JCM TRAINING OVERVIEW
WBA-XX

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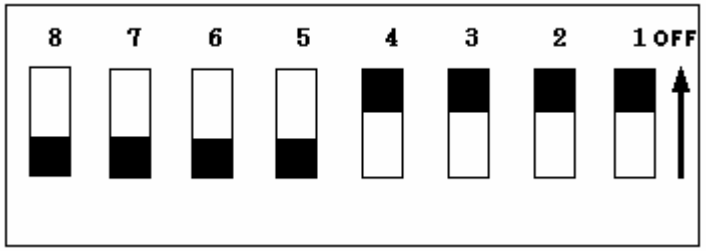
CLEANING THE HEAD

- Perform a preventative maintenance cleaning every 4-6 months
- Use only soap and water
- Wipe the lenses, belts, rollers and bill path until clean
  - Use the motor speed test to activate the belts
- If a lens is altered in any way it must be replaced (scratched, clouded etc)
- Do not scratch the rollers because they will pick up dirt faster, increasing PM scheduling.
- If you can see timing marks through the belts, or if they have frayed edges replace the belts
- If ‘O’ rings are cracked, replace
- Absolutely NO solvents should be used !!!
- Do not soak the unit

CALIBRATION MODE



- Auto calibration mode is entered by turning dip switches 5, 6, 7 and 8, to the "ON" position and powering up the unit.
  - The unit will cycle then stop, waiting to receive the black and white reference paper. Insert the calibration paper black end first.
- The unit will sample the white paper then the black
  - It will do this 5 or more times and then return the calibration paper.
- The test LED on power supply or Bezel lamps will blink rapidly if the calibration was successful.
- If the calibration failed, the test LED/ Bezel lamps, will blink then pause and repeat. The number of blinks between pauses corresponds to an error in the Calibration Error Table.
- For the WBA use calibration paper part number 501-000032.

CALIBRATION ERROR TABLE

Number of LED Blinks	**Description**	**Possible Cause**
1	Entrance lever error	Check the PLEV/FLEV sensor
2	Solenoid error	Check the solenoid in the transport
3	Feed in sensor error	Check the entrance sensor in the transport
4	Transport jamming	Check the entrance sensor in the transport
5	Gain error (White level adjustment error)	If the reference paper was fed in correctly, change the upper sensor board
6	Digital/Analog error	If the reference paper was fed in correctly, change the upper sensor board
7	Bar sensor error	Change the upper sensor board
8	Acceptor head removed	Check 20 pin connector that connects head to the CPU board
9	Magnetic setting error	Change the upper sensor board
10	Write in error	Change the upper sensor board
11	Black level error	Change the upper or lower sensor board

TEST MODE

- **Entering Diagnostic Mode**
  - On the CPU Board set dipswitch 8 “ON” and switches 1 thru 7 “OFF”, apply power
  - The test LED/Bezel light will blink at a steady rate, indicating diagnostic mode
- **WBA does not enter diagnostic mode**
  - LED constantly OFF or ON
  - CPU problem – Re-flash the unit (WBA 10/12) or change the EPROM (WBA 11/13)

FUNCTIONAL TEST

Dipswitch settings chart for performing functional test on the WBA								
8	**7**	**6**	**5**	**4**	**3**	**2**	**1**	Functional Test
E/D							**X**	Transfer motor forward rotation test (test light off = motor speed ok)
E/D						**X**		Transfer motor reverse rotation test (test light off = motor speed ok)
E/D					**X**			Stacker motor and pusher mechanism test
E/D				**X**				Acceptor head/stacker test (Use Error Table #2 only)
E/D				**X**			**X**	Acceptor stacker test without the head (Use Error Table #2 only)
E/D			**X**					Solenoid test
E/D		**X**						Acceptor head sensor test (PH06)
E/D	**X**							Transport sensor test (PH07)
E/D					**X**	**X**	**X**	Bill acceptance test without cash box and frame (Error Table 1 or 3)
E/D				**X**	**X**	**X**	**X**	Bill acceptance test with cash box and frame (Error Table 1 or 3)
X = ON E/D = Enable/Disable								

