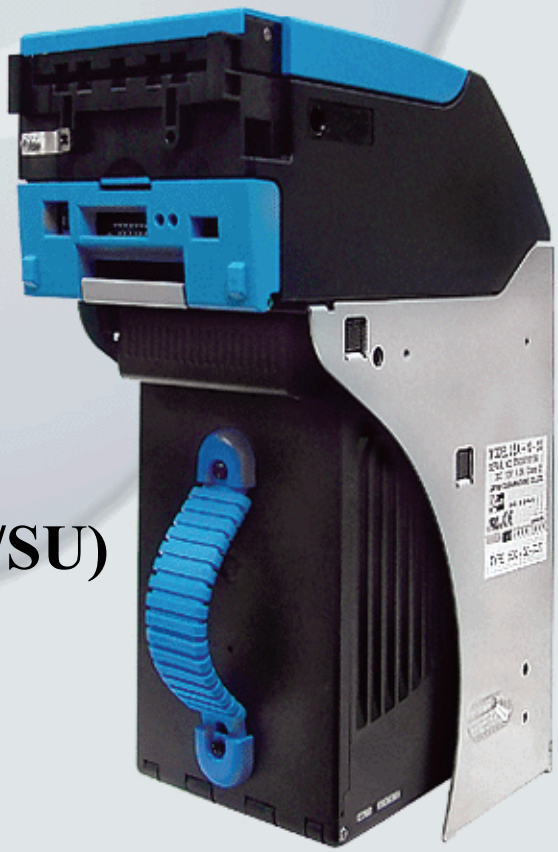
Office: (800) 683-7248 **Technical Support:** (702) 651-3444 **FAX:** (702) 651-0214
E-Mail: techsupport@jcmglobal.com **Web-Site:** www.jcmglobal.com



UBA® Series

Universal Bill Acceptor

(UBA-1x-SS & UBA-x4-SS/SU)

Operation and Maintenance Manual
(Revision 3)

JCM Part No. 960-000097R_Rev. 3

a RoHS Compliant Product

REVISION HISTORY			
Rev №.	**Date**	**Reason for Update**	**Comment**
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 UBA14/24 & 25 Information**	
4			
5			

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

1 GENERAL INFORMATION

This section provides a general overview of the Universal Bill Acceptor Series (UBA-1x-SS & UBA-x4-SS/SU) pictured in Figure 1-1. This first section is designed to help you navigate through the manual with ease and provides the following information:

- Model/Type Number Specifications
- Precautions
- Component Names
- System Configuration
- Specifications
- Primary Features
- Complete Unit Dimensions
- Unit Dimensions with UBA Faceplate
- Unit Dimensions with ICB
- Standard Cash Box Dimensions
- Country Codes

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 Bill 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-1x-SS Series

UBA-x4-SU Series

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

Model/Type Number Specifications

Table 1-1: Model Number Specifications

Nº	Model: UBA - ** - S* - **0 - 00 - ***** - *** - ** Nº (1,2) (3) (4,5,6) (7,8) (9,10,11,12,13) (14)(15)
(1)	Sensor Configuration **1. Security-Stacker (SS)** **2. Up-Stacker (SU)**
(2)	CPU Board Type **0. 8Mbit Flash ROM** **2. 16Mbit Flash ROM** **1. 8Mbit EPROM** **4. USB interface applicable**
(3)	Stacking Configuration **SS = Security Stacker (Downward vertical stacking [standard])** **SU = Stack Upward (Upward vertical stacking)**
(4)	Cash Box Capacity **5 = 500 Note Capacity** **9 = 900 Note Capacity**
(5)	Cash Box Type/Color **0 = Black Plastic** **S = Steel (WBA Style Box)**
(6)	Cash Box Handle Type/Color **0 = Blue Plastic (standard)** **J = Steel (WBA)** **1 = Red Plastic** **N = None (WBA)**
(7)	Transport Unit Body Color **0 = Black w/Blue Cover (standard)**
(8)	Transport Unit Cover Color **0 = Blue (standard)**
(9)	Faceplate* **0 = Without Faceplate (standard)** **1 = With JCM Standard UBA Faceplate (85mm wide)** **2 = With Blue/Blue LED** **A = With Blue/Blue LED (2-line)**
(10)	Intelligent Cash Box (ICB Option) **0 = ICB not supported (no ICB Board or ICB Cash Box)** **1 = ICB supported (with ICB Board & ICB Cash Box)** **2 = ICB supported (with ICB Board & UBA Cash Box)**
(11)	External Interface Board (Optional) **0 = Standard (no external I/F Board)** **1 = With 24V - 13.5V + Rs232C I/F Conversion Board** **2 = With RS232C I/F Conversion Board** **3 = With cc-Talk I/F Communications Board** **4 = With 24 VDC/13.5 VDC & USB I/F Conversion Board**
(12)	Input/Output signals **F = Photo-coupler Isolation** **R = RS232C**
(13)	Harnessing (External) **0 = No Harness** **1 = Standard Harness** **2 = OEM Harness** **F = 24VDC/13.5VDC Conversion Harness (w/Photo Coupler)** **R = 24VDC/13.5VDC Conversion Harness (w/RS-232C)**
(14)	Accepted Country Code **ISO 3166-based 3-digit Alpha Code (See page 1-15).**
(15)	Interface† **03 = JCM ID-003 Serial Interface** **28 = OEM Interface (USB)** **24 = OEM Interface**

*. Contact your JCM Sales Representative for information concerning Faceplates, the ICB and other options available.

†. Contact your JCM Sales Representative for information concerning other interface styles.

Precautions

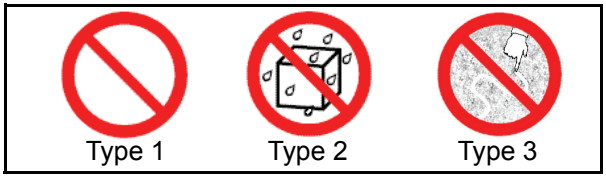


Figure 1-2 Precautionary Symbols

The Figure 1-2 symbols are defined as follows:

1. (**Type 1**) Do not insert a torn, folded, or wet Banknote, as this action may cause a Banknote jam inside the unit.
2. (**Type 2**) Do not expose the unit to water. The unit contains several precision electronic devices which can be damaged if water or any liquid is sprayed or spilled into the unit.
3. (**Type 3**) Do not install the unit into a dusty environment. Dust may affect and degrade the sensor's performance.

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

1. Be sure to turn the power off before plugging or unplugging connectors.
2. Firmly close the Unit's Transport path before applying power.
3. When closing the Unit, ensure all service door locks click into place. Make sure to open and close the Unit's Banknote path access ports gently, and take care that no dust or other foreign objects enter when opening the guide area.
4. Do not allow inventory stock to endure high temperature, high humidity or a dusty environment.
5. Do not throw the Unit or drop it to the ground. Improper handling may cause personal injury and/or damage to the equipment.
6. When opening the Upper Guide, hold the guide up since it does not stay in the open position by itself.
7. If the Bill Validator is dirty due to dust, foreign objects, or other such debris adhering to it, Banknote acceptance rate will degrade.

Use a soft, lint-free cloth and a mild non-abrasive soap and water solution to clean dust and debris from the Banknote's path.

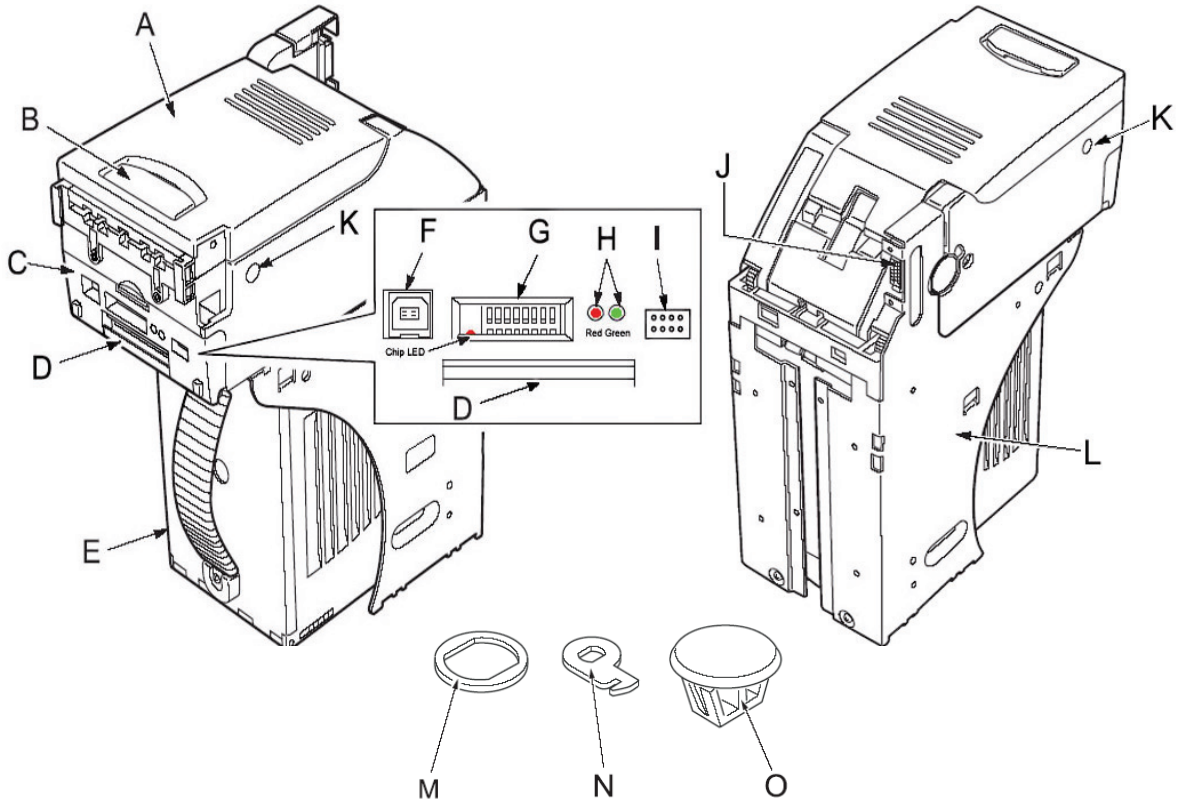
> ⚠ **Under no circumstances allow the cloth to be wet enough to allow excess fluid to run into the device; internal Printed Circuit Boards may be damaged. Do not use any Alcohol, solvents or scouring agents which can attack the plastic surfaces of the device.**

A new JCM authorized Waffletechnology Cleaning Card is now available for quick cleaning of the UBA Unit. Refer to page 2-11 of Section 2 of this Service Manual for more information on using the Waffletechnology Cleaning Card.

8. Inserting worn or damaged Banknotes may cause a jam. If a jam occurs when the Centering Mechanism is closed, the Cover will not open. To unjam the Unit when in this condition, recycle Power to allow the Unit to reset. Refer to "Clearing a Banknote Jam" on page 2-10 of Section 2 of this Service Manual for more information on clearing Banknote jams.

UBA-10/11/12 Component Names

Figure 1-3 illustrates the UBA-10/11/12 Primary Component Parts and their relative locations.



A: Acceptor Unit
B: Upper Guide Access Lever
C: Front Access Door
D: Acceptor Unit Release Lever
E: SS Style Cash Box
F: USB Type B Male Receptacle for software downloading and adjustments
G: DIP Switch Block (See Table 2-1on page 2-2 of Section 2 to properly set these Switches)
H: Diagnostic LEDs **(Green & Red)** See Table A-13 and Table A-15 in Section Afor the proper Diagnostic Codes)
I: Front Bezel Connector **(Connects to the Faceplate Assembly)**
J: Interface Connector **(Connects to the Host Machine)**
K: Centering Guide Release Port **(on both sides)**
L: Housing Frame
M: Key Spacer (2 each)
N: Plate Locking Key (2 each)
O: Key Hole Cap.

Figure 1-3 Universal Bill Acceptor (UBA-1X-SS) Major Component Parts

UBA-14/24 Component Names

Figure 1-3 illustrates the UBA-14/24 Primary Component Parts and their relative locations.

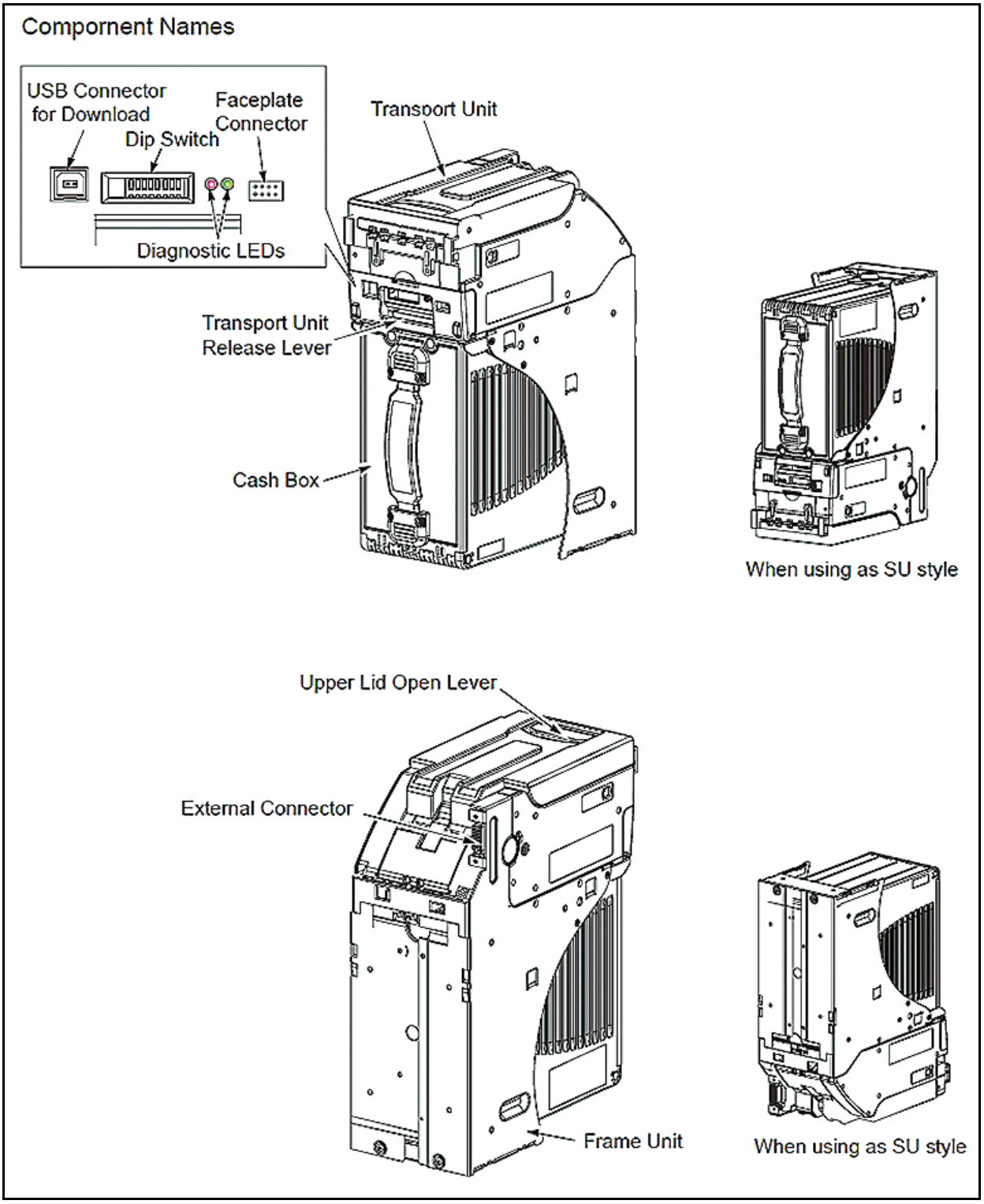


Figure 1-4 Universal Bill Acceptor (UBA-X4-SS/SU) Major Component Parts

Specifications

Technical Specifications

Table 1-2: UBA-1x Technical Specification

Acceptance rate:	Refer to the specific Country's Banknote Specifications when considering the following Parameters: 98% or greater* *Note: The following Banknotes types are excluded: a) Banknotes with excessive or poor magnetism or unclear graphics b) Double (dual) notes c) Worn, dirty, wet, torn or excessively wrinkled Banknotes d) Banknotes having folded corners or edges e) Banknotes having the wrong cut dimensions or printing displacement f) When security measures against counterfeiting are implemented, the software may not fulfill the specified acceptance rate level.
Banknote Types Accepted:	Width: 2.44 – 3.35 in. (62 – 85mm), Length: 4.72 – 6.5 in. (120 – 165mm **[up to 6.7 in. (170mm) when using a WBA Steel Cash Box]**)
Insertion Direction:	Refer to the specific Country's Banknote Specifications relative to the Banknote Types being used
Processing Speed:	Approximately 2 seconds (from Banknote insertion to Vend Signal output) Approximately 5 seconds (from Banknote insertion to stacking completion)
Diagnostic Indicators:	Front Panel Faceplate LEDs
Escrow:	1 Banknote
Anti-stringing Mechanism:	Pull-Back (PB) Unit (anti-pullback system – JCM Patented)
Cash Box Capacity:	500 notes or more
Interface:	USB 2.0 Compatable (full speed transfer [120 bps]) ID-003 JCM Standard Serial Interface (UBA-10/11/12) ID-024 OEM Interface ID-028 JCM USB Serial Interface (UBA-14/24) **(Ask JCM for the proper communication specification for your Unit)** Contact JCM for other Interface requirements if required.

Environmental Specifications

Table 1-3: UBA-1x Environmental Specification

Operating Temperature:	41ºF to ~ 122ºF (5ºC to ~ +50ºC)
Storage Temperature:	- 4ºF to ~ 140ºF (-20ºC to ~ +60ºC)
Relative Operating Humidity:	30% to ~ 85% RH (non-condensed)
Relative Storage Humidity:	30% to ~ 86% RH (non-condensed)
Visible Light Sensitivity:	Avoid Direct Sunlight Contact
Installation:	Indoors Only

Electrical Specifications

Table 1-4: UBA-1x Electrical Specification

Supply Voltage:	12VDC ± 5% **(NOTE: Use a power supply with a 4.0A or more capability)** **A 24VDC to12VDC conversion board option is available.**
Current Consumption:	Standby = 300mA Operation = 1.6A

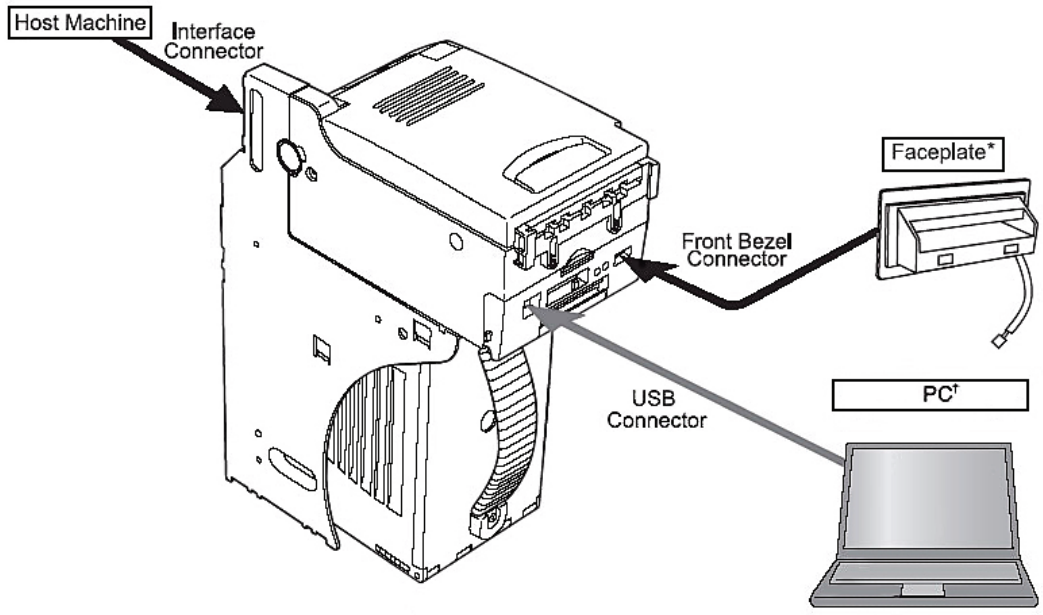
Structural Specifications

Table 1-5: UBA-1x Structural Specification

Weight:	Approximately 8.81 lbs (4.0kg)
Mounting:	Horizontal
Outer Dimensions:	11.73 in (298mm) High x 8.86 in (225mm) Deep x 4.49 in (114mm) Wide

System Configuration

Figure 1-5 illustrates a typical UBA system configuration.



*** a standard UBA Faceplate can be instantly connected. If connecting a custom designed Faceplate, refer to Table 2-5 on page 2-6 of Section 2 for proper Connector and Pin Assignment information.**

† a PC can be connected to download software and perform adjustments. For details concerning software downloading and adjustment procedures, refer to Section 6 of this Manual.

Figure 1-5 UBA System Configuration

Primary Features

The UBA Series of Bill Validators contains the following primary features:

- **Automatic Centering**
  - The automatic centering mechanism allows the unit to read Banknotes ranging from 62 to 85mm in width without using special Banknote guides (See Figure 1-6). It helps to improve the overall acceptance rate.

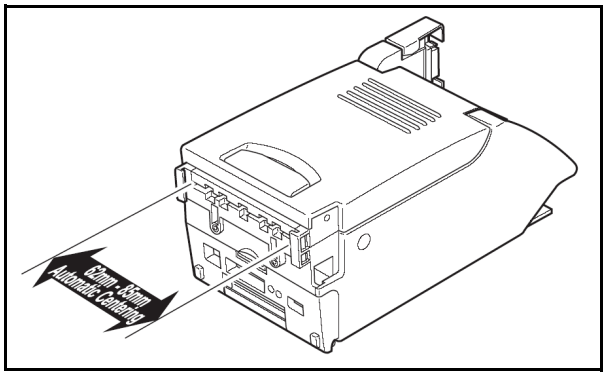


Figure 1-6 UBA Automatic Centering Feature

- **Proven Anti-pullback (anti-fishing) Technology**
  - This JCM patented Anti-Pullback Mechanism provides powerful protection against Banknote stringing.
  - The drum rotates every time a Banknote passes through the unit, and tangles around any foreign object attached to the Banknote, such as string and/or tape (See Figure 1-7).

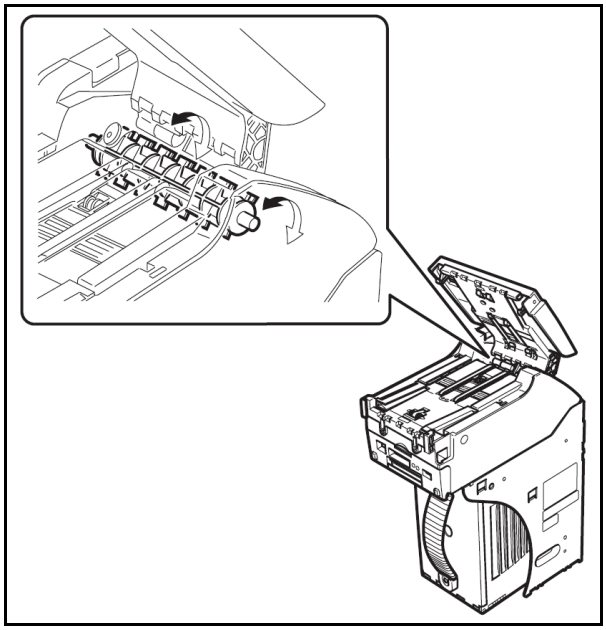


Figure 1-7 UBA Anti-Pullback Feature

– If any foreign object is detected, the UBA does not issue credit to the host controller.

- **Changeable Photo-Coupler Isolation/RS-232C Communication**
  – Onboard electronics allows the use of TTL or RS-232C communication without requiring additional signal conversion boards.

NOTE: See Figure 2-11 and Figure 2-12 in Section 2 of this Manual for Jumper Configuration combination settings.

- **Plastic Cash Box**
  – Durable and impact-resistant plastic construction assures secure cash handling.
  – Equipped with dispute resolving windows to reveal the denominational value of last the last Banknote inserted (See Figure 1-8).

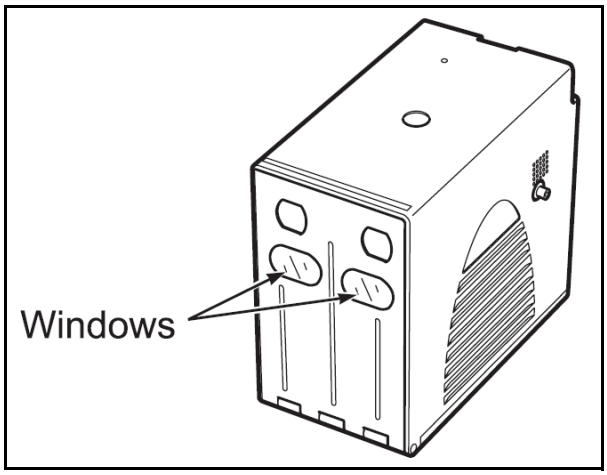


Figure 1-8 UBA Dispute Resolving Window Feature

- **ICB System (Optional)**
  – This JCM patented Intelligent Cash Box (ICB) system is designed to increase the casino operators efficiency by reducing common errors prevalent in casino drop and count processes. In addition to time and cost savings, the ICB system provides an accumulated data analysis for accountability and profitability.

Standard Unit Dimensions

Figure 1-9 illustrates the UBA-1x-SS standard unit dimensions.

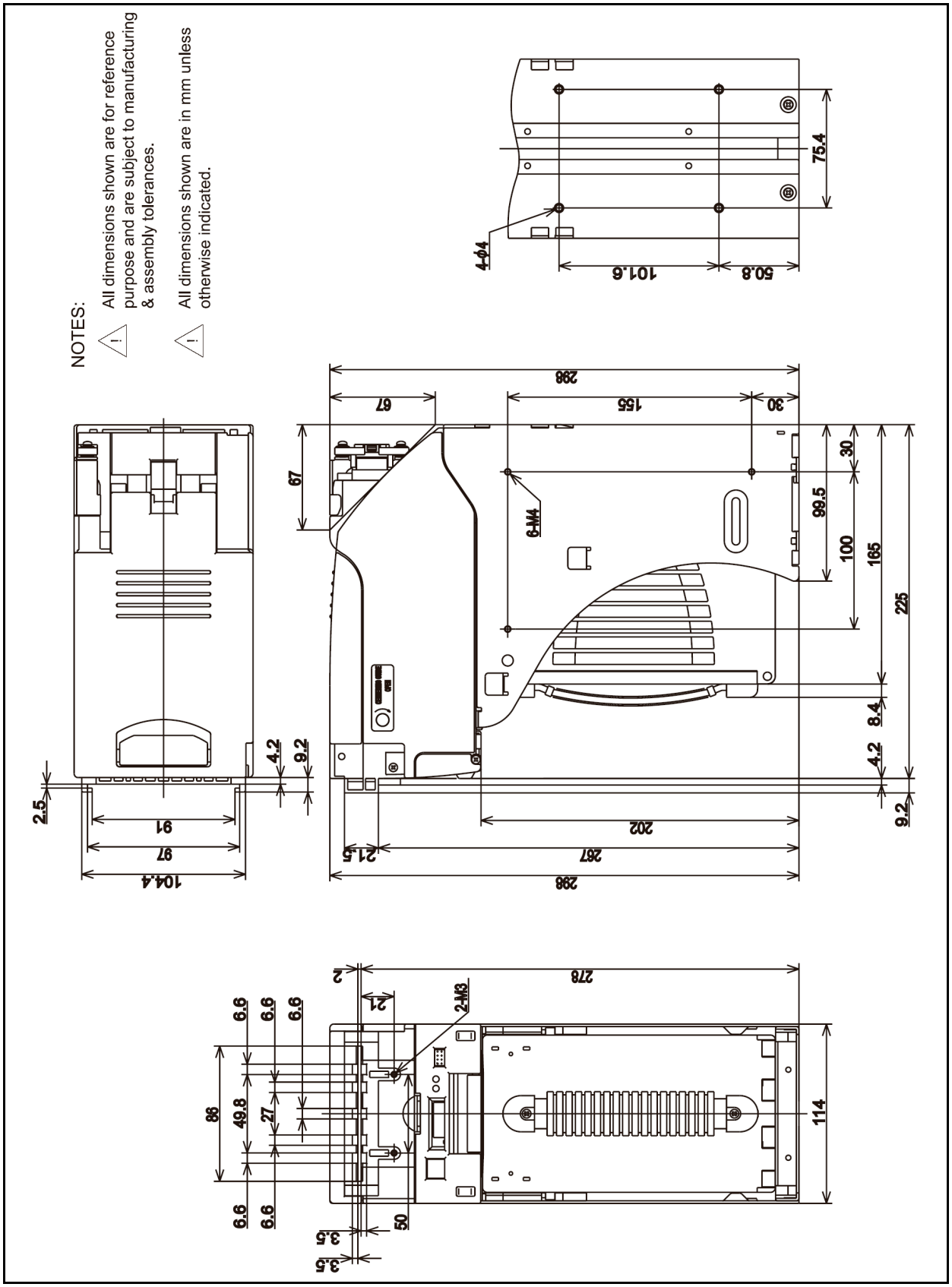


Figure 1-9 Bill Acceptor UBA-1x-SS Complete Unit Dimensions Diagram

UBA-1x Unit Dimensions with UBA Faceplate

Figure 1-10 illustrates the UBA-1x-SS complete unit dimensions with a UBA Faceplate.

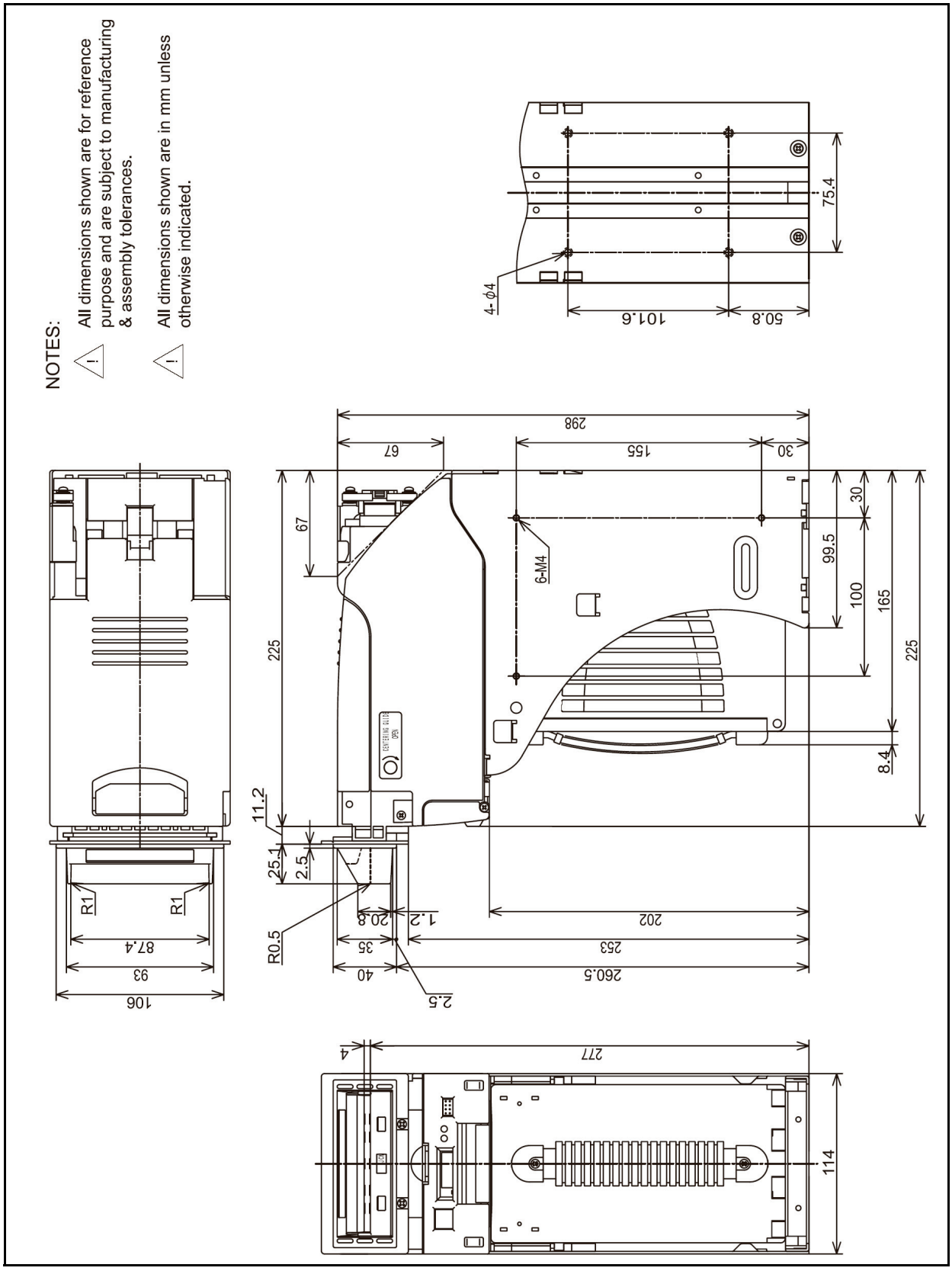


Figure 1-10 Bill Acceptor UBA-1x-SS Complete Unit Dimensions with UBA Faceplate Diagram

UBA-1x Unit Dimensions with ICB

Figure 1-11 illustrates the UBA-1x-SS Complete Unit Dimensions with an Intelligent Cash Box (ICB).

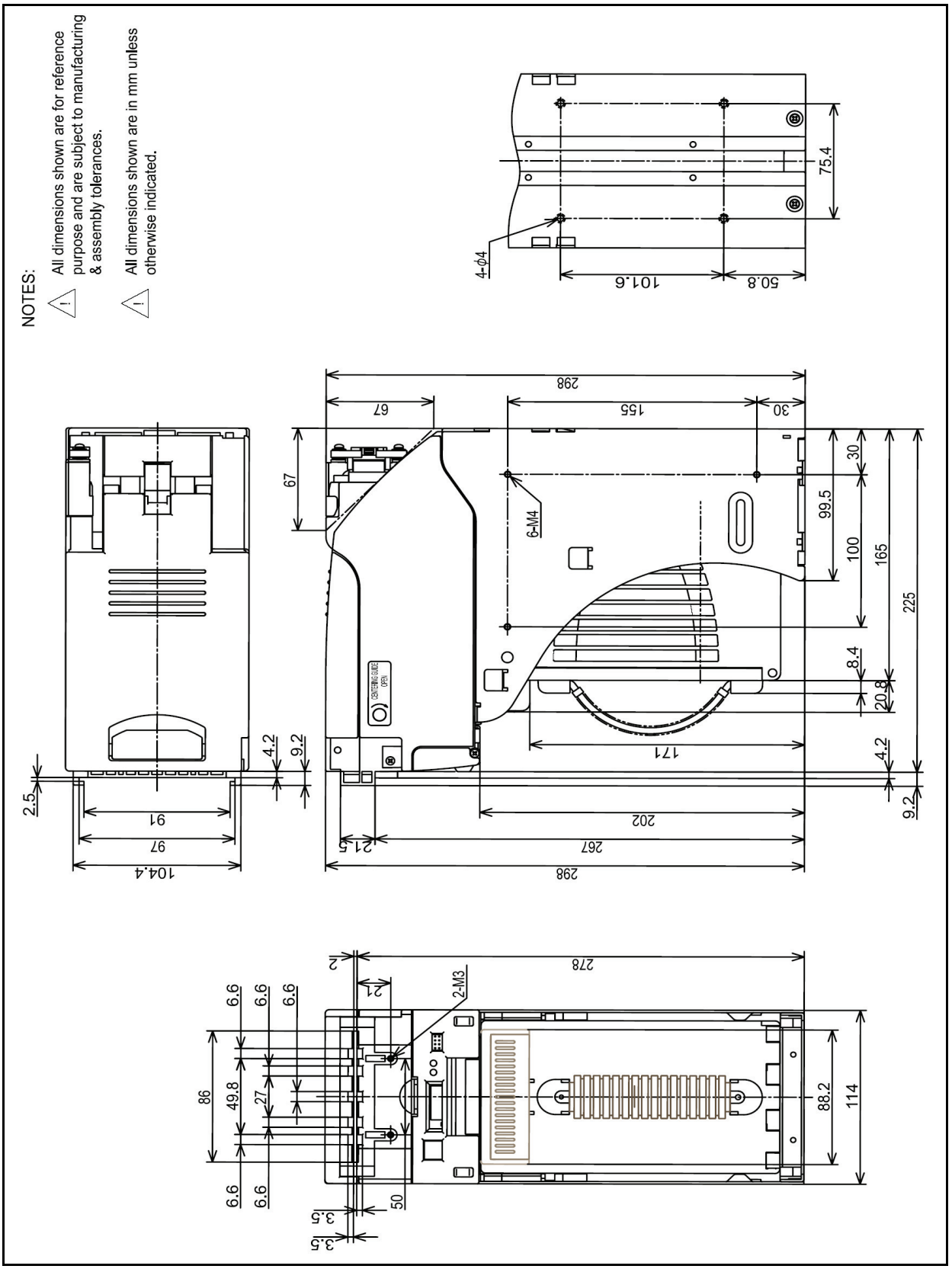
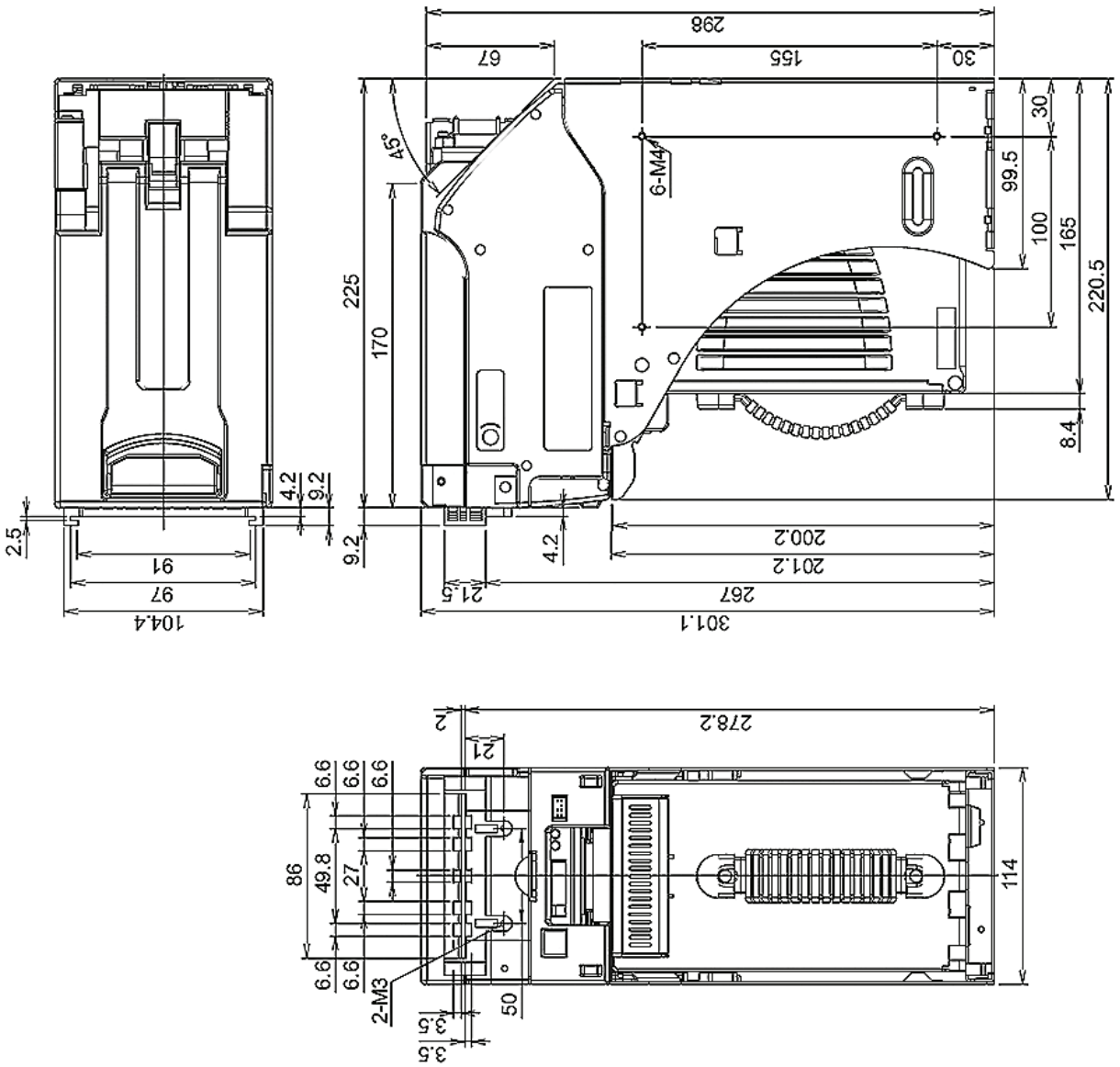


Figure 1-11 Bill Acceptor UBA-1x-SS Complete Unit Dimensions with ICB Diagram

UBA-x4-SS Unit Dimensions

Figure 1-12 illustrates the UBA-x4-SS Complete Unit Dimensions.

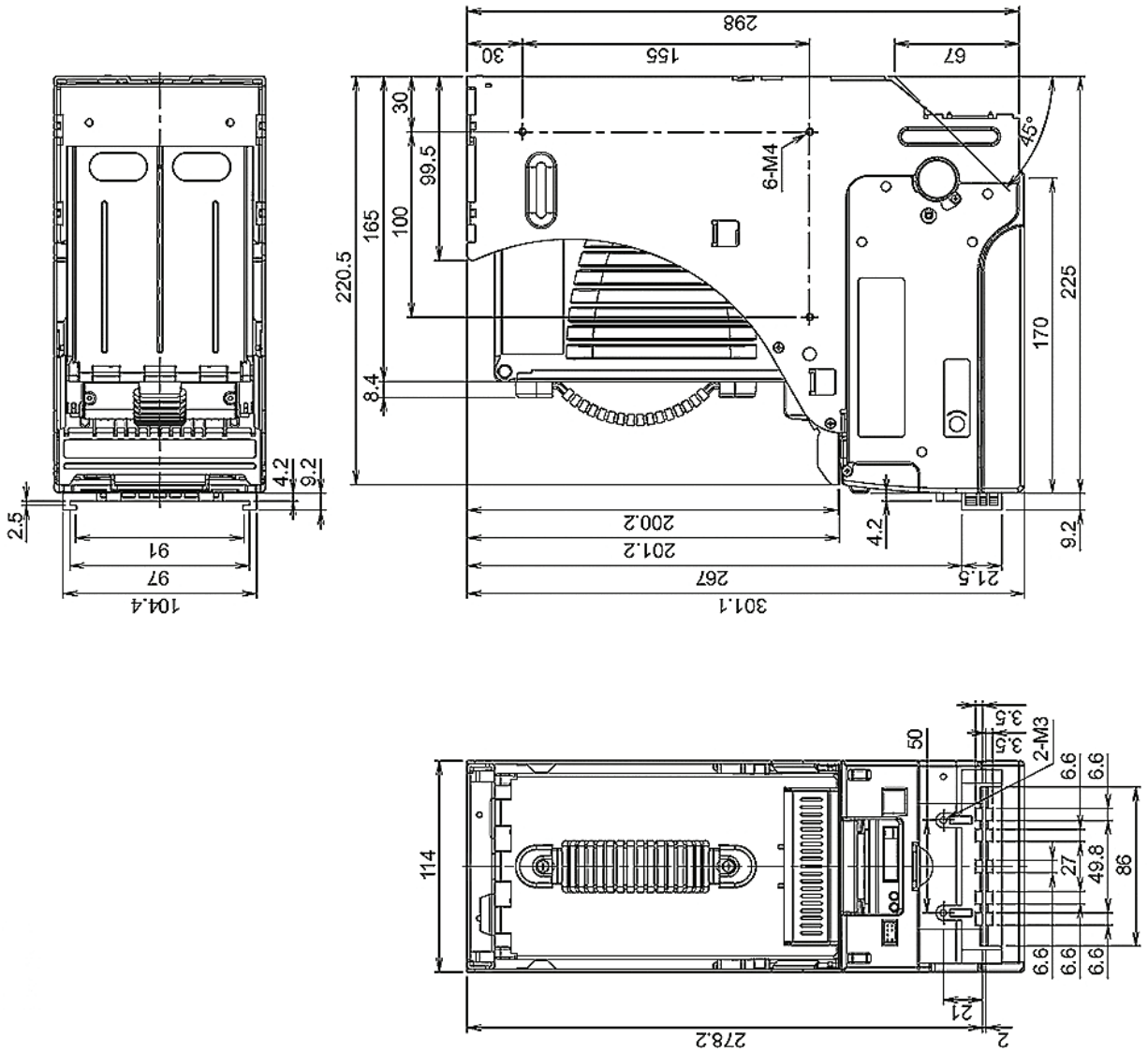


NOTE: All Dimensions are in Millimeters.

