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Model Number:
A6/V6/S6/N6 Model Number Detail

Model Number Configuration:

\[
\begin{array}{c}
XX - XXXXX - XXXX \\
A \quad B \quad C \quad D \quad E \quad F \quad G \quad H
\end{array}
\]

- A: Model Number
- B: Voltage & Interface (Hardware)
- C: Stacker Size
- D: Bezel
- E: Mounting Kit
- F: Protocol (Software)
- G: Currency
- H: Number of Denomination

*Example*: A6 - 13S0P - USD 4

1. Model Number:
   (A).

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>V6</td>
<td>Vending BA</td>
</tr>
<tr>
<td>A6</td>
<td>Amusement BA</td>
</tr>
<tr>
<td>S6</td>
<td>POWER SAVING BA</td>
</tr>
</tbody>
</table>

(B). Voltage & Interface (Hardware):

<table>
<thead>
<tr>
<th>Code</th>
<th>Voltage &amp; Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC 110V + Pulse</td>
</tr>
<tr>
<td>2</td>
<td>DC 12V + Pulse</td>
</tr>
<tr>
<td>3</td>
<td>AC 24V / DC 34V + MDB</td>
</tr>
<tr>
<td>4</td>
<td>AC 110V + RS232</td>
</tr>
<tr>
<td>5</td>
<td>DC 12V + RS232</td>
</tr>
<tr>
<td>6</td>
<td>DC 12V + MDB</td>
</tr>
<tr>
<td>7</td>
<td>AC 24V / DC 34V + RS232</td>
</tr>
<tr>
<td>8</td>
<td>AC 24V / DC 34V + Pulse</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

(C). Stacker Size:

<table>
<thead>
<tr>
<th>Code</th>
<th>Stacker Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Cassette</td>
</tr>
<tr>
<td>3</td>
<td>250 Note</td>
</tr>
<tr>
<td>5</td>
<td>500 Note</td>
</tr>
</tbody>
</table>
(D). Bezel :

<table>
<thead>
<tr>
<th>Code</th>
<th>Bezel</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>No Bezel</td>
</tr>
<tr>
<td>S</td>
<td>Standard Bezel</td>
</tr>
<tr>
<td>X</td>
<td>Extended Bezel</td>
</tr>
<tr>
<td>F</td>
<td>Fitted Bezel</td>
</tr>
<tr>
<td>D</td>
<td>Down stacker Bezel</td>
</tr>
<tr>
<td>H</td>
<td>Horizontal Bezel</td>
</tr>
</tbody>
</table>

(E). Mounting Kit :

<table>
<thead>
<tr>
<th>Code</th>
<th>Mounting Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Frame</td>
</tr>
<tr>
<td>C</td>
<td>Cover</td>
</tr>
<tr>
<td>O</td>
<td>N/A</td>
</tr>
</tbody>
</table>

(F). Protocol (for software) :

<table>
<thead>
<tr>
<th>Code</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Pulse 12V . 110V</td>
</tr>
<tr>
<td>M</td>
<td>MDB (Pulse + MDB)</td>
</tr>
<tr>
<td>R</td>
<td>RS-232 (Pulse + ICT002)</td>
</tr>
<tr>
<td>N</td>
<td>NISR</td>
</tr>
<tr>
<td>V</td>
<td>For Valley Pulse</td>
</tr>
<tr>
<td>1</td>
<td>Pulse + ICT004 (P)</td>
</tr>
<tr>
<td>2</td>
<td>Pulse + EBDS</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pulse + Phone Card Protocol (ICT001)</td>
</tr>
<tr>
<td>5</td>
<td>Pulse + Parallel Board</td>
</tr>
<tr>
<td>6</td>
<td>Pulse + MDB for Power Save</td>
</tr>
<tr>
<td>7</td>
<td>Pulse + 5V Enable</td>
</tr>
<tr>
<td>8</td>
<td>Pulse + ICT003</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

(G). Currency (For Example : USD=US Dollar, EUR= Euro) :

