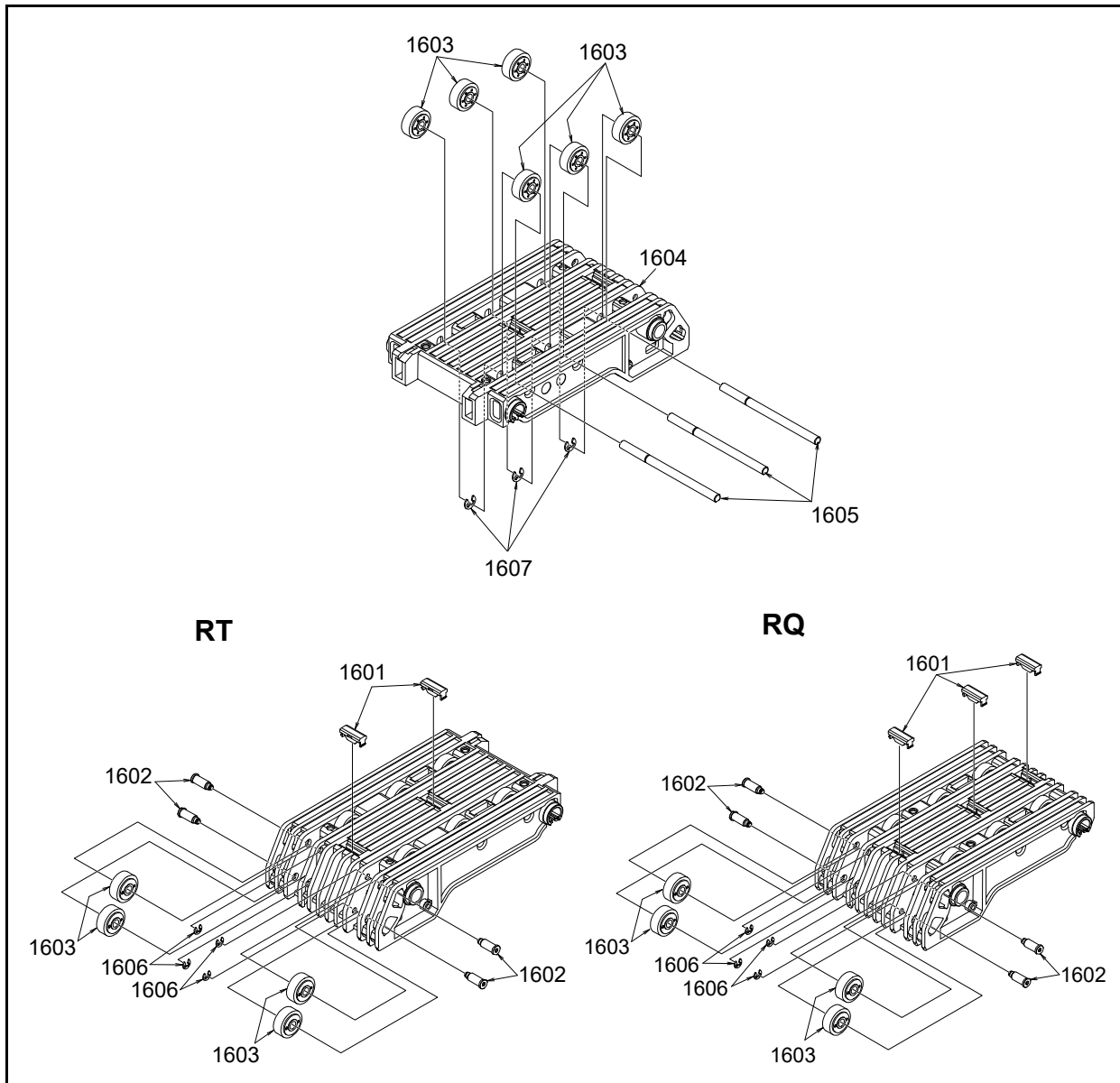


Figure 7-17 Front Transport Unit Exploded View 2

### Front Transport Unit Parts List 2

Table 7-17 Front Transport Unit Parts List 2

No.	EDP No.	Description	QTY	Remark
1601	282670	Prism B	2	For RT (Twin) Frame Unit
			3	For RQ (Quad) Frame Unit
1602	274741	R-Pulley Pin A	4	
1603	274736	Sponge Roller Assy	10	
1604	280424	RC-TR-Guide F-UP	1	For RT (Twin) Frame Unit
	280431	Front TR Guide Q_RE		For RQ (Quad) Frame Unit
1605	274748	Sponge Roller Shaft	3	
1606	248114	φ2 E-ring	4	
1607	248115	φ3 E-ring	3	

### Transport Unit Exploded View 1

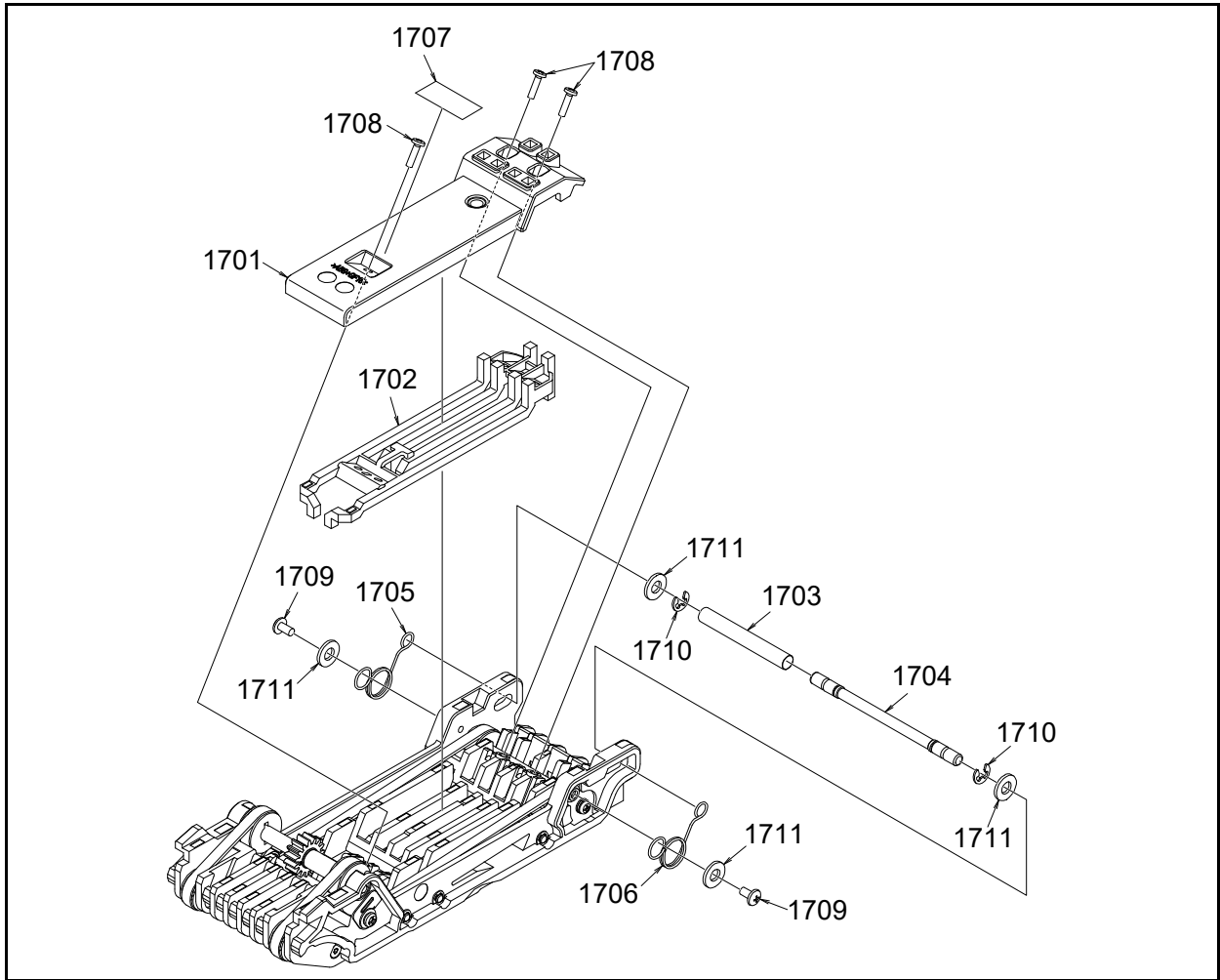


Figure 7-18 Transport Unit Exploded View 1

### Transport Unit Parts List 1

Table 7-18 Transport Unit Parts List 1

No.	EDP No.	Description	QTY	Remark
1701	274731	Guide-L Prism Cover	1	
1702	274732	Guide-L Prism A	1	
1703	280418	Guide-L Latch Tube	1	
1704	274750	Guide-L Latch Shaft	1	
1705	274699	Guide-L Latch Spring B	1	
1706	274698	Guide-L Latch Spring A	1	
1707	-	TRANS-MODULE LABEL	1	
1708	124670	2×8 Binding Head P-TITE Screw (Phillips, Self-Tapping)	3	
1709	058274	2.6×5 Binding Head P-TITE Screw (Phillips, Self-Tapping)	2	
1710	248115	φ3 E-ring	2	
1711	085516	DURACON Washer (CC-0409-10)	4	



### Transport Unit Exploded View 2

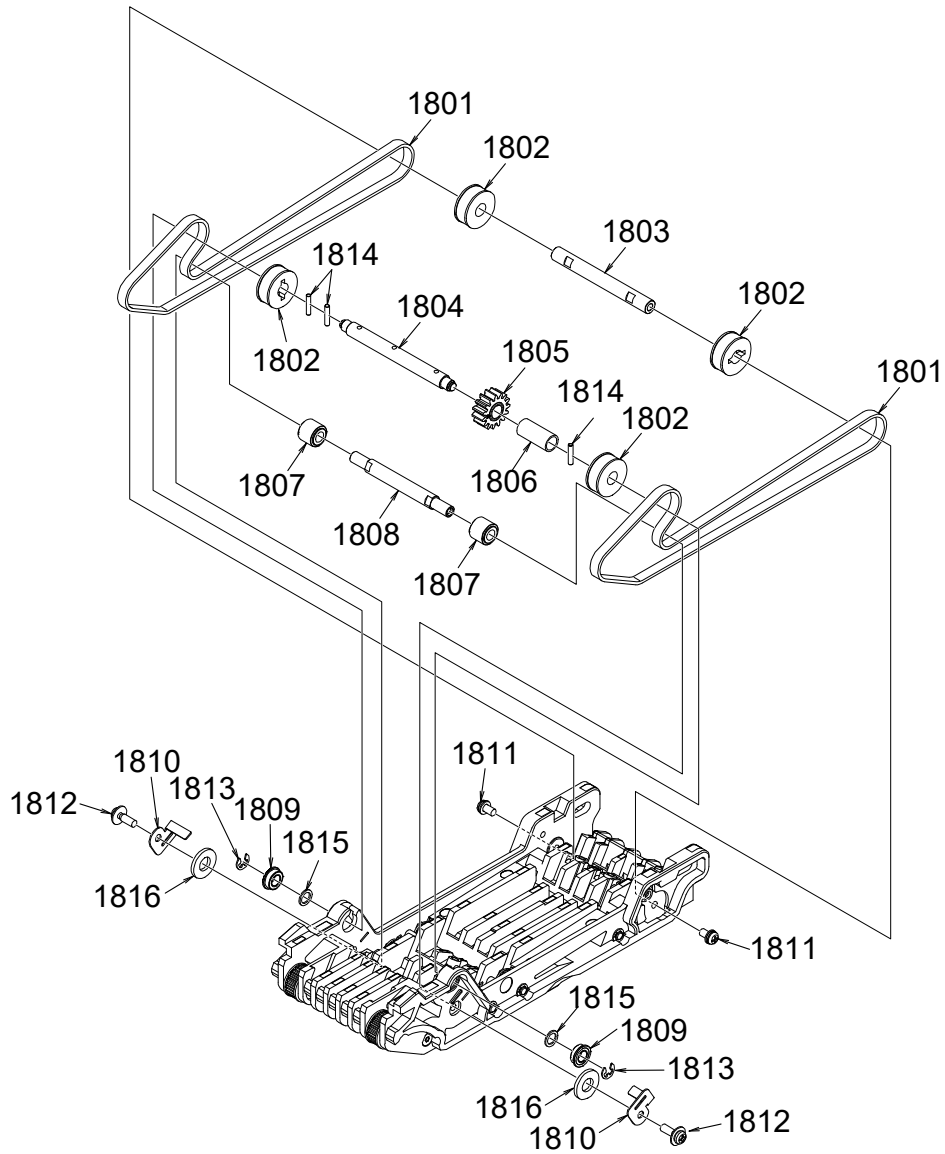


Figure 7-19 Transport Unit Exploded View 2

**Transport Unit Parts List 2****Table 7-19** Transport Unit Parts List 2

No.	EDP No.	Description	QTY	Remark
1801	274543	Timing Belt (38-S1.5M-335UVE)	2	
1802	091168	PULLEY D*R	4	
1803	274684	Guide-L PU-Beam A	1	
1804	274752	Guide-L Drive Shaft	1	
1805	274696	Guide-L Drive Gear	1	
1806	191184	Rolled Bushing, 5L14	1	
1807	274735	Roller BLT	2	
1808	280417	Guide-L PU-Beam B	1	
1809	269212	Bearing (Anti-Environment Stress Cracking)	2	
1810	278426	L-TRANS SCRAPER	2	
1811	091531	M2.6×6_P4 Pan Head W Washer	2	
1812	049261	Pan Head W Washer (Large), Iron(III)	2	
1813	248124	φ2.5 E-ring	2	
1814	091515	Parallel Pin (Hard), 1.6-L8	3	
1815	128485	φ4.2×φ6 t0.5 Polysilder	2	
1816	222348	DURACON Washer (CC-2605-10)	2	

### Transport Unit Exploded View 3

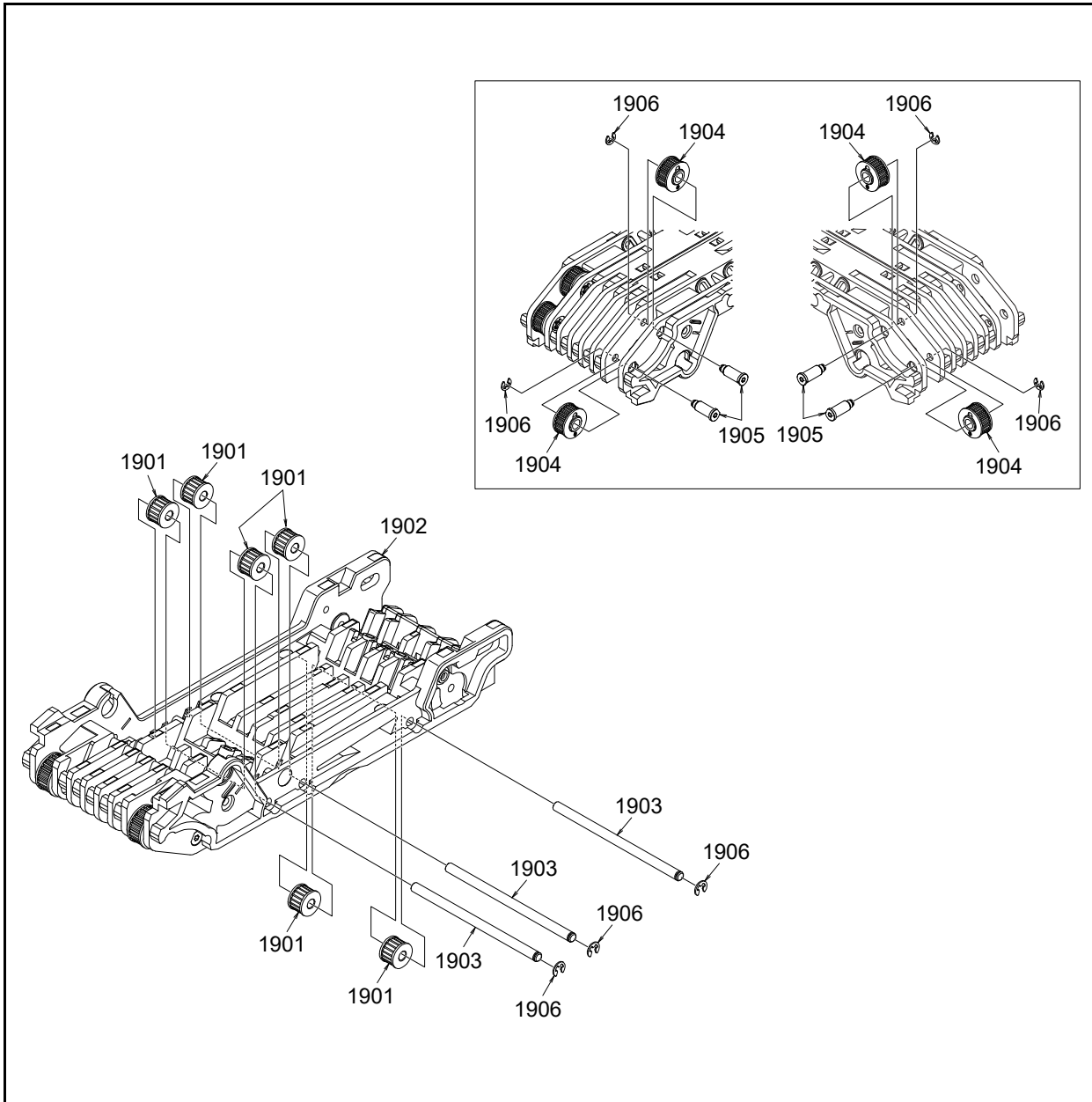


Figure 7-20 Transport Unit Exploded View 3

### Transport Unit Parts List 3

Table 7-20 Transport Unit Parts List 3

No.	EDP No.	Description	QTY	Remark
1901	147924	PULLEY HEAD IDLER 2	6	
1902	281220	RC TR-Guide-L	1	
1903	274751	Guide-L Idler Shaft	3	
1904	274709	Pulley s1.5-z26	4	
1905	274741	R-Pulley Pin A	4	
1906	248114	φ2 E-ring	7	

