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Taiko™ Series

Banknote Acceptor

(PUB-7/11)

Operation and Maintenance
Manual

(Revision 4)



P/N 960-100175R_Rev. 4 {EDP #200824}



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| 1 | 2/14/11 | Barcode Coupon Specification Added | |
| 2 | 8/17/11 | Important corrections made to Tables in Section 2. | |
| 3 | 4/09/12 | Added Waffletechnology Cleaning Card availability & Useage information in Section 2, corrected Part Number Information in Section 7 and added 2 Tables to Appendix A. | |
| 4 | 3/25/13 | Added EBA Type Bezel in Section 7. | |
| | | | |

International Compliance

- RoHS Directives  or  or  or  or 
- UL & c-UL Marks  **E142330, Subscriber 857947001, Vol. 2**
- CE Mark 

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Taiko™ Series Banknote Acceptor

Section 1

1 GENERAL INFORMATION

Description

This section provides a general overview of the Taiko™ Banknote Acceptor Series (PUB-7/11) pictured in Figure 1-1. This first section is designed to help you navigate through this guide with ease and provides the following information:

- Taiko™ PUB-7/11 Unit
- Component Names
- Model Description
- Type Description
- Software Description
- Precautions
- Primary Features
- Specifications
- System Configuration

- Unit Dimensions
- International Compliance
- Technical Contact Information.

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

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

Taiko PUB-7/11 Unit



Figure 1-1 Taiko PUB-7/11 Unit

Model Descriptions

Table 1-1 lists the Product Model Number Descriptions.

Table 1-1 Taiko PUB-7/11 Model Number Specifications

| No | Model: PUB - * - *** - * - * - * - * |
|-----|--|
| | No (1) (2) (3) (4) (5) (6) (7) |
| (1) | Validation Method 7 = Optical/Transmissive/Reflection 11 = Optical/Transmissive/Reflection/Magnetic (MAG) |
| (2) | Country Code Type - ISO 3116 based 3-digit codes |
| (3) | Bezel 0 = No Bezel 1 = Banknote Width Minimum = 67mm/Maximum = 82mm (Euro) 2 = Banknote Width Minimum = 75mm/Maximum = 82mm (British) 3 = Banknote Width Minimum = 70mm/Maximum = 82mm (China/Taiwan) 5 = Banknote Width Minimum = 66mm (US Dollar) |
| (4) | Optional Unit 0 = Without Optional Unit 1 = With Optional Interface Pin Assignment Conversion Adaptor Harness Unit (ccTalk Compatible) 2 = Parallel (ID-001) Interface Type (Upper Tray dedicated 16-Pin Connector) 3 = Individual Specification 4 = 24V DC Specification 5 = Barcode Coupon Specification |
| (5) | CPU Board Type 0 = Standard 2 = Interface Pin Assignment (ccTalk Compatible) 3 = Parallel Interface 4 = 24V DC/12V DC* |
| (6) | Optional Code 0 = Standard 1 = Individual Specification |
| (7) | Interface X4 = ID-003 (Serial)/MDB/Pulse/ccTalk 01 = ID-001 (Parallel) 03 = ID-003 (Serial) (For Barcode Specification) 62 = ID-062 |

*. 24V DC is only available when using the Optional 24V DC Version.

Precautions

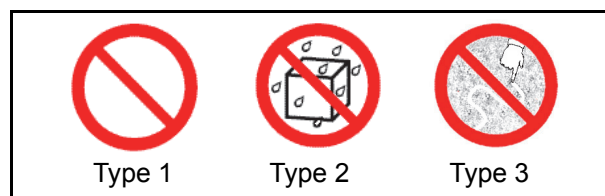


Figure 1-2 Precautionary Symbols

The Figure 1-2 symbols are defined as follows:

- (Type 1) Do not insert a torn, folded, or wet Banknote, as this action may cause a Banknote jam inside the unit.
- (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.
- (Type 3) Do not install the unit into a dusty environment. Dust may affect and degrade the sensor's performance.

USER CAUTIONS

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

Installation Cautions

The Installation Cautions are defined as follows:

- Do not allow the Unit to endure or operate at a high temperature, in high humidity and/or in a dusty environment.
- Do not use the Acceptor where temperature variations widely fluctuate.
- Do not install the Unit into an area where excessive vibration, shock or chemical vapors are present.
- This equipment is intended for indoor use only. Be sure that the Host Machine contains enough protection to avoid wet or dusty conditions when installing.
- Avoid exposing the Unit to direct Sunlight and/or incandescent Lamp illumination having a Gradient Angle of 15 Degree or more, and an illumination index of 3,000 Lux or less.
- Insure that the Host Machine is designed for daily operational access such as maintenance and/or cleaning a Banknote Jam.
- Be sure to use in the specified power range and pin assignment. If not, the Unit may be damaged.
- Be sure to connect the power harness connectors firmly, otherwise an incorrect input/output contact failure may occur.
- Do not pull on the power harness to disconnect its connector or damage may occur.
- Do not obstruct the Acceptor's air holes in order to provide sufficient cooling to the Unit.

Mounting, Dismounting & Transportation

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

- Be sure to turn the Power OFF before mounting or removing the Unit from its permanent location. Plugging or unplugging Connector Plugs from their receptacles while the Power is ON may cause damage to the Unit.
- When reassembling a disassembled Unit Section, ensure that each part is properly placed in its correct location.
- Be sure to carry the Unit by both hands when transporting it. Holding the Unit by one hand may cause personal injury if the Unit accidentally becomes disassembled and falls apart.
- Be careful not to use excessive outside pressure on the Unit, or subject it to excessive vibration during transportation.
- Do not throw or pound hard on the Unit.

Preventive Maintenance

The Preventive Maintenance requirements are defined as follows:

- Be sure the Power to the Unit is OFF before beginning a Maintenance Procedure. The equipment produces improper operating signals while in maintenance mode that may cause personal injury.
- Be sure to remove power to the Unit when opening the upper or lower lid. The active Roller may cause personal injury.

3. Be careful that foreign objects or dust may intrude the Unit when opening the Guide Area.
4. When closing the Unit, ensure all service door locks click into place.
5. If the Validator section is dirty due to dust, foreign objects or other such debris adhering to it, the Banknote acceptance rate will degrade. Clean the Unit once a month to keep its performance stable.
6. Use a soft, lint-free cloth, Cotton swab or Compressed Air spray to clean dust and debris from the Banknote transportation path.
7. Perform cleaning and maintenance regularly when using the equipment in a place where excessive Automobile exhaust emission or Cigarette Smoke may exist.
8. Be sure that the Guide or individual Unit Sections are properly placed in their correct location following a maintenance procedure.
9. Do not redesign or disassemble the Unit. Unauthorized use by inadequately trained personnel, or use outside the original manufacture's intent for operation voids the warranty.



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

Banknote Fitness Requirements

1. The following Banknote types may not validate correctly, or can cause a Banknote jam and/or damage to the Unit's Transport path. Banknotes exhibiting the conditions listed below and illustrated in Figure 1-3 should be avoided:
 - Having perforated or torn areas
 - Having excessive folds
 - Wet or damp
 - Having excessive wrinkles
 - Shabby/worn condition
 - Adhering foreign objects and/or oil.

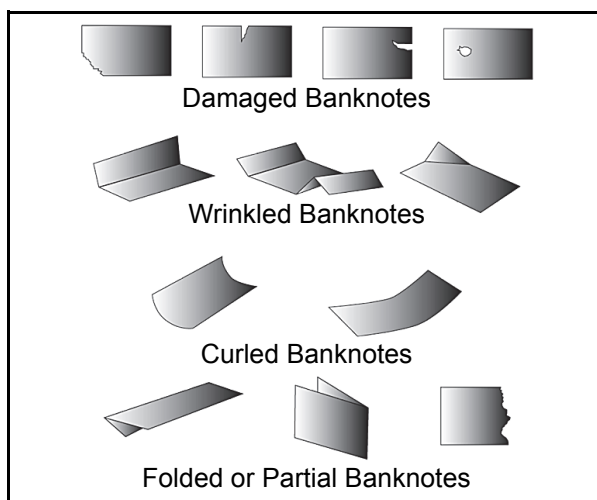


Figure 1-3 Unacceptable Banknotes

Primary Features

The Taiko™ PUB-7/11 Series of Banknote Acceptors contains the following primary features:

- Installation and removal of a TAIKO Unit is very easy because of its clip-on style. Anyone can install a TAIKO Unit quickly.

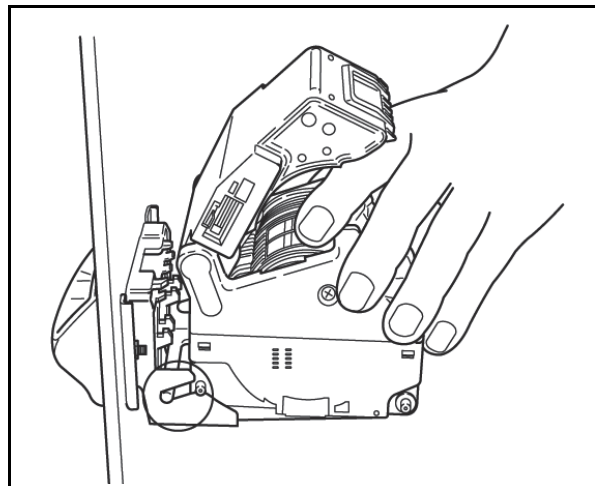


Figure 1-4 Installation Simplicity

- Data scanning frequency can be selected by setting DIP Switches. Scanning once or twice is selectable. The acceptance rate can be improved by setting it to scan twice.

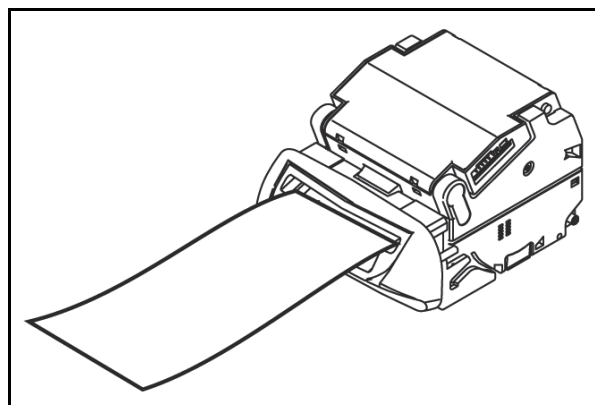


Figure 1-5 Scan Frequency Capability

- This JCM patented Anti-Pullback Mechanism provides powerful protection against Banknote stringing (fishing). The drum rotates every time a Banknote passes through the Unit, and tangles any foreign object attached to the Banknote such as string and/or tape around itself.
- One of five rotations is DIP Switch selectable. The greatest fishing protection is obtained by selecting the five rotation setting.

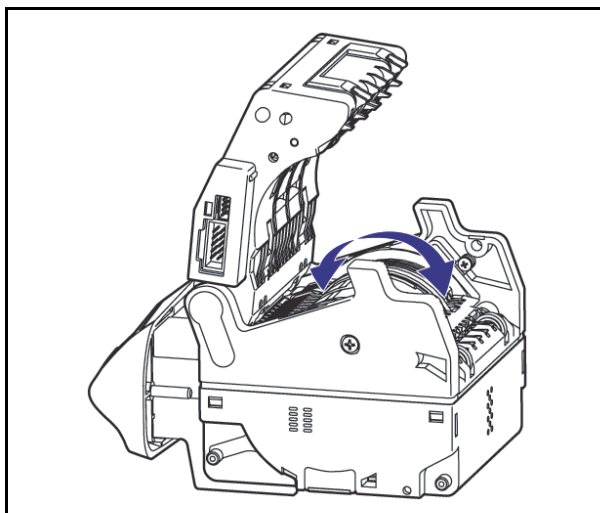


Figure 1-6 Taiko Anti-Pullback Feature

- The Taiko™ Unit can connect to a Palm Pilot® (Tungsten C) hand held unit for ease of programming. The required software program can be downloaded from the Palm easily in the field.

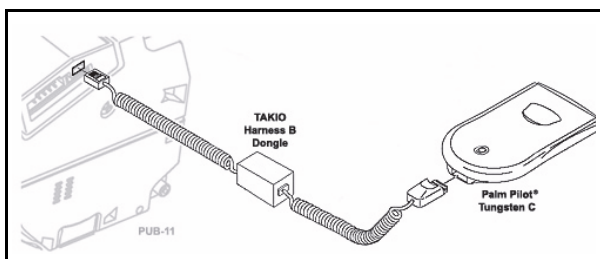


Figure 1-7 Palm Pilot Programmable

- The LED pattern can be changed by DIP Switch settings depending on the user's desire to use Pattern 1 or Pattern 2.

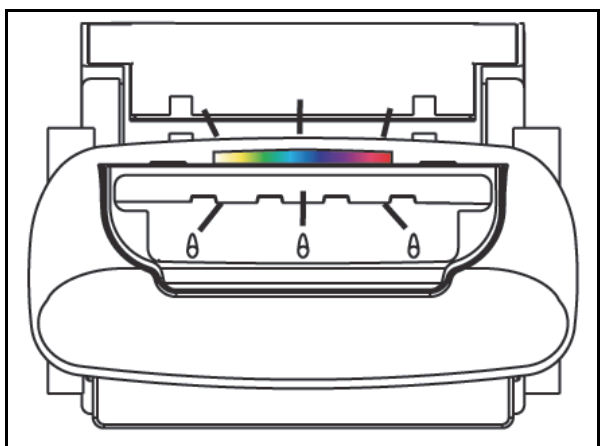


Figure 1-8 LED Pattern Selectable

Product Label

Figure 1-9 and Figure 1-10 illustrates the simple installation instructions contained on the Taiko™ top panel label.



Figure 1-9 PUB-11 Top Panel Instruction Label

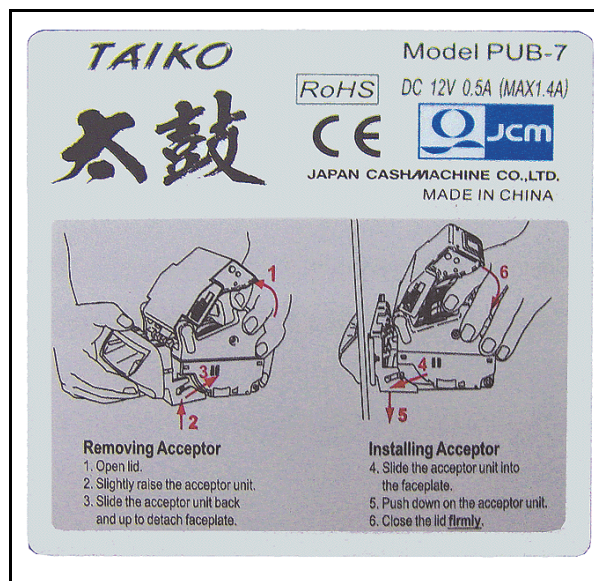


Figure 1-10 PUB-7 Top Panel Instruction Label

Component Names

Figure 1-11 illustrates the Taiko™ PUB-7/11 Component Names and Locations.

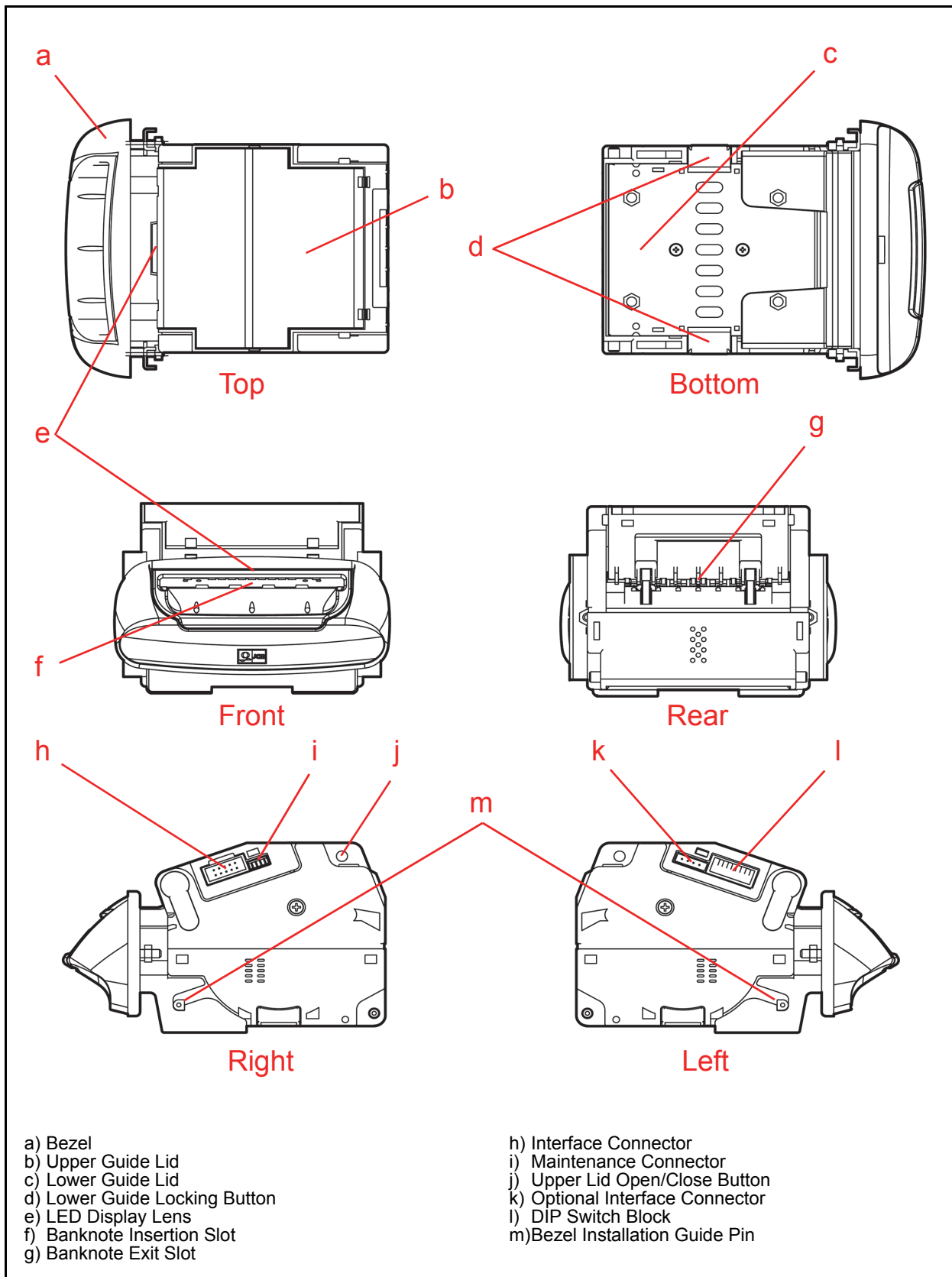


Figure 1-11 Taiko PUB-7/11 Component Names

Specifications

TECHNICAL SPECIFICATIONS

Table 1-2 Taiko PUB-7/11 Technical Specification

| | |
|---------------------------------------|--|
| Acceptance Rate*: | 95% or greater [†] Note: The following banknote types are excluded: a) Banknotes with excess or poor magnetism or unclear graphics b) Double (dual) Notes c) Worn, dirty, wet, stained, torn or excessively wrinkled Banknotes d) Banknotes having folded corners or edges e) Banknotes having the wrong cut dimensions or printing displacement f) Returned Banknotes because of incorrect or failed insertion. |
| Banknote Types Accepted: | Long side: 120~160mm (4.72~6.3 in.) Short side: 62~82mm (2.44~3.23 in.) |
| Barcode Coupon‡: | Standard Specification a) Read code interleaved: 2 of 5 b) Narrow Bar: 0.5mm-0.6mm (0.019-0.023 in.) c) Wide Bar to Narrow Bar ratio = 3:1 d) Characters: 18 Characters e) Print Position: Middle (Divide a Coupon equally on the left, right, top and bottom of the Coupon's center) f) Print Width: Wider than 10mm (0.39 in.) |
| Insertion Direction: | Banknote: Four-way Barcode Coupon: Two way (Barcode Surface Up) |
| Processing Speed**: | Approximately 2 seconds (from Banknote insertion to denomination signal output) Approximately 3 seconds (from Banknote insertion to credit signal output) |
| Validation Method: | PUB 7 = Optical (4 wavelength), Transmissive and Reflection PUB 11 = Optical (4 wavelength), Magnetic, Transmissive and Reflection |
| Diagnostic Indicators ^{††} : | Front Panel Bezel LED, Full color illuminating (Gradation & Solid) |
| Escrow: | 1 note |
| Anti-stringing Mechanism: | Pull-Back (PB) Unit (Anti-pullback system - JCM Patented) |
| Interface: | X4: ID-003 (Serial)/MDB/Pulse/ccTalk** 01: Parallel (ID-001) 03: Serial (ID-003) |

*. When security measures against counterfeiting are implemented, the software may not fulfill the specified acceptance rate level.

†. Refer to the Software Information Sheet related to the specific Country's software.

‡. Refer to the Barcode Coupon Specification.

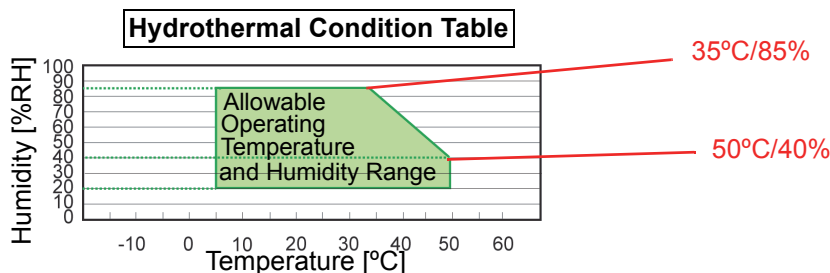
** Excluded Host communication time lag. (Power Supply: +12V DC, Temperature: 25°C ±5°C)

††. DIP Switch selectable.

ENVIRONMENTAL SPECIFICATIONS

Table 1-3 Taiko PUB-7/11 Environmental Specification

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



Unit Dimensions

TAIKO PUB-7 STANDARD BEZEL UNIT OUTSIDE DIMENSIONS

Figure 1-13 illustrates the Taiko™ PUB-7 Type 1, Type 2 or Type 3 Standard Bezel Unit outside dimensions.

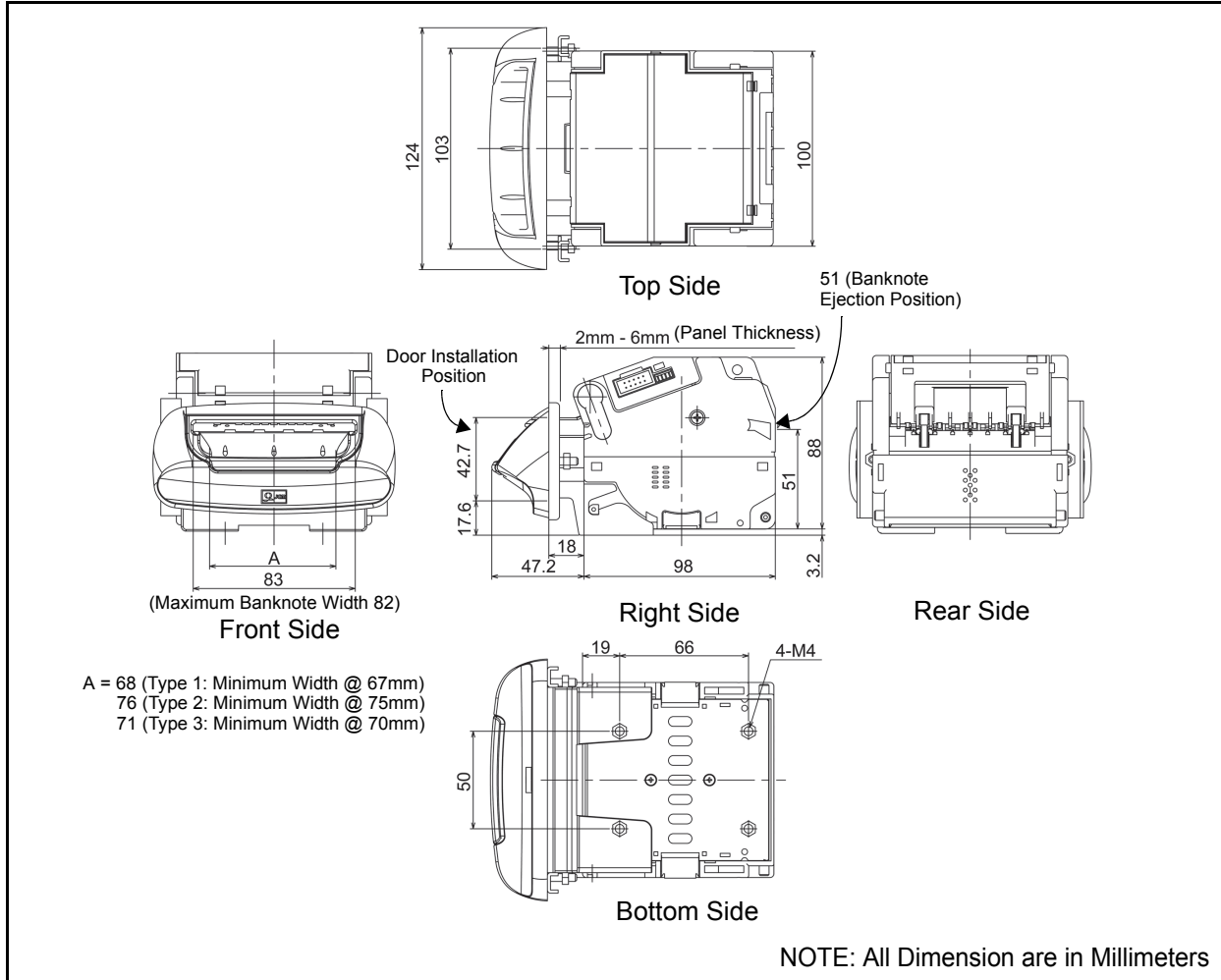


Figure 1-13 Taiko PUB-7 Complete Unit Outside Dimensions

Taiko PUB-7/11 Unit Clearance Dimensions

Figure 1-14 illustrates the Taiko™ PUB-7/11 Unit's open Acceptor clearance dimensions.

