



JCM Products Quick Reference Guide

UBA[®] Units



NOTE: Due to advancements in related industry technologies and future product development, the information in this guide is subject to change without notice.

For more information product set-up, use, testing procedures and troubleshooting methods, please contact the Technical Support Division of Customer Service via the email addresses listed below:

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UBA® Units

QUICK REFERENCE TROUBLESHOOTING GUIDE

Table 1 UBA Troubleshooting Descriptions

Description	Probable Cause	Possible Solutions
Bill Acceptor is Not Working	No external power	Verify that the +12 Volt power and Ground cables are properly connected.
	Corrupted Software	Download the current Software again.
	CPU Circuit Board Failure	Test and/or replace the CPU Circuit Board.
	ICB Sensor Circuit Board is not inserted into the CPU Circuit Board	Remove and reinsert the ICB Sensor Circuit Board.
	The EPROM is inserted backwards (UBA-11)	Remove the EPROM and reinsert it again correctly.
Frequent Bill Jams	Drive Belts are dirty	Clean the Drive Belts and Pressure Rollers.
	A Pressure Roller Spring is missing or loose	Apply finger pressure to check all Pressure Roller Springs for proper tension. Replace a missing Pressure Roller Spring,
	Foreign material is in the Acceptor's Banknote path or in the Cash Box	Clean the Banknote path,
	The Acceptor is not seated properly in the Frame	Re-seat the Acceptor Unit. Ensure that the Release Lever Latches securely lock into the Frame.
	The Banknote is wider than 85 mm or narrower than 62 mm	Use only Banknotes of the correct Specification size for use with a UBA.

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Table 1 UBA Troubleshooting Descriptions (Continued)

Description	Probable Cause	Possible Solutions
Low Acceptance Rate	Dirt and/or stains on the Rollers, Belts and Lenses	Clean the Banknote path in the Acceptor.
	The UBA Unit was disassembled and reassembled, but not calibrated following reassembly	Run the Calibration Procedure. Refer to the latest revision of the UBA Series Operation and Maintenance Manual (Part No. 960-000097R).
	The wrong Software or an old version of Software is being used in the Unit	Check Software Information on www.jcmglobal.com for the current version of Software and download it into the Unit.
	Sensor Lenses are loose or missing	Replace or reinstall Sensor lenses.
All Bills are being Rejected	Incorrect Software	Download the correct Software for the Currency Type being accepted.
	Banknotes are not being accepted by the Software	Ensure that the Banknote denominations are included in the Software Specifications being used.
	Incorrect DIP Switch settings	Enable all denominations disabled by DIP Switch settings.
	Banknote acceptance is being inhibited by the Host Controller	Enable all acceptance modes at the Host Controller.
	Upper/Lower Sensor Circuit Board failure	Change the Upper/Lower Sensor Circuit Board with a known good Board.
	The Unit was disassembled and reassembled, but was not calibrated after reassembly.	Re-calibrate ALL UBA Sensors.

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Table 1 UBA Troubleshooting Descriptions (Continued)

Description	Probable Cause	Possible Solutions
Upper Guide cannot be opened	Centering guides are not at their Home position	Turn the power OFF, then ON again. This action should reset the Acceptor and cause the centering mechanism to return to its Home position.
		If power cannot be applied, use a 2.5 mm Hex Nut Driver to manually move the centering mechanism to the open position.
Motor continues to run	Upper Guide is open	Firmly close the Upper Guide.
	A foreign object or a jammed Banknote is stuck in the transport path	Open the Upper Guide and remove the foreign object or jammed Banknote. Close and re-latch the Upper Guide.
	Motor Drive Failure	Run the Forward/Reverse Motor Rotation Test. If the test fails, replace the Motor and/or CPU Circuit Board.
Cannot enter the Test mode	Incorrect DIP Switch settings	Set DIP Switch No. 8 to ON, and reapply power to the UBA.
	DIP Switch Failure	Run test No. 9 - "DIP Switch Test" If the test fails, replace the CPU Circuit Board.
	CPU Circuit Board Failure	Exchange the CPU Circuit Board with a known good Board.

