



# Section 6

## JCM WBA Series Bill Acceptor

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Machines use the JCM WBA series bill acceptor for U.S. currency. Bill acceptors for other types of currency are covered in the *International Bill Acceptors Field Service* manual (p/n 821-184-01).

Maintenance is greatly simplified in the World Bill Acceptor compared to previous models. This section includes information regarding removal, disassembly, assembly, installation and maintenance of the WBA.

This section is organized as follows:

- **Section 6.1, WBA Overview** – describes bill acceptor components and operation.
- **Section 6.2, Bill Acceptor DIP Switch Settings** – describes setting of the DIP switches on the WBA.
- **Section 6.3, Sensor and Transport Assembly** – covers procedures to remove, install, disassemble and assemble the bill sensor and transport assembly.
- **Section 6.4, Cash Box/Stacker Assembly** – covers procedures to remove or replace the cash box assembly.
- **Section 6.5, Bill Acceptor Routine Maintenance** – covers bill acceptor cleaning and periodic maintenance.
- **Section 6.6, Bill Acceptor Functional Verification** – covers verification of proper bill acceptor operation.

## 6.1 WBA Overview

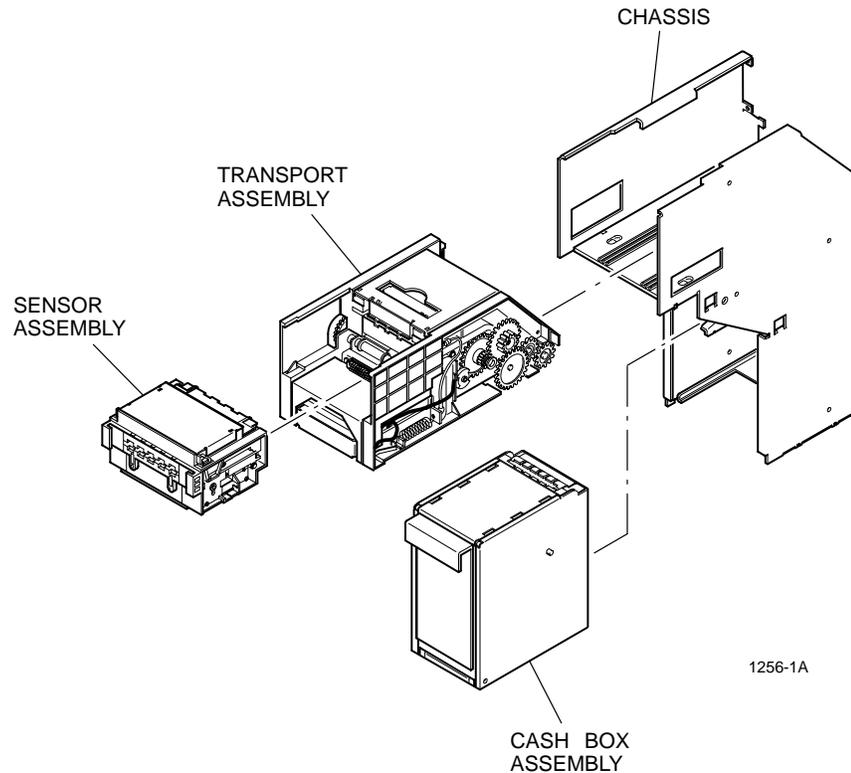
Figure 6-1 shows the components of the JCM World Bill Acceptor assembly.

The bill acceptor is enabled only when the game is in the coin-in mode and the machine door is closed. The bill acceptor assembly does not accept bills:

- During game play – after the Deal/Draw selection (poker), the Deal/Hit selection (21), the Spin Reels selection (slot) or Start selection (keno) is activated
- When the number of credits on the credit meter is greater than or equal to the maximum credits allowed

Credits are accumulated on the credit meter when a bill is accepted. The game program software determines the maximum number of credits a player may accumulate on the credit meter.

A typical bill acceptor transaction consists of the following steps: bill detection, transport, recognition, validation and storage.



**Figure 6-1. Bill Acceptor Assembly Components.**



When a bill is inserted into the sensor portion of the bill acceptor, it breaks a light sensor path. This causes the microprocessor to enable the sensors and the gearbox/motor assembly. As the bill is pulled into the assembly, sensors scan the bill and transmit data to the microprocessor.

Once the bill is scanned, the motor stops and the microprocessor determines if the bill matches predetermined criteria for valid currency. If a match is not determined, the bill is rejected. If a match is determined, the bill is accepted. The bill is transported to the cash box assembly for storage and the credit meter increments in credit mode on the game display.