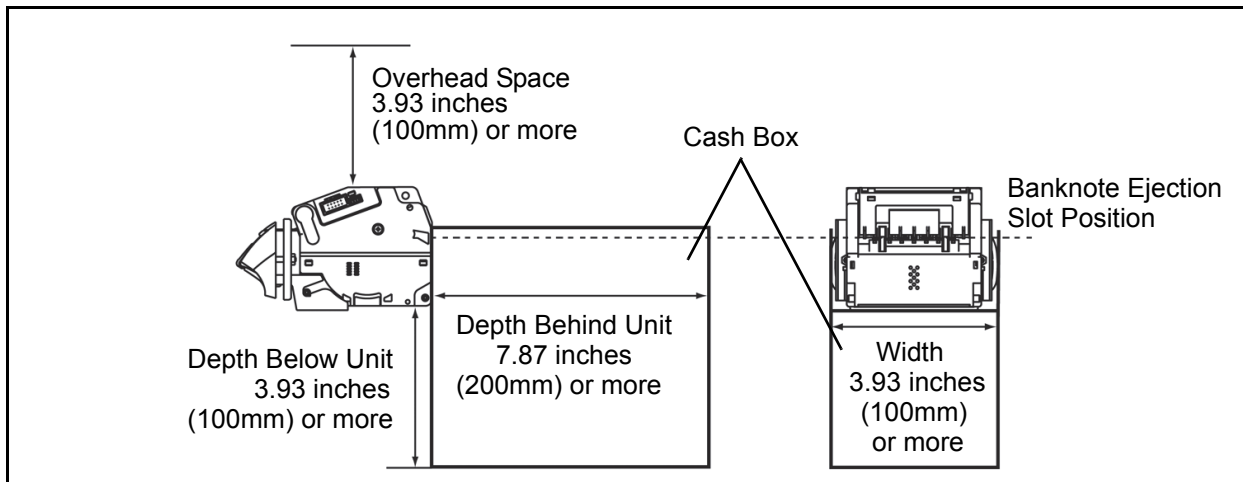


Figure 1-14 Taiko PUB-7/11 Banknote Acceptor's Clearance Dimensions

TAIKO PUB-11 STANDARD US BEZEL UNIT OUTSIDE DIMENSIONS

Figure 1-15 illustrates the Taiko™ PUB-11 Type 5 Standard US Bezel Unit outside dimensions.

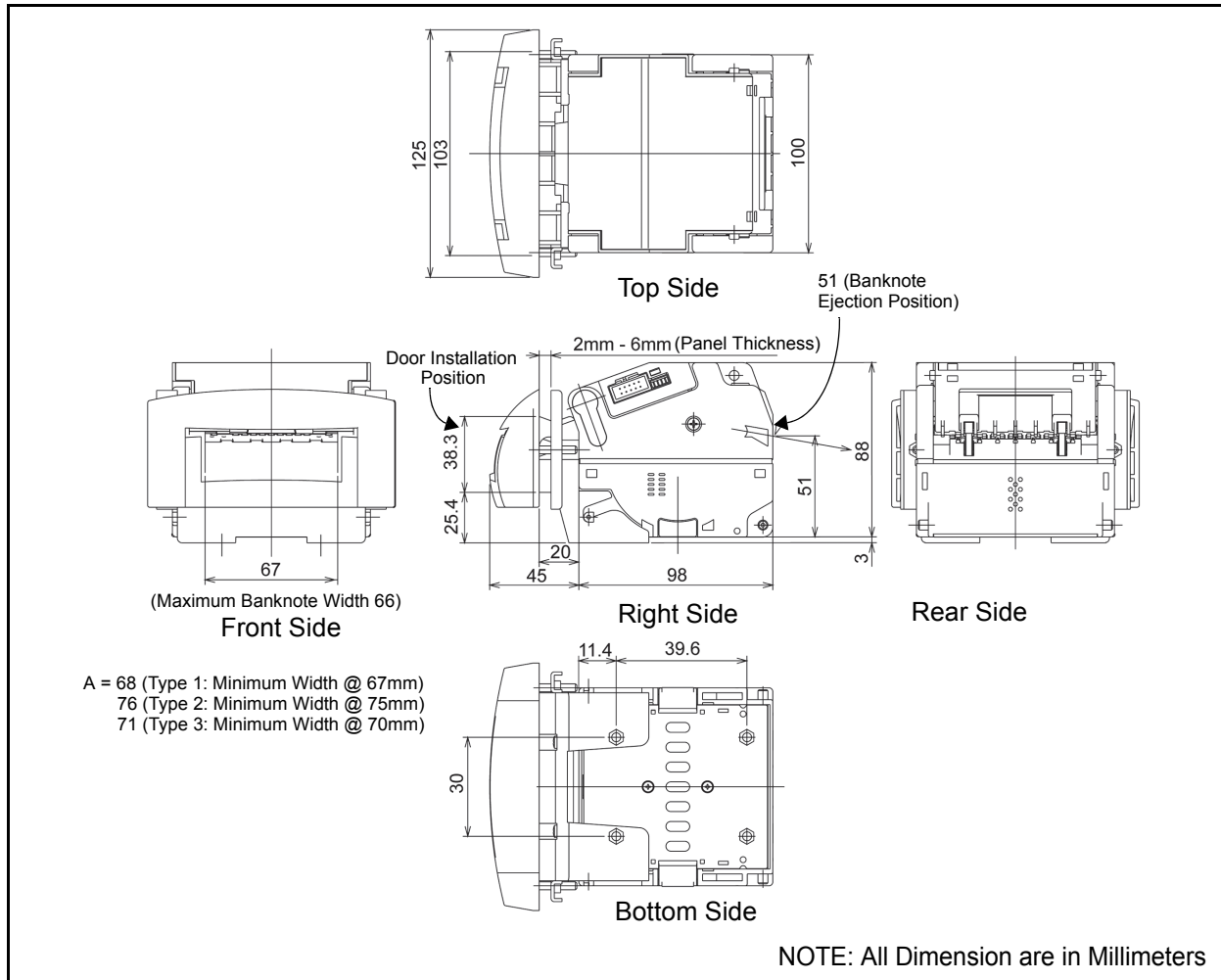


Figure 1-15 Taiko PUB-11 (US Dollar) Complete Unit Outside Dimensions

International Compliance

- RoHS Directives  or  or  or  or 
- UL & c-UL Marks  **E142330, Subscriber 857947001, Vol. 2**
- CE Mark 

Technical Contact Information

To obtain further Technical Information regarding the Taiko™ PUB-7/11 Device, please contact the closest office to your location listed below:

AMERICAS

JCM American

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road, Las Vegas, NV 89119

E-mail: support@jcmglobal.com

EUROPE, AFRICA, RUSSIA & MIDDLE EAST

JCM Europe GmbH

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

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

Muendelheimer Weg 60

D-40472 Duesseldorf Germany

E-mail: support@jcmglobal.eu

UK & IRELAND

JCM Europe (UK Office)

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

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

Unit B, Third Avenue

Denbigh West Business Park

Bletchley, Milton Keynes,

Buckinghamshire MK1 1DH, UK

E-mail: support@jcmglobal.eu

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JCM Gold (HK) Ltd.

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Fax: +852-2929-7003

Unit 1-7, 3/F., Favor Industrial Centre

2-6 Kin Hong Street, Kwai Chung,

N.T. Hong Kong

E-mail: asiapactechsupport@jcmglobal.com

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

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All of these Websites are available via:

<http://www.jcmglobal.com>

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Taiko™ Series Banknote Acceptor

Section 2

2 INSTALLATION

This section provides installation/operation instructions for the Taiko™ Banknote Acceptor Series (PUB-7/11). This section contains the following information:

- Installation and Removal
- DIP Switch Configurations
- Connector Pin Assignments
- Preventive Maintenance
- Clearing Banknote Jam
- Cleaning
- Interface Schematic
- Operational Flowchart.



WARNING: Turn the equipment power OFF before removing or replacing any Taiko™ components!

Installation and Removal

Installing the PUB-7/11 Taiko Bezel

To install or remove a Taiko™ PUB-7/11 Unit Bezel in a door or wall perform the following steps:

1. Create the correct sized opening required to install the Taiko™ Bezel, using the Panel Cut-Out Dimensions shown in Figure 2-1.

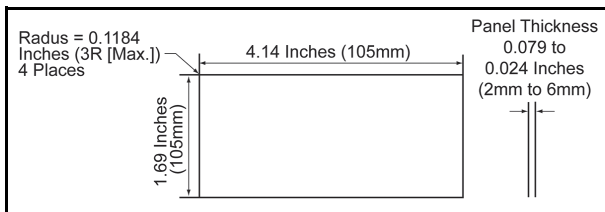


Figure 2-1 Taiko Bezel Cut-Out Dimensions

2. Open the Upper Lid in the arrow direction shown in Figure 2-2 by pressing in on the Upper Lid Open/Close Buttons.

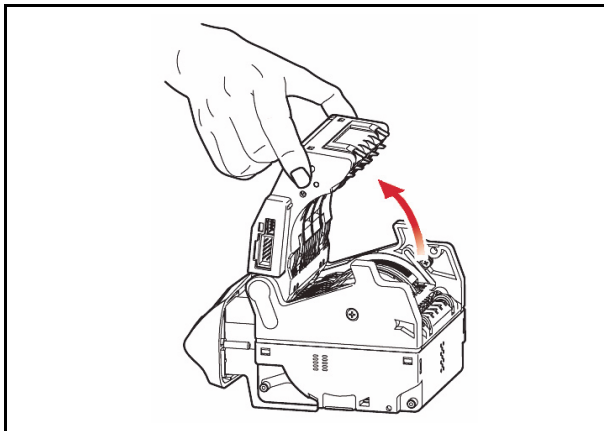


Figure 2-2 Opening Taiko's Upper Lid

3. Hold the Taiko™ Unit by placing your hand under the Upper Lid (See Figure 2-3 ①).
4. Slightly press down on the Bezel and raise the rear Taiko™ Unit body (See Figure 2-3 ②).
5. Slide the body back and up to detach it from the Bezel section (See Figure 2-3 ③).

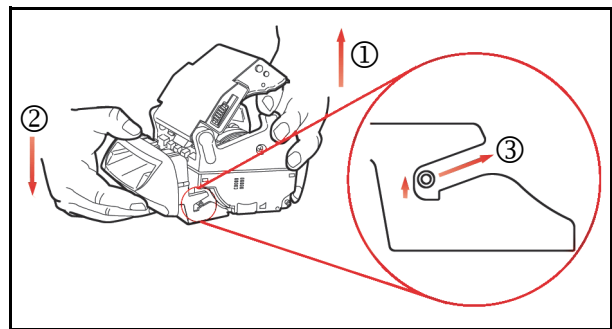


Figure 2-3 Removing the Taiko Bezel

6. Remove the two (2) Bezel Brackets and the two (2) Hexagonal Nuts from the Bezel.
7. Insert the Bezel into the previously cut-out area in the Door Front Panel as shown in Figure 2-4.

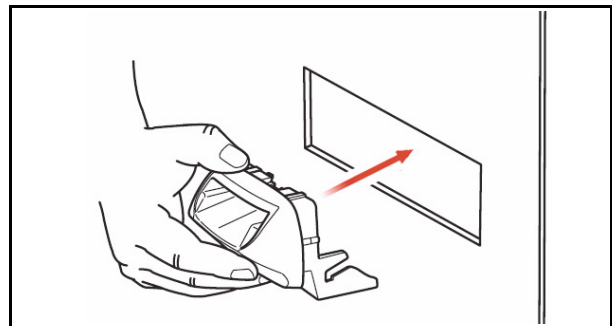


Figure 2-4 Installing the Taiko Bezel

8. Set the Bezel in the door hole and attach the two (2) Bezel Brackets to the back side of the Bezel using the two (2) Hexagonal Nuts previously removed (See Figure 2-5).



WARNING: Tightening the Nuts with too much force can damage the Bezel. The necessary torque is 0.513 foot-lbs (0.7Nm).

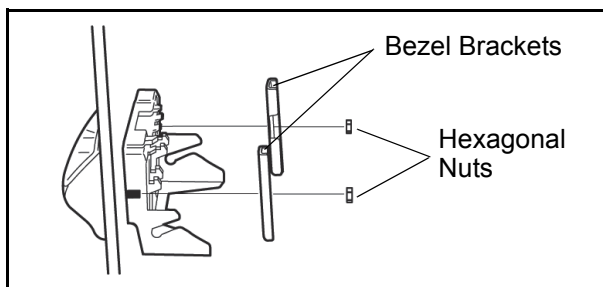


Figure 2-5 Mounting the Taiko Bezel

9. Open the Upper Lid by pressing-in and holding down the Upper Lid Open/Close Buttons while lifting the Lid up (See Figure 2-6 ①).
10. Insert the Bezel Installation Guide Pin into the Bezel Guide (See Figure 2-6 ②).
11. Slide the Guide all the way in and push down on the Taiko™ Unit body (See Figure 2-6 ③).

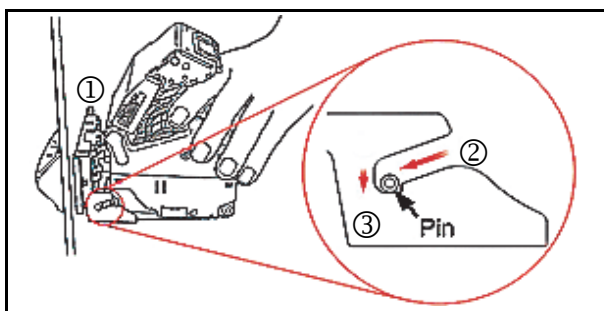


Figure 2-6 Installing the Taiko Bezel

12. Close the Upper Lid firmly until a locking Click is heard (See Figure 2-7).

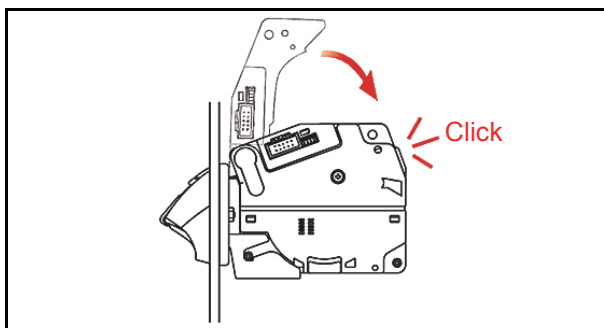


Figure 2-7 Closing the Taiko Upper Lid



Caution: Ensure that the Taiko Unit body and Bezel are firmly installed and stably fixed to the door before closing the Upper Lid; When closing the Upper Lid, be careful not to get your finger caught under the lid when pressing it closed.



NOTE: When removing a Taiko Unit, perform the reverse procedure as previously described.

Power Harness Wiring Procedure

Before beginning to build a Power Interface Connector, ensure one of the two plug types listed in Table 2-1 are available.



NOTE: DIP Switch settings may vary based on Software changes related to the specific Country using the Taiko Unit.

Table 2-1 Power Connector Specifications

| Part | Connector | |
|----------------------|---------------------|---|
| | Lock Lever Socket | Ribbon Cable Socket |
| Plug | XG5M-1032-N (Omron) | XG4M-1030-T (Omron) |
| Semi-Cover | XG5X-0501 (Omron) | N/A |
| Lock Lever 2 | XG4Z-0002 (Omron) | N/A |
| Applicable Wire Size | UL1061 WAG24 | 1.27mm Pitch Flat Ribbon Cable, AWG28 UL2651 or UL20012 |

Once the Power Interface Connector Plug has been fastened to the Power/Signal Cable being used, perform the following steps:

1. Confirm the power is NOT supplied to the new Power Harness.
2. Insert the new Power Harness Socket into the right side Panel Interface Connector of the Taiko™ Unit Body (See Figure 2-8).

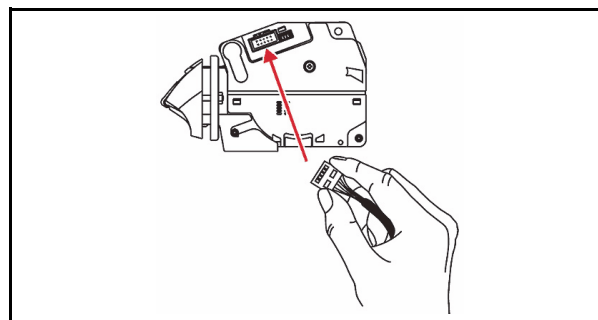


Figure 2-8 Attaching a Taiko Power Connector

3. Supply power and confirm that the Taiko™ Unit operates properly.



WARNING: When installing a Taiko Unit, or connecting its Harness Plug, be sure power to the harness is disconnected. The Taiko Unit is only designed to use a 12 Volt DC input. Any other power level can damage the Taiko Unit! If the power Harness itself is strongly pulled on, it may tear loose from its Connector's Pins.

Clearing a Banknote Jam

Clearing an Upper Area Banknote Jam

When an upper area Banknote jam occurs, the Front Panel Red LED Display will begin blinking three (3) time with a pause between blink sets. Perform the following steps to clear a Banknote jam within the Taiko™ Unit's Acceptor area:

1. Remove Power from the Taiko™ Unit.

2. Press-in on the Upper Lid Open/Close Buttons and open the Upper Lid in the direction indicated in Figure 2-9 ①.
3. Remove the jammed Banknote as illustrated in Figure 2-9 ②.

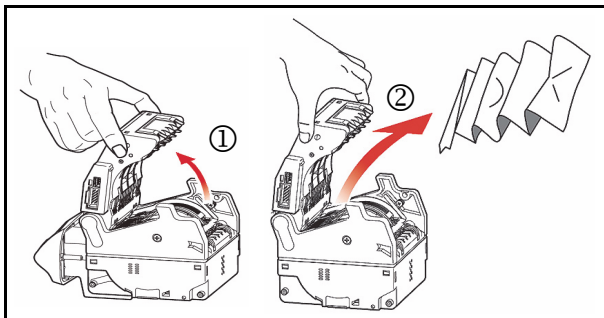


Figure 2-9 Upper Area Banknote Jam Removal



Caution: When closing the Upper Lid, be careful not to get your finger caught under the Lid when closing it!

Clearing a Lower Area Banknote Jam

When a lower area Banknote jam occurs, the Front Panel Red LED Display will begin blinking four (4) times with a pause between blink sets.

Perform the following steps to clear a Banknote jam within the Taiko™ Unit's Transport area:

1. Remove Power from the Taiko™ Unit.
2. Remove the Taiko™ Unit body from the mounted Bezel Section (review removal instruction shown in Figure 2-3 on page 2-1 of this Section).
3. Remove the Lower Lid by pressing-in on the Lower Lid Lock Release Button (See Figure 2-10 ①).
4. Remove the jammed Banknote as illustrated in See Figure 2-10 ②.

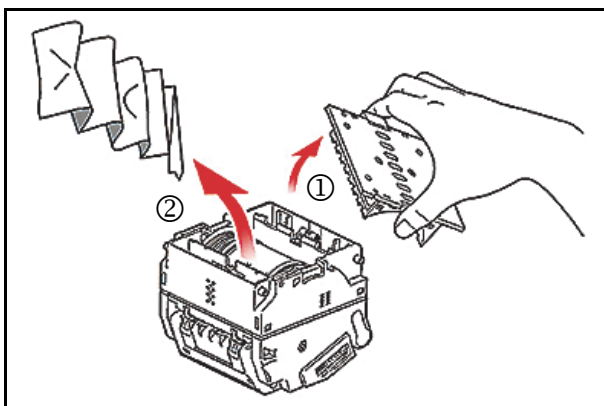


Figure 2-10 Lower Area Banknote Jam Removal



NOTE: Re-install the Taiko Unit onto the Bezel by reversing the steps related to, and beginning from Figure 2-6 on page 2-2 of this Section.

DIP Switch Configurations

The communication method and various Taiko™ Unit functions can be selected by using the Unit's Left side set of DIP Switches (See Figure 2-11).

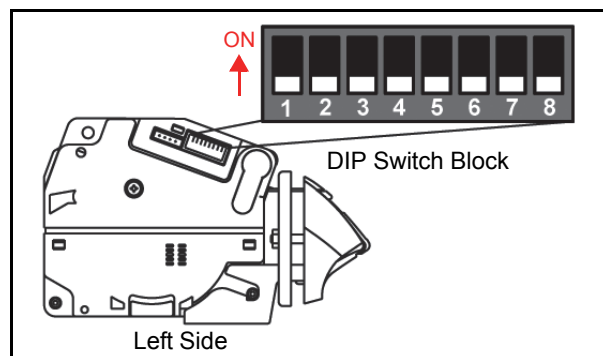


Figure 2-11 Left Side DIP Switch Block Location

Table 2-2 lists the various typical DIP Switch settings available for programming the Taiko™ Unit.

Table 2-2 Typical DIP Switch Settings

| Switch No. | Switch Position Setting | | |
|------------|--|------------------|-----|
| | ON | OFF | |
| 1 | Test Mode 1* | Normal Mode | |
| 2 | Double Scan Mode† | Normal Scan Mode | |
| 3 | Reserved | Reserved | |
| 4 | Five (5) Drum Rotation Cycles‡ (Anti-Fishing Prevention) | Normal Operation | |
| 5 | Refer to the specific Country's Software Specifications | | |
| 6 | 6 | 7 | 8 |
| | OFF | OFF | OFF |
| | ON | OFF | OFF |
| 7 | OFF | ON | OFF |
| | ON | ON | OFF |
| | - | - | ON |
| 8 | IF Setting | | |
| | ID-003 Serial | | |
| | MDB | | |
| 7 | ccTalk (Non-Encrypted) | | |
| | ccTalk (Encrypted)* | | |
| | Pulse† | | |

*. If the encryption code is unclear, refer to the "Encryption Code Initialization Setting Mode" on page 2-5 of this Section to initialize the Encryption Code.


†. For detailed information concerning Communication Settings, refer to the individual Country's Software Information Sheet.

*. For details concerning the Test Mode, refer to "Performance Test Diagnostics" on page 6-7 in Section 6.

†. The acceptance rate will be improved, but operation time will be increased if a Banknote (note) is rejected.

‡. Anti-Fishing prevention will be improved, but operation time will increase.

Table 2-3 lists the various special DIP Switch settings available for programming the Taiko™ Unit.

Table 2-3 Programming DIP Switch Settings


| Setting Function | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 |
|---|------------------|-----|-----|-----|-----|-----|-----|-----|
| Denom. Value Setting Mode | Accept Setting | ON | OFF | OFF | OFF | OFF | ON | OFF |
| | Inhibit Setting | ON | OFF | OFF | OFF | OFF | ON | OFF |
| LED Pattern Setting Mode | Define Pattern 1 | ON | ON | OFF | OFF | OFF | ON | OFF |
| | Define Pattern 2 | ON | OFF | ON | OFF | OFF | ON | OFF |
| Encryption Code Initialization Setting Mode | ON | ON | ON | ON | ON | ON | OFF | OFF |
| Download Mode* | ON | OFF | OFF | OFF | OFF | OFF | ON | ON |
| Adjustment Mode* | ON | ON | OFF | OFF | OFF | OFF | OFF | ON |

*. For details concerning Taiko™ Software Download and Adjustment Modes, refer to "Software Downloading Procedure" on page 6-2 in Section 6 of this Service Manual.

Denomination Setting Mode

Perform the Accept/Inhibit setting function for the Banknote Denomination required based on the Software requirements of the Specific Country in which it is being used. The default settings are to accept all Denominations of the Specific Country.

ACCEPT SETTING MODE

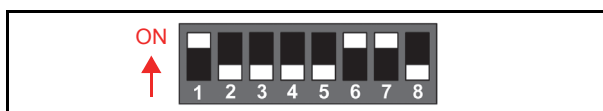
To establish an "Accept" setting function, perform the following steps:

**Figure 2-12 "Accept" Mode DIP Switch Settings**

1. Remove power from the Taiko™ Unit.
2. Set DIP Switch No.1 and No.5 to **ON** (See Figure 2-12 above).
3. Re-apply Power to the Taiko™ Unit.
4. After the Front Panel LED display flashes White, set DIP Switch No.1 to the **OFF** position to enter the Setting Mode.
5. Insert the Banknote Denomination to be accepted into the Insertion Slot. The setting registered is correct if the Front Panel LED Display remains lit a light **Blue** Color, and the inserted Banknote is returned.
6. Insert the next Banknote Denomination to be accepted until all required values have been processed, set and accepted.

INHIBIT SETTING MODE

To establish an "Inhibit" setting function, perform the following steps:

**Figure 2-13 'Inhibit' Mode DIP Switch Settings**

1. Remove Power from the Taiko™ Unit.

2. Set DIP Switch No.1, No. 6 and No.7 to **ON** (See Figure 2-13).
3. Re-apply Power to the Taiko™ Unit.
4. After the Front Panel LED display flashes White, set DIP Switch No.1 to the **OFF** position to enter the Setting Mode.
5. Insert the Banknote Denomination to be inhibited into the Insertion Slot. The setting is registered if the Front Panel LED display remains lit an **Orange** Color, and the inserted Banknote is returned.
6. Insert next Banknote Denomination to be inhibited until all required values have been processed.

The Banknote 'Accept' or 'Inhibit' programing operations are now complete.



NOTE: The Accept/Reject setting for a Banknote denomination can be confirmed by observing the Front Panel LED Color. After an initial operation is performed, the LED will flash a number of times equal to the total number of Banknote denominations processed. **Blue** indicates an 'Accept' setting and **Red** indicates a 'Reject' setting.

LED Pattern Setting Mode

The LED Color Pattern Type can be changed according to user preference. Select between Pattern 1 or Pattern 2. The default setting is Pattern 1.

DEFINING PATTERN 1

To define a "Pattern 1" (a flashing Color Sequence) operating function, perform the following steps:

1. Remove Power from the Taiko™ Unit.
2. Set DIP Switch No.1, No.2 and No.7 to **ON** (See Figure 2-14).

**Figure 2-14 Define Pattern 1 DIP Switch Settings**

3. Re-apply Power to the Taiko™ Unit.
4. Set DIP Switch No.1 to **OFF** to cause the LED Display Pattern to emulate "Pattern 1" when operating.

DEFINING PATTERN 2

To define a "Pattern 2" (a fading Color Sequence) operating function, perform the following steps:

1. Remove Power from the Taiko™ Unit.
2. Set DIP Switch No.1, No.3 and No.7 to **ON** (See Figure 2-15).

**Figure 2-15 Define Pattern 2 DIP Switch Settings**

3. Re-apply power to the Taiko™ Unit.
4. Set DIP Switch No.1 to **OFF** to cause the LED Display Pattern to emulate "Pattern 2" when operating.

Encryption Code Initialization Setting Mode

When using the ccTalk Communication Mode (e.g., The Encryption Mode) and the Encryption Code is unknown, set the Encryption Code Initialization Setting to start the Encryption Code in order to identify the last 6 Digits of the specific Taiko™ Serial Number located on the back side of a Taiko™ Unit.

To set the “Encryption Mode” operating function, perform the following steps:

1. Remove Power from the Taiko™ Unit.
2. Set DIP Switch No.1 through No.6 to **ON**, and Switches No.7 and No.8 to **OFF** (See Figure 2-16).

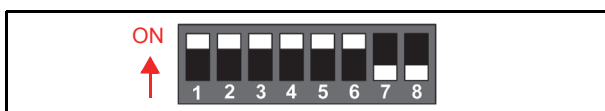


Figure 2-16 Encryption Mode DIP Switch Settings

3. Re-apply Power to the Taiko™ Unit.
4. Set DIP Switch No.1 to **OFF** to initialize the Encryption Code setting.

The Taiko™ installation DIP Switch settings are now complete.

Error Codes & Conditions

Table 2-4 lists the **Red** Error Code flash sequence definitions displayed by the Taiko™ Front Panel LED indicator.

Table 2-4 Red LED Error Code Flash Definitions

| Red Flashes | Error Indicated |
|-------------|---|
| 2 | ROM Error |
| 3 | Banknote Jam inside Ejection Slot |
| 4 | Banknote remains inside on the Transport Path |
| 5 | EEPROM Read/Write Error |
| 6 | Motor Error |
| 8 | Entrance Solenoid Error |
| 9 | Exit Solenoid Error |
| 12 | Sensor Operation with Abnormal Timing |

Interface Connector Pin Assignments

Table 2-5, Table 2-6, Table 2-7 and Table 2-8 list the various Connector Pin Labels for adapting these available Communication Standards to the Unit.