<table>
<thead>
<tr>
<th>Code</th>
<th>Currency Denomination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

(H). Number of Denomination :

<table>
<thead>
<tr>
<th>Code</th>
<th>Currency Denomination</th>
<th>Code</th>
<th>Currency Denomination</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
General Specification :

**Acceptance Rate**
96% or greater

**Bill insertion**
4-way Acceptance

**Acceptance Speed**
Approx. 3 seconds (including bill stacking)

**Interfaces**
Pulse
MDB (Multi-Drop Bus)
NISR

**Bill box Capacity**
Approx. 300 bills (200~300)
500 bills (300~500)
800 bills (750~800)

**Power Sources**
- 34V DC 1.5Amp (M.D.B)
- 12V DC 3 Amp
- 117V AC 0.2Amp (60HZ)
- 24V AC 1.5Amp (60HZ)

**Power Consumption**
Max 50 watts

**Environment Range**
Operating Temperature -15°C~60°C
Storage Temperature -30°C~70°C
Humidity : 30%~85% RH (no condensation)

Dimensions :

![Diagram showing dimensions in millimeters and inches]
Component Names:

- Cash box Assembly
  - (300 bills: B6-S3)
  - (500 bills: B6-S5)
  - (800 bills: B6-S8)

- LED Housing Assembly
- Sensor Housing Assembly
- Bezel Assembly
- Main Base Assembly
Installation:

There are two kinds of mounting kits.

1. Cover Style (3BA-STP005)

2. Frame Style (C13040)
For the **12V DC** version of the A6 bill validator, the harness (**part number** WEL-M007A) has a dual-in-line 30-pin peripheral connector at one end and a 9-pin mating connector at the other end. Connect the 30-pin connector to the side of the bill validator and the 9-pin connector to the 12V DC power cable (part no. CU-961-1, see pg. 16 for pin-out info).

© 9-pin connector pin-out assignments:
- Pin 1: INHIBIT +
- Pin 2: INHIBIT -
- Pin 3: Reserved
- Pin 4: Reserved
- Pin 5: 12V DC (Power)
- Pin 6: Reserved
- Pin 7: CREDIT +(N.O.)
- Pin 8: CREDIT - (Common)
- Pin 9: GND (Power)

© Dual-in-line 30-pin peripheral connector (A6, 12V DC) pin-out assignments:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>

- Pin 1: CREDIT(-)(Common)
- Pin 2: 12VDC (Power)
- Pin 3: ENABLE(-)
- Pin 4: Reserved
- Pin 5: INHIBIT (+)
- Pin 6: KEY
- Pin 7: Reserved
- Pin 8: Reserved
- Pin 9: Reserved
- Pin 10: GND (Power)
- Pin 11: Reserved
- Pin 12: Reserved
- Pin 13: Reserved
- Pin 14: Reserved
- Pin 15: Reserved
- Pin 16: CREDIT(+) (N.O.)
- Pin 17: Reserved
- Pin 18: ENABLE (+)
- Pin 19: KEY
- Pin 20: INHIBIT (-)
- Pin 21: Reserved
- Pin 22: Reserved
- Pin 23: Reserved
- Pin 24: Reserved
- Pin 25: Reserved
- Pin 26: Reserved
- Pin 27: Reserved
- Pin 28: Reserved
- Pin 29: Reserved
- Pin 30: Reserved

**Caution**

Turn off power before connecting or disconnecting the bill validator.
For the 117V AC version of the A6 bill validator, connect the 30-pin peripheral connector on one end of the harness (part no. WEL-M008-A) to the side of the unit and the 9-pin connector to the 117V AC power cable (WEL-M012, see pg. 13 for pin-out info).