### Rear Transport Unit for RT Frame Unit Exploded View 1

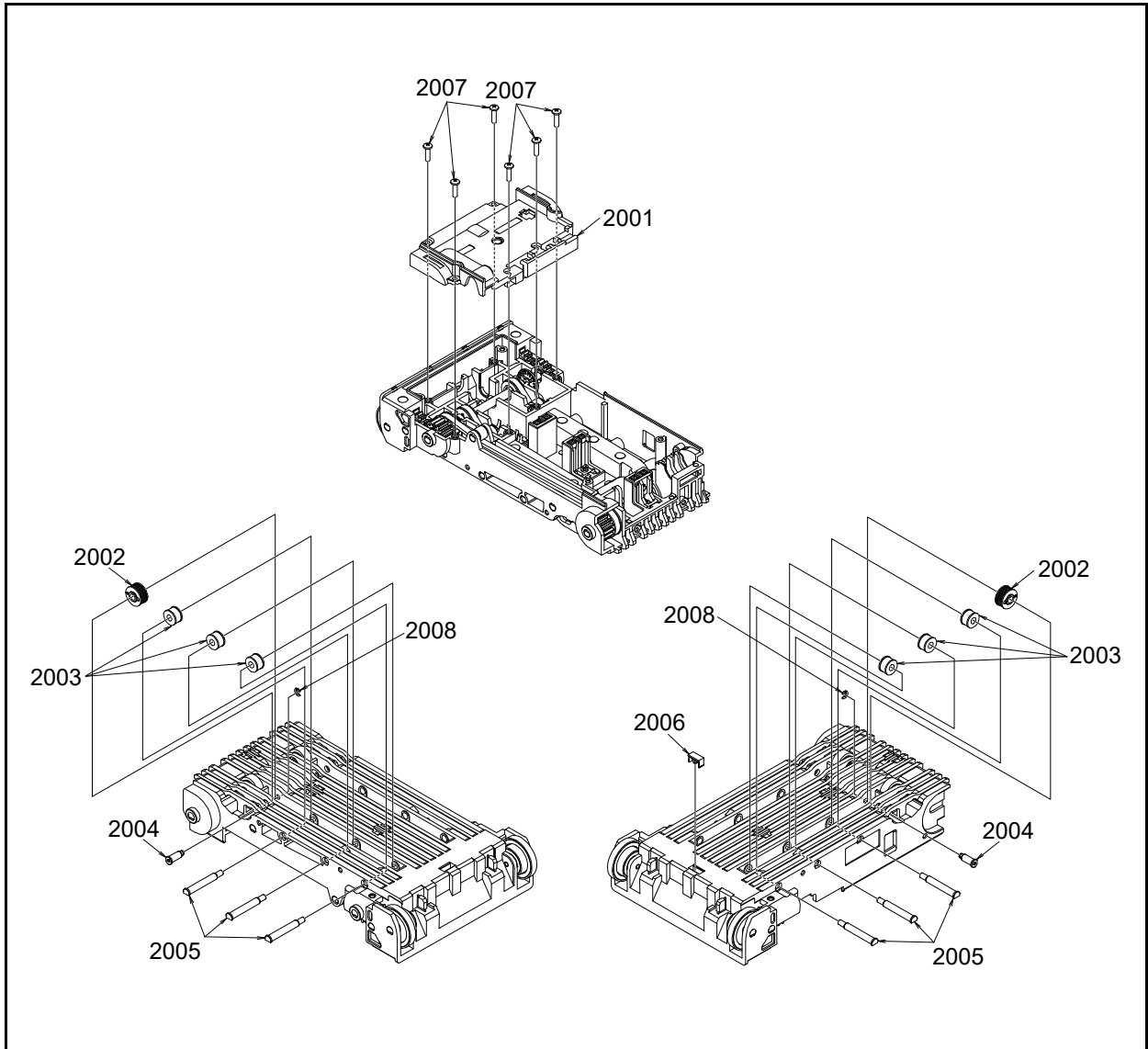


Figure 7-21 Rear Transport Unit for RT Frame Unit Exploded View 1

### Rear Transport Unit for RT Frame Unit Parts List 1

Table 7-21 Rear Transport Unit for RT Frame Unit Parts List 1

No.	EDP No.	Description	QTY	Remark
2001	278425	Guide-R GE-PU Cover	1	
2002	274709	Pulley s1.5-z26	2	
2003	091169	PULLEY TR*R	6	
2004	274741	R-Pulley Pin A	2	
2005	280434	Driven-PU Pin	6	
2006	290344	SQUARE PRISM E30	1	
2007	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	6	
2008	248114	φ2 E-ring	2	

### Rear Transport Unit for RT Frame Unit Exploded View 2

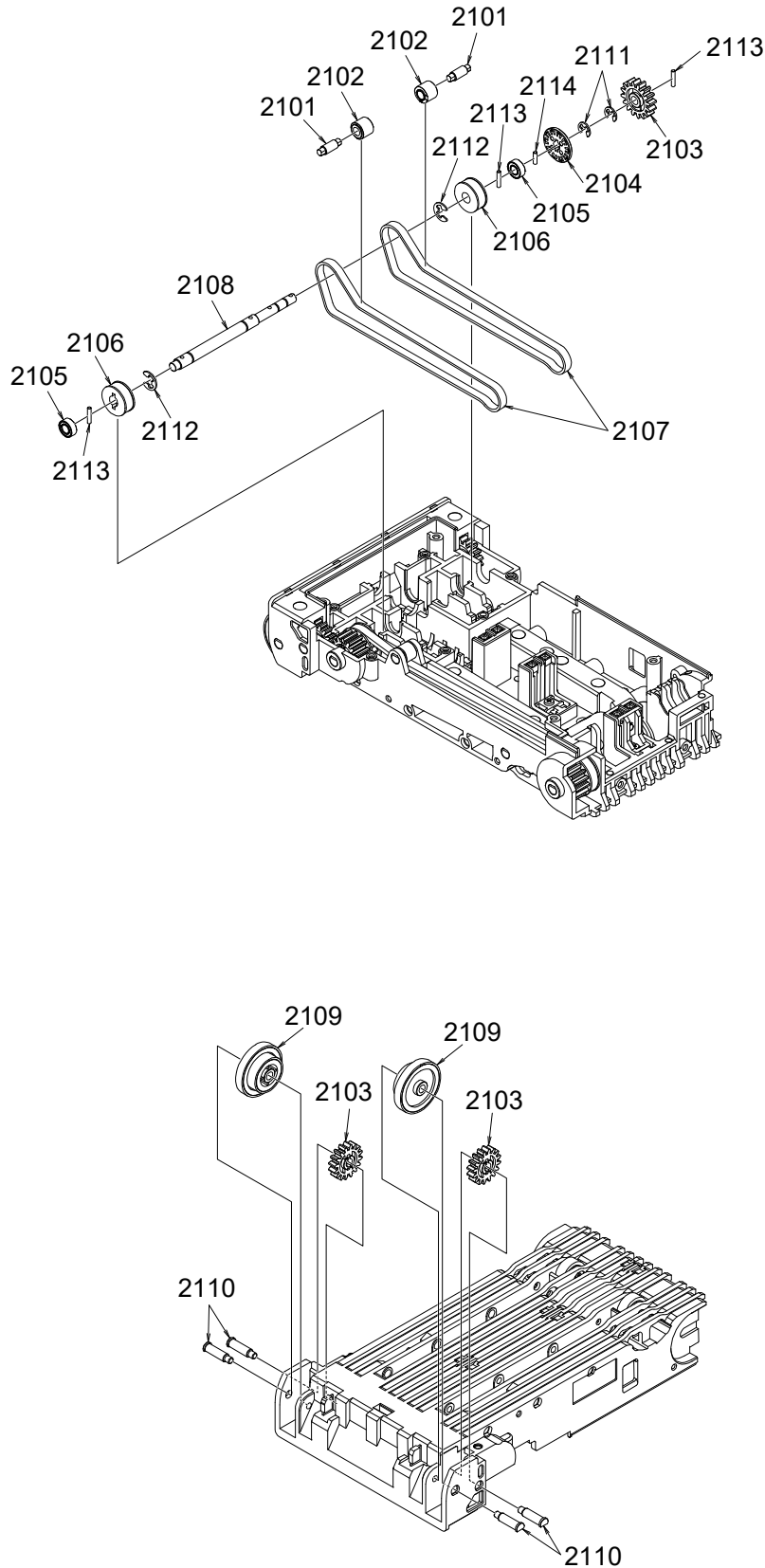
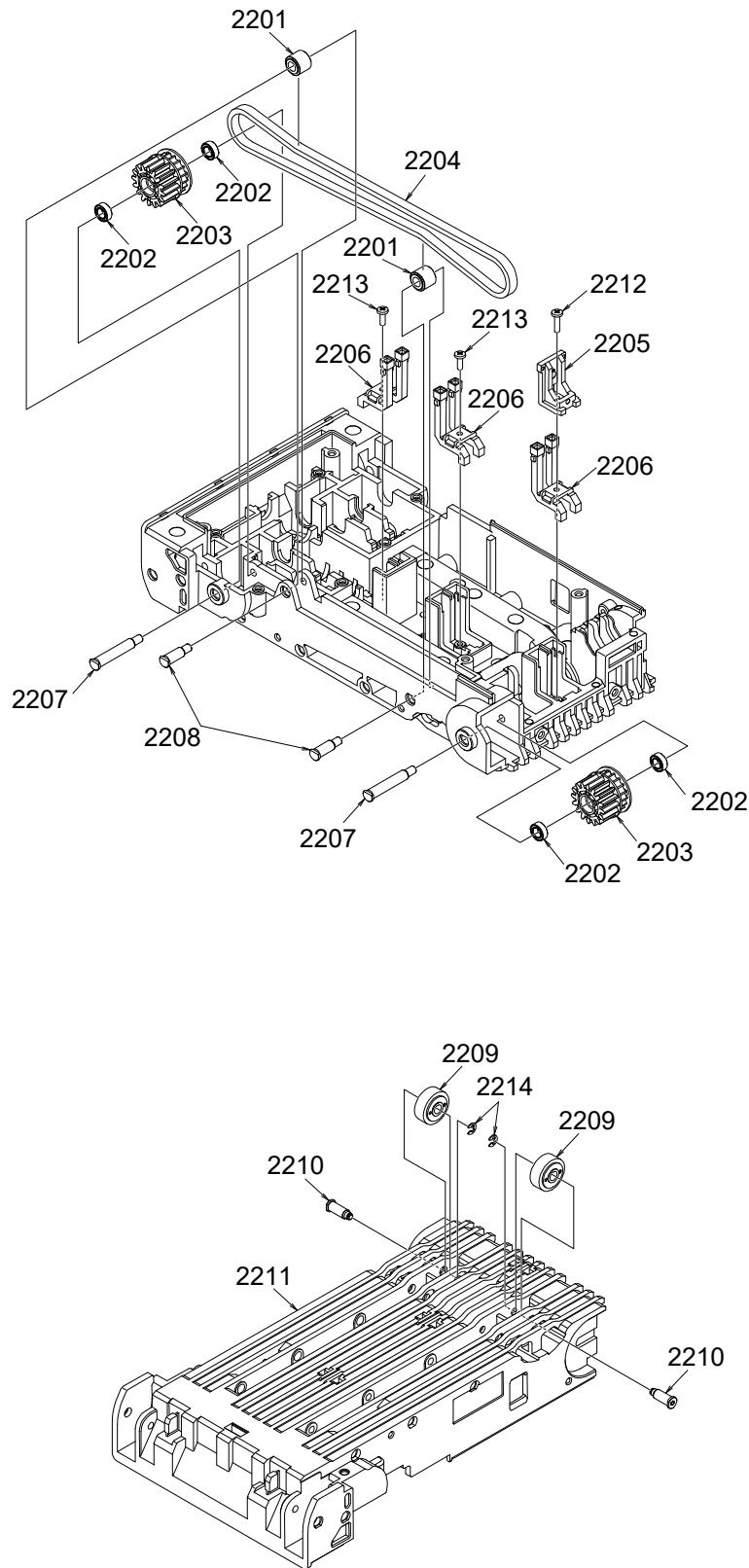


Figure 7-22 Rear Transport Unit for RT Frame Unit Exploded View 2

**Rear Transport Unit for RT Frame Unit Parts List 2****Table 7-22** Rear Transport Unit for RT Frame Unit Parts List 2

No.	EDP No.	Description	QTY	Remark
2101	274738	Idler Pulley Shaft	2	
2102	274735	Roller BLT	2	
2103	195942	BACK TRANS GEAR 2	3	
2104	280421	Main E-Plate	1	
2105	274548	Bearing (Anti-Environment Stress Cracking)	2	
2106	091168	PULLEY D*R	2	
2107	274542	Timing Belt (38-S1.5M-255UVE)	2	
2108	274737	TR Drive Transmission Shaft	1	
2109	195941	BACK TRANS GEAR 1	2	
2110	280437	Idler Gear Pin	4	
2111	248115	φ3 E-ring	2	
2112	248116	φ4 E-ring	2	
2113	091515	Parallel Pin, 1.6-L8 (Hard)	3	
2114	097663	Parallel Pin, 1.6-L6 (Hard)	1	

### Rear Transport Unit for RT Frame Unit Exploded View 3



**Figure 7-23** Rear Transport Unit for RT Frame Unit Exploded View 3



**Rear Transport Unit for RT Frame Unit Parts List 3****Table 7-23** Rear Transport Unit for RT Frame Unit Parts List 3

No.	EDP No.	Description	QTY	Remark
2201	274735	Roller BLT	2	
2202	274547	Bearing (Anti-Environment Stress Cracking)	4	
2203	274688	GE-PU2 m1-16,S3M-z18	2	
2204	281616	Timing Belt (40-S3M-324 Ceptor-VI)	1	
2205	274714	Light Guide Cover	1	
2206	274712	Light Guide R-G	3	
2207	280436	Idler Pulley Pin	2	
2208	280435	ST Pulley Pin	2	
2209	274736	Sponge Roller Assy	2	
2210	274741	R-Pulley Pin A	2	
2211	280101	RC TR-Guide R	1	
2212	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	1	
2213	101172	2×6 Binding Head P-TITE Screw (Phillips, Self-Tapping)	2	
2214	248114	φ2 E-ring	2	