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Table 2 UBA Diagnostic Tests

Test No.	Test Name	Function	Where Used
1	Transfer Motor Forward/Reverse Test	Runs the Motor in a forward/reverse direction	When errors indicate a Motor problem
2	Stacker Mechanism Test	Tests the operation of the Stacker	When a stacking error is indicated
3	Running Test	Repeatedly cycles the entire Unit	When the Unit has intermittent errors
4	Anti-Pullback Mechanism Test	Tests the operation of the Anti-Pullback Mechanism	When Anti-Pullback errors occur
5	Centering Mechanism Test	Tests the Centering Mechanism	When Centering Mechanism errors occur
6	Solenoid Test	Tests the Solenoid and Sensor	When errors indicate a Solenoid problem exists
7	General Sensor Test	Tests Various Acceptor Sensors	When indicators report a Sensor error
8	Banknote Acceptance Test	Performs a Banknote acceptance with or without a Cash Box installed	Starting point for troubleshooting the Acceptor
9*	DIP Switch Test	Tests DIP Switch Block reliability	When Switch settings do not yield their programmed function correctly

* See Table 5 for further Test Switch settings.

How to Initiate the Standard Tests

Perform the following steps to initiate the Standard Tests:

1. Set DIP Switch #8 to the **ON** position, and set all remaining switches to the **OFF** position.
2. Attach the Power Connector. This action puts the Unit into Test Mode, as indicated by the lit **RED** & **GREEN** LEDs.
3. Select a Test Mode from the Table 3 List and set the DIP Switches accordingly. (Refer to Table 3 on Page 6).

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4. Move DIP Switch #8 to the **OFF** position. This action activates the selected Test Mode.
5. Move DIP Switch #8 to the **ON** position to end the test.

Table 3 Standard Test Initiation

Test No.	Test Name	DIP Switch an "X" = Switch ON							
		1	2	3	4	5	6	7	8
1a	Transport Motor - Forward Test	X							
1b	Transport Motor - Reverse Test		X						
2	Stacker Mechanism Test			X					
3	Running Test				X				
4	Anti-Pullback Mechanism Test					X			
5	Centering Mechanism Test	X				X			
6	Solenoid Test		X			X			
7	General Sensor Test*							X	
8a	Banknote Acceptance Test without a Cash Box	X	X	X					
8b	Banknote Acceptance Test with a Cash Box	X	X	X	X				
9	DIP Switch Test†	X	X	X	X	X	X	X	

* See Table 4 for further Test Switch settings.

† See Table 5 for further Test Switch settings.

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Table 4 Head Sensor Sub-Test DIP Switch Settings

Sensor Name	Test LED Color	DIP Switch* an "X" = Switch ON								
		1	2	3	4	5	6	7	8	
Entrance Sensor	Green	X							X	
Centering Timing Sensor	Red									X
Anti-Pullback Timing Sensor	Green									X
Exit Sensor	Red		X							X
Anti-Pullback Home Sensor	Green									X
Centering Home Sensor	Red			X						X
Transport Encoder Sensor	Green						X			X
Stacker Encoder Sensor	Red					X				X
Stacker Home Sensor	Green							X		X
Cash Box Sensor	Red							X		X

* During these tests, Dip Switch No. 7 can stay ON as each Sensor Test is selected.

Table 5 DIP Switch Test DIP Switch Settings

Step No.	DIP Switch an "X" = Switch ON								LED Status	
	1	2	3	4	5	6	7	8	Green	Red
1	X	X	X	X	X	X	X	X	ON	ON
2	X	X	X	X	X	X	X		OFF	OFF
3	X		X		X		X		ON	OFF
4		X		X		X			OFF	ON
5									ON	ON

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Malfunction Error Codes

Table 6 Initialization Error Code Table

LED Status		Error	Cause and Solution
Red Flashes	Green Steady		
1	ON	Boot ROM Error	Change CPU Circuit Board.
2	ON	Corrupted External ROM / No Program in External Flash ROM	
3	ON	Internal RAM Error	
4	ON	External RAM Error	
5	OFF	No Calibration Error	Calibrate the Unit.

Table 7 ICB Initialization Errors

LED Status		Error	Cause and Solution
Red Flashes	Green Steady		
3 Flashes	OFF	ICB Disabled	ICB is Disabled/Cash Box is Active.
11 Flashes	OFF	ICB Module Failure Type 2	Intelligent Cash Box (ICB) Communications Error.
12 Flashes	OFF	ICB Module Failure Type 7	Intelligent Cash Box (ICB) Check Sum Error. Memory partially cleared.
13 Flashes	OFF	ICB Module Failure Type 8	Intelligent Cash Box (ICB) Installed containing data from another Machine (i.e., data not cleared).
14 Flashes	OFF	ICB Module Failure Type 9	Intelligent Cash Box (ICB) not initiated. Memory was not properly cleared.
15 Flashes	OFF	ICB Module Failure Type AF	Intelligent Cash Box (ICB) Module Error. No ICB Module detected present on Validator.