9-pin connector pin-out assignments:

- Pin 1 NEUTRAL INHIBIT
- Pin 2 NEUTRAL ENABLE
- Pin 3 HOT ENABLE
- Pin 4 117V AC HOT (Power)
- Pin 5 Earth - Ground
- Pin 6 117V AC NEUTRAL (Power)
- Pin 7 CREDIT RELAY (N.O.)
- Pin 8 CREDIT RELAY (Common)
- Pin 9 Reserved

**IMPORTANT:** On 117V AC units, the Earth Ground must be located inside the machine.

Dual-in-line 30-pin peripheral connector (A6, 117V AC) pin-out assignments:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>

- Pin 1 - CREDIT_RELAY(COM)
- Pin 2 - Reserved
- Pin 3 - NEUTRAL ENABLE
- Pin 4 - 117VAC NEUTRAL (Power)
- Pin 5 - NEUTRAL INHIBIT
- Pin 6 - KEY
- Pin 7 - Reserved
- Pin 8 - Reserved
- Pin 9 - Reserved
- Pin 10 - Reserved
- Pin 11 - Reserved
- Pin 12 - Reserved
- Pin 13 - Reserved
- Pin 14 - Reserved
- Pin 15 - Reserved
- Pin 16 - CREDIT_RELAY(N.O.)
- Pin 17 - Reserved
- Pin 18 - HOT ENABLE
- Pin 19 - KEY
- Pin 20 - 117VAC HOT (Power)
- Pin 21 - EARTH GROUND
- Pin 22 - Reserved
- Pin 23 - Reserved
- Pin 24 - Reserved
- Pin 25 - Reserved
- Pin 26 - Reserved
- Pin 27 - Reserved
- Pin 28 - Reserved
- Pin 29 - Reserved
- Pin 30 - Reserved

**Caution**

Turn off power before connecting or disconnecting the bill validator.
Chapter 2

Cable:

- MDB BA Cable
  Part Number: WEL-M006

- 12V DC Pulse BA Cable
  Part Number: WEL-M007-A

- 12V DC Pulse Wiring Harness
  Part Number: CU-961-1

- 117V AC Pulse BA Cable
  Part Number: WEL-M008-A

- 117V AC NISR BA Cable
  Part Number: WEL-M013

- 117V AC Pulse Wiring Harness
  Part Number: WEL-M012

- RS232 Rj45 BA → PC Wiring Harness
  Part Number: WEL-V706
WEL-M006
(MDB for 34VDC)

Pin1 34VDC
Pin2 34VDC Power Return
Pin4 Master Receive
Pin5 Master Transmit
Pin6 Communication Common

1 BLUE
2 YELLOW
3
4 ORANGE
5 RED
6 GREEN

6C CABLE

HORN-3B

Pin6  Master Receive
Pin14  Master Transmit
Pin16  34VDC Power Return
Pin23  34VDC
Pin28  Communications Common
WEL-M007-A

(Pulse for +12VDC)
WEL-M012
(Pulse for 117VAC)

Pin 1 NEUTRAL INHIBIT
Pin 2 NEUTRAL ENABLE
Pin 3 HOT ENABLE
Pin 4 117VAC HOT (Power)
Pin 5 Earth Ground
Pin 6 117VAC NEUTRAL (Power)
Pin 7 CREDIT RELAY (N.O.)
Pin 8 CREDIT RELAY (Common)
Pin 9 Reserved

AMP CAP

1 YELLOW
2 RED
3 ORANGE
4 BLACK
5 GREEN
6 BLACK
7 BLUE
8 PURPLE
9

6C CABLE

18AWG XCZ (SPT-1)

Dimensions .551 Part NO: 17232-1

TERMINAL NO: 178360-1

(Back View)

.551 or 13.59

.163 or 4.14

(KEW) (SHBM1-4)

YELLOW
RED
ORANGE
GREEN
BLUE
PURPLE

YELLOW NEUTRAL INHIBIT
RED NEUTRAL ENABLE
ORANGE HOT ENABLE
GREEN Earth Ground
BLUE CREDIT RELAY (N.O.)
PURPLE CREDIT RELAY (Common)

AC
WEL-M013
(N.I.S.R. for 117VAC)

Pin 5A /DATA
Pin 5B /SEND
Pin 6a GND
Pin 7b /ACCEPT_ENABLE
Pin 8a /INTERRUPT
Pin 9b /OUT_OF_SERVICE

Pin 4 117 VAC HOT (Power)
Pin 6 117 VAC NEUTRAL (Power)
Pin 7 CREDIT RELAY_COM
Pin 8 CREDIT RELAY (N.O.)
WEL-M023
(N.I.S.R. for Pot of Gold)
CU-961-1

(Pulse for 12VDC)
Dip Switch Setting:
Supported bill  US$ 1, 5, 10, 20, (old 5, 10, 20), (new 20) 4 bills.