Bill acceptor accounting data is displayed by the game machine in two ways.

- The **Dollars In** electromechanical drop meter increments when bills are accepted.
- Software accounting meters tabulate bills by specific denomination in the game software.



## 6.2 Bill Acceptor DIP Switch Settings

There are DIP switches in the bill acceptor itself that need to be set to accept bills of specific denominations. This is typically accomplished at the time of installation, and requires adjustment only if there is a change in desired denominations.

These DIP switch settings work in tandem with game software to determine which bills are accepted or rejected. Table 6-1 lists the appropriate settings for each DIP switch to enable/disable denominations ranging from \$1 to \$100.

**Example:** To enable acceptance of bills ranging from \$1 to \$20 and disable acceptance of higher denominations:

- Game software must be pre-coded to match these criteria.
- DIP switches 1, 3, 4 and 5 should be turned OFF.
- DIP switches 6 and 7 should be turned ON.
- DIP switch 8 should be turned OFF.

Information about the game's bill acceptor-related software is included in the appropriate game software, maintenance procedures or field service manual. Bill acceptor inputs and outputs can be checked using the game program's diagnostic mode, test mode or equivalent.

<b>Table 6-1 Bill Acceptor DIP Switch Settings</b>			
<b>Switch No.</b>	<b>Bill Denomination</b>	<b>Setting</b>	
		<b>ENABLE</b>	<b>DISABLE</b>
1	\$1	OFF	ON
2*	N/A	N/A	N/A
3	\$5	OFF	ON
4	\$10	OFF	ON
5	\$20	OFF	ON
6	\$50	OFF	ON
7	\$100	OFF	ON
8**	N/A	OFF	ON
<p>* If DIP switch 2 is in the <b>OFF</b> position, the ID023 (new) communication protocol is active. If DIP switch 2 is in the <b>ON</b> position, the ID022 (old) communication protocol is active. To determine which protocol is needed, remove the transport assembly and read the protocol type from the EPROM on the bill acceptor processor board.</p>			
<p>** DIP switch 8 activates the bill acceptor self-test mode when turned <b>ON</b>. This switch should be set to <b>OFF</b> for normal operation.</p>			



## 6.3 Sensor and Transport Assembly

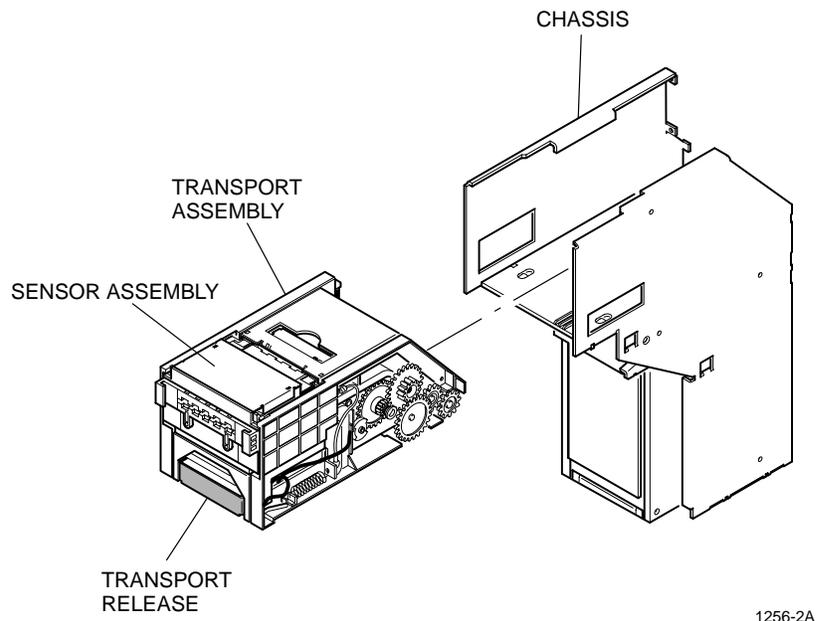
See Figure 6-2 and proceed as follows to remove or install the sensor and transport assembly from the acceptor chassis.

### *Removal*

1. Open the machine door and turn the **power off**.
2. Open the bill acceptor enclosure access door if necessary.
3. Disconnect the harness from the bill entry, if present.
4. Pull out on the transport release lever at the front, bottom of the sensor/transport assembly and slide the entire unit out of the chassis.

### *Installation*

1. Orient the sensor/transport assembly as shown in Figure 6-2. Carefully push the sensor/transport assembly into the acceptor chassis. Verify that the assembly snaps into place in the chassis.