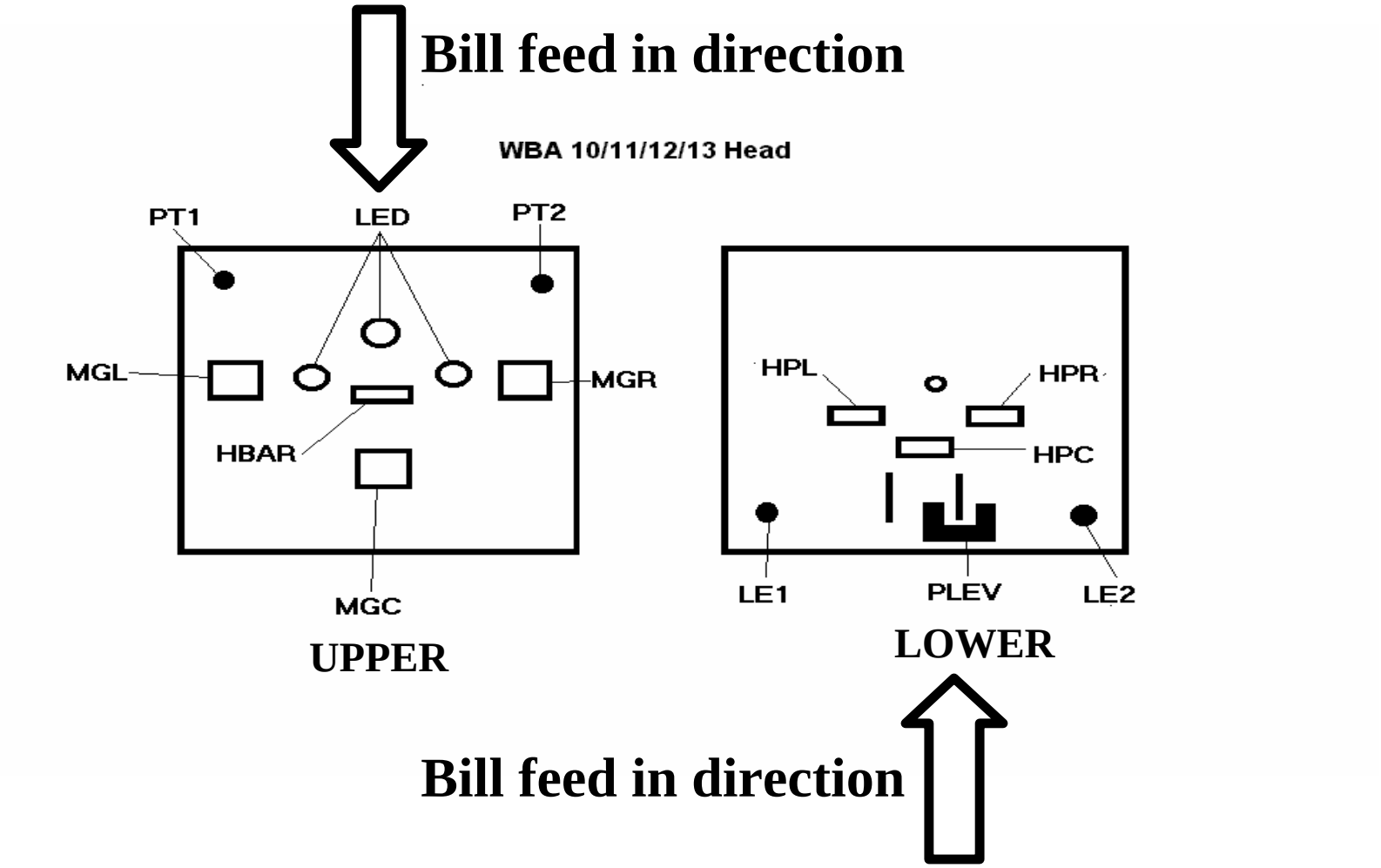
HEAD SENSOR TEST (PH06)

- **Entering head sensor test**
  - Enter diagnostic mode – dipswitch 8, “ON”, apply power
  - Turn dipswitch 6, “ON” and turn dipswitch 8, “OFF”
    - This activates the head sensor test
    - Dipswitch 6 will be used as the enable/disable switch for these tests
  - Use the test LED/Bezel light to check the status of the sensor being tested, either blocked or un-blocked. The LED will light when the light path of the sensor is interrupted (blocked)

