



UBA™ Series

Universal Bill Acceptor (UBA-1x-SS & UBA-x4-SS/SU)









Operation and Maintenance Manual

(Revision 4)



REVISION HISTORY		
Rev No.	Date	Reason for Update
A	6/16/05	Initial Version
1	10/26/06	Updated Initial Version
2	12/19/07	Updated Revision 1 Version
3	2/23/10	Updated Revision 2 Version with Additional UBA 14*24/25 Information
4	May. 21, 2021	Updated International Compliance on Cover, Organized Type Description and added Disposal Consideration in Section 1, Updated contact information in Section 1 and Section 3, Updated ICB Module Circuit Board and Cash Box Sensor Removal Procedures in Section 4, updated EDP numbers in Section 7, and ICB Error Code Condition in Appendix A.
	Oct. 29, 2021	Added the UKCA mark to the International Compliance. Added "Australia Office" to JCM American in Oceania in Section 1 and Section 3. Updated EDP numbers and JAC numbers in Section 7.

International Compliance

- RoHS Directive  or  or  or  or 
- UL & c-UL Marks  File No. E142330
- CB Scheme NO49160 (for UBA-SS version), NO49161 (for UBA-SH version), NO49162 (for UBA-SU version)
- CE Mark 
- UKCA Mark 

This product must not be used in residential areas.

Electrical Current Symbol

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

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

Copyright © 2021 By JAPAN CASH MACHINE CO., LTD.

This product document (hereinafter referred to as "Manual") is fully covered by legal Copyrights owned by the JAPAN CASH MACHINE CO., LTD. (hereinafter referred to as "JCM") under Japanese laws and foreign countries. This Manual contains many copyrighted, patented or properly registered equipment items manufactured by JCM, that are prohibited and illegal to duplicate, replicate or copy in whole, or in part, without the express authorization by JCM with the following exceptions:

1. When an authorized JCM agency or distributor duplicates the Manual for sales promotion and/or service maintenance of the product, or technical service personnel education as required; and
2. When an end user duplicates the Manual to maintain operation of the product or operate the product in general.

JCM retains all rights to amend, alter, change or delete any portion of this Manual in whole, or in part, or add items thereto without notice regarding the product or its related products.
JCM is a registered trademark of JAPAN CASH MACHINE CO., LTD. All other product names mentioned herein may be registered trademarks or trademarks of their respective companies. Furthermore, ™, ® and © are not always mentioned in each case throughout this publication.

UBA™ Series

Universal Banknote Acceptor

Table of Contents

	Page
1 GENERAL INFORMATION	1-1
UBA Unit.....	1-1
Model Descriptions	1-2
UBA-1x Series	1-2
UBA-2x Series	1-2
Type Descriptions.....	1-2
Software Descriptions.....	1-4
Precautions	1-4
User Cautions	1-4
Installation Cautions	1-4
Mounting, Dismounting & Transportation	1-5
Preventive Maintenance	1-5
Disposal Consideration.....	1-5
Unacceptable Banknote	1-5
Primary Features	1-6
Component Names.....	1-7
UBA-1x Series SS and SH Version	1-7
UBA-2x Series SU Version	1-8
Specifications	1-9
Technical Specifications (Common in UBA-1x and 2x Series)	1-9
Environmental Specifications (Common in UBA-1x and 2x Series)	1-9
Electrical Specifications (Common in UBA-1x and 2x Series)	1-10
Structural Specifications (Common in UBA-1x and 2x Series).....	1-10
Outside Dimensions.....	1-11
UBA-1x Series Unit Outside Dimensions	1-11
UBA-1x Series Unit Outside Dimensions (Continued 1)	1-12
UBA-1x Series Unit Outside Dimensions (Continued 2)	1-13
UBA-2x Unit Outside Dimensions.....	1-13
UBA-2x Unit Outside Dimensions (Continued 1).....	1-14
UBA Cash Box Dimensions	1-15
UBA Cash Box Dimensions (Continued 1).....	1-16
Technical Contact Information	1-17
Americas.....	1-17
JCM American	1-17
Europe, Middle East, Africa & Russia	1-17
JCM Europe GmbH	1-17
UK & Ireland	1-17
JCM Europe (UK Office).....	1-17
Asia and Oceania	1-17
JCM American (Australia Office)	1-17
JAPAN CASH MACHINE CO., LTD.(HQ).....	1-17
2 INSTALLATION	2-1
Installation Process.....	2-1
Lock Installation	2-2
Bezel Installation	2-2
DIP Switch Configurations	2-2

Table of Contents

	Page
Connector Pin Assignments	2-3
Connector Pin Assignments (Continued 1)	2-4
Connector Pin Assignments (Continued 2)	2-5
Connector Pin Assignments (Continued 3)	2-6
Connector Pin Assignments (Continued 4)	2-7
Connector Pin Assignments for Optional Conversion Boards	2-8
Connector Pin Assignments of Optional USB Connector	2-9
Optional Conversion Boards and External Harnesses	2-10
Optional Conversion Board Type 1: 24V/13.5V DC and RS232C Conversion Board	2-10
Optional Conversion Board Type 2: RS232C Conversion Board	2-10
Optional Conversion Board Type 3: cc-Talk Conversion Board.....	2-10
Optional Conversion Board Type 4: 24V/13.5V DC and USB Conversion Board	2-10
Optional Conversion Circuit Board Installation Procedure	2-11
External Interface Connection Structure for Optional Conversion Boards	2-12
Jumper Configurations	2-13
Preventive Maintenance	2-13
Retrieving Banknotes	2-13
Clearing a Banknote Jam	2-13
Opening the UBA Centering Mechanism	2-14
Cleaning Procedure.....	2-14
Sensor and Roller Cleaning Procedure.....	2-14
Available Cleaning Card	2-14
UBA Sensor, Belt and Roller Locations	2-15
Interface Circuit Schematics	2-17
UBA Bezel LED Control Circuit Schematic.....	2-17
Standard Interface Circuit Schematics (Continued 1)	2-18
Standard Interface Circuit Schematics (Continued 2)	2-19
Standard Interface Circuit Schematics (Continued 3)	2-20
Interface Circuit Schematics for Optional Conversion Boards	2-21
Interface Circuit Schematic for Optional Conversion Boards (Continued 1)	2-22
Operational Flowcharts	2-23
Operational Flowchart (Continued)	2-24
3 COMMUNICATIONS	3-1
Americas	3-1
JCM American	3-1
Europe, Middle East, Africa & Russia.....	3-1
JCM Europe GmbH.....	3-1
UK & Ireland	3-1
JCM Europe (UK Office)	3-1
Asia and Oceania	3-1
JCM American (Australia Office)	3-1
JAPAN CASH MACHINE CO., LTD.(HQ).....	3-1
4 DISASSEMBLY/REASSEMBLY	4-1
Tool Requirements	4-1
Primary Unit Disassembly	4-1
Acceptor Unit Disassembly	4-1
Side and Top Cover Removal.....	4-1
Front Access Door Removal	4-2

Table of Contents

	Page
Opening Lever Disassembly	4-2
Circuit Board Removal.....	4-3
CPU Board Removal	4-3
Upper Sensor Board Removal.....	4-3
Lower Sensor Board Removal.....	4-4
Transport Guide Disassembly.....	4-4
Transport Guide Assembly	4-4
Transport Guides B & C Disassembly	4-6
Transport Guides D & E Disassembly	4-6
Sensor Board Disassembly	4-6
Cash Box Sensor Board Removal.....	4-6
Home Centering Sensor Board Disassembly	4-7
Encoder Sensor Board Disassembly	4-7
Anti-Pullback Home Sensor Board Disassembly.....	4-7
Transport Unit Motors Disassembly	4-7
Anti-Pullback Drive Motor Unit Disassembly	4-7
Transport Motor Disassembly.....	4-8
Entrance Sensor Board Removal.....	4-8
Exit Sensor Board Disassembly	4-8
Centering Motor Unit Disassembly	4-8
Transport C Timing Belt Removal.....	4-9
Transport D Solenoid Removal	4-10
Cash Box Disassembly	4-10
Cash Box Handle Removal	4-10
ICB Module Circuit Board Removal.....	4-11
Pusher Mechanism Unit Disassembly	4-11
Final Timing Belt Disassembly.....	4-11
5 WIRING DIAGRAMS	5-1
UBA-10/11/12 System Wiring Diagram	5-1
UBA-14 System Wiring Diagram	5-2
UBA-24/25 System Wiring Diagram	5-3
6 CALIBRATION AND TESTING	6-1
Workbench Tool Requirements.....	6-1
Application Software Installation.....	6-1
Driver Installation	6-2
JCM Tool Suite Standard Edition Mode.....	6-3
Download.....	6-3
Download the Upgrade Program.....	6-3
Downloading the Program First Time	6-5
Statistics	6-6
Calibration (Sensor Adjustment)	6-6
Calibration Tool Requirements.....	6-6
When to Calibrate.....	6-6
Calibration Procedure.....	6-6
Performance Tests Without a PC	6-10
Test Mode	6-10
Choosing and Selecting Operational Tests.....	6-10
DIP Switch Settings for Performance	6-11

Table of Contents

	Page
No.1 Transport Motor Forward/Reverse Rotation Test.....	6-12
No.2 Stacker Test.....	6-12
No.3 Running Test.....	6-13
No.4 Anti-Pullback Mechanism Test.....	6-14
No.5 Centering Mechanism Test.....	6-14
No.6 Solenoid Test.....	6-14
No.7 General Sensor Test.....	6-15
No.8 Banknote Acceptance Test.....	6-16
No.9 DIP Switch Test.....	6-16
7 EXPLODED VIEWS AND PARTS LISTS	7-1
Entire UBA Unit Exploded View	7-1
Entire UBA Unit Parts List	7-2
Optional Conversion Board and Harness Kits.....	7-3
UBA Transport Unit Exploded View.....	7-4
UBA Transport Unit Exploded View 1	7-4
UBA Transport Unit Exploded View 2	7-5
UBA Transport Unit Exploded View 3	7-6
UBA Transport Unit Exploded View 4	7-7
UBA Transport Unit Parts List 1.....	7-8
UBA Cash Box Frame Unit Exploded View	7-14
UBA Cash Box Frame Unit Parts List.....	7-15
1200 Cash Box Frame Unit Exploded View	7-16
1200 Cash Box Frame Unit Parts List.....	7-16
8 INDEX.....	8-1
A TROUBLESHOOTING AND OPTIONS	A-1
Introduction.....	A-1
Troubleshooting Overview	A-1
Fault Table Listings	A-1
Error and Reject Codes.....	A-3
Standard Error Codes	A-3
Reject Error Codes for Banknotes.....	A-5
Reject Error Codes for Tickets	A-7
ICB Error Code Conditions.....	A-8
Calibration Error Codes.....	A-8
Maintenance Equipment	A-9
UBA Maintenance Equipment and Parts List	A-9
Reference Paper Handling	A-9
B GLOSSARY.....	B-1

UBA™ Series

Universal Banknote Acceptor

List of Figures

		Page
Figure 1-1	Universal Banknote Acceptor Version Available	1-1
Figure 1-2	Precautionary Symbols	1-4
Figure 1-3	Unacceptable Banknotes	1-6
Figure 1-4	UBA Automatic Centering Feature	1-6
Figure 1-5	UBA Anti-Pullback Feature	1-6
Figure 1-6	UBA Automatic Centering Feature	1-6
Figure 1-7	UBA-1x-SS/SH Major Component Names	1-7
Figure 1-8	UBA-x4-SS/SU Major Component Names	1-8
Figure 1-9	UBA-1x Series Unit Dimensions with Standard Cash Box	1-11
Figure 1-10	UBA-1x Series Unit Dimensions with UBA Bezel	1-11
Figure 1-11	UBA-1x Series Unit Dimensions with Standard Intelligent Cash Box and Bezel	1-12
Figure 1-12	UBA-1x Series Unit Dimensions with Large Cash Box/Intelligent Cash Box and Bezel	1-12
Figure 1-13	UBA-1x Series Unit Dimensions with 1200 Cash Box and Bezel	1-13
Figure 1-14	UBA-2x Series Unit Dimensions with Standard Cash Box and Bezel	1-13
Figure 1-15	UBA-2x Series Unit Dimensions with Standard Intelligent Cash Box and Bezel	1-14
Figure 1-16	UBA-2x Series Unit Dimensions with Large Cash Box/Intelligent Cash Box and Bezel	1-14
Figure 1-17	UBA Standard Cash Box Dimensions	1-15
Figure 1-18	UBA Standard Intelligent Cash Box Dimensions	1-15
Figure 1-19	UBA Large Cash Box or Intelligent Cash Box Dimensions	1-16
Figure 1-20	UBA 1200 Cash Box Dimensions	1-16
Figure 2-1	Front Panel DIP Switch Block	2-1
Figure 2-2	M4 Screw Locations (Back)	2-1
Figure 2-3	M4 Screw Locations (Both Sides)	2-1
Figure 2-4	Front Panel DIP Switch Block	2-1
Figure 2-5	Plate Key Lock Dimensions & Location	2-2
Figure 2-6	Key Lock Rotation Requirement	2-2
Figure 2-7	Bezel Installation	2-2
Figure 2-8	Remove Acceptor Unit	2-11
Figure 2-9	Installing Optional Circuit Board	2-11
Figure 2-10	24V/13.5V DC + RS232C and RS232C Conversion Boards	2-12
Figure 2-11	ccTalk Conversion Board	2-12
Figure 2-12	24V/13.5V DC + USB Conversion Board	2-12
Figure 2-13	5V DC CPU Board Bottom View	2-13
Figure 2-14	3.3V DC CPU Board Bottom View	2-13
Figure 2-15	Retrieving Banknotes	2-13
Figure 2-16	Retrieving Banknotes	2-13
Figure 2-17	Clearing an Banknote Jam	2-14
Figure 2-18	Opening Centering Mechanism	2-14
Figure 2-19	Sensor Cleaning	2-14
Figure 2-20	JCM Waffletechnology Cleaning Card	2-14
Figure 2-21	UBA Sensor Cleaning Locations	2-15
Figure 2-22	Bezel LED Control Circuit Schematic	2-17

List of Figures

	Page
Figure 2-23 UBA Photo-Coupler Interface Schematic Diagram (UBA-10/11/12/14-SS, UBA-10/11-SH, UBA-24-SS/SU)	2-18
Figure 2-24 UBA USB Interface Schematic Diagram (UBA-14-SS, UBA-24-SS/SU)	2-19
Figure 2-25 UBA RS232C Interface Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH)	2-20
Figure 2-26 24V/13.5V Conversion + RS232C and RS232C Conversion Board Interface Circuit Schematic Diagram	2-21
Figure 2-27 ccTalk Conversion Board Interface Circuit Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH)	2-22
Figure 2-28 UBA Operational Flowchart (Initialize)	2-23
Figure 2-29 UBA Operational Flowchart (Validation)	2-24
Figure 2-30 UBA Operational Flowchart (Stacking)	2-24
Figure 4-1 Acceptor Unit Removal	4-1
Figure 4-2 UBA Unit Cash Box & Optional Conversion Board Removal	4-1
Figure 4-3 Side and Top Cover Removal	4-2
Figure 4-4 Side Cover Installation Points	4-2
Figure 4-5 Transport Cover Removal	4-2
Figure 4-6 Front Access Door Removal	4-2
Figure 4-7 TR Opening Lever Disassembly	4-3
Figure 4-8 TR CPU Board Removal	4-3
Figure 4-9 Upper Sensor Board Removal	4-3
Figure 4-10 Lower Sensor Board Removal	4-4
Figure 4-11 Roller Guide Removal	4-4
Figure 4-12 Stacking Motor Removal	4-5
Figure 4-13 Stacking Clutch Shaft Removal	4-5
Figure 4-14 Right Guide Mounting Screw Removal	4-5
Figure 4-15 Last Left Side Guide Mounting Screw Removal	4-5
Figure 4-16 UBA Side Frame Removals	4-5
Figure 4-17 UBA Guide B Removal	4-6
Figure 4-18 Transport Guide B Removal	4-6
Figure 4-19 Transport Guide E Removal	4-6
Figure 4-20 Cash Box Sensor Removal	4-6
Figure 4-21 Centering Home Sensor Board Removal	4-7
Figure 4-22 Transport Encoder Sensor Board Removal	4-7
Figure 4-23 Anti-Pullback Sensor Board Removal	4-7
Figure 4-24 Anti-Pullback Motor Unit Removal	4-7
Figure 4-25 Transport Motor Unit Removal	4-8
Figure 4-26 Entrance Sensor Board Removal	4-8
Figure 4-27 Exit Sensor Board Removal	4-8
Figure 4-28 Centering Motor Unit Removal	4-8
Figure 4-29 Timing Belts Removal	4-9
Figure 4-30 Mover Gear #1 & #2 Removal	4-9
Figure 4-31 Pulley Shaft Removals	4-9
Figure 4-32 Mover Worm Gear Shaft Removals	4-9
Figure 4-33 Transport Drive Shaft Removal	4-10
Figure 4-34 Drive Belt Removal	4-10
Figure 4-35 Transport Guide D Solenoid Removal	4-10
Figure 4-36 Cash Box Handle Removal	4-10

List of Figures

	Page
Figure 4-37 ICB Module Circuit Board Removal	4-11
Figure 4-38 Pusher Mechanism Unit Removal	4-11
Figure 4-39 Pusher Mechanism Separation	4-11
Figure 4-40 Pusher Mechanism Separation	4-11
Figure 4-41 Timing Belt Removal Access	4-12
Figure 4-42 Timing Belt Removal	4-12
Figure 5-1 UBA (UBA-10/11/12) System Wiring Diagram	5-1
Figure 5-2 UBA (UBA-14) System Wiring Diagram	5-2
Figure 5-3 UBA (UBA-24/25) System Wiring Diagram	5-3
Figure 6-1 Tools and Harness Connections	6-1
Figure 6-2 Download USB Cable Requirements	6-1
Figure 6-3 UBA DIP Switch & Port Locations	6-1
Figure 6-4 Setup.exe File Location	6-1
Figure 6-5 InstallShield Wizard Screen	6-2
Figure 6-6 Destination Folder Screen	6-2
Figure 6-7 Current Settings Confirmation	6-2
Figure 6-8 Installation Completion Screen	6-2
Figure 6-9 Hardware Update Wizard Screen 1	6-2
Figure 6-10 Hardware Update Wizard Screen 2	6-3
Figure 6-11 Normal Mode Selection	6-3
Figure 6-12 DIP Switches All OFF	6-3
Figure 6-13 JCM Tool Suite Standard Edition Screen 1	6-3
Figure 6-14 JCM Tool Suite Standard Edition Screen Pull-Down Menu 1	6-4
Figure 6-15 Browse Screen Button Location	6-4
Figure 6-16 UBA Software Program Selection	6-4
Figure 6-17 Download Progress Screen 1	6-4
Figure 6-18 Download Completed Screen 1	6-4
Figure 6-19 DIP Switches 6, 7, & 8 ON	6-5
Figure 6-20 JCM Tool Suite Standard Edition Screen 2	6-5
Figure 6-21 JCM Tool Suite Standard Edition Screen Pull-Down Menu 2	6-5
Figure 6-22 Browse Screen Button Location	6-5
Figure 6-23 UBA Software Program Selection	6-5
Figure 6-24 Download Progress Screen 2	6-5
Figure 6-25 Download Completed Screen 2	6-6
Figure 6-26 JCM Tool Suite Standard Edition ACCLoad Screen 1	6-6
Figure 6-27 JCM Tool Suite Standard Edition ACCLoad Screen 2	6-6
Figure 6-28 Required Calibration Workbench Tools	6-6
Figure 6-29 Sensor Adjustment Selection Screen	6-7
Figure 6-30 JCM Tool Suite Standard Edition Sensor Adjustment Screen	6-7
Figure 6-31 Validation Sensor Cleaning Confirmation Screen	6-7
Figure 6-32 Model Type Selection	6-7
Figure 6-33 White Reference Paper Set Screen	6-7
Figure 6-34 White Reference Paper Insertion Request	6-7
Figure 6-35 Black Reference Paper Set Screen	6-8
Figure 6-36 Black Reference Paper Insertion Request	6-8
Figure 6-37 UV Reference Paper Set Screen	6-8
Figure 6-38 UV Reference Paper Insertion Request	6-8
Figure 6-39 Remove UV Reference Paper Test Screen	6-8

List of Figures

	Page
Figure 6-40	Verify Adjustment Dialog Screen 6-8
Figure 6-41	MAG HEAD Adjustment Dialog Screen 6-9
Figure 6-42	White Reference Paper Insertion Screen 6-9
Figure 6-43	White Reference Paper Removal Screen 6-9
Figure 6-44	Sensor Adjustment Successful Screen 6-9
Figure 6-45	Sensor Adjustment Successful Screen 6-9
Figure 6-46	Required Calibration Workbench Tools 6-10
Figure 6-47	DIP Switch Settings 6-10
Figure 7-1	Entire UBA Unit Exploded View 7-1
Figure 7-2	UBA Transport Unit Exploded View 1 7-4
Figure 7-3	UBA Transport Unit Exploded View 2 7-5
Figure 7-4	UBA Transport Unit Exploded View 3 7-6
Figure 7-5	UBA Transport Unit Exploded View 4 7-7
Figure 7-6	UBA Cash Box Frame Unit Exploded View 7-14
Figure 7-7	1200 Cash Box Frame Unit Exploded View 7-16
Figure A-1	Additional Maintenance Equipment Requirements A-9

UBA™ Series

Universal Banknote Acceptor

List of Tables

		Page
Table 1-1	UBA-1x Series Model Number Specifications	1-2
Table 1-2	UBA-2x Series Model Number Specifications	1-2
Table 1-3	UBA-10/11/12-SS Type Specifications	1-2
Table 1-4	UBA-14/24-SS Type Specifications	1-3
Table 1-5	UBA-10/11-SH Type Specifications	1-3
Table 1-6	UBA-24-SU Type Specifications	1-4
Table 1-7	UBA-1x Series Software Number Specifications	1-4
Table 1-8	UBA-2x Series Software Number Specifications	1-4
Table 1-9	UBA Environmental Specification	1-9
Table 1-10	UBA Electrical Specification	1-10
Table 1-11	UBA Structural Specification	1-10
Table 2-1	UBA Vend Denomination Setting Switches	2-2
Table 2-2	UBA-10/11/12-SS and UBA-10/11-SH Photo-Coupler & RS232C Interface Pin Assignments	2-3
Table 2-3	UBA-14-SS USB Interface Pin Assignments	2-4
Table 2-4	UBA-24-SS/SU USB Interface Pin Assignments	2-5
Table 2-5	UBA-14-SS Photo-Coupler Pin Assignments	2-6
Table 2-6	UBA-24-SS/SU Photo-Coupler Pin Assignments	2-7
Table 2-7	UBA CN13 Bezel Connector Pin Assignments	2-7
Table 2-8	CN2 Connector Pin Assignments	2-8
Table 2-9	Relay Connector Pin Assignments	2-8
Table 2-10	CN1 Connector Pin Assignments	2-8
Table 2-11	Optional USB Connector Pin Assignments	2-9
Table 2-12	Optional Conversion Board and External Harness Support Matrix	2-10
Table 2-13	UBA Sensor Type Cleaning Methods	2-15
Table 6-1	DIP Switch Configurations	6-11
Table 6-2	Transport Motor Speed Test Error Conditions	6-12
Table 6-3	Banknote Stacker Test Error Conditions	6-12
Table 6-4	Running Test Error Conditions	6-13
Table 6-5	Anti-Pullback Mechanism Test Error Conditions	6-14
Table 6-6	Centering Mechanism Test Error Conditions	6-14
Table 6-7	Solenoid Test Error Conditions	6-14
Table 6-8	UBA General Sensor Test Setting	6-15
Table 6-9	UBA Banknote Acceptance Test Setting	6-16
Table 6-10	DIP Switch Test Steps	6-16
Table 7-1	UBA Unit 1Parts List	7-2
Table 7-2	Optional Conversion Board and External Harness Kits	7-3
Table 7-3	UBA Transport Unit Parts List	7-8
Table 7-4	UBA Cash Box Frame Unit Parts List	7-15
Table 7-5	1200 Cash Box Frame Unit Parts List	7-16
Table A-1	General Fault Conditions	A-1
Table A-2	Adjustment Fault Conditions	A-2
Table A-4	Standard LED Error Codes	A-3

List of Tables

	Page
Table A-3 Communication Fault Conditions	A-3
Table A-5 LED Flash Reject Error Codes for Banknotes	A-5
Table A-6 LED Flash Reject Error Codes for Tickets	A-7
Table A-7 ICB LED Error Codes	A-8
Table A-8 Calibration Error Table	A-8
Table A-9 Additional Maintenance Equipment Parts List	A-9

UBA™ Series

Universal Banknote Acceptor

Section 1





1 GENERAL INFORMATION

This section provides a general overview of the UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit pictured in Figure 1-1. This first section is designed to help you navigate through this guide with ease and provides the following information:

- UBA Unit
- Model Descriptions
- Type Descriptions
- Software Descriptions
- Precautions
- Primary Features
- Component Names

- Specifications
- Outside 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**, which need to be observed in order to protect the operators and equipment, have been written in **Bold** text and have been given the pictographs:   
- **Special Notes**, which effect the use of the Banknote Acceptor, have been written in *italic* text and have been given the pictograph: 
- **Steps**, requiring the operator to perform specific actions are given sequential numbers (1., 2., 3., etc)

UBA Unit

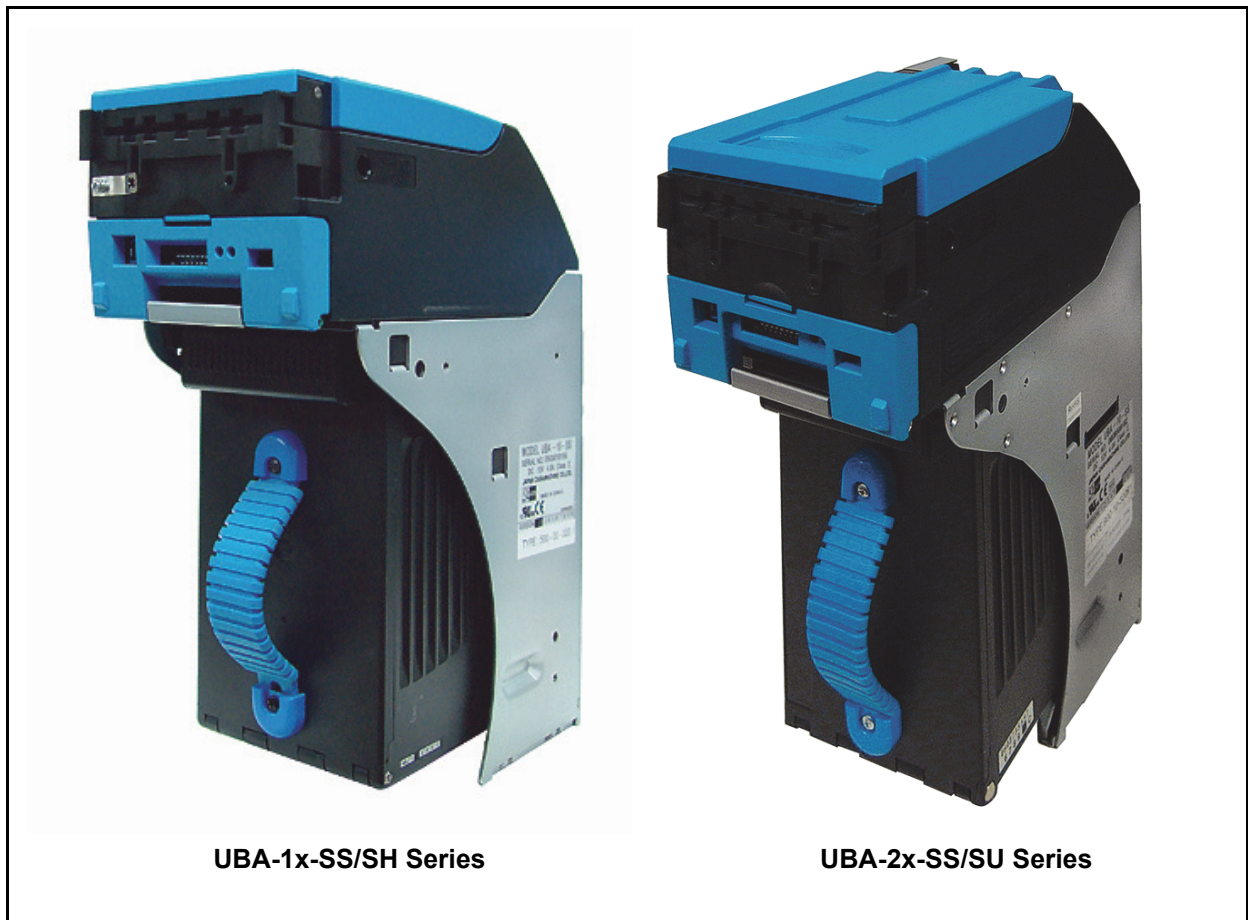


Figure 1-1 Universal Banknote Acceptor Version Available

Model Descriptions

UBA-1X SERIES

Table 1-1 lists the Product Model Number Descriptions for UBA-1x series.

Table 1-1 UBA-1x Series Model Number Specifications

No	Model: <u>UBA</u> - 1 * (*) - (*) ** (*)
	No (1) (2)(3) (4) (5) (6)
(1)	Product Series Name
(2)	CPU Board 0 = 8Mbit Flash ROM 1 = 8Mbit EPROM 2 = 16Mbit Flash ROM 4 = USB Circuit Board
(3)	Transport Unit Type None = Standard
(4)	Optional Unit (Input Section) None = Standard
(5)	Stacker Type SS = Security Stacker (Standard) SH = Security Stacker Downward (Horizontal Stacking)
(6)	Cash Box Access None = Front Access Frame (Standard)

UBA-2x Series

Table 1-2 lists the Product Model Number Descriptions for UBA-2x series.

Table 1-2 UBA-2x Series Model Number Specifications

No	Model: <u>UBA</u> - 2 * (*) - (*) ** (*)
	No (1) (2) (3) (4) (5) (6)
(1)	Product Series Name
(2)	CPU Board 4 = 16Mbit Flash ROM USB Circuit Board 5 = 8Mbit EPROM USB Circuit Board
(3)	Transport Unit Type None = Standard
(4)	Optional Unit (Input Section) None = Standard
(5)	Stacker Type* SU = Security Stacker Upward (Vertical Stacking)
(6)	Cash Box Access None = Front Access Frame (Standard)

*. SS version is available by a specified Pin Assignment connection. See "Connector Pin Assignments" on page 2-3

Type Descriptions

UBA-10/11/12-SS Type

Table 1-3 lists the UBA-10/11/12-SS Type Number Descriptions.

Table 1-3 UBA-10/11/12-SS Type Specifications

No	Type: * * * - * * - * * * * * - *
	No (1)(2)(3) (4)(5)(6)(7)(8)(9)(10)(11)
(1)	Cash Box Capacity 5 = 500 notes (Street Grade) 9 = 900 notes (Street Grade)
(2)	Cash Box Type 0 = Standard (Dark Green) S = Metal (WBA Cash Box Type)
(3)	Cash Box Handle 0 = Standard (Blue) N = WBA Cash Box Standard (No Handle) J = WBA Cash Box JCM Standard Handle
(4)	Transport Section 0 = Standard 1 = 3.3v Flash ROM CPU Board
(5)	Transport Cover 0 = Standard (Blue)
(6)	Bezel (Option)* 0 = None 1 = Black, Green LED (UBA Standard Bezel 85) 2 = Blue, Blue LED (UBA Standard Bezel 85) 8 = Black, Green LED (UBA Euro Bezel 82) 9 = Smoke Blue, Blue LED (UBA Euro Bezel 82) A = Blue, Blue LED (2-Line) (UBA Standard Bezel 85)
(7)	ICB (Option) 0 = Without ICB 1 = With ICB (Cash Box and Transport Unit) 2 = With ICB (Transport Unit) (No ICB in Cash Box)
(8)	Optional Conversion Circuit Board 0 = Standard (No Optional Board) 1 = 24V/13.5V + RS232C Conversion Board 3 = cc-Talk Conversion Board (ID-0E3)
(9)	Input/Output Signal F = Photo-Coupler Isolation R = RS-232C Protocol Operation
(10)	External Harness 0 = None 1 = Standard 2 = OEM Harness 3 = 24V/13.5V Conversion Harness (Photo-Coupler) 4 = 24V/13.5V Conversion Harness (RS232C) 9 = cc-Talk Interface Conversion Harness (ID-0E3)
(11)	Cash Box Lock (Option) 1 = Cash Box Sumlock

*. Contact the closest JCM representative for detailed bezel option.

UBA-14/24-SS Type

Table 1-4 lists the UBA-14/24-SS Type Number Descriptions.

Table 1-4 UBA-14/24-SS Type Specifications

No	Type: * * * - * * - * * * * * - *
	No (1)(2)(3) (4)(5)(6)(7)(8)(9)(10)(11)
(1)	Cash Box Capacity 5 = 500 notes (Street Grade) 9 = 900 notes (Street Grade)
(2)	Cash Box Type 0 = Standard (Dark Green) S = Metal (WBA Cash Box Type)
(3)	Cash Box Handle 0 = Standard (Blue) N = WBA Cash Box (No Handle) J = WBA Cash Box JCM Standard Handle
(4)	Transport Section 0 = Standard
(5)	Transport Cover 0 = Standard (Blue)
(6)	Bezel (Option)* 0 = None 1 = Black, Green LED (UBA Standard Bezel 85) 2 = Blue, Blue LED (UBA Standard Bezel 85) 8 = Black, Green LED (UBA Euro Bezel 82) 9 = Smoke Blue, Blue LED (UBA Euro Bezel 82) A = Blue, Blue LED (2-Line) (UBA Standard Bezel 85)
(7)	ICB (Option) 0 = Without ICB 1 = With ICB (Cash Box and Transport Unit) 2 = With ICB (Transport Unit) (No ICB in Cash Box)
(8)	Optional Circuit Board 0 = Standard (No Optional Board) 1 = 24V/13.5V Converter + RS232C Interface Conversion Board 2 = RS232C Interface Conversion Board 3 = cc-Talk Interface Conversion Board (ID-0E3) 4 = 24V/13.5V Converter + USB Interface Conversion Board
(9)	Input/Output Signal† F = Photo-Coupler Isolation
(10)	External Harness 0 = None 5 = Standard (USB) 6 = OEM Harness (USB) 7 = 24V/13.5V Conversion Harness (Photo-Coupler, USB) 8 = 24V/13.5V Conversion Harness (RS232C, USB) 9 = cc-Talk I/F Conversion Harness (ID-0E3) A = 24V/13.5V Conversion Harness (USB)
(11)	Cash Box Lock (Option) 1 = Cash Box Sumlock

*. Contact the closest JCM representative for detailed bezel option.

†. The UBA-14 model requires an optional circuit board to support RS-232C interface.

UBA-10/11-SH Type

Table 1-5 lists the UBA-10/11-SH Type Number Descriptions.

Table 1-5 UBA-10/11-SH Type Specifications

No	Type: * * * - * * - * * * * * - *
	No (1)(2)(3) (4)(5)(6)(7)(8)(9)(10)(11)
(1)	Cash Box Capacity C = 1200 notes (New Banknote)
(2)	Cash Box Type S = Metal (WBA Cash Box Type)
(3)	Cash Box Handle C = SH 1200 Box Handle
(4)	Transport Section 0 = Standard 1 = 3.3v Flash ROM CPU Board
(5)	Transport Cover 0 = Standard (Blue)
(6)	Bezel (Option)* 0 = None 1 = Black, Green LED (UBA Standard Bezel 85) 2 = Blue, Blue LED (UBA Standard Bezel 85) 8 = Black, Green LED (UBA Euro Bezel 82) 9 = Smoke Blue, Blue LED (UBA Euro Bezel 82) A = Blue, Blue LED (2-Line) (UBA Standard Bezel 85)
(7)	ICB (Option) 0 = Without ICB
(8)	Optional Circuit Board 0 = Standard (No Optional Board) 1 = 24V/13.5V Converter + RS232C Interface Conversion Board 3 = cc-Talk Interface Conversion Board (ID-0E3)
(9)	Input/Output Signal F = Photo-Coupler Isolation R = RS-232C Protocol Operation
(10)	External Harness 0 = None 1 = Standard 2 = OEM Harness 3 = 24V/13.5V Conversion Harness (Photo-Coupler) 4 = 24V/13.5V Conversion Harness (RS232C) 9 = cc-Talk I/F Conversion Harness (ID-0E3)

*. Contact the closest JCM representative for detailed bezel option.

UBA-24-SU Type

Table 1-6 lists the UBA24-SU Type Number Descriptions.

Table 1-6 UBA-24-SU Type Specifications

№	Type: * * * - * * - * * * * *
	№ (1)(2)(3) (4)(5)(6)(7)(8)(9)(10)
(1)	Cash Box Capacity 5 = 500 notes (Street Grade) 9 = 900 notes (Street Grade)
(2)	Cash Box Type 0 = Standard (Dark Green) S = WBA Cash Box
(3)	Cash Box Handle 0 = Standard (Blue) N = WBA Cash Box (No Handle) J = WBA Cash Box JCM Standard Handle
(4)	Transport Section 0 = Standard
(5)	Transport Cover 0 = Standard (Blue)
(6)	Bezel (Option)* 0 = None 1 = Black, Green LED (UBA Standard Bezel 85) 2 = Blue, Blue LED (UBA Standard Bezel 85) 8 = Black, Green LED (UBA Euro Bezel 82) 9 = Smoke Blue, Blue LED (UBA Euro Bezel 82) A = Blue, Blue LED (2-Line) (UBA Standard Bezel 85)
(7)	ICB (Option) 1 = With ICB (Cash Box and Transport Unit) 2 = With ICB (Transport Unit) (No ICB in Cash Box)
(8)	Optional Circuit Board 0 = Standard (No Optional Board)
(9)	Input/Output Signal F = Photo-Coupler Isolation
(10)	External Harness 0 = None 5U = Standard SU Harness (USB) 6U = OEM SU Harness (USB)

*. Contact the closest JCM representative for detailed bezel option.

Software Descriptions

UBA-1x Series

Table 1-7 lists the Software Number Descriptions for UBA-1x series.

Table 1-7 UBA-1x Series Software Number Specifications

№	Software: <u>UBA-1x(*)-(*)SS/SH(*)</u> * * * - <u>0</u> * * - <u>V</u> * * *
	№ (A) (B) (C) (D)
(A)	Software Model Name
(B)	Denomination (Country Code)*
(C)	Interface Protocol Name
(D)	Software Version

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

UBA-2x Series

Table 1-8 lists the Software Number Descriptions for UBA-24 Unit.

Table 1-8 UBA-2x Series Software Number Specifications

№	Software: <u>UBA-2x(*)-(*)SU(*)</u> * * * - <u>0</u> * * - <u>V</u> * * *
	№ (A) (B) (C) (D)
(A)	Software Model Name
(B)	Denomination (Country Code)*
(C)	Interface Protocol Name
(D)	Software Version

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

Precautions

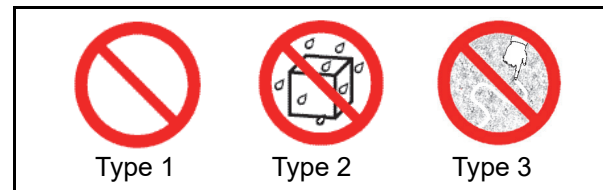


Figure 1-2 Precautionary Symbols

The Figure 1-2 symbols are defined as follows:

- (Type 1) Do not insert a torn, folded, or wet Banknote; it may cause a jam inside the unit.
- (Type 2) Do not expose the unit to water. The unit contains several precision electronic devices that can be damaged if water or other liquid is sprayed or spilled into the unit.
- (Type 3) Do not install the unit in a dusty environment. Dust may affect/degrade the sensor's performance.

Caution: Do not carry the UBA Unit by the Cash Box Handle, it can release and drop the Unit to the ground causing physical damage.

USER CAUTIONS

Careful measures are taken in 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 dusty environment.

2. Do not install the unit in an area with excessive vibration or shock present.
3. This equipment is not fully warranted for outdoor use. Be sure that the Host Machine contains enough protection to avoid wet or dusty conditions when installing it in either an indoor or open-air space.
4. Avoid exposing the unit to direct sunlight/incandescent lamp illumination (Refer to “Environmental Specifications (Common in UBA-1x and 2x Series)” on page 9).
5. Ensure that the host machine is designed for daily operational access for maintenance and/or clearing a Banknote Jam.
6. When installing the equipment, connect the Frame Unit to the Frame Ground of the Host Machine.
7. Be sure to connect the Ground Wire of the Interface Connector to the Chassis Frame Ground.
8. Do not use the Unit where it may be exposed to airborne evaporated or sporadic chemicals and/or oil
4. If the Acceptor section is dirty due to dust, foreign objects or other such debris adhering to it, the Banknote acceptance rate will degrade.
5. To keep the UBA Unit’s performance and Banknote acceptance at optimal rates, clean and maintain the Unit regularly (Refer to “Cleaning Procedure” on page 14 for the cleaning procedures and schedule).
6. Be sure that the Guides and unit sections are placed in the proper location after a maintenance procedure.
7. Do not redesign or disassemble the unit. Unauthorized use by inadequately trained personnel, or use outside the original manufacture’s intent for operation voids the warranty.

Mounting, Dismounting & Transportation


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

1. Be sure to turn the UBA Unit’s power OFF before mounting or removing the Unit from its permanent location. Plugging or unplugging Connector Plugs from their receptacles while the Power is ON may cause damage to the Unit.
2. When reassembling a disassembled section, ensure that each part is carefully placed in its proper location.
3. Be sure to carry the unit using both hands. Holding the unit with only one hand may cause personal injury (if the unit comes apart).
4. Be careful not to use excessive outside pressure on the Unit, or subject it to excessive vibration during transportation.
5. Be careful not to exert external pressure on the equipment without the Cash Box in place. Strong pressure on the Frame may cause it to distort.
6. Check that the Transport Section does not drop off the Unit when pulling it forward after reassembling it.
7. Do not throw or apply strong external pressure on the Unit. Improper handling may cause personal injury and/or damage to the equipment.


Preventive Maintenance

The Preventive Maintenance requirements are defined as follows:

1. Be sure to turn the UBA Unit’s power OFF before beginning a Maintenance Procedure. The equipment produces improper operating signals while in maintenance mode that may cause personal injury.
2. When opening the Upper Guide, hold the guide up since it does not stay in the open position by itself.
3. When closing the Unit, ensure all service door locks click firmly into place.

 **Caution: 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.**

 **WARNING: This Unit is designed for use with a Limited Power Source! Design the Host Cabinet space to meet all local related safety standards.**

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

DISPOSAL CONSIDERATION

The battery disposal requirements are defined as follows:

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

UNACCEPTABLE BANKNOTE

The following Banknote types may not validate correctly, or worse, can cause a jam and/or damage to the unit’s Transport Path.

Banknotes exhibiting the following conditions 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

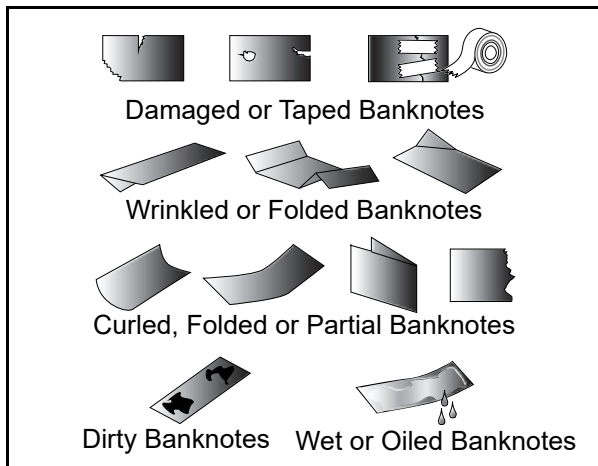


Figure 1-3 Unacceptable Banknotes

Primary Features

This UBA Series of Banknote Acceptors contains the following primary features:

- **Automatic Centering** - The Centering Mechanism allows the unit to read Banknotes ranging from 62 to 85mm in width without using special Banknote Guides. It helps to improve the overall acceptance rate.

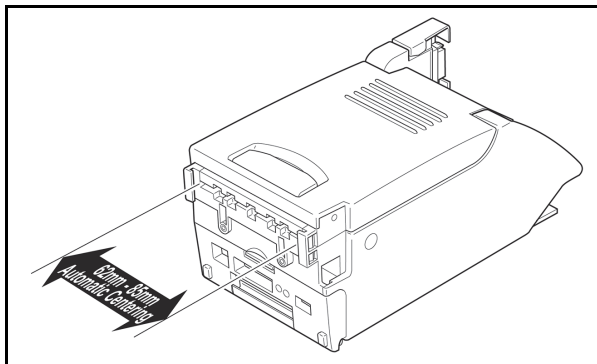


Figure 1-4 UBA Automatic Centering Feature

- **Proven Anti-pullback (anti-fishing) Technology** - This JCM patented Anti-Pullback Mechanism provides powerful protection against Banknote stringing.

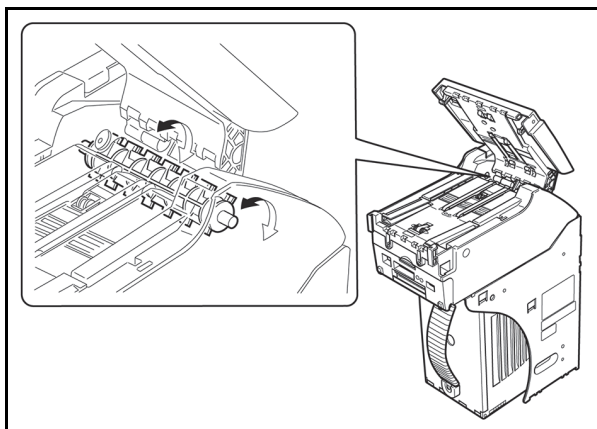



Figure 1-5 UBA Anti-Pullback Feature

- The Anti-Pullback Mechanism rotates after the Banknote passes through, wrapping any foreign object such as string or tape around the Drum preventing Banknote stringing.
- **Changeable Photo-Coupler Isolation/RS232C Communication** - Onboard electronics allows the use of Photo-Coupler Isolation or RS232C Communication without requiring additional signal conversion boards.

 **NOTE:** See Figure 2-14 and See Figure 2-13 in Section 2 of this Manual for Jumper Configuration settings.

- **Plastic Cash Box** - Durable and impact-resistant plastic construction assures secure cash handling. Equipped with Dispute Resolving Windows to reveal the last Banknote inserted.
- **ICB System (Optional)** - The JCM patented Intelligent Cash Box (ICB) system is designed to improve the drop process and increase accuracy of the cash reconciliation. The drop can be done faster with increased accuracy. The ICB System provides accumulated data analysis for revenue and UBA performance using the Web Reports application.

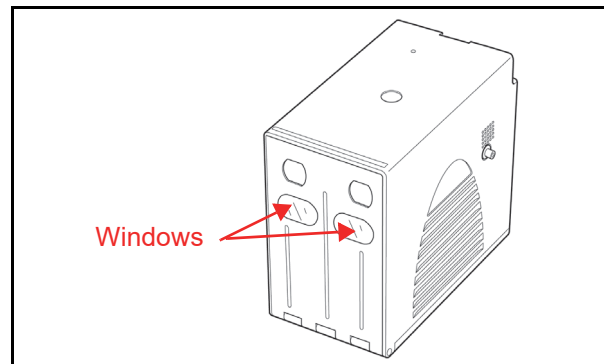


Figure 1-6 UBA Automatic Centering Feature

Component Names

UBA-1X SERIES SS AND SH VERSION

Figure 1-7 illustrates the UBA-10/11/12/14-SS and UBA-10/11-SH Component Names and Locations.

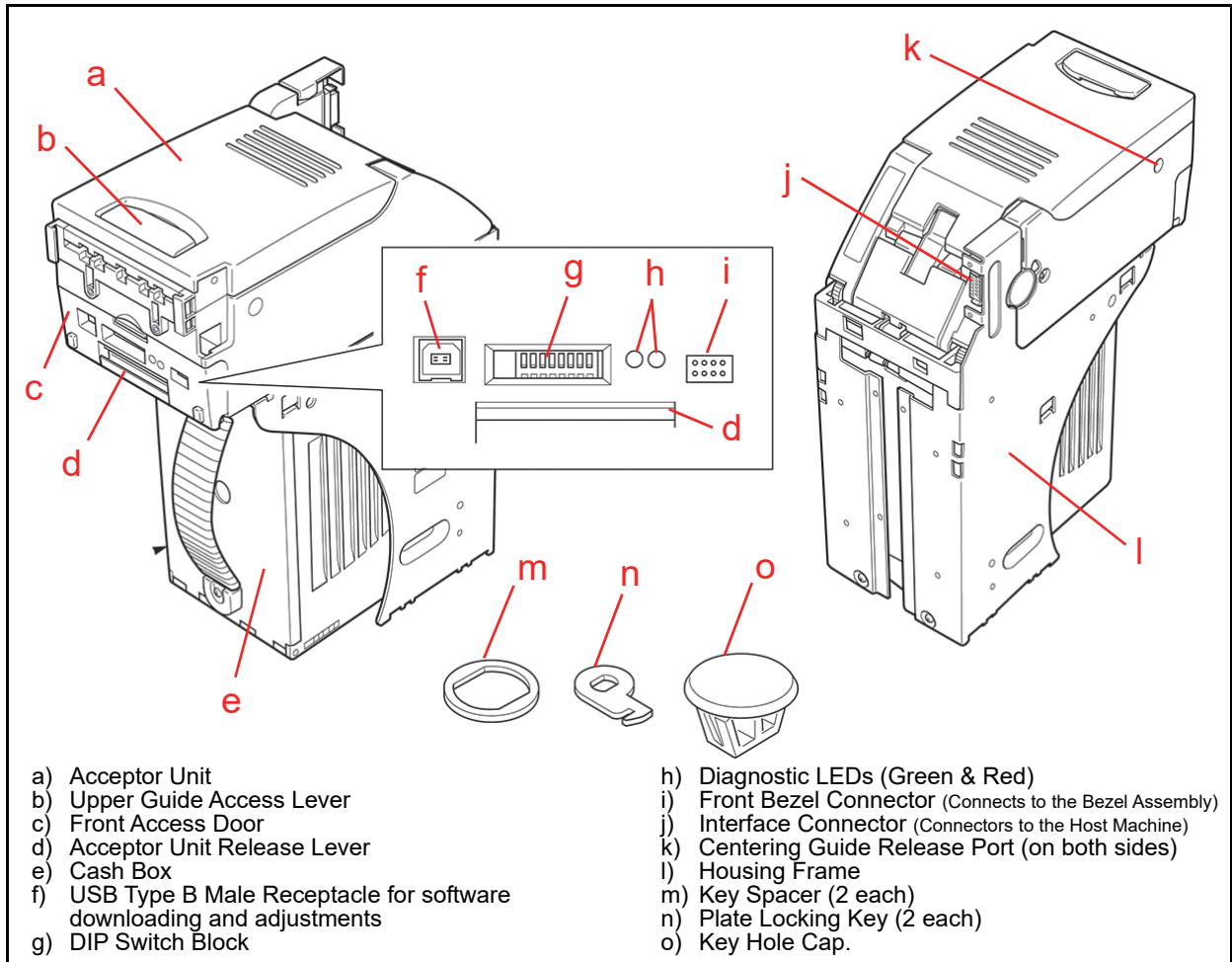


Figure 1-7 UBA-1x-SS/SH Major Component Names

UBA-2x SERIES SU VERSION

Figure 1-8 illustrates the UBA-24-SS/SU Component Names and Locations.