**Figure 6-2. Sensor and Transport Assembly Removal.**



2. Connect the harness to the bill entry, if present.
3. Close and lock the bill acceptor access door, if present.
4. Turn the machine **power on**, close and lock the machine door.
5. Test bill acceptor operation using the functional verification guidelines in Section 6.6.

### *Disassembly*

1. Disconnect the harness from the bill entry, if present.
2. Push down on the round bar in the recess at the front of the transport.
3. Carefully slide the sensor assembly forward and out of the transport assembly.
4. To remove the entry assembly, remove the two screws on the front of the assembly, open the sensor assembly top cover and slide the entry up to remove.

### *Assembly*

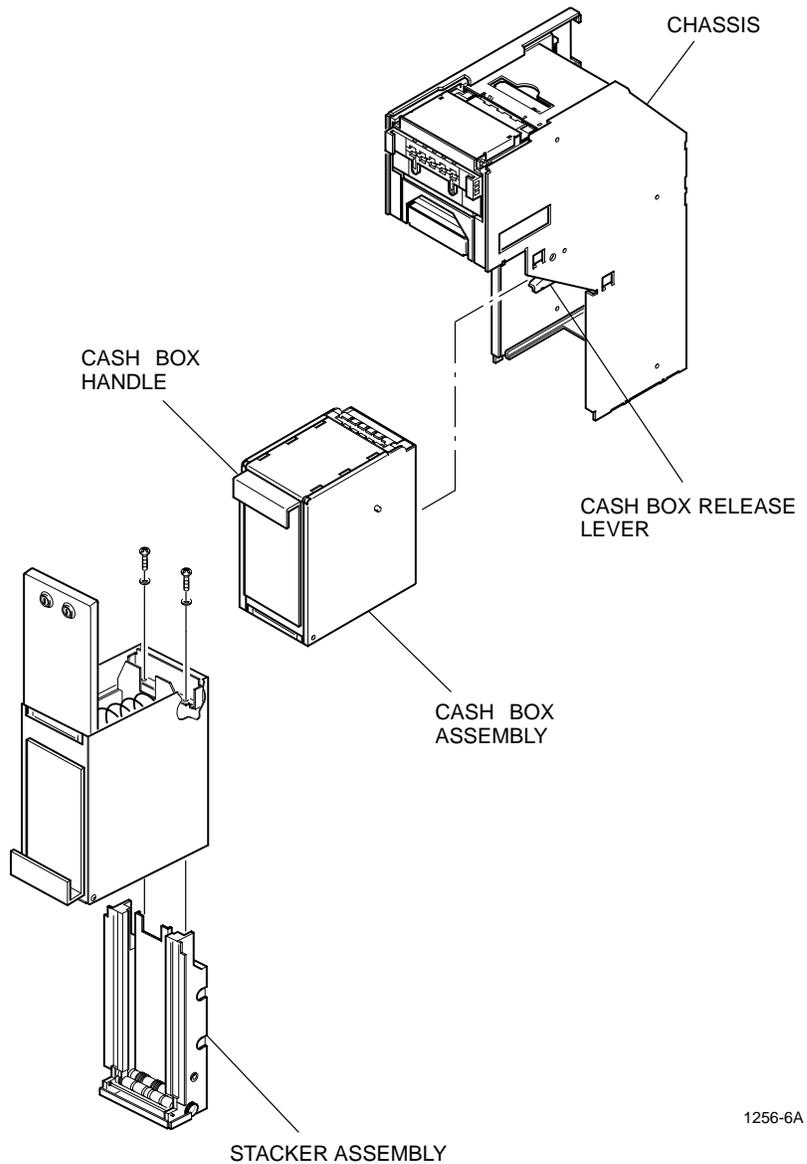
1. If the entry assembly was removed, install the entry assembly and the two screws on the front of the assembly.
2. Slide the sensor assembly into the transport assembly.
3. Connect the harness to the entry, if present.

## 6.4 Cash Box/Stacker Assembly



Refer to the following instructions and see Figure 6-3 to remove and install the cash box/stacker assembly.

**Note:** The following procedure can also be performed with the belly panel door open, if the machine is so equipped, rather than the machine door.