HEAD SENSOR TEST DIPSWITCH SETTINGS

Dipswitch settings chart for Validator head sensor test (WBA 10/11/12/13)								
8	7	6	5	4	3	2	1	Sensor being tested
		E/D					X	PLEV
		E/D				X		Not Used
		E/D			X			PT 1 (IR, Left entrance)
		E/D		X				PT 2 (IR, Right entrance)
		E/D	X					HPL (Red, IR - Left Sensor)
		X						HPR (Red, IR -Right Sensor)
	X	E/D						HPC (Red, IR - Center Sensor)
	X	E/D					X	Not Used
X = ON E/D = Enable/Disable								

HEAD SENSOR LOCATOR



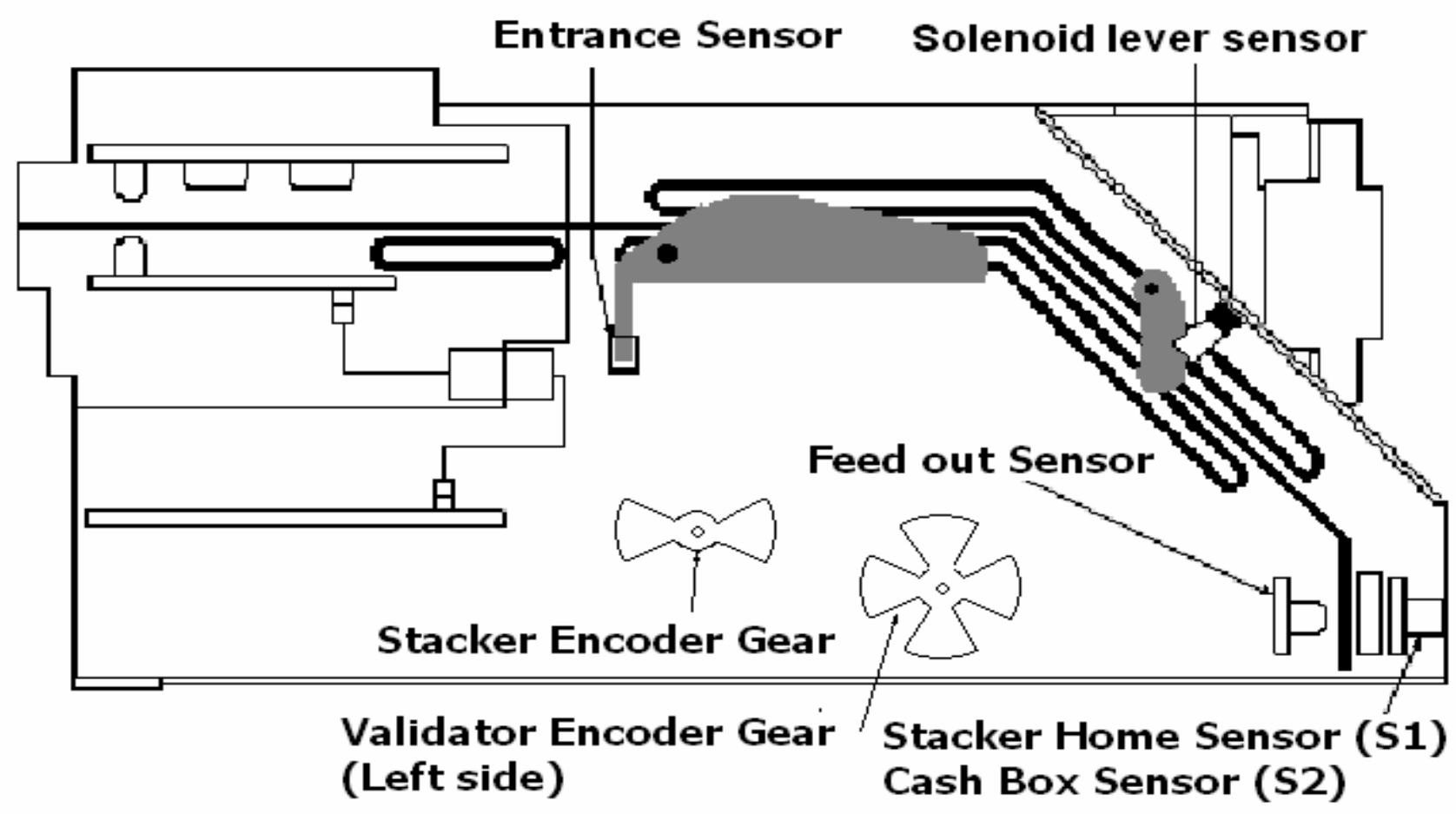
TRANSPORT SENSOR TEST (PH07)