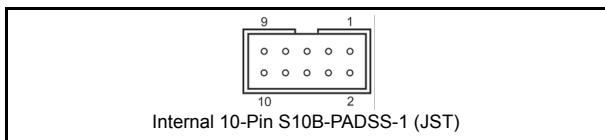


Figure 2-17 ID-003/MDB/Pulse Interface Connector

Table 2-5 Serial ID-003/MDB Interface Pin Assignments

| Pin No. | Signal Name | I/O* | Function |
|---------|-------------|------|---|
| 1 | NC | - | No Connection |
| 2 | NC | - | No Connection |
| 3 | RXD- | IN | Data Receive Line (Active when current is present) |
| 4 | RXD+ | | |
| 5 | TXD- | OUT | Data Send Line (Active when current is present) |
| 6 | TXD+ | | |
| 7 | Vcc | - | +12V DC Power (7-Pin) |
| 8 | Vss | - | Power Ground |
| 9 | Vcc | - | +24V DC Power (9-Pin) [†] |
| 10 | NC | - | No Connection |

*. I/O (Input/Output) is the function viewed from the Banknote Acceptor Side.

[†]. 24V DC is available only when the optional 24V DC Specification is used.

Table 2-6 ccTalk Interface Pin Assignments

| Pin No. | Signal Name | I/O* | Function |
|---------|-------------|--------|------------------------------------|
| 1 | ccTalk | IN/OUT | ccTalk Send/Receive Line |
| 2 | ccTalk | - | ccTalk GND Line |
| 3 | NC | - | No Connection |
| 4 | NC | - | No Connection |
| 5 | NC | - | No Connection |
| 6 | NC | - | No Connection |
| 7 | Vcc | - | +12V DC Power (7-Pin) |
| 8 | Vss | - | Power Ground |
| 9 | Vcc | - | +24V DC Power (9-Pin) [†] |
| 10 | NC | - | No Connection |

*. I/O (Input/Output) is the function viewed from the Banknote Acceptor Side.

[†]. 24V DC is available only when the optional 24V DC Specification is used.

Table 2-7 Pulse Interface Pin Assignments

| Pin No. | Signal Name | I/O* | Function |
|---------|--------------------|------|--|
| 1 | NC | - | No Connection |
| 2 | NC | - | No Connection |
| 3 | Enable/Disable (-) | IN | Enable/Disable Signal Input Line (Enabled when current is present) (Disabled when current is present) No Connection |
| 4 | Enable/Disable (+) | | |
| 5 | Vend (-) | OUT | Pulse Signal Output Line (Active when current is present) |
| 6 | Vend (+) | | |
| 7 | Vcc | - | +12V DC Power (7-Pin) |
| 8 | Vss | - | Power Ground |
| 9 | Vcc | - | +24V DC Power (9-Pin) [†] |
| 10 | NC | - | No Connection |

*. I/O (Input/Output) is the function viewed from the Banknote Acceptor Side.

[†]. 24V DC is available only when the optional 24V DC Specification is used.

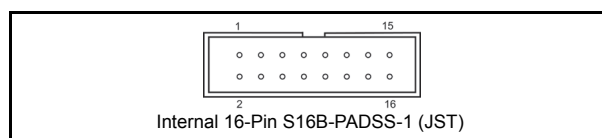


Figure 2-18 ID-001 Interface Connector

Table 2-8 Parallel ID-001 Interface Pin Assignments

| Pin No. | Signal Name | I/O* | Function |
|---------|-------------|------|---------------------------------|
| 1 | Vcc | - | +12V DC Power |
| 2 | Vss | - | +12V DC Power Ground |
| 3 | Vss | - | Power Supply Ground |
| 4 | NC | - | No Connection |
| 5 | ACK | IN | ACKnowledge Signal Receive Line |
| 6 | REJ | | REject Signal Receive Line |
| 7 | INH | | INHibit Signal Receive Line |
| 8 | VALID | OUT | Vend VALID Send Signal Line |
| 9 | VEND1 | | VEND1 Valid Send Signal Line |
| 10 | VEND2 | | VEND2 Valid Send Signal Line |
| 11 | VEND3 | | VEND3 Valid Send Signal Line |
| 12 | NC | - | No Connection |
| 13 | NC | - | No Connection |
| 14 | BUSY | OUT | BUSY Signal Send Line |
| 15 | ABN | | ABortNote Signal Line |
| 16 | STKF | | STackerFull Signal Line |

* I/O (Input/Output) is the function viewed from the Banknote Acceptor Side.

Cleaning Procedures

To clean the Taiko™ Unit, gently rub the Sensors and Rollers clean using a dry, soft, lint-free cloth ONLY.

Do not use any Alcohol, solvents, Citrus based products or scouring agents that may cause damage to the Validation Section Sensors and/or Rollers.

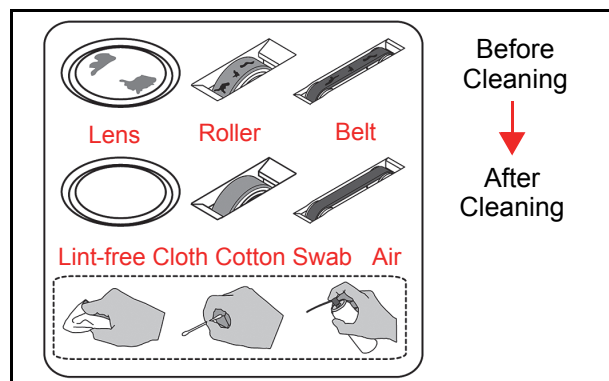
Sensor and Roller Cleaning Procedure

To clean the Taiko™ Unit, proceed as follows:

1. Turn the Taiko™ Unit and Host Machine's Power Supply's **OFF**.
2. Open the Taiko™ Upper Guide Lid.
3. Clean the appropriate path and Lens of each Sensor (See Figure 2-21 areas "a" through "k" and the corresponding descriptions listed in Table 2-9 to locate each Sensor that require cleaning).



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

**Figure 2-19** Sensor Cleaning

Available Cleaning Card

A JCM Waffletechnology Bill Validator Cleaning Card is now available (JCM Part No. 501-000252R, Manufacturer's Part No. KWJCM-B5B15M). 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 Taiko (PUB-7/11) Validator (See Figure 2-20).

**Figure 2-20** 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 Banknote Validator.
2. The Cleaning Card will be accepted and then automatically returned.
3. Dispose of used Card in an environmentally safe manner.

For more information and a list of Authorized Waffletechnology Distributors visit:

<http://www.jcmwaffletechnology.com>.

Taiko Sensor and Roller Locations

Figure 2-21 illustrated the various Taiko Sensor cleaning locations, and Table 2-9 respectively lists the Taiko Sensor Type Cleaning Methods.

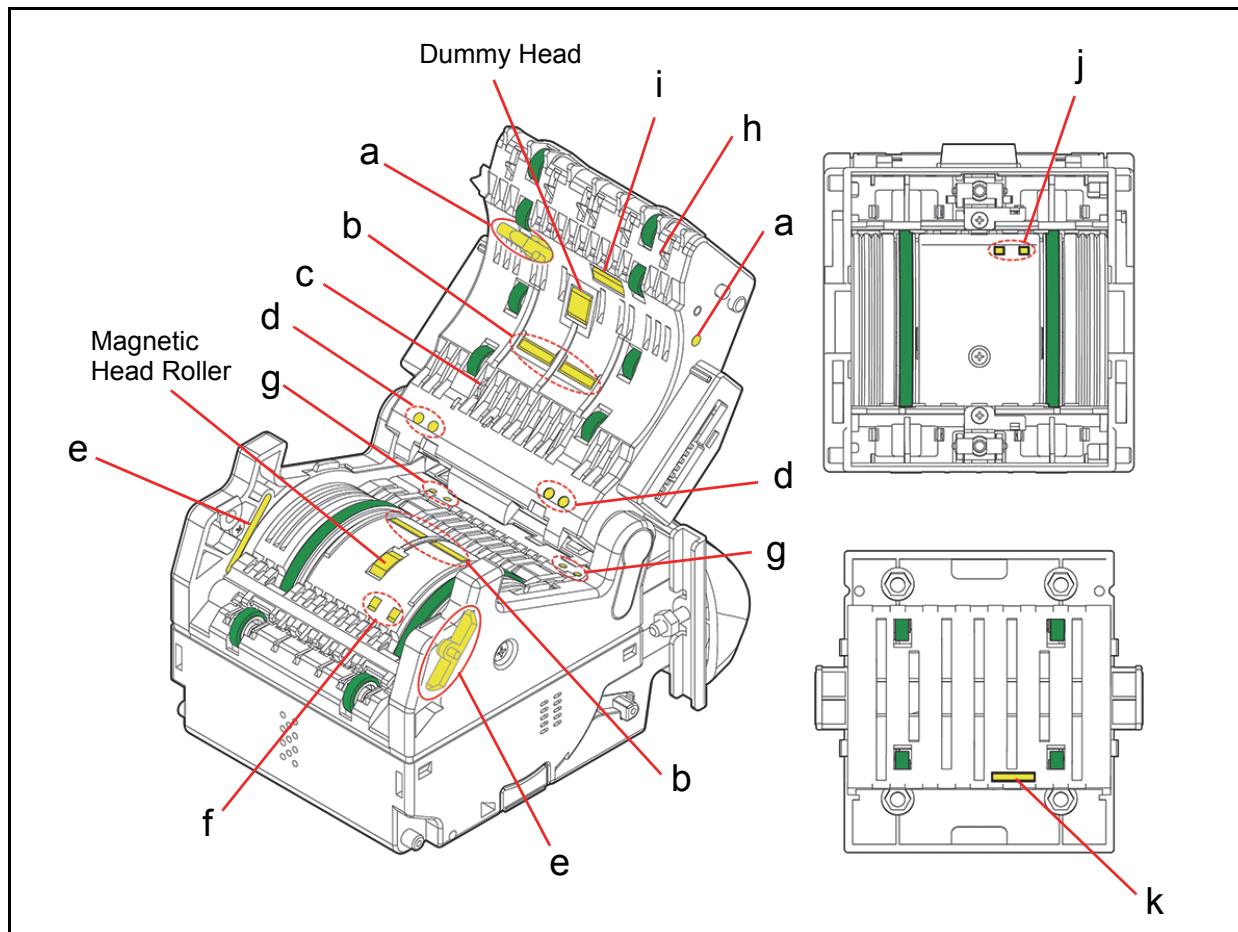


Figure 2-21 Taiko Sensor Cleaning Locations

Table 2-9 Taiko Sensor Type Cleaning Methods

| Sym. | Sensor Type | Cleaning Method |
|------|------------------------------|---|
| a | Side Sensor | Wipe clean using a lint free cloth or blow clean using Compressed Air.* |
| b | Validation Sensor | |
| c | Entrance Flapper Sensor | |
| d | Entrance Sensor | |
| e | Side Sensor Prism | |
| f | Upper Transport Sensor | |
| g | Entrance Sensor Prism | |
| h | Bend Lever Sensor | |
| i | Upper Transport Sensor Prism | |
| j | Lower Transport Sensor | |
| k | Lower Transport Sensor Prism | |

*. Wipe and clean all of the Rollers and Green Belts shown in Figure 2-21 using a soft lint-free Cloth.

Operational Check

Once the Taiko™ Unit is installed, perform the following steps to ensure the Taiko™ Unit is in its normal Operational Mode:

1. Remove Power and perform Test No.5 “Acceptance Test Procedure” on page 6-9 of Section 6 in this Service Manual.
2. Return the DIP Switches to their pre-Test Operational Mode positions, and re-apply Power to the Taiko™ Unit.

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Standard Interface Circuit Schematics

Figure 2-22 illustrates the Taiko™ Serial ID-003/MDB Communications Interface Schematic Diagram

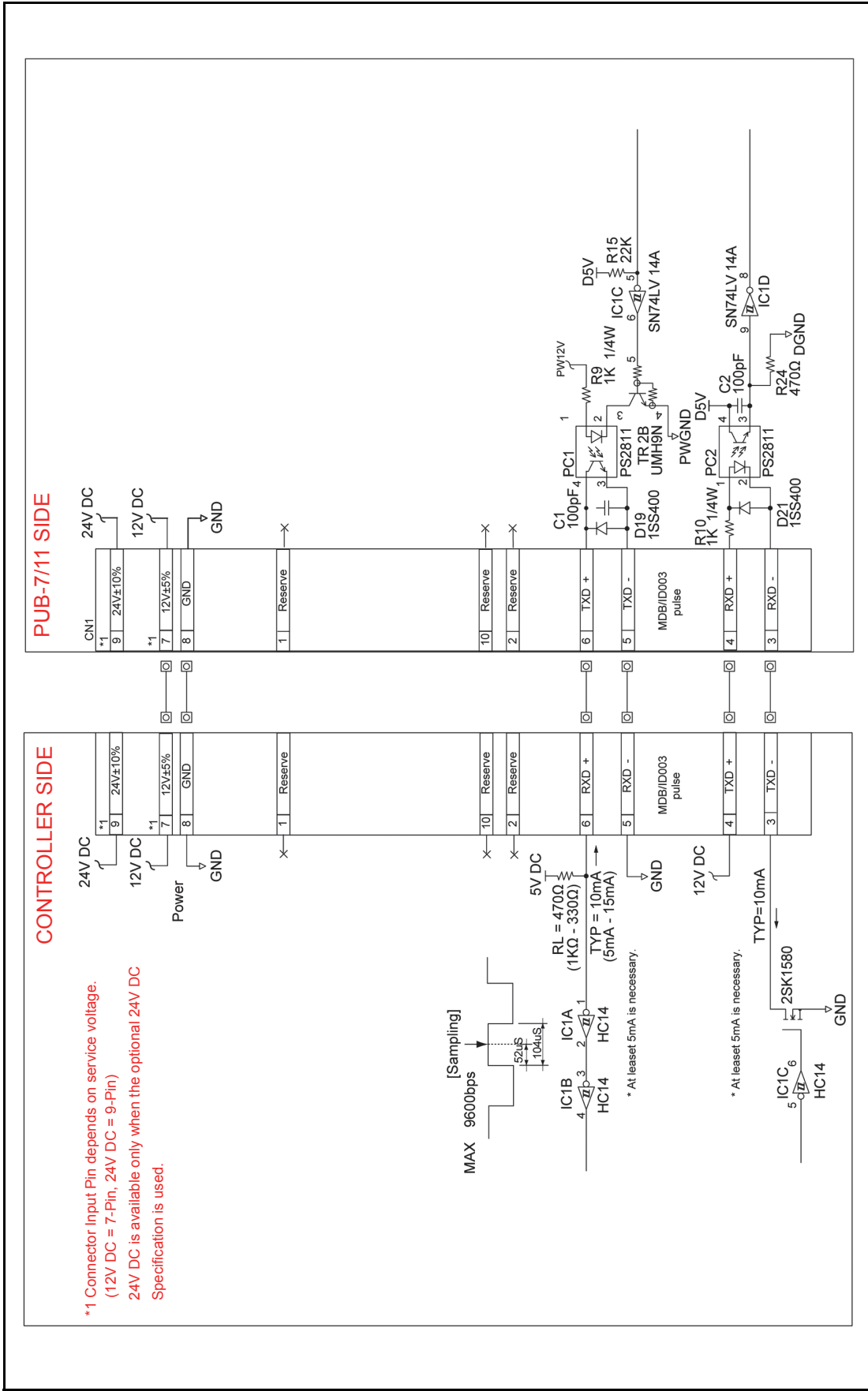


Figure 2-22 Serial ID-003/MDB Communications Interface Schematic Diagram

Standard Interface Circuit Schematics (Continued 2)

Figure 2-24 illustrates the Taiko™ Pulse Communications LED Schematic Diagram.

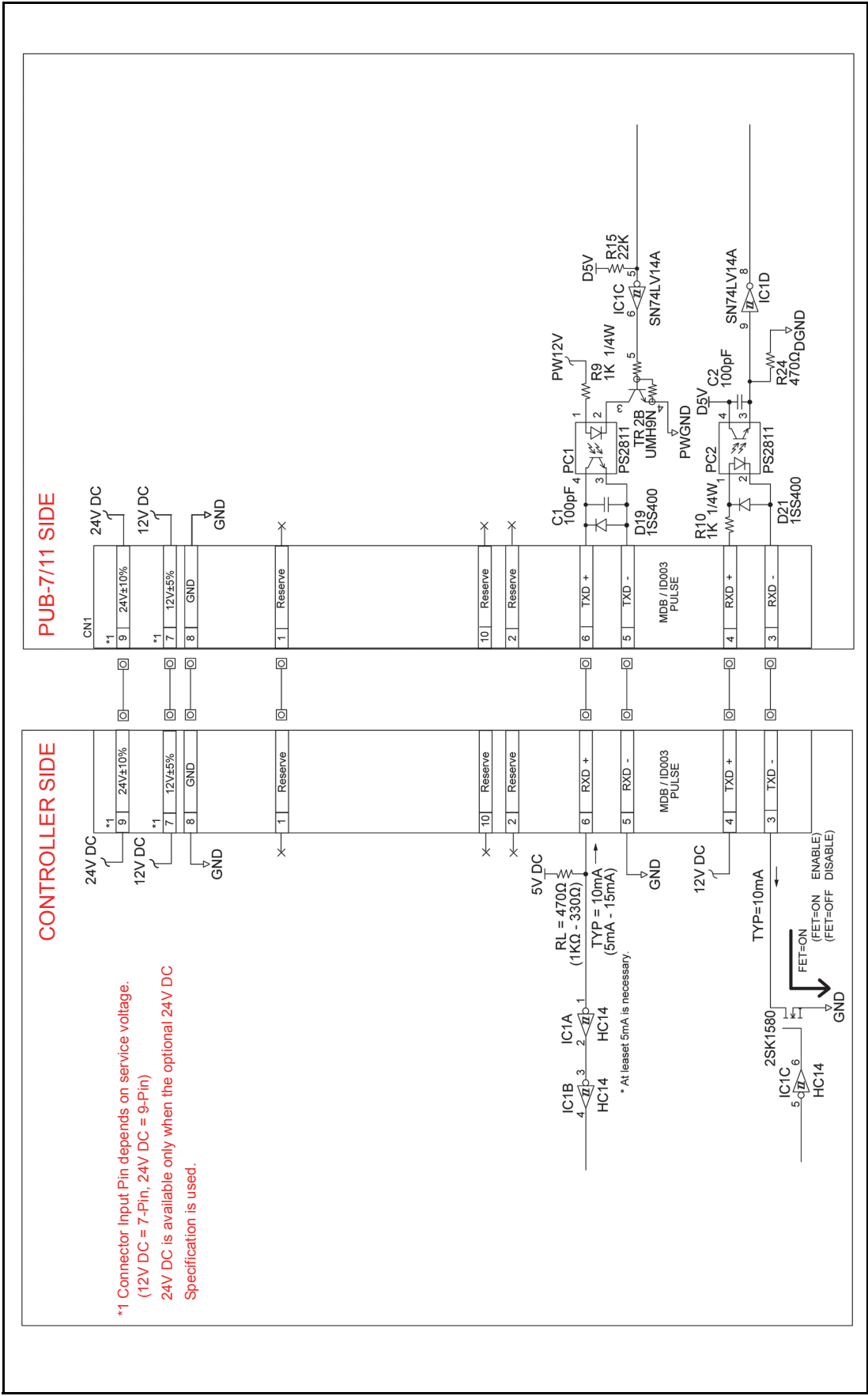


Figure 2-24 Pulse Communications Interface Schematic Diagram

Standard Interface Circuit Schematics (Continued 4)

Figure 2-26 illustrates the Taiko Parallel ID-062 Communications Interface Schematic Diagram.

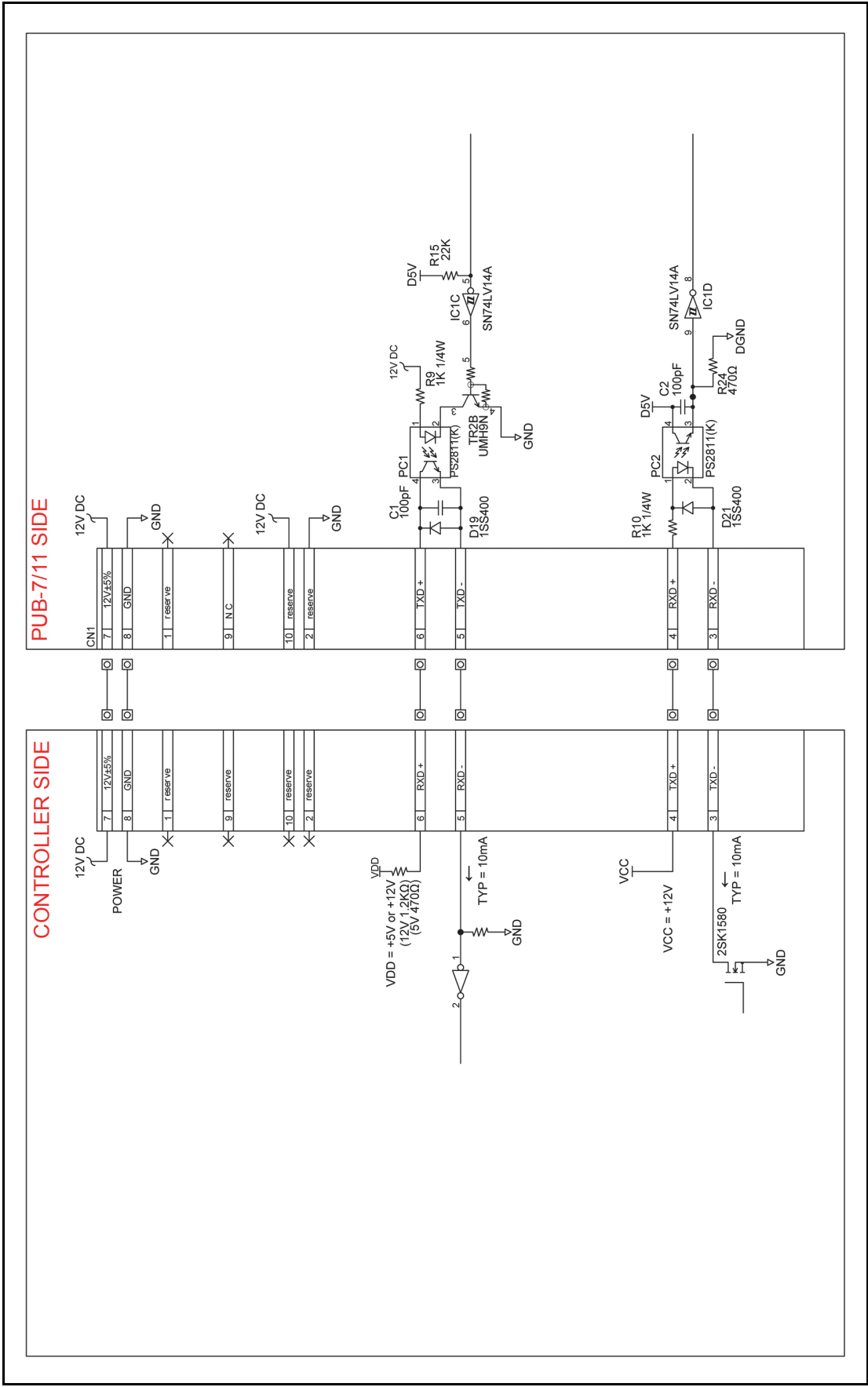


Figure 2-26 Parallel ID-062 Communications Interface Schematic Diagram

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Operational Flowcharts

Figure 2-27 depicts part one of a typical Taiko™ Initialization Banknote acceptance flow process.

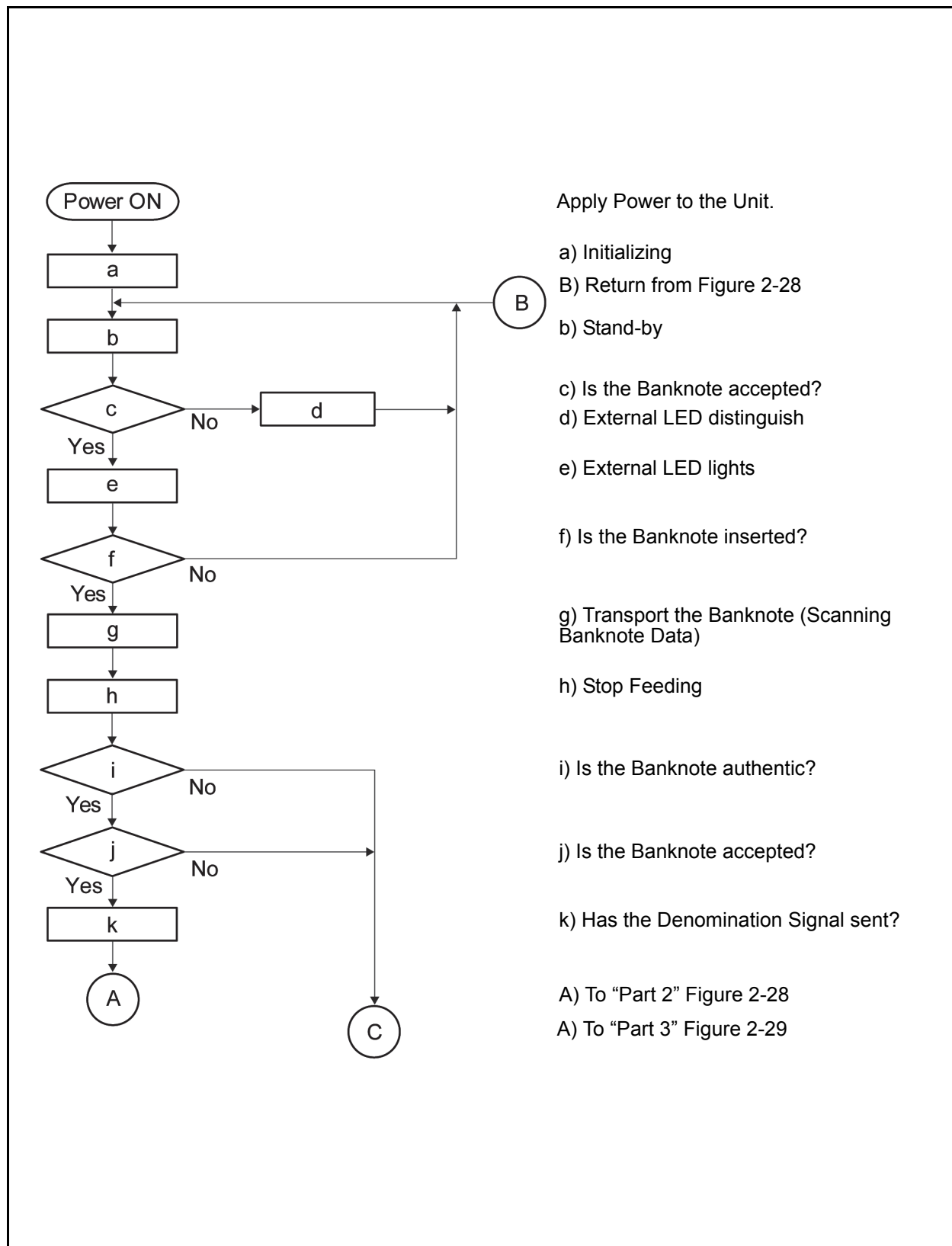


Figure 2-27 Taiko Operational Flowchart (Part 1)

Operational Flowcharts (Continued)

Figure 2-28 depicts part two of a typical Taiko™ Banknote acceptance flow process.