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Reject Error Codes
Table 8 Reject Error Codes

LED Status		Error	Cause and Solution
Red LED	Green LED (Flashes)		
OFF	1	Slant Insertion	Re-insert Banknote.
OFF	2	Magnetic Sensor Pattern Error	Check for dirt on Magnetic Head and Rollers.
OFF	3	Paper Detected in Acceptor at Standby	Clean - Check for debris.
OFF	4	Sensor Adjustment	Clean all Sensors.
OFF	5	Banknote Feed Error 1	Check and clean all Belts and Rollers.
OFF	6	Banknote Identification Error	Clean Sensor Lens.
OFF	7	Barcode Error	Clean Barcode Sensor / Upper Sensor Board Error.
OFF	8	Double Banknotes Detected	Clean Sensor Lens - Check for double Banknotes.
OFF	9	Inhibited Banknote	Check DIP Switch Settings and/or Game settings.
OFF	10	Return Banknote	Banknote inhibited by Host Machine.
OFF	11	Reserved	N/A
OFF	12	Banknote detection Error	Check all Banknote path Sensors.
OFF	13	Banknote Length Error	Check and clean all Belts and Rollers.
OFF	14	Photo Pattern Error	Check for dirty/clouded Lenses; Upper/Lower Sensor Circuit Board failure.
OFF	15	UV Optical Sensor Error	Check and clean the UV Sensor and White Block.

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Ticketing Error Codes

Table 9 Ticket Error Codes

LED Status		Error	Cause and Solution
Red LED	Green LED (Flashes)		
OFF	1	Barcode Function Not Set	Ticket Acceptance is Disabled
OFF	2	Format Unknown	Incorrect Barcode Format
OFF	3	Character Length	Improper Character Length
OFF	4	Start Character	Could not find Start Character
OFF	5	Stop Character	Could not find Stop Character
OFF	6	Barcode Type Error	Barcode Format Error
OFF	7	Reserved	N/A
OFF	8	Ticket Transparency	Double Ticket Detected
OFF	9	By DIP Switch	Check DIP Switch #1
OFF	10	Photo Level	Barcode too light
OFF	11	Upside-down Ticket	Index Mark on the wrong side
OFF	12	Reserved	N/A
OFF	13	Ticket Length	Ticket length is too long or too short
OFF	14	Reserved	N/A
OFF	15	Reserved	N/A

UBA® Units
UBA Error Codes
Table 10 UBA Error Codes

LED Status		Condition	Possible Causes
Red LED (Flashes)	Green LED		
1	OFF	Cash Box Full	Full Cash Box/Stacker Encoder
2	OFF	Stacker Pusher Mechanism	Stacker Motor, Stacker Assy
3	OFF	Transport Jam	Exit Sensor/Jam at Exit Sensor
4	OFF	Stacker Encoder/Jam in Acceptor	Jam in Acceptor/Stacker Encoder
5	OFF	Transport Motor Speed	Transport Motor Encoder
6	OFF	Transport Motor Fault	Motor/CPU Board
7	OFF	Sensor	Upper/Lower Sensor Board
8	OFF	Communications Error	Upper Sensor or CPU Board
9	OFF	Anti-Pull Back	Jam at Pull Back
10	OFF	Cash Box not seated	Reseat Cash Box/Cash Box Sensor
11	OFF	ICB Module	ICB Module/CPU Board
12	OFF	Sensor Detect Wrong Movement	Debris/Cheat attempt
13	OFF	Centering Mechanism Solenoid	Solenoid/Upper Sensor Board
14	OFF	Centering Mechanism	Jam in Centering Assy/Centering Sensor
15	OFF	Reserved	N/A

UBA® Units

ACCEPTOR PREVENTIVE MAINTENANCE

To maintain the UBA Unit properly, JCM recommends a Preventive Maintenance procedure at approximately 70,000 acceptance cycles. Observe the following precautions and correct these conditions as needed:

- Replace Belts if they become frayed, slick and/or worn.
- Keep the Bill Path, Rollers and Belts clean.
The Sensor lenses are transparent and made of a Polymer material. Handle them carefully! To clean the Sensor lenses, use a clean, dry, lint-free, Micro-fiber Cloth. If necessary, a mild, non-abrasive detergent mixed with water can be used to clean the Sensors. Wipe off any excess moisture from the UBA Unit's surfaces.



WARNING: Do NOT use Alcohol, paint thinner, solvents or citrus based cleaning solutions to clean ANY surfaces!



IMPORTANT NOTE: After wiping Lenses, inspect them to ensure that they have not been moved out of position, and are flush with the transportation path.

The JCM UBA Cleaning Card can be used to clean the UBA Sensors and Bill Path.