- **Entering Transport Sensor Test**
  - Enter diagnostic mode – dipswitch 8, “ON” , apply power
  - Turn dipswitch 7, “ON” and turn dipswitch 8, “OFF”
    - This activates the transport sensor test
    - Dipswitch 7 will be used as the enable/disable switch for these tests
  - Use the test LED/Bezel to check the status of the sensor being tested, either blocked or un-blocked. The LED will light when the light path of the sensor is interrupted (blocked)

TRANSPORT SENSOR TEST DIPSWITCH SETTINGS

Transport Sensor test chart - Dipswitch settings								
8	7	6	5	4	3	2	1	Sensor being tested
	E/D						X	Entrance Sensor
	E/D					X		Solenoid Lever Sensor
	E/D				X			Feed Out Sensor
	E/D			X				Stacker Home Sensor (S1)
	E/D		X					Cashbox Sensor (S2)
	E/D	X						Validator Encoder Sensor
	X							Stacker Encoder Sensor
	E/D					X	X	Acceptor Head Detached
X = ON E/D = Enable/Disable								

Transport Sensor Location



Bill Acceptance Test

- **Two ways to run the bill acceptance test**
  - Just the head and transport
    - Cashbox sensor (S1) and Stacker home sensor (S1) are disabled and not tested
  - The head and transport insert in a frame with a cashbox
    - All sensors and functions are tested

Bill Acceptance Test Modes

- **Entering Bill Acceptance mode**
  - Turn dipswitch 8, “ON” and apply power (diagnostic mode)
  - Turn on dipswitches according to the chart
    - The unit will cycle and is now ready to accept and identify bills.

Bill Acceptance test chart - Dipswitch settings								
8	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**Bill Acceptance Test Activated**
E/D					**X**	**X**	**X**	**Bill acceptance without cashbox and frame**
E/D				**X**	**X**	**X**	**X**	**Bill acceptance test with cashbox and frame**
X = ON E/D = Enable/Disable								

Bill Identification in Bill Acceptance

- Identification is done by counting the flashes on the LED after a bill is validated.
  - 1 flash = $1
  - 2 flashes = $2 (not programmed)
  - 3 flashes = $5
  - 4 flashes = $10
  - 5 flashes = $20
  - 6 flashes = $50
  - 7 flashes = $100
  - 8 flashes = Bar Code Ticket
    - Switch 1 needs to be turned off after bill acceptance test is started to enable Bar Code ticket reading

FORCED DOWN LOAD MODE

- Select the appropriate download speed (see chart)
  - Connect the WBA per the download tool requirement
  - Power up the WBA
- For multiple WBA download refer to the Multi-Download Adapter Kit Users Manual

Forced Download - Dipswitch settings								
8	**7**	**6**	**5**	**4**	**3**	**2**	**1**	Download Speed Selected
X	**X**							9,600 Baud - WBA 10 or WBA 12
X	**X**	**X**						19,200 Baud - WBA 10 or WBA 12
X	**X**	**X**					**X**	38,400 Baud - WBA 12
X = ON								

DT-004 Downloading

- **Connect the DT-004 to the PS15-006 power supply**
  - Or at game use adapter harness (p/n 400-100068 for WBA 10 or p/n 400100069 for WBA 12)
- **Install the appropriate master EPROM chip in the DT-004**
  - The default speed for downloading a single unit is 19200 baud
- **Connect the data harness to the WBA, turn on the DT-004**
  - On the DT-004 the Power light and Ready lights will illuminate
  - The LEDS on the WBA CPU will flash alternately
  - Press Start, the Ready light will start to flash indicating download in progress
  - The OK light will light and the DT-004 will beep when completed
  - To verify, press reset and version
    - If version between the EPROM and the WBA verified, the OK led will light