A6/V6 dip-switch settings and functions:

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>SW1</th>
<th>SW2</th>
<th>SW3</th>
<th>SW4</th>
<th>SW5</th>
<th>SW6</th>
<th>SW7</th>
<th>SW8</th>
<th>SW1</th>
<th>SW2</th>
<th>SW3</th>
<th>SW4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reject US$ 1</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept US$ 1</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reject US$ 5</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept US$ 5</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reject US$ 10</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept US$ 10</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reject US$ 20</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Accept US$ 20</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserved</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
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<tr>
<td>Reserved</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>High Acceptance</td>
<td>ON</td>
<td></td>
<td></td>
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<td>ON</td>
<td></td>
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</tr>
<tr>
<td>High Security</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harness disable</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harness enable</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhibit Active High</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhibit Active Low</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 pulse / one dollar</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 pulse / one dollar</td>
<td>ON</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 pulse / one dollar</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 pulse / one dollar</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse Speed</td>
<td>50ms on / 50ms off</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60ms on / 300ms off</td>
<td>ON</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30ms on / 50ms off</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>150ms on / 150ms off</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Collecting Bills:

1. Slide white button on top of Bill Validator. Lift up back of bill box.

2. Open the Cash box cover to take out bills.
Cleaning:

Residue on LEDs and sensors can cause bill jams and decrease acceptance rates. Clean internal parts periodically.

1. Turn off the power
2. Remove cash box & LED Assembly.
3. Use a soft cloth or cotton swab to clean internal parts and bill path. If the dirt cannot be removed easily, a standard head cleaner may be used.

Caution

1. Never use an organic solvent such as gasoline or paint thinner to clean the unit.
2. Replace the LED Housing Assembly first.
When a Bill is jammed in the Acceptor:

1. Take out Cash box & LED Housing Assembly.
2. Remove jammed bill.

Caution: Replace the LED Housing Assembly first.
Operation Flowchart:

1. **POWER ON**
   - CPU ROM RAM TEST
     - OK
     - YES TEST MODE
     - NO

2. **TEST MODE**
   - VALID STACKER TEST
     - OK
     - NO

3. **STAND BY**
   - UNEXPECTED SENSOR ON
     - YES
     - NO
   - ENABLE
     - NO
     - YES

4. **LED ON**
   - BILL INSERTED
     - NO
     - YES MOTOR FWD

5. **DATA SAMPLING**
   - SAMPLING END
     - YES
     - NO

6. **MOTOR STOP**
   - VALIDATE SAMPLING DATA
     - OK
     - INHSIF CONDMON
       - NO
     - BILL FEED OUT TO STACKER
       - FEED OK
         - NO
         - VEND OUTPUT
           - BILL STACK
             - STACK COMPLETE
               - A
               - B
               - C
               - D

7. **BILL REJECT**
   - OK
     - YES
     - NO (JAM)
       - LED OFF
       - BILL REMOVED

8. **STOP**
   - OK
     - YES
     - NO
Disassembly & Assembly Procedure:

1. Remove Cash Box

2. Remove 4 Screws on Bezel

3. Remove P.C.B Cover
4. Remove 3 screws from the CPU board and disconnect the 5 connectors on the underside of the board.