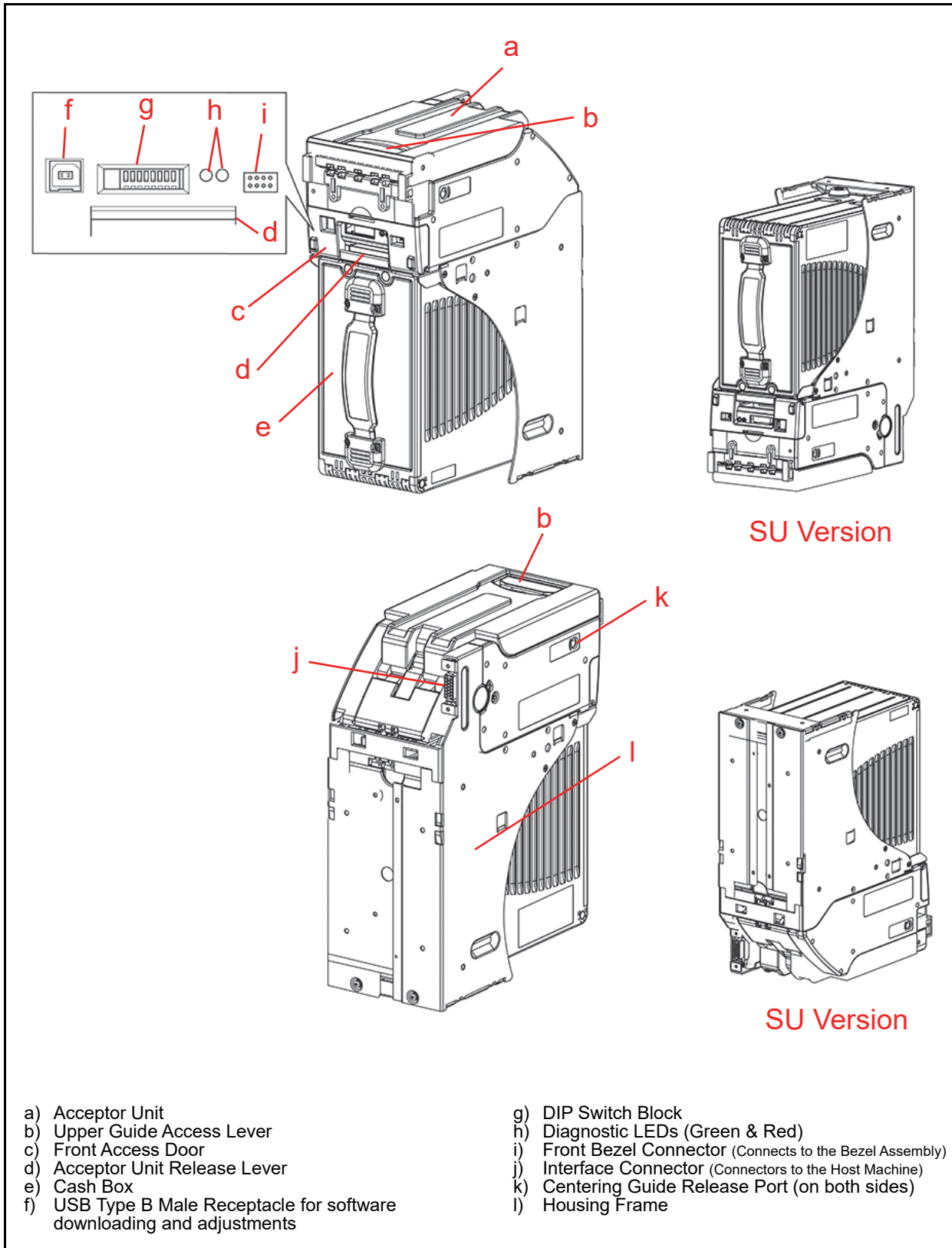


Figure 1-8 UBA-x4-SS/SU Major Component Names

Specifications

TECHNICAL SPECIFICATIONS (COMMON IN UBA-1X AND 2X SERIES)

Acceptance Rate:	98% or greater Note: The following banknote types are excluded: <ul style="list-style-type: none"> • Banknotes with excess or poor magnetism or unclear graphics • Double (dual) Notes • Worn, dirty, wet, stained, torn or excessively wrinkled Banknotes • Banknotes having folded corners or edges • Banknotes having the wrong cut dimensions or printing displacement • Returned Banknotes because of incorrect or failed insertion.
Banknote Types Accepted:	WBA Box Type <ul style="list-style-type: none"> • Long side: 120 - 170mm (4.72 - 6.7 in.) • Short side: 62 - 85mm (2.44 - 3.35 in.) Others <ul style="list-style-type: none"> • Long side: 120 - 165mm (4.72 - 6.69 in.) • Short side: 62 - 85mm (2.44 - 3.22 in.)
Ticket:	Standard Specification <ul style="list-style-type: none"> • Read code interleaved: 2 of 5 • Narrow Bar: 0.5mm-0.6mm (0.019-0.023 in.) • Wide Bar to Narrow Bar ratio = 3:1 • Characters: 18 Characters • Print Position: Middle (Divides a Ticket equally from the left, right, top and bottom of the Ticket's center) • Print Width: Wider than 10mm (0.39 in.)
Insertion Direction:	Banknote: Four-way Ticket: Two-way (Barcode facing Upward)
Processing Speed*:	Approximately 2 seconds (from Banknote insertion to Vend Signal output) Approximately 5 seconds (from Banknote insertion to Vend Signal output)
Validation Method:	Optical (6 Illumination, [Transmissive/Reflective]) and Magnetic
Diagnostic Indicators:	External LED (Green/Red)
Escrow:	1 Note
Anti-stringing Mechanism:	Pull-Back (PB) Unit (Anti-pullback Mechanism - JCM Patented)
Cash Box Capacity:	Cash Box: 500, 900, or 1200 notes Intelligent Cash Box (ICB): 500 or 900 Notes
Interface †:	UBA-10/11/12 <ul style="list-style-type: none"> • Photo-Coupler Isolation • RS232C UBA-14‡ and UBA-24 <ul style="list-style-type: none"> • USB (USB Specification Rev. 2.0 Compliance) (Full Speed/12Mbps) • Photo-Coupler Isolation

*. Excluded Host Communication time lag (Power Supply: +12V DC, Temperature: 25° C ±5° C).

†. Contact the closest JCM representative for detailed communication specifications.

‡. The UBA-14 model requires an optional circuit board to support RS-232C interface.

ENVIRONMENTAL SPECIFICATIONS (COMMON IN UBA-1X AND 2X SERIES)

Table 1-9 UBA Environmental Specification

Operating Temperature:	+5°C to +50°C (41°F to 122°F)
Storage Temperature:	-20°C to +60°C (-4°F to 140°F)
Relative Operating Humidity:	30% to 85% RH (non-condensed)
Relative Storage Humidity:	30% to 85% RH (non-condensed)
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

ELECTRICAL SPECIFICATIONS (COMMON IN UBA-1X AND 2X SERIES)

Table 1-10 UBA Electrical Specification

	Standard Circuit Board	24V DC to 13.5 V DC Conversion Circuit Board (Optional)*
Supply Voltage:	12V DC -5%, +15% (Greater than 4.0A)	24V DC ±5% (Greater than 2.7A)
Current Consumption:	Standby = 300mA Operation = 1.6A	Standby = 150mA Operation = 1.0A

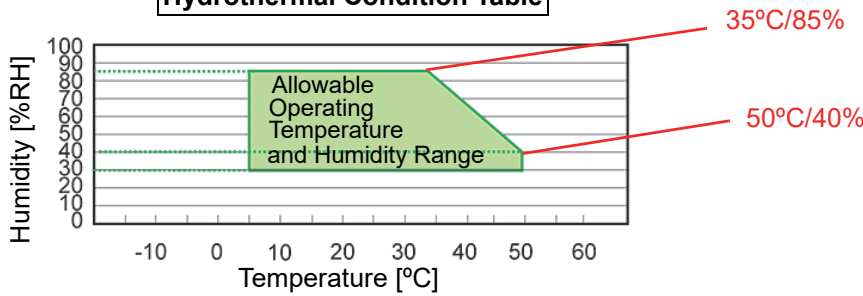
*. The output voltage of the optional Circuit Board is 13.5V DC.

STRUCTURAL SPECIFICATIONS (COMMON IN UBA-1X AND 2X SERIES)

Table 1-11 UBA Structural Specification

Weight:	UBA-1x-SU and UBA-2x SU; Approximately 4.0kg (8.81lbs) UBA-1x-SH; Approximately 6.0kg (13.23lbs)
Mounting:	Horizontal
Outside Dimensions:	See "Outside Dimensions" on page 1-11 of this Manual.

Hydrothermal Condition Table



Outside Dimensions

UBA-1x SERIES UNIT OUTSIDE DIMENSIONS

Figure 1-9 illustrates the UBA-1x Series Complete Unit Dimensions with a Standard Cash Box.

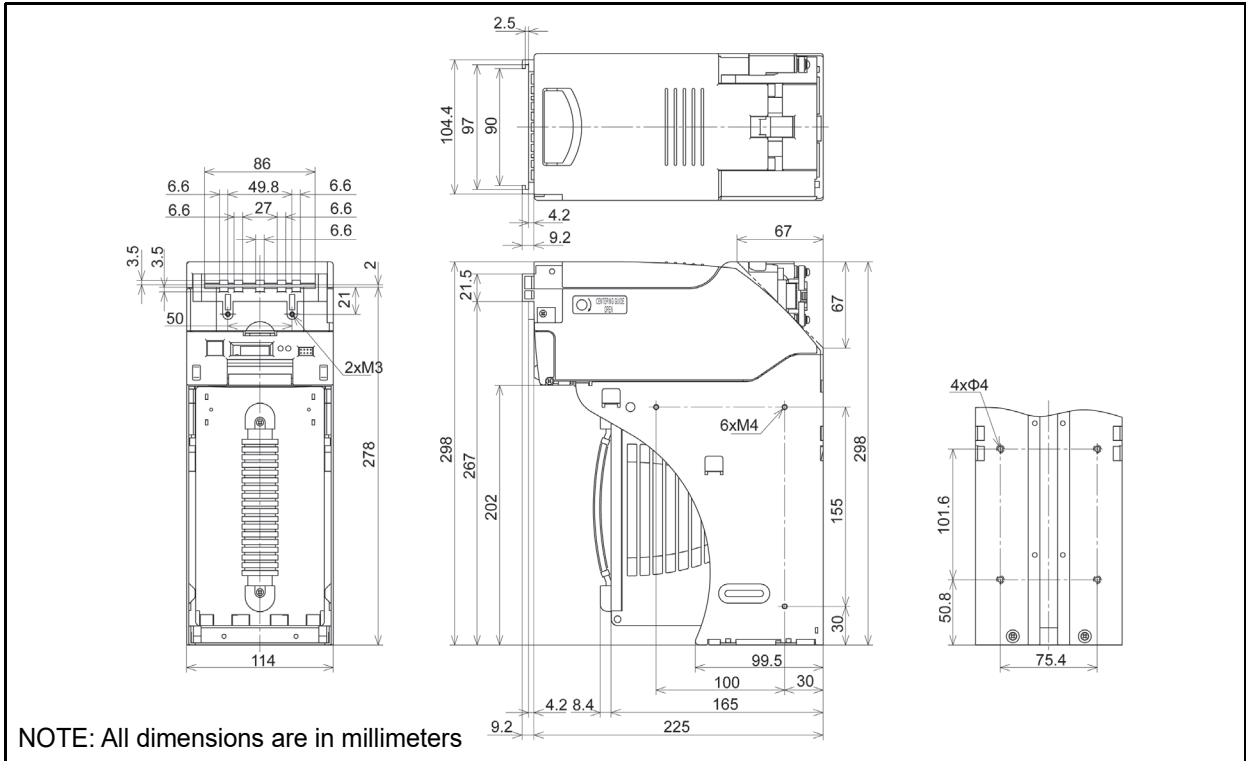


Figure 1-9 UBA-1x Series Unit Dimensions with Standard Cash Box

Figure 1-10 illustrates the UBA-1x Series Complete Unit Dimensions with a Standard Cash Box and Bezel.

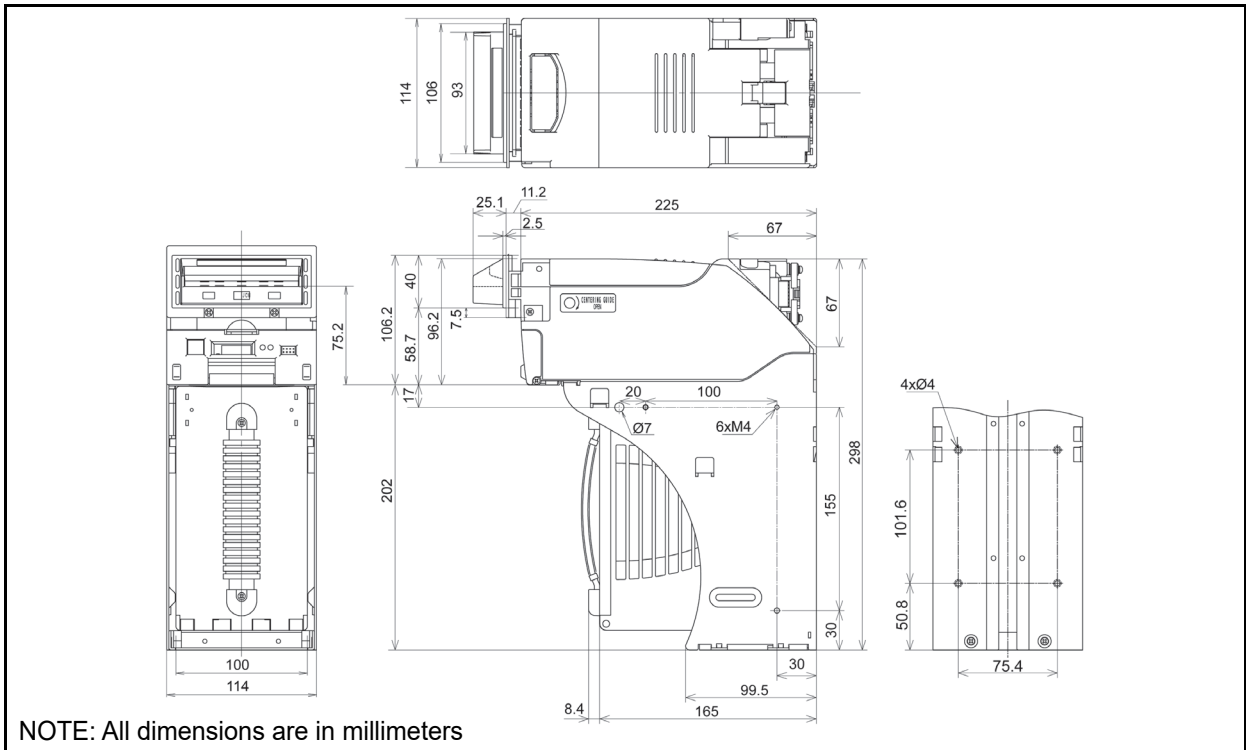


Figure 1-10 UBA-1x Series Unit Dimensions with UBA Bezel

UBA-1x Series Unit Outside Dimensions (Continued 1)

Figure 1-11 illustrates the UBA-1x Complete Unit Dimensions with a Standard Intelligent Cash Box (ICB) and Bezel..

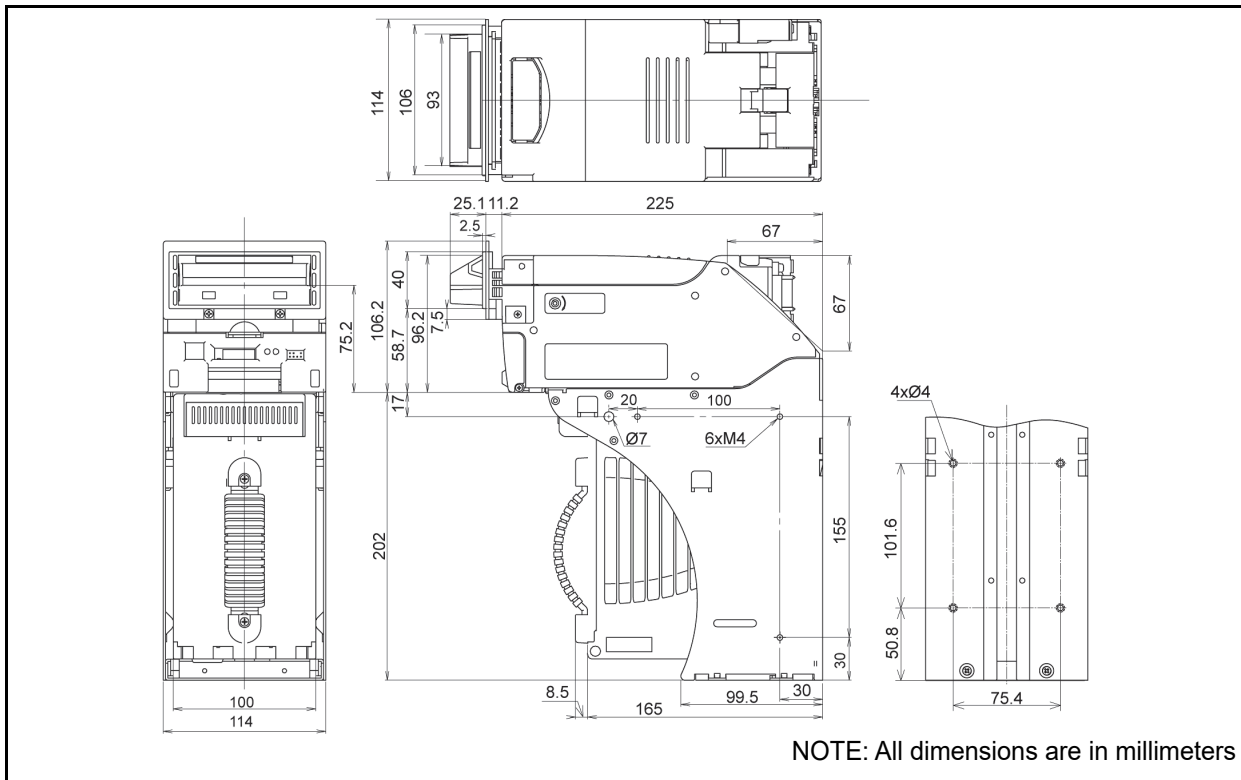


Figure 1-11 UBA-1x Series Unit Dimensions with Standard Intelligent Cash Box and Bezel

Figure 1-12 illustrates the UBA-1x Series Complete Unit Dimensions with a Large Cash Box or Large Intelligent Cash Box, and Bezel.

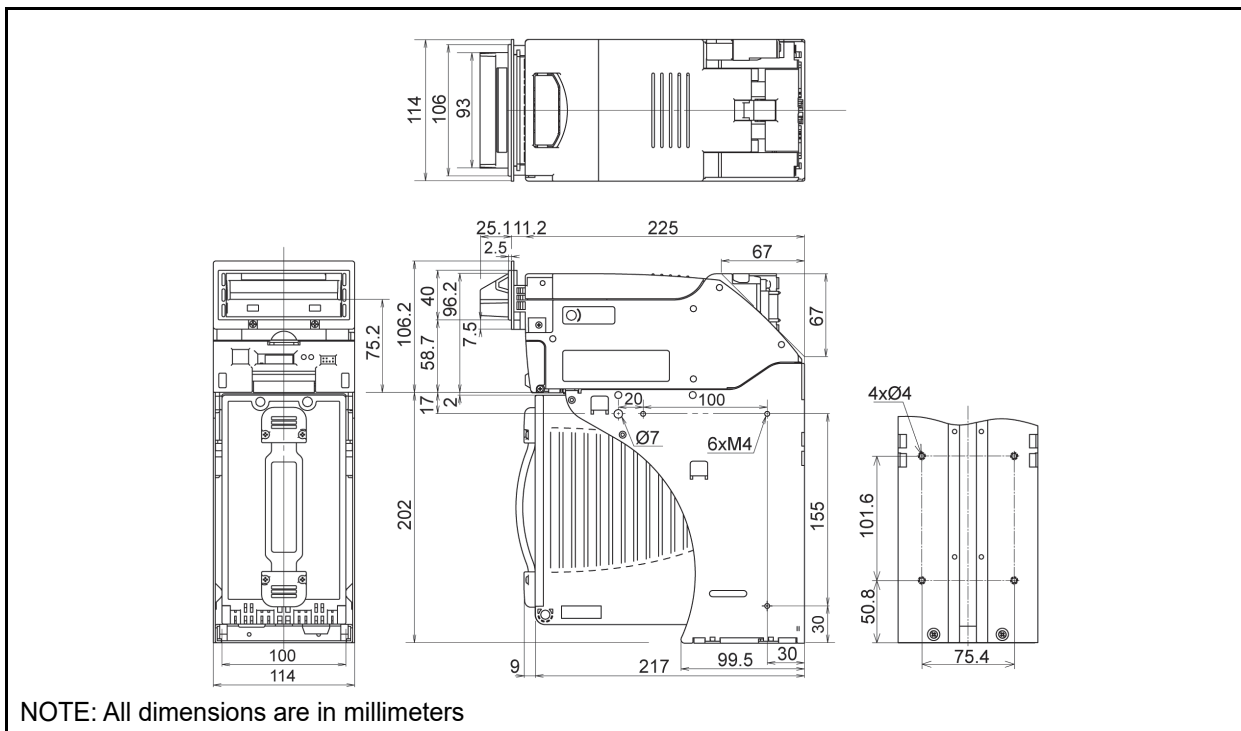


Figure 1-12 UBA-1x Series Unit Dimensions with Large Cash Box/Intelligent Cash Box and Bezel

UBA-1x Series Unit Outside Dimensions (Continued 2)

Figure 1-13 illustrates the UBA-1x Series Complete Unit Dimensions with a 1200 Cash Box and Bezel.

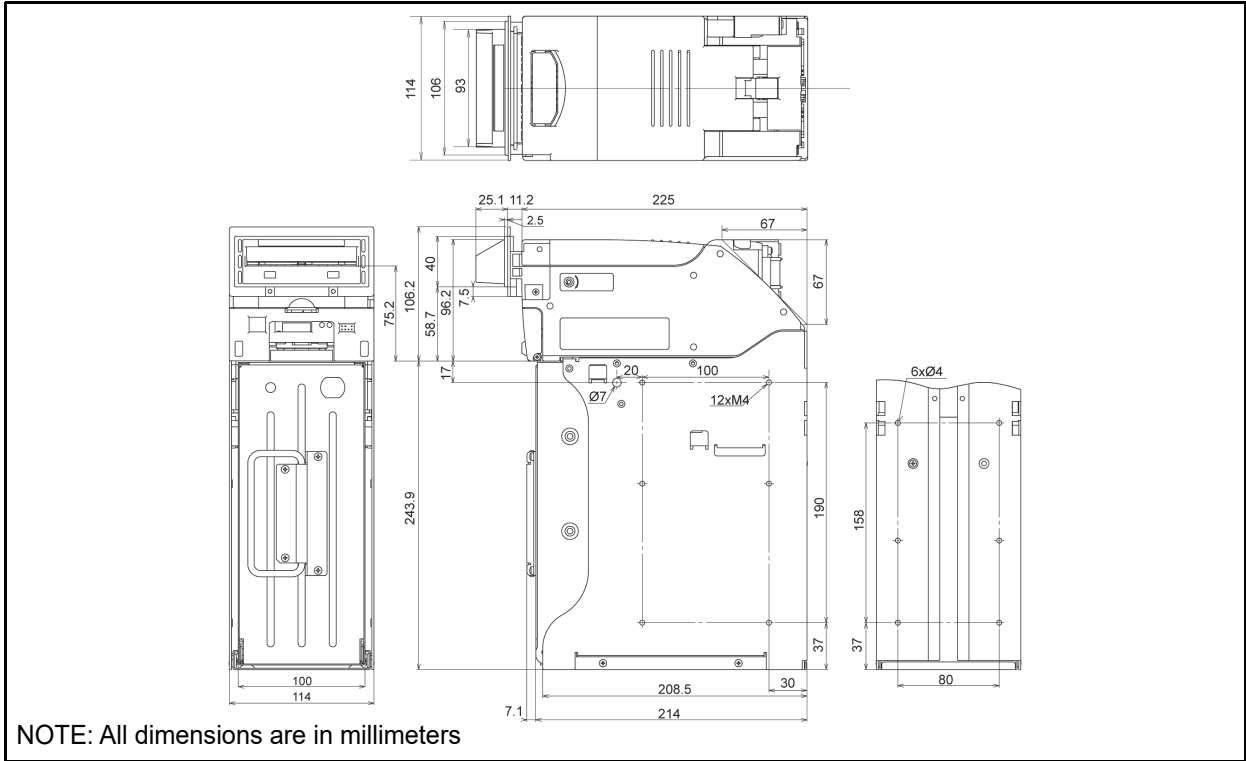


Figure 1-13 UBA-1x Series Unit Dimensions with 1200 Cash Box and Bezel

UBA-2x UNIT OUTSIDE DIMENSIONS

Figure 1-14 illustrates the UBA-2x Series Complete Unit Dimensions with a Standard Cash Box and Bezel.

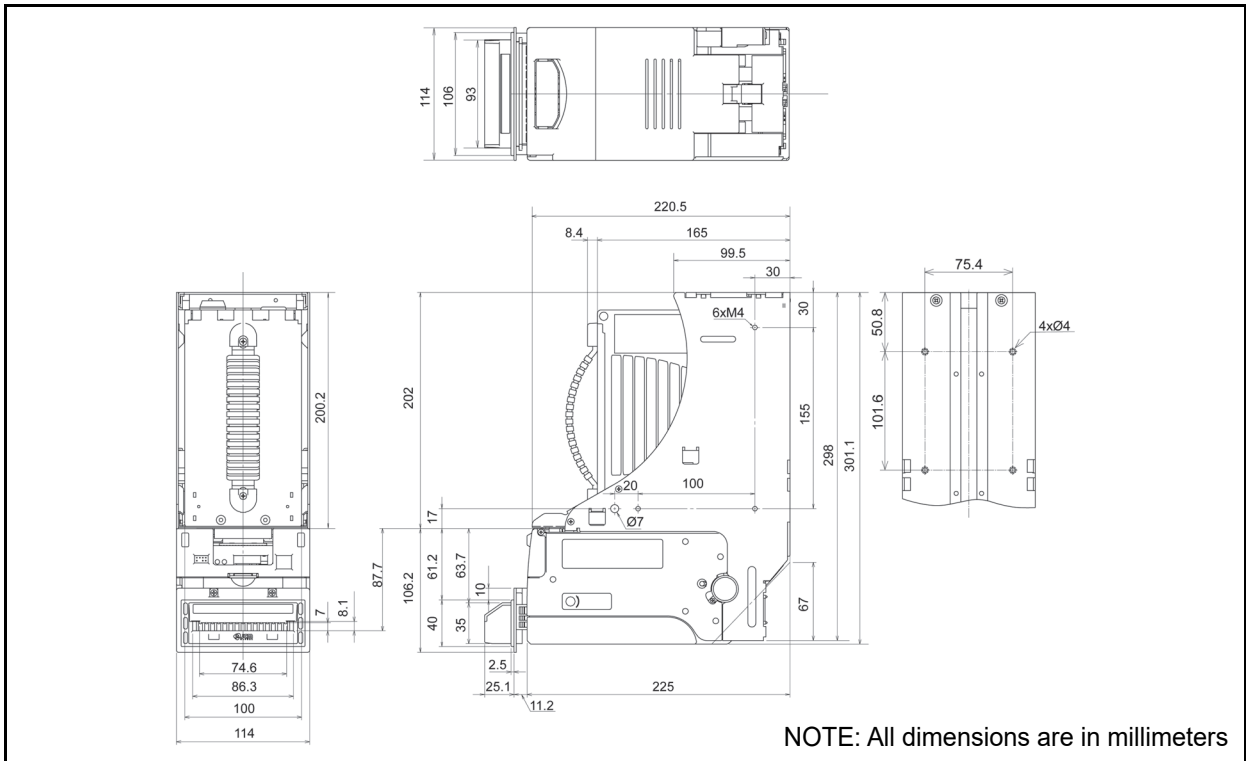


Figure 1-14 UBA-2x Series Unit Dimensions with Standard Cash Box and Bezel

UBA-2x Unit Outside Dimensions (Continued 1)

Figure 1-15 illustrates the UBA-2x Series Complete Unit Dimensions with a Standard Intelligent Cash Box and Bezel.

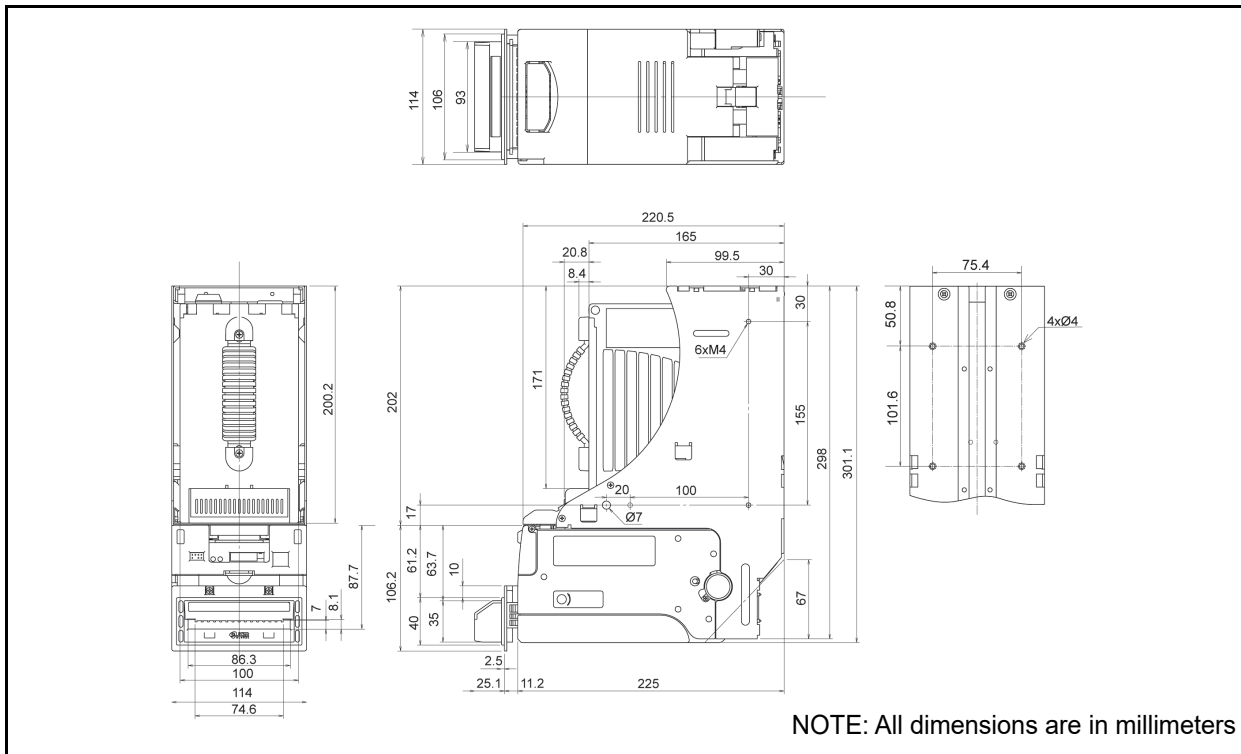


Figure 1-15 UBA-2x Series Unit Dimensions with Standard Intelligent Cash Box and Bezel

Figure 1-16 illustrates the UBA-2x Series Complete Unit Dimensions with an Large Cash Box or Large Intelligent Cash Box, and Bezel.

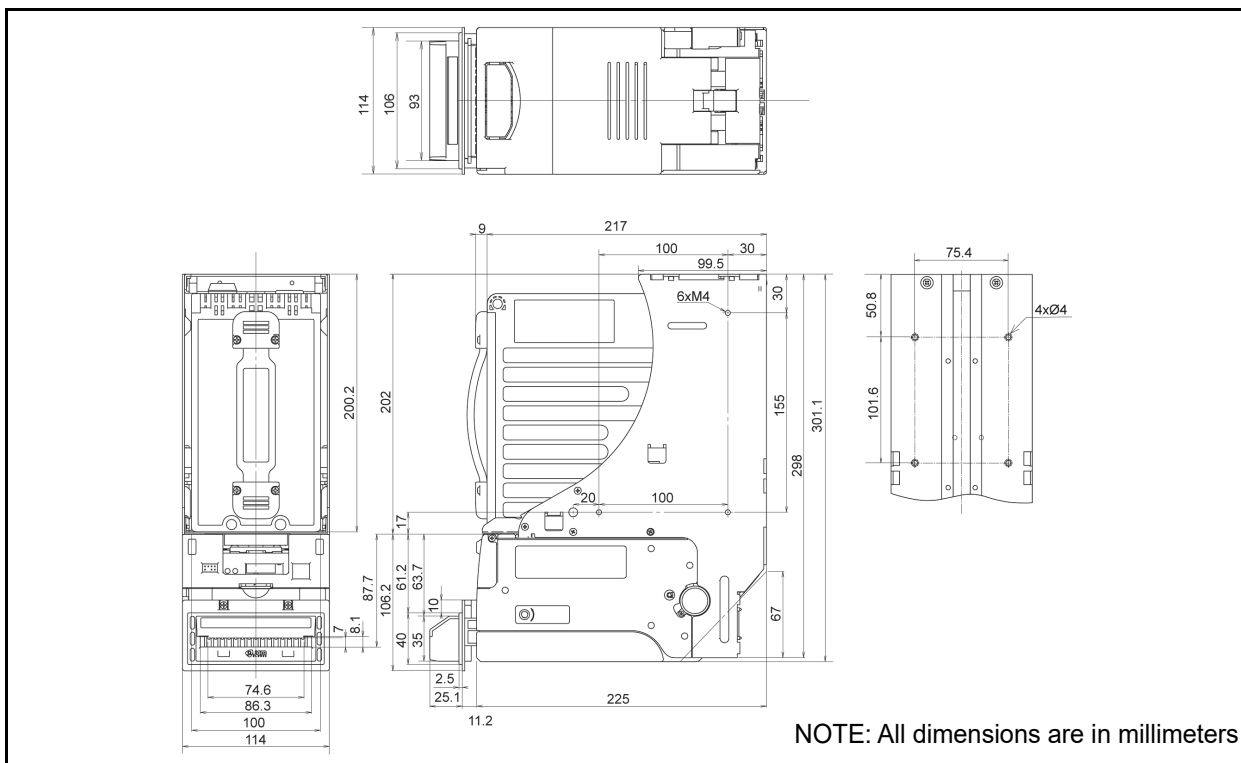


Figure 1-16 UBA-2x Series Unit Dimensions with Large Cash Box/Intelligent Cash Box and Bezel

UBA CASH BOX DIMENSIONS

Figure 1-17 illustrates the UBA Standard Cash Box Dimensions.

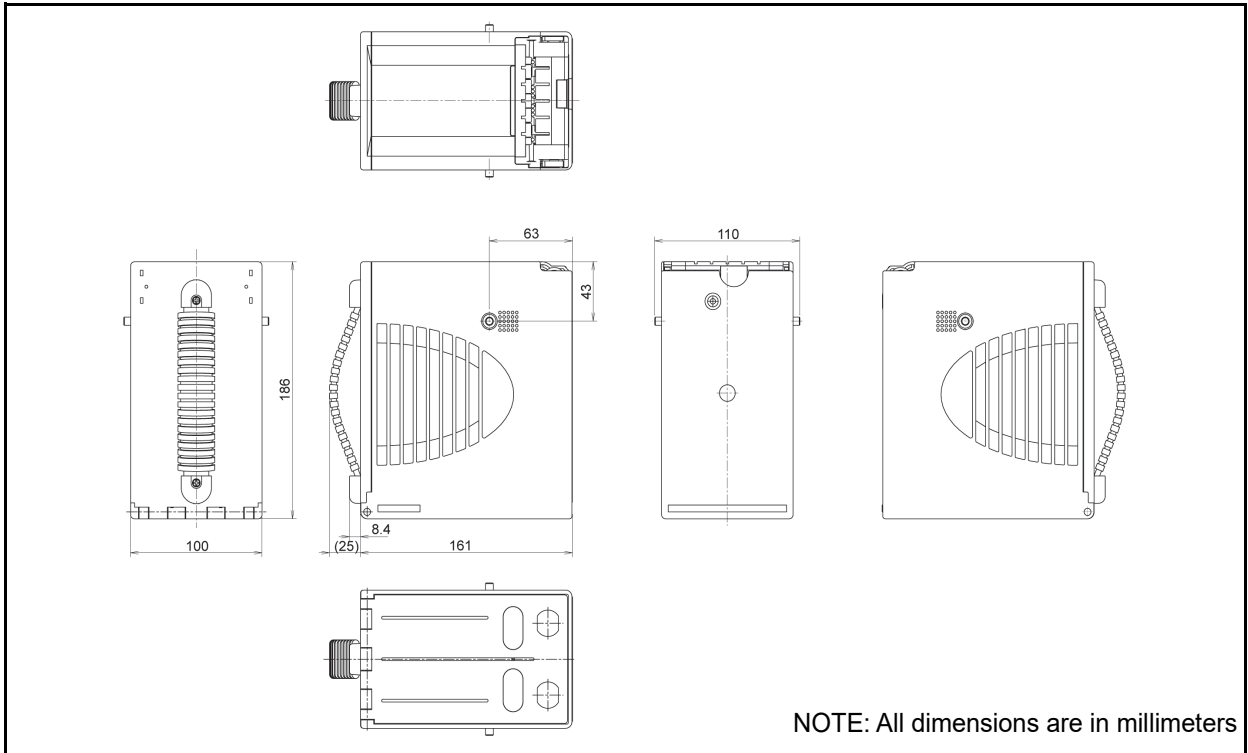


Figure 1-17 UBA Standard Cash Box Dimensions

Figure 1-18 illustrates the UBA Standard Intelligent Cash Box (500 notes) Dimensions.

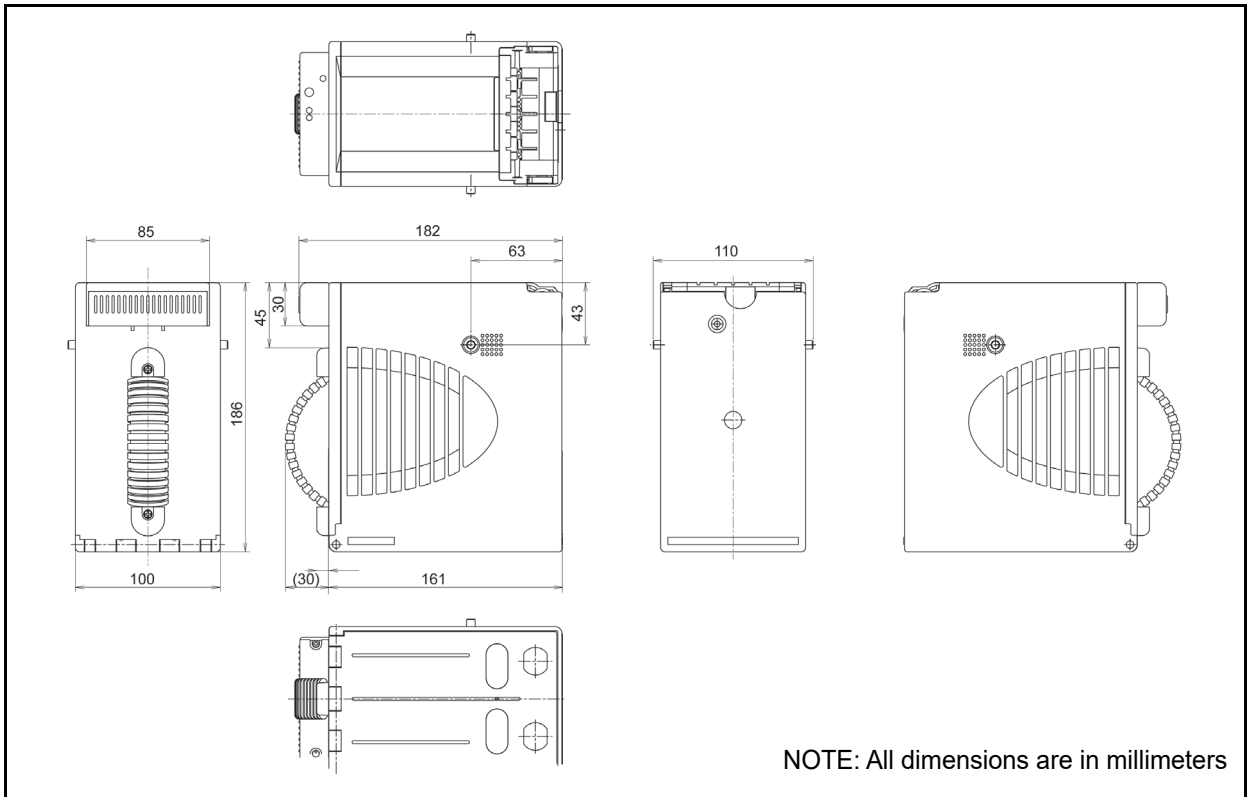


Figure 1-18 UBA Standard Intelligent Cash Box Dimensions

UBA Cash Box Dimensions (Continued 1)

Figure 1-19 illustrates the UBA Large Cash Box and Large Intelligent Cash Box (900 notes) Dimensions.

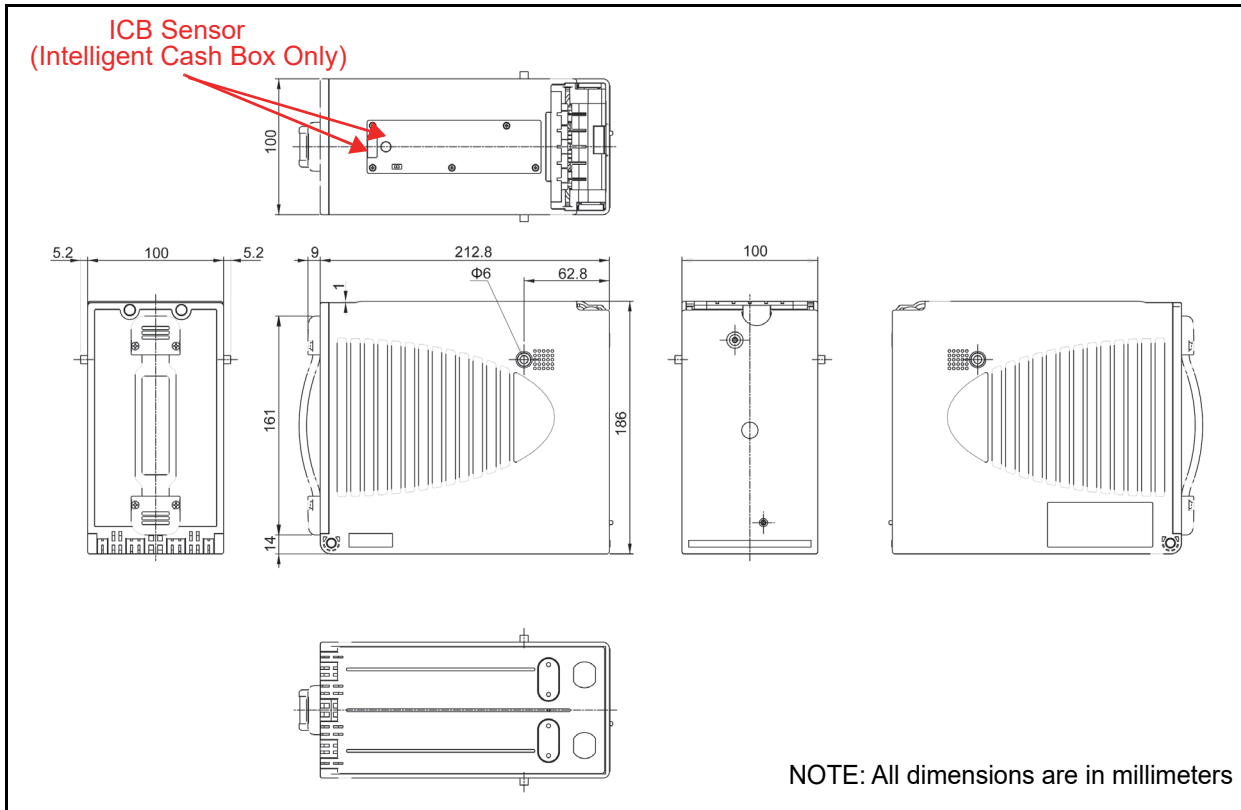


Figure 1-19 UBA Large Cash Box or Intelligent Cash Box Dimensions

Figure 1-20 illustrates the UBA 1200 Cash Box Dimensions.

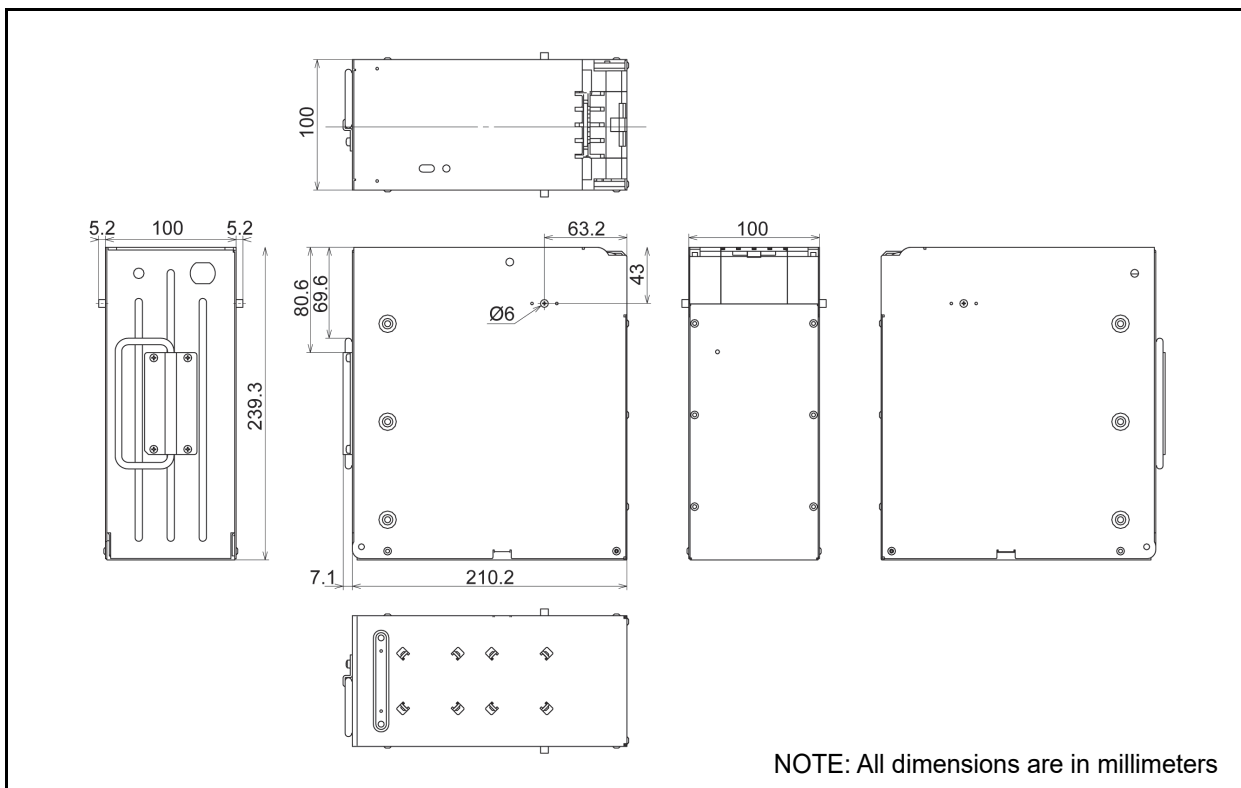


Figure 1-20 UBA 1200 Cash Box Dimensions

Technical Contact Information

To obtain further Technical Information regarding the UBA Unit, please contact the closest office to your location listed below:

Americas

JCM American

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road,
Las Vegas, NV 89119

E-mail: support@jcmglobal.com

Europe, Middle East, Africa & Russia

JCM Europe GmbH

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

Fax: +49-211-530-645-65

Mündelheimer Weg 60
D-40472 Düsseldorf Germany

E-mail: support@jcmglobal.eu

UK & Ireland

JCM Europe (UK Office)

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

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

Luminous House, 300 South Row,
Milton Keynes MK9 2FR,
United Kingdom

E-mail: 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

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

The JCM Website for all locations is:

<http://www.jcmglobal.com>

THIS PAGE INTENTIONALLY LEFT BLANK

UBA™ Series Universal Banknote Acceptor

Section 2

2 INSTALLATION

This section provides installation and operating instructions for the UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit. The information within this Section contains the following features:

- Installation Process
- Lock Installation
- DIP Switch Configurations
- Connector Pin Assignments
- Jumper Configurations
- Preventive Maintenance
- UBA Sensor, Belt and Roller Locations
- Interface Circuit Schematics
- Operational Flowcharts

Installation Process

Perform the following steps to install the UBA Unit:

1. Remove the Power from the Host Machine.
2. Set UBA DIP Switches if required (Figure 2-1). The initial setting is all switches OFF to enable all Banknote denominations.