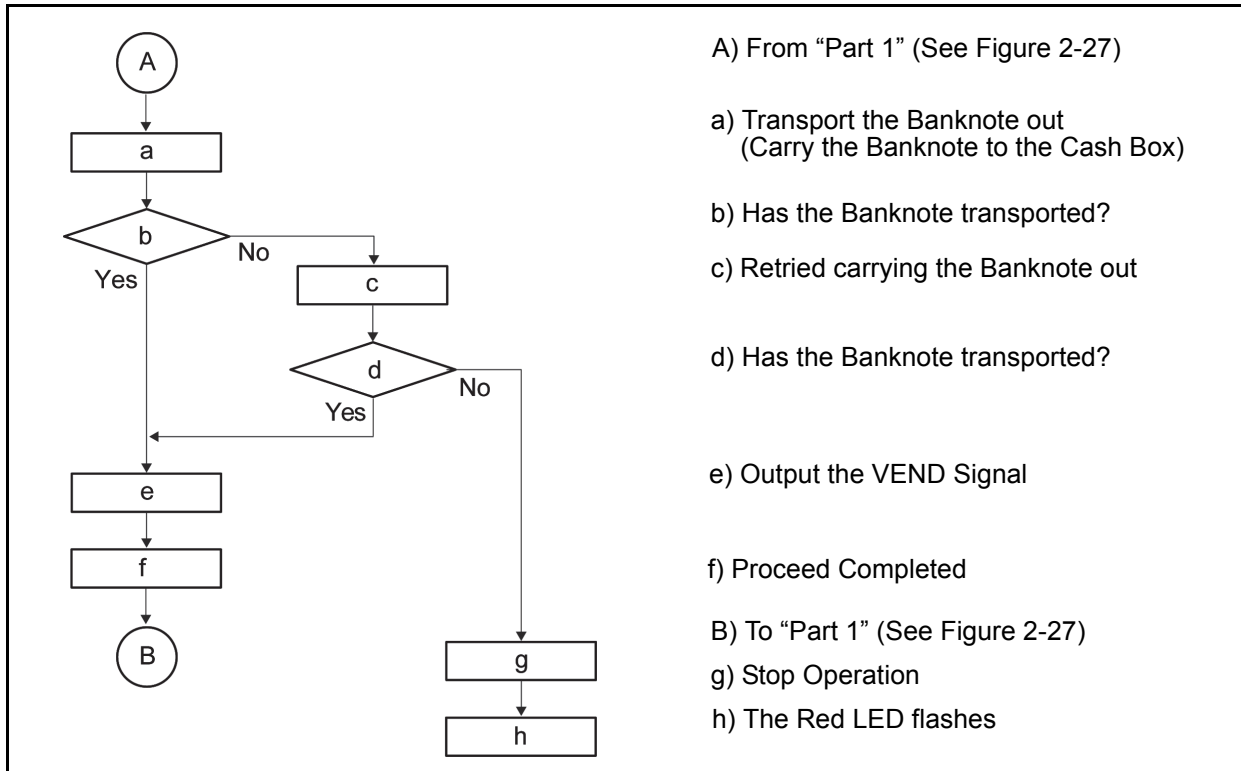


Figure 2-28 Taiko Operational Flowchart (Part 2)

Figure 2-29 depicts part three of a typical Taiko™ Banknote acceptance flow process.

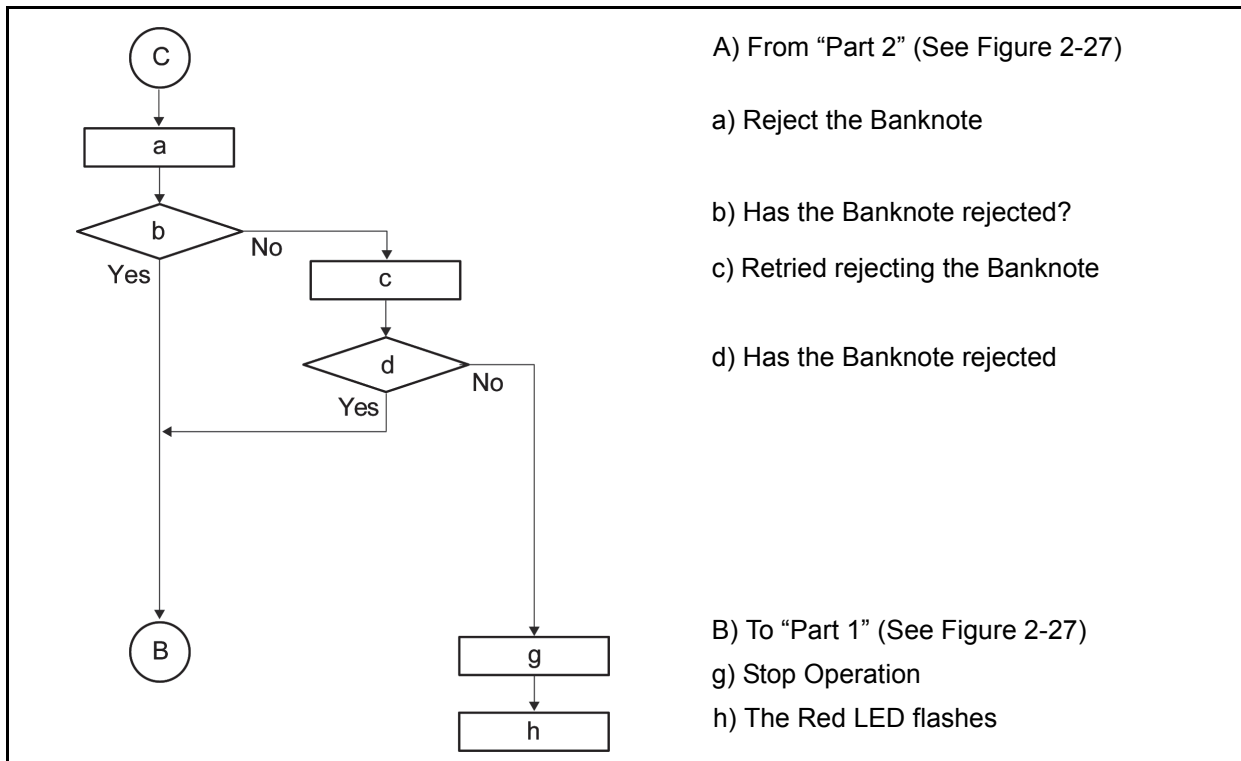


Figure 2-29 Taiko Operational Flowchart (Part 3)

Taiko™ Series

Banknote Acceptor

Section 3

3 COMMUNICATIONS

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

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

Americas

JCM AMERICAN

Phone: +1-702-651-0000

Fax: +1-702-644-5512

925 Pilot Road, Las Vegas, NV 89119

E-mail: support@jcmglobal.com

Europe, Africa, Russia & Middle East

JCM EUROPE GMBH

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

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

Muendelheimer Weg 60

D-40472 Duesseldorf Germany

E-mail: support@jcmglobal.eu

UK & Ireland

JCM EUROPE (UK OFFICE)

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

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Denbigh West Business Park

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Phone: +852-2429-7187

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E-mail: asiapactechsupport@jcmglobal.com

Japan Cash Machine Co, Limited (HQ)

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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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Taiko™ Series

Banknote Acceptor

Section 4

4 DISASSEMBLY/REASSEMBLY

This section provides disassembly and reassembly instructions for the Taiko™ PUB-7/11 Banknote Acceptor Series. This section contains the following information:

- Tool Requirements
- Primary Unit Disassembly
- Acceptor Unit Disassembly
- Transport Unit Disassembly
- Cash Box Disassembly.

Tool Requirements

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

- #1 & #2 Phillips Screw Driver
- Medium Flatblade Screw Driver
- Set of Jewelers Phillips Screw Driver
- E-Clip (E-Ring) Pliers
- Needle Nose Pliers.

Primary Unit Disassembly

The following instructions are provided to perform an initial disassembly of the Taiko™ Banknote Acceptor's primary components.

Bezel Guide Removal

To remove the Bezel Guide, proceed as follows:

1. Remove the two (2) Bezel Mounting Screws (See Figure 4-1 a₁ & a₂) located behind the Bezel Guide (See Figure 4-1 b).
2. Separate the Bezel Guide from its Front Bezel Section (See Figure 4-1 c).

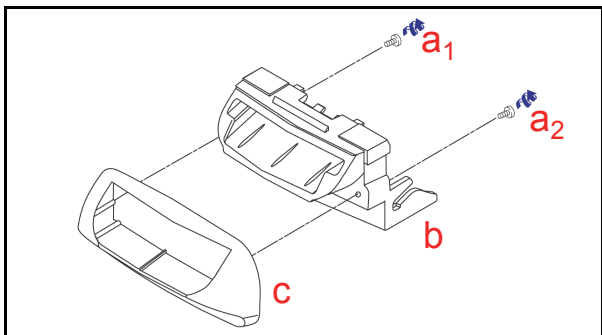


Figure 4-1 Taiko Bezel Guide Removal

3. Insert the new Bezel Guide into the existing Bezel and replace and tighten the two (2) mounting screws that bind the Bezel to the Bezel Guide.



WARNING: Tightening the nuts with too much force can damage the Bezel. The necessary torque is 0.513 foot-lbs (0.7Nm).

CPU Circuit Board Removal

To remove the CPU Circuit Board, proceed as follows:

1. Insert a medium size Flatblade Screwdriver into the gap located on the left or right side area of the Upper Lid Cover (See Figure 4-2 a & b), and gently lift the Cover up and off the Assembly.

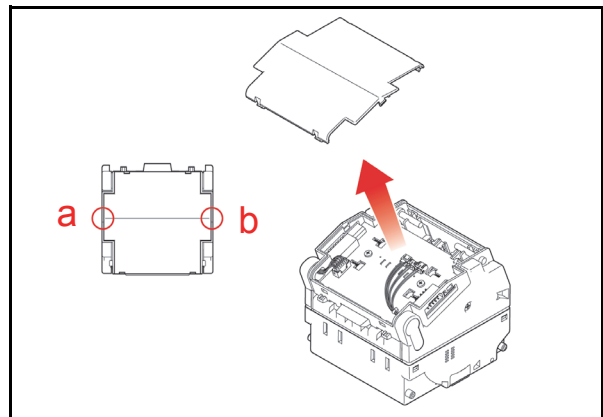


Figure 4-2 Taiko CPU Board Cover Removal

2. Unplug the four (4) Harness Connectors from the CPU Circuit Board (See Figure 4-3 a₁ to a₄).
3. Remove the two (2) Self-tapping Circuit Board Mounting Screws (See Figure 4-3 b₁ & b₂) retaining the Board in place.
4. Remove the Harness Connector (See Figure 4-3 c) located under the CPU Circuit Board (See Figure 4-3 d) and lift the CPU Circuit Board up and off the Assembly in the direction indicated by the Large Arrow in Figure 4-3.
5. Reverse Steps 1 to 4 when replacing the CPU Circuit Board.

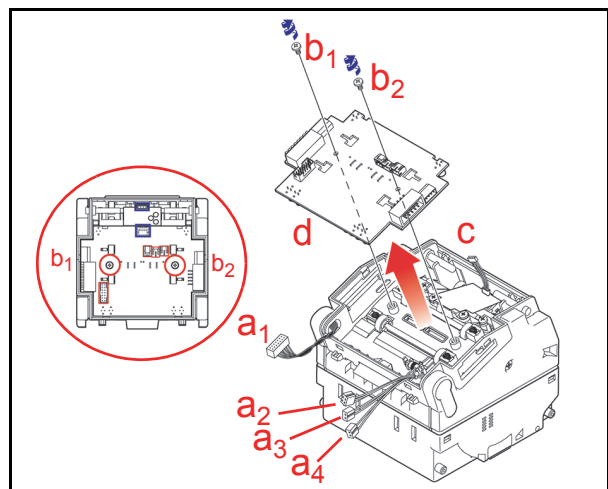


Figure 4-3 Taiko CPU Circuit Board Removal

MAG Board Removal (PUB-11 Only)

The MAG Circuit Board is mounted in a PUB-11 Unit only below the CPU Circuit Board.

To remove the MAG Circuit Board, proceed as follows:

1. Remove the Harness Connector and remove the CPU Circuit Board as previously described during “CPU Circuit Board Removal” on page 4-1 of this Section.
2. Remove the two (2) Circuit Board Mounting Screws (See Figure 4-4 a₁ & a₂) from the MAG Circuit Board (See Figure 4-4 b).
3. Remove the MAG Circuit Board’s associated short interboard Harness Connector (See Figure 4-4 c).

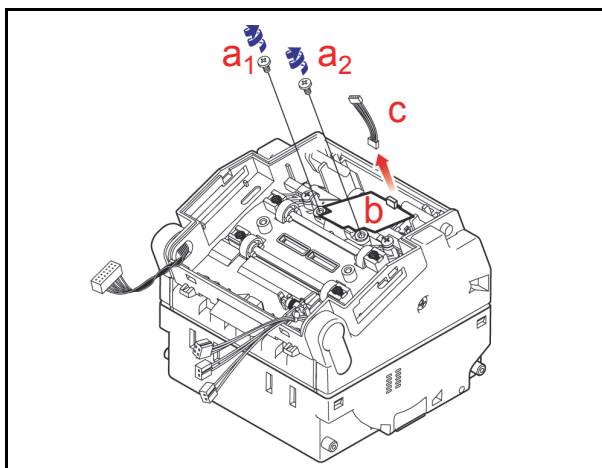


Figure 4-4 Taiko MAG Circuit Board Disconnect

4. Remove the MAG Circuit Board from the Assembly (See Figure 4-5 a).

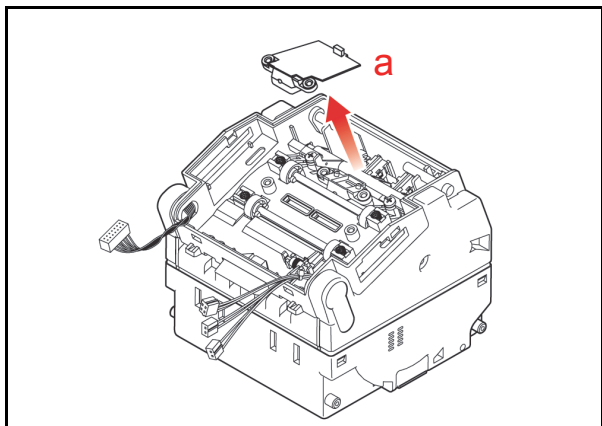


Figure 4-5 Taiko MAG Circuit Board Disconnect

Sensor Circuit Board Removal

To remove the Sensor Circuit Board, proceed as follows:

1. Remove the CPU Circuit Board as previously described during “CPU Circuit Board Removal” on page 4-1 of this Section.
2. Remove the two (2) Side Panel Mounting Screws from the both the left and right side of the Taiko™ Unit (See Figure 4-6 a₁ & a₂).

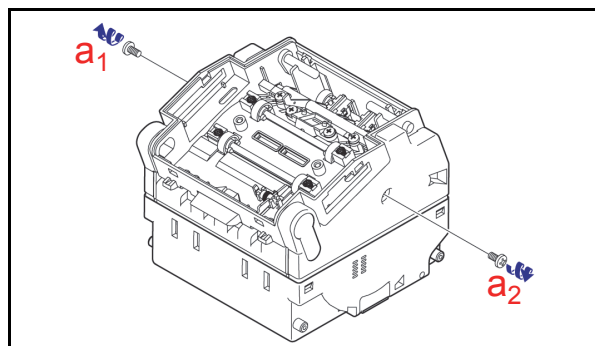


Figure 4-6 Taiko Side Mounting Screw Removals

3. Remove the Upper Lid (See Figure 4-7 a) and left and right Side Covers (See Figure 4-7 b₁ & b₂) off of the Assembly.
4. Unplug the two (2) Harness Connectors (See Figure 4-7 c₁ & c₂) from both the left and right sides of the Sensor Circuit Board Assembly.
5. Reverse Steps 1 to 4 when replacing the Sensor Circuit Board.

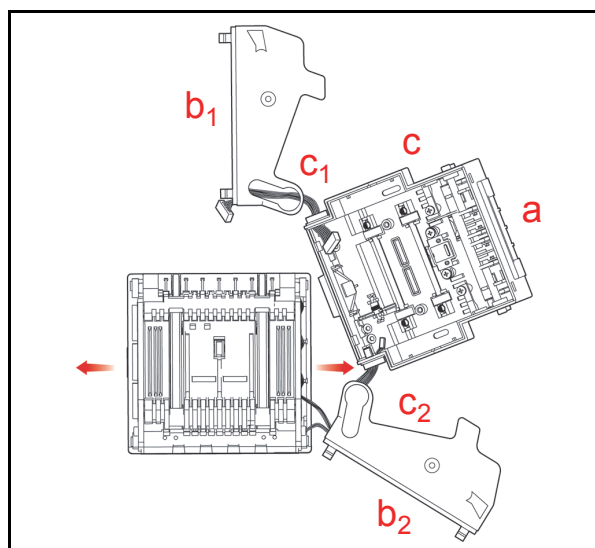


Figure 4-7 Upper Lid and Side Covers Removal

Transport Drum Disassembly

To remove the Transport Drum and/or Feed Roller Assemblies, proceed as follows:

1. Remove the CPU Circuit Board as previously described during “CPU Circuit Board Removal” on page 4-1 of this Section, and perform the procedure for “MAG Board Removal (PUB-11 Only)” on page 4-2 of this Section first if the Unit is also a Taiko™ PUB-11.
2. Remove the Transport Drum (See Figure 4-8 a) Unit from the Lower Base Assembly (See Figure 4-8 b).
3. Remove the six (6) Transport Drum End Cover Mounting Screws (See Figure 4-9 a₁ through a₆) from the right and left end of the Transport Drum Unit (See Figure 4-9 b).
4. Separate the Center Guide (See Figure 4-9 c₁ & c₆) from the two ends the direction indicated by the Large Arrows in Figure 4-9.

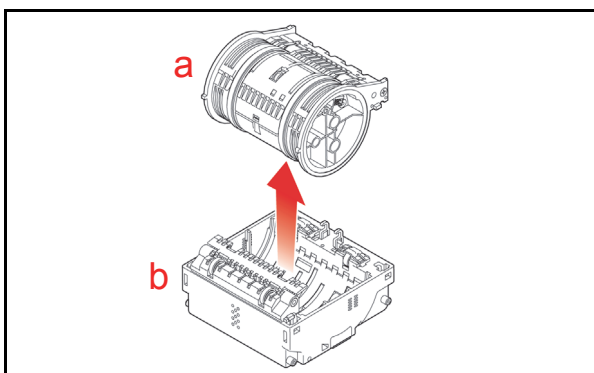


Figure 4-8 Taiko Transport Drum Removal

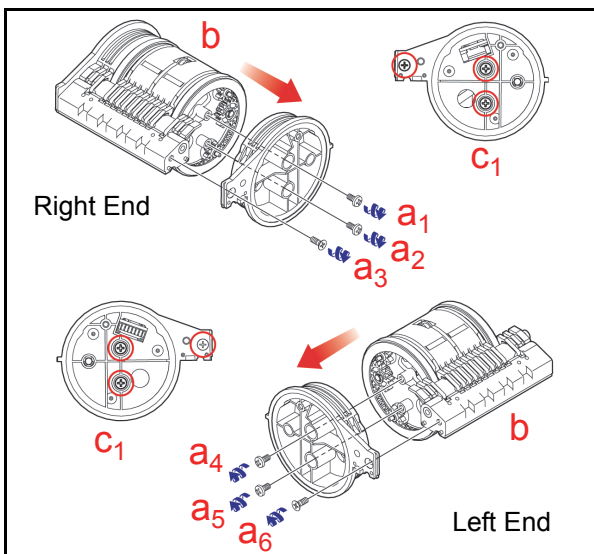


Figure 4-9 Right & Left Transport Drum End Cover Removal

5. Remove the Feed Roller Assembly (See Figure 4-10 a₁ & a₂) from both ends of the Center Drum Unit Assembly (See Figure 4-10 b).
6. Remove the three (3) Washers (See Figure 4-10 c₁ through c₆) from each end of the Center Drum Unit Assembly.

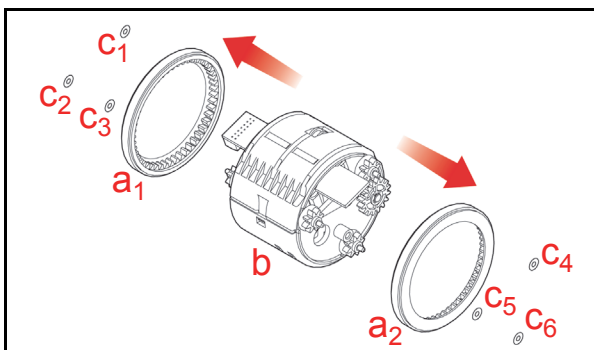


Figure 4-10 Dual Feed Roller Assembly Removal

7. Insert a small Flatblade Screwdriver or equivalent into the encircled area shown in Figure 4-11a.
8. Twist and pry the upper portion of the Center Guide Section up (See Figure 4-11 b), and remove it from the Lower Center Guide Section (See Figure 4-11 c).

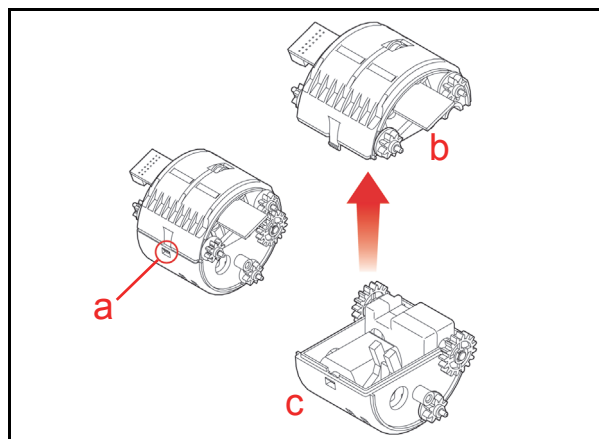


Figure 4-11 Transport Drum Separation

9. Remove the single (1) Prism Mounting Screw (See Figure 4-12 a) and remove the Prism (See Figure 4-12 b) from the Upper Center Guide Assembly (See Figure 4-12 c).

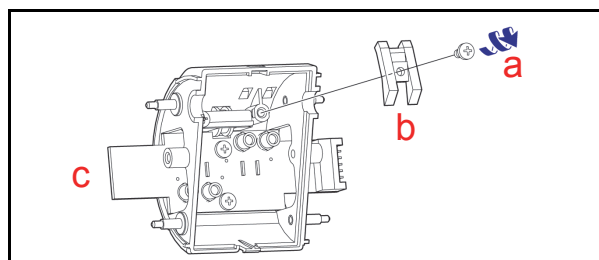


Figure 4-12 Upper Guide Prism Removal

10. Remove the two (2) Sensor Circuit Board Mounting Screws (See Figure 4-13 a₁ & a₂).
11. Slide the loose Sensor Circuit Board (See Figure 4-13 b) out through the side opening slit provided to remove it from the Upper Center Guide Assembly (See Figure 4-13 c).

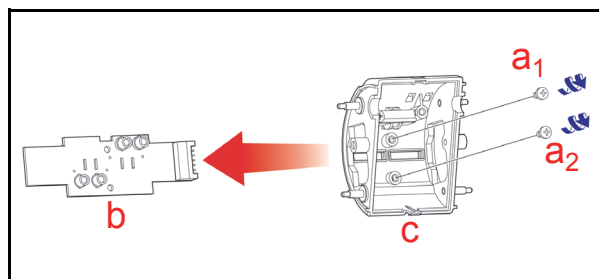


Figure 4-13 Upper Guide Sensor Board Removal

Encoder Board and Drive Motor Removal

To remove the Transport Drum Encoder Circuit Board and/or Drive Motor Unit, proceed as follows:

1. Remove the CPU Circuit Board as previously described during “CPU Circuit Board Removal” on page 4-1 of this Section; preform the procedure for “MAG Board Removal (PUB-11 Only)” on page 4-2 of this Section, and disassemble the Transport Drum as described in the Section titled “Transport Drum Disassembly” on page 4-2 of this Section. However, Steps 9, 10 and 11 of this last procedure may be omitted.

2. Remove the single (1) Motor Drive Assembly mounting screw (See Figure 4-14 a) from the Lower Center Guide (See Figure 4-14 b).
3. Remove the Motor Drive Assembly (See Figure 4-14 c) from the Lower Center Guide Section.

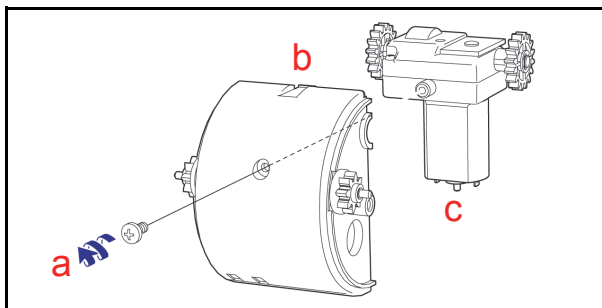


Figure 4-14 Motor Drive Assembly Removal

4. Remove the single (1) Encoder Circuit Board Mounting Screw (See Figure 4-15 a) and remove the Encoder Circuit Board (See Figure 4-15 b) from the Drive Motor Assembly (See Figure 4-15 c).

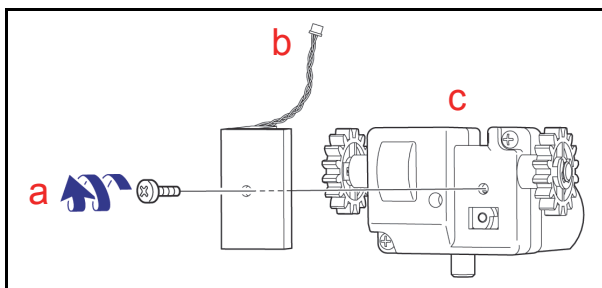


Figure 4-15 Encoder Circuit Board Removal

Entrance and Exit Solenoid Removal

To remove the Transport Entrance and Exit Solenoid Unit, proceed as follows:

1. Remove the CPU Circuit Board as previously described during “CPU Circuit Board Removal” on page 4-1 of this Section; perform the procedure for “MAG Board Removal (PUB-11 Only)” on page 4-2 of this Section, and disassemble the Transport Drum as described in the Section titled “Transport Drum Disassembly” on page 4-2 of this Section. However, Steps 9, 10 and 11 of this last procedure need not be performed if it is a PUB-11 Unit.
2. Remove the two (2) Lower Guide Mounting Screws from the Lower Base Assembly (See Figure 4-16 a₁ & a₂).
3. Remove the Lower Guide Assembly (See Figure 4-16 b).
4. Turn the Lower Base Assembly upside-down and remove the Lower Lid by pressing in on the four (4) Lower Lid Open/Close Release Tabs (See Figure 4-17 a₁ through a₄) with a Flatblade Screwdriver, and pry the lid up and off the Assembly (See Figure 4-17 b).