### Rear Transport Unit for RQ Frame Unit Exploded View 1

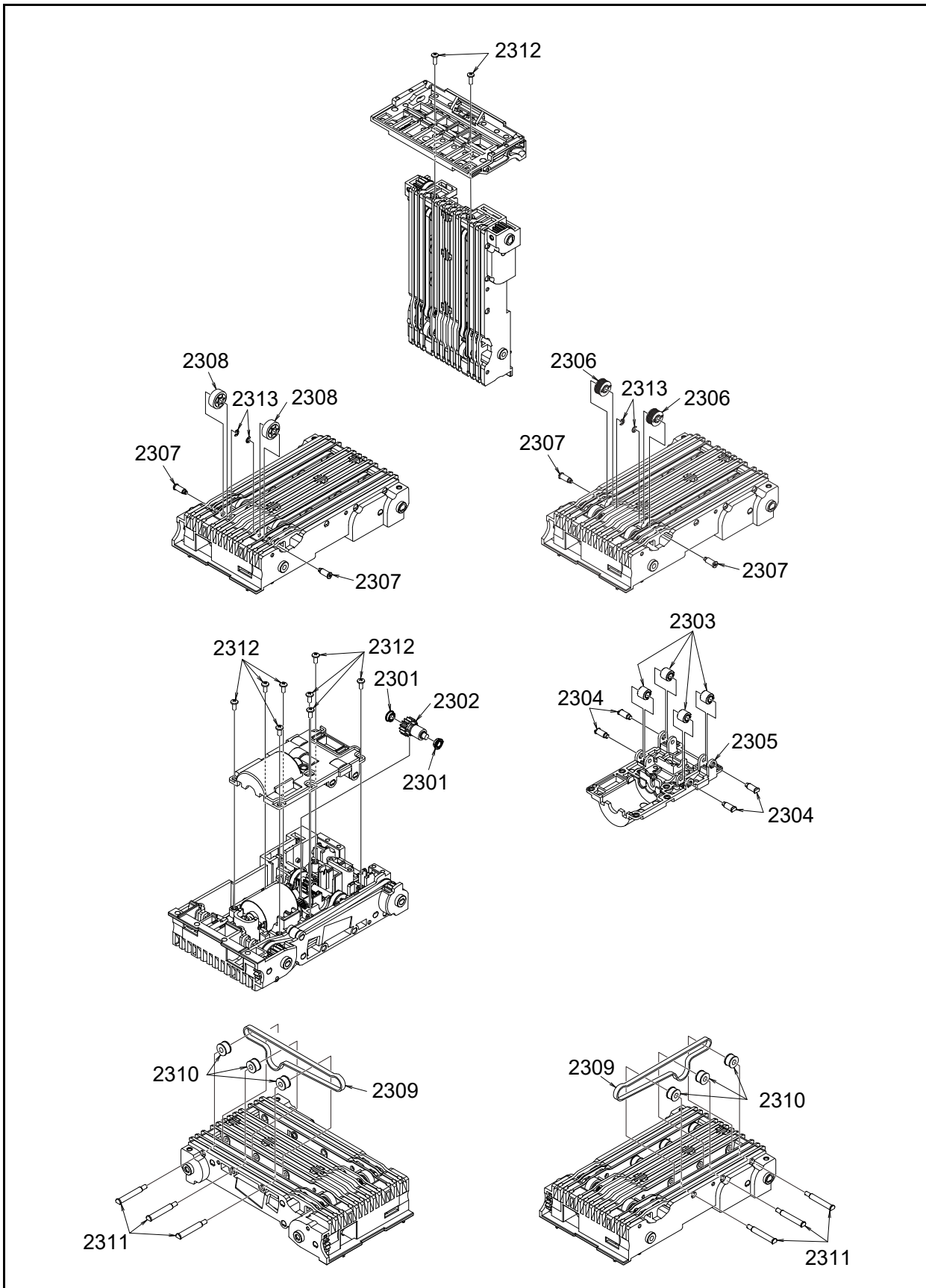


Figure 7-24 Rear Transport Unit for RQ Frame Unit Exploded View 1

**Rear Transport Unit for RQ Frame Unit Parts List 1****Table 7-24** Rear Transport Unit for RQ Frame Unit Parts List 1

No.	EDP No.	Description	QTY	Remark
2301	269212	Bearing (Anti-Environment Stress Cracking)	2	
2302	292424	TR Worm Wheel (Twin)	1	
2303	274735	Roller BLT	4	
2304	280441	Rear-Stud-D-Q_SH	4	
2305	281825	Rear-MO-Cover-Q_RE	1	
2306	274709	Pulley s1.5-z26	2	
2307	274741	R-Pulley Pin A	4	
2308	274736	Sponge Roller Assy.	2	
2309	274541	Timing Belt, Ultra Flexible Eco type (38-S1.5M-236UVE)	2	
2310	091169	PULLEY TR*R	6	
2311	280434	Driven-PU Pin	6	
2312	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping)	10	
2313	248114	φ2 E-ring	4	

### Rear Transport Unit for RQ Frame Unit Exploded View 2

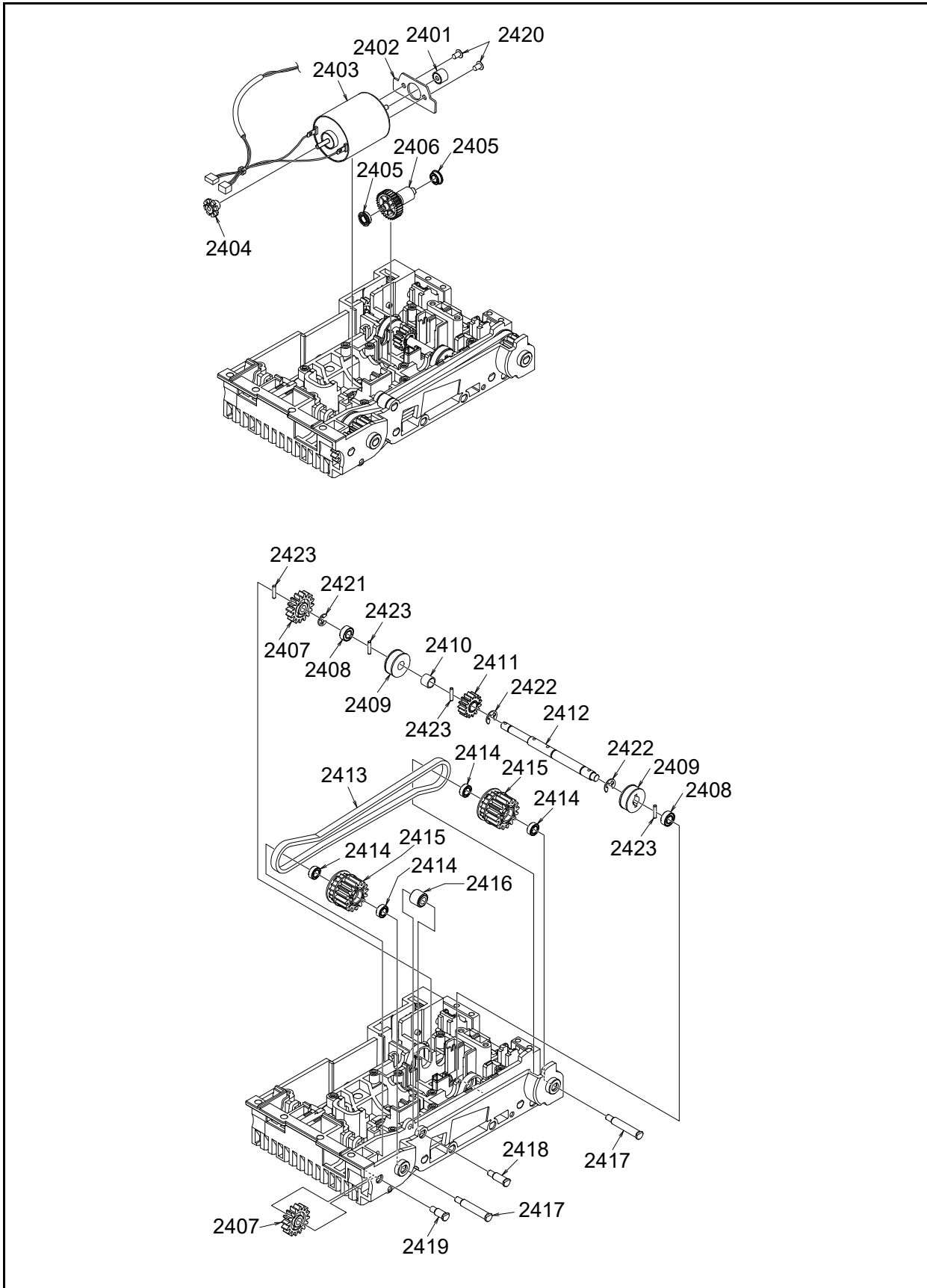


Figure 7-25 Rear Transport Unit for RQ Frame Unit Exploded View 2

**Rear Transport Unit for RQ Frame Unit Parts List 2****Table 7-25** Rear Transport Unit for RQ Frame Unit Parts List 2

No.	EDP No.	Description	QTY	Remark
2401	234695	TR MOTOR PINION GEAR	1	
2402	274707	Motor Plate	1	
2403	275446	RT (QUAD) Transport Motor Harness Assy. (4115-3640-03-003)	1	
2404	280096	ENC-Plate	1	
2405	269212	Bearing (Anti-Environment Stress Cracking)	2	
2406	274695	TR Worm Gear (Twin)	1	
2407	195942	BACK TRANS GEAR 2	2	
2408	274548	Bearing (Anti-Environment Stress Cracking)	2	
2409	091168	PULLEY D*R	2	
2410	133627	Rolled Bushing	1	
2411	274696	Guide-L Drive Gear	1	
2412	274779	Rear-Shaft-Q_SH	1	
2413	281615	Timing Belt (40-S3M-291 Ceptor-VI)	1	
2414	274547	Bearing (Anti-Environment Stress Cracking)	4	
2415	274688	GE-PU2 m1-16,S3M-z18	2	
2416	274735	Roller BLT	1	
2417	280436	Idler Pulley Pin	2	
2418	280435	ST Pulley Pin	1	
2419	280442	Rear-Stud-E-Q_SH	1	
2420	227685	2.6x4 Slim Head Screw, Iron(III), G-180B	2	
2421	248115	φ3 E-ring	1	
2422	248116	φ4 E-ring	2	
2423	091515	Parallel Pin, 1.6-L8 (Hard)	4	

### Rear Transport Unit for RQ Frame Unit Exploded View 3

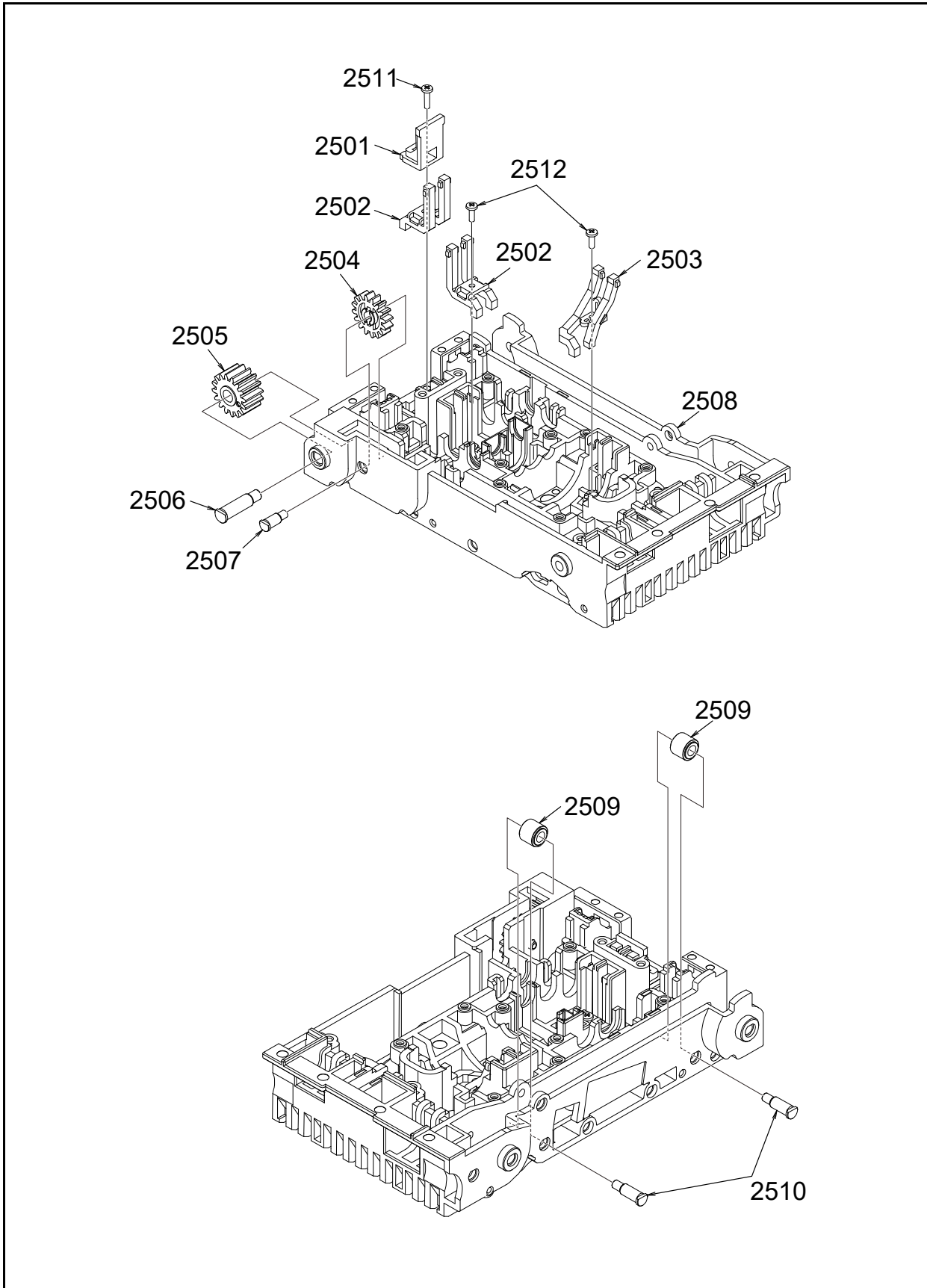


Figure 7-26 Rear Transport Unit for RQ Frame Unit Exploded View 3

**Rear Transport Unit for RQ Frame Unit Parts List 3****Table 7-26** Rear Transport Unit for RQ Frame Unit Parts List 3

No.	EDP No.	Description	QTY	Remark
2501	274714	Light Guide Cover	1	
2502	274712	Light Guide R-G	2	
2503	280100	Rear-Light-Guide-Q_RE	1	
2504	195942	BACK TRANS GEAR 2	1	
2505	274691	GEAR m1.0-z16	1	
2506	280443	Rear-Stud-F-Q_SH	1	
2507	280442	Rear-Stud-E-Q_SH	1	
2508	280098	Rear-TR-Guide-Q_RE	1	
2509	274735	Roller BLT	2	
2510	280435	ST Pulley Pin	2	
2511	124670	2×8 Binding Head P-TITE Screw (Phillips, Self-Tapping)	1	
2512	101172	2×6 Binding Head P-TITE Screw (Phillips, Self-Tapping)	2	