Figure 1-12 Bill Acceptor UBA-x4-SS Complete Unit Dimensions Diagram

UBA-x4-SU Unit Dimensions

Figure 1-13 illustrates the UBA-x4-SU Complete Unit Dimensions.



NOTE: All Dimensions are in Millimeters.

Figure 1-13 Bill Acceptor UBA-x4-SU Complete Unit Dimensions Diagram

Standard Cash Box Dimensions

Figure 1-14 illustrates the Standard Cash Box dimensions.

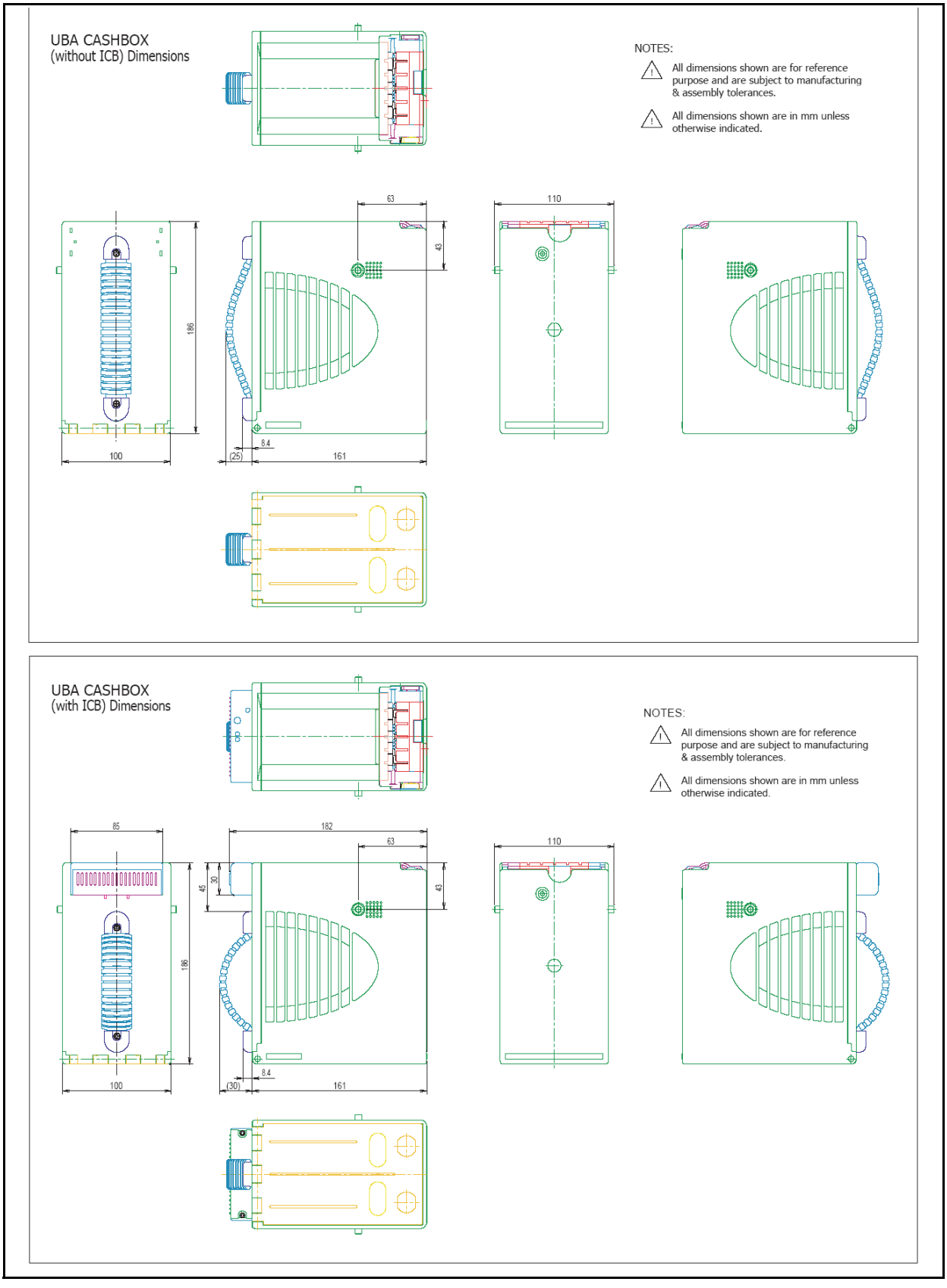


Figure 1-14 Bill Acceptor Standard Cash Box Dimensions Diagram

Large Cash Box Dimensions

Figure 1-15 illustrates the Large Cash Box dimensions.

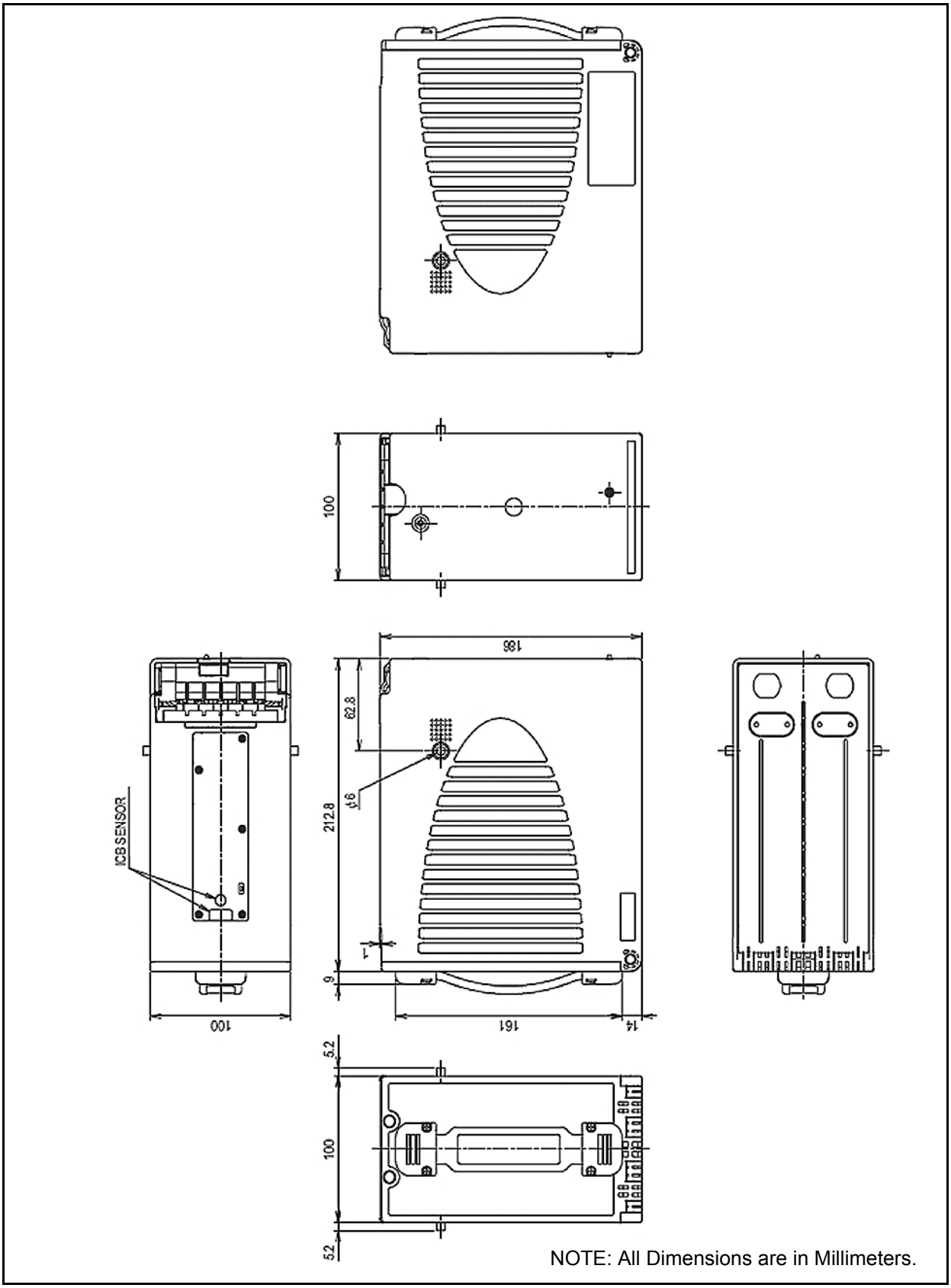


Figure 1-15 Bill Acceptor Large Cash Box Dimensions Diagram

Country Codes

Table 1-6: Country Code Listings

Country	Country Code
Antilles	ANT
Argentine	ARG
Australia	AUS
Austria	AUT
Austria	AUT4
Barbados	BRB
Belgium	BEL
Botswana	BWA
Brazil	BRA
Bulgaria	BGR
Canada	CAN
Canada	CAN
Chile	CHL
China	CHN
Colombia	COL
Costa Rica	CRI
Croatia	HRV
Cyprus	CYP
Czech Republic	CZE
Denmark	DNK
Estonia	ESTE
Estonia	EST2
European Union	EUR
Finland	FIN
France	FRA
Germany	DEU
Germany	DEU1
Germany	DEU2
Germany/Sweden	DEU/SWE
Great Britain (England)	GBR
Great Britain (England)	GBR-B
Great Britain/Gibraltar	GBR/GBI
Great Britain/Isle Of Man	GBR/MAN
Greece	GRC
Greece	GRC-B
Guatemala	MGT
Honduras	HND
Hong Kong	HKG
Hungary	HUN

Table 1-6: Country Code Listings (Continued)

Country	Country Code
Iceland	ISL
India	IND
Israel	ISR
Italy	ITA
Italy	ITA8
Italy	ITA9
Japan	JPN
Kazakhstan	KAZ
Kazakhstan	KAZ1
Latvia	LVA
Lithuania	LTU
Malaysia	MYS
Malaysia	MYS1
Malta	MLT
Mauritius	MUS
Mexico	MEX
Moldova	MDA
Morocco	MAR
Namibia	NAM
Netherlands	NLD
Netherlands	NLD-B
New Zealand	NZL
New Zealand	NZL1
New Zealand	NZL-B
North Ireland	NIRL
Norway	NOR
Norway	NOR1
Peru	PER
Peru	PER1
Philippines	PHL
Philippines	PHL1
Poland	POL
Poland	POL1
Poland	POL1-B
Portugal	PRT
Qatar	QAT
Republic Of Ireland	IRL
Republic Of Korea	KOR
Republic Of Korea	KOR-B
Romania	ROM

Table 1-6: Country Code Listings (Continued)

Country	Country Code
Russia	RUS
Russia	RUS-B
Saudi Arabia	SAU
Singapore	SGP
Singapore	SGP-B
Slovakia	SVK
Slovenia	SVN
South Africa	ZAF
Spain	ESP
Sri Lanka	LKA
Sweden	SWE
Switzerland	CHE
Switzerland	CHE3
Switzerland	CHE-B
Taiwan (Republic Of China)	TWN
Tanzania	TZA
Thailand	THA
Trinidad & Tobago	TTO
Ukraine	UKR
Ukraine	UKR1
United Arab Emirates	ARE
United States	USA
Uruguay	URY
Uruguay	URY1
Venezuela	VEN
Venezuela	VEN1
Venezuela	VEN2
Venezuela	VEN-B

These Country Codes conform to the ISO 3166 Country Code list definitions.

Technical Contact Information

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

Americas & Oceania

JCM American Corporation

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road, Las Vegas, NV 89119

E-mail: customerservice@jcmglobal.com

Europe, Africa, Russia & Middle East

JCM Europe GmbH

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40472 Duesseldorf Germany

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N.T. Hong Kong

E-mail: cs@jcmgold.com.hk

Japan Cash Machine Co, Limited (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

All of these Websites are available via:
http://www.jcmglobal.com

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UBA® Series

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

Section 2

2 INSTALLATION/OPERATION

This section provides installation and operation instructions for the Universal Bill Acceptor Series (UBA). The information within contains the following features:

- Installation
- Lock Installation
- DIP Switch Configurations
- Connector Pin Assignments
- Jumper Configurations
- Retrieving Banknotes
- Clearing a Banknote Jam
- Cleaning/Preventive Maintenance
- Operational Flowchart
- Interface Circuit Schematic

Installation

Perform the following steps to install the UBA unit:

1. Remove power from host machine.
2. Set UBA DIP Switches if required (See Figure 2-1). The initial setting is all switches OFF to enable all denominations.

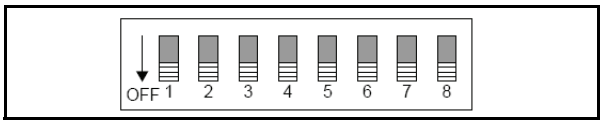
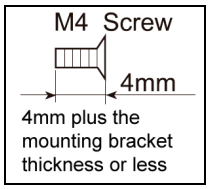


Figure 2-1 Front Panel Dip Switch Block

3. Connect the proper interface harness from the host machine to the UBA.
4. Install the UBA into the host machine using Flat Head M4 mounting screws. There are four mounting holes located on the frame end and three located on each side of the frame (See Figure 2-2 & Figure 2-3).

NOTE: The maximum length of M4 Flat Head Screws should be 4mm plus the thickness of the cabinet or mounting bracket. Example: If the UBA is mounted on a bracket that is 2mm thick, the M4 screws should be no more than 6mm in length.



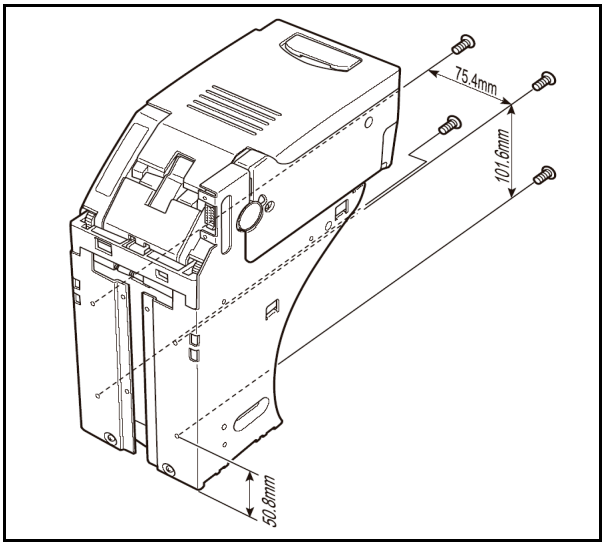


Figure 2-2 End Mounting Screw Hole Locations

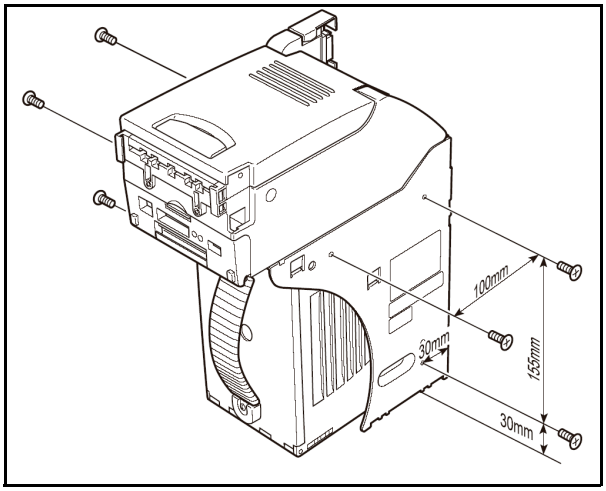


Figure 2-3 Side Mounting Screw Hole Locations

5. Apply power to the machine and verify that the Circuit Board mounted Red Chip LED, located to the left of the DIP Switch Block, is illuminated (ON) (See Figure 2-4), and both the Red and Green frame mounted Front Panel Indicator LEDs are extinguished (OFF).

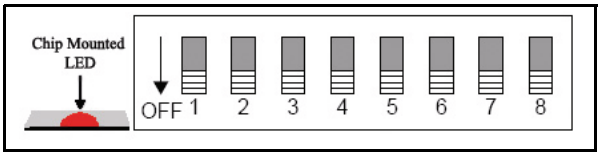


Figure 2-4 Circuit Board Mounted Red LED

– If the red chip LED is OFF, check connections and make sure power is applied.
– 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:

1. Two key spacers
2. Plate lock keys and
3. A key cap attachment.

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

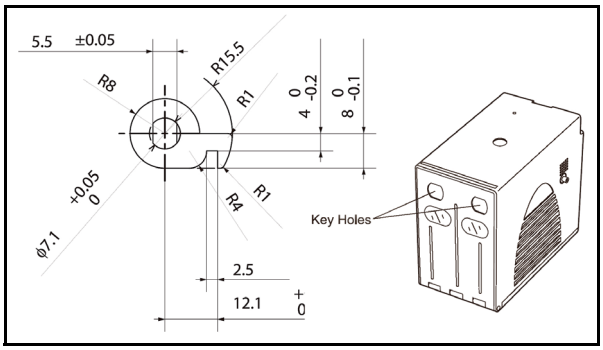


Figure 2-5 Plate Key Lock Dimensions & Location

Choose a Lock that fits a standard 5/8" or 1-1/8" hole dimension format, because they 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.

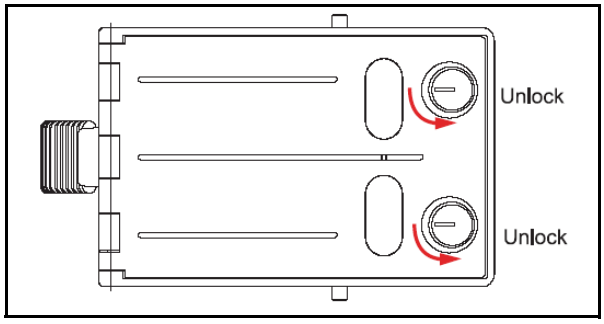


Figure 2-6 Key Lock Rotation Requirement

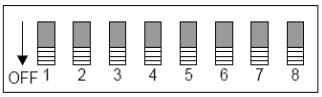
DIP Switch Configurations

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. Please contact your local JCM Customer Representative for the latest setting information, or visit the JCM Website at www.jcmglobal.com.

Table 2-1 DIP Switch Settings

UBA Front Panel Switches



Default Setting = ALL Switches are OFF

Switch No.	Switch ON	Switch OFF
1	TITO* barcode coupon disabled	TITO* barcode coupon enabled
2	$1 Banknote disabled	$1 Banknote enabled
3	$5 Banknote disabled	$5 Banknote enabled
4	$10 Banknote disabled	$10 Banknote enabled
5	$20 Banknote disabled	$20 Banknote enabled
6	$50 Banknote disabled	$50 Banknote enabled
7	$100 Banknote disabled	$100 Banknote enabled
8	TEST Mode	NORMAL Mode

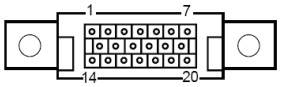
*. TITO = Ticket In Ticket Out

Connector Pin Assignments

Table 2-2 through Table 2-5 list the various UBA Connector Type Pin Assignments. Table 2-2 lists the UBA-10/11/12 Rear Panel Connector Pin Assignments, Table 2-3 lists the UBA-14 Rear Panel Connector Pin Assignments and Table 2-4 lists the UBA-24 Rear Panel Connector Pin Assignments.

Table 2-2 UBA-10/11/12 Rear Panel Connector Pin Assignments

UBA-10/11/12 Rear Panel Connector



Socket Jack: DRA-20PC-FO (JAE)
Contact Type: D02-22-26P-10000 (JAE)
Socket Plug: DRA-20SC-FO (JAE)
Contact Type: D02-22-26S-10000 (JAE)

Pin No.	Signal Name*	I/O†	Function
1	+12V POWER		+12V DC power
2	GROUND (Power)		0V DC Ground Plain
3	M. RES	In	Bill Acceptor master reset signal line
4	PC/RS232C OUT	Out	Serial data signal output line from Acceptor to Controller
5	+12V I/F		+12V DC Interface Power
6	PC/RS232C IN	In	Serial data signal input line from Controller to Acceptor
7	GND I/F		Photo-coupler Zero (0) Volt DC Interface power
8	(TTL1)	(In)	Reserved (TTL1) input
9	(TTL1)	(Out)	Reserved (TTL1) output
10	(TTL2)	(In)	Reserved (TTL2) input
11	(TTL2)	(Out)	Reserved (TTL2) output
12	(TTL3)	(In)	Reserved (TTL3) input
13	GND		RS232C 0 Volt DC Interface power
14	LED POWER		LED drive line - anode
15	(TTL4)	(In)	Reserved (TTL4) input
16	(TTL5)	(In)	Reserved (TTL5) input
17	(TTL3)	(Out)	Reserved (TTL3) output
18	LED- (TTL4)	(Out)	LED Drive Line - cathode (TTL4)
19	(TTL5)	(Out)	Reserved (TTL5) output
20	(TTL6)	(Out)	Reserved (TTL6) output

*. Signal name, I/O, and function without parenthesis are for ID-003 interface.

†. I/O (input/output) is the terminal viewed from Banknote Acceptor's side.

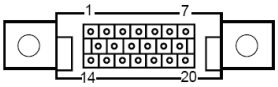
NOTE: Photo-coupler and RS-232C signal level isolation can be jumper selected using jumpers located on the CPU board. The related jumper selections are described in "Jumper Configurations" on page 9 and page 10 of this Section.

Connector Pin Assignments (Continued 1)

Table 2-3 lists the UBA-14 Rear Panel Connector Pin Assignments.

Table 2-3 UBA-14 Rear Panel Connector Pin Assignments

UBA-14 Rear Panel Connector



Socket Jack: DRA-20PC-FO (JAE)
Contact Type: D02-22-26P-10000 (JAE)
Socket Plug: DRA-20SC-FO (JAE)
Contact Type: D02-22-26S-10000 (JAE)

Pin No.	Signal Name*	I/O†	Function
1	+12V POWER		+12V DC power
2	GROUND (Power)		0V DC Ground Plain
3	M. RES	In	Bill Acceptor's master reset signal line
4	PC/RS232C OUT	(Out)	Serial data signal output line from Acceptor to Controller
5	+12V I/F		+12V DC Interface Power
6	PC/RS232C IN	(In)	Serial data signal input line from Controller to Acceptor
7	GND I/F		Photo-coupler Zero (0) Volt DC Interface power
8	Vbus		USB Communication Vbus signal line: DC +5V
9	-DATA	IN/OUT	USB Communication input/output signal line
10	+DATA	IN/OUT	USB Communication input/output signal line
11	(TTL1)	(Out)	Reserved (TTL1) output
12	GND USB		USB Communication Ground: DC 0V
13	(GND I/F)		(Interface power: RS232C DC0V)
14	LED POWER		LED drive line - anode
15	(TTL1)	(In)	Reserved (TTL1) input
16	(TTL2)	(In)	Reserved (TTL2) input
17	(TTL3)	(In)	Reserved (TTL3) output
18	LED- (TTL2)	(Out)	LED Drive Line - cathode (TTL2)
19	(TTL3)	(Out)	Reserved (TTL3) output
20	NC		No Connection

*. Signal name, I/O, and function with parenthesis are for photo-coupler isolation and RS-232C only.

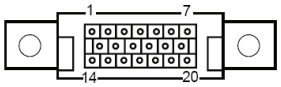
†. I/O (input/output) is the terminal viewed from Bill Acceptor's side.

Connector Pin Assignments (Continued 2)

Table 2-4 lists the UBA-24 Rear Panel Connector Pin Assignments.

Table 2-4 UBA-24 Rear Panel Connector Pin Assignments

UBA-24 Rear Panel Connector



Socket Jack: DRA-20PC-FO (JAE)
Contact Type: D02-22-26P-10000 (JAE)
Socket Plug: DRA-20SC-FO (JAE)
Contact Type: D02-22-26S-10000 (JAE)

Pin No.	Signal Name*	I/O†	Function
1	+12V POWER		+12V DC power
2	GROUND (Power)		0V DC Ground Plain
3	M. RES	In	Bill Acceptor's master reset signal line
4	NC		Reserved
5	+12V I/F		+12V DC Interface Power
6	NC		Reserved
7	NC		Reserved
8	Vbus		USB Communication Vbus signal line: DC +5V
9	-DATA	IN/OUT	USB Communication input/output signal line
10	+DATA	IN/OUT	USB Communication input/output signal line
11	NC		Reserved
12	GND USB		USB Communication Ground: DC 0V
13	NC‡		Reserved
14	LED POWER		LED drive line - anode
15	NC		Reserved
16	NC		Reserved
17	NC		Reserved
18	LED- (TTL2)		LED Drive Line - cathode
19	NC		Reserved
20	NC**		No Connection

*. Signal name, I/O, and function with parenthesis are for photo-coupler isolation and RS-232C only.

†. I/O (input/output) is the terminal viewed from Bill Acceptor's side.

‡. Short to Pin 20 for use as an SU Unit.

**.Short to Pin 13 for use as an SU Unit.

Connector Pin Assignments (Continued 3)

Table 2-5 list the UBA Front Panel Bezel Connector pin assignments.

Table 2-5 UBA-1X & UBA-x4 Front Panel Bezel Connector Pin Assignments

UBA Front Panel Bezel Connector (CN13)

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

Pin No.	Signal Name	I/O*	Signal Description
1	NC		Reserved
2	NC		Reserved
3	TXD	Out	Transmit signal output line from Acceptor to Controller
4	NC		Reserved
5	+12V Power		+12V DC Power
6	GND (Power)		0V DC Ground Plain
7	LED Power		LED Drive Line (anode)
8	LED -		LED Drive Line (cathode)

*. I/O (input/output) is the terminal viewed from Bill Acceptor's side.

Optional Conversion Circuit Boards and Harnesses

UBA 10/11/12-SS Optional Conversion Circuit Board

An Optional Conversion Board can be attached to a UBA-10/11/12 Unit. Two types of Optional Conversion Board are available and are listed in Table 2-6.

Table 2-6 UBA-10/11/12SS Circuit Board Conversion Options

UBA-10/11/12-SS Circuit Board Conversion Options	
Part No.	**Board Function**
4033-3240-06-13A-01 JAC Part#: 300-500007R (EDP#:122467)	24VDC/13.5VDC and RS-232C Signal Level Conversion Board This board will allow a 24VDC to 13.5VDC voltage conversion and RS-232C Interface communications capabilities.
4033-3240-06-15-01 JAC Part#: 300-200139R (EDP#: 123523)	cc-Talk I/F Signal Level Conversion Board. This Board allows communication with a cc-Talk Interface.

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. See Figure 2-11 and Figure 2-12 for proper Jumper setting conditions for the Board being used.

UBA 14/24-SS Optional Conversion Circuit Board

The Optional Conversion Board can also be attached to a UBA-14/24 Unit. Two types of optional conversion board are available. Table 2-7 list the available UBA-14/24-SS Optional Conversion Circuit Boards.

Table 2-7 UBA-14/24SS Circuit Board Conversion Options

UBA-14/24-SS Circuit Board Conversion Options	
Part No.	**Board Function**
4033-3240-06-13A-01 JAC Part#: 300-500007R (EDP#:122467)	24VDC/13.5VDC and RS-232C Signal Level Conversion Board This board will allow a 24VDC to 13.5VDC voltage conversion and RS-232C Interface communications capabilities.
4033-3240-06-13A-02 JAC Part#: 300-200139R (EDP#: 123523)	RS-232C Signal Level Conversion Board. This board allows communication with an RS-232C Interface.

Optional Conversion Circuit Board Installation Procedure

To Install an Optional Conversion Board, proceed as follows:

1. Press down on the UBA Acceptor's Front Release Latch and slide the Acceptor Unit forward and off the transport platform (See Figure 2-7 inset).

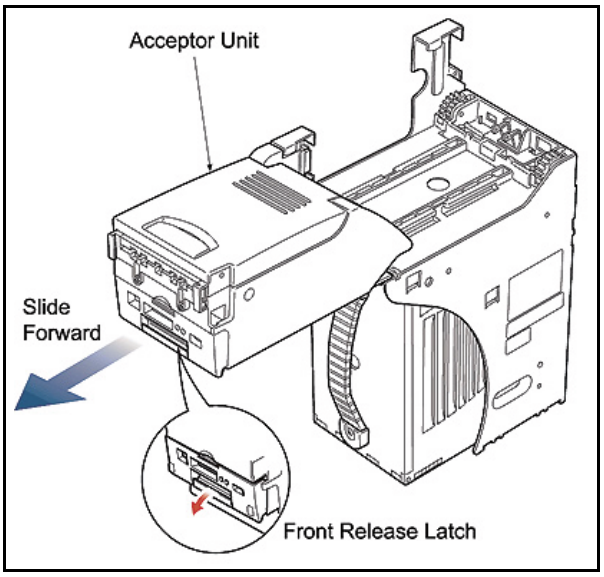


Figure 2-7 Removing Acceptor Unit

2. Carfully position the Optional UBA 10/11/12 or UBA 14/24 Conversion Board and insert the M2.6×6 Binding/Self Tightening Phillips mounting screws into the two (2) Circuit Board Mounting Holes (See Figure 2-8 a_1 & a_2).

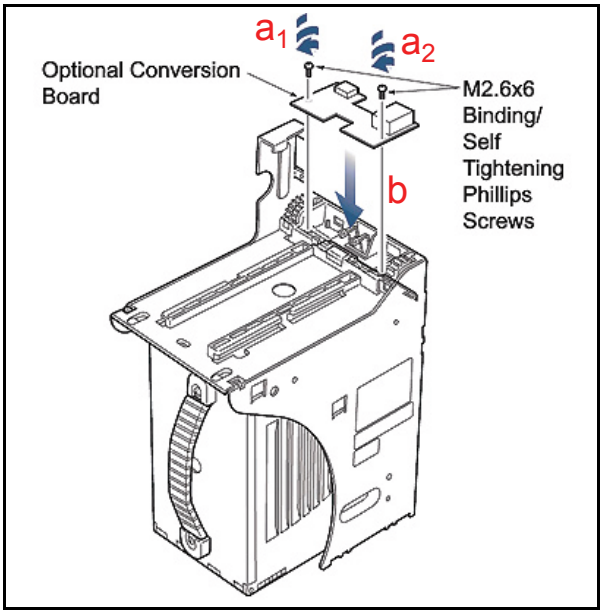


Figure 2-8 Installing Optional Circuit Board

3. Tighten each of the mounting screws using a Phillips Head Screw Driver to secure the Circuit Board in place on the Transport Assembly (See Figure 2-8 b).

Optional Conversion Board and Harness Kits

Optional Conversion Board/Harness Kits can be attached to any UBA 10/11/12-SS or UBA 14/24-SS Unit. Two Circuit Board and Harness Combination Kits are available for the UBA 10/11/12-SS Units and are listed in Table 2-8.

Table 2-8 UBA-10/11/12-SS Conversion Board and Harness Kit Options

UBA-10/11/12 Conversion Board & Harness Kit Options		
Harness Types / Board Types	RS-232C I/F Harness with M3x12 Screws, Springs, Flat Washer & Clamp (JAC Part#: 400-100556RA) (EDP# 124736)	Photo-Coupler I/F Harness with M3X12 Washer Sems Screw and Clamp (JAC Part#: 701-100095R)(EDP# 124738)
24VDC/13.5VDC & RS-232C Signal Level Conversion Board (JAC Part#: 300-500007R (EDP#: 122467)	UBA 24V/RS-232C Board plus RS-232C Harness Kit (JAC Part#: 701-100097R) (EDP# 123200)	UBA 24V/RS-232C Board plus Photo-Coupler Harness Kit (JAC Part#: 701-100098R) (EDP# 123521)

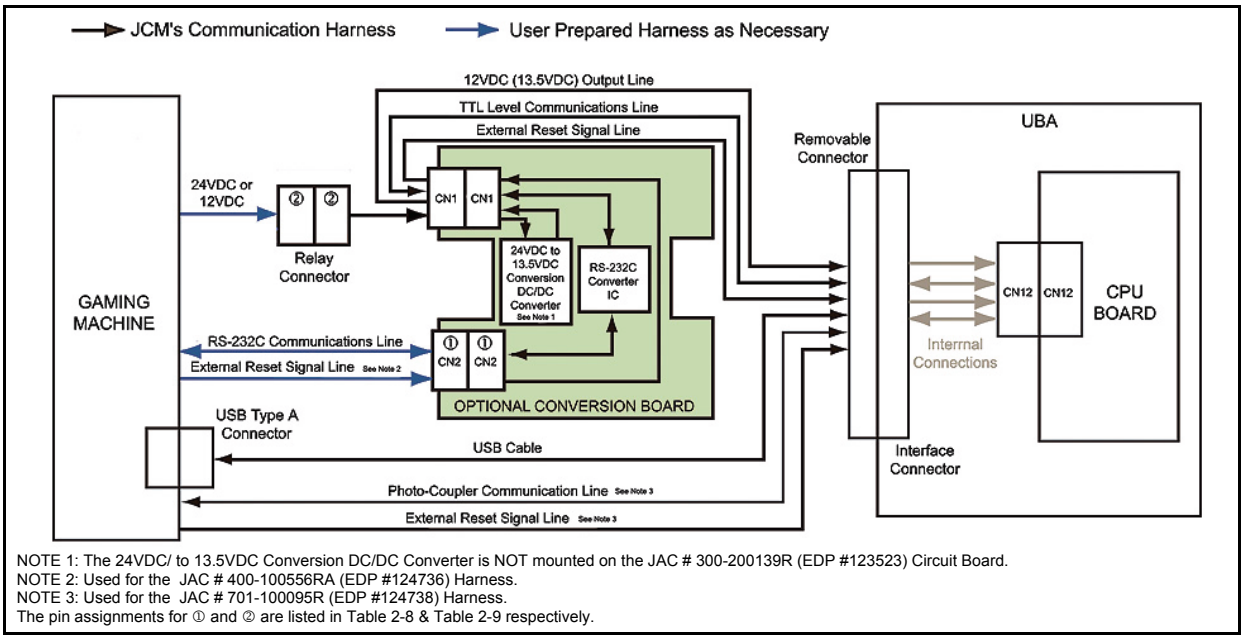
Three Circuit Board and Harness Combination Kit types are also available for use with the UBA 14/24-SS Units and are listed in Table 2-9.

Table 2-9 UBA-14/24-SS Conversion Board and Harness Kit Options

UBA-14/24 Conversion Board & Harness Kit Options		
Harness Types / Board Types	DC24V/DC13.5V and RS-232C Signal Level Conversion Board (JACPart#:) (EDP# 122467)	Photo-Coupler I/F Harness with M3X12 Washer Sems Screw and Clamp (JAC Part#:) (EDP# 122469)
24VDC/13.5VDC & RS-232C Signal Level Conversion Board (JAC Part#: 300-500007R (EDP#: 122467)	UBA 24V/RS-232C Board plus RS-232C Harness Kit (JAC Part#: 701-100097R) (EDP# 123200)	UBA 24V/RS-232C Board plus Photo-Coupler Harness Kit (JAC Part#: 701-100098R) (EDP# 123521)
RS-232C Signal Level Conversion Board (JAC Part#: 300-200139R) (EDP#: 123523)	UBA RS-232C Board plus RS-232C Harness Kit (JAC Part#: 300-100439RA) (EDP# 123522)	N/A

External Interface Connection Structure for an Optional Conversion Board

Figure 2-9 illustrates the External Interface Connection Structure for an Optional Conversion Board. Table 2-10 lists the Pin Assignments for the CN2 Connector shown at Figure 2-9 ①, and Table 2-10 lists the pin assignments for the Relay Connector shown at Figure 2-9 ②.



NOTE 1: The 24VDC/ to 13.5VDC Conversion DC/DC Converter is NOT mounted on the JAC # 300-200139R (EDP #123523) Circuit Board.
NOTE 2: Used for the JAC # 400-100556RA (EDP #124736) Harness.
NOTE 3: Used for the JAC # 701-100095R (EDP #124738) Harness.
The pin assignments for ① and ② are listed in Table 2-8 & Table 2-9 respectively.

Figure 2-9 Optional Conversion Board External Interface Connection Structure

Table 2-10 Connector CN2 Pin Assignments

Connector CN2
Header: 53103-0430 (Japan Molex)
Contact Type: 50083-8014 (Japan Molex)
Housing: 51030-0430 (Japan Molex)

Pin No.	Signal Name
1	M Reset
2	T_{XD}
3	R_{XD}
4	Interface Ground

Table 2-11 Relay Connector Pin Assignments

Relay Connector
Header: 51029-0310 (Japan Molex)
Contact Type: 50087-8014 (Japan Molex)
or 70021-00041 (USA Molex)
Housing: 51030-0330 (Japan Molex)
Contact Type: 51030-0430 (Japan Molex)
Recommended Wire: UL1007 AWG#24 to 26

Pin No.	Signal Name
1	24 VDC
2	12 VDC
3	Interface Ground

Figure 2-10 illustrates the External Interface Connection Structure for an Optional Conversion Board.

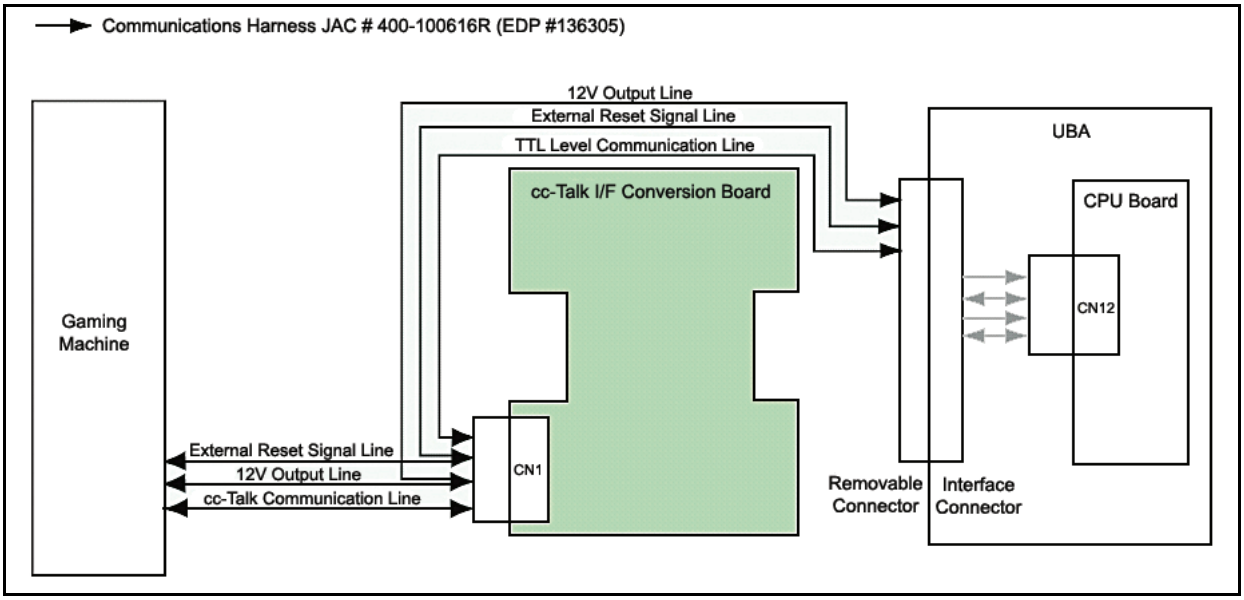
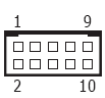


Figure 2-10 Optional cc-Talk Conversion Board External Interface Connection Structure

Table 2-12 lists the Pin Assignments for the CN1 Connector shown in Figure 2-10.

Table 2-12 Optional cc-Talk Conversion Board Connector Pin Assignments



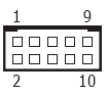
Connector CN1
Header: S10B-PHDSS(LF,SN) (Nishiuchi)
Contact Type: SPHD-002I-P0.5 (JST)
Housing: PHDR-10VS (Japan Molex)
Recommended Wire: UL1016 AWG#26
JST PHDR-10VS (2mm, 5x2)

Pin No.	Signal Name
1	Interface 12V DC
2	Interface Ground
3	UBA 12V DC
4	Power Ground
5	UBA T_{XD}
6	UBA R_{XD}
7	cc-Talk (+)
8	cc-Talk (-)
9	Reset
10	Reset

Optional USB Connector

Table 2-13 list the Optional USB Connector (JAC Part No. 300-100154) Pin Assignments.

Table 2-13 Optional USB Connector Pin Assignments



Optional 24 VDC 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 Nos. 7 - 10 = UL2854 AWG #28
LY10-DC10 (JAE) (2mm, 5x2)

Pin No.	Signal Name
1	+24V DC Input Power
2	+12V DC Input Power
3	Power Ground
4	+12V (+13V) DC Input Power
5	Power Ground
6	+12V (+13V) DC Input Power
7	V Bus
8	- Data
9	+ Data
10	Ground

Jumper Configurations

The 5 Volt DC UBA CPU Board contains three jumper plugs. Photo-coupler isolation and/or RS232C selection is configured by these jumpers. All three jumpers must be configured to the same setting (See Figure 2-11).

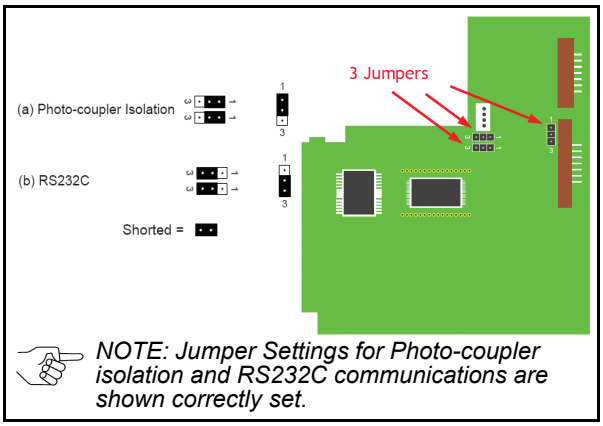


Figure 2-11 5V DC CPU Board Bottom View

The 3.3 Volt DC UBA CPU Board also contains three jumper plugs, but they are adjacent to one another. Photo-coupler isolation and/or RS232C selection is also configured by these jumpers. All three jumpers must be configured to the same setting (See Figure 2-12).

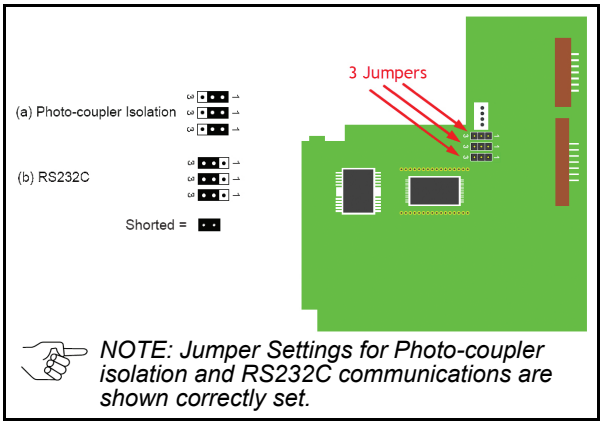


Figure 2-12 3.3V DC CPU Board Bottom View

Retrieving Banknotes

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

1. Pull the handle to release the Cash Box from the frame as illustrated in Figure 2-13. Press thumb on the Acceptor Head while pulling the Cash Box Handle for better leverage during extraction.

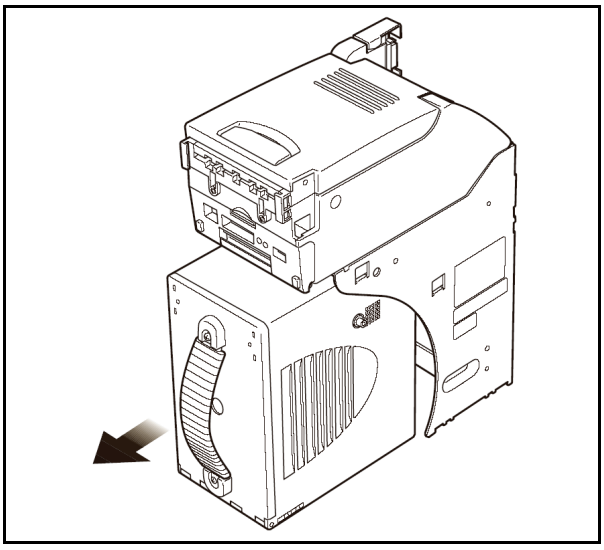


Figure 2-13 Removing the Cash Box

2. When a lock is installed, use the appropriate key to unlock the Cash Box. For details concerning locks, refer to "Lock Installation" on page 2 of this section.
3. Open the Cash Box door and retrieve the Banknotes as illustrated in Figure 2-14.

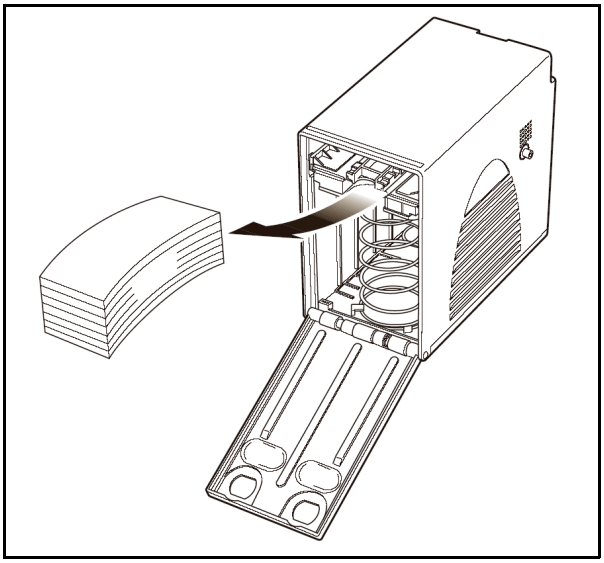


Figure 2-14 Retrieving Bills

Clearing a Banknote Jam

When a Banknote is jammed near the Bill Acceptor's entrance:

1. Pull the tab located on the top of the Acceptor to open the units cover and
2. Remove the jammed Banknote (See Figure 2-15).