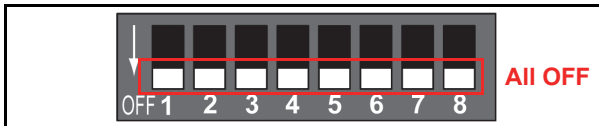


Figure 2-1 Front Panel DIP Switch Block

3. Connect the proper interface harness from the Host machine to the UBA Unit.
4. Install the UBA Unit into the Host Machine using Flat Head M4 Mounting Screws. There are four (4) mounting holes located on the Frame End and three (3) located on each side of the Frame (Figure 2-2 & Figure 2-3).



NOTE: The maximum length of the M4 Screws should be 4mm plus the thickness of the Host Machine's Cabinet or mounting Bracket.

Example: If the UBA Unit is mounted on a Bracket that is 2mm thick, the M4 Flat Head Screws should be no more than 6mm in length.

Be sure that the mounting Screw length does not extend inside the Frame.

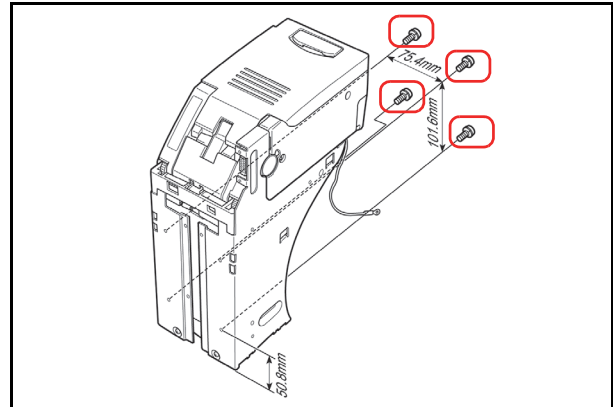
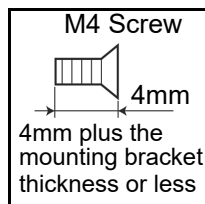


Figure 2-2 M4 Screw Locations (Back)

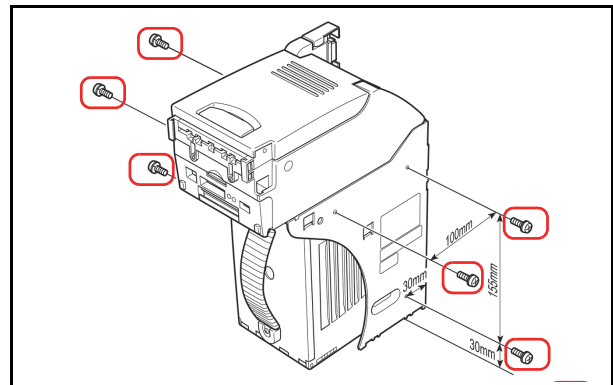


Figure 2-3 M4 Screw Locations (Both Sides)

5. Apply Power to the Unit and verify that the Circuit Board mounted Red Chip LED, located to the left of the DIP Switch Block, is illuminated (ON) (Figure 2-4), and both the Red and Green frame mounted Status LEDs are turned OFF.



NOTE: The Red Chip LED monitors the Centering Mechanism. It is not a power indicator. It will only light if the Centering Arms are in the home position.



Figure 2-4 Front Panel DIP Switch Block

- If the Red Chip LED is OFF, check that the Centering Guides are in the home position.
 - If any of the indicator LEDs are ON, check error codes to fix the problem.
6. Check operation by inserting Banknotes of each denomination to verify that the notes are accepted and properly credited by the Host Machine

Lock Installation

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

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

Dimensions of the Plate Key Lock is illustrated in Figure 2-5.

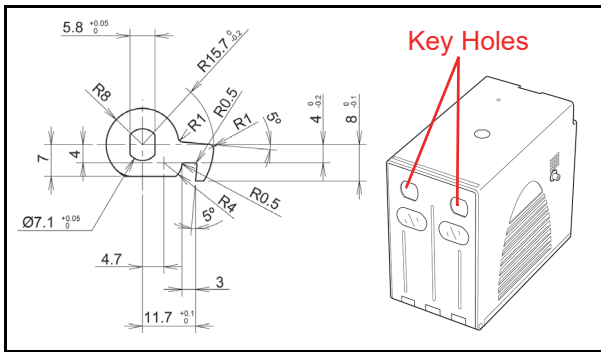


Figure 2-5 Plate Key Lock Dimensions & Location

Choose a Lock that fits a standard 5/8” or 1-1/8” hole dimension format, these are the only formats supported. Use a Key Spacer if required. 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.

NOTE: When two locks are installed, they must rotate in the same direction as illustrated in Figure 2-6.

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, et cetera. 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.*

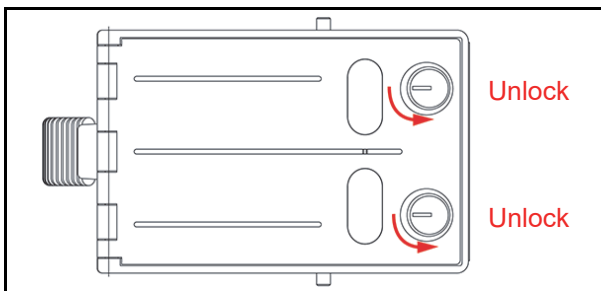


Figure 2-6 Key Lock Rotation Requirement

Bezel Installation

NOTE: Prepare the following Screw:

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

1. Open the Cover (Figure 2-7 a).
2. Slide the Bezel (Figure 2-7 b) on to the Bezel Tabs (Figure 2-7 c₁ & c₂).
3. Secure the Bezel (Figure 2-7 b) using two (2) specified Screws (Figure 2-7 d₁ & d₂).

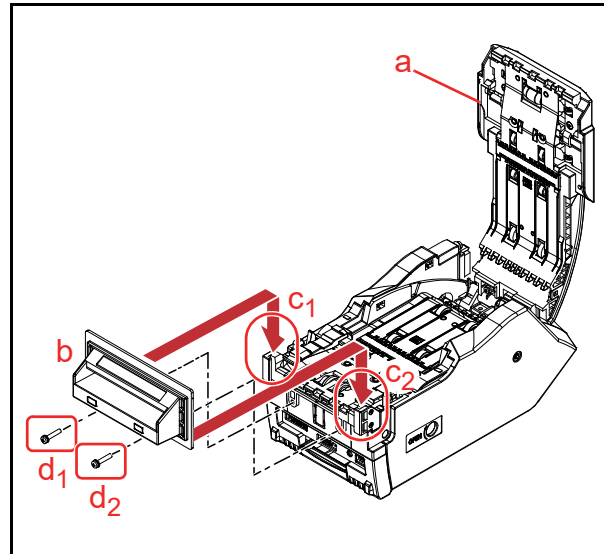


Figure 2-7 Bezel Installation

DIP Switch Configurations

Table 2-1 lists the default DIP Switch configurations for the UBA Front panel DIP Switch Block.

NOTE: DIP Switch settings may vary based on software changes related to the specific country using the UBA Unit.

Table 2-1 UBA Vend Denomination Setting Switches

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

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

Connector Pin Assignments


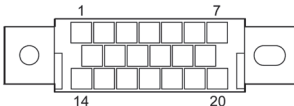
 **NOTE:** Refer to “Jumper Configurations” on page 2-13 to set the correct Interface settings.

Table 2-2 lists the UBA-10/11/12-SS and the UBA-10/11-SH Photo-Coupler and RS232C Interface Pin Assignments.

Table 2-2 UBA-10/11/12-SS and UBA-10/11-SH Photo-Coupler & RS232C Interface Pin Assignments

Rear View



Socket (Transport Unit Side): DRA-20PC-FO (JAE)
 Contact (Transport Unit Side): D02-22-26P-10000 (JAE)
 Socket (Frame Side): DRA-20SC-FO (JAE)
 Contact (Frame Side): D02-22-26S-10000 (JAE)

Pin No.	Signal Name	I/O*	Function
1	+12V (Power)	-	+12V DC Power Supply
2	GND (Power)	-	0V DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Controller
5	+12V (I/F)	-	Interface Power Supply (+12V)
6	RXD	IN	Output Signal Line from Controller to Acceptor
7	GND (I/F)	-	Interface Power Supply (Photo-Coupler, 0V DC)
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND	-	Interface Power Supply (RS232C, 0V DC)
14	LED Power +	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	-	LED Drive Line (Cathode)
19	-	-	No Connection
20	-	-	No Connection

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

CONNECTOR PIN ASSIGNMENTS (CONTINUED 1)

Table 2-3 lists the UBA-14-SS USB Interface Pin Assignments.

Table 2-3 UBA-14-SS USB Interface Pin Assignments

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

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

CONNECTOR PIN ASSIGNMENTS (CONTINUED 2)

Table 2-4 lists the UBA-24-SS/SU USB Interface Pin Assignments.

Table 2-4 UBA-24-SS/SU USB Interface Pin Assignments

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

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

†. No Connection = SS Type. Connected Pin #20 to Pin #13 = SU Type.

CONNECTOR PIN ASSIGNMENTS (CONTINUED 3)

Table 2-5 lists the UBA-14-SS Photo-Coupler Pin Assignments.

Table 2-5 UBA-14-SS Photo-Coupler Pin Assignments

Pin No.	Signal Name	I/O*	Function
1	+12V (Power)	-	+12V DC Power Supply
2	GND (Power)	-	0V DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Controller
5	+12V (I/F)	-	Interface Power Supply (+12V)
6	RXD	IN	Output Signal Line from Controller to Acceptor
7	GND (I/F)	-	Interface Power Supply (Photo-Coupler, 0V DC)
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND	-	Interface Power Supply (RS232C, 0V DC)
14	LED Power +	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	-	LED Drive Line (Cathode)
19	-	-	No Connection
20	-	-	No Connection

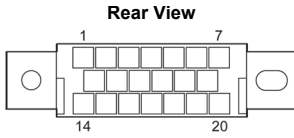
*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

CONNECTOR PIN ASSIGNMENTS (CONTINUED 4)

Table 2-6 lists the UBA-24-SS/SU Photo-Coupler Pin Assignments.

Table 2-6 UBA-24-SS/SU Photo-Coupler Pin Assignments

Pin No.	Signal Name	I/O*	Function
1	+12V (Power)	-	+12V DC Power Supply
2	GND (Power)	-	0V DC Power Supply
3	M.RES	IN	Acceptor Reset Signal Line
4	TXD	OUT	Output Signal Line from Acceptor to Controller
5	+12V (I/F)	-	Interface Power Supply (+12V)
6	RXD	IN	Output Signal Line from Controller to Acceptor
7	GND (I/F)	-	Interface Power Supply (Photo-Coupler, 0V DC)
8	-	-	No Connection
9	-	-	No Connection
10	-	-	No Connection
11	-	-	No Connection
12	-	-	No Connection
13	GND	-	Interface Power Supply (RS232C, 0V DC)
14	LED Power +	-	LED Drive Line (Anode)
15	-	-	No Connection
16	-	-	No Connection
17	-	-	No Connection
18	LED -	-	LED Drive Line (Cathode)
19	-	-	No Connection
20	SU SELECT	IN	SS/SU Selection†



Socket (Transport Unit Side): DRA-20PC-FO (JAE)
 Contact (Transport Unit Side): D02-22-26P-10000 (JAE)
 Socket (Frame Side): DRA-20SC-FO (JAE)
 Contact (Frame Side): D02-22-26S-10000 (JAE)

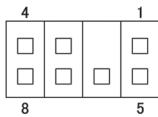
*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

†. No Connection = SS Type. Connected Pin #20 to Pin #13 = SU Type.

Table 2-7 lists the UBA CN13 Bezel Connector Pin Assignments.

Table 2-7 UBA CN13 Bezel Connector Pin Assignments

Pin No.	Signal Name	I/O*	Function
1	-	-	No Connection
2	-	-	No Connection
3	-	-	No Connection
4	-	-	No Connection
5	+12V (Power)	-	+12V DC Power Supply (from UBA)
6	GND (Power)	-	0V DC Power Supply (from UBA)
7	LED Power +	-	LED Drive Line (Anode)
8	LED -	-	LED Drive Line (Cathode)



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

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

Connector Pin Assignments for Optional Conversion Boards

Table 2-8 lists the CN2 Connector Pin Assignments for the 24V/13.5V + RS232C and the RS232C Conversion Board.

Table 2-8 CN2 Connector Pin Assignments

Pin No.	Signal Name	I/O*	Function
1	M.RES	IN	Acceptor Reset Signal Line
2	TXD	OUT	Output Signal Line from Acceptor to Controller
3	RXD	IN	Input Signal Line from Controller to Acceptor
4	GND (I/F)	-	Interface Power Supply (0V DC)

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

Table 2-9 lists the Relay Connector Pin Assignments for the 24V/13.5V Conversion Harness (RS232C, Photo-Coupler and USB)

Table 2-9 Relay Connector Pin Assignments

Pin No.	Signal Name	I/O*	Function
1	+24V (Power)	-	+24V DC Power Supply
2	+12V (Power)	-	+12V DC Power Supply
3	GND (Power)	-	0V DC Power Supply

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

Table 2-10 lists the CN1 Connector Pin Assignments for the cc-Talk Conversion Board.

Table 2-10 CN1 Connector Pin Assignments

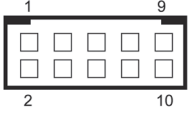
Pin No.	Signal Name	I/O*	Function
1	-12V	-	Interface Power Supply (12V DC)
2	GND (I/F)	-	Interface Power Supply (0V DC)
7	cc-Talk +	IN/OUT	Input Signal Line from Acceptor to Controller
8	cc-Talk -	-	Connect to GND
10	RESET	IN	Acceptor Reset Signal Line

*. I/O (Input/Output) Terminal as viewed from outside the Banknote Acceptor.

Connector Pin Assignments of Optional USB Connector


Figure 2-11 lists the Optional USB Connector Pin Assignments.

Table 2-11 Optional USB Connector Pin Assignments

	<p>Optional 24V DC Connector & USB Converter Header: LY20-10P-DLT1-PSE (JAE) Housing: LY10-DC10 (JAE) Contact Type: LY10-C2-5-10000 (JAE) Recommended Wires: Pin No. 1 & 6 = UL1061 AWG #26; Pin No. 4 & 5 = UL2547 AWG #26; Pin No. Nos. 7-10 = UL2854 AWG #28 LY10-DC10 (JAE) (2mm, 5x2)</p>
Pin No.	Signal Name
1	+24V DC Input Power
2	+12V DC Input Power
3	GND Power
4	+12V (+13V) DC Input Power
5	GND Power
6	+12 (+13V) DC Input Power
7	V Bus
8	- Data
9	+ Data
10	GND

Optional Conversion Boards and External Harnesses

An optional Conversion Board can be installed in a UBA Unit.

 **NOTE:** Refer to “Model Descriptions” on page 1-2 for the available model types.

OPTIONAL CONVERSION BOARD TYPE 1: 24V/13.5V DC AND RS232C CONVERSION BOARD

This Board will allow a 24V DC to 13.5V DC voltage conversion and RS232C Interface communications capabilities.

OPTIONAL CONVERSION BOARD TYPE 2: RS232C CONVERSION BOARD

This board allows communication with an RS232C Interface.

OPTIONAL CONVERSION BOARD TYPE 3: CC-TALK CONVERSION BOARD

This Board allows communication with a cc-Talk Interface.

OPTIONAL CONVERSION BOARD TYPE 4: 24V/13.5V DC AND USB CONVERSION BOARD


This Board will allow a 24V DC to 13.5V DC voltage conversion and USB Interface communications capabilities.

Table 2-12 Optional Conversion Board and External Harness Support Matrix

Model	External Harness Type		Optional Conversion Board				
			Type 0	Type 1	Type 2	Type 3	Type 4
			No Optional Conversion Board	24V/13.5V DC + RS232C	RS232C	cc-Talk	24V/13.5V DC + USB
UBA-10/11/12-SS UBA-10/11-SH	1	Standard Harness	✓	N/A	N/A	N/A	N/A
	2	OEM Harness	✓	N/A	N/A	N/A	N/A
	3	24V/13.5V Conversion Harness (Photo-Coupler)	N/A	✓	N/A	N/A	N/A
	4	24V/13.5V Conversion Harness (RS232C)	N/A	✓	N/A	N/A	N/A
	9	cc-Talk I/F Conversion Harness (ID-0E3)	N/A	N/A	N/A	✓	N/A
UBA-14/24-SS	5	Standard (USB)	✓	N/A	N/A	N/A	N/A
	6	OEM Harness (USB)	✓	N/A	N/A	N/A	N/A
	7	24V/13.5V Conversion Harness (Photo-Coupler, USB)	N/A	✓	N/A	N/A	N/A
	8	24V/13.5V Conversion Harness (RS232C, USB)	N/A	✓	✓	N/A	N/A
	9	cc-Talk I/F Conversion Harness (ID-0E3)	N/A	N/A	N/A	✓	N/A
	A	24V/13.5V Conversion Harness (USB)	N/A	N/A	N/A	N/A	✓
UBA-24-SU	5U	Standard SU Harness (USB)	✓	N/A	N/A	N/A	N/A
	6U	OEM SU Harness (USB)	✓	N/A	N/A	N/A	N/A

OPTIONAL CONVERSION CIRCUIT BOARD INSTALLATION PROCEDURE

To install an Optional Conversion Board, proceed as follows:

 **NOTE:** When installing any Optional Conversion Board into a UBA Unit, set the CPU Board Jumper Plugs to "Photo-Coupler" regardless of the interface type desired. Figure 2-14 and Figure 2-13 for proper Jumper setting conditions for the Board being used.

1. Press down on the UBA® Unit's Front Release Latch and slide the Acceptor Unit forward and off the Transport Unit (Figure 2-8).
2. Carefully position the Optional UBA 10/11/12 or UBA 14/24 Conversion Board, and insert the M.2.6x6 Binding/Self Tightening Phillips mounting Screws into the two Circuit Board Mounting Holes (Figure 2-9 a₁ & a₂).
3. Tighten each Mounting Screws using a Phillips Head Screw Driver to secure the Circuit Board in place on the Frame Assembly (Figure 2-9 b).

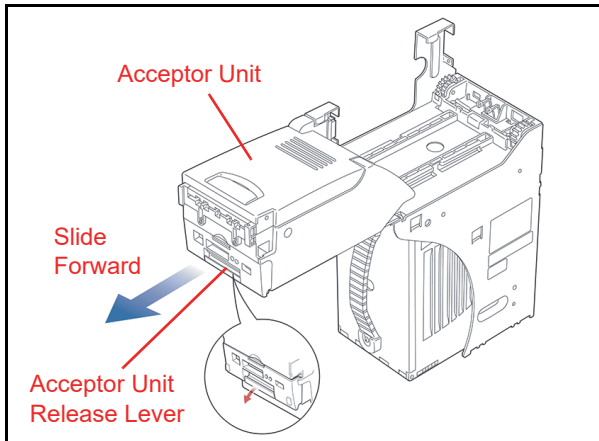


Figure 2-8 Remove Acceptor Unit

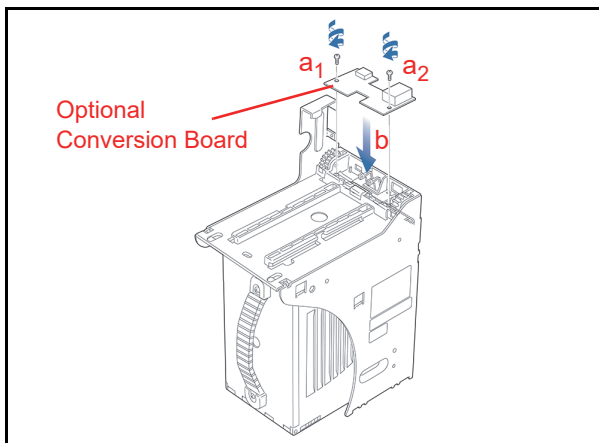


Figure 2-9 Installing Optional Circuit Board

EXTERNAL INTERFACE CONNECTION STRUCTURE FOR OPTIONAL CONVERSION BOARDS

Figure 2-10 through Figure 2-12 illustrate the External Interface Connection Structure for an Optional Conversion Boards. Refer to “Connector Pin Assignments for Optional Conversion Boards” on page 2-8 and “Optional Conversion Boards and External Harnesses” on page 2-10 for further Connector Pin Assignment and Harness information.

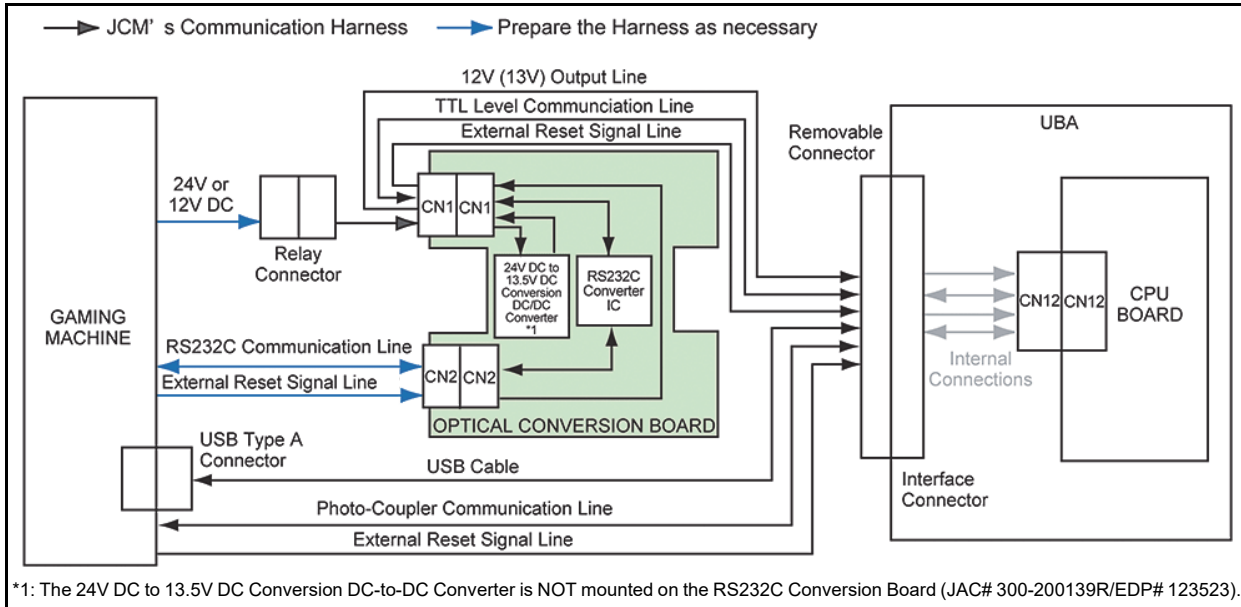


Figure 2-10 24V/13.5V DC + RS232C and RS232C Conversion Boards

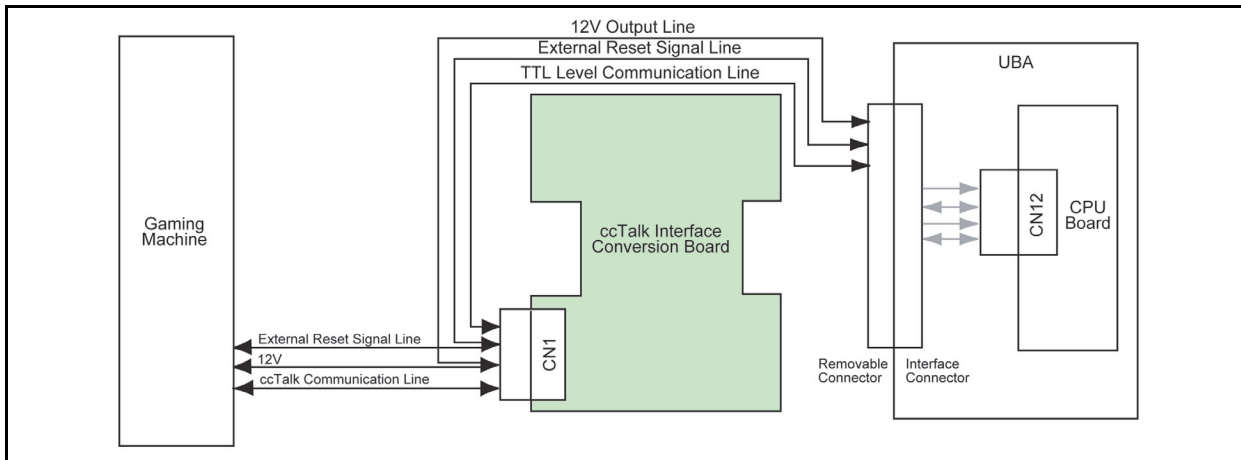


Figure 2-11 ccTalk Conversion Board

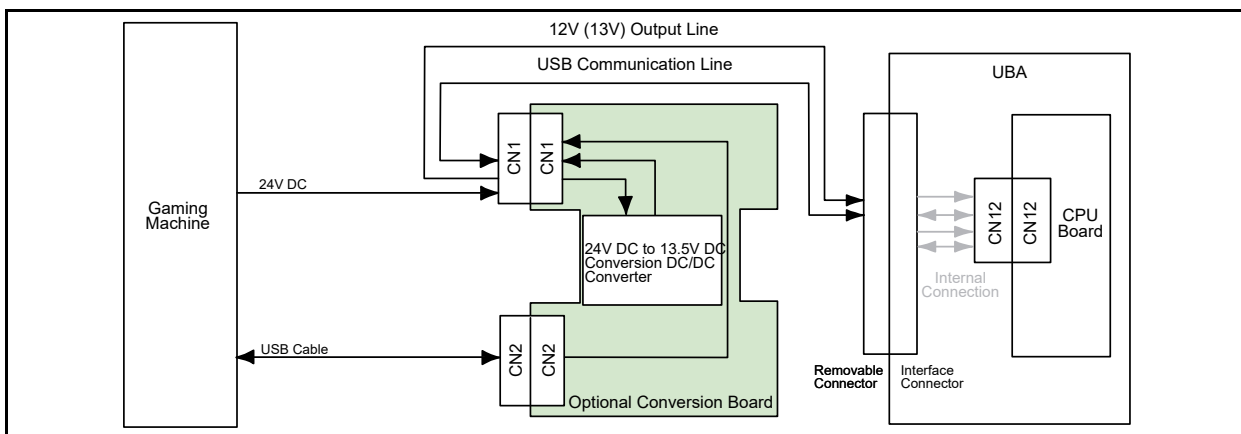


Figure 2-12 24V/13.5V DC + USB Conversion Board

Jumper Configurations

The 5 Volt DC UBA CPU Board contains three (3) Jumper Plugs. Photo-Coupler Isolation and/or RS232C selection is configured by these Jumpers. All three (3) Jumpers must be configured to the same setting (Figure 2-13).

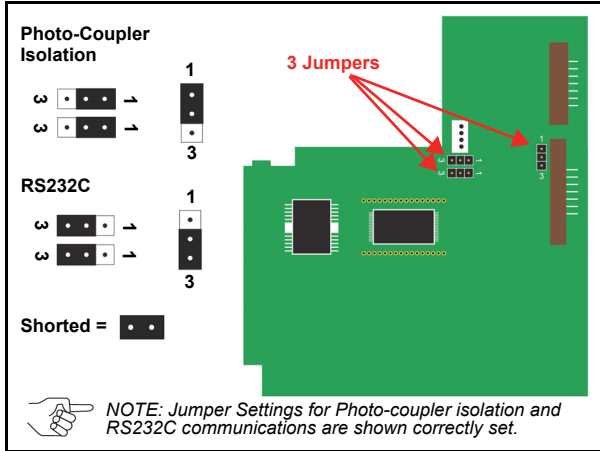


Figure 2-13 5V DC CPU Board Bottom View

The 3.3 Volt DC UBA CPU Board also contains three (3) Jumper Plugs, but they are adjacent to one another. Photo-Coupler Isolation and/or RS232C selection is also configured by these Jumpers. All three (3) Jumpers must be configured to the same setting (Figure 2-14).

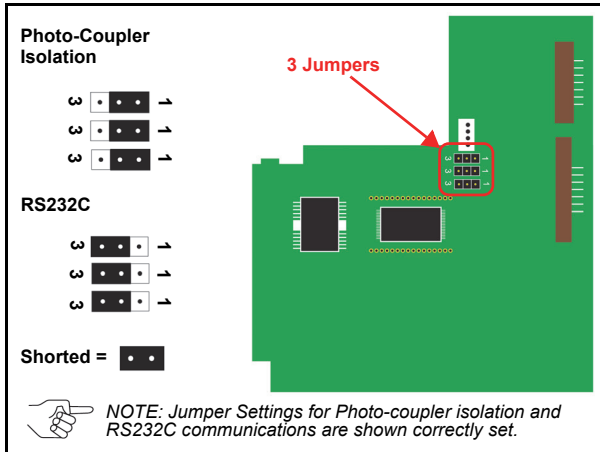


Figure 2-14 3.3V DC CPU Board Bottom View

Preventive Maintenance

RETRIEVING BANKNOTES

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

1. Pull the Cash Box Handle to separate the Cash Box from the Frame Housing

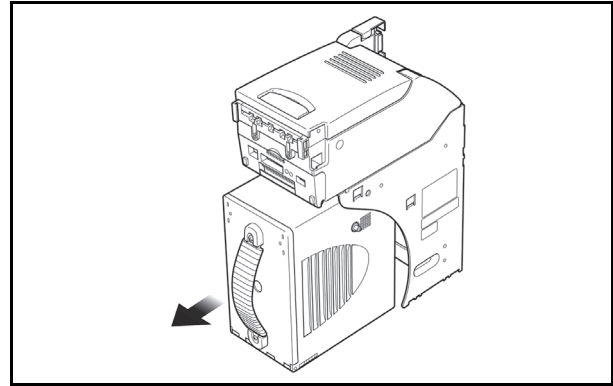


Figure 2-15 Retrieving Banknotes

2. Press thumb on the Acceptor Head while pulling the Cash Box Handle forward to obtain better leverage during the extraction.
3. When a lock is installed on a Cash Box, use the appropriate key to unlock the Cash Box first.
4. Open the Cash Box door and retrieve the Banknotes as illustrated in Figure 2-16.

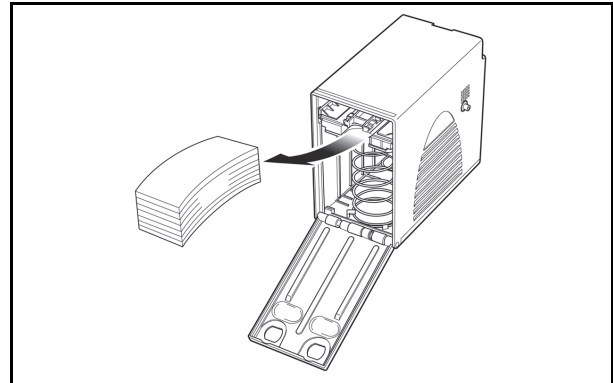


Figure 2-16 Retrieving Banknotes

CLEARING A BANKNOTE JAM

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

1. Pull out on the Upper Guide Access Lever located on the top of the Acceptor to open the Unit's Cover (Figure 2-17 a) and
2. Remove the jammed Banknote (Figure 2-17 b₁ & b₂).
3. If the Banknote jam location is not evident, pull on the Cash Box Handle to remove it from frame (Figure 2-17 c).
4. Remove the jammed Banknote found there (Figure 2-17 d₁ & d₂).

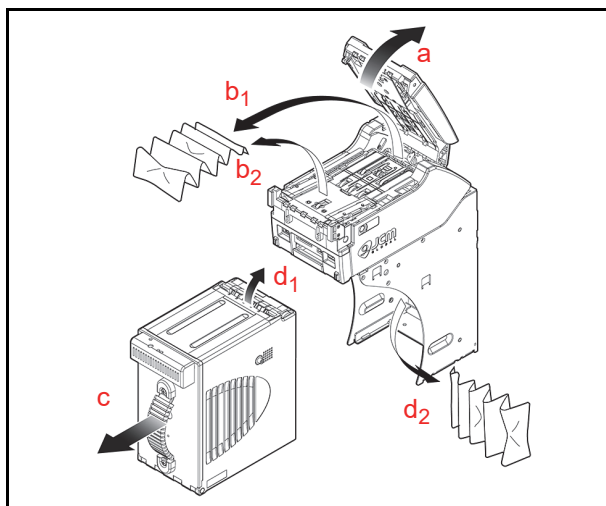


Figure 2-17 Clearing an Banknote Jam
Opening the UBA Centering Mechanism

If a Banknote jam occurs when the Centering Mechanism is closed, the cover will not open. To un-jam the unit, recycle power to the Unit and allow it to reset.

NOTE: If recycling the power fails to clear the Banknote jam, use a 2.5mm Hex Nut Driver (JAC Part# 501-000240R) to rotate the Centering Guide Shaft out of the way, then open the Top Cover and remove the jam (Figure 2-19).

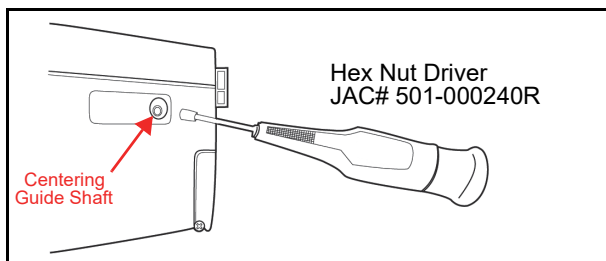


Figure 2-18 Opening Centering Mechanism

CLEANING PROCEDURE

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

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

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

Sensor and Roller Cleaning Procedure

To clean the UBA Unit, proceed as follows:

1. Turn the UBA Unit and Host Machine's Power Supply's **OFF**.
2. Open the UBA Upper Guide.
3. Clean the appropriate path and Lens of each Sensor (Figure 2-21 areas "a" through "q" and

the corresponding descriptions listed in Table 2-13 to locate each Sensor that require cleaning).

⚠ Caution: Do not use Alcohol, thinner or citrus based products for cleaning any surfaces. The Lenses can become clouded by chemical effect 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.

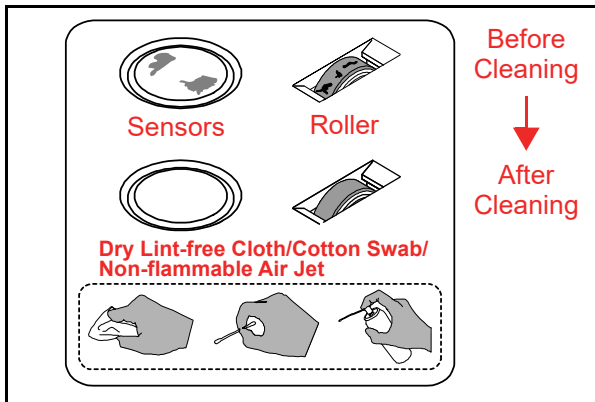


Figure 2-19 Sensor Cleaning

AVAILABLE CLEANING CARD

A second generation JCM Waffletechnology Banknote Acceptor Cleaning card is now available (JAC Part No. 501-000180R, Manufacturer's Part No. KWJCM-B2B15M). The cleaning card is designed to be used as a supplemental part of a Preventive Maintenance program to help in reducing dirt and paper dust build-up within a unit. This will optimize performance between regular Preventive Maintenance intervals. This is the only cleaning card authorized for use on the UBA Acceptor (Figure 2-20).

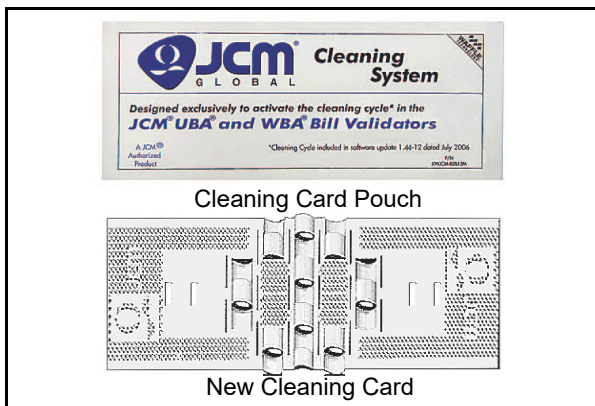


Figure 2-20 JCM Waffletechnology Cleaning Card

UBA Sensor, Belt and Roller Locations

Figure 2-21 illustrated the various UBA Sensor, Belt and Roller cleaning locations, and Table 2-13 respectively lists the UBA Sensor Type Cleaning Methods.

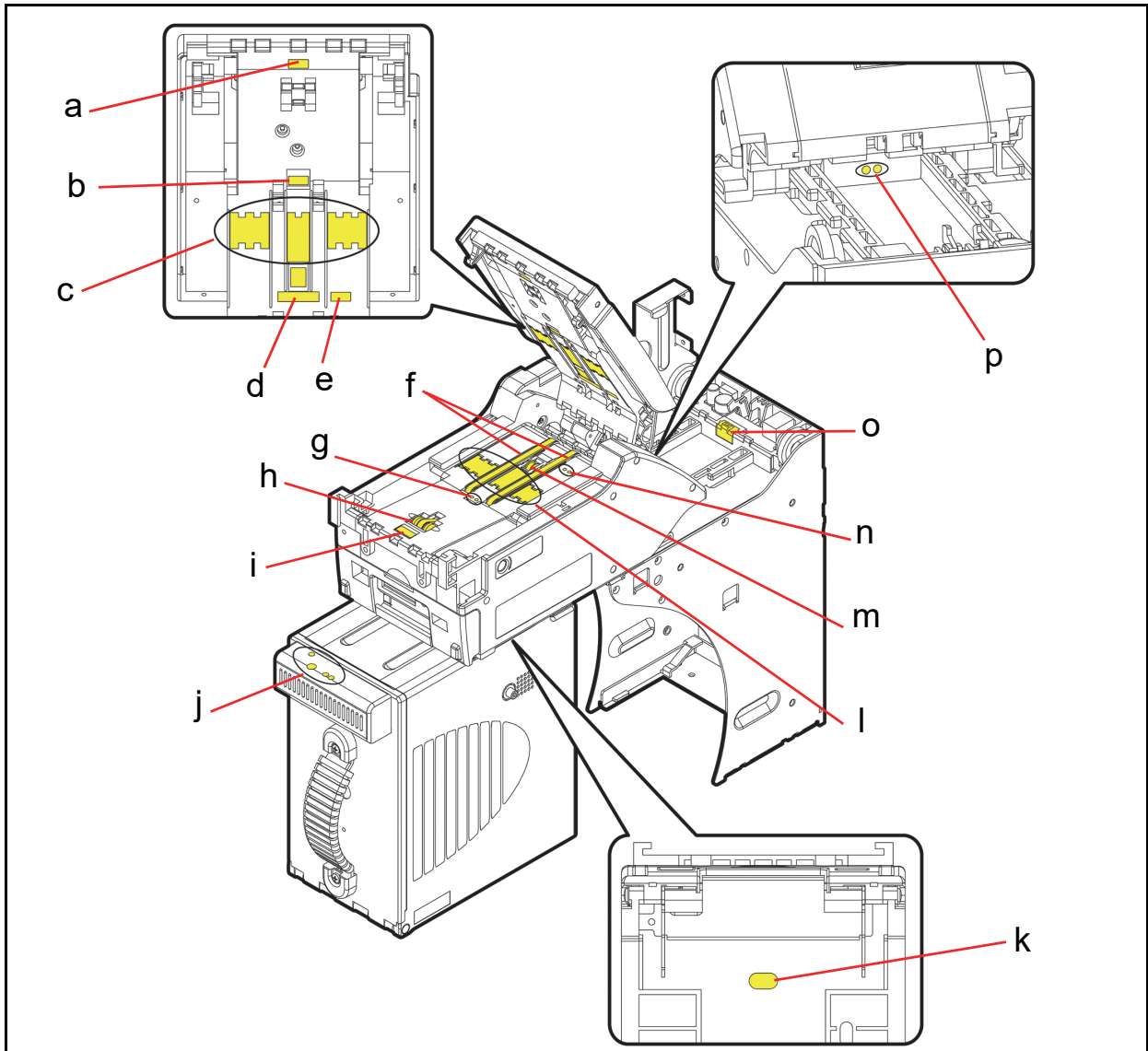


Figure 2-21 UBA Sensor Cleaning Locations

Table 2-13 UBA Sensor Type Cleaning Methods

Sym.	Sensor Type	Cleaning Method	Sym.	Sensor Type	Cleaning Method
a	Entrance Sensor Prism	Wipe clean using a lint free cloth OR Blow clean using non-flammable Compressed Air.	i	Entrance Sensor	Wipe clean using a lint free cloth OR Blow clean using non-flammable Compressed Air.
b	Centering Sensor Prism		j	ICB Sensor (Cash Box)	
c	Validation Sensor (Upper) * The Magnetic Sensor and the Barcode Sensor are included.		k	ICB Sensor (Unit)	
d	UV Sensor		l	Validation Sensor (Lower) * The Barcode Sensor is included for the UBA-24 Type.	
e	PB Sensor Prism		m	Transport Roller	
f	Transport Belt		n	PB Sensor	
g	Centering Sensor		o	Exit Sensor Prism	
h	Intake Belt		p	Exit Sensor	

THIS PAGE INTENTIONALLY LEFT BLANK

Interface Circuit Schematics

UBA BEZEL LED CONTROL CIRCUIT SCHEMATIC

Figure 2-22 illustrates the Standard Bezel LED Control Schematic Diagram

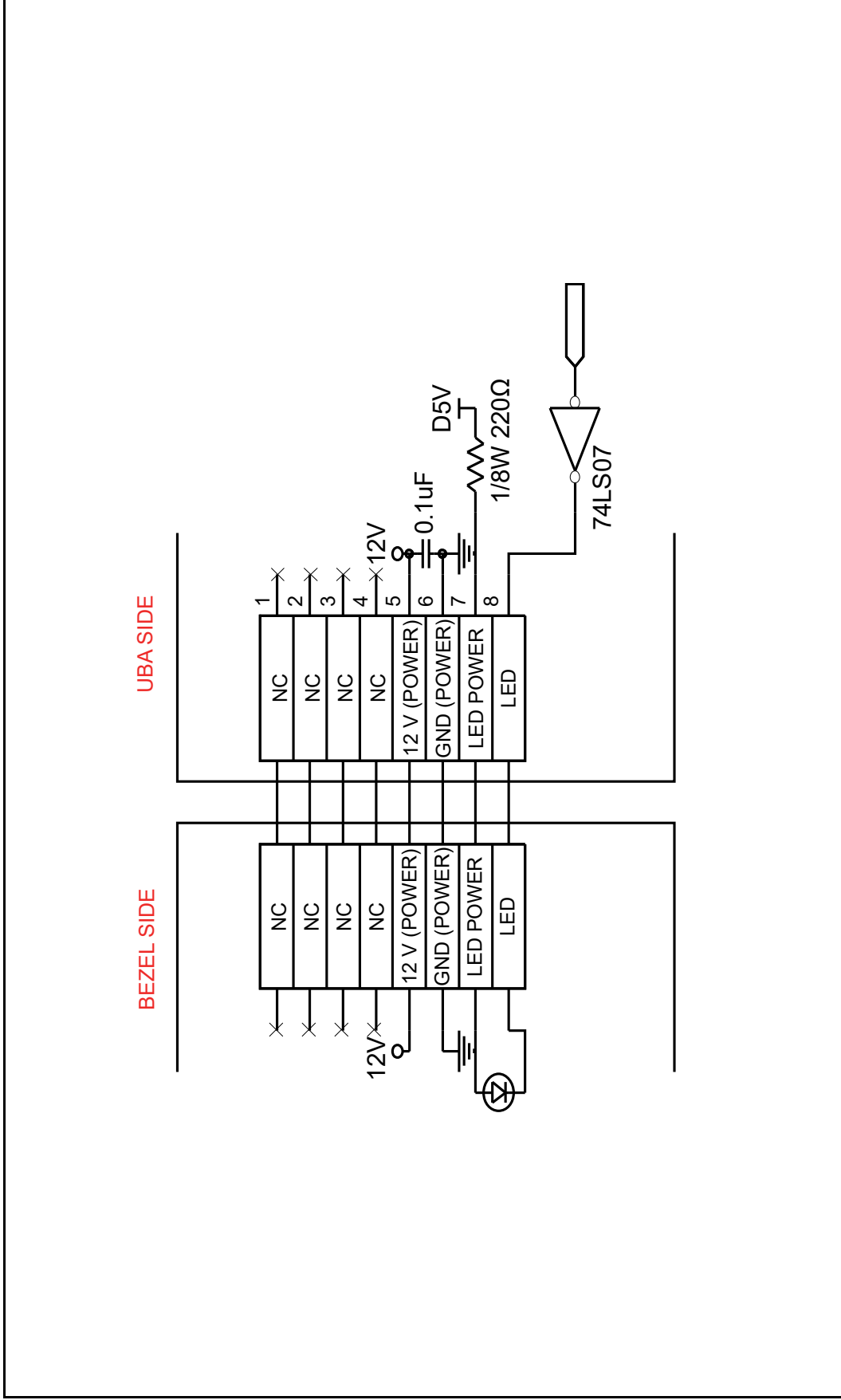


Figure 2-22 Bezel LED Control Circuit Schematic

STANDARD INTERFACE CIRCUIT SCHEMATICS (CONTINUED 1)

Figure 2-23 illustrates the UBA Photo-Coupler Interface Schematic Diagram (UBA-10/11/12/14-SS, UBA-10/11-SH, UBA-24-SS/SU).

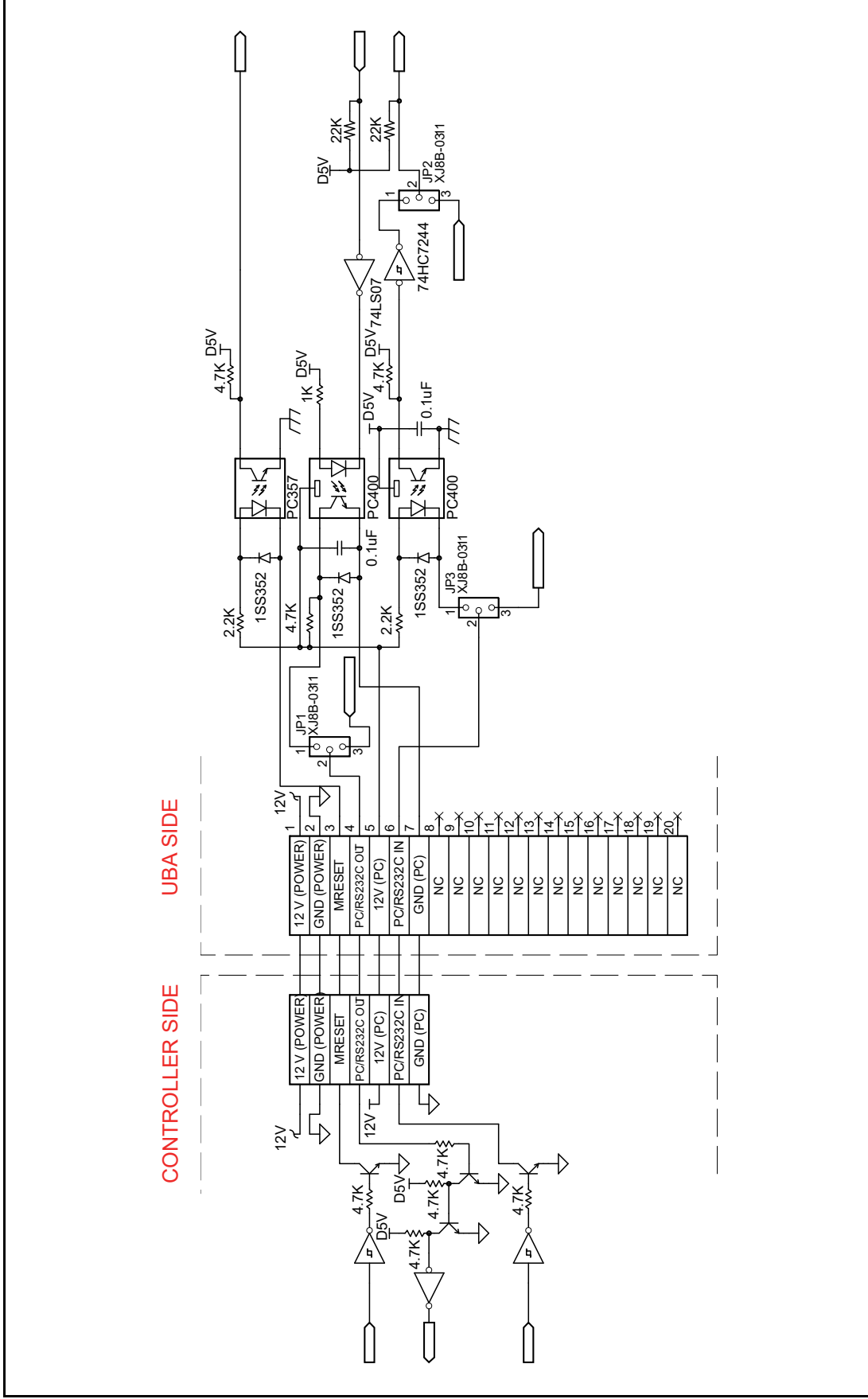


Figure 2-23 UBA Photo-Coupler Interface Schematic Diagram (UBA-10/11/12/14-SS, UBA-10/11-SH, UBA-24-SS/SU)

STANDARD INTERFACE CIRCUIT SCHEMATICS (CONTINUED 2)

Figure 2-24 illustrates the UBA USB Interface Schematic Diagram (UBA-14-SS, UBA-24-SS/SU).

