

JCM TRAINING OVERVIEW

Taiko™ Banknote Validator
(PUB-7/11)

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Taiko™ Banknote Validator

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OVERVIEW

This training course addresses the following JCM Taiko™ Series versions:

Table 1 Various Taiko (PUB-7/11) Version Sensor Types

Unit	Currency Sensors Available
PUB-7	Optical, Transparency and Reflective
PUB-11	Optical, Transparency, Reflective and Magnetic

COMPONENT PART LOCATIONS

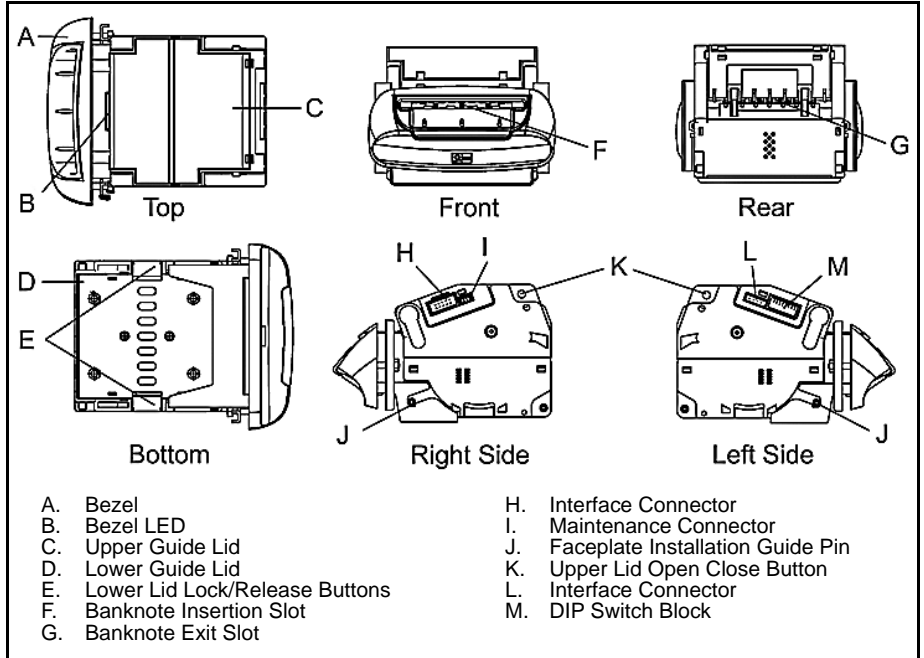


Figure 1 Taiko (PUB-7/11) Primary Component Parts

Lecture Notes

TAIKO (PUB-7/11) DIP SWITCH DESIGNATIONS

The Taiko™ Unit can be configured for various Communications Standards and Protocols. Refer to the Taiko™ Series (PUB-7/11) Operation and Maintenance Manual (JAC Part No. 960-100175R), Tables 2-5, 2-6 and 2-7 for locating specific Connector Pin designations for either Serial/MDB, CC-Talk or Pulse communication Protocols respectively.

Communications Protocols are selected via DIP Switch settings (Table 2).



NOTE: Always check the current Taiko™ Software Data Sheets to verify the proper DIP Switch settings required for your particular Unit.