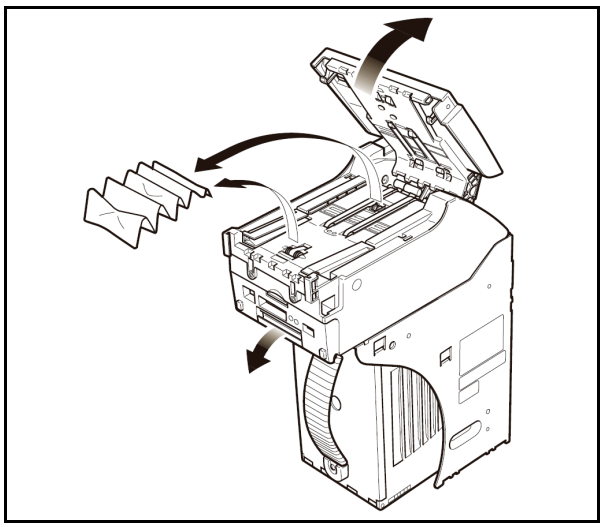


Figure 2-15 Clearing an Entrance Banknote Jam

When a Banknote is jammed near the Cash Box entrance:

1. Pull on the box's handle to remove the Cash Box from frame, then
2. Remove the jammed Banknote (See Figure 2-16).

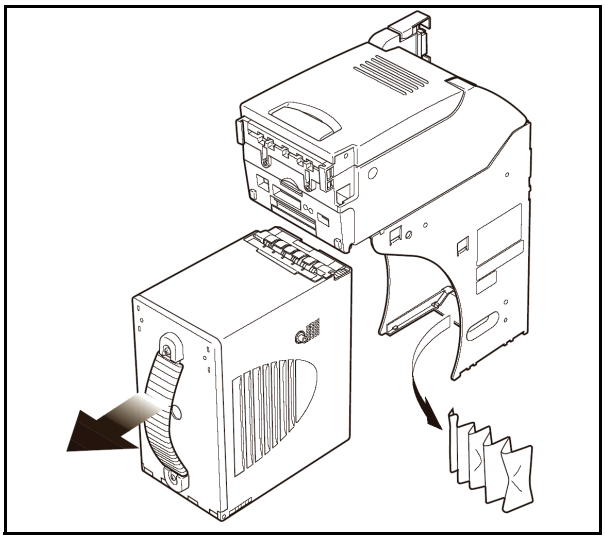


Figure 2-16 Clearing Cash Box Entrance Banknote Jams

Figure 2-17 Opening UBA Centering Mechanism

Do not use alcohol, thinner or citrus based products for cleaning any surfaces.

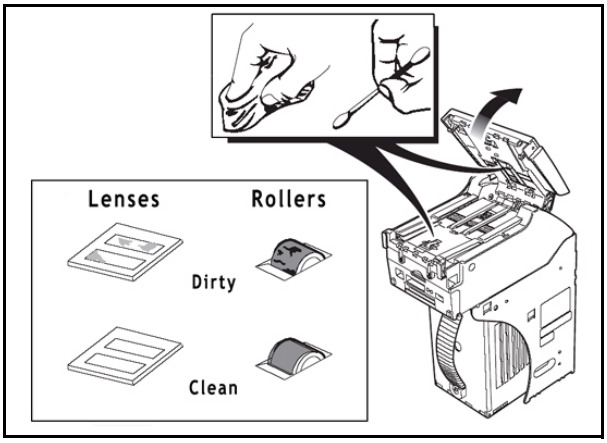


Figure 2-18 UBA Cleaning Locations

If a Bill jam occurs when the centering mechanism is closed, the cover will not open. To un-jam the unit, recycle power and allow the unit to reset.

NOTE: If recycling the power fails to clear the jam, use a 2.5 mm Hex Nut Driver (JCM part # 501-000131) to rotate the mover guide shaft, then open the Top Cover to remove jam (See Figure 2-17).

Cleaning/Preventive Maintenance

To clean the lenses, use a lint-free cloth and a mild non-abrasive detergent such as liquid dish soap mixed with water. It is important to keep the bill path, rollers, and belts clean. Use a soft lint-free cloth or a cotton swab to wipe dirt and stains from the surfaces of the magnetic and optical sensors, rollers and belts. The sensor lenses are transparent, and made of a polymer material. Handle them with care. Repeat the cleaning process as needed until the Transport path is free of contaminants (See Figure 2-18).

Available Cleaning Card

A second generation JCM Waffletechnology Bill Validator Cleaning Card is now available (JCM 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 Gaming Validator (See Figure 2-19).

Figure 2-19 JCM Waffletechnology Cleaning Card

CARD FEATURES

- A unique Waffletechnology design that hugs all surfaces to insure complete surface cleaning
- Specially designed scrubber patterns insure that belts and O-ring rollers are cleaned and lubricated to prevent them from drying out.

DIRECTIONS FOR USE

1. Remove cleaning card from pouch and insert it into the Bill Validator.
2. The cleaning card will be accepted and then automatically feed in-and-out several times.
3. Insert and HOLD cleaning card while the Validator pulls on it to ensure proper belt cleaning.
4. Dispose of used card in an environmentally safe manner.

For more information and a list of Authorized Waffletechnology Distributers visit: http://www.jcmwaffletechnology.com.

UBA 10/11/12/14 & 24 Related Schematics

UBA Faceplate LED Lighting Control Circuit Schematic

Figure 2-20 illustrates the Standard Faceplate LED Lighting Control Circuit Schematic Diagram.

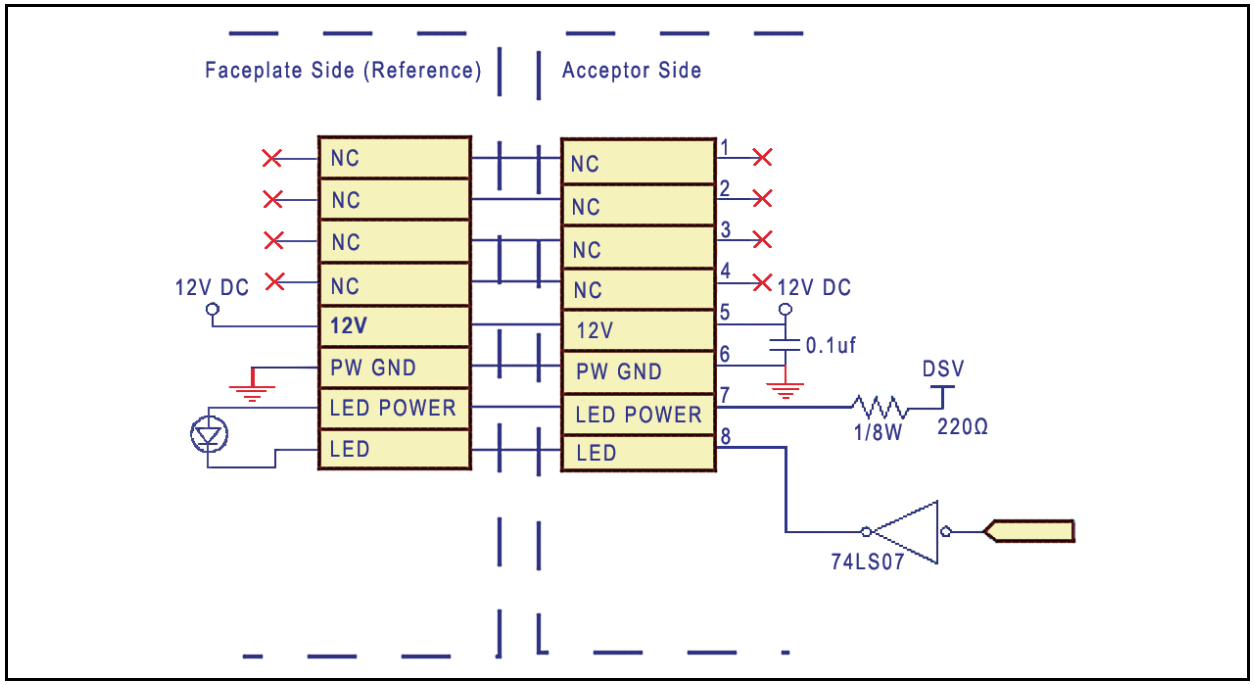


Figure 2-20 Faceplate LED Lighting Control Circuit Schematic Diagram

UBA Optional Conversion Board Interface Circuit Schematic

Figure 2-21 illustrates the Optional Conversion Board Interface Circuit Schematic Diagram.

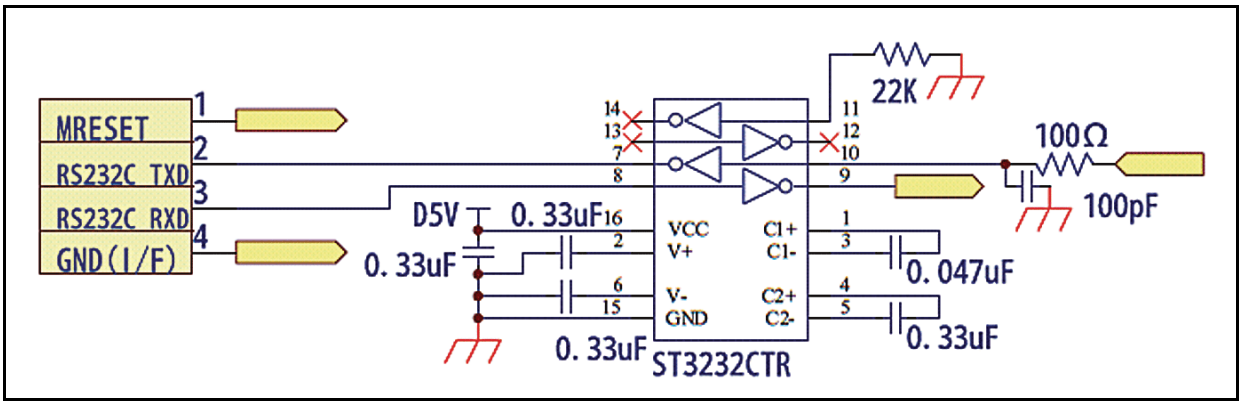


Figure 2-21 Optional Conversion Board Interface Circuit Schematic Diagram

UBA 10/11/12-SS Standard Interface Circuit Schematic

Figure 2-22 illustrates the CPU Board UBA-10/11/12-SS Schematic Diagram.

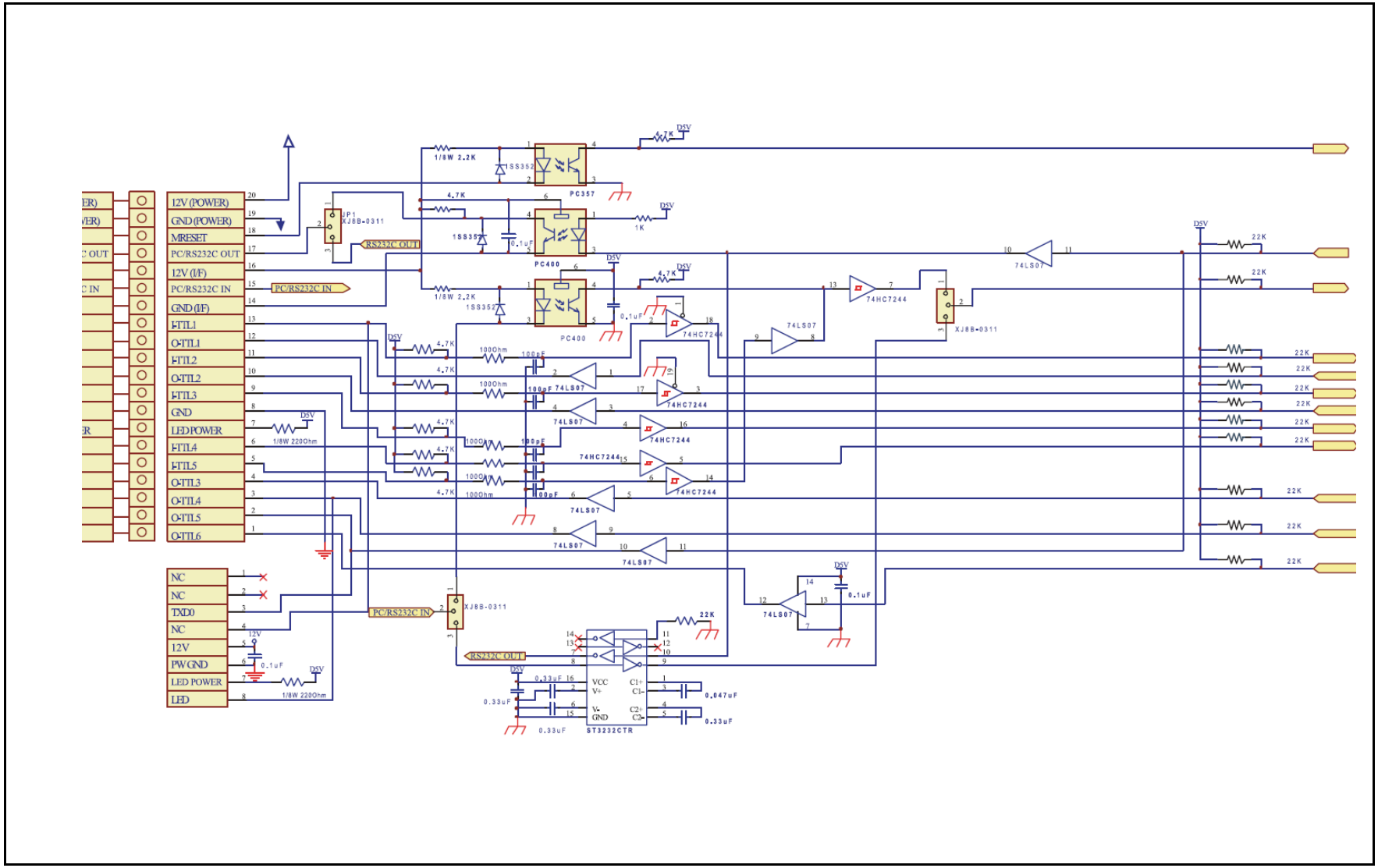


Figure 2-22 UBA-10/11/12-SS Bill Acceptor CPU Board Schematic Diagram

UBA-14-SS Interface Circuit Schematic

Figure 2-23 illustrates the CPU Board UBA-14-SS Schematic Diagram.

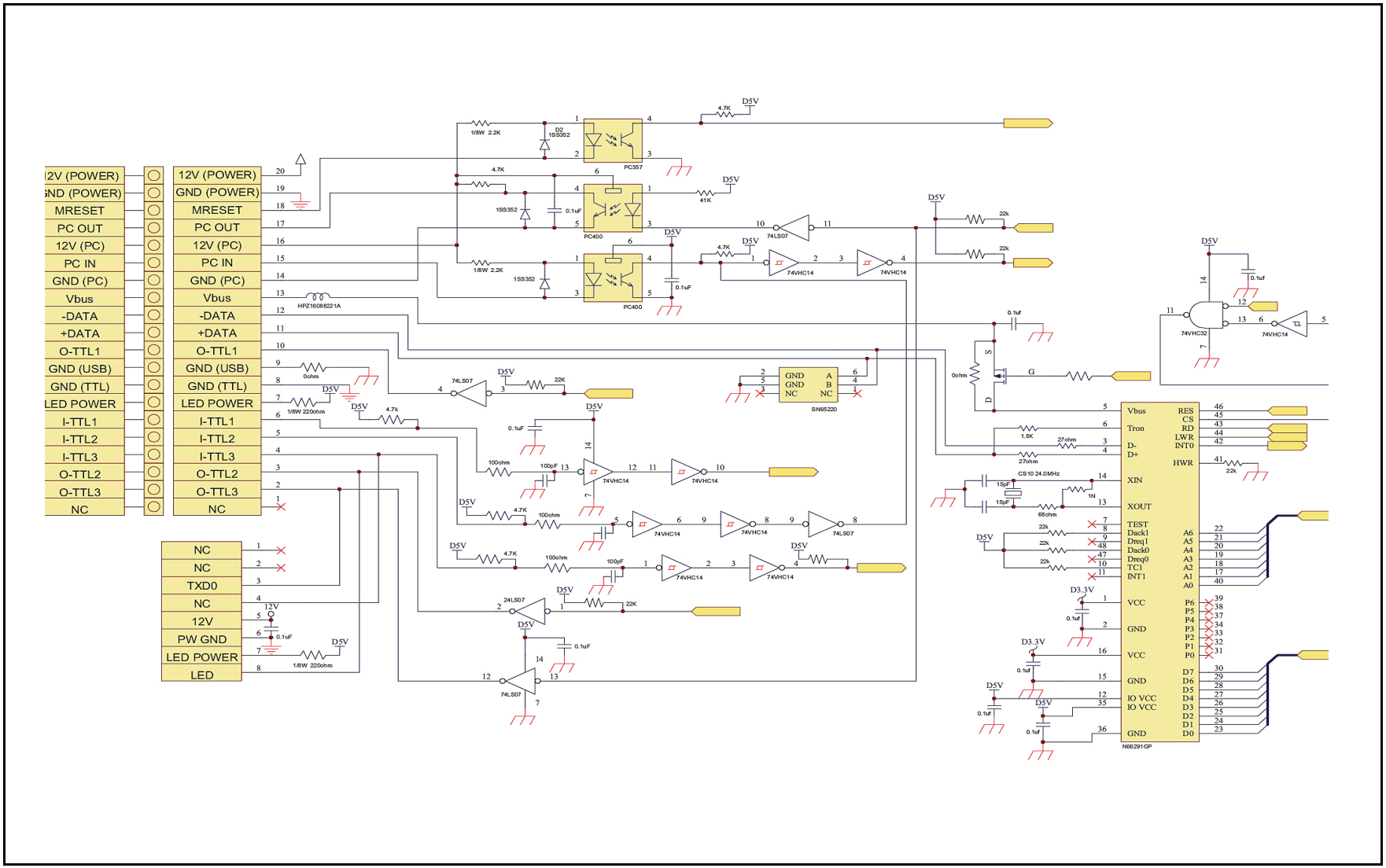


Figure 2-23 UBA-14-SS Bill Acceptor CPU Board Schematic Diagram

External Input/Output Connector Circuit Schematic

Figure 2-24 illustrates the External Connector Interface Circuit Schematic Diagram.

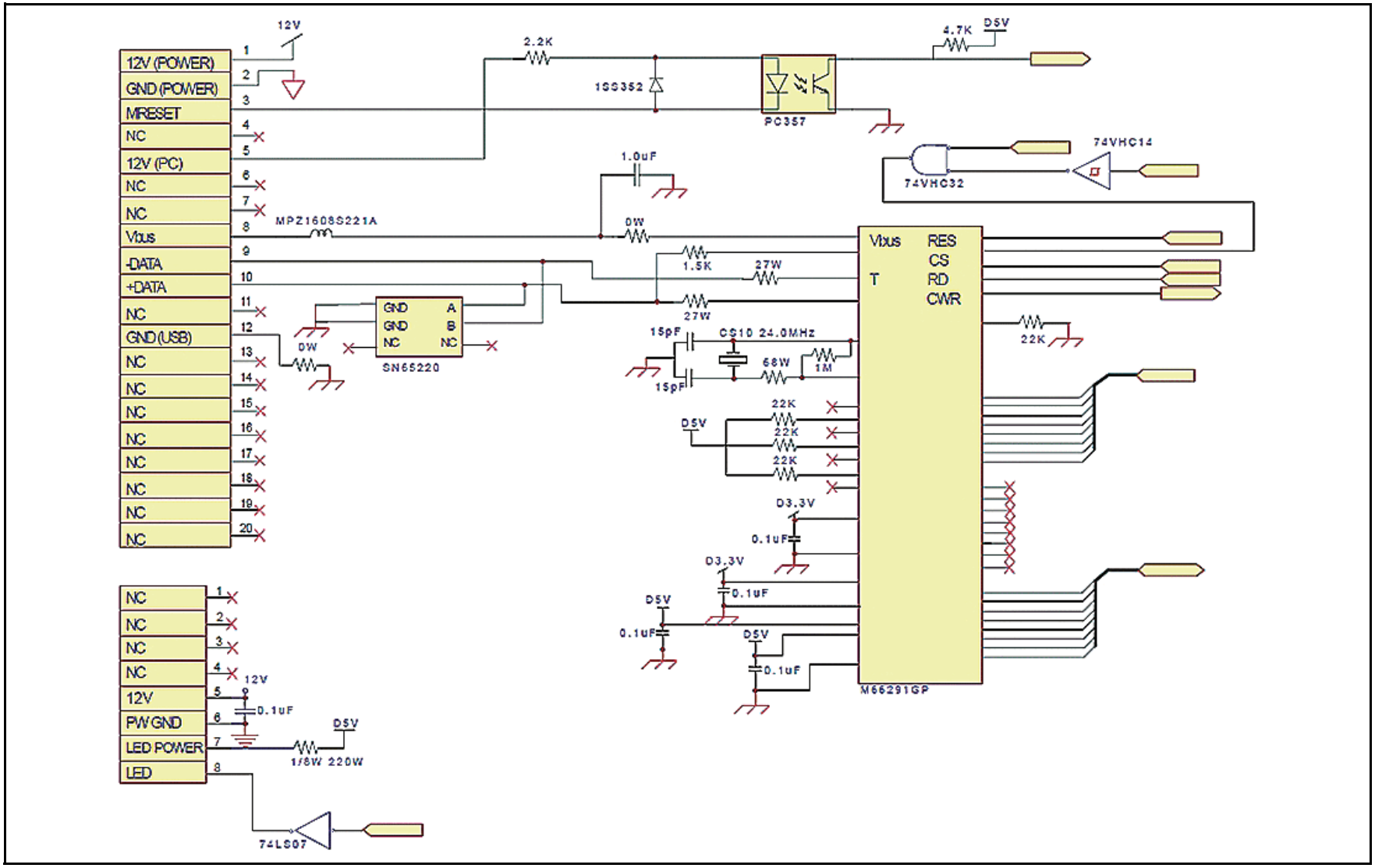


Figure 2-24 External Connector Interface Circuit

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Operational Flowcharts

Figure 2-20 depicts part one of a typical Banknote acceptance flow process.

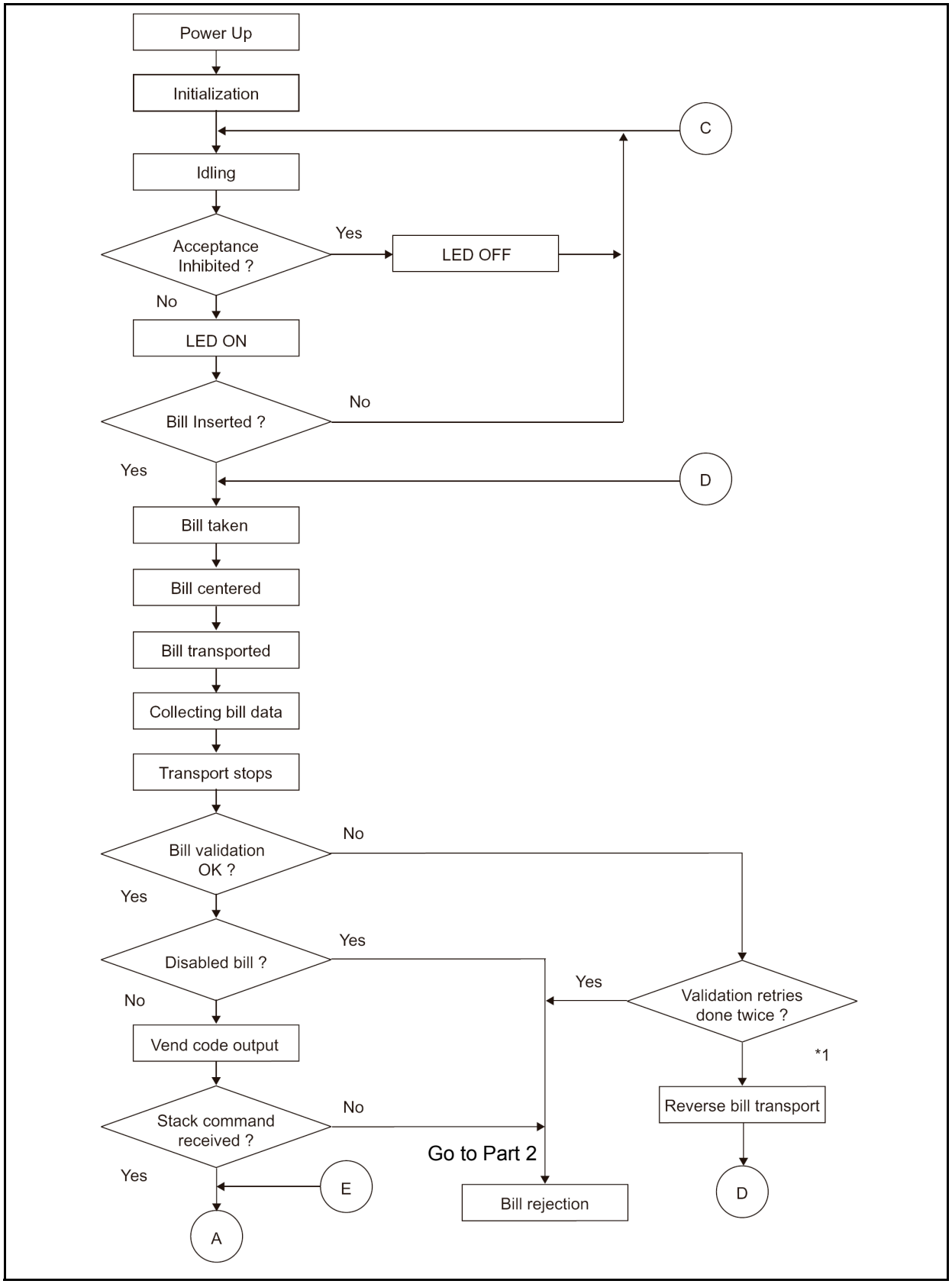
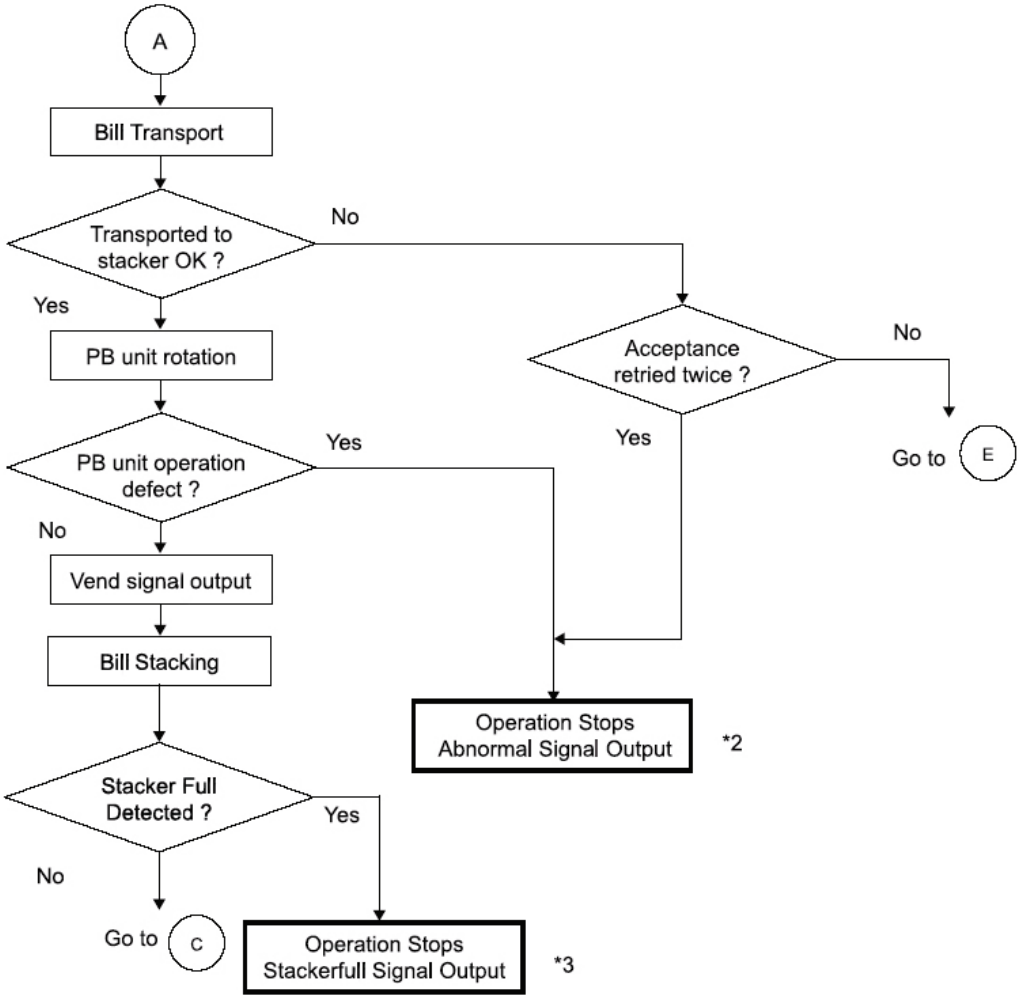


Figure 2-25 Bill Acceptor Operational Flowchart (Part 1)

Operational Flowchart (Continued)

Figure 2-26 depicts part two of a typical Banknote acceptance flow process.



*1: Faulty bill validation is suspect when a bill is automatically reinserted several times for re-evaluation. The Bill Validator will attempt to examine a bill three (3) times before rejecting the bill.

*2: When an abnormal signal condition occurs, remove the bill causing the malfunction and re apply power to the UBA or send a reset command to the Bill Acceptor.

*3: When a Stacker Full signal occurs, remove the bills from the Cash Box and re-install it into its fully seated position. The UBA will then automatically reinitialize itself.

Figure 2-26 Bill Acceptor Operational Flowchart (Part 2)

UBA® Series

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

3 COMMUNICATIONS

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

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http://www.jcmglobal.com

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UBA® Series

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

Section 4

4 DISASSEMBLY/REASSEMBLY

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

- Tool Requirements
- Primary Unit Disassembly
- Acceptor Unit Disassembly
- Circuit Board Removal
- Cash Box Handle and ICB Box Disassembly
- Transport Guides A, B, C, D, & E Disassembly
- Sensor Board Disassembly
- Transport Unit Motors Disassembly
- Transport C Timing Belt Disassembly
- Final Timing Belt Disassembly

Tool Requirements

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

- #1 & #2 Phillips Screwdriver
- 2.5mm Hex Head Driver
- Set of Jewelers Phillips Screw Drivers
- E-Clip (E-Ring) Plyers
- Needle Nose Plyers
- Tweezers

Primary Unit Disassembly

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

1. Press down on the front latch and slide the UBA Acceptor assembly forward (See Figure 4-1).
2. Pull on the Cash Box handle and remove the Cash Box from the frame (See Figure 4-2 a).
3. When an optional 24V/USB Circuit Board is installed, remove the optional printed circuit board from the frame housing (See Figure 4-2 b).

NOTE: Applicable screw size is 2.6x8 P. The tightening torque necessary is 56.89 psi (4.0kgf/cm^2).

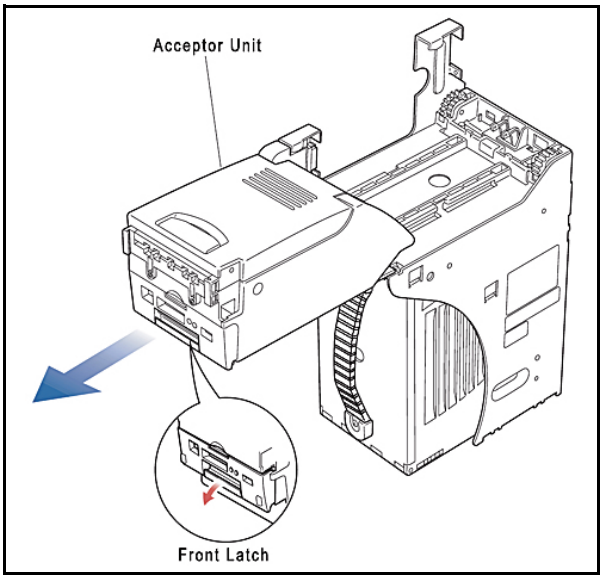

Figure 4-1 Acceptor Unit Removal

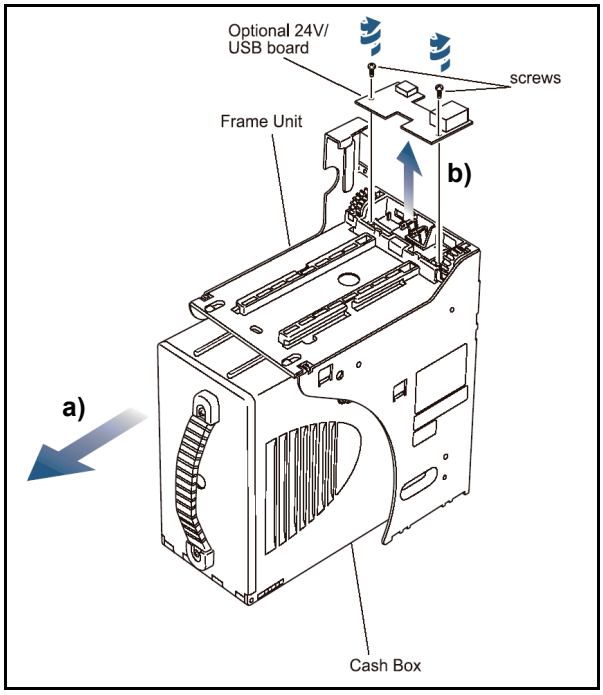

Figure 4-2 UBA Unit Cash Box & USB Board Removal

Acceptor Unit Disassembly

Side and Top Cover Removal

Perform the following steps to remove the UBA Acceptor side and top covers:

1. Pull the release lever located on top of the Unit and fully open the Transport (TR) Section of the Acceptor's Cover in the direction of the large arrow shown in Figure 4-3 a.

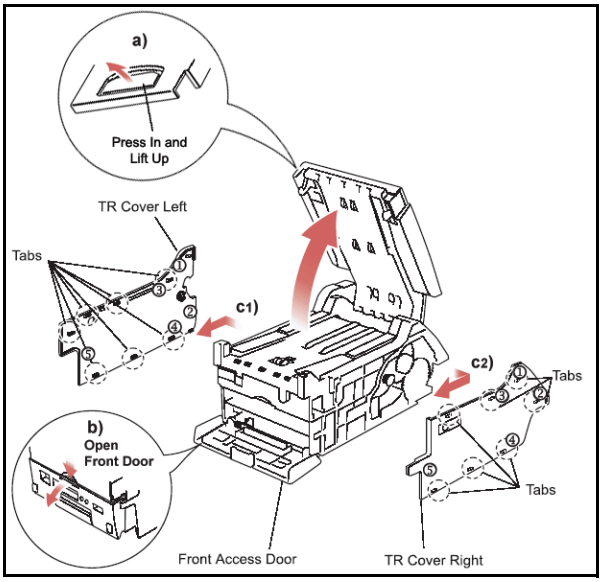

Figure 4-3 Side and Top Cover Removal

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 (See Figure 4-3 b).
3. Lift and hold points ① and ② open on each TR Side Cover (See Figure 4-3 C1 & C2 and Figure 4-4 C1 & C2).

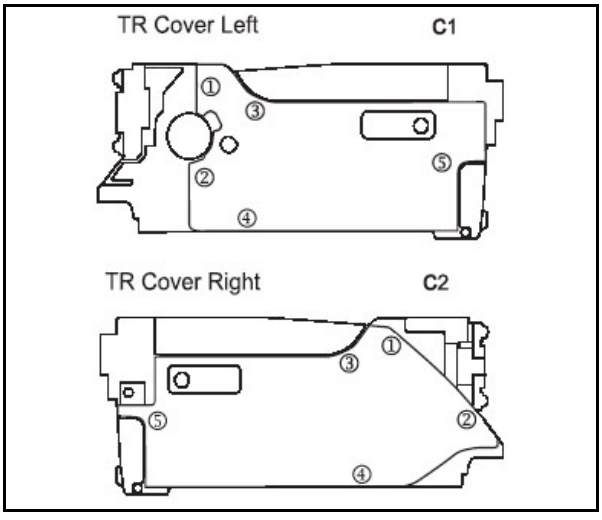

Figure 4-4 Side Cover Installation Points

4. Slide each Cover in the direction indicated by the small arrows shown in Figure 4-3 C1 & C2 to remove each side cover.
5. To remove the Transport Cover, release six (6) Tabs; three located on each side of the Transport Cover using a Flathead Screwdriver (See Figure 4-5).

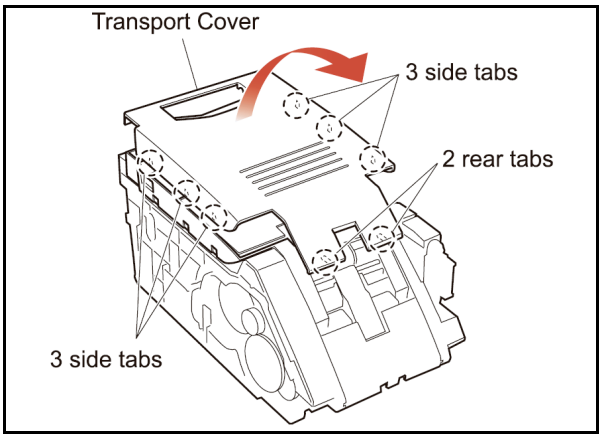

Figure 4-5 Transport Cover Removal

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 ③, ④ and ⑤ on each Side Cover, (See Figure 4-3) and slide them in the reverse arrow direction as previously shown in Figure 4-4.

Front Access Door Removal

Perform the following steps to remove the UBA Front Access Door:

1. Turn the Acceptor Unit upside down.
2. Remove the screw located on the side of the Front Access Door to release the Front Grounding (FG) Harness (See Figure 4-6 a).
3. Fully open the Front Access Door and release the Acceptor Latch Spring Lock (See exploded view inset in Figure 4-6 b).
4. Unscrew two screws located on the shaft and slightly widen the UBA Transport Unit in the directions of the small arrows shown in Figure 4-6 b, and remove the front access door from the Transport Unit in the large arrow direction (See Figure 4-6 c).

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/cm^2).

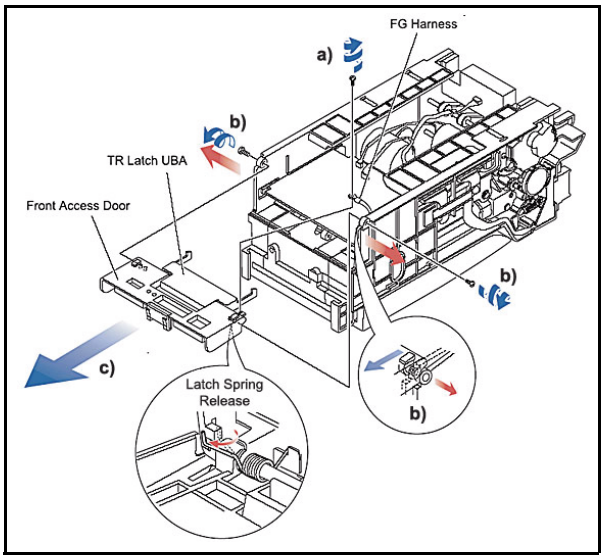

Figure 4-6 Front Access Door Removal

Opening Lever Disassembly

Perform the following steps to disassemble the UBA Acceptor's Transport Opening Lever:

1. Remove the Transport Cover (See "Side and Top Cover Removal" on page 4-1).
2. Remove the E-Clip located on the shaft end, and pull the Opener Latch Shaft out of the assembly (See Figure 4-7 a).

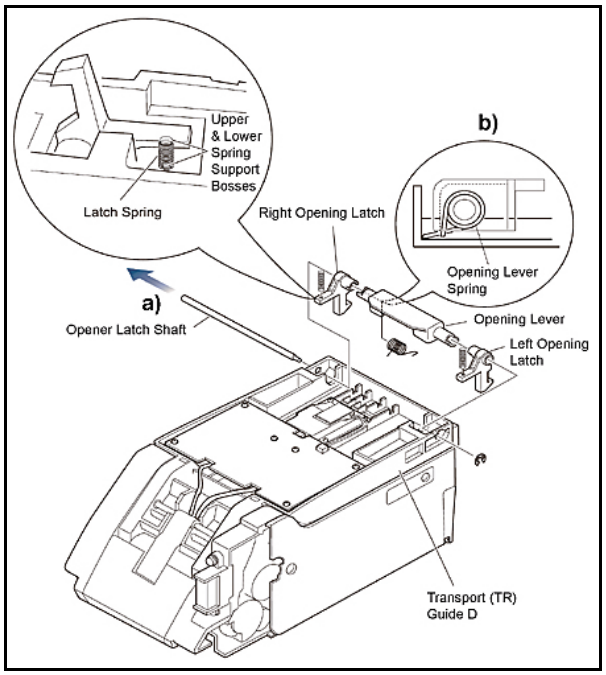

Figure 4-7 TR Opening Lever Disassembly

3. Lift Transport Guide (TR) D, then remove the Opening Lever, the left and right Opening Lever Latches, and their related Opening Lever Springs.

Caution: Make sure not to lose the small Latch Springs located beneath the left and right Opening Lever Latches!

4. On re-assembly, the Opening Lever Spring (See Figure 4-7 b) 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 with tweezers once the shaft has been re-inserted into the assembly!

Circuit Board Removal

CPU Board Removal

Perform the following steps to remove the UBA CPU Board:

1. Turn the Acceptor Unit upside down.
2. Remove the ICB board from the top of the CPU Board (See Figure 4-8 a).

   NOTE: This relates to the 5 VDC CPU Board Only!
3. Lift up the Push Rivet located on the left side with a Flathead Screwdriver and remove the Wire Holder (See Figure 4-8 b).
4. Disconnect the three (3) sets of three (3) Harness connectors from CPU board (9 connectors total) (See Figure 4-8 C1, C2 & C3).
5. Unlock Transport Guide A, and pull the CPU Board forward, but not completely out of the assembly (See Figure 4-8 d).
6. Before pulling the CPU Board completely out of the assembly, disconnect the remaining two (2) Harness connectors located on the bottom side of the CPU Board assembly (See Figure 4-8 e).

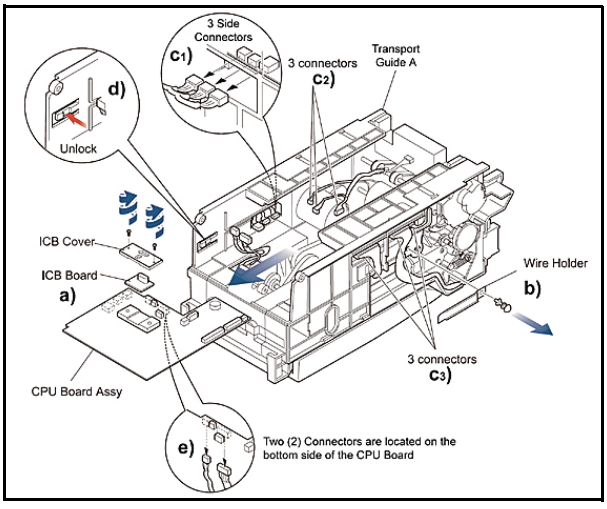

Figure 4-8 TR CPU Board Removal

Caution: When reinstalling the ICB Board onto the CPU Board, check that the PLUG and SOCKET Numbers agree to ensure a correct Harness plug re-connection.

Upper Sensor Board Removal

Perform the following steps to remove the UBA Upper Sensor Board:

1. Remove the Transport Cover (See "Side and Top Cover Removal" on page 4-1)
2. Remove the four (4) circuit board mounting screws (See Figure 4-9) and disconnect the three (3) board Harness connectors.
3. Remove the Upper Sensor Board from the assembly.

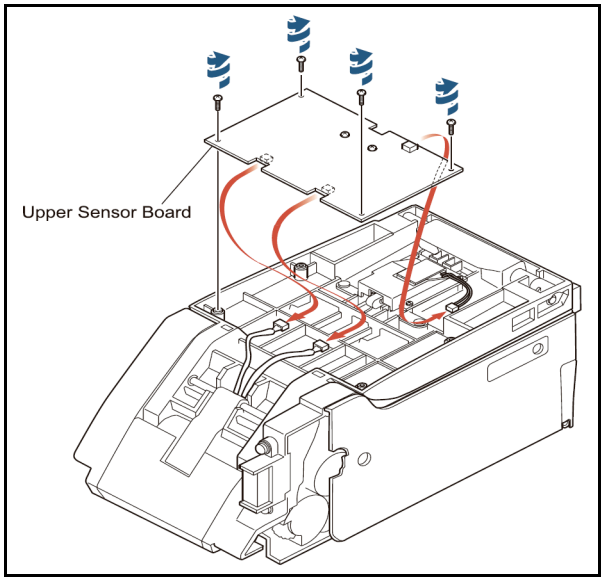

Figure 4-9 Upper Sensor Board Removal

Lower Sensor Board Removal

Perform the following steps to remove the UBA Lower Sensor Board:

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 (See "Side and Top Cover Removal" on page 4-1)
2. Disconnect the three (3) Harness connectors from the Lower Sensor Board (See the Figure 4-10 exploded inset).
3. Remove the three (3) circuit board mounting screws, lift the Lower Sensor Board up and slide it out of the side of the assembly as illustrated in Figure 4-10.