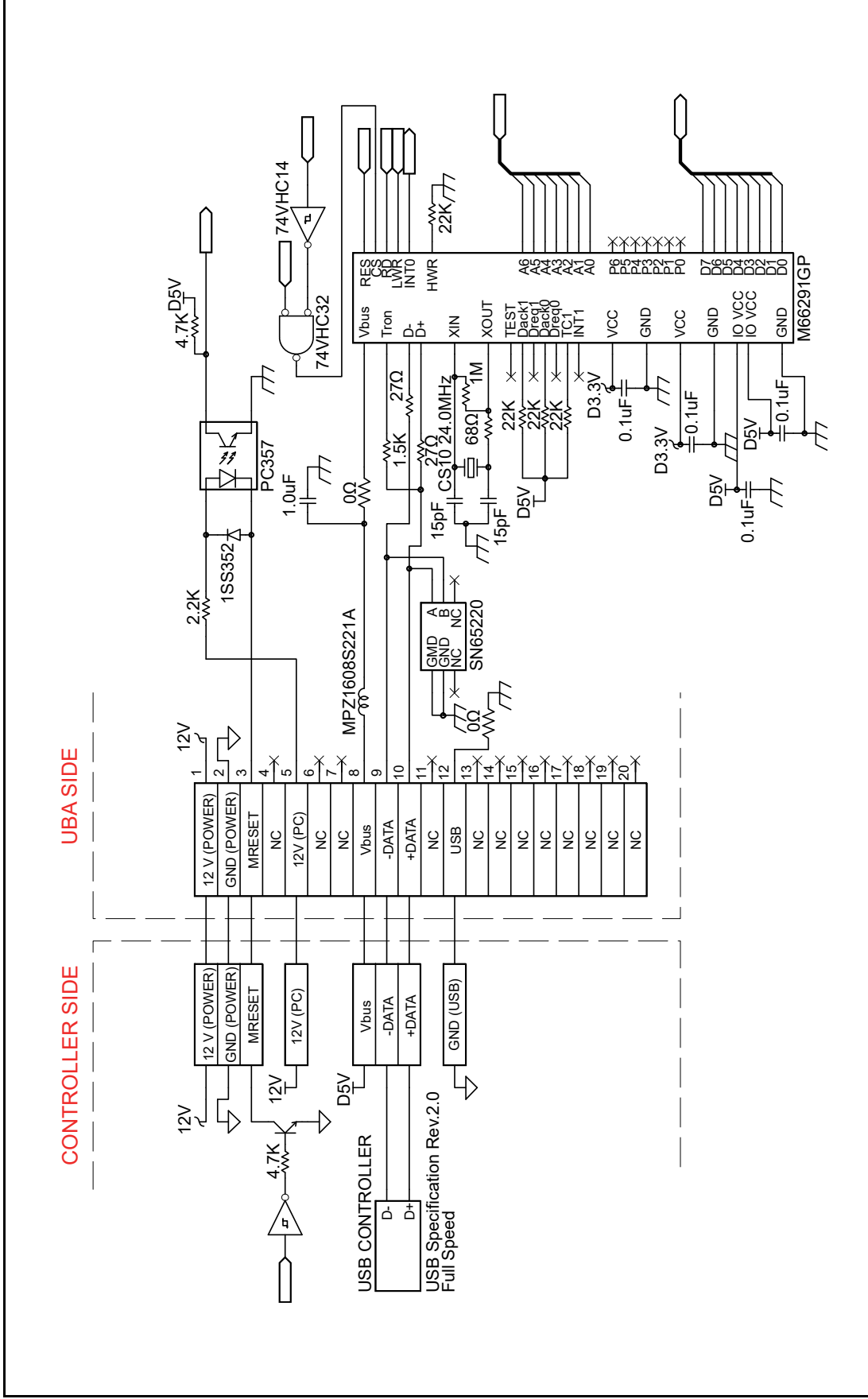


Figure 2-24 UBA USB Interface Schematic Diagram (UBA-14-SS, UBA-24-SS/SU)

STANDARD INTERFACE CIRCUIT SCHEMATICS (CONTINUED 3)

Figure 2-25 illustrates the UBA RS232C Interface Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH).

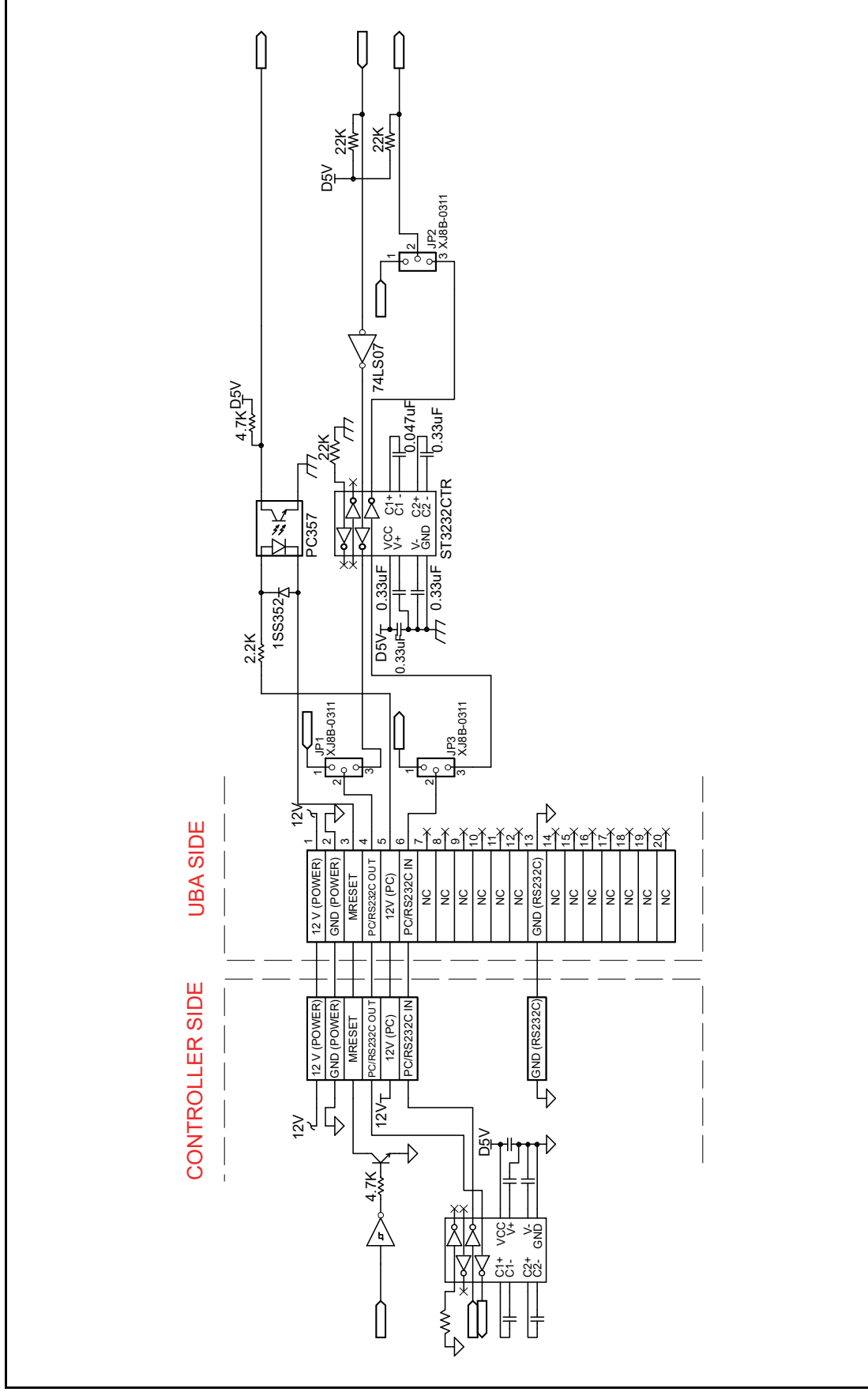


Figure 2-25 UBA RS232C Interface Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH)

Interface Circuit Schematics for Optional Conversion Boards

Figure 2-26 illustrates the UBA 24V/13.5V Conversion + RS232C and the RS232C Conversion Board Interface Circuit Schematic Diagram.

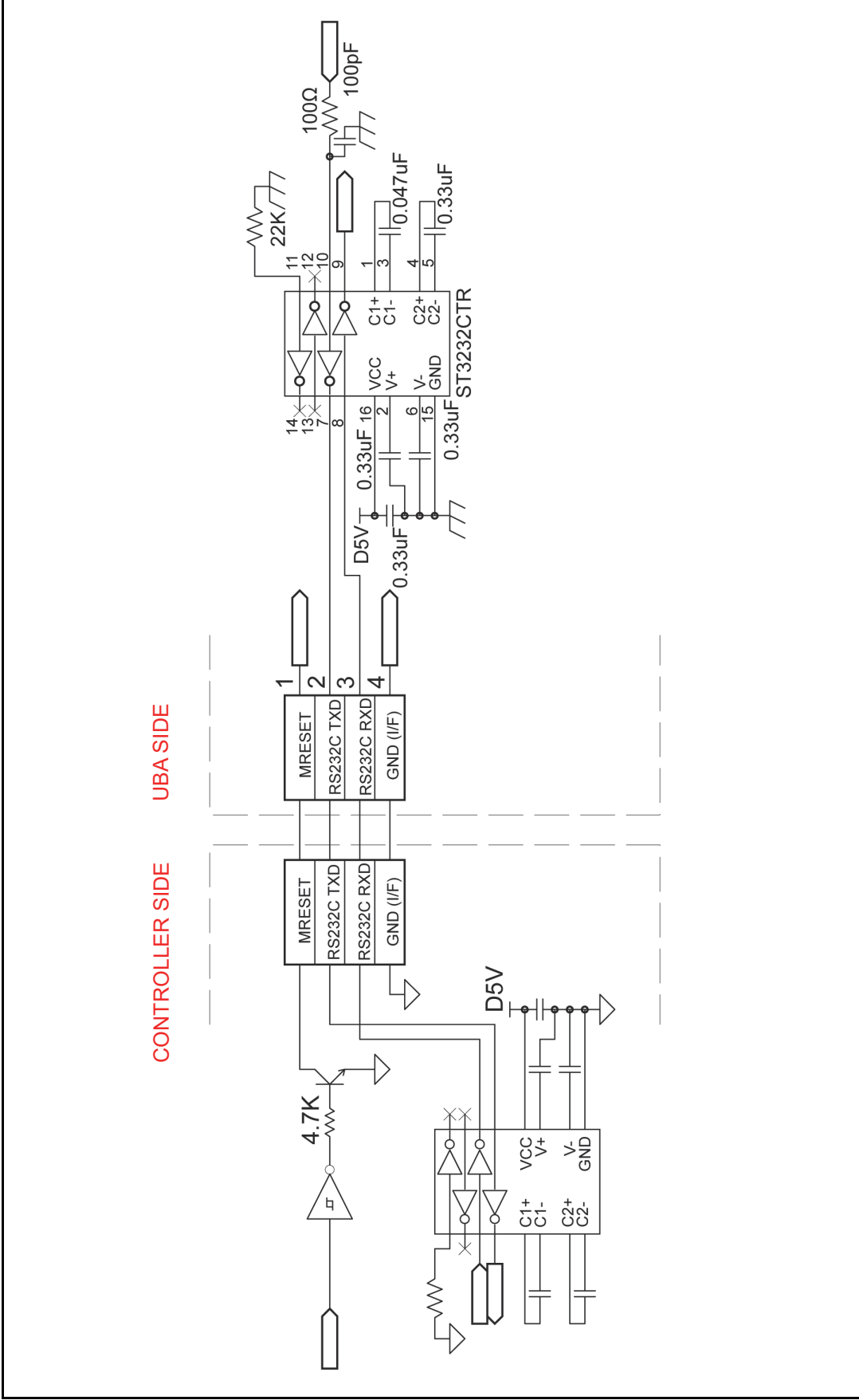


Figure 2-26 24V/13.5V Conversion + RS232C and RS232C Conversion Board Interface Circuit Schematic Diagram

Interface Circuit Schematic for Optional Conversion Boards (Continued 1)

Figure 2-27 illustrates the ccTalk Conversion Board Interface Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH, UBA-14-SS).

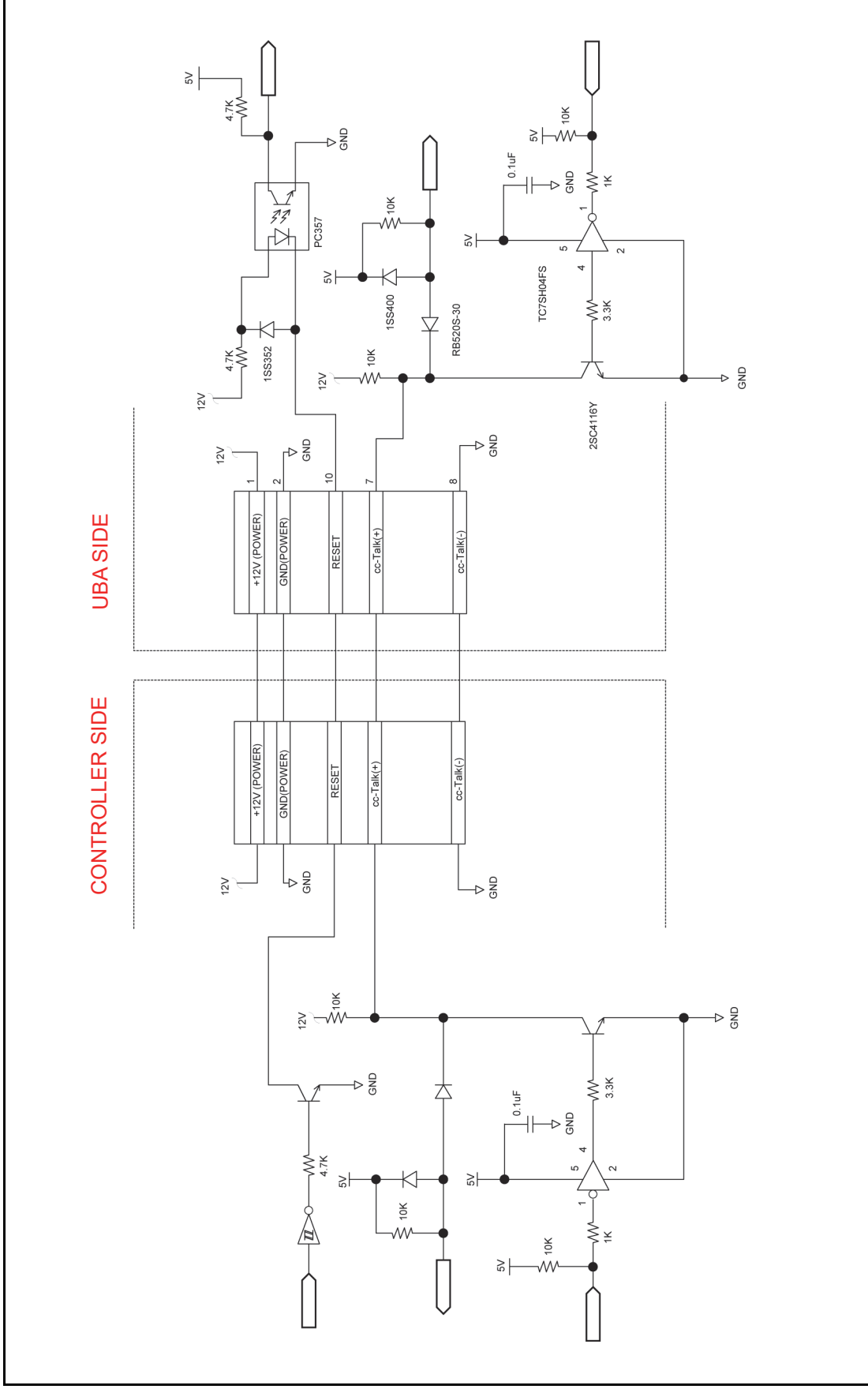


Figure 2-27 ccTalk Conversion Board Interface Circuit Schematic Diagram (UBA-10/11/12-SS, UBA-10/11-SH)

Operational Flowcharts

Figure 2-28 depicts part one of a typical UBA Initialization Banknote acceptance flow process.

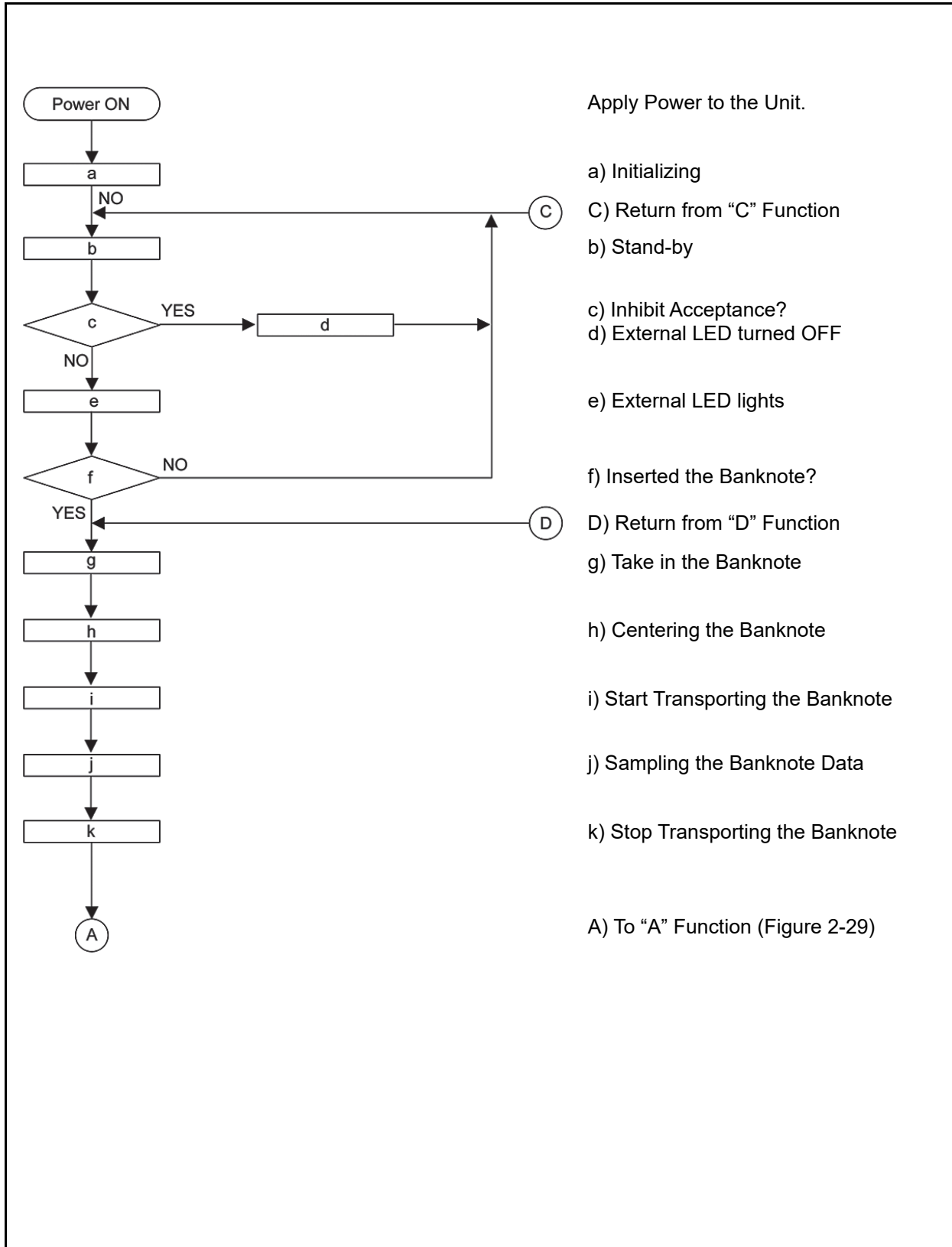


Figure 2-28 UBA Operational Flowchart (Initialize)

OPERATIONAL FLOWCHART (CONTINUED)

Figure 2-29 depicts a typical UBA Validation Banknote acceptance flow process.

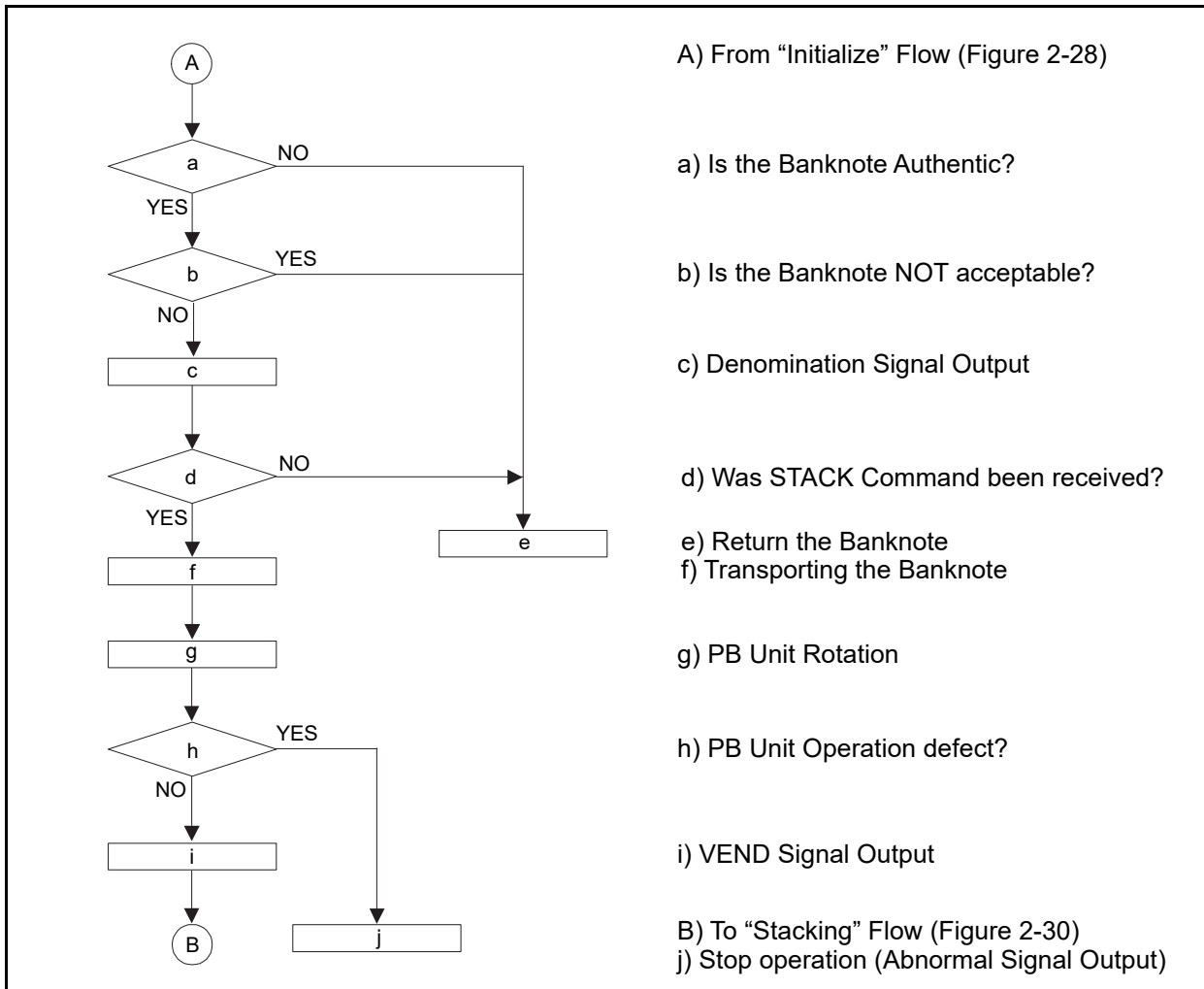


Figure 2-29 UBA Operational Flowchart (Validation)

Figure 2-30 depicts a typical UBA Stacking Banknote acceptance flow process.

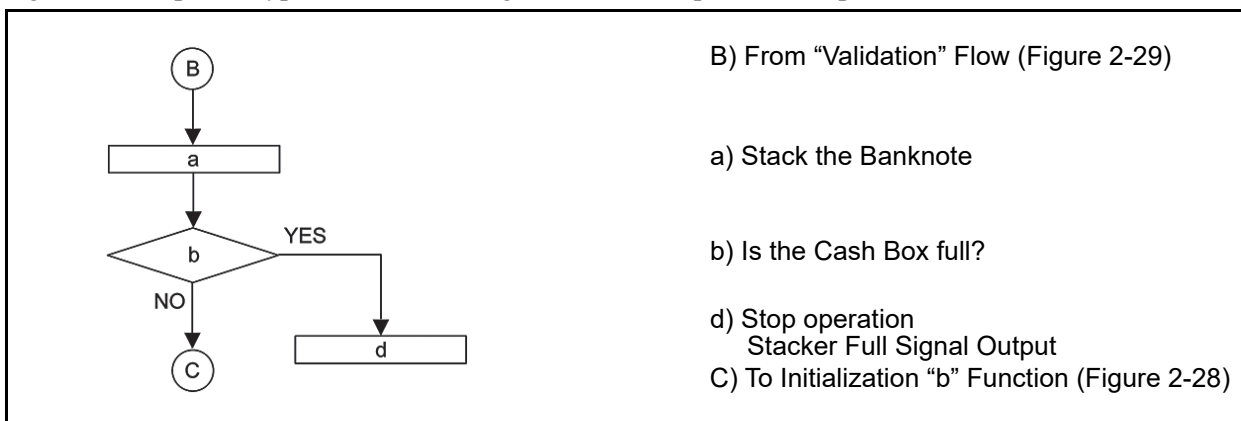



Figure 2-30 UBA Operational Flowchart (Stacking)

 **NOTE:** When an abnormal signal condition occurs, remove the suspect Banknote causing the malfunction, remove and reapply Power to the Unit, or send a Reset Command to the Banknote Acceptor. When a Stacker Full Signal occurs, remove the Banknotes from the Cash Box and reinstall it back into its fully seated position. The UBA Unit will then automatically reinitialize itself.

UBA™ Series

Universal Banknote Acceptor

Section 3

3 COMMUNICATIONS

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

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

Americas

JCM American

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road,
Las Vegas, NV 89119

E-mail: support@jcmglobal.com

Europe, Middle East, Africa & Russia

JCM Europe GmbH

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

Fax: +49-211-530-645-65

Mündelheimer Weg 60
D-40472 Düsseldorf Germany

E-mail: support@jcmglobal.eu

UK & Ireland

JCM Europe (UK Office)

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

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

Luminous House, 300 South Row,
Milton Keynes MK9 2FR,
United Kingdom

E-mail: 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

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

The JCM Website for all locations is:

<http://www.jcmglobal.com>

THIS PAGE INTENTIONALLY LEFT BLANK

UBA™ Series

Universal Banknote Acceptor

Section 4

4 DISASSEMBLY/REASSEMBLY

This section provides disassembly and reassembly instructions for the UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit. This section contains the following information:

- Tool Requirements
- Primary Unit Disassembly
- Acceptor Unit Disassembly
- Front Access Door Removal
- Opening Lever Disassembly
- Circuit Board Removal
- Transport Guide Disassembly
- Sensor Board Disassembly
- Transport Unit Motors Disassembly
- Transport C Timing Belt Removal
- Transport D Solenoid Removal
- Cash Box Disassembly
- Final Timing Belt Disassembly

Tool Requirements

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

- #0, #1 & #2 Phillips Screw Driver
- 2.5mm Hex Head Driver
- E-Ring (E-Ring) Pliers
- Needle Nose Pliers
- Tweezers

Primary Unit Disassembly

The following instructions are provided to perform an initial disassembly of the Universal Banknote Acceptor's primary parts:

1. Press down on the front latch (Figure 4-1 a) and slide the UBA Acceptor Assembly out of the Frame (Figure 4-1 b).

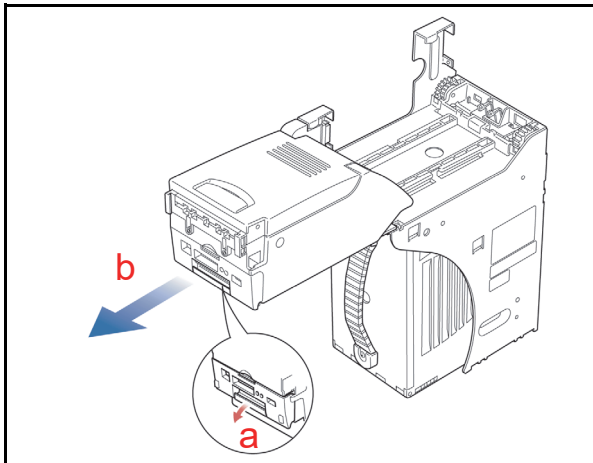


Figure 4-1 Acceptor Unit Removal

2. Pull on the Cash Box handle (Figure 4-2 a) and remove the Cash Box from the Frame (Figure 4-2 b).
3. When an optional Conversion Circuit Board (Figure 4-2 c) is installed, remove the two (2) Screws (Figure 4-2 d₁ & d₂) and lift the optional Conversion Circuit Board from the Frame housing.



NOTE: Applicable Screw size is 2.6x8P. The tightening torque necessary is 56.89 psi (4.0kgf/cm²)

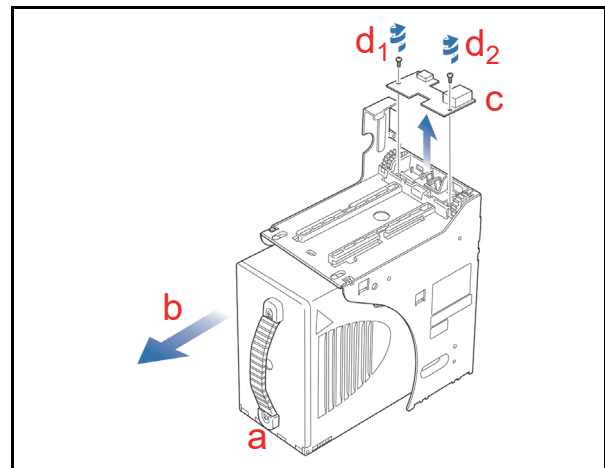


Figure 4-2 UBA Unit Cash Box & Optional Conversion Board Removal

Acceptor Unit Disassembly

SIDE AND TOP COVER REMOVAL

To remove the UBA Acceptor Side and Top Covers, proceed as follows:

1. Pull the Upper Guide Access Lever (Figure 4-3 a) located on top of the Unit and fully open the Transport (TR) Section of the Upper Guide in the direction of the large arrow (Figure 4-3 b).



WARNING: Hold the Upper Guide open while removing the right and left Transport (TR) Covers, because it does not stay in the upright position by itself. Improper handling may result in personal injury and/or damage to the equipment.

2. Fully open the Front Access Door (Figure 4-3 c).
3. Lift and hold "A" and "B" Embossed points open on each TR Side Cover (Figure 4-3 d₁ & d₂ and Figure 4-4 d₁ & d₂).
4. Slide each Cover in the direction indicated by the small arrows shown in Figure 4-3 e₁ & e₂ to remove each Side Cover.

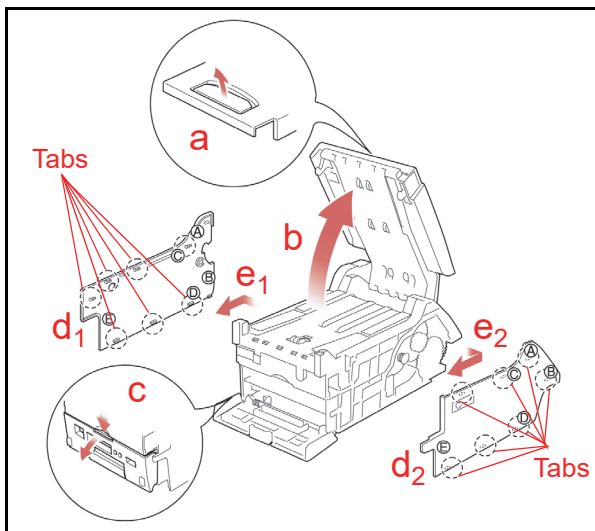


Figure 4-3 Side and Top Cover Removal

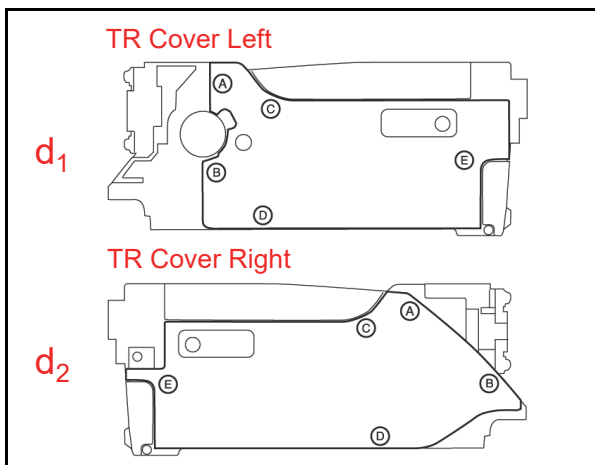


Figure 4-4 Side Cover Installation Points

5. To remove the Transport Cover, release six (6) Tabs (Figure 4-5 a₁ through a₆); three located on each side of the Transport Cover using a Flat Head Screw Driver.

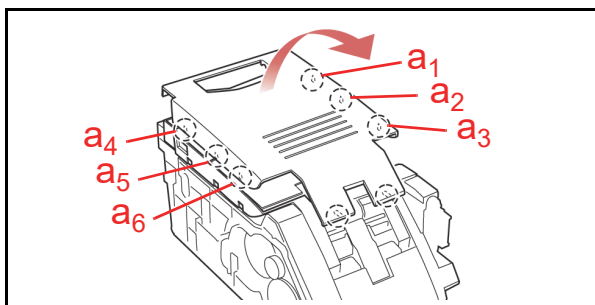


Figure 4-5 Transport Cover Removal

6. Remove the Transport Cover upward by lifting up the Front Cover.
7. To re-attach the Side Covers to the Unit place them in their proper position on each side of the Unit.
8. Hold points “C”, “D” and “E” on each side Cover (Figure 4-4), and slide them in the reverse arrow direction as previously shown in Figure 4-3.

Front Access Door Removal

To remove the UBA Front Access Door, proceed as follows:

1. Turn the Acceptor Unit upside down.
2. Remove the single (1) Screw (Figure 4-6 a) located on the side of the Front Access Door to release the Front Grounding (FG) Harness.
3. Fully open the Front Access Door and release the Acceptor Latch Spring Lock (Figure 4-6 b).
4. Unscrew two (2) Screws located on the shaft and slightly widen the UBA Transport Unit in the directions of the small arrows shown in Figure 4-6 c₁ & c₂, and remove the Front Access Door from the Transport Unit in the large arrow direction (Figure 4-6 d).

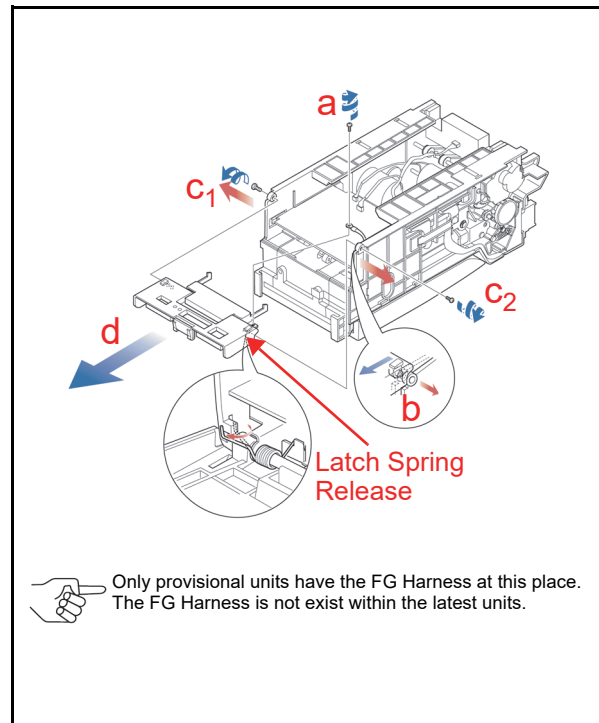


Figure 4-6 Front Access Door Removal

NOTE: When re-assembling the Front Door, tighten the two (2) Screws located on the Shaft to a torque of 42.67 psi (3.0kgf/cm²).

Opening Lever Disassembly

To disassemble the UBA Acceptor's Transport Opening Lever, proceed as follows:

1. Remove the Transport Cover (Review Figure 4-3).
2. Remove the E-Ring (Figure 4-7 a) located on the Shaft end and pull the Opener Latch Shaft (Figure 4-7 b) out of the Assembly.
3. Lift the Transport Guide (TR) D (Figure 4-7 c), then remove the Opening Lever (Figure 4-7 d), the Left and Right Opening Lever Latches (Figure 4-7 e₁ & e₂), and their related Opening Lever Springs (Figure 4-7 f₁ & f₂).

Caution: Make sure not to lose the small Latch Springs located beneath the Left and Right Opening Lever Latches.

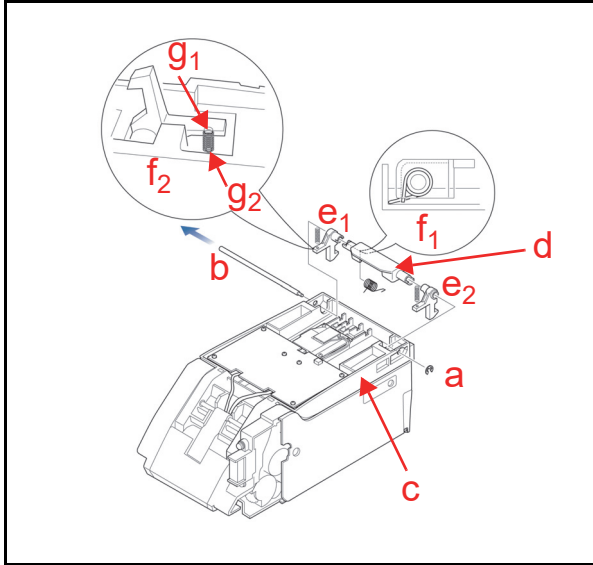


Figure 4-7 TR Opening Lever Disassembly

- On re-assembly, the Opening Lever Spring (Figure 4-7 **f₁**) needs to have its hook end reformed as a half-round.

NOTE: The Opening Latch Springs need to be replaced onto the Transport Guide D Latch Bosses (Figure 4-7 **g₁** & **g₂**) with tweezers once the Shaft has been re-inserted into the Assembly.

Circuit Board Removal

CPU BOARD REMOVAL

To remove the UBA CPU Board, proceed as follows:

- Turn the Acceptor Unit upside down.
- Remove the two (2) Screws (Figure 4-8 **a₁** & **a₂**) located on the ICB Cover (Figure 4-8 **b**) and remove the ICB Board (Figure 4-8 **c**) and the ICB Cover from the top of the CPU Board.

NOTE: This relates to the 5V DC CPU Board Only!

- Lift up the Push rivet (Figure 4-8 **d**) with a Flat Blade Screwdriver and remove the metal Holder (Figure 4-8 **e**).
- Disconnect the three (3) sets of three (3) Harness connectors from CPU Board (9 connectors total) (Figure 4-8 **f**).
- Gentle lift the locking tab on the Transport Guide A (Figure 4-8 **g**) to release the CPU Board (Figure 4-8 **h**). Pull the CPU Board (Figure 4-8 **h**) forward, but not completely out of the Assembly.
- Before pulling the CPU Board completely out of the Assembly, disconnect the remaining two (2) Harness Connectors (Figure 4-8 **i**) located on the bottom side of the CPU Board Assembly.

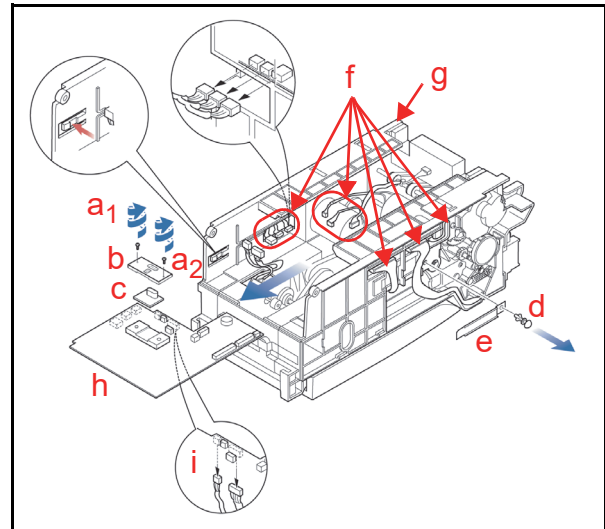


Figure 4-8 TR CPU Board Removal

NOTE: Latest version's units has the Waterproof Kit. The Harnesses should be removed after removing the Waterproof Kit.

Caution: When re-installing the ICB Board onto the CPU Board, check that the Plug and Socket Numbers agree to ensure the proper orientation and installation of the ICB Board.

UPPER SENSOR BOARD REMOVAL

To remove the UBA Upper Sensor Board, proceed as follows:

- Remove the Transport Cover (Review Figure 4-3).
- Remove the four (4) Circuit Board mounting Screws (Figure 4-9 **a₁** through **a₄**).
- Disconnect the three (3) Board Harness Connectors (Figure 4-9 **b₁** through **b₃**) and lift the Board from the Transport.

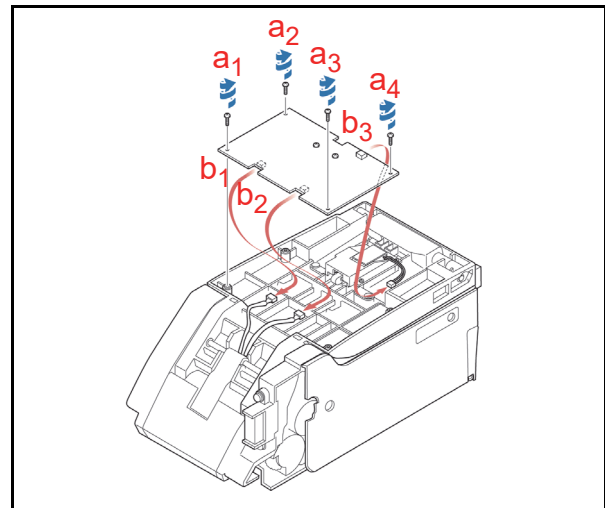



Figure 4-9 Upper Sensor Board Removal

LOWER SENSOR BOARD REMOVAL

To remove the UBA Lower Sensor Board, proceed as follows:

 **NOTE:** The CPU Board must be removed first to gain access to the Lower Sensor Board (See "CPU Board Removal" on page 4-3).

1. Remove the Right Side Cover (Review Figure 4-3).
2. Disconnect the three (3) Harness Connectors (Figure 4-10 **a**₁ through **a**₃) from the Lower Sensor Board (Figure 4-10 **b**).
3. Remove the three (3) Circuit Board mounting Screws (Figure 4-10 **c**₁ through **c**₃), lift the Lower Sensor Board up and slide it out of the side of the Assembly.

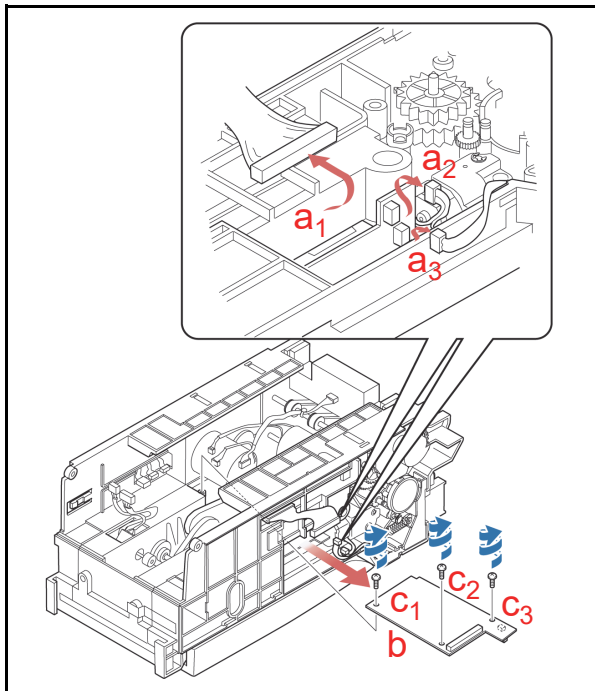


Figure 4-10 Lower Sensor Board Removal

Transport Guide Disassembly

TRANSPORT GUIDE ASSEMBLY

To remove the UBA Transport Guide A Assembly, proceed as follows:

1. Remove the single (1) Screw (Figure 4-11 **a**) retaining the Roller Guide Cap (Figure 4-11 **b**), and twist the Cap down and clockwise in the arrow direction **A** shown in Figure 4-11, then remove it up and off the Assembly.
2. Remove the E-Ring (Figure 4-11 **c**) retaining the small torque transfer gear (Figure 4-11 **d**₁), then remove both the small and large gears (Figure 4-11 **d**₂) from the Assembly.
3. Pull back on the Spring (Figure 4-11 **e**) loaded Roller Guide Home Lever (Figure 4-11 **f**), see breakout **B**, and pull the Roller Guide (Figure 4-11 **g**) up and out of the Assembly as shown by **C**.

4. Turn the UBA Acceptor Unit upside-down.

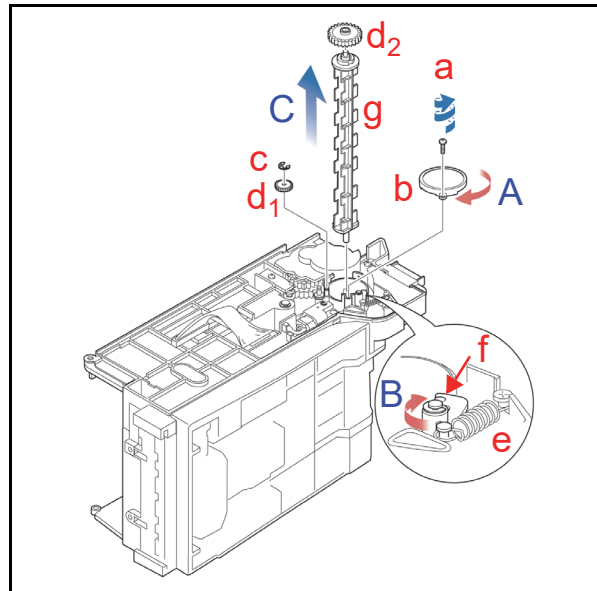




Figure 4-11 Roller Guide Removal


5. Remove the single (1) Transport Encoder Sensor Board mounting Screw (Figure 4-12 **a**) and remove the small Circuit Board Assy. (Figure 4-12 **b**) from the Assembly.

 **NOTE:** When reassembling the Unit, align the dents (Figure 4-12 **c**) located on the Stacking Motor (Figure 4-12 **d**) as shown in Figure 4-12 **A** so they are visible from the bottom of the Transport.

6. Remove the two (2) Motor Mount Screws (Figure 4-12 **f**₁ & **f**₂) from the right side of the Unit.

 **NOTE:** The Stacking Motor Gear and the Clutch Spring Stopper (Figure 4-12 **g**) must be realigned before remounting the Stacking Motor!

7. Remove Stacking Motor from the right side of the Unit in the direction of the large down pointing arrow shown in Figure 4-12 **C**.
8. Align the Gear of the Clutch Spring Stopper as shown in Figure 4-12 **B**, then remove the single (1) E-Ring (Figure 4-12 **i**) and the single (1) Screw (Figure 4-12 **j**) retaining the two (2) Gears, and lift them up and out of the Assembly.

 **NOTE:** When remounting the Stacking Motor, be sure to rotate the dents on the Motor in the direction shown in Figure 4-12 before re-inserting.

9. Turn the UBA Acceptor Unit upside-down again.
10. Remove the Stacking Clutch Shaft (Figure 4-13 **a**) retaining E-Ring (Figure 4-13 **b**) and Bushing (Figure 4-13 **c**), then pull the Assembly downward and out of the Unit in the direction of the large down pointing arrow shown in Figure 4-13 **A**.

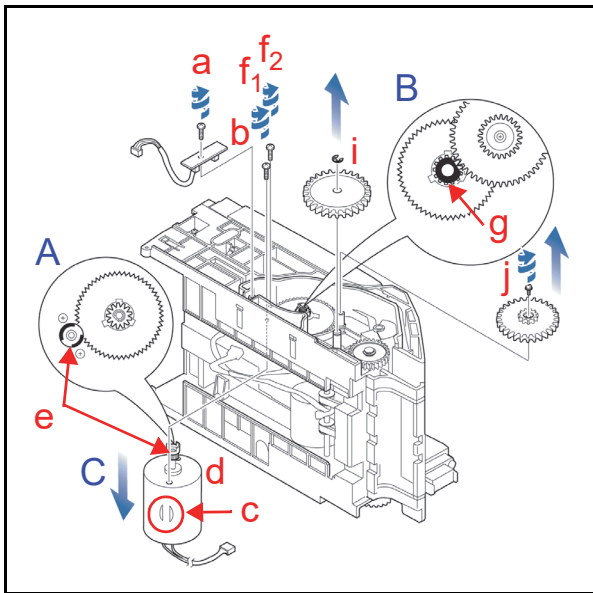


Figure 4-12 Stacking Motor Removal

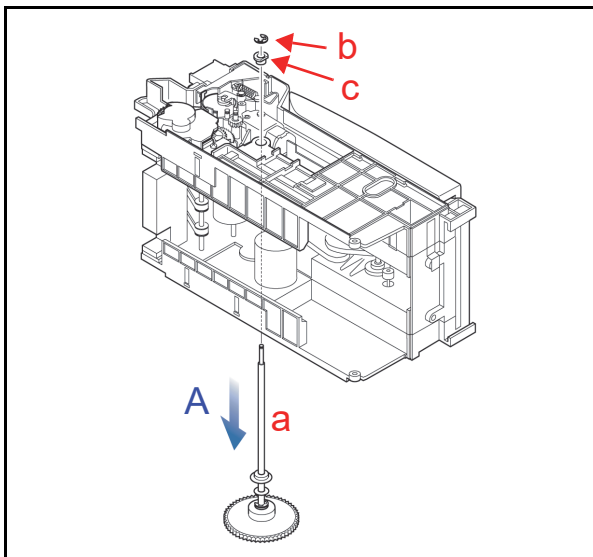


Figure 4-13 Stacking Clutch Shaft Removal

11. Turn the UBA Acceptor Unit upside-down a third time as shown in Figure 4-14.
12. Use Needle-Nose Pliers to disconnect the Encoder Sensor Board Harness Connector Plug from the internal Circuit Board through the Frame Access Hole (Figure 4-14 a).
13. Remove the Final Stacker Gear (Figure 4-14 b) and E-Ring (Figure 4-14 c).
14. Remove the four (4) right side Frame Mounting Screws (Figure 4-14 d₁ through d₄).
15. Turn the UBA Acceptor Unit upside-down a fourth time.
16. Remove the two (2) Screws (Figure 4-15 a₁ & a₂) retaining the Transport Gear Cover (Figure 4-15 b), and remove the Transport Gear Cover from the Acceptor Unit Assembly.
17. Remove the last remaining left side Guide mounting Screw (Figure 4-15 c).