DT-104 Downloading

- Connect the data cable to the WBA
- Insert the proper Master EPROM into the DT-104 socket
- Power on the DT-104
- Scroll the screen to “SETUP” and verify the correct download speed – change if needed
- Ensure multi-mode is “OFF”
- Press Menu Button until “Program Menu” is displayed
  - CPU lights on the WBA should be alternating
  - Press “GO”
    - If no error “Device Ready” will be displayed
  - Press ”Start”
  - WBA will show download LED sequence on CPU LEDS
    - The display panel on the DT-104 will count down from the highest memory location
  - “Download Successful” will display on the panel when the download is completed successfully

PC Downloading

- Connect the PS15-006 power supply with a serial connection to the WBA and connect the 9 pin serial connection to the PC com port.
- Set the WBA dipswitches for the download speed to be used.
- Ensure the download program “DWN211.EXE” and the data file are in the same PC directory
- Enter the following command line from a DOS window
  - <Drive> \ <Folder> \ DWN211.EXE <filename.extension> b 252 246 n, then hit enter
    - Filename.extension = name of the data file to be downloaded
    - b = baud rate (0 = 9600, 1 = 19200, 2 = 38400)
    - 252 = Address (always use 252)
    - 246 = packet size (this is the largest possible packet size)
    - n = the COM port used (1 or 2)
  - Now press <shift> F to begin download
  - When complete press <shift> V to verify CRC information on the WBA

ERROR TABLE 1 – ABNORMAL CODES

Error No.	Description	Possible Causes	Follow-up Test
1	CASHBOX FULL	STACKER ENCODER	#3 - STACKING, #7 TRANSPORT SENSORS
2	STACKER JAM OR PUSHER UNIT TROUBLE	STACKER ENCODER OR PUSHER HOME SENSOR (S1)	#3 - STACKING, #7 TRANSPORT SENSORS
3	TRANSPORT COVER OPEN OR SOLENOID LEVER TROUBLE	TRANSPORT ENTRANCE SENSOR OR SOLENOID LEVER SENSOR	#7 TRANSPORT SENSORS
4	BLOCKED BILL PATH SENSOR	ALL HEAD AND TRANSPORT SENSORS	#6 - HEAD SENSORS, #7 TRANSPORT SENSORS
5	THE ACCEPTOR HEAD IS DETACHED, NOT CALIBRATED OR INCORRECT TYPE	CLEAN AND CALIBRATE. CHECK ALL HEAD SENSORS AND HEAD DETACHED TEST	#6 - HEAD SENSORS, #7 - ACCEPTOR HEAD DETACHED
6	TRANSPORT MOTOR TROUBLE OR THE SIGNAL IS NOT SENT FROM THE ENCODER	TRANSPORT MOTOR. TRANSPORT ENCODER	#1 TRANSPORT MOTOR, #7 VALIDATOR ENCODER SENSOR
8	SOLENOID LEVER TROUBLE	LEVER ASSY OR LEVER SENSOR	#5 - SOLENOID TEST, #7 SOLENOID LEVER SENSOR
10	CASHBOX NOT FULLY SEATED	CASHBOX SENSOR (S2)	#7 CASHBOX SENSOR

ERROR TABLE 2 – TEST MODE 4 ONLY

ERROR NO	DESCRIPTION	POSSIBLE CAUSES	FOLLOW-UP TEST
2	SOLENOID LEVER TROUBLE	SOLENOID SENSOR OR LEVER JAM	#5 SOLENOID TEST, #7 SOLENOID LEVER SENSOR
3	BLOCKED HEAD SENSOR	CLEAN AND CALIBRATE HEAD SENSORS	#6 - ACCEPTOR HEAD SENSORS
4	BLOCKED TRANSPORT SENSOR	TRANSPORT SENSORS	#7 - TRANSPORT SENSOR TEST
5	CASHBOX FULL	STACKER ENCODER	#3 STACKER TEST, #7 STACKER ENCODER SENSOR
6	PUSHER UNIT TROUBLE IN THE CASHBOX	STACKER ENCODER OR PUSHER HOME SENSOR (S1)	#7 STACKER ENCODER, #7 - STACKER HOME SENSOR
7	ACCEPTOR HEAD DETACHED, NOT CALIBRATED OR WRONG TYPE	CLEAN AND CALIBRATE. CHECK ALL HEAD SENSORS AND HEAD DETACHED TEST	#6 - HEAD SENSORS, #7 ACCEPTOR HEAD DETACHED