**Figure 6-3. Cash Box/Stacker Assembly.**



## 6.4.1 Cash Box/Stacker Assembly Removal

1. Unlock and open the machine door or belly door.
2. Unlock (if necessary) and open the cash box access door.
3. Firmly grip the cash box handle with one hand and push down on the cash box release lever with the other hand. Pull the cash box straight out from the chassis.
4. Rotate the cash box so that the cash box entry door faces up.
5. Open the cash box and remove any bills.
6. Remove the two screws from the end of the stacker assembly.
7. Lift the cash box assembly. The stacker will come out of the opposite end of the cash box/stacker assembly (it may be necessary to depress the spring-loaded bill stacking plate).

## 6.4.2 Cash Box/Stacker Assembly Installation

1. Set the replacement stacker assembly on its end so its orientation matches that of the cash box. Be sure the stacker is fully compressed.
2. Place the cash box assembly over the stacker assembly so that the stacker fits into place within the cash box.
3. Attach the stacker assembly to the cash box with the two screws at the end of the stacker assembly and tighten securely.
4. Close and replace the cash box/stacker assembly; close and lock the cash box access door and the machine door. Test bill acceptor operation using the functional verification guidelines in Section 6.6.



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## 6.5 Bill Acceptor Routine Maintenance

The bill acceptor does not require lubrication or other routine maintenance, with the exception of occasional internal cleaning.

This section details bill acceptor maintenance and cleaning procedures, including:

- Clearing jammed bills
- Cleaning the bill acceptor

### 6.5.1 Clearing Jammed Bills

#### *Bill Sensor/Transport Assembly Jams*

See Figure 6-4 when clearing bill acceptor jams.

1. Open the machine door and turn the **power off**.
2. Remove the sensor/transport assembly as described in Section 6.3.
3. Check for any bills visibly jammed inside the assembly.
4. Pull up on the release lever and lift the transport cover to remove any bills trapped in this area.
5. Pull out on the levers on each side of the sensor assembly, lift the top of the sensor assembly and remove any bills located in this area.

#### *Cash Box Assembly Jams*

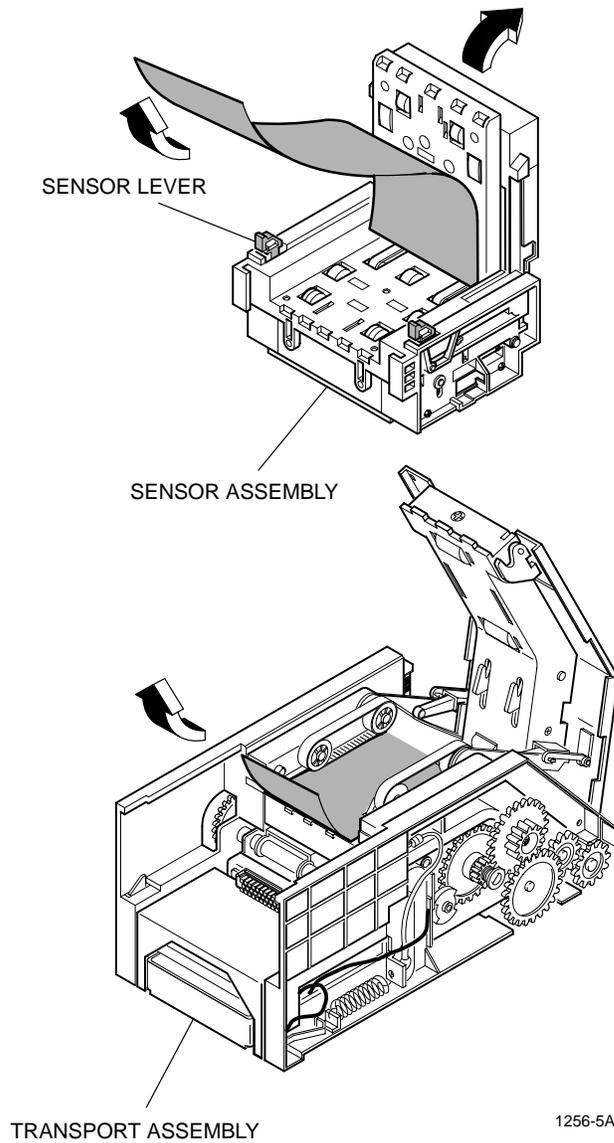
See Figure 6-3 and refer to the following instructions to clear jammed bills in the cash box assembly.

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**Note:** Check to be sure that bills are not caught between the transport assembly and cash box. Bills jammed in this area may be torn when the cash box is removed from the chassis.

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1. Remove the cash box and stacker assembly as described in Section 6.4.1.