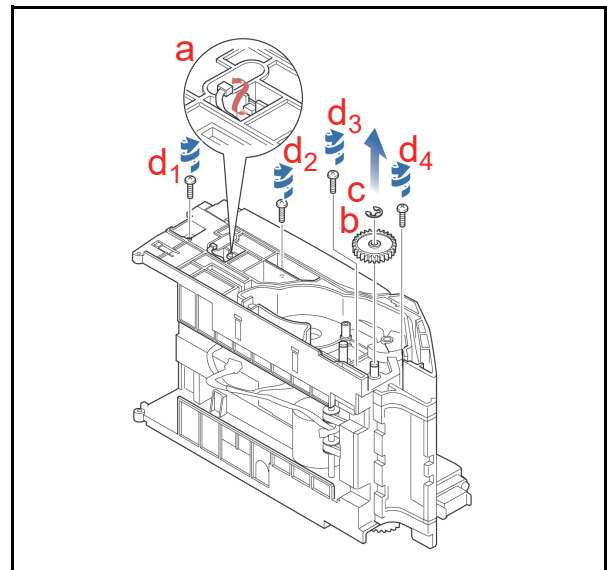


Figure 4-14 Right Guide Mounting Screw Removal

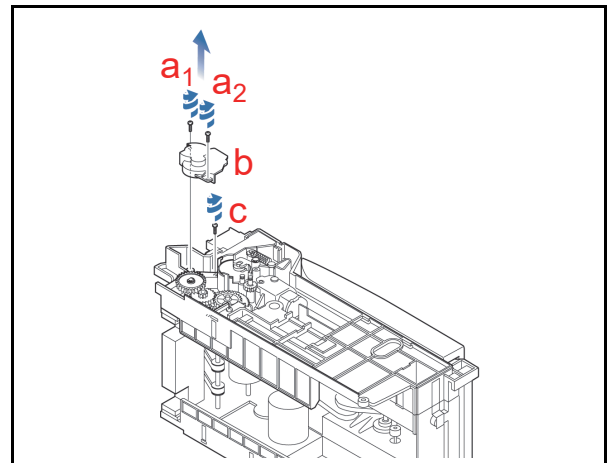


Figure 4-15 Last Left Side Guide Mounting Screw Removal

18. Remove the Upper Guide Access Lever to open the Transport Guide D (Figure 4-16 a). The Unit will separate into three pieces consisting of the Transport Guide A (Figure 4-16 b), Transport Guides B (Figure 4-16 c) & C (Figure 4-16 d), and the Transport Guides D & E (Figure 4-16 e) respectively.

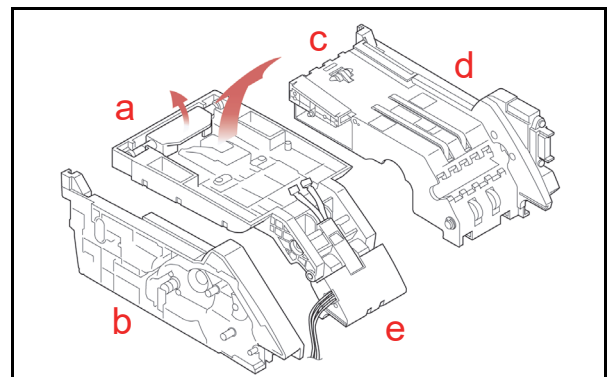


Figure 4-16 UBA Side Frame Removals

TRANSPORT GUIDES B & C DISASSEMBLY

To remove the UBA Transport Guide B from the Guide C, proceed as follows:

1. Remove the Final Transport Gear (Figure 4-17 a) and the single (1) E-Ring (Figure 4-17 b), and remove the Final Transport Gear and the single (1) Parallel Pin (Figure 4-17 c).
2. Pull straight up on the Gear Shaft to remove, then remove the 3rd Transport Gear (Figure 4-17 d).

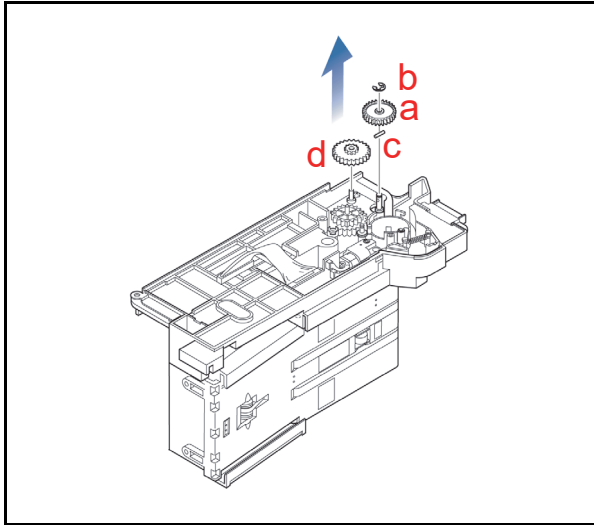


Figure 4-17 UBA Guide B Removal

3. Remove the Lower Sensor Board as previously described in the section discussing “Lower Sensor Board Removal” on page 4-4 of this Section.
4. Remove the single (1) Screw (Figure 4-18 a) securing the Grounding Plate #2 (Figure 4-18 b) and the three (3) Guide B mounting Screws (Figure 4-18 c₁ through c₃) to separate the Transport Guide B (Figure 4-18 d) from the guide Section C (Figure 4-18 e).

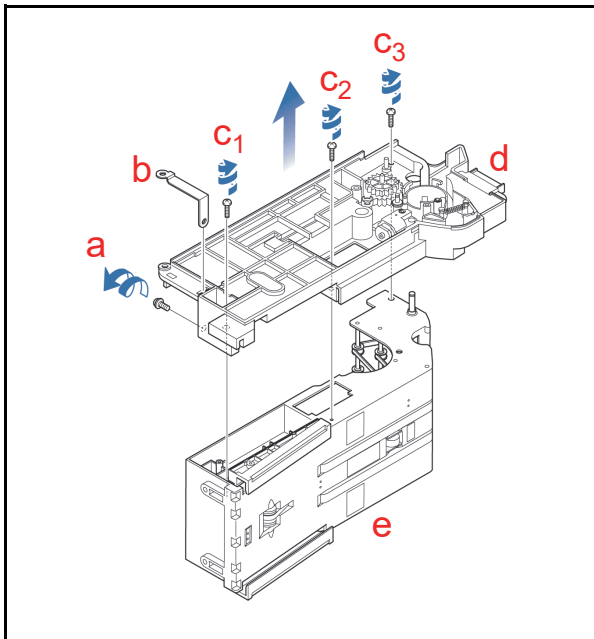


Figure 4-18 Transport Guide B Removal

TRANSPORT GUIDES D & E DISASSEMBLY

To remove the UBA Transport Guide D from the Guide E, proceed as follows:

1. Remove the Tunnel Shaft (Figure 4-19 a) and E-Ring (Figure 4-19 b), and pull the Tunnel Shaft out of the Assembly.
2. Remove the two (2) Fulcrum Pins (Figure 4-19 c₁ & c₂) and separate the Transport Guide E (Figure 4-19 d) away from the Transport Guide D (Figure 4-19 e).

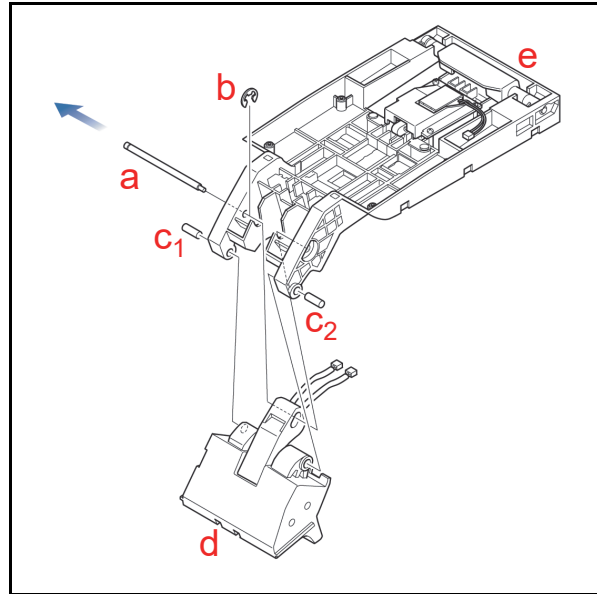


Figure 4-19 Transport Guide E Removal

Sensor Board Disassembly

CASH BOX SENSOR BOARD REMOVAL

To remove the UBA Cash Box Sensor Board, proceed as follows:

1. Remove the Transport Guide E Back Cover (Figure 4-20 a) by pressing down on the curved arrow are indicated in Figure 4-20b.
2. Remove the two (2) Cash Box Sensor Board mounting Screws (Figure 4-20 b₁ & b₂).
3. Carefully lift the Cash Box Sensor Board (Figure 4-20 d) up; disconnect its Harness Connector Plug (Figure 4-20 e), and remove the Cash Box Sensor Board from the Transport Guide E Assembly (Figure 4-20 f).

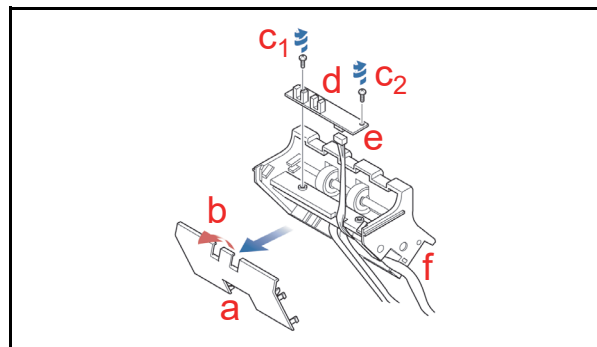


Figure 4-20 Cash Box Sensor Removal

HOME CENTERING SENSOR BOARD DISASSEMBLY

To remove the UBA Home Centering Sensor Board, proceed as follows:

1. The Centering Home Sensor Board (Figure 4-21 a) is attached to the Transport Guide A (Figure 4-21 b). Remove the single (1) Screw (Figure 4-21 c) mounting Home Centering Sensor Board, and lift the small Circuit Board up and off the Assembly.

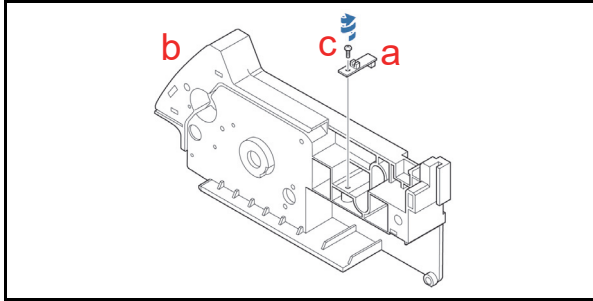


Figure 4-21 Centering Home Sensor Board Removal

ENCODER SENSOR BOARD DISASSEMBLY

To remove the Transport Encoder Sensor Board, proceed as follows:

1. The Transport Encoder Sensor Board (Figure 4-22 a) is attached to the Transport Guide B (Figure 4-22 b). Remove the single (1) Screw (Figure 4-22 c) mounting the Transport Encoder Sensor Board and lift the small Circuit Board up and off the Assembly.

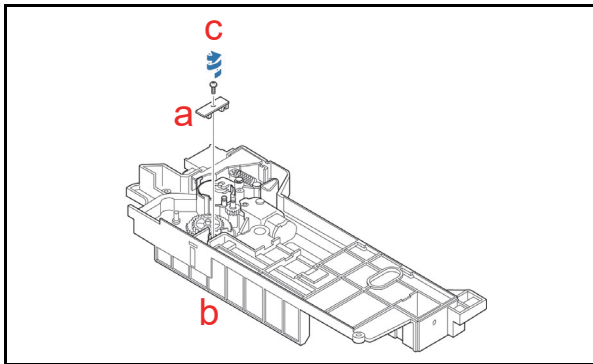


Figure 4-22 Transport Encoder Sensor Board Removal

ANTI-PULLBACK HOME SENSOR BOARD DISASSEMBLY

To remove the UBA Anti-Pullback Home Sensor Board, proceed as follows:

1. The Anti-Pullback Home Sensor Board (Figure 4-23 a) is attached to the Transport Guide B (Figure 4-23 b). Remove the Anti-Pullback Lever Spring (Figure 4-23 c) from the Roller Guide Homing Lever (Figure 4-23 d).
2. Remove the Roller Guide Homing Lever and the single (1) E-Ring (Figure 4-23 e), and then remove the single Screw (Figure 4-23 f) mounting the Anti-Pullback Home Sensor Board.

3. Lift the Circuit Board up and off the Assembly.

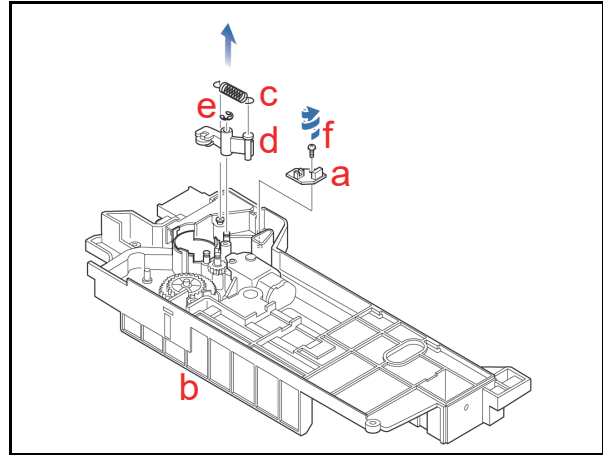


Figure 4-23 Anti-Pullback Sensor Board Removal

Transport Unit Motors Disassembly ANTI-PULLBACK DRIVE MOTOR UNIT DISASSEMBLY

To disassemble the UBA Anti-Pullback Motor Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-24 a₁ & a₂) mounting the Anti-Pullback Motor Housing (Figure 4-24 b) and lift the Motor Bar Assembly up and out of the Transport Guide B.
2. Remove the single (1) E-Ring (Figure 4-24 c) retaining the 2nd Roller Gear (Figure 4-24 d) and drop the 2nd Roller Gear down and out of the Assembly.
3. Remove the two (2) Screws (Figure 4-24 e₁ & e₂) mounting the Anti-Pullback Motor Unit (Figure 4-24 f) and slide the Motor Unit back and out of the Motor Bar Assembly.

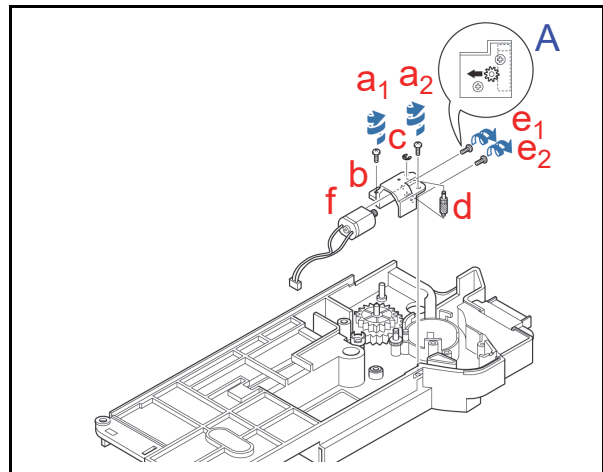


Figure 4-24 Anti-Pullback Motor Unit Removal

NOTE: When re-assembling the Anti-Pullback Motor Bar onto the Anti-Pullback Motor Unit, fasten the mounting screws so that the 2nd Gear Roller and the Anti-Pullback Motor Assembly Gears do not bind tightly against one other (Figure 4-24 A)

TRANSPORT MOTOR DISASSEMBLY

To disassemble the UBA Transport Motor Unit, proceed as follows:

1. Pull the Transport Gear Pin (Figure 4-25 a) up and out of the Transport Guide B Assembly (Figure 4-25 b).
2. Lift the 2nd Transport Gear up and out off the Assembly.
3. Remove the two (2) Motor Mount Screws (Figure 4-25 d₁ & d₂) from the Transport Guide B.
4. Carefully drop the Transport Motor (Figure 4-25 e) down.

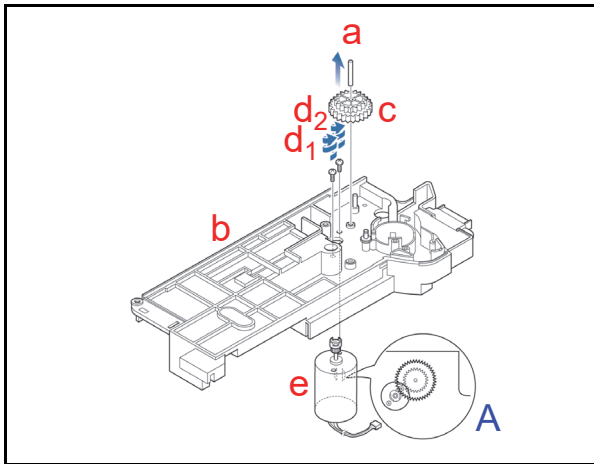



Figure 4-25 Transport Motor Unit Removal

 **NOTE:** When re-assembling the Transport Motor, ensure that the Motor dents are visible from the bottom of the Transport (Figure 4-24 A).

Entrance Sensor Board Removal

To remove the UBA Entrance Sensor Board, proceed as follows:

1. Pull Guide Plate #1 (Figure 4-26 a) out of the Assembly.
2. Remove the single (1) Screw (Figure 4-26 b) mounting the Entrance Sensor Board (Figure 4-26 c) and disconnect the Circuit Board Harness Connector Plug (Figure 4-26 d), and remove the Entrance Sensor Board from the Assembly.

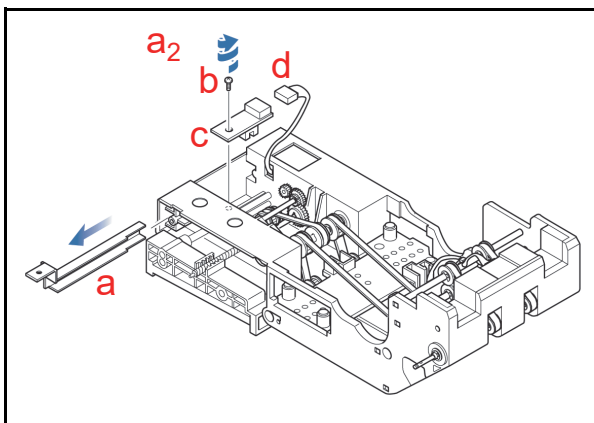


Figure 4-26 Entrance Sensor Board Removal

Exit Sensor Board Disassembly

To remove the UBA Exit Sensor Board, proceed as follows:

1. Disconnect the Exit Sensor Board Harness Connector Plug (Figure 4-27 a) from the Transport Guide C (Figure 4-27 b).
2. Remove the Rear Sensor Guide (Figure 4-27 c) forward and then upward out of the Transport Guide C Assembly.
3. Remove the single (1) Screw (Figure 4-27 d) mounting the Exit Sensor Board (Figure 4-27 e), and lift the Exit Sensor Board off the Assembly.

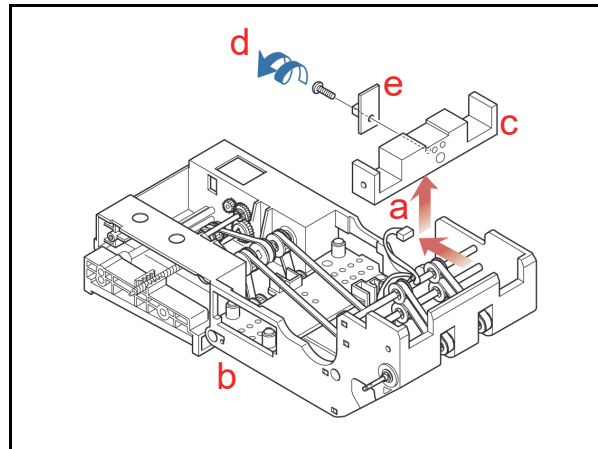


Figure 4-27 Exit Sensor Board Removal

CENTERING MOTOR UNIT DISASSEMBLY

To remove the UBA Centering Motor Unit, proceed as follows:

1. Remove the two (2) Screws (Figure 4-28 a₁ & a₂) mounting the Centering Motor Unit (Figure 4-28 b), then carefully lift the Centering Motor Unit up and off the Assembly after disconnecting its Harness Plug.

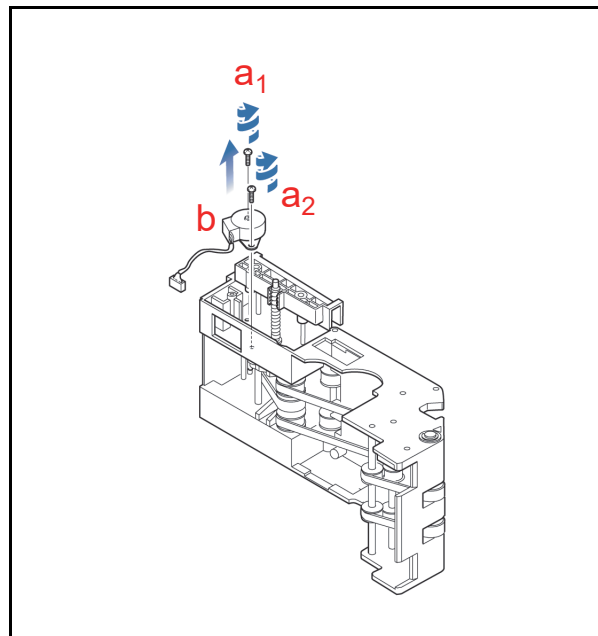


Figure 4-28 Centering Motor Unit Removal

Transport C Timing Belt Removal

To remove the UBA Transport C Timing Belts, proceed as follows:

1. Remove the four (4) Screws (Figure 4-29 **a₁** through **a₄**) mounting the Lower Sensor Spacer (Figure 4-29 **b**) out of the Transport Guide C (Figure 4-29 **c**).
2. Remove the Lower Sensor Spacer upward and slide it sideways out of the Transport Guide C.

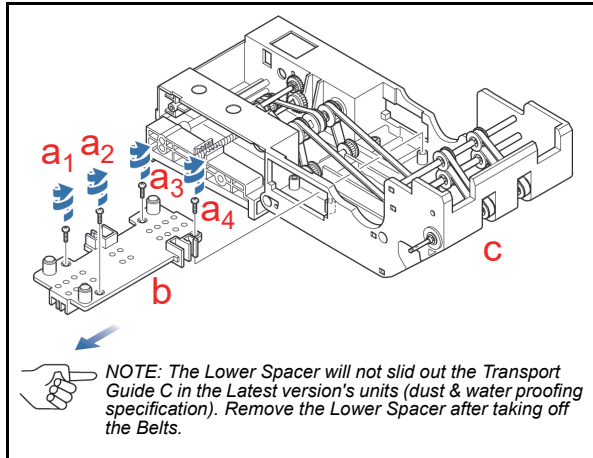


Figure 4-29 Timing Belts Removal

3. Remove the 2nd Mover Gear (Figure 4-30 **a**).
4. Remove the Mover Guide Assemblies #1 (Figure 4-30 **b**) and #2 (Figure 4-30 **c**) out of each side of the Transport Guide C (Figure 4-30 **d**).

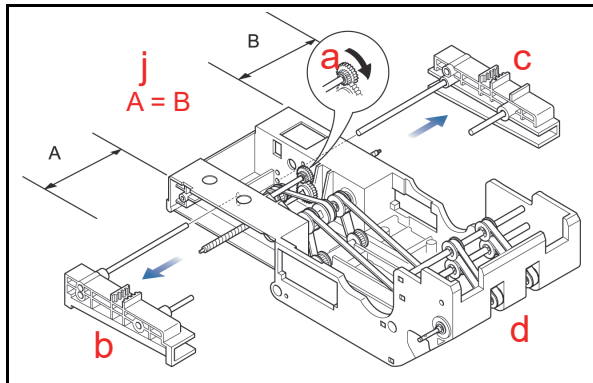
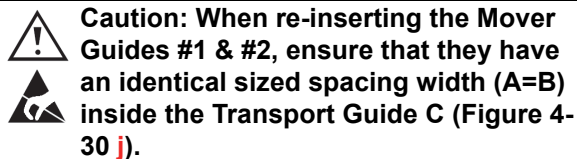


Figure 4-30 Mover Gear #1 & #2 Removal



5. Push the Pulley Shaft #2 (Figure 4-31 **a**) out of the Assembly.
6. Remove the Mover Pulley (Figure 4-31 **b**) up and out of the Assembly while the Pulley Shaft #2 is withdrawn from the Assembly.
7. Remove the two (2) E-Rings (Figure 4-31 **c₁** & **c₂**) securing the ends of the Mover Worm Gear Shaft (Figure 4-31 **d**).

8. Pull the Mover Worm Gear Shaft out of the Assembly along with the Final Mover Gear (Figure 4-31 **e**), the single (1) Parallel Pin (Figure 4-31 **f**) and the single (1) E-Ring (Figure 4-31 **g**) attached to it.

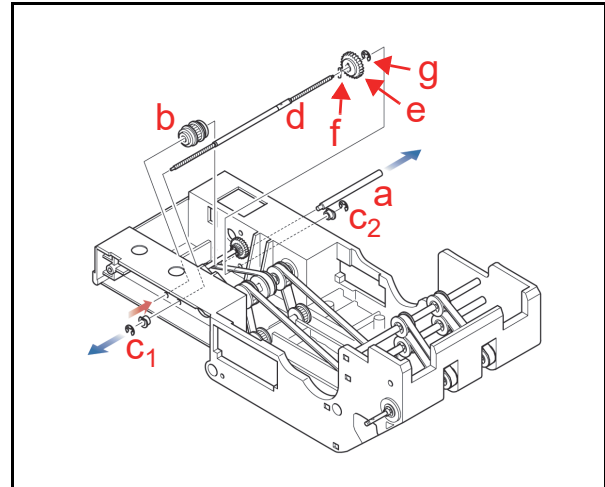


Figure 4-31 Pulley Shaft Removals

9. Push each end of the three (3) Pulley Shafts (Figure 4-32 **a₁** through **a₃**) out one at a time, and move their respective Pulleys to the side wall.
10. Push the end of the Pulley Shaft in (Figure 4-32 **b₁**), and pull it out (Figure 4-32 **b₂**).
11. Lift the two (2) freed Transport Pulleys (Figure 4-32 **c₁** & **c₂**) up and out of the Assembly.

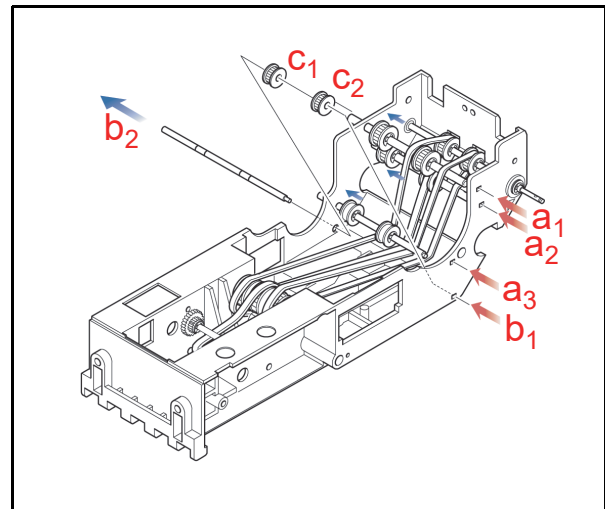


Figure 4-32 Mover Worm Gear Shaft Removals

12. Remove the three (3) E-Rings (Figure 4-33 **a₁** through **a₃**) securing the Transport Drive Shaft (Figure 4-33 **b**) end and internal Drive Pulleys (Figure 4-33 **c₁** & **c₂**) from Transport Guide C.
13. Pull the Transport Drive Shaft out and remove the two (2) Drive Pulleys along with the two (2) adjacent Parallel Pins (Figure 4-33 **d₁** & **d₂**) all up and out of the Assembly as the Transport Drive Shaft is withdrawn.

14. Push the end of the Pulley Shaft #2 in (Figure 4-33 e₁), and pull it out (Figure 4-33 e₂), then remove the two (2) Transport Pulleys (Figure 4-33 f₁ & f₂) up and out of the Assembly as the Pulley Shaft #2 is withdrawn.

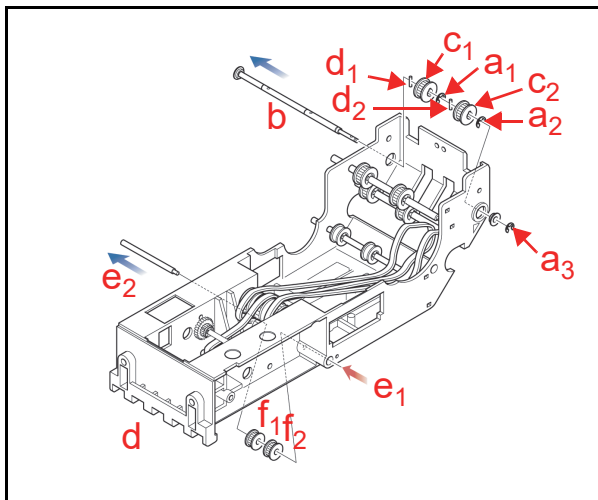


Figure 4-33 Transport Drive Shaft Removal

15. Remove the five (5) E-Rings (Figure 4-34 a₁ through a₅) securing the end and the three (3) internal Drive Pulleys (Figure 4-34 b₁ through b₃) on the Transport Shaft #2 of the Transport Guide C (Figure 4-34 c).
16. Pull the Transport Shaft #2 (Figure 4-34 d) out of the Transport Guide C.
17. Lift the Drive Pulleys #1, #2 and #3 and their adjacent two (2) Parallel Pins (Figure 4-34 e₁ & e₂) up and out of the Assembly as the Transport Shaft #2 is withdrawn.
18. Remove the three (3) freed Timing Belts (Figure 4-34 f₁ through f₃) from the Assembly.

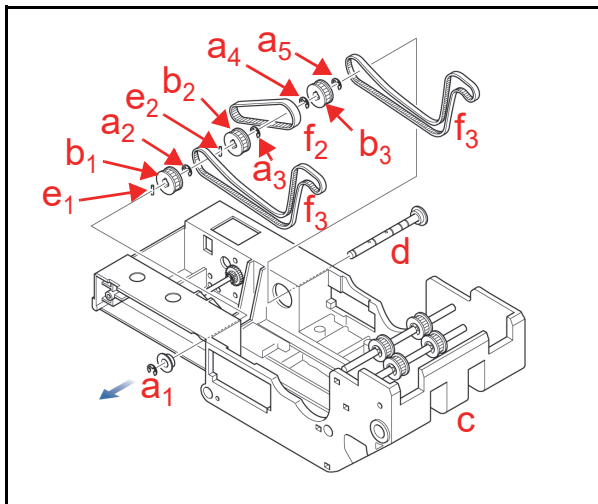



Figure 4-34 Drive Belt Removal

 **NOTE:** Reinsert the Parallel Pins into the Drive Pulleys #1 and #2 only! No Parallel Pin is required for the Drive Pulley #3.

Transport D Solenoid Removal

To remove the UBA Transport Drive D Solenoid, proceed as follows:

1. Remove the four (4) Solenoid Base mounting Screws (Figure 4-35 a₁ through a₄) securing the Solenoid Base (Figure 4-35 b) to the Transport Guide D (Figure 4-35 c).
2. Remove the Solenoid Base Cover.
3. Remove the two (2) Screws (Figure 4-35 d₁ & d₂) mounting the Solenoid (Figure 4-35 e) from the bottom side of the Transport Guide D and lift the Solenoid up and out of the Assembly.

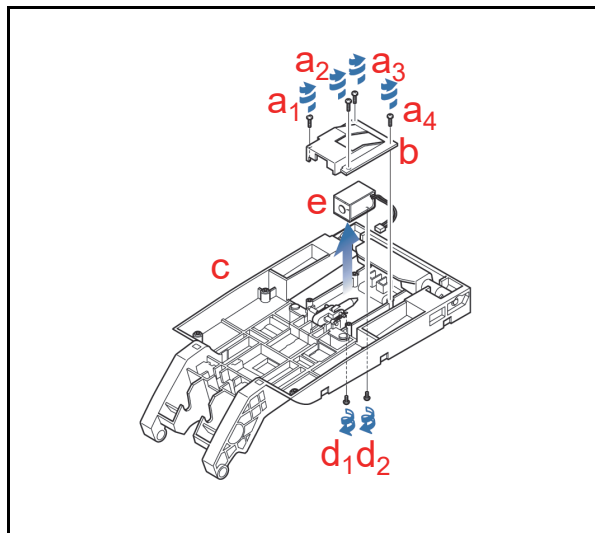


Figure 4-35 Transport Guide D Solenoid Removal

Cash Box Disassembly

CASH BOX HANDLE REMOVAL

To remove the UBA Standard and Intelligent Cash Box (ICB) Handle, proceed as follows:

1. Remove the two (2) Screws (Figure 4-36 a₁ & a₂) mounting Cash Box Handle.
2. Remove the Handle Caps (Figure 4-36 b₁ & b₂) and lift the Handle (Figure 4-36 c) off of the Assembly.

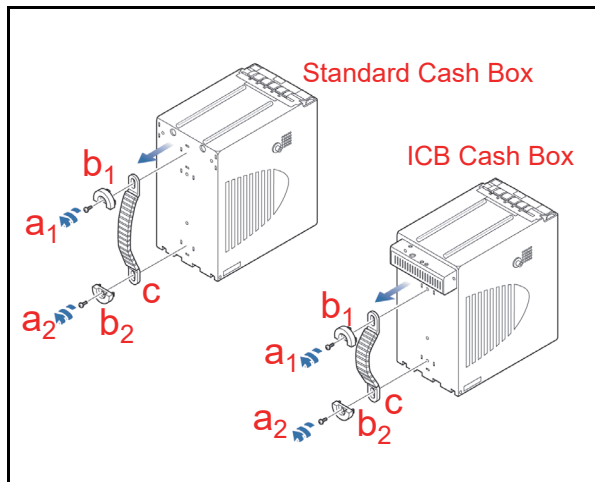


Figure 4-36 Cash Box Handle Removal

ICB MODULE CIRCUIT BOARD REMOVAL

To remove the UBA ICB Module Circuit Board, proceed as follows:

1. Remove the two (2) Screws (Figure 4-37 **a₁** & **a₂**) retaining the ICB Module Cover (Figure 4-37 **b**) to the ICB Module Assembly.
2. Remove the two (2) Screws (Figure 4-37 **c₁** & **c₂**) mounting the ICB Module Assembly onto the Cash Box (Figure 4-37 **d**), then remove the ICB Support Plate (Figure 4-37 **e**).
3. Remove the two (2) Screws (Figure 4-37 **g₁** & **g₂**) retaining ICB Module Frame Assembly to the ICB Module Box (Figure 4-37 **f**).
4. Remove the two (2) Screws (Figure 4-37 **i₁** & **i₂**) retaining the ICB Module Circuit Board (Figure 4-37 **h**) onto the ICB Module Frame (Figure 4-37 **j**).

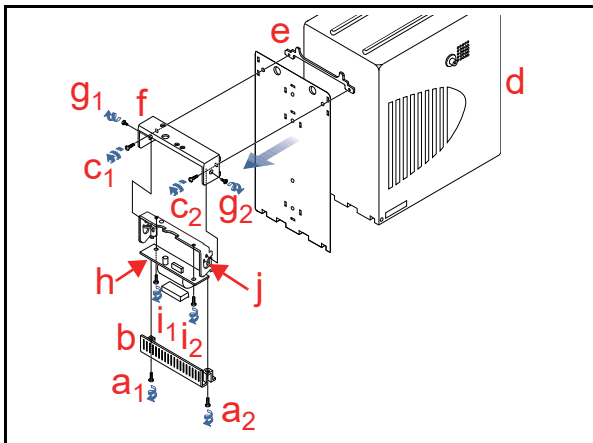


Figure 4-37 ICB Module Circuit Board Removal

PUSHER MECHANISM UNIT DISASSEMBLY

To disassemble the UBA Pusher Mechanism Unit, proceed as follows:

1. Open the Cash Box Door (Figure 4-38 **a**) and remove the two (2) Screws (Figure 4-38 **b₁** & **b₂**) mounting the internal Pusher Mechanism Unit (Figure 4-38 **c**) from the back inside wall of the Cash Box.
2. Slide the Pusher Mechanism Unit out of the Assembly in the direction of the blue arrow in Figure 4-38.

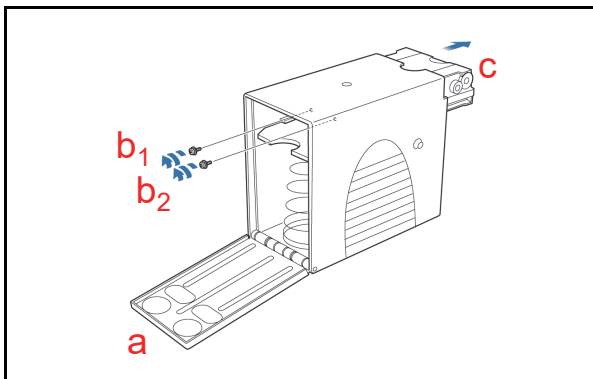


Figure 4-38 Pusher Mechanism Unit Removal

3. Remove the six (6) Pusher Mechanism Screws (Figure 4-39 **a₁** through **a₆**) from the sides of the Assembly.
4. Separate the Pusher Mechanism Unit (Figure 4-39 **b**) upward and out of the Transport in the direction of the Red arrow in Figure 4-39.

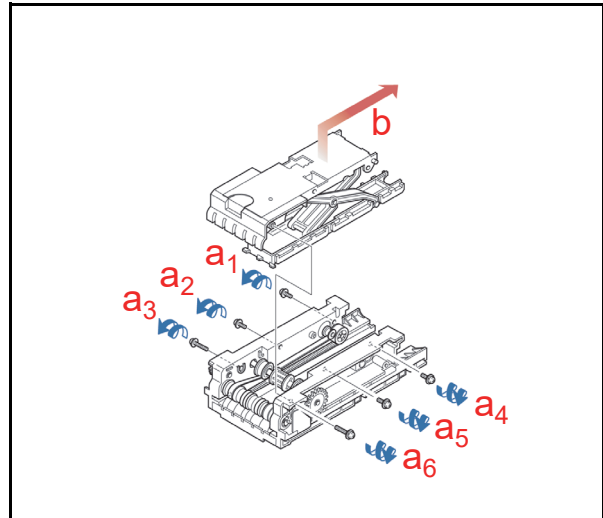


Figure 4-39 Pusher Mechanism Separation

Final Timing Belt Disassembly

To remove the Final Timing Belt, proceed as follows:

1. Remove the two (2) Screws (Figure 4-40 **a₁** & **a₂**) located on each side of the Belt Housing.
2. Remove the Cover Roller in the direction of the Red arrow in Figure 4-40 **b**.

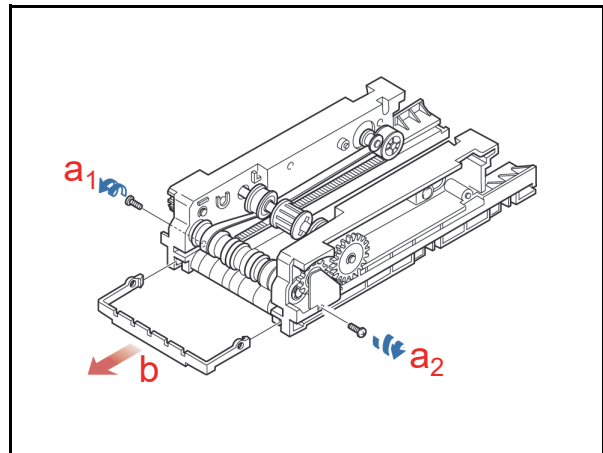


Figure 4-40 Pusher Mechanism Separation

3. Remove the two “Driver Gear (24)” (Figure 4-41 **a**) with E-Rings (Figure 4-41 **b**), its related Parallel Pin (Figure 4-41 **c**), and its Ø6B Bushing (Figure 4-41 **d**).
4. Remove the E-Ring (Figure 4-41 **e**) retaining the Bracket Gear (Figure 4-41 **f**) Assembly in place.
5. Lift the Bracket Gear Assembly up and off the Transport Unit.
6. Remove “Gear M1-Z12(P1)” (Figure 4-41 **g**) with the second Ø6B Bushing (Figure 4-41 **h**).

7. Remove the second Ø6B Bushing (Figure 4-41 i).

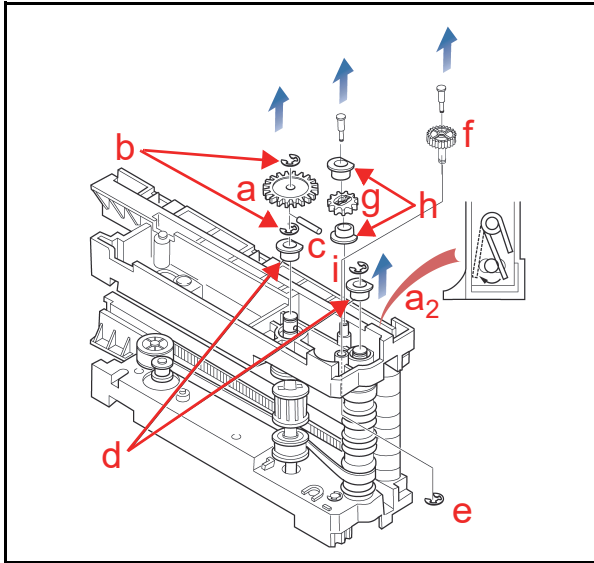


Figure 4-41 Timing Belt Removal Access

8. Release the Left Pressure Spring's tension in the Shaft Roller Pit as indicated in the Figure 4-42.
9. Pull the Right Pusher Guide (Figure 4-42 a) upward, and remove the Timing Belts (Figure 4-42 b₁ & b₂).

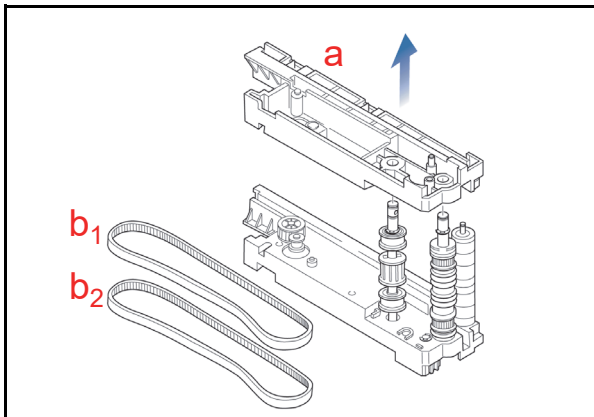


Figure 4-42 Timing Belt Removal

10. The Disassembly Procedure is now complete. Reverse all of the preceding instructions to reassemble any of the components described during this disassembly procedure.

UBA™ Series

Universal Banknote Acceptor

Section 5

5 WIRING DIAGRAMS

This chapter provides the UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit Wiring Diagrams for the following items:

- UBA-10/11/12 System Wiring Diagram
- UBA-14 System Wiring Diagram
- UBA-24 System Wiring Diagram

UBA-10/11/12 System Wiring Diagram

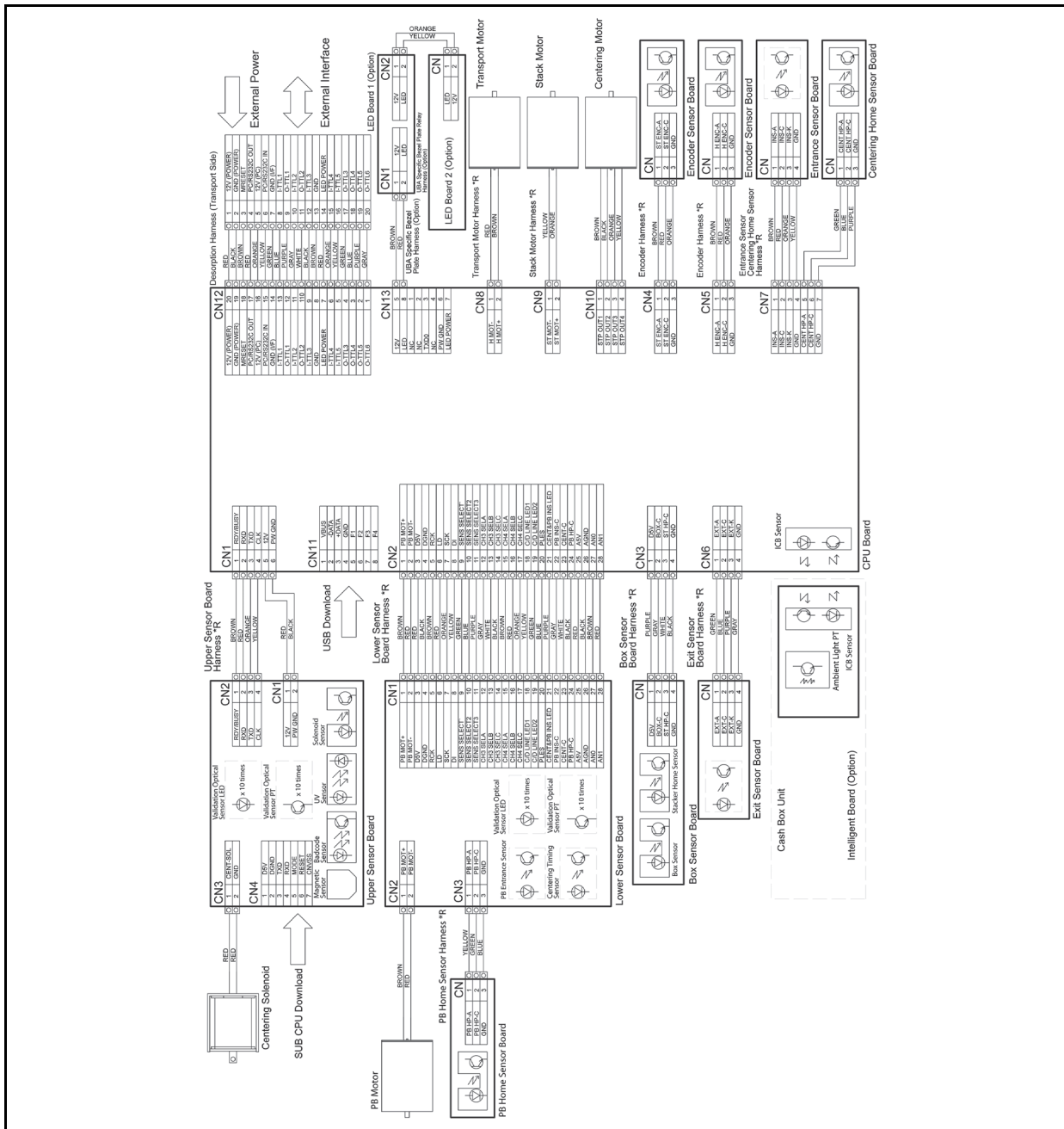


Figure 5-1 UBA (UBA-10/11/12) System Wiring Diagram

UBA-14 System Wiring Diagram

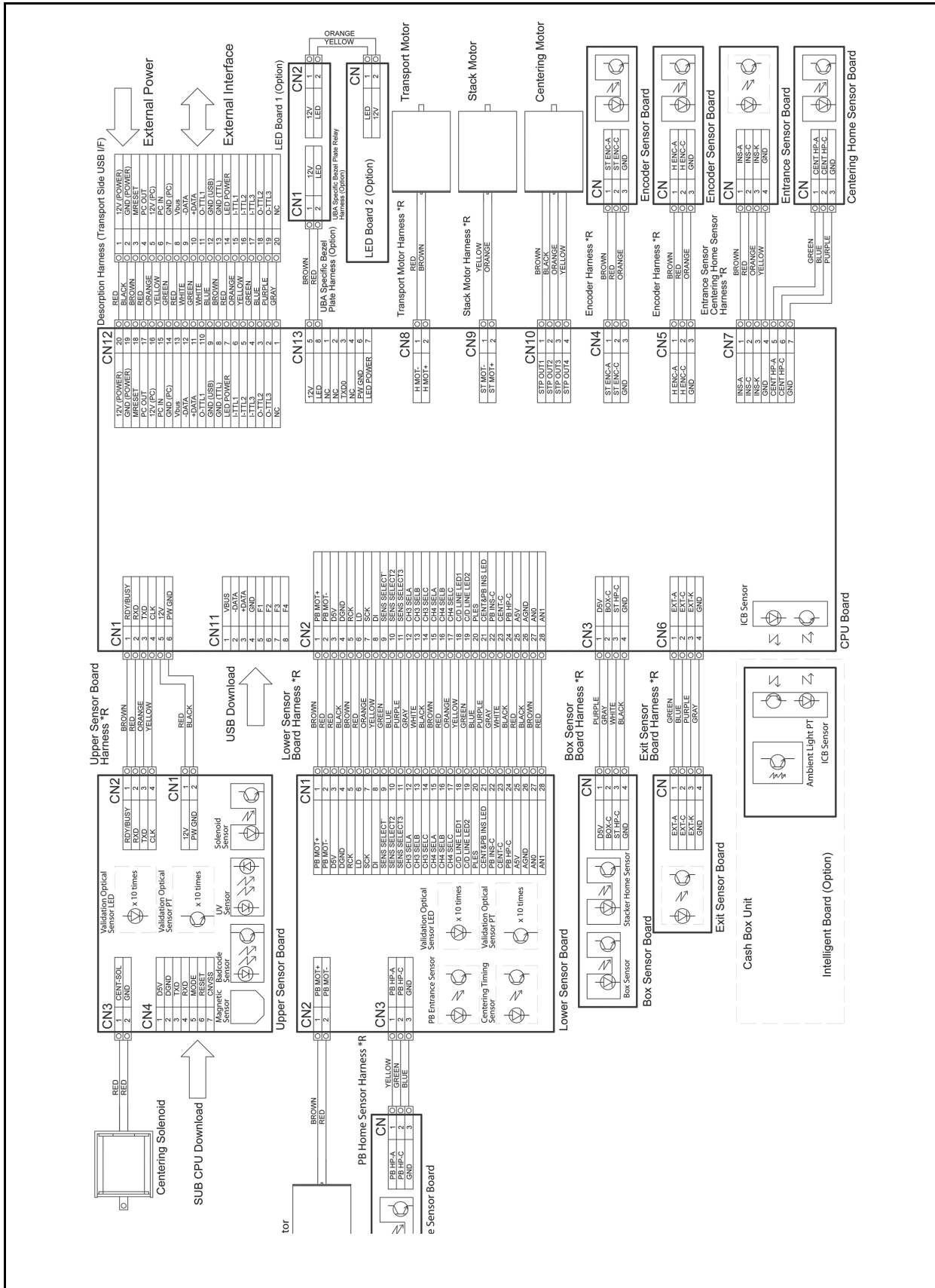


Figure 5-2 UBA (UBA-14) System Wiring Diagram

UBA-24/25 System Wiring Diagram

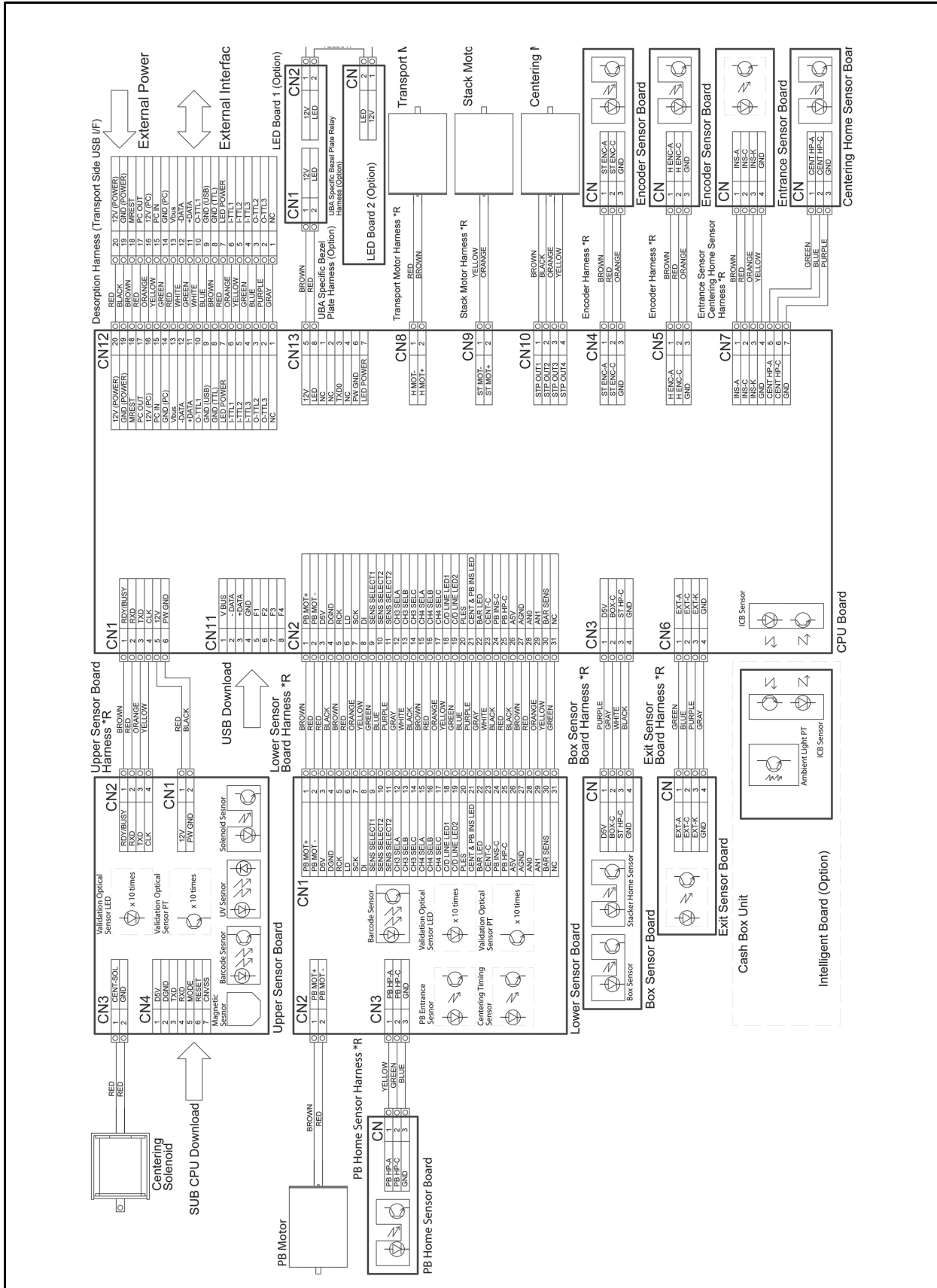


Figure 5-3 UBA (UBA-24/25) System Wiring Diagram

THIS PAGE INTENTIONALLY LEFT BLANK

UBA™ Series

Universal Banknote Acceptor

Section 6

6 CALIBRATION AND TESTING

This section provides Calibration and Performance Testing instructions for UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit. This section contains the following information:

- Workbench Tool Requirements
- Application Software Installation
- Driver Installation
- JCM Tool Suite Standard Edition Mode
- Calibration (Sensor Adjustment)
- Performance Tests Without a PC

Workbench Tool Requirements

The following tools are required to perform an Application Software and Driver Installations.