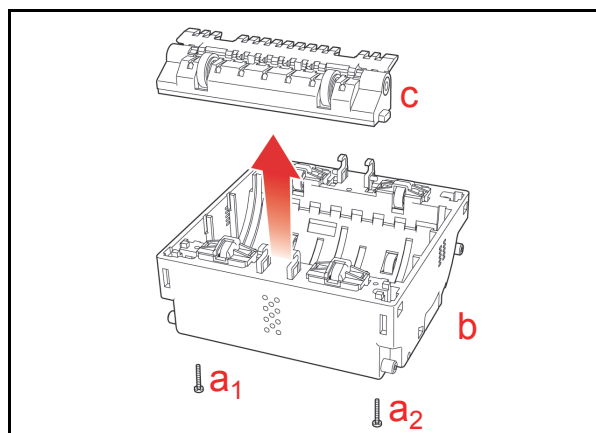


Figure 4-16 Lower Guide Assembly Removal

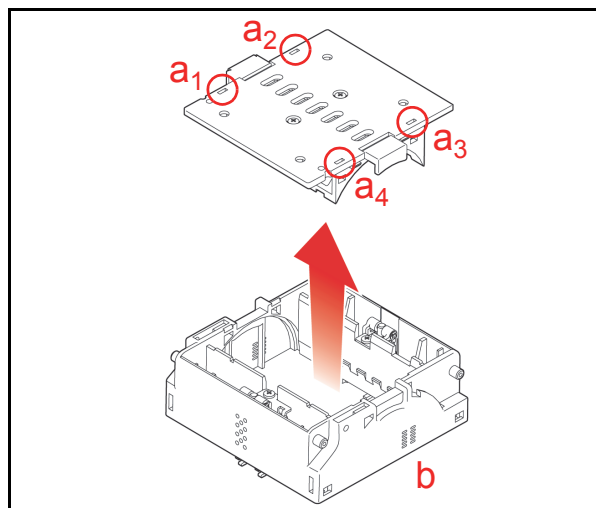


Figure 4-17 Lower Guide Assembly Cover Removal

5. Next, remove the two (2) Guide Levers (See Figure 4-18 a₁ & a₂) from the Lower Base Assembly (See Figure 4-18 b).

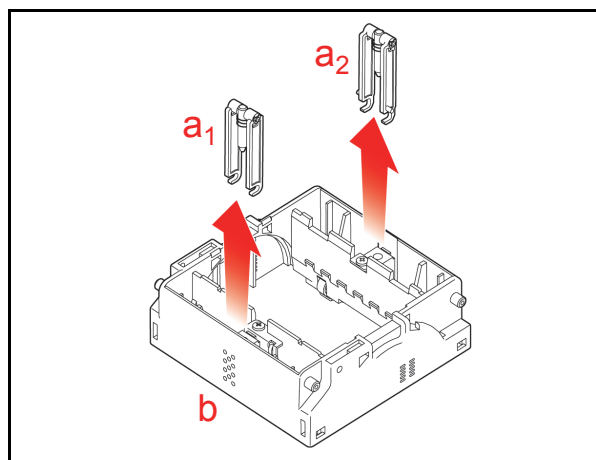


Figure 4-18 Lower Guide Lever Removals

6. Remove the two (2) Solenoid mounting screws (See Figure 4-19 a₁ & a₂) and then remove the Entrance and Exit Solenoids (See Figure 4-19 b & c).

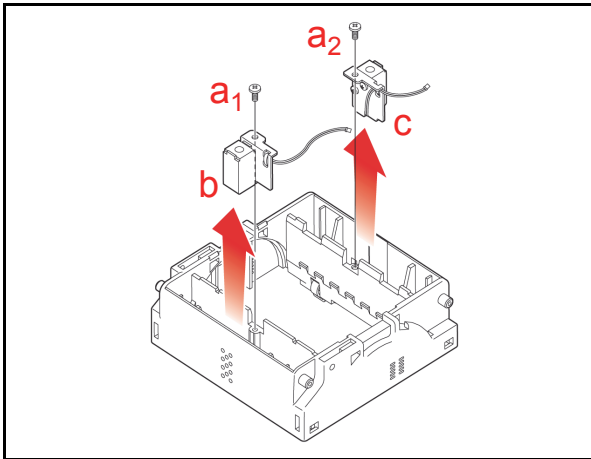


Figure 4-19 Entrance & Exit Solenoid Removal

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

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Taiko™ Series

Banknote Acceptor

Section 5

5 WIRING DIAGRAMS

This Section provides the Taiko™ Banknote Acceptor Series (PUB-7/11) Wiring Diagrams and inter-connect information for the following items:

- PUB-7 System Wiring Diagrams
- PUB-11 System Wiring Diagrams.

PUB-7 System Wiring Diagrams

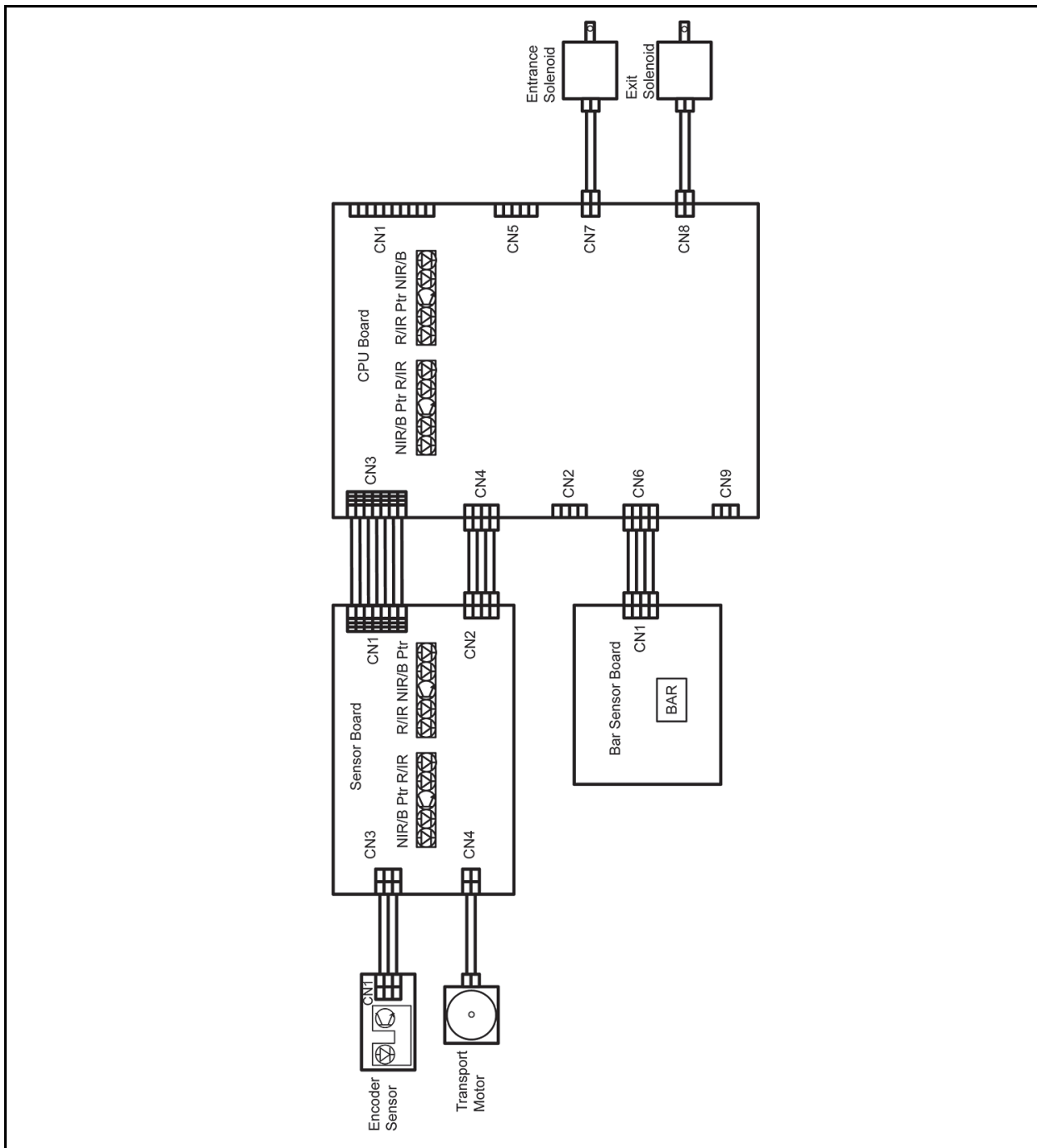


Figure 5-1 PUB-7 12 Volt DC System Wiring Diagram

PUB-7 System Wiring Diagrams (Continued)

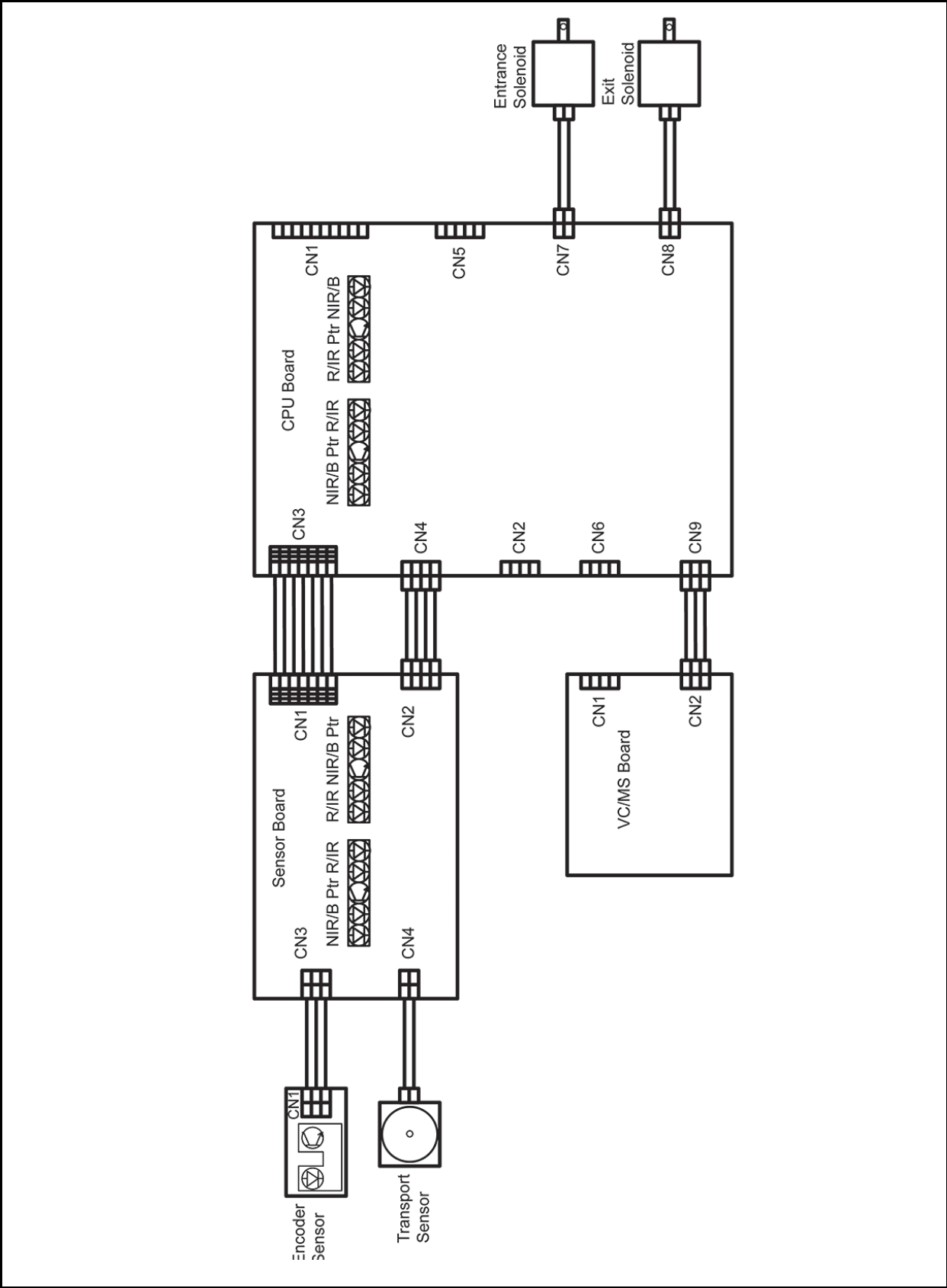


Figure 5-2 PUB-7 24 Volt DC System Wiring Diagram

PUB-11 System Wiring Diagrams

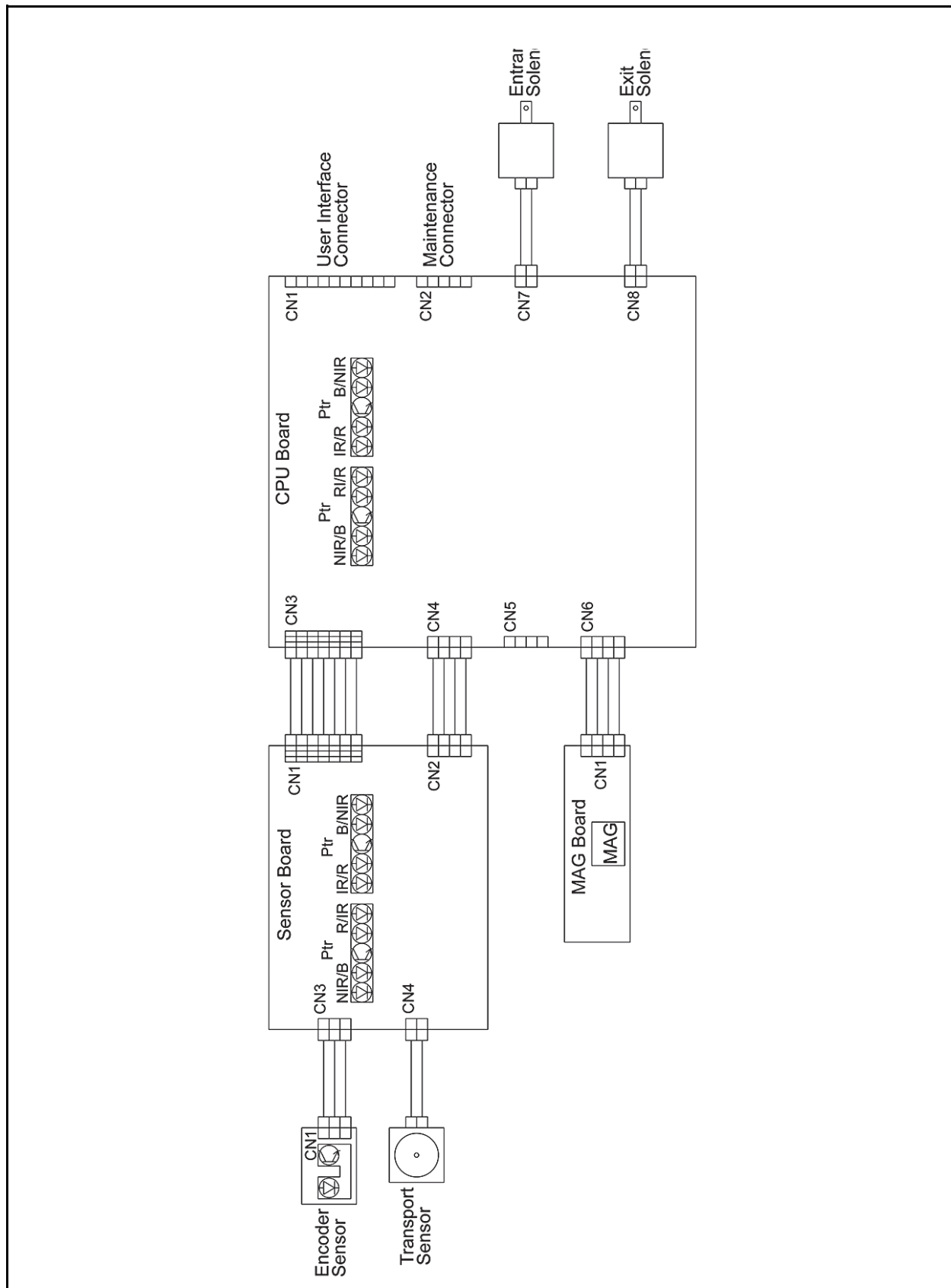


Figure 5-3 PUB-11 12 Volt DC System Wiring Diagram (with Mag)

PUB-11 System Wiring Diagrams (Continued)

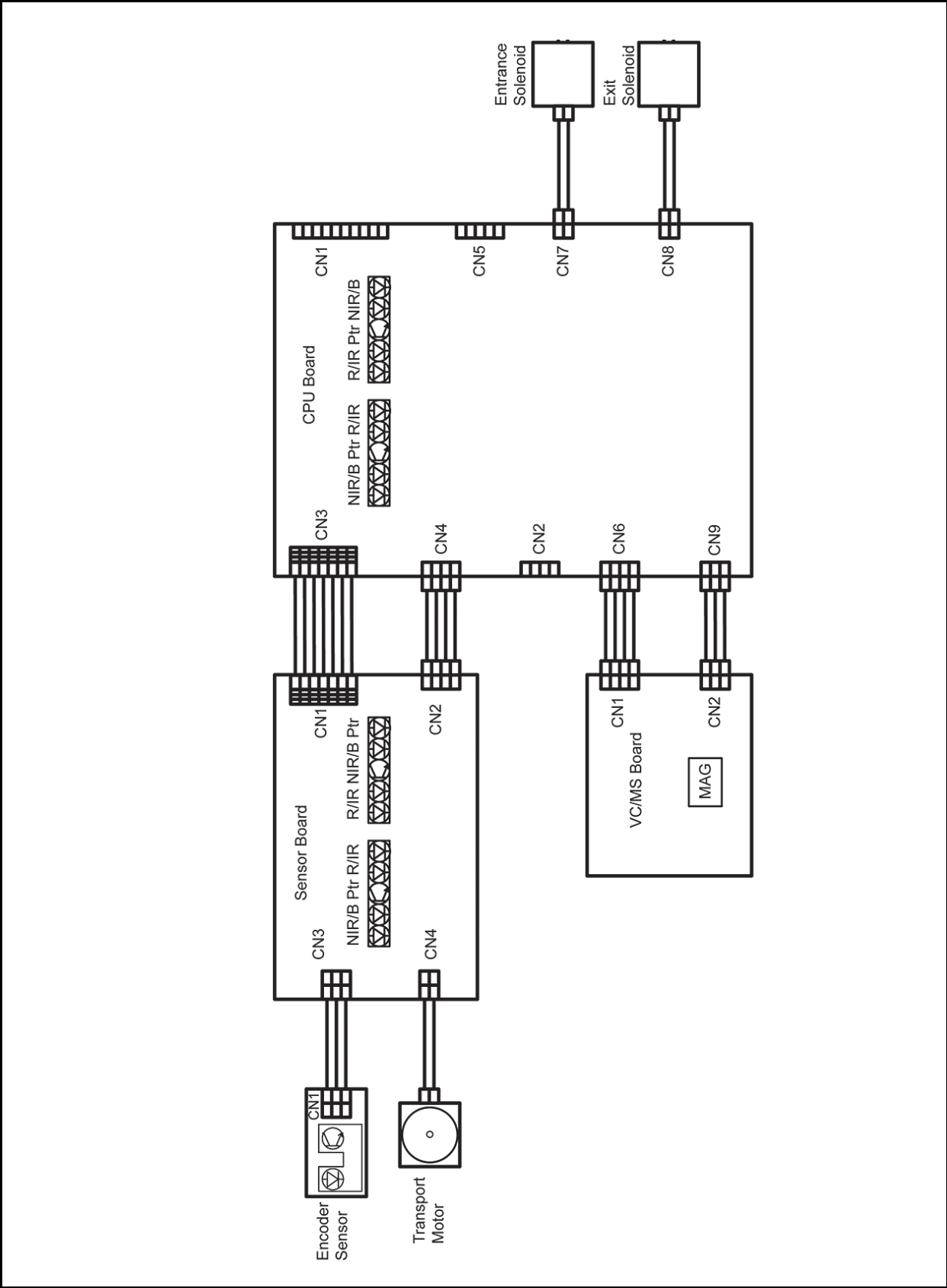


Figure 5-4 PUB-11 24 Volt DC System Wiring Diagram (with Mag)

Taiko™ Series Banknote Acceptor

Section 6

6 CALIBRATION AND TESTING


This section provides Flash EPROM Memory Download Programming using a PC or Palm Pilot® PDA to perform Calibration and Performance Testing for the Taiko™ Banknote Acceptor (PUB-7/11) Series. This section contains the following information:

- Workbench Tool Requirement
- Software Download Preparation
- PC Software Downloading Procedure
- Palm Pilot® Software Downloading Procedure
- Programming Instructions
- Calibration Procedure
- Performance Tests.

Workbench Tool Requirements

- JCM Taiko™ Banknote Acceptor (PUB-7 or PUB-11)
- JCM External JCM Power Supply (JAC# 501-000187RA, EDP# 116125) or equivalent
- Taiko™ Harness “A” (JAC# 400-100551RA, EDP# 121797)

- Taiko™ Harness “B” (JAC# 400-100573RA, EDP# 116488)
- VM-450 Harness (JAC# 400-100643RA, EDP# 739571)
- External VM-450 Supply Unit (JAC# 501-000026RA, EDP# 059307)
- KS-070 Reference Paper (JAC# 501-000200RA, EDP# 1199581), or KS-088 (JAC# 501-000256R, EDP# 197917)
- PC containing a free COM Port (OS: Windows® 2000/XP)
- A Palm Pilot® Handheld PDA - Tungsten Series C Version (Figure 6-3 showing JCM Software a, b & c Hot Sync Cradle or Cable)

 **NOTE:** Refer to the Palm Pilot® or the VM-450 User's Manual for performing Hot Sync operations and program installation instructions.

- The latest Taiko™ Download Program CD (obtainable from your JCM Sales Representative for your particular Country's Currency).

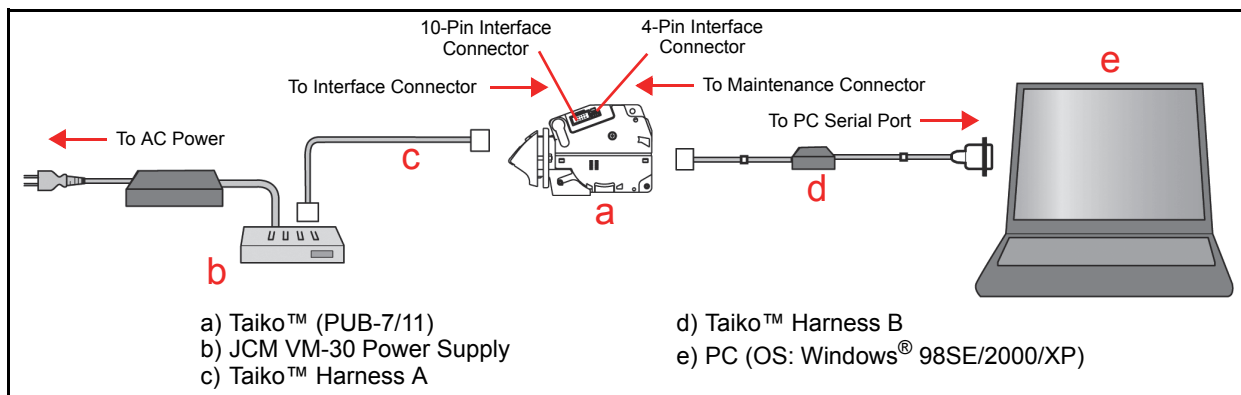


Figure 6-1 Required PUB-7/11 PC Download Workbench Tool

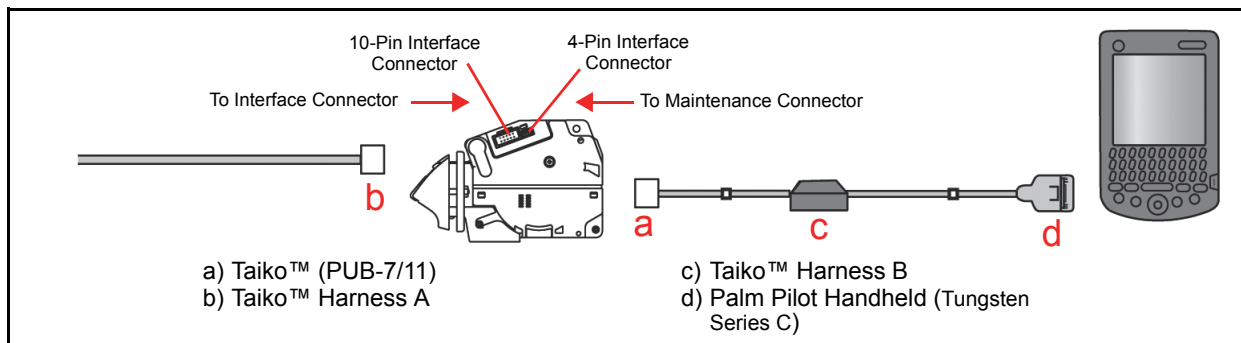


Figure 6-2 Required PUB-7/11 Palm Pilot Download Workbench Tool

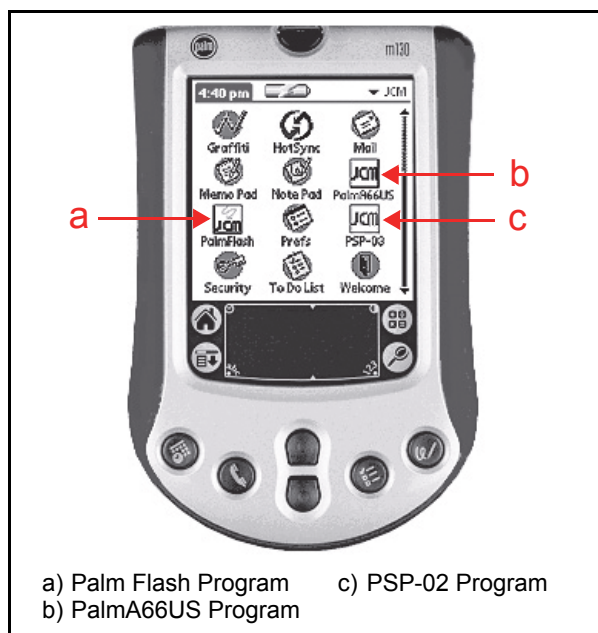
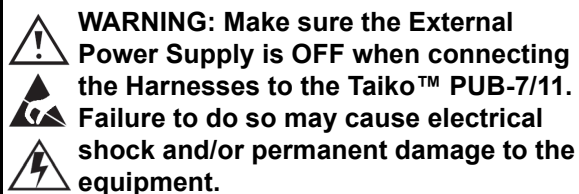


Figure 6-3 Typical Tungsten Series Palm Pilot Handheld with JCM Software Icons



Software Download Preparation

The following instructions describe how to decompress and store a downloaded program onto a PC for eventual installation into the Taiko™ Banknote Acceptor:

1. Refer to Figure 6-1 interconnection diagram to properly connect the power supply, various cables and wiring Harnesses to the PUB-7/11.
2. Figure 6-4 illustrates the Taiko's external Ports, DIP Switch Block locations and its initial Switch settings. To prepare the PUB-7/11 for a software download, set the DIP Switches as follows:
 - Set DIP Switch No.1, 7 and 8 to 'ON'
 - Set DIP Switches No.2 through 6 'OFF'.
3. Supply power to the PUB-7/11. The Green Front Panel Indicator LED will begin flashing approximately once every second.