# Recycler Exploded View 1

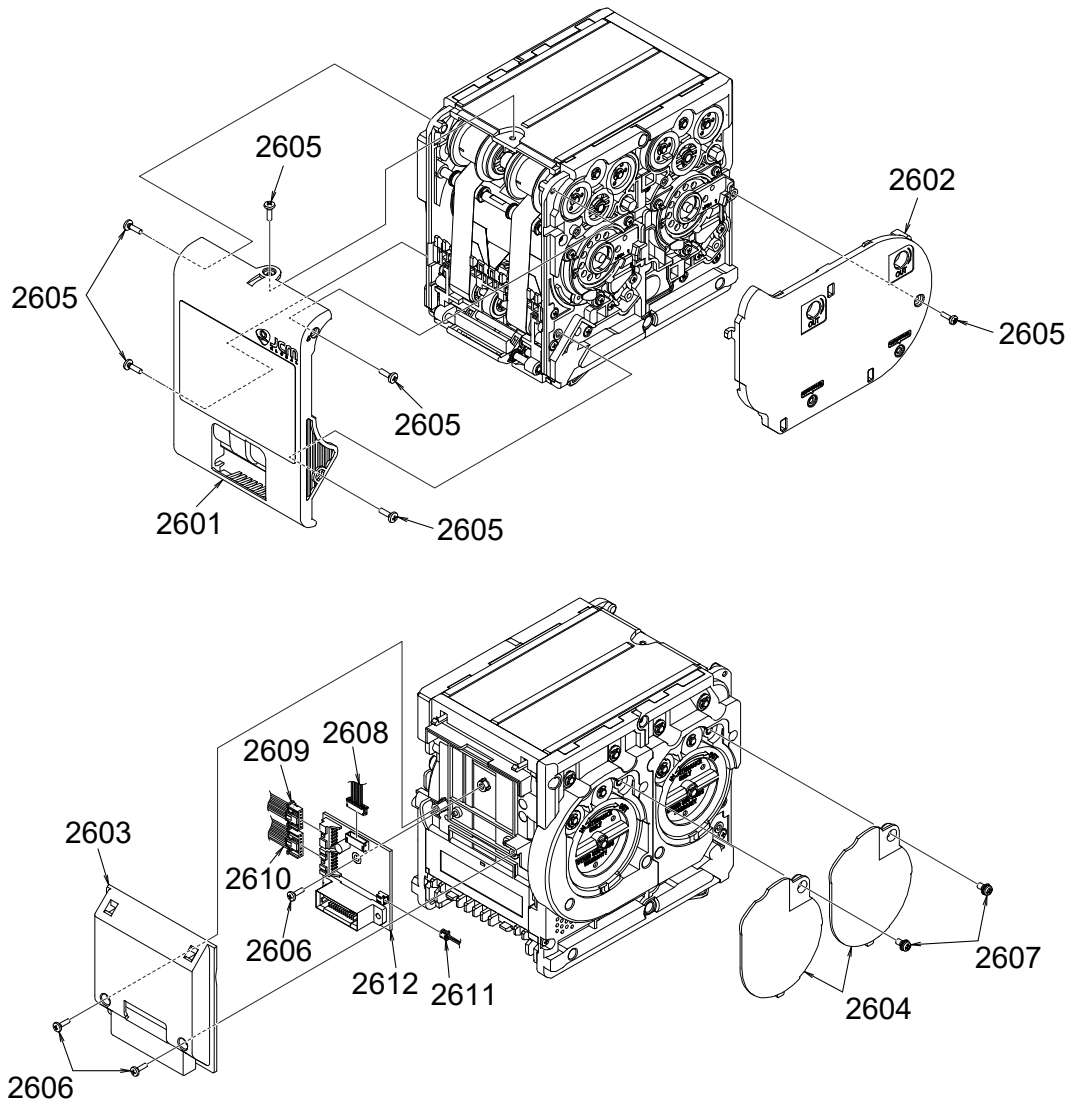


Figure 7-27 Recycler Exploded View 1

**Recycler Parts List 1****Table 7-27 Recycler Parts List1**

<b>No.</b>	<b>EDP No.</b>	<b>Description</b>	<b>QTY</b>	<b>Remark</b>
2601	274809	WU (Recycler) Front Cover	1	
2602	274813	WU (Recycler) Side Cover	1	
2603	274811	WU (Recycler) Rear Cover2	1	
2604	274822	WU (Recycler) Gear Cover1	2	
2605	274842	2.6×8 Pan Head TRX Tamper P-Type Screw	6	
2606	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	3	
2607	124661	3×6 Pan Head Washer (Small)	2	
2608	275436	Tape Board Harness (3640-05-014)	1	CN5
2609	275438	Drum Motor 1 Harness (3640-05-016)	1	CN3
2610	275437	Drum Motor 2 Harness (3640-05-015)	1	CN4
2611	274554	Solenoid Harness Assy.	1	CN2
2612	275304	WU (Recycler) Board (4115-3640-06-003B-01)	1	

## Recycler Exploded View 2

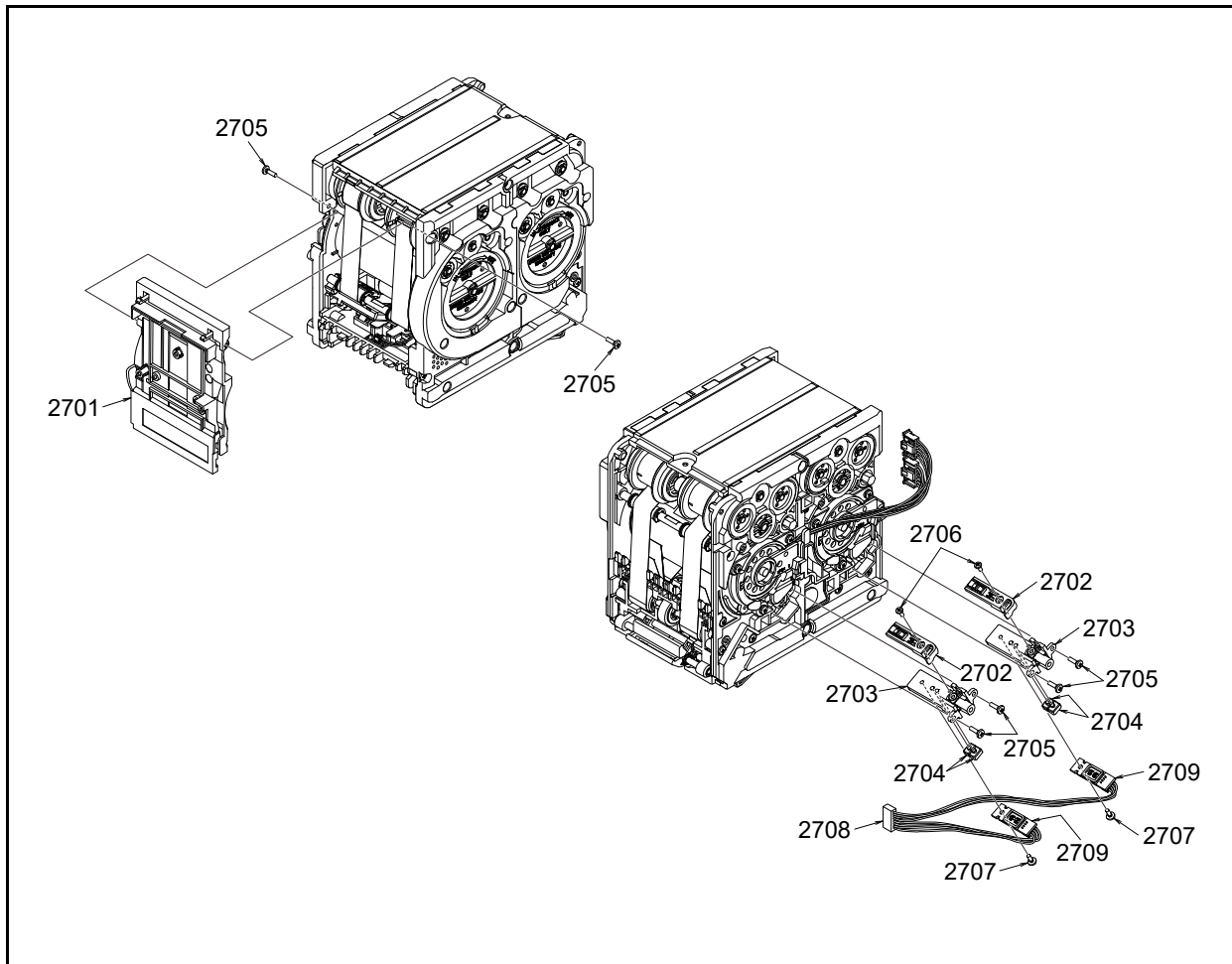


Figure 7-28 Recycler Exploded View 2

## Recycler Parts List 2

Table 7-28 Recycler Parts List2

No.	EDP No.	Description	QTY	Remark
2701	284839	WU (Recycler) Rear Cover1	1	
2702	274819	WU (Recycler) Tape Prism Holder	2	
2703	274818	WU (Recycler) Tape Sensor Holder	2	
2704	274824	WU (Recycler) Tape Sensor Cover	4	
2705	056165	22.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	6	
2706	138053	2×5 Binding Head P-TITE Screw	2	
2707	104081	2.6×6 Binding Head P-TITE Screw, Black	2	
2708	275436	Tape Board Harness (3640-05-014)	1	
2709	275307	Tape Board (4115-3640-06-006B-01)	2	

### Recycler Exploded View 3

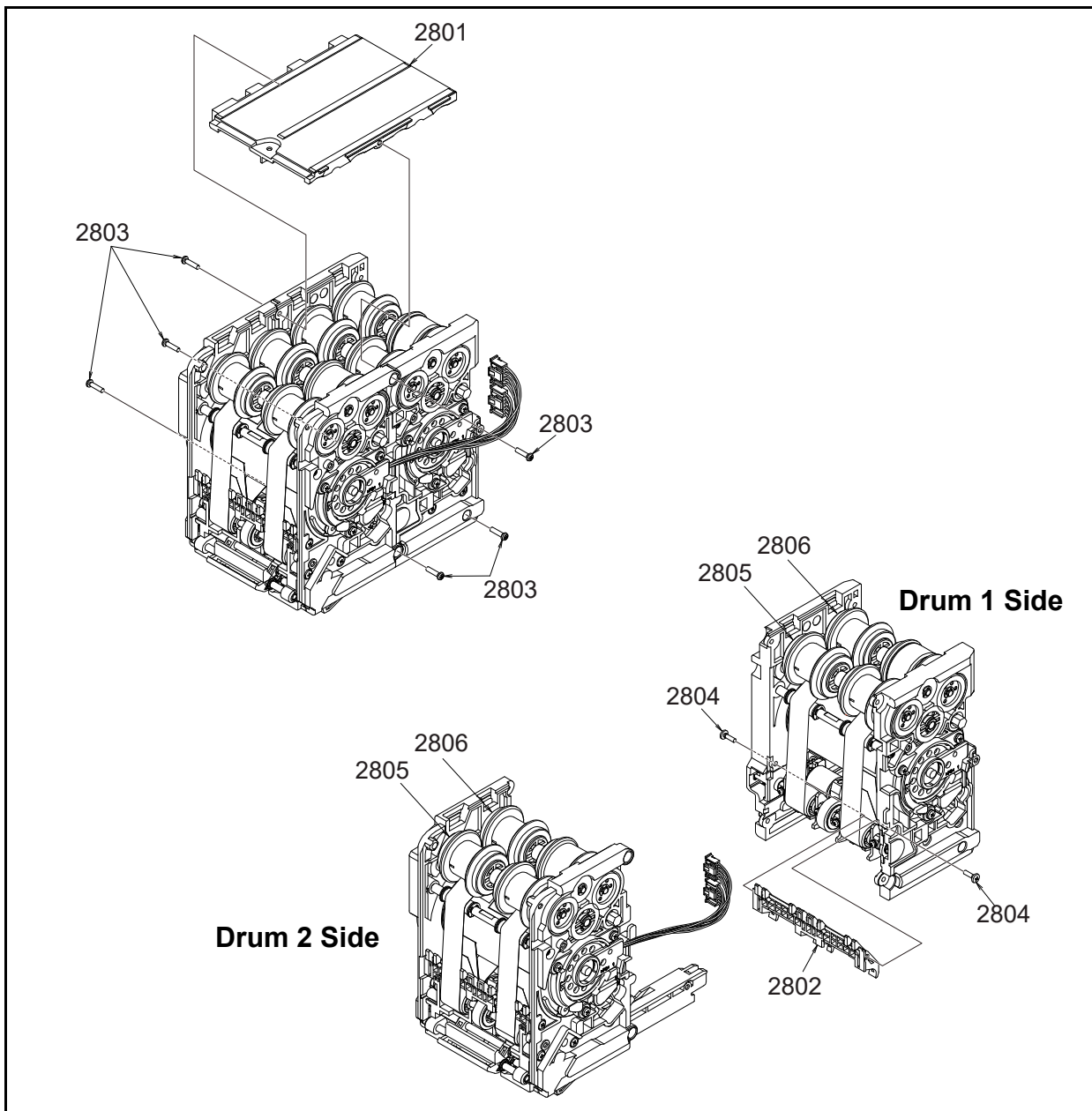


Figure 7-29 Recycler Exploded View 3

### Recycler Parts List 3

Table 7-29 Recycler Parts List3

No.	EDP No.	Description	QTY	Remark
2801	274812	WU (Recycler) Top Cover	1	
2802	274814	WU (Recycler) Course Guide	1	
2803	061808	2.6×10 Pan Head P-TITE Screw, Black	6	
2804	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	2	
2805	293027	RC-TWIN QUAD CLR SH ASSY	2	
2806	293384	RC-TWIN QUAD DET SH ASSY	2	