5. Press the release levers and slide out the LED Housing Assembly.
Disassembly Transfer Unit:

1. Remove 1 screw on the main base underside, then take out the transfer unit.
2. Remove 8 E-rings on both sides, to remove the press mechanism.
3. Remove 4 screws on top of motor, separate the motor & stacker/drive device frame.
Disassembly of Sensor Housing Unit:

1. Remove 2 screws and separate them.

2. Remove 1 screw on sensor board then take out the board.
Disassembly of Sensor Housing Unit:

1. Use a flat screwdriver to pop open the cover.

2. Remove 2 screws on the LED board & Stacker Sensor Board, then take out the 2 boards.
Trouble Shooting:

Introduction

Most failures in ICT bill acceptors occur from minor, easily corrected issues. Prior to doing any kind of maintenance it is important to make sure that the bill acceptor is completely disconnected from the machine and is not powered for safety reasons. Please keep safety in mind while doing repair work on any electrical apparatus.

Please keep in mind the following whenever repairs are effected on ICT products:

1. If the validator is not powering up, make sure that all cables and harnesses are correctly connected and that the unit is receiving power of the correct voltage from a functioning power supply.

2. Before updating firmware to correct a low acceptance rate error clean the LED housing to remove any dust, oils, or microscopic particles that may be interfering with the function of the validator.

3. It is important to remember that even though the A6 has automatically calibrating sensors, any time a board is changed the unit must manually be told to calibrate the sensor in order to ensure reliable acceptance.

4. All repairs should be performed following the repair manual, wiring diagrams, and disassembly procedures in the ICT RMA guide.

Classification of Failure

Bill acceptor failure can be broadly classified into the four following areas based off of observation of the operation state startup.

1. Entry into test mode fails.
2. Bill acceptor fails to completely initialize or power up.
3. Low acceptance rate.
4. The bills fail to follow the bill path smoothly.
Trouble Shooting Flow Charts

(1). Test mode fails to be entered

- Check connector to PC toll is not OK
  - NO
  - Power LED on CPU Board do not ON
    - NO
    - LED Adjustment out of Range
      - NO
      - Check Sensor Board do not work
        - NO
        - Transfer Motor do not work
          - NO
          - STACKER Motor do not work
            - NO
            - DIP Switch do not work
              - NO
              - INPUT SENSOR do not work
                - YES
  - YES
  - Power is supplied to CPU Board
    - NO
    - Check Power line hames
      - YES
      - Replace LED Board
        - YES
        - Adjustment LED out of Range
          - YES
          - Replace LED Board
        - NO
        - Replace LED Board
          - YES
          - Replace LED Board
(2). Bill acceptor error code

Number of flashes

- One, Bill jammed (see page 32)
- Two, Disable system (see page 33)
- Three, Sensor problem (see page 34)
- Five, Cash box missing (see page 35)
- Six, Cash box is full of bills (see page 36)

(3). Low acceptance rate

Low acceptance/ not accept bills
- Use TTA613 software to verify proper sensor values, If sensor 1,2,3,4,5 are over 240 during being validated by a white card. Replace LED Board ----(3BA-AA227-B)

Not accept specific bills
- Check DIP Switch setting refer to corresponding bills
- Has that problem been solved?
  - YES, Test units with several bills
  - NO, Use TTA613 tools to check software version. If incorrect reload correct software.

- Use TTA613 tools to verify proper sensor value, Replace defective parts as necessary.

Has the problem been solved?
  - YES
  - NO
Bill Acceptor Error Code (One Blink)

Bill Acceptor Error Code

One Blink (Bill Jam)

Remove bills from cash box and close box. Is the bill path clear?

Is the diagnostic LED blinking?

NO

Insert several Bills for testing or refer to other error code

YES

Remove Cash box Check Anti-Pull Back Lever (A21840). Push and release it to see if it goes back to proper position.

Is the lever Anti-Pull Back set back to its proper position?

NO

Replace (spring, Anti-Pullback)---NO (G10340) or refer to other error code.

YES

Replace (Sensor Board, Anti-Pullback)---(3BA-AA227-G)

Is the LED blinking?