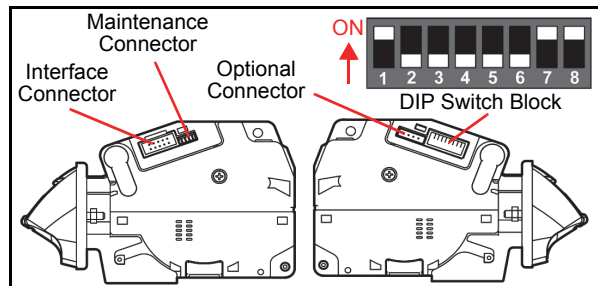


Figure 6-4 Taiko DIP Switch & Port Location

Software Downloading Procedure

PC Program Installation

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

1. Create and name a new PUB Folder on your PC.
2. Decompress the Palm Pilot® Programing .ZIP File and save the expanded file program contents in the PUB file Folder just created.
3. Open the Folder and Double Mouse-click on "Ver.1.20.exe" of the expanded PUB-7/11 PC Download Program. The **Download Program Ver.1.20** Screen shown in Figure 6-5 will appear.

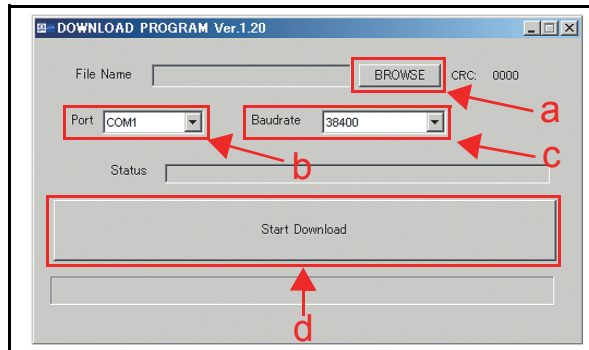


Figure 6-5 Taiko PC Download Program Screen

4. Mouse-click on the BROWSE Screen Button (See Figure 6-5 a) and select the desired Software Program required for installation (i.e., example = PII.10801.usa2).
5. Select an available PC COM Port Number from the "Port" pull-down Menu (See Figure 6-5 b).
6. Confirm that a Baud Rate of 38400 is selected; if not, set the Baud Rate to 38400 from the "Baud-rate" pull-down Menu (See Figure 6-5 c).
7. Mouse-click on the large [Start Download] Screen Button (See Figure 6-5 d) to begin downloading the selected Software File.
8. When downloading is complete, the Taiko™ Front Panel LED will turn a Blue Color.
9. Turn the Taiko™ power 'OFF', and remove the programing connections from the Taiko™ Unit.

Palm Pilot Program Installation

The following Palm Pilot® PDA initialization functions are required prior to downloading Software:

1. Create and name a new PUB Folder on your PC.
2. Decompress the Palm Pilot® Programing .ZIP File and save the following expanded file program contents in the Folder just created:
 - a) "PdbConvEN.exe"
 - b) "ID-003DWN.exe"
3. Prepare the Conversion Program as follows:
 - a) Open the folder created during Step 1 and Double Mouse-click on File Converter program "PdbConvEN.exe".
 - b) Save the Files created in the previously created File Folder (i.e., "Setup.exe", "SETUP.LST" and "PdbConv.CAB").
 - c) Double Mouse-click on the "Setup.exe" File to start to the program installation procedure.

- d) Follow the instructions shown on the Screen to complete the installation.
 - e) A PdbConv.exe Icon will be created on the PC desktop Screen.
4. Convert the Taiko™ Software Data File to begin running the “Pdb” format as follows:
 - a) Double Mouse-click on the PdbConv.exe Icon to start the ‘PdbConvEN’ Program. The Figure 6-6 PdbConv Ver. 2.0.1 Screen will appear.

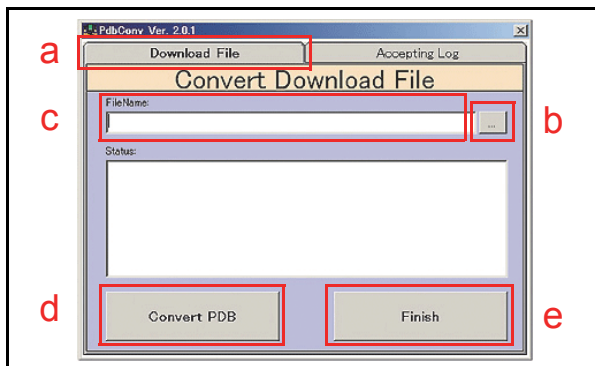




Figure 6-6 Taiko Palm Conversion Screen

- b) Mouse-click on the Download File Tab (See Figure 6-6 a) to select the conversion option required for your particular system requirements.
 - c) Mouse-click on the appropriate Screen Button to select the file you want converted. Confirm that the File name listed in the download Filename: Field is correct (See Figure 6-6 c), and Mouse-click on the “...” Screen Button (See Figure 6-6 b) to Select the file you want to convert. The file name will be similar to “p11_10621a.usa”.
 - d) Mouse-click on the Convert PDB Screen Button (See Figure 6-6 d) to begin the conversion process.
 - e) When the Cyclic Redundancy Check Sum (CRC) is displayed (See Figure 6-7 a), the conversion is complete.
 - f) Click the Finish Screen Button (See Figure 6-6 e) to close the ‘PdbConv.exe’ application.
5. Transfer the newly created Files to the Palm Pilot® handheld as follows:

 **NOTE:** The following two (2) files will need to be transferred into the Palm Pilot® memory first.

- a) “ID003DWN.prc” and the
- b) .pdb file previously created during Step 4d.

 **NOTE:** Refer to the Palm Pilot® Manual for instruction on loading a .prc and .pdb file into the particular handset being used.

6. Download files into the Taiko™ unit as follows:
 - a) Refer to Figure 6-2 on page 6-1 to properly connect the Palm Pilot® to the Taiko™ Unit.
 - b) Turn DIP Switches #1, #7 and #8 to ‘ON’.
 - c) Supply power to the Taiko™ Unit. The Green Front Panel Bezel light will begin to flash.

- d) Tap on the On the Palm Pilot® start-up screen DWN-03 Icon. The **Program Download** Screen shown in Figure 6-7 will then appear.

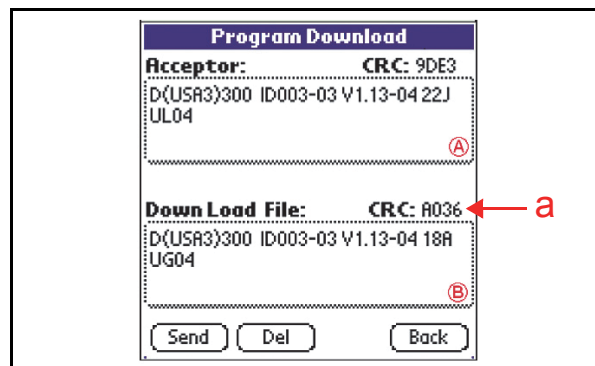


Figure 6-7 Taiko Palm Program Download Screen

7. Tap on area ? shown in Figure 6-7 and the Software Version information currently installed in the Taiko™ Unit will appear.
8. Tap on area ? and select the desired Software Version to be downloaded.
9. Tap on the send Screen Button to begin downloading if the Yellow LED is lit steady (ON).
10. When downloading is complete, the Screen will automatically return to the Screen previously shown.

Writing a New Serial Number

Upgrading/Replacing Software

The initial software downloading procedure has been described previously in the "Software Downloading Procedure" on page 6-2 of this Section. However, when the Taiko™ Software has been upgraded or the Taiko™ Unit's CPU Board has been replaced, new software must be downloaded to the Taiko™ Unit.

When downloading software files from a Palm Pilot® handheld PDA, please refer to the procedures outlined in "Palm Pilot Program Installation" on page 6-2 of this Section.

PROGRAMMING REQUIREMENTS

When downloading new software, the following items will be required:

- PC (OS: Windows® 98 SE/2000/XP)
- JCM Taiko™ Banknote Acceptor (PUB-7 or PUB-11)
- Downloader Application (Download Program Ver.1.21.exe)
- Software Program (Ex. P07X3102.G_S)
- JCM External Power Supply (JAC# 501-000187RA, EDP# 116125) or equivalent.
- Taiko™ Harness “A” (JAC# 400-100551RA, EDP# 121797)
- VM-450 Harness (JAC# 400-100643RA, EDP# 739571).



NOTE: Use a Test Bench and a Harness instead of an external Power Supply. A Test Bench and a Harness are to be dedicated by each individual Country's User Protocol Specification requirements as defined in Table 6-1.

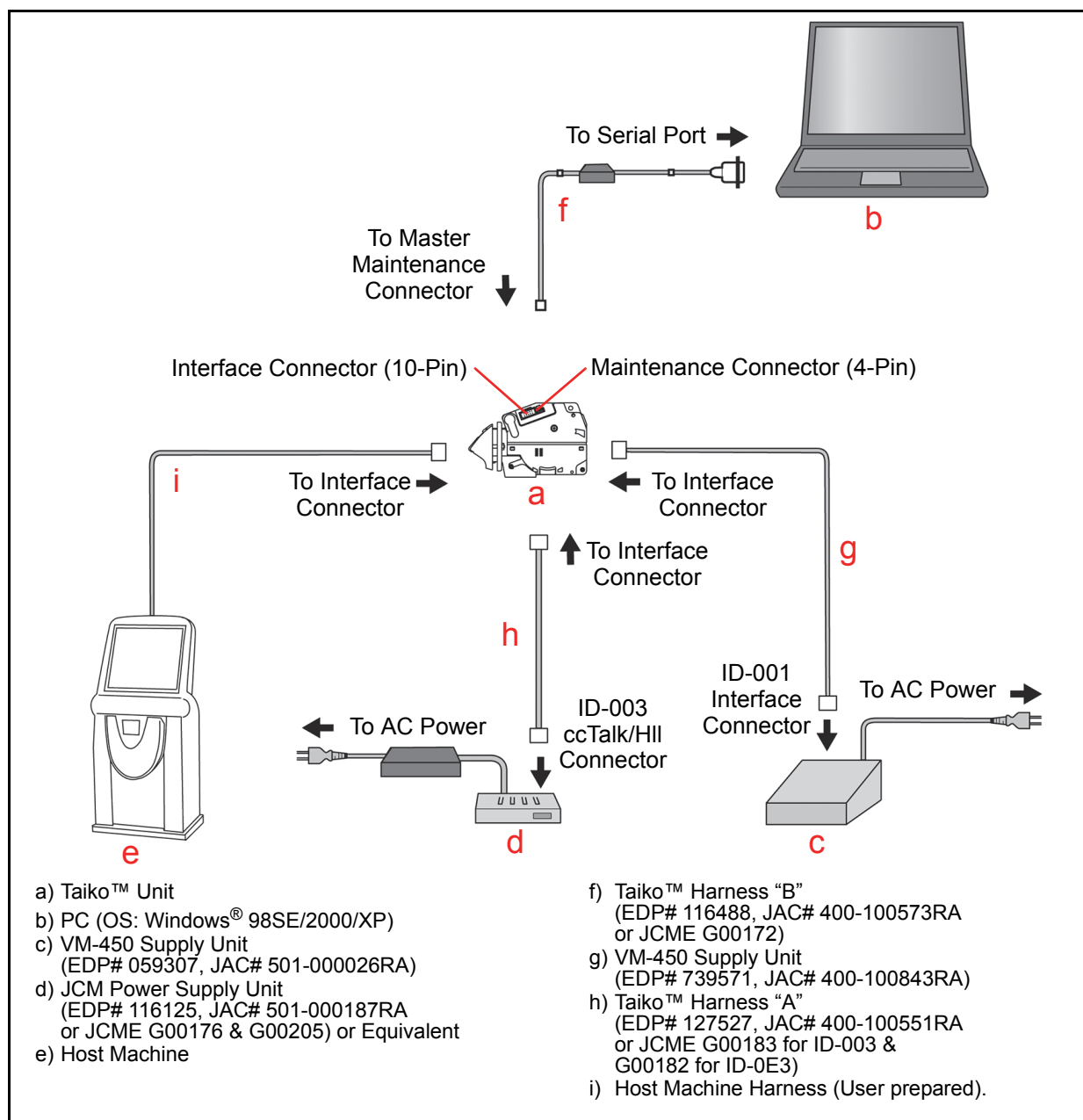


Figure 6-8 Taiko Re-Programming Software Tool Connection Configuration

Table 6-1 Test Bench Interface Protocols

| Interface Protocol | Operating Label | Interface Connector | Optional Connector |
|------------------------------|-----------------|---------------------|--------------------|
| ID-003-MDB/ Pulse/ccTalk* | X3 | Black | Yes |
| ID-001† | 01 | White | No |

*. Use JCM Power Supply Unit (EDP# 116125, JAC# 501-000187RA) or equivalent. Or use Taiko™ Harness "A" (EDP# 127527, JAC# 400-100551RA or JCME G00183 for ID-003 & G00182 for ID-0E3).

†. Use JCM Power Supply Unit (EDP# 059307, JAC# 400-100643RA) or equivalent VM-450 Harness (EDP# 139571, JAC# 400-100643RA).



NOTE: When a Taiko™ Unit is installed into a Host Machine, the Power Supply Unit, Taiko™ Harness "A" and the VM-450 Connection Harness are not required.

Re-Programming Connection Procedure

When re-programming a Taiko™ Unit the following DIP Switch settings and cable connections are required:

1. On the DIP Switch Block located on the right side of the Taiko™ Unit, set DIP Switches No.1, 7 and 8 to **ON**.
2. Connect the PC, Harness and Power Supply Unit cables to the Taiko™ Unit as shown in Figure 6-1 on page 6-1 of this Section. Ensure that the Taiko™ Unit is connected to the PC using a Taiko™ Harness "B" to ensure the proper connection is made to the Taiko™ Unit.
3. Turn the Taiko™ Unit power **ON**.
4. Check that the Front Panel Taiko™ LED flashes White.
5. Set DIP Switch No.1 to **OFF**.
6. Check that the Taiko™ LED is extinguished.

Serial Number Writer Application Use

When replacing a Taiko™ CPU Circuit Board, perform the following steps to write a new Serial Number onto it:

1. Refer to the previous "Software Downloading Procedure" on page 6-2 of this Section to properly perform a PC Software Download, and to Figure 6-8 on page 6-4 to identify the tools, harness connections and DIP Switch Settings required to transfer Software to the Taiko™ Unit. When downloading Software Files from a Palm Pilot® handheld PDA, refer to the related procedures outlined in "Palm Pilot Program Installation" on page 6-2 of this Section.
2. Double Mouse-Click on `SerialNo.exe` in the Folder created in Step One (1) of "PC Program Installation" on page 6-2, and then the following window will appear.

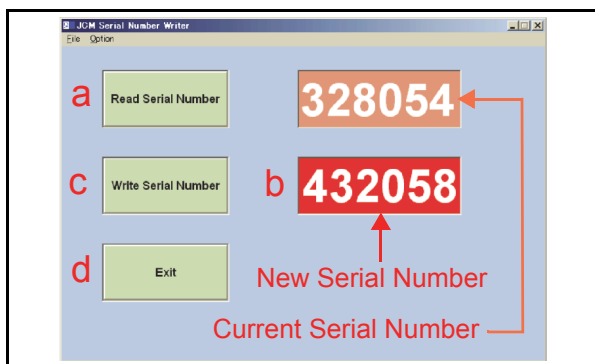


Figure 6-9 JCM Serial Number Writer Screen

3. Mouse-Click on the Read Serial Number Screen Button (See Figure 6-9 **a**) and the current Unit's Serial Number will be displayed in the Text Box next to the Button.



NOTE: When the CPU Circuit Board is new, nothing will be displayed in the Text Box.

4. Enter a new 6-digit Serial Number in the input Text Box next to the Write Serial Number Screen Button (See Figure 6-9 **b**). Example: If the Unit's Serial Number is 03050438058, enter the last 6-

digit of the Serial Number into the Text Box (e.g., 438058).

5. Mouse-click on the Write Serial Number Screen Button (See Figure 6-9 **c**) to begin writing a new Serial Number into the Taiko™ Memory.



NOTE: When writing a Serial Number into Taiko™ Memory using `SerialNo.exe`, the new Serial Number will be used as the new Encryption Code Number.

6. When Serial Number writing is complete, the Taiko™ LED will flash a **Blue** Color.
7. Mouse-click on the Exit Screen Button (See Figure 6-9 **d**) to close the Screen.

Cloning Units

Use the Clone Harness, to copy Software from a Master Taiko™ Unit to any Slave Taiko™ Unit. Perform this procedure as often as necessary to copy Software to all available Taiko™ Units.

Required Items

When cloning Taiko™ Units, the following items are required:

- a Taiko™ Unit containing the installed feature Application Software (Master)
- the Taiko™ Unit requiring a copy of the Application Software (Slave)
- Clone Harness (EDP# 124528, JAC# 400-100569RA)
- External JCM Power Supply (EDP# 116125, JAC# 501-000187RA or JCME G00205 UAC)
- Taiko™ Harness "A" (EDP# 121797, JAC# 400-100551RA)
- ID-003/MDB/Pulse/ccTalk Software
- VM-450 Harness (EDP# 739571, JAC# 400-100643RA) for ID-001 use only
- VM-450 Harness (EDP# 739571, JAC# 400-100643RA) for ID-001 use only.

Refer to the applicable Software Information Sheet to obtain the required cloning features Software.



NOTE: When the Taiko™ Unit is connected to the Host Machine, the Power Supply Unit and Taiko™ Harness "A" are not required.

CLONING PROCEDURES

Perform the following steps to Clone a Taiko™ Unit:

1. Connect the Master Taiko™ Unit, the Slave Taiko™ Unit, the Power Supply Unit and the Harnesses as illustrated in Figure 6-10.
2. Set Master Taiko™ Unit DIP Switches #1, 2, 7 and 8 to '**ON**'.
3. Set the Slave Taiko™ Unit DIP Switches #1, 7 and 8 to '**ON**'.
4. Confirm that the White LED on the Master Taiko™ Unit is flashing, and that the **Green** LED on the Slave Taiko™ Unit is also flashing.

5. Set Master Taiko™ Unit DIP Switch #1 'OFF' to begin the cloning process.
6. When cloning begins, the Master Taiko™ Unit's Front Panel LED will be a **Pink** Color, and the Slave Taiko™ Unit LED will be a **Yellow** Color.
7. When the Slave Taiko™ Unit's Front Panel LED lights **Blue** (or flashes **Green**), the cloning process is complete (after approximately 15 minutes).
8. Set the Master Taiko™ Unit's DIP Switch #1 to 'ON' to end the cloning process.
9. When creating another Taiko™ Unit Clone, turn the power to all of the Units OFF and re-connect the next Slave Taiko™ Unit in place of the previously cloned Unit; then re-perform this procedure from Step 2 again.

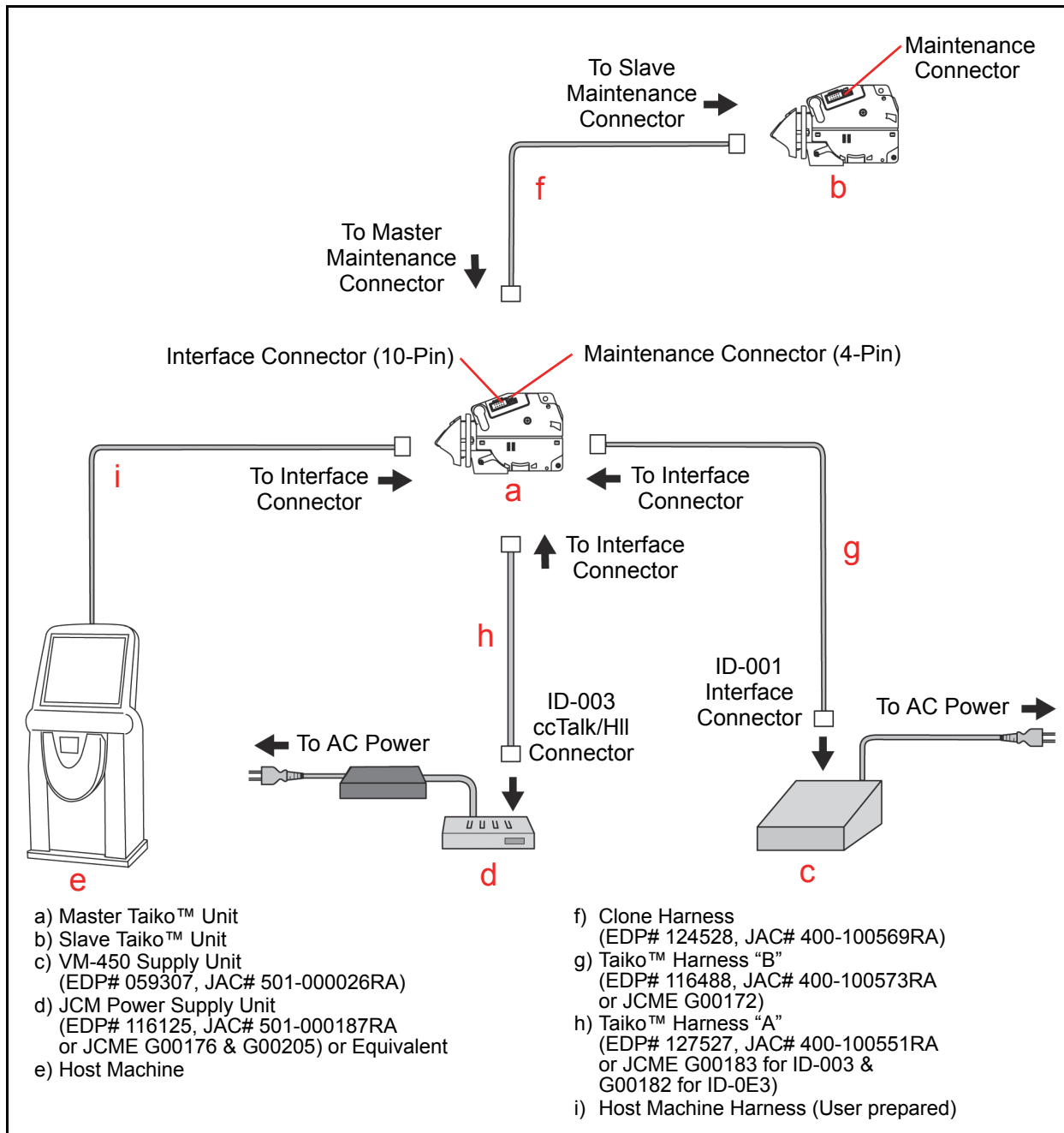



Figure 6-10 Taiko Clone Software Tool Connection Configuration

Calibration Procedures

Calibration Description

Calibration sets a starting reference point for all Optical and Magnetic Sensors within the Taiko™ Unit.

 **NOTE:** This task should only be accomplished at a Workbench.

Calibration Tool Requirements

The following equipment and tools are required to perform Taiko™ Workbench calibration:

- JCM Taiko™ Banknote Acceptor (PUB-7 or PUB-11)
- JCM External Power Supply (EDP# 116125, JAC# 501-000187RA) or equivalent
- KS-070 Reference Paper (EDP# 1199581, JAC# 501-000200RA)
- KS-088 Reference Paper (EDP#, JAC# 501-100256R).

When to Calibrate

- After new software has been downloaded
- After a Banknote Acceptor component has been disassembled/reassembled for repair
- After the CPU and/or Sensor Circuit Board has been replaced.

Initial Settings

1. Make sure power is not supplied to the Taiko™ Unit intended for calibration, and remove it from its Bezel mounting (See Figure 6-11).

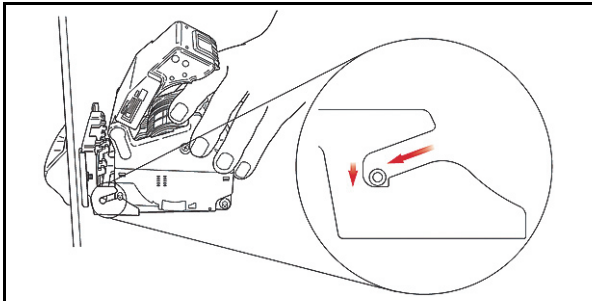


Figure 6-11 Removing Taiko from Bezel Mount

2. Connect an External Power Supply per the Figure 6-1 illustration.
3. Set Right Side Panel DIP Switches No. 1, 2 and 8 **ON** (See Figure 6-12), and apply AC power to the External DC Power Supply Unit.



Figure 6-12 Adjustment DIP Switch Setting

4. Confirm that the Front Panel LED is flashing a White Light.
5. Set DIP Switch No.1 to 'OFF' and confirm that the **Green** Front Panel LED is lit (ON).

6. Insert the KS-070 Reference Paper into the Taiko™ Unit (See Figure 6-13 a). If calibration of the Barcode Coupon Specification Unit is also required, insert the KS-088 Reference Paper. When the Rollers begin to rotate, continue inserting the Reference Paper all the way into the Unit (See Figure 6-13 b).

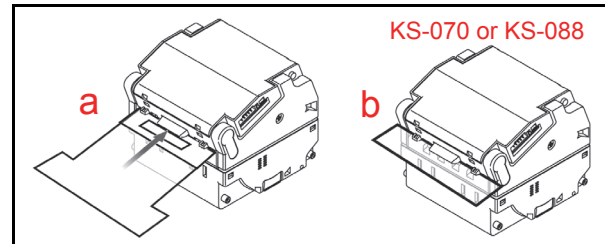


Figure 6-13 Reference Paper Insertion

7. When the Reference Paper reaches the inner limit, the Front Panel LED will flash a **Green** Color.
8. Turn DIP Switch No.8 'OFF' to begin the Calibration Procedure.
9. Confirm that the Front Panel **Yellow** LED is lit, indicating a Sensor Adjustment is occurring.
10. When the Paper adjustment is complete, the Reference Paper will exit out of the Taiko™ Unit automatically (See Figure 6-14).

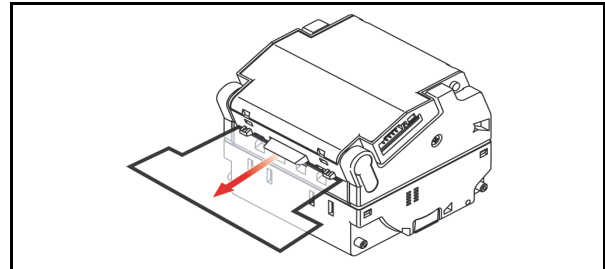


Figure 6-14 Adjustment Complete Paper Ejection

11. Remove the KS-070 or KS-088 Reference Paper. The Front Panel LED will flash **Green**.
12. Turn DIP Switch No.8 'ON' to begin the Non-Paper Calibration Procedure.
13. When the Non-Paper Adjustment and EEPROM data writing procedures are complete, confirm that the Front Panel LED is lit a **Blue** Color.



WARNING: If the adjustments and/or EEPROM Data writing procedures are not successfully completed, the **Red** LED will light! In this case, start the procedure over again from the very beginning.


Performance Test Diagnostics

The Taiko™ Unit is equipped with various diagnostic features to aid in repair and maintenance. This portion describes the test procedure required for each function using specific DIP Switch settings to identify the cause of a suspect failure condition.

In order to identify a failure condition's cause, the Taiko™ Unit has to be in the TEST Mode.