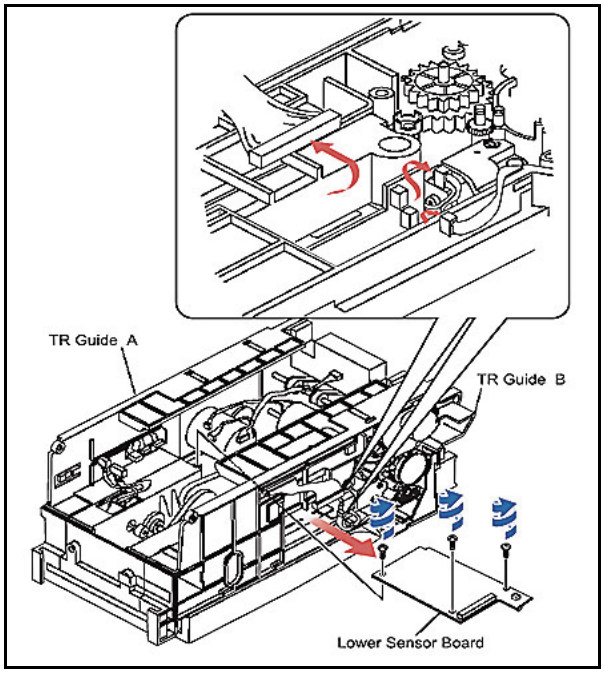

Figure 4-10 Lower Sensor Board Removal

Transport Guides A, B, C, D, & E Disassembly

Transport Guide A Disassembly

Perform the following steps to remove the UBA Transport Guide A assembly:

1. Remove the single screw retaining the Roller Guide Cap, and twist the Cap down and clockwise in the arrow direction shown in Figure 4-11 (a) step ①, then remove it up and off the assembly.

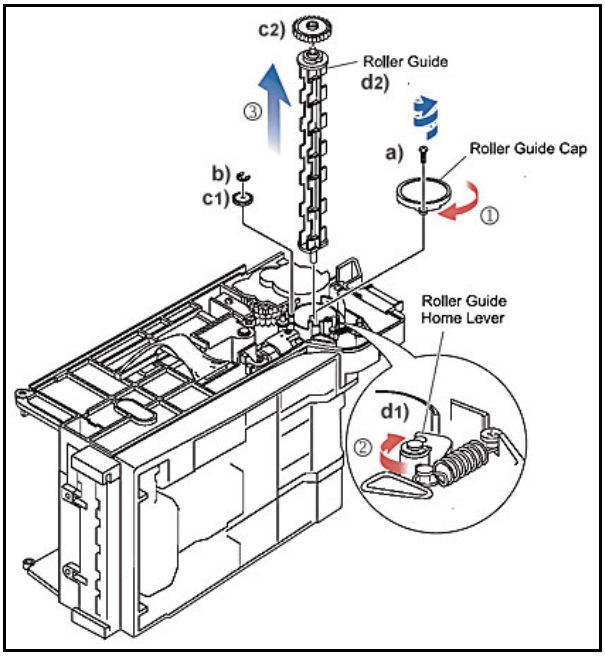

Figure 4-11 Roller Guide Removal

2. Remove the E-Clip retaining the small torque transfer gear (See Figure 4-11 b & c1), then remove both the small and large gears from the assembly (See Figure 4-11 c1 & c2).
3. Using a finger, pull back on the spring loaded Roller Guide Home Lever (See Figure 4-11 d1 step ②) and pull the Roller Guide up and out of the assembly (See Figure 4-11 d2 step ③).
4. Turn the UBA Acceptor Unit upside-down.
5. Remove the single Encoder Sensor Board mounting screw and remove the Circuit Board from the assembly (See Figure 4-12 a).

NOTE: When reassembling the Unit, align the dents located on the Stacking Gear Motor as shown in Figure 4-12 b1 step ①.

6. Remove the two (2) Motor Mount Screws from the right side of the Unit (See Figure 4-12 b2).
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.

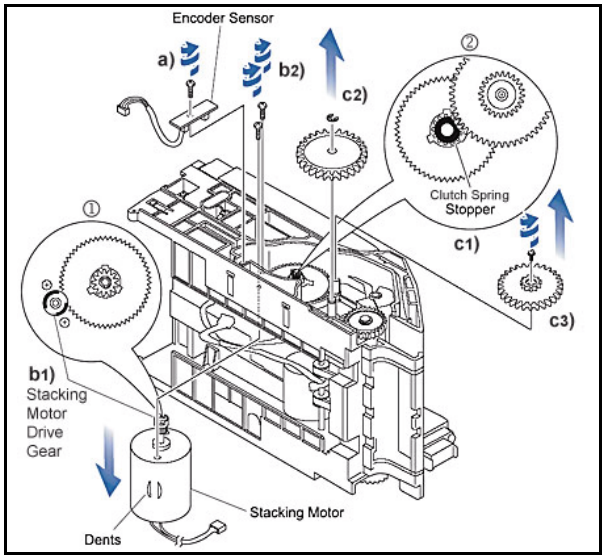

Figure 4-12 Stacking Motor Removal

8. Align the gear of the Clutch Spring Stopper as shown in step ② c1, then remove E-Clip (c2) and screw (c3) retaining the two 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 it.

NOTE: The Stacking Motor Gear and the Clutch Spring Stopper must be realigned as shown in Figure 4-12 before remounting the Stacking Motor!

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

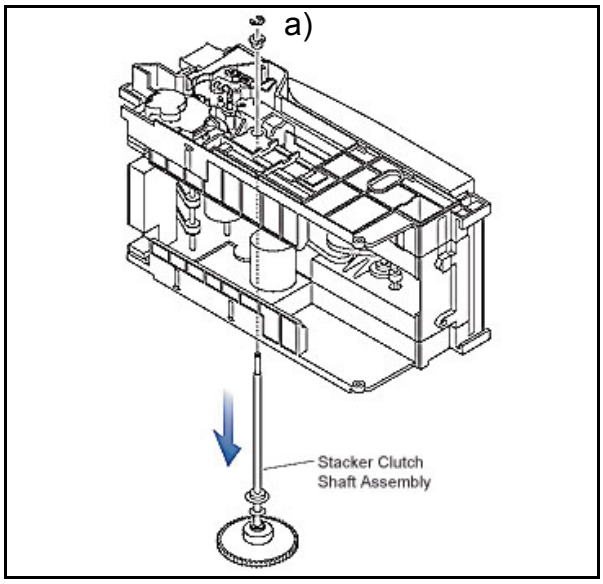

Figure 4-13 Stacking Clutch Shaft Removal

11. Turn the UBA Acceptor Unit upside-down a third time as shown in Figure 4-14.

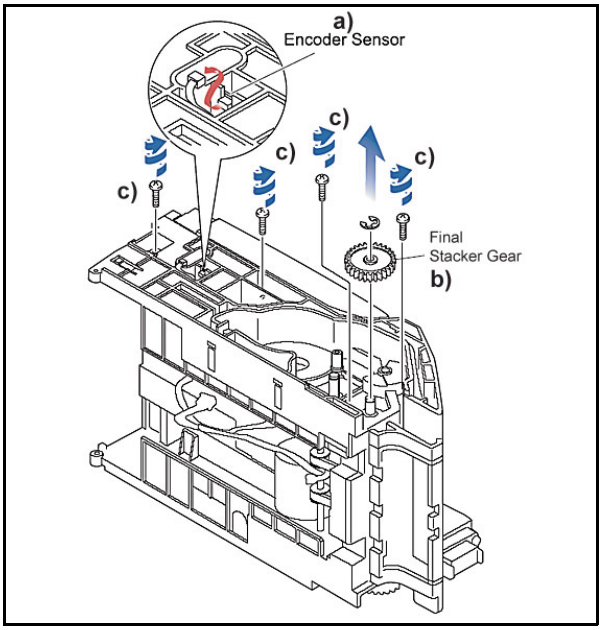

Figure 4-14 Right Guide Mounting Screw Removals

12. Use Needle-nose Pliers to disconnect the Encoder Sensor Board Harness Connector Plug from the internal Circuit Board through the frame access hole as shown in the exploded view inset in Figure 4-14 a.
13. Remove the Final Stacker Gear E-Clip and remove the Gear (See Figure 4-14 b).
14. Turn the UBA Acceptor Unit upside-down a fourth time.
15. Remove the four (4) right side Frame Mounting Screws indicated in Figure 4-14 c.
16. Remove the two (2) Transport Gear Cover retaining screws (See Figure 4-15 a), and remove the Transport Gear Cover from the Acceptor Unit assembly.

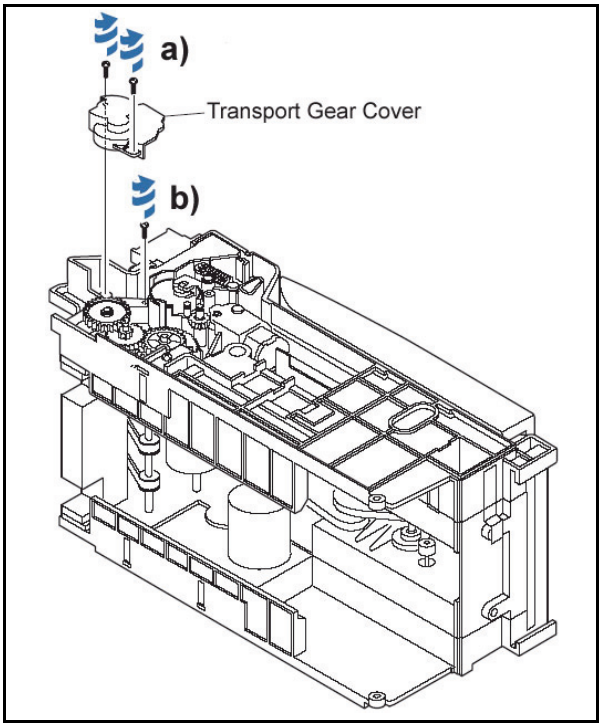

Figure 4-15 Last Left Side Guide Mounting Screw Removal

17. Remove the last remaining left side Guide Mounting Screw (See Figure 4-15 b).
18. Pull the Transport Opening Lever to open Transport Guide D. The Unit will separate into three pieces consisting of Transport Guide A, Transport Guides B & C, and Transport Guides D & E respectively (See Figure 4-16).

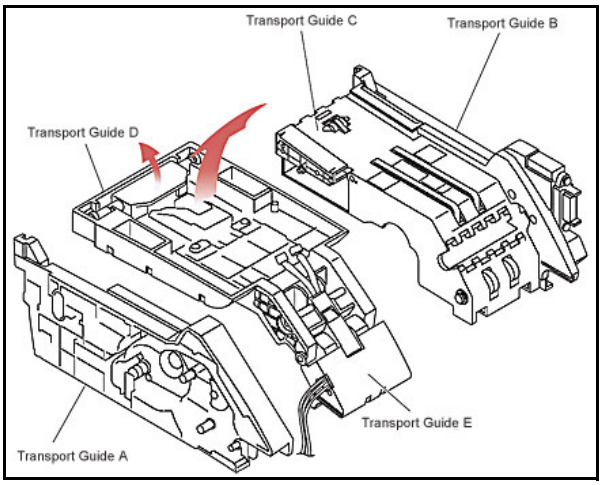

Figure 4-16 UBA Side Frame Removals

Transport Guides B & C Disassembly

Perform the following steps to disassemble UBA Transport Guide B from Guide C:

1. Remove the Final Transport Gear E-Clip and remove the Final Transport Gear and a Parallel Pin located below it (See Figure 4-17 a).
2. Remove the 3rd Transport Gear as illustrated in Figure 4-17 b.

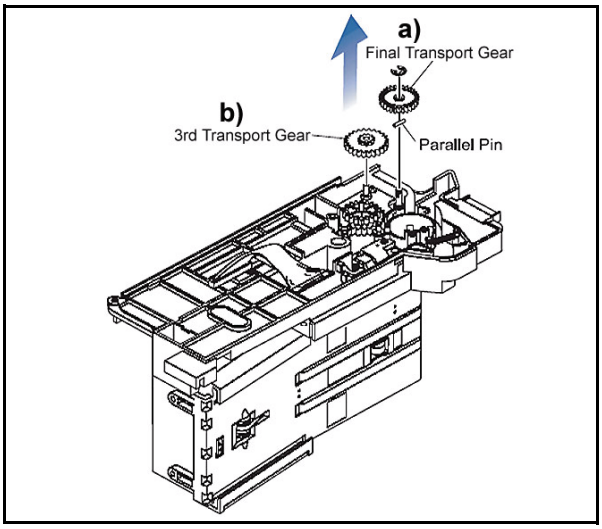

Figure 4-17 UBA Guide B Removal

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 mounting screw securing Grounding Plate #2 (See Figure 4-18 a) and the three (3) Guide B mounting screws to separate Transport Guide B from guide Section C (See Figure 4-18 b).

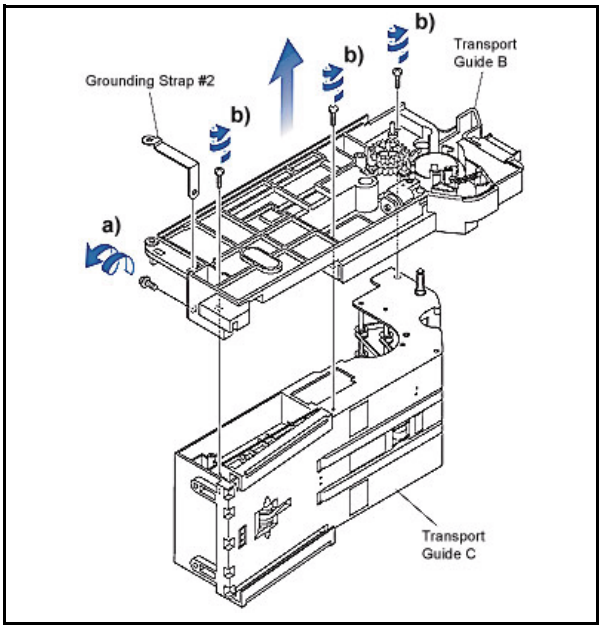

Figure 4-18 Transport Guide B Removal

Transport Guides D & E Disassembly

Perform the following steps to disassemble UBA Transport Guide D from Guide E:

1. Remove the Tunnel Shaft E-Clip and pull the Tunnel Shaft out of the assembly in the direction shown by the large arrow in Figure 4-19a.

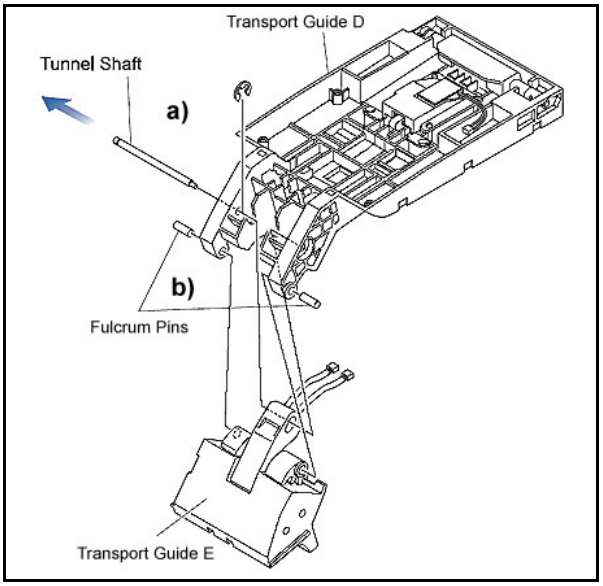

Figure 4-19 Transport Guide E Removal

2. Remove the two Fulcrum Pins (See Figure 4-19 b) and separate Transport Guide E away from Transport Guide D.

Sensor Board Disassembly

Home Centering Sensor Board Disassembly

Perform the following steps to remove the UBA Home Centering Sensor Board:

1. The Centering Home Sensor Board is attached to Transport Guide A. Remove the single Home Centering Sensor Board mounting screw, and lift the small circuit board up and off the assembly (See Figure 4-20).

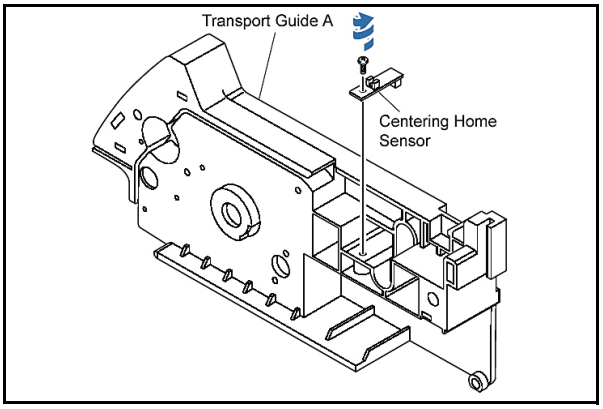

Figure 4-20 Centering Home Sensor Board Removal

Encoder Sensor Board Disassembly

Perform the following steps to remove the UBA Encoder Sensor Board:

1. The Encoder Sensor Board is attached to Transport Guide B. Remove the single Encoder Sensor Board mounting screw and lift the small circuit board up and off the assembly (See Figure 4-21).

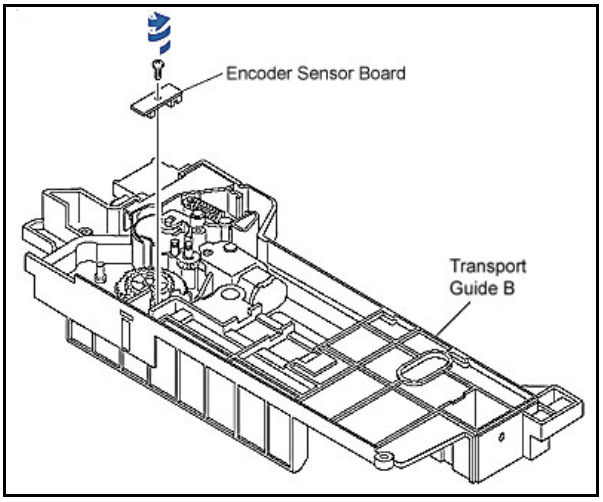

Figure 4-21 Encoder Sensor Board Removal

Anti-Pullback Home Sensor Board Disassembly

Perform the following steps to remove the UBA Anti-Pullback Home Sensor Board:

1. The Anti-Pullback Home Sensor Board is attached to Transport Guide B. Remove the Anti-Pullback Lever Spring from the Roller Guide Homing Lever as shown in Figure 4-22a.

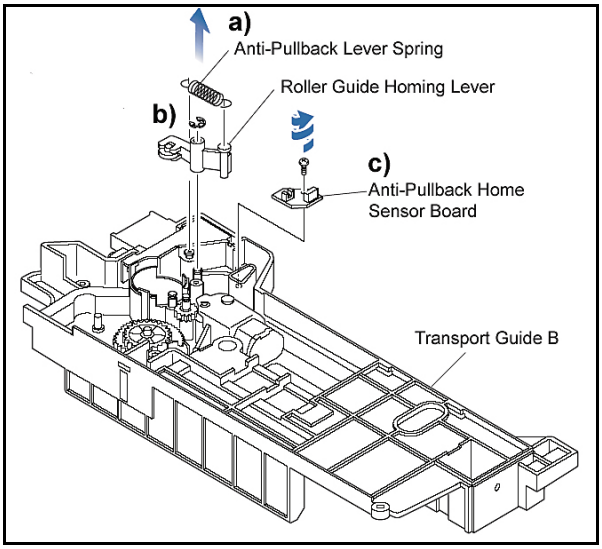

Figure 4-22 Anti-Pullback Sensor Board Removal

2. Remove the Roller Guide Homing Lever E-Clip (See Figure 4-22 b), and then remove the Anti-Pullback Home Sensor Board mounting screw.
3. Lift the circuit board up and off of the assembly (See Figure 4-22 c).

Transport Unit Motors Disassembly

Anti-Pullback Drive Motor Unit Disassembly

Perform the following steps to disassemble the UBA Anti-Pullback Motor Unit:

1. Remove the two (2) Anti-Pullback Motor Bar mounting screws (See Figure 4-23 c) and lift the Motor Bar assembly up and out of Transport Guide B.
2. Remove the 2nd Roller Gear retainer E-Clip and drop the 2nd Roller Gear down and out of the assembly (See Figure 4-23 b).
3. Remove the two (2) Anti-Pullback Motor Unit mounting screws and slide the Motor Unit back and out of the Motor Bar assembly (See Figure 4-23 a).

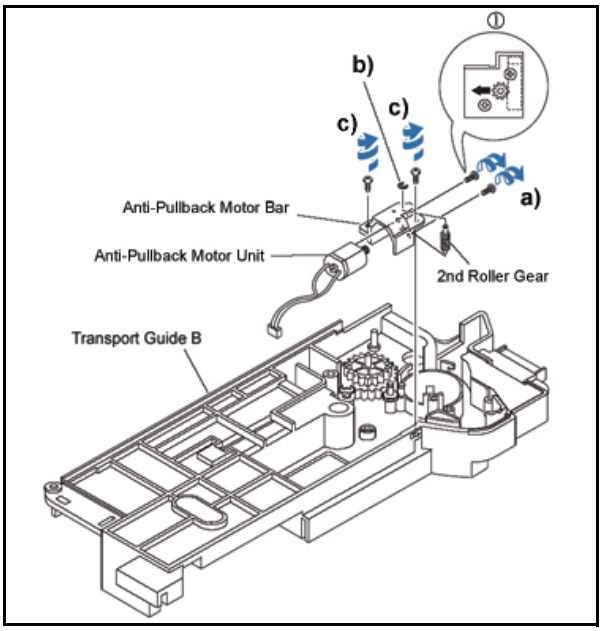

Figure 4-23 Anti-Pullback Motor Unit Removal

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 (See Figure 4-23 ①).

Transport Motor Disassembly

Perform the following steps to disassemble the UBA Transport Motor Unit:

1. Pull the Transport Gear Pin up and out of the Transport Guide B Assembly (See Figure 4-24 a).
2. Lift the 2nd Transport Gear up and off the assembly as shown in Figure 4-24b.

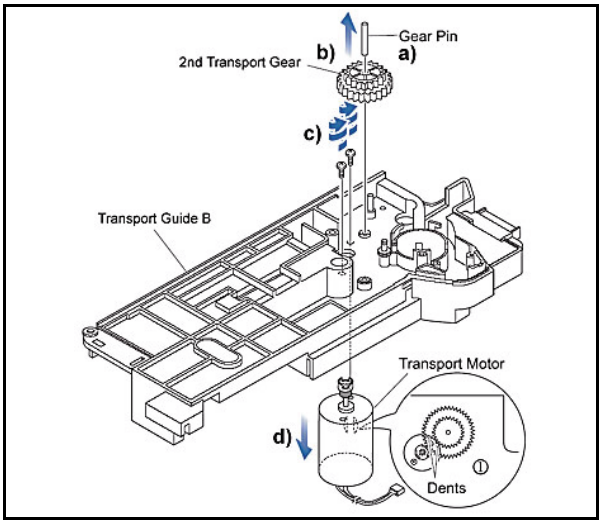

Figure 4-24 Transport Motor Unit Removal

3. Remove the two (2) Motor Mount Screws from Transport Guide B (See Figure 4-24 c).
4. Carefully drop the Transport Motor down in the direction of the large down pointing arrow shown in Figure 4-24d.

NOTE: When re-mounting the Transport Motor, ensure that the Motor dents are aligned in the direction shown in the Figure 4-24 ① exploded view circle inset.

Entrance Sensor Board Removal

Perform the following steps to remove the UBA Entrance Sensor Board:

1. Pull Guide Plate #1 out of the assembly in the direction indicated by the arrow shown in Figure 4-25a.

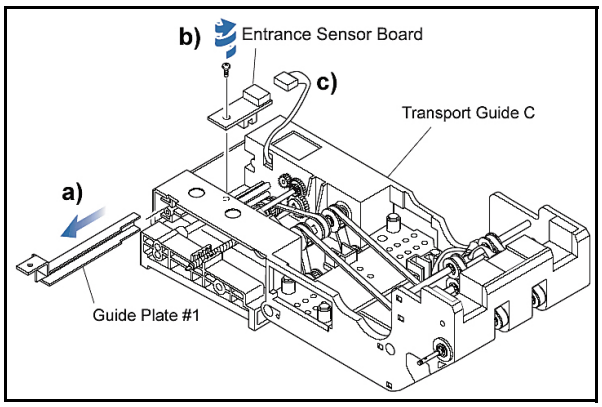

Figure 4-25 Entrance Sensor Board Removal

2. Remove the single Entrance Sensor Board mounting screw (See Figure 4-25 b), disconnect Circuit Board Harness Connector Plug (See Figure 4-25 c), and remove Entrance Sensor Board from the assembly.

Exit Sensor Board Disassembly

Perform the following steps to remove the UBA Exit Sensor Board:

1. Disconnect the Exit Sensor Board Harness Connector Plug from Transport Guide C (See Figure 4-26 a).
2. Remove the Rear Sensor Guide assembly forward and then upward out of the Transport Guide C Assembly (See Figure 4-26 b).
3. Remove the single Exit Sensor Board mounting screw (See Figure 4-26 c), and lift the Exit Sensor Board off the assembly.

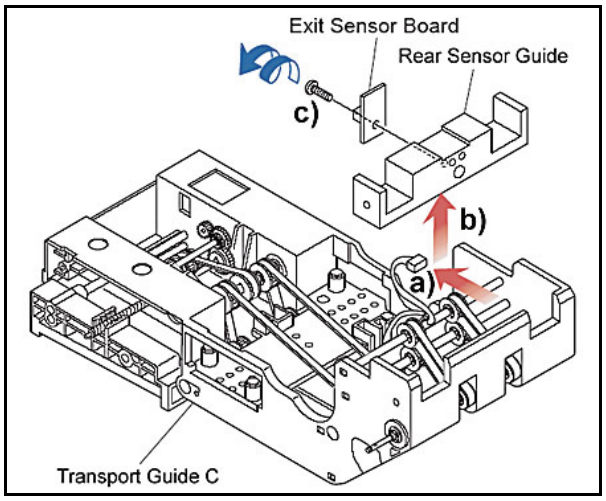

Figure 4-26 Exit Sensor Board Removal

Centering Motor Unit Disassembly

Perform the following steps to disassemble the UBA Centering Motor Unit:

1. Remove the two (2) Centering Motor Unit mounting screws, then carefully lift the Centering Motor Unit up and off the assembly after disconnecting its Harness plug (See Figure 4-27).

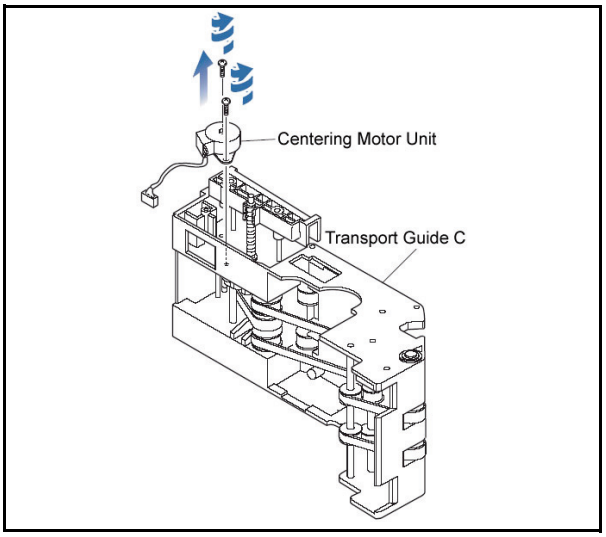

Figure 4-27 Centering Motor Unit Removal

Transport C Timing Belt Disassembly

Transport C Timing Belt Removal

Perform the following steps to remove the UBA Transport C Timing Belts:

1. Remove the four (4) Lower Sensor Spacer mounting screws out of Transport Guide C as shown in Figure 4-28.

2. Remove Lower Sensor Spacer upward and slide it sideways out of Transport Guide C in the direction of the large arrow shown in Figure 4-29.

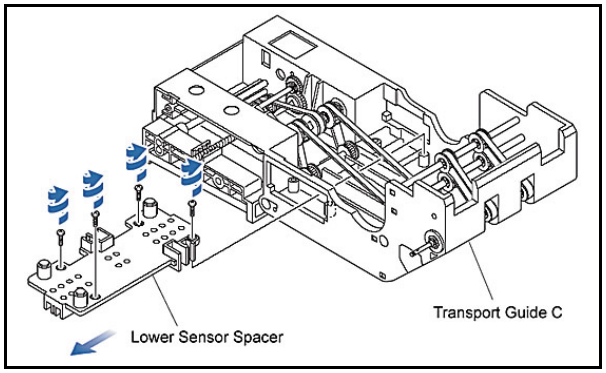

Figure 4-28 Timing Belts Removal

3. Rotate the 2nd Mover Gear in the direction indicated by the arrow shown in the Figure 4-29 exploded view inset.
4. Remove Mover Guide Assemblies #1 and #2 out of each side of Transport Guide C (See Figure 4-29).

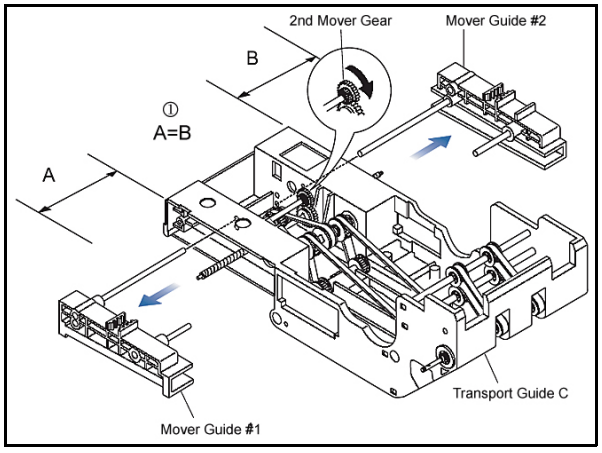

Figure 4-29 Mover Gear #1 & #2 Removal

Caution: When re-inserting Mover Guides #1 and #2, ensure that they have an identical sized spacing width (A=B) when being simultaneously reinstalled inside Transport Guide C (See Figure 4-29 ①).

5. Push Pulley Shaft #2 out of the assembly in the direction indicated by the arrow shown in Figure 4-30a.
6. Remove the Mover Pulley up and out of the assembly while Pulley Shaft #2 is withdrawn from the assembly (See Figure 4-30 b).

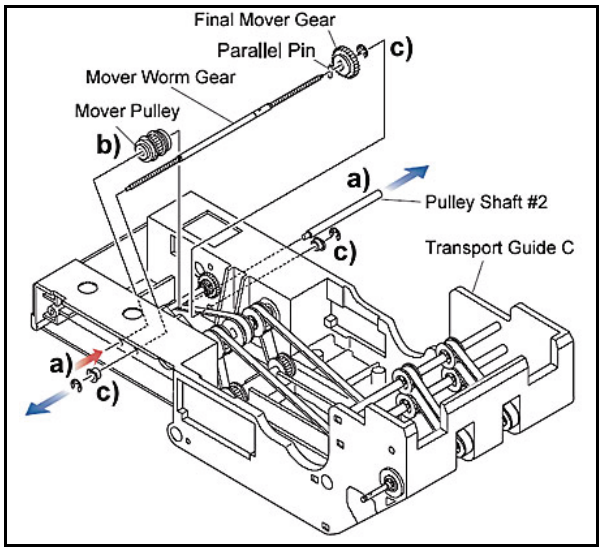

Figure 4-30 Pulley Shaft Removals

7. Remove the two (2) E-Clips securing the ends of the Mover Worm Gear Shaft (See Figure 4-30 c).
8. Pull the Mover Worm Gear Shaft out of the assembly along with the Final Mover Gear, Parallel Pin and E-Clip attached to it.
9. Push each end of the three (3) Pulley Shafts out one at a time as illustrated in Figure 4-31 (a), and move their respective pulleys to the side wall.

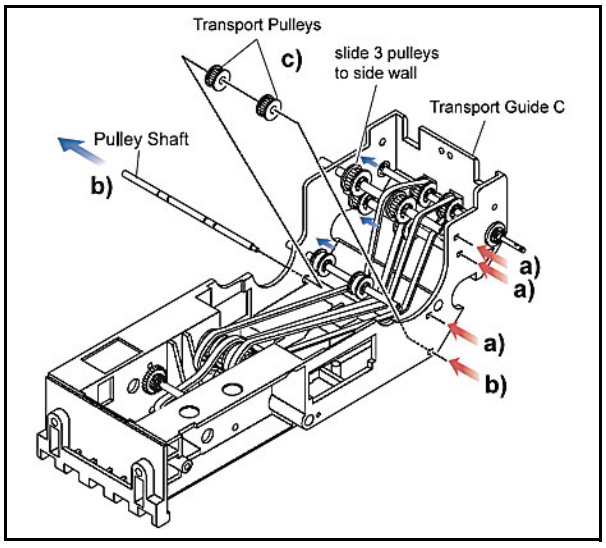

Figure 4-31 Mover Worm Gear Shaft Removal

10. Push the end of the Pulley Shaft in, and pull it out in the direction indicated by the arrow shown at the Figure 4-31 (b) location.
11. Lift the two (2) freed Transport Pulleys up and out of the assembly (See Figure 4-31 c).

12. Remove the three (3) E-Clips securing the Transport Drive Shaft end and internal Drive Pulleys from Transport Drive C (See Figure 4-32 a).
13. Pull the Transport Drive Shaft out and remove the two (2) Drive Pulleys along with the two (2) adjacent Parallel Pins all up and out of the assembly as the Transport Drive Shaft is withdrawn (See Figure 4-32 b).

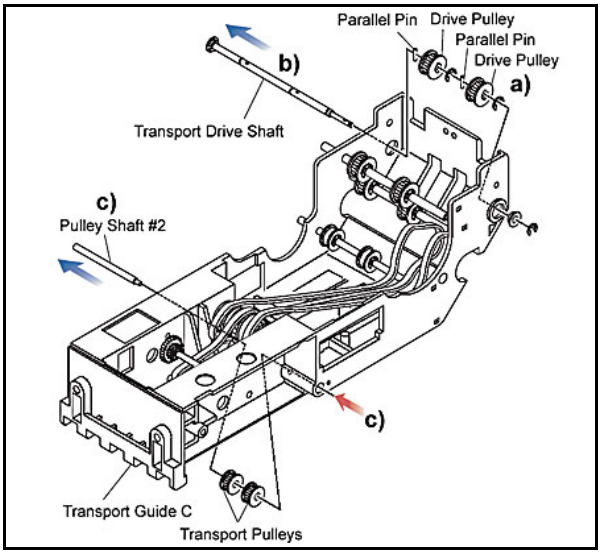

Figure 4-32 Transport Drive Shaft Removal

14. Push the end of Pulley Shaft #2 in, and pull it out in the direction indicated by the arrow shown at Figure 4-32 (c), and remove the two (2) Transport Pulleys up and out of the assembly as Pulley Shaft #2 is withdrawn.
15. Remove the five (5) E-Clips securing the end and internal Drive Pulleys on Transport Shaft #2 of Transport Drive C.

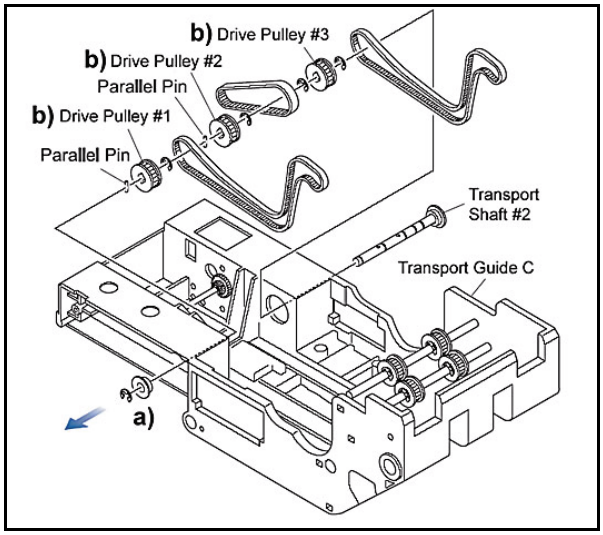

Figure 4-33 Drive Belt Removal

16. Pull Transport Shaft #2 out of Transport Drive C (See Figure 4-33 a).
17. Lift Drive Pulleys #1, #2 and #3 and their adjacent two (2) Parallel Pins up and out of the assembly as Transport Shaft #2 is withdrawn (See Figure 4-33 b).
18. Remove the three freed Timing Belts from the assembly.

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

Transport D Solenoid Removal

Perform the following steps to remove the UBA Transport Drive D Solenoid:

1. Remove the four (4) Solenoid Base mounting screws securing the Solenoid Base Cover to Transport Guide D (See Figure 4-34 a).

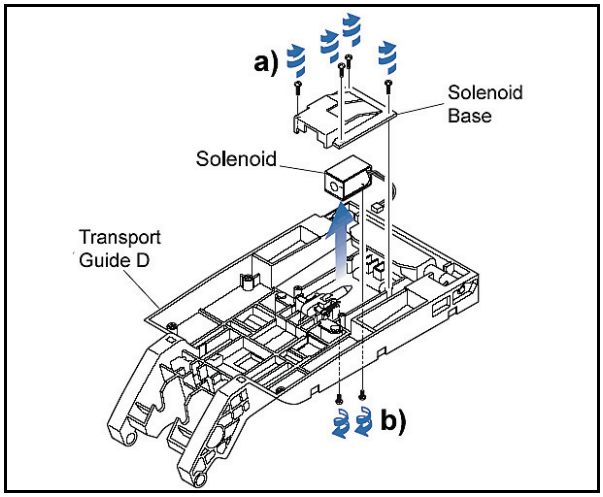

Figure 4-34 Transport Guide D Solenoid Removal

2. Remove the Solenoid Base Cover.
3. Remove the two (2) Solenoid mounting screws from the bottom side of Transport Guide D and lift the Solenoid up and out of the assembly (See Figure 4-34 b).

Cash Box Handle and Intelligent Cash Box ICB Module Unit Disassembly

Cash Box Handle Removal

Perform the following steps to remove the UBA Standard and Intelligent Cash Box (ICB) Handle:

1. Remove the two (2) Cash Box Handle mounting screws (See Figure 4-35).
2. Remove the Handle Caps and lift the Handle off of the assembly.

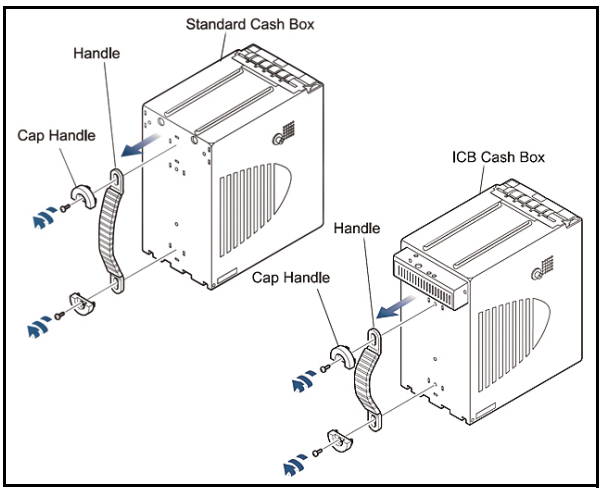

Figure 4-35 Cash Box Handle Removal

ICB Module Removal

Perform the following steps to remove the UBA ICB Module:

1. Remove the two (2) module mounting screws securing the ICB Module Box Cover to the ICB Module Box Assembly (See Figure 4-36 a).

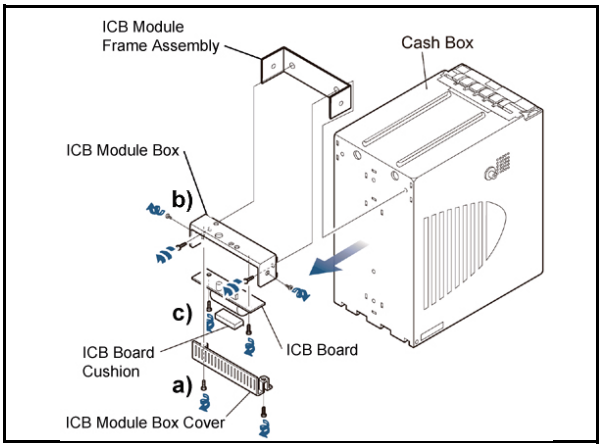

Figure 4-36 ICB Module Removal

2. Remove the two (2) screws that mount the ICB Module Box onto the Cash Box (See Figure 4-36 b).
3. Remove the two (2) screws that attach the ICB Module circuit board onto the ICB Module Box Assembly (See Figure 4-36 c).

Cash Box Sensor Board Removal

1. Remove the Transport Guide E Back Cover by pressing down on the curved arrow area indicated in Figure 4-37a.
2. Remove the two (2) Cash Box Sensor Board mounting screws (See Figure 4-37 b).

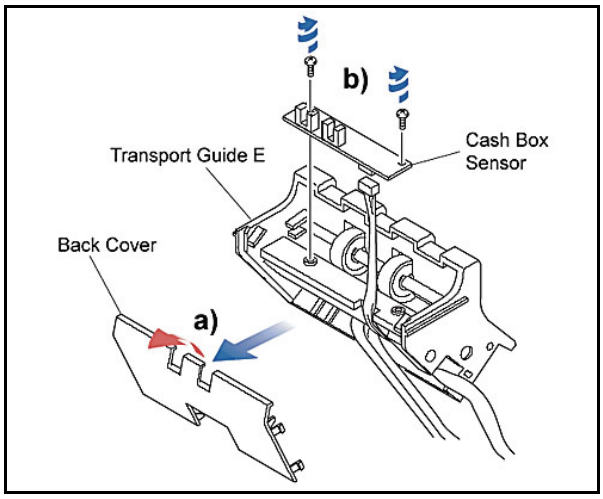

Figure 4-37 Cash Box Sensor Removal

3. Carefully lift the Cash Box Sensor Board up; disconnect its Harness Connector Plug, and remove the Cash Box Sensor Board from the Transport Guide E Assembly.

Pusher Mechanism Unit Disassembly

Perform the following steps to disassemble the UBA Pusher Mechanism Unit:

1. Open the Cash Box lid and remove the two (2) internal Pusher Mechanism Unit Mounting Screws from the back inside wall of the Cash Box (See Figure 4-38).
2. Slide the Pusher Mechanism Unit out of the assembly in the direction of the large arrow in Figure 4-38.

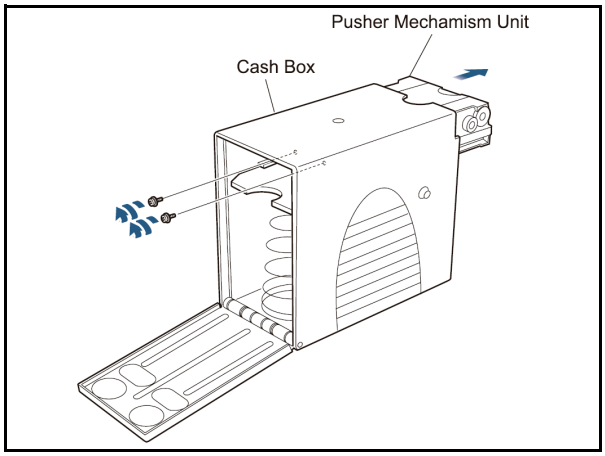

Figure 4-38 Pusher Mechanism Unit Removal

3. Remove the six (6) Pusher Mechanism Mounting Screws from the sides of the assembly as shown in Figure 4-39.
4. Separate the Pusher Mechanism Unit upward and out of the Transport in the direction of the large arrow in Figure 4-39.

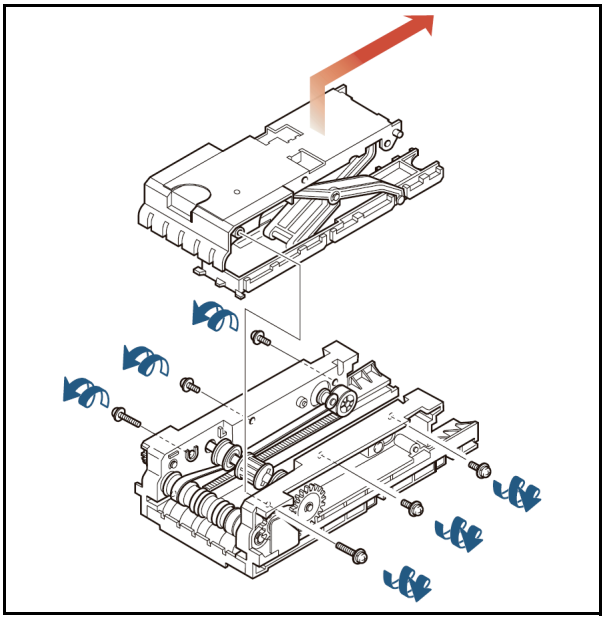

Figure 4-39 Pusher Mechanism Separation

Final Timing Belt Disassembly

Perform the following steps to remove the final UBA Timing Belts:

1. Remove the two (2) screws located on each side of the Belt Housing.
2. Remove the Cover Roller in the direction of the large arrow in Figure 4-40.