Cash Box Preventive Maintenance (P/M)

Conduct the following Preventive Maintenance checks as part of a regular product maintenance routine:

- Perform periodic preventive maintenance on the Cash Boxes to ensure proper operation.
- Use a pressurized can of Compressed Air or an Air Compressor jet to blow out paper fibers and other debris that may have built up over time.
- Clean the Stacker Feed Rollers ("O" Rings) with a clean, lint-free, Micro-fiber cloth containing a mild soap/water solution.
- Check the Belts and all moving parts for wear and proper positioning. If this assembly does not operate properly, it can cause Banknote jams.

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CALIBRATION - SENSORS

Sensor Calibration

Calibration sets a starting reference point for all Optical Sensors within the UBA Unit. The calibration procedure should be completed after any repair, replacing Sensors, CPU Board or any disassembly of the UBA Unit. To calibrate the UBA Unit, proceed as follows:

1. Using a Male A to Male B USB cable, connect the UBA Unit to a PC with the JCM Tool Suite™ Software Application installed.
2. Ensure all DIP Switches are switched **OFF**.
3. Apply Power to the UBA Unit.
4. Launch the JCM Tool Suite Application.
5. From the **Service Mode** drop-down menu, click on **Sensor Adjustment**.
6. Click on **Start** to begin calibration, then follow the screen prompts.



NOTE: If a UBA 14/24 Unit is being calibrated, a popup window will be displayed. Select the correct option for the Unit being calibrated.

Refer to the "UBA Series Operation and Maintenance Manual" (JCM Part No. 960-000097R) for detailed instructions.

Calibration Error Code descriptions and causes are listed in Table 11 below and on page 14.

Table 11 Calibration Error Table

Error Code	Message Displayed	Description/Cause
4-A	Gain Error 'Over 4.3V'	Light receiving Adjustment Error. Check dirty or wrong calibration paper.
4-B	Adjustment Error	Sensor Light Quantity Adjustment Error. Replace either Upper or Lower Sensor PCB.
4-C	Black Level Error	Sensor Light Quantity Adjustment Error. Ensure Black Reference Paper is inserted.

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Table 11 Calibration Error Table (Continued)

Error Code	Message Displayed	Description/Cause
4-E	Gain Error	Light receiving Adjustment Error. Clean Sensors. Replace Upper or Lower Sensor PCB.
4-G	Front/Back/Pbin/Width Level Error	Triggering Sensor Light receiving Error. Clean the Sensor. Wrong calibration paper used during UV Sensor adjustment. Replace the Exit Sensor. UBA must be installed in a Frame during Calibration.
6-A	Offset Error	Light Receiver Circuit Abnormality. Clean Sensors. Replace either the Upper or Lower Sensor PCB.
6-B		
6-C		
MAG	Adjustment Error	Magnetic Sensor Adjustment Error. Replace the Upper Sensor PCB.
	Adjustment Error Under 0.74v	
NO CODE	Gain Max Limit Over Error	Sensor Abnormality. White Reference Paper not inserted correctly. Ensure current calibration program is used.
	Bar Gain Max Limit Over Error	Sensor Abnormality. UBA 1x, Replace Upper Sensor PCB. UBA 24 Replace lower Sensor PCB.
	UV Gain Max Limit Over Error	Sensor Abnormality. Clean UV Sensor and White Reference Block. Ensure UV Reference Paper is inserted with the label up, covering the White Reference Block.
	A/D Data Level Error	Light Receiving Level Error. Ensure White Reference Paper is inserted completely and correctly.
	Pbin/Width D/A Error	Triggering Sensor Adjustment Error. Clean PB In Sensor or Reference Paper is not inserted correctly.
	Motor Speed Error	Transport Motor Speed Error.
	EEPROM Write Error	Adjustment value Writing Error. Replace the Processor PCB.

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UBA IN-FIELD TEST

Stand Alone Test Mode



NOTE: Banknote/Ticket Acceptance Testing can only be performed with the Acceptor Head installed in a Frame. Testing can be done either with or without a Cash Box installed. The following procedure is for testing without a Cash Box.

Proceed as follows:

1. Power off the UBA Unit.
2. Set DIP Switches #1, #2, #3 and #8 to the **ON** position.
3. Apply power to the UBA Unit.
4. Turn DIP Switch #8 **OFF**.
The UBA Unit should cycle briefly. It is now ready to run a Test.
5. Insert a good quality Banknote/Ticket. The Banknote/Ticket will either be accepted by the UBA Unit, or will be rejected. If it is rejected:
 - Clean ALL of the Sensors.
 - Check the condition of the Banknote/Ticket.
6. If the UBA Unit still rejects, there may be a Sensor problem or an incorrect Software Version installed. Note the Error Code, and locate it in the “Reject Error Codes” Table on Page 9 of this Guide.