NO

YES

Is the bill path clear?
Bill Acceptor Error Code (Two Blinks)

Bill Acceptor Error Code

Two Blinks (Disabled)

Check DIP Switch 7 to verify the setting (Harness Disable/OFF, Harness Enable/ON)

Insert several Bills for testing.

Is the LED blinking?

NO

YES

Check your machine’s external controller to verify harness enable setting. Refer to A6 110V/12V Inhibit settings.
Bill Acceptor Error Code (Three Blinks)

Bill Acceptor Error Code

Three Blinks (Sensor Problems)

Use TTA613 Tools to calibrate sensors to proper value

Is the LED blinking?

NO

Verify sensor calibration for proper values ** Recommend to replace LED Board---(3BA-AA227-A) if value on LED 1, 2, 3, 4, 5 over 240 after calibration **

YES

Verify new LED Board sensor values.

Replace LED Board---(3BA-AA227-A)

Is the LED blinking?

NO

Test it with several bills.

YES

Clean Lower and Upper Bill path and recalibrate or replace sensor board---(3BA-AA27-D). Check all connectors for the LED Board, CPU Board looking for assembly errors.
Bill Acceptor Error Code (Five Blinks)

1. Test units with several Bills.
2. Is the LED blinking?
   - NO: Replace different cash box
   - YES: Use finger to block Stacker Sensor Board (3BA-AA227-C)
3. Is the LED blinking?
   - NO: Replace Stacker Sensor Board (3BA-AA227-C)
   - YES: Reset Cash Box
Bill Acceptor Error Code (Six Blinks)

- Bill Acceptor Error Code
- Six Blinks (Bill box is Full)
- Reset Cash Box

Test unit with several Bills.

Is the LED blinking?

- NO
  - Test unit with several Bills.
- YES
  - Power down Unit, Remove Cash Box, Power Back on again to verify if (Stacker Cap)---(A21220) set properly?

Is the LED blinking?

- NO
  - Test unit with several Bills.
- YES
  - Replace (Motor Assembly Stacker)---(3MB-MOT02001)
(4). Bill Jam

Bill Jam

- Bill Jam in the stacker
  - YES: Replace New Cash Box.
  - NO: Call ICT Tech Support Department.

- Bill Jam in the Bill Path
  - NO: Check if anything is blocking the bill path or has been vandalized, Check (Lever Anti-pullback) ---(A21840)

Has that problem been solved?

- YES: Test unit with several Bills.
- NO:
(5). No Led Status, No Error Code

1. No LED Status, No Error Code
   - Does the machine startup?
     - NO: Refer to power failure guide
     - YES: Proceed to next step

2. Are the LEDs Blinking in the front?
   - NO: Replace LED Board
   - YES: Insert several Bills for testing

3. Does the Bill Acceptor show an Error Code?
   - NO: Proceed to previous step
   - YES: Check all connectors & Refer to error coding number
(6). Noisy Motor at stacking

Noisy Motor at stacking

Check if the stacker cap has properly set? Remove cash box and reset it.

Has that problem been solved?

- YES
  - Insert several Bills for testing.

- NO
  - Replace (Motor assembly stacker)--- (3MB-MOT02001)
(7). Noisy Motor at startup

Noisy Motor at startup

Check that belts are been properly set?
Look for any assembly errors.

Has that problem been solved?

YES
Insert several Bills for testing.

NO
Replace (Motor assembly driver)---(3MB-MOT01001)
(8). Power Up Failure

- **Power Up Failure**
- **Live Power Source?**
  - YES: Is the correct voltage (110V/12V) being used? Is that harness right for the voltage requirement?
  - NO: Use Live Outlet
- **Harness Missing Pins have a short?**
  - NO: Replace CPU Board
  - YES: Replace Harness
- **Use proper harness or cable for desired power supply**
(9). Wrong Credit Output

Wrong Credit Output

Check DIP Switch setting on Bank 2 to set proper timing.

Has that problem been solved?

Insert several Bills for testing.

Verify BA credit output independently.