# Recycler Exploded View 4

## Drum 1 Side

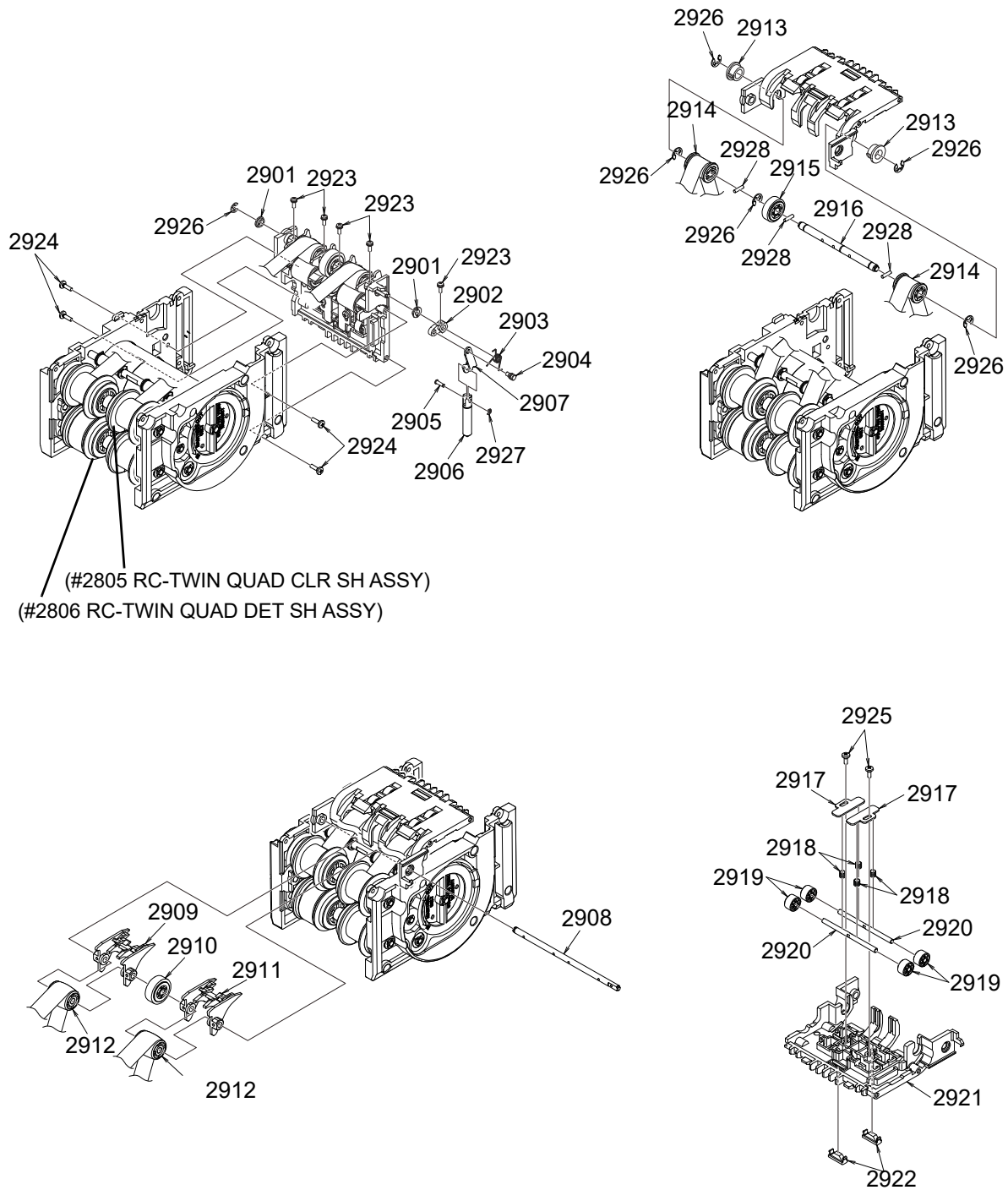


Figure 7-30 Recycler Exploded View 4

**Recycler Parts List 4****Table 7-30 Recycler Parts List4**

No.	EDP No.	Description	QTY	Remark
2901	216077	DRUM GUIDE RO	2	
2902	274823	WU (Recycler) Flap Lever	1	
2903	274795	WU (Recycler) Flap KS	1	
2904	274840	SOL Link Stud	1	
2905	274834	WU (Recycler) Sol SH	1	
2906	274554	Solenoid Harness Assy.	1	Plunger
2907	274800	WU (Recycler) Sol Link PT	1	
2908	274828	WU (Recycler) Driven SH1	1	
2909	275571	WU (Recycler) Course Flap R	1	
2910	216164	SPONGE ROLLER	1	
2911	274815	WU (Recycler) Course Flap	1	
2912	144758	CROWN PULLEY	2	
2913	144584	BEARING	2	
2914	205964	RUBBER PULLEY	2	
2915	144752	DRIVE ROLLER	1	
2916	274839	WU (Recycler) Film Drive SH	1	
2917	274801	WU (Recycler) PR Plate	2	
2918	274788	WU (Recycler) PR CS	4	
2919	144607	PINCH ROLLER	4	
2920	274836	WU (Recycler) PR SH	2	
2921	274806	WU (Recycler) Course-1	1	
2922	282670	Prism B	2	
2923	062889	2×6 Pan Head W Washer (Small), Iron/Chromium(III)	5	
2924	056165	2.6×8 Binding Head P-TITE Screw (Phillips, Self-Tapping), Iron/Chromium(III)	4	
2925	104081	2.6×6 Binding Head P-TITE Screw, Black	2	
2926	248115	φ3 E-ring	6	
2927	248113	φ1.5 E-ring	1	
2928	269172	φ2×8 Parallel Pin (B type) SUS	3	

# Recycler Exploded View 5

## Drum 1 Side

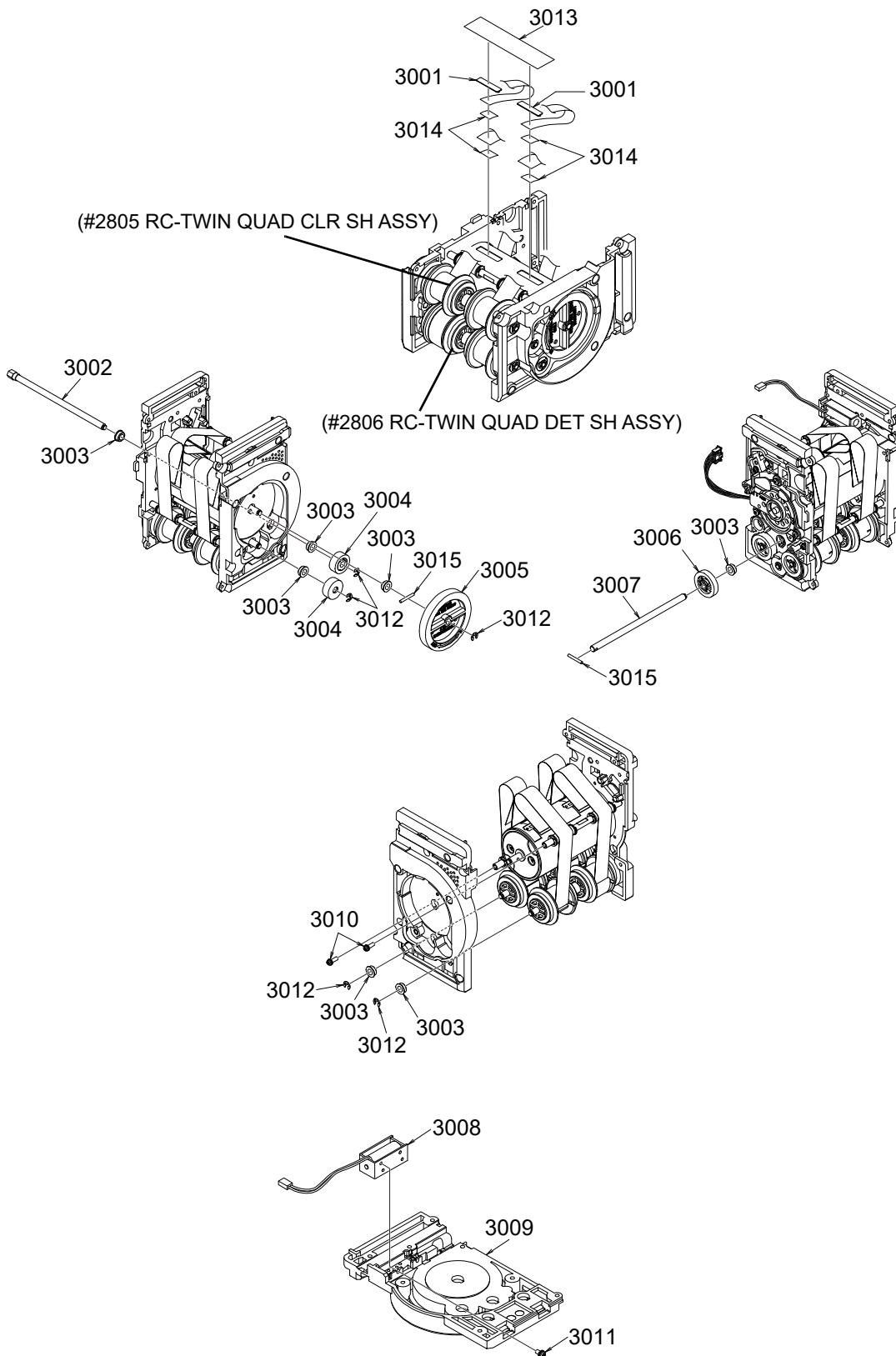


Figure 7-31 Recycler Exploded View 5

**Recycler Parts List 5****Table 7-31** Recycler Parts List5

No.	EDP No.	Description	QTY	Remark
3001	216063	FILM SET CLIP	2	
3002	274833	WU (Recycler) Pay-Out SH	1	
3003	144584	BEARING	7	
3004	144591	CLUTCH GEAR	2	
3005	274792	WU (Recycler) Handle GE	1	
3006	274793	WU (Recycler) Bobbin Idler GE	1	
3007	274831	WU (Recycler) Clutch SH	1	
3008	274554	Solenoid Harness Assy.	1	
3009	274802	WU (Recycler) Frame L-1	1	
3010	033460	2.6×8 Pan Head Washer (Small), Iron/Chromium (III)	2	
3011	010377	2.6X5 Pan Head W Washer (Small), Iron(III)	1	
3012	248115	φ3 E-ring	5	
3013	281348	WU (Recycler) Clip Sticker	1	
3014	274799	WU (Recycler) Film Sticker	4	
3015	269130	φ2×14 Parallel Pin (B type) SUS	2	



### Recycler Exploded View 6

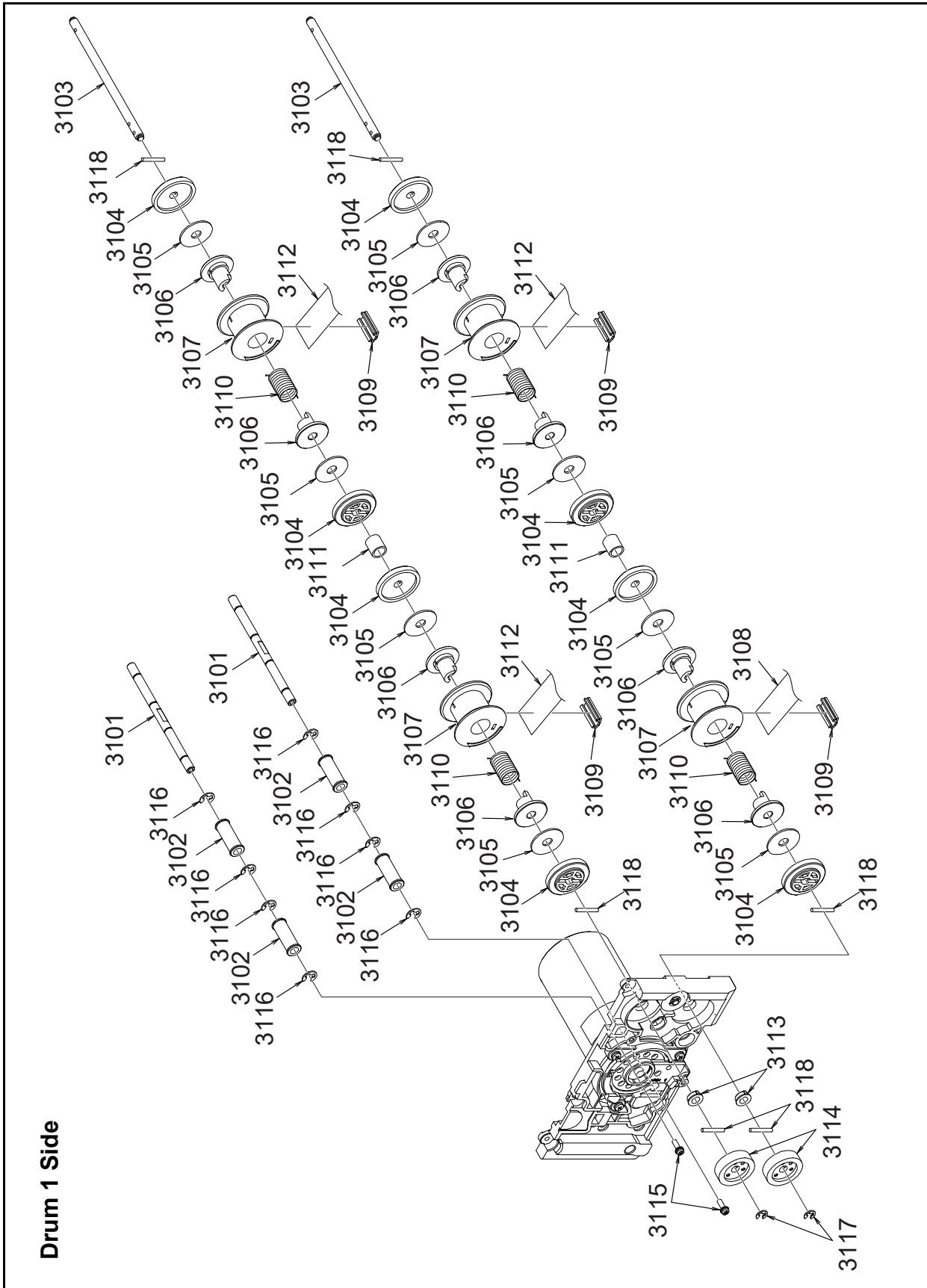
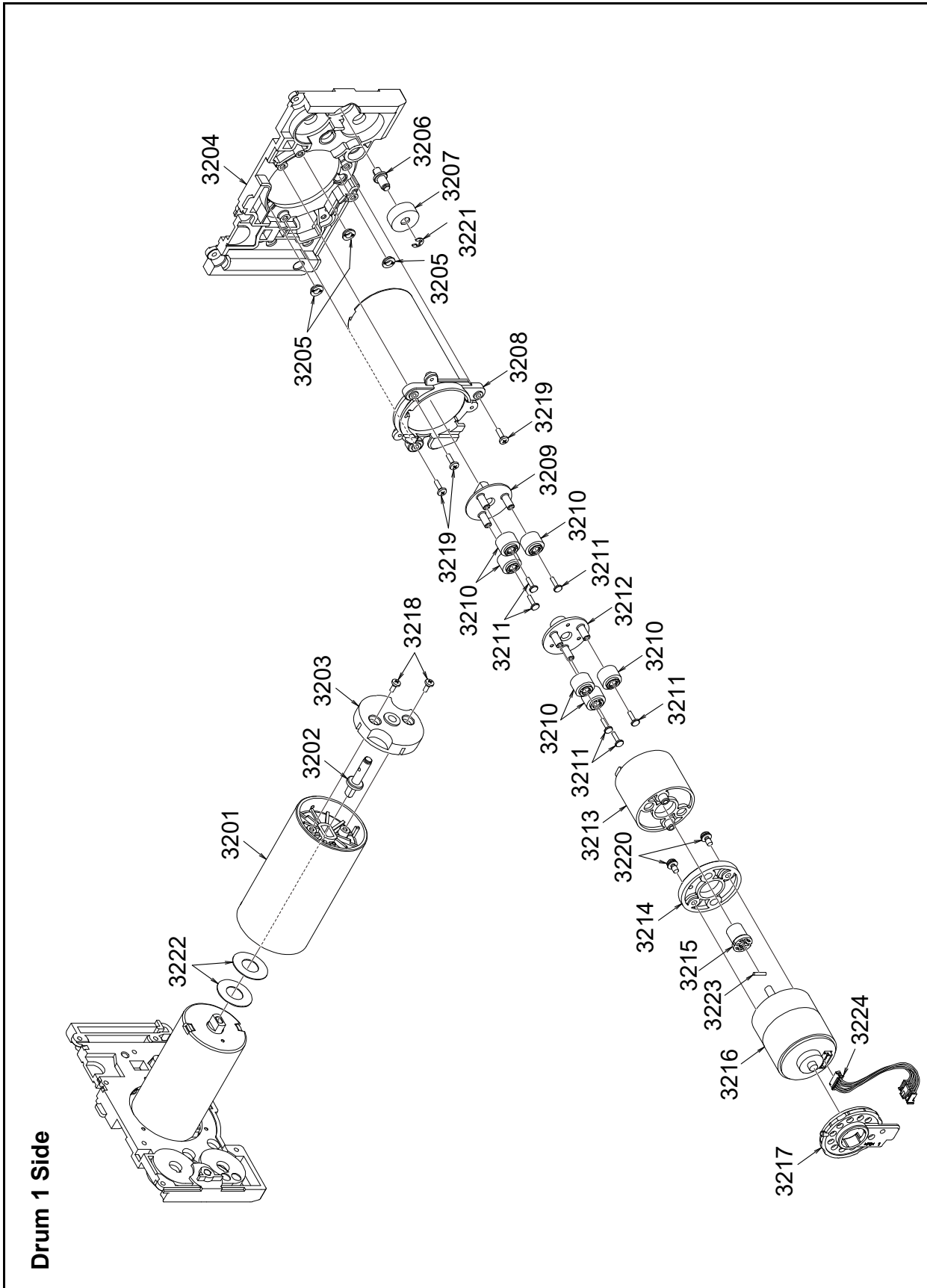