ERROR TABLE 3 - RETURN CODES

ERROR TABLE 3 RETURN CODES			
ERROR NO	**DESCRIPTION**	**POSSIBLE CAUSES**	**FOLLOW-UP TEST**
1	CROOKED INSERTION	ENTRANCE SENSORS	#6 - ENTRANCE SENSORS
2	MAGNETIC PATTERN ERROR CENTER	CENTER MAG SENSOR	
3	DETECTED A BILL IN THE PATHWAY AT IDLE	HPL, HPR ,HPC, OR TRANSPORT ENTRANCE SENSOR	#6 - HEAD SENSORS, #7 ENTRANCE
4	DATA AMPLITUDE ERROR	ALL IR SENSORS (POSSIBLE POWER SUPPLY)	#6 - HEAD SENSORS, #7 TRANSPORT
5	TIMING ERROR, THE BILL DID NOT REACH THE SENSORS WITHIN THE SPECIFIED PERIOD OF TIME	HPL, HPR, HPC OR TRANSPORT ENTRANCE SENSOR OR ENCODER SENSOR	#6 - HEAD SENSORS, #7 TRANSPORT ENTRANCE SENSOR, VALIDATOR ENCODER
7	ERROR IN PHOTOSENSOR	CLEAN AND CALIBRATE	#6 - HEAD SENSORS, #7 TRANSPORT SENSORS
8	LEVEL ERROR, THE BILL WAS UNUSUALLY DIRTY OR TWO OVERLAPPING BILLS	ENTRANCE SENSORS	#6 - HEAD SENSORS
9	RETURN COMMANDED BY DIPSWITCH	CHECK DIPSWITCHES	
10	RETURN COMMANDED BY THE HOST	CHECK MACHINE SETTINGS	
11	SOLENOID LEVER TROUBLE	SOLENOID LEVER OR SOLENOID SENSOR	#5 - SOLENOID TEST, #7 SOLENOID SENSOR
12	THE SENSORS DETECT MOVEMENT IN THE WRONG DIRECTION DURING TRANSFER TO THE CASHBOX	HPL, HPR, HPC, OR TRANSPORT ENTRANCE SENSOR	#6 - HEAD SENSORS, #7 TRANSPORT ENTRANCE SENSOR
13	THE BILL IS OF A LENGTH OTHER THAN SPECIFIED	HPL, HPR	#6 - HEAD SENSOR
14	COLOR PATTERN ERROR	HPL, HPR, HPC (Red Component)	#6 - HEAD SENSORS
15	MAGNETIC PATTERN ERROR LEFT OR RIGHT	LEFT OR RIGHT MAG SENSOR	

Sentry Bezel

- **The Sentry Bezel offers a visual display of validator operations**
- **Three indicator panels display information**
  - **Runway lights**
  - **Acceptable denominations and last bill inserted**
  - **Diagnostic Icons for troubleshooting**

Normal Operations

- **Runway Lights**
  - Flashing in an insertion mode – ready to receive bill
  - Flashing side to side, bill inserted and being validated

- **Denomination lights**
  - The denomination panel displays acceptable denominations by illuminating the denomination light in green
  - Un-acceptable denomination lights are not lit
  - The last bill denomination received and validated will be displayed in orange

Performance Indicators

- **Ambulance – BLUE**
  - Validator shut down – communication loss or requires immediate attention
- **Key – RED**
  - Problem requires cash box access
- **Crossed Circle – RED**
  - ROM Verification error or jammed motor – shop repair required
- **Eye – RED**
  - Possible cheat attempt
  - If eye lit only – multiple bill rejects in a short period of time

Performance Indicators, cont.

- **Cross Hammer & Wrench – RED**
  - Minor service required at the machine
- **JCM Logo – RED**
  - Cash box full indicator

WBA PART NUMBERS

- 550-100042 - PS15-006 Power Supply
- 400-100040 - WBA 10/11 Extension Cable
- 400-100110- WBA 12/13 Extension Cable
- 400-100109 - Adapter Cable WBA 10/11 to WBA 12/13
- 501-000032 - WBA Calibration Paper
- TM0100 - WBA Manual
- 960-000027 - WBA Quick Reference Manual
- 950-100063 – Sentry Quick Reference Card
- 960-000014 – Parts Catalog CD