Check to see if a credit multiplier is being used on the machine.

Has that problem been solved?

Harness Replace CPU board (3BA-AA227-A4) if necessary.

Call ICT tech. support.
Adjustment Manual & Download Firmware:

FP-001 Programmer User Manual

Product Overview:
The ICT FP-001 Programmer is designed to easily update the A6/A7 Series Bill Acceptor Flash ROM.

Cable Connection:
   (PC-------COM1 Port) (Programmer-------COM2 Port)
2. Connecting RJ-45 cable from PH port on the Programmer to Bill Acceptor’s RJ-45 port.

Operation Manual:

Function 1: (PC-------Programmer)
1. Switch the programmer to L1 position, the L1 on the top LED will stay green  
   (PC => Programmer)
2. The L4 LED will be flashing. If not, please push the Reset/Start key to reset  
   Programmer. Also make sure the programming dipswitch is on Normal Position.
3. Launch application software Flash16.exe. located on your floppy/CD. Make sure  
   Choose the CPU type is MB90F549, Speed as 16MHZ, COM1 port (or COM2  
   depends on your computer configurations). Press "Search" to load the Currency  
   Flash File that you want to use. Click Auto.

4. Remember During the download, the L4 LED will become orange and flash. When  
   it’s finished. The L4 LED will stay orange. Press Reset/Start key to reset the  
   Programmer. The LED will now flash as normal green. The new Flash File will be  
   stored on the FP-001 Programmer now.
Function 2: (PC---------Target)

1. Switch the programmer to L2 position, L2 LED on the top will stay green (PCTarget)
2. The L4 LED will be flashing. If not, Please push the Reset/Start key to reset Programmer and Bill Acceptor. Also make sure programming dipswitch is on Program position.
3. Repeat Step 3 as shown function 1 to launch application software Flash16.exe located on your floppy/CD to download new Flash File directly to Bill Acceptor. That means at this time. The FP-001 Programmer just like a path to communicate between you PC and Bill Acceptor. No Flash file will stores on FP-001 Programmer.

Function 3: (Programmer---------Target)

1. Switch the programmer to L3 position, the L3 on the top LED will stay green (Programmer Target)
2. The L4 LED will be flashing, if not please switch to L1 and push the Reset/Start key to reset download programmer to make sure it flashes. Switch back to L3 after it is flashing. Also make sure Programming dipswitch is on Normal position.
3. At this time it's ready to program the Bill Acceptor by using FP-001 Programmer.
4. Press the Start Switch one time, Wait a few seconds. The L4 will turn red and flashes. It means it's programming, erasing and verifying.

LED Display As Follow:
(1). RED (Starts)
(2). OFF (Erasing)
(3). RED Flashing (Verifying)
(4). ORANGE (Finish)
(5). When it is finished. L4 LED will stay orange. Now, Press Start switch again to let the Bill Acceptor auto adjust sensor. Remember in the front of the Bill Acceptor LED will stay green. Insert a testing white card; The BA will eject the Card after finished adjusting.
(6). Press Start key one more time, The Bill Acceptor will automatically power cycle it. The Bill Acceptor just finished Updating new flash.
(7). Now you can take this pre-programmed FP-001 Programmer to another Bill Acceptor. Just simply connecting the RJ-45 cable from PH port on the Programmer to Bill Acceptor's RJ-45 port. Just repeat Function 3 (Programmer--------Target) to program every Bill Acceptor on this time.

(For Most Customer, just go to Function 3 for updating units. Because all the programmers has been pre-programmed at factory) For Download & Debug Units:
If there is any issue happened after update new software. Please check out the floppy/CD came with the download device. Insert floppy/CD into the computer and open disk A.

We recommend you copy the entire disk to your local hard drive before running it.

Go into Sensor Adjusting Tools folder. There is a self-executable file called TTA613.

After you run this software, it will bring up the following screen:
Chapter 5

FP-001 Trouble Shooting Flow Chart

Can not download Flash from PC

Check all cables and connectors has been proper set? Verify PC Tools FW16.exe setting.