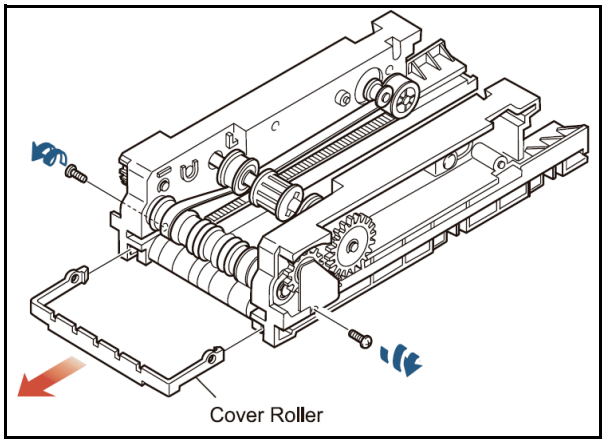

Figure 4-40 Cover Roller Removal

3. Remove the two (2) "Drive Gear (24)" E-Clips, its related Parallel Pin, and its Ø 6B Bushing (See Figure 4-41 a).
4. Remove the E-Clip retaining the Bracket Gear assembly in place (See Figure 4-41 b1).
5. Lift the Bracket Gear assembly up and off the Transport Unit (See Figure 4-41 b2).
6. Remove "Gear M1-Z12 (P-1)" (See Figure 4-41 c).

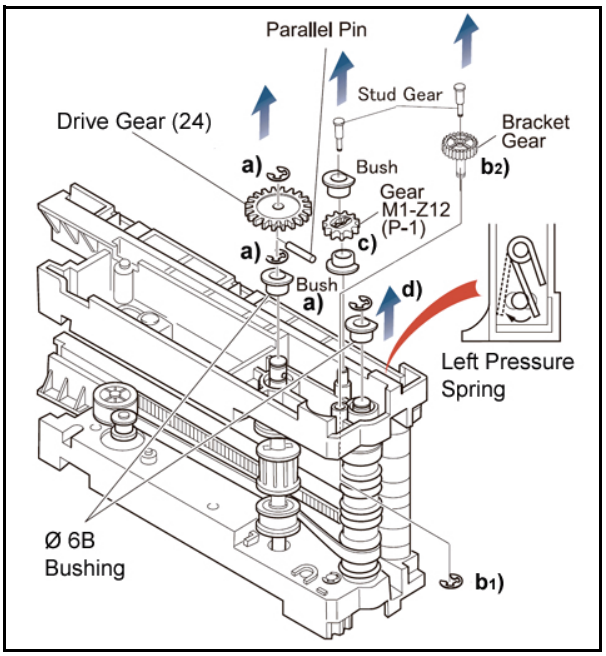

Figure 4-41 Timing Belt Removal Access

7. Remove the second Ø 6B Bushing E-Clip retainer, then remove the second Ø 6B Bushing (See Figure 4-41 d).
8. Release the Left Pressure Spring's tension in the Shaft Roller Pit as indicated in the Figure 4-41 (e) exploded view.
9. Pull the Right Pusher Guide upward, and remove the Timing Belts.(See Figure 4-42).

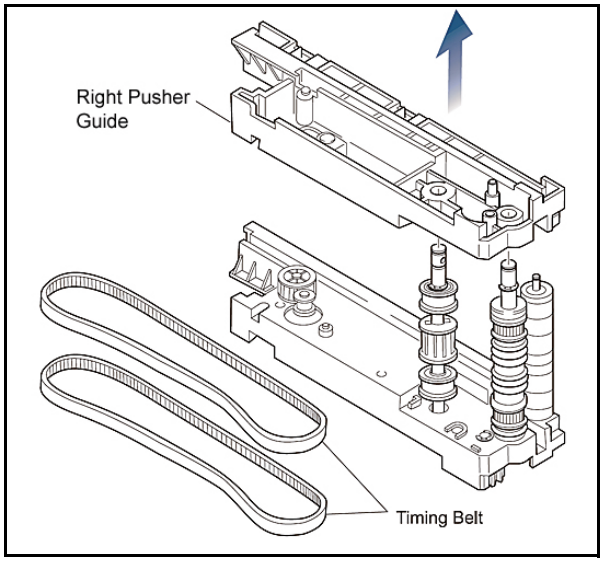

Figure 4-42 Timing Belt Removal

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

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UBA® Series

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

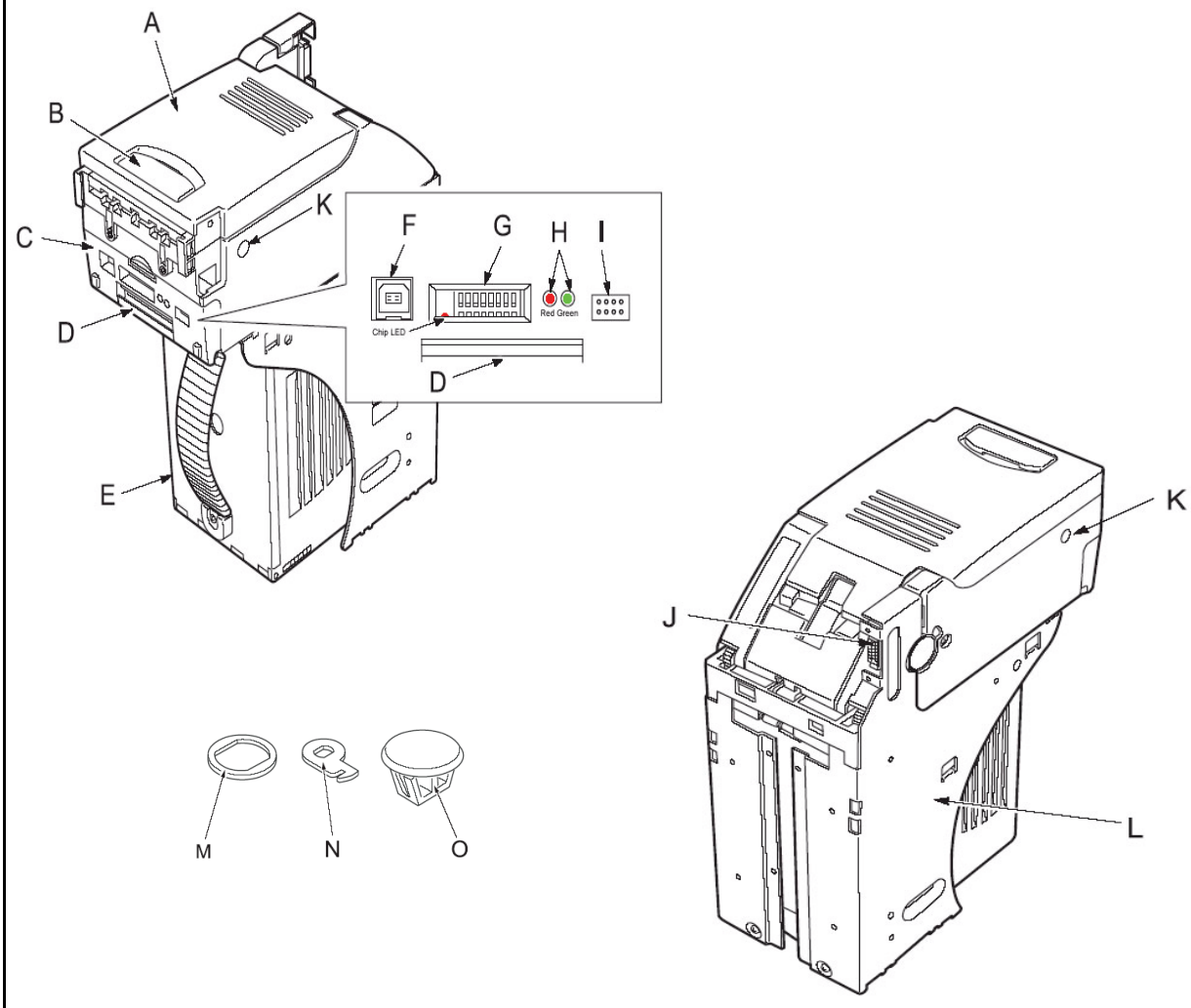
Section 5

5 WIRING DIAGRAMS

This chapter provides the Universal Bill Acceptor Series (UBA) wiring diagrams and component parts lists for the following items:

- UBA Primary Components
- System Wiring Diagrams.

UBA Primary Components Parts Diagram



A: Acceptor Unit
B: Upper Guide Lever
C: Front Access Door
D: Acceptor Unit Release Lever
E: Cash Box
F: USB Connector for software downloading and adjustment
G: DIP Switch Block (See Section 2 pg 2-2 to set)
H: Diagnostic LEDs
I: Front Bezel Connector
(Connects to the Faceplate Assembly)
J: Interface Connector
(Connects to the Host Machine)
K: Centering Guide Open Port (one on each side)
L: Main Frame
M: Key Spacer
N: Plate Locking Key
O: Key Hole Cap

Figure 5-1 Universal Bill Acceptor (UBA) Primary Components

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UBA-1x-SS SYSTEM WIRING DIAGRAM

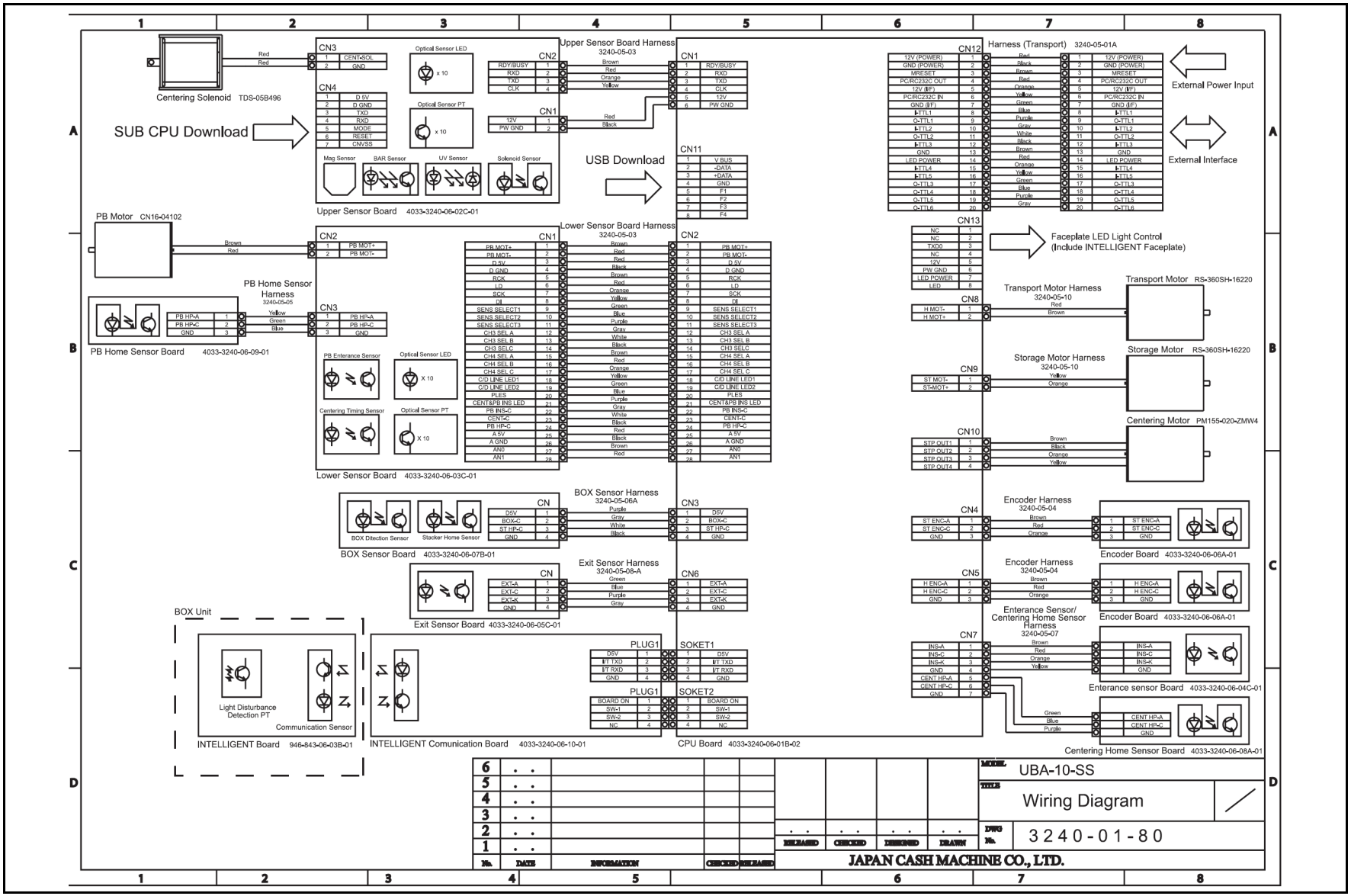

Figure 5-2 UBA-10-SS Bill Acceptor System Wiring Diagram

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UBA-1X-SS System Wiring Diagram (Continued 1)

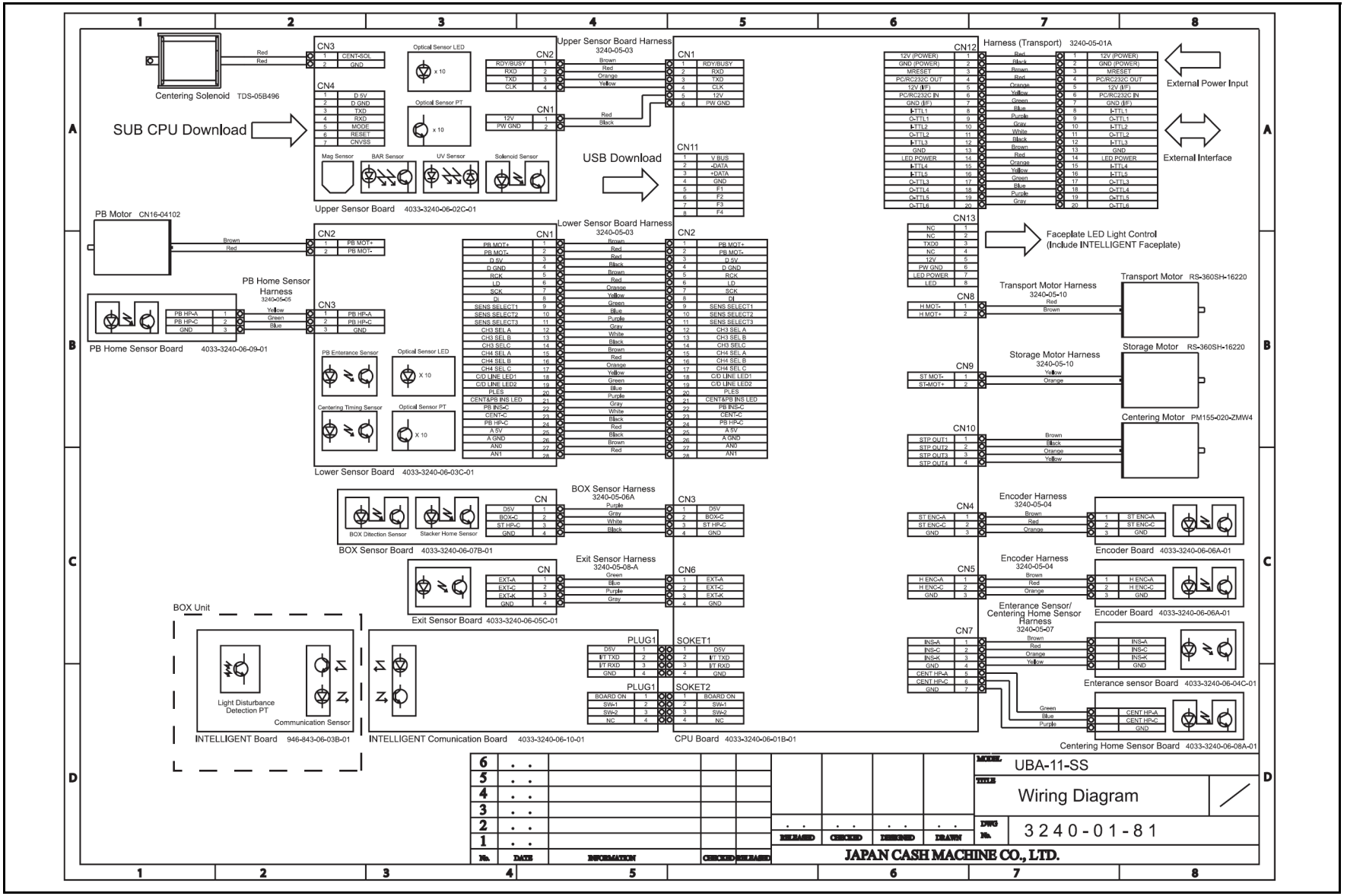

Figure 5-3 UBA-11/12-SS Bill Acceptor System Wiring Diagram

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UBA-14/24 System Wiring Diagram (Continued 2)

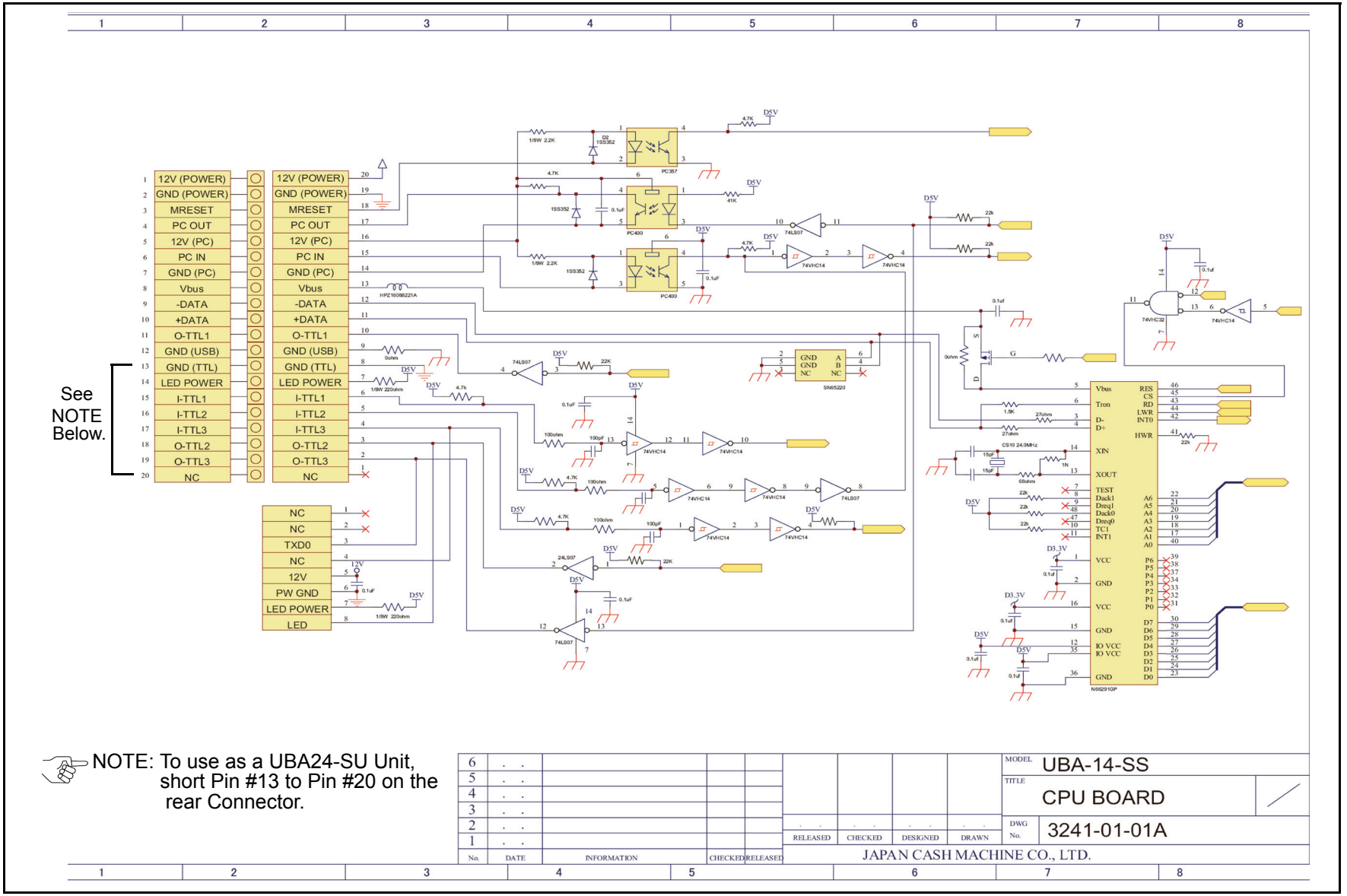

Figure 5-4 UBA-14-SS & UBA-24-SS/SU External Connector Interface Circuit Wiring Diagram

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UBA-14/24 System Wiring Diagram (Continued 3)

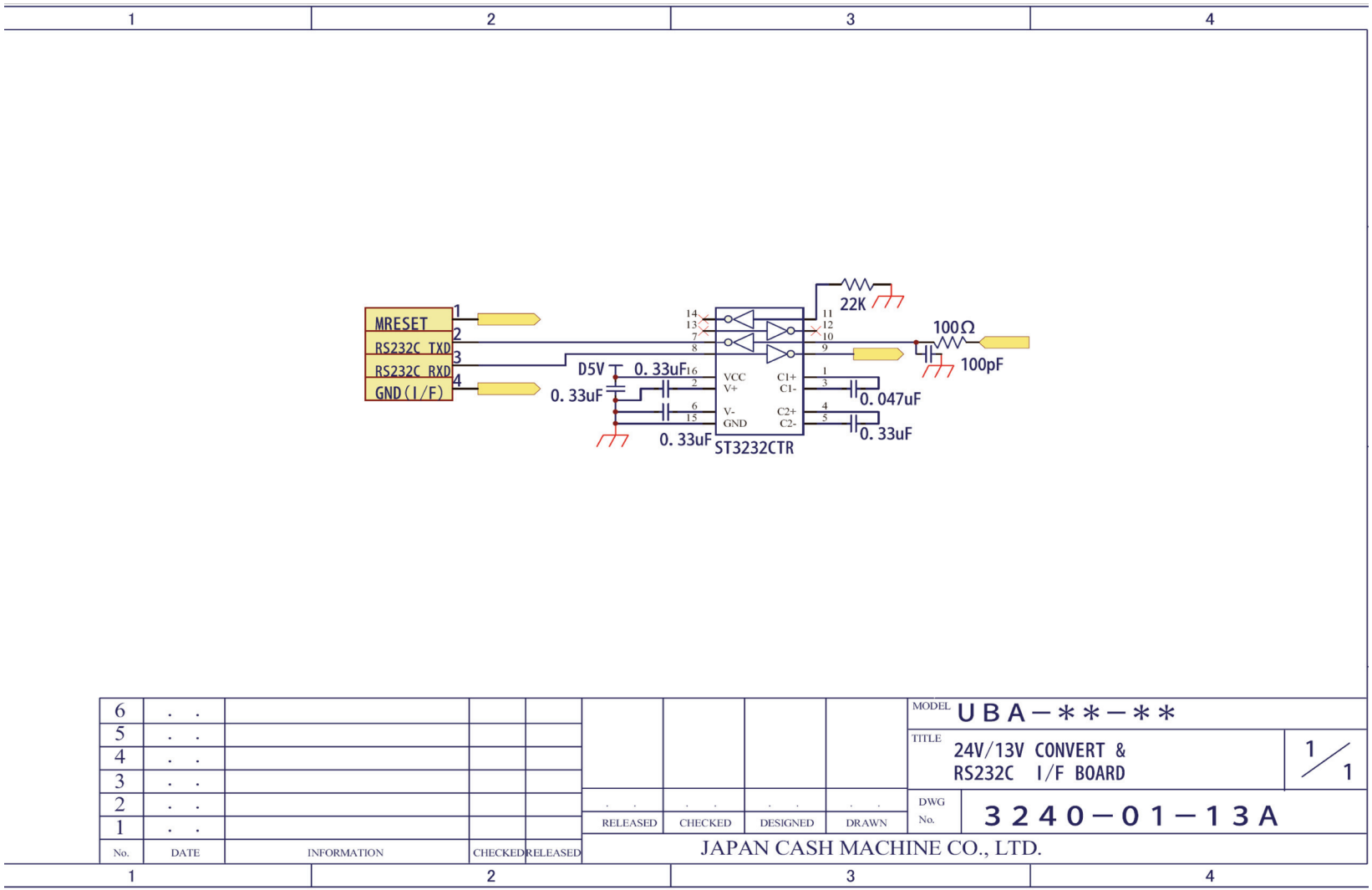

Figure 5-5 UBA-14/24 Optional Conversion Board Interface Circuit Wiring Diagram

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UBA® Series

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

Section 6

6 PROGRAMMING, CALIBRATION & TEST

This section provides Flash Memory Download Programming, Calibration, and Performance Testing instructions for the Universal Bill Acceptor (UBA) Series. This section contains the following information:

- Workbench Tool Requirements
- Software Download Preparation
- Software Downloading Procedure
- Programming Instructions
- Calibration Procedures
- Performance Tests

Workbench Tool Requirements

The following tools are required to perform a Workbench Software Download (See Figure 6-2):

- JCM Universal Bill Acceptor (UBA)
- JCM External Power Supply (Part No. 701-000148) or equivalent
- PC containing a USB port (OS: Windows 2000/XP)
- USB Cable (A type Male to B Type Male) (See Figure 6-1).
- The latest .ZIP compressed UBA Download Program (V1.11 or later).

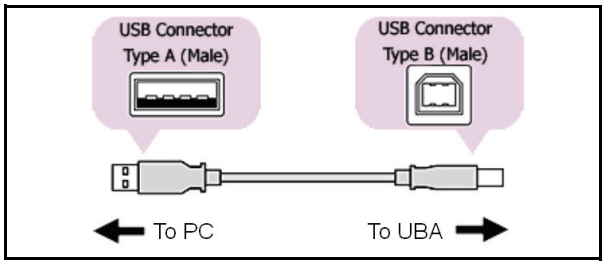

Figure 6-1 Download USB Cable Requirement

Software Download Preparation

The following instructions describe how to decompress and store a downloaded program onto a personal computer (PC) for eventual installation into the Universal Bill Acceptor:

1. Refer to the Figure 6-2 interconnection diagram to properly connect the various cables and wiring harnesses to the UBA.

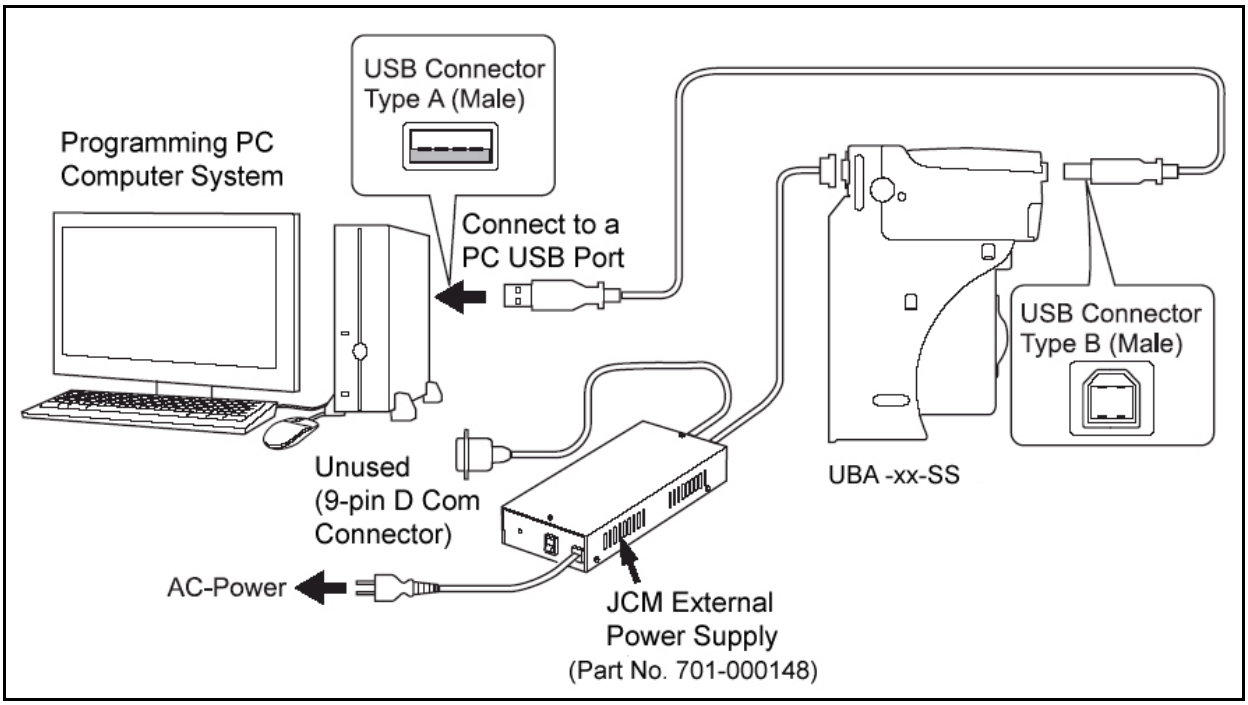

Figure 6-2 Required Download Workbench Tools

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.

2. Figure 6-3 illustrates the UBA's DIP Switch, LED indicators and external port locations.

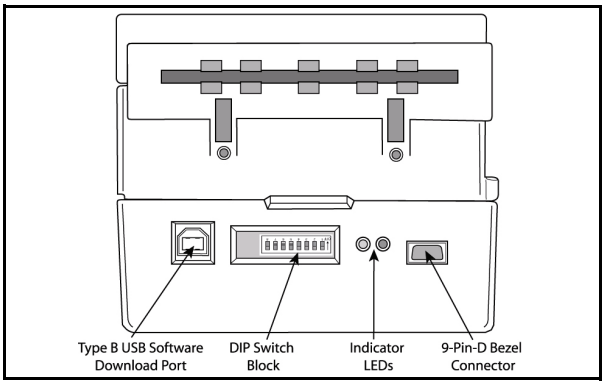

Figure 6-3 UBA DIP Switch & Port Location

Software Downloading Procedure

Program Installation

The following PC initialization functions are required prior to downloading software.

1. Create and name a new folder on your PC.
2. Decompress the.ZIP file and save the expanded file program contents in the file folder just created.
3. Open the folder and Double-Click on "`Setup.exe`" of the expanded UBA Program.
4. The **UBA Downloader** screen shown in Figure 6-4 will appear. Click the Next > button to continue the installation.

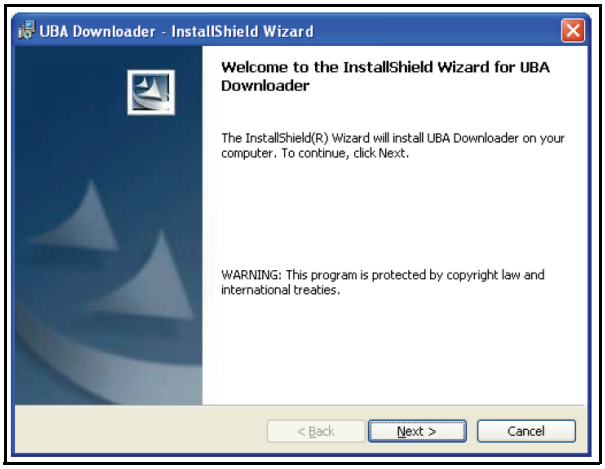

Figure 6-4 Initial Setup Screen

5. Enter a User Name: and Organization: in the fields displayed by the **"Customer Identification Screen"** and Mouse-click on the Next Next > Screen Button as shown in Figure 6-5.

NOTE: One of two selections for a application installer must also be made below the information fields.

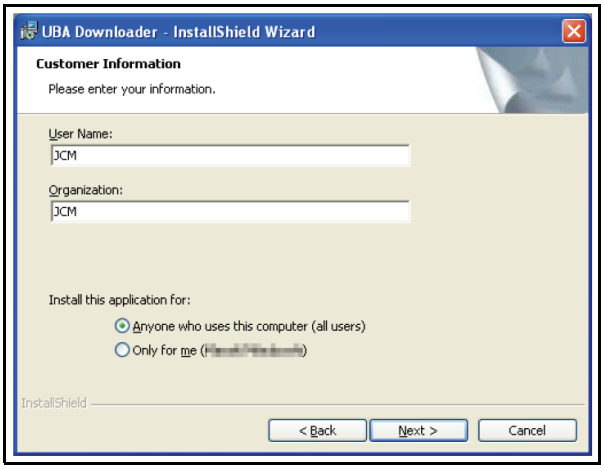

Figure 6-5 Customer Information Screen

6. Confirm the folder name given during Step 1 to install the UBA Downloader and Mouse-click on the Next> Next > Screen Button as shown in the Figure 6-6 "Destination Folder" Screen.

NOTE: If the folder name given during Step 1 does not appear under the Install UBA Downloader To: *line, Mouse-click on the* Change… Change... *Screen Button and find the correct folder on the PC.*

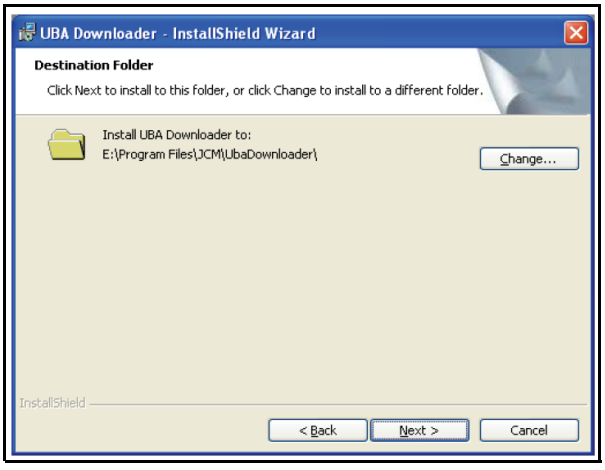

Figure 6-6 Destination Folder Screen

7. The Ready to Install the Program screen shown in Figure 6-7 will now appear. If the folder selection and customer information is correct, Mouse-click on the Next> Next >

Screen Button to start the installation procedure. If not, Mouse-click on the <Back < Back Screen Button, and re-enter the information until it is correct.

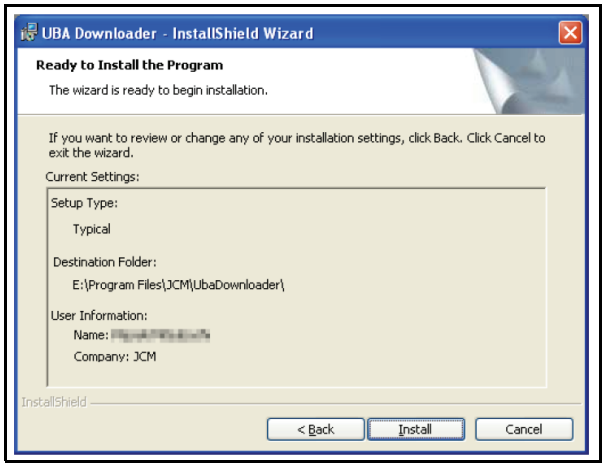

Figure 6-7 Ready to Install Screen

8. During the installation of the UBA Downloader, the Figure 6-8 "Installing UBA Downloader" Screen will appear containing a left-to-right Status: Barograph occurring at screen center.
9. When the install process is complete, Mouse-click on the Next> Next > Screen Button to complete the installation.

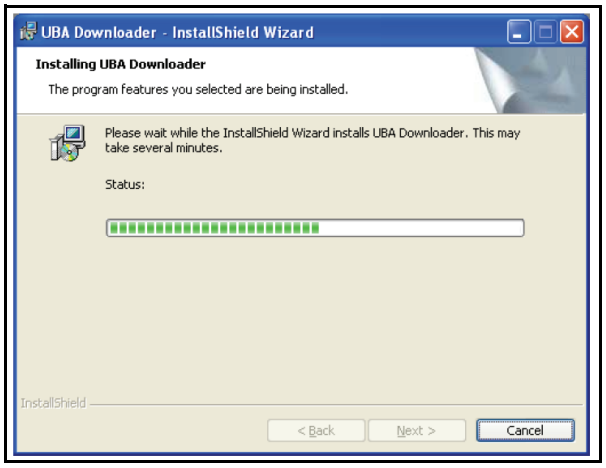

Figure 6-8 Software Installing Screen

10. The Figure 6-9 Screen will appear when the Software installation process is complete. Mouse-click on the Finish Finish Screen Button on the Figure 6-9 Screen to exit the InstallShield Wizard Screen.

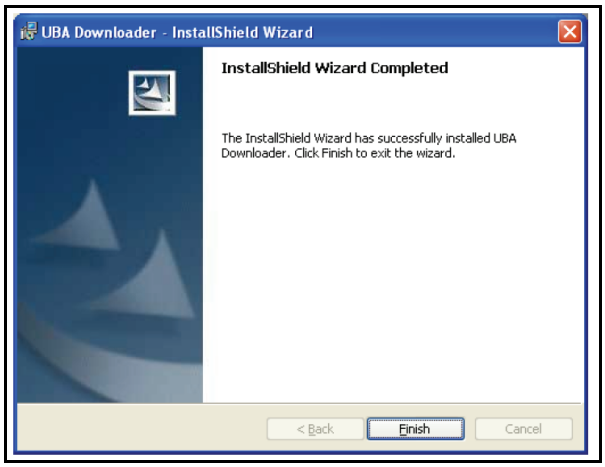

Figure 6-9 Installation Finished Screen

Programming Instructions

Once the UBA Software Program has been installed onto the PC Computer, use the following steps to install the information into the UBA Flash Memory:

1. Set all UBA Front Panel DIP Switches to OFF, and
2. Supply power to the UBA.
3. Start the UBA Downloader Application from your PC's Start → Program → [JCM named] file folder.
   When the application opens, the Figure 6-10 Screen will appear

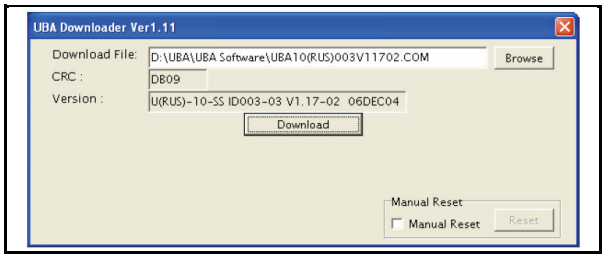

Figure 6-10 Initial Program Installation Screen

4. Mouse-click on the Browse Browse Screen Button and select the Software shown on the PC Screen (See Figure 6-11) to be downloaded into the UBA flash memory Then click the Download Download Screen Button located at Screen Center to begin the Software downloading procedure.
5. When the Flash ROM download has completed, Click the OK button to close the UBA Downloader file (See Figure 6-12).

NOTE: For details involving Jumper settings, refer to See "Jumper Configurations" on page 2-9 of Section 2 regarding the setting of any UBA Unit Jumpers.

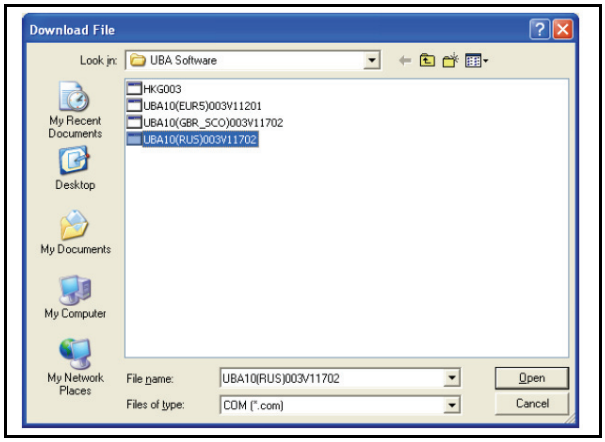

Figure 6-11 PC Browse Screen

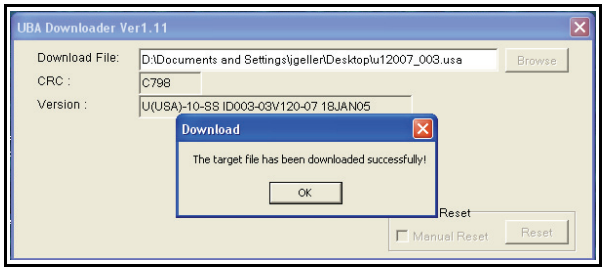

Figure 6-12 Installation Complete Screen

NOTE: Once the software is downloaded into the UBA, it is recommended that Banknote acceptance be tested using the new software to confirm that the download was successful. (See Test "No. 8 Bill Acceptance Test" on page A-11 of Appendix A regarding Bill Acceptance Testing).

Forced Download Requirements

If the UBA does not accept a download in th normal manner as previously described, a Forced Download may be required. To perform a Forced Download, proceed as follows:

1. Remove Power from the UBA Unit.
2. Turn Dip Switches #6, #7 & #8 ON.
3. Apply Power from the UBA Unit. An active Forced Download Mode will be indicated by the two (2) LEDS (Red & Green) will be alternately blinking.
4. At this point, proceed with the previously described Normal Downloading Proceedure.

Calibration Procedures

Calibration Description

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 equipment and tools are required for workbench calibration: (See Figure 6-13).

- JCM Universal Bill Acceptor (UBA)
- JCM External Power Supply (JAC Part #701-000148) or equivalent

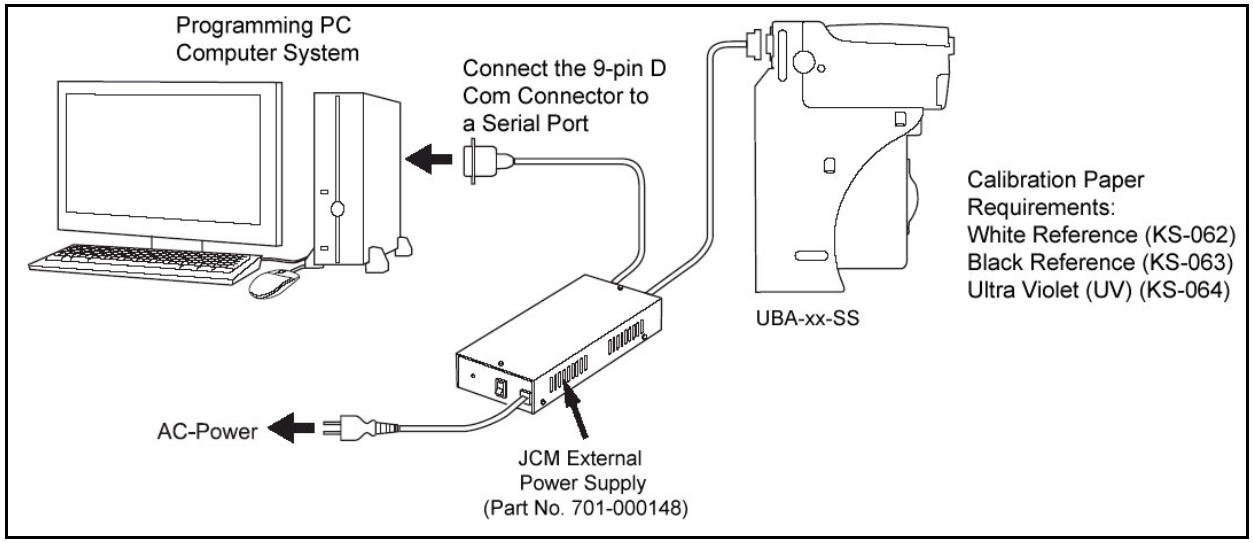

Figure 6-13 Required Calibration Workbench Tools

- PC containing a USB port (OS: Windows 2000/XP)
- White Reference Paper (JAC Part #501-000167R, EDP #107724)
- Black Reference Paper (JAC Part #501-000166R, EDP #107725)
- UV Reference Paper (JAC Part #501-000164R, EDP #110664)

- Mag Tool Kit (JAC Part #701-000086RA). Kit includes Calibration Papers (White, Black & UV) and the Mag Tool as well.
- MAG Tool US Power Cable (JAC Part #300-100007RA).
- Adjustment Program (`ADJTOOL_V1.06-4.exe`, `comm.ini` and `adj.ini`) available at www.jcmglobal.com.

When to Calibrate

1. After a Bill Acceptor component has been disassembled for repair.
2. After a sensor board has been replaced.
3. If a CPU Board is replaced.

Initial Settings

1. Make sure that the UBA jumper setting are in the photo-coupler isolation position.
2. Connect the two External Power Supply Communications cables between the UBA and PC Serial Port respectively (See Figure 6-13).
3. Set UBA Front Panel DIP Switch 8 to ON, and supply power to the External Power Supply unit.
4. Create and name a new folder on your PC
5. Save the decompressed "`ADJTOOL_Vxxx.exe`","`comm.ini`" and "`adj.ini`" adjustment programs in the newly created folder.