The various Taiko™ Tests available and their related DIP Switch settings are listed in Table 6-2.

Table 6-2 Taiko TEST DIP Switch Settings

|  | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| Setting Function | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 |
| DIP Switch Test | ON | ON | ON | ON | ON | ON | ON | ON |
| Transport Motor Forward Rotation Test | ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| Transport Motor Reverse Rotation Test | ON | ON | OFF | OFF | OFF | OFF | OFF | OFF |
| Aging Test | ON | ON | OFF | ON | OFF | OFF | OFF | OFF |
| Solenoid Test | ON | ON | ON | ON | OFF | OFF | OFF | OFF |
| Acceptance Test | ON | OFF | OFF | OFF | ON | OFF | OFF | OFF |
| Entrance Flapper Test | ON | OFF | OFF | ON | ON | OFF | OFF | OFF |
| Exit Flapper Test | ON | ON | OFF | ON | ON | OFF | OFF | OFF |

DIP SWITCH TESTS

Prior to entering the Test Mode, perform the following steps to test the DIP Switch Functions:

1. Set all DIP Switches to their ON position and supply Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Front Panel LED will light a steady **Yellow** Color.
3. Set DIP Switches No. 1, 5 and 7 to **OFF**, and verify that the Front Panel LED lights **Green**.
4. Now, set DIP Switches No. 2, 4, 6 and 8 to **OFF**, and verify that the Front Panel LED lights **Blue**.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

No.1 Transport Motor Forward Rotation Test

This Test detects the Taiko™ Units forward Motor speed rotational rate. Confirm that the Motor operates smoothly without emitting abnormal noise.

1. Set DIP Switch No.1 to ON and supply power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Transport Motor will rotate in a forward direction. The **Blue** Front Panel LED will flash, and despite the number of flashes, the Test is complete when no error is detected.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

No.2 Transport Motor Reverse Rotation Test

This Test detects the Taiko™ Unit's reverse Motor speed rotational rate. Confirm that the Motor operates smoothly without emitting abnormal noise.

1. Set DIP Switch No.1 and No.2 ON and supply power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Transport Motor will rotate in a reverse direction. The **Blue** Front Panel LED will flash, and despite the number of flashes, the Test is complete when no error is detected.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

No.3 Aging Test Procedure

This Test detects component aging within the Taiko™ Unit. Proceed as follows to perform the Aging Test:

1. Set DIP Switches No. 1, 2 and 4 ON and supply the Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Taiko™ Unit will begin repeating the following operation continuously:
 - The Motor rotates forward, then
 - The Motor rotates in reverse.

A **Blue** Front Panel Color indicates proper operation.

If a Sensor error occurs during an Aging Test, the Taiko™ will stop operating. The Sensor exhibiting the error can be determined by counting the number of **Red** LED flashes and comparing the count to the list in the first part of Table 6-3.

Table 6-3 Aging Test Error Codes

| Flash No. & Color | Sensor Location |
|-------------------|--|
| 1 | Right Entrance Sensor |
| 2 | Left Entrance Sensor |
| 3 | Upper Transit Sensor |
| 4 | Lower Transit Sensor |
| 5 | Entrance Solenoid Sensor |
| 6 | Exit Solenoid Sensor |
| 7 | VEND Lever Sensor |
| 8 | Encoder Sensor |
| 1 | Right IR Transmissive (Upper to Lower) |
| 2 | Left IR Transmissive (Upper to Lower) |
| 3 | Right Red Transmissive (Upper to Lower) |
| 4 | Left Red Transmissive (Upper to Lower) |
| 5 | Right NIR Transmissive (Upper to Lower) |
| 6 | Left NIR Transmissive (Upper to Lower) |
| 7 | Right Blue Transmissive (Upper to Lower) |
| 8 | Left Blue Transmissive (Upper to Lower) |
| 1 | Right IR Transmissive (Upper to Lower) |
| 2 | Left IR Transmissive (Upper to Lower) |

Table 6-3 Aging Test Error Codes (Cont.)

| Flash No. & Color | Sensor Location |
|-------------------|--|
| 3 | Right Red Transmissive (Upper to Lower) |
| 4 | Left Red Transmissive (Upper to Lower) |
| 5 | Right NIR Transmissive (Upper to Lower) |
| 6 | Left NIR Transmissive (Upper to Lower) |
| 7 | Right Blue Transmissive (Upper to Lower) |
| 8 | Left Blue Transmissive (Upper to Lower) |

No.4 Solenoid Test Procedure

The Solenoid Test detects the Solenoid's normal operating condition. Proceed as follows to perform a Solenoid Test:

1. Set DIP Switch No. 1, 2, 3 and 4 ON and supply the Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Taiko™ Unit will begin the following test operation:
 - The Entrance Flapper will operate ON & OFF, then
 - The Exit Flapper operates ON & OFF.

The Front Panel LED will light **Blue** indicating the Test is complete and no error was detected.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

Table 6-4 Solenoid Error Codes

| Red Flashes | Error Indicated |
|-------------|--|
| 1 | Entrance Solenoid not Energizing |
| 2 | Entrance Solenoid Energizing, but does not release |
| 3 | Exit Solenoid not Energizing |
| 4 | Exit Solenoid Energizing, but does not Release |

No.5 Acceptance Test Procedure

The Acceptance Test detects the proper presence of inserted Banknotes. Proceed as follows to perform an Acceptance Test:

1. Set DIP Switch No.1 and No.5 **ON** and supply the Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test.
3. Insert a Banknote into the Taiko™ Unit. If the Banknote is returned the **Red** LED will flash a specific number of times indicating the return error condition. Table 6-5 lists the flash counts and the related error condition.

Table 6-5 LED Flash Error Codes

| Red Flashes | Error Indicated |
|-------------|--|
| 2 | ROM Error |
| 3 | Banknote Jam inside Acceptor |
| 4 | Banknote Remaining in the Transport Path |
| 5 | Adjustment Error |

Table 6-5 LED Flash Error Codes (Cont.)

| Red Flashes | Error Indicated |
|-------------|---------------------------------------|
| 6 | Motor Error |
| 8 | Entrance Solenoid Error |
| 9 | Exit Solenoid Error |
| 12 | Sensor Operating with Abnormal Timing |
| 1 | Slanted Banknote Insertion Rejection |
| 4 | X-Rate Error |
| 5 | Banknote Transportation Error |
| 7 | Pattern Error |
| 8 | Photo Level Error |
| 9 | Inhibit Setting Value Rejection |
| 13 | Banknote Length Error |
| 14 | IR/Red Error |
| 15 | Counterfeit Currency Rejection |

No.6 Entrance Flapper Test Procedure

The Entrance Flapper Test detects proper Entrance Flapper operation. Proceed as follows to perform an Entrance Flapper Test:

1. Set DIP Switches No. 1, 4 and 5 **ON** and supply the Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Taiko™ Unit will begin repeating the Entrance Flapper open and close testing operation. The **Blue** Front Panel LED will light indicating the Test is complete and no error was detected.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

No.7 Exit Flapper Test Procedure

The Exit Flapper Test detects proper Exit Flapper operation. Proceed as follows to perform an Exit Flapper Test:

1. Set DIP Switches No. 1, 2, 4 and 5 **ON** and supply Power to the Taiko™ Unit.
2. Set DIP Switch No.1 to **OFF** to begin the Test. The Taiko™ Unit will begin repeating the Exit Flapper open and close testing operation. The **Blue** Front Panel LED will light indicating the Test is complete and no error was detected.



WARNING: If the Red LED lights, the DIP Switch Block is faulty.

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Taiko™ Series Banknote Acceptor

Section 7

7 EXPLODED VIEWS AND PARTS LISTS

This section provides product exploded views and parts lists for the Taiko™ Banknote Acceptor (PUB-7/11®) Series. This section contains the following information.

- Primary Taiko Unit Exploded View
- Complete Taiko Unit Exploded View
- Taiko Bezel Unit Exploded View.

Entire Taiko Unit Exploded View

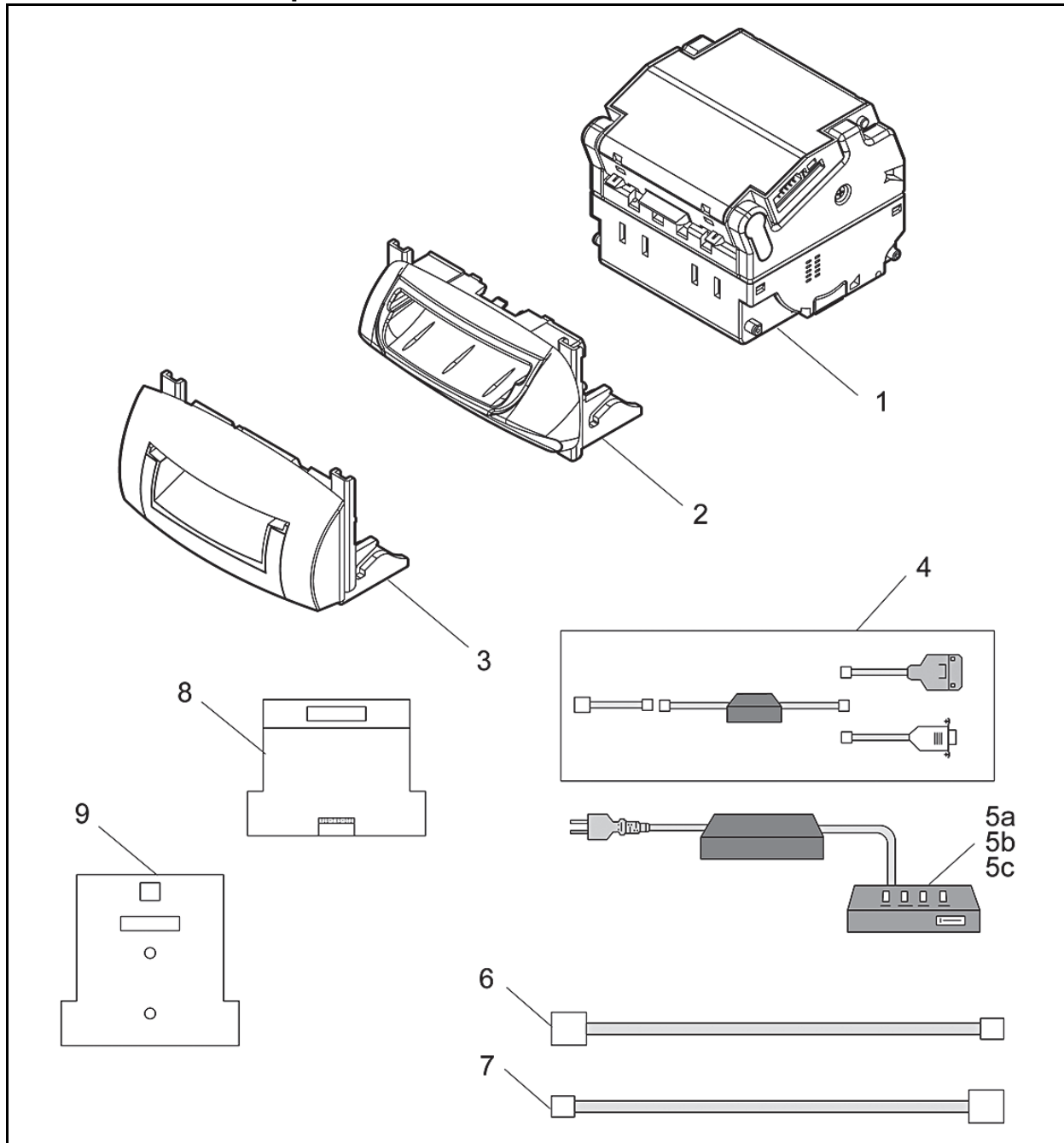


Figure 7-1 Entire Taiko Unit Exploded View

Primary Taiko PUB-7/11 Unit Parts List

Table 7-1 Primary Taiko PUB-7/11 Unit Parts List

| Ref No. | EDP No. | JAC Part No. | Description | Remark |
|---------|---------|-----------------|----------------------------------|--|
| 1 | -- | -- | PUB-7 Unit | (See Figure 7-2 for individual parts) |
| | -- | -- | PUB-11 Unit | (See Figure 7-2 for individual parts) |
| 2 | -- | -- | PUB-7 Bezel | (See Figure 7-3 for individual piece parts) |
| 3 | -- | -- | PUB-11 Bezel | (See Figure 7-3 for individual piece parts) |
| 4 | 116488 | 400-100573RA | TAIKO Harness B (Option) | Assembly for loading Software from a PC or Palm Pilot® |
| | G00172 | ← Order JCMEu # | Download Dongle | |
| 5a | 116125 | 501-000187RA | JCM Power Supply Unit (Option) | |
| 5b | G00205 | ← Order JCMEu # | UAC Power Supply | |
| 5c | G00176 | ← Order JCMEu # | MIB 232 Power Supply | |
| 6 | 127527 | 400-100551RA | TAIKO Harness A (Option) | For connecting PUB-7/11 Unit to Power Supply Unit |
| | G00183 | ← Order JCMEu # | Harness (for UAC or MIB 232 PSU) | |
| | G00182 | ← Order JCMEu # | Harness (for ccTalk) | |
| 7 | 124528 | 400-100589RA | Clone Harness (Option) | For Cloning Units |
| 8 | 119581 | 501-100200RA | KS-070 Calibration Paper | For Calibrating Units |
| 9 | 197917 | 501-100256R | KS-088 Calibration Paper | For Calibrating PUB-7-11 Units that contain Barcode Coupon reading capabilities. |

Complete Taiko Unit Exploded View

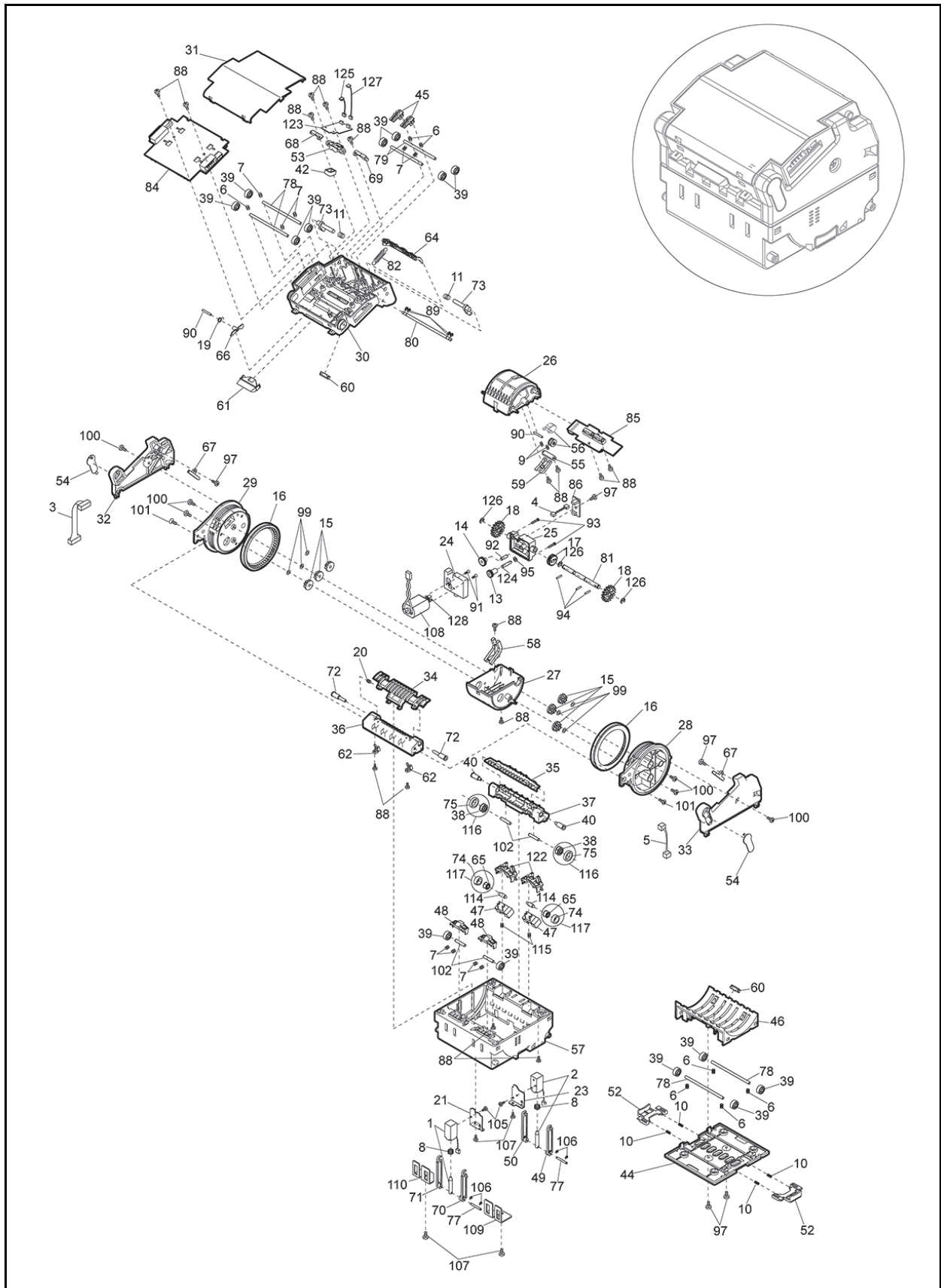


Figure 7-2 Complete Taiko PUB-7/11 Unit Exploded View

Complete Taiko PUB-7/11 Units Parts List**Table 7-2** Complete Taiko PUB-7/11 Units Parts List

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|--------------|-------------------------|-----|--|
| 1 | 115543 | 451-100102RA | Entrance Solenoid | 1 | |
| 2 | 115544 | 451-100103RA | Exit Solenoid | 1 | |
| 3 | 114977 | 400-100558RA | Relay Harness (14P) | 1 | |
| 4 | 114978 | 400-100559RA | PI Harness (3P) | 1 | |
| 5 | 114980 | 400-100560RA | Relay Harness 2 (4P) | 1 | |
| 6 | 115484 | 250-100549RA | Pinch Roller Spring (A) | 8 | |
| 7 | 115485 | 250-100550RA | Pinch Roller Spring (B) | 8 | |
| 8 | 115486 | 250-100551RA | Solenoid Spring | 2 | |
| 9 | 115487 | 250-100552RA | Magnetic Roller Spring | 2 | Used in PUB-11 Only |
| 10 | 115488 | 250-100553RA | Lower Guide Lock Spring | 4 | |
| 11 | 115511 | 250-100554RA | Lock Spring | 2 | |
| 13 | 110923 | 900-100987RA | Worm Gear | 1 | |
| 14 | 110914 | 900-100988RA | Idle Gear | 1 | |
| 15 | 110915 | 900-100989RA | Gear Guide | 6 | |
| 16 | 120664 | 550-100646RA | Feed Roller Assy. | 2 | |
| 17 | 110924 | 900-100990RA | Worm Gear Wheel | 1 | |
| 18 | 110925 | 900-100991RA | Drive Gear | 2 | |
| 19 | 115509 | 250-100555RA | Shutter Sensor Spring | 1 | |
| 20 | 115510 | 250-100556RA | Shutter Spring | 1 | |
| 21 | 115491 | 200-200285R | Solenoid Bracket (B) | 1 | |
| 23 | 115493 | 200-200287R | Solenoid Bracket | 1 | |
| 24 | 110865 | 900-100992RA | Gear Box B | 1 | |
| 25 | 110866 | 900-100993RA | Gear Box A | 1 | |
| 26 | 110867 | 900-100994RA | Center Guide A | 1 | |
| 27 | 110868 | 900-100995RA | Center Guide B | 1 | |
| 28 | 110869 | 900-100996RA | Center Guide Right | 1 | |
| 29 | 110870 | 900-100997RA | Center Guide Left | 1 | |
| 30 | 110871 | 900-100998RA | Upper Guide | 1 | For use only in NON-Parallel Interfaced Units (See Table A-4 & Table A-5 on page A-4 of Appendix A in this Service Manual) |
| 31 | 110872 | 900-200136RA | Upper Guide Cover | 1 | |
| 32 | 110873 | 900-101000RA | Side Cover Left | 1 | |
| 33 | 110874 | 900-101001RA | Side Cover Right | 1 | |
| 34 | 110875 | 900-101002RA | Guide Lever A | 1 | |
| 35 | 110876 | 900-101003RA | Guide Lever B | 1 | |
| 36 | 110877 | 900-101004RA | Center Guide C | 1 | |
| 37 | 110878 | 900-101005RA | Rear Guide | 1 | |
| 38 | 110879 | 550-100613RA | Drive Pulley | 2 | |
| 39 | 110880 | 900-101006RA | Pinch Roller | 14 | |
| 40 | 110881 | 200-200288R | Lever Bushing (A) | 2 | |
| 42 | 110885 | 550-100614RA | Dummy Head | 1 | Used only in PUB-7 WITHOUT Barcode Sensor capability |

Table 7-2 Complete Taiko PUB-7/11 Units Parts List (Continued)

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|--------------|------------------------|-----|---|
| 44 | 110889 | 900-101008RA | Lower Guide Cover | 1 | |
| 45 | 110890 | 250-100557RA | Spring Guide | 2 | |
| 46 | 110892 | 900-101009RA | Lower Guide | 1 | |
| 47 | 127512 | 900-101045RA | Idle Slider | 2 | |
| 48 | 110894 | 200-200290RA | Clamp B | 2 | |
| 49 | 110895 | 200-200379RA | Lever Link Left | 1 | |
| 50 | 110896 | 200-200380RA | Lever Link Right | 1 | |
| 52 | 110898 | 200-200293RA | Lower Guide Lock | 2 | |
| 53 | 131655 | 550-100615RA | Magnetic Head Holder | 1 | Used only in PUB-7 Units NOT containing a Barcode Sensor or operating at 12/ 24Volts |
| 54 | 110900 | 900-200137RA | Harness Cover | 2 | |
| 55 | 110903 | 900-101011RA | Spring Stopper | 1 | |
| 56 | 110904 | 900-101024RA | Magnetic Head Roller | 1 | Used only in PUB-7/11 Units NOT containing a Barcode Sensor. (See Table A-4 & Table A- 5 on page A-4 of Appendix A in this Service Manual) |
| 57 | 110906 | 900-101025RA | Lower Base | 1 | |
| 58 | 110907 | 900-101012RA | Prism (A) | 1 | |
| 59 | 110908 | 900-101013RA | Prism (B) | 1 | |
| 60 | 110909 | 900-101014RA | Prism (C) | 2 | |
| 61 | 110910 | 900-101015RA | Right Guide | 1 | |
| 62 | 110911 | 900-101016RA | Prism (D) | 2 | |
| 64 | 110955 | 200-200381RA | Sensor Lever | 1 | |
| 65 | 115494 | 550-100615RA | Drive Pulley (F) | 2 | |
| 66 | 115495 | 200-200294RA | Shutter Sensor lever | 1 | |
| 67 | 115496 | 900-101017RA | Exit Prism (A) | 2 | |
| 68 | 115497 | 900-101018RA | Exit Prism (B) Left | 1 | |
| 69 | 115498 | 900-101019RA | Exit Prism (B) Right | 1 | |
| 70 | 115499 | 900-101020RA | Guide Lever Link Right | 1 | |
| 71 | 115500 | 900-101021RA | Guide Lever Link Left | 1 | |
| 72 | 115501 | 200-200295RA | Lever Bushing (B) | 2 | |
| 73 | 097342 | 200-200296RA | Locking Lever | 2 | |
| 74 | 115502 | 900-101022RA | Reject Roller (F) | 2 | |
| 75 | 115503 | 900-101023RA | Reject Roller | 2 | |
| 77 | 115507 | 200-200297RA | Solenoid Shaft | 2 | |
| 78 | 115490 | 200-200298RA | Pinch Roller Shaft | 4 | |
| 79 | 115505 | 200-200299RA | Pinch Roller Shaft (B) | 2 | |
| 80 | 115956 | 200-200300RA | Sensor Lever Shaft | 1 | |
| 81 | 115489 | 200-200301RA | Drive Gear Shaft | 1 | |
| 82 | 115508 | 250-100558RA | Sensor Lever Spring | 1 | |

Table 7-2 Complete Taiko PUB-7/11 Units Parts List (Continued)

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|--------------|--|-----|--|
| 84 | 109360 | 300-100422RA | CPU Board, Pub-7, TWN/GBR/SCO | 1 | Used in PUB EDP #121383 Only (for use in early PUB-7 Versions only) |
| | 137778 | 300-500011RA | CPU Board, Pub -7/11, USA | 1 | Used in Standard PUB 7-11 Units for all Countries |
| | 148060 | 300-000007R | CPU Board, Pub -7/11, USA, W/O D19 Poly Vinyl Slider (OEM for ICA) | 1 | Used in PUB EDP #148061 Only (e.g., Diode D19 was removed) |
| | 136375 | 300-000008R | CPU Board, Pub-7, ID001/004 EUR | 1 | Used in PUB EDP #139238 Only (for ID-001/044 Parallel Interface for all Countries) |
| | 189025 | 300-000009R | CPU Board, Pub-7, 12V/24V EUR | 1 | Used in PUB EDP #189306 & #195059 Only (for 12/24Volt Units only) |
| 85 | 137777 | 300-500020RA | Sensor Board | 1 | |
| 86 | 114831 | 300-100426RA | Interrupter Board | 1 | |
| 88 | 082040 | 186-261006RA | 2.6x6 Phillips, Self Tightening, Pan Head Screw | 16 | |
| 89 | 003705 | 100-100029R | Ø2 E-Ring Ø2 | 4 | |
| 90 | 090776 | 200-200302RA | Ø2x14 Parallel Pin | 1 | For PUB-7-11 Units containing a Barcode Sensor |
| | | | | 2 | For Standard PUB-7-11 Units without a Barcode Sensor |
| 91 | 006022 | 171-200040RA | M2x4 Flat Head Screw | 2 | |
| 92 | 072361 | 200-200303RA | Ø3x10 Parallel Pin | 1 | |
| 93 | 062887 | 186-200010RA | M2x10 Phillips Self Tightening Pan Head Screw | 2 | |
| 94 | 104019 | 200-200304RA | Ø1.6x8 Parallel Pin | 3 | |
| 95 | 006026 | 142-306005 | 3x6x0.5 Flat Washer | 1 | |
| 97 | 057260 | 186-265000RA | M2.6x5 Phillips Self Tightening Pan Head Screw | 5 | |
| 99 | 116015 | 900-026508RA | Ø2x6.5x0.8 Poly Vinyl Slider | 6 | |
| 100 | 107111 | 189-100310RA | M3x10 Phillips Self Tightening Binding Screw | 6 | |
| 101 | 092229 | 171-300008RA | M3x8 Phillips Self Tightening Flat Head Screw | 2 | |
| 102 | 109658 | 200-200305RA | M3x16 Parallel Pin | 4 | |
| 105 | 006244 | 171-200103RA | M2x3 Pan Head Screw | 4 | |
| 106 | 003704 | 100-100042RA | Ø1.5 E-Ring | 4 | |
| 107 | 116909 | 189-261000RA | M2.6x10 Phillips Self Tightening Pan Head Screw | 4 | |
| 108 | 115545 | 550-100647RA | Transport Motor Assy. | 1 | |
| 109 | 127557 | 200-200306RA | Bezel Installation Plate Right | 1 | |
| 110 | 127555 | 200-200307RA | Bezel Installation Plate Left | 1 | |
| 114 | 127512 | 200-200385RA | Idle Slider | 2 | |
| 115 | 127511 | 250-100617RA | Idle Roller Spring | 2 | |
| 116 | 127519 | 550-100618RA | Drive Pulley Assembly | 2 | For use with Items 38 & 75 on page 7-4 of this Section |
| 117 | 127518 | 550-100619RA | Drive Pulley (F) Assembly | 2 | For use with Items 65 & 74 on page 7-5 of this Section |
| 122 | 127513 | 200-200307RA | Clamp (A-N) | 2 | |