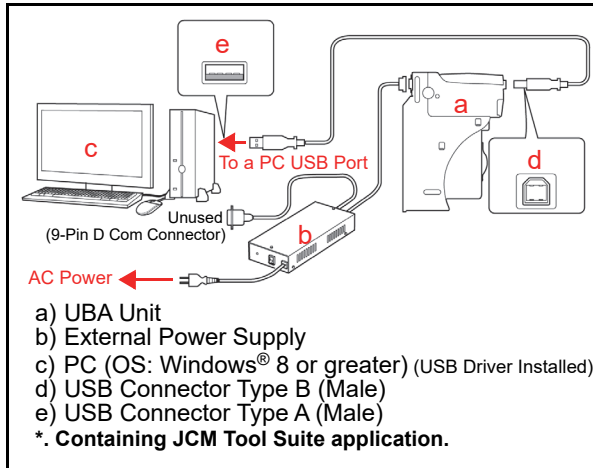


Figure 6-1 Tools and Harness Connections

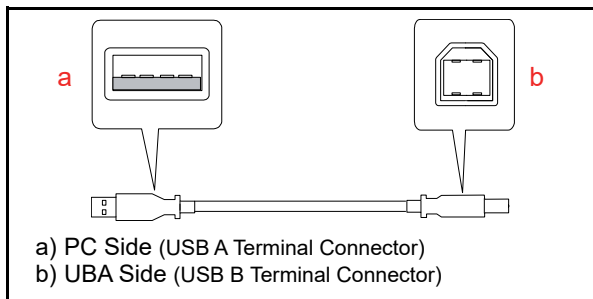


Figure 6-2 Download USB Cable Requirements

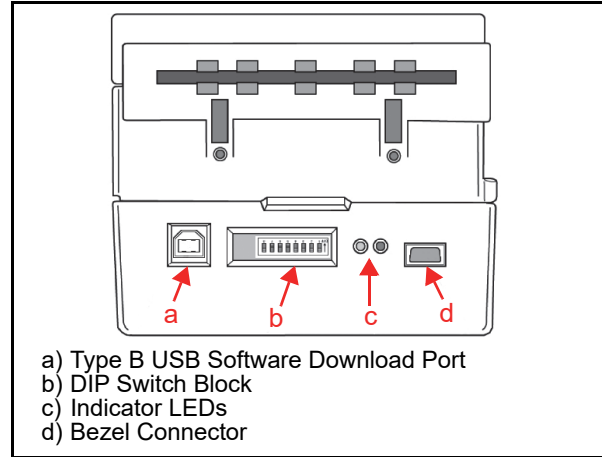


Figure 6-3 UBA DIP Switch & Port Locations

WARNING: Make sure the External Power Supply is OFF when connecting the harness to the UBA. Failure to do so may cause electrical shock and /or permanent damage to the equipment.

Application Software Installation

Perform the following steps to install the “JCM Tool Suite Standard Edition” Application Software (Refer to “Workbench Tool Requirements” on page 6-1 for the Tool Requirements and Harness Connector locations).

1. Copy the “JCMToolSuiteStandardEdition.zip” Application Software and extract to the Desktop.
2. Open the Third Layer of the extracted Folder and Double-click on “Setup.exe” (Figure 6-4 a).

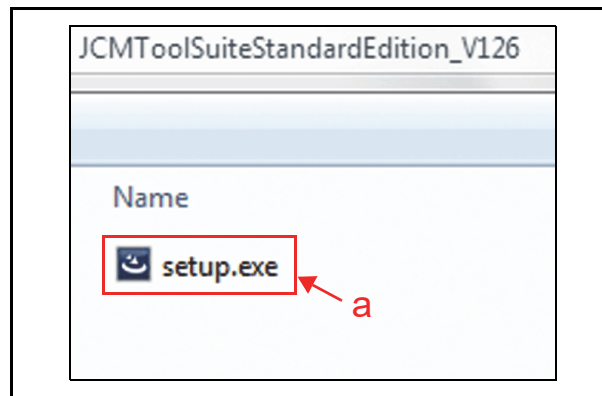


Figure 6-4 Setup.exe File Location

The “JCM Tool Suite Standard Edition - InstallShield Wizard” Screen shown in Figure 6-5 will appear.

3. Click the “Next>”  Button (Figure 6-5 a).

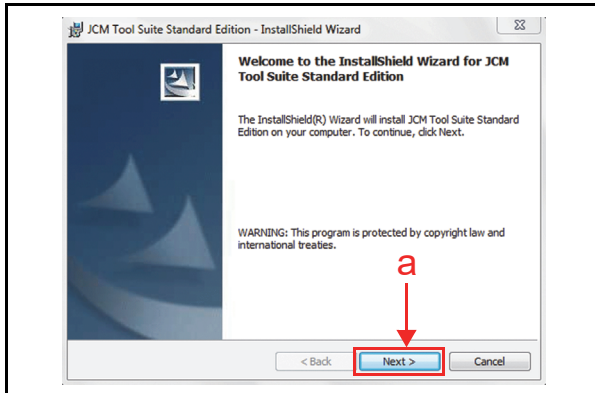


Figure 6-5 InstallShield Wizard Screen

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

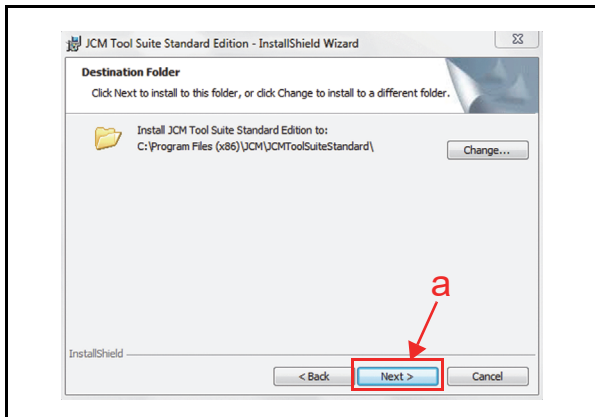



Figure 6-6 Destination Folder Screen

5. When the “Ready to Install the Program” Screen appears, select the “Anyone who use this computer (all users)” (Figure 6-7 a) and then click the “Install”  Screen Button (Figure 6-7 b) to start the installation.

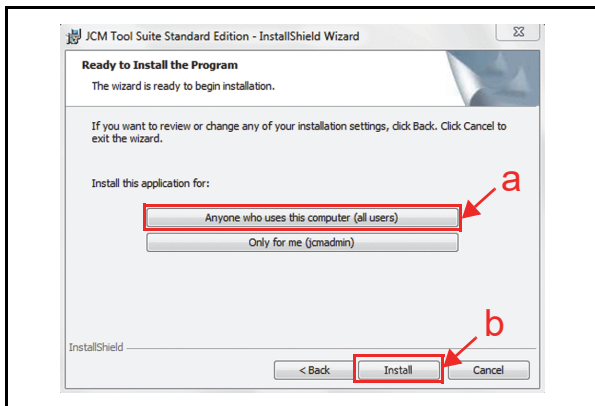



Figure 6-7 Current Settings Confirmation

6. Once installation is complete, the “InstallShield Wizard Completed” Screen shown in Figure 6-8 will appear. Click the “Finish”  Screen Button (Figure 6-8 a) to end the installation process.

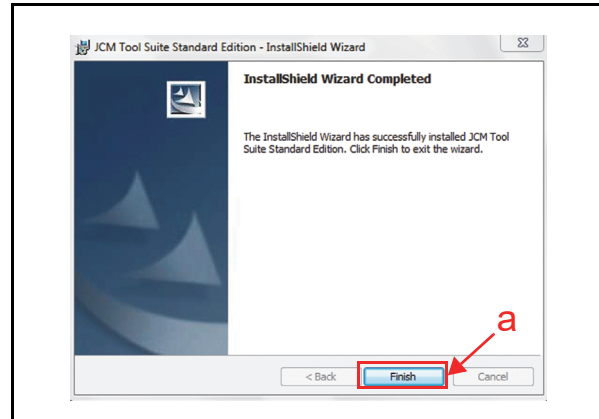



Figure 6-8 Installation Completion Screen

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

Driver Installation

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

1. Connect the USB Cable to the UBA Unit (Refer to “Workbench Tool Requirements” on page 6-1 for the Tool Requirements and Harness Connector locations).
2. When the Device Driver Installation Wizard Screen (Figure 6-9) appears, click the “Next>”  Screen Button (Figure 6-9 a) to install the driver for the UBA Unit.

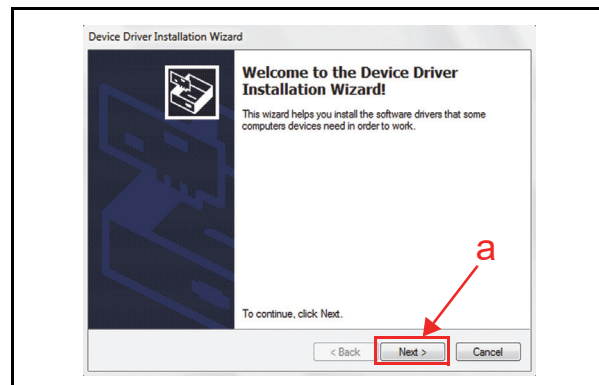



Figure 6-9 Hardware Update Wizard Screen 1

3. When the USB Driver Installation is complete, the “Completing the Device Driver Installation Wizard” Screen will appear as shown in Figure 6-10. Click the “Finish”  Screen Button (Figure 6-10 a) to close the Screen.

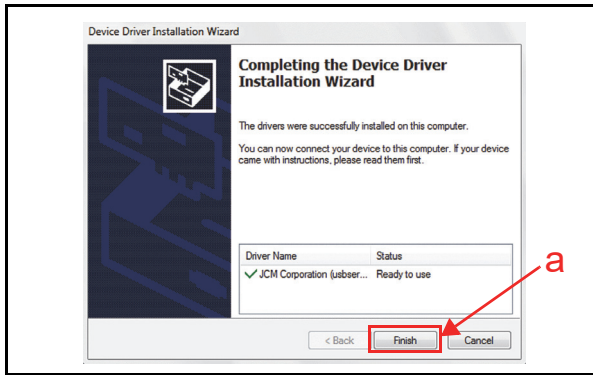


Figure 6-10 Hardware Update Wizard Screen 2

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

This completes the UBA USB Driver Software installation procedure.

JCM Tool Suite Standard Edition Mode

The following one (1) Mode feature types exist in the “JCM Tool Suite Standard Edition” package:

- Normal Mode

“Normal Mode” is used to update UBA software, check Statistics and access the Sensor Adjustment function while the UBA is in the operating condition.

“Service Mode” contains three (3) available choices in its Pull-down Menu shown in Figure 6-11a as follows:

- **Download** (for downloading software)
- **Statistics** (for observing log data)
- **Sensor Adjustment** (for calibration)

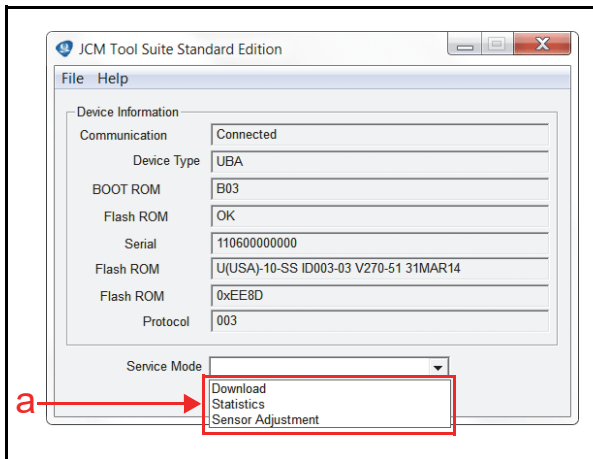


Figure 6-11 Normal Mode Selection

DOWNLOAD

The following two (2) types of download procedures exist, depending on the UBA operating conditions:

NOTE: Refer to “Workbench Tool Requirements” on page 6-1 for required tools to download software.

- The UBA contains the “UBA Software Program already installed” (Upgrading)
- The UBA is new and does not have the “UBA Software Program installed” (e.g., contains a New CPU Circuit Board).

Download the Upgrade Program

To download an update to the “Software Program” into an operating UBA, proceed as follows:

1. Remove electrical power from the UBA Unit.
2. Set all of the 8-Position DIP Switches to **OFF** (Figure 6-12).

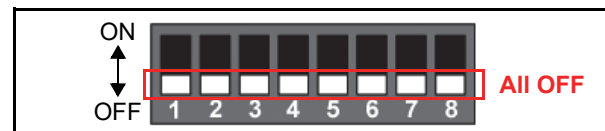


Figure 6-12 DIP Switches All OFF

3. Connect the USB Port located on the front side of the UBA Unit to the PC using a USB “A” to “B” Communications Cable (See “Workbench Tool Requirements” on page 6-1).
4. Apply electrical power to the UBA Unit.
5. Launch the “**JCM Tool Suite Standard Edition**” Application. The Screen shown in Figure 6-13 will appear when the application opens. Confirm that “Communication” status shows “Connected” (Figure 6-13 a).

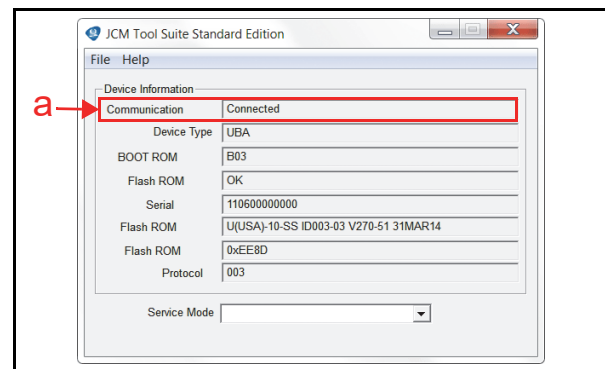


Figure 6-13 JCM Tool Suite Standard Edition Screen 1

6. Click and hold-down the “Service Mode” Pull Down Menu, and select “Download” (Figure 6-14 a) from within the Pull-Down Menu Selections. When selected it will highlight the selected Field Blue (Figure 6-14).

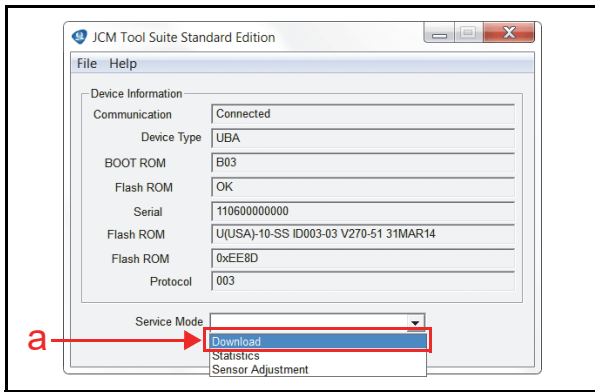


Figure 6-14 JCM Tool Suite Standard Edition Screen Pull-Down Menu 1

When “Download” (Figure 6-14 a) is selected, the “JCM Downloader Suite Edition Version X.XX” will automatically begin functioning, and the Screen shown in Figure 6-15 will appear.

- Click the “Browse” Screen Button (Figure 6-15 a).

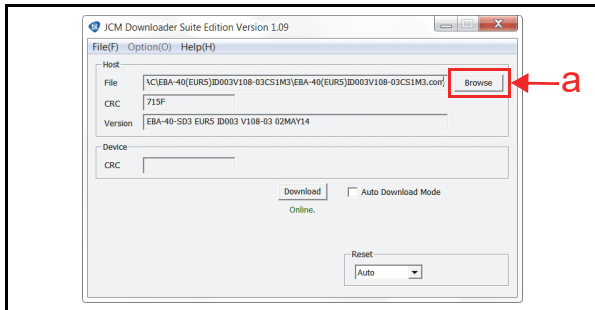


Figure 6-15 Browse Screen Button Location

- Select the Current UBA Software Version File (Figure 6-16 a) from the **Download File** Screen that appears.
- Click the “Open” Screen Button (Figure 6-16 b).

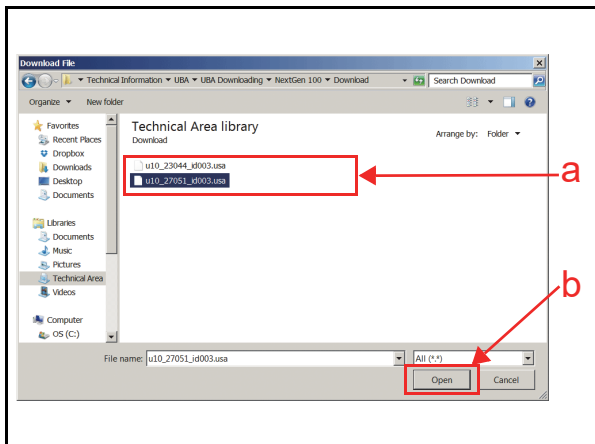



Figure 6-16 UBA Software Program Selection

 **NOTE:** Select the correct UBA Firmware for the desired country.

- When the “JCM Downloader Suite” Screen reappears, click the center “Download” Screen Button (Figure 6-17 a) to begin the Software download into the UBA Unit.

The Download Screen will display a Progress Barograph during the download operation (Figure 6-17 b), and a Blue Text Line below the Download Screen Button will display the download Percentage as “Downloading : XX%” (Figure 6-17 c).

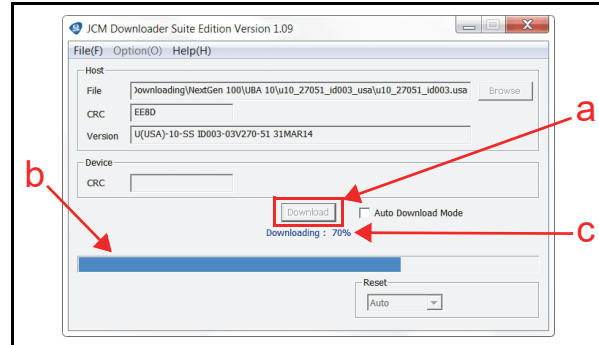


Figure 6-17 Download Progress Screen 1

- When the download is complete, the “Download Success. Reset Done. Waiting for USB Cable Disconnection.” Blue Text Line will appear (Figure 6-18 a).
- Confirm that the Host’s Checksum and the Device Checksum identically match each other (Figure 6-18 b).

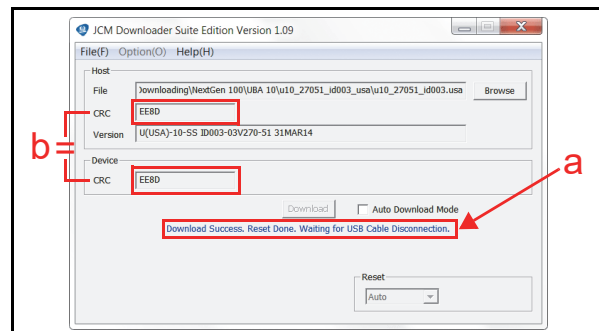


Figure 6-18 Download Completed Screen 1

Downloading the Program First Time

When the UBA Software Program is not preinstalled (e.g., when changing the CPU Circuit Board), the download procedure for an “empty” Unit is slightly different from the Download and Upgrade Program procedures.

To download the “UBA Software Program” into an “empty” UBA for the first time, proceed as follows:

1. Remove electrical power from the UBA Unit.
2. Set 8-Position DIP Switches #6, #7 and #8 to **ON** (Figure 6-19).



Figure 6-19 DIP Switches 6, 7, & 8 ON

3. Connect the USB Port located on the front side of the UBA Unit to the PC using a USB “A” to “B” Communications Cable (See “Workbench Tool Requirements” on page 6-1).
4. Apply electrical power to the UBA Unit. The Status LED will flash alternating **Red** and **Green**.
5. Launch the “JCM Tool Suite Standard Edition” Application. The Screen shown in Figure 6-20 will appear when the application is opened. Confirm that “Communication” status shows “Connected” (Figure 6-20 a).

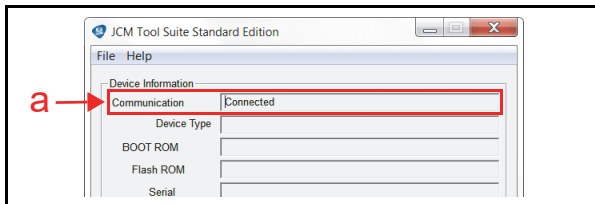


Figure 6-20 JCM Tool Suite Standard Edition Screen 2

6. Click and hold-down the “Service Mode” Pull-down Menu selection, and Slide-down the Menu to select “Download” from within the Menu Selections. When selected it will Highlight the selected Field Area **Blue** (Figure 6-21).

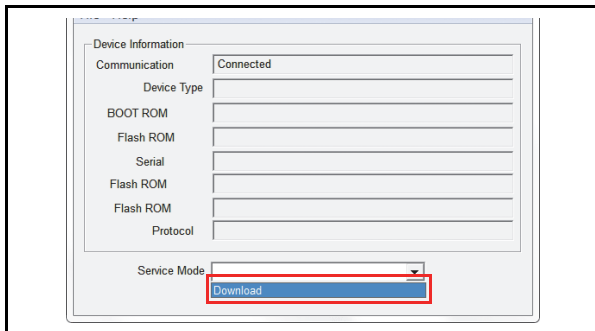


Figure 6-21 JCM Tool Suite Standard Edition Screen Pull-Down Menu 2

Once “Download” is selected, the “**JCM Downloader Suite Edition Version X.XX**” will automatically begin functioning, and the Screen shown in Figure 6-22 will appear.

7. Click the “Browse” Screen Button (Figure 6-22 a).

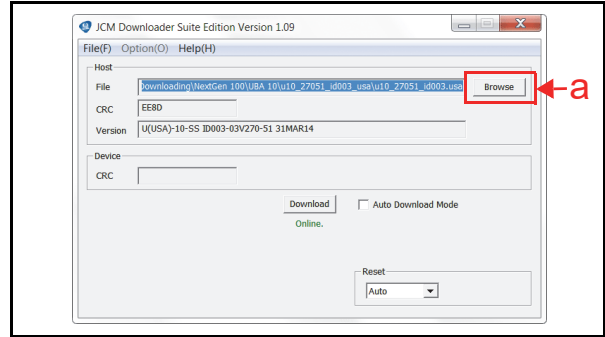


Figure 6-22 Browse Screen Button Location

8. Select the current UBA Software Program Version from the **Download File** Screen that appears (See Figure 6-23 a Example).
9. Click the “Open” Screen Button (See Figure 6-23 b).

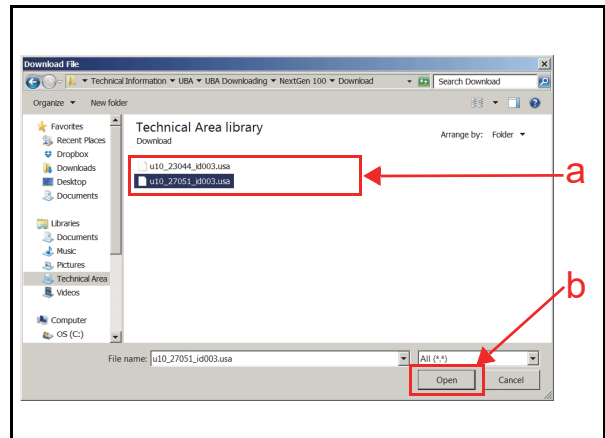



Figure 6-23 UBA Software Program Selection

 **NOTE:** Select the correct UBA Firmware for the desired country.

10. When the “JCM Downloader Suite...” Screen reappears, click the center “Download” Screen Button (Figure 6-24 a) to begin downloading Software into the UBA Unit. The Download Screen will display a Progress Barograph during the download operation (Figure 6-24 b), and a **Blue Text Line** below the Download Screen Button will display the download Percentage as “**Downloading : XX%**” (Figure 6-24 c). The Status LEDs will flash **Red**, **Green**, both and repeat.

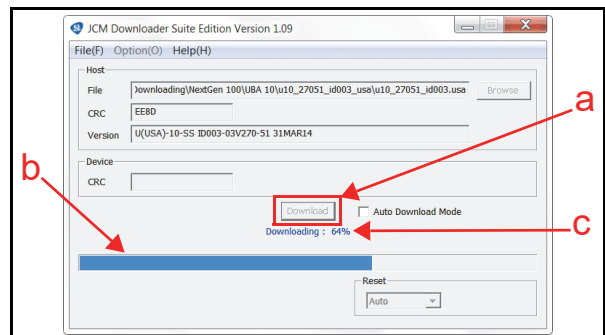


Figure 6-24 Download Progress Screen 2

11. When the download is complete, the “Download Success. Reset Done. Waiting for USB Cable Disconnection.” Blue Text Line will appear (Figure 6-25 a).
12. Confirm that the Host’s Checksum and the Device Checksum identically match each other (Figure 6-25 b).

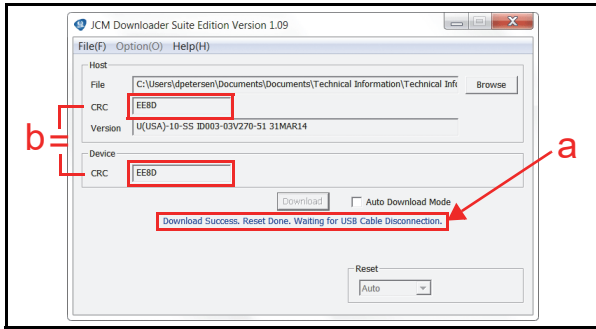


Figure 6-25 Download Completed Screen 2

This completes the UBA Software Downloading Procedures.

STATISTICS

The “Statistics” Tab Selection is used to read AccLoad Statistics from within the UBA Unit (Figure 6-26 a).

When the “Statistics” Tab is selected, the AccLoad Screen shown in Figure 6-26 will appear.

To “Read” data from the UBA Unit, click the “Read” Screen Button (Figure 6-27 b).

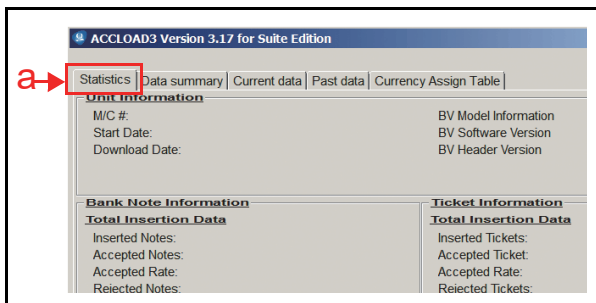


Figure 6-26 JCM Tool Suite Standard Edition ACCLoad Screen 1

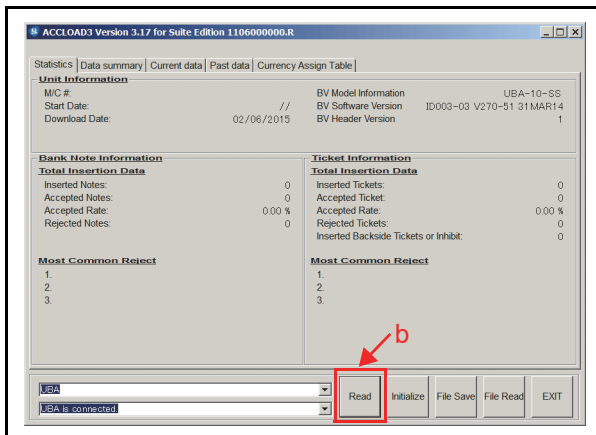


Figure 6-27 JCM Tool Suite Standard Edition ACCLoad Screen 2

Calibration (Sensor Adjustment)

The Sensor Adjustment Program is used to calibrate the UBA Unit. Calibration sets a starting reference point for all Optical and Magnetic Sensors within the Unit.

This task can be accomplished at the host unit or at a workbench.

CALIBRATION TOOL REQUIREMENTS

The following tools and Reference Papers are required for workbench calibration (Figure 6-28):

NOTE: Refer to “Maintenance Equipment” on page A-9 for Reference Papers and Maintenance Tools.

- JCM Universal Banknote Acceptor (UBA)
- External Power Supply
- PC containing a USB Port (OS: Windows 2000 or greater)
- White Reference Paper
- Black Reference Paper
- UV Reference Paper
- Mag Tool Kit

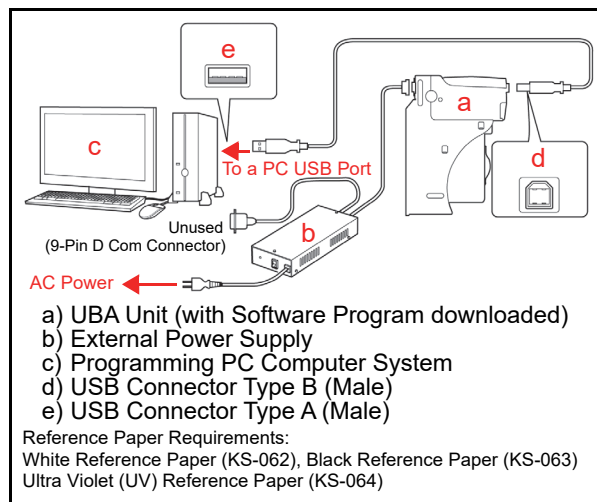


Figure 6-28 Required Calibration Workbench Tools

WHEN TO CALIBRATE

- After a Banknote Acceptor component has been disassembled for repair
- After a Sensor Board has been replaced
- If a CPU Board is replaced.

CALIBRATION PROCEDURE

To begin adjusting the sensors, proceed as follows:

NOTE: The UBA Unit must be in a Frame for Calibration!

1. Remove electrical power from the UBA Unit.
2. Connect the USB Port located on the front side of the UBA Unit to the PC using a USB “A” to “B” Communications Cable (See “Workbench Tool Requirements” on page 6-1).
3. Apply electrical power to the UBA Unit.

- Launch the “JCM Tool Suite Standard Edition” Application. The “JCM Tool Suite Standard Edition” Screen shown in Figure 6-29 will appear when the application opens.
- Click and hold-down the “Service Mode” Pull-down Menu Selection (Figure 6-29 a) and slide-down to select the “Sensor Adjustment” from the Pull-Down Menu selections (Figure 6-29 b).

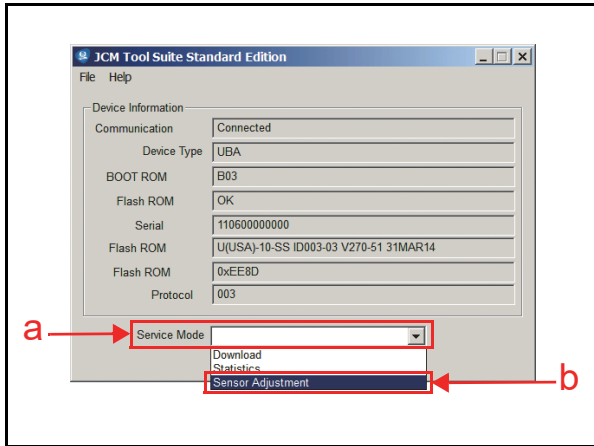


Figure 6-29 Sensor Adjustment Selection Screen

- Click the Start START Screen Button (Figure 6-30 a) to begin the UBA Adjustment program.

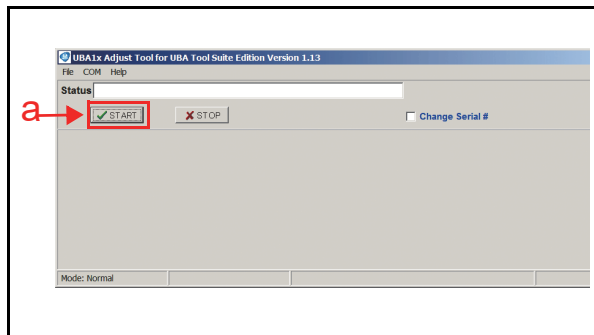


Figure 6-30 JCM Tool Suite Standard Edition Sensor Adjustment Screen

- Confirm that the Validation Sensor to be cleaned screen (Figure 6-31 a) appears.
- Click the OK Screen Button (Figure 6-31 b).

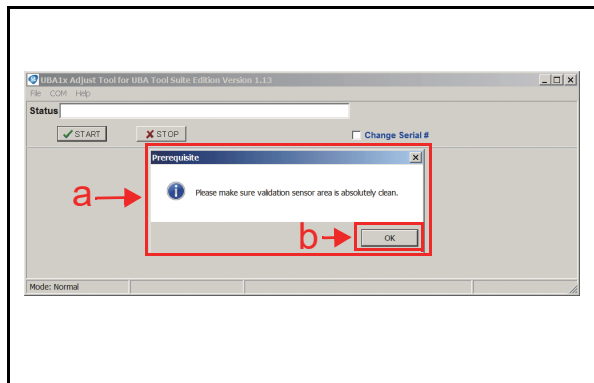


Figure 6-31 Validation Sensor Cleaning Confirmation Screen

- Confirm that the Motor speed test runs.

NOTE: Step 10 is reserved for UBA-14 or UBA-24 Units.

- Select a desired unit model type and click the OK Screen Button (Figure 6-33 a).

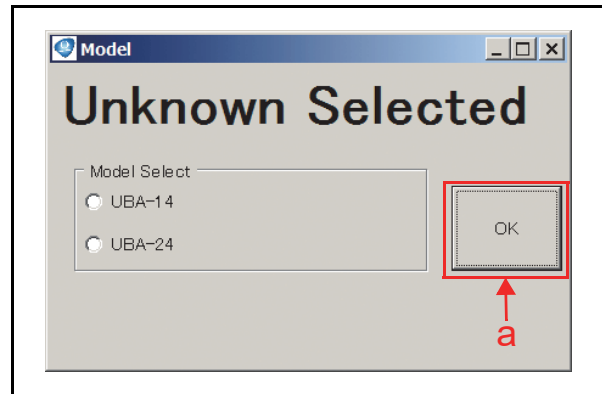


Figure 6-32 Model Type Selection

- The Dialog Box Window will appear then ask for the “White” Reference Paper to be set in place (Figure 6-33 a).

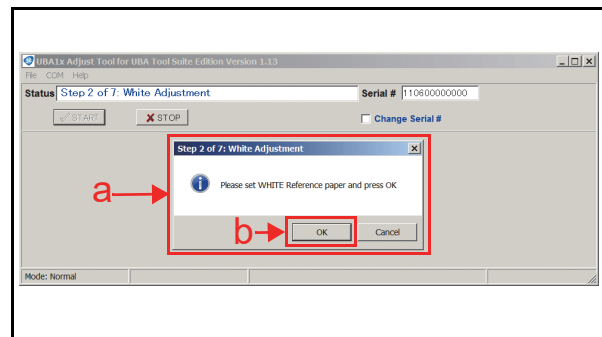


Figure 6-33 White Reference Paper Set Screen

- Open the UBA’s Upper Guide, Insert the White Reference Paper (Figure 6-34 A), firmly close the Upper Guide (Figure 6-34 B) and click the OK Screen Button (Figure 6-33 b).

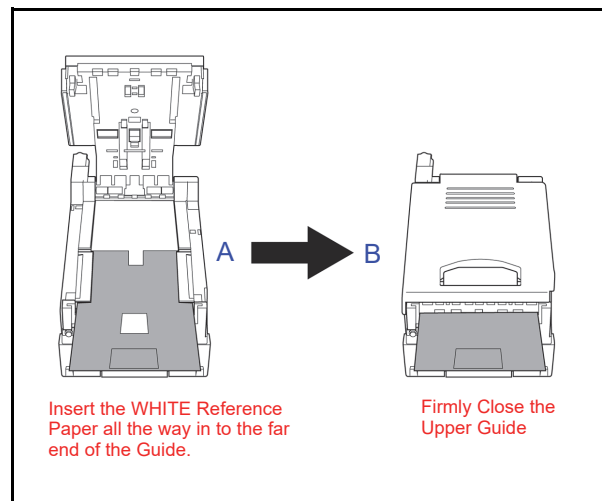


Figure 6-34 White Reference Paper Insertion Request

13. After a short period, the Dialog Box Window will appear then ask for the “Black” Reference Paper to be set in place (Figure 6-35 a). Open the UBA’s Upper Guide, remove the White Reference Paper and insert the Black Reference Paper (Figure 6-36 A).
14. Firmly close the Guide (Figure 6-36 B) and click the OK Screen Button (Figure 6-35 b) again.

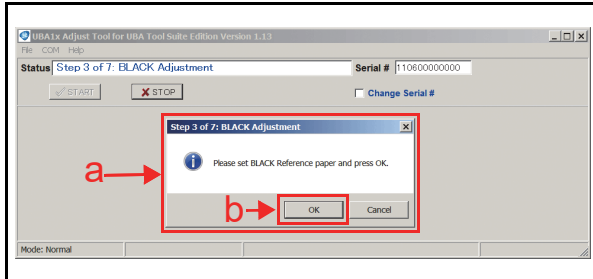


Figure 6-35 Black Reference Paper Set Screen

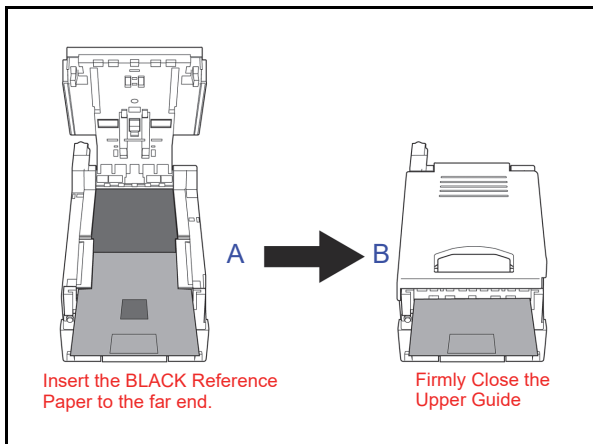


Figure 6-36 Black Reference Paper Insertion Request

15. Repeat the White and Black Reference Paper steps as instructed on the Screen until the “UV Adjustment” Screen shown in Figure 6-37 is displayed. Open the UBA Upper Guide, remove the existing test Reference Paper and insert the UV Reference Paper in its place.

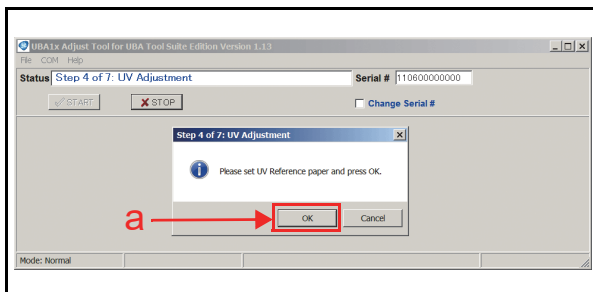


Figure 6-37 UV Reference Paper Set Screen

16. Insert the UV Reference paper so it covers the White Plastic Area at the rear center of the Lower Transport Path (Figure 6-38 A) with the Label facing Up, then firmly close the Upper Guide as shown in Figure 6-38 B, then click the OK Screen Button (Figure 6-37 a) again.

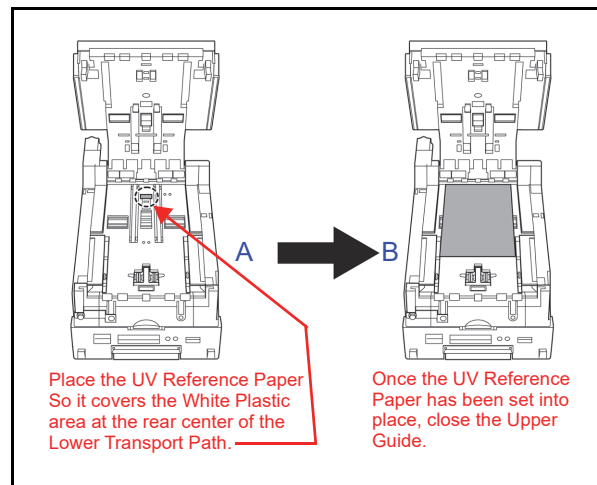


Figure 6-38 UV Reference Paper Insertion Request

Caution: Do not insert the UV Reference Paper past the curved area of the Transport, an error will occur if the UV Reference paper is inserted in too far.

17. When the “Adjustment Without Reference Paper” Screen shown in Figure 6-39 appears, open the Upper Guide and remove the UV Reference paper, then firmly close the Upper Guide and click the OK Screen Button again (Figure 6-39 a).

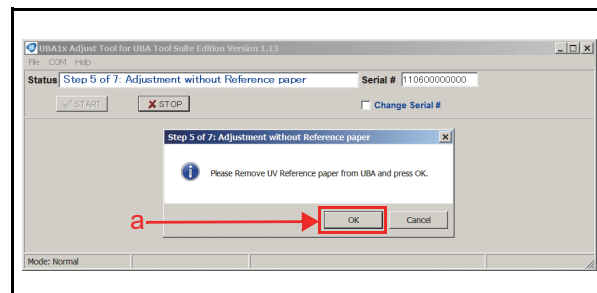


Figure 6-39 Remove UV Reference Paper Test Screen

18. When the “Verify Adjustment With WHITE Reference paper” Screen shown in Figure 6-40 appears, open the Upper Guide and insert the White Reference paper, then firmly close the Upper Guide and click the OK Screen Button again (Figure 6-40 a).

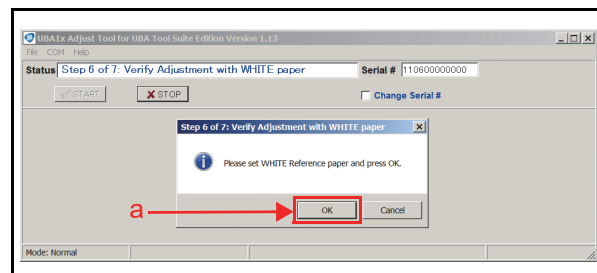


Figure 6-40 Verify Adjustment Dialog Screen

19. When adjustment of all of the Optical Sensors is complete, the “MAG HEAD Adjustment” Screen will appear (Figure 6-41).
20. Insert the Mag Head Test Board into the UBA. Set the Mag Head Test Board so the middle line is located just above the Roller located on the Lower Tray, then close the guide firmly and click the OK Screen Button (Figure 6-41 a).

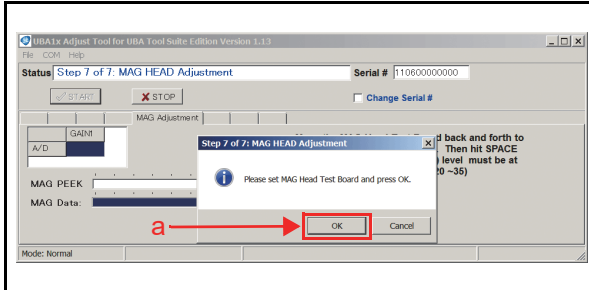



Figure 6-41 MAG HEAD Adjustment Dialog Screen

21. Move the Mag Head Test Board, in and out slightly, to find the peak value. Find the position where the “GAIN1” value enters a range within -5P in relation to the peak value, then press the “Space” Bar.

 **NOTE:** The average peak value range is approximately 20P to approximately 35P. Use this value only for reference and make sure to find the true peak value using your particular Acceptor Unit.

22. When the MAG HEAD Adjustment is complete, “Status” will change to “STATUS; Set WHITE Reference Paper” (Figure 6-42 a).
23. Open the UBA’s Upper Guide, remove the Mag Head Test Board and then insert the White Reference Paper (Figure 6-34 A).
24. Firmly close the Upper Guide (Figure 6-34 B) and click the OK Screen Button (Figure 6-42 b).

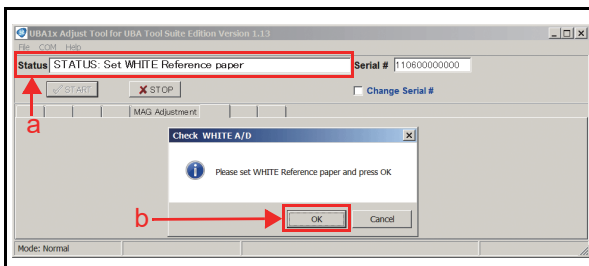


Figure 6-42 White Reference Paper Insertion Screen

25. When the “Please Remove WHITE Reference paper from UBA and Press OK” dialog box window appears (Figure 6-43 a), open the UBA’s Upper Guide, remove the White Reference Paper (Figure 6-36 A).
26. Firmly close the Guide (Figure 6-36 B) and click the OK Screen Button (Figure 6-43 b).