Figure 7-32 Recycler Exploded View 6

**Recycler Parts List 6****Table 7-32** Recycler Parts List6

No.	EDP No.	Description	QTY	Remark
3101	274838	Recycler (WU) Guide Roller Shaft	2	
3102	216066	GUIDE ROLLER	4	
3103	274832	Recycler (WU) Bobbin SH	2	
3104	144773	BOBBIN CAP	8	
3105	144751	FELT	8	
3106	270759	BOBBIN CORE	8	
3107	270758	FILM BOBBIN	4	
3108	274797	DET FILM	1	
3109	144770	Clip	4	
3110	279047	LIMIT KS	4	
3111	274790	Recycler (WU) Limit CS	2	
3112	216091	CLEAR FILM	3	
3113	144584	BEARING	2	
3114	274791	Recycler (WU) Bobbin GE	2	
3115	033460	2.6×8 Pan Head Washer (Small), Iron/Chromium (III)	2	
3116	248116	φ4 E-ring	8	
3117	248115	φ3 E-ring	2	
3118	269130	φ2×14 Parallel Pin (B type) SUS	6	

# Recycler Exploded View 7



Drum 1 Side

Figure 7-33 Recycler Exploded View 7

**Recycler Parts List 7****Table 7-33 Recycler Parts List7**

<b>No.</b>	<b>EDP No.</b>	<b>Description</b>	<b>QTY</b>	<b>Remark</b>
3201	274827	Recycler (WU) MAIN DRUM	1	
3202	274837	Recycler (WU) Drum Axis	1	
3203	216075	DRUM COVER	1	
3204	274804	Recycler (WU) Frame R-1	1	
3205	216077	DRUM GUIDE RO	3	
3206	274841	Recycler (WU) Clutch Stud	1	
3207	144591	CLUTCH GEAR	1	
3208	274826	Recycler (WU) Motor Case	1	
3209	216062	PLANETARY CARRIER2	1	
3210	216157	PLANETARY GEAR	6	
3211	216166	PLANETARY GEAR PIN	6	
3212	216158	PLANETARY CARRIER	1	
3213	216160	OUTER GEAR	1	
3214	274825	Recycler (WU) Planet Base	1	
3215	274794	Recycler (WU) Sun GE	1	
3216	274553	Motor (DIX36B15W03A)	1	
3217	274821	Recycler (WU) Harness Cover	1	
3218	104081	2.6×6 Binding Head P-TITE Screw, Black	2	
3219	056165	2.6×8 Binding Head P-TITE Screw	3	
3220	124661	3×6 Pan Head Washer (Small)	2	
3221	248115	φ3 E-ring	1	
3222	216592	DURACON Washer	2	
3223	274843	1.6X8 Parallel Pin (B type) SUS	1	
3224	275438	Drum Motor 1 Harness (3640-05-016)	(1)	

# Recycler Exploded View 8

## Drum 2 Side

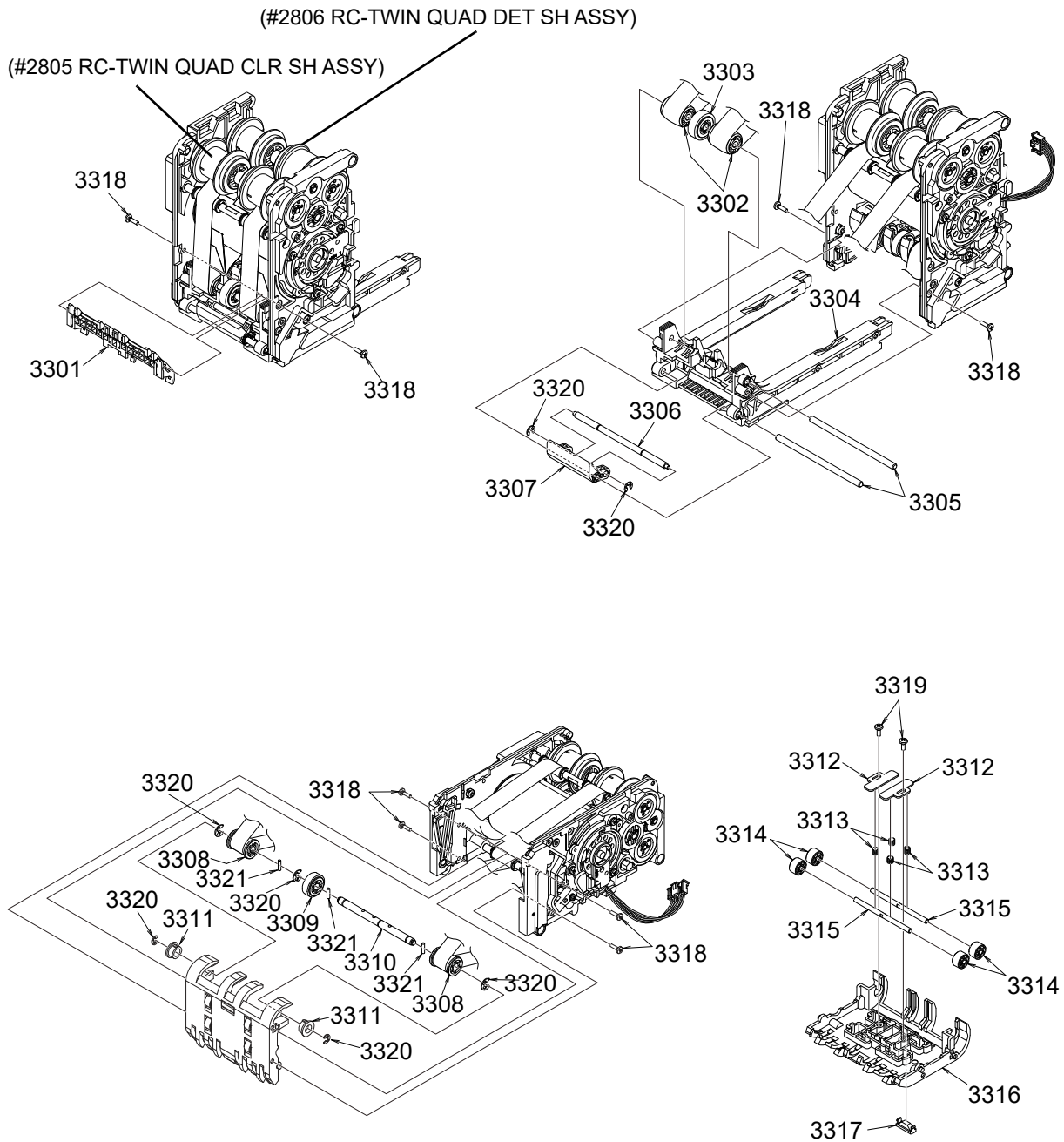


Figure 7-34 Recycler Exploded View 8

**Recycler Parts List 8****Table 7-34** Recycler Parts List8

<b>No.</b>	<b>EDP No.</b>	<b>Description</b>	<b>QTY</b>	<b>Remark</b>
3301	274814	Recycler (WU) Course Guide	1	
3302	144758	CROWN PULLEY	2	
3303	216164	SPONGE ROLLER	1	
3304	274808	Recycler (WU) Bottom Course	1	
3305	274829	Recycler (WU) Driven SH2	2	
3306	274830	Recycler (WU) Latch SH2	1	
3307	274820	Recycler (WU) Latch Lever	1	
3308	205964	RUBBER PULLEY	2	
3309	144752	DRIVE ROLLER	1	
3310	274839	Recycler (WU) Film Drive SH	1	
3311	144584	BEARING	2	
3312	274801	Recycler (WU) PR Plate	2	
3313	274788	Recycler (WU) PR CS	4	
3314	144607	PINCH ROLLER	4	
3315	274836	Recycler (WU) PR SH	2	
3316	274807	Recycler (WU) Course-2	1	
3317	282670	Prism B	1	
3318	056165	2.6×8 Binding Head P-TITE Screw	8	
3319	104081	2.6×6 Binding Head P-TITE Screw, Black	2	
3320	248115	φ3 E-ring	7	
3321	269172	φ2×8 Parallel Pin (B type) SUS	3	

# Recycler Exploded View 9

## Drum 2 Side

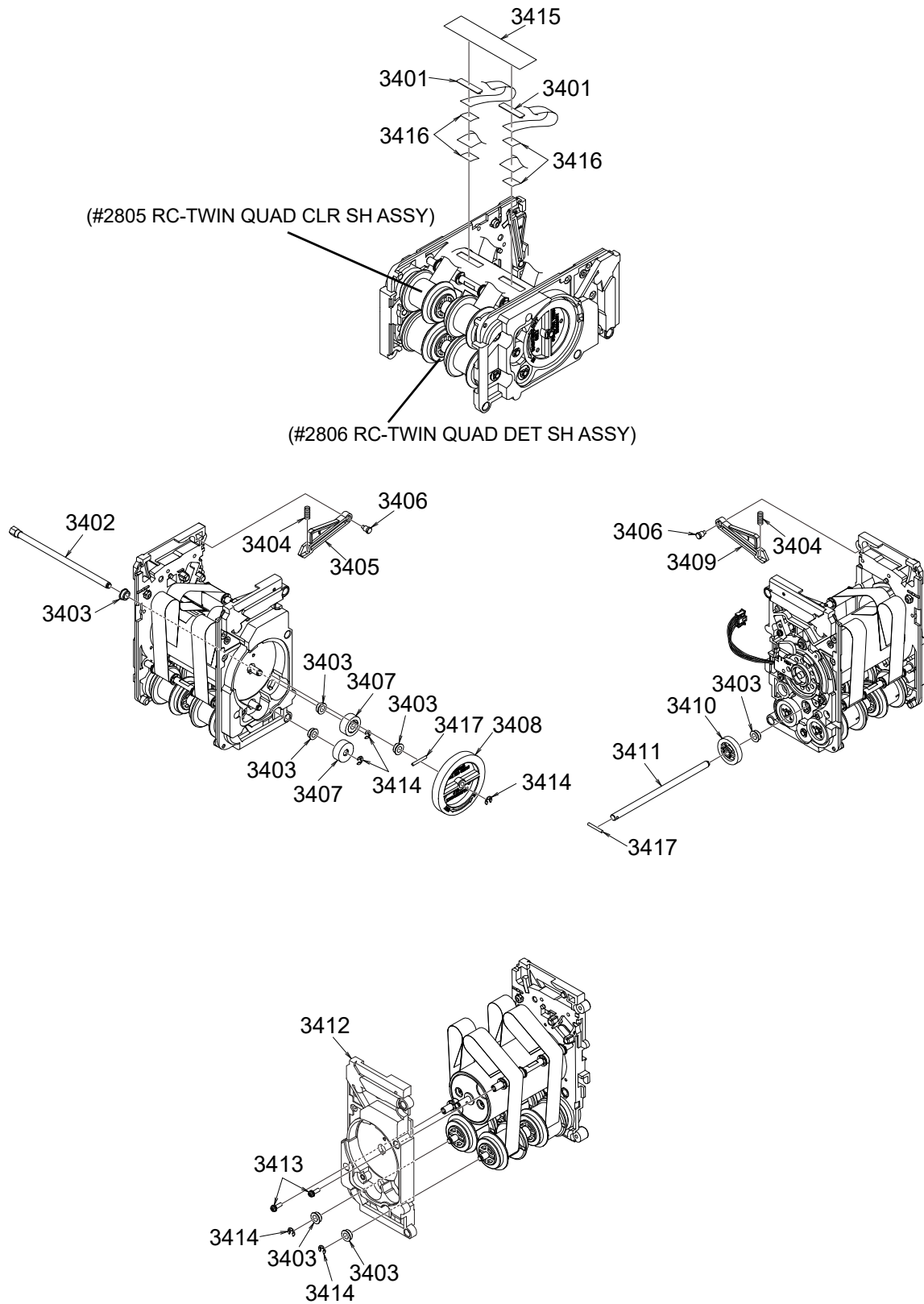


Figure 7-35 Recycler Exploded View 9

**Recycler Parts List 9****Table 7-35** Recycler Parts List9

<b>No.</b>	<b>EDP No.</b>	<b>Description</b>	<b>QTY</b>	<b>Remark</b>
3401	216063	FILM SET CLIP	2	
3402	274833	WU Pay-Out SH	1	
3403	144584	BEARING	7	
3404	274789	Recycler (WU) Latch CS	2	
3405	274817	Recycler (WU) Latch R	1	
3406	274835	Recycler (WU) Latch Fulcrum	2	
3407	144591	CLUTCH GEAR	2	
3408	274792	Recycler (WU) Handle GE	1	
3409	274816	Recycler (WU) Latch L	1	
3410	274793	Recycler (WU) Bobbin Idler GE	1	
3411	274831	Recycler (WU) Clutch SH	1	
3412	274803	Recycler (WU) Frame L-2	1	
3413	033460	2.6×8 Pan Head Washer (Small), Iron/Chromium (III)	2	
3414	248115	φ3 E-ring	5	
3415	274798	Recycler (WU) Clip Sticker	1	
3416	274799	Recycler (WU) Film Sticker	4	
3417	269130	φ2×14 Parallel Pin (B type) SUS	2	



# Recycler Exploded View 10

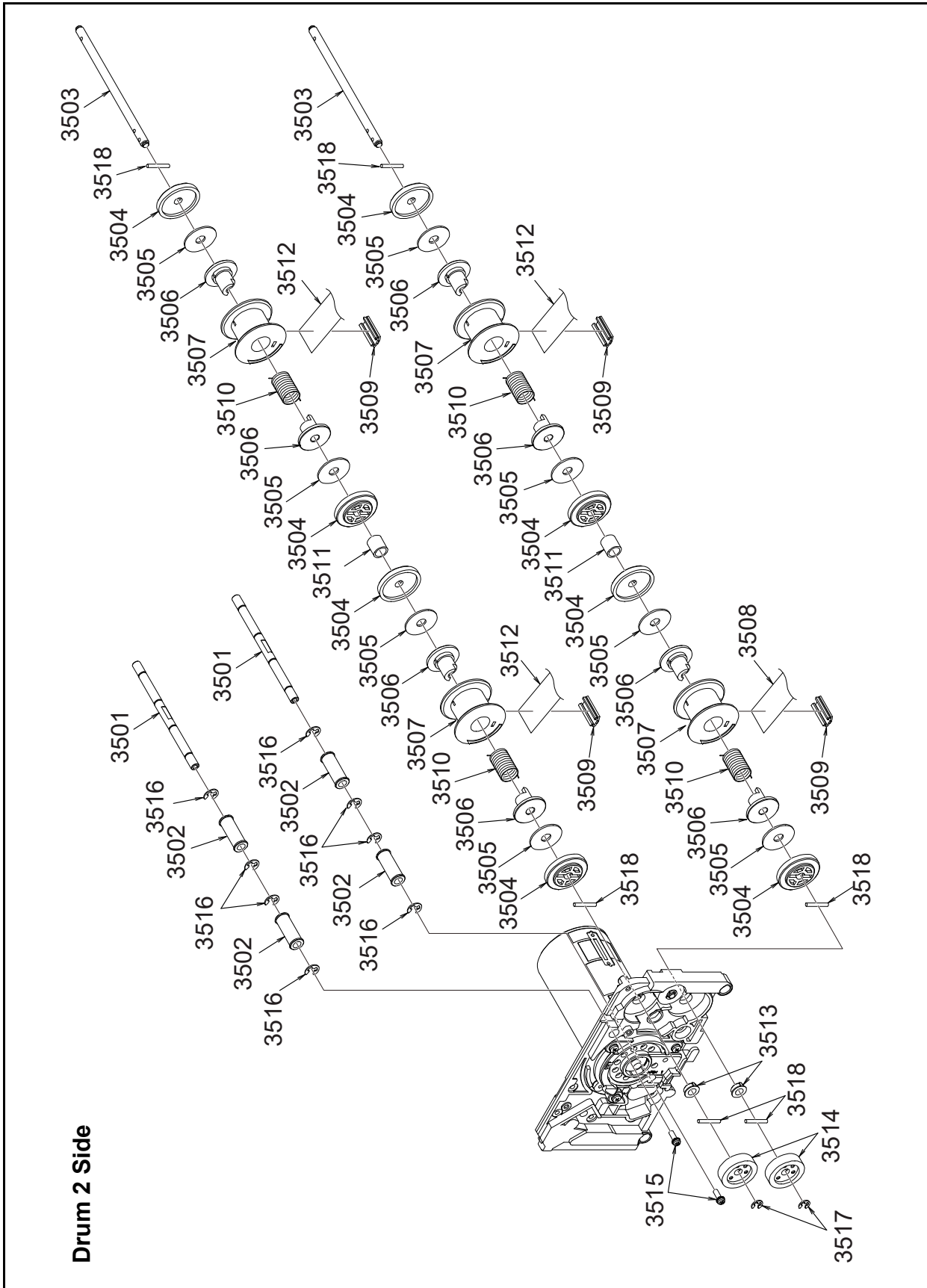


Figure 7-36 Recycler Exploded View 10

**Recycler Parts List 10****Table 7-36** Recycler Parts List10

No.	EDP No.	Description	QTY	Remark
3501	274838	Recycler (WU) Guide Roller Shaft	2	
3502	216066	GUIDE ROLLER	4	
3503	274832	Recycler (WU) Bobbin Shaft	2	✓
3504	144773	BOBBIN CAP	8	✓
3505	144751	FELT	8	✓
3506	270759	BOBBIN CORE	8	✓
3507	270758	FILM BOBBIN	4	✓
3508	274797	DET FILM	1	
3509	144770	Clip	4	✓
3510	279047	LIMIT KS	4	✓
3511	274790	Recycler (WU) Limit CS	2	✓
3512	216091	CLEAR FILM	3	✓
3513	144584	BEARING	2	
3514	274791	Recycler (WU) Bobbin GE	2	
3515	033460	2.6×8 Pan Head Washer (Small), Iron/Chromium (III)	2	
3516	248116	φ4 E-ring	8	
3517	248115	φ3 E-ring	2	
3518	269130	φ2×14 Parallel Pin (B type) SUS	6	✓