Table 2 Typical Taiko DIP Switch Block Settings

SW No.	DIP Switch Position Setting																
1	OFF	Normal operation															
	ON	Test Mode (Setting Mode)															
2	OFF	1-time scan (without validation retry)															
	ON	2-time scan mode (with validation retry)															
3	OFF	When Pulse I/F Mode, depends on enable/disable signal.															
	ON	When Pulse I/F Mode, always enabled.															
4	OFF	1 time Spin Mode (1 Drum Rotation Cycle)															
	ON	5 time Spin Mode (5 Drum Rotation Cycles - Anti-Fishing Prevention)															
5	Serial I/F Mode (DIP Switch 8 OFF)																
	Pulse I/F Mode (DIP Switch 8 ON)																
6	<table border="1"> <thead> <tr> <th>SW5</th> <th>PULSE WIDTH</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>50ms/300ms</td> </tr> <tr> <td>ON</td> <td>50ms/50ms</td> </tr> </tbody> </table>		SW5	PULSE WIDTH	OFF	50ms/300ms	ON	50ms/50ms									
	SW5	PULSE WIDTH															
OFF	50ms/300ms																
ON	50ms/50ms																
7	<table border="1"> <thead> <tr> <th>SW6</th> <th>SW7</th> <th>I/F Setting</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>ID-003</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ID-0D3</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ID-0E3 (without Encryption)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ID-0E3 (with Encryption)</td> </tr> </tbody> </table>		SW6	SW7	I/F Setting	OFF	OFF	ID-003	ON	OFF	ID-0D3	OFF	ON	ID-0E3 (without Encryption)	ON	ON	ID-0E3 (with Encryption)
	SW6	SW7	I/F Setting														
OFF	OFF	ID-003															
ON	OFF	ID-0D3															
OFF	ON	ID-0E3 (without Encryption)															
ON	ON	ID-0E3 (with Encryption)															
8	OFF	Serial I/F Mode (Selected by DIP Switches 6 and 7)															
	ON	Pulse I/F Mode															



ENABLING TAIKO FEATURES

The Taiko™ setting for Banknote Acceptance and Front Panel LED Color Pattern oscillations can be changed using DIP Switch enable routines.

DENOMINATION SETTINGS

Specific Banknote denominations can either be accepted or rejected. To enable the acceptance of particular Banknote denominations, use the following “**Accept Mode**” Procedure.

Accept Mode

To enable Banknote acceptance, proceed as follows:

1. Remove power from the Taiko™ Unit.
2. Set DIP Switches #1 and #6 to ON.
3. Reapply power to the Unit.
4. After the Front Panel LED flashes WHITE, turn DIP Switch #1 OFF.
The BLUE LED will begin to flash.
5. Insert the Banknote to be accepted.
The Banknote will be read and held in place, and the BLUE LED will be ON (Steady). The Banknote will then be returned, and the BLUE LED will flash. Acceptance of the selected Banknote denomination is now enabled.
6. Continue to insert each desired Banknote denomination that is to be accepted.
7. When done, remove power from the Taiko™ Unit, reset the DIP Switches to their normal operating positions, and reapply power to the Unit.

To disable the acceptance of particular Banknote denominations, use the following “**Inhibit Mode**” Procedure. The default setting is to accept all Banknotes programmed in the existing operating software.

Inhibit Mode

To allow the Taiko™ Unit to reject or not accept a particular Banknote denomination, proceed as follows:

1. Remove power from the Taiko™ Unit.
2. Set DIP Switches #1, #6 and #7 to ON.
3. Reapply power to the Unit.
4. When the WHITE LED flashes, turn DIP Switch #1 OFF.
5. When the BLUE LED flashes, then flashes ORANGE, insert the Banknote that is to be disabled or not to be accepted.
The ORANGE LED will light steady while the Banknote is accepted and returned. This denomination of Banknote is now inhibited from being accepted.
6. Continue inserting each specific denomination Banknote to be inhibited.
7. When done, remove power from the Taiko™ Unit, reset the DIP Switches to their normal operating positions, and reapply power to the Unit.

ENTERING TEST MODE

Diagnostic Tests are initiated using DIP Switch #1.
 To enter the Diagnostic Test Mode, proceed as follows:

1. Turn DIP Switch #1 ON
2. Apply power to the Taiko™ Unit.
 The Front Panel LED will flash White.



NOTE: DIP Switch #1 is used as the Enable/Disable Switch to activate or deactivate each of the following Taiko™ Diagnostic Tests.

FUNCTIONAL TESTS

Table 3 lists the various Taiko™ Unit Tests and their related DIP Switch settings.

Table 3 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

Lecture Notes

Test No. 1 - Transport Motor Forward Rotation Test

To perform Diagnostic Test #1, proceed as follows:

1. Set DIP Switch #1 ON, and apply power to the Taiko™ Unit.
2. Set DIP Switch #1 OFF.

The following indications will occur:

- If the **BLUE** LED begins Flashing, the Forward Motor rotational speed is correct.
- If the **RED** LED is flashing, the Forward Motor speed is either too fast, or too slow.
- Set DIP Switch #1 to ON to stop the Forward Motor Rotational Test.