Adjustment Procedure

To begin adjusting the UBA Unit proceed as folows:

NOTE: The UBA Unit muust be in a Frame for calibration!

1. Double click on the latest version of the `UBA_ADJTOOL_ Vxxxx.exe`. application and the Figure 6-14 Screen will appear.

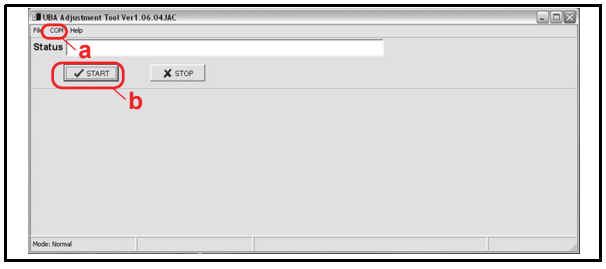

Figure 6-14 Opened UBA_ADJTOOL File Screen

2. Check that the PC's COM Port number being used agrees with the Port to which the UBA is connected by clicking on the `COM` Pull-down Tab (See Figure 6-14 a) and selecting "RS232C".
3. In the Dialog Box that appears (See Figure 6-15), select the COM Port to which the UBA is connected, and Mouse-click on the Select ✓Select Screen Button (See Figure 6-15).

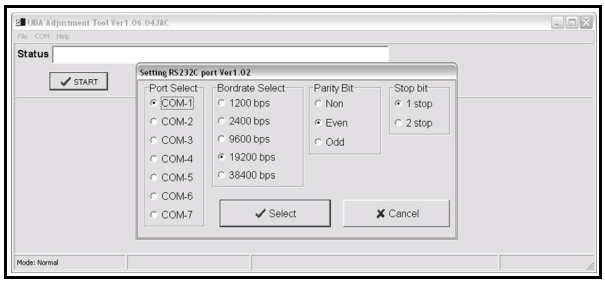

Figure 6-15 COM Port Selection Screen

4. Turn UBA DIP Switch #8 **ON**, apply power to the UBA, then turn DIP Switch #8 **OFF**.
5. Click ✓START to begin the UBA Adjustment program (See Figure 6-14 b). The automatic Motor Speed Check Test will run, and a Dialog Box Window will then ask for the "White" Reference paper to be set in place (See Figure 6-16).

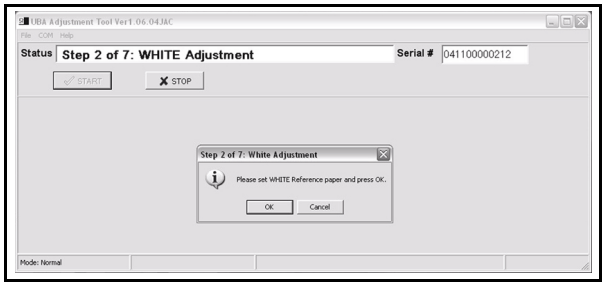

Figure 6-16 White Reference Test Screen

6. Open the UBA's Upper Guide, Insert the White Reference Paper (See Figure 6-18 ①), firmly close the Guide Cover (See Figure 6-18 ②) and Mouse-Click on the OK OK Screen Button.

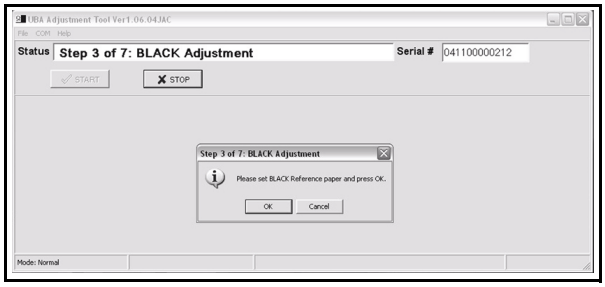

Figure 6-17 Black Reference Test Screen

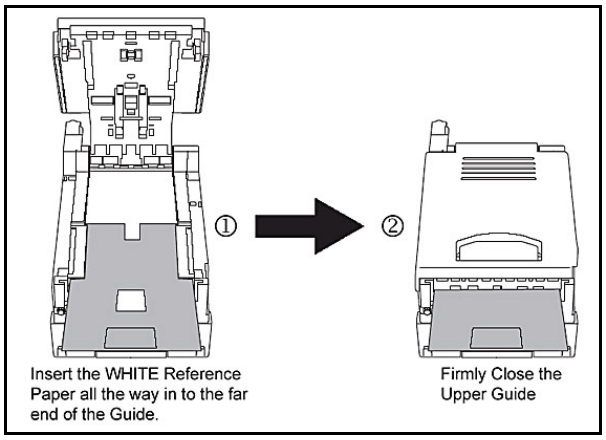

Figure 6-18 White Test Paper Insertion Request

7. After a short period, the Dialog Box Window will indicate "Black Adjustment" (See Figure 6-17). Open the UBA's Upper Guide, remove the White Reference Paper and insert the Black Reference Paper (See Figure 6-19 ①), firmly close the guide (See Figure 6-19 ②) and Mouse-click the OK Screen Button OK again.

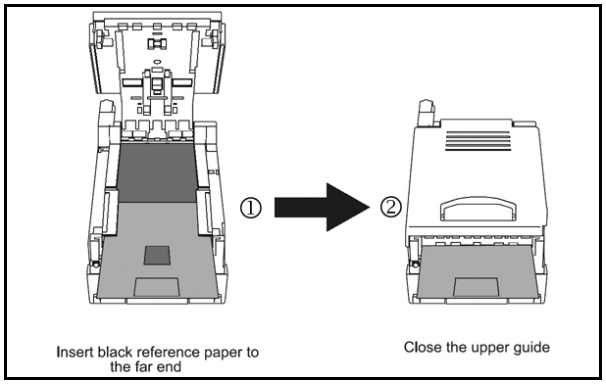

Figure 6-19 Black Test Paper Insertion Request

8. Repeat the White and Black Reference Paper steps as instructed on the Screen until the "UV Adjustment" Screen shown in Figure 6-20 is displayed. Open the UBA Upper Guide, remove the existing test Reference Paper and insert the UV Reference Paper in its place; then Mouse-click on the OK Screen Button OK again.

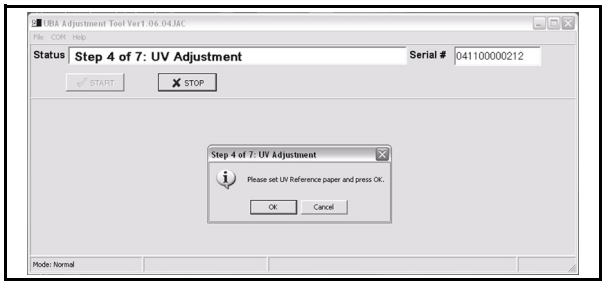

Figure 6-20 Set UV Reference Test Screen

9. Insert the UV Reference Paper so it covers the White Plastic Area at the rear center of the Lower Transport path (See Figure 6-21 ①) with the Label facing UP, and firmly close the Upper Guide as shown in Figure 6-21 ②, then Mouse-click on the OK Screen Button OK again.

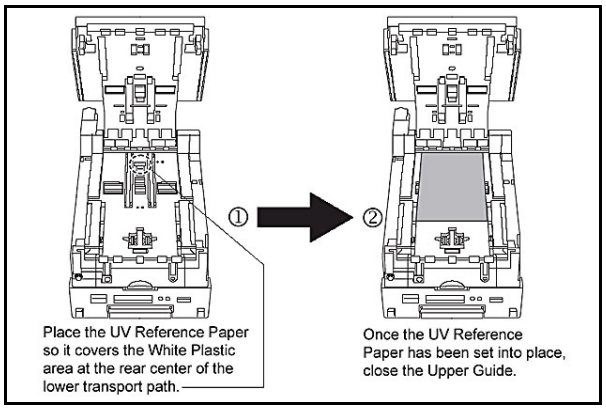

Figure 6-21 UV Test Paper Insertion Request

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.

10. When the "Adjustment Without Reference Paper" Screen appears, open the Upper Guide and remove the UV Reference Paper, then firmly close the Upper Guide and Mouse-click on the OK OK Screen Button again (See Figure 6-22).

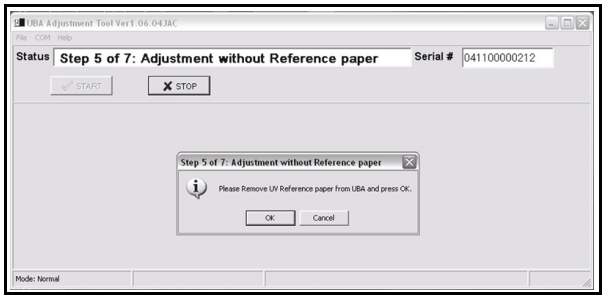

Figure 6-22 Remove UV Reference Test Screen

11. When the White Adjustment Screen reappears, insert the White Reference paper and again Mouse-click on the OK OK Screen Button.
12. When adjustment of all of the Optical Sensors is complete, the "MAG HEAD Adjustment" Screen will appear (See Figure 6-23).

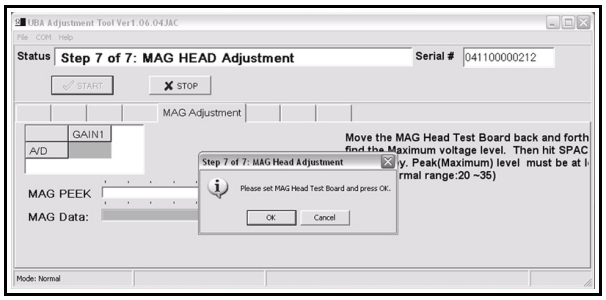

Figure 6-23 MAG HEAD Adjustment Dialog Screen

Figure 6-24 MAG HEAD Adjustment Successful Screen

13. 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 Mouse-click on the OK [OK] Screen Button.
14. Move the Mag Head Test Board back and forth, 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.

15. When the MAG HEAD Adjustment is complete, the "ADJUSTMENT SUCCESSFUL!!" Screen shown in Figure 6-24 will appear.
16. Mouse-click on the OK [OK] Screen Button again, and this calibration process will be complete.

Calibration Error Codes that may occur during these procedures are listed in Table 6-1.

Table 6-1 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 PCB
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 Sensors. Replace Upper or Lower Sensor PCB.
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 either the Upper or Lower Sensor PCB.
6-B		
6-C		
MAG	Adjustment Error	Magnetic Sensor Adjustment Error. Replace the Upper Sensor PCB.
	Adjustment Error Under 0.74V	
No Code	Gain Max Limit Over Error	Sensor Abnormality. White Reference Paper not inserted correctly.
	Bar Gain Max Limit Over Error	Sensor Abnormality. For UBA 1x, Replace the Upper Sensor PCB. For UBA 24, Replace the Lower Sensor PCB
	UV Gain Max Limit Over Error	Sensor Abmormality. Clean UV Sensor and White Reference Block. Ensure UV Reference Paper is insert with its Label up, covering the White Reference block.
	A/D Data Level Error	Light Receiving Level Error. Ensure the White Reference Paper is inserted completely and correctly placed
	Pbin/Width D/A Error	Triggering Sensor Adjustment Error. Clean PB In-Sensor or Reference Paper is not inserted correctly
	Motor Speed Error	Transport Motor Speed Error
	EEPROM Write Error	Adjustment Value Writing Error. Replace the Processor PCB.

UBA-USB Tool Suite Overview

The UBA-USB Tool Suite is a Software Application allowing Software updating, performance data retrieval and performing Calibration of the UBA Unit using the USB Port of the Acceptor to download.

Full functionality of the UBA-USB Tool Suite was implemented in Software Versions v1.71-16, v1.76-17, v1.77-17, v1.76-24 and v1.76-13 or later.

However, the download function can only be accessed on older version of UBA Acceptor Software.

The USB Tool Suite Application is available for download from the JCM Website at: http://www.jcmglobal.com/en/support/downloads.aspx (See Figure 6-25).

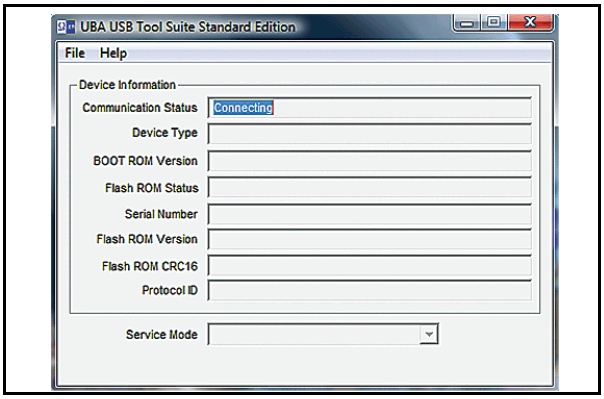

Figure 6-25 UBA-USB Tool Suite Opening Screen

Installing the UBA Tool Suite Application

To begin installing the UBA-USB Application proceed as follows:

1. Open the Folder where the UBA-USB Tool Suite Application is located on the PC.
2. Extract the compressed files located in the Folder into a separate named Folder.
3. Double-click on the "Setup" Application to install the UBA-USB Tool Suite onto your PC.

Installing the UBA Device Drivers

NOTE: If the UBA Downloader Program was previously installed, the Device Drivers are ready for use.

To install the JCM-UBA Device Drivers perform the following steps:

1. Connect power to the UBA.
2. Connect a Male "A" to Male "B" USB Cable between the UBA-USB Port and an open, unassigned USB Port on the PC.
3. When the PC recognizes that a new device is attached to it, it will prompt the user to install the Device Drivers (See Figure 6-26).
4. Mouse-click on the Next> Next > Screen Button and let the PC automatically search for the Drivers; if located, the PC will immediately install the proper Driver(s). Follow the prompts presented on the Screen.

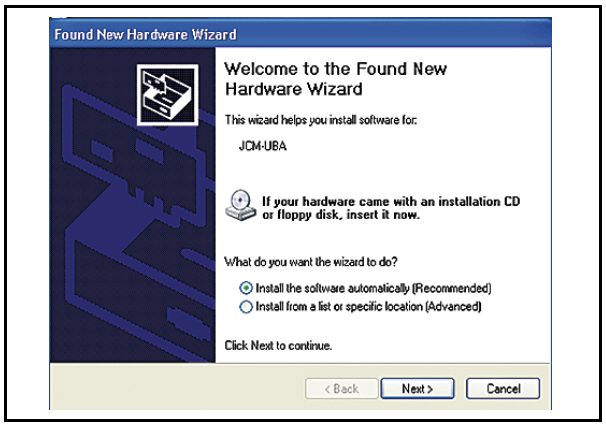

Figure 6-26 UBA-USB Driver Install Screen

5. If the Drivers cannot be located, select the "Install from a list or specific location (Advanced)" Radio Button, Mouse-click on the Next> Next > Screen Button, then Browse to where the UBA-USB Tool Suite Program is loaded. The required Drivers should be in the same Folder.

Connecting the UBA Unit

The UBA can be either installed in a game or on the Workbench when using the UBA-USB Tool Suite.

1. Apply power to the UBA.
2. Open the UBA-USB Tool Suite Program (See Figure 6-27).

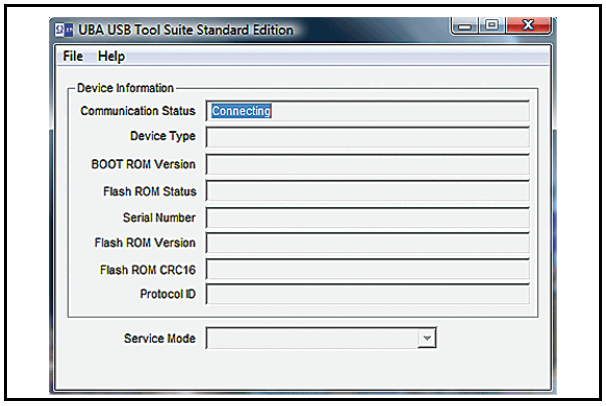

Figure 6-27 Re-Opened UBA-USB Tool Suite Screen

3. Connect the USB Cable between the UBA and the PC.
4. When communications is established, the various Form Fields will be filled-in with data from the UBA Unit (See Figure 6-28).

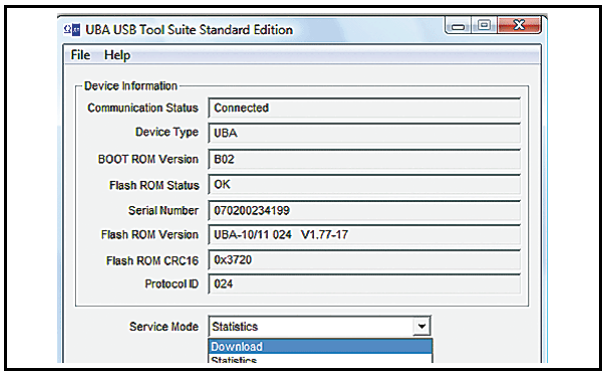

Figure 6-28 UBA-USB Tool Suite Standard Screen

UBA USB Tool Suite Functions

The three functions available with the UBA-USB Tool Suite are as follows:

- Download
- Statistics
- Sensor Adjustment.

Download

The download program is used to update the Software in a UBA Unit.

When selecting the download option, the UBA Downloader Program will open as shown in Figure 6-29.

To load a specific data object into a UBA proceed as follows:

1. Mouse-click on the Browse Browse Screen Button and select the data file desired to load into the UBA.

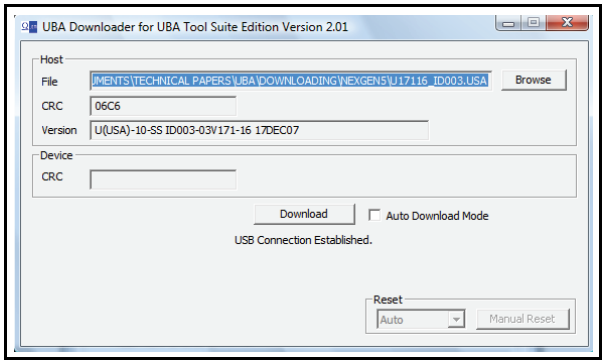

Figure 6-29 UBA Downloader Program Screen

2. Start the download, by Mouse-clicking on the Download Download Screen Button.

For full information on updating UBA Software, refer to "Software Download Preparation" on page 6-1 of this Service Manual.

Statistics

The "Statistics" Tab Selection is used to read AccLoad Statistics from within the UBA Unit (See Figure 6-31 a).

When the "Statistics" Tab is selected, the AccLoad Screen shown in Figure 6-31 will appear.

To "Read" data back from the UBA Unit, Mouse-click on the **Read** Screen Button → Read (See Figure 6-31 b).

Information on the "Accload Program" is available in the "ACCLOAD Quick Reference Guide", available on JCM Global Website.

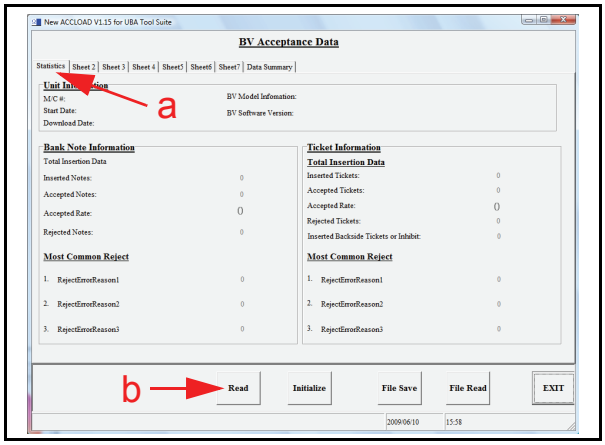

Figure 6-30 UBA-USB Tool Suite ACCLoad Screen

Sensor Adjustment

The Sensor Adjustment Program is used to calibrate the UBA Unit.

To open the Sensor Adjustment Program, select the Sensor Adjustment Option in the UBA-USB Tool Suite Application (See Figure 6-31).

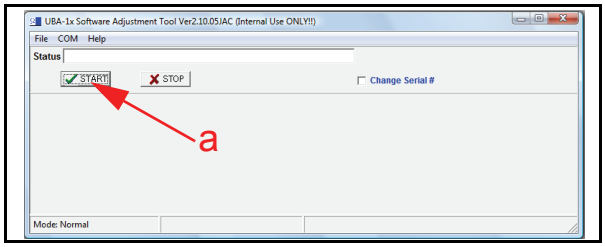

Figure 6-31 UBA-USB Tool Suite Sensor Adjustment Screen

To start the Calibration process, Mouse-click on the START START Screen Button to begin the UBA Calibration Process (See Figure 6-31 a).

For complete details and requirements concerning the Calibration Program, refer to "Calibration Description" on page 6-4 of this UBA Series Operation and Maintenance Manual.

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UBA® Series

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

Section 7

7 EXPLODED VIEWS AND PARTS LISTS

This section provides product exploded views and parts lists for the Universal Bill Acceptor (UBA) Series. This section contains the following information:

- Entire UBA-10/11/12 Unit & UBA-14/24/25 Unit Views and Parts Lists
- Transport Unit Cover Assembly View and Parts
- Transport Unit Assembly View and Parts
- Frame Unit View and Parts
- Cash Box Unit View and Parts.

Entire UBA-10/11/12-SS & 14/24/25-SS/SU Unit Views and Optional Parts

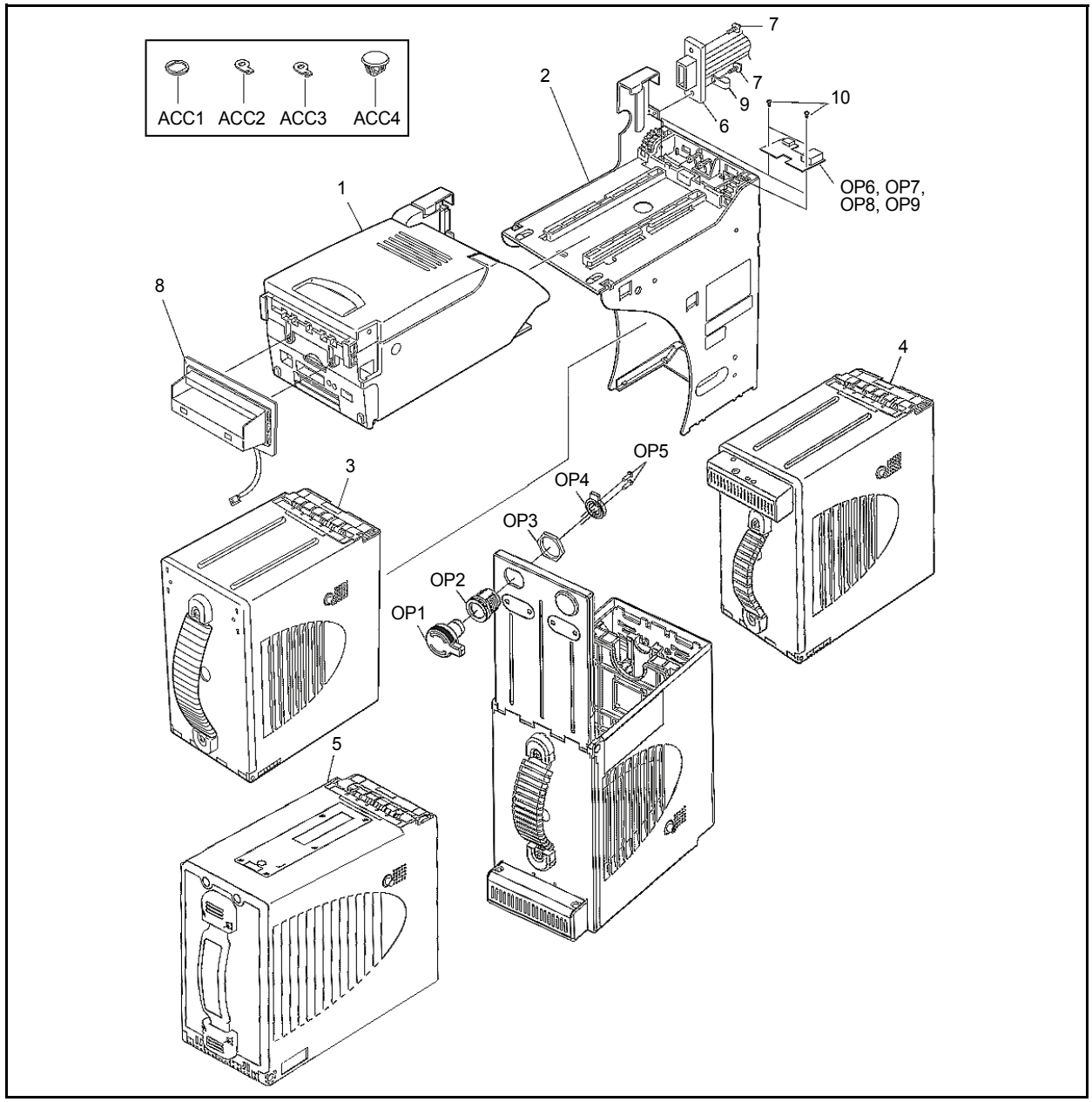

Figure 7-1 Entire UBA-10/11/12-SS & 14/24/25-SS/SU Units, Accessory & Optional Part Exploded Views

Entire UBA-10/11/12-SS Unit Parts List

Table 7-1: Entire UBA-10/11/12-SS & UBA-14/24/25-SS/SU Unit, Accessories & Optional Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Remark
1	116216*	550-100453R	UBA TRANSPORT UNIT R	For UBA-10/11/12 (NO CPU Board).
	138425*	Configuration Dependant	UBA TRANSPORT UNIT (with 3.3 V - 8 Meg Flash Memory) R	For UBA-10/11/12 (CPU Board included.)
	117754*	550-100455R	UBA TRANSPORT UNIT (USB I/F applicable) R	For UBA-14/24 (CPU Board included.)
2	106446*	200-200483R	UBA FRAME UNIT HK R	
3	128680	808-001036R	UBA-SS CASH BOX MP6 R	Standard Cash Box
4	128679	608-001013R	UBA-SS CASH BOX IT MP6 R	Intelligent Cash Box
5	127891	808-001062R	UBA CASH BOX L	Large Plastic Cash Box
	128875	608-001026RA	UBA CASH BOX IT L	Large Plastic Intelligent Cash Box
6	060455	400-100029	OEM INTERFACE HARNESS R	For UBA-10/11/12, OEM Interface
	062897	400-100027R	ID-003 INTERFACE HARNESS R	For UBA-10/11/12, ID-003 Interface
	117623	400-100251R	USB INTERFACE HARNESS (without Cable Clip) R	For UBA-14, OEM Interface without SL-5N
	120120	400-100561RA	USB/ID-003 INTERFACE HARNESS (with Cable Clip) R	For UBA-14, OEM Interface with SL-5N
	128075	400-100567RA	USB Interface Harness without Cable Clamp	For UBA-24
7	104013	186-3000012R	3x12 SCREW with WASHER (Small)	
8	113944	900-101010RA	UBA FACE UNIT A	
	113945	902-031085RA	UBA FACE UNIT 1	
	113946	902-100493R	UBA FACE UNIT 2	
9	117752	900-100308R	SL-N5 NYLON CLIP	(For UBA-14/24 I/F Only)
10	063250	171-504033R	M2.6x6 BINDING SELF TIGHTENING PHILLIPS SCREW	
ACC1	059086	200-100980R	KEY SPACER R	
ACC2	103158	200-200367RA	PLATE LOCK KEY	
ACC3	130356	200-100991R	PLATE LOCK KEY (Narrow)	
ACC4	104014	186-300012R	KEY HOLE CAP	
OP1	135327	900-200423R	THUMB TURN A (Knob)	
OP2	135328	900-200424R	THUMB TURN B (Sleeve)	
OP3	135329	900-200425R	THUMB TURN NUT	
OP4	135330	900-200426R	THUMB TURN CAM (Tang)	
OP5	056165	171-261003R	2.6x8 BINDING SELF TIGHTENING PHILLIPS SCREW	
OP6	122467	300-500007R	24VDC/13.5VDC and RS-232C SIGNAL LEVEL CONVERSION BOARD	
OP7	123523	300-200139R	RS-232C SIGNAL LEVEL CONVERSION BOARD	(For UBA-14/24 Only)
OP8	136243	300-200140R	ccTALK I/F CONVERSION BOARD	
OP9†	133297	300-100398R	24VDC/13.5VDC+USB SIGNAL LEVEL CONVERSION BOARD	(For UBA-14/24 Only)

*. An interim EDP Number. Contact your JCM Sales Representative prior to ordering this part.

†. Refer to Table 7-6 on page 7-23 of this Section for the availablity of Additional Optional Parts.

Transport Unit Exploded Views

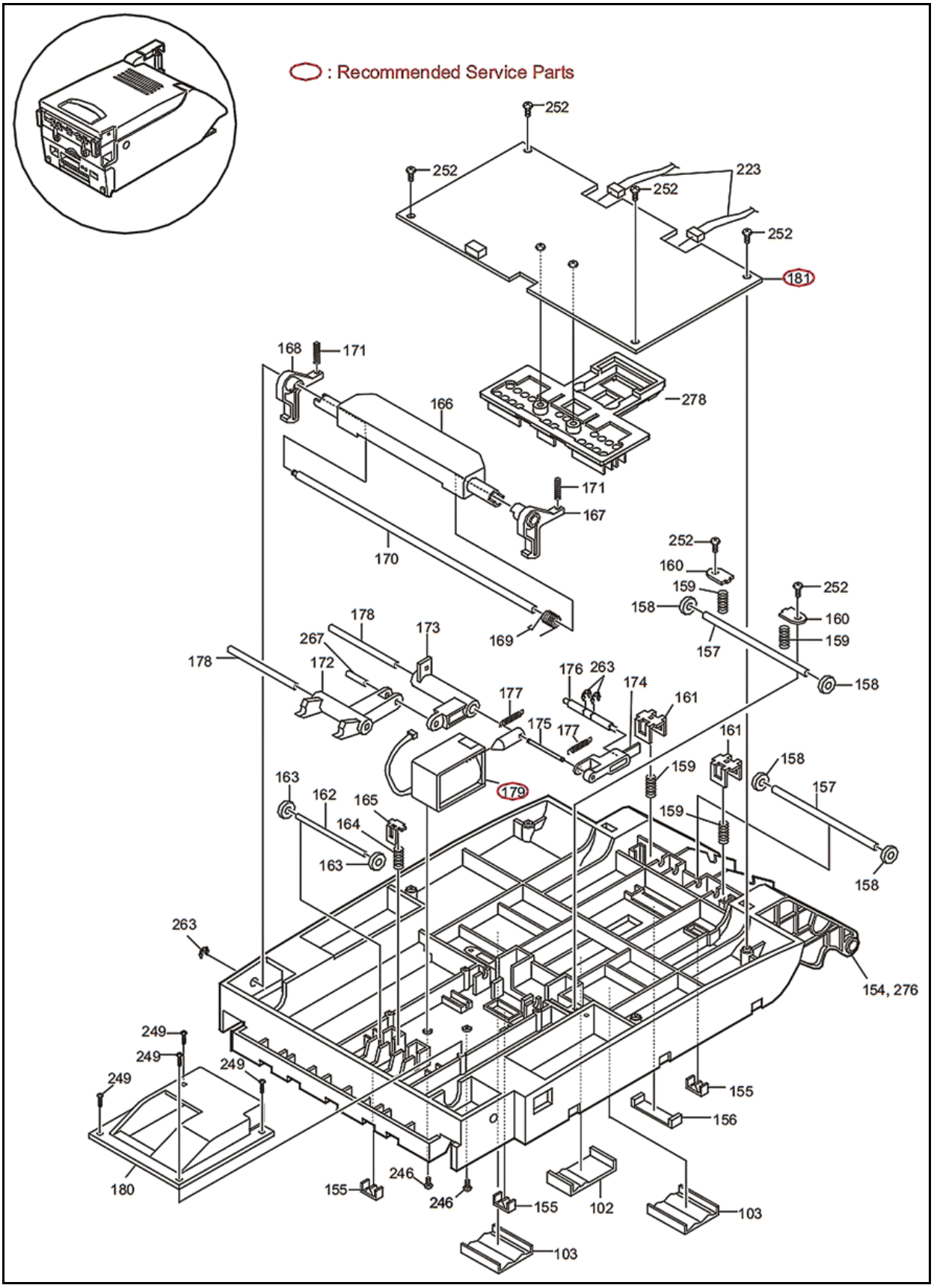

Figure 7-2 UBA Transport Cover Assembly Exploded View (Part 1)

Transport Unit Exploded Views (Continued 1)

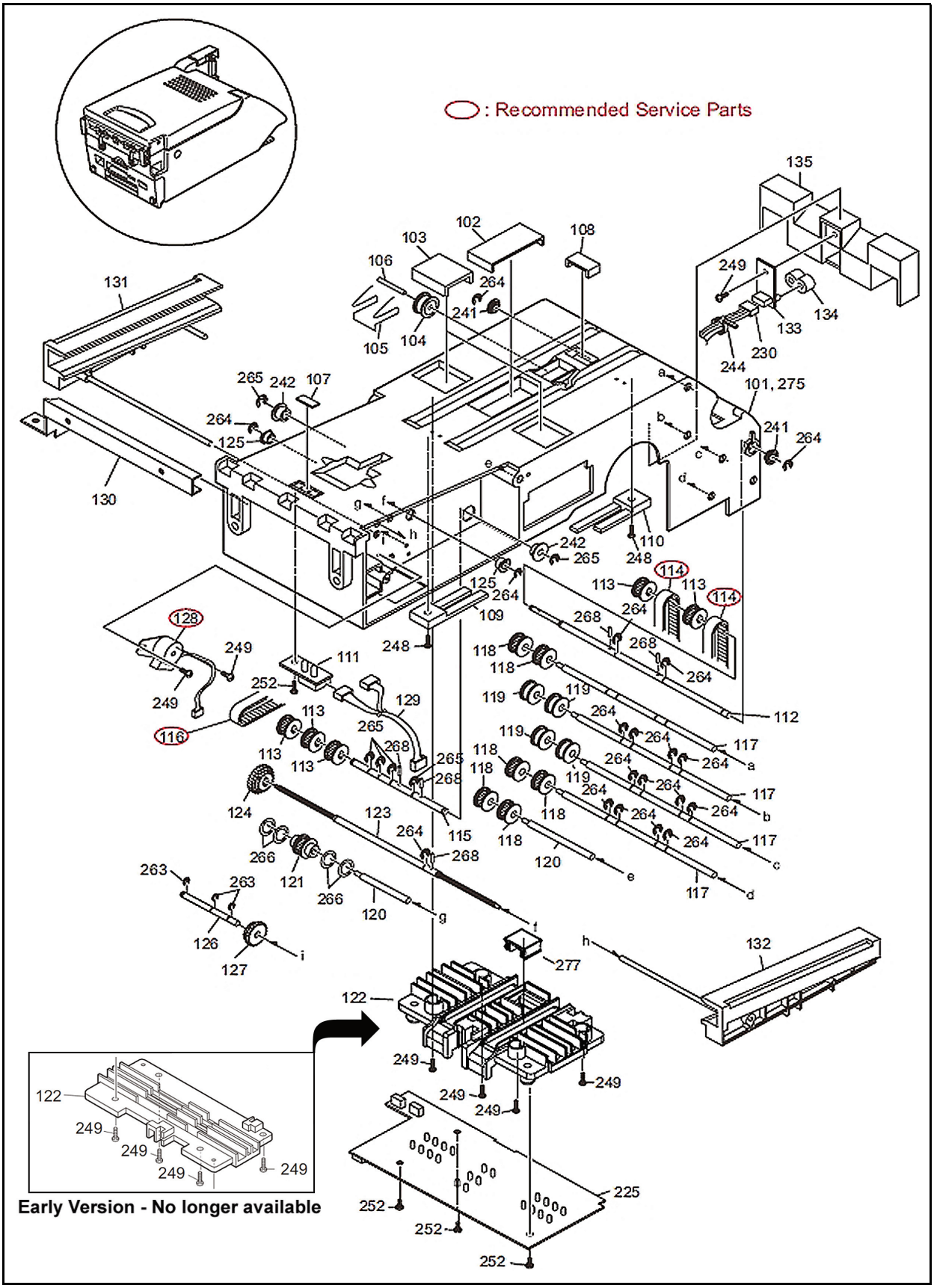

Figure 7-3 UBA Transport Unit Exploded View (Part 2)

Transport Unit Exploded Views (Continued 2)

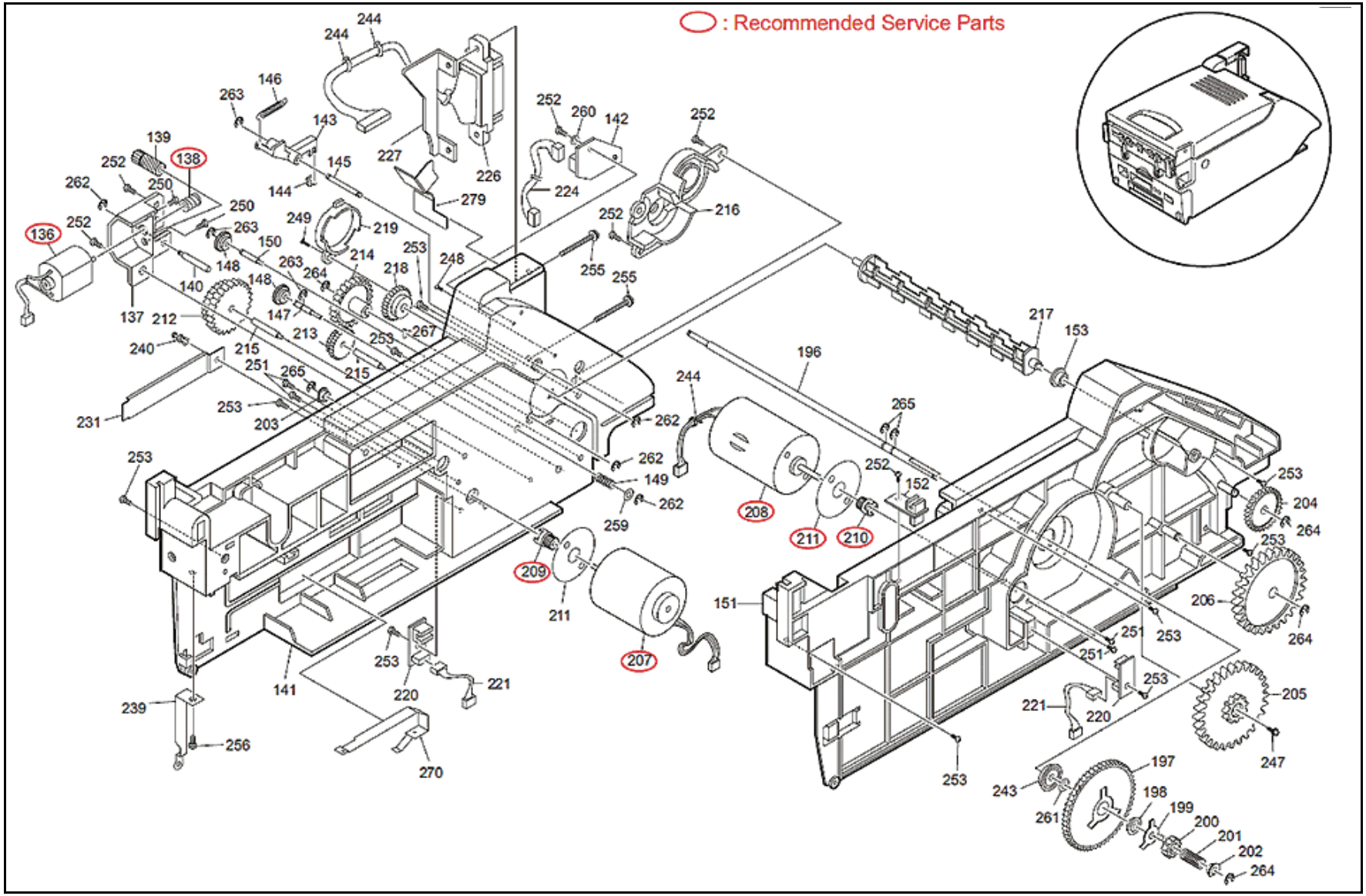

Figure 7-4 UBA Transport Unit Exploded View (Part 3)

Transport Unit Exploded Views (Continued 3)

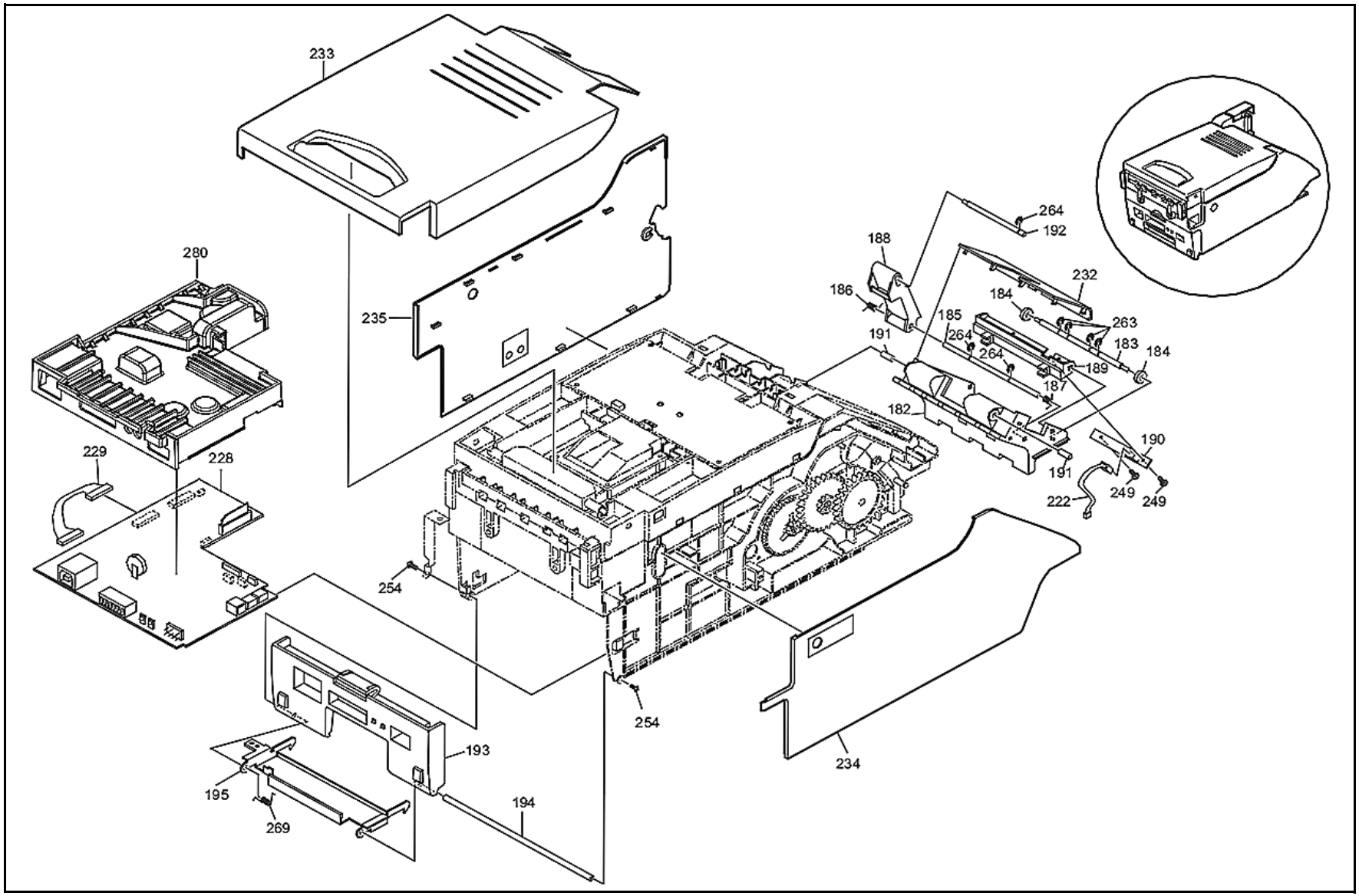

Figure 7-5 UBA Transport Unit Exploded View (Part4)