# Recycler Exploded View 11

Drum 2 Side

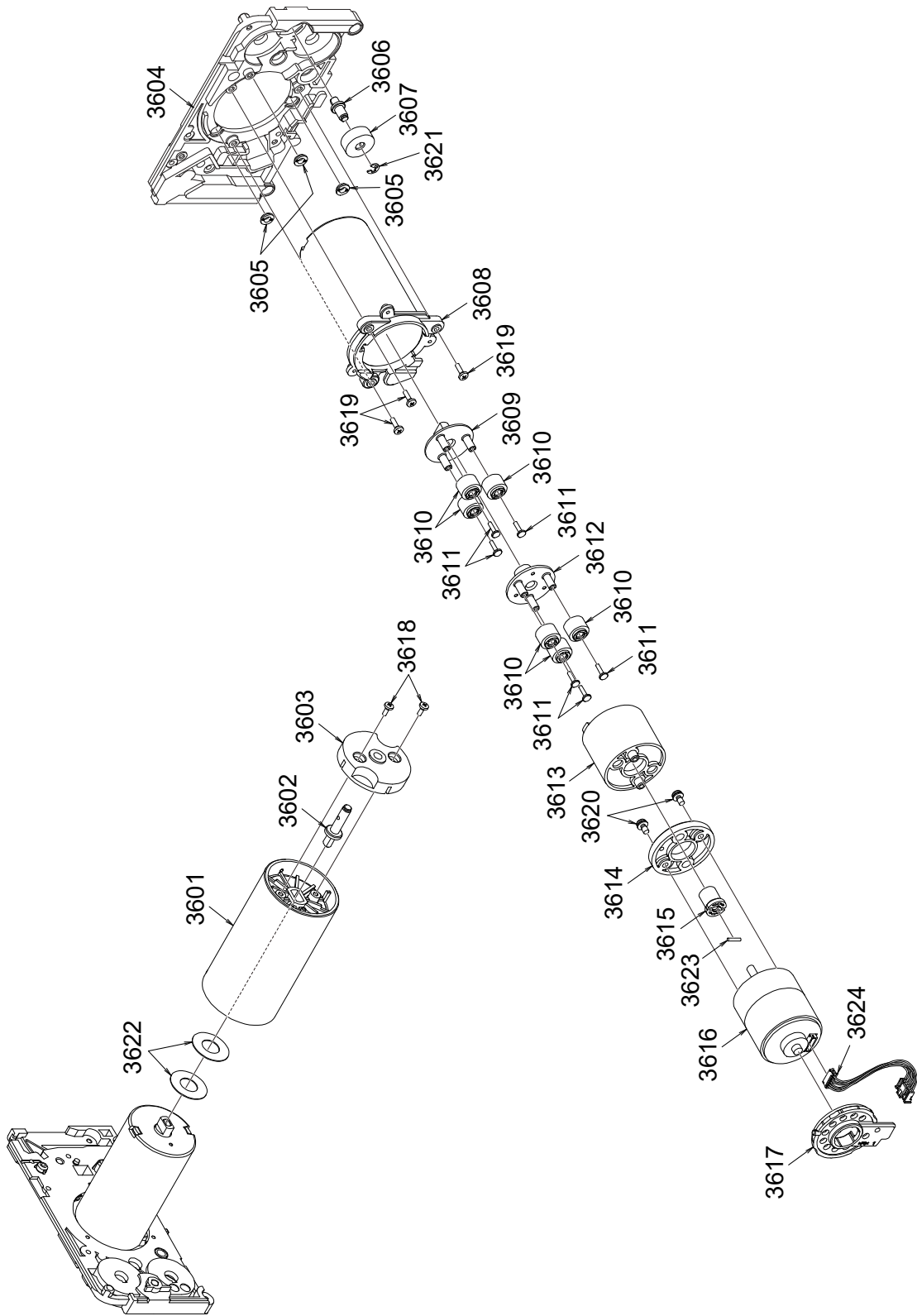


Figure 7-37 Recycler Exploded View 11

**Recycler Parts List 11****Table 7-37** Recycler Parts List11

No.	EDP No.	Description	QTY	Remark
3601	274827	Recycler (WU) MAIN DRUM	1	
3602	274837	Recycler (WU) Drum Axis	1	
3603	216075	DRUM COVER	1	
3604	274805	Recycler (WU) Frame R-2	1	
3605	216077	DRUM GUIDE RO	3	
3606	274841	Recycler (WU) Clutch Stud	1	
3607	144591	CLUTCH GEAR	1	
3608	274826	Recycler (WU) Motor Case	1	
3609	216062	PLANETARY CARRIER2	1	
3610	216157	PLANETARY GEAR	6	
3611	216166	PLANETARY GEAR PIN	6	
3612	216158	PLANETARY CARRIER	1	
3613	216160	OUTER GEAR	1	
3614	274825	Recycler (WU) Planet Base	1	
3615	274794	Recycler (WU) Sun GE	1	
3616	274553	Motor (DIX36B15W03A)	1	
3617	274821	Recycler (WU) Harness Cover	1	
3618	104081	2.6×6 Binding Head P-TITE Screw, Black	2	
3619	056165	2.6×8 Binding Head P-TITE Screw	3	
3620	124661	3×6 Pan Head Washer (Small)	2	
3621	248115	φ3 E-ring	1	
3622	216592	DURACON Washer	2	
3623	274843	1.6X8 Parallel Pin (B type) SUS	1	
3624	275437	Drum Motor 2 Harness (3640-05-015x)	(1)	

### Box Connect Module Exploded View

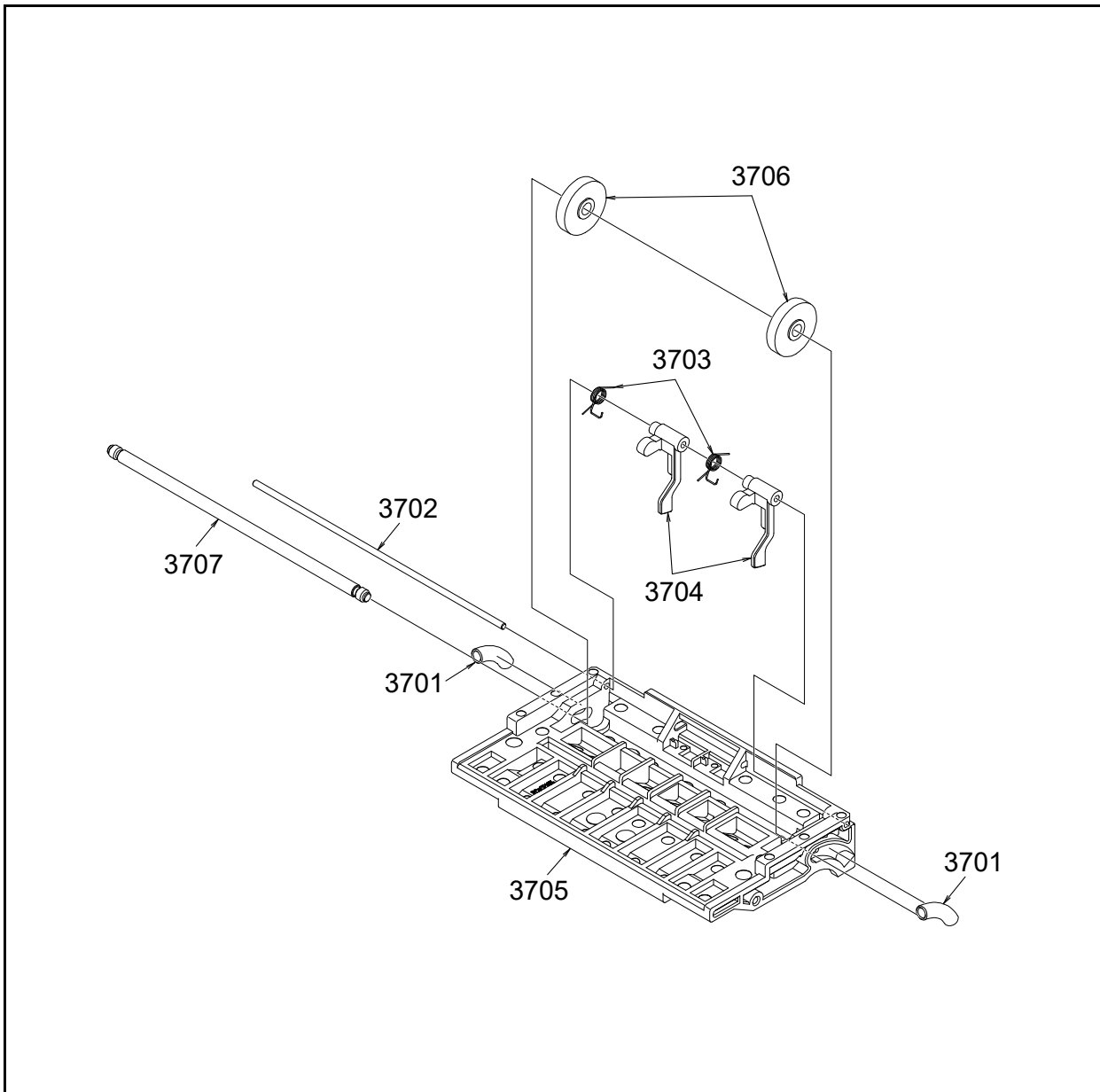


Figure 7-38 Box Connect Module Exploded View

### Box Connect Module Parts List

Table 7-38 Box Connect Module Parts List

No.	EDP No.	Description	QTY	Remark
3701	052648	FG SPRING	2	
3702	052621	BOX LEVER SHAFT	1	
3703	052650	FL SPRING	2	
3704	274786	Box Sensor Lever	2	
3705	280433	Box Connect	1	
3706	108810	STAND GEAR SUS UBA	2	
3707	052620	S GEAR SHAFT	1	

### SH2 Box (400 Notes) Frame Exploded View

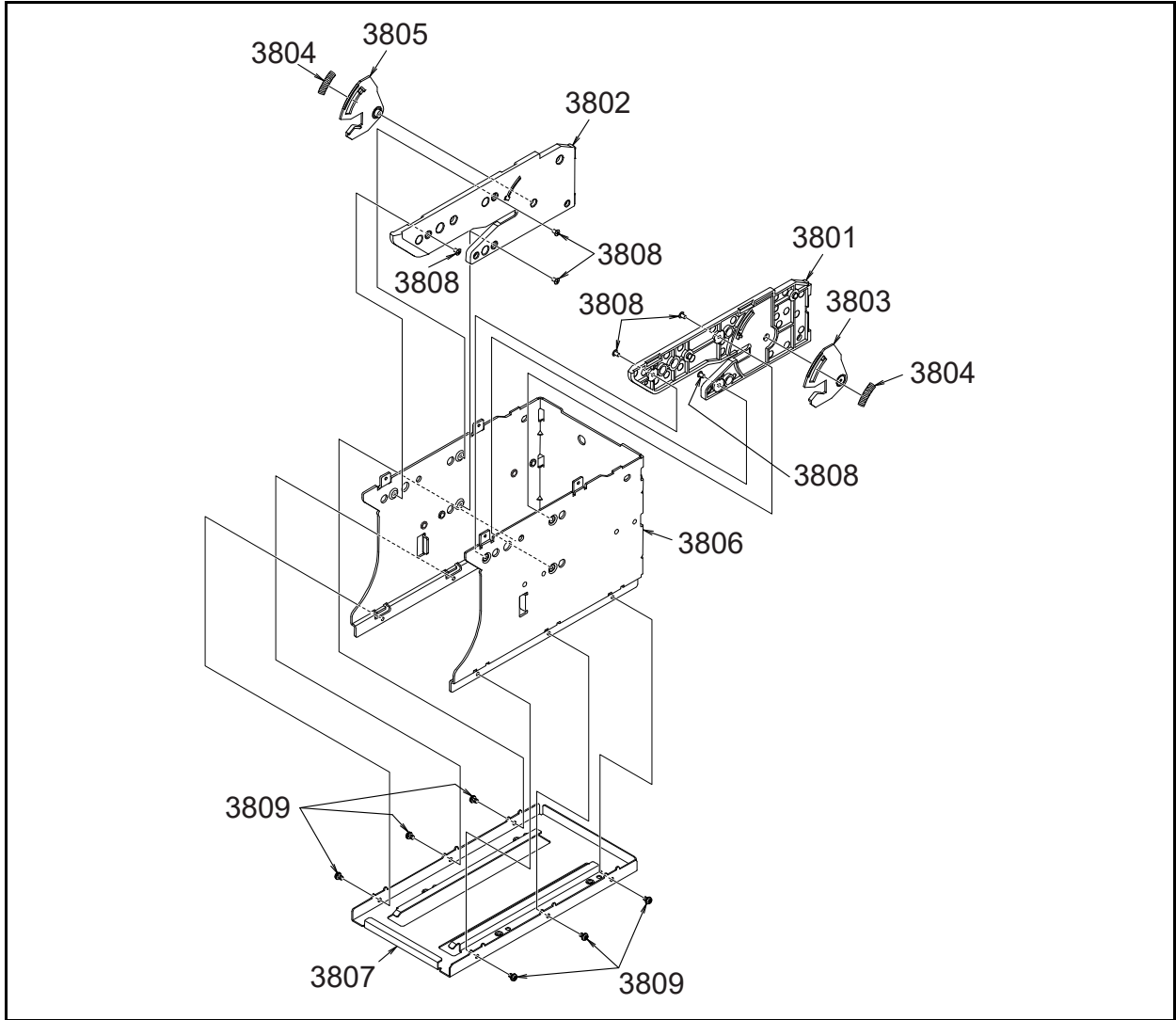


Figure 7-39 SH2 Box (400 Notes) Frame Exploded View

### SH2 Box (400 Notes) Frame Parts List

Table 7-39 SH2 Box (400 Notes) Frame Parts List

No.	EDP No.	Description	QTY	Remark
3801	289692	Box Rail A	1	
3802	289693	Box Rail B	1	
3803	102984	CASH BOX HOLDER B	1	
3804	052649	BL SPRING	2	
3805	102983	CASH BOX HOLDER A	1	
3806	289691	Main Frame B	1	
3807	281614	Box Guide Assy.	1	
3808	227685	M2.6x4Slim Head Screw, Iron(III), G-180B	6	
3809	006036	M3x4 Pan Head Waser	6	