Test No. 2 - Transport Motor Reverse Rotation Test

To perform Diagnostic Test #2, proceed as follows:

1. Set DIP Switch #1 and #2 ON, and apply power to the Taiko™ Unit.
2. Set DIP Switch #1 OFF.

The following indications will occur:

- If the **BLUE** LED begins Flashing, the Reverse Motor rotational speed is correct.
- If the **RED** LED is flashing, the Reverse Motor speed is either too fast, or too slow.

Set DIP Switch #1 to ON to stop the Reverse Motor Rotational Test.

Test No. 3 - Aging Test

To perform Diagnostic Test #3, proceed as follows:

1. Set DIP Switch #1, #2 and #4 to ON, and apply power to the Taiko™ Unit.
2. Set DIP Switch #1 OFF.

The following indications will occur:

- The motor will cyclically rotate forward and reverse. The cycle will repeat until the test is stopped or an error occurs.
- The **BLUE** LED will be lit steady. If an error occurs, the Bezel LED will flash an error code. See Table 4 on page 11 for a list of Aging Test Error Conditions.

Lecture Notes

AGING TEST ERROR CODES

If a Sensor error occurs during the Aging Test, the Taiko™ Unit will stop its operation. The Sensor causing the error can be determined by counting the number of Bezel LED flashes and referring to those listed in Table 4.

Table 4 Aging Test Error Codes

Flash No. and 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 Penetration (Upper to Lower)
2	Left IR Penetration (Upper to Lower)
3	Right Red Penetration (Upper to Lower)
4	Left Red Penetration (Upper to Lower)
5	Right NIR Penetration (Upper to Lower)
6	Left NIR Penetration (Upper to Lower)
7	Right Blue Penetration (Upper to Lower)
8	Left Blue Penetration (Upper to Lower)
1	Right IR Penetration (Lower to Upper)
2	Left IR Penetration (Lower to Upper)
3	Right Red Penetration (Lower to Upper)
4	Left Red Penetration (Lower to Upper)
5	Right NIR Penetration (Lower to Upper)
6	Left NIR Penetration (Lower to Upper)
7	Right Blue Penetration (Lower to Upper)
8	Left Blue Penetration (Lower to Upper)

Lecture Notes

Test No. 4 - Solenoid Test

To perform Diagnostic Test No. 4, proceed as follows:

1. Set DIP Switches #1, #2, #3 and #4 ON.
2. Set DIP Switch #1 OFF to activate the test.

The following indications will occur:

- The Entrance Flapper will cyclically turn ON and OFF.
 - The Exit Flapper will cyclically turn ON and OFF.
The cycles will repeat until stopped or an error occurs.
 - If the Entrance Solenoid fails to energize, the **RED** LED flashes once.
 - If the Entrance Solenoid fails to de-energize, the **RED** LED flashes twice.
 - If the Exit Solenoid fails to energize, the **RED** LED flashes 3 times.
 - If the Exit Solenoid fails to de-energize, the **RED** LED flashes 4 times.
3. Set DIP Switch #1 ON to stop the Solenoid Test.

Test No. 5 - Acceptance Test

To perform Diagnostic Test No. 5, proceed as follows:

1. Set DIP Switches #1 and #5 to ON.
2. Set DIP Switch #1 OFF to start the Acceptance Test.
3. Insert Banknotes.

The following indications will occur:

- The **GREEN** LED will flash a count for the denomination of the Banknote being accepted. Generally, the lowest legal Banknote value for a specific Country will cause the **GREEN** LED to count one (1), and increments up for each increasing denomination Banknote value.

Example: For US Banknotes, the following **GREEN** Flash counts will occur:

- 1 flash of the **GREEN** LED = \$1
 - 2 flashes of the **GREEN** LED = \$5
 - 3 flashes of the **GREEN** LED = \$10
 - 4 flashes of the **GREEN** LED = \$20
 - 5 flashes of the **GREEN** LED = \$50
 - 6 flashes of the **GREEN** LED = \$100
4. Set DIP Switch #1 to ON to stop the Acceptance Test.