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UBA - BLUEWAVE™ DX TOOL

Using the JCM BlueWaveDX Tool



NOTE: Refer to the "BlueWaveDX Tool Operator Guide" (JCM Part No. 960-100942R) for detailed instructions.

SD Card Setup

1. Insert a standard SD Memory Card (SDHC acceptable) into the BlueWaveDX Tool.
2. Create a UBA System folder in the SD Card's root directory.
3. Place up to (20) Firmware files in the UBA System folder.



NOTE: Change the suffix in the Firmware name to .com (e.g., change UBA Firmware version u10_23044_id003.usa to u10_23044_id003.com).



WARNING: Do NOT delete or modify the BWDXCARD.INF, BWDXINFO.INF or BWDXFW0xxx.hex files! These operating system files must remain in the root directory.

Functions Available for UBA

- Firmware Update
- Statistics
- Version Check

To use the BlueWaveDX Tool:

1. Connect the BlueWaveDX Tool to the UBA Unit using a Standard Male A to Male B USB Cable.
2. Slide the BlueWaveDX Tool Power Switch to **ON**.
3. Press the **UP** or **DOWN** Arrow keys to display the desired function from the Menu.
4. Press the **OK** button to select the function.
5. Press the **CLR** button to return to the previous screen.
6. Disconnect the USB cable and reset the UBA Unit to its normal operating state.

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UBA - BLUEWAVE-2 DOWNLOAD TOOL

Using the JCM BlueWave-2 Download Tool



NOTE: Refer to the "BlueWave 2.0 Download Tool Operator Guide" (JCM Part No. 960-000924R) for detailed instructions.

Perform the following procedure to initiate a Software Download:

1. Copy the required Software File to be downloaded into a "DOWNLOAD" Folder on a Standard SD Memory Card.
2. Insert the SD Memory Card into the BlueWave Tool.
3. Ensure that Power is applied to the UBA Unit.
4. Turn the BlueWave Device's Power **ON**, and confirm that the Battery Life LED is illuminated **GREEN**.
5. Confirm that the SD Memory Card Status LED initially lights **ORANGE**, and then turns **GREEN**.
6. Connect the BlueWave Device to the PC using a Male-A to Male-B USB Cable.
7. The uppermost BlueWave Device Status LED will light **GREEN** when the BlueWave is communicating with the UBA Unit.
8. Press the "Load" Button on the BlueWave Device to begin the required Software Download.
9. The BlueWave Device Status LED will display the following LED States:
 - a. **ORANGE** while the UBA Memory is being erased, then
 - b. Alternates between **GREEN** and **RED** while the Software file is being transferred to the UBA; then
 - c. **ORANGE** during the CRC verification check. When the uppermost BlueWave Device Status LED (Top) and the center SD Memory LED (Middle) BOTH light **GREEN**, the download successfully completed.
 - d. Turn the BlueWave Power Switch to **OFF**; disconnect the USB Cable, and reset the UBA Unit to its Normal Operating State.

The BlueWave Tool Software Downloading process is complete.

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UBA - PC DOWNLOADING



NOTE: To perform this procedure, make sure that:

- 1. The JCM Tool Suite Standard Edition Application (available at www.jcmglobal.com) has been pre-loaded onto the PC.*
- 2. The USB Device Drivers have been installed on the PC.*
- 3. The UBA Software is available for download on the PC.*

Use the following procedure to initiate a PC Download:

1. Make sure power is applied to the UBA Unit.
2. Connect the PC to the UBA unit using a Male-A to Male-B USB Cable connection.
3. Click on the *JCM Tool Suite* icon to start the program download.
4. Use the Download Arrow (located to the right of the “Service Mode” block), and click on the “Download” Screen Button.
5. Use the “Browse” Screen Button to select the Program Data File to be downloaded into the UBA Unit.
6. Click on the “Download” Screen Button.
When the “Target file has been Downloaded Successfully” dialog box appears on the PC Screen, disconnect the USB Cable. The download is complete.
7. If the UBA Unit does not accept the download, place the UBA Unit into Forced Download mode. To do so:
 - a. Set DIP Switches 6, 7 and 8 to ON.
 - b. Cycle Power to the UBA Unit.
The **RED** and **GREEN** LEDs will alternate flashing.
 - c. Repeat Steps 3-6 of the PC Download procedure.

UBA® Units

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