Transport Unit Parts List

Table 7-2: UBA Transport Unit Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remark
101	109101	900-100846R	UBA TRANSPORT GUIDE C	1	
102	109099	900-100368R	UBA SENSOR LENS A	2	
103	109098	900-100596R	UBA SENSOR LENS B	4	
104	102974	900-100626R	UBA MAG ROLLER	1	
105	063353	250-100531	MAG SPRING	1	
106	102997	200-101108RA	MAG ROLLER PIN	1	
107	102764	900-100538R	UBA SENSOR COVER	1	
108	102776	900-100630R	UV PARTITIONER	1	
109	102773	900-100631R	LIGHT GUIDE A	1	
110	102772	900-100634R	LIGHT GUIDE B	1	
111	116204	300-100346R	ENTRANCE SENSOR R	1	
112	103006	200-100854	TRANSPORT DRIVE SHAFT	1	
113	091168	900-100946RA	PULLEY D	5	
114	104296	900-100616R	TIMING BELT	2	Recommended Service Part
115	103003	200-101111RA	TRANSPORT SHAFT 2	1	
116	104297	900-100648R	TIMING BELT	1	Recommended Service Part
117	103007	200-101112RA	PULLEY SHAFT	4	
118	091169	900-100947RA	TRANSPORT PULLEY R	8	
119	119302	900-100948RA	PULLEY ROLLER R	4	
120	103009	200-101113RA	PULLEY SHAFT 2	2	
121	102783	900-100949RA	PULLEY MOVER P	1	
122	143337	900-200202RA	LOWER SENSOR SPACER	1	
123	103983	200-100842R	UBA MOVER SCREW	1	
124	102970	900-100657	UBA FINAL MOVER GEAR	1	
125	119306	900-100639R	MOVER BEARING R	2	
126	102999	200-101109RA	MOVER GEAR SHAFT	1	
127	102969	900-100658	UBA 2ND MOVER GEAR	1	
128	103923	451-000071R	CENTERING MOTOR ASSY.	1	Recommended Service Part
129	103878	400-100501R	ENTRANCE SENSOR/CENTERING HOME SENSOR HARNESS	1	
130	106068	200-200327RA	GROUND PLATE 1	1	
131	102763	200-100845R	UBA MOVER GUIDE 1	1	
132	102762	200-100846R	UBA MOVER GUIDE 2	1	
133	116202	300-100324R	EXIT SENSOR R	1	
134	102782	900-100597R	FRONT OUTPUT SENSOR COVER	1	
135	102761	900-100641R	REAR SENSOR GUIDE	1	
136	104072	451-000073R	UBA ANTI-PULLBACK MOTOR ASSY.	1	Recommended Service Part
137	118800	900-100940R	ANTI-PULLBACK MOTOR COVER	1	
138	091193	900-100632R	ROLLER GEAR MOTOR R	1	Recommended Service Part

Table 7-2: UBA Transport Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remark
139	102971	900-100629R	UBA 2ND ROLLER GEAR COVER	1	
140	103004	200-100840	HORIZONTAL WORM GEAR SHAFT	1	
141	102753	900-100593R	UBA TRANSPORT GUIDE B	1	
142	105234	300-500013RA	ANTI-PULLBACK HOME SENSOR	1	
143	107846	900-100488	ROLLER GUIDE HOME LEVER	1	
144	102976	900-100624	ROLLER GUIDE HOME ROLLER	1	
145	103001	200-100849	ROLLER LEVER SHAFT	1	
146	103023	250-100513R	ANTI-PULLBACK LEVER SPRING	1	
147	103002	200-100923R	ANTI-PULLBACK CLUTCH SHAFT	1	
148	102972	900-100627	ROLLER GEAR CLUTCH	2	
149	103017	250-100512R	ANTI-PULLBACK CLUTCH SPRING	1	
150	103010	200-100841	ROLLER GEAR SHAFT	1	
151	102754	900-100518R	UBA TRANSPORT GUIDE A	1	
152	116208	300-100343R	CENTERING HOME SENSOR R	1	
153	102979	119-000019R	UBA ROLLER GUIDE BEARING	1	
154	109100	900-100306R	UBA TRANSPORT GUIDE D	1	
155	091079	900-100636R	SQUARE PRISM E3	3	
156	102981	900-100608R	UV COVER	1	
157	103000	200-101110RA	TRANSPORT ROLLER SHAFT	2	
158	119299	900-100660R	TRANSPORT ROLLER TR1	4	
159	108996	250-100484	UBA TRANSPORT SPRING	1	
160	103833	200-1001114RA	SPRING CLIP	2	
161	119331	900-100654R	ROLLER ROCKER SPRING	2	
162	102996	200-100924R	MOVER ROLLER SHAFT	1	
163	119298	900-100661R	MOVER ROLLER GUIDE	2	
164	103014	250-100507R	UBA MOVER SPRING	1	
165	102977	900-100653R	SPRING STOPPER	1	
166	102768	900-100651R	UBA OPENING LEVER	1	
167	102771	900-100655R	OPENING LATCH RIGHT	1	
168	102770	900-100656R	OPENING LATCH LEFT	1	
169	103020	250-100526R	OPENING LEVER SPRING	1	
170	102993	200-101058R	OPENING LATCH SHAFT	1	
171	103016	250-100506R	OPENING LATCH SPRING	2	
172	102756	900-100620R	UPPER ROLLER LEVER	1	
173	102755	900-100621	SOLENOID LINK LEVER	1	
174	102758	900-100619	UPPER ROLLER SLIDER	1	
175	103013	200-100848	MOVER BEAM SHAFT	1	
176	102995	200-100850	SLIDER SHAFT	1	
177	103022	250-100503	SOLENOID SPRING	2	
178	102998	200-100744R	SOLENOID LEVER SHAFT	2	
179	104071	451-000070R	SOLENOID ASSY. R	1	Recommended Service Part
180	102760	900-100637	SOLENOID BASE	1	

Table 7-2: UBA Transport Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remark
181	116213	300-100352R	UPPER SENSOR BOARD R	1	Recommended Service Part
182	102750	900-100873	UBA TRANSPORT GUIDE E	1	
183	102991	200-101105RA	REAR GUIDE ROLLER SHAFT	1	
184	102975	900-100622	UBA TRANSPORT ROLLER	2	
185	102992	200-101106RA	REAR GUIDE SPRING SHAFT	1	
186	103018	250-100505	REAR GUIDE ROLLER SPRING A	1	
187	103019	250-100504	REAR GUIDE ROLLER SPRING B	1	
188	102766	900-100640	WIRE TUNNEL	1	
189	102781	900-100684	CASH BOX SENSOR BOARD COVER	1	
190	116206	300-100351R	CASH BOX SENSOR R	1	
191	102990	200-101057R	GUIDE FULCRUM PIN	2	
192	102994	200-101107RA	TUNNEL SHAFT	1	
193	102767	900-100771R	FRONT COVER	1	
194	103008	200-101007R	FRONT DOOR SHAFT	1	
195	103832	200-100855	UBA TRANSPORT LATCH	1	
196	103005	200-100857	STACKER CLUTCH SHAFT	1	
197	102793	900-100643	2ND STACKING GEAR	1	
198	103610	200-100847	UNI-DIRECTIONAL CLUTCH	1	
199	118806	200-100853	PLATE LOCK R	1	
200	102792	900-100642	STACKING GEAR CLUTCH	1	
201	103015	250-100509	CLUTCH SPRING	1	
202	104061	900-100652	CLUTCH SPRING STOPPER	1	
203	102978	900-100674	TRANSPORT BEARING LIMIT	1	
204	102968	900-100645	FINAL STACKING GEAR	1	
205	102794	900-100647	3RD STACKING GEAR	1	
206	102967	900-100646R	4TH STACKING GEAR	1	
207	106441	451-000029R	TRANSPORT MOTOR	1	Recommended Service Part
208	106443	451-000059R	STACKING MOTOR	1	Recommended Service Part
209	102786	900-100663R	TRANSPORT MOTOR GEAR	1	Recommended Service Part
210	102791	900-100644R	STACKING MOTOR GEAR	1	Recommended Service Part
211	102989	142-090429R	MOTOR SPACER	1	Recommended Service Part
212	102787	900-100692R	2ND TRANSPORT GEAR	1	
213	102788	900-100662R	3RD TRANSPORT GEAR	1	
214	102790	900-100688R	FINAL TRANSPORT GEAR	1	
215	108154	200-100708	GEAR PIN	2	
216	102784	900-100633	TRANSPORT GEAR COVER	1	
217	102765	900-100623	UBA ROLLER GUIDE	1	
218	102973	900-100625R	ROLLER GEAR GUIDE	1	
219	102980	900-100611R	ROLLER GUIDE CAP	1	
220	118554	300-100325R	ENCODER SENSOR R	2	

Table 7-2: UBA Transport Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remark
221	103875	400-100503R	ENCODER HARNESS R	2	
222	103877	400-100505R	CASH BOX SENSOR HARNESS	1	
223	103873	400-100506	UPPER SENSOR BOARD HARNESS R	1	
224	103876	400-100512R	ANTI-PULLBACK HOME SENSOR HARNESS R	1	
225	116215	300-100332R	LOWER SENSOR BOARD R	1	Recommended Service Part
	121260	300-200138R	LOWER SENSOR BOARD R UBA-24	1	UBA-24 ONLY Recommended Service Part
226	103872	400-100466	HARNESS (with Connector)	1	UBA-10/11/12
	117622	400-100309R	HARNESS (USB Transport Interface)	1	UBA -14
227	103834	200-101054R	UBA CONECTOR BRACKET	1	
228	130799	300-100399R	CPU BOARD (3.3VDC, 8Meg FLASH))	1	UBA-10 Recommended Service Part
	133432	300-100246R	CPU BOARD (3.3VDC, 8Meg EPROM)	1	UBA-11 Recommended Service Part
	133433	300-100302R	CPU BOARD (3.3VDC,16Meg FLASH)	1	UBA-12 Recommended Service Part
	112075	300-100301R	CPU BOARD (3.3VDC USB Interface with applicable 16MB FLASH)	1	UBA-14 Recommended Service Part
	121267	300-500024RA	CPU BOARD (USB Interface with applicable 16MB FLASH) DUAL BARCODE SENSOR	1	UBA-24 Recommended Service Part
	142101	300-599926RA	CPU BOARD (USB Interface with applicable 8MB FLASH) DUAL BARCODE SENSOR		UBA-25 Recommended Service Part
229	103874	400-100504R	LOWER SENSOR BOARD HARNESS R	1	UBA -10/11/12/ 14
	128073	400-100695R	LOWER SENSOR BOARD HARNESS for DUAL BARCODE SENSOR		UBA -24/25
230	103879	400-100502R	EXIT SENSOR HARNESS R	1	
231	104059	200-101055R	WIRE HOLDER	1	
232	102769	900-100687R	BACK COVER	1	
233	102759	900-100772R	TOP COVER	1	UBA -10/11/12/ 14
	127826	900-200439R	TOP COVER UBA-SU	1	UBA -24/25
234	102777	900-100519R	RIGHT TRANSPORT COVER	1	
235	102778	900-100767R	LEFT TRANSPORT COVER	1	
236	106031	200-100844R	GROUNDING JACK PLATE		
237	105984	200-100499R	FRONT GROUNDING HARNESS		
238	116197	300-100327R	INTELLIGENT BOARD R	1	UBA-10/11/12 Recommended Service Part
239	107787	200-101115RA	GROUND PLATE 2	1	
240	103109	100-100012R	PUSHER RIVET	1	
241	033218	119-000011	BEARING #SMF85ZZ	2	
242	104050	119-000021R	BEARING	2	
243	080523	119-000022R	BEARING	1	

Table 7-2: UBA Transport Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remark
244	092949	900-100659	CABLE TYE	4	
246	104043	171-200203RA	2X3 BINDING FASTENER with LOCK WASHER	2	
247	104002	186-260205RA	2.6X5 SCREW with Large Washer Ø 7.5	1	
248	104151	173-200005R	2X5 PHILLIPS SELF TIGHTENING H5 SCREW	3	
249	104149	123-063226R	2X6 PHILLIPS PAN HEAD SELF TIGHTENING SCREW	5	
250	104147	186-170003RA	1.7X3 SCREW with Washer	2	
251	104005	186-260006R	2.6X6 BINDING FASTENER with LOCK WASHER	4	
252	104009	171-260206R	2.6X6 BINDING PHILLIPS SELF TIGHTENING SCREW	16	
253	104011	171-260106R	2.6X10 BINDINGPHILLIPS SELF TIGHTENING SCREW	8	
254	132681	186-000316R	2.6X8 BINDING SCREW	2	
255	104013	186-300012R	3X12 SCREW with Washer (Small)	2	
256	108973	101-063226R	2.6X4 PAN HEAD SCREW	1	
259	095879	142-090433R	2.5X5X0.3 FLAT WASHER	1	
260	104880	142-090436	2.6X5.58X0.5 POLLY VYNAL SLIDER	1	
261	017010	142-090430	6.2X10.X0.2 POLLY VYNAL SLIDER	1	
262	091518	200-100852R	E-Clip Ø 1.5 SUSTAINER	3	
263	091517	100-100060R	E-Clip Ø 2.0 SUSTAINER	11	
264	091516	200-100984R	E-Clip Ø 3.0 SUSTAINER	32	
265	093074	100-100059R	E-Clip Ø 4.0 SUSTAINER	8	
266	102294	900-100628	O-RING P6 (#EPDM70)	4	
267	097663	450-300005R	1.6X6 PARALLEL PIN	1	
268	104019	200-200304RA	1.6X8 PARALLEL PIN SUSTAINER	5	
269	103021	250-100511	TRANSPORT LATCH SPRING	1	
270	106069	200-100843	GROUNDING TAB 3	1	
271	113653	900-200055RA	ICB PEDISTAL	1	UBA-10/11/12
272	112689	900-200058RA	ICB COVER SPONGE	2	UBA-10/11/12
273	113654	900-200056RA	ICB COVER	1	UBA-10/11/12
274	104414	171-261003R	2x4 BINDING PHILLIPS SELF TIGHTENING SCREW	1	UBA-10/11/12
275	102752	900-100846R	UBA TRANSPORT GUIDE C ASSY.	—	Included with #101, 102, 103, 107 & 108
276	136839	900-200238R	UBA TRANSPORT GUIDE D ASSY.	—	Included with #102, 103, 155 & 156
277	143338	900-200203RA	BAR-SNSR CAP 1		UBA-10/11/12/14
278	143339	900-200204RA	DP SNSR-SPR UP 1		Changed from EDP #102780
279	144684	900-200351R	CN PROTECTION COVER 1		
280	143598	900-200205RA	CPU WATERPROOF 1		

UBA Frame Unit Exploded View

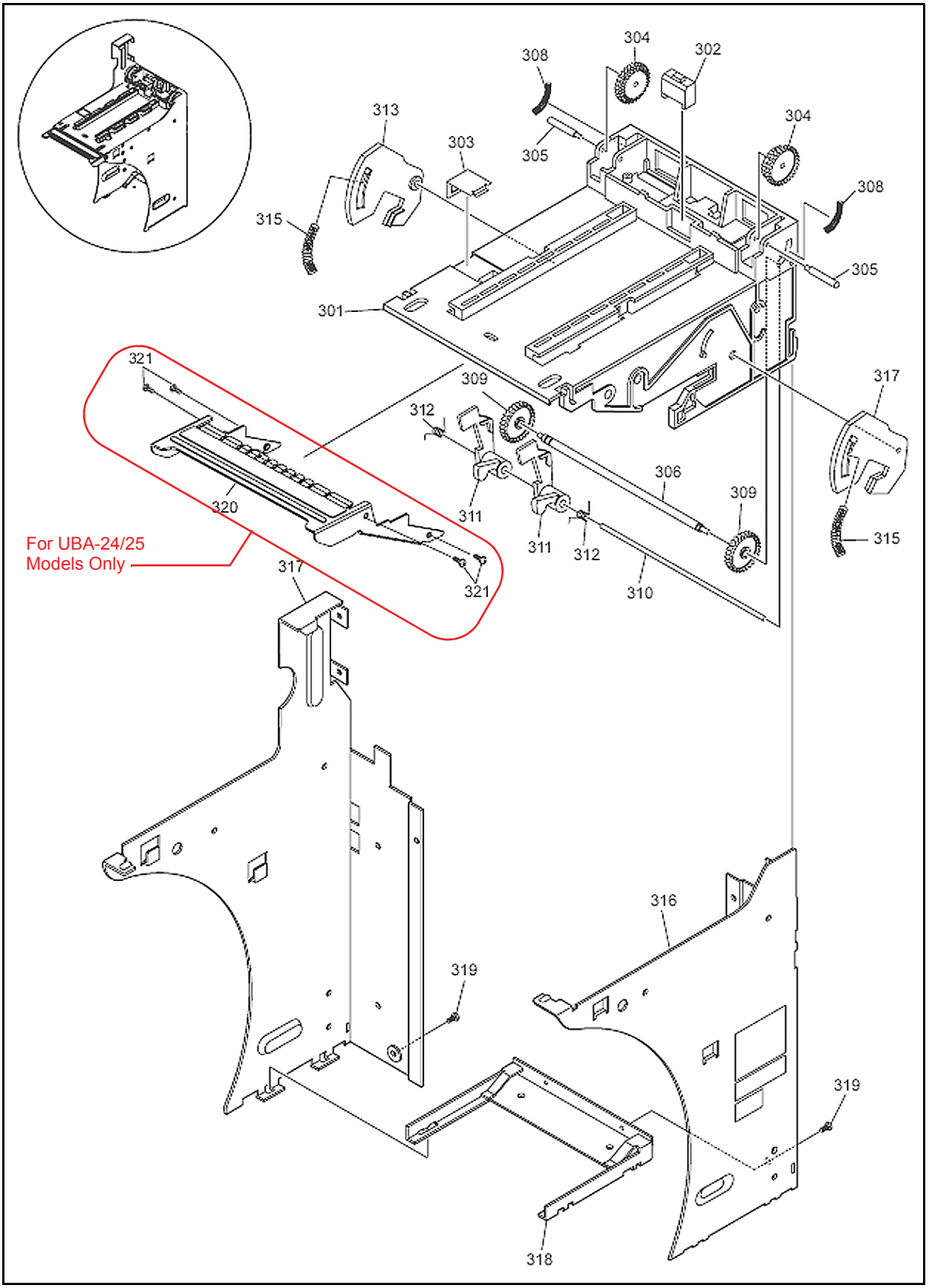

Figure 7-6 Frame Unit Exploded View

UBA Frame Unit Parts List

Table 7-3 Frame Unit Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
301	102982	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	
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	1	
319	104016	186-300516R	3X6 SCREW with Washer (Small)	2	
320	127827	200-000332R	Transport (TR) Stand Bracket	1	UBA-24/25 Only
321	127828	149-000014R	2.6x5 SCREW	2	UBA-24/25 Only

UBA-SS Cash Box Unit Exploded View

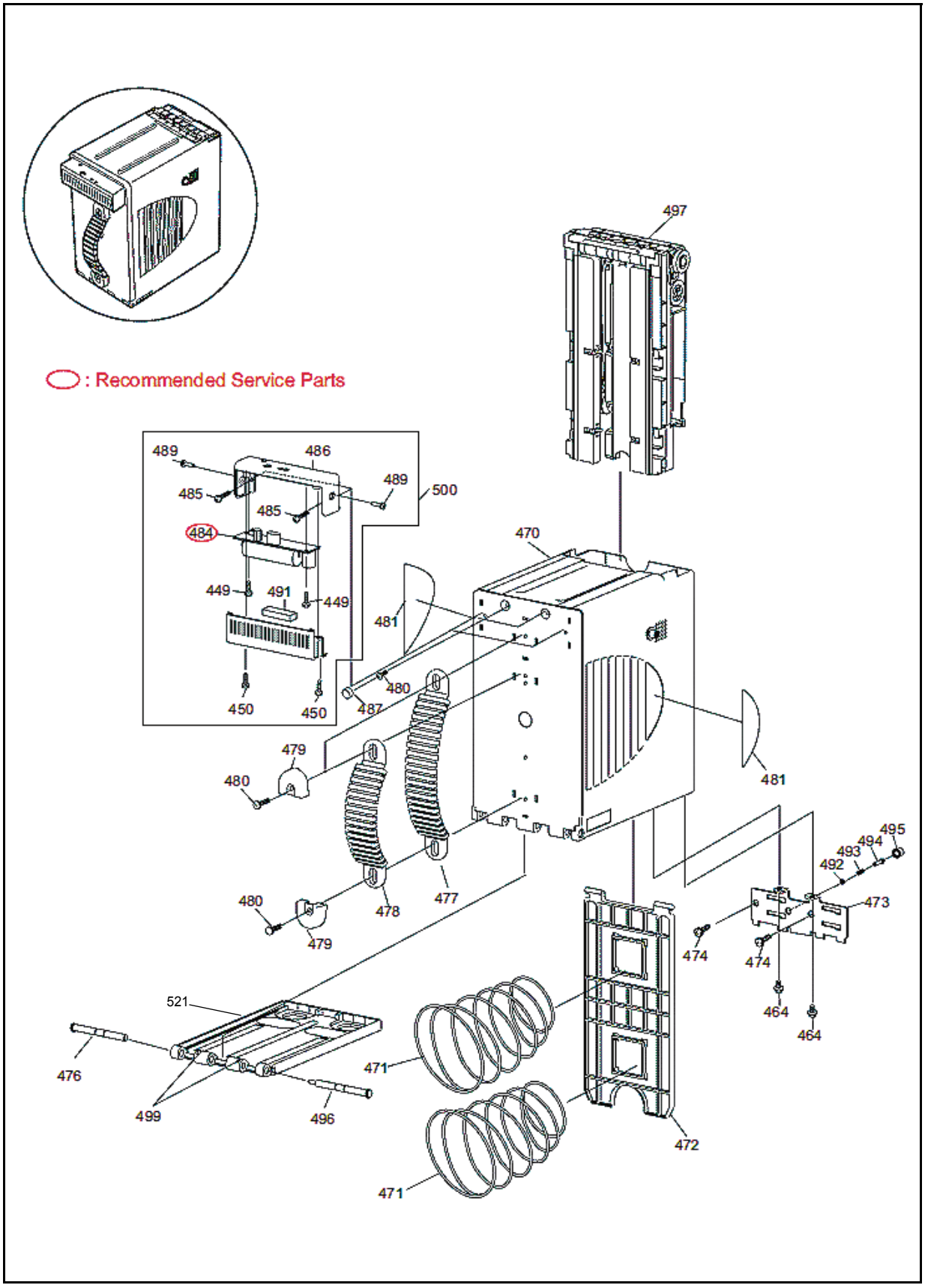

Figure 7-7 UBA-SS Standard Cash Box Exploded View (Part 1)

UBA-SS Cash Box Unit Exploded View (Continued)

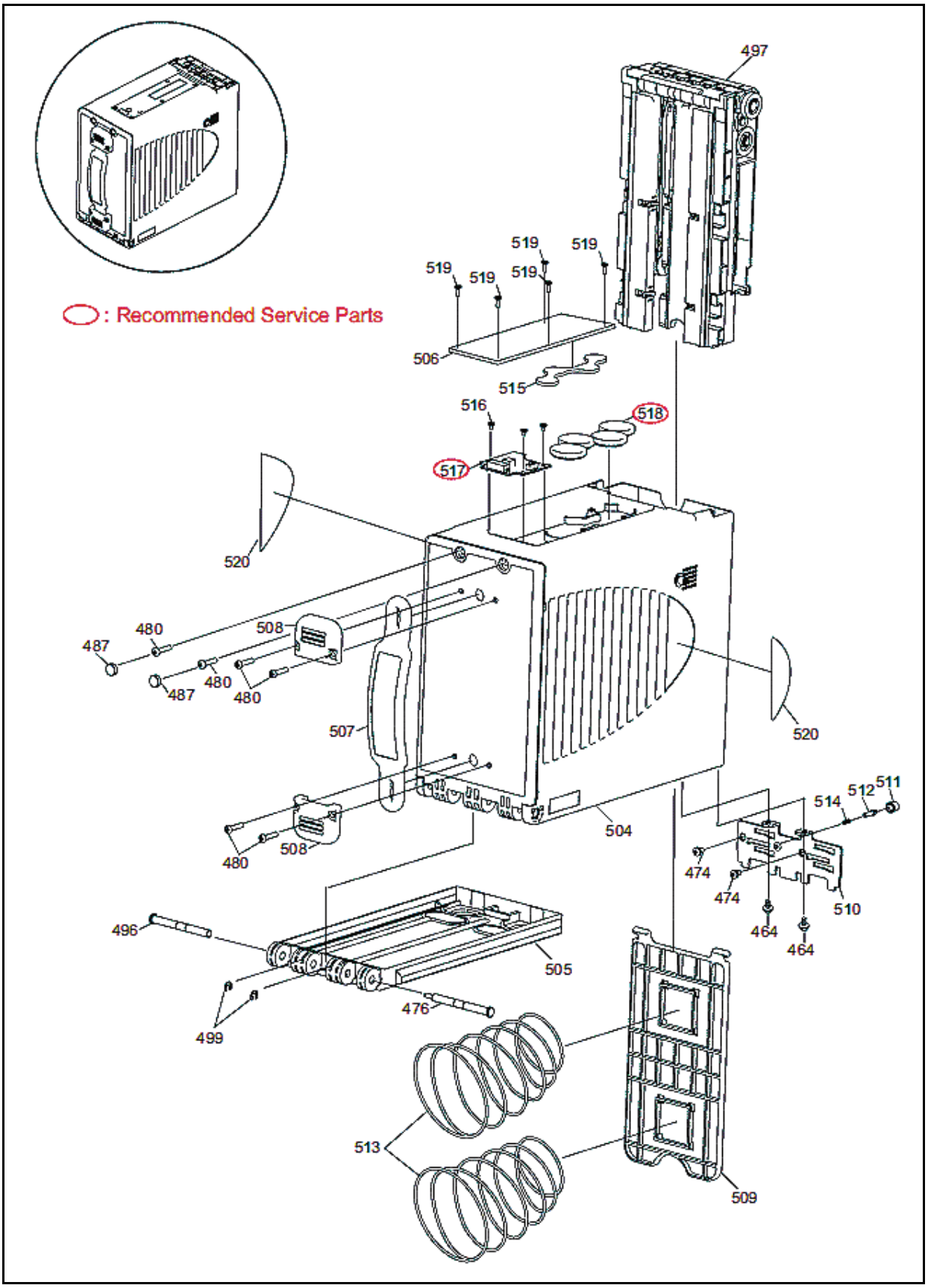

Figure 7-8 UBA-SS Large Cash Box Exploded View (Part 2)

UBA Cash Box Pusher Unit Mechanism Exploded View

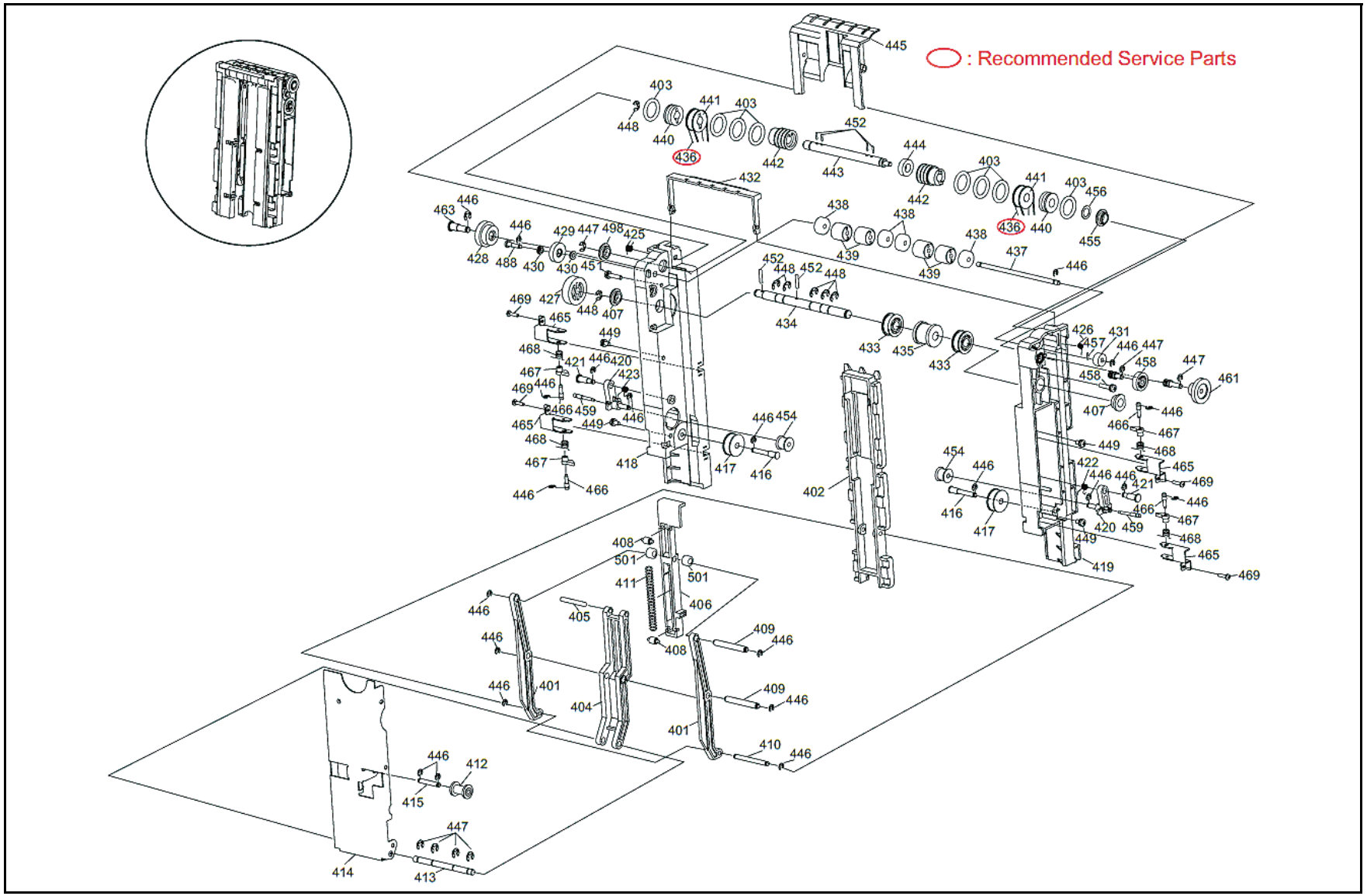

Figure 7-9 UBA Cash Box Unit Pusher Mechanism Exploded View

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Cash Box Unit Parts List

Table 7-4: UBA Cash Box Unit Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
401	103176	900-101026RA	BUSHING LINK B	2	
402	128522	900-101027RA	PUSHER PLATE	1	
403	081620	900-100254R	O-RING P11 (#EPDM70)	8	
404	103177	900-101028RA	BUSHING LINK A	1	
405	070749	200-100865	U-ARM PIN 82	1	
406	128523	900-101029RA	PUSHER RACK	1	
407	128531	200-200564R	PUSHER PI-BEARING	2	
408	128524	900-101031RA	ROLLER RACK	2	
409	104260	200-101078RA	LINK SHAFT	2	
410	070750	200-100864	LEFT ARM SHAFT 82	1	
411	104274	250-100559RA	PUSHER SPRING B	1	
412	052579	900-100583	RIGHT ROLLER GUIDE R	1	
413	114533	200-200566R	LEFT ARM SHAFT	1	
414	128519	200-200567R	PUSHER BASE	1	
415	052626	200-100733R	ROLLER SHAFT GUIDE	1	
416	052634	200-101010	PULLEY STUD	2	
417	128533	900-200352RA	PULLEY S2M W5 B	2	
418	128521	900-100764R	PUSHER GUIDE, RIGHT	1	
419	128520	900-100765R	PUSHER GUIDE, LEFT	1	
420	104615	900-100945R	LABOR ROLLER	2	
421	104263	200-101079R	STUD LEVER	2	
422	104275	250-100539R	TENSION SPRING LEFT	1	
423	104276	250-100540R	TENSION SPRING RIGHT	1	
424	052561	900-100336R	BUSHING F6B R	1	
425	114527	250-100560R	PRESSURE ROLLER SHAFT SPRING, RIGHT	1	
426	114528	250-100561R	PRESSURE ROLLER SHAFT SPRING, LEFT	1	
427	104268	900-100882R	GEAR (24)	1	
428	128518	900-100649R	GEAR, M1-Z16	1	
429	104273	900-100251R	GEAR, M1-Z12 (P-1)	1	
430	104267	900-100972R	BUSHING	2	
431	123525	900-200353R	BOX TRANSPORT GEAR 3RD	1	
432	103167	900-100676R	ROLLER COVER	1	
433	128529	900-200354R	LINK ROLLER 2	2	
434	104256	200-101080R	GEAR PUSHER SHAFT	1	
435	052563	900-100581R	RACK GEAR R	1	
436	128528	900-200226R	STS TIMING BELT	2	Recommended Service Part
437	104258	200-101003R	ROLLER SHAFT	1	
438	026108	900-100392R	ROLLER R (RE-7V10)	4	
439	034851	900-100294R	ROLLER (REO-06)	4	
440	052562	900-100580R	B OL PULLEY R	2	

Table 7-4: UBA Cash Box Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
441	128532	900-200355R	PULLEY S2M W5 A R	2	
442	034849	200-100552R	PULLEY R (REO-04)	2	
443	123647	200-100893R	TRANSPORT PULLEY SHAFT	1	
444	052577	900-100582R	PULLEY COLLAR R	1	
445	103175	900-100595R	PULLEY COVER	1	
446	003705	100-100092R	E-RING Ø2 SUSTAINER	22	
447	003707	100-100043R	E-RING Ø3 SUSTAINER	6	
448	003708	100-100044R	E-RING Ø4 SUSTAINER	8	
449	005555	186-260106R	2.6X6 PAN HEAD SCREW with Spring and Flat Washer	4	
450	119247	183-250005R	2.3X5 PHILLIPS SELF TIGHTENING PAN HEAD SCREW and Flat Washer	2	
451	104280	186-260012RA	2.6X12 SCREW with Spring and Flat Washer (Small)	2	
452	081191	200-100997R	2X10 PARALLEL PIN SUSTAINER	6	
453	104616	200-101081RA	ROLLER STUD	2	
454	104266	900-101033RA	TENSION LEVER ROLLER	2	
455	103165	900-101034RA	TRANSPORT SHAFT BUSHING	1	
456	106593	900-101035RA	STW-FT60 TO.25 POLLYVYNAL SLIDER	2	
457	123914	200-000333R	1X5 PARALLEL PIN SUSTAINER	1	
458	123526	900-200356R	BOX TRANSPORT GEAR 2ND	1	
461	123527	900-200053RA	BOX TRANSPORT GEAR 1ST	1	
463	128526	200-200570R	GEAR STUD (P-2)	1	
464	003611	181-308000R	M3X8 PAN HEAD SCREW with Spring and Flat Washer	2	
465	103159	200-101083RA	LEVER CASE	4	
466	070751	200-101084RA	STOP LEVER PIN	4	
467	070742	900-100683R	STOP LEVER R	4	
468	070720	250-100562RA	STOP LEVER SPING	4	
469	041901	171-200108RA	M2X8 PHILLIPS SELF TIGHTENING SCREW, CHROME	4	
470	127280	900-101037RA	CASH BOX STACKER	1	
471	034869	250-100047R	LB-02-C BACKUP PLATE SPRING	2	
472	103173	900-100762R	RECEIVER PLATE	1	
473	131607	200-100996R	LOCKING PLATE	1	
474	108826	100-350000R	3X5 PHILLIPS SELF TIGHTENING SCREW with Washer	2	
475	127281	900-100609R	CASH BOX OPENING COVER	1	
476	104259	200-101086RA	FULCRUM SHAFT (1)	1	
477	104290	900-100158R	HANDLE	1	For Standard Cash Box
	121968	900-200661RA	HANDLE (RED)	1	For Standard Cash Box
478	106537	900-100489R	HANDLE (ICB)	1	For Intelligent Cash Box
	121969	900-200062RA	HANDLE (ICB) (RED)	1	For Intelligent Cash Box

Table 7-4: UBA Cash Box Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
479	103171	900-100241R	CAP HANDLE	2	
480	115909	171-300014R	3X10 PHILLIPS SELF TIGHTENING PAN HEAD SCREW	4	
481	104278	950-100151RA	CASH BOX LABEL	2	
482	103170	900-100495R	INTELLIGENT CASH BOX	1	For Intelligent Cash Box
483	103169	900-100494R	INTELLIGENT BOX COVER	1	For Intelligent Cash Box
484	105875	300-100607RA	INTELLIGENT CIRCUIT BOARD	1	Recommended Service Parts
485	049531	171-260008R	2.6X8 PHILLIPS PAN HEAD SELF TIGHTENING SCREW	2	
486	113227	200-200267R	INTELLIGENT FRAME ASSY	1	For Intelligent Cash Box
487	113207	900-101053RA	CAP	2	
488	128525	200-101064RA	GEAR STUD	1	
489	125445	173-230005R	M2.6X5 FLAT HEAD PLATE SCREW (Small)	2	
491	113228	900-101054RA	CUSHION, INTELLIGENT	1	For Intelligent Cash Box
492	110029	149-000015R	SCREW GUIDE	1	
493	110080	250-100563RA	NIPPLE SPRING	1	
494	109917	200-101100RA	NIPPLE PIN	1	
495	109916	200-101101RA	SOCKET GUIDE	1	
496	113235	200-101102RA	FULCRUM SHAFT (2)	1	
497	128669	900-100422R	UBA-SS CASH BOX PUSHER MECHNISM MP6	1	
498	113208	900-101041RA	T3 BUSHING	1	
499	003718	100-100046R	CLAMP (#5103-18 4Ø)	2	
500	121843	700-000179R	UBA INTELLIGENT CASH BOX KIT	—	
501	104265	900-101030RA	ROLLER ARM	2	
504	127705	900-200357R	IQ P- BOX	1	
505	127709	900-200358R	IQ P-BOX DOOR	1	
506	127710	900-200359R	IQ P-BOX ICB COVER	1	
507	127711	900-200360R	IQ P-BOX HANDLE	1	
508	127712	900-200361R	IQ P-BOX HANDLE BRA	1	
509	127713	900-200237R	IQ P-BOX RE PLATE	1	
510	127706	900-200362R	TANG CATCH UBA	1	
511	127707	200-200770R	NIPPLE SOCKET	1	
512	127708	200-200771R	NIPPLE PIN	1	
513	127714	250-100678R	IQ P-BOX SPRING	2	
514	127715	250-100679R	NIPPLE SPRING 2	1	
515	127716	900-200363R	BATTERY SPONGE	1	
516	076466	171-200041R	2X4 BINDING PHILLIPS SELF TIGHTENING SCREW	2	
517	128220	300-100436RA	ICB CIRCUIT BOARD	1	Recommended Service Parts
	139237	200-101140R	REFLECTOR (Standard Cash Box)	1	Recommended Service Parts

Table 7-4: UBA Cash Box Unit Parts List (Continued)

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
518	128230	451-100104RA	BATTERY (CR2450HR T-4 WK)	1	Recommended Service Parts
	139239	900-200365R	PROTECTION SPONGE (Standard Cash Box)	1	Recommended Service Parts
519	101172	172-100002R	2X6 BINDING PHILLIPS SELF TIGHTENING SCREW	5	
520	130307	950-171023R	LEFT BOX LABEL	2	
521	188191	701-000211R	Kit, UBA CASH BOX DOOR (500 Note)	1	

Face Unit Exploded View

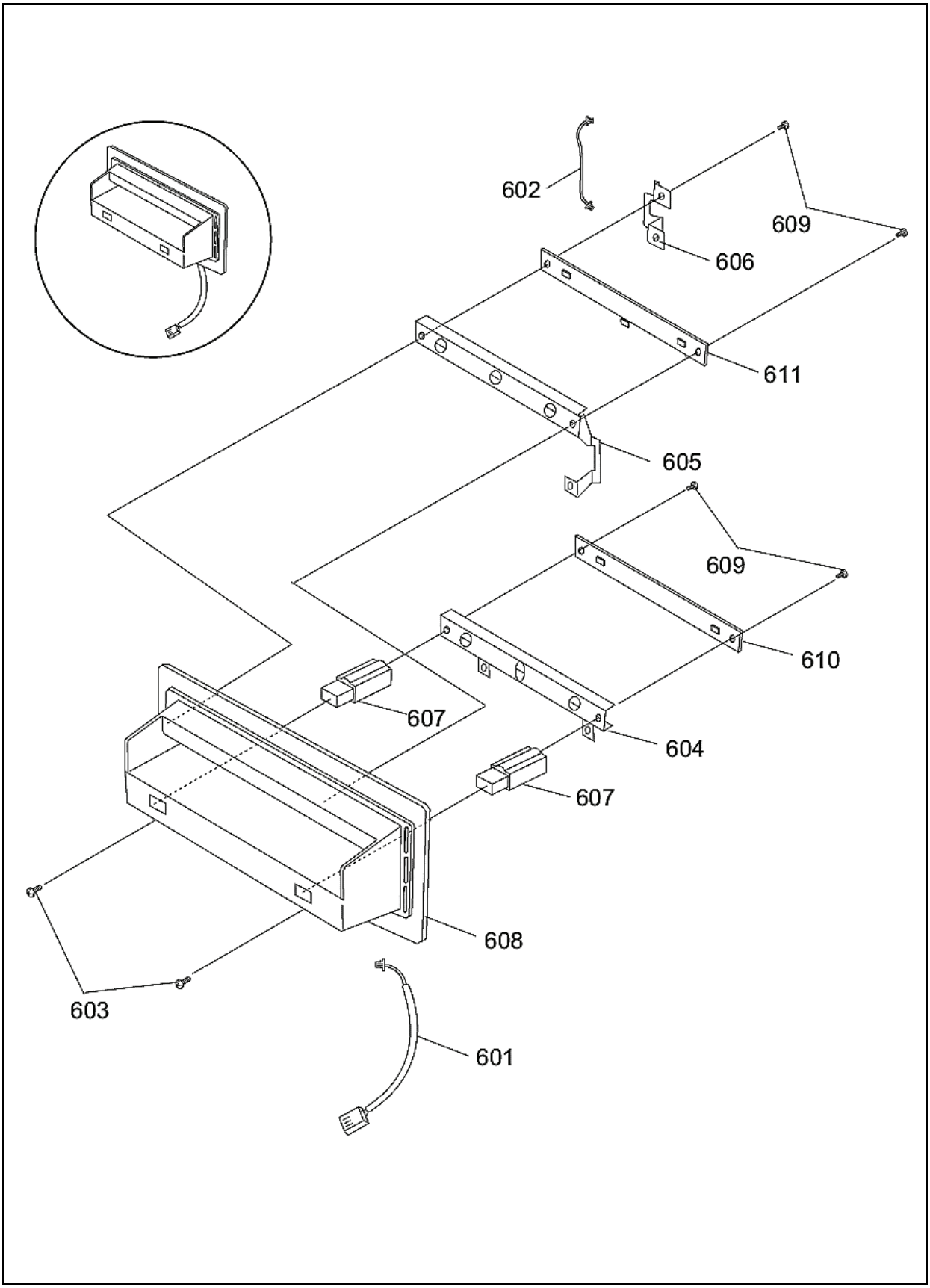

Figure 7-10 Face Unit Exploded View

Faceplate Unit Parts List

Table 7-5 Face Unit Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
601	113236	400-100586RA	RIGHT FACEPLATE HARNESS PLATE	1	
602	113237	400-100587RA	RIGHT FACEPLATE RELAY HARNESS R	1	For UBA FACEPLATE UNIT A
603	006481	186-300016R	3X16 SCREW with Spring and Flat Washer	2	
604	056771	200-200332RA	SHIELD PLATE	1	
605	113927	200-101088RA	SHIELD PLATE	1	For UBA FACEPLATE UNIT A
606	113928	200-101084RA	WIRE HOLDER	1	For UBA FACEPLATE UNIT A
607	112644	900-200366R	INSERT LIGHT GUIDE	2	
608	113926	900-101043RA	INSERT GUIDE UBA (BLACK)	1	For UBA FACEPLATE UNIT A/2
	112642	900-101044RA	INSERT GUIDE UBA	1	For UBA FACEPLATE UNIT 1
609	056165	172-261003R	2.6X8 BINDING PHILLIPS SELF TIGHTENING SCREW	1	
610	112880	300-100430RA	LED CIRCUIT BOARD	1	
	112874	300-100431RA	LED CIRCUIT BOARD	1	
611	112903	300-100432RA	LED CIRCUIT BOARD	1	

Optional Unit Parts List

Table 7-6 Optional Unit Parts List

Ref Nº.	EDP Number	JAC Part Nº.	Description	Qty.	Remarks
OP101	123467	300-500007R	24VDC/13.5VDC Circuit Board plus RS-232C Signal Level Conversion Board	1	
	123523	300-200139R	RS-232C Signal Level Conversion Board		UBA-14
	136243	300-200140R	cc Talk Interface Conversion Board		
	133297	300-100398R	24VDC/13.5VDC Circuit Board USB Interface Conversion Board		UBA-14
OP-102	124736	400-100556RA	RS-232C Interface Harness with M3x12W Washer Sems Screw and Clamp	1	UBA 10/11/12
	124738	400-000084R	Photo-Coupler Interface Harness with M3x12W Washer Sems Screw and Clamp		UBA 10/11/12
	122468	701-100094R	RS-232C Interface Harness with M3x12W Washer Sems Screw and Clamp		UBA-14
	122469	701-100095R	Photo-Coupler Interface Harness with M3x12W Washer Sems Screw and Clamp		UBA-14
OP-103	13605	400-100616R	cc Talk Interface Harness with M3d2W Washer Sems Screw and Clamp	1	
	137900	701-100096R	USB Interface Harness with M3x12W Washer Sems Screw and Clamp		
OP-104	134358	400-100615R	24VDC Power Harness	1	
	134357	400-100614R	12VDC Power Harness		
OP-105	146357		RS232C Interface Harness	1	
OP-106	063250	171-504033R	M2.6x6 Binding. Self Tightening Phillips Screw	2	

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UBA® Series

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

Section 8

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UBA® Series
Universal Bill Acceptor (UBA-1x-SS & x4-SS-SU)
Appendix A

A TROUBLESHOOTING

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

- Introduction
- Troubleshooting Overview
- Fault Table Listings
- Performance Tests
- LED Diagnostic Codes

Introduction

Most Bill 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 harness is properly connected.