Lecture Notes

ERROR CODES - BILL ACCEPTANCE

If an error accepting a Banknote occurs, either a Hard Error or a Return Error will be indicated. If a Hard Error has occurred, the **RED** LED will flash an error code sequence. If a Banknote Reject or a Return Error has occurred, the **YELLOW** LED will flash a specific code sequence. Table 5 lists the various **RED** or **YELLOW** LED Error Codes possible.

Table 5 LED Flash Error Codes

Flash No. and Color	Error Indicated
2	ROM Error
3	Bill Jam inside Acceptor
4	Bill Remaining in the Transport Path
5	Adjustment Error
6	Motor Error
8	Entrance Solenoid Error
9	Exit Solenoid Error
12	Sensor Operating with Abnormal Timing
1	Skewed Bill Insertion Rejection
4	X-Rate Error
5	Bill Transportation Error
7	Pattern Error
8	Photo Level Error
9	Inhibit Setting Value Rejection
13	Bill Length Error
14	IR/Red Error
15	Counterfeit Currency Rejection

Lecture Notes

Test No. 6 - Entrance Flapper Test

To perform Diagnostic Test No. 6, proceed as follows:

1. Set DIP Switches #1, #4 and #5 to ON.
2. Set DIP Switch #1 OFF to start the Entrance Flapper Test.

The following indications will occur:

- For normal operation, the **BLUE** LED will flash once each time the Entrance Flapper Solenoid energizes. A Sensor Error or Solenoid Error is indicated by alternating **RED** and **BLUE** LED flashes.
- 3. Set DIP Switch #1 ON to stop the Entrance Flapper Test.

Test No. 7 Exit Flapper Test

To perform Diagnostic Test No. 7, proceed as follows:

1. Set DIP Switches #1, #2, #4 and #5 ON.
2. Set DIP Switch #1 OFF to start the Exit Flapper Test.

The following indications will occur:

- The **BLUE** LED lights each time the Solenoid is energized
- The **RED** and **BLUE** LEDs alternately light if a Sensor or Solenoid Error occurs
- Set DIP Switch #1 ON to stop the Exit Flapper Test.

Sensor Test

A specific test does not exist to test the Taiko™ Unit's Sensors.

However, to test the Sensors, activate Test No. 3 - The Aging Test.

All of the Taiko™ Sensors are tested during this test.

Any Sensor Error will cause a flash code to occur on either the **RED** LED, the **MAGENTA** LED or the **YELLOW** LED.

Refer to the Aging Test Error Codes listed in Table 4 on page 11 to determine which Sensor failed.

Lecture Notes

SENSOR LOCATIONS

Figure 2 illustrates the Taiko™ Unit Sensor Locations. Refer to Table 6 below to identify the various Sensor Types.