Table 7-2 Complete Taiko PUB-7/11 Units Parts List (Continued)

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|------------------|---|-----|---|
| 123 | 130880 | 300-200130RA | Magnetic (MAG) Sensor Board | 1 | For use only in PUB-11 NOT operating at 12/24V |
| | 189072 | 300-000010R | VC/MS Conversion Sensor Board (no MAG Sensor) | 1 | For use with PUB-7 when operating at 12/24V |
| | 189071 | ← Order by EDP # | VC/MS Conversion Sesor Board (with MAG Sensor) | 1 | For use only in PUB-11 operating at 12/24V |
| | 195055 | 300-000011R | Barcode Sensor Board (no MAG Sensor) | 1 | For use with PUB-11 with Barcode Sensor capability |
| 124 | 074666 | 200-200382RA | 3x15 Parallel Pin | 1 | |
| 125 | 131072 | 400-100590RA | MAG Sensor Relay Harness | 1 | For PUB-11 Only |
| 126 | 003707 | 100-100043R | Ø3 E-Ring | 3 | |
| 127 | 189305 | ← Order by EDP # | Power Relay Harness | 1 | |

Taiko Bezel Unit Exploded View

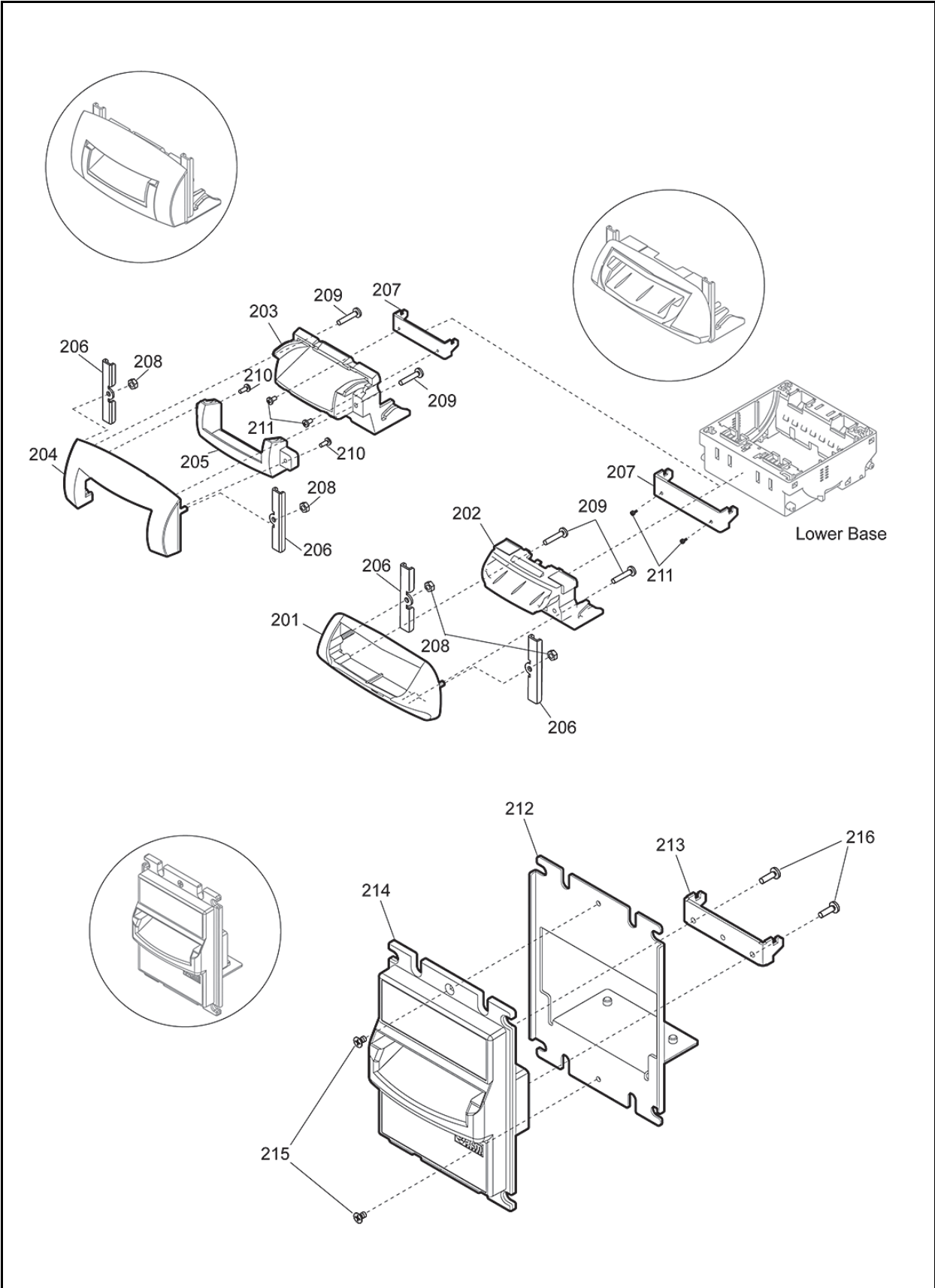


Figure 7-3 Taiko PUB-7/11 Bezel Unit Exploded View

Taiko PUB-7/11 Bezel Units Parts List**Table 7-3** Taiko PUB-7/11 Bezel Units Parts List

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|------------------|--|-----|------------------------------|
| 201 | 110884 | 200-200384RA | Bezel | 1 | |
| 202 | 110897 | 900-100981RA | PUB-7 Bezel Guide for EURO (68mm) | 1 | Type 1 |
| | 118069 | 900-100983RA | PUB-7 Bezel Guide for GBR/SCO (76mm) | 1 | Type 2 |
| | 121519 | 900-100984RA | PUB-7 Bezel Guide (71mm) | 1 | Type 3 |
| 203 | 131111 | 900-200135RA | PUB-11 US Bezel Guide (67mm) | 1 | Type 5 |
| 204 | 131108 | 900-100976RA | US Bezel A (67mm) | 1 | |
| 205 | 131109 | 900-100977RA | US Bezel B (37mm) | 1 | |
| 206 | 115492 | 200-200383RA | Bezel Bracket | 2 | |
| 207 | 127556 | 200-200308RA | Bezel mounting Hook | 1 | |
| 208 | 116908 | 140-031033RA | Hexagonal Nut M4 | 2 | |
| 209 | 116910 | 189-000410RA | M4x10 P Phillips Self Tightening Binding Screw | 2 | |
| 210 | 080908 | 181-000036RA | 3x6 Phillips Self Tightening Binding Screw | 2 | |
| 211 | 006037 | 186-400015R | 3x12 Pan Head with Sems Screw | 2 | |
| 212 | 143685 | 200-000339R | Bezel Plate Assy | 1 | |
| 213 | 143686 | 200-000340R | Bezel Hook | 1 | |
| 214 | 143147 | 902-100492RA | Bezel (V) | 1 | |
| | 201847 | ← Order by EDP # | Bezel (V) | 1 | Intended for OEM Development |
| 215 | 005332 | 175-330005 | M3x5 Flat Head Screw | 2 | |
| 216 | 107111 | 189-100310RA | M3x10 Phillips Self Tightening Binding Screw | 2 | |

Taiko EBA Type Bezel Unit Exploded View

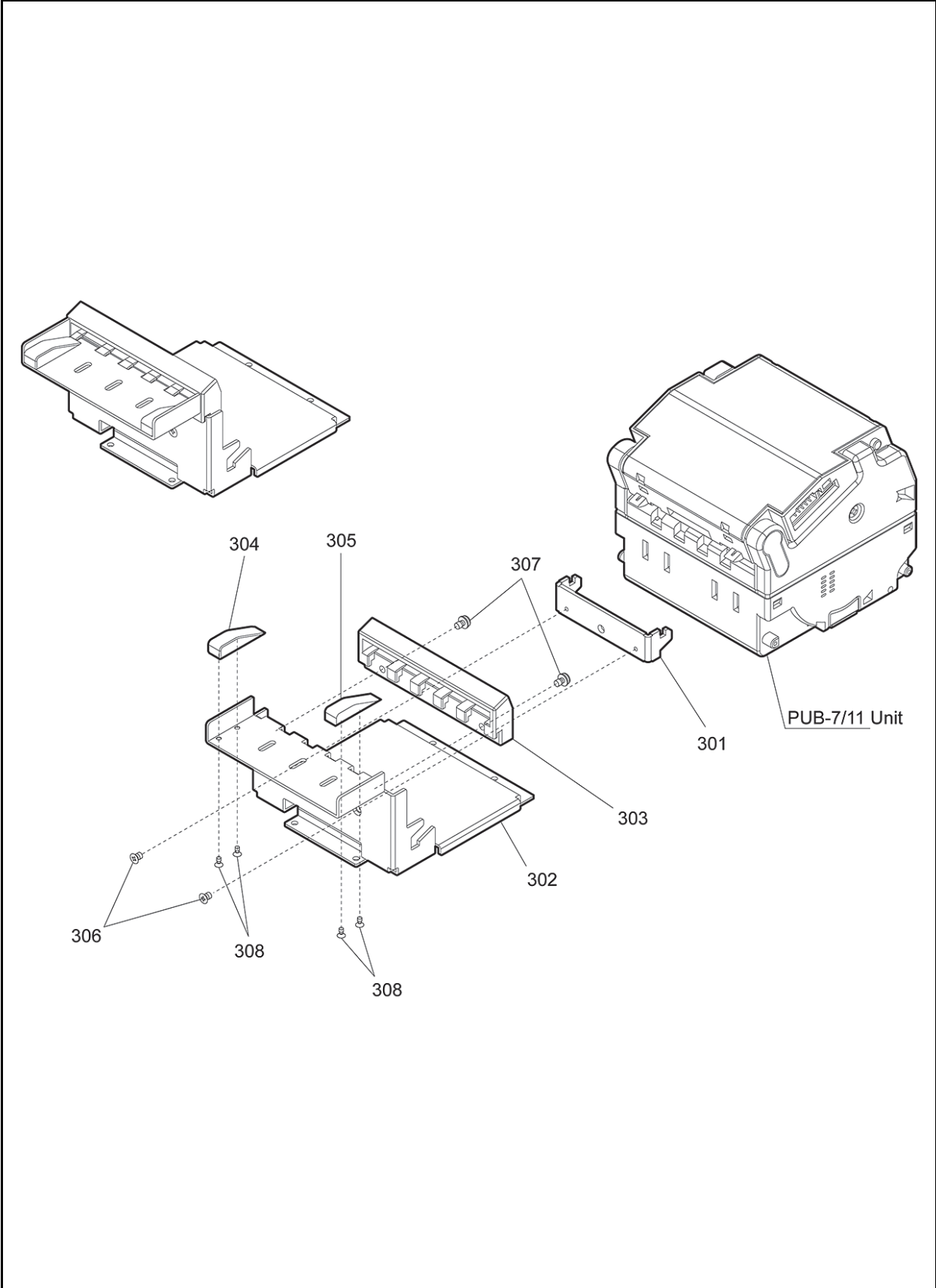


Figure 7-4 Taiko EBA Type Bezel Unit Exploded View

Taiko EBA Type Bezel Units Parts List**Table 7-4** Taiko EBA Type Bezel Units Parts List

| Ref No. | EDP No. | JAC Part No. | Description | Qty | Remark |
|---------|---------|--------------|---|-----|----------|
| 301 | 127556 | | Face Fix Hook | 1 | |
| 302 | 187815 | | EBA Type Bezel A | 1 | |
| 303 | 187817 | | EBA Type Bezel B | 1 | |
| 304 | 187819 | | Guide 68 L | 1 | |
| | 187822 | | Guide 71 L | 1 | Width 71 |
| | 187824 | | Guide 76 L | 1 | Width 76 |
| 305 | 187821 | | Guide 68 R | 1 | |
| | 187823 | | Guide 71 R | 1 | Width 71 |
| | 187825 | | Guide 76 R | 1 | Width 76 |
| 306 | 149635 | | M3x4 Flat Small Head Screw | 2 | |
| 307 | 001767 | | M3x5 Screw with Washer (Small) | 2 | |
| 308 | 131154 | | 2x4 Phillips, Self Tightening, Flat Screw | 4 | |

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Taiko™ Series

Banknote Acceptor

Section 8

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Taiko™ Series

Banknote Acceptor

Appendix A

A TROUBLESHOOTING

This section provides Troubleshooting instructions for the Taiko™ Banknote Acceptor (PUB-7/11) Series. This section contains the following information:

- Introduction
- Troubleshooting Overview
- Fault Table Listings
- Usage Specifications
- Error Codes and Conditions.

Introduction

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

Faulty Banknote acceptance by the Validator portion of the Unit is often caused when dust or Iron powder adheres to the Identification Sensor, Magnetic Sensor or Transport Belt. Clean the Acceptor section first, then observe the operating state of the Validator in detail when re-initializing power. This observation is important in locating any failure

causes and the possible fault area. If the Validator Head has to be repaired by disassembling it, always re-calibrate the Sensors following a repair.

Perform all repairs by referring to Calibration and Testing in Section 6 of this manual, and Disassembly/Reassembly in Section 4 of this manual.

Troubleshooting Overview

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

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

Fault Table Listings

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

Table A-6 lists the Red LED Color Flash Error Code that may occur during normal and dynamic testing operations.

Table A-1 General Fault Conditions

| Symptoms/Error Messages | Possible Fault Causes | Corrective Action Required |
|--|--|--|
| Banknote Acceptor is not working (does not accept any Banknotes). | Power is not supplied to the Acceptor | Verify that the specified Voltage and Ground Connections are supplied to appropriate Pins of the Interface Connector. |
| | Incorrect Connection | Verify that all Harnesses and Connectors are properly fitted. Verify if any Connector Pins are bent, missing, or broken. Verify if the specified Voltage is being supplied to the appropriate Pin (See "Power Harness Wiring Procedure" on page 2-2 of Section 2 in this Service Manual). |
| | Correct Software is not downloaded | Download the appropriate Software to the Taiko Unit (See "Software Downloading Procedure" on page 6-2 of Section 6 in this Service Manual). |
| | CPU and/or Sensor Board Failure | Perform the Acceptance Test (See "Performance Test Diagnostics" on page 6-7 of Section 6 in this Service Manual). If the Acceptance Test result is unacceptable, replace the CPU and/or Sensor Circuit Board (See "CPU Circuit Board Removal" and "Sensor Circuit Board Removal" on page 4-2 of Section 4 in this Service Manual). Once the CPU/Sensor Board is replaced, perform a complete Calibration Procedure (See the "Calibration Procedures" on page 6-7 of Section 6 in this Service Manual). |
| | The Entrance Sensor is not working or there is a foreign object lodged within the entrance area | Remove ANY foreign objects in the Transport Path and clean the Entrance Sensor (See "Cleaning Procedures" on page 2-6 in Section 2 of this Service Manual). Perform the Aging Test (See No.3 "Aging Test Procedure" on page 6-8 in Section 6 of this Service Manual). If any Sensor error is detected, replace the CPU/Sensor Board (See "CPU Circuit Board Removal" in Section 4 of this Service Manual). |

Table A-1 General Fault Conditions (Continued)

| Symptoms/Error Messages | Possible Fault Causes | Corrective Action Required |
|---|---|---|
| Banknote jams occur often. | A Feed or Pinch Roller is soiled or broken | Clean the Feed or Pinch Roller (See "Cleaning Procedures" on page 2-6 in Section 2 of this Service Manual). If any roller corruption is found, replace the defective Roller; then perform the "Sensor Circuit Board Removal" on page 4-2 of Section 4 in this Service Manual. |
| (Continued) Banknote jams occur often. | The Feed or Pinch Roller Spring is missing or loose | Examine the Feed and/or Pinch Roller Spring's condition and replace it as required if damage or fatigue is noted. |
| | A foreign object exists on the Transport Path | Remove ANY foreign object(s) found on the Transport Path and clean the path (See "Clearing a Banknote Jam" on page 2-2 of Section 2 in this Service Manual). |
| | Incorrect Bezel width for Banknote being inserted | Change the Bezel Guide to represent the correct Banknote width specification (See "Installing the PUB-7/11 Taiko Bezel" on page 2-1 of Section 2 in this Service Manual). |
| | The Banknote width is 83mm or larger or 62mm or smaller (Out of Taiko Design Specification) | Use only the acceptable Banknote width ("Technical Specifications" on page 1-6 of Section 1 in this Service Manual). |
| Acceptance rates is low | Rollers, Belts and Lenses are soiled with dirt | Clean the Rollers, Belts and Lenses ("Cleaning Procedures" on page 2-6 in Section 2 of this Service Manual, and perform the "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| | Sensors need adjustment | Adjust the Taiko Unit Sensors (See "Cleaning Procedures" on page 2-6 in Section 2 of this Manual and perform the "Calibration Procedures" on page 6-7 of Section 6 in this Service Manual). |
| | Taiko unit has not been adjusted following disassembly | Readjust the Taiko Unit (See "Cleaning Procedures" on page 2-6 in Section 2 of this Service Manual and perform the "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| | The Software revision is out of date | Download and install the latest Software Program (See "Software Downloading Procedure" on page 6-2 in Section 6 of this Service Manual). |
| | The Software program for the Banknote inserted is not supported | Verify if the denomination's value issued year is appropriate for that specified in the specific Country's Software Information Sheet (See Table 1-2, "Taiko PUB-7/11 Technical Specification," on page 1-6 of Section 1 in this Service Manual). |
| All Banknotes being returned | The Loaded Software does not match the currency being validated | Download the appropriate Software program to the Taiko Unit (See "Software Downloading Procedure" on page 6-2 in Section 6 of this Service Manual). |
| | DIP Switch Settings are wrong | Reset the Acceptance DIP Switch settings correctly and reapply power to the Unit (See "DIP Switch Configurations" on page 2-3 in Section 2 of this Service Manual). |
| | The Host Command is set to "inhibit" Mode | Reset the Host Command to the "Accept" Mode. |
| | A CPU/Sensor failure has occurred | Replace the CPU and/or Sensor Circuit Board (See "CPU Circuit Board Removal" and "Sensor Circuit Board Removal" on page 4-2 of Section 4 in this Service Manual). Once the CPU/Sensor Board is replace, perform a complete Calibration Procedure (See "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| | Sensors needs to be cleaned and readjusted | Readjust the Taiko Unit Sensors (See "Cleaning Procedures" on page 2-6 in Section 2 of this Service Manual and perform the "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| Motor rotates a few times and stops | CPU Circuit Board failure | Replace the CPU Circuit Board (See "CPU Circuit Board Removal" procedure on page 4-1 of Section 4 in this Service Manual). |
| | DIP Switch Settings are wrong | Reset the Acceptance DIP Switch settings correctly and reapply power to the Unit (See "DIP Switch Configurations" on page 2-3 in Section 2 of this Service Manual). |
| Can not enter the TEST mode. | A DIP Switch is suspect as broken | Perform the "DIP Switch Tests" on page 6-8 of Section 6 in this Service Manual. If the DIP Switch Test result is good, replace the CPU Circuit Board (See "CPU Circuit Board Removal" procedure in Section 4 of this Service Manual). Once the CPU Circuit Board is replace, perform a complete Calibration Procedure (See "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| | CPU Board failure. | Replace the CPU Circuit Board (See "CPU Circuit Board Removal" procedure in Section 4 of this Service Manual). Once the CPU Circuit Board is replaced, perform a complete Calibration Procedure (See "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |

Table A-2 Adjustment Fault Conditions

| Symptoms/Error Messages | Possible Fault Causes | Corrective Action Required |
|-------------------------|----------------------------------|---|
| Adjustment Error | Wrong Reference Paper being used | Use the correct KS-070 or KS-88 specified Reference Paper for calibrating the Taiko Unit. |
| | CPU and/or Sensor Board Failure | Replace the CPU Circuit Board (See "CPU Circuit Board Removal" procedure in Section 4 of this Service Manual). Once the CPU Circuit Board is replaced, perform a complete Calibration Procedure (See "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |

Table A-3 Communication Fault Conditions

| Symptoms/Error Messages | Possible Fault Causes | Corrective Action Required |
|---|--------------------------------------|---|
| Cannot communicate with the Host Machine. | DIP Switch settings are incorrect | Set all DIP Switches to OFF and re-apply power to the Taiko Unit. |
| | Connectors are off or loosely fitted | Firmly re-seat all of the Communication Connectors. |
| | Damaged Connector Pin(s) | Check for any bent, missing or damaged Pins in the Connector Plugs and mating Receptacles. Straighten or replace Pins or the entire Connector. |
| | CPU and/or Sensor Board is corrupted | Replace the CPU and/or Sensor Circuit Board (See "CPU Circuit Board Removal" and "Sensor Circuit Board Removal" on page 4-2 of Section 4 in this Service Manual). Once the CPU/Sensor Board is replaced, perform a complete Calibration Procedure (See "Calibration Procedures" on page 6-7 in Section 6 of this Service Manual). |
| | Incorrect Interface | Verify that the correct interface between the Host Machine and the Banknote Acceptor is being used. If wrong, reset the Interface DIP Switches accordingly (See "DIP Switch Configurations" on page 2-3 in Section 2 of this Service Manual). |

Table A-4 Taiko Usage Specifications (Part 1)

| EDP No. → | | | | | | 110871 | 139230 | 131655 | 110904 | 196601 |
|-------------------|----------------|-----------|--------------------|----------------|-----------|-------------|----------------------|-----------------|-----------------|----------------------|
| Function Model | Pin Assignment | Interface | Input Power Source | Barcode Sensor | ICA (OEM) | Upper Guide | Upper Guide Parallel | Mag Head Holder | Mag Head Roller | Barcode Sensor Block |
| PUB-7 | Early Version. | Serial | 12V | - | - | O | X | O | O | X |
| | Standard | Serial | 12V | - | - | O | X | O | O | X |
| | Standard | Serial | 12V | Available | - | O | X | X | X | O |
| | Standard | Serial | 12V | - | Available | O | X | O | O | X |
| | Standard | Parallel | 12V | - | - | X | O | O | O | X |
| | Standard | Serial | 12V/24V | - | - | O | X | X | O | X |
| PUB-11 | Standard | Serial | 12V | - | - | O | X | X | O | X |
| | Standard | Serial | 12V | - | - | O | X | X | O | X |
| | Standard | Serial | 12V | - | Available | O | X | X | O | X |
| | Standard | Parallel | 12V | - | - | X | O | X | O | X |
| | Standard | Serial | 12V/24V | - | - | O | X | X | O | X |

Table A-5 Taiko Usage Specifications (Part 2)

| EDP No. → | 109360 | 137778 | 148060 | 136375 | 189025 | 900776 | 130880 | 189072 | 189071 | 195055 | 131072 | 189305 |
|-------------------|--------------------------------|-----------|-------------------|----------------------------|-----------------------|--------------------|-----------|----------------------|------------------------|----------------------|-------------------|---------------------|
| Function Model | CPU Board Early Pin Assignment | CPU Board | CPU Board for ICA | CPU Board for Parallel I/F | CPU Board for 12V/24V | Ø2x14 Parallel Pin | MAG Board | VC/MS Board (No MAG) | VC/MS Board (With MAG) | Barcode Sensor Board | MAG Relay Harness | Power Relay Harness |
| PUB-7 | O | X | X | X | X | Qty. 2 | X | X | X | X | X | X |
| | X | O | X | X | X | Qty. 2 | X | X | X | X | X | X |
| | X | O | X | X | X | Qty. 1 | X | X | X | O | X | X |
| | X | X | O | X | X | Qty. 2 | X | X | X | X | X | X |
| | X | X | X | O | X | Qty. 2 | X | X | X | X | X | X |
| | X | X | X | X | O | Qty. 2 | X | O | X | X | X | O |
| PUB-11 | X | O | X | X | X | Qty. 2 | O | X | X | X | O | X |
| | X | O | X | X | X | Qty. 2 | O | X | X | X | O | X |
| | X | X | O | X | X | Qty. 2 | O | X | X | X | O | X |
| | X | X | X | O | X | Qty. 2 | O | X | X | X | O | X |
| | X | X | X | X | O | Qty. 2 | X | X | O | X | X | O |

Error Codes and Conditions

Table A-6 lists the Red Error Code flash sequence definitions displayed by the Taiko Front Panel LED Indicator.

Table A-6 Red LED Error Code Flash Definitions

| Red Flashes | Error Indicated |
|-------------|--|
| 2 | ROM Error |
| 3 | Banknote Jam inside Ejection Slot |
| 4 | Banknote remains inside Transport Path |
| 5 | EEPROM Read/Write Error |
| 6 | Motor Error |
| 8 | Entrance Solenoid Error |
| 9 | Exit Solenoid Error |
| 12 | Sensor operation at an abnormal timing |

Taiko™ Series

Banknote Acceptor

Appendix B

B GLOSSARY

A

- 1 **Acceptor** – a term used in Communications Section 3 referencing functions sent to, and received from the Banknote Acceptor by Software commands ... See Page 1-1
- 2 **Anti-stringing Mechanism** – a method of preventing Banknotes from being illegally removed from a validator using a string or wire to retrieve it once it has been accepted by the Unit ... See Page 1-6

B

- 3 **Bezel** – The Banknote input Bezel portion of a Taiko PUB-7/11 Unit ... See Page 2-1

D

- 4 **DIP Switch** – acronym for a Dual In-line Package Switch - a Printed Circuit Board mountable two-position Slide Switch Package containing up to 16 individual ON/OFF throw Switches ... See Page 2-3

E

- 5 **E-Clip** – a semicircular clip designed to fit into a shaft groove to retain a component in place ... See Page 4-1
- 6 **EEPROM** – acronym for Erasable Programmable Read Only Memory ... See Page 6-7

F

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

I

- 8 **Identification Sensor** – optical sensors used for reading images on Banknotes for comparison to recorded known image information ... See Page A-1
- 9 **Interface** – also abbreviated as I/F. Signifies and identifies the Circuitry and/or Protocol for a specific communications standard ... See Page 2-5

M

- 10 **MAG Board** – a PUB-11 Circuit Board specifically designed to detect Magnetic Ink resident on specific Country's Banknotes ... See Page 4-2
- 11 **Magnetic Sensor** – a Sensor used to detect the Magnetic Ink present on certain Country's Banknote denominations ... See Page A-1
- 12 **MDB** – acronym for Machine Data Bus ... See Page 2-5

P

- 13 **Pictograph** – small internationally recognized safety and attentions Symbols placed to the left of Notes, Cautions and Warnings throughout this Manual ... See Page 1-1
- 14 **PUB-7/11** – abbreviation for PUBLIC House-Type/Type. Names for the original Taiko™ Beta Test Site ... See Page 1-1

S

- 15 **Setting Mode** – various selectable Modes available for setting specific operational conditions in the Taiko PUB-7/11 Unit ... See Page 2-4

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