Faulty bill acceptance by the Bill Acceptor 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 acceptor in detail when initializing power. This observation is important in locating any failure causes and the possible fault point. If the acceptor head has to be repaired by disassembling it, always recalibrate the sensors following a repair.

Perform all repairs by referring to the Calibration and Flash Memory Software Downloading section in the "Adjustment Procedure" on page 6-5 of Section 6, and in the Disassembly/Reassembly area of Section 4 in this Service Manual.

Troubleshooting Overview

The UBA 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 readjustment and then repair the UBA Unit replacing any appropriate parts deemed necessary.

Fault Table Listings

Table A-1 through Table A-3 list the various possible UBA 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
Bill Acceptor is not working (does not accept any bills).	No external power is applied to the Bill Acceptor (+12VDC & GND)	Verify that the Power Supply +12VDC and Ground cables are connected to the 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.	Redownload the correct software. Refer to "Software Downloading Procedure" on page 6-2 of Section 6 for software downloading instructions.
	CPU Board failure.	Refer to the "Performance Tests" on page A-5 of this Appendix and conduct an Initial Operation Test. If the test result is Negative (NG), replace the CPU Board. Make sure to recalibrate the sensors after CPU Board is replaced.
	ICB Sensor Board is not inserted into the CPU Board socket.	Remove and then reinsert the ICB Sensor Board into the CPU Board socket. NOTE: The ICB Sensor Board must be inserted in place regardless if its features are being used or not.
	(For UBA-11 only) The EPROM is inserted backwards.	Remove the Acceptor Unit from the frame. Remove the EPROM from CPU Board and reinsert it in the correct direction.

Table A-1 General Fault Conditions (Continued)

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Bill 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 press 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 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.
	Bill is wider than 85 mm or narrower than 62mm (out of UBA Bill width specifications).	Use only bills widths having the correct UBA size specifications.
Acceptance rates.	Dirt and/or stains on the rollers, belts and lenses.	Clean the Transport path. Refer to the Cleaning/ Preventive Maintenance procedure in Section 2 of this Manual.
	The unit has been dis-assembled and re-calibration adjustment has not occurred following a reassembly.	Make sure to readjust the sensors after reassembling the UBA Unit. Refer to the “Forced Download Requirements” on page 6-4 of Section 6 of this Manual.
	The wrong software or an old version of the software being used.	Make sure that the programmed Flash or EPROM memory software is the latest version, and it supports the currency values and country allowing acceptance.
	Software not designed to accept current Bills	Check the particular specifications for the required Bill type acceptance, and make sure the bills will be accepted by the software loaded (i.e., check denomination/issuing year, etc.).
	Sensor lenses are loose or missing.	Sensor lenses require re-positioning. Contact JCM Technical Support.
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 reinitialize the unit.
		If power cannot be applied, use a Hexagonal Nut Driver to open the Upper Guide and manually reset the guide.
All bills being rejected.	Incorrect software (different currency type).	Download the correct software for currency being accepted. Refer to “Software Downloading Procedure” on page 6-2 of Section 6of this Manual regarding Software Downloading.
	Bills are not being accepted by the software.	Make sure the bill values required are included in the software specifications (i.e., denominations/issuing year, etc.) Refer to the “Forced Download Requirements” on page 6-4 of Section 6 of this Manual.
	Incorrect DIP Switch settings.	Enable all denominations by setting all DIP switches to OFF.
	Bill acceptance is being inhibited by Host Controller command	Enable Bill acceptance for the required Host command.
	Upper/Lower Sensor Board failure.	Change the Upper or Lower Sensor Board with a known good board. Refer to Section 4 regarding Circuit Board Removal.
	Unit was disassembled and re-calibration did not occur following reassembly.	Recalibrate all UBA Sensors following reassembly.

Table A-1 General Fault Conditions (Continued)

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Motor continues to run.	Upper Guide is open.	Firmly close the guide.
	A foreign object or a jammed bill is stuck in the Transport path.	Open the Guide, remove the foreign object or jammed bill, and close the cover.
	Motor driver failure.	Refer to the “No. 1 Transport Motor Forward/Reverse Rotation Test” on page A-5 of this Appendix 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 resupply power to the UBA.
	Dip switch failure.	Refer to the “No. 9 DIP Switch Test” on page A-11 of this Appendix and conduct a DIP Switch TEST to check if the specific DIP Switch Block has a failure.
	CPU Board failure.	Exchange the CPU Board with a known good board. Refer to “CPU Board Removal” on page 4-3 of Section 4 of this Manual regarding Circuit Board Removal.

Table A-2 Adjustment Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Can not start the ADJTOOL_V*** .exe program by double-clicking on its icon.	PC Operating System (OS) is not compatible.	The current Adjustment program only supports the Windows 2000/XP 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. Check for any bent, missing or damaged pins in the connector plug and receptacle.
	UBA DIP Switch settings are incorrect.	Set the UBA DIP Switches 1 to 7 OFF and Switch 8 to ON. Recycle the power supplied to the external maintenance power supply (P/N 702-000148).
	DIP Switch failure.	Refer to the “No. 9 DIP Switch Test” on page A-11 of this Appendix and conduct a DIP Switch Test.
	CPU Board failure.	Exchange the CPU Board with a known good one. Refer to Section 4 regarding Circuit Board Removal.
Adjustment Error.	Incorrect reference paper type.	Follow the instruction provided in the ADJTOOL_V***.exe program and use the correct reference paper recommended.
	Upper/Lower Sensor Board failure.	Change the Upper or Lower Sensor Board with a known good board. Refer to Section 4 regarding Circuit Board Removal.

Table A-3 Communication Fault Conditions

Symptoms/Error Messages	Possible Fault Causes	Corrective Action Required
Cannot communicate with host.	DIP Switch settings are incorrect.	Set all DIP Switches to OFF.
	Connectors are off or loosely connected.	Firmly reconnect 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 Board with a known good one. Refer to “Circuit Board Removal” on page 4-3 of Section 4of this Manual regarding Circuit Board Removal.
	Incorrect Interface.	Verify that the correct interface between the Host machine and the Bill Acceptor is being used.
	Acceptor Head Failure.	The ICB Board is not installed on the CPU Board. Install the ICB Board.
		The ICB Board is installed incorrectly. Check that the PLUG Number on the ICB Board and SOCKET Number on the CPU Board agree. Reinstall the ICB Board in the correct direction.

Performance Tests

The UBA is equipped with diagnostic features to aid in repair and maintenance. This portion of Appendix A 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. Set DIP Switch No. 8 to ON and supply the power to the UBA.
2. Check that both the Red and Green diagnostic LEDs are lit. This condition indicates the unit is now in the TEST mode.
3. Set the DIP Switches depending on the test you wish to execute.
4. 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.
5. To finish a test, set DIP Switch No. 8 to ON again, and turn the UBA power OFF.

Choosing and Selecting Operational Tests

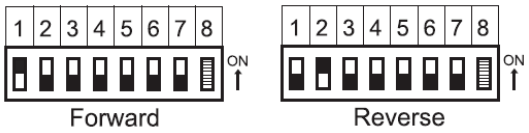
Set the UBA into the "Test Mode", and then set the DIP Switches to match each operational test shown in the following Test Tables. Set DIP Switch 8 to OFF initially to start each test.

NOTE: The setting of DIP Switch 8 to ON again will interrupt a test, and restore the system to the Test Mode.

No. 1 Transport Motor Forward/Reverse Rotation Test

The tests listed in Table A-4 detect the forward and reverse rotational motor speed. Confirm that the motor operates smoothly without emitting abnormal noise.

Table A-4 Transport Motor Speed Test Error Conditions



DIP Switch Block Settings

Motor Speed Condition	Red LED Status	Green LED Status	Causes and Conditions
Normal	OFF	ON	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 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-4 listed states, contact JCM Technical Support.

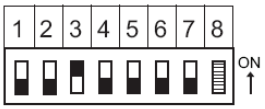
No. 2 Stacker Test

The tests listed in Table A-5 detect the Bill Stacker's operational condition. When the test starts, the pushing mechanism will begin operating constantly.

When the Green LED lights, it indicates the Stacker is working properly.

If the Red LED flashes, refer to the Stacker Test Error Conditions listed in Table A-5 to discover the probable error condition.

Table A-5 Bill Stacker Test Error Conditions



DIP Switch Block Settings

Stacker Condition	Red LED Status	Green LED Status	Causes and Conditions
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 regarding Circuit Board Removal.
Stacker Jam	2 Flashes	OFF	An Exit Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Exit Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 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. 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 regarding Circuit Board Removal.
Cash Box Error	10 Flashes	OFF	A Cash Box Sensor Board failure may have occurred. Check all harness and connectors. Change the Box Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-5 listed states, contact JCM Technical Support.

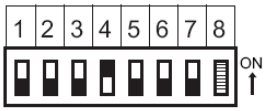
No. 3 Running Test

The tests listed in Table A-6 detect the UBA's operational condition. When the test starts, the following operation is continuously repeated.

If neither the Red or Green LED lights, it means the UBA is operating properly.

If the Red LED flashes, refer to Running Test Error Conditions listed in Table A-6 to discover the probable error condition.

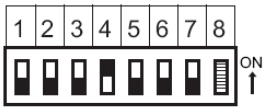
Table A-6 UBA Running Test Error Conditions



DIP Switch Block Settings

UBA Condition	Red LED Status	Green LED Status	Causes and Conditions
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 regarding Circuit Board Removal.
Stacker Jam	2 Flashes	OFF	An Exit Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Exit Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.

Table A-6 UBA Running Test Error Conditions (Continued)



DIP Switch Block Settings

UBA Condition	Red LED Status	Green LED Status	Causes and Conditions
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 change the Lower Sensor Board refer to Section 4 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. A Motor or CPU Board failure may have occurred. Exchange the Motor and/or CPU Board with a known good motor or board. Refer to Section 4 regarding Disassembly Instructions and Circuit Board Removal.
Upper PCB Set-up Error	7 Flashes	OFF	An Upper Sensor Board failure may have occurred. To Exchange the Upper Sensor Board with a known good board. Refer to Section 4 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 with a known good board. Refer to Section 4 regarding Circuit Board Removal.
Cash Box Error	10 Flashes	OFF	A Cash Box Sensor Board failure may have occurred. Check all harness and connectors. Exchange the Cash Box Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.
Solenoid Error	13 Flashes	OFF	A Solenoid or an Upper Sensor Board failure may have occurred. Check all harness and connectors. Exchange the Upper Sensor Board with a known good board. Refer to Section 4 regarding Disassembly Instructions and/or 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 with a known good board. Refer to Section 4 regarding Circuit Board Removal.

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

If diagnostic LED status is different from the Table A-6 listed states, contact JCM Technical Support.

No. 4 Anti-Pullback Mechanism Test

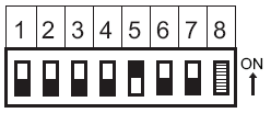
The test listed in Table A-7 detects the Anti-Pullback mechanism operational condition.

When the Green and Red LEDs are out, it indicates the Anti-Pullback mechanism is working properly.

The Green LED will Flash as the Anti-Pullback Mechanism passes the Home Position.

If there are any problems with the centering mechanism, the Red LED will blink 9 times.

Table A-7 Anti-pullback Mechanism Test Error Conditions



DIP Switch Block Settings

Anti-Pullback Mechanism Condition	Red LED Status	Green LED Status	Causes and Conditions
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 with a known good board. Refer to Section 4 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-7 listed states, contact JCM Technical Support.

No. 5 Centering Mechanism Test

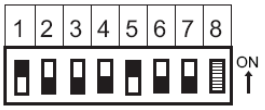
The test listed in Table A-8 detects the Centering Mechanism operational condition.

When the Centering Mechanism is in the Home Position, the Green LED will be steady ON.

When the Green and Red LEDs are out, it indicates the Centering Mechanism is working properly.

If there are any problems with the Centering Mechanism Sensor Board, the Red LED will blink 14 times.

Table A-8 Centering Mechanism Test Error Conditions



DIP Switch Block Settings

Centering Mechanism Condition	Red LED Status	Green LED Status	Causes and Conditions
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 with a known good board. Refer to Section 4 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-8 listed states, contact JCM Technical Support.

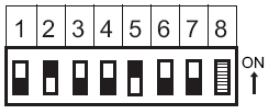
No. 6 Solenoid Test

The test listed in Table A-9 detects the solenoid Sensor's operating condition.

The Green LED will illuminate when the sensor is blocked.

If there are any problems with the Solenoid Sensor Board, the Red LED will blink 8 times.

Table A-9 Solenoid Sensor Test Error Conditions



DIP Switch Block Settings

Solenoid Condition	Red LED Status	Green LED Status	Causes and Conditions
Solenoid Error	13 Flashes	OFF	A Solenoid Upper Sensor Board failure may have occurred. Check all harness and connectors. Exchange the Upper Sensor Board with a known good board. Refer to Section 4 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-9 listed states, contact JCM Technical Support.

No. 7 General Sensor Test

The tests listed in Table A-10 detect 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 LED illuminating conditions for the selected test listed in Table A-10.

Begin sensor testing as follows:

1. Set the UBA into the "Test Mode", by switching DIP Switch No. 8 to ON and applying power to the UBA.

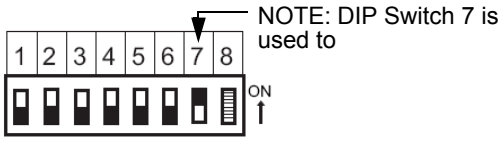
NOTE: If the diagnostic LED illuminating condition results are different from those listed in Table A-10 a fault condition is indicated.

2. Now set DIP Switch 7 to ON and DIP Switch 8 to OFF to initially to start the first test.

NOTE: Leave DIP Switch 7 ON throughout the Sensor Tests.

Select the first Sensor to be tested from Table A-10, turn ON the appropriate test switches, and compare the LED illumination result to the expected adjacent listed Test Condition result.

Table A-10 UBA General Sensor Test Settings



Initial DIP Switch Block Setting

Sensor Name	DIP Switch Conditions	Test Conditions
Entrance Sensor	1 ON, & 2-6 OFF	Open the Upper Guide to check the Entrance Sensor's condition. When the entrance sensor is blocked, the Green LED should illuminate. If the Green LED lights when the Entrance Sensor is blocked, the sensor's condition is normal.
Centering Timing Sensor	1 ON, & 2-6 OFF	Open the Upper Guide to check the Centering Timing Sensor's condition. When the Centering Timing Sensor is blocked, the RED LED should illuminate. 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	Open the Upper Guide as if to check Entrance Sensor's condition and block the Anti-Pullback Entrance Sensor. When the Anti-Pullback Entrance Sensor is blocked, the Green LED should illuminate. If Green LED is lights when the Anti-Pullback Entrance Sensor is blocked, the sensor's condition is normal.
Exit Sensor	2 ON, & 1 + 3-6 OFF	Block the Exit Sensor with a piece of paper or cardboard. When the Exit Sensor is blocked, the Red LED should illuminate. 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	Rotate the Anti-Pullback Roller with your fingers. When the Anti-Pullback Roller is in its Home position, the Green LED should illuminate. If the Green LED flickers ON and OFF while rotating the Anti-Pullback Roller, the sensor's condition is normal.
Centering Home Position Sensor	3 ON, & 1-2 + 4-6 OFF	Move the Centering Mechanism with a Hexagonal Nut Driver. When the Centering Mechanism is in its Home position, the Red LED should illuminate. If the Red LED lights when the Centering mechanism is at its Home position, the sensor's condition is normal.
Transport Motor Encoder Sensor	4 ON, & 1-3 + 5-6 OFF	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 illuminate. If the Green LED flickers On and OFF as the belts are moved, the sensor's condition is normal.
Stacker Motor Encoder Sensor	4 ON, & 1-3 + 5-6 OFF	Rotate the Stacker gear with a finger. When the Stacker Encoder's Sensor is blocked by an interrupter blade, the Red LED should illuminate. If the Red LED flickers ON and OFF while rotating the gear, the sensor's condition is normal.
Pusher Plate Home Position Sensor	5 ON, & 1-4 + 6 OFF	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). When the Pusher Home Sensor Arm is released, the sensor is unblocked and the Green LED will extinguish (go OFF).
Stacker Detection Sensor	5 ON, & 1-4 + 6 OFF	Remove the Cash Box from the frame unit. When the Cash Box Seated Sensor's right lever is blocked, the Red LED should illuminate. If Red LED goes ON when the Cash Box is set into its fully seated position, the sensor's condition is normal

No. 8 Bill Acceptance Test

The tests listed in Table A-11 detects the UBA's ability to properly accept bills.

Begin acceptance testing as follows:

1. Set DIP Switch No. 8 to ON and supply power to the UBA.
2. Set the remaining 6 DIP Switches according to the test selected in Table A-11, and then turn DIP Switch No. 8 to ON to start the test.
3. Insert a bill 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 Bill Acceptance Test afterwords.

Table A-11 UBA Bill Acceptance Test Error Conditions

DIP Switch Block Settings

NOTE: Refer to tables A13, A14 or A15 for error listings relating to this test.

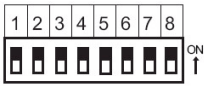
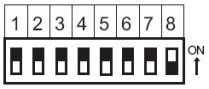
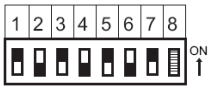
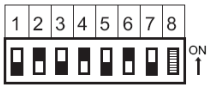
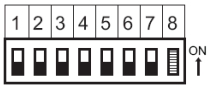
No. 9 DIP Switch Test

The tests listed in Table A-12 reveal the correct DIP Switch operational conditions.

To begin the test perform the following:

1. Begin by setting all DIP Switches to ON and supply power to the UBA.
2. Check that both the Red and Green LEDs light as indicated in Table A-12 Step No. 1.
3. Set Switch No. 8 to OFF as indicated in Table A-12 Step No. 2. The LEDs should both turn OFF
4. Set Switches 2, 4, and 6 to OFF as indicated in Table A-12 Step No. 3.
5. Set Switches 2, 4, and 6 to ON and Switches 1, 3, 5 and 7 to OFF as indicated in Table A-12 Step No. 4. The Red LED should light (go ON) and the Green LED should go OFF.
6. Set all remaining Switches to OFF as indicated in Table A-12 Step No. 5. Both the Green and Red LED should now light.

Table A-12 DIP Switch Test Steps

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

If any diagnostic LED status condition is different from those listed in the Table A-12 Steps, a DIP Switch and/or CPU Board failure may have occurred. Refer to Section 4 regarding Circuit Board Removal. If the error can not be resolved, contact JCM Technical Support.

LED Diagnostics Codes

Malfunction LED Error Codes

Table A-13 lists the possible Malfunction LED Error Codes that can exist when a fault condition occurs.

Table A-13 Malfunction LED Error Codes

LED Status		Error	Causes and Solutions
Red LED	Green LED		
1 Flash	ON	Boot ROM error	Change the CPU Board. Refer to Section 4 regarding Circuit Board Removal.
2 Flashes	ON	1. Incorrect external ROM contents or empty program 2. No program in the external Flash ROM	Change the CPU Board. Refer to Section 4 regarding Circuit Board Removal.
3 Flashes	ON	Internal RAM error	Change the CPU Board. Refer to Section 4 regarding Circuit Board Removal.
4 Flashes	ON	External RAM error	
5 Flashes	ON	Missing Boot EPROM	In UBA-14/24 Units.
1 Flash	OFF	Cash Box Full	Empty the Cash Box and re-install.
2 Flashes	OFF	Stacker Pusher Mechanism fault (Transport Jam Type 1)	Stacker motor may be corrupted. Change the motor if defective. A Stacker Encoder Board failure may have also occurred. Check all harnesses and connectors. Exchange the Stacker Encoder Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Disassembly Instructions and Circuit Board Removal.
3 Flashes	OFF	Transport Jam Type 2	An Exit Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Exit Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.
4 Flashes	OFF	Stacker Encoder signal fault or an Acceptor Jam	A Stacker Encoder Sensor failure may have occurred. Check all lenses for dirt or scratches. To clean the lenses and sensors, refer to Section 2 regarding Preventive Maintenance.Check all harnesses and connectors. A Lower Sensor Board failure may have occurred. Exchange the Lower Sensor Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.
5 Flashes	OFF	Transport Motor speed error	The Transport Motor Speed Encoder Sensor does not detect motor rotation or requires sensor adjustment. Check all harnesses and connectors. A Motor or CPU Board failure may have occurred. Exchange the Motor and/or CPU Board with a known good motor or board. Refer to Section 4 regarding Disassembly Instructions and Circuit Board Removal.
6 Flashes	OFF	Transport Motor failure	
7 Flashes	OFF	Sensor Failure	Replace either the Upper or Lower Sensor Board.
8 Flashes	OFF	Communications Failure	A comunications failure between the Upper Sensor Board and the CPU Board. Replace either the Upper Sensor Board and/or the CPU Board. Check that all cables are properly connected.

Table A-13 Malfunction LED Error Codes (Continued)

LED Status		Error	Causes and Solutions
Red LED	**Green LED**		
9 Flashes	OFF	Anti-Pullback Unit Error	An Anti-Pullback Home Sensor Board and/or a Lower Sensor Board failure may have occurred. Check all harnesses and connectors. Exchange the Anti-Pullback Home Sensor Board and/or a Lower Sensor Board with a known good board. Refer to Section 4 regarding Circuit Board Removal.
10 Flashes	OFF	Cash Box Error	Cash Box not seated or not present. A Cash Box Sensor Board failure may have occurred. Check all harness and connectors. Exchange the Cash Box Sensor Board and/or CPU Board if required with a known good board. Refer to Section 4 regarding Circuit Board Removal.
11 Flashes	OFF	ICB Module Error	ICB Module missing, or requires replacement.
12 Flashes	OFF	Cheated	Sensor blocked at an improper time.
13 Flashes	OFF	Centering Mechanism Solenoid Error	A Solenoid or an Upper Sensor Board failure may have occurred. Check all harness and connectors. Exchange the Upper Sensor Board with a known good board. Refer to Section 4 regarding Disassembly Instructions and/or Circuit Board Removal.
14 Flashes	OFF	Centering Mechanism Error	A Centering Mechanism Home Sensor Board and/or CPU Board failure may have occurred. Check all harnesses and connectors. Exchange the Centering Mechanism Home Sensor Board with a known good board. Refer to Section 4 regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-13 listed states, contact JCM Technical Support.

Initialization LED Error Codes

Table A-14 lists the possible Initialization LED Error Codes that can exist when a fault condition occurs during a UBA initial start-up.

Table A-14 ICB Initialization Errors

LED Status		Error	Causes and Solutions
Red LED	**Green LED**		
3 Flashes	OFF	ICB Module	ICB disabled or Cash Box is Active.
5 Flashes	OFF	Calibration	New Processor Board, or Calibration is correct. Re-calibrate the Sensors (See “Calibration Procedures” on page 6-4 in Section 6 of this Service Manual).
11 Flashes	OFF	ICB Module	Intelligent Cash Box (ICB) Communications Error (Failure Type 02).
12 Flashes	OFF	ICB Module	Intelligent Cash Box (ICB) Check Sum Error (Failure Type 07). Memory partially cleared.
13 Flashes*	OFF	ICB Module	Intelligent Cash Box (ICB) Installed with data from another machine (i.e., data not cleared) (Failure Type 08)*.
14 Flashes	OFF	ICB Module	Intelligent Cash Box (ICB) not initiated (Failure Type 09). Memory not properly cleared.
15 Flashes	OFF	ICB Module	Intelligent Cash Box (ICB) Module Error (Failure AF). No ICB Module detected present on Validator.

*. Occurs when three (3) rapid flashes are present when unit is initially powered-up indicating an ICB failure.

If diagnostic LED status is different from the Table A-14 listed states, contact JCM Technical Support.

LED Reject Codes

Table A-15 lists the possible LED Reject Codes that can exist when a fault condition occurs.

Table A-15 LED Reject Codes

LED Status		Error	Causes and Solutions
Red LED	Green LED		
OFF	1 Flash	Slanted Bill Insertion	Re-insert the bill straight.
OFF	2 Flashes	Magnetic Sensor pattern error	Check Magnetic Head for dirt or scratches. To clean the Magnetic Head, refer to Section 2 regarding Preventive Maintenance. An Upper Sensor Board failure may have occurred. Check all harnesses and connectors. To change the Upper Sensor Board refer to Section 4 regarding Circuit Board Removal.
OFF	3 Flashes	Paper detected inside the Acceptor in standby mode	Remove the paper jam from the Acceptor path and clean the lenses. To clean the lenses and Sensors, refer to Section 2 regarding Preventive Maintenance. An Upper and/or Lower Sensor Board failure may have occurred. Check all harnesses and connectors. To change the Upper/Lower Sensor Board, refer to Section 4 regarding Circuit Board Removal.
OFF	4 Flashes	Optical Sensor level error	
OFF	5 Flash	Banknote feed error Type 1	Banknote movement error (Timing). Check for worn or dirty Belts, poor quality Banknotes or Debris in the Bill Transport Path.
OFF	6 Flashes	Banknote identif-ication error	Remove the Bill from the Acceptor and clean the lenses. To clean the lenses and sensors, refer to Section 2 regarding Preventive Maintenance. An Upper and/or Lower Sensor Board failure may have occurred. Check all harnesses and connectors. To change the Upper/Lower Sensor Board, refer to Section 4 regarding Circuit Board Removal.
OFF	7 Flashes	Barcode Read error	
OFF	8 Flashes	Double Note or Ticket error	
OFF	9 Flashes	Inhibited Bill	Check and set DIP switches properly. Refer to Section 1 regarding Component Names, and Section 6 referencing Software Specifications/Requirements.
OFF	10 Flashes	Return Bill	Bill inhibited by host machine.
OFF	11 Flashes	Reserved	N/A
OFF	12 Flashes	Banknote feed error	Check all bill path sensors.
OFF	13 Flashes	Banknote length error	Check all belts and rollers in the Transport path. To clean the belts and rollers, refer to Section 2 regarding Preventive Maintenance. To change the belts and rollers, refer to Section 4 regarding Disassembly Instructions.
OFF	14 Flashes	Photo Pattern error	Check for dirty/clouded Lenses and clean the Lenses. To clean the lenses, refer to Section 2 of this Service Manual regarding Preventive Maintenance Procedures.
OFF	15 Flashes	UV Sensor error	Clean the UV Sensor and the White Reflecting Block below the Sensor. An Upper Sensor Circuit Board failure may have occurred. To change an Upper Sensor Circuit Board, refer to Section 4 of this Service Manual regarding Circuit Board Removal.

If diagnostic LED status is different from the Table A-15 listed states, contact JCM Technical Support.

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UBA® Series

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

Appendix B

B GLOSSARY

A

1 **Acceptor** – a term used in Communications Section 3 referencing functions sent to, and received from the Bill Acceptor by software commands… See Page 1-1

2 **Anti-Pullback** – a method of preventing Banknotes (Bills) from being illegally removed from a Validator using a string, wire or transparant tape to retrieve it once it has been accepted by the Unit… See Page 4-8

3 **Anti-Pullback Mechanism** – the rotating drum located in the rear portion of the transport to prevent a Banknote (Bill) from being retrieved by an attached piece of string, wire or transparant tape … See Page 1-6

4 **Automatic Centering** – a mechanism for straightening an incorrectly inserted Banknote (Bill) prior to being read by the sensors… See Page 1-6

C

5 **Country Codes** – specific codes given to a country to identify its currency type… See Page 1-12

6 **CPU** – an acronym for Central Processing Unit… See Page 4-3

D

7 **DIP Switch** – Dual Inline Package Switch – a printed circuit board mountable two-position slide switch package containing up to 16 individual switches… See Page 2-10

8 **Downloader** – a proper name given to a specific UBA Flash EPROM programming application (i.e., UBA Downloader V1.11)… See Page 6-2

E

9 **E-Clip** – a semicircular clip resembeling the capital letter “E”, designed to fit into a shaft groove to retain a component in place… See Page 4-1

F

10 **Flash Memory** – electronically programmable memory integrated circuits that can be reused without requiring special erasure procedures… See Page 6-1

I

11 **Identification Sensor** – optical sensors used for reading images on Banknotes (Bills) for comparison to recorded known image information… See Page A-1

M

12 **Magnetic Sensor** – a sensor used to detect the magnetic ink present on certain Banknote (Bill) denominations… See Page A-1

P

13 **Photo-coupler isolation** – an LED and photo sensor combination utilized to isolate electrical signals… See Page 1-7

14 **Pictographs** – small internationally recognized safety and attention symbols placed to the left of Notes, Cautions and Warnings throughout the Manual… See Page 1-1

15 **Pusher Mechanism** – a device used to stack received Banknotes (Bills) into the Cash Box … See Page 4-12

R

16 **RS-232C Communication** – a common serial data communication standard protocol … See Page 1-7

S

17 **Sensor** – a Photo Sensitive Device and LED combination designed to detect timing and movement events… See Page 4-4

18 **Solenoid** – an electro-magnetically retracting piston that mechanically moves a lever arm or other actuator within the UBA… See Page 4-11

T

19 **Transport Unit** – the upper portion of a UBA that moves a Banknote (Bill) past the various Sensors present in the Unit… See Page 4-2

U

20 **UBA** – an acronym for Universal Bill Acceptor… See Page 1-1

21 **USB** – an acronym for Universal Serial Bus… See Page 2-8.

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UBA SYSTEM WIRING DIAGRAMS

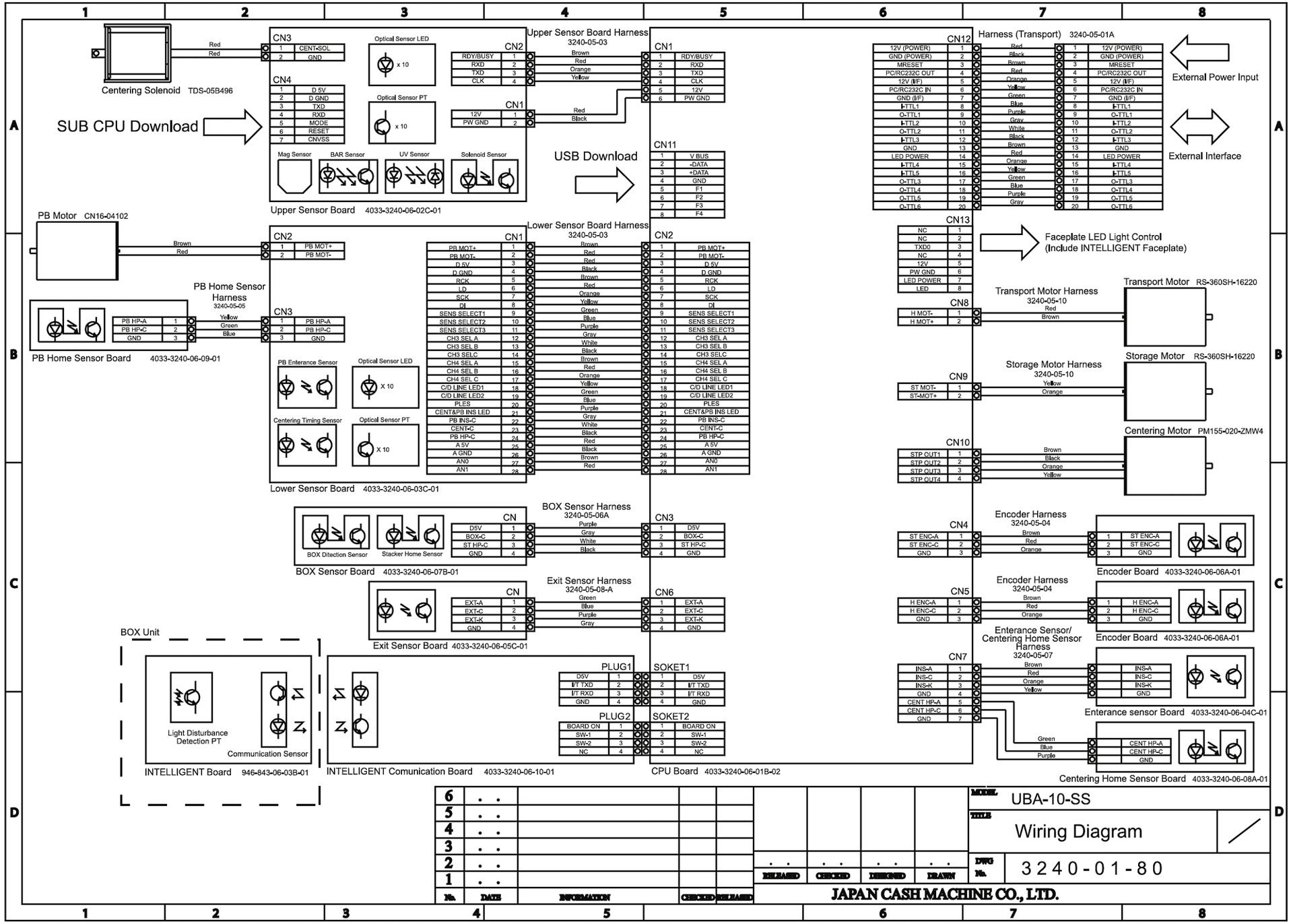

Figure 5-2 UBA-10-SS Bill Acceptor System Wiring Diagram

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System Wiring Diagrams (Continued)

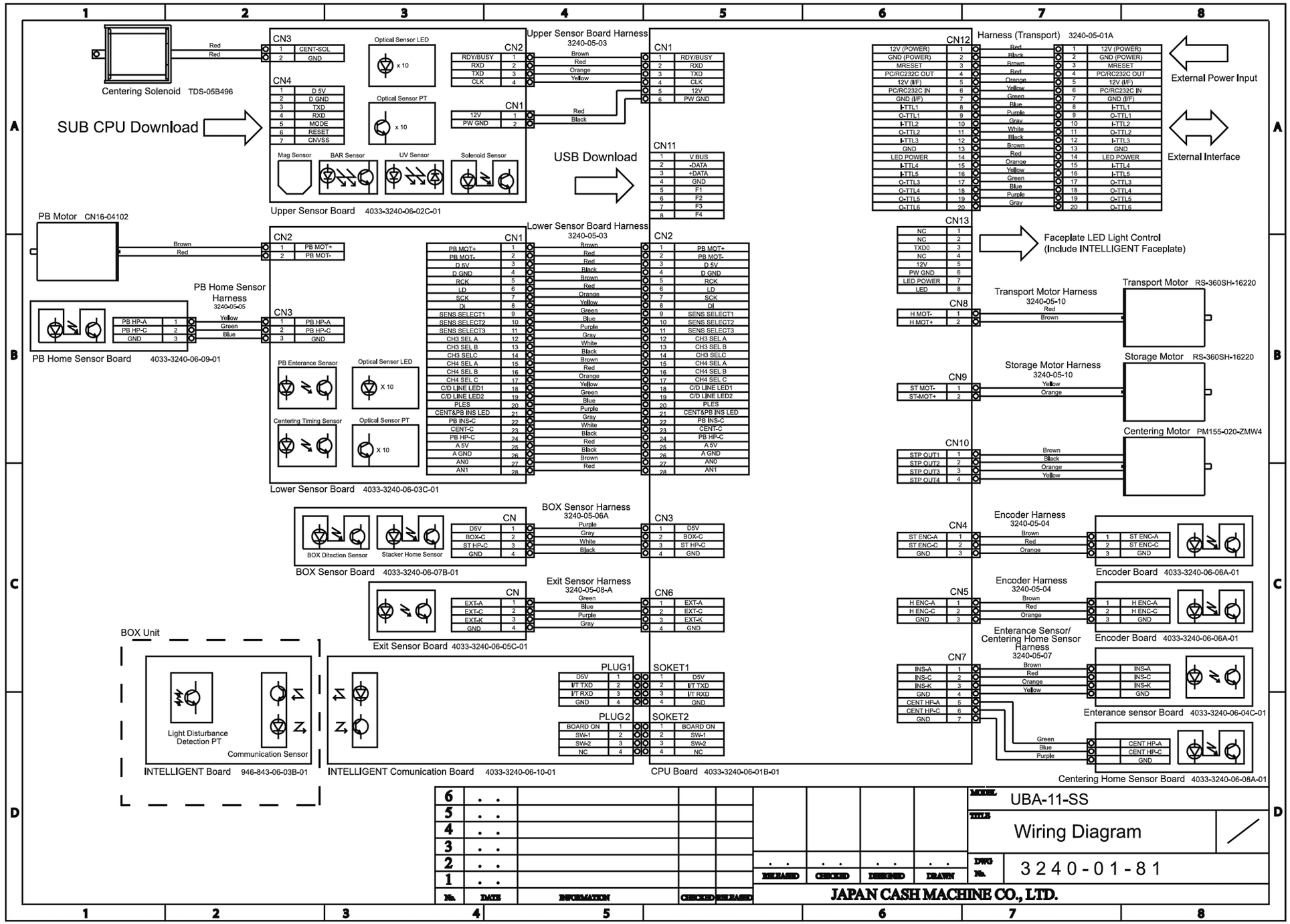

Figure 5-3 UBA-11/12-SS Bill Acceptor System Wiring Diagram

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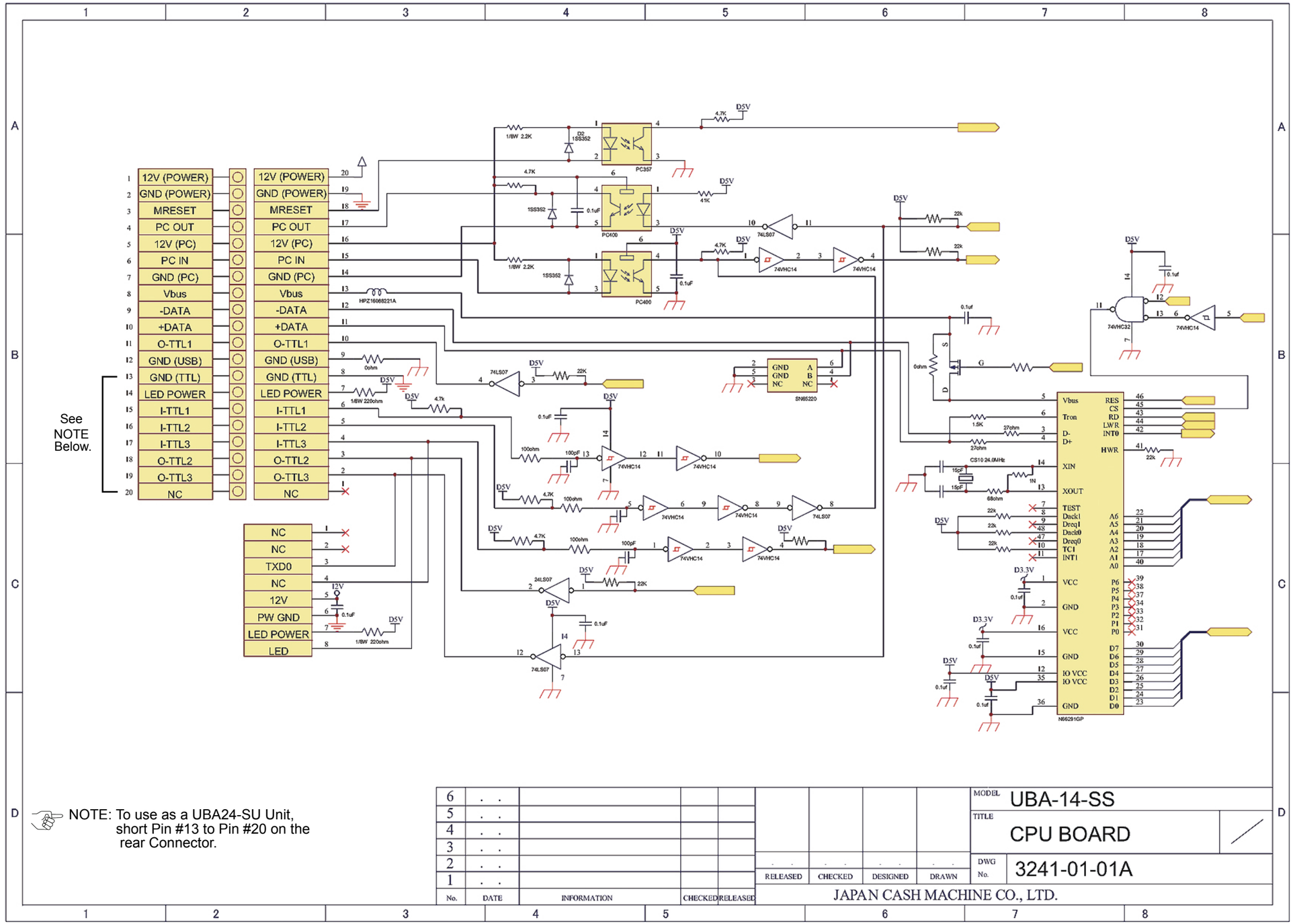
System Wiring Diagrams (Continued)



NOTE: To use as a UBA24-SU Unit, short Pin #13 to Pin #20 on the rear Connector.

No.	DATE	INFORMATION	CHECKED	RELEASED
6				
5				
4				
3				
2				
1				

RELEASED	CHECKED	DESIGNED	DRAWN

JAPAN CASH MACHINE CO., LTD.

MODEL: UBA-14-SS
TITLE: CPU BOARD
DWG No.: 3241-01-01A

Figure 5-4 UBA-14-SS & UBA-24-SS/SU External Connector Interface Circuit Wiring Diagram

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System Wiring Diagrams (Continued)

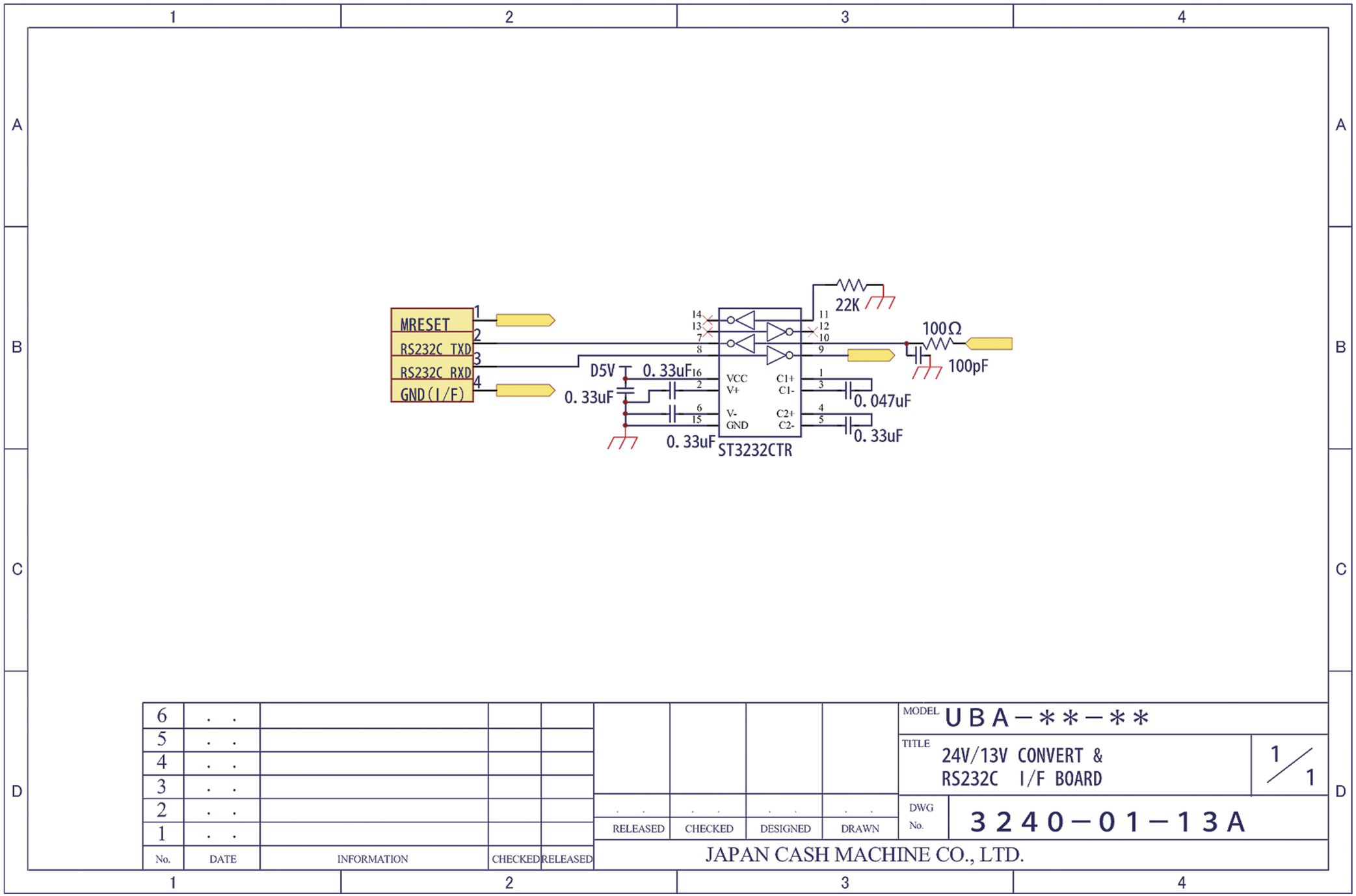

Figure 5-5 UBA-14/24 Optional Conversion Board Interface Circuit Wiring Diagram

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