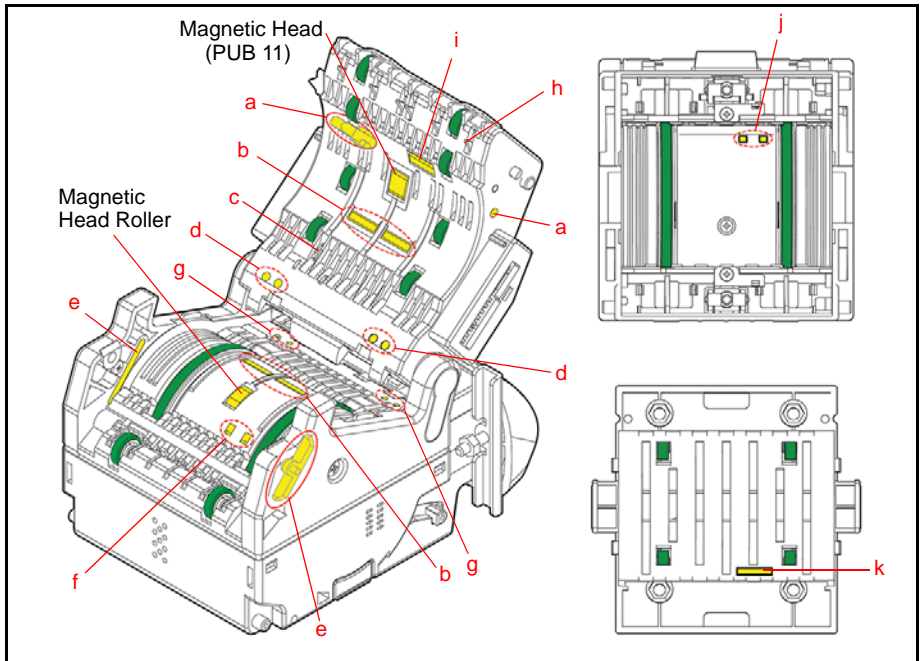


Figure 2 Taiko (PUB-7/11) Sensor Locations

Table 6 Taiko Sensor Types

Symbol	Sensor Type
a	Side Sensor
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

DOWNLOADING SOFTWARE

Software Downloading to a Taiko™ Unit can be performed from a PC or a DT-200 BlueWave 2.0™ Download Tool.

PC SOFTWARE LOADING

To download Taiko™ Software using a PC containing a Windows Operating System, proceed as follows:

1. Set DIP Switches #1, #7 and #8 to ON.
2. Using Harness Type “B”, connect from the PC Serial Port to the 4-pin Maintenance Connector on the Taiko™ Unit.
3. Apply power to the Taiko™ Unit, The **GREEN** LED will begin to flash steadily.
4. Open the WBA/DBV Download Application (downloadable from www.jcm-global.com).
5. Set the Baud Rate to 38400, and select an available Comm Port on the PC.
6. Select the file to be downloaded using the “Browse” function on the PC.
7. Mouse-click on “Start Download”. The **YELLOW** LED will light steady.
8. The Download Program Screen will show a download progress bar.
9. When the download is complete and the CRC is verified, the **BLUE** LED will light. The download is now complete.

BLUEWAVE 2.0™ SOFTWARE UPDATE

To update BlueWave 2.0™ Software, proceed as follows:

1. Ensure the PUB software file is located in the DOWNLOAD folder on the SD Card.
2. Insert the SD Card into the BlueWave 2.0™ Handheld Download Tool.
3. Connect the BlueWave 2.0™ Download Tool to the PUB/EBA Adapter.
4. Connect the PUB/EBA Adapter to the PUB-7/11 Unit.



NOTE: Refer to the Taiko Unit Parts List on page 19 for the correct harness.

5. Set DIP Switches #1, #7 and #8 to ON.
6. Apply power to the Taiko™ PUB-7/11 Unit.
7. Slide the Power ON/OFF Switch on the BlueWave 2.0 Download Tool to ON.
8. When the Top LED on the BlueWave 2.0 Download Tool turns **GREEN**, press the LOAD Button.
9. When all three LEDs on the BlueWave 2.0 Download Tool turn **GREEN**, the program download is complete.
10. Remove power from the PUB-7/11 Unit. Disconnect the Download Harness and reset DIP Switches to their standard settings for normal operation.



NOTE: Refer to the BlueWave 2.0™ Download Tool Operator Guide (JCM P/N 960-100924R) for details on Downloading Software and Updating a PUB-7/11 Validator.

MALFUNCTION ERRORS

RED LED ERROR CODE DEFINITIONS

If the Taiko™ Unit develops a Hard Failure and the Unit is out of service, the **RED** LED will flash a code sequence indicating the cause of the error.

Table 7 lists the **RED** Error Code flash sequence definitions displayed by the Taiko™ Unit’s Front Panel LED Indicator.

Table 7 Red LED Error Code Flash Definitions

Red Flashes	Error Indicated
2	ROM Error
3	Bill Jam inside Ejection Slot
4	Bill 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

Lecture Notes

PERSONAL NOTES AND COMMENTS

Add relevant notes and comments regarding your installation here.

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