### Large Box (800 Notes) Frame Exploded View

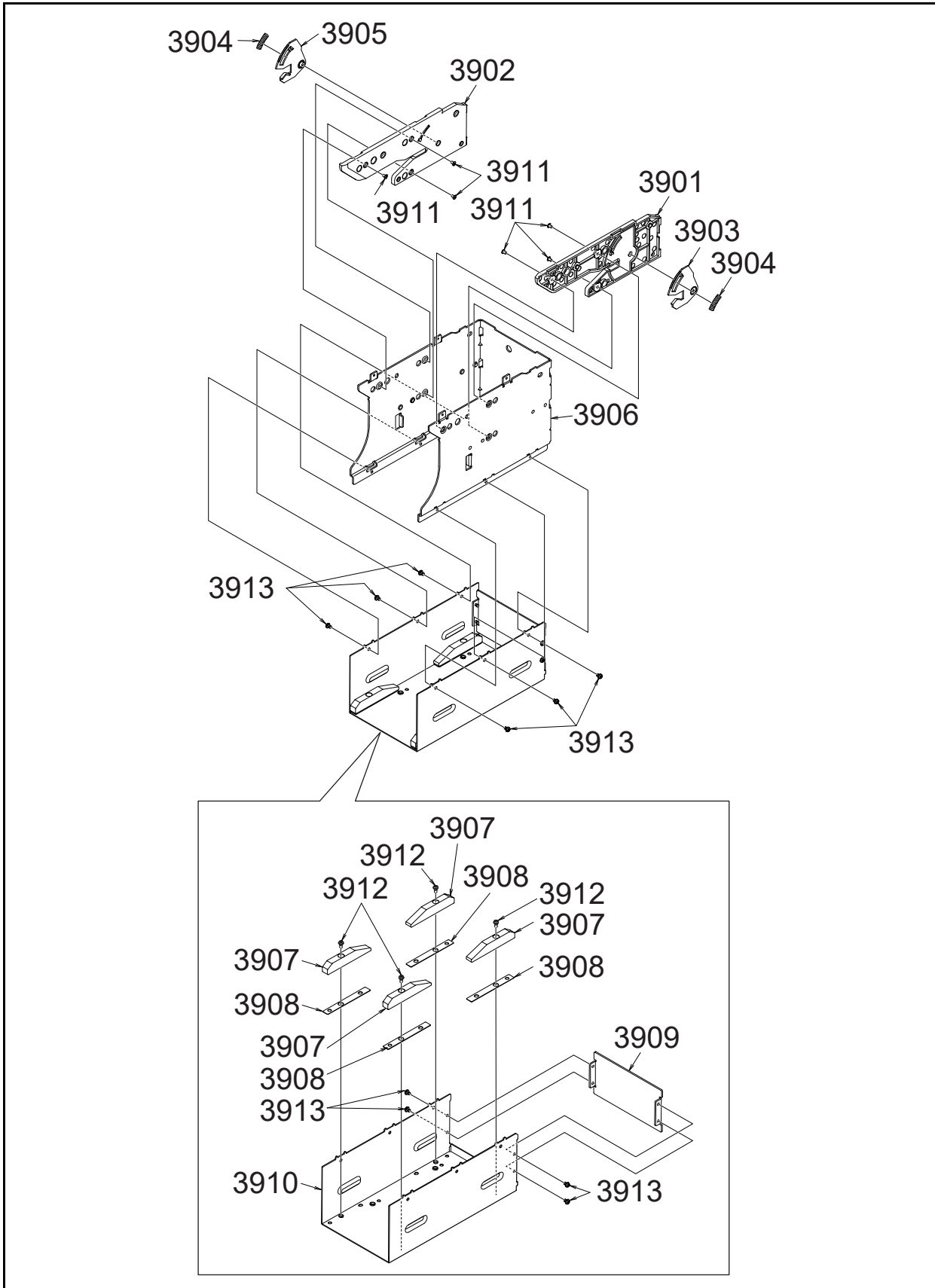


Figure 7-40 Large Box (800 Notes) Frame Exploded View

**Large Box (800 Notes) Frame Parts List****Table 7-40** Large Box (800 Notes) Frame Parts List

<b>No.</b>	<b>EDP No.</b>	<b>Description</b>	<b>QTY</b>	<b>Remark</b>
3901	289692	Box Rail A	1	
3902	289693	Box Rail B	1	
3903	102984	CASH BOX HOLDER B	1	
3904	052649	BL SPRING	2	
3905	102983	CASH BOX HOLDER A	1	
3906	289691	Main Frame B	1	
3907	204988	LARGEBOX BASE GUIDE	4	
3908	280103	LARGEBOX GUIDE SHEET	4	
3909	204985	LARGEBOX BACK FRAME	1	
3910	278564	LARGEBOX BASE FRAME	1	
3911	227685	M2.6x4Slim Head Screw, Iron(III), G-180B	6	
3912	003601	M3×6 Pan Head Waser	4	
3913	006036	M3×4 Pan Head Waser	10	



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# UBA Pro RT/RQ™ Series Banknote Recycler

## Section 8

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# UBA Pro RT/RQ™ Series Banknote Recycler

## Appendix A

### A TROUBLESHOOTING

This section provides Troubleshooting instructions for the UBA Pro RT/RQ™ Series Banknote Recycler (RT/RQ). This section contains the following information:

- Introduction
- Troubleshooting Overview
- LED Error Codes
- Maintenance Equipment

#### Introduction

Most Banknote Recycler failures are due to minor causes. Before replacing any parts, ensure that all Assembly and Circuit Board Connectors are properly fitted and the Harness is properly connected. Poor performance by the Recycler is often caused when dust or foreign objects adhere to the Sensors or the Transport Belts. Clean the Banknote Insertion Section first, then observe the operating state of the Recycler in detail when re-initializing Power, in order to locate any causes of failure, and the possible fault locations.

Perform all repairs by referring to Calibration and Testing in Section 6 and Disassembly/Reassembly in Section 4 of the RT/RQ 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 surveying the cause(s) of any failure occurrences during process.

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

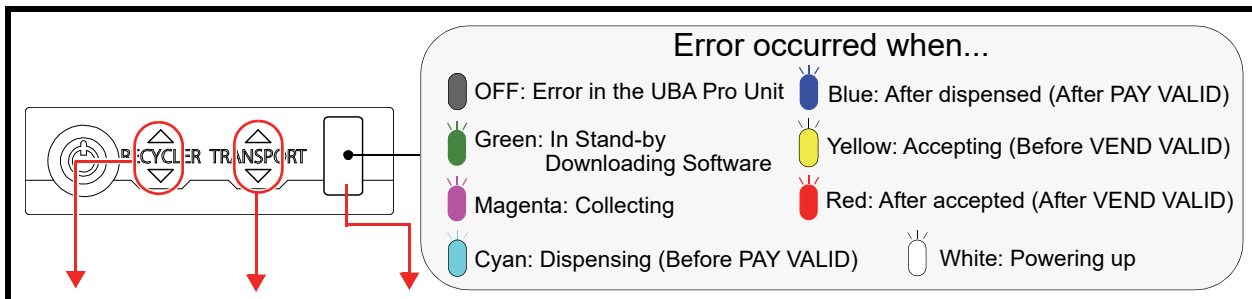
#### LED Error Codes

The RT/RQ Unit contains LEDs to indicate various Error Codes when specific errors occur (e.g., a Banknote Jam inside the Unit). The Green ■ and Red ■ LEDs of the UBA Pro Unit and the seven (7) Multi-Color LEDs (White ■/Green ■/Red ■/Yellow ■/Magenta ■/Cyan ■/Blue ■) of the RT/RQ Unit indicate Error Status and Communication Error conditions via their flashing and extinguished lighting sequences.

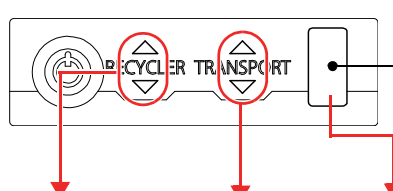
Table A-1 lists the Error Code indications of the Status LED, Recycler LED and Transport LED.

**Table A-1** LED Error Codes

Recycler LED	Transport LED	Status LED	Error Causes
▲ OFF ▼ OFF	▲ OFF ▼ OFF	● OFF	Stand-by/Operating or an error occurred in the UBA Pro Unit. <i>NOTE: Refer to the UBA Pro Series Universal Banknote Acceptor Operation and Maintenance Manual for the UBA Pro Unit's details.</i>
▲ OFF ▼ OFF	▲ OFF ▼ OFF	○ Flashes 1 Time	ROM error (Boot I/F)
△ ON ▼ OFF			RT Transport: Recycler Drum 1 and/or Drum 2 timeout
▲ OFF ▽ ON			RQ Transport: Recycler Drum 1 and/or Drum 2 timeout



**Table A-1 LED Error Codes (Continued)**



**Error occurred when...**

- OFF: Error in the UBA Pro Unit
- Blue: After dispensed (After PAY VALID)
- Green: In Stand-by Downloading Software
- Yellow: Accepting (Before VEND VALID)
- Magenta: Collecting
- Red: After accepted (After VEND VALID)
- Cyan: Dispensing (Before PAY VALID)
- White: Powering up

Recycler LED	Transport LED	Status LED	Error Causes
▲ OFF ▼ OFF	△ ON ▽ ON	Flashes 1 Time	RT Transport: Transport Motor timeout
	▲ OFF ▽ ON		RQ Transport: Transport Motor timeout
▲ OFF ▼ OFF	▲ OFF ▼ OFF	Flashes 2 Times	ROM error (Main)
△ ON ▼ OFF			RT Transport: Recycler Drum 1 and/or Drum 2 Motor Lock-up
▲ OFF ▽ ON			RQ Transport: Recycler Drum 1 and/or Drum 2 Motor Lock-up
▲ OFF ▼ OFF	△ ON ▽ ON	Flashes 2 Times	RT Transport: Transport Motor lock-up
	▲ OFF ▽ ON		RQ Transport: Transport Motor lock-up
▲ OFF ▼ OFF	▲ OFF ▼ OFF	Flashes 3 Times	Hardware error
△ ON ▼ OFF			RT Transport: A Banknote is jammed in Recycler Drum 1 and/or Drum 2
▲ OFF ▽ ON			RQ Transport: A Banknote is jammed in Recycler Drum 1 and/or Drum 2
▲ OFF ▼ OFF			△ ON ▼ OFF
	▲ OFF ▽ ON	A Banknote is jammed in the Rear Transport path	
△ ON ▼ OFF	▲ OFF ▼ OFF	Flashes 4 Times	RT Transport: Recycler Drum 1 and/or Drum 2 is full
▲ OFF ▽ ON			RQ Transport: Recycler Drum 1 and/or Drum 2 is full
▲ OFF ▼ OFF	△ ON ▽ ON	Flashes 4 Times	RT Transport: A Banknote is jammed in the transport path
	▲ OFF ▽ ON		RQ Transport: A Banknote is jammed in the transport path

**Table A-1 LED Error Codes (Continued)**

**Error occurred when...**

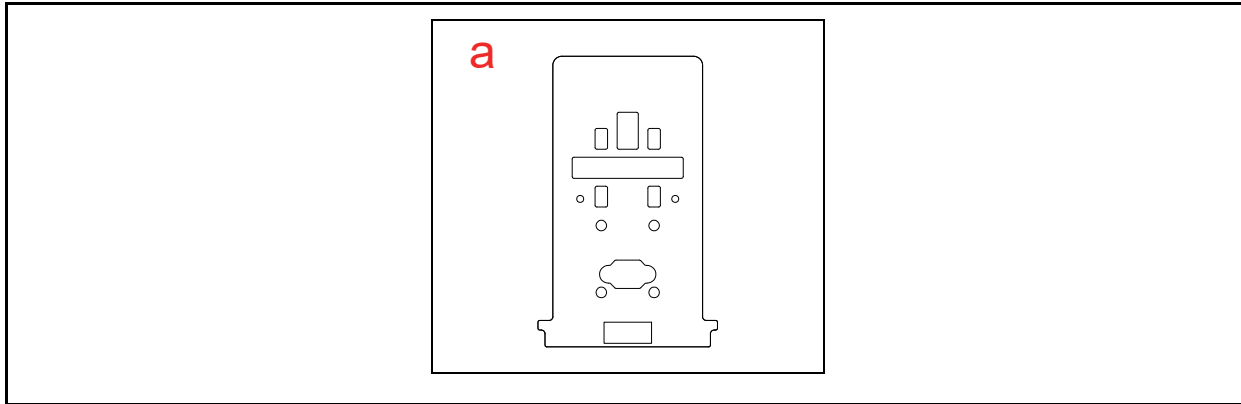
- OFF: Error in the UBA Pro Unit
- Blue: After dispensed (After PAY VALID)
- Green: In Stand-by Downloading Software
- Yellow: Accepting (Before VEND VALID)
- Magenta: Collecting
- Red: After accepted (After VEND VALID)
- Cyan: Dispensing (Before PAY VALID)
- White: Powering up

Recycler LED	Transport LED	Status LED	Error Causes
△ ON ▼ OFF	▲ OFF ▼ OFF	Flashes 5 Times	RT Transport: Recycler Drum 1 and/or Drum 2 is empty
▲ OFF ▽ ON			RQ Transport: Recycler Drum 1 and/or Drum 2 is empty
▲ OFF ▼ OFF	△ ON ▼ OFF	Flashes 5 Times	RT Transport: Transport Motor Speed error
	▲ OFF ▽ ON		RQ Transport: Transport Motor Speed error
△ ON ▼ OFF	▲ OFF ▼ OFF	Flashes 6 Times	RT Transport: Recycler Drum 1 and/or Drum 2 speed adjustment error
▲ OFF ▽ ON			RQ Transport: Recycler Drum 1 and/or Drum 2 speed adjustment error
▲ OFF ▼ OFF	△ ON ▽ ON	Flashes 6 Times	Dispensing error. Banknote is longer than specified length.
	▲ OFF ▽ ON		Dispensing error. Banknote is longer than specified length.
▲ OFF ▼ OFF	△ ON ▽ ON	Flashes 7 Times	Dispensing error. Banknote is shorter than specified length.
	▲ OFF ▽ ON		Dispensing error. Banknote is shorter than specified length.
▲ OFF ▼ OFF	△ ON ▼ OFF	Flashes 8 Times	RT Transport: Flapper timeout
	▲ OFF ▽ ON		RQ Transport: Flapper timeout
▲ OFF ▼ OFF	△ ON ▼ OFF	Flashes 9 Times	RT Transport: Flapper Lever error
	▲ OFF ▽ ON		RQ Transport: Flapper Lever error
▲ OFF ▼ OFF	△ ON ▼ OFF	Flashes 10 Times	RT Transport: Flapper Motor lock-up
	▲ OFF ▽ ON		RQ Transport: Flapper Motor lock-up

## Maintenance Equipment

This portion provides product information for the RT/RQ Unit.

### Maintenance Equipment



**Figure A-1** Maintenance Equipment Requirements

**Table A-2** Additional Maintenance Equipment Parts List

Ltr.	EDP No.	JAC No.	Description	Qty.	Remark
a	280829	N/A	Reference Paper (KS-101)	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.

# UBA Pro RT/RQ™ Series Banknote Recycler

## 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... 1-4

#### B

**3 Bezel**

a removable Plastic Assembly attached to the front of the Banknote Insertion Slot of an UBA Pro 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 Calibration**

a process performed on electronic equipment which ensures that all circuits are properly aligned and operating at optimum levels. Calibration is accomplished using a software based program which checks and sets the operational reference levels for sensors. This helps to ensure that the Unit operates with the highest Banknote acceptance rate possible. Calibration is recommended whenever the CPU board, or one of the Sensor Boards are replaced... 6-1

**5 Centering Mechanism**

a mechanical assembly designed to center Banknotes that enter the Acceptor at skewed angle... 1-4

**6 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



**P****7 Photo-Coupler Isolation**

a method of increasing safety to both the equipment and personnel by isolating and routing transmitted data signals via Light Emitting Diode (LED) and Photosensitive Transistor combination circuit in various electronic equipment devices... 1-8

**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

**R****9 Recycler**

The Recycler can be programmed to accept and recycle any Banknote denomination within a defined set of country currency value, and is capable of working with payment processing and vending systems in paying back Banknotes to a customer as a result of cash transactions initiated by a Host System... 1-1

**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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