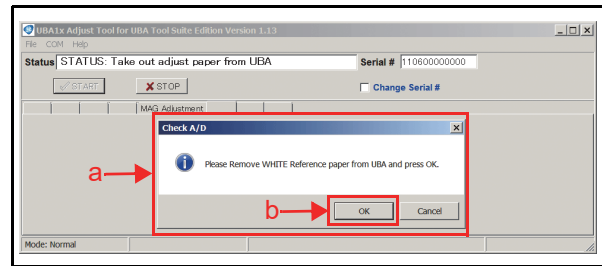


Figure 6-43 White Reference Paper Removal Screen

27. When the Sensor Adjustment is complete, the “UBA Adjustment finished successfully!!” Screen shown in Figure 6-45 will appear. Click the Push Button Screen Button (Figure 6-44 a), the calibration process will be complete.

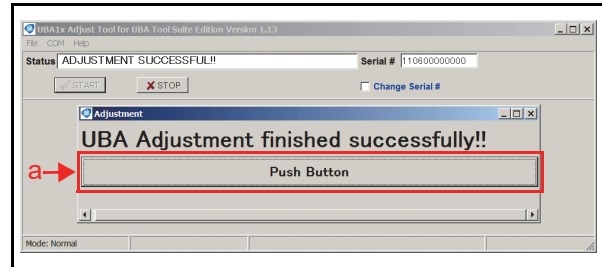


Figure 6-44 Sensor Adjustment Successful Screen

28. Click on “x” upper right to close the application (Figure 6-45).

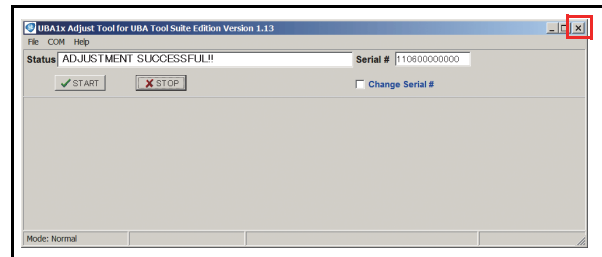


Figure 6-45 Sensor Adjustment Successful Screen

Performance Tests Without a PC

TEST MODE

The UBA is equipped with diagnostic features to aid in repair and maintenance. This section describes the test procedure for use with each function using DIP Switch settings to identify the cause of a failure condition. In order to identify a failure condition's cause, the UBA has to be in the TEST Mode.

To enter the TEST Mode perform the following steps:

1. Connect the external power supply to the UBA (Figure 6-46).

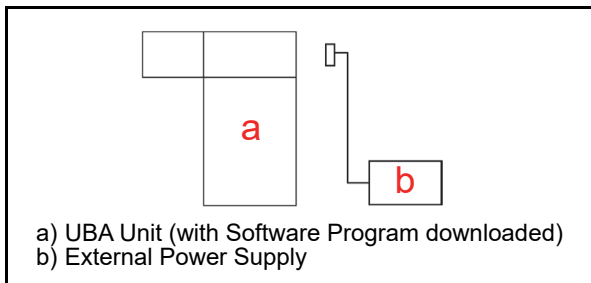


Figure 6-46 Required Calibration Workbench Tools

2. Set DIP Switch No.8 to ON and supply the power to the UBA.

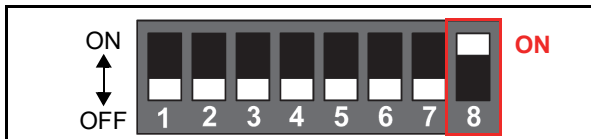


Figure 6-47 DIP Switch Settings

3. Check that both the Red and Green diagnostic LEDs are lit. This condition indicates the unit is now in the TEST Mode.
4. Set the DIP Switches depending on the test you wish to execute.
5. Set DIP Switch No.8 to OFF to start a particular test. When the test begins, both the Red and Green diagnostic LEDs will extinguish (go out) after few seconds, the diagnostic LEDs will independently turn ON & OFF depending on the test being executed.
6. To finish a test, set DIP Switch No.8 to ON again, and turn the UBA Power OFF.

CHOOSING AND SELECTING OPERATIONAL TESTS

Set the UBA into the “Test Mode”, and then set the DIP Switches to match each operational test shown in following Test Tables (See “Test Mode” on page 6-10).

Set DIP Switch No.8 to OFF initially to start each test.



NOTE: Setting DIP Switch No.8 to ON again will interrupt a test, and restore the system to the Test Mode.



Caution: If diagnostic LED status is different from the Tables listed states, contact JCM Technical Support.

DIP SWITCH SETTINGS FOR PERFORMANCE

Table 6-1 lists the DIP Switch Settings for the UBA Performance Test.

Table 6-1 DIP Switch Configurations

No.	Test Item	DIP Switch Settings								Status LEDs Conditions		
		1	2	3	4	5	6	7	8	Stand-by	Performing	Abnormal
1	Transport Motor Forward Rotation	ON	-	-	-	-	-	-	ON/OFF	Red ON Green ON	Green ON (in normal operation)*	Red Flashes
	Transport Motor Reverse Rotation	-	ON	-	-	-	-	-	ON/OFF	Red ON Green ON	Green ON (in normal operation)*	Red Flashes
2	Stacking Movement†	-	-	ON	-	-	-	-	ON/OFF	Red ON Green ON	Green ON (in normal operation)	Red Flashes
3	Aging †	-	-	-	ON	-	-	-	ON/OFF	Red ON Green ON	OFF	Red Flashes
4	Pull-Back Unit Movement	-	-	-	-	ON	-	-	ON/OFF	Red ON Green ON	OFF (at Home Position)‡	-
5	Centering Mechanism Movement	ON	-	-	-	ON	-	-	ON/OFF	Red ON Green ON	Green ON (at Home Position)**	-
6	Solenoid Movement††	-	ON	-	-	ON	-	-	ON/OFF	Red ON Green ON	Green ON (being blocked)‡‡	-
7	Sensor Test	-	-	-	-	-	-	ON	ON/OFF	Red ON Green ON	Red ON Green ON	-
8	Banknote Acceptance with the Cash Box†	ON	ON	ON	ON	-	-	-	ON/OFF	Red ON Green ON	OFF	Red Flashes or Green Flashes***
	Banknote Acceptance without the Cash Box††	ON	ON	ON	-	-	-	-	ON/OFF	Red ON Green ON	OFF	Red Flashes or Green Flashes***
9	DIP Switch Test	ON	ON	ON	ON	ON	ON	ON	ON/OFF	Red ON	Red ON	-
		ON	ON	ON	ON	ON	ON	ON	ON/OFF	Green ON	Green ON	

*. When the Transport Motor is performing normally, the Green LED is lit.

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

‡. When the Pull-Back Unit is located at its Home Position, the Green LED is lit. If the Pull-Back Unit is located at any other position, the Status LEDs are turned OFF.

**..When the Centering Mechanism is located at its Home Position, the Green LED is lit. If the Centering Mechanism is positioned at any other position, the LED is turned OFF.

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

‡‡.When the Solenoid Sensor is blocked, the Green LED is lit. If the Solenoid Sensor is not blocked, the LED is turned OFF.

***.If any error occurs, the Red LED flashes or a Banknote is returned first and then the Green LED flashes.

No.1 TRANSPORT MOTOR FORWARD/REVERSE ROTATION TEST

The tests listed in Table 6-2 detect the forward and reverse rotational motor speed. Confirm that the motor operates smoothly without emitting abnormal noise.

Identify the cause, condition and/or solution for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-2.

Table 6-2 Transport Motor Speed Test Error Conditions

Motor Speed Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Normal	OFF	Lit	Normally runs and stops when cycled.
Fast	2 Flashes	OFF	Contact JCM Technical Support.
Slow	3 Flashes	OFF	The Transport Motor Speed Encoder Sensor does not detect motor rotation. Check that all harness connectors are seated. A Motor or CPU Board failure may have occurred. Exchange the Motor/CPU Board with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.

No.2 STACKER TEST

The tests listed in Table 6-3 detect the Banknote Stacker's operational condition. When the test starts, the Pushing Mechanism will begin operating. Confirm that the Pushing Mechanism constantly operates without having the Red LED light or flash.

Identify the cause, condition and/or solution for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-3.

Table 6-3 Banknote Stacker Test Error Conditions


Stacker Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Stacker Full	1 Flash	OFF	A Stacker Encoder Board failure may have occurred. Check all harnesses and connectors. Exchange the Stacker Encoder Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Stacker Jam	2 Flashes	OFF	An Stacker Home Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Stacker Home Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Stacker Motor Lock	4 Flashes	OFF	Stacker Motor may be defective. Change the motor if defective. A Stacker Encoder Board failure may have also occurred. Exchange the Stacker Encoder Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Cash Box	10 Flashes	OFF	A Cash Box Sensor Board failure may have occurred. Check all harnesses and connectors. Change the Box Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.

No.3 RUNNING TEST

The tests listed in Table 6-4 detect the UBA’s operational condition. When the test starts, the following operation is continuously repeated. Confirm that the Centering Mechanism, Banknote Transportation and Pushing Mechanism constantly cycles (every 25 seconds) and operates without having the Red LED light or flash.

Identify the cause, condition and/or solution for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-4.

Table 6-4 Running Test Error Conditions

DIP Switch Block Settings			
			
#4 ON, #8 ON/OFF			
No.8 to OFF → Test start			
UBA Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Stacker Full	1 Flash	OFF	A Stacker Encoder Board failure may have occurred. Check all harnesses and connectors. Exchange the Stacker Encoder Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Stacker Jam	2 Flashes	OFF	An Stacker Home Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Stacker Home Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Acceptor Jam	4 Flashes	OFF	Check the prisms for dirt or scratches. To clean the prisms, refer to Section 2 regarding Preventive Maintenance. A Lower Sensor Board failure may have occurred. To exchange the Lower Sensor Board refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Motor Lock-up	6 Flashes	OFF	The transport Motor Speed Encoder Sensor does not detect motor rotation. Check all harnesses and connectors. Exchange the Motor and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Upper PCB Set-up Error	7 Flashes	OFF	An Upper Sensor Board failure may have occurred. Exchange the Upper Sensor Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Anti-Pullback Unit Error	9 Flashes	OFF	An Anti-Pullback Home Sensor Board and/or a Lower Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Anti-Pullback Home Sensor Board and/or a Lower Sensor Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Cash Box Error	10 Flashes	OFF	A Cash Box Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Cash Box Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Solenoid Error	13 Flashes	OFF	A Solenoid or an Upper Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Upper Sensor Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.
Centering Mechanism Error	14 Flashes*	OFF	Centering Mechanism Home Sensor Board and/or CPU Board failure may have occurred. Check all harnesses and connectors. Exchange the Centering Mechanism Home Sensor Board if required with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.


*. If the Centering Mechanism’s Home Sensor is blacked or disabled, the UBA will not error during this test. The Centering Mechanism will just perform a short cycle and continue to operate.

No.4 ANTI-PULLBACK MECHANISM TEST

The test listed in Table 6-5 detects the Anti-Pullback Mechanism operational condition.

Identify the cause, condition and/or solution for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-5.

Table 6-5 Anti-Pullback Mechanism Test Error Conditions


DIP Switch Block Settings			
 <p>#5 ON, #8 ON/OFF</p>			
No.8 to OFF → Test start			
Anti-Pullback Mechanism Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Normal	OFF	OFF	The Anti-Pullback Mechanism is in the Home Position.
	OFF	Lit	The Anti-Pullback Mechanism passes the Home Position.
Anti-Pullback Unit Error	Anti-Pullback Unit is not working or the Green LED will not light/distinguish as designed		An Anti-Pullback Home Sensor Board and/or a Lower Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Anti-Pullback Home Sensor Board and/or a Lower Sensor Board with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.

No.5 CENTERING MECHANISM TEST

The test listed in Table 6-6 detects the Centering Mechanism operational condition.

Identify the cause, condition and/or solution for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-6.

Table 6-6 Centering Mechanism Test Error Conditions


DIP Switch Block Settings			
 <p>#1 & #5 ON, #8 ON/OFF</p>			
No.8 to OFF → Test start			
Centering Mechanism Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Normal	OFF	OFF	A Centering Mechanism is centered.
	OFF	Lit	A Centering Mechanism is in the Home Position.
Centering Mechanism Error	Centering Mechanism is not working or the Green LED will not light/distinguish as designed		Centering Mechanism Home Sensor Board and/or CPU Board failure may have occurred. Check all harnesses and connectors. Exchange the Centering Mechanism Home Sensor Board with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.

No.6 SOLENOID TEST

The test listed in Table 6-7 detects the Solenoid's operational condition.

Identify the cause and condition for an indicated error by comparing it against the two (2) Status LEDs (Red and Green) combination listed in Table 6-7.

Table 6-7 Solenoid Test Error Conditions

DIP Switch Block Settings			
 <p>#2 & #5 ON, #8 ON/OFF</p>			
No.8 to OFF → Test start			
Solenoid Condition	Status LED		Causes/Conditions/Solutions
	Red LED	Green LED	
Normal	OFF	OFF	A Solenoid Sensor is not blocked.
	OFF	ON	A Solenoid Sensor is blocked.
Solenoid Error	Solenoid is not working or the Green LED will not light/distinguish as designed		A Solenoid Upper Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Upper Sensor Board with a known good board. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.

No.7 GENERAL SENSOR TEST


The test listed in Table 6-8 detects the UBA’s Sensors operational conditions.

To check the various Sensor conditions, set the DIP Switches according to the Sensor Test desired and observe the Status LEDs illuminating conditions for the selected test listed in Table 6-8.

Begin Sensor Test as follows:


1. Connect the USB Port located on the front side of the UBA Unit to the PC using a USB “A” to “B” Communications Cable (Figure 6-46).

2. Set the UBA into the “Test Mode”, by switching DIP Switch No.8 to ON and applying power to the UBA (See “Test Mode” on page 6-10).
3. Now set DIP Switch No.7 to ON and DIP Switch No.8 to OFF to initially start the first test.

 **NOTE: Leave DIP Switch No.7 On throughout the Sensor Tests.**

4. Select the first Sensor to be tested from Table 6-8, turn ON the appropriate test switches, and compare the LED illumination result to the expected adjacent listed Test Condition result.

Table 6-8 UBA General Sensor Test Setting

DIP Switch Block Settings				
				
#7 ON, #8 ON/OFF				
No.8 to OFF → Test start				
Sensor Name	DIP Switch Conditions	Status LED*		Test Conditions
		Red LED	Green LED	
Entrance Sensor	#1 ON #2-#6 OFF	OFF	Lit	Open the Upper Guide to check the Entrance Sensor’s condition. When the Entrance Sensor is blocked, the Green LED should be lit. If the Green LED lights when the Entrance Sensor is blocked, the Sensor’s condition is normal.
Centering Timing Sensor		Lit	OFF	Open the Upper Guide to check the Centering Timing Sensor’s condition. When the Centering Timing Sensor is blocked, the Red LED should be lit. If Red LED lights when the Centering Timing Sensor is blocked, the Sensor’s condition is normal.
Anti-Pullback Sensor	#2 ON #1, #3-#6 OFF	OFF	Lit	Open the Upper Guide as if to check Pull Back Sensor’s condition. When the Anti-Pullback Entrance Sensor is blocked, the Green LED should be lit. If Green LED is lights when the Anti-Pullback Entrance Sensor is blocked, the Sensor’s condition is normal.
Exit Sensor		Lit	OFF	Block the Exit Sensor with a piece of paper or cardboard. When the Exit Sensor is blocked, the Red LED should be lit. If Red LED lights when the Exit Sensor is blocked, the Sensor’s condition is normal.
Anti-Pullback Home Position Sensor	#3 ON #1, #2, #4-#6 OFF	OFF	Lit	Rotate the Anti-Pullback Roller with your fingers. When the Anti-Pullback Roller is in its Home Position, the Green LED should be lit.
Centering Home Position Sensor		Lit/OFF	OFF	If the Green LED flickers ON and OFF while rotating the Anti-Pullback Roller, the Sensor’s condition is normal.
Transport Motor Encoder Sensor	#4 ON #1-#3, #5, #6 OFF	OFF	ON	Open the Upper Guide and move the Belts forward to check the Transport Motor Encoder Sensor. When the Transport Encoder Sensor is blocked by an Interrupter Blade, the Green LED should be lit.
Stacker Motor Encoder Sensor		Lit/OFF	OFF	If the Green LED flickers ON and OFF as the Belts are moved, the Sensor’s condition is normal.
		Lit	OFF	Rotate the Stacker Gear with a finger. When the Stacker Encoder’s Sensor is blocked by an Interrupter Blade, the Red LED should be lit.
Pusher Plate Home Position Sensor	#5 ON #1-#4, #6 OFF	Lit/OFF	OFF	If the Red LED flickers ON and OFF while rotating the Gear, the Sensor’s condition is normal.
Stacker Detection Sensor		OFF	Lit	Remove the Cash Box from the Frame Unit. When the Pusher Home Sensor’s Left Arm is pushed, and the Pusher Home Sensor is blocked, the Green LED will be lit (ON).
		OFF	OFF	When the Pusher Home Sensor Arm is released, the Sensor is unblocked and the Green LED will extinguish (go OFF).
		Lit	OFF	Remove the Cash Box from the Frame Unit. When the Cash Box Seated Sensor’s right lever is blocked, the Red LED should be lit. If Red LED goes ON when the Cash Box is set into its fully seated position, the Sensor’s condition is normal.

*. If the diagnostic LED illuminating condition results are different from those listed in Table 6-8 a fault condition is indicated.

No.8 BANKNOTE ACCEPTANCE TEST

The test listed in Table 6-9 detects the UBA's ability to properly accept Banknotes.

Begin Acceptance Test as follows:

1. Connect the external power supply to the UBA (See Figure 6-46 on page 6-10).
2. Set DIP Switch No.8 to ON and supply power to the UBA.
3. Set the remaining 6 DIP Switches according to the test selected in Table 6-9, and then turn DIP Switch No.8 to OFF to start the test (See "Test Mode" on page 6-10).

4. Insert a Banknote into the UBA to begin the selected test.



NOTE: Whenever the UBA is disassembled or new Software is downloaded into Memory, make sure to perform a Banknote Acceptance Test afterwards.

Table 6-9 UBA Banknote Acceptance Test Setting

DIP Switch Block Settings	With Cash Box: #1 - #4 ON, #8 ON/OFF	No Cash Box: #1 - #3 ON, #8 ON/OFF
		No.8 to OFF → Test start
NOTE: Refer to "Error and Reject Codes" on page A-3 for errors relating to this test.		

No.9 DIP SWITCH TEST

The test listed in Table 6-10 reveal the correct DIP Switch operational conditions.

To begin the test perform the follows:

1. Connect the USB Port located on the front side of the UBA Unit to the PC using a USB "A" to "B" Communications Cable (Figure 6-46).
2. Begin by setting all DIP Switches to ON and supply power to the UBA (See "Test Mode" on page 6-10).
3. Check that both the Red and Green LEDs light as indicated in Table 6-10.
4. Set Switch No.8 to OFF as indicated in Table 6-10 Step #2. The LEDs should both turn OFF.
5. Set DIP Switch No.2, No.4 and No.6 to OFF as indicated in Table 6-10 Step #3. The Green LED should light (go ON).
6. Set DIP Switch No.2, No.4 and No.6 to ON and DIP Switch No.1, No.3, No.5 and No.7 to OFF as indicated in Table 6-10 Step #4. The Red LED should light (go ON) and the Green LED should go OFF.
7. Set all remaining Switches to OFF as indicated in Table 6-10 Step #5. Both the Green and Red LED should light.

Table 6-10 DIP Switch Test Steps

Step No.	DIP Switch Setting	Status LED	
		Red LED	Green LED
1		Lit	Lit
2		OFF	OFF
3		OFF	Lit
4		Lit	OFF
5		Lit	Lit



Caution: If any diagnostic Status LED condition is different from those listed in the Table 6-10 Steps, a DIP Switch and/or CPU Board failure may have occurred. Refer to Section 4 on page 4-1 regarding Circuit Board Removal.


UBA™ Series Universal Banknote Acceptor

Section 7

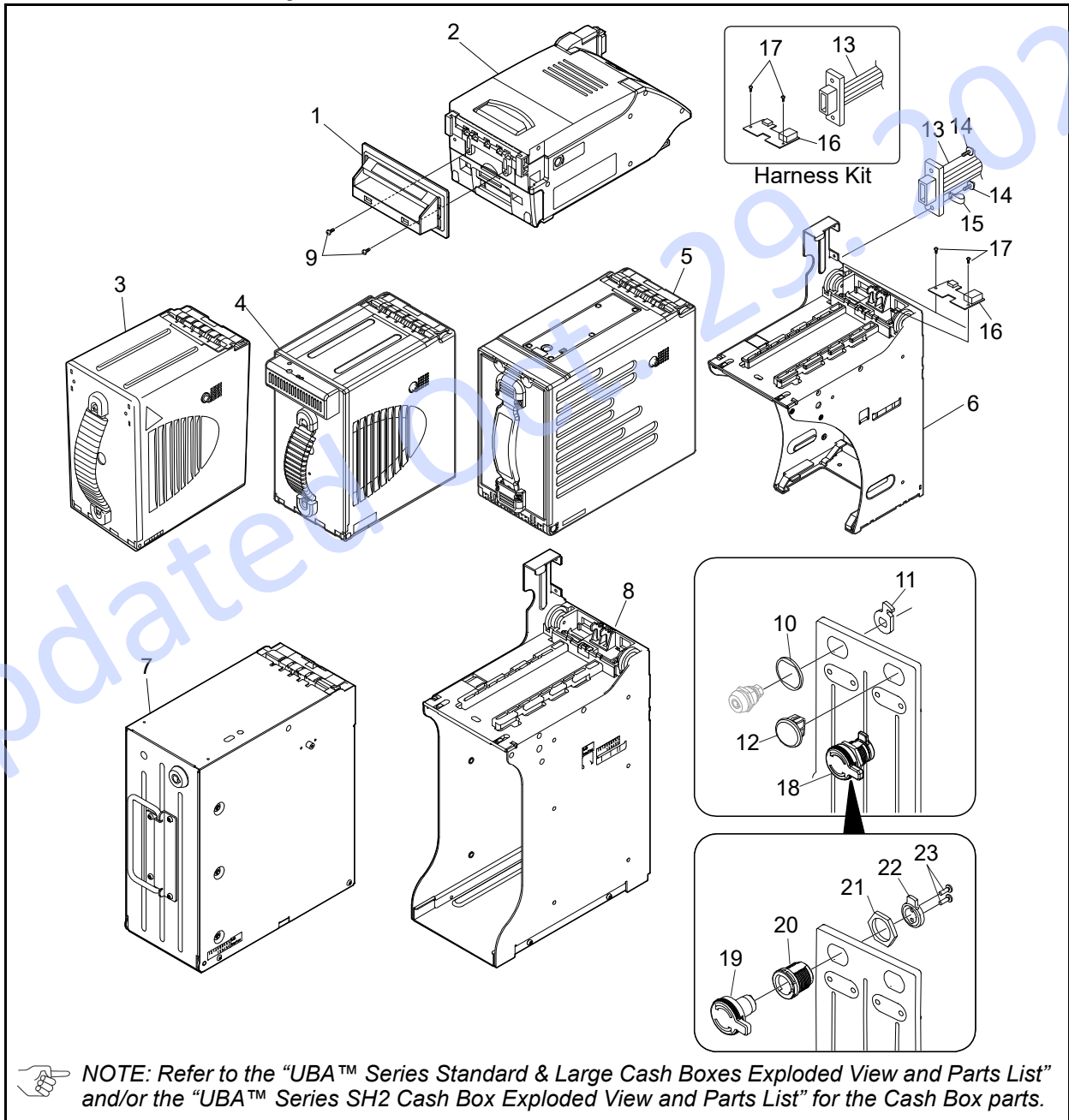
7 EXPLODED VIEWS AND PARTS LISTS

This section provides product exploded views and parts lists for the UBA® Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SU) Unit. This section contains the following information.

- Entire UBA Unit Exploded View
- UBA Transport Unit Exploded View
- UBA Cash Box Frame Unit Exploded View

 **NOTE:** Parts may be changed for improvement without notice.

Entire UBA Unit Exploded View



 **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.

Figure 7-1 Entire UBA Unit Exploded View

Entire UBA Unit Parts List

Table 7-1 UBA Unit 1Parts List

Ref No.	EDP No.	JAC No.	Description	Qty	Remark
1	202272	-	UBA Bezel SS 1 R	1	85mm, Black 2 Green LEDs
	202273	-	UBA Bezel SS 2 R	1	85mm, Blue 2 Blue LEDs
	202274	-	UBA Bezel SS 8 R	1	82mm, Black 2 Green LEDs
	202275	-	UBA Bezel SS A R	1	85mm, Blue 5 Blue LEDs (2-Line)
	202276	-	UBA/iPRO Bezel SS B R	1	85mm, Green 5 Green LEDs (2-Line)
	202277	-	UBA Bezel SS Metal M1 R	1	85mm, Silver (Metal) Green LED
	202278	-	UBA Bezel SS Metal M2 R	1	85mm, Silver (Metal) Blue LED
	202279	-	UBA Bezel SU 1 R	1	For SU Type 85mm, Black 2 Green LEDs
	212987	-	UBA Bezel SS Metal M1 T	1	85mm, Gold (Metal) Green LED
	212988	-	UBA Bezel SS Metal M2 T	1	85mm, Gold (Metal) Blue LED
	212991	-	UBA/iPRO Bezel SS Metal M1 N	1	85mm, Bronze Silver (Metal) Green LED
	212992	-	UBA/iPRO Bezel SS Metal M2 N	1	85mm, Bronze Silver (Metal) Blue LED
2	280541	-	UBA TRANSPORT UNIT(PH)	1	For UBA-10/11/12 No CPU Board A shipping container is not included
	281467	-	UBA14 TRANSPORT UNIT PH	1	For UBA-14 CPU Board is not included)
	281470	-	UBA24 TRANSPORT UNIT PH	1	For UBA-24
3	280826	-	UBA-SS CASH BOX MP6 PH	1	Standard Box A shipping container is included
4	280825	-	UBA-SS CASH BOX IT MP6 PH	1	Standard Intelligent Cash Box A shipping container is included.
5	280824	-	UBA CASH BOX L TD	1	Large Cash Box A shipping container is included.
	128875	-	UBA CASH BOX L (IT)	1	Large Intelligent Cash Box
6	280537	-	UBA FRAME UNIT PH	1	A shipping container is not included
7	233884	-	UBA CASH BOX 1200 SP	1	A shipping container is included
8	222081	-	UBA FRAME UNIT 1200	1	A shipping container is not included
9	006481	-	3x16 Pan Head Screw with W Washer (Small)	2	
-	222083		UBA CASH BOX 1200 + FRMAE UNIT 1200	1	1200 Cash Box and Frame A shipping container is included
10	059086	200-100980R	Key Spacer R	1	
11	121682	-	Plate, Locking Tang	1	
	130356	200-100991R	Plate, Locking Tang (Narrow)	1	
12	108824	-	Cap, Key	1	Lock Hole Cap
13	062897	400-100027R	843-05-03A	1	External Harness Type1 For UBA-10/11/12, Standard
	060455	400-100029	843-05-02A	1	External Harness Type 2 For UBA-10/11/12, OEM
	124738	701-100095RA	3240-05-20 (Photo-Coupler I/F)	1	External Harness Type 3 For UBA-10/11/12 24V/13.5V Conversion Harness Photo-Coupler
	124736	400-100556RA	3240-05-19 (RS232C I/F)	1	External Harness Type4 For UBA-10/11/12 24V/13.5V Conversion Harness RS232C

Table 7-1 UBA Unit 1 Parts List (Continued)

Ref No.	EDP No.	JAC No.	Description	Qty	Remark
13	120120	400-100561RA	3241-05-03C (USB I/F)	1	External Harness Type 5 For UBA-14/24, Standard, USB
	117623	400-100251R	3241-05-01D (USB I/F)	1	External Harness Type 6 For UBA-14/24, OEM, USB
	122469	-	3241-05-05C (Photo-Coupler I/F)	1	External Harness Type 7 For UBA-14/24 24V/13.5V Conversion Harness Photo-Coupler, USB
	122468	-	3241-05-04C (RS232C I/F)	1	External Harness Type 8 For UBA-14/24 24V/13.5V Conversion Harness RS232C, USB
	136305	-	3240-05-24 (cc-Talk I/F)	1	External Harness Type 9 For UBA-10/11/12 cc-Talk
	137900	-	3241-05-07 UBA I/F	1	External Harness Type A For UBA-14/24 24V/13.5V Conversion Harness USB
	217352	-	3242-05-05A	1	External Harness Type 5U For UBA-24 SU Type Standard, USB
	128075	400-100567RA	3242-05-02A (USB I/F)	1	External Harness Type 6U For UBA-24 SU Type OEM, USB
14	104013	186-3000012R	3x12 Screw with W Washer (Small)	2	
15	117752	900-100308R	SL-N5 NYLON CLIP		For UBA-14/24
16	122467	300-500007R	4033-3240-06-13A-01 I/F	1	Conversion Board Type 1 24VDC/13.5VDC and RS-232C Interface Conversion Board
	123523	300-200139R	4033-3240-06-13A-02 I/F	1	Conversion Board Type 2 For UBA-14/24 RS-232C Interface Conversion Board
	136243	300-200140R	4033-3240-06-15-01	1	Conversion Board Type 3 ccTalk Interface Conversion Board
	133297	300-100398R	4033-3241-06-02A-01(24V/13.5V)I/F	1	Conversion Board Type 4 For UBA-14/24 24VDC/13.5VDC and USB Interface Conversion Board
17	063250	171-504033R	2.6x6 Binding P-TITE Screw	2	For Harness Kit
	104082	-	2.6x6 Binding P-TITE Screw Black		
18	135472	-	THUMB LOCK FOR CASH BOX	1	
19	219641	-	THUMB TURN A DB	1	
20	135328	-	THUMB TURN B	1	
21	135329	-	THUMB TURN NUT	1	
22	292773	-	THUMB TURN CAM	1	
23	056165	-	2.6x8 Binding P-TITE Screw	2	

Optional Conversion Board and Harness Kits

Table 7-2 Optional Conversion Board and External Harness Kits

EDP No.	JAC No.	Description	Qty	Remark
123521	701-100098R	UBA 24V/RS232 Photo-Coupler Harness Kit	1	Conversion Board Type1: 4033-3240-06-13A-01 External Harness Type 7: 3241-05-05C
123200	701-100097R	SKD UBA 24V/RS232+RS232 Harness KIT	1	Conversion Board Type1: 4033-3240-06-13A-01 External Harness Type 8: 3241-05-04C
123522	300-100439R	UBA RS232+RS232 Harness Kit	1	Conversion Board Type 2: 4033-3240-06-13A-02 External Harness Type 8: 3241-05-04C

UBA Transport Unit Exploded View

UBA Transport Unit Exploded View 1

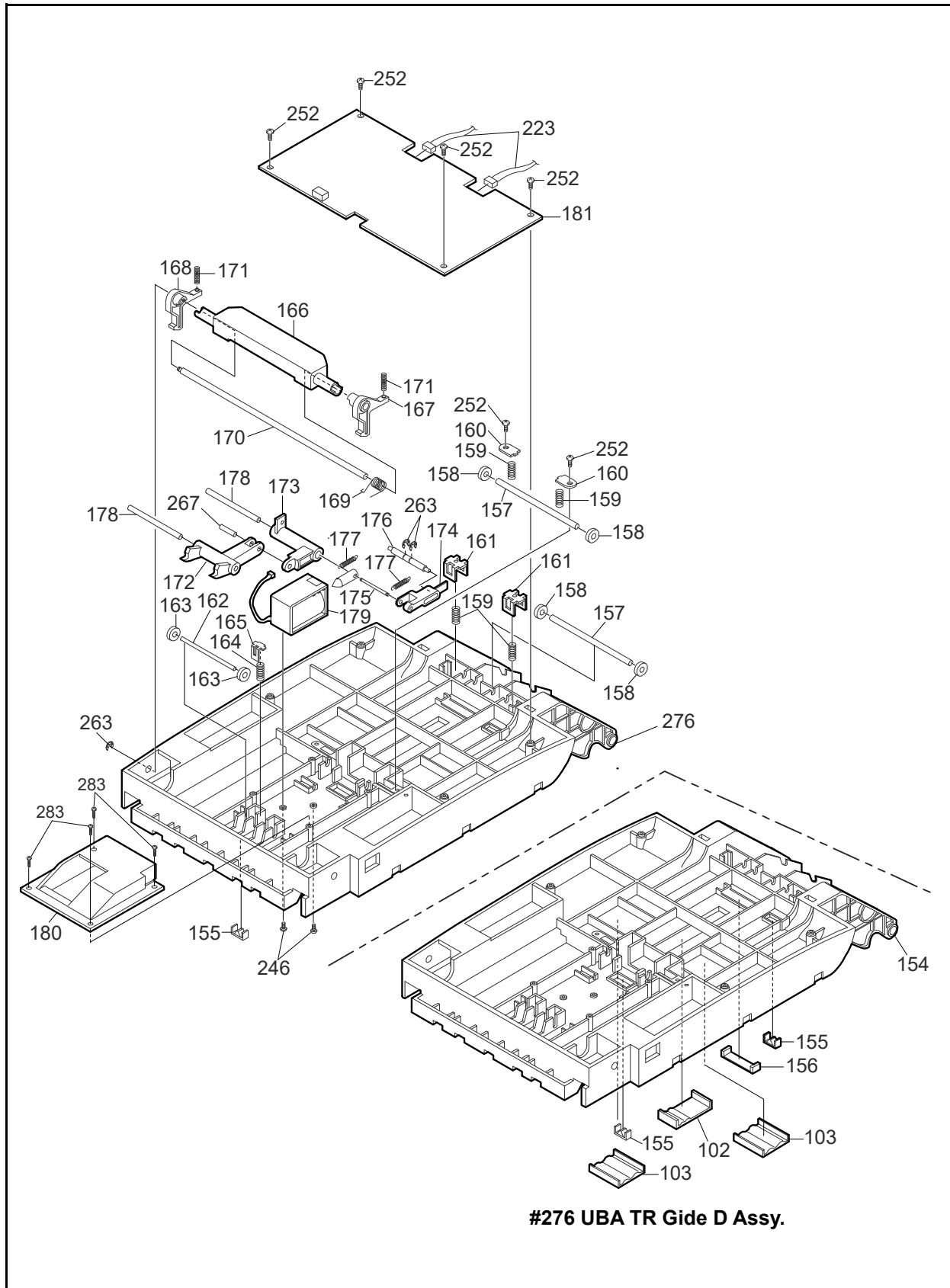


Figure 7-2 UBA Transport Unit Exploded View 1

UBA Transport Unit Exploded View 2

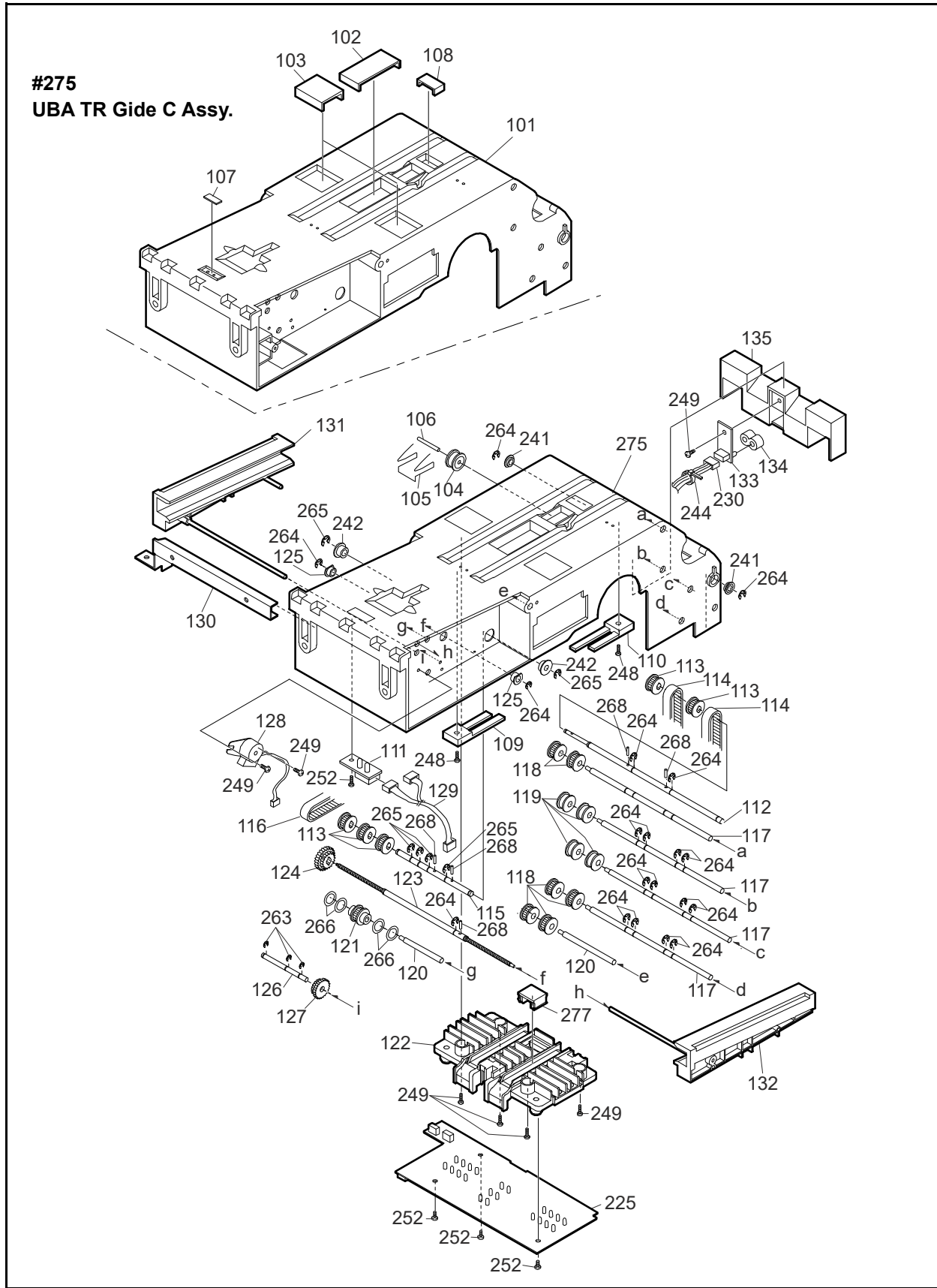


Figure 7-3 UBA Transport Unit Exploded View 2

UBA Transport Unit Exploded View 3

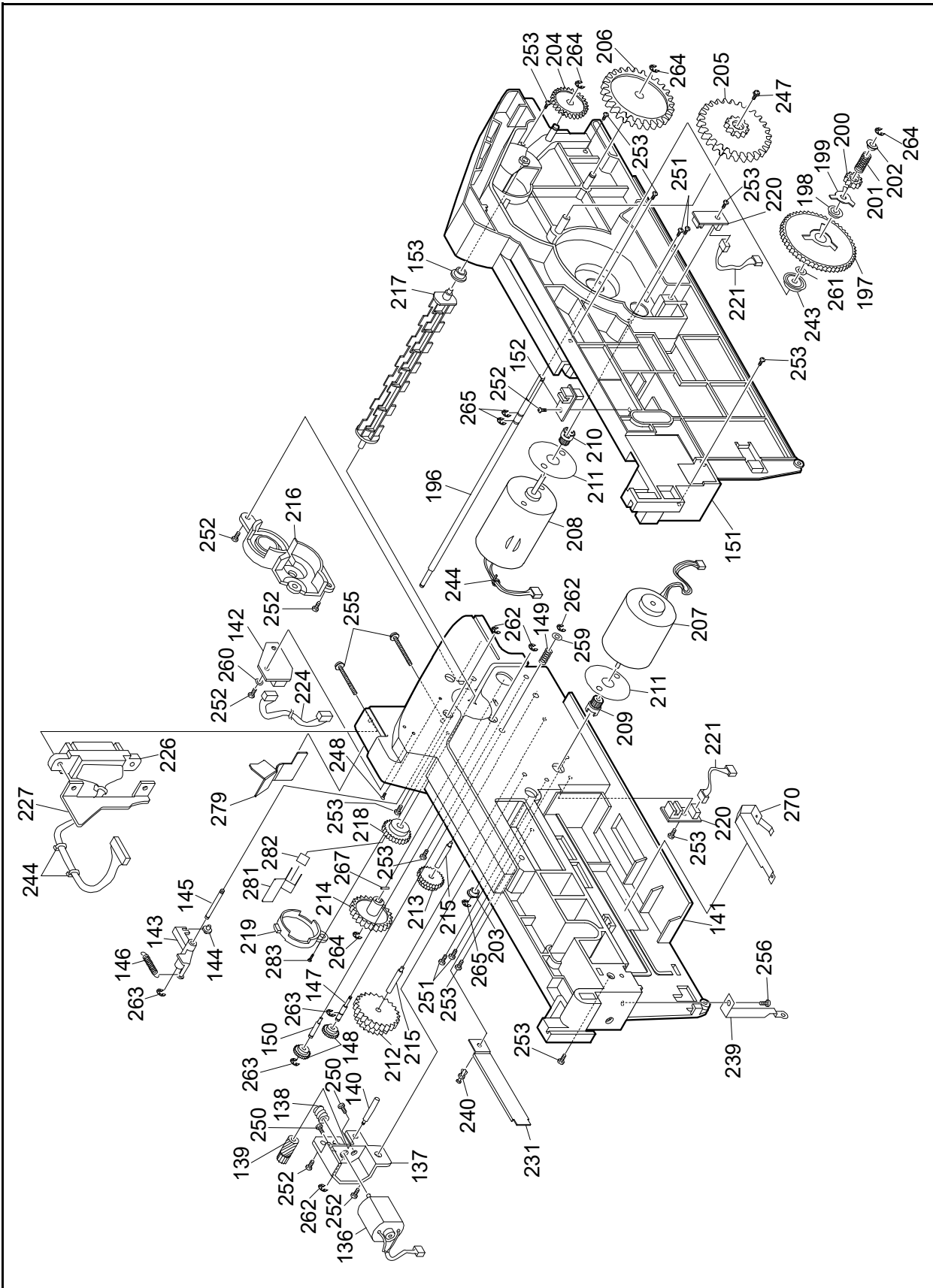


Figure 7-4 UBA Transport Unit Exploded View 3

UBA Transport Unit Exploded View 4

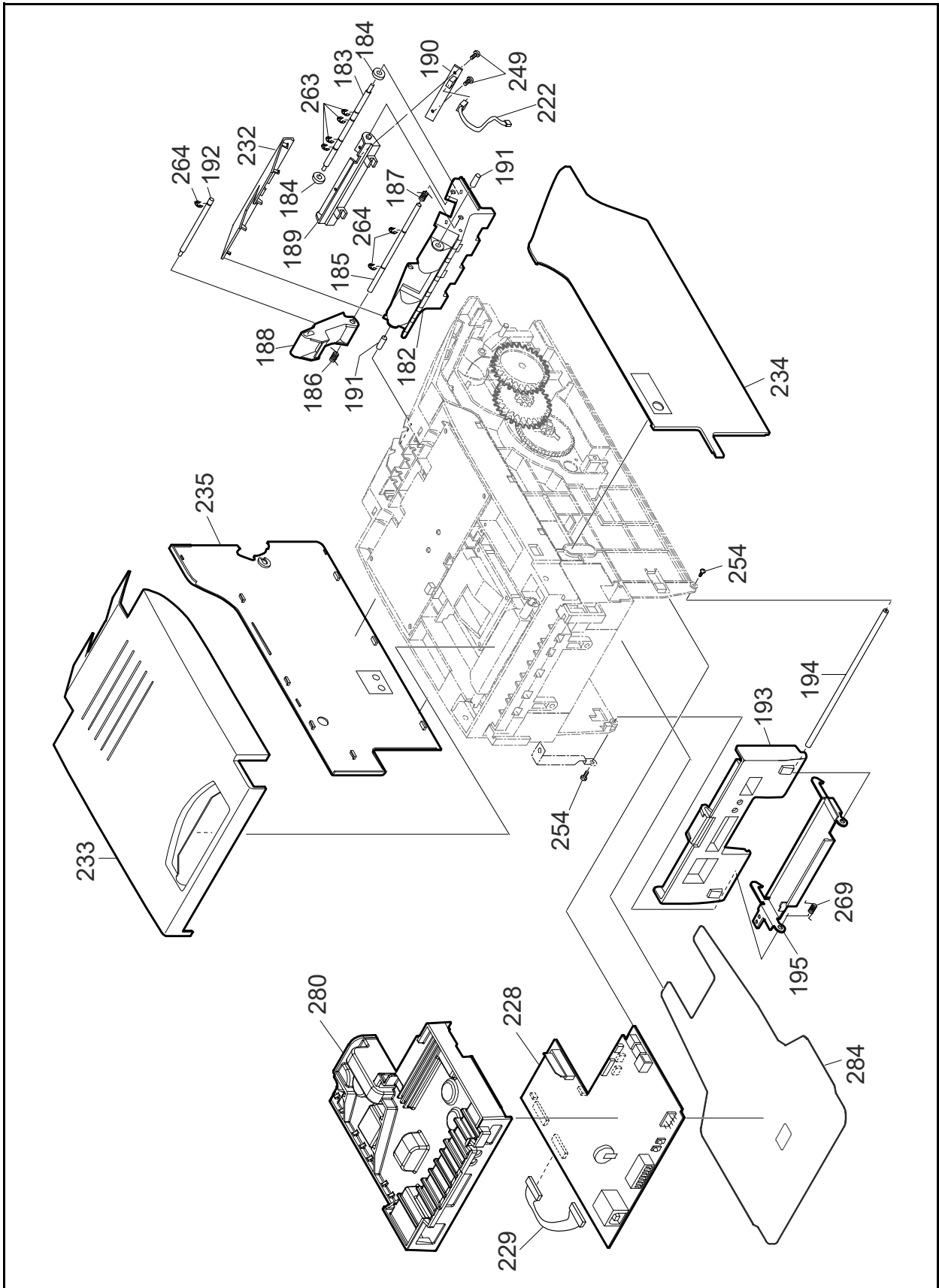


Figure 7-5 UBA Transport Unit Exploded View 4

UBA Transport Unit Parts List 1**Table 7-3 UBA Transport Unit Parts List**

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
101	109101	900-100846R	TR Guide UBA C	1	
102	251293	-	UBA Sensor Lens A	2	
103	251294	-	UBA Sensor Lens B	4	
104	102974	900-100626R	MG Roller UBA	1	UBA MAG Roller
105	063353	250-100531	MG Spring	1	MAG Spring
106	102997	200-101108RA	MG Roller Pin	1	MAG Roller Pin
107	102764	900-100538R	UBA Sensor Cover	1	
108	102776	900-100630R	UV Partner	1	
109	102773	900-100631R	Light Guide A	1	
110	102772	900-100634R	Light Guide B	1	
111	116204	300-100346R	4033-3240-06-04*-01	1	Entrance Sensor
112	103006	200-100854	TR Drive Shaft	1	Transport Drive Shaft
113	091168	900-100946RA	Pulley D R	5	
114	104296	900100616R	40S1.5M365UV Ultra Flex Synchro Belt	2	Recommended Service Part Timing Belt
115	103003	200-101111RA	TR Shaft 2	1	Transport Shaft 2
116	104297	900-100648R	40S1.5M137UV Ultra Flex Synchro Belt	1	Recommended Service Part Timing Belt
117	103007	200-101112RA	Pulley Shaft	4	
118	091169	900-100947RA	Pulley TR R	8	Transport Pulley
119	119302	900-100948RA	Roller PU R	4	Pulley Roller
120	103009	200-101113RA	Pulley Shaft 2	2	
121	102783	900-100949RA	Pulley Mover P	1	
122	143337	900-200202RA	NEW SENR SP LOW	1	
123	103983	200-100842R	Move Screw	1	
124	102970	900-100657	Gear Move Final UBA	1	
125	119306	900-100639R	Bearing Move R	2	
126	102999	200-101109RA	Move Gear Shaft	1	
127	102969	900-100658	Gear Move 2nd UBA	1	
128	103923	451-000071R	PM15S-020-ZQA4	1	Recommended Service Part Centering Motor Assy.
129	103878	400-100501R	3240-05-07* Entrance Sensor/Centering Home Sensor Harness	1	
130	106068	200-200327RA	GD Plate 1	1	Ground Plate 1
131	102763	200-100845R	Move Guide UBA 1	1	
132	102762	200-100846R	Move Guide UBA 2	1	
133	116202	300-100324R	4033-3240-06-05*-01R	1	Exit Sensor
134	102782	900-100597R	F Out S Cover	1	Front Output Sensor Cover
135	243410	900-100641R	Back S Guide	1	

Table 7-3 UBA Transport Unit Parts List (Continued)

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
136	104072	451-000073R	CN16-04102(UBA)	1	Recommended Service Part UBA Anti-Pullback Motor Assy.
137	118800	900-100940R	PB Motor BRA A	1	Anti-Pullback Motor Cover
138	119323	-	Gear Roll Motor R	1	Recommended Service Part
139	238674	-	Gear Roll 2nd UBA	1	
140	103004	200-100840	Worm H Shaft	1	Horizontal Worm Gear Shaft
141	102753	900-100593R	TR Guide UBA B	1	
142	116211	300-100344R	4033-3240-06-09*-01 R	1	Anti-Pullback Home Sensor
143	107846	900-100488	Roll P G Home Lever	1	Roller Guide Home Lever
144	102976	900-100624	Roll G Home Lever	1	Roller Guide Home Lever
145	103001	200-100849	Roller Lever Shaft	1	
146	103023	250-100513R	PB Lever Spring	1	Anti-Pullback Lever Spring
147	103002	200-100923R	PB Clutch Shaft	1	Anti-Pullback Clutch Shaft
148	102972	900-100627	Gear Roll Clutch	2	
149	103017	250-100512R	PB Clutch Spring	1	Anti-Pullback Spring
150	103010	200-100841	Roller Gear Shaft	1	
151	102754	900-100518R	TR GUIDE UBA A	1	UBA Transport Guide A
152	116208	300-100343R	4033-3240-06-08*-01 R	1	Centering Home Sensor
153	102979	119-000019R	Bearing Roll G U	1	UBA Roller Guide Bearing
154	284943	-	TR Guide UBA D	1	
155	290344	-	Square Prism E30	3	
156	251292	-	UV Cover	1	
157	103000	200-101110RA	TR Roller Shaft	2	
158	119299	900-100660R	Roller TR1 R	4	Transport Roller TR1
159	108996	250-100484	TR Spring UBA	1	Transport Spring
160	103833	200-101114RA	Spring Chip	2	
161	119331	900-100654R	Spring Rock RO R	2	Roller Rocker Spring
162	102996	200-100924R	Move Roller Shaft	1	
163	119298	900-100661R	Roller Move G R	2	Mover Roller Guide
164	103014	250-100507R	Move Spring UBA	1	
165	102977	900-100653R	Spring Stopper	1	
166	102768	900-100651R	Open Lever UBA	1	
167	102771	900-100655R	Open Latch R	1	Opening Latch Right
168	102770	900-100656R	Open Latch L	1	Opening Latch Left
169	103020	250-100526R	OP Lever Spring	1	Opening Lever Spring
170	102993	200-101058R	Open Latch Shaft	1	
171	103016	250-100506R	OP Latch Spring	2	Opening Latch Spring