Has that problem been solved?

YES

Use TTA613 tools to verify sensor value. Or refer to corresponding error code.

NO

Replace(CPU Board)---(3BA-AA227-A)

Can not download Flash from FP-001

Check that all cables and connectors are properly set?

Has that problem been solved?

YES

Use TTA613 tools to verify sensor value. Or refer to corresponding error code.

NO

Use FW16.exe PC Tools to download directly to the BA
Diagnostic Software:

To use this software with your ICT A6/V6 Bill Acceptor, you will need the following:

1. An available serial port on your computer
2. ICT Programmer (Part Number FP-001)

Wiring

1. Connect the female end of the download cable (WEL-087) to your computer
2. Connect the male end of the download cable to COM2 on the FP-001
3. Connect the RJ45 Cable to FP-001 and the Bill Acceptor

*Make sure that on the FP-001 switch setting is on L2 and Normal*

Main Screen

![Main Screen Diagram]

**Reset**

 Resets the testing sofware. To reset the bill acceptor, press the PSEST/START button on FP-001.

**System Information**

This area will show the current firmware version of your bill accepor. Press the RESET/START button to retrieve the information.
**COM Setting**

Changes the COM port which the computer uses.

**Test Mode**

When you click on Test Mode, these options will appear.

**Exit**

Click here to exit test mode.
Chapter 5

IO TEST
When you click IO Test, this box will appear on the right hand corner of the program window:

Left/Right Input
The bill insertion sensors. When an object is in blocking them, they will display 1.

Pulse
Generate a pulse to emulate credit output.

DipSW1
The dipswitch settings for the bank of eight dipswitches on the side of the bill acceptor.

DipSW2
The dipswitch settings for the bank of four dipswitches on the side of the bill acceptor.

Hook Signal
The hook sensor in the back of the bill acceptor. When the sensor is open and unblocked, it will display 0. When an object is blocking the sensor and depressing the teeth, it will display 1.

Stacker Open
When the stacker is correctly attached, it will display 0. Otherwise, it will display 1.

Exit
Click here to close this dialogue box.

BILL MOTOR TEST
When the Bill Motor Test is pressed, this box will appear on the right side of the program window.

Motor Stop
Stop the motor.

Motor Forward
Move the motor forwards. The speed of the motor per 20ms will appear in the top of the window.

Motor Backward
Move the motor backwards. The speed of the motor per 20ms will appear in the top of the window.

Exit
Click here to close this dialogue box.
STACKER MOTOR TEST
When Stacker Motor Test is pressed, this box will appear on the right of the program window.

Stacking Active
Stacking motor test. When a successful stack is complete, a 0 will appear in the top window, otherwise a 1 will appear.

Exit
Click here to close this dialogue box.

AUTO VR-ADJUST
When Auto VR-Adjust is pressed, this box will appear on the right of the program window.

Insert the white calibration card to start the adjusting process. The bill acceptor will draw the card in one inch, and return the white calibration card automatically when it is finished.

Any defective sensors will be noted by a red background in the sensor window.

Exit
Click here to close this dialogue box.
**VR TEST**

When Auto VR Test is pressed, this box will appear on the right side of the program window.

**All LED Light**

When this button is pressed, all LEDs will be turned on inside of the bill acceptor. You will see the screen on the left. Any one of the sensors (SEN1-SEN5) that has a value of less than 255 indicates defective sensor.

**Exit**

Click here to close this dialogue box.
Parts and Assembly Diagram:

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<tr>
<th>Order</th>
<th>Part number</th>
<th>Appellation</th>
<th>Quantity</th>
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<tr>
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<td>CPU Board cover</td>
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<td>2</td>
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<td>CPU board(V6)</td>
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<td>BA-680</td>
<td>Ø 3x6 Screw with washer</td>
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<td>A22000</td>
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<td>G1022A</td>
<td>Spring</td>
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<td>7</td>
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<td>8</td>
<td>A21820</td>
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