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**Figure 6-4. Clearing Jammed Bills.**

2. After clearing the jam, close and replace the cash box/ stacker assembly.
3. Close and lock the cash box access door (if necessary).
4. Close the machine door, and test bill acceptor operation using the functional verification guidelines in Section 6.6.
5. If frequent jamming occurs, contact IGT Customer Service (refer to the front of this manual for information).

## 6.5.2 Cleaning the Bill Acceptor

Bill jamming or poor bill acceptance may be the result of dirty sensors or transport components. See Figures 6-5 and 6-6 and refer to the following procedure to clean the bill acceptor.

1. Open the machine door and turn the **power off**.
2. Remove the sensor/transport assembly (refer to Section 6.3).
3. Clean the bill path and drive belts using a lint-free cloth moistened with a mild, non-ammonia cleaner.

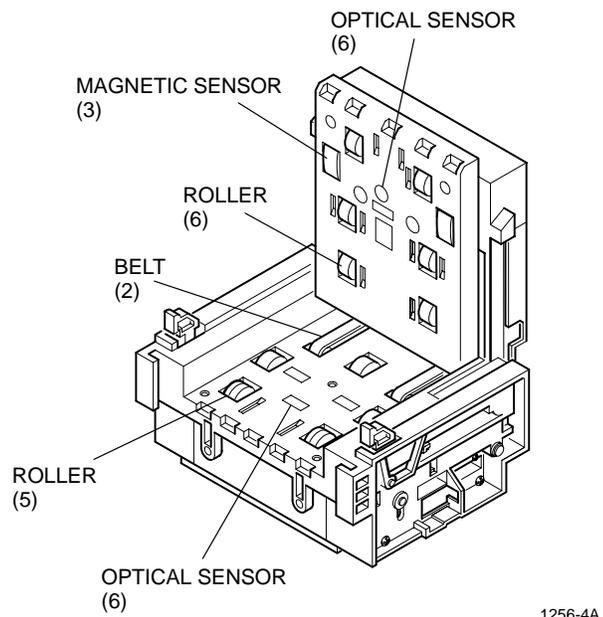
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**Note:** Do not spray cleaners directly onto the interior of the bill sensor assembly.

Do not use alcohol-based cleaners with a concentration of more than 30 percent.

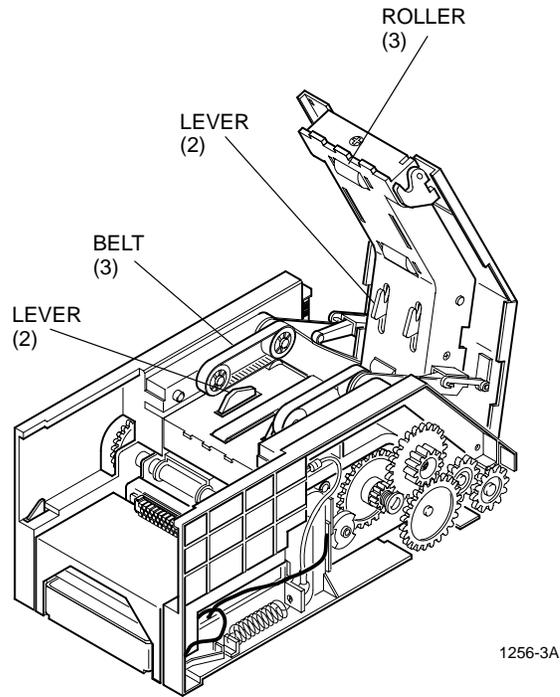
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4. Remove any debris from the rollers and magnetic sensors using household transparent tape, making sure that no sticky residue remains on surfaces.
5. Clean all optic sensors with a cotton swab soaked in mild isopropyl alcohol (not to exceed 30 percent concentration).



**Figure 6-5. Cleaning the Sensor Assembly.**





**Figure 6-6. Cleaning the Transport Assembly.**

6. Check for free movement of the lever mechanisms in the transport assembly.
7. Reassemble and install the sensor/transport assembly (refer to Section 6.3).
8. Verify correct bill acceptor operation using the procedure in Section 6.6.

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## 6.6 Bill Acceptor Functional Verification



1. Turn the machine **power on** and confirm that no tilt conditions exist either with the machine or the bill acceptor. The acceptor indicates an inoperable state by flashing red lights on the front of the acceptor enclosure (or no lights depending on the machine and type of software installed). Information about the game's acceptor-related software is included in the appropriate game software or field service manual.
2. Insert several bills of each denomination selected to verify acceptance, transport and storage for each denomination.
3. Confirm that the appropriate number of credits increment on the credit meter for each bill denomination.
4. Resolve any problems using the guidelines in this manual.