Table 7-3 UBA Transport Unit Parts List (Continued)

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
172	102756	900-100620R	Roller UP Lever	1	Upper Roller Lever
173	102755	900-100621	SOL Link Lever	1	Solenoid Link Lever
174	102758	900-100619	Roller UP Slider	1	Upper Roller Slider
175	103013	200-100848	Move S Beam	1	Mover Beam Shaft
176	102995	200-100850	Slider Shaft	1	
177	103022	250-100503	SOL Spring	2	Solenoid Spring
178	102998	200-100744R	SOL Lever Shaft	2	Solenoid Lever Shaft
179	104071	451-000070R	TDS-05B-496R	1	Recommended Service Part Solenoid Assy.
180	102760	900-100637	SOL Base	1	Solenoid Base
181	245947	-	4033-3240-06-02*-01*	1	Recommended Service Part Upper Sensor Board
182	102750	900-100873	TR Guide UBA E	1	Transport Guide
183	102991	200-101105RA	BG Roller Shaft	1	Rear Guide Roller Shaft
184	102975	900-100622	TR Roller UBA	2	Transport Roller
185	102992	200-101106RA	BG Spring Shaft	1	Rear Guide Spring Shaft
186	103018	250-100505	BG Roller Spring A	1	Rear Guide Roller Spring A
187	103019	250-100504	BG Roller Spring B	1	Rear Guide Roller Spring B
188	102766	900-100640	Wire Tunnel	1	
189	102781	900-100684	Box S Board BRA	1	Cash Box Sensor Board Cover
190	116206	300-100351R	4033-3240-06-07*-01 R	1	Cash Box Sensor
191	102990	200-101057R	Guide Fulcrum Pin	2	
192	102994	200-101107RA	Tunnel Shaft	1	
193	102767	900-100771R	Cover Front	1	
	127825	-	Cover Front SU		UBA 24 only
194	103008	200-101007R	F Door Shaft	1	Front Door Shaft
195	103832	200-100855	TR Latch UBA	1	UBA Transport Latch
196	103005	200-100857	ST Clutch Shaft	1	Stacker Shaft
197	102793	900-100643	Gear ST 2nd	1	Stacking Gear
198	103610	200-100847	OWC612GXLZ One-way Clutch	1	Unit Direction Clutch
199	103836	-	Clutch Plate	1	
200	102792	900-100642	Gear ST Clutch	1	Stacking Gear Clutch
201	103015	250-100509	Clutch Spring	1	
202	104061	900-100652	Clutch SP Stopper	1	Clutch Spring Stopper
203	102978	900-100674	Bearing T Limit	1	Transport Bearing Limit
204	102968	900-100645	Gear ST Final	1	Final Stacking Gear
205	102794	100647	Gear ST 3ND	1	3rd Stacking Gear
206	102967	900-100646R	Gear ST 4TH	1	4th Stacking Gear
207	197242	-	4088-3440-05-13-01 Transport Motor Assy.	1	Recommended Service Part

Table 7-3 UBA Transport Unit Parts List (Continued)

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
208	106443	451-000059R	4033-3240-05-10A-01 Stacking Motor Assy (HK) R	1	Recommended Service Part
209	102786	900-100663R	Gear TR Motor	1	Recommended Service Part Transport Motor Gear
210	102791	900-100644R	Gear ST Motor	1	Recommended Service Part Stacking Motor Gear
211	102989	142-090429R	Motor Spacer	1	Recommended Service part
212	102787	900-100692R	Gear TR 2ND	1	2nd Transport Gear
213	102788	900-100662R	Gear TR 3ND	1	3rd Transport Gear
214	102790	900-100688R	Final Transport Gear	1	
215	108154	200-100708	Gear Pin	2	
216	102784	900-100633	TR Gear Cover	1	Transport Gear Cover
217	102765	900-100623	UBA Roller Guide	1	
218	102973	900-100625R	Gear Roll Guide	1	
219	102980	900-100611R	Roll Guide Cap	1	
220	118554	300-100325R	4033-3240-06-06*-01 R	2	Encoder Sensor
221	103875	400-100503R	3240-05-04* Encoder Harness R	2	
222	103877	400-100505R	3240-05-06* Box Sensor Harness	1	
223	197240	-	3440-05-12 Upper Sensor Board Harness	1	
224	103876	400-100512R	3240-05-05* PB Home Sensor Harness R	1	
225	116215	300-100332R	4033-3240-06-03*-01 Down R	1	Recommended Service Part Lower Sensor
	121260	300-200138R	4067-3242-06-01*-01 Lower Sensor Board	1	Recommended Service Part Lower Sensor UBA-24 Only
226	103872	-	3240-05-01* Harness (Transport Unit Side)	1	
	117622	400-100309R	3241-05-02* (Transport USB)	1	UBA-14/24
227	103834	200-101054R	CN BRA UBA	1	Connector Bracket
228	241164	-	4033-3240-06-01*-02* 3.3V-FLASH	1	Recommended Service Part UBA-10 CPU Board
	241165	-	4033-3240-06-01*-01* 3.3V-ROM	1	Recommended Service Part UBA-11 CPU Board
	241166	-	4033-3240-06-01*-03* 3.3V-16MFLASH	1	Recommended Service Part UBA-12 CPU Board
	241162	-	4033-3241-06-01*-01* UBA-14 CPU	1	Recommended Service Part UBA-14 CPU Board
	241163	-	4067-3242-06-02*-01*UBA-24 CPU	1	Recommended Service Part UBA-24 CPU Board
	442104	300-599926RA	4067-3243-06-02-01 UBA-25CPU R	1	Discontinued UBA-25 Recommended Service Part

Table 7-3 UBA Transport Unit Parts List (Continued)

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
229	103874	400-100504R	3240-05-03* Lower Sensor Board Harness R	1	UBA-10/11/12/14
	261347	-	3242-05-01 Harness Assy	1	UBA-24
230	103879	400-100502R	3240-05-08* Exit Sensor Harness R	1	
231	104059	200-101055R	Wire Holder	1	
232	284169	-	Cover Back	1	
233	284172	-	Top Cover	1	UBA-10/11/12/14
	284173	-	UBA SU Head Base	1	UBA-24 Top Cover
234	284170	-	TR Cover Right	1	Right Transport Cover
235	284171	-	TR Cover Left	1	Left Transport Cover
-	106031	200-100844R	GND JAC Plate	1	
-	105984	200-100499R	3240-05-11C FG Harness	1	
-	116197	300-100327R	4033-3240-06-10A-01 R	1	Recommended Service Part Intelligent Board R UBA-10/11/12
239	107787	200-101115RA	GD Plate 2	1	Ground Plate 2
240	103109	100-100012R	NP-3045 Pusher Rivet	1	
241	095022	-	DDL-850ZZ Bearing	2	
242	104050	119-000021R	THF-512ZZ-4.5 Bearing	2	
243	080523	119-000022R	THF-612ZZ-4.5 Bearing	1	
244	092949	900-100659	PLT.6SM *P	4	Cable Tie
246	104043	171-200203RA	2X3 Binding Head Screw With F-LOCK Blue	2	
247	104002	186-260205RA	2.6x5 Screw with Large Washer Ø7.5	1	
248	104151	173-200005R	2x5 Phillips Self Tightening H5 Screw	3	
249	104149	123-063226R	2x6 PS TITE Pan Head Screw	9	
250	104147	186-170003RA	1.7x3 Screw with Washer	2	
251	104005	186-260006R	2.6x6 Binding Fastener with Lock Washer	4	
252	063250	-	2.6x6 Binding Phillips Self Tightening Screw	16	
253	104011	171-260106R	2.6x10 Binding Self Tightening Screw	8	
254	132681	186-000316R	2.6x8 Binding Nylok Screw	2	
255	104013	186-300012R	3x12 Screw with Washer (Small)	2	
256	003595	101-063226R	2.6x4 Pan Head Screw	1	
259	104218	-	2.5x5x0.3 Flat Washer	1	
260	103959	-	2.6x5.58x0.5 Polly Slider	1	
261	017010	142-090430	6.2x10x0.2 Polly Slider	1	
262	091518	200-100852R	E-ring Ø1.5 SUS (TAIYO)	3	
263	091517	100-100060R	E-ring Ø2.0 SUS (TAIYO)	11	
264	091516	200-100984R	E-ring Ø3.0 SUS (TAIYO)	32	
265	093074	100-00059R	E-ring Ø4.0 SUS (TAIYO)	8	
266	102294	900-100628	O-Ring P6 (#EDPM70)	4	
267	097663	450-300005R	1.6x6 Parallel Pin	1	
268	091515	-	1.6x8 Parallel Pin SUS Hard	5	
269	103021	250-100511	TR Latch Spring	1	Transport Latch Spring

Table 7-3 UBA Transport Unit Parts List (Continued)

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
270	106069	200-100843	GD Plate 3	1	
-	113653	900-200055RA	ICB Pedestal	1	UBA-10/11/12
-	112689	900-200058RA	ICB Cover Sponge	2	UBA-10/11/12
-	113654	900-200056RA	ICB Cover	1	UBA-10/11/12 [Screws] EDP Number: 056165 2.6x8 Binding P-TITE Screw QTY: 2
274	076466	171-261003R	2x4 Binding Phillips Self Tightening Screw	1	UBA-10/11/12
275	136838	-	UBA TR GUIDE C ASSY	-	
276	136839	900-200238R	UBA TR GUIDE D ASSY	-	
277	143338	900-200203RA	Bar-SNSR Cap 1	1	UBA-10/11/12/14
278	143339	900-200204RA	DP SNSR-SPR UP	1	
279	144684	900-200351R	CN Protection Cover	1	
280	143589	900-200205RA	CPU Waterproof 1	1	
281	232376	-	Fishing Protection Plate	1	
282	232377	-	Fishing Protection Plate Tape	1	
283	108735	-	2x6 P-TITE Pan Head Screw	5	
284	129080	-	PCB Protector	1	UBA-24 only

UBA Cash Box Frame Unit Exploded View

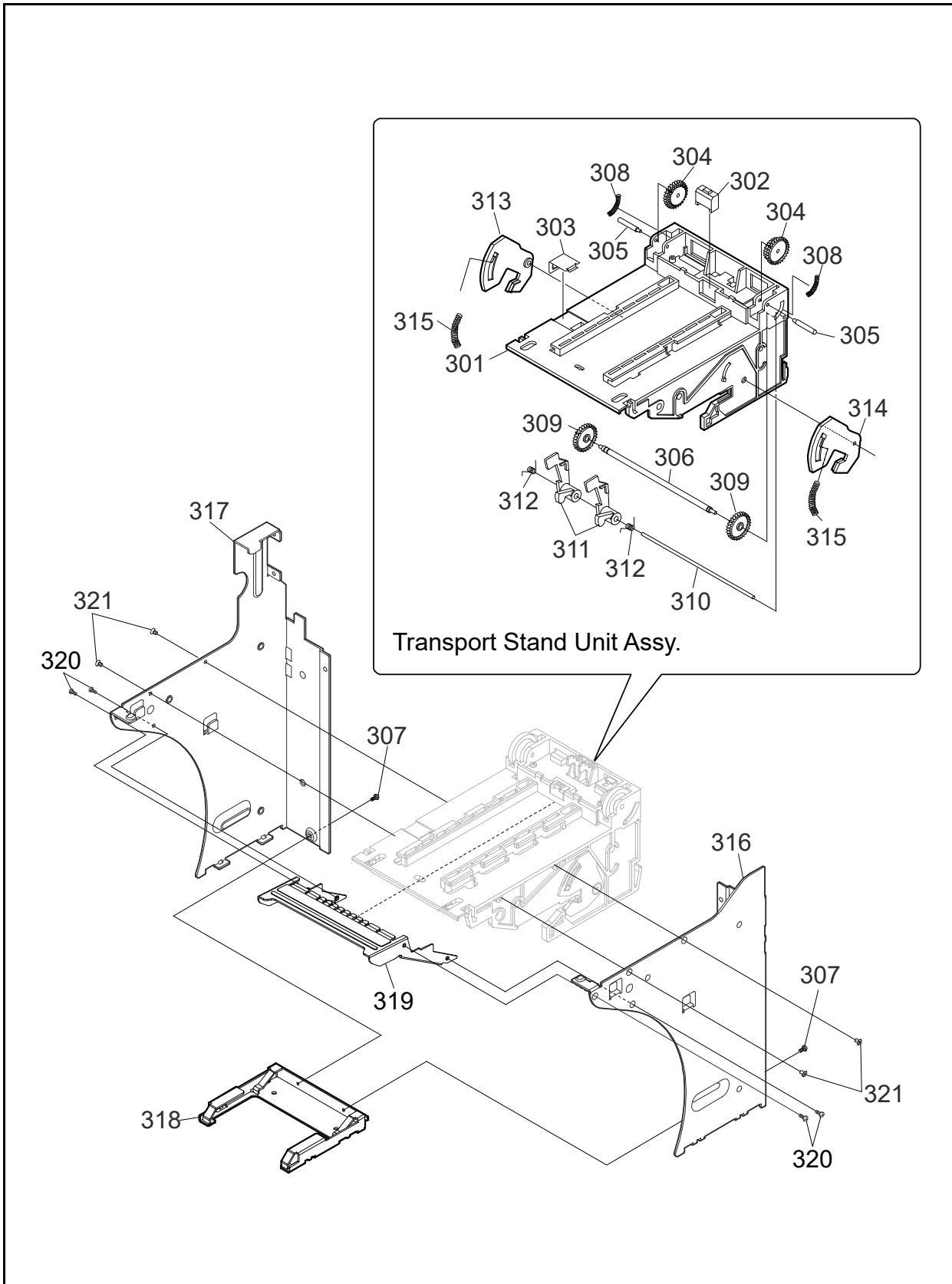


Figure 7-6 UBA Cash Box Frame Unit Exploded View

UBA Cash Box Frame Unit Parts List**Table 7-4** UBA Cash Box Frame Unit Parts List

Ref No.	EDP No.	JAC Part No.	Description	Qty	Remark
301	280947	900-100501R	UBA Transport Stand	1	
302	102988	900-100594R	Prism Stand	1	
303	106067	200-100837R	Stand Grounding TAB	1	
304	102986	900-100332R	UBA Stand Gear 2	2	
305	103011	200-100838R	Stand Gear Shaft	2	
306	052620	200-100342R	Stand Gear Shaft	1	
307	003609	-	3x6 Pan Head Screw with W Washer (Small)	2	
308	052648	250-100536	Front Guide Spring	1	
309	108810	200-100707R	UBA Stand Gear Sustainer	2	
310	103012	200-100839R	Stand Lever Shaft	1	
311	102987	900-100872R	Cash Box Lever	2	
312	052650	250-100498R	Front Lever Spring	2	
313	102983	900-100680R	Cash Box Lever A	1	
314	102984	900-100588R	Cash Box Lever B	1	
315	052649	250-100011R	Rear Lever Spring	1	
316	128210	900-100590	UBA Frame A	1	
317	128212	200-100835R	UBA Frame B	1	
318	143211	200-100836R	UBA Frame Base UBA2	1	
319	127827	200-000332R	TR Stand Protector	1	SU Type
320	127828	149-000014R	2.6X5 Flat Head Screw Iron/Chromium (III) Nyloc	4	SU Type
321	052564	-	2.6X6 Flat Head Screw P-TITE Iron/Chromium (III)	4	SU Type

1200 Cash Box Frame Unit Exploded View

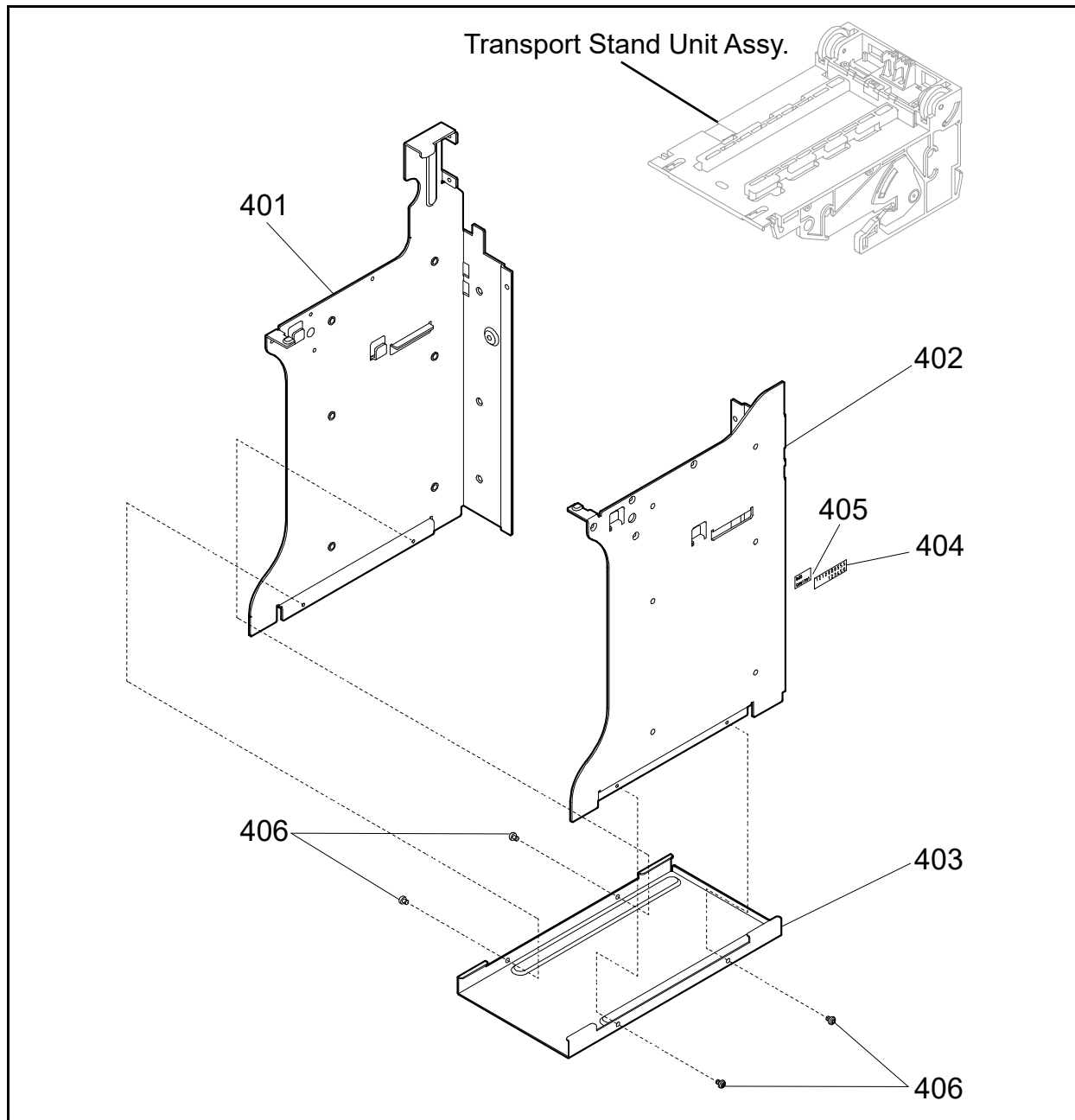


Figure 7-7 1200 Cash Box Frame Unit Exploded View

1200 Cash Box Frame Unit Parts List

Table 7-5 1200 Cash Box Frame Unit Parts List

Ref No.	EDP No.	Description	Qty	Remark
401	222076	1.2K Frame Left	1	
402	222077	1.3K Frame Right	1	
403	064384	Frame Base	1	
404	112269	Box Serial Label	1	
405	123438	RoHS Label	1	
406	006036	M3x4 Washer	4	

UBA™ Series

Universal Banknote Acceptor

Section 8

8 INDEX

A

Acceptor

a term used in Communication Section 3 referencing functions sent to, and received from the Banknote Acceptor by software commands... 1-1, 2-1, 4-1, 5-1, 6-1, A-1

C

Cautions

special boxed areas providing important safety information... 1-4

Cleaning

methods of, and equipment required for... 2-14

Communications

criteria regarding receipt of... 3-1

Contact Information

Address and Telephone Numbers for... 1-17

D

Dimensions

entire unit clearance
illustrated drawing for... 1-11, 1-12, 1-13, 1-14

Disassembly/Reassembly

instructions for... 4-1

E

Exploded View

illustrations of... 7-1

F

Flowchart

Operational
symbol language describing flow functions... 2-23

I

Installation

steps required for... 2-1

N

Navigation

within manual
procedure for... 1-1

P

Performance Testing

instructions for... 6-1

Precautionary Symbols

types of... 1-4

Primary Features

UBA Product Series... 1-6

S

Safety

pictographs indicating
1 to 3 symbols inside boxed area... 1-1

Special Notes

italic text highlights
finger points to... 1-1

Steps

sequential numbering of... 1-1

Symbols

Precautionary
definitions of... 1-4

System Wiring Diagram

Schematic diagram of... 5-1, 5-2, 5-3

T

Troubleshooting

Instructions for... A-1

W

Wiring Diagram

system & individual primary part... 5-1

THIS PAGE INTENTIONALLY LEFT BLANK

UBA™ Series

Universal Banknote Acceptor

Appendix A

A TROUBLESHOOTING AND OPTIONS

This section provides Troubleshooting instructions for the UBA™ Series Universal Banknote Acceptor (UBA-1x-SS/SH & UBA-2x-SS/SU) Unit. This section contains the following information:

- Introduction
- Troubleshooting Overview
- Fault Table Listings
- Error and Reject Codes
- Maintenance Equipment

Introduction

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

Faulty Banknote acceptance by the Acceptor portion of the Unit is often caused when dust or Iron powder adheres to the Identification Sensor, Magnetic Sensor or Transport Belt. Clean the Acceptor section first, then observe the operating state of the

Acceptor in detail when re-initializing power. This observation is important in locating any failure causes and the possible fault area. If the Acceptor Head has to be repaired by disassembling it, always re-calibrate the Sensors following a repair. Perform all repairs by referring to Calibration and Testing in Section 6 of this manual, and Disassembly/Reassembly in Section 4 of this manual.

Troubleshooting Overview

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

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

Fault Table Listings

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

Table A-1 General Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Banknote Acceptor is not working (does not accept any Banknotes).	No external Power is applied to the Banknote Acceptor (+12VDC & GND)	Verify that the Power Supply +12V DC and Ground Cables are connected to their appropriate Pins on the main connector. NOTE: The small LED to the left of the Front Panel DIP Switches indicates power available when lit.
	Wrong or inappropriate connections	Verify that all Harness Connectors are properly seated. Check for any bent, missing or damaged Pins in the Connector Plugs and mating Receptacles.
	Corrupted Software.	Re-download the correct Software. Refer to the "Software Download Procedure" in Section 6 of the UBA Service Manual for Software downloading instructions.
	CPU Board failure.	Refer to the "Performance Tests" in Section 6 of the UBA Service Manual, and conduct an Initial Operational Test. If the test result is Negative (NG), replace the CPU Board. Make sure to re-calibrate the Sensors after CPU Board is replaced.
Banknote jams occur often.	Drive Belts are dirty or damaged.	Clean all Drive Belts and Pressure Rollers. Replace as necessary.
	A pressure Roller Spring is loose or missing.	Check all Pressure Roller Springs using a finger pressure test. Replace as necessary.
	A foreign object is lodged in the Transport path and/or inside the Cash Box.	Clean the Transport path and remove any foreign object discovered.
	The Acceptor Unit is not properly seated all the way into the Frame (the Acceptor Unit's Latch Release Levers are not locked onto the Frame).	Re-seat the Acceptor Unit back into the Frame so it is firmly seated all the way back into the Frame so the Acceptor Unit Release Lever Latches securely lock onto the Frame.
Banknote jams occur often.	Banknote is wider than 85 mm or narrower than 62mm (out of UBA Banknote width specifications).	Use only Banknotes widths having the correct UBA size specifications.

Table A-1 General Fault Conditions (Continued)

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Acceptance rates.	Dirt and/or stains on the Rollers, Belts and Lenses.	Clean the Transport path. Refer to "Preventive Maintenance" in Section 2 of the UBA Service Manual.
	The Unit has been dis-assembled and re-calibration adjustments have not occurred following a re-assembly.	Make sure to readjust the Sensors after reassembling the UBA Unit. Refer to the "Forced Download Requirements" in Section 6 of the UBA Service Manual.
	The wrong Software or an old version of the Software is being used.	Make sure that the programmed Flash or EPROM Memory Software is the latest version, and it supports the Currency values and specific Country allowing acceptance.
	Software not designed to accept current Banknotes	Check the particular specifications for the required Banknote Type Acceptance, and make sure the Banknotes will be accepted by the Software loaded (e.g., check denomination/issuing year, etc.).
Upper Guide can not be opened.	Centering Guides are not at their Home position.	Turn the Power OFF and ON again. This action should tell the Host Machine to send a Reset Command to re-initialize the Unit.
		If power cannot be applied, use a Hexagonal Nut Driver to open the Upper Guide and manually reset the Guide.
All Banknotes being rejected.	Incorrect software (different Currency type).	Download the correct Software for Currency being accepted. Refer to "Software Download Procedure" in Section 6 of the UBA Service Manual regarding Software Downloading procedures.
	Banknotes are not being accepted by the Software.	Make sure the Banknote values required are included in the Software Specifications (e.g., denominations/issuing year, etc.) Refer to the "Forced Download Requirements" in Section 6 of the UBA Service Manual.
	Incorrect DIP Switch settings.	Enable all denominations by setting all DIP Switches to OFF.
	Banknote acceptance is being inhibited by a Host Controller command	Enable Banknote acceptance for the required Host Command.
	Upper/Lower Sensor Board failure.	Change the Upper or Lower Sensor Board with a known good Circuit Board. Refer to Section 4 of the UBA Service Manual regarding Circuit Board Removal.
Unit was disassembled and re-calibration did not occur following re-assembly.	Re-calibrate all UBA Sensors following re-assembly.	
Motor continues to run.	Upper Guide is open.	Firmly re-close the Upper Guide.
	A foreign object or a jammed Banknote is stuck in the Transport path.	Open the Upper Guide, remove the foreign object or jammed Banknote, and re-close the Cover.
	Motor Driver failure.	Refer to the Section 6 of the UBA Service Manual regarding the Transport Motor Test and conduct a Forward/Reverse Motor Rotation Test.
Can not enter the TEST mode.	Incorrect DIP Switch settings.	Set the DIP Switch No. 8 to ON, and re-supply Power to the UBA Unit.
	Dip Switch failure.	Refer to the Section 6 of the UBA Service Manual regarding the DIP Switch Test, and conduct a DIP Switch TEST to check if the specific DIP Switch Block contains a failure.
	CPU Board failure.	Exchange the CPU Circuit Board with a known good Circuit Board. Refer to Section 4 of the UBA Service Manual regarding Circuit Board Removal.

Table A-2 Adjustment Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Can not start the JCM Tool Suite application by double-clicking on its Icon.	PC Operating System (OS) is not compatible.	The current Adjustment program only supports the Windows 7 or greater Operating System.
	The Program Files are corrupted.	Request the correct programs from JCM.
Communication Error.	Wrong or inappropriate connections	Check the PC Harness connections and the related UBA Interface Connectors for damage. Check for any bent, missing or damaged Pins in the Connector Plug and/or Receptacle.
	UBA DIP Switch settings are incorrect.	Reset UBA DIP Switches #1 through #7 to OFF, and set Switch #8 to ON. Recycle Power supplied to the external maintenance Power Supply.

Table A-2 Adjustment Fault Conditions (Continued)

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Communication Error.	DIP Switch failure.	Refer to Section 6 of the UBA Service Manual regarding DIP Switch settings and conduct a DIP Switch Test.
	CPU Board failure.	Exchange the CPU Circuit Board with a known good Circuit Board. Refer to Section 4 of the UBA Service Manual regarding Circuit Board Removal.
Adjustment Error.	Incorrect Reference Paper type.	Follow the instruction provided in the JCM Tool Suite application and use the correct recommended Reference Paper.
	Upper/Lower Sensor Board failure.	Change the Upper or Lower Sensor Board with a known good Circuit Board. Refer to Section 4 of the UBA Service Manual regarding Circuit Board Removal.

Table A-3 Communication Fault Conditions

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

Error and Reject Codes

The Bezel LED indicates various solid/flashing Color lighting conditions when any of the Standard Errors listed in Table A-4 occur.

Identify the cause and solutions for an indicated error by reviewing each Table listing; ensure that the relative Assemblies are properly connected and/or Harnessed, and that all of the Unit’s Sensors are clean before proceeding troubleshooting the error condition.

Standard Error Codes

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

Table A-4 Standard LED Error Codes

LED Status		Error	Causes and Solutions
RED	Green		
Red Flashes (1)	Green ON	External Flash ROM Boot Program ROM Check Error	The Boot Program that is supposed to run after Power is supplied is not correctly written in ROM, or it cannot be read. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (2)	Green ON	External Flash ROM Boot I/F Area ROM Check Error	The Boot Interface Area was not written correctly or cannot be read. [Solution] Re-download the Program. If the error is not resolved, check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (3)	Green ON	External Flash ROM Main Program ROM Check Error	The Main Operating Program is not written into the ROM correctly, or cannot be read. [Solution] Re-download the Program. If the error is not resolved, check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.

Table A-4 Standard LED Error Codes (Continued)

LED Status		Error	Causes and Solutions
RED	Green		
Red Flashes (4)	Green ON	Reserved	N/A
Red Flashes (5)	Green ON	CPU Internal RAM Check Error	RAM reading or writing was not properly performed. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (6)	Green ON	External SD-RAM Error	External SD-RAM reading or writing was not properly performed. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (7)	Green ON	External SRAM Error	SRAM reading or writing was not properly performed. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (1)	OFF	Cash Box Full	The Cash Box Full Sensors detected that the Cash Box is full. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Cash Box Full Sensor, Pusher Mechanism, Pusher Plate. If the error is not resolved, change the above related part or parts.
Red Flashes (2)	OFF	Pusher Mechanism Home Position Error	When stacking Banknotes, the Pusher Mechanism is not returning to the Home and position. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Pusher Mechanism, Stack Motor, Stack Home Sensor, Stack Motor Encoder. If the error is not resolved, change the above related part or parts.
Red Flashes (3)	OFF	Banknote Jam (Cash Box)	When transporting a Banknote to the Cash Box, the Sensors are not detecting a Banknote present condition when the time interval is too long, or the number of the Banknotes stuck is greater than specified value for the function. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Exist Sensor, Pusher Mechanism, Stack Motor, Stack Home Sensor, Stack Motor Encoder. If the error is not resolved, change the above related part or parts.
Red Flashes (4)	OFF	Banknote Jam (Transport Unit)	When transporting or returning a Banknote in the Transport Unit, the Sensors do not detect a Banknote present condition when the time interval is too long, or the number of the Banknotes stuck is greater than specified value for the function. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Feed Motor, Stack Motor, Pusher Plate, Pusher Mechanism. If the error is not resolved, change the above related part or parts.
Red Flashes (5)	OFF	Feed Motor Speed Error	While Initializing, no pulse inputs exist greater than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Feed Motor, Feed Motor Encoder. If the error is not resolved, change the above related part or parts.
Red Flashes (6)	OFF	Feed Motor Lock-Up	While operating the Feed Motor, no pulse inputs occurred greater than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Feed Motor, Feed Motor Encoder If the error is not resolved, change the above related part or parts.
Red Flashes (7)	OFF	Stack Motor Lock-UP	While operating the Stacker Motor, no pulse inputs occurred greater than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Stack Motor, Stack Encoder. If the error is not resolved, change the above related part or parts.

Table A-4 Standard LED Error Codes (Continued)

LED Status		Error	Causes and Solutions
RED	Green		
Red Flashes (8)	OFF	EEPROM Error	EEPROM reading, writing and/or saving was not properly performed. [Solution] Perform the Sensor Calibration procedure. If the error is not resolved, check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and related Sensors. [Relative Parts] CPU Circuit Board. If the error is not resolved, change the above related part or parts.
Red Flashes (9)	OFF	Banknote Jam (PB Unit)	Abnormal Banknote transportation is detected in the Anti-Pullback (PB) Unit. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] PB, PB Home Position Sensor. If the error is not resolved, change the above related part or parts.
Red Flashes (10)	OFF	Cash Box Removal	The Cash Box has been removed. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Box Sensor. If the error is not resolved, change the above related part or parts.
Red Flashes (11)	OFF	Reserved	N/A
Red Flashes (12)	OFF	Fraud Detection	Sensors detect Banknotes occurring with abnormal timing. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Exit Sensor. If the error is not resolved, change the above related part or parts.
Red Flashes (13)	OFF	Intake Roller Problem	The Intake Roller has not performed correctly while transporting or returning the Banknote. [Solution] Check that the following parts are properly assembled and/or Harness connected. [Relative Parts] Intake Roller. If the error is not resolved, change the above related part or parts.
Red Flashes (14)	OFF	Centering Mechanism Problem	The Centering Guide has not moved. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Centering Guide, Centering Motor, Centering Sensor. If the error is not resolved, change the above related part or parts.

Reject Error Codes for Banknotes

Table A-5 lists the various LED Flash Reject Code causes & solutions for Banknotes.

Table A-5 LED Flash Reject Error Codes for Banknotes

LED Status		Error	Causes and Solutions
RED	Green		
OFF	Green Flashes (1)	Slant Insertion Error	The Banknote has been inserted in an incorrect/crooked direction. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Centering Guide, Centering Sensor, Belts and Rollers. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (2)	Abnormal Magnetic Detection	The Magnetic Sensor detected an abnormal Banknote Type. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Magnetic Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (3)	Remaining Banknotes Returned	While Initializing, Sensors detected that Banknotes remained in the UBA Unit's Validation path. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Centering Sensor, Feed Sensor, Exit Sensor. If the error is not resolved, change the above related part or parts.

Table A-5 LED Flash Reject Error Codes for Banknotes (Continued)

LED Status		Error	Causes and Solutions
RED	Green		
OFF	Green Flashes (4)	Magnification Problem	When adjusting Banknote data, Sensors detected an abnormal Banknote magnification condition. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (5)	Banknote Transportation Problem	Sensors detected Banknotes remain in the validation path, or none existed during an abnormal timing interval. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Entrance Sensor, Centering Sensor, Validation Sensor, Feed Sensor, Exit Sensor, Transport Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (6)	Reserved	N/A
OFF	Green Flashes (7)	Pattern Error	The Validation Sensor detected an abnormal Banknote Type. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (8)	Photo Level Error	While transporting a Banknote, transparent tape was detected. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (9)	Inhibit Setting Problem	The Banknote Accept/Inhibit Setting was made by a Command from the Host Machine. [Solution] Check that the Commands from the Host Machine are correct, and change its setting to be acceptable for use with the Unit. DIP Switch settings are incorrect. [Solution] Check that the DIP Switch settings are properly set.
OFF	Green Flashes (10)	Reserved	N/A
OFF	Green Flashes (11)	Reserved	N/A
OFF	Green Flashes (12)	Fraud Detection	The Validation Sensor Level interval between, before, and after a Banknote has passed the Validation Sensors was greater than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (13)	Banknote Length Problem	The Validation Sensors calculated a Banknote length longer or shorter than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (14)	2-Color Margin Problem	The Validation Sensors calculated that the 2-Color Banknote margin was greater than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (15)	UV Optical Sensor	The UV Sensor detected an abnormal Banknote type. [Solution] Check the Banknote's condition. (Refer to "Unacceptable Banknote" on page 1-5.) Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] UV Sensor If the error is not resolved, change the above related part or parts.

Reject Error Codes for Tickets

Table A-6 lists the various LED Flash Reject Code causes & solutions for Tickets.

Table A-6 LED Flash Reject Error Codes for Tickets

LED Status		Error	Causes and Solutions
RED	Green		
OFF	Green Flashes (1)	Tickets Rejected	Ticket information is not set. The Ticket Function is inhibit by the Host. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty.
OFF	Green Flashes (2)	Unknown Format	The format does not meet the Ticket's specification. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty. Check that the following part is properly assembled and/or Harness are connected. Clean or adjust the following Sensor. [Relative Parts] Barcode Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (3)	Character Length Error	The number of Ticket's characters does not match its settings. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty. Check that the following part is properly assembled and/or Harness are connected. Clean or adjust the following Sensor. [Relative Parts] Barcode Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (4)	Start Character	A start bit of a Ticket cannot be detected. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty. Check that the following part is properly assembled and/or Harness are connected. Clean or adjust the following Sensor. [Relative Parts] Barcode Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (5)	Stop Character	A stop bit of a Ticket cannot be detected. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty. Check that the following part is properly assembled and/or Harness are connected. Clean or adjust the following Sensor. [Relative Parts] Barcode Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (6)	Barcode Format Error	A Ticket Type does not match its settings. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty.
OFF	Green Flashes (7)	Reserved	Contact your local JCM Representative if this error occurs.
OFF	Green Flashes (8)	Double Tickets	Two or more Tickets are inserted. [Solution] Insert a single Ticket.
OFF	Green Flashes (9)	Inhibited Ticket	The DIP Switch settings is incorrect. [Solution] Check that the DIP Switches are properly set.
OFF	Green Flashes (10)	Photo Level Error	The Ticket's printing was abnormal. [Solution] Check that a proper Ticket is used and the Ticket is not damaged or dirty.
OFF	Green Flashes (11)	Index Mark Error	A Ticket is inserted upside-down. [Solution] Insert a Ticket in a proper direction.
OFF	Green Flashes (12)	Reserved	Contact your local JCM Representative if this error occurs.
OFF	Green Flashes (13)	Ticket Length Problem	The Validation Sensors calculated a Ticket length longer or shorter than the rated value. [Solution] Check that the following parts are properly assembled and/or Harness connected. Clean or adjust the following parts and Sensors. [Relative Parts] Validation Sensor. If the error is not resolved, change the above related part or parts.
OFF	Green Flashes (14)	Reserved	Contact your local JCM Representative if this error occurs.
OFF	Green Flashes (15)	Reserved	Contact your local JCM Representative if this error occurs.

ICB Error Code Conditions

Table A-7 lists the various ICB LED Flash Error Code causes and solutions.

Table A-7 ICB LED Error Codes

Red LED Sequence	Green LED State	Error	Causes and Solutions
Red Flashes (3)	OFF	Incorrect ICB Settings	The ICB function is disabled on the UBA Unit when the Intelligent Cash Box is used. [Solution] Change the ICB settings to be acceptable for use with the Cash Box.
Red Flashes (11)	OFF	ICB Communication Error	ICB unable to communicate. [Solution] Check that the ICB settings are properly set. [Relative Part] ICB Circuit Board, ICB Sensor, Cash Box, ICB Board. If the error is not resolved, change the above related part or parts.
Red Flashes (12)	OFF	ICB Checksum Error	ICB data is incorrect. [Solution] Initialize the ICB Cash Box data using Read Write Tool. [Relative Part] Cash Box ICB Module. If the error is not resolved, change the above related part or parts.
Red Flashes (13)	OFF	ICB Number Error	The Game Machine Number is different. [Solution] Initialize the ICB Cash Box data using Read Write Tool. [Relative Part] Cash Box ICB Module. If the error is not resolved, change the above related part or parts.
Red Flashes (14)	OFF	ICB Initialize Error	The Intelligent Cash Box has not been initialized. [Solution] Initialize the ICB Cash Box data using Read Write Tool. [Relative Part] Cash Box ICB Module. If the error is not resolved, change the above related part or parts.
Red Flashes (15)	OFF	ICB Module Error	While communicating to the ICB, the Intelligent Cash Box has been removed. [Solution] Check that the ICB settings are properly set and firmly reseal the Intelligent Cash Box

Calibration Error Codes

Table A-8 lists the Calibration Error Codes.

Table A-8 Calibration Error Table

Error Code	Displayed Message	Description/Cause
4-A	Gain Error (Value over 4.3V)	Light Receiving Adjustment Error. Check for dirty or wrong Calibration Paper Use.
4-B	Adjustment Error	Sensor Light Quantity Adjustment Error. Replace either the Upper or Lower Sensor Board.
4-C	Black Level Error	Sensor Light Quantity Adjustment Error. Ensure that the Black Reference paper is properly inserted.
4-E	Gain Error	Light Receiving Adjustment Error. Clean the Sensors. Replace the Upper or Lower Sensor Board.
4-G	Front/Back/Pbin/Width Level Error	Triggering Sensor Light Receiving Error. Clean the Sensor. Wrong Calibration paper being used during UV Sensor Adjustment. Replace the Exit Sensor. NOTE: The UBA must in installed in a Frame during Calibration.
6-A	Offset Error	Light Receiver Circuit Abnormality. Clean Sensors. Replace the Upper Sensor Board.
6-B		
6-C		
MAG	Adjustment Error Adjustment Error Under 0.74V	Magnetic Sensor Adjustment Error. Replace the Upper Sensor Board.
No Code	Gain Max Limit Over Error	Sensor Abnormality. White Reference paper not inserted correctly.
No Code	Bar Gain Max Limit Over Error	Sensor Abnormality. For UBA 1x, Replace the Upper Sensor Board. For UBA 24, Replace the Lower Sensor Board.
No Code	UV Gain Max Limit Over Error	Sensor Abnormality. Clean the UV Sensor and White Reference Block. Ensure the UV Reference paper is insert with its Label up, covering the White Reference Paper Block.
No Code	A/D Data Level Error	Light Receiving Level Error. Ensure the White Reference Paper is inserted completely and correctly placed.
No Code	PB in/Width & D/A Error	Triggering Sensor Adjustment Error. Clean PB In-Sensor or Reference Paper is not inserted correctly.
No Code	EEPROM Write Error	Adjustment Value Writing Error. Replace the CPU Board.

Maintenance Equipment

This portion provides product information for the UBA Maintenance Equipment.

UBA Maintenance Equipment and Parts List

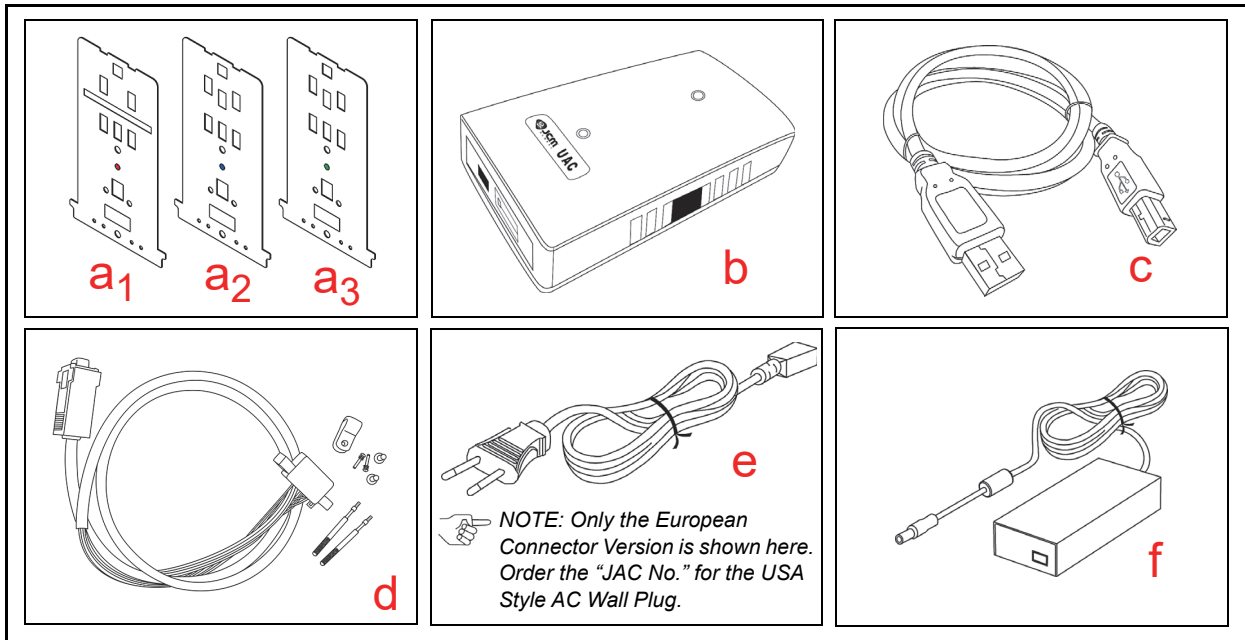


Figure A-1 Additional Maintenance Equipment Requirements

Table A-9 Additional Maintenance Equipment Parts List

Ltr.	EDP No.*	JAC No.	Description	Qty.	Remark
a ₁	107724	501-000167R,	White Reference Paper (KS-062)	1	
a ₂	107725	501-000166R	Black Reference Paper (KS-063)	1	
a ₃	110664	501-000164R	UV Reference Paper (KS-064)	1	
b	G00205	-	UAC	1	
c	G00230	-	UAC USB Cable	1	
d	G00154	-	UBA UAC Harness (ID003)	1	
e	G00213	-	Power Cable	1	For UAC
f	G00286	-	AC Adapter	1	For UAC
-	-	701-000086RA	Mag Tool Kit	1	Kit includes Calibration Papers (White, Black & UV) and the Mag Tool as well
-	-	300-100007RA	Mag Tool US Power Cable	1	
-	-	451-000127R	CUI Power Supply	1	Provides 12VDC at 5A
-	-	302-100002R	Cable, Power	1	
-	-	400-000249R	UBA Harness	1	

*. A Product EDP Number that begins with a "G" is a Product developed by JCM-E Germany.

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 and/or discolored.
4. Use new Reference Paper for every 400 Units being calibrated. Incorrect calibration errors may occur when using Reference Paper that has been used for calibrating more than 400 Units.

THIS PAGE INTENTIONALLY LEFT BLANK

UBA™ Series

Universal Banknote Acceptor

Appendix B

B GLOSSARY

A

1 **Anti-Pullback Mechanism**

a mechanism (optical, mechanical, or a combination of both designed) to prevent the unauthorized retrieving of Banknotes from a Cash Box ...1-6

2 **Anti-pullback Mechanism ...1-9**

B

3 **Bezel ...1-4**

a removable Plastic Assembly attached to the front of the Banknote Insertion Slot of a UBA Unit ...1-2, 1-3

C

4 **Calibration**

process performed on electronic equipment which ensures that all circuits are properly aligned and operating at optimum levels. For UBA Unit, 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 **ccTalk**

a Serial based Communication Protocol commonly used in control, electronic payment, and vending systems. Developed by Money Controls Ltd., the format enjoys widespread use throughout Europe. ccTalk is supported communications format in the UBA Unit ...1-9

6 **Centering Mechanism**

a mechanical assembly designed to center Banknotes that enter the Acceptor at a skewed angle ...1-6

7 **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, it is recommended that the file be copied (uploaded) again until the Checksums do match ...6-4

D

8 **DIP Switch Block**

Dual In-line Package Switch - a mountable two-position slide switch containing up to 16 individual Switches per block assembly, located on a Printed Circuit Board (PCB) and set to an ON or OFF position. DIP Switches are often used in circuits where manual selection of operational changes, options, and features are desired ...2-2

E

9 **EEPROM**

Electronically Erasable Programmable Read Only Memory. A form of non-volatile Read Only Memory (ROM) that can be written to and erased via electronic signals without being removed from its Circuit Board housing. EEPROMs are often used to store system command instructions and reference data sets that are accessed frequently, or when the equipment is first powered up ...A-8

H

10 **Host Machine**

a generic term for any electronic cabinet, equipment or platform where a UBA Unit will be installed. The Host Machine supplies both the power and the communications interface necessary for proper operation of the UBA Unit ...1-5

I

11 **ICB** ...1-2, 1-3, 1-4

an acronym for Intelligent Cash Box - it is an optional system which tracks gaming assets and revenues. The ICB System standardizes and simplifies the revenue drop and soft count functions, by automating the cash collection process ...1-2, 1-3

L

12 **LED**

an acronym for Light Emitting Diode. An LED is Semiconductor Device which when turned on, emits a signal output in the visible light range. Available of colors, LEDs are cost effective and are commonly used as Indicator Lights in a variety of equipment devices. LEDs are also available in the invisible light range (i.e., ultraviolet, near-infrared etc.) making them useful as operational indicators for a variety of electronic equipment and applications, such as Banknote Validation Circuit in a UBA Unit ...1-9

13 **Limited Power Source**

an electronic circuit designed to prevent damage to a Power Supply in the event a short circuit occurs ...1-5

P**14 pictograph**

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

15 Precautions

special instructions and warnings that appear in JCM Maintenance and Operation Manuals. They are intended to promote personal safety and prevent damage to equipment when working with the applicable JCM Product ...1-4

R**16 Reference Paper**

specially coated/colored paper strips which are inserted into a Banknote Acceptor when performing a UBA Unit Calibration. Reference Paper is used to help set minimum and maximum thresh hold detection levels when calibrating the Photo-optical sensors in the unit for optimum performance ...6-6

17 RS232C

a common serial data communication standard protocol ...1-9

S**18 Sensor ...1-4**

a Photosensitive Device and LED combination designed to detect timing and movement events ...2-15

19 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

T**20 Transport Unit**

the upper portion of a UBA that moves a Banknote past the various Sensors present in the Unit ...1-2

V**21 Validation**

In Banknote Acceptors (such as the UBA Unit), the process of drawing a Banknote into the Unit and then using various Sensors to read and determine the authenticity of the Banknote based on the comparison of collected readings to a set of reference data stored in memory ...1-9

UBA™ Series Universal Banknote Acceptor

UBA™ Series Universal Banknote Acceptor



a
RoHS
Compliant
Product



Contains
RoHS
Compliant
Components

Issue #4033